

# 20200410 - MUNICIPAL SOLID WASTER TRANSFER STATION UPGRADES

BRUNSWICK COUNTY, NORTH CAROLINA

APRIL 2020

SPECIFICATIONS

ADDENDUM NO. 2

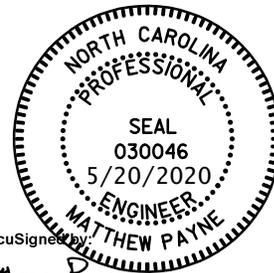
ADDITION OF BID FORMS

CHANGE TO BID DATE

CHANGE TO BID FORM AND OTHER MINOR EDITS HIGHLIGHTED

MAY 20, 2020

Prepared By:  
Dewberry  
2610 Wycliff Road  
Suite 410  
Raleigh, NC 27607  
(919) 636-6322  
NCBELS #F-0929



DocuSign  
Matthew Payne  
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ADVERTISEMENT FOR BIDS  
BRUNSWICK COUNTY

20200410 - MUNICIPAL SOLID WASTE TRANSFER STATION  
UPGRADES

Pursuant to the General Statutes of North Carolina (143-129 et. seq.), Brunswick County is soliciting bids for repairs to the Brunswick County Municipal Solid Waste Transfer Station located at 172 Landfill Road NE, Bolivia NC 28422. Bids must be received by Brunswick County's designee, Dewberry Engineers Inc. ("Dewberry"), located at 2610 Wycliff Rd., Suite 410, Raleigh NC 27607 by **2:00 PM**, local time on **Thursday, May 28, 2020**. **The bids will be for the furnishing of all labor and material as detailed in the technical specifications and construction drawings and all equipment required for the removal and replacement of the transfer station steel hopper assembly, approximately 8000 square feet of removal and replacement of concrete floor, selective demolition and replacement of metal building members and all other related work as shown on the Contract Documents, as more fully set forth herein. Any changes to the specifications or scope of work or clarifications to the bidding documents will be made in the form of an Addendum and will be supplied to all prospective bidders.**

Each bid must be made on the blank forms provided with the bound copies of the Contract Documents and must be addressed to Mr. Amir Hadjimiry, c/o Dewberry, 2610 Wycliff Rd., Suite 410, Raleigh NC 27607. Each bid must be sealed and clearly marked on the outside "20200410-MUNICIPAL SOLID WASTE TRANSFER STATION UPGRADES", with the name, address and license number of the bidder. Sealed bids will be opened on **Thursday, May 28, 2020 at 2:00 pm** within the Dewberry office located at 2610 Wycliff Rd., Suite 410, Raleigh NC 27607 and read aloud.

**Neither Brunswick County nor Dewberry will be responsible for the failure of any mail or delivery service to deliver a bid. Regardless of the manner of submission, bids received after the aforementioned date and time or bids not submitted at the correct location or in the designated manner will not be accepted.**

Contract Documents, including complete drawings and specifications, may be obtained by electronic copy in PDF form by contacting Mr. Amir Hadjimiry by e-mail [ahadjimiry@dewberry.com](mailto:ahadjimiry@dewberry.com) or contacting by phone to receive electronic copy at (984) 255-7047. There will be no charge associated with obtaining electronic copy of the Contract Documents. Dewberry will require a **24-hour notice** prior to delivery of Contract Documents. Contract Documents will be available on April 29, 2020.

**No consideration will be given to any request for Plans and Specifications two (2) days prior to the date for receiving bids.**

All Bidders questions and/or clarifications must be submitted in writing to Dewberry Engineers Inc., 2610 Wycliff Road, Suite 410, Raleigh, NC 27607 no later than 5:00 PM, local time on **Friday, May 15, 2020**. Bidders questions and/or clarifications received **after** this date will not receive a response. If warranted Bidders questions and/or clarifications may be answered by Addenda.

All bids will be received as **Single Prime**.

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UPGRADES

**Licensing:** All bidders are hereby notified that they must have proper licenses as required under the state laws governing their respective trades. General Contractors are notified that Chapter 87 of the General Statutes of North Carolina will be observed in receiving and awarding general contracts. Contractor will be required to provide proof of licensure.

**NOTE:** Under NCGS 87-1, a Contractor that superintends or manages construction of any building, highway, public utility, grading, structure, or improvement shall be deemed a "General Contractor" and shall be so licensed. Therefore a single prime project that involves other trades will require the Single Prime Contractor to hold a proper General Contractor's license.

**Insurance Requirements:** All bidders must meet the Brunswick County Minimum Insurance Requirements attached hereto as Exhibit "A" and incorporated herein by reference.

**Financial Information:** Brunswick County reserves the right to request financial information for any bidder in order to support the viability of the bidder.

**Minority Business Participation:** General contractors are notified that Chapter 143 of the North Carolina General Statutes, and the "Brunswick County Minority Business Enterprise Policy" ("MBE") will be observed in receiving and awarding general contracts. Brunswick County requires contractors that are not self-performing 100% of the total value of the work to verify that they have made "good faith efforts" to contact MBE subcontractors whose work on the project would represent at least ten percent (10%) of the total value of work. The bidder shall identify on its bid proposal the minority business participation it will use on the project form (*Identification of Minority Business Participation*) and shall include either *Affidavit A* or *Affidavit B* as applicable. Forms and instructions are included within the bid documents. Failure to complete these forms is grounds for rejection of the bid. (NCGS 143-128.2c Effective 1/1/2002.)

**Performance and Payment Bonds:** A performance bond and a payment bond will be required for one hundred percent (100%) of the contract price. Surety companies must be authorized to do business in North Carolina.

**Form of Agreement:** In addition to the terms and conditions contained herein, by submitting a bid, bidder, if selected, agrees to enter into and be bound by the provisions of a Construction or Repair Agreement in substantially the form attached hereto as Exhibit "B" and incorporated herein by reference. To the extent that any of the terms of this Invitation to Bid and the terms of the Construction or Repair Agreement conflict, the terms of the Construction or Repair Agreement shall prevail.

**Miscellaneous:**

Brunswick County will not be responsible for any costs or expenses incurred by the bidder in submitting a bid or for any other activities associated therewith. Further, Brunswick County reserves the right to cancel the work described herein prior to issuance and acceptance of any contractual agreement even if the Board of Commissioners has formally accepted the recommendation.

If a contract is to be awarded, it will be awarded to the lowest responsible, responsive bidder. The successful bidder will not be authorized to proceed with any work until a contract is fully executed. All those submitting a bid will receive notification once the contract has been awarded.

Brunswick County prohibits discrimination in any manner on the basis of race, color, creed, national origin, sex, age or handicap or sexual orientation and will pursue an affirmative policy of fostering, promoting, and conducting business with women and minority-owned business enterprises.

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20200410 - MUNICIPAL SOLID WASTE TRANSFER STATION

UPGRADES

Submission of a bid indicates explicit acceptance by the bidder of the terms and conditions contained herein and any attachments hereto. Brunswick County reserves the right to reject, without prejudice or explanation, any or all bids. Brunswick County reserves the right to waive informalities or technical defects or to amend the specifications and request new bids at any time prior to the award of a contract. All decisions of Brunswick County shall be final and binding.

Neither Brunswick County nor the Engineer will be responsible for full or partial sets of Contract Documents, including any addendum, obtained from any other source.

This the 27 day of April 2020  
BRUNSWICK COUNTY  
Stephanie Lewis, Director, Operation Services Department

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## EXHIBIT "A"



### BRUNSWICK COUNTY MINIMUM INSURANCE COVERAGE REQUIREMENTS

At contractor's expense, contractor shall procure and maintain the following recommended lines of insurance according to the scope of work. The County may choose to elect higher or lower coverages according to the work performed. Contractors must be insured by a licensed agent in North Carolina and rated A-VII or better by A.M. Best.

A. COMMERCIAL GENERAL LIABILITY

Covering all operations involved in this Agreement.

\$2,000,000 General Aggregate

\$2,000,000 Products/Completed Operations Aggregate

\$1,000,000 Each Occurrence

\$1,000,000 Personal and Advertising Injury Limit

\$ 5,000 Medical Expense Limit

B. WORKERS' COMPENSATION

Statutory limits covering all employees, including Employer's Liability with limits of:

\$500,000 Each Accident

\$500,000 Disease - Each Employee

\$500,000 Disease - Policy Limit

C. COMMERCIAL AUTOMOBILE LIABILITY

\$1,000,000 Combined Single Limit – Any Auto

D. PROFESSIONAL LIABILITY

\$1,000,000 Per Occurrence

E. POLLUTION LIABILITY INSURANCE

\$1,000,000 Per Occurrence

When a contractor is required to bind pollution/environmental coverage, the contractor must provide evidence of continuation or renewal of liability insurance for a period of three (3) years following termination of the agreement.

### ADDITIONAL INSURANCE AND INDEMNIFICATION REQUIREMENTS

- A. Contractor agrees to defend, indemnify, and hold harmless Brunswick County, its officers, employees, and agents from and against any and all losses, penalties, damages, settlements, costs, charges, professional fees, or other expenses or liabilities of every kind and character arising out of or relating to any and all claims, liens, demands, obligations, actions, proceedings, or causes of action of every kind in connection with or arising out of this Agreement and/or the performance hereof that are due in part or in the entirety of Contractor, its employees or agents. Contractor further agrees to investigate, handle, respond to, defend and dispose of same at its sole expense and agrees to bear all other costs and expenses related thereto.

The Contractor's General Liability policy shall be endorsed, specifically or generally, to include the following as Additional Insured:

BRUNSWICK COUNTY, ITS OFFICERS, AGENTS AND EMPLOYEES ARE INCLUDED AS ADDITIONAL INSURED UNDER CONTRACTOR'S GENERAL LIABILITY INSURANCE.

- B. Before commencement of any work or event, Contractor shall provide a Certificate of Insurance in satisfactory form as evidence of the insurances required above.
- C. Contractor shall have no right of recovery or subrogation against Brunswick County (including its officers, agents and employees), it being the intention of the parties that the insurance policies so affected shall protect both parties and be primary coverage for any and all losses covered by the above-described insurance.
- D. Brunswick County shall have no liability with respect to Contractor's personal property whether insured or not insured. Any deductible or self-insured retention is the sole responsibility of Contractor.
- E. All certificates of insurance must provide that the policy or policies shall not be changed or cancelled without at least thirty (30) days prior written notice.
- F. The Certificate of Insurance should note in the Description of Operations the following:
  - Department: \_\_\_\_\_
  - Contract #: \_\_\_\_\_
- G. Insurance procured by Contractor shall not reduce nor limit Contractor's contractual obligation to indemnify, hold harmless and defend Brunswick County for claims made or suits brought which result from or are in connection with the performance of this Agreement.
- H. In the event Contractor receives Notice of Cancellation of Insurance required pursuant to this Agreement, Contractor shall immediately cease performance of all services and shall provide Notice to Brunswick County's Legal/Risk Management personnel within twenty-four (24) hours.
- I. Certificate Holder shall be listed as follows;
  - ATTENTION: Brunswick County Risk Manager
  - 30 Government Center Dr. NE
  - P.O. Box 249
  - Bolivia, NC 28422
- J. If Contractor is authorized to assign or subcontract any of its rights or duties hereunder and in fact does so, Contractor shall ensure that the assignee or subcontractor satisfies all requirements of this Agreement, including, but not limited to, maintenance of the required insurances coverage and provision of certificate(s) of insurance and additional insured endorsement(s), in proper form prior to commencement of services.

**EXHIBIT "B"**

**FORM OF AGREEMENT**

**NORTH CAROLINA**

**CONSTRUCTION OR REPAIR AGREEMENT**

**[Standard]**

**BRUNSWICK COUNTY**

**THIS CONSTRUCTION OR REPAIR AGREEMENT** (hereinafter referred to as the "Agreement" or "Contract") is made and entered into by and between Brunswick County, a body politic and corporate of the State of North Carolina, (hereinafter referred to as "County" or "Owner"), party of the first part, and {Vendor Name}, (hereinafter referred to as "Contractor"), party of the second part.

**WITNESSETH:**

**1. PROJECT**

Contractor shall furnish and deliver all materials and perform all work in the manner and form as provided by enumerated plans, specifications and documents, including, without limitation and as applicable: the Invitation to Bid; Notice to Bidders; Instructions to Bidders; General Conditions; Supplementary General Conditions; Specifications; Addenda; Accepted Proposal; Notice to Proceed; Performance Bond; Payment Bond; MBE forms; Power of Attorney; Workers' Compensation, Public Liability, Property Damage and Builder's Risk Insurance Certificates; Approval by the Board of Commissioners; Tax Statement and Certification; Notice of Substantial Completion; Notice of Final Completion and Acceptance; and Drawings (hereinafter referred to collectively as the "Bid Documents") titled:

**Project: 20200410 - Brunswick County MSW Transfer Station Upgrades**

Consisting of the following sheets **T-1 and S-1 thru S-7**

dated **April 10, 2020**

And the following addenda:

Addendum No. **1**

Dated: **May 15, 2020**

Addendum No. **2**

Dated: **May 20, 2020**

Addendum No. **{Addendum No. 3}**

Dated: **{Date of Addendum No. 3}**

Addendum No. **{Addendum No. 4}**

Dated: **{Date of Addendum No. 4}**

Addendum No. **{Addendum No. 5}**

Dated: **{Date of Addendum No. 5}**

Addendum No. **{Addendum No. 6}**

Dated: **{Date of Addendum No. 6}**

The Bid Documents are incorporated by reference and made an integral part of this Agreement. To the extent the terms of such documents conflict with the terms of this Agreement, the terms of this Agreement shall prevail.

## **2. TERM OF AGREEMENT**

The term of this Agreement begins upon issuance of the Notice to Proceed by Brunswick County (the “Effective Date”) and continues in effect for **ninety (90)** consecutive calendar days, unless extended or sooner terminated as provided for in the Brunswick County General Conditions of the Contract.

## **3. BRUNSWICK COUNTY GENERAL CONDITIONS OF THE CONTRACT**

This Agreement, in addition to any construction documents prepared hereunder, shall be subject to the Brunswick County, North Carolina General Conditions of the Contract (for construction contracts), unless the County directs otherwise. In the event of a conflict between the General Conditions of the Contract and this Agreement, this Agreement shall prevail.

## **4. NONAPPROPRIATION**

If the Board of County Commissioners does not appropriate the funding needed by the County to make payments under this Agreement for a given fiscal year, the County will not be obligated to pay amounts due beyond the end of the last fiscal year for which funds were appropriated. In such event, the County will promptly notify the Contractor of the non-appropriation and this Agreement will be terminated at the end of the last fiscal year for which funds were appropriated. No act or omission by the County which is attributable to non-appropriation of funds shall constitute a breach of or default under this Agreement.

## **5. COMPENSATION**

The County agrees to pay Contractor the total amount of **{Contract Amount - Alpha} Dollars ({Contract Amount - Numeric})** for the Project. Payment shall be subject to additions and deductions as provided in the specifications or Bid Documents. County shall make monthly progress payments to Contractor on the basis of a duly certified and approved estimate of work performed during a given calendar month, less five percent (5%) of the amount of such estimate which is to be retained by County until all work has been performed strictly in accordance with this Agreement and such work has been accepted by County. The County shall not require further retainage after fifty percent (50%) of the work has been satisfactorily completed on schedule as more fully set forth in the General Conditions included with the Bid Documents. County shall make full and final payment to Contractor within thirty (30) days after completion of the Project and acceptance of such work by County and upon Contractor’s submittal of satisfactory evidence that all payrolls, material bills and other costs incurred in connection with the Project have been paid in full. Notwithstanding the foregoing, County will not pay late fees on any charges under this Agreement. If County disputes any portion of the charges, the County shall inform Contractor in writing of the disputed charges.

## **6. INDEPENDENT CONTRACTOR**

Both County and Contractor agree that Contractor shall act as an independent contractor and shall not represent itself as an agent or employee of the County for any purpose in the performance of its duties under this Agreement. Contractor represents that it has or will secure, at its own expense, all personnel required in performing the work under this Agreement. Accordingly, Contractor shall be responsible for payment of all federal, state and local taxes arising out of its activities in accordance with this Agreement, including, without limitation, federal and state income tax, social security tax, unemployment insurance taxes and any other taxes or business license fees as required. Contractor shall not be entitled to participate in any plans, arrangements or distributions by the County pertaining to or in connection with any pension, stock, bonus, profit sharing or other benefit extended to County employees.

In the event the Internal Revenue Service should determine that Contractor is, according to Internal Revenue Service guidelines, an employee subject to withholding and social security contributions, then Contractor hereby acknowledges that all payments hereunder are gross payments, and the Contractor is responsible for all income taxes and social security payments thereon.

## **7. CONTRACTOR REPRESENTATIONS**

- (1) Contractor is a duly organized entity or corporation qualified to do business and in good standing under the laws of the State of North Carolina;
- (2) Contractor has all requisite corporate power and authority to execute, deliver and perform its obligations under this Agreement;
- (3) No approval, authorization or consent of any governmental or regulatory authority is required to be obtained or made by it in order for Contractor to enter into and perform its obligations under this Agreement;
- (4) Contractor shall not violate any agreement with any third party by entering into or performing the work under this Agreement;
- (5) Contractor will perform all work in conformity with the specifications and requirements of this Agreement;
- (6) Unless otherwise agreed by the parties, Contractor agrees that all materials will be new and of good quality;
- (7) The work provided by Contractor under this Agreement will not violate, infringe or misappropriate any patent, copyright, trademark or trade secret rights of any third party, or any other third-party rights (including without limitation non-compete agreements);

- (8) Contractor will perform the work in a professional and workmanlike manner exercising reasonable care and diligence and will ensure that it adheres to the highest generally accepted standards in the industry when performing said work;
- (9) Contractor acknowledges that if any specific licenses, certifications or related credentials are required in its performance of the work, it will ensure that such credentials remain current and active and not in a state of suspension or revocation; and
- (10) Contractor shall ensure that whenever its employees or agents are on County property, they will strictly abide by all instructions and directions issued by the County with respect to rules, regulations, policies and security procedures applicable to work on the County's premises. Such rules, regulations, policies and security procedures shall include, but not be limited to: (i) not possessing any controlled substances; (ii) smoking only in designated smoking areas, if any; and (iii) not possessing weapons, except for weapons possessed by law enforcement officials.

## **8. NON-ENDORSEMENT AND PUBLICITY**

County is not endorsing Contractor or its work, and Contractor is not permitted to reference this Agreement or County in any manner without the prior written consent of County. Notwithstanding the foregoing, the parties agree that Contractor may list the County as a reference in response to requests for proposals and may identify County as a customer in presentations to potential customers.

## **9. NON-EXCLUSIVITY**

Contractor acknowledges that County is not obligated to contract solely with Contractor for the work covered under this Agreement.

## **10. DIVESTMENT FROM COMPANIES THAT BOYCOTT ISRAEL**

Contractor hereby certifies that it has not been designated by the North Carolina State Treasurer as a company engaged in the boycott of Israel pursuant to N.C.G.S. § 147-86.81.

## **11. DEBARMENT**

Contractor hereby certifies that neither it nor its principals are presently debarred, suspended, proposed for debarment, declared ineligible or voluntarily excluded from participation in this Agreement by any governmental department or agency. Contractor must notify County within thirty (30) days if debarred by any governmental entity during this Agreement.

## **12. MINORITY BUSINESS ENTERPRISES**

Contractor will make a good faith effort to utilize Minority Business Enterprises (MBEs) per N.C. Gen. Stat. 143-128 as subcontractors in the performance of this Agreement.

## **13. WORKERS' COMPENSATION**

To the extent required by law, Contractor shall comply with the North Carolina Workers' Compensation Act and shall provide for the payment of workers' compensation to its employees in the manner and to the extent required by such Act. In the event Contractor is excluded from the requirements of such Act and does not voluntarily carry workers' compensation coverage, Contractor shall carry or cause its employees to carry adequate medical/accident insurance to cover any injuries sustained by its employees or agents while fulfilling Contractor's obligations under this Agreement. Contractor agrees to furnish County proof of compliance with said Act or adequate medical/accident insurance coverage upon request.

## **14. TAXES**

Contractor shall be responsible for paying all taxes, fees, assessments and premiums of any kind payable on its employees and operations. Contractor shall substantiate, on demand by the County, that all taxes and other charges are being properly paid.

## **15. COMPLIANCE WITH E-VERIFY PROGRAM**

Pursuant to N.C.G.S. § 143-133.3, Contractor understands that it is a requirement of this Agreement that Contractor and its subcontractors must comply with the provisions of Article 2 of Chapter 64 of the North Carolina General Statutes. In doing so, Contractor agrees that, unless it is exempt by law, it shall verify the work authorization of its employees utilizing the federal E-Verify program and standards as promulgated and operated by the United States Department of Homeland Security, and Contractor shall require its subcontractors to do the same. Upon request, Contractor agrees to provide County with an affidavit of compliance or exemption.

## **16. CONFIDENTIAL INFORMATION**

For purposes of this Agreement, the party disclosing Confidential Information is the "Discloser," and the party receiving Confidential Information is the "Recipient." "Confidential Information" shall mean any nonpublic information concerning the parties' respective businesses including, but not limited to, all tangible, intangible, visual, electronic, present or future information such as: (a) trade secrets; (b) financial information, including pricing; (c) technical information, including research, development, procedures, algorithms, data, designs and know-how; (d) business information, including operations, planning, marketing interests and products; and (e) the terms of any agreement between the parties and the discussions, negotiations and proposals related thereto. Confidential Information disclosed to the other party must be clearly identified. Written Confidential Information must be clearly marked in a conspicuous place with an appropriate legend identifying the information as "Confidential." Confidential Information

that is not written must be identified as confidential at the time of disclosure and confirmed in writing delivered to Recipient within fifteen (15) days of disclosure.

The restrictions regarding the use and disclosure of Confidential Information do not apply to information that is:

- (1) in the public domain through no fault of the Recipient;
- (2) within the legitimate possession of the Recipient, with no confidentiality obligations to a third party;
- (3) lawfully received from a third party having rights in the information without restriction, and without notice of any restriction against its further disclosure;
- (4) independently developed by the Recipient without breaching this Agreement or by parties who have not had, either directly or indirectly, access to or knowledge of the Confidential Information;
- (5) disclosed with the prior written consent of the Discloser; or
- (6) required to be disclosed by law, regulation or court or governmental order, specifically including requests pursuant to the Public Records Laws of North Carolina contained in Chapter 132 of the North Carolina General Statutes. In the event Recipient receives such a request, it shall notify Discloser and Discloser shall have the opportunity to defend against production of such records at Discloser's sole expense.

## **17. NO ASSIGNMENT WITHOUT CONSENT**

Neither party shall assign this Agreement (or assign any right or delegate any obligation contained herein whether such assignment is of service, of payment or otherwise) without the prior written consent of the other party hereto. Any such assignment without the prior written consent of the other party hereto shall be void. An assignee shall acquire no rights, and County shall not recognize any assignment in violation of this provision.

## **18. GOVERNING LAW AND VENUE**

This Agreement shall be governed by applicable federal law and by the laws of the State of North Carolina without regard for its choice of law provisions. All actions relating in any way to this Agreement shall be brought in the General Court of Justice of the State of North Carolina in Brunswick County or in the Federal District Court for the Eastern District of North Carolina, Wilmington division.

## **19. DISPUTE RESOLUTION**

Should a dispute arise as to the terms of this Agreement, both parties agree that neither may initiate binding arbitration. The parties may agree to non-binding mediation, as more fully set forth in the General Conditions of the Contract.

## **20. GOVERNMENTAL IMMUNITY**

County, to the extent applicable, does not waive its governmental immunity by entering into this Agreement and fully retains all immunities and defenses provided by law with regard to any action based on this Agreement.

## **21. NON-WAIVER**

Failure by County at any time to require the performance by Contractor of any of the provisions of this Agreement shall in no way affect County's right hereunder to enforce the same, nor shall any waiver by County of any breach be held to be a waiver of any succeeding breach or a waiver of this Section.

## **22. ENTIRE AGREEMENT**

This Agreement constitutes the entire agreement between the parties with respect to the subject matter herein. There are no other representations, understandings or agreements between the parties with respect to such subject matter. This Agreement supersedes all prior agreements, negotiations, representations and proposals, written or oral, related specifically to the Project herein.

## **23. HEADINGS**

The headings in this Agreement are for convenience of reference only and shall not define or limit any of the terms or provisions hereof.

## **24. SEVERABILITY**

The invalidity of one or more of the phrases, sentences, clauses or sections contained in this Agreement shall not affect the validity of the remaining portion of the Agreement so long as the material purposes of this Agreement can be determined and effectuated. If a provision of this Agreement is held to be unenforceable, then both parties shall be relieved of all obligations arising under such provision, but only to the extent that such provision is unenforceable, and this Agreement shall be deemed amended by modifying such provision to the extent necessary to make it enforceable while preserving its intent.

## **25. AMENDMENTS**

Amendments or changes to this Agreement shall not be valid unless in writing and signed by authorized agents of both Contractor and County.

## 26. NOTICES

(1) **DELIVERY OF NOTICES.** Unless otherwise specified in the General Conditions, any notice, consent or other communication required or contemplated by this Agreement shall be in writing, and shall be delivered in person, by U.S. mail, by overnight courier, by electronic mail or by facsimile to the intended recipient at the address set forth below.

(2) **EFFECTIVE DATE OF NOTICES.** Any notice shall be effective upon the date of receipt by the intended recipient; provided that any notice which is sent by facsimile or electronic mail shall also be simultaneously sent by mail deposited with the U.S. Postal Service or by overnight courier.

### (3) NOTICE ADDRESS.

a. Communications that relate to any breach, default, termination, amendment or waiver of any provision of this Agreement shall be sent to:

For the County: Brunswick County Attorney  
P.O. Box 249  
Bolivia, NC 28422

With a copy to: {County Contact for Notices}  
{County Contact Title}  
{Contact Address}  
{Contact City}, {Contact State} {Contact Zip}

b. Communications that relate to any delay in performance, prevention of performance, modification or extension of this Agreement shall be sent to:

For the County: {County Contact for Notices}  
{County Contact Title}  
{Contact Address}  
{Contact City}, {Contact State} {Contact Zip}

c. All communications to Contractor shall be sent to:

For the Contractor: {Vendor Name}  
{Vendor Address}  
{Vendor City}, {Vendor State or Territory} {Vendor Zip}

**27. SIGNATURES**

This Agreement, together with any amendments or modifications, may be executed in one or more counterparts, each of which shall be deemed an original and all of which shall be considered one and the same agreement. This Agreement may also be executed electronically. By signing electronically, the parties indicate their intent to comply with the Electronic Commerce in Government Act (N.C.G.S § 66-358.1 et seq.) and the Uniform Electronic Transactions Act (N.C.G.S § 66-311 et seq.). Delivery of an executed counterpart of this Agreement by either electronic means or by facsimile shall be as effective as a manually executed counterpart.

ATTEST:

**BRUNSWICK COUNTY**

\_\_\_\_\_  
Clerk to the Board

By: \_\_\_\_\_  
Frank Williams  
Chairman

[SEAL]

{VENDOR NAME}

By: \_\_\_\_\_

Printed Name: {Vendor Signatory Name}

Title: {Vendor Signatory Title}

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

“This instrument has been preaudited in the manner required by the Local Government Budget and Fiscal Control Act.”

\_\_\_\_\_  
Julie A. Miller, Finance Director  
Brunswick County, North Carolina

APPROVED AS TO FORM

\_\_\_\_\_  
Robert V. Shaver, Jr., County Attorney /  
Bryan W. Batton, Assistant County Attorney

**BRUNSWICK COUNTY, NORTH CAROLINA**



**GENERAL CONDITIONS OF THE CONTRACT**  
Version date – April 2020

**This document is intended for use on Brunswick County capital construction projects and shall not be used on any project that is not reviewed and approved by Brunswick County. Extensive modification to the General Conditions by means of “Supplementary General Conditions” is strongly discouraged.**

The use or reproduction of this document or any part thereof is authorized for and limited to use on projects of Brunswick County, North Carolina, and is distributed by, through, and at the discretion of Brunswick County, for that distinct and sole purpose.

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## ARTICLE 1 – DEFINITIONS

**Addenda** shall mean written or graphic instruments issued prior to the opening of Bids which clarify, correct, or change the Bidding Requirements or the Contract Documents.

**Approval** means written or imprinted acknowledgement that materials, equipment, or methods of construction are acceptable for use in the Work.

**Asbestos** is any material that contains more than one percent (1%) asbestos and is friable or is releasing asbestos fibers into the air above current action levels established by the United States Occupational Safety and Health Administration.

**Bid** shall mean the offer or proposal of a bidder submitted on the prescribed form setting forth the prices for the Work to be performed.

**Bidding Documents** shall mean the Bidding Requirements and the proposed Contract Documents (including all Addenda issued prior to receipt of Bids).

**Bidding Requirements** shall mean the Advertisement or Invitation to Bid, Instructions to Bidders, Bid security form, if any, MBE forms, and the Proposal form with any supplements.

**Bonds** shall mean performance and payment bonds and other instruments of security.

**Change Order**, as used herein, shall mean a written order to the Contractor subsequent to the signing of the Contract authorizing a change in the Contract (addition, deletion, or revision to Contract Price or Time of Completion). The Change Order shall be signed by the Contractor, Designer, and the Owner, and approved by the County Commissioners, in that order (see Article “Changes in the Work”).

**Claim** shall mean a demand or assertion by Owner or Contractor seeking an adjustment of Contract Price or Time of Completion, or both, or other relief with respect to the terms of the Contract. A demand for money or services by a third party is not a Claim.

**Clarification or Request for Information (RFI)** is a request from the Contractor seeking an interpretation or clarification by the Designer relative to the Contract Documents. The RFI, which shall be labeled (RFI), shall clearly and concisely set forth the issue or item requiring clarification or interpretation and why the response is needed. The RFI must set forth the Contractor’s interpretation or understanding of the Contract Documents requirements in question, along with reasons for such an understanding.

**Contract**, as used herein, is the written instrument which is evidence of the agreement between Owner and Contractor covering the Work.

**Contract Documents** consist of the Invitation to Bid; Notice to Bidders; Instructions to Bidders; General Conditions of the Contract; special conditions if applicable; Supplementary General Conditions; the Drawings and Specifications, including all bulletins, Addenda or other modifications of the Drawings and Specifications incorporated into the documents prior to their execution; the accepted proposal; the Contract; the performance bond; the payment bond; insurance certificates; MBE forms; power of attorney; Notice to Proceed; Written Directives; Work Change Directives; Change Orders; Certificates of Substantial Completion; Notice of Final Completion and Acceptance; and approval of County Commissioners. All of these items together form the Contract. Approved shop Drawings are **not** Contract Documents.

**Contract Price** shall mean the moneys payable by Owner to Contractor for completion of the Work in accordance with the Contract Documents.

**Contractor**, as used herein, shall be deemed to be either of the several contracting parties called the “Party of the First Part” in either of the several contracts in connection with the total Project. Where, in special instances hereinafter, a particular Contractor is intended, an adjective precedes the word “Contractor,” as “general,” “heating,” etc. For the purposes of a single prime contract, the term “Contractor” shall be deemed to be the single contracting entity identified as the “Party of the First Part” in the single Construction Contract. Any references or adjectives that name or infer multiple prime Contractors shall be interpreted to mean the single prime Contractor.

**Day** shall constitute a calendar day of twenty-four (24) hours measured from midnight to the next midnight.

**Defective**, when modifying the word “Work,” refers to Work that is unsatisfactory, faulty, or deficient in that it does not conform to the Contract Documents or does not meet the requirements of any inspection, reference standard, test, or approval referred to in the Contract Documents, or has been damaged prior to the Designer’s recommendation of final payment.

**Designer(s)** are those referred to within this Contract, or their authorized representatives. The Designer(s), as referred to herein, shall mean architect and/or Engineer or other professional. They will be referred to hereinafter as if each were of the singular number, masculine gender. In instances where the Owner performs functions typically done by the Designer, references to the Designer may also refer to the Owner.

**Drawings** shall mean that part of the Contract Documents prepared or approved by Designer which graphically shows the scope, extent, and character of the Work to be performed by Contractor. Shop Drawings and other Contractor submittals are not Drawings as so defined.

**Effective Date of the Contract** shall mean the date indicated in the Contract on which it becomes effective, but if no such date is indicated, it means the date on which the Contract is signed and delivered by the last of the two parties to sign and deliver.

**“Equal to” or “Approved Equal” or “Or-Equal”** shall mean materials, products, equipment, assemblies, or installation methods considered equal by the Owner in all characteristics (physical, functional, and aesthetic) to those specified in the Contract Documents.

**Hazardous Environmental Condition** shall mean the presence at the Site of Asbestos, PCBs, Petroleum, Hazardous Waste, or Radioactive Material in such quantities or circumstances that may present a substantial danger to persons or property exposed thereto in connection with the Work.

**Hazardous Waste** shall have the meaning provided in the Solid Waste Disposal Act (42 USC Section 6903) as amended from time to time.

**Inspection** shall mean examination or observation of Work completed or in progress to determine its compliance with the Contract Documents.

**Laws and Regulations; Laws or Regulations** shall mean any and all applicable laws, rules, regulations, ordinances, codes, and orders of any and all governmental bodies, agencies, authorities, and courts having jurisdiction.

**Liens**, as used herein, shall mean charges, security interests, or encumbrances upon Project funds, real property, or personal property.

**Liquidated Damages**, as used herein, is an amount reasonably estimated in advance to cover the losses incurred by the Owner by reason of failure of the Contractor(s) to complete the Work within the time specified.

**Milestone**, as used herein, shall mean a principal event specified in the Contract Documents relating to an intermediate completion date or time prior to Substantial Completion of all the Work.

**Notice of Award** shall mean the Approval of the proposal by the Brunswick County Board of Commissioners at a public meeting or a signed "Notice of Award" form stating that upon timely compliance by the apparent successful bidder with the conditions precedent listed therein, Owner will execute the Contract.

**Notice to Proceed** shall mean a written notice given by Owner to Contractor fixing the date on which the time of completion will commence to run and on which Contractor shall start to perform the Work under the Contract Documents.

**Owner** shall mean Brunswick County or any entity or department thereof. Typically, references to Owner shall refer to the County department responsible for overseeing the Work. However, the context may indicate the specific entity of the County referred to. The "County Commissioners" refers to the specific board in its official duty that governs County affairs and, based on context, may also be synonymous with the term "Owner."

**Partial Utilization** is use by Owner of a substantially completed part of the Work for the purpose for which it is intended (or a related purpose) prior to Substantial Completion of all the Work.

**PCBs** are polychlorinated biphenyls.

**Petroleum**, including crude oil or any fraction thereof, which is liquid at standard conditions of temperature and pressure (60 degrees Fahrenheit and 14.7 pounds per square inch absolute), such as oil, petroleum, fuel oil, oil sludge, oil refuse, gasoline, kerosene, and oil mixed with other non-Hazardous Waste and crude oils.

**Project** is the total construction Work to be performed under the Contract Documents by the various contractors.

**Project Expediter**, as used herein, is an entity stated in the Contract Documents, designated to effectively facilitate scheduling and coordination of Work activities. See Articles "Construction Supervision" and "Schedule" for responsibilities of a Project Expediter. **For the purposes of a single prime contract, the single prime Contractor shall be designated as the Project Expediter.**

**Project Manual** shall mean the bound documentary information prepared for bidding and constructing the Work. A listing of the contents of the Project Manual, which may be bound in one or more volumes, is contained in the table(s) of contents.

**Radioactive Material** shall mean source, special nuclear, or byproduct material as defined by the Atomic Energy Act of 1954 (42 USC Section 2011 et seq.) as amended from time to time.

**Request for Payment** shall mean the form acceptable to Designer 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.

**Routine Written Communications Between the Designer and the Contractor** are any communication other than a “request for information” provided in letter, memo, or transmittal format, sent by mail, courier, electronic mail, hand delivery, or facsimile. Written directives are included in this definition. Such communications cannot be identified as a “request for information.”

**Samples** are physical examples of materials, equipment, or workmanship that are representative of some portion of the Work and which establish the standards by which such portion of the Work will be judged.

**Shop Drawings** are all Drawings, diagrams, illustrations, schedules, and other data or information which are specifically prepared or assembled by or for Contractor and submitted by Contractor to illustrate some portion of the Work.

**Site** means 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 for access thereto, and such other lands furnished by Owner which are designated for the use of Contractor.

**Specifications** are that part of the Contract Documents consisting of written technical descriptions of materials, equipment, systems, standards, and workmanship as applied to the Work and certain administrative details applicable thereto.

**Subcontractor**, as used herein, shall be understood to be one who has entered into a direct contract with a Contractor or another Subcontractor, and includes one who furnishes materials worked to a special design in accordance with plans and Specifications covered by the Contract, but does not include one who only sells or furnishes materials not requiring work so described or detailed.

**Substantial Completion** is the time at which the Work (or a specified part thereof) has progressed to the point where, in the opinion of Designer, 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.

**“Substitution” or “Substitute”** shall mean materials, products, equipment, assemblies, or installation methods deviating in at least one characteristic (physical, functional, or aesthetic) from those specified or deviating from the specific manufacturers listed in the Technical Specifications when “Only” the specific manufacturer is indicated as being acceptable. Substitutions shall, in the opinion of the bidder, improve competition and/or enhance the finished installation.

**Supplementary Conditions** are that part of the Contract Documents which amend or supplement these General Conditions.

**Supplier** is 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 any Subcontractor.

**Surety**, as used herein, shall mean the bonding company or corporate body which is bound with and for the Contractor, and which engages to be responsible for the Contractor and his acceptable performance of the Work.

**Time of Completion**, as stated in the Contract Documents, is to be interpreted as consecutive calendar days measured from the date established in the written Notice to Proceed, or such other date as may be established herein (Article “Time of Completion, Delays, Extension of Time”).

**Underground Facilities** are all underground pipelines, conduits, ducts, cables, wires, manholes, vaults, tanks, tunnels, or other such facilities or attachments, and any encasements containing such facilities, including those that convey electricity, gases, steam, liquid petroleum products, telephone or other communications, cable television, water, wastewater, storm water, other liquids or chemicals, or traffic or other control systems.

**Unit Price Work** is Work to be paid for on the basis of unit prices.

**Work**, as used herein as a noun, is intended to be the completed construction including materials, labor, and workmanship of the appropriate Contractor as required by the Contract Documents.

**Work Change Directive**, as used herein, shall mean a written statement to Contractor issued on or after the Effective Date of the Contract and signed by Owner and recommended by Designer ordering an addition, deletion, or revision in the Work, or responding to differing or unforeseen subsurface or physical conditions under which the Work is to be performed or to emergencies. A Work Change Directive will not change the Contract Price or the Time of Completion but is evidence that the parties expect that the change ordered or documented by a Work Change Directive will be incorporated in a subsequently issued Change Order following negotiations by the parties as to its effect, if any, on the Contract Price or Time of Completion.

**Written Notice or Written Directive** shall be defined as notice in writing delivered in person to the Contractor, or to a partner of the firm in the case of a partnership, or to a member of the contracting organization, or to an officer of the organization in the case of a corporation, or sent to the last known business address of the contracting organization.

## ARTICLE 2 – TERMINOLOGY AND INTENT OF DOCUMENTS

- A. The Contract Documents are complementary; what is called for by one is as binding as if called for by all. The intent of the Contract Documents is to establish the scope of all labor, materials, transportation, equipment, and any and all other things necessary to provide a complete job. Any labor, documentation, services, materials, or equipment that may reasonably be inferred from the Contract Documents or from prevailing custom or trade usage as being required to produce the intended result will be provided whether or not specifically called for at no additional cost to the Owner.
- B. In case of discrepancy or disagreement in the Contract Documents, the order of precedence shall be: Form of Contract, Instructions to Bidders, Notice to Bidders,

Invitation to Bid, Instructions to Bidders, Supplementary General Conditions, Specifications, General Conditions, large-scale Drawings, small-scale Drawings.

- C. The wording of the Specifications shall be interpreted in accordance with common usage of the language except that words having a commonly used technical or trade meaning shall be so interpreted in preference to other meanings.

**D. Intent of Certain Terms or Adjectives**

Whenever in the Contract Documents the terms “as allowed,” “as approved,” or terms of like effect or import are used, or the adjectives “reasonable,” “suitable,” “acceptable,” “proper,” “satisfactory,” or adjectives of like effect or import are used to describe an action or determination of Designer as to the Work, it is intended that such action or determination will be solely to evaluate, in general, the completed Work for compliance with the requirements of and information in the Contract Documents and conformance with the design concept of the completed 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 shall not be effective to assign to Designer 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 the Article “Designer’s Status” or any other provision of the Contract Documents.

**E. Furnish, Install, Perform, Provide**

1. “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. “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. “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. When “furnish,” “install,” “perform,” or “provide” is not used in connection with services, materials, or equipment in a context clearly requiring an obligation of Contractor, “provide” is implied.

**ARTICLE 3 – EXECUTION OF DOCUMENTS**

The Contractor shall execute each copy of the proposal, Contract, performance bond and payment bond as follows:

- A. If the documents are executed by a sole owner, that fact shall be evidenced by the word “Owner” appearing after the name of the person executing them.
- B. If the documents are executed by a partnership, that fact shall be evidenced by the word “Co-Partner” appearing after the name of the partner executing them.

- C. If the documents are executed on the part of a limited liability company, they shall be executed by a Manager with authority to commit the company to the Contract and the title of the office of such person shall appear after their signature.
- D. If the documents are executed on the part of a corporation, they shall be executed by either the president or the vice president and attested by the secretary or assistant secretary in either case, and the title of the office of such persons shall appear after their signatures. The seal of the corporation shall be impressed on each signature page of the documents.
- E. If the documents are made by a joint venture, they shall be executed by each member of the joint venture in the above form for sole owner, partnership, company, or corporation, whichever form is applicable to each particular member.
- F. All signatures shall be properly witnessed.
- G. If the Contractor's license is held by a person other than an owner, partner or officer of a firm, then the licensee shall also sign and be a party to the Contract. The title "Licensee" shall appear under his/her signature.
- H. The bonds shall be executed by an attorney-in-fact. There shall be attached to each copy of the bond a certified copy of power of attorney properly executed and dated.
- I. Each copy of the bonds shall be countersigned by an authorized individual agent of the bonding company licensed to do business in North Carolina. The title "Licensed Resident Agent" shall appear after the signature.
- J. The seal of the bonding company shall be impressed on each signature page of the bonds.
- K. The Contractor's signature on the performance bond and the payment bond shall correspond with that on the Contract.

#### **ARTICLE 4 – REVIEW OF CONTRACT DOCUMENTS AND CLARIFICATIONS**

- A. **Contractor's Review of Contract Documents.** Before undertaking each part of the Work, Contractor shall carefully study and compare the Contract Documents and check and verify pertinent figures therein and all applicable field measurements. Contractor shall promptly report in writing to Designer any conflict, error, ambiguity, omission, or discrepancy which Contractor may discover and shall obtain a written interpretation or clarification from Designer before proceeding with any Work affected thereby; however, Contractor shall not be liable to Owner or Designer for failure to report any conflict, error, ambiguity, omission, or discrepancy in the Contract Documents unless Contractor knew or reasonably should have known thereof.
- B. In such cases where the nature of the Work requires clarification by the Designer, such clarification shall be furnished by the Designer with reasonable promptness by means of written instructions or detail Drawings, or both. Clarifications and Drawings shall be consistent with the intent of Contract Documents, and shall become a part thereof.

- C. The Contractor(s) and the Designer shall prepare, if deemed necessary, a schedule fixing dates upon which foreseeable clarifications will be required. The schedule will be subject to addition or change in accordance with progress of the Work. The Designer shall furnish Drawings or clarifications in accordance with that schedule. The Contractor shall not proceed with the Work without such detail Drawings and/or written clarifications.
- D. Where needed Specifications or details are omitted from the Contract Documents, the Contractor shall promptly report such omissions to the Designer and wait for clarification before proceeding with the Work. Brunswick County details and Specifications, latest versions, will be used to determine Work description, materials, construction methods, and method of measurement, unless directed otherwise by the Designer.

## **ARTICLE 5 – SITE DOCUMENTATION**

The Contractor is required to provide detailed video or photo documentation of Site conditions prior to mobilization. The extent of the Project Site shall be video/photo documented including, but not limited to: all access roads into and out of the Site, haul roads, existing utilities, staging and stockpile areas, culverts, bridges, drainage features, adjacent driveways, adjacent structures, existing facilities, stream and floodplains adjacent and immediately downstream of the Project area, and any other areas that might potentially be impacted by construction. Videos and photos shall have the dates and times taken digitally indicated.

## **ARTICLE 6 – REFERENCE TO STANDARDS, CODES, LAWS, AND REGULATIONS**

- A. Reference to standards, Specifications, manuals, 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, code, or Laws or Regulations in effect at the time of opening 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.
- B. No provision of any such standard, specification, manual or code, or any instruction of a Supplier shall be effective to change the duties or responsibilities of Owner, Contractor, or Designer, or any of their Subcontractors, consultants, agents, or employees from those set forth in the Contract Documents, nor shall any such provision or instruction be effective to assign to Owner, Designer, or any of Designer's Consultants, agents, or employees 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 Contract Documents.
- C. If, during the performance of the Work, Contractor discovers any conflict, error, ambiguity, or discrepancy within the Contract Documents or between the Contract Documents and any provision of any Law or Regulation applicable to the performance of the Work or of any standard, specification, manual or code, or of any instruction of any Supplier, Contractor shall report it to Designer in writing at once. Contractor shall not proceed with the Work affected thereby (except in an emergency) until an amendment or supplement to the Contract Documents has been issued.

- D. The Contractor shall give all notices and comply with all laws, ordinances, codes, encroachment agreements, rules and regulations bearing on the conduct of the Work under this Contract. Any necessary changes required after Contract award shall be made by Change Order in accordance with Article “Changes in the Work.” If the Contractor performs any Work knowing it to be contrary to such laws, ordinances, codes, encroachment agreements, rules and regulations, and without such notice to the Designer, he shall bear all cost arising therefrom. Additional requirements implemented after bidding will be subject to equitable negotiations.
- E. All Work under this Contract shall conform to the North Carolina State Building Code and other state, local and national codes as are applicable. The cost of all required inspections and permits shall be the responsibility of the Contractor.

#### **ARTICLE 7 – PERMITS**

Unless otherwise provided in the Supplementary Conditions, 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 opening Bids, or, if there are no Bids, on the Effective Date of the Contract. Contractor shall pay all charges of utility owners for connections to the Work.

#### **ARTICLE 8 – COPIES OF DESIGN DRAWINGS AND SPECIFICATIONS**

The Designer shall furnish free of charge to the Contractors copies of plans and Specifications as follows:

- A. General Contractor and single-prime Contractor - Up to five (5) sets of general Contractor Drawings and Specifications. One of these sets shall be used by the Contractor to clearly and legibly record all work-in-place that is at variance with the Contract Documents.
- B. Each other Contractor - Up to five (5) sets of the appropriate Drawings and Specifications. One of these sets shall be used by the Contractor to clearly and legibly record all work-in-place that is at variance with the Contract Documents.
- C. Additional sets shall be furnished at cost, including mailing, to the Contractor upon request by the Contractor.

#### **ARTICLE 9 – APPROVING SUBSTITUTES AND “OR EQUAL” ITEMS**

- A. Products are generally specified by ASTM or other reference standard and/or by manufacturer’s name and model number or trade name. When specified only by reference standard, the Contractor may select any product meeting this standard, by any manufacturer. 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 specification or description is intended to establish the general style, type, character, function, appearance, and quality required. Equivalent products are acceptable and bidders are not restricted to the specific brand, make, manufacturer or specific name unless the specification indicates that “only” the specific manufacturer is acceptable or the description contains words reading that no

like, equivalent, or substitution is permitted. Other items of material or equipment or material or equipment of other Suppliers may be submitted to Designer for review under the circumstances described below and as outlined in the Instructions to Bidders Article “Substitutions”.

1. **“Or-Equal” Items:** In cases where the technical specification indicate a specific brand, if in the Designer’s and Owner’s discretion 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, it may be considered by Designer as an “or-equal” item, in which case review and approval of the proposed item may, in Designer’s discretion, be accomplished without compliance with some or all of the requirements for approval of proposed substitute items. 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 Designer determines that: (i) it is at least equal in quality, durability, appearance, strength, and design characteristics; (ii) it will reliably perform at least equally well the function imposed by the design concept of the completed Project as a functioning whole, and;
  - b. Contractor certifies that: (i) there is no increase in cost to the Owner; and (ii) it will conform substantially, even with deviations, to the detailed requirements of the item named in the Contract Documents.

2. **Substitute Items**

- a. If in Designer’s and Owner’s discretion an item of material or equipment proposed by Contractor does not qualify as an “or-equal” item under the paragraph above, it will be considered a proposed substitute item.
- b. Request for substitution of materials, items, or equipment shall be submitted to the Designer for approval or disapproval ten days prior to the opening of bids. Substitution submittals made after this point shall be reviewed at the discretion of the Designer.
- c. Contractor shall submit sufficient information as provided below and as stated in the Instructions to Bidders to allow Designer to determine that the item of material or equipment proposed is essentially equivalent to that named and an acceptable substitute therefor. Requests for review of proposed substitute items of material or equipment will not be accepted by Designer from anyone other than prime bidders.
- d. By making requests for substitutions, the Contractor:
  - i. Represents that he has personally investigated the proposed substitute product and determined that it is of equal or superior in all aspects to that specified;
  - ii. Represents that he will provide, at minimum, the same warranty for the substitute that he would for that specified.
  - iii. Certifies that the cost of data presented is complete and includes all related costs under this Contract but excludes costs under separate contracts, and

excludes the Designers redesign costs, and waives all claims for additional costs related to the substitution which subsequently becomes apparent; and

- iv. Will coordinate the installation of the accepted substitute, making such changes as may be required for the Work to be complete in all respects.
- B. Preferred Brands:** In accordance with the provisions of NCGS 133-3 the Contract Documents may list one or more preferred brands to provide overall cost savings to the Owner and/or to maintain or improve the functioning of any process or system affected by the preferred item or items. The use of Preferred Brands on the Project is at the sole discretion of the Owner. In the event that the Contractor's proposal does not indicate an increased cost for the use of Preferred Brands, the Contractor shall use Preferred Brands on the Project, unless notified otherwise in writing by the Owner. The Owner's preference of Preferred Brands for specific items shall be stated in the Contract Documents, typically on an Approved Products List in the Supplementary General Conditions, the Proposal Form, or in the Technical Specifications. A bid alternate may be used on the Proposal Form to determine the cost difference between Preferred Brands and other products meeting the performance specification. Where there is a cost differential between a Preferred Brand item and the other equivalent item, the Contractor shall provide a listing of the equivalent item type, manufacturer, model, item number, and cost savings compared to using a Preferred Brand item. When Preferred Brands are indicated in the Contract Documents for specific items, but the Owner chooses not to require the use of Preferred Brands for a specific item, the Contractor is advised that any product submitted for use on the Project must still be approved in accordance with the section "Or-Equal Items".
- C. Substitute Construction Methods or Procedures:** If a specific means, method, technique, sequence, or procedure of construction is shown or indicated in and expressly required by the Contract Documents, Contractor may furnish or utilize a substitute means, method, technique, sequence, or procedure of construction approved by Designer. Contractor shall submit sufficient information to allow Designer, in Designer's sole discretion, to determine that the substitute proposed is equivalent to that expressly called for by the Contract Documents.
- D. Designer's Evaluation:** Designer will be allowed a reasonable time within which to evaluate each proposal or submittal. Designer will be the sole judge of acceptability. No "or-equal" or substitute will be ordered, installed, or utilized until Designer's review is complete, which will be evidenced by either a Directive for a substitute or an approved Shop Drawing for an "or-equal." Designer will advise Contractor in writing of any negative determination.
- E. Special Guarantee:** Owner may require Contractor to furnish at Contractor's expense a special performance guarantee or other Surety with respect to any substitute.
- F. Contractor's Expense:** Contractor shall provide all data, including any required engineering, in support of any proposed substitute or "or-equal" at Contractor's expense.

## ARTICLE 10 – SHOP DRAWINGS, SUBMITTALS, SAMPLES, DATA

- A. Within ten (10) consecutive calendar days after the Notice to Proceed, each prime Contractor shall submit a schedule for anticipated submittal of all Shop Drawings,

Product Data, Samples, and similar submittals to the Project Expediter and the Designer. This schedule shall indicate the items, relevant specification sections, other related submittal, data, and the date when these items will be furnished to the Designer.

- B. The Contractor shall review, approve and submit to the Designer all Shop or Setting Drawings, Product Data, Samples, Color Charts, and similar submittal data required or reasonably implied by the Contract Documents. Shop Drawing submittals shall be made using the "Contractor Submittal" form and shall be made in accordance with the Project schedule. Required Submittals shall bear the Contractor's stamp of approval and any exceptions to the Contract Documents shall be noted on the submittals. A minimum of three (3) copies of each submittal shall be submitted to the Designer to retain and the Contractor shall supply, at the request of the Designer, additional copies as needed. Submittals shall be presented to the Designer with reasonable promptness and time so as to cause no delay in the activities of the Owner or of separate Contractors.
- C. Shop Drawing submittals shall be complete with respect to quantities, dimensions, Drawings, specified performance, design criteria, and materials and shall be detailed sufficiently to enable the Designer to determine compliance with the Contract Documents.
- D. The Designer shall review required submittals promptly, noting desired corrections if any, and returning a copy of the annotated Shop Drawings to the Contractor no later than twenty (20) days from the date of receipt by the Designer. When resubmittals are required, the submittal procedure shall be the same as for the original submittals. The Contractor shall not be entitled to any Time of Completion extension for review and approval of Shop Drawings by the Designer.
- E. Approval of Shop Drawings by the Designer shall not be construed as relieving the Contractor from responsibility for compliance with the design or terms of the Contract Documents nor from responsibility of errors of any sort in the Shop Drawings, unless such lack of compliance or errors first have been called in writing to the attention of the Designer by the Contractor.
- F. The Owner may assess the Contractor the cost of Shop Drawing review for Shop Drawing submittals in excess of three (3) for any one item.

#### **ARTICLE 11 – REFERENCE POINTS AND CONSTRUCTION SURVEYING**

- A. Engineering surveys shall be provided to establish reference points for construction which in Designer'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 prior written approval. Contractor shall report to Designer 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 a registered professional surveyor.
- B. The Contractor shall be responsible for all of the field horizontal layout and vertical control of the facilities. Construction Surveying shall include, but not be limited to,

furnishing personnel, all surveying equipment, stakes, layout drawings, calculations, stakeout records, all materials necessary to perform the surveying work, staking clearing limits, staking centerlines, miscellaneous staking necessary for construction, locating reference points and benchmarks, and any other survey incidental to construction. Unless directed otherwise by the Designer, Survey personnel shall be under the direct supervision of a North Carolina Registered Professional Land Surveyor in conformance with NCGS 89C. Benchmarks and reference points shall be indicated by a metal monument cap set on a minimum 36" long #5 reinforcing bar with an adjacent carsonite witness stake and shall be permanently preserved.

- C. Upon completion of the stakeout and prior to beginning construction, the Contractor shall give the Designer a 48-hour notice in order to inspect the construction staking. The Designer's review of the Contractor's work in no way relieves the Contractor of responsibility for conformance with the Contract Documents. Failure by the Designer to point out unsatisfactory Work, from lack of discovery or for any other reason, in no way prevents later rejection or corrections to the unsatisfactory Work, when discovered, at no cost to the Owner. No claims will be allowed for losses suffered due to any necessary removal or repairs resulting from the unsatisfactory Work. When requested by the Designer, the accuracy of the stakeout will be checked by the Contractor.
- D. When surveying is required that could not have been reasonably anticipated, the Contractor shall notify the Designer in writing prior to beginning such Work and will proceed according to the General Conditions of the Contract for "Claims for Extra Cost."

#### **ARTICLE 12 – RECORD DRAWINGS AND SPECIFICATIONS AT THE JOB SITE**

The Contractor shall maintain, in readable and secure condition at his job office, one complete set of the Contract Documents including record Drawings, Specifications, Addenda, Change Orders, Written Directives, Work Change Directives, and written interpretations and clarifications. Additionally, a copy of all Shop Drawings and the Project Manual shall be maintained at the job office. These materials shall be annotated to show changes made during construction. The Contractor shall maintain at the job office, a day-to-day record of work-in-place that is at variance with the Contract Documents. Such materials shall be made available for use by the Owner, Designer, or his authorized representative and shall be submitted to the Owner upon Project completion and prior to final payment.

#### **ARTICLE 13 – AS-BUILT DRAWINGS**

Unless otherwise indicated in the Supplementary General Conditions, the Contractor is responsible for furnishing certified "As-Built" Drawings in the form of signed and sealed (professional surveyor or professional engineer) plans per the North Carolina Board of Engineers and Surveyors guidelines. Electronic copies (Acrobat PDF file format and either MicroStation or Autocad format) and two (2) sets of photographic mylars or vellums shall be furnished to the Owner prior to final payment. As-built Drawings shall verify or adjust elevations, dimensions, locations, and materials incorporated into the completed Work.

## **ARTICLE 14 – OWNERSHIP OF WORK PRODUCT**

All Drawings and Specifications (including electronic media) are instruments of service and remain the property of the Owner. The use of these instruments on Work other than this Contract without permission of the Owner is prohibited. Contractor and any Subcontractor or Supplier or other individual or entity performing or furnishing any of the Work under a direct or indirect contract with Owner: (i) shall not 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 Designer or Designer's Consultant, including electronic media editions; and (ii) shall not reuse any of such Drawings, Specifications, other documents, or copies thereof on extensions of the Project or any other Project without written consent of Owner. This prohibition will survive final payment, completion, and acceptance of the Work, or termination or completion of the Contract. Nothing herein shall preclude Contractor from retaining copies of the Contract Documents for record purposes or for furnishing as-built Drawings. Any other documents generated by Contractor's performance hereunder shall become the property of Owner and may be used by Owner for this Project or future projects without additional compensation to Contractor. Owner acknowledges that its use of such documents on projects other than the Project covered by this Contract shall be at its own risk.

## **ARTICLE 15 – MATERIALS, EQUIPMENT, EMPLOYEES**

- A. The Contractor shall, unless otherwise specified, supply and pay for all labor, transportation, materials, tools, apparatus, lights, power, heat, sanitary facilities, water, scaffolding and incidentals necessary for the completion of his Work, and shall install, maintain and remove all equipment of the construction, other utensils or things, and be responsible for the safe, proper and lawful construction, maintenance and use of same, and shall construct in the best and most workmanlike manner, a complete job and everything incidental thereto, as shown on the plans, stated in the Specifications, or reasonably implied therefrom, all in accordance with the Contract Documents.
- B. All materials shall be new and of quality specified, except where reclaimed material is authorized herein and approved for use. Workmanship shall at all times be of a grade accepted as the best practice of the particular trade involved, and as stipulated in written standards of recognized organizations or institutes of the respective trades except as exceeded or qualified by the Specifications.
- C. Upon notice, the Contractor shall furnish evidence as to quality of materials.
- D. Each Contractor shall obtain written approval from the Designer for the use of products, materials, equipment, assemblies or installation methods claimed as equal to those specified. Such approvals must be obtained as soon after Contract awards as possible and before any materials are ordered. Applications for approvals shall be made by the Contractor and not by Subcontractors or material Suppliers within thirty (30) days following award of Contract. When the submittal schedule provided under Article "Shop Drawings, Submittals, Samples, Data" Paragraph (A) is approved, no further substitutions will be permitted except in unusual or extenuating circumstances. If no list is submitted, the Contractor shall supply materials specified.
- E. The Designer is the judge of equality for proposed substitution of products, materials or equipment.

- F. If at any time during the construction and completion of the Work covered by these Contract Documents, the conduct of any workman of the various crafts be adjudged a nuisance to the Owner or Designer, or if any workman be considered detrimental to the Work, the Contractor shall order such parties removed immediately from grounds.

#### **ARTICLE 16 – EQUAL OPPORTUNITY CLAUSE**

The non-discrimination clause contained in Section 202 (Federal) Executive Order 11246, as amended by Executive Order 11375, relative to equal employment opportunity for all persons without regard to race, color, religion, sex, sexual orientation, gender identity or national origin, and the implementing rules and regulations prescribed by the Secretary of Labor, are incorporated herein. Contractor shall not discriminate against any employee or applicant for employment based on the foregoing or based on age, religion, disability, ancestry, citizenship, genetic information, political affiliation or military/veteran status or any other status protected by Laws or Regulations. Contractor shall take affirmative action to ensure that applicants are employed and that employees are treated fairly during employment. In the event Contractor is determined by the final order of an appropriate agency or court of competent jurisdiction to be in violation of any non-discrimination provision of any Laws or Regulations, the Contractor may be declared ineligible for future business opportunities with Owner.

#### **ARTICLE 17 – EMPLOYMENT OF THE HANDICAPPED**

The Contractor(s) agree not to discriminate against any employee or applicant for employment because of physical or mental handicap in regard to any position for which the employee or applicant is qualified. The Contractor agrees to take affirmative action to employ, advance in employment and otherwise treat qualified handicapped individuals without discrimination based upon their physical or mental handicap in all employment practices.

#### **ARTICLE 18 – ROYALTIES, LICENSES, AND INTELLECTUAL PROPERTY**

It is the intention of the Contract Documents that the Work covered herein will not constitute in any way infringement of any intellectual property right.. In addition to the indemnity provisions set forth herein, the Contractor shall protect and save harmless the Owner against suit on account of alleged or actual infringement. The Contractor shall pay all royalties and/or license fees required on account of any material protected by intellectual property laws, whether such rights are evidenced hereinafter.

#### **ARTICLE 19 – USE OF PREMISES**

- 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. Owner will obtain in a timely manner and pay for easements for permanent structures or permanent changes in existing facilities.
- B. Contractor shall provide for all additional lands and access thereto that may be required for temporary construction facilities or storage of materials and equipment.

- C. The Contractor(s) shall confine his apparatus, the storage of materials and the operations of his workmen to limits indicated by law, ordinances, permits or directions of the Designer and shall not exceed those established limits in his operations.
- D. The Contractor(s) shall not load or permit any part of any structure or property to be loaded with a weight that will endanger its safety or that of subsurface facilities.
- E. The Contractor(s) shall enforce the all instructions regarding signs, advertisements, fires and smoking.
- F. No firearms, any type of alcoholic beverages, or drugs (other than those prescribed by a physician) will be permitted at the Site.

## **ARTICLE 20 – SUBSURFACE AND PHYSICAL CONDITIONS**

- A. The Project Manual may contain reports, explorations, tests, or Drawings of subsurface conditions and subsurface structures at or contiguous to the Site. Contractor may rely upon the general accuracy of the “technical data” contained in such reports and Drawings, but such reports and Drawings are not Contract Documents. Such “technical data” is identified in the Project Manual. Except for such reliance on such “technical data,” Contractor may not rely upon or make any Claim against Owner, Designer, or any Designer’s Consultants 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.

### **B. Differing Subsurface or Physical Conditions**

- 1. **Notice:** If Contractor believes that any subsurface or physical condition at or contiguous to the Site that is uncovered or revealed either:
  - a. is of such a nature as to establish that any “technical data” on which Contractor is entitled to rely as indicated above is materially inaccurate; or
  - b. is of such a nature as to require a change in the Contract Documents; or
  - c. differs materially from that shown or indicated in the Contract Documents; or
  - d. 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), notify Owner and Designer in writing about such condition.

Contractor shall not further disturb such condition or perform any Work in connection therewith (except as aforesaid) until receipt of written order to do so.

- C. **Designer's Review:** After receipt of written notice as required by above, Designer will promptly review the pertinent condition, determine the necessity of Owner's obtaining additional exploration or tests with respect thereto, and advise Owner in writing (with a copy to Contractor) of Designer's findings and conclusions.

D. **Possible Price and Times Adjustments**

1. The Contract Price or the Time of Completion, or both, will be equitably adjusted to the extent that the existence of such differing subsurface or physical condition 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 meet any one or more of the categories described above under "Differing Subsurface or Physical Conditions" and
  - 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 Unit Price Work.
2. Contractor shall not be entitled to any adjustment in the Contract Price or Time of Completion if:
  - a. Contractor knew of the existence of such conditions at the time Contractor made a final commitment to Owner in respect of Contract Price and Time of Completion by the submission of a Bid or becoming bound under a negotiated contract; or
  - b. the existence of such condition could reasonably have been discovered or revealed as a result of any examination, investigation, exploration, test, or study of the Site and contiguous areas required by the Bidding Requirements or Contract Documents to be conducted by or for Contractor prior to Contractor's making such final commitment; or
  - c. Contractor failed to give the written notice within the time and as required by the section "Differing Subsurface of Physical Conditions."
3. NOTE ON TRENCHLESS EXCAVATION (Horizontal Directional Drill, Bore & Jack, etc.) – Encountering rock or other hardened material during the installation of pipe by trenchless excavation methods shall not be considered a "Differing Subsurface Condition or Physical Condition" and no adjustment to the Contract Price or Time of Completion shall be approved. The Contractor is hereby notified that rock and other hardened material is routinely encountered in and around Brunswick County, NC. Per the "Instructions To Bidders", the Contractor is required to satisfy himself as to the nature of subsurface conditions and the Owner recommends that the Contractor perform subsurface investigation prior to submitting a bid.
4. If Owner and Contractor are unable to agree on entitlement to or on the amount or extent, if any, of any adjustment in the Contract Price or Time of Completion, or both, a Claim may be made therefor as provided elsewhere in the General Conditions. However, Owner, Designer, and Designer's Consultants shall not be

liable to Contractor for any claims, costs, losses, or damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or other dispute resolution costs) sustained by Contractor on or in connection with any other Project or anticipated Project.

## **ARTICLE 21 – UNDERGROUND FACILITIES**

**A. Shown or Indicated:** The information and data shown or indicated in the Contract Documents with respect to existing Underground Facilities at or contiguous to the Site is based on information and data furnished to Owner or Designer by the owners of such Underground Facilities, including Owner, or by others. Unless it is otherwise expressly provided in the Supplementary General Conditions:

1. Owner and Designer shall not be responsible for the accuracy or completeness of any such information or data; and
2. The cost of all the following will be included in the Contract Price, and Contractor shall have full responsibility for:
  - a. reviewing and checking all such information and data,
  - b. locating all Underground Facilities shown or indicated in the Contract Documents and maintaining all utility markings (paintings, stakes, etc.) until the Owner provides written acceptance of the Project.
  - c. coordination of the Work with the owners of such Underground Facilities, including Owner, prior to and during construction, and
  - d. the safety and protection of Underground Facilities and repairing any damage resulting from the Work inclusive of required relocations, and
  - e. the Contractor will be responsible for coordinating and obtaining approval for utility interruptions caused by the Work and for all costs associated with the repair and disruption of any underground utility facility.

### **B. Not Shown or Indicated**

1. If an Underground Facility is uncovered or revealed at or contiguous to the Site which was not shown or indicated, or not shown or indicated with reasonable accuracy in the Contract Documents, 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) identify the owner of such Underground Facility and give written notice to that owner and to Owner and Designer. Designer will promptly review the Underground Facility and determine the extent, if any, to which a change is required in the Contract Documents to reflect and document the consequences of the existence or location of the Underground Facility. During such time, Contractor shall be responsible for the safety and protection of such Underground Facility.
2. If Designer concludes that a change in the Contract Documents is required, a Work Change Directive or Written Directive, as applicable, will be issued to reflect and document such consequences. An equitable adjustment shall be made in the Contract Price or Time of Completion, or both, to the extent that they are

attributable to the existence or location of any Underground Facility that was not shown or indicated in the Contract Documents and that Contractor did not know of and could not reasonably have been expected to be aware of or to have anticipated. If Owner and Contractor are unable to agree on entitlement to or on the amount or extent, if any, of any such adjustment in Contract Price or Time of Completion, Owner or Contractor may make a Claim therefore as provided elsewhere in the General Conditions.

#### **ARTICLE 22 – CUTTING, PATCHING, AND DIGGING**

- A. The Contractor shall do all cutting, fitting or patching of his work that may be required to make its several parts come together properly and fit it to receive or be received by work of other contractors shown upon or reasonably implied by the Drawings and Specifications for the completed structure, as the Designer may direct.
- B. Any cost brought about by defective or ill-timed Work shall be borne by the party responsible therefore.
- C. No Contractor shall endanger any Work of another Contractor by cutting, digging or other means. No Contractor shall cut or alter the Work of any other Contractor without the consent of the Designer and the affected Contractor(s).

#### **ARTICLE 23 – UTILITIES, STRUCTURES, SIGNS**

- A. The Project Expediter shall provide necessary and adequate facilities for water, electricity, gas, oil, sewer, and other utility services, which may be necessary and required for completion of the Project. Any permanent meters installed shall be listed in the Project Expediter's name until his Work is fully accepted by the Owner. As stipulated in the Supplementary General Conditions, the Owner may: (1) pay utilities cost directly, (2) have the Project Expediter to pay all utilities cost, (3) or reimburse the Project Expediter for the actual cost of utilities. The Owner or Project Expediter, as applicable, may recover actual costs of metered utilities from the responsible party should delays occur in Project completion.
- B. Meters shall be relisted in the Owner's name on the day following completion and acceptance of the Project Expediter's work, and the Owner shall pay for services used after that date.
- C. The Owner shall be reimbursed for all metered utility charges after the meter is relisted in the Owner's name and prior to completion and acceptance of the Work of **all** contractors. Reimbursement shall be made by the Contractor whose work has not been completed and accepted. If the Work of two or more Contractors has not been completed and accepted, reimbursement to the Owner shall be paid by the Contractors involved on the basis of assessments by the Designer.
- D. Prior to the operation of permanent systems, the Project Expediter will provide temporary power, lighting, water, and heat to maintain space temperature above freezing, as required for construction operations.
- E. All Contractors shall have any permanent building systems in sufficient readiness for furnishing temporary climatic control at the time a building is enclosed and secured. The HVAC systems shall maintain climatic control throughout the enclosed portion

of the building sufficient to allow completion of the interior finishes of buildings. A building shall be considered enclosed and secured when windows, doorways (exterior, mechanical, and electrical equipment rooms), and hardware are installed; and other openings have protection which will provide reasonable climatic control. The appropriate time to start the mechanical systems and climatic condition shall be jointly determined by the Contractor(s) and the Designer. Use of the equipment in this manner shall in no way affect the warranty requirements of the Contractor(s).

- F. The Electrical Contractor shall have any building's permanent power wiring distribution system in sufficient readiness to provide power as required by the HVAC Contractor for temporary climatic control.
- G. The Electrical Contractor shall have any building's permanent lighting system ready at the time the general Contractor begins interior painting and shall provide adequate lighting in those areas where interior painting and finishing is being performed.
- H. Each prime Contractor shall be responsible for his permanently fixed service facilities and systems in use during progress of the Work. The following procedures shall be strictly adhered to:
  - 1. Prior to acceptance of Work by the Owner, each Contractor shall remove and replace any parts of the permanent building systems damaged through use during construction.
  - 2. Temporary filters shall be installed in each of the heating and air conditioning units and at each return grille during construction. New filters shall be installed in each unit prior to the Owner's acceptance of the Work.
  - 3. Extra effort shall be maintained to keep the building and the site adjacent to the building clean and under no circumstances shall air systems be operated if finishing and Site Work operations are creating dust in excess of what would be considered normal if the building were occupied.
  - 4. It shall be understood that any warranty on equipment presented to the Owner shall extend from the day of final acceptance by the Owner. The cost of warranting the equipment during operation in the finishing stages of construction shall be borne by the Contractor whose system is utilized.
  - 5. The Electrical Contractor shall have all lamps in proper working condition at the time of final Project acceptance.
- I. The Project Expediter shall provide, if required and where directed, a shed for toilet facilities and shall furnish and install in this shed all water closets required for a complete and adequate sanitary arrangement. These facilities will be available to other contractors on the job and shall be kept in a neat and sanitary condition at all times. Chemical toilets are acceptable.
- J. The Project Expediter shall, if required by the Supplementary General Conditions and where directed, erect a temporary field office, complete with lights, telephone, heat and air conditioning. A portion of this office shall be partitioned off, of sufficient size, for the use of a resident inspector, unless otherwise directed by the Designer.
- K. On multi-story construction projects, the Project Expediter shall provide temporary elevators, lifts, or other special equipment for the general use of all contractors. The

cost for such elevators, lifts or other special equipment and the operation thereof shall be included in the Project Expediter's bid.

- L. The Project Expediter will erect one sign on the Project, unless otherwise directed by the Designer. The sign shall be of sound construction neatly lettered with black letters on white background in accordance with Brunswick County standard details. The sign shall bear the name of the Project, and the names of prime Contractors on the Project, and the name of the Designer and consultants. Directional signs may be erected on the Owner's property subject to approval of the Owner with respect to size, style, and location of such directional signs. Such signs may bear the name of the Contractor and a directional symbol. No other signs will be permitted except by permission of the Owner.

#### **ARTICLE 24 – HAZARDOUS ENVIRONMENTAL CONDITIONS**

- A. The Project Manual may contain reports, explorations, tests, or Drawings of known Hazardous Environmental Conditions at or contiguous to the Site. Contractor may rely upon the general accuracy of the "technical data" contained in such reports and Drawings, but such reports and Drawings are not Contract Documents. Such "technical data" is identified in the Project Manual. Except for such reliance on such "technical data," Contractor may not rely upon or make any Claim against Owner, Designer, or any Designer's Consultants 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.
- B. Contractor shall not be responsible for any Hazardous Environmental Condition uncovered or revealed at the Site which was not shown or indicated in Drawings or Specifications or identified in the Contract Documents to be within the scope of the Work. Contractor shall be responsible for a Hazardous Environmental Condition created with any materials brought to the Site by Contractor, Subcontractors, Suppliers, or anyone else for whom Contractor is responsible.
- C. If Contractor encounters a Hazardous Environmental Condition or if Contractor or anyone for whom Contractor is responsible creates a Hazardous Environmental Condition, Contractor shall immediately: (i) secure or otherwise isolate such condition; (ii) stop all Work in connection with such condition and in any area affected thereby (except in an emergency); and (iii) notify Owner and Designer (and promptly thereafter confirm such notice in writing). Owner shall promptly consult with Designer concerning the necessity for Owner to retain a qualified expert to evaluate such condition or take corrective action, if any.
- D. Contractor shall not be required to resume Work in connection with such condition or in any affected area until after Owner has obtained any required permits related thereto and delivered to Contractor written notice: (i) specifying that such condition

and any affected area is or has been rendered safe for the resumption of Work; or (ii) specifying any special conditions under which such Work may be resumed safely. 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 Time of Completion, or both, as a result of such Work stoppage or such special conditions under which Work is agreed to be resumed by Contractor, either party may make a Claim as provided elsewhere in the General Conditions.

- E. 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. If Owner and Contractor cannot agree as to entitlement to or on the amount or extent, if any, of an adjustment in Contract Price or Time of Completion as a result of deleting such portion of the Work, then either party may make a Claim as provided elsewhere in the General Conditions. Owner may have such deleted portion of the Work performed by Owner's own forces or others in accordance with Article "Owners Right to Do Work."
- F. To the fullest extent permitted by Laws and Regulations and without limiting any other indemnity obligation set forth herein, Contractor shall indemnify and hold harmless Owner, Designer, Designer's Consultants, and the officers, directors, partners, employees, agents, other 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 other dispute resolution costs) should Contractor's, or anyone for whom Contractor is responsible, fault or negligence be the proximate cause of a Hazardous Environmental Condition. Nothing in this paragraph shall obligate Contractor to indemnify any individual or entity from and against the consequences of that individual's or entity's own negligence.
- G. The Owner has attempted to address all asbestos-containing materials that are to be disturbed in the Project. However, there may be other asbestos-containing materials in the Work areas that are not to be disturbed and do not create an exposure hazard. Contractors are reminded of the requirements of instructions under Instructions to Bidders and General Conditions of the Contract, titled Examination of Conditions. Statute 130A, amended August 3, 1989, established the Asbestos Hazard Management Program that controls asbestos abatement in North Carolina. The latest edition of *Guideline Criteria for Asbestos Abatement* available from the NC State Construction Office is to be incorporated in all asbestos abatement projects for the Capital Improvement Program.

## **ARTICLE 25 – PROTECTION OF WORK AND PROPERTY**

- A. The Contractors shall be jointly responsible for the entire Site and the building or construction of the same and provide all the necessary protections, as required by the Owner or Designer, and by Laws or Regulations governing such conditions. They shall be responsible for any damage to the Owner's property, or of that of others on the job, by them, their personnel, or their Subcontractors, and shall make good such damages. They shall be responsible for and pay for any damages caused to the Owner. All Contractors shall have access to the Project at all times.

- B. The Contractor shall provide cover and protect all portions of the structure when the Work is not in progress, provide and set all temporary roofs, covers for doorways, sash and windows, and all other materials necessary to protect all the Work on the building, whether set by him, or any of the Subcontractors. Any Work damaged through the lack of proper protection or from any other cause, shall be repaired or replaced without extra cost to the Owner.
- C. No fires of any kind will be allowed inside or around the operations during the course of construction without special permission from the Designer and Owner.
- D. The Contractor shall protect all trees and shrubs designated to remain in the vicinity of the operations by building substantial boxes around same. All ornamental trees and landscaping shall be protected, whether such protection is indicated or not within the Contract Documents. If ornamental trees and landscaping plantings are in the way of construction, the Contractor shall remove, maintain, and reinstall at locations designated by the Designer. Any ornamental trees and landscaping plantings damaged or that die within the warranty period shall be replaced by the Contractor at the Contractor's expense. Where equipment must cross walks, landscaping areas, or ramps, the Contractor shall provide steel plates or minimum 3/4" plywood sheets for protection of these areas.
- E. The Contractor shall barricade all walks, roads, etc., and any areas directed by the Designer to keep the public away from the construction. All trenches, excavations or other hazards in the vicinity of the Work shall be well barricaded and properly lighted at night.
- F. In the event of emergency affecting the safety of life, the protection of Work, or the safety of adjoining properties, the Contractor is hereby authorized and is obligated to act at his own discretion, without further authorization from anyone, to prevent such threatened injury or damage. Any compensation claimed by the Contractor on account of such action shall be determined as provided for under Article "Changes in the Work," Paragraph (B).

## ARTICLE 26 – SAFETY

- A. The Contractor shall be solely responsible for initiating, maintaining, providing, and supervising all necessary safety precautions, safety programs, and safety measures for the protection of all persons on the job, including the requirements of the A.G.C. *Accident Prevention Manual in Construction*, as amended, and shall fully comply with all state Laws or Regulations and North Carolina State Building Code requirements to prevent accident or injury to persons on or about the location of the Work. He shall clearly mark or post signs warning of hazards existing, and shall barricade excavations, elevator shafts, stairwells and similar hazards. He shall protect against damage or injury resulting from falling materials and he shall maintain all protective devices and signs throughout the progress of the Work.
- B. The Contractor shall adhere to the rules, regulations and interpretations of the North Carolina Department of Labor relating to Occupational Safety and Health Standards for the Construction Industry (Title 29, Code of Federal Regulations, Part 1926, published in Volume 39, Number 122, Part II, June 24, 1974, *Federal Register*), and revisions thereto as adopted by General Statutes of North Carolina 95-126 through 155.

- C. The 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.
- D. The Contractor shall designate a qualified and experienced member of his organization as safety inspector, whose duties shall include accident prevention on the Work Project. The name of the safety inspector shall be made known to the Designer at the time the Work is started.

## **ARTICLE 27 – TRAFFIC CONTROL**

- A. The Contractor will be required to maintain traffic within the limits of the Project, including all existing roadways that cross or intersect the Project. To the extent dependent on the Contractor, the Contractor shall be responsible for maintaining in a safe, passable, and convenient condition all roads used by him during construction of the Project. Traffic shall be maintained from the time the Contractor begins Work on the Project Site until acceptance of the Project, including any periods during which the Contractor's operations are suspended. The Contractor shall conduct his Work in a safe manner that will create a minimum amount of inconvenience to traffic.
- B. The Contractor shall be responsible for determining, utilizing, and maintaining traffic control measures as outlined in the *Manual on Uniform Traffic Control Devices (MUTCD)*, latest version. Unless otherwise directed by the Designer, the Contractor is required to have an English copy of the *Manual on Uniform Traffic Control Devices (MUTCD)*, latest version, on the Project Site.
- C. During the progress of any Work within road rights-of-way, mark all hazards with well-maintained signs, barricades, drums, or other warning or channelizing devices. At each location where Work is started which creates a safety hazard, continue the Work until completed to the extent that the safety hazard is eliminated. If the Work is not completed in a continuous manner to the extent that the safety hazard is eliminated, the Designer will not allow any other Work on the Project to be performed until the existing safety hazard is eliminated. During the process of excavating in a travelway or in the clear zone of a travelway where traffic is to be later maintained, make provisions to backfill and repair any excavated or damaged pavement before allowing traffic to proceed over the affected lanes. If not otherwise specified, the clear zone is the immediate area within 30" of the outside edge of lane. In low speed areas (35 MPH or less) metal plates may be used to cover excavated areas. Continuous, safe vehicular access shall be maintained to all residences, businesses, schools, police stations, fire stations, hydrants, other emergency services, hospitals, and mailboxes. Operations shall be conducted in a manner that limits inconvenience to property owners. When Work is not in progress, keep all personnel, equipment, machinery, tools, construction debris and supplies at least 40 feet away from active travel lanes. Personal vehicles shall not be parked adjacent to travelways in road rights-of-way.
- D. During lane closures, all equipment and personnel shall operate within the designated Work area. Traffic control devices for lane closures shall be installed with the traffic flow, beginning with devices on the upstream side of traffic. Traffic control devices for lane closures shall be removed against the traffic flow, beginning with devices on the downstream side of traffic.

**ARTICLE 28 – SEDIMENTATION POLLUTION CONTROL ACT OF 1973**

- A. Any land-disturbing activity performed by the Contractor(s) in connection with the Project shall comply with all erosion control measures set forth in the Contract Documents and any additional measures which may be required in order to ensure that the Project is in full compliance with the Sedimentation Pollution Control Act of 1973, as implemented by Title 15, North Carolina Administrative Code, Chapter 4, Sedimentation Control, Subchapters 4A, 4B and 4C, as amended (15 N.C.A.C. 4A, 4B and 4C). The Owner makes no representation as to the type and intensity of rainfall or storms that shall occur during the life of the Project. Southeastern North Carolina is in an area susceptible to hurricanes, severe rainfall, and storm events; these events are not uncommon to the area. No additional compensation shall be made for compliance with the Sedimentation Pollution Control Act of 1973 and NCDENR permits due to severe rainfall and storm events.
- B. Upon receipt of notice that a land-disturbing activity is in violation of said act, the Contractor(s) shall be responsible for ensuring that all steps or actions necessary to bring the Project in compliance with said act are promptly taken.
- C. The Contractor(s) shall be responsible for defending any legal actions instituted pursuant to NCGS 113A-64 against any party or persons described in this article.
- D. To the fullest extent permitted by law and without limiting any other indemnity obligation set forth herein, the Contractor(s) shall indemnify and hold harmless the Owner, the Designer and the agents, consultants and employees of the Owner and Designer, from and against all claims, damages, civil penalties, losses and expenses, including, but not limited to, attorneys' fees, should Contractor's, or anyone for whom Contractor is responsible, fault or negligence be the proximate cause of a violation of the Sedimentation Pollution Control Act. Such obligation shall not be construed to negate, abridge or otherwise reduced any other right or obligation of indemnity which would otherwise exist as to any party or persons described in this article. Any claim, damage, civil penalty, loss or expense levied on or incurred by the Owner may be paid in a timely manner by the Owner and deducted from the monies owed to the Contractor(s).
- E. The Contractor shall comply with the following requirements:
  - 1. Equipment utilized during the construction activity on a Site must be operated and maintained in such a manner as to prevent the potential or actual pollution of the surface or ground waters of the state. Fuels, lubricants, coolants, and hydraulic fluids, or any other petroleum products, shall not be discharged on to the ground or into surface waters. Spent fluids shall be disposed of in a manner so as not to enter the waters, surface or ground, of the state and in accordance with applicable state and federal disposal regulations. Any spilled fluids shall be cleaned up to the extent practicable and disposed of in a manner so as not to allow their entry into the waters, surface of ground, of the state.
  - 2. Herbicide, pesticide, and fertilizer usage during the construction activity shall be restricted to those materials approved by EPA and shall be in accordance with label restrictions.

3. All wastes composed of building materials shall be disposed of in accordance with North Carolina General Statutes, Chapter 130A, Article 9 - Solid Waste Management, and rules governing the disposal of solid waste (North Carolina Administrative Code Section 15A NCAC 13B).
4. All sedimentation and erosion control of facilities shall be inspected by the Contractor at least once every seven (7) calendar days and within twenty-four (24) hours after any storm event of greater than 0.1 inches of rain per twenty-four (24)-hour period or any day that has been claimed by the Contractor as a rain delay.
5. The Contractor shall submit to the Owner a written report of weekly inspections. Visible sedimentation found off the Site shall be recorded with a brief explanation as to 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 DENR or authorized agent upon request.
6. The Contractor shall be fully responsible for growing and maintaining a vegetative cover on all areas of the Site in accordance with DENR Land Quality requirements.

#### **ARTICLE 29 – INSPECTION OF THE WORK**

- A. It is a condition of this Contract that the Work shall be subject to inspection by the Designer, Owner, designated official representatives of the Owner, and those persons required by state law to test special work for official approval. The Contractor shall therefore provide safe access to the Work at all times for such inspections.
- B. All instructions to the Contractor will be made only by or through the Designer, Owner, or the Designer or Owner's designated Project representative. Observations made by official representatives of the Owner shall be conveyed to the Designer for review and coordination when the Designer is acting as the construction administrator/inspector.
- C. Should any Work be covered up or concealed prior to inspection and approval by the Designer, such Work shall be uncovered or exposed for inspection, if so requested by the Designer in writing. Inspection of the Work will be made promptly upon notice from the Contractor. All cost involved in uncovering, repairing, replacing, recovering and restoring to design condition the Work that has been covered or concealed will be paid by the Contractor involved.
- D. Prompt notice of all defective Work of which Owner or Designer has actual knowledge shall be given to the Contractor.
- E. 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, 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.

- F. The presence of the Designer, Owner, or Inspector at the Work Site shall in no way lessen the Contractor's responsibility for conformity with the Contract Documents. Should the Designer, Owner, or Inspector, prior to or during construction, fail to point out or reject materials or Work that does not conform with plans and Specifications, whether from lack of discovery or from any other reason, it shall in no way prevent later rejection or correction to the unsatisfactory materials or Work when discovered. The Contractor shall have no claim for losses suffered due to any necessary removals or repairs resulting from the unsatisfactory Work.
- G. The Contractor shall notify the Inspector a minimum of twenty-four (24) hours in advance of the Contractor's intent not to work any given day, or in the event of weather conditions prohibiting execution of the Work, by 9:00 a.m. the day of the abnormal weather.

### **ARTICLE 30 – TESTING**

- A. Where special inspection or testing is required by virtue of any state laws, instructions of the Designer, Specifications or codes, the Contractor shall give written notice a minimum of forty-eight (48) hours in advance to the designated official representatives of the Owner, of the time set for such inspection or test. Such special tests or inspections will be made in the presence of the official representatives of the Owner, and it shall be the Contractor's responsibility to serve ample notice of such tests. The Contractor shall furnish the official representatives of the Owner with all certificates of inspection or approval. Work performed without proper testing may be ordered for removal and replacement at no additional cost to the Owner.
- B. The Contractor shall employ and pay for the services of an independent testing firm to perform all inspections, tests, or approvals required by the Contract Documents including, but not limited to, mix designs, soil tests, compaction tests, concrete tests, foundation tests, piling testing and inspection, and all other required material tests. The Contractor shall provide the Owner with a schedule of values for all tests to be performed on the Project. The values presented shall be all-inclusive; no separate payment shall be made for labor, materials, travel, meals, lodging, etcetera. Prior to any testing being performed, the Contractor must receive written approval from the Owner approving the selected testing firm.
- C. Testing shall be performed by licensed, professional personnel according to the standards referenced in the technical specifications, or in the absence thereof, according to applicable ASTM standards or other applicable industry standards. On a daily basis, personnel performing the tests shall provide the Contractor and Owner a list of all tests performed including, at a minimum, the date, time, location, temperature, Project identifier, and tester's name.
- D. If a unit price line item for "Testing Allowance" is included in the proposal, the price will be adjusted in accordance with article "Unit Price Work." The established cost of Work for the unit price line item "Testing Allowance" shall be 105% of the required testing performed and billed by the independent testing firm that is documented by actual invoices submitted to the Designer from the Contractor.
- E. Payment shall not be made for failing tests, tests performed in the absence of the Owner's inspector (unless prior written authorization from the Owner's inspector has

been granted), tests unable to be verified by the daily test list, or any costs incurred due to poor scheduling.

## ARTICLE 31 – CONSTRUCTION SUPERVISION

- A. Throughout the progress of the Work, each Contractor shall keep at the job Site, a competent superintendent or supervisory staff satisfactory to the Designer. The superintendent shall not be changed without the consent of the Designer unless said superintendent ceases to be employed by the Contractor or ceases to be competent. The superintendent shall have authority to act on behalf of the Contractor, and instructions, directions or notices given to him shall be as binding as if given to the Contractor.
- B. The Contractor shall examine and study the Contract Documents and fully understand the Project design, and shall provide constant, competent, and efficient supervision to the Work. Should he discover any discrepancies of any sort in the Drawings or Specifications, he shall report them to the Designer without delay. He will not be held responsible for discrepancies in the Drawings and/or Specifications, but shall be held responsible to report them should they become known to him.
- C. All Contractors shall be required to cooperate and consult with each other during the construction of the Project. Prior to installation of Work, all Contractors shall jointly prepare coordination Drawings, showing locations of various ductworks, piping, motors, pumps, and other mechanical or electrical equipment, in relation to the structure, walls and ceilings. These Drawings shall be submitted to the Designer through the Project Expediter for information only. Each Contractor shall lay out and execute his Work to cause the least delay to other contractors. Each Contractor shall be financially responsible for any damage to other Contractor's Work and for undue delay caused to other contractors on the Project.
- D. The Contractor is required to attend monthly job Site progress conferences as directed by the Designer. Home office representatives may be required at these meetings. Contractor representatives shall have authority to act on behalf of the Contractor. These meetings shall be open to Subcontractors, material Suppliers and any others who can contribute toward maintaining required job progress. It shall be the principal purpose of these meetings, or conferences, to effect coordination, cooperation and assistance in every practical way toward the end of maintaining progress of the Project on schedule and to complete the Project within the specified Contract Time. Each Contractor shall be prepared to assess progress of the Work as required in his particular contract and to recommend remedial measures for correction of progress as may be appropriate. The Designer or his authorized representative shall be the coordinator of the conferences and shall preside as chairman.
- E. The Designer shall designate a Project Expediter on Projects involving two or more prime contracts and shall designate such in the Supplementary General Conditions. **For the purposes of a single prime contract, the single prime Contractor shall be designated as the Project Expediter.** The Project Expediter shall have the following responsibilities:

1. Prepare the Project construction schedule and shall allow all prime Contractors (multi-prime contract) and Subcontractors (single-prime contract) performing general, plumbing, HVAC, and electrical work equal input into the preparation of the initial construction schedule.
2. Maintain a Project progress schedule for all contractors.
3. Give adequate notice to all contractors to ensure efficient continuity of all phases of the Work.
4. Notify the Designer of any changes in the Project schedule.
5. Recommend to the Designer whether payment to a Contractor or Subcontractor should be approved.

## ARTICLE 32 – SCHEDULE

- A. It shall be the responsibility of the Project Expediter to cooperate with and obtain from all Prime Contractors and Subcontractors on the job, their respective work activities and integrate these activities into a Project construction schedule in form of a detailed bar chart or Critical Path Method (CPM), schedule. Each prime Contractor shall provide work activities within fourteen (14) days of request by the Project Expediter. A “work activity,” for scheduling purposes, shall be any component or contractual requirement of the Project requiring at least one (1) day, but not more than fourteen (14) days, to complete or fulfill. The Project construction schedule shall graphically show all salient features of the Work required to construct the Project from start to finish and within the allotted time established in the Contract. The time (in days) between the Contractor’s early completion and contractual completion dates is part of the Project total float time; and shall be used as such, unless amended by a Change Order. On a multi-prime Project, each prime Contractor shall review the proposed construction schedule and approve same in writing. The Project Expediter shall submit the proposed construction schedule to the Designer for comments. The complete Project construction schedule shall be of the type set forth in the Supplementary General Conditions or Subparagraph (a) or (b) below, as appropriate:
1. For a Project with total contracts of \$500,000 or less, a bar chart schedule will satisfy the above requirement. The schedule shall indicate the estimated starting and completion dates for each major element of the Work, as well as **cost values** associated with each element.
  2. For a Project with total contracts over \$500,000, a Critical Path Method (CPM) schedule shall be utilized to control the planning and scheduling of the Work. The CPM schedule shall be the responsibility of the Project Expediter and shall be paid for by the Project Expediter.
- B. **Bar Chart Schedule:** Where a bar chart schedule is required, it shall be time-scaled in weekly increments, shall indicate the estimated starting and completion dates for each major element of the Work by trade and by area, level, or zone, and shall schedule dates for all salient features, including but not limited to the placing of orders for materials, submittal of Shop Drawings and other Submittals for approval, approval of Shop Drawings by Designers, the manufacture and delivery of material, the testing and the installation of materials, supplies and equipment, and all Work activities to be performed by the Contractor. The Contractor shall allow sufficient

time in his schedule for all required inspections, reviews (punch lists), and correction of punch list items. Each Work activity will be assigned a time estimate by the Contractor. One day shall be the smallest time unit used.

- C. **CPM Schedule:** Where a CPM schedule is required, it shall be in time-scaled precedence format using the Project Expediter's logic and time estimates. The CPM schedule shall be drawn or plotted with activities grouped or zoned by Work area or subcontract as opposed to a random (or scattered) format. The CPM schedule shall be time-scaled on a weekly basis and shall be drawn or plotted at a level of detail and logic which will schedule all salient features of the Work to be performed by the Contractor including but not limited to the placing of orders for materials, submittal of Shop Drawings and other Submittals for approval, approval of Shop Drawings by Designers, the manufacture and delivery of material, and the testing and the installation of materials, supplies and equipment. The Contractor shall allow sufficient time in his schedule for all required inspections, reviews (punch lists), and correction of punch list items. Each Work activity will be assigned a time estimate by the Contractor. One day shall be the smallest time unit used.
- D. The CPM schedule will identify and describe each activity, state the duration of each activity, the calendar dates for the early and late start and the early and late finish of each activity, and clearly highlight all activities on the critical path. "Total float" and "free float" shall be indicated for all activities. Float time shall be considered for the exclusive use or benefit of the Owner. Extensions to the Contract Time, when granted by Change Order, will be granted only when equitable time adjustment exceeds the Total Float in the activity or path of activities affected by the change. Extensions to the Contract Time shall only be granted for activities on the critical path. **The CPM schedule shall also show what part of the Contract Price is attributable to each activity on the schedule, the sum of which for all activities shall equal the total Contract Price.**
- E. **Early Completion of Project:** The Contractor may attempt to complete the Project prior to the Contract Completion Date. However, such planned early completion shall be for the Contractor's convenience only and shall not create any additional rights of the Contractor or obligations of the Owner under this Contract, nor shall it change the Time for Completion or the Contract Completion Date. The Contractor shall not be required to pay liquidated damages to the Owner because of its failure to complete by its planned earlier date. Likewise, the Owner shall not pay the Contractor any additional compensation for early completion nor will the Owner owe the Contractor any compensation should the Owner, its officers, employees, or agents cause the Contractor not to complete earlier than the date required by the Contract Documents.
- F. The proposed Project construction schedule shall be presented to the Designer no later than ten (10) days after the Project start date for Projects with a total Contract Price of \$500,000 or less and no later than thirty (30) days after the Project start date for Projects with a total Contract Price in excess of \$500,000. No Request for Payment will be processed until this schedule is **accepted** by the Owner.
- G. Acceptance of the schedule shall not impose on the Designer or Owner responsibility for the progress schedule, for sequencing, scheduling, or progress of the Work nor interfere with or relieve Contractor from Contractor's responsibility thereof.
- H. The approved Project construction schedule shall be distributed to all contractors and displayed at the job Site by the Project Expediter.

- I. The several contractors shall be responsible for their work activities and shall notify the Project Expediter of any necessary changes or adjustments to their work. The Project Expediter shall maintain the Project construction schedule, making monthly adjustments, updates, corrections, etc., that are necessary to finish the Project within the Contract Time, keeping all contractors and the Designer fully informed. Copy of a bar chart schedule annotated to show the current progress shall be submitted by the Contractor(s) to the Designer, along with monthly Request for Payment. For Project requiring CPM schedule, the Contractor shall submit a monthly report of the status of all activities. The bar chart schedule or monthly status report shall show the actual Work completed to date in comparison with the original Work scheduled for all activities. If any activities of the Work of several contractors are behind schedule, the Contractor must indicate in writing, what measures will be taken to bring each such activity back on schedule and to ensure that the Contract Completion Date is not exceeded. A plan of action and recovery schedule shall be developed and submitted to the Designer by the Project Expediter, when (1) the Contractor's monthly report indicates delays, that are in the opinion of the Designer or the Owner, of sufficient magnitude that the Contractor's ability to complete the Work by the scheduled completion is brought into question; (2) the updated construction schedule is thirty (30) days behind the planned or baseline schedule and no legitimate time extensions are in process; and (3) the Contractor desires to make changes in the logic (sequencing of work) or the planned duration of future activities of the CPM schedule which, in the opinion of the Designer or the Owner, are of a major nature. The plan of action, when required shall be submitted to the Owner for review within two (2) business days of the Contractor receiving the Owner's written demand. The recovery schedule, when required, shall be submitted to the Owner within five (5) calendar days of the Contractor's receiving the Owner's written demand. Failure to provide an updated construction schedule or a recovery schedule may be grounds for rejection of payment requests or withholding of funds as set forth in Article "Payments Withheld."
- J. The Project Expediter shall notify each Contractor of such events or time frames that are critical to the progress of the job. Such notice shall be timely and reasonable. Should the progress be delayed due to the Work of any of the several contractors, it shall be the duty of the Project Expediter to immediately notify the Contractor(s) responsible for such delay, the Designer, the Owner and other prime Contractors. The Designer shall determine the Contractor(s) who caused the delays and notify the bonding company of the responsible Contractor(s) of the delays; and shall make a recommendation to the Owner regarding further action.
- K. Designation as Project Expediter entails an additional Project control responsibility and does not alter in any way the responsibility of the Contractor so designated, or the responsibility of the other contractors involved in the Project.

### **ARTICLE 33 – WORKING HOURS**

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, and Contractor will not permit the performance of Work on Saturday, Sunday, or any legal holiday without Owner's written consent (which will not be unreasonably withheld) given after prior written notice to the Designer. The regular working hours shall be established by the Owner. In lieu of a directive by the Owner, working hours shall be 7:30 a.m. until 6:00 p.m., Monday through Friday, excluding holidays.

## **ARTICLE 34 – SEPARATE CONTRACTS AND CONTRACTOR RELATIONSHIPS**

- A. Effective from January 1, 2002, NCGS Chapter 143, Article 8, was amended, to allow public contracts to be bid in single-prime, dual (single-prime and separate-prime), construction manager at risk, and alternative contracting method as approved by the State Building Commission. The Owner reserves the right to prepare separate Specifications, receive separate bids, and award separate contracts for such other major items of Work as may be in the best interest of the Owner.
- B. All Contractors shall cooperate with each other in the execution of their Work, and shall plan their Work in such manner as to avoid conflicting schedules or delay of the Work. See Articles “Construction Supervision” and “Schedule.”
- C. If any part of Contractor’s Work depends upon the Work of another Contractor, defects which may affect that Work shall be reported to the Designer in order that prompt inspection may be made and the defects corrected. Commencement of Work by a Contractor where such condition exists will constitute acceptance of the other Contractor’s Work as being satisfactory in all respects to receive the Work commenced, except as to defects which may later develop. The Designer shall be the judge as to the quality of Work and shall settle all disputes on the matter between Contractors.
- D. Any mechanical or electrical work such as sleeves, inserts, chases, openings, penetrations, etc., which is located in the Work of the general Contractor shall be built in by the general Contractor. The respective mechanical and electrical contractors shall set all sleeves, inserts and other devices that are to be incorporated into the structure in cooperation and under the supervision of the general Contractor. The responsibility for the exact location of such items shall be that of the mechanical and/or Electrical Contractor.
- E. The Designer and the Owner shall have access to the Work at all times. The Contractor shall provide facilities for such access so the Designer may perform his functions under the Contract Documents.
- F. Should a Contractor cause damage to the Work or property of another Contractor, he shall be directly responsible, and upon notice, shall promptly settle the claim or otherwise resolve the dispute.

## **ARTICLE 35 – SUBCONTRACTS AND SUBCONTRACTORS**

- A. Within thirty (30) days after award of the Contract, the Contractor shall submit to the Designer and to the Owner a list giving the names and addresses of Subcontractors and equipment and material Suppliers he proposes to use, together with the scope of their respective parts of the Work. The Contractor shall not employ any Subcontractor or other person or organization, either directly or indirectly, whether initially or as a substitute, against whom either the Designer or the Owner has an objection. The Designer shall act promptly in the approval of Subcontractors, and when approval of the list is given, no changes of Subcontractors will be permitted except for cause or reason considered justifiable by the Designer.
- B. The Prime Contractor shall not allow first-tier Subcontractors to sublet any portion of the sub-contracted Work without written approval from the Designer. Circumvention of this requirement by a first-tier Subcontractor using the device of “hiring” the

employees and/or “renting” the equipment of a second-tier Subcontractor shall be a violation of the Contract and shall subject the Prime Contractor to penalties associated with violation of the Contract. The Designer may require the Prime Contractor to provide behavioral, financial, relationship, ownership, and other documentation to support claims that Work is indeed being performed by an approved, first-tier Subcontractor. Unless waived by the Designer, at least 75% of the equipment utilized by a first-tier Subcontractor to perform the Work shall be owned by the first-tier Subcontractor and at least 75% of the Subcontractor’s employees performing Work on the Project shall have been regular, continuous, full time employees of the company for at least six (6) months prior to performing Work on the Project.

- C. The Designer will furnish to any Subcontractor, upon request, evidence regarding amounts of money paid to the Contractor on account of the Subcontractor’s Work.
- D. The Prime Contractor will furnish to the Designer, upon request, evidence regarding amounts of money paid and due to Subcontractors for their Work.
- E. The Contractor is and remains fully responsible for his own acts or omissions as well as those of any Subcontractor or of any employee of either. The Contractor agrees that no contractual relationship exists between the Subcontractor and the Owner in regard to the Contract, and that the Subcontractor acts on this Work as an agent or employee of the Contractor.
- F. The Owner reserves the right to limit the amount of portions of Work to be subcontracted. Pipe installation using trenchless technology (Horizontal Directional Drill, Bore & Jack, etc.) must be performed by the Prime Contractor or first-tier Subcontractor using their own equipment and permanent, full-time employees.

#### **ARTICLE 36 – CONTRACTOR AND SUBCONTRACTOR RELATIONSHIPS**

The Contractor agrees that the terms of these Contract Documents shall apply equally to each Subcontractor, regardless of tier, as to the Contractor, and the Contractor agrees to take such action as may be necessary to bind each Subcontractor to these terms. The Contractor further agrees to conform to the Code of Ethical Conduct as adopted by the Associated General Contractors of America, Inc., with respect to Contractor-Subcontractor relationships, and that payments to Subcontractors shall be made in accordance with the provisions of NCGS 143-134.1 titled *Interest on final payments due to prime Contractors: payments to Subcontractors*.

- A. The balance due prime Contractors shall be paid in full within forty-five (45) days after respective prime contracts of the Project have been accepted by the Owner, certified by the architect, Engineer or Designer to be completed in accordance with terms of the plans and Specifications, or occupied by the Owner and used for the purpose for which the Project was constructed, whichever occurs first. Provided, however, that whenever the architect or consulting Designer in charge of the Project determines that delay in completion of the Project in accordance with terms of the plans and Specifications is the fault of the Contractor, the Project may be occupied and used for the purposes for which it was constructed without payment of any interest on amounts withheld past the forty -five (45) day limit. No payment shall be delayed because of the failure of another prime Contractor on such Project to complete his contract. Should final payment to any prime Contractor beyond the date

such contracts have been certified to be completed by the Designer or architect, accepted by the Owner, or occupied by the Owner and used for the purposes for which the Project was constructed, be delayed by more than forty-five (45) days, said prime Contractor shall be paid interest, beginning on the 46th day, at the rate of one percent (1%) per month or fraction thereof unless a lower rate is agreed upon on such unpaid balance as may be due. In addition to the above final payment provisions, periodic payments due a prime Contractor during construction shall be paid in accordance with the payment provisions of the Contract Documents or said prime Contractor shall be paid interest on any such unpaid amount at the rate stipulated above for delayed final payments. Such interest shall begin on the date the payment is due and continue until the date on which payment is made. Such due date may be established by the terms of the Contract. Where a conditional acceptance of a Contract exists, and where the Owner is retaining a reasonable sum pending correction of such conditions, interest on such reasonable sum shall not apply.

- B. Within seven (7) days of receipt by the prime Contractor of each periodic or final payment, the prime Contractor shall pay the Subcontractor based on Work completed or service provided under the subcontract. Should any periodic or final payment to the Subcontractor be delayed by more than seven (7) days after receipt of periodic or final payment by the prime Contractor, the prime Contractor shall pay the Subcontractor interest, beginning on the eighth day, at the rate of one percent (1%) per month or fraction thereof on such unpaid balance as may be due.
- C. The percentage of retainage on payments made by the prime Contractor to the Subcontractor shall not exceed the percentage of retainage on payments made by the Owner to the prime Contractor. Any percentage of retainage on payments made by the prime Contractor to the Subcontractor that exceeds the percentage of retainage on payments made by the Owner to the prime Contractor shall be subject to interest to be paid by the prime Contractor to the Subcontractor at the rate of one percent (1%) per month or fraction thereof.
- D. Nothing in this section shall prevent the prime Contractor at the time of application and certification to the Owner from withholding application and certification to the Owner for payment to the Subcontractor for unsatisfactory job progress; defective construction not remedied; disputed Work; third-party claims filed or reasonable evidence that claim will be filed; failure of Subcontractor to make timely payments for labor, equipment and materials; damage to prime Contractor or another Subcontractor; reasonable evidence that subcontract cannot be completed for the unpaid balance of the subcontract sum; or a reasonable amount for retainage not to exceed the initial percentage retained by Owner.

#### **ARTICLE 37 – DESIGNER’S STATUS**

- A. The Designer shall provide general administration of the performance of construction contracts, including liaison and necessary inspection of the Work to ensure compliance with plans and Specifications. He is the agent of the Owner only for the purpose of constructing this Work and to the extent stipulated in the Contract Documents. He has authority to stop Work or to order Work removed, or to order corrections of faulty Work where such action may be necessary to assure successful completion of the Work.
- B. The Designer, when employed in a construction inspection/administration role, is the impartial interpreter of the Contract Documents, and, as such, he shall exercise his

powers under the Contract to enforce faithful performance by both the Owner and the Contractor. The Designer shall issue written clarifications or interpretations of the requirements of the Contract Documents with reasonable promptness. The Designer may authorize minor variations in the Work that are different from the requirements of the Contract Documents which do not involve an adjustment of Contract Price or Time of Completion as long as such variation is compatible with the design concept of the Project.

- C. The Designer will make periodic inspections of the Project at intervals appropriate to the stage of construction. He will inspect the progress, the quality and the quantity of the Work. The Designer will not be required to make exhaustive or continuous inspections on the Site to check the quality or quantity of the Work.
- D. The Designer and the Owner shall have access to the Work whenever it is in preparation and progress. The Contractor shall provide facilities for such access so the Designer may perform his functions under the Contract Documents.
- E. Based on the Designer's inspections and evaluations of the Project, the Designer shall issue interpretations, directives and decisions as may be necessary to administer the Project. His decisions relating to artistic effect and technical matters shall be final, provided such decisions are within the limitations of the Contract.
- F. The Designer will determine the actual quantities and classifications of unit price Work performed by the Contractor.
- G. The Designer 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.

#### **ARTICLE 38 – CHANGES IN THE WORK**

- A. The Owner may have changes made in the Work covered by the Contract. These changes will not invalidate and will not relieve or release the Contractor from any guarantee given by him pertinent to the Contract provisions. These changes will not affect the validity of the guarantee bond and will not relieve the Surety or Sureties of said bond. All extra Work shall be executed under conditions of the original Contract.
- B. Except in an emergency endangering life or property, **NO CHANGE SHALL BE MADE BY THE CONTRACTOR EXCEPT UPON RECEIPT OF APPROVED CHANGE ORDER OR WRITTEN WORK CHANGE DIRECTIVE FROM THE DESIGNER, COUNTERSIGNED BY THE OWNER AUTHORIZING SUCH CHANGE. NO CLAIM FOR ADJUSTMENTS OF THE CONTRACT PRICE SHALL BE VALID UNLESS THIS PROCEDURE IS FOLLOWED.**

**A WORK CHANGE DIRECTIVE, TRANSMITTED BY FAX OR HAND DELIVERED, MAY BE USED WHERE THE CHANGE INVOLVED IMPACTS THE CRITICAL PATH OF THE WORK. A FORMAL CHANGE ORDER SHALL BE ISSUED WITHIN THE TIME STATED ON THE WORK CHANGE DIRECTIVE.**

In the event of emergency endangering life or property, the Contractor may be directed to proceed on a time and material basis whereupon the Contractor shall proceed and keep accurately on such form as may be required, a correct account of costs together with all proper invoices, payrolls and supporting data. Upon completion of the Work the Change Order will be prepared as outlined under either Method "C 1." or Method "C 2." or both.

- C. In determining the values of changes, either additive or deductive, Contractors are restricted to the use of the following methods:
1. Where the extra Work involved is covered by unit prices quoted in the proposal, the value of the change shall be computed by application of unit prices based on quantities, estimated or actual as agreed of the items involved. Unit prices shall include all direct and indirect present or future cost, all time and all overhead and profit for each unit.
  2. The contracting parties shall negotiate and agree upon the equitable value of the change prior to issuance of the Change Order, and the Change Order shall stipulate the corresponding lump sum adjustment to the Contract Price.
- D. Under Paragraph (B) and Methods (C 2.) above, the allowances for overhead and profit combined shall not exceed twenty percent (20%) of **net cost**. Under Method "C 1." no additional allowances shall be made for overhead and profit. In the case of deductible Change Orders, under Method (C 2.) and Paragraph (B) above, the Contractor shall include no less than five percent (5%) profit, but no allowances for overhead. Overhead shall include all conditions of the Contract, "Extended General Conditions", and all general requirements including, but not limited to, Project management, scheduling, home office expense, job Site overhead, layout, reproduction of Drawings, document processing and coordination (shop Drawings, Change Orders, RFI's, etc.), supervision, small tools, temporary facilities, safety provisions, as built Drawings, estimating, and general overhead.
- E. The term "net cost" as used herein shall mean the difference between all proper cost additions and deductions. The "cost" as used herein shall be limited to the following:
1. The actual costs of materials and supplies incorporated or consumed as part of the Project.
  2. The actual costs of labor expended on the Project Site.
  3. The actual costs of labor burden, limited to the costs of social security (FICA) and Medicare/Medicaid taxes; unemployment insurance costs; health/dental/vision insurance premiums; paid employee leave for holidays, vacation, sick leave, and/or petty leave, not to exceed a total of thirty (30) days per year; retirement contributions; worker's compensation insurance premiums; and the costs of general liability insurance when premiums are computed based on payroll amounts. The total labor burden shall not exceed forty percent (40%) of the actual costs of labor.
  4. The actual costs of rental for equipment; machinery; temporary facilities; and tools, excluding hand tools, required for the Project.
  5. The actual costs of premiums for bonds, insurance, permit fees, and sales or use taxes related to the Project.

6. Overtime and extra pay for holidays and weekends may be a cost item only to the extent approved by the Owner.
- F. Should concealed conditions be encountered in the performance of the Work below grade, or should concealed or unknown conditions in an existing structure be at variance with the conditions indicated by the Contract Documents, the Contract sum and time for completion may be equitably adjusted by Change Order upon claim by either party made within thirty (30) days after the condition has been identified. The cost of such change shall be arrived at by one of the foregoing methods.

**ALL CHANGE ORDERS SHALL BE SUPPORTED BY A BREAKDOWN SHOWING METHOD OF ARRIVING AT NET COST AS DEFINED ABOVE.**

- G. The Contractor may solicit a change using the “Change Proposal” form or may submit a “Change Proposal” form when the Designer requests costs for potential changes in the Work. However, no Work is to be performed until a properly executed Change Order or Work Change Directive is provided to the Contractor. The Contractor shall provide the “Change Proposal” and supporting data in a form suitable to the Designer and Owner. The Designer shall verify correctness. Within fourteen (14) days after receipt of the “Change Proposal,” the Designer shall respond, in writing, to the Contractor’s proposal. If the Designer deems that the Proposal is in the best interest of the Owner, the Designer shall prepare a Change Order or Work Change Directive and forward to the Contractor for his signature. Within seven (7) days after receipt of the Change Order or Work Change Directive executed by the Contractor, the Designer shall certify the document by his signature, and forward the document and all supporting data to the Owner for the Owner’s signature. The Owner’s representative shall execute the document and, if necessary, forward to the County Commissioners for final approval. Upon approval by the Owner’s representative and County Commissioners, one copy remains with the County Commissioners, and the remaining original is sent to the Designer for distribution to the Contractor(s). A copy is sent to the Surety. In case of emergency or extenuating circumstances, approval of changes may be obtained verbally by telephone or Work Change Directives approved by all parties, then shall be substantiated in writing as outlined under normal procedure.
- H. At the time of signing a Change Order, the Contractor shall be required to certify as follows:
- “I certify that my bonding company will be notified forthwith that my Contract has been changed by the amount of this Change Order, and that a copy of the approved Change Order will be mailed upon receipt by me to my Surety.”
- I. A Change Order, when issued, shall be full compensation, or credit, for the Work included, omitted or substituted. It shall show on its face the adjustment in time for completion of the Project as a result of the change in the Work.
- J. If, during the progress of the Work, the Owner requests a Change Order and the Contractor’s terms are unacceptable, the Owner may require the Contractor to perform such Work on a time and material basis in accordance with Paragraph (B) above. Without prejudice, nothing in this paragraph shall preclude the Owner from performing or to have performed that portion of the Work requested in the Change Order.

- K. If a unit price line item for “Change Order Allowance” or similar is included in the proposal, the price will be adjusted in accordance with article “Unit Price Work.” The established cost of Work for the unit price line item “Change Order Allowance” shall be one hundred percent (100%) of approved Change Orders, either additive or deductive.

## **ARTICLE 39 – UNIT PRICE WORK**

- A. The Project is “lump sum” and payment of the lump sum bid price shall be full compensation for all Work indicated in the Contract Documents. Unit Price items included in the proposal shall be included as part of the lump sum bid. These items are indicated in the proposal and may have an associated quantity. 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. When indicated, 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. Determinations of the actual quantities and classifications of unit price Work included in the lump sum bid that is performed by the Contractor will be made by the Designer. The Designer shall issue a Change Order, either additive or deductive, at the close of the Project for any variation between the actual quantity and the estimated quantities of the unit price Work indicated in the Contract Documents. No payment shall be made to the Contractor for re-stocking of materials.
- B. The quantities shown on the proposal form are for the base bid only unless the Contract Documents specifically indicate that the item(s), or any portion thereof, are part of an alternate bid element. It is the responsibility of the Contractor to apportion the cost of unit price items to the base bid and any alternates listed in the Proposal using information in the Contract Documents. In the event that the Owner selects an alternate that clearly increases or decreases the estimated quantity of a unit price item shown on the proposal form, after selection of the Contractor, the Contractor shall be provided an updated list of estimated unit price quantities reflective of the alternates chosen. This updated list shall be used in determining any variation between the actual quantities and the estimated quantities of the unit price Work. An estimated unit price quantity shall be updated only in the event that the Contract Documents clearly indicate that the unit price item was indeed part of the Owner-selected alternate. The cost for all unit price items shall be included within either the base bid or an alternate, as applicable.
- C. In situations where a particular unit price item overruns, or the Contractor expects such overrun, of an estimated quantity by more than twenty-five percent (25%), the Contractor shall notify the Designer in writing and shall not install the overrun item in excess of twenty-five percent (25%) until the Contractor has received written authorization from the Designer. The aforesaid notification from the Contractor shall include any requests for modification of the unit price due to an actual quantity overrun greater than twenty-five percent (25%). The Engineer may solicit a reduction in the unit price due to a sufficient increase in the actual quantity installed of a unit price item. A reduction, regardless of the amount, of the actual installed quantity of a unit price item shall not warrant a change in the unit price.
- D. The Contractor is responsible for maintaining all documentation pertaining to the actual quantities of unit price items. This will be remitted to the Designer upon

request. No payment shall be made for the quantity of unit price items that cannot be verified.

- E. There will be no measurement for lump sum bid items by this Contract, as payment of the lump sum price shall include all equipment, labor, materials, and incidentals necessary to perform the Work required.
- F. Extensions to the Contract Time shall not entitle the Contractor to an increase to any unit price.

#### **ARTICLE 40 – ALLOWANCE ITEMS**

The Contract Price includes the allowance items indicated on the bid proposal. Allowances cover the costs for portions of the Work that cannot be specified with sufficient particularity at the time of bid. The Contractor shall provide product recommendations and associated costs to the Owner for allowance items, but shall not incorporate into the Work without consent from the Owner. The allowance items may be utilized and specified by the Owner in its sole and absolute discretion within a reasonable time prior to the date on which the Contractor shall be required to utilize such items. The amount shown for each allowance item shall include, and may be used by the Owner for, the cost of the material, equipment, or service for the allowance item. All other costs associated with installing an allowance item, including without limitation the cost of all labor, overhead, and profit, are otherwise included in the Contract Price and shall not be paid for with the amount allocated to each allowance item. The sole exception being additive Changes in the Work approved and designated by the Owner to be paid for out of a “Change Order Allowance”; the value of such Changes in the Work shall be determined according to the Article “Changes in the Work” section C. 2. The amount paid to the Contractor for an allowance item shall be adjusted based on the actual value attributable to the particular allowance item. The Designer shall issue a Change Order, either additive or deductive, at the close of the Project for any variation between the actual value of an allowance item and the estimated value of the allowance item shown on the Form of Proposal. If an allowance item is not utilized by the Owner, the Contract Price shall be reduced by the amount allocated to the item and a reasonable amount for the unused labor and overhead and unearned profit associated therewith. Allowance items designated on the bid proposal may or may not be indicated on the Project plans or Specifications.

#### **ARTICLE 41 – CLAIMS FOR EXTRA COST**

- A. Should the Contractor consider that as a result of any instructions given in any form by the Designer, he is entitled to extra cost above that stated in the Contract, he shall give written notice thereof to the Designer within seven (7) days without delay, and shall not proceed with the Work affected until further advised, except in emergency involving the safety of life or property, which condition is covered in Article “Changes in the Work,” Paragraph (B) and Articles “Protection of Work and Property” and “Safety.” No claims for extra compensation will be considered unless the claim is so made. The Designer shall render a written decision within seven (7) days of receipt of claim.
- B. THE CONTRACTOR SHALL NOT ACT ON INSTRUCTIONS RECEIVED BY HIM FROM PERSONS OTHER THAN THE DESIGNER, AND ANY CLAIMS FOR EXTRA COMPENSATION OR EXTENSION OF TIME ON ACCOUNT OF SUCH INSTRUCTION WILL NOT BE HONORED.** The Designer will not be responsible for misunderstandings claimed by the Contractor of

verbal instructions which have not been confirmed in writing, and in no case shall instructions be interpreted as permitting a departure from the Contract Documents unless such instruction is confirmed in writing and supported by a properly authorized Change Order.

- C. Should a claim for extra compensation by the Contractor be denied by the Designer or Owner, and cannot be resolved by the County Commissioners, the Contractor may request mediation in accordance with the procedures set forth below. If the Contractor is unable to resolve its claim as a result of mediation, the Contractor may institute a civil action for the sum he claims to be entitled to under the Contract by filing a verified complaint and the issuance of a summons in the Superior Court of Brunswick County. The procedure shall be the same as in all civil actions except that all issues shall be tried by a judge, without a jury.

## **ARTICLE 42 – DISPUTE RESOLUTION**

### **A. Initiating Mediated Settlement Conferences**

1. A party to a dispute arising out of the Contract and the construction process in which the amount in controversy is at least \$15,000 may submit a written request to the County for mediation of the dispute.
2. Prior to submission of a written request for mediation to the County, the party requesting mediation should give notice of any and all claims in accordance with their respective contracts, obtain decisions on the claims as required or allowed by their respective contracts, and attempt to resolve the dispute according to the terms and conditions in their respective contracts. The Mediator may adjourn any mediated settlement conference if the Mediator believes, in his or her sole discretion, that the parties have not satisfied all of the terms and conditions of their respective contracts and that doing so will enhance the prospects for a negotiated settlement.
3. Condition Precedent to Litigation. Before any party to a Contract may commence a civil action against the County seeking remedies for breach or non-performance of the Contract by the County, said party must first initiate the dispute resolution process as provided for herein and attend and participate in good faith in the mediated settlement conference.

### **B. Selection of a Mediator**

1. Unless otherwise agreed upon in writing, the parties shall mutually select an attorney certified to conduct superior court mediations by the North Carolina Dispute Resolution Commission. If the Mediator selected is not available or declines to participate for any reason, the parties shall select another person from the list.
2. Disqualification of Mediator. Any party may request replacement of the Mediator for good cause. Nothing in this provision shall preclude Mediators from disqualifying themselves.

### C. The Mediated Settlement Conference

1. Where Conference is to be Held. The mediated settlement conference shall be held in Brunswick County, North Carolina. The Mediator shall be responsible for reserving a location, making arrangements for the conference, and giving timely notice of the time and location of the conference to all attorneys, unrepresented parties and other persons or entities required to attend.
2. When Conference is to be Held. The mediation shall be completed within sixty (60) days after selection of the Mediator unless all parties to the mediation agree to a different schedule.
3. Request to Accelerate or Extend Deadline for Completion. Any party or the Mediator may request the County to accelerate or extend the deadline for completion of the conference. Such request shall state the reasons the acceleration or extension is sought and shall be served by the moving party upon the other parties and the Mediator. Objections to the request must be promptly communicated to the County and to the Mediator. The County, with the concurrence of the designated Mediator, may grant the request by adjusting the time for completion of the conference.
4. Recesses. The Mediator may recess the mediation conference at any time and may set times for reconvening. If the Mediator determines the time and place where the conference is to reconvene before the conference is recessed, no further notice is required to persons present at the conference.
5. Project Delay. The mediated settlement conference that results from a construction contract dispute shall not be cause for the delay of the construction project.

### D. Duties of Parties and other Participants in Formal Dispute Resolution Process

1. Attendance.
  - a. All parties to the dispute must designate an official representative to attend the mediation.
  - b. Attorneys representing parties may attend the mediation, but are not required to do so.
  - c. Sureties and insurance company representatives are required to physically attend the mediation unless the Mediator and all of the other parties to the mediation excuse their attendance or consent to their attendance by telephone or other electronic means.
  - d. The parties who attend a duly scheduled mediation conference shall have the right to recover their share of the Mediator's compensation from any party or parties who fail to attend the conference without good cause.
2. Finalizing Agreement. If an agreement is reached in the conference, the terms of the agreement shall be confirmed in writing and signed by all parties.
3. Payment of Mediation Fee: Mediation Fees shall be divided between the parties to the dispute, with at least one-third of the total cost to be paid by County.

4. Failure to Compensate Mediator. Any party's failure to compensate the Mediators in accordance with NCGS § 143-128(f1) shall subject that party to a withholding by the County of said amount of money from the party's payment or any other moneys owed by that party to the County.

E. Authority and Duties of the Mediator

1. Authority of Mediator.

- a. Control of Conference. The Mediator shall at all times be in control of the conference and the procedures to be followed.
- b. Private Consultation. The Mediator may communicate privately with any participant or counsel prior to and during the conference. The fact that private communications have occurred with a participant shall be disclosed to all other participants at the beginning of the conference.
- c. Scheduling the Conference. The Mediator shall make a good faith effort to schedule the conference at a time that is convenient with the participants, attorneys and Mediator. In the absence of agreement, the Mediator shall select the date for the conference.
- d. Determining good cause for a party's failure to appear at a scheduled mediation conference.
- e. Duties of Mediator.
  - i. The Mediator shall define and describe the following at the beginning of the conference:
    - ii. The process of mediation.
    - iii. The difference between mediation and other forms of conflict resolution.
    - iv. The costs of the mediated settlement conference.
    - v. That the mediated settlement conference is not a trial, the Mediator is not a judge, and the parties retain their legal rights if they do not reach settlement; however, the Mediator will advise all parties that failure to appear at mediation without good cause may result in imposition of sanctions and may be asserted as a bar to lawsuits by claimants who have failed to exhaust this administrative remedy.
    - vi. The circumstances under which the Mediator may meet and communicate privately with any of the parties or with any other person.
    - vii. Whether and under what conditions communications with the Mediator will be held in confidence during the conference.
    - viii. The inadmissibility of conduct and statements as provided by NCGS §7A-38.1(1).
    - ix. The duties and responsibilities of the Mediator and the participants.

- x. That any agreement reached will be reached by mutual consent.
- f. Disclosure. The Mediator has a duty to be impartial and to advise all participants of any possible bias, prejudice or partiality.
- g. Declaring Impasse. The Mediator may determine at any time during the mediation conference that an impasse exists and that the conference should end.
- h. Reporting Results of Conference. The Mediator shall submit a written report to the County and the other parties within ten (10) days of the conference stating whether or not the parties reached an agreement. The Mediator's report shall indicate the absence of any party from the mediated settlement conference without permission or good cause.
- i. Scheduling and Holding the Conference. It is the duty of the Mediator to schedule the conference and conduct it prior to the deadline of completion set by the rules. The Mediator shall strictly observe deadlines for completion of the conference unless said time limit is changed by agreement of the parties.

F. Amendments

The dispute resolution procedures may be amended by the County at any time. Amendments will not affect mediations where claims and/or requests for mediation have been filed at the time the amendment takes effect.

F. Time Limits

Any time limit may be waived or extended at the sole discretion of the County, if no Mediator has been selected, and at the discretion of the County with concurrence of the Mediator if a Mediator has been selected.

**ARTICLE 43 – MINOR CHANGES IN THE WORK**

The Designer will have the authority to order minor changes in the Work not involving an adjustment in the Contract sum or time of completion, and not inconsistent with the intent of the Contract Documents. Such changes shall be effected by written order and shall be binding on the Owner and the Contractor.

**ARTICLE 44 – TIME OF COMPLETION, DELAYS, EXTENSION OF TIME**

The time of completion is stated in the Notice to Bidders and in the Form of Construction Contract. The Project Expediter, upon Notice of Award of Contract, shall prepare a construction schedule to complete the Project within the time of completion as required by the Article "Schedule."

- A. The Contractors shall commence Work to be performed under this agreement and the time of completion shall commence to run on the thirtieth day after the effective date of the Contract, or if a Notice to Proceed is given, on the date specified in a written Notice to Proceed. The Contractor shall fully complete all Work hereunder within the

time of completion stated. A Notice to Proceed may be given at any time within thirty (30) days after the effective date of the Contract.

- B. No Work shall be performed until the Owner receives and accepts fully executed Contracts, performance bonds, payment bonds, and certificates of insurance.
- C. For each calendar day in excess of the time of completion, the Contractor(s) shall pay the Owner the sum stated as liquidated damages (see Notice to Bidders) reasonably estimated in advance to cover the losses to be incurred by the Owner by reason of failure of said Contractor(s) to complete the Work within the time specified, such time being in the essence of this Contract and a material consideration thereof.
- D. The Designer shall be the judge as to the division of responsibility between the Contractor(s), based on the construction schedule, weekly reports and job records, 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.
- E. If the Contractor is delayed in the progress of critical path activities by any act or negligence of the Owner or the Designer, or by any employee of either; by any separate Contractor employed by the Owner; 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 Designer and Owner determine may justify the delay, then the Contract Time may be extended by Change Order for the time which the Designer and Owner may determine is reasonable. However, such delays **must** be on critical path activities that cause the anticipated Project construction time to exceed the Time of Completion. Extensions to the Contract Time, when granted by Change Order, will be granted only when equitable time adjustment exceeds the Total Float in the activity or path of activities affected by the change.
- F. Time extensions granted for a portion of the Work shall not obligate the Owner to grant time extensions for portions of the Work not affected by the delay. The Engineer may establish an extended Time of Completion for Work affected by delays while still maintaining the overall Time of Completion for the Work not affected by delays. Liquidated Damages may be assessed for any portion of the Work not completed within any Time of Completion term set by the Engineer, though the daily Liquidated Damage rate may not exceed that indicated within the Contract Documents.
- G. Time extensions will not be granted for rain, wind, snow or other natural phenomena of **normal intensity** for the locality where Work is performed. Based on National Oceanic and Atmospheric Administration (NOAA) National Weather Service records between 1971 and 2000 for weather stations in the Brunswick County area (Wilmington, NC and Myrtle Beach, SC) the average annual days for precipitation equal to or exceeding 0.1 inch is 75. This is further broken down by month as follows:

<u>Jan</u>	<u>Feb</u>	<u>Mar</u>	<u>Apr</u>	<u>May</u>	<u>Jun</u>	<u>Jul</u>	<u>Aug</u>	<u>Sep</u>	<u>Oct</u>	<u>Nov</u>	<u>Dec</u>
7	6	6	5	6	7	9	8	6	4	5	6

For the purposes of determining time extensions based on weather, **normal intensity** weather conditions is defined on a monthly basis as noted in the chart above. For any

given month, if the actual number of days in which precipitation exceeds 0.1 inch is greater than that listed in the chart; the Contractor may request a time extension for the difference. However, days in which the precipitation exceeds 0.1 inch but the Contractor is not mobilized to the Site or actively working on Site are excluded from the calculation. Actively working on-site is evidenced by onsite work operations the normally scheduled working day prior to and after the day of precipitation. Time extensions will not be given for days in which the precipitation is less than 0.1 inch. For the purpose of determining the extent of delay attributable to unusual weather phenomena, the Normal Intensity weather conditions shall be compared to NOAA National Weather Service data from the station nearest the Project. In the event that a Contract begins or ends in the middle of the month, the Normal Intensity days shall be prorated based on the number of Contract days within the partial month. Time extensions for weather delays do not entitle the Contractor to “extended overhead” recovery.

- H. Request for extension of time shall be made in writing within thirty (30) days following cause of delay. In case of continuing cause for delay, the Contractor shall notify the Designer of the delay within thirty (30) days of the beginning of the delay and only one claim is necessary.
- I. The Contractor shall notify his Surety in writing of extension of time granted.
- J. No claim shall be allowed on account of failure of the Designer to furnish Drawings or instructions until twenty (20) days after demand for such Drawings and/or instructions. See Article “Shop Drawings, Submittals, Samples, Data.”
- K. The Contractor shall carry on the Work and adhere to the schedule during all disputes or disagreements with the Owner or Designer. No Work shall be delayed or postponed pending resolution of any disputes or disagreements unless agreed to by both the Owner and Contractor in writing.
- L. In no event shall the Owner or Designer be liable to Contractor, any Subcontractor, any Supplier, or any other person or organization, or to any Surety for or employee or agent of any of them, for damages arising out of or resulting from delays within the control of the Contractor or delays beyond the control of both the Owner and Contractor, including fires, floods, epidemics, abnormal weather conditions, acts of God, or acts of neglect by utility owners or other contractors performing other Work.
- M. Time extensions granted to the Contractor shall cover all Work delays for Work items that may run concurrently. For example, if the Contractor is due a time extension for unusual weather phenomena and due a time extension for other delays to a critical path activity, the new Project completion date shall be based on the longer of the individually approved time extensions. The time extension granted for multiple delays shall **not** be additive. The only exception to this is where the Contractor can demonstrate to the satisfaction of the Engineer that the individual Work items cannot run concurrently.

#### **ARTICLE 45 – PARTIAL UTILIZATION/SUBSTANTIAL COMPLETION**

- A. The Owner may desire to occupy or utilize all or a portion of the Project when the Work is substantially complete on all or a portion of the Project.

- B. Prior to the final payment, the Owner may request the Contractor(s) in writing, through the Designer if applicable, to permit him to use a specified part of the Project which he believes he may use without significant interference with construction of the other parts of the Project. If the Contractor(s) agree, the Designer will schedule a substantial completion inspection, with the approval of the Owner, after which the Designer may issue a certificate of substantial completion on all or a portion of the Project. The certificate shall include the following documentation:
  - 1. Date of substantial completion.
  - 2. Portion of Project determined to be substantially complete.
  - 3. A tentative list of items to be completed or corrected before final payment.
- C. The Owner shall have the right to exclude the Contractor from any part of the Project which the Designer has so certified to be substantially complete, but the Owner will allow the Contractor reasonable access to complete or correct Work to bring it into compliance with the Contract.
- D. Occupancy by the Owner under this article will in no way relieve the Contractor from his contractual requirement to complete the Project within the specified time. The Contractor will not be relieved of liquidated damages because of use or occupancy by the Owner.

#### **ARTICLE 46 – FINAL INSPECTION, ACCEPTANCE, AND PROJECT CLOSEOUT**

- A. Upon written notification from the Contractor(s) that the Project is complete and ready for inspection, the Designer shall make a preliminary final inspection to verify that the Project is complete and ready for final inspection. Prior to final inspection, the Contractor(s) shall complete all items requiring corrective measures noted at the preliminary inspection. The Designer shall schedule a final inspection at a time and date acceptable to the Owner and Contractor(s).
- B. When contractors finish their Work prior to completion by other contractors, these Contracts shall be closed out through the final inspection, acceptance and final payment process on recommendation of the Designer and approval of the Owner.
- C. At the final inspection, the Designer shall, if job conditions warrant, record a list of items that are found to be incomplete or not in accordance with the Contract Documents. At the conclusion of the final inspection, the Designer and Owner shall make one of the following determinations:
  - 1. That the Project is completed and accepted. The “Date of Final Acceptance” is coincident with the date of the final inspection.
  - 2. That the Project is complete subject to the list of discrepancies (punch list). All punch list items must be completed within thirty (30) days of acceptance or the Owner may invoke the Article “Owner’s Right to Do Work.” The “Date of Final Acceptance” shall be no earlier than the date that the Project representative certifies completion of the punch list items.
  - 3. That the Project is not complete. The Contractor must establish another date for a final inspection when Project is deemed incomplete.

- D. Within fourteen (14) days of acceptance as noted above or within fourteen (14) days after completion of punch list as noted above, the Designer shall certify the Work and issue applicable certificate(s) of compliance with the “Date of Final Acceptance” noted thereon.
- E. Any discrepancies listed or discovered after the date of final inspection and acceptance as noted above shall be handled in accordance with Article “Guarantee.”
- F. The “Date of Final Acceptance” as indicated on the Certificate of Compliance will establish the following:
  - 1. The beginning of guarantees and warranties period.
  - 2. The date on which the Contractor’s insurance coverage for public liability, property damage and builder’s risk may be terminated.
  - 3. That no liquidated damages (if applicable) shall be assessed after this date.
  - 4. The termination date of utility cost to the Contractor.
- G. 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 Designer;
  - 2. Recommendation by Designer or payment by Owner of any progress or final payment;
  - 3. The issuance of a certificate of Substantial Completion or any payment related thereto by Owner;
  - 4. Use or occupancy of the Work or any part thereof by Owner;
  - 5. Any acceptance by Owner or any failure to do so;
  - 6. Any review and approval of a Shop Drawing or Sample submittal or the issuance of a notice of acceptability by Designer;
  - 7. Any inspection, test, or approval by others; or
  - 8. Any correction of defective Work by Owner.
- H. Acceptance of the Work, or any portion of the Work, by the Owner does not relieve the Contractor from acquiring acceptance of the Work from the North Carolina Department of Transportation or any other such regulatory agency having approval authority over any portion of the Project. Furthermore, acceptance of the Work or any portion of the Work by the North Carolina Department of Transportation or any other such regulatory agency having approval authority does not obligate the Owner to grant acceptance of the Work.

#### **ARTICLE 47 – CORRECTION OF WORK BEFORE FINAL PAYMENT**

- A. Any Work, materials, fabricated items or other parts of the Work which have been condemned or declared not in accordance with the Contract by the Designer shall be promptly removed from the Work Site by the Contractor, and shall be immediately replaced by new Work in accordance with the Contract at no additional cost to the Owner. Work or property of other contractors or the Owner, damaged or destroyed by virtue of such faulty Work, shall be made good at the expense of the Contractor whose Work is faulty.
- B. Correction of condemned Work described above shall commence within twenty-four (24) hours after receipt of notice from the Designer, and shall make satisfactory progress until completed.
- C. Should the Contractor fail to proceed with the required corrections, then the Owner may complete the Work in accordance with the provisions of Article “Owner’s Right to Do Work.”

#### **ARTICLE 48 – CORRECTION OF WORK AFTER FINAL PAYMENT**

See Article “Performance Bond and Payment Bond,” and Article “Guarantee.” Neither the final certificate, final payment, occupancy of the premises by the Owner, nor any provision of the Contract, nor any other act or instrument of the Owner, nor the Designer, shall relieve the Contractor from responsibility for negligence, or faulty material or workmanship, or failure to comply with the Drawings and Specifications. He shall correct or make good any defects due thereto and repair any damage resulting therefrom, which may appear during the guarantee period following final acceptance of the Work except as stated otherwise under Article “Guarantee.” The Owner will report any defects as they may appear to the Contractor and establish a time limit for completion of corrections by the Contractor. The Owner will be the judge as to the responsibility for correction of defects.

#### **ARTICLE 49 – ACCEPTANCE OF DEFECTIVE WORK**

If instead of requiring correction or removal and replacement of defective or faulty Work, Owner prefers to accept it, Owner may do so. 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 other dispute resolution costs) attributable to Owner’s evaluation of and determination to accept such defective Work and the diminished value of the Work to the extent not otherwise paid by Contractor pursuant to this sentence. If any such acceptance occurs prior to Designer’s recommendation of final payment, a Change Order will be issued incorporating the necessary revisions in the Contract Documents with respect to the Work, and Owner shall be entitled to an appropriate decrease in the Contract Price, reflecting the diminished value of Work so accepted. If the acceptance occurs after such recommendation, an appropriate amount will be paid by Contractor to Owner.

#### **ARTICLE 50 – OWNER’S RIGHT TO DO WORK**

- A. If, during the progress of the Work or during the period of guarantee, the Contractor fails to prosecute the Work properly or to perform any provision of the Contract, the Owner, after fifteen (15) days” written notice sent by certified mail, return receipt

requested, to the Contractor from the Designer, may perform or have performed that portion of the Work. If the Work is deemed to be an emergency, the Owner may dispense with the fifteen (15) days' written notice and proceed with the Work immediately. The cost of the Work may be deducted from any amounts due or to become due to the Contractor. Should the cost of such action of the Owner exceed the amount due or to become due the Contractor, then the Contractor or his Surety, or both, shall be liable for and shall pay to the Owner the amount of said excess. The Contractor shall not be allowed an extension of Time of Completion (or milestones) because of any delay in the performance of the Work attributable to the exercise by the Owner of Owner's rights and remedies.

- B. In exercising the rights and remedies under this paragraph, Owner shall proceed expeditiously. In connection with such corrective and 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, take possession of Contractor's tools, appliances, construction equipment and machinery at the Site, 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 Designer and Designer's Consultants access to Site to enable Owner to exercise the rights and remedies under this paragraph.
- C. The Owner may have other Work performed at the Site by Owner's employees, contractors, or utility owners. Contractor shall afford each other Contractor who is a party to such other Work proper and safe access to the Site and a reasonable opportunity for the introduction and storage of materials and equipment and the execution of such other Work and shall properly coordinate the Work with theirs.

#### **ARTICLE 51 – TERMINATION BY OWNER AND REMEDIES**

- A. If the Contractor fails to begin the Work under the Contract within the time specified, or the progress of the Work is not maintained on schedule, or the Work is not completed within the time specified, or if the Contractor fails to perform the Work with sufficient workmen and equipment or with sufficient materials to ensure the prompt completion of said Work, or shall perform the Work unsuitably or shall discontinue the prosecution of the Work, or if the Contractor shall become insolvent or be declared bankrupt or commit any act of bankruptcy or insolvency, or allow any final judgment to stand against him unsatisfied for a period of forty-eight (48) hours, or shall make an assignment for the benefit of creditors, or disregards laws, regulations, or direction of the Designer, or for any other cause whatsoever shall not carry on the Work in an acceptable manner, the Owner may give notice in writing, sent by certified mail, return receipt requested, to the Contractor and his Surety of such delay, neglect or default, specifying the same, and if the Contractor within a period of fifteen (15) days after such notice shall not proceed in accordance therewith, then the Owner shall declare this Contract in default, and, thereupon, the Surety shall promptly take over the Work and complete the performance of this Contract in the manner and within the time frame specified. In the event the Surety shall fail to take over the Work to be done under this Contract within fifteen (15) days after being so notified and notify the Owner in writing, sent by certified mail, return receipt requested, that he is taking the same over and stating that he will diligently pursue and complete the same, the Owner shall have full power and authority, without violating the Contract, to take the prosecution of the Work out of the hands of said Contractor, to appropriate or use any or all Contract materials and equipment on the grounds as

may be suitable and acceptable and may enter into an agreement, either by public letting or negotiation, for the completion of said Contract according to the terms and provisions thereof or use such other methods as in his opinion shall be required for the completion of said Contract in an acceptable manner. All costs and charges incurred by the Owner, together with the costs of completing the Work under Contract, shall be deducted from any monies due or which may become due said Contractor and Surety. In case the expense so incurred by the Owner shall be less than the sum which would have been payable under the Contract, if it had been completed by said Contractor, then the said Contractor and Surety shall be entitled to receive the difference, but in case such expense shall exceed the sum which would have been payable under the Contract, then the Contractor and the Surety shall be liable and shall pay to the Owner the amount of said excess.

- B. Upon fifteen (15) days' written notice to Contractor and Designer, Owner may, without cause and without prejudice to any other right or remedy of Owner, elect to terminate the Contract. In such case, Contractor shall be paid (without duplication of any items):
  - 1. For 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. For 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. For reasonable expenses directly attributable to termination.
- C. Contractor shall not be paid on account of loss of anticipated profits or revenue or other economic loss arising out of or resulting from such termination.

#### **ARTICLE 52 – CONTRACTOR’S RIGHT TO STOP WORK OR TERMINATE THE CONTRACT**

- A. Should the Work be stopped by order of a court having jurisdiction, or by order of any other public authority for a period of three (3) months, due to cause beyond the fault or control of the Contractor, or if the Owner, without cause, should fail or refuse to make payment based on a Request for Payment approved by the Designer within forty-five (45) days after receipt of same, then the Contractor, after fifteen (15) days' written notice sent by certified mail, return receipt requested, to the Owner and the Designer, may suspend operations on the Work or terminate the Contract.
- B. In the event that the Contract is terminated due to cause beyond the fault or control of the Contractor, the Owner shall be liable to the Contractor for the cost of all materials delivered and Work performed on this Contract as determined according to the Article "Changes in the Work". The Designer shall determine the correctness of such payment.

#### **ARTICLE 53 – REQUESTS FOR PAYMENT**

- A. Not later than the fifth day of the month, the Contractor shall submit to the Designer a Request for Payment for Work done during the previous month. The request shall be in the form "Request for Payment" in the Contract Documents and shall show substantially the value of Work done and materials delivered to the Site during the period since the last payment, and shall sum up the financial status of the Contract with the following information:
1. Total of Contract including approved Change Orders.
  2. Value of Work completed to date and properly stored on-site materials.
  3. Less five percent (5%) retainage, provided however, that after fifty percent (50%) of the Contractor's Work has been satisfactorily completed on schedule, with written consent of the Surety, the Owner shall not require any additional retainage. If the Owner determines the Contractor's performance is unsatisfactory, the Owner may reinstate retainage for each subsequent payment. There shall be no retainage on contracts with a bid amount less than \$100,000.
  4. Less previous payments.
  5. Current amount due.
- B. The Contractor, upon request of the Designer, shall substantiate the request with invoices of vouchers or payrolls or other evidence.
- C. The Contractor shall submit a fully completed "Periodic Payment Itemized Tax Statement" and "Periodic Payment Tax Certification" form with each Request for Payment.
- D. Prior to submitting the first request, the Contractor shall prepare for the Designer a schedule showing a breakdown of the Contract Price into values of the various parts of the Work, so arranged as to facilitate payments to Subcontractors in accordance with Article "Contractor and Subcontractor Relationships." The Contractor(s) shall list the value of each Subcontractor and Supplier, identifying each minority business Subcontractor and Supplier as listed in Affidavit C, if applicable.
- E. Payment for Mobilization in excess of 3% of the initial Contract value shall be made with the Final Payment.
- F. Twenty percent (20%) of the payment for installed underground piping may be withheld until the installed piping has passed all necessary testing requirements and the required vegetative cover has been established, or at the discretion of the Owner, seeding and mulching has been performed. A separate line item for "Testing and Vegetative Cover over Piping" may be shown on the schedule that reflects a cost of at least 25% of the underground piping cost.
- G. When payment is made on account of stored materials and equipment, such materials must be stored on the Owner's property, and the requests for payments shall be accompanied by invoices or bills of sale or other evidence to establish the Owner's title to such materials and equipment. Responsibility for such stored materials and equipment shall remain with the Contractor regardless of ownership title. Such stored materials and equipment shall not be removed from the Owner's property. Should the space for storage on-site be limited, the Contractor, at his option, shall be permitted to

store such materials and/or equipment in a suitable space off-site. Should the Contractor desire to include any such materials or equipment in his Request for Payment, they must be stored in the name of the Owner in a commercial warehouse approved by the Designer and the Owner and located as close to the Site as possible. The warehouse selected must be approved by the Contractor's bonding and insurance companies; the material to be paid for shall be assigned to the Owner and shall be inspected by the Designer. Upon approval by the Designer of the storage facilities and materials and equipment, payment therefore will be certified. Responsibility for such stored materials and equipment shall remain with the Contractor. Such stored materials and equipment shall not be moved except for transportation to the Project Site. Under certain conditions, the Designer may approve storage of materials at the point of manufacture, which conditions shall be approved by the Designer and the Owner prior to approval for the storage and shall include an agreement by the storing party which unconditionally gives the Owner absolute right to possession of the materials at any time. Bond, security and insurance protection shall continue to be the responsibility of the Contractor(s).

- H. Along with each Request for Payment, the Contractor shall submit evidence to the Designer showing that all record Drawings are up to date.
- I. Along with each Request for Payment, the Contractor shall submit either a statement indicating that no claims for extension of time due to weather is to be made during the billing period OR shall make claims for extension of time for the billing period in accordance with the article "Time of Completion, Delays, Extension of Time."

#### **ARTICLE 54 – APPROVAL OF PAYMENTS AND FINAL PAYMENT**

- A. Within ten (10) days from receipt of Request for Payment from the Contractor, the Designer shall issue and forward to the Owner the approved Request for Payment. This Request for Payment shall indicate the amount requested or as approved by the Designer. If the request is not approved by the Designer, he shall state in writing to the Contractor and the Owner his reasons for withholding payment. In the latter case, the Contractor may make the necessary corrections and resubmit the Request for Payment.
- B. No approval of a Request for Payment or payment made shall constitute an acceptance of the Work or any part thereof. The making and acceptance of final payment shall constitute a waiver of all claims by the Owner except:
  - 1. Claims arising from unsettled liens or claims against the Contractor.
  - 2. Faulty Work or materials appearing after final payment.
  - 3. Failure of the Contractor to perform the Work in accordance with Drawings and Specifications, such failure appearing after payment.
  - 4. As conditioned in the performance bond and payment bond.
- C. The making and acceptance of final payment shall constitute a waiver of all claims by the Contractor except those claims previously made and remaining unsettled (Article "Claims for Extra Cost").

- D. Prior to submitting final Request for Payment to the Designer for approval, the Contractor shall fully comply with all requirements specified in Article “Final Inspection, Acceptance, and Project Closeout.” These requirements include, but are not limited to the following:
1. Submittal of Product and Operating Manuals, Warranties and Bonds, Guarantees, Maintenance Agreements, properly certified As-Built Drawings, Record Drawings, Certificates of Inspection or Approval from agencies having jurisdiction. (The Designer must approve the Manuals prior to delivery to the Owner).
  2. Transfer of required stock material and all keys in an organized manner.
  3. Record of Owner’s training.
  4. Resolution of any final inspection discrepancies.
- E. The Contractor shall forward to the Designer, the final Request for Payment along with the following documents:
1. List of minority business Subcontractors and material Suppliers showing breakdown of contracts amount.
  2. Contractor’s Affidavit of Release of Liens.
  3. “Final Tax Certification” form with all fully completed “Periodic Payment Itemized Tax Statement” and “Periodic Payment Tax Certification” forms corresponding to each Request for Payment.
  4. Affidavit of Contractor’s payment to material Suppliers and Subcontractors. (See Article “Contractor’s Affidavit”).
  5. Consent of Surety to Final Payment.
  6. Certificates of state agencies required by state law.
  7. Record Drawings
  8. As-Built Drawings
- F. The Designer will not authorize final payment until the Work under Contract has been certified by Designer, certificates of compliance issued, and the Contractor has complied with the closeout requirements. The Designer shall forward the Contractor’s final Request for Payment to the Owner along with respective certificate(s) of compliance required by law.
- G. After the request for final payment by the Contractor, all quantities of materials installed on the Project shall be reviewed for accuracy and any errant or outdated quantity information supplied on previously submitted Pay Applications, or any other source, shall be rectified on the Final Pay Application to reflect the actual quantity of materials installed on the Project.

## **ARTICLE 55 – PAYMENTS WITHHELD**

- A. The Designer, with the approval of the Owner, may withhold payment for the following reasons:
  - 1. Faulty Work not corrected.
  - 2. The unpaid balance on the Contract is insufficient to complete the Work in the judgment of the Designer.
  - 3. To provide for sufficient Contract balance to cover liquidated damages that will be assessed.
  - 4. Missing or improperly completed documentation required by the Contract Documents.
- B. In addition to the reasons noted above, the Owner may authorize the withholding of payment for the following reasons:
  - 1. Claims filed against the Contractor or evidence that a claim will be filed.
  - 2. Evidence that Subcontractors have not been paid.
- C. When grounds for withholding payments have been removed, payment will be released. Delay of payment due the Contractor without cause will make Owner liable for payment of interest to the Contractor as provided in NCGS 143-134.1.

## **ARTICLE 56 – ACCESS TO PERSONS AND RECORDS**

The State Auditor and the using agency's internal auditors shall have access to persons and records as a result of all contracts or grants entered into by State agencies or political subdivisions in accordance with General Statute 147-64.7 and Session Law 2010-194, Section 21 (i.e., the State Auditors and internal auditors may audit the records of the Contractor during the term of the Contract to verify accounts and data affecting fees or performance).

## **ARTICLE 57 – 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 location of the Project which are applicable during the performance of the Work. Specific guidelines include the following:
- B. Federal excise taxes do not apply to materials entering into state work (Internal Revenue Code, Section 3442(3)).
- C. Federal transportation taxes do not apply to materials entering into state work (Internal Revenue Code, Section 3475(b) as amended).

- D. North Carolina sales tax and use tax, as required by law, do apply to materials entering into state work and such costs shall be included in the bid proposal and Contract sum.
- E. Local option sales and use taxes, as required by law, do apply to materials entering into state work as applicable and such costs shall be included in the bid proposal and Contract sum.

**F. The Amount of County Sales and Use Tax Paid Per Contractor's Statements**

1. Contractors shall give the Owner a signed statement containing the information listed in NCGS 105-164.14(e).
2. The Contractor shall submit a certified statement setting forth the Project, date, the type of property and the cost of the property purchased from each vendor, the county in which the vendor made the sale and the amount of local sales and use taxes paid thereon. If the property was purchased out-of-state, the county in which the property was delivered shall be listed. Sales receipts shall be included with the statement. The Contractor is hereby notified that the certified statement may be subject to audit.
3. In the event the Contractors make several purchases from the same vendor, such certified statement must indicate the invoice numbers, the inclusive dates of the invoices, the total amount of the invoices, the counties, and the county sales and use taxes paid thereon.
4. Name of taxing county: The position of a sale is the retailer's place of business located within a taxing county where the vendor becomes contractually obligated to make the sale. Therefore, it is important that the county tax be reported for the county of sale rather than the county of use.
5. When property is purchased from out-of-state vendors and the county tax is charged, the county should be identified where delivery is made when reporting the county tax.
6. Such statement must also include the cost of any tangible personal property withdrawn from the Contractor's warehouse stock and the amount of county sales or use tax paid thereon by the Contractor.
7. Similar certified statements by his Subcontractors must be obtained by the general Contractor and furnished to the claimant.
8. Contractors are not to include any tax paid on supplies, tools and equipment which they use to perform their contracts and should include only those building materials, supplies, fixtures and equipment which actually become a part of or annexed to the Work.
9. Contractor shall provide a completed "Final Tax Certification" form, including copies of all Periodic Payment Tax Certifications, with the application for final payment.

**ARTICLE 58 – MINIMUM INSURANCE REQUIREMENTS**

The Work under this Contract shall not commence until the Contractor has obtained all required insurance and verifying certificates of insurance have been approved in writing by the Owner. The Contractor shall provide and maintain, during the life of the Contract, comprehensive general liability insurance, including coverage for premises operations, independent contractors, completed operations, products and contractual exposures, as shall protect such contractors from claims arising out of any bodily injury, including accidental death, as well as from claims for property damages which may arise from operations under this Contract, whether such operations be by the Contractor or by any Subcontractor, or by anyone directly or indirectly employed by either of them. The Contractor shall purchase and maintain property insurance during the life of this Contract, upon the entire Work at the Site to the full insurable value thereof that shall include the interests of the Owner, the Contractor, the Subcontractors in the Work and shall insure against the perils of fire, extended coverage, and vandalism and malicious mischief. If the Owner is damaged by failure of the Contractor to purchase or maintain such insurance, then the Contractor shall bear all reasonable costs properly attributable thereto; the Contractor shall effect and maintain similar property insurance on portions of the Work stored off the Site when Request for Payment per articles so includes such portions. The Contractor shall ensure that all Subcontractors are insured to at least the same extent required of the Contractor. Unless modified by the "Notice to Bidders," the minimum insurance requirements are as outlined below.

**A. Contractor's Liability Insurance**

1. Contractor shall purchase and maintain such liability and other insurance as is appropriate for the Work being performed and as will provide protection from claims set forth below which 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:
  - a. claims under workers' compensation, disability benefits, and other similar employee benefit acts;
  - b. claims for damages because of bodily injury, occupational sickness or disease, or death of Contractor's employees;
  - c. claims for damages because of bodily injury, sickness or disease, or death of any person other than Contractor's employees;
  - d. claims for damages insured by reasonably available personal injury liability coverage which are sustained: (i) by any person as a result of an offense directly or indirectly related to the employment of such person by Contractor, or (ii) by any other person for any other reason;
  - e. 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; and
  - f. 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.
2. The policies of insurance so required by this paragraph to be purchased and maintained shall:

- a. with respect to insurance required by Paragraphs (A.1.c) through (A.1.f) inclusive, include as additional insureds (subject to any customary exclusion in respect of professional liability) Owner, Designer, Designer's Consultants, and any other individuals or entities identified in the Supplementary Conditions, all of whom shall be listed as additional insureds, and include coverage for the respective officers, directors, partners, employees, agents, and other 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;
- b. include at least the specific coverages and be written for not less than the limits of liability provided in the paragraph below Notice to Bidders, or required by Laws or Regulations, whichever is greater;
- c. include completed operations insurance;
- d. include contractual liability insurance covering Contractor's indemnity obligations;
- e. contain a provision or endorsement that the coverage afforded will not be canceled, materially changed, or renewal refused until at least thirty (30) days" prior written notice has been given to by certified mail/return receipt requested to Owner and Contractor and to each other additional insured to whom a certificate of insurance has been issued;
- f. remain in effect at least until written Project acceptance and at all times thereafter when Contractor may be correcting, removing, or replacing defective Work; and
- g. with respect to completed operations insurance, and any insurance coverage written on a claims-made basis, remain in effect for at least three (3) years after final payment.

## **B. Property Insurance**

1. Unless otherwise provided in the Notice to Bidders, Contractor shall purchase and maintain property insurance upon the Work at the Site in the amount of the full replacement cost thereof. This insurance shall:
  - a. include the interests of Owner, Contractor, Subcontractors, Designer, Designer's consultants, and any other individuals or entities identified in the Notice to Bidders and the officers, directors, partners, employees, agents, and other consultants and Subcontractors of each and any of them, each of whom is deemed to have an insurable interest;
  - b. be written on a Builder's Risk "all-risk" or open peril or special causes of loss policy form that shall at least include insurance for physical loss or damage to the Work, temporary buildings, false work, and materials and equipment in transit, and shall insure against at least the following perils or causes of loss: fire, lightning, extended coverage, theft, vandalism and malicious mischief, earthquake, collapse, debris removal, demolition occasioned by enforcement of Laws and Regulations, water damage, and such other perils or causes of loss as may be specifically required by the Notice to Bidders;

- c. include expenses incurred in the repair or replacement of any insured property (including but not limited to fees and charges of Designers);
  - d. cover materials and equipment stored at the Site or at another location that was agreed to in writing by Owner prior to being incorporated in the Work, provided that such materials and equipment have been included in a Request for Payment recommended by Designer;
  - e. allow for partial utilization of the Work by Owner;
  - f. include testing and startup; and
  - g. be maintained in effect until final acceptance is made unless otherwise agreed to in writing by Owner, Contractor, and Designer with thirty (30) days' written notice to each other additional insured.
2. All the policies of insurance (and the certificates or other evidence thereof) required to be purchased and maintained will contain a provision or endorsement that the coverage afforded will not be cancelled or materially changed or renewal refused until at least thirty (30) days prior to written notice has been given to Owner and Contractor and to each other additional insured.
  3. Owner shall not be responsible for purchasing and maintaining any property insurance to protect the interests of Contractor, Subcontractors, or others in the Work to the extent of any deductible amounts that are identified in the Supplementary Conditions. The risk of loss within such identified deductible amount will be borne by Contractor, Subcontractors, or others suffering any such loss, and if any of them wishes property insurance coverage within the limits of such amounts, each may purchase and maintain it at the purchaser's own expense.
  4. If Contractor requests in writing that other special insurance be included in the property insurance policies, Owner shall, if possible, include such insurance, and the cost thereof will be charged to Contractor by appropriate Change Order or Written Amendment. Prior to commencement of the Work at the Site, Owner shall in writing advise Contractor whether or not such other insurance has been procured by Owner.

#### **C. Deductible**

Any deductible, if applicable to loss covered by insurance provided, is to be borne by the Contractor.

#### **D. Proof of Carriage**

The Contractor shall furnish the Owner with satisfactory proof of carriage of the insurance required before written approval is granted by the Owner.

#### **E. Limits of Liability**

##### *Worker's Compensation*

1. State: Statutory
2. Applicable Federal (e.g. Longshoreman's): Statutory
3. Employer's Liability: \$500,000

*Automobile Liability*

1. Bodily Injury:  
    \$1,000,000 Each Person  
    \$1,000,000 Each Accident  
    Property Damage:  
    \$1,000,000 Each Accident
- or**
2. Combined Single Limit (Bodily Injury and Property Damage):  
    \$1,000,000 Each Accident

*Employer's Other Liability*

1. Gen. Aggregate (except Products- Completed Operations): \$2,000,000
2. Products- Completed Operations: \$2,000,000
3. Personal & Advertising Injury (per person/organization): \$1,000,000
4. Each Occurrence (Bodily Injury & Property Damages): \$1,000,000
5. Excess Liability:
  - a. General Aggregate: \$2,000,000
  - b. Each Occurrence: \$2,000,000
6. Property damage liability insurance will provide Explosion, Collapse, and Underground coverage where applicable.
7. Pollution Liability: \$1,000,000 per occurrence
8. Professional Liability: \$1,000,000 per occurrence

**F. Receipt and Application of Insurance Proceeds**

1. Any insured loss under the policies of insurance will be adjusted with Owner and made payable to Owner as fiduciary for the insureds, as their interests may appear, subject to the requirements of any applicable mortgage clause. Owner shall deposit in a separate account any money so received and shall distribute it in accordance with such agreement as the parties in interest may reach. If no other special agreement is reached, the damaged Work shall be repaired or replaced, the moneys so received applied on account thereof, and the Work and the cost thereof covered by an appropriate Change Order or Written Amendment.
2. Owner as fiduciary shall have power to adjust and settle any loss with the insurers unless one of the parties in interest shall object in writing within fifteen (15) days after the occurrence of loss to Owner's exercise of this power. If such objection be made, Owner as fiduciary shall make settlement with the insurers in accordance with such agreement as the parties in interest may reach. If so such agreement among the parties in interest is reached, Owner as fiduciary shall adjust and settle the loss with the insurers and, if required in writing by any party in interest, Owner as fiduciary shall give bond for the proper performance of such duties.

**G. Right of Recovery; Subrogation**

Contractor shall have no right of recovery or subrogation against County (including its officers, agents and employees), it being the intention of the parties that the insurance policies so affected shall protect both parties and be primary coverage for any and all losses covered by the aforementioned insurance.

**ARTICLE 59 – PERFORMANCE BOND AND PAYMENT BOND**

- A. Each Contractor shall furnish a performance bond and payment bond executed by a Surety company authorized to do business in North Carolina. The bonds shall be at least equal to the full Contract amount. Bonds shall be executed in the form bound with these Specifications. The bonds shall be delivered with the executed Contract. These bonds shall remain in effect at least through the warranty period, but in no case less than one year after the date of Owner acceptance of the Project.
- B. All bonds shall be countersigned by an authorized agent of the bonding company who is licensed to do business in North Carolina and shall include a certified copy of such agent's authority to act.
- C. If the Surety on any Bond furnished by Contractor is declared bankrupt or becomes insolvent or its right to do business is terminated in any state where any part of the Project is located, Contractor shall within twenty (20) days thereafter substitute another Bond and Surety.
- D. An additional performance guarantee with the North Carolina Department of Transportation may be required for Work performed in the right-of-way. In this event, the Contractor, within ten (10) days of receipt of the "Notice of Award," shall supply the Owner with a copy of the executed performance guarantee and evidence of acceptance by the NCDOT. The Contractor shall perform all Work within the right-of-way in accordance with the "Policies and Procedures for Accommodating Utilities on Highway Rights of Way" and the provisions of the Encroachment Agreement. Any necessary guarantees and agreements between the Contractor and NCDOT must be in place prior to the Contractor performing any construction activities within the NCDOT right-of-way. Failure of the Contractor to receive concurrence from the NCDOT allowing the Contractor to Work within the right of way shall not be grounds for extension of the Contract Time.
- E. The Owner reserves the right to not release the Performance Bond until the NCDOT has approved the portion of the completed Work within the NCDOT right-of-way stipulated in the Project encroachment agreement.

#### **ARTICLE 60 – CONTRACTOR'S AFFIDAVIT**

The final payment of retained amount due the Contractor on account of the Contract shall not become due until the Contractor has furnished to the Owner through the Designer an affidavit signed, sworn and notarized to the effect that all payments for materials, services or subcontracted Work in connection with his Contract have been satisfied, and that no claims or liens exist against the Contractor in connection with this Contract. In the event that the Contractor cannot obtain similar affidavits from Subcontractors to protect the Contractor and the Owner from possible liens or claims against the Subcontractor, the Contractor shall state in his affidavit that no claims or liens exist against any Subcontractor to the best of his (the Contractor's) knowledge, and if any appear afterward, the Contractor shall save the Owner harmless.

#### **ARTICLE 61 – ASSIGNMENTS**

The Contractor shall not assign any portion of this Contract nor subcontract in its entirety. Except as may be required under terms of the performance bond or payment bond, no funds or sums of money due or become due the Contractor under the Contract may be assigned.

#### **ARTICLE 62 – CLEANING UP**

- A. The Contractors shall keep the Project, buildings, and surrounding area reasonably free from rubbish at all times, and shall remove debris from the Site on a timely basis or when directed to do so by the Designer or Project Expediter. The Project Expediter shall provide an on-site refuse container(s) for the use of all Contractors. Each Contractor shall remove their rubbish and debris from the building on a daily basis. Disposal of waste material, rubbish, and other debris shall conform to applicable Laws and Regulations. The Project Expediter shall broom clean the building as required to minimize dust and dirt accumulation.
- B. The Project Expediter shall provide and maintain suitable all-weather access to buildings.
- C. Before final inspection and acceptance of buildings, each Contractor shall clean his portion of the Work, including glass, hardware, fixtures, masonry, tile and marble (using no acid), clean and wax all floors as specified, and completely prepare the building for use by the Owner, with no cleaning required by the Owner.
- D. Prior to substantial completion of the Work, Contractor shall clean the Site and make it ready for utilization by Owner. At the completion of the Work, Contractor shall remove from the Site 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.
- E. All material including construction debris, etc., which is not to be used at the Project Site must be legally disposed of off the Project Site at the Contractor's expense. Survey stakes are not considered debris and shall be removed only at the direction of the Designer.
- F. All Contractors are responsible for maintaining streets, parking lots, walks and grounds connecting to the Project area which shall be protected from deposits of mud, sand, stone, litter or debris of any form. All mud collected on vehicle wheels must be cleaned off by spraying each tire and the underside of vehicle before leaving the construction Site. Should any mud or debris from the construction Project collect on the streets, this shall be removed immediately.

#### **ARTICLE 63 – GUARANTEE**

- A. The Contractor warrants and guarantees to Owner, Designer, and Designer's consultants that all Work shall be in accordance with the Contract Documents and will not be defective.
- B. All warranties and guarantees shall expressly run to the benefit of the Owner.
- C. The Contractor shall unconditionally guarantee materials and workmanship against patent defects arising from faulty materials, faulty workmanship or negligence for a

period of twelve (12) months following the date of final acceptance of the Work and shall replace such defective materials or workmanship without cost to the Owner.

- D. Where items of equipment or material carry a manufacturer's warranty for any period in excess of twelve (12) months, then the manufacturer's warranty shall apply for that particular piece of equipment or material. The Contractor shall replace such defective equipment or materials, without cost to the Owner, within the manufacturer's warranty period.
- E. All warranties shall be construed under and in accordance with the State of North Carolina.
- F. All materials and equipment incorporated into the Work shall be good quality and new, unless specified otherwise.
- G. Additionally, the Owner may bring an action for latent defects caused by the negligence of the Contractor which is hidden or not readily apparent to the Owner at the time final acceptance in accordance with applicable law.
- H. Additional guarantees for roof, equipment, materials, and supplies may be stipulated in the Specifications sections governing such roof, equipment, materials, or supplies.
- I. All materials and equipment shall be stored, applied, installed, connected, erected, protected, used, cleaned, and conditioned in accordance with instruction of the applicable Supplier or manufacturer.
- J. If required by the Designer, the Contractor shall provide satisfactory evidence (including reports of required tests) as to the source, kind, and quality of materials and equipment.
- K. Any defective materials or workmanship replaced or repaired during the initial warranty period shall extend the warranty period for a period of twelve (12) months following Owner acceptance of the replacement material or workmanship.

#### **ARTICLE 64 – INDEMNIFICATION**

- A. To the fullest extent permitted by Laws and Regulations and without limiting any other indemnity obligation set forth herein, Contractor shall indemnify and hold harmless Owner, Designer, Designer's Consultants, and the officers, directors, partners, employees, agents, and other 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 other dispute resolution costs) (collectively, "Claims") should Contractor's, or anyone for whom Contractor is responsible, fault or negligence be the proximate cause of such Claims.
- B. In any and all Claims against Owner or Designer or any of their respective consultants, agents, officers, directors, partners, or employees 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 of anyone for whose acts any of them may be liable, the indemnification obligation above 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 acts, or other employee benefit acts.

C. This Section shall survive any expiration or termination of the Contract.

#### **ARTICLE 65 – CONTRACTOR EVALUATION**

The Contractor's overall Work performance on the Project shall be fairly evaluated for determining qualifications to bid on future County capital improvement Projects. In addition to final evaluation, interim evaluation may be prepared during the progress of the Project. Evaluations shall be performed by the Owner and Designer. The Owner may request the Contractor's comments to evaluate the Designer.

**ATTACHMENT A**  
**BID SCHEDULE**  
**FOR**  
**BRUNSWICK COUNTY MUNICIPAL SOLID WASTE TRANSFER STATION REPAIRS**

The Work includes, but is not limited to, the construction of the removal and replacement of the structural steel hopper, approximately 8000 square feet of concrete slab demolition and replacement, selective demolition and replacement of building structural components and associated appurtenances implied in the Specifications and as shown on the Drawings. **The total base bid price for the Brunswick County Municipal Solid Waste Transfer Station Repairs shall include all work described or implied in the Specifications and shown on the Drawings.**

<u>Line</u>	<u>Description</u>	<u>Pay Unit</u>	<u>Quantity</u>	<u>Unit Price</u>	<u>Total</u>
<b><u>General</u></b>					
1	Mobilization (Limited to 1.5% Total Bid)	LS	1		
2	Clearing and Grubbing (31 10 00)	LS	1		
3	Silt Fence (31 32 11)	LF	40		
4	Silt Fence Outlet (31 32 11)	EA	1		
5	Maintenance of Erosion Control Devices (31 32 11)	LS	1		
6	Temporary Safety Barrier (015000)	LF	80		
<b><u>Structure</u></b>					
<b>7</b>	<b>Hydro-demolition (021420) or Select Demolition of Concrete Slab (024119)</b>	<b>SF</b>	<b>8000</b>		
8	Furnish Cast-in-Place Concrete 5,000 psi (033000)	CY	115		
9	Remove Existing Concrete Barrier (024119)	LF	60		
10	Cast-in-place Concrete Barrier (033000)	LF	120		
11	Selective Demolition of Building (024119)	LS	1		
12	Cast-in-place Concrete (Column Encasement) (033000)	CY	1		
13	Structural Steel (Misc. Metal and Hopper Assembly) (051200)	LB	17,116		
14	Cold-Formed Metal Framing (054000)	LB	1,527		
15	Aluminum Siding (074616)	SF	2,600		
16	Electrical Relocation (260529)	LS	1		
17	Excavation (312000)	CY	5		
18	Structural Fill (312000)	CY	35		

**ATTACHMENT A  
 BID SCHEDULE  
 FOR  
 BRUNSWICK COUNTY MUNICIPAL SOLID WASTE TRANSFER STATION REPAIRS**

**Total Base Bid Price for the Brunswick County Municipal Solid Waste Transfer Station Repairs = lines 1-19**

Dollars(\$)  
 \_\_\_\_\_  
 (use words) (use numerals)

**BID ALTERNATE – STEEL WORK ONLY: The total bid price for the Brunswick County Municipal Solid Waste Transfer Station Repairs Bid Alternate – STEEL WORK ONLY shall include the removal and replacement of the structural steel hopper and concrete removal and replacement necessary as shown on plan sheets S-6 and S-7.**

<u>Line</u>	<u>Description</u>	<u>Pay Unit</u>	<u>Quantity</u>	<u>Unit Price</u>	<u>Total</u>
<b><u>Structure</u></b>					
19	Select Demolition Partial Concrete Removal (024119)	CY	17		
20	Furnish and Place Cast-in-Place Concrete 5,000 psi (033000)	CY	17		
21	Selective Demolition of Building (024119)	LS	1		
22	Cast-in-place Concrete (Column Encasement) (033000)	CY	1		
23	Structural Steel (Misc. Metal and Hopper Assembly) (051200)	LB	17,116		
24	Cold-Formed Metal Framing (054000)	LB	1,527		
25	Aluminum Siding (074616)	SF	1,500		
26	Electrical Relocation (260529)	LS	1		
27	Cast-in-place Concrete Barrier (033000)	LF	60		

**BID ALTERNATE – STEEL WORK ONLY Bid Price for the Brunswick County Municipal Solid Waste Transfer Station Repairs = lines 19-27**

Dollars(\$)  
 \_\_\_\_\_  
 (use words) (use numerals)

**ATTACHMENT A  
 BID SCHEDULE  
 FOR  
 BRUNSWICK COUNTY MUNICIPAL SOLID WASTE TRANSFER STATION REPAIRS**

**BID ALTERNATE – CONCRETE FLOOR WORK ONLY:** The total bid price for the Brunswick County Municipal Solid Waste Transfer Station Repairs Bid Alternate – CONCRETE FLOOR WORK ONLY shall include approximately 8000 square feet of concrete slab demolition and replacement, selective demolition and replacement of building structural components and associated appurtenances implied in the Specifications and as shown on the Drawings. **This work includes removal of the existing structural steel hopper. This work does not include replacement of the structural steel hopper.**

<u>Line</u>	<u>Description</u>	<u>Pay Unit</u>	<u>Quantity</u>	<u>Unit Price</u>	<u>Total</u>
<b>Structure</b>					
28	Hydro-demolition (021420) or Select Demolition of Concrete Slab (024119)	SF	8000		
29	Furnish Cast-in-Place Concrete 5,000 psi (033000)	CY	115		
30	Remove Existing Concrete Barrier (024119)	LF	60		
31	Cast-in-place Concrete Barrier (033000)	LF	120		
32	Selective Demolition of Building (024119)	LS	1		
33	Cast-in-place Concrete (Column Encasement) (033000)	CY	1		
34	Structural Steel (Misc. Metal Column Repairs Only) (051200)	LB	100		
35	Cold-Formed Metal Framing (054000)	LB	1,527		
36	Aluminum Siding (074616)	SF	1,100		

**BID ALTERNATE – CONCRETE FLOOR WORK ONLY Bid Price for the Brunswick County Municipal Solid Waste Transfer Station Repairs = lines 28 - 36**

Dollars(\$)  
 \_\_\_\_\_  
 (use words) (use numerals)



**MINORITY BUSINESS PARTICIPATION REQUIREMENTS:**

Provide on the Bid: Under GS143-128.3 (c) the undersigned bidder shall identify on its bid the minority business that it will use on the project and the total dollar value of the bid that will be performed by the minority business and list the good faith efforts (Affidavit A) made to solicit participation.

Note: A contractor that performs all of the work with its own workforce may submit an Affidavit B to that effect in lieu of the Affidavit A required above.

After the bid opening: The Owner will consider all bids and alternated and determine the lowest responsible, responsive bidder. Upon notification of being the apparent low bidder, the bidder shall then submit within 72 hours of the notification of being the apparent low bidder, the following:

An 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 10% goal established. This affidavit shall give rise to the presumption that the bidder has made the required good faith effort;

OR

Affidavit D of its good faith effort to meet the goal. The document must include evidence of all good faith efforts that were implemented, including any advertisements, solicitations and other specific actions demonstrating recruitment and selection of minority businesses for participation in the contract.

**NOTE: Bidders must submit with their bid the BIDDER'S REPORT OF SUBCONTRACTOR SELECTION AND EFFORTS TO OBTAIN WOMEN AND MINORITY SUBCONTRACTORS and AFFIDAVIT A or AFFIDAVIT B as applicable. Failure to submit a required affidavit or documentation with the bid or after being notified apparent low bidder may be grounds for rejection of the bid.**

Firm: \_\_\_\_\_

By: \_\_\_\_\_

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

(Seal - if bid is by a corporation)



# State of North Carolina AFFIDAVIT A – Listing of Good Faith Efforts

County of \_\_\_\_\_

(Name of Bidder)

Affidavit of \_\_\_\_\_

I have made a good faith effort to comply under the following areas checked:

**Bidders must earn at least 50 points from the good faith efforts listed for their bid to be considered responsive.** (1 NC Administrative Code 30 I.0101)

- 1 – (10 pts)** 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.
- 2 --(10 pts)** 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.
- 3 – (15 pts)** Broken down or combined elements of work into economically feasible units to facilitate minority participation.
- 4 – (10 pts)** Worked with minority trade, community, or contractor organizations identified by the Office of Historically Underutilized Businesses and included in the bid documents that provide assistance in recruitment of minority businesses.
- 5 – (10 pts)** Attended prebid meetings scheduled by the public owner.
- 6 – (20 pts)** Provided assistance in getting required bonding or insurance or provided alternatives to bonding or insurance for subcontractors.
- 7 – (15 pts)** 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.
- 8 – (25 pts)** 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.
- 9 – (20 pts)** 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.
- 10 - (20 pts)** Provided quick pay agreements and policies to enable minority contractors and suppliers to meet cash-flow demands.

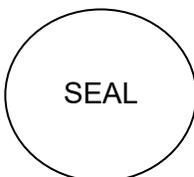
The undersigned, if apparent low bidder, will enter into a formal agreement with the firms listed in the Identification of Minority Business Participation schedule conditional upon scope of contract to be executed with the Owner. Substitution of contractors must be in accordance with GS143-128.2(d) Failure to abide by this statutory provision will constitute a breach of the contract.

The undersigned hereby certifies that he 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 North Carolina, County of \_\_\_\_\_

Subscribed and sworn to before me this \_\_\_\_\_ day of \_\_\_\_\_ 20\_\_\_\_

Notary Public \_\_\_\_\_

My commission expires \_\_\_\_\_

# State of North Carolina --AFFIDAVIT B-- Intent to Perform Contract with Own Workforce.

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 the 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: \_\_\_\_\_



State of North Carolina, County of \_\_\_\_\_

Subscribed and sworn to before me this \_\_\_\_\_ day of \_\_\_\_\_ 20\_\_\_\_

Notary Public \_\_\_\_\_

My commission expires \_\_\_\_\_

# State of North Carolina - AFFIDAVIT C - Portion of the Work to be Performed by Minority Firms

County of \_\_\_\_\_

**(Note this form is to be submitted only by the apparent lowest responsible, responsive bidder.)**

If the portion of the work to be executed by minority businesses as defined in GS143-128.2(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 ID# \_\_\_\_\_ Amount of Bid \$ \_\_\_\_\_  
(Project Name)

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**) Socially and Economically Disadvantaged (**D**)

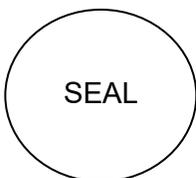
Pursuant to GS143-128.2(d), the undersigned will enter into a formal agreement with Minority Firms for work listed in this schedule conditional upon execution of a contract with the Owner. Failure to fulfill this commitment may constitute a breach of the contract.

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 North Carolina, County of \_\_\_\_\_

Subscribed and sworn to before me this \_\_\_\_\_ day of \_\_\_\_\_ 20\_\_\_\_

Notary Public \_\_\_\_\_

My commission expires \_\_\_\_\_

# State of North Carolina AFFIDAVIT D – Good Faith Efforts

County of \_\_\_\_\_

**(Note this form is to be submitted only by the apparent lowest responsible, responsive bidder.)**

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 certify the attached documentation as true and accurate representation 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**) Socially and Economically Disadvantaged (**D**)

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:

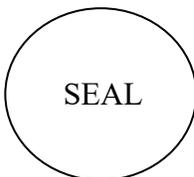
- A. Copies of solicitations for quotes to at least three (3) minority business firms from the source list provided by the State for each subcontract to be let under this contract (if 3 or more firms are shown on the source list). Each solicitation shall contain a specific description of the work to be subcontracted, location where bid documents can be reviewed, representative of the Prime Bidder to contact, 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 pre-bid roster.
- G. Letter documenting efforts to provide assistance in obtaining required bonding or insurance for minority business.
- H. Letter detailing reasons for rejection 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 North Carolina, County of \_\_\_\_\_  
 Subscribed and sworn to before me this \_\_\_\_\_ day of \_\_\_\_\_ 20\_\_\_\_  
 Notary Public \_\_\_\_\_  
 My commission expires \_\_\_\_\_

**NON-COLLUSION AFFIDAVIT**

State of \_\_\_\_\_)

County of \_\_\_\_\_)

\_\_\_\_\_ being first duly sworn, deposes and says that:

(1) He is the \_\_\_\_\_, of \_\_\_\_\_  
(Owner/Officer/Partner/Representative or Agent)

\_\_\_\_\_ the BIDDER that has submitted the attached BID;

(2) He is fully informed respecting the preparation and contents of the attached BID and of all pertinent circumstances respecting such BID;

(3) Such BID is genuine and is not a collusive or sham BID;

(4) Neither the said BIDDER nor any of its officers, partners, owners, agents, representatives, employees or parties in interest, including this affiant, have in any way colluded, conspired, connived or agreed, directly or indirectly, with any other BIDDER, firm, or person to submit a collusive or sham BID in connection with the Contract for which the attached BID has been submitted; or to refrain from bidding in connection with such Contract; or have in any manner, directly or indirectly, sought by agreement or collusion, or communication, or conference with any BIDDER, firm, or person to fix the price or prices in the attached BID or of any other BIDDER, or to fix any overhead, profit, or cost elements of BID price or the BID price of any other BIDDER, or to secure through any collusion, conspiracy, connivance, or unlawful agreement any advantage against (Recipient), or any person interested in the proposed Contract.

(5) The price or prices quoted in the attached BID are fair and proper and are not tainted by any collusion, conspiracy, connivance, or unlawful agreement on the part of the BIDDER or any other of its agents, representatives, owners, employees or parties in interest, including this affidavit.

By: \_\_\_\_\_

\_\_\_\_\_  
(Title)

Subscribed and sworn to before this \_\_\_\_\_ day of \_\_\_\_\_, 20 \_\_\_\_.

\_\_\_\_\_  
Notary Public: \_\_\_\_\_

My commission expires: \_\_\_\_\_

## BID BOND

Any singular reference to Bidder, Surety, Owner or other party shall be considered plural where applicable.

---

BIDDER *(Name and Address)*:

SURETY *(Name and Address of Principal Place of Business)*:

OWNER *(Name and Address)*:

Brunswick County  
30 Government Center Dr. NE  
Bolivia, NC 28422

BID

Bid Due Date: January 30, 2020

Description:

Brunswick County Municipal Solid Waste Transfer Station Repairs

BOND

Bond Number:

Date *(Not earlier than Bid due date)*:

Penal sum \_\_\_\_\_

(Words)

\$ \_\_\_\_\_

(Figures)

Surety and Bidder, intending to be legally bound hereby, subject to the terms set forth below, do each cause this Bid Bond to be duly executed by an authorized officer, agent, or representative.

**BIDDER**

**SURETY**

\_\_\_\_\_  
Bidder's Name and Corporate Seal (Seal)

\_\_\_\_\_  
Surety's Name and Corporate Seal (Seal)

By: \_\_\_\_\_  
Signature

By: \_\_\_\_\_  
Signature (Attach Power of Attorney)

\_\_\_\_\_  
Print Name

\_\_\_\_\_  
Print Name

\_\_\_\_\_  
Title

\_\_\_\_\_  
Title

Attest: \_\_\_\_\_  
Signature

Attest: \_\_\_\_\_  
Signature

\_\_\_\_\_  
Title

\_\_\_\_\_  
Title

*Note: Above addresses are to be used for giving any required notice. Provide execution by any additional parties, such as joint venturers, if necessary.*

1. Bidder and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors, and assigns to pay to Owner upon default of Bidder the penal sum set forth on the face of this Bond. Payment of the penal sum is the extent of Bidder's and Surety's liability. Recovery of such penal sum under the terms of this Bond shall be Owner's sole and exclusive remedy upon default of Bidder.
2. Default of Bidder shall occur upon the failure of Bidder to deliver within the time required by the Bidding Documents (or any extension thereof agreed to in writing by Owner) the executed Agreement required by the Bidding Documents and any performance and payment bonds required by the Bidding Documents.
3. This obligation shall be null and void if:
  - 3.1 Owner accepts Bidder's Bid and Bidder delivers within the time required by the Bidding Documents (or any extension thereof agreed to in writing by Owner) the executed Agreement required by the Bidding Documents and any performance and payment bonds required by the Bidding Documents, or
  - 3.2 All Bids are rejected by Owner, or
  - 3.3 Owner fails to issue a Notice of Award to Bidder within the time specified in the Bidding Documents (or any extension thereof agreed to in writing by Bidder and, if applicable, consented to by Surety when required by Paragraph 5 hereof).
4. Payment under this Bond will be due and payable upon default of Bidder and within 30 calendar days after receipt by Bidder and Surety of written notice of default from Owner, which notice will be given with reasonable promptness, identifying this Bond and the Project and including a statement of the amount due.
5. Surety waives notice of any and all defenses based on or arising out of any time extension to issue Notice of Award agreed to in writing by Owner and Bidder, provided that the total time for issuing Notice of Award including extensions shall not in the aggregate exceed 120 days from Bid due date without Surety's written consent.
6. No suit or action shall be commenced under this Bond prior to 30 calendar days after the notice of default required in Paragraph 4 above is received by Bidder and Surety and in no case later than one year after Bid due date.
7. Any suit or action under this Bond shall be commenced only in a court of competent jurisdiction located in the state in which the Project is located.
8. Notices required hereunder shall be in writing and sent to Bidder and Surety at their respective addresses shown on the face of this Bond. Such notices may be sent by personal delivery, commercial courier, or by United States Registered or Certified Mail, return receipt requested, postage pre-paid, and shall be deemed to be effective upon receipt by the party concerned.
9. Surety shall cause to be attached to this Bond a current and effective Power of Attorney evidencing the authority of the officer, agent, or representative who executed this Bond on behalf of Surety to execute, seal, and deliver such Bond and bind the Surety thereby.
10. This Bond is intended to conform to all applicable statutory requirements. Any applicable requirement of any applicable statute that has been omitted from this Bond shall be deemed to be included herein as if set forth at length. If any provision of this Bond conflicts with any applicable statute, then the provision of said statute shall govern and the remainder of this Bond that is not in conflict therewith shall continue in full force and effect.
11. The term "Bid" as used herein includes a Bid, offer, or proposal as applicable.

**11. Insert:**  
**Power of Attorney**  
**(Bid Bond)**

(Provided by Contractor's Bonding Company)

This document shall be provided as part of bidding documents.

## QUALIFICATIONS OF BIDDERS

The Bidder shall furnish the following information, designed to assist the Owner in determining whether or not the Bidder is qualified to perform the work described in the Contract Documents:

1. List three references with contact person and telephone number who are qualified to objectively judge the results of similar work performed by the Bidder in the last 3 years.
  - A.
  - B.
  - C.
2. List previous contracting experience, including contract dollar amount.
  - A.
  - B.
  - C.
3. List key personnel and brief history of experience for each.
  - A.
  - B.
  - C.
4. Name address, telephone number and title of officer or person best able to answer questions regarding bidders ability to complete the work.
  - A.
  - B.
  - C.

NOTE - The Bidder shall attach additional sheets of information as needed to answer questions.

**SUBCONTRACTORS AND MATERIAL SUPPLIERS LIST**

Bidder shall provide the following information concerning minorities and women-owned subcontractors. All information shall be complete for acceptable award.

A. List of Subcontractors to be used:

<u>Subcontractor</u>	(M/F*)	<u>Work</u>	Dollar <u>Amount</u>	% of <u>Total</u>
_____	( )	_____	_____	_____
_____	( )	_____	_____	_____
_____	( )	_____	_____	_____
_____	( )	_____	_____	_____
_____	( )	_____	_____	_____

B. Material Suppliers List

<u>Supplier</u>		<u>Material</u>		
_____	( )	_____	_____	_____
_____	( )	_____	_____	_____
_____	( )	_____	_____	_____
_____	( )	_____	_____	_____
_____	( )	_____	_____	_____

\* (M) Denotes Minority  
 (F) Denotes Female  
 (M/F) Denotes Minority & Female

# Notice of Award

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

---

Project: Brunswick County Municipal Solid Waste Transfer Station Repairs

---

Owner: Brunswick County

---

Owner's Contract No.:

---

Contract: Municipal Solid Waste Transfer Station Repairs

---

Engineer's Project No.: 50120106

---

Bidder:

---

Bidder's Address: *[send Notice of Award Certified Mail, Return Receipt Requested]*

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---

You are notified that your Bid dated \_\_\_\_\_ for the above Contract has been considered. You are the Successful Bidder and are awarded a Contract for \_\_\_\_\_

The Contract Price of your Contract is \_\_\_\_\_ Dollars (\$\_\_\_\_\_).

\_\_\_\_\_ copies of the proposed Contract Documents (except Drawings) accompany this Notice of Award.

\_\_\_\_\_ sets of the Drawings will be delivered separately or otherwise made available to you immediately.

You must comply with the following conditions precedent within [15] days of the date you receive this Notice of Award.

1. Deliver to the Owner [\_\_\_\_\_] fully executed counterparts of the Contract Documents.
2. Deliver with the executed Contract Documents the Contract security [Bonds] as specified in the Instructions to Bidders (Article 20), General Conditions (Paragraph 5.01), and Supplementary Conditions (Paragraph SC-5.01).
3. Other conditions precedent:  
\_\_\_\_\_

Failure to comply with these conditions within the time specified will entitle Owner to consider you in default, annul this Notice of Award, and declare your Bid security forfeited.

Within ten days after you comply with the above conditions, Owner will return to you one fully executed counterpart of the Contract Documents.

---

Owner

By:

---

Authorized Signature

---

Title

---

Contractor

Accepted By:

---

Authorized Signature

---

Title

Copy to Engineer

# Notice to Proceed

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

---

Project: Brunswick County Municipal Solid Waste Transfer Station Repairs

---

Owner: Brunswick County, North Carolina

---

Owner's Contract No.:

---

Contract: Municipal Solid Waste Transfer Station Repairs

---

Engineer's Project No.: 50120106

---

Contractor:

---

Contractor's Address: *[send Certified Mail, Return Receipt Requested]*

---

---

You are notified that the Contract Times under the above Contract will commence to run on \_\_\_\_\_. On or before that date, you are to start performing your obligations under the Contract Documents. In accordance with Article 4 of the Agreement, the number of days to achieve Substantial Completion is **30**, and the number of days to achieve readiness for final payment is **120**.

Before you may start any Work at the Site, Paragraph 2.01.B of the General Conditions provides that you and Owner must each deliver to the other (with copies to Engineer and other identified additional insureds and loss payees) certificates of insurance which each is required to purchase and maintain in accordance with the Contract Documents.

Also, before you may start any Work at the Site, you must:

---

Contractor

---

Owner

Given by:

---

Authorized Signature

---

Authorized Signature

---

Title

---

Title

---

Date

---

Date

---

Copy to Engineer

# PERFORMANCE BOND

Any singular reference to Contractor, Surety, Owner, or other party shall be considered plural where applicable.

---

CONTRACTOR (*Name and Address*):                      SURETY (*Name, and Address of Principal Place of Business*):

OWNER (*Name and Address*):

Brunswick County  
30 Government Center Dr. NE.  
Bolivia, NC 28422

CONTRACT

Effective Date of Agreement:  
Amount:  
Description (*Name and Location*):

BOND

Bond Number:  
Date (*Not earlier than Effective Date of Agreement*):  
Amount:  
Modifications to this Bond Form:

Surety and Contractor, intending to be legally bound hereby, subject to the terms set forth below, do each cause this Performance Bond to be duly executed by an authorized officer, agent, or representative.

**CONTRACTOR AS PRINCIPAL**

**SURETY**

\_\_\_\_\_  
Contractor's Name and Corporate Seal (Seal)

\_\_\_\_\_  
Surety's Name and Corporate Seal (Seal)

By: \_\_\_\_\_  
Signature

By: \_\_\_\_\_  
Signature (Attach Power of Attorney)

\_\_\_\_\_  
Print Name

\_\_\_\_\_  
Print Name

\_\_\_\_\_  
Title

\_\_\_\_\_  
Title

Attest: \_\_\_\_\_  
Signature

Attest: \_\_\_\_\_  
Signature

\_\_\_\_\_  
Title

\_\_\_\_\_  
Title

*Note: Provide execution by additional parties, such as joint venturers, if necessary.*

Contractor and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors, and assigns to Owner for the performance of the Contract, which is incorporated herein by reference.

1. If Contractor performs the Contract, Surety and Contractor have no obligation under this Bond, except to participate in conferences as provided in Paragraph 2.1.
2. If there is no Owner Default, Surety's obligation under this Bond shall arise after:
  - 2.1 Owner has notified Contractor and Surety, at the addresses described in Paragraph 9 below, that Owner is considering declaring a Contractor Default and has requested and attempted to arrange a conference with Contractor and Surety to be held not later than 15 days after receipt of such notice to discuss methods of performing the Contract. If Owner, Contractor, and Surety agree, Contractor shall be allowed a reasonable time to perform the Contract, but such an agreement shall not waive Owner's right, if any, subsequently to declare a Contractor Default; and
  - 2.2 Owner has declared a Contractor Default and formally terminated Contractor's right to complete the Contract. Such Contractor Default shall not be declared earlier than 20 days after Contractor and Surety have received notice as provided in Paragraph 2.1; and
  - 2.3 Owner has agreed to pay the Balance of the Contract Price to:
    1. Surety in accordance with the terms of the Contract; or
    2. Another contractor selected pursuant to Paragraph 3.3 to perform the Contract.
3. When Owner has satisfied the conditions of Paragraph 2, Surety shall promptly, and at Surety's expense, take one of the following actions:
  - 3.1 Arrange for Contractor, with consent of Owner, to perform and complete the Contract; or
  - 3.2 Undertake to perform and complete the Contract itself, through its agents or through independent contractors; or
  - 3.3 Obtain bids or negotiated proposals from qualified contractors acceptable to Owner for a contract for performance and completion of the Contract, arrange for a contract to be prepared for execution by Owner and contractor selected with Owner's concurrence, to be secured with performance and payment bonds executed by a qualified surety equivalent to the bonds issued on the Contract, and pay to Owner the amount of damages as described in Paragraph 5 in excess of the Balance of the Contract Price incurred by Owner resulting from Contractor Default; or
  - 3.4 Waive its right to perform and complete, arrange for completion, or obtain a new contractor, and with reasonable promptness under the circumstances:
    1. After investigation, determine the amount for which it may be liable to Owner and, as soon as practicable after the amount is determined, tender payment therefor to Owner; or
    2. Deny liability in whole or in part and notify Owner citing reasons therefor.
4. If Surety does not proceed as provided in Paragraph 3 with reasonable promptness, Surety shall be deemed to be in default on this Bond 15 days after receipt of an additional written notice from Owner to Surety demanding that Surety perform its obligations under this Bond, and Owner shall be entitled to enforce any remedy available to Owner. If Surety proceeds as provided in Paragraph 3.4, and Owner refuses the payment tendered or Surety has denied liability, in whole or in part, without further notice Owner shall be entitled to enforce any remedy available to Owner.
5. After Owner has terminated Contractor's right to complete the Contract, and if Surety elects to act under Paragraph 3.1, 3.2, or 3.3 above, then the responsibilities of Surety to Owner shall not be greater than those of Contractor under the Contract, and the responsibilities of Owner to Surety shall not be greater than those of Owner under the Contract. To the limit of the amount of this Bond, but subject to commitment by Owner of the Balance of the Contract Price to mitigation of costs and damages on the Contract, Surety is obligated without duplication for:

- 5.1 The responsibilities of Contractor for correction of defective Work and completion of the Contract;
- 5.2 Additional legal, design professional, and delay costs resulting from Contractor's Default, and resulting from the actions of or failure to act of Surety under Paragraph 3; and
- 5.3 Liquidated damages, or if no liquidated damages are specified in the Contract, actual damages caused by delayed performance or non-performance of Contractor.

6. Surety shall not be liable to Owner or others for obligations of Contractor that are unrelated to the Contract, and the Balance of the Contract Price shall not be reduced or set off on account of any such unrelated obligations. No right of action shall accrue on this Bond to any person or entity other than Owner or its heirs, executors, administrators, or successors.

7. Surety hereby waives notice of any change, including changes of time, to Contract or to related subcontracts, purchase orders, and other obligations.

8. Any proceeding, legal or equitable, under this Bond may be instituted in any court of competent jurisdiction in the location in which the Work or part of the Work is located, and shall be instituted within two years after Contractor Default or within two years after Contractor ceased working or within two years after Surety refuses or fails to perform its obligations under this Bond, whichever occurs first. If the provisions of this paragraph are void or prohibited by law, the minimum period of limitation available to sureties as a defense in the jurisdiction of the suit shall be applicable.

9. Notice to Surety, Owner, or Contractor shall be mailed or delivered to the address shown on the signature page.

10. When this Bond has been furnished to comply with a statutory requirement in the location where the Contract was to be performed, any provision in this Bond conflicting with said statutory requirement shall be deemed deleted herefrom and provisions conforming to such statutory requirement shall be deemed incorporated herein. The intent is that this Bond shall be construed as a statutory bond and not as a common law bond.

11. Definitions.

- 11.1 Balance of the Contract Price: The total amount payable by Owner to Contractor under the Contract after all proper adjustments have been made, including allowance to Contractor of any amounts received or to be received by Owner in settlement of insurance or other Claims for damages to which Contractor is entitled, reduced by all valid and proper payments made to or on behalf of Contractor under the Contract.
- 11.2 Contract: The agreement between Owner and Contractor identified on the signature page, including all Contract Documents and changes thereto.
- 11.3 Contractor Default: Failure of Contractor, which has neither been remedied nor waived, to perform or otherwise to comply with the terms of the Contract.
- 11.4 Owner Default: Failure of Owner, which has neither been remedied nor waived, to pay Contractor as required by the Contract or to perform and complete or otherwise comply with the other terms thereof.

FOR INFORMATION ONLY – *(Name, Address and Telephone)*  
Surety Agency or Broker:  
Owner's Representative *(Engineer or other party)*: Dewberry Engineers Inc.

# PAYMENT BOND

Any singular reference to Contractor, Surety, Owner, or other party shall be considered plural where applicable.

CONTRACTOR (*Name and Address*):

SURETY (*Name, and Address of Principal Place of Business*):

OWNER (*Name and Address*):

Brunswick County  
30 Government Center Dr. NE.  
Bolivia, NC 28422

CONTRACT

Effective Date of Agreement:

Amount:

Description (*Name and Location*): Wastewater Treatment Plant Equalization Tank, Oxford, NC

BOND

Bond Number:

Date (*Not earlier than Effective Date of Agreement*):

Amount:

Modifications to this Bond Form:

Surety and Contractor, intending to be legally bound hereby, subject to the terms set forth below, do each cause this Payment Bond to be duly executed by an authorized officer, agent, or representative.

**CONTRACTOR AS PRINCIPAL**

**SURETY**

\_\_\_\_\_  
Contractor's Name and Corporate Seal (Seal)

\_\_\_\_\_  
Surety's Name and Corporate Seal (Seal)

By: \_\_\_\_\_  
Signature

By: \_\_\_\_\_  
Signature (Attach Power of Attorney)

\_\_\_\_\_  
Print Name

\_\_\_\_\_  
Print Name

\_\_\_\_\_  
Title

\_\_\_\_\_  
Title

Attest: \_\_\_\_\_  
Signature

Attest: \_\_\_\_\_  
Signature

\_\_\_\_\_  
Title

\_\_\_\_\_  
Title

*Note: Provide execution by additional parties, such as joint venturers, if necessary.*

1. Contractor and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors, and assigns to Owner to pay for labor, materials, and equipment furnished by Claimants for use in the performance of the Contract, which is incorporated herein by reference.
2. With respect to Owner, this obligation shall be null and void if Contractor:
  - 2.1 Promptly makes payment, directly or indirectly, for all sums due Claimants, and
  - 2.2 Defends, indemnifies, and holds harmless Owner from all claims, demands, liens, or suits alleging non-payment by Contractor by any person or entity who furnished labor, materials, or equipment for use in the performance of the Contract, provided Owner has promptly notified Contractor and Surety (at the addresses described in Paragraph 12) of any claims, demands, liens, or suits and tendered defense of such claims, demands, liens, or suits to Contractor and Surety, and provided there is no Owner Default.
3. With respect to Claimants, this obligation shall be null and void if Contractor promptly makes payment, directly or indirectly, for all sums due.
4. Surety shall have no obligation to Claimants under this Bond until:
  - 4.1 Claimants who are employed by or have a direct contract with Contractor have given notice to Surety (at the address described in Paragraph 12) and sent a copy, or notice thereof, to Owner, stating that a claim is being made under this Bond and, with substantial accuracy, the amount of the claim.
  - 4.2 Claimants who do not have a direct contract with Contractor:
    1. Have furnished written notice to Contractor and sent a copy, or notice thereof, to Owner, within 90 days after having last performed labor or last furnished materials or equipment included in the claim stating, with substantial accuracy, the amount of the claim and the name of the party to whom the materials or equipment were furnished or supplied, or for whom the labor was done or performed; and
    2. Have either received a rejection in whole or in part from Contractor, or not received within 30 days of furnishing the above notice any communication from Contractor by which Contractor had indicated the claim will be paid directly or indirectly; and
    3. Not having been paid within the above 30 days, have sent a written notice to Surety (at the address described in Paragraph 12) and sent a copy, or notice thereof, to Owner, stating that a claim is being made under this Bond and enclosing a copy of the previous written notice furnished to Contractor.
5. If a notice by a Claimant required by Paragraph 4 is provided by Owner to Contractor or to Surety, that is sufficient compliance.
6. When a Claimant has satisfied the conditions of Paragraph 4, the Surety shall promptly and at Surety's expense take the following actions:
  - 6.1 Send an answer to that Claimant, with a copy to Owner, within 45 days after receipt of the claim, stating the amounts that are undisputed and the basis for challenging any amounts that are disputed.
  - 6.2 Pay or arrange for payment of any undisputed amounts.
7. Surety's total obligation shall not exceed the amount of this Bond, and the amount of this Bond shall be credited for any payments made in good faith by Surety.
8. Amounts owed by Owner to Contractor under the Contract shall be used for the performance of the Contract and to satisfy claims, if any, under any performance bond. By Contractor furnishing and Owner accepting this Bond, they agree that all funds earned by Contractor in the performance of the Contract are dedicated to satisfy obligations of Contractor and Surety under this Bond, subject to Owner's priority to use the funds for the completion of the Work.

9. Surety shall not be liable to Owner, Claimants, or others for obligations of Contractor that are unrelated to the Contract. Owner shall not be liable for payment of any costs or expenses of any Claimant under this Bond, and shall have under this Bond no obligations to make payments to, give notices on behalf of, or otherwise have obligations to Claimants under this Bond.

10. Surety hereby waives notice of any change, including changes of time, to the Contract or to related subcontracts, purchase orders, and other obligations.

11. No suit or action shall be commenced by a Claimant under this Bond other than in a court of competent jurisdiction in the location in which the Work or part of the Work is located or after the expiration of one year from the date (1) on which the Claimant gave the notice required by Paragraph 4.1 or Paragraph 4.2.3, or (2) on which the last labor or service was performed by anyone or the last materials or equipment were furnished by anyone under the Contract, whichever of (1) or (2) first occurs. If the provisions of this paragraph are void or prohibited by law, the minimum period of limitation available to sureties as a defense in the jurisdiction of the suit shall be applicable.

12. Notice to Surety, Owner, or Contractor shall be mailed or delivered to the addresses shown on the signature page. Actual receipt of notice by Surety, Owner, or Contractor, however accomplished, shall be sufficient compliance as of the date received at the address shown on the signature page.

13. When this Bond has been furnished to comply with a statutory requirement in the location where the Contract was to be performed, any provision in this Bond conflicting with said statutory requirement shall be deemed deleted herefrom and provisions conforming to such statutory requirement shall be deemed incorporated herein. The intent is that this Bond shall be construed as a statutory Bond and not as a common law bond.

14. Upon request of any person or entity appearing to be a potential beneficiary of this Bond, Contractor shall promptly furnish a copy of this Bond or shall permit a copy to be made.

#### 15. Definitions

15.1 Claimant: An individual or entity having a direct contract with Contractor, or with a first-tier subcontractor of Contractor, to furnish labor, materials, or equipment for use in the performance of the Contract. The intent of this Bond shall be to include without limitation in the terms “labor, materials or equipment” that part of water, gas, power, light, heat, oil, gasoline, telephone service, or rental equipment used in the Contract, architectural and engineering services required for performance of the Work of Contractor and Contractor’s subcontractors, and all other items for which a mechanic’s lien may be asserted in the jurisdiction where the labor, materials, or equipment were furnished.

15.2 Contract: The agreement between Owner and Contractor identified on the signature page, including all Contract Documents and changes thereto.

15.3 Owner Default: Failure of Owner, which has neither been remedied nor waived, to pay Contractor as required by the Contract, or to perform and complete or otherwise comply with the other terms thereof.

FOR INFORMATION ONLY – (*Name, Address, and Telephone*)

Surety Agency or Broker:

Owner’s Representative (*Engineer or other*): Dewberry Engineers Inc.

**Insert:**  
**Power of Attorney**  
**(Payment and Performance Bonds)**

(Provided by Contractor's Bonding Company)

This document shall be provided as part of the executed contract documents.

**Insert:**  
**Certificate of Insurance**

(Provided by Contractor's Insurance Company)

This document shall be provided as part of the executed contract documents. Insurance shall be provided as detailed in section SC-5.04 of the Supplementary Conditions.

**Note-** per the general conditions of this contract the contractor is required to provide 30 days notice prior to any cancellation of insurance coverage. The standard insurance form used in the State of North Carolina notes that the insurance company shall endeavor to give notice upon cancellation. This language is not sufficient per the terms of this contract. Evidence shall be provided showing that the contractor's insurance includes the adequate 30 day notice provision. Such evidence can include a comment under the special provisions section of the insurance certificate or an appended copy of the applicable section of the insurance policy.

## Contractor's Application for Payment No.

	Application Period:	Application Date:
To (Owner):	From (Contractor):	Via (Engineer):
Project:	Contract:	
Owner's Contract No.:	Contractor's Project No.:	Engineer's Project No.:

### Application For Payment Change Order Summary

Approved Change Orders			
Number	Additions	Deductions	
			1. ORIGINAL CONTRACT PRICE..... \$ _____
			2. Net change by Change Orders..... \$ _____
			3. Current Contract Price (Line 1 ± 2)..... \$ _____
			4. TOTAL COMPLETED AND STORED TO DATE (Column F on Progress Estimate)..... \$ _____
			5. RETAINAGE:
			a.     X     _____ Work Completed..... \$ _____
			b.     X     _____ Stored Material..... \$ _____
			c. Total Retainage (Line 5a + Line 5b)..... \$ _____
			6. AMOUNT ELIGIBLE TO DATE (Line 4 - Line 5c)..... \$ _____
			7. LESS PREVIOUS PAYMENTS (Line 6 from prior Application)..... \$ _____
			8. AMOUNT DUE THIS APPLICATION..... \$ _____
			9. BALANCE TO FINISH, PLUS RETAINAGE (Column G on Progress Estimate + Line 5 above)..... \$ _____
TOTALS			
NET CHANGE BY CHANGE ORDERS			

**Contractor's Certification**

The undersigned Contractor certifies that to the best of its knowledge: (1) all previous progress payments received from Owner on account of Work done under the Contract have been applied on account to discharge Contractor's legitimate obligations incurred in connection with Work covered by prior Applications for Payment; (2) title of all Work, materials and equipment incorporated in said Work or otherwise listed in or covered by this Application for Payment will pass to Owner at time of payment free and clear of all Liens, security interests and encumbrances (except such as are covered by a Bond acceptable to Owner indemnifying Owner against any such Liens, security interest or encumbrances); and (3) all Work covered by this Application for Payment is in accordance with the Contract Documents and is not defective.

By: \_\_\_\_\_ Date: \_\_\_\_\_

Payment of: \$ \_\_\_\_\_  
(Line 8 or other - attach explanation of the other amount)

is recommended by: \_\_\_\_\_ (Date) \_\_\_\_\_ (Engineer)

Payment of: \$ \_\_\_\_\_  
(Line 8 or other - attach explanation of the other amount)

is approved by: \_\_\_\_\_ (Date) \_\_\_\_\_ (Owner)

Approved by: \_\_\_\_\_ (Date) \_\_\_\_\_ (Funding Agency (if applicable))

Endorsed by the Construction Specifications Institute.

# Progress Estimate

# Contractor's Application

For (contract):				Application Number:				
Application Period:				Application Date:				
A		B	Work Completed		E	F		G
Item		Scheduled Value	C	D	Materials Presently Stored (not in C or D)	Total Completed and Stored to Date (C + D + E)	% (E) B	Balance to Finish (B - F)
Specification Section No.	Description		From Previous Application (C+D)	This Period				
<b>Totals</b>								





**PROCEDURE FOR REPORTING NORTH CAROLINA  
SALES TAX EXPENDITURE**

1. The following procedure in handling the North Carolina Sales Tax is applicable to this project. Contractors shall comply fully with the requirements outlines hereinafter, in order that the Owner may recover the amount of the tax permitted under the law.
- 2.1 It shall be the Contractor's responsibility to furnish the Owner documentary evidence showing the materials used and sales tax paid by the Contractor and each of his subcontractors.
- 2.2 The documentary evidence shall consist of a certified statement, by the Contractor and each of his subcontractors individually, showing total purchases of materials from each separate vendor and total sales taxes paid each vendor. The certified statement must show the invoice number, or numbers, covered and inclusive dates of such invoices.
- 2.3 Materials used from Contractor's or subcontractor's warehouse stock shall be shown in a certified statement at warehouse stock prices.
- 2.4 The Contractor shall not be required to certify the subcontractor's statements.
- 2.5 The documentary evidence to be furnished to Owners eligible for sales or use tax refunds covers sales and/or use taxes paid on building materials used by Contractors and subcontractors in the performance of Contracts with churches, orphanages, hospitals not operated for profits, educational institutions not operated for profit and other charitable or religious institutions or organizations not operated for profit and incorporated cities, towns and counties in this State. The documentary evidence is to be submitted to the above-named institutions, organizations, and governmental units to be included in claims for refunds provided by G.S. 105.164.14 and is to include the purchases of building materials, supplies, fixtures and equipment which become a part of or annexed to buildings or structures being erected, altered or repaired under the contracts with such institutions, organizations or governmental units.
3. The Contractor to whom an award is made on this project will be required to follow the procedure outlined above.
4. The Contractor is advised that all requests for payment, partial or final, for work completed under this Contract must include a sales tax report submitted in accordance with the procedures outlined above.

# Change Order

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

Date of Issuance: \_\_\_\_\_ Effective Date: \_\_\_\_\_

Project:	Owner:	Owner's Contract No.:
Contract:	Date of Contract:	
Contractor:	Engineer's Project No.:	

**The Contract Documents are modified as follows upon execution of this Change Order:**

Description:  
\_\_\_\_\_  
\_\_\_\_\_

**Attachments (list documents supporting change):**

\_\_\_\_\_

**CHANGE IN CONTRACT PRICE:**

Original Contract Price:  
\$ \_\_\_\_\_

[Increase] [Decrease] from previously approved  
Change Orders No. \_\_\_\_\_ to No. \_\_\_\_\_:  
\$ \_\_\_\_\_

Contract Price prior to this Change Order:  
\$ \_\_\_\_\_

[Increase] [Decrease] of this Change Order:  
\$ \_\_\_\_\_

Contract Price incorporating this Change Order:  
\$ \_\_\_\_\_

**CHANGE IN CONTRACT TIMES:**

Original Contract Times:  Working days  Calendar days  
Substantial completion (days or date): \_\_\_\_\_  
Ready for final payment (days or date): \_\_\_\_\_

[Increase] [Decrease] from previously approved Change Orders  
No. \_\_\_\_\_ to No. \_\_\_\_\_:  
Substantial completion (days): \_\_\_\_\_  
Ready for final payment (days): \_\_\_\_\_

Contract Times prior to this Change Order:  
Substantial completion (days or date): \_\_\_\_\_  
Ready for final payment (days or date): \_\_\_\_\_

[Increase] [Decrease] of this Change Order:  
Substantial completion (days or date): \_\_\_\_\_  
Ready for final payment (days or date): \_\_\_\_\_

Contract Times with all approved Change Orders:  
Substantial completion (days or date): \_\_\_\_\_  
Ready for final payment (days or date): \_\_\_\_\_

RECOMMENDED:  
By: \_\_\_\_\_  
Engineer (Authorized Signature)

ACCEPTED:  
By: \_\_\_\_\_  
Owner (Authorized Signature)

ACCEPTED:  
By: \_\_\_\_\_  
Contractor (Authorized Signature)

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

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

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

Approved by Funding Agency (if applicable):  
\_\_\_\_\_

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

# Change Order

## Instructions

### A. GENERAL INFORMATION

This document was developed to provide a uniform format for handling contract changes that affect Contract Price or Contract Times. Changes that have been initiated by a Work Change Directive must be incorporated into a subsequent Change Order if they affect Price or Times.

Changes that affect Contract Price or Contract Times should be promptly covered by a Change Order. The practice of accumulating Change Orders to reduce the administrative burden may lead to unnecessary disputes.

If Milestones have been listed in the Agreement, any effect of a Change Order thereon should be addressed.

For supplemental instructions and minor changes not involving a change in the Contract Price or Contract Times, a Field Order should be used.

### B. COMPLETING THE CHANGE ORDER FORM

Engineer normally initiates the form, including a description of the changes involved and attachments based upon documents and proposals submitted by Contractor, or requests from Owner, or both.

Once Engineer has completed and signed the form, all copies should be sent to Owner or Contractor for approval, depending on whether the Change Order is a true order to the Contractor or the formalization of a negotiated agreement for a previously performed change. After approval by one contracting party, all copies should be sent to the other party for approval. Engineer should make distribution of executed copies after approval by both parties.

If a change only applies to price or to times, cross out the part of the tabulation that does not apply.

# Certificate of Substantial Completion

Project:

Owner:

Owner's Contract No.:

Contract:

Engineer's Project No.:

**This [tentative] [definitive] Certificate of Substantial Completion applies to:**

- All Work under the Contract Documents:       The following specified portions of the Work:

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\_\_\_\_\_   
Date of Substantial Completion

The Work to which this Certificate applies has been inspected by authorized representatives of Owner, Contractor, and Engineer, and found to be substantially complete. The Date of Substantial Completion of the Project or portion thereof designated above is hereby declared and is also the date of commencement of applicable warranties required by the Contract Documents, except as stated below.

A [tentative] [definitive] list of items to be completed or corrected is attached hereto. This list may not be all-inclusive, and the failure to include any items on such list does not alter the responsibility of the Contractor to complete all Work in accordance with the Contract Documents.

**The responsibilities between Owner and Contractor for security, operation, safety, maintenance, heat, utilities, insurance and warranties shall be as provided in the Contract Documents except as amended as follows:**

- Amended Responsibilities                       Not Amended

Owner's Amended Responsibilities:

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Contractor's Amended Responsibilities:

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## SECTION 010000 - GENERAL REQUIREMENTS

## PART 1 - GENERAL

## A. Contract Time

Dates below are provided for information only and may be changed by the County of Brunswick with notice provided to the contractor.

1. Non-mandatory Pre-Bid Meeting: May 12, 2020 at 10:00 AM and 1:30 PM, local time on Tuesday, May 12, 2020 at the project site located at 172 Land Fill Rd., Bolivia, NC 28422.
2. Bid Due: 2:00 PM, local time on Thursday, May 28, 2020
3. Tentative Notice of Award: May 29, 2020
4. Contract to Legal Review and Council Agenda: June 4, 2020
5. Council Approval of Award: June 16, 2020
6. Notice to Proceed: June 30, 2020
7. Date of Substantial Completion: within 90 days from notice to proceed

## B. Work Hours

1. See 011000 "Summary" for work hours.

## C. Third Party Inspections

1. As part of the Base Bid Price and Bid Additional Work #1, Contractor shall include third party inspections for the following items of work:
  - a. Furnish Cast-in-place Concrete 5,000 psi
  - b. Structural Fill
2. Third Party inspections are required to certify materials and installations are in compliance with the contract documents.
3. No additional payment will be made for Third Party Inspections.

- D. Contractors shall submit at the time of bid, a construction schedule identifying the items of work, project phasing, working hours (shifts), and milestone completion times, including the date of substantial completion.

## PART 2 - PRODUCTS (Not Used)

## PART 3 - EXECUTION (Not Used)

END OF SECTION 010000

## SECTION 011000 - SUMMARY

## PART 1 - GENERAL

## 1.1 RELATED DOCUMENTS

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

## 1.2 SUMMARY

## A. Section Includes:

1. Project information.
2. Work covered by Contract Documents.
3. Phased construction.
4. Work by Owner.
5. Work under separate contracts.
6. Future work.
7. Purchase contracts.
8. Owner-furnished products.
9. Contractor-furnished, Owner-installed products.
10. Access to site.
11. Coordination with occupants.
12. Work restrictions.
13. Specification and Drawing conventions.
14. Miscellaneous provisions.

## B. Related Requirements:

1. Section 015000 "Temporary Facilities and Controls" for limitations and procedures governing temporary use of Owner's facilities.

## 1.3 PROJECT INFORMATION

## A. Project Identification: Brunswick County Municipal Solid Waste Transfer Station Repairs

1. Project Location: 172 Land Fill Rd. Bolivia NC 28422.

## B. Owner: Brunswick County Operation Services.

## C. Engineer: Dewberry Engineers, Inc., 2610 Wycliff Rd., Suite 410, Raleigh, NC 27607. Project Manager Amir Hadjimiry, PE, 984-255-7047.

D. Contractor: **<Insert name and contact information for Contractor>** has been engaged as Contractor for this Project.

#### 1.4 WORK COVERED BY CONTRACT DOCUMENTS

A. The Work of Project is defined by the Contract Documents and consists of the following:

1. **Demolition** of existing transfer station reinforced concrete slab a minimum of 2 inches deep on the approach slab and 4 inches minimum on the tipping floor within the building. Demolition of existing cast-in-place reinforced concrete barrier and bollards within the building. Selective demolition of defective building members to be removed and replaced, or removed entirely as shown in the contract plans. Remove and replace hopper lip assembly at southern end of transfer station tipping floor. Cast-in-place concrete overlay of approach slab and transfer station tipping slab from 2 inches deep up to 12 inches deep. Siding replacement, column anchor tightening, minor earthwork to repair erosion and other Work indicated in the Contract Documents.

B. Type of Contract:

1. Project will be constructed under a single prime contract.

#### 1.5 PHASED CONSTRUCTION

A. The Work shall be conducted in two phases, with each phase substantially complete as indicated.

1. Phase 1: Contractor shall install temporary barrier to designate and protect working area for this phase of work. Demolition of existing reinforced concrete barrier and removal of hopper lip assembly within the designated work area. Demolition of existing approach and tipping floor concrete slab. Clean and prepare slab for cast-in-place concrete overlay. Concrete shall cure for 10 days minimum. Install concrete barrier and cure for 10 days minimum. Concrete barrier and slab may be poured at same time at the discretion of the Contractor. Drill anchor holes for hopper lip assembly. Install new hopper lip assembly or provide temporary hopper lip construction.
2. Phase 2: The remaining Work shall be substantially complete and ready for occupancy at time of Substantial Completion for the Work.

B. Before commencing Work of each phase, submit an updated copy of Contractor's construction schedule showing the sequence, commencement and completion dates for all phases of the Work.

C. Should Contractor be unable to complete all items of work within the time frame designated, Contractor shall prepare a work schedule and submit for approval by the Owner items to be completed, dates required to complete work, and working hours for work to be completed.

#### 1.6 WORK BY OWNER

A. General: Cooperate fully with Owner so work may be carried out smoothly, without interfering with or delaying work under this Contract or work by Owner. Coordinate the Work of this Contract with work performed by Owner.

## 1.7 ACCESS TO SITE

- A. General: Contractor shall have full use of Project site for construction operations during construction period. Contractor's use of Project site is limited only by Owner's right to perform work or to retain other contractors on portions of Project.
- B. Condition of Existing Building: Maintain portions of existing building affected by construction operations in a weathertight condition throughout construction period. Repair damage caused by construction operations.
- C. Condition of Existing Grounds: Maintain portions of existing grounds, landscaping, and hardscaping affected by construction operations throughout construction period. Repair damage caused by construction operations.

## 1.8 COORDINATION WITH OCCUPANTS

- A. Full Owner Occupancy: Owner will occupy site and building(s) during entire construction period. Cooperate with Owner during construction operations to minimize conflicts and facilitate Owner usage. Perform the Work so as not to interfere with Owner's day-to-day operations. Maintain existing exits unless otherwise indicated.
  - 1. Maintain access to existing walkways, corridors, and other adjacent occupied or used facilities. Do not close or obstruct walkways, corridors, or other occupied or used facilities without written permission from Owner and approval of authorities having jurisdiction.
  - 2. Notify Owner not less than 72 hours in advance of activities that will affect Owner's operations.
- B. Owner Limited Occupancy of Completed Areas of Construction: Owner reserves the right to occupy and to place and install equipment in completed portions of the Work, prior to Substantial Completion of the Work, provided such occupancy does not interfere with completion of the Work. Such placement of equipment and limited occupancy shall not constitute acceptance of the total Work.
  - 1. On occupancy, Owner will assume responsibility for maintenance and custodial service for occupied portions of Work.

## 1.9 WORK RESTRICTIONS

- A. Work Restrictions, General: Comply with restrictions on construction operations.
  - 1. Comply with limitations on use of public streets and with other requirements of authorities having jurisdiction.
- B. On-Site Work Hours: Limit work in the existing building to normal business working hours of 6 a.m. to 7 p.m., Monday through Friday, unless otherwise indicated.
  - 1. Weekend Hours: 6 a.m. to 7 p.m.

2. Extended Work Hours: Contractor may submit plan for extended work hours in order to complete work within the prescribed contract schedule. This may include night work. Submit working hours plan to Owner for approval.
- C. Existing Utility Interruptions: Do not interrupt utilities serving facilities occupied by Owner or others unless permitted under the following conditions and then only after providing temporary utility services according to requirements indicated:
1. Notify Owner not less than two days in advance of proposed utility interruptions.
  2. Obtain Owner's written permission before proceeding with utility interruptions.
- D. Restricted Substances: Use of tobacco products and other controlled substances on Project site is not permitted.
- E. Employee Identification: Provide identification tags for Contractor personnel working on Project site. Require personnel to use identification tags at all times.

#### 1.10 SPECIFICATION AND DRAWING CONVENTIONS

- A. Specification Content: The Specifications use certain conventions for the style of language and the intended meaning of certain terms, words, and phrases when used in particular situations. These conventions are as follows:
1. Imperative mood and streamlined language are generally used in the Specifications. The words "shall," "shall be," or "shall comply with," depending on the context, are implied where a colon (:) is used within a sentence or phrase.
  2. Specification requirements are to be performed by Contractor unless specifically stated otherwise.
- B. Division 01 General Requirements: Requirements of Sections in Division 01 apply to the Work of all Sections in the Specifications.
- C. Drawing Coordination: Requirements for materials and products identified on Drawings are described in detail in the Specifications. One or more of the following are used on Drawings to identify materials and products:
1. Terminology: Materials and products are identified by the typical generic terms used in the individual Specifications Sections.
  2. Abbreviations: Materials and products are identified by abbreviations published as part of the U.S. National CAD Standard.
  3. Keynoting: Materials and products are identified by reference keynotes referencing Specification Section numbers found in this Project Manual.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 011000

## SECTION 012200 - UNIT PRICES

## PART 1 - GENERAL

## 1.1 RELATED DOCUMENTS

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

## 1.2 SUMMARY

- A. Section includes administrative and procedural requirements for unit prices.

## 1.3 DEFINITIONS

- A. Unit price is a price per unit of measurement for materials, equipment, or services, or a portion of the Work, added to or deducted from the Contract Sum by appropriate modification, if the scope of Work or estimated quantities of Work required by the Contract Documents are increased or decreased.
- B. Lump Sum price includes all materials, equipment, or services, or a portion of the Work necessary to complete the item or work and no additional compensation shall be provided.

## 1.4 PROCEDURES

- A. Unit prices include all necessary material, plus cost for delivery, installation, insurance, applicable taxes, overhead, and profit.
- B. Measurement and Payment: See individual Specification Sections for work that requires establishment of unit prices. Methods of measurement and payment for unit prices are specified in those Sections.
- C. Owner reserves the right to reject Contractor's measurement of work-in-place that involves use of established unit prices and to have this work measured, at Owner's expense, by an independent surveyor acceptable to Contractor.
- D. List of Unit Prices: A schedule of unit prices is included in Part 3. Specification Sections referenced in the schedule contain requirements for materials described under each unit price.

## PART 2 - PRODUCTS (Not Used)

## PART 3 - EXECUTION

## 3.1 SCHEDULE OF UNIT PRICES

- A. Unit Price No. 1: Mobilization will be paid as a contract lump sum price.
1. Includes all work necessary for the preparation and operations to mobilize personnel, materials and equipment to the project site.
  2. Unit price will be paid over the first two partial payment estimates.
- B. Unit Price No. 2: Clearing and Grubbing will be paid as a contract lump sum price.
1. Includes all work necessary to complete the excavation and fill operations described in the contract plans.
  2. Unit price will be paid as a percentage of the work completed.
- C. Unit Price No. 3: Silt Fence will be paid as a contract unit price per linear foot installed.
1. Furnish all material, construct, maintain and remove temporary silt fence at locations that require surface drainage to be filtered.
  2. Repairs to fence due to carelessness or neglect on the part of the Contractor will be at no cost to the Owner.
- D. Unit Price No. 4: Silt Fence Outlet will be paid as a contract unit price per each.
1. Furnish all material, construct, maintain and remove silt fence outlet at termination of temporary silt fence.
  2. Repairs to fence due to carelessness or neglect on the part of the Contractor will be at no cost to the Owner.
- E. Unit Price No. 5: Maintenance of Erosion Control Devices shall be paid as a contract lump sum price not to exceed \$2,500.00 USD.
1. Upon a qualified storm event, furnish all material, construction, to maintain erosion control devices on the project site to the as installed condition.
  2. Contractor shall submit documentation to substantiate qualified storm event and documentation of personnel and equipment used to maintain erosion control devices.
  3. Repairs to fence due to carelessness or neglect on the part of the Contractor will be at no cost to the Owner.
- F. Unit Price No. 6: Temporary Safety Barrier shall be paid as contract unite price per linear foot installed.
1. Furnish, install, secure, maintain, remove and reset temporary concrete safety barrier.
  2. Unit price shall include all moves in all phases of work.
  3. Repair and replacement of temporary concrete safety barrier for the duration of the project will be performed at no additional cost to the Owner.
- G. Unit Price No. 7: Hydro-demolition **or Select Demolition of Concrete Slab** shall be paid as a contract unit price per square foot of concrete slab demolished.
1. Demolish, remove and dispose of existing concrete slab up to a depth of 12 inches as indicated in the contract documents.

2. Protect in place existing reinforcement and replace any damaged reinforcement caused by concrete removal.
  3. Removal will be measured by the actual surface measurement of concrete slab before it is removed.
  4. Includes all costs associated with removal of materials upon completion of demolition.
- H. Unit Price No. 8: Furnish Cast-In-Place Concrete 5,000 psi shall be paid for as a contract unit price per cubic yard of concrete installed.
1. Furnish cast-in-place concrete 5,000 psi will be measured and paid as the number of cubic yards of concrete incorporated into the completed and accepted structure.
  2. The number of cubic yards of concrete is computed from the dimensions shown in the plans or from revised dimensions authorized by the Engineer.
  3. Work shall include concrete tipping floor, approach slab, concrete flume, and all other cast-in-place concrete work not herein defined.
- I. Unit Price No. 9: Remove Existing Concrete Barrier shall be paid for as a contract unit price per linear feet.
1. Removal will be measured by the actual horizontal length of existing concrete barrier before it is removed. Unit price shall include removal of existing bollards within the building.
  2. Includes all costs associated with removal of materials upon completion of demolition.
- J. Unit Price No. 10: Cast-in-Place Concrete Barrier shall be paid for as a contract unit price per linear foot.
1. Concrete barrier will be measured and paid for as the number of linear feet of concrete barrier provided in the plans.
  2. Unit price includes all formwork, reinforcement, labor and materials required to complete this work.
- K. Unit Price No. 11: Selective Demolition of Building shall be paid for as a contract lump sum price.
1. Includes all work necessary for the personnel, materials and equipment required for the removal of components and structures indicated on the contract documents.
  2. Lump sum will be paid based on the completion of demolished items per schedule below:
    - a. North Elevation Siding and Framing Removal - 50%
    - b. Miscellaneous solid rods, girts, siding and braces – 50%
  3. Includes all costs associated with removal of materials upon completion of demolition.
  4. Owner not responsible for costs incurred due to damage and necessary repairs of existing building by the Contractor during the demolition.
- L. Unit Price No. 12: Cast-in-Place Concrete (Column Encasement) shall be paid for as a contract unit price per cubic yard of concrete.
1. Column encasement concrete shall be measured and paid for based on the contract plan dimensions unless revised by the Engineer.
  2. Includes all formwork, reinforcement, labor and materials required to complete this work.
- M. Unit Price No. 13: Structural Steel (Misc. Metal and Hopper Assembly) shall be paid as a contract unit price of pounds of steel.
1. Structural steel includes steel plate, solid rods, structural steel shapes and associated fasteners necessary to complete the work as described in the contract documents.

2. Structural steel includes removal, assembly, fabrication, inspections, delivery and installation.
  3. Contractor shall provide schedule of structural material to be paid for and items shall be paid upon installation and acceptance by the Engineer.
- N. Unit Price No. 14: Cold Formed Metal Framing shall be paid as a contract unit price per pound.
1. Cold formed metal framing includes all work necessary for the delivery and installation of cold formed metal framing as indicated on the plans.
  2. Contractor shall provide schedule of material to be paid for and items shall be paid upon installation and acceptance by the Engineer.
- O. Unit Price No. 15: Aluminum Siding shall be paid for as a contract unit price per square foot.
1. Includes removal and replacement of aluminum siding as indicated in the contract documents.
  2. Measurement shall be made by surface area of aluminum siding installed, measured on site and verified by the Engineer.
- P. Unit Price No. 16: Electrical Relocation shall be paid for as a contract lump sum price.
1. Includes all work necessary to remove and relocate electrical service from north elevation siding and framing and placed on structure to remain on inside of eastern elevation framing.
  2. Unit price shall be paid upon acceptance by the Engineer.
- Q. Unit Price No. 17: Excavation shall be paid for as a contract unit price per cubic yard not to exceed 5 cubic yards.
1. Includes all work necessary to excavate and provide graded ground surface to repair erosion on the eastern elevation of the building per the contract documents.
  2. Unit price shall be paid per cubic yard excavated up to 5 cubic yards of material. Additional excavation shall require approval by the Engineer prior to beginning work.
- R. Unit Price No. 18: Structural Fill shall be paid for as a contract unit price per cubic yard.
1. Includes all work and material required per the contract documents to place and grade structural fill over the existing building foundation. Includes compaction testing to be performed by a third party consultant.
  2. Unit price shall be paid for by cubic yards of structural fill delivered and placed per the contract documents.
  3. Measurement shall be made by material tickets delivered to the site, confirmed and accepted by the Engineer.
- S. Unit Price Nos. 19 through 36 have been defined previously and do not require additional definition.
- T. Unit Price No. 37: Additional Metal Building Repairs shall be paid for as a contract lump sum price.
1. Includes price for replacement of gutters and downspouts and miscellaneous panels not to exceed 500 square feet.
  2. Additional metal building panels exceeding 500 square feet will be paid for at the contract unit price for Aluminum Siding.

END OF SECTION 012200

## SECTION 012300 - ALTERNATES

## PART 1 - GENERAL

## 1.1 RELATED DOCUMENTS

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

## 1.2 SUMMARY

- A. Section includes administrative and procedural requirements for alternates.

## 1.3 DEFINITIONS

- A. Alternate: An amount proposed by bidders and stated on the Bid Form for certain work defined in the bidding requirements that may be added to or deducted from the base bid amount if the Owner decides to accept a corresponding change either in the amount of construction to be completed or in the products, materials, equipment, systems, or installation methods described in the Contract Documents.
  - 1. Alternates described in this Section are part of the Work only if enumerated in the Agreement.
  - 2. The cost or credit for each alternate is the net addition to or deduction from the Contract Sum to incorporate alternates into the Work. No other adjustments are made to the Contract Sum.

## 1.4 PROCEDURES

- A. Coordination: Revise or adjust affected adjacent work as necessary to completely integrate work of the alternate into Project.
  - 1. Include as part of each alternate, miscellaneous devices, accessory objects, and similar items incidental to or required for a complete installation whether or not indicated as part of alternate.
- B. Execute accepted alternates under the same conditions as other work of the Contract.
- C. Schedule: A schedule of alternates is included at the end of this Section. Specification Sections referenced in schedule contain requirements for materials necessary to achieve the work described under each alternate.

## PART 2 - PRODUCTS (Not Used)

## PART 3 - EXECUTION

## 3.1 SCHEDULE OF ALTERNATES

## A. Alternate No. 1: Steel Work Only

1. Contractor may provide bid price for STEEL WORK ONLY.
2. Steel work only shall include the demolition of the existing hopper assembly and at least 3 feet of the tipping floor concrete necessary to install the new steel works.
3. Work shall be performed in two phases as shown on the plans.
4. Work includes minor building component repairs.
5. Work does not include concrete demolition and replacement for the tipping floor and approach slab.
6. The alternate bid price is considered for the steel work only as described and the Owner may accept the bid alternate in lieu of the base bid.

## B. Alternate No. 2: Concrete Work Only

1. Contractor may provide bid price for CONCRETE WORK ONLY.
2. Concrete work only includes the repair of the concrete tipping floor up to 3 feet away from the hopper, inclusive of the approach slab.
3. Work shall be performed in two phases as shown on the plans.
4. Work includes minor building component repairs.
5. Work shall not include demolition or repair of the steel hopper assembly.
6. The alternate bid price is considered for the concrete work only as described and the Owner may accept the bid alternate in lieu of the base bid.

## 3.2 CONTRACTOR PROPOSED ALTERNATES

- A. Alternative construction schedules, fabrications, construction methods, and/or repairs may be proposed by the Contractor and submitted with the Contractor Bid. Contractor shall provide bid in accordance with the provided Bid Form A in order to be considered as a responsive bidder. Owner may evaluate Contractor proposed alternates at the time of Bid, and may use proposed alternatives in the selection of the successful bidder.

END OF SECTION 012300

## 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 01 Specification Sections, apply to this Section.

## 1.2 SUMMARY

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

## 1.3 USE CHARGES

- A. General: Installation and removal of and use charges for temporary facilities shall be included in the Contract Sum unless otherwise indicated. Allow other entities engaged in the Project to use temporary services and facilities without cost, including, but not limited to Owner's personell Engineer, testing agencies, and authorities having jurisdiction.
- B. Sewer Service: Pay sewer-service use charges for sewer usage by all entities for construction operations.
- C. Water Service: Pay water-service use charges for water used by all entities for construction operations.
- D. Electric Power Service: Pay electric-power-service use charges for electricity used by all entities for construction operations.
- E. Water and Sewer Service from Existing System: Water from Owner's existing water system is available for use without metering and without payment of use charges. Provide connections and extensions of services as required for construction operations.
- F. Electric Power Service from Existing System: Electric power from Owner's existing system is available for use without metering and without payment of use charges. Provide connections and extensions of services as required for construction operations.
- G. Sewer, Water, and Electric Power Service: Use charges are specified in Section 011200 "Multiple Contract Summary."

## 1.4 INFORMATIONAL SUBMITTALS

- A. Site Utilization Plan: Show temporary facilities, temporary utility lines and connections, staging areas, construction site entrances, vehicle circulation, and parking areas for construction personnel.

- B. Implementation and Termination Schedule: Within 15 days of date established for commencement of the Work, submit schedule indicating implementation and termination dates of each temporary utility.
- C. Project Identification and Temporary Signs: Show fabrication and installation details, including plans, elevations, details, layouts, typestyles, graphic elements, and message content.
- D. Fire-Safety Program: Show compliance with requirements of NFPA 241 and authorities having jurisdiction. Indicate Contractor personnel responsible for management of fire-prevention program.
- E. Moisture- and Mold-Protection Plan: Describe procedures and controls for protecting materials and construction from water absorption and damage and mold.
- F. Dust- and HVAC-Control Plan: Submit coordination drawing and narrative that indicates the dust- and HVAC-control measures proposed for use, proposed locations, and proposed time frame for their operation. Include the following:
  - 1. Locations of dust-control partitions at each phase of work.
  - 2. HVAC system isolation schematic drawing.
  - 3. Location of proposed air-filtration system discharge.
  - 4. Waste-handling procedures.
  - 5. Other dust-control measures.

## 1.5 QUALITY ASSURANCE

- A. Electric Service: Comply with NECA, NEMA, and UL standards and regulations for temporary electric service. Install service to comply with NFPA 70.
- B. 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: Engage Installer of each permanent service to 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. Chain-Link Fencing: Minimum 2-inch (50-mm), 0.148-inch- (3.8-mm-) thick, galvanized-steel, chain-link fabric fencing; minimum 6 feet (1.8 m) high with galvanized-steel pipe posts; minimum 2-3/8-inch- (60-mm-) OD line posts and 2-7/8-inch- (73-mm-) OD corner and pull posts, with 1-5/8-inch- (42-mm-) OD top rails.

- B. Portable Chain-Link Fencing: Minimum 2-inch (50-mm), 0.148-inch- (3.8-mm-) thick, galvanized-steel, chain-link fabric fencing; minimum 6 feet (1.8 m) high with galvanized-steel pipe posts; minimum 2-3/8-inch- (60-mm-) OD line posts and 2-7/8-inch- (73-mm-) OD corner and pull posts, with 1-5/8-inch- (42-mm-) OD top and bottom rails. Provide galvanized-steel bases for supporting posts.
- C. Fencing Windscreen Privacy Screen: Polyester fabric scrim with grommets for attachment to chain link fence, sized to height of fence, in color selected by Architect from manufacturer's standard colors.
- D. Polyethylene Sheet: Reinforced, fire-resistive sheet, 10-mil (0.25-mm) minimum thickness, with flame-spread rating of 15 or less per ASTM E 84 and passing NFPA 701 Test Method 2.

## 2.2 TEMPORARY FACILITIES

- A. Field Offices, General: Prefabricated or mobile units with serviceable finishes, temperature controls, and foundations adequate for normal loading.
- B. Storage and Fabrication Sheds: Provide sheds sized, furnished, and equipped to accommodate materials and equipment for construction operations.
  - 1. Store combustible materials apart from building.

## 2.3 EQUIPMENT

- A. Fire Extinguishers: Portable, UL rated; with class and extinguishing agent as required by locations and classes of fire exposures.

## PART 3 - EXECUTION

### 3.1 TEMPORARY FACILITIES, GENERAL

- A. Conservation: Coordinate construction and use of temporary facilities with consideration given to conservation of energy, water, and materials. Coordinate use of temporary utilities to minimize waste.
  - 1. Salvage materials and equipment involved in performance of, but not actually incorporated into, the Work. See other Sections for disposition of salvaged materials that are designated as Owner's property.
- B. Temporary Safety Barrier: Provide concrete barrier between work area and operational area of transfer station throughout the duration of the project. Barrier shall be of sufficient capacity to prevent movement into the construction zone or into the operational zone if impacted by a construction vehicle. Provide construction signs indicating access for construction vehicles and for operational vehicles at the end of the approach slab.
- C. Temporary Hopper Lip: Upon completion of the transfer station slab repairs, and prior to installation of the hopper lip assembly, Contractor shall provide temporary hopper lip assembly

in order to provide full operational capacity to the transfer station during construction. Temporary construction assumes that the hopper lip assembly may not be available for the construction phasing proposed. Contractor shall provide working drawings for approval by the Engineer detailing the support system to remain in place until the final hopper lip assembly may be installed.

### 3.2 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.
  - 1. Locate facilities to limit site disturbance as specified in Section 011000 "Summary."
- 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.

### 3.3 TEMPORARY UTILITY INSTALLATION

- A. General: Install temporary service or connect to existing service.
  - 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. Sewers and Drainage: Provide temporary utilities to remove effluent lawfully.
  - 1. Connect temporary sewers to municipal system as directed by authorities having jurisdiction.
- C. Water Service: Install water service and distribution piping in sizes and pressures adequate for construction.
- D. Water Service: Connect to Owner's existing water service facilities. Clean and maintain water service facilities in a condition acceptable to Owner. At Substantial Completion, restore these facilities to condition existing before initial use.
- E. Sanitary Facilities: Provide temporary toilets, wash facilities, and drinking water for use of construction personnel. Comply with requirements of authorities having jurisdiction for type, number, location, operation, and maintenance of fixtures and facilities.
  - 1. Toilets: Use of Owner's existing toilet facilities will 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.
- F. Temporary Heating and Cooling: Provide temporary heating and cooling required by construction activities for curing or drying of completed installations or for protecting installed construction from adverse effects of low temperatures or high humidity. Select equipment that will not have a harmful effect on completed installations or elements being installed.

1. Provide temporary dehumidification systems when required to reduce ambient and substrate moisture levels to level required to allow installation or application of finishes and their proper curing or drying.
- G. Electric Power Service: Connect to Owner's existing electric power service. Maintain equipment in a condition acceptable to Owner.
- H. Electric Power Service: Provide electric power service and distribution system of sufficient size, capacity, and power characteristics required for construction operations.
  1. Connect temporary service to Owner's existing power source, as directed by Owner.
- I. 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.

### 3.4 SUPPORT FACILITIES INSTALLATION

- A. Traffic Controls: Comply with requirements of authorities having jurisdiction.
  1. Protect existing site improvements to remain including curbs, pavement, and utilities.
  2. Maintain access for fire-fighting equipment and access to fire hydrants.
- B. Parking: Use designated areas of Owner's existing parking areas for construction personnel.
- C. Dewatering Facilities and Drains: Comply with requirements of authorities having jurisdiction. Maintain Project site, excavations, and construction free of water.
  1. Dispose of rainwater in a lawful manner that will not result in flooding Project or adjoining properties or endanger permanent Work or temporary facilities.
  2. Remove snow and ice as required to minimize accumulations.
- D. Waste Disposal Facilities: Comply with requirements specified in Section 017419 "Construction Waste Management and Disposal."
- E. Lifts and Hoists: Provide facilities necessary for hoisting materials and personnel.
  1. Truck cranes and similar devices used for hoisting materials are considered "tools and equipment" and not temporary facilities.

### 3.5 SECURITY AND PROTECTION FACILITIES INSTALLATION

- A. Protection of Existing Facilities: Protect existing vegetation, equipment, structures, utilities, and other improvements at Project site and on adjacent properties, except those indicated to be removed or altered. Repair damage to existing facilities.
  1. Where access to adjacent properties is required in order to affect protection of existing facilities, obtain written permission from adjacent property owner to access property for that purpose.

- B. Environmental Protection: Provide protection, operate temporary facilities, and conduct construction as required to 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 Section 011000 "Summary."
- C. Temporary Erosion and Sedimentation Control: Provide measures to prevent soil erosion and discharge of soil-bearing water runoff and airborne dust to undisturbed areas and to adjacent properties and walkways, according to requirements of EPA Construction General Permit or authorities having jurisdiction, whichever is more stringent.
  - 1. Verify that flows of water redirected from construction areas or generated by construction activity do not enter or cross tree- or plant-protection zones.
  - 2. Inspect, repair, and maintain erosion- and sedimentation-control measures during construction until permanent vegetation has been established.
  - 3. Clean, repair, and restore adjoining properties and roads affected by erosion and sedimentation from Project site during the course of Project.
  - 4. Remove erosion and sedimentation controls and restore and stabilize areas disturbed during removal.
- D. Stormwater Control: Comply with requirements of authorities having jurisdiction. Provide barriers in and around excavations and subgrade construction to prevent flooding by runoff of stormwater from heavy rains.
- E. Barricades, Warning Signs, and Lights: Comply with requirements of authorities having jurisdiction for erecting structurally adequate barricades, including warning signs and lighting.

### 3.6 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. 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.

END OF SECTION 015000

## SECTION 017419 - CONSTRUCTION WASTE MANAGEMENT AND DISPOSAL

## PART 1 - GENERAL

## 1.1 RELATED DOCUMENTS

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

## 1.2 SUMMARY

- A. Section includes administrative and procedural requirements for the following:
  - 1. Salvaging nonhazardous demolition and construction waste.
  - 2. Recycling nonhazardous demolition and construction waste.
  - 3. Disposing of nonhazardous demolition and construction waste.
- B. Related Requirements:
  - 1. Section 024119 "Selective Demolition" for disposition of waste resulting from partial demolition of buildings, structures, and site improvements.
  - 2. Section 024120 "Hydro Demolition" for disposition of waste resulting from demolition and removal of concrete slab improvements.

## 1.3 DEFINITIONS

- A. Construction Waste: Building and site improvement materials and other solid waste resulting from construction, remodeling, renovation, or repair operations. Construction waste includes packaging.
- B. Demolition Waste: Building and site improvement materials resulting from demolition or selective demolition operations.
- C. Disposal: Removal off-site of demolition and construction waste and subsequent sale, recycling, reuse, or deposit in landfill or incinerator acceptable to authorities having jurisdiction.
- D. Recycle: Recovery of demolition or construction waste for subsequent processing in preparation for reuse.
- E. Salvage: Recovery of demolition or construction waste and subsequent sale or reuse in another facility.
- F. Salvage and Reuse: Recovery of demolition or construction waste and subsequent incorporation into the Work.

#### 1.4 PERFORMANCE REQUIREMENTS

- A. General: Practice efficient waste management in the use of materials in the course of the Work. Use all reasonable means to divert construction and demolition waste from landfills and incinerators. Facilitate recycling and salvage of materials where possible.

#### 1.5 ACTION SUBMITTALS

- A. Waste Management Plan: Submit plan within 10 days of date established for the Notice to Proceed.

#### 1.6 INFORMATIONAL SUBMITTALS

- A. Records of Sales: Indicate receipt and acceptance of salvageable waste sold to individuals and organizations. Indicate whether organization is tax exempt.
- B. Recycling and Processing Facility Records: Indicate receipt and acceptance of recyclable waste by recycling and processing facilities licensed to accept them. Include manifests, weight tickets, receipts, and invoices.
- C. Landfill and Incinerator Disposal Records: Indicate receipt and acceptance of waste by landfills and incinerator facilities licensed to accept them. Include manifests, weight tickets, receipts, and invoices.

#### 1.7 WASTE MANAGEMENT PLAN

- A. General: Develop a waste management plan according to ASTM E 1609 and requirements in this Section. Plan shall consist of waste identification, waste reduction work plan, and cost/revenue analysis. Indicate quantities by weight or volume, but use same units of measure throughout waste management plan.

### PART 2 - PRODUCTS (Not Used)

### PART 3 - EXECUTION

#### 3.1 PLAN IMPLEMENTATION

- A. General: Implement approved waste management plan. Provide handling, containers, storage, signage, transportation, and other items as required to implement waste management plan during the entire duration of the Contract.
  - 1. Comply with operation, termination, and removal requirements in Section 015000 "Temporary Facilities and Controls."

- B. Waste Management Coordinator: Engage a waste management coordinator to be responsible for implementing, monitoring, and reporting status of waste management work plan. Coordinate with Owner.
- C. Site Access and Temporary Controls: Conduct waste management operations to ensure minimum interference with roads, streets, walks, walkways, and other adjacent occupied and used facilities.
  - 1. Designate and label specific areas on Project site necessary for separating materials that are to be salvaged, recycled, reused, donated, and sold.
  - 2. Comply with Section 015000 "Temporary Facilities and Controls" for controlling dust and dirt, environmental protection, and noise control.

### 3.2 SALVAGING DEMOLITION WASTE

- A. Salvaged Items for Owner's Use: Salvage items for Owner's use and handle as follows:
  - 1. Clean salvaged items.
  - 2. Pack or crate items after cleaning. Identify contents of containers with label indicating elements, date of removal, quantity, and location where removed.
  - 3. Store items in a secure area until delivery to Owner.
  - 4. Transport items to Owner's storage area on-site.
  - 5. Protect items from damage during transport and storage.

### 3.3 RECYCLING WASTE, GENERAL

- A. General: Recycle paper and beverage containers used by on-site workers.
- B. Preparation of Waste: Prepare and maintain recyclable waste materials according to recycling or reuse facility requirements. Maintain materials free of dirt, adhesives, solvents, petroleum contamination, and other substances deleterious to the recycling process.
- C. Procedures: Separate recyclable waste from other waste materials, trash, and debris. Separate recyclable waste by type at Project site to the maximum extent practical according to approved construction waste management plan.

### 3.4 RECYCLING DEMOLITION WASTE

- A. Concrete: Remove reinforcement and other metals from concrete and sort with other metals.
- B. Metals: Separate metals by type.
  - 1. Structural Steel: Stack members according to size, type of member, and length.
  - 2. Remove and dispose of bolts, nuts, washers, and other rough hardware.
- C. Conduit: Reduce conduit to straight lengths and store by type and size.

### 3.5 RECYCLING CONSTRUCTION WASTE

#### A. Packaging:

1. Cardboard and Boxes: Break down packaging into flat sheets. Bundle and store in a dry location.
2. Polystyrene Packaging: Separate and bag materials.
3. Pallets: As much as possible, require deliveries using pallets to remove pallets from Project site. For pallets that remain on-site, break down pallets into component wood pieces and comply with requirements for recycling wood.
4. Crates: Break down crates into component wood pieces and comply with requirements for recycling wood.

### 3.6 DISPOSAL OF WASTE

#### A. General: Except for items or materials to be salvaged, recycled, or otherwise reused, remove waste materials from Project site and legally dispose of them in a landfill or incinerator acceptable to authorities having jurisdiction.

1. Except as otherwise specified, do not allow waste materials that are to be disposed of accumulate on-site.
2. Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.

#### B. Burning: Do not burn waste materials.

#### C. Disposal: Remove waste materials and dispose of at designated spoil areas on Owner's property.

END OF SECTION 017419

## SECTION 017700 - 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 01 Specification Sections, apply to this Section.

#### 1.2 SUMMARY

- A. Section includes administrative and procedural requirements for contract closeout, including, but not limited to, the following:
  - 1. Substantial Completion procedures.
  - 2. Final completion procedures.
  - 3. Warranties.
  - 4. Final cleaning.
  - 5. Repair of the Work.

#### 1.3 ACTION SUBMITTALS

- A. Product Data: For each type of cleaning agent.
- B. Contractor's List of Incomplete Items: Initial submittal at Substantial Completion.
- C. Certified List of Incomplete Items: Final submittal at final completion.

#### 1.4 CLOSEOUT SUBMITTALS

- A. Certificates of Release: From authorities having jurisdiction.
- B. Certificate of Insurance: For continuing coverage.
- C. Field Report: For pest control inspection.

#### 1.5 MAINTENANCE MATERIAL SUBMITTALS

- A. Schedule of Maintenance Material Items: For maintenance material submittal items specified in other Sections.

## 1.6 SUBSTANTIAL COMPLETION PROCEDURES

- A. Contractor's List of Incomplete Items: Prepare and submit a list of items to be completed and corrected (Contractor's punch list), indicating the value of each item on the list and reasons why the Work is incomplete.
- B. Submittals Prior to Substantial Completion: Complete the following a minimum of 10 days prior to requesting inspection for determining date of Substantial Completion. List items below that are incomplete at time of request.
1. Certificates of Release: Obtain and submit releases from authorities having jurisdiction permitting Owner unrestricted use of the Work and access to services and utilities. Include occupancy permits, operating certificates, and similar releases.
  2. Submit closeout submittals specified in other Division 01 Sections, including project record documents, operation and maintenance manuals, damage or settlement surveys, property surveys, and similar final record information.
  3. Submit closeout submittals specified in individual Sections, including specific warranties, workmanship bonds, maintenance service agreements, final certifications, and similar documents.
  4. Submit maintenance material submittals specified in individual Sections, including tools, spare parts, extra materials, and similar items, and deliver to location designated by Engineer. Label with manufacturer's name and model number.
  5. Submit testing, adjusting, and balancing records.
  6. Submit sustainable design submittals not previously submitted.
  7. Submit changeover information related to Owner's occupancy, use, operation, and maintenance.
- C. Procedures Prior to Substantial Completion: Complete the following a minimum of 10 days prior to requesting inspection for determining date of Substantial Completion. List items below that are incomplete at time of request.
1. Advise Owner of pending insurance changeover requirements.
  2. Make final changeover of permanent locks and deliver keys to Owner. Advise Owner's personnel of changeover in security provisions.
  3. Complete startup and testing of systems and equipment.
  4. Perform preventive maintenance on equipment used prior to Substantial Completion.
  5. Instruct Owner's personnel in operation, adjustment, and maintenance of products, equipment, and systems. Submit demonstration and training video recordings specified in Section 017900 "Demonstration and Training."
  6. Advise Owner of changeover in utility services.
  7. Participate with Owner in conducting inspection and walkthrough with local emergency responders.
  8. Terminate and remove temporary facilities from Project site, along with mockups, construction tools, and similar elements.
  9. Complete final cleaning requirements.
  10. Touch up paint and otherwise repair and restore marred exposed finishes to eliminate visual defects.
- D. Inspection: Submit a written request for inspection to determine Substantial Completion a minimum of 10 days prior to date the Work will be completed and ready for final inspection and

tests. On receipt of request, Engineer will either proceed with inspection or notify Contractor of unfulfilled requirements. Architect 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 Architect, that must be completed or corrected before certificate will be issued.

1. Request reinspection 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.

## 1.7 FINAL COMPLETION PROCEDURES

A. Submittals Prior to Final Completion: Before requesting final inspection for determining final completion, complete the following:

1. Submit a final Application for Payment according to Section 012900 "Payment Procedures."
2. Certified List of Incomplete Items: Submit certified copy of Architect's Substantial Completion inspection list of items to be completed or corrected (punch list), endorsed and dated by Architect. Certified copy of the list shall state that each item has been completed or otherwise resolved for acceptance.
3. Certificate of Insurance: Submit evidence of final, continuing insurance coverage complying with insurance requirements.
4. Submit pest-control final inspection report.
5. Submit final completion photographic documentation.

B. Inspection: Submit a written request for final inspection to determine acceptance a minimum of 10 days prior to date the work will be completed and ready for final inspection and tests. On receipt of request, Engineer will either proceed with inspection or notify Contractor of unfulfilled requirements. Architect 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. Request reinspection when the Work identified in previous inspections as incomplete is completed or corrected.

## 1.8 LIST OF INCOMPLETE ITEMS (PUNCH LIST)

A. Organization 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. Include the following information at the top of each page:
  - a. Project name.
  - b. Date.
  - c. Name of Engineer
  - d. Name of Contractor.
  - e. Page number.
2. Submit list of incomplete items in the following format:

- a. PDF electronic file. Engineer will return annotated file.

## 1.9 SUBMITTAL OF PROJECT WARRANTIES

- A. Time of Submittal: Submit written warranties on request of Architect for designated portions of the Work where warranties are indicated to commence on dates other than date of Substantial Completion, or when delay in submittal of warranties might limit Owner's rights under warranty.
- B. Partial Occupancy: Submit properly executed warranties within 10 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 Project Manual.
- D. Warranty Electronic File: Provide warranties and bonds in PDF format. Assemble complete warranty and bond submittal package into a single electronic PDF file with bookmarks enabling navigation to each item. Provide bookmarked table of contents at beginning of document.
  1. Submit by e-mail to the Engineer.
- E. 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.
  1. Use cleaning products that comply with Green Seal's GS-37, or if GS-37 is not applicable, use products that comply with the California Code of Regulations maximum allowable VOC levels.

## PART 3 - EXECUTION

### 3.1 FINAL CLEANING

- A. General: Perform 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 commercial building cleaning and maintenance program. 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 designated 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 not planted, mulched, or paved to a smooth, even-textured surface.
  - d. Remove tools, construction equipment, machinery, and surplus material from Project site.
  - e. Remove snow and ice to provide safe access to building.
  - f. 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.
  - g. Remove debris and surface dust from limited access spaces, including roofs, plenums, shafts, trenches, equipment vaults, manholes, attics, and similar spaces.
  - h. Sweep concrete floors broom clean in unoccupied spaces.
  - i. Remove labels that are not permanent.
  - j. Leave Project clean and ready for occupancy.
  
- C. Construction Waste Disposal: Comply with waste disposal requirements in Section 017419 "Construction Waste Management and Disposal."

### 3.2 REPAIR OF THE WORK

- A. Complete repair and restoration operations before requesting inspection for determination of Substantial Completion.
  
- B. Repair, or remove and replace, defective construction. Repairing includes replacing defective parts, refinishing damaged surfaces, touching up with matching materials, and properly adjusting operating equipment. Where damaged or worn items cannot be repaired or restored, provide replacements. Remove and replace operating components that cannot be repaired. Restore damaged construction and permanent facilities used during construction to specified condition.

END OF SECTION 017700

## SECTION 024119 - SELECTIVE DEMOLITION

## PART 1 - GENERAL

## 1.1 RELATED DOCUMENTS

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

## 1.2 SUMMARY

## A. Section Includes:

1. Demolition of existing concrete slab to depths noted on the plans. Protect in place or replace in kind slab reinforcement.
2. Demolition and removal of selected portions of building or structure.
3. Demolition and removal of selected site elements.
4. Salvage of existing items to be reused or recycled.

## B. Related Requirements:

1. Section 011000 "Summary" for restrictions on use of the premises, Owner-occupancy requirements, and phasing requirements.
2. Section 017300 "Execution" for cutting and patching procedures.

## 1.3 DEFINITIONS

- A. Remove: Detach items from existing construction and dispose of them off-site unless indicated to be salvaged or reinstalled.
- B. Remove and Salvage: Detach items from existing construction, in a manner to prevent damage, and store on site.
- C. Remove and Replace: Detach items from existing construction, in a manner to prevent damage, prepare for reuse, and reinstall where indicated.
- D. Existing to Remain: Leave existing items that are not to be removed and that are not otherwise indicated to be salvaged or reinstalled.
- E. Dismantle: To remove by disassembling or detaching an item from a surface, using gentle methods and equipment to prevent damage to the item and surfaces; disposing of items unless indicated to be salvaged or reinstalled.

## 1.4 MATERIALS OWNERSHIP

- A. Unless otherwise indicated, demolition waste becomes property of Contractor.

- B. Historic items, relics, antiques, and similar objects including, but not limited to, cornerstones and their contents, commemorative plaques and tablets, and other items of interest or value to Owner that may be uncovered during demolition remain the property of Owner.
  - 1. Carefully salvage in a manner to prevent damage and promptly return to Owner.

## 1.5 INFORMATIONAL SUBMITTALS

- A. Schedule of Selective Demolition Activities: Indicate the following:
  - 1. Detailed sequence of selective demolition and removal work, with starting and ending dates for each activity. Ensure Owner's on-site operations are uninterrupted.
  - 2. Interruption of utility services. Indicate how long utility services will be interrupted.
  - 3. Coordination for shutoff, capping, and continuation of utility services.
  - 4. Coordination of Owner's continuing occupancy of portions of existing building and of Owner's partial occupancy of completed Work.
  - 5. Temporary bracing support plans for solid rod bracing replacement.
  - 6. Temporary hopper lip assembly plan to maintain Owner operations.
- B. Predemolition Photographs or Video: Show existing conditions of adjoining construction, including finish surfaces, that might be misconstrued as damage caused by demolition operations. Submit before Work begins.

## 1.6 CLOSEOUT SUBMITTALS

- A. Inventory: Submit a list of items that have been removed and salvaged.

## 1.7 FIELD CONDITIONS

- A. Owner will occupy portions of building immediately adjacent to selective demolition area. Conduct selective demolition so Owner's operations will not be disrupted.
- B. Conditions existing at time of inspection for bidding purpose will be maintained by Owner as far as practical.
  - 1. Before selective demolition, Owner will remove the following items:
    - a. Temporary Concrete Barriers
- C. Notify Engineer of discrepancies between existing conditions and Drawings before proceeding with selective demolition.
- D. Hazardous Materials: It is not expected that hazardous materials will be encountered in the Work.
  - 1. Hazardous materials will be removed by Owner before start of the Work.
  - 2. If suspected hazardous materials are encountered, do not disturb; immediately notify Engineer and Owner. Hazardous materials will be removed by Owner under a separate contract.

- E. Storage or sale of removed items or materials on-site is not permitted.
- F. Utility Service: Maintain existing utilities indicated to remain in service and protect them against damage during selective demolition operations.
  - 1. Maintain electrical facilities in service during selective demolition operations.

## 1.8 WARRANTY

- A. Existing Warranties: Remove, replace, patch, and repair materials and surfaces cut or damaged during selective demolition, by methods and with materials and using approved contractors so as not to void existing warranties. Notify warrantor before proceeding. Existing warranties include the following:
  - 1. None.
- B. Notify warrantor on completion of selective demolition, and obtain documentation verifying that existing system has been inspected and warranty remains in effect. Submit documentation at Project closeout.

## 1.9 COORDINATION

- A. Arrange selective demolition schedule so as not to interfere with Owner's operations.

## PART 2 - PRODUCTS

### 2.1 PERFORMANCE REQUIREMENTS

- A. Regulatory Requirements: Comply with governing EPA notification regulations before beginning selective demolition. Comply with hauling and disposal regulations of authorities having jurisdiction.
- B. Standards: Comply with ASSE A10.6 and NFPA 241.

## PART 3 - EXECUTION

### 3.1 EXAMINATION

- A. Verify that utilities have been disconnected and capped before starting selective demolition operations.
- B. Review Project Record Documents of existing construction or other existing condition and hazardous material information provided by Owner. Owner does not guarantee that existing conditions are same as those indicated in Project Record Documents.

- C. Engage a professional engineer to perform an engineering survey of condition of building to determine whether removing any element might result in structural deficiency or unplanned collapse of any portion of structure or adjacent structures during selective building demolition operations.
  - 1. Perform surveys as the Work progresses to detect hazards resulting from selective demolition activities.
- D. Verify that hazardous materials have been remediated before proceeding with building demolition operations.
- E. Survey of Existing Conditions: Record existing conditions by use of preconstruction photographs or video.
  - 1. Inventory and record the condition of items to be removed and salvaged. Provide photographs or video of conditions that might be misconstrued as damage caused by salvage operations.
  - 2. Before selective demolition or removal of existing building elements that will be reproduced or duplicated in final Work, make permanent record of measurements, materials, and construction details required to make exact reproduction.

### 3.2 UTILITY SERVICES AND MECHANICAL/ELECTRICAL SYSTEMS

- A. Existing Services/Systems to Remain: Maintain services/systems indicated to remain and protect them against damage.
- B. Existing Services/Systems to Be Removed, Relocated, or Abandoned: Locate, identify, disconnect, and seal or cap off utility services and mechanical/electrical systems serving areas to be selectively demolished.
  - 1. Owner will arrange to shut off indicated services/systems when requested by Contractor.

### 3.3 PROTECTION

- A. Temporary Protection: Provide temporary barricades and other protection required to prevent injury to people and damage to adjacent buildings and facilities to remain.
  - 1. Provide protection to ensure safe passage of people around selective demolition area and to and from occupied portions of building.
  - 2. Provide temporary weather protection, during interval between selective demolition of existing construction on exterior surfaces and new construction, to prevent water leakage and damage to structure and interior areas.
  - 3. Protect walls, ceilings, floors, and other existing finish work that are to remain or that are exposed during selective demolition operations.
  - 4. Cover and protect furniture, furnishings, and equipment that have not been removed.
- B. Temporary Shoring/Bracing: Design, provide, and maintain shoring, bracing, and structural supports as required to preserve stability and prevent movement, settlement, or collapse of construction and finishes to remain, and to prevent unexpected or uncontrolled movement or collapse of construction being demolished.

1. Strengthen or add new supports when required during progress of selective demolition.
- C. Remove temporary barricades and protections where hazards no longer exist.

### 3.4 SELECTIVE DEMOLITION, GENERAL

- A. General: Demolish and remove existing construction only to the extent required by new construction and as indicated. Use methods required to complete the Work within limitations of governing regulations and as follows:
1. Proceed with selective demolition systematically, from higher to lower level. Complete selective demolition operations above each floor or tier before disturbing supporting members on the next lower level.
  2. Neatly cut openings and holes plumb, square, and true to dimensions required. Use cutting methods least likely to damage construction to remain or adjoining construction. Use hand tools or small power tools designed for sawing or grinding, not hammering and chopping. Temporarily cover openings to remain.
  3. Cut or drill from the exposed or finished side into concealed surfaces to avoid marring existing finished surfaces.
  4. Do not use cutting torches until work area is cleared of flammable materials. At concealed spaces, such as duct and pipe interiors, verify condition and contents of hidden space before starting flame-cutting operations. Maintain portable fire-suppression devices during flame-cutting operations.
  5. Maintain fire watch during and for at least 2 hours after flame-cutting operations.
  6. Maintain adequate ventilation when using cutting torches.
  7. Remove decayed, vermin-infested, or otherwise dangerous or unsuitable materials and promptly dispose of off-site.
  8. Remove structural framing members and lower to ground by method suitable to avoid free fall and to prevent ground impact or dust generation.
  9. Locate selective demolition equipment and remove debris and materials so as not to impose excessive loads on supporting walls, floors, or framing.
  10. Dispose of demolished items and materials promptly.
- B. Site Access and Temporary Controls: Conduct selective demolition and debris-removal operations to ensure minimum interference with roads, streets, walks, walkways, and other adjacent occupied and used facilities.
- C. Removed and Salvaged Items:
1. Clean salvaged items.
  2. Pack or crate items after cleaning. Identify contents of containers.
  3. Store items in a secure area until delivery to Owner.
  4. Transport items to Owner's storage area designated by the Owner.
  5. Protect items from damage during transport and storage.
- D. Removed and Reinstalled Items:
1. Clean and repair items to functional condition adequate for intended reuse.
  2. Pack or crate items after cleaning and repairing. Identify contents of containers.
  3. Protect items from damage during transport and storage.

4. Reinstall items in locations indicated. Comply with installation requirements for new materials and equipment. Provide connections, supports, and miscellaneous materials necessary to make item functional for use indicated.
- E. Existing Items to Remain: Protect construction indicated to remain against damage and soiling during selective demolition. When permitted by Engineer, items may be removed to a suitable, protected storage location during selective demolition, cleaned and reinstalled in their original locations after selective demolition operations are complete.

### 3.5 SELECTIVE DEMOLITION PROCEDURES FOR SPECIFIC MATERIALS

- A. Concrete Barrier: Demolish in small sections. Using power-driven saw, cut concrete to a depth of at least 1 inch at junctures with construction to remain. Dislodge concrete from reinforcement at perimeter of areas being demolished, protect in place reinforcement, and then remove remainder of concrete.
- B. Concrete Slabs-on-Grade: Hydro-demolition of reinforced concrete slab is covered under section 024120 Hydro-Demolition.
- C. Aluminum Siding: Remove aluminum siding in a manner to protect sections of existing siding that are to remain. Store salvaged material at a location designated by the Owner.
- D. Building System Members: Detach any siding and retain or properly dispose of fasteners prior to removal.
  - a. Exterior non-load bearing wall framing: Cut members in a manner that shall not damage siding or structural steel columns.
  - b. Bracing Rods: Contractor shall remove in a manner that does not damage existing connection system and allows for the

### 3.6 DISPOSAL OF DEMOLISHED MATERIALS

- A. Remove demolition waste materials from Project site and dispose of them in an EPA-approved construction and demolition waste landfill acceptable to authorities having jurisdiction.
  1. Do not allow demolished materials to accumulate on-site.
  2. Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.
  3. Remove debris from elevated portions of building by chute, hoist, or other device that will convey debris to grade level in a controlled descent.
- B. Burning: Do not burn demolished materials.

### 3.7 CLEANING

- A. Clean adjacent structures and improvements of dust, dirt, and debris caused by selective demolition operations. Return adjacent areas to condition existing before selective demolition operations began.

### 3.8 SELECTIVE DEMOLITION SCHEDULE

- A. Remove: Cast-in-place concrete barrier, bollards located at the ends of the concrete barriers, and siding and light gage metal framing from the floor to the bottom of the header beam at each side of the building opening.
- B. Remove and Replace: Existing concrete slab to the limits shown on the plans and in phases as indicated on the plans. Contractor shall protect in place existing reinforcement.
- C. Remove and Replace: Hopper lip assembly at the discretion of the Owner.
- D. Remove and Reinstall/Replace: Selected girts, metal siding, bracing members, solid rod bracing, header channel, and hopper lip assembly.
- E. Existing to Remain: As indicated on the plans.

END OF SECTION 024119

## SECTION 024120 – HYDRO-DEMOLITION OF CONCRETE SLAB

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

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

#### 1.2 SUMMARY

- A. Section Includes:

- 1. Demolition and removal of existing concrete slab overlay up to 6 inches in depth.

- B. Related Requirements:

- 1. Section 011000 "Summary" for restrictions on use of the premises, Owner-occupancy requirements, and phasing requirements.
  - 2. Section 033000 "Cast-In-Place Concrete"

#### 1.3 DEFINITIONS

- A. Remove: Detach items from existing construction and dispose of them off-site unless indicated to be salvaged or reinstalled.
- B. Existing to Remain: Leave existing items that are not to be removed and that are not otherwise indicated to be salvaged or reinstalled.
- C. Deck and slab may be used interchangeably and refer to the existing transfer station concrete floor to be repaired.

#### 1.4 MATERIALS OWNERSHIP

- A. Unless otherwise indicated, demolition waste becomes property of Contractor.

#### 1.5 PREINSTALLATION MEETINGS

- A. Predemolition Conference: Conduct conference at Project Site.
  - 1. Inspect and discuss condition of construction to be selectively demolished.
  - 2. Review structural load limitations of existing structure.
  - 3. Review and finalize selective demolition schedule and verify availability of materials, demolition personnel, equipment, and facilities needed to make progress and avoid delays.

4. Review requirements of work performed by other trades that rely on substrates exposed by selective demolition operations.
5. Review areas where existing construction is to remain and requires protection.

## 1.6 FIELD CONDITIONS

- A. Owner will occupy portions of building immediately adjacent to selective demolition area. Conduct hydro-demolition so Owner's operations will not be disrupted.
- B. Conditions existing at time of inspection for bidding purpose will be maintained by Owner as far as practical.
  1. Before hydro-demolition, Owner will remove the following items:
    - a. Temporary Concrete Barriers
- C. Notify Engineer of discrepancies between existing conditions and Drawings before proceeding with selective demolition.
- D. Hazardous Materials: It is not expected that hazardous materials will be encountered in the Work.
  1. Hazardous materials will be removed by Owner before start of the Work.
  2. If suspected hazardous materials are encountered, do not disturb; immediately notify Engineer and Owner. Hazardous materials will be removed by Owner under a separate contract.
- E. Storage or sale of removed items or materials on-site is not permitted.
- F. Utility Service: Maintain existing utilities indicated to remain in service and protect them against damage during selective demolition operations.
  1. Maintain electrical facilities in service during demolition operations.

## 1.7 COORDINATION

- A. Arrange hydro-demolition schedule so as not to interfere with Owner's operations.

## PART 2 - PRODUCTS

### 2.1 PERFORMANCE REQUIREMENTS

- A. Regulatory Requirements: Comply with governing EPA notification regulations before beginning selective demolition. Comply with hauling and disposal regulations of authorities having jurisdiction.
- B. Standards: Comply with ASSE A10.6 and NFPA 241.

## PART 3 - EXECUTION

### 3.1 EXAMINATION

- A. Verify that utilities have been disconnected and capped before starting selective demolition operations.
- B. Review Project Record Documents of existing construction or other existing condition and hazardous material information provided by Owner. Owner does not guarantee that existing conditions are same as those indicated in Project Record Documents.
- C. Verify that hazardous materials have been remediated before proceeding with building demolition operations.

### 3.2 PROTECTION

- A. Temporary Protection: Provide temporary barricades and other protection required to prevent injury to people and damage to adjacent buildings and facilities to remain.
  - 1. Provide protection to ensure safe passage of people around selective demolition area and to and from occupied portions of building.
  - 2. Provide temporary weather protection, during interval between selective demolition of existing construction on exterior surfaces and new construction, to prevent water leakage and damage to structure and interior areas.
  - 3. Protect walls, ceilings, floors, and other existing finish work that are to remain or that are exposed during selective demolition operations.
  - 4. Cover and protect furniture, furnishings, and equipment that have not been removed.
- B. Temporary Shoring: Design, provide, and maintain shoring, bracing, and structural supports as required to preserve stability and prevent movement, settlement, or collapse of construction and finishes to remain, and to prevent unexpected or uncontrolled movement or collapse of construction being demolished.
  - 1. Strengthen or add new supports when required during progress of selective demolition.
- C. Remove temporary barricades and protections where hazards no longer exist.

### 3.3 HYDRO-DEMOLITION, GENERAL

- A. General: The Contractor shall perform hydro-demolition in accordance with the hydro-demolition equipment manufacturer's instructions, this Section, and as directed by the Engineer.
- B. Any bituminous patches shall be removed and the debris cleaned from the deck prior to the commencement of hydro-demolition operations. Patches may be removed using localized hydro-demolition or milling, hand tools, or pneumatic hammers.
- C. The Contractor shall exercise caution during concrete removal operations to prevent damaging or cutting the reinforcing steel. Heavy equipment shall not be allowed in areas where the reinforcing steel is unsupported, unless otherwise approved by the Engineer. Any bars damaged

as a result of the hydro-demolition operations shall be repaired or if necessary replaced. Reinforcing steel shall be replaced in-kind, matching existing steel bar sizes, unless otherwise directed or approved by the Engineer. Any reinforcing steel that is left unsupported after the hydro-demolition operations shall be adequately tied and supported as soon as practical before beginning overlay operations.

- D. Hydro-demolition shall consist of removing concrete up to a depth of 6 inches over the entire surface of the slab.
- E. Work plan - Prior to beginning the work, the Contractor shall submit a hydro-demolition work plan to the Engineer for approval. This work plan shall include complete details of the following items:
  - 1. The means of controlling runoff water. The Contractor shall prevent the runoff water from flowing onto lanes of traffic adjacent to or below the work and into any body of water. The Contractor shall be responsible for compliance with all environmental laws and regulations regarding the discharge of runoff water. The Contractor shall provide specific details of the method of runoff water treatment and collection, and shall obtain all necessary permits required for its legal disposal or discharge into the environment.
  - 2. The method of safety shielding to prevent overspray into traffic. Shielding shall be installed as necessary to ensure the containment of all dislodged concrete and debris in order to protect workers and the traveling public from flying debris both under and on the work site.
- F. Equipment - Hydro-demolition equipment shall be a computerized, self-propelled machine that utilizes a high pressure water jet stream to provide a rough and bondable surface while removing all unsound concrete, rust, and concrete particles from exposed reinforcement during the initial pass. Hydro-demolition equipment shall consist of a water supply system, high-pressure water pumping system, and a demolition unit. The demolition unit shall be fully automated and provide precise control of the water jet(s) to facilitate a thorough and consistent removal operation. If required, the hydro-demolition equipment shall be capable of removing concrete from around and below the reinforcing steel. Such removal may require several passes of the equipment; however, payment shall be based on the square yards of deck surface at the depth of removal specified on the plans regardless of the number of passes necessary to achieve the depth specified. The hydro-demolition equipment shall clean all exposed reinforcing steel of rust, concrete fragments, laitance, loose scale, and other coatings that may inhibit or prevent bonding with the new concrete. Reinforcing steel not thoroughly cleaned during hydro-demolition concrete removal shall carefully be hand-tool cleaned.
- G. The Contractor shall maintain an adequate supply of wear items, repair parts, and service personnel onsite to insure that the hydro-demolition operations will not be interrupted for more than 24 consecutive hours in the event of breakdown or malfunction. No contract time adjustment due to delays associated with repairs or obtaining replacement equipment will be considered.
- H. Personnel - Qualified personnel certified by the equipment manufacturer shall operate the hydro-demolition equipment. Operator certification shall be submitted to the Engineer for review prior to beginning the hydro-demolition operations.
- I. The Contractor shall supply the water and all other materials necessary to do the specified work. The Contractor shall dispose of all removed concrete and other debris. If needed, insert requirements for other materials, products, equipment, and services.

- J. The Contractor shall record the calibrated hydro-demolition equipment's operating parameters and provide the Engineer with a copy. The record shall include at least the following information:
- Water pressure (gauge)
  - Machine staging control (step)
  - Nozzle size
  - Nozzle travel speed

The Contractor shall monitor and periodically adjust equipment to meet the level of removal demonstrated during the initial calibration process. Any changes in operating parameters that result from post-calibration monitoring must be approved by the Engineer.

- K. In lieu of this method of calibration, the hydro-demolition equipment manufacturer's representative may propose an alternate method of calibration the representative believes more suited to the work. Any proposed alternate calibration method shall be subject to the Engineer's approval.
- L. After hydro-demolition operations, the Contractor shall clean up all debris before it dries on the deck. Clean-up operations shall directly follow the hydro-demolition process to prevent the debris from resettling or reattaching itself to the surface of the sound concrete. Should the hydro-demolition debris dry on the surface of the sound concrete or reinforcing steel, the Contractor shall clean the concrete, reinforcing steel or other surfaces to the Engineer's satisfaction at no additional cost to the Owner.
- M. Immediately after hydro-demolition and clean-up operations, the Contractor shall sound the deck in the presence of the Engineer and remove any remaining loose and unsound concrete as approved by the Engineer. Loose and unsound concrete shall be removed. If required, a hand-held hydro-demolition wand or 30 lb. pneumatic hammer(s) may be used to perform additional removal.
- N. If the concrete overlay is placed within 48 hours of the hydro-demolition operation, additional cleaning of the exposed steel reinforcement will not be required for deck areas treated by hydro-demolition. Additional cleaning of the exposed steel reinforcement and concrete slab surface by abrasive blasting or high-pressure water blasting shall be performed if steel reinforcement and/or concrete deck surface is exposed for longer than 48 hours prior to placing the concrete overlay. Deck areas prepared by processes other than hydro-demolition shall also be cleaned by abrasive blasting or high-pressure water blasting when exposed for longer than 48 hours prior to placing the concrete overlay.
- O. The final prepared surface shall be free of dirt, oil, concrete fragments, abrasive blast residue, standing water, or any other deleterious material that may adversely affect the bond of the overlay. If the Contractor uses compressed air, it shall be oil-free. Any areas of the prepared deck surface contaminated with oil, grease or other materials detrimental to good bonding of the concrete as a result of the Contractor's operations shall be removed to such depth as is necessary to achieve satisfactory bond as determined by the Engineer. Cleaning and removal necessitated by contamination caused by the Contractor's operations shall be performed at no additional cost to the Owner.

### 3.4 DISPOSAL OF DEMOLISHED MATERIALS

- A. Remove demolition waste materials from Project site and dispose of them in an EPA-approved construction and demolition waste landfill acceptable to authorities having jurisdiction.
  - 1. Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.

### 3.5 CLEANING

- A. Clean adjacent structures and improvements of dust, dirt, and debris caused by hydro-demolition operations. Return adjacent areas to condition existing before hydro-demolition operations began.

### 3.6 HYDRO-DEMOLITION SCHEDULE

- A. Place temporary concrete barriers in a manner to delineate working area and protect operations area of the transfer station.
- B. Perform demolition of existing concrete barrier and existing bollard within the phase currently being constructed.
- C. Hydro-demolition to the limits shown for each phase of construction.
- D. Clean and remove hydro-demolition debris and prepare surface for cast-in-place concrete overlay.
- E. Provide supports for reinforcement where needed. Use concrete block spacers or other approved spacers prior to pouring concrete to ensure reinforcement remains on a relatively level plane.
- F. Pour cast-in-place concrete slab overlay to the elevations shown on the plans.

END OF SECTION 024120

## SECTION 033000 - CAST-IN-PLACE CONCRETE

## PART 1 - GENERAL

## 1.1 RELATED DOCUMENTS

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

## 1.2 SUMMARY

- A. Section includes cast-in-place concrete, including formwork, reinforcement, concrete materials, mixture design, placement procedures, and finishes.
- B. Related Requirements:
  - 1. Section 024120 "Hydro-Demolition" for preparation of concrete surface prior to placing slab overlay.

## 1.3 DEFINITIONS

- A. Cementitious Materials: Portland cement alone or in combination with one or more of the following: blended hydraulic cement, fly ash, slag cement, other pozzolans, and silica fume; materials subject to compliance with requirements.
- B. W/C Ratio: The ratio by weight of water to cementitious materials.

## 1.4 ACTION SUBMITTALS

- A. Product Data: For each type of product.
- B. Design Mixtures: For each concrete mixture. Submit alternate design mixtures when characteristics of materials, Project conditions, weather, test results, or other circumstances warrant adjustments.
  - 1. Indicate amounts of mixing water to be withheld for later addition at Project site.
- C. Steel Reinforcement Shop Drawings: Placing Drawings that detail fabrication, bending, and placement. Include bar sizes, lengths, material, grade, bar schedules, stirrup spacing, bent bar diagrams, bar arrangement, splices and laps, mechanical connections, tie spacing, hoop spacing, and supports for concrete reinforcement.

## 1.5 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For testing consultant.

- B. Welding certificates.
- C. Material Certificates: For each of the following, signed by manufacturers:
  - 1. Cementitious materials.
  - 2. Admixtures.
  - 3. Form materials and form-release agents.
  - 4. Steel reinforcement and accessories.
  - 5. Fiber reinforcement.
  - 6. Waterstops.
  - 7. Curing compounds.
  - 8. Floor and slab treatments.
  - 9. Bonding agents.
  - 10. Adhesives.
  - 11. Vapor retarders.
  - 12. Semirigid joint filler.
  - 13. Joint-filler strips.
  - 14. Repair materials.
- D. Material Test Reports: For the following, from a qualified testing agency:
  - 1. Aggregates: Include service record data indicating absence of deleterious expansion of concrete due to alkali aggregate reactivity.
- E. Floor surface flatness and levelness measurements indicating compliance with specified tolerances.
- F. Field quality-control reports.

## 1.6 QUALITY ASSURANCE

- A. Installer Qualifications: A qualified installer who employs on Project personnel qualified as ACI-certified Flatwork Technician and Finisher and a supervisor who is an ACI-certified Concrete Flatwork Technician.
- B. Manufacturer Qualifications: A firm experienced in manufacturing ready-mixed concrete products and that complies with ASTM C 94/C 94M requirements for production facilities and equipment.
  - 1. Manufacturer certified according to NRMCA's "Certification of Ready Mixed Concrete Production Facilities."
- C. Testing Agency Qualifications: An independent agency, acceptable to the Engineer, qualified according to ASTM C 1077 and ASTM E 329 for testing indicated.
  - 1. Personnel conducting field tests shall be qualified as ACI Concrete Field Testing Technician, Grade 1, according to ACI CP-1 or an equivalent certification program.
  - 2. Personnel performing laboratory tests shall be ACI-certified Concrete Strength Testing Technician and Concrete Laboratory Testing Technician, Grade I. Testing agency

laboratory supervisor shall be an ACI-certified Concrete Laboratory Testing Technician, Grade II.

- D. Welding Qualifications: Qualify procedures and personnel according to AWS D1.4/D 1.4M.

## 1.7 PRECONSTRUCTION TESTING

- A. Preconstruction Testing Service: Engage a qualified testing agency to perform preconstruction testing on concrete mixtures.

## 1.8 DELIVERY, STORAGE, AND HANDLING

- A. Steel Reinforcement: Deliver, store, and handle steel reinforcement to prevent bending and damage.

## 1.9 FIELD CONDITIONS

- A. Cold-Weather Placement: Comply with ACI 306.1 and as follows. Protect concrete work from physical damage or reduced strength that could be caused by frost, freezing actions, or low temperatures.
1. When average high and low temperature is expected to fall below 40 deg F (4.4 deg C) for three successive days, maintain delivered concrete mixture temperature within the temperature range required by ACI 301 (ACI 301M).
  2. Do not use frozen materials or materials containing ice or snow. Do not place concrete on frozen subgrade or on subgrade containing frozen materials.
  3. Do not use calcium chloride, salt, or other materials containing antifreeze agents or chemical accelerators unless otherwise specified and approved in mixture designs.
- B. Hot-Weather Placement: Comply with ACI 301 (ACI 301M) and as follows:
1. Maintain concrete temperature below 90 deg F (32 deg C) at time of placement. Chilled mixing water or chopped ice may be used to control temperature, provided water equivalent of ice is calculated to total amount of mixing water. Using liquid nitrogen to cool concrete is Contractor's option.
  2. Fog-spray forms, steel reinforcement, and subgrade just before placing concrete. Keep subgrade uniformly moist without standing water, soft spots, or dry areas.

## PART 2 - PRODUCTS

### 2.1 CONCRETE, GENERAL

- A. ACI Publications: Comply with the following unless modified by requirements in the Contract Documents:
1. ACI 301 (ACI 301M).
  2. ACI 117 (ACI 117M).

## 2.2 FORM-FACING MATERIALS

- A. Smooth-Formed Finished Concrete: Form-facing panels that provide continuous, true, and smooth concrete surfaces. Furnish in largest practicable sizes to minimize number of joints.
1. Plywood, metal, or other approved panel materials.
  2. Exterior-grade plywood panels, suitable for concrete forms, complying with DOC PS 1, and as follows:
    - a. High-density overlay, Class 1 or better.
    - b. Medium-density overlay, Class 1 or better; mill-release agent treated and edge sealed.
    - c. Structural 1, B-B or better; mill oiled and edge sealed.
    - d. B-B (Concrete Form), Class 1 or better; mill oiled and edge sealed.
  3. Overlaid Finnish birch plywood.
- B. Rough-Formed Finished Concrete: Plywood, lumber, metal, or another approved material. Provide lumber dressed on at least two edges and one side for tight fit.
- C. Forms for Cylindrical Columns, Pedestals, and Supports: Metal, glass-fiber-reinforced plastic, paper, or fiber tubes that produce surfaces with gradual or abrupt irregularities not exceeding specified formwork surface class. Provide units with sufficient wall thickness to resist plastic concrete loads without detrimental deformation.
- D. Pan-Type Forms: Glass-fiber-reinforced plastic or formed steel, stiffened to resist plastic concrete loads without detrimental deformation.
- E. Void Forms: Biodegradable paper surface, treated for moisture resistance, structurally sufficient to support weight of plastic concrete and other superimposed loads.
- F. Chamfer Strips: Wood, metal, PVC, or rubber strips, 1/2 by 1/2 inch, minimum.
- G. Rustication Strips: Wood, metal, PVC, or rubber strips, kerfed for ease of form removal.
- H. Form-Release Agent: Commercially formulated form-release agent that does not bond with, stain, or adversely affect concrete surfaces and does not impair subsequent treatments of concrete surfaces.
1. Formulate form-release agent with rust inhibitor for steel form-facing materials.
- I. Form Ties: Factory-fabricated, removable or snap-off glass-fiber-reinforced plastic or metal form ties designed to resist lateral pressure of fresh concrete on forms and to prevent spalling of concrete on removal.
1. Furnish units that leave no corrodible metal closer than 1 inch (25 mm) to the plane of exposed concrete surface.
  2. Furnish ties that, when removed, leave holes no larger than 1 inch (25 mm) in diameter in concrete surface.
  3. Furnish ties with integral water-barrier plates to walls indicated to receive dampproofing or waterproofing.

## 2.3 STEEL REINFORCEMENT

- A. Reinforcing Bars: ASTM A 615/A 615M, Grade 60, deformed.
- B. Low-Alloy-Steel Reinforcing Bars: ASTM A 706/A 706M, deformed.
- C. Deformed-Steel Wire: ASTM A 1064/A 1064M.

## 2.4 REINFORCEMENT ACCESSORIES

- A. Joint Dowel Bars: ASTM A 615/A 615M, Grade 60 (Grade 420), plain-steel bars, cut true to length with ends square and free of burrs.
- B. Epoxy-Coated Joint Dowel Bars: ASTM A 615/A 615M, Grade 60 (Grade 420), plain-steel bars, ASTM A 775/A 775M epoxy coated.
- C. Epoxy Repair Coating: Liquid, two-part, epoxy repair coating; compatible with epoxy coating on reinforcement and complying with ASTM A 775/A 775M.
- D. Zinc Repair Material: ASTM A 780/A 780M.
- E. Bar Supports: Bolsters, chairs, spacers, and other devices for spacing, supporting, and fastening reinforcing bars and welded-wire reinforcement in place. Manufacture bar supports from steel wire, plastic, or precast concrete according to CRSI's "Manual of Standard Practice," of greater compressive strength than concrete and as follows:
  - 1. For concrete surfaces exposed to view, where legs of wire bar supports contact forms, use CRSI Class 1 plastic-protected steel wire or CRSI Class 2 stainless-steel bar supports.
  - 2. For epoxy-coated reinforcement, use epoxy-coated or other dielectric-polymer-coated wire bar supports.
  - 3. For zinc-coated reinforcement, use galvanized wire or dielectric-polymer-coated wire bar supports.

## 2.5 CONCRETE MATERIALS

- A. Source Limitations: Obtain each type or class of cementitious material of the same brand from the same manufacturer's plant, obtain aggregate from single source, and obtain admixtures from single source from single manufacturer.
- B. Cementitious Materials:
  - 1. Portland Cement: ASTM C 150/C 150M, Type I or Type II or Type I/II.
- C. Normal-Weight Aggregates: ASTM C 33/C 33M, coarse aggregate or better, graded. Provide aggregates from a single source. Aggregate sources with documented or known history of alkali silica reactivity shall not be used.
  - 1. Fine Aggregate:

- a. Washed fine aggregate shall consist of clean, hard, durable, uncoated particles of sand. It shall be free from dust mica, shale, alkali, organic matter, loam, soft or flaky particles.
  - b. Deleterious Substances - The fine aggregate shall not contain clay lumps and shall not contain more than half a percent (0.50%) by weight of material removed by decantation.
  - c. Grading - Fine aggregate shall conform to the requirements of ASTM C 33 with percent passing 75-mm (No. 200) not exceeding 3%.
2. Coarse Aggregate:
- a. Type of Aggregate – Siliceous aggregate, for example, granite or gravel shall be used. Carbonate aggregate, for example, limestone or dolomite shall not be used. Granite coarse aggregate is the most recommended aggregate type.
  - b. Composition and Quality - Coarse aggregate shall be washed and shall consist of similar chemical component, hard, tough, uncoated, and durable particles. It shall contain no vegetable matter or soft, flaky, thin, or elongated particles. Deleterious substances shall not exceed the following amounts:
    - 1) Soft fragments..... 0.20%
    - 2) Coal and lignite ..... 0.25%
    - 3) Clay lumps..... 0.25%
    - 4) Material passing No. 200 Sieve ..... 1.50%
    - 5) Thin or elongated pieces (length greater than 5 times the average thickness) 10 %
3. Grading - Coarse aggregate shall be well graded between the limits specified by ASTM C33. The maximum aggregate size shall not exceed one third the minimum slab thickness
- D. Water
1. The water used in mixing and curing concrete shall be fresh, clean, potable and free from oil, acid, alkali, organic matter, and deleterious amounts of chloride ion.
- E. Concrete Mixture
1. Water-to-cement (w/c) ratio of the concrete mixture shall not exceed 0.36.
  2. The volume of total aggregate shall not be less than 70%.
  3. Pozzolanic additives including fly ash, silica fume, slag, metakaolin, calcined clay shall not be used.
  4. Fibers shall not be used.
  5. Latex modification shall not be used.
  6. The concrete mixture shall contain air-entraining admixture and shall have the minimum air content appropriate for the exposure condition.
  7. The concrete mixture shall contain high range water reduce (superplasticizer).
  8. The concrete mixture shall contain shrinkage reducing admixture.
  9. The concrete shall meet all the requirements for structural design including the minimum required strength  $f'c = 5,000$  psi..
- F. Concrete Admixtures
1. The high range water reducer admixture shall conform to ASTM C 494, Type F.
  2. The shrinkage reducing admixture shall conform to ASTM C 494, Type S.
  3. Air entraining admixtures shall conform to ASTM C 260.
  4. All admixtures shall be compatible and have a single manufacturer.

5. Admixtures shall be used only as recommended by the manufacturer and to deliver the specified strength at 28 day. New, unknown, or experimental admixtures are not allowed.
6. Chloride containing admixtures shall not be used.
7. Admixtures formulated to accelerate time of setting shall not be used.

## 2.6 PROCEDURES

### A. General:

1. Freshly placed concrete shall be protected from wash caused by rain and flowing water.
2. The slab shall be protected against drying immediately after finishing with a layer of plastic sheet membrane conforming to ASTM C 171 for the entire duration of curing.
3. The slab shall be cured for fourteen (14) days using two layers of water saturated burlap and a layer of plastic sheet membrane. During the 10 days of curing the burlap shall be kept water saturated at all times.
4. The slab shall be subjected to natural drying for a minimum of two (2) days prior to the operation of the waste transfer station.

### B. Mixing and Delivery

1. The concrete mixture shall have 6 to 8 inch slump measured according to ASTM C 143.
2. All concrete batches shall be consistent, produced using the same materials and the same processing methods. All mixtures shall have a uniform distribution of the materials throughout the mass and shall be uniform in color.
3. Ready mixed concrete shall conform to ASTM C 94.
4. No additional water shall be added to the mixture at the time of placing or finishing.
5. The Contractor's third party testing consultant shall document and report the slump and air content measurements.

### C. Placing

1. The concrete shall be placed starting from one end of the slab and progressively placed in longitudinal direction until the completion at the other end without the formation of cold joints. Control (contraction/expansion) joints shall be placed during the placement of the concrete. Concrete placement shall start from far end of the slab and proceed toward the concrete supply source. The concrete shall be placed as close as possible to its final location.
2. The concrete shall be properly vibrated and consolidated. Excessive vibration that results in aggregate segregation shall be avoided. Vibrators shall not be used to move the mixture in horizontal direction.
3. During the placement, concrete shall be protected against drying. The effective use of methods such as foggers or protecting the mixture against drying using plastic sheets is acceptable.

### D. Finishing

1. Slab floor:
  - a. Bullfloating or darbying shall be used immediately after strikeoff and shall be completed before bleed-water accumulates on the surface to obtain flat surface with the specified slope. Aluminum or magnesium alloy bullfloat or darby tools shall be used.
  - b. The bleed-water shall not be worked into the concrete. The bleed-water shall evaporate naturally without accelerating the evaporation rate.

- c. After bleed-water sheen evaporates and concrete has enough strength, the concrete shall be floated using hand float or machine float (power float). If hand floating is used, magnesium alloy tools shall be used. The drying of the surface moisture before troweling must proceed naturally and must not be hastened by sacking or dusting on of dry sand and cement.
    - d. The slab shall receive steel trowel finish. Steel trowel shall be used to produce a smooth surface free from defects. A second steel troweling shall be done producing a plane, hard, dense, finished surface.
    - e. Chemical surface hardeners shall not be used.
- E. Curing
  - 1. Curing Materials
    - a. The water used for curing shall be fresh, clean, potable and free from oil, acid, alkali, organic matter, and deleterious amounts of chloride ion.
    - b. Sheet materials shall conform to ASTM C 171.
    - c. Burlap cloth made from jute, kenaf, or cotton mats conforming to AASHTO M 182 shall be used.
- F. Joints
  - 1. Construction Joints:
    - a. Construction joints will not be permitted except as may be shown on the drawings and on the contractor's approved placement schedule.
    - b. If construction joints are not shown on the drawings and are necessary for the progress of the work shall be shown in complete detail and approved by engineer.
  - 2. Contraction/Expansion Joints (Control Joints)
    - a. Control joints shall be placed during the placement of the concrete slab.
    - b. The control joints shall extend through the entire depth and length of the slab.
    - c. The control joints shall be 0.8 in. wide and filled with sealant.
    - d. The maximum spacing between control joints shall not exceed 12 feet.

## 2.7 FABRICATING REINFORCEMENT

- A. Fabricate steel reinforcement according to CRSI's "Manual of Standard Practice."

## PART 3 - EXECUTION

### 3.1 FORMWORK INSTALLATION

- A. Design, erect, shore, brace, and maintain formwork, according to ACI 301 (ACI 301M), to support vertical, lateral, static, and dynamic loads, and construction loads that might be applied, until structure can support such loads.
- B. Construct formwork so concrete members and structures are of size, shape, alignment, elevation, and position indicated, within tolerance limits of ACI 117 (ACI 117M).
- C. Limit concrete surface irregularities, designated by ACI 347 as abrupt or gradual, as follows:
  - 1. Class A, 1/8 inch for smooth-formed finished surfaces.

- D. Construct forms tight enough to prevent loss of concrete mortar.
- E. Construct forms for easy removal without hammering or prying against concrete surfaces. Provide crush or wrecking plates where stripping may damage cast-concrete surfaces. Provide top forms for inclined surfaces steeper than 1.5 horizontal to 1 vertical.
  - 1. Install keyways, reglets, recesses, and the like, for easy removal.
  - 2. Do not use rust-stained steel form-facing material.
- F. Set edge forms, bulkheads, and intermediate screed strips for slabs to achieve required elevations and slopes in finished concrete surfaces. Provide and secure units to support screed strips; use strike-off templates or compacting-type screeds.
- G. Provide temporary openings for cleanouts and inspection ports where interior area of formwork is inaccessible. Close openings with panels tightly fitted to forms and securely braced to prevent loss of concrete mortar. Locate temporary openings in forms at inconspicuous locations.
- H. Chamfer exterior corners and edges of permanently exposed concrete.
- I. Form openings, chases, offsets, sinkages, keyways, reglets, blocking, screeds, and bulkheads required in the Work. Determine sizes and locations from trades providing such items.
- J. Clean forms and adjacent surfaces to receive concrete. Remove chips, wood, sawdust, dirt, and other debris just before placing concrete.
- K. Retighten forms and bracing before placing concrete, as required, to prevent mortar leaks and maintain proper alignment.
- L. Coat contact surfaces of forms with form-release agent, according to manufacturer's written instructions, before placing reinforcement.

### 3.2 EMBEDDED ITEM INSTALLATION

- A. Place and secure anchorage devices and other embedded items required for adjoining work that is attached to or supported by cast-in-place concrete. Use setting drawings, templates, diagrams, instructions, and directions furnished with items to be embedded.
  - 1. Install anchor rods, accurately located, to elevations required and complying with tolerances in Section 7.5 of AISC 303.
  - 2. Install reglets to receive waterproofing and to receive through-wall flashings in outer face of concrete frame at exterior walls, where flashing is shown at lintels, shelf angles, and other conditions.
  - 3. Install dovetail anchor slots in concrete structures as indicated.

### 3.3 REMOVING AND REUSING FORMS

- A. General: Formwork for sides of beams, walls, columns, and similar parts of the Work that does not support weight of concrete may be removed after cumulatively curing at not less than 50 deg F (10 deg C) for 24 hours after placing concrete. Concrete has to be hard enough to not be

damaged by form-removal operations, and curing and protection operations need to be maintained.

1. Leave formwork for beam soffits, joists, slabs, and other structural elements that support weight of concrete in place until concrete has achieved[ **at least 70 percent of**] its 28-day design compressive strength.
  2. Remove forms only if shores have been arranged to permit removal of forms without loosening or disturbing shores.
- B. Clean and repair surfaces of forms to be reused in the Work. Split, frayed, delaminated, or otherwise damaged form-facing material are not acceptable for exposed surfaces. Apply new form-release agent.
- C. When forms are reused, clean surfaces, remove fins and laitance, and tighten to close joints. Align and secure joints to avoid offsets. Do not use patched forms for exposed concrete surfaces unless approved by Architect.

### 3.4 STEEL REINFORCEMENT INSTALLATION

- A. General: Comply with CRSI's "Manual of Standard Practice" for fabricating, placing, and supporting reinforcement.
1. Do not cut or puncture vapor retarder. Repair damage and reseal vapor retarder before placing concrete.
- B. Clean reinforcement of loose rust and mill scale, earth, ice, and other foreign materials that reduce bond to concrete.
- C. Accurately position, support, and secure reinforcement against displacement. Locate and support reinforcement with bar supports to maintain minimum concrete cover. Do not tack weld crossing reinforcing bars.
1. Weld reinforcing bars according to AWS D1.4/D 1.4M, where indicated.
- D. Set wire ties with ends directed into concrete, not toward exposed concrete surfaces.
- E. Install welded-wire reinforcement in longest practicable lengths on bar supports spaced to minimize sagging. Lap edges and ends of adjoining sheets at least one mesh spacing. Offset laps of adjoining sheet widths to prevent continuous laps in either direction. Lace overlaps with wire.
- F. Epoxy-Coated Reinforcement: Repair cut and damaged epoxy coatings with epoxy repair coating according to ASTM D 3963/D 3963M. Use epoxy-coated steel wire ties to fasten epoxy-coated steel reinforcement.
- G. Zinc-Coated Reinforcement: Repair cut and damaged zinc coatings with zinc repair material according to ASTM A 780/A 780M. Use galvanized-steel wire ties to fasten zinc-coated steel reinforcement.

### 3.5 FORMED CONCRETE PLACEMENT

- A. Before placing concrete, verify that installation of formwork, reinforcement, and embedded items is complete and that required inspections are completed.
- B. Do not add water to concrete during delivery, at Project site, or during placement.
- C. Before test sampling and placing concrete, water may be added at Project site, subject to limitations of ACI 301.
  - 1. Do not add water to concrete after adding high-range water-reducing admixtures to mixture.
- D. Deposit concrete continuously in one layer or in horizontal layers of such thickness that no new concrete is placed on concrete that has hardened enough to cause seams or planes of weakness. If a section cannot be placed continuously, provide construction joints as indicated. Deposit concrete to avoid segregation.
  - 1. Deposit concrete in horizontal layers of depth not to exceed formwork design pressures and in a manner to avoid inclined construction joints.
  - 2. Consolidate placed concrete with mechanical vibrating equipment according to ACI 301.
  - 3. Do not use vibrators to transport concrete inside forms. Insert and withdraw vibrators vertically at uniformly spaced locations to rapidly penetrate placed layer and at least 6 inches begun to lose plasticity. At each insertion, limit duration of vibration to time necessary to consolidate concrete and complete embedment of reinforcement and other embedded items without causing mixture constituents to segregate.
- E. Deposit and consolidate concrete for floors and slabs in a continuous operation, within limits of construction joints, until placement of a panel or section is complete.
  - 1. Consolidate concrete during placement operations, so concrete is thoroughly worked around reinforcement and other embedded items and into corners.
  - 2. Maintain reinforcement in position on chairs during concrete placement.
  - 3. Screed slab surfaces with a straightedge and strike off to correct elevations.
  - 4. Slope surfaces uniformly to drains where required.
  - 5. Begin initial floating using bull floats or darbies to form a uniform and open-textured surface plane, before excess bleedwater appears on the surface. Do not further disturb slab surfaces before starting finishing operations.

### 3.6 FINISHING FORMED SURFACES

- A. Smooth-Formed Finish: As-cast concrete texture imparted by form-facing material, arranged in an orderly and symmetrical manner with a minimum of seams. Repair and patch tie holes and defects. Remove fins and other projections that exceed specified limits on formed-surface irregularities.
- B. Related Unformed Surfaces: At tops of walls, horizontal offsets, and similar unformed surfaces adjacent to formed surfaces, strike off smooth and finish with a texture matching adjacent formed surfaces. Continue final surface treatment of formed surfaces uniformly across adjacent unformed surfaces unless otherwise indicated.

### 3.7 FINISHING FLOORS AND SLABS

- A. General: Comply with ACI 302.1R recommendations for screeding, restraighening, and finishing operations for concrete surfaces. Do not wet concrete surfaces.
- B. Float Finish: Consolidate surface with power-driven floats or by hand floating if area is small or inaccessible to power-driven floats. Restraighten, cut down high spots, and fill low spots. Repeat float passes and restraighening until surface is left with a uniform, smooth, granular texture.
- C. Trowel Finish: After applying float finish, apply first troweling and consolidate concrete by hand or power-driven trowel. Continue troweling passes and restraighten until surface is free of trowel marks and uniform in texture and appearance. Grind smooth any surface defects that would telegraph through applied coatings or floor coverings.
  - 1. Apply a trowel finish to slab surfaces.
  - 2. Finish surfaces to the following tolerances, according to ASTM E 1155, for a randomly trafficked floor surface:
    - a. Specified overall values of flatness, F(F) 35; and of levelness, F(L) 25; with minimum local values of flatness, F(F) 24; and of levelness, F(L) 17.
  - 3. Finish and measure surface, so gap at any point between concrete surface and an unlevelled, freestanding, 10-ft.- long straightedge resting on two high spots and placed anywhere on the surface does not exceed 3/16 inch.

### 3.8 MISCELLANEOUS CONCRETE ITEM INSTALLATION

- A. Filling In: Fill in holes and openings left in concrete structures after work of other trades is in place unless otherwise indicated. Mix, place, and cure concrete, as specified, to blend with in-place construction. Provide other miscellaneous concrete filling indicated or required to complete the Work.

### 3.9 CONCRETE PROTECTING AND CURING

- A. General: Protect freshly placed concrete from premature drying and excessive cold or hot temperatures. Comply with ACI 306.1 for cold-weather protection and ACI 301 (ACI 301M) for hot-weather protection during curing.
- B. Formed Surfaces: Cure formed concrete surfaces, including underside of beams, supported slabs, and other similar surfaces. If forms remain during curing period, moist cure after loosening forms. If removing forms before end of curing period, continue curing for remainder of curing period.
- C. Unformed Surfaces: Begin curing immediately after finishing concrete. Cure unformed surfaces, including floors and slabs, concrete floor toppings, and other surfaces.
- D. Cure concrete according to ACI 308.1, by one or a combination of the following methods:

1. Moisture Curing: Keep surfaces continuously moist for not less than seven days with the following materials:
  - a. Water.
  - b. Continuous water-fog spray.
  - c. Absorptive cover, water saturated, and kept continuously wet. Cover concrete surfaces and edges with 12-inch lap over adjacent absorptive covers.
2. Moisture-Retaining-Cover Curing: Cover concrete surfaces with moisture-retaining cover for curing concrete, placed in widest practicable width, with sides and ends lapped at least 12 inches, and sealed by waterproof tape or adhesive. Cure for not less than seven days. Immediately repair any holes or tears during curing period, using cover material and waterproof tape.
  - a. Moisture cure or use moisture-retaining covers to cure concrete surfaces to receive floor coverings.
  - b. Moisture cure or use moisture-retaining covers to cure concrete surfaces to receive penetrating liquid floor treatments.
  - c. Cure concrete surfaces to receive floor coverings with either a moisture-retaining cover or a curing compound that the manufacturer certifies does not interfere with bonding of floor covering used on Project.
3. Curing Compound: Apply uniformly in continuous operation by power spray or roller according to manufacturer's written instructions. Recoat areas subjected to heavy rainfall within three hours after initial application. Maintain continuity of coating and repair damage during curing period.
  - a. Removal: After curing period has elapsed, remove curing compound without damaging concrete surfaces by method recommended by curing compound manufacturer.
4. Curing and Sealing Compound: Apply uniformly to floors and slabs indicated in a continuous operation by power spray or roller according to manufacturer's written instructions. Recoat areas subjected to heavy rainfall within three hours after initial application. Repeat process 24 hours later and apply a second coat. Maintain continuity of coating and repair damage during curing period.

### 3.10 CONCRETE SURFACE REPAIRS

- A. Defective Concrete: Repair and patch defective areas when approved by Engineer. Remove and replace concrete that cannot be repaired and patched to Engineer's approval.
- B. Patching Mortar: Mix dry-pack patching mortar, consisting of 1 part portland cement to 2-1/2 parts fine aggregate passing a No. 16 sieve, using only enough water for handling and placing.
- C. Repairing Formed Surfaces: Surface defects include color and texture irregularities, cracks, spalls, air bubbles, honeycombs, rock pockets, fins and other projections on the surface, and stains and other discolorations that cannot be removed by cleaning.

1. Immediately after form removal, cut out honeycombs, rock pockets, and voids more than 1/2 inch in any dimension to solid concrete. Limit cut depth to 3/4 inch. Make edges of cuts perpendicular to concrete surface. Clean, dampen with water, and brush-coat holes and voids with bonding agent. Fill and compact with patching mortar before bonding agent has dried. Fill form-tie voids with patching mortar or cone plugs secured in place with bonding agent.
  2. Repair defects on surfaces exposed to view by blending white portland cement and standard portland cement so that, when dry, patching mortar matches surrounding color. Patch a test area at inconspicuous locations to verify mixture and color match before proceeding with patching. Compact mortar in place and strike off slightly higher than surrounding surface.
  3. Repair defects on concealed formed surfaces that affect concrete's durability and structural performance as determined by Architect.
- D. Repairing Unformed Surfaces: Test unformed surfaces, such as floors and slabs, for finish and verify surface tolerances specified for each surface. Correct low and high areas. Test surfaces sloped to drain for trueness of slope and smoothness; use a sloped template.
1. Repair finished surfaces containing defects. Surface defects include spalls, popouts, honeycombs, rock pockets, crazing and cracks in excess of 0.01 inch (0.25 mm) wide or that penetrate to reinforcement or completely through unreinforced sections regardless of width, and other objectionable conditions.
  2. After concrete has cured at least 14 days, correct high areas by grinding.
  3. Correct localized low areas during or immediately after completing surface finishing operations by cutting out low areas and replacing with patching mortar. Finish repaired areas to blend into adjacent concrete.
  4. Correct other low areas scheduled to receive floor coverings with a repair underlayment. Prepare, mix, and apply repair underlayment and primer according to manufacturer's written instructions to produce a smooth, uniform, plane, and level surface. Feather edges to match adjacent floor elevations.
  5. Correct other low areas scheduled to remain exposed with a repair topping. Cut out low areas to ensure a minimum repair topping depth of 1/4 inch (6 mm) to match adjacent floor elevations. Prepare, mix, and apply repair topping and primer according to manufacturer's written instructions to produce a smooth, uniform, plane, and level surface.
  6. Repair defective areas, except random cracks and single holes 1 inch (25 mm) or less in diameter, by cutting out and replacing with fresh concrete. Remove defective areas with clean, square cuts and expose steel reinforcement with at least a 3/4-inch (19-mm) clearance all around. Dampen concrete surfaces in contact with patching concrete and apply bonding agent. Mix patching concrete of same materials and mixture as original concrete, except without coarse aggregate. Place, compact, and finish to blend with adjacent finished concrete. Cure in same manner as adjacent concrete.
  7. Repair random cracks and single holes 1 inch (25 mm) or less in diameter with patching mortar. Groove top of cracks and cut out holes to sound concrete and clean off dust, dirt, and loose particles. Dampen cleaned concrete surfaces and apply bonding agent. Place patching mortar before bonding agent has dried. Compact patching mortar and finish to match adjacent concrete. Keep patched area continuously moist for at least 72 hours.
- E. Perform structural repairs of concrete, subject to Architect's approval, using epoxy adhesive and patching mortar.

- F. Repair materials and installation not specified above may be used, subject to Architect's approval.

### 3.11 FIELD QUALITY CONTROL

- A. Special Inspections: Contractor shall engage a third party qualified inspection and testing consultant to perform field tests and inspections and prepare test reports.
- B. Testing Agency: Engage a qualified testing and inspecting agency to perform tests and inspections and to submit reports.
- C. Inspections:
  - 1. Steel reinforcement placement.
  - 2. Steel reinforcement welding.
  - 3. Headed bolts and studs.
  - 4. Verification of use of required design mixture.
  - 5. Concrete placement, including conveying and depositing.
  - 6. Curing procedures and maintenance of curing temperature.
  - 7. Verification of concrete strength before removal of shores and forms from beams and slabs.
- D. Concrete Tests: Testing of composite samples of fresh concrete obtained according to ASTM C 172/C 172M shall be performed according to the following requirements:
  - 1. Testing Frequency: Obtain one composite sample for each day's pour of each concrete mixture exceeding 5 cu. yd. (4 cu. m), but less than 25 cu. yd. (19 cu. m), plus one set for each additional 50 cu. yd. (38 cu. m) or fraction thereof.
  - 2. Testing Frequency: Obtain at least one composite sample for each 100 cu. yd. (76 cu. m) or fraction thereof of each concrete mixture placed each day.
    - a. When frequency of testing provides fewer than five compressive-strength tests for each concrete mixture, testing shall be conducted from at least five randomly selected batches or from each batch if fewer than five are used.
  - 3. Slump: ASTM C 143/C 143M; one test at point of placement for each composite sample, but not less than one test for each day's pour of each concrete mixture. Perform additional tests when concrete consistency appears to change.
  - 4. Air Content: ASTM C 231/C 231M, pressure method, for normal-weight concrete; one test for each composite sample, but not less than one test for each day's pour of each concrete mixture.
  - 5. Concrete Temperature: ASTM C 1064/C 1064M; one test hourly when air temperature is 40 deg F (4.4 deg C) and below or 80 deg F (27 deg C) and above, and one test for each composite sample.
  - 6. Unit Weight: ASTM C 567/C 567M, fresh unit weight of structural lightweight concrete; one test for each composite sample, but not less than one test for each day's pour of each concrete mixture.
  - 7. Compression Test Specimens: ASTM C 31/C 31M.

- a. Cast and laboratory cure two sets of two standard cylinder specimens for each composite sample.
  - b. Cast and field cure two sets of two standard cylinder specimens for each composite sample.
8. Compressive-Strength Tests: ASTM C 39/C 39M; test one set of two laboratory-cured specimens at 7 days and one set of two specimens at 28 days.
- a. Test one set of two field-cured specimens at 7 days and one set of two specimens at 28 days.
  - b. A compressive-strength test shall be the average compressive strength from a set of two specimens obtained from same composite sample and tested at age indicated.
9. When strength of field-cured cylinders is less than 85 percent of companion laboratory-cured cylinders, Contractor shall evaluate operations and provide corrective procedures for protecting and curing in-place concrete.
10. Strength of each concrete mixture will be satisfactory if every average of any three consecutive compressive-strength tests equals or exceeds specified compressive strength and no compressive-strength test value falls below specified compressive strength by more than 500 psi (3.4 MPa).
11. Test results shall be reported in writing to Architect, concrete manufacturer, and Contractor within 48 hours of testing. Reports of compressive-strength tests shall contain Project identification name and number, date of concrete placement, name of concrete testing and inspecting agency, location of concrete batch in Work, design compressive strength at 28 days, concrete mixture proportions and materials, compressive breaking strength, and type of break for both 7- and 28-day tests.
12. Nondestructive Testing: Impact hammer, sonoscope, or other nondestructive device may be permitted by Architect but will not be used as sole basis for approval or rejection of concrete.
13. Additional Tests: Testing and inspecting agency shall make additional tests of concrete when test results indicate that slump, air entrainment, compressive strengths, or other requirements have not been met, as directed by Architect. Testing and inspecting agency may conduct tests to determine adequacy of concrete by cored cylinders complying with ASTM C 42/C 42M or by other methods as directed by Architect.
14. Additional testing and inspecting, at Contractor's expense, will be performed to determine compliance of replaced or additional work with specified requirements.
15. Correct deficiencies in the Work that test reports and inspections indicate do not comply with the Contract Documents.
- E. Measure floor and slab flatness and levelness according to ASTM E 1155 (ASTM E 1155M) within 24 hours of finishing.

END OF SECTION 033000

## SECTION 051200 - STRUCTURAL STEEL FRAMING

## PART 1 - GENERAL

## 1.1 RELATED DOCUMENTS

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

## 1.2 SUMMARY

- A. Section Includes:
  - 1. Structural steel.
  - 2. Prefabricated building columns.
  - 3. Field-installed shear connectors and solid rod bracing.
  - 4. Grout.

## 1.3 DEFINITIONS

- A. Structural Steel: Elements of the structural frame indicated on Drawings and as described in AISC 303, "Code of Standard Practice for Steel Buildings and Bridges."

## 1.4 COORDINATION

- A. Coordinate installation of anchorage items to be embedded in or attached to other construction without delaying the Work. Provide setting diagrams, sheet metal templates, instructions, and directions for installation.

## 1.5 PREINSTALLATION MEETINGS

- A. Preinstallation Conference: Conduct conference at the project site with the Owner and Engineer related to the schedule and installation of the hopper lip assembly.

## 1.6 ACTION SUBMITTALS

- A. Product Data: For each type of product.
- B. Shop Drawings: Show fabrication of structural-steel components.
  - 1. Include details of cuts, connections, splices, camber, holes, and other pertinent data.
  - 2. Include embedment Drawings.

3. Indicate welds by standard AWS symbols, distinguishing between shop and field welds, and show size, length, and type of each weld. Show backing bars that are to be removed and supplemental fillet welds where backing bars are to remain.
  4. Indicate type, size, and length of bolts, distinguishing between shop and field bolts. Identify pretensioned and slip-critical, high-strength bolted connections.
  5. Identify members and connections of the Seismic-Load-Resisting System.
  6. Indicate locations and dimensions of protected zones.
  7. Identify demand critical welds.
- C. Welding Procedure Specifications (WPSs) and Procedure Qualification Records (PQRs): Provide according to AWS D1.1/D1.1M, "Structural Welding Code - Steel," for each welded joint whether prequalified or qualified by testing, including the following:
1. Power source (constant current or constant voltage).
  2. Electrode manufacturer and trade name, for demand critical welds.

## 1.7 INFORMATIONAL SUBMITTALS

- A. Welding certificates.
- B. Paint Compatibility Certificates: From manufacturers of topcoats applied over shop primers, certifying that shop primers are compatible with topcoats.
- C. Mill test reports for structural steel, including chemical and physical properties.
- D. Product Test Reports: For the following:
  1. Bolts, nuts, and washers including mechanical properties and chemical analysis.
  2. Direct-tension indicators.
  3. Tension-control, high-strength, bolt-nut-washer assemblies.
  4. Shear stud connectors.
  5. Shop primers.
  6. Nonshrink grout.
- E. Survey of existing conditions.
- F. Source quality-control reports.
- G. Field quality-control reports.

## 1.8 QUALITY ASSURANCE

- A. Fabricator Qualifications: A qualified fabricator that participates in the AISC Quality Certification Program and is designated an AISC-Certified Plant, Category STD, or is accredited by the IAS Fabricator Inspection Program for Structural Steel (AC 172).
- B. Shop-Painting Applicators: Qualified according to AISC's Sophisticated Paint or to SSPC-QP 3, "Standard Procedure for Evaluating Qualifications of Shop Painting Applicators."

- C. Welding Qualifications: Qualify procedures and personnel according to AWS D1.1/D1.1M, "Structural Welding Code - Steel."
  - 1. Welders and welding operators performing work on bottom-flange, demand-critical welds shall pass the supplemental welder qualification testing, as required by AWS D1.8/D1.8M. FCAW-S and FCAW-G shall be considered separate processes for welding personnel qualification.
- D. Comply with applicable provisions of the following specifications and documents:
  - 1. AISC 303.
  - 2. AISC 341 and AISC 341s1.
  - 3. AISC 360.
  - 4. RCSC's "Specification for Structural Joints Using ASTM A 325 or A 490 Bolts."

## 1.9 DELIVERY, STORAGE, AND HANDLING

- A. Store materials to permit easy access for inspection and identification. Keep steel members off ground and spaced by using pallets, dunnage, or other supports and spacers. Protect steel members and packaged materials from corrosion and deterioration.
  - 1. Do not store materials on structure in a manner that might cause distortion, damage, or overload to members or supporting structures. Repair or replace damaged materials or structures as directed.
- B. Store fasteners in a protected place in sealed containers with manufacturer's labels intact.
  - 1. Fasteners may be repackaged provided Owner's testing and inspecting agency observes repackaging and seals containers.
  - 2. Clean and relubricate bolts and nuts that become dry or rusty before use.
  - 3. Comply with manufacturers' written recommendations for cleaning and lubricating ASTM F 1852 fasteners and for retesting fasteners after lubrication.

## PART 2 - PRODUCTS

### 2.1 STRUCTURAL-STEEL MATERIALS

- A. W-Shapes: ASTM A 36, Grade 50.
- B. Channels, Angles: ASTM A 36, Grade 50.
- C. Plate and Bar: ASTM A 36, Grade 50.
- D. Corrosion-Resisting Structural-Steel Shapes, Plates, and Bars: ASTM A 588/A 588M, Grade 50.
- E. Steel Castings: ASTM A 216/A 216M, Grade WCB with supplementary requirement S11.
- F. Steel Forgings: ASTM A 668/A 668M.

- G. Welding Electrodes: Comply with AWS requirements.

## 2.2 BOLTS, CONNECTORS, AND ANCHORS

- A. Zinc-Coated High-Strength Bolts, Nuts, and Washers: ASTM A 325, Type 1, heavy-hex steel structural bolts; ASTM A 563, Grade DH heavy-hex carbon-steel nuts; and ASTM F 436, Type 1, hardened carbon-steel washers.
  - 1. Finish: Hot-dip or mechanically deposited zinc coating.
  - 2. Direct-Tension Indicators: ASTM F 959, Type 325, compressible-washer type with mechanically deposited zinc coating finish.
- B. Tension-Control, High-Strength Bolt-Nut-Washer Assemblies: ASTM F 1852, Type 1, heavy-hex head assemblies consisting of steel structural bolts with splined ends, heavy-hex carbon-steel nuts, and hardened carbon-steel washers.
  - 1. Finish: Mechanically deposited zinc coating.
- C. Shear Connectors: ASTM A 108, Grades 1015 through 1020, headed-stud type, cold-finished carbon steel; AWS D1.1/D1.1M, Type B.
- D. Unheaded Anchor Rods: ASTM F 1554, Grade 55, weldable, or ASTM A 36, Grade 50.
  - 1. Configuration: straight.
  - 2. Nuts: ASTM A 563 heavy-hex carbon steel.
  - 3. Plate Washers: ASTM A 36/A 36M carbon steel.
  - 4. Washers: ASTM F 436, Type 1, hardened carbon steel.
  - 5. Finish: Hot-dip zinc coating, ASTM A 153/A 153M, Class C
- E. Headed Anchor Rods: ASTM F 1554, Grade 55, weldable, straight.
  - 1. Nuts: ASTM A 563 heavy-hex carbon steel.
  - 2. Plate Washers: ASTM A 36/A 36M carbon steel.
  - 3. Washers: ASTM F 436, Type 1, hardened carbon steel.
  - 4. Finish: Hot-dip zinc coating, ASTM A 153/A 153M, Class C.
- F. Threaded Rods: ASTM A 36, Grade 50.
  - 1. Nuts: ASTM A 563 heavy-hex carbon steel.
  - 2. Washers: ASTM A 36/A 36M carbon steel.
  - 3. Finish: Hot-dip zinc coating, ASTM A 153/A 153M, Class C or Mechanically deposited zinc coating, ASTM B 695, Class 50.
- G. Clevises and Turnbuckles: Made from cold-finished carbon steel bars, ASTM A 108, Grade 1035.
- H. Eye Bolts and Nuts: Made from cold-finished carbon steel bars, ASTM A 108, Grade 1030.
- I. Sleeve Nuts: Made from cold-finished carbon steel bars, ASTM A 108, Grade 1018.

### 2.3 PRIMER

- A. Primer: Comply with Section 099600 "High-Performance Coatings."
- B. Primer: SSPC-Paint 25, Type I or Type II, zinc oxide, alkyd, linseed oil primer.
- C. Primer: SSPC-Paint 25 BCS, Type I or Type II, zinc oxide, alkyd, linseed oil primer.
- D. Primer: SSPC-Paint 23, latex primer.
- E. Primer: Fabricator's standard lead- and chromate-free, nonasphaltic, rust-inhibiting primer complying with MPI#79 and compatible with topcoat.
- F. Galvanizing Repair Paint: MPI#18, MPI#19, or SSPC-Paint 20.

### 2.4 GROUT

- A. Metallic, Shrinkage-Resistant Grout: ASTM C 1107/C 1107M, factory-packaged, metallic aggregate grout, mixed with water to consistency suitable for application and a 30-minute working time.
- B. Nonmetallic, Shrinkage-Resistant Grout: ASTM C 1107/C 1107M, factory-packaged, nonmetallic aggregate grout, noncorrosive and nonstaining, mixed with water to consistency suitable for application and a 30-minute working time.

### 2.5 FABRICATION

- A. Structural Steel: Fabricate and assemble in shop to greatest extent possible. Fabricate according to AISC 303, "Code of Standard Practice for Steel Buildings and Bridges," and to AISC 360.
  - 1. Camber structural-steel members where indicated.
  - 2. Fabricate beams with rolling camber up.
  - 3. Identify high-strength structural steel according to ASTM A 6/A 6M and maintain markings until structural steel has been erected.
  - 4. Mark and match-mark materials for field assembly.
  - 5. Complete structural-steel assemblies, including welding of units, before starting shop-priming operations.
- B. Thermal Cutting: Perform thermal cutting by machine to greatest extent possible.
  - 1. Plane thermally cut edges to be welded to comply with requirements in AWS D1.1/D1.1M.
- C. Bolt Holes: Cut, drill, mechanically thermal cut standard bolt holes perpendicular to metal surfaces.
- D. Finishing: Accurately finish ends of columns and other members transmitting bearing loads.
- E. Cleaning: Clean and prepare steel surfaces that are to remain unpainted according to SSPC-SP 2, "Hand Tool Cleaning" or SSPC-SP 3, "Power Tool Cleaning."

- F. Shear Connectors: Prepare steel surfaces as recommended by manufacturer of shear connectors. Use automatic end welding of headed-stud shear connectors according to AWS D1.1/D1.1M and manufacturer's written instructions.
- G. Holes: Provide holes required for securing other work to structural steel and for other work to pass through steel members.
  - 1. Cut, drill, or punch holes perpendicular to steel surfaces.
  - 2. Baseplate Holes: Cut, drill, mechanically thermal cut, or punch holes perpendicular to steel surfaces.
  - 3. Weld threaded nuts to framing and other specialty items indicated to receive other work.

## 2.6 SHOP CONNECTIONS

- A. High-Strength Bolts: Shop install high-strength bolts according to RCSC's "Specification for Structural Joints Using ASTM A 325 or A 490 Bolts" for type of bolt and type of joint specified.
  - 1. Joint Type: Snug tightened.
- B. Weld Connections: Comply with AWS D1.1/D1.1M and AWS D1.8/D1.8M for tolerances, appearances, welding procedure specifications, weld quality, and methods used in correcting welding work.
  - 1. Assemble and weld built-up sections by methods that maintain true alignment of axes without exceeding tolerances in AISC 303 for mill material.

## 2.7 SHOP PRIMING

- A. Shop prime steel surfaces except the following:
  - 1. Surfaces embedded in concrete or mortar. Extend priming of partially embedded members to a depth of 2 inches (50 mm).
  - 2. Surfaces to be field welded.
  - 3. Surfaces of high-strength bolted, slip-critical connections.
  - 4. Surfaces to receive sprayed fire-resistive materials (applied fireproofing).
  - 5. Galvanized surfaces.
  - 6. Surfaces enclosed in interior construction.
- B. Surface Preparation: Clean surfaces to be painted. Remove loose rust and mill scale and spatter, slag, or flux deposits. Prepare surfaces according to the following specifications and standards:
  - 1. SSPC-SP 2, "Hand Tool Cleaning."
  - 2. SSPC-SP 3, "Power Tool Cleaning."
  - 3. SSPC-SP 7/NACE No. 4, "Brush-off Blast Cleaning."
  - 4. SSPC-SP 11, "Power Tool Cleaning to Bare Metal."
  - 5. SSPC-SP 14/NACE No. 8, "Industrial Blast Cleaning."
  - 6. SSPC-SP 6/NACE No. 3, "Commercial Blast Cleaning."
  - 7. SSPC-SP 10/NACE No. 2, "Near-White Blast Cleaning."

8. SSPC-SP 5/NACE No. 1, "White Metal Blast Cleaning."
  9. SSPC-SP 8, "Pickling."
- C. Priming: Immediately after surface preparation, apply primer according to manufacturer's written instructions and at rate recommended by SSPC to provide a minimum dry film thickness of 1.5 mils (0.038 mm). Use priming methods that result in full coverage of joints, corners, edges, and exposed surfaces.
1. Stripe paint corners, crevices, bolts, welds, and sharp edges.
  2. Apply two coats of shop paint to surfaces that are inaccessible after assembly or erection. Change color of second coat to distinguish it from first.
- D. Painting: Prepare steel and apply a one-coat, nonasphaltic primer complying with SSPC-PS Guide 7.00, "Painting System Guide 7.00: Guide for Selecting One-Coat Shop Painting Systems," to provide a dry film thickness of not less than 1.5 mils (0.038 mm).

## 2.8 GALVANIZING

- A. Hot-Dip Galvanized Finish: Apply zinc coating by the hot-dip process to structural steel according to ASTM A 123/A 123M.
1. Fill vent and drain holes that are exposed in the finished Work unless they function as weep holes, by plugging with zinc solder and filing off smooth.
  2. Galvanize all structural steel if not coated otherwise by shop fabricator.

## 2.9 SOURCE QUALITY CONTROL

- A. Testing Agency: Engage a qualified testing agency to perform shop tests and inspections.
1. Provide testing agency with access to places where structural-steel work is being fabricated or produced to perform tests and inspections.
- B. Bolted Connections: Inspect shop-bolted connections according to RCSC's "Specification for Structural Joints Using ASTM A 325 or A 490 Bolts."
- C. Welded Connections: Visually inspect shop-welded connections according to AWS D1.1/D1.1M and the following inspection procedures, at testing agency's option:
1. Liquid Penetrant Inspection: ASTM E 165.
  2. Magnetic Particle Inspection: ASTM E 709; performed on root pass and on finished weld. Cracks or zones of incomplete fusion or penetration are not accepted.
  3. Ultrasonic Inspection: ASTM E 164.
  4. Radiographic Inspection: ASTM E 94.
- D. In addition to visual inspection, test and inspect shop-welded shear connectors according to requirements in AWS D1.1/D1.1M for stud welding and as follows:
1. Perform bend tests if visual inspections reveal either a less-than-continuous 360-degree flash or welding repairs to any shear connector.

2. Conduct tests according to requirements in AWS D1.1/D1.1M on additional shear connectors if weld fracture occurs on shear connectors already tested.
- E. Prepare test and inspection reports.

### PART 3 - EXECUTION

#### 3.1 EXAMINATION

- A. Verify, with certified steel erector present, elevations of concrete- and masonry-bearing surfaces and locations of anchor rods, bearing plates, and other embedments for compliance with requirements.
1. Prepare a certified survey of existing conditions. Include bearing surfaces, anchor rods, bearing plates, and other embedments showing dimensions, locations, angles, and elevations.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

#### 3.2 PREPARATION

- A. Provide temporary shores, guys, braces, and other supports during erection to keep structural steel secure, plumb, and in alignment against temporary construction loads and loads equal in intensity to design loads. Remove temporary supports when permanent structural steel, connections, and bracing are in place unless otherwise indicated.
1. Do not remove temporary shoring supporting composite deck construction until cast-in-place concrete has attained its design compressive strength.

#### 3.3 ERECTION

- A. Set structural steel accurately in locations and to elevations indicated and according to AISC 303 and AISC 360.
- B. Maintain erection tolerances of structural steel within AISC 303, "Code of Standard Practice for Steel Buildings and Bridges."
- C. Align and adjust various members that form part of complete frame or structure before permanently fastening. Before assembly, clean bearing surfaces and other surfaces that are in permanent contact with members. Perform necessary adjustments to compensate for discrepancies in elevations and alignment.
1. Level and plumb individual members of structure.
  2. Make allowances for difference between temperature at time of erection and mean temperature when structure is completed and in service.
- D. Splice members only where indicated.

- E. Do not use thermal cutting during erection.
- F. Do not enlarge unfair holes in members by burning or using drift pins. Ream holes that must be enlarged to admit bolts.
- G. Shear Connectors: Prepare steel surfaces as recommended by manufacturer of shear connectors. Use automatic end welding of headed-stud shear connectors according to AWS D1.1/D1.1M and manufacturer's written instructions.

### 3.4 FIELD CONNECTIONS

- A. High-Strength Bolts: Install high-strength bolts according to RCSC's "Specification for Structural Joints Using ASTM A 325 or A 490 Bolts" for type of bolt and type of joint specified.
  - 1. Joint Type: Snug tightened.
- B. Weld Connections: Comply with AWS D1.1/D1.1M and AWS D1.8/D1.8M for tolerances, appearances, welding procedure specifications, weld quality, and methods used in correcting welding work.
  - 1. Comply with AISC 303 and AISC 360 for bearing, alignment, adequacy of temporary connections, and removal of paint on surfaces adjacent to field welds.
  - 2. Remove backing bars or runoff tabs, back gouge, and grind steel smooth.
  - 3. Assemble and weld built-up sections by methods that maintain true alignment of axes without exceeding tolerances in AISC 303, "Code of Standard Practice for Steel Buildings and Bridges," for mill material.

### 3.5 PREFABRICATED BUILDING COLUMNS

- A. Install prefabricated building columns to comply with AISC 360, manufacturer's written recommendations, and requirements of testing and inspecting agency that apply to the fire-resistance rating indicated.

### 3.6 FIELD QUALITY CONTROL

- A. Special Inspections: Engage a qualified special inspector to perform the following special inspections:
  - 1. Verify structural-steel materials and inspect steel frame joint details.
  - 2. Verify weld materials and inspect welds.
  - 3. Verify connection materials and inspect high-strength bolted connections.
- B. Testing Agency: Engage a qualified testing agency to perform tests and inspections.
- C. Bolted Connections: Inspect bolted connections according to RCSC's "Specification for Structural Joints Using ASTM A 325 or A 490 Bolts."
- D. Welded Connections: Visually inspect field welds according to AWS D1.1/D1.1M.

1. In addition to visual inspection, test and inspect field welds according to AWS D1.1/D1.1M and the following inspection procedures, at testing agency's option:
  - a. Liquid Penetrant Inspection: ASTM E 165.
  - b. Magnetic Particle Inspection: ASTM E 709; performed on root pass and on finished weld. Cracks or zones of incomplete fusion or penetration are not accepted.
  - c. Ultrasonic Inspection: ASTM E 164.
  - d. Radiographic Inspection: ASTM E 94.
- E. In addition to visual inspection, test and inspect field-welded shear connectors according to requirements in AWS D1.1/D1.1M for stud welding and as follows:
  1. Perform bend tests if visual inspections reveal either a less-than-continuous 360-degree flash or welding repairs to any shear connector.
  2. Conduct tests according to requirements in AWS D1.1/D1.1M on additional shear connectors if weld fracture occurs on shear connectors already tested.

### 3.7 REPAIRS AND PROTECTION

- A. Galvanized Surfaces: Clean areas where galvanizing is damaged or missing and repair galvanizing to comply with ASTM A 780/A 780M.
- B. Touchup Painting: Immediately after erection, clean exposed areas where primer is damaged or missing and paint with the same material as used for shop painting to comply with SSPC-PA 1 for touching up shop-painted surfaces.
  1. Clean and prepare surfaces by SSPC-SP 2 hand-tool cleaning or SSPC-SP 3 power-tool cleaning.
- C. Touchup Painting: Cleaning and touchup painting are specified in Section 099113 "Exterior Painting" and Section 099123 "Interior Painting."
- D. Touchup Priming: Cleaning and touchup priming are specified in Section 099600 "High-Performance Coatings."

END OF SECTION 051200

## SECTION 054000 - COLD-FORMED METAL FRAMING

## PART 1 - GENERAL

## 1.1 RELATED DOCUMENTS

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

## 1.2 SUMMARY

## A. Section Includes:

1. Load-bearing wall framing.
2. Exterior non-load-bearing wall framing.
3. Interior non-load-bearing wall framing exceeding height limitations of standard, nonstructural metal framing.
4. Floor joist framing.
5. Roof rafter framing.
6. Ceiling joist framing.
7. Soffit framing.

## B. Related Requirements:

1. Section 055000 "Metal Fabrications" for miscellaneous steel shapes, masonry shelf angles, and connections used with cold-formed metal framing.

## 1.3 ACTION SUBMITTALS

- A. Product Data: For each type of product.
- B. Delegated-Design Submittal: For cold-formed steel framing.

## 1.4 INFORMATIONAL SUBMITTALS

- A. Product Test Reports: For each listed product, for tests performed by manufacturer and witnessed by a qualified testing agency.
  1. Steel sheet.
  2. Expansion anchors.
  3. Power-actuated anchors.
  4. Mechanical fasteners.
  5. Vertical deflection clips.
  6. Horizontal drift deflection clips
  7. Miscellaneous structural clips and accessories.

- B. Evaluation Reports: For nonstandard cold-formed steel framing post-installed anchors and power-actuated fasteners, from ICC-ES or other qualified testing agency acceptable to authorities having jurisdiction.

## 1.5 QUALITY ASSURANCE

- A. Testing Agency Qualifications: Qualified according to ASTM E 329 for testing indicated.
- B. Product Tests: Mill certificates or data from a qualified independent testing agency indicating steel sheet complies with requirements, including base-metal thickness, yield strength, tensile strength, total elongation, chemical requirements, and metallic-coating thickness.
- C. Code-Compliance Certification of Studs and Tracks: Provide documentation that framing members are certified according to the product-certification program of the Certified Steel Stud Association, the Steel Framing Industry Association, or the Steel Stud Manufacturers Association.
- D. Welding Qualifications: Qualify procedures and personnel according to the following:
  - 1. AWS D1.1/D1.1M, "Structural Welding Code - Steel."
  - 2. AWS D1.3/D1.3M, "Structural Welding Code - Sheet Steel."
- E. Comply with AISI S230 "Standard for Cold-Formed Steel Framing - Prescriptive Method for One and Two Family Dwellings."

## PART 2 - PRODUCTS

### 2.1 PERFORMANCE REQUIREMENTS

- A. Structural Performance: Provide cold-formed steel framing capable of withstanding design loads within limits and under conditions indicated.
  - 1. Deflection Limits: Design framing systems to withstand design loads without deflections greater than the following:
    - a. Exterior Load-Bearing Wall Framing: Horizontal deflection of 1/240 of the wall height.
    - b. Exterior Non-Load-Bearing Framing: Horizontal deflection of 1/240 of the wall height.
    - c. Roof Rafter Framing: Vertical deflection of 1/360 of the horizontally projected span for live loads.
    - d. Ceiling Joist Framing: Vertical deflection of 1/360 of the span for live loads and 1/240 for total loads of the span.
  - 2. Design exterior non-load-bearing wall framing to accommodate horizontal deflection without regard for contribution of sheathing materials.
- B. Cold-Formed Steel Framing Standards: Unless more stringent requirements are indicated, framing shall comply with AISI S100, AISI S200, and the following:

1. Floor and Roof Systems: AISI S210.
  2. Wall Studs: AISI S211.
  3. Headers: AISI S212.
  4. Lateral Design: AISI S213.
- C. Fire-Resistance Ratings: Comply with ASTM E 119; testing by a qualified testing agency. Identify products with appropriate markings of applicable testing agency.
1. Indicate design designations from UL's "Fire Resistance Directory" or from the listings of another qualified testing agency acceptable to authorities having jurisdiction.

## 2.2 COLD-FORMED STEEL FRAMING MATERIALS

- A. Steel Sheet: ASTM A 1003/A 1003M, Structural Grade, Type H, metallic coated, of grade and coating designation as follows:
1. Grade: ST33H.
  2. Coating: G60, or equivalent.

## 2.3 EXTERIOR NON-LOAD-BEARING WALL FRAMING

- A. Steel Studs: Manufacturer's standard C-shaped steel studs, of web depths indicated, punched, with stiffened flanges, and as follows:
1. Minimum Base-Metal Thickness: 0.0677 inch (1.72 mm).
  2. Section Properties: Equal to or greater than shape shown on the contract plans.
- B. Steel Track: Manufacturer's standard U-shaped steel track, of web depths indicated, unpunched, with unstiffened flanges, and as follows:
1. Minimum Base-Metal Thickness: 0.0677 inch (1.72 mm).
- C. Vertical Deflection Clips: Manufacturer's standard clips, capable of accommodating upward and downward vertical displacement of primary structure through positive mechanical attachment to stud web.
- D. Single Deflection Track: Manufacturer's single, deep-leg, U-shaped steel track; unpunched, with unstiffened flanges, of web depth to contain studs while allowing free vertical movement, with flanges designed to support horizontal loads and transfer them to the primary structure, and as follows:
1. Minimum Base-Metal Thickness: 0.0677 inch (1.72 mm).
- E. Drift Clips: Manufacturer's standard bypass or head clips, capable of isolating wall stud from upward and downward vertical displacement and lateral drift of primary structure through positive mechanical attachment to stud web and structure.

## 2.4 ROOF-RAFTER FRAMING

- A. Steel Rafters: Manufacturer's standard C-shaped steel sections, of web depths indicated, with stiffened flanges, and as follows:
1. Minimum Base-Metal Thickness: 0.0677 inch (1.72 mm).
  2. Flange Width: 2 inches minimum.
  3. Section Properties: Submit for approval by the Engineer.

## 2.5 CEILING JOIST FRAMING

- A. Steel Ceiling Joists: Manufacturer's standard C-shaped steel sections, of web depths indicated, with stiffened flanges, and as follows:
1. Minimum Base-Metal Thickness: 0.0677 inch (1.72 mm).
  2. Flange Width: 2 inches (51 mm).
  3. Section Properties: Submit for approval by the Engineer.

## 2.6 SOFFIT FRAMING

- A. Exterior Soffit Frame: Manufacturer's standard C-shaped steel sections, of web depths indicated, with stiffened flanges, and as follows:
1. Minimum Base-Metal Thickness: 0.0677 inch (1.72 mm)

## 2.7 FRAMING ACCESSORIES

- A. Fabricate steel-framing accessories from ASTM A 1003/A 1003M, Structural Grade, Type H, metallic coated steel sheet, of same grade and coating designation used for framing members.
- B. Provide accessories of manufacturer's standard thickness and configuration, unless otherwise indicated, as follows:
1. Supplementary framing.
  2. Bracing, bridging, and solid blocking.
  3. Web stiffeners.
  4. Anchor clips.
  5. End clips.
  6. Foundation clips.
  7. Gusset plates.
  8. Stud kickers and knee braces.
  9. Joist hangers and end closures.
  10. Hole-reinforcing plates.
  11. Backer plates.

## 2.8 ANCHORS, CLIPS, AND FASTENERS

- A. Steel Shapes and Clips: ASTM A 36/A 36M, zinc coated by hot-dip process according to ASTM A 123/A 123M.
- B. Anchor Bolts: ASTM F 1554, Grade 36, threaded carbon-steel hex-headed bolts, carbon-steel nuts, and flat, hardened-steel washers; zinc coated by hot-dip process according to ASTM A 153/A 153M, Class C or mechanically deposition according to ASTM B 695, Class 50.
- C. Mechanical Fasteners: ASTM C 1513, corrosion-resistant-coated, self-drilling, self-tapping, steel drill screws.
  - 1. Head Type: Low-profile head beneath sheathing; manufacturer's standard elsewhere.
- D. Welding Electrodes: Comply with AWS standards.

## 2.9 MISCELLANEOUS MATERIALS

- A. Galvanizing Repair Paint: ASTM A 780/A 780M, MIL-P-21035B, or SSPC-Paint 20.
- B. Cement Grout: Portland cement, ASTM C 150/C 150M, Type I; and clean, natural sand, ASTM C 404. Mix at ratio of 1 part cement to 2-1/2 parts sand, by volume, with minimum water required for placement and hydration.
- C. Nonmetallic, Nonshrink Grout: Factory-packaged, nonmetallic, noncorrosive, nonstaining grout, complying with ASTM C 1107/C 1107M, and with a fluid consistency and 30-minute working time.
- D. Shims: Load-bearing, high-density, multimonomer, nonleaching plastic; or cold-formed steel of same grade and metallic coating as framing members supported by shims.
- E. Sealer Gaskets: Closed-cell neoprene foam, 1/4 inch (6 mm) thick, selected from manufacturer's standard widths to match width of bottom track or rim track members as required.

## 2.10 FABRICATION

- A. Fabricate cold-formed steel framing and accessories plumb, square, and true to line, and with connections securely fastened, according to referenced AISI's specifications and standards, manufacturer's written instructions, and requirements in this Section.
  - 1. Fabricate framing assemblies using jigs or templates.
  - 2. Cut framing members by sawing or shearing; do not torch cut.
  - 3. Fasten cold-formed steel framing members by welding, screw fastening, clinch fastening, pneumatic pin fastening, or riveting as standard with fabricator. Wire tying of framing members is not permitted.
    - a. Comply with AWS D1.3/D1.3M requirements and procedures for welding, appearance and quality of welds, and methods used in correcting welding work.



- a. Comply with AWS D1.3/D1.3M requirements and procedures for welding, appearance and quality of welds, and methods used in correcting welding work.
  - b. Locate mechanical fasteners, install according to Shop Drawings, and comply with requirements for spacing, edge distances, and screw penetration.
- E. Install framing members in one-piece lengths unless splice connections are indicated for track or tension members.
- F. Install temporary bracing and supports to secure framing and support loads equal to those for which structure was designed. Maintain braces and supports in place, undisturbed, until entire integrated supporting structure has been completed and permanent connections to framing are secured.
- G. Do not bridge building expansion joints with cold-formed steel framing. Independently frame both sides of joints.
- H. Install insulation, specified in Section 072100 "Thermal Insulation," in framing-assembly members, such as headers, sills, boxed joists, and multiple studs at openings, that are inaccessible on completion of framing work.
- I. Fasten hole-reinforcing plate over web penetrations that exceed size of manufacturer's approved or standard punched openings.

### 3.3 EXTERIOR NON-LOAD-BEARING WALL INSTALLATION

- A. Install continuous tracks sized to match studs. Align tracks accurately and securely anchor to supporting structure.
- B. Set studs plumb, except as needed for diagonal bracing or required for nonplumb walls or warped surfaces and similar requirements.

### 3.4 FIELD QUALITY CONTROL

- A. Testing: Owner will engage a qualified independent testing and inspecting agency to perform field tests and inspections and prepare test reports.
- B. Field and shop welds will be subject to testing and inspecting.
- C. Testing agency will report test results promptly and in writing to Contractor and Architect.
- D. Cold-formed steel framing will be considered defective if it does not pass tests and inspections.
- E. Additional testing and inspecting, at Contractor's expense, will be performed to determine compliance of replaced or additional work with specified requirements.

### 3.5 REPAIRS AND PROTECTION

- A. Galvanizing Repairs: Prepare and repair damaged galvanized coatings on fabricated and installed cold-formed steel framing with galvanized repair paint according to ASTM A 780/A 780M and manufacturer's written instructions.
- B. Provide final protection and maintain conditions, in a manner acceptable to manufacturer and Installer, that ensure that cold-formed steel framing is without damage or deterioration at time of Substantial Completion.

END OF SECTION 054000

## SECTION 055000 - METAL FABRICATIONS

## PART 1 - GENERAL

## 1.1 RELATED DOCUMENTS

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

## 1.2 SUMMARY

## A. Section Includes:

- 1. Steel framing and supports for hopper lip assembly.

## B. Related Requirements:

- 1. Section 033000 "Cast-in-Place Concrete" for installing anchor bolts, steel pipe sleeves, slotted-channel inserts, wedge-type inserts, and other items cast into concrete.
- 2. Section 051200 "Structural Steel Framing."

## 1.3 COORDINATION

- A. Coordinate selection of shop primers with topcoats to be applied over them. Comply with paint and coating manufacturers' written recommendations to ensure that shop primers and topcoats are compatible with one another.
- B. Coordinate installation of metal fabrications that are anchored to or that receive other work. Furnish setting drawings, templates, and directions for installing anchorages, including sleeves, concrete inserts, anchor bolts, and items with integral anchors, that are to be embedded in concrete or masonry. Deliver such items to Project site in time for installation.

## 1.4 ACTION SUBMITTALS

## A. Product Data: For the following:

- 1. Paint products.

## B. Shop Drawings: Show fabrication and installation details. Include plans, elevations, sections, and details of metal fabrications and their connections. Show anchorage and accessory items. Provide Shop Drawings for the following:

- 1. Steel framing and supports for hopper lip assembly.

## 1.5 INFORMATIONAL SUBMITTALS

- A. Welding certificates.
- B. Paint Compatibility Certificates: From manufacturers of topcoats applied over shop primers, certifying that shop primers are compatible with topcoats.

## 1.6 QUALITY ASSURANCE

- A. Welding Qualifications: Qualify procedures and personnel according to AWS D1.1/D1.1M, "Structural Welding Code - Steel."
- B. Welding Qualifications: Qualify procedures and personnel according to the following:
  - 1. AWS D1.1/D1.1M, "Structural Welding Code - Steel."
  - 2. AWS D1.2/D1.2M, "Structural Welding Code - Aluminum."
  - 3. AWS D1.6/D1.6M, "Structural Welding Code - Stainless Steel."

## 1.7 FIELD CONDITIONS

- A. Field Measurements: Verify actual locations of walls and other construction contiguous with metal fabrications by field measurements before fabrication.

## PART 2 - PRODUCTS

### 2.1 METALS

- A. Metal Surfaces, General: Provide materials with smooth, flat surfaces unless otherwise indicated. For metal fabrications exposed to view in the completed Work, provide materials without seam marks, roller marks, rolled trade names, or blemishes.
- B. Steel Plates, Shapes, and Bars: ASTM A 36/A 36M.
- C. Rolled-Steel Floor Plate: ASTM A 786/A 786M, rolled from plate complying with ASTM A 36/A 36M or ASTM A 283/A 283M, Grade C or D.
- D. Steel Tubing: ASTM A 500/A 500M, cold-formed steel tubing.

### 2.2 FASTENERS

- A. General: Unless otherwise indicated, provide Type 304 or Type 316 stainless-steel fasteners for exterior use and zinc-plated fasteners with coating complying with ASTM B 633 or ASTM F 1941 (ASTM F 1941M), Class Fe/Zn 5, at exterior walls. Select fasteners for type, grade, and class required.
  - 1. Provide stainless-steel fasteners for fastening aluminum.

- B. Steel Bolts and Nuts: Regular hexagon-head bolts, ASTM A 307, Grade A (ASTM F 568M, Property Class 4.6); with hex nuts, ASTM A 563 (ASTM A 563M); and, where indicated, flat washers.
- C. Anchor Bolts: ASTM F 1554, Grade 36, of dimensions indicated; with nuts, ASTM A 563 (ASTM A 563M); and, where indicated, flat washers.
  - 1. Hot-dip galvanize or provide mechanically deposited, zinc coating where item being fastened is indicated to be galvanized.
- D. Anchors, General: Anchors capable of sustaining, without failure, a load equal to six times the load imposed when installed in unit masonry and four times the load imposed when installed in concrete, as determined by testing according to ASTM E 488/E 488M, conducted by a qualified independent testing agency.
- E. Cast-in-Place Anchors in Concrete: Either threaded type or wedge type unless otherwise indicated; galvanized ferrous castings, either ASTM A 47/A 47M malleable iron or ASTM A 27/A 27M cast steel. Provide bolts, washers, and shims as needed, all hot-dip galvanized per ASTM F 2329.
- F. Post-Installed Anchors: Chemical Anchors.
  - 1. Carbon-steel components zinc plated to comply with ASTM B 633 or ASTM F 1941 (ASTM F 1941M), Class Fe/Zn 5, unless otherwise indicated.

## 2.3 MISCELLANEOUS MATERIALS

- A. Shop Primers: Provide primers that comply with Section 099113 "Exterior Painting."
- B. Universal Shop Primer: Fast-curing, lead- and chromate-free, universal modified-alkyd primer complying with MPI#79 and compatible with topcoat.
  - 1. Use primer containing pigments that make it easily distinguishable from zinc-rich primer.
- C. Water-Based Primer: Emulsion type, anticorrosive primer for mildly corrosive environments that is resistant to flash rusting when applied to cleaned steel, complying with MPI#107 and compatible with topcoat.
- D. Epoxy Zinc-Rich Primer: Complying with MPI#20 and compatible with topcoat.
- E. Shop Primer for Galvanized Steel: Primer formulated for exterior use over zinc-coated metal and compatible with finish paint systems indicated.
- F. Galvanizing Repair Paint: High-zinc-dust-content paint complying with SSPC-Paint 20 and compatible with paints specified to be used over it.
- G. Bituminous Paint: Cold-applied asphalt emulsion complying with ASTM D 1187/D 1187M.
- H. Nonshrink, Nonmetallic Grout: Factory-packaged, nonstaining, noncorrosive, nongaseous grout complying with ASTM C 1107/C 1107M. Provide grout specifically recommended by manufacturer for interior and exterior applications.

## 2.4 FABRICATION, GENERAL

- A. Shop Assembly: Preassemble items in the shop to greatest extent possible. Disassemble units only as necessary for shipping and handling limitations. Use connections that maintain structural value of joined pieces. Clearly mark units for reassembly and coordinated installation.
- B. Cut, drill, and punch metals cleanly and accurately. Remove burrs and ease edges to a radius of approximately 1/32 inch (1 mm) unless otherwise indicated. Remove sharp or rough areas on exposed surfaces.
- C. Form bent-metal corners to smallest radius possible without causing grain separation or otherwise impairing work.
- D. Form exposed work with accurate angles and surfaces and straight edges.
- E. Weld corners and seams continuously to comply with the following:
  - 1. Use materials and methods that minimize distortion and develop strength and corrosion resistance of base metals.
  - 2. Obtain fusion without undercut or overlap.
  - 3. Remove welding flux immediately.
  - 4. At exposed connections, finish exposed welds and surfaces smooth and blended so no roughness shows after finishing and contour of welded surface matches that of adjacent surface.
- F. Form exposed connections with hairline joints, flush and smooth, using concealed fasteners or welds where possible. Where exposed fasteners are required, use Phillips flat-head (countersunk) fasteners unless otherwise indicated. Locate joints where least conspicuous.
- G. Fabricate seams and other connections that are exposed to weather in a manner to exclude water. Provide weep holes where water may accumulate.
- H. Cut, reinforce, drill, and tap metal fabrications as indicated to receive finish hardware, screws, and similar items.
- I. Provide for anchorage of type indicated; coordinate with supporting structure. Space anchoring devices to secure metal fabrications rigidly in place and to support indicated loads.
- J. Where units are indicated to be cast into concrete or built into masonry, equip with integrally welded steel strap anchors, 1/8 by 1-1/2 inches (3.2 by 38 mm), with a minimum 6-inch (150-mm) embedment and 2-inch (50-mm) hook, not less than 8 inches (200 mm) from ends and corners of units and 24 inches (600 mm) o.c., unless otherwise indicated.

## 2.5 MISCELLANEOUS FRAMING AND SUPPORTS

- A. General: Provide steel framing and supports not specified in other Sections as needed to complete the Work.

- B. Fabricate units from steel shapes, plates, and bars of welded construction unless otherwise indicated. Fabricate to sizes, shapes, and profiles indicated and as necessary to receive adjacent construction.
  - 1. Fabricate units from slotted channel framing where indicated.
  - 2. Furnish inserts for units installed after concrete is placed.
- C. Fabricate supports for operable partitions from continuous steel beams of sizes with attached bearing plates, anchors, and braces. Drill or punch bottom flanges of beams to receive partition track hanger rods; locate holes where indicated on operable partition Shop Drawings.
- D. Galvanize miscellaneous framing and supports where indicated.
- E. Prime miscellaneous framing and supports with zinc-rich primer where indicated.

## 2.6 STEEL WELD PLATES AND ANGLES

- A. Provide steel weld plates and angles not specified in other Sections, for items supported from concrete construction as needed to complete the Work. Provide each unit with no fewer than two integrally welded steel strap anchors for embedding in concrete.

## 2.7 FINISHES, GENERAL

- A. Finish metal fabrications after assembly.
- B. Finish exposed surfaces to remove tool and die marks and stretch lines, and to blend into surrounding surface.

## 2.8 STEEL AND IRON FINISHES

- A. Galvanizing: Hot-dip galvanize items as indicated to comply with ASTM A 153/A 153M for steel and iron hardware and with ASTM A 123/A 123M for other steel and iron products.
  - 1. Do not quench or apply post galvanizing treatments that might interfere with paint adhesion.
- B. Preparation for Shop Priming Galvanized Items: After galvanizing, thoroughly clean railings of grease, dirt, oil, flux, and other foreign matter, and treat with metallic phosphate process.
- C. Shop prime iron and steel items to be galvanized unless they are to be embedded in concrete, sprayed-on fireproofing, or masonry, or unless otherwise indicated.
  - 1. Shop prime with universal shop primer.
- D. Preparation for Shop Priming: Prepare surfaces to comply with requirements indicated below:
  - 1. Exterior Items: SSPC-SP 6/NACE No. 3, "Commercial Blast Cleaning."
  - 2. Items Indicated to Receive Zinc-Rich Primer: SSPC-SP 6/NACE No. 3, "Commercial Blast Cleaning."

3. Items Indicated to Receive Primers Specified in Section 099600 "High-Performance Coatings": SSPC-SP 6/NACE No. 3, "Commercial Blast Cleaning."
  4. Other Items: SSPC-SP 3, "Power Tool Cleaning."
- E. Shop Priming: Apply shop primer to comply with SSPC-PA 1, "Paint Application Specification No. 1: Shop, Field, and Maintenance Painting of Steel," for shop painting.
1. Stripe paint corners, crevices, bolts, welds, and sharp edges.

## PART 3 - EXECUTION

### 3.1 INSTALLATION, GENERAL

- A. Cutting, Fitting, and Placement: Perform cutting, drilling, and fitting required for installing metal fabrications. Set metal fabrications accurately in location, alignment, and elevation; with edges and surfaces level, plumb, true, and free of rack; and measured from established lines and levels.
- B. Fit exposed connections accurately together to form hairline joints. Weld connections that are not to be left as exposed joints but cannot be shop welded because of shipping size limitations. Do not weld, cut, or abrade surfaces of exterior units that have been hot-dip galvanized after fabrication and are for bolted or screwed field connections.
- C. Field Welding: Comply with the following requirements:
1. Use materials and methods that minimize distortion and develop strength and corrosion resistance of base metals.
  2. Obtain fusion without undercut or overlap.
  3. Remove welding flux immediately.
  4. At exposed connections, finish exposed welds and surfaces smooth and blended so no roughness shows after finishing and contour of welded surface matches that of adjacent surface.
- D. Fastening to In-Place Construction: Provide anchorage devices and fasteners where metal fabrications are required to be fastened to in-place construction. Provide threaded fasteners for use with concrete and masonry inserts, toggle bolts, through bolts, lag screws, wood screws, and other connectors.
- E. Provide temporary bracing or anchors in formwork for items that are to be built into concrete, masonry, or similar construction.
- F. Corrosion Protection: Coat concealed surfaces of aluminum that come into contact with grout, concrete, masonry, wood, or dissimilar metals with the following:
1. Cast Aluminum: Heavy coat of bituminous paint.
  2. Extruded Aluminum: Two coats of clear lacquer.

### 3.2 INSTALLING MISCELLANEOUS FRAMING AND SUPPORTS

- A. General: Install framing and supports to comply with requirements of items being supported, including manufacturers' written instructions and requirements indicated on Shop Drawings.

### 3.3 ADJUSTING AND CLEANING

- A. Touchup Painting: Immediately after erection, clean field welds, bolted connections, and abraded areas. Paint uncoated and abraded areas with the same material as used for shop painting to comply with SSPC-PA 1 for touching up shop-painted surfaces.
  - 1. Apply by brush or spray to provide a minimum 2.0-mil (0.05-mm) dry film thickness.
- B. Galvanized Surfaces: Clean field welds, bolted connections, and abraded areas and repair galvanizing to comply with ASTM A 780/A 780M.

END OF SECTION 055000

## SECTION 074616 - ALUMINUM SIDING

## PART 1 - GENERAL

## 1.1 RELATED DOCUMENTS

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

## 1.2 SUMMARY

- A. Section includes aluminum siding.

## 1.3 COORDINATION

- A. Coordinate siding installation with flashings and other adjoining construction to ensure proper sequencing.

## 1.4 ACTION SUBMITTALS

- A. Product Data: For each type of product.

## 1.5 INFORMATIONAL SUBMITTALS

- A. Product Certificates: For each type of aluminum siding.

## 1.6 CLOSEOUT SUBMITTALS

- A. Maintenance Data: For each type of product, including related accessories, to include in maintenance manuals.

## 1.7 MAINTENANCE MATERIAL SUBMITTALS

- A. Furnish extra materials that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.
  - 1. Furnish full lengths of aluminum siding including related accessories, in a quantity equal to 2 percent of amount installed.

## 1.8 QUALITY ASSURANCE

- A. Aluminum siding to match existing shape and color as existing.

## 1.9 DELIVERY, STORAGE, AND HANDLING

- A. Deliver and store packaged materials in original containers with labels intact until time of use.
- B. Store materials on elevated platforms, under cover, and in a dry location.

## PART 2 - PRODUCTS

### 2.1 MANUFACTURERS

- A. Source Limitations: Obtain products, including related accessories, from single source from single manufacturer.

### 2.2 ALUMINUM SIDING

- A. Aluminum Siding: Formed and coated product complying with AAMA 1402.
  - 1. Pattern: Pattern and color to match existing building siding. Contractor may consult with owner to obtain material source for previous siding replacements.

### 2.3 ACCESSORIES

- A. Siding Accessories, General: Provide starter strips, edge trim, outside and inside corner caps, and other items as recommended by siding manufacturer for building configuration.
  - 1. Provide accessories matching color and texture of adjacent siding unless otherwise indicated.
- B. Fasteners:
  - 1. For fastening to metal, use ribbed bugle-head screws of sufficient length to penetrate a minimum of 1/4 inch (6 mm), or three screw-threads, into substrate.
  - 2. For fastening aluminum, use aluminum fasteners. Where fasteners are exposed to view, use prefinished aluminum fasteners in color to match item being fastened.

## PART 3 - EXECUTION

### 3.1 EXAMINATION

- A. Examine substrates for compliance with requirements for installation tolerances and other conditions affecting performance of aluminum siding and related accessories.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

### 3.2 PREPARATION

- A. Clean substrates of projections and substances detrimental to application.

### 3.3 INSTALLATION

- A. General: Comply with manufacturer's written installation instructions applicable to products and applications indicated unless more stringent requirements apply.
  - 1. Center nails in elongated nailing slots without binding siding to allow for thermal movement.
- B. Install aluminum siding and related accessories according to AAMA 1402.
  - 1. Install fasteners no more than 24 inches o.c.
- C. Install joint sealants as specified in Section 079200 "Joint Sealants" and to produce a weathertight installation.
- D. Where aluminum siding contacts dissimilar metals, protect against galvanic action by painting contact surfaces with primer or by applying sealant or tape or installing nonconductive spacers as recommended by manufacturer for this purpose.

### 3.4 ADJUSTING AND CLEANING

- A. Remove damaged, improperly installed, or otherwise defective materials and replace with new materials complying with specified requirements.
- B. Clean finished surfaces according to manufacturer's written instructions and maintain in a clean condition during construction.

END OF SECTION 074616

## SECTION 260529 - HANGERS AND SUPPORTS FOR ELECTRICAL SYSTEMS

## PART 1 - GENERAL

## 1.1 RELATED DOCUMENTS

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

## 1.2 SUMMARY

## A. Section Includes:

1. Steel slotted support systems.
2. Aluminum slotted support systems.
3. Nonmetallic slotted support systems.
4. Conduit and cable support devices.
5. Support for conductors in vertical conduit.
6. Structural steel for fabricated supports and restraints.
7. Mounting, anchoring, and attachment components, including powder-actuated fasteners, mechanical expansion anchors, concrete inserts, clamps, through bolts, toggle bolts, and hanger rods.
8. Fabricated metal equipment support assemblies.

## 1.3 ACTION SUBMITTALS

## A. Product Data: For each type of product.

1. Include construction details, material descriptions, dimensions of individual components and profiles, and finishes for the following:
  - a. Slotted support systems, hardware, and accessories.
  - b. Clamps.
  - c. Hangers.
  - d. Sockets.
  - e. Eye nuts.
  - f. Fasteners.
  - g. Anchors.
  - h. Saddles.
  - i. Brackets.
2. Include rated capacities and furnished specialties and accessories.

## PART 2 - PRODUCTS

### 2.1 PERFORMANCE REQUIREMENTS

- A. Surface-Burning Characteristics: Comply with ASTM E 84; testing by a qualified testing agency. Identify products with appropriate markings of applicable testing agency.
  - 1. Flame Rating: Class 1.
  - 2. Self-extinguishing according to ASTM D 635.

### 2.2 SUPPORT, ANCHORAGE, AND ATTACHMENT COMPONENTS

- A. Conduit and Cable Support Devices: Stainless-steel hangers, clamps, and associated fittings, designed for types and sizes of raceway or cable to be supported.
- B. Support for Conductors in Vertical Conduit: Factory-fabricated assembly consisting of threaded body and insulating wedging plug or plugs for nonarmored electrical conductors or cables in riser conduits. Plugs shall have number, size, and shape of conductor gripping pieces as required to suit individual conductors or cables supported. Body shall be made of malleable iron.
- C. Structural Steel for Fabricated Supports and Restraints: ASTM A 36/A 36M steel plates, shapes, and bars; black and galvanized.
- D. Mounting, Anchoring, and Attachment Components: Items for fastening electrical items or their supports to building surfaces include the following:
  - 1. Clamps for Attachment to Steel Structural Elements: MSS SP-58 units are suitable for attached structural element.
  - 2. Through Bolts: Structural type, hex head, and high strength. Comply with ASTM A 325.
  - 3. Toggle Bolts: Stainless-steel springhead type.
  - 4. Hanger Rods: Threaded steel.

### 2.3 FABRICATED METAL EQUIPMENT SUPPORT ASSEMBLIES

- A. Description: Welded or bolted structural-steel shapes, shop or field fabricated to fit dimensions of supported equipment.
- B. Materials: Comply with requirements in Section 055000 "Metal Fabrications" for steel shapes and plates.

## PART 3 - EXECUTION

### 3.1 APPLICATION

- A. Comply with the following standards for application and installation requirements of hangers and supports, except where requirements on Drawings or in this Section are stricter:

1. NECA 1.
2. NECA 101
3. NECA 102.
4. NECA 105.
5. NECA 111.

3.2 SUPPORT INSTALLATION

- A. Comply with NECA 1 and NECA 101 for installation requirements except as specified in this article.

END OF SECTION 260529

## SECTION 312000 - EARTH MOVING

## PART 1 - GENERAL

## 1.1 RELATED DOCUMENTS

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

## 1.2 SUMMARY

- A. Section Includes:
  - 1. Excavating and backfilling for buildings and structures.

## 1.3 UNIT PRICES

- A. Work of this Section is affected by unit prices for earth moving specified in Section 012200 "Unit Prices."
- B. No allowances shall be made for this item of work.

## 1.4 DEFINITIONS

- A. Backfill: Soil material or controlled low-strength material used to fill an excavation.
  - 1. Initial Backfill: Backfill placed beside and over pipe in a trench, including haunches to support sides of pipe.
  - 2. Final Backfill: Backfill placed over initial backfill to fill a trench.
- B. Base Course: Aggregate layer placed between the subbase course and hot-mix asphalt paving.
- C. Bedding Course: Aggregate layer placed over the excavated subgrade in a trench before laying pipe.
- D. Borrow Soil: Satisfactory soil imported from off-site for use as fill or backfill.
- E. Drainage Course: Aggregate layer supporting the slab-on-grade that also minimizes upward capillary flow of pore water.
- F. Excavation: Removal of material encountered above subgrade elevations and to lines and dimensions indicated.
  - 1. Unauthorized Excavation: Excavation below subgrade elevations or beyond indicated lines and dimensions without direction by Engineer. Unauthorized excavation, as well as remedial work directed by Engineer, shall be without additional compensation.
- G. Fill: Soil materials used to raise existing grades.

- H. Structures: Buildings, footings, foundations, retaining walls, slabs, tanks, curbs, mechanical and electrical appurtenances, or other man-made stationary features constructed above or below the ground surface.
- I. Subbase Course: Aggregate layer placed between the subgrade and base course for hot-mix asphalt pavement, or aggregate layer placed between the subgrade and a cement concrete pavement or a cement concrete or hot-mix asphalt walk.
- J. Subgrade: Uppermost surface of an excavation or the top surface of a fill or backfill immediately below subbase, drainage fill, drainage course, or topsoil materials.
- K. Utilities: On-site underground pipes, conduits, ducts, and cables as well as underground services within buildings.

#### 1.5 FIELD CONDITIONS

- A. Traffic: Minimize interference with adjoining roads, streets, walks, and other adjacent occupied or used facilities during earth-moving operations.
  - 1. Do not close or obstruct streets, walks, or other adjacent occupied or used facilities without permission from Owner and authorities having jurisdiction.
  - 2. Provide alternate routes around closed or obstructed traffic ways if required by Owner or authorities having jurisdiction.
- B. Improvements on Adjoining Property: Authority for performing earth moving indicated on property adjoining Owner's property will be obtained by Owner before award of Contract.
  - 1. Do not proceed with work on adjoining property until directed by Eneer.
- C. Utility Locator Service: Notify utility locator service, 811 "Call Before You Dig" for area where Project is located before beginning earth-moving operations.
- D. Do not commence earth-moving operations until temporary site fencing and erosion- and sedimentation-control measures specified in Section 015000 "Temporary Facilities and Controls" are in place.
- E. The following practices are prohibited within protection zones:
  - 1. Storage of construction materials, debris, or excavated material.
  - 2. Parking vehicles or equipment.
  - 3. Foot traffic.
  - 4. Erection of sheds or structures.
  - 5. Impoundment of water.
  - 6. Excavation or other digging unless otherwise indicated.
  - 7. Attachment of signs to or wrapping materials around trees or plants unless otherwise indicated.
- F. Do not direct vehicle or equipment exhaust towards protection zones.
- G. Prohibit heat sources, flames, ignition sources, and smoking within or near protection zones.

## PART 2 - PRODUCTS

### 2.1 SOIL MATERIALS

- A. General: Provide borrow soil materials when sufficient satisfactory soil materials are not available from excavations.
- B. Engineered Fill: Naturally or artificially graded mixture of natural or crushed gravel, crushed stone, and natural or crushed sand; ASTM D 2940/D 2940M; with at least 90 percent passing a 1-1/2-inch (37.5-mm) sieve and not more than 12 percent passing a No. 200 (0.075-mm) sieve.
- C. Sand: ASTM C 33/C 33M; fine aggregate.
- D. Impervious Fill: Clayey gravel and sand mixture capable of compacting to a dense state.

## PART 3 - EXECUTION

### 3.1 PREPARATION

- A. Protect structures, utilities, sidewalks, pavements, and other facilities from damage caused by settlement, lateral movement, undermining, washout, and other hazards created by earth-moving operations.
- B. Protect and maintain erosion and sedimentation controls during earth-moving operations.
- C. Protect subgrades and foundation soils from freezing temperatures and frost. Remove temporary protection before placing subsequent materials.

### 3.2 DEWATERING

- A. Prevent surface water and ground water from entering excavations, from ponding on prepared subgrades, and from flooding Project site and surrounding area.
- B. Protect subgrades from softening, undermining, washout, and damage by rain or water accumulation.
  - 1. Reroute surface water runoff away from excavated areas. Do not allow water to accumulate in excavations. Do not use excavated trenches as temporary drainage ditches.

### 3.3 EXPLOSIVES

- A. Explosives: Explosives are prohibited.

### 3.4 EXCAVATION, GENERAL

- A. Unclassified Excavation: Excavate to subgrade elevations regardless of the character of surface and subsurface conditions encountered. Unclassified excavated materials may include rock, soil materials, and obstructions. No changes in the Contract Sum or the Contract Time will be authorized for rock excavation or removal of obstructions.
  - 1. If excavated materials intended for fill and backfill include unsatisfactory soil materials and rock, replace with satisfactory soil materials.

### 3.5 UNAUTHORIZED EXCAVATION

- A. Fill unauthorized excavation under foundations or wall footings by extending bottom elevation of concrete foundation or footing to excavation bottom, without altering top elevation. Lean concrete fill, with 28-day compressive strength of 2500 psi (17.2 MPa), may be used when approved by Engineer.
  - 1. Fill unauthorized excavations under other construction, pipe, or conduit as directed by Engineer.

### 3.6 STORAGE OF SOIL MATERIALS

- A. Stockpile borrow soil materials and excavated satisfactory soil materials without intermixing. Place, grade, and shape stockpiles to drain surface water. Cover to prevent windblown dust.
  - 1. Stockpile soil materials away from edge of excavations. Do not store within drip line of remaining trees.

### 3.7 BACKFILL

- A. Place and compact backfill in excavations promptly, but not before completing the following:
  - 1. Construction below finish grade including, where applicable, subdrainage, dampproofing, waterproofing, and perimeter insulation.
  - 2. Surveying locations of underground utilities for Record Documents.
  - 3. Testing and inspecting underground utilities.
  - 4. Removing concrete formwork.
  - 5. Removing trash and debris.
  - 6. Removing temporary shoring, bracing, and sheeting.
  - 7. Installing permanent or temporary horizontal bracing on horizontally supported walls.
- B. Place backfill on subgrades free of mud, frost, snow, or ice.
- C. Final Backfill:
  - 1. Soil Backfill: Place and compact final backfill of satisfactory soil to final subgrade elevation.
  - 2. Controlled Low-Strength Material: Place final backfill of controlled low-strength material to final subgrade elevation.

### 3.8 SOIL FILL

- A. Plow, scarify, bench, or break up sloped surfaces steeper than 1 vertical to 4 horizontal so fill material will bond with existing material.
- B. Place and compact fill material in layers to required elevations as follows:
  - 1. Under grass and planted areas, use satisfactory soil material.
  - 2. Under walks and pavements, use satisfactory soil material.
  - 3. Under steps and ramps, use engineered fill.
  - 4. Under building slabs, use engineered fill.
  - 5. Under footings and foundations, use engineered fill.
- C. Place soil fill on subgrades free of mud, frost, snow, or ice.

### 3.9 SOIL MOISTURE CONTROL

- A. Uniformly moisten or aerate subgrade and each subsequent fill or backfill soil layer before compaction to within 2 percent of optimum moisture content.
  - 1. Do not place backfill or fill soil material on surfaces that are muddy, frozen, or contain frost or ice.
  - 2. Remove and replace, or scarify and air dry, otherwise satisfactory soil material that exceeds optimum moisture content by 2 percent and is too wet to compact to specified dry unit weight.

### 3.10 COMPACTION OF SOIL BACKFILLS AND FILLS

- A. Place backfill and fill soil materials in layers not more than 10 in loose depth for material compacted by heavy compaction equipment and not more than 4 inches (100 mm) in loose depth for material compacted by hand-operated tampers.
- B. Place backfill and fill soil materials evenly on all sides of structures to required elevations and uniformly along the full length of each structure.
- C. Compact soil materials to not less than the following percentages of maximum dry unit weight according to ASTM D 698:
  - 1. As designated on the contract plans.

### 3.11 GRADING

- A. General: Uniformly grade areas to a smooth surface, free of irregular surface changes. Comply with compaction requirements and grade to cross sections, lines, and elevations indicated.
  - 1. Provide a smooth transition between adjacent existing grades and new grades.
  - 2. Cut out soft spots, fill low spots, and trim high spots to comply with required surface tolerances.
- B. Site Rough Grading: Slope grades to direct water away from buildings and to prevent ponding.

### 3.12 PROTECTION

- A. Protecting Graded Areas: Protect newly graded areas from traffic, freezing, and erosion. Keep free of trash and debris.
- B. Repair and reestablish grades to specified tolerances where completed or partially completed surfaces become eroded, rutted, settled, or where they lose compaction due to subsequent construction operations or weather conditions.
  - 1. Scarify or remove and replace soil material to depth as directed by Engineer; reshape and recompact.
- C. Where settling occurs before Project correction period elapses, remove finished surfacing, backfill with additional soil material, compact, and reconstruct surfacing.
  - 1. Restore appearance, quality, and condition of finished surfacing to match adjacent work, and eliminate evidence of restoration to greatest extent possible.

### 3.13 DISPOSAL OF SURPLUS AND WASTE MATERIALS

- A. Remove surplus satisfactory soil and waste materials, including unsatisfactory soil, trash, and debris, and legally dispose of them off Owner's property.
- B. Transport surplus satisfactory soil to designated storage areas on Owner's property. Stockpile or spread soil as directed by Engineer.
  - 1. Remove waste materials, including unsatisfactory soil, trash, and debris, and legally dispose of them off Owner's property.

END OF SECTION 312000



# GENERAL STRUCTURAL NOTES

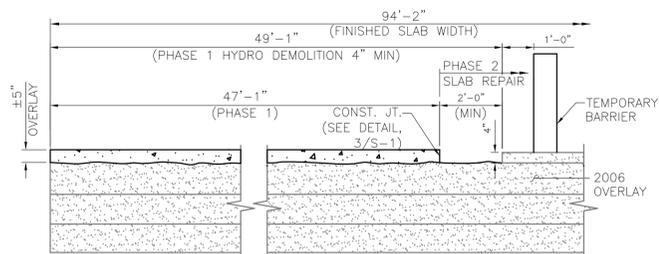
1. DESIGN LOADS AND DESIGN DATA TAKEN FROM RECORD DRAWINGS DATED 1-7-1977. REPAIRS SHALL CONFORM TO THE FOLLOWING.

- A. ROOF LIVE LOAD
  - ROOF MINIMUM ..... 20 PSF
- B. ROOF SNOW LOAD (Pf)
  - GROUND SNOW LOAD (Pg) ..... 10 PSF
  - SNOW EXPOSURE FACTOR (Ce) ..... 0.8
  - THERMAL FACTOR (Ct) ..... 1.2
  - SNOW LOAD IMPORTANCE FACTOR (I) ..... 1.0
  - FLAT ROOF SNOW LOAD (Pf) ..... 10 PSF Min
- C. WIND LOAD
  - BASIC WIND SPEED ..... 100 MPH
  - WIND LOAD IMPORTANCE FACTOR (I) ..... 1.05
  - WIND EXPOSURE CATEGORY ..... C
  - BASIC WIND VELOCITY PRESSURE (Pv) ..... 32.7 PSF
- D. SEISMIC DESIGN DATA:
  - PEAK VELOCITY-RELATED ACCELERATION (Av) ..... 0.05
  - PEAK ACCELERATION (Ao) ..... 0.05
  - SEISMIC HAZARD EXPOSURE GROUP ..... 1
  - SEISMIC PERFORMANCE CATEGORY ..... A
  - SOIL-PROFILE TYPE ..... S1
  - BASIC STRUCTURAL SYSTEM ..... BUILDING FRAME / MOMENT RESISTING FRAME
  - SEISMIC-RESISTING SYSTEM ..... BUILDING FRAME / MOMENT RESISTING FRAME
  - RESPONSE MODIFICATION FACTOR (R) ..... 8
  - DEFLECTION AMPLIFICATION FACTOR (Cd) ..... 5 1/2
  - ANALYSIS PROCEDURE ..... NCSBC SECTION 1607.4

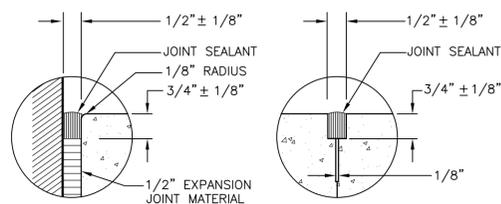
- 2. CONTRACTOR SHALL PERFORM WORK IN ACCORDANCE WITH THE LATEST REVISION OF THE NORTH CAROLINA STATE BUILDING CODE.
- 3. THE GENERAL NOTES ARE INTENDED TO AUGMENT THE DRAWINGS AND SPECIFICATIONS. SHOULD CONFLICTS EXIST BETWEEN THE DRAWINGS, SPECIFICATIONS, AND GENERAL STRUCTURAL NOTES, THE STRICTEST PROVISION SHALL GOVERN.
- 4. UNLESS NOTED OTHERWISE, ALL CONCRETE WORK, DETAILING, FABRICATION, AND PLACING OF REINFORCING AND CONCRETE SHALL BE GOVERNED BY THE LATEST REVISIONS OF:
  - A. ACI 301, ACI 315, AND ACI 318.
  - B. CRSI RECOMMENDED PRACTICE OF PLACING REINFORCING BARS.
  - C. ACI 306 AND ACI 305 FOR COLD AND HOT WEATHER CONCRETING RESPECTIVELY.
- 5. ALL CONCRETE SHALL BE NORMAL WEIGHT WITH A MAXIMUM UNIT WEIGHT OF 150 POUNDS PER CUBIC FOOT AND SHALL HAVE A MINIMUM 28 DAY COMPRESSIVE STRENGTH EQUAL TO 5,000 PSI. SEE SPECIAL PROVISIONS.
- 6. PLACE 1/2" EXPANSION JOINT MATERIAL BETWEEN EDGES OF SLABS AND VERTICAL SURFACES UNLESS NOTED OTHERWISE.
- 7. REINFORCING STEEL SHALL CONFORM TO ASTM A 615, AND SHALL BE GRADE 60 U.N.O.
- 8. STRUCTURAL STEEL PLATE, SHAPES, AND TUBES SHALL CONFORM TO ASTM A36 GR50 UNLESS NOTED OTHERWISE.
- 9. ALL CONNECTORS SHALL BE HOT TIPPED GALVANIZED STEEL PER ASTM F2329, UNLESS OTHERWISE NOTED.
- 10. SLAB JOINT SEALANT SHALL BE FUEL-RESISTANT, MULTICOMPONENT, POURABLE, MODIFIED-URETHANE, ELASTOMERIC JOINT SEALANT: ASTM C 920, TYPE M, GRADE F, CLASS 12-1/2 OR 25, FOR USE T. BEFORE INSTALLING JOINT SEALANTS, CLEAN OUT JOINTS IMMEDIATELY TO COMPLY WITH JOINT-SEALANT MANUFACTURER'S WRITTEN INSTRUCTIONS. REMOVE ALL FOREIGN MATERIAL FROM JOINT SUBSTRATES THAT COULD INTERFERE WITH ADHESION OF JOINT SEALANT, INCLUDING DUST, OIL, GREASE, WATER, SURFACE DIRT, AND FROST.

### EXISTING FACILITIES:

- 1. SIZES, ELEVATIONS, AND DIMENSIONS OF EXISTING STRUCTURAL AND ARCHITECTURAL ELEMENTS ARE BASED ON ORIGINAL CONSTRUCTION DRAWINGS AND FOR FIELD MEASUREMENTS AND ARE FOR GENERAL REFERENCE ONLY. THE CONTRACTOR SHALL VERIFY ACTUAL CONDITIONS AND REPORT ANY DISCREPANCIES TO THE ENGINEER BEFORE STARTING WORK.
- 2. THE CONTRACTOR SHALL PROVIDE AND MAINTAIN ANY AND ALL WORK NECESSARY TO PROTECT EXISTING FACILITIES. ANY DAMAGE TO EXISTING FACILITIES SHALL BE REPAIRED TO THE SATISFACTION OF THE ENGINEER AND AT NO COST TO THE OWNER.

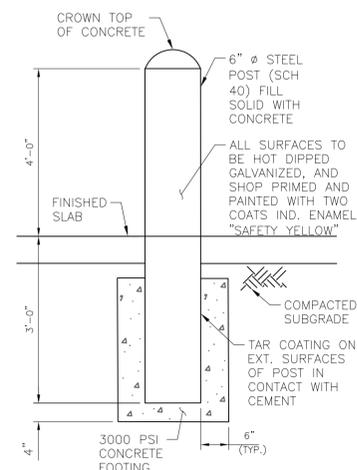


**3** SLAB SECTION AT CONSTRUCTION JOINT  
S-1 SCALE: NOT TO SCALE

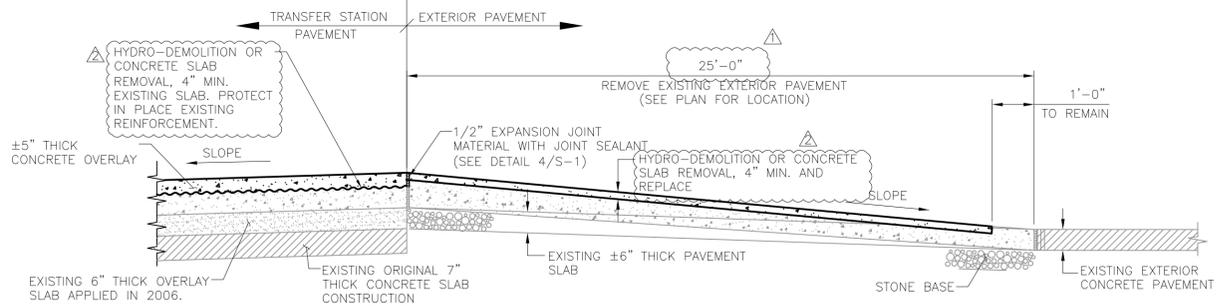


EXPANSION JOINT      CONSTRUCTION JOINT

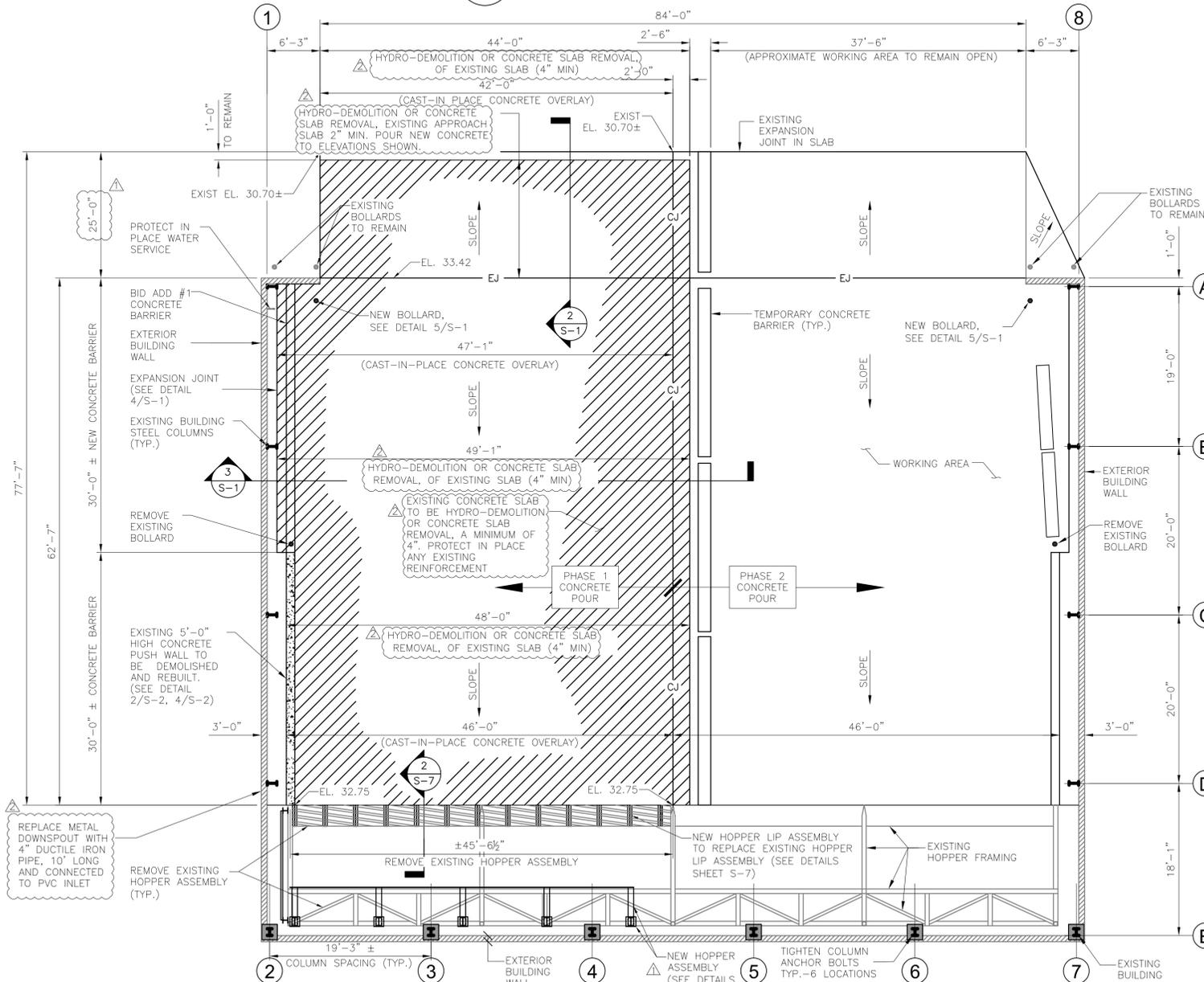
**4** CONCRETE PAVEMENT JOINT DETAILS  
S-1 SCALE: NOT TO SCALE



**5** BOLLARD DETAIL  
S-1 SCALE: NOT TO SCALE



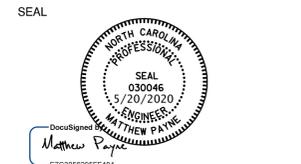
**2** CONCRETE APPROACH PAVEMENT SECTION  
S-1 SCALE: NOT TO SCALE



### FLOOR SLAB REPAIR NOTES:

1. DENOTES EXTENT OF NEW SLAB OVERLAY REPAIR. NEW SLAB OVERLAY REPAIR SHALL BE ±5" THICK MINIMUM, 5000 PSI STRENGTH CONCRETE.
2. PRIOR TO POURING NEW CONCRETE SLAB OVERLAY REPAIR, THOROUGHLY CLEAN EXISTING CONCRETE SLAB SURFACE WITH HIGH PRESSURE WATER EQUIPMENT. REMOVE ALL LOOSE CONCRETE MATERIAL. APPLY EPOXY BONDING ADHESIVE TO SURFACE OF EXISTING CONCRETE.
3. CONTRACTOR MAY REVERSE CONCRETE POUR PHASING.
4. "CJ" DENOTES LOCATION OF CONSTRUCTION JOINTS IN SLAB OVERLAY REPAIR (SEE DETAIL 4/S-1). "EJ" DENOTES LOCATION OF EXPANSION JOINTS IN SLAB OVERLAY REPAIR (SEE DETAIL 4/S-1).
5. CONTRACTOR SHALL PROVIDE WARNING BARRIER FENCE TO DELINEATE WORK AREAS AND TO MAINTAIN OPERATIONS ON ONE-HALF OF THE TRANSFER STATION AT ALL TIMES.

**1** PHASE 1 SLAB REPAIR PLAN  
S-1 SCALE: 1/8" = 1'-0"



### KEY PLAN

No.	DATE	BY	Description
2	5-20-2020	JAE	REV 2 - ADDENDUM #2
1	5-13-2020	JAE	REV 1 - ADDENDUM #1

REVISIONS
DRAWN BY: JAE
APPROVED BY: MTP
CHECKED BY: JJP
DATE: MAY 20, 2020

## SLAB REPAIR PHASE 1

PROJECT NO. 50120106

# S-1

**20200410 - MUNICIPAL  
 SOLID WASTE  
 TRANSFER STATION  
 UPGRADES  
 BRUNSWICK COUNTY  
 NORTH CAROLINA**  
 172 LAND FILL RD NE  
 BOWLING, NC 28422



KEY PLAN

No.	DATE	BY	Description
2	5-20-2020	JAE	REV 2 - ADDENDUM #2
1	5-13-2020	JAE	REV 1 - ADDENDUM #1

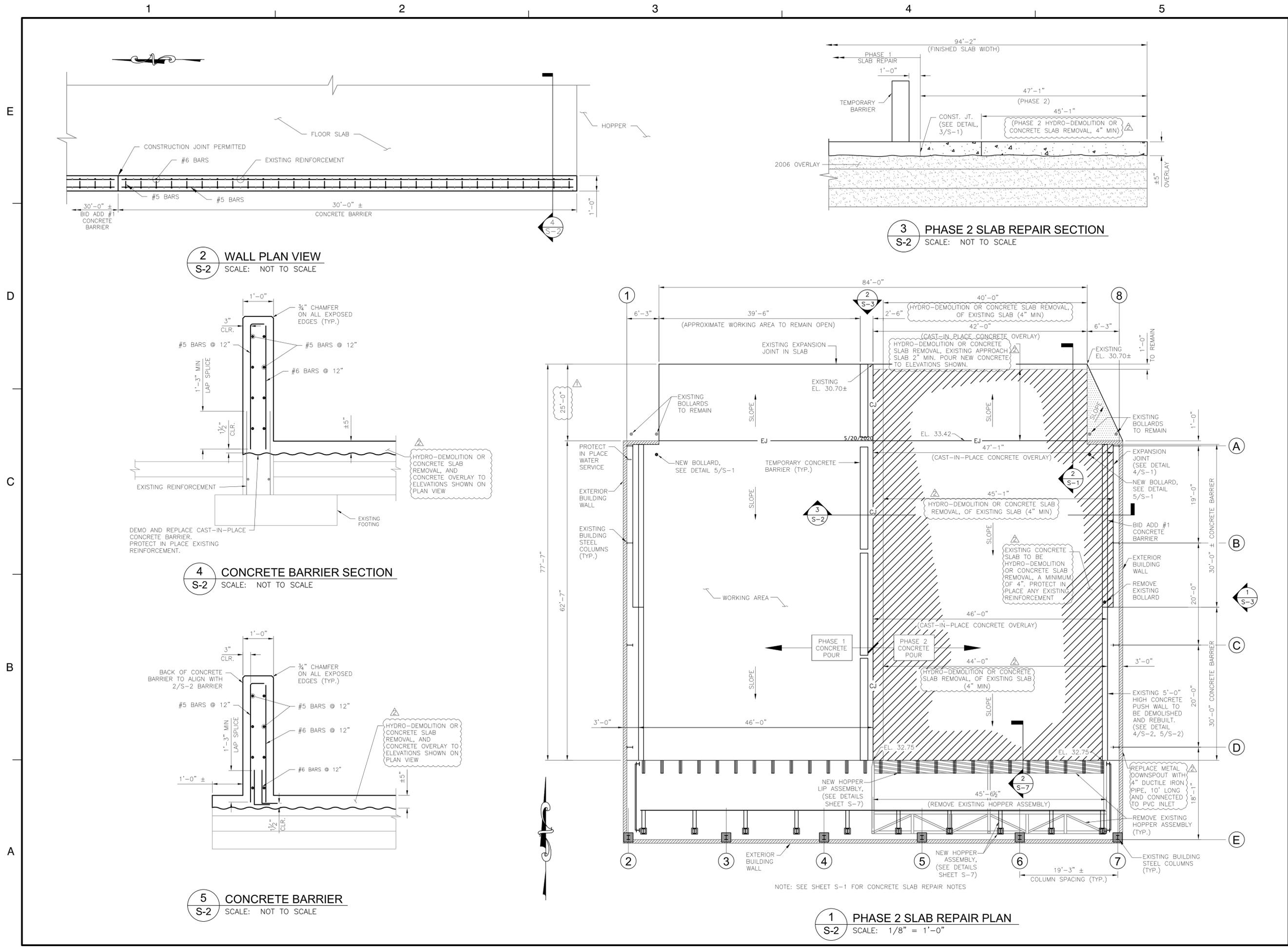
REVISIONS

DRAWN BY: JAE  
 APPROVED BY: MTP  
 CHECKED BY: JJP  
 DATE: MAY 20, 2020

**SLAB REPAIR  
 PHASE 2**

PROJECT NO. 50120106

**S-2**



**2 WALL PLAN VIEW**  
 S-2 SCALE: NOT TO SCALE

**4 CONCRETE BARRIER SECTION**  
 S-2 SCALE: NOT TO SCALE

**5 CONCRETE BARRIER**  
 S-2 SCALE: NOT TO SCALE

**3 PHASE 2 SLAB REPAIR SECTION**  
 S-2 SCALE: NOT TO SCALE

**1 PHASE 2 SLAB REPAIR PLAN**  
 S-2 SCALE: 1/8" = 1'-0"

NOTE: SEE SHEET S-1 FOR CONCRETE SLAB REPAIR NOTES

SEAL



KEY PLAN

No.	DATE	BY	Description
2	5-20-2020	JAE	REV 2 - ADDENDUM #2
1	5-13-2020	JAE	REV 1 - ADDENDUM #1

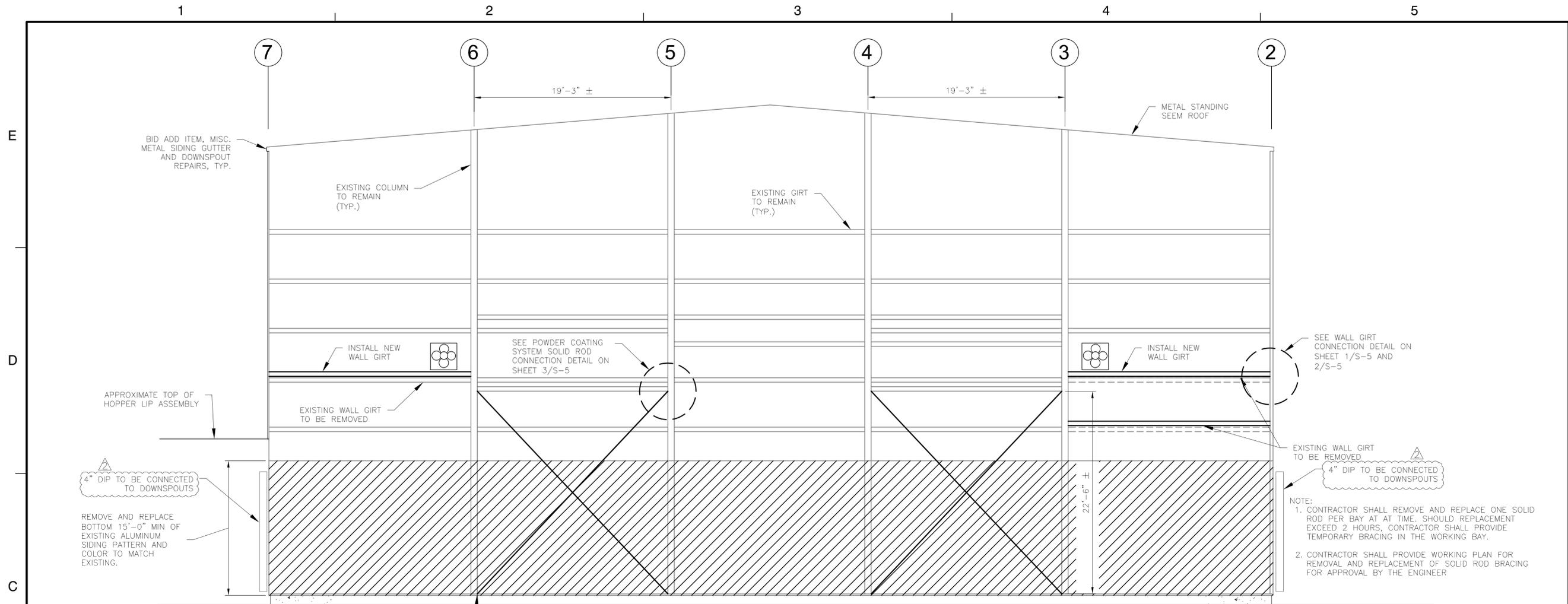
REVISIONS

DRAWN BY: JAE  
APPROVED BY: MTP  
CHECKED BY: JJP  
DATE: MAY 20, 2020

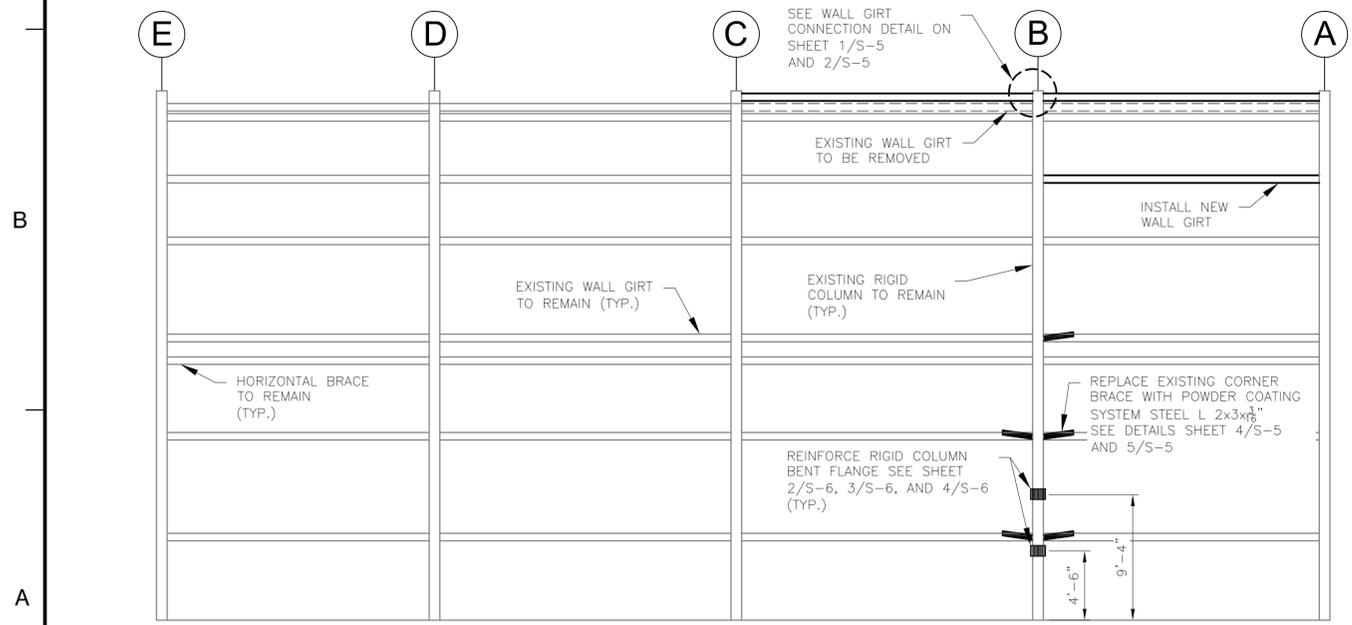
TITLE  
**EAST & WEST  
WALL  
INTERIOR  
ELEVATIONS**

PROJECT NO. 50120106

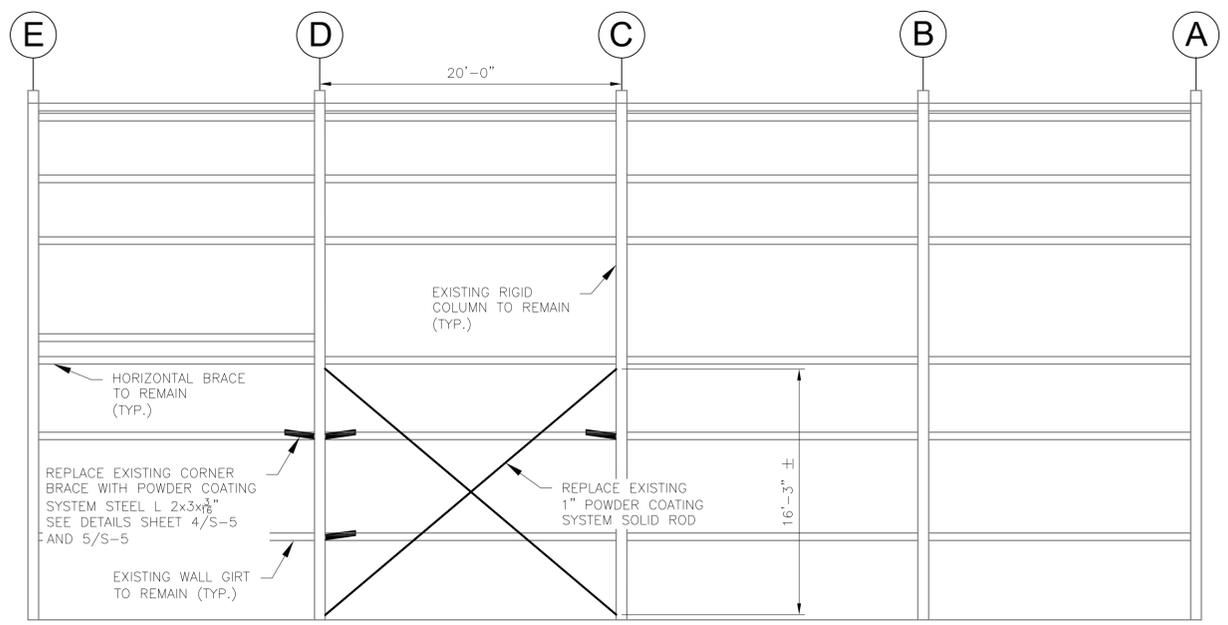
**S-3**



**1 SOUTHERN WALL ELEVATION**  
S-4 SCALE: NOT TO SCALE



**2 WESTERN WALL ELEVATION**  
S-4 SCALE: NOT TO SCALE



**3 EASTERN WALL ELEVATION**  
S-4 SCALE: NOT TO SCALE



KEY PLAN

No.	DATE	BY	Description
2	5-20-2020	JAE	REV 2 - ADDENDUM #2
1	5-13-2020	JAE	REV 1 - ADDENDUM #1

REVISIONS

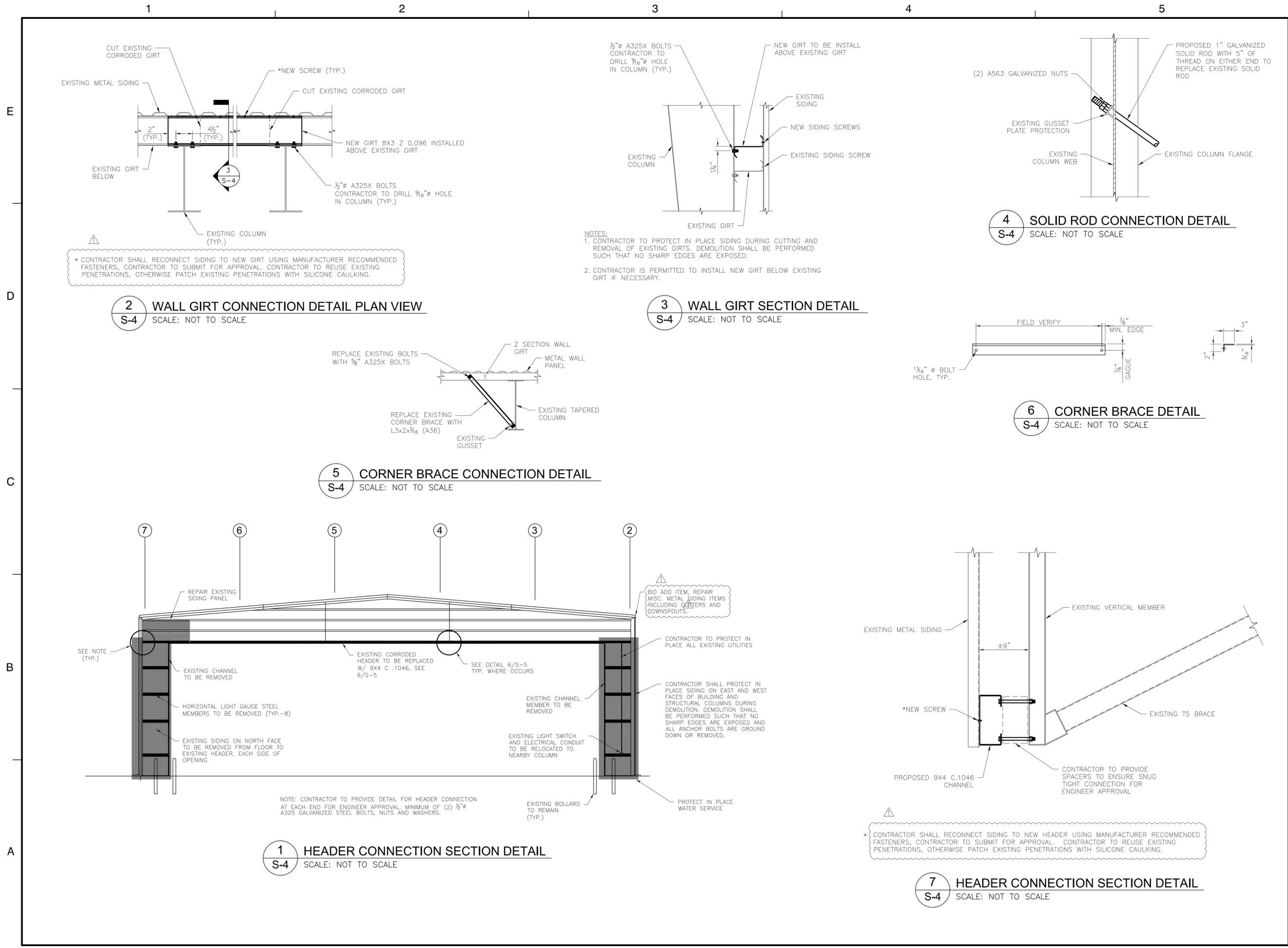
DRAWN BY: JAE  
 APPROVED BY: MTP  
 CHECKED BY: JJP  
 DATE: MAY 20, 2020

TITLE

**EXTERIOR WALLS AND DETAILS**

PROJECT NO. 50120106

**S-4**



**20200410 - MUNICIPAL  
 SOLID WASTE  
 TRANSFER STATION  
 UPGRADES  
 BRUNSWICK COUNTY  
 NORTH CAROLINA**  
 172 LAND FILL RD NE  
 BOLIVIA, NC 28422



KEY PLAN

No.	DATE	BY	Description
2	5-20-2020	JAE	REV 2 - ADDENDUM #2
1	5-13-2020	JAE	REV 1 - ADDENDUM #1

REVISIONS

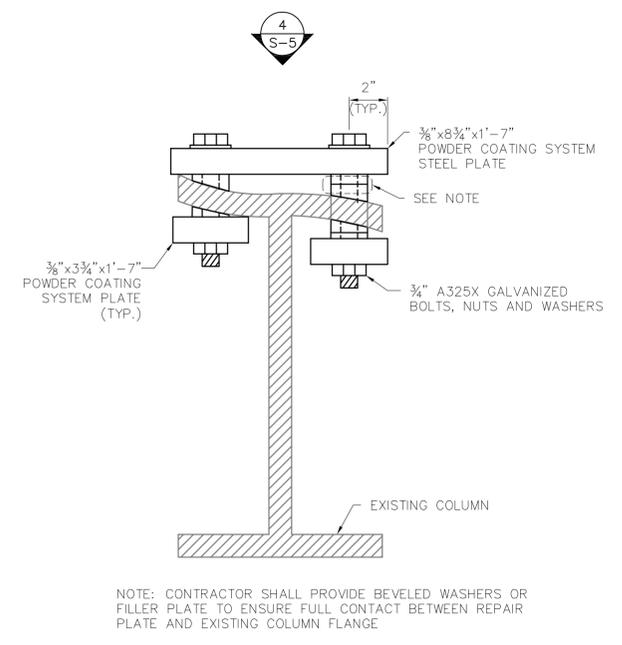
DRAWN BY: JAE  
 APPROVED BY: MTP  
 CHECKED BY: JJP  
 DATE: MAY 20, 2020

TITLE

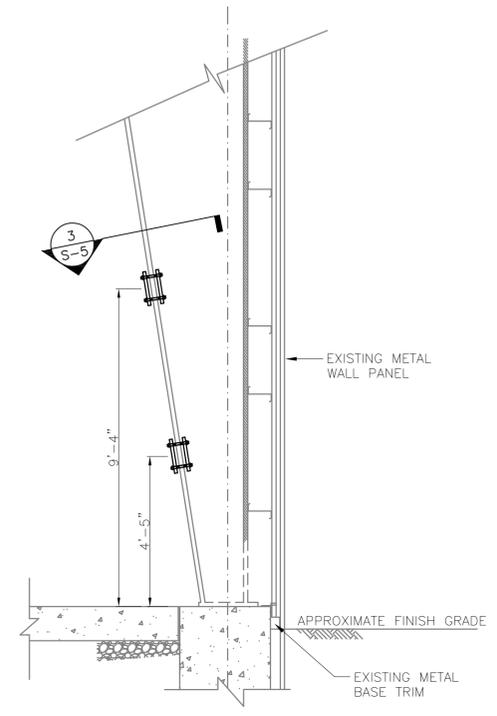
**COLUMN REINFORCEMENT DETAILS**

PROJECT NO. 50120106

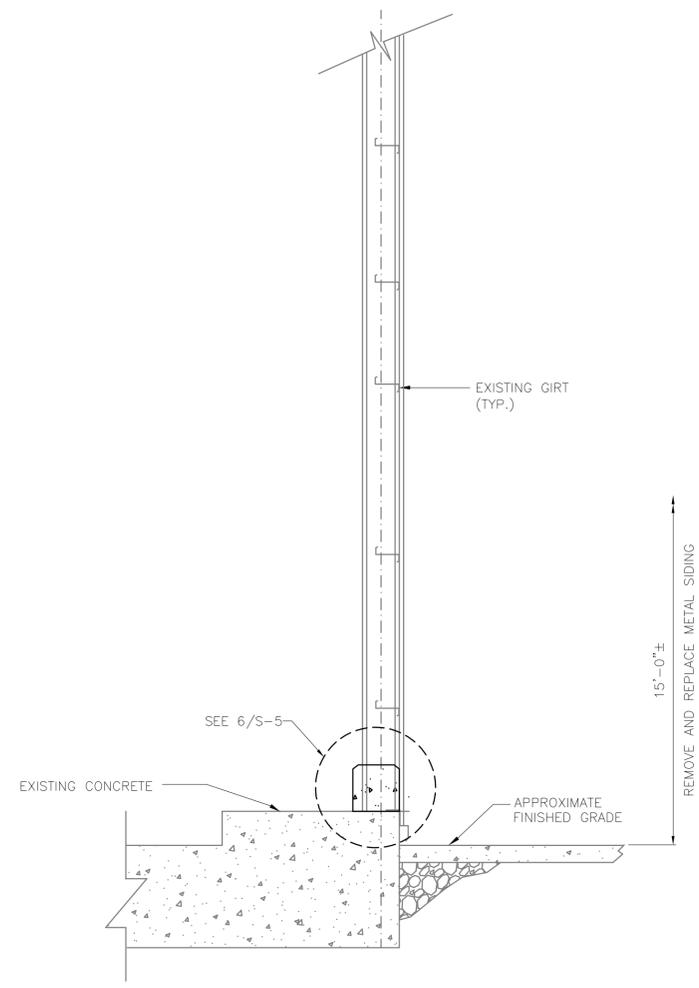
**S-5**



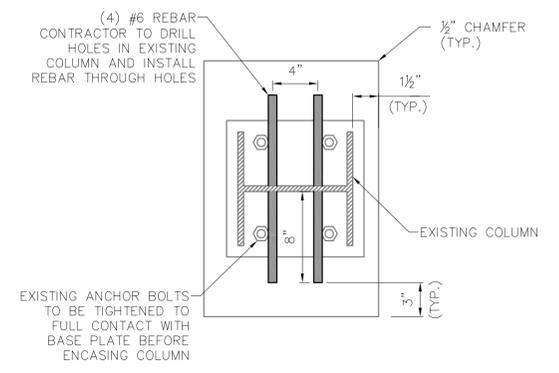
**4**  
**S-5**  
**COLUMN FLANGE REPAIR ELEVATION**  
 SCALE: NOT TO SCALE



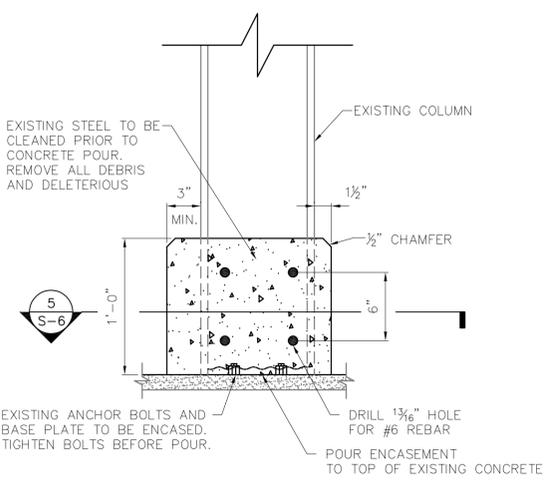
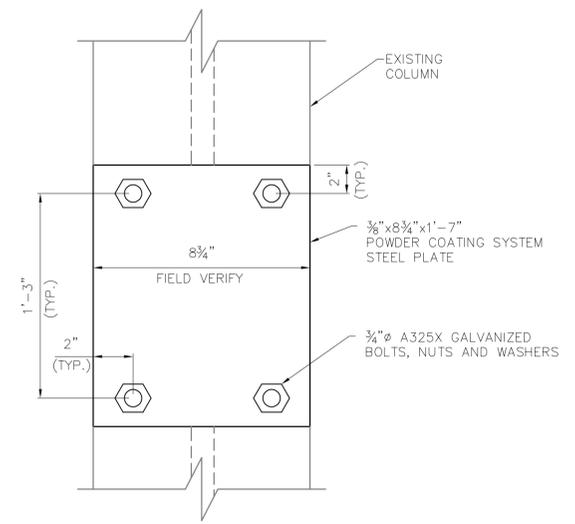
**3**  
**S-5**  
**COLUMN FLANGE REPAIR DETAIL**  
 SCALE: NOT TO SCALE



**1**  
**S-5**  
**FRAME COLUMN ELEVATION E2 THRU E7**  
 SCALE: 3/8\"/>



**5**  
**S-5**  
**COLUMN REPAIR SECTION**  
 SCALE: NOT TO SCALE



**6**  
**S-5**  
**COLUMN REPAIR DETAIL**  
 SCALE: NOT TO SCALE

**20200410 - MUNICIPAL  
 SOLID WASTE  
 TRANSFER STATION  
 UPGRADES  
 BRUNSWICK COUNTY  
 NORTH CAROLINA**  
 172 LAND FILL RD NE  
 BOLIVIA, NC 28422

SEAL

DocuSign  
 Matthew Payne  
 ETC3050295FF#84

KEY PLAN

No.	DATE	BY	Description
2	5-20-2020	JAE	REV 2 - ADDENDUM #2
1	5-13-2020	JAE	REV 1 - ADDENDUM #1

REVISIONS

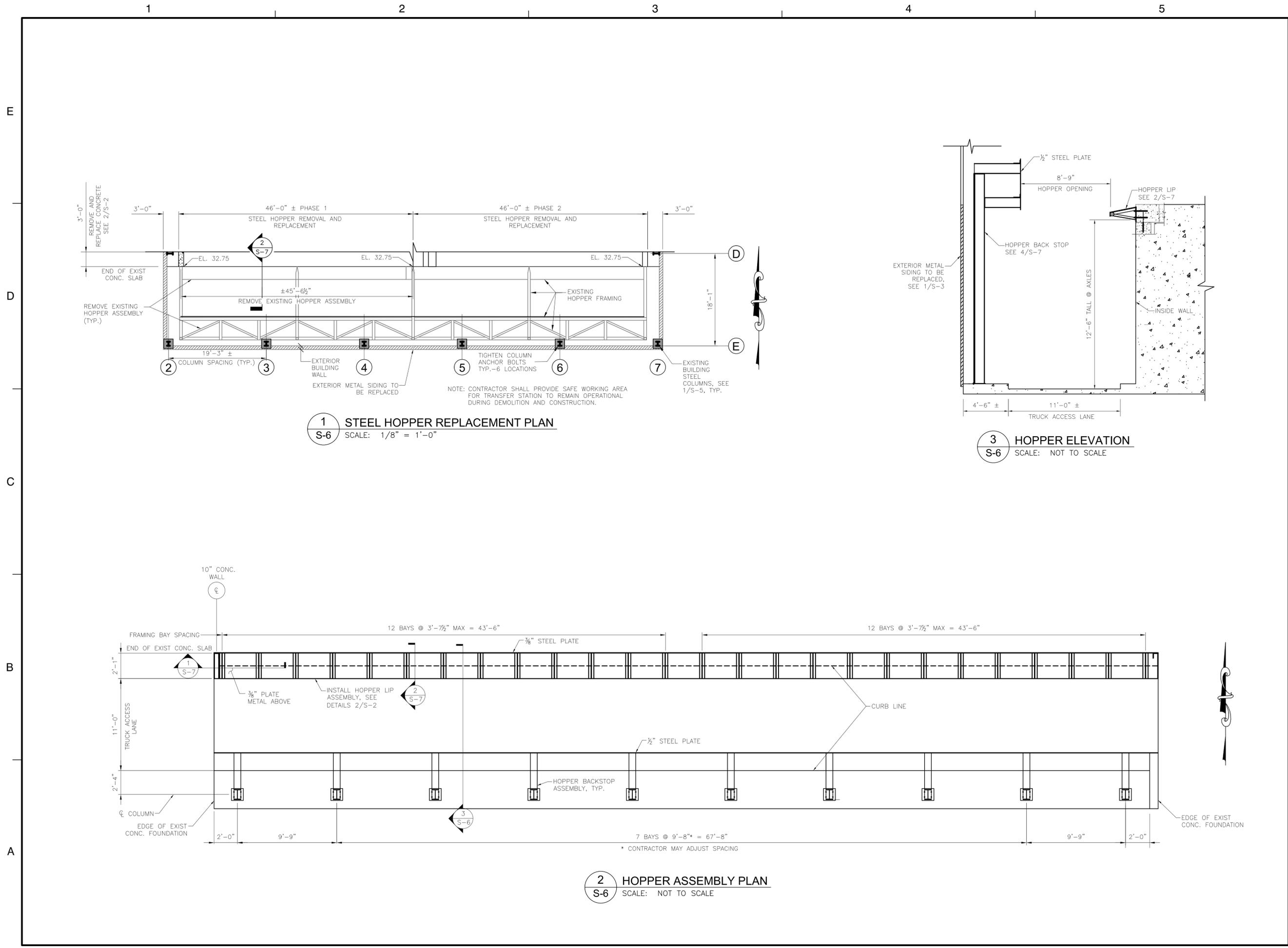
DRAWN BY	JAE
APPROVED BY	MTP
CHECKED BY	JJP
DATE	MAY 20, 2020

TITLE

**HOPPER PLAN  
 AND  
 ELEVATION**

PROJECT NO. 50120106

**S-6**





KEY PLAN

No.	DATE	BY	Description
2	5-20-2020	JAE	REV 2 - ADDENDUM #2
1	5-13-2020	JAE	REV 1 - ADDENDUM #1

REVISIONS

DRAWN BY: JAE  
 APPROVED BY: MTP  
 CHECKED BY: JJP  
 DATE: MAY 20, 2020

TITLE

**HOPPER DETAILS**

PROJECT NO. 50120106

**S-7**

