



**BLEYL ENGINEERING**

PLANNING • DESIGN • MANAGEMENT

## CONSTRUCTION SPECIFICATIONS

FOR

## WOODSON ROAD AND BLUEBERRY HILL DRIVE ROADWAY IMPROVEMENTS

FILE NO. 12700

LOCATED IN

**OAK RIDGE NORTH, TEXAS**

PREPARED FOR

**CITY OF OAK RIDGE NORTH**

March 2021

Engineer:  
Bleyl Engineering  
Firm No. 678  
100 Nugent Street  
Conroe, Texas 77301  
(936)441-7833



Carl Rushing, P.E.  
Project Manager

3/11/2021

## **SECTION 00 01 10**

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## **SECTION 00 01 15**

### **LIST OF DRAWING SHEETS**

#### **PART 1 GENERAL**

##### **1.01 SUMMARY**

- A. This Section includes a list of drawing sheets that are incorporated as a part of the Contract along with their revision dates during bidding.
- B. Drawing Sheet List: Woodson Road and Blueberry Hill Drive Roadway Improvements
  - 1. Cover
  - 2. Construction Notes
  - 3. Survey and Control 1 of 2
  - 4. Survey and Control 2 of 2
  - 5. Overall Project Layout
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  - 7. P&P Woodson Road Improvements Sta 0+00 to 5+70
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  - 11. Woodson Road Striping and Signage Plan
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  - 15. Oak Ridge North Storm Details (SD1)
  - 16. TXDOT detail 1 of 2
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#### **PART 2 MEASUREMENT AND PAYMENT**

- A. The Work shown on the Drawings is a part of this Project. Any Work shown on the Drawings that is not included in a specific pay item is deemed to be incidental to the work item most related to the work. Any questions or discrepancies found on the Drawings or between the Drawings and these Specifications should be brought to the attention of ENGINEER prior to bid. Otherwise, in interpretation of the Drawings and Specifications, the most stringent requirement will be deemed as intended.

**END OF SECTION**

**SECTION 00 11 16**

**INVITATION TO BID**

Sealed bids in duplicate, will be received on behalf of **City of Oak Ridge North** at the offices of the City of Oak Ridge City Hall, 27424 Robinson Road, Oak Ridge North, Texas, 77385, until **April 8, 2021** at 2:00 p.m., at which time all bids will be opened and publicly read for furnishing all material, equipment, labor and supervision necessary for completion of the following:

**Woodson Road and Blueberry Hill Drive Roadway Improvements**

The major items of work include:

Widening Woodson Road at the I-45 Frontage, storm sewer improvements, and improving the turn radius of Blueberry Hill Drive

Each bid proposal must be accompanied by a Bid Bond from a reliable surety company drawn to the order of **City of Oak Ridge North** in the amount of five percent (5%) of the total bid. No bid proposal may be withdrawn for a period of sixty (60) days after the bid opening date. OWNER reserves the right to reject any or all bids or to accept the bid deemed most advantageous to it. The successful bidder will be required to provide a performance, payment, and maintenance bond for the full amount of the contract.

A Pre-Bid Conference will be held on **April 1, 2021** at 2:00 pm at the City of Oak Ridge North City Hall. Attendance is not mandatory.

**END OF SECTION**

## **SECTION 00 21 13**

### **INSTRUCTIONS TO BIDDERS**

#### **PART 1        GENERAL**

##### **1.01    RELATED DOCUMENTS**

- A.     SECTION 00 01 10 – Table of Contents
- B.     SECTION 00 01 15 – List of Drawing Sheets
- C.     SECTION 00 11 16 – Invitation to Bid
- D.     SECTION 00 41 43 – Bid Form
- E.     SECTION 00 45 13 – Bidders Qualifications
- F.     SECTION 00 51 10 – Notice of Award
- G.     SECTION 00 52 43 – Agreement
- H.     SECTION 00 63 13 – Request for Interpretation
- I.     SECTION 00 72 43 – General Conditions
- J.     SECTION 00 73 00 – Supplementary Conditions

##### **1.02    DEFINITIONS**

- A.     Definitions set forth in SECTION 00 72 43 – General Conditions and in other Sections in the Project Manual are applicable to the Bid Documents.
  - 1.     Addendum: Written or graphic instrument issued prior to Bid Opening that clarifiers, modifies, corrects, or otherwise changes Bid Documents.
  - 2.     Alternate: The total amount bid for additions to the Work. Each Alternate includes cost of effects on adjacent or related components and Bidder's overhead and profit.
  - 3.     Bid: A complete and properly signed offer to perform Work in accordance with these Specifications.
  - 4.     Bid Date: Date and time set for receipt of Bids as stated in SECTION 00 11 16 – Invitation to Bid.
  - 5.     Bid Documents: Project Manual, Drawings, and Addenda.
  - 6.     Bid Supplement: A bid submittal required by SECTION 00 41 43 – Bid Form.
  - 7.     Bidder: Person or firm, identified in SECTION 00 41 43 – Bid Form including its successors, and its authorized representatives.
  - 8.     Low Bidder: Apparent successful Bidder that qualifies as a responsible and Bidder and that submits Bid with lowest Total Bid Price.
  - 9.     Project Engineer: Person designated in SECTION 01 11 13 – Work Covered by Contract Documents to represent OWNER during bidding and post-bid procedures.
  - 10.    Project Manual: Document assembled for the Work including Bidding Requirements, Contract Forms, and Technical Specifications.
  - 11.    Security Deposit: A bid bond in the amount of 5% of the Total Bid Price or as detailed in SECTION 00 11 16 – Invitation to Bid.

12. Total Bid Price: Total amount bid for performing the Work as identified by Bidder in SECTION 00 41 43 – Bid Form.

### **1.03 BID DOCUMENTS**

- A. The Bid Documents may be obtained at [www.civcastusa.com](http://www.civcastusa.com).
- B. On receipt of Bid Documents, Bidder shall verify that the documents are legible and complete, compare contents of Bid Documents with SECTION 00 01 10 – Table of Contents and SECTION 00 01 15 – List of Drawing Sheets. Bidder shall notify ENGINEER if Bid Documents are incomplete.
- C. If Bid Documents refer to reference specifications or standard details available from a government entity, contact the referenced entity to obtain a copy of those documents.

### **1.04 EXAMINATION OF DOCUMENTS, SITE AND LOCAL CONDITIONS**

- A. Bidder shall examine Project Site, become familiar with local conditions under which the Work shall be performed, conduct appropriate investigations, and correlate personal observations with the requirements of the Bid documents prior to submitting the Bid. Information about access to the site is included in SECTION 01 11 13 – Work Covered by Contract Documents. Failure of the Bidder to perform investigations prior to submitting a Bid does not relieve Bidder of responsibility for proper use of information available in the preparation of the Bid.

### **1.05 INTERPRETATIONS DURING BID PROCESS**

- A. Bidder shall immediately notify ENGINEER in writing upon finding errors, discrepancies, or omissions in Bid Documents. Verbal discussions and answers are not binding.
- B. Notification must be received no later than forty-eight (48) hours prior to the Bid Opening. Replies will be by written Addenda.

### **1.06 ADDENDA**

- A. Addenda issued by OWNER prior to the Bid Opening will alter the Bid Documents. Bidders who submit a bid shall be presumed to have received all Addenda and to have included any cost thereof in their bids, regardless of whether they acknowledge the addenda or not. OWNER will make Addenda available at same location where the Bid Documents may be obtained. ENGINEER will notify plan holders of record when Addenda are available. Bidders are responsible for obtaining Addenda after notification. No Addenda will be issued later than twenty-four (24) hours prior to the Bid Opening.

### **1.07 PREPARATION OF BIDS**

- A. Bidder shall fill in applicable blanks in SECTION 00 41 43 – Bid Form. In additions, Bidder shall bid all alternates, and shall properly sign the Bid Form. Bidder shall initial all pages of the Bid Form, except the signature page.
- B. Bidder is responsible for all costs incurred by the Bidder associated with the preparation of its Bid and compliance with the Bidding procedures.
- C. Bidder may not adjust preprinted prices on line items labeled Fixed Unit Price and may not decrease price on line items labeled Minimum Bid Price. Bidder may not adjust Cash Allowance amounts.

## **1.08 BID SUBMISSION**

- A. Bids will be received by OWNER at the location indicated in SECTION 00 11 16 – Invitation to Bid at the Date and Time listed or as modified by Addenda. Bids received after the Date and Time of the Bid Opening will be returned unopened to the Bidder. Verbal, facsimile, or electronically submitted bids will not be considered, unless submitted via CivCastusa.com. The Bid may be submitted in person or by mail two original executed Bid Forms, Bid Supplements, and Bid Security in an opaque sealed envelope. The outside of the envelope shall read:

Do Not Open Before:	Bid Date and Time
Sealed Bid for:	<b>Woodson Road and Blueberry Hill Drive Roadway Improvements</b>
Bidder:	Name of Bidder

## **1.09 BID SECURITY**

- A. Bidder shall submit a Security Deposit with its bid unless directed otherwise in SECTION 00 11 16 – Invitation to Bid.
- B. Bid Bond: Bid security shall be in the form of a bid bond meeting the following requirements:
1. The bid bond must be a valid and enforceable bond signed by a surety that complies with other requirements set out by law.
  2. The bid bond must name OWNER as obligee and be signed by the Bidder as principal and signed and sealed by the surety.
  3. The bid bond must be conditioned such that if Bidder is named Low Bidder and then fails to timely and properly submit documents required in SECTION 00 51 10 – Notice of Award, surety will be obligated to pay OWNER an amount in accordance with paragraph 1.09 D.
- C. Security Deposits will be retained until after the Contract is awarded or all Bids are rejected.
- D. Low Bidder forfeits Security Deposit if it fails to timely and properly submit required documents. OWNER may claim an amount equal to the difference between the Total Bid Price of the defaulting Bidder and the Total Bid Price of the Bidder awarded the Contract up to the amount of the Security Deposit.

## **1.10 MODIFICATION OR WITHDRAWAL OF BID**

- A. A Bidder may modify or withdraw a Bid submitted prior to the Bid Date by written notice to OWNER signed by the Bidder.
- B. A withdrawn Bid may be resubmitted up to the time designated for receipt of Bids.

## **1.11 BID DISQUALIFICATION**

- A. OWNER may disqualify a Bid if the Bidder:
1. Fails to provide Security Deposit in the proper amount.
  2. Improperly or illegibly completes information required by the Bid Documents.
  3. Fails to properly sign and initial the Bid Documents.
  4. Qualifies his bid.
- B. When requested, Low Bidder shall present satisfactory evidence that bidder and subcontractors have regularly engaged in performing construction work as proposed and have the capital, labor, equipment and

materials to perform the work. This information shall be by the Bidder in accordance with SECTION 00 45 13 – Bidders Qualifications. Failure to answer all questions within five (5) days of request will result in a bid disqualification and forfeiture of bid security.

#### **1.12 PRE-BID MEETING**

- A. A Pre-bid Meeting is scheduled to be held at the place time and dated listed in SECTION 00 11 16 – Invitation to Bid.
- B. All Bidders, subcontractors, and suppliers are invited to attend.
- C. Representative of ENGINEER will attend.

#### **1.13 OPENING OF BIDS**

- A. Bids will be opened by ENGINEER on or after the Bid Date. SECTION 00 11 16 – Invitation to Bid states whether the Bid Opening is public or private.

#### **1.14 EVALUATION OF BIDS**

- A. ENGINEER will tabulate, record and evaluate Bids. Bid tabulations for Public Bids will be made available after they have been considered by OWNER.
- B. OWNER reserves the right to reject any defective, qualified or nonconforming bids.

#### **1.15 ACCEPTANCE OF THE BID**

- A. The Bids remain open to acceptance and are irrevocable for the period stated in the Bid Form.
- B. If OWNER accepts a Bid, it will accept a bid of the lowest Bidder deemed by OWNER to be qualified and capable of completing the work in accordance with the Contract Documents. SECTION 00 51 10 – Notice of Award will be issued to the successful Bidder. Acceptance of the Bid will be conditioned on the Bidder's timely and proper submittal of the documents listed in the Notice of Award.

#### **1.16 CERTIFICATE OF INTERESTED PARTIES – TEXAS ETHICS COMMISSION FORM 1295**

- A. Effective January 1, 2016, pursuant to Texas Government code § 2252.908 and Title1, Chapter 46 of the Texas Administrative Code, the district may not execute the contract or issue the Notice to Proceed unless the Successful Bidder has previously filed Texas Ethics Commission Form 1295 ("Form 1295") online with the Texas Ethics Commission (the "TEC"), at <https://www.ethics.state.tx.us/forms/1295.pdf>, and provided the District with a signed, notarized and TEC-certified copy of the filed Form 1295. The signed, notarize and TEC-certified Form 1295 shall accompany the signed contract documents. THE BIDDER UNDERSTANDS THAT FAILURE TO PROVIDE THE TEC FORM 1295 COMPLETE WITH A CERTIFICATE NUMBER WILL NULLIFY THE CONTRACT AWARD AND WILL RELEASE THE OWNER FROM ANY LIABILITY TO PERFORM THEREUNDER. THE OWNER RESERVES THE RIGHT TO CANCEL ANY CONTRACT THAT DOES NOT COMPLY WITH THE REQUIREMENTS PERSCRIBED HEREIN. Neither the District nor its consultants have any obligation to verify the truth or accuracy of the information provided by a business in Form 1295 and neither has an obligation nor undertake responsibility for advising any bidder with respect to the proper completion of Form 1295.

**END OF SECTION**



**SECTION 00 41 43**

## BID FORM

**OWNER:** City of Oak Ridge North

27424 Robinson Road

Oak Ridge North, Texas 77385

Attn: Joe Sherwin, P.E.

**Project Name:** Woodson Road and Blueberry Hill Drive Roadway Improvements

Project No: 12700

**BIDDER:**

## 1.0 OFFER

**A. Total Bid Price:** Having examined the Project location and all matters referred to in Bid Documents for the Project, we, the undersigned, offer to enter into a Contract to perform the Work for the Total Bid Price shown on the signature page of this Document.

**B. Period for Bid Acceptance:** This offer is open to acceptance and is irrevocable for 60 days from Bid Date. The period for bid acceptance may be extended by mutual written agreement of the OWNER and BIDDER.

**C. Addenda:** All Addenda have been received. Modifications to Bid Documents have been considered and all related costs are included in the Total Bid Price.

BIDDER acknowledges receipt of the following ADDENDA:

Addendum No.: \_\_\_\_\_ Date: \_\_\_\_\_ Addendum No.: \_\_\_\_\_ Date: \_\_\_\_\_

Addendum No.: \_\_\_\_\_ Date: \_\_\_\_\_ Addendum No.: \_\_\_\_\_ Date: \_\_\_\_\_

Addendum No.: \_\_\_\_\_ Date: \_\_\_\_\_ Addendum No.: \_\_\_\_\_ Date: \_\_\_\_\_

Addendum No.: \_\_\_\_\_ Date: \_\_\_\_\_ Addendum No.: \_\_\_\_\_ Date: \_\_\_\_\_

**D. Bid Supplements:** The following documents are attached:

[ ] Security Deposit (as defined in Document 00 21 13 – Instructions to BIDDERS)

☐ Others as listed:

## 2.0 CONTRACT TIME

- A. If offer is accepted, CONTRACTOR shall achieve Date of Substantial Completion within **Seventy Five (75) days** after Date of Commencement of the Work, subject to adjustments of Contract Time as provided in the Contract.

## 3.0 TOTAL BID PRICE HAS BEEN CALCULATED BY BIDDER, USING THE FOLLOWING COMPONENT PRICES AND PROCESS (PRINT OR TYPE NUMERICAL AMOUNTS):

### A. STIPULATED PRICE:

\$ N/A

(Total Bid Price; minus Base Unit Prices, Extra Unit Prices, Cash Allowances and All Alternates, if any)

### B. BASE UNIT PRICE TABLE:

Item No.	Item Description	Unit Measure	Unit Quantity	Unit Price	Total
B.1	Mobilization Demobilization, insurance, bonds: 5% max. Half paid with first pay application, half paid at end of project	LS	1	\$_____	\$_____
B.2	<b>Specification 01 32 33</b> Photographs. Take preconstruction, during construction, and after construction photographs as indicated on plans and as specified. Digital photos to be provided to the Engineer on a flash drive with the Final Pay Application.	LS	1	\$_____	\$_____
B.3	<b>Specification 02 41 13</b> Sawcut and remove existing concrete curb and paving, handicapped ramps, and driveway concrete paving at Sta 2+00 as shown on plans, per specifications, and as directed by the Engineer. Sawcutting is incidental to this work. Woodson Road at I-45 must follow the included TXDOT detail CPJ Juncture F instructions for removal of concrete at I-45 frontage road.	SY	145	\$_____	\$_____
B.4	<b>Specification 02 41 13, and 31 23 16.26</b> Mill up the existing asphalt along Woodson Road and specified driveways down to the existing base material only as shown on the plans, and as specified. The City of Oak Ridge North will accept some millings if not wanted by the contractor. All excess millings shall be hauled away. Sawcut the pavement as required and as shown on plans. Sawcutting is incidental to this work. Blueberry Hill can be sawcut and chipped up.	SY	1345	\$_____	\$_____
B.5	<b>Specification 02 41 13</b> Expose, remove, and dispose of the existing box on the north side of Woodson Road at Sta. 1+29 over the existing 60" storm line to prepare for proposed inlet as shown on plans and as specified.	LS	1	\$_____	\$_____

B.6	<b>Specification 02 41 13</b> Remove and dispose of the existing concrete top with MH cover on the north side of Woodson Road at Sta. 3+21 to prepare for proposed grate inlet as shown on plans and as specified.	LS	1	\$ _____	\$ _____
B.7	<b>Specification 02 41 13</b> Remove and dispose of the existing 18" concrete culvert pipe under driveway at Sta 3+21 as shown on plans and as specified. Culvert is 38 LF.	LS	1	\$ _____	\$ _____
B.8	Provide and install Type A grate inlet at Sta 1+29 including any required cutting into the existing 60" storm drain, pouring cast in place concrete base, concrete riser section with grate and frame as shown on plans and as specified.	LS	1	\$ _____	\$ _____
B.9	Provide and install Type A grate inlet at Sta 3+21 (north) including any concrete work to accommodate concrete riser sections with grate and frame as shown on plans and as specified.	LS	1	\$ _____	\$ _____
B.10	Provide and install Type A grate inlet at Sta 3+21 (south) including any required cutting into the existing 24" storm drain, pouring cast in place concrete base, installing concrete riser sections with grate and frame as shown on plans and as specified.	LS	1	\$ _____	\$ _____
B.11	Provide and install 18" RCP culvert piping along Woodson Road for the south driveway at STA 3+21 and at Blueberry Hill Drive as shown on plans and as specified.	LF	48	\$ _____	\$ _____
B.12	<b>Specification 32 11 13.13 and 32 11 13.19</b> Subgrade Stabilization. Includes grading in ROW, removal of excess soil as required, and chemically modify soil per a geotechnical recommendation. See bid item B.29 (6" min per City detail) along the north side of Woodson Road and Blueberry Hill as part of the roadway widening work and compact to 95% of standard proctor density as shown on plans and as specified.	SY	752	\$ _____	\$ _____
B.13	<b>Specification 32 13 13 and 32 16 13</b> Provide and install 8" steel reinforced concrete paving on Woodson Road at I-45 frontage as shown on plans and as specified.	SY	85	\$ _____	\$ _____

B.14	<b>Specification 32 13 13 and 32 16 13</b> Provide and install 6" steel reinforced concrete paving for south driveway at Sta 2+00 as shown on plans and as specified.	SY	77	\$ _____	\$ _____
B.15	Provide and install 7" Type B asphaltic base material including prime coat on Woodson Road and Blueberry Hill Drive as shown on plans and as specified. See typical road section for flexible base placement and required level up on existing base.	SY	665	\$ _____	\$ _____
B.16	<b>Specification 32 12 16</b> Provide and install 2" Type D Asphalt paving, including tack coat, on Woodson Road and associated driveways and at Blueberry Hill Drive as shown on plans and as specified.	SY	1720	\$ _____	\$ _____
B.17	Regrade swale on north side of Woodson Road to inlet at Sta 3+21 and roadside ditch from Sta 2+25 to Sta 4+00 on south side of Woodson Road to culverts that drain to proposed inlet around Sta 3+21 and ditches at Blueberry Hill Drive as shown on plans and as specified.	LF	190	\$ _____	\$ _____
B.18	<b>Specification 02 41 13</b> Remove, salvage, and reset existing stop sign with street names at the intersection of Woodson Road and I-45 Frontage as shown on plans and as specified.	LS	1	\$ _____	\$ _____
B.19	Provide and install stop Signs at driveways tying into Woodson Road as shown on plans and as specified.	EA	2	\$ _____	\$ _____
B.20	<b>Specification 32 16 13</b> Provide and install materials to build two ADA compliant handicapped ramps including detectable warning (truncated dome pavers or other approved device) in the I-45 ROW as shown on plans and as specified.	EA	2	\$ _____	\$ _____
B.21	<b>Specification 32 16 13</b> Provide and install 6" concrete curbing at I-45 frontage road as shown on plans and as specified.	LF	120	\$ _____	\$ _____
B.22	<b>Specification 31 22 19</b> Final grading on north side of Woodson Road from I-45 to first driveway along the ROW. Grade to 3:1 max slope within the Woodson Road ROW and create a drainage path or swale to drain runoff from the roadway to the proposed inlet at Sta 1+29 as shown on plans and as specified.	LS	1	\$ _____	\$ _____

B.23	<b>Specification 32 92 13 or 32 92 23</b> Hydromulch/Sod all disturbed areas on Woodson Road and Blueberry Hill Drive as shown on plans and as specified. Sod to be laid along ROW in front of Whiskey Cake Restaurant (~4 pallets sod, 0.25 acre of hydromulch total both work areas).	LS	1	\$ _____	\$ _____
B.24	<b>Specification 01 57 13</b> Provide and install materials for erosion control fencing and inlet protection barriers as shown on plans and as specified. Includes installation, maintenance during project as required, and removal.	LS	1	\$ _____	\$ _____
B.25	<b>Specification 01 55 26</b> Traffic Control. Provide, install, and remove at end of project, all Traffic Control signs, PCMS dynamic signs, flaggers, cones, barricades, etc. to provide a full traffic control plan as shown on the plans and as specified.	LS	1	\$ _____	\$ _____
B.26	Provide and install junction box at the intersection of Blueberry Hill Dr. and Woodson Road including all dirtwork, compaction, cement stabilized sand, or other incidentals as shown on plans and as specified	EA	2	\$ _____	\$ _____
B.27	Provide and install 24" Safety End Treatments, including compaction, cement stabilized sand, or other incidentals as shown on plan and as specified.	EA	2	\$ _____	\$ _____
B.28	Provide and install 18" Safety End Treatments, including compaction, cement stabilized sand, or other incidentals as shown on plan and as specified.	EA	2	\$ _____	\$ _____
B.29	Lab testing for materials and compaction and subgrade stabilization. Contractor to use approved testing lab. Follow contractor's Geotech recommendations for subgrade stabilization based on in-situ soil conditions	LS	1	\$ _____	\$ _____
<b>TOTAL BASE BID:</b>					\$ _____

Footnotes for Basic Unit Price Table and Extra Unit Price Table:

- (1) Fixed Unit Price determined prior to Bid. Cannot be adjusted by the BIDDER.
- (2) Minimum Bid Price determined prior to Bid. Can be increased by the BIDDER by crossing out the Minimum and noting revised price on the line above.
- (3) Maximum Bid Price determined prior to Bid. Can be decreased by BIDDER by crossing out the Maximum and noting revised price on the line above.
- (4) Fixed Range Unit Price determined prior to Bid. Unit Price can be adjusted by BIDDER to any amount within the range defined by crossing out prices noted and noting revised price on the line above.

**C. EXTRA ITEMS UNIT PRICE TABLE:**

Item No.	Item Description	Unit Measure	Unit Quantity	Unit Price	Total
C.1	Provide and install Tensar Glaspave 25 between base material and 2" Type D surface course on Woodson Road (Sta 0+94.60 to Sta 5+56.23) including all incidentals as shown on paving detail and as specified	SY	1,325	\$ _____	\$ _____
C.2	Provide and install surface mount delineators along Woodson Road per the striping plan. Refer to TXDOT drawing D&OM (2)-15 for detail on surface mounted delineator type as shown on striping plan and as specified. Include all incidental items for installation	EA	6	\$ _____	\$ _____
<b>TOTAL EXTRA ITEMS:</b>				<b>\$ _____</b>	

**D. CASH ALLOWANCE TABLE:**

Item No.	Item Description	Unit Measure	Unit Quantity	Unit Price	Total
D.1	Cash Allowance for Contingency items. Used only with City and Engineer approval	CA	1	\$ 15,000.00	\$ 15,000.00
<b>TOTAL CASH ALLOWANCE:</b>				<b>\$ 15,000.00</b>	

**F. BID PRICE SUMMARY:****1. TOTAL BASE BID**

(Add totals from Sections A and B)

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

**2. TOTAL BASE BID WITH CASH ALLOWANCE**

(Add totals from Sections A, B, and D)

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

**3. TOTAL BASE BID WITH CASH AND EXTRA ITEMS**

(Add totals from Sections A, B, C and D)

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

4.0

**SIGNATURES:** By signing this Document, I agree that I have received and reviewed all Addenda and considered all costs associated with the Addenda in calculating the Total Bid Price.

**BIDDER:** \_\_\_\_\_  
(Print or type full name of proprietorship, partnership, corporation, or joint venture.\*)

**\*\*By:** \_\_\_\_\_  
Signature Date

**Name:** \_\_\_\_\_  
(Print or type name) Title

**Address:** \_\_\_\_\_  
(Mailing)  
\_\_\_\_\_  
(Street Address, if different)

**Telephone:** \_\_\_\_\_ **Fax:** \_\_\_\_\_

\* If Bid is a joint venture, add additional Bid Form signature sheets for each member of the joint venture.

\*\* BIDDER certifies that the only person or parties interested in this offer as principals are those named above. BIDDER has not directly or indirectly entered into any agreement, participated in any collusion, or otherwise taken any action in restraint of free competitive bidding.

**END OF SECTION**

**SECTION 00 43 13**  
**BID SECURITY FORM**

**THAT WE**, \_\_\_\_\_, as Principal,  
(Bidder)  
("Bidder"), and the other subscriber hereto, \_\_\_\_\_, as Surety, do hereby  
acknowledge ourselves to be held and firmly bound to **The City of Oak Ridge North** ("Owner"), in the sum of  
Dollars (\$\_\_\_\_\_) (an amount equal  
to 5 percent of the Total Bid Price, including Cash Allowances and Alternates, if any, for the payment of which sum,  
well and truly to be made to the Owner and its successors, the Bidder and Surety do bind themselves, their heirs,  
executors, administrators, successors, and assigns, jointly and severally.

**THE CONDITIONS OF THIS OBLIGATION ARE SUCH THAT:**

**WHEREAS**, the Bidder has submitted on or about this day a proposal offering to perform the scope of work as  
defined in accordance with the Drawings, Specifications, and terms and conditions related thereto to which reference  
is hereby made.

**NOW, THEREFORE**, if the Bidder's offer as stated in the Document 00 41 43 – Bid Form is accepted by the  
Owner, and the Bidder executes and returns to the Owner Document 00 52 43 – Agreement, required by the Owner,  
on the forms prepared by the Owner, for the Work and also executes and returns the same number of the  
Performance, Payment and Maintenance Bonds (such bonds to be executed by a Corporate Surety authorized by the  
State Board of Insurance to conduct insurance business in the State of Texas, and having an underwriting limitation in  
at least the amount of the bond) and other submittals as required by Bid Documents, in connection with the Work,  
within the Contract Time, then this obligation shall become null and void; otherwise it is to remain in full force and  
effect.

If Bidder is unable to or fails to perform the obligations undertaken herein, the undersigned Bidder and Surety  
shall be liable to the Owner for the full amount of this obligation which is hereby acknowledged as the amount of  
damages which will be suffered by the Owner on account of the failure of such Bidder to perform such obligations,  
the actual amount of such damages being difficult to ascertain.

Notices required or permitted hereunder shall be in writing and shall be deemed delivered when actually received  
or, if earlier, on the third day following deposit in a United States Postal Service post office or receptacle, with proper  
postage affixed (certified mail, return receipt requested), addressed to the respective other Party at the address  
prescribed in the Contract documents, or at such other address as the receiving Party may hereafter prescribe by  
written notice to the sending Party.

**IN WITNESS THEREOF**, the Bidder and Surety have signed and sealed this instrument on the respective  
dates written below their signatures and have attached current Power of Attorney.

ATTEST, SEAL: (if a corporation)  
WITNESS: (if not a corporation)

By: \_\_\_\_\_  
Name:  
Title:

ATTEST/SURETY WITNESS: (SEAL)

By: \_\_\_\_\_  
Name:  
Title:  
Date:

\_\_\_\_\_  
(Name of Bidder)

By: \_\_\_\_\_  
Name:  
Title:  
Date:

\_\_\_\_\_  
(Full Name of Surety)

\_\_\_\_\_  
(Address of Surety for Notice)

\_\_\_\_\_  
(Telephone Number of Surety)

By: \_\_\_\_\_  
Name:  
Title:  
Date:

**END OF DOCUMENT**



## **SECTION 00 45 13**

### **BIDDER'S QUALIFICATIONS**

#### **PART 1 GENERAL**

- A. Determination of the suitability of CONTRACTOR's experience record to this type of work will be solely determined by ENGINEER.
- B. All prospective Bidders must maintain staffed offices within 60 miles of the Project Site in the State of Texas.

#### **PART 2 EXECUTION**

- A. If requested by ENGINEER, the apparent Low Bidder shall submit to ENGINEER the following items within five (5) working days of the request for such information:
  - 1. Written verification of satisfactory performance of comparable projects within 150 miles of the Project Site. This written statement shall include the names, addresses and telephone numbers of the officers and/or partners of the Bidder's organization. The list must include; location of the projects, client for whom the work was performed, and the person within the client organization to contact regarding performance of the contract, including telephone number.
  - 2. List of equipment owned or rented/leased by CONTRACTOR which will be dedicated to the construction of the Project.
  - 3. An audited financial statement covering CONTRACTOR's last fiscal year.
- B. Failure to submit the above required information by the specified time may result in disqualification of the prospective Bidder from further consideration.
- C. ENGINEER reserves the right to waive the qualification requirement of any Bidder in which he is familiar and in his opinion is thoroughly qualified to perform the Work required on this Project.

### **END OF SECTION**

**SECTION 00 51 10**

**NOTICE OF AWARD**

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

**To:** \_\_\_\_\_

**Re:** **Woodson Road and Blueberry Hill Drive Roadway Improvements** (File No.12700)

**City of Oak Ridge North** (the "OWNER") considered your Bid for the referenced project. OWNER decided to Award the Project to **<Contractor Name>** in the amount of \$\_\_\_\_\_ for a completion time of **75** days in accordance with the Bid Form dated \_\_\_\_\_. This Award is conditioned on the completion and execution of the Contract Documents.

Please find enclosed original documents that must be completed and executed in accordance with the Instructions to Bidders, General Conditions and Supplementary Conditions:

Document	00 52 43	Agreement Form
Document	00 61 13	Performance and Payment Bond
Document	00 61 19	Maintenance Bond
Document	00 62 93	Site Survey Certification Form

Complete and return FIVE SETS these documents with original signatures **along with completed Form 1295 and five (5) original Certificates of Insurance** (refer to Sections 00 72 43 and 00 73 00 for minimum insurance requirements) within ten (10) days as directed by the Instructions to Bidders, General Conditions, and Supplementary Conditions.

A maintenance bond for the final contract amount will be required at the end of the project.

If you have any questions or need further information, please contact the undersigned.

Very truly yours,

Carl Rushing, P.E.  
Project Manager

**END OF DOCUMENT**

**SECTION 00 52 43**

**AGREEMENT FORM**

**THIS AGREEMENT** is by and between City of Oak Ridge North

and (CONTRACTOR)

For Woodson Road and Blueberry Hill Drive Roadway Improvements

OWNER and CONTRACTOR, in consideration of the mutual covenants set forth herein, agree as follows:

**ARTICLE 1 - WORK**

1.01 CONTRACTOR shall complete all Work as specified or indicated in the Contract Documents.

**ARTICLE 2 - THE PROJECT**

2.01 The Work may be the whole or only a part of the Project described in the Contract Documents.

**ARTICLE 3 - ENGINEER**

3.01 The Project has been designed by: Bleyl Engineering, 100 Nugent Street, Conroe, Texas 77301, (ENGINEER), who is to act as OWNER's representative, assume all duties and responsibilities, and have the rights and authority assigned to ENGINEER in the Contract Documents in connection with the completion of the Work in accordance with the Contract Documents.

**ARTICLE 4 - CONTRACT TIMES**

4.01 Time of the Essence

A. All time limits for Milestones, if any, Substantial Completion, and completion and readiness for final payment as stated in the Contract Documents are of the essence of the Contract.

4.02 Days to Achieve Substantial Completion and Final Payment

A. The Work will be substantially completed by the CONTRACTOR within **Seventy Five (75)** calendar days after the date when the Contract Times commence to run as provided in Paragraph 4.01 of the General Conditions, subject to adjustments of Contract Time allowed in accordance with Article 11 of the General Conditions, and completed and ready for final payment in accordance with Paragraph 15.06 of the General Conditions within 10 business days after the date of Substantial Completion.

4.03 Liquidated Damages

A. CONTRACTOR and OWNER recognize that time is of the essence of this Agreement and that OWNER will suffer financial loss if the Work is not completed within the times specified in Paragraph 4.02 above, plus any extensions thereof allowed in accordance with Article 11 of the General Conditions. The parties also recognize the delays, expense, and difficulties involved in proving in a legal or arbitration proceeding the actual loss suffered by OWNER if the Work is not completed on time. Accordingly, instead of requiring any such proof, OWNER and CONTRACTOR agree that as liquidated damages for delay (but not as a penalty), CONTRACTOR shall pay OWNER **\$200.00** for each day that expires after the time specified in Paragraph



CONTRACTOR's Applications for Payment on or about the 10th day of each month during performance of the Work as provided in Paragraphs 6.02.A.1 and 6.02.A.2 below. All such payments will be measured by the schedule of values established as provided in Paragraph 2.05.A of the General Conditions (and in the case of Unit Price Work based on the number of units completed) or, in the event there is no schedule of values, as provided in the General Requirements:

1. Prior to Substantial Completion, progress payments will be made in an amount equal to the percentage indicated below but, in each case, less the aggregate of payments previously made and less such amounts as ENGINEER may determine or OWNER may withhold, including but not limited to liquidated damages, in accordance with Paragraph 15.01 of the General Conditions:

a. 90 percent of Work completed (with the balance being retainage). If the Work has been 50 percent completed as determined by ENGINEER, and if the character and progress of the Work have been satisfactory to OWNER and ENGINEER, OWNER, on recommendation of ENGINEER, may determine that as long as the character and progress of the Work remain satisfactory to them, there will be no additional retainage; and

b. 0 percent of cost of materials and equipment not incorporated in the Work (with the balance being retainage).

2. Upon Substantial Completion, OWNER shall pay an amount sufficient to increase total payments to CONTRACTOR to 95 percent of the Work completed, less such amounts as ENGINEER shall determine in accordance with Paragraph 15.01.C.5 of the General Conditions and less 100 percent of ENGINEER's estimate of the value of Work to be completed or corrected as shown on the tentative list of items to be completed or corrected attached to the certificate of Substantial Completion.

#### 6.03 Final Payment

A. Upon final completion and acceptance of the Work in accordance with Paragraph 15.06 of the General Conditions, OWNER shall pay the remainder of the Contract Price as recommended by ENGINEER as provided in said Paragraph 15.06.

### ARTICLE 7 - INTEREST

7.01 All moneys not paid when due as provided in Article 15 of the General Conditions shall bear interest in accordance with state and federal law.

### ARTICLE 8 – CONTRACTOR'S REPRESENTATIONS

8.01 In order to induce OWNER to enter into this Agreement CONTRACTOR makes the following representations:

A. CONTRACTOR has examined and carefully studied the Contract Documents and the other related data identified in the Bidding Documents.

B. CONTRACTOR has visited the Site and become familiar with and is satisfied as to the general, local, and Site conditions that may affect cost, progress, and performance of the Work.

C. CONTRACTOR is familiar with and is satisfied as to all federal, state, and local Laws and Regulations that may affect cost, progress, and performance of the Work.

D. CONTRACTOR has carefully studied all: (1) reports of explorations and tests of subsurface conditions at or contiguous to the Site and all drawings of physical conditions in or relating to existing surface or subsurface structures at or contiguous to the Site (except Underground Facilities) which have been identified in the Supplementary Conditions as provided in Paragraph 5.03 of the General Conditions and (2) reports and drawings of a Hazardous Environmental Condition, if any, at the Site which has been identified in the Supplementary Conditions as provided in Paragraph 5.06 of the General Conditions.

E. CONTRACTOR has obtained and carefully studied (or assumes responsibility for doing so) all additional or supplementary examinations, investigations, explorations, tests, studies, and data concerning conditions (surface, subsurface, and Underground Facilities) at or contiguous to the Site which may affect cost, progress, or performance of the Work or which relate to any aspect of the means, methods, techniques, sequences, and procedures of construction to be employed by CONTRACTOR, including any specific means, methods, techniques, sequences, and procedures of construction expressly required by the Bidding Documents, and safety precautions and programs incident thereto.

F. CONTRACTOR does not consider that any further examinations, investigations, explorations, tests, studies, or data are necessary for the performance of the Work at the Contract Price, within the Contract Times, and in accordance with the other terms and conditions of the Contract Documents.

G. CONTRACTOR is aware of the general nature of work to be performed by OWNER and others at the Site that relates to the Work as indicated in the Contract Documents.

H. CONTRACTOR has correlated the information known to CONTRACTOR, information and observations obtained from visits to the Site, reports and drawings identified in the Contract Documents, and all additional examinations, investigations, explorations, tests, studies, and data with the Contract Documents.

I. CONTRACTOR has given ENGINEER written notice of all conflicts, errors, ambiguities, or discrepancies that CONTRACTOR has discovered in the Contract Documents, and the written resolution thereof by ENGINEER is acceptable to CONTRACTOR.

J. The CONTRACTOR shall verify all existing site conditions, and confirm points of connections to existing improvements, including confirmation of elevations and grades of existing facilities and utilities prior to starting any grading, paving or utility installation. Verification of locations and functions of each existing structure or system and all existing utility grades and invert elevations is the contractor's responsibility. Notify the engineer of any discrepancies immediately. Any conflicts or errors between existing field conditions and engineering plans must be resolved prior to starting excavation or setting any gravity sewer (storm or sanitary) and appurtenances. Contractor is responsible for completing Site Survey Certification Form 006293 in the bid package prior to start of construction.

K. The Contract Documents are generally sufficient to indicate and convey understanding of all terms and conditions for performance and furnishing of the Work.

## **ARTICLE 9 - CONTRACT DOCUMENTS**

### **9.01 Contents**

A. The Contract Documents consist of the following:

1. This Agreement
2. General Conditions and Supplementary Conditions

3. Specifications as listed in the table of contents of the Project Manual.
  4. Performance and Payment Bonds
  5. Drawings as shown on the List of Drawings
  6. Addenda
  7. Exhibits to this Agreement (enumerated as follows):
    - a. CONTRACTOR's Bid
    - b. Documentation submitted by CONTRACTOR prior to Notice of Award
  8. The following which may be delivered or issued on or after the Effective Date of the Agreement and are not attached hereto:
    - a. Notice to Proceed
    - b. Change Order(s)
    - c. Field Order(s).
- B. The documents listed in Paragraph 9.01.A are attached to this Agreement (except as expressly noted otherwise above).
- C. There are no Contract Documents other than those listed above in this Article 9.
- D. The Contract Documents may only be amended, modified, or supplemented as provided in Paragraph 11.01 of the General Conditions.

## **ARTICLE 10 - MISCELLANEOUS**

### **10.01 Terms**

A. Terms used in this Agreement will have the meanings stated in the General Conditions and the Supplementary Conditions.

### **10.02 Assignment of Contract**

A. No assignment by a party hereto of any rights under or interests in the Contract will be binding on another party hereto without the written consent of the party sought to be bound; and, specifically but without limitation, moneys that may become due and moneys that are due may not be assigned without such consent (except to the extent that the effect of this restriction may be limited by law), and unless specifically stated to the contrary in any written consent to an assignment, no assignment will release or discharge the assignor from any duty or responsibility under the Contract Documents.

### **10.03 Successors and Assigns**

A. OWNER and CONTRACTOR each binds itself, its partners, successors, assigns, and legal representatives to the other party hereto, its partners, successors, assigns, and legal representatives in respect to all covenants, agreements, and obligations contained in the Contract Documents.

#### 10.04 Severability

A. Any provision or part of the Contract Documents held to be void or unenforceable under any Law or Regulation shall be deemed stricken, and all remaining provisions shall continue to be valid and binding upon OWNER and CONTRACTOR, who agree that the Contract Documents shall be reformed to replace such stricken provision or part thereof with a valid and enforceable provision that comes as close as possible to expressing the intention of the stricken provision.

#### 10.05 Other Provisions

##### A. Prohibition on Boycotting Israel Verification

1. The CONTRACTOR, in conjunction with the execution of this contract and in accordance with Chapter 2270 of the Texas Government Code, effective September 1, 2017, does hereby agree, confirm, and verify that it:

- A. Does not Boycott Israel; and

- B. Will not Boycott Israel during the term of the contract.

**"Boycott Israel"** has the meaning given to it in Chapter 808 of Subtitle A, Title 8 of the Texas Government Code. As of the effective date of the statute, the term means "refusing to deal with, terminating business activities with, or otherwise taking any action that is intended to penalize, inflict economic harm on, or limit commercial relations specifically with Israel, or with a person or entity doing business in Israel or in an Israeli-controlled territory, but does not include an action made for ordinary business purposes."

2. CONTRACTOR hereby acknowledges and agrees that this verification is a material term of the contract and the OWNER is expressly relying on this verification in agreeing to enter into the contract with CONTRACTOR.
3. **TO THE MAXIMUM EXTENT PERMITTED BY LAW, CONTRACTOR AGREES TO INDEMNIFY, DEFEND AND HOLD HARMLESS OWNER FROM ALL CLAIMS, CAUSES OF ACTION, LEGAL PROCEEDINGS, DAMAGES, COSTS, FEES AND EXPENSES ARISING OUT OF OR RELATED TO AN ACTUAL OR ALLEGED MISREPRESENTATION BY CONTRACTOR PROVIDED HEREUNDER.**



**IN WITNESS WHEREOF**, OWNER and CONTRACTOR have signed this Agreement in duplicate. One counterpart each has been delivered to OWNER and CONTRACTOR. All portions of the Contract Documents have been signed or identified by OWNER and CONTRACTOR or on their behalf.

This Agreement will be effective on \_\_\_\_\_ (which is the Effective Date of the Agreement).

OWNER:

CONTRACTOR:

**City of Oak Ridge North**

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

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

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

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

[CORPORATE SEAL]

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

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

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

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

Address for giving notices:

Address for giving notices:

**Bleyl Engineering**

100 Nugent Street

Conroe, Texas 77301

Attention: Carl Rushing, PE

License No.: \_\_\_\_\_

(Where applicable)

Agent for service or  
process: \_\_\_\_\_

(If CONTRACTOR is a corporation or a partnership, attach  
evidence of authority to sign.)

**END OF DOCUMENT**

**SECTION 00 55 00**

**NOTICE TO PROCEED**

TO: \_\_\_\_\_

DATE: \_\_\_\_\_

PROJECT: Woodson Road and Blueberry Hill Drive Roadway Improvements

BE JOB NO. 12700

In accordance with the AGREEMENT dated \_\_\_\_\_, you are hereby notified to commence work on the above referenced project. **The NOTICE TO PROCEED DATE shall be \_\_\_\_\_.** You are to complete the work within **Seventy Five ( 75 )** consecutive calendar days from the date of the NOTICE TO PROCEED.

The date of completion of all work is therefore \_\_\_\_\_.

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

Carl Rushing, P.E.  
Project Manager  
Bleyl Engineering

**ACCEPTANCE OF NOTICE**

Receipt of the above NOTICE TO PROCEED is hereby acknowledged by

\_\_\_\_\_

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

[Sign]

\_\_\_\_\_  
[Print]

\_\_\_\_\_  
[Title]

**END OF SECTION**

**SECTION 00 61 13**

**PERFORMANCE BOND FORM**

**THAT WE,** \_\_\_\_\_,  
as Principal, the "CONTRACTOR"), and the other subscriber hereto, \_\_\_\_\_,  
as Surety, do hereby acknowledge ourselves to be held and firmly bound to City of Oak Ridge North, (the  
"OWNER"), in the penal sum of \_\_\_\_\_ (\$ \_\_\_\_\_) for the payment of which sum, well  
and truly to be made to the OWNER, its successors and assigns, CONTRACTOR and Surety do bind themselves,  
their heirs, executors, administrators, successors and assigns, jointly and severally.

**THE CONDITIONS OF THIS OBLIGATION ARE SUCH THAT:**

**WHEREAS**, the CONTRACTOR has on or about this day executed a Contract in writing with the OWNER for the  
\_\_\_\_\_ all of such work to be done as set out in full in said Contract Documents therein  
referred to and executed by the OWNER, all of which are made a part of this instrument as fully and completely as if  
set out in full herein.

**NOW THEREFORE**, if the said CONTRACTOR shall faithfully and strictly perform the Contract in all its  
terms, provisions, and stipulations in accordance with its true meaning and effect, and in accordance with the  
Contract documents referred to therein and shall comply strictly with each and every provision of the Contract and  
with this Bond, then this obligation shall become null and void and shall have no further force and effect; otherwise  
the same is to remain in full force and effect. Should the CONTRACTOR fail to faithfully and strictly perform the  
Contract in all its terms, including but not limited to the indemnifications thereunder, the Surety shall be liable for all  
damages, losses, expenses and liabilities that the OWNER may suffer in consequence thereof, as more fully set forth  
herein.

It is further understood and agreed that the Surety does hereby relieve the OWNER or its representatives  
from the exercise of any diligence whatever in securing compliance on the part of the CONTRACTOR with the  
terms of the Contract, and the Surety agrees that it shall be bound to take notice of and shall be held to have  
knowledge of all acts or omissions of the CONTRACTOR in all matters pertaining to the Contract. The Surety  
understands and agrees that the provision in the Contract that the OWNER will retain certain amounts due the  
CONTRACTOR until the expiration of 30 days from the acceptance of the Work is intended for the OWNER's  
benefit, and the OWNER will have the right to pay or withhold such retained amounts or any other amount owing  
under the Contract without changing or affecting the liability of the Surety hereon in any degree.

It is further expressly agreed by Surety that the OWNER or its representatives are at liberty at any time,  
without notice to the Surety, to make any change in the Contract Documents and in the Work to be done thereunder,  
as provided in the Contract, and in the terms and conditions thereof, or to make any change in, addition to, or  
deduction from the Work to be done thereunder; and that such changes, if made, shall not in any way vitiate the  
obligation in this Bond and undertaking or release the Surety therefrom.

It is further expressly agreed and understood that the CONTRACTOR and Surety will fully indemnify and  
save harmless the OWNER from any liability, loss, cost, expense, or damage arising out of CONTRACTOR's  
performance of the Contract.

If the OWNER gives Surety notice of CONTRACTOR's default, Surety shall, within 45 days, take one of the  
following actions:

1. Arrange for CONTRACTOR, with consent of the OWNER to perform and complete the Contract; or

2. Take over and assume completion of the Contract itself, through its agents or through independent CONTRACTORS, and become entitled to the payment of the balance of the Contract Price.

If the Surety fails to take either of the actions set out above, it shall be deemed to have waived its right to perform and complete the Contract and receive payment of the balance of the Contract Price and the OWNER shall be entitled to enforce any remedies available at law, including but not limited to completing the Contract itself and recovering any cost in excess of the Original Contract Price from the Surety.

This Bond and all obligations created hereunder shall be performable in Montgomery County, Texas. This Bond is given in compliance with the provisions of Chapter 2253, Texas Government Code, as amended, which is incorporated herein by this reference.

Notices required or permitted hereunder shall be in writing and shall be deemed delivered when actually received or, if earlier, on the third day following deposit in a United States Postal Service post office or receptacle, with proper postage affixed (certified mail, return receipt requested), addressed to the respective other Party at the address prescribed in the Contract documents, or at such other address as the receiving party may hereafter prescribe by written notice to the sending party.

**IN WITNESS THEREOF**, the said CONTRACTOR and Surety have signed and sealed this instrument on the respective dates written below their signatures and have attached current Power of Attorney.

ATTEST, SEAL: (if a corporation)

WITNESS: (if not a corporation)

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

Name:

Title:

Date:

\_\_\_\_\_  
Name of CONTRACTOR

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

Name:

Title:

Date:

ATTEST/SURETY WITNESS:

(SEAL)

\_\_\_\_\_  
Full Name of Surety

Address of Surety for Notice

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Telephone Number of Surety

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

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

Name:

Title:

Date:

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

Name:

Title: Attorney-in-Fact

Date:

**SECTION 00 61 13**

**PAYMENT BOND FORM**

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*):

City of Oak Ridge North  
27424 Robinson Road  
Oak Ridge North, Texas 77385

**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 Payment Bond to be duly executed by an authorized officer, agent, or representative.

**CONTRACTOR AS PRINCIPAL**

**SURETY**

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

\_\_\_\_\_  
Surety's Name and Corporate 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. Reserved.
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*):

Carl Rushing, P.E. (Bleyl Engineering) 100 Nugent Street, Conroe, TX 77301, (936) 441-7833

**SECTION 00 61 19**

**MAINTENANCE BOND FORM**

**THAT WE,** \_\_\_\_\_, as Principal, hereinafter called CONTRACTOR, and the other subscriber hereto, \_\_\_\_\_, as Surety, do hereby acknowledge ourselves to be held and firmly bound to City Oak Ridge North ("OWNER"), in the sum of \$\_\_\_\_\_ for the payment of which sum well and truly to be made to the OWNER and its successors, the said CONTRACTOR and Surety do bind themselves, their heirs, executors, administrators, successors, jointly and severally.

**THE CONDITIONS OF THIS OBLIGATION ARE SUCH THAT:**

**WHEREAS,** the CONTRACTOR has on or about this day executed a Contract in writing with the \_\_\_\_\_ all of such work to be done as set out in full in said Contract documents therein referred to and executed by the OWNER, all of which are made a part of this instrument as fully and completely as if set out in full herein.

**NOW THEREFORE,** if the said CONTRACTOR shall comply with the provisions of the General Conditions, and correct work not in accordance with the Contract documents discovered within the established one-year period, then this obligation shall become null and void, and shall be of no further force and effect; otherwise, the same is to remain in full force and effect.

Notices required or permitted hereunder shall be in writing and shall be deemed delivered when actually received or, if earlier, on the third day following deposit in a United States Postal Service post office or receptacle, with proper postage affixed (certified mail, return receipt requested), addressed to the respective other party at the address prescribed in the Contract documents, or at such other address as the receiving party may hereafter prescribe by written notice to the sending party. **IN WITNESS THEREOF,** the said CONTRACTOR and Surety have signed and sealed this instrument on the respective dates written below their signatures and have attached current Power of Attorney.



ATTEST, SEAL: (if a corporation)  
WITNESS: (if not a corporation)

By: \_\_\_\_\_  
Name:  
Title:  
Date:

\_\_\_\_\_  
Name of CONTRACTOR

By: \_\_\_\_\_  
Name:  
Title:  
Date

ATTEST/SURETY WITNESS:

(SEAL)

\_\_\_\_\_  
Full Name of Surety

Address of Surety for Notice  
\_\_\_\_\_  
\_\_\_\_\_

Telephone Number of Surety  
\_\_\_\_\_

By: \_\_\_\_\_  
Name:  
Title:  
Date:

By: \_\_\_\_\_  
Name:  
Title: Attorney-in-Fact  
Date:

**END OF DOCUMENT**

**SECTION 00 62 16**

**CERTIFICATE OF INSURANCE FORM  
(by CONTRACTOR)**

**INSERT CERTIFICATE OF INSURANCE HERE**

**END OF SECTION**

**SECTION 00 62 93**

**SITE SURVEY CERTIFICATION**

**PROJECT:** Woodson Road and Blueberry Hill Drive Roadway Improvements

**PROJECT No.:** 12700

**FROM:**

CONTRACTOR and  
Address for Written Notice  
City, State, ZIP

**TO:**

Carl Rushing, PE  
Bleyl Engineering  
100 Nugent Street  
Conroe, Texas 77301

**1.01 DESCRIPTION OF REQUIREMENTS**

- A. CONTRACTOR shall verify all existing site conditions, and confirm points of connections to existing improvements, including confirmation of elevations and grades of existing facilities and utilities prior to starting any grading, paving or utility installation. Verification of locations and functions of each existing structure or system and all existing utility grades and invert elevations is the contractor's responsibility. Notify the engineer of any discrepancies immediately. Any conflicts or errors between existing field conditions and engineering plans must be resolved prior to starting excavation or setting any gravity sewer (storm or sanitary) and appurtenances.
- B. This applies to all contracts that involve connections to, or installation of:
  - 1. Concrete and asphalt paving, storm inlets, storm junction boxes, and storm piping.

**1.02 ACKNOWLEDGMENT BY CONTRACTOR (SIGNED AT AWARD)**

- A. CONTRACTOR hereby acknowledges this requirement and agrees to perform necessary topographic and site surveys prior to commencing work on the specified items. **This Certification will not change the total Contract Price or Time of Performance.**

\_\_\_\_\_  
CONTRACTOR Signature

\_\_\_\_\_  
Date

\_\_\_\_\_  
CONTRACTOR Title

**END OF SECTION**

**SECTION 00 63 13**

**REQUEST FOR INTERPRETATION FORM**

1. PROJECT No.: 12700
2. RFI No.: \_\_\_\_\_
3. PROJECT NAME: Woodson Road and Blueberry Hill Drive Roadway Improvements
4. CONTRACTOR: \_\_\_\_\_
5. CONTRACT No.: \_\_\_\_\_
6. SPECIFICATION Nos.: \_\_\_\_\_
7. DRAWING Nos.: \_\_\_\_\_
8. RESPONSE CODE: [\_\_\_\_] CRITICAL [\_\_\_\_] ROUTINE [\_\_\_\_]
9. DATE RESPONSE REQUIRED: \_\_\_\_\_
10. INFORMATION REQUIRED: (Describe Below)

11. \_\_\_\_\_  
CONTRACTOR (Signature) TITLE DATE
12. RESPONSE:

13. \_\_\_\_\_  
PROJECT MANAGER (Signature) DATE
14. If CONTRACTOR believes the response given in Item 12 requires an adjustment in Contract Price or Contract Time, CONTRACTOR shall submit a timely proposal so as not to delay CONTRACTOR's Work in accordance with **General Conditions, Article 11 – Changes in the Work.**

**END OF DOCUMENT**

**SECTION 00 63 36**

**FIELD ORDER No.** \_\_\_\_\_

**PROJECT:** Woodson Road and Blueberry Hill Drive Roadway Improvements

**PROJECT No.:** 12700

**TO:**

CONTRACTOR and  
Address for Written Notice

REFERENCE RFIs/RFPs: \_\_\_\_\_

CONTRACT CASH ALLOWANCE: \_\_\_\_\_

**1.01 DESCRIPTION OF CHANGES**

**REDUCTION TO CASH  
ALLOWANCE**

**AMOUNT**

**ITEM 1 SCOPE:**  
**JUSTIFICATION:**  
**ITEM 2 SCOPE:**  
**JUSTIFICATION:**  
**ITEM 3 SCOPE:**  
**JUSTIFICATION:**

**TOTAL REDUCTION TO CASH ALLOWANCE:** \_\_\_\_\_

**1.02 ACCEPTANCE BY CONTRACTOR**

CONTRACTOR agrees to perform change(s) included in this Field Order for the price indicated. The prices for changes include all costs associated with this Field Order. **This Field Order does not change the total Contract Price or Times.**

\_\_\_\_\_  
CONTRACTOR Signature and Title

\_\_\_\_\_  
Date

**1.03 ACCEPTANCE BY THE OWNER**

\_\_\_\_\_  
Project Engineer

\_\_\_\_\_  
Date

\_\_\_\_\_  
Owner Representative

\_\_\_\_\_  
Date

## EXECUTIVE SUMMARY

F.O. No. \_\_\_\_\_ Proj. No.: \_\_\_\_\_

1.01	CASH ALLOWANCE SUMMARY	<u>DOLLAR AMOUNT</u>	<u>PERCENT</u>
A.	Original Cash Allowance	_____	_____
B.	Previous Field Orders	_____	_____
C.	This Field Order	_____	_____
D.	Remainder of Cash Allowance	<div></div>	<div></div>

END OF SECTION

**SECTION 00 63 63**

**CHANGE ORDER No. \_\_\_\_\_**

**PROJECT:**            12700\_\_\_\_\_

**PROJECT No.:**     Woodson Road and Blueberry Hill Drive Roadway Improvements\_\_\_\_\_

TO: \_\_\_\_\_  
CONTRACTOR and \_\_\_\_\_  
Address for Written Notice \_\_\_\_\_

REFERENCE RFIs/RFPs: \_\_\_\_\_

**1.01 DESCRIPTION OF CHANGES**

**CONTRACT CHANGE**

**AMOUNT**

**TIME**

**ITEM 1 SCOPE:**

JUSTIFICATION:

Days

**ITEM 2 SCOPE:**

JUSTIFICATION:

Days

**ITEM 3 SCOPE:**

JUSTIFICATION:

Days

**TOTALS:**

**Days**

**1.02 ACCEPTANCE BY CONTRACTOR**

CONTRACTOR agrees to perform change(s) included in this Change Order for the price and time indicated.  
The prices for changes include all costs associated with this Change Order.

\_\_\_\_\_  
CONTRACTOR Signature and Title

\_\_\_\_\_  
Date

**1.03 ACCEPTANCE BY THE OWNER**

\_\_\_\_\_  
Director Date

\_\_\_\_\_  
Director Date

\_\_\_\_\_  
Engineer Date

**END OF DOCUMENT**

## EXECUTIVE SUMMARY

C.O. No. \_\_\_\_\_ Proj. No.: \_\_\_\_\_

1.01	CONTRACT PRICE SUMMARY	DOLLAR AMOUNT	PERCENT
A.	Original Contract Price		
B.	Previous Change Orders		
C.	This Change Order		
D.	Contract Price		

Date of Commencement of the Work:

1.02	CONTRACT TIME SUMMARY	DURATION	COMPLETION DATE
A.	Original Contract Time	Days	
B.	Previous Change Orders	Days	
C.	This Change Order	Days	
D.	Contract Time	Days	

### 1.03 TOTAL VALUE OF INCREASES OUTSIDE OF GENERAL SCOPE OF WORK

- A. Including this Change Order, the following table is provided to track conditions related to Document 00 72 43 - General Conditions.

<u>CHANGE ORDER No.</u>	<u>AMOUNT ADDED</u>	<u>PERCENT OF ORIGINAL CONTRACT PRICE</u>
[1]	[\$0.00]	[0%]

---

TOTALS

END OF SUMMARY



**SECTION 00 72 43**

**GENERAL CONDITIONS**

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## ARTICLE 1 – DEFINITIONS AND TERMINOLOGY

### 1.01 *Defined Terms*

- A. Wherever used in the Bidding Requirements or Contract Documents, a term printed with initial capital letters, including the term's singular and plural forms, will have the meaning indicated in the definitions below. In addition to terms specifically defined, terms with initial capital letters in the Contract Documents include references to identified articles and paragraphs, and the titles of other documents or forms.
1. *Addenda*—Written or graphic instruments issued prior to the opening of Bids which clarify, correct, or change the Bidding Requirements or the proposed Contract Documents.
  2. *Agreement*—The written instrument, executed by Owner and Contractor, that sets forth the Contract Price and Contract Times, identifies the parties and the Engineer, and designates the specific items that are Contract Documents.
  3. *Application for Payment*—The form acceptable to Engineer which is to be used by Contractor during the course of the Work in requesting progress or final payments and which is to be accompanied by such supporting documentation as is required by the Contract Documents.
  4. *Bid*—The offer of a Bidder submitted on the prescribed form setting forth the prices for the Work to be performed.
  5. *Bidder*—An individual or entity that submits a Bid to Owner.
  6. *Bidding Documents*—The Bidding Requirements, the proposed Contract Documents, and all Addenda.
  7. *Bidding Requirements*—The advertisement or invitation to bid, Instructions to Bidders, Bid Bond or other Bid security, if any, the Bid Form, and the Bid with any attachments.
  8. *Change Order*—A document which is signed by Contractor and Owner and authorizes an addition, deletion, or revision in the Work or an adjustment in the Contract Price or the Contract Times, or other revision to the Contract, issued on or after the Effective Date of the Contract.
  9. *Change Proposal*—A written request by Contractor, duly submitted in compliance with the procedural requirements set forth herein, seeking an adjustment in Contract Price or Contract Times, or both; contesting an initial decision by Engineer concerning the requirements of the Contract Documents or the acceptability of Work under the Contract Documents; challenging a set-off against payments due; or seeking other relief with respect to the terms of the Contract.
  10. *Claim*—(a) A demand or assertion by Owner directly to Contractor, duly submitted in compliance with the procedural requirements set forth herein: seeking an adjustment of Contract Price or Contract Times, or both; contesting an initial decision by Engineer concerning the requirements of the Contract Documents or the acceptability of Work under the Contract Documents; contesting Engineer's decision regarding a Change Proposal; seeking resolution of a contractual issue that Engineer has declined to address; or seeking other relief with respect to the terms of the Contract; or (b) a demand or assertion by Contractor directly to Owner, duly submitted in compliance with the procedural requirements set forth herein, contesting Engineer's decision regarding a Change Proposal; or seeking resolution of a contractual issue that Engineer has declined to address. A demand for money or services by a third party is not a Claim.

11. *Constituent of Concern*—Asbestos, petroleum, radioactive materials, polychlorinated biphenyls (PCBs), hazardous waste, and any substance, product, waste, or other material of any nature whatsoever that is or becomes listed, regulated, or addressed pursuant to (a) the Comprehensive Environmental Response, Compensation and Liability Act, 42 U.S.C. §§9601 et seq. (“CERCLA”); (b) the Hazardous Materials Transportation Act, 49 U.S.C. §§5501 et seq.; (c) the Resource Conservation and Recovery Act, 42 U.S.C. §§6901 et seq. (“RCRA”); (d) the Toxic Substances Control Act, 15 U.S.C. §§2601 et seq.; (e) the Clean Water Act, 33 U.S.C. §§1251 et seq.; (f) the Clean Air Act, 42 U.S.C. §§7401 et seq.; or (g) any other federal, state, or local statute, law, rule, regulation, ordinance, resolution, code, order, or decree regulating, relating to, or imposing liability or standards of conduct concerning, any hazardous, toxic, or dangerous waste, substance, or material.
12. *Contract*—The entire and integrated written contract between the Owner and Contractor concerning the Work.
13. *Contract Documents*—Those items so designated in the Agreement, and which together comprise the Contract.
14. *Contract Price*—The money that Owner has agreed to pay Contractor for completion of the Work in accordance with the Contract Documents. .
15. *Contract Times*—The number of days or the dates by which Contractor shall: (a) achieve Milestones, if any; (b) achieve Substantial Completion; and (c) complete the Work.
16. *Contractor*—The individual or entity with which Owner has contracted for performance of the Work.
17. *Cost of the Work*—See Paragraph 13.01 for definition.
18. *Drawings*—The part of the Contract that graphically shows the scope, extent, and character of the Work to be performed by Contractor.
19. *Effective Date of the Contract*—The date, indicated in the Agreement, on which the Contract becomes effective.
20. *Engineer*—The individual or entity named as such in the Agreement.
21. *Field Order*—A written order issued by Engineer which requires minor changes in the Work but does not change the Contract Price or the Contract Times.
22. *Hazardous Environmental Condition*—The presence at the Site of Constituents of Concern in such quantities or circumstances that may present a danger to persons or property exposed thereto. The presence at the Site of materials that are necessary for the execution of the Work, or that are to be incorporated in the Work, and that are controlled and contained pursuant to industry practices, Laws and Regulations, and the requirements of the Contract, does not establish a Hazardous Environmental Condition.
23. *Laws and Regulations; Laws or Regulations*—Any and all applicable laws, statutes, rules, regulations, ordinances, codes, and orders of any and all governmental bodies, agencies, authorities, and courts having jurisdiction.
24. *Liens*—Charges, security interests, or encumbrances upon Contract-related funds, real property, or personal property.

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

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



48. *Work Change Directive*—A written directive to Contractor issued on or after the Effective Date of the Contract, signed by Owner and recommended by Engineer, ordering an addition, deletion, or revision in the Work.

## 1.02 Terminology

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

4. If the Contract Documents establish an obligation of Contractor with respect to specific services, materials, or equipment, but do not expressly use any of the four words “furnish,” “install,” “perform,” or “provide,” then Contractor shall furnish and install said services, materials, or equipment complete and ready for intended use.
- F. Unless stated otherwise in the Contract Documents, words or phrases that have a well-known technical or construction industry or trade meaning are used in the Contract Documents in accordance with such recognized meaning.

## **ARTICLE 2 – PRELIMINARY MATTERS**

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

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

### **2.02 *Copies of Documents***

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

### **2.03 *Before Starting Construction***

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

performance of the Work. Such prices will include an appropriate amount of overhead and profit applicable to each item of Work.

2.04 *Preconstruction Conference; Designation of Authorized Representatives*

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

2.05 *Initial Acceptance of Schedules*

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

2.06 *Electronic Transmittals*

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

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

### 3.01 *Intent*

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

### 3.02 *Reference Standards*

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

### 3.03 *Reporting and Resolving Discrepancies*

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

2. *Contractor's Review of Contract Documents:* If, before or during the performance of the Work, Contractor discovers any conflict, error, ambiguity, or discrepancy within the Contract Documents, or between the Contract Documents and (a) any applicable Law or Regulation, (b) actual field conditions, (c) any standard specification, manual, reference standard, or code, or (d) any instruction of any Supplier, then Contractor shall promptly report it to Engineer in writing. Contractor shall not proceed with the Work affected thereby (except in an emergency as required by Paragraph 7.15) until the conflict, error, ambiguity, or discrepancy is resolved, by a clarification or interpretation by Engineer, or by an amendment or supplement to the Contract Documents issued pursuant to Paragraph 11.01.
3. Contractor shall not be liable to Owner or Engineer for failure to report any conflict, error, ambiguity, or discrepancy in the Contract Documents unless Contractor had actual knowledge thereof.

B. *Resolving Discrepancies:*

1. Except as may be otherwise specifically stated in the Contract Documents, the provisions of the part of the Contract Documents prepared by or for Engineer shall take precedence in resolving any conflict, error, ambiguity, or discrepancy between such provisions of the Contract Documents and:
  - a. the provisions of any standard specification, manual, reference standard, or code, or the instruction of any Supplier (whether or not specifically incorporated by reference as a Contract Document); or
  - b. the provisions of any Laws or Regulations applicable to the performance of the Work (unless such an interpretation of the provisions of the Contract Documents would result in violation of such Law or Regulation).

3.04 *Requirements of the Contract Documents*

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

### 3.05 *Reuse of Documents*

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

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

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

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

### 4.02 *Starting the Work*

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

### 4.03 *Reference Points*

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

### 4.04 *Progress Schedule*

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

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

#### 4.05 *Delays in Contractor's Progress*

- A. If Owner, Engineer, or anyone for whom Owner is responsible, delays, disrupts, or interferes with the performance or progress of the Work, then Contractor shall be entitled to an equitable adjustment in the Contract Times and Contract Price. Contractor's entitlement to an adjustment of the Contract Times is conditioned on such adjustment being essential to Contractor's ability to complete the Work within the Contract Times.
- B. Contractor shall not be entitled to an adjustment in Contract Price or Contract Times for delay, disruption, or interference caused by or within the control of Contractor. Delay, disruption, and interference attributable to and within the control of a Subcontractor or Supplier shall be deemed to be within the control of Contractor.
- C. If Contractor's performance or progress is delayed, disrupted, or interfered with by unanticipated causes not the fault of and beyond the control of Owner, Contractor, and those for which they are responsible, then Contractor shall be entitled to an equitable adjustment in Contract Times. Contractor's entitlement to an adjustment of the Contract Times is conditioned on such adjustment being essential to Contractor's ability to complete the Work within the Contract Times. Such an adjustment shall be Contractor's sole and exclusive remedy for the delays, disruption, and interference described in this paragraph. Causes of delay, disruption, or interference that may give rise to an adjustment in Contract Times under this paragraph include but are not limited to the following:
  1. severe and unavoidable natural catastrophes such as fires, floods, epidemics, and earthquakes;
  2. abnormal weather conditions;
  3. acts or failures to act of utility owners (other than those performing other work at or adjacent to the Site by arrangement with the Owner, as contemplated in Article 8); and
  4. acts of war or terrorism.
- D. Delays, disruption, and interference to the performance or progress of the Work resulting from the existence of a differing subsurface or physical condition, an Underground Facility that was not shown or indicated by the Contract Documents, or not shown or indicated with reasonable accuracy, and those resulting from Hazardous Environmental Conditions, are governed by Article 5.
- E. Paragraph 8.03 governs delays, disruption, and interference to the performance or progress of the Work resulting from the performance of certain other work at or adjacent to the Site.
- F. Contractor shall not be entitled to an adjustment in Contract Price or Contract Times for any delay, disruption, or interference if such delay is concurrent with a delay, disruption, or interference caused by or within the control of Contractor.
- G. Contractor must submit any Change Proposal seeking an adjustment in Contract Price or Contract Times under this paragraph within 30 days of the commencement of the delaying, disrupting, or interfering event.

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

### 5.01 *Availability of Lands*

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

### 5.02 *Use of Site and Other Areas*

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



and other debris. Removal and disposal of such waste materials, rubbish, and other debris shall conform to applicable Laws and Regulations.

- C. *Cleaning*: Prior to Substantial Completion of the Work Contractor shall clean the Site and the Work and make it ready for utilization by Owner. At the completion of the Work Contractor shall remove from the Site and adjacent areas all tools, appliances, construction equipment and machinery, and surplus materials and shall restore to original condition all property not designated for alteration by the Contract Documents.
- D. *Loading of Structures*: Contractor shall not load nor permit any part of any structure to be loaded in any manner that will endanger the structure, nor shall Contractor subject any part of the Work or adjacent structures or land to stresses or pressures that will endanger them.

#### 5.03 *Subsurface and Physical Conditions*

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

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

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

4. is of an unusual nature, and differs materially from conditions ordinarily encountered and generally recognized as inherent in work of the character provided for in the Contract Documents;

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

- B. *Engineer's Review:* After receipt of written notice as required by the preceding paragraph, Engineer will promptly review the subsurface or physical condition in question; determine the necessity of Owner's obtaining additional exploration or tests with respect to the condition; conclude whether the condition falls within any one or more of the differing site condition categories in Paragraph 5.04.A above; obtain any pertinent cost or schedule information from Contractor; prepare recommendations to Owner regarding the Contractor's resumption of Work in connection with the subsurface or physical condition in question and the need for any change in the Drawings or Specifications; and advise Owner in writing of Engineer's findings, conclusions, and recommendations.
- C. *Owner's Statement to Contractor Regarding Site Condition:* After receipt of Engineer's written findings, conclusions, and recommendations, Owner shall issue a written statement to Contractor (with a copy to Engineer) regarding the subsurface or physical condition in question, addressing the resumption of Work in connection with such condition, indicating whether any change in the Drawings or Specifications will be made, and adopting or rejecting Engineer's written findings, conclusions, and recommendations, in whole or in part.
- D. *Possible Price and Times Adjustments:*
  1. Contractor shall be entitled to an equitable adjustment in Contract Price or Contract Times, or both, to the extent that the existence of a differing subsurface or physical condition, or any related delay, disruption, or interference, causes an increase or decrease in Contractor's cost of, or time required for, performance of the Work; subject, however, to the following:
    - a. such condition must fall within any one or more of the categories described in Paragraph 5.04.A;
    - b. with respect to Work that is paid for on a unit price basis, any adjustment in Contract Price will be subject to the provisions of Paragraph 13.03; and,
    - c. Contractor's entitlement to an adjustment of the Contract Times is conditioned on such adjustment being essential to Contractor's ability to complete the Work within the Contract Times.
  2. Contractor shall not be entitled to any adjustment in the Contract Price or Contract Times with respect to a subsurface or physical condition if:
    - a. Contractor knew of the existence of such condition at the time Contractor made a commitment to Owner with respect to Contract Price and Contract Times by the submission of a Bid or becoming bound under a negotiated contract, or otherwise; or
    - b. the existence of such condition reasonably could have been discovered or revealed as a result of any examination, investigation, exploration, test, or study of the Site and

contiguous areas expressly required by the Bidding Requirements or Contract Documents to be conducted by or for Contractor prior to Contractor's making such commitment; or

- c. Contractor failed to give the written notice as required by Paragraph 5.04.A.
- 3. If Owner and Contractor agree regarding Contractor's entitlement to and the amount or extent of any adjustment in the Contract Price or Contract Times, or both, then any such adjustment shall be set forth in a Change Order.
- 4. Contractor may submit a Change Proposal regarding its entitlement to or the amount or extent of any adjustment in the Contract Price or Contract Times, or both, no later than 30 days after Owner's issuance of the Owner's written statement to Contractor regarding the subsurface or physical condition in question.

#### 5.05 *Underground Facilities*

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

of Engineer's findings, conclusions, and recommendations. During such time, Contractor shall be responsible for the safety and protection of such Underground Facility.

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

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

- A. *Reports and Drawings:* The Supplementary Conditions identify:
1. those reports and drawings known to Owner relating to Hazardous Environmental Conditions that have been identified at or adjacent to the Site; and
  2. Technical Data contained in such reports and drawings.
- B. *Reliance by Contractor on Technical Data Authorized:* Contractor may rely upon the accuracy of the Technical Data expressly identified in the Supplementary Conditions with respect to such reports and drawings, but such reports and drawings are not Contract Documents. If no such express identification has been made, then Contractor may rely on the accuracy of the Technical Data (as defined in Article 1) contained in any geotechnical or environmental report prepared for the Project and made available to Contractor. Except for such reliance on Technical Data, Contractor may not

rely upon or make any claim against Owner or Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors with respect to:

1. the completeness of such reports and drawings for Contractor's purposes, including, but not limited to, any aspects of the means, methods, techniques, sequences and procedures of construction to be employed by Contractor and safety precautions and programs incident thereto; or
  2. other data, interpretations, opinions and information contained in such reports or shown or indicated in such drawings; or
  3. any Contractor interpretation of or conclusion drawn from any Technical Data or any such other data, interpretations, opinions or information.
- C. Contractor shall not be responsible for removing or remediating any Hazardous Environmental Condition encountered, uncovered, or revealed at the Site unless such removal or remediation is expressly identified in the Contract Documents to be within the scope of the Work.
- D. Contractor shall be responsible for controlling, containing, and duly removing all Constituents of Concern brought to the Site by Contractor, Subcontractors, Suppliers, or anyone else for whom Contractor is responsible, and for any associated costs; and for the costs of removing and remediating any Hazardous Environmental Condition created by the presence of any such Constituents of Concern.
- E. If Contractor encounters, uncovers, or reveals a Hazardous Environmental Condition whose removal or remediation is not expressly identified in the Contract Documents as being within the scope of the Work, or if Contractor or anyone for whom Contractor is responsible creates a Hazardous Environmental Condition, then Contractor shall immediately: (1) secure or otherwise isolate such condition; (2) stop all Work in connection with such condition and in any area affected thereby (except in an emergency as required by Paragraph 7.15); and (3) notify Owner and Engineer (and promptly thereafter confirm such notice in writing). Owner shall promptly consult with Engineer concerning the necessity for Owner to retain a qualified expert to evaluate such condition or take corrective action, if any. Promptly after consulting with Engineer, Owner shall take such actions as are necessary to permit Owner to timely obtain required permits and provide Contractor the written notice required by Paragraph 5.06.F. If Contractor or anyone for whom Contractor is responsible created the Hazardous Environmental Condition in question, then Owner may remove and remediate the Hazardous Environmental Condition, and impose a set-off against payments to account for the associated costs.
- F. Contractor shall not resume Work in connection with such Hazardous Environmental Condition or in any affected area until after Owner has obtained any required permits related thereto, and delivered written notice to Contractor either (1) specifying that such condition and any affected area is or has been rendered safe for the resumption of Work, or (2) specifying any special conditions under which such Work may be resumed safely.
- G. If Owner and Contractor cannot agree as to entitlement to or on the amount or extent, if any, of any adjustment in Contract Price or Contract Times, or both, as a result of such Work stoppage or such special conditions under which Work is agreed to be resumed by Contractor, then within 30 days of Owner's written notice regarding the resumption of Work, Contractor may submit a Change Proposal, or Owner may impose a set-off.
- H. If after receipt of such written notice Contractor does not agree to resume such Work based on a reasonable belief it is unsafe, or does not agree to resume such Work under such special

conditions, then Owner may order the portion of the Work that is in the area affected by such condition to be deleted from the Work, following the contractual change procedures in Article 11. Owner may have such deleted portion of the Work performed by Owner's own forces or others in accordance with Article 8.

- I. To the fullest extent permitted by Laws and Regulations, Owner shall indemnify and hold harmless Contractor, Subcontractors, and Engineer, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to a Hazardous Environmental Condition, provided that such Hazardous Environmental Condition (1) was not shown or indicated in the Drawings, Specifications, or other Contract Documents, identified as Technical Data entitled to limited reliance pursuant to Paragraph 5.06.B, or identified in the Contract Documents to be included within the scope of the Work, and (2) was not created by Contractor or by anyone for whom Contractor is responsible. Nothing in this Paragraph 5.06.H shall obligate Owner to indemnify any individual or entity from and against the consequences of that individual's or entity's own negligence.
- J. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to the failure to control, contain, or remove a Constituent of Concern brought to the Site by Contractor or by anyone for whom Contractor is responsible, or to a Hazardous Environmental Condition created by Contractor or by anyone for whom Contractor is responsible. Nothing in this Paragraph 5.06.J shall obligate Contractor to indemnify any individual or entity from and against the consequences of that individual's or entity's own negligence.
- K. The provisions of Paragraphs 5.03, 5.04, and 5.05 do not apply to the presence of Constituents of Concern or to a Hazardous Environmental Condition uncovered or revealed at the Site.

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

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

- A. Contractor shall furnish a performance bond and a payment bond, each in an amount at least equal to the Contract Price, as security for the faithful performance and payment of all of Contractor's obligations under the Contract. These bonds shall remain in effect until one year after the date when final payment becomes due or until completion of the correction period specified in Paragraph 15.08, whichever is later, except as provided otherwise by Laws or Regulations, the Supplementary Conditions, or other specific provisions of the Contract. Contractor shall also furnish such other bonds as are required by the Supplementary Conditions or other specific provisions of the Contract.
- B. All bonds shall be in the form prescribed by the Contract except as provided otherwise by Laws or Regulations, and shall be executed by such sureties as are named in "Companies Holding Certificates of Authority as Acceptable Sureties on Federal Bonds and as Acceptable Reinsuring Companies" as published in Circular 570 (as amended and supplemented) by the Financial Management Service, Surety Bond Branch, U.S. Department of the Treasury. A bond signed by an

agent or attorney-in-fact must be accompanied by a certified copy of that individual's authority to bind the surety. The evidence of authority shall show that it is effective on the date the agent or attorney-in-fact signed the accompanying bond.

- C. Contractor shall obtain the required bonds from surety companies that are duly licensed or authorized in the jurisdiction in which the Project is located to issue bonds in the required amounts.
- D. If the surety on a bond furnished by Contractor is declared bankrupt or becomes insolvent, or its right to do business is terminated in any state or jurisdiction where any part of the Project is located, or the surety ceases to meet the requirements above, then Contractor shall promptly notify Owner and Engineer and shall, within 20 days after the event giving rise to such notification, provide another bond and surety, both of which shall comply with the bond and surety requirements above.
- E. If Contractor has failed to obtain a required bond, Owner may exclude the Contractor from the Site and exercise Owner's termination rights under Article 16.
- F. Upon request, Owner shall provide a copy of the payment bond to any Subcontractor, Supplier, or other person or entity claiming to have furnished labor or materials used in the performance of the Work.

#### 6.02 *Insurance—General Provisions*

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

deficiency in compliance from the evidence provided, shall not be construed as a waiver of the other party's obligation to obtain and maintain such insurance.

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

#### 6.03 *Contractor's Insurance*

- A. *Workers' Compensation:* Contractor shall purchase and maintain workers' compensation and employer's liability insurance for:
  - 1. claims under workers' compensation, disability benefits, and other similar employee benefit acts.
  - 2. United States Longshoreman and Harbor Workers' Compensation Act and Jones Act coverage (if applicable).
  - 3. claims for damages because of bodily injury, occupational sickness or disease, or death of Contractor's employees (by stop-gap endorsement in monopolist worker's compensation states).
  - 4. Foreign voluntary worker compensation (if applicable).
- B. *Commercial General Liability—Claims Covered:* Contractor shall purchase and maintain commercial general liability insurance, covering all operations by or on behalf of Contractor, on an occurrence basis, against:
  - 1. claims for damages because of bodily injury, sickness or disease, or death of any person other than Contractor's employees.
  - 2. claims for damages insured by reasonably available personal injury liability coverage.
  - 3. claims for damages, other than to the Work itself, because of injury to or destruction of tangible property wherever located, including loss of use resulting therefrom.
- C. *Commercial General Liability—Form and Content:* Contractor's commercial liability policy shall be written on a 1996 (or later) ISO commercial general liability form (occurrence form) and include the following coverages and endorsements:



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

professional design or related services, and caused by a negligent error, omission, or act for which the insured party is legally liable. It shall be maintained throughout the duration of the Contract and for a minimum of two years after Substantial Completion. If such professional design services are performed by a Subcontractor, and not by Contractor itself, then the requirements of this paragraph may be satisfied through the purchasing and maintenance of such insurance by such Subcontractor.

- I. *General provisions:* The policies of insurance required by this Paragraph 6.03 shall:
  - 1. include at least the specific coverages provided in this Article.
  - 2. be written for not less than the limits of liability provided in this Article and in the Supplementary Conditions, or required by Laws or Regulations, whichever is greater.
  - 3. contain a provision or endorsement that the coverage afforded will not be canceled, materially changed, or renewal refused until at least 10 days prior written notice has been given to Contractor. Within three days of receipt of any such written notice, Contractor shall provide a copy of the notice to Owner, Engineer, and each other insured under the policy.
  - 4. remain in effect at least until final payment (and longer if expressly required in this Article) and at all times thereafter when Contractor may be correcting, removing, or replacing defective Work as a warranty or correction obligation, or otherwise, or returning to the Site to conduct other tasks arising from the Contract Documents.
  - 5. be appropriate for the Work being performed and provide protection from claims that may arise out of or result from Contractor's performance of the Work and Contractor's other obligations under the Contract Documents, whether it is to be performed by Contractor, any Subcontractor or Supplier, or by anyone directly or indirectly employed by any of them to perform any of the Work, or by anyone for whose acts any of them may be liable.
- J. The coverage requirements for specific policies of insurance must be met by such policies, and not by reference to excess or umbrella insurance provided in other policies.

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

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

#### 6.05 *Property Insurance*

- A. *Builder's Risk:* Unless otherwise provided in the Supplementary Conditions, Contractor shall purchase and maintain builder's risk insurance upon the Work on a completed value basis, in the amount of the full insurable replacement cost thereof (subject to such deductible amounts as may be provided in the Supplementary Conditions or required by Laws and Regulations). This insurance shall:
  - 1. include the Owner and Contractor as named insureds, and all Subcontractors, and any individuals or entities required by the Supplementary Conditions to be insured under such builder's risk policy, as insureds or named insureds. For purposes of the remainder of this

Paragraph 6.05, Paragraphs 6.06 and 6.07, and any corresponding Supplementary Conditions, the parties required to be insured shall collectively be referred to as “insureds.”

2. be written on a builder’s risk “all risk” policy form that shall at least include insurance for physical loss or damage to the Work, temporary buildings, falsework, and materials and equipment in transit, and shall insure against at least the following perils or causes of loss: fire; lightning; windstorm; riot; civil commotion; terrorism; vehicle impact; aircraft; smoke; theft; vandalism and malicious mischief; mechanical breakdown, boiler explosion, and artificially generated electric current; earthquake; volcanic activity, and other earth movement; flood; collapse; explosion; debris removal; demolition occasioned by enforcement of Laws and Regulations; water damage (other than that caused by flood); and such other perils or causes of loss as may be specifically required by the Supplementary Conditions. If insurance against mechanical breakdown, boiler explosion, and artificially generated electric current; earthquake; volcanic activity, and other earth movement; or flood, are not commercially available under builder’s risk policies, by endorsement or otherwise, such insurance may be provided through other insurance policies acceptable to Owner and Contractor.
3. cover, as insured property, at least the following: (a) the Work and all materials, supplies, machinery, apparatus, equipment, fixtures, and other property of a similar nature that are to be incorporated into or used in the preparation, fabrication, construction, erection, or completion of the Work, including Owner-furnished or assigned property; (b) spare parts inventory required within the scope of the Contract; and (c) temporary works which are not intended to form part of the permanent constructed Work but which are intended to provide working access to the Site, or to the Work under construction, or which are intended to provide temporary support for the Work under construction, including scaffolding, form work, fences, shoring, falsework, and temporary structures.
4. cover expenses incurred in the repair or replacement of any insured property (including but not limited to fees and charges of engineers and architects).
5. extend to cover damage or loss to insured property while in temporary storage at the Site or in a storage location outside the Site (but not including property stored at the premises of a manufacturer or Supplier).
6. extend to cover damage or loss to insured property while in transit.
7. allow for partial occupation or use of the Work by Owner, such that those portions of the Work that are not yet occupied or used by Owner shall remain covered by the builder’s risk insurance.
8. allow for the waiver of the insurer’s subrogation rights, as set forth below.
9. provide primary coverage for all losses and damages caused by the perils or causes of loss covered.
10. not include a co-insurance clause.
11. include an exception for ensuing losses from physical damage or loss with respect to any defective workmanship, design, or materials exclusions.
12. include performance/hot testing and start-up.
13. be maintained in effect, subject to the provisions herein regarding Substantial Completion and partial occupancy or use of the Work by Owner, until the Work is complete.

- B. *Notice of Cancellation or Change:* All the policies of insurance (and the certificates or other evidence thereof) required to be purchased and maintained in accordance with this Paragraph 6.05 will contain a provision or endorsement that the coverage afforded will not be canceled or materially changed or renewal refused until at least 10 days prior written notice has been given to the purchasing policyholder. Within three days of receipt of any such written notice, the purchasing policyholder shall provide a copy of the notice to each other insured.
- C. *Deductibles:* The purchaser of any required builder's risk or property insurance shall pay for costs not covered because of the application of a policy deductible.
- D. *Partial Occupancy or Use by Owner:* If Owner will occupy or use a portion or portions of the Work prior to Substantial Completion of all the Work as provided in Paragraph 15.04, then Owner (directly, if it is the purchaser of the builder's risk policy, or through Contractor) will provide notice of such occupancy or use to the builder's risk insurer. The builder's risk insurance shall not be canceled or permitted to lapse on account of any such partial use or occupancy; rather, those portions of the Work that are occupied or used by Owner may come off the builder's risk policy, while those portions of the Work not yet occupied or used by Owner shall remain covered by the builder's risk insurance.
- E. *Additional Insurance:* If Contractor elects to obtain other special insurance to be included in or supplement the builder's risk or property insurance policies provided under this Paragraph 6.05, it may do so at Contractor's expense.
- F. *Insurance of Other Property:* If the express insurance provisions of the Contract do not require or address the insurance of a property item or interest, such as tools, construction equipment, or other personal property owned by Contractor, a Subcontractor, or an employee of Contractor or a Subcontractor, then the entity or individual owning such property item will be responsible for deciding whether to insure it, and if so in what amount.

#### 6.06 *Waiver of Rights*

- A. All policies purchased in accordance with Paragraph 6.05, expressly including the builder's risk policy, shall contain provisions to the effect that in the event of payment of any loss or damage the insurers will have no rights of recovery against any insureds thereunder, or against Engineer or its consultants, or their officers, directors, members, partners, employees, agents, consultants, or subcontractors. Owner and Contractor waive all rights against each other and the respective officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them, for all losses and damages caused by, arising out of, or resulting from any of the perils or causes of loss covered by such policies and any other property insurance applicable to the Work; and, in addition, waive all such rights against Engineer, its consultants, all Subcontractors, all individuals or entities identified in the Supplementary Conditions as insureds, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them, under such policies for losses and damages so caused. None of the above waivers shall extend to the rights that any party making such waiver may have to the proceeds of insurance held by Owner or Contractor as trustee or fiduciary, or otherwise payable under any policy so issued.
- B. Owner waives all rights against Contractor, Subcontractors, and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them, for:

1. loss due to business interruption, loss of use, or other consequential loss extending beyond direct physical loss or damage to Owner's property or the Work caused by, arising out of, or resulting from fire or other perils whether or not insured by Owner; and
  2. loss or damage to the completed Project or part thereof caused by, arising out of, or resulting from fire or other insured peril or cause of loss covered by any property insurance maintained on the completed Project or part thereof by Owner during partial occupancy or use pursuant to Paragraph 15.04, after Substantial Completion pursuant to Paragraph 15.03, or after final payment pursuant to Paragraph 15.06.
- C. Any insurance policy maintained by Owner covering any loss, damage or consequential loss referred to in Paragraph 6.06.B shall contain provisions to the effect that in the event of payment of any such loss, damage, or consequential loss, the insurers will have no rights of recovery against Contractor, Subcontractors, or Engineer, or the officers, directors, members, partners, employees, agents, consultants, or subcontractors of each and any of them.
- D. Contractor shall be responsible for assuring that the agreement under which a Subcontractor performs a portion of the Work contains provisions whereby the Subcontractor waives all rights against Owner, Contractor, all individuals or entities identified in the Supplementary Conditions as insureds, the Engineer and its consultants, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them, for all losses and damages caused by, arising out of, relating to, or resulting from any of the perils or causes of loss covered by builder's risk insurance and any other property insurance applicable to the Work.

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

- A. Any insured loss under the builder's risk and other policies of insurance required by Paragraph 6.05 will be adjusted and settled with the named insured that purchased the policy. Such named insured shall act as fiduciary for the other insureds, and give notice to such other insureds that adjustment and settlement of a claim is in progress. Any other insured may state its position regarding a claim for insured loss in writing within 15 days after notice of such claim.
- B. Proceeds for such insured losses may be made payable by the insurer either jointly to multiple insureds, or to the named insured that purchased the policy in its own right and as fiduciary for other insureds, subject to the requirements of any applicable mortgage clause. A named insured receiving insurance proceeds under the builder's risk and other policies of insurance required by Paragraph 6.05 shall distribute such proceeds in accordance with such agreement as the parties in interest may reach, or as otherwise required under the dispute resolution provisions of this Contract or applicable Laws and Regulations.
- C. If no other special agreement is reached, the damaged Work shall be repaired or replaced, the money so received applied on account thereof, and the Work and the cost thereof covered by Change Order, if needed.

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

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

- A. Contractor shall supervise, inspect, and direct the Work competently and efficiently, devoting such attention thereto and applying such skills and expertise as may be necessary to perform the Work in accordance with the Contract Documents. Contractor shall be solely responsible for the means, methods, techniques, sequences, and procedures of construction.

- B. At all times during the progress of the Work, Contractor shall assign a competent resident superintendent who shall not be replaced without written notice to Owner and Engineer except under extraordinary circumstances.

#### 7.02 *Labor; Working Hours*

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

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

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

#### 7.04 *"Or Equals"*

- A. Whenever an item of material or equipment is specified or described in the Contract Documents by using the name of a proprietary item or the name of a particular Supplier, the Contract Price has been based upon Contractor furnishing such item as specified. The specification or description of such an item is intended to establish the type, function, appearance, and quality required. Unless the specification or description contains or is followed by words reading that no like, equivalent, or "or equal" item is permitted, Contractor may request that Engineer authorize the use of other items of material or equipment, or items from other proposed suppliers under the circumstances described below.
  - 1. If Engineer in its sole discretion determines that an item of material or equipment proposed by Contractor is functionally equal to that named and sufficiently similar so that no change in related Work will be required, Engineer shall deem it an "or equal" item. For the purposes of this paragraph, a proposed item of material or equipment will be considered functionally equal to an item so named if:

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

#### 7.05 Substitutes

- A. Unless the specification or description of an item of material or equipment required to be furnished under the Contract Documents contains or is followed by words reading that no substitution is permitted, Contractor may request that Engineer authorize the use of other items of material or equipment under the circumstances described below. To the extent possible such requests shall be made before commencement of related construction at the Site.
  - 1. Contractor shall submit sufficient information as provided below to allow Engineer to determine if the item of material or equipment proposed is functionally equivalent to that named and an acceptable substitute therefor. Engineer will not accept requests for review of proposed substitute items of material or equipment from anyone other than Contractor.
  - 2. The requirements for review by Engineer will be as set forth in Paragraph 7.05.B, as supplemented by the Specifications, and as Engineer may decide is appropriate under the circumstances.

3. Contractor shall make written application to Engineer for review of a proposed substitute item of material or equipment that Contractor seeks to furnish or use. The application:
  - a. shall certify that the proposed substitute item will:
    - 1) perform adequately the functions and achieve the results called for by the general design,
    - 2) be similar in substance to that specified, and
    - 3) be suited to the same use as that specified.
  - b. will state:
    - 1) the extent, if any, to which the use of the proposed substitute item will necessitate a change in Contract Times,
    - 2) whether use of the proposed substitute item in the Work will require a change in any of the Contract Documents (or in the provisions of any other direct contract with Owner for other work on the Project) to adapt the design to the proposed substitute item, and
    - 3) whether incorporation or use of the proposed substitute item in connection with the Work is subject to payment of any license fee or royalty.
  - c. will identify:
    - 1) all variations of the proposed substitute item from that specified, and
    - 2) available engineering, sales, maintenance, repair, and replacement services.
  - d. shall contain an itemized estimate of all costs or credits that will result directly or indirectly from use of such substitute item, including but not limited to changes in Contract Price, shared savings, costs of redesign, and claims of other contractors affected by any resulting change.
- B. *Engineer's Evaluation and Determination:* Engineer will be allowed a reasonable time to evaluate each substitute request, and to obtain comments and direction from Owner. Engineer may require Contractor to furnish additional data about the proposed substitute item. Engineer will be the sole judge of acceptability. No substitute will be ordered, furnished, installed, or utilized until Engineer's review is complete and Engineer determines that the proposed item is an acceptable substitute. Engineer's determination will be evidenced by a Field Order or a proposed Change Order accounting for the substitution itself and all related impacts, including changes in Contract Price or Contract Times. Engineer will advise Contractor in writing of any negative determination.
- C. *Special Guarantee:* Owner may require Contractor to furnish at Contractor's expense a special performance guarantee or other surety with respect to any substitute.
- D. *Reimbursement of Engineer's Cost:* Engineer will record Engineer's costs in evaluating a substitute proposed or submitted by Contractor. Whether or not Engineer approves a substitute so proposed or submitted by Contractor, Contractor shall reimburse Owner for the reasonable charges of Engineer for evaluating each such proposed substitute. Contractor shall also reimburse Owner for the reasonable charges of Engineer for making changes in the Contract Documents (or in the provisions of any other direct contract with Owner) resulting from the acceptance of each proposed substitute.



- E. *Contractor's Expense*: Contractor shall provide all data in support of any proposed substitute at Contractor's expense.
- F. *Effect of Engineer's Determination*: If Engineer approves the substitution request, Contractor shall execute the proposed Change Order and proceed with the substitution. The Engineer's denial of a substitution request shall be final and binding, and may not be reversed through an appeal under any provision of the Contract Documents. Contractor may challenge the scope of reimbursement costs imposed under Paragraph 7.05.D, by timely submittal of a Change Proposal.

7.06 *Concerning Subcontractors, Suppliers, and Others*

- A. Contractor may retain Subcontractors and Suppliers for the performance of parts of the Work. Such Subcontractors and Suppliers must be acceptable to Owner.
- B. Contractor shall retain specific Subcontractors, Suppliers, or other individuals or entities for the performance of designated parts of the Work if required by the Contract to do so.
- C. Subsequent to the submittal of Contractor's Bid or final negotiation of the terms of the Contract, Owner may not require Contractor to retain any Subcontractor, Supplier, or other individual or entity to furnish or perform any of the Work against which Contractor has reasonable objection.
- D. Prior to entry into any binding subcontract or purchase order, Contractor shall submit to Owner the identity of the proposed Subcontractor or Supplier (unless Owner has already deemed such proposed Subcontractor or Supplier acceptable, during the bidding process or otherwise). Such proposed Subcontractor or Supplier shall be deemed acceptable to Owner unless Owner raises a substantive, reasonable objection within five days.
- E. Owner may require the replacement of any Subcontractor, Supplier, or other individual or entity retained by Contractor to perform any part of the Work. Owner also may require Contractor to retain specific replacements; provided, however, that Owner may not require a replacement to which Contractor has a reasonable objection. If Contractor has submitted the identity of certain Subcontractors, Suppliers, or other individuals or entities for acceptance by Owner, and Owner has accepted it (either in writing or by failing to make written objection thereto), then Owner may subsequently revoke the acceptance of any such Subcontractor, Supplier, or other individual or entity so identified solely on the basis of substantive, reasonable objection after due investigation. Contractor shall submit an acceptable replacement for the rejected Subcontractor, Supplier, or other individual or entity.
- F. If Owner requires the replacement of any Subcontractor, Supplier, or other individual or entity retained by Contractor to perform any part of the Work, then Contractor shall be entitled to an adjustment in Contract Price or Contract Times, or both, with respect to the replacement; and Contractor shall initiate a Change Proposal for such adjustment within 30 days of Owner's requirement of replacement.
- G. No acceptance by Owner of any such Subcontractor, Supplier, or other individual or entity, whether initially or as a replacement, shall constitute a waiver of the right of Owner to the completion of the Work in accordance with the Contract Documents.
- H. On a monthly basis Contractor shall submit to Engineer a complete list of all Subcontractors and Suppliers having a direct contract with Contractor, and of all other Subcontractors and Suppliers known to Contractor at the time of submittal.

- I. Contractor shall be fully responsible to Owner and Engineer for all acts and omissions of the Subcontractors, Suppliers, and other individuals or entities performing or furnishing any of the Work just as Contractor is responsible for Contractor's own acts and omissions.
- J. Contractor shall be solely responsible for scheduling and coordinating the work of Subcontractors, Suppliers, and all other individuals or entities performing or furnishing any of the Work.
- K. Contractor shall restrict all Subcontractors, Suppliers, and such other individuals or entities performing or furnishing any of the Work from communicating with Engineer or Owner, except through Contractor or in case of an emergency, or as otherwise expressly allowed herein.
- L. The divisions and sections of the Specifications and the identifications of any Drawings shall not control Contractor in dividing the Work among Subcontractors or Suppliers or delineating the Work to be performed by any specific trade.
- M. All Work performed for Contractor by a Subcontractor or Supplier shall be pursuant to an appropriate contractual agreement that specifically binds the Subcontractor or Supplier to the applicable terms and conditions of the Contract Documents for the benefit of Owner and Engineer.
- N. Owner may furnish to any Subcontractor or Supplier, to the extent practicable, information about amounts paid to Contractor on account of Work performed for Contractor by the particular Subcontractor or Supplier.
- O. Nothing in the Contract Documents:
  - 1. shall create for the benefit of any such Subcontractor, Supplier, or other individual or entity any contractual relationship between Owner or Engineer and any such Subcontractor, Supplier, or other individual or entity; nor
  - 2. shall create any obligation on the part of Owner or Engineer to pay or to see to the payment of any money due any such Subcontractor, Supplier, or other individual or entity except as may otherwise be required by Laws and Regulations.

#### **7.07 *Patent Fees and Royalties***

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

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

#### 7.08 *Permits*

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

#### 7.09 *Taxes*

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

#### 7.10 *Laws and Regulations*

- A. Contractor shall give all notices required by and shall comply with all Laws and Regulations applicable to the performance of the Work. Except where otherwise expressly required by applicable Laws and Regulations, neither Owner nor Engineer shall be responsible for monitoring Contractor's compliance with any Laws or Regulations.
- B. If Contractor performs any Work or takes any other action knowing or having reason to know that it is contrary to Laws or Regulations, Contractor shall bear all resulting costs and losses, and shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such Work or other action. It shall not be Contractor's responsibility to make certain that the Work described in the Contract Documents is in accordance with Laws and Regulations, but this shall not relieve Contractor of Contractor's obligations under Paragraph 3.03.
- C. Owner or Contractor may give notice to the other party of any changes after the submission of Contractor's Bid (or after the date when Contractor became bound under a negotiated contract) in Laws or Regulations having an effect on the cost or time of performance of the Work, including but not limited to changes in Laws or Regulations having an effect on procuring permits and on sales, use, value-added, consumption, and other similar taxes. If Owner and Contractor are unable to agree on entitlement to or on the amount or extent, if any, of any adjustment in Contract Price or Contract Times resulting from such changes, then within 30 days of such notice Contractor may submit a Change Proposal, or Owner may initiate a Claim.

#### 7.11 *Record Documents*

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

#### 7.12 *Safety and Protection*

- A. Contractor shall be solely responsible for initiating, maintaining, and supervising all safety precautions and programs in connection with the Work. Such responsibility does not relieve Subcontractors of their responsibility for the safety of persons or property in the performance of their work, nor for compliance with applicable safety Laws and Regulations. Contractor shall take all necessary precautions for the safety of, and shall provide the necessary protection to prevent damage, injury, or loss to:
  - 1. all persons on the Site or who may be affected by the Work;
  - 2. all the Work and materials and equipment to be incorporated therein, whether in storage on or off the Site; and
  - 3. other property at the Site or adjacent thereto, including trees, shrubs, lawns, walks, pavements, roadways, structures, other work in progress, utilities, and Underground Facilities not designated for removal, relocation, or replacement in the course of construction.
- B. Contractor shall comply with all applicable Laws and Regulations relating to the safety of persons or property, or to the protection of persons or property from damage, injury, or loss; and shall erect and maintain all necessary safeguards for such safety and protection. Contractor shall notify Owner; the owners of adjacent property, Underground Facilities, and other utilities; and other contractors and utility owners performing work at or adjacent to the Site, when prosecution of the Work may affect them, and shall cooperate with them in the protection, removal, relocation, and replacement of their property or work in progress.
- C. Contractor shall comply with the applicable requirements of Owner's safety programs, if any. The Supplementary Conditions identify any Owner's safety programs that are applicable to the Work.
- D. Contractor shall inform Owner and Engineer of the specific requirements of Contractor's safety program with which Owner's and Engineer's employees and representatives must comply while at the Site.
- E. All damage, injury, or loss to any property referred to in Paragraph 7.12.A.2 or 7.12.A.3 caused, directly or indirectly, in whole or in part, by Contractor, any Subcontractor, Supplier, or any other individual or entity directly or indirectly employed by any of them to perform any of the Work, or anyone for whose acts any of them may be liable, shall be remedied by Contractor at its expense (except damage or loss attributable to the fault of Drawings or Specifications or to the acts or omissions of Owner or Engineer or anyone employed by any of them, or anyone for whose acts any of them may be liable, and not attributable, directly or indirectly, in whole or in part, to the fault or negligence of Contractor or any Subcontractor, Supplier, or other individual or entity directly or indirectly employed by any of them).
- F. Contractor's duties and responsibilities for safety and protection shall continue until such time as all the Work is completed and Engineer has issued a notice to Owner and Contractor in accordance

with Paragraph 15.06.B that the Work is acceptable (except as otherwise expressly provided in connection with Substantial Completion).

- G. Contractor's duties and responsibilities for safety and protection shall resume whenever Contractor or any Subcontractor or Supplier returns to the Site to fulfill warranty or correction obligations, or to conduct other tasks arising from the Contract Documents.

#### 7.13 *Safety Representative*

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

#### 7.14 *Hazard Communication Programs*

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

#### 7.15 *Emergencies*

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

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

##### A. *Shop Drawing and Sample Submittal Requirements:*

1. Before submitting a Shop Drawing or Sample, Contractor shall have:
  - a. reviewed and coordinated the Shop Drawing or Sample with other Shop Drawings and Samples and with the requirements of the Work and the Contract Documents;
  - b. determined and verified all field measurements, quantities, dimensions, specified performance and design criteria, installation requirements, materials, catalog numbers, and similar information with respect thereto;
  - c. determined and verified the suitability of all materials and equipment offered with respect to the indicated application, fabrication, shipping, handling, storage, assembly, and installation pertaining to the performance of the Work; and
  - d. determined and verified all information relative to Contractor's responsibilities for means, methods, techniques, sequences, and procedures of construction, and safety precautions and programs incident thereto.
2. Each submittal shall bear a stamp or specific written certification that Contractor has satisfied Contractor's obligations under the Contract Documents with respect to Contractor's review of that submittal, and that Contractor approves the submittal.
3. With each submittal, Contractor shall give Engineer specific written notice of any variations that the Shop Drawing or Sample may have from the requirements of the Contract Documents. This notice shall be set forth in a written communication separate from the Shop Drawings or

Sample submittal; and, in addition, in the case of Shop Drawings by a specific notation made on each Shop Drawing submitted to Engineer for review and approval of each such variation.

- B. *Submittal Procedures for Shop Drawings and Samples:* Contractor shall submit Shop Drawings and Samples to Engineer for review and approval in accordance with the accepted Schedule of Submittals. Each submittal will be identified as Engineer may require.
1. *Shop Drawings:*
    - a. Contractor shall submit the number of copies required in the Specifications.
    - b. Data shown on the Shop Drawings will be complete with respect to quantities, dimensions, specified performance and design criteria, materials, and similar data to show Engineer the services, materials, and equipment Contractor proposes to provide and to enable Engineer to review the information for the limited purposes required by Paragraph 7.16.D.
  2. *Samples:*
    - a. Contractor shall submit the number of Samples required in the Specifications.
    - b. Contractor shall clearly identify each Sample as to material, Supplier, pertinent data such as catalog numbers, the use for which intended and other data as Engineer may require to enable Engineer to review the submittal for the limited purposes required by Paragraph 7.16.D.
  3. Where a Shop Drawing or Sample is required by the Contract Documents or the Schedule of Submittals, any related Work performed prior to Engineer's review and approval of the pertinent submittal will be at the sole expense and responsibility of Contractor.
- C. *Other Submittals:* Contractor shall submit other submittals to Engineer in accordance with the accepted Schedule of Submittals, and pursuant to the applicable terms of the Specifications.
- D. *Engineer's Review:*
1. Engineer will provide timely review of Shop Drawings and Samples in accordance with the Schedule of Submittals acceptable to Engineer. Engineer's review and approval will be only to determine if the items covered by the submittals will, after installation or incorporation in the Work, conform to the information given in the Contract Documents and be compatible with the design concept of the completed Project as a functioning whole as indicated by the Contract Documents.
  2. Engineer's review and approval will not extend to means, methods, techniques, sequences, or procedures of construction or to safety precautions or programs incident thereto.
  3. Engineer's review and approval of a separate item as such will not indicate approval of the assembly in which the item functions.
  4. Engineer's review and approval of a Shop Drawing or Sample shall not relieve Contractor from responsibility for any variation from the requirements of the Contract Documents unless Contractor has complied with the requirements of Paragraph 7.16.A.3 and Engineer has given written approval of each such variation by specific written notation thereof incorporated in or accompanying the Shop Drawing or Sample. Engineer will document any such approved variation from the requirements of the Contract Documents in a Field Order.

5. Engineer's review and approval of a Shop Drawing or Sample shall not relieve Contractor from responsibility for complying with the requirements of Paragraph 7.16.A and B.
6. Engineer's review and approval of a Shop Drawing or Sample, or of a variation from the requirements of the Contract Documents, shall not, under any circumstances, change the Contract Times or Contract Price, unless such changes are included in a Change Order.
7. Neither Engineer's receipt, review, acceptance or approval of a Shop Drawing, Sample, or other submittal shall result in such item becoming a Contract Document.
8. Contractor shall perform the Work in compliance with the requirements and commitments set forth in approved Shop Drawings and Samples, subject to the provisions of Paragraph 7.16.D.4.

E. *Resubmittal Procedures:*

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

7.17 *Contractor's General Warranty and Guarantee*

- A. Contractor warrants and guarantees to Owner that all Work will be in accordance with the Contract Documents and will not be defective. Engineer and its officers, directors, members, partners, employees, agents, consultants, and subcontractors shall be entitled to rely on Contractor's warranty and guarantee.
- B. Contractor's warranty and guarantee hereunder excludes defects or damage caused by:
  1. abuse, modification, or improper maintenance or operation by persons other than Contractor, Subcontractors, Suppliers, or any other individual or entity for whom Contractor is responsible; or
  2. normal wear and tear under normal usage.
- C. Contractor's obligation to perform and complete the Work in accordance with the Contract Documents shall be absolute. None of the following will constitute an acceptance of Work that is not in accordance with the Contract Documents or a release of Contractor's obligation to perform the Work in accordance with the Contract Documents:
  1. observations by Engineer;
  2. recommendation by Engineer or payment by Owner of any progress or final payment;

3. the issuance of a certificate of Substantial Completion by Engineer or any payment related thereto by Owner;
  4. use or occupancy of the Work or any part thereof by Owner;
  5. any review and approval of a Shop Drawing or Sample submittal;
  6. the issuance of a notice of acceptability by Engineer;
  7. any inspection, test, or approval by others; or
  8. any correction of defective Work by Owner.
- D. If the Contract requires the Contractor to accept the assignment of a contract entered into by Owner, then the specific warranties, guarantees, and correction obligations contained in the assigned contract shall govern with respect to Contractor's performance obligations to Owner for the Work described in the assigned contract.

#### 7.18 *Indemnification*

- A. To the fullest extent permitted by Laws and Regulations, and in addition to any other obligations of Contractor under the Contract or otherwise, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to the performance of the Work, provided that any such claim, cost, loss, or damage is attributable to bodily injury, sickness, disease, or death, or to injury to or destruction of tangible property (other than the Work itself), including the loss of use resulting therefrom but only to the extent caused by any negligent act or omission of Contractor, any Subcontractor, any Supplier, or any individual or entity directly or indirectly employed by any of them to perform any of the Work or anyone for whose acts any of them may be liable.
- B. In any and all claims against Owner or Engineer or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors by any employee (or the survivor or personal representative of such employee) of Contractor, any Subcontractor, any Supplier, or any individual or entity directly or indirectly employed by any of them to perform any of the Work, or anyone for whose acts any of them may be liable, the indemnification obligation under Paragraph 7.18.A shall not be limited in any way by any limitation on the amount or type of damages, compensation, or benefits payable by or for Contractor or any such Subcontractor, Supplier, or other individual or entity under workers' compensation acts, disability benefit acts, or other employee benefit acts.
- C. The indemnification obligations of Contractor under Paragraph 7.18.A shall not extend to the liability of Engineer and Engineer's officers, directors, members, partners, employees, agents, consultants and subcontractors arising out of:
1. the preparation or approval of, or the failure to prepare or approve maps, Drawings, opinions, reports, surveys, Change Orders, designs, or Specifications; or
  2. giving directions or instructions, or failing to give them, if that is the primary cause of the injury or damage.



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

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

### **ARTICLE 8 – OTHER WORK AT THE SITE**

#### 8.01 *Other Work*

- A. In addition to and apart from the Work under the Contract Documents, the Owner may perform other work at or adjacent to the Site. Such other work may be performed by Owner's employees, or through contracts between the Owner and third parties. Owner may also arrange to have third-party utility owners perform work on their utilities and facilities at or adjacent to the Site.
- B. If Owner performs other work at or adjacent to the Site with Owner's employees, or through contracts for such other work, then Owner shall give Contractor written notice thereof prior to starting any such other work. If Owner has advance information regarding the start of any utility work at or adjacent to the Site, Owner shall provide such information to Contractor.
- C. Contractor shall afford each other contractor that performs such other work, each utility owner performing other work, and Owner, if Owner is performing other work with Owner's employees, proper and safe access to the Site, and provide a reasonable opportunity for the introduction and storage of materials and equipment and the execution of such other work. Contractor shall do all cutting, fitting, and patching of the Work that may be required to properly connect or otherwise make its several parts come together and properly integrate with such other work. Contractor shall not endanger any work of others by cutting, excavating, or otherwise altering such work; provided,

however, that Contractor may cut or alter others' work with the written consent of Engineer and the others whose work will be affected.

- D. If the proper execution or results of any part of Contractor's Work depends upon work performed by others under this Article 8, Contractor shall inspect such other work and promptly report to Engineer in writing any delays, defects, or deficiencies in such other work that render it unavailable or unsuitable for the proper execution and results of Contractor's Work. Contractor's failure to so report will constitute an acceptance of such other work as fit and proper for integration with Contractor's Work except for latent defects and deficiencies in such other work.

#### 8.02 *Coordination*

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

#### 8.03 *Legal Relationships*

- A. If, in the course of performing other work at or adjacent to the Site for Owner, the Owner's employees, any other contractor working for Owner, or any utility owner causes damage to the Work or to the property of Contractor or its Subcontractors, or delays, disrupts, interferes with, or increases the scope or cost of the performance of the Work, through actions or inaction, then Contractor shall be entitled to an equitable adjustment in the Contract Price or the Contract Times, or both. Contractor must submit any Change Proposal seeking an equitable adjustment in the Contract Price or the Contract Times under this paragraph within 30 days of the damaging, delaying, disrupting, or interfering event. The entitlement to, and extent of, any such equitable adjustment shall take into account information (if any) regarding such other work that was provided to Contractor in the Contract Documents prior to the submittal of the Bid or the final negotiation of the terms of the Contract. When applicable, any such equitable adjustment in Contract Price shall be conditioned on Contractor assigning to Owner all Contractor's rights against such other contractor or utility owner with respect to the damage, delay, disruption, or interference that is the subject of the adjustment. Contractor's entitlement to an adjustment of the Contract Times is conditioned on such adjustment being essential to Contractor's ability to complete the Work within the Contract Times.
- B. Contractor shall take reasonable and customary measures to avoid damaging, delaying, disrupting, or interfering with the work of Owner, any other contractor, or any utility owner performing other work at or adjacent to the Site. If Contractor fails to take such measures and as a result damages, delays, disrupts, or interferes with the work of any such other contractor or utility owner, then Owner may impose a set-off against payments due to Contractor, and assign to such other contractor or utility owner the Owner's contractual rights against Contractor with respect to the breach of the obligations set forth in this paragraph.

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

## **ARTICLE 9 – OWNER'S RESPONSIBILITIES**

### **9.01    *Communications to Contractor***

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

### **9.02    *Replacement of Engineer***

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

### **9.03    *Furnish Data***

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

### **9.04    *Pay When Due***

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

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

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

9.06 *Insurance*

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

9.07 *Change Orders*

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

9.08 *Inspections, Tests, and Approvals*

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

9.09 *Limitations on Owner's Responsibilities*

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

9.10 *Undisclosed Hazardous Environmental Condition*

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

9.11 *Evidence of Financial Arrangements*

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

9.12 *Safety Programs*

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

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

10.01 *Owner's Representative*

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

10.02 *Visits to Site*

- A. Engineer will make visits to the Site at intervals appropriate to the various stages of construction as Engineer deems necessary in order to observe as an experienced and qualified design professional the progress that has been made and the quality of the various aspects of Contractor's executed Work. Based on information obtained during such visits and observations, Engineer, for the benefit of Owner, will determine, in general, if the Work is proceeding in accordance with the Contract Documents. Engineer will not be required to make exhaustive or continuous inspections on the Site to check the quality or quantity of the Work. Engineer's efforts will be directed toward providing for

Owner a greater degree of confidence that the completed Work will conform generally to the Contract Documents. On the basis of such visits and observations, Engineer will keep Owner informed of the progress of the Work and will endeavor to guard Owner against defective Work.

- B. Engineer's visits and observations are subject to all the limitations on Engineer's authority and responsibility set forth in Paragraph 10.08. Particularly, but without limitation, during or as a result of Engineer's visits or observations of Contractor's Work, Engineer will not supervise, direct, control, or have authority over or be responsible for Contractor's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the performance of the Work.

#### 10.03 *Project Representative*

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

#### 10.04 *Rejecting Defective Work*

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

#### 10.05 *Shop Drawings, Change Orders and Payments*

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

#### 10.06 *Determinations for Unit Price Work*

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

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

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

#### 10.08 *Limitations on Engineer's Authority and Responsibilities*

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

#### 10.09 *Compliance with Safety Program*

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

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

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

- A. The Contract Documents may be amended or supplemented by a Change Order, a Work Change Directive, or a Field Order.
  - 1. *Change Orders:*
    - a. If an amendment or supplement to the Contract Documents includes a change in the Contract Price or the Contract Times, such amendment or supplement must be set forth in a Change Order. A Change Order also may be used to establish amendments and supplements of the Contract Documents that do not affect the Contract Price or Contract Times.
    - b. Owner and Contractor may amend those terms and conditions of the Contract Documents that do not involve (1) the performance or acceptability of the Work, (2) the design (as set forth in the Drawings, Specifications, or otherwise), or (3) other engineering or technical matters, without the recommendation of the Engineer. Such an amendment shall be set forth in a Change Order.

2. *Work Change Directives:* A Work Change Directive will not change the Contract Price or the Contract Times but is evidence that the parties expect that the modification ordered or documented by a Work Change Directive will be incorporated in a subsequently issued Change Order, following negotiations by the parties as to the Work Change Directive's effect, if any, on the Contract Price and Contract Times; or, if negotiations are unsuccessful, by a determination under the terms of the Contract Documents governing adjustments, expressly including Paragraph 11.04 regarding change of Contract Price. Contractor must submit any Change Proposal seeking an adjustment of the Contract Price or the Contract Times, or both, no later than 30 days after the completion of the Work set out in the Work Change Directive. Owner must submit any Claim seeking an adjustment of the Contract Price or the Contract Times, or both, no later than 60 days after issuance of the Work Change Directive.
3. *Field Orders:* Engineer may authorize minor changes in the Work if the changes do not involve an adjustment in the Contract Price or the Contract Times and are compatible with the design concept of the completed Project as a functioning whole as indicated by the Contract Documents. Such changes will be accomplished by a Field Order and will be binding on Owner and also on Contractor, which shall perform the Work involved promptly. If Contractor believes that a Field Order justifies an adjustment in the Contract Price or Contract Times, or both, then before proceeding with the Work at issue, Contractor shall submit a Change Proposal as provided herein.

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

- A. Without invalidating the Contract and without notice to any surety, Owner may, at any time or from time to time, order additions, deletions, or revisions in the Work. Such changes shall be supported by Engineer's recommendation, to the extent the change involves the design (as set forth in the Drawings, Specifications, or otherwise), or other engineering or technical matters. Such changes may be accomplished by a Change Order, if Owner and Contractor have agreed as to the effect, if any, of the changes on Contract Times or Contract Price; or by a Work Change Directive. Upon receipt of any such document, Contractor shall promptly proceed with the Work involved; or, in the case of a deletion in the Work, promptly cease construction activities with respect to such deleted Work. Added or revised Work shall be performed under the applicable conditions of the Contract Documents. Nothing in this paragraph shall obligate Contractor to undertake work that Contractor reasonably concludes cannot be performed in a manner consistent with Contractor's safety obligations under the Contract Documents or Laws and Regulations.

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

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

#### 11.04 *Change of Contract Price*

- A. The Contract Price may only be changed by a Change Order. Any Change Proposal for an adjustment in the Contract Price shall comply with the provisions of Paragraph 11.06. Any Claim for an adjustment of Contract Price shall comply with the provisions of Article 12.

- B. An adjustment in the Contract Price will be determined as follows:
1. where the Work involved is covered by unit prices contained in the Contract Documents, then by application of such unit prices to the quantities of the items involved (subject to the provisions of Paragraph 13.03); or
  2. where the Work involved is not covered by unit prices contained in the Contract Documents, then by a mutually agreed lump sum (which may include an allowance for overhead and profit not necessarily in accordance with Paragraph 11.04.C.2); or
  3. where the Work involved is not covered by unit prices contained in the Contract Documents and the parties do not reach mutual agreement to a lump sum, then on the basis of the Cost of the Work (determined as provided in Paragraph 13.01) plus a Contractor's fee for overhead and profit (determined as provided in Paragraph 11.04.C).
- C. *Contractor's Fee*: When applicable, the Contractor's fee for overhead and profit shall be determined as follows:
1. a mutually acceptable fixed fee; or
  2. if a fixed fee is not agreed upon, then a fee based on the following percentages of the various portions of the Cost of the Work:
    - a. for costs incurred under Paragraphs 13.01.B.1 and 13.01.B.2, the Contractor's fee shall be 15 percent;
    - b. for costs incurred under Paragraph 13.01.B.3, the Contractor's fee shall be five percent;
    - c. where one or more tiers of subcontracts are on the basis of Cost of the Work plus a fee and no fixed fee is agreed upon, the intent of Paragraphs 11.01.C.2.a and 11.01.C.2.b is that the Contractor's fee shall be based on: (1) a fee of 15 percent of the costs incurred under Paragraphs 13.01.A.1 and 13.01.A.2 by the Subcontractor that actually performs the Work, at whatever tier, and (2) with respect to Contractor itself and to any Subcontractors of a tier higher than that of the Subcontractor that actually performs the Work, a fee of five percent of the amount (fee plus underlying costs incurred) attributable to the next lower tier Subcontractor; provided, however, that for any such subcontracted work the maximum total fee to be paid by Owner shall be no greater than 27 percent of the costs incurred by the Subcontractor that actually performs the work;
    - d. no fee shall be payable on the basis of costs itemized under Paragraphs 13.01.B.4, 13.01.B.5, and 13.01.C;
    - e. the amount of credit to be allowed by Contractor to Owner for any change which results in a net decrease in cost will be the amount of the actual net decrease in cost plus a deduction in Contractor's fee by an amount equal to five percent of such net decrease; and
    - f. when both additions and credits are involved in any one change, the adjustment in Contractor's fee shall be computed on the basis of the net change in accordance with Paragraphs 11.04.C.2.a through 11.04.C.2.e, inclusive.

#### 11.05 *Change of Contract Times*

- A. The Contract Times may only be changed by a Change Order. Any Change Proposal for an adjustment in the Contract Times shall comply with the provisions of Paragraph 11.06. Any Claim for an adjustment in the Contract Times shall comply with the provisions of Article 12.



- B. An adjustment of the Contract Times shall be subject to the limitations set forth in Paragraph 4.05, concerning delays in Contractor's progress.

#### 11.06 *Change Proposals*

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

#### 11.07 *Execution of Change Orders*

- A. Owner and Contractor shall execute appropriate Change Orders covering:
  - 1. changes in the Contract Price or Contract Times which are agreed to by the parties, including any undisputed sum or amount of time for Work actually performed in accordance with a Work Change Directive;
  - 2. changes in Contract Price resulting from an Owner set-off, unless Contractor has duly contested such set-off;
  - 3. changes in the Work which are: (a) ordered by Owner pursuant to Paragraph 11.02, (b) required because of Owner's acceptance of defective Work under Paragraph 14.04 or Owner's

correction of defective Work under Paragraph 14.07, or (c) agreed to by the parties, subject to the need for Engineer's recommendation if the change in the Work involves the design (as set forth in the Drawings, Specifications, or otherwise), or other engineering or technical matters; and

4. changes in the Contract Price or Contract Times, or other changes, which embody the substance of any final and binding results under Paragraph 11.06, or Article 12.
- B. If Owner or Contractor refuses to execute a Change Order that is required to be executed under the terms of this Paragraph 11.07, it shall be deemed to be of full force and effect, as if fully executed.

#### 11.08 *Notification to Surety*

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

### ARTICLE 12 – CLAIMS

#### 12.01 *Claims*

- A. *Claims Process:* The following disputes between Owner and Contractor shall be submitted to the Claims process set forth in this Article:
1. Appeals by Owner or Contractor of Engineer's decisions regarding Change Proposals;
  2. Owner demands for adjustments in the Contract Price or Contract Times, or other relief under the Contract Documents; and
  3. Disputes that Engineer has been unable to address because they do not involve the design (as set forth in the Drawings, Specifications, or otherwise), the acceptability of the Work, or other engineering or technical matters.
- B. *Submittal of Claim:* The party submitting a Claim shall deliver it directly to the other party to the Contract promptly (but in no event later than 30 days) after the start of the event giving rise thereto; in the case of appeals regarding Change Proposals within 30 days of the decision under appeal. The party submitting the Claim shall also furnish a copy to the Engineer, for its information only. The responsibility to substantiate a Claim shall rest with the party making the Claim. In the case of a Claim by Contractor seeking an increase in the Contract Times or Contract Price, or both, Contractor shall certify that the Claim is made in good faith, that the supporting data are accurate and complete, and that to the best of Contractor's knowledge and belief the amount of time or money requested accurately reflects the full amount to which Contractor is entitled.
- C. *Review and Resolution:* The party receiving a Claim shall review it thoroughly, giving full consideration to its merits. The two parties shall seek to resolve the Claim through the exchange of information and direct negotiations. The parties may extend the time for resolving the Claim by mutual agreement. All actions taken on a Claim shall be stated in writing and submitted to the other party, with a copy to Engineer.

D. *Mediation:*

1. At any time after initiation of a Claim, Owner and Contractor may mutually agree to mediation of the underlying dispute. The agreement to mediate shall stay the Claim submittal and response process.
2. If Owner and Contractor agree to mediation, then after 60 days from such agreement, either Owner or Contractor may unilaterally terminate the mediation process, and the Claim submittal and decision process shall resume as of the date of the termination. If the mediation proceeds but is unsuccessful in resolving the dispute, the Claim submittal and decision process shall resume as of the date of the conclusion of the mediation, as determined by the mediator.
3. Owner and Contractor shall each pay one-half of the mediator's fees and costs.

E. *Partial Approval:* If the party receiving a Claim approves the Claim in part and denies it in part, such action shall be final and binding unless within 30 days of such action the other party invokes the procedure set forth in Article 17 for final resolution of disputes.

F. *Denial of Claim:* If efforts to resolve a Claim are not successful, the party receiving the Claim may deny it by giving written notice of denial to the other party. If the receiving party does not take action on the Claim within 90 days, then either Owner or Contractor may at any time thereafter submit a letter to the other party indicating that as a result of the inaction, the Claim is deemed denied, thereby commencing the time for appeal of the denial. A denial of the Claim shall be final and binding unless within 30 days of the denial the other party invokes the procedure set forth in Article 17 for the final resolution of disputes.

G. *Final and Binding Results:* If the parties reach a mutual agreement regarding a Claim, whether through approval of the Claim, direct negotiations, mediation, or otherwise; or if a Claim is approved in part and denied in part, or denied in full, and such actions become final and binding; then the results of the agreement or action on the Claim shall be incorporated in a Change Order to the extent they affect the Contract, including the Work, the Contract Times, or the Contract Price.

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

### 13.01 *Cost of the Work*

A. *Purposes for Determination of Cost of the Work:* The term Cost of the Work means the sum of all costs necessary for the proper performance of the Work at issue, as further defined below. The provisions of this Paragraph 13.01 are used for two distinct purposes:

1. To determine Cost of the Work when Cost of the Work is a component of the Contract Price, under cost-plus-fee, time-and-materials, or other cost-based terms; or
2. To determine the value of a Change Order, Change Proposal, Claim, set-off, or other adjustment in Contract Price. When the value of any such adjustment is determined on the basis of Cost of the Work, Contractor is entitled only to those additional or incremental costs required because of the change in the Work or because of the event giving rise to the adjustment.

B. *Costs Included:* Except as otherwise may be agreed to in writing by Owner, costs included in the Cost of the Work shall be in amounts no higher than those prevailing in the locality of the Project, shall not include any of the costs itemized in Paragraph 13.01.C, and shall include only the following items:

1. Payroll costs for employees in the direct employ of Contractor in the performance of the Work under schedules of job classifications agreed upon by Owner and Contractor. Such employees shall include, without limitation, superintendents, foremen, and other personnel employed full time on the Work. Payroll costs for employees not employed full time on the Work shall be apportioned on the basis of their time spent on the Work. Payroll costs shall include, but not be limited to, salaries and wages plus the cost of fringe benefits, which shall include social security contributions, unemployment, excise, and payroll taxes, workers' compensation, health and retirement benefits, bonuses, sick leave, and vacation and holiday pay applicable thereto. The expenses of performing Work outside of regular working hours, on Saturday, Sunday, or legal holidays, shall be included in the above to the extent authorized by Owner.
2. Cost of all materials and equipment furnished and incorporated in the Work, including costs of transportation and storage thereof, and Suppliers' field services required in connection therewith. All cash discounts shall accrue to Contractor unless Owner deposits funds with Contractor with which to make payments, in which case the cash discounts shall accrue to Owner. All trade discounts, rebates, and refunds and returns from sale of surplus materials and equipment shall accrue to Owner, and Contractor shall make provisions so that they may be obtained.
3. Payments made by Contractor to Subcontractors for Work performed by Subcontractors. If required by Owner, Contractor shall obtain competitive bids from subcontractors acceptable to Owner and Contractor and shall deliver such bids to Owner, who will then determine, with the advice of Engineer, which bids, if any, will be acceptable. If any subcontract provides that the Subcontractor is to be paid on the basis of Cost of the Work plus a fee, the Subcontractor's Cost of the Work and fee shall be determined in the same manner as Contractor's Cost of the Work and fee as provided in this Paragraph 13.01.
4. Costs of special consultants (including but not limited to engineers, architects, testing laboratories, surveyors, attorneys, and accountants) employed for services specifically related to the Work.
5. Supplemental costs including the following:
  - a. The proportion of necessary transportation, travel, and subsistence expenses of Contractor's employees incurred in discharge of duties connected with the Work.
  - b. Cost, including transportation and maintenance, of all materials, supplies, equipment, machinery, appliances, office, and temporary facilities at the Site, and hand tools not owned by the workers, which are consumed in the performance of the Work, and cost, less market value, of such items used but not consumed which remain the property of Contractor.
  - c. Rentals of all construction equipment and machinery, and the parts thereof, whether rented from Contractor or others in accordance with rental agreements approved by Owner with the advice of Engineer, and the costs of transportation, loading, unloading, assembly, dismantling, and removal thereof. All such costs shall be in accordance with the terms of said rental agreements. The rental of any such equipment, machinery, or parts shall cease when the use thereof is no longer necessary for the Work.
  - d. Sales, consumer, use, and other similar taxes related to the Work, and for which Contractor is liable, as imposed by Laws and Regulations.

- e. Deposits lost for causes other than negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable, and royalty payments and fees for permits and licenses.
  - f. Losses and damages (and related expenses) caused by damage to the Work, not compensated by insurance or otherwise, sustained by Contractor in connection with the performance of the Work (except losses and damages within the deductible amounts of property insurance established in accordance with Paragraph 6.05), provided such losses and damages have resulted from causes other than the negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable. Such losses shall include settlements made with the written consent and approval of Owner. No such losses, damages, and expenses shall be included in the Cost of the Work for the purpose of determining Contractor's fee.
  - g. The cost of utilities, fuel, and sanitary facilities at the Site.
  - h. Minor expenses such as communication service at the Site, express and courier services, and similar petty cash items in connection with the Work.
  - i. The costs of premiums for all bonds and insurance that Contractor is required by the Contract Documents to purchase and maintain.
- C. *Costs Excluded:* The term Cost of the Work shall not include any of the following items:
- 1. Payroll costs and other compensation of Contractor's officers, executives, principals (of partnerships and sole proprietorships), general managers, safety managers, engineers, architects, estimators, attorneys, auditors, accountants, purchasing and contracting agents, expeditors, timekeepers, clerks, and other personnel employed by Contractor, whether at the Site or in Contractor's principal or branch office for general administration of the Work and not specifically included in the agreed upon schedule of job classifications referred to in Paragraph 13.01.B.1 or specifically covered by Paragraph 13.01.B.4. The payroll costs and other compensation excluded here are to be considered administrative costs covered by the Contractor's fee.
  - 2. Expenses of Contractor's principal and branch offices other than Contractor's office at the Site.
  - 3. Any part of Contractor's capital expenses, including interest on Contractor's capital employed for the Work and charges against Contractor for delinquent payments.
  - 4. Costs due to the negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable, including but not limited to, the correction of defective Work, disposal of materials or equipment wrongly supplied, and making good any damage to property.
  - 5. Other overhead or general expense costs of any kind and the costs of any item not specifically and expressly included in Paragraph 13.01.B.
- D. *Contractor's Fee:* When the Work as a whole is performed on the basis of cost-plus, Contractor's fee shall be determined as set forth in the Agreement. When the value of any Work covered by a Change Order, Change Proposal, Claim, set-off, or other adjustment in Contract Price is determined on the basis of Cost of the Work, Contractor's fee shall be determined as set forth in Paragraph 11.04.C.

- E. *Documentation*: Whenever the Cost of the Work for any purpose is to be determined pursuant to this Article 13, Contractor will establish and maintain records thereof in accordance with generally accepted accounting practices and submit in a form acceptable to Engineer an itemized cost breakdown together with supporting data.

#### 13.02 Allowances

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

#### 13.03 Unit Price Work

- A. Where the Contract Documents provide that all or part of the Work is to be Unit Price Work, initially the Contract Price will be deemed to include for all Unit Price Work an amount equal to the sum of the unit price for each separately identified item of Unit Price Work times the estimated quantity of each item as indicated in the Agreement.
- B. The estimated quantities of items of Unit Price Work are not guaranteed and are solely for the purpose of comparison of Bids and determining an initial Contract Price. Payments to Contractor for Unit Price Work will be based on actual quantities.
- C. Each unit price will be deemed to include an amount considered by Contractor to be adequate to cover Contractor's overhead and profit for each separately identified item.
- D. Engineer will determine the actual quantities and classifications of Unit Price Work performed by Contractor. Engineer will review with Contractor the Engineer's preliminary determinations on such matters before rendering a written decision thereon (by recommendation of an Application for Payment or otherwise). Engineer's written decision thereon will be final and binding (except as modified by Engineer to reflect changed factual conditions or more accurate data) upon Owner and Contractor, subject to the provisions of the following paragraph.
- E. Within 30 days of Engineer's written decision under the preceding paragraph, Contractor may submit a Change Proposal, or Owner may file a Claim, seeking an adjustment in the Contract Price if:
  - 1. the quantity of any item of Unit Price Work performed by Contractor differs materially and significantly from the estimated quantity of such item indicated in the Agreement;

2. there is no corresponding adjustment with respect to any other item of Work; and
3. Contractor believes that it is entitled to an increase in Contract Price as a result of having incurred additional expense or Owner believes that Owner is entitled to a decrease in Contract Price, and the parties are unable to agree as to the amount of any such increase or decrease.

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

##### **14.01 Access to Work**

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

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

- A. Contractor shall give Engineer timely notice of readiness of the Work (or specific parts thereof) for all required inspections and tests, and shall cooperate with inspection and testing personnel to facilitate required inspections and tests.
- B. Owner shall retain and pay for the services of an independent inspector, testing laboratory, or other qualified individual or entity to perform all inspections and tests expressly required by the Contract Documents to be furnished and paid for by Owner, except that costs incurred in connection with tests or inspections of covered Work shall be governed by the provisions of Paragraph 14.05.
- C. If Laws or Regulations of any public body having jurisdiction require any Work (or part thereof) specifically to be inspected, tested, or approved by an employee or other representative of such public body, Contractor shall assume full responsibility for arranging and obtaining such inspections, tests, or approvals, pay all costs in connection therewith, and furnish Engineer the required certificates of inspection or approval.
- D. Contractor shall be responsible for arranging, obtaining, and paying for all inspections and tests required:
  1. by the Contract Documents, unless the Contract Documents expressly allocate responsibility for a specific inspection or test to Owner;
  2. to attain Owner's and Engineer's acceptance of materials or equipment to be incorporated in the Work;
  3. by manufacturers of equipment furnished under the Contract Documents;
  4. for testing, adjusting, and balancing of mechanical, electrical, and other equipment to be incorporated into the Work; and
  5. for acceptance of materials, mix designs, or equipment submitted for approval prior to Contractor's purchase thereof for incorporation in the Work.

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

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

#### 14.03 *Defective Work*

- A. *Contractor's Obligation:* It is Contractor's obligation to assure that the Work is not defective.
- B. *Engineer's Authority:* Engineer has the authority to determine whether Work is defective, and to reject defective Work.
- C. *Notice of Defects:* Prompt notice of all defective Work of which Owner or Engineer has actual knowledge will be given to Contractor.
- D. *Correction, or Removal and Replacement:* Promptly after receipt of written notice of defective Work, Contractor shall correct all such defective Work, whether or not fabricated, installed, or completed, or, if Engineer has rejected the defective Work, remove it from the Project and replace it with Work that is not defective.
- E. *Preservation of Warranties:* When correcting defective Work, Contractor shall take no action that would void or otherwise impair Owner's special warranty and guarantee, if any, on said Work.
- F. *Costs and Damages:* In addition to its correction, removal, and replacement obligations with respect to defective Work, Contractor shall pay all claims, costs, losses, and damages arising out of or relating to defective Work, including but not limited to the cost of the inspection, testing, correction, removal, replacement, or reconstruction of such defective Work, fines levied against Owner by governmental authorities because the Work is defective, and the costs of repair or replacement of work of others resulting from defective Work. Prior to final payment, if Owner and Contractor are unable to agree as to the measure of such claims, costs, losses, and damages resulting from defective Work, then Owner may impose a reasonable set-off against payments due under Article 15.

#### 14.04 *Acceptance of Defective Work*

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



#### 14.05 *Uncovering Work*

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

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

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

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

- A. If Contractor fails within a reasonable time after written notice from Engineer to correct defective Work, or to remove and replace rejected Work as required by Engineer, or if Contractor fails to perform the Work in accordance with the Contract Documents, or if Contractor fails to comply with any other provision of the Contract Documents, then Owner may, after seven days written notice to Contractor, correct or remedy any such deficiency.
- B. In exercising the rights and remedies under this Paragraph 14.07, Owner shall proceed expeditiously. In connection with such corrective or remedial action, Owner may exclude Contractor from all or part of the Site, take possession of all or part of the Work and suspend Contractor's services related thereto, and incorporate in the Work all materials and equipment stored at the Site or for which Owner has paid Contractor but which are stored elsewhere. Contractor shall allow Owner, Owner's representatives, agents and employees, Owner's other contractors, and Engineer and Engineer's consultants access to the Site to enable Owner to exercise the rights and remedies under this paragraph.

- C. All claims, costs, losses, and damages incurred or sustained by Owner in exercising the rights and remedies under this Paragraph 14.07 will be charged against Contractor as set-offs against payments due under Article 15. Such claims, costs, losses and damages will include but not be limited to all costs of repair, or replacement of work of others destroyed or damaged by correction, removal, or replacement of Contractor's defective Work.
- D. Contractor shall not be allowed an extension of the Contract Times because of any delay in the performance of the Work attributable to the exercise by Owner of Owner's rights and remedies under this Paragraph 14.07.

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

### **15.01 Progress Payments**

- A. *Basis for Progress Payments:* The Schedule of Values established as provided in Article 2 will serve as the basis for progress payments and will be incorporated into a form of Application for Payment acceptable to Engineer. Progress payments on account of Unit Price Work will be based on the number of units completed during the pay period, as determined under the provisions of Paragraph 13.03. Progress payments for cost-based Work will be based on Cost of the Work completed by Contractor during the pay period.
- B. *Applications for Payments:*
  - 1. At least 20 days before the date established in the Agreement for each progress payment (but not more often than once a month), Contractor shall submit to Engineer for review an Application for Payment filled out and signed by Contractor covering the Work completed as of the date of the Application and accompanied by such supporting documentation as is required by the Contract Documents. If payment is requested on the basis of materials and equipment not incorporated in the Work but delivered and suitably stored at the Site or at another location agreed to in writing, the Application for Payment shall also be accompanied by a bill of sale, invoice, or other documentation warranting that Owner has received the materials and equipment free and clear of all Liens, and evidence that the materials and equipment are covered by appropriate property insurance, a warehouse bond, or other arrangements to protect Owner's interest therein, all of which must be satisfactory to Owner.
  - 2. Beginning with the second Application for Payment, each Application shall include an affidavit of Contractor stating that all previous progress payments received on account of the Work have been applied on account to discharge Contractor's legitimate obligations associated with prior Applications for Payment.
  - 3. The amount of retainage with respect to progress payments will be as stipulated in the Agreement.
- C. *Review of Applications:*
  - 1. Engineer will, within 10 days after receipt of each Application for Payment, including each resubmittal, either indicate in writing a recommendation of payment and present the Application to Owner, or return the Application to Contractor indicating in writing Engineer's reasons for refusing to recommend payment. In the latter case, Contractor may make the necessary corrections and resubmit the Application.
  - 2. Engineer's recommendation of any payment requested in an Application for Payment will constitute a representation by Engineer to Owner, based on Engineer's observations of the

executed Work as an experienced and qualified design professional, and on Engineer's review of the Application for Payment and the accompanying data and schedules, that to the best of Engineer's knowledge, information and belief:

- a. the Work has progressed to the point indicated;
  - b. the quality of the Work is generally in accordance with the Contract Documents (subject to an evaluation of the Work as a functioning whole prior to or upon Substantial Completion, the results of any subsequent tests called for in the Contract Documents, a final determination of quantities and classifications for Unit Price Work under Paragraph 13.03, and any other qualifications stated in the recommendation); and
  - c. the conditions precedent to Contractor's being entitled to such payment appear to have been fulfilled in so far as it is Engineer's responsibility to observe the Work.
3. By recommending any such payment Engineer will not thereby be deemed to have represented that:
- a. inspections made to check the quality or the quantity of the Work as it has been performed have been exhaustive, extended to every aspect of the Work in progress, or involved detailed inspections of the Work beyond the responsibilities specifically assigned to Engineer in the Contract; or
  - b. there may not be other matters or issues between the parties that might entitle Contractor to be paid additionally by Owner or entitle Owner to withhold payment to Contractor.
4. Neither Engineer's review of Contractor's Work for the purposes of recommending payments nor Engineer's recommendation of any payment, including final payment, will impose responsibility on Engineer:
- a. to supervise, direct, or control the Work, or
  - b. for the means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or
  - c. for Contractor's failure to comply with Laws and Regulations applicable to Contractor's performance of the Work, or
  - d. to make any examination to ascertain how or for what purposes Contractor has used the money paid on account of the Contract Price, or
  - e. to determine that title to any of the Work, materials, or equipment has passed to Owner free and clear of any Liens.
5. Engineer may refuse to recommend the whole or any part of any payment if, in Engineer's opinion, it would be incorrect to make the representations to Owner stated in Paragraph 15.01.C.2.
6. Engineer will recommend reductions in payment (set-offs) necessary in Engineer's opinion to protect Owner from loss because:
- a. the Work is defective, requiring correction or replacement;
  - b. the Contract Price has been reduced by Change Orders;

- c. Owner has been required to correct defective Work in accordance with Paragraph 14.07, or has accepted defective Work pursuant to Paragraph 14.04;
- d. Owner has been required to remove or remediate a Hazardous Environmental Condition for which Contractor is responsible; or
- e. Engineer has actual knowledge of the occurrence of any of the events that would constitute a default by Contractor and therefore justify termination for cause under the Contract Documents.

D. *Payment Becomes Due:*

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

E. *Reductions in Payment by Owner:*

- 1. In addition to any reductions in payment (set-offs) recommended by Engineer, Owner is entitled to impose a set-off against payment based on any of the following:
  - a. claims have been made against Owner on account of Contractor's conduct in the performance or furnishing of the Work, or Owner has incurred costs, losses, or damages on account of Contractor's conduct in the performance or furnishing of the Work, including but not limited to claims, costs, losses, or damages from workplace injuries, adjacent property damage, non-compliance with Laws and Regulations, and patent infringement;
  - b. Contractor has failed to take reasonable and customary measures to avoid damage, delay, disruption, and interference with other work at or adjacent to the Site;
  - c. Contractor has failed to provide and maintain required bonds or insurance;
  - d. Owner has been required to remove or remediate a Hazardous Environmental Condition for which Contractor is responsible;
  - e. Owner has incurred extra charges or engineering costs related to submittal reviews, evaluations of proposed substitutes, tests and inspections, or return visits to manufacturing or assembly facilities;
  - f. the Work is defective, requiring correction or replacement;
  - g. Owner has been required to correct defective Work in accordance with Paragraph 14.07, or has accepted defective Work pursuant to Paragraph 14.04;
  - h. the Contract Price has been reduced by Change Orders;
  - i. an event that would constitute a default by Contractor and therefore justify a termination for cause has occurred;
  - j. liquidated damages have accrued as a result of Contractor's failure to achieve Milestones, Substantial Completion, or final completion of the Work;
  - k. Liens have been filed in connection with the Work, except where Contractor has delivered a specific bond satisfactory to Owner to secure the satisfaction and discharge of such Liens;
  - l. there are other items entitling Owner to a set off against the amount recommended.

2. If Owner imposes any set-off against payment, whether based on its own knowledge or on the written recommendations of Engineer, Owner will give Contractor immediate written notice (with a copy to Engineer) stating the reasons for such action and the specific amount of the reduction, and promptly pay Contractor any amount remaining after deduction of the amount so withheld. Owner shall promptly pay Contractor the amount so withheld, or any adjustment thereto agreed to by Owner and Contractor, if Contractor remedies the reasons for such action. The reduction imposed shall be binding on Contractor unless it duly submits a Change Proposal contesting the reduction.
3. Upon a subsequent determination that Owner's refusal of payment was not justified, the amount wrongfully withheld shall be treated as an amount due as determined by Paragraph 15.01.C.1 and subject to interest as provided in the Agreement.

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

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

#### 15.03 *Substantial Completion*

- A. When Contractor considers the entire Work ready for its intended use Contractor shall notify Owner and Engineer in writing that the entire Work is substantially complete and request that Engineer issue a certificate of Substantial Completion. Contractor shall at the same time submit to Owner and Engineer an initial draft of punch list items to be completed or corrected before final payment.
- B. Promptly after Contractor's notification, Owner, Contractor, and Engineer shall make an inspection of the Work to determine the status of completion. If Engineer does not consider the Work substantially complete, Engineer will notify Contractor in writing giving the reasons therefor.
- C. If Engineer considers the Work substantially complete, Engineer will deliver to Owner a preliminary certificate of Substantial Completion which shall fix the date of Substantial Completion. Engineer shall attach to the certificate a punch list of items to be completed or corrected before final payment. Owner shall have seven days after receipt of the preliminary certificate during which to make written objection to Engineer as to any provisions of the certificate or attached punch list. If, after considering the objections to the provisions of the preliminary certificate, Engineer concludes that the Work is not substantially complete, Engineer will, within 14 days after submission of the preliminary certificate to Owner, notify Contractor in writing that the Work is not substantially complete, stating the reasons therefor. If Owner does not object to the provisions of the certificate, or if despite consideration of Owner's objections Engineer concludes that the Work is substantially complete, then Engineer will, within said 14 days, execute and deliver to Owner and Contractor a final certificate of Substantial Completion (with a revised punch list of items to be completed or corrected) reflecting such changes from the preliminary certificate as Engineer believes justified after consideration of any objections from Owner.
- D. At the time of receipt of the preliminary certificate of Substantial Completion, Owner and Contractor will confer regarding Owner's use or occupancy of the Work following Substantial Completion, review the builder's risk insurance policy with respect to the end of the builder's risk coverage, and confirm the transition to coverage of the Work under a permanent property insurance policy held by Owner. Unless Owner and Contractor agree otherwise in writing, Owner

shall bear responsibility for security, operation, protection of the Work, property insurance, maintenance, heat, and utilities upon Owner's use or occupancy of the Work.

- E. After Substantial Completion the Contractor shall promptly begin work on the punch list of items to be completed or corrected prior to final payment. In appropriate cases Contractor may submit monthly Applications for Payment for completed punch list items, following the progress payment procedures set forth above.
- F. Owner shall have the right to exclude Contractor from the Site after the date of Substantial Completion subject to allowing Contractor reasonable access to remove its property and complete or correct items on the punch list.

#### 15.04 *Partial Use or Occupancy*

- A. Prior to Substantial Completion of all the Work, Owner may use or occupy any substantially completed part of the Work which has specifically been identified in the Contract Documents, or which Owner, Engineer, and Contractor agree constitutes a separately functioning and usable part of the Work that can be used by Owner for its intended purpose without significant interference with Contractor's performance of the remainder of the Work, subject to the following conditions:
  - 1. At any time Owner may request in writing that Contractor permit Owner to use or occupy any such part of the Work that Owner believes to be substantially complete. If and when Contractor agrees that such part of the Work is substantially complete, Contractor, Owner, and Engineer will follow the procedures of Paragraph 15.03.A through E for that part of the Work.
  - 2. At any time Contractor may notify Owner and Engineer in writing that Contractor considers any such part of the Work substantially complete and request Engineer to issue a certificate of Substantial Completion for that part of the Work.
  - 3. Within a reasonable time after either such request, Owner, Contractor, and Engineer shall make an inspection of that part of the Work to determine its status of completion. If Engineer does not consider that part of the Work to be substantially complete, Engineer will notify Owner and Contractor in writing giving the reasons therefor. If Engineer considers that part of the Work to be substantially complete, the provisions of Paragraph 15.03 will apply with respect to certification of Substantial Completion of that part of the Work and the division of responsibility in respect thereof and access thereto.
  - 4. No use or occupancy or separate operation of part of the Work may occur prior to compliance with the requirements of Paragraph 6.05 regarding builder's risk or other property insurance.

#### 15.05 *Final Inspection*

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

#### 15.06 *Final Payment*

- A. *Application for Payment:*
  - 1. After Contractor has, in the opinion of Engineer, satisfactorily completed all corrections identified during the final inspection and has delivered, in accordance with the Contract

Documents, all maintenance and operating instructions, schedules, guarantees, bonds, certificates or other evidence of insurance, certificates of inspection, annotated record documents (as provided in Paragraph 7.11), and other documents, Contractor may make application for final payment.

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

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

1. If, on the basis of Engineer's observation of the Work during construction and final inspection, and Engineer's review of the final Application for Payment and accompanying documentation as required by the Contract Documents, Engineer is satisfied that the Work has been completed and Contractor's other obligations under the Contract have been fulfilled, Engineer will, within ten days after receipt of the final Application for Payment, indicate in writing Engineer's recommendation of final payment and present the Application for Payment to Owner for payment. Such recommendation shall account for any set-offs against payment that are necessary in Engineer's opinion to protect Owner from loss for the reasons stated above with respect to progress payments. At the same time Engineer will also give written notice to Owner and Contractor that the Work is acceptable, subject to the provisions of Paragraph 15.07. Otherwise, Engineer will return the Application for Payment to Contractor, indicating in writing the reasons for refusing to recommend final payment, in which case Contractor shall make the necessary corrections and resubmit the Application for Payment.

- C. *Completion of Work:* The Work is complete (subject to surviving obligations) when it is ready for final payment as established by the Engineer's written recommendation of final payment.
- D. *Payment Becomes Due:* Thirty days after the presentation to Owner of the final Application for Payment and accompanying documentation, the amount recommended by Engineer (less any further sum Owner is entitled to set off against Engineer's recommendation, including but not

limited to set-offs for liquidated damages and set-offs allowed under the provisions above with respect to progress payments) will become due and shall be paid by Owner to Contractor.

#### 15.07 *Waiver of Claims*

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

#### 15.08 *Correction Period*

- A. If within one year after the date of Substantial Completion (or such longer period of time as may be prescribed by the terms of any applicable special guarantee required by the Contract Documents, or by any specific provision of the Contract Documents), any Work is found to be defective, or if the repair of any damages to the Site, adjacent areas that Contractor has arranged to use through construction easements or otherwise, and other adjacent areas used by Contractor as permitted by Laws and Regulations, is found to be defective, then Contractor shall promptly, without cost to Owner and in accordance with Owner's written instructions:
  - 1. correct the defective repairs to the Site or such other adjacent areas;
  - 2. correct such defective Work;
  - 3. if the defective Work has been rejected by Owner, remove it from the Project and replace it with Work that is not defective, and
  - 4. satisfactorily correct or repair or remove and replace any damage to other Work, to the work of others, or to other land or areas resulting therefrom.
- B. If Contractor does not promptly comply with the terms of Owner's written instructions, or in an emergency where delay would cause serious risk of loss or damage, Owner may have the defective Work corrected or repaired or may have the rejected Work removed and replaced. Contractor shall pay all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such correction or repair or such removal and replacement (including but not limited to all costs of repair or replacement of work of others).
- C. In special circumstances where a particular item of equipment is placed in continuous service before Substantial Completion of all the Work, the correction period for that item may start to run from an earlier date if so provided in the Specifications.
- D. Where defective Work (and damage to other Work resulting therefrom) has been corrected or removed and replaced under this paragraph, the correction period hereunder with respect to such Work will be extended for an additional period of one year after such correction or removal and replacement has been satisfactorily completed.



- E. Contractor's obligations under this paragraph are in addition to all other obligations and warranties. The provisions of this paragraph shall not be construed as a substitute for, or a waiver of, the provisions of any applicable statute of limitation or repose.

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

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

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

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

- A. The occurrence of any one or more of the following events will constitute a default by Contractor and justify termination for cause:
  - 1. Contractor's persistent failure to perform the Work in accordance with the Contract Documents (including, but not limited to, failure to supply sufficient skilled workers or suitable materials or equipment or failure to adhere to the Progress Schedule);
  - 2. Failure of Contractor to perform or otherwise to comply with a material term of the Contract Documents;
  - 3. Contractor's disregard of Laws or Regulations of any public body having jurisdiction; or
  - 4. Contractor's repeated disregard of the authority of Owner or Engineer.
- B. If one or more of the events identified in Paragraph 16.02.A occurs, then after giving Contractor (and any surety) ten days written notice that Owner is considering a declaration that Contractor is in default and termination of the contract, Owner may proceed to:
  - 1. declare Contractor to be in default, and give Contractor (and any surety) notice that the Contract is terminated; and
  - 2. enforce the rights available to Owner under any applicable performance bond.
- C. Subject to the terms and operation of any applicable performance bond, if Owner has terminated the Contract for cause, Owner may exclude Contractor from the Site, take possession of the Work, incorporate in the Work all materials and equipment stored at the Site or for which Owner has paid Contractor but which are stored elsewhere, and complete the Work as Owner may deem expedient.
- D. Owner may not proceed with termination of the Contract under Paragraph 16.02.B if Contractor within seven days of receipt of notice of intent to terminate begins to correct its failure to perform and proceeds diligently to cure such failure.
- E. If Owner proceeds as provided in Paragraph 16.02.B, Contractor shall not be entitled to receive any further payment until the Work is completed. If the unpaid balance of the Contract Price exceeds the cost to complete the Work, including all related claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals) sustained by Owner, such excess will be paid to Contractor. If the cost to complete the Work

including such related claims, costs, losses, and damages exceeds such unpaid balance, Contractor shall pay the difference to Owner. Such claims, costs, losses, and damages incurred by Owner will be reviewed by Engineer as to their reasonableness and, when so approved by Engineer, incorporated in a Change Order. When exercising any rights or remedies under this paragraph, Owner shall not be required to obtain the lowest price for the Work performed.

- F. Where Contractor's services have been so terminated by Owner, the termination will not affect any rights or remedies of Owner against Contractor then existing or which may thereafter accrue, or any rights or remedies of Owner against Contractor or any surety under any payment bond or performance bond. Any retention or payment of money due Contractor by Owner will not release Contractor from liability.
- G. If and to the extent that Contractor has provided a performance bond under the provisions of Paragraph 6.01.A, the provisions of that bond shall govern over any inconsistent provisions of Paragraphs 16.02.B and 16.02.D.

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

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

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

- A. If, through no act or fault of Contractor, (1) the Work is suspended for more than 90 consecutive days by Owner or under an order of court or other public authority, or (2) Engineer fails to act on any Application for Payment within 30 days after it is submitted, or (3) Owner fails for 30 days to pay Contractor any sum finally determined to be due, then Contractor may, upon seven days written notice to Owner and Engineer, and provided Owner or Engineer do not remedy such suspension or failure within that time, terminate the contract and recover from Owner payment on the same terms as provided in Paragraph 16.03.
- B. In lieu of terminating the Contract and without prejudice to any other right or remedy, if Engineer has failed to act on an Application for Payment within 30 days after it is submitted, or Owner has failed for 30 days to pay Contractor any sum finally determined to be due, Contractor may, seven days after written notice to Owner and Engineer, stop the Work until payment is made of all such amounts due Contractor, including interest thereon. The provisions of this paragraph are not intended to preclude Contractor from submitting a Change Proposal for an adjustment in Contract

Price or Contract Times or otherwise for expenses or damage directly attributable to Contractor's stopping the Work as permitted by this paragraph.

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

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

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

## **ARTICLE 18 – MISCELLANEOUS**

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

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

### **18.02 *Computation of Times***

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

### **18.03 *Cumulative Remedies***

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

18.04 *Limitation of Damages*

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

18.05 *No Waiver*

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

18.06 *Survival of Obligations*

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

18.07 *Controlling Law*

- A. This Contract is to be governed by the law of the state in which the Project is located.

18.08 *Headings*

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

## SECTION 00 73 00

### SUPPLEMENTARY CONDITIONS

#### A. INTRODUCTORY STATEMENTS

These Supplementary Conditions amend or supplement the Standard General Conditions of the Construction Contract (Section 00 72 43) and other provisions of the Contract Documents as indicated below. All provisions which are not so amended or supplemented remain in full force and effect.

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

#### B. SPECIFIC COMMENTS

**SC-2.02 Amend the first sentence of Paragraph 2.02.A to read as follows:**

OWNER shall furnish to CONTRACTOR two (2) copies of the Contract Documents (including one fully executed counterpart of the Agreement).

**SC-2.05 Add the following language to the end of Paragraph 2.05.A.1:**

Schedule shall be Gantt chart (bar chart) unless approved otherwise by the ENGINEER.

**SC-3.02 Amend Paragraph 3.02 as follows:**

All construction shall be in accordance with applicable municipal, county, state, and other governmental ordinances, rules and regulations.

**SC-3.03 Add the following paragraph to the end of Paragraph 3.03.B.1:**

If a discrepancy occurs between these Contract Documents and the requirements of the jurisdiction where the Work is being performed, the more stringent shall take precedence. Discrepancies shall be reported to the ENGINEER.

**SC-4.05 Add the following immediately after Paragraph 4.05.C.2:**

Contract time will not be extended for rainfall unless it exceeds the normal rainfall per the following table:

Month	Average Rain Days
January	5
February	4
March	3
April	3
May	4
June	4
July	4
August	4
September	5
October	6
November	6
December	5

**SC-5.03 Amend Paragraph 5.03.A to read as follows:**

Any reports of explorations or tests of subsurface conditions at or adjacent to the Site, or drawings of physical conditions relating to existing surface or subsurface structures at or contiguous to the Site known to the ENGINEER are included as an Exhibit.

**SC-5.02 Add a new paragraph immediately after Paragraph 5.02.B:**

All debris, trash, and excess materials not used by the Owner shall be the property of the CONTRACTOR. Disposal shall be incidental to the contract unless a specific pay item is provided in the bid form.

**SC-5.03 Add the following new paragraph(s) immediately after Paragraph 5.03.B:**

CONTRACTOR is also required to visit the Site to become familiar with and satisfied as to the general, local, and Site conditions that may affect cost, progress, performance, and furnishing of the Work. This is to involve an alert, heads-up, eyes-open, reasonable examination of the area and the conditions under which the Work is to be performed (see GC-5.04.D.2.b).

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

A. No reports on drawings related to Hazardous Environmental Conditions are known to OWNER or ENGINEER.

B. Not Used.

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

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

1. Workers' Compensation and related coverages under Paragraphs 5.04.A.1 and A.2 of the General Conditions:

- |                          |             |
|--------------------------|-------------|
| a. State:                | Statutory   |
| b. Applicable Federal:   | Statutory   |
| c. Employer's Liability: | \$1,000,000 |

2. CONTRACTOR's Commercial General Liability under Paragraphs 6.03.B and 6.03.C of the General Conditions:

- |  |             |
|--|-------------|
| a. General Aggregate                                   | \$2,000,000 |
| b. Products - Completed Operations Aggregate           | \$1,000,000 |
| c. Personal and Advertising Injury                     | \$1,000,000 |
| d. Each Occurrence (Bodily Injury and Property Damage) | \$1,000,000 |

e. Property Damage liability insurance will provide Explosion, Collapse, and Under-ground coverages where applicable.

3. Automobile Liability under Paragraph 6.03.D. of the General Conditions:

Combined Single Limit	\$1,000,000
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4. Excess or Umbrella Liability

Per Occurrence	\$2,000,000
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General Aggregate	\$2,000,000
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5. Contractor's Pollution Liability

Not required for this project.

6. The Owner and Bleyl Engineering are to be included on policy as additional insured. Provide a copy of additional insured endorsement along with the insurance certificate.

**SC-6.06 Add the following immediately after Paragraph 6.06.A:**

Provide a copy of the waiver of subrogation endorsement along with the insurance certificate.

**SC-7.02 Add the following new paragraph(s) immediately after Paragraph 7.02.B:**

Regular working hours shall be between 7:00 AM to 5:00 PM.

Legal Holidays include New Years Day, Good Friday, Memorial Day, 4<sup>th</sup> of July, Labor Day, Thanksgiving, the day after Thanksgiving, Christmas Eve, and Christmas.

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

reasonable set-off against payments due under Article 14.

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

B. OWNER is exempt from payment of sales and compensating use taxes of the State of Texas and of cities and counties thereof on all materials to be incorporated into the Work.

1. OWNER will furnish the required certificates of tax exemption to CONTRACTOR for use in the purchase of supplies and materials to be incorporated into the Work.

2. OWNER's exemption does not apply to construction tools, machinery, equipment, or other property purchased by or leased by CONTRACTOR, or to supplies or materials not incorporated into the Work.

**SC-7.11 Add the following immediately after Paragraph 7.11:**

B. CONTRACTOR shall maintain documents in a clean, dry and legible condition.

C. CONTRACTOR shall carefully mark one set of Drawings with red pencil to reflect work as constructed including the following:

Actual size, depth, and location of all underground piping, fittings, valves, cleanouts, thrust block and other appurtenances.

Actual elevations and horizontal control for structures and appurtenances referenced to the bench mark and base line provided by the ENGINEER.

Field changes shall be accurately detailed on record drawings.

Modifications made by change order shall be accurately described and dimensioned on the record drawings.

**END OF SECTION**

## **SECTION 01 11 13**

### **WORK COVERED BY CONTRACT DOCUMENTS**

#### **PART 1 GENERAL**

##### **1.01 SCOPE**

- A. Location and Description of Work
  - 1. The site is located in the Montgomery, County within the corporate limits of the City of Oak Ridge North
  - 2. The summary of the Work as described in this Section is an overall summary of responsibilities of the CONTRACTOR and his relation to the OWNER. It does not supersede specific requirements of other Contract Documents.
  - 3. The Work generally consists of the following:
    - Widening Woodson Road at the I-45 Frontage, storm sewer improvements, and improving the turn radius of Blueberry Hill Drive

##### **1.02 MEASUREMENT AND PAYMENT (NOT USED)**

##### **1.03 REFERENCES (NOT USED)**

##### **1.04 RELATED SECTIONS**

- A. SECTION 00 72 43 – General Conditions of the Agreement
- B. SECTION 00 73 00 – Supplementary Conditions
- C. SECTION 01 33 00 – Submittal Procedures
- D. SECTION 01 33 23 – Shop Drawings, Product Data and Samples

##### **1.05 SUBMITTALS (NOT USED)**

##### **1.06 OWNER**

City of Oak Ridge North  
27424 Robinson Road  
Oak Ridge North, Texas 77385  
281-292-4648  
Attention: Joe Sherwin, Director of Public Works

##### **1.07 ENGINEER**

Bleyl Engineering  
  
100 Nugent Street  
  
Conroe, Texas 77301  
  
Attention: Carl Rushing, P.E.



**PART 2 PRODUCTS (NOT USED)**

**PART 3 EXECUTION**

**3.01 CONTRACTS**

- A. The Work shall be constructed under one prime contract.
- B. The OWNER reserves the right to let other contracts in connection with OWNER projects. If more than one CONTRACTOR is to work on site, the work for each CONTRACTOR shall be coordinated with the work for other CONTRACTORS on the site; the OWNER's Representative shall be the final authority of all matters of coordination. Each CONTRACTOR shall afford other CONTRACTORS reasonable opportunity for introduction and storage of their materials and execution of their work, and shall properly connect and coordinate his work with theirs provided that, in the cases where the CONTRACTOR can show that a restraint which could not reasonably be anticipated occurred in his work from other work on the site, the CONTRACTOR is not prevented from seeking additional compensation, if it is appropriate under the law.

**3.02 WORK BY OTHERS**

- A. Work by OWNER: None.
- B. Prior Contracts: None.

**3.03 SEQUENCE AND PROGRESS OF WORK**

- A. Before starting construction, the CONTRACTOR shall fully comply with submittal requirements for Schedule of Values, CONTRACTOR's Quality Control System and Shop Drawing Submittal List as outlined in SECTION 01 33 00 – Submittal Procedures and SECTION 01 33 23 – Shop Drawings, Product Data and Samples. After acceptance by the OWNER's Representative of these submittals, the CONTRACTOR shall proceed with the Work according to the accepted Construction Schedule.
- B. The OWNER's Representative may authorize the CONTRACTOR to proceed with certain elements of work prior to full acceptance of submittal requirements. Prior to full acceptance of submittal requirements, payment for work will be made for only authorized elements of the Work.
- C. Should alternative sequencing be desired to that specified in this Section, the CONTRACTOR shall forward for review and approval his fully documented request which explains the benefits of his proposed sequencing with his Construction Schedules. The CONTRACTOR shall resubmit the Construction Schedules to be in compliance with the specified sequencing if his documentation fails to satisfy the intent of specified sequencing as determined by the ENGINEER and the OWNER.
- D. The general sequence of the Work shall be as discussed in the plans and as submitted in the approved construction schedule.

**3.04 CONTRACTOR'S USE OF PREMISES**

- A. The CONTRACTOR shall submit a layout of the existing site and facilities indicating what area he proposes to use for construction operations. CONTRACTOR operations shall in no way interfere with normal operation of the existing facilities.

- B. The CONTRACTOR shall be solely responsible for obtaining and shall pay all costs in connection with any additional work area, storage sites, access to the site, or temporary right-of-way which may be required for proper completion of the Work.
- C. The responsibility for protection and safekeeping of equipment and materials on or near the site will be entirely that of the CONTRACTOR. No claim shall be made against the OWNER by reason of any act of any employee or trespasser. It shall be understood that should any occasion arise necessitating use by the OWNER of sites occupied by stored materials and equipment, the CONTRACTOR shall immediately move same. No materials or equipment may be placed upon property of the OWNER without prior approval of the OWNER.
- D. For access to and fulfillment of the CONTRACT, the project site shall be comprised of property, right-of-way or easements provided by the OWNER as indicated. The CONTRACTOR, in the prosecution of the work, shall not trespass or allow any of his employees to trespass upon the abutting lands or other lands in the vicinity. The CONTRACTOR may, at his own cost, make suitable arrangements for any temporary usage of his private lands, but he and his surety on his bond shall protect, indemnify, and hold harmless the OWNER, ENGINEER and its officers and employees against any claim arising from temporary usage of private lands.
- E. The CONTRACTOR shall provide a self-contained temporary portable toilet. Locate portable toilet in a safe location out of public view. Maintain portable toilet in a clean and sanitary condition. All costs of temporary sanitation facilities to be paid for by the CONTRACTOR.
- F. Areas used for parking of vehicles and equipment shall be provided and maintained at the CONTRACTOR'S expense.
- G. The CONTRACTOR shall furnish all barricades, warnings, and control of access to the project site during construction as necessary for safety and protection of life and property.
- H. Prior to final inspection, the CONTRACTOR shall remove all temporary facilities from the construction site and restore the area to a clean condition.

### **3.05 COORDINATION**

- A. As more fully set forth in SECTION 00 72 43 – General Conditions of the Agreement, and SECTION 00 73 00 – Supplementary Conditions, the CONTRACTOR shall be solely responsible for coordination of the Work. He shall supervise, direct and cooperate fully with Subcontractors, manufacturers, fabricators, suppliers, distributors, installers, testing agencies and others whose services, materials or equipment are required to ensure completion of the Work within the Contract Time.
- B. As more fully set forth in SECTION 00 72 43 – General Conditions, and SECTION 00 73 00 – Supplementary Conditions of the Agreement, the CONTRACTOR shall cooperate with and coordinate his Work with the work of any other CONTRACTOR, utility service company or OWNER's employees performing additional work related to the Project.
- C. The CONTRACTOR shall not be responsible for damage done by CONTRACTORS not under his jurisdiction. He will not be liable for any such loss or damage unless it is through negligence of the CONTRACTOR.
- D. The CONTRACTOR shall also coordinate his Work with the work of others to assure compliance with schedules.
- E. The CONTRACTOR shall attend and participate in project coordination or progress meetings and report on progress of the Work and compliance with schedules.

### **3.06 CONTRACTOR ORGANIZATION**

- A. The CONTRACTOR shall have on the site all personnel required to prosecute the Work in an orderly and timely manner. As a minimum, the CONTRACTOR shall designate two persons to perform the following functions:
  - 1. Project Manager. This person shall be responsible for all phases of the Work and shall have authority to make all decisions required to complete the work in a timely manner. An individual on site shall be designated to act in behalf of the project manager in his absence. Unless designated otherwise, the Project Manager will also handle the following duties:
    - Purchasing Agent. This person shall be responsible for purchasing all materials and equipment which will be incorporated into the Project.
    - Scheduler. This person shall be responsible for preparing, revising, and updating the CPM.
    - Quality Control Manager. This person shall be responsible for overall quality of the finished project.
  - 2. Project Superintendent. This person shall be responsible for all construction personnel and subcontractor work.
- B. The Project Superintendent will report directly to the Project Manager.
- C. Titles used above are for indicating authority and responsibility. Actual titles may vary, but OWNER's Representatives must be notified by CONTRACTOR of which individual will fit each job function.
- D. The CONTRACTOR shall maintain sufficient competent personnel, drafting equipment and supplies at the site for the purpose of preparing layout and coordination drawings. These drawings shall supplement the Contract Documents and Shop Drawings as necessary to correlate the work of the various trades. Where such drawings are prepared by the mechanical, electrical, plumbing, or heating and ventilating Subcontractors, the CONTRACTOR will ensure that each Subcontractor maintains the required personnel and facilities on the site.

### **3.07 PROJECT DATUM ELEVATIONS AND HORIZONTAL CONTROL LINES**

- A. The CONTRACTOR shall furnish and maintain coordinates and lines and grades, and stake out work at the site based upon the coordinate system shown on the Drawings and the benchmark established by the ENGINEER.
- B. The coordinate system provided by the ENGINEER consists of north-south and east-west coordinates shown on the Drawings. Prior to staking out the work, the CONTRACTOR shall satisfy himself in regard to the relationship between the coordinates established Work to be performed under the Contract.
- C. The benchmark to control the elevation of construction is shown on the Drawings. All elevations on the Drawings are given in reference to this benchmark or relative set-point elevation as noted. As the accuracy of the elevations and dimensions of existing equipment and structures cannot be guaranteed, the CONTRACTOR shall verify prior to use in the field any elevations and dimensions indicated on Drawings.

**END OF SECTION**

## **SECTION 01 31 13**

### **PROJECT COORDINATION**

#### **PART 1 GENERAL**

##### **1.01 SCOPE (DESCRIPTION)**

- A. General coordination of new Work or rehabilitation at an existing facility.

##### **1.02 MEASUREMENT AND PAYMENT (NOT USED)**

##### **1.03 REFERENCES (NOT USED)**

##### **1.04 RELATED SECTIONS (NOT USED)**

##### **1.05 SUBMITTALS**

- A. Submit detailed schedule of proposed connections, including shutdowns and tie-ins.
- B. Submittals shall include the proposed time and date as well as the anticipated duration.
- C. Submit a construction schedule. Submit specific time and date information to ENGINEER forty-eight (48) hours in advance of proposed Work.

##### **1.06 CONTACT INFORMATION**

- A. OWNER:  
  
City of Oak Ridge North  
27424 Robinson Road  
Oak Ridge North, Texas 77385  
281-292-4648  
Attention: Joe Sherwin, Director of Public Works

#### **PART 2 PRODUCTS (NOT USED)**

#### **PART 3 EXECUTION**

##### **3.01 GENERAL**

- A. Keep existing facilities in operation continuously during the construction period.
- B. Allow full and safe access for operators to all operating and maintenance areas. Full access shall include that required for personnel, equipment, and vehicles to perform maintenance, operations, and gather samples.
- C. CONTRACTOR shall perform all construction activities so as to avoid interference with operations of the facility. CONTRACTOR shall also avoid interference with private and public access as much as possible.
- D. In event of any emergency and in order to protect public health, it may be necessary to cease construction operations.

- E. CONTRACTOR shall carefully coordinate all Work and schedules and shall provide OWNER written notice at least forty-eight (48) hours before shutdowns or by-passes are required.
- F. No valve, gate, nor other item of equipment shall be operated without OWNER's or the Operator's prior knowledge.

### **3.02 EXISTING FACILITIES**

- A. Maintain full access for Operators.
- B. Keep area clean and control dust and mud.
- C. Keep all heavy equipment and truck traffic in area to a minimum.

### **3.03 NEW FACILITIES**

- A. Provide full access for personnel.
- B. Install temporary walks and roadways to facilities if permanent access means is not completed.

### **3.04 ELECTRICAL**

- A. Coordinate with OWNER, Power Company, and/or Natural Gas Company to maintain continuity of operation and service.

### **3.05 INSTRUMENTATION AND CONTROL WORK**

- A. Coordinate with OWNER to maintain continuity and transition of the plant operation from existing facilities to the new facilities.

**END OF SECTION**

## **SECTION 01 32 29**

### **PERIODIC WORK OBSERVATION**

#### **PART 1 GENERAL**

- A. Field Project Representative is ENGINEER's agent and will act as directed by and under the supervision of ENGINEER. He/she will confer with ENGINEER regarding his/her actions. His/her dealings in matters pertaining to the on-site Work shall in general be only with ENGINEER and CONTRACTOR. His/her dealings with subcontractors shall only be through or with the full knowledge of CONTRACTOR or his/her superintendent. He/she will generally communicate with OWNER only through or as directed by ENGINEER.

#### **1.02 MEASUREMENT AND PAYMENT**

- A. No separate payment will be made.

#### **1.03 RELATED SECTIONS**

- A. SECTION 00 63 13 – Request for Interpretation
- B. SECTION 01 33 00 – Submittal Procedures

#### **PART 2 PRODUCTS (NOT USED)**

#### **PART 3 EXECUTION**

##### **3.01 DUTIES AND RESPONSIBILITIES OF FIELD PROJECT REPRESENTATIVE**

- A. Schedules: Review the progress schedule, schedule of Submittals and Shop Drawing submissions and schedule of values prepared by CONTRACTOR and consult with ENGINEER concerning their acceptability.
- B. Conferences: Attend pre-construction conference and other meetings. Arrange a schedule of progress meetings and other job conferences as required in consultation with ENGINEER and notify those expected to attend in advance. Attend meetings and maintain and circulate copies of minutes thereof.
- C. Liaison:
  - 1. Serve as ENGINEER'S liaison with CONTRACTOR, working principally through CONTRACTOR's superintendent and assist him/her in understanding the intent of the Contract Documents. Assist ENGINEER in serving as OWNER's liaison with CONTRACTOR when CONTRACTOR's operations affect OWNER's on-site operations.
  - 2. As requested by ENGINEER, assist in obtaining from OWNER additional details or information, when required at the Site for proper execution of the Work.
  - 3. Alert CONTRACTOR directly through his/her superintendent, to the hazard involved in accepting or acting upon instructions from OWNER or others, except instructions transmitted through ENGINEER or him/herself. All contract directives or changes to sealed Drawings MUST BE in writing or be accompanied by revisions to the Drawings IN ADVANCE of Work being implemented. All changes should be put in writing for the record. Any party can create a Request for Interpretation for a formal response to field issues.

D. Submittals, Shop Drawings and Samples:

1. Receive and record date of receipt of Submittals, Shop Drawings, and samples that have been approved by ENGINEER.
2. Advise ENGINEER and CONTRACTOR, immediately of the commencement of any Work requiring a Shop Drawing or sample submission that has not been approved by ENGINEER.

E. Review of Work, Rejection of Defective Work, Observations, and Tests:

1. Conduct on-site observations of the Work in progress to assist ENGINEER in determining that the Project is proceeding in accordance with the Contract Documents and that completed Work will conform to the requirements of the Contract Documents.
2. Report to ENGINEER whenever he/she believes that any Work is unsatisfactory, faulty, or defective or does not meet the requirements of any observations, tests, or approval required to be made. Advise ENGINEER when Work should be corrected, rejected, uncovered for observation, or requires special testing or observation.
3. Verify that tests, equipment, systems start-ups, and operating and maintenance instructions are conducted as required by the Contract Documents and in presence of the required personnel, and that CONTRACTOR maintains adequate records thereof; observe, record, and report to ENGINEER appropriate details relative to the test procedures and start-ups.
4. Accompany visiting inspectors representing public or other agencies having jurisdiction over the Project. Record the outcome of these observations and report to ENGINEER.

F. Interpretation of Contract Documents:

1. Transmit to CONTRACTOR the ENGINEER's clarifications and interpretations of the Contract Documents.
2. Consider and evaluate CONTRACTOR's suggestions for modifications in Drawings or Specifications and report them with recommendations to ENGINEER.
3. All questions and interpretations will be confirmed by a Request for Interpretation.

G. Records:

1. Maintain orderly files for correspondence, reports of job conference, Shop Drawings and sample submissions, reproductions of original Contract Documents, including all Addenda, Change Orders, Field Orders, additional contract, ENGINEER's clarifications and interpretations of the Contract Documents, progress reports, and other Project related documents.
2. Keep a diary or log book, recording specific dates, times, and hours on the Site, weather conditions, number CONTRACTOR and sub-contractor personnel and specific Site activity observed, data relative to questions of extras or deductions, list of visiting officials, daily activities, decisions, observations in general and specific details when observing test procedures. Make Daily Report logs available to ENGINEER on request.

H. Reports:

1. Furnish ENGINEER periodic reports as required of progress of the Work and CONTRACTOR's compliance with the approved progress schedule of Shop Drawing submissions.
2. Consult with ENGINEER in advance of scheduled major tests, observations or start of important phase of the Work.

- I. Payment Requisitions: Review applications for payment with CONTRACTOR for compliance with the established procedure for their submission and forward them with recommendations to ENGINEER, noting particularly their relation to the schedule of values, Work completed, and materials and equipment delivered at the Site.
- J. Guarantees, Certificates, Maintenance, and Operation Manuals: Verify that guarantees, certificates, maintenance and operation manuals, and other data required to be assembled and furnished by CONTRACTOR are applicable to the items actually installed. Deliver this material to ENGINEER for his/her review and approval. ENGINEER will forward to OWNER during final acceptance of the Project.
- K. Completion:
  - 1. Before ENGINEER issues a Certificate of Substantial Completion, perform a Substantial Completion Inspection with CONTRACTOR, OWNER, and ENGINEER present. Prepare a Punch List of items for correction and submit to CONTRACTOR.
  - 2. Verify that all items on punch list have been corrected and make recommendations to ENGINEER concerning acceptance.
  - 3. Contract Warranty period begins on successful completion of Substantial Completion Inspection, with a minor list of Punch List items.

### **3.02 LIMITATIONS OF AUTHORITY**

- A. Except upon written instructions of ENGINEER, Field Project Representative:
  - 1. Shall not authorize any deviation from the Contract Documents or approve any substitute materials or equipment.
  - 2. Shall not undertake any of the responsibilities of CONTRACTOR, subcontractors or CONTRACTOR's superintendent.
  - 3. Shall not expedite Work by CONTRACTOR.
  - 4. Shall not advise on or issue directions relative to any aspect of the means, methods, techniques, sequences or procedures of construction unless such is specifically called for in the Contract Documents.
  - 5. Shall not advise on or issue directions as to safety precautions and programs in connection with the Work. However, the Field Project Representative has the authority to notify superintendent if he/she feels there is an imminent risk of danger or loss of life. They shall contact ENGINEER and OWNER immediately for direction on how to proceed. CONTRACTOR shall submit an approved work plan to remedy the situation before proceeding.

**END OF SECTION**



## **SECTION 01 32 33**

### **PHOTOGRAPHIC DOCUMENTATION**

#### **PART 1 GENERAL**

##### **1.01 SCOPE (DESCRIPTION)**

- A. Photographic requirements for construction photographs and submittals.

##### **1.02 MEASUREMENT AND PAYMENT**

- A. Construction Photographs will be measured by the lump sum for either “Pre-Construction Photographs” or “Finished Photographs” if required, or as specifically shown in the bid proposal for scope of work.
- B. Payment includes full compensation for all required supervision, labor, products, tools, equipment, software, media, submittals, and incidentals required by this Section.

##### **1.03 RELATED SECTIONS**

- A. SECTION 01 33 00 – Submittal Procedures

##### **1.04 SUBMITTALS**

- A. Format and Media.
  - 1. Digital photography only; film may not be used. Submit digital color photographs in JPEG format, unless otherwise specified.
  - 2. Digital photos should be submitted on flash (thumb) drives. CDs or DVDs may also be accepted.
  - 3. Use 8.0 megapixel density or greater for photographs. Photos shall have good composition and lighting so that pre-construction conditions are clearly depicted.
- B. Submittal Quantities and Frequencies.
  - 1. Pre-construction Photographs: Submit one set of Pre-construction Photographs prior to start of construction operations.
  - 2. Finished Photographs: Submit one set of Finished Photographs, if required, after Date of Substantial Completion and prior to final payment.
- C. Description: Include a description of each photo. Descriptions shall contain the following information, at a minimum:
  - 1. Name of Project, address of Project and Contract Number.
  - 2. Name and address of CONTRACTOR.
  - 3. Date photograph was taken.
  - 4. Location photo was taken from, direction of view (i.e. N, S, NW, etc.), and short description of photo subject.
  - 5. Name and address of professional photographer who took the photograph, if applicable.

##### **1.05 QUALITY ASSURANCE**

- A. CONTRACTOR shall be responsible for the quality, timely execution and submittal of photographs.
- B. For Finished Photographs, CONTRACTOR shall use a professional photographer, with five years minimum professional experience. CONTRACTOR shall submit name, address and credentials of professional photographer for ENGINEER's review and approval.

## **1.06 DEFINITIONS**

- A. Pre-construction Photographs: Photographs taken, in sufficient numbers and detail, prior to Date of Commencement of the Work, to show original construction site conditions.
- B. Finished Photographs: Photographs, taken by a professional photographer near Date of Substantial Completion and before OWNER's acceptance of the Work. Photos will be suitable for framing and for use in brochures or on the Internet

## **PART 2 PRODUCTS (NOT USED)**

## **PART 3 EXECUTION**

### **3.01 PRE-CONSTRUCTION PHOTOGRAPHS**

- A. Prior to commencement of construction operations, photograph the site to include initial construction corridor, detour routes, and staging or storage areas. Focus on items that will be modified by the construction, or could be damaged during construction activities (i.e. road surface, drainage culverts, curbs, driveways, signage, building walls). Document damage noted prior to start of construction activity.
- B. For pipeline or road projects with scheduled construction segments, take Preconstruction Photographs prior to commencement of work on each segment.
- C. Prepare Photographs as follows:
  - 1. Photographs shall indicate condition of the following:
    - i. Esplanades and boulevards.
    - ii. Yards (near side and far side of street).
    - iii. House walks and sidewalks.
    - iv. Curbs.
    - v. Areas between walks and curbs.
    - vi. Particular features (e.g. yard lights, shrubs, fences, trees, mailboxes, signs, etc.).
- D. Show the location of vantage points and direction of shots on a key plan of the site.

### **3.02 PROGRESS PHOTOGRAPHS**

- A. Progress Photographs, if required by the OWNER, shall depict specific angles or locations of progress over the previous month, and shall be submitted in sufficient number to document the entire Project, similar to the preconstruction photos.

### **3.03 PHOTOGRAPH STAGING**

- A. Finished Photographs shall be "staged" to depict the most flattering images of a finished facility. Two vantage points, from which Finished Photographs will be taken, shall be agreed to in advance by the

OWNER. Photographer shall consider lighting, time of day, height of eye, landscaping and placement of vehicles, people and other props in each picture. Filters and post-photography processing may be utilized to achieve a finished product acceptable to the OWNER.

### **3.04 LOCATION**

- A. Vantage points, times and conditions for camera stations and photography for Progress and Finished Photographs shall be mutually agreed upon by the OWNER, CONTRACTOR, and Photographer. Progress Photograph vantage points may be changed by mutual agreement as the Work progresses, at no additional cost to the OWNER.

**END OF SECTION**

## **SECTION 01 33 00**

### **SUBMITTAL PROCEDURES**

#### **PART 1 GENERAL**

##### **1.01 SCOPE**

- A. This Section governs submittals by CONTRACTOR during the construction period as necessary to prevent delay in execution of the Work and to facilitate prompt payment by OWNER.

##### **1.02 MEASUREMENT AND PAYMENT**

- A. No separate payment will be made for Work in this Section. Include cost of submittals in related work items.

##### **1.03 RELATED SECTIONS**

- A. SECTION 00 72 43 – General Conditions
- B. SECTION 00 73 00 – Supplementary Conditions
- C. SECTION 01 33 23 – Shop Drawings, Product Data, and Samples

#### **PART 2 PRODUCTS (NOT USED)**

#### **PART 3 EXECUTION**

##### **3.01 DOCUMENTS TO BE SUBMITTED DURING THE WORK:**

- A. Construction Schedule: To be submitted prior to first partial payment estimate in accordance with SECTION 00 72 43 – General Conditions.
- B. Monthly Partial Payment Estimate: Submit prior to first application for payment for approval by ENGINEER.
- C. Request for Change Order: A request for Change Order may be submitted as the need arises and in accordance with SECTION 00 72 43 – General Conditions and SECTION 00 73 00 – Supplementary Conditions.
  - 1. The request for Change Order must be submitted in writing and in sufficient time for ENGINEER to evaluate the request for an extension of contract time or change in the contract price.
  - 2. A request for an extension of time must be made within thirty (30) days of the alleged delay to CONTRACTOR.
- D. Shop Drawings, Product Data, and Samples: Submit in accordance with SECTION 01 33 23 – Shop Drawings, Product Data, and Samples. Submit in adequate time to allow review and approval by ENGINEER before ordering.
- E. Operation and Maintenance Data: Submit operation and maintenance data prior to Substantial Completion. CONTRACTOR shall submit all operation and maintenance data as required by the Specifications.

### **3.02 NOTICE OF COMPLETION**

- A. At such time CONTRACTOR is of the opinion that the Work is substantially complete, and prior to request for final payment, CONTRACTOR shall give written Notice of Completion to ENGINEER.
- B. The following documents shall be submitted with the Notice of Completion:
  - 1. Project Record Documents: Submit Project Record Documents completed in accordance with SECTION 01 33 23 Shop Drawings, Product Data, and Samples
  - 2. Guarantees and Warranties: Furnish all guarantees and warranties for mechanical items and equipment as stipulated in the Contract Documents.
  - 3. Submit final construction cost of those items included in the Bid Proposal, adjusted to reflect Change Orders. Indicate final quantity for all bid items that will be adjusted for actual use.

**END OF SECTION**

## **SECTION 01 33 23**

### **SHOP DRAWINGS, PRODUCT DATA, AND SAMPLES**

#### **PART 1 GENERAL**

##### **1.01 SCOPE**

- A. This Section governs furnishing Shop Drawings, mill certificates, certified tests, product data, operations and maintenance data, and samples.

##### **1.02 MEASUREMENT AND PAYMENT**

- A. Separate measurement and payment will not be made for items covered in this Section. Include cost in price of associated work.

##### **1.03 RELATED SECTIONS**

- A. SECTION 00 72 43 – General Conditions
- B. SECTION 00 73 00 – Supplementary Conditions
- C. SECTION 01 33 00 – Submittal Procedures

##### **1.04 SUBMITTALS**

- A. All submittals shall be in the quantity as specified herein and shall be accompanied by a letter of transmittal indicating the date of submittal, and complete description of the submittal. See related SECTION 01 33 00 – Submittal Procedures.

#### **PART 2 PRODUCTS (NOT USED)**

#### **PART 3 EXECUTION**

##### **3.01 RESPONSIBILITIES OF THE CONTRACTOR**

- A. CONTRACTOR shall submit, to the ENGINEER, an electronic pdf of all items promptly and shall coordinate the submittal with requirements of the Specifications and schedule to prevent any delay in the Work
- B. CONTRACTOR shall carefully review all items prior to submittal to ENGINEER for approval and shall note any deviations from requirements of Drawings, Specifications, or Change Orders.
- C. CONTRACTOR shall not order equipment nor begin erection or installation of construction items that requires Shop Drawings, certified mill certificates, or samples until submittals are approved by ENGINEER and returned to CONTRACTOR bearing ENGINEER's stamp and signature of approval.

##### **3.02 RESPONSIBILITY OF THE ENGINEER**

- A. ENGINEER shall promptly review the submittals for compliance with design concepts and requirements of the Specifications.

- B. ENGINEER within ten (10) days of submittal, shall return an electronic pdf to CONTRACTOR clearly marked as either:
1. Reviewed
  2. Rejected
  3. Submit Specified Item
  4. Furnish as corrected
  5. Revise and Resubmit

### **3.03 PREPARATION REQUIREMENTS**

- A. Shop Drawings shall:
1. Be of the same size and scale as the Project Drawings.
  2. Include reference to sheet number of the Project Drawings or section number of the Specifications.
- B. Product Data: Product data furnished by manufacturers or suppliers shall:
1. Be clearly marked to show manufacturers name, product, model, and type of materials.
  2. Clearly show design capacity and performance capabilities.
  3. Clearly show dimensions of equipment, mountings, imbedded items required.
  4. Show complete appurtenant equipment, controls, wiring diagrams, and interface required with other equipment.
- C. Mill Certificates: If requested by ENGINEER, CONTRACTOR shall submit mill certificates on the following items:
1. Bulk Cement
  2. Reinforcing Steel
  3. Structural Steel
- D. Samples: CONTRACTOR shall submit samples of sufficient size and quantity to clearly indicate the integrity and functional characteristics of products and materials and to establish compatibility with related products, materials, and equipment.
- E. Operation and Maintenance Data:
1. CONTRACTOR shall be responsible for receipt of operation and maintenance data from manufacturers, suppliers, and subcontractors. The data shall include but is not limited to the following:
    - i. Name, address and telephone number of the nearest competent service representative who can furnish parts and technical service.
    - ii. Descriptive literature, including illustrations, covering the operation features of the equipment, specific for the particular installation, with all inapplicable information omitted or marked out.
    - iii. Operating, maintenance, and troubleshooting information.
    - iv. Complete maintenance parts list.

- v. Complete connection, interconnection and assembly diagrams, and operational circuit diagrams, where applicable.
- 2. The data shall be specific for the Project, generalized brochures and catalog information is not acceptable.
- 3. CONTRACTOR shall submit an electronic pdf of the data to ENGINEER. Payments to CONTRACTOR are contingent on timely submittal of this information.

**END OF SECTION**



## **SECTION 01 45 29**

### **TESTING LABORATORY SERVICES**

#### **PART 1 GENERAL**

##### **1.01 SCOPE**

- A. Inspections and testing required by laws, ordinances, rules and regulations, or orders of public authorities shall be performed by an independent testing laboratory in cooperation with CONTRACTOR. Contained in the various Specifications are the requirements for certification of products, testing, adjusting and balancing of equipment, and other tests and standards.

##### **1.02 MEASUREMENT AND PAYMENT**

- A. Services of an independent testing laboratory shall be paid for by **CONTRACTOR \ OWNER** as specified in SECTION 00 72 43 – General Conditions.
- B. Employment of a testing laboratory by OWNER or CONTRACTOR in no way relieves the CONTRACTOR of his obligation to perform the Work according to the Contract Documents.

##### **1.03 RELATED SECTIONS**

- A. SECTION 00 72 43 – General Conditions

#### **PART 2 PRODUCTS (NOT USED)**

#### **PART 3 EXECUTION**

##### **3.01 GENERAL**

- A. Testing shall be conducted in compliance with the applicable governing authority requirements, to the satisfaction of ENGINEER.

##### **3.02 TESTING LABORATORY**

- A. Qualifications:
  - 1. Selection: OWNER will select or approve the selection by CONTRACTOR of an independent testing laboratory to perform the inspection and testing required for the Project.
  - 2. Standards:
    - i. Meet “Recommended Requirements for Independent Laboratory Qualifications,” latest edition, published by American Council of Independent Laboratories.
    - ii. Meet basic requirements of the following standards:
      - a. ASTM E-329, “Standard Specification for Minimum Requirements for Agencies Engaged in the Testing and/or Inspection of Materials Used in Construction.”
      - b. ASTM C-1077 “Standard Practice for Laboratories Testing Concrete and Concrete Aggregates for use in Construction and Criteria for Laboratory Evaluation”
      - c. ASTM D-3666 “Standard Specification for Minimum Requirements for Agencies Testing and Inspecting Bituminous Paving Materials”

- d. ASTM D-3740 “Standard Practice for Minimum Requirements for Agencies Engaged in the Testing and/or Inspection of Soil and Rock as Used in Engineering Design and Construction.
    - e. ISO/TEC Guide 25 – General Requirements for the Competence of Calibration and Testing Laboratories
  - iii. Submit copy of report of inspection of facilities made by Materials Reference Laboratory of National Bureau of Standards during most recent tour of inspection, with memorandum of remedies of any deficiencies reported by inspection.
- B. Responsibilities:
  - 1. Cooperate with ENGINEER and CONTRACTOR; provide qualified personnel promptly on notice.
  - 2. Perform specified inspections, sampling and testing of materials and methods of construction.
    - i. Comply with specified standards, ASTM, and other recognized authorities, and as specified.
    - ii. Ascertain compliance with requirements of Contract Documents.
  - 3. Promptly notify ENGINEER and CONTRACTOR of irregularities or deficiencies of Work which are observed during performance of services. Failing test results shall be provided to ENGINEER no later than close of business on the working day following the day of test completion and review.
  - 4. Promptly prepare and distribute reports of inspections and tests as follows:
    - i. ENGINEER: Two (2) copies.
    - ii. CONTRACTOR: One (1) copy.
    - iii. OWNER: One (1) copy.
  - 5. Include the following information for each test as well as additional data specified in the applicable Section:
    - i. Date of Test
    - ii. Location of Test
    - iii. Specified Standards
    - iv. Test Results
    - v. Remarks
  - 6. Requirements of this Section shall also apply to those tests for approval of materials, for mix designs, and for quality control of materials as performed by employed testing laboratories.
- C. Limits of Authority: The laboratory is not authorized to:
  - 1. Release, revoke, alter or enlarge on requirements of the Contract Documents.
  - 2. Approve or accept any portion of the Work.
  - 3. Perform any of the duties of CONTRACTOR.
  - 4. Have the authority to stop work.

### **3.03 CONTRACTOR'S RESPONSIBILITIES**

- A. Cooperate with laboratory personnel and provide access to the Work or to manufacturer's operations.
- B. Provide to laboratory, preliminary representative samples of material to be tested in required quantities.

- C. Provide to laboratory a copy of the Construction Schedule and subsequent updates to the Construction Schedule.
- D. Furnish labor and equipment:
  - 1. To provide access to the Work to be tested.
  - 2. To obtain and handle samples at the Site.
  - 3. To facilitate inspections and tests.
  - 4. Areas for laboratories exclusive use for storage and curing of test samples.
- E. Notify the laboratory at least forty-eight (48) hours in advance of operations to allow for his assignment of personnel and scheduling of tests.
- F. Keep one copy of each laboratory reports distributed at the Site for the duration of the Project.
- G. Arrange with the laboratory and pay for additional costs associated with the following:
  - 1. Re-testing required for failed tests.
  - 2. Re-testing for nonconforming Work.
  - 3. Additional sampling and tests requested by CONTRACTOR beyond the specified requirements.
  - 4. Insufficient notification of cancellation of tests for Work scheduled but not performed.

**END OF SECTION**

## **SECTION 01 55 26**

### **TRAFFIC CONTROL**

#### **PART 1 GENERAL**

##### **1.01 SCOPE**

- A. This Section covers furnishing, installing, moving, replacing, maintaining, cleaning and removing all barricades, signs, cones, lights, and other traffic control devices used for traffic handling as indicated on the plans and as directed.

##### **1.02 MEASUREMENT AND PAYMENT**

- A. Barricades, Signs and Traffic Handling will be measured by the month or as a lump sum for the entire contract.
- B. Off Site Detour Signing shall be measured as a lump sum item, separate from Barricades, Signs and Traffic Handling for the project
- C. The work performed and materials furnished in accordance with this Section and measured as provided under "Measurement" will be paid for at the unit price bid for "Barricades, Signs, and Traffic Handling" and "Off Site Detour Signing" This price is full compensation for installation, maintenance, adjustments, replacements, removal, materials, equipment, labor, tools, and incidentals.
- D. When the plans establish pay items for particular work called for in the Traffic Control Plan, that work will be measured and paid for under pertinent Items.

##### **1.03 REFERENCES**

- A. Texas Manual of Uniform Traffic Control Devices (TMUTCD)  
P. O. Box 5020  
Austin, TX 78763-5020  
<http://www.dot.state.tx.us/publications/traffic.htm>
- B. Compliant Work Zone Traffic Control Device List (CWZTCDL)  
P. O. Box 5020  
Austin, TX 78763-5020  
<http://www.dot.state.tx.us/publications/traffic.htm>

#### **PART 2 PRODUCTS**

##### **2.01 MATERIALS**

- A. Provide traffic control devices that conform to details shown on the plans, the TMUTCD, and the CWZTCDL.

## **PART 3        EXECUTION**

### **3.01    PRE-CONSTRUCTION**

- A. Before beginning work, designate in writing a Contractor's Responsible Person (CRP) to be the representative of the Contractor who is responsible for taking or directing corrective measures of installation and maintenance deficiencies as soon as possible. The CRP must be accessible by phone and able to respond to emergencies 24 hours per day.

### **3.02    CONSTRUCTION**

- A. Prior to altering the traffic flow, furnish and erect all barricades, signs, cones, lights, and other traffic control devices used for work-zone traffic handling, necessary for the proposed work in accordance with the requirements of the TMUTCD and as shown on the plans.
- B. In areas where traffic realignment is required, obliterate conflicting existing lane lines and realign by use of temporary removable lane delineation striping.
- C. Cover or remove conflicting signs and traffic control devices that would be visible to a motorist.

### **3.03    MAINTENANCE**

- A. Maintain traffic control devices by taking corrective action as soon as possible. Corrective action includes but is not limited to cleaning, replacing, straightening, covering, or removing devices.
- B. Maintain the devices such that they are properly positioned, spaced, and legible.
- C. Ensure that retroreflective characteristics meet requirements during darkness and rain.
- D. Maintain traffic control devices throughout the duration of the Project.

### **3.04    REMOVAL**

- A. Upon completion of work, including installation of permanent traffic control devices, remove all barricades, signs, cones, lights, and other traffic control devices used for work-zone traffic handling, unless otherwise shown on the plans.

### **3.05    FLAGGERS**

- A. Flaggers must be courteous and able to effectively communicate with the public. When directing traffic, flaggers must use standard attire, flags, signs, and signals and follow the flagging procedures set forth in the TMUTCD.
- B. Flaggers shall have completed at least 4 hours of formal training as provided by TEEX or other industry associations.

**END OF SECTION**

## **SECTION 01 57 13**

### **TEMPORARY EROSION AND SEDIMENT CONTROL**

#### **PART 1 GENERAL**

##### **1.01 SCOPE**

- A. Install, maintain, and remove erosion, sedimentation, and environmental control devices. Remove accumulated sediment and debris.
- B. No clearing and grubbing or rough cutting is permitted until erosion and sediment control systems are in place, other than as specifically directed by ENGINEER to allow soil testing and surveying.

#### **PART 2 PRODUCTS**

##### **2.01 MATERIALS**

- A. Rock Filter Dams:
  - 1. Aggregate: Furnish aggregate with hardness, durability, cleanliness, and resistance to crumbling, flaking, and eroding acceptable to ENGINEER. Provide the following:
    - i. Types 1, 2, and 4 Rock Filter Dams. Use three-inch to six-inch (3" – 6") aggregate.
    - ii. Type 3 Rock Filter Dams. Use four-inch to eight-inch (4" – 8") aggregate.
  - 2. Wire: Provide minimum 20-gauge galvanized wire for the steel wire mesh and tie wires for Types 2 and 3 rock filter dams. Type 4 dams require:
    - i. A double-twisted, hexagonal weave with a nominal mesh opening of two-and-one-half inches by three-and-one-fourth inches (2-1/2" x 3-1/4");
    - ii. Minimum 0.0866" steel wire for netting;
    - iii. Minimum 0.1063" steel wire for selvages and corners; and
    - iv. Minimum 0.0866" for binding or tie wire.
  - 3. Erosion control logs: Furnish erosion control logs meeting Section 506.2.I, "Erosion Control Logs."
  - 4. Sandbag Material: Furnish sandbags meeting Section 506.2.I, "Sandbags," except that any gradation of aggregate may be used to fill the sandbags.
- B. Temporary Pipe Slope Drains: Provide corrugated metal pipe, polyvinyl chloride ("PVC") pipe, flexible tubing, watertight connection bands, grommet materials, prefabricated fittings, and flared entrance sections that conform to the Drawings. Recycled and other materials meeting these requirements are allowed if approved.
- C. Baled Hay: Provide hay bales weighing at least 50-pounds, composed entirely of vegetable matter, measuring thirty inches (30") or longer and bound with wire, nylon, or polypropylene string.
- D. Temporary Paved Flumes: Furnish asphalt concrete, hydraulic cement concrete, or other comparable non-erodible material that conforms to the Drawings. Provide rock or rubble with a minimum diameter of six inches (6") and a maximum volume of one-half cubic foot (1/2 ft<sup>3</sup>) for the construction of energy dissipaters.

- E. Construction Exits: Provide materials that meet the details shown on the Drawings and this Section. The exit shall be in conformance with ASTM D-4632.
1. Details for stabilized construction exit are shown on the Drawings. Construction of all stabilized areas shall be to the same requirements. Roadway width shall be at least fourteen feet (14') for one-way traffic and twenty feet (20') for two-way traffic and shall be sufficient for all ingress and egress. Furnish and place geotextile fabric as a permeable separator to prevent mixing of coarse aggregate with underlying soil. Limit exposure of geotextile fabric to the elements between spreading fabric and covering to a maximum of fourteen (14) days to minimize damage potential.
  2. Rock Construction Exit: Provide crushed aggregate for long and short-term construction exits. Furnish aggregates that are clean, hard, durable, and free from adherent coatings such as salt, alkali, dirt, clay, loam, shale, soft, or flaky materials and organic and injurious matter. Use four-inch to eight-inch (4" – 8") aggregate for Type 1 and two-inch to four-inch (2" – 4") aggregate for Type 3.
  3. Timber Construction Exit: Furnish No. 2 quality or better railroad ties and timbers for long-term construction exits, free of large and loose knots and treated to control rot. Fasten timbers with nuts and bolts or lag bolts, of at least one-half-inch (1/2") diameter, unless otherwise shown on the Drawings or allowed. For short-term exits, provide plywood or pressed wafer board at least one-half-inch (1/2") thick.
  4. Foundation Course: Provide a foundation course consisting of flexible base, bituminous concrete, hydraulic cement concrete, or other materials as shown on the Drawings or directed.
  5. Damage caused by construction traffic to erosion and sediment control systems shall be repaired immediately.
  6. Regularly inspect and repair or replace components of stabilized construction exits. Unless otherwise directed, maintain the stabilized construction roads and exits until the Project is accepted by OWNER.
  7. Vehicles leaving construction areas shall have their tires cleaned to remove sediment prior to entrance onto public right-of-way. When washing is needed to remove sediment, CONTRACTOR shall construct a truck washing area. Truck washing shall be done on stabilized areas that drain into a drainage system protected by erosion and sediment control measures.
  8. The stabilized areas shall be inspected and maintained daily. A daily written report shall be made and filed with ENGINEER weekly.
  9. Provide periodic top dressing with additional coarse aggregates to maintain the required depth. Repair and clean out damaged control measures used to trap sediment. All sediment spilled, dropped, washed, or tracked onto public right-of-way shall be removed immediately.
  10. Clean street daily before end of workday. When excess sediments have tracked onto streets, ENGINEER may direct CONTRACTOR to clean streets as often as necessary. Remove and legally dispose of sediments.
- F. Embankment for Erosion Control: Provide rock, loam, clay, topsoil, or other earth materials that will form a stable embankment to meet the intended use.
- G. Pipe: Provide pipe outlet material in accordance with details shown on the Drawings.
- H. Construction Perimeter Fence:
1. Posts: Provide essentially straight wood or steel posts that are at least sixty inches (60") long. Furnish soft wood posts with a minimum diameter of three inches (3") or use 2 x 4 boards. Furnish hardwood posts with a minimum cross-section of one-and-one-half inches by one-and-one-fifth

- inches (1-1/2" x 1-1/5"). Furnish T- or L-shaped steel posts with a minimum weight of 1.3 pounds per foot.
2. Fence: Provide orange construction fencing as approved by ENGINEER.
  3. Fence Wire: Provide 12-1/2 gauge or larger galvanized smooth or twisted wire. Provide 16-gauge or larger tie wire.
  4. Flagging: Provide brightly-colored flagging that is fade-resistant and at least three-quarter-inches (3/4") wide to provide maximum visibility both day and night.
  5. Staples: Provide staples with a crown at least one-half-inch (1/2") wide and legs at least one-half-inch (1/2") long.
  6. Used Materials: Previously used materials meeting the applicable requirements may be used if accepted by ENGINEER.

I. Erosion Control Logs:

1. Core Material: Furnish core material that is biodegradable or recyclable. Use compost, mulch, aspen excelsior wood fibers, chipped site vegetation, agricultural rice or wheat straw, coconut fiber, 100% recyclable fibers, or any other acceptable material unless specifically called out on the plans. Permit no more than 5% of the material to escape from the containment mesh. Furnish compost meeting the requirements of TxDOT Item 161, Compost.
2. Containment Mesh: Furnish containment mesh that is 100% biodegradable, photodegradable, or recyclable such as burlap, twine, UV photodegradable plastic, polyester, or any other acceptable material.
3. Furnish recyclable containment mesh for temporary installations.

J. Sandbags:

1. Bags: Provide sandbag material of polypropylene, polyethylene, or polyamide woven fabric with a minimum unit weight of 4-ounces per square yard, a Mullen burst-strength exceeding 300 psi, and an ultraviolet stability exceeding 70%.
2. Sand. Use natural coarse sand or manufactured sand meeting the gradation given in Table 1 to fill sandbags. Filled sandbags must be twenty-four to thirty inches (24" – 30") long, sixteen to eighteen (16" – 18") wide, and six to eight inches (6" – 8") thick.

Table 1: Sand Gradation

Sieve #	Maximum Retained (% by Weight)
4	3%
100	80%
200	95%

- K. Temporary Sediment Control Fence: Provide a net-reinforced fence using woven geo-textile fabric. Logos visible to the traveling public will not be allowed. The fence shall be in conformance with ASTM D-3786 and ASTM D-4632.



1. Provide woven or nonwoven geotextile filter fabric materials, in accordance with DMS-6230, made of polypropylene, polyethylene, ethylene or polyamide material as manufactured by Mirafi Inc., or approved equal.
2. Geotextile fabric shall have a grab strength of 100 psi in any principal direction (ASTM D-4632), Mullen burst strength of 200 psi (ASTM D-3786) and the equivalent opening size between 50 and 140.
3. Filter fabric material shall contain ultraviolet inhibitors and stabilizers to provide a minimum of six (6) months of expected usable construction life at a temperature range of 0° F to 120° F.
4. Posts: Provide essentially straight wood or steel posts with a minimum length of forty-eight inches (48”), unless otherwise shown on the Drawings. Soft wood posts must be at least three inches (3”) in diameter or nominal 2 x 4 boards. Hardwood posts must have a minimum cross-section of one-and-one-half inches by one-and-one-half inches (1-1/2” x 1-1/2”). T- or L-shaped steel posts must have a minimum weight of 1.3-pounds per foot.
5. Net Reinforcement: Provide net reinforcement of at least 12-1/2 gauge galvanized welded wire mesh, with a maximum opening size of two inches by four inches (2” x 4”), at least twenty-four inches (24”) wide, unless otherwise shown on the Drawings.
6. Staples: Provide staples with a crown at least three-quarter inches (3/4”) wide and legs one-half inch (1/2”) long.
7. Used Materials: Use recycled material meeting the applicable requirements if accepted by ENGINEER.

## **2.02 EQUIPMENT**

- A. Provide a backhoe, front end loader, blade, scraper, bulldozer, or other equipment as required when “Earthwork for Erosion Control” is specified on the Drawings or included in the Bid Proposal as a bid item.

## **PART 3 EXECUTION**

### **3.01 GENERAL**

- A. Implement control measures in the area to be disturbed before beginning construction, or as directed. Limit the disturbance to the area shown on the Drawings or as directed. If, in the opinion of ENGINEER, CONTRACTOR cannot control soil erosion and sedimentation resulting from construction operations, ENGINEER will limit the disturbed area to that which CONTRACTOR is able to control. Minimize disturbance to vegetation.
- B. Immediately correct ineffective control measures. Implement additional controls as directed. Remove excavated material within the time requirements specified in the applicable storm water permit.
- C. Stabilize disturbed areas where construction activities will be temporarily stopped in accordance with the applicable stormwater permit. Establish a uniform vegetative cover. The Project will not be accepted until a 70% density of existing adjacent undisturbed areas is obtained, unless otherwise shown on the Drawings. When shown on the Drawings, ENGINEER may accept the Project when adequate controls are in place that will control erosion, sedimentation, and water pollution until sufficient vegetative cover can be established.
- D. Upon acceptance of vegetative cover, remove and dispose of all temporary control measures, temporary embankments, bridges, matting, falsework, piling, debris, or other obstructions placed during construction that are not a part of the finished Work, or as directed.

- E. Do not locate disposal areas, stockpiles, or haul roads in any wetland, water body, or streambed. Do not install temporary construction crossings in or across any water body without the prior approval of the appropriate resource agency and ENGINEER. Restrict construction operations in any water body to the necessary areas as shown on the Drawings, applicable permit, or as directed. Use temporary bridges, timber mats, or other structurally sound and non-eroding material for stream crossings.
- F. Provide protected storage area for paints, chemicals, solvents, and fertilizers at an approved location. Keep paints, chemicals, solvents, and fertilizers off bare ground and provide shelter for stored chemicals.

### **3.02 INSTALLATION, MAINTENANCE, AND REMOVAL WORK**

- A. Perform Work in accordance with the specific or general stormwater permit.
- B. Install and maintain the integrity of temporary erosion and sedimentation control devices to accumulate silt and debris until earthwork construction and permanent erosion control features are in place or the disturbed area has been adequately stabilized as determined by ENGINEER.
- C. If a device ceases to function as intended, repair or replace the device or portions thereof as necessary. Remove sediment, debris, and litter. When approved, sediments may be disposed of within embankments, or in the right of way in areas where the material will not contribute to further siltation. Dispose of removed material in accordance with federal, state, and local regulations.
- D. Remove devices upon approval or when directed. Upon removal, finish-grade and dress the area. Stabilize disturbed areas in accordance with the permit, and as shown on the Drawings or directed. CONTRACTOR retains ownership of stockpiled material and must remove it from the Project when new installations or replacements are no longer required.

### **3.03 ROCK FILTER DAMS FOR EROSION CONTROL**

- A. Remove trees, brush, stumps, and other objectionable material that may interfere with the construction of rock filter dams.
- B. Place sandbags as a foundation when required or at CONTRACTOR's option.
- C. For Types 1, 2, 3, and 5, place the aggregate to the lines, height, and slopes specified, without undue voids. For Types 2 and 3, place the aggregate on the mesh and then fold the mesh at the upstream side over the aggregate and secure it to itself on the downstream side with wire ties, or hog rings, or as directed. Place rock filter dams perpendicular to the flow of the stream or channel unless otherwise directed.
- D. Construct filter dams according to the following criteria, unless otherwise shown on the Drawings.
  - 1. Type 1 (Non-reinforced):
    - i. Height: At least eighteen inches (18") measured vertically from flow line to top of filter dam.
    - ii. Top Width: At least two feet (2').
    - iii. Slopes: At most 2:1.
  - 2. Type 2 (Reinforced):
    - i. Height: At least eighteen inches (18") measured vertically from flow line to top of filter dam.
    - ii. Top Width: At least two feet (2').

- iii. Slopes: At most 2:1.
- 3. Type 3 (Reinforced):
  - i. Height: At least thirty-six inches (36") measured vertically from flow line to top of filter dam.
  - ii. Top Width: At least two feet (2').
  - iii. Slopes: At most 2:1.
- 4. Type 4 (Sack Gabions):
  - i. Unfold sack gabions and smooth out kinks and bends.
  - ii. For vertical filling:
    - a. Connect the sides by lacing in a single loop–double loop pattern on four-inch to five-inch (4" – 5") spacing.
    - b. At one end, pull the end lacing rod until tight, wrap around the end, and twist four (4) times.
    - c. At the filling end, fill with stone, pull the rod tight, cut the wire with approximately six inches (6") remaining, and twist wires four (4) times.
  - iii. For horizontal filling, place sack flat in a filling trough, fill with stone, and connect sides and secure ends as described above.
  - iv. Lift and place without damaging the gabion.
  - v. Shape sack gabions to existing contours.
- 5. Type 5: Provide rock filter dams as shown on the Drawings.

### **3.04 TEMPORARY PIPE SLOPE DRAINS**

- A. Install pipe with a slope as shown on the Drawings or as directed.
- B. Construct embankment for the drainage system in eight-inch (8") lifts to the required elevations.
- C. Hand-tamp the soil around and under the entrance section to the top of the embankment as shown on the Drawings or as directed.
- D. Form the top of the embankment or earth dike over the pipe slope drain at least one-foot (1') higher than the top of the inlet pipe at all points.
- E. Secure the pipe with hold-downs or hold-down grommets spaced a maximum of ten feet (10') on center.
- F. Construct the energy dissipaters or sediment traps as shown on the Drawings or as directed.
- G. Construct the sediment trap using concrete or rubble rip-rap in accordance with "Rip-rap," when designated on the Drawings.

### **3.05 BALED HAY FOR EROSION AND SEDIMENTATION CONTROL.**

- A. Install hay bales at locations shown on the Drawings by embedding in the soil at least four inches (4") and, where possible, approximately one-half (1/2) the height of the bale, or as directed. Fill gaps between bales with loose hay.

### **3.06 TEMPORARY PAVED FLUMES.**

- A. Construct paved flumes as shown on the Drawings or as directed. Provide excavation and embankment (including compaction of the subgrade) of material to the dimensions shown on the Drawings, unless otherwise indicated. Install a rock or rubble riprap energy dissipater, constructed from the materials specified above to a minimum depth of nine inches (9") at the flume outlet to the limits shown on the Drawings or as directed.

### **3.07 CONSTRUCTION EXITS.**

- A. When tracking conditions exist, prevent traffic from crossing or exiting the Site or moving directly onto a public roadway, alley, sidewalk, parking area, or other right of way areas other than at the location of construction exits. Construct exits for either long or short-term use.
  - 1. Long-Term: Place the exit over a foundation course, if necessary. Grade the foundation course or compacted subgrade to direct runoff from the construction exits to a sediment trap as shown on the Drawings or as directed. Construct exits with a width of at least fourteen feet (14') for one-way and twenty feet (20') for two-way traffic for the full width of the exit, or as directed.
    - i. Type 1: Construct to a depth of at least eight inches (8") using crushed aggregate as shown on the Drawings or as directed.
    - ii. Type 2: Construct using railroad ties and timbers as shown on the Drawings or as directed.
  - 2. Short-Term:
    - i. Type 3: Construct using crushed aggregate, plywood, or wafer board. This type of exit may be used for daily operations where long-term exits are not practical.
    - ii. Type 4: Construct as shown on the Drawings or as directed.

### **3.08 EARTHWORK FOR EROSION CONTROL.**

- A. Perform excavation and embankment operations to minimize erosion and to remove collected sediments from other erosion control devices.
  - 1. Excavation and Embankment for Erosion Control Features: Place earth dikes, swales, or combinations of both along the low crown of daily lift placement, or as directed, to prevent runoff spillover. Place swales and dikes at other locations as shown on the Drawings or as directed to prevent runoff spillover or to divert runoff. Construct cuts with the low end blocked with undisturbed earth to prevent erosion of hillsides. Construct sediment traps at drainage structures in conjunction with other erosion control measures as shown on the Drawings or as directed.
  - 2. Where required, create a sediment basin providing 3,600 cubic feet of storage per acre drained, or equivalent control measures for drainage locations that serve an area with ten (10) or more disturbed acres at one time, not including offsite areas.
  - 3. Excavation of Sediment and Debris: Remove sediment and debris when accumulation affects the performance of the devices, after a rain, and when directed.

### **3.09 CONSTRUCTION PERIMETER FENCE.**

- A. Construct, align, and locate fencing as shown on the Drawings or as directed.
  - 1. Installation of Posts: Embed posts eighteen inches (18") deep or adequately anchor in rock, with a spacing of eight feet to ten feet (8' – 10').
  - 2. Wire Attachment: Attach the top wire to the posts at least three feet (3') from the ground. Attach the lower wire midway between the ground and the top wire.

3. Flag Attachment: Attach flagging to both wire strands midway between each post. Use flagging at least eighteen inches (18") long. Tie flagging to the wire using a square knot.

### **3.10 EROSION CONTROL LOGS.**

- A. Construct erosion control logs as shown on TxDOT Temporary Erosion, Sediment and Water Pollution Control Measures - Erosion Control Logs.

### **3.11 SANDBAGS FOR EROSION CONTROL.**

- A. Construct a berm or dam of sandbags that will intercept sediment-laden storm water runoff from disturbed areas, create a retention pond, detain sediment, and release water in sheet flow. Fill each bag with sand so that at least the top six inches (6") of the bag is unfilled to allow for proper tying of the open end. Place the sandbags with their tied ends in the same direction. Offset subsequent rows of sandbags one-half (1/2) the length of the preceding row. Place a single layer of sandbags downstream as a secondary debris trap. Place additional sandbags as necessary or as directed for supplementary support to berms or dams of sandbags or earth.

### **3.12 TEMPORARY SEDIMENT-CONTROL FENCE.**

- A. Provide temporary sediment-control fence near the downstream perimeter of a disturbed area to intercept sediment from sheet flow. Incorporate the fence into erosion-control measures used to control sediment in areas of higher flow. Install the fence as shown on the Drawings, as specified in this Section, or as directed.
  1. Installation of Posts: Embed posts at least eighteen inches (18") deep, or adequately anchor, if in rock, with a spacing of six feet to eight feet (6' – 8') and install on a slight angle toward the run-off source.
  2. Fabric Anchoring: Dig trenches along the uphill side of the fence to anchor six inches to eight inches (6" – 8") of fabric. Provide a minimum trench cross-section of six inches by six inches (6" x 6"). Place the fabric against the side of the trench and align approximately two inches (2") of fabric along the bottom in the upstream direction. Backfill the trench, then hand-tamp.
  3. Fabric and Net Reinforcement Attachment: Unless otherwise shown on the Drawings, attach the reinforcement to wooden posts with staples, or to steel posts with T-clips, in at least four (4) places equally spaced. Sewn vertical pockets may be used to attach reinforcement to end posts. Fasten the fabric to the top strand of reinforcement by hog rings or cord every fifteen inches (15") or less.
  4. Fabric and Net Splices: Locate splices at a fence post with a minimum lap of six inches (6") attached in at least six (6) places equally spaced, unless otherwise shown on the Drawings. Do not locate splices in concentrated flow areas. Requirements for installation of used temporary sediment control fence include the following:
    - i. fabric with minimal or no visible signs of biodegradation (weak fibers),
    - ii. fabric without excessive patching (more than one (1) patch every fifteen feet to twenty feet (15' – 20'))
    - iii. posts without bends, and
    - iv. backing without holes.
  5. No clearing and grubbing or rough cutting shall be permitted until erosion and sediment control systems are in place, other than site work specifically directed by ENGINEER to allow soil testing and surveying.

6. Maintain existing erosion and sediment control systems located within the Project Site until acceptance of the Project or until directed by ENGINEER to remove and discard the existing system.
7. Regularly inspect and repair or replace damaged components of filter fabric fences as specified in this Section. Unless otherwise directed, maintain the erosion and sediment control systems until the Project area stabilization is accepted by OWNER. Remove erosion and sediment control systems promptly when directed by ENGINEER. Discard removed materials off-site.
8. Remove sediment deposits and dispose of them at the designated spoil site for the Project. If a project spoil is not designated on the Drawings, dispose of sediment off-site at a location not in or adjacent to stream or floodplain. Off-site disposal is the responsibility of CONTRACTOR. Sediment to be placed at the Project Site should be spread evenly throughout the Site, compacted and stabilized. Sediment shall not be allowed to flush into a stream or drainage way. If sediment has been contaminated, it shall be disposed of in accordance with existing federal, state and local rules and regulations.
9. Equipment and vehicles shall be prohibited by CONTRACTOR from maneuvering on areas outside of dedicated rights-of-ways and easements for construction. Damage caused by construction traffic to erosion and sediment control systems shall be repaired immediately.
10. Provide filter fabric fence systems in accordance with the Drawings detail for Filter Fabric Fences. Filter fabric fences shall be installed in such a manner that surface runoff will percolate through the system in sheet flow fashion and allow sediment to be retained and accumulated.
11. Attach the filter fabric to one-inch by two-inch (1" x 2") wooden stakes spaced a maximum of three feet (3') apart and embedded a minimum of eight inches (8"). If filter fabric is factory preassembled with support netting, then maximum spacing allowable is eight feet (8'). Install wooden stakes at a slight angle toward the source of anticipated runoff.
12. Trench in the toe of the filter fabric fence with a spade or mechanical trencher so that the downward face of the trench is flat and perpendicular to the direction of flow. The v-trench configuration as shown on the Drawings may also be used. Lay filter fabric along the edges of the trench. Backfill and compact trench.
13. Filter fabric fence shall have a minimum height of eighteen inches (18") and a maximum height of thirty-six inches (36") above natural ground.
14. Provide the filter fabric in continuous flows and cut to the length of the fence to minimize the use of joints. When joints are necessary, splice the fabric together only at a support post with a minimum six-inch (6") overlap and seal securely.
15. Inspect sediment filter barrier systems after each rainfall, daily during periods of prolonged rainfall and at a minimum once each week. Repair or replace damaged sections immediately. Remove sediment deposits when silt reaches a depth one-third (1/3) the height of the fence or six inches (6"), whichever is less.

## **PART 4 MEASUREMENT AND PAYMENT**

### **4.01 MEASUREMENT**

- A. Rock Filter Dams: Installation or removal of rock filter dams will be measured by the foot or by the cubic yard. The measured volume will include sandbags, when used.
  1. Linear Measurement: When rock filter dams are measured by the foot, measurement will be along the centerline of the top of the dam.
  2. Volume Measurement: When rock filter dams are measured by the cubic yard, measurement will be based on the volume of rock computed by the method of average end areas.

- i. Installation: Measurement will be made in final position.
  - ii. Removal: Measurement will be made at the point of removal.
- B. Temporary Pipe Slope Drains: Temporary pipe slope drains will be measured by the foot.
- C. Baled Hay: Baled hay will be measured by each bale or by the foot along the top of hay bale berms or dams.
- D. Temporary Paved Flumes: Temporary paved flumes will be measured by the square yard of surface area. The measured area will include the energy dissipater at the flume outlet.
- E. Construction Exits: Construction exits will be measured by the square yard of surface area.
- F. Earthwork for Erosion Control:
  - 1. Equipment: Equipment use will be measured by the actual number of hours the equipment is operated.
  - 2. Volume Measurement:
    - i. In Place:
      - a. Excavation: Excavation will be measured by the cubic yard in its original position and the volume computed by the method of average end areas.
      - b. Embankment: Embankment will be measured by the cubic yard in its final position by the method of average end areas. The volume of embankment will be determined between the original ground surfaces or the surface upon that the embankment is to be constructed for the feature and the lines, grades and slopes of the accepted embankment for the feature.
    - ii. In Vehicles: Excavation and embankment quantities will be combined and paid for under "Earthwork (Erosion and Sediment Control, In Vehicles)." Excavation will be measured by the cubic yard in vehicles at the point of removal. Embankment will be measured by the cubic yard in vehicles measured at the point of delivery. Shrinkage or swelling factors will not be considered in determining the calculated quantities.
- G. Construction Perimeter Fence: Construction perimeter fence will be measured by the foot.
- H. Erosion Control Logs: Erosion control logs will be measured by the foot along the centerline of the erosion control log.
- I. Sandbags: Sandbags will be measured as each sandbag or by the foot along the top of sandbag berms or dams.
- J. Temporary Sediment Control Fence: Temporary sediment control fence will be measured by the foot.

#### **4.02 PAYMENT**

- A. The following will not be paid for directly but are subsidiary to pertinent bid item:
  - 1. erosion-control measures for CONTRACTOR project-specific locations ("PSL") inside and outside the right of way (such as construction and haul roads, field offices, equipment and supply areas, plants, and material sources);
  - 2. removal of litter;

3. repair to devices and features damaged by CONTRACTOR's operations;
  4. added measures and maintenance needed due to negligence, carelessness, lack of maintenance, and failure to install permanent controls;
  5. removal and reinstallation of devices and features needed for the convenience of CONTRACTOR;
  6. finish grading and dressing upon removal of the device; and
  7. minor adjustments including but not limited to plumbing posts, reattaching fabric, minor grading to maintain slopes on an erosion embankment feature, or moving small numbers of sandbags.
- B. Stabilization of disturbed areas will be paid for under pertinent bid items in the Bid Proposal.
- C. Furnishing and installing pipe for outfalls associated with sediment traps and ponds will not be paid for directly but is subsidiary to the excavation and embankment under this Section.
- D. Rock Filter Dams: The work performed and materials furnished in accordance with this Section and measured as provided under "Measurement" will be paid for at the unit price bid as follows:
1. Installation: Installation will be paid for as "Rock Filter Dams (Install)" of the type specified. This price is full compensation for furnishing and operating equipment, finish backfill and grading, lacing, proper disposal, labor, materials, tools, and incidentals.
  2. Removal: Removal will be paid for as "Rock Filter Dams (Remove)." This price is full compensation for furnishing and operating equipment, proper disposal, labor, materials, tools, and incidentals.
  3. When ENGINEER directs that the rock filter dam installation or portions thereof be replaced, payment will be made at the unit price bid for "Rock Filter Dams (Remove)" and for "Rock Filter Dams (Install)" of the type specified. This price is full compensation for furnishing and operating equipment, finish backfill and grading, lacing, proper disposal, labor, materials, tools, and incidentals.
- E. Temporary Pipe Slope Drains:
1. The work performed and materials furnished in accordance with this Section and measured as provided under "Measurement" will be paid for at the unit price bid for "Temporary Pipe Slope Drains" of the size specified. This price is full compensation for furnishing materials, removal and disposal, furnishing and operating equipment, labor, tools, and incidentals.
  2. Removal of temporary pipe slope drains will not be paid for directly but is subsidiary to the installation bid item.
  3. When ENGINEER directs that the pipe slope drain installation or portions thereof be replaced, payment will be made at the unit price bid for "Temporary Pipe Slope Drains" of the size specified, which is full compensation for the removal and reinstallation of the pipe drain.
  4. Earthwork required for the pipe slope drain installation, including construction of the sediment trap, will be measured and paid for under "Earthwork for Erosion and Sediment Control."
- F. Baled Hay:
1. The work performed and materials furnished in accordance with this Section and measured as provided under "Measurement" will be paid for at the unit price bid for "Baled Hay." This price is full compensation for furnishing and placing bales, excavating trenches, removal and disposal, equipment, labor, tools, and incidentals.
  2. When ENGINEER directs that the baled hay installation (or portions thereof) be replaced, payment will be made at the unit price bid for "Baled Hay," which is full compensation for removal and reinstallation of the baled hay.



G. Temporary Paved Flumes:

1. The work performed and materials furnished in accordance with this Section and measured as provided under "Measurement" will be paid for at the unit price bid for "Temporary Paved Flume (Install)" or "Temporary Paved Flume (Remove)." This price is full compensation for furnishing and placing materials, removal and disposal, equipment, labor, tools, and incidentals.
2. When ENGINEER directs that the paved flume installation or portions thereof be replaced, payment will be made at the unit prices bid for "Temporary Paved Flume (Remove)" and "Temporary Paved Flume (Install)." These prices are full compensation for the removal and replacement of the paved flume and for equipment, labor, tools, and incidentals.

H. Construction Exits:

1. CONTRACTOR-required construction exits from off right of way locations or on-right of way PSLs will not be paid for directly but are subsidiary to pertinent Items.
2. The work performed and materials furnished in accordance with this Item and measured as provided under "Measurement" for construction exits will be paid for at the unit price bid for "Construction Exits (Install)" of the type specified or "Construction Exits (Remove)." This price is full compensation for furnishing and placing materials, excavating, removal and disposal, cleaning vehicles, labor, tools, and incidentals.
3. When ENGINEER directs that a construction exit or portion thereof be removed and replaced, payment will be made at the unit prices bid for "Construction Exit (Remove)" and "Construction Exit (Install)" of the type specified. These prices are full compensation for the removal and replacement of the construction exit and for equipment, labor, tools, and incidentals.
4. Construction of sediment traps used in conjunction with the construction exit will be measured and paid for under "Earthwork for Erosion and Sediment Control."

I. Earthwork for Erosion and Sediment Control:

1. The work performed and materials furnished in accordance with this Section and measured as provided under "Measurement" will be paid for at the unit price bid for "Excavation (Erosion and Sediment Control, In Place)," "Embankment (Erosion and Sediment Control, In Place)," "Earthwork (Erosion and Sediment Control, In Vehicles)," "Backhoe Work (Erosion and Sediment Control)," "Excavator Work (Erosion and Sediment Control)," "Front End Loader Work (Erosion and Sediment Control)," "Blading Work (Erosion and Sediment Control)," "Scraper Work (Erosion and Sediment Control)," or "Bulldozer Work (Erosion and Sediment Control)."
2. This price is full compensation for excavation including removal of accumulated sediment in various erosion control installations as directed, hauling, and disposal of material not used elsewhere on the project; excavation for construction of erosion-control features; embankments including furnishing material from approved sources and construction of erosion-control features; sandbags; plywood; stage construction for curb inlets involved in curb-inlet sediment traps; and equipment, labor; tools, and incidentals.
3. Earthwork needed to remove and obliterate of erosion-control features will not be paid for directly but is subsidiary to pertinent bid items unless otherwise shown on the Drawings.
4. Sprinkling and rolling required by this Section will not be paid for directly, but will be subsidiary to the bid item.

J. Construction Perimeter Fence:

1. The work performed and materials furnished in accordance with this Section and measured as provided under "Measurement" will be paid for at the unit price bid for "Construction Perimeter Fence." This price is full compensation for furnishing and placing the fence; digging, fence posts, wire, and flagging; removal and disposal; and materials, equipment, labor, tools, and incidentals. Removal of construction perimeter fence will be not be paid for directly but is subsidiary to the installation Item.
  2. When ENGINEER directs that the perimeter fence installation or portions thereof be removed and replaced, payment will be made at the unit price bid for "Construction Perimeter Fence," which is full compensation for the removal and reinstallation of the construction perimeter fence.
- K. Erosion Control Logs:
1. Erosion control logs will be paid for at the unit price bid for "Erosion Control Logs". This price is full compensation for materials, placing erosion control logs, removal and disposal, equipment, labor, tools, and incidentals. Removal of erosion control logs will not be paid for directly but is subsidiary to the installation bid item.
- L. Sandbags for Erosion Control:
1. Sandbags will be paid for at the unit price bid for "Sandbags for Erosion Control" (of the height specified when measurement is by the foot). This price is full compensation for materials, placing sandbags, removal and disposal, equipment, labor, tools, and incidentals. Removal of sandbags will not be paid for directly but is subsidiary to the installation bid item.
  2. When ENGINEER directs that the sandbag installation or portions thereof be replaced, payment will be made at the unit price bid for "Sandbags for Erosion Control," which is full compensation for the reinstallation of the sandbags.
- M. Temporary Sediment-Control Fence:
1. The work performed and materials furnished in accordance with this Section and measured as provided under "Measurement" will be paid for at the unit price bid for "Temporary Sediment-Control Fence." This price is full compensation for furnishing and placing the fence; trenching, fence posts, fabric and backfill; removal and disposal; and equipment, labor, tools, and incidentals.
  2. Removal of temporary sediment-control fence will not be paid for directly but is subsidiary to the installation bid item.
  3. When ENGINEER directs that the temporary sedimentation control fence installation or portions thereof be replaced, payment will be made at the unit price bid for "Temporary Sediment-Control Fence," which is full compensation for the removal and reinstallation of the temporary sediment-control fence.

#### **END OF SECTION**

## **SECTION 02 21 13**

### **SITE SURVEYS**

#### **PART 1 GENERAL**

##### **1.01 SCOPE**

- A. This Section governs the actions of surveyors to be used on this project.

##### **1.02 RELATED SECTIONS**

- A. SECTION 01 33 00 – Submittal Procedures
- B. SECTION 00 72 43 – General Conditions

#### **PART 2 PRODUCTS (NOT USED)**

#### **PART 3 EXECUTION**

##### **3.01 QUALITY CONTROL**

- A. Conform to State of Texas laws for surveys requiring licensed surveyors. Employ a land surveyor acceptable to OWNER and ENGINEER, if required.

##### **3.02 SUBMITTALS**

- A. Submit to ENGINEER the name, address, and telephone number of Surveyor before starting survey work.
- B. Submit documentation verifying accuracy of survey work on request.
- C. Submit certificate signed by surveyor, that the elevations and locations of the Work are in conformance with Contract Documents.
- D. Submit information under provisions of SECTION 01 33 00 – Submittals Procedures.

##### **3.03 PROJECT RECORD DOCUMENTS**

- A. Maintain a complete and accurate log of control and survey work as it progresses.
- B. Prepare a certified survey setting dimensions, locations, angles, and elevations of construction and site work upon completion of foundation walls and major site improvements.
- C. Submit Record Documents under provisions of SECTION 00 72 43 – General Conditions.

##### **3.04 EXAMINATION**

- A. Verify locations of survey control points prior to starting Work.
- B. Notify ENGINEER immediately of any discrepancies discovered.

### **3.05 SURVEY REFERENCE POINTS**

- A. Control datum for survey is established by OWNER provided survey as required in SECTION 00 72 43 – General Conditions and indicated on the Drawings.
- B. Locate and protect survey control points prior to starting site work; preserve permanent reference points during construction.
- C. Notify ENGINEER forty-eight (48) hours in advance of need for relocation of reference points due to changes in grades or other reasons.
- D. Report promptly to ENGINEER the loss or destruction of any reference point.
- E. CONTRACTOR shall reimburse OWNER for cost of re-establishment of permanent reference points disturbed by CONTRACTOR's operations.

### **3.06 SURVEYOR REQUIREMENTS**

- A. Utilize recognized engineering survey practices.
- B. Establish a minimum of two (2) permanent benchmarks on-site, referenced to established control points. Record locations, with horizontal and vertical data, on Project Record Documents.
- C. Establish elevations, lines and levels to provide quantities required for measurement and payment and to provide appropriate controls for the Work. Locate and lay out by instrumentation and similar appropriate means:
  - 1. Site improvements including pavements; stakes for grading; fill and topsoil placement; utility locations, slopes, and invert elevations.
  - 2. Grid or axis for structures.
  - 3. Building foundation, column locations, ground floor elevations.
- D. Verify periodically layouts by same means.
- E. Construction staking shall be performed in accordance with the following minimum practices:
  - 1. Alignment and elevation stakes shall be set at all manhole, angle points, changes in gradient, summits, low points, points of curvatures, points of tangency and other critical locations. Stakes shall be placed at maximum 100-feet (100') spacing or closer as required.
  - 2. Staking will be set on offset distances as necessary to provide adequate clearance for construction activities.
  - 3. Copies of "cut-sheets" noting offset stake elevation, gradient elevation and cut or fill value shall be provided to ENGINEER. Elevations of the natural ground at the location of the proposed improvement shall be noted on the "cut-sheet".

## **PART 4 MEASUREMENT AND PAYMENT**

- A. Separate measurement and payment for Field Surveying will not be made. Include cost in the cost of related construction items.

**END OF SECTION**

## **SECTION 02 41 13**

### **SELECTIVE SITE DEMOLITION**

#### **PART 1        GENERAL**

##### **1.01    SCOPE**

- A.     This Section covers the removal, salvaging, and disposal of existing pavements and surface/subsurface improvements.

##### **1.02    MEASUREMENT AND PAYMENT**

- A.     Measurement for the various items covered in this Section shall be as follows:
1.       Removing existing pipe (water, sanitary, storm), per linear foot of the various diameters and type of pipe.
  2.       Removing existing curbs and gutters per linear foot.
  3.       Removing asphaltic surfacing with or without base, regardless of thickness, per square yard.
  4.       Removing concrete pavement, with or without asphalt overlay, regardless of its thickness, is on square yard basis from back-to-back of curbs. Includes concrete pavement, esplanade curbs, curbs and gutters, and paving headers.
  5.       Removing driveways, valley gutters, and concrete sidewalks per square yard.
  6.       Removing existing inlets per each inlet.
  7.       Removing existing manholes per each manhole.
  8.       Removing concrete headwalls per each headwall.
  9.       Removing miscellaneous concrete, masonry, and other demolition debris per cubic yard.
  10.      No measurement for saw cutting of pavement, curbs, or curbs and gutters will be made under this section. Include cost of such work in unit prices for items in bid form requiring saw cutting.
- B.     Payment for the items prescribed herein shall be as follows:
1.       Bid price per the Bid Proposal as noted either per unit length or as a lump sum item.
  2.       Where replacement is required with new materials, the price for removal of the existing shall be included as part of the replacement cost.
  3.       Materials designated for reuse or salvage are to be measured as above but paid under a separate bid item for reuse or salvage.
  4.       Where specific unit prices or new replacement materials are not included in the Bid Proposal, any removal or replacement of facilities noted in these specifications shall be incidental to the item of Work that causes the removal or replacement.
- C.     These prices shall be full compensation for breaking, handling, clearing, hauling, excavating, backfilling, loading, stacking, and for all labor, tools, equipment, and incidentals necessary to complete the Work. No payment will be made for material to be salvaged that cannot be reused and such material shall become the property of CONTRACTOR and disposed of by him/her. No payment will be made for salvaging or disposing of any pipe having a diameter of less than twelve inches (12") but shall be considered subsidiary work and cost of same shall be included in other pertinent items.

### **1.03 REGULATORY REQUIREMENTS**

- A. Materials not designated for reuse or salvage become the property of the CONTRACTOR.
- B. Remove materials not designated for reuse or salvage and all construction waste from Site. Remove material as Work progresses to avoid clutter.
- C. All materials removed by CONTRACTOR shall be disposed of properly in accordance with federal, state, and local regulations.
- D. Coordinate removal work with utility companies.

### **PART 2 PRODUCTS (NOT USED)**

### **PART 3 EXECUTION**

#### **3.01 PREPARATION**

- A. Coordinate with OWNER'S REPRESENTATIVE on dimensions and limits of removal work.
- B. Identify known utilities below grade. Stake and flag locations.

#### **3.02 PROTECTION**

- A. Protect the following from damage or displacement:
  - 1. Adjacent public and private property.
  - 2. Trees, plants, and other landscape features designated to remain.
  - 3. Utilities designated to remain.
  - 4. Pavement and utility structures designated to remain.
  - 5. Benchmarks, monuments, and existing structures designated to remain.

#### **3.03 REMOVAL**

- A. Remove pavements and structures by methods that will not damage underground utilities. Do not use drop hammer near existing underground utilities.
- B. Minimize amount of earth loaded during removal operations.
- C. Where existing pavement is to remain, make straight saw cuts in existing pavement to provide clean breaks prior to removal. Do not break concrete pavement or base with drop hammer unless concrete or base has been saw cut to minimum depth of 2-inches.
- D. When street and driveway saw cut location is greater than one-half of pavement lane width, remove pavement for full lane width or to nearest longitudinal joint as directed by ENGINEER.
- E. Remove sidewalks and curbs to nearest existing dummy, expansion, or construction joint.
- F. Avoid damaging material that is designated to remain in place. Replace any concrete or items designated to remain that is damaged by CONTRACTOR at CONTRACTOR'S expense.
- G. Where existing end of pipe culvert or end of sewer is to remain, install plug in pipe end prior to backfill.

### 3.04 REUSE/SALVAGE

- A. Materials designated for reuse or salvage are shown in the Drawings. **Reuse Stop Sign with street names at I-45 frontage road intersection with Woodson Road: remove, store, and reset sign.**
- B. Pipe culverts shall be removed by excavating all dirt on top and six inches (6") of the sides in such manner that the pipe will not be damaged. It shall then be carefully removed.
- C. Protect materials designated for reuse or salvage from damage during removal, handling and storage.
- D. Replace any materials damaged due to deviation from this Section or carelessness in handling at no additional cost.
- E. Store and protect materials designated for reuse until time of installation.
- F. Deliver materials to be salvaged to storage areas as directed by OWNER's REPRESENTATIVE.

**END OF SECTION**

## **SECTION 31 22 19**

### **EASEMENT AND RIGHT OF WAY PREPARATION AND FINAL GRADING**

#### **PART 1 GENERAL**

- A. Work under this Section includes furnishing all labor, materials, equipment, incidentals and the performance of all Work necessary for hauling, filling, excavating, compacting and final grading of any easements and/or lots as shown on the Drawings for completion and final acceptance by OWNER.

#### **PART 2 REFERENCES (NOT USED)**

#### **PART 3 EXECUTION**

##### **3.01 EASEMENT/RIGHT OF WAY PREPARATION**

- A. All areas not within the street right-of-ways that include utility, storm sewer, sanitary sewer, and water line easements will be final graded to result in positive drainage that shall not cause water ponding on any adjacent developed subdivisions or vacant land. The preparation of these areas may require excavation of fillings as needed and final grading to produce acceptable drainage transitions from lot to lot or lot to street right-of-way. In no instance will summits or depressions be allowed. Any unstable soil material shall be removed and replaced. All areas receiving fill shall be compacted in six-inch (6") lifts to the density of adjacent compatible soils or to 95% Standard Proctor Density, whichever is greater.

##### **3.02 UTILITY COMPANY INSPECTOR**

- A. After completion of all Work on easement, lot, and street right-of-way areas, CONTRACTOR shall notify OWNER in writing. At this time, OWNER will schedule staking of all lot and right-of-ways. Upon completion of staking, OWNER will arrange for an inspection of easement and right-of-ways by representatives of each utility company. CONTRACTOR shall have a light bulldozer and personnel available to immediately correct any areas found objectionable by the respective representative. No extra payment will be made for this Work if in the opinion of ENGINEER the Work is within the scope of the Contract.

##### **3.03 GRADING PLAN**

- A. All Work contemplated herein shall be in accordance with the Drawings. This Drawings represents final elevations for lots and easements. Due to variances that may occur in topography not anticipated the plan may be subject to certain revisions. There shall be no extra pay due to these revisions if in the opinion of ENGINEER the Work achieves the intended purposes of the Project.

#### **PART 4 MEASUREMENT AND PAYMENT**

##### **4.01 MEASUREMENT**

- A. This item will be considered a lump sum quantity and will include all labor materials, equipment, incidentals and the performance of all Work necessary for completion of easement/lot preparation.



#### **4.02 PAYMENT**

- A. Work performed as prescribed by this Section will be paid at the lump sum price bid for as indicated in the Bid Proposal. No other payment will be made for Work under this Section unless otherwise specified.

**END OF SECTION**

## **SECTION 31 23 16.13**

### **DISPOSAL OF SURPLUS EXCAVATION**

#### **PART 1 GENERAL**

- A. Surplus excavation shall be hauled off and legally disposed of.
- B. No trash or construction debris may be dumped or spread in this area. All debris shall be hauled off.

#### **PART 2 PRODUCTS (NOT USED)**

#### **PART 3 EXECUTION**

##### **3.01 GENERAL**

- A. At the end of each day, the material will be spread.
- B. Dumping and spreading will be performed in such a manner to control and prevent site ponding of water and changes to the existing drainage.
- C. Any rutting caused by CONTRACTOR vehicles will be filled and leveled at the end of each day.

##### **3.02 COMPACTION**

- A. Compaction of material, other than by the bulldozer, is not required. There will be an OWNER representative on-site to indicate location of dumping areas.

#### **PART 4 MEASUREMENT AND PAYMENT**

- A. Separate measurement or payment will not be made for Work covered by this Section. Include cost in related Work items.

**END OF SECTION**

## **SECTION 31 23 16.26**

### **REMOVING STABILIZED BASE AND/OR ASPHALTIC PAVEMENT**

#### **PART 1 GENERAL**

##### **1.01 SCOPE**

- A. This Section includes breaking, removing, and disposing of existing asphalt pavement and/or asphalt, cement, lime, or lime-fly ash stabilized base materials at the locations and depths shown on the Drawings.

#### **PART 2 PRODUCTS (NOT USED)**

#### **PART 3 EXECUTION**

##### **3.01 CONSTRUCTION METHODS**

- A. General: Remove existing stabilized base or asphaltic pavement from locations shown on the Drawings. Where only a portion of the material is to be removed, special care shall be exercised to avoid damage to that portion of the material to remain in place. CONTRACTOR shall replace, at his/her expense and as directed by ENGINEER, any material which is damaged or destroyed beyond the limits established for removal.
- B. Asphaltic Pavement Removal: Break asphaltic pavement into pieces not greater than twenty-four inches (24") in any direction. When shown on the Drawings, the asphaltic pavement to be salvaged shall be loaded, hauled and neatly stored at the designated sites. Salvaged asphaltic pavement shall be kept as free as possible from contamination by non-asphaltic materials during its removal, transportation, and storage. Asphaltic pavement to be removed but not specified for salvage, shall be used or disposed of by CONTRACTOR at locations approved by ENGINEER. The provision that the removed material be broken into pieces not greater than that specified above shall not apply to material that is not used on the Project.
- C. Treated Base Removal: Break treated base into pieces not greater than twenty-four inches (24") in any direction. When shown on the Drawings, the treated base to be salvaged shall be loaded, hauled and neatly stored at the designated sites. Treated base to be removed but not specified for salvage, shall be used or disposed of by CONTRACTOR at locations approved by ENGINEER. The provision that the removed material be broken into pieces not greater than that specified above shall not apply to material that is not used on the Project.

#### **PART 4 MEASUREMENT AND PAYMENT**

##### **4.01 UNIT PRICE CONTRACTS**

- A. Measurement:
  - 1. One unit price payment will be made for removal of both pavement and base.
  - 2. Measure existing stabilized base and asphaltic pavement by the square yard as one unit in its original position.
  - 3. If base extends outside pavement, full payment will be made for entire surface area of base.
- B. Payment: The Work performed and materials furnished in accordance with this Section shall be paid for at the unit price bid for "Removing Stabilized Base and/or Asphaltic Pavement", of the class and depth

specified. This price shall be full compensation for breaking the material, loading, hauling, unloading, and satisfactorily stockpiling the material, and for all manipulations, labor, tools, equipment, and incidentals necessary to complete the Work.

#### **4.02 LUMP SUM CONTRACTS**

- A. Measurement will not be made. The Work included in this Section will be paid at the lump sum price bid.

**END OF SECTION**

## **SECTION 31 32 13**

### **CEMENT STABILIZED SAND BACKFILL**

#### **PART 1 GENERAL**

##### **1.01 SCOPE**

- A. This Section governs furnishing the material, placement, measurement and basis for payment of cement stabilized sand as shown on the Drawings or as indicated in other sections of the Specifications.

#### **PART 2 PRODUCTS**

- A. Cement stabilized sand shall be in conformance with TCEQ Chapter 290 Standard Specifications, latest revision.

#### **PART 3 EXECUTION**

##### **3.01 SUBMITTALS**

- A. Delivery Tickets:
  - 1. CONTRACTOR shall be able to furnish time stamped delivery tickets to the Field Project Representative on a daily basis as materials are delivered to the Project (or upon arrival of the Field Project Representative on the Site for sand delivered in his absence) if so requested.
  - 2. The stamped delivery tickets shall give the volume, on a per-cubic-yard basis, of material used for the sand and cement. Tickets without such information shall be cause for rejection of the material.

##### **3.02 PLACEMENT**

- A. General: Cement stabilized material shall be placed under structures to the depth shown on the Drawings, or up to the bottom of stabilized sub-grade or to the bottom of concrete pavement as the case may be.
- B. Approval:
  - 1. Unless shown on the Drawings, CONTRACTOR shall place cement stabilized sand only with prior approval of ENGINEER.
  - 2. Should CONTRACTOR place stabilized sand that is not shown on Drawings or without ENGINEERS approval, payment for same will not be made and shall not be a basis for claims for extra Work.
  - 3. ENGINEER will specify the location or length of line to receive stabilized material, and the depth that the material is to be placed when the excavation is not under paved areas.
- C. Rodding and Tamping: Rod or otherwise tamp material to ensure complete filling of the area below the pipe horizontal centerline. Place material above the pipe horizontal centerline in lifts not exceeding one-half (1/2) the pipe diameter. Compact to 95% Standard Proctor Density at optimum moisture. Place and compact in successive lifts until required depth is achieved.
- D. Placement Around Structures: Place material around abutment backwall, wingwalls, and structures only after they have cured at least four (4) days. Place in layers not greater than eight inches (8") and compact each layer with approved power-driven hand tampers. Compact to 95% Standard Proctor Density.

### **3.03 QUALITY ASSURANCE AND TESTING**

- A. Random samples of the delivered product will be taken in the field by OWNER's Representative and tested at OWNER's expense for strength. Samples shall achieve a strength of 100 psi at forty-eight (48) hours.

### **PART 4 MEASUREMENT AND PAYMENT**

- A. No separate measurement and payment shall be made for Work performed under this Section. Include payment for Cement Stabilized Sand Backfill in unit prices where bedding and backfill apply.

**END OF SECTION**

## **SECTION 32 11 13.13**

### **LIME STABILIZED SUBGRADE**

#### **PART 1 GENERAL**

##### **1.01 SCOPE**

- A. Construct a foundation course of lime stabilized subgrade material including application, mixing, compaction, and curing of lime slurry, water, and subgrade into a stabilized foundation.

##### **1.02 SUBMITTALS**

- A. Submit certification that hydrated lime, quicklime, or commercial lime slurry complies with the Specifications.
- B. Submit weight tickets, certified by supplier, with each bulk delivery of lime to the Project Site.

##### **1.03 DELIVERY, STORAGE AND HANDLING**

- A. Bagged lime shall bear manufacturer's name, product identification, and certified weight. Bags varying more than 5% of certified weight may be rejected; average weight of fifty (50) random bags in each shipment shall not be less than certified weight.
- B. Store lime in weatherproof enclosures. Protect lime from ground dampness.

#### **PART 2 PRODUCTS**

##### **2.01 WATER**

- A. Use clean, clear water, free from oil, acids, alkali, or vegetation.

##### **2.02 LIME**

- A. Type A – Hydrated Lime: Dry material consisting essentially of calcium hydroxide or mixture of calcium hydroxide and an allowable percentage of calcium oxide as listed in chemical composition chart.
- B. Type B – Commercial Lime Slurry: Liquid mixture consisting essentially of lime solids and water in slurry form. Water or liquid portion shall not contain dissolved material in sufficient quantity to be injurious or objectionable for purpose intended.
- C. Type C – Quicklime: Dry material consisting essentially of calcium oxide. Furnish quicklime in either of the following grades:
  - 1. Grade DS: Pebble quicklime of gradation suitable for use in preparation of slurry for wet placing.
  - 2. Grade S: Finely-graded quicklime for use in preparation of slurry for wet placing. Do not use grade S quicklime for dry placing.
- D. Deliver lime slurry to the Project Site as commercial lime, or prepare at the Project Site by using hydrated lime or quicklime. Provide slurry free of liquids other than water and of consistency that can be handled and uniformly applied without difficulty.
- E. Lime containing magnesium hydroxide is prohibited.

## **2.03 SOIL**

- A. Soil to receive lime treatment may include borrow or existing subgrade material, existing pavement structure, or combination of all three. Where existing pavement or base material is encountered, pulverized or scarify material so that 100% of sampled material passes two-inch (2") sieve.

## **PART 3 EXECUTION**

### **3.01 EXAMINATION**

- A. Verify compacted subgrade will support imposed loads.
- B. Verify subgrade lines and grades.

### **3.02 PREPARATION**

- A. Complete backfill of utilities prior to stabilization.
- B. Cut material to bottom of subgrade using an approved cutting and pulverizing machine meeting following requirements:
  - 1. Cutters accurately provide smooth surface over entire width of cut to plane of secondary grade.
  - 2. Provide cut to depth as specified or shown in the Drawings.
- C. Alternatively, scarify or excavate to bottom of stabilized subgrade. Remove material or windrow to expose secondary grade. Obtain uniform stability.
- D. Correct wet or unstable material below secondary grade by scarifying, adding lime, and compacting as directed by ENGINEER.
- E. Pulverize existing material so that 100% passes a one and three-quarter-inch (1-3/4") sieve.

### **3.03 LIME SLURRY APPLICATION**

- A. Apply slurry with distributor truck equipped with an agitator to keep lime and water in consistent mixture. Make successive passes over measured section of roadway to attain proper moisture and lime content. Limit spreading to an area where preliminary mixing operations can be completed on same working day.
- B. Minimum lime content shall be 5% of dry unit weight of subgrade as determined by ASTM D698

### **3.04 PRELIMINARY MIXING**

- A. Use approved single-pass or multiple-pass rotary speed mixers to mix soil, lime, and water to required depth. Obtain homogeneous friable mixture free of clods and lumps.
- B. Shape mixed subgrade to final lines and grades.
- C. Eliminate following operations and final mixing if pulverization requirements of Paragraph 3.05C can be met during preliminary mixing:
  - 1. Seal subgrade as precaution against heavy rainfall by rolling lightly with light pneumatic rollers.



2. Cure soil lime material for twenty-four (24) to Seventy-two (72) hours or as required to obtain optimum hydration. Keep subgrade moist during cure.

### **3.05 FINAL MIXING**

- A. Use approved single-pass or multiple-pass rotary speed mixers to uniformly mix cured soil and lime to required depth.
- B. Add water to bring moisture content of soil mixture to optimum or above.
- C. Mix and pulverize until all material passes one and three-quarter-inch (1-3/4") sieve; minimum of 85%, excluding non-slacking fractions, passes three-quarter-inch (3/4") sieve; and minimum of 60% excluding non-slacking fractions passes No. 4 sieve. Test according to 'TxDOT' Tex-101-E, Part III using dry method.
- D. Shape mixed subgrade to final lines and grades.
- E. Do not expose hydrated lime to open air for six (6) hours or more during interval between application and mixing. Avoid excessive hydrated lime loss due to washing or blowing.

### **3.06 COMPACTION**

- A. Aerate or sprinkle to attain optimum moisture content to 3% above optimum, as determined by ASTM D698 on material sample from roadway after final mix with lime.
- B. Start compaction immediately after final mixing.
- C. Spread and compact in two (2) or more equal layers where total compacted thickness is greater than equipment manufacturer's recommended range of mixing and compaction.
- D. Compact with approved heavy pneumatic or vibrating rollers, or a combination of tamping rollers and light pneumatic rollers. Begin compaction at bottom and continue until entire depth is uniformly compacted.
- E. Do not allow stabilized subgrade to mix with underlying material. Correct irregularities or weak spots immediately by replacing material and recompacting.
- F. Compact subgrade to minimum 95% Standard Proctor Density, according to ASTM D698, at moisture content of optimum to 3% above optimum, unless otherwise indicated on the Drawings:
- G. Seal with approved light pneumatic tired rollers. Prevent surface hair line cracking. Rework and recompact at areas where hairline cracking develops.

### **3.07 CURING**

- A. Moist cure for minimum of three (3) days before placing base or surface course, or opening to traffic. Subgrade may be opened to traffic after two (2) days when adequate strength has been attained to prevent damage. Restrict traffic to light pneumatic rollers or vehicles weighing less than ten (10) tons.
- B. Keep subgrade surface damp by sprinkling. Roll with light pneumatic roller to keep surface knit together.
- C. Place base or surface within fourteen (14) days after final mixing and compaction. Restart compaction and moisture content of base material when time is exceeded.

### **3.08 TOLERANCES**

- A. Completed Surface: Shall be smooth and conforming to typical section and established lines and grades.
- B. Top of Compacted Surface: Plus or minus one-quarter inch (1/4") in cross section or in sixteen-foot (16') length.
- C. Depth of lime stabilization shall be plus or minus one inch (1") of specified depth for each 1,000-foot (1,000') roadway section.

### **3.09 FIELD QUALITY CONTROL**

- A. Testing will be performed under provisions of SECTION 01 45 29 – Testing Laboratory Services.
- B. Test soils, lime, and mixtures as follows:
  - 1. Perform tests and analysis of soil materials in accordance with ASTM D4318, using the wet preparation method.
  - 2. Test samples of lime slurry in accordance with TxDOT Tex-600-J, except using a lime slurry cup.
  - 3. Test sample mixtures of hydrated lime or quicklime in slurry form to establish compliance with specifications.
  - 4. Establish moisture-density relationship on material sampled from roadway, after stabilization with lime and final mixing, in accordance with ASTM D698, Moist preparation Method.
- C. Evaluate in-place depth for each 1,000-foot (1,000') roadway section in accordance with TxDOT Tex-140-E in hand excavated holes. For each 1,000-foot (1,000') section, perform three (3) phenolphthalein tests will be performed. Average stabilization depth for 1,000-foot (1,000') section will be based on average depth for three tests.
- D. Perform compaction testing in accordance with ASTM D2922. Three (3) tests will be performed for each 1,000-foot (1,000') roadway section.
- E. Pulverization analysis will be performed as required by Paragraph 3.05C on material sampled during mixing of each production area. Three (3) tests will be performed per 1,000-foot (1,000') roadway section or a minimum of once daily.

### **3.10 REWORK OF FAILED SECTIONS**

- A. Rework sections that do not meet specified thickness.
- B. Perform the following steps when more than seventy-two (72) hours have lapsed since completion of compaction.
  - 1. Moist cure for minimum of three (3) days after compaction to required density.
  - 2. Add lime at rate of 25% of specified rate at no additional cost.
  - 3. Moisture density test of reworked material must be completed by laboratory before field compaction testing can be completed.

### **3.11 PROTECTION**

- A. Maintain stabilized subgrade to lines and grades and in good condition until placement of base or surface course. Protect asphalt membrane from being picked up by traffic.
- B. Repair defects immediately by replacing material to full depth.

## **PART 4 MEASUREMENT AND PAYMENT**

### **4.01 MEASUREMENT**

- A. Lime: When lime is furnished in trucks, the weight of lime will be determined on certified scales, or CONTRACTOR must provide a set of standard platform truck scales at a location approved by ENGINEER.
  - 1. Hydrated Lime:
    - i. Dry: Lime will be measured by the ton (dry weight).
    - ii. Slurry: Lime will be measured by the ton (dry weight) of the hydrated lime used to prepare the lime slurry at the jobsite.
  - 2. Commercial Lime Slurry: Lime slurry will be measured by the ton (dry weight) as calculated from the minimum percent dry solids content of the slurry, multiplied by the weight of the slurry in tons delivered.
  - 3. Quicklime:
    - i. Dry: Lime will be measured by the ton (dry weight).
    - ii. Slurry: Lime slurry will be measured by the ton (dry weight) of the quicklime used to prepare the slurry, multiplied by a conversion factor of 1.28 to give the quantity of equivalent hydrated lime, which will be the basis of payment.
- B. Measure lime treatment by the square yard of surface area. Surface area is calculated as the widths shown on the Drawings multiplied by the lengths measured at placement.

### **4.02 PAYMENT**

- A. Lime will be paid for at the unit price bid for "Lime" of the specified type Hydrated Dry, Hydrated Slurry, Commercial Lime Slurry, Quicklime Dry, or Quicklime Slurry. This price is full compensation for materials, delivery, equipment, labor, tools, and incidentals.
- B. Lime treatment will be paid for at the unit price bid for "Lime Stabilized Subgrade," for the depth specified. No payment will be made for thickness or width exceeding that shown on the Drawings. This price is full compensation for shaping existing material, loosening, mixing, pulverizing, spreading, applying lime, compacting, finishing, curing including curing materials, water, drying, blading, shaping and maintaining, replacing, disposing of loosened materials, processing, hauling, reworking if required, preparing secondary subgrade, equipment, labor, tools, and incidentals.
- C. Asphalt used solely for curing will not be paid for directly, but will be subsidiary to this Item. Asphalt placed for curing and priming will be paid for under Item 310, "Prime Coat."
- D. Lime used for reworking a will not be paid for directly but will be subsidiary to this Section.

- E. Sprinkling and rolling, except proof rolling, will not be paid for directly but will be subsidiary to this Section unless otherwise shown on the Drawings. When proof rolling is shown on the Drawings or directed by ENGINEER, it will be paid for in accordance with Item 216, "Proof Rolling."
- F. Where subgrade is constructed under this Contract, correction of soft spots in the subgrade or existing base will be at CONTRACTOR's expense. Where subgrade is not constructed under this Contract, correction of soft spots in the subgrade or existing base will be in accordance with pertinent Sections or Article 4.2, "Changes in the Work."

**END OF SECTION**

## **SECTION 32 11 13.19**

### **FLY ASH OR LIME-FLY ASH STABILIZED SUBGRADE**

#### **PART 1 GENERAL**

##### **1.01 SCOPE**

- A. Construct a foundation course of Fly Ash (FA) or Lime-Fly Ash (LFA) stabilized subgrade material including application, mixing, compacting, and curing.

##### **1.02 REFERENCES**

- A. ASTM C618 Standard Specification for Coal fly Ash and Raw or Calcinated Natural Pozzolan for use as Mineral Admixture in Portland Cement Concrete

##### **1.03 SUBMITTALS**

- A. Submit certification that fly ash, hydrated lime, quick lime, or commercial slurry lime complies with these Specifications
- B. Submit weight tickets certified by supplier, with each bulk delivery of materials to the Project Site

#### **PART 2 PRODUCTS**

##### **2.01 MATERIALS**

- A. Furnish uncontaminated materials of uniform quality that meet the requirements of the Drawings and Specifications. Notify ENGINEER of proposed material sources and of changes in material sources. ENGINEER will verify that the Specification requirements are met before the sources can be used. ENGINEER may sample and test project materials at any time before compaction. Use Tex-100-E for material definitions.
- B. Lime: Furnish lime that meets the requirements of DMS-6350, "Lime and Lime Slurry," and DMS-6330, "Lime Sources Prequalification of Hydrated Lime and Quicklime." Use hydrated lime, commercial lime slurry, or quicklime as shown on the plans. When furnishing quicklime, provide it in bulk.
- C. Fly Ash: Furnish fly ash that meets the requirements of DMS-4615, "Fly Ash for Soil Treatment." Use Class C or F.
- D. Water: Furnish water free of industrial wastes and other objectionable matter.
- E. Mix Design: The Testing Laboratory will determine the target fly ash or lime-fly ash content and optimum moisture content in accordance with Tex-127-E. When treating existing materials, limit the amount of asphalt concrete pavement to no more than 50% of the mix unless otherwise shown on the Drawings or directed.

#### **PART 3 EXECUTION**

##### **3.01 INSTALLATION**

- A. Conform to Part 3 of SECTION 32 11 13.13 – Lime Stabilized Subgrade with following exceptions:

1. Include fly ash in percentage amounts in lime or lime slurry as established from geotechnical evaluation for application, mixing, and compaction.
2. Apply lime/fly ash as single mix, single pass over lower PI soils.
3. Conduct operations to minimize elapsed time between mixing and compacting lime/fly ash stabilized subgrade in order to take advantage of rapid initial set characteristics. Complete compaction within two (2) hours of commencing compaction and not more than six (6) hours after adding and mixing last stabilizing agent.

### **3.02 QUALITY CONTROL**

- A. Testing will be performed under provisions of SECTION 01 45 29 – Testing Laboratory Services.
- B. Sample subgrade soil to establish percent of fly ash and hydrated lime, quicklime, or lime slurry to be applied to subgrade material.
- C. Testing will be in accordance with Part 3 of SECTION 32 11 13.13 – Lime-Stabilized Subgrade.

## **PART 4 MEASUREMENT AND PAYMENT**

### **4.01 MEASUREMENT**

- A. Measure lime/fly ash stabilized subgrade by the square yard compacted in place to proper density. Separate measurement will be made for each required thickness of subgrade course.
  1. Limit of measurement is shown in the Drawings. No payment will be made for lime/fly ash stabilized subgrade in areas beyond these limits.
- B. Measure hydrated lime and quicklime by ton of 2,000-pounds dry-weight basis.
- C. Measure commercial lime slurry by ton of 2,000-pounds of lime calculated on percentage by weight of dry solids for grade of slurry.
- D. Measure fly ash by ton of 2,000-pounds.

### **4.02 PAYMENT**

- A. The Work performed and materials furnished in accordance with this Section and measured as provided under “Measurement” will be paid for as follows:
  1. Lime will be paid for at the unit price bid for “Lime” of the specified type Hydrated Dry, Hydrated Slurry, Commercial Lime Slurry, Quicklime Dry, or Quicklime Slurry. This price is full compensation for furnishing lime.
  2. Fly ash will be paid for at the unit price bid for “Fly Ash” of the type specified. This price is full compensation for furnishing fly ash.

3. FA and LFA treatment will be paid for at the unit price bid for “LFA Treated Subgrade,” for the depth specified. No payment will be made for thickness or width exceeding that shown on the Drawings. This price is full compensation for shaping existing material, loosening, mixing, pulverizing, spreading, applying lime and fly ash, compacting, finishing, curing including curing materials, water, drying, blading, shaping and maintaining, replacing, disposing of loosened materials, processing, hauling, reworking if required, preparing secondary subgrade, equipment, labor, tools, and incidentals.

**END OF SECTION**

## **SECTION 32 12 16**

### **ASPHALTIC CONCRETE PAVEMENT**

#### **PART 1 GENERAL**

##### **1.01 SCOPE**

This Section governs furnishing labor, material, and equipment necessary to complete the paving application of asphaltic concrete as specified herein and as shown on the Drawings.

#### **PART 2 PRODUCTS**

##### **2.01 MATERIALS**

All materials shall conform to Item 340 of the Texas Department of Transportation Specifications, latest revision. Paving mixture shall be Type D (fine grade surface course), placed by a mechanical laydown machine. Surfacing shall meet the requirements of the typical cross section or not less than a thickness of one and one-half inches.

#### **PART 3 EXECUTION**

##### **3.01 PREPARATION**

Immediately before the asphaltic surface mixture is overlaid, it shall be swept with a mechanical broom and a tack coat shall be applied.

##### **3.02 HAULING AND SPREADING**

The asphaltic concrete mixture, heated and prepared as specified, shall be hauled to the work in tight vehicles previously cleaned of all foreign material, and if considered necessary by ENGINEER, covered with canvas of sufficient size to protect the entire load. The dispatching of the vehicle shall be so arranged so that all material delivered may be placed and shall have received its initial rolling in course, which has been tack coated as specified and shall be free from all foreign materials. All contact surfaces of curbs and structures and all joints shall be painted with a thin uniform coating of cut-back or emulsified asphalt as required for tack coating. The mixture shall be at a temperature of 250° to 375° F when laid, and shall be dumped and spread on the prepared surface with a spreading and finishing machine.

##### **3.03 ROLLING**

While still hot, and as soon as it will bear the roller without undue displacement or hair cracking, the surface shall first be compressed thoroughly and uniformly with an acceptable power-driven 3-wheel roller weighing not less than ten (10) tons. The weight on the two rear wheels of this roller shall be obtained by a power-driven tandem roller weighing not less than eight (8) tons.

##### **3.04 HAND TAMPING**

Hand tamping will be required along curbs, headers, inlets, etc., or in any area that does not allow thorough compaction by the roller. The asphaltic mixture shall be compacted with the use of lightly oiled hand tampers.

##### **3.05 SURFACE TESTS**

The surface of the pavement after compression shall be smooth and true to the established line and grade and typical cross sections shown on the Drawings and when tested with a standard sixteen-foot (16') straight-edge laid parallel to



the center line of the roadway shall have no deviation in excess on one-sixteenth-inch (1/16") per foot from the nearest point of contact, and the maximum ordinate measured from the face of the straight-edge shall not exceed one-fourth-inch (1/4") at any point. Any areas of the surface not meeting these requirements shall be immediately corrected as directed. After final compaction, the surface course at not point shall have a density of less than ninety-three percent (93%) of a voidless pavement composed of the same materials in like proportions, disregarding the internal voidage of the particles of mineral aggregate.

### **3.06 CONSTRUCTION JOINTS**

Placing of the surface course shall be as nearly continuous as possible, and the roller shall pass over the unprotected end of the freshly laid mixture only when the laying of the course is discontinued for such length of time as to permit the mixture to become chilled. In all such cases, when the work is resumed, the material laid shall be either cut back so as to produce a slightly beveled edge for the full thickness of the course or a suitable lap joint shall be made.

### **3.07 OLD MATERIAL**

The old material which has been cut away shall be removed from the work and the new mix laid against the fresh cut, compressed thoroughly and uniformly, and finished to grade to produce a smooth surface.

### **3.08 OPENING TO TRAFFIC**

Except in an emergency, or where shown on the Drawings, no portion of the finished wearing course shall be opened to traffic until twelve (12) hours after completion of the rolling.

## **PART 4 MEASUREMENT AND PAYMENT**

### **4.01 MEASUREMENT**

- A. Surface Course: The Work covered by this Section shall be measured by the square yard of Hot Mix Asphaltic Concrete Surfacing of the type or types constructed to the thickness specified on the Drawings.
- B. Tack Coat: Cut-back or emulsified asphalt used in the tack coat will be measured by the gallon of material actually used on the street for this purpose and shall be based on measurements taken at the point of delivery on the street.

### **4.02 METHOD OF PAYMENT**

- A. Unit Price Per Square Yard: Asphaltic concrete pavement, measured as described above, shall be paid for at the unit contract price bid per square yard as set forth in the BID for "Hot Mix Asphaltic Concrete Surfacing", which price will be full compensation for quarrying, furnishing all materials for heating, mixing, hauling, placing, asphaltic mixture, rolling and finishing, and for all labor, tools, equipment and incidentals necessary to complete the work, including work and materials involved in the application of the prime and tack coats.
  - 1. Thickness: When the Drawings and/or the Bid Proposal call for the asphaltic concrete surfacing to be paid for by the square yard, payment will be made on the thickness indicated, provided the average thickness determined by test cores is within five percent (5%) of the thickness specified.
  - 2. Thickness Variation: Should the average thickness as determined by test cores be more or less than the thickness specified (beyond the limits above set forth) CONTRACTOR shall be paid for at a price per square yard which bears the same ratio to the thickness bid upon provided that this square yard price adjustment shall be limited to a lower limit of ninety percent (90%) and an upper limit on one hundred and five percent (105%) of the Bid Price. Thickness resulting in a ratio below ninety

percent (90%) shall require the placement of another asphalt lift and the upper limit shall no longer apply in the affected paved area.

- B. Lump Sum: When the Proposal is a lump sum contract the payment for "Asphalt Pavement" shall be part of the lump sum price. No price adjustment shall be made for thickness (within the limits noted in paragraph 4.02 A.1)

**END OF SECTION**

## **SECTION 32 12 33**

### **FLEXIBLE BASE**

#### **PART 1 GENERAL**

##### **1.01 SCOPE**

- A. Construct a foundation course composed of flexible base.

##### **1.02 REFERENCES**

- A. ASTM: American Society for Testing and Materials  
1916 Race Street  
Philadelphia, Pa 19103  
<http://www.astm.org/>
- B. TxDOT: Texas Department of Transportation Test Procedures  
125 East 11th Street  
Austin, Texas 78701  
[http://www.dot.state.tx.us/services/construction/test\\_procedures/default.htm](http://www.dot.state.tx.us/services/construction/test_procedures/default.htm)

##### **1.03 RELATED SECTIONS**

- A. SECTION 01 33 00 – Submittal Procedures
- B. SECTION 01 33 23 – Shop Drawings, Product Data and Samples
- C. SECTION 01 45 29 – Testing Laboratory Services

##### **1.04 TESTING**

- A. Perform tests and analysis of flexible base materials in accordance with ASTM and TxDOT standards under the provisions of SECTION 01 45 29 – Testing Laboratory Services.

##### **1.05 DELIVERY, STORAGE AND HANDLING**

- A. Stockpile base material temporarily at an approved location before delivery to the roadway.
- B. Build stockpiles in layers no greater than two feet (2') thick. Stockpiles must have a total height between ten feet (10') and sixteen feet (16') unless otherwise shown on the Drawings.
- C. After construction and acceptance of the stockpile, loading from the stockpile for delivery is allowed. Load by making successive vertical cuts through the entire depth of the stockpile.
- D. Do not add or remove material from temporary stockpiles that require sampling and testing before delivery unless otherwise approved. Charges for additional sampling and testing required as a result of adding or removing material will be deducted from CONTRACTOR's estimates.

## PART 2 PRODUCTS

### 2.01 MATERIALS

- A. Furnish uncontaminated materials of uniform quality that meet the requirements of the Drawings and Specifications. Notify ENGINEER of the proposed material sources and of changes to material sources. ENGINEER may require testing of project materials at any time before compaction throughout the duration of the project to assure specification compliance. Use Tex-100-E material definitions.

<b>Table 1</b> <b>Flexible Base Material Requirements</b>					
Property	Test Method	Grade 1	Grade 2	Grade 3	Grade 4
Master gradation sieve size (%retained)	Tex-110-E				As shown on the Drawings
2-1/2 in		-	0	0	
1-3/4 in		0	0-10	0-10	
7/8 in		10-35			
3/8 in		30-50			
No. 4		45-65	45-75	45-75	
No. 40		70-85	60-85	50-85	
Liquid Limit, % max. <sup>1</sup>	Tex-104-E	35	40	40	As shown on the Drawings
Plasticity index, max <sup>1</sup>	Tex-106-E	10	12	12	As shown on the Drawings
Plasticity index, min <sup>1</sup>		As shown on the Drawings			
Wet ball mill, % max <sup>2</sup>	Tex-116-E	40	45	-	As shown on the Drawings
Wet ball mill, % max increase passing the No. 40 Sieve		20	20	-	
Classification <sup>3</sup>	Tex-117-E	1.0	1.1 – 2.3	-	As shown on the Drawings
Min compressive strength <sup>3</sup> ,					As shown

psi					on the Drawings
Lateral pressure 0 psi		45	35	-	
Lateral pressure 15 psi		175	175	-	

1. Determine plastic index in accordance with Tex-107-E (linear shrinkage) when liquid limit is unattainable as defined in Tex-104-E.
  2. When a soundness value is required by the Drawings, test material in accordance with Tex-411-A.
  3. Meet both the classification and the minimum compressive strength, unless otherwise shown on the Drawings.
- B. Aggregate. Furnish aggregate of the type and grade shown on the Drawings and conforming to the requirements of Table 1. Each source must meet Table 1 requirements for liquid limit, plasticity index, and wet ball mill for the grade specified. Do not use additives such as but not limited to lime, cement, or fly ash to modify aggregates to meet the requirements of Table 1, unless shown on the Drawings.
1. Material Tolerances
    - i. ENGINEER may accept material if no more than 1 of the 5 most recent gradation tests has an individual sieve outside the specified limits of the gradation.
    - ii. When target grading is required by the Drawings, no single failing test may exceed the master grading by more than five percent (5%) on sieve No. 4 and larger than three percent (3%) on sieves smaller than No. 4.
    - iii. ENGINEER may accept material if no more than 1 of the 5 most recent plasticity index tests is outside the specified limit. No single failing test may exceed the allowable limit by more than two percent (2%).
  2. Material Types: Do not use fillers or binders unless approved. Furnish the type specified on the Drawings in accordance with the following.
    - i. Type A: Crushed stone produced and graded from oversize quarried aggregate that originates from a single, naturally occurring source. Do not use gravel or multiple sources.
    - ii. Type B: Crushed or uncrushed gravel. Blending of 2 or more sources is allowed.
    - iii. Type C: Crushed gravel with a minimum of sixty percent (60%) of the particles retained on a No. 4 sieve with two or more crushed faces as determined by Tex-460-A, Part I. Blending of two or more sources is allowed.
    - iv. Type D: Type A material or crushed concrete. Crushed concrete containing gravel will be considered Type D material. Crushed concrete must meet the requirements in "Recycled Material (Including Crushed Concrete) Requirements," and be managed in a way to provide for uniform quality. ENGINEER may require separate dedicated stockpiles in order to verify compliance.
    - v. Type E: As shown on the Drawings.
  3. Recycled Material
    - i. Recycled asphalt pavement (RAP) and other recycled materials may be used when shown on the Drawings. Request approval to blend two or more sources of recycled materials.
    - ii. When RAP is allowed, do not exceed twenty percent (20%) RAP by weight unless otherwise shown on the Drawings. The percentage limitations for other recycled materials will be as shown on the Drawings.

- iii. Recycled materials, including crushed concrete, will be subject to the requirements of Table 1 for the grade specified.
  - iv. Recycled materials must be free from reinforcing steel and other objectionable material and have at most one-and-a-half percent (1.5%) deleterious material when tested in accordance with Tex-413-A. For RAP, do not exceed a maximum percent loss from decantation of five percent (5%) when tested in accordance with Tex-406-A. Test RAP without removing the asphalt.
  - v. The use of CONTRACTOR-owned recycled materials is allowed when shown on the Drawings. CONTRACTOR-owned surplus recycled materials remain the property of the CONTRACTOR. Remove CONTRACTOR-owned recycled materials from the Project and dispose of them in accordance with federal, state, and local regulations before Project acceptance.
- C. Water: Furnish water free of industrial wastes and other objectionable matter.
  - D. Material Sources: When non-commercial sources are used, expose the vertical faces of all strata of material proposed for use. Secure and process the material by successive vertical cuts extending through all exposed strata, when directed.

## **2.02 EQUIPMENT**

- A. Provide machinery, tools, and equipment necessary for proper execution of the Work.

## **PART 3 EXECUTION**

### **3.01 CONSTRUCTION**

- A. Construct each layer uniformly, free of loose or segregated areas, and with the required density and moisture content. Provide a smooth surface that conforms to the typical sections, lines, and grades shown on the Drawings or as directed.
- B. Haul approved flexible base in clean trucks.

### **3.02 PREPARATION OF SUBGRADE OR EXISTING BASE.**

- A. Shape the subgrade or existing base to conform to the typical sections shown on the Drawings or as directed.
- B. When new base is required to be mixed with existing base, deliver, place, and spread the new flexible base in the required amount per station. Manipulate and thoroughly mix the new base with existing material to provide a uniform mixture to the specified depth before shaping.
- C. When shown on the Drawings or directed, proof roll the roadbed in accordance with Item 216, "Proof Rolling," before pulverizing or scarifying. Correct soft spots as directed.

### **3.03 PLACING.**

- A. Spread and shape flexible base into a uniform layer with an approved spreader the same day as delivered unless otherwise approved. Construct layers to the thickness shown on the Drawings. Maintain the shape of the course. Control dust by sprinkling, as directed. Correct or replace segregated areas as directed, at no additional expense.

- B. Place successive base courses and finish courses using the same construction methods required for the first course.

#### **3.04 COMPACTION.**

- A. Multiple lifts are permitted when shown on the Drawings or approved. Bring each layer to the moisture content directed. When necessary, sprinkle the material in accordance with Item 204, "Sprinkling."
- B. Begin rolling longitudinally at the sides and proceed towards the center, overlapping on successive trips by at least one-half the width of the roller unit. On super elevated curves, begin rolling at the low side and progress toward the high side. Offset alternate trips of the roller. Operate rollers at a speed between two (2) and six (6) mph as directed.
- C. Rework, recompact, and refinish material that fails to meet or that loses required moisture, density, stability, or finish before the next course is placed or the Project is accepted. Continue Work until these Specification requirements are met.
- D. Compact to at least one-hundred percent (100%) of the maximum density determined by Tex-113-E unless otherwise shown on the Drawings. Determine the moisture content of the material at the beginning and during compaction in accordance with Tex-103-E.

#### **3.05 FINISHING.**

- A. After completing compaction, clip, skin, or tight-blade the surface with a maintainer or subgrade trimmer to a depth of approximately one-quarter-inch (1/4").
- B. Remove loosened material and dispose of it at an approved location.
- C. Seal the clipped surface immediately by rolling with a pneumatic tire roller until a smooth surface is attained. Apply small increments of water as needed during rolling.
- D. Shape and maintain the course and surface in conformity with the typical sections, lines, and grades as shown on the Drawings or as directed.

#### **3.06 TOLERANCES**

- A. In areas where surfacing is to be placed, correct grade deviations greater than one-quarter-inch (1/4") in sixteen-foot (16') measured longitudinally or greater than one-quarter-inch (1/4") over the entire width of the cross-section. Correct by loosening, adding, or removing material. Reshape and recompact until tolerances are met.

#### **3.07 FIELD QUALITY CONTROL**

- A. Perform Testing under provisions of SECTION 01 45 29 – Testing Laboratory Services.
- B. Take a minimum of one core at random locations per 1,000 linear feet per lane of roadway or 500 square yards of base to determine in-place depth.
- C. CONTRACTOR may, at his own expense, request additional cores in the vicinity of cores indicating nonconforming in-place depths. If the average of the tests falls below the required depth, place and compact additional material at no additional cost to OWNER.
- D. Perform density testing at a random location near each depth determination core. The Testing Laboratory will determine roadway density of completed sections in accordance with Tex-115-E.

ENGINEER may accept the section if no more than one of the five most recent density tests is below the specified density and the failing test is no more than three (3) pcf below the specified density. Rework and recompact areas that do not conform to compaction requirements.

- E. Fill cores and density test sections with new compacted crushed stone flexible base.

### **3.08 CURING.**

- A. Cure the finished section until the moisture content is at least two percent (2%) below optimum or as directed before applying the next successive course or prime coat.

## **PART 4 MEASUREMENT AND PAYMENT**

### **4.01 MEASUREMENT**

- A. Flexible base will be measured as follows:
  - 1. By the cubic yard in the completed and accepted final position. The volume of base course is computed in place by the method of average end areas between the original subgrade or existing base surfaces and the lines, grades, and slopes of the accepted base course as shown on the Drawings.
  - 2. By the square yard of surface area in the completed and accepted final position. The surface area of the base course is based on the width of flexible base as shown on the Drawings.
  - 3. By the ton of dry weight in vehicles as delivered. The dry weight is determined by deducting the weight of the moisture in the material at the time of weighing from the gross weight of the material. ENGINEER will determine the moisture content in the material in accordance with Tex-103-E from samples taken at the time of weighing. When material is measured in trucks, the weight of the material will be determined on certified scales, or CONTRACTOR must provide a set of standard platform truck scales at a location approved by ENGINEER.

### **4.02 PAYMENT**

- A. The Work performed and materials furnished in accordance with this Section and measured as provided under "Measurement" will be paid for at the unit Bid price for the types of work shown below. No additional payment will be made for thickness or width exceeding that shown on the typical section or provided on the Drawings for cubic yard in the final position or square yard measurement.
- B. Sprinkling and rolling, will not be paid for directly but will be subsidiary to this Section unless otherwise shown on the Drawings.
- C. Where subgrade is constructed under this Contract, correction of soft spots in the subgrade will be at CONTRACTOR's expense.

**END OF SECTION**



## **SECTION 32 13 13**

### **CONCRETE PAVEMENT**

#### **PART 1 GENERAL**

##### **1.01 SCOPE**

- A. This item includes Portland cement concrete pavement, with reinforcement, as shown on the plans, with or without monolithic curbs, constructed as specified on the prepared subgrade or other base course in conformity with the thickness and typical cross sections shown on the plans, and to the lines and grades shown on plans established by the ENGINEER.
- B. These definitions are to assist in interpreting the provisions of this specification.
1. COLD WEATHER-a period when for more than three (3) successive days the average daily outdoor temperature drops below 40°F. The average daily temperature is the average of the highest and lowest temperature during the period from midnight to midnight. When temperatures above 50°F occur during more than half of any 24 hr duration the period shall no longer be regarded as cold weather.
  2. FREE EDGE-the edge of pavement abutting an isolation joint or the edge of the pavement against which no concrete is placed.
  3. HOT WEATHER- as defined by ACI 305R. Any combination of the conditions discussed in ACI 305R that tend to impair the quality of freshly mixed or hardened concrete by accelerating the rate of moisture loss and rate of cement hydration or causing concrete cracking at other than joints:
    - i. high ambient temperature – when local weather shows that a maximum daily temperature is likely to exceed 95°F
    - ii. high concrete temperature – above 95°F
  4. ISOLATION JOINT-a full-depth joint which isolates or separates the pavement from fixed objects within or abutting the newly paved area. Isolation joints shall be placed at least every 60-feet.
  5. CONSTRUCTION JOINT-a full depth joint provided when construction stops temporarily. These may be transverse or longitudinal.
  6. CONTRACTION JOINT-a joint provided along the transverse direction of the pavement, to help protect the slab from natural shrinkage.
  7. PAVEMENT (CONCRETE)-a layer of concrete over such areas as roads, sidewalks, canals, playgrounds, and those used for storage or parking.
  8. SUBBASE-a layer in the pavement system between the subgrade and the concrete pavement.
  9. SUBGRADE-the soil prepared and compacted to support the pavement system.

##### **1.02 MEASUREMENT AND PAYMENT**

- A. Measurement:
1. Concrete pavement will be measured by the square yard of surface area in place, unless stated otherwise on bid documents. Separate pay items are used for each different required thickness of pavement. The surface area includes the portion of the pavement slab extending beneath the curb.
- B. Payment:
1. The work performed and materials furnished in accordance with this section and measured as provided under “Measurement” will be paid for at the unit price bid for “Concrete Pavement” of the type and thickness specified as adjusted in accordance with “Penalty for Deficient Pavement Thickness.” The unit price bid for “Concrete Pavement” shall include the fine shaping or grading of subgrade, forming, mixing, placing, jointing, finishing and curing of all concrete. To include all labor and equipment necessary to complete the referenced work.

### **1.03 REFERENCE ORGANIZATION**

- A. ACI: AMERICAN CONCRETE INSTITUTE  
P.O. BOX 19150  
DETROIT, MI 48219
- B. ASTM: AMERICAN SOCIETY FOR TESTING AND MATERIALS  
1916 RACE STREET  
PHILADELPHIA, PA 19103
- C. TxDOT: TEXAS DEPARTMENT OF TRANSPORTATION  
125 EAST 11TH STREET  
AUSTIN, TX 78701

### **1.04 RELATED SECTIONS**

- A. 03 31 00 Concrete.
- B. 32 11 13 Subgrade Preparation

### **1.05 SUBMITTALS**

- A. See section 03 31 00 Concrete

### **1.06 TESTING**

- A. See section 03 31 00 Concrete

## **PART 2 PRODUCTS**

### **2.01 MATERIALS**

- A. Unless otherwise designated in the plans or this Section, Concrete shall meet the requirements of SECTION 03 31 00, Concrete.

### **2.02 TESTING REQUIREMENTS**

- A. Unless otherwise designated in the plans or this Section, Concrete shall meet the requirements of Section 03 31 00, Concrete.

### **2.03 EXPANSION JOINTS**

- A. Clear, all heart cypress weighing no more than 40 pounds per cubic foot, after being oven dried to constant weight. Boards for expansion joint filler shall be 3/4 inch finished thickness Class A cypress.
- B. Clear, all heart redwood weighing no more than 30 pounds per cubic foot, after being oven dried to constant weight. Boards for expansion joint filler shall be 3/4 inch finished thickness Class A redwood.
- C. Joint sealer shall meet the requirements of ASTM D6690.
- D. Preformed expansion joint material shall be bituminous fiber and bituminous mastic composition, in conformance with ASTM D 994 and ASTM D 1751.

### **2.04 LOAD TRANSMISSION DEVICES**

- A. Load transmission devices for expansion and contraction joints shall be of 3/4 inch finished thickness Class A redwood with 18-inch long steel dowels, in accordance with ASTM A 615, Grade 60, through the redwood or cypress on 12 inch centers.

1. The dowels shall be 1 inch in diameter for pavement thickness up to and including 8 inches and 1-1/4 inch diameter for pavement thickness of 9 inches or more.
2. The dowels are to be completely capped or sheathed on one side of the redwood to prevent bonding to the concrete.

## **2.05 METAL DEVICES**

- A. Metal devices for expansion and contraction joint assemblies, (such as welded wire bar chains, bar stakes, end marker channels, etc.) shall be as shown on the plans or may be similar devices of equivalent or greater strength, approved by the ENGINEER, that will secure to joint assembly in correct position during the placing and finishing of concrete.

## **2.06 MEMBRANE FORMING CURING COMPOUNDS**

- A. Provide a membrane curing compound conforming to ASTM C309, Type 2, Class A.

## **2.07 EQUIPMENT**

### **A. General:**

1. All equipment necessary for the construction of concrete pavement shall conform to ASTM C94, shall be on the job, and shall have been conditioned, before the CONTRACTOR will be permitted to begin construction operations on which the equipment is to be used.

### **B. Subgrade Planer:**

1. Grade control shall be established and maintained by means of line and grade stakes. The finished pavement grade lines and elevations shown on the contract drawings shall be established and controlled at the site of the work, by the contractor, in accordance with benchmark elevations furnished by the Owner. Pavement shall be constructed to indicated grades, thicknesses and elevations. Construction of

### **C. Templates:**

1. A template, or other approved method, for checking the contour of the subgrade or base course shall be provided and operated by the CONTRACTOR. The template shall rest upon the side forms and shall be of such strength and rigidity that under a test made by changing the support to the center, it shall not show a deflection of more than 1/8 inch. It shall be provided with accurately adjustable rods projecting downward to the subgrade at 1-foot intervals and these rods shall be adjusted to the required cross-section of the bottom of the slab, when the template is resting upon the side forms.

### **D. Forms:**

1. Provide metal side forms of sufficient cross-section, strength, and rigidity to support the paving equipment and resist the impact and vibration of the operation without visible springing or settlement. Use forms that are free from detrimental kinks, bends, or warps that could affect ride quality or alignment. Provide flexible or curved metal or wood forms for curves of 100-ft. radius or less. Aluminum forms are not allowed. Forms shall be equal in depth to the edge thickness of the slab as shown on the drawings. Forms shall be in one piece for full depth required, except as noted. Forms shall be rigidly braced throughout its length. When tested as simple beam, form shall not deflect more than 1/8 inch in 10 feet, when weight of the heaviest machine is placed on forms. The face of the forms shall not vary more than 1/4 inch in 10 feet from a true plane.
  - i. Metal Forms:
    - a. Length of forms shall not be less than 10 feet and each section shall provide for staking in position with not less than three (3) pins. Curves having a radius of 150 feet or less, the length of the sections shall be 5 feet unless the sections are flexible or curved to the proper radius.
  - ii. Wood Forms:

- a. Wood forms for curves and fillets shall be made from well-seasoned plank or plywood. Wood shall be free of deformations. Warped, cupped, twisted, or crooked boards will not be acceptable as form boards. Wood forms shall be approximately 5-foot in length with securing devices to withstand springing, weaving or settling due to impact or vibration from equipment and finishing operations.
- iii. Form Setting:
  - a. Forms shall be cleaned and oiled prior to placing of concrete. Forms are to rest directly on subgrade. Forms shall not be shimmed or raised with pebbles or dirt. Grades shall be checked upon completion of set forms. Forms are to remain in place for a minimum of 8-hours after finishing of concrete. Bars or heavy tools are not to be used when removing forms. Any concrete damaged during form removal shall be repaired promptly by the Contractor at no additional expense to the Owner.

### **PART 3 EXECUTION**

#### **3.01 PROPORTIONING OF CONCRETE**

- A. Unless otherwise permitted, the concrete mix design shall be in conformance with Concrete Section 03 31 00.

#### **3.02 SUBGRADE PREPARATION**

- A. See Section 31 11 13 Subgrade Preparation
- B. Subgrade shall pass all compaction and elevation tests required prior to setting of forms.

#### **3.03 PLACING OF CONCRETE**

- A. Concrete shall be placed in conformance with Concrete 03 31 00.

#### **3.04 FINISHING:**

All pavements shall be finished by machine, except as hereinafter provided. Finishing shall begin immediately after placing of concrete. The transverse finishing machine shall be provided with two screeds and a tamp accurately adjusted to the crown of the pavement and shall be power driven and mounted in a substantial frame equipped to ride on the forms and shall be so designed and operated as to strike-off and consolidate the concrete. Striking and screeding shall occur as soon as concrete is placed, and to the proper cross section as shown on drawings. Finishing machines shall make two passes on each section of concrete. All machines, equipment, and tools used for finishing shall be maintained clean and without hardened concrete or grout.

1. The longitudinal finishing machine shall be provided with a longitudinal float not less than 10-feet in length, adjusted to a true plane. Machine shall be power driven and shall be so designed and operated as to finish the pavement to the required grade.
2. Finishing machine shall be maintained tight and in good operating condition accurately adjusted to the required crown or profile and free from deflection, wobble or vibration tending to affect the precision to finish. Machines failing to meet these requirements will be condemned by the ENGINEER and the CONTRACTOR shall remove this equipment from the jobsite and provide approved equipment.
3. When hand finishing is permitted under this specification, provide a strike template and tamping template, both of lumber or equivalent metal section and at least 2-feet longer than the width of the pavement. Both templates shall conform to the crown section of the pavement and the tamping template, if of wood, shall have a steel face not less than 3/8-inches in thickness. Also provide a longitudinal float of an approved design. The bottom edges of the base of the float shall be rounded on a radius not exceeding 3/8 inch.

4. Minor irregularities and score marks in the pavement surface shall be eliminated by means of long-handled wood floats and straight-edges after the longitudinal floating is completed, but while the concrete is still plastic.
5. Provide a carpet drag mounted on a work bridge or a moveable support system. Provide a single piece of carpet of sufficient transverse length to span the full width of the pavement being placed and adjustable so that a sufficient longitudinal length of carpet is in contact with the concrete being placed to produce the desired texture. Obtain approval to vary the length and width of the carpet to accommodate specific applications. Use an artificial grass-type carpet having a molded polyethylene pile face with a blade length of 5/8 in. to 1 in., a minimum weight of 70 oz. per square yard, and a strong, durable, rot-resistant backing material bonded to the facing.
6. Provide a self-propelled transverse metal tine device equipped with 4-in. to 6-in. steel tines and with cross section approximately 1/32 in. thick by 1/12 in. wide, spaced at 1 in., center-to-center. Hand-operated tining equipment that produces an equivalent texture may be used only on small or irregularly shaped areas or, when permitted, in emergencies due to equipment breakdown. Tining to be used as required by governing agency.
7. Provide a self-propelled machine for applying membrane curing compound using mechanically pressurized spraying equipment with atomizing nozzles. Provide equipment and controls that maintain the required uniform rate of application over the entire paving area. Provide curing equipment that is independent of all other equipment when production rates are such that the first application of membrane curing compound cannot be accomplished immediately after texturing and after free moisture has disappeared. Hand-operated pressurized spraying equipment with atomizing nozzles may only be used on small or irregular areas or, when permitted, in emergencies due to equipment breakdown.
8. Furnish and maintain at least two standard 10-foot steel or aluminum straightedges.
9. Furnish a sufficient number of bridges equipped to ride on the forms and span the pavement for finishing operations and for the installation and finishing of joints and center strips. All necessary finishing and edging tools shall be furnished as may be required to complete the pavement in accordance with the plans.
10. Perform surface texturing using a combination of a carpet drag and metal tining. Complete final texturing before the concrete has attained its initial set. Draw the carpet drag longitudinally along the pavement surface with the carpet contact surface area adjusted to provide a satisfactory coarsely textured surface.
11. A metal-tine texture finish is required unless otherwise shown on the plans. Provide the metal-tine finish immediately after the concrete surface has set enough for consistent tining. Operate the metal-tine device to obtain grooves spaced at 1 in., approximately 3/16 in. deep, with a minimum depth of 1/8 in., and approximately 1/12 in. wide. Do not overlap a previously tined area. Use manual methods for achieving similar results on ramps and other irregular sections of pavements. Repair damage to the edge of the slab and joints immediately after texturing. Do not tine pavement that will be overlaid.
12. Where machine placements and finishing of concrete pavement are not practical, use hand equipment and procedures that produce a consolidated and finished pavement section to the line and grade.
13. Use hand-operated equipment for applying texture, evaporation retardant, and cure in the event of equipment breakdown.

### **3.05 CURING:**

- A. Keep the concrete pavement surface from drying by water fogging, sprinkling or cotton mats, until the curing material has been applied, if material is required. Maintain and promptly repair damage to curing materials on exposed surfaces of concrete pavement continuously for at least 3 curing days. A curing day is defined as a 24-hr. period when either the temperature taken in the shade away from artificial heat is above 50°F for at least 19

hr. or when the surface temperature of the concrete is maintained above 40°F for 24 hr. Curing begins when the concrete curing system has been applied.

- B. Stop concrete paving if curing compound is not being applied promptly and maintained adequately. Other methods of curing may be used when specified or approved.
- C. After texturing and immediately after the free surface moisture has disappeared, spray the concrete surface uniformly with 2 coats of membrane curing compound at an individual application rate of not more than 180 sq. ft. per gallon. Apply the first coat within 10 min. after completing texturing operations. Apply the second coat within 30 min. after completing texturing operations.
- D. Before and during application, maintain curing compounds in a uniformly agitated condition, free of settlement. Do not thin or dilute the curing compound.
- E. Where the coating shows discontinuities or other defects or if rain falls on the newly coated surface before the film has dried enough to resist damage, apply additional compound at the same rate of coverage to correct the damage. Ensure that the curing compound coats the sides of the tining grooves.

### **3.06 CONSTRUCTION JOINTS:**

All joints shall be cleaned of loose debris just prior to receiving concrete pour. Joints shall also be dampened just prior to pouring of concrete. If concrete pour is adjacent to existing concrete, joints shall be placed at same location as adjacent concrete pavement.

- A. Longitudinal Construction, or Warping, Joints shall be placed between paving lanes, located as shown on drawings. All longitudinal joints shall be sawed to provide a groove, as shown on plans.
- B. Transverse Construction Joints shall be installed at the end of each day's concrete pavement placement, and at any point where pouring is interrupted for greater than 30 minutes.
- C. All transverse and longitudinal joints in the pavement shall be of the type or the alternate type shown on the plans, shall be constructed at required locations, on required alignment in the required relationship to tie bars and joint assemblies and in accordance with the details shown on the plans.
- D. Intentional stoppage of the placing of the concrete shall be at either an expansion joint, warping joint or construction joint. The following provisions shall govern for each type of joint at which the placing of concrete is stopped.
- E. Expansion Joints shall be 3/4 – inch and shall be provided every sixty (60) feet, or as shown on Plans. Concrete shall not be allowed to set in the expansion joint location. Any concrete that has entered into this area shall be removed prior to setting of the expansion joint material.
- F. When the placing of concrete is stopped at any expansion joint, the complete jointed assembly shall be installed and rigidly secured in required position as shown on plans. A bulkhead of sufficient cross sectional areas to prevent deflection, accurately notched to receive the load transmission units or dowels, as the case may be, and shaped accurately to the cross section of the pavement shall be provided and installed as a back-up for the joint filler and rigidly secured in required position to permit accurate finishing of the concrete up to the joint. After the concrete has been finished to the joint, formation of the joint seal space and finishing of the joint shall be executed as specified herein and in accordance with plan requirements. The back-up bulkhead shall remain in place until immediately prior to the time when concrete placing is resumed, when it shall then carefully be removed in such manner that no element of the joint assembly will be disturbed. The exposed portions of the joint assembly shall be free of adherent concrete, dirt or other material at the time placing of concrete is resumed.
- G. When placing of concrete is stopped at a warping joint, all applicable provisions shall apply in addition to the following requirements:

1. The face of the bulkhead at the joint shall be grooved or recessed as necessary to provide the required spaces for the top and bottom breaker strips as shown on plans. The bulkhead shall be either drilled or notched to receive the tie bars. Tie bars shall be secured in required position by use of adequate transverse bracing and vertical supports meeting the approval of the ENGINEER.

H. Contraction Joints shall be placed as shown on Plans or twenty (20) feet on center. Contraction joints shall be a minimum depth of  $\frac{1}{4}$  the depth of the concrete. Contraction joint shall be sealed. Joint width shall be between  $\frac{1}{4}$  inch and  $\frac{3}{8}$  inch. Contraction joints shall be placed at 30 times the pavement thickness, i.e. 5-inch pavement, every 12.5-feet, 6-inch pavement every 15-feet., or as shown on plans. When placing of concrete is stopped at a contraction joint, all applicable provisions shall apply, in addition to the following requirements:

1. The face of the bulkhead adjoining the slab end shall be notched and grooved to fit the exposed half-screen of the joint assembly and shall be shaped to form the slab end at the center of joint as shown on plans. The half-width of joint seal-space may be formed by a strip with plan requirements for construction of transverse contraction joints. The CONTRACTOR shall have available a bulkhead shaped to the section of the pavement, and of a section of form a key not less than 1 inch in depth and 2 inches in height at the center of depth of the pavement. This bulkhead must be drilled to permit the continuation of all longitudinal reinforcing steel through the construction joint, and shall be of sufficient section and strength to prevent deflection.
2. Immediately upon the intended stoppage of the placing of concrete to a line, install the above described bulkhead at right angles to the centerline of the pavement perpendicular to the surfaces and at required elevation. Concrete shall be placed and finished to this bulkhead. Any concrete remaining on the subgrade ahead shall be removed and disposed of as directed. When placing of concrete is resumed before the concrete has set to the extent that the concrete will stand on removal of the bulkhead, the new concrete shall be removed, and the key in the first concrete must be rodded, and the key in the first concrete must be carefully preserved. An edge created by a construction joint of this type shall have a joint seal space and shall be sealed as required for construction joints.

I. Transverse expansion joints shall be formed perpendicular to the centerline and surface of the pavement, and shall be constructed in accordance with the sequence of operations shown on plans. After the transverse finishing machine and before the longitudinal finishing machine has passed over the joint, the CONTRACTOR shall test the joint filler for correctness of position and make any required adjustment in position of the filler, and shall install the joint seal space form in accordance with plans. After removal of the joint seal form as required by plans, the joint seal space above the joint filler shall be thoroughly cleaned and the concrete faces of the joint seal space shall be left true to line and section throughout the entire length of the joint. On completion of curing of the pavement, the joint sealing filler of the type specified shall be placed in accordance with plans. The faces of the joint seal space shall be clean and surface dry at the time joint sealing filler is placed. On completion of the joint seal, the pavement adjacent to the joint shall be left free of joint sealing material.

### **3.07 SAWED OR CONTRACTION JOINTS**

- A. Where the ENGINEER permits sawed joints, they shall be sawed as soon as sawing can be accomplished without damage to the pavement and as directed by the ENGINEER. Once sawing has commenced, it shall be continued until completed. The saw cut shall be made with one pass of the concrete saw.
- B. Sawing must be accomplished even in rain or cold weather.
- C. All sawing must be completed within twenty-four hours of placement, should the sawing for any days placement fail to be completed within twenty-four hours, the following concrete placement shall be limited to the amount that was sawed on time. This limitation shall continue until the sawing crew demonstrates it can handle a larger volume of sawing.

- D. The sawed cut shall be a minimum 1/4 inch width and have a depth of 1/4 the thickness of the pavement.

### **3.08 PROTECTION OF PAVEMENT**

- A. The CONTRACTOR shall erect and maintain the barricades required by the plans, and such other barricades and approved devices as will exclude public traffic and traffic of his employees and agents from the newly placed pavement for the periods of time hereinafter prescribed. Portions of the roadway, or crossings of the roadbed required to be maintained open for use by traffic, shall not be obstructed by the above required barricades. Crossings of the pavement required by plans, or by construction sequence, during the period prior to opening to traffic as herein specified, shall be provided with an adequate and substantial bridge, approved by the ENGINEER.
- B. The pavement shall be closed to all traffic, including vehicles of the CONTRACTOR, until the concrete is at least seven (7) days old and has attained compressive strength as required. The pavement shall not be opened to traffic until standard test specimens have met the requirements of Section 03 31 00, Concrete.
- C. At the end of the seven (7) day period and as long thereafter as ordered by the ENGINEER, and if requested by the CONTRACTOR, the pavement may be used by vehicles of the CONTRACTOR provided the gross weight (vehicle plus load) of such vehicles does not exceed fourteen thousand (14,000) pounds. Such opening, however, shall in no manner relieve the Contractor from his responsibility for the work.
- D. On those sections of the pavement thus opened to traffic, all joints shall first be sealed, the pavement cleaned and earth placed against the pavement edges before permitting vehicles thereon.
- E. After the concrete in any section is fourteen (14) days old, or as long thereafter as ordered by the ENGINEER, such section of pavement may be opened to all traffic as required by plans or when so directed by the ENGINEER. On those sections of the pavement thus opened to traffic, all joints shall first be sealed, the pavement cleaned, earth placed against the pavement edges and all other work performed as required for the safety of traffic. Such opening shall in no manner relieve the CONTRACTOR from his responsibility for work.
- F. When high early strength concrete is used, as required by plans and Section 03 31 00 Concrete, The pavement shall not be opened to traffic until standard test specimens have met the requirements of Section 03 31 00, Concrete.
- G. When the CONTRACTOR desires to move any equipment not licensed for operation on a public roadway, on or across any pavement opened to traffic, he shall protect the pavement from all damage by means of two-ply timber mats of 2" stock, or runways of heavier material, laid on a layer of earth, all as approved by the ENGINEER.
- H. The ENGINEER may require the opening of pavement to traffic prior to the minimum time specified above under conditions of emergency, which in his opinion, require such action in the interest of the public. In no case shall the ENGINEER order opening of the pavement to traffic within less than 72 hours after the last concrete in the section was placed. The CONTRACTOR shall remove all curing materials, place earth against the pavement edges, and perform other work involved in providing for the safety of traffic as required by the ENGINEER in ordering emergency opening. Orders for emergency opening of the pavement to traffic will be issued by the ENGINEER in writing.

### **3.09 PENALTY FOR DEFICIENT PAVEMENT THICKNESS**

- A. It is the intent of this specification that the pavement be constructed in strict conformity with the thickness and typical sections shown on plans. Where any pavement is found not so constructed, or rejected by governing agency, the following rules relative to adjustment of payment for acceptable pavement and to replacement of faulty pavement shall govern.
- B. Prior to final acceptance, the pavement will be cored by the CONTRACTOR, AS DIRECTED BY ENGINEER. Locations of core tests may be selected by the ENGINEER. Regular testing shall occur for every five hundred (500) square yards of placed concrete pavement and at random locations. For the purposes



of establishing an adjusted unit price for pavement, units to be considered separately are defined as 500 square yards of pavement in each traffic lane, starting at the end of the pavement bearing the smaller station number. The last unit in each lane shall include 500 square yards plus the fractional part of 500 square yards remaining. Widening, acceleration and deceleration lane shall be measured and adjusted using units of 500 square yards or fractions thereof. All coring, testing and additional construction services related to a deficient pavement thickness shall be paid for by the Contractor.

- C. One core will be taken at locations selected by the ENGINEER. When measurement of the core from any unit is not deficient more than 0.2 inch from the plan thickness, full payment will be made.
- D. If measurement of any core from any unit is deficient more than 0.2 inch but not more than 0.50 inch from the plan thickness two additional cores will be taken from the unit and the average of the three cores determined. The two additional cores will be taken such that the unit will be well represented.
  - 1. If the average thickness of the three cores is deficient more than 0.2 inch but not more than 0.50 inch from the plan thickness, an adjusted unit price as provided below, will be paid for in these areas represented by these cores.

Price Adjustments: Concrete Pavement Deficiency

Deficiency of Thickness Determined by Cores In Inches	Proportional Part Of Contract Price Allowed
0.00 to 0.20	100 Percent
0.21 to 0.30	80 Percent
0.31 to 0.40	72 Percent
0.41 to 0.50	68 Percent
Over 0.50	0 or remove*

\* At the option of the Engineer

- E. Any area of pavement found deficient in thickness by more than 0.50 inch but not more than 0.75 inch shall be evaluated by the ENGINEER. If, in the judgment of the ENGINEER, the area of such deficiency should not be removed and replaced, there will be no payment for the area retained. If, in the judgment of the ENGINEER, the area of such deficiency warrants removal, the area shall be removed and replaced, at the CONTRACTOR's entire expense, with concrete of the thickness shown on the plans. Any area found deficient in thickness by more than 0.75 inch shall be removed and replaced, at the CONTRACTOR's entire expense, with concrete of the thickness shown on plans.
- F. No additional payment, over the contract unit price will be made for any pavements of a thickness exceeding that required on plans. Also, planing of concrete pavement shall not be allowed.

### 3.10 DEFECTIVE CONCRETE

- A. Any defective concrete discovered, after the forms have been removed, shall be removed immediately and replaced. If the surface of the concrete is bulged, uneven or shows excessive honeycombing or form marks, which in the opinion of the ENGINEER cannot be repaired satisfactorily, it shall be removed or renewed and no compensation will be allowed for the work or materials.

### 3.11 QUALITY ASSURANCE

- A. The Testing Laboratory will sample concrete delivered to the site in accordance with ASTM Method C172, ASTM C31, and will mold four (4) specimens, for every 100 cubic yards, or fraction thereof, for each mix design placed that day, and tested for compressive strength in accordance with ASTM C 31 and ASTM C 39.

The first two shall be tested at 7 days, and the remaining two tested at 28 days. Four (4) specimens shall be taken for every 100 cubic yards, or fraction thereof, for each mix design placed that day, and tested for flexural strength, when directed by the Engineer, in accordance with ASTM C 31 and ASTM C 78. The first two shall be tested at 7 days and the remaining two tested at 28 days. The 7-day test will be used as an early indication of developing strength, and the 28-day test to ensure that the compressive strength requirement has been met and accepted. The minimum compressive strengths are noted in Section 03 31 00 Concrete. Each time a set of specimens is taken for testing, the slump will be determined in accordance with ASTM Method C143 and the air content in accordance with ASTM Method C173 or C231.

### **3.12 ACCEPTANCE REQUIREMENTS**

- A. For concrete pavement, concrete mixes shall be formulated to produce concrete that meets the minimum compressive and flexural strength as shown in this section.
- B. If the test specimens fall below the required compressive strength, the Engineer has the right to have the concrete removed and replaced at no additional cost to the Owner.

**END OF SECTION**

## **SECTION 32 16 13**

### **CONCRETE CURBS, GUTTERS, SIDEWALKS AND DRIVEWAYS**

#### **PART 1 DESCRIPTION**

##### **A. Scope**

1. This item includes curb, gutter, combined curb and gutter, sidewalks and/or driveways, with or without reinforcing steel composed of Portland cement concrete constructed on approved subgrade, foundation material or finished surface in accordance with the lines and grades established by the ENGINEER and in conformance with the details shown on the plans.
2. As used in this item, the work "curb" refers to concrete curb, concrete gutter and combined concrete curb and gutter.

##### **B. Related Sections**

SECTION 03 31 00 - Concrete

#### **PART 2 PRODUCTS**

- A. Concrete used in conventionally formed and extruded construction shall meet the requirements of Specification 03 31 00, Concrete.
- B. Reinforcing steel, if required, shall conform to the requirements of Specification 03 31 00, Concrete.
- C. Membrane curing materials shall meet the requirements of Specification 03 31 00, Concrete.

#### **PART 3 EXECUTION**

##### **A. General**

1. All concrete placed under this item shall contain 7% +/- 1-1/2% entrained air. The completed work shall be cured for a period of not less than 72 hours in accordance with the requirements Specification 03 31 00, Concrete.
2. Wheelchair ramps shall be provided as shown in the plans and shall meet the requirements of the Texas Architectural Barriers Act. See drawings for additional details.

##### **B. Conventionally Formed Construction**

1. The subgrade, foundation, or pavement surface shall be shaped to the line, grade and cross-section and if considered necessary by the ENGINEER, had tamped and sprinkled. If dry, the subgrade or foundation material shall be sprinkled lightly immediately before concrete is deposited thereon.
2. Outside forms shall be of wood or metal, of a section satisfactory to the ENGINEER, straight, free of warp and of a depth equal to the depth required. They shall be securely staked to line and grade, and maintained in a true position during the depositing of concrete. Inside forms for curbs shall be of approved material, shall be of such design as to provide the curb required and shall be rigidly attached to the outside forms.

3. The reinforcing steel, if required, shall be placed in the position shown by the plans. Care shall be exercised to keep all steel in its proper location.
4. After the concrete has been struck off and after it has become sufficiently set, the exposed surfaces shall be thoroughly worked with a wooden float. The exposed edges shall be rounded by the use of an edging tool to the radius indicated on the plans. Unless otherwise specified on the plans, when the concrete has become sufficiently set, the inside form for curbs shall be carefully removed and the surface shall be plastered with a mortar consisting of one part of Portland cement and two parts of fine aggregate. The mortar shall be applied with a template made to conform to the dimensions as shown on the plans. All exposed surfaces shall be brushed to a smooth and uniform surface.
5. Sidewalks shall be constructed in sections of the lengths shown on the plans. Unless otherwise provided by the plans, no section shall be of a length less than 8 feet. Any section less than 8 feet shall be removed by the CONTRACTOR at CONTRACTOR's expense. The different sections shall be separated by a premolded or board joint of the thickness shown on the plans, placed vertically and at right angles to the longitudinal axis of the sidewalk. Where the sidewalks or driveways abut a curb or retaining wall, approved expansion material shall be placed along their entire length. Similar expansion material shall be placed around all obstructions protruding through sidewalks or driveways. Sidewalks shall be marked into separate sections, each 4 feet in length, by the use of approved jointing tools.
6. Curbs, gutters and curb and gutters shall be placed in sections of 50 foot maximum length unless otherwise shown on the plans. Joints shall be constructed at such locations and of the type as directed and specified on the plans.

C. Extruded Construction

1. The concrete shall be placed by an extrusion machine approved by the ENGINEER. When placement is directly on subgrade or foundation materials the foundation shall be hand tamped and sprinkled if considered necessary by the ENGINEER. If the concrete is placed directly on the surface material or pavement, such surface shall be thoroughly cleaned. If required by plan details, the cleaned surface shall then be coated with an approved or other coating as specified at the rate of application shown.
2. The line shall be maintained from a guideline set by the CONTRACTOR. The outline shall strictly conform to the details shown on the plans. The forming tube of the extrusion machine shall be readily adjustable vertically, during the forward motion of the machine to provide variable heights necessary to conform to the established grade line. To provide a continued check on the grade, a pointer or gauge shall be attached to the machine in such a manner that a comparison can be made between the extruded work and the guideline. Other methods may be used if approved by the ENGINEER.
3. The mix shall be fed into the machine in such a manner and at such consistency that the finished work will present a well compacted mass with a surface free from voids and honeycomb and true to the established shape, line and grade.
4. Any additional surface finishing specified and/or required shall be performed immediately after extrusion. Joints shall be constructed at such location as directed by the ENGINEER and to the details shown on the plans.
5. When sidewalks are to be placed adjacent to a curb or a curb and gutter, the sidewalk and curb or curb and gutter may be placed monolithically in one pass of the machine, provided the work is satisfactory to the ENGINEER.

D. Measurement

1. Work and accepted material as prescribed by this item for concrete curb, concrete gutter or concrete curb and gutter will be measured by the linear foot, complete in place.
2. Work and accepted material as prescribed by this item for concrete sidewalk shall be measured by the square yard of surface area, complete in place, as indicated on the plans.
3. Work and accepted material as prescribed by this item for concrete driveway, shall be measured by the square yard of surface area, complete in place.

E. Payment

The work performed and the materials furnished as prescribed by this item and measured as provided under measurement will be paid for at the unit price bid for "Concrete Curb", "Concrete Gutter" of the type indicated on the plans or for "Concrete Sidewalks" of the width when indicated on the plans, or "Concrete Driveways". The price for each item shall be full compensation for cleaning and coating the base; furnishing and applying all water, mortar, adhesives or other material, including reinforcing steel and dowel bars, if required; for furnishing, loading and unloading, storing, hauling and handling all ingredients including all freight and royalty involved; for mixing, placing, finishing, sawing, cleaning and sealing joints and curing all concrete; for furnishing all materials for sealing joints and placing joints and joint filler material in proper position; and for all manipulations, labor, equipment, appliances, tools, traffic provisions and incidentals necessary to complete the work.

**END OF SECTION**

## **SECTION 32 92 13**

### **HYDRO MULCH SEEDING**

#### **PART 1 GENERAL**

##### **1.01 SCOPE**

- A. The Work covered by this Section consists of furnishing all plant, labor, materials, equipment, supplies, supervision, and tools, and performing all Work necessary for top-soiling, smoothing, seeding, fertilizing, watering, maintenance, and clean-up, all in accordance with the Drawings and Specifications.
- B. The hydro mulch seeding operations, together with all other necessary related Work, shall conform to the requirements specified in this Section. Hydro mulch disturbed areas, as directed by ENGINEER.

#### **PART 2 PRODUCTS**

##### **2.01 MATERIALS**

- A. Seed: All seed must meet the requirements of U.S. Department of Agriculture (“USDA”) Rules and Regulations as set forth in Federal Seed Act and Texas Seed Law. Type of seed, purity and germination requirements, rate of application and planting dates are as follows:

	<b>TYPE</b>	<b>APPLICATION RATE POUNDS PER ACRE</b>	<b>PLANTING DATE</b>
1.	Hulled Common Bermuda Grass 98/88	40	Jan. 1 to April 15
	Unhulled Common Bermuda Grass 98/88	40	
	Annual Rye Grass (Gulf)	75	
2.	Hulled Common Bermuda Grass 98/88	75	April 15 to Oct. 1
3.	Hulled Common Bermuda Grass 98/88	50	Oct. 1 to Jan. 3
	Unhulled Common Bermuda Grass 98/88	50	
	Annual Rye Grass (Gulf)	50	

- B. Dry Application – with prior approval of ENGINEER:
  - 1. Seed Bed Preparation:
    - i. Disk three inches (3”) to four inches (4”) deep.

- ii. Rake or harrow.
- 2. Seeding:
  - i. Plant seed with a broadcast seeder or a Culti-packer seeder. Plant grass seed no deeper than one-quarter-inch (1/4") and the distance between rows twelve inches (12") or less. Distribute seed evenly.
  - ii. Roll the planted seedbed with a Culti-packer immediately after seeding and prior to applying mulch cover.
  - iii. Seed may be broadcast by hand for small areas or areas inaccessible to seeding equipment, as approved by ENGINEER. Areas seeded by hand shall be rolled or lightly compacted, if possible.
- C. Fertilizer:
  - 1. Fertilizer shall be water soluble with analysis of 10% nitrogen, 20% percent phosphoric acid and 10% potash.
  - 2. Rate of application shall be 750 pounds per acre except during the period of April 15 through September 1, when the rate shall be reduced to 600 pounds per acre.
- D. Mulch:
  - 1. Mulch shall be virgin wood cellulose fiber made from whole wood chips. Within the fiber mulch material at least 20% of the fibers will be 10.7 mm in length and 0.27 mm in diameter.
  - 2. Rate of application shall be 2,000 pounds per acre. Soil stabilizers shall be Terra Type III, (or approved equal) and shall be applied at a rate of forty (40) pounds per acre on the side slopes and Terra Tact I (or approved equal) shall be applied at a rate of forty (40) pounds per acre in the flatter upper portions of the channel areas.

## **PART 3 EXECUTION**

### **3.01 MAINTENANCE**

- A. The hydro mulch seeding shall be adequately watered until established. Any areas damaged by erosion or areas that do not have an acceptable turfing shall be redone to the satisfaction of ENGINEER.

## **PART 4 MEASUREMENT AND PAYMENT**

### **4.01 MEASUREMENT**

- A. **Lump Sum Contracts:** No measurement of the Work performed will be made.

### **4.02 PAYMENT**

- A. Lump Sum Contracts: No separate payment will be made for Work performed under these Specifications. The cost shall be included in the total lump sum bid price.
- B. Final Payment: Payment may be held until a healthy stand of grass is established over at least 70% of any previously disturbed area.

**END OF SECTION**

## **SECTION 32 92 23**

### **SODDING**

#### **PART 1 GENERAL**

##### **1.01 SCOPE**

- A. The Work covered by this Section consists of furnishing all plant, labor, materials, equipment, supplies, supervision, and tools, and performing all Work necessary for topsoiling, smoothing, sodding, fertilizing, watering, maintenance, and clean-up of the Project, all in accordance with the Drawings and Specifications. The sodding operations, together with all other necessary related Work, shall conform to the requirements specified in this Section.

##### **1.02 SUBMITTALS**

- A. CONTRACTOR shall submit the following information for sod to be planted:
  - 1. Nursery where sod is to be purchased.
  - 2. Size of sod pieces, and type of grass included.
  - 3. Nursery recommended planting technique.
  - 4. Required sod care from planting through maturity for survival and growth potential of sod planted. Provide five (5) bound sets of care instructions.

#### **PART 2 PRODUCTS**

##### **2.01 SOD**

- A. All sod must meet the requirements of U.S. Department of Agriculture ("USDA") Rules and Regulations. The sod must be free of grub worms and any other organisms that will impair growth of the grass.

##### **2.02 FERTILIZER**

- A. Fertilizer shall be placed when the sod is laid in accordance with nursery instructions.
- B. Fertilizer shall be water soluble with analysis of 10% nitrogen, 20% phosphoric acid and 10% potash, unless recommended differently by the nursery.
- C. Rate of application shall be 750 pounds per acre except during the period of April 15 through September 1, when the rate shall be reduced to 600 pounds per acre.

#### **PART 3 EXECUTION**

##### **3.01 GENERAL**

- A. CONTRACTOR shall complete the construction of the facilities shown on the Drawings.
- B. Within two (2) weeks, if weather permits, the site shall be graded and leveled to allow sod planting to begin.



### **3.02 PREPARATION**

- A. A minimum of four inches (4") of bank sand shall be placed on the backfill.
- B. Mix the existing soil with the bank sand to a depth of eight inches (8") using a roto-tiller or similar device that turns over and mixes the soil.
- C. Grade to site to match the surrounding terrain.

### **3.03 PLACEMENT**

- A. Place sod so that the sodded area is completely covered. "Sprigging" of sod is not allowed.

### **3.04 CLEAN UP**

- A. Once the sodding is complete, CONTRACTOR shall clean the streets to the satisfaction of OWNER and ENGINEER.

### **3.05 DISPOSAL**

- A. Dispose of extra soil or unusable grass off-site at a suitable disposal site. Retain trip tickets for Field Project Representative review if requested.

### **3.06 MAINTENANCE**

- A. General: The sod shall be adequately watered until established. Private water supplies next to the Project (if any) shall not be used to water the sod. If necessary, haul water to the Site by truck. If CONTRACTOR plans to use a public water supply fire hydrant to obtain water, CONTRACTOR shall contact the operator of that water supply to rent a meter, if required, and to pay all water bills that may result.
- B. Guarantee:
  - 1. 90-Day Guarantee: CONTRACTOR will be required to guarantee survival of all sod for ninety (90) days after planting. This guarantee includes watering the sod if required due to low rainfall during the 90-day period. Any sod that does not appear completely healthy in the opinion of OWNER or ENGINEER will be replaced during the guarantee period with new sod at no cost to OWNER.
  - 2. One-Year Warranty: CONTRACTOR is required to warranty sodded area against settlement and erosion for a period of one (1) year, even if the grass dies after the 90-day guarantee period.
- C. Repair of Damage:
  - 1. Placement of Sand During the One-Year Warranty Period:
    - i. During the warranty period, upon request by ENGINEER, CONTRACTOR shall "sand-in" any sodded areas that have settled. Such "sanding-in" will be at no additional cost to OWNER.
  - 2. Placement of Sand Thirty (30) Days Before the End of One-Year Warranty Period:
    - i. Whether ENGINEER has previously requested "sanding in" of the sod or not, at thirty (30) days prior to the expiration of the one-year project warranty, CONTRACTOR shall "sand-in" any sodded areas that have settled. Such "sanding-in" will be at no additional cost to OWNER.

3. Repair of Sod at End of One-Year Warranty Period.
  - i. Any areas damaged by erosion, or settlement, during the Project one-year warranty period shall be redone to the satisfaction of OWNER or ENGINEER.

#### **PART 4 MEASUREMENT AND PAYMENT**

##### **4.01 MEASUREMENT**

- A. The unit of measurement for all Work performed and materials furnished as described herein, will not be made. Area is indicated on the bid form and on the Drawings and as described herein, unless otherwise directed in writing by ENGINEER.

##### **4.02 PAYMENT**

- A. No separate payment will be made for Work performed under this Section. The cost shall be included in the cost of related items in the Bid Proposal.

**END OF SECTION**