



# Contract Documents

Technical Specifications, General and Supplementary Condition and  
Forms for

## Town of Nags Head Capital Improvement Project- FY 24/25

### Street Resurfacing Waterline Improvements Drainage Improvements

Town of Nags Head  
Nags Head, NC

### Bid Documents

February 24, 2025

### Town of Nags Head Dept. of Public Services

P.O. Box 99  
Nags Head, NC 27959  
252.441.6221 phone  
252.441.3350 fax  
[www.nagsheadnc.gov](http://www.nagsheadnc.gov)



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## **Town of Nags Head**

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**TOWN OF NAGS HEAD  
c/o ANDY GARMAN, TOWN MANAGER  
NAGS HEAD, NORTH CAROLINA**

### **FY 24/25 CAPITAL IMPROVEMENT PROJECT**

**STREET RESURFACING  
WATER MAIN IMPROVEMENTS  
DRAINAGE IMPROVEMENTS**

#### **ADVERTISEMENT FOR INFORMAL BIDS**

Sealed Bids for the construction of the **FY 24/25 CAPITAL IMPROVEMENT PROJECT- STREET RESURFACING, WATER MAIN IMPROVEMENTS, AND DRAINAGE IMPROVEMENTS PROJECT** will be received, by **TOWN OF NAGS HEAD** in the **CONFERENCE ROOM** of the **MUNICIPAL COMPLEX** located at **5401 S. CROATAN HWY., NAGS HEAD, NORTH CAROLINA**, until **2:00 PM** local time on **MARCH 13, 2025** at which time the Bids received will be **PUBLICLY** opened and read. The Project shall generally consist of the following improvements:

General Base Bid Items: Includes mobilization, bonds, traffic control measures and select fill.

#### **1. Street Resurfacing**

- a. **S. Memorial Ave:** consists of paving of approximately 147,951 square feet of asphalt surface overlay including S. Memorial Ave. between intersection with Bittern Street and intersection of E. 8<sup>th</sup> St. Paving thickness will be 1.75", a minimum 4' wide asphalt edge milling for concrete driveway transitions and a minimum 12' wide asphalt milling for street intersection pavement transitions.
- b. **E. Albatross St.:** consists of paving of approximately 14,553 square feet of asphalt surface overlay along E. Albatross St. spanning from Wrightsville Ave to S. Virginia Dare Trail and includes E. Albatross Beach Access. Paving thickness will be 1.75" thickness until S. Memorial Ave, and 1" from S. Memorial Ave to end of beach access, a minimum 4' wide asphalt edge milling for concrete driveway transitions and a minimum 12' wide asphalt milling for street intersection pavement transitions.
- c. **E. Atlas St.:** consists of paving of approximately 7,137 square feet of asphalt surface overlay along Atlas St. spanning from Wrightsville Ave to S. Memorial Ave. Paving thickness will be 1.75" thickness, a minimum 4' wide asphalt edge milling for concrete driveway transitions and a minimum 12' wide asphalt milling for street intersection pavement transitions.
- d. **E. Driftwood St:** consists of paving of approximately 22,905 square feet of asphalt surface overlay along Driftwood St from S. Croatan Hwy. to S. Virginia Dare Trail.

- Paving thickness will be 1.75" thickness, a minimum 4' wide asphalt edge milling for concrete driveway transitions and a minimum 12' wide asphalt milling for street intersection pavement transitions.
- e. **E. Abalone St.:** consists of paving of approximately 14,958 square feet of asphalt surface overlay including E Abalone St. between Wrightsville Ave. and S Virginia Dare Trail and includes the E. Abalone St. beach access. Paving thickness will be 1.75", a minimum 4' wide asphalt edge milling for concrete driveway transitions and a minimum 12' wide asphalt milling for street intersection pavement transitions.
  - f. **S. Gannett Ave.:** consists of paving of approximately 13,268 square feet of asphalt surface overlay along S. Gannett Ave. spanning from the intersection of S. Gannett Ave and W. 8<sup>th</sup> St. to the southern terminus of S. Gannett Ave. Paving thickness will be 1.75" thickness, a minimum 4' wide asphalt edge milling for concrete driveway transitions and a minimum 12' wide asphalt milling for street intersection pavement transitions.
  - g. **ADD ALTERNATE: E. Gallery Row:** consists of paving of approximately 13,962 square feet of asphalt surface overlay along S. Gallery Row spanning from the intersection of Gallery Row and S. Wrightsville Ave. to the intersection of S. Gallery Row and S. Virginia Dare Trail. Paving thickness will be 1.75" thickness, a minimum 4' wide asphalt edge milling for concrete driveway transitions and a minimum 12' wide asphalt milling for street intersection pavement transitions.

## 2. Water Main Improvements

- a. **S. Memorial Ave. 6-inch water main** consists of approximately 837 linear feet of water main construction along the west side of South Memorial Avenue from north of the intersection of S. Memorial Avenue and Ario Street and continuing to south of the intersection of South Memorial Ave. and Atlas St., Nags Head, North Carolina. Construction consists of installation of a 6-inch water main to be connected to existing water main near the intersection with S. Memorial Ave. and Atlas St. with all appurtenances including but not limited to: valves, fire hydrants, hydrant relocations, tapping sleeves, bends, tees, crosses, elbows, service connections, fittings, supports and restraints. Water main shall achieve separations and setbacks as required by local and state minimum design criteria and as indicated on the plans. Approximately 1,435 square feet of permanent pavement patch will accompany this work.
- b. **Ario St. 6-inch water main:** consists of approximately 373 linear feet of water main construction along the north side of Ario Street beginning north of the intersection of S. Wrightsville Ave. and Ario St. and continuing to north of the intersection of Ario St. and S. Memorial Ave., Nags Head, North Carolina. Construction consists of installation of a 6-inch water main to be connected to the new water main along S. Memorial Ave. with all appurtenances including but not limited to: valves, fire hydrants, hydrant relocations, tapping sleeves, bends, tees, crosses, elbows, service connections, fittings, supports and restraints. Water main shall achieve separations and setbacks as required by local and state minimum design criteria and as indicated on the plans. Approximately 535 square feet of permanent pavement patch will accompany this work.
- d. **Albatross St. 6-inch water main:** consists of approximately 730 linear feet water main construction along the north side of Albatross St. beginning north of the intersection of Albatross St. and S. Wrightsville Ave. and continuing east to the north side of the intersection of Albatross St. and S. Virginia Dare Trail. Construction consists of installation of a 6-inch water main to be connected to existing water main near the intersection of Albatross St. and S. Virginia Dare Trail with all appurtenances including but not limited to: valves, fire hydrants, hydrant relocations, tapping sleeves, bends, tees, crosses, elbows, service connections, fittings,

supports and restraints. Water main shall achieve separations and setbacks as required by local and state minimum design criteria and as indicated on the plans. Approximately 740 square feet of permanent pavement patch will accompany this work.

- e. **Atlas Street 6-inch water main:** consists of approximately 327 linear feet of water main construction along the south side of Atlas Street beginning south of the intersection Atlas Street and South Wrightsville Avenue and continuing east to the intersection of Atlas Street and South Memorial Avenue. Construction consists of installation of a 6-inch water main to be connected to the new water main near the intersection of Atlas Street and South Memorial Avenue with all appurtenances including but not limited to: valves, fire hydrants, hydrant relocations, tapping sleeves, bends, tees, crosses, elbows, service connections, fittings, supports and restraints. Water main shall achieve separations and setbacks as required by local and state minimum design criteria and as indicated on the plans.

### 3. Drainage Improvements

- a. **S. Memorial Ave. at Albatross St.:** consists of drainage infrastructure removal and replacement at the intersection of S. Memorial Ave. and Albatross St. including approximately 56 linear feet of new 30" HPPP pipe. The scope of work consists of one new drop inlet (NCDOT 840.14) with frame and grate (NCDOT 840.16) and (2) pipe connections. Includes removing/demolition of existing 18" RCP, 24" RECP and CMP storms pipe and replacing with new infrastructure as described. Approximately 200 square feet permanent pavement patch will accompany this work. New infrastructure includes all appurtenances and fittings to achieve watertight connections, and all compacted pipe bedding and backfill with clean backfill material for stable pipe installation.
- b. **S. Memorial Ave. at Atlas St.:** consists of drainage infrastructure removal and replacement at the intersection of S. Memorial Ave. and Atlas Street including approximately 46 linear feet of new 18" HPPP pipe. The scope of work consists of one new drop inlet (NCDOT 840.14) with frame and grate (NCDOT 840.16) with one pipe connection. Includes removal/demolition of existing 15" CMP and replacing with new infrastructure as described. Approximately 265 square feet of permanent pavement patch will accompany this work. New infrastructure includes all appurtenances and fittings to achieve watertight connections, and all compacted pipe bedding and backfill with clean backfill material for stable pipe installation.
- c. **S. Memorial Ave. at Driftwood St.:** consists of drainage infrastructure removal and replacement at the intersection of S. Memorial Ave. and Driftwood St including approximately 70 linear feet of new 18" HPPP with drop inlets (NCDOT 840.14) with frame and grate (NCDOT 840.16), and approximately 104 linear feet of new 30" HPPP with drop inlets and 5' stub out, includes a total of (5) new drop inlets with (8) connections. Includes removal/demolition of existing 15" CMP and 24" CMP and replacing with new infrastructure, and connecting to existing piping, as described. Approximately 800 square feet of permanent pavement patch will accompany this work. New infrastructure includes all appurtenances and fittings to achieve watertight connections, and all compacted pipe bedding and backfill with clean backfill material for stable pipe installation.
- d. **S. Memorial Ave. at E. Gallery Row: St.:** consists of drainage infrastructure removal and replacement at the intersection of S. Memorial Ave at E. Gallery Row including approximately 147 linear feet of new 30" HPPP pipe, and approximately 38 linear feet of 18" HPPP, with drop inlets (NCDOT 840.14) with frame and grate (840.16) and one Storm Manhole (NCDO T840.31) with frame and grate (NCDOT 840.54) Includes a total of (4) drop inlets, with 7 connections, and 1 Storm Manhole Junction Box, with 2 connections. Includes removal/demolition of existing 18" CMP. Approximately 860 square feet of pavement patch will accompany this work. New infrastructure includes all appurtenances and fittings to achieve

watertight connections, and all compacted pipe bedding and backfill with clean backfill material for stable pipe.

- e. **S. Memorial Ave. at Abalone St.:** consists of drainage infrastructure removal and replacement at the intersection of S. Memorial Ave at Abalone St. including approximately 39 linear feet of new 24" HPPP pipe with drop inlet (NCDOT 840.14) with frame and grate (NCDOT 840.16) and a flared end section. Includes removal/demolition of existing 18" CMP. Approximately 250 square feet of permanent pavement patch will accompany this work. New infrastructure includes all appurtenances and fittings to achieve watertight connections, and all compacted pipe bedding and backfill with clean backfill material for stable pipe installation.
- f. **South Wrightsville Ave. at Albatross St:** consists of drainage infrastructure installation including approximately 40 linear feet of new 15" HPPP cross culvert under Albatross Street to be connected to existing infrastructure including 2 new drop inlets (NCDOT 840.14) with frame and grate (840.16). each with one connection. Approximately 220 square feet of permanent pavement patch will accompany this work. New infrastructure includes all appurtenances and fittings to achieve watertight connections, and all compacted pipe bedding and backfill with clean backfill material for stable pipe installation. Also includes construction of approximately 263 linear feet of new drainage swales, approximately 1' deep with 4:1 side slopes.
- g. **S. Memorial Ave. at E. Bonnett St.:** consists of drainage infrastructure removal and replacement at the intersection of S. Memorial Ave at E. Bonnett St including approximately 64 linear feet of new 24" HPPP pipe and approximately 130 linear feet of new 24" HPPP continuing south along S. Memorial Ave. New pipe to connect to existing drop inlets/junction box as shown on the plans. Includes removal/demolition of existing 24" CMP. Approximately 264 square feet of permanent pavement repair will accompany this work. New infrastructure includes all appurtenances and fittings to achieve watertight connections.
- h. **S. Memorial Ave. at Bittern St.:** consists of drainage infrastructure removal and replacement at the intersection of S. Memorial Ave at Bittern St. including approximately 124 linear feet of new 30" HPPP pipe with drop inlets (NCDOT 840.14) with grate and frame (NCDOT 840.16) and a flared end section, and approximately 82 linear feet of new 18" HPPP with drop inlets with frame and grate for a total of (4) new drop inlets with (8) total connections. Includes removal/demolition of existing 15 and 18" CMP. Approximately 1,175 square feet of permanent pavement repair will accompany this work. New infrastructure includes all appurtenances and fittings to achieve watertight connections, and all compacted pipe bedding and backfill with clean backfill material for stable pipe installation.
- i. **ADD ALTERNATE: E. Gallery Row Resurfacing and Drainage Improvements:** consists of paving of approximately 13,962 square feet of asphalt surface overlay along S. Gallery Row spanning from the intersection of Gallery Row and S. Wrightsville Ave. to the intersection of S. Gallery Row and S. Virginia Dare Trail. Paving thickness will be 1.75" thickness, a minimum 4' wide asphalt edge milling for concrete driveway transitions and a minimum 12' wide asphalt milling for street intersection pavement transitions.

Additionally, this **add alternate** consists of installation of approximately 468 linear feet of new 30" dia. HPPP, 33 linear feet of new 18" dia. HPPP and 44 l.f. of 22"x36" corrugated aluminum arch pipe to replace an existing cross street pipe along S Wrightsville Ave. The scope of work will include the addition of one new concrete junction box (NCDOT 840.31) with manhole frame & cover with (3) pipe connections and the replacement of an existing junction box with a new concrete junction box (NCDOT 840.31) with NCDOT 840.54 frame and grate and (4) connecting pipe connections. Approximately 400 square feet of permanent pavement patch will accompany this work. The alignment is proposed along the southern right-of-way margin of

Gallery Row between S. Memorial Ave and S Wrightsville Ave and S. Wrightsville Ave. from the Gallery Row intersection to approximately 2407 S. Wrightsville Ave. New and replacement infrastructure shall include all appurtenances and fittings to achieve watertight connection, and all compacted pipe bedding and clean backfill material for a stable pipe installation.

- j. **ADD ALTERNATE: S. Memorial Ave. South of Bonnet St.:** consists of drainage infrastructure installation along S. Memorial Ave. south of Bonnett St. including approximately 130 linear feet of new 24” HPPP. New infrastructure includes all appurtenances and fittings to achieve watertight connections, and all compacted pipe bedding and backfill with clean backfill material for stable pipe installation.

Bids will be received for a single prime Contract. Bids shall be on a lump sum price basis. Bids shall be on a lump sum price basis, with additive alternate bid items as indicated in the Bid Form.

The Issuing Office for the Bidding Documents is: TOWN OF NAGS HEAD DEPARTMENT OF ADMINISTRATION, 5401 S. CROATAN HWY, NAGS HEAD, NC, 27959, (P) 252.441.6221. COMPLETE PLANS, SPECIFICATIONS, AND CONTRACT DOCUMENTS MAY BE OBTAINED BY CONTACTING DAVID RYAN, PE, TOWN ENGINEER FOR THE TOWN OF NAGS HEAD, email address [david.ryan@nagsheadnc.gov](mailto:david.ryan@nagsheadnc.gov). Prospective Bidders may examine printed copies of the Bidding Documents at the Issuing Office and in the upstairs lobby at Nags Head Town Hall, 5401 S. Croatan Hwy. on Mondays through Fridays between the hours of **8:30 am and 4:00 pm** and may obtain printed copies of the Bidding Documents from the Issuing Office as described above.

Electronic copies, as “zipped” portable document format (PDF) files, of the Bidding Documents shall be made available for download from the Town of Nags Head Website at <http://www.nagsheadnc.gov/Bids.aspx> at no charge. Bidders are encouraged to obtain the project information via this method. **Please notify the issuing office after downloading documents when utilizing this method.**

All Contractors submitting bids shall possess a valid North Carolina Contractors License and may be required to provide evidence satisfactory to the Town of Nags Head, in its sole judgment, of qualifications and experience sufficient for the successful accomplishment of a project of this nature and size within the time requirements set forth in the Contract Documents.

The successful Bidder **may** be required to furnish a Construction Payment and Construction Performance Bond for 100% of the contract amount as security for the faithful performance and the payment of all bills and obligations arising from the performance of the Contract.

Owner reserves the right to reject any or all Bids, including without limitation the rights to reject any or all nonconforming, nonresponsive, unbalanced, or conditional Bids, and to reject the Bid of any Bidder if Owner believes that it would not be in the best interest of Owner to make an award to that Bidder. For comparison purposes alternates will be accepted, following the order of priority established in the Bid Form, until doing so would cause the budget to be exceeded. After determination of the Successful Bidder based on this comparative process and on the responsiveness, responsibility, and other factors, the award may be made to said Successful Bidder on its Base Bid and any combination of its additive alternate Bids for which Owner determines funds will be available at the time of award and in the interest of the Town of Nags Head. Owner also reserves the right to waive informalities or minor defects and to reject any or all bids.

Bidders are encouraged to engage in efforts to recruit HUB participation for construction projects. Historically Underutilized Businesses, (HUB) is defined as a business that is at least owned and managed by minority or socially and economically disadvantaged persons. A “minority person” is a citizen or lawful permanent resident who is either (i) African American; (ii) Hispanic; (iii) Asian American; (iv) American Indian; (v) handicapped; or (vi) female. A “socially and economically disadvantaged person” is someone

who qualifies as such under federal law. The Town of Nags Head HUB goal is 10%. Each firm or individual submitting a bid shall not discriminate on any basis prohibited by applicable Federal or State law in employment or provision of services.

The selected bidder shall certify that it has no knowledge of any circumstances which will cause a conflict of interest in providing services and that no contingent fees have been paid for soliciting or securing the contract.

The bidder to whom this project is awarded shall have until **June 9, 2025**, to Substantially Complete the Project. Other provisions as to time of Full Completion, project milestones, Liquidated Damages, etc. are set forth in the Contract Documents.

All bids must be submitted on the Town provided bid form, which is attached hereto. No bids shall be considered unless all required information is included as specified.

This the **25<sup>TH</sup>** day of **February, 2025**.

**++ END OF ADVERTISEMENT FOR BIDS ++**

This document has important legal consequences; consultation with an attorney is encouraged with respect to its use or modification. This document should be adapted to the particular circumstances of the contemplated Project and the controlling Laws and Regulations.

## INSTRUCTIONS TO BIDDERS FOR CONSTRUCTION CONTRACTS

Prepared by



Issued and Published Jointly by



## INSTRUCTIONS TO BIDDERS

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## **ARTICLE 1 – DEFINED TERMS**

1.01 Terms used in these Instructions to Bidders have the meanings indicated in the General Conditions and Supplementary Conditions. Additional terms used in these Instructions to Bidders have the meanings indicated below:

A. *Issuing Office* – The office from which the Bidding Documents are to be issued.

## **ARTICLE 2 – COPIES OF BIDDING DOCUMENTS**

2.01 Complete sets of the Bidding Documents may be obtained from the Issuing Office in the number and format stated in the advertisement or invitation to bid.

2.02 Complete sets of Bidding Documents shall be used in preparing Bids; neither Owner nor Engineer assumes any responsibility for errors or misinterpretations resulting from the use of incomplete sets of Bidding Documents.

2.03 Owner and Engineer, in making copies of Bidding Documents available on the above terms, do so only for the purpose of obtaining Bids for the Work and do not authorize or confer a license for any other use.

## **ARTICLE 3 – QUALIFICATIONS OF BIDDERS**

3.01 To demonstrate Bidder's qualifications to perform the Work, Bidder shall submit with its Bid (a) written evidence establishing its qualifications such as financial data, previous experience, and present commitments, and (b) the following additional information:

A. Evidence of Bidder's authority to do business in the state where the Project is located.

B. Bidder's state or other contractor license number, if applicable.

C. Subcontractor and Supplier qualification information; coordinate with provisions of Article 12 of these Instructions, "Subcontractors, Suppliers, and Others."

3.02 A Bidder's failure to submit required qualification information within the times indicated may disqualify Bidder from receiving an award of the Contract.

3.03 No requirement in this Article 3 to submit information will prejudice the right of Owner to seek additional pertinent information regarding Bidder's qualifications.

3.04 Bidder is advised to carefully review those portions of the Bid Form requiring Bidder's representations and certifications.

## **ARTICLE 4 – SITE AND OTHER AREAS; EXISTING SITE CONDITIONS; EXAMINATION OF SITE; OWNER'S SAFETY PROGRAM; OTHER WORK AT THE SITE**

4.01 *Site and Other Areas*

A. The Site is identified in the Bidding Documents. By definition, the Site includes rights-of-way, easements, and other lands furnished by Owner for the use of the Contractor. Any additional lands required for temporary construction facilities, construction equipment, or storage of materials and equipment, and any access needed for such additional lands, are to be obtained and paid for by Contractor.

#### 4.02 *Existing Site Conditions*

- A. Subsurface and Physical Conditions; Hazardous Environmental Conditions
  - 1. The Supplementary Conditions identify:
    - a. those reports known to Owner of explorations and tests of subsurface conditions at or adjacent to the Site.
    - b. those drawings known to Owner of physical conditions relating to existing surface or subsurface structures at the Site (except Underground Facilities).
    - c. reports and drawings known to Owner relating to Hazardous Environmental Conditions that have been identified at or adjacent to the Site.
    - d. Technical Data contained in such reports and drawings.
  - 2. Owner will make copies of reports and drawings referenced above available to any Bidder on request. These reports and drawings are not part of the Contract Documents, but the Technical Data contained therein upon whose accuracy Bidder is entitled to rely, as provided in the General Conditions, has been identified and established in the Supplementary Conditions. Bidder is responsible for any interpretation or conclusion Bidder draws from any Technical Data or any other data, interpretations, opinions, or information contained in such reports or shown or indicated in such drawings.
- B. Underground Facilities: Information and data shown or indicated in the Bidding Documents with respect to existing Underground Facilities at or adjacent to the Site are set forth in the Contract Documents and are based upon information and data furnished to Owner and Engineer by owners of such Underground Facilities, including Owner, or others.
- C. Adequacy of Data: Provisions concerning responsibilities for the adequacy of data furnished to prospective Bidders with respect to subsurface conditions, other physical conditions, and Underground Facilities, and possible changes in the Bidding Documents due to differing or unanticipated subsurface or physical conditions appear in Paragraphs 5.03, 5.04, and 5.05 of the General Conditions. Provisions concerning responsibilities for the adequacy of data furnished to prospective Bidders with respect to a Hazardous Environmental Condition at the Site, if any, and possible changes in the Contract Documents due to any Hazardous Environmental Condition uncovered or revealed at the Site which was not shown or indicated in the Drawings or Specifications or identified in the Contract Documents to be within the scope of the Work, appear in Paragraph 5.06 of the General Conditions.

#### 4.03 *Site Visit and Testing by Bidders*

- A. Bidder shall conduct the required Site visit during normal working hours, and shall not disturb any ongoing operations at the Site.
- B. Bidder is not required to conduct any subsurface testing, or exhaustive investigations of Site conditions.
- C. On request, and to the extent Owner has control over the Site, and schedule permitting, the Owner will provide Bidder access to the Site to conduct such additional examinations, investigations, explorations, tests, and studies as Bidder deems necessary for preparing and submitting a successful Bid. Owner will not have any obligation to grant such access if doing so is not practical because of existing operations, security or safety concerns, or restraints on Owner's authority regarding the Site.

- D. Bidder shall comply with all applicable Laws and Regulations regarding excavation and location of utilities, obtain all permits, and comply with all terms and conditions established by Owner or by property owners or other entities controlling the Site with respect to schedule, access, existing operations, security, liability insurance, and applicable safety programs.
- E. Bidder shall fill all holes and clean up and restore the Site to its former condition upon completion of such explorations, investigations, tests, and studies.

#### 4.04 *Owner's Safety Program*

- A. Site visits and work at the Site may be governed by an Owner safety program. As the General Conditions indicate, if an Owner safety program exists, it will be noted in the Supplementary Conditions.

#### 4.05 *Other Work at the Site*

- A. Reference is made to Article 8 of the Supplementary Conditions for the identification of the general nature of other work of which Owner is aware (if any) that is to be performed at the Site by Owner or others (such as utilities and other prime contractors) and relates to the Work contemplated by these Bidding Documents. If Owner is party to a written contract for such other work, then on request, Owner will provide to each Bidder access to examine such contracts (other than portions thereof related to price and other confidential matters), if any.

### **ARTICLE 5 – BIDDER'S REPRESENTATIONS**

#### 5.01 It is the responsibility of each Bidder before submitting a Bid to:

- A. examine and carefully study the Bidding Documents, and any data and reference items identified in the Bidding Documents;
- B. visit the Site, conduct a thorough, alert visual examination of the Site and adjacent areas, and become familiar with and satisfy itself as to the general, local, and Site conditions that may affect cost, progress, and performance of the Work;
- C. become familiar with and satisfy itself as to all Laws and Regulations that may affect cost, progress, and performance of the Work;
- D. carefully study all: (1) reports of explorations and tests of subsurface conditions at or adjacent to the Site and all drawings of physical conditions relating to existing surface or subsurface structures at the Site that have been identified in the Supplementary Conditions, especially with respect to Technical Data in such reports and drawings, and (2) reports and drawings relating to Hazardous Environmental Conditions, if any, at or adjacent to the Site that have been identified in the Supplementary Conditions, especially with respect to Technical Data in such reports and drawings;
- E. consider the information known to Bidder itself; information commonly known to contractors doing business in the locality of the Site; information and observations obtained from visits to the Site; the Bidding Documents; and the Site-related reports and drawings identified in the Bidding Documents, with respect to the effect of such information, observations, and documents on (1) the cost, progress, and performance of the Work; (2) the means, methods, techniques, sequences, and procedures of construction to be employed by Bidder; and (3) Bidder's safety precautions and programs;
- F. agree, based on the information and observations referred to in the preceding paragraph, that at the time of submitting its Bid no further examinations, investigations, explorations,

tests, studies, or data are necessary for the determination of its Bid for performance of the Work at the price bid and within the times required, and in accordance with the other terms and conditions of the Bidding Documents;

- G. become aware of the general nature of the work to be performed by Owner and others at the Site that relates to the Work as indicated in the Bidding Documents;
- H. promptly give Engineer written notice of all conflicts, errors, ambiguities, or discrepancies that Bidder discovers in the Bidding Documents and confirm that the written resolution thereof by Engineer is acceptable to Bidder;
- I. determine that the Bidding Documents are generally sufficient to indicate and convey understanding of all terms and conditions for the performance and furnishing of the Work; and
- J. agree that the submission of a Bid will constitute an incontrovertible representation by Bidder that Bidder has complied with every requirement of this Article, that without exception the Bid and all prices in the Bid are premised upon performing and furnishing the Work required by the Bidding Documents.

#### **ARTICLE 6 – PRE-BID CONFERENCE**

~~6.01 A pre bid conference will be held at am on at the Town of Nags Head Board Room located at 5401 S. Croatan Hwy., Nags Head, North Carolina, 27959 at 2:00 pm on XXXXX XX, 2021. Attendance at the Pre-Bid conference is strongly encouraged for all bidders, but is not mandatory.~~

#### **ARTICLE 7 – INTERPRETATIONS AND ADDENDA**

- 7.01 All questions about the meaning or intent of the Bidding Documents are to be submitted to Engineer in writing. Interpretations or clarifications considered necessary by Engineer in response to such questions will be issued by Addenda delivered to all parties recorded as having received the Bidding Documents. Questions received less than seven days prior to the date for opening of Bids may not be answered. Only questions answered by Addenda will be binding. Oral and other interpretations or clarifications will be without legal effect.
- 7.02 Addenda may be issued to clarify, correct, supplement, or change the Bidding Documents.

#### **ARTICLE 8 – BID SECURITY**

- 8.01 In accordance with N.C.G.S. 143-129(b); 143-132 a Bid must be accompanied by Bid security made payable to Owner in an amount of 5% percent of Bidder's maximum Bid price (determined by adding the base bid and all alternates) and in the form of a certified check, bank money order, or a Bid bond (on the form included in the Bidding Documents) issued by a surety meeting the requirements of the General Conditions. The bid deposit/bond must accompany the bid at the time the bid is filed.
- 8.02 The successful bidder forfeits his bid deposit/bond if he does not execute the contract within 10 days after award or fails to provide performance or payment bonds.

#### **ARTICLE 9 – CONTRACT TIMES**

- 9.01 The number of days within which, or the dates by which, the Work is to be substantially completed, and completed and ready for final payment, are set forth in the Agreement.

## ARTICLE 10 – LIQUIDATED DAMAGES

- 10.01 Provisions for liquidated damages, if any, for failure to timely attain a Milestone, Substantial Completion, or completion of the Work in readiness for final payment, are set forth in the Agreement.

## ARTICLE 11 – SUBSTITUTE AND “OR-EQUAL” ITEMS

- 11.01 The Contract for the Work, as awarded, will be on the basis of materials and equipment specified or described in the Bidding Documents, and those “or-equal” or substitute or materials and equipment subsequently approved by Engineer prior to the submittal of Bids and identified by Addendum. No item of material or equipment will be considered by Engineer as an “or-equal” or substitute unless written request for approval has been submitted by Bidder and has been received by Engineer at least 15 days prior to the date for receipt of Bids. Each such request shall comply with the requirements of the General Conditions. The burden of proof of the merit of the proposed item is upon Bidder. Engineer decision of approval or disapproval of a proposed item will be final. If Engineer approves any such proposed item, such approval will be set forth in an Addendum issued to all prospective Bidders. Bidders shall not rely upon approvals made in any other manner.
- 11.02 All prices that Bidder sets forth in its Bid shall be based on the presumption that the Contractor will furnish the materials and equipment specified or described in the Bidding Documents, as supplemented by Addenda. Any assumptions regarding the possibility of post-Bid approvals of “or-equal” or substitution requests are made at Bidder’s sole risk.

## ARTICLE 12 – SUBCONTRACTORS, SUPPLIERS, AND OTHERS

- 12.01 A Bidder shall be prepared to retain specific Subcontractors, Suppliers, or other individuals or entities for the performance of the Work if required by the Bidding Documents (most commonly in the Specifications) to do so. If a prospective Bidder objects to retaining any such Subcontractor, Supplier, or other individual or entity, and the concern is not relieved by an Addendum, then the prospective Bidder should refrain from submitting a Bid.
- 12.02 Subsequent to the submittal of the Bid, Owner may not require the Successful Bidder or Contractor to retain any Subcontractor, Supplier, or other individual or entity against which Contractor has reasonable objection.
- 12.03 The apparent Successful Bidder, and any other Bidder so requested, shall within five days after Bid opening, submit to Owner a list of the Subcontractors or Suppliers proposed for the scope of the Work.
- If requested by Owner, such list shall be accompanied by an experience statement with pertinent information regarding similar projects and other evidence of qualification for each such Subcontractor, Supplier, or other individual or entity. If Owner or Engineer, after due investigation, has reasonable objection to any proposed Subcontractor, Supplier, individual, or entity, Owner may, before the Notice of Award is given, request apparent Successful Bidder to submit an acceptable substitute, **without an increase in Bid price**.
- 12.04 If apparent Successful Bidder declines to make any such substitution, Owner may award the Contract to the next lowest Bidder that proposes to use acceptable Subcontractors, Suppliers, or other individuals or entities. Declining to make requested substitutions will **not** constitute grounds for forfeiture of the Bid security of any Bidder. Any Subcontractor, Supplier, individual, or entity so listed and against which Owner or Engineer makes no written objection prior to the

giving of the Notice of Award will be deemed acceptable to Owner and Engineer subject to subsequent revocation of such acceptance as provided in Paragraph 7.06 of the General Conditions.

### **ARTICLE 13 – PREPARATION OF BID**

- 13.01 The Bid Form is included with the Bidding Documents.
- A. All blanks on the Bid Form shall be completed in ink and the Bid Form signed in ink. Erasures or alterations shall be initialed in ink by the person signing the Bid Form. A Bid price shall be indicated for each section, Bid item, alternate, adjustment unit price item, and unit price item listed therein.
- B. If the Bid Form expressly indicates that submitting pricing on a specific alternate item is optional, and Bidder elects to not furnish pricing for such optional alternate item, then Bidder may enter the words “No Bid” or “Not Applicable.”
- 13.02 A Bid by a corporation shall be executed in the corporate name by a corporate officer (whose title must appear under the signature), accompanied by evidence of authority to sign. The corporate seal shall be affixed and attested by the corporate secretary or an assistant corporate secretary. The corporate address and state of incorporation shall be shown.
- 13.03 A Bid by a partnership shall be executed in the partnership name and signed by a partner (whose title must appear under the signature), accompanied by evidence of authority to sign. The partnership’s address for receiving notices shall be shown.
- 13.04 A Bid by a limited liability company shall be executed in the name of the firm by a member or other authorized person and accompanied by evidence of authority to sign. The state of formation of the firm and the firm’s address for receiving notices shall be shown.
- 13.05 A Bid by an individual shall show the Bidder’s name and address for receiving notices.
- 13.06 A Bid by a joint venture shall be executed by an authorized representative of each joint venturer in the manner indicated on the Bid Form. The joint venture’s address for receiving notices shall be shown.
- 13.07 All names shall be printed in ink below the signatures.
- 13.08 The Bid shall contain an acknowledgment of receipt of all Addenda, the numbers of which shall be filled in on the Bid Form.
- 13.09 Postal and e-mail addresses and telephone number for communications regarding the Bid shall be shown.
- 13.10 The Bid shall contain evidence of Bidder’s authority and qualification to do business in the state where the Project is located, or Bidder shall covenant in writing to obtain such authority and qualification prior to award of the Contract and attach such covenant to the Bid. Bidder’s state contractor license number, if any, shall also be shown on the Bid Form.

### **ARTICLE 14 – BASIS OF BID**

#### **14.01 Base Bid with Alternates**

Bidders shall submit a Bid on a lump sum basis for the base Bid and include a separate price for each alternate described in the Bidding Documents and as provided for in the Bid Form. The price for each alternate will be the amount added to or deleted from the base Bid if Owner selects the alternate.

In the comparison of Bids, alternates will be applied in the same order of priority as listed in the Bid Form.

#### **ARTICLE 15 – SUBMITTAL OF BID**

- 15.01 With each copy of the Bidding Documents, a Bidder is furnished one separate unbound copy of the Bid Form, and, if required, the Bid Bond Form. The unbound copy of the Bid Form is to be completed and submitted with the Bid security and the other documents required to be submitted under the terms of Article 7 of the Bid Form.
- 15.02 A Bid shall be received no later than the date and time prescribed and at the place indicated in the advertisement or invitation to bid and shall be enclosed in a plainly marked package with the Project title (and, if applicable, the designated portion of the Project for which the Bid is submitted), the name and address of Bidder, and shall be accompanied by the Bid security and other required documents. If a Bid is sent by mail or other delivery system, the sealed envelope containing the Bid shall be enclosed in a separate package plainly marked on the outside with the notation "BID ENCLOSED." A mailed Bid shall be addressed to **Mr. Andy Garman, Town Manager, Town of Nags Head, 5401 S. Croatan Hwy., Nags Head, NC 27959**
- 15.03 Bids received after the date and time prescribed for the opening of bids, or not submitted at the correct location or in the designated manner, will not be accepted and will be returned to the Bidder unopened.

#### **ARTICLE 16 – MODIFICATION AND WITHDRAWAL OF BID**

- 16.01 A Bid may be withdrawn by an appropriate document duly executed in the same manner that a Bid must be executed and delivered to the place where Bids are to be submitted prior to the date and time for the opening of Bids. Upon receipt of such notice, the unopened Bid will be returned to the Bidder.
- 16.02 If a Bidder wishes to modify its Bid prior to Bid opening, Bidder must withdraw its initial Bid in the manner specified in Paragraph 16.01 and submit a new Bid prior to the date and time for the opening of Bids.
- 16.03 If within 72 hours after Bids are opened any Bidder files a duly signed written notice with Owner and promptly thereafter demonstrates to the reasonable satisfaction of Owner that there was a material and substantial mistake in the preparation of its Bid that was clerical in nature (not a judgement error), and the bid was submitted in good faith that Bidder may withdraw its Bid, and the Bid security will be returned. The Town of Nags Head shall promptly hold a hearing on the bidder's request and shall issue a written decision within 5 days of the hearing. Thereafter, if the Work is rebid, that Bidder will be disqualified from further bidding on the Work or provide materials, equipment, or labor to a contractor or subcontractor performing on the contract.

#### **ARTICLE 17 – OPENING OF BIDS**

- 17.01 Bids will be opened at the time and place indicated in the advertisement or invitation to bid and, unless obviously non-responsive, read aloud publicly. An abstract of the amounts of the base Bids and major alternates, if any, will be made available to Bidders after the opening of Bids.

## **ARTICLE 18 – BIDS TO REMAIN SUBJECT TO ACCEPTANCE**

18.01 All Bids will remain subject to acceptance for the period of time stated in the Bid Form, but Owner may, in its sole discretion, release any Bid and return the Bid security, as applicable, prior to the end of this period.

## **ARTICLE 19 – EVALUATION OF BIDS AND AWARD OF CONTRACT**

19.01 Owner reserves the right to reject any or all Bids, including without limitation, nonconforming, nonresponsive, unbalanced, or conditional Bids. Owner will reject the Bid of any Bidder that Owner finds, after reasonable inquiry and evaluation, to not be responsible. If Bidder purports to add terms or conditions to its Bid, takes exception to any provision of the Bidding Documents, or attempts to alter the contents of the Contract Documents for purposes of the Bid, then the Owner will reject the Bid as nonresponsive; provided that Owner also reserves the right to waive all minor informalities not involving price, time, or changes in the Work.

19.02 If Owner awards the contract for the Work, such award shall be to the responsible Bidder submitting the lowest responsive Bid.

19.03 Evaluation of Bids

A. In evaluating Bids, Owner will consider whether or not the Bids comply with the prescribed requirements, and such alternates, unit prices, and other data, as may be requested in the Bid Form or prior to the Notice of Award.

B. For the determination of the apparent low Bidder when unit price bids are submitted, Bids will be compared on the basis of the total of the products of the estimated quantity of each item and unit price Bid for that item, together with any lump sum items.

C. Bid prices will be compared after adjusting for differences in time of Substantial Completion (total number of calendar days to substantially complete the Work) designated by Bidders. The adjusting amount will be determined at the rate set forth in the Agreement for liquidated damages for failing to achieve Substantial Completion, or such other amount that Owner has designated in the Bid Form.

1. The method for calculating the lowest bid for comparison will be the summation of the Bid price shown in the Bid Form plus the product of the Bidder-specified time of Substantial Completion (in calendar days) times the rate for liquidated damages (in dollars per day).

2. This procedure is only used to determine the lowest bid for comparison and contractor selection purposes. The Contract Price for compensation and payment purposes remains the Bid price shown in the Bid Form.

19.04 In evaluating whether a Bidder is responsible, Owner will consider the qualifications of the Bidder and may consider the qualifications and experience of Subcontractors and Suppliers proposed for those portions of the Work for which the identity of Subcontractors and Suppliers must be submitted as provided in the Bidding Documents.

19.05 Owner may conduct such investigations as Owner deems necessary to establish the responsibility, qualifications, and financial ability of Bidders and any proposed Subcontractors or Suppliers.

## **ARTICLE 20 – BONDS AND INSURANCE**

20.01 The General Conditions, as may be modified by the Supplementary Conditions, sets forth Owner's requirements as to performance and payment bonds and insurance. When the Successful Bidder

delivers the Agreement (executed by Successful Bidder) to Owner, it shall be accompanied by required bonds and insurance documentation.

#### **ARTICLE 21 – SIGNING OF AGREEMENT**

21.01 When Owner issues a Notice of Award to the Successful Bidder, it shall be accompanied by the unexecuted counterparts of the Agreement along with the other Contract Documents as identified in the Agreement. Within 15 days thereafter, Successful Bidder shall execute and deliver the required number of counterparts of the Agreement (and any bonds and insurance documentation required to be delivered by the Contract Documents) to Owner. Within ten days thereafter, Owner shall deliver one fully executed counterpart of the Agreement to Successful Bidder, together with printed and electronic copies of the Contract Documents as stated in Paragraph 2.02 of the General Conditions.

#### **ARTICLE 22 – SALES AND USE TAXES**

22.01 Each successful bidder shall follow the procedure outlined and attached to the bid proposal form for sales tax expenditures.

22.02 The Contractor shall provide a sales tax statement certifying the amount of sales taxes paid for the work provided under the contract. Manufacturers are not exempt from paying North Carolina sales taxes for providing an item directly to the Town of Nags Head. Manufacturers making a retail sale to the Town of Nags Head are liable for collection and remitting of the taxes on the sale in accordance with the N.C State regulation #42. If you have any questions about the sales tax requirements for the State of North Carolina contact the Sales Tax Division, Department of Revenue at (919) 733-3661

#### **ARTICLE 23 – CONTRACTS TO BE ASSIGNED-DELETED.**

#### **ARTICLE 24 – MINORITY BUSINESS GOAL**

24.01 Town of Nags Head Policy (Pending Amendment and Adoption)

A. The Town of Nags Head prohibits discrimination in any manner on any basis prohibited by applicable Federal or State Law and will pursue an affirmative policy of fostering, promoting and conducting business with women and minority owned business enterprises.

B. It is the policy of the Town to facilitate the establishment, preservation, and strengthening of small businesses and businesses owned by women and minorities and to encourage their participation in the Town's procurement activities. Every effort should be made by the Contractor/Subcontractor/Supplier to use minorities or women-owned businesses in order to reach the above stated goal. Toward that end, the Town encourages these firms to compete and encourages non-minority firms to provide for the participation of small businesses and businesses owned by women and minorities through subcontracting, partnerships, joint ventures, and other contractual opportunities. Compliance and exceptions to the participation goal will be reviewed on each individual project.

1. The Minority Business Guidelines pursuant to North Carolina General Statute Section 143-128 (c) as originally enacted and effective June 28,1989.

a. The term "Minority Business" means business;

- 1) In which at least fifty-one percent is owned by one or more minority persons, or in the case of a corporation, in which at least fifty-one percent of the stock is owned by one or more minority persons; and
  - 2) Of which the management and daily business operations are controlled by one or more of the minority persons who own it.
- b. The term "Minority Person" means a person who is a citizen or lawful permanent resident of the United States and who is:
- 1) African American, that is, a person having origins in any of the black racial groups in Africa:
  - 2) Hispanic, that is, a person of Spanish or Portuguese culture with origins in Mexico, South or Central America, or the Caribbean Islands, regardless of race:
  - 3) Asian American, that is, a person having origins in any of the original peoples of the Far East, Southeast Asia and Asia, the Indian subcontinent, the Pacific Islands:
  - 4) American Indian or Alaskan Native, that is, a person having origins in any of the original peoples of North America: or
  - 5) Female.
2. Nothing in these instructions or the contract(s) awarded shall be construed to require bidders, contractors, or the Town to award contracts or subcontracts to or to make purchases of materials or equipment from minority business contractors, subcontractors, or suppliers who do not submit the lowest responsible bid or bids.
3. The Guidelines for Recruitment and Selection of Minority Businesses for Participation in Town Construction Contracts are hereby made a part of these contract documents. These guidelines shall apply to all contractors regardless of ownership.
4. Minority Business Subcontract Goals
- a. The goals for participation by minority firms as subcontractors on this project have been set at 10%.
  - b. The bidder must identify on its bid, the minority business that will be utilized on the project with corresponding total dollar value of the bid and affidavit (Affidavit A) listing good faith efforts or affidavit (Affidavit B) of self-performance work, if the bidder will perform work under contract by its own workforce as required by G.S. 143-128.2 (c) and G.S. 143-128 (f).
  - c. The lowest responsible bidder must execute and provide Affidavit C that includes a description of the portion of work to be executed by minority businesses, expressed as a percentage of the total contract price, which is equal to or more than the applicable goal: OR
  - d. Execute and provide Affidavit D that includes a description of the portion of work to be executed by minority businesses, expressed as a percentage of the total contract price, with documentation of Good Faith Effort, if the percentage is not equal to the applicable goal: OR
  - e. Execute and provide Affidavit B which includes sufficient information for the Town to determine that the bidder does not customarily subcontract work on this type of project.

- f. The Bidder(s) shall adhere to the Minority Business Minimum Compliance Requirements as located in the Project Forms Section.
  - g. **The above information must be provided as required. Failure to submit these documents is ground for rejection of bid.**
5. Actions to be Taken by the Bidder(s)
- a. The Bidder(s) agrees to follow the Minority Business Guidelines and exercise a good faith effort to recruit and select Minority Business for participation in any contract awarded to the Bidder on this Project to the fullest extent consistent with the efficient and economic performance of the contract awarded.
  - b. The Bidder(s) shall provide a completed list of awards which have been or will be offered to minority subcontractors and suppliers and a list of others which were recruited. The form provided herein shall be utilized for this reporting.
  - c. The Bidder(s) shall provide a list of any changes in the subcontractors and suppliers with the pay requests when submitted, to indicate any change in status of minority businesses used on this project.
  - d. The Contractor shall keep records of the contacts made in obtaining the bid information and number of attempts to get minority businesses to respond, as well as other methods utilized to obtain minority participation. Copies of this information will be required upon acknowledgement of being the low bidder and shall be provided with the contracts when completed for submittal to the Town for award.
6. Minority Business Information to be prepared and provided by Bidder(s)
- The following forms are provided herein, Project Forms:
- a. Execute and provide Nondiscrimination Clause form:
  - b. Execute and provide the Identification of Minority Business Participation form:  
AND
  - c. Execute and provide Affidavit A/Affidavit B/Affidavit C/Affidavit D as described in Section 24.01.4 above.

# STANDARD GENERAL CONDITIONS OF THE CONSTRUCTION CONTRACT

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## ARTICLE 1 – DEFINITIONS AND TERMINOLOGY

### 1.01 *Defined Terms*

- A. Wherever used in the Bidding Requirements or Contract Documents, a term printed with initial capital letters, including the term's singular and plural forms, will have the meaning indicated in the definitions below. In addition to terms specifically defined, terms with initial capital letters in the Contract Documents include references to identified articles and paragraphs, and the titles of other documents or forms.
1. *Addenda*—Written or graphic instruments issued prior to the opening of Bids which clarify, correct, or change the Bidding Requirements or the proposed Contract Documents.
  2. *Agreement*—The written instrument, executed by Owner and Contractor, that sets forth the Contract Price and Contract Times, identifies the parties and the Engineer, and designates the specific items that are Contract Documents.
  3. *Application for Payment*—The form acceptable to Engineer which is to be used by Contractor during the course of the Work in requesting progress or final payments and which is to be accompanied by such supporting documentation as is required by the Contract Documents.
  4. *Bid*—The offer of a Bidder submitted on the prescribed form setting forth the prices for the Work to be performed.
  5. *Bidder*—An individual or entity that submits a Bid to Owner.
  6. *Bidding Documents*—The Bidding Requirements, the proposed Contract Documents, and all Addenda.
  7. *Bidding Requirements*—The advertisement or invitation to bid, Instructions to Bidders, Bid Bond or other Bid security, if any, the Bid Form, and the Bid with any attachments.
  8. *Change Order*—A document which is signed by Contractor and Owner and authorizes an addition, deletion, or revision in the Work or an adjustment in the Contract Price or the Contract Times, or other revision to the Contract, issued on or after the Effective Date of the Contract.
  9. *Change Proposal*—A written request by Contractor, duly submitted in compliance with the procedural requirements set forth herein, seeking an adjustment in Contract Price or Contract Times, or both; contesting an initial decision by Engineer concerning the requirements of the Contract Documents or the acceptability of Work under the Contract Documents; challenging a set-off against payments due; or seeking other relief with respect to the terms of the Contract.
  10. *Claim*—(a) A demand or assertion by Owner directly to Contractor, duly submitted in compliance with the procedural requirements set forth herein: seeking an adjustment of Contract Price or Contract Times, or both; contesting an initial decision by Engineer concerning the requirements of the Contract Documents or the acceptability of Work under the Contract Documents; contesting Engineer's decision regarding a Change Proposal; seeking resolution of a contractual issue that Engineer has declined to address; or seeking other relief with respect to the terms of the Contract; or (b) a demand or assertion by Contractor directly to Owner, duly submitted in compliance with the procedural requirements set forth herein, contesting Engineer's decision

regarding a Change Proposal; or seeking resolution of a contractual issue that Engineer has declined to address. A demand for money or services by a third party is not a Claim.

11. *Constituent of Concern*—Asbestos, petroleum, radioactive materials, polychlorinated biphenyls (PCBs), hazardous waste, and any substance, product, waste, or other material of any nature whatsoever that is or becomes listed, regulated, or addressed pursuant to (a) the Comprehensive Environmental Response, Compensation and Liability Act, 42 U.S.C. §§9601 et seq. (“CERCLA”); (b) the Hazardous Materials Transportation Act, 49 U.S.C. §§5101 et seq.; (c) the Resource Conservation and Recovery Act, 42 U.S.C. §§6901 et seq. (“RCRA”); (d) the Toxic Substances Control Act, 15 U.S.C. §§2601 et seq.; (e) the Clean Water Act, 33 U.S.C. §§1251 et seq.; (f) the Clean Air Act, 42 U.S.C. §§7401 et seq.; or (g) any other federal, state, or local statute, law, rule, regulation, ordinance, resolution, code, order, or decree regulating, relating to, or imposing liability or standards of conduct concerning, any hazardous, toxic, or dangerous waste, substance, or material.
12. *Contract*—The entire and integrated written contract between the Owner and Contractor concerning the Work.
13. *Contract Documents*—Those items so designated in the Agreement, and which together comprise the Contract.
14. *Contract Price*—The money that Owner has agreed to pay Contractor for completion of the Work in accordance with the Contract Documents. .
15. *Contract Times*—The number of days or the dates by which Contractor shall: (a) achieve Milestones, if any; (b) achieve Substantial Completion; and (c) complete the Work.
16. *Contractor*—The individual or entity with which Owner has contracted for performance of the Work.
17. *Cost of the Work*—See Paragraph 13.01 for definition.
18. *Drawings*—The part of the Contract that graphically shows the scope, extent, and character of the Work to be performed by Contractor.
19. *Effective Date of the Contract*—The date, indicated in the Agreement, on which the Contract becomes effective.
20. *Engineer*—The individual(s) or entity(s) named as such in the Agreement.
21. *Field Order*—A written order issued by Engineer which requires minor changes in the Work but does not change the Contract Price or the Contract Times.
22. *Hazardous Environmental Condition*—The presence at the Site of Constituents of Concern in such quantities or circumstances that may present a danger to persons or property exposed thereto. The presence at the Site of materials that are necessary for the execution of the Work, or that are to be incorporated in the Work, and that are controlled and contained pursuant to industry practices, Laws and Regulations, and the requirements of the Contract, does not establish a Hazardous Environmental Condition.
23. *Laws and Regulations; Laws or Regulations*—Any and all applicable laws, statutes, rules, regulations, ordinances, codes, and orders of any and all governmental bodies, agencies, authorities, and courts having jurisdiction.
24. *Liens*—Charges, security interests, or encumbrances upon Contract-related funds, real property, or personal property.

25. *Milestone*—A principal event in the performance of the Work that the Contract requires Contractor to achieve by an intermediate completion date or by a time prior to Substantial Completion of all the Work.
26. *Notice of Award*—The written notice by Owner to a Bidder of Owner’s acceptance of the Bid.
27. *Notice to Proceed*—A written notice by Owner to Contractor fixing the date on which the Contract Times will commence to run and on which Contractor shall start to perform the Work.
28. *Owner*—The individual or entity with which Contractor has contracted regarding the Work, and which has agreed to pay Contractor for the performance of the Work, pursuant to the terms of the Contract.
29. *Progress Schedule*—A schedule, prepared and maintained by Contractor, describing the sequence and duration of the activities comprising the Contractor’s plan to accomplish the Work within the Contract Times.
30. *Project*—The total undertaking to be accomplished for Owner by engineers, contractors, and others, including planning, study, design, construction, testing, commissioning, and start-up, and of which the Work to be performed under the Contract Documents is a part.
31. *Project Manual*—The written documents prepared for, or made available for, procuring and constructing the Work, including but not limited to the Bidding Documents or other construction procurement documents, geotechnical and existing conditions information, the Agreement, bond forms, General Conditions, Supplementary Conditions, and Specifications. The contents of the Project Manual may be bound in one or more volumes.
32. *Resident Project Representative*—The authorized representative of Engineer assigned to assist at the Site. As used herein, the term Resident Project Representative or “RPR” includes any assistants or field staff of Resident Project Representative.
33. *Samples*—Physical examples of materials, equipment, or workmanship that are representative of some portion of the Work and that establish the standards by which such portion of the Work will be judged.
34. *Schedule of Submittals*—A schedule, prepared and maintained by Contractor, of required submittals and the time requirements for Engineer’s review of the submittals and the performance of related construction activities.
35. *Schedule of Values*—A schedule, prepared and maintained by Contractor, allocating portions of the Contract Price to various portions of the Work and used as the basis for reviewing Contractor’s Applications for Payment.
36. *Shop Drawings*—All drawings, diagrams, illustrations, schedules, and other data or information that are specifically prepared or assembled by or for Contractor and submitted by Contractor to illustrate some portion of the Work. Shop Drawings, whether approved or not, are not Drawings and are not Contract Documents.
37. *Site*—Lands or areas indicated in the Contract Documents as being furnished by Owner upon which the Work is to be performed, including rights-of-way and easements, and such other lands furnished by Owner which are designated for the use of Contractor.

38. *Specifications*—The part of the Contract that consists of written requirements for materials, equipment, systems, standards, and workmanship as applied to the Work, and certain administrative requirements and procedural matters applicable to the Work.
39. *Subcontractor*—An individual or entity having a direct contract with Contractor or with any other Subcontractor for the performance of a part of the Work.
40. *Substantial Completion*—The time at which the Work (or a specified part thereof) has progressed to the point where, in the opinion of Engineer, the Work (or a specified part thereof) is sufficiently complete, in accordance with the Contract Documents, so that the Work (or a specified part thereof) can be utilized for the purposes for which it is intended. The terms “substantially complete” and “substantially completed” as applied to all or part of the Work refer to Substantial Completion thereof.
41. *Successful Bidder*—The Bidder whose Bid the Owner accepts, and to which the Owner makes an award of contract, subject to stated conditions.
42. *Supplementary Conditions*—The part of the Contract that amends or supplements these General Conditions.
43. *Supplier*—A manufacturer, fabricator, supplier, distributor, materialman, or vendor having a direct contract with Contractor or with any Subcontractor to furnish materials or equipment to be incorporated in the Work by Contractor or a Subcontractor.
44. *Technical Data*—Those items expressly identified as Technical Data in the Supplementary Conditions, with respect to either (a) subsurface conditions at the Site, or physical conditions relating to existing surface or subsurface structures at the Site (except Underground Facilities) or (b) Hazardous Environmental Conditions at the Site. If no such express identifications of Technical Data have been made with respect to conditions at the Site, then the data contained in boring logs, recorded measurements of subsurface water levels, laboratory test results, and other factual, objective information regarding conditions at the Site that are set forth in any geotechnical or environmental report prepared for the Project and made available to Contractor are hereby defined as Technical Data with respect to conditions at the Site under Paragraphs 5.03, 5.04, and 5.06.
45. *Underground Facilities*—All underground pipelines, conduits, ducts, cables, wires, manholes, vaults, tanks, tunnels, or other such facilities or attachments, and any encasements containing such facilities, including but not limited to those that convey electricity, gases, steam, liquid petroleum products, telephone or other communications, fiber optic transmissions, cable television, water, wastewater, storm water, other liquids or chemicals, or traffic or other control systems.
46. *Unit Price Work*—Work to be paid for on the basis of unit prices.
47. *Work*—The entire construction or the various separately identifiable parts thereof required to be provided under the Contract Documents. Work includes and is the result of performing or providing all labor, services, and documentation necessary to produce such construction; furnishing, installing, and incorporating all materials and equipment into such construction; and may include related services such as testing, start-up, and commissioning, all as required by the Contract Documents.
48. *Work Change Directive*—A written directive to Contractor issued on or after the Effective Date of the Contract, signed by Owner and recommended by Engineer, ordering an addition, deletion, or revision in the Work.

## 1.02 Terminology

- A. The words and terms discussed in the following paragraphs are not defined but, when used in the Bidding Requirements or Contract Documents, have the indicated meaning.
- B. *Intent of Certain Terms or Adjectives:*
1. The Contract Documents include the terms “as allowed,” “as approved,” “as ordered,” “as directed” or terms of like effect or import to authorize an exercise of professional judgment by Engineer. In addition, the adjectives “reasonable,” “suitable,” “acceptable,” “proper,” “satisfactory,” or adjectives of like effect or import are used to describe an action or determination of Engineer as to the Work. It is intended that such exercise of professional judgment, action, or determination will be solely to evaluate, in general, the Work for compliance with the information in the Contract Documents and with the design concept of the Project as a functioning whole as shown or indicated in the Contract Documents (unless there is a specific statement indicating otherwise). The use of any such term or adjective is not intended to and shall not be effective to assign to Engineer any duty or authority to supervise or direct the performance of the Work, or any duty or authority to undertake responsibility contrary to the provisions of Article 10 or any other provision of the Contract Documents.
- C. *Day:*
1. The word “day” means a calendar day of 24 hours measured from midnight to the next midnight.
- D. *Defective:*
1. The word “defective,” when modifying the word “Work,” refers to Work that is unsatisfactory, faulty, or deficient in that it:
    - a. does not conform to the Contract Documents; or
    - b. does not meet the requirements of any applicable inspection, reference standard, test, or approval referred to in the Contract Documents; or
    - c. has been damaged prior to Engineer’s recommendation of final payment (unless responsibility for the protection thereof has been assumed by Owner at Substantial Completion in accordance with Paragraph 15.03 or 15.04).
- E. *Furnish, Install, Perform, Provide:*
1. The word “furnish,” when used in connection with services, materials, or equipment, shall mean to supply and deliver said services, materials, or equipment to the Site (or some other specified location) ready for use or installation and in usable or operable condition.
  2. The word “install,” when used in connection with services, materials, or equipment, shall mean to put into use or place in final position said services, materials, or equipment complete and ready for intended use.
  3. The words “perform” or “provide,” when used in connection with services, materials, or equipment, shall mean to furnish and install said services, materials, or equipment complete and ready for intended use.
  4. If the Contract Documents establish an obligation of Contractor with respect to specific services, materials, or equipment, but do not expressly use any of the four words

“furnish,” “install,” “perform,” or “provide,” then Contractor shall furnish and install said services, materials, or equipment complete and ready for intended use.

- F. Unless stated otherwise in the Contract Documents, words or phrases that have a well-known technical or construction industry or trade meaning are used in the Contract Documents in accordance with such recognized meaning.

## **ARTICLE 2 – PRELIMINARY MATTERS**

### *2.01 Delivery of Bonds and Evidence of Insurance*

- A. *Bonds:* When Contractor delivers the executed counterparts of the Agreement to Owner, Contractor shall also deliver to Owner such bonds as Contractor may be required to furnish.
- B. *Evidence of Contractor’s Insurance:* When Contractor delivers the executed counterparts of the Agreement to Owner, Contractor shall also deliver to Owner, with copies to each named insured and additional insured (as identified in the Supplementary Conditions or elsewhere in the Contract), the certificates and other evidence of insurance required to be provided by Contractor in accordance with Article 6.
- C. *Evidence of Owner’s Insurance:* After receipt of the executed counterparts of the Agreement and all required bonds and insurance documentation, Owner shall promptly deliver to Contractor, with copies to each named insured and additional insured (as identified in the Supplementary Conditions or otherwise), the certificates and other evidence of insurance required to be provided by Owner under Article 6.

### *2.02 Copies of Documents*

- A. Owner shall furnish to Contractor four printed copies of the Contract (including one fully executed counterpart of the Agreement), and one copy in electronic portable document format (PDF). Additional printed copies will be furnished upon request at the cost of reproduction.
- B. Owner shall maintain and safeguard at least one original printed record version of the Contract, including Drawings and Specifications signed and sealed by Engineer and other design professionals. Owner shall make such original printed record version of the Contract available to Contractor for review. Owner may delegate the responsibilities under this provision to Engineer.

### *2.03 Before Starting Construction*

- A. *Preliminary Schedules:* Within 10 days after the Effective Date of the Contract (or as otherwise specifically required by the Contract Documents), Contractor shall submit to Engineer for timely review:
  - 1. a preliminary Progress Schedule indicating the times (numbers of days or dates) for starting and completing the various stages of the Work, including any Milestones specified in the Contract;
  - 2. a preliminary Schedule of Submittals; and
  - 3. a preliminary Schedule of Values for all of the Work which includes quantities and prices of items which when added together equal the Contract Price and subdivides the Work into component parts in sufficient detail to serve as the basis for progress payments during performance of the Work. Such prices will include an appropriate amount of overhead and profit applicable to each item of Work.

#### 2.04 *Preconstruction Conference; Designation of Authorized Representatives*

- A. Before any Work at the Site is started, a conference attended by Owner, Contractor, Engineer, and others as appropriate will be held to establish a working understanding among the parties as to the Work and to discuss the schedules referred to in Paragraph 2.03.A, procedures for handling Shop Drawings, Samples, and other submittals, processing Applications for Payment, electronic or digital transmittals, and maintaining required records.
- B. At this conference Owner and Contractor each shall designate, in writing, a specific individual to act as its authorized representative with respect to the services and responsibilities under the Contract. Such individuals shall have the authority to transmit and receive information, render decisions relative to the Contract, and otherwise act on behalf of each respective party.

#### 2.05 *Initial Acceptance of Schedules*

- A. At least 10 days before submission of the first Application for Payment a conference, attended by Contractor, Engineer, and others as appropriate, will be held to review for acceptability to Engineer as provided below the schedules submitted in accordance with Paragraph 2.03.A. Contractor shall have an additional 10 days to make corrections and adjustments and to complete and resubmit the schedules. No progress payment shall be made to Contractor until acceptable schedules are submitted to Engineer.
  - 1. The Progress Schedule will be acceptable to Engineer if it provides an orderly progression of the Work to completion within the Contract Times. Such acceptance will not impose on Engineer responsibility for the Progress Schedule, for sequencing, scheduling, or progress of the Work, nor interfere with or relieve Contractor from Contractor's full responsibility therefor.
  - 2. Contractor's Schedule of Submittals will be acceptable to Engineer if it provides a workable arrangement for reviewing and processing the required submittals.
  - 3. Contractor's Schedule of Values will be acceptable to Engineer as to form and substance if it provides a reasonable allocation of the Contract Price to the component parts of the Work.

#### 2.06 *Electronic Transmittals*

- A. Except as otherwise stated elsewhere in the Contract, the Owner, Engineer, and Contractor may transmit, and shall accept, Project-related correspondence, text, data, documents, drawings, information, and graphics, including but not limited to Shop Drawings and other submittals, in electronic media or digital format, either directly, or through access to a secure Project website.
- B. If the Contract does not establish protocols for electronic or digital transmittals, then Owner, Engineer, and Contractor shall jointly develop such protocols.
- C. When transmitting items in electronic media or digital format, the transmitting party makes no representations as to long term compatibility, usability, or readability of the items resulting from the recipient's use of software application packages, operating systems, or computer hardware differing from those used in the drafting or transmittal of the items, or from those established in applicable transmittal protocols.

## ARTICLE 3 – DOCUMENTS: INTENT, REQUIREMENTS, REUSE

### 3.01 *Intent*

- A. The Contract Documents are complementary; what is required by one is as binding as if required by all.
- B. It is the intent of the Contract Documents to describe a functionally complete project (or part thereof) to be constructed in accordance with the Contract Documents.
- C. Unless otherwise stated in the Contract Documents, if there is a discrepancy between the electronic or digital versions of the Contract Documents (including any printed copies derived from such electronic or digital versions) and the printed record version, the printed record version shall govern.
- D. The Contract supersedes prior negotiations, representations, and agreements, whether written or oral.
- E. Engineer will issue clarifications and interpretations of the Contract Documents as provided herein.

### 3.02 *Reference Standards*

- A. Standards Specifications, Codes, Laws and Regulations
  - 1. Reference in the Contract Documents to standard specifications, manuals, reference standards, or codes of any technical society, organization, or association, or to Laws or Regulations, whether such reference be specific or by implication, shall mean the standard specification, manual, reference standard, code, or Laws or Regulations in effect at the time of opening of Bids (or on the Effective Date of the Contract if there were no Bids), except as may be otherwise specifically stated in the Contract Documents.
  - 2. No provision of any such standard specification, manual, reference standard, or code, or any instruction of a Supplier, shall be effective to change the duties or responsibilities of Owner, Contractor, or Engineer, or any of their subcontractors, consultants, agents, or employees, from those set forth in the part of the Contract Documents prepared by or for Engineer. No such provision or instruction shall be effective to assign to Owner, Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors, any duty or authority to supervise or direct the performance of the Work or any duty or authority to undertake responsibility inconsistent with the provisions of the part of the Contract Documents prepared by or for Engineer.

### 3.03 *Reporting and Resolving Discrepancies*

- A. *Reporting Discrepancies:*
  - 1. *Contractor's Verification of Figures and Field Measurements:* Before undertaking each part of the Work, Contractor shall carefully study the Contract Documents, and check and verify pertinent figures and dimensions therein, particularly with respect to applicable field measurements. Contractor shall promptly report in writing to Engineer any conflict, error, ambiguity, or discrepancy that Contractor discovers, or has actual knowledge of, and shall not proceed with any Work affected thereby until the conflict, error, ambiguity, or discrepancy is resolved, by a clarification or interpretation by Engineer, or by an amendment or supplement to the Contract Documents issued pursuant to Paragraph 11.01.

2. *Contractor's Review of Contract Documents:* If, before or during the performance of the Work, Contractor discovers any conflict, error, ambiguity, or discrepancy within the Contract Documents, or between the Contract Documents and (a) any applicable Law or Regulation, (b) actual field conditions, (c) any standard specification, manual, reference standard, or code, or (d) any instruction of any Supplier, then Contractor shall promptly report it to Engineer in writing. Contractor shall not proceed with the Work affected thereby (except in an emergency as required by Paragraph 7.15) until the conflict, error, ambiguity, or discrepancy is resolved, by a clarification or interpretation by Engineer, or by an amendment or supplement to the Contract Documents issued pursuant to Paragraph 11.01.
  3. Contractor shall not be liable to Owner or Engineer for failure to report any conflict, error, ambiguity, or discrepancy in the Contract Documents unless Contractor had actual knowledge thereof.
- B. *Resolving Discrepancies:*
1. Except as may be otherwise specifically stated in the Contract Documents, the provisions of the part of the Contract Documents prepared by or for Engineer shall take precedence in resolving any conflict, error, ambiguity, or discrepancy between such provisions of the Contract Documents and:
    - a. the provisions of any standard specification, manual, reference standard, or code, or the instruction of any Supplier (whether or not specifically incorporated by reference as a Contract Document); or
    - b. the provisions of any Laws or Regulations applicable to the performance of the Work (unless such an interpretation of the provisions of the Contract Documents would result in violation of such Law or Regulation).

### 3.04 *Requirements of the Contract Documents*

- A. During the performance of the Work and until final payment, Contractor and Owner shall submit to the Engineer all matters in question concerning the requirements of the Contract Documents (sometimes referred to as requests for information or interpretation—RFIs), or relating to the acceptability of the Work under the Contract Documents, as soon as possible after such matters arise. Engineer will be the initial interpreter of the requirements of the Contract Documents, and judge of the acceptability of the Work thereunder.
- B. Engineer will, with reasonable promptness, render a written clarification, interpretation, or decision on the issue submitted, or initiate an amendment or supplement to the Contract Documents. Engineer's written clarification, interpretation, or decision will be final and binding on Contractor, unless it appeals by submitting a Change Proposal, and on Owner, unless it appeals by filing a Claim.
- C. If a submitted matter in question concerns terms and conditions of the Contract Documents that do not involve (1) the performance or acceptability of the Work under the Contract Documents, (2) the design (as set forth in the Drawings, Specifications, or otherwise), or (3) other engineering or technical matters, then Engineer will promptly give written notice to Owner and Contractor that Engineer is unable to provide a decision or interpretation. If Owner and Contractor are unable to agree on resolution of such a matter in question, either party may pursue resolution as provided in Article 12.

### 3.05 *Reuse of Documents*

- A. Contractor and its Subcontractors and Suppliers shall not:
  - 1. have or acquire any title to or ownership rights in any of the Drawings, Specifications, or other documents (or copies of any thereof) prepared by or bearing the seal of Engineer or its consultants, including electronic media editions, or reuse any such Drawings, Specifications, other documents, or copies thereof on extensions of the Project or any other project without written consent of Owner and Engineer and specific written verification or adaptation by Engineer; or
  - 2. have or acquire any title or ownership rights in any other Contract Documents, reuse any such Contract Documents for any purpose without Owner's express written consent, or violate any copyrights pertaining to such Contract Documents.
- B. The prohibitions of this Paragraph 3.05 will survive final payment, or termination of the Contract. Nothing herein shall preclude Contractor from retaining copies of the Contract Documents for record purposes.

## **ARTICLE 4 – COMMENCEMENT AND PROGRESS OF THE WORK**

### 4.01 *Commencement of Contract Times; Notice to Proceed*

- A. The Contract Times will commence to run on the thirtieth day after the Effective Date of the Contract or, if a Notice to Proceed is given, on the day indicated in the Notice to Proceed. A Notice to Proceed may be given at any time within 30 days after the Effective Date of the Contract. In no event will the Contract Times commence to run later than the sixtieth day after the day of Bid opening or the thirtieth day after the Effective Date of the Contract, whichever date is earlier.

### 4.02 *Starting the Work*

- A. Contractor shall start to perform the Work on the date when the Contract Times commence to run. No Work shall be done at the Site prior to such date.

### 4.03 *Reference Points*

- A. Owner shall provide engineering surveys to establish reference points for construction which in Engineer's judgment are necessary to enable Contractor to proceed with the Work. Contractor shall be responsible for laying out the Work, shall protect and preserve the established reference points and property monuments, and shall make no changes or relocations without the prior written approval of Owner. Contractor shall report to Engineer whenever any reference point or property monument is lost or destroyed or requires relocation because of necessary changes in grades or locations, and shall be responsible for the accurate replacement or relocation of such reference points or property monuments by professionally qualified personnel.

### 4.04 *Progress Schedule*

- A. Contractor shall adhere to the Progress Schedule established in accordance with Paragraph 2.05 as it may be adjusted from time to time as provided below.
  - 1. Contractor shall submit to Engineer for acceptance (to the extent indicated in Paragraph 2.05) proposed adjustments in the Progress Schedule that will not result in changing the Contract Times.

2. Proposed adjustments in the Progress Schedule that will change the Contract Times shall be submitted in accordance with the requirements of Article 11.
- B. Contractor shall carry on the Work and adhere to the Progress Schedule during all disputes or disagreements with Owner. No Work shall be delayed or postponed pending resolution of any disputes or disagreements, or during any appeal process, except as permitted by Paragraph 16.04, or as Owner and Contractor may otherwise agree in writing.

4.05 *Delays in Contractor's Progress*

- A. If Owner, Engineer, or anyone for whom Owner is responsible, delays, disrupts, or interferes with the performance or progress of the Work, then Contractor shall be entitled to an equitable adjustment in the Contract Times and Contract Price. Contractor's entitlement to an adjustment of the Contract Times is conditioned on such adjustment being essential to Contractor's ability to complete the Work within the Contract Times.
- B. Contractor shall not be entitled to an adjustment in Contract Price or Contract Times for delay, disruption, or interference caused by or within the control of Contractor. Delay, disruption, and interference attributable to and within the control of a Subcontractor or Supplier shall be deemed to be within the control of Contractor.
- C. If Contractor's performance or progress is delayed, disrupted, or interfered with by unanticipated causes not the fault of and beyond the control of Owner, Contractor, and those for which they are responsible, then Contractor shall be entitled to an equitable adjustment in Contract Times. Contractor's entitlement to an adjustment of the Contract Times is conditioned on such adjustment being essential to Contractor's ability to complete the Work within the Contract Times. Such an adjustment shall be Contractor's sole and exclusive remedy for the delays, disruption, and interference described in this paragraph. Causes of delay, disruption, or interference that may give rise to an adjustment in Contract Times under this paragraph include but are not limited to the following:
1. severe and unavoidable natural catastrophes such as fires, floods, epidemics, and earthquakes;
  2. abnormal weather conditions;
  3. acts or failures to act of utility owners (other than those performing other work at or adjacent to the Site by arrangement with the Owner, as contemplated in Article 8); and
  4. acts of war or terrorism.
- D. Delays, disruption, and interference to the performance or progress of the Work resulting from the existence of a differing subsurface or physical condition, an Underground Facility that was not shown or indicated by the Contract Documents, or not shown or indicated with reasonable accuracy, and those resulting from Hazardous Environmental Conditions, are governed by Article 5.
- E. Paragraph 8.03 governs delays, disruption, and interference to the performance or progress of the Work resulting from the performance of certain other work at or adjacent to the Site.
- F. Contractor shall not be entitled to an adjustment in Contract Price or Contract Times for any delay, disruption, or interference if such delay is concurrent with a delay, disruption, or interference caused by or within the control of Contractor.

- G. Contractor must submit any Change Proposal seeking an adjustment in Contract Price or Contract Times under this paragraph within 30 days of the commencement of the delaying, disrupting, or interfering event.

**ARTICLE 5 – AVAILABILITY OF LANDS; SUBSURFACE AND PHYSICAL CONDITIONS; HAZARDOUS ENVIRONMENTAL CONDITIONS**

5.01 *Availability of Lands*

- A. Owner shall furnish the Site. Owner shall notify Contractor of any encumbrances or restrictions not of general application but specifically related to use of the Site with which Contractor must comply in performing the Work.
- B. Upon reasonable written request, Owner shall furnish Contractor with a current statement of record legal title and legal description of the lands upon which permanent improvements are to be made and Owner's interest therein as necessary for giving notice of or filing a mechanic's or construction lien against such lands in accordance with applicable Laws and Regulations.
- C. Contractor shall provide for all additional lands and access thereto that may be required for temporary construction facilities or storage of materials and equipment.

5.02 *Use of Site and Other Areas*

- A. *Limitation on Use of Site and Other Areas:*
  - 1. Contractor shall confine construction equipment, temporary construction facilities, the storage of materials and equipment, and the operations of workers to the Site, adjacent areas that Contractor has arranged to use through construction easements or otherwise, and other adjacent areas permitted by Laws and Regulations, and shall not unreasonably encumber the Site and such other adjacent areas with construction equipment or other materials or equipment. Contractor shall assume full responsibility for (a) damage to the Site; (b) damage to any such other adjacent areas used for Contractor's operations; (c) damage to any other adjacent land or areas; and (d) for injuries and losses sustained by the owners or occupants of any such land or areas; provided that such damage or injuries result from the performance of the Work or from other actions or conduct of the Contractor or those for which Contractor is responsible.
  - 2. If a damage or injury claim is made by the owner or occupant of any such land or area because of the performance of the Work, or because of other actions or conduct of the Contractor or those for which Contractor is responsible, Contractor shall (a) take immediate corrective or remedial action as required by Paragraph 7.12, or otherwise; (b) promptly attempt to settle the claim as to all parties through negotiations with such owner or occupant, or otherwise resolve the claim by arbitration or other dispute resolution proceeding, or at law; and (c) to the fullest extent permitted by Laws and Regulations, indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them from and against any such claim, and against all costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to any claim or action, legal or equitable, brought by any such owner or occupant against Owner, Engineer, or any other party indemnified hereunder to the extent caused directly or indirectly, in whole or in part by,

or based upon, Contractor's performance of the Work, or because of other actions or conduct of the Contractor or those for which Contractor is responsible.

- B. *Removal of Debris During Performance of the Work:* During the progress of the Work the Contractor shall keep the Site and other adjacent areas free from accumulations of waste materials, rubbish, and other debris. Removal and disposal of such waste materials, rubbish, and other debris shall conform to applicable Laws and Regulations.
- C. *Cleaning:* Prior to Substantial Completion of the Work Contractor shall clean the Site and the Work and make it ready for utilization by Owner. At the completion of the Work Contractor shall remove from the Site and adjacent areas all tools, appliances, construction equipment and machinery, and surplus materials and shall restore to original condition all property not designated for alteration by the Contract Documents.
- D. *Loading of Structures:* Contractor shall not load nor permit any part of any structure to be loaded in any manner that will endanger the structure, nor shall Contractor subject any part of the Work or adjacent structures or land to stresses or pressures that will endanger them.

### 5.03 *Subsurface and Physical Conditions*

- A. *Reports and Drawings:* The Supplementary Conditions identify:
  - 1. those reports known to Owner of explorations and tests of subsurface conditions at or adjacent to the Site;
  - 2. those drawings known to Owner of physical conditions relating to existing surface or subsurface structures at the Site (except Underground Facilities); and
  - 3. Technical Data contained in such reports and drawings.
- B. *Reliance by Contractor on Technical Data Authorized:* Contractor may rely upon the accuracy of the Technical Data expressly identified in the Supplementary Conditions with respect to such reports and drawings, but such reports and drawings are not Contract Documents. If no such express identification has been made, then Contractor may rely upon the accuracy of the Technical Data (as defined in Article 1) contained in any geotechnical or environmental report prepared for the Project and made available to Contractor. Except for such reliance on Technical Data, Contractor may not rely upon or make any claim against Owner or Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors, with respect to:
  - 1. the completeness of such reports and drawings for Contractor's purposes, including, but not limited to, any aspects of the means, methods, techniques, sequences, and procedures of construction to be employed by Contractor, and safety precautions and programs incident thereto; or
  - 2. other data, interpretations, opinions, and information contained in such reports or shown or indicated in such drawings; or
  - 3. any Contractor interpretation of or conclusion drawn from any Technical Data or any such other data, interpretations, opinions, or information.

#### 5.04 *Differing Subsurface or Physical Conditions*

- A. *Notice by Contractor:* If Contractor believes that any subsurface or physical condition that is uncovered or revealed at the Site either:
1. is of such a nature as to establish that any Technical Data on which Contractor is entitled to rely as provided in Paragraph 5.03 is materially inaccurate; or
  2. is of such a nature as to require a change in the Drawings or Specifications; or
  3. differs materially from that shown or indicated in the Contract Documents; or
  4. is of an unusual nature, and differs materially from conditions ordinarily encountered and generally recognized as inherent in work of the character provided for in the Contract Documents;

then Contractor shall, promptly after becoming aware thereof and before further disturbing the subsurface or physical conditions or performing any Work in connection therewith (except in an emergency as required by Paragraph 7.15), notify Owner and Engineer in writing about such condition. Contractor shall not further disturb such condition or perform any Work in connection therewith (except with respect to an emergency) until receipt of a written statement permitting Contractor to do so.

- B. *Engineer's Review:* After receipt of written notice as required by the preceding paragraph, Engineer will promptly review the subsurface or physical condition in question; determine the necessity of Owner's obtaining additional exploration or tests with respect to the condition; conclude whether the condition falls within any one or more of the differing site condition categories in Paragraph 5.04.A above; obtain any pertinent cost or schedule information from Contractor; prepare recommendations to Owner regarding the Contractor's resumption of Work in connection with the subsurface or physical condition in question and the need for any change in the Drawings or Specifications; and advise Owner in writing of Engineer's findings, conclusions, and recommendations.
- C. *Owner's Statement to Contractor Regarding Site Condition:* After receipt of Engineer's written findings, conclusions, and recommendations, Owner shall issue a written statement to Contractor (with a copy to Engineer) regarding the subsurface or physical condition in question, addressing the resumption of Work in connection with such condition, indicating whether any change in the Drawings or Specifications will be made, and adopting or rejecting Engineer's written findings, conclusions, and recommendations, in whole or in part.
- D. *Possible Price and Times Adjustments:*
1. Contractor shall be entitled to an equitable adjustment in Contract Price or Contract Times, or both, to the extent that the existence of a differing subsurface or physical condition, or any related delay, disruption, or interference, causes an increase or decrease in Contractor's cost of, or time required for, performance of the Work; subject, however, to the following:
    - a. such condition must fall within any one or more of the categories described in Paragraph 5.04.A;
    - b. with respect to Work that is paid for on a unit price basis, any adjustment in Contract Price will be subject to the provisions of Paragraph 13.03; and,
    - c. Contractor's entitlement to an adjustment of the Contract Times is conditioned on such adjustment being essential to Contractor's ability to complete the Work within the Contract Times.

2. Contractor shall not be entitled to any adjustment in the Contract Price or Contract Times with respect to a subsurface or physical condition if:
  - a. Contractor knew of the existence of such condition at the time Contractor made a commitment to Owner with respect to Contract Price and Contract Times by the submission of a Bid or becoming bound under a negotiated contract, or otherwise; or
  - b. the existence of such condition reasonably could have been discovered or revealed as a result of any examination, investigation, exploration, test, or study of the Site and contiguous areas expressly required by the Bidding Requirements or Contract Documents to be conducted by or for Contractor prior to Contractor's making such commitment; or
  - c. Contractor failed to give the written notice as required by Paragraph 5.04.A.
3. If Owner and Contractor agree regarding Contractor's entitlement to and the amount or extent of any adjustment in the Contract Price or Contract Times, or both, then any such adjustment shall be set forth in a Change Order.
4. Contractor may submit a Change Proposal regarding its entitlement to or the amount or extent of any adjustment in the Contract Price or Contract Times, or both, no later than 30 days after Owner's issuance of the Owner's written statement to Contractor regarding the subsurface or physical condition in question.

#### 5.05 *Underground Facilities*

- A. *Contractor's Responsibilities:* The information and data shown or indicated in the Contract Documents with respect to existing Underground Facilities at or adjacent to the Site is based on information and data furnished to Owner or Engineer by the owners of such Underground Facilities, including Owner, or by others. Unless it is otherwise expressly provided in the Supplementary Conditions:
  1. Owner and Engineer do not warrant or guarantee the accuracy or completeness of any such information or data provided by others; and
  2. the cost of all of the following will be included in the Contract Price, and Contractor shall have full responsibility for:
    - a. reviewing and checking all information and data regarding existing Underground Facilities at the Site;
    - b. locating all Underground Facilities shown or indicated in the Contract Documents as being at the Site;
    - c. coordination of the Work with the owners (including Owner) of such Underground Facilities, during construction; and
    - d. the safety and protection of all existing Underground Facilities at the Site, and repairing any damage thereto resulting from the Work.
- B. *Notice by Contractor:* If Contractor believes that an Underground Facility that is uncovered or revealed at the Site was not shown or indicated in the Contract Documents, or was not shown or indicated with reasonable accuracy, then Contractor shall, promptly after becoming aware thereof and before further disturbing conditions affected thereby or performing any Work in connection therewith (except in an emergency as required by Paragraph 7.15), identify the owner of such Underground Facility and give written notice to that owner and to Owner and Engineer.

- C. *Engineer's Review:* Engineer will promptly review the Underground Facility and conclude whether such Underground Facility was not shown or indicated in the Contract Documents, or was not shown or indicated with reasonable accuracy; obtain any pertinent cost or schedule information from Contractor; prepare recommendations to Owner regarding the Contractor's resumption of Work in connection with the Underground Facility in question; determine the extent, if any, to which a change is required in the Drawings or Specifications to reflect and document the consequences of the existence or location of the Underground Facility; and advise Owner in writing of Engineer's findings, conclusions, and recommendations. During such time, Contractor shall be responsible for the safety and protection of such Underground Facility.
- D. *Owner's Statement to Contractor Regarding Underground Facility:* After receipt of Engineer's written findings, conclusions, and recommendations, Owner shall issue a written statement to Contractor (with a copy to Engineer) regarding the Underground Facility in question, addressing the resumption of Work in connection with such Underground Facility, indicating whether any change in the Drawings or Specifications will be made, and adopting or rejecting Engineer's written findings, conclusions, and recommendations in whole or in part.
- E. *Possible Price and Times Adjustments:*
  - 1. Contractor shall be entitled to an equitable adjustment in the Contract Price or Contract Times, or both, to the extent that any existing Underground Facility at the Site that was not shown or indicated in the Contract Documents, or was not shown or indicated with reasonable accuracy, or any related delay, disruption, or interference, causes an increase or decrease in Contractor's cost of, or time required for, performance of the Work; subject, however, to the following:
    - a. Contractor did not know of and could not reasonably have been expected to be aware of or to have anticipated the existence or actual location of the Underground Facility in question;
    - b. With respect to Work that is paid for on a unit price basis, any adjustment in Contract Price will be subject to the provisions of Paragraph 13.03;
    - c. Contractor's entitlement to an adjustment of the Contract Times is conditioned on such adjustment being essential to Contractor's ability to complete the Work within the Contract Times; and
    - d. Contractor gave the notice required in Paragraph 5.05.B.
  - 2. If Owner and Contractor agree regarding Contractor's entitlement to and the amount or extent of any adjustment in the Contract Price or Contract Times, or both, then any such adjustment shall be set forth in a Change Order.
  - 3. Contractor may submit a Change Proposal regarding its entitlement to or the amount or extent of any adjustment in the Contract Price or Contract Times, or both, no later than 30 days after Owner's issuance of the Owner's written statement to Contractor regarding the Underground Facility in question.

#### 5.06 *Hazardous Environmental Conditions at Site*

- A. *Reports and Drawings:* The Supplementary Conditions identify:
  - 1. those reports and drawings known to Owner relating to Hazardous Environmental Conditions that have been identified at or adjacent to the Site; and
  - 2. Technical Data contained in such reports and drawings.

- B. *Reliance by Contractor on Technical Data Authorized:* Contractor may rely upon the accuracy of the Technical Data expressly identified in the Supplementary Conditions with respect to such reports and drawings, but such reports and drawings are not Contract Documents. If no such express identification has been made, then Contractor may rely on the accuracy of the Technical Data (as defined in Article 1) contained in any geotechnical or environmental report prepared for the Project and made available to Contractor. Except for such reliance on Technical Data, Contractor may not rely upon or make any claim against Owner or Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors with respect to:
1. the completeness of such reports and drawings for Contractor's purposes, including, but not limited to, any aspects of the means, methods, techniques, sequences and procedures of construction to be employed by Contractor and safety precautions and programs incident thereto; or
  2. other data, interpretations, opinions and information contained in such reports or shown or indicated in such drawings; or
  3. any Contractor interpretation of or conclusion drawn from any Technical Data or any such other data, interpretations, opinions or information.
- C. Contractor shall not be responsible for removing or remediating any Hazardous Environmental Condition encountered, uncovered, or revealed at the Site unless such removal or remediation is expressly identified in the Contract Documents to be within the scope of the Work.
- D. Contractor shall be responsible for controlling, containing, and duly removing all Constituents of Concern brought to the Site by Contractor, Subcontractors, Suppliers, or anyone else for whom Contractor is responsible, and for any associated costs; and for the costs of removing and remediating any Hazardous Environmental Condition created by the presence of any such Constituents of Concern.
- E. If Contractor encounters, uncovers, or reveals a Hazardous Environmental Condition whose removal or remediation is not expressly identified in the Contract Documents as being within the scope of the Work, or if Contractor or anyone for whom Contractor is responsible creates a Hazardous Environmental Condition, then Contractor shall immediately: (1) secure or otherwise isolate such condition; (2) stop all Work in connection with such condition and in any area affected thereby (except in an emergency as required by Paragraph 7.15); and (3) notify Owner and Engineer (and promptly thereafter confirm such notice in writing). Owner shall promptly consult with Engineer concerning the necessity for Owner to retain a qualified expert to evaluate such condition or take corrective action, if any. Promptly after consulting with Engineer, Owner shall take such actions as are necessary to permit Owner to timely obtain required permits and provide Contractor the written notice required by Paragraph 5.06.F. If Contractor or anyone for whom Contractor is responsible created the Hazardous Environmental Condition in question, then Owner may remove and remediate the Hazardous Environmental Condition, and impose a set-off against payments to account for the associated costs.
- F. Contractor shall not resume Work in connection with such Hazardous Environmental Condition or in any affected area until after Owner has obtained any required permits related thereto, and delivered written notice to Contractor either (1) specifying that such condition and any affected area is or has been rendered safe for the resumption of Work, or (2) specifying any special conditions under which such Work may be resumed safely.

- G. If Owner and Contractor cannot agree as to entitlement to or on the amount or extent, if any, of any adjustment in Contract Price or Contract Times, or both, as a result of such Work stoppage or such special conditions under which Work is agreed to be resumed by Contractor, then within 30 days of Owner's written notice regarding the resumption of Work, Contractor may submit a Change Proposal, or Owner may impose a set-off.
- H. If after receipt of such written notice Contractor does not agree to resume such Work based on a reasonable belief it is unsafe, or does not agree to resume such Work under such special conditions, then Owner may order the portion of the Work that is in the area affected by such condition to be deleted from the Work, following the contractual change procedures in Article 11. Owner may have such deleted portion of the Work performed by Owner's own forces or others in accordance with Article 8.
- I. To the fullest extent permitted by Laws and Regulations, Owner shall indemnify and hold harmless Contractor, Subcontractors, and Engineer, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to a Hazardous Environmental Condition, provided that such Hazardous Environmental Condition (1) was not shown or indicated in the Drawings, Specifications, or other Contract Documents, identified as Technical Data entitled to limited reliance pursuant to Paragraph 5.06.B, or identified in the Contract Documents to be included within the scope of the Work, and (2) was not created by Contractor or by anyone for whom Contractor is responsible. Nothing in this Paragraph 5.06.I shall obligate Owner to indemnify any individual or entity from and against the consequences of that individual's or entity's own negligence.
- J. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to the failure to control, contain, or remove a Constituent of Concern brought to the Site by Contractor or by anyone for whom Contractor is responsible, or to a Hazardous Environmental Condition created by Contractor or by anyone for whom Contractor is responsible. Nothing in this Paragraph 5.06.J shall obligate Contractor to indemnify any individual or entity from and against the consequences of that individual's or entity's own negligence.
- K. The provisions of Paragraphs 5.03, 5.04, and 5.05 do not apply to the presence of Constituents of Concern or to a Hazardous Environmental Condition uncovered or revealed at the Site.

## **ARTICLE 6 – BONDS AND INSURANCE**

### **6.01 *Performance, Payment, and Other Bonds***

- A. Contractor shall furnish a performance bond and a payment bond, each in an amount at least equal to the Contract Price, as security for the faithful performance and payment of all of Contractor's obligations under the Contract. These bonds shall remain in effect until one year after the date when final payment becomes due or until completion of the correction period specified in Paragraph 15.08, whichever is later, except as provided otherwise by Laws or Regulations, the Supplementary Conditions, or other specific provisions of the Contract.

Contractor shall also furnish such other bonds as are required by the Supplementary Conditions or other specific provisions of the Contract.

- B. All bonds shall be in the form prescribed by the Contract except as provided otherwise by Laws or Regulations, and shall be executed by such sureties as are named in “Companies Holding Certificates of Authority as Acceptable Sureties on Federal Bonds and as Acceptable Reinsuring Companies” as published in Circular 570 (as amended and supplemented) by the Financial Management Service, Surety Bond Branch, U.S. Department of the Treasury. A bond signed by an agent or attorney-in-fact must be accompanied by a certified copy of that individual’s authority to bind the surety. The evidence of authority shall show that it is effective on the date the agent or attorney-in-fact signed the accompanying bond.
- C. Contractor shall obtain the required bonds from surety companies that are duly licensed or authorized in the jurisdiction in which the Project is located to issue bonds in the required amounts.
- D. If the surety on a bond furnished by Contractor is declared bankrupt or becomes insolvent, or its right to do business is terminated in any state or jurisdiction where any part of the Project is located, or the surety ceases to meet the requirements above, then Contractor shall promptly notify Owner and Engineer and shall, within 20 days after the event giving rise to such notification, provide another bond and surety, both of which shall comply with the bond and surety requirements above.
- E. If Contractor has failed to obtain a required bond, Owner may exclude the Contractor from the Site and exercise Owner’s termination rights under Article 16.
- F. Upon request, Owner shall provide a copy of the payment bond to any Subcontractor, Supplier, or other person or entity claiming to have furnished labor or materials used in the performance of the Work.

#### 6.02 *Insurance—General Provisions*

- A. Owner and Contractor shall obtain and maintain insurance as required in this Article and in the Supplementary Conditions.
- B. All insurance required by the Contract to be purchased and maintained by Owner or Contractor shall be obtained from insurance companies that are duly licensed or authorized, in the state or jurisdiction in which the Project is located, to issue insurance policies for the required limits and coverages. Unless a different standard is indicated in the Supplementary Conditions, all companies that provide insurance policies required under this Contract shall have an A.M. Best rating of A-VII or better.
- C. Contractor shall deliver to Owner, with copies to each named insured and additional insured (as identified in this Article, in the Supplementary Conditions, or elsewhere in the Contract), certificates of insurance establishing that Contractor has obtained and is maintaining the policies, coverages, and endorsements required by the Contract. Upon request by Owner or any other insured, Contractor shall also furnish other evidence of such required insurance, including but not limited to copies of policies and endorsements, and documentation of applicable self-insured retentions and deductibles. Contractor may block out (redact) any confidential premium or pricing information contained in any policy or endorsement furnished under this provision.
- D. Owner shall deliver to Contractor, with copies to each named insured and additional insured (as identified in this Article, the Supplementary Conditions, or elsewhere in the Contract), certificates of insurance establishing that Owner has obtained and is maintaining the policies, coverages, and endorsements required of Owner by the Contract (if any). Upon request by

Contractor or any other insured, Owner shall also provide other evidence of such required insurance (if any), including but not limited to copies of policies and endorsements, and documentation of applicable self-insured retentions and deductibles. Owner may block out (redact) any confidential premium or pricing information contained in any policy or endorsement furnished under this provision.

- E. Failure of Owner or Contractor to demand such certificates or other evidence of the other party's full compliance with these insurance requirements, or failure of Owner or Contractor to identify a deficiency in compliance from the evidence provided, shall not be construed as a waiver of the other party's obligation to obtain and maintain such insurance.
- F. If either party does not purchase or maintain all of the insurance required of such party by the Contract, such party shall notify the other party in writing of such failure to purchase prior to the start of the Work, or of such failure to maintain prior to any change in the required coverage.
- G. If Contractor has failed to obtain and maintain required insurance, Owner may exclude the Contractor from the Site, impose an appropriate set-off against payment, and exercise Owner's termination rights under Article 16.
- H. Without prejudice to any other right or remedy, if a party has failed to obtain required insurance, the other party may elect to obtain equivalent insurance to protect such other party's interests at the expense of the party who was required to provide such coverage, and the Contract Price shall be adjusted accordingly.
- I. Owner does not represent that insurance coverage and limits established in this Contract necessarily will be adequate to protect Contractor or Contractor's interests.
- J. The insurance and insurance limits required herein shall not be deemed as a limitation on Contractor's liability under the indemnities granted to Owner and other individuals and entities in the Contract.

#### 6.03 *Contractor's Insurance*

- A. *Workers' Compensation:* Contractor shall purchase and maintain workers' compensation and employer's liability insurance for:
  - 1. claims under workers' compensation, disability benefits, and other similar employee benefit acts.
  - 2. United States Longshoreman and Harbor Workers' Compensation Act and Jones Act coverage (if applicable).
  - 3. claims for damages because of bodily injury, occupational sickness or disease, or death of Contractor's employees (by stop-gap endorsement in monopolist worker's compensation states).
  - 4. Foreign voluntary worker compensation (if applicable).
- B. *Commercial General Liability—Claims Covered:* Contractor shall purchase and maintain commercial general liability insurance, covering all operations by or on behalf of Contractor, on an occurrence basis, against:
  - 1. claims for damages because of bodily injury, sickness or disease, or death of any person other than Contractor's employees.
  - 2. claims for damages insured by reasonably available personal injury liability coverage.

3. claims for damages, other than to the Work itself, because of injury to or destruction of tangible property wherever located, including loss of use resulting therefrom.
- C. *Commercial General Liability—Form and Content:* Contractor’s commercial liability policy shall be written on a 1996 (or later) ISO commercial general liability form (occurrence form) and include the following coverages and endorsements:
1. Products and completed operations coverage:
    - a. Such insurance shall be maintained for three years after final payment.
    - b. Contractor shall furnish Owner and each other additional insured (as identified in the Supplementary Conditions or elsewhere in the Contract) evidence of continuation of such insurance at final payment and three years thereafter.
  2. Blanket contractual liability coverage, to the extent permitted by law, including but not limited to coverage of Contractor’s contractual indemnity obligations in Paragraph 7.18.
  3. Broad form property damage coverage.
  4. Severability of interest.
  5. Underground, explosion, and collapse coverage.
  6. Personal injury coverage.
  7. Additional insured endorsements that include both ongoing operations and products and completed operations coverage through ISO Endorsements CG 20 10 10 01 and CG 20 37 10 01 (together); or CG 20 10 07 04 and CG 20 37 07 04 (together); or their equivalent.
  8. For design professional additional insureds, ISO Endorsement CG 20 32 07 04, “Additional Insured—Engineers, Architects or Surveyors Not Engaged by the Named Insured” or its equivalent.
- D. *Automobile liability:* Contractor shall purchase and maintain automobile liability insurance against claims for damages because of bodily injury or death of any person or property damage arising out of the ownership, maintenance, or use of any motor vehicle. The automobile liability policy shall be written on an occurrence basis.
- E. *Umbrella or excess liability:* Contractor shall purchase and maintain umbrella or excess liability insurance written over the underlying employer’s liability, commercial general liability, and automobile liability insurance described in the paragraphs above. Subject to industry-standard exclusions, the coverage afforded shall follow form as to each and every one of the underlying policies.
- F. *Contractor’s pollution liability insurance:* Contractor shall purchase and maintain a policy covering third-party injury and property damage claims, including clean-up costs, as a result of pollution conditions arising from Contractor’s operations and completed operations. This insurance shall be maintained for no less than three years after final completion.
- G. *Additional insureds:* The Contractor’s commercial general liability, automobile liability, umbrella or excess, and pollution liability policies shall include and list as additional insureds Owner and Engineer, and any individuals or entities identified in the Supplementary Conditions; include coverage for the respective officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of all such additional insureds; and the insurance afforded to these additional insureds shall provide primary coverage for all claims covered thereby (including as applicable those arising from both

ongoing and completed operations) on a non-contributory basis. Contractor shall obtain all necessary endorsements to support these requirements.

- H. *Contractor's professional liability insurance*: If Contractor will provide or furnish professional services under this Contract, through a delegation of professional design services or otherwise, then Contractor shall be responsible for purchasing and maintaining applicable professional liability insurance. This insurance shall provide protection against claims arising out of performance of professional design or related services, and caused by a negligent error, omission, or act for which the insured party is legally liable. It shall be maintained throughout the duration of the Contract and for a minimum of two years after Substantial Completion. If such professional design services are performed by a Subcontractor, and not by Contractor itself, then the requirements of this paragraph may be satisfied through the purchasing and maintenance of such insurance by such Subcontractor.
- I. *General provisions*: The policies of insurance required by this Paragraph 6.03 shall:
  - 1. include at least the specific coverages provided in this Article.
  - 2. be written for not less than the limits of liability provided in this Article and in the Supplementary Conditions, or required by Laws or Regulations, whichever is greater.
  - 3. contain a provision or endorsement that the coverage afforded will not be canceled, materially changed, or renewal refused until at least 10 days prior written notice has been given to Contractor. Within three days of receipt of any such written notice, Contractor shall provide a copy of the notice to Owner, Engineer, and each other insured under the policy.
  - 4. remain in effect at least until final payment (and longer if expressly required in this Article) and at all times thereafter when Contractor may be correcting, removing, or replacing defective Work as a warranty or correction obligation, or otherwise, or returning to the Site to conduct other tasks arising from the Contract Documents.
  - 5. be appropriate for the Work being performed and provide protection from claims that may arise out of or result from Contractor's performance of the Work and Contractor's other obligations under the Contract Documents, whether it is to be performed by Contractor, any Subcontractor or Supplier, or by anyone directly or indirectly employed by any of them to perform any of the Work, or by anyone for whose acts any of them may be liable.
- J. The coverage requirements for specific policies of insurance must be met by such policies, and not by reference to excess or umbrella insurance provided in other policies.

#### 6.04 *Owner's Liability Insurance*

- A. In addition to the insurance required to be provided by Contractor under Paragraph 6.03, Owner, at Owner's option, may purchase and maintain at Owner's expense Owner's own liability insurance as will protect Owner against claims which may arise from operations under the Contract Documents.
- B. Owner's liability policies, if any, operate separately and independently from policies required to be provided by Contractor, and Contractor cannot rely upon Owner's liability policies for any of Contractor's obligations to the Owner, Engineer, or third parties.

6.05 *Property Insurance*

- A. *Builder's Risk*: Unless otherwise provided in the Supplementary Conditions, Contractor shall purchase and maintain builder's risk insurance upon the Work on a completed value basis, in the amount of the full insurable replacement cost thereof (subject to such deductible amounts as may be provided in the Supplementary Conditions or required by Laws and Regulations). This insurance shall:
1. include the Owner and Contractor as named insureds, and all Subcontractors, and any individuals or entities required by the Supplementary Conditions to be insured under such builder's risk policy, as insureds or named insureds. For purposes of the remainder of this Paragraph 6.05, Paragraphs 6.06 and 6.07, and any corresponding Supplementary Conditions, the parties required to be insured shall collectively be referred to as "insureds."
  2. be written on a builder's risk "all risk" policy form that shall at least include insurance for physical loss or damage to the Work, temporary buildings, falsework, and materials and equipment in transit, and shall insure against at least the following perils or causes of loss: fire; lightning; windstorm; riot; civil commotion; terrorism; vehicle impact; aircraft; smoke; theft; vandalism and malicious mischief; mechanical breakdown, boiler explosion, and artificially generated electric current; earthquake; volcanic activity, and other earth movement; flood; collapse; explosion; debris removal; demolition occasioned by enforcement of Laws and Regulations; water damage (other than that caused by flood); and such other perils or causes of loss as may be specifically required by the Supplementary Conditions. If insurance against mechanical breakdown, boiler explosion, and artificially generated electric current; earthquake; volcanic activity, and other earth movement; or flood, are not commercially available under builder's risk policies, by endorsement or otherwise, such insurance may be provided through other insurance policies acceptable to Owner and Contractor.
  3. cover, as insured property, at least the following: (a) the Work and all materials, supplies, machinery, apparatus, equipment, fixtures, and other property of a similar nature that are to be incorporated into or used in the preparation, fabrication, construction, erection, or completion of the Work, including Owner-furnished or assigned property; (b) spare parts inventory required within the scope of the Contract; and (c) temporary works which are not intended to form part of the permanent constructed Work but which are intended to provide working access to the Site, or to the Work under construction, or which are intended to provide temporary support for the Work under construction, including scaffolding, form work, fences, shoring, falsework, and temporary structures.
  4. cover expenses incurred in the repair or replacement of any insured property (including but not limited to fees and charges of engineers and architects).
  5. extend to cover damage or loss to insured property while in temporary storage at the Site or in a storage location outside the Site (but not including property stored at the premises of a manufacturer or Supplier).
  6. extend to cover damage or loss to insured property while in transit.
  7. allow for partial occupation or use of the Work by Owner, such that those portions of the Work that are not yet occupied or used by Owner shall remain covered by the builder's risk insurance.

8. allow for the waiver of the insurer's subrogation rights, as set forth below.
  9. provide primary coverage for all losses and damages caused by the perils or causes of loss covered.
  10. not include a co-insurance clause.
  11. include an exception for ensuing losses from physical damage or loss with respect to any defective workmanship, design, or materials exclusions.
  12. include performance/hot testing and start-up.
  13. be maintained in effect, subject to the provisions herein regarding Substantial Completion and partial occupancy or use of the Work by Owner, until the Work is complete.
- B. *Notice of Cancellation or Change:* All the policies of insurance (and the certificates or other evidence thereof) required to be purchased and maintained in accordance with this Paragraph 6.05 will contain a provision or endorsement that the coverage afforded will not be canceled or materially changed or renewal refused until at least 10 days prior written notice has been given to the purchasing policyholder. Within three days of receipt of any such written notice, the purchasing policyholder shall provide a copy of the notice to each other insured.
- C. *Deductibles:* The purchaser of any required builder's risk or property insurance shall pay for costs not covered because of the application of a policy deductible.
- D. *Partial Occupancy or Use by Owner:* If Owner will occupy or use a portion or portions of the Work prior to Substantial Completion of all the Work as provided in Paragraph 15.04, then Owner (directly, if it is the purchaser of the builder's risk policy, or through Contractor) will provide notice of such occupancy or use to the builder's risk insurer. The builder's risk insurance shall not be canceled or permitted to lapse on account of any such partial use or occupancy; rather, those portions of the Work that are occupied or used by Owner may come off the builder's risk policy, while those portions of the Work not yet occupied or used by Owner shall remain covered by the builder's risk insurance.
- E. *Additional Insurance:* If Contractor elects to obtain other special insurance to be included in or supplement the builder's risk or property insurance policies provided under this Paragraph 6.05, it may do so at Contractor's expense.
- F. *Insurance of Other Property:* If the express insurance provisions of the Contract do not require or address the insurance of a property item or interest, such as tools, construction equipment, or other personal property owned by Contractor, a Subcontractor, or an employee of Contractor or a Subcontractor, then the entity or individual owning such property item will be responsible for deciding whether to insure it, and if so in what amount.

#### 6.06 *Waiver of Rights*

- A. All policies purchased in accordance with Paragraph 6.05, expressly including the builder's risk policy, shall contain provisions to the effect that in the event of payment of any loss or damage the insurers will have no rights of recovery against any insureds thereunder, or against Engineer or its consultants, or their officers, directors, members, partners, employees, agents, consultants, or subcontractors. Owner and Contractor waive all rights against each other and the respective officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them, for all losses and damages caused by, arising out of, or resulting from any of the perils or causes of loss covered by such

- B. policies and any other property insurance applicable to the Work; and, in addition, waive all such rights against Engineer, its consultants, all Subcontractors, all individuals or entities identified in the Supplementary Conditions as insureds, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them, under such policies for losses and damages so caused. None of the above waivers shall extend to the rights that any party making such waiver may have to the proceeds of insurance held by Owner or Contractor as trustee or fiduciary, or otherwise payable under any policy so issued.
- C. Owner waives all rights against Contractor, Subcontractors, and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them, for:
  - 1. loss due to business interruption, loss of use, or other consequential loss extending beyond direct physical loss or damage to Owner's property or the Work caused by, arising out of, or resulting from fire or other perils whether or not insured by Owner; and
  - 2. loss or damage to the completed Project or part thereof caused by, arising out of, or resulting from fire or other insured peril or cause of loss covered by any property insurance maintained on the completed Project or part thereof by Owner during partial occupancy or use pursuant to Paragraph 15.04, after Substantial Completion pursuant to Paragraph 15.03, or after final payment pursuant to Paragraph 15.06.
- D. Any insurance policy maintained by Owner covering any loss, damage or consequential loss referred to in Paragraph 6.06.B shall contain provisions to the effect that in the event of payment of any such loss, damage, or consequential loss, the insurers will have no rights of recovery against Contractor, Subcontractors, or Engineer, or the officers, directors, members, partners, employees, agents, consultants, or subcontractors of each and any of them.
- E. Contractor shall be responsible for assuring that the agreement under which a Subcontractor performs a portion of the Work contains provisions whereby the Subcontractor waives all rights against Owner, Contractor, all individuals or entities identified in the Supplementary Conditions as insureds, the Engineer and its consultants, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them, for all losses and damages caused by, arising out of, relating to, or resulting from any of the perils or causes of loss covered by builder's risk insurance and any other property insurance applicable to the Work.

#### 6.07 *Receipt and Application of Property Insurance Proceeds*

- A. Any insured loss under the builder's risk and other policies of insurance required by Paragraph 6.05 will be adjusted and settled with the named insured that purchased the policy. Such named insured shall act as fiduciary for the other insureds, and give notice to such other insureds that adjustment and settlement of a claim is in progress. Any other insured may state its position regarding a claim for insured loss in writing within 15 days after notice of such claim.
- B. Proceeds for such insured losses may be made payable by the insurer either jointly to multiple insureds, or to the named insured that purchased the policy in its own right and as fiduciary for other insureds, subject to the requirements of any applicable mortgage clause. A named insured receiving insurance proceeds under the builder's risk and other policies of insurance required by Paragraph 6.05 shall distribute such proceeds in accordance with such

agreement as the parties in interest may reach, or as otherwise required under the dispute resolution provisions of this Contract or applicable Laws and Regulations.

- C. If no other special agreement is reached, the damaged Work shall be repaired or replaced, the money so received applied on account thereof, and the Work and the cost thereof covered by Change Order, if needed.

## **ARTICLE 7 – CONTRACTOR’S RESPONSIBILITIES**

### **7.01 *Supervision and Superintendence***

- A. Contractor shall supervise, inspect, and direct the Work competently and efficiently, devoting such attention thereto and applying such skills and expertise as may be necessary to perform the Work in accordance with the Contract Documents. Contractor shall be solely responsible for the means, methods, techniques, sequences, and procedures of construction.
- B. At all times during the progress of the Work, Contractor shall assign a competent resident superintendent who shall not be replaced without written notice to Owner and Engineer except under extraordinary circumstances.

### **7.02 *Labor; Working Hours***

- A. Contractor shall provide competent, suitably qualified personnel to survey and lay out the Work and perform construction as required by the Contract Documents. Contractor shall at all times maintain good discipline and order at the Site.
- B. Except as otherwise required for the safety or protection of persons or the Work or property at the Site or adjacent thereto, and except as otherwise stated in the Contract Documents, all Work at the Site shall be performed during regular working hours, Monday through Friday. Contractor will not perform Work on a Saturday, Sunday, or any legal holiday. Contractor may perform Work outside regular working hours or on Saturdays, Sundays, or legal holidays only with Owner’s written consent, which will not be unreasonably withheld.

### **7.03 *Services, Materials, and Equipment***

- A. Unless otherwise specified in the Contract Documents, Contractor shall provide and assume full responsibility for all services, materials, equipment, labor, transportation, construction equipment and machinery, tools, appliances, fuel, power, light, heat, telephone, water, sanitary facilities, temporary facilities, and all other facilities and incidentals necessary for the performance, testing, start up, and completion of the Work, whether or not such items are specifically called for in the Contract Documents.
- B. All materials and equipment incorporated into the Work shall be of good quality and new, except as otherwise provided in the Contract Documents. All special warranties and guarantees required by the Specifications shall expressly run to the benefit of Owner. If required by Engineer, Contractor shall furnish satisfactory evidence (including reports of required tests) as to the source, kind, and quality of materials and equipment.
- C. All materials and equipment shall be stored, applied, installed, connected, erected, protected, used, cleaned, and conditioned in accordance with instructions of the applicable Supplier, except as otherwise may be provided in the Contract Documents.

### **7.04 *“Or Equals”***

- A. Whenever an item of material or equipment is specified or described in the Contract Documents by using the name of a proprietary item or the name of a particular Supplier, the Contract Price has been based upon Contractor furnishing such item as specified. The

specification or description of such an item is intended to establish the type, function, appearance, and quality required. Unless the specification or description contains or is followed by words reading that no like, equivalent, or "or equal" item is permitted, Contractor may request that Engineer authorize the use of other items of material or equipment, or items from other proposed suppliers under the circumstances described below.

1. If Engineer in its sole discretion determines that an item of material or equipment proposed by Contractor is functionally equal to that named and sufficiently similar so that no change in related Work will be required, Engineer shall deem it an "or equal" item. For the purposes of this paragraph, a proposed item of material or equipment will be considered functionally equal to an item so named if:
  - a. in the exercise of reasonable judgment Engineer determines that:
    - 1) it is at least equal in materials of construction, quality, durability, appearance, strength, and design characteristics;
    - 2) it will reliably perform at least equally well the function and achieve the results imposed by the design concept of the completed Project as a functioning whole;
    - 3) it has a proven record of performance and availability of responsive service; and
    - 4) it is not objectionable to Owner.
  - b. Contractor certifies that, if approved and incorporated into the Work:
    - 1) there will be no increase in cost to the Owner or increase in Contract Times; and
    - 2) it will conform substantially to the detailed requirements of the item named in the Contract Documents.
- B. *Contractor's Expense:* Contractor shall provide all data in support of any proposed "or equal" item at Contractor's expense.
- C. *Engineer's Evaluation and Determination:* Engineer will be allowed a reasonable time to evaluate each "or-equal" request. Engineer may require Contractor to furnish additional data about the proposed "or-equal" item. Engineer will be the sole judge of acceptability. No "or-equal" item will be ordered, furnished, installed, or utilized until Engineer's review is complete and Engineer determines that the proposed item is an "or-equal", which will be evidenced by an approved Shop Drawing or other written communication. Engineer will advise Contractor in writing of any negative determination.
- D. *Effect of Engineer's Determination:* Neither approval nor denial of an "or-equal" request shall result in any change in Contract Price. The Engineer's denial of an "or-equal" request shall be final and binding, and may not be reversed through an appeal under any provision of the Contract Documents.
- E. *Treatment as a Substitution Request:* If Engineer determines that an item of material or equipment proposed by Contractor does not qualify as an "or-equal" item, Contractor may request that Engineer considered the proposed item as a substitute pursuant to Paragraph 7.05.

## 7.05 *Substitutes*

- A. Unless the specification or description of an item of material or equipment required to be furnished under the Contract Documents contains or is followed by words reading that no substitution is permitted, Contractor may request that Engineer authorize the use of other items of material or equipment under the circumstances described below. To the extent possible such requests shall be made before commencement of related construction at the Site.
1. Contractor shall submit sufficient information as provided below to allow Engineer to determine if the item of material or equipment proposed is functionally equivalent to that named and an acceptable substitute therefor. Engineer will not accept requests for review of proposed substitute items of material or equipment from anyone other than Contractor.
  2. The requirements for review by Engineer will be as set forth in Paragraph 7.05.B, as supplemented by the Specifications, and as Engineer may decide is appropriate under the circumstances.
  3. Contractor shall make written application to Engineer for review of a proposed substitute item of material or equipment that Contractor seeks to furnish or use. The application:
    - a. shall certify that the proposed substitute item will:
      - 1) perform adequately the functions and achieve the results called for by the general design,
      - 2) be similar in substance to that specified, and
      - 3) be suited to the same use as that specified.
    - b. will state:
      - 1) the extent, if any, to which the use of the proposed substitute item will necessitate a change in Contract Times,
      - 2) whether use of the proposed substitute item in the Work will require a change in any of the Contract Documents (or in the provisions of any other direct contract with Owner for other work on the Project) to adapt the design to the proposed substitute item, and
      - 3) whether incorporation or use of the proposed substitute item in connection with the Work is subject to payment of any license fee or royalty.
    - c. will identify:
      - 1) all variations of the proposed substitute item from that specified, and
      - 2) available engineering, sales, maintenance, repair, and replacement services.
    - d. shall contain an itemized estimate of all costs or credits that will result directly or indirectly from use of such substitute item, including but not limited to changes in Contract Price, shared savings, costs of redesign, and claims of other contractors affected by any resulting change.
- B. *Engineer's Evaluation and Determination:* Engineer will be allowed a reasonable time to evaluate each substitute request, and to obtain comments and direction from Owner. Engineer may require Contractor to furnish additional data about the proposed substitute

item. Engineer will be the sole judge of acceptability. No substitute will be ordered, furnished, installed, or utilized until Engineer's review is complete and Engineer determines that the proposed item is an acceptable substitute. Engineer's determination will be evidenced by a Field Order or a proposed Change Order accounting for the substitution itself and all related impacts, including changes in Contract Price or Contract Times. Engineer will advise Contractor in writing of any negative determination.

- C. *Special Guarantee:* Owner may require Contractor to furnish at Contractor's expense a special performance guarantee or other surety with respect to any substitute.
- D. *Reimbursement of Engineer's Cost:* Engineer will record Engineer's costs in evaluating a substitute proposed or submitted by Contractor. Whether or not Engineer approves a substitute so proposed or submitted by Contractor, Contractor shall reimburse Owner for the reasonable charges of Engineer for evaluating each such proposed substitute. Contractor shall also reimburse Owner for the reasonable charges of Engineer for making changes in the Contract Documents (or in the provisions of any other direct contract with Owner) resulting from the acceptance of each proposed substitute.
- E. *Contractor's Expense:* Contractor shall provide all data in support of any proposed substitute at Contractor's expense.
- F. *Effect of Engineer's Determination:* If Engineer approves the substitution request, Contractor shall execute the proposed Change Order and proceed with the substitution. The Engineer's denial of a substitution request shall be final and binding, and may not be reversed through an appeal under any provision of the Contract Documents. Contractor may challenge the scope of reimbursement costs imposed under Paragraph 7.05.D, by timely submittal of a Change Proposal.

#### 7.06 *Concerning Subcontractors, Suppliers, and Others*

- A. Contractor may retain Subcontractors and Suppliers for the performance of parts of the Work. Such Subcontractors and Suppliers must be acceptable to Owner.
- B. Contractor shall retain specific Subcontractors, Suppliers, or other individuals or entities for the performance of designated parts of the Work if required by the Contract to do so.
- C. Subsequent to the submittal of Contractor's Bid or final negotiation of the terms of the Contract, Owner may not require Contractor to retain any Subcontractor, Supplier, or other individual or entity to furnish or perform any of the Work against which Contractor has reasonable objection.
- D. Prior to entry into any binding subcontract or purchase order, Contractor shall submit to Owner the identity of the proposed Subcontractor or Supplier (unless Owner has already deemed such proposed Subcontractor or Supplier acceptable, during the bidding process or otherwise). Such proposed Subcontractor or Supplier shall be deemed acceptable to Owner unless Owner raises a substantive, reasonable objection within five days.
- E. Owner may require the replacement of any Subcontractor, Supplier, or other individual or entity retained by Contractor to perform any part of the Work. Owner also may require Contractor to retain specific replacements; provided, however, that Owner may not require a replacement to which Contractor has a reasonable objection. If Contractor has submitted the identity of certain Subcontractors, Suppliers, or other individuals or entities for acceptance by Owner, and Owner has accepted it (either in writing or by failing to make written objection thereto), then Owner may subsequently revoke the acceptance of any such Subcontractor, Supplier, or other individual or entity so identified solely on the basis of

substantive, reasonable objection after due investigation. Contractor shall submit an acceptable replacement for the rejected Subcontractor, Supplier, or other individual or entity.

- F. If Owner requires the replacement of any Subcontractor, Supplier, or other individual or entity retained by Contractor to perform any part of the Work, then Contractor shall be entitled to an adjustment in Contract Price or Contract Times, or both, with respect to the replacement; and Contractor shall initiate a Change Proposal for such adjustment within 30 days of Owner's requirement of replacement.
- G. No acceptance by Owner of any such Subcontractor, Supplier, or other individual or entity, whether initially or as a replacement, shall constitute a waiver of the right of Owner to the completion of the Work in accordance with the Contract Documents.
- H. On a monthly basis Contractor shall submit to Engineer a complete list of all Subcontractors and Suppliers having a direct contract with Contractor, and of all other Subcontractors and Suppliers known to Contractor at the time of submittal.
- I. Contractor shall be fully responsible to Owner and Engineer for all acts and omissions of the Subcontractors, Suppliers, and other individuals or entities performing or furnishing any of the Work just as Contractor is responsible for Contractor's own acts and omissions.
- J. Contractor shall be solely responsible for scheduling and coordinating the work of Subcontractors, Suppliers, and all other individuals or entities performing or furnishing any of the Work.
- K. Contractor shall restrict all Subcontractors, Suppliers, and such other individuals or entities performing or furnishing any of the Work from communicating with Engineer or Owner, except through Contractor or in case of an emergency, or as otherwise expressly allowed herein.
- L. The divisions and sections of the Specifications and the identifications of any Drawings shall not control Contractor in dividing the Work among Subcontractors or Suppliers or delineating the Work to be performed by any specific trade.
- M. All Work performed for Contractor by a Subcontractor or Supplier shall be pursuant to an appropriate contractual agreement that specifically binds the Subcontractor or Supplier to the applicable terms and conditions of the Contract Documents for the benefit of Owner and Engineer.
- N. Owner may furnish to any Subcontractor or Supplier, to the extent practicable, information about amounts paid to Contractor on account of Work performed for Contractor by the particular Subcontractor or Supplier.
- O. Nothing in the Contract Documents:
  - 1. shall create for the benefit of any such Subcontractor, Supplier, or other individual or entity any contractual relationship between Owner or Engineer and any such Subcontractor, Supplier, or other individual or entity; nor
  - 2. shall create any obligation on the part of Owner or Engineer to pay or to see to the payment of any money due any such Subcontractor, Supplier, or other individual or entity except as may otherwise be required by Laws and Regulations.

#### 7.07 *Patent Fees and Royalties*

- A. Contractor shall pay all license fees and royalties and assume all costs incident to the use in the performance of the Work or the incorporation in the Work of any invention, design,

process, product, or device which is the subject of patent rights or copyrights held by others. If a particular invention, design, process, product, or device is specified in the Contract Documents for use in the performance of the Work and if, to the actual knowledge of Owner or Engineer, its use is subject to patent rights or copyrights calling for the payment of any license fee or royalty to others, the existence of such rights shall be disclosed by Owner in the Contract Documents.

- B. To the fullest extent permitted by Laws and Regulations, Owner shall indemnify and hold harmless Contractor, and its officers, directors, members, partners, employees, agents, consultants, and subcontractors from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals, and all court or arbitration or other dispute resolution costs) arising out of or relating to any infringement of patent rights or copyrights incident to the use in the performance of the Work or resulting from the incorporation in the Work of any invention, design, process, product, or device specified in the Contract Documents, but not identified as being subject to payment of any license fee or royalty to others required by patent rights or copyrights.
- C. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to any infringement of patent rights or copyrights incident to the use in the performance of the Work or resulting from the incorporation in the Work of any invention, design, process, product, or device not specified in the Contract Documents.

#### 7.08 *Permits*

- A. Unless otherwise provided in the Contract Documents, Contractor shall obtain and pay for all construction permits and licenses. Owner shall assist Contractor, when necessary, in obtaining such permits and licenses. Contractor shall pay all governmental charges and inspection fees necessary for the prosecution of the Work which are applicable at the time of the submission of Contractor's Bid (or when Contractor became bound under a negotiated contract). Owner shall pay all charges of utility owners for connections for providing permanent service to the Work

#### 7.09 *Taxes*

- A. Contractor shall pay all sales, consumer, use, and other similar taxes required to be paid by Contractor in accordance with the Laws and Regulations of the place of the Project which are applicable during the performance of the Work.

#### 7.10 *Laws and Regulations*

- A. Contractor shall give all notices required by and shall comply with all Laws and Regulations applicable to the performance of the Work. Except where otherwise expressly required by applicable Laws and Regulations, neither Owner nor Engineer shall be responsible for monitoring Contractor's compliance with any Laws or Regulations.
- B. If Contractor performs any Work or takes any other action knowing or having reason to know that it is contrary to Laws or Regulations, Contractor shall bear all resulting costs and losses, and shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of

them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such Work or other action. It shall not be Contractor's responsibility to make certain that the Work described in the Contract Documents is in accordance with Laws and Regulations, but this shall not relieve Contractor of Contractor's obligations under Paragraph 3.03.

- C. Owner or Contractor may give notice to the other party of any changes after the submission of Contractor's Bid (or after the date when Contractor became bound under a negotiated contract) in Laws or Regulations having an effect on the cost or time of performance of the Work, including but not limited to changes in Laws or Regulations having an effect on procuring permits and on sales, use, value-added, consumption, and other similar taxes. If Owner and Contractor are unable to agree on entitlement to or on the amount or extent, if any, of any adjustment in Contract Price or Contract Times resulting from such changes, then within 30 days of such notice Contractor may submit a Change Proposal, or Owner may initiate a Claim.

#### 7.11 *Record Documents*

- A. Contractor shall maintain in a safe place at the Site one printed record copy of all Drawings, Specifications, Addenda, Change Orders, Work Change Directives, Field Orders, written interpretations and clarifications, and approved Shop Drawings. Contractor shall keep such record documents in good order and annotate them to show changes made during construction. These record documents, together with all approved Samples, will be available to Engineer for reference. Upon completion of the Work, Contractor shall deliver these record documents to Engineer.

#### 7.12 *Safety and Protection*

- A. Contractor shall be solely responsible for initiating, maintaining, and supervising all safety precautions and programs in connection with the Work. Such responsibility does not relieve Subcontractors of their responsibility for the safety of persons or property in the performance of their work, nor for compliance with applicable safety Laws and Regulations. Contractor shall take all necessary precautions for the safety of, and shall provide the necessary protection to prevent damage, injury, or loss to:
  - 1. all persons on the Site or who may be affected by the Work;
  - 2. all the Work and materials and equipment to be incorporated therein, whether in storage on or off the Site; and
  - 3. other property at the Site or adjacent thereto, including trees, shrubs, lawns, walks, pavements, roadways, structures, other work in progress, utilities, and Underground Facilities not designated for removal, relocation, or replacement in the course of construction.
- B. Contractor shall comply with all applicable Laws and Regulations relating to the safety of persons or property, or to the protection of persons or property from damage, injury, or loss; and shall erect and maintain all necessary safeguards for such safety and protection. Contractor shall notify Owner; the owners of adjacent property, Underground Facilities, and other utilities; and other contractors and utility owners performing work at or adjacent to the Site, when prosecution of the Work may affect them, and shall cooperate with them in the protection, removal, relocation, and replacement of their property or work in progress.

- C. Contractor shall comply with the applicable requirements of Owner's safety programs, if any. The Supplementary Conditions identify any Owner's safety programs that are applicable to the Work.
- D. Contractor shall inform Owner and Engineer of the specific requirements of Contractor's safety program with which Owner's and Engineer's employees and representatives must comply while at the Site.
- E. All damage, injury, or loss to any property referred to in Paragraph 7.12.A.2 or 7.12.A.3 caused, directly or indirectly, in whole or in part, by Contractor, any Subcontractor, Supplier, or any other individual or entity directly or indirectly employed by any of them to perform any of the Work, or anyone for whose acts any of them may be liable, shall be remedied by Contractor at its expense (except damage or loss attributable to the fault of Drawings or Specifications or to the acts or omissions of Owner or Engineer or anyone employed by any of them, or anyone for whose acts any of them may be liable, and not attributable, directly or indirectly, in whole or in part, to the fault or negligence of Contractor or any Subcontractor, Supplier, or other individual or entity directly or indirectly employed by any of them).
- F. Contractor's duties and responsibilities for safety and protection shall continue until such time as all the Work is completed and Engineer has issued a notice to Owner and Contractor in accordance with Paragraph 15.06.B that the Work is acceptable (except as otherwise expressly provided in connection with Substantial Completion).
- G. Contractor's duties and responsibilities for safety and protection shall resume whenever Contractor or any Subcontractor or Supplier returns to the Site to fulfill warranty or correction obligations, or to conduct other tasks arising from the Contract Documents.

#### 7.13 *Safety Representative*

- A. Contractor shall designate a qualified and experienced safety representative at the Site whose duties and responsibilities shall be the prevention of accidents and the maintaining and supervising of safety precautions and programs.

#### 7.14 *Hazard Communication Programs*

- A. Contractor shall be responsible for coordinating any exchange of material safety data sheets or other hazard communication information required to be made available to or exchanged between or among employers at the Site in accordance with Laws or Regulations.

#### 7.15 *Emergencies*

- A. In emergencies affecting the safety or protection of persons or the Work or property at the Site or adjacent thereto, Contractor is obligated to act to prevent threatened damage, injury, or loss. Contractor shall give Engineer prompt written notice if Contractor believes that any significant changes in the Work or variations from the Contract Documents have been caused thereby or are required as a result thereof. If Engineer determines that a change in the Contract Documents is required because of the action taken by Contractor in response to such an emergency, a Work Change Directive or Change Order will be issued.

#### 7.16 *Shop Drawings, Samples, and Other Submittals*

- A. *Shop Drawing and Sample Submittal Requirements:*
  1. Before submitting a Shop Drawing or Sample, Contractor shall have:
    - a. reviewed and coordinated the Shop Drawing or Sample with other Shop Drawings and Samples and with the requirements of the Work and the Contract Documents;

- b. determined and verified all field measurements, quantities, dimensions, specified performance and design criteria, installation requirements, materials, catalog numbers, and similar information with respect thereto;
    - c. determined and verified the suitability of all materials and equipment offered with respect to the indicated application, fabrication, shipping, handling, storage, assembly, and installation pertaining to the performance of the Work; and
    - d. determined and verified all information relative to Contractor's responsibilities for means, methods, techniques, sequences, and procedures of construction, and safety precautions and programs incident thereto.
  2. Each submittal shall bear a stamp or specific written certification that Contractor has satisfied Contractor's obligations under the Contract Documents with respect to Contractor's review of that submittal, and that Contractor approves the submittal.
  3. With each submittal, Contractor shall give Engineer specific written notice of any variations that the Shop Drawing or Sample may have from the requirements of the Contract Documents. This notice shall be set forth in a written communication separate from the Shop Drawings or Sample submittal; and, in addition, in the case of Shop Drawings by a specific notation made on each Shop Drawing submitted to Engineer for review and approval of each such variation.
- B. *Submittal Procedures for Shop Drawings and Samples:* Contractor shall submit Shop Drawings and Samples to Engineer for review and approval in accordance with the accepted Schedule of Submittals. Each submittal will be identified as Engineer may require.
  1. *Shop Drawings:*
    - a. Contractor shall submit the number of copies required in the Specifications.
    - b. Data shown on the Shop Drawings will be complete with respect to quantities, dimensions, specified performance and design criteria, materials, and similar data to show Engineer the services, materials, and equipment Contractor proposes to provide and to enable Engineer to review the information for the limited purposes required by Paragraph 7.16.D.
  2. *Samples:*
    - a. Contractor shall submit the number of Samples required in the Specifications.
    - b. Contractor shall clearly identify each Sample as to material, Supplier, pertinent data such as catalog numbers, the use for which intended and other data as Engineer may require to enable Engineer to review the submittal for the limited purposes required by Paragraph 7.16.D.
  3. Where a Shop Drawing or Sample is required by the Contract Documents or the Schedule of Submittals, any related Work performed prior to Engineer's review and approval of the pertinent submittal will be at the sole expense and responsibility of Contractor.
- C. *Other Submittals:* Contractor shall submit other submittals to Engineer in accordance with the accepted Schedule of Submittals, and pursuant to the applicable terms of the Specifications.

D. *Engineer's Review:*

1. Engineer will provide timely review of Shop Drawings and Samples in accordance with the Schedule of Submittals acceptable to Engineer. Engineer's review and approval will be only to determine if the items covered by the submittals will, after installation or incorporation in the Work, conform to the information given in the Contract Documents and be compatible with the design concept of the completed Project as a functioning whole as indicated by the Contract Documents.
2. Engineer's review and approval will not extend to means, methods, techniques, sequences, or procedures of construction or to safety precautions or programs incident thereto.
3. Engineer's review and approval of a separate item as such will not indicate approval of the assembly in which the item functions.
4. Engineer's review and approval of a Shop Drawing or Sample shall not relieve Contractor from responsibility for any variation from the requirements of the Contract Documents unless Contractor has complied with the requirements of Paragraph 7.16.A.3 and Engineer has given written approval of each such variation by specific written notation thereof incorporated in or accompanying the Shop Drawing or Sample. Engineer will document any such approved variation from the requirements of the Contract Documents in a Field Order.
5. Engineer's review and approval of a Shop Drawing or Sample shall not relieve Contractor from responsibility for complying with the requirements of Paragraph 7.16.A and B.
6. Engineer's review and approval of a Shop Drawing or Sample, or of a variation from the requirements of the Contract Documents, shall not, under any circumstances, change the Contract Times or Contract Price, unless such changes are included in a Change Order.
7. Neither Engineer's receipt, review, acceptance or approval of a Shop Drawing, Sample, or other submittal shall result in such item becoming a Contract Document.
8. Contractor shall perform the Work in compliance with the requirements and commitments set forth in approved Shop Drawings and Samples, subject to the provisions of Paragraph 7.16.D.4.

E. *Resubmittal Procedures:*

1. Contractor shall make corrections required by Engineer and shall return the required number of corrected copies of Shop Drawings and submit, as required, new Samples for review and approval. Contractor shall direct specific attention in writing to revisions other than the corrections called for by Engineer on previous submittals.
2. Contractor shall furnish required submittals with sufficient information and accuracy to obtain required approval of an item with no more than three submittals. Engineer will record Engineer's time for reviewing a fourth or subsequent submittal of a Shop Drawings, sample, or other item requiring approval, and Contractor shall be responsible for Engineer's charges to Owner for such time. Owner may impose a set-off against payments due to Contractor to secure reimbursement for such charges.
3. If Contractor requests a change of a previously approved submittal item, Contractor shall be responsible for Engineer's charges to Owner for its review time, and Owner may impose a set-off against payments due to Contractor to secure reimbursement for such charges, unless the need for such change is beyond the control of Contractor.

#### 7.17 *Contractor's General Warranty and Guarantee*

- A. Contractor warrants and guarantees to Owner that all Work will be in accordance with the Contract Documents and will not be defective. Engineer and its officers, directors, members, partners, employees, agents, consultants, and subcontractors shall be entitled to rely on Contractor's warranty and guarantee.
- B. Contractor's warranty and guarantee hereunder excludes defects or damage caused by:
  - 1. abuse, modification, or improper maintenance or operation by persons other than Contractor, Subcontractors, Suppliers, or any other individual or entity for whom Contractor is responsible; or
  - 2. normal wear and tear under normal usage.
- C. Contractor's obligation to perform and complete the Work in accordance with the Contract Documents shall be absolute. None of the following will constitute an acceptance of Work that is not in accordance with the Contract Documents or a release of Contractor's obligation to perform the Work in accordance with the Contract Documents:
  - 1. observations by Engineer;
  - 2. recommendation by Engineer or payment by Owner of any progress or final payment;
  - 3. the issuance of a certificate of Substantial Completion by Engineer or any payment related thereto by Owner;
  - 4. use or occupancy of the Work or any part thereof by Owner;
  - 5. any review and approval of a Shop Drawing or Sample submittal;
  - 6. the issuance of a notice of acceptability by Engineer;
  - 7. any inspection, test, or approval by others; or
  - 8. any correction of defective Work by Owner.
- D. If the Contract requires the Contractor to accept the assignment of a contract entered into by Owner, then the specific warranties, guarantees, and correction obligations contained in the assigned contract shall govern with respect to Contractor's performance obligations to Owner for the Work described in the assigned contract.

#### 7.18 *Indemnification*

- A. To the fullest extent permitted by Laws and Regulations, and in addition to any other obligations of Contractor under the Contract or otherwise, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to the performance of the Work, provided that any such claim, cost, loss, or damage is attributable to bodily injury, sickness, disease, or death, or to injury to or destruction of tangible property (other than the Work itself), including the loss of use resulting therefrom but only to the extent caused by any negligent act or omission of Contractor, any Subcontractor, any Supplier, or any individual or entity directly or indirectly employed by any of them to perform any of the Work or anyone for whose acts any of them may be liable.

- B. In any and all claims against Owner or Engineer or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors by any employee (or the survivor or personal representative of such employee) of Contractor, any Subcontractor, any Supplier, or any individual or entity directly or indirectly employed by any of them to perform any of the Work, or anyone for whose acts any of them may be liable, the indemnification obligation under Paragraph 7.18.A shall not be limited in any way by any limitation on the amount or type of damages, compensation, or benefits payable by or for Contractor or any such Subcontractor, Supplier, or other individual or entity under workers' compensation acts, disability benefit acts, or other employee benefit acts.
- C. The indemnification obligations of Contractor under Paragraph 7.18.A shall not extend to the liability of Engineer and Engineer's officers, directors, members, partners, employees, agents, consultants and subcontractors arising out of:
  - 1. the preparation or approval of, or the failure to prepare or approve maps, Drawings, opinions, reports, surveys, Change Orders, designs, or Specifications; or
  - 2. giving directions or instructions, or failing to give them, if that is the primary cause of the injury or damage.

#### 7.19 *Delegation of Professional Design Services*

- A. Contractor will not be required to provide professional design services unless such services are specifically required by the Contract Documents for a portion of the Work or unless such services are required to carry out Contractor's responsibilities for construction means, methods, techniques, sequences and procedures. Contractor shall not be required to provide professional services in violation of applicable Laws and Regulations.
- B. If professional design services or certifications by a design professional related to systems, materials, or equipment are specifically required of Contractor by the Contract Documents, Owner and Engineer will specify all performance and design criteria that such services must satisfy. Contractor shall cause such services or certifications to be provided by a properly licensed professional, whose signature and seal shall appear on all drawings, calculations, specifications, certifications, and other submittals prepared by such professional. Shop Drawings and other submittals related to the Work designed or certified by such professional, if prepared by others, shall bear such professional's written approval when submitted to Engineer.
- C. Owner and Engineer shall be entitled to rely upon the adequacy, accuracy, and completeness of the services, certifications, or approvals performed by such design professionals, provided Owner and Engineer have specified to Contractor all performance and design criteria that such services must satisfy.
- D. Pursuant to this paragraph, Engineer's review and approval of design calculations and design drawings will be only for the limited purpose of checking for conformance with performance and design criteria given and the design concept expressed in the Contract Documents. Engineer's review and approval of Shop Drawings and other submittals (except design calculations and design drawings) will be only for the purpose stated in Paragraph 7.16.D.1.
- E. Contractor shall not be responsible for the adequacy of the performance or design criteria specified by Owner or Engineer.

## ARTICLE 8 – OTHER WORK AT THE SITE

### 8.01 *Other Work*

- A. In addition to and apart from the Work under the Contract Documents, the Owner may perform other work at or adjacent to the Site. Such other work may be performed by Owner's employees, or through contracts between the Owner and third parties. Owner may also arrange to have third-party utility owners perform work on their utilities and facilities at or adjacent to the Site.
- B. If Owner performs other work at or adjacent to the Site with Owner's employees, or through contracts for such other work, then Owner shall give Contractor written notice thereof prior to starting any such other work. If Owner has advance information regarding the start of any utility work at or adjacent to the Site, Owner shall provide such information to Contractor.
- C. Contractor shall afford each other contractor that performs such other work, each utility owner performing other work, and Owner, if Owner is performing other work with Owner's employees, proper and safe access to the Site, and provide a reasonable opportunity for the introduction and storage of materials and equipment and the execution of such other work. Contractor shall do all cutting, fitting, and patching of the Work that may be required to properly connect or otherwise make its several parts come together and properly integrate with such other work. Contractor shall not endanger any work of others by cutting, excavating, or otherwise altering such work; provided, however, that Contractor may cut or alter others' work with the written consent of Engineer and the others whose work will be affected.
- D. If the proper execution or results of any part of Contractor's Work depends upon work performed by others under this Article 8, Contractor shall inspect such other work and promptly report to Engineer in writing any delays, defects, or deficiencies in such other work that render it unavailable or unsuitable for the proper execution and results of Contractor's Work. Contractor's failure to so report will constitute an acceptance of such other work as fit and proper for integration with Contractor's Work except for latent defects and deficiencies in such other work.

### 8.02 *Coordination*

- A. If Owner intends to contract with others for the performance of other work at or adjacent to the Site, to perform other work at or adjacent to the Site with Owner's employees, or to arrange to have utility owners perform work at or adjacent to the Site, the following will be set forth in the Supplementary Conditions or provided to Contractor prior to the start of any such other work:
  - 1. the identity of the individual or entity that will have authority and responsibility for coordination of the activities among the various contractors;
  - 2. an itemization of the specific matters to be covered by such authority and responsibility; and
  - 3. the extent of such authority and responsibilities.
- B. Unless otherwise provided in the Supplementary Conditions, Owner shall have sole authority and responsibility for such coordination.

### 8.03 *Legal Relationships*

- A. If, in the course of performing other work at or adjacent to the Site for Owner, the Owner's employees, any other contractor working for Owner, or any utility owner for whom the

Owner is responsible causes damage to the Work or to the property of Contractor or its Subcontractors, or delays, disrupts, interferes with, or increases the scope or cost of the performance of the Work, through actions or inaction, then Contractor shall be entitled to an equitable adjustment in the Contract Price or the Contract Times, or both. Contractor must submit any Change Proposal seeking an equitable adjustment in the Contract Price or the Contract Times under this paragraph within 30 days of the damaging, delaying, disrupting, or interfering event. The entitlement to, and extent of, any such equitable adjustment shall take into account information (if any) regarding such other work that was provided to Contractor in the Contract Documents prior to the submittal of the Bid or the final negotiation of the terms of the Contract. When applicable, any such equitable adjustment in Contract Price shall be conditioned on Contractor assigning to Owner all Contractor's rights against such other contractor or utility owner with respect to the damage, delay, disruption, or interference that is the subject of the adjustment. Contractor's entitlement to an adjustment of the Contract Times is conditioned on such adjustment being essential to Contractor's ability to complete the Work within the Contract Times.

- B. Contractor shall take reasonable and customary measures to avoid damaging, delaying, disrupting, or interfering with the work of Owner, any other contractor, or any utility owner performing other work at or adjacent to the Site. If Contractor fails to take such measures and as a result damages, delays, disrupts, or interferes with the work of any such other contractor or utility owner, then Owner may impose a set-off against payments due to Contractor, and assign to such other contractor or utility owner the Owner's contractual rights against Contractor with respect to the breach of the obligations set forth in this paragraph.
- C. When Owner is performing other work at or adjacent to the Site with Owner's employees, Contractor shall be liable to Owner for damage to such other work, and for the reasonable direct delay, disruption, and interference costs incurred by Owner as a result of Contractor's failure to take reasonable and customary measures with respect to Owner's other work. In response to such damage, delay, disruption, or interference, Owner may impose a set-off against payments due to Contractor.
- D. If Contractor damages, delays, disrupts, or interferes with the work of any other contractor, or any utility owner performing other work at or adjacent to the Site, through Contractor's failure to take reasonable and customary measures to avoid such impacts, or if any claim arising out of Contractor's actions, inactions, or negligence in performance of the Work at or adjacent to the Site is made by any such other contractor or utility owner against Contractor, Owner, or Engineer, then Contractor shall (1) promptly attempt to settle the claim as to all parties through negotiations with such other contractor or utility owner, or otherwise resolve the claim by arbitration or other dispute resolution proceeding or at law, and (2) indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them from and against any such claims, and against all costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such damage, delay, disruption, or interference.

## ARTICLE 9 – OWNER’S RESPONSIBILITIES

### 9.01 *Communications to Contractor*

- A. Except as otherwise provided in these General Conditions, Owner shall issue all communications to Contractor through Engineer.

### 9.02 *Replacement of Engineer*

- A. Owner may at its discretion appoint an Engineer to replace Engineer, provided Contractor makes no reasonable objection to the replacement Engineer. The replacement Engineer’s status under the Contract Documents shall be that of the former Engineer.

### 9.03 *Furnish Data*

- A. Owner shall promptly furnish the data required of Owner under the Contract Documents.

### 9.04 *Pay When Due*

- A. Owner shall make payments to Contractor when they are due as provided in the Agreement.

### 9.05 *Lands and Easements; Reports, Tests, and Drawings*

- A. Owner’s duties with respect to providing lands and easements are set forth in Paragraph 5.01.
- B. Owner’s duties with respect to providing engineering surveys to establish reference points are set forth in Paragraph 4.03.
- C. Article 5 refers to Owner’s identifying and making available to Contractor copies of reports of explorations and tests of conditions at the Site, and drawings of physical conditions relating to existing surface or subsurface structures at the Site.

### 9.06 *Insurance*

- A. Owner’s responsibilities, if any, with respect to purchasing and maintaining liability and property insurance are set forth in Article 6.

### 9.07 *Change Orders*

- A. Owner’s responsibilities with respect to Change Orders are set forth in Article 11.

### 9.08 *Inspections, Tests, and Approvals*

- A. Owner’s responsibility with respect to certain inspections, tests, and approvals is set forth in Paragraph 14.02.B.

### 9.09 *Limitations on Owner’s Responsibilities*

- A. The Owner shall not supervise, direct, or have control or authority over, nor be responsible for, Contractor’s means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the performance of the Work. Owner will not be responsible for Contractor’s failure to perform the Work in accordance with the Contract Documents.

### 9.10 *Undisclosed Hazardous Environmental Condition*

- A. Owner’s responsibility in respect to an undisclosed Hazardous Environmental Condition is set forth in Paragraph 5.06.

9.11 *Evidence of Financial Arrangements*

- A. Upon request of Contractor, Owner shall furnish Contractor reasonable evidence that financial arrangements have been made to satisfy Owner's obligations under the Contract Documents (including obligations under proposed changes in the Work).

9.12 *Safety Programs*

- A. While at the Site, Owner's employees and representatives shall comply with the specific applicable requirements of Contractor's safety programs of which Owner has been informed.
- B. Owner shall furnish copies of any applicable Owner safety programs to Contractor.

**ARTICLE 10 – ENGINEER'S STATUS DURING CONSTRUCTION**

10.01 *Owner's Representative*

- A. Engineer will be Owner's representative during the construction period. The duties and responsibilities and the limitations of authority of Engineer as Owner's representative during construction are set forth in the Contract.

10.02 *Visits to Site*

- A. Engineer will make visits to the Site at intervals appropriate to the various stages of construction as Engineer deems necessary in order to observe as an experienced and qualified design professional the progress that has been made and the quality of the various aspects of Contractor's executed Work. Based on information obtained during such visits and observations, Engineer, for the benefit of Owner, will determine, in general, if the Work is proceeding in accordance with the Contract Documents. Engineer will not be required to make exhaustive or continuous inspections on the Site to check the quality or quantity of the Work. Engineer's efforts will be directed toward providing for Owner a greater degree of confidence that the completed Work will conform generally to the Contract Documents. On the basis of such visits and observations, Engineer will keep Owner informed of the progress of the Work and will endeavor to guard Owner against defective Work.
- B. Engineer's visits and observations are subject to all the limitations on Engineer's authority and responsibility set forth in Paragraph 10.08. Particularly, but without limitation, during or as a result of Engineer's visits or observations of Contractor's Work, Engineer will not supervise, direct, control, or have authority over or be responsible for Contractor's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the performance of the Work.

10.03 *Project Representative*

- A. If Owner and Engineer have agreed that Engineer will furnish a Resident Project Representative to represent Engineer at the Site and assist Engineer in observing the progress and quality of the Work, then the authority and responsibilities of any such Resident Project Representative will be as provided in the Supplementary Conditions, and limitations on the responsibilities thereof will be as provided in Paragraph 10.08. If Owner designates another representative or agent to represent Owner at the Site who is not Engineer's consultant, agent, or employee, the responsibilities and authority and limitations thereon of such other individual or entity will be as provided in the Supplementary Conditions.

10.04 *Rejecting Defective Work*

- A. Engineer has the authority to reject Work in accordance with Article 14.

10.05 *Shop Drawings, Change Orders and Payments*

- A. Engineer's authority, and limitations thereof, as to Shop Drawings and Samples, are set forth in Paragraph 7.16.
- B. Engineer's authority, and limitations thereof, as to design calculations and design drawings submitted in response to a delegation of professional design services, if any, are set forth in Paragraph 7.19.
- C. Engineer's authority as to Change Orders is set forth in Article 11.
- D. Engineer's authority as to Applications for Payment is set forth in Article 15.

10.06 *Determinations for Unit Price Work*

- A. Engineer will determine the actual quantities and classifications of Unit Price Work performed by Contractor as set forth in Paragraph 13.03.

10.07 *Decisions on Requirements of Contract Documents and Acceptability of Work*

- A. Engineer will render decisions regarding the requirements of the Contract Documents, and judge the acceptability of the Work, pursuant to the specific procedures set forth herein for initial interpretations, Change Proposals, and acceptance of the Work. In rendering such decisions and judgments, Engineer will not show partiality to Owner or Contractor, and will not be liable to Owner, Contractor, or others in connection with any proceedings, interpretations, decisions, or judgments conducted or rendered in good faith.

10.08 *Limitations on Engineer's Authority and Responsibilities*

- A. Neither Engineer's authority or responsibility under this Article 10 or under any other provision of the Contract, nor any decision made by Engineer in good faith either to exercise or not exercise such authority or responsibility or the undertaking, exercise, or performance of any authority or responsibility by Engineer, shall create, impose, or give rise to any duty in contract, tort, or otherwise owed by Engineer to Contractor, any Subcontractor, any Supplier, any other individual or entity, or to any surety for or employee or agent of any of them.
- B. Engineer will not supervise, direct, control, or have authority over or be responsible for Contractor's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the performance of the Work. Engineer will not be responsible for Contractor's failure to perform the Work in accordance with the Contract Documents.
- C. Engineer will not be responsible for the acts or omissions of Contractor or of any Subcontractor, any Supplier, or of any other individual or entity performing any of the Work.
- D. Engineer's review of the final Application for Payment and accompanying documentation and all maintenance and operating instructions, schedules, guarantees, bonds, certificates of inspection, tests and approvals, and other documentation required to be delivered by Paragraph 15.06.A will only be to determine generally that their content complies with the requirements of, and in the case of certificates of inspections, tests, and approvals, that the results certified indicate compliance with the Contract Documents.
- E. The limitations upon authority and responsibility set forth in this Paragraph 10.08 shall also apply to the Resident Project Representative, if any.

#### 10.09 *Compliance with Safety Program*

- A. While at the Site, Engineer's employees and representatives will comply with the specific applicable requirements of Owner's and Contractor's safety programs (if any) of which Engineer has been informed.

### **ARTICLE 11 – AMENDING THE CONTRACT DOCUMENTS; CHANGES IN THE WORK**

#### 11.01 *Amending and Supplementing Contract Documents*

- A. The Contract Documents may be amended or supplemented by a Change Order, a Work Change Directive, or a Field Order.
  - 1. *Change Orders:*
    - a. If an amendment or supplement to the Contract Documents includes a change in the Contract Price or the Contract Times, such amendment or supplement must be set forth in a Change Order. A Change Order also may be used to establish amendments and supplements of the Contract Documents that do not affect the Contract Price or Contract Times.
    - b. Owner and Contractor may amend those terms and conditions of the Contract Documents that do not involve (1) the performance or acceptability of the Work, (2) the design (as set forth in the Drawings, Specifications, or otherwise), or (3) other engineering or technical matters, without the recommendation of the Engineer. Such an amendment shall be set forth in a Change Order.
  - 2. *Work Change Directives:* A Work Change Directive will not change the Contract Price or the Contract Times but is evidence that the parties expect that the modification ordered or documented by a Work Change Directive will be incorporated in a subsequently issued Change Order, following negotiations by the parties as to the Work Change Directive's effect, if any, on the Contract Price and Contract Times; or, if negotiations are unsuccessful, by a determination under the terms of the Contract Documents governing adjustments, expressly including Paragraph 11.04 regarding change of Contract Price. Contractor must submit any Change Proposal seeking an adjustment of the Contract Price or the Contract Times, or both, no later than 30 days after the completion of the Work set out in the Work Change Directive. Owner must submit any Claim seeking an adjustment of the Contract Price or the Contract Times, or both, no later than 60 days after issuance of the Work Change Directive.
  - 3. *Field Orders:* Engineer may authorize minor changes in the Work if the changes do not involve an adjustment in the Contract Price or the Contract Times and are compatible with the design concept of the completed Project as a functioning whole as indicated by the Contract Documents. Such changes will be accomplished by a Field Order and will be binding on Owner and also on Contractor, which shall perform the Work involved promptly. If Contractor believes that a Field Order justifies an adjustment in the Contract Price or Contract Times, or both, then before proceeding with the Work at issue, Contractor shall submit a Change Proposal as provided herein.

#### 11.02 *Owner-Authorized Changes in the Work*

- A. Without invalidating the Contract and without notice to any surety, Owner may, at any time or from time to time, order additions, deletions, or revisions in the Work. Such changes shall be supported by Engineer's recommendation, to the extent the change involves the design (as set forth in the Drawings, Specifications, or otherwise), or other engineering or technical

matters. Such changes may be accomplished by a Change Order, if Owner and Contractor have agreed as to the effect, if any, of the changes on Contract Times or Contract Price; or by a Work Change Directive. Upon receipt of any such document, Contractor shall promptly proceed with the Work involved; or, in the case of a deletion in the Work, promptly cease construction activities with respect to such deleted Work. Added or revised Work shall be performed under the applicable conditions of the Contract Documents. Nothing in this paragraph shall obligate Contractor to undertake work that Contractor reasonably concludes cannot be performed in a manner consistent with Contractor's safety obligations under the Contract Documents or Laws and Regulations.

#### 11.03 *Unauthorized Changes in the Work*

- A. Contractor shall not be entitled to an increase in the Contract Price or an extension of the Contract Times with respect to any work performed that is not required by the Contract Documents, as amended, modified, or supplemented, except in the case of an emergency as provided in Paragraph 7.15 or in the case of uncovering Work as provided in Paragraph 14.05.

#### 11.04 *Change of Contract Price*

- A. The Contract Price may only be changed by a Change Order. Any Change Proposal for an adjustment in the Contract Price shall comply with the provisions of Paragraph 11.06. Any Claim for an adjustment of Contract Price shall comply with the provisions of Article 12.
- B. An adjustment in the Contract Price will be determined as follows:
  - 1. where the Work involved is covered by unit prices contained in the Contract Documents, then by application of such unit prices to the quantities of the items involved (subject to the provisions of Paragraph 13.03); or
  - 2. where the Work involved is not covered by unit prices contained in the Contract Documents, then by a mutually agreed lump sum (which may include an allowance for overhead and profit not necessarily in accordance with Paragraph 11.04.C.2); or
  - 3. where the Work involved is not covered by unit prices contained in the Contract Documents and the parties do not reach mutual agreement to a lump sum, then on the basis of the Cost of the Work (determined as provided in Paragraph 13.01) plus a Contractor's fee for overhead and profit (determined as provided in Paragraph 11.04.C).
- C. *Contractor's Fee*: When applicable, the Contractor's fee for overhead and profit shall be determined as follows:
  - 1. a mutually acceptable fixed fee; or
  - 2. if a fixed fee is not agreed upon, then a fee based on the following percentages of the various portions of the Cost of the Work:
    - a. for costs incurred under Paragraphs 13.01.B.1 and 13.01.B.2, the Contractor's fee shall be 15 percent;
    - b. for costs incurred under Paragraph 13.01.B.3, the Contractor's fee shall be five percent;
    - c. where one or more tiers of subcontracts are on the basis of Cost of the Work plus a fee and no fixed fee is agreed upon, the intent of Paragraphs 11.04.C.2.a and 11.04.C.2.b is that the Contractor's fee shall be based on: (1) a fee of 15 percent of the costs incurred under Paragraphs 13.01.A.1 and 13.01.A.2 by the Subcontractor that actually performs the Work, at whatever tier, and (2) with respect to Contractor itself and to any Subcontractors of a tier higher than that of the

Subcontractor that actually performs the Work, a fee of five percent of the amount (fee plus underlying costs incurred) attributable to the next lower tier Subcontractor; provided, however, that for any such subcontracted work the maximum total fee to be paid by Owner shall be no greater than 27 percent of the costs incurred by the Subcontractor that actually performs the work;

- d. no fee shall be payable on the basis of costs itemized under Paragraphs 13.01.B.4, 13.01.B.5, and 13.01.C;
- e. the amount of credit to be allowed by Contractor to Owner for any change which results in a net decrease in cost will be the amount of the actual net decrease in cost plus a deduction in Contractor's fee by an amount equal to five percent of such net decrease; and
- f. when both additions and credits are involved in any one change, the adjustment in Contractor's fee shall be computed on the basis of the net change in accordance with Paragraphs 11.04.C.2.a through 11.04.C.2.e, inclusive.

#### 11.05 *Change of Contract Times*

- A. The Contract Times may only be changed by a Change Order. Any Change Proposal for an adjustment in the Contract Times shall comply with the provisions of Paragraph 11.06. Any Claim for an adjustment in the Contract Times shall comply with the provisions of Article 12.
- B. An adjustment of the Contract Times shall be subject to the limitations set forth in Paragraph 4.05, concerning delays in Contractor's progress.

#### 11.06 *Change Proposals*

- A. Contractor shall submit a Change Proposal to Engineer to request an adjustment in the Contract Times or Contract Price; appeal an initial decision by Engineer concerning the requirements of the Contract Documents or relating to the acceptability of the Work under the Contract Documents; contest a set-off against payment due; or seek other relief under the Contract. The Change Proposal shall specify any proposed change in Contract Times or Contract Price, or both, or other proposed relief, and explain the reason for the proposed change, with citations to any governing or applicable provisions of the Contract Documents.
  - 1. *Procedures:* Contractor shall submit each Change Proposal to Engineer promptly (but in no event later than 30 days) after the start of the event giving rise thereto, or after such initial decision. The Contractor shall submit supporting data, including the proposed change in Contract Price or Contract Time (if any), to the Engineer and Owner within 15 days after the submittal of the Change Proposal. The supporting data shall be accompanied by a written statement that the supporting data are accurate and complete, and that any requested time or price adjustment is the entire adjustment to which Contractor believes it is entitled as a result of said event. Engineer will advise Owner regarding the Change Proposal, and consider any comments or response from Owner regarding the Change Proposal.
  - 2. *Engineer's Action:* Engineer will review each Change Proposal and, within 30 days after receipt of the Contractor's supporting data, either deny the Change Proposal in whole, approve it in whole, or deny it in part and approve it in part. Such actions shall be in writing, with a copy provided to Owner and Contractor. If Engineer does not take action on the Change Proposal within 30 days, then either Owner or Contractor may at any time thereafter submit a letter to the other party indicating that as a result of Engineer's inaction the Change Proposal is deemed denied, thereby commencing the time for appeal of the denial under Article 12.

3. *Binding Decision*: Engineer's decision will be final and binding upon Owner and Contractor, unless Owner or Contractor appeals the decision by filing a Claim under Article 12.
- B. *Resolution of Certain Change Proposals*: If the Change Proposal does not involve the design (as set forth in the Drawings, Specifications, or otherwise), the acceptability of the Work, or other engineering or technical matters, then Engineer will notify the parties that the Engineer is unable to resolve the Change Proposal. For purposes of further resolution of such a Change Proposal, such notice shall be deemed a denial, and Contractor may choose to seek resolution under the terms of Article 12.

#### 11.07 *Execution of Change Orders*

- A. Owner and Contractor shall execute appropriate Change Orders covering:
1. changes in the Contract Price or Contract Times which are agreed to by the parties, including any undisputed sum or amount of time for Work actually performed in accordance with a Work Change Directive;
  2. changes in Contract Price resulting from an Owner set-off, unless Contractor has duly contested such set-off;
  3. changes in the Work which are: (a) ordered by Owner pursuant to Paragraph 11.02, (b) required because of Owner's acceptance of defective Work under Paragraph 14.04 or Owner's correction of defective Work under Paragraph 14.07, or (c) agreed to by the parties, subject to the need for Engineer's recommendation if the change in the Work involves the design (as set forth in the Drawings, Specifications, or otherwise), or other engineering or technical matters; and
  4. changes in the Contract Price or Contract Times, or other changes, which embody the substance of any final and binding results under Paragraph 11.06, or Article 12.
- B. If Owner or Contractor refuses to execute a Change Order that is required to be executed under the terms of this Paragraph 11.07, it shall be deemed to be of full force and effect, as if fully executed.

#### 11.08 *Notification to Surety*

- A. If the provisions of any bond require notice to be given to a surety of any change affecting the general scope of the Work or the provisions of the Contract Documents (including, but not limited to, Contract Price or Contract Times), the giving of any such notice will be Contractor's responsibility. The amount of each applicable bond will be adjusted to reflect the effect of any such change.

### **ARTICLE 12 – CLAIMS**

#### 12.01 *Claims*

- A. *Claims Process*: The following disputes between Owner and Contractor shall be submitted to the Claims process set forth in this Article:
1. Appeals by Owner or Contractor of Engineer's decisions regarding Change Proposals;
  2. Owner demands for adjustments in the Contract Price or Contract Times, or other relief under the Contract Documents; and

3. Disputes that Engineer has been unable to address because they do not involve the design (as set forth in the Drawings, Specifications, or otherwise), the acceptability of the Work, or other engineering or technical matters.
- B. *Submittal of Claim:* The party submitting a Claim shall deliver it directly to the other party to the Contract promptly (but in no event later than 30 days) after the start of the event giving rise thereto; in the case of appeals regarding Change Proposals within 30 days of the decision under appeal. The party submitting the Claim shall also furnish a copy to the Engineer, for its information only. The responsibility to substantiate a Claim shall rest with the party making the Claim. In the case of a Claim by Contractor seeking an increase in the Contract Times or Contract Price, or both, Contractor shall certify that the Claim is made in good faith, that the supporting data are accurate and complete, and that to the best of Contractor's knowledge and belief the amount of time or money requested accurately reflects the full amount to which Contractor is entitled.
- C. *Review and Resolution:* The party receiving a Claim shall review it thoroughly, giving full consideration to its merits. The two parties shall seek to resolve the Claim through the exchange of information and direct negotiations. The parties may extend the time for resolving the Claim by mutual agreement. All actions taken on a Claim shall be stated in writing and submitted to the other party, with a copy to Engineer.
- D. *Mediation:*
1. At any time after initiation of a Claim, Owner and Contractor may mutually agree to mediation of the underlying dispute. The agreement to mediate shall stay the Claim submittal and response process.
  2. If Owner and Contractor agree to mediation, then after 60 days from such agreement, either Owner or Contractor may unilaterally terminate the mediation process, and the Claim submittal and decision process shall resume as of the date of the termination. If the mediation proceeds but is unsuccessful in resolving the dispute, the Claim submittal and decision process shall resume as of the date of the conclusion of the mediation, as determined by the mediator.
  3. Owner and Contractor shall each pay one-half of the mediator's fees and costs.
- E. *Partial Approval:* If the party receiving a Claim approves the Claim in part and denies it in part, such action shall be final and binding unless within 30 days of such action the other party invokes the procedure set forth in Article 17 for final resolution of disputes.
- F. *Denial of Claim:* If efforts to resolve a Claim are not successful, the party receiving the Claim may deny it by giving written notice of denial to the other party. If the receiving party does not take action on the Claim within 90 days, then either Owner or Contractor may at any time thereafter submit a letter to the other party indicating that as a result of the inaction, the Claim is deemed denied, thereby commencing the time for appeal of the denial. A denial of the Claim shall be final and binding unless within 30 days of the denial the other party invokes the procedure set forth in Article 17 for the final resolution of disputes.
- G. *Final and Binding Results:* If the parties reach a mutual agreement regarding a Claim, whether through approval of the Claim, direct negotiations, mediation, or otherwise; or if a Claim is approved in part and denied in part, or denied in full, and such actions become final and binding; then the results of the agreement or action on the Claim shall be incorporated in a Change Order to the extent they affect the Contract, including the Work, the Contract Times, or the Contract Price.

## ARTICLE 13 – COST OF THE WORK; ALLOWANCES; UNIT PRICE WORK

### 13.01 *Cost of the Work*

- A. *Purposes for Determination of Cost of the Work:* The term Cost of the Work means the sum of all costs necessary for the proper performance of the Work at issue, as further defined below. The provisions of this Paragraph 13.01 are used for two distinct purposes:
1. To determine Cost of the Work when Cost of the Work is a component of the Contract Price, under cost-plus-fee, time-and-materials, or other cost-based terms; or
  2. To determine the value of a Change Order, Change Proposal, Claim, set-off, or other adjustment in Contract Price. When the value of any such adjustment is determined on the basis of Cost of the Work, Contractor is entitled only to those additional or incremental costs required because of the change in the Work or because of the event giving rise to the adjustment.
- B. *Costs Included:* Except as otherwise may be agreed to in writing by Owner, costs included in the Cost of the Work shall be in amounts no higher than those prevailing in the locality of the Project, shall not include any of the costs itemized in Paragraph 13.01.C, and shall include only the following items:
1. Payroll costs for employees in the direct employ of Contractor in the performance of the Work under schedules of job classifications agreed upon by Owner and Contractor. Such employees shall include, without limitation, superintendents, foremen, and other personnel employed full time on the Work. Payroll costs for employees not employed full time on the Work shall be apportioned on the basis of their time spent on the Work. Payroll costs shall include, but not be limited to, salaries and wages plus the cost of fringe benefits, which shall include social security contributions, unemployment, excise, and payroll taxes, workers' compensation, health and retirement benefits, bonuses, sick leave, and vacation and holiday pay applicable thereto. The expenses of performing Work outside of regular working hours, on Saturday, Sunday, or legal holidays, shall be included in the above to the extent authorized by Owner.
  2. Cost of all materials and equipment furnished and incorporated in the Work, including costs of transportation and storage thereof, and Suppliers' field services required in connection therewith. All cash discounts shall accrue to Contractor unless Owner deposits funds with Contractor with which to make payments, in which case the cash discounts shall accrue to Owner. All trade discounts, rebates, and refunds and returns from sale of surplus materials and equipment shall accrue to Owner, and Contractor shall make provisions so that they may be obtained.
  3. Payments made by Contractor to Subcontractors for Work performed by Subcontractors. If required by Owner, Contractor shall obtain competitive bids from subcontractors acceptable to Owner and Contractor and shall deliver such bids to Owner, who will then determine, with the advice of Engineer, which bids, if any, will be acceptable. If any subcontract provides that the Subcontractor is to be paid on the basis of Cost of the Work plus a fee, the Subcontractor's Cost of the Work and fee shall be determined in the same manner as Contractor's Cost of the Work and fee as provided in this Paragraph 13.01.
  4. Costs of special consultants (including but not limited to engineers, architects, testing laboratories, surveyors, attorneys, and accountants) employed for services specifically related to the Work.

5. Supplemental costs including the following:
  - a. The proportion of necessary transportation, travel, and subsistence expenses of Contractor's employees incurred in discharge of duties connected with the Work.
  - b. Cost, including transportation and maintenance, of all materials, supplies, equipment, machinery, appliances, office, and temporary facilities at the Site, and hand tools not owned by the workers, which are consumed in the performance of the Work, and cost, less market value, of such items used but not consumed which remain the property of Contractor.
  - c. Rentals of all construction equipment and machinery, and the parts thereof, whether rented from Contractor or others in accordance with rental agreements approved by Owner with the advice of Engineer, and the costs of transportation, loading, unloading, assembly, dismantling, and removal thereof. All such costs shall be in accordance with the terms of said rental agreements. The rental of any such equipment, machinery, or parts shall cease when the use thereof is no longer necessary for the Work.
  - d. Sales, consumer, use, and other similar taxes related to the Work, and for which Contractor is liable, as imposed by Laws and Regulations.
  - e. Deposits lost for causes other than negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable, and royalty payments and fees for permits and licenses.
  - f. Losses and damages (and related expenses) caused by damage to the Work, not compensated by insurance or otherwise, sustained by Contractor in connection with the performance of the Work (except losses and damages within the deductible amounts of property insurance established in accordance with Paragraph 6.05), provided such losses and damages have resulted from causes other than the negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable. Such losses shall include settlements made with the written consent and approval of Owner. No such losses, damages, and expenses shall be included in the Cost of the Work for the purpose of determining Contractor's fee.
  - g. The cost of utilities, fuel, and sanitary facilities at the Site.
  - h. Minor expenses such as communication service at the Site, express and courier services, and similar petty cash items in connection with the Work.
  - i. The costs of premiums for all bonds and insurance that Contractor is required by the Contract Documents to purchase and maintain.
- C. *Costs Excluded*: The term Cost of the Work shall not include any of the following items:
  1. Payroll costs and other compensation of Contractor's officers, executives, principals (of partnerships and sole proprietorships), general managers, safety managers, engineers, architects, estimators, attorneys, auditors, accountants, purchasing and contracting agents, expeditors, timekeepers, clerks, and other personnel employed by Contractor, whether at the Site or in Contractor's principal or branch office for general administration of the Work and not specifically included in the agreed upon schedule of job classifications referred to in Paragraph 13.01.B.1 or specifically covered by Paragraph 13.01.B.4. The payroll costs and other compensation excluded here are to be considered administrative costs covered by the Contractor's fee.

2. Expenses of Contractor's principal and branch offices other than Contractor's office at the Site.
  3. Any part of Contractor's capital expenses, including interest on Contractor's capital employed for the Work and charges against Contractor for delinquent payments.
  4. Costs due to the negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable, including but not limited to, the correction of defective Work, disposal of materials or equipment wrongly supplied, and making good any damage to property.
  5. Other overhead or general expense costs of any kind and the costs of any item not specifically and expressly included in Paragraph 13.01.B.
- D. *Contractor's Fee*: When the Work as a whole is performed on the basis of cost-plus, Contractor's fee shall be determined as set forth in the Agreement. When the value of any Work covered by a Change Order, Change Proposal, Claim, set-off, or other adjustment in Contract Price is determined on the basis of Cost of the Work, Contractor's fee shall be determined as set forth in Paragraph 11.04.C.
- E. *Documentation*: Whenever the Cost of the Work for any purpose is to be determined pursuant to this Article 13, Contractor will establish and maintain records thereof in accordance with generally accepted accounting practices and submit in a form acceptable to Engineer an itemized cost breakdown together with supporting data.

### 13.02 Allowances

- A. It is understood that Contractor has included in the Contract Price all allowances so named in the Contract Documents and shall cause the Work so covered to be performed for such sums and by such persons or entities as may be acceptable to Owner and Engineer.
- B. *Cash Allowances*: Contractor agrees that:
1. the cash allowances include the cost to Contractor (less any applicable trade discounts) of materials and equipment required by the allowances to be delivered at the Site, and all applicable taxes; and
  2. Contractor's costs for unloading and handling on the Site, labor, installation, overhead, profit, and other expenses contemplated for the cash allowances have been included in the Contract Price and not in the allowances, and no demand for additional payment on account of any of the foregoing will be valid.
- C. *Contingency Allowance*: Contractor agrees that a contingency allowance, if any, is for the sole use of Owner to cover unanticipated costs.
- D. Prior to final payment, an appropriate Change Order will be issued as recommended by Engineer to reflect actual amounts due Contractor on account of Work covered by allowances, and the Contract Price shall be correspondingly adjusted.

### 13.03 Unit Price Work

- A. Where the Contract Documents provide that all or part of the Work is to be Unit Price Work, initially the Contract Price will be deemed to include for all Unit Price Work an amount equal to the sum of the unit price for each separately identified item of Unit Price Work times the estimated quantity of each item as indicated in the Agreement.

- B. The estimated quantities of items of Unit Price Work are not guaranteed and are solely for the purpose of comparison of Bids and determining an initial Contract Price. Payments to Contractor for Unit Price Work will be based on actual quantities.
- C. Each unit price will be deemed to include an amount considered by Contractor to be adequate to cover Contractor's overhead and profit for each separately identified item.
- D. Engineer will determine the actual quantities and classifications of Unit Price Work performed by Contractor. Engineer will review with Contractor the Engineer's preliminary determinations on such matters before rendering a written decision thereon (by recommendation of an Application for Payment or otherwise). Engineer's written decision thereon will be final and binding (except as modified by Engineer to reflect changed factual conditions or more accurate data) upon Owner and Contractor, subject to the provisions of the following paragraph.
- E. Within 30 days of Engineer's written decision under the preceding paragraph, Contractor may submit a Change Proposal, or Owner may file a Claim, seeking an adjustment in the Contract Price if:
  - 1. the quantity of any item of Unit Price Work performed by Contractor differs materially and significantly from the estimated quantity of such item indicated in the Agreement;
  - 2. there is no corresponding adjustment with respect to any other item of Work; and
  - 3. Contractor believes that it is entitled to an increase in Contract Price as a result of having incurred additional expense or Owner believes that Owner is entitled to a decrease in Contract Price, and the parties are unable to agree as to the amount of any such increase or decrease.

## **ARTICLE 14 – TESTS AND INSPECTIONS; CORRECTION, REMOVAL OR ACCEPTANCE OF DEFECTIVE WORK**

### **14.01 Access to Work**

- A. Owner, Engineer, their consultants and other representatives and personnel of Owner, independent testing laboratories, and authorities having jurisdiction will have access to the Site and the Work at reasonable times for their observation, inspection, and testing. Contractor shall provide them proper and safe conditions for such access and advise them of Contractor's safety procedures and programs so that they may comply therewith as applicable.

### **14.02 Tests, Inspections, and Approvals**

- A. Contractor shall give Engineer timely notice of readiness of the Work (or specific parts thereof) for all required inspections and tests, and shall cooperate with inspection and testing personnel to facilitate required inspections and tests.
- B. Owner shall retain and pay for the services of an independent inspector, testing laboratory, or other qualified individual or entity to perform all inspections and tests expressly required by the Contract Documents to be furnished and paid for by Owner, except that costs incurred in connection with tests or inspections of covered Work shall be governed by the provisions of Paragraph 14.05.
- C. If Laws or Regulations of any public body having jurisdiction require any Work (or part thereof) specifically to be inspected, tested, or approved by an employee or other representative of such public body, Contractor shall assume full responsibility for arranging

and obtaining such inspections, tests, or approvals, pay all costs in connection therewith, and furnish Engineer the required certificates of inspection or approval.

- D. Contractor shall be responsible for arranging, obtaining, and paying for all inspections and tests required:
1. by the Contract Documents, unless the Contract Documents expressly allocate responsibility for a specific inspection or test to Owner;
  2. to attain Owner's and Engineer's acceptance of materials or equipment to be incorporated in the Work;
  3. by manufacturers of equipment furnished under the Contract Documents;
  4. for testing, adjusting, and balancing of mechanical, electrical, and other equipment to be incorporated into the Work; and
  5. for acceptance of materials, mix designs, or equipment submitted for approval prior to Contractor's purchase thereof for incorporation in the Work.

Such inspections and tests shall be performed by independent inspectors, testing laboratories, or other qualified individuals or entities acceptable to Owner and Engineer.

- E. If the Contract Documents require the Work (or part thereof) to be approved by Owner, Engineer, or another designated individual or entity, then Contractor shall assume full responsibility for arranging and obtaining such approvals.
- F. If any Work (or the work of others) that is to be inspected, tested, or approved is covered by Contractor without written concurrence of Engineer, Contractor shall, if requested by Engineer, uncover such Work for observation. Such uncovering shall be at Contractor's expense unless Contractor had given Engineer timely notice of Contractor's intention to cover the same and Engineer had not acted with reasonable promptness in response to such notice.

#### 14.03 *Defective Work*

- A. *Contractor's Obligation:* It is Contractor's obligation to assure that the Work is not defective.
- B. *Engineer's Authority:* Engineer has the authority to determine whether Work is defective, and to reject defective Work.
- C. *Notice of Defects:* Prompt notice of all defective Work of which Owner or Engineer has actual knowledge will be given to Contractor.
- D. *Correction, or Removal and Replacement:* Promptly after receipt of written notice of defective Work, Contractor shall correct all such defective Work, whether or not fabricated, installed, or completed, or, if Engineer has rejected the defective Work, remove it from the Project and replace it with Work that is not defective.
- E. *Preservation of Warranties:* When correcting defective Work, Contractor shall take no action that would void or otherwise impair Owner's special warranty and guarantee, if any, on said Work.
- F. *Costs and Damages:* In addition to its correction, removal, and replacement obligations with respect to defective Work, Contractor shall pay all claims, costs, losses, and damages arising out of or relating to defective Work, including but not limited to the cost of the inspection, testing, correction, removal, replacement, or reconstruction of such defective Work, fines levied against Owner by governmental authorities because the Work is defective, and the costs of repair or replacement of work of others resulting from defective Work. Prior to final

payment, if Owner and Contractor are unable to agree as to the measure of such claims, costs, losses, and damages resulting from defective Work, then Owner may impose a reasonable set-off against payments due under Article 15.

#### 14.04 *Acceptance of Defective Work*

- A. If, instead of requiring correction or removal and replacement of defective Work, Owner prefers to accept it, Owner may do so (subject, if such acceptance occurs prior to final payment, to Engineer's confirmation that such acceptance is in general accord with the design intent and applicable engineering principles, and will not endanger public safety). Contractor shall pay all claims, costs, losses, and damages attributable to Owner's evaluation of and determination to accept such defective Work (such costs to be approved by Engineer as to reasonableness), and for the diminished value of the Work to the extent not otherwise paid by Contractor. If any such acceptance occurs prior to final payment, the necessary revisions in the Contract Documents with respect to the Work shall be incorporated in a Change Order. If the parties are unable to agree as to the decrease in the Contract Price, reflecting the diminished value of Work so accepted, then Owner may impose a reasonable set-off against payments due under Article 15. If the acceptance of defective Work occurs after final payment, Contractor shall pay an appropriate amount to Owner.

#### 14.05 *Uncovering Work*

- A. Engineer has the authority to require additional inspection or testing of the Work, whether or not the Work is fabricated, installed, or completed.
- B. If any Work is covered contrary to the written request of Engineer, then Contractor shall, if requested by Engineer, uncover such Work for Engineer's observation, and then replace the covering, all at Contractor's expense.
- C. If Engineer considers it necessary or advisable that covered Work be observed by Engineer or inspected or tested by others, then Contractor, at Engineer's request, shall uncover, expose, or otherwise make available for observation, inspection, or testing as Engineer may require, that portion of the Work in question, and provide all necessary labor, material, and equipment.
  - 1. If it is found that the uncovered Work is defective, Contractor shall be responsible for all claims, costs, losses, and damages arising out of or relating to such uncovering, exposure, observation, inspection, and testing, and of satisfactory replacement or reconstruction (including but not limited to all costs of repair or replacement of work of others); and pending Contractor's full discharge of this responsibility the Owner shall be entitled to impose a reasonable set-off against payments due under Article 15.
  - 2. If the uncovered Work is not found to be defective, Contractor shall be allowed an increase in the Contract Price or an extension of the Contract Times, or both, directly attributable to such uncovering, exposure, observation, inspection, testing, replacement, and reconstruction. If the parties are unable to agree as to the amount or extent thereof, then Contractor may submit a Change Proposal within 30 days of the determination that the Work is not defective.

#### 14.06 *Owner May Stop the Work*

- A. If the Work is defective, or Contractor fails to supply sufficient skilled workers or suitable materials or equipment, or fails to perform the Work in such a way that the completed Work will conform to the Contract Documents, then Owner may order Contractor to stop the Work, or any portion thereof, until the cause for such order has been eliminated; however, this right of Owner to stop the Work shall not give rise to any duty on the part of Owner to

exercise this right for the benefit of Contractor, any Subcontractor, any Supplier, any other individual or entity, or any surety for, or employee or agent of any of them.

#### 14.07 *Owner May Correct Defective Work*

- A. If Contractor fails within a reasonable time after written notice from Engineer to correct defective Work, or to remove and replace rejected Work as required by Engineer, or if Contractor fails to perform the Work in accordance with the Contract Documents, or if Contractor fails to comply with any other provision of the Contract Documents, then Owner may, after seven days written notice to Contractor, correct or remedy any such deficiency.
- B. In exercising the rights and remedies under this Paragraph 14.07, Owner shall proceed expeditiously. In connection with such corrective or remedial action, Owner may exclude Contractor from all or part of the Site, take possession of all or part of the Work and suspend Contractor's services related thereto, and incorporate in the Work all materials and equipment stored at the Site or for which Owner has paid Contractor but which are stored elsewhere. Contractor shall allow Owner, Owner's representatives, agents and employees, Owner's other contractors, and Engineer and Engineer's consultants access to the Site to enable Owner to exercise the rights and remedies under this paragraph.
- C. All claims, costs, losses, and damages incurred or sustained by Owner in exercising the rights and remedies under this Paragraph 14.07 will be charged against Contractor as set-offs against payments due under Article 15. Such claims, costs, losses and damages will include but not be limited to all costs of repair, or replacement of work of others destroyed or damaged by correction, removal, or replacement of Contractor's defective Work.
- D. Contractor shall not be allowed an extension of the Contract Times because of any delay in the performance of the Work attributable to the exercise by Owner of Owner's rights and remedies under this Paragraph 14.07.

### **ARTICLE 15 – PAYMENTS TO CONTRACTOR; SET-OFFS; COMPLETION; CORRECTION PERIOD**

#### 15.01 *Progress Payments*

- A. *Basis for Progress Payments:* The Schedule of Values established as provided in Article 2 will serve as the basis for progress payments and will be incorporated into a form of Application for Payment acceptable to Engineer. Progress payments on account of Unit Price Work will be based on the number of units completed during the pay period, as determined under the provisions of Paragraph 13.03. Progress payments for cost-based Work will be based on Cost of the Work completed by Contractor during the pay period.
- B. *Applications for Payments:*
  1. At least 20 days before the date established in the Agreement for each progress payment (but not more often than once a month), Contractor shall submit to Engineer for review an Application for Payment filled out and signed by Contractor covering the Work completed as of the date of the Application and accompanied by such supporting documentation as is required by the Contract Documents. If payment is requested on the basis of materials and equipment not incorporated in the Work but delivered and suitably stored at the Site or at another location agreed to in writing, the Application for Payment shall also be accompanied by a bill of sale, invoice, or other documentation warranting that Owner has received the materials and equipment free and clear of all Liens, and evidence that the materials and equipment are covered by appropriate property insurance, a warehouse bond, or other arrangements to protect Owner's interest therein, all of which must be satisfactory to Owner.

2. Beginning with the second Application for Payment, each Application shall include an affidavit of Contractor stating that all previous progress payments received on account of the Work have been applied on account to discharge Contractor's legitimate obligations associated with prior Applications for Payment.
3. The amount of retainage with respect to progress payments will be as stipulated in the Agreement.

C. *Review of Applications:*

1. Engineer will, within 10 days after receipt of each Application for Payment, including each resubmittal, either indicate in writing a recommendation of payment and present the Application to Owner, or return the Application to Contractor indicating in writing Engineer's reasons for refusing to recommend payment. In the latter case, Contractor may make the necessary corrections and resubmit the Application.
2. Engineer's recommendation of any payment requested in an Application for Payment will constitute a representation by Engineer to Owner, based on Engineer's observations of the executed Work as an experienced and qualified design professional, and on Engineer's review of the Application for Payment and the accompanying data and schedules, that to the best of Engineer's knowledge, information and belief:
  - a. the Work has progressed to the point indicated;
  - b. the quality of the Work is generally in accordance with the Contract Documents (subject to an evaluation of the Work as a functioning whole prior to or upon Substantial Completion, the results of any subsequent tests called for in the Contract Documents, a final determination of quantities and classifications for Unit Price Work under Paragraph 13.03, and any other qualifications stated in the recommendation); and
  - c. the conditions precedent to Contractor's being entitled to such payment appear to have been fulfilled in so far as it is Engineer's responsibility to observe the Work.
3. By recommending any such payment Engineer will not thereby be deemed to have represented that:
  - a. inspections made to check the quality or the quantity of the Work as it has been performed have been exhaustive, extended to every aspect of the Work in progress, or involved detailed inspections of the Work beyond the responsibilities specifically assigned to Engineer in the Contract; or
  - b. there may not be other matters or issues between the parties that might entitle Contractor to be paid additionally by Owner or entitle Owner to withhold payment to Contractor.
4. Neither Engineer's review of Contractor's Work for the purposes of recommending payments nor Engineer's recommendation of any payment, including final payment, will impose responsibility on Engineer:
  - a. to supervise, direct, or control the Work, or
  - b. for the means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or
  - c. for Contractor's failure to comply with Laws and Regulations applicable to Contractor's performance of the Work, or

- d. to make any examination to ascertain how or for what purposes Contractor has used the money paid on account of the Contract Price, or
  - e. to determine that title to any of the Work, materials, or equipment has passed to Owner free and clear of any Liens.
5. Engineer may refuse to recommend the whole or any part of any payment if, in Engineer's opinion, it would be incorrect to make the representations to Owner stated in Paragraph 15.01.C.2.
  6. Engineer will recommend reductions in payment (set-offs) necessary in Engineer's opinion to protect Owner from loss because:
    - a. the Work is defective, requiring correction or replacement;
    - b. the Contract Price has been reduced by Change Orders;
    - c. Owner has been required to correct defective Work in accordance with Paragraph 14.07, or has accepted defective Work pursuant to Paragraph 14.04;
    - d. Owner has been required to remove or remediate a Hazardous Environmental Condition for which Contractor is responsible; or
    - e. Engineer has actual knowledge of the occurrence of any of the events that would constitute a default by Contractor and therefore justify termination for cause under the Contract Documents.

**D. *Payment Becomes Due:***

1. Ten days after presentation of the Application for Payment to Owner with Engineer's recommendation, the amount recommended (subject to any Owner set-offs) will become due, and when due will be paid by Owner to Contractor.

**E. *Reductions in Payment by Owner:***

1. In addition to any reductions in payment (set-offs) recommended by Engineer, Owner is entitled to impose a set-off against payment based on any of the following:
  - a. claims have been made against Owner on account of Contractor's conduct in the performance or furnishing of the Work, or Owner has incurred costs, losses, or damages on account of Contractor's conduct in the performance or furnishing of the Work, including but not limited to claims, costs, losses, or damages from workplace injuries, adjacent property damage, non-compliance with Laws and Regulations, and patent infringement;
  - b. Contractor has failed to take reasonable and customary measures to avoid damage, delay, disruption, and interference with other work at or adjacent to the Site;
  - c. Contractor has failed to provide and maintain required bonds or insurance;
  - d. Owner has been required to remove or remediate a Hazardous Environmental Condition for which Contractor is responsible;
  - e. Owner has incurred extra charges or engineering costs related to submittal reviews, evaluations of proposed substitutes, tests and inspections, or return visits to manufacturing or assembly facilities;
  - f. the Work is defective, requiring correction or replacement;
  - g. Owner has been required to correct defective Work in accordance with Paragraph 14.07, or has accepted defective Work pursuant to Paragraph 14.04;

- h. the Contract Price has been reduced by Change Orders;
  - i. an event that would constitute a default by Contractor and therefore justify a termination for cause has occurred;
  - j. liquidated damages have accrued as a result of Contractor's failure to achieve Milestones, Substantial Completion, or final completion of the Work;
  - k. Liens have been filed in connection with the Work, except where Contractor has delivered a specific bond satisfactory to Owner to secure the satisfaction and discharge of such Liens;
  - l. there are other items entitling Owner to a set off against the amount recommended.
2. If Owner imposes any set-off against payment, whether based on its own knowledge or on the written recommendations of Engineer, Owner will give Contractor immediate written notice (with a copy to Engineer) stating the reasons for such action and the specific amount of the reduction, and promptly pay Contractor any amount remaining after deduction of the amount so withheld. Owner shall promptly pay Contractor the amount so withheld, or any adjustment thereto agreed to by Owner and Contractor, if Contractor remedies the reasons for such action. The reduction imposed shall be binding on Contractor unless it duly submits a Change Proposal contesting the reduction.
3. Upon a subsequent determination that Owner's refusal of payment was not justified, the amount wrongfully withheld shall be treated as an amount due as determined by Paragraph 15.01.C.1 and subject to interest as provided in the Agreement.

#### 15.02 *Contractor's Warranty of Title*

- A. Contractor warrants and guarantees that title to all Work, materials, and equipment furnished under the Contract will pass to Owner free and clear of (1) all Liens and other title defects, and (2) all patent, licensing, copyright, or royalty obligations, no later than seven days after the time of payment by Owner.

#### 15.03 *Substantial Completion*

- A. When Contractor considers the entire Work ready for its intended use Contractor shall notify Owner and Engineer in writing that the entire Work is substantially complete and request that Engineer issue a certificate of Substantial Completion. Contractor shall at the same time submit to Owner and Engineer an initial draft of punch list items to be completed or corrected before final payment.
- B. Promptly after Contractor's notification, Owner, Contractor, and Engineer shall make an inspection of the Work to determine the status of completion. If Engineer does not consider the Work substantially complete, Engineer will notify Contractor in writing giving the reasons therefor.
- C. If Engineer considers the Work substantially complete, Engineer will deliver to Owner a preliminary certificate of Substantial Completion which shall fix the date of Substantial Completion. Engineer shall attach to the certificate a punch list of items to be completed or corrected before final payment. Owner shall have seven days after receipt of the preliminary certificate during which to make written objection to Engineer as to any provisions of the certificate or attached punch list. If, after considering the objections to the provisions of the preliminary certificate, Engineer concludes that the Work is not substantially complete, Engineer will, within 14 days after submission of the preliminary certificate to Owner, notify

Contractor in writing that the Work is not substantially complete, stating the reasons therefor. If Owner does not object to the provisions of the certificate, or if despite consideration of Owner's objections Engineer concludes that the Work is substantially complete, then Engineer will, within said 14 days, execute and deliver to Owner and Contractor a final certificate of Substantial Completion (with a revised punch list of items to be completed or corrected) reflecting such changes from the preliminary certificate as Engineer believes justified after consideration of any objections from Owner.

- D. At the time of receipt of the preliminary certificate of Substantial Completion, Owner and Contractor will confer regarding Owner's use or occupancy of the Work following Substantial Completion, review the builder's risk insurance policy with respect to the end of the builder's risk coverage, and confirm the transition to coverage of the Work under a permanent property insurance policy held by Owner. Unless Owner and Contractor agree otherwise in writing, Owner shall bear responsibility for security, operation, protection of the Work, property insurance, maintenance, heat, and utilities upon Owner's use or occupancy of the Work.
- E. After Substantial Completion the Contractor shall promptly begin work on the punch list of items to be completed or corrected prior to final payment. In appropriate cases Contractor may submit monthly Applications for Payment for completed punch list items, following the progress payment procedures set forth above.
- F. Owner shall have the right to exclude Contractor from the Site after the date of Substantial Completion subject to allowing Contractor reasonable access to remove its property and complete or correct items on the punch list.

#### 15.04 *Partial Use or Occupancy*

- A. Prior to Substantial Completion of all the Work, Owner may use or occupy any substantially completed part of the Work which has specifically been identified in the Contract Documents, or which Owner, Engineer, and Contractor agree constitutes a separately functioning and usable part of the Work that can be used by Owner for its intended purpose without significant interference with Contractor's performance of the remainder of the Work, subject to the following conditions:
  - 1. At any time Owner may request in writing that Contractor permit Owner to use or occupy any such part of the Work that Owner believes to be substantially complete. If and when Contractor agrees that such part of the Work is substantially complete, Contractor, Owner, and Engineer will follow the procedures of Paragraph 15.03.A through E for that part of the Work.
  - 2. At any time Contractor may notify Owner and Engineer in writing that Contractor considers any such part of the Work substantially complete and request Engineer to issue a certificate of Substantial Completion for that part of the Work.
  - 3. Within a reasonable time after either such request, Owner, Contractor, and Engineer shall make an inspection of that part of the Work to determine its status of completion. If Engineer does not consider that part of the Work to be substantially complete, Engineer will notify Owner and Contractor in writing giving the reasons therefor. If Engineer considers that part of the Work to be substantially complete, the provisions of Paragraph 15.03 will apply with respect to certification of Substantial Completion of that part of the Work and the division of responsibility in respect thereof and access thereto.

4. No use or occupancy or separate operation of part of the Work may occur prior to compliance with the requirements of Paragraph 6.05 regarding builder's risk or other property insurance.

#### 15.05 *Final Inspection*

- A. Upon written notice from Contractor that the entire Work or an agreed portion thereof is complete, Engineer will promptly make a final inspection with Owner and Contractor and will notify Contractor in writing of all particulars in which this inspection reveals that the Work, or agreed portion thereof, is incomplete or defective. Contractor shall immediately take such measures as are necessary to complete such Work or remedy such deficiencies.

#### 15.06 *Final Payment*

##### A. *Application for Payment:*

1. After Contractor has, in the opinion of Engineer, satisfactorily completed all corrections identified during the final inspection and has delivered, in accordance with the Contract Documents, all maintenance and operating instructions, schedules, guarantees, bonds, certificates or other evidence of insurance, certificates of inspection, annotated record documents (as provided in Paragraph 7.11), and other documents, Contractor may make application for final payment.
2. The final Application for Payment shall be accompanied (except as previously delivered) by:
  - a. all documentation called for in the Contract Documents;
  - b. consent of the surety, if any, to final payment;
  - c. satisfactory evidence that all title issues have been resolved such that title to all Work, materials, and equipment has passed to Owner free and clear of any Liens or other title defects, or will so pass upon final payment.
  - d. a list of all disputes that Contractor believes are unsettled; and
  - e. complete and legally effective releases or waivers (satisfactory to Owner) of all Lien rights arising out of the Work, and of Liens filed in connection with the Work.
3. In lieu of the releases or waivers of Liens specified in Paragraph 15.06.A.2 and as approved by Owner, Contractor may furnish receipts or releases in full and an affidavit of Contractor that: (a) the releases and receipts include all labor, services, material, and equipment for which a Lien could be filed; and (b) all payrolls, material and equipment bills, and other indebtedness connected with the Work for which Owner might in any way be responsible, or which might in any way result in liens or other burdens on Owner's property, have been paid or otherwise satisfied. If any Subcontractor or Supplier fails to furnish such a release or receipt in full, Contractor may furnish a bond or other collateral satisfactory to Owner to indemnify Owner against any Lien, or Owner at its option may issue joint checks payable to Contractor and specified Subcontractors and Suppliers.

##### B. *Engineer's Review of Application and Acceptance:*

1. If, on the basis of Engineer's observation of the Work during construction and final inspection, and Engineer's review of the final Application for Payment and accompanying documentation as required by the Contract Documents, Engineer is satisfied that the Work has been completed and Contractor's other obligations under the Contract have been fulfilled, Engineer will, within ten days after receipt of the final

Application for Payment, indicate in writing Engineer's recommendation of final payment and present the Application for Payment to Owner for payment. Such recommendation shall account for any set-offs against payment that are necessary in Engineer's opinion to protect Owner from loss for the reasons stated above with respect to progress payments. At the same time Engineer will also give written notice to Owner and Contractor that the Work is acceptable, subject to the provisions of Paragraph 15.07. Otherwise, Engineer will return the Application for Payment to Contractor, indicating in writing the reasons for refusing to recommend final payment, in which case Contractor shall make the necessary corrections and resubmit the Application for Payment.

- C. *Completion of Work*: The Work is complete (subject to surviving obligations) when it is ready for final payment as established by the Engineer's written recommendation of final payment.
- D. *Payment Becomes Due*: Thirty days after the presentation to Owner of the final Application for Payment and accompanying documentation, the amount recommended by Engineer (less any further sum Owner is entitled to set off against Engineer's recommendation, including but not limited to set-offs for liquidated damages and set-offs allowed under the provisions above with respect to progress payments) will become due and shall be paid by Owner to Contractor.

#### 15.07 *Waiver of Claims*

- A. The making of final payment will not constitute a waiver by Owner of claims or rights against Contractor. Owner expressly reserves claims and rights arising from unsettled Liens, from defective Work appearing after final inspection pursuant to Paragraph 15.05, from Contractor's failure to comply with the Contract Documents or the terms of any special guarantees specified therein, from outstanding Claims by Owner, or from Contractor's continuing obligations under the Contract Documents.
- B. The acceptance of final payment by Contractor will constitute a waiver by Contractor of all claims and rights against Owner other than those pending matters that have been duly submitted or appealed under the provisions of Article 17.

#### 15.08 *Correction Period*

- A. If within one year after the date of Substantial Completion (or such longer period of time as may be prescribed by the terms of any applicable special guarantee required by the Contract Documents, or by any specific provision of the Contract Documents), any Work is found to be defective, or if the repair of any damages to the Site, adjacent areas that Contractor has arranged to use through construction easements or otherwise, and other adjacent areas used by Contractor as permitted by Laws and Regulations, is found to be defective, then Contractor shall promptly, without cost to Owner and in accordance with Owner's written instructions:
  - 1. correct the defective repairs to the Site or such other adjacent areas;
  - 2. correct such defective Work;
  - 3. if the defective Work has been rejected by Owner, remove it from the Project and replace it with Work that is not defective, and
  - 4. satisfactorily correct or repair or remove and replace any damage to other Work, to the work of others, or to other land or areas resulting therefrom.
- B. If Contractor does not promptly comply with the terms of Owner's written instructions, or in an emergency where delay would cause serious risk of loss or damage, Owner may have the

defective Work corrected or repaired or may have the rejected Work removed and replaced. Contractor shall pay all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such correction or repair or such removal and replacement (including but not limited to all costs of repair or replacement of work of others).

- C. In special circumstances where a particular item of equipment is placed in continuous service before Substantial Completion of all the Work, the correction period for that item may start to run from an earlier date if so provided in the Specifications.
- D. Where defective Work (and damage to other Work resulting therefrom) has been corrected or removed and replaced under this paragraph, the correction period hereunder with respect to such Work will be extended for an additional period of one year after such correction or removal and replacement has been satisfactorily completed.
- E. Contractor's obligations under this paragraph are in addition to all other obligations and warranties. The provisions of this paragraph shall not be construed as a substitute for, or a waiver of, the provisions of any applicable statute of limitation or repose.

## **ARTICLE 16 – SUSPENSION OF WORK AND TERMINATION**

### **16.01 *Owner May Suspend Work***

- A. At any time and without cause, Owner may suspend the Work or any portion thereof for a period of not more than 90 consecutive days by written notice to Contractor and Engineer. Such notice will fix the date on which Work will be resumed. Contractor shall resume the Work on the date so fixed. Contractor shall be entitled to an adjustment in the Contract Price or an extension of the Contract Times, or both, directly attributable to any such suspension. Any Change Proposal seeking such adjustments shall be submitted no later than 30 days after the date fixed for resumption of Work.

### **16.02 *Owner May Terminate for Cause***

- A. The occurrence of any one or more of the following events will constitute a default by Contractor and justify termination for cause:
  - 1. Contractor's persistent failure to perform the Work in accordance with the Contract Documents (including, but not limited to, failure to supply sufficient skilled workers or suitable materials or equipment or failure to adhere to the Progress Schedule);
  - 2. Failure of Contractor to perform or otherwise to comply with a material term of the Contract Documents;
  - 3. Contractor's disregard of Laws or Regulations of any public body having jurisdiction; or
  - 4. Contractor's repeated disregard of the authority of Owner or Engineer.
- B. If one or more of the events identified in Paragraph 16.02.A occurs, then after giving Contractor (and any surety) ten days written notice that Owner is considering a declaration that Contractor is in default and termination of the contract, Owner may proceed to:
  - 1. declare Contractor to be in default, and give Contractor (and any surety) notice that the Contract is terminated; and
  - 2. enforce the rights available to Owner under any applicable performance bond.

- C. Subject to the terms and operation of any applicable performance bond, if Owner has terminated the Contract for cause, Owner may exclude Contractor from the Site, take possession of the Work, incorporate in the Work all materials and equipment stored at the Site or for which Owner has paid Contractor but which are stored elsewhere, and complete the Work as Owner may deem expedient.
- D. Owner may not proceed with termination of the Contract under Paragraph 16.02.B if Contractor within seven days of receipt of notice of intent to terminate begins to correct its failure to perform and proceeds diligently to cure such failure.
- E. If Owner proceeds as provided in Paragraph 16.02.B, Contractor shall not be entitled to receive any further payment until the Work is completed. If the unpaid balance of the Contract Price exceeds the cost to complete the Work, including all related claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals) sustained by Owner, such excess will be paid to Contractor. If the cost to complete the Work including such related claims, costs, losses, and damages exceeds such unpaid balance, Contractor shall pay the difference to Owner. Such claims, costs, losses, and damages incurred by Owner will be reviewed by Engineer as to their reasonableness and, when so approved by Engineer, incorporated in a Change Order. When exercising any rights or remedies under this paragraph, Owner shall not be required to obtain the lowest price for the Work performed.
- F. Where Contractor's services have been so terminated by Owner, the termination will not affect any rights or remedies of Owner against Contractor then existing or which may thereafter accrue, or any rights or remedies of Owner against Contractor or any surety under any payment bond or performance bond. Any retention or payment of money due Contractor by Owner will not release Contractor from liability.
- G. If and to the extent that Contractor has provided a performance bond under the provisions of Paragraph 6.01.A, the provisions of that bond shall govern over any inconsistent provisions of Paragraphs 16.02.B and 16.02.D.

#### 16.03 *Owner May Terminate For Convenience*

- A. Upon seven days written notice to Contractor and Engineer, Owner may, without cause and without prejudice to any other right or remedy of Owner, terminate the Contract. In such case, Contractor shall be paid for (without duplication of any items):
  - 1. completed and acceptable Work executed in accordance with the Contract Documents prior to the effective date of termination, including fair and reasonable sums for overhead and profit on such Work;
  - 2. expenses sustained prior to the effective date of termination in performing services and furnishing labor, materials, or equipment as required by the Contract Documents in connection with uncompleted Work, plus fair and reasonable sums for overhead and profit on such expenses; and
  - 3. other reasonable expenses directly attributable to termination, including costs incurred to prepare a termination for convenience cost proposal.
- B. Contractor shall not be paid on account of loss of anticipated overhead, profits, or revenue, or other economic loss arising out of or resulting from such termination.

#### 16.04 *Contractor May Stop Work or Terminate*

- A. If, through no act or fault of Contractor, (1) the Work is suspended for more than 90 consecutive days by Owner or under an order of court or other public authority, or (2)

Engineer fails to act on any Application for Payment within 30 days after it is submitted, or (3) Owner fails for 30 days to pay Contractor any sum finally determined to be due, then Contractor may, upon seven days written notice to Owner and Engineer, and provided Owner or Engineer do not remedy such suspension or failure within that time, terminate the contract and recover from Owner payment on the same terms as provided in Paragraph 16.03.

- B. In lieu of terminating the Contract and without prejudice to any other right or remedy, if Engineer has failed to act on an Application for Payment within 30 days after it is submitted, or Owner has failed for 30 days to pay Contractor any sum finally determined to be due, Contractor may, seven days after written notice to Owner and Engineer, stop the Work until payment is made of all such amounts due Contractor, including interest thereon. The provisions of this paragraph are not intended to preclude Contractor from submitting a Change Proposal for an adjustment in Contract Price or Contract Times or otherwise for expenses or damage directly attributable to Contractor's stopping the Work as permitted by this paragraph.

## **ARTICLE 17 – FINAL RESOLUTION OF DISPUTES**

### **17.01 *Methods and Procedures***

- A. *Disputes Subject to Final Resolution:* The following disputed matters are subject to final resolution under the provisions of this Article:
1. A timely appeal of an approval in part and denial in part of a Claim, or of a denial in full; and
  2. Disputes between Owner and Contractor concerning the Work or obligations under the Contract Documents, and arising after final payment has been made.
- B. *Final Resolution of Disputes:* For any dispute subject to resolution under this Article, Owner or Contractor may:
1. elect in writing to invoke the dispute resolution process provided for in the Supplementary Conditions; or
  2. agree with the other party to submit the dispute to another dispute resolution process; or
  3. if no dispute resolution process is provided for in the Supplementary Conditions or mutually agreed to, give written notice to the other party of the intent to submit the dispute to a court of competent jurisdiction.

## **ARTICLE 18 – MISCELLANEOUS**

### **18.01 *Giving Notice***

- A. Whenever any provision of the Contract Documents requires the giving of written notice, it will be deemed to have been validly given if:
1. delivered in person, by a commercial courier service or otherwise, to the individual or to a member of the firm or to an officer of the corporation for which it is intended; or
  2. delivered at or sent by registered or certified mail, postage prepaid, to the last business address known to the sender of the notice.

18.02 *Computation of Times*

- A. When any period of time is referred to in the Contract by days, it will be computed to exclude the first and include the last day of such period. If the last day of any such period falls on a Saturday or Sunday or on a day made a legal holiday by the law of the applicable jurisdiction, such day will be omitted from the computation.

18.03 *Cumulative Remedies*

- A. The duties and obligations imposed by these General Conditions and the rights and remedies available hereunder to the parties hereto are in addition to, and are not to be construed in any way as a limitation of, any rights and remedies available to any or all of them which are otherwise imposed or available by Laws or Regulations, by special warranty or guarantee, or by other provisions of the Contract. The provisions of this paragraph will be as effective as if repeated specifically in the Contract Documents in connection with each particular duty, obligation, right, and remedy to which they apply.

18.04 *Limitation of Damages*

- A. With respect to any and all Change Proposals, Claims, disputes subject to final resolution, and other matters at issue, neither Owner nor Engineer, nor any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors, shall be liable to Contractor for any claims, costs, losses, or damages sustained by Contractor on or in connection with any other project or anticipated project.

18.05 *No Waiver*

- A. A party's non-enforcement of any provision shall not constitute a waiver of that provision, nor shall it affect the enforceability of that provision or of the remainder of this Contract.

18.06 *Survival of Obligations*

- A. All representations, indemnifications, warranties, and guarantees made in, required by, or given in accordance with the Contract, as well as all continuing obligations indicated in the Contract, will survive final payment, completion, and acceptance of the Work or termination or completion of the Contract or termination of the services of Contractor.

18.07 *Controlling Law*

- A. This Contract is to be governed by the law of the state of North Carolina.

18.08 *Headings*

- A. Article and paragraph headings are inserted for convenience only and do not constitute parts of these General Conditions.

## I. SUPPLEMENTARY CONDITIONS

### Supplementary Conditions

These Supplementary Conditions amend or supplement the Standard General Conditions of the Construction Contract, EJCDC® C-700 (2013 Edition). All provisions that are not so amended or supplemented remain in full force and effect.

The terms used in these Supplementary Conditions have the meanings stated in the General Conditions. Additional terms used in these Supplementary Conditions have the meanings stated below, which are applicable to both the singular and plural thereof.

The address system used in these Supplementary Conditions is the same as the address system used in the General Conditions, with the prefix "SC" added thereto.

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### ARTICLE 1 – DEFINITIONS AND TERMINOLOGY

#### SC-1.01 *Defined Terms*

A. Add the following definition to Article 1 of the General Conditions:

- SC-1.01.** Engineer – WithersRavenel, Mike Strader, P.E., 8466 Caratoke Highway, Building 400, Powells Point, North Carolina, 27966 and duly authorized agents, such agents acting within the scope of the particular duties entrusted to them in each case .

### ARTICLE 2 – PRELIMINARY MATTERS – NO MODIFICATIONS

### ARTICLE 5 – AVAILABILITY OF LANDS; SUBSURFACE AND PHYSICAL CONDITIONS; HAZARDOUS ENVIRONMENTAL CONDITIONS

#### SC-5.03 *Subsurface and Physical Conditions*

**SC 5.03** Delete Paragraphs 5.03.A and 5.03.B in their entirety and insert the following:

- A. No reports of explorations or tests of subsurface conditions at or adjacent to the Site, or drawings of physical conditions relating to existing surface or subsurface structures at the Site, are known to Owner.

#### SC-5.06 *Hazardous Environmental Conditions*

**SC 5.06** Delete Paragraphs 5.06.A and 5.06.B in their entirety and insert the following:

- A. No reports or drawings related to Hazardous Environmental Conditions at the Site are known to Owner.
- B. Not Used.

**ARTICLE 6 – BONDS AND INSURANCE**

*SC-6.02 Insurance—General Provisions*

**SC-6.02 Add the following paragraph immediately after Paragraph 6.02.B:**

1. Contractor may obtain worker’s compensation insurance from an insurance company that has not been rated by A.M. Best, provided that such company (a) is domiciled in the state in which the project is located, (b) is certified or authorized as a worker’s compensation insurance provider by the appropriate state agency, and (c) has been accepted to provide worker’s compensation insurance for similar projects by the state within the last 12 months.

*SC-6.03 Contractor’s Insurance*

**SC 6.03 Add the following new paragraph immediately after Paragraph 6.03.J:**

**K. The limits of liability for the insurance required by Paragraph 6.03 of the General Conditions shall provide coverage for not less than the following amounts or greater where required by Laws and Regulations:**

1. **Workers’ Compensation, and related coverages under Paragraphs 6.03.A.1 and A.2 of the General Conditions:**

<b>State:</b>	<u>Statutory</u>
<b>Federal, if applicable (e.g., Longshoreman’s):</b>	<u>Statutory</u>
<b>Jones Act coverage, if applicable:</b>	
<b>Bodily injury by accident, each accident</b>	<b>\$</b> _____
<b>Bodily injury by disease, aggregate</b>	<b>\$</b> _____

The insurance requirements for are categorized as low, medium, high & very high risk. Please refer to the requirements in the table below. High Risk insurance requirements shall apply to this project based upon the value, duration and environmental factors associated with the scope of work.

<b>Insurance Requirements Matrix</b>				
	<b>Low Risk</b>	<b>Medium Risk</b>	<b>High Risk</b>	<b>Very High Risk</b>
<b>Classifying the Contract</b>				
Value of Contract	<\$50k	\$50k to \$500k	\$500k to \$1M	\$1M and higher
Duration of Contract	<30 Days	31-180 Days	31-180 Days	>180 Days
Environmental Factors	No Major Hazards	Some Hazards	Many Hazards	Many Hazards
<b>Minimum Insurance Limits</b>				
Workers' Compensation				
Each Accident	\$500,000	\$1,000,000	\$3,000,000	\$3,000,000
Each Employee	\$500,000	\$1,000,000	\$1,000,000	\$1,000,000
For Disease	\$500,000	\$1,000,000	\$1,000,000	\$1,000,000
Commercial General Liability - Occurrence Form Required				
Per occurrence CGL	\$300,000	\$500,000	\$1,000,000	\$3,000,000
Aggregate limit (if applicable)	\$600,000	\$1,000,000	\$3,000,000	\$6,000,000
Damage to rented premises	\$100,000	\$100,000	\$100,000	\$100,000

<b>Commercial Automobile Liability Insurance</b>				
Each accident for injury and property	\$300,000	\$1,000,000	\$1,000,000	\$3,000,000
Evidence of Insurance Required (Town listed as addt'l insured on all coverages except Workers' Comp)	X	X	X	X

**2. Contractor's Pollution Liability:**

Each Occurrence \$ \_\_\_\_\_  
 General Aggregate \$ \_\_\_\_\_

If box is checked, Contractor is not required to provide Contractor's Pollution Liability insurance under this Contract

**3. Additional Insureds: In addition to Owner and Engineer, include as additional insureds the following:**

**4. Contractor's Professional Liability:**

Each Claim \$ \_\_\_\_\_  
 Annual Aggregate \$ \_\_\_\_\_

**ARTICLE 7 – CONTRACTOR'S RESPONSIBILITIES**

*SC-7.02 Labor; Working Hours*

Paragraph 7.02.B of the General Conditions restricts Contractor to working during "regular hours" Monday through Friday, and no work is permitted on "legal holidays."

- A. To provide details regarding the meaning of the terms "regular hours" and "legal holidays," consider specifically defining them by adding the following:

**SC-7.02.B. Add the following new subparagraphs immediately after Paragraph 7.02.B:**

1. Regular working hours will be 7:00 am to 6:00 pm. North Carolina Department of Transportation may impose additional limitations.
2. Owner's legal holidays are New Years, Martin Luther King's Birthday, Good Friday, Memorial Day, Independence Day, Labor Day, Veterans Day, Thanksgiving, Christmas

**SC-7.02.C. Add the following new paragraph immediately after Paragraph 7.02.B:**

Contractor shall be responsible for the cost of any overtime pay or other expense incurred by the Owner for Engineer's services (including those of the Resident Project Representative, if any), Owner's representative, and construction observation services, occasioned by the performance of Work on Saturday, Sunday, any legal holiday, or as overtime on any regular work day. If Contractor is responsible but does not pay, or if the parties are unable to agree as to the amount owed, then Owner may impose a reasonable set-off against payments due under Article 15.

*SC-7.09 Taxes*

**SC 7.09 Add a new paragraph immediately after Paragraph 7.09.A:**

**B. Contractor and his Subcontractors shall maintain accurate records of payment of N.C. State Sales Tax on materials, supplies, fixtures, and equipment, which become a part of the Work. Contractor shall submit with the Application for Payment a certified statement showing sales tax paid by Contractor and Subcontractors. Certified statement shall list suppliers' invoices showing invoice number, amount paid, tax paid, date and county paid. Sales tax records and certified statements shall be in such form and substance as to meet the requirements of the NC State Department of Revenue in the matter of the Owner obtaining a refund from the State of North Carolina of sales taxes paid by Contractor and his Subcontractors.**

*SC-7.17 Contractor's General Warranty and Guarantee* **Add a new paragraph immediately after Paragraph 7.17D:**

**E. The Contractor shall promptly remedy any omission or defect in the Work and pay for any damage to other improvements or facilities resulting from such omission or defect which shall appear within a period of ONE YEAR from the date of final acceptance, unless a longer period is elsewhere specified. In the event that the Contractor should fail to make repairs, adjustments or other remedy that may be made necessary by such defects, the Town may do so and charge the Contractor the cost thereby incurred. The Performance Bond shall remain in full force and effect through the guarantee period. Other material warranties, as described in the Contract Documents, may require longer warranty periods.**

**ARTICLE 8 – OTHER WORK AT THE SITE-NO MODIFICATIONS**

**ARTICLE 9 – OWNER’S RESPONSIBILITIES- NO MODIFICATIONS**

**ARTICLE 10 – ENGINEER’S STATUS DURING CONSTRUCTION –NO MODIFICATIONS**

**ARTICLE 11 – AMENDING THE CONTRACT DOCUMENTS; CHANGES IN WORK –NO MODIFICATIONS**

**ARTICLE 12 – CLAIMS –NO MODIFICATIONS**

**ARTICLE 13 – COST OF THE WORK; ALLOWANCES; UNIT PRICE WORK**

*SC-13.03 Unit Price Work*

**SC 13.03.E Delete Paragraph 13.03.E in its entirety and insert the following in its place:**

- E. The unit price of an item of Unit Price Work shall be subject to reevaluation and adjustment under the following conditions:**
- 1. if the extended price of a particular item of Unit Price Work amounts to 5% percent or more of the Contract Price (based on estimated quantities at the time of Contract formation) and the variation in the quantity of that particular item of Unit Price Work actually furnished or performed by Contractor differs by more than 20% percent from the estimated quantity of such item indicated in the Agreement; and**
  - 2. if there is no corresponding adjustment with respect to any other item of Work; and**
  - 3. if Contractor believes that Contractor has incurred additional expense as a result thereof, Contractor may submit a Change Proposal, or if Owner believes that the quantity variation entitles Owner to an adjustment in the unit price, Owner may make a Claim, seeking an adjustment in the Contract Price.**

**ARTICLE 14 – TESTS AND INSPECTIONS; CORRECTION, REMOVAL OR ACCEPTANCE OF DEFECTIVE WORK**

**SC 14.02.B Delete Paragraph 14.02.B in its entirety and insert the following in its place:**

- B. OWNER shall retain and pay for the services of an independent inspector, testing laboratory, or other qualified individual or entity to perform all inspections and tests expressly required by the Contract Documents.**

**ARTICLE 15 – PAYMENTS TO CONTRACTOR; SET-OFFS; COMPLETION; CORRECTION PERIOD –**

**SC 15.01.B.2 Delete Paragraph 15.01.B.2 and 15.01.B.3 in its entirety and insert the following in its place:**

- 1. When 50% of the work of the original contract has been completed and in the opinion of the Owner the Contractor continues to perform satisfactorily and nonconforming work identified in writing prior to that time by the Engineer or Owner has been corrected by the Contractor**

and accepted by the Owner, the Owner, with written consent of the surety, shall not retain any further retainage from periodic payments due the Contractor.

2. The project shall be deemed 50% complete when the Contractor's gross project invoices, excluding the value of materials stored on-site shall not exceed 20% of the Contractor's gross invoices for the purpose of determining where the project is 50% complete.
  3. If the Owner determines it is appropriate to reduce retainage, the method used for such adjustment shall be to fix retainage at 2½% of the original Contract amount (when the work is 50% complete) and to pay all subsequent Partial Payment Requests to the full approved amount. The intent of such an adjustment is to gradually reduce retainage to 2½% of the original Contract amount when the work is 100% complete.
  4. If the Owner determines the Contractor's performance is unsatisfactory, the Owner may reinstate retainage for each subsequent periodic payment application up to a maximum amount of 5% of each periodic payment.
  5. Within 60 days after the submission of a final pay application, the Owner with written consent of the surety shall release to the Contractor all retainage on payments held by the Owner if (1) the Owner receives a certificate of substantial completion from the Engineer, or (2) the Owner receives beneficial occupancy or use of the project. However, the Owner may retain sufficient funds to secure completion of the project or corrections on any work. If the Owner retains funds, the amount retained shall not be more than 2½ times the Engineer's estimated value of the work to be completed or corrected. Any reduction in the amount of the retainage on payments shall be with the written consent of the Contractor's surety.
  6. Retainer provisions contained in Contractor's subcontracts may not exceed the terms and conditions for retainage provided herein. Contractors are further required to satisfy the retainage provisions of N.C.G.S. 143-134.1(b2) with regard to subcontracts for early finishing trades (structural steel, piling, caisson, and demolition) and to coordinate the release of retainage for such trades from the retainage held by the Owner from the Contractor pursuant to statute.
  7. Nothing shall prevent the Owner from the withholding payment to the Contractor in addition to the amounts identified herein for unsatisfactory job progress, defective construction not remedied, disputed work, or third-party claims filed against the Owner or reasonable evidence that a third-party claim will be filed.
2. SC 15.03. Substantial Completion date shall be 80 calendar days from Notice to Proceed
3. SC 15.06.B.C Final Completion date shall be 7 calendar days from Substantial Completion

**4. 17- METHODS AND PROCEDURES**

**SC-17.01 Methods and Procedures** Add the following paragraph immediately after Paragraph 17.01.B.3

**SC-17.01.C. Mediation:** Notwithstanding any provision in the Contract Documents to the contrary, mediation shall be available to all the parties involved in the Work including the Owner, Engineer, Contractor, and first-tier and lower-tier subcontractors for any issues arising out of the Contract Documents or the Work, but only to the extent that the amount in controversy exceeds fifteen thousand dollars (\$15,000). The costs of mediation shall be divided between the parties to the dispute with at least one-third of the cost to be paid by the Owner, if the Owner is a party to the dispute.”

**ARTICLE 18 – MISCELLANEOUS –** Add the following paragraphs immediately after paragraph 18.08a:

**SC 18.09 Construction Stakeout-** The Contractor will be required to provide Construction Stakeout Services based upon an agreed upon scope of work between Contractor and Owner. Upon request, the Owner may provide an electronic CAD file for the Contractors use. It is the Contractors Responsibility to;

1. Protect all stakes, marks and control points which the Owner has caused to be set; any which are damaged or destroyed will be replaced at the Contractor’s expense.
2. Construct his work in accordance with the stakes and marks, transferring them accurately as required.
3. Notify Owner or Engineer IMMEDIATELY upon discovering any apparent discrepancy in the Drawings, or the stakes and marks, or between the two, before performing any work affected by the apparent discrepancy.
4. The contractor shall exercise proper care and caution to verify grades and figures given him before proceeding with the Work, and shall be responsible for any damage or defective work caused by failure of such care and caution.
5. Schedule all construction stakeout work in a timely manner.

**SC 18.10 Time Delay, Extensions and Liquidated Damages-** The Contractor shall commence work to be performed under this agreement on a date to be specified in writing from the Town and shall fully complete all work hereunder within the allotted Consecutive Calendar Days indicated on the bid form from the said date. For each day in excess of the contract number of days, the contractor shall pay the owner the sum in accordance with the provided below as liquidated damages (per day) reasonably estimated and agreed upon with the signing of the contract. The liquidated damages are to cover any losses incurred by the Owner by reason of the failure of the Contractor to complete the work within the time specified such time being the essence of this contract and a material consideration thereof.

2. If the Contractor is delayed at any time in the progress of his work by any act or negligence of the Owner, by any separate contractor employed by the Owner, or by any employee of either; by changes ordered in the work by labor disputes at the project site; by abnormal weather conditions not reasonably anticipated for the locality where the work is performed; by unavoidable casualties; by any causes beyond the Contractor's control; or by any other causes which the Owner determines may justify the delay, then the Contract Time may be extended by change order for the time which the Owner may determine is reasonable.

1. Time extensions will not be granted for rain, wind, snow or other natural phenomena of normal intensity and frequency.
2. Owner and Contractor agree that the determination of “normal” intensity and frequency of weather events can be a difficult process. In lieu of any attempt to determine same through records or opinions of some weather agency, Owner and Contractor, by their having signed the Construction Contract agreement for this Project mutually agree that a number of calendar days equal to 10% of the Contract Time shall represent the number of days during which work is not feasible (Bad Weather Days) during “normal conditions”. Only Bad Weather Days in excess of said 10% shall be a valid basis for claim for extension of the Contract Time. The following procedures shall be followed:
  1. Once each week during the Contract Time, Contractor shall notify Engineer of any Bad Weather Day(s) occurring during the previous week. Should Contractor fail to so notify Engineer within ten (10) calendar days after any such Bad Weather Day, Engineer may refuse to accept such day. Owner and Contractor agree that this shall be an ongoing process, while events are fresh in everyone’s minds, and in no case shall the determination of Bad Weather Days be done retrospectively at the end of the project.
  2. Events giving rise to a Bad Weather Day shall include, but not necessarily be limited to, the following:
    1. Rain during working hours totaling more than 0.25” or lasting more than 2 hours.
    2. Excessively wet jobsite conditions due to heavy rain the previous day or night.
    3. Other extreme and dangerous weather, such as heat 100° F or above, nearby lightning, etc.
    4. Temperatures too cold for proper conduct of paving, concrete or other operations. The use of blankets on freshly-placed driveways in anticipation of freezing temperatures will not be approved.
      1. . Recognizing the scheduling challenges associated with asphalt paving operations, when a Required Date of Substantial Completion for the Project, and/or portion thereof, falls in December, January or February, Engineer may grant extension days of the Contract Time when, in his determination, temperatures are too cold for proper paving in accordance with NCDOT specifications. In such case,
      2. Such extensions may be granted to provide up to three (3) opportunities for Contractor to complete a paving operation.
      3. For purposes of this provision, a “paving operation” shall mean the placement of one or more pavement courses on a single day, or consecutive work days, by a

single mobilization of a paving crew. If the Project includes multiple, separate components with separate mobilizations, each shall be addressed separately.

4. Such extensions may be granted without regard to whether other Bad Weather Days have met the 10% threshold.

**Flooding or other effects of tropical storm, hurricane or nor'easter.**

5. Any weather or other event giving rise to a declaration of a State of Emergency by the Town Manager or other public official in the jurisdiction of the jobsite.
6. No Bad Weather Day will be approved during which the Contractor actually carries out production operations for at least 6 hours.
3. Engineer shall keep a running record of Bad Weather Days, on an individual day basis, noting the type of condition which prevented work. If Engineer disagrees with Contractor that conditions on a given day were unsuitable for work, he shall promptly advise Contractor of such opinion.
4. After the cumulative number of Bad Weather Days exceeds the said 10% of the Contract Time, each excess day (except as provided below) shall be the basis of a claim for one day's extension of the Contract Time.
5. A similar procedure shall be employed for the twenty (20) days allowed for taking the Project from Substantial Completion to Full Completion.
6. Bad Weather Day conditions occurring on a Sunday, Holiday or where work was not scheduled, as defined herein, shall not be counted toward the 10%. Nor shall any excess day where Bad Weather Day conditions exist be a basis for extension of time if that day is a Sunday or Holiday.
7. The bad weather days and any time extension shall be based on the "Local Climatological Data Sheets" compiled and published by the National Weather Center at Manteo Airport and on daily weather logs kept on the job by the Contractor reflecting the effect of the weather on progress of the work at the site. All data supporting a request for extension of time shall be supplied by the General Contractor or the project expediter assigned to the project.
8. The Town shall be the judge as to division of responsibility between the several contractors and shall apportion the amount of liquidated damages to be paid by each of them according to delay caused by any or all of them. This will relate to the construction schedules filed for the project by each contractor.

**3. Failure or Delay in Completing Work on Time:**

**Time is an essential element of the Contract, and any delay in the prosecution of the work may inconvenience the public or interfere with the daily operations of the department and demand additional time for supervision. For this reason, it is**

important that the work be pressed vigorously to completion. Should the Contractor fail to complete the work within the time stipulated in the contract or within such extra time that may be allowed, charges shall be assessed against any money due or that may become due the Contractor in accordance with the Agreement.

**4. Application of Damages:**

- 1. Liquidated damages shall start in accordance with the above schedule upon notification to the Contractor in writing that the apparent Contract Time has been consumed.**
- 2. Deduction from Partial Payments: Liquidated damages, as they accrue, will be deducted from periodic payments, such deductions shall be in addition to the retainage provided for the Contract.**
- 3. Deduction from Final Payment: The full amount of liquidated damages will be deducted from the final payment to the Contractor and /or his Surety.**
- 4. No liquidated damages charged for delay by the Town: In case of default of the Contract and the subsequent completion of the Work by the Town as hereinafter provided, the Contractor and his Surety shall be liable for the liquidated damages under the Contract, but no liquidated damages shall be chargeable for any delay in the final completion of the Work by the Town due to any unreasonable action, negligence, omission or delay of the Town. In any suit for the collection of or involving the assessment of liquidated damages, the reasonableness of the amount shall be presumed. The liquidated damages referred to herein are intended to be and are cumulative and shall be in addition to every other remedy now or hereafter enforceable at law, in equity, by statute, or under the Contract.**
- 5. Liquidated damages will be assessed at a rate of five hundred dollars (\$500.00) per calendar day, for each day beyond the Date of Substantial Completion, as set forth in the executed Contract documents, by which the Project is not, in the determination of the Engineer, Substantially Complete. In addition, liquidated damages will be assessed at a rate of two hundred and fifty dollars (\$250.00) for each day beyond the Date of Full Completion, as set forth in the executed Contract Documents, by which the Project is not, in the determination of the Engineer, Fully Complete.**

- 5. The Contractor shall be liable for and shall pay to the Town the above stated amount as fixed, agreed and liquidated damages for each day beyond the designated completion date until the project is completed and accepted.**

**SC 18.11 Project Schedule**

- 1. On Tuesday, February 25, 2025, after 10:00 a.m., Contract Documents are available to bidders.**
- 2. On Thursday, March 13, 2025 at 2 p.m., bids will be publicly opened and read, by the Town Engineer in the Conference Room, Nags Head Municipal Complex 5401 S. Croatan Hwy., Nags Head, North Carolina.**

3. On or about Friday , March 21, 2025, a Pre-Construction Meeting will be held jointly with the Town of Nags Head at a location to be announced. On this date, letters also will be sent by the Town staff to property owners affected by the project.
4. On or about Friday, March 21, 2025 a Notice to Proceed shall be issued by the Engineer. The effective date of Notice to Proceed, and thus the first day of the Contract Time, if this schedule is maintained, will be March 21, 2024.
5. The Date of Substantial Completion shall be eighty (80) calendar days from the effective date of the Notice to Proceed, or Friday , March 21, 2025. This date shall be finalized at the time the contract is executed by the Contractor. The Date of Final Completion shall be seven (7) calendar days thereafter, as provided in the General Conditions.



## SECTION 01 02 50 – MEASUREMENT AND PAYMENT

## PART 1 - GENERAL

## 1.1 THE REQUIREMENT

- A. All contract prices shall be full compensation for all labor, materials, tools, equipment, and incidentals necessary to complete the Work as shown on the Drawings and specified in the Contract Documents to be performed under this Contract.
- B. The items listed below refer to and are the same pay items listed in the Bid Form. They constitute all the pay items for the completion of the Work. No direct or separate payment will be made for providing miscellaneous temporary or accessory work, services, job signs, sanitary requirements, testing, safety devices, surveying, field engineering, record drawings, water supplies, power, maintaining traffic, removal of waste, watchmen, and all other requirements of the Contract Documents.
- C. Each lump sum and unit price will be deemed to include an amount considered by CONTRACTOR to be adequate to cover CONTRACTOR's overhead and profit for the Project.
- D. Excavation, trenching, backfill, and compaction are not separate bid items but are an integral part of the work under the contract, and the Contract Bid Price shall include this work.
- E. Progress Payment for any item for which certifying surveys are required shall be made based on estimated quantities verified by the ENGINEER.
- F. ~~Certifying surveys will be required for payment greater than 75% of the estimated total amount of that bid item.~~
- G. ~~No Final Payment will be made for any item for which required certifying surveys have not been submitted and approved by the ENGINEER.~~
- H. Pay Items
  - 1. Mobilization
    - a. Measurement
      - 1) There shall be no measurement for Mobilization
    - b. Payment
      - 1) The lump sum price bid for Mobilization to be paid for shall be full compensation related to preparing for work and associated operations, including but not limited to the necessary movement of personnel, equipment, supplies, and incidentals to or near the project site; for establishing offices and facilities as may be required for the work; and the subsequent removal of personnel, equipment, supplies, and incidentals from the work site at the completion of the work; and all other costs which the CONTRACTOR may incur for the work which are excluded from other bid items.
      - 2) Payment for Mobilization shall be evenly distributed over the first three monthly pay requests, provided the lump sum bid for Mobilization is equal to or less than 3% of the total contract price. When the lump sum bid for Mobilization exceeds 3% of the total contract price, any and all amount in excess of 3% of the total contract price shall be payable on the final monthly pay request. Retainage shall be applied in all instances as provided in the Contract Documents.
  - 2. Clearing & Grubbing
    - a. Measurement
      - 1) Measurement of this item shall be based upon a percentage complete as agreed upon by the CONTRACTOR & the Resident Project Representative.

- b. Payment
  - 1) The lump sum price for this item shall be full compensation for all labor, materials, tools, equipment, & supervision including but not limited to clearing the construction limits of all vegetation including trees, bushes, roots, felled trees, & any item which might interfere with the project construction. CONTRACTOR will be responsible for clipping of roadway shoulders and removal of debris in advance of surface overlay operations.
  
- 3. Erosion Control Implementation, Maintenance and Removal
  - a. Measurement
    - 1) There will be no direct measurement of this lump sum item
  - b. Payment
    - 1) The lump sum price for this item shall be full compensation for all labor, materials, tools, equipment, & supervision necessary to install erosion control measures and tree protection fence as shown and described in the Contract Documents as well as the maintenance, removal and disposal of these erosion control measures upon the disturbed areas having been reestablished. Payment shall be allowed for 50% of the lump sum bid price upon the installation of erosion control measures. The remaining 50% of the lump sum bid price shall be paid in equal monthly installments based on the time remaining to achieve substantial completion. Erosion Controls are primarily expected to be comprised of wrapping installed pipe ends with geotextile fabric to prevent sediment accumulation in pipe. CONTRACTOR will be responsible for permanent seeding and excelsior matting as required.
  
- 4. Traffic Control Implementation and Removal
  - a. Measurement
    - 1) There will be no direct measurement of this lump sum item.
  - b. Payment
    - 1) The lump sum price for this item shall include all labor and materials necessary for providing and maintaining traffic control around construction and shall include all temporary paving, cones, signs, barricades, flag men, temporary signal modifications and any other items required to provide for the safe movement of traffic. Temporary road closures will be permitted on side street intersections for the installation of new and replaced cross-street culvert pipes.
  
- 5. Select Fill
  - a. Measurement
    - 1) The quantity of select fill to be paid for under this item will be the number of cubic yards of select fill used to fill in shoulder areas along the edge of pavement to prevent significant vertical grade changes between the finished pavement surface and roadway shoulder. The backfill width is anticipated to be 18" to 24" wide with no more than a 1/4" pavement exposure above the shoulder grade.
  - b. Payment
    - 1) The unit price for this item will be full compensation for measuring and backfilling with select fill, and disposing of all unsuitable soils excavated for which payment is not provided under other items in the bid form. No payment will be made for any undercut without prior approval by the ENGINEER.

6. Remove and Replace Unsuitable Material with #67 Stone
  - a. Measurement
    - 1) The quantity of unsuitable materials excavated and replaced with #67 stone to be paid for under this item will be the number of cubic yards of # 67 stone used to replace unsuitable materials (excluding rock) excavated at the direction of the ENGINEER.
  - b. Payment
    - 2) The unit price for this item will be full compensation for measuring, excavating, and backfilling with compacted #67 stone, and disposing of all unsuitable soils excavated for which payment is not provided under other items in the bid form. No payment will be made for any undercut without prior approval by the ENGINEER.
  
7. Open Cut and Patch Asphalt Road (excluding 9.5B Asphalt Surface Course)
  - a. Measurement
    - 1) The square yards of asphalt road open cut and patched which will be paid for under this Item be the square yards of asphalt affected by construction except that the width of payment shall be limited to the outside diameter of the pipe plus 36 inches as approved by the ENGINEER. Full depth pavement patch width and location must be approved by the ENGINEER.
  - b. Payment
    - 1) The unit prices bid for this Item will be full compensation for all labor, materials, tools, equipment, supervision, and incidentals required to open cut and patch all asphalt per Town of Nags Head Detail W-13 and Town of Nags Head Detail 305 as shown on the Drawings and specified herein. Asphalt payment is not to be included under this item.
  
8. Surface Overlay 1.75-inch (9.5B Asphalt)
  - a. Measurement
    - 1) The square yards of asphalt road surface overlay which will be paid for under this Item be the square feet of asphalt installed by construction as approved by the ENGINEER.
  - b. Payment
    - 1) The unit prices bid for this Item will be full compensation for all labor, materials, tools, equipment, supervision, and incidentals required to surface overlay all asphalt as shown on the Drawings and specified herein.
  
9. Surface Overlay 1-inch (S-4.75A Asphalt)
  - a. Measurement
    - 1) The square yards of asphalt road surface overlay which will be paid for under this Item be the square feet of asphalt installed by construction as approved by the ENGINEER.
  - b. Payment
    - 1) The unit prices bid for this Item will be full compensation for all labor, materials, tools, equipment, supervision, and incidentals required to surface overlay all asphalt as shown on the Drawings and specified herein.
  
10. Milling for Pavement Transition
  - a. Measurement
    - 1) Flexible pavement tie-in planning/milling used to tie existing roadways will be measured in square yards of pavement surface area removed to the design depth specified in Contact Documents.
  - b. Payment
    - 1) The unit price bid for this Item will be paid for at the unit price per square yard as indicated on the Bid Form.

11. Roadway Pavement Markings
  - a. Measurement
    - 1) Pavement markings will be measured in units of each per location or in linear feet as applicable.
  - b. Payment
    - 1) Payment will be paid for at the contract unit price per each or linear foot. This price shall include surface preparation, pre-marking, furnishing, installing, quality control tests, daily log, guarding devices, primer/adhesive, glass beads, reflective optics materials when required, and warranty.
12. Payment and Performance Bonds (Apply to projects in excess of \$300,000)
  - a. Measurement
    - 1) There will be no direct measurement of this lump sum item
  - b. Payment
    - 1) Payment will be paid for the direct cost of securing a 100% payment and performance bond for the value of the project.
13. Remove existing 15” dia. CMP pipe, furnish & install 18” dia. HPPP storm Pipe
  - a. Measurement
    - 1) The length of 18” Culvert pipe to be paid for under this item will be the actual number of linear feet of 18-inch HP Storm pipe installed in place measured horizontally along the centerline.
  - b. Payment
    - 1) The unit price for this item will be full compensation for furnishing and installing categorized pipe; as shown on the Drawings and specified herein, including but not limited to excavating, stone bedding, backfill and compaction, temporary drainage(including dewatering), traffic control; sheeting and bracing; grading; disposal of excess excavated materials; care and protection of existing utilities and structures; conformance to all NCDOT and OWNER standards and requirements. This item includes removal, demolition and disposal of the existing culvert pipe in conjunction with a MARMAC coupling for dissimilar pipe, (or approved equal), for the connection of the existing pipe to the proposed pipe.
14. Remove existing 24” dia. CMP pipe, furnish & install 30” dia. HPPP storm Pipe
  - a. Measurement
    - 1) The length of 30” Culvert pipe to be paid for under this item will be the actual number of linear feet of 30-inch HPPP Storm pipe installed in place measured horizontally along the centerline.
  - b. Payment
    - 1) The unit price for this item will be full compensation for furnishing and installing categorized pipe; as shown on the Drawings and specified herein, including but not limited to excavating, stone bedding, backfill and compaction, temporary drainage(including dewatering), traffic control; sheeting and bracing; grading; disposal of excess excavated materials; care and protection of existing utilities and structures; conformance to all NCDOT and OWNER standards and requirements. This item includes removal, demolition and disposal of the existing culvert pipe in conjunction with a MARMAC coupling for dissimilar pipe, (or approved equal), for the connection of the existing pipe to the proposed pipe.
15. Remove existing 18” dia. CMP pipe, furnish & install 24” dia. HPPP storm Pipe w/FES
  - a. Measurement
    - 1) The length of 24” Culvert pipe to be paid for under this item will be the actual number of linear feet of 24-inch HPPP Storm pipe installed in place measured horizontally along the centerline.
  - b. Payment
    - 1) The unit price for this item will be full compensation for furnishing and installing categorized pipe; as shown on the Drawings and specified herein, including but not limited

to excavating, stone bedding, backfill and compaction, temporary drainage(including dewatering), traffic control; sheeting and bracing; grading; disposal of excess excavated materials; care and protection of existing utilities and structures; conformance to all NCDOT and OWNER standards and requirements. This item includes removal, demolition and disposal of the existing culvert pipe in conjunction with a MARMAC coupling for dissimilar pipe, (or approved equal), for the connection of the existing pipe to the proposed pipe.

16. Remove existing 24" dia. CMP pipe, furnish & install 24" dia. HPPP storm Pipe
  - a. Measurement
    - 1) The length of 24" Culvert pipe to be paid for under this item will be the actual number of linear feet of 24-inch HP Storm pipe installed in place measured horizontally along the centerline.
  - b. Payment
    - 1) The unit price for this item will be full compensation for furnishing and installing categorized pipe; as shown on the Drawings and specified herein, including but not limited to excavating, stone bedding, backfill and compaction, temporary drainage(including dewatering), traffic control; sheeting and bracing; grading; disposal of excess excavated materials; care and protection of existing utilities and structures; conformance to all NCDOT and OWNER standards and requirements. This item includes removal, demolition and disposal of the existing culvert pipe in conjunction with a MARMAC coupling for dissimilar pipe, (or approved equal), for the connection of the existing pipe to the proposed pipe.
  
17. Remove existing 24" dia. CMP pipe, furnish & install 30" dia. HPPP storm Pipe w/FES
  - a. Measurement
    - 1) The length of 30" Culvert pipe to be paid for under this item will be the actual number of linear feet of 30-inch HPPP Storm pipe installed in place measured horizontally along the centerline.
  - b. Payment
    - 1) The unit price for this item will be full compensation for furnishing and installing categorized pipe; as shown on the Drawings and specified herein, including but not limited to excavating, stone bedding, backfill and compaction, temporary drainage(including dewatering), traffic control; sheeting and bracing; grading; disposal of excess excavated materials; care and protection of existing utilities and structures; conformance to all NCDOT and OWNER standards and requirements. This item includes removal, demolition and disposal of the existing culvert pipe in conjunction with a MARMAC coupling for dissimilar pipe, (or approved equal), for the connection of the existing pipe to the proposed pipe.
  
18. Construct 1' +/- deep swale with 4:1 side slopes
  - a. Measurement
    - 1) The length of 1' +/- deep swale with 4:1 side slopes to be paid for under this item will be the actual number of linear feet of swale installed in place measure horizontally along the centerline of the swale.
  - b. Payment
    - 1) The unit price for this item will be full compensation for constructing the drainage swale; as shown on the Drawings and specified herein, including but not limited to excavating, backfill and compaction, temporary drainage (including dewatering), traffic control; sheeting and bracing; grading; disposal of excess excavated materials; care and protection of existing utilities and structures; conformance to all NCDOT and OWNER standards and requirements. This item includes any connections to existing infrastructure as required for adequate drainage.

19. Flowable Fill
  - a. Measurement
    - 1) Flowable fill shall be measured to the nearest cubic yard of material placed, unless other measurement provisions are specified. In lieu of actual field measurement for volume of material placed truck delivery tickets may be used. Flowable fill may be utilized for foundation augmentation for storm pipe installation.
  - b. Payment
    - 1) Flowable fill will be paid at the unit price established in the Bid proposal. The unit prices bid for this Item will be full compensation for all labor, materials, tools, equipment, supervision, and incidentals required to install the concrete ribbon as shown on the Drawings and specified herein.
  
20. 6-inch Water Main
  - a. Pipe and Fittings:
    1. Basis of Measurement: By Linear Foot. The length of water lines to be paid for will be determined by measuring along the centerlines of the various sizes of pipe furnished and installed. Pipe will be measured from center of fitting to center of fitting, from the center of the water distribution line to end of service connection and from center of water distribution line to center of hydrant.
    2. Basis of Payment includes:
      - a. Excavation for piping and all fittings, including all bends, tees and crosses.
      - b. Removal of unsuitable soil material.
      - c. Piping and fittings.
      - d. Removal of unsuitable material.
      - e. Concrete thrust restraints.
      - f. Connection to public utility water source.
      - g. Backfilling with suitable trench excavation or on-site suitable soil.
      - h. Testing.
  - b. Valves
    - 1) Basis of Measurement: Per each unit installed.
    - 2) Basis of Payment includes:
      - a. Valve
      - b. Accessories and kits.
      - c. Valve Box
      - d. Concrete collar as required
      - e. Blocking
      - f. Backfilling
  - c. Tapping Sleeve and Tapping Valve
    - 1) Basis of Measurement: Per each unit installed.
    - 2) Basis of Payment includes:
      - a. Tapping sleeve and tap valve
      - b. Testing of assembly before wet tap
      - c. Cutting the wet tap
      - d. Blocking
      - e. Backfilling
  - d. Fire Hydrant
    - 1) Basis of Measurement: Per each unit installed
    - 2) Basis of Payment includes:
      - a. Fire hydrant
      - b. Blocking and rodding

- c. Drainage aggregate
    - d. Backfilling
    - e. Painting
  - e. Fire Hydrant Relocation
    - 1) Basis of Measurement: Per each unit relocated
    - 2) Basis of Payment includes:
      - a. Blocking and rodding
      - b. Drainage aggregate
      - c. Backfilling
  - f. Blow Off
    - 1) Basis of Measurement: Per each unit installed
    - 2) Basis of Payment includes:
      - a. Complete blow off assembly per drawings and details
      - b. Blocking
      - c. Backfilling
  - g. Backflow Preventer
    - 1) Basis of Measurement: Per each unit installed
    - 2) Basis of Payment includes:
      - a. Complete backflow preventer assembly
      - b. Accessories
      - c. Enclosure
      - d. Blocking backfilling
      - e. Testing
- 21. Reconnect existing water services
  - a. Measurement
    - 1) This item shall be paid for in accordance with the number of total connections of existing water services as indicated in the plans.
    - 2) Payment shall be made per each reconnection of water service.
- 22. New water services
  - a. Measurement
    - 1) This item shall be paid for in accordance with the number of total new water services as indicated in the plans.
  - b. Payment
    - 1) Payment shall be made per each new water service and shall include meter boxes with 1 inch meter setters.
- 23. Lowering of Existing Water Line
  - a. Measurement
    - 1) This item shall be paid for in accordance with the total number of incidences as indicated in the plans.
  - b. Payment
    - 1) Payment shall be made per each incidence of lowering of existing water main as noted in the plans and specifications. The unit price includes all labor, materials and equipment necessary to install each structure including excavation backfill and restoration and all other work, not included under other items, necessary to complete the work as specified. Connection to existing and proposed drainage pipes are to be installed in accordance with the specifications.

24. Precast or built-in-place NCDOT approved drainage structures (NCDOT 840.14 & NCDOT 840.31) with frame and grate
- a. Measurement
    - 1) This item shall be paid for in accordance with the number of total structures noted in the plans and specifications.
  - b. Payment
    - 1) Payment shall be made at the unit price bid for installation of each drainage structure as noted in the plans and specifications. The unit price includes all labor, materials and equipment necessary to install each structure including excavation backfill and restoration and all other work, not included under other items, necessary to complete the work as specified. Connection to existing and proposed drainage pipes are to be installed in accordance with the specifications.
25. Flared end sections
- a. Measurement
    - 1) This item shall be paid for in accordance with the number of total structures noted in the plans and specifications.
  - b. Payment
    - 1) Payment shall be made at the unit price bid for installation of each flared end section as noted in the plans and specifications. The unit price includes all labor, materials and equipment necessary to install each structure including excavation backfill and restoration and all other work, not included under other items, necessary to complete the work as specified. Connection to existing and proposed drainage pipes are to be installed in accordance with the specifications.
26. Storm Pipe Reducer
- a. Measurement
    - 1) This item shall be paid for in accordance with the number of total structures noted in the plans and specifications.
  - b. Payment
    - 1) Payment shall be made at the unit price bid for installation of each reducer as noted in the plans and specifications. The unit price includes all labor, materials and equipment necessary to install each structure including excavation backfill and restoration and all other work, not included under other items, necessary to complete the work as specified. Connection to existing and proposed drainage pipes are to be installed in accordance with the specifications.
27. Site Restoration
- a. Measurement
    - 1) There will be no direct measurement of this item.
  - b. Payment
    - 1) The lump sum price shall include all final grading, temporary seeding and mulching, final seeding and mulching of the disturbed area within the construction corridor, and removal of temporary erosion control measures after cover has been established, and shall be full compensation for all labor, materials, and equipment required to the site as shown on the Drawings and as described in the Specifications and accepted by NCDOT, local erosion control officer, OWNER, the ENGINEER.

END OF SECTION 01 02 50

## SECTION 01 10 00 - SUMMARY

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this Section.

#### 1.2 SUMMARY

- A. This Section includes the following:

Work covered by the Contract Documents.

- B. Related Sections include the following:

Division 1 Section "Temporary Facilities " for limitations and procedures governing temporary use of Owner's facilities.

#### 1.3 WORK COVERED BY CONTRACT DOCUMENTS

- A. Project Identification: FY 24-25 Capital Improvement Project – Street Resurfacing, Water Main, and Drainage Improvements

Project Location(s):

- Street resurfacing:
  - S. Memorial Ave. between the dead end of S. Memorial Ave. south of E. Bladen St and the northern terminus of S. Memorial Ave. north of E. 8<sup>th</sup> St.
  - E. Albatross St.
  - E. Atlas St.
  - E. Driftwood St.
  - E. Abalone St.
  - S. Gannet Ave.
- Water main improvements:
  - S. Memorial Ave between Ario St. and Atlas St.
  - Ario St. between Wrightsville Ave and S. Memorial Ave.
  - Albatross St. between Wrightsville Ave. and S. Virginia Dare Trail.
  - Atlas St. from Wrightsville Ave. and S. Memorial Ave.
  -
- Drainage Improvements
  - S. Memorial Ave. at Albatross St.
  - S. Memorial Ave. at Atlas St.
  - S. Memorial Ave. at Driftwood St.
  - S. Memorial Ave. at E. Gallery Row
  - S. Memorial Ave. at Abalone St.
  - S. Memorial Ave. at Bittern St.
  - S. Memorial Ave. at E. Bonnett St.
  - S. Wrightsville Ave. at Albatross St.

- ADD ALTERNATES
  - E. Gallery Row Resurfacing and Drainage Improvements
  - S. Memorial Ave. South of Bonnett St.

B. Owner: Town of Nags Head

Owner's Representative: David M. Ryan P.E.  
Civil Engineer  
Town of Nags Head  
5401 S. Croatan Hwy  
Nags Head, NC 27959

C. The Work consists of the following:

The work for the FY 24-25 Street Resurfacing Project will include:

General Base Bid Items: Includes mobilization, bonds, traffic control measures and select fill.

### 1. Street Resurfacing

- **S. Memorial Ave:** consists of paving of approximately 147,951 square feet of asphalt surface overlay including S. Memorial Ave. between the dead end of S. Memorial Ave south of E. Bladen Street and the northern terminus of S Memorial north of E. 8<sup>th</sup> St., Nags Head, North Carolina. Paving thickness will be 1.75", a minimum 4' wide asphalt edge milling for concrete driveway transitions and a minimum 12' wide asphalt milling for street intersection pavement transitions.
- **E. Albatross St.:** consists of paving of approximately 14,553 square feet of asphalt surface overlay along E. Albatross St. spanning from Wrightsville Ave to S. Virginia Dare Trail and includes E. Albatross Beach Access. Paving thickness will be 1.75" thickness until S. Memorial Ave, and 1" from S. Memorial Ave to end of beach access, a minimum 4' wide asphalt edge milling for concrete driveway transitions and a minimum 12' wide asphalt milling for street intersection pavement transitions.
- **E. Atlas St.:** consists of paving of approximately 7,137 square feet of asphalt surface overlay along Atlas St. spanning from Wrightsville Ave to S. Memorial Ave. Paving thickness will be 1.75" thickness, a minimum 4' wide asphalt edge milling for concrete driveway transitions and a minimum 12' wide asphalt milling for street intersection pavement transitions.
- **E. Driftwood St:** consists of paving of approximately 22,905 square feet of asphalt surface overlay along Driftwood St from Wrightsville Ave to S. Virginia Dare Trail. Paving thickness will be 1.75", a minimum 4' wide asphalt edge milling for concrete driveway transitions and a minimum 12' wide asphalt milling for street intersection pavement transitions.
- **E. Abalone St.:** consists of paving of approximately 14,958 square feet of asphalt surface overlay including E Abalone St. between Wrightsville Ave. and S Virginia Dare Trail and includes the E. Abalone St. beach access. Paving thickness will be 1.75", a minimum 4' wide asphalt edge milling for concrete driveway transitions and a minimum 12' wide asphalt milling for street intersection pavement transitions.

- **S. Gannett Ave.:** consists of paving of approximately 13,268 square feet of asphalt surface overlay along S. Gannett Ave. spanning from the intersection of S. Gannett Ave and W. 8<sup>th</sup> St. to the southern terminus of S. Gannett Ave. Paving thickness will be 1.75" thickness, a minimum 4' wide asphalt edge milling for concrete driveway transitions and a minimum 12' wide asphalt milling for street intersection pavement transitions.

## 2. Water Main Improvements

- a. **S. Memorial Ave. 6-inch water main:** consists of approximately 837 linear feet of water main construction along the west side of South Memorial Avenue from north of the intersection of S. Memorial Avenue and Ario Street and continuing to south of the intersection of South Memorial Ave. and Atlas St., Nags Head, North Carolina. Construction consists of installation of a 6-inch water main to be connected to existing water main near the intersection with S. Memorial Ave. and Atlas St. with all appurtenances including but not limited to: valves, fire hydrants, hydrant relocations, tapping sleeves, bends, tees, crosses, elbows, service connections, fittings, supports and restraints. Water main shall achieve separations and setbacks as required by local and state minimum design criteria and as indicated on the plans. Approximately 1,435 square feet of permanent pavement patch will accompany this work.
- b. **Ario St. 6-inch water main:** consists of approximately 373 linear feet of water main construction along the north side of Ario Street beginning north of the intersection of S. Wrightsville Ave. and Ario St. and continuing to north of the intersection of Ario St. and S. Memorial Ave., Nags Head, North Carolina. Construction consists of installation of a 6-inch water main to be connected to the new water main along S. Memorial Ave. with all appurtenances including but not limited to: valves, fire hydrants, hydrant relocations, tapping sleeves, bends, tees, crosses, elbows, service connections, fittings, supports and restraints. Water main shall achieve separations and setbacks as required by local and state minimum design criteria and as indicated on the plans. Approximately 535 square feet of permanent pavement patch will accompany this work.
- c. **Albatross St. 6-inch water main:** consists of approximately 730 linear feet water main construction along the north side of Albatross St. beginning north of the intersection of Albatross St. and S. Wrightsville Ave. and continuing east to the north side of the intersection of Albatross St. and S. Virginia Dare Trail. Construction consists of installation of a 6-inch water main to be connected to existing water main near the intersection of Albatross St. and S. Virginia Dare Trail with all appurtenances including but not limited to: valves, fire hydrants, hydrant relocations, tapping sleeves, bends, tees, crosses, elbows, service connections, fittings, supports and restraints. Water main shall achieve separations and setbacks as required by local and state minimum design criteria and as indicated on the plans. Approximately 740 square feet of permanent pavement patch will accompany this work.
- d. **Atlas Street 6-inch water main:** consists of approximately 327 linear feet of water main construction along the south side of Atlas Street beginning south of the intersection Atlas Street and South Wrightsville Avenue and continuing east to the intersection of Atlas Street and South Memorial Avenue. Construction consists of installation of a 6-inch water main to be connected to the new water main near the intersection of Atlas Street and South Memorial Avenue with all appurtenances including but not limited to: valves, fire hydrants, hydrant relocations, tapping sleeves, bends, tees, crosses, elbows, service connections, fittings, supports and restraints. Water main shall achieve separations and setbacks as required by local and state minimum design criteria and as indicated on the plans.

### 3. Drainage Improvements

- a. **S. Memorial Ave. at Albatross St.:** consists of drainage infrastructure removal and replacement at the intersection of S. Memorial Ave. and Albatross St. including approximately 56 linear feet of new 30" HPPP pipe. The scope of work consists of one new drop inlet (NCDOT 840.14) with frame and grate (NCDOT 840.16) and (2) pipe connections. Includes removing/demolition of existing 18" RCP, 24" RECP and CMP storms pipe and replacing with new infrastructure as described. Approximately 200 square feet permanent pavement patch will accompany this work. New infrastructure includes all appurtenances and fittings to achieve watertight connections, and all compacted pipe bedding and backfill with clean backfill material for stable pipe installation.
- b. **S. Memorial Ave. at Atlas St.:** consists of drainage infrastructure removal and replacement at the intersection of S. Memorial Ave. and Atlas Street including approximately 46 linear feet of new 18" HPPP pipe. The scope of work consists of one new drop inlet (NCDOT 840.14) with frame and grate (NCDOT 840.16) with one pipe connection. Includes removal/demolition of existing 15" CMP and replacing with new infrastructure as described. Approximately 265 square feet of permanent pavement patch will accompany this work. New infrastructure includes all appurtenances and fittings to achieve watertight connections, and all compacted pipe bedding and backfill with clean backfill material for stable pipe installation.
- c. **S. Memorial Ave. at Driftwood St.:** consists of drainage infrastructure removal and replacement at the intersection of S. Memorial Ave. and Driftwood St including approximately 70 linear feet of new 18" HPPP with drop inlets (NCDOT 840.14) with frame and grate (NCDOT 840.16), and approximately 104 linear feet of new 30" HPPP with drop inlets and 5' stub out, includes a total of (5) new drop inlets with (8) connections. Includes removal/demolition of existing 15" CMP and 24" CMP and replacing with new infrastructure, and connecting to existing piping, as described. Approximately 800 square feet of permanent pavement patch will accompany this work. New infrastructure includes all appurtenances and fittings to achieve watertight connections, and all compacted pipe bedding and backfill with clean backfill material for stable pipe installation.
- d. **S. Memorial Ave. at E. Gallery Row: St.:** consists of drainage infrastructure removal and replacement at the intersection of S. Memorial Ave at E. Gallery Row including approximately 147 linear feet of new 30" HPPP pipe, and approximately 38 linear feet of 18" HPPP, with drop inlets (NCDOT 840.14) with frame and grate (840.16) and one Storm Manhole (NCDO T840.31) with frame and grate (NCDOT 840.54). Includes a total of (4) drop inlets, with 7 connections, and 1 Storm Manhole Junction Box, with 2 connections. Includes removal/demolition of existing 18" CMP. Approximately 860 square feet of pavement patch will accompany this work. New infrastructure includes all appurtenances and fittings to achieve watertight connections, and all compacted pipe bedding and backfill with clean backfill material for stable pipe.
- e. **S. Memorial Ave. at Abalone St.:** consists of drainage infrastructure removal and replacement at the intersection of S. Memorial Ave at Abalone St. including approximately 49 linear feet of new 24" HPPP pipe with drop inlet and a flared end section. Includes removal/demolition of existing 18" CMP. New infrastructure includes all appurtenances and fittings to achieve watertight connections, and all compacted pipe bedding and backfill with clean backfill material for stable pipe installation.
- f. **S. Wrightsville Ave. at Albatross St.:** consists of drainage infrastructure installation including approximately 40 linear feet of new 15" HPPP cross culvert under Albatross Street to be connected to existing infrastructure including 2 new drop inlets (NCDOT 840.14) with frame and

grate (840.16). each with one connection. Approximately 220 square feet of permanent pavement patch will accompany this work. New infrastructure includes all appurtenances and fittings to achieve watertight connections, and all compacted pipe bedding and backfill with clean backfill material for stable pipe installation. Also includes construction of approximately 263 linear feet of new drainage swales, approximately 1' deep with 4:1 side slopes.

- g. **S. Memorial Ave. at E. Bonnett St.:** consists of drainage infrastructure removal and replacement at the intersection of S. Memorial Ave at E. Bonnett St including approximately 64 linear feet of new 24" HPPP pipe and approximately 130 linear feet of new 24" HPPP continuing south along S. Memorial Ave. New pipe to connect to existing drop inlets/junction box as shown on the plans. Includes removal/demolition of existing 24" CMP. Approximately 264 square feet of permanent pavement repair will accompany this work. New infrastructure includes all appurtenances and fittings to achieve watertight connections.
- h. **S. Memorial Ave. at Bittern St.:** consists of drainage infrastructure removal and replacement at the intersection of S. Memorial Ave at Bittern St. including approximately 124 linear feet of new 30" HPPP pipe with drop inlets and a flared end sections, and approximately 82 linear feet of new 18" HPPP with drop inlets. Includes removal/demolition of existing 15 and 18" CMP. New infrastructure includes all appurtenances and fittings to achieve watertight connections, and all compacted pipe bedding and backfill with clean backfill material for stable pipe installation.
- i. **ADD ALTERNATE: E. Gallery Row Resurfacing and Drainage Improvements:** consists of paving of approximately 13,962 square feet of asphalt surface overlay along S. Gallery Row spanning from the intersection of Gallery Row and S. Wrightsville Ave. to the intersection of S. Gallery Row and S. Virginia Dare Trail. Paving thickness will be 1.75" thickness, a minimum 4' wide asphalt edge milling for concrete driveway transitions and a minimum 12' wide asphalt milling for street intersection pavement transitions.

Additionally, this add alternate consists of installation of approximately 468 linear feet of new 30" dia. HPPP, 33 linear feet of new 18" dia. HPPP and 44 l.f. of 22"x36" corrugated aluminum arch pipe to replace an existing cross street pipe along S Wrightsville Ave. The scope of work will include the addition of one new concrete junction box (NCDOT 840.31) with manhole frame & cover with (3) pipe connections and the replacement of an existing junction box with a new concrete junction box (NCDOT 840.31) with NCDOT 840.54 frame and grate and (4) connecting pipe connections. Approximately 400 square feet of permanent pavement patch will accompany this work. The alignment is proposed along the southern right-of-way margin of Gallery Row between S. Memorial Ave and S Wrightsville Ave and S. Wrightsville Ave. from the Gallery Row intersection to approximately 2407 S. Wrightsville Ave. New and replacement infrastructure shall include all appurtenances and fittings to achieve watertight connection, and all compacted pipe bedding and clean backfill material for a stable pipe installation.

- j. **ADD ALTERNATE: S. Memorial Ave. South of Bonnet St.:** consists of drainage infrastructure installation along S. Memorial Ave. south of Bonnett St. including approximately 130 linear feet of new 24" HPPP. New infrastructure includes all appurtenances and fittings to achieve watertight connections, and all compacted pipe bedding and backfill with clean backfill material for stable pipe installation.
1. Provide all labor, materials, equipment, tools, services, and incidentals necessary to complete all work required by the Contract Documents to furnish and install all work as shown on the Drawings and specified herein.

2. Complete the Work, in place, tested, and ready for continuous services. Perform or provide repairs, replacements, and restoration required for damages resulting from construction services.
3. Furnish and install all materials, equipment, and incidentals, which are reasonably and properly inferable and necessary for the proper completion of the Work, whether specifically indicated in the Contract Documents, or not.

**PART 2 - PRODUCTS (Not Used)**

**PART 3 - EXECUTION**

INDEX OF DRAWINGS:

(see exhibits attached within)

**3.2 LOCATION OF UNDERGROUND FACILITIES**

A. CONTRACTOR is responsible for the location of all underground utilities. Known existing utilities have been located from the information available. It is the CONTRACTOR's responsibility to accurately locate both above ground and below ground utilities prior to the start of construction. CONTRACTOR is responsible for contacting NC One Call Center at 800.632.4949. All costs associated with any damage to known or unknown existing utilities during construction shall be borne solely by the CONTRACTOR.

**3.3 CONSTRUCTION SEQUENCE**

- A. Notify the OWNER and ENGINEER at least one week prior to starting construction activities.
- B. Notify the OWNER and ENGINEER at least 48 hours prior to starting excavation work.
- C. Install all erosion control measures prior to beginning land disturbing activities.
- D. Project Construction sequence will be as agreed upon after contract award.

END OF SECTION 01 10 00

## SECTION 013233 - PHOTOGRAPHIC DOCUMENTATION

### **PART 1 - GENERAL**

#### 1.1 SUMMARY

- A. Section includes administrative and procedural requirements for the following:
  - 1. Preconstruction photographs.
  - 2. Periodic construction photographs.
- B. Related Requirements:
  - 1. Section 017700 "Closeout Procedures" for submitting photographic documentation as Project Record Documents at Project closeout.

#### 1.2 INFORMATIONAL SUBMITTALS

- A. Digital Photographs: Submit unaltered, original, full-size image files within three days of taking photographs.
  - 1. Digital Camera: Minimum sensor resolution of 8 megapixels.
  - 2. Identification: Provide the following information with each image description in file metadata tag:
    - a. Name of Project.
    - b. Name and contact information for photographer.
    - c. Date photograph was taken.
    - d. Description of vantage point, indicating location, direction (by compass point), and elevation or story of construction.

### **PART 2 - PRODUCTS**

#### 2.1 PHOTOGRAPHIC MEDIA

- A. Digital Images: Provide images in JPG format.

### **PART 3 - EXECUTION**

#### 3.1 CONSTRUCTION PHOTOGRAPHS

- A. General: Take photographs using the maximum range of depth of field, and that are in focus, to clearly show the Work. Photographs with blurry or out-of-focus areas will not be accepted.
- B. Digital Images: Submit digital images exactly as originally recorded in the digital camera, without alteration, manipulation, editing, or modifications using image-editing software.
  - 1. Date and Time: Include date and time in file name for each image.
  - 2. Field Office Images: Maintain one set of images accessible in the field office at Project site, available at all times for reference. Identify images in the same manner as those submitted to Architect.

- C. Preconstruction Photographs: Before commencement of demolition, take photographs of Project site and surrounding properties, including existing items to remain during construction, from different vantage points.
- D. Periodic Construction Photographs: Take photographs weekly, with timing each month adjusted to coincide with the cutoff date associated with each Application for Payment. Select vantage points to show status of construction and progress since last photographs were taken.
- E. Final Completion Construction Photographs: Take color photographs after date of Substantial Completion for submission as Project Record Documents.
- F. Additional Photographs: Architect/Engineer may request photographs in addition to periodic photographs specified.

END OF SECTION 013233

## SECTION 015000 – TEMPORARY FACILITIES AND CONTROLS

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this Section.

#### 1.2 SUMMARY

- A. This Section includes requirements for temporary utilities, support facilities, and security and protection facilities.

#### 1.3 USE CHARGES

- A. General: Cost or use charges for temporary facilities shall be included in the Contract Sum. Allow other entities to use temporary services and facilities without cost, including, but not limited to, Owner Project Lead, occupants of Project, testing agencies, and authorities having jurisdiction.
- B. Water Service: Water from Owner's existing water system is available for use provided a temporary meter is installed. The Town will provide a hydrant meter, as applicable, as required for construction operations. Contractor will be charged for the water used during the course of the project.
- C. Electric Power Service: Contractor shall make provisions for a temporary electrical source required for construction operations. All costs for electrical service shall be the sole responsibility of the contractor.

#### 1.4 SUBMITTALS

- A. Site Plan: Show temporary facilities, utility hookups, staging areas, and parking areas for construction personnel.

#### 1.5 QUALITY ASSURANCE

- A. Tests and Inspections: Arrange for authorities having jurisdiction to test and inspect each temporary utility before use. Obtain required certifications and permits.

#### 1.6 PROJECT CONDITIONS

- A. Temporary Use of Permanent Facilities: Installer of each permanent service shall assume responsibility for operation, maintenance, and protection of each permanent service during its use as a construction facility before Owner's acceptance, regardless of previously assigned responsibilities.

### PART 2 - PRODUCTS

#### 2.1 MATERIALS

- A. As required to establish temporary use, service, and signage

## 2.2 TEMPORARY FACILITIES

## 2.3 EQUIPMENT

### PART 3 - EXECUTION

#### 3.1 INSTALLATION, GENERAL

- A. Locate facilities where they will serve Project adequately and result in minimum interference with performance of the Work. Relocate and modify facilities as required by progress of the Work.
- B. Provide each facility ready for use when needed to avoid delay. Do not remove until facilities are no longer needed or are replaced by authorized use of completed permanent facilities.

#### 3.2 TEMPORARY UTILITY INSTALLATION

- A. General: Install temporary service or connect to existing service with a meter.
  - 1. Arrange with utility company, Owner, and existing users for time when service can be interrupted, if necessary, to make connections for temporary services.
- B. Water Service: Meter must be installed, as applicable, for Owner's existing water service facilities to be permitted, as long as facilities are cleaned and maintained in a condition acceptable to Owner. At Substantial Completion, restore these facilities to condition existing before initial use.
  - 1. Where installations below an outlet might be damaged by spillage or leakage, provide a drip pan of suitable size to minimize water damage. Drain accumulated water promptly from pans.
- C. Sanitary Facilities: Provide temporary toilets, wash facilities, and drinking water for use of construction personnel. Comply with authorities having jurisdiction for type, number, location, operation, and maintenance of fixtures and facilities.
- D. Electric Power Service: Contractor to provide own temporary power source as required.
- E. Lighting: Provide temporary lighting with local switching that provides adequate illumination for construction operations, observations, inspections, and traffic conditions.
  - 1. Install and operate temporary lighting that fulfills security and protection requirements without operating entire system.

#### 3.3 SUPPORT FACILITIES INSTALLATION

- A. General: Comply with the following:
  - 1. Maintain support facilities until near Substantial Completion. Remove before Substantial Completion. Personnel remaining after Substantial Completion will be permitted to use permanent facilities, under conditions acceptable to Owner.
- B. Project Identification and Temporary Signs: Provide Project identification and other signs. Install signs where indicated to inform public and individuals seeking entrance to Project. Unauthorized signs are not permitted.
  - 1. Provide temporary, directional signs for construction personnel and visitors.
  - 2. Maintain and touchup signs so they are legible at all times.
- C. Waste Disposal Facilities: Comply with requirements specified in General Conditions.

### 3.4 SECURITY AND PROTECTION FACILITIES INSTALLATION

- A. Environmental Protection: Provide protection, operate temporary facilities, and conduct construction in ways and by methods that comply with environmental regulations and that minimize possible air, waterway, and subsoil contamination or pollution or other undesirable effects.
  - 1. Comply with work restrictions specified in Division 1 Section "Summary."
- B. Temporary Erosion and Sedimentation Control: Comply with requirements specified in Division 2
- C. Stormwater Control: Comply with authorities having jurisdiction. Provide barriers in and around excavations and subgrade construction to prevent flooding by runoff of stormwater from heavy rains.
- D. Security Enclosure and Lockup: Install substantial temporary enclosure around partially completed areas of construction. Provide lockable entrances to prevent unauthorized entrance, vandalism, theft, and similar violations of security.

### 3.5 OPERATION, TERMINATION, AND REMOVAL

- A. Supervision: Enforce strict discipline in use of temporary facilities. To minimize waste and abuse, limit availability of temporary facilities to essential and intended uses.
- B. Maintenance: Maintain facilities in good operating condition until removal.
  - 1. Maintain operation of temporary enclosures, heating, cooling, humidity control, ventilation, and similar facilities on a 24-hour basis where required to achieve indicated results and to avoid possibility of damage.
- C. Temporary Facility Changeover: Do not change over from using temporary security and protection facilities to permanent facilities until Substantial Completion.
- D. Termination and Removal: Remove each temporary facility when need for its service has ended, when it has been replaced by authorized use of a permanent facility, or no later than Substantial Completion. Complete or, if necessary, restore permanent construction that may have been delayed because of interference with temporary facility. Repair damaged Work, clean exposed surfaces, and replace construction that cannot be satisfactorily repaired.
  - 1. Materials and facilities that constitute temporary facilities are property of Contractor. Owner reserves right to take possession of Project identification signs.
  - 2. At Substantial Completion, clean and renovate permanent facilities used during construction period. Comply with final cleaning requirements specified in Division 1 Section "Closeout Procedures."

END OF SECTION 015000

## SECTION 01 55 00 SITE ACCESS AND STORAGE

### PART 1 GENERAL

#### 1.01. THE REQUIREMENT

##### A. Access Roads

1. The CONTRACTOR shall construct and maintain such temporary access roads required to perform the work of this Contract.
2. Access roads shall be located within the easements of the OWNER unless the CONTRACTOR independently secures easements for his use and convenience.
  - a. CONTRACTOR shall submit written documentation to the ENGINEER for any easements secured by the CONTRACTOR across private property.
  - b. The easement agreement shall specify terms and conditions of use and provisions for site restoration.
  - c. A written release from the property OWNER, certifying that all terms of the easement agreement have been complied with by the CONTRACTOR, shall be furnished to the ENGINEER prior to final payment.

##### B. Parking Areas

1. The CONTRACTOR shall provide suitable parking areas for his construction personnel on the project site where approved by the ENGINEER and the OWNER.
2. The CONTRACTOR shall not permit his construction personnel to park along public streets or roads within the project area.

##### C. Restoration

1. At the completion of the work, the surfaces of land used for access roads and parking areas shall be restored by the CONTRACTOR to their original condition as determined by the ENGINEER.
  - a. Restoration shall include establishment of a permanent ground cover, where a ground cover existed, adequate to restrain erosion for all disturbed areas.

##### D. Traffic Regulations

1. CONTRACTOR shall obey all traffic laws and comply with all the requirements, rules, and regulations of the OWNER, the North Carolina Department of Transportation, and other local authorities having jurisdiction to maintain adequate warning signs, lights, barriers, etc., for the protection of traffic on public roadways.

##### E. Storage of Equipment and Materials

1. CONTRACTOR shall arrange for and store his equipment and materials at the job site in accordance with the requirements of the General Conditions, the Supplemental Conditions, and as hereinafter specified.
  - a. All materials shall be stored in accordance with manufacturer's recommendations, as directed by the OWNER or ENGINEER, and in conformity to applicable statutes, ordinances, regulations, and rulings of the public authority having jurisdiction.
2. CONTRACTOR shall enforce the instructions of OWNER and ENGINEER regarding the posting of regulatory signs for fire safety and smoking areas.
3. CONTRACTOR shall not store materials upon private property without the written consent of the owners of such property.

4. CONTRACTOR shall not store unnecessary materials or equipment on the job site and shall take care to prevent any structure from being loaded with a weight which will endanger its security or the safety of persons.
5. Materials shall not be placed within 10-feet of fire hydrants.
6. Gutters, drainage channels, and inlets shall be kept unobstructed at all times.
7. CONTRACTOR shall provide adequate temporary storage buildings/facilities, if required, to protect materials or equipment on the job site.

END OF SECTION 01 55 00

## SECTION 01 74 00 – WARRANTIES AND BONDS

### PART 1 - GENERAL

#### 1.1 SCOPE OF WORK

- A. This Section specifies general administrative and procedural requirements for warranties and bonds required by the Contract Documents, including manufacturers' standard warranties on products and special warranties.

#### 1.2 DEFINITIONS

- A. Standard Product Warranties are pre-printed written warranties published by individual manufacturers for particular products and are specifically endorsed by the manufacturer to the OWNER.
- B. Special Warranties are written warranties required by or incorporated in the Contract Documents, either to extend time limits provided by standard warranties or to provide greater rights for the OWNER

#### 1.3 SUBMITTALS

- A. Submit written warranties to the OWNER prior to the date fixed by the ENGINEER for Substantial Completion.
- B. If the Certificate of Substantial Completion designates a commencement date for warranties other than the date of Substantial Completion for the Work, or a designated portion of the Work, submit written warranties upon request of the OWNER.
- C. When a designated portion of the Work is completed and occupied or used by the OWNER, by separate agreement with the CONTRACTOR during the construction period, submit properly executed warranties to the OWNER within fifteen days of completion of that designated portion of the Work.
- D. When a special warranty is required to be executed by the CONTRACTOR, or the CONTRACTOR and a subcontractor, supplier, or manufacturer, prepare a written document that contains appropriate terms and identification, ready for execution by the required parties.
- E. Submit a draft to the OWNER for approval prior to final execution.
- F. Refer to individual Sections of Divisions 2 through 50 for specific content requirements, and particular requirements for submittal of special warranties.

#### 1.4 WARRANTY REQUIREMENT

- A. Related Damages and Losses
  - 1. When correcting warranted Work that has failed, remove and replace other Work that has been damaged as a result of such failure or that must be removed and replaced to provide access for correction of warranted Work.
- B. Reinstatement of Warranty
  - 1. When Work covered by a warranty has failed and been corrected by replacement or rebuilding, reinstate the warranty by written endorsement.
  - 2. The reinstated warranty shall be equal to the original warranty with an equitable adjustment for depreciation.

- C. Replacement Cost
  - 1. Upon determination that Work covered by a warranty has failed, replace or rebuild the Work to an acceptable condition complying with requirements of Contract Documents.
  - 2. The CONTRACTOR is responsible for the cost of replacing or rebuilding defective Work regardless of whether the OWNER has benefited from use of the Work through a portion of its anticipated useful service life.
  
- D. Owner's Recourse
  - 1. Written warranties made to the OWNER are in addition to implied warranties, and shall not limit the duties, obligations, rights, and remedies otherwise available under the law, nor shall warranty periods be interpreted as limitations on time in which the OWNER can enforce such other duties, obligations, rights, or remedies.
  
- E. Rejection of Warranties
  - 1. The OWNER reserves the right to reject warranties and to limit selections to products with warranties not in conflict with requirements of the contract Documents.
  
- F. The OWNER reserves the right to refuse to accept Work for the PROJECT where a special warranty, certification, or similar commitment is required on such Work or part of the Work until evidence is presented that entities required to countersign such commitments are willing to do so.
  
- G. Disclaimers and Limitations
  - 1. Manufacturer's disclaimers and limitations on product warranties do not relieve the CONTRACTOR of the warranty on the Work that incorporates the products, nor does it relieve suppliers, manufacturers, and subcontractors required to countersign special warranties with the CONTRACTOR.
  
- H. Separate Prime Contracts
  - 1. Each Prime CONTRACTOR is responsible for warranties related to its own Contract.

END OF SECTION 01 74 00

## SECTION 17700 – CLOSEOUT PROCEDURES

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this Section.

#### 1.2 SUMMARY

- A. This Section includes administrative and procedural requirements for contract closeout, including, but not limited to, the following:
  - 1. Inspection procedures.
  - 2. Warranties.
  - 3. Final cleaning.
- B. Related Sections include the following:
  - 1. Divisions 2 through 32 Sections for specific closeout and special cleaning requirements for the Work in those Sections.

#### 1.3 SUBSTANTIAL COMPLETION

- A. Preliminary Procedures: Before requesting inspection for determining date of Substantial Completion, complete the following. List items below that are incomplete in request.
  - 1. Prepare a list of items to be completed and corrected (punch list), the value of items on the list, and reasons why the Work is not complete.
  - 2. Advise Owner of pending insurance changeover requirements.
  - 3. Submit specific warranties, workmanship bonds, maintenance service agreements, final certifications, and similar documents.
  - 4. Obtain and submit releases permitting Owner unrestricted use of the Work and access to services and utilities. Include occupancy permits, operating certificates, and similar releases.
  - 5. Prepare and submit Project Record Documents, operation and maintenance manuals, Final Completion construction photographs, damage or settlement surveys, property surveys, and similar final record information.
  - 6. Deliver tools, spare parts, extra materials, and similar items to location designated by Owner. Label with manufacturer's name and model number where applicable.
  - 7. Make final changeover of permanent locks and deliver keys to Owner. Advise Owner's personnel of changeover in security provisions.
  - 8. Complete startup testing of systems.
  - 9. Terminate and remove temporary facilities from Project site, along with mockups, construction tools, and similar elements.
  - 10. Advise Owner of changeover in heat and other utilities.
  - 11. Submit changeover information related to Owner's occupancy, use, operation, and maintenance.
  - 12. Complete final cleaning requirements, including touchup painting.
  - 13. Touch up and otherwise repair and restore marred exposed finishes to eliminate visual defects.
- B. Inspection: Submit a written request for inspection for Substantial Completion. On receipt of request, Project Lead will either proceed with inspection or notify Contractor of unfulfilled requirements. Project Lead will prepare the Certificate of Substantial Completion after inspection or will notify Contractor of

items, either on Contractor's list or additional items identified by Project Lead, that must be completed or corrected before certificate will be issued.

1. Re-inspection: Request re-inspection when the Work identified in previous inspections as incomplete is completed or corrected.
2. Results of completed inspection will form the basis of requirements for Final Completion.

#### 1.4 FINAL COMPLETION

- A. Preliminary Procedures: Before requesting final inspection for determining date of Final Completion, complete the following:
1. Submit a final Application for Payment according to General Conditions.
  2. Submit certified copy of Project Lead's Substantial Completion inspection list of items to be completed or corrected (punch list), endorsed and dated by Project Lead. The certified copy of the list shall state that each item has been completed or otherwise resolved for acceptance.
  3. Submit evidence of final, continuing insurance coverage complying with insurance requirements.
  4. Instruct Owner's personnel in operation, adjustment, and maintenance of products, equipment, and systems.
- B. Inspection: Submit a written request for final inspection for acceptance. On receipt of request, Project Lead will either proceed with inspection or notify Contractor of unfulfilled requirements. Project Lead will prepare a final Certificate for Payment after inspection or will notify Contractor of construction that must be completed or corrected before certificate will be issued.
1. Re-inspection: Request re-inspection when the Work identified in previous inspections as incomplete is completed or corrected.

#### 1.5 LIST OF INCOMPLETE ITEMS (PUNCH LIST)

- A. Preparation: Submit three copies of list. Include name and identification of each space and area affected by construction operations for incomplete items and items needing correction including, if necessary, areas disturbed by Contractor that are outside the limits of construction.
1. Organize list of spaces in sequential order, starting with exterior areas first; proceeding from lowest area to highest areas.
  2. Include the following information at the top of each page:
    - a. Project name.
    - b. Date.
    - c. Name of Project Lead.
    - d. Name of Contractor.
    - e. Page number.

#### 1.6 WARRANTIES

- A. Submittal Time: Submit written warranties on request of Project Lead for designated portions of the Work where commencement of warranties other than date of Substantial Completion is indicated.
- B. Partial Occupancy: Submit properly executed warranties within 15 days of completion of designated portions of the Work that are completed and occupied or used by Owner during construction period by separate agreement with Contractor.
- C. Organize warranty documents into an orderly sequence based on the table of contents of the Project Manual.

1. Bind warranties and bonds in heavy-duty, 3-ring, vinyl-covered, loose-leaf binders, thickness as necessary to accommodate contents, and sized to receive 8-1/2-by-11-inch (215-by-280-mm) paper.
  2. Provide heavy paper dividers with plastic-covered tabs for each separate warranty. Mark tab to identify the product or installation. Provide a typed description of the product or installation, including the name of the product and the name, address, and telephone number of Installer.
  3. Identify each binder on the front and spine with the typed or printed title "WARRANTIES," Project name, and name of Contractor.
- D. Provide additional copies of each warranty to include in operation and maintenance manuals.

## PART 2 - PRODUCTS

### 2.1 MATERIALS

- A. Cleaning Agents: Use cleaning materials and agents recommended by manufacturer or fabricator of the surface to be cleaned. Do not use cleaning agents that are potentially hazardous to health or property or that might damage finished surfaces.

## PART 3 - EXECUTION

### 3.1 FINAL CLEANING

- A. General: Provide final cleaning. Conduct cleaning and waste-removal operations to comply with local laws and ordinances and Federal and local environmental and antipollution regulations.
- B. Cleaning: Employ experienced workers or professional cleaners for final cleaning. Clean each surface or unit to condition expected in an average roadway, grading and drainage project. Comply with manufacturer's written instructions.
1. Complete the following cleaning operations before requesting inspection for certification of Substantial Completion for entire Project or for a portion of Project:
    - a. Clean Project site, yard, and grounds, in areas disturbed by construction activities, including landscape development areas, of rubbish, waste material, litter, and other foreign substances.
    - b. Sweep paved areas broom clean. Remove petrochemical spills, stains, and other foreign deposits.
    - c. Rake grounds that are neither planted nor paved to a smooth, even-textured surface.
    - d. Remove tools, construction equipment, machinery, and surplus material from Project site.
    - e. Clean exposed exterior and interior hard-surfaced finishes to a dirt-free condition, free of stains, films, and similar foreign substances. Avoid disturbing natural weathering of exterior surfaces. Restore reflective surfaces to their original condition.
    - f. Leave Project clean and ready for occupancy.
- C. Comply with safety standards for cleaning. Do not burn waste materials. Do not bury debris or excess materials on Owner's property. Do not discharge volatile, harmful, or dangerous materials into drainage systems. Remove waste materials from Project site and dispose of lawfully.

END OF SECTION 017700

## SECTION 024050 – GENERAL CONSTRUCTION DEMOLITION

**PART 1 - GENERAL**

## 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this Section.

## 1.2 SUMMARY

- A. This Section includes the requirements for all general construction demolition, including, but not necessarily limited to, removal of pavement, driveways, vegetation, and other obstructions to enable construction of the Work as shown on the Plans:
  - 1. Work covered by the Contract Documents.
- B. Related Sections include the following:
  - 1. Section 312333 “Trenching and Backfilling and Compaction for Utility Systems”

## 1.3 REFERENCES

- A. The following references are incorporated into the requirements of the Work as described herein. All such references are to the latest published version of the standard, specification, manual, or document (including all amendments, changes, errata, and other supplements) except when otherwise specifically stated
  - 1. American Concrete Institute (ACI) SP-204, *Design and Construction Practices to Mitigate Cracking*.
  - 2. ASTM International:
    - a. C33, *Standard Specification for Concrete Aggregates*
    - b. C94, *Standard Specification for Ready-Mixed Concrete*
    - c. C150, *Standard Specification for Portland Cement*
    - d. C595, *Standard Specification for Blended Hydraulic Cements*
    - e. C1157, *Standard Performance Specification for Hydraulic Cement*
    - f. D4832, *Standard Test Method for Preparation and Testing of Controlled Low Strength Material (CLSM) Test Cylinders*
    - g. D6024, *Standard Test Method for Ball Drop on Controlled Low Strength Material (CLSM) to Determine Suitability for Load Application*

**PART 2 - PRODUCTS (Not Used)****PART 3 - EXECUTION**

## 3.1 GENERAL REQUIREMENTS

- A. Applying to all general construction demolition work, the Contractor shall:

1. Perform demolition to permit orderly progress of the Work as shown on the Plans.
2. Whenever encountering a utility that needs to be removed or relocated, schedule the removal and coordinate with the Engineer and utility owner sufficiently in advance of the removal so that services to existing facilities are not disrupted.
3. Conduct demolition operations and remove debris to minimize interference with adjacent occupied and in-use facilities.
4. As per Article 1.8 of Section 01100 "Summary of Work", conduct demolition operations in a safe manner and in compliance with all regulations.
5. Erect temporary protection, such as, fences, where required. All such temporary protection shall meet OSHA standards.
6. Dust generation shall be in compliance with the requirements of the and all local, state and federal regulations and requirements.
7. Promptly remove all demolition materials from the Site; do not store demolition materials at the Site.
8. When hauling demolition materials, prevent spillage along all haul routes, and immediately clean up any spills.
9. Repair demolition performed in excess of that required at no cost to owner and to the Engineer's satisfaction.
10. After demolition, verify that field measurements, surfaces, substrates and conditions are as required, and ready to receive work.
11. Minimize soil disturbance for foundation removal, pile cutting, utility cutting and capping and other on-site demolition. Do not remove disturbed soil from the immediate vicinity of disturbance, and immediately restore to the original location after demolition of the structure, unless otherwise directed by the Engineer.

### 3.2 POTENTIALLY CONTAMINATED AND HAZARDOUS MATERIALS

- A. Potentially contaminated and hazardous materials shall be reported to the Engineer for proper disposal.

### 3.3 ASPHALT OR CONCRETE PAVEMENT REMOVAL

- A. When removing asphalt concrete or Portland cement concrete pavement or sidewalk as shown on the Plans, the Contractor shall:
  1. Sawcut pavement or sidewalk sections designated for removal from sections to remain as shown on the Plans or as required by the Port.
    - a. Sawcut to the full depth of the pavement.
    - b. Where possible, sawcuts shall be located at expansion joints in sidewalk or pavement.
    - c. Sawcut the matching edge of all existing pavements designated to remain in a straight and true line as shown on the Plans.

- d. Protect sawcut edges from damage until the finished surface has been completed.
  - e. Re-sawcut damaged edges the entire length of the matching joint prior to placing the finished surface, at no additional cost to the owner.
  - f. Take care not to over-cut so that the cuts do not run past the corners.
  - g. Dispose of all saw cutting water in accordance with the approved SWPPP.
2. Use equipment that is capable of removing the pavement without excessively disturbing or removing underlying or adjacent materials to remain. Breaking pavement by means of a ball breaker or a gravity hammer is not permitted.
  3. Completely remove the pavement surface and all base and subbase courses to the top of the natural subgrade unless otherwise shown on the Plans or directed by the Engineer.

### 3.4 CLEARING AND GRUBBING

- A. In areas shown on the Plans the Contractor shall:
  1. Remove Incidental Items: Remove all fences, bollards, trash and other debris, and all other incidental items as shown on the Plans. Salvage and store items if directed on the Plans or as required elsewhere in the specifications.
  2. Perform Coincidental Earth Work:
    - a. Minimize soil disturbance when clearing and grubbing areas not to be graded.
    - b. When encountered during excavations, remove any deleterious substances and any debris fragments larger than six (6) inches in greatest dimension.

### 3.5 PIPES, CONDUIT, AND UNDERGROUND OBSTRUCTION REMOVAL

- A. When removing pipes, conduits, pull boxes, or underground obstructions as part of the general demolition work, the Contractor shall:
  1. Only perform excavation for removing, cutting, or capping utilities that is monitored, observed, and documented by the Engineer.
  2. for pipes to partially remain in place, cut pipes with straight and smooth edges on a plane perpendicular to the centerline of the pipe at the boundary of the removal. Remove pipes as shown on the Plans.
  3. Protect existing conduit, cables, and underground utilities when demolishing existing pipes that are shown on the Plans.

### 3.6 SOIL MATERIAL EXCAVATION AND REMOVAL

- A. When reusing soil from trench excavations, the Contractor shall temporarily stockpile and cover soil on the Site. Handle and stockpile suspected contaminated material as per Section 026113 "Excavation and Handling of Contaminated Materials."

### 3.7 SITE CLEANUP

- A. As per the requirements of Section 01100 "Summary of Work", the Contractor shall maintain the Site in a clean and orderly condition during the demolition work.
1. Promptly remove from the property and legally dispose or recycle all materials generated during the Work. Remove all equipment, debris, and rubbish from the property.
  2. During progress of this Work, maintain the site in a presentable condition. Clean up spillage or tracking of earth and debris at the site and on haul routes and public roads. Remove sedimentation and foreign material in storm drains and sanitary sewers caused by the Work.
  3. Promptly repair any items damaged during the progress of this work, including any damage to pavement, public roads, or adjacent ground caused by the Work.
  4. Dispose of all materials with care. The Contractor is responsible for clean-up of contamination of soil due to the Contractor's operations, including, but not limited to, impacts from spills, releases, leaks, or leaching of contaminants from the excavation, stockpile, decontamination, and water storage areas, and impacts from equipment leakage.
  5. Upon completion of removal work, the Contractor shall restore the site to match existing surrounding conditions. This includes replacement of pavement, sidewalk, or vegetation.

END OF SECTION 02450

## SECTION 312333 - TRENCHING, BACKFILLING AND COMPACTING FOR UTILITY SYSTEMS

**PART 1 GENERAL**

## 1.1 SECTION INCLUDES

- A. Material Classification
- B. Excavation
- C. Dewatering
- D. Backfilling and Compaction
- E. Testing

## 1.2 REFERENCES

- A. American Society for Testing and Materials (ASTM)
  - 1. ASTM D422 Particle - size Analysis of Soils
  - 2. ASTM D698 Moisture - Density Relations of Soils and Soil - Aggregate mixtures using 5.5 lb. Rammer and 12 inch Drop.
  - 3. ASTM D1556 Density of soil in place by the Sand - Cone Method
  - 4. ASTM D2167 Density and Unit Weight of soil in place by the Rubber Balloon Method.
  - 5. ASTM D2487 Classification of soils for engineering purposes.
  - 6. ASTM D2488 Description of soils (visual - manual Procedure).
  - 7. ASTM D2922 Density of soil and soil - aggregate in place by nuclear methods.
  - 8. ASTM D3017 Moisture content of soil and soil - aggregate in place by Nuclear Methods.
  - 9. ASTM D4318 Liquid limit of soils.

## 1.3 JOB CONDITIONS

- A. Existing Utilities:
  - 1. Locate existing underground utilities in areas of work.
  - 2. Provide adequate means of support and protection during earthwork operations.
  - 3. Utilities encountered during excavation, uncharted or incorrectly charted shall be kept in operation. Consult Engineer about utility locations.
  - 4. Repair damaged utilities to satisfaction of Design Engineer and Town of Nags Head.
  - 5. Do not interrupt existing utilities serving facilities occupied and used, during occupied hours, unless acceptable temporary utility services have been provided.
  - 6. Provide minimum of 72-hour notice to Engineer, and receive notice to proceed before interrupting any utility.
- B. Protection of Persons and Property:
  - 1. Provide adequate barricades, construction signs, and warning lights as required.
  - 2. Protection shall be placed and maintained by the Contractor at his expense during the progress of the construction.

3. Obstructions to traffic, material piles, equipment and pipe, shall be enclosed by fences or barricades and shall be protected by proper lights when the visibility is poor.
4. The rules and regulations of O.S.H.A. and appropriate authorities safety provisions shall be observed.
5. Shoring and Sheeting shall be used if the soil conditions are not substantial to:
  - a. Prevent undermining of pavements and slabs.
  - b. Prevent movement in bank or slopes.
  - c. Prevent movement in vertical wall trenches.
6. Protect satisfactory material from becoming spoiled by water, debris, organic material.
7. A temporary surface shall be placed over the trench top as soon as possible after compaction in traveled areas. The temporary surface shall:
  - a. Maintain a smooth surface
  - b. Meet grade of adjacent undisturbed surface
  - c. Be maintained at Contractor's expense until final restoration

#### 1.4 DEFINITIONS

- A. Absorption - The attachment of water molecules to the surfaces of soil particles.
- B. Aggregate - Relatively inert granular mineral material such as sand, gravel, slag, crush stone, etc.
  1. Fine aggregate - material that will pass a No. 4 screen.
  2. Coarse aggregate - material that will not pass a No. 4 screen.
- C. Angular aggregate - aggregate that possesses well - defined edges formed at the intersection of roughly planar faces.
- D. Base coarse - a layer of specified or selected material of planned thickness constructed in the subgrade or subbase for the purpose of serving one or more functions such as distributing load, providing drainage, minimizing frost action, etc.
- E. Backfill - The area above the initial backfill to finish grade or grade specified.
- F. Bedding - The section from the top of the foundation to the bottom of the pipe.
- G. Clay - fine grained soil or the fine grained portion of soil that can be made to exhibit plasticity (putty like) within a range of water contents, and that exhibits considerable strength when air dry.
- H. Cohesionless soils - a soil that when unconfined has little or no strength when air dried and that has little or no cohesion when submerged.
- I. Cohesive soils - a soil that when unconfined has considerable strength when air dried and that has significant cohesion when submerged.
- J. Compaction - The densification of a soil by means of mechanical manipulation.
- K. Differential Settlement - settlement that varies in rate or amount, or both, from place across a structure.
- L. Displacement - a change in position of a material point.
- M. Ductility - condition in which material can sustain permanent deformation without losing its ability to resist load.

- N. Elasticity - property of material that returns to its original form or condition after the applied force is removed.
- O. Fineness - a measure of particle size.
- P. Fines - portion of soil that passes through a No. 200 U.S. Standard sieve.
- Q. Foundation - material below bedding that represents the bottom of trench.
- R. Water Table - elevations at which the pressure of the water is zero (0) with respect to the atmospheric pressure.
- S. Ground - Water Level - - the level below which the rock and subsoil, to unknown depths, are saturated.
- T. Hardpan - a hard impervious layer, composed chiefly of clay, cemented by relatively insoluble materials, that does not become plastic when mixed with water and definitely limits the downward movement of water and roots.
- U. Haunching - from the bottom of the pipe to 1/4 of pipe outside diameter above the spring line (3/4 of pipe outside diameter above the pipe bottom).
- V. Initial Backfill - from top of haunching section to the bottom of the final backfill.
- W. Liquid Limit - the water content corresponding to the arbitrary limit between the liquid and plastic states of consistency of a soil.
- X. Moisture Content - the percentage by weight of water contained in the pore space of a rock or soil.
- Y. Muck - stone, dirt, debris, or useless material or an organic soil of very soft consistency.
- Z. Mud - a mixture of soil and water in a fluid or weakly solid state.
- AA. Optimum moisture content - the water content at which a soil can be compacted to a maximum dry unit weight by a given compactive effort.
- BB. Plasticity - the property of a soil or rock that allows it to be deformed beyond the point of recovery without cracking or appreciable volume change.
- CC. Rock – see definition in Earth Moving Section.

## 1.5 SUBMITTALS

- A. Copies of laboratory and field test reports

## PART 2 PRODUCTS

### 2.1 SATISFACTORY MATERIALS

- A. Satisfactory materials are materials designated as such in the Earth Moving section.

### 2.2 UNSATISFACTORY MATERIALS

- A. Unsatisfactory materials shall be materials that are unsatisfactory for their intended use and as designated by soil technicians.
- B. Unsatisfactory materials include but are not limited to those materials containing roots and other organic matter, trash, debris, frozen materials and stones larger than 3 inches and materials classified in USCS as OH, OL, CH, and MH.

- C. Unsatisfactory materials also include man-made fills, refuse, or backfill from previous construction.
- D. Satisfactory materials, which are classified as wet or saturated by ASTM D2488, shall be considered unsatisfactory material unless dried to optimum moisture content.

### 2.3 UNYIELDING MATERIAL

- A. Unyielding material shall consist of rock and gravelly soils with stones greater than 3 inches in any dimension or as defined by the pipe manufacturer, whichever is smaller.

### 2.4 UNSTABLE MATERIAL

- A. Unstable material shall consist of materials unable to properly support the utility pipe, conduit, or appurtenance structure.

### 2.5 DEGREE OF COMPACTION

- A. Degree of compaction shall be expressed as a percentage of the maximum density obtained by the test procedure presented in ASTM D-698.

### 2.6 EMBEDMENT MATERIALS

- A. Embedment materials listed herein include a number of processed materials plus the soil classifications listed under the Unified Soil Classification System (USCS) (Method D 2487 and Practice D 2488). These materials are grouped into four broad categories according to their suitability for this application.
  1. Class I - Angular, 6 to 40 mm (1/4 to 1-1/2 inch), graded stone, including a number of fill materials that have regional significance such as coral, slag, cinders, crushed stone, and crushed shells.
  2. Class II - Coarse sands and gravels with maximum particle size of 40 mm (1-1/2 inch), including variously graded sands and gravels containing small percentage of fines, generally granular and non-cohesive, either wet or dry. Soil Types GW, GP, SW, and SP are included in this class.
  3. Class III - Fine sand and clay gravels, including fine sands, sand-clay mixtures, and gravel-clay mixtures. Soil Types GM, GC, SM and SC are included in this class.
  4. Class IV - Silt, silty clays, and clays, including inorganic clays and silts of medium to high plasticity and liquid limits. Soil Types MH, ML, CH and CL are included in this class.

## PART 3 - EXECUTION

### 3.1 CONSTRUCTION METHODS

- A. Construction on site:
  1. Confine all operations to the limits of construction.
  2. Take precautions to prevent any cave-in of disturbance beyond the construction limits or damage to improvements within the site.

3. Restore damage areas outside of the construction limits to original condition.
  4. Fences, shrubbery or other type of surface improvements located in the construction area will require protection during construction or removal and replacement as necessary for trench construction.
  5. Organize operations to perform within the construction limits.
- B. Protection of Property and Surface Structures:
1. Protect property and surface structures during construction operations. Provide appropriate barricades in any traffic areas to deter traffic from construction areas.
  2. Restore fences, poles or other man-made surface improvements that are disturbed to the original conditions. Expense for restoration shall be borne by the Contractor and shall not be an additional cost to Owner.
  3. The Contractor at no cost to Owner shall restore damage caused by construction operations to landscape improvements that were not authorized for removal.

### 3.2 EXCAVATION

- A. Excavation shall be performed to the lines and grades indicated.
- B. Stockpile:
1. Stockpile material satisfactory for backfilling at a sufficient distance from the trench to avoid overloading and to prevent slides or cave-ins.
  2. If construction limits prevent the stockpiling of excavated material adjacent to the banks of the trench transport immediately excavated material to its ultimate destination (backfill or off-site).
  3. Provide adequate drainage for the stockpiles and surrounding areas, by means of ditches, dikes, or other approved methods.
  4. Grade to prevent surface water from flowing into the excavation.
  5. Remove accumulating water from trenches.
  6. Protect stockpiles from contamination with unsatisfactory excavated material or other material that may destroy the quality and fitness of the suitable stockpiled material.
  7. Satisfactory material that becomes contaminated shall be removed and replaced with satisfactory material from approved sources at no additional cost to the Owner.
  8. Excavated material not required or unsatisfactory for backfill shall be completely removed from the site.
  9. Avoid obstructing sidewalks and driveways.
  10. Leave fire hydrants, valve pit covers, valve boxes, curb stop boxes, or other utility controls unobstructed and accessible.

11. Provide adequate erosion control devices to prevent damage to surrounding construction areas.
- C. Excavation for Appurtenances:
1. Leave 12 inches clear between the outer structure surfaces and the face of the excavation or support members.
  2. Rock shall be cleaned of loose debris and cut to a firm surface either level, stepped, or serrated.
  3. Remove loose disintegrated rock and thin strata.
  4. Take care not to disturb the bottom (foundation) of the excavation when placing concrete or masonry.
  5. Excavation to the final grade level shall not be made until just before the concrete or masonry is to be placed.
- D. Trench Excavation:
1. Excavate to the dimension and depth shown in the plans.
  2. Slope or brace trench walls, above the area designated as "initial backfill", to meet OSHA requirements. Vertical side wall shall be maintained below the area designated as "initial backfill".
- E. Sheet piling, Shoring and Bracing:
1. Open-cut trenches shall be sheeted and braced or otherwise protected as required to protect life, property, or the work and as required by Federal, State, or municipal ordinances.
  2. The minimum protection shall conform to the recommendations in O.S.H.A. Safety and Health Standards for Construction.
  3. A sand box or trench shield may be used in lieu of sheet piling as permitted by O.S.H.A.
  4. When close sheet piling is used, it shall be so driven as to prevent adjacent soil from entering the trench either below or through such sheet piling.
  5. Where shoring and bracing are used, the trench width shall be increased accordingly.
  6. Sheet piling and bracing which have been ordered left in place shall be cut off 18-inches below grade.
  7. Trench bracing, except when ordered left in place, may be removed when the backfilling has reached the respective levels of such bracing.
  8. Sheet piling, except that ordered left in place, may be removed after the backfilling has been completed or has been brought to such an elevation as to permit its safe removal.

- F. Trenches With Sloping Sides, Limited:
1. When working conditions and right-of-way permit allow, excavate pipe line trenches with sloping sides, but with the following exceptions:
    - a. To save site improvements.
    - b. Adjacent to a structure or building.
    - c. Violates easement or right-of-way permit.
- G. Bottom Preparation:
1. Accurately grade the bottom to provide uniform bearing and bottom quadrant support of each pipe section and to avoid differential settlement.
  2. When unstable material is encountered in the bottom of the trench, such material shall be removed to the depth as required to provide acceptable pipe foundation and replaced to the proper grade with Class I material.
  3. Over excavation of trench bottom - fill over excavation with an acceptable class of embedment material to at least 12 inch below pipe and compact to a minimum of 98% Standard Proctor Density, ASTM D 698.

### 3.3 DEWATERING

- A. Trenches shall be kept dewatered at all times by bailing sump pumps at the lower end of the trench, by well-pointing or other approved means.
- B. Surface water shall be prevented from flowing into trenches by diking, ditching or otherwise directing the flow of surface water.
- C. Disposal of water shall be in accordance with local erosion and sediment control regulations. Silty or muddy water shall not be permitted to enter a watercourse, open ditch or storm drain until after flowing through a sediment trap or basin.
- D. Running Water:
1. Remove running water from trench before laying pipe.
  2. Select the method of water removal.
    - a. Use Class I material for pipe bedding which will serve as a trench drain and/or under drain from which the excess water will be pumped via trench side pumps.
    - b. Well points.
  3. Take necessary precautions to insure that the trench wall will not be removed as a result of the running water.
  - 4.

### 3.4 BACKFILL AND COMPACTION

- A. Backfill shall be placed in layers not exceeding 6 inches loose thickness for hand operated machine compaction, and 8" loose thickness for other than hand operated machines, unless otherwise specified.

1. Each layer shall be compacted to at least 95% maximum density, unless otherwise specified.
2. Compaction shall be tested by ASTM D698.
- B. Replacement of Unyielding Material: Unyielding material removed from the bottom of the trench shall be replaced with satisfactory material of class specified for that trench section (Haunching, Initial Backfill, etc.).
- C. Replacement of Unstable Material: Unstable material removed from the bottom of the trench or excavated shall be replaced with the specified class of material for that trench section (Haunching, Initial Backfill, etc.).
- D. Foundation: Take care to undercut only what is required for bedding and leave foundation undisturbed. In situations where unstable material is encountered below the bedding, it shall be removed to the depth required, replaced with Class I material in 6" layers and compacted to 98% of maximum density.
- E. Bedding: shall consist of Class I or Class II materials.
- F. Haunching: place in layers of a maximum of 6 inches loose thickness. The haunching shall be brought up evenly on both sides of the pipe for the full length of the pipe. Compaction rates for materials used in Haunching area are as follows:
  1. Class I: Requires hand tamped compaction
    - a. Care shall be taken to ensure proper pipe support under pipe in haunching areas.
  2. Class II and III: 95% maximum density
  3. For PVC pipe use Class 1.
- G. Initial Backfill:
  1. Place in layers of a maximum of 6 inches loose thickness and compacted.
  2. When using ductile iron pipe use Class I, Class II, or Class III materials,
    - a. At a moisture content that will facilitate compaction,
    - b. Be free from stones larger than 2 inches in any dimension or as recommended by pipe manufacturer, whichever is smaller.
    - c. If the pipe is coated or wrapped for protection against corrosion, the backfill material shall be free of stones larger than 1 inch in any direction or as recommended by the pipe manufacturer whichever is smaller.
    - d. PVC pipe use Class I only
  3. Compaction rates
    - a. Class I material: hand tamped.
    - b. Class II and Class III: 95% maximum density.
    - c. Class IV material shall not be used in initial backfill area.
- H. Final Backfill: Class II, Class III, or Class IV material. Final backfill shall contain no unsuitable material that includes organic matter, trash, debris, frozen materials and stones larger than 1.5 inches.

1. Turfed or Sodded Areas and Miscellaneous Areas:
  - a. Deposit in layers of a maximum of 12-inch loose thickness.
  - b. Compact to 90% maximum density.
2. Backfill for Manholes, Catch Basins and other Appurtenances:
  - a. Carefully place backfill so that the structure will not be damaged by the shock of falling earth.
  - b. Deposit and compact as specified for initial backfill above.
  - c. Place as to prevent eccentric loading and excess stress on the pipe or structure.
3. Roadways, Walks, and Parking Areas:
  - a. Deposit on lifts not exceeding 6" loose thickness.
  - b. Compacted to 98% maximum density.

### 3.5 TESTING

- A. Testing and inspection services: An independent geotechnical service may be engaged for quality control testing during trenching and backfilling operation.
- B. Determination of Density:
  1. Testing facility: an approved qualified testing laboratory shall perform density tests. Approval of testing facilities shall be based on compliance with ASTM E 548.
  2. Tests shall be performed in sufficient numbers to ensure that the specified density is being obtained.
  3. Field moisture-density relation testing and compaction testing shall be performed at the direction and discretion of the Engineer, but shall not exceed two test locations per week.
  4. Laboratory tests for moisture-density relations shall be determined in accordance with ASTM D 698 or ASTM D 1557, as specified in these specifications.
  5. Characteristics of backfill material shall be determined in accordance with particle size analysis of soils in accordance with ASTM D 422.
  6. Field in-place density shall be determined in accordance with ASTM D 2167.
  7. Trenches improperly compacted shall be reopened to the necessary depth, then refilled and compacted to the density specified at no additional cost to the Owner.

### 3.6 RESTORATION OF PRE-EXISTING CONDITIONS

- A. Areas disturbed by operations required under this Section shall be restored as indicated on the Drawings or specified herein and at no cost to Owner.
- B. Any disturbance outside the construction area shall be restored to the original condition or satisfaction of Engineer at no cost to the Owner.

- C. Paved Areas: Restore to the original conditions conforming to these specifications and drawings.
- D. Lawns and Yards: Established greenways on site; sod lawn and replant scrubs.
- E. Surfaces Structures: Trees, shrubbery, fences, poles and all other surface structures shall be protected during construction operations unless the Engineer authorizes the removal. Any fences, poles or other manmade surface improvements which are moved or disturbed by the Contractor shall be restored to their original condition at the Contractor's expense. Any trees, shrubbery or other vegetation which are approved or ordered for removal by the Engineer shall be removed completely, including stumps and roots, by the Contractor. The Contractor shall be responsible for damage or claims of damage caused by construction operations to shrubbery or other landscape improvements.

**END OF SECTION 31 23 33**

## SECTION 31 25 00 - EROSION CONTROLS

### **PART 1 - GENERAL**

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of Contract, including General and Supplementary Conditions and other specifications, apply to this Section.

#### 1.2 SUMMARY

- A. This Section includes the following: Soil erosion and sedimentation control for all areas of the site that are graded or disturbed by any construction operations and elsewhere as indicated on the Drawings or specified herein. Erosion control shall be as specified herein and as may be required by actual conditions and governing authorities.
- B. The Contractor is fully responsible for all applicable permits and approvals for off-site borrow and waste areas.
- C. The Contractor shall have full responsibility for the construction and maintenance of erosion control and sedimentation control facilities as shown on the Drawings and as specified herein. The Contractor shall at all times provide the operation and maintenance necessary to operate the permitted sediment and erosion controls at optimum efficiency.
- D. The Contractor shall provide permanent or temporary ground cover as soon as possible over disturbed areas of the site, and shall provide permanent or temporary ground cover in no more than 30 days after construction activities have permanently or temporarily ceased over the disturbed area. Temporary or permanent ground cover shall be provided on slopes within 15 days after construction activities have permanently or temporarily ceased.
- E. Related Sections: The following Sections contain requirements that relate to this Section:
  - 1. Division 31 Section "Site Clearing."
  - 2. Division 31 Section "Earth Moving."
  - 3. Division 31 Section Trench, Backfilling and Compacting for Utility Systems

#### 1.3 PRODUCT HANDLING

- A. Deliver seed, fertilizer and other packaged materials in unopened original packages with labels legible and intact. Seed packages shall bear a guaranteed analysis by a recognized authority.
- B. On-site storage of materials shall be kept to a minimum. Wet or damaged seed or other material shall be removed from the project site immediately.

#### 1.4 MONITORING AND RECORD KEEPING

- A. Contractor shall abide by all conditions of the General Permit to Discharge Stormwater under the National Pollutant Discharge Elimination System (NPDES), and the general requirements listed below.

- B. All sediment and erosion control devices and facilities shall be inspected at least once every seven (7) calendar days and within 24 hours after any storm event of greater than 0.5 inches of rain per 24 hour period.
- C. Stormwater discharges shall be inspected by observation for stormwater discharge characteristics (as listed below) at the above frequency to evaluate the effectiveness of the sediment control facilities, devices or practices. Observations shall be made at all stormwater discharge outfalls and other locations where concentrated stormwater discharges from the site. Observations shall be qualitative, no analytical testing or sampling is required. If any visible off-site sedimentation is leaving the site, corrective action shall be taken to reduce the discharge of sediments.
  - 1. Color.
  - 2. Odor.
  - 3. Clarity.
  - 4. Floating solids.
  - 5. Suspended solids.
  - 6. Foam.
  - 7. Oil sheen.
  - 8. Other obvious indicators of stormwater pollution.
- D. The contractor shall perform and keep records of the above inspections. Visible sedimentation found off the site shall be recorded with a brief explanation as the measures taken to prevent future releases as well as any measures taken to clean up the sediment that has left the site. This record shall be made available to the Owner, Architect and governmental authorities.

## **PART 2 - PRODUCTS**

### **2.1 SOIL AMENDMENTS AND SEED**

- A. Refer to instructions as detailed on the drawings.

### **2.2 MISCELLANEOUS**

- A. Gravel for Stone Filters: Washed No. 57 stone or as indicated on the drawings.
- B. Silt Fabric: A synthetic filter fabric or a pervious sheet of polypropylene, nylon, polyester, or polyethylene yarn, which is certified by the manufacturer or supplier as conforming to the following requirements.
  - 1. Filtering efficiency: 85% min.
  - 2. Tensile Strength at 20% (max) elongation: 30 lb/lin in (min).
  - 3. Slurry Flow Rate: 0.3 gal/sq-ft/min (min)
  - 4. Fabric shall contain ultraviolet ray inhibitors and stabilizers to provide a minimum of six months of expected useable construction life.
- C. Filter Fabric (for installation under riprap): Woven geotextile fabric, apparent opening size no larger than US Standard Sieve no. 70, min. grab strength of 120-lbs.
- D. Temporary Inlet Sediment Control Device: Storm drainage inlet sediment control device shall be a weather resistant tape that fully encompasses the inlet slots of the drain until the surrounding drainage area has been stabilized. The tape shall be a weather resistant adhesive tape of adequate

width to prohibit inflow until the surrounding parking area and driveway are paved. Remove shortly thereafter.

- E. Polyacrylamide (PAM) Turbidity Control Log: Soil specific tailored, solid form PAM product containing blends of water treatment components and polyacrylamide co-polymer for water clarification (25 NTU max. at outlet of sediment basin) and erosion control. Product shall be designed for site specific soil and water conditions. APS-700 Series Flocc Log by Applied Polymer Systems, Inc. or approved equal.
- F. Dewatering Silt Bag: Permeable, non-woven geotextile bag manufactured to accept and filter pumped, sediment-laden water from dewatering activities. Silt bag shall be sized as appropriate for the dewatering pump discharge rate and shall be fitted with a fill spout large enough to accommodate the discharge piping of the dewatering pump. Silt bag shall be Dirtbag as manufactured by ACF Environmental, Inc., US Filter Bags as manufactured by US Fabrics, Inc., Dandy Dewatering Bag as manufactured by Dandy Products, Inc. or approved equal.
- G. Compost Filter Sock: Three-dimensional tubular sediment control device comprised of an organic compost filter media contained in a tubular knitted mesh sock.
  - 1. Filter media shall be mature compost that has been certified by the US Composting Council's Seal of Testing Assurance Program and meeting the following specifications:
    - a. pH: 5.0 – 8.5.
    - b. Moisture Content: < 60%.
    - c. Organic Matter: >25%, dry weight.
    - d. Particle Size: 99% passing 2-in sieve, 30-50% passing 3/8-in sieve.
  - 2. Filter sock netting shall be 5-mm thick continuous HDPE filament, tubular knitted mesh with 3/8-in openings. Filled sock shall be a minimum of 12-in in diameter.
  - 3. Stakes shall be 2x2-in x 3-ft wooden stakes.

## 2.3 CHANNEL AND SLOPE MATTING

- A. Slope and Channel Matting: Erosion Control blankets shall be a machine-produced mat of curled wood fiber (excelsior) or synthetic polypropylene fiber as specified below. The blanket shall be of consistent thickness with the fiber evenly distributed over the entire area of the mat. The blanket shall be covered with a photo degradable plastic netting secured to the fiber mat. Slope matting and channel liners shall be excelsior mat unless otherwise indicated on the drawings.
  - 1. Excelsior Mat (Turf Reinforcement Mat):
    - a. Fiber: Curled wood excelsior of 80% six inch or longer fiber length with a consistent width of fibers evenly distributed throughout the mat. Mat shall be smolder resistant with no chemical additives.
    - b. Top and Bottom Netting: Photo degradable extruded plastic netting with maximum mesh size of 3/4" x 3/4".
  - 2. Coconut Mat (Turf Reinforcement Mat):
    - a. Fiber: 100% coconut fiber (0.5-lbs./sq.yd.)

- b. Top Netting: 100% biodegradable jute (9.3-lbs/1000-sq.ft. approx. weight.)
- c. Bottom Netting: 100% biodegradable jute (7.7-lbs/1000-sq.ft. approx. weight.)
- d. C125BN by North American Green, ECC-2B by East Coast Erosion Blankets, C4000BD by Enviro scape ECM,Ltd. or approved equal.

3. Synthetic Mat:

- a. Fiber: UV stabilized polypropylene fiber matrix (0.7-lbs./sq.yd.)
- b. Top Netting: Extra heavyweight UV stabilized polypropylene (5-lbs/1000-sq.ft. approx. weight.)
- c. Bottom Netting: Heavyweight UV stabilized polypropylene (3-lbs/1000-sq.ft. approx. weight.)
- d. P300 by North American Green, ECP-3 by East Coast Erosion Blankets, PP5-10 by ADS Geosynthetics or approved equal.

- 4. Wire Staples: 16 gauge steel wire, with minimum of 3" top and 6" long legs. 1.75 staples per square yard of matting minimum.

2.4 RIPRAP

- A. Riprap: Provide riprap of the class and quantity indicated on the Drawings. While no specific gradation is required, the various sizes of the stone shall be equally distributed within the required size range. The size of an individual stone shall be determined by measuring its long dimension. Stone shall meet the requirements of the following table for class and size distribution. No more than 5% of the material furnished can be less than the minimum size specified nor no more than 10% of the material can exceed the maximum size specified.

REQUIRED STONE SIZES - INCHES			
CLASS	MINIMUM	MIDRANGE	MAXIMUM
A	2	4	6
B	5	8	12
1	5	10	17
2	9	14	23

**PART 3 - EXECUTION**

3.1 GENERAL

A. Existing Structures and Facilities

- 1. Existing structures, facilities, and water courses shall be protected from sedimentation.
- 2. The Contractor shall be responsible for the construction of necessary measures, and all costs shall be at the expense of the Contractor.
- 3. Items to be protected from sedimentation deposits shall include, but are not limited to, all down stream property, natural waterways, streams, lakes and ponds, catch basins, drainage ditches, road gutters, and natural buffer zones.
- 4. Control measures such as the erection of silt fences, barriers, dams, or other structures shall begin prior to any land disturbing activity. Additional measures shall be constructed as required during the construction.
- 5. All facilities installed shall be maintained continuously during construction until the disturbed areas are stabilized. Contractor shall remove all erosion control measures at the

end of the project at his expense unless otherwise directed by the Owner or his representative.

6. Perform monitoring and record keeping as specified in this section.

### 3.2 PROTECTIVE MEASURES

- A. Protective measures shall conform to all State and Local requirements.
- B. Construction and maintenance of sediment and erosion control measures shall be in accordance with all applicable laws, codes, ordinances, rules and regulations.
  1. Silt Fence: Hog wire or wire mesh fastened to posts as recommended by the Manufacturer, and covered with silt fabric.
  2. Berms and Diversion Ditches: These shall be graded channels with a supporting ridge on the lower side constructed across a sloping land surface. Diversion ditches and berms shall be planted in vegetative cover as soon as completed.
  3. Mulching: Mulching shall be used to prevent erosion and to hold soil and seed in place during the establishment of vegetation.
  4. Matting: Temporary slope and channel matting shall be used for temporary stabilization during the establishment of seeded cover in all grassed ditches, channels, long slopes, and steep banks (6:1 or steeper) and additional areas as indicated on plans. Matting shall be installed on any area on site as needed to provide temporary stabilization whether or not matting is indicated on the plan. Install as indicated or per manufacturer's instructions. The installation of matting may be waived by the Architect if surface stabilization is obtained by other methods within the appropriate and agreed time frames. If adequate stabilization is not obtained, the Contractor shall install matting where required at no additional cost to the Owner. Allowances in the contract for Turf-Reinforcement Mat shall be considered to be in addition to the matting indicated on the plan and required by this Section.
  5. Build Berm, Pits and Gravel Filter as shown on Drawings. Maintain during construction to keep erosion and sedimentation to a minimum. When it is necessary to remove berm, pits, and gravel, return area to required profiles and condition.
  6. Construction Entrances: Construct all entrances in accordance with plans. Maintain all ingress/egress points to prevent tracking of soil onto the Owner's, public or private roads. Any soil that is tracked onto the roads shall be removed immediately.
  7. Riprap: Stone shall be graded so that the smaller stones are uniformly distributed throughout the mass. Stone may be placed by mechanical methods, augmented by hand placing where necessary, provided that when the riprap is completed it forms a properly graded, dense, neat layer of stone.
  8. Other Measures: Other methods of protecting existing structures and facilities, such as vegetative filter strips, diversions, rip-rap, baffle boards, and ditch checks used for reduction of sediment movement and erosion, may be used at the option of the Contractor when approved by the appropriate State or local authorities.
  9. Manufactured Inlet Sediment Control Device: Install device in accordance with manufacturer's instructions and install a curb deflector if appropriate. Inspect device after each rain event and at intervals not exceeding two weeks during construction. Remove, empty, clean, and replace the device as needed during construction. Empty collected sediment in approved, protected location. Remove and dispose of device following full and permanent stabilization of the contributing drainage area.
  10. PAM Turbidity Logs: At a minimum, install logs in drainage structures located immediately upstream of sediment basins and traps. Install additional logs in any other locations indicated on the drawings. Install per manufacturer's instructions. Check logs regularly and after every runoff producing rainfall and replace as needed throughout the duration of construction.

11. Dewatering Silt Bag: Install silt bag on an undisturbed slope so incoming water flows downhill through the bag without causing erosion. Remove and replace silt bag when device no longer drains efficiently due to accumulated sediment in bag. Empty bag within disturbed limits of the site protected by other sediment control measures.
  12. Compost Filter Socks: Stake filter sock every 10-ft. Drive stakes through the center of the sock and 1-ft into the ground. If sock netting must be joined, fit beginning of the new sock over the end of the old sock, overlapping by 1-2 ft. Fill with compost and stake the joint.
- C. Provide the following, at a minimum, to prevent windblown dust.
1. Apply straw mulch and establish temporary or permanent ground cover on exposed soil where work is not being actively performed.
  2. Cover or establish vegetative cover on stockpiles.
  3. Apply water or other approved dust suppressant as needed to soil surfaces before they become excessively dry.
  4. Sweep and collect soil that has been tracked onto paved surfaces.
- 3.3 STABILIZATION
- A. Permanently protect stabilized areas prior to the removal of protective devices.
  - B. After the final establishment of permanent stabilization, remove temporary sediment control measures. Re-spread accumulated sediments as specified.
  - C. Permanently stabilize all areas disturbed by the removal and re-spreading operations immediately.
- 3.4 TEMPORARY SEEDING
- A. In accordance with the schedule as detailed on the drawings.
- 3.5 PERMANENT SEEDING
- A. In accordance with the schedule as detailed on the drawings.
- 3.6 MULCHING AND MATTING
- A. Apply mulch or matting to retain soil and grass.
  - B. Mulch areas with slope greater than 5% by spreading a light cover of mulch over seeded area at the rate of not less than 95 lbs. per 1000 sq. ft.
  - C. Install temporary matting in all grassed ditches, channels, long slopes, and steep banks (6:1 or steeper) and additional areas indicated on plans or where extra protection from erosion is needed.
- 3.7 TACKIFIER
- A. Nonasphaltic Tackifier: Colloidal tackifier recommended by fiber-mulch manufacturer for slurry application; nontoxic and free of plant-growth or germination inhibitors.
  - B. Asphalt Emulsion: ASTM D 977, Grade SS-1; nontoxic and free of plant-growth or germination inhibitors. (9 gals/1,000 SF).

**END OF SECTION 31 25 00**

## SECTION 32 01 00 - RESTORATION OF SURFACES

### **PART 1: GENERAL**

#### 1.01 SCOPE OF WORK

- A. This section covers the furnishing of all labor, equipment and materials necessary for the proper restoration of existing surfaces disturbed or damaged as a result of construction operations which are not specifically scheduled or specified for topsoil and seeding, paving, landscaping or other surfacing.
- B. In general, the types of replacement included in this section are seeding along pipelines, concrete sidewalks, driveways, roadways, ditches, lawns and landscaped areas, curb and gutter.
- C. Any damage to existing structures shall be repaired using materials and workmanship equal to those of original construction.

#### PART 2: NOT USED

#### PART 3: EXECUTION

#### 3.01 RESTORATION OF SURFACES

##### A. SEEDING ALONG PIPELINES

- 1. All ground surfaces along pipelines, which are not classified as lawns, landscaped areas, or pavement areas, but would be classified as open fields, shall be raked smooth and seeded in accordance with the section entitled Site Stabilization. Large rocks, clumps of earth and excessive spoil material shall be removed from the area prior to seeding.
- 2. Shoulders of all roads shall be restored as specific for lawns and landscaped areas.
- 3. Wooded areas, not classified as lawns shall be restored to as near their original condition as possible.

##### B. CONCRETE SIDEWALKS

Concrete walks removed in connection with, or damaged as a result of, construction operations under the Contract shall be replaced with new construction. Such walks shall be constructed of Class B concrete on a thoroughly compacted subgrade, shall have a vertical thickness of not less than 4" or the thickness of the replaced walk where greater than 4".

1. Walks shall be float finished, edged with an edging tool, and grooved at intermediate intervals not in excess of the width of the walk, uniform throughout the length of the walk in any one direction.

#### C. DRIVEWAYS

1. Unpaved driveways shall be surfaced with not less than 3" of Crusher-run gravel, topped with 3" of stone, gravel, or other materials equal to that found in the original driveway. Driveways shall be left in a condition better than their original condition.
2. Concrete drives shall be replaced with Class B concrete and shall have equal thickness and reinforcing steel to that of the original drive. Prior to placing the concrete, a 6" aggregate base course shall be placed in the drive area.
3. Bituminous or Asphaltic concrete drives shall be restored with a 6" aggregate base course and a 2" surface course, as defined in the section entitled Asphalt Pavement Repairs.

#### D. ROADWAY REPLACEMENT

1. Bituminous or Asphaltic pavements shall include all areas paved with blacktop; built-up pavements or oil and stone, tar and stone and similar pavements constructed with a bituminous or asphalt and stone materials.
2. Immediately upon completion of installation of underground piping and structures, the trench shall be backfilled and the roadway shall be repaired. In the excavated area, the repair shall consist of an 8" aggregate base course, 4" HB Binder Course and a 2" surface course as defined in the section entitled Bituminous Pavement Repairs. If, in the opinion of the Engineer, the area adjacent to the excavation has not been damaged to the extent that the base course need to be replaced, restoration may consist of a surface course of sufficient thickness to meet the existing pavement.
3. Portland cement concrete roadways shall be replaced with Class B Concrete and shall have equal thickness and reinforcing steel as the original roadway. An aggregate of 6" shall be placed prior to the placing of concrete.
4. Differential settlement of restored pavements shall be corrected immediately.

5. The Contractor shall repair and restripe any traffic markings that were damaged, removed or covered during construction. All work shall be done in accordance with NCDOT requirements and specifications.
6. All existing manhole and valve covers shall be raised as required by the Contractor prior to paving. The cost of this work shall be included in the unit bid prices for other related work and no additional payment shall be made.

E. DITCHES

Ditches shall be regraded to the original grade and line. The surface of all ditches shall be returned to the same condition as found before commencing work.

F. LAWNS AND LANDSCAPED AREAS

1. Lawns and landscaped areas shall be regraded and replaced as follows:
  - a. Grading shall be to the grade existing before construction of the work under this Contract.
  - b. Lawn replacement shall be in accordance with the section entitled Landscaping. Topsoiled areas shall be replaced with topsoil of equal quality and quantity.
2. Landscaped areas shall be replaced with shrubs, hedges, ornamental trees, flowers, or other items to original condition.

G. CURB AND GUTTER

Curb and gutter removed with, or damaged as a result of construction operations, injured or disturbed by the Contractor, his agents, or employees, shall be replaced with new construction to a condition similar and equal to that existing before damage was incurred. Class B Concrete shall be used in curb and gutter replacement.

H. DAMAGE TO STRUCTURES

Any damage to existing structures shall be repaired of materials and workmanship equal to those of original construction. Extensively damaged structures, where the structural stability has been affected or which cannot be repaired in a suitable fashion shall be replaced entirely. Replacement shall not commence until approval of the plan of replacement has been given by the Engineer. Replacement costs shall be responsibility of the Contractor.

END OF SECTION

## SECTION 32 12 16 - ASPHALT PAVING AND SURFACING

### PART 1: GENERAL

#### 1.01 THE REQUIREMENT

- A. Furnish all labor, equipment, and materials and perform all operations in connection with the construction of asphalt concrete pavement, asphalt concrete overlay, reinforced concrete pavement, gravel roads, concrete curb and gutter, repair and reconstruction of existing asphalt concrete pavement, repair of existing gravel roads, and pavement markings complete as specified herein and as detailed on the Drawings.
- B. All new roads including the replacement of portions of the existing roads shall be to the limits, grades, thicknesses, and types as shown on the Drawings.
  - a. Patches for pipe crossings and areas damaged during the construction work shall be asphalt and/or gravel, depending upon the material encountered, unless otherwise indicated.

#### 1.02 STANDARD SPECIFICATIONS

- A. Except as otherwise provided in the Specifications or on the plans, all work shall be in accordance with the North Carolina Department of Transportation Standard Specifications for Roads and Structures, latest edition unless otherwise noted except that any reference to "NCDOT", "Department" or "Unit" shall mean the "OWNER".
- B. When reference to these Specifications is intended, the description will be NCDOT Section  
or NCDOT Specifications
- C. Except with the approval of the ENGINEER, the placing of concrete or asphalt concrete surface paving shall be subject to the seasonal and weather restrictions set forth in NCDOT Standard Specifications for Roads and Structures

#### 1.03 QUALITY CONTROL

- A. CONTRACTOR will engage a qualified independent testing and inspecting agency to perform field tests and inspections and to prepare test reports.
- B. A testing laboratory approved by the ENGINEER will be employed by the CONTRACTOR and paid by the CONTRACTOR. If included in the PROJECT BID SCHEDULE these costs shall be reimbursable from the Bid Allowance line item established for testing; otherwise, these costs should be included in the price of the work to be completed.
- C. Testing agency will conduct and interpret tests and state in each report whether tested Work complies with or deviates from specified requirements.
- D. All testing shall be in accordance with NCDOT Specifications.
- E. Asphalt Thickness
  - a. In-place compacted thickness of hot-mix asphalt courses will be determined according to ASTM D 3549.
- F. Asphalt Surface Smoothness
  - a. Finished surface of each hot-mix asphalt course will be tested for compliance with smoothness tolerances per NCDOT Specifications.
- G. Asphalt In-Place Density
  - a. Testing agency will take samples of uncompacted paving mixtures and compacted pavement according to ASTM D 979.
  - b. Reference maximum theoretical density will be determined by averaging results from four samples of hot-mix asphalt-paving mixture delivered daily to site, prepared according to ASTM

- D 2041, and compacted according to job-mix specifications.
- c. In-place density of compacted pavement will be determined by testing core samples according to ASTM D 1188 or ASTM D 2726.
  - d. At least 2 core samples shall be taken.
  - e. Field density of in-place compacted pavement may also be determined by nuclear method according to ASTM D 2950 and correlated with ASTM D 1188 or ASTM D 2726.
- H. Remove and replace or install additional hot-mix asphalt where test results or measurements indicate that it does not comply with specified requirements. CONTRACTOR will be responsible for all additional testing due to unacceptable tests.
- I. Testing Frequency
- a. Tests shall be performed in sufficient numbers to ensure that the specified density is being obtained. Frequency and location will be chosen by ENGINEER.

## PART 2: MATERIALS

### 2.01 SELECT FILL

- A. The CONTRACTOR shall place select fill as necessary to complete the shoulders, subgrade foundation, and replacement for removed unsuitable material in accordance with NCDOT Section 200, Clearing and Grubbing and as specified.

### 2.02 GRAVEL

- A. All work including materials associated with gravel shall be in accordance with NCDOT Section 545, Incidental Stone Base unless otherwise noted.

### 2.03 AGGREGATE STABILIZATION

- A. All work including materials associated with Aggregate Stabilization shall be in accordance with NCDOT Section 510, Aggregate Stabilization unless otherwise noted.

### 2.04 AGGREGATE BASE COURSE (ABC)

- A. All work including materials associated with Aggregate Base Course shall be in accordance with NCDOT Section 520, Aggregate Base Course unless otherwise noted.

- 1. Type "A" or "B" aggregate in accordance with NCDOT Section 1010 will be acceptable for this project.

### 2.05 ASPHALT TACK COAT

- A. All work including materials associated with asphalt tack coat shall be in accordance with NCDOT Section 605, Asphalt Tack Coat unless otherwise noted.

### 2.06 ASPHALT CONCRETE BASE COURSE (ACBC)

- A. All work including materials associated with asphalt concrete base course shall be in accordance with NCDOT Section 610, Asphalt Concrete Plant Mix Pavements unless otherwise noted.

- 1. The job mix formula CONTRACTOR proposes to use shall be delivered to the ENGINEER at least 2-weeks prior to beginning paving operations.

### 2.07 ASPHALT CONCRETE SURFACE COURSE (ACSC)

- A. All work including materials associated with asphalt concrete surface course shall be in accordance with NCDOT Section 610, Asphalt Concrete Plant Mix Pavements unless otherwise noted.

- 1. The job mix formula CONTRACTOR proposed to use shall be delivered to the ENGINEER at least two 2-weeks prior to beginning paving operations.

- 2.08. RIGID PORTLAND CEMENT CONCRETE PAVEMENT
- A. All work including materials associated with rigid concrete pavement shall be as specified.
    - 1. Class A concrete shall be used.
    - 2. Placement shall be as specified and NCDOT Section 700, General Requirements for Portland Cement Concrete Paving and Section 710, Concrete Pavement unless otherwise noted.
- 2.09. RIGID CONCRETE PAVEMENT REINFORCING
- A. Reinforcing, when applicable, shall be as shown on the Drawings and as specified.
- 2.10. CONCRETE CURB AND GUTTER
- A. Concrete shall be air-entrained by admixture only and proportioned and mixed for a 28- day minimum compressive strength of 3,500 psi as specified.
  - B. Premolded expansion joint filler for expansion joints shall conform to ASTM D 1751 and shall be ½-inch thick, minimum.

### **PART 3: EXECUTION**

#### **3.01 EXAMINATION**

- A. Verify that sub grade is dry and in suitable condition to support paving and imposed loads.
  - 1. Proof-roll subgrade below pavements with heavy pneumatic-tired equipment to identify soft pockets and areas of excess yielding. Do not proof-roll wet or saturated subgrades. Completely proof-roll subgrade in one direction, repeating proof-rolling in direction perpendicular to first direction. Limit vehicle speed to 3 mph.
  - 2. Revise minimum weight or type of vehicle in first subparagraph below if required.
  - 3. Proof roll with an approved piece of equipment having a single-axle weight of at least 10 tons
  - 4. Excavate soft spots, unsatisfactory soils, and areas of excessive pumping or rutting and replace with compacted backfill or fill as directed.
- B. Proceed with paving only after unsatisfactory conditions have been corrected.

#### **3.02. SURFACE PREPARATION**

- A. Subgrade
  - 1. The subgrade where shown on the Drawings shall be aggregate stabilized by the addition and mixing of coarse aggregate with the top 3-inches of subgrade in accordance with NCDOT Section 500-2, Construction Methods.
- B. Immediately before placing asphalt materials, remove loose and deleterious material from substrate surfaces. Ensure that prepared sub grade is ready to receive paving.
- C. Tack Coat
  - 1. Apply uniformly to surfaces of existing pavement at a rate of 0.05 to 0.15 gal/sq yd
  - 2. Allow tack coat to cure undisturbed before applying hot-mix asphalt paving.
  - 3. Avoid smearing or staining adjoining surfaces, appurtenances, and surroundings. Remove spillages and clean affected surfaces.
- D. Proof-roll prepared sub grade surface to check for unstable areas and areas requiring additional compaction. Proof-rolling of prepared sub grade will conform to the NCDOT Section 260, Proof Rolling unless otherwise noted. OWNER's Representative shall observe proof-roll.

- E. Notify OWNER's Representative of unsatisfactory conditions. Do not begin paving work until deficient subbase areas have been corrected and are ready to receive paving. Allow to dry until proper condition to receive paving. Subsurface shall be free of any ice or debris.
- F. Exercise care in applying bituminous materials to avoid smearing of adjoining concrete surfaces. Remove and clean damaged surfaces. Asphalt shall be feathered to match the elevation of adjoining concrete or asphalt pavement.

### 3.03. AGGREGATE BASE COURSE

- A. The base course of all paving shall be ABC.
  - 1. ABC shall be of the thickness shown on the Drawings and formed true to crown and grade.
  - 2. Gravel roads, including repair to existing gravel roads, shall be ABC.
  - 3. No fill material except new ABC shall be placed on top of existing gravel.
- B. ASPHALT CONCRETE BASE COURSE
  - 1. Asphalt concrete base course shall be placed and compacted on the aggregate base course in layers not to exceed 4-inches and at the rate of not less than 110 pounds per square yard per inch of thickness.
  - 2. Thicknesses shall be as shown on the Drawings.

### 3.04. ASPHALT CONCRETE SURFACE COURSE

- A. Prior to placement of the asphalt concrete surface course, the base/binder course shall be inspected for damage or defects and repaired to the satisfaction of the ENGINEER.
  - 1. The surface of the base/binder course shall be approved by the ENGINEER.
- B. An asphalt tack coat shall be applied to the surface of the approved base/binder course as described in NCDOT Section 605.
  - 1. Equipment for applying the tack coat shall be power-oriented pressure spraying or distributing equipment suitable for the materials to be applied and approved by the ENGINEER.
- C. The asphalt concrete surface course shall be placed and compacted on the base/binder course in layers not to exceed 1.75-inches and at the rate of not less than 110 pounds per square yard per inch of thickness.
  - 1. Thicknesses shall be as shown on the Drawings.

### 3.05. JOINTS

- A. Construct joints to ensure a continuous bond between adjoining paving sections. Construct joints free of depressions with same texture and smoothness as other sections of hot-mix asphalt course.

### 3.06. COMPACTION

- A. Begin compaction as soon as placed hot-mix paving will bear roller weight without excessive displacement. Compact hot-mix paving per NCDOT Specifications.

### 3.07. TOLERANCES

- A. Thickness
  - 1. Compact each course to produce the thickness indicated within the following tolerances:
    - a. Surface Course
      - 1) Plus 1/4 inch, no minus
    - b. Crowned Surfaces

- 1) Test with crowned template centered and at right angle to crown. Maximum allowable variance from template is  $\frac{1}{4}$  inch.

B. Surface Smoothness

1. Compact each course to produce a surface smoothness within the following tolerances as determined by using a 10-foot straight edge applied transversely or longitudinally to paved areas:
  - a. Surface Course
    - 1)  $\frac{1}{8}$  inch
  - b. Crowned Surfaces
    - 1) Test with crowned template centered and at right angle to crown. Maximum allowable variance from template is  $\frac{1}{4}$  inch.

3.08. PAVEMENT MARKING

- A. Do not apply pavement-marking paint until layout, colors, and placement have been verified.
- B. Allow paving to age for 30 days before starting pavement marking.
- C. Sweep and clean surface to eliminate loose material and dust.
- D. Apply marking in accordance with drawings and NCDOT Specifications.

3.10. RIGID PORTLAND CEMENT CONCRETE

- A. The subgrade and base course beneath Portland cement concrete pavement shall be prepared in accordance with the applicable Sections of these Specifications and referenced NCDOT Standard Specifications for Roads and Structures.
  1. The CONTRACTOR shall use an approved automatically controlled fine grading machine to produce final subgrade and base surfaces meeting the lines, grades, and cross sections (thicknesses) shown on the Drawings or established by the ENGINEER.
- B. The surface of the base shall be damp at the time the concrete is placed.
  1. The CONTRACTOR shall sprinkle the base when necessary to provide a damp surface.
  2. The CONTRACTOR shall satisfactorily correct all soft areas in the subgrade or base prior to placing concrete.
- C. Hauling over the base course shall not be allowed except where specifically permitted by and in writing by the ENGINEER.
  1. The ENGINEER may allow equipment-dumping concrete to operate on the base to the extent and under the conditions the ENGINEER deems necessary to facilitate placing and spreading the concrete.
- D. Installation of the rigid concrete pavement shall be in accordance with the details shown on the Drawings and Division 3 - Concrete.
  1. The rigid concrete pavement shall cure a minimum of 10 calendar days and until the concrete has attained a minimum flexural strength of 550 psi as indicated by flexural strength testing.
  2. The CONTRACTOR shall coordinate and pay for all flexural strength testing with a minimum of four 6-inch by 6-inch by 20-inch beams for every 50 cubic yards of pavement concrete installed.
- E. Contraction joints shall be spaced at intervals as shown on the Drawings.
  1. Transverse contraction joints shall be formed by an approved joint insert.
  2. Expansion joints shall be placed when the pavement abuts a structure using 1-inch expansion joint material (filler) and sealant as specified herein.

3.11. CONCRETE CURB AND GUTTER

- A. The expansion joint filler for concrete curb and gutters shall be cut to conform to the cross section of the curb.

1. Expansion joints shall be spaced at intervals of not more than 25-feet.
- B. Formed control joints shall be installed at intervals not exceeding 10-feet.
  1. Depth of joint shall be the thickness of the curb and gutter.
- C. Curved forms shall be used where radii are indicated; straight segments shall not be permitted.
- D. Upon removal of the forms, exposed curb faces shall be immediately rubbed down to a smooth and uniform surface.
- E. No plastering shall be permitted.

### 3.12. JUNCTION WITH OTHER PAVING

- A. Where new asphalt concrete pavement abuts existing asphalt concrete pavement, the existing pavement shall be cut back to insure obtaining the specified compaction of the new pavement courses and interlocking adjoining courses.
  1. Existing subbase courses shall be cut back from the subgrade level of the new pavement on a one-on-one slope into the existing pavement.
  2. The asphalt courses of the existing pavement shall be removed for additional 6-inches back from the slope.
  3. The edge of the existing asphalt courses shall be saw cut straight and true.
  4. The faces between new and existing asphalt courses shall receive an application of tack coat.
- B. Where new rigid concrete pavement abuts existing rigid concrete or asphalt concrete paving, the existing paving shall be saw cut straight and true.
  1. An expansion joint of a ½-inch minimum thickness with filler material and sealant shall be placed between the new concrete pavement and the existing rigid concrete or asphalt concrete paving.

### 3.13. ASPHALT CONCRETE OVERLAY

- A. Where asphalt concrete is to be placed over an existing asphalt or rigid concrete surface, the surfaces shall be thoroughly cleaned by power brooming.
- B. A tack coat shall be applied in accordance with NCDOT Section 605, Asphalt Tack Coat, of the NCDOT Specifications prior to installing the overlay.

### 3.14. SIGNAGE

- A. Erect signs in accordance with NCDOT Specifications.

### 3.15. DISPOSAL

- A. Remove excavated materials from project site and legally dispose of them.

**END OF SECTION**

## **SECTION 32 92 19 – SEEDING**

### **PART 1 - GENERAL**

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions apply to this Section.
- B. North Carolina Erosions and Sediment Control Planning and Design Manual.

#### 1.2 SUMMARY

- A. This Section includes the following:
  - 1. Fertilizing.
  - 2. Seeding.
  - 3. Hydroseeding.
  - 4. Mulching.
  - 5. Maintenance.
- B. Related Sections: The following Sections contain requirements that relate to this Section.
  - 1. General and Supplementary Conditions for allowances, definitions and procedures.
  - 2. Division 31 Section 311000 "Site Clearing" for site stripping, grubbing, topsoil removal, and tree protection.
  - 3. Division 31 Section 312513 "Erosion Controls", for all areas of the site that are graded or disturbed by any construction operations
  - 4. Division 31 Section 312317 "Trenching, Backfilling & Compaction for Utility Systems"
  - 5. Division 31 Section 312000 "Earth Moving"

#### 1.3 MEASUREMENT AND PAYMENT

- A. Grassed Areas:
  - 1. Basis of Measurement: Per Acre of disturbed area to be seeded, measured to the nearest one-quarter acre.
  - 2. Basis of Payment: Includes seeding, watering, mowing and maintenance until the end of Contract time.

#### 1.4 REFERENCES

- A. ASTM International:
  - 1. ASTM C602 - Standard Specification for Agricultural Liming Materials.

#### 1.5 DEFINITIONS

- A. Finished Grade: Elevation of finished surface of planting soil.
- B. Subgrade: Surface or elevation of subsoil remaining after excavation is complete or top surface of a fill or backfill before planting soil is placed.
- C. Subsoil: All soil beneath the topsoil layer of the soil profile, typified by the lack of organic matter and soil organisms.

- D. Surface Soil: Soil that is present at the top layer of the existing soil profile at the Projects site. In undisturbed areas, the surface soil is typically topsoil, and in disturbed areas the surface soil is typically subsoil.
- E. Weeds: Vegetative species other than specified species to be established in given area.

#### 1.6 SUBMITTALS

- A. Product Data: For all pesticides and herbicides used on this project, submit product label and manufacturer's application instructions.
- B. Certification of Grass Seed: Submit data from seed vendor for each seed monostand or mixture stating the botanical and common name, percentage by weight of each species and variety, and percentage of purity, germination and weed seed. Include the year of production and date of packaging.
- C. Product Certificates: From Manufacturer, for all fertilizers, limes, and other soil amendments.

#### 1.7 QUALITY ASSURANCE

- A. Provide seed mixture in containers showing percentage of seed mix, germination percentage, inert matter percentage, weed percentage, year of production, net weight, date of packaging, and location of packaging.
- B. Perform work in accordance with North Carolina Department of Transportation Standard Specifications for Roads and Structures, latest edition.
- C. Submit the following test reports to the Owner for each soil type to be amended.
  - 1. Soil Analysis including:
    - a. pH factor.
    - b. Composition of soil.
    - c. Percentage of organic content.
    - d. Recommendation of type and quantity of additives required to establish satisfactory pH and bring the supply of nutrients to a satisfactory level for planting.
  - 2. Testing shall be conducted by a soil testing laboratory in compliance with USDA Handbook No. 60.
  - 3. Recommendations shall be reported in weight per 1000 sq. ft. or volume per cu. yd. for nitrogen, phosphorus, and potash nutrients.

#### 1.8 DELIVERY, STORAGE, AND HANDLING

- A. Deliver grass seed mixture in sealed containers. Seed in damaged packaging is not acceptable.
- B. Deliver fertilizer in waterproof bags showing weight, chemical analysis, and name of manufacturer.
- C. Store seed, fertilizer, lime, and mulch in a manner which prevents wetting and deterioration.

#### 1.9 PROJECT CONDITIONS

- A. Weather Limitations: Proceed with planting only when existing and forecasted weather conditions permit planting to be performed with beneficial and optimum results. Apply products during favorable weather conditions according to manufacturer's instructions.
- B. The contractor shall field check the location of utilities before any ground disturbance associated with seeding, fertilizing, liming or mulching. The contractor shall be responsible for all damage resulting from neglect or failure to comply with this requirement.

- C. Work shall only take place on-site under the direct supervision of a competent, experienced landscape personnel.

1.10 MAINTENANCE SERVICE

- A. Maintain seeded areas for 45 days from Date of Substantial Completion.

**PART 2 - PRODUCTS**

2.1 SEED MIXTURE

- A. Grass Seed: Provide seed conforming to all statutory requirements and all rules and regulations adopted by the North Carolina Board of Agriculture. Deliver to site in original containers, labeled to show that the requirements of the N.C. Seed Law are met.
- B. No seed will be accepted with a date of test more than 8 months prior to the date of sowing, excluding the month in which the test was completed.
- C. When a low percentage of germination causes the quality of the seed to fall below the minimum pure live seed specified, the contractor may elect to increase the rate of application sufficiently to obtain the minimum pure live seed content specified, provided that such an increase in the rate of application does not cause the quantity of noxious weed seed per area to exceed the quantity that would be allowable at the regular rate of application.
- D. Seed: Seed of grass species as follows, with not less than 95 percent germination. Not less than 85 percent pure seed, and not more than 0.5 percent weed seed:

1. Temporary Seeding:

Seed	Quantity	Planting Season
Rye (Grain)	120 lbs /AC.	Dec 1 – Apr 15
Annual Lespedeza	50 lbs / AC	Dec 1 – Apr 15
German Millet	40 lb/ AC	Apr 15 – Aug 15
Rye (Grain)	120 lbs /AC.	Aug 15 – Dec 30

2. Permanent Seeding:

Seed	Quantity	Planting Season
Bermudagrass	2 lbs /1,000 SF	Apr 1 – Aug 31
Tall Fescue Blend	6 lbs/1,000 SF	Sept 1 – Mar 31

2.2 SOIL MATERIALS

- A. Topsoil: Excavated from site and free of weeds.

2.3 ACCESSORIES

- A. Mulching Material: Oat or wheat straw, free from weeds, foreign matter detrimental to plant life, and dry. Hay or chopped cornstalks are not acceptable.

- B. Fertilizer: Commercial grade fertilizer recommended for grass; of proportion necessary to eliminate deficiencies of topsoil, as indicated in analysis of topsoil, to the following proportions: Nitrogen 10] percent, phosphoric acid [10], soluble potash [10] percent
- C. Lime: Ground dolomitic limestone, ASTM C602, Class T agricultural limestone containing a minimum 80 percent calcium carbonate equivalent. Minimum 99 percent passing through a No. 8 sieve and a minimum 75 percent passing through a No. 60 sieve.
- D. Water: Clean, fresh, and free of substances or matter capable of inhibiting vigorous growth of grass.
- E. Erosion Fabric: Jute matting, open weave.
- F. Herbicide: Round-Up by Monsanto or approved equal.
- G. Stakes: Softwood lumber, chisel pointed.
- H. String: Inorganic fiber.

### **PART 3 - EXECUTION**

#### **3.1 EXAMINATION**

- A. Verify prepared soil base is ready to receive the work of this Section.
- B. Do not place or mix soils or soil amendments in frozen, wet, or muddy conditions.
- C. Suspend soil spreading, grading, and tilling operations during periods of excessive soil moisture.
- D. Uniformly moisten any soil which is excessively dry or dusty to the extent of being unworkable.

#### **3.2 FERTILIZING**

- A. Apply lime at application rate as recommended by soil analysis or at 40 lbs per 1000 sq.ft.
- B. Apply fertilizer at application rate as recommended by soil analysis.
- C. Do not apply fertilizer at same time or with same machine used to apply seed.
- D. Mix fertilizer thoroughly into upper 3 inches of topsoil.
- E. Lightly water soil to aid in dissipation of fertilizer. Irrigate top level of soil uniformly.

#### **3.3 SEEDING**

- A. Seed at the rates in accordance with 32 92 19 Seeding Part 2.1 D.
- B. Do not seed areas in excess of that which can be mulched on same day.
- C. Do not sow immediately following rain, when ground is too dry, or when winds are over 12 mph.
- D. Immediately following seeding, apply mulch to thickness of 1/8 – 1/4 inches. Maintain clear of shrubs and trees.
- E. Apply water with fine spray immediately after each area has been mulched. Saturate to 2 inches of soil.

#### **3.4 HYDROSEEDING**

- A. Hydroseeding: Mix specified seed, fertilizer and fiber mulch in water, utilizing equipment specifically designed for hydroseeding operations. Continue mixing until uniformly blended into a homogeneous slurry suitable for hydraulic application.
- B. Paper mulch material is not allowed.

- C. Mix slurry with a nonasphaltic tackifier.
- D. Apply slurry uniformly to all areas to be seeded in a two-step process. Apply first slurrycoat at a rate so that mulch is deposited at not less than 500 lbs per acre dry weight and the seed component is deposited at not less than the specified seed sowing rate.
- E. Apply slurry coat of fiber mulch at a rate of 1000 lbs per acre.
- F. After application, apply water with fine spray immediately after each area has beenhydroseeded. Saturate to 2 inches of soil and maintain moisture levels 2 – 4 inches.

### 3.5 MAINTENANCE

#### A. General Care

- 1. Maintain and establish turf by watering, fertilizing, weeding, mowing, trimming, replanting, and performing other operations as required to establish healthy, viable turf:
- 2. Roll, regrade, and replant bare or eroded areas and remulch to produce a uniformly smooth turf. Provide materials and installation identical to those usedin the original installation.
- 3. As necessary, fill in any soil subsidence that may occur because of settling or other processes. Replace materials and turf damaged or lost in areas of subsidence.
- 4. In areas where mulch has been disturbed by wind or maintenance operations, addnew mulch and anchor as required to prevent displacement.
- 5. Apply treatments as required to keep turf and soil free of pests, pathogens, anddisease. Use integrated pest management practices whenever possible to minimize the use of pesticides and reduce hazards.

#### B. Watering

- 1. Install and maintain temporary piping, hoses, and turf-watering equipment to convey water from sources and to keep turf uniformly moist to a depth of 4 inches.
- 2. Schedule watering to prevent wilting, puddling, erosion, and displacement of seed or mulch. Lay out temporary watering system to avoid walking over muddy or newly planted areas.
- 3. Water turf with fine spray at a minimum rate of one inch per week unless rainfall precipitation is adequate.

#### C. Mowing

- 1. Mow grass as soon as top growth is tall enough to cut. Continue mowing without cutting more than 1/3 of grass height. Do not cut more than 1/3 of grass blade at each mowing. Do not delay mowing until grass blades bend over and become matted. Do not mow when grass is wet. Maintain the following heights:
  - a. Bermuda: 1”
  - b. All other grasses: 2-1/2”

- D. Apply herbicides to control growth of weeds. Remedy damage resulting from improperuse of herbicides.
- E. Immediately reseed areas showing bare spots.

## **SECTION 33 11 00 – WATER UTILITY DISTRIBUTION**

### **PART 1 - GENERAL**

#### **1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions apply to this Section.
- B. Subsurface Exploration Report, (as applicable).

#### **1.2 SUMMARY**

- A. This Section includes the following:
  - 1. Pipe and fittings for public water main, including potable waterline and fire water line.
  - 2. Tapping sleeves and valves.
  - 3. Valves and fire hydrants.
  - 4. Underground pipe markers.
- B. Related Sections: The following Sections contain requirements that relate to this Section.
  - 1. General and Supplementary Conditions for allowances, definitions and procedures.
  - 2. Division 31 Section 311000 "Site Clearing" for site stripping, grubbing, topsoil removal, and tree protection.
  - 3. Division 31 Section 312513 "Erosion Controls", for all areas of the site that are graded or disturbed by any construction operations
  - 4. Division 31 Section 312317 "Trenching, Backfilling & Compacting for Utility Systems"
  - 5. Division 31 Section 312000 "Earth Moving"

#### **1.3 MEASUREMENT AND PAYMENT**

- A. Pipe and Fittings:
  - 1. Basis of Measurement: By Linear Foot. The length of water lines to be paid for will be determined by measuring along the centerlines of the various sizes of pipe furnished and installed. Pipe will be measured from center of fitting to center of fitting, from the center of the water distribution line to end of service connection and from center of water distribution line to center of hydrant.
  - 2. Basis of Payment includes:
    - a. Excavation for piping and all fittings, including all valves, sleeves, hydrants, and blow-offs.
    - b. Removal of unsuitable soil material.
    - c. Piping and fittings.
    - d. Removal of unsuitable material.
    - e. Concrete thrust restraints.
    - f. Connection to public utility water source.
    - g. Backfilling with suitable trench excavation or on-site suitable soil.
    - h. Testing.

- B. Valves
  - 1. Basis of Measurement: Per each unit installed.
  - 2. Basis of Payment includes:
    - a. Valve
    - b. Accessories and kits.
    - c. Valve Box
    - d. Concrete collar as required
    - e. Blocking
    - f. Backfilling
- C. Tapping Sleeve and Tapping Valve
  - 1. Basis of Measurement: Per each unit installed.
  - 2. Basis of Payment includes:
    - a. Tapping sleeve and tap valve
    - b. Testing of assembly before wet tap
    - c. Cutting the wet tap
    - d. Blocking
    - e. Backfilling
- D. Fire Hydrant
  - 1. Basis of Measurement: Per each unit installed
  - 2. Basis of Payment includes:
    - a. Fire hydrant
    - b. Blocking and rodding
    - c. Drainage aggregate
    - d. Backfilling
    - e. Painting
- E. Blow Off
  - 1. Basis of Measurement: Per each unit installed
  - 2. Basis of Payment includes:
    - a. Complete blow off assembly per drawings and details
    - b. Blocking
    - c. Backfilling
- F. Backflow Preventer
  - 1. Basis of Measurement: Per each unit installed
  - 2. Basis of Payment includes:
    - a. Complete backflow preventer assembly
    - b. Accessories
    - c. Enclosure
    - d. Blocking backfilling
    - e. Testing

#### 1.4 DEFINITIONS

- A. Excavation consists of the removal of material encountered to subgrade elevations and the reuse or disposal of materials removed. Refer to the following section for additional definitions of classified excavations.

- B. Subgrade: The uppermost surface of an excavation or the top surface of a fill or backfill immediately below base course, drainage fill, or topsoil materials.
- C. Borrow: Soil material obtained off-site when sufficient approved soil material is not available from excavations.
- D. Surface Course: The top layer of the pavement structure placed on base course or subgrade.
- E. Base Course: Layer placed between the subgrade elevation and asphalt paving courses.
- F. Bedding Course: Layer placed over excavated subgrade in a trench before laying pipe.
- G. Unauthorized excavation consists of removing materials beyond indicated subgrade elevations or dimensions without direction by the Engineer. Unauthorized excavation, as well as remedial work directed by the Engineer, shall be at the Contractor's expense.
- H. Structures: Buildings, footings, foundations, retaining walls, slabs, tanks, curbs, mechanical and electrical appurtenances, or other man-made stationary features constructed above or below ground surface.
- I. Utilities include on-site underground pipes, conduits, ducts, and cables, as well as underground services within building lines.
- J. Unsuitable Soil: Soil produced from excavation of drainage features, cut to sub-grade, or required stripping that does not meet the definition and requirements of suitable soil.
- K. Suitable Soil: Soil produced from excavation of drainage features, cut to sub-grade, or required stripping that meets the definition and requirements of suitable soil.
- L. Topsoil: Soil produced from stripping the top or upper 4"-8" soil layer from areas to be further excavated, re-landscaped, or re-graded without contamination from the subsoil. Stripping of topsoil is not required where excavation width is less than 10' OR for the installation of pipe utilities. Topsoil shall be stockpiled on site at designation location for future use. Topsoil shall not be removed from site.
- M. Porous Fill: Fill material supporting utility pipe installation that also minimizes upward capillary flow of water.
- N. Undercut excavation: Excavation below sub-grade elevations or beyond indicated lines and dimensions as directed by the Town Water Department. Authorized undercut excavation and replacement material will be paid for according to Contract unit price for UNDERCUT and BACKFILL.
- O. Approved Drawings: The part of the Contract that graphically shows the scope, extent, and character of the Work to be performed by Contractor. The plans shall be prepared by a North Carolina licensed Professional Engineer and approved by the Town of Nags Head Water Department and by the North Carolina Department of Environmental Quality, (NCDEQ).
- P. Approved Equal: Shall mean comparable equipment or materials to specified equipment or materials as determined by the Design Engineer, Owner or authorized agent.

- Q. Contractor: The individual or entity with which the Owner has contracted for performance of Work.
- R. Defective Work: Work that does not conform to the requirements of the Town of Nags Head Code of Ordinances, Technical Specifications, and/or Approved Drawings.
- S. Developer: The property owner, developer, or subdivider of the land to which , or across which, the water main is being planned.
- T. Engineer: A professional engineer registered in the state of North Carolina.
- U. Shop Drawings: All drawings, diagrams, illustrations, schedules, and other data or information that are specifically prepared or assembled by or for Contractor and submitted by Contractor to illustrate some portion of the Work.
- V. Drawings: The part of the Contract that graphically shows the scope, extent, and character of the Work to be performed by Contractor.
- W. Subcontractor: An individual or entity having a direct contract with Contractor or with any other Subcontractor for the performance of a part of the Work.
- X. Specifications: Written requirements for materials, equipment, systems, standards, and workmanship as applied to the Work, and certain administrative requirements and procedural matters applicable to the Work.
- Y. Work: The entire construction or the various separately identifiable parts thereof required to be provided under the Approved Drawings and Specifications. Work includes and is the result of performing or providing all labor, services, and documentation necessary to produce such construction; furnishing, installing, and incorporating all materials and equipment into such construction; and may include related services such as testing, start-up, and commissioning.
- Z. Working Day: A calendar day during which normal construction operations could proceed for a major part of a shift, excluding Saturdays, Sundays and Town of Nags Head holidays

## 1.5 REFERENCES

- A. American Association of State Highway and Transportation Officials:
  - 1. AASHTO T180 - Standard Specification for Moisture-Density Relations of Soils Using a 4.54-kg (10-lb) Rammer and a 457-mm (18-in.) Drop.
- B. American Society of Mechanical Engineers:
  - 1. ASME B16.1 - Cast Iron Pipe Flanges and Flanged Fittings.
- C. ASTM International:
  - 1. ASTM A36/A36M - Standard Specification for Carbon Structural Steel.
  - 2. ASTM A123/A123M - Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products.
  - 3. ASTM A307 - Standard Specification for Carbon Steel Bolts and Studs, 60 000 PSI Tensile Strength.
  - 4. ASTM D698 - Standard Test Method for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft<sup>3</sup> (600 kN-m/m<sup>3</sup>)).

5. ASTM D2241 - Standard Specification for Poly (Vinyl Chloride) (PVC) Pressure-Rated Pipe (SDR Series).
6. ASTM D2922 - Standard Test Method for Density of Soil and Soil-Aggregate in Place by Nuclear Methods (Shallow Depth).
7. ASTM D3017 - Standard Test Method for Water Content of Soil and Rock in Place by Nuclear Methods (Shallow Depth).
8. ASTM D3139 - Standard Specification for Joints for Plastic Pressure Pipes Using Flexible Elastomeric Seals
9. ASTM F477 - Standard Specification for Elastomeric Seals (Gaskets) for Jointing Plastic Pipe

D. American Water Works Association:

1. AWWA C104 - ANSI Standard for Cement Mortar Lining for Ductile-Iron Pipe and Fittings for Water.
2. AWWA C110 - ANSI Standard for Ductile-Iron and Gray-Iron Fittings, 4 In. Through 48 In. (76 mm Through 1,219 mm), for Water.
3. AWWA C111 - ANSI Standard for Rubber-Gasket Joints for Ductile-Iron Pressure Pipe and Fittings.
4. AWWA C115 - ANSI Standard for Flanged Ductile-Iron Pipe with Ductile-Iron or Gray-Iron Threaded Flanges.
5. AWWA C151 - ANSI Standard for Ductile-Iron Pipe, Centrifugally Cast, for Water or Other Liquids.
6. AWWA C153 - ANSI Standard for Ductile-Iron Compact Fittings for Water Service, 4 inches and Larger.
7. AWWA C200 - Steel Water Pipe 6 In. (150 mm) and Larger.
8. AWWA C203 - Coal-Tar Protective Coatings and Linings for Steel Water Pipelines - Enamel and Tape - Hot Applied.
9. AWWA C205 - Cement-Mortar Protective Lining and Coating for Steel Water Pipe - 4 In. and Larger - Shop Applied.
10. AWWA C206 - Field Welding of Steel Water Pipe.
11. AWWA C207 - Steel Pipe Flanges for Waterworks Service - Sizes 4 In. Through 144 In. (100 mm Through 3,600 mm).
12. AWWA C208 - Dimensions for Fabricated Steel Water Pipe Fittings.
13. AWWA C213 - Fusion-Bonded Epoxy Coating for the Interior and Exterior of Steel Water Pipelines.
14. AWWA C300 - Reinforced Concrete Pressure Pipe, Steel-Cylinder Type.
15. AWWA C301 - Prestressed Concrete Pressure Pipe, Steel-Cylinder Type.
16. AWWA C509 - Gate Valves for Water and Sewage Systems.
17. AWWA C600 - Installation of Ductile-Iron Water Mains and Their Appurtenances.
18. AWWA C605 - Water Treatment - Underground Installation of Polyvinyl Chloride PVC Pressure Pipe and Fittings for Water.
19. AWWA C606 - Grooved and Shouldered Joints.
20. AWWA C700 - Cold-Water Meters - Displacement Type, Bronze Main Case.
21. AWWA C701 - Cold-Water Meters - Turbine Type, for Customer Service.
22. AWWA C702 - Cold-Water Meters - Compound Type.
23. AWWA C706 - Direct-Reading, Remote-Registration Systems for Cold-Water Meters.
24. AWWA C900 - Polyvinyl Chloride (PVC) Pressure Pipe, and Fabricated Fittings, 4 In. through 12 In. (100 mm Through 300 mm), for Water Distribution.

25. AWWA C905 - Polyvinyl Chloride (PVC) Pressure Pipe and Fabricated Fittings, 14 In. Through 36 In. (350 mm Through 1,200 mm), for Water Transmission and Distribution.
  26. AWWA M6 - Water Meters - Selection, Installation, Testing, and Maintenance.
  27. AWWA M23 – PVC Pipe – Design and Installation
- E. Manufacturer’s Standardization Society of the Valve and Fitting Industry:
1. MSS SP-60 - Connecting Flange Joint between Tapping Sleeves and Tapping Valves.
- F. National Fire Protection Agency:
1. NFPA 24 – Standard for the Installation of Private Fire Service Mains and Their Appurtenances.
- G. North Carolina Department of Transportation:
1. Policies and Procedures for accommodating Utilities on Highway Rights-of-Ways, State of North Carolina, Department of Transportation, current version.
- 1.6 SUBMITTALS
- A. Product Data: Submit data on all pipe materials, pipe fittings, valves and accessories.
  - B. Manufacturer's Installation Instructions: Submit special procedures required to install Products specified:
  - C. Manufacturer's Certificate: Certify that products meet or exceed specifications.
  - D. Certificates of Conformance: To be provided by the Design Engineer or authorized representative for each lot of pipe to be incorporated into the project meets the approved specifications.
  - E. Record Documents (As-Built Drawings): Record location and depth of cover for pipe runs, valves, tees, and other fittings. Identify and describe variations to drawings and discovery of unidentified buried objects. Provide color photographs for all tee and valve connections and fire hydrant assemblies taken prior to placing any backfill. Photographs shall be numbered and keyed to the appropriate location on the as-built drawings.
- 1.7 QUALITY ASSURANCE
- A. All work shall conform to applicable AWWA and ASTM standards as the manufacturer’s recommendations and instructions.
  - B. All work shall be conducted in accordance with NCDOT Policies and Procedures for accommodating Utilities on Highway Rights-of-Ways, State of North Carolina, Department of Transportation, current version.
  - C. Pre-Construction Conference: Conduct conference at Project site with Design Engineer and Town of Nags Head project representatives.
- 1.8 INSTALLER QUALIFICATIONS
- A. Installer shall be a licensed underground utility contractor licensed for such work in the State of North Carolina. Installing contractor’s license status shall be current.

## 1.9 DELIVERY, STORAGE, AND HANDLING

- A. All pipe, of whatever material, shall be transported, handled, stored, and installed in strict compliance with applicable AWWA and ASTM standards as well as the manufacturer's instructions and recommendations.
- B. Deliver and store valves in shipping containers with labeling in place.
- C. Block individual and stockpiled pipe lengths to prevent moving.
- D. Do not place pipe or pipe materials on private property or in areas obstructing pedestrian or vehicle traffic.
- E. Store polyethylene materials out of sunlight.

## 1.10 PROJECT CONDITIONS

- A. Existing Utilities: Do not interrupt existing utilities serving facilities occupied by the Owner or others except when permitted in writing and then only after acceptable temporary utility services have been provided.
  - 1. Provide a minimum 72 hours' notice to the Owner and receive written notice to proceed before interrupting any utility.
  - 2. Maximum open length of trench at any time during construction shall be 400 feet.
  - 3. Construction site to be cleaned immediately following backfilling operations.
- B. Demolish and completely remove from site existing underground utilities indicated to be removed. Coordinate with utility companies to shutoff services if lines are active.

## PART 2 - PRODUCTS

### 2.1 WATER PIPING

- A. Ductile Iron Pipe: AWWA C151. Bituminous outside coating: AWWA C151. Pipe Mortar Lining: AWWA C104, double thickness. Polyethylene Encasement: AWWA C105.
  - 1. Ductile cast iron pipe shall be Grade 60-42-10 centrifugally cast in accordance with ANSI Standard A21.51 (AWWA C151), latest revision for 200 psi operating pressures plus surge allowance of 100 psi. Wall thickness and strength shall conform to ANSI Standard A21.50 for cover as shown on the drawings and details. Each pipe shall be hydrostatically tested, before shipment, to a minimum of 500 psi. Factory tests and basis for acceptance shall be as specified in ANSI Standard A21.51. Unless otherwise specified, thickness class shall conform to ANSI A21.51 (AWWA C151).
    - a. Bells for push-on joints shall conform to the requirements of ANSI Standard A21.51, such as "Fastite," "Tyton", "Bell-Tite", or approved equal. Pipe shall be nominal 18' lengths. Joint detail, including rubber gaskets, shall conform to ANSI Standard Specification A21.11., AWWA C111, latest revision.
    - b. The pipe shall have an outside pipe coating of bituminous material in accordance with AWWA C151, latest revision. The final coat shall be continuous and smooth, being neither brittle when subjected to low temperatures nor sticky when exposed to hot sun. The coating shall be strongly adherent to the pipe at all temperatures.
    - c. Pipe 6" and larger shall be Class 50. 4" diameter pipe shall be Class 51 or 52.
    - d. Polyethylene encasement on cast iron pipe shall be required in corrosive soil.

2. Fittings for ductile iron pipe sizes 4"-12" shall be cast from ductile iron in accordance with ANSI/AWWA C153/A21.53. Fittings for ductile for ductile iron pipe less than 4" in diameter are prohibited.
    - a. All fittings shall be Class 350 ductile iron fittings, mechanical joint. Mechanical joints shall conform to ANSI/AWWA A21.11/C111. Wall and socket thicknesses shall be equal to Class 54 ductile iron pipe as specified in ANSI/AWWA A21.51/C151. Ductile iron shall be in accordance with ASTM A563 with minimum physical qualities of 70,000 psi tensile strength, 50,000 psi yield strength, and 5% elongation.
    - b. All ductile cast iron fittings shall have cement mortar lining conforming to ANSI Standard A21.4, latest edition. Buried fittings shall be given a full coat inside and outside of a bituminous coating which conforms to ANSI 21.4, latest revision.
  3. Mechanical jointing ductile iron pipe shall be used only at the specific locations indicated on the drawings and details or as approved by the Town Water Department. The mechanical joint shall consist of:
    - a. a bell cast integrally with the pipe or fitting and provided with an exterior flange having cored or drilled bolt holes and interior annular recesses for the sealing gasket and the spigot of the pipe or fitting;
    - b. a pipe or fitting spigot;
    - c. a sealing gasket;
    - d. a separate cast iron follower gland having cored or drilled bolt holes; and
    - e. (5)tee head bolts and hexagon nuts. The joint shall be designed to permit normal expansion, contraction and deflection of the pipe or fitting while maintaining a leak proof joint connection. The mechanical joint shall conform to the requirements of ANSI Standard Specification A21.11 and AWWA C111 Specifications, latest revision.
  4. Ductile iron flanged pipe shall be supplied in accordance with ANSI/AWWA C115/A21.15. Pipe barrels and flanges shall have a taper pipe thread (NPT) in accordance with B1.20.1, with thread diameters adapted to ductile iron pipe standard outside diameters. Ductile iron pipe used for flanging shall be centrifugally cast in metal molds and shall meet the requirements of ANSI/AWWA C151/A21.51. Flanges shall conform to ANSI/AWWA C110/A21.10. Flanged pipe shall be furnished in maximum length of 17'6" for sizes 4-48". The flanges shall conform to the drilling and facing requirements of ANSI B16.1 Class 125 flanges. Face to face dimensions shall conform to a tolerance of  $\pm 0.12$ " for sizes 3-64". The minimum class thickness for ductile iron flanged pipe to be threaded is class 53.
- B. Polyvinyl Chloride (PVC): AWWA C900 DR 18 Class 150 (pipe 4" – 12") and AWWA C905, DR 18 Class 150 (pipe larger than 12").
1. Fittings for PVC pipe sizes 4" and larger shall be cast from ductile iron in accordance with ANSI/AWWA C153/A21.53.
  2. Ductile iron fittings shall have a working pressure rating of 350 psi for fitting sizes 12" and less. Fitting over 12" shall have a minimum rated working pressure of 250 psi. Mechanical joints shall conform to ANSI/AWWA A21.11/C111. Wall and socket thicknesses shall be equal to Class 54 ductile iron pipe as specified in ANSI/AWWA A21.51/C151. Ductile iron shall be in accordance with ASTM A563 with minimum physical qualities of 70,000 psi tensile strength, 50,000 psi yield strength, and 5% elongation.

- a. All ductile cast iron fittings shall have cement mortar lining conforming to ANSI Standard A21.4, latest edition. Buried fittings shall be given a full coat inside and outside of a bituminous coating which conforms to ANSI 21.4, latest revision.
  - b. Appropriate transition gaskets shall be utilized for the SDR or class of PVC pipe.
3. The pipe shall be furnished in nominal lengths of 20'. Each joint shall be clearly marked as complying with National Sanitation Foundation standards.
- C. Polyvinyl Chloride (PVC): PVC pipe of 3" nominal diameter and less shall conform to ASTM Specification D-2241, "Standard Specification for Polyvinyl Chloride (PVC) Plastic Pipe (SDR-PR)", as it applies to Class 12454 (A or B) polyvinyl chloride plastic pipe, SDR 21 water pressure ratings of 200 psi at 23 C (73.4 F), with minimum physical requirements as listed in the following table. Each joint shall be clearly marked as complying with National Sanitation Foundation standards.

Nominal Size (in.)	Outside Diameter (in.)	Min. Wall Thickness (in.)	Weight (lbs.)	Working Pressure (psi)
3/4	1.0501	0.060	11.8	200
1	1.315	0.063	15.9	200
1-1/4	1.66	0.079	24.8	200
1-1/2	1.900	0.090	32.2	200
2	2.375	0.113	50.8	200
2-1/2	2.875	0.137	74.2	200
3	3.500	0.167	110.0	200

- 1. Fittings for PVC 3/4" – 2" shall be brass compression X MIP fittings. Solvent weld (glue) fittings will not be accepted.

## 2.2 TAPPING SLEEVES AND VALVES

- A. Tapping Sleeves: Furnish and install tapping sleeve and valve at the location(s) shown on the Contract Drawings and as required herein. The tapping sleeve and valve shall be suitable for wet installation without interrupting water service in any manner. The tapping sleeve and valve shall be installed in accordance with the manufacturer's recommendations and as shown on the drawings.
- 1. The tapping sleeve shall be fully gasketed wrap around tapping sleeve. The sleeve body shall be 18-8 stainless steel. The bolts and nuts shall be 18-8 stainless steel. The gasket shall be gridded virgin GPR compounded for water service in accordance with ASTM D2000-80M 4AA607. The outlet gasket shall be Buna-N. The flange shall be ductile iron. The tapping sleeve shall be fitted with a female 3/4" NPT test port and supplied with a 3/4" 18-8 stainless steel plug with square head.
- B. Tapping Valves:
- 1. Tapping valves shall be "O" ring type with mechanical joint and conforming to AWWA C509 non-rising stem construction. Inlet flange end shall be Class 125 (ASME Bl6.1). Tapping valve shall be "Waterous" resilient wedge type, or approved equal. The valves shall be as specified under section 2.3 of this specification for gate valves

## 2.3 VALVES AND FIRE HYDRANTS

A. Gate Valves: All gate valves shall be resilient seated wedge type that fully comply with the requirements of the latest revision of AWWA Standard C-509. All gate valves shall open by turning in a counterclockwise direction:

1. Valves 2" and larger shall be iron body, bronze mounted, resilient seat type.
2. All valves other than flanged end valves shall be of the non-rising stem type.
3. Gate valves shall be vertical open, counterclockwise, of the non-rising stem type with mechanical joint ends and 2 inch square operating nut.
4. Unless otherwise shown on the drawings or stated in the proposal, all gate valves 2"-12" shall be designed for a working pressure of 200 psi and shall be tested to a minimum pressure of 400 psi.
5. All gate valves 14"-24" shall be designed for a working pressure of 150 psi and hydrostatically tested to a minimum pressure of 300 psi.
6. All buried valves shall be provided with a 2-piece screw-type valve box. Valve boxes shall be of close-grained, grey cast iron, consisting of a lower base piece which shall be flanged at the bottom to fit around the stuffing gland and rest on the valve bonnet and an upper part which shall also be flanged on the lower part and the upper end constructed in the form of a socket to receive the cover.
  - a. The valve box shall be a Champion metals cast iron 5 1/4" diameter adjustable valve box (screw type) 18"-24" #461-S, 24"-36" #562-S or approved equal.
  - b. The cover shall have cast on the upper surface in raised letters the word "Water" Valve boxes shall be painted prior to shipment with a coat of asphaltum paint. "Where a valve box will be placed in the pavement the lid shall be a Bingham and Taylow road lock water screw type iron lid # CUL5LWL or approved equal
7. Gate valves shall be of the mechanical joint type unless otherwise indicated on the drawings and details.
8. All mainline valves smaller than 4 inches must be a Ford ball valve, Mueller or approved equal.
9. All gate valves shall be manufactured by Mueller Co., M&H Valve, Clow, or approved equal.

B. Blow-off Valves:

1. All blow-off valve assemblies should be a Ford inch MIP x FIP Ball Valve.

C. Swing Check Valves:

1. Valves 2" to 12": Swing check valves shall conform to AWWA C 508, latest revision.
2. Small swing check valves shall have iron bodies with NPT ends.
3. The swing disc shall be internally weighted or spring loaded and constructed of composition or bronze with rubber seats.
4. Valves shall be rated at 175 lb. service water pressure or 200 lb. WOG.
5. Valves shall be installed in a horizontal position. Some operating conditions may dictate the need for an assisted closure feature, such as outside weight and lever or outside spring and lever, to reduce or eliminate check valve slam. Above ground or vaulted installations may use flanged valves.

D. Fire Hydrants: Fire hydrants shall be of the compression or gate type conforming to AWWA C-502, latest revision and shall be the Owner's standard which consists of Waterous WB67 5-1/4" Pacer, or Town approved equal.

1. All hydrants shall have a bronze-to-bronze main valve assembly.

2. The hydrant shall have two 2-1/2" hose nozzles with caps and one 4-1/2" steamer connection conforming to the Town of Nags Head Water System Standards. All nozzles shall have NPT threads. Nozzles shall be bronze with cast iron cap secured thereto with suitable steel chain. A drain outlet shall be provided.
3. Threads on nozzles and caps and operating nuts shall conform to National Standard Threads.
4. The upper hydrant opening stem within the bonnet shall be sealed and lubricated by means of an oil or grease bath. The operating nut shall be National Standard pentagon type measuring 1 1/2 inches from point to flat. Hydrants shall open by turning counterclockwise and shall be so marked.
5. The hydrant main valve shall meet or exceed the flow requirements of AWWA C-502 and shall be at least 5-1/4" in diameter.
6. Elbow shall have interior coated with minimum 4 mils thickness epoxy in accordance with AWWA C550.
7. Hydrants shall be 6 inches in size, or mechanical joint type.
8. The hydrant barrel shall be of such length to provide a minimum of 3'0" of bury.
9. All hydrants shall be traffic models with breakable safety sleeve stem coupling with SS stem coupling pins.
10. The Contractor shall provide for fire hydrants and accessories all hydrant barrel extensions necessary to set the pumper nozzle at the specified height at the location shown on the drawings and details.
11. The hydrant shall have stainless steel bolts in the base and the bonnet, and a "breakaway" flange that will allow the upper barrel to be broken off while the hydrant valve remains closed and reasonably tight.
12. Hydrants shall be designed for a 300-psi test pressure and a 150-psi working pressure
13. All hydrants shall be factory primed and finish painted.
14. Final color of the hydrant body and bonnet shall be Rustoleum enamel or equal "Safety Red".
15. All hydrants shall be painted with two coats on the entire portion of the hydrant above the finished grade.

#### 2.4 BACKFLOW PREVENTERS

- A. All existing and proposed water services (if listed as a hazard); dedicated fire lines; irrigation lines; and private distribution systems must be provided with an backflow prevention in accordance with the Town of Nags Head Cross Connection Control Plan and the Rules Governing Public Water Systems as found in Title 15A, Subchapter 18C of the North Carolina Administrative Code.
- B. Service Connection Relation to Plumbing Code. No supplier of water shall provide a service connection to any plumbing system that does not comply with the North Carolina State Building Code, Volume II, and all applicable local plumbing codes. Where required, the supplier of water shall install or require to be installed an appropriate testable backflow prevention assembly prior to making the service connection. Design of backflow prevention assemblies for service connections shall not require Department review.
- C. Connections Requiring Departmental Review. Connections between a public water system and the connection types in Parts (A) through (D) of this Subparagraph shall require review and approval by the Department prior to making the connection. Installation of a testable backflow prevention assembly or air gap shall be required if the connection is non-potable or unapproved.

Engineering plans and specifications shall be submitted in accordance with Section .0300 of this Subchapter.

- (1) Any regulated public water system;
- (2) any community non-regulated public water system. Before providing a connection, a supplier of water shall ensure that the construction of the non-regulated public water system either was approved in accordance with Rule .0301(a) of this Subchapter or that backflow prevention is provided in accordance with this Rule;
- (2) non-potable water treatment processes within a potable water treatment plant; and
- (4) all cross-connections between potable water supplies and non-potable or unprotected supplies that are not specifically addressed in this Rule or AWWA M-14 Backflow Prevention and Cross Connection Control.

- D. Approved backflow prevention assemblies shall be installed above ground. Assemblies may be installed inside of buildings as long as there are no unprotected taps between the main and the building.
- E. The backflow prevention assembly(s) must be readily accessible at all times. Readily accessible means that only a one piece cover must be removed for an outside installation to test or perform maintenance on the assembly.
- F. All backflow prevention assemblies shall be installed in accordance with the manufacturer's specifications, University of Southern California guidelines and/or the latest edition of the North Carolina building code, whichever is most restrictive. Testing of backflow prevention assemblies shall be performed by a certified backflow prevention assembly tester. Such tests are to be conducted after installation and annually thereafter. A record of all testing and repairs is to be retained by the customer.

## 2.5 VALVE LOCATION MARKERS

- A. All valve locations and blow offs shall be marked with a 4"x4" painted pressure treated post valve marker. Valve markers will be provided by the Town of Nags Head.

## 2.6 UNDERGROUND PIPE MARKERS

- A. Plastic Ribbon Tape: Acid- and alkali-resistant polyethylene film warning tape manufactured for marking and identifying underground utilities, 6 inches wide and 4 mils thick minimum, continuously inscribed with a description of the utility, with metallic core encased in a protective jacket for corrosion protection, detectable by metal detector when tape is buried up to 2'-6" deep. Tape shall be Alarmtape by Paul Potter Associates, Detectatape by Allen Systems, Inc., Terra Tape by Griffolyn Co., Inc., or approved equal.
- B. Color: Blue
- C. Text: "CAUTION – WATER LINE BURIED BELOW".
- D. Detectable Tracer Wire: At all locations where pressure piping is installed and at lateral locations, non-ferrous or ferrous materials, the contractor shall install a continuous length of #10, 12 or 14 solid copper wire, on top and parallel to the pipe. Tracer wire shall be Pro-Line Safety Products or Town approved equal.

## 2.7 BEDDING AND COVER MATERIALS

- A. Bedding: NCDOT #57 or #67 stone.
  1. Install stone bedding only at the direction of the Design Engineer or Town of Nags Head Project Representative.

B. Soil Backfill from Above Pipe to Finish Grade

1. For any trenches with water, sanitary, or storm sewer utilities that are not located under curb or paved areas, backfill using on-site suitable soil when available.
2. For any trenches with water, sanitary, or storm sewer utilities that are located under curb or paved areas, backfill using only approved off-site select borrow.

2.8 ACCESSORIES

A. Anchorages:

1. Concrete Reaction backing: Portland cement concrete mix, 3,000 psi
  - a. Cement: ASTM C 150, Type I
  - b. Fine Aggregate: ASTM C33, sand
  - c. Coarse Aggregate: ASTM C33, crushed gravel
  - d. Water: Potable

B. Steel rods, bolt, lugs and brackets: ASTM A36/A36M or ASTM A307 carbon steel.

C. Protective Coating: Bituminous coating

2.9 SERVICE FITTINGS

A. All fittings shall be compatible with Ford or Mueller products:

1. Service clamp for 1 inch water taps shall be Ford Double Strap Brass Saddle 202-B AWWA C-800 threads or Mueller.
  - a. 1-1/2 inch and 2-1/2 inch water taps shall have a Ford 202 B series Double Strap Brass Saddle or Mueller with an iron tap outlet.
  - b. A Ford BO11 series ball valve or Mueller ball valve shall be used with the above saddle in 1-1/2 inch or 2-inch taps.
  - c. For 1-1/2 inch and 2-inch water taps, the meter setter shall be a Ford Custom Setter Catalog No. VBH66-18X length for 1-1/2 inch meter, and Catalog No. VBH77-18X length for 2-inch meters, or an approved equal setter.
  - d. The setter shall consist of a brass oval flanged angle check valve outlet. The setter must also have a 1-inch copper bypass line at its base, with a 1-inch ball valve installed in the bypass. The bypass line ball valve shall be a Ford "B" series ball valve equipped with padlock wings or Mueller.
2. Corporation stop shall be a Ford F-1000-G or Mueller for 1" taps.
3. Service lines shall be 200 psi Copper Tubing Size (CTS) polyethylene Phillips or approved equal tubing. All brass fittings shall be compression type. All 1" service lines shall have a Ford B43-332W or Ford B43-444W ball valve, or Mueller, installed on the end of the line in the meter box. All new service lines shall have a minimum diameter of 1".
4. Service lines which cross a public or private street shall be encased in a minimum 2 in. SCH 40 PVC sleeve. The sleeve shall extend a minimum 3' beyond the edge of pavement.
5. Water meter shall be Master Meter, 5/8X3/4 inch with serial number on lid and stamped on meter body. Water meters 1 to 2 inches shall be Master Meter series meters.
6. Water meters larger than 2 inches shall be Master Meter or approved equal.

7. Meter box shall be a heavy-duty plastic box with a cast iron lid which includes a meter reading lid.

### **PART 3 - EXECUTION**

#### **3.1 EXAMINATION AND PREPARATION**

- A. Verify existing utility water main size, location, and inverts are as indicated on drawings.
- B. Pre-Construction Site Photos: (Recommended Only – NOT required).
  1. Take photographs along centerline of proposed pipe trench; minimum one photograph for each 50 feet of pipe trench.
  2. Show mail boxes, curbing, lawns, driveways, signs, culverts, and other existing site features.
  3. Include project description, date taken and sequential number on back of each photograph.
- C. Cut pipe ends square, ream pipe and tube ends to full pipe diameter, remove burrs. Use only equipment specifically designed for pipe cutting. The use of chisels or hand saws will not be permitted. Grind edges smooth with beveled end for push-on connections.
- D. Remove scale and dirt on inside and outside before assembly.
- E. Prepare pipe connections to equipment with flanges or unions.

#### **3.2 DEWATERING**

- A. Prevent surface water and subsurface or ground water from entering excavations, from ponding on prepared subgrades, and from flooding Project site and surrounding area.
- B. Protect open trench excavations soils from softening and damage by rain or water accumulation.
  1. Reroute surface water runoff away from excavated areas without causing damage to adjacent properties. Do not allow water to accumulate in excavations. Do not use excavated trenches as temporary drainage ditches.
  2. Install a dewatering system to keep subgrades dry and convey groundwater away from excavations. Maintain until dewatering is no longer required.
  3. The contractor shall provide and maintain adequate dewatering equipment to remove and dispose of all water entering excavations, trenched, or other parts of the work.

#### **3.3 TRENCH WIDTH**

- A. Trenches shall be excavated to a width which provides adequate working space and sidewall clearances for proper pipe installation, jointing and embedment. However, the limiting trench width from the bottom of the trench to an elevation 1 foot above the top of installed pipe, and the minimum permissible sidewall clearances between the installed pipe and each trench wall shall be as follows:

Nominal Pipe Size (in.)	Minimum Sidewall Clearances (in.)	Maximum Trench Width (in.)
6	6	27
8	8	32
10	10	36
12	12	42
15	15	50
18	18	60

- B. Stipulated minimum sidewall clearances are not minimum average clearances but are minimum clear distances which will be required.
- C. Cutting trench banks on slopes to reduce earth load to prevent sliding and caving shall be used only in areas where the increased trench width will not interfere with surface features or encroach on right-of-way limits. Slopes shall not extend lower than 1 foot above top of the pipe.

### 3.4 BEDDING

- A. Excavate pipe trench in accordance with Section 31 23 33 for Work of this Section. Handtrim excavation for accurate placement of pipe to elevations indicated on Drawings.
- B. Dewater excavations to maintain dry conditions and preserve final grades at bottom of excavation.
- D. Provide sheeting and shoring in accordance with Section 31 23 33.
- E. Granular bedding for PVC pipe shall be sand with not more than 25 percent retained on a No. 4 sieve and not more than 7 percent passing a No. 200 sieve. For all other pipe, granular bedding shall be crushed rock or pea gravel with not less than 95 percent passing a ½ inch sieve and not less than 95 percent retained on a #4 sieve; to be placed in not more than 6-inch layers and compacted by vibratory tamper.

### 3.5 INSTALLATION - PIPE

- A. Install pipe in accordance with AWWA C600 and AWWA M23.
- B. Handle and assemble pipe in accordance with manufacturer's instructions and as indicated on drawings.
- C. Steel Rods, Bolt, Lugs, and Brackets: Coat buried steel with one coat of coal tar coating before backfilling.
- D. Lateral Separation of Sewers and Water Mains. Water mains shall be laid at least 10 feet laterally from existing or proposed sewers, unless local conditions or barriers prevent a 10-foot lateral separation—in which case:
  - 1. The water main is laid in a separate trench, with the elevation of the bottom of the water main at least 18 inches above the top of the sewer; or
  - 2. The water main is laid in the same trench as the sewer with the water main located at one side on a bench of undisturbed earth, and with the elevation of the bottom of the water main at least 18 inches above the top of the sewer.
  - 3. Crossings. A water main that crosses a sewer shall be laid a minimum vertical distance of 18 inches from the outside of the water main and the outside of the sewer, either above or below the sewer, with preference to the water main located above the sewer. One full length of water pipe shall be located so that both joints will be as far from the sewer as possible.
  - 4. Water Mains and Reclaimed Water Distribution Lines. Water lines shall be located at least 10 feet horizontally from or at least 18 inches above water pipes carrying treated and disinfected wastewater in reclaimed water distribution lines. Crossings shall be made in accordance with 15A NCAC 18C .0906 Relation of Water Mains to Non-Potable Water Lines.

5. Special Conditions. If an engineer demonstrates it is impractical to maintain the separation distances noted above, taking into consideration feasibility, cost, and the factors set forth in this Paragraph, a deviation may be approved on a case-by-case basis if supported by data and alternative construction criteria submitted by the design engineer. Data and Alternative construction criteria submitted by the design engineer to justify the deviation shall describe:
    - a. the rationale for determining that separation criteria described in 15A NCAC 18C .0906 Relation of Water Mains to Non-Potable Water Lines are impracticable;
    - b. the extent of the deviation from separation criteria described in 15A NCAC 18C .0906 Relation of Water Mains to Non-Potable Water Lines;
    - c. a consideration of pipe materials, pressure ratings, type of joints for water main and non-potable water line, and soil conditions;
    - d. (4) the ability to provide adequate work space to repair or replace pipe segments or other utility infrastructure without causing damage to or otherwise compromising the integrity of pipes; and
    - e. the rationale for determining that the deviation will not result in unreasonable risk to public health
- E. Separation of Water Mains and Storm Drain Pipes:
1. There shall be a minimum of 12” vertical separation between the outside of storm drain lines and outside of water mains. When storm drains cross over a water main, one bag of unopened bags of concrete mix shall support the storm pipe on either side of crossing.
  2. There shall be a minimum of 12” horizontal separation between water mains and storm drain lines.
  3. If an engineer demonstrates it is impractical to maintain the separation distances noted above, taking into consideration feasibility, cost, and the factors set forth in this Paragraph, a deviation may be approved on a case-by-case basis if supported by data and alternative construction criteria submitted by the design engineer. Data and Alternative construction criteria submitted by the design engineer to justify the deviation shall describe:
    - a. the rationale for determining that separation criteria described in Paragraphs (a) and (b) of 15A NCAC 18C .0904 Pipe Laying are impracticable;
    - b. the extent of the deviation from separation criteria in Paragraphs (a) and (b) of 15A NCAC 18C .0904 Pipe Laying;
    - c. a consideration of pipe materials, pressure ratings, type of joints for water main and non-potable water line, and soil conditions;
    - d. (4) the ability to provide adequate work space to repair or replace pipe segments or other utility infrastructure without causing damage to or otherwise compromising the integrity of pipes; and
    - e. the rationale for determining that the deviation will not result in unreasonable risk to public health.

- F. Install ductile iron piping and fittings to AWWA C600.
- G. Torque applied to mechanical joint bolts shall be 75-90 ft/lb for joint sizes 4" to 24" in accordance with AWWA C600.
- H. Weld pipe in accordance with AWWA C206. Weld joints in accordance with AWWAC205.
- I. Flanged Joints: Not to be used in underground installations except within structures.
- J. Pipe depth and alignment shall be installed in strict conformance to the Approved Drawings.
- K. Install pipe with no high points. If unforeseen field conditions arise which necessitate high points, install air release valves as directed by Town Water Department or authorized Project representative.
- L. Install pipe to have bearing along entire length of pipe. Excavate bell holes to permit proper joint installation. Do not lay pipe in wet or frozen trench.
- M. Prevent foreign material from entering pipe during placement.
- N. Install pipe to allow for expansion and contraction without stressing pipe or joints.
- O. Install pipe using a pipe joint lubricant (soap) that meets the requirements of NSF 61.
- P. Close pipe openings with watertight plugs during work stoppages.
- Q. Establish elevations of buried piping with not less than 36 inches of cover. Measure depth of cover from final surface grade to top of pipe barrel. A minimum of 42 inches of cover shall be attained at street intersections.
- R. Install # 12 copper tracer wire on top of all lines and lateral lines terminating to each valve box and meter box.
- S. Install plastic ribbon tape continuous buried 12 inches below finish grade.

### 3.6 INSTALLATION- VALVES AND HYDRANTS

- A. Install valves in conjunction with pipe laying; set valves plumb.
- B. Install hydrants; provide support blocking and drainage gravel; do not block drain hole:
  - 1. Set hydrants plumb with pumper nozzle facing roadway; set hydrants with centerline of pumper nozzle 20 inches above finished grade and safety flange not more than 6 inches nor less than 2 inches above grade.
  - 2. Hydrant shall be set on compacted crushed stone base 30 inches square by 10 inches thick. Stone shall extend above the hydrant leg a minimum of 12 inches.
  - 3. Reaction backing shall be installed behind the based of the hydrant in accordance with Section 3.7

### 3.7 INSTALLATION- TAPPING SLEEVES AND VALVES

- A. Install tapping sleeves and valves in accordance with drawings and in accordance with manufacturer's instructions.

### 3.8 INSTALLATION- BACKFLOW PREVENTERS

- A. All backflow prevention shall be installed in accordance with the manufacturer's specifications.

- B. Backflow prevention assemblies shall be installed at a minimum height of 12 inches and a maximum height of 60 inches above the floor or ground. Assemblies shall also have a clear horizontal distance of 18 inches around the entire diameter of the device.
- C. All backflow prevention assemblies installed outside of buildings must be installed in an approved enclosure with the exception of residential lawn irrigation backflow prevention assemblies. All enclosures shall be insulated and shall meet the requirements of ASSE standard 1060.
- D. Double check valves and double detector check valves may be installed vertically with approval from the water department.
- E. Reduced pressure backflow prevention assemblies shall be installed only horizontally.
- F. All backflow preventers are required to be tested by a certified backflow prevention assembly tester within ten days of installation.
- G. Refer to the Town of Nags Head Cross Connection documentation for further details.

### 3.9 CONCRETE REACTION BACKING

- A. Minimum bearing area against undisturbed trench wall in square feet. The numbers in the table below are based upon an internal pressure of 100 psi and a 4 foot bury depth in a sand soil type with a unit weight of 110 pcf. Should these conditions change, the minimum bearing area should be adjusted accordingly:

Fitting	Pipe Size (Nom. Dia. in inches)									
	2"	4"	6"	8"	10"	12"	16"	18"	20"	24"
Tee/Plug	1.6	1.9	2.8	3.8	4.7	5.9	7.5	8.5	9.4	11.3
90 bend	1.5	1.9	2.8	3.8	4.7	5.9	7.5	8.5	9.4	11.3
45 bend	1.0	1.4	2.1	2.8	3.5	4.3	5.5	6.2	6.9	7.7
22.5 bend	0.8	1.0	1.5	2.0	2.5	3.1	4.0	4.5	4.9	5.5

Unsuitable soil conditions for trench wall shall either require securing fittings with tie rod clamps and concrete or doubling square footage requirements.

- B. Provide valves, tees, bends, caps, and plugs with concrete thrust blocks. Pour concrete thrust blocks against undisturbed earth. Poured concrete shall be ready mixed. Locate thrust blocks at each elbow or change of pipe direction to resist resultant force and so pipe and fitting joints will be accessible for repair.
- C. Install thrust blocks, tie rods, and joint restraint at dead ends of water main.
- D. All concrete thrust blocks shall set for a minimum of 36 hours before any load is applied.

### 3.10 LATERAL CONNECTIONS

- A. Existing water lines
  - 1. Connections shall be made with system pressure on or off as specified by the Town of Nags Head. Existing water lines shall be adequately supported during the tie-in operations and prior to placement of backfill.
    - a. Prior to cutting existing pipe lines, the surface of the existing pipe shall be thoroughly be cleaned by wire brushing and scraping. When a cut-in is made under pressure, the

existing pipe surface shall be washed down with a 4% solution of chlorine prior to installing the tapping valve and a sleeve. All fitting, pipes, valves, etc., used in the connection that cannot be disinfected during normal water line chlorination shall be swabbed out with a 4% solution or stronger solution of chlorine (Roman Cleanser, Clorox, etc.) during assembly. Care shall be exercised in order to prevent contamination of the existing water lines, and failure to comply with this requirement will necessitate chlorination of existing water lines at the developer's expense.

- b. After connection is made, drain sufficient water from the connection to effect removal of the chlorine solution.
- c. The dimensions of existing water lines may not allow use of standard mechanical joint fittings, since these water mains may be pit cast pipe, asbestos-cement pipe and/or classes other than standard.
  - i. When connections are made with system pressure on, a tapping valve and sleeve shall be installed.
  - ii. When connections are made with system pressure off, a solid or cutting-in sleeve shall be installed.

## 2. Service Lines

- a. General: Provide minimum 1 inch service to all lots. Larger services may be required for commercial or multiple housing.
- b. Line and Grade: Service line shall be located on the side property line of each lot and shall be at right angles to street centerline. Minimum depth to top of pipe line shall be 30 inches.
- c. Tapping Water Line: Corporation stop shall be installed 45 degrees above center and provide horizontal loop with service line at top.

Maximum Tap Sizes for varying pipe size (in.)					
Pipe type	4 in. dia.	6 in. dia.	8 in. dia.	10 in. dia.	12-24 in.
Cast Iron CL22	1/2	3/4	1	1-1/4	2
All other types	1	1-1/2	2	2	2

- d. Meter and Box: Shall be provided for each lot and located at the right-of-way line.

### 3.11 BACKFILLING

- A. Backfill in accordance with Section 31 23 33 – Trenching, Backfilling & Compaction for Utility Systems.

### 3.12 DISINFECTION OF POTABLE WATER PIPING SYSTEM

- A. Flush and disinfect system in accordance with Section 33 13 00.

### 3.13 FIELD QUALITY CONTROL

- A. Pressure test system to 150 psi. Repair leaks and re-test:
  - 1. After completion of pipeline installation, including backfill, but prior to final connection to existing system, conduct, in presence of Town Water Department, concurrent hydrostatic pressure and leakage tests in accordance with AWWA C600.

2. Prior to pressure testing of buried piping, backfill shall have been placed and tamped to provide adequate support for all pipe and fittings, and reaction backing shall have been in place at least 3 days.
3. Provide equipment required to perform leakage and hydrostatic pressure tests.
4. Test Pressure: Not less than 150 psi or 50 psi in excess of maximum static pressure, whichever is greater.
5. Conduct hydrostatic test for at least two-hour duration.
6. No pipeline installation will be approved when pressure varies by more than 5 psi at completion of hydrostatic pressure test.
7. Before applying test pressure, completely expel air from section of piping under test. Provide corporation cocks so air can be expelled as pipeline is filled with water. After air has been expelled, close corporation cocks and apply test pressure. At conclusion of tests, remove corporation cocks and plug the resulting piping openings.
8. Slowly bring piping to test pressure and allow system to stabilize prior to conducting leakage test. Do not open or close valves at differential pressures above rated pressure.
9. Examine exposed piping, fittings, valves, hydrants, and joints carefully during hydrostatic pressure test. Repair or replace damage or defective pipe, fittings, valves, hydrants, or joints discovered, following pressure test.
10. No pipeline installation will be approved when leakage is greater than that determined by the following formula:

$L = (SD\sqrt{P})/148,000$
L = allowable, in gallons per hour
S = length of pipe tested, in feet
D = nominal diameter of pipe, in inches
P = average test pressure during leakage test, in pounds per square inch (gauge)

11. When leakage exceeds specified acceptable rate, locate source and make repairs. Repeat test until specified leakage requirements are met
- B. When tests indicate Work does not meet specified requirements, remove Work, replace and retest.

**END OF SECTION 31 11 00**

## SECTION 331300 - DISINFECTION OF WATER UTILITY DISTRIBUTION

### **PART 1 GENERAL**

#### 1.1 SUMMARY

- A. Section Includes:
1. Disinfection of potable water distribution system.
  2. Testing and reporting results.

#### 1.2 MEASUREMENT AND PAYMENT

- A. Disinfection: No payment will be made for disinfection of water distribution piping. Cost of disinfection shall be included in the unit price bid for size and type of pipe material.

#### 1.3 REFERENCES

- A. American Water Works Association:
1. AWWA B303 – Sodium Chlorite.
  2. AWWA C600- Installation of Ductile Iron Water mains and their appurtenances.
  3. AWWA C651- Disinfecting Water Mains
  4. North Carolina Administrative Code Title 15A, Subchapter 18C, Section .1000

#### 1.4 SUBMITTALS

- A. Product Data: Submit procedures, proposed chemicals, and treatment level for review.
- B. Disinfection Report
1. Type and form of disinfection used.
  2. Date and time of disinfectant application start time and completion.
  3. Test location(s)
  4. Name of person collecting samples.
  5. Initial and 24-hour disinfectant residuals in treated water in ppm for each outlet tested.
  6. Date and time of flushing start and completion.
  7. Disinfectant residual after flushing in ppm for each outlet tested.
- C. Bacteriological Report
1. Date issued, project name, and testing laboratory name, address, and telephone number.
  2. Time and date of water sample collection.
  3. Name of persons collecting samples.
  4. Test location(s).
  5. Initial and 24-hour disinfectant residuals in ppm for each outlet tested.
  6. Coliform bacteria test results for each outlet tested.

## 1.5 QUALITY ASSURANCE

- A. Conform to provisions of AWWA C-651 for water line disinfection. Do not use Tablet Method therein.
- B. Conform to provisions of AWWA C-652 for water tank disinfection.
- C. Comply with all requirements of the North Carolina Department of Environmental Quality for disinfection of potable water lines, valves, hydrants, storage tanks, and appurtenances.

## **PART 2 PRODUCTS**

### 2.1 DISINFECTION CHEMICALS

- A. Hypochlorites meeting AWWA B303.
- B. NSF Certified Chlorine Solution.

## **PART 3 EXECUTION**

### 3.1 EXAMINATION AND PREPARATION

- A. Verify piping system has been cleaned. Inspected, and pressure tested.
- B. Perform scheduling and disinfecting activity with start-up, water pressure testing, adjusting and balancing, demonstration procedures, including coordination with related systems.

### 3.2 INSTALLATION

- A. Before being placed into service, and before certification of completion by the Public Works Department, all new water systems, or extensions to existing systems or valved section of such extensions, or any replacement in the existing water system, or any exposed section of the existing system shall be disinfected, according to the requirements of the North Carolina Administrative Code Title 15A, Subchapter 18C, Section .1000.
- B. Disinfection of New Systems:
  - 1. All interior surfaces of new potable water supply systems, including wells, filters, storage tanks and distribution lines shall be thoroughly disinfected by means of hypochlorite or chlorine solutions, after which bacteriological test samples shall be collected.
  - 2. After disinfection the water supply shall not be placed into service until bacteriological test results of representative water samples analyzed in an approved laboratory are found to be satisfactory.
- C. Disinfection of Storage Tanks and Distribution Lines:
  - 1. Water distribution systems, including storage tanks and water mains, after flushing to remove sediment and other foreign matter, and after testing for leaks, shall be disinfected by the addition and thorough dispersion of a chlorine solution in concentrations sufficient to produce a

chlorine residual of at least 50 milligrams per liter (or ppm) in the water throughout the distribution system, including all water mains and storage tanks.

2. The chlorine solution shall remain in contact with interior surfaces of the water system for a period of 24 hours. Then the water system shall be flushed with fresh water from an approved water source until the chlorine solution is dispelled. All piping systems shall be thoroughly flushed by providing a velocity of 2 feet per second in the line being flushed.
  3. Representative samples of the water shall then be collected when residual chlorine concentration is approximately 2 ppm. If bacteriological tests of the samples indicate that the water quality is satisfactory, the water mains and storage tanks may be placed in service.
  4. In unusual situations where large volume tanks are involved and where there is not sufficient water available to fill the tank or there is not available a suitable drainage area for the chlorinated water, an alternate disinfection procedure for tanks may be proposed. Such proposal must be submitted in writing completely describing the proposed disinfection procedure and substantiating the need for an alternate procedure in the particular circumstance. Such alternate procedure must be approved before being implemented. The conclusion of the department shall be final.
- D. At locations where new water lines are to be tied into the existing system, the interior of all new fittings and valves required shall be bathed with a concentrated chlorine solution at the time of installation. Water shall be flushed through the new valve a sufficient time to wash out the chlorine solution before closing the valve and installing additional pipe. The new valve shall remain closed until the new section of pipe to be installed has passed all tests.
- E. The Contractor shall be required to make arrangements for having tests conducted. All expenses incurred in making tests shall be borne by the Contractor and should be included in his bid per linear foot of pipe material
- F. Calcium Hypochlorites: Apply solutions to water mains with a gasoline or electrically powered chemical feed pump designed for feeding chlorine solutions.
1. The contractor shall prepare a 10,000 parts per million (ppm) solution in water and pump at a constant rate into the water line while bleeding off the water at the distal end.
  2. The bleed rate will determine the feed rate of the chlorine to achieve a 50 ppm solution in the water line.
- G. Liquid Chlorine:
1. The contractor shall prepare a 10,000 parts per million (ppm) solution in water and pump at a constant rate into the water line while bleeding off the water at the distal end.
  2. The bleed rate will determine the feed rate of the chlorine to achieve a 50 ppm solution in the water line.
- H. Application (Continuous Feed Method).

1. Connect chlorinator or force pump to water main upstream from point of repair or replacement, or new lines via a corporation cock.
2. Proportion application rate of chlorine solution to obtain a minimum concentration of 50 mg/l of available chlorine. Use high range test kit to determine concentration. See Table 2.

<b>TABLE 2 - QUANTITY OF DISINFECTANT REQUIRED FOR 50 mg/l OF AVAILABLE CHLORINE PER 100 FT. OF PIPE</b>						
<b>PIPE DIAMETER (INCHES)</b>	<b>POUNDS</b>		<b>OUNCES</b>			<b>QUA RTS</b>
	<b>SOLUTION</b>	<b>HYPOCHLORITE</b>				
	<b>70%</b>	<b>70%</b>	<b>14.7%</b>	<b>5.25%</b>	<b>14.7%</b>	<b>5.25%</b>
2	0.1	0.2	0.8	2.1	0.1	0.1
4	0.1	0.6	3.0	8.3	0.1	0.3
6	0.1	1.4	6.7	18.7	0.2	0.6
8	0.2	2.5	11.9	33.2	0.4	1.1
10	0.3	3.9	18.5	51.9	0.6	1.6
12	0.4	5.6	26.7	74.7	0.9	2.4
14	0.5	7.6	36.3	102.0	1.2	3.2
16	0.7	10.1	47.5	133.0	1.5	4.2
18	0.8	12.6	60.0	168.0	1.9	5.3
24	1.4	22.4	107.0	298.0	3.4	9.4

3. In the absence of a meter, determine rate either by placing a pitot gage at discharge or by measuring the time to fill a container of known volume. See Table 3.

<b>TABLE 3 - TIME FOR DISINFECTANT TO FLOW THROUGH 100 FT. OF PIPE - MINUTES</b>			
<b>PIPE DIAMETER (INCHES)</b>	<b>@ 25 GPM</b>	<b>@ 100 GPM</b>	<b>@ 500 GPM</b>
2	0.7	0.2	0.04
4	2.6	0.7	0.13
6	5.9	1.5	0.3
8	10.5	2.6	0.5
10	16.3	4.1	0.8
12	23.5	5.9	1.2
14	32.0	8.0	1.6
16	41.8	10.5	2.1
18	52.9	13.2	2.7
24	94.0	23.5	4.7

4. Continue to apply chlorine solution until it reaches discharge. Check for the presence of chlorine at discharge.
5. Maintain chlorinated water in the main for a minimum of 24 hours.
6. Operate all valves and hydrants to insure their proper disinfection.

7. Prevent back flow of super chlorinated water into existing distribution system.

### 3.3 FIELD QUALITY CONTROL

- A. Final Flushing:
  1. After a 24-hour retention period, flush main until maximum chlorine concentration is 2.0 mg/l.
  2. Discharge super chlorinated water in a manner that will not adversely affect plants and animals. Comply with applicable State regulations for waste discharge.
- B. Bacteriological Tests:
  1. Test water main for bacteriological quality before putting pipe into service. A minimum of two successive sets of samples shall be taken at 24-hour intervals. Both sets of samples shall indicate bacteriological safe water before putting the facility in operation. Pay all expenses incurred for testing.
  2. Tests shall be conducted by a laboratory approved by the state of North Carolina Department of Environmental Quality.
- C. Give all test results to Town of Nags Head Project Representative.
  1. Should test results prove any part of the system bacteriologically unsafe, repeat disinfection procedures until satisfactory results are obtained.

**END OF SECTION 33 13 00**

## **SECTION 33 40 00 - STORM DRAINAGE UTILITIES**

### **PART 1 - GENERAL**

#### **1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including the General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

#### **1.2 SUMMARY**

- A. This Section includes site drainage systems outside the building. Systems include the following:
  - 1. Storm drainage.
  - 2. Pipes and Fittings.
  - 3. Manholes
  - 4. Stormwater Structures
  - 5. Pipe Outlets.
- B. Related Sections: The following Sections contain requirements that relate to this Section.
  - 1. Division 31 Section "Earth Moving."
  - 2. Division 31 Section "Erosion Controls."
  - ~~3. Division 03 Section "Cast In Place Concrete."~~
  - ~~4. Division 22 Sections for storm drainage inside the building.~~

#### **1.3 DEFINITIONS**

- A. Drainage Piping: System of pipe, fittings, and appurtenances for gravity flow of storm drainage.

#### **1.4 SUBMITTALS**

- A. General: Submit each item in this Article according to the Conditions of the Contract and Division 01 Specification Sections.
- B. Product Data: For each type of product indicated
- C. Shop Drawings:
  - a. Manholes: Include plans, elevations, sections, details, frames, and covers
  - b. Stormwater Structures: Include plans, elevations, sections, details, frames, and grates
- D. Record drawings at Project closeout of installed drainage system piping and basins and all stormwater management devices (ponds, wetlands, bio-retention areas). Plan mark-up drawings shall be submitted to the Owner and shall include the following:
  - 1. All basin locations with no less than two primary reference dimensions from permanent above grade features.
  - 2. As-built rims and inverts noted.
  - 3. Pipe materials and sizes, plus slopes and distances between structures.
  - 4. As-built dimensions for installed riprap dissipater pads.
  - ~~5. Topography of embankments and interiors of drained stormwater management ponds, wetlands and bio-retention cells. Topography shall include all survey point elevations.~~
  - ~~6. Detailed as-built dimensions and elevations of stormwater management device outlet structures, weirs, orifices, and outlet pipes.~~
  - ~~7. Stormwater treatment devices and cistern locations and elevations.~~

## 1.5 QUALITY ASSURANCE

- A. Environmental Agency Compliance: Comply with regulations pertaining to storm drainage systems.
- B. Utility Compliance: Comply with regulations pertaining to storm drainage systems.
- C. Product Options: Drawings indicate sizes, profiles, connections, and dimensional requirements of system components and are based on specific manufacturer types indicated. Other manufacturers' products with equal performance characteristics may be considered.

## 1.6 DELIVERY, STORAGE, AND HANDLING

- A. Do not store plastic structures in direct sunlight.
- B. Do not store plastic pipe or fittings in direct sunlight.
- D. Protect pipe, pipe fittings, and seals from dirt and damage.
- E. Handle stormwater structures according to manufacturer's written rigging instructions

## 1.7 PROJECT CONDITIONS

- A. Site Information: Perform site survey, research public utility records, and verify existing utility locations.
- B. Locate existing structures and piping to be closed and abandoned.
- C. Existing Utilities: Do not interrupt existing utilities serving facilities occupied by the Owner or others except when permitted under the following conditions and then only after arranging to provide acceptable temporary utility services.
  - 1. Notify Engineer not less than 48 hours in advance of proposed utility interruptions.
  - 2. Do not proceed with utility interruptions without receiving Engineer's written permission.

## 1.8 SEQUENCING AND SCHEDULING

- A. Coordinate storm drainage system connections to utility company's storm sewer.
- B. Coordinate storm drainage system connections to existing on-site storm sewer.
- C. Coordinate with other utility work.

## PART 2 - PRODUCTS

### 2.1 PIPES AND FITTINGS

- A. General: Refer to plans for specific pipe material applications.
- B. Ductile-Iron Pipe: ANSI/AWWA C150/A21.50 and C151/A21.51, minimum pressure class 250.
  - 1. Lining: AWWA C104, cement mortar, coal tar epoxy lined.
  - 2. Gaskets, Glands, and Bolts and Nuts: AWWA C111.
  - 3. Push-On-Joint-Type Pipe: AWWA C111, rubber gaskets.
  - 4. Coating: AWWA C151, bituminous coating.
- C. Polyvinyl Chloride (PVC) Sewer Pipe and Fittings: ASTM D-1785, SCH 40 PVC for solvent-cemented or gasketed joints.

1. Primer: ASTM F 656.
2. Solvent Cement: ASTM D 2564.
3. Gaskets: ASTM F 477, elastomeric seal.

D. Reinforced-Concrete Sewer Pipe and Flared End Sections: ASTM C 76, Class III.

1. Standard Joints: Mortar or plastic cement putty seal meeting Federal Specification SS-S-00210.
2. Watertight Joints: O-ring rubber gasket meeting ASTM C-443. Watertight joints shall be provided at outlet pipes that penetrate pond embankments and other locations specified on the drawings.

E. High Density Polyethylene (HDPE) Pipe and High-performance Polypropylene (PP) and Fittings and Flared End Sections: AASHTO M252, M330, M294, MP6, or MP7. Smooth interior and corrugated exterior. All sizes shall conform to the AASHTO classification Type S or D. N-12 or N-12HP by ADS, N-12 HP by Hancor, Inc., Eagle Green PE by JM Eagle, or approved equal.

1. Standard Joints: Silt-tight, rubber gasket, ASTM F477, bell and spigot.
2. Watertight Joints: Watertight per ASTM D3212, AASHTO M294, MP6 or MP7, bell and spigot, rubber gasket, ASTM F477.
3. Fittings: AASHTO M252, M294, MP6 or MP7, welded on the interior and exterior at all junctions. Only fittings supplied or recommended by the pipe manufacturer shall be used.

## 2.2 DRAINAGE INLETS

A. Catch Basins, Junction Boxes and Drop Inlets: Brick and mortar, of depth, shape, and dimensions indicated. Precast concrete basins may be used in lieu of brick upon approval by the Engineer. All structures shall be designed to withstand AASHTO H-20 loads.

1. Base, Channel, and Bench: Concrete.
2. Wall: ASTM C 32, Grade MS, clay brick masonry units.
  - a. Option: ASTM C 55, Grade S-II, solid concrete brick masonry units may be used instead of clay brick.
3. Mortar: ASTM C 270, Type S, using ASTM C 150, Type I, portland cement.
4. Grout for Pond/Wetland/BMP Installations: ASTM C1107, non-shrink, hydraulic cement grout.

B. Standard Precast Concrete Stormwater Structures:

1. Description: ASTM C 478 (ASTM C 478M), precast, reinforced concrete, of depth indicated, with provision for sealant joints.
2. Base Section: 6-inch (150-mm) minimum thickness for floor slab and 4-inch (102-mm) minimum thickness for walls and base riser section, and separate base slab or base section with integral floor.
3. Riser Sections: 4-inch (102-mm) minimum thickness, 48-inch (1200-mm) diameter, and lengths to provide depth indicated.
4. Top Section: Eccentric-cone type unless concentric-cone or flat-slab-top type is indicated. Top of cone of size that matches grade rings.
5. Joint Sealant: ASTM C 990 (ASTM C 990M), bitumen or butyl rubber.
6. Adjusting Rings: Interlocking rings with level or sloped edge in thickness and shape matching catch basin frame and grate. Include sealant recommended by ring manufacturer.
7. Grade Rings: Include two or three reinforced-concrete rings, of 6- to 9-inch (150- to 225-mm) total thickness, that match 24-inch- (610-mm-) diameter frame and grate.
8. Steps: ASTM A 615/A 615M, deformed, 1/2-inch (13-mm) steel reinforcing rods encased in ASTM D 4101, PP, wide enough to allow worker to place both feet on one step and designed

to prevent lateral slippage off step. Cast or anchor steps into sidewalls at 12- to 16-inch (300- to 400-mm) intervals. Omit steps if total depth from floor of catch basin to finished grade is less than 60 inches (1500 mm).

- C. Frames and Grates: ASTM A48, Class 35B, cast iron, H-20 loading. Include flat grate with small square or short-slotted drainage openings as indicated on the drawings. Provide grate with openings compliant with ADA standards when located within sidewalk or other pedestrian walking areas or where specifically indicated on drawings.
- D. Area Drains or Planter Drains: 15-inch square top drain designed to be attached with a watertight connection to vertical HDPE or PVC pipe, ductile iron slotted surface grate, watertight pipe adapters. Grates shall be pedestrian-type where set in pavement or sidewalk. Grates shall be dome-type where set in mulched areas.

### 2.3 MANHOLES

- A. Precast Concrete Storm Drainage Manholes: ASTM C-478 precast reinforced concrete, eccentric cone. All structures shall be designed to withstand AASHTO H-20 loads.

1. Description: ASTM C 478 (ASTM C 478M), precast, reinforced concrete, of depth indicated, with provision for sealant joints.
2. Diameter: 48 inches (1200 mm) minimum unless otherwise indicated.
3. Ballast: Increase thickness of precast concrete sections or add concrete to base section as required to prevent flotation.
4. Base Section: 6-inch (150-mm) minimum thickness for floor slab and 4-inch (102-mm) minimum thickness for walls and base riser section, and separate base slab or base section with integral floor.
5. Riser Sections: 4-inch (102-mm) minimum thickness, and lengths to provide depth indicated.
6. Top Section: Eccentric-cone type unless concentric-cone or flat-slab-top type is indicated, and top of cone of size that matches grade rings.
7. Joint Sealant: ASTM C 990 (ASTM C 990M), bitumen or butyl rubber.
8. Resilient Pipe Connectors: ASTM C 923 (ASTM C 923M), cast or fitted into manhole walls, for each pipe connection.
9. Steps: ASTM A 615/A 615M, deformed, 1/2-inch (13-mm) steel reinforcing rods encased in ASTM D 4101, PP, wide enough to allow worker to place both feet on one step and designed to prevent lateral slippage off step. Cast or anchor steps into sidewalls at 12- to 16-inch (300- to 400-mm) intervals. Omit steps if total depth from floor of manhole to finished grade is less than 60 inches (1500 mm).
10. Adjusting Rings: Interlocking HDPE rings with level or sloped edge in thickness and diameter matching manhole frame and cover, and of height required to adjust manhole frame and cover to indicated elevation and slope. Include sealant recommended by ring manufacturer.
11. Grade Rings: Reinforced-concrete rings, 6- to 9-inch (150- to 225-mm) total thickness, to match diameter of manhole frame and cover, and height as required to adjust manhole frame and cover to indicated elevation and slope.

- B. Manhole Frames and Covers:

1. Description: Ferrous; 24-inch (610-mm) ID by 7- to 9-inch (175- to 225-mm) riser with 4-inch- (102-mm-) minimum width flange and 26-inch- (660-mm-) diameter cover. Include

indented top design with lettering cast into cover, using wording equivalent to "STORM SEWER."

2. Material: ASTM A 48/A 48M, Class 35 gray iron unless otherwise indicated.

### PART 3 - EXECUTION

#### 3.1 EARTHWORK

- A. Excavating, trenching, and backfilling are specified in Division 31, Section "Earth Moving." be in accordance with NCDOT Standard Specifications, for the respective type of pipe used

#### 3.2 SPECIAL PIPE COUPLING AND FITTING APPLICATIONS

- A. Special Pipe Couplings: Use where indicated and where required to join piping and no other appropriate method is specified. Do not use instead of specified joining methods.

#### 3.3 INSTALLATION, GENERAL

- A. General Locations and Arrangements: Drawings (plans and details) indicate the general location and arrangement of underground drainage systems piping. Location and arrangement of piping layout take into account many design considerations. Install piping as indicated, to extent practical.
- B. Install piping beginning at low point of systems, true to grades and alignment indicated with unbroken continuity of invert. Place bell ends of piping facing upstream. Install gaskets, seals, sleeves, and couplings according to manufacturer's recommendations for use of lubricants, cements, and other installation requirements. Maintain swab or drag in line and pull past each joint as it is completed.
- C. Use proper size increasers, reducers, and couplings, where different sizes or materials of pipes and fittings are connected. Reduction of the size of piping in the direction of flow is prohibited.
- D. Install gravity-flow, nonpressure drainage piping according to NCDOT Specifications.
- E. Install drainage piping pitched down in direction of flow, at minimum slope of 0.1 percent and 12-inch minimum cover, except where otherwise indicated.
- F. Polyvinyl Chloride (PVC) Plastic Pipe and Fittings: As follows:
  1. Join solvent-cement-joint pipe and fittings with solvent cement according to ASTM D 2855 and ASTM F 402.
  2. Join pipe and gasketed fittings with elastomeric seals according to ASTM D 2321.
  3. Join profile sewer pipe and ribbed drain pipe and gasketed fittings with elastomeric seals according to ASTM D 2321 and manufacturer's written instruction.
  4. Install according to ASTM D 2321.
- G. Install HDPE/PP pipe in accordance with ASTM D2321 and ADS recommended installation guides with the exception that minimum cover in trafficked areas shall be 12-inches.
  1. Slightly scarify and grade the trench base to provide a uniform trench bottom. Before installing pipe, bring bedding material or trench bottom to grade along the entire length of the pipe. For 42" pipe and larger, shallow bell holes shall be provided.
  2. Trench width shall be wide enough to accommodate compaction equipment. Refer the manufacturer's recommendations. Pipe backfill to springline shall be compacted to 95% Standard Proctor density regardless of pipe location.
  3. Excessive groundwater necessitates dewatering. Pipe will float in standing water, requiring immediate haunching and initial backfill to hold line and grade.

4. Join pipe per manufacturer's instructions. The exposed end of the drain shall be covered with fabric and approximately 12-in of Class A riprap to protect the outfall from damage.

H. Join piping made of different materials or dimensions with couplings made for this application. Use couplings that are compatible with and fit both systems' materials and dimensions.

### 3.4 CATCH BASIN/DROP INLET/JUNCTION BOX INSTALLATION

A. Construct catch basins to sizes and shapes indicated.

B. Set frames and grates to elevations indicated.

C. Install catch basins, junction boxes and drop inlets in accordance with NCDOT Standard Specifications, latest edition

### 3.5 MANHOLE INSTALLATION

A. Install Manholes in accordance with NCDOT Standard Specifications, latest edition.

### 3.6 CLOSING ABANDONED STORM DRAINAGE SYSTEMS

A. Abandoned Piping: Close open ends of abandoned underground piping that is indicated to remain in place. Include closures strong enough to withstand hydrostatic and earth pressures that may result after ends of abandoned piping have been closed. Use either of the following procedures:

1. Close open ends of piping with at least 8-inch-thick brick masonry bulkheads.
2. Close open ends of piping with threaded metal caps, plastic plugs, or other acceptable methods suitable for size and type of material being closed. Do not use wood plugs.

B. Abandoned Structures: Excavate around structure as required and use either of the following procedures:

1. Remove structure and close open ends of remaining piping.
2. Backfill to grade according to Division 31, Section "Earth Moving."

### 3.7 FIELD QUALITY CONTROL

A. Clear interior of piping and structures of dirt and superfluous material as the work progresses. Maintain swab or drag in piping and pull past each joint as it is completed.

1. In large, accessible piping, brushes and brooms may be used for cleaning.
2. Place plug in end of incomplete piping at end of day and whenever work stops.
3. Clean interior of piping of dirt and superfluous materials. Flush with water
4. Flush piping between manholes and other structures, if required by authorities having jurisdiction, to remove collected debris.

B. Inspect interior of piping to determine whether line displacement or other damage has occurred. Inspect after approximately 24 inches of backfill is in place, and again at completion of the Project.

1. Submit separate reports for each system inspection.
2. Defects requiring correction include the following:
  - a. Alignment: Less than full diameter of inside of pipe is visual between structures.
  - b. Deflection: Flexible piping with deflection that prevents passage of a ball or cylinder of a size not less than 92.5 percent of piping diameter.
  - c. Crushed, broken, cracked, or otherwise damaged piping.
  - d. Infiltration: Water leakage into piping.

- e.     Exfiltration: Water leakage from or around piping.
  - 3.     Replace defective piping using new materials and repeat inspections until defects are within allowances specified.
  - 4.     Reinspect and repeat procedure until results are satisfactory.
- C.     All HDPE/PP pipe and fittings 12-inch in diameter and greater shall be inspected by the pipe supplier/manufacturer following delivery to the construction site for damage caused during transit. Damaged or defective materials shall be removed from the site. A record of this inspection(s) shall be submitted to the Engineer. Contractor shall supply documentation of experience in the installation of HDPE/PP storm drainage pipe or shall provide for installation supervision by the supplier/manufacturer.
- D.     Test new piping systems and parts of existing systems that have been altered, extended, or repaired for leaks and defects.
- 1.     Do not enclose, cover, or put into service before inspection and approval.
  - 2.     Test completed piping systems according to authorities having jurisdiction.
  - 3.     Schedule tests, and their inspections by authorities having jurisdiction, with at least 24 hours' advance notice.
  - 4.     Submit separate reports for each test.

END OF SECTION 334000



## **Town of Nags Head**

Post Office Box 99  
Nags Head, North Carolina 27959  
Telephone (252) 441-5508  
Fax (252) 441-0776  
[www.nagsheadnc.gov](http://www.nagsheadnc.gov)

### **BID FORM**

**FY 24-25 Capital Improvement Project**

**Street Resurfacing**

**Water Main Improvements**

**Drainage Improvements**

**ARTICLE 1 – BID RECIPIENT**

1.01 This Bid is submitted to:

**TOWN OF NAGS HEAD  
c/o ANDY GARMAN, TOWN MANAGER  
5401 S. CROATAN HWY.  
NAGS HEAD, NORTH CAROLINA**

1.02 The undersigned Bidder proposes and agrees, if this Bid is accepted, to enter into an Agreement with Owner in the form included in the Bidding Documents to perform all Work as specified or indicated in the Bidding Documents for the prices and within the times indicated in this Bid and in accordance with the other terms and conditions of the Bidding Documents.

**ARTICLE 2 – BIDDER’S ACKNOWLEDGEMENTS**

2.01 Bidder accepts all of the terms and conditions of the Instructions to Bidders, including without limitation those dealing with the disposition of Bid security. This Bid will remain subject to acceptance for **60** days after the Bid opening, or for such longer period of time that Bidder may agree to in writing upon request of Owner.

**ARTICLE 3 – BIDDER’S REPRESENTATIONS**

3.01 In submitting this Bid, Bidder represents that:

A. Bidder has examined and carefully studied the Bidding Documents, and any data and reference items identified in the Bidding Documents, and hereby acknowledges receipt of the following Addenda:

<u>Addendum No.</u>	<u>Addendum, Date</u>
_____	_____
_____	_____
_____	_____
_____	_____

B. Bidder has visited the Site, conducted a thorough, alert visual examination of the Site and adjacent areas, and become familiar with and satisfied itself as to the general, local, and Site conditions that may affect cost, progress, and performance of the Work.

C. Bidder is familiar with and has satisfied itself as to all Laws and Regulations that may affect cost, progress, and performance of the Work.

D. Bidder has carefully studied all: (1) reports of explorations and tests of subsurface conditions at or adjacent to the Site and all drawings of physical conditions relating to existing surface or subsurface structures at the Site that have been identified in the Supplementary Conditions, especially with respect to Technical Data in such reports and drawings, and (2) reports and drawings relating to Hazardous Environmental Conditions, if any, at or adjacent to the Site that have been identified in the Supplementary Conditions, especially with respect to Technical Data in such reports and drawings.

- E. Bidder has considered the information known to Bidder itself; information commonly known to contractors doing business in the locality of the Site; information and observations obtained from visits to the Site; the Bidding Documents; and any Site-related reports and drawings identified in the Bidding Documents, with respect to the effect of such information, observations, and documents on (1) the cost, progress, and performance of the Work; (2) the means, methods, techniques, sequences, and procedures of construction to be employed by Bidder; and (3) Bidder's safety precautions and programs.
- F. Bidder agrees, based on the information and observations referred to in the preceding paragraph, that no further examinations, investigations, explorations, tests, studies, or data are necessary for the determination of this Bid for performance of the Work at the price bid and within the times required, and in accordance with the other terms and conditions of the Bidding Documents.
- G. Bidder is aware of the general nature of work to be performed by Owner and others at the Site that relates to the Work as indicated in the Bidding Documents.
- H. Bidder has given Engineer written notice of all conflicts, errors, ambiguities, or discrepancies that Bidder has discovered in the Bidding Documents, and confirms that the written resolution thereof by Engineer is acceptable to Bidder.
- I. The Bidding Documents are generally sufficient to indicate and convey understanding of all terms and conditions for the performance and furnishing of the Work.
- J. The submission of this Bid constitutes an incontrovertible representation by Bidder that Bidder has complied with every requirement of this Article, and that without exception the Bid and all prices in the Bid are premised upon performing and furnishing the Work required by the Bidding Documents.

#### **ARTICLE 4 – BIDDER'S CERTIFICATION**

4.01 Bidder certifies that:

- A. This Bid is genuine and not made in the interest of or on behalf of any undisclosed individual or entity and is not submitted in conformity with any collusive agreement or rules of any group, association, organization, or corporation;
- B. Bidder has not directly or indirectly induced or solicited any other Bidder to submit a false or sham Bid;
- C. Bidder has not solicited or induced any individual or entity to refrain from bidding; and
- D. Bidder has not engaged in corrupt, fraudulent, collusive, or coercive practices in competing for the Contract. For the purposes of this Paragraph 4.01.D:
  - 1. "corrupt practice" means the offering, giving, receiving, or soliciting of any thing of value likely to influence the action of a public official in the bidding process;
  - 2. "fraudulent practice" means an intentional misrepresentation of facts made (a) to influence the bidding process to the detriment of Owner, (b) to establish bid prices at artificial non-competitive levels, or (c) to deprive Owner of the benefits of free and open competition;

3. "collusive practice" means a scheme or arrangement between two or more Bidders, with or without the knowledge of Owner, a purpose of which is to establish bid prices at artificial, non-competitive levels; and
4. "coercive practice" means harming or threatening to harm, directly or indirectly, persons or their property to influence their participation in the bidding process or affect the execution of the Contract.

#### **ARTICLE 5 – BASIS OF BID**

- 5.01 This project shall be bid, contracted, and paid on a Lump Sum Basis for each project, except as otherwise provided below. The Bid Tabulation Form provided as part of these Contract Documents provides for the following;
- A. A space for the bidder to indicate his Lump Sum Price for the Base Bid in numeric and written form, which shall comprise all the work except for any item(s) which may be expressly listed as an Additive Alternate or Deductive Alternate thereon.
  - B. Space for the bidder to indicate his separate Lump Sum Price for any Additive Alternate(s), which shall be full compensation for the described item(s) of work which the Owner, at his sole discretion, may elect to ADD TO the Base Bid work.
  - C. Space for the bidder to indicate his separate Lump Sum Price for any Deductive Alternate(s), which shall be full value for the described item(s) of work which the Owner, at his sole discretion, may elect to DEDUCT FROM the Base Bid work.
  - D. Space for the bidder to indicate a separate Unit Price for any item(s) of work for which the precise quantity of same cannot be accurately determined in advance, and which the Owner desires to measure and pay for on a unit price basis. A change order shall be initiated, based on the estimated quantities of such work, and a purchase order issued, before any such work is begun. Unit price information shall be utilized to divide portions of the work that will be applied to grant funds received for the project. Note: Bidders shall not consider this as a comprehensive Unit Price item listing and should rely on the plans and specifications to determine quantities in the calculation of the Lump Sum Price.
  - E. Only those spaces provided for entry of the Base Bid, Additive and/or Deductive Alternates (if any), and the Schedule of Values are to be filled in. Bidders may not add in conditions, provisions, or items of their own; doing so will result in disqualification of the bidder.
- 5.02 Owner reserves the right to reject any or all Bids, including without limitation the rights to reject any or all nonconforming, nonresponsive, unbalanced, or conditional Bids, and to reject the Bid of any Bidder if Owner believes that it would not be in the best interest of Owner to make an award to that Bidder. For comparison purposes alternates will be accepted, following the order of priority established in the Bid Form, until doing so would cause the budget to be exceeded. After determination of the Successful Bidder based on this comparative process and on the responsiveness, responsibility, and other factors, the award may be made to said Successful Bidder on its Base Bid and any combination of its additive alternate Bids for which Owner determines funds will be available at the time of award and in the interest of the Town of Nags Head.

A. The lump sum Base Bid scope of work shall consist of all the necessary labor, materials and equipment necessary for the construction of the following:

1. **Street Resurfacing**

- a. General Base Bid Items: Includes mobilization, bonds, traffic control measures and select fill.
- b. **S. Memorial Ave:** consists of paving of approximately 147,951 square feet of asphalt surface overlay including S. Memorial Ave. between intersection with Bittern Street and intersection of E. 8<sup>th</sup> St. Paving thickness will be 1.75", a minimum 4' wide asphalt edge milling for concrete driveway transitions and a minimum 12' wide asphalt milling for street intersection pavement transitions.
- c. **E. Albatross St.:** consists of paving of approximately 14,553 square feet of asphalt surface overlay along E. Albatross St. spanning from Wrightsville Ave to S. Virginia Dare Trail and includes E. Albatross Beach Access. Paving thickness will be 1.75" thickness until S. Memorial Ave, and 1" from S. Memorial Ave to end of beach access, a minimum 4' wide asphalt edge milling for concrete driveway transitions and a minimum 12' wide asphalt milling for street intersection pavement transitions.
- d. **E. Atlas St.:** consists of paving of approximately 7,137 square feet of asphalt surface overlay along Atlas St. spanning from Wrightsville Ave to S. Memorial Ave. Paving thickness will be 1.75" thickness, a minimum 4' wide asphalt edge milling for concrete driveway transitions and a minimum 12' wide asphalt milling for street intersection pavement transitions.
- e. **E. Driftwood St:** consists of paving of approximately 22,905 square feet of asphalt surface overlay along Driftwood St from S. Croatan Hwy. to S. Virginia Dare Trail. Paving thickness will be 1.75" thickness, a minimum 4' wide asphalt edge milling for concrete driveway transitions and a minimum 12' wide asphalt milling for street intersection pavement transitions.
- f. **E. Abalone St.:** consists of paving of approximately 14,958 square feet of asphalt surface overlay including E Abalone St. between Wrightsville Ave. and S Virginia Dare Trail and includes the E. Abalone St. beach access. Paving thickness will be 1.75", a minimum 4' wide asphalt edge milling for concrete driveway transitions and a minimum 12' wide asphalt milling for street intersection pavement transitions.
- g. **S. Gannett Ave.:** consists of paving of approximately 13,268 square feet of asphalt surface overlay along S. Gannett Ave. spanning from the intersection of S. Gannett Ave and W. 8<sup>th</sup> St. to the southern terminus of S. Gannett Ave. Paving thickness will be 1.75" thickness, a minimum 4' wide asphalt edge milling for concrete driveway transitions and a minimum 12' wide asphalt milling for street intersection pavement transitions.
- h. A supplemental table is provided for alternate bid items which may be added to the scope of work if funds are available. Alternate items are separate and apart from the lump sum price to be provided.
- i. A single asterisk has been placed adjacent to the Liquid Asphalt for Plant Mix Bid Item. The asterisk denotes the quantities have been calculated based upon 0.065

for S9.5B asphalt and 0.070 for S-4.75A asphalt. The bidder shall submit a price for this bid item for the actual cost at time of bid. Adjustments may be considered in accordance with Division 1-Summary 3.4 Special Provision.

## 2. Water Main Improvements

- a. General Base Bid Items: Includes mobilization, bonds, traffic control measures and select fill.
- b. **S. Memorial Ave. 6-inch water main:** consists of approximately 837 linear feet of water main construction along the west side of South Memorial Avenue from north of the intersection of S. Memorial Avenue and Ario Street and continuing to south of the intersection of South Memorial Ave. and Atlas St., Nags Head, North Carolina. Construction consists of installation of a 6-inch water main to be connected to existing water main near the intersection with S. Memorial Ave. and Atlas St. with all appurtenances including but not limited to: valves, fire hydrants, hydrant relocations, tapping sleeves, bends, tees, crosses, elbows, service connections, fittings, supports and restraints. Water main shall achieve separations and setbacks as required by local and state minimum design criteria and as indicated on the plans. Approximately 1,435 square feet of permanent pavement patch will accompany this work.
- c. **Ario St. 6-inch water main:** consists of approximately 373 linear feet of water main construction along the north side of Ario Street beginning north of the intersection of S. Wrightsville Ave. and Ario St. and continuing to north of the intersection of Ario St. and S. Memorial Ave., Nags Head, North Carolina. Construction consists of installation of a 6-inch water main to be connected to the new water main along S. Memorial Ave. with all appurtenances including but not limited to: valves, fire hydrants, hydrant relocations, tapping sleeves, bends, tees, crosses, elbows, service connections, fittings, supports and restraints. Water main shall achieve separations and setbacks as required by local and state minimum design criteria and as indicated on the plans. Approximately 535 square feet of permanent pavement patch will accompany this work.
- d. **Albatross St. 6-inch water main:** consists of approximately 730 linear feet water main construction along the north side of Albatross St. beginning north of the intersection of Albatross St. and S. Wrightsville Ave. and continuing east to the north side of the intersection of Albatross St. and S. Virginia Dare Trail. Construction consists of installation of a 6-inch water main to be connected to existing water main near the intersection of Albatross St. and S. Virginia Dare Trail with all appurtenances including but not limited to: valves, fire hydrants, hydrant relocations, tapping sleeves, bends, tees, crosses, elbows, service connections, fittings, supports and restraints. Water main shall achieve separations and setbacks as required by local and state minimum design criteria and as indicated on the plans. Approximately 740 square feet of permanent pavement patch will accompany this work.
- e. **Atlas Street 6-inch water main:** consists of approximately 327 linear feet of water main construction along the south side of Atlas Street beginning south of the intersection Atlas Street and South Wrightsville Avenue and continuing east to the intersection of Atlas Street and South Memorial Avenue. Construction consists of installation of a 6-inch water main to be connected to the new water main near the intersection of Atlas Street and South Memorial Avenue with all appurtenances

including but not limited to: valves, fire hydrants, hydrant relocations, tapping sleeves, bends, tees, crosses, elbows, service connections, fittings, supports and restraints. Water main shall achieve separations and setbacks as required by local and state minimum design criteria and as indicated on the plans.

### 3. Drainage Improvements

- a. **S. Memorial Ave. at Albatross St.:** consists of drainage infrastructure removal and replacement at the intersection of S. Memorial Ave. and Albatross St. including approximately 56 linear feet of new 30" HPPP pipe. The scope of work consists of one new drop inlet (NCDOT 840.14) with frame and grate (NCDOT 840.16) and (2) pipe connections. Includes removing/demolition of existing 18" RCP, 24" RECP and CMP storms pipe and replacing with new infrastructure as described. Approximately 200 square feet permanent pavement patch will accompany this work. New infrastructure includes all appurtenances and fittings to achieve watertight connections, and all compacted pipe bedding and backfill with clean backfill material for stable pipe installation.
- b. **S. Memorial Ave. at Atlas St.:** consists of drainage infrastructure removal and replacement at the intersection of S. Memorial Ave. and Atlas Street including approximately 46 linear feet of new 18" HPPP pipe. The scope of work consists of one new drop inlet (NCDOT 840.14) with frame and grate (NCDOT 840.16) with one pipe connection. Includes removal/demolition of existing 15" CMP and replacing with new infrastructure as described. Approximately 265 square feet of permanent pavement patch will accompany this work. New infrastructure includes all appurtenances and fittings to achieve watertight connections, and all compacted pipe bedding and backfill with clean backfill material for stable pipe installation.
- c. **S. Memorial Ave. at Driftwood St.:** consists of drainage infrastructure removal and replacement at the intersection of S. Memorial Ave. and Driftwood St including approximately 70 linear feet of new 18" HPPP with drop inlets (NCDOT 840.14) with frame and grate (NCDOT 840.16), and approximately 104 linear feet of new 30" HPPP with drop inlets and 5' stub out, includes a total of (5) new drop inlets with (8) connections. Includes removal/demolition of existing 15" CMP and 24" CMP and replacing with new infrastructure, and connecting to existing piping, as described. Approximately 800 square feet of permanent pavement patch will accompany this work. New infrastructure includes all appurtenances and fittings to achieve watertight connections, and all compacted pipe bedding and backfill with clean backfill material for stable pipe installation.
- d. **S. Memorial Ave. at E. Gallery Row: St.:** consists of drainage infrastructure removal and replacement at the intersection of S. Memorial Ave at E. Gallery Row including approximately 147 linear feet of new 30" HPPP pipe, and approximately 38 linear feet of 18" HPPP, with drop inlets (NCDOT 840.14) with frame and grate (840.16) and one Storm Manhole (NCDO T840.31) with frame and grate (NCDOT 840.54) Includes a total of (4) drop inlets, with 7 connections, and 1 Storm Manhole Junction Box, with 2 connections. Includes removal/demolition of existing 18" CMP. Approximately 860 square feet of pavement patch will accompany this work. New infrastructure includes all appurtenances and fittings to achieve watertight connections, and all compacted pipe bedding and backfill with clean backfill material for stable pipe.

- e. **S. Memorial Ave. at Abalone St.:** consists of drainage infrastructure removal and replacement at the intersection of S. Memorial Ave at Abalone St. including approximately 39 linear feet of new 24" HPPP pipe with drop inlet (NCDOT 840.14) with frame and grate (NCDOT 840.16) and a flared end section. Includes removal/demolition of existing 18" CMP. Approximately 250 square feet of permanent pavement patch will accompany this work. New infrastructure includes all appurtenances and fittings to achieve watertight connections, and all compacted pipe bedding and backfill with clean backfill material for stable pipe installation.
- f. **S. Wrightsville Ave. at Albatross St.:** consists of drainage infrastructure installation including approximately 40 linear feet of new 15" HPPP cross culvert under Albatross Street to be connected to existing infrastructure including 2 new drop inlets (NCDOT 840.14) with frame and grate (840.16). each with one connection. Approximately 220 square feet of permanent pavement patch will accompany this work. New infrastructure includes all appurtenances and fittings to achieve watertight connections, and all compacted pipe bedding and backfill with clean backfill material for stable pipe installation. Also includes construction of approximately 263 linear feet of new drainage swales, approximately 1' deep with 4:1 side slopes.
- g. **S. Memorial Ave. at E. Bonnett St.:** consists of drainage infrastructure removal and replacement at the intersection of S. Memorial Ave at E. Bonnett St including approximately 64 linear feet of new 24" HPPP pipe and approximately 130 linear feet of new 24" HPPP continuing south along S. Memorial Ave. New pipe to connect to existing drop inlets/junction box as shown on the plans. Includes removal/demolition of existing 24" CMP. Approximately 264 square feet of permanent pavement repair will accompany this work. New infrastructure includes all appurtenances and fittings to achieve watertight connections.
- h. **S. Memorial Ave. at Bittern St.:** consists of drainage infrastructure removal and replacement at the intersection of S. Memorial Ave at Bittern St. including approximately 124 linear feet of new 30" HPPP pipe with drop inlets (NCDOT 840.14) with grate and frame (NCDOT 840.16) and a flared end section, and approximately 82 linear feet of new 18" HPPP with drop inlets with frame and grate for a total of (4) new drop inlets with (8) total connections. Includes removal/demolition of existing 15 and 18" CMP. Approximately 1,175 square feet of permanent pavement repair will accompany this work. New infrastructure includes all appurtenances and fittings to achieve watertight connections, and all compacted pipe bedding and backfill with clean backfill material for stable pipe installation.
- i. **ADD ALTERNATE: E. Gallery Row Resurfacing and Drainage Improvements:** consists of paving of approximately 13,962 square feet of asphalt surface overlay along S. Gallery Row spanning from the intersection of Gallery Row and S. Wrightsville Ave. to the intersection of S. Gallery Row and S. Virginia Dare Trail. Paving thickness will be 1.75" thickness, a minimum 4' wide asphalt edge milling for concrete driveway transitions and a minimum 12' wide asphalt milling for street intersection pavement transitions.

Additionally, this **add alternate** consists of installation of approximately 468 linear feet of new 30" dia. HPPP, 33 linear feet of new 18" dia. HPPP and 44 l.f. of 22"x36" corrugated aluminum arch pipe to replace an existing cross street pipe along S

Wrightsville Ave. The scope of work will include the addition of one new concrete junction box (NCDOT 840.31) with manhole frame & cover with (3) pipe connections and the replacement of an existing junction box with a new concrete junction box (NCDOT 840.31) with NCDOT 840.54 frame and grate and (4) connecting pipe connections. Approximately 400 square feet of permanent pavement patch will accompany this work. The alignment is proposed along the southern right-of-way margin of Gallery Row between S. Memorial Ave and S Wrightsville Ave and S. Wrightsville Ave. from the Gallery Row intersection to approximately 2407 S. Wrightsville Ave. New and replacement infrastructure shall include all appurtenances and fittings to achieve watertight connection, and all compacted pipe bedding and clean backfill material for a stable pipe installation.

- j. **ADD ALTERNATE: S. Memorial Ave. South of Bonnet St.** consists of drainage infrastructure installation along S. Memorial Ave. south of Bonnett St. including approximately 130 linear feet of new 24” HPPP. New infrastructure includes all appurtenances and fittings to achieve watertight connections, and all compacted pipe bedding and backfill with clean backfill material for stable pipe installation.
- k. A supplemental table is provided for alternate bid items which may be added to the scope of work if funds are available. Alternate items are separate and apart from the lump sum price to be provided.

<b>General Base Bid Items (see paragraph 5.01.D, page 3)</b>					
<b>Item No.</b>	<b>Description</b>	<b>Est. Quantity</b>	<b>Unit</b>	<b>Unit Price</b>	<b>Total Price</b>
1	Mobilization	1	LS		
2	Traffic Control Measures in accordance with NCDOT requirements	1	LS		
3	Select Fill (estimated)	60	CY		
<b>Subtotal Price</b>					

<b>Street Resurfacing Base Bid</b>					
<b>Item No.</b>	<b>Description</b>	<b>Est. Quantity</b>	<b>Unit</b>	<b>Unit Price</b>	<b>Total Price</b>
1	Roadway clipping and removal	1	LS		
2	Erosion Control Implementation & Removal	1	LS		
3	1.75-inch Surface Overlay (9.5B Asphalt) *	269,075	SF		
4	1-inch overlay (S-4.75A Asphalt) *	4,989	SF		
5	Milling Street Pavement Transition	1,500	SF		
6	Roadway Pavement Markings (24" wide Stop Bar-thermoplastic)	40	LF		
7	Roadway Pavement Markings (Ground Painted "STOP" lettering)	5	EA.		
8	Roadway Pavement Markings (8" wide painted solid white crosswalk line)	635	LF		
9	Site Restoration	1	LS		
10	Open Cut & Patch Asphalt Road (exclude 9.5B surface overlay Asphalt) associated with drainage and waterline improvements	6,742	SF		
<b>Subtotal Price</b>					

<b>Waterline Improvements Base Bid</b>					
<b>Item No.</b>	<b>Description</b>	<b>Est. Quantity</b>	<b>Unit</b>	<b>Unit Price</b>	<b>Total Price</b>
1	Clearing and Grubbing	1	LS		
2	Erosion Control Implementation & Removal	1	LS		
3	Ex. Concrete/Asphalt driveway removal, disposal & replacement with 4" thick concrete	29	EA		
4	6-inch PVC water line	2267	LF		
5	6-inch tapping sleeve and valve assembly	4	EA		
6	6-inch, 45° Bend	6	EA		
7	6-inch gate valve	6	EA		
8	6-inch tee	4	EA		
9	6-inch cross	1	EA		
10	Fire Hydrant Assembly	2	EA		
11	Fire Hydrant Relocation/Removal	2	EA		
12	Water service connections	54	EA		
13	New water connection with meter boxes and 1" meter setter	3	EA		
14	Connection to Existing water main	6	EA		
15	Abandonment/plugging of existing water main	1	LS		
16	Site Restoration	1	LS		
<b>Subtotal Price</b>					

<b>Drainage Improvement Base Bid</b>					
<b>Item No.</b>	<b>Description</b>	<b>Est. Quantity</b>	<b>Unit</b>	<b>Unit Price</b>	<b>Total Price</b>
1	General clearing within the limits of disturbance	1	LS		
2	Erosion Control Implementation & Removal	1	LS		
3	1' +/- deep swale with 4:1 side slopes	180	LF		
4	Select Fill, (furnished, placed, and compacted)	1	LS		
7	36" x 24" Drop inlet (840.14) with frame & grate (840.16) – installed	18	EA		
8	42" x 42" Junction Box (STMH) (840.31) with frame & grate (840.16) – installed	1	EA		
9	Remove existing 24" dia pipe, furnish & install 30" dia. HP Storm Pipe	431	EA		
10	Remove existing 18" dia pipe, furnish & install 24" dia. HP Storm Pipe	92	EA		
11	Remove existing 15" dia pipe, furnish & install 18" dia. HP Storm Pipe	16	EA		
12	Remove existing 18" dia pipe, furnish & install 18" dia. HP Storm Pipe	40	LF		
13	Flared End Section for 30" HP storm pipe	2	EA		
14	Flared End Section for 24" HP storm pipe	1	EA		
15	30" x 24" Reducer connected to existing	2	EA		
16	Existing Waterline Lowering	6	EA		
<b>Subtotal Price</b>					

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**Total of Lump Sum (Base Bid) = Total Base Bid Price**      \$ \_\_\_\_\_

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<b>E. Gallery Row Street Resurfacing and Drainage improvements Add Alternate #1</b>					
<b>Item No.</b>	<b>Description</b>	<b>Est. Quantity</b>	<b>Unit</b>	<b>Unit Price</b>	<b>Total Price</b>
1	<b>E. Gallery Row from S. Wrightsville Ave. to S. Virginia Dare Trail Resurfacing:</b> 1-inch surface overlay	13,962	SF		
2	<b>E. Gallery Row Drainage Improvements:</b> 468 LF of 30" HPPP, 33 LF of 18" HPPP, 44 LF of 22"X36" corrugated aluminum arch pipe, 1 junction box with frame and cover and 4 pipe connections. Approximately 400 SF permanent pavement repair.	1	LS		
<b>Subtotal Price</b>					
<b>Total – E. Gallery Row Street Resurfacing and Drainage Improvements Add Alternate 1</b>					

<b>Drainage Add Alternate #2</b>					
<b>Item No.</b>	<b>Description</b>	<b>Est. Quantity</b>	<b>Unit</b>	<b>Unit Price</b>	<b>Total Price</b>
1	<b>S. Memorial Ave. South of Bonnett St.:</b> 130 LF of 24" HPPP.	130	LF		
<b>Subtotal Price</b>					
<b>Total – Drainage Add Alternate #2</b>					

5.04 Bidder agrees that the Work will be substantially complete and will be completed and ready for final payment in accordance with Paragraph 15.06 of the General Conditions and the Supplementary Conditions on or before the dates or within the number of calendar days indicated in the Agreement.

**ARTICLE 6 – ATTACHMENTS TO THIS BID**

6.01 The following documents are submitted with and made a condition of this Bid:

- A. List of Proposed Subcontractors;
- B. List of Proposed Suppliers;
- C. List of Project References;
- D. Evidence of authority to do business in the state of the Project; or a written covenant to obtain such license within the time for acceptance of Bids;

- E. Contractor's License No.: \_\_\_\_\_ [or] Evidence of Bidder's ability to obtain a State Contractor's License and a covenant by Bidder to obtain said license within the time for acceptance of Bids;

**ARTICLE 7 – DEFINED TERMS**

- 7.01 The terms used in this Bid with initial capital letters have the meanings stated in the Instructions to Bidders, the General Conditions, and the Supplementary Conditions.

**ARTICLE 8 – BID SUBMITTAL**

BIDDER: *[Indicate correct name of bidding entity]*

\_\_\_\_\_  
By:  
*[Signature]* \_\_\_\_\_

*[Printed name]* \_\_\_\_\_  
*(If Bidder is a corporation, a limited liability company, a partnership, or a joint venture, attach evidence of authority to sign.)*

Attest:  
*[Signature]* \_\_\_\_\_

*[Printed name]* \_\_\_\_\_

Title: \_\_\_\_\_

Submittal Date: \_\_\_\_\_

Address for giving notices:  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Telephone Number: \_\_\_\_\_

Fax Number: \_\_\_\_\_

Contact Name and e-mail address: \_\_\_\_\_  
\_\_\_\_\_

Bidder's License No.: \_\_\_\_\_  
*(where applicable)*

**NONDISCRIMINATION CLAUSE (Attach to Bid)**

It is specifically agreed as part of the consideration of the signing of the Contract that the parties hereto, their agents, officials, employees or servants will not discriminate on any basis prohibited by applicable Federal or State Law. The parties hereto further agree in all respects to conform to the provisions and intent of the Town of Nags Head, North Carolina Ordinance.

This provision being incorporated for the benefit of the Town of Nags Head and its residents may be enforced as set out in said ordinances, enforcement of this provision shall be by action for specific performance, injunctive relief, or other remedy as by law provided.

This provision shall be binding on the successors and assigns of the parties hereto with reference to the subject matter of this Contract.

(Use the following form for signatures by a CORPORATION):

\_\_\_\_\_  
Corporate Name

ATTEST:

\_\_\_\_\_  
(Assistant) Secretary

BY: \_\_\_\_\_  
(Vice) President

\_\_\_\_\_  
(Printed Name)

\_\_\_\_\_  
(Printed Name)

(Corporate Seal)

(Use the following form for signatures by an INDIVIDUAL):

BY: \_\_\_\_\_ (SEAL)

\_\_\_\_\_  
(Printed Name)

WITNESS:

\_\_\_\_\_

\_\_\_\_\_  
(Printed Name)

## **MINIMUM MINORITY BUSINESS COMPLIANCE REQUIREMENTS:**

All written statements, affidavits or intentions made by the Bidder shall become a part of the agreement between the Contractor and the Town for performance of this contract. Failure to comply with any of these statements, affidavits or intentions; or with the minority business. Guidelines shall constitute a breach of the contract. A finding by the Town that any information submitted either prior to award of the contract or during the performance of the contract is inaccurate, false or incomplete, shall also constitute a breach of the contract. Any such breach may result in termination of the contract in accordance with the termination provisions contained in the contract. It shall be solely at the option of the Town whether to terminate the contract for breach.

In determining whether a contractor has made Good Faith Efforts, the Town will evaluate all efforts made by the Contractor and will determine compliance in regard to quantity, intensity, and result of these efforts. Good Faith Efforts include:

- (1) Contacting minority businesses that reasonably could have been expected to submit a quote and that were known to the contractor or available on the Town or local government maintained lists at least 10 days before the bid or proposal date and notifying them of the nature and scope of the work to be performed.
- (2) Making the construction plans, specifications, and requirements available for review by prospective minority businesses, or providing these documents to them at least 10 days before the bid or proposals are due.
- (3) Breaking down or combining elements of work into economically feasible units to facilitate minority participation.
- (4) Working with minority trade, community, or contractor organizations identified by the Office for Business Assistance Program and included in the bid documents that provide assistance in recruitment of minority businesses.
- (5) Attending any prebid meetings scheduled by the public owner.
- (6) Providing assistance in getting required bonding or insurance or providing alternatives to bonding or insurance for subcontractors.
- (7) Negotiating in good faith with interested minority businesses and not rejecting them as unqualified without sound reasons based on their capabilities. Any rejection of a minority business based on lack of qualification should have the reasons documented in writing.
- (8) (Providing assistance to an otherwise qualified minority business in need of equipment, loan capital, lines of credit, or joint pay agreements to secure loans, supplies, or letters of credit, including waiving credit that is ordinarily required. Assisting minority businesses in obtaining the same unit pricing with the bidder's suppliers in order to help minority businesses in establishing credit.
- (9) Negotiating joint venture and partnership arrangements with minority businesses in order to increase opportunities for minority business participation on a public construction or repair project when possible.
- (10) Providing quick pay agreements and policies to enable minority contractors and suppliers to meet cash flow demands.



**AFFIDAVIT A-Listing in Good Faith Effort (Attach to Bid)**

County of \_\_\_\_\_

Affidavit of \_\_\_\_\_

(Name of Bidder)

**I have made a good faith effort to comply under the following areas checked:**

*(A minimum of 50 points must be obtained in order to have achieved a "good faith effort")*

**1-Contacted minority businesses that reasonably could have been expected to submit a quote and that were known to the contractor or available on State or local government maintained lists, at least 10 days before the bid date and notified them of the nature and scope of the work to be performed. Value= 10 points.**

**2-Made the construction plans, specifications and requirements available for review by prospective minority businesses, or providing these documents to them at least 10 days before the bids are due. Value=10 points.**

**3-Broken down or combined elements of work into economically feasible units to facilitate minority participation. Value = 15 points.**

**4-Worked with minority trade, community, or contractor organizations identified by the Office of Business Assistance Program and included in the bid documents that provide assistance in recruitment of minority businesses. Value=10 points.**

**5-Attended prebid meetings schedule by the public owner. Value=10 points.**

**6-Provided assistance in getting required bonding or insurance or provided alternatives to bonding or insurance for subcontractors. Value=20 points.**

**7-Negotiated in good faith with interested minority businesses and did not reject them as unqualified without sound reasons based on their capabilities. Any rejection of a minority business based on lack of qualification should have the reasons documented in writing. Value =15 points.**

**8-Provided assistance to an otherwise qualified minority business in need of equipment, loan capital, lines of credit, or joint pay agreements to secure loans, supplies, or letters of credit, including waiving credit that is ordinarily required. Assisted minority businesses in obtaining the same unit pricing with the bidder's suppliers in order to help minority businesses in establishing credit. Value=25 points.**

**9-Negotiated joint venture and partnership arrangements with minority businesses in order to increase opportunities for minority business participation on a public construction or repair project when possible. Value =20 points.**

**10-Provided quick pay agreements and policies to enable minority contractors and suppliers to meet cash flow demands. Value=20 points.**

**TOTAL POINTS OBTAINED \_\_\_\_\_ .**

In accordance with GS143-128.2 (d) the undersigned will enter into a formal agreement with the firms listed in the Identification of Minority Business Participation schedule conditional upon execution of a contract with the Owner. Failure to abide by this statutory provision will constitute a breach of the contract. The undersigned hereby certifies that the or she has read the terms of the minority business commitment and is authorized to bind the bidder to the commitment herein set forth.

Date: \_\_\_\_\_

Name of Authorized Officer: \_\_\_\_\_

Signature: \_\_\_\_\_

Title: \_\_\_\_\_

State of \_\_\_\_\_, County of \_\_\_\_\_

Subscribed and sworn to before me this \_\_\_\_\_ day of \_\_\_\_\_ 20\_\_

SEAL

Notary Public \_\_\_\_\_ My commission expires \_\_\_\_\_

**AFFIDAVIT B- Intent to Perform Contract with Own Workforce (Attach to Bid)**

County of \_\_\_\_\_

Affidavit of \_\_\_\_\_  
(Name of Bidder)

I hereby certify that it is our intent to perform 100 % of the work required for the \_\_\_\_\_  
\_\_\_\_\_ contract.  
(Name of Project)

In making this certification, the Bidder states that the Bidder does not customarily subcontract elements of this type project,, and normally performs and has the capability to perform and will perform all elements of work on this project with his/her own current work forces; and

The Bidder agrees to provide any additional information or documentation requested by the owner in support of the above statement.

The undersigned hereby certifies that he or she has read this certification and is authorized to bind the Bidder to the commitments herein contained.

Date: \_\_\_\_\_ Name of Authorized Officer: \_\_\_\_\_

Signature: \_\_\_\_\_

Title: \_\_\_\_\_

Seal

State of \_\_\_\_\_, County of \_\_\_\_\_

Subscribed and sworn before me this \_\_\_\_\_ day of \_\_\_\_\_ 20\_\_

Notary Public \_\_\_\_\_

My commission expires \_\_\_\_\_

# AFFIDAVIT C- Portion of the Work to be Performed by Minority Firms

County of \_\_\_\_\_

**\*\*\*\*(NOTE: THIS FORM IS NOT TO BE SUBMITTED WITH THE BID PROPOSAL)\*\*\*\***

If the portion of the work to be executed by minority businesses as defined in GS 143-128.2 (g) is equal to or greater than 10 % of the bidders total contract price, then the bidder must complete this affidavit. This affidavit shall be provided by the apparent lowest responsible, responsive bidder within **72 hours** after notification of being low bidder

Affidavit of \_\_\_\_\_ I do hereby certify that on the  
**(Name of Bidder)**

\_\_\_\_\_  
**(Project Name)**

Project ID # \_\_\_\_\_ Amount of Bid \$ \_\_\_\_\_

I will expend a minimum of \_\_\_\_\_% of the total dollar amount of the contract with minority business enterprises. Minority businesses will be employed as construction subcontractors, vendors, suppliers or providers of professional services. Such work will be subcontracted to the following firms listed below.

Attach additional sheets if required

Name and Phone Number	*Minority category	Work Description	Dollar Value

\*Minority categories: Black, African American, (B), Hispanic (H), Asian American (A), American Indian (I), Female (F)

Pursuant to GS 143-128.2 (d), the undersigned will enter into a formal agreement with Minority Firms for work listed in this schedule conditional upon execution of a contract with the Owner. Failure to fulfill this commitment may constitute a breach of the contract.

The undersigned hereby certifies that he or she has read the terms of this commitment and is authorized to bind the bidder to the commitment herein set forth.

Date: \_\_\_\_\_ Name of Authorized Officer: \_\_\_\_\_  
 Signature: \_\_\_\_\_  
 Title: \_\_\_\_\_

State of \_\_\_\_\_, County of \_\_\_\_\_  
 Subscribed and sworn to before me this \_\_\_\_\_ day of \_\_\_\_\_ 20\_\_\_\_  
 Notary Public \_\_\_\_\_ My commission expires \_\_\_\_\_

SEAL

**AFFIDAVIT D-Good Faith Efforts**

County of \_\_\_\_\_

If the goal of 10 % participation by minority business **is not** achieved, the Bidder shall provide the following documentation to the Owner of his Good Faith Efforts:

(Name of Bidder)

Affidavit of \_\_\_\_\_

I do hereby certify the attached documentation as true and accurate presentation of my good faith efforts.

(Attach additional sheets if required)

Name and Phone Number	Minority Category	Work Description	Dollar Value

\*Minority categories: Black, African American, (B), Hispanic (H), Asian American (A), American Indian (I), Female (F)

Documentation of the Bidder’s good faith efforts to meet the goals set forth in these provisions. Examples of documentation include, but are not limited to, the following evidence:

- A. Copies of solicitations for quotes to at least three (3) minority business firms from the source list provide by the Town of Nags Head for each subcontract to be let under this contract (if 3 or more firms are shown on the source list). Each solicitation shall contain a specific description of the work to be subcontracted, location where bid documents can be reviewed, representative of the Prime Bidder to contract, and location, date and time when quotes must be received.
- B. Copies of quotes or responses received from each firm responding to the solicitation.
- C. A telephone log of follow-up calls to each firm sent a solicitation.
- D. For subcontracts where a minority business firm is not considered the lowest responsible sub-bidder, copies of quotes received from all firms submitting quotes for that particular subcontract.
- E. Documentation of any contacts or correspondence to minority business. Community, or contractor organizations in an attempt to meet the goal.
- F. Copy of the pre-bid letter.
- G. Letter documenting efforts to provide assistance in obtaining required bonding or insurance for minority business.
- H. Letter detailing reasons for rejections of minority business due to lack of qualification.
- I. Letter documenting proposed assistance offered to minority business in need of equipment, loan capital, lines of credit, or joint pay agreements to secure loans, supplies, or letter of credit, including waiving credit that is ordinarily required.

Failure to provide the documentation as listed in these provisions may result in rejection of the bid and award to the next lowest responsible and responsive bidder.

Date: \_\_\_\_\_ Name of Authorized Officer: \_\_\_\_\_  
 Signature: \_\_\_\_\_  
 Title: \_\_\_\_\_

State of \_\_\_\_\_, County of \_\_\_\_\_

Subscribed and sworn to before me this \_\_\_\_\_ day of \_\_\_\_\_ 20\_\_

SEAL Notary Public \_\_\_\_\_ My commission expires \_\_\_\_\_

## Attachment 1

### RESPONDENT'S CERTIFICATION FORM

THIS PAGE MUST BE COMPLETED AND INCLUDED WITH THE SUBMITTAL CERTIFICATION

The undersigned hereby certifies, on behalf of the Respondent named in this Certification (the "Respondent"), that the information provided in this proposal submittal to Town is accurate and complete, and I am duly authorized to submit same. I hereby certify that the Respondent has reviewed this RFP in its entirety and accepts its terms and conditions. I certify that all information contained in this proposal is truthful to the best of my knowledge and belief.

I further certify that I did not either directly or indirectly enter into any combination or arrangement with any person, firm or corporation, or enter into any agreement, participate in any collusion, or otherwise take any action in the restraint of free competition in violation of the Sherman Anti-Trust Act, 15 USCS Sections 1 et seq.; the North Carolina General Statutes Sections 133-24 through 133-31.

I further certify, under oath, that this proposal is made without prior understanding, agreement, connection, discussion, or collusion with any other person, firm or corporation submitting a proposal for the same product or service; no officer employee or agent of the Town of Nags Head or any other respondent is interested in said proposal; and that the undersigned executed this Respondent's Certification with full knowledge and understanding of the matters therein contained and was duly authorized to do so. It is distinctly understood that the Town of Nags Head reserves the right to reject any or all proposals.

---

(Name of Respondent)

---

(Signature of Authorized Representative)

---

(Typed Name of Authorized Representative)

---

(Title)

---

(Date)



**LEGEND**

-  1" SURFACE OVERLAY
-  1.75" SURFACE OVERLAY

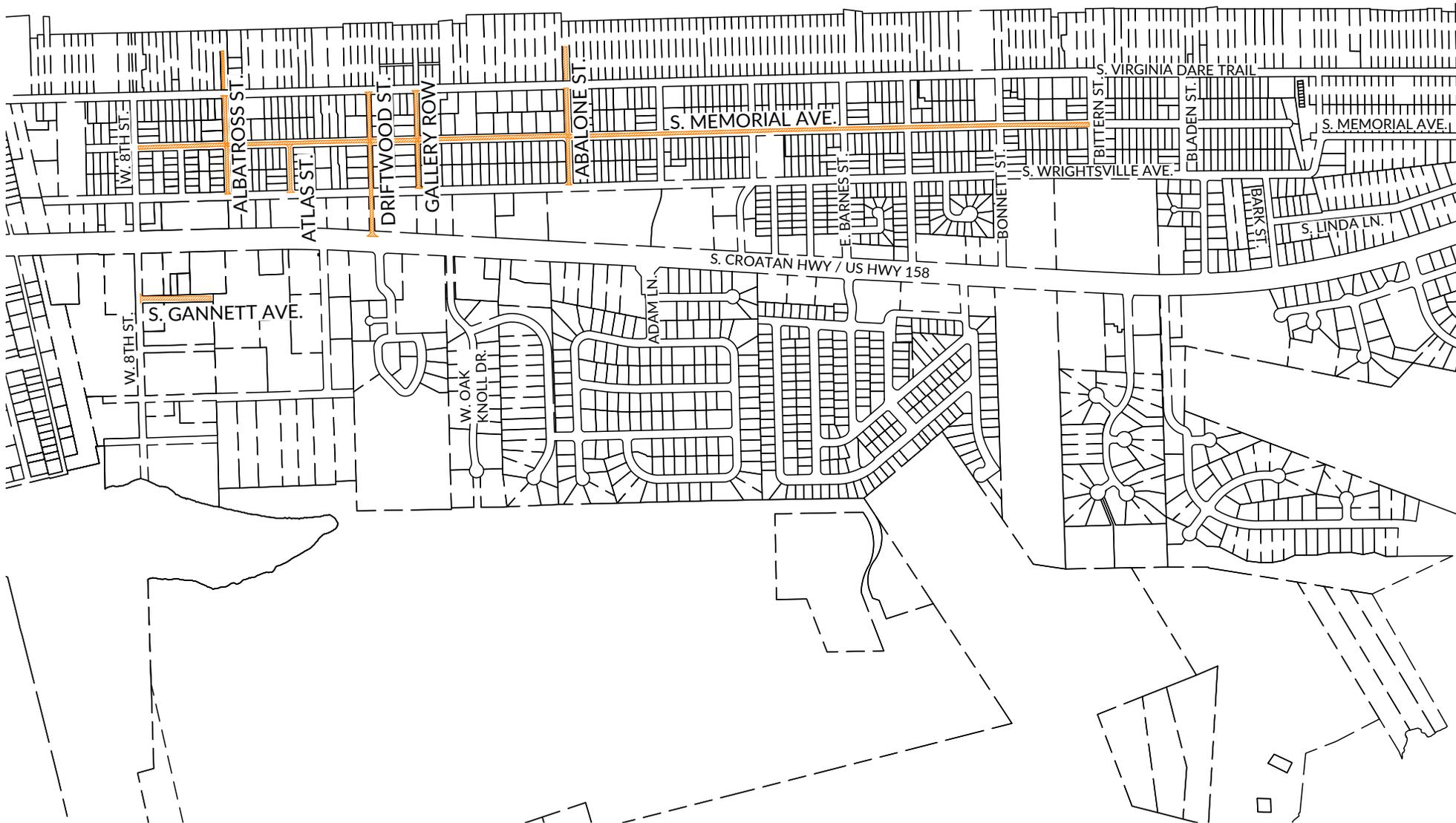
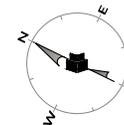
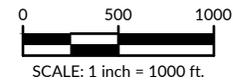


EXHIBIT  
**NAGS HEAD  
 PAVEMENT  
 SURFACE OVERLAY**

P.O. Box 99 | 2200 Lark Ave. | Nags Head, NC 27959 | Dare County

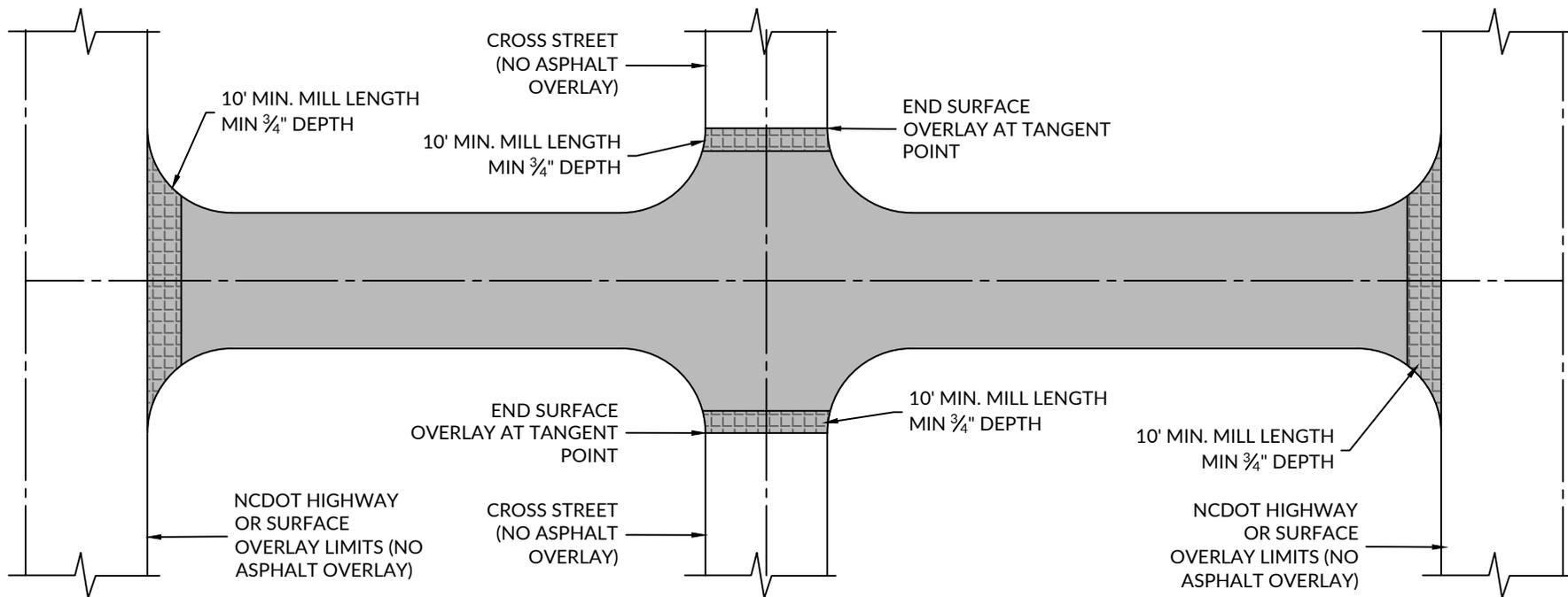


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WR Job No. 241284	DATE 2/17/2025
DRN: WR	DGN: AYA CKD: MS

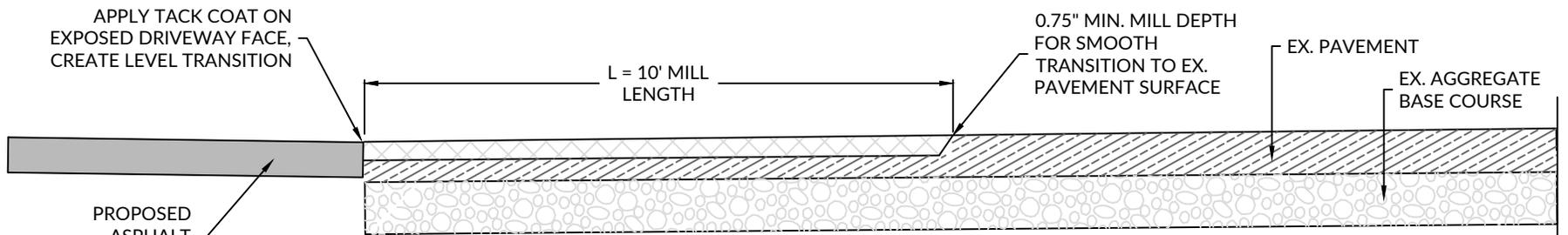
PROJECT  
 LOCATION  
 MAP

**G1.0**



**STREET SURFACE OVERLAY LIMITS**

NOT TO SCALE  
 BID QUANTITIES FOLLOW SURFACE LIMITS AS SHOWN HEREON



**PAVEMENT MILLING TIE-IN DETAIL**

NOT TO SCALE  
 THIS SECTION APPLIES TO EXISTING RESIDENTIAL DRIVEWAYS ALONG THE PROJECT AREA RECEIVING 1.75" OVERLAY THICKNESS

NOTE:  
 0.20 TO 0.50 GAL/SY OF TACK COAT BETWEEN ALL BITUMINOUS COURSES

NOT TO SCALE



EXHIBIT  
**NAGS HEAD  
 PAVEMENT  
 SURFACE OVERLAY**

P.O. Box 99 | 2200 Lark Ave. | Nags Head, NC 27959 | Dare County

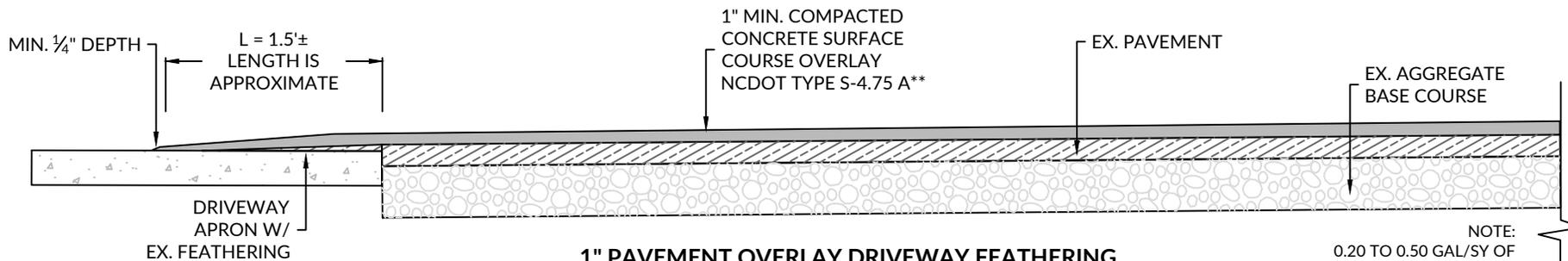


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WR Job No. 241284 DATE 10/22/2024  
 DRN: WR DGN: AYA CKD: MS

MILLING  
 DETAILS

**D1.1**

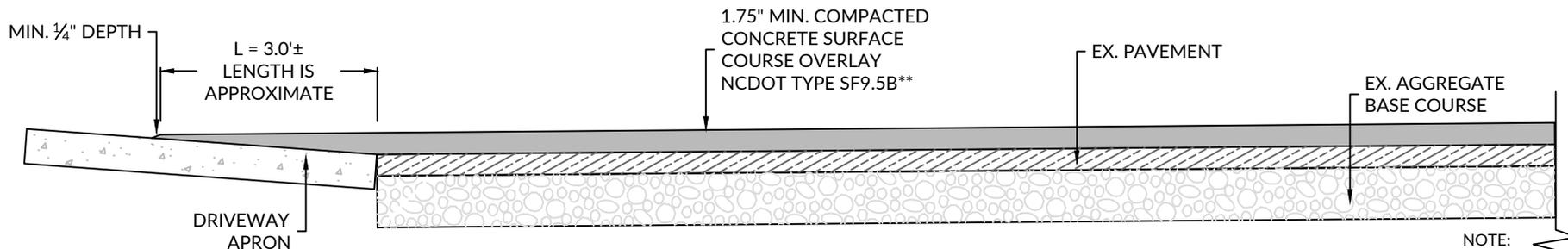


**1" PAVEMENT OVERLAY DRIVEWAY FEATHERING**

NOT TO SCALE  
THIS SECTION APPLIES TO EXISTING RESIDENTIAL DRIVEWAYS ALONG THE PROJECT AREA RECEIVING 1" OVERLAY THICKNESS

\*\*THICKNESS MAY VARY AND BE MORE THAN 1"

NOTE:  
0.20 TO 0.50 GAL/SY OF TACK COAT BETWEEN ALL BITUMINOUS COURSES

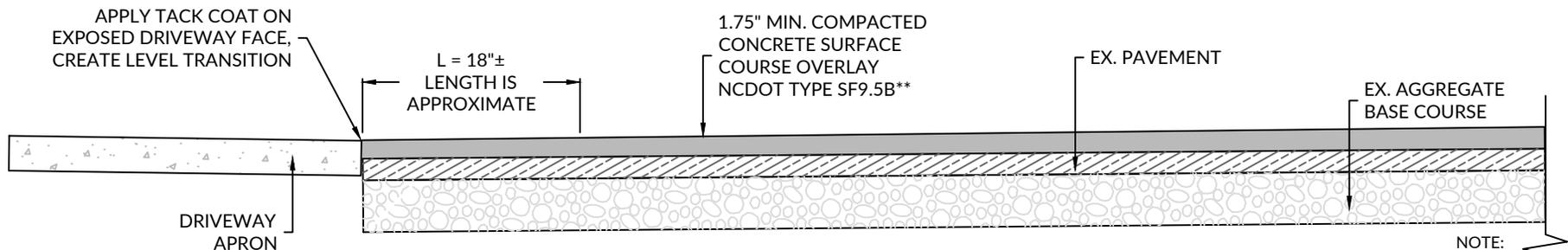


**1.75" PAVEMENT OVERLAY DRIVEWAY FEATHERING**

NOT TO SCALE  
THIS SECTION APPLIES TO EXISTING RESIDENTIAL DRIVEWAYS ALONG THE PROJECT AREA RECEIVING 1.75" OVERLAY THICKNESS

\*\*THICKNESS MAY VARY AND BE MORE THAN 1.75"

NOTE:  
0.20 TO 0.50 GAL/SY OF TACK COAT BETWEEN ALL BITUMINOUS COURSES



**PAVEMENT OVERLAY TO EXPOSED DRIVEWAY FACE**

NOT TO SCALE  
THIS SECTION APPLIES TO EXISTING RESIDENTIAL DRIVEWAYS ALONG THE PROJECT AREA RECEIVING 1.75" OVERLAY THICKNESS

NOTE:  
0.20 TO 0.50 GAL/SY OF TACK COAT BETWEEN ALL BITUMINOUS COURSES



EXHIBIT  
**NAGS HEAD  
PAVEMENT  
SURFACE OVERLAY**

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WR Job No. 241284 DATE 10/22/2024  
DRN: WR DGN: AYA CKD: MS

DRIVEWAY  
TRANSITION  
DETAILS

**D1.0**