TBG

Project Manual
Contract Documents + Technical Specifications

For:

Pomona – East Mustang Bayou Landscape

Sitework, Landscape & Irrigation
TBG Project #: H24147

A Project by:

Brazoria County Municipal Utility District No. 40
c/o ABHR
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Suite 2600
Houston, TX 77027

&

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Prepared By:
TBG Partners
Date: August 27, 2024

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INVITATION TO BIDDERS

Sealed **Electronic** Bids addressed to **Brazoria County MUD 40**, Attention: President, Board of Directors, will be **electronically** received, until **2:00** p.m. Local Time, **September 11, 2024**, and then publicly opened and read at **TBG Partners via Civcast** for "**Pomona East Mustang Bayou Landscape (Job No. H24147) for, Brazoria** County, Texas" You may view the public opening of sealed Bids via Microsoft Teams. To join via Microsoft Teams:

Teams Meeting (to view shared screen and documents):
https://teams.microsoft.com/l/meetup-join/19%3ameeting_ZDJiNTJkYzQtYTM4OC00MjlkLTgwZDAtMjIzODEzNzExODBh%40thread.v2/0?context=%7b%22Tid%22%3a%2299164972-c7a3-4633-af23-3363691c40aa%22%2c%22Oid%22%3a%22953e7739-61f4-4fd7-82aa-65301488bc01%22%7d

Meeting ID: 240 354 796 782
Passcode: EEi4hV

Teleconference: 1-832-791-3487 (toll)
Conference ID: 706 896 982#

Scope of Work of the Contract Documents includes the following: **Sitework, Landscape & Irrigation**

Bids received after the closing time will not be considered. A **NON-MANDATORY** pre-bid conference will be held **remotely** on **September 4, 2024**, at **2:00** p.m. Local Time, at **TBG Partners via Microsoft Teams**. Attendance by each prospective bidder or its representative at the pre-bid conference is **NOT MANDATORY**, but highly recommended.

Teams Meeting (to view shared screen and documents):
https://teams.microsoft.com/l/meetup-join/19%3ameeting_M2FmMWNmNTgtMTVmZC00ZWQyLWE5NDUtYTMwM2Y4ZjUwNzlk%40thread.v2/0?context=%7b%22Tid%22%3a%2299164972-c7a3-4633-af23-3363691c40aa%22%2c%22Oid%22%3a%22953e7739-61f4-4fd7-82aa-65301488bc01%22%7d

Meeting ID: 216 637 433 26
Passcode: hTYyiW

Teleconference: 1-832-791-3487 (toll)
Conference ID: 663 950 511#

Each Bid must be accompanied by a Bid Bond or a certified or cashier's check, acceptable to the Owner, in an amount not less than two percent (2%) of the total amount Bid, as a guarantee that the successful bidder will enter into the Contract Documents and execute the Bonds on the forms provided and provide the required insurance certificates within seven (7) days after the date Contract Documents are received by the Contractor. If a certified or cashier's check is provided, the successful bidder shall deliver, at the bid opening address, the *original* certified or cashier's check within twenty-four (24) hours of receipt of the bid opening.

Copies of the bidding documents may be reviewed and obtained from www.CivcastUSA.com: search **Pomona East Mustang Bayou Landscape (Job No. H24147)**. Bidders must register on this website in order to view and/or download specifications, plans, soils report, and environmental reports for this Project. There is NO charge to view or download documents.

Bidder must submit its Bid and Bid Securities in compliance with Owner's Order Adopting Section 49.2731 Electronic Bidding Rules and all Bids and Bid Securities must be submitted through **www.CivcastUSA.com**. Bidder must register on this website to submit a Bid and Bid Security and there is **no charge** to submit Bids and Bid Securities on this website.

By submitting a Bid, Bidder acknowledges and agrees that the Contract Documents may be accepted, executed, or agreed to using an Electronic Signature, as defined by and in accordance with Owner's Electronic Signature Rules for Construction Contracts.

The Owner reserves the right to reject any or all Bids and to waive all defects and irregularities in bidding or bidding process except time of submitting a Bid. The Successful Bidder, if any, will be the responsible Bidder which in the Board's judgment will be most advantageous to the District and result in the best and most economical completion of the Project.

The requirements of Subchapter J, Chapter 552, Government Code, may apply to this Bid and the Contractor agrees that the Contract Documents can be terminated if the Contractor knowingly or intentionally fails to comply with a requirement of that subchapter.

SECTION 00 2113

INSTRUCTIONS TO BIDDERS

1. PREPARATION OF BIDS. Unless otherwise directed in the Invitation to Bidders, each Bid must be submitted on the bid forms provided or on photocopies of the forms, in conformity with the requirements of the Invitation to Bidders, these Instructions to Bidders ("Instructions"), and the instructions printed on the bid form. In addition, if submitting a paper Bid, the Bid must be submitted in duplicate.

All blanks on the bid form must be completed and no change shall be made on the bid form or any other of the Contract Documents. All amounts must be in figures, with amounts extended and totaled. If minimum unit prices have been established for certain items, the minimum unit prices will be shown on the bid form. ***See Paragraph 8 of these Instructions*.** If the bidder chooses not to bid on optional items (if any), "No Bid" must be entered in the bid space. Any Bid may be rejected if it contains any omission, erasure, alteration, addition, irregularity of any kind, or items not called for; if it does not submit prices for each of the items in the bid form; if it is not signed by the bidder; if it is unbalanced; or if it in any manner, fails to conform to the conditions of the Invitation to Bidders and these Instructions. An "unbalanced" Bid means a Bid containing unit prices that are significantly less than cost for some items and significantly more than cost for others. This may be evidenced by submission of unit price Bid items where the cost is significantly higher/lower than the cost of the same Bid items submitted by other Bidders on the same Project.

The bidder must sign its Bid. If the Bid is made by a partnership or corporation, the name and address of the partnership or corporation must be shown together with the names and addresses of the partners or officers. If the Bid is made by an individual, it must be executed by that person; if made by a partnership, it must be executed by one of the partners (and if by a limited partnership, then executed by the general partner); or if made by a corporation, it must be executed in the corporate name by the president or a vice-president (or other corporate officer accompanied by evidence of authority to sign) and the corporate seal must be affixed and attested by the secretary or assistant secretary of the corporation. The corporate address and state of incorporation shall be shown below the signature.

When applicable, evidence of authority to conduct business as an out-of-state corporation in the State of Texas must be provided in accordance with the paragraph entitled QUALIFICATION OF BIDDERS. State contractor license number, if any, must also be shown.

The Bid and the Bid Security must be sealed and must identify the contents (i.e., Bid or Bid Security), the bidder's name, and the job name and number, and be addressed to the Owner as prescribed in the Invitation to Bidders.

2. CONTRACT DOCUMENTS. The Contract Documents are complementary and must be read together as a whole; what is called for by one is binding as if called for by all.

Bidders desiring further information or further interpretation of any part of the Contract Documents are hereby obligated to submit a written request online to the www.CivcastUSA.com system for such information to Landscape Architect not less than **three (3) calendar days** before the Bid opening. If appropriate, answers to these requests will be given, in writing, to all bidders as addenda to the Contract Documents, and when each addendum is issued it becomes a part of the Contract Documents. No explanation or interpretation of the Contract Documents, other than written addenda is binding.

Should a bidder find discrepancies or errors in or omissions from the Contract Documents or should the bidder be in doubt as to any meaning, the bidder is hereby obligated to notify Landscape Architect in writing. It is the responsibility of each bidder to determine if it has received all addenda, complete files of which will be maintained at the Landscape Architect's office and the office designated to receive the Bids, if any.

Each bidder must inform itself fully of the construction and labor conditions under which the Work will be performed and will be presumed to have inspected the Site and to have read and to be thoroughly familiar with the Contract Documents. Failure to do so will not relieve the successful bidder of its obligation to furnish all materials and labor necessary to carry out the requirements of the Contract Documents and to complete the Work for the consideration in its Bid.

3. PRE-BID CONFERENCE. A pre-bid conference among Owner, Landscape Architect, prospective bidders, and others will be held to discuss the scope of the Work and to answer questions concerning the Work. No addendum will be issued at this conference, but an addendum will be issued afterwards, if necessary, to answer questions. The pre-bid conference will be held at the place and time stated in the Invitation to Bidders or as modified by written addenda.

4. BID SECURITY. Each Bid must be accompanied by a bid bond or a certified or cashier's check, acceptable to the Owner, in an amount not less than two (2) percent of the total amount bid (the "Bid Security"), as a guarantee that the successful bidder will enter into the Contract and execute the payment and performance bonds on the forms provided and provide the required insurance certificates within seven (7) days after the date Contract Documents are received by the successful bidder. Bid Securities will be returned to all but the three (3) most qualified, responsible bidders within three (3) days after opening of Bids, and the latter's Bid Securities will be returned after complete execution of the Contract Documents. If the successful bidder does not enter into the Contract after notice of award, then the bidder's Bid Security will be forfeited and will be retained by Owner. If the award of the Contract to the successful bidder is canceled or not executed for any reason, the Owner may accept the next lowest bid and proceed with the next-lowest successful bidder.

5. BONDS. The successful bidder must furnish a performance bond and a payment bond each in the sum of 100 percent of the Contract Price. The successful bidder must also provide a one-year (1) Maintenance Bond for one hundred (100) percent of the cost of the construction of the improvements that will be owned by Brazoria County MUD 40. The Bonds must be in the form prescribed by the Contract Documents except as required otherwise by Laws and Regulations. The Bonds must be from a surety company holding a permit from the State of Texas to act as surety. Unless otherwise specified, the cost of proving Bonds must be included in the bidders total bid amount. The surety company must have a minimum Best Key Rating of "B+" or better. The surety company, the agency and agent issuing the Bonds must be authorized to issue Bonds in Texas in an amount equal to the total Contract Price and such authorization must be recorded in the files of the Texas Department of Insurance. The person executing the Bonds must be a licensed Texas local recording agent and such licensing must be recorded in the files of the Texas Department of Insurance. All Bonds signed by an agent must be accompanied by a certified copy of the agent's authority to act. The Bonds must be executed by a duly appointed representative of the surety company licensed by the State of Texas as a General Lines Agent and such licensing must be recorded in the files of the Texas Department of Insurance. If the surety company does not have such a rating due to the length of time it has existed, the surety company must be eligible to participate in the surety bond guarantee program of the Small Business Administration and must be an approved surety listed in the current **U.S. Department of Treasury Circular 570**, and must meet all of the rules and regulations of the Treasury Department with respect to performance and payment bonds for federal jobs, including specifically the rules related to underwriting limitation. For contracts over $100,000, the surety must also hold a certificate of authority from the United States Secretary of Treasury to qualify as a surety on obligations permitted or required under federal law, or have obtained reinsurance for any liability in excess of $1,000,000 from a reinsurer that is authorized and admitted as a reinsurer in the State of Texas and is the holder of a certificate of authority from the United States Secretary of Treasury to qualify as a surety or reinsurer on obligations permitted or required under federal law. If bidder's proposed surety company, agency or agents do not meet the requirements herein, then Owner may refrain from considering the bidder for Contract award and Owner may require bidder to forfeit its Bid Security.

It is further agreed that the successful bidder will execute the Bonds required for the satisfactory performance of the Work, the fulfillment of any guarantees required, and the prompt payment to all persons supplying labor and materials in the prosecution of the Work, in accordance with the Contract Documents and on the forms provided for this purpose. It is agreed that this Contract is not in effect until payment and

performance bonds are furnished and approved by Owner. Upon increase of the Contract Price authorized by Change Order, Contractor must immediately provide revised Bonds for such increased Contract Price. Contractor's failure to provide compliant Bonds may be grounds for immediate termination regardless of whether the Contractor has started the Work on the Project.

If the surety on any Bond furnished by Contractor is declared bankrupt or becomes insolvent or its right to do business is terminated in any state where any part of the Project is located or it ceases to meet the requirements herein Contractor must promptly notify Owner; Developer, if there is a Special Conditions Part B of the Contract; and Landscape Architect and must, within ten (10) calendar days after the event giving rise to such notification, provide another Bond and surety to fulfill the required obligations.

6. DELIVERY OF BIDS. It is each bidder's responsibility to deliver its Bid and Bid Security as stated in the Invitation to Bidders before the closing time. The fact that a Bid and Bid Security were dispatched will not be considered. The Bid and Bid Security must be timely delivered to be considered.

7. "OR EQUAL" SUBMISSIONS. Where materials or equipment are specified by a trade or brand name, it is not the intention of the Owner to discriminate against an equal product of another manufacturer, but to set a definite standard of quality or performance. In preparing its proposal, each bidder is expected to include in its base Bid the cost of the item so specified. However, in certain Technical Specification sections, manufacturers are listed followed by "or equal". In certain other Technical Specification sections, manufacturers are listed with "or equal" not included. In those items where "or equal" is not included, it is hereby added and understood to be included, even though not specifically stated in each Technical Specification. If a bidder chooses to submit a suggested "or equal" product in lieu of a product by one of the named manufacturers, Owner will evaluate the item to determine if it is an "equal". The bidder is responsible for providing all data required to evaluate an item submitted as a suggested "or equal." Owner's decision on whether a suggested manufacturer is an "equal" is final. No claims for additional cost or time delay, etc. will be accepted if a suggested manufacturer is submitted by bidder as an "equal" and Owner decides the item is not "equal".

Bidder must submit its list of suggested "or equal" items at time of Bid submission. No additional suggested "or equal" items will be considered after bid opening.

8. MINIMUM UNIT PRICE ITEMS. If the approximate quantity and a minimum unit price have been established for items in the bid form, the bidder may not bid a unit price less than the minimum value; however, it may bid an amount greater than the minimum unit price. If no entry is made in the spaces provided, the minimum unit prices shown apply.

9. EXTRA UNIT PRICE ITEMS. Extra Unit Price Items are included to facilitate payment for changes and alterations that may be required to complete the Work. The Work, as provided by the Contract Documents, is described in bid items other than Extra Unit Price Items. When additional Work covered by Extra Unit Price Items is performed, payment will be based on the quantity constructed and the unit prices entered in the Bid.

10. TIME FOR COMPLETION. Contractor will **not** be allowed time extensions that are due to (i) inclement weather except for Force Majeure events as defined under **Section 1.01 of the General Conditions of the Contract**; (ii) non-availability of equipment or material, when the principal units of Work and tasks on the critical path are not in progress or are not delayed by the event of delay, interference, disruption, or hindrance; (iii) when at least seven (7) hours of available working time remain out of the working day; (iv) while materials are drying and it is possible for the Contractor to enclose the area and use drying devices; (v) when an event of delay, interference, disruption, or hindrance occurs on a day other than a working day or other day when the Contractor had not originally planned to work; (vi) when an event of delay, interference, disruption, or hindrance occurs after the expiration of the time for completion; (vii) to the extent the Contractor could have anticipated or alleviated the impact of the event of delay, interference, disruption, or hindrance through reasonable efforts; (viii) when events of concurrent delay overlap the claimed delay; and/or (ix) when an extension of time is precluded by any provision of the Contract Documents.

11. QUALIFICATION OF BIDDERS. The apparent most qualified, responsible bidder must submit to Owner, with its Bid, either (i) a fully completed contractor's statement of qualification or (ii) a written statement that the most recently submitted contractor's statement of qualification is accurate, which statement of qualification must be considered in the award of the Contract. Failure to accurately complete the contractor's statement of qualification or to timely submit the statement of qualification will, at Owner's option, disqualify the bidder from consideration in the award of the Contract. The form of the Contractor's statement of qualification is available from Landscape Architect. Owner may reject, at Owner's sole discretion, a bidder's statement of qualification if the bidder's statement of qualification is not on the form provided. Evidence of out-of-state corporation to conduct business in the state in which the Work is to be performed, along with state contractor license number, must also be provided and is a consideration in the award of the Contract.

12. MODIFICATION AND WITHDRAWAL OF BIDS. Bids may be modified or withdrawn by an appropriate document duly executed (in the manner that a Bid must be executed) and delivered in the same manner as Bids were submitted at any time prior to the opening of Bids. If, within twenty-four (24) hours after Bids are opened, any bidder files a duly signed, written notice with Owner and promptly thereafter demonstrates to the reasonable satisfaction of Owner that there was a material and substantial mistake in the preparation of its Bid despite the exercise of ordinary care, that bidder may withdraw its Bid and the Bid Security will be returned.

13. HOUSE BILL 1295. Provision of Texas Ethics Commission Form 1295 ("TEC Form 1295") pursuant to **Texas Government Code § 2252.908** (the "Interested Party Disclosure Act" or the "Act"): Unless bidder is exempt from such requirements pursuant to **Texas Government Code Section 2252.908(c)(4)**, the Owner may not award the Contract to a bidder unless the bidder has provided to the Owner a completed and signed TEC Form 1295 which has been assigned a certificate number by the Texas Ethics Commission (the "TEC"). Pursuant to the rules prescribed by the TEC, the TEC Form 1295 must be completed online through the TEC's website, assigned a certificate number, printed, signed, and provided to the Owner. The TEC Form 1295 may accompany the bid or may be submitted separately but must be provided to the Owner prior to the award of the Contract. For purposes of completing the TEC Form 1295, the entity's name is Brazoria County MUD 40; the contract ID number is H23070; and the description of goods and services is Pomona Kirby Drive Landscape. Neither the Owner nor its consultants have the ability to verify all of Contractor's information included in a TEC Form 1295, and neither have an obligation nor undertake responsibility for advising any bidder with respect to the proper completion of the TEC Form 1295. **ALL BIDDERS MUST SUBMIT THEIR TEC FORM 1295 WITH THEIR BID.**

14. AWARD OF CONTRACT. Owner reserves the right to reject any or all Bids, including without limitation the right to reject any or all nonconforming, non-responsive, unbalanced or conditional Bids and to reject the Bid of any bidder if Owner believes that it would not be in the best interest of the Project to make award to that bidder, whether because the Bid is not responsive or the bidder is unqualified or of doubtful financial ability or fails to meet any other pertinent standard or criteria of Owner. Owner also reserves the right to waive all informalities and defects in bidding, except time of submitting a Bid. Discrepancies between the multiplication of units and unit prices in a Bid will be resolved in favor of the unit prices. Discrepancies between the indicated sum of any column of figures and the correct sum thereof will be resolved in favor of the correct sum if the correct sum is evident from the face of the Bid.

In evaluating Bids, Owner will consider, among other things, the qualifications of bidders, whether or not the Bids comply with the prescribed requirements, and such substitutions, alternates, unit prices and other data, as may be requested in the bid form or prior to the Notice of Award. Alternate bid items will not be considered unless requested in the bid form.

Owner may consider the qualifications and experience of subcontractors, suppliers, and other persons and organizations proposed for the Work. Owner also may consider the operating costs, maintenance requirements, performance data and guarantees of major items of materials and equipment proposed for incorporation in the Work.

Owner may conduct such investigations as Owner deems necessary to assist in the evaluation of any Bid and to establish the responsibility, qualifications and financial ability of bidders, proposed subcontractors, suppliers and other persons and organizations to perform and furnish the Work in accordance with the Contract Documents, to Owner's satisfaction.

BY SUBMITTING A BID, EACH BIDDER AUTHORIZES OWNER TO PERFORM ALL INVESTIGATIONS INTO THE BIDDER'S BACKGROUND, CAPABILITIES, PRIOR EXPERIENCE, AND OTHER FACTORS PERTAINING TO BIDDER'S PERFORMANCE OF THE WORK, AS OWNER DEEMS NECESSARY IN ITS SOLE DISCRETION, AND FOR THAT PURPOSE, SUBMISSION OF A BID ACTS AS BIDDER'S SPECIFIC AUTHORIZATION TO PERSONS AND ENTITIES CONTACTED BY OWNER IN CONNECTION WITH SUCH INVESTIGATIONS ("EVALUATING PARTIES") TO PROVIDE OWNER WITH THE INFORMATION REQUESTED BY OWNER AND TO DISCUSS AND EXPRESS OPINIONS CONCERNING BIDDER. FURTHER, BY SUBMISSION OF A BID, BIDDER AGREES TO FULLY AND FOREVER WAIVE AND RELEASE ANY CLAIM (KNOWN OR UNKNOWN) IT HAS OR MAY HAVE AGAINST THE OWNER, LANDSCAPE ARCHITECT, DEVELOPER, THE EVALUATING PARTIES AND THEIR RESPECTIVE ATTORNEYS, EMPLOYEES, CONSULTANTS, REPRESENTATIVES, AND AGENTS ARISING OUT OF OR IN CONNECTION WITH THE: (1) ADMINISTRATION, EVALUATION, OR RECOMMENDATION (OR LACK THEREOF) OF ANY BID; (2) WAIVER OF ANY REQUIREMENTS UNDER THE BID DOCUMENTS OR THE CONTRACT DOCUMENTS; AND (3) ACCEPTANCE OR REJECTION OF ANY BIDS AND AWARD OF THE CONTRACT.

Owner reserves the right to award the Bid, at Owner's discretion, based on the amount of the total base bid (without including "Extra Unit Price Items" or "alternate" bid items) or on the amount of the total amount bid (including "Extra Unit Price Items" or "alternate" bid items), or based on any other combination, means or method determined appropriate by Owner.

If the Contract is to be awarded, it will be awarded to the responsible bidder whose evaluation by Owner indicates that the award will be most advantageous to the Owner and result in the best and most economical completion of the Work.

If the Contract is to be awarded, Owner will give the successful bidder a notice of award within sixty (60) days after the day of the Bid opening. All bidders must honor their Contract Price on their bid form, if the Contract is awarded within the timeframe provided herein. A Notice to Proceed will be issued within a reasonable period after the notice of award.

Within ten (10) calendar days of receipt from the Owner of the notice of award, the successful bidder must submit to the Landscape Architect the payment and performance bonds and all information or other items necessary to complete the Contract Documents, including the required insurance, anticipated construction schedule, and Contractor's safety program. ***See SAFETY under Section 5.20 of the General Conditions of the Contract.*** The successful bidder must return the fully executed Contract Documents to Landscape Architect within ten (10) calendar days of receipt, or Owner may at its sole discretion disqualify the Bid and accept another Bid and the bidder must, at Owner's option, forfeit its Bid Security.

15. TAXES, LICENSES AND FEES. Certain taxes, licenses, fees, and other similar items are part of the cost of the Work, and it is bidder's responsibility to familiarize itself with these costs and to observe and comply with the Laws and Regulations relating to same. The prices, sums, rates, and other charges set forth in the bidder's Bid must cover and include all such costs. Owner is exempt from Texas sales and use taxes pursuant to **Texas Tax Code § 151.309** as a political subdivision of the State of Texas. Owner shall provide Contractor, if requested by Contractor in writing, with a completed **Texas Sales and Use Tax Exemption Certification** as evidence of the applicability of such exemption, as limited by applicable statute. In addition, Contractor, and all subcontractors to Contractor (i) must not include any provision for Texas sales and use taxes with respect to such exempt items in any Bid or the Contract Price, and (ii) must pass on to the Owner cost savings due to the exempt status of such exempt items. Contractor's contracts with all subcontractors to Contractor must include the foregoing provision regarding the exemption from Texas sales and use taxes. Contractor must pay taxes on items that are not exempt.

16. NUMBER OF SIGNED SETS OF DOCUMENTS. Contract documents will be provided in PDF format. Printed copies are at the Contractor's discretion and expense.

17. ELECTRONIC COUNTERPARTS; FORM OF BONDS TO BE PROVIDED TO OWNER. The Contract Documents may be executed and delivered in any number of counterparts, each of which so executed and delivered will be deemed to be an original and all of which will constitute one and the same instrument**.** Electronic Signatures, as defined by and in accordance with the Owner's Order Adopting Electronic Signature Rules for Construction Contracts, will be deemed original signatures for purposes of the Contract Documents and all matters related thereto, with such Electronic Signatures having the same legal effect as physical, wet-ink signatures. Owner; Landscape Architect; Contractor; and Developer, if there is a **Special Conditions of the Contract Part B**, agree that the Contract Documents may be accepted, executed, or agreed to using an Electronic Signature. Any document accepted, executed, or agreed to in conformity with such Order is binding on Owner, Landscape Architect, Contractor, and Developer, if applicable, the same as if it were physically executed, and Owner, Landscape Architect, Contractor, and Developer, if applicable, each hereby consent to the use of any third-party electronic signature capture service provider that may be chosen by Owner or Landscape Architect. Notwithstanding the foregoing, all Bonds must be provided to Owner either as a physical, wet-ink original, or in the form of a certified and complete copy of such Bond, which may be provided to Owner in electronic form, such as a .pdf file.

18. INSURANCE. *See section entitled "INSURANCE REQUIREMENTS" attached to and incorporated into the* ***General Conditions of the Contract as Attachment A****.*

19. SOILS REPORT. If a soils investigation has been made for this project, the soils report and log of borings is available for bidder's information only. The report is not a warranty of subsurface conditions, nor is it a part of the Contract Documents. Bidders are expected to examine the Site and such reports and then decide for themselves the soils or conditions that may be encountered.

Owner, Landscape Architect, and Developer, if applicable, disclaim any responsibility for the accuracy, true location and extent of the surface and subsurface investigations that have been prepared by others. Owner, Landscape Architect, and Developer, if applicable, further disclaim responsibility for interpretation of that data by bidder, *e.g.,* projecting soil-bearing values, rock profiles, soil stability and the presence, level and extent of underground water or other underground facilities or utilities.

20. LABOR CLASSIFICATION AND MINIMUM WAGE SCALE.

(A) General: **Chapter 2258 of the Texas Government Code** provides that any political subdivision of the State of Texas shall ascertain the general prevailing wage rate received by the classes of workers employed on projects similar to this Project and shall specify in the call for Bids and in the Contract Documents the minimum wage rates which must be paid for each type of worker. This statute further provides that the Contractor or subcontractors must pay, as penalty to Owner Sixty Dollars ($60.00) for each worker employed for each calendar day or part of the day that the worker is paid less than the wage rates stipulated in the Contract. Owner is authorized to withhold from the Contractor the amount of this penalty from any payment due under the Contract Documents.

The statute likewise requires that the Contractor and subcontractors keep an accurate record of the names and occupations of all persons employed by them on the construction of the Project and to show the accrual per diem wages paid to each worker. These records are open to the inspection of Owner.

(B) The minimum wage rates that apply to this Contract are specified in **Attachment B to the General Conditions of the Contract**. Contractor and subcontractors must review and ascertain such wage rates and pay at least such minimum rates.

21. **LIQUIDATED DAMAGES/ECONOMIC DISINCENTIVE. The Contractor and the Owner agree that time is of the essence of this Contract. The Contractor and the Owner agree that a breach of this Contract by failure to complete the Work in the specified time will cause harm to the Owner, and further agree that the harm the Owner would sustain and the actual measure of damages the**

Owner would incur from the breach are incapable or very difficult of ascertainment. Therefore, the Contractor and the Owner agree that for each and every calendar day the Work or any portion thereof shall remain uncompleted after the expiration of the time limit(s) set in the Contract, or as extended under the provisions of these General Conditions (including, without limitation, due to a delay caused by Contractor's failure to comply with the Contract Documents or due to Owner's termination of Contractor for default under the Contract Documents), Contractor shall be liable to Owner for liquidated damages or economic disincentives under Section 49.271(e) of Texas Water Code, in the amount of $500 for each such calendar day, which sum the parties agree is a reasonable forecast of the damages the Owner will sustain per day that the Work remains uncompleted and in no way constitutes a penalty. The Owner shall have the option to deduct and withhold said amount from any monies that the Owner owes the Contractor or its sureties or to recover such amount from the Contractor or the sureties on the Contractor's bond.

END OF SECTION

SECTION 00 3000

EXHIBIT 1 - TO SECTION 49.2731 ELECTRONIC BIDDING RULES

LANDSCAPE ARCHITECT'S CERTIFICATE:
TEXAS WATER CODE SECTION 49.2731 ELECTRONIC BIDDING RULES COMPLIANCE

I, the undersigned, a duly registered professional landscape architect under the laws of the State of Texas, and authorized representative of TBG Partners, the duly appointed and acting consulting landscape architect for Brazoria County Municipal District 40 ("District") do hereby certify that:

I am familiar with and have examined Texas Water Code Sections 49.273 and 49.2731, the District's Electronic Bidding Rules ("Rules"), and the software under which the District received bids for the following project through electronic transmission: Pomona East Mustang Bayou Landscape

I hereby certify (i) compliance with Texas Water Code Section 49.2731 and the Rules, (ii) that, to the best of my knowledge, said software is designed to assure the identification, security and confidentiality of the bids; and (iii) that electronically submitted bids remain effectively unopened until the proper time.

WITNESS MY HAND AND PROFESSIONAL SEAL this 27th day of August, 2024

_____
Matthew Klein, Registered
Professional Landscape Architect
Registration No. 3190

(SEAL)

SECTION 00 4100

BID FORM

THE PROJECT AND THE PARTIES

1.1TO:

A. Brazoria County MUD No. 40 (Owner)

c/o ABHR
3200 Southwest Freeway Suite 2600
Houston, TX 77027

1.2 FOR:

A. Project: Pomona – East Mustang Bayou Landscape

B. TBG: Project Number: H24147

Manvel, TX 77578

DATE: _____ (BIDDER TO ENTER DATE)

1.3 SUBMITTED BY: (BIDDER TO ENTER NAME AND ADDRESS)

A. Bidders Full Name_____

B. Address_____

C. City, State, Zip_____

1.4 OFFER

A. Having carefully examined the Place of The Work, Standard Agreement, General Conditions, General Requirements, Specifications and Drawings, Addenda, Instructions to Bidders and the Contract Documents prepared by TBG Partners for the construction of the above project and having ascertained all of the conditions affecting the proposed work and having visited the site, we do hereby propose to furnish all supervision, labor, taxes, permits, materials, transportation, services, equipment and incidentals necessary for the construction and proper completion of the entire work called for by the above documents we, the undersigned, hereby offer to enter into a Contract to perform the Work for the Sum of:

01. _____
_____ dollars
($_____), in lawful money of the United States of America.

B. We have included the required security Bid Bond as required by the Instruction to Bidders.

C. All applicable federal taxes are included and State of Texas taxes are included in the Bid Sum.

D. ACCEPTANCE

01. This offer shall be open to acceptance and is irrevocable for sixty days from the bid closing date.

02. If this bid is accepted by Owner within the time period stated above, we will:

a. Execute the Agreement within thirty days of receipt of Notice of Award.
b. Furnish the required bonds within thirty days of receipt of Notice of Award.
c. Commence work within ten days after written Notice to Proceed of this bid.

03. If this bid is accepted within the time stated, and we fail to commence the Work or we fail to provide the required Bond(s), the security deposit shall be forfeited as damages to Owner by reason of our failure, limited in amount to the lesser of the face value of the security deposit or the difference between this bid and the bid upon which a Contract is signed.

04. In the event our bid is not accepted within the time stated above, the required security deposit shall be returned to the undersigned, in accordance with the provisions of the Instructions to Bidders; unless a mutually satisfactory arrangement is made for its retention and validity for an extended period of time.

E. CONTRACT TIME

01. If this Bid is accepted, we will:

a. Complete the Work in _____ calendar days from Notice to Proceed.

F. ADDENDA

01. The following Addenda have been received. The modifications to the Bid Documents noted below have been considered and all costs are included in the Bid Sum.

a. Addendum # _____ Dated _____.
b. Addendum # _____ Dated _____.
c. Addendum # _____ Dated _____.
d. Addendum # _____ Dated _____.
e. Addendum # _____ Dated _____.

G. BID FORM SUPPLEMENTS

01. The following Supplements are attached to this Bid Form and are considered an integral part of this Bid Form:

a. Document 00 4322 - Unit Prices Form: Include a listing of unit prices specifically requested by Contract Documents.
b. Document 00 4336 - Proposed Subcontractors Form: Include the names of all Subcontractors and the portions of the Work they will perform.
c. Document 00 4513 – Contractor’s Statement of Qualifications

H. BID FORM SIGNATURE(S)

The Corporate Seal of

_____

(Bidder - print the full name of your firm)

was hereunto affixed in the presence of:

_____

(Authorized signing officer, Title)

(Seal)

_____

(Authorized signing officer, Title)

I. If the Bid is a joint venture or partnership, add additional forms of execution for each member of the joint venture in the appropriate form or forms as above.

END OF SECTION

SECTION 00 4322

UNIT PRICES FORM

1.1 PARTICULARS

A. The following is the list of unit prices referenced in the bid submitted by:

B. (Bidder) _____

C. To (Owner): Brazoria County MUD No. 40

D. Dated _____ and which is an integral part of the bid form.

E. The following are unit prices for specific portions of the work as listed and are applicable to authorized variations from the contract documents.

01. Refer unit prices on CIVCAST bid form submitted online.

END OF UNIT PRICES FORM

SECTION 00 4336

LIST OF SUB-CONTRACTORS

Contractor shall list the names and addresses of all sub-contractors with whom he intends to enter into Contracts for the execution of portions of the entire Work under consideration, with his Bid Proposal. No substitutions of sub-contractors shall be made without Company's written permission first having been obtained through the Landscape Architect.

Contractor understands that, if he fails to list a sub-contractor for any portion of the Work, he shall be deemed to have agreed to do such Work with his own forces without the employment of sub-contractors, unless he first obtains Company's written approval through the Landscape Architect.

LIST:

Sub-Contractors

NAME:_____

ADDRESS: _____

_____

NAME:_____

ADDRESS: _____

_____

NAME:_____

ADDRESS: _____

_____

NAME:_____

ADDRESS: _____

_____

NAME:_____

ADDRESS: _____

_____

END OF SECTION

SECTION 00 4513

CONTRACTOR STATEMENT OF QUALIFICATIONS FORM
(To Be Provided With BID)

Date of Contractor's Statement: _____

_____
Legal Name of Contractor

- ❑ Individual
- ❑ Partnership
- ❑ Joint Venture
- ❑ Corporation
- ❑ Other _____

Address_____

_____

_____

Telephone: (_____)_____ Fax: (_____)_____

E-mail: _____

Federal Identification Number (E.I. or S.S.): _____

I certify that all information contained in this Contractor's Statement of Qualification is true, correct, and complete.

By:_____

Name:_____

Title:_____

Contractor Information and Experience Questionnaire

Organizational Background

1. Type of Organization (circle one):
   Partnership Corporation Other: _____
2. Date of Organization/Incorporation: _____
3. Dunn & Bradstreet Number: _____
4. Principal place(s) of business: _____
5. Partners/Principals/Owners (owning 10% or more):_____
   _____
   _____
6. Officers:
   President:_____
   Vice President:_____
   Secretary:_____
   Treasurer:_____
7. How many years has the business been operating under its present name? _____

a) Under what other names has the business operated? _____
   _____
   _____

b) If the answer to any of the following questions is "Yes", attach details including a list of creditors amount owed each, amounts repaid, resolution of proceedings, etc.:

   i) Has the business ever defaulted, declared bankruptcy, or undergone reorganization procedures?
   ii) Has a predecessor of the business defaulted, declared bankruptcy, or undergone reorganization procedures? _____
   iii) Are there presently any outstanding claims pending against the business? _____
   iv) Has the business been involved in litigation within the past 5 years or is it currently involved in litigation? _____

Construction Experience

How many years of experience in construction work has the business had?
As a general contractor_____
As a subcontractor_____

1. What types of work does the business normally perform? _____
   _____
   _____

2. Has the business or any officer of partner of the business ever failed to complete a construction contract, forfeited a bid bond/proposal guaranty, had liquidated damages withheld from its total compensation due on a contract, or refused to enter into contract for work awarded to it?

   If yes, attach details, including name of project, contract amount, type of work, name and address of project engineer, contractor, and owner, when where, and why.

3. Has the business or any officer or partner of the business ever been cited or convicted for violation of any OSHA or State safety law/regulation?

   If yes, attach details, including project name, project engineer, owner, when, where, governing agency, and final disposition, of citation or conviction.

4. Attach a list of all projects with construction cost greater that $100,000 that the business has completed within the last 5 years in the local area (beginning with the most current and not to exceed the last ten consecutive jobs). Include the following information:

- Name of Project
- Amount
- Type of Work
- Percentage subcontracted
- Amount subcontracted
- Schedule completion date
- Date completed
- Location (city, county, state)
- Name, address, and telephone number of:
  Project Architect or Engineer
  Contractor (if subcontractor)
  Owner

5. Attach a list of major construction projects the business has in process. Include the following information:

- Name of Project
- Amount
- Type of Work
- Percentage Completed
- Schedule Completion
- Location (city, county, state)
- Name, address, and telephone number of:
- Project Engineer
- Contractor (if subcontractor)
- Owner

6. Provide resumes and list construction experience of the principal individuals of your organization (include not only officers and principals of the organization, but also field superintendents who will oversee the work). Add additional sheets as needed.

Name	Current Position	Years w/Company	Years Experience

7. Attach a list of subcontractors that are anticipated to perform any portion of the work valued at $25,000 of the total bid or more:
   Include the following information:

   - Name
   - Address
   - Work to be done
   - Percentage of Contract
   - Estimated amount of Contract
   - Individuals responsible for work

   REFERENCES

   1. List all banks with which the contractor has done business during the past 5 years. List the current bank first. Add additional sheets as needed.

Bank Name	Address	Contact	Telephone

2. Provide the following information regarding payment, performance, and maintenance bonds:

a) Name and address of surety company: _____

_____

Company File Number: _____

b) Authorized to do business in state? _____

c) Authorized to issue payment, performance, and maintenance bonds in project state? _____

_____

d) Maximum amount of bond authorized to issue: _____

e) Rating (as listed in Best's Key Guide): _____

f) Financial size category (as listed in Best's Key Guide): _____

_____

3. Name and address of agent and agency (company or partnership for which agent works): _____

_____

_____

4. Does agent have appointment from insurance company authorizing agent to sign bonds? _____

_____

5. Attach business financial statements, including most recent income statement and balance sheet. If most recent information available is unaudited, but business has audited statements available for an earlier period, include unaudited as well as audited statements.

Authorization for Verification and Affidavit

State of_____
County of_____

The undersigned, _____, being duly sworn, deposes and says that he/she is _____ of _____ (the "**Contractor**") and declares that:

1. The Contractor's Statement of Qualifications (the "**Contractor's Statement**") is given for the express purpose of inducing the Owner to award the Contractor a contract.

2. Any person, depository, agency, or other entity named in the Contractor's Statement is authorized to supply Owner or its representative with any information necessary to verify statements contained in the Contractor's Questionnaire.

3. The Contractor's Statement is a true and accurate statement as of the date of said Contractor's Questionnaire.

4. The Financial Statements included with the Contractor's Statement are taken from the Contractor's financial records and are true and accurate statement of Contractor's financial condition as of their date.

5. I am authorized to execute this Contractor's Statement on behalf of the Contractor.

By: _____

Name:_____
(print or type)

Sworn and Subscribed before me on this
the _____ day of _____, 20___

_____

Notary Public, State of _____

SECTION 00 5213

CONTRACT

STATE OF TEXAS }

COUNTY OF BRAZORIA }

THIS CONTRACT ("Contract") is made and entered into this _____ day of _____, 2024 by and between Brazoria County MUD No. 40 (the "Owner") c/o Allen Boone Humphries Robinson LLP, 3200 Southwest Freeway, Suite 2600, Houston, 77027 of Harris County, Texas, and _____, _____, of the City of _____, County of ___, and State of _____, hereinafter termed "Contractor."

All capitalized terms used herein shall be given the meanings set forth in the General Conditions of the Contract. TBG PARTNERS shall be referred to herein as the "Landscape Architect."

For and in consideration of the mutual covenants hereinafter set forth, and under the conditions expressed in the Bonds bearing even date herewith, the Contractor and Owner hereby agree as follows:

Contractor shall commence and complete the Work generally described as follows:

_____ for BRAZORIA COUNTY MUD NO. 40,
Brazoria County, Texas,
according to those Plans and Technical Specifications
prepared by Landscape Architect
in the initial Contract Price of $_____

and all Extra Work in connection therewith, under the terms as stated in the Contract Documents, and, at Contractor's own proper cost and expense, to furnish all the materials, supplies, machinery, equipment, tools, superintendence, labor, insurance, and other accessories and services necessary to complete the said Work, in accordance with the conditions and prices stated in the Bid attached hereto and in accordance with the Contract Documents. Contractor represents and warrants to the Owner that it has carefully examined this Contract and all Contract Documents and is thoroughly familiar therewith.

The Contractor hereby agrees to begin work within ten (**10) calendar days** after the written Notice to Proceed has been given by the Landscape Architect. Contractor hereby also agrees to achieve Substantial Completion of the Work within _____ **calendar days** after the date of the written Notice to Proceed and to achieve Final Completion of the Work within _____ **calendar days** after the date of the written Notice to Proceed.

Owner agrees to pay Contractor for completion of the Work in accordance with the Contract Documents for the initial Contract Price of _____ ($_____), plus or minus any increases or decreases to the initial Contract Price as provided by the Contract Documents. Contractor will be paid in current funds for the performance of the Contract in accordance with the Bid submitted therefor, subject to additions and deductions as allowed by the Contract Documents and, if applicable, approved by Change Order under the Contract Documents, and to make payments on account thereof as provided therein.

If included as Special Conditions of the Contract Part B, the Developer shall act as "Owner" for the purposes of all payments.

IN WITNESS WHEREOF, the parties to these presents have executed this Contract in the year and day first above written.

BRAZORIA COUNTY MUD NO. 40
Owner

ATTEST: By:_____

Name:_____

_____ Title:_____

[CONTRACTOR]
Contractor

ATTEST: By:_____

Name:_____

_____ Title:_____

(The following to be executed if Contractor is a corporation)

I, _____, certify that I am the secretary of the corporation named as Contractor herein; that _____, who signed this Contract on behalf of Contractor, was then _____ _____ of said corporation; that said Contract was duly signed for and on behalf of said corporation by authority of its governing body and is within the scope of its corporate powers.

Signed: _____

Corporate Seal

ALL BIDDERS MUST SUBMIT THEIR TEC FORM 1295 WITH THEIR BID. THE OWNER WILL NOT AWARD THE CONTRACT WITHOUT THE COMPLETED TEC FORM 1295 NOTED IN THE INSTRUCTIONS TO BIDDERS.

The requirements of Subchapter J, Chapter 552, Government Code, may apply to this Contract and the Contractor agrees that the Contract can be terminated if the Contractor knowingly or intentionally fails to comply with a requirement of that subchapter.

BOND NO. _____

PAYMENT BOND

STATE OF TEXAS Contract Date _____

COUNTY OF BRAZORIA Date Bond Executed _____

PRINCIPAL _____

SURETY _____

OWNER BRAZORIA COUNTY MUD NO. 40 & POMONA PHASE 6, LLC

PENAL SUM OF BOND (in words and figures) _____,

being 100 percent of the Contract Price.

CONTRACT for Pomona – East Mustang Bayou Landscape for BRAZORIA COUNTY MUD NO. 40, Brazoria County, Texas.

KNOW ALL PERSONS BY THESE PRESENTS, that we, Principal and Surety above named, are held and firmly bound unto Owner, its successors and assigns, in the penal sum of the amount stated above, for the payment of which sum well and truly to be made, we bind ourselves and our respective heirs, executors, administrators, officers, directors, shareholders, partners, successors, and assigns, jointly and severally, firmly by these presents.

WHEREAS, Principal entered into the Contract with Owner, which Contract is expressly incorporated herein for all purposes.

NOW, THEREFORE, THE CONDITIONS OF THIS OBLIGATION IS SUCH, that if Principal shall promptly pay claimants for all labor, subcontracts, materials and specially fabricated materials performed or furnished under or by virtue of the Contract, and duly authorized modifications and normal and usual extras thereto, notice of which modifications to Surety being hereby waived, then this obligation shall be void, otherwise to remain in full force and effect. Should Principal fail to promptly pay claimants for all labor, subcontracts, materials and specially fabricated materials performed or furnished under or by virtue of the Contract, Surety is hereby bound to make such payments on behalf of Principal up to a total aggregate amount equal to the penal sum of the Bond. Labor, subcontracts, materials, and specially fabricated materials shall be construed in accordance with Chapter 2253, Texas Government Code.

PROVIDED, HOWEVER, that Owner having required Principal to furnish this Bond in order to comply with the provisions of Chapter 2253, Texas Government Code, all rights and remedies on this Bond shall inure solely to such claimants and shall be determined in accordance with the provisions, conditions, and limitations of the aforesaid Government Code to the same extent as if they were copied at length herein.

The bound parties have executed this instrument pursuant to authority of their respective governing body, to be effective on the same date of the Contract.

_____ ATTEST

PRINCIPAL

By _____ By _____

Name _____ Name _____

Title _____ Title _____

Address _____

_____ (SEAL)

_____ ATTEST

SURETY

By _____ By _____

Name _____ Name _____

Title _____ Title _____

(SEAL)

Physical Address:

_____

_____

_____

Mailing Address:

_____

_____

_____

Telephone: _____

Local Recording Agent Personal Identification Number:

_____

Agency Name:_____

Agency Address_____

Agency Telephone _____

Surety must attach its original Power of Attorney to this Bond.

CERTIFICATE AS TO CORPORATE PRINCIPAL

I,_____, certify that I am the secretary of the corporation named as Principal in the Bond; that _____, who signed the Bond on behalf of Principal, was then _____ of the corporation; that I know his or her signature, and his or her signature is genuine; and that the Bond was duly signed for and on behalf of the corporation by authority of its governing body.

_____ (Corporate Seal)
Signature of Corporate Secretary

ATTACH POWER OF ATTORNEY

BOND NO. _____

PERFORMANCE BOND

STATE OF TEXAS Contract Date _____

COUNTY OF BRAZORIA Date Bond Executed _____

PRINCIPAL _____

SURETY _____

OWNER BRAZORIA COUNTY MUD NO. 40 & POMONA PHASE 6, LLC

PENAL SUM OF BOND (in words and figures) _____,

being 100 percent of the Contract Price.

CONTRACT for Pomona East Mustang Bayou Landscape for BRAZORIA COUNTY MUD NO. 40, Brazoria County, Texas (the "Contract").

KNOW ALL PERSONS BY THESE PRESENTS, that we, Principal and Surety above named, are held and firmly bound unto Owner, its successors and assigns, in the penal sum of the amount stated above, for the payment of which sum well and truly to be made, we bind ourselves and our respective heirs, executors, administrators, officers, directors, shareholders, partners, successors, and assigns, jointly and severally, firmly by these presents.

WHEREAS, Principal entered into that certain Contract with Owner, which Contract is expressly incorporated herein for all purposes.

NOW, THEREFORE, THE CONDITIONS OF THIS OBLIGATION IS SUCH, that if Principal well and truly performs the work in accordance with the Plans, specifications and any other Contract Documents, during the original term of the Contract and any extensions thereof that may be granted by Owner, with or without notice to Surety, and during the life of any guaranty or warranty required under the Contract, then this obligation is void; otherwise it is to remain in full force and effect. Should the Principal fail to faithfully and strictly perform the work as required by the Contract in all its terms, the Surety will be liable for all damages, losses, expenses and liabilities that the Owner may suffer in consequence thereof.

This Bond is given in compliance with the provisions of Chapter 2253 of the Texas Government Code, as amended, which is incorporated herein by this reference. However, all of the express provisions contained herein and in the Contract are applicable whether or not within the scope of said statute.

Surety hereby agrees, for value received, that no change, extension of time, alteration or addition to the terms of the Contract or to work performed under the Contract, or to the plans, specifications or drawings accompanying the Contract, will in any way affect its obligations on this Bond and it does hereby waive notice of any such change, extension of time, alteration or addition to the terms of the Contract or to the work to be performed thereunder.

The bound parties have executed this instrument pursuant to authority of their respective governing body, to be effective on the same date of the Contract.

_____	ATTEST
PRINCIPAL	
By _____	By _____
Name _____	Name _____
Title _____	Title _____
Address _____	
_____	(SEAL)

_____	ATTEST
SURETY	
By _____	By _____
Name _____	Name _____
Title _____	Title _____

(SEAL)

Physical Address:
_____
_____
_____

Mailing Address:
_____
_____
_____

Telephone: _____

Local Recording Agent Personal Identification Number:
_____

Agency Name:_____

Agency Address_____

Agency Telephone _____

Surety must attach its original Power of Attorney to this Bond.

CERTIFICATE AS TO CORPORATE PRINCIPAL

I,_____, certify that I am the secretary of the corporation named as Principal in the Bond; that _____, who signed the Bond on behalf of Principal, was then _____ of the corporation; that I know his or her signature, and his or her signature is genuine; and that the Bond was duly signed for and on behalf of the corporation by authority of its governing body.

_____ (Corporate Seal)
Signature of Corporate Secretary

ATTACH POWER OF ATTORNEY

BOND NO. _____

MAINTENANCE BOND

STATE OF TEXAS Contract Date _____

COUNTY OF BRAZORIA Date Bond Executed _____

PRINCIPAL _____

SURETY _____

OWNER BRAZORIA COUNTY MUD NO. 40 & POMONA PHASE 6, LLC

PENAL SUM OF BOND (in words and figures) _____,

being 100 percent of the Contract Price.

CONTRACT for Pomona East Mustang Bayou Landscape for BRAZORIA COUNTY MUD NO. 40, Brazoria County, Texas (the "Contract").

KNOW ALL PERSONS BY THESE PRESENTS, that we, Principal and Surety above named, are held and firmly bound unto Owner, its successors and assigns, in the penal sum of the amount stated above, for the payment of which sum well and truly to be made, we bind ourselves and our respective heirs, executors, administrators, officers, directors, shareholders, partners, successors, and assigns, jointly and severally, firmly by these presents.

WHEREAS, Principal entered into that certain Contract with Owner, which Contract is expressly incorporated herein for all purposes.

NOW, THEREFORE, THE CONDITIONS OF THIS OBLIGATION IS SUCH, that if Principal well and truly repair any and all defects in the work occasioned by or resulting from defects in materials furnished by, or workmanship of, the Principal in performing the work covered by the Contract, including any guaranty or warranty required under the Contract, then this obligation is void; otherwise it is to remain in full force and effect. Should the Principal fail to well and truly repair any and all defects in the work occasioned by or resulting from defects in materials furnished by, or workmanship of, the Principal in performing the work as required by the Contract in all its terms, the Surety will be liable for all damages, losses, expenses and liabilities that the Owner may suffer in consequence thereof.

The parties intend this maintenance bond to be a common law bond to be constructed in accordance with Texas law.

Surety hereby agrees, for value received, that no change, extension of time, alteration or addition to the terms of the Contract or to work performed under the Contract, or to the plans, specifications or drawings accompanying the Contract, will in any way affect its obligations on this Bond and it does hereby waive notice of any such change, extension of time, alteration or addition to the terms of the Contract or to the work to be performed thereunder.

The bound parties have executed this instrument pursuant to authority of their respective governing body, to be effective on the same date of the Contract.

_____	ATTEST
PRINCIPAL	
By _____	By _____
Name _____	Name _____
Title _____	Title _____
Address _____	
_____	(SEAL)

_____	ATTEST
SURETY	
By _____	By _____
Name _____	Name _____
Title _____	Title _____

(SEAL)

Physical Address:

_____

_____

_____

Mailing Address:

_____

_____

_____

Telephone: _____

Local Recording Agent Personal Identification Number:

_____

Agency Name:_____

Agency Address_____

Agency Telephone _____

Surety must attach its original Power of Attorney to this Bond.

CERTIFICATE AS TO CORPORATE PRINCIPAL

I, _____, certify that I am the secretary of the corporation named as Principal in the Bond; that _____, who signed the Bond on behalf of Principal, was then _____ of the corporation; that I know his or her signature, and his or her signature is genuine; and that the Bond was duly signed for and on behalf of the corporation by authority of its governing body.

_____ (Corporate Seal)
Signature of Corporate Secretary

ATTACH POWER OF ATTORNEY

TEXAS SALES AND USE TAX EXEMPTION CERTIFICATION

Name of purchaser, firm, or agency	
Address *(Street & number, P.O. box or route number)*	Phone *(Area code and number)*
City, state, ZIP code	

I, the purchaser named above, claim an exemption from payment of sales and use taxes for the purchase of taxable items described below or on the attached order or invoice form:

Seller: _____

Street address: _____ City, state, ZIP code: _____

Description of items to be purchased or on the attached order or invoice:

_____

_____

_____

Purchaser claims this exemption for the following reason:

Texas Tax Code, Section 151.311

_____

_____

I understand that I will be liable for payment of sales or use taxes which may become due for failure to comply with the provisions of the Tax Code: Limited Sales, Excise, and Use Tax Act; Municipal Sales and Use Tax Act; Sales and Use Taxes for Special Purpose Taxing Authorities; County Sales and Use Tax Act; County Health Services Sales and Use Tax; The Texas Health and Safety Code; Special Provisions Relating to Hospital Districts, Emergency Services Districts, and Emergency Services Districts in counties with a population of 125,000 or less.

I understand that it is a criminal offense to give an exemption certificate to the seller for taxable items that I know, at the time of purchase, will be used in a manner other than that expressed in this certificate and, depending on the amount of tax evaded, the offense may range from a Class C misdemeanor to a felony of the second degree.

Purchaser Sign here ➔	Title	Date

NOTE: This certificate cannot be issued for the purchase, lease, or rental of a motor vehicle.

THIS CERTIFICATE DOES NOT REQUIRE A NUMBER TO BE VALID.

SECTION 00 6516

CERTIFICATE OF SUBSTANTIAL COMPLETION

Contract: *(Name and Address)*	**Project/Contract Number:** H24147
	Contract For: Pomona - East Mustang Bayou Landscape
	Contract Date:
Owner: *Brazoria County MUD No. 40* *c/o ABHR* *3200 Southwest Freeway, Ste. 2600* *Houston, TX 77027*	**To Contractor:**

The Work or a portion of the Work designated for partial occupancy or use shall include:

_____

The Work performed under this Contract has been reviewed and found, to the District Landscape Architect's best knowledge, information, and belief, to be substantially complete and in compliance with the Contract Documents. Substantial Completion is as defined in the General Conditions of the Contract. The date of Substantial Completion of the Work or portion designated above is the date of issuance established the Landscape Architect's Certificate of Substantial Completion. If there is a conflict between the date of this Certificate of Substantial Completion and the Landscape Architect's Certificate of Substantial Completion, the latter date will be the date of Substantial Completion.

TBG Partners _____ _____ _____
District Landscape Architect *By* *Date of Issuance*

A list of items to be completed or corrected is attached hereto. The failure to include such list, or any items on such list, does not alter the responsibility of the Contractor to complete all Work in accordance with the Contract Documents. Unless otherwise agreed to in writing, the date of commencement of warranties shall be as stipulated in the General Conditions of the Contract.

The Contractor will complete or correct the Work on the list of items attached hereto within _____ (___) days from the date of Substantial Completion reflected herein.

_____ _____ _____
Contractor *By* *Date*

The Owner accepts the Work or designated portion as substantially complete on _____ (date).

_____ _____ _____
Owner *By* *Date*

The responsibilities of the Owner and Contractor for security, maintenance, utilities, damage to the Work, and insurance shall be as follows. (If responsibility for any such item(s) is not addressed below, then the responsibility for same shall remain with the party assigned the responsibility in the Contract Documents.

END OF SECTION

SECTION 00 7200

GENERAL CONDITIONS OF THE CONTRACT

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GENERAL CONDITIONS OF THE CONTRACT

ARTICLE I. DEFINITIONS

1.01. DEFINITIONS. The following terms shall be defined as described below unless such definition is expressly modified by the Contract Documents. Any capitalized terms used in the Contract Documents not defined in this Section shall have the meaning assigned to such term under the Contract Documents.

a. Bid. The offer or proposal of a Bidder submitted on the prescribed form setting forth the prices for the Work to be performed.

b. Bond(s). Performance bonds, maintenance bonds and payment bonds, or any of them, as required by the Contract Documents.

c. Change Order. A document signed by Contractor, Landscape Architect, and Owner and entered into in accordance with the Contract Documents that authorizes an addition, deletion, or revision in the Work or an adjustment in the Contract Price or the time for completion.

d. Claim. A "Claim" is a claim, demand, or assertion by the Contractor seeking for itself or on behalf of a subcontractor or supplier: adjustment or interpretation of any Contract term, including without limitation, adjustment of the Contract Price or Contract Time; payment of money; relief from obligations; or other relief or recovery with respect to the terms of the Contract. The term "Claim" also includes other disputes and matters in question asserted by the Contractor (whether for itself or on behalf of a subcontractor or supplier) arising out of or relating to the Contract.

e. Contract. The entire and integrated written agreement between the Owner and Contractor concerning the Work, including the Contract Documents. The Contract supersedes prior negotiations, representations, or agreements, whether written or oral.

f. Contract Documents. The Bid, Contract, Instructions to Bidders, General Conditions, Addendum to the General Conditions, Special Conditions, Technical Specifications, Plans, Change Orders, any written amendment to the Contract signed by Contractor, Landscape Architect, and Owner, Written Work Orders, addenda issued by Landscape Architect, and all other documents designated as incorporated by reference. Documents incorporated by reference are Contract Documents, whether attached or not. Approved Shop Drawings and other Contractor's submittals, inspections, and reports, such as testing of subsurface and physical or environmental conditions, are not Contract Documents and are not part of the Contract.

g. Contractor. The entity with whom Owner has entered into this Contract.

h. Contractor Parties. The Contractor, and all its subcontractors, suppliers, and their respective agents, representatives, or employees, or any of them.

i. Contract Price. The amount of money stated in the Contract as payable by Owner to Contractor for timely completion of the Work in accordance with the Contract

Documents, plus or minus any increases or decreases to the initial Contract Price agreed to by Owner as provided by the Contract.

j. Contract Time. The number of days or the dates stated in the Contract to achieve Final Completion, expressed as a number of calendar days or as a reference to the date of Final Completion. If the Contract Time is measured by calendar days, each and every calendar day shall be counted against the Contract Time.

k. Contracting Information. The following: 1) information in a voucher or contract relating to the receipt or expenditure of public funds by a governmental body; 2) solicitation or bid documents relating to a contract with a governmental body; 3) communications sent between a governmental body and a vendor, contractor, potential vendor, or potential contractor during the solicitation, evaluation, or negotiation of a contract; 4) documents, including bid tabulations, showing the criteria by which, a governmental body evaluates each vendor, contractor, potential vendor, or potential contractor responding to a solicitation and, if applicable, an explanation of why the vendor or contractor was selected; and 5) communications and other information sent between a governmental body and a vendor or contractor related to the performance of a final contract with the governmental body or work performed on behalf of the governmental body.

l. Engineer. The design consultant so identified in the Contract, or such other firm that Owner may designate, is herein called Engineer and 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 completion of the Work in accordance with the Contract Documents.

m. Extra Unit Price Items. All extra unit price items or alternate unit price items so specified in the Bid.

n. Extra Work. All Work that may be required by Engineer or Owner to be done by Contractor to accomplish any change, alteration, or addition to the Work shown upon the Plans, implied by the Technical Specifications, or otherwise within the Contract Documents and not covered by Contractor's Bid. Notwithstanding the foregoing, Extra Unit Price Items or alternate unit price items so specified in the Bid and required by Engineer or Owner as described herein are not included in the definition of Extra Work.

o. Final Acceptance. Action at a formal meeting of the Owner, wherein Owner accepts the completed Project.

p. Final Completion. The date on which the entire Work or an agreed portion thereof is complete in strict conformance with the Contract Documents. If any governmental entity has jurisdiction to approve or accept Contractor's Work on the Project, or any portion thereof, Final Completion is not achieved unless and until written approval or acceptance of the entity is received, including Final Acceptance by Owner.

q. Force Majeure. Fire, flood, or act of God, earthquakes, hurricanes, tornadoes, epidemics, war, riot, civil disturbance, sabotage, terrorism, governmental or judicial restraint but only to the extent such event: (i) is beyond the control of and cannot be reasonably anticipated by, or the effects alleviated by, the Contractor; and (ii) prevents the performance of the Work. Events not specifically listed herein shall not constitute events of Force Majeure.

r. Hazardous Environmental Condition. The presence at the Site of asbestos, PCBs, petroleum, hazardous waste, contaminants, or radioactive material in such quantities or circumstances that may present a substantial danger to persons or property exposed thereto in connection with the Work.

s. Indemnified Parties. Owner, Landscape Architect, Engineer, and the officers, directors, managers, members, employees, agents, and representatives of each such party.

t. Landscape Architect. The design consultant so identified in the Contract, or such other firm that Owner may designate, is herein called Landscape Architect and is to act as Owner's representative, assume all duties and responsibilities, and have the rights and authority assigned to Landscape Architect in the Contract Documents in connection with completion of the Work in accordance with the Contract Documents.

u. Laws and Regulations. Any and all applicable federal, state and local laws, rules, regulations, codes, and orders of any and all governmental bodies, agencies, authorities, and courts having jurisdiction and any and all rules of common law pertaining to the Contractor's services, the Site, Contractor's employees and subcontractor's employees and/or the Work, and those of any other governmental entities with jurisdiction, including, without limitations all applicable laws of the State of Texas, Chapter 411 of the Texas Labor Code, Title VII (Equal Employment Opportunity) of the Civil Rights Act of 1964, The Occupational Safety and Health Act of 1970, The National Environmental Policy Act, The Federal Water Pollution Control Act, The Clean Air Act, The Clean Water Act, The Toxic Substance Control Act, The Resource Conservation and Recovery Act, and all amendments thereof. The agencies charged with the administration and enforcement of the Laws and Regulations include, but are not limited to, the Department of the Interior, the Equal Employment Opportunity Commission, the Occupational Safety and Health Administration, the Environmental Protection Agency, the U.S. Corps of Engineers, the National Fire Protection Association, the U.S. Geological Survey, the Minerals Management Service, the Texas Commission on Environmental Quality, the county in which the Site is located, and the municipality, as applicable, in whose corporate or extraterritorial jurisdiction the Site is located. Certain of the specific regulations that may be applicable to the Work are the Occupational Safety and Health Construction and General Industry Standards (29 CFR Part 1926 and 1910), and various environmental regulations.

v. Notice to Proceed. A written notice given by or on behalf of Owner to Contractor fixing the date on which the Contract Time will begin to run and on which Contractor shall start to perform the Work.

w. Owner. The entity so specified in the Contract.

x. Plans. That part of the Contract Documents which graphically shows the scope, extent, and character of the Work to be performed by Contractor.

y. Project. The total construction on the Site, which may include work performed by the Owner or other contractors.

z. Regulatory Agencies. Any and all governmental bodies, agencies, authorities, counties, municipalities, and courts having jurisdiction over the Project.

aa. Shop Drawing. All drawings, diagrams, illustrations, schedules, and other data or information which are specifically prepared or assembled by or for Contractor and submitted by Contractor to illustrate some portion of the Work.

bb. Site. The land or area furnished by Owner upon which the Work is to be performed, including rights-of-way and easements for access.

cc. Substantial Completion. The time at which the Work, or any portion thereof, is sufficiently completed in accordance with the Contract Documents so that Owner can occupy the entirety of the Work and put it to the full and unrestricted use for which it was intended, and all required certificates of occupancy and other permits, approvals, licenses, and documents required to occupy the Project by all entities, agencies and governmental authorities having jurisdiction over the Project and/or the operation and occupancy of the Project, as determined by the Landscape Architect, have been given so that the Project may operate for its intended purpose, although the Project may still require minor miscellaneous Work and adjustment. The Work will not be considered substantially complete if: (i) any project systems included in the Work are not operational as designed and scheduled; (ii) designated instructions of Owner, Landscape Architect, or Owner's other representative in the operation of systems have not been completed; (iii) any final finishes within the Contract Documents are not in place; or (iv) a Certificate of Substantial Completion in the form attached hereto and incorporated by reference herein has not been issued by the Landscape Architect and signed by the Owner, Contractor and Landscape Architect. The terms "substantially completed" or "substantially complete" as applied to all or part of the Work shall have the same meanings as set forth here.

dd. Technical Specifications. That part of the Contract Documents, including any written addenda thereto, consisting 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.

ee. Work. All obligations of the Contractor under the Contract Documents and all equipment, materials, labor, construction, management, supervision, services, punch list, and activities of every kind and nature, whether commenced or not, or completed or partially completed, undertaken by the Contractor, provided or to be provided by the Contractor, required of the Contractor, or inferable from the Contract Documents to perform and fulfill all of the Contractor's obligations pursuant to the Contract Documents.

ff. Written Work Order. A written statement to Contractor signed by Owner and Landscape Architect ordering an addition, deletion, or revision in the Work, or responding to differing or unforeseen subsurface or physical conditions. A Written Work Order will not change the Contract Price or Contract Time but is evidence that the parties expect that the Written Work Order will be incorporated in a subsequently issued Change Order following agreement by the parties as to its effect, if any, on the Contract Price or Contract Time.

ARTICLE II. CONTRACT DOCUMENTS

2.01. INTERPRETATION OF CONTRACT DOCUMENTS AND PHRASES.

a. Whenever the words "required," "permitted," "designated," "considered necessary," "prescribed," or words of like import are used, it shall be understood that the requirement, permission, order, designation, or prescription of Landscape Architect is intended and similarly, the words "approval," "acceptable," or "satisfactory," or words of like import shall mean approved by, or acceptable to, Landscape Architect.

b. Whenever in the Technical Specifications or Plans accompanying this Contract, the terms or descriptions of various qualities relative to finish, workmanship, or other qualities of similar kind which cannot from their nature be specifically and clearly described and specified, are necessarily described in general terms, the fulfillment of which must depend on individual judgment, then, in all such cases, any question of the fulfillment of said judgment of said Technical Specifications or Plans shall be decided by Landscape Architect, and said Work shall be done in accordance with his interpretations of the meaning of the words, terms, or clauses defining the character of the Work.

c. The parties hereto agree that these Contract Documents shall not be construed against any Party hereto on the basis that such party did or did not draft the Contract Documents.

d. The section headings used herein are for convenience only and shall not affect the construction or terms hereof.

e. If there is an irreconcilable conflict between Contract Documents, the more stringent requirement shall control, but except in such event and to avoid such conflict, every construction of provisions shall be that each is in aid to, or supplementary to or complementary of, each other provision, to control and secure for Owner the completion of the entire Work in an expeditious, orderly, and coordinated manner. The precedence, from highest to lowest, shall be in the following order:

1. Contract between Owner and Contractor;

2. Special Conditions of the Contract Part A Technical Specifications and Plans;

3. Special Conditions of the Contract Part B, if any;

4. Addendum to the General Conditions, if any;

5. General Conditions of the Contract.

The most recently issued document takes precedence over previously issued forms of the same document. Modifications take precedence over applicable previously issued documents. Detailed drawings shall take precedence over general drawings. In the event of any discrepancies between the Plans and Technical Specifications, or likewise, in the event of any doubt as to the meaning and intent of any portion of the Contract Documents, including the Technical Specifications or Plans, Landscape Architect shall define that which is intended to apply to the Work.

f. When any period of time is referred to in the Contract Documents by days, it will be computed to exclude the first and include the last day of such period.

2.02. EXHIBITS. All Work shall be done, and all materials furnished in strict conformity with the Contract Documents, all of which are hereto attached (or considered as if attached) and are hereby made a part of this Contract.

2.03. ACCURACY. These Contract Documents, including the Technical Specifications, Plans, and Bid, are intended to show all Work to be done and material to be furnished hereunder. **If the Work under the Contract Documents is for a critical infrastructure facility, as defined by Chapter 59 of the Texas Business and Commerce Code, the following statements in this Section apply: Contractor understands and acknowledges that errors may exist in the Contract Documents and that the Owner does not warrant the accuracy or sufficiency thereof. The Contractor acknowledges that the Contract Documents are sufficiently detailed, accurate and comprehensive to enable Contractor to have adequately estimated and established the Contract Price and to perform the Work within the Contract Time.**

2.04. CONTRACTING INFORMATION. If the Contract Price is equal to or greater than $1,000,000, Contractor, pursuant to the **Government Code Section 552.372**, shall:

a. preserve all Contracting Information related to the Contract Documents as provided by the records retention requirements applicable to the Owner for the duration of the Contract;
b. promptly provide to the Owner any Contracting Information related to the Contract Documents that is in the custody or possession of the Contractor on request of the Owner; and
c. on Final Completion of the Contract, provide at no cost to Owner all Contracting Information related to the Contract Documents that is in the custody or possession of the Contractor or preserve the Contracting Information related to this Contract Documents as provided by the records retention requirements of the Owner.

ARTICLE III. PRELIMINARY MATTERS

3.01 CONSTRUCTION SCHEDULE. The Contractor shall submit a construction schedule based on critical path method ("CPM") or other method specifically approved by the Landscape Architect and that is sufficiently accurate during the entire Contract Time to determine if the Contractor is performing on schedule.

Within ten (10) days following the end of each month after Notice to Proceed, or at more frequent intervals when requested by Landscape Architect, the Contractor shall submit an updated and revised schedule; the revision must be current as of the immediate past schedule period. Each element shall be updated to reflect the actual start and stop dates, actual duration and actual number of days worked, anticipated changes to future start and stop dates, and changes due to change in amount of Work or Contract Time. When requested by Landscape Architect, the Contractor will submit only that portion of the CPM submittal required.

Failure to meet any schedule submission dates or to comply with any requested submittal or failure to provide an acceptable submittal will be cause to withhold payment of all or portions of the next scheduled monthly payment or any portions of future monthly payment until an acceptable submittal has been made.

As a minimum, the Contractor shall have available at least one individual with authority to maintain and revise the schedule as needed to reflect the actual and planned work schedule. This individual is to cooperate with Landscape Architect's staff and be available to discuss schedule with Landscape Architect's staff when requested.

3.02 SCHEDULE OF VALUES. If directed by Landscape Architect or the Contract Documents, Contractor shall submit a schedule of values showing the subdivision of the Contract into various items of payment of construction. This schedule of values must state quantities and prices to the smallest common measurement, e.g., cubic yard, pound, linear feet, etc., and will be used as a basis for computing value to the Owner of Work to be paid for in partial payments. Except for work associated with prices bid as supplemental items listed in the Bid, the schedule of values also will be used to determine the value of like or similar work that may be added to or deleted from the Contract Documents. The above-mentioned schedule of values must be in a format and of such detail to be acceptable to the Landscape Architect. No partial payments will be made unless the schedule of values has been submitted by Contractor and accepted by the Landscape Architect. Landscape Architect may require that the schedule of values be cross-referenced to CPM with each item on schedule of values to show which CPM activity corresponds to or includes the item.

3.03 KEEPING PLANS AND SPECIFICATIONS ACCESSIBLE. Contractor shall be furnished with one electronic PDF copy of all Plans and Technical Specifications without expense to Contractor and shall keep one (1) copy of each constantly accessible on the Site.

3.04 SHOP DRAWING SUBMITTALS.

a. Shop Drawing Submittal List. Within fifteen (15) days after the date of the Notice to Proceed, Contractor shall submit for the Landscape Architect's review a complete Shop Drawing submittal list. The list is to include Shop Drawings for all equipment and manufactured materials to be furnished under this Contract. The list should include, but not be limited to, the following, with each submittal to be numbered with a consecutive numbering system.

1. Name (description) of submittal.

2. Applicable specification number or drawing number.

3. Scheduled submission date.

4. Latest date acceptable submittal required to prevent delay in purchase.

The Landscape Architect may waive all or portions of the submittal requirements for any Shop Drawing on the submittal list. No payment will be made for the Work until the submittal list is accepted by the Landscape Architect.

b. Contractor's Duties. The Contractor shall review Shop Drawings prior to submittal to verify field measurements, field construction criteria, manufacturer model number, and other pertinent data, to ensure conformance to Contract Documents, coordination with other submittals, and schedule for submittal and review.

The Contractor shall stamp and sign submittals with stamp which states, "This submittal is certified to be in conformance with Contract Documents unless noted herein." All

submittals without this certification will not be reviewed but will be returned to the Contractor for proper submission. The Landscape Architect will rely on this statement when performing the review of the submittal.

The Contractor shall schedule submittals to allow sufficient time for the review process and to coordinate submittals with the schedule to prevent delay to Work.

The Contractor shall perform no portion of the Work for which the Contract Documents require submittal and review of Shop Drawings, product data, samples or similar submittals until the respective submittal has been approved by the Landscape Architect.

The Work shall be in accordance with approved submittals. Provided, however, the Contractor shall not be relieved of responsibility for deviations from requirements of the Contract Documents by the Landscape Architect's approval of Shop Drawings, product data, samples or similar submittals unless the Contractor has specifically informed the Landscape Architect in writing of such deviation at the time of submittal and (1) the Landscape Architect has given written approval to the specific deviation as a minor change in the Work, or (2) a Change Order has been issued authorizing the deviation. The Contractor shall not be relieved of responsibility for errors or omissions in Shop Drawings, product data, samples or similar submittals by the Landscape Architect's approval thereof.

The Contractor shall direct specific attention, in writing or on resubmitted Shop Drawings, product data, samples or similar submittals, to revisions other than those requested by the Landscape Architect on previous submittals. In the absence of such written notice, the Landscape Architect's approval of a resubmission shall not apply to such revisions.

No Work may be performed in connection with fabrication, manufacturer, or purchase of materials or equipment until submittals have been reviewed and marked "No Exception Taken" or "Make Corrections Noted." Work performed on submittals marked "Make Corrections Noted" must be in accordance with all corrections noted thereon.

The Contractor shall correct submittals and resubmit or shall prepare new submittals for review by Landscape Architect for all submitted items marked "Submit Specified Item," "Rejected," or "Revise and Resubmit." No Claims for extra time or delays will be considered due to time required for review of submittals or resubmittals unless due to no fault of the Contractor, Landscape Architect does not review the submittals in a timely fashion pursuant to paragraph c, below.

c. Landscape Architect's Duties. The Landscape Architect shall review submittals as expeditiously as possible, but the amount of time required for review will vary depending on the complexity and quantity of data submitted. All submittal schedules shall allow for at least thirty (30) days for initial review by the Landscape Architect. Failure by the Landscape Architect to timely review a submittal shall not constitute the basis of a Claim except for an adjustment in the Contract Time.

Such review by the Landscape Architect shall be for the sole purpose of determining the general conformity of said Shop Drawings or schedules to the Contract Documents and shall not relieve the Contractor of its duty as an independent contractor as set forth herein, it being expressly understood and agreed that the Landscape Architect does not

assume any duty to pass upon the propriety or adequacy of such drawings or schedules or any means or methods reflected thereby, in relation to the safety of either person or property during Contractor's performance hereunder. The Landscape Architect's review of drawings will not constitute an acceptance of all dimensions, quantities, and details of the material, equipment, device, or item shown and does not relieve the Contractor from any responsibility for errors or deviations from the Contract requirements.

The Landscape Architect shall clearly mark the submittals with required corrections and shall stamp drawings noting the appropriate action, signature, and date.

d. Form of Submittal. The Contractor must submit one electronic PDF copy of all submittals. One (1) copy of the appropriately marked submittal will be retained at the Landscape Architect's office, one (1) copy will be retained at the Landscape Architect's field office, and one (1) copy will be returned to the Contractor for Contractor's use. The Landscape Architect will not mark additional copies for the Contractor. If the Contractor desires additional copies, they must be marked by the Contractor.

The Contractor shall submit a complete copy of relevant Contract Document items which have been marked by the manufacturer to certify each point of the Contract Document item noting compliance and each point of deviation.

The Contractor must submit relevant literature, catalog cuts, or written descriptive matter backing up all points of the Contract Documents item compliance.

Contractor must submit comparative life cycle, cost, performance, or other data supporting consideration of all points of the Contract Documents item deviation.

All information supplied must be carefully and completely cross-referenced to the relevant Contract Document item requirement.

When required by an individual Contract Document item, the Contractor shall submit written step-by-step test plan for functional checkout and demonstration test of respective equipment. Submissions that do not conform to the form of submittal as outlined herein will not be considered and will be returned to the Contractor for proper submission.

The Contractor must have acceptable Shop Drawings at the Site. Failure of the Contractor to supply acceptable drawings will be deemed sufficient cause for Owner to delay the Work at Contractor's risk and expense until such drawings are available. This procedure shall not entitle Contractor to an extension of time.

e. Installation Drawings. When required by individual items of the Technical Specifications, the Contractor shall provide, for the Landscape Architect's use, two (2) copies of installation drawings and instructions consisting of all necessary details required for field assembly, erection, and installation of a particular component of Work, including, but not limited to, unloading and storage instructions, layout/placement drawings, erection sequences, assembly drawings, connection details, and wiring diagrams.

3.05 VARIATIONS AND ALTERNATE DESIGNS. Foundations, structural supports, electrical work, and piping when shown on Plans for items of equipment may be changed by the Engineer or Landscape Architect if necessary to accommodate equipment furnished. Effort has been made to design foundations, structural supports, electrical work, and piping so that no changes not

usually and normally encountered in work of the type to be performed hereunder will be necessary; however, exact dimensions and size of subject foundations and structural supports and exact electrical and piping installations may not be finally determined until the applicable Shop Drawings are submitted to the Landscape Architect. Changes to the Plans or Technical Specifications will be signed and sealed by the Engineer or Landscape Architect in accordance with applicable laws. Contractor shall make required changes in the Work, after prior consultation with the Landscape Architect, at no cost to Owner.

If substitute items of equipment are authorized which vary materially from those shown on Plans, Contractor shall prepare equipment data and detailed drawings covering necessary modifications and submit to the Landscape Architect for approval. Contractor shall make drawings the same size as Plans and of comparable quality. Contractor shall pay the charges resulting from modifications including engineering or landscape architectural charges for checking modifications.

If alternate design features are proposed for the convenience of the Contractor, the Contractor shall submit design calculations and detailed drawings covering proposed changes and related modifications of the Plans to the Landscape Architect for review. Design calculations and detailed drawings submitted by the Contractor must be signed and sealed by a professional engineer licensed in the State of Texas. The Contractor shall make drawings the same size as the Plans and of comparable quality. Contractor shall pay the charges resulting from modifications, including engineering or landscape architectural charges for checking such designs.

ARTICLE IV. SITE ACCESS/ CONDITIONS/ REFERENCE POINTS

4.01 ACCESS AND AVAILABILITY OF LANDS. Except as provided herein, the Owner shall provide, as indicated on the Plans, land upon which the Work is to be done, rights-of-way for access to same, and such other lands which are designated for use of the Contractor. If required, Contractor shall provide, at its own cost, for additional lands and access for temporary construction facilities or storage of materials and equipment.

Contractor shall propose, for Engineer's review and approval, access roads for moving construction personnel and equipment. The access routes are subject to change by the Engineer, occasioned by the progress of the Work or unforeseen conditions. If routes are changed, Contractor may propose alternate routes. Changes required in haul routes shall not be the basis for extra payment, unless such changes are required by written directive from the Engineer.

Contractor shall, whenever possible, keep all construction traffic out of existing neighborhoods. Contractor shall keep haul routes clean at all times to the satisfaction of the Engineer and the local governing body having jurisdiction over the haul routes.

4.02 SURVEYING; LINES AND GRADES. The Owner will establish reference points for construction only; the Contractor is responsible for staking from benchmarks and horizontal control references established by Engineer. The 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 Engineer. The Contractor shall report to the 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.

4.03 SOILS REPORT. If provided, any soils report and log of borings is available for Contractor's information only. The report is not a warranty of subsurface conditions, nor is it a part of the Contract Documents. Contractor is expected to examine the Site and such reports and then decide for itself the character of the materials to be encountered.

Owner and Engineer disclaim any responsibility for the accuracy, true location, and extent of the surface and subsurface investigations that have been prepared by others. Owner and Engineer further disclaim responsibility for interpretation of that data by Contractor, i.e. projecting soil-bearing values, rock profiles, soil stability and the presence, level and extent of underground water or underground facilities.

4.04 SUBSURFACE EXPLORATION. It is not represented that the Plans show all existing storm sewer, sanitary sewer, water, gas, telephone and electrical facilities, and other underground structures. Contractor shall determine the location of these installations in the way of the Work by referring to available records, consulting appropriate municipal departments and utility owners, and by making necessary exploration and excavations.

4.05 DEVIATIONS OCCASIONED BY UTILITY STRUCTURES. Whenever existing utilities, not indicated on the Plans, present obstructions to grade and alignment of pipe, Contractor shall immediately notify the Engineer who, without delay, will determine whenever existing improvements are to be relocated or grade and alignment of pipe changed. Where necessary to move services, poles, guy wires, pipelines, or other obstructions, the Contractor will make arrangements with owners of utilities. The Owner will not be responsible for or liable for damages for any delays due to changes made by owners of utilities which hinder progress of any Work. The Owner may, at its sole discretion, determine whether to grant any extension of time and/or additional compensation.

4.06 DIFFERING SUBSURFACE OF PHYSICAL CONDITIONS. Contractor shall give prompt written notice to Engineer if any subsurface or physical condition is uncovered or revealed and either: (i) differs materially from that shown or indicated in the Contract Documents or the technical data or related documents; or (ii) is of a highly unusual nature and differs materially from conditions ordinarily encountered and generally recognized as inherent in work performed at the location. After receipt of Contractor's written notice, Engineer will promptly review the condition, determine the necessity of Owner's obtaining additional exploration or tests and advise Owner in writing of Engineer's findings and conclusions. Contractor shall not further disturb such condition or perform any Work in connection therewith until receipt of Written Work Order from Engineer to do so. Absent an emergency, any Work performed by Contractor before receiving Engineer's response will be at the sole expense of the Contractor.

The Contract Price and/or the Contract Times may be equitably adjusted to the extent that the existence of such differing subsurface or physical condition causes an increase or decrease in Contractor's cost of, or time required for, performance of the Work. Provided, however, Contractor shall not be entitled to any adjustment in the Contract Price or Contract Times if: (i) Contractor knew, or should have known, of the existence of such conditions at the time Contractor entered into the Contract; (ii) the existence of such condition could reasonably have been discovered or revealed as a result of any examination, investigation, exploration, test, or study of the Site required by the Contract Documents to be conducted prior to Contractor's entering into the Contract; or (iii) Contractor failed to give the written notice as required. If Owner and Contractor cannot agree on entitlement to, or the amount or extent of, any adjustment in the Contract Price or Contract Times, or both, a Claim may be made.

4.07 ARCHAEOLOGICAL OR HISTORICAL MATERIALS. On discovery of materials with potential archaeological or historical significance, the Contractor shall stop work and notify the Landscape Architect. The Contractor shall protect the Site from disturbance until it is cleared by the Landscape Architect to resume work. If the discovery results in a delay exceeding sixty (60) days or more, the Contractor may receive damages for delay, limited to the actual costs of de-mobilization and re-mobilization, without mark-up, and may make a Claim for an extension to the Contract Time.

4.08 HAZARDOUS ENVIRONMENTAL CONDITIONS. Reports identifying Hazardous Environmental Condition are not Contract Documents. **Owner and Landscape Architect do not warrant the accuracy or completeness of such documents and disclaim all responsibility and liability for accuracy of investigations and reports prepared by third parties.** Owner and Landscape Architect also disclaim any responsibility for Contractor's interpretation of such reports and tests. If Contractor encounters a Hazardous Environmental Condition or if Contractor or anyone for whom Contractor is responsible creates a Hazardous Environmental Condition, Contractor shall immediately: (i) secure or otherwise isolate such condition; (ii) stop all Work in connection with such condition and in any area affected thereby; and (iii) notify Owner and Landscape Architect (and promptly thereafter confirm such notice in writing). Owner shall promptly consult with Landscape Architect concerning the necessity for Owner to retain a qualified expert to evaluate such condition or take corrective action, if any. Contractor shall not be required to resume Work in connection with such condition or in any affected area until the affected area is or has been rendered safe for the resumption of Work. Except as provided in this Section, it will not be the Contractor's duty to provide any required governmental notifications relative to the discovery of Hazardous Environmental Conditions.

4.09 LOSSES FROM UNFORESEEN CIRCUMSTANCES AND CONDITIONS OR NATURAL CAUSES. Except as specifically provided in the Contract Documents, all loss or damage arising out of the nature of the Work to be done, or from the action of the elements, or from any unforeseen circumstances or natural causes in the prosecution of the same, or from the soil, subsurface, and other conditions, whether naturally occurring or manmade, or from concealed conditions or unusual obstructions or difficulties which may be encountered in the prosecution of the Work, shall be sustained and borne by Contractor at its own cost and expense. Contractor accepts such risk even for circumstances and conditions that differ materially from those indicated in the Contract Documents, geotechnical report, a review of the Site and surrounding areas or other information furnished by or on behalf of Owner. Accordingly, Contractor shall not be entitled to any additional compensation or time associated with unforeseen circumstances or conditions or natural causes except as allowed by the Contract Documents.

ARTICLE V. CONTRACTOR'S RESPONSIBILITIES/ INDEMNITIES

5.01. INDEPENDENT CONTRACTOR. It is understood and agreed that all Work done by Contractor shall meet with the approval of Owner's representative but that the detailed manner and method of doing the Work shall be under the control of Contractor as set forth more fully in these General Conditions, Owner being interested only in the result obtained, and that Contractor is an independent contractor as to all Work performed hereunder.

5.02. TIME AND ORDER OF COMPLETION. Time is of the essence of this Contract. It is the meaning and intent of this Contract, unless otherwise herein specifically provided, that Contractor shall be allowed to prosecute its Work at such times, in such order of precedence, and in such manner as shall be most conducive to economy of construction; provided, however, that:

a. In all instances Contractor shall comply with the Contract Documents and the order, time, techniques, sequences, procedures, manner, means and methods of prosecution of the Work shall be such that the Work shall comply with and shall be completed as a whole and in part, in strict accordance with the Contract Documents, including the Plans and Technical Specifications, and within the required time of completion, and Contractor shall have no right to perform any portion of the Work or utilize means, methods, techniques, sequences, procedures or individuals in violation of the Contract Documents or that may damage the Work or decrease the life expectancy of the Project.

b. The exercise of any of the rights and authority granted the Owner in the Contract Documents (including, without limitation, ordering changes in the Work, rejecting proposed means, methods, techniques, sequences or procedures, and directing suspension, rescheduling, re-execution or correction of the Work) shall not be construed as or deemed to be control of, charge of, responsibility for, or an assumption of Contractor's obligations with respect to, such construction means, methods, techniques, sequences, procedures, safety precautions, and programs.

c. When Owner is having other work done, either by contract or by its own forces, Landscape Architect may prescribe the time and sequence of constructing the Work done under this Contract so that conflict will be avoided, and the various construction being done for Owner shall be harmonized.

With regard only to items (a) and (b), above, any additional schedules or charts furnished; acquisition of any necessary additional equipment; work of hours in excess of those encompassed within Contractor's normal workday; or performance of certain tasks whether similar or dissimilar to the foregoing shall be done without additional cost to Owner.

5.03. CONTRACTOR'S DUTY AND STANDARD OF CARE. Contractor is an independent contractor and shall give personal attention to the faithful prosecution and completion of the Work and shall be present either in person or by duly authorized representatives on the Site continuously during its progress. Contractor shall exercise the highest degree of skill, care, attention, effort, judgments, and diligence that a professional Contractor would use in the performance of the Work. Contractor warrants that Contractor will: (i) perform, supervise and direct the Work, using the Contractor's best skill and attention, in a good and workmanlike manner and in the best and most expeditious and economical manner consistent with the interests of the Owner; (ii) utilize its best skill, efforts and judgment in furthering the interests of the Owner; (iii) perform the Work in strict compliance with applicable Laws and Regulations, such that the Work, no later than the time for completion, will comply with applicable Laws and Regulations; (iv) furnish efficient business administration and supervision (all of the foregoing collectively, the "Standard of Care"); and (v) perform the Work in strict accordance with the Contract Documents. If directed by the Landscape Architect, Contractor shall maintain an office on or adjacent to the Site. Regardless of what authority and rights may be assigned by the Owner to the Landscape Architect, Contractor remains fully and solely responsible and liable for its obligations to perform the Work in strict accordance with the requirements of the Contract Documents; to insure against failures in safety precautions; to carry out the Work pursuant to safe methods of construction; to select and fulfill the proper manner, means, and methods in performing the Work in order to fully comply with the Plans, Technical Specifications and other Contract Documents; and to otherwise complete the Work in accordance with the Contract Documents.

5.04. CONTRACTOR'S AGENT. Contractor, during Contractor's absence from the Site, shall keep a competent English-speaking superintendent or foreman upon the Site, fully authorized to act for Contractor in Contractor's absence. Contractor shall provide Landscape Architect and Owner with written notification of such individual's position, name, and contact information. Any notice given by Landscape Architect, when given to any superintendent, foreman, or agent of Contractor in charge of any operation of the Work in the absence of Contractor, shall be considered as notice to Contractor, provided any notice given under this paragraph shall be in writing.

5.05. CHARACTER OF WORKERS. Contractor agrees to employ only orderly, competent, and skillful people to do the Work; and agrees that whenever Owner shall inform the Contractor in writing that any person(s) or subcontractors on the Work are, in Owner's opinion, incompetent, unfaithful, or disorderly, such person(s) or subcontractor shall be discharged from the Work and shall not again be employed on the Work without Owner's written consent.

5.06. CONSTRUCTION MATERIALS. Contractor shall provide all labor, tools, equipment, machinery, and material necessary in the prosecution and completion of this Contract, unless otherwise specifically provided. It is understood that Owner shall not be held responsible for the care, preservation, conservation, or protection of any material, tools, or machinery of Contractor. Owner shall not be responsible for any part of the Work until the risk of loss has transferred to the Owner upon Substantial Completion. The Contractor shall incorporate into the Work only new materials and equipment and shall store these materials and equipment in a manner to protect them from damage. The manner of protection is subject to specific approval of the Landscape Architect. Pipe, fittings, equipment, and other serviceable materials found on the Site or dismantled by reason of construction shall remain property of the Owner unless otherwise designated. The Contractor shall remove and deliver materials to Owner at designated points and shall pay, at prevailing market price, for usable materials that are damaged through negligence or otherwise.

5.07. OTHER CONTRACTS. Other construction may be underway concurrently in this area. The Contractor shall afford utility companies and other contractors' reasonable opportunity for introduction and storage of their materials and execution of their work. All Work under this Contract must be properly connected and coordinated with that constructed by others and Contractor has the duty and obligation to connect and coordinate the Work with work constructed by others related to the Project so the Work and Project function as intended.

5.08. DAMAGES. Notwithstanding any liquidated damages/economic disincentives provisions contained in the Contract Documents, in the event Owner is damaged in the course of the Work by the negligent or intentional acts of the Contractor Parties so as to cause loss or liability to Owner, then Contractor shall reimburse Owner for such loss, including attorney's fees, and Owner's damages shall not be capped by any liquidated damages/economic disincentives provisions in the Contract Documents.

NOTWITHSTANDING ANY OTHER PROVISION OF THE CONTRACT DOCUMENTS, IN NO EVENT (INCLUDING, WITHOUT LIMITATION, DEFAULT BY OWNER), SHALL OWNER'S LIABILITIES, IF ANY, TO CONTRACTOR EVER EXCEED THE TOTAL CONTRACT PRICE, LESS ALL SUMS FOR WORK, MATERIALS AND/OR LABOR PREVIOUSLY PAID TO CONTRACTOR BY OWNER AND CONTRACTOR RELEASES OWNER FOR ANY LIABILITIES IN EXCESS OF SUCH TOTAL CONTRACT PRICE, INCLUDING WITHOUT LIMITATION LIABILITIES ARISING FROM OWNER'S NEGLIGENCE, BREACH OF CONTRACT, OR ANY OTHER CAUSES OF ACTION OR CLAIMS.

5.09. TITLE AND RISK OF LOSS. Although Contractor has custody and possession of the Work, as between Owner and Contractor, ownership, and title to (as opposed to risk of loss of) all of the Work completed and in the course of construction at the Site and of all materials furnished irrespective of the location thereof, shall be in the name of the Owner. The vesting of such title in the Owner shall not impose any obligations on the Owner or relieve Contractor of any of its obligations hereunder. The Contractor warrants that it shall acquire no Work or equipment and materials, whether directly or through a subcontractor, subject to an agreement under which a security interest is retained by the seller or otherwise imposed by the Contractor, any subcontractor, or any other person or entity. **Notwithstanding the passage of title, risk of loss or damage shall remain with Contractor until Final Completion approved by the Owner.**

5.10. PROTECTION OF PERSONS AND PROPERTY. Contractor shall at all times take reasonable precautions for the safety of its employees and of all other persons at the Site, and for the protection of property of others, including property adjacent to the Site. Contractor shall comply with all applicable federal, state, and municipal safety laws and regulations and building and construction codes. All machinery and equipment and other physical hazards shall be guarded in accordance with the Manual of Accident Prevention in Construction published by the Associated General Contractors of America unless such instructions are incompatible with Laws and Regulations. Where damage occurs to property of others due to Contractor's or its subcontractors' or suppliers' acts or omissions, or where necessary to take down fences, signs, or other obstructions, Contractor shall repair, renew or replace in their original condition and restore damaged property or make satisfactory restitution to a condition equal to or better than that which existed before Contractor caused the damage or removal, at no cost to Owner. Contractor shall promptly report to Landscape Architect all accidents involving Contractor's employees or any other parties or property. Where livestock are present, Contractor shall take all necessary precautions to assure that no construction or construction related activity will allow livestock to leave their confine. Where existing fences are being crossed, Contractor shall maintain the integrity of the fence during construction through placement of guards, temporary fences, or other adequate measures as approved by the Landscape Architect. All construction activities, including ingress and egress, shall occur within the boundaries and Contract constraints of the temporary and permanent construction limits. Additionally, no staging, parking, loading, and/or unloading shall occur outside of the designated construction limits.

5.11. INSURANCE AND BONDS. Contractor shall procure and maintain in full force and effect during the Work the insurance described in **Attachment A to the General Conditions** and, if applicable, the **Special Conditions of the Contract Part B**. In addition, Contractor agrees to insure the Work under an appropriate builder's risk or other insurance policy until the risk of loss transfers to Owner pursuant to **Section 5.09**. It is further agreed by the parties to this Contract that Contractor will execute a performance bond, maintenance bond and/or payment bond, each as further specified in the Contract Documents.

5.12. INDEMNIFICATION.

Indemnity. TO THE FULLEST EXTENT PERMITTED BY LAW, CONTRACTOR SHALL PROTECT, DEFEND, INDEMNIFY AND HOLD HARMLESS THE INDEMNIFIED PARTIES, FROM AND AGAINST EVERY LOSS, ITEM OF DAMAGE, INJURY, EXPENSE, DEMAND, CLAIM, CAUSE OF ACTION, JUDGMENT OR LIABILITY, OF WHATSOEVER KIND OR CHARACTER, WHETHER ARISING IN CONTRACT OR TORT OR UNDER ANY STATUTE, FOR EVERY ELEMENT OF RECOVERY, WHETHER DIRECT OR INDIRECT, INCLUDING SPECIAL AND CONSEQUENTIAL DAMAGES, AND INCLUDING ALL RELATED FINES, FEES, AND

COSTS, TO INCLUDE ALL FEES AND CHARGES OF LANDSCAPE ARCHITECTS, ENGINEERS, ARCHITECTS, ATTORNEYS AND OTHER PROFESSIONALS AND ALL COURT OR ARBITRATION OR OTHER DISPUTE RESOLUTION COSTS, FOR:

BODILY INJURY TO OR DEATH OF ANY PERSON, PROPERTY DAMAGE OR ECONOMIC LOSS (INCLUDING LOSS OF USE) EVEN IF SUCH BODILY INJURY, DEATH, PROPERTY DAMAGE OR ECONOMIS LOSS IS CAUSED BY OR ARISING OUT OF ANY NEGLIGENCE OR FAULT, BREACH OF CONTRACT, BREACH OR VIOLATION OF ANY STATUTE, ORDINANCE, GOVERNMENTAL REGULATION, STANDARD, OR RULE, OR BREACH OF CONTRACT BY THE INDEMNIFIED PARTIES. EXCEPT TO THE EXTENT CHAPTER 151 OF THE TEXAS INSURANCE CODE APPLIES, IT IS THE EXPRESS INTENTION OF THE PARTIES THAT THE INDEMNITY PROVIDED FOR IN THIS SECTION IS AN INDEMNITY BY THE CONTRACTOR, ITS AGENTS, EMPLOYEES AND SUBCONTRACTOR OF ANY TIER TO INDEMNIFY THE INDEMNIFIED PARTIES FROM THE CONSEQUENCES OF THE INDEMNIFIED PARTIES' OWN NEGLIGENCE, FAULT OR STRICT LIABILITY, WHETHER SUCH NEGLIGENCE, FAULT OR STRICT LIABILITY IS THE SOLE, JOINT OR CONCURRING CAUSE OF THE BODILY INJURY, DEATH, PROPERTY DAMAGE AND/OR ECONOMIC LOSS.

TO THE EXTENT THAT CHAPTER 151 OF THE TEXAS INSURANCE CODE APPLIES TO THIS CONTRACT, HOWEVER, AND EXCEPT FOR A CLAIM FOR THE BODILY INJURY OR DEATH OF AN EMPLOYEE OF SUPPLIER, ITS AGENT, OR ITS SUBCONTRACTOR OF ANY TIER, THEN THE ABOVE INDEMNITY OBLIGATIONS OF CONTRACTOR, ITS AGENTS, EMPLOYEES AND SUBCONTRACTOR OF ANY TIER DO NOT EXTEND TO DEFENDING, INDEMNIFYING AND HOLDING HARMLESS THE INDEMNIFIED PARTIES FROM AND AGAINST EVERY LOSS, ITEM OF DAMAGE, INJURY, EXPENSE, DEMAND, CLAIM, CAUSE OF ACTION, JUDGMENT OR LIABILITY, OF WHATSOEVER KIND OR CHARACTER, WHETHER ARISING IN CONTRACT OR TORT OR UNDER ANY STATUTE, FOR EVERY ELEMENT OF RECOVERY, WHETHER DIRECT OR INDIRECT, INCLUDING SPECIAL AND CONSEQUENTIAL DAMAGES, AND INCLUDING ALL RELATED FINES, FEES, AND COSTS, TO INCLUDE ALL FEES AND CHARGES OF LANDSCAPE ARCHITECTS, ENGINEERS, ARCHITECTS, ATTORNEYS AND OTHER PROFESSIONALS AND ALL COURT OR ARBITRATION OR OTHER DISPUTE RESOLUTION COSTS CAUSED BY THE NEGLIGENCE OR FAULT, THE BREACH OR VIOLATION OF A STATUTE, ORDINANCE, GOVERNMENTAL REGULATION, STANDARD, OR RULE, OR THE BREACH OF CONTRACT OF THE INDEMNIFIED PARTIES, THEIR AGENTS, EMPLOYEES OR ANY THIRD PARTY UNDER THE CONTROL OR SUPERVISION OF THE INDEMNIFIED PARTY, OTHER THAN THE CONTRACTOR OR ITS EMPLOYEES, AGENTS OR SUBCONTRACTORS OF ANY TIER.

CONTRACTOR'S INDEMNITY OBLIGATIONS ABOVE SHALL NOT EXTEND TO ENGINEER, ARCHITECT, OR LANDSCAPE ARCHITECT OR THEIR AGENTS, SERVANTS, OR EMPLOYEES (THE "PROFESSIONAL PARTIES") FOR DAMAGE THAT:

IS CAUSED BY OR RESULTING FROM DEFECTS IN PLANS, DESIGNS, OR SPECIFICATIONS PREPARED, APPROVED, OR USED BY THE PROFESSIONAL PARTIES, OR NEGLIGENCE OF THE PROFESSIONAL PARTIES IN THE RENDITION OR CONDUCT OF PROFESSIONAL DUTIES CALLED FOR OR ARISING OUT OF THE CONTRACT DOCUMENTS AND THE PLANS, DESIGNS, OR SPECIFICATIONS THAT ARE A PART OF THE CONTRACT DOCUMENTS; AND

ARISES FROM PERSONAL INJURY OR DEATH, PROPERTY INJURY, OR ANY OTHER EXPENSE THAT ARISES FROM PERSONAL INJURY, DEATH, OR PROPERTY INJURY.

THESE INDEMNITY OBLIGATIONS ARE IN ADDITION TO ALL OTHER LEGAL, EQUITABLE, OR INDEMNIFICATION REMEDIES AVAILABLE TO THE INDEMNIFIED PARTIES. THESE INDEMNIFICATION OBLIGATIONS SURVIVE THE TERMINATION OR EXPIRATION OF THIS CONTRACT.

CONTRACTOR DOES HEREBY WAIVE, RELEASE AND FOREVER RELINQUISH AND DISCHARGE THE INDEMNIFIED PARTIES FROM ALL OF CONTRACTOR'S CAUSES OF ACTION ARISING FROM BODILY INJURY OR DEATH OR DAMAGE TO ANY PROPERTY ARISING OUT OF THE WORK, REGARDLESS OF WHETHER THE INJURY OR DAMAGE IS CAUSED IN FULL OR IN PART BY THE NEGLIGENCE OR OTHER FAULT OF THE INDEMNIFIED PARTIES.

THESE INDEMNITY OBLIGATIONS ARE INDEPENDENT OF THE INSURANCE REQUIRED HEREIN.

THESE INDEMNITY OBLIGATIONS ARE INTENDED TO COMPLY WITH CHAPTER 130 OF THE CIVIL PRACTICE AND REMEDIES CODE AND ANY OTHER APPLICABLE LAW. IT IS AGREED THAT WITH RESPECT TO ANY LEGAL LIMITATIONS NOW OR HEREAFTER IN EFFECT AND AFFECTING THE ENFORCEABILITY OF THESE INDEMNITY OBLIGATIONS, SUCH LEGAL LIMITATIONS ARE MADE A PART OF THESE INDEMNITY OBLIGATIONS TO THE MINIMUM EXTENT NECESSARY TO BRING THESE INDEMNITY OBLIGATIONS INTO CONFORMITY WITH THE REQUIREMENTS OF SUCH LIMITATIONS, AND AS SO MODIFIED, THESE INDEMNITY OBLIGATIONS SHALL CONTINUE IN FULL FORCE AND EFFECT.

Each party hereto agrees and covenants that it will not contest the validity or enforceability of any indemnity or exculpatory provision of this Contract on the basis that the party has no notice or knowledge of such provision or that the provision is not "conspicuous."

Contractor shall include in each of its subcontracts with its subcontractors of every tier the provisions of this Section in the same form as in all material respects to those contained herein. Such provisions shall be for the benefit of and in favor of the Indemnified Parties and such other parties on whom Contractor and such subcontractors may agree.

5.13. INTELLECTUAL PROPERTY RIGHTS, COPYRIGHT AND INDEMNIFICATION.

a. Contractor shall not furnish or provide to Owner any materials or Work that infringe a third party's intellectual property rights (whether it be claims of improper use of confidential information, patent infringement, copyright infringement, or the like). Contractor shall not disclose or provide to Owner any information, ideas, concepts, improvements, discoveries, inventions, or forms of expression of ideas which Contractor does not own or otherwise have the right to disclose or provide to Owner.

b. Contractor represents and warrants that the materials and the Work shall be free from third party claims of ownership and that Owner's right to own, use, or otherwise disclose such materials and Work shall be free from third party claims of infringement of intellectual property rights (whether it be claims of improper use of confidential information, patent infringement, copyright infringement, trademark infringement or the like).

c. Contractor represents and warrants to Owner that all information, ideas, concepts, improvements, discoveries, inventions, or forms of expression of ideas disclosed or provided to Owner shall be free from third party claims of ownership and that Owner's right to own, use, or otherwise disclose such information, ideas, concepts, improvements, discoveries, inventions, or forms of expression of ideas shall be free from third party claims of infringement of intellectual property rights (whether it be claims of improper use of confidential information, patent infringement, copyright infringement, trademark infringement or the like).

d. Contractor represents and warrants that all processes or methods utilized by Contractor to provide its services to Owner are free from infringement of third party intellectual property rights (whether it be claims of improper use of confidential information, patent infringement, copyright infringement, or the like) and that all products provided by Contractor to Owner are free from third party claims of infringement of intellectual property rights, including allegations that the product infringes the claims of the United States process patent in violation of the Process Patents Amendment Act of 1988. Contractor shall cooperate fully and promptly with Owner with respect to any notice of infringement or request for disclosure or response to a request for disclosure generated or received by Owner in connection with Contractor's Work pursuant to the Process Patents Amendment Act of 1988. To the extent that Contractor obtains products from third parties which it intends to provide to Owner, Contractor shall obtain agreements from Contractor's vendors to cooperate in connection with requests for disclosure generated or received by Owner pursuant to the Process Patents Amendment Act of 1988.

e. THE INDEMNITY AGREEMENT PROVIDED IN CONTRACTOR'S INDEMNITY OBLIGATION PROVIDED IN **SECTION 5.12** ABOVE, INCLUDES, BUT IS NOT LIMITED TO THE FOLLOWING: (I) CONTRACTOR'S BREACH OF ANY COVENANT, REPRESENTATION OR WARRANTY, WHETHER EXPRESS OR IMPLIED, REGARDING INTELLECTUAL PROPERTY RIGHTS; (II) ALLEGATIONS THAT OWNER, BY USE OF THE MATERIALS OR THE WORK, INFRINGES ANY THIRD PARTY'S INTELLECTUAL PROPERTY RIGHTS (WHETHER IT BE CLAIMS OF IMPROPER USE OF CONFIDENTIAL INFORMATION, PATENT INFRINGEMENT, COPYRIGHT INFRINGEMENT, TRADEMARK INFRINGEMENT OR THE LIKE); (III) ALLEGATIONS THAT A THIRD PARTY OWNS INFORMATION, IDEAS, CONCEPTS, IMPROVEMENTS,

DISCOVERIES, INVENTIONS, OR FORMS OF EXPRESSION OF IDEAS, DESCRIBED OR PROVIDED BY CONTRACTOR TO OWNER; (IV) ALLEGATIONS THAT OWNER'S OWNERSHIP OR USE OF INFORMATION, IDEAS, CONCEPTS, IMPROVEMENTS, DISCOVERIES, INVENTIONS, OR FORMS OF EXPRESSION OF IDEAS DISCLOSED OR PROVIDED BY CONTRACTOR TO OWNER INFRINGE A THIRD PARTY'S INTELLECTUAL PROPERTY RIGHTS; (V) ALLEGATIONS THAT THE PROCESSES UTILIZED BY CONTRACTOR IN PROVIDING ITS SERVICES TO OWNER INFRINGE THIRD PARTY INTELLECTUAL PROPERTY RIGHTS (INCLUDING A VIOLATION OF THE PROCESS PATENTS AMENDMENT ACT OF 1988); OR (VI) THE COSTS, AND EXPENSES, INCLUDING ATTORNEY'S FEES INCURRED BY OWNER, IN ENFORCING THE INTELLECTUAL PROPERTY INDEMNITY INCLUDED IN THIS PARAGRAPH.

IN ADDITION TO CONTRACTOR'S INDEMNITY OBLIGATION PROVIDED IN SECTION 5.12, ABOVE, TO THE FULLEST EXTENT PERMITTED BY LAW, CONTRACTOR SHALL PROTECT, DEFEND, INDEMNIFY AND HOLD HARMLESS THE INDEMNIFIED PARTIES FROM AND AGAINST EVERY LOSS, ITEM OF DAMAGE, INJURY, EXPENSE, DEMAND, CLAIM, CAUSE OF ACTION, JUDGMENT OR LIABILITY, OF WHATSOEVER KIND OR CHARACTER, WHETHER ARISING IN CONTRACT OR TORT OR UNDER ANY STATUTE, FOR EVERY ELEMENT OF RECOVERY, WHETHER DIRECT OR INDIRECT, INCLUDING SPECIAL AND CONSEQUENTIAL DAMAGES, AND INCLUDING ALL RELATED FEES AND COSTS, TO INCLUDE ALL FEES AND CHARGES OF LANDSCAPE ARCHITECTS, ENGINEERS, ARCHITECTS, ATTORNEYS AND OTHER PROFESSIONALS AND ALL COURT OR ARBITRATION OR OTHER DISPUTE RESOLUTION COSTS, BASED UPON, ARISING OUT OF, OR RELATING TO ANY ALLEGATION OF VIOLATION OF COPYRIGHT LAWS AS A RESULT OF CONTRACTOR'S PERFORMANCE (OR NON-PERFORMANCE) OF THE WORK.

f. Contractor confirms and agrees that the Owner has and shall retain all rights, title, and interest in and to the drawings, documents, designs and information, including, without limitation, any copyright or other intellectual property rights, provided to Contractor by or on behalf of Owner, and that by use of such drawings, documents, designs and information, the Contractor shall not acquire any right, title, or interest in such drawings, documents, designs and information, including, without limitation, any copyright or other intellectual property rights. ***The Owner makes no representation or warranty, and hereby disclaims any such warranty, that any information provided to the Contractor by or on behalf of the Owner in connection with the Work can be used without infringing any intellectual property rights of third parties under any intellectual property rights of the world.***

5.14. SUBCONTRACTOR'S ASSIGNMENT AND SUBLETTING. Contractor shall be fully responsible to Owner for all acts and omissions of any subcontractor, supplier, or other person or organization performing or furnishing any of the Work under a direct or indirect contract with Contractor. All Work performed for Contractor by such subcontractor, supplier, persons or organization shall be pursuant to an appropriate agreement between Contractor and each such party that specifically binds such party to the applicable terms and conditions of the Contract Documents for the benefit of Owner and Landscape Architect.

Contractor shall timely pay its subcontractors and material suppliers, as required by law and any agreements between or among Contractor and its subcontractors/material suppliers or other persons or organizations performing the Work, and such payments are a condition precedent to final payment.

5.15. CONTRACTOR'S SETTLEMENT OF THIRD-PARTY CLAIMS. Contractor shall promptly settle or cause the settlement of all claims for which it is responsible, in whole or in part, pursuant to the Contract Documents. Upon receipt of any claim, Contractor shall immediately notify the Owner of the full particulars thereof, and the Owner may elect, by notice to Contractor, to have its representative accompany Contractor's representative in making settlement of the same.

5.16. SETTLING THIRD PARTY SMALL CLAIMS. Owner shall provide Contractor written notice of any claims made arising out of or relating to the Contract or the Contractor's performance of the Work. Contractor shall, within ten (10) calendar days following such notice, appoint in writing and thereafter, until Final Completion, unless earlier allowed by Owner, maintain on the Site a special agent who shall have full duty and authority on behalf of Contractor to settle and pay any claims payable by Contractor described herein, to request or confirm payment by Owner of such claims for the account of Contractor, and to do all other things necessary or convenient in connection with the foregoing authority. In addition, Contractor shall cause said special agent to accompany the representative of Owner to solicit the settlement of such claims as Owner's representative may request. Contractor, through its special agent, shall settle and pay claims payable by Contractor hereunder, but only in the presence and with the cooperation of the representative of the Owner, and in such settlement, Contractor shall take receipts and releases in favor of and releasing the Indemnified Parties as well as Contractor.

Understanding that Owner has a special interest in preserving the good will of persons whose property may be injured in the course of the Work, should Contractor fail to settle and pay claims, including providing written receipts and releases in favor of and releasing the Indemnified Parties, within thirty (30) calendar days of Owner's initial written notice, Owner shall thereafter have the rights and authority (in Owner's discretion) to itself settle and pay, on Contractor's behalf, such claims as described in this paragraph. Contractor expressly acknowledges, acquiesces, and confirms that a representative of Owner may, in good faith, determine whether claims are payable in whole or in part by Contractor under the provisions herein (the hazard and expense of litigation and the special interest of Owner in liquidating all claims being considered), and if found so payable in part, the portion thereof payable by Contractor. To minimize the expense of employing agents in settling claims, Contractor hereby further authorizes Owner to settle and pay any claims payable by Contractor hereunder which may be settled at Owner's sole election for up to $10,000 per claim (or such greater amount per claim as Contractor may fix by written notice to Owner). The amount of any such claims may be withheld from Contractor's final payment.

Contractor shall reimburse Owner for all costs and expenses incurred by Owner in the settlement of any claims payable by Contractor.

5.17. CONTRACTOR'S USE OF OWNER'S PROPERTY. In the event that any arrangement is made whereby Contractor or any of its subcontractors of any tier use any employees of Owner, any tools, equipment, apparatus, improvements or other personal property of Owner or any utilities (such as electricity, gas, water, compressed air and toilet facilities) furnished by or through Owner, irrespective of who pays the employees and regardless of whether any consideration is paid for the use of the tools or the utilities, then the employees while engaged in the use of the tools or the utilities shall be conclusively considered the agents, servants, and employees of

Contractor, and the acceptance and/or use of the tools or the utilities by Contractor or its subcontractors of every tier shall mean the Contractor has inspected and determined the tools and utilities satisfactory for Contractor's intended purposes and uses, and accepted full responsibility for the tools and utilities. **Owner makes no representation or warranty regarding the condition or suitability of any such tools, equipment, apparatus, improvements, other property or utilities and Contractor releases Owner from all such claims of representation and/or warranty with regards the conditions of suitability of such tools, equipment, apparatus, improvements, other property, or utilities.** Contractor shall return the tools at the conclusion of Contractor's use thereof in the same condition as when received, ordinary wear and tear excepted.

5.18. LAWS AND REGULATIONS.

a. Prior to beginning the Work, Contractor shall become familiar with all of the Laws and Regulations relating to the Work or which in any manner might affect the Work and shall thereafter comply with all such Laws and Regulations. Contractor shall, at its expense, obtain all permits, licenses, certificates, and other authorizations required by or reasonably necessary in connection with the Work and shall at all times observe and comply with the Laws and Regulations.

b. Contractor agrees that all financial settlements, billings, and reports rendered to Owner as provided for in the Contract Documents will, to the best of its knowledge and belief, reflect properly the facts about all activities and transactions handled for the account of Owner, which data may be relied upon by Owner, Landscape Architect, and Engineer as being complete and accurate in any further recording and reporting made by Owner for whatever purpose.

c. Contractor agrees to notify Owner promptly upon discovery of any instance where the Contractor fails to comply with provision (a), above, or where Contractor has reason to believe data covered by (b), above, is no longer accurate and complete.

5.19. BUSINESS STANDARDS. Contractor, in performing its obligations under this Contract, shall establish and maintain appropriate business standards, procedures, and controls, including those necessary to avoid any real or apparent impropriety or adverse impact on the interests of the Owner. Contractor shall review with the Owner at reasonable frequency during the performance of the Work hereunder, such business standards and procedures including, without limitation, those related to the activities of Contractor's employees and agents in their relations with the Owner's employees, agents, and representatives, vendors, subcontractors and other third parties, and those relating to the placement and administration of purchase orders and subcontracts.

In connection with this Contract and the Work, neither Contractor, its subcontractors of every tier, nor the employees, representatives, and agents of Contractor or any such subcontractor shall at any time solicit, accept, offer, or bestow gratuities of more than nominal value from or to one or more of the Indemnified Parties, any of Owner's other contractors associated with the Work, the employees, agents, or representatives of such other contractors, or anyone else associated with the Work. Violation of this policy by Contractor or any subcontractor shall constitute a material breach of Contractor's obligations under the Contract Documents that may result at the Owner's election in a declaration of default.

5.20. SAFETY.

a. Contractor shall develop a safety program applicable to each job site and to the Work to be done and enforce such program at all times. Further, Contractor shall comply with all applicable Laws and Regulations including, but not limited to, the standards and regulations promulgated by the Secretary of Labor under the Occupational Safety and Health Act of 1970 (OSHA) and any other legislation enacted for the safety and health of Contractor employees. Contractor shall have complete control of the Work and Site and responsibility for protecting the safety and health of its employees, subcontractors, and all other persons.

b. Contractor shall notify Owner immediately by telephone, with prompt confirmation in writing, of injuries and fatalities that occur on the Site in connection with any Work being performed under this Contract and shall provide Owner with such reports of injuries and fatalities as Owner shall deem necessary, including but not limited to, copies of all reports or other documents filed or provided to Contractor's insurers or the State of Texas in connection with such injury or fatality.

c. Nothing contained herein shall be interpreted as enlarging Owner's legal duty to Contractor or to Contractor's agents, employees, subcontractors, or third parties, or altering the status of Contractor as an independent contractor.

5.21. ALCOHOL, DRUGS, WEAPONS, ETC. The use of alcohol or controlled substances by any Contractor Parties on Owner's property or the Site or any person remaining on Owner's property or the Site under the influence of such substances is strictly prohibited. In addition, possession of alcohol, controlled substances, firearms, explosives, weapons, and hazardous substances or articles without proper authorization is not permitted on Owner's property or the Site. Entry onto Owner's property is deemed to be consent to and recognition of the right of Owner or a representative of the Owner who has been specifically authorized to search the person, motor vehicles, and other property of each individual while entering, on, or departing the Site.

5.22. UTILITY SERVICES FOR CONSTRUCTION. The Contractor shall provide all utilities necessary for construction at no additional cost to Owner unless otherwise specified in the Contract Documents.

5.23. OPERATION AND MAINTENANCE MANUALS. Operation and maintenance manuals are to be provided where required by an item in the Technical Specifications. The Contractor is responsible for obtaining installation, operation, and maintenance manuals from manufacturers and suppliers for equipment furnished under the Contract and shall submit three copies of each complete manual and one CD to the Landscape Architect within ninety (90) days after approval of Shop Drawings, product data, and samples, and not later than the date of shipment of each item of equipment to the Site or storage location. Operations and maintenance manuals specified hereinafter are in addition to any operation, maintenance, or installation instructions required by the Contractor and/or Landscape Architect to install, test, and start up equipment. Contractor shall comply with all such manuals in installing and operating such equipment.

Each manual must be bound in a folder and labeled to identify the contents and project to which it applies. The Landscape Architect may additionally request electronic copies of each manual, stored on electronic media suitable to the Landscape Architect. The manual should contain the following:

a. An 8-1/2-inch x 11-inch typewritten sheet listing the manufacturer's identification, including order number, model, and serial number and location of parts and service centers.

b. A separate 8-1/2-inch x 11-inch typewritten list of recommended stock of parts, including part number and quantity.

c. Complete replacement parts list.

d. Performance data and rating tables.

e. Specific instructions for installation, operation, adjustment, and maintenance.

5.24. INTERRUPTION OF UTILITY SERVICES. The Contractor shall not operate any valve or other control on existing systems. The Contractor shall exercise care in performing Work so as not to interrupt service, including, but not limited to, locating and uncovering existing utilities ahead of heavy excavation equipment and at house connections, either lifting trenching machine over lines or cutting and reconnecting with minimum interruption of service, as approved.

5.25. TRAFFIC AND OTHER SAFETY MEASURES. If the Work occurs on, near, or adjacent to any street, alley, or public place or where construction creates hazard to property, traffic, or public safety, the Contractor shall furnish and maintain suitable barricades, warning signs, lights and other safety items or mechanisms and remove same when no longer necessary. The Contractor shall be responsible for all phases of traffic control according to the guidelines as set forth in Manual on Uniform Traffic Control Devices and per all Laws and Regulations.

5.26. USE OF STREETS. Except where approved otherwise, the Contractor may not hinder or inconvenience travel on streets or intersecting alleys for more than two blocks at any one time. Whenever streets are closed the Contractor shall comply with all Laws and Regulations and place properly worded signs announcing such fact to the public, with proper barricades at the nearest street corners, on both sides of obstruction. The Contractor shall leave no street or driveway blocked at night. When streets are closed, Contractor shall also notify the Landscape Architect, the Fire Department and the Police Department and any other parties required by Law and/or Regulation(s). The Contractor shall not block ditches, inlets, fire hydrants, etc., and, where necessary, shall provide temporary drainage.

The Contractor shall remove as soon as practicable, accumulated rubbish and open each block for public use. Use of any portion of a street shall not constitute acceptance of any portion of Work. The Contractor shall backfill and shape trenches across street intersections or driveways for safe traffic at night or, where permitted, span open trenches with steel plates or bridges to permit traffic flow. When driveways are cut, the immediate placement of mats for ingress or egress of vehicles may be directed if undue hardship to property owner would otherwise result and/or the Law requires.

5.27. CONSTRUCTION STORMWATER DISCHARGES. The Contractor shall, without any additional expense to the Owner, be responsible for obtaining any necessary licenses and permits and for complying with all applicable Laws and Regulations, including, but not limited to, any Laws and Regulations concerning storm water permitting and management. Specifically, without limitation, the Contractor will comply with all aspects of the Texas Pollutant Discharge Elimination System ("TPDES") General Permit for Storm Water Discharges from Construction Activities in Texas and with the Storm Water Pollution Prevention Plan (SWPPP) that has been

developed for the Project. At Owner's expense, the baseline SWPPP for the Project will be provided by the Engineer to Contractor. The Contractor will implement the baseline SWPPP and advise the Engineer and Landscape Architect in writing prior to implementing any changes required to the SWPPP due to changes in construction activities. The Engineer may update SWPPP due to changes in construction activities. The Contractor will file the Notice of Intent ("NOI") for permit coverage with the Texas Commission on Environmental Quality and will maintain a copy thereof, file stamped by such governmental authority, at the Site. Weekly inspection to ensure compliance with the SWPPP and other permit requirements will be performed by the Contractor. Upon Final Completion, the Contractor shall file the Notice of Termination ("NOT") with the Texas Commission on Environmental Quality.

The Contractor, and not the Owner, shall be responsible for, and the Contractor shall indemnify Owner from and against, any and all monetary fines or damages assessed by any governing agency resulting from the failure to comply with the requirements of the SWPPP.

5.28. SITE MAINTENANCE AND CLEAN-UP. Contractor shall maintain the Site during construction to keep it reasonably neat and free of trash, rubbish, and other debris. In clean-up operations, Contractor shall remove from the Site and from public and private property temporary structures, rubbish, and waste materials and dispose of excavated materials beyond that needed to bring the Site to elevations shown. During final clean-up, any road constructed by Contractor for access to the Site must be leveled and ruts filled so that surface drainage is not hindered.

5.29. AS-BUILT DIMENSIONS/RECORD DRAWINGS. The Contractor shall make daily measurements of facilities constructed and keep accurate records of location (horizontal and vertical) of all facilities. Upon Final Completion of Work, the Contractor shall furnish Owner with one set of direct prints, marked with red pencil, to show as-built dimensions and location of all Work constructed.

5.30. SANITATION. Necessary sanitary conveniences for the use of laborers on the Work, properly secluded from public observation, shall be constructed and maintained by Contractor, in accordance with all Laws and Regulations and in such manner and at such point as shall be approved by Owner, and their use shall be strictly enforced.

5.31. CONTRACTOR'S BUILDINGS. The building of structures for housing men, or the erection of tents or other forms of protection will be permitted only at such places as Owner shall prescribe, and the sanitary conditions of the grounds in or about such structures shall at all times be maintained in a manner satisfactory to Owner in accordance with all Laws and Regulations.

ARTICLE VI. LANDSCAPE ARCHITECT'S STATUS DURING CONSTRUCTION

6.01. LANDSCAPE ARCHITECT'S AUTHORITY AND DUTY. It is mutually agreed between the parties to this Contract that: Landscape Architect will act as Owner's representative during the construction of the Project, and that no act or omission on the part of Landscape Architect, or its subordinates or representatives, will excuse Contractor from full and proper performance of this Contract according to its terms, or give rise to any liability or obligation from Landscape Architect to Contractor. All authority and rights assigned by the Owner to the Landscape Architect with respect to the Work are solely and exclusively for the benefit of the Owner and not for the Contractor. The Landscape Architect shall have no liability to Contractor under these Contract Documents.

As a contractual adjudication procedure pursuant to Local Government Code 271.154 and in order to prevent delays, it is further agreed by and between the parties to the Contract that, if it cannot be otherwise agreed, Landscape Architect shall in all cases: (i) determine the amounts and quantities of the several kinds of Work which are to be paid for under this Contract; (ii) determine all questions in relation to said Work and the construction thereof; and (iii) decide every question in writing which may arise relative to the performance of this Contract on the part of Contractor. Provided, however, that should Landscape Architect render any decision or make any requirement which, in the opinion of Contractor, is not in accordance with the meaning and intent of this Contract, Contractor must file with Landscape Architect, as part of the contractual adjudication procedure, within thirty (30) calendar days, of Landscape Architect's written decision Contractor's written notice of objection(s) to the decision or requirement so rendered. Contractor's failure to object to Landscape Architect's decision or requirement within such contractual adjudication period of thirty (30) calendar days shall be deemed Contractor's agreement with such decision or requirement. It is the intent of this Contract that there shall be no delay in the performance of the Work. To this end, the decision or requirement of Landscape Architect shall be promptly carried out. Landscape Architect shall, within a reasonable time or as otherwise required in the Contract Documents, render and deliver to both Owner and Contractor a written decision on all Claims of the parties hereto and on all questions that may arise relative to the execution of the Work or the interpretation of the Contract, Technical Specifications, or Plans.

6.02. EXAMINATION, OBSERVATION, AND TESTING. It is agreed by Contractor that Landscape Architect shall be and is hereby authorized to appoint from time to time such subordinate Landscape Architects or Project representatives as Owner may deem proper to examine the material furnished and observe the Work done and to ascertain whether the said material is furnished and said Work is done in accordance with the Contract Documents. Contractor shall furnish all reasonable aid and assistance required by the subordinate Landscape Architects or Project representatives for the proper examination and testing of the Work and materials. The authority of subordinate Landscape Architects and Project representatives shall be limited to examination, observation, and testing of Work and materials, and reporting same to Landscape Architect.

6.03. PRELIMINARY APPROVAL. Neither Landscape Architect nor its subordinates shall have any power to waive the obligations of this Contract for the furnishing by Contractor of good, new material, or for Contractor's obligations to perform the Work in a good and workmanlike manner as herein described and in full accordance with the Plans, Technical Specifications, and other Contract Documents. No action taken or thing done, written or oral, including, but not limited to, inspections made, payments made, or Final Completion of the Work, and no failure or omission of Landscape Architect or its subordinates to discover, object to, or condemn any defective Work or material, shall release Contractor from the obligation to fully and properly perform the Contract, including, without limitation, the obligation to at once tear out, remove, and properly replace the same.

Any questioned Work may be ordered by Landscape Architect to be taken up or removed for re-examination prior to Final Acceptance, and if found not in accordance with the Contract Documents for said Work, all expense of removing, reexamination, and replacement shall be borne by Contractor; cost of uncovering any Work will be borne by Owner only when the Work is found acceptable and the Work was originally performed with the knowledge of the Landscape Architect.

6.04. RIGHT OF LANDSCAPE ARCHITECT TO MODIFY MATERIALS AND EQUIPMENT. The Contractor shall provide and use accepted equipment and materials in sufficient qualities and

quantities to facilitate diligent prosecution of the Work to the end that the Work will be completed within the time for completion and otherwise in accordance with the Contract Documents. If at any time Landscape Architect shall find that the materials or equipment used by Contractor are faulty or inadequate to secure the quality of Work or the rate of progress necessary for Contractor to complete the Work (or any portion thereof) within the time period required by this Contract or otherwise will prevent the Work from being completed in accordance with the Contract Documents, Landscape Architect may, in writing, require Contractor to improve the materials and/or equipment, and/or replace and/or supplement them, and Contractor shall comply with such requirements.

6.05. WORK FORCE AND EQUIPMENT. If at any time the working force of Contractor is inadequate for securing the progress herein specified, Contractor shall, if so notified in writing, increase its work force or equipment, or both, to such an extent as to ensure compliance with the schedule of progress (and timely completion of the Work) all in accordance with the Contract Documents.

ARTICLE VII. EXTRA WORK/ CHANGE ORDERS/ CLAIMS

7.01. CHANGES AND ALTERATIONS. Contractor further agrees that Owner may make such changes and alterations as Owner may see fit in the line, grade, form, dimensions, Plans, Technical Specifications, or materials for or scope of the Work herein contemplated, or any part thereof, either before or after the beginning of the construction, without affecting the validity of this Contract and the accompanying Bonds.

If such changes or alterations diminish the quantity of the Work to be done, such changes may reduce the Contract Price according to the quantity of Work actually done and the unit price established for such Work under this Contract and shall not constitute the basis for a Claim. If such changes or alterations increase the amount of Work and the increased Work can fairly be classified under the Plans, Technical Specifications, or other Contract Documents, such increase shall be paid for according to the quantity of Work actually done and at the unit prices established for such Work under this Contract, otherwise such Extra Work shall be paid for as provided in this Article. If Owner makes such changes or alterations as makes useless any Work already done or materials already furnished or used in accordance with the Contract Documents in connection with said Work, then Owner shall recompense Contractor for such Work, labor and materials, in accordance with the prices therefore in the Contract Documents, made useless by such change.

7.02. EXTRA WORK. It is agreed that Contractor shall perform all Extra Work when presented with a Written Work Order or Change Order. **The Contract Price for Extra Work may be changed only by a Change Order signed by Owner, Landscape Architect, and Contractor**. It is agreed that pricing in any Change Order for performing Extra Work shall be determined by one (1) or more of the following methods:

Method (A) - By agreed unit prices; or

Method (B) - By agreed lump sum; or

Method (C) - If neither Method (A) nor Method (B) be agreed upon before the Extra Work is commenced, then Contractor shall be paid the "actual field cost" of the Extra Work, less any savings attributable to the change, alteration or addition, plus fifteen percent (15%) of the net amount.

In the event said Extra Work be performed and paid for under Method (C), then the provisions of this paragraph shall apply and the "actual field cost" is hereby defined to include the cost of all workmen, such as foremen, timekeepers, mechanics, and laborers, and all materials, supplies, teams, trucks, and rentals on machinery and equipment for the time actually employed or used on such Extra Work, plus actual transportation charges necessarily incurred if such equipment or machinery be not already on the job together with all power, fuel, lubricants, water, and similar operating expenses; also all necessary incidental expenses, incurred directly on account of such Extra Work, including Social Security, Old Age Benefits, and other payroll taxes, and a ratable proportion of premiums on all Bonds and all insurance as may be required by any law or ordinance, or required by Landscape Architect or Owner, or by them agreed to. Landscape Architect may prescribe the form in which accounts of the "actual field cost" shall be kept and may also specify, in writing, before the Work commences, the type and kind of machinery and equipment to be used, otherwise these matters shall be determined by Contractor. Where practicable, the terms and prices for the use of machinery and equipment shall be incorporated in the Written Work Order or Change Order. The fifteen percent (15%) of the "actual field cost" to be paid Contractor shall cover and compensate Contractor for its profit, overhead, general superintendence and field office expense, and all other elements of cost and expense not embraced within the "actual field cost" as herein defined, save that where Contractor's camp or field office must be maintained primarily on account of such Extra Work, then the cost to maintain and operate this office shall be included in the "actual field cost." When Extra Work is performed by a subcontractor, the fifteen percent (15%) will apply to the subcontractor only. The Contractor will be allowed five percent (5%) for overhead and profit.

No Claim for Extra Work of any kind will be allowed unless ordered in writing by Landscape Architect. In case any requirements, response to request for information, response to a submittal or other communication made by Landscape Architect or any other event appear to Contractor to involve Extra Work for which Contractor should receive compensation, Contractor shall immediately, and in any event within thirty (30) calendar days after being notified of any such requirement, response, or communication or after such event, make written request to Landscape Architect for written authorization there for. Such written request for written authorization shall set forth Contractor's belief of, basis for and amount of expected compensation. IN NO EVENT SHALL CONTRACTOR BEGIN PERFORMING THAT PORTION OF THE WORK AFFECTED BY SUCH REQUIREMENT, RESPONSE, OR COMMUNICATION PRIOR TO GIVING SUCH WRITTEN REQUEST FOR WRITTEN AUTHORIZATION TO THE LANDSCAPE ARCHITECT. Any written request for written authorization not timely made by the Contractor shall be deemed a waiver by the Contractor of its right to assert and recover any additional compensation or otherwise on a Claim in respect of such request, response, or communication. Should a difference of opinion arise as to what does or does not constitute Extra Work, or as to the payment therefore, and Landscape Architect insists upon its performance, Contractor shall proceed with the Work after making its written request for written authorization to Landscape Architect and shall keep an accurate account of the "actual field cost" thereof, as provided under Method (C). Landscape Architect shall, within a reasonable time, render and deliver to both Owner and Contractor a written decision on all Claims as provided under **Section 6.01** in these General Conditions.

7.03 ESTIMATED QUANTITIES. The estimated quantities of the various classes of Work to be done and material to be furnished under this Contract are approximate and are to be used only as a basis for estimating the probable cost of the Work and for comparing the Bids offered for the Work. It is understood and agreed that the actual amount of Work to be done and material to be furnished under this Contract may differ somewhat from these estimates, and that the basis for

determining quantities for payment under this Contract shall be the actual amount of such Work done and the material incorporated**.**

CONTRACTOR AGREES THAT IT WILL MAKE NO CLAIM AND RELEASES OWNER FOR DAMAGES, ANTICIPATED PROFITS, OR OTHERWISE ON ACCOUNT OF ANY DIFFERENCES WHICH MAY BE FOUND BETWEEN THE QUANTITIES OF WORK ACTUALLY DONE OR THE MATERIAL ACTUALLY INCORPORATED UNDER THIS CONTRACT AND THE ESTIMATED QUANTITIES CONTEMPLATED AND CONTAINED IN THE BID.

Where the final quantity of Work performed by Contractor on "Major Unit Price Work" item differs by more than twenty-five percent (25%) from quantity of the item stated in the Contract, a party may request (subject to Owner's approval) an adjustment in the unit price, for the portion that differs by more than twenty-five percent (25%), by a Change Order. Major Unit Price Work is defined as an individual unit price line item whose original total value: (i) is greater than five percent (5%) of original Contract Price; (ii) becomes greater than five percent (5%) of original Contract Price as the result of an increase in quantity; or (iii) is greater than or equal to $100,000, whichever is least.

7.04. EXTENSION OF TIME. Subject to the remainder of this paragraph, should Contractor be delayed in the completion of the Work by any act or negligence of Owner or Landscape Architect, or by any employee of either, or by other contractors employed by Owner, or by changes ordered in the Work, then, if the other requirements for an extension of time are met, an extension of time shall be allowed for completing the Work sufficient to compensate for the delay, the amount of the extension to be the amount approved by Owner, based on the recommendation by Landscape Architect; provided, however, that Contractor shall give Landscape Architect notice in writing of the cause of such delay and the impact to the critical path of the schedule prior to the tenth day of the month following the month in which the delay occurred. Failure to file requests for extension of time within the time set forth in and otherwise as required by this paragraph shall constitute a waiver of any rights the Contractor may have had to such extensions of time. Contractor shall support its request for time extension with such information as required by Landscape Architect. Approved extensions of time must be made in writing, signed by the Owner, Landscape Architect, and Contractor.

Contractor will not be allowed time extensions that are due to: (i) inclement weather except for Force Majeure events as defined under Section 1.01 of these General Conditions; (ii) non-availability of equipment or material, when the principal units of Work and tasks on the critical path are not in progress or are not delayed by the event of delay, interference, disruption, or hindrance; (iii) when at least seven (7) hours of available working time remain out of the working day; (iv) while materials are drying and it is possible for the Contractor to enclose the area and use drying devices; (v) when an event of delay, interference, disruption, or hindrance occurs on a day other than a working day or other day when the Contractor had not originally planned to work; (vi) when an event of delay, interference, disruption, or hindrance occurs after the expiration of the time for completion; (vii) to the extent the Contractor could have anticipated or alleviated the impact of the event of delay, interference, disruption, or hindrance through reasonable efforts; (viii) when events of concurrent delay overlap the claimed delay; and/or (ix) when an extension of time is precluded by any provision of the Contract Documents.

7.05 HINDRANCES, INTERFERENCES, DISRUPTIONS, AND DELAYS. Excluding Owner's fraud, bad faith, or intentional interference, the Contractor shall receive no financial

compensation for delay, interference, disruption, or hindrance at any time in the commencement or progress of the Work for any reason and for any period of time, by an act, omission or neglect, or otherwise, of the Owner, Landscape Architect or any other consultant or Contractor of the Owner, or of an employee of any of them; or by changes ordered in the Work; or by fire, unavoidable casualties or other causes beyond the Contractor's control; or by delay authorized by the Owner pending mediation; or by other causes that may justify delay. To the fullest extent allowed by applicable Laws and Regulations, in no event shall the Owner be liable to the Contractor or any subcontractor or supplier, any other person or any surety for or any employee or agent of any of them, and Contractor releases Owner, for any damages arising out of or associated with any delay, interference, disruption, or hindrance to the Work, regardless of the source of the delay, interference, disruption, or hindrance, AND EVEN IF SUCH DELAY, HINDRANCE, DISRUPTION OR INTERFERENCE RESULTS FROM, ARISES OUT OF OR IS DUE, IN WHOLE OR IN PART, TO THE NEGLIGENCE, BREACH OF CONTRACT OR OTHER FAULT, HOWEVER CHARACTERIZED, OF THE OWNER OR THE LANDSCAPE ARCHITECT OR THE EMPLOYEES, REPRESENTATIVES OR AGENTS OF THE OWNER OR LANDSCAPE ARCHITECT. The Contractor's sole remedy in any such case shall be an extension of time in such amount as allowed by **Section 7.04** of these General Conditions.

7.06 NOTICE/CONTRACTUAL ADJUDICATION PROCEDURES. It is agreed that, unless specifically waived in the Contract Documents, all Claims shall be referred to Landscape Architect for a decision. All Claims shall be in writing and filed with Landscape Architect within thirty (30) calendar days of the event giving rise to such Claim, unless a specific provision of the Contract Documents provide a shorter period of time for such filing, in which case it shall occur within such shorter time. Written notice stating the general nature of each Claim and the amount or extent of the Claim, with supporting data, must be provided so the Owner and Contractor can investigate and settle disputes, if any, while construction continues. The Claim shall also be accompanied by Contractor's written statement that the adjustment claimed is the entire adjustment to which the Contractor believes it is entitled as a result of said event. Landscape Architect shall reply to such written Claims by Contractor and render its final decision in writing within thirty (30) days of receipt of the Contractor's last submittal. In the event Landscape Architect shall take no action, the Claim shall be deemed denied. Contractor must provide notice of its intent to appeal Landscape Architect's decision within ninety (90) days of Landscape Architects final decision or within ninety (90) days from the end of the thirty (30) day timeframe for Landscape Architect to reply to Contractor's written Claim, whichever is earlier.

Contractor hereby confirms its willingness and ability to comply with the contractual adjudication procedures of the Contract Documents for seeking an adjustment in price or time, or other relief and hereby agrees that the time periods, notice requirements and procedures set forth in the Contract Documents are reasonable time periods, notice requirements and procedures and that Owner will be prejudiced if Contractor fails to comply with such time periods, notice requirements and procedures. ACCORDINGLY, CONTRACTOR'S FAILURE TO COMPLY WITH THE TIME PERIODS, NOTICE REQUIREMENTS AND CONTRACTUAL ADJUDICATION PROCEDURES OF THE CONTRACT DOCUMENTS WITH RESPECT TO A CLAIM FOR ADJUSTMENT IN PRICE OR TIME, DAMAGES OR OTHER RELIEF SHALL CONSTITUTE A WAIVER OF THE CLAIM, INCLUDING CLAIMS ARISING OUT OF OWNER'S NEGLIGENCE, BREACH OF CONTRACT OR OTHER FAULT OR STRICT LIABILITY WITHOUT REGARD TO FAULT.

IT IS FURTHER AGREED THAT ACCEPTANCE BY CONTRACTOR OF THE FINAL PAYMENT SHALL BE A BAR TO ANY CLAIMS OR SUITS BY CONTRACTOR AGAINST OWNER FOR ANY MATTERS RELATED TO THIS CONTRACT, INCLUDING MATTERS

ARISING OUT OF OWNER'S NEGLIGENCE, BREACH OF CONTRACT OR OTHER FAULT OR STRICT LIABILITY WITHOUT REGARD TO FAULT.

7.07 **WAIVER OF CHAPTER 2272 CLAIMS PROCEDURES. Owner and Contractor mutually agree that Chapter 2272 of Subtitle F, Title 10, of the Government Code ("Chapter 2272"), shall not apply to the Work. Owner and Contractor waive the application of Chapter 2272, if any, to the Contract. Instead, Owner and Contractor agree to follow the claims procedures in the General Conditions of the Contract Documents.**

ARTICLE VIII. TESTS AND INSPECTIONS/ DEFECTIVE WORK/ WARRANTY

8.01. TESTING AND INSPECTION. The Owner shall arrange and obtain all inspections and tests required by the Contract Documents; provided, however, that if initial testing fails, all retests will be at Contractor's sole expense. Such testing and inspection is for the sole benefit of Owner, and Owner makes no representation or warranty as to the accuracy of the results of any test or inspection. Contractor at its own expense shall provide such laboratory with all test specimens required by the Contract Documents. The Contractor shall notify the Landscape Architect prior to manufacture or fabrication of items so that observation may be accomplished and furnish field samples of materials to Landscape Architect for testing.

8.02. DEFECTS AND THEIR REMEDIES; WARRANTY PERIOD. It is agreed that if the Work or any part thereof, or any material delivered to the Site for use in the Work or selected for the Work, shall be deemed by Landscape Architect as unsuitable or not in conformity with the Contract Documents, Contractor shall, after receipt of written notice thereof from Landscape Architect, forthwith remove such material and rebuild or otherwise remedy such Work so that it shall be in full accordance with this Contract.

It further is agreed that all Work or any part thereof, including equipment installed, shall be free from defects due to faulty workmanship or materials during the warranty period of ONE (1) year from the date of Final Completion. Contractor shall notify Landscape Architect in writing thirty (30) days in advance of the expiration of such warranty period, and Landscape Architect shall thereafter schedule a final inspection of the Work prior to the expiration of the warranty period. Contractor's failure to notify the Owner of the expiration of the warranty period, as provided herein, shall extend the warranty period for successive thirty (30) day periods until such written notice is received. Upon notice from Owner, Contractor shall repair defects in all construction that develop during the warranty period, or as noted on the final inspection report, at no cost to Owner. Neither Final Acceptance nor final payment nor any provision in the Contract Documents relieves Contractor of the above guarantee.

If observed by Owner, notice of the defects will be given by Owner to Contractor with reasonable promptness. Failure to repair or replace defect upon notice entitles Owner to repair or replace same and recover reasonable cost thereof from Contractor and/or its surety.

8.03. RIGHT OF ENTRY. Owner reserves the right to enter the property or location on which the Work herein contracted for is to be constructed or installed, by Landscape Architect and such agent or agents as Owner may elect, for the purpose of examining, observing, or testing the Work, or for the purpose of constructing or installing such collateral Work as Owner may desire.

ARTICLE IX. MINIMUM WAGE RATE SCALE/PRICE FOR WORK/ PAYMENTS TO CONTRACTOR

9.01. LABOR CLASSIFICATION AND MINIMUM WAGE RATE SCALE.
Chapter 2258 of the Texas Government Code provides that any political subdivision of the State of Texas shall ascertain the general prevailing wage rate received by the classes of workers employed on projects similar to this Project and shall specify in the call for Bids and in the Contract Documents the minimum wage rates which shall be paid for each type of worker. This statute further provides that the Contractor or subcontractors shall pay, as penalty, to Owner Sixty Dollars ($60.00) for each worker employed for each calendar day or part of the day that the worker is paid less than the wage rates stipulated in the Contract. Owner is authorized to withhold from the Contractor the amount of this penalty from any payment due under the Contract Documents. The statute likewise requires that the Contractor and subcontractors keep an accurate record of the names and occupations of all persons employed by them on the construction of the Project and to show the accrual per diem wages paid to each worker. These records are open to the inspection of Owner. The minimum wage rates that apply to this Contract are specified in the **Attachment B to these General Conditions**. Contractor and subcontractors shall review and ascertain such wage rates and pay at least such minimum rates.

9.02. PRICE FOR WORK. In consideration of the furnishing of all the necessary labor, equipment, and material and the completion of all Work by Contractor, and on the Final Completion of all Work and the delivery of all materials embraced in this Contract in full conformity with the Contract Documents, Owner agrees to pay Contractor the final Contract Price. Contractor hereby agrees to pay such prices as are necessary for furnishing all materials and all labor required for the aforesaid Work, including all expenses incurred by him, and for well and truly performing the same and the whole thereof in the manner prescribed by and in accordance with the Contract Documents, including the Plans and the attached Technical Specifications, and requirements of Landscape Architect.

9.03. PROGRESS PAYMENTS. On or before 25th day of each month, the Contractor shall submit an application for progress payment to the Landscape Architect showing the total value of the Work completed. Progress payments for unit price work will be based on the number of units completed. No payment shall be requested nor made for materials purchased or stored on-site that are not yet incorporated into the Work unless specifically authorized by the Owner and Landscape Architect and Contractor furnishes satisfactory evidence that Contractor has acquired title to the material and that it will be utilized in the Work. If requested, Contractor shall meet with the Landscape Architect at the Site to verify the quantity of Work completed.

Beginning with the second application for progress payment, each application shall include an affidavit and lien release 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 with respect to the prior application for payment.

Landscape Architect shall promptly review each application for payment, including required submittals. Landscape Architect shall provide to Owner a statement showing, as complete as practicable and based upon Landscape Architect's observations, the total value of the Work completed by the Contractor together with Landscape Architect's recommendation as to payment. Landscape Architect may refuse to recommend the whole or any part of any payment if, in Landscape Architect's opinion, such payments are not due and payable under the Contract Documents. Payments based on such interim statements are subject to adjustment and correction as set forth in the Contract Documents.

In making progress payments, ten (10) percent of the estimated amount shall be retained until Final Completion. However, if the Owner at any time after fifty (50) percent of the Work has been completed finds that satisfactory progress is being made, Owner may authorize any of the remaining progress payments to be made in full. Also, if the Work has reached Substantial Completion, the Owner, if Owner finds the amount retained to be in excess of the amount adequate for the protection of the Owner, at its discretion, may release to the Contractor all or a portion of the excess amount retained. The Owner is not obligated to pay interest on amounts retained except as provided herein. The Owner shall not be obligated to pay any interest on the ten (10) percent retainage held on the first fifty (50) percent of Work completed. If the Owner holds any retainage on the remaining fifty (50) percent of the Work completed, the Owner must pay interest on such retainage from the date the retainage is withheld to the date of payment to the Contractor. The interest rate to be paid on such retainage shall be the rate of interest paid by the Owner's depository bank on interest bearing accounts of similar amounts during the period of time interest accrues.

Owner may, at Owner's option, withhold part or all of any payment due the Contractor if: (i) any Work progress falls behind schedule or any requirement of the Contractor as provided in the Contract is not performed timely or as scheduled, including submission of any submittals, reports, Shop Drawings, samples, test reports; (ii) any Work is defective or not in strict compliance with this Contract or should Contractor otherwise fail to perform Work in accordance with the provisions of this Contract; (iii) Owner has incurred damages, including, without limitation, any additional costs associated with design professionals, attorneys or other consultants, as a result of any action or inaction by Contractor not in accordance with the Contract; (iv) claims have been made against Owner on account of Contractor's performance (or non-performance) or furnishing of the Work; (v) Contractor is in breach of the Contract Documents; (vi) there is evidence that the Work cannot be completed for the unpaid balance of the Contract Price; (vii) Contractor has failed to submit proper statements for payment with all required attachments and supporting documentation, which documentation shall expressly include consent of Contractor's surety as to payment, without obligation to the surety to do so, if, in Owner's sole discretion, any cause for such consent exists; (viii) Contractor has failed or allegedly failed to make payment to any tier of subcontractor or supplier; and (ix) any other items entitling Owner to an offset against the amount recommended for payment. It is understood, however, that in case the whole Work is near completion and some unexpected and unusual delay occurs due to no fault or neglect on the part of the Contractor, the Owner may, at Owner's option and upon written recommendation of the Landscape Architect, pay a reasonable and equitable portion of the retained percentage to the Contractor; or the Contractor, at the Owner's option, may be relieved of the obligation to fully complete the Work and, thereupon, the Contractor shall receive payment of the balance due him under the Contract, subject to the conditions stated in **Section 10.01.**

Partial payment shall not be construed as an acceptance of defective or non-conforming Work.

9.04. PAYMENT OF SUBCONTRACTOR/MATERIAL CLAIMS. Should Owner receive notice of any claim(s) of unpaid labor or materials (or damages) from subcontractors, material suppliers, or any other person or entity, Owner may, at its option, withhold part or all of any payment due the Contractor until Owner, in its discretion, is satisfied that such claim(s) have been fully resolved and paid by Contractor, or Owner may, at its option, pay such claim(s) using the withheld funds.

9.05. RIGHT OF SET-OFF. If the Owner is entitled to reimbursement or payment from the Contractor under or pursuant to the Contract Documents, such payment shall be made promptly upon

demand by the Owner. Notwithstanding anything contained in the Contract Documents to the contrary, if the Contractor fails to promptly make any payment due the Owner, or if the Owner incurs any costs and expenses to cure any default of the Contractor or to correct defective Work, or if the Contractor owes the Owner money for any other reason, then, for all purposes and at all times, without waiver or limitation of any of its other rights or remedies under this Contract and applicable Laws and Regulations, Owner shall have the right, but not the obligation, to deduct and withhold the amount of money, if any, that may ever be due from Contractor (or its surety) to Owner from any monies that Owner owes Contractor (or its surety), or to issue a written notice to the Contractor reducing the Contract Price by an amount equal to that which the Owner is entitled.

ARTICLE X. SUBSTANTIAL COMPLETION, PARTIAL USE, FINAL COMPLETION, AND ACCEPTANCE

10.01. SUBSTANTIAL COMPLETION. When the Contractor considers that the Work, or a portion thereof which the Owner agrees to accept separately, is substantially complete, the Contractor shall notify Landscape Architect and request a determination as to whether the Work or designated portion thereof is substantially complete. If Owner, or Owner's Landscape Architect does not consider the Work substantially complete, Landscape Architect will notify Contractor giving reasons for the position. After performing any required Work, Contractor shall then submit another request for Landscape Architect to determine Substantial Completion. If Owner considers the Work substantially complete, Landscape Architect will prepare and deliver a certificate of Substantial Completion which shall establish the date of Substantial Completion, shall include a punch list of items to be completed or corrected before Final Acceptance and final payment, and may establish responsibilities of the Owner and Contractor for security, maintenance, utilities, or damage to the Work and insurance until the time of Final Acceptance. If the certificate of Substantial Completion omits responsibilities as to security, maintenance, utilities, or damage to the Work or insurance, the responsibility for the omitted item(s) shall remain with the Party assigned the responsibility in the Contract Documents. Failure to include an item on the punch list does not alter the responsibility of Contractor to complete the Work in accordance with the Contract Documents. Contractor, Landscape Architect, and Owner shall sign the certificate of Substantial Completion confirming the matter is set forth in such certificate. Once Contractor reaches Substantial Completion, Owner may, in its sole discretion, release to Contractor all or a portion of the retainage in excess of the amount adequate for the protection of Owner.

10.02. PARTIAL USE. Use by Owner, at Owner's option, of any substantially completed part of the Work which: (i) has specifically been identified in the Contract Documents; or ii) Owner 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, may be accomplished prior to Substantial Completion of all the Work in accordance with the following: Owner at any time may request Contractor to permit Owner to use any such part of the Work which Owner believes to be ready for its intended use and is substantially complete. If Contractor agrees that such part of the Work is substantially complete, Contractor will certify to Landscape Architect that such part of the Work is substantially complete and request Landscape Architect to issue a notice specifying what portion of the Work is substantially complete for the purpose of payment and what Work remains to be done on the portion being accepted. Contractor at any time may notify Landscape Architect that Contractor considers any such part of the Work ready for its intended use and substantially complete and request Landscape Architect to issue a notice specifying what portion of the Work is substantially complete for the purpose of payment and what Work remains to be done in the portion being accepted. The notice for the portion of the Work that is substantially complete may

establish responsibilities of the Owner and Contractor for security, maintenance, utilities, damage to the Work and insurance for the portion of the Work which is substantially complete and being utilized by Owner. If the notice for the portion of the Work that is substantially complete omits responsibilities of the Owner and Contractor for security, maintenance, utilities, damages to the Work or insurance for the portion of the Work which is substantially complete and being utilized by Owner, the responsibility for the omitted item(s) remains with the Party assigned the responsibility in the Contract Documents.

10.03. FINAL COMPLETION, INCLUDING FINAL ACCEPTANCE, AND PAYMENT. Upon Final Completion of the Work, Contractor shall give the Landscape Architect written notice that the Work has been fully and finally completed and must certify that the Work is complete and was built in conformance with the Plans, Technical Specifications, and other Contract Documents. Such written notice must be accompanied by all documentation called for in the Contract Documents, including but not limited to: (i) maintenance bonds if required by the Contract Documents; (ii) the consent of surety to final payment; (iii) Contractor Affidavit for final payment and Bills Paid; (iv) affidavits of final payment and lien releases from all subcontractors who performed Work on the Project; and (v) as-built drawings, as described in **Section 5.29** of these General Conditions. Drawings will be reviewed by Landscape Architect and returned to Contractor so that any adjustment required may be made. Production of these documents is a condition precedent to final payment

Within ten (10) calendar days after Landscape Architect receives Contractor's written notice, certification(s), and required documentation, Landscape Architect will schedule inspection by Landscape Architect, Owner, and Regulatory Agencies; provided, however, that additional time shall be allowed for scheduling such inspections if required due to the Regulatory Agencies' availability or responsiveness. If the Work is found to be completed in accordance with the Contract Documents, including the Plans and Technical Specifications, and acceptable to the Landscape Architect, Owner, and Regulatory Agencies, Landscape Architect shall proceed to make final measurements and prepare a final statement of the value of all Work performed and materials furnished under the terms of the Contract Documents and shall submit the final statement to Contractor for approval. Upon receipt from the Contractor of the executed approved final statement and all other documents required by the Contract Documents for final payment, the Landscape Architect shall issue to the Owner a certificate of completion and Contractor-approved final statement of the value of the Work performed. The Owner shall thereafter make Final Acceptance of the Work and shall pay to the Contractor on or before the 31st day after the date of the certificate of completion the balance due Contractor under the terms of this Contract, provided it has fully performed its contractual obligations under the terms of this Contract.

The Owner shall be entitled to withhold from such final payment for any circumstance for which Owner is entitled to withhold pursuant to General Conditions. For example, but not by limitation, should Owner receive notice of any claim(s) of unpaid labor or materials (or damages) from subcontractors, material suppliers, or any other person or entity, Owner may, at its option, withhold part or all of any of the final payments due the Contractor until Owner, in its discretion, is satisfied that such claim(s) have been fully resolved and paid by Contractor, or Owner may, at its option pay for such claims(s) using the withheld funds.

Neither Final Acceptance by Owner, nor the final payment, nor any provision in the Contract Documents, shall relieve Contractor of: (i) the obligation for fulfillment of any warranty or guarantee that may be required in the Contract Documents, including the Technical Specifications; (ii) the obligation to repair defective Work or materials; (iii) Contractor's

indemnification obligations under this Contract; or (iv) any of Contractor's continuing obligations.

10.04. OPERATION OF FACILITIES. The Owner reserves the right to operate new facilities during the construction period. Use of new facilities by the Owner during construction will not constitute Final Acceptance of the Work and will not constitute the date for start of any required warranty periods or guarantees. The Contractor will provide all necessary maintenance, including normal lubrication and adjustment, to new facilities operated by the Owner until Final Acceptance of the Work.

ARTICLE XI. SUSPENSION OF WORK/ TERMINATION/ DEFAULT

11.01. SUSPENSION OF WORK. At any time and without cause, Owner may suspend the Work or any portion thereof for a period of not more than sixty (60) consecutive calendar days by written notice to Contractor.

11.02. OWNER'S RIGHT TO CARRY OUT THE WORK. If the Contractor defaults or neglects to carry out the Work in accordance with the Contract and fails within a ten (10) day period after receipt of written notice from the Owner to commence and continue correction of such default or neglect with diligence and promptness, the Owner may, without prejudice to other remedies the Owner may have, correct such deficiencies. In such case the Owner may offset from payments then or thereafter due the Contractor the reasonable cost of correcting such deficiencies, including Owner's expenses and compensation for the Landscape Architect's or other consultant's additional services made necessary by such default, neglect or failure (the "Cost to Cure"). Such action by the Owner and Cost to Cure the Contractor are both subject to prior approval of the Landscape Architect. If payments then or thereafter due the Contractor are less than the Cost to Cure, the Contractor shall pay the difference to the Owner.

11.03. TERMINATION FOR CONVENIENCE OF OWNER. Owner may terminate Contractor's performance under the Contract for Owner's convenience at any time upon written notice to Contractor, whether or not Contractor is in default, and, in such event, Owner's only liability will be to pay Contractor the following amounts:

a. The unpaid balance due Contractor for the Work performed and accepted, based on the schedules and tables, unit prices and lump sums enumerated in the Contract Documents; and

b. Reasonable expenditures made and costs incurred by Contractor for the materials ordered by Contractor for the Work prior to the date of termination and not incorporated in the Work, less reasonable salvage, or resale value, provided such materials conform to the Specifications, and for labor performed on any such materials prior to the date of termination and associated labor insurance and labor payroll taxes.

From the total of the items enumerated in items (a) and (b), above inclusive, there shall be deducted the total dollar amount of all claims of Owner against Contractor, including the total dollar amount of claims on account of delay or defects in materials and/or workmanship.

The amount payable under the provisions of this Section, plus the sum of all amounts previously paid under the Contract, shall in no event exceed the Contract Price. Notwithstanding anything to the contrary contained herein or in the other Contract Documents, neither the Owner nor any

other party shall be responsible for damages for loss of anticipated profits on Work not performed on account of any termination of the Contract.

Contractor shall transfer and assign to Owner in accordance with Owner's instructions, all materials, supplies, Work in process, and other things for which Contractor is entitled to receive reimbursement hereunder, and all plans, drawings, working drawings, sketches, specifications, and information in connection with the Work, and shall take such action as may be necessary to secure to Owner, at Owner's election, the rights of Contractor under any or all orders and subcontracts made in connection with the Work.

If and as Owner so directs or authorizes, Contractor shall sell at a price approved by Owner, or retain at a price mutually agreeable, any such materials, supplies, Work in progress or other things as referred to above. The proceeds of any such sale or the agreed price shall be paid or credited to Owner in such manner as Owner may direct to reduce the amount payable by Owner.

If requested by Owner, Contractor shall endeavor to cancel any or all of its outstanding orders or subcontracts upon such terms as may be approved by Owner.

Upon the performance of the obligations described in this Section by the respective parties, all obligations of the respective parties under the Contract shall be discharged, except such obligations as by their terms, express or implied, contemplate continued obligations after acceptance of the Work.

Nothing herein shall affect the right of Owner to terminate Contractor's performance as provided elsewhere in the Contract Documents.

11.04. TERMINATION FOR CAUSE AND EVENTS OF DEFAULT. An event of default includes, without limitation, any one (1) or more of the following:

a. A petition in bankruptcy is filed by or against Contractor, or Contractor makes a general assignment for the benefit of creditors, or a receiver is appointed on account of the insolvency of Contractor or to take charge of the Work or any part thereof.

b. Contractor fails or refuses to supply enough properly skilled workers or proper equipment or fails to make prompt payment when due to subcontractors for materials, equipment or labor.

c. Contractor disregards the Laws and Regulations or the instructions of Owner or of Landscape Architect.

d. Contractor breaches any of the provisions of the Contract Documents, or breaches any of its representations or warranties in the Contract Documents, or otherwise fails or refuses to perform or fulfill all or any part of its obligations under the Contract Documents.

If one (1) or more of the identified events occur, Owner or Landscape Architect, in Owner's sole discretion without waiving any rights, may provide written notice to Contractor and Contractor's surety of its intent to terminate for cause. Owner will allow a minimum of ten (10) calendar days to cure deficiencies in performance, then in any such case, Owner may, by written notice to Contractor and its surety, declare Contractor in default under the Contract Documents and terminate Contractor's performance under the Contract and may at its option employ any remedies provided for in the Contract Documents or otherwise available at law or in equity.

Nothing contained herein shall be interpreted as enlarging Owner's legal duty to Contractor or to Contractor's agents, employees, subcontractors, or third parties, or altering the status of Contractor as an independent contractor. Should Owner elect to terminate the performance of Contractor hereunder, then such termination shall not waive, extinguish or diminish the obligations and liabilities of the Contractor or its surety existing as of the termination date. Contractor shall submit and does hereby submit to the personal jurisdiction of the state or federal courts having subject matter jurisdiction and sitting in the county in which the Site is located, for the adjudication of any suit brought to enforce Owner's rights and remedies under the Contract.

If for any reason, the Owner's termination for cause is deemed to be invalid, improper, or not enforceable, the Owner's termination for cause is automatically converted to a termination for convenience under 11.03.

11.05. REMEDIES FOR DEFAULT OF CONTRACTOR. In the event the Owner elects to terminate Contractor for cause, Owner shall have the right, but not the obligation, at its sole election and discretion, and without prejudice to any other right or remedy available to it, to take possession of the Work and the Site and use all or any part of Contractor's equipment, tools and materials to itself finish, or cause to be finished by another contractor, the Work by whatever method Owner may deem expedient. Further, Contractor shall not be entitled to receive further payment until the Work achieves Final Completion. If the unpaid balance of the Contract Price exceeds the costs and expenses of terminating the Contract and finishing the Work, (including, without limitation, attorney's, engineering, surveying and other professionals' fees and costs, together with the costs of completing the Work), such excess shall be paid to Contractor. If such costs and expenses exceed the unpaid balance of the Contract Price, Contractor shall pay the difference to Owner. The amount to be paid to the Contractor or Owner, as applicable, shall be certified by the Landscape Architect, upon application, and this obligation for payment shall survive termination of the Contract.

In the event Owner elects to make demand on Contractor's performance Bond, the Contractor's surety shall be obligated to complete or cause completion of the Work in strict conformity with the Contract, including Contract Times. If the Owner reasonably determines that the surety is not proceeding diligently and with promptness to complete its obligation hereunder, the Owner may provide the surety with written notice of the surety's failure to do so. If seven (7) days after the surety receives said notice, the Owner still reasonably determines that the surety is not proceeding diligently and with promptness to complete its obligation hereunder, Owner may take possession of the Work and the Site and use all or any part of Contractor's equipment and materials to itself finish, or cause to be finished by another contractor, the Work by whatever method Owner may deem expedient as provided in the preceding paragraph.

ARTICLE XII. MISCELLANEOUS

12.01. NO THIRD-PARTY BENEFICIARIES. Except as provided herein, the Contract Documents shall not create any rights in third parties and no provision of the Contract Documents shall be construed as creating any obligations for the benefit of, or rights in favor of, any person or entity other than the Owner, the Indemnified Parties, and the Contractor. If Special Conditions **Part B** of the Contract is made a part of the Contract Documents, Developer(s) named in the **Special Conditions Part B** of the Contract are third-party beneficiaries of the Contract. Without limiting the foregoing, the Owner shall have no obligation to pay or to see to the payment of any monies due to any of Contractor's subcontractors or material suppliers of every tier or to any other person or entity.

12.02. SEVERABILITY. Except as otherwise provided under **Section 5.12** of these General Conditions, if any term, condition or provision of the Contract Documents, or the application thereof to any person or circumstance, shall ever be held to be void, voidable or unenforceable, then in each such event the remainder of the Contract Documents or the application of such term, condition or provision to any other person or any other circumstance (other than those as to which it shall have been held void, voidable or unenforceable) shall not be affected thereby, and each term, condition or provision of the Contract Documents shall remain valid and enforceable to the fullest extent permitted by Laws and Regulations.

12.03. NON-WAIVER OF RIGHTS. Any failure by the Owner at any time, or from time to time, to enforce or require the strict keeping and performance of any of the terms or conditions of the Contract Documents shall not constitute a waiver of the right to enforce or require the strict keeping of such terms or conditions and shall not affect or impair such terms or conditions in any way or the right of Owner at any time to avail itself of such remedies as it may have for any subsequent breach or breaches of any such term or condition or of any other term or condition of the Contract Documents, including, without limitation, the right to terminate. Notwithstanding any provision hereof, neither Owner's receipt of non-compliant Bonds or non-compliant insurance certificates nor Owner's allowance of Contractor to proceed with the Work, shall be construed to relieve Contractor of its obligation to provide Bonds and insurance in favor of Owner according to the requirements of these Contract Documents.

Contractor agrees that Owner shall not be precluded or estopped by any action taken or thing done, written or oral, including, but not limited to, inspections made, payments made, or Final Completion of the Work, from showing that the actual amount and character of the Work done and equipment and materials furnished by Contractor do not in fact conform to the Plans, Technical Specifications or other Contract Documents. Contractor also agrees that Owner shall not be precluded or estopped because of any action taken or not taken, from demanding and recovering from Contractor any damages resulting therefrom or from the Contractor's other failure to comply with the Contract Documents.

In the event of termination by Owner of Contractor's performance under the Contract for convenience, on account of Force Majeure, or by reason of Contractor's default, no rights or remedies of Owner shall thereby be waived, nor shall any breach by Contractor of the provisions in the Contract Documents which has occurred or is continuing at the time of such termination be waived, regardless of whether or not default has been declared.

12.04. OWNER'S AUDIT RIGHTS. Owner's duly authorized representatives shall have access at all reasonable times to all Contractor's and subcontractor's personnel, job description, employment and qualification records, books, records, correspondence, instructions, plans, drawings, receipts, vouchers, data stored in computers, and memoranda of every description pertaining to Work for the purpose of auditing and verifying costs of Work or for any other reasonable purpose. Owner's representatives shall have the right to reproduce any of the aforesaid documents.

Contractor shall preserve and shall cause its subcontractors to preserve all the aforesaid documents for a period of five (5) years after Final Completion and acceptance of termination of Work.

If audit by Owner reveals charges or costs charged to or paid by Owner as costs or fees which are not proper or exceed the rates or amounts permitted under the Contract Documents for any such matters, the Owner shall be entitled upon demand for a refund from Contractor of all such amounts, plus interest thereon from the date of payment by Owner until the date of refund by

Contractor at the rate of the lesser of: (i) eighteen percent (18%) per annum; or (ii) the maximum rate allowed by law.

12.05. NO ASSIGNMENT. Contractor shall not be allowed to assign or otherwise convey all or any portion of this Contract without the express written consent of Owner.

12.06. CUMULATIVE RIGHTS AND REMEDIES. The rights and remedies of Owner provided in the Contract Documents shall be cumulative of and not in lieu of all other rights and remedies available to Owner at law or in equity. It is expressly agreed that exercise of a right or pursuit by Owner of any one or more of the remedies provided in the Contract Documents or otherwise available at law or in equity shall not constitute an election of remedies by Owner or forfeiture of any other right of Owner.

12.07. BINDING EFFECT. This Contract shall be binding upon and inure to the benefit of the parties hereto and their respective assigns and successors.

12.08. PREVAILING PARTY RECOVERS ATTORNEYS' FEES. Subject to **Local Government Code 271.153**, the prevailing party of any dispute, as set forth herein, shall be entitled to recover reasonable and necessary attorney's fees. If a party claiming a right to payment of an amount in dispute is awarded all or substantially all of such disputed amount, then such claiming party shall be the prevailing party. If the party defending against such claim is found to be not liable to pay all or substantially all of the disputed amounts claimed by the other party, then the party so defending against such claim shall be the prevailing party. If both parties prevail with respect to different claims, then the party who is prevailing with respect to the greater monetary sum shall be deemed the prevailing party. Notwithstanding anything to the contrary, nothing herein waives any immunities from suit or damages to which the Owner is entitled.

12.09. ANTI-BOYCOTT OF ISRAEL VERIFICATION**.** By signing and entering into the Contract, Contractor verifies, pursuant to **Chapter 2271 of the Texas Government Code**, it is not a Company that boycotts Israel and agrees it will not boycott Israel during the term of this Contract. The terms "boycotts Israel" and "boycott Israel" have the meaning assigned to the term "boycott Israel" in **Section 808.001**, **Texas Government Code**. For purposes of this paragraph, "Company" means a for-profit organization, association, corporation, partnership, joint venture, limited partnership, limited liability partnership, or limited liability company, including a wholly owned subsidiary, majority-owned subsidiary, parent company, or affiliate of those entities or business associations that exists to make a profit, but does not mean a sole proprietorship.

12.10. ANTI-TERRORISM VERIFICATION Contractor hereby represents and warrants that at the time of this Contract neither Contractor, nor any wholly owned subsidiary, majority-owned subsidiary, parent company or affiliate of Contractor: (i) engages in business with Iran, Sudan, or any foreign terrorist organization pursuant to **Subchapter F of Chapter 2252 of the Texas Government Code**; or (ii) is a Company listed by the Texas Comptroller pursuant to **Section 2252.**153 of the Texas Government Code. The term "foreign terrorist organization" has the meaning assigned to such term pursuant to **Section 2252.151 of the Texas Government Code**. For purposes of this paragraph, "Company" means a sole proprietorship, organization, association, corporation, partnership, joint venture, limited partnership, limited liability partnership, or other entity or business association whose securities are publicly traded, including a wholly owned subsidiary, majority-owned subsidiary, parent company, or affiliate of those entities or business associations, that exists to make a profit.

12.11. ANTI-BOYCOTT OF ENERGY COMPANIES VERIFICATION**.** By signing and entering into the Contract, Contractor verifies, pursuant to **Chapter 2274 of the Texas Government Code** (as added by Senate Bill 13, 87th Texas Legislature, Regular Session), it is not a Company that boycotts energy companies and agrees it will not boycott energy companies during the term of this Contract. The terms "boycotts energy companies" and "boycott energy companies" have the meaning assigned to the term "boycott energy company" in **Section 809.001**, **Texas Government Code**. For purposes of this paragraph, "Company" means a for-profit sole proprietorship, organization, association, corporation, partnership, joint venture, limited partnership, limited liability partnership, or limited liability company, including a wholly owned subsidiary, majority-owned subsidiary, parent company, or affiliate of those entities or business associations, that exists to make a profit, but does not include a sole proprietorship.

12.12. ANTI-DISCRIMINATION OF FIREARM ENTITY OR FIREARM TRADE ASSOCIATION VRIFICATION**.** By signing and entering into the Contract, Contractor verifies, pursuant to **Chapter 2274 of the Texas Government Code** (as added by Senate Bill 19, 87th Texas Legislature, Regular Session, "SB 19"), that it is not a Company that has a practice, policy, guidance, or directive that discriminates against a firearm entity or firearm trade association and agrees it will not discriminate against a firearm entity or firearm trade association during the term of this Contract. The terms "discriminates against a firearm entity or firearm trade association" and "discriminate against a firearm entity or firearm trade association" have the meaning assigned to the term "discriminate against a firearm entity or firearm trade association" in **Section 2274.001(3)**, **Texas Government Code** (as added by SB 19). For purposes of this paragraph, "Company" means a for-profit organization, association, corporation, partnership, joint venture, limited partnership, limited liability partnership, or limited liability company, including a wholly owned subsidiary, majority-owned subsidiary, parent company, or affiliate of those entities or business associations, that exists to make a profit, but does not mean a sole proprietorship.

12.13. LONE STAR INFRASTRUCTION PROTECTION ACT VERTIFICATION. If under this Contract, Contractor is granted direct or remote access to the control of critical infrastructure, excluding access specifically allowed for product warranty and support, Contractor verifies, pursuant to **Chapter 2274 of the Texas Government Code** (as added by Senate Bill 2116, 87th Legislature Regular Session), that neither Contractor, nor any wholly owned subsidiary, majority-owned subsidiary, parent company or affiliate of Contractor, nor any of its sub-contractors (i) is owned or controlled by (a) individuals who are citizens of China, Iran, North Korea, Russia or any designated country; or (b) a company or other entity, including a governmental entity, that is owned or controlled by citizens of or is directly controlled by the government of China, Iran, North Korea, Russia, of any designated country; or (ii) is headquartered in China, Iran, North Korea, Russia or a designated country. The term "designated country" means a country designated by the Governor as a threat to critical infrastructure under **Section 113.003 of the Texas Business & Commerce Code**. The term "critical infrastructure" means a communication infrastructure system, cybersecurity system, electric grid, hazardous waste treatment system, or water treatment facility.

SECTION 00 7300

SUPPLEMENTARY CONDITIONS

PART 1 - GENERAL

1.1SUMMARY

A. These Supplementary Conditions amend and supplement the General Conditions defined in Document 00 7200 - General Conditions and other provisions of Contract Documents as indicated below. Provisions that are not so amended or supplemented remain in full force and effect.

B. The terms used in these Supplementary Conditions that are defined in the General Conditions have the meanings assigned to them in the General Conditions.

C. Sections provided within these Supplementary Conditions are as follows:

01. Section 00 7316 – Attachment A to General Conditions – Insurance Requirements.
02. Section 00 7343 – Attachment B to General Conditions – Minimum Wage Rate Scale.
03. Section 00 7373 – Special Conditions to the Agreement Part A
04. Section 00 7374 – Special Conditions to the Agreement Part B

1.2 RELATED SECTIONS

A. Section 00 5213 – Agreement Form

1.3 MODIFICATIONS TO GENERAL CONDITIONS

A. N/A

PART 2 - PRODUCTS - NOT USED

PART 3 - EXECUTION - NOT USED

END OF SECTION

ATTACHMENT A TO THE GENERAL CONDITIONS OF THE CONTRACT
INSURANCE REQUIREMENTS

I. BUILDER'S RISK INSURANCE OR INSTALLATION FLOATER INSURANCE

A. Builder's Risk. Unless otherwise provided in the Contract and before beginning the Work, Contractor shall purchase and maintain builder's risk insurance, if available, upon the Work on a completed value basis, in the amount of the full insurable replacement cost thereof from an insurer rated by Best's A- and VII or better. This insurance shall:

i. include the Owner, Contractor, all subcontractors, and any individuals or entities required by the **Special Conditions of the Contract Part B** to be insured under such builder's risk policy, as insureds. For purposes of the remainder of this **Section I.A. through I.O.**, and any corresponding **Special Conditions of the Contract Part B**, the parties required to be insured shall collectively be referred to as "insureds."

ii. 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 **Special Conditions of the Contract Part B**. 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.

iii. 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.

iv. cover expenses incurred in the repair or replacement of any insured property (including but not limited to fees and charges of Landscape Architects and architects).

v. 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).

vi. extend to cover damage or loss to insured property while in transit.

vii. 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.

viii. allow for the waiver of the insurer's subrogation rights, as set forth below.

ix. not include a co-insurance clause.

x. include an exception for ensuing losses from physical damage or loss with respect to any defective workmanship, design, or materials exclusions.

xi. include performance/hot testing and start-up.

xii. 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 reaches Final Completion.

B. Installation Floater. If builder's risk insurance is not generally available in the insurance marketplace for the Work, the Contractor shall obtain an installation floater insurance policy acceptable to Owner, or other acceptable equivalent policy as follows:

□ No Installation Floater is required.

X The Installation Floater shall be in the amount of all installed, fabricated, or erected property being incorporated into the Work under the Contract.

Such policy shall cover all risks of physical loss or damage, including flood and earthquake, to the Work. Such coverage shall continue in full force and effect pursuant to **Subparagraph I.A.xii**. The installation floater or equivalent policy shall name the Owner, Contractor, and any individuals or entities required by the **Special Conditions of the Contract Part B** to be insured under such installation floater, as insureds.

C. Contract with No Property. Neither builder's risk insurance nor an installation floater is required under the Contract when the Landscape Architect determines the Work does NOT involve installation, fabrication, or erection of any property, including but not limited to any fixtures, materials, or equipment, which could be covered under such policies. The risk of loss, however, remains with the Contractor pursuant to the Contract Documents.

D. Insurance Certificates. Before beginning the Work under this Contract, Contractor shall furnish certificates of insurance to Owner with endorsements evidencing that the insurance required under this **Section I** is in full force and effect. Contractor shall provide new, replacement certificates, evidencing the procurement of successor policies, prior to the expiration of each required policy for so long as this Contract is in effect. Owner may require Contractor to provide certification of insurance on an ACORD form.

E. Accuracy of Information. Contractor warrants the accuracy of all information shown on each certificate furnished to Owner by Contractor or on Contractor's behalf by Contractor's broker or other representative.

F. Notice of Cancellation or Change. The Builder's risk, installation floater and all the policies of insurance (and the certificates or other evidence thereof) required to be purchased and maintained in accordance with this **Section I** or the **Special Conditions of the Contract Part B** will contain a provision or endorsement that the coverage afforded will not be canceled or materially changed or renewal refused until at least seven (7) days prior written notice has been given to the purchasing policyholder. Within three (3) days of receipt of any such written notice, the purchasing policyholder shall provide a copy of the notice to each other insured.

G. Deductibles. The purchaser of any required builder's risk, installation floater, or other property insurance shall pay all premiums and costs not covered because of the application of a policy deductible or self-insured retentions.

H. Partial Occupancy or Use by Owner. If Owner will occupy or use a portion or portions of the Work prior to Final Completion of all the Work, 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 insurer. The builder's risk, installation floater, or equivalent policy of 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 be removed from coverage under the builder's risk policy, installation floater or equivalent policy, while those portions of the Work not yet occupied or used by Owner shall remain covered by the builder's risk insurance, installation floater, or equivalent policy.

I. Additional Insurance. If Contractor elects to obtain other special insurance to be included in or supplement the builder's risk, installation floater, or other property insurance policies provided under this **Section I** or the **Special Conditions of the Contract Part B**, it may do so at Contractor's expense.

J. 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. The entity or individual procuring the insurance is responsible for payment of premiums.

K. Non-Waiver - No Limitation of Owner's Rights. Contractor unilaterally agrees to comply with the provisions of this Section. Accordingly, Owner's knowledge concerning deficiencies in Contractor's insurance, including non-compliance with this Section shown by any insurance certificate or other information furnished to Owner, shall not affect Owner's rights and shall not result in a waiver or otherwise limit or impair Owner's remedies for Contractor's failure to comply with the requirements of this Section.

L. No Impairment or Waiver of Rights. Nothing contained in this Section shall restrict, limit, impair or waive Owner's rights or Contractor's duties under the other terms of this Contract or under applicable law. The cancellation, expiration, or exhaustion of any of the insurance required above shall not preclude Owner from recovery against Contractor for any liability arising under this Contract or under law.

M. Automatic Reformation to Conform to Law. The parties intend this Contract to comply with Texas law. Accordingly, the parties agree that any legal limitations now or hereafter in effect and affecting the validity or enforceability of any provision of this Contract are made a part hereof and shall operate to amend this Contract to the minimum extent necessary to bring all provisions into conformity with

the requirements of such limitations and, as so modified, this Contract shall continue in full force and effect.

N. Waiver of Rights.

i. All policies purchased in accordance with this Section or the **Special Conditions of the Contract Part B,** expressly including the builder's risk policy and installation floater policy or equivalent 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 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 to the extent of actual coverage under such policies; and, in addition, waive all such rights against all individuals or entities identified in the **Special Conditions of the Contract Part B** 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.

ii. 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 **Special Conditions of the Contract Part B** as insureds, 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, installation floater and any other property insurance applicable to the Work.

O. Receipt and Application of Property Insurance Proceeds.

i. Any insured loss under the builder's risk, installation floater or other policies of insurance required by this **Section I** or the **Special Conditions of the Contract Part B**, if any, 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 fifteen (15) days after notice of such claim.

ii. 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.

II. LIABILITY INSURANCE

A. Insurance Certificates. In addition to the coverages described and required in **Section I** above and before beginning the Work under this Contract, Contractor shall furnish certificates of insurance to Owner evidencing that the insurance required below is in force and effect. Contractor shall provide

new, replacement certificates, evidencing the procurement of successor policies, prior to the expiration of each required policy for so long as this Contract is in effect. Owner may require Contractor to provide certification of insurance on an ACORD form.

B. Accuracy of Information. Contractor warrants the accuracy of all information shown on each certificate furnished to Owner by Contractor or on Contractor's behalf by Contractor's broker or other representative.

C. Minimum Required Insurance and Minimum Limits of Liability. Before beginning the Work, and throughout performance of the Work and the term of this Contract, Contractor shall obtain and maintain in force and effect, at Contractor's sole expense, insurance of the following types and amounts from insurance rated by Best's A- and VII or better:

i. **Workers' Compensation Insurance** affording statutory benefits in accordance with all requirements of the Texas Workers' Compensation Act and covering Contractor's employees.

ii. **Employer's Liability Insurance** with limits of not less than $1,000,000 per accident or disease.

iii. **Commercial General Liability Insurance**, including coverage for bodily injury and property damage, personal and advertising injury, the products-completed operations hazard, and insured contracts, applicable in Texas, on a form no less broad than the Insurance Services Office ("ISO") CG 00 01 form dated 2004 or thereafter, and with limits of not less than:

(1) Each Occurrence - $1,000,000
(2) General Aggregate - $2,000,000
(3) Products-Completed Operations Aggregate - $2,000,000
(4) Personal & Advertising Injury -$1,000,000

iv. **Business Automobile Liability Insurance**, including coverage for bodily injury and property damage, on a form no less broad than the ISO CA 00 01 form dated 2010 or thereafter, with limits of not less than $1,000,000 combined single limit for each accident and covering owned, hired or leased, and non-owned autos.

v. **Excess or Umbrella Liability Insurance**, affording coverage no less broad than, and applying excess of the limits of liability, of the policies required by II.C.ii., II.C.iii., and II.C.iv., above, with limits of not less than $2,000,000 per occurrence and in the aggregate.

D. Additional Insurance or Limits. Paragraphs II.C., above, states the minimum types of liability insurance and limits of liability required by this Contract in connection with the Work. Contractor may, in its sole discretion, procure additional insurance or higher limits of liability at Contractor's sole expense.

E. Additional Insureds. To the extent allowed by law, the Commercial General Liability Insurance, Business Automobile Liability Insurance, and Excess or Umbrella Insurance, required by II.C.iii. through II.C.v., above, shall be endorsed to provide that the Indemnified Parties (collectively, "the Additional Insureds"), are added as additional insureds for liability arising out of the Work, to include liability based on either alleged fault or vicarious liability. Such additional insured coverage shall not be limited to liability caused by Contractor or Contractor's fault. The Additional Insureds shall be

afforded additional insured status on the policies required by paragraphs II.C.iii and II.C.v, above, under a combination of the ISO CG 20 10 10 01 and ISO CG 20 37 10 01 endorsements.

F. Primary/Non-Contributing. The insurance policies required by II.C.iii. through II.C.v., above, shall provide that the Additional Insureds are covered on a primary basis. Also, the insurance policies required by II.C.iii., through II.C.v., above shall be endorsed to provide that Contractor's insurers will not seek contribution or recovery from such other insurance as may be available to the Additional Insureds.

G. Insurance Required of Contractor's Subcontractors. Contractor shall require all subcontractors who will perform any of the Work to obtain the same insurance and limits of liability as required by II.C.iii. through II.C.v., above. Contractor shall also require all such subcontractors to cause their insurers to waive subrogation to the same extent as required of Contractor's insurers by the following provision, II.H. Contractor shall obtain certificates of insurance from its subcontractors before they begin any of the Work and, upon request, shall provide copies thereof to Owner.

H. Waiver of Subrogation in Favor of Indemnified Parties. The parties intend that none of Contractor's insurers shall subrogate against the Indemnified Parties. Accordingly, Contractor agrees to cause all of its insurers—not limited to insurers underwriting the policies required above—to waive subrogation against the Indemnified Parties and its directors. **For the avoidance of doubt, Contractor also agrees that it presently waives and releases all rights of recovery, claims, or causes of action that might hereafter arise in favor of Contractor against Indemnified Parties for any loss, damage or liability that is covered by Contractor's insurance, regardless of whether the loss, damage or liability is caused by the negligence, breach of any legal duty, or other fault of the Indemnified Parties.** The foregoing waiver and release is effective even if Contractor fails to obtain the required insurance.

I. Notice of Cancellation, Modification or Impairment of Limits. The policies required above shall be endorsed to provide that they will not be canceled, or the coverage or limits of liability thereunder materially changed, without at least seven (7) days' prior written notice to Owner.

J. Notice of Impairment of Limits. Contractor shall give written notice to Owner no later than seven (7) days after the date on which an impairment of a required aggregate limit, due to the payment of a claim or defense expense, reduces the available aggregate limit to an amount 50% or less than the aggregate limit required above. If Contractor's available excess insurance will not drop down and comply with paragraph II.C.iii., through II.C.v. of these insurance requirements, Owner may require reinstatement of an impaired aggregate limit up to the amount required.

K. Information Concerning Contractor's Insurance Program. If Owner has questions concerning Contractor's casualty insurance program, Contractor agrees to promptly answer them. Complete, true and correct copies of each policy required above shall be furnished to Owner promptly upon Owner's request, but Contractor may redact payroll and premium information. Contractor agrees to cooperate with Owner, and with Owner's insurance broker, in the event Owner elects to seek or obtain additional insurance benefiting Owner. Contractor also provides Owner permission to communicate with Contractor's insurance broker regarding coverages required under the Contract Documents.

L. Contractor's Compliance with Policy Conditions. Contractor shall comply with and not violate, or knowingly permit to be violated, any condition of the insurance policies required in this **Attachment A** or the **Special Conditions of the Contract Part B**. Contractor agrees to give its insurers timely written notice of all occurrences, accidents or claims arising out of the Work, with a copy to Owner.

M. Contractor's Payment of Premiums, Deductibles and SIRs. Contractor, not Owner, shall be responsible for any and all policy premiums, deductibles, or self-insured retentions payable in connection with Contractor's insurance, including the insurance required above.

N. Non-Waiver - No Limitation of Owner's Rights. Contractor unilaterally agrees to comply with the provisions of this **Attachment A** and the **Special Conditions of the Contract Part B**. Accordingly, Owner's knowledge concerning deficiencies in Contractor's insurance, including non-compliance with this Article shown by any insurance certificate or other information furnished to Owner, shall not affect Owner's rights, and shall not result in a waiver or otherwise limit or impair Owner's remedies for Contractor's failure to comply with the requirements of this Article.

O. No Impairment or Waiver of Rights. Nothing contained in this **Attachment A** or **Special Conditions of the Contract Part B** shall restrict, limit, impair or waive Owner's rights or Contractor's duties under the other terms of this Contract or under applicable law. The cancellation, expiration, or exhaustion of any of the insurance required above shall not preclude Owner from recovery against Contractor for any liability arising under this Contract or under law.

P. Automatic Reformation to Conform to Law. The parties intend this Contract to comply with Texas law. Accordingly, the parties agree that any legal limitations now or hereafter in effect and affecting the validity or enforceability of any provision of this Contract are made a part hereof and shall operate to amend this Contract to the minimum extent necessary to bring all provisions into conformity with the requirements of such limitations and, as so modified, this Contract shall continue in full force and effect.

Q. Term of Insurance Requirements. All the foregoing insurance requirements shall survive termination of this Contract. All required insurance shall continue for at least thirty (30) days after Final Completion of the Work, to include performance of all warranty work.

R. Claims Made Coverage. In addition, Contractor shall maintain in force and effect any required claims-made coverage for a minimum of two (2) years after final completion of the Project and shall purchase an extended reporting period, or "tail coverage," if necessary to comply with this requirement.

III. WORKERS' COMPENSATION INSURANCE COVERAGE

A. Definitions.

i. **Certificate of Coverage ("Certificate")** - A copy of a certificate of insurance, a certificate of authority to self-insure issued by the Texas Workers' Compensation Commission, or a coverage agreement DWC-81, DWC-82, DWC-83, or DWC-84, showing statutory Workers' Compensation Insurance coverage for the person's or entity's employees providing services on a Project, for the duration of the Project.

ii. **Duration of the Project** - Includes the time from the beginning of the Work on the Project until the Contractor's/person's Work on the Project has been completed and accepted by the governmental entity and the warranty period has expired.

iii. **Persons Providing Services on the Project ("Subcontractor" in §406.096 of the Texas Labor Code)** - Includes all persons or entities performing all or part of the services the

Contractor has undertaken to perform on the Project, regardless of whether that person contracted directly with the Contractor and regardless of whether that person has employees. This includes, without limitation, independent contractors, subcontractors, leasing companies, motor carriers, owner-operators, employees of any such entity, or employees of any entity which furnishes persons to provide services on the Project.

iv. **"Services"** - Include, without limitation, providing, hauling, or delivering equipment or materials, or providing labor, transportation, or other service related to a Project. Services does not include activities unrelated to the Project, such as food/beverage vendors, office supply deliveries, and delivery of portable toilets.

B. The Contractor shall provide coverage, based on proper reporting of classification codes and payroll amounts and filing of any coverage agreements, which meets the statutory requirements of **Texas Labor Code, Section 401.011(44)** for all employees of the Contractor providing Services on the Project, for the duration of the Project.

C. The Contractor must provide a Certificate of Coverage to the governmental entity prior to being awarded the Contract.

D. If the coverage period shown on the Contractor's current Certificate of Coverage ends during the duration of the Project, the Contractor must, prior to the end of the coverage period, file a new Certificate of Coverage with the governmental entity showing that coverage has been extended.

E. The Contractor shall obtain from each person providing Services on a Project, and provide to the governmental entity:

i. a Certificate of Coverage, prior to that person beginning Work on the Project, so the governmental entity will have on file Certificates of Coverage showing coverage for all persons providing Services on the Project; and

ii. no later than seven (7) days after receipt by the Contractor, a new Certificate of Coverage showing extension of coverage, if the coverage period shown on the current Certificate of Coverage ends during the duration of the Project.

F. The Contractor shall retain all required Certificates of Coverage for the duration of the Project and for one (1) year thereafter.

G. The Contractor shall notify the governmental entity in writing by certified mail or personal delivery, within ten (10) days after the Contractor knew or should have known, of any change that materially affects the provision of coverage of any person providing Services on the Project.

H. The Contractor shall post on each Project site a notice, in the text, form, and manner prescribed by the Texas Workers' Compensation Commission, informing all persons providing Services on the Project that they are required to be covered, and stating how a person may verify coverage and report lack of coverage.

I. The Contractor shall contractually require each person with whom it contracts to provide services on a Project, to:

i. provide coverage, based on proper reporting of classification codes and payroll amounts and filing of any coverage agreements, which meets the statutory requirements of **Texas Labor Code, Section 401.011(44)** for all of its employees' providing services on the Project, for the duration of the Project;

ii. provide to the Contractor, prior to that person beginning work on the Project, a Certificate of Coverage showing that coverage is being provided for all employees of the person providing services on the Project, for the duration of the Project;

iii. provide the Contractor, prior to the end of the coverage period, a new Certificate of Coverage showing extension of coverage, if the coverage period shown on the current Certificate of Coverage ends during the duration of the Project;

iv. obtain from each other person with whom it contracts, and provide to the Contractor:

(1) a Certificate of Coverage, prior to the other person beginning work on the Project; and

(2) a new Certificate of Coverage showing extension of coverage, prior to the end of the coverage period, if the coverage period shown on the current Certificate of Coverage ends during the duration of the Project;

v. retain all required Certificates of Coverage on file for the duration of the Project and for one (1) year thereafter;

vi. notify the governmental entity in writing by certified mail or personal delivery, within ten (10) days after the person knew or should have known, of any change that materially affects the provision of coverage of any person providing services on the Project; and

vii. contractually require each person with whom it contracts, to perform as required by Paragraphs **III.I.i through III.I.vi.,** with the Certificates of Coverage to be provided to the person for whom they are providing services.

J. By signing this Contract or providing or causing to be provided a Certificate of Coverage, the Contractor is representing to the governmental entity that all employees of the Contractor who will provide Services on the Project will be covered by Workers' Compensation coverage for the duration of the Project, that the coverage will be based on proper reporting of classification codes and payroll amounts, and that all coverage agreements will be filed with the appropriate insurance carrier or, in the case of a self-insured, with the Commission's Division of Self-Insurance Regulation. Providing false or misleading information may subject the Contractor to administrative penalties, criminal penalties, civil penalties, or other civil actions.

K. The Contractor's failure to comply with any of these provisions is a breach of contract by the Contractor which entitles the governmental entity to declare the Contract void if the Contractor does not remedy the breach within ten (10) days after receipt of notice of breach from the governmental entity.

ATTACHMENT B TO THE GENERAL CONDITIONS OF THE CONTRACT
MINIMUM WAGE RATE SCALE

ATTACHED ON THE FOLLOWING PAGE

p.d.

CERTIFICATE FOR RESOLUTION

THE STATE OF TEXAS §
§
COUNTY OF BRAZORIA §

I, the undersigned officer of the Board of Directors of Brazoria County Municipal Utility District No. 40, do hereby certify as follows:

1. The Board of Directors of Brazoria County Municipal Utility District No. 40 convened in special session on the 25th day of September, 2007, outside the boundaries of the District, and the roll was called of the duly constituted officers and members of the Board, to-wit:

Michael Thornhill	President
Alicia Skinner	Vice President
Brandon Guillory	Secretary
C.M. Eastland	Assistant Secretary
Michelle L. Steadman	Assistant Vice President

and all of said persons were present except Director(s) Guillory, thus constituting a quorum. Whereupon, among other business, the following was transacted at the meeting: a written

RESOLUTION ADOPTING PREVAILING WAGE RATES

was introduced for the consideration of the Board. It was then duly moved and seconded that the Resolution be adopted; and, after due discussion, the motion, carrying with it the adoption of the Resolution, prevailed and carried unanimously.

2. That a true, full and correct copy of the aforesaid Resolution adopted at the meeting described in the above and foregoing paragraph is attached to and follows this certificate; that the Resolution has been duly recorded in the Board's minutes of the meeting; that the persons named in the above and foregoing paragraph are the duly chosen, qualified and acting officers and members of the Board as indicated therein; that each of the officers and members of the Board was duly and sufficiently notified officially and personally, in advance, of the time, place and purpose of the aforesaid meeting, and that the Resolution would be introduced and considered for adoption at the meeting, and each of the officers and members consented, in advance, to the holding of the meeting for such purpose; that the meeting was open to the public as required by law; and that public notice of the time, place and subject of the meeting was given as required by Chapter 551, Texas Government Code, and Section 49.063, Texas Water Code.

SIGNED AND SEALED the 25th day of September, 2007.

C.M. Eastland
Asst Secretary, Board of Directors

(SEAL)

BRAZORIA COUNTY MUNICIPAL UTILITY DISTRICT NO. 40 TEXAS

158422

BRAZORIA COUNTY MUNICIPAL UTILITY DISTRICT NO. 40
RESOLUTION ADOPTING PREVAILING WAGE RATES

WHEREAS, Brazoria County Municipal Utility District No. 40 (the "District"), has been legally created by the Texas Commission on Environmental Quality; and

WHEREAS, Chapter 2258, Texas Government Code, Prevailing Wage Rates ("Chapter 2258"), requires a public body to determine the general prevailing wage rate for classes of workers in the locality in which a public work project is to be performed; and

WHEREAS, Chapter 2258 authorizes the Board of Directors (the "Board") of the District to adopt prevailing wage rates establishing minimum rates to be paid by all contractors and subcontractors in connection with all District construction projects; and

WHEREAS, because the District is located in Brazoria County, Texas, Section 49.279, Texas Water Code, allows the District to determine the District's prevailing wage rates by adopting the prevailing wage rates of Brazoria County; and

WHEREAS, the Board concurs that it is in the best interests of the District to adopt the prevailing wage rates of Brazoria County; Now, Therefore,

BE IT RESOLVED BY THE BOARD OF DIRECTORS OF BRAZORIA COUNTY MUNICIPAL UTILITY DISTRICT NO. 40 THAT:

Section 1: The Board hereby adopts the prevailing wage rates previously adopted and utilized by Brazoria County for Brazoria County public work projects. When, and to the extent, Brazoria County amends its prevailing wage rates, such amended rates shall be considered the prevailing wage rates of the District effective upon such amendment by Brazoria County. Nothing in this Resolution Adopting Prevailing Wage Rates in any way prohibits the payment to workers of amounts greater than the prevailing wage rates adopted by the District.

Section 2: Contractors and subcontractors on District construction projects shall be responsible to ascertain the then-current prevailing wage rages adopted and utilized by Brazoria County, obtain a copy of same from Brazoria County and to pay at least such minimum wage rates for the classes of workers described therein.

Section 3: The District's engineer is hereby directed and authorized to include this Resolution Adopting Prevailing Wage Rates in: 1) the call for the bids for District construction contracts, and 2) in the District construction contracts themselves.

PASSED AND APPROVED this 25th day of September, 2007.

President, Board of Directors

ATTEST:

Asst, Secretary, Board of Directors

(SEAL)



SPECIAL CONDITIONS OF THE CONTRACT
PART A

1. Name and Location of Project.
   Work covered by these Technical Specifications is entitled "Pomona East Mustang Bayou Landscape for Brazoria County MUD No. 40, Brazoria County, Texas."

2. Description of Work.
   a. Under this Contract, Contractor shall furnish all materials, appliances, tools, equipment, transportation, services, and all labor and superintendence necessary for the construction of the Work as described in these Technical Specifications and as shown on the Plans. The completed installation shall not lack any part that can be reasonably implied as necessary to its proper functioning or any subsidiary item that is customarily furnished, and Contractor shall deliver the installation to Owner in operating condition.

   b. The Work, in general, under this Contract includes the purchase, installation, and construction of all structures, equipment, and materials, including appurtenances, as indicated on the Plans.

      Major items of construction and services required are designated as follows:

      (1) Install and adjust waterlines, valves, valve boxes, flushing valves, fittings, and appurtenances;
      (2) Construct and adjust sanitary sewer, manholes and appurtenances;
      (3) Repair existing pavement affected;
      (4) Furnish and install all subsidiary items as necessary to complete the project;
      (5) Perform testing as specified on installed lines; and
      (6) Clean-up project area upon completion.

3. Technical Specifications.
   a. Technical Specifications are of the abbreviated, simplified or streamlined type and include incomplete sentences. The omission of words or phrases such as "Contractor shall," "in conformity therewith," "shall be," "as noted on Plans," "according to Plans," "a," "an," "the," and "all," are intentional. Omitted words or phrases shall be supplied by inference in same manner as they are when a "note" occurs on Plans.

   b. The Technical Specifications are interpreted to require that Contractor shall provide all items, articles, materials, operation or methods listed, mentioned, or scheduled either on Plans or specified herein, or both, including all labor, materials, equipment, and incidentals necessary and required for their completion.

   c. Whenever the words "designated," "submitted," "observed," or similar words or phrases are used, it shall be assumed that the word "Landscape Architect" follows the verb as the object of the clause, such as "observed by Landscape Architect."

   d. All references to standard Technical Specifications or manufacturer's installation directions shall mean the latest edition thereof on the date Bids are due unless specifically noted otherwise.

e. Reference to technical society, organization or body is made in Technical Specifications in accordance with following abbreviations:

AASHTO	American Association of State Highway and Transportation Officials
ACI	American Concrete Institute
ASTM	American Society for Testing and Materials
AWWA	American Waterworks Association
FS	Federal Specifications
PCA	Portland Cement Association
IEEE	Institute of Electrical and Electronic Engineers
NEC	National Electric Code
UL	Underwriters' Laboratories
AISI	American Iron and Steel Institute
API	American Petroleum Institute
IPCEA	Insulated Power Cable Engineers Association
NEMA	National Electrical Manufacturers Association
AWS	American Welding Society
PCI	Prestressed Concrete Institute
AISC	American Institute of Steel Construction
ANSI	American National Standards Institute (Formerly ASA)

f. Some Technical Specification items cover construction requirements and materials in comprehensive manner, and only pertinent portions of these items apply.

4. Manufacturer's Representative.
When required by Technical Specifications provide the services of trained, qualified technicians to check final equipment installation, to assist as required in placing same in operation, and to instruct operating personnel in the proper manner of performing routine operation and maintenance of the equipment.

5. Plans

a. Refer to Section 00 0115 – List of Drawing Sheets

SPECIAL CONDITIONS OF THE CONTRACT
PART B

ONLY FOR USE WITH ABHR DISTRICT PUBLIC WORKS CONTRACTS OVER $150,000

IMPORTANT!
DO NOT INCLUDE THIS PAGE IN CONTRACT DOCUMENTS

Before printing document, complete the following:

1. **Attach Special Conditions of the Contract Part B to the Contract Documents but only if the Developer is responsible for funding the Work under the Contract.**
2. **Insert Owner Name in heading of document.**
3. **Select or delete document options in […] and remove highlighting.**
4. **Delete this page.**

SPECIAL CONDITIONS OF THE CONTRACT
PART B

Notwithstanding any other items, conditions, or provisions of the General Conditions or any other provisions of the Contract Documents to the contrary, Brazoria County MUD No. 40 ("District") shall be deemed and considered as Owner for all purposes under the Contract Documents, except as provided herein.

I. Pomona Phase 6, LLC ("Developer") shall be considered the "Owner" for purposes of approving requests for and making payments to the Contractor of all or any portion of the Contract Price and for paying all monies, including damages, that might ever be due or payable by the District under the Contract or related to the Work, including any costs associated with any Change Orders to the Contract. After submission to and approval by the District and by Developer of the invoices, certificates and supporting documentation in connection with a request for payment, the Contractor agrees to and shall look solely to Developer for payment of such invoices. Developer agrees to pay Contractor's invoices for work performed, in accordance with the terms of the Contract Documents, in an aggregate amount not to exceed the Contract Price, plus Change Orders and Extra Work approved by the board of directors of the District and by Developer. Failure by Developer to make such payments to the Contractor shall constitute a default by Owner and shall entitle the Contractor to all rights and remedies arising under the Contract Documents for a default in payment of sums due the Contractor pursuant to the Contract Documents; provided, however, the District shall have no obligation for payment of sums due or to become due under the approved invoices or any part of the Contract Price.

II. If District is not the owner in fee title of the Site, Developer shall also be considered the "Owner" for purposes of satisfying the Owner's obligation to provide to the Contractor the Site, rights-of-way for access to and from the Site, and such other lands that are designated for use of the Contractor in the Plans, and Developer hereby agrees to provide the Site, rights-of-way for access to and from the Site, and such other lands that are designated for use of the Contractor in the Plans, all in accordance with the Contract Documents.

III. **IN CONSIDERATION FOR PAYMENT AND ACCESS PROVISIONS DESCRIBED ABOVE, DEVELOPER, ITS OFFICERS, DIRECTORS, AND EMPLOYEES, SHALL BE INCLUDED AS INDEMNIFIED PARTIES AND ADDITIONAL INSUREDS AND SUBJECT TO ALL RIGHTS AFFORDED THEREBY UNDER THE CONTRACT DOCUMENTS, IN LAW AND IN EQUITY.** Contractor shall cause Developer, and its officers, directors, and employees, to be named as additional insureds to the same extent and in the same manner as Contractor is required to cause the District to be named as an additional insured pursuant to the Contract Documents. Contractor shall furnish the Developer with certificates of insurance showing Contractor's procurement of such required insurance.

IV. Developer reserves the right to assign its obligations hereunder to District, subject to written acceptance thereof by the District. Developer further reserves the right to assign its obligations hereunder to a third party, subject to written consent of the District and the Contractor, which consent shall not be unreasonably withheld, delayed or conditioned. A copy of any such assignment and the acceptance or consent thereof, as applicable, by the District shall be provided to the Contractor. Thereafter the assigned party shall be obligated to make all payments thereafter becoming due to the Contractor pursuant to this Contract and the obligations of Developer contained in the first paragraph of these Special Conditions shall terminate.

V. For purposes of convenient administration of this Contract, District may from time to time make payments due the Contractor pursuant to this Contract from funds available to the

District; provided, however, no such payment by District will obligate District to make further payments due the Contractor or pursuant to this Contract unless and until District has accepted an assignment of Developer's obligations hereunder and a copy of the assignment and the District's acceptance is delivered to the Contractor, whereupon the District shall become liable for payment to the extent of the assignment.

VI. If District or Developer breaches its obligations in any respect under the Contract Documents, before exercising any remedy the Contractor shall give written notice to Developer and District at their respective address below specifying the breach and the steps necessary to cure the breach and the non-breaching party shall have the right and power, within thirty (30) days after receipt of such notice, to cure or cause the breach to be cured, if it so elects, before Contractor exercises any of its remedies under the Contract Documents.

TO: POMONA PHASE 6, LLC
3129 KINGSLEY DRIVE, SUITE 1340
PEARLAND, TX 77584

TO: BRAZORIA COUNTY MUNICIPAL UTILITY DISTRICT NO. 40
C/O ABHR
3200 SOUTHWEST FREEWAY, STE. 2600
HOUSTON, TEXAS 77027

VII. Developer shall be added as an Obligee on all payment and performance bonds required by the Contract Documents.

[SIGNATURES ON THE FOLLOWING PAGE]

District, Developer and Contractor hereby agree and acknowledge these **Special Conditions of the Contract Part B**.

POMONA PHASE 6, LLC

By:

Name:

Title:

Date:

CONTRACTOR

By:

Name:

Title:

Date:

BRAZORIA COUNTY MUD NO. 40

By:

Name:

Title:

Date:

SECTION 00 9113

ADDENDA

1.1PROJECT INFORMATION

A. Project Name: Pomona – East Mustang Bayou Landscape

B. Owner: Brazoria County MUD No. 40

C. Landscape Architect: TBG Partners

D. Landscape Architect Project Number: H24147

E. Date of Addendum:

1.2 NOTICE TO BIDDERS

A. This Addendum is issued to all registered plan holders pursuant to the Instructions to Bidders and Conditions of the Contract. This Addendum serves to clarify, revise, and supersede information in the Project Manual, Drawings, and previously issued Addenda. Portions of the Addendum affecting the Contract Documents will be incorporated into the Contract by enumeration of the Addendum in the Owner/Contractor Agreement.

B. The Bidder shall acknowledge receipt of this Addendum in the appropriate space on the Bid Form.

C. The date for receipt of bids is unchanged by this Addendum, at same time and location.

1.3 ATTACHMENTS

A. Any Addenda issued to the contractor during the bidding process are included after this sheet and form part of the contract.

END OF SECTION

SECTION 01 1000

SUMMARY

PART 1 – GENERAL

1.1RELATED DOCUMENTS

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

1.2 PROJECT INFORMATION

A. Project: Pomona – East Mustang Bayou Landscape

B. Owner: Brazoria County MUD No. 40.

C. Landscape Architect: TBG Partners.

D. Landscape Architect's Project Number: H24147.

1.3 WORK COVERED BY CONTRACT DOCUMENTS

A. The project consists of the construction of Hardscape, Landscape and Irrigation.

1.4 CONTRACT DESCRIPTION

A. Contract Type: A single prime contract based on a Stipulated Price as described in Document 00 5213 - Agreement Form.

1.5 OWNER OCCUPANCY

A. Owner intends to occupy the Project upon Substantial Completion.

B. Cooperate with Owner to minimize conflict and to facilitate Owner's operations.

C. Schedule the Work to accommodate Owner occupancy.

1.6 CONTRACTOR USE OF SITE AND PREMISES

A. Construction Operations: Limited to areas noted on Drawings.

B. Provide access to and from site as required by law and by Owner:

01. Do not obstruct roadways, sidewalks, or other public ways without permit.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION (NOT USED)

END OF SECTION

SECTION 01 2000

PRICE AND PAYMENT PROCEDURES

PART 1 – GENERAL

1.1RELATED DOCUMENTS

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

1.2 SECTION INCLUDES

A. Procedures for preparation and submittal of applications for progress payments.

B. Documentation of changes in Contract Sum and Contract Time.

1.3 RELATED REQUIREMENTS

A. Section 00 5213 - Agreement Form: Contract Sum, retainages, payment period, monetary values of unit prices.

B. Section 00 7200 - General Conditions: Additional requirements for progress payments, final payment, changes in the Work.

C. Section 01 2200 - Unit Prices: Monetary values of unit prices; Payment and modification procedures relating to unit prices.

D. Section 01 7800 - Closeout Submittals: Project record documents.

1.4 SCHEDULE OF VALUES

A. Form to be used: Utilize AIA Continuation Sheet G702 for itemized item values based upon the bid form.

B. Use Schedule of Values Form: AIA G703, edition stipulated in the Agreement.

C. Revise schedule to list approved Change Orders, with each Application For Payment.

1.5 APPLICATIONS FOR PROGRESS PAYMENTS

A. Payment Period: Submit at intervals stipulated in the Agreement.

B. Use Form AIA G702 and Form AIA G703, edition stipulated in the Agreement.

C. Forms filled out by hand will not be accepted.

D. For each item, provide a column for listing each of the following:

01. Item Number.
02. Description of work.
03. Scheduled Values.
04. Previous Applications.
05. Work in Place and Stored Materials under this Application.

06. Authorized Change Orders.
07. Total Completed and Stored to Date of Application.
08. Percentage of Completion.
09. Balance to Finish.
10. Retainage.

E. Execute certification by signature of authorized officer.

F. Use data from approved Schedule of Values. Provide dollar value in each column for each line item for portion of work performed. Stored materials and products shall not be billed for prior to installation, unless agreed to by Owner prior to billing.

G. Submit three copies of each Application for Payment, each with a partial lien release and Affidavit of Payment of Debts and Claims (AIA G706) by the day of the month stipulated. A Final Lien release shall be required with application for final payment.

H. Include the following with the application:

01. Include the following with the application:
02. Transmittal letter as specified for submittals in Section 01 3000.
03. Construction progress schedule, revised and current as specified in Section 01 3000.
04. Partial release of liens from major subcontractors and vendors.

I. When Landscape Architect requires substantiating information, submit data justifying dollar amounts in question. Provide one copy of data with cover letter for each copy of submittal. Show application number and date, and line item by number and description.

1.6 MODIFICATION PROCEDURES

A. For minor changes not involving an adjustment to the Contract Sum or Contract Time, Landscape Architect will issue instructions directly to Contractor.

B. For other required changes, Landscape Architect will issue a document signed by Owner instructing Contractor to proceed with the change, for subsequent inclusion in a Change Order.

01. The document will describe the required changes and will designate method of determining any change in Contract Sum or Contract Time.
02. Promptly execute the change.

C. For changes for which advance pricing is desired, Landscape Architect will issue a document that includes a detailed description of a proposed change with supplementary or revised drawings and specifications, a change in Contract Time for executing the change with a stipulation of any overtime work required and the period of time during which the requested price will be considered valid. Contractor shall prepare and submit a fixed price quotation within 14 calendar days.

D. Contractor may propose a change by submitting a request for change to Landscape Architect, describing the proposed change and its full effect on the work, with a statement describing the reason for the change, and the effect on the Contract Sum and Contract Time with full documentation. Document any requested substitutions in accordance with Section 01 6000.

E. Computation of Change in Contract Amount: As specified in the Agreement and Conditions of the Contract.

F. Substantiation of Costs: Provide full information required for evaluation.

01. On request, provide the following data:

a. Quantities of products, labor, and equipment.
b. Taxes, insurance, and bonds.
c. Overhead and profit.
d. Justification for any change in Contract Time.
e. Credit for deletions from Contract, similarly documented.

02. For Time and Material work, submit itemized account and supporting data after completion of change, within time limits indicated in the Conditions of the Contract.

G. After execution of Change Order, promptly revise Schedule of Values and Application for Payment forms to record each authorized Change Order as a separate line item and adjust the Contract Sum.

H. Promptly revise progress schedules to reflect any change in Contract Time, revise sub-schedules to adjust times for other items of work affected by the change, and resubmit.

1.7 APPLICATION FOR FINAL PAYMENT

A. Prepare Application for Final Payment as specified for progress payments, identifying total adjusted Contract Sum, previous payments, and sum remaining due.

B. Application for Final Payment will not be considered until the following have been accomplished:

01. All closeout procedures specified in Section 01 7000.
02. Completion of all punchlist items.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION

SECTION 01 2200

UNIT PRICES

PART 1 - GENERAL

1.1SECTION INCLUDES

A. List of unit prices, for use in preparing Bids.

B. Measurement and payment criteria applicable to Work performed under a unit price payment method.

C. Defect assessment and non-payment for rejected work.

1.2 RELATED REQUIREMENTS

A. Document 00 2113 - Instructions to Bidders: Instructions for preparation of pricing for Unit Prices.

B. Document 00 4322 - Unit Prices Form: List of Unit Prices as supplement to Bid Form

C. Section 01 2000 - Price and Payment Procedures: Additional payment and modification procedures.

1.3 COSTS INCLUDED

A. Unit Prices included on the Bid Form shall include full compensation for all required labor, products, tools, equipment, plant, transportation, services and incidentals; erection, application or installation of an item of the Work; overhead and profit.

1.4 UNIT QUANTITIES SPECIFIED

A. Quantities indicated in the Bid Form are for bidding and contract purposes only. Quantities and measurements of actual Work will determine the payment amount.

1.5 MEASUREMENT OF QUANTITIES

A. Measurement methods delineated in the individual specification sections complement the criteria of this section. In the event of conflict, the requirements of the individual specification section govern.

B. Assist by providing necessary equipment, workers, and survey personnel as required.

1.6 PAYMENT

A. Payment for Work governed by unit prices will be made on the basis of the actual measurements and quantities of Work installed that is incorporated in or made necessary by the Work and accepted by the Landscape Architect, multiplied by the unit price.

B. Payment will not be made for any of the following:

01. Products wasted or disposed of in a manner that is not acceptable.
02. Products determined as unacceptable before or after placement.

03. Products not completely unloaded from the transporting vehicle.
04. Products placed beyond the lines and levels of the required Work.
05. Products remaining on hand after completion of the Work.
06. Products and materials stored and not installed in place.
07. Loading, hauling, and disposing of rejected Products.

1.7 DEFECT ASSESSMENT

A. Replace Work, or portions of the Work, not complying with specified requirements.

B. If, in the opinion of Owner and Landscape Architect, it is not practical to remove and replace the Work, Landscape Architect will direct one of the following remedies:

01. The defective Work may remain, but the unit price will be adjusted to a new unit price at the discretion of the Owner and Landscape Architect.
02. The defective Work will be partially repaired to the instructions of the Owner and Landscape Architect, and the unit price will be adjusted to a new unit price at the discretion of Landscape Architect.

C. The authority of Owner to assess the defect and identify payment adjustment is final.

PART 2 - PRODUCTS - NOT USED

PART 3 - EXECUTION - NOT USED

END OF SECTION

SECTION 01 3000

ADMINISTRATIVE REQUIREMENTS

PART 1 GENERAL

1.1RELATED DOCUMENTS

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

1.2 SECTION INCLUDES

A. General administrative requirements.

B. Preconstruction meeting.

C. Progress meetings.

D. Construction progress schedule.

E. Submittals for review, information, and project closeout.

F. Submittal procedures.

1.3 RELATED REQUIREMENTS

A. Section 00 7200 - General Conditions: Dates for applications for payment.

B. Section 01 7000 - Execution and Closeout Requirements: Additional coordination requirements.

C. Section 01 7800 - Closeout Submittals: Project record documents; operation and maintenance data; warranties and bonds.

1.4 GENERAL ADMINISTRATIVE REQUIREMENTS

A. Comply with requirements of Section 01 7000 - Execution and Closeout Requirements for coordination of execution of administrative tasks with timing of construction activities.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION

3.1 PRECONSTRUCTION MEETING

A. Landscape Architect will schedule a meeting after Notice of Award.

B. Attendance Required:

01. Owner.
02. Landscape Architect.
03. Contractor.

C. Agenda:

01. Execution of Owner-Contractor Agreement.
02. Distribution of Contract Documents.
03. Submission of list of subcontractors, list of products, schedule of values, and progress schedule.
04. Designation of personnel representing the parties to Contracts.
05. Procedures and processing of field decisions, submittals, substitutions, applications for payments, proposal request, Change Orders, and Contract closeout procedures.
06. Scheduling.

D. Record minutes and distribute copies within two days after meeting to participants, with two copies to Landscape Architect, Owner, participants, and those affected by decisions made.

3.2 PROGRESS MEETINGS

A. Make arrangements for meetings, prepare agenda with copies for participants, preside at meetings.

B. Attendance Required: Job superintendent, major Subcontractors and suppliers, Owner, Landscape Architect, as appropriate to agenda topics for each meeting.

C. Agenda:

01. Review minutes of previous meetings.
02. Review of work progress.
03. Field observations, problems, and decisions.
04. Identification of problems that impede, or will impede, planned progress.
05. Review of submittals schedule and status of submittals.
06. Review of RFIs log and status of responses.
07. Review of off-site fabrication and delivery schedules.
08. Maintenance of progress schedule.
09. Corrective measures to regain projected schedules.
10. Planned progress during succeeding work period.
11. Coordination of projected progress.
12. Maintenance of quality and work standards.
13. Effect of proposed changes on progress schedule and coordination.
14. Other business relating to work.

D. Record minutes and distribute copies within two days after meeting to participants, with two copies to Landscape Architect, Owner, participants, and those affected by decisions made.

3.3 CONSTRUCTION PROGRESS SCHEDULE - SEE SECTION 01 3216

A. If preliminary schedule requires revision after review, submit revised schedule within 10 days.

B. Within 20 days after review of preliminary schedule, submit draft of proposed complete schedule for review.

01. Include written certification that major contractors have reviewed and accepted proposed schedule.

C. Within 10 days after joint review, submit complete schedule.

D. Submit updated schedule with each Application for Payment.

3.4 SUBMITTAL SCHEDULE

A. Submit to Landscape Architect for review a schedule for submittals in tabular format.

01. Arrange information to include scheduled date for initial submittal, submittal category (for review or for information), description of item of work covered, and role and name of subcontractor.
02. Account for time required for preparation, review, manufacturing, fabrication and delivery when establishing submittal delivery and review deadline dates.
    a. For assemblies, equipment, systems comprised of multiple components and/or requiring detailed coordination with other work, allow for additional time to make corrections or revisions to initial submittals, and time for their review.

3.5 SUBMITTALS FOR REVIEW

A. When the following are specified in individual sections, submit them for review:

01. Product data.
02. Shop drawings.
03. Samples for selection.
04. Samples for verification.
05. Mock-Ups.

B. Submit to Landscape Architect for review for the limited purpose of checking for compliance with information given and the design concept expressed in Contract Documents.

C. Samples will be reviewed for aesthetic, color, or finish selection.

D. After review, provide copies and distribute in accordance with SUBMITTAL PROCEDURES article below and for record documents purposes described in Section 01 7800 - Closeout Submittals.

3.6 SUBMITTALS FOR INFORMATION

A. When the following are specified in individual sections, submit them for information:

01. Design data.
02. Certificates.
03. Manufacturer's instructions.
04. Manufacturer's field reports.
05. Other types indicated.

B. Submit for Landscape Architect's knowledge as contract administrator or for Owner.

3.7 SUBMITTALS FOR PROJECT CLOSEOUT

A. Submit Correction Punch List for Substantial Completion.

B. Submit Final Correction Punch List for Substantial Completion.

C. When the following are specified in individual sections, submit them at project closeout in compliance with requirements of Section 01 7800 - Closeout Submittals:

01. Project record documents.
02. Operation and maintenance data.

03. Warranties.
04. Bonds.
05. Other types as indicated.

D. Submit for Owner's benefit during and after project completion.

3.8 NUMBER OF COPIES OF SUBMITTALS

A. Electronic Documents: Submit one electronic copy in PDF format; an electronically-marked up file will be returned. Create PDFs at native size and right-side up; illegible files will be rejected.

B. Samples: Submit the number specified in individual specification sections; one of which will be retained by Landscape Architect.

01. After review, produce duplicates.
02. Retained samples will not be returned to Contractor unless specifically so stated.

END OF SECTION

SECTION 01 3216

CONSTRUCTION PROGRESS SCHEDULE

PART 1 GENERAL

1.1SECTION INCLUDES

A. Preliminary schedule.

B. Construction progress schedule, bar chart type.

1.2 REFERENCE STANDARDS

A. AGC (CPSM) - Construction Planning and Scheduling Manual 2004.

B. M-H (CPM) - CPM in Construction Management - Project Management with CPM; O'Brien 2006.

1.3 SUBMITTALS

A. Within 10 days after date of Agreement, submit preliminary schedule.

B. If preliminary schedule requires revision after review, submit revised schedule within 10 days.

C. Within 20 days after review of preliminary schedule, submit draft of proposed complete schedule for review.

D. Within 10 days after joint review, submit complete schedule.

1.4 SCHEDULE FORMAT

A. Listings: In chronological order according to the start date for each activity. Identify each activity with the applicable specification section number.

B. Sheet Size: Multiples of 8-1/2 x 11 inches.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION

3.1 PRELIMINARY SCHEDULE

A. Prepare preliminary schedule in the form of a horizontal bar chart.

3.2 CONTENT

A. Show complete sequence of construction by activity, with dates for beginning and completion of each element of construction.

B. Identify each item by specification section number.

C. Show accumulated percentage of completion of each item, and total percentage of Work completed, as of the first day of each month.

D. Provide legend for symbols and abbreviations used.

3.3 BAR CHARTS

A. Include a separate bar for each major portion of Work or operation.

B. Identify the first workday of each week.

3.4 UPDATING SCHEDULE

A. Maintain schedules to record actual start and finish dates of completed activities.

B. Indicate progress of each activity to date of revision, with projected completion date of each activity.

C. Annotate diagrams to graphically depict current status of Work.

D. Identify activities modified since previous submittal, major changes in Work, and other identifiable changes.

E. Indicate changes required to maintain Date of Substantial Completion.

F. Submit reports required to support recommended changes.

G. Provide narrative report to define problem areas, anticipated delays, and impact on the schedule. Report corrective action taken or proposed and its effect.

3.5 DISTRIBUTION OF SCHEDULE

A. Distribute copies of updated schedules to Contractor's project site file, to subcontractors, suppliers, Landscape Architect, Owner, and other concerned parties.

B. Instruct recipients to promptly report, in writing, problems anticipated by projections indicated in schedules.

END OF SECTION

SECTION 01 4000

QUALITY REQUIREMENTS

PART 1 GENERAL

1.1SECTION INCLUDES

A. Submittals.

B. Quality assurance.

C. Control of installation.

D. Mock-ups.

E. Tolerances.

F. Defect Assessment.

1.2 RELATED REQUIREMENTS

A. Section 01 3000 - Administrative Requirements: Submittal procedures.

B. Section 01 6000 - Product Requirements: Requirements for material and product quality.

1.3 REFERENCE STANDARDS

A. ASTM C1077 - Standard Practice for Laboratories Testing Concrete and Concrete Aggregates for Use in Construction and Criteria for Laboratory Evaluation 2014.

B. ASTM C1093 - Standard Practice for Accreditation of Testing Agencies for Masonry 2013.

1.4 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements, for submittal procedures.

B. Certificates: When specified in individual specification sections, submit certification by the manufacturer and Contractor or installation/application subcontractor to Landscape Architect, in quantities specified for Product Data.

01. Indicate material or product complies with or exceeds specified requirements. Submit supporting reference data, affidavits, and certifications as appropriate.

C. Manufacturer's Instructions: When specified in individual specification sections, submit printed instructions for delivery, storage, assembly, installation, start-up, adjusting, and finishing, for the Owner's information. Indicate special procedures, perimeter conditions requiring special attention, and special environmental criteria required for application or installation.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION

3.1 CONTROL OF INSTALLATION

A. Monitor quality control over suppliers, manufacturers, products, services, site conditions, and workmanship, to produce work of specified quality.

B. Comply with manufacturers' instructions, including each step in sequence.

C. Should manufacturers' instructions conflict with Contract Documents, request clarification from Landscape Architect before proceeding.

D. Comply with specified standards as minimum quality for the work except where more stringent tolerances, codes, or specified requirements indicate higher standards or more precise workmanship.

E. Have work performed by persons qualified to produce required and specified quality.

F. Verify that field measurements are as indicated on shop drawings or as instructed by the manufacturer.

G. Secure products in place with positive anchorage devices designed and sized to withstand stresses, vibration, physical distortion, and disfigurement.

3.2 MOCK-UPS

A. Before installing portions of the Work where mock-ups are required, construct mock-ups in location and size indicated for each form of construction and finish required to comply with the following requirements, using materials indicated for the completed Work. The purpose of mock-up is to demonstrate the proposed range of aesthetic effects and workmanship.

B. Accepted mock-ups establish the standard of quality the Landscape Architect will use to judge the Work.

C. Notify Landscape Architect fifteen (15) working days in advance of dates and times when mock-ups will be constructed.

D. Tests shall be performed under provisions identified in this section and identified in the respective product specification sections.

E. Assemble and erect specified items with specified attachment and anchorage devices, flashings, seals, and finishes.

F. Obtain Landscape Architect's approval of mock-ups before starting work, fabrication, or construction.

G. Accepted mock-ups shall be a comparison standard for the remaining Work.

H. Where mock-up has been accepted by Landscape Architect and is specified in product specification sections to be removed, protect mock-up throughout construction, remove mock-up and clear area when directed to do so by Landscape Architect.

3.3 TOLERANCES

A. Monitor fabrication and installation tolerance control of products to produce acceptable Work. Do not permit tolerances to accumulate.

B. Comply with manufacturers' tolerances. Should manufacturers' tolerances conflict with Contract Documents, request clarification from Landscape Architect before proceeding.

C. Adjust products to appropriate dimensions; position before securing products in place.

3.4 DEFECT ASSESSMENT

A. Replace Work or portions of the Work not complying with specified requirements.

B. If, in the opinion of Owner, it is not practical to remove and replace the work, Owner will direct an appropriate remedy or adjust payment.

END OF SECTION

SECTION 01 5713

TEMPORARY EROSION AND SEDIMENT CONTROL

PART 1 GENERAL

1.1SECTION INCLUDES

A. Prevention of erosion due to construction activities.

B. Prevention of sedimentation of waterways, open drainage ways, and storm and sanitary sewers due to construction activities.

C. Restoration of areas eroded due to insufficient preventive measures.

D. Compensation of Owner for fines levied by authorities having jurisdiction due to non-compliance by Contractor.

1.2 RELATED REQUIREMENTS

A. Section 31 1000 - Site Clearing: Limits on clearing; disposition of vegetative clearing debris.

B. Section 32 9219 - Seeding: Permanent turf.

C. Section 32 9223 - Sodding: Permanent turf.

D. Section 32 9300 - Plants: Permanent plantings.

1.3 REFERENCE STANDARDS

A. ASTM D4355/D4355M - Standard Test Method for Deterioration of Geotextiles by Exposure to Light, Moisture and Heat in a Xenon Arc Type Apparatus 2014.

B. ASTM D4491 - Standard Test Methods for Water Permeability of Geotextiles by Permittivity. 1999a (Reapproved 2014).

C. ASTM D4533/D4533M - Standard Test Method for Trapezoid Tearing Strength of Geotextiles 2015.

D. ASTM D4632/D4632M - Standard Test Method for Grab Breaking Load and Elongation of Geotextiles 2015a.

E. ASTM D4751 - Standard Test Method for Determining Apparent Opening Size of a Geotextile 2016.

F. ASTM D4873/D4873M - Standard Guide for Identification, Storage, and Handling of Geosynthetic Rolls and Samples 2017.

1.4 PERFORMANCE REQUIREMENTS

A. Develop and follow an Erosion and Sedimentation Prevention Plan and submit periodic inspection reports.

B. Do not begin clearing, grading, or other work involving disturbance of ground surface cover until applicable permits have been obtained; furnish all documentation required to obtain applicable permits.

C. Timing: Put preventive measures in place as soon as possible after disturbance of surface cover and before precipitation occurs.

D. Storm Water Runoff: Control increased storm water runoff due to disturbance of surface cover due to construction activities for this project.

01. Prevent runoff into storm and sanitary sewer systems, including open drainage channels, in excess of actual capacity or amount allowed by authorities having jurisdiction, whichever is less.
02. Anticipate runoff volume due to the most extreme short term and 24-hour rainfall events that might occur in 25 years.

E. Erosion On Site: Minimize wind, water, and vehicular erosion of soil on project site due to construction activities for this project.

01. Control movement of sediment and soil from temporary stockpiles of soil.
02. Prevent development of ruts due to equipment and vehicular traffic.
03. If erosion occurs due to non-compliance with these requirements, restore eroded areas at no cost to Owner.

F. Erosion Off Site: Prevent erosion of soil and deposition of sediment on other properties caused by water leaving the project site due to construction activities for this project.

01. Prevent windblown soil from leaving the project site.
02. Prevent tracking of mud onto public roads outside site.
03. Prevent mud and sediment from flowing onto sidewalks and pavements.
04. If erosion occurs due to non-compliance with these requirements, restore eroded areas at no cost to Owner.

G. Sedimentation of Waterways On Site: Prevent sedimentation of waterways on the project site, including rivers, streams, lakes, ponds, open drainage ways, storm sewers, and sanitary sewers.

01. If sedimentation occurs, install or correct preventive measures immediately at no cost to Owner; remove deposited sediments; comply with requirements of authorities having jurisdiction.
02. If sediment basins are used as temporary preventive measures, pump dry and remove deposited sediment after each storm.

H. Sedimentation of Waterways Off Site: Prevent sedimentation of waterways off the project site, including rivers, streams, lakes, ponds, open drainage ways, storm sewers, and sanitary sewers.

01. If sedimentation occurs, install or correct preventive measures immediately at no cost to Owner; remove deposited sediments; comply with requirements of authorities having jurisdiction.

I. Open Water: Prevent standing water that could become stagnant.

J. Maintenance: Maintain temporary preventive measures until permanent measures have been established.

1.5 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements, for submittal procedures.

B. Certificate: Mill certificate for silt fence fabric attesting that fabric and factory seams comply with specified requirements, signed by legally authorized official of manufacturer; indicate actual minimum average roll values; identify fabric by roll identification numbers.

PART 2 PRODUCTS

2.1 MATERIALS

A. Bales: Air dry, rectangular straw bales.

01. Cross Section: 14 by 18 inches, minimum.
02. Bindings: Wire or string, around long dimension.

B. Bale Stakes: One of the following, minimum 3 feet long:

01. Steel U- or T-section, with minimum mass of 1.33 pound per linear foot.
02. Wood, 2 by 2 inches in cross section.

C. Silt Fence Fabric: Polypropylene geotextile resistant to common soil chemicals, mildew, and insects; non-biodegradable; in longest lengths possible; fabric including seams with the following minimum average roll lengths:

01. Average Opening Size: 30 U.S. Std. Sieve, maximum, when tested in accordance with ASTM D4751.
02. Permittivity: 0.05 sec^-1, minimum, when tested in accordance with ASTM D4491.
03. Ultraviolet Resistance: Retaining at least 70 percent of tensile strength, when tested in accordance with ASTM D4355/D4355M after 500 hours exposure.
04. Tensile Strength: 100 pounds-force, minimum, in cross-machine direction; 124 pounds-force, minimum, in machine direction; when tested in accordance with ASTM D4632/D4632M.
05. Elongation: 15 to 30 percent, when tested in accordance with ASTM D4632/D4632M.
06. Tear Strength: 55 pounds-force, minimum, when tested in accordance with ASTM D4533/D4533M.
07. Color: Manufacturer's standard, with embedment and fastener lines preprinted.

D. Silt Fence Posts: One of the following, minimum 5 feet long:

01. Hardwood, 2 by 2 inches in cross section.

PART 3 EXECUTION

3.1 EXAMINATION

A. Examine site and identify existing features that contribute to erosion resistance; maintain such existing features to greatest extent possible.

3.2 PREPARATION

A. Schedule work so that soil surfaces are left exposed for the minimum amount of time.

3.3 INSTALLATION

A. Silt Fences:

01. Store and handle fabric in accordance with ASTM D4873/D4873M.
02. Where slope gradient is less than 3:1 or barriers will be in place less than 6 months, use nominal 16 inch high barriers with minimum 36 inch long posts spaced at 6 feet maximum, with fabric embedded at least 4 inches in ground.
03. Where slope gradient is steeper than 3:1 or barriers will be in place over 6 months, use nominal 28 inch high barriers, minimum 48 inch long posts spaced at 6 feet maximum, with fabric embedded at least 6 inches in ground.
04. Where slope gradient is steeper than 3:1 and vertical height of slope between barriers is more than 20 feet, use nominal 32 inch high barriers with woven wire reinforcement and steel posts spaced at 4 feet maximum, with fabric embedded at least 6 inches in ground.
05. Install with top of fabric at nominal height and embedment as specified.
06. Do not splice fabric width; minimize splices in fabric length; splice at post only, overlapping at least 18 inches, with extra post.
07. Fasten fabric to wood posts using one of the following:
    a. Four nails per post with 3/4 inch diameter flat or button head, 1 inch long, and 14 gage, 0.083 inch shank diameter.
    b. Five staples per post with at least 17 gage, 0.0453 inch wire, 3/4 inch crown width and 1/2 inch long legs.
08. Wherever runoff will flow around end of barrier or over the top, provide temporary splash pad or other outlet protection; at such outlets in the run of the barrier, make barrier not more than 12 inches high with post spacing not more than 4 feet.

B. Straw Bale Rows:

01. Install bales in continuous rows with ends butting tightly, with one bale at each end of row turned uphill.
02. Install bales so that bindings are not in contact with the ground.
03. Embed bales at least 4 inches in the ground.
04. Anchor bales with at least two stakes per bale, driven at least 18 inches into the ground; drive first stake in each bale toward the previously placed bale to force bales together.
05. Fill gaps between ends of bales with loose straw wedged tightly.
06. Place soil excavated for trench against bales on the upslope side of the row, compacted.

3.4 MAINTENANCE

A. Inspect preventive measures weekly, within 24 hours after the end of any storm that produces 0.5 inches or more rainfall at the project site, and daily during prolonged rainfall.

B. Repair deficiencies immediately.

C. Silt Fences:

01. Promptly replace fabric that deteriorates unless need for fence has passed.
02. Remove silt deposits that exceed one-third of the height of the fence.
03. Repair fences that are undercut by runoff or otherwise damaged, whether by runoff or other causes.

D. Straw Bale Rows:

01. Promptly replace bales that fall apart or otherwise deteriorate unless need has passed.

02. Remove silt deposits that exceed one-half of the height of the bales.
03. Repair bale rows that are undercut by runoff or otherwise damaged, whether by runoff or other causes.

E. Clean out temporary sediment control structures weekly and relocate soil on site.

F. Place sediment in appropriate locations on site; do not remove from site.

3.5 CLEAN UP

A. Remove temporary measures after permanent measures have been installed, unless permitted to remain by Landscape Architect.

B. Clean out temporary sediment control structures that are to remain as permanent measures.

C. Where removal of temporary measures would leave exposed soil, shape surface to an acceptable grade and finish to match adjacent ground surfaces.

END OF SECTION

SECTION 01 6000

PRODUCT REQUIREMENTS

PART 1 GENERAL

1.1SECTION INCLUDES

A. General product requirements.

B. Transportation, handling, storage and protection.

C. Product option requirements.

D. Substitution limitations.

1.2 RELATED REQUIREMENTS

A. Section 01 4000 - Quality Requirements: Product quality monitoring.

B. Section 01 7419 - Construction Waste Management and Disposal: Waste disposal requirements potentially affecting product selection, packaging and substitutions.

1.3 SUBMITTALS

A. Proposed Products List: Submit list of major products proposed for use, with name of manufacturer, trade name, and model number of each product.

01. Submit within 15 days after date of Agreement.
02. For products specified only by reference standards, list applicable reference standards.

B. Product Data Submittals: Submit manufacturer's standard published data. Mark each copy to identify applicable products, models, options, and other data. Supplement manufacturers' standard data to provide information specific to this Project.

C. Shop Drawing Submittals: Prepared specifically for this Project; indicate utility and electrical characteristics, utility connection requirements, and location of utility outlets for service for functional equipment and appliances.

D. Sample Submittals: Illustrate functional and aesthetic characteristics of the product, with integral parts and attachment devices. Coordinate sample submittals for interfacing work.

01. For selection from standard finishes, submit samples of the full range of the manufacturer's standard colors, textures, and patterns.

PART 2 PRODUCTS

2.1 EXISTING PRODUCTS

A. Do not use materials and equipment removed from existing premises unless specifically required or permitted by Contract Documents.

B. Unforeseen historic items encountered remain the property of the Owner; notify Owner promptly upon discovery; protect, remove, handle, and store as directed by Owner.

2.2 NEW PRODUCTS

A. Provide new products unless specifically required or permitted by Contract Documents.

2.3 PRODUCT OPTIONS

A. Products Specified by Reference Standards or by Description Only: Use any product meeting those standards or description.

B. Products Specified by Naming One or More Manufacturers: Use a product of one of the manufacturers named and meeting specifications, no options or substitutions allowed.

C. Products Specified by Naming One or More Manufacturers with a Provision for Substitutions: Submit a request for substitution for any manufacturer not named.

PART 3 EXECUTION

3.1 TRANSPORTATION AND HANDLING

A. Package products for shipment in manner to prevent damage; for equipment, package to avoid loss of factory calibration.

B. If special precautions are required, attach instructions prominently and legibly on outside of packaging.

C. Coordinate schedule of product delivery to designated prepared areas in order to minimize site storage time and potential damage to stored materials.

D. Transport and handle products in accordance with manufacturer's instructions.

E. Transport materials in covered trucks to prevent contamination of product and littering of surrounding areas.

F. Promptly inspect shipments to ensure that products comply with requirements, quantities are correct, and products are undamaged.

G. Provide equipment and personnel to handle products by methods to prevent soiling, disfigurement, or damage, and to minimize handling.

H. Arrange for the return of packing materials, such as wood pallets, where economically feasible.

3.2 STORAGE AND PROTECTION

A. Designate receiving/storage areas for incoming products so that they are delivered according to installation schedule and placed convenient to work area in order to minimize waste due to excessive materials handling and misapplication. See Section 01 7419.

B. Store and protect products in accordance with manufacturers' instructions.

C. Store with seals and labels intact and legible.

D. Store sensitive products in weathertight, climate-controlled enclosures in an environment favorable to product.

E. For exterior storage of fabricated products, place on sloped supports above ground.

F. Provide off-site storage and protection when site does not permit on-site storage or protection.

G. Protect products from damage or deterioration due to construction operations, weather, precipitation, humidity, temperature, sunlight and ultraviolet light, dirt, dust, and other contaminants.

H. Comply with manufacturer's warranty conditions, if any.

I. Cover products subject to deterioration with impervious sheet covering. Provide ventilation to prevent condensation and degradation of products.

J. Store loose granular materials on solid flat surfaces in a well-drained area. Prevent mixing with foreign matter.

K. Prevent contact with material that may cause corrosion, discoloration, or staining.

L. Provide equipment and personnel to store products by methods to prevent soiling, disfigurement, or damage.

M. Arrange storage of products to permit access for inspection. Periodically inspect to verify products are undamaged and are maintained in acceptable condition.

END OF SECTION

SECTION 01 7000

EXECUTION AND CLOSEOUT REQUIREMENTS

PART 1 GENERAL

1.1SECTION INCLUDES

A. Examination, preparation, and general installation procedures.

B. Pre-installation meetings.

C. Surveying for laying out the work.

D. Cleaning and protection.

E. Starting of systems and equipment.

F. Demonstration and instruction of Owner personnel.

G. Closeout procedures, including Contractor's Correction Punch List, except payment procedures.

H. General requirements for maintenance service.

1.2 RELATED REQUIREMENTS

A. Section 01 3000 - Administrative Requirements: Submittals procedures, Electronic document submittal service.

B. Section 01 4000 - Quality Requirements: Testing and inspection procedures.

C. Section 01 7419 - Construction Waste Management and Disposal: Additional procedures for trash/waste removal, recycling, salvage, and reuse.

D. Section 01 7800 - Closeout Submittals: Project record documents, operation and maintenance data, warranties, and bonds.

E. Section 01 7900 - Demonstration and Training: Demonstration of products and systems to be commissioned and where indicated in specific specification sections

1.3 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements, for submittal procedures.

1.4 QUALIFICATIONS

A. For surveying work, employ a land surveyor registered in Texas and acceptable to Landscape Architect. Submit evidence of surveyor's Errors and Omissions insurance coverage in the form of an Insurance Certificate. Employ only individual(s) trained and experienced in collecting and recording accurate data relevant to ongoing construction activities,

1.5 PROJECT CONDITIONS

A. Use of explosives is not permitted.

B. Grade site to drain. Maintain excavations free of water. Provide, operate, and maintain pumping equipment.

C. Protect site from puddling or running water. Provide water barriers as required to protect site from soil erosion.

D. Dust Control: Execute work by methods to minimize raising dust from construction operations. Provide positive means to prevent air-borne dust from dispersing into atmosphere and over adjacent property.

E. Erosion and Sediment Control: Plan and execute work by methods to control surface drainage from cuts and fills, from borrow and waste disposal areas. Prevent erosion and sedimentation.

01. Minimize amount of bare soil exposed at one time.
02. Periodically inspect earthwork to detect evidence of erosion and sedimentation; promptly apply corrective measures.

F. Noise Control: Provide methods, means, and facilities to minimize noise produced by construction operations.

01. Outdoors: Limit conduct of especially noisy exterior work to the hours of 8 am to 5 pm.

G. Pest and Rodent Control: Provide methods, means, and facilities to prevent pests and insects from damaging the work.

H. Pollution Control: Provide methods, means, and facilities to prevent contamination of soil, water, and atmosphere from discharge of noxious, toxic substances, and pollutants produced by construction operations. Comply with federal, state, and local regulations.

1.6 COORDINATION

A. Coordinate scheduling, submittals, and work of the various sections of the Project Manual to ensure efficient and orderly sequence of installation of interdependent construction elements, with provisions for accommodating items installed later.

B. Notify affected utility companies and comply with their requirements.

C. Verify that utility requirements and characteristics of new operating equipment are compatible with building utilities. Coordinate work of various sections having interdependent responsibilities for installing, connecting to, and placing in service, such equipment.

D. Coordinate space requirements, supports, and installation of mechanical and electrical work that are indicated diagrammatically on drawings. Follow routing indicated for pipes, ducts, and conduit, as closely as practicable; place runs parallel with lines of building. Utilize spaces efficiently to maximize accessibility for other installations, for maintenance, and for repairs.

E. In finished areas except as otherwise indicated, conceal pipes, ducts, and wiring within the construction. Coordinate locations of fixtures and outlets with finish elements.

F. Coordinate completion and clean-up of work of separate sections.

G. After Owner occupancy of premises, coordinate access to site for correction of defective work and work not in accordance with Contract Documents, to minimize disruption of Owner's activities.

PART 2 PRODUCTS

PART 3 EXECUTION

3.1 EXAMINATION

A. Verify that existing site conditions and substrate surfaces are acceptable for subsequent work. Start of work means acceptance of existing conditions.

B. Verify that existing substrate is capable of structural support or attachment of new work being applied or attached.

C. Examine and verify specific conditions described in individual specification sections.

D. Take field measurements before confirming product orders or beginning fabrication, to minimize waste due to over-ordering or misfabrication.

E. Verify that utility services are available, of the correct characteristics, and in the correct locations.

F. Prior to Cutting: Examine existing conditions prior to commencing work, including elements subject to damage or movement during cutting and patching. After uncovering existing work, assess conditions affecting performance of work. Beginning of cutting or patching means acceptance of existing conditions.

3.2 PREPARATION

A. Clean substrate surfaces prior to applying next material or substance.

B. Seal cracks or openings of substrate prior to applying next material or substance.

C. Apply manufacturer required or recommended substrate primer, sealer, or conditioner prior to applying any new material or substance in contact or bond.

3.3 PREINSTALLATION MEETINGS

A. When required in individual specification sections, convene a preinstallation meeting at the site prior to commencing work of the section.

B. Require attendance of parties directly affecting, or affected by, work of the specific section.

C. Notify Landscape Architect four days in advance of meeting date.

D. Prepare agenda and preside at meeting:

01. Review conditions of examination, preparation and installation procedures.
02. Review coordination with related work.

E. Record minutes and distribute copies within two days after meeting to participants, with two copies to Landscape Architect, Owner, participants, and those affected by decisions made.

3.4 LAYING OUT THE WORK

A. Verify locations of survey control points prior to starting work.

B. Promptly notify Landscape Architect of any discrepancies discovered.

C. Contractor shall locate and protect survey control and reference points.

D. Protect survey control points prior to starting site work; preserve permanent reference points during construction.

E. Promptly report to Landscape Architect the loss or destruction of any reference point or relocation required because of changes in grades or other reasons.

F. Replace dislocated survey control points based on original survey control. Make no changes without prior written notice to Landscape Architect.

G. Utilize recognized engineering survey practices.

H. Establish a minimum of three permanent bench marks on site, referenced to established control points. Record locations, with horizontal and vertical data, on project record documents.

I. Establish elevations, lines and levels. Locate and lay out by instrumentation and similar appropriate means:

01. Site improvements including pavements; stakes for grading, fill and topsoil placement; utility locations, slopes, and invert elevations.
02. Grid or axis for structures.
03. Building foundation, column locations, ground floor elevations.

J. Periodically verify layouts by same means.

K. Maintain a complete and accurate log of control and survey work as it progresses.

3.5 GENERAL INSTALLATION REQUIREMENTS

A. Install products as specified in individual sections, in accordance with manufacturer's instructions and recommendations, and so as to avoid waste due to necessity for replacement.

B. Make vertical elements plumb and horizontal elements level, unless otherwise indicated.

C. Install equipment and fittings plumb and level, neatly aligned with adjacent vertical and horizontal lines, unless otherwise indicated.

D. Make consistent texture on surfaces, with seamless transitions, unless otherwise indicated.

E. Make neat transitions between different surfaces, maintaining texture and appearance.

3.6 ALTERATIONS

A. Drawings showing existing construction and utilities are based on casual field observation and existing record documents only.

01. Verify that construction and utility arrangements are as indicated.
02. Report discrepancies to Landscape Architect before disturbing existing installation.
03. Beginning of alterations work constitutes acceptance of existing conditions.

B. Remove existing work as indicated and as required to accomplish new work.

01. Remove items indicated on drawings.
02. Relocate items indicated on drawings.
03. Where new surface finishes are to be applied to existing work, perform removals, patch, and prepare existing surfaces as required to receive new finish; remove existing finish if necessary for successful application of new finish.
04. Where new surface finishes are not specified or indicated, patch holes and damaged surfaces to match adjacent finished surfaces as closely as possible.

C. Services (Including but not limited to Plumbing, Electrical, and Telecommunications): Remove, relocate, and extend existing systems to accommodate new construction.

01. Maintain existing active systems that are to remain in operation; maintain access to equipment and operational components; if necessary, modify installation to allow access or provide access panel.
02. Where existing systems or equipment are not active and Contract Documents require reactivation, put back into operational condition; repair supply, distribution, and equipment as required.
03. Where existing active systems serve occupied facilities but are to be replaced with new services, maintain existing systems in service until new systems are complete and ready for service.
    a. Disable existing systems only to make switchovers and connections; minimize duration of outages.
    b. Provide temporary connections as required to maintain existing systems in service.
04. Verify that abandoned services serve only abandoned facilities.
05. Remove abandoned pipe, ducts, conduits, and equipment, including those above accessible ceilings; remove back to source of supply where possible, otherwise cap stub and tag with identification; patch holes left by removal using materials specified for new construction.

D. Protect existing work to remain.

01. Prevent movement of structure; provide shoring and bracing if necessary.
02. Perform cutting to accomplish removals neatly and as specified for cutting new work.
03. Repair adjacent construction and finishes damaged during removal work.

E. Adapt existing work to fit new work: Make as neat and smooth transition as possible.

01. When existing finished surfaces are cut so that a smooth transition with new work is not possible, terminate existing surface along a straight line at a natural line of division and make recommendation to Landscape Architect.
02. Where a change of plane of 1/4 inch or more occurs in existing work, submit recommendation for providing a smooth transition for Landscape Architect review and request instructions.

F. Patching: Where the existing surface is not indicated to be refinished, patch to match the surface finish that existed prior to cutting. Where the surface is indicated to be refinished, patch so that the substrate is ready for the new finish.

G. Refinish existing surfaces as indicated:

01. Where rooms or spaces are indicated to be refinished, refinish all visible existing surfaces to remain to the specified condition for each material, with a neat transition to adjacent finishes.

02. If mechanical or electrical work is exposed accidentally during the work, re-cover and refinish to match.

H. Clean existing systems and equipment.

I. Remove demolition debris and abandoned items from alterations areas and dispose of off-site; do not burn or bury.

J. Do not begin new construction in alterations areas before demolition is complete.

K. Comply with all other applicable requirements of this section.

3.7 PROGRESS CLEANING

A. Maintain areas free of waste materials, debris, and rubbish. Maintain site in a clean and orderly condition.

B. Remove debris and rubbish from pipe chases, plenums, attics, crawl spaces, and other closed or remote spaces, prior to enclosing the space.

C. Broom and vacuum clean interior areas prior to start of surface finishing, and continue cleaning to eliminate dust.

D. Collect and remove waste materials, debris, and trash/rubbish from site periodically and dispose off-site; do not burn or bury.

3.8 PROTECTION OF INSTALLED WORK

A. Protect installed work from damage by construction operations.

B. Provide special protection where specified in individual specification sections.

C. Prohibit traffic from landscaped areas.

D. Remove protective coverings when no longer needed; reuse or recycle coverings if possible.

3.9 SYSTEM STARTUP

A. Coordinate schedule for start-up of various equipment and systems.

B. Notify Landscape Architect and Owner seven days prior to start-up of each item.

C. Verify that each piece of equipment or system has been checked for proper lubrication, drive rotation, belt tension, control sequence, and for conditions that may cause damage.

D. Verify tests, meter readings, and specified electrical characteristics agree with those required by the equipment or system manufacturer.

E. Verify that wiring and support components for equipment are complete and tested.

F. Execute start-up under supervision of applicable Contractor personnel and manufacturer's representative in accordance with manufacturers' instructions.

G. Submit a written report that equipment or system has been properly installed and is functioning correctly.

3.10 DEMONSTRATION AND INSTRUCTION

A. See Section 01 7900 - Demonstration and Training.

B. Demonstrate operation and maintenance of products to Owner's personnel two weeks prior to date of Substantial Completion.

3.11 ADJUSTING

A. Adjust operating products and equipment to ensure smooth and unhindered operation.

3.12 FINAL CLEANING

A. Use cleaning materials that are nonhazardous.

B. Remove all labels that are not permanent. Do not paint or otherwise cover fire test labels or nameplates on mechanical and electrical equipment.

C. Clean equipment and fixtures to a sanitary condition with cleaning materials appropriate to the surface and material being cleaned.

D. Clean filters of operating equipment.

E. Clean debris from gutters, overflow drains, area drains, and drainage systems.

F. Clean site; sweep paved areas, rake clean landscaped surfaces.

G. Remove waste, surplus materials, trash/rubbish, and construction facilities from the site; dispose of in legal manner; do not burn or bury.

3.13 CLOSEOUT PROCEDURES

A. Make submittals that are required by governing or other authorities.

01. Provide copies to Landscape Architect.

B. Accompany Project Coordinator on preliminary inspection to determine items to be listed for completion or correction in the Contractor's Correction Punch List for Contractor's Notice of Substantial Completion.

C. Notify Landscape Architect when work is considered ready for Landscape Architect's Substantial Completion inspection.

D. Submit written certification containing Contractor's Correction Punch List, that Contract Documents have been reviewed, work has been inspected, and that work is complete in accordance with Contract Documents and ready for Landscape Architect's Substantial Completion inspection.

E. Conduct Substantial Completion inspection and create Final Correction Punch List containing Landscape Architect's and Contractor's comprehensive list of items identified to be completed or corrected and submit to Landscape Architect.

F. Correct items of work listed in Final Correction Punch List and comply with requirements for access to Owner-occupied areas.

G. Notify Landscape Architect when work is considered finally complete and ready for Landscape Architect's Substantial Completion final inspection.

H. Complete items of work determined by Landscape Architect listed in executed Certificate of Substantial Completion.

3.14 MAINTENANCE

A. Provide service and maintenance of components indicated in specification sections.

B. Maintenance Period: As indicated in specification sections or, if not indicated, not less than one year from the Date of Substantial Completion or the length of the specified warranty, whichever is longer.

C. Examine system components at a frequency consistent with reliable operation. Clean, adjust, and lubricate as required.

D. Include systematic examination, adjustment, and lubrication of components. Repair or replace parts whenever required. Use parts produced by the manufacturer of the original component.

E. Maintenance service shall not be assigned or transferred to any agent or subcontractor without prior written consent of the Owner.

END OF SECTION

SECTION 01 7419

CONSTRUCTION WASTE MANAGEMENT AND DISPOSAL

PART 1 GENERAL

1.1WASTE MANAGEMENT REQUIREMENTS

A. Owner requires that this project generate the least amount of trash and waste possible.

B. Employ processes that ensure the generation of as little waste as possible due to error, poor planning, breakage, mishandling, contamination, or other factors.

C. Minimize trash/waste disposal in landfills; reuse, salvage, or recycle as much waste as economically feasible.

D. Methods of trash/waste disposal that are not acceptable are:

01. Burning on the project site.
02. Burying on the project site.
03. Dumping or burying on other property, public or private.
04. Other illegal dumping or burying.

E. Regulatory Requirements: Contractor is responsible for knowing and complying with regulatory requirements, including but not limited to Federal, state and local requirements, pertaining to legal disposal of all construction and demolition waste materials.

1.2 DEFINITIONS

A. Clean: Untreated and unpainted; not contaminated with oils, solvents, caulk, or the like.

B. Construction and Demolition Waste: Solid wastes typically including building materials, packaging, trash, debris, and rubble resulting from construction, remodeling, repair and demolition operations.

C. Hazardous: Exhibiting the characteristics of hazardous substances, i.e., ignitibility, corrosivity, toxicity or reactivity.

D. Nonhazardous: Exhibiting none of the characteristics of hazardous substances, i.e., ignitibility, corrosivity, toxicity, or reactivity.

E. Nontoxic: Neither immediately poisonous to humans nor poisonous after a long period of exposure.

F. Recyclable: The ability of a product or material to be recovered at the end of its life cycle and remanufactured into a new product for reuse by others.

G. Recycle: To remove a waste material from the project site to another site for remanufacture into a new product for reuse by others.

H. Recycling: The process of sorting, cleansing, treating and reconstituting solid waste and other discarded materials for the purpose of using the altered form. Recycling does not include burning, incinerating, or thermally destroying waste.

I. Return: To give back reusable items or unused products to vendors for credit.

J. Reuse: To reuse a construction waste material in some manner on the project site.

K. Salvage: To remove a waste material from the project site to another site for resale or reuse by others.

L. Sediment: Soil and other debris that has been eroded and transported by storm or well production run-off water.

M. Source Separation: The act of keeping different types of waste materials separate beginning from the first time they become waste.

N. Toxic: Poisonous to humans either immediately or after a long period of exposure.

O. Trash: Any product or material unable to be reused, returned, recycled, or salvaged.

P. Waste: Extra material or material that has reached the end of its useful life in its intended use. Waste includes salvageable, returnable, recyclable, and reusable material.

1.3 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements, for submittal procedures.

PART 3 EXECUTION

2.1 WASTE MANAGEMENT PROCEDURES

A. See Section 01 3000 for additional requirements for project meetings, reports, submittal procedures, and project documentation.

B. See Section 01 6000 for waste prevention requirements related to delivery, storage, and handling.

C. See Section 01 7000 for trash/waste prevention procedures related to demolition, cutting and patching, installation, protection, and cleaning.

END OF SECTION

SECTION 01 7800

CLOSEOUT SUBMITTALS

PART 1 GENERAL

1.1SECTION INCLUDES

A. Project Record Documents.

B. Operation and Maintenance Data.

C. Warranties and bonds.

1.2 RELATED REQUIREMENTS

A. Section 00 7200 - General Conditions: Performance bond and labor and material payment bonds, warranty, and correction of work.

B. Section 01 3000 - Administrative Requirements: Submittals procedures, shop drawings, product data, and samples.

C. Section 01 7000 - Execution and Closeout Requirements: Contract closeout procedures.

D. Individual Product Sections: Specific requirements for operation and maintenance data.

E. Individual Product Sections: Warranties required for specific products or Work.

1.3 SUBMITTALS

A. Project Record Documents: Submit documents to Landscape Architect with claim for final Application for Payment.

B. Operation and Maintenance Data:

01. Submit two copies of preliminary draft or proposed formats and outlines of contents before start of Work. Landscape Architect will review draft and return one copy with comments.
02. For equipment, or component parts of equipment put into service during construction and operated by Owner, submit completed documents within ten days after acceptance.
03. Submit one copy of completed documents 15 days prior to final inspection. This copy will be reviewed and returned after final inspection, with Landscape Architect comments. Revise content of all document sets as required prior to final submission.
04. Submit two sets of revised final documents in final form within 10 days after final inspection.

C. Warranties and Bonds:

01. For equipment or component parts of equipment put into service during construction with Owner's permission, submit documents within 10 days after acceptance.
02. Make other submittals within 10 days after Date of Substantial Completion, prior to final Application for Payment.
03. For items of Work for which acceptance is delayed beyond Date of Substantial Completion, submit within 10 days after acceptance, listing the date of acceptance as the beginning of the warranty period.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION

3.1 PROJECT RECORD DOCUMENTS

A. Maintain on site one set of the following record documents; record actual revisions to the Work:

01. Drawings.
02. Specifications.
03. Addenda.
04. Change Orders and other modifications to the Contract.
05. Reviewed shop drawings, product data, and samples.
06. Manufacturer's instruction for assembly, installation, and adjusting.

B. Ensure entries are complete and accurate, enabling future reference by Owner.

C. Store record documents separate from documents used for construction.

D. Record information concurrent with construction progress.

E. Specifications: Legibly mark and record at each product section description of actual products installed, including the following:

01. Changes made by Addenda and modifications.

F. Record Drawingsand Shop Drawings: Legibly mark each item to record actual construction including:

01. Field changes of dimension and detail.
02. Details not on original Contract drawings.

3.2 OPERATION AND MAINTENANCE DATA

A. Source Data: For each product or system, list names, addresses and telephone numbers of Subcontractors and suppliers, including local source of supplies and replacement parts.

B. Product Data: Mark each sheet to clearly identify specific products and component parts, and data applicable to installation. Delete inapplicable information.

C. Drawings: Supplement product data to illustrate relations of component parts of equipment and systems, to show control and flow diagrams. Do not use Project Record Documents as maintenance drawings.

D. Typed Text: As required to supplement product data. Provide logical sequence of instructions for each procedure, incorporating manufacturer's instructions.

3.3 OPERATION AND MAINTENANCE DATA FOR MATERIALS AND FINISHES

A. For Each Product, Applied Material, and Finish:

01. Product data, with catalog number, size, composition, and color and texture designations.
02. Information for re-ordering custom manufactured products.

B. Instructions for Care and Maintenance: Manufacturer's recommendations for cleaning agents and methods, precautions against detrimental cleaning agents and methods, and recommended schedule for cleaning and maintenance.

C. Where additional instructions are required, beyond the manufacturer's standard printed instructions, have instructions prepared by personnel experienced in the operation and maintenance of the specific products.

3.4 OPERATION AND MAINTENANCE DATA FOR EQUIPMENT AND SYSTEMS

A. For Each Item of Equipment and Each System:

01. Description of unit or system, and component parts.
02. Identify function, normal operating characteristics, and limiting conditions.
03. Include performance curves, with engineering data and tests.
04. Complete nomenclature and model number of replaceable parts.

B. Where additional instructions are required, beyond the manufacturer's standard printed instructions, have instructions prepared by personnel experienced in the operation and maintenance of the specific products.

C. Include color coded wiring diagrams as installed.

D. Operating Procedures: Include start-up, break-in, and routine normal operating instructions and sequences. Include regulation, control, stopping, shut-down, and emergency instructions. Include summer, winter, and any special operating instructions.

E. Maintenance Requirements: Include routine procedures and guide for preventative maintenance and trouble shooting; disassembly, repair, and reassembly instructions; and alignment, adjusting, balancing, and checking instructions.

F. Provide servicing and lubrication schedule, and list of lubricants required.

G. Include manufacturer's printed operation and maintenance instructions.

H. Include sequence of operation by controls manufacturer.

I. Provide original manufacturer's parts list, illustrations, assembly drawings, and diagrams required for maintenance.

J. Provide control diagrams by controls manufacturer as installed.

K. Additional Requirements: As specified in individual product specification sections.

3.5 ASSEMBLY OF OPERATION AND MAINTENANCE MANUALS

A. Assemble operation and maintenance data into durable manuals for Owner's personnel use, with data arranged in the same sequence as, and identified by, the specification sections.

B. Where systems involve more than one specification section, provide separate tabbed divider for each system.

C. Binders: Commercial quality, 8-1/2 by 11 inch three D side ring binders with durable plastic covers; 2 inch maximum ring size. When multiple binders are used, correlate data into related consistent groupings.

D. Cover: Identify each binder with typed or printed title OPERATION AND MAINTENANCE INSTRUCTIONS; identify title of Project; identify subject matter of contents.

E. Project Directory: Title and address of Project; names, addresses, and telephone numbers of Landscape Architect, Consultants, Contractor and subcontractors, with names of responsible parties.

F. Tables of Contents: List every item separated by a divider, using the same identification as on the divider tab; where multiple volumes are required, include all volumes Tables of Contents in each volume, with the current volume clearly identified.

G. Dividers: Provide tabbed dividers for each separate product and system; identify the contents on the divider tab; immediately following the divider tab include a description of product and major component parts of equipment.

H. Text: Manufacturer's printed data, or typewritten data on 20 pound paper.

I. Drawings: Provide with reinforced punched binder tab. Bind in with text; fold larger drawings to size of text pages.

J. Arrangement of Contents: Organize each volume in parts as follows:

01. Project Directory.
02. Table of Contents, of all volumes, and of this volume.
03. Operation and Maintenance Data: Arranged by system, then by product category.
    a. Source data.
    b. Product data, shop drawings, and other submittals.
    c. Operation and maintenance data.
    d. Field quality control data.
    e. Photocopies of warranties and bonds.

3.6 WARRANTIES AND BONDS

A. Obtain warranties and bonds, executed in duplicate by responsible Subcontractors, suppliers, and manufacturers, within 10 days after completion of the applicable item of work. Except for items put into use with Owner's permission, leave date of beginning of time of warranty until Date of Substantial completion is determined.

B. Verify that documents are in proper form, contain full information, and are notarized.

C. Co-execute submittals when required.

D. Retain warranties and bonds until time specified for submittal.

E. Include originals of each in operation and maintenance manuals, indexed separately on Table of Contents.

END OF SECTION

SECTION 01 7900

DEMONSTRATION AND TRAINING

PART 1 GENERAL

1.1SUMMARY

A. Demonstration of products and systems to be commissioned and where indicated in specific specification sections.

B. Training of Owner personnel in operation and maintenance is required for:

01. All software-operated systems.
02. Landscape irrigation.

1.2 RELATED REQUIREMENTS

A. Section 01 7800 - Closeout Submittals: Operation and maintenance manuals.

1.3 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements, for submittal procedures; except:

01. Make all submittals specified in this section, and elsewhere where indicated for commissioning purposes, directly to the Commissioning Authority.
02. Submit one copy to the Commissioning Authority, not to be returned.
03. Make commissioning submittals on time schedule specified by Commissioning Authority.
04. Submittals indicated as "Draft" are intended for the use of the Commissioning Authority in preparation of overall Training Plan; submit in editable electronic format, Microsoft Word 2003 preferred.

B. Draft Training Plans: Owner will designate personnel to be trained; tailor training to needs and skill-level of attendees.

01. Submit to Commissioning Authority for review and inclusion in overall training plan.
02. Submit not less than four weeks prior to start of training.
03. Revise and resubmit until acceptable.
04. Provide an overall schedule showing all training sessions.
05. Include at least the following for each training session:
    a. Identification, date, time, and duration.
    b. Description of products and/or systems to be covered.
    c. Name of firm and person conducting training; include qualifications.
    d. Intended audience, such as job description.
    e. Objectives of training and suggested methods of ensuring adequate training.
    f. Methods to be used, such as classroom lecture, live demonstrations, hands-on, etc.
    g. Media to be used, such a slides, hand-outs, etc.
    h. Training equipment required, such as projector, projection screen, etc., to be provided by Contractor.

C. Training Manuals: Provide training manual for each attendee; allow for minimum of two attendees per training session.

01. Include applicable portion of O&M manuals.
02. Include copies of all hand-outs, slides, overheads, video presentations, etc., that are not included in O&M manuals.
03. Provide one extra copy of each training manual to be included with operation and maintenance data.

1.4 QUALITY ASSURANCE

A. Instructor Qualifications: Familiar with design, operation, maintenance and troubleshooting of the relevant products and systems.

01. Provide as instructors the most qualified trainer of those contractors and/or installers who actually supplied and installed the systems and equipment.
02. Where a single person is not familiar with all aspects, provide specialists with necessary qualifications.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION

3.1 DEMONSTRATION - GENERAL

A. Demonstrations conducted during system start-up do not qualify as demonstrations for the purposes of this section, unless approved in advance by Owner.

B. Demonstrations conducted during Functional Testing need not be repeated unless Owner personnel training is specified.

C. Demonstration may be combined with Owner personnel training if applicable.

D. Operating Equipment and Systems: Demonstrate operation in all modes, including start-up, shut-down, seasonal changeover, emergency conditions, and troubleshooting, and maintenance procedures, including scheduled and preventive maintenance.

01. Perform demonstrations not less than two weeks prior to Substantial Completion.
02. For equipment or systems requiring seasonal operation, perform demonstration for other season within six months.

E. Non-Operating Products: Demonstrate cleaning, scheduled and preventive maintenance, and repair procedures.

01. Perform demonstrations not less than two weeks prior to Substantial Completion.

3.2 TRAINING - GENERAL

A. Commissioning Authority will prepare the Training Plan based on draft plans submitted.

B. Conduct training on-site unless otherwise indicated.

C. Owner will provide classroom and seating at no cost to Contractor.

D. Do not start training until Functional Testing is complete, unless otherwise specified or approved by the Commissioning Authority.

E. Provide training in minimum two hour segments.

F. The Commissioning Authority is responsible for determining that the training was satisfactorily completed and will provide approval forms.

G. Training schedule will be subject to availability of Owner's personnel to be trained; re-schedule training sessions as required by Owner; once schedule has been approved by Owner failure to conduct sessions according to schedule will be cause for Owner to charge Contractor for personnel "show-up" time.

H. Review of Facility Policy on Operation and Maintenance Data: During training discuss:

01. The location of the O&M manuals and procedures for use and preservation; backup copies.
02. Typical contents and organization of all manuals, including explanatory information, system narratives, and product specific information.
03. Typical uses of the O&M manuals.

I. Product- and System-Specific Training:

01. Review the applicable O&M manuals.
02. For systems, provide an overview of system operation, design parameters and constraints, and operational strategies.
03. Review instructions for proper operation in all modes, including start-up, shut-down, seasonal changeover and emergency procedures, and for maintenance, including preventative maintenance.
04. Provide hands-on training on all operational modes possible and preventive maintenance.
05. Emphasize safe and proper operating requirements; discuss relevant health and safety issues and emergency procedures.
06. Discuss common troubleshooting problems and solutions.
07. Discuss any peculiarities of equipment installation or operation.
08. Discuss warranties and guarantees, including procedures necessary to avoid voiding coverage.
09. Review recommended tools and spare parts inventory suggestions of manufacturers.
10. Review spare parts and tools required to be furnished by Contractor.
11. Review spare parts suppliers and sources and procurement procedures.

J. Be prepared to answer questions raised by training attendees; if unable to answer during training session, provide written response within three days.

END OF SECTION

SECTION 03 1000

CONCRETE FORMING AND ACCESSORIES

PART 1 GENERAL

1.1SECTION INCLUDES

A. Formwork for cast-in place concrete, with shoring, bracing and anchorage.

B. Openings for other work.

C. Form accessories.

D. Form stripping.

1.2 RELATED REQUIREMENTS

A. Section 03 2000 - Concrete Reinforcing.

B. Section 03 3000 - Cast-in-Place Concrete.

C. Section 04 2000 - Unit Masonry: Reinforcement for masonry.

D. Section 05 1200 - Structural Steel Framing: Placement of embedded steel anchors and plates in cast-in-place concrete.

E. Section 05 2100 - Steel Joist Framing: Placement of embedded steel anchors, plates and joist seats in cast-in-place concrete.

F. Section 31 2316 - Excavation: Shoring and underpinning for excavation.

1.3 REFERENCE STANDARDS

A. ACI 117 - Specifications for Tolerances for Concrete Construction and Materials 2010 (Reapproved 2015).

B. ACI 301 - Specifications for Structural Concrete 2016.

C. ACI 318 - Building Code Requirements for Structural Concrete and Commentary 2014 (Errata 2018).

D. ACI 347R - Guide to Formwork for Concrete 2014, with Errata (2017).

E. ASTM A653/A653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process 2015.

F. PS 1 - Structural Plywood 2009.

1.4 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements, for submittal procedures.

B. Shop Drawings: Indicate pertinent dimensions, materials, bracing, and arrangement of joints and ties.

1.5 QUALITY ASSURANCE

A. Perform work of this section in accordance with Highways standards of the State of Texas.

1.6 DELIVERY, STORAGE, AND HANDLING

PART 2 PRODUCTS

2.1 FORMWORK - GENERAL

A. Provide concrete forms, accessories, shoring, and bracing as required to accomplish cast-in-place concrete work.

B. Design and construct concrete that complies with design with respect to shape, lines, and dimensions.

C. Chamfer outside corners of beams, joists, columns, and walls.

D. Comply with applicable state and local codes with respect to design, fabrication, erection, and removal of formwork.

E. Comply with relevant portions of ACI 347R, ACI 301, and ACI 318.

F. Comply with Highways standards of the State of Texas.

G. Do not use fiberboard, Masonite, or other water absorbing materials for concrete formwork.

2.2 WOOD FORM MATERIALS

A. Softwood Plywood: PS 1, C Grade, Group 2.

B. Redwood when soil contact is maintained and stakes or forms are to remain after pour.

2.3 FORMWORK ACCESSORIES

A. Form Ties: Removable type, galvanized metal, fixed length, cone type, with waterproofing washer, free of defects that could leave holes larger than 1 inch in concrete surface.

B. Form Release Agent: Capable of releasing forms from hardened concrete without staining or discoloring concrete or forming bugholes and other surface defects, compatible with concrete and form materials, and not requiring removal for satisfactory bonding of coatings to be applied.

C. Dowel Sleeves: Plastic sleeve and nailable plastic base for smooth, round, steel load-transfer dowels.

01. Products:
   a. Sika USA; www.usa.sika.com, sike - speed dowel.
   b. Substitutions: See Section 01 6000 - Product Requirements.

D. Dovetail Anchor Slot: Galvanized steel, at least 22 gage, 0.0299 inch thick, foam filled, release tape sealed slots, anchors for securing to concrete formwork.

E. Flashing Reglets: Galvanized steel, at least 22 gage, 0.0299 inch thick, longest possible lengths, with alignment splines for joints, foam filled, release tape sealed slots, anchors for securing to concrete formwork.

F. Nails, Spikes, Lag Bolts, Through Bolts, Anchorages: Sized as required, of sufficient strength and character to maintain formwork in place while placing concrete.

G. Embedded Anchor Shapes, Plates, Angles and Bars: As specified in Section 05 1200.

H. Waterstops: Preformed mineral colloid strips, 3/8 inch thick, moisture expanding.

PART 3 EXECUTION

3.1 EXAMINATION

A. Verify lines, levels and centers before proceeding with formwork. Ensure that dimensions agree with drawings.

3.2 EARTH FORMS

A. Earth forms or sandbags are not permitted.

3.3 ERECTION - FORMWORK

A. Erect formwork, shoring and bracing to achieve design requirements, in accordance with requirements of ACI 301.

B. Provide bracing to ensure stability of formwork. Shore or strengthen formwork subject to overstressing by construction loads.

C. Arrange and assemble formwork to permit dismantling and stripping. Do not damage concrete during stripping. Permit removal of remaining principal shores.

D. Align joints and make watertight. Keep form joints to a minimum.

E. Obtain approval before framing openings in structural members that are not indicated on drawings.

F. Install void forms in accordance with manufacturer's recommendations. Protect forms from moisture or crushing.

G. If formwork is placed after reinforcement, resulting in insufficient concrete cover over reinforcement, request instructions from Landscape Architect before proceeding.

3.4 APPLICATION - FORM RELEASE AGENT

A. Apply form release agent on formwork in accordance with manufacturer's recommendations.

3.5 INSERTS, EMBEDDED PARTS, AND OPENINGS

A. Provide formed openings where required for items to be embedded in passing through concrete work.

B. Locate and set in place items that will be cast directly into concrete.

C. Coordinate with work of other sections in forming and placing openings, slots, reglets, recesses, sleeves, bolts, anchors, other inserts, and components of other work.

D. Position recessed anchor slots for brick veneer masonry anchors to spacing and intervals specified in Section 04 2001.

E. Install accessories in accordance with manufacturer's instructions, so they are straight, level, and plumb. Ensure items are not disturbed during concrete placement.

F. Install waterstops in accordance with manufacturer's instructions, so they are continuous without displacing reinforcement. Heat seal joints so they are watertight.

G. Provide temporary ports or openings in formwork where required to facilitate cleaning and inspection. Locate openings at bottom of forms to allow flushing water to drain.

H. Close temporary openings with tight fitting panels, flush with inside face of forms, and neatly fitted so joints will not be apparent in exposed concrete surfaces.

3.6 FORM CLEANING

A. Clean forms as erection proceeds, to remove foreign matter within forms.

B. Clean and protect permanent insulated concrete foam panel formwork per manufacturer's recommendations.

C. Clean formed cavities of debris prior to placing concrete.

01. Flush with water or use compressed air to remove remaining foreign matter. Ensure that water and debris drain to exterior through clean-out ports.

3.7 FORMWORK TOLERANCES

A. Construct formwork to maintain tolerances required by ACI 117, unless otherwise indicated.

3.8 FIELD QUALITY CONTROL

A. An independent testing agency will perform field quality control tests, as specified in Section 01 4000 - Quality Requirements.

B. Inspect erected formwork, shoring, and bracing to ensure that work is in accordance with formwork design, and to verify that supports, fastenings, wedges, ties, and items are secure.

3.9 FORM REMOVAL

A. Do not remove forms or bracing until concrete has gained sufficient strength to carry its own weight and imposed loads.

B. Loosen forms carefully. Do not wedge pry bars, hammers, or tools against finish concrete surfaces scheduled for exposure to view.

C. Store removed forms to prevent damage to form materials or to fresh concrete. Discard damaged forms.

END OF SECTION

SECTION 03 2000

CONCRETE REINFORCING

PART 1 GENERAL

1.1SECTION INCLUDES

A. Reinforcing steel for cast-in-place concrete.

B. Supports and accessories for steel reinforcement.

1.2 RELATED REQUIREMENTS

A. Section 03 1000 - Concrete Forming and Accessories.

B. Section 03 3000 - Cast-in-Place Concrete.

C. Section 04 2000 - Unit Masonry: Reinforcement for masonry.

D. Section 31 6329 - Drilled Concrete Piers and Shafts: Reinforcement for drilled pier foundations.

1.3 PRICE AND PAYMENT PROCEDURES

A. See Section 01 22 00 - Unit Prices, for additional unit price requirements.

B. Contract is lump sum. In case of additions or deletions of Work, unit prices shall be utilized.

1.4 REFERENCE STANDARDS

A. ACI 301 - Specifications for Structural Concrete 2016.

B. ACI 318 - Building Code Requirements for Structural Concrete and Commentary 2014 (Errata 2018).

C. ACI SP-66 - ACI Detailing Manual 2004.

D. ASTM A82/A82M - Standard Specification for Steel Wire, Plain, for Concrete Reinforcement; 2007.

E. ASTM A184/A184M - Standard Specification for Welded Deformed Steel Bar Mats for Concrete Reinforcement 2017.

F. ASTM A185/A185M - Standard Specification for Steel Welded Wire Reinforcement, Plain, for Concrete; 2007.

G. ASTM A497/A497M - Standard Specification for Steel Welded Wire Reinforcement, Deformed, for Concrete; 2007.

H. ASTM A615/A615M - Standard Specification for Deformed and Plain Carbon-Steel Bars for Concrete Reinforcement 2020.

I. ASTM A641/A641M - Standard Specification for Zinc-Coated (Galvanized) Carbon Steel Wire 2009a (Reapproved 2014).

J. ASTM A704/A704M - Standard Specification for Welded Steel Plain Bar or Rod Mats for Concrete Reinforcement 2018.

K. ASTM A706/A706M - Standard Specification for Deformed and Plain Low-Alloy Steel Bars for Concrete Reinforcement 2016.

L. ASTM A767/A767M - Standard Specification for Zinc-Coated (Galvanized) Steel Bars for Concrete Reinforcement 2016.

M. ASTM A996/A996M - Standard Specification for Rail-Steel and Axle-Steel Deformed Bars for Concrete Reinforcement 2016.

N. ASTM A1064/A1064M - Standard Specification for Carbon-Steel Wire and Welded Wire Reinforcement, Plain and Deformed, for Concrete 2015.

O. AWS D1.4/D1.4M - Structural Welding Code - Reinforcing Steel 2011.

P. CRSI (DA4) - Manual of Standard Practice 2009.

Q. CRSI (P1) - Placing Reinforcing Bars 2011.

1.5 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements, for submittal procedures.

B. Shop Drawings: Comply with requirements of ACI SP-66. Include bar schedules, shapes of bent bars, spacing of bars, and location of splices.

01. Prepare shop drawings under seal of a Professional Structural Engineer experienced in design of work of this type and licensed in Texas.

C. Manufacturer's Certificate: Certify that reinforcing steel and accessories supplied for this project meet or exceed specified requirements.

1.6 QUALITY ASSURANCE

A. Perform work of this section in accordance with ACI 301.

01. Maintain one copy of each document on project site.

B. Provide Landscape Architect with access to fabrication plant and site to facilitate inspection of reinforcement. Provide notification of commencement and duration of shop fabrication in sufficient time to allow inspection.

C. Welders' Certificates: Submit certifications for welders employed on the project, verifying AWS qualification within the previous 12 months.

PART 2 PRODUCTS

2.1 REINFORCEMENT

A. Reinforcing Steel: ASTM A615/A615M, Grade 60 (60,000 psi).

01. Plain billet-steel bars.
02. Unfinished.

B. Reinforcing Steel: ASTM A706/A706M, deformed low-alloy steel bars.

01. Unfinished.

C. Reinforcing Steel: Deformed bars, ASTM A996/A996M Grade 40 (280), Type A.

01. Galvanized in accordance with ASTM A767/A767M, Class I.

D. Stirrup Steel: ASTM A1064/A1064M steel wire, unfinished.

E. Steel Welded Wire Reinforcement (WWR): Galvanized, deformed type; ASTM A1064/A1064M.

01. Form: Flat Sheets.

F. Reinforcement Accessories:

01. Tie Wire: Annealed, minimum 16 gage, 0.0508 inch.
02. Chairs, Bolsters, Bar Supports, Spacers: Sized and shaped for adequate support of reinforcement during concrete placement.

2.2 FABRICATION

A. Fabricate concrete reinforcing in accordance with CRSI (DA4) - Manual of Standard Practice.

B. Welding of reinforcement is not permitted.

PART 3 EXECUTION

3.1 PLACEMENT

A. Place, support, and secure reinforcement against displacement. Do not deviate from required position.

B. Accommodate placement of formed openings.

C. Comply with applicable code for concrete cover over reinforcement.

D. Bond and ground all reinforcement to requirements of Section 26 0526.

3.2 FIELD QUALITY CONTROL

A. An independent testing agency, as specified in Section 01 4000 - Quality Requirements, will inspect installed reinforcement for compliance with contract documents before concrete placement.

3.3 SCHEDULES

A. Reinforcement For Superstructure Framing Members: Deformed bars, unfinished.

B. Reinforcement For Foundation Wall Framing Members and Slab-on-Grade: Deformed bars and welded wire reinforcement, galvanized finish.

END OF SECTION

SECTION 03 3000

CAST-IN-PLACE CONCRETE

PART 1 GENERAL

1.1SECTION INCLUDES

A. Concrete building frame members.

B. Concrete reinforcement.

C. Joint devices associated with concrete work.

D. Miscellaneous concrete elements, including equipment pads, equipment pits, light pole bases, flagpole bases, thrust blocks, and manholes.

E. Concrete curing.

1.2 RELATED REQUIREMENTS

A. Section 03 1000 - Concrete Forming and Accessories: Forms and accessories for formwork.

B. Section 32 1313.10 - Concrete Paving: Sidewalks, plaza spaces and walks.

1.3 PRICE AND PAYMENT PROCEDURES

A. Cast-in-place concrete work will be paid for by the unit price method.

B. See Section 01 2200 - Unit Prices, for additional unit price requirements.

1.4 REFERENCE STANDARDS

A. ACI 117 - Specifications for Tolerances for Concrete Construction and Materials 2010 (Reapproved 2015).

B. ACI 211.1 - Standard Practice for Selecting Proportions for Normal, Heavyweight, and Mass Concrete 1991 (Reapproved 2009).

C. ACI 301 - Specifications for Structural Concrete 2016.

D. ACI 302.1R - Guide to Concrete Floor and Slab Construction 2015.

E. ACI 304R - Guide for Measuring, Mixing, Transporting, and Placing Concrete 2000.

F. ACI 305R - Hot Weather Concreting 2010.

G. ACI 306R - Cold Weather Concreting 2010.

H. ACI 308R - Guide to External Curing of Concrete 2016.

I. ACI 318 - Building Code Requirements for Structural Concrete and Commentary 2014 (Errata 2018).

J. ACI 347R - Guide to Formwork for Concrete 2014, with Errata (2017).

K. ASTM A185/A185M - Standard Specification for Steel Welded Wire Reinforcement, Plain, for Concrete; 2007.

L. ASTM A497/A497M - Standard Specification for Steel Welded Wire Reinforcement, Deformed, for Concrete; 2007.

M. ASTM A615/A615M - Standard Specification for Deformed and Plain Carbon-Steel Bars for Concrete Reinforcement 2020.

N. ASTM C1602/C1602M - Standard Specification for Mixing Water Used in the Production of Hydraulic Cement Concrete 2012.

O. ASTM C33/C33M - Standard Specification for Concrete Aggregates 2016.

P. ASTM C39/C39M - Standard Test Method for Compressive Strength of Cylindrical Concrete Specimens 2015a.

Q. ASTM C94/C94M - Standard Specification for Ready-Mixed Concrete 2015.

R. ASTM C143/C143M - Standard Test Method for Slump of Hydraulic-Cement Concrete 2015a.

S. ASTM C150/C150M - Standard Specification for Portland Cement 2015.

T. ASTM C171 - Standard Specification for Sheet Materials for Curing Concrete 2016.

U. ASTM C173/C173M - Standard Test Method for Air Content of Freshly Mixed Concrete by the Volumetric Method 2014.

V. ASTM C260/C260M - Standard Specification for Air-Entraining Admixtures for Concrete 2010a (Reapproved 2016).

W. ASTM C309 - Standard Specification for Liquid Membrane-Forming Compounds for Curing Concrete 2011.

X. ASTM C494/C494M - Standard Specification for Chemical Admixtures for Concrete 2013.

Y. ASTM C618 - Standard Specification for Coal Fly Ash and Raw or Calcined Natural Pozzolan for Use in Concrete 2015.

Z. ASTM C685/C685M - Standard Specification for Concrete Made by Volumetric Batching and Continuous Mixing 2014.

AA. ASTM C881/C881M - Standard Specification for Epoxy-Resin-Base Bonding Systems for Concrete 2015.

BB. ASTM C1059/C1059M - Standard Specification for Latex Agents for Bonding Fresh to Hardened Concrete 2013.

CC. ASTM E154/E154M - Standard Test Methods for Water Vapor Retarders Used in Contact with Earth Under Concrete Slabs, on Walls, or as Ground Cover 2008a, with Editorial Revision (2013).

DD. ASTM E1643 - Standard Practice for Selection, Design, Installation and Inspection of Water Vapor Retarders Used in Contact with Earth or Granular Fill Under Concrete Slabs 2011 (Reapproved 2017).

EE. ASTM E1745 - Standard Specification for Plastic Water Vapor Retarders Used in Contact with Soil or Granular Fill under Concrete Slabs 2017.

FF. ASTM E1993/E1993M - Standard Specification for Bituminous Water Vapor Retarders Used in Contact with Soil or Granular Fill Under Concrete Slabs 1998, with Editorial Revision (2013).

GG. COE CRD-C 48 - Method of Test for Water Permeability of Concrete 1992.

HH. COE CRD-C 513 - COE Specifications for Rubber Waterstops 1974.

II. COE CRD-C 572 - Corps of Engineers Specifications for Polyvinylchloride Waterstop 1974.

JJ. NSF 61 - Drinking Water System Components - Health Effects 2020.

KK. NSF 372 - Drinking Water System Components - Lead Content 2016.

1.5 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements, for submittal procedures.

B. Project Record Documents: Accurately record actual locations of embedded utilities and components that will be concealed from view upon completion of concrete work.

C. Warranty: Submit manufacturer warranty and ensure forms have been completed in Owner's name and registered with manufacturer.

1.6 QUALITY ASSURANCE

A. Perform work of this section in accordance with ACI 301 and ACI 318.

01. Maintain one copy of each document on site.

B. Follow recommendations of ACI 305R when concreting during hot weather.

C. Follow recommendations of ACI 306R when concreting during cold weather.

1.7 WARRANTY

A. See Section 01 7800 - Closeout Submittals, for additional warranty requirements.

PART 2 PRODUCTS

2.1 FORMWORK

A. Comply with requirements of Section 03 1000.

2.2 REINFORCEMENT MATERIALS

A. Reinforcing Steel: ASTM A615/A615M, Grade 60 (60,000 psi).

01. Type: Deformed billet-steel bars.

02. Finish: Unfinished, unless otherwise indicated.

B. Cement: ASTM C150/C150M, Type I - Normal Portland type.

01. Acquire cement for entire project from same source.

C. Fine and Coarse Aggregates: ASTM C33/C33M.

01. Acquire aggregates for entire project from same source.

D. Fly Ash: ASTM C618, Class C or F.

E. Calcined Pozzolan: ASTM C618, Class N.

F. Silica Fume: ASTM C1240, proportioned in accordance with ACI 211.1.

G. Water: ASTM C1602/C1602M; clean, potable, and not detrimental to concrete.

2.3 ADMIXTURES

A. Do not use chemicals that will result in soluble chloride ions in excess of 0.1 percent by weight of cement.

B. Air Entrainment Admixture: ASTM C260/C260M.

2.4 ACCESSORY MATERIALS

A. Non-Shrink Cementitious Grout: Premixed compound consisting of non-metallic aggregate, cement, water reducing and plasticizing agents.

B. Non-Shrink Epoxy Grout: Moisture-insensitive, two-part; consisting of epoxy resin, non-metallic aggregate, and activator.

2.5 BONDING AND JOINTING PRODUCTS

A. Epoxy Bonding System:

01. Complying with ASTM C881/C881M and of Type required for specific application.

B. Waterproofing Admixture Slurry: Slurry coat of Portland cement, sand, and crystalline waterproofing additive, mixed with water in proportions recommended by manufacturer to achieve waterproofing at cold joints in concrete.

2.6 CONCRETE MIX DESIGN

A. Proportioning Normal Weight Concrete: Comply with ACI 211.1 recommendations.

B. Admixtures: Add acceptable admixtures as recommended in ACI 211.1 and at rates recommended or required by manufacturer.

C. Normal Weight Concrete:

01. Compressive Strength, when tested in accordance with ASTM C39/C39M at 28 days: 3,000 pounds per square inch.
02. Fly Ash Content: Maximum 15 percent of cementitious materials by weight.

03. Water-Cement Ratio: Maximum 40 percent by weight.
04. Total Air Content: 4 percent, determined in accordance with ASTM C173/C173M.
05. Maximum Slump: 5 inches.
06. Maximum Aggregate Size: 1 inch.

2.7 MIXING

A. Transit Mixers: Comply with ASTM C94/C94M.

B. Adding Water: If concrete arrives on-site with slump less than suitable for placement, do not add water that exceeds the maximum water-cement ratio or exceeds the maximum permissible slump.

PART 3 EXECUTION

3.1 EXAMINATION

A. Verify lines, levels, and dimensions before proceeding with work of this section.

3.2 PREPARATION

A. Verify that forms are clean and free of rust before applying release agent.

B. Coordinate placement of embedded items with erection of concrete formwork and placement of form accessories.

C. In locations where new concrete is doweled to existing work, drill holes in existing concrete, insert steel dowels and pack solid with non-shrink grout.

3.3 INSTALLING REINFORCEMENT AND OTHER EMBEDDED ITEMS

A. Comply with requirements of ACI 301. Clean reinforcement of loose rust and mill scale, and accurately position, support, and secure in place to achieve not less than minimum concrete coverage required for protection.

B. Verify that anchors, seats, plates, reinforcement and other items to be cast into concrete are accurately placed, positioned securely, and will not interfere with concrete placement.

3.4 PLACING CONCRETE

A. Place concrete in accordance with ACI 304R.

B. Place concrete for floor slabs in accordance with ACI 302.1R.

C. Notify Landscape Architect not less than 48 hours prior to commencement of placement operations.

D. Ensure reinforcement, inserts, waterstops, embedded parts, and formed construction joint devices will not be disturbed during concrete placement.

E. Finish floors level and flat, unless otherwise indicated, within the tolerances specified below.

3.5 CONCRETE FINISHING

A. Repair surface defects, including tie holes, immediately after removing formwork.

B. Unexposed Form Finish: Rub down or chip off fins or other raised areas 1/4 inch or more in height.

C. Exposed Form Finish: Rub down or chip off and smooth fins or other raised areas 1/4 inch or more in height. Provide finish as follows:

3.6 CURING AND PROTECTION

A. Comply with requirements of ACI 308R. Immediately after placement, protect concrete from premature drying, excessively hot or cold temperatures, and mechanical injury.

B. Maintain concrete with minimal moisture loss at relatively constant temperature for period necessary for hydration of cement and hardening of concrete.

01. Normal concrete: Not less than seven days.

C. Formed Surfaces: Cure by moist curing with forms in place for full curing period.

D. Surfaces Not in Contact with Forms:

01. Initial Curing: Start as soon as free water has disappeared and before surface is dry. Keep continuously moist for not less than three days by water ponding, water-saturated sand, water-fog spray, or saturated burlap.
02. Final Curing: Begin after initial curing but before surface is dry.

3.7 DEFECTIVE CONCRETE

A. Defective Concrete: Concrete not complying with required lines, details, dimensions, tolerances or specified requirements.

B. Repair or replacement of defective concrete will be determined by the Landscape Architect. The cost of additional testing shall be borne by Contractor when defective concrete is identified.

C. Do not patch, fill, touch-up, repair, or replace exposed concrete except upon express direction of Landscape Architect for each individual area.

3.8 PROTECTION

A. Do not permit traffic over unprotected concrete floor surface until fully cured.

END OF SECTION

SECTION 06 1000

ROUGH CARPENTRY

PART 1 GENERAL

1.1SECTION INCLUDES

A. Non-structural dimension lumber framing.

B. Preservative treated wood materials.

1.2 RELATED REQUIREMENTS

A. Section 03 3000 - Cast-in-Place Concrete: Setting anchors in concrete.

B. Section 05 5000 - Metal Fabrications: Miscellaneous steel connectors and support angles for wood framing.

1.3 REFERENCE STANDARDS

A. AWC (WFCM) - Wood Frame Construction Manual for One- and Two-Family Dwellings 2018.

B. ASTM A153/A153M - Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware 2016a.

C. ASTM A653/A653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process 2020.

D. AWPA U1 - Use Category System: User Specification for Treated Wood 2022.

E. PS 20 - American Softwood Lumber Standard 2021.

F. SPIB (GR) - Grading Rules 2014.

1.4 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements, for submittal procedures.

1.5 DELIVERY, STORAGE, AND HANDLING

A. General: Cover wood products to protect against moisture. Support stacked products to prevent deformation and to allow air circulation.

1.6 WARRANTY

A. See Section 01 7800 - Closeout Submittals, for additional warranty requirements.

B. Correct defective Work within a five year period after Date of Substantial Completion.

PART 2 PRODUCTS

2.1 GENERAL REQUIREMENTS

A. Dimension Lumber: Comply with PS 20 and requirements of specified grading agencies.

01. Species: Ipe, unless otherwise indicated.
02. If no species is specified, provide any species graded by the agency specified; if no grading agency is specified, provide lumber graded by any grading agency meeting the specified requirements.
03. Grading Agency: Any grading agency whose rules are approved by the Board of Review, American Lumber Standard Committee (www.alsc.org) and who provides grading service for the species and grade specified; provide lumber stamped with grade mark unless otherwise indicated.

B. Lumber fabricated from old growth timber is not permitted.

2.2 EXPOSED DIMENSION LUMBER

A. Sizes: Nominal sizes as indicated on drawings.

B. Surfacing: S4S.

C. Moisture Content: S-dry or MC19.

2.3 EXPOSED TIMBERS

A. Submit manufacturer's certificate that products meet or exceed specified requirements, in lieu of grade stamping.

B. Moisture Content: Kiln-dry (20 percent maximum).

C. Surfacing: S4S.

D. Species: Ipe.

E. Grade: A.

2.4 ACCESSORIES

A. Fasteners and Anchors:

01. Metal and Finish: Hot-dipped galvanized steel complying with ASTM A153/A153M for high humidity and preservative-treated wood locations, unfinished steel elsewhere.

B. Joist Hangers: Hot dipped galvanized steel, sized to suit framing conditions.

01. For contact with preservative treated wood in exposed locations, provide minimum G185 galvanizing complying with ASTM A653/A653M.

2.5 FACTORY WOOD TREATMENT

A. Treated Lumber and Plywood: Comply with requirements of AWPA U1 - Use Category System for wood treatments determined by use categories, expected service conditions, and specific applications.

01. Preservative-Treated Wood: Provide lumber and plywood marked or stamped by an ALSC-accredited testing agency, certifying level and type of treatment in accordance with AWPA standards.

PART 3 EXECUTION

3.1 INSTALLATION - GENERAL

A. Select material sizes to minimize waste.

B. Reuse scrap to the greatest extent possible; clearly separate scrap for use on site as accessory components, including: shims, bracing, and blocking.

C. Where treated wood is used on interior, provide temporary ventilation during and immediately after installation sufficient to remove indoor air contaminants.

3.2 FRAMING INSTALLATION

A. Set structural members level, plumb, and true to line. Discard pieces with defects that would lower required strength or result in unacceptable appearance of exposed members.

B. Make provisions for temporary construction loads, and provide temporary bracing sufficient to maintain structure in true alignment and safe condition until completion of erection and installation of permanent bracing.

C. Install structural members full length without splices unless otherwise specifically detailed.

D. Comply with member sizes, spacing, and configurations indicated, and fastener size and spacing indicated, but not less than required by applicable codes and AWC (WFCM) Wood Frame Construction Manual.

E. Construct double joist headers at floor and ceiling openings and under wall stud partitions that are parallel to floor joists; use metal joist hangers unless otherwise detailed.

F. Frame wall openings with two or more studs at each jamb; support headers on cripple studs.

3.3 TOLERANCES

A. Framing Members: 1/4 inch from true position, maximum.

B. Variation from Plane (Other than Floors): 1/4 inch in 10 feet maximum, and 1/4 inch in 30 feet maximum.

3.4 CLEANING

A. Waste Disposal: Comply with the requirements of Section 01 7419 - Construction Waste Management and Disposal.

01. Comply with applicable regulations.
02. Do not burn scrap on project site.
03. Do not burn scraps that have been pressure treated.
04. Do not send materials treated with pentachlorophenol, CCA, or ACA to co-generation facilities or “waste-to-energy” facilities.

B. Do not leave any wood, shavings, sawdust, etc. on the ground or buried in fill.

C. Prevent sawdust and wood shavings from entering the storm drainage system.

END OF SECTION

SECTION 07 9200

JOINT SEALANTS

PART 1 GENERAL

1.1SECTION INCLUDES

A. Nonsag gunnable joint sealants.

B. Joint backings and accessories.

1.2 REFERENCE STANDARDS

A. ASTM C920 - Standard Specification for Elastomeric Joint Sealants 2018.

B. ASTM C1193 - Standard Guide for Use of Joint Sealants 2016.

C. ASTM C1248 - Standard Test Method for Staining of Porous Substrate by Joint Sealants 2008 (Reapproved 2012).

1.3 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements, for submittal procedures.

B. Product Data for Sealants: Submit manufacturer's technical data sheets for each product to be used, that includes the following.

01. Physical characteristics, including movement capability, VOC content, hardness, cure time, and color availability.
02. List of backing materials approved for use with the specific product.
03. Substrates that product is known to satisfactorily adhere to and with which it is compatible.
04. Substrates the product should not be used on.
05. Substrates for which use of primer is required.
06. Installation instructions, including precautions, limitations, and recommended backing materials and tools.
07. Sample product warranty.
08. Certification by manufacturer indicating that product complies with specification requirements.

C. Color Cards for Selection: Where sealant color is not specified, submit manufacturer's color cards showing standard colors available for selection.

D. Samples for Verification: Where custom sealant color is specified, obtain directions from Landscape Architect and submit at least two physical samples for verification of color of each required sealant.

1.4 WARRANTY

A. See Section 01 7800 - Closeout Submittals, for additional warranty requirements.

B. Correct defective work within a 1 year period after Date of Substantial Completion.

C. Warranty: Include coverage for installed sealants and accessories that fail to achieve watertight seal , exhibit loss of adhesion or cohesion, or do not cure.

PART 2 PRODUCTS

2.1 MANUFACTURERS

A. Non-Sag Sealants: Permits application in joints on vertical surfaces without sagging or slumping.

01. Bostik Inc: www.bostik-us.com.
02. Dow Chemical Company: consumer.dow.com/en-us/industry/ind-building-construction.html.
03. Hilti, Inc: www.us.hilti.com.
04. QUIKRETE Companies: www.quikrete.com.
05. Sherwin-Williams Company: www.sherwin-williams.com/.
06. Sika Corporation: www.usa-sika.com/#sle.
07. Tremco Commercial Sealants & Waterproofing: www.tremcosealants.com.
08. W.R. Meadows, Inc: www.wrmeadows.com.
09. Substitutions: See Section 01 6000 - Product Requirements.

B. Self-Leveling Sealants: Pourable or self-leveling sealant that has sufficient flow to form a smooth, level surface when applied in a horizontal joint.

01. Bostik Inc: www.bostik-us.com.
02. Dow Chemical Company: consumer.dow.com/en-us/industry/ind-building-construction.html.
03. QUIKRETE Companies: www.quikrete.com.
04. Sherwin-Williams Company: www.sherwin-williams.com.
05. Sika Corporation: www.usa-sika.com.
06. W.R. Meadows, Inc: www.wrmeadows.com.
07. Substitutions: See Section 01 6000 - Product Requirements.

2.2 JOINT SEALANT APPLICATIONS

A. Scope:

01. Exterior Joints: Seal open joints, whether or not the joint is indicated on drawings, unless specifically indicated not to be sealed. Exterior joints to be sealed include, but are not limited to, the following items.
    a. Joints between different exposed materials.

02. Do not seal the following types of joints.
    a. Joints indicated to be treated with manufactured expansion joint cover or some other type of sealing device.
    b. Joints where sealant is specified to be provided by manufacturer of product to be sealed.
    c. Joints where installation of sealant is specified in another section.
    d. Joints between suspended panel ceilings/grid and walls.

B. Exterior Joints: Use non-sag non-staining silicone sealant, unless otherwise indicated.

2.3 NONSAG JOINT SEALANTS

01. Non-Staining To Porous Stone: Non-staining to light-colored natural stone when tested in accordance with ASTM C1248.
02. Dirt Pick-Up: Reduced dirt pick-up compared to other silicone sealants.
03. Color: Match adjacent finished surfaces.

2.4 ACCESSORIES

A. Backer Rod: Cylindrical cellular foam rod with surface that sealant will not adhere to, compatible with specific sealant used, and recommended by backing and sealant manufacturers for specific application.

B. Backing Tape: Self-adhesive polyethylene tape with surface that sealant will not adhere to and recommended by tape and sealant manufacturers for specific application.

C. Masking Tape: Self-adhesive, nonabsorbent, non-staining, removable without adhesive residue, and compatible with surfaces adjacent to joints and sealants.

D. Joint Cleaner: Non-corrosive and non-staining type, type recommended by sealant manufacturer; compatible with joint forming materials.

PART 3 EXECUTION

3.1 EXAMINATION

A. Verify that joints are ready to receive work.

B. Verify that backing materials are compatible with sealants.

C. Verify that backer rods are of the correct size.

3.2 PREPARATION

A. Remove loose materials and foreign matter that could impair adhesion of sealant.

B. Clean joints, and prime as necessary, in accordance with manufacturer's instructions.

C. Perform preparation in accordance with manufacturer's instructions and ASTM C1193.

D. Mask elements and surfaces adjacent to joints from damage and disfigurement due to sealant work; be aware that sealant drips and smears may not be completely removable.

3.3 INSTALLATION

A. Perform work in accordance with sealant manufacturer's requirements for preparation of surfaces and material installation instructions.

B. Perform installation in accordance with ASTM C1193.

C. Measure joint dimensions and size joint backers to achieve width-to-depth ratio, neck dimension, and surface bond area as recommended by manufacturer, except where specific dimensions are indicated.

D. Install bond breaker backing tape where backer rod cannot be used.

E. Install sealant free of air pockets, foreign embedded matter, ridges, and sags, and without getting sealant on adjacent surfaces.

F. Do not install sealant when ambient temperature is outside manufacturer's recommended temperature range, or will be outside that range during the entire curing period, unless manufacturer's approval is obtained and instructions are followed.

G. Nonsag Sealants: Tool surface concave, unless otherwise indicated; remove masking tape immediately after tooling sealant surface.

H. Concrete Floor Joint Filler: After full cure, shave joint filler flush with top of concrete slab.

3.4 POST-OCCUPANCY

A. Post-Occupancy Inspection: Perform visual inspection of entire length of project sealant joints at a time that joints have opened to their greatest width; i.e. at low temperature in thermal cycle. Report failures immediately and repair.

END OF SECTION

SECTION 31 1000

SITE CLEARING

PART 1 GENERAL

1.1SECTION INCLUDES

A. Removal of existing debris.

1.2 RELATED REQUIREMENTS

A. Section 01 1000 - Summary: Limitations on Contractor's use of site and premises.

B. Section 01 5713 - Temporary Erosion and Sediment Control.

C. Section 01 7000 - Execution and Closeout Requirements: Project conditions; protection of bench marks, survey control points, and existing construction to remain; reinstallation of removed products.

D. Section 01 7419 - Construction Waste Management and Disposal: Limitations on disposal of removed materials; requirements for recycling.

E. Section 31 2200.10 - Grading for Landscape

F. Section 31 2323.10 - Fill for Landscape

1.3 PROJECT CONDITIONS

A. Minimize production of dust due to clearing operations; do not use water if that will result in ice, flooding, sedimentation of public waterways or storm sewers, or other pollution.

PART 2 PRODUCTS

2.1 MATERIALS

A. Fill Material: As specified in Section 31 2323.10 - Fill for Landscape.

PART 3 EXECUTION

3.1 SITE CLEARING

A. Comply with other requirements specified in Section 01 7000.

B. Minimize production of dust due to clearing operations; do not use water if that will result in ice, flooding, sedimentation of public waterways or storm sewers, or other pollution.

3.2 VEGETATION

A. Scope: Remove trees, shrubs, brush, and stumps in areas to be covered by paving, lawns, and planting beds.

B. Do not remove or damage vegetation beyond the limits indicated on drawings.

C. In areas where vegetation must be removed but no construction will occur other than pervious paving, remove vegetation with minimum disturbance of the subsoil.

D. Vegetation Removed: Do not burn, bury, landfill, or leave on site, except as indicated.

01. Chip, grind, crush, or shred vegetation for mulching, composting, or other purposes; preference should be given to on-site uses.
02. Trees: Sell if marketable; if not, treat as specified for other vegetation removed; remove stumps and roots to depth of 18 inches.
03. Existing Stumps: Treat as specified for other vegetation removed; remove stumps and roots to depth of 18 inches.
04. Sod: Re-use on site if possible; otherwise sell if marketable, and if not, treat as specified for other vegetation removed.

E. Restoration: If vegetation outside removal limits or within specified protective fences is damaged or destroyed due to subsequent construction operations, replace at no cost to Owner.

3.3 DEBRIS

A. Remove debris, junk, and trash from site.

B. Leave site in clean condition, ready for subsequent work.

C. Clean up spillage and wind-blown debris from public and private lands.

END OF SECTION

SECTION 31 2200.10

GRADING FOR LANDSCAPE

PART 1 GENERAL

1.1SECTION INCLUDES

A. Soil testing.

B. Removal of topsoil.

C. Finish grading.

1.2 RELATED REQUIREMENTS

A. Section 31 1000 - Site Clearing.

B. Section 32 9219 - Seeding: Finish ground cover.

C. Section 32 9223 - Sodding: Finish ground cover.

D. Section 32 9300 - Plants: Topsoil in beds and pits.

1.3 DEFINITIONS

A. Finished Grade Elevations: match existing on site.

1.4 SUBMITTALS

A. Project Record Documents: Accurately record actual locations of utilities remaining by horizontal dimensions, elevations or inverts, and slope gradients.

B. Soil Test Reports

01. Prior to starting work, submit 1 certified copy of soil test reports to the Landscape Architect and 1 copy to the Owner for approval.
02. Provide mapped locations of soil collection locations, labeled and numbered to correspond with test reports.
03. Costs of tests to be borne by the Contractor.

1.5 QUALITY ASSURANCE

A. Soil samples and testing shall comply with procedures specified in the U.S.D.A. Ag. Handbook 60: Diagnosis and Improvement of Saline and Alkali Soils.

B. Testing Laboratories

01. Certified facilities normally engaged in agronomic soil testing shall be utilized.
02. Recommended testing facilities:

Texas A&M AgriLife Extension Service
Address for United States Postal Service:

Soil, Water and Forage Testing Laboratory
2478 TAMU, College Station, TX 77843-2478
Address for other couriers (FedEx, UPS, etc.):
Soil, Water and Forage Testing Laboratory
2610 F&B Road, College Station, TX 77845

Texas Plant & Soil Lab
5115 W Monte Christo Rd, Edinburg, TX 78541

Servi-Tech Laboratories
6921 South Bell, Amarillo, TX 79109

C. Required Topsoil Tests

01. Using a soil sampling probe, provide soil samples to the preferred testing agency in accordance with their frequency and quantity recommendations. Label and number submitted materials to map which area they were taken from.
    a. Separate area into zones for accurate sampling.

02. Test results should include chemical analysis indicating:
    a. Fertility: pH, nitrate nitrogen, ammonia nitrogen, phosphate phosphorous, potassium, calcium, magnesium, zinc, iron, and manganese.
    b. Suitability: total salinity, boron, sodium, potassium, calcium, magnesium, chloride, and sulfate.
    c. Organic content
    d. Particle size distribution

03. Submit to the Owner and Landscape Architect recommendations for soil amendments and fertilizers to be used.

PART 2 PRODUCTS

2.1 MATERIALS

A. Topsoil: See Section 31 2323.10 - Fill for Landscape.

PART 3 EXECUTION

3.1 EXAMINATION

A. Verify the absence of standing or ponding water.

3.2 PREPARATION

A. Stake and flag locations of known utilities.

B. Locate, identify, and protect from damage above- and below-grade utilities to remain.

C. Provide temporary means and methods to remove all standing or ponding water from areas prior to grading.

D. Protect site features to remain, including but not limited to bench marks, survey control points, existing structures, fences, sidewalks, paving, and curbs, from damage by grading equipment and vehicular traffic.

E. Protect trees to remain by providing substantial fencing around entire tree at the outer tips of its branches; no grading is to be performed inside this line.

F. Protect plants, lawns, rock outcroppings, and other features to remain as a portion of final landscaping.

3.3 ROUGH GRADING

A. Remove topsoil from areas to be further excavated, re-landscaped, or re-graded, without mixing with foreign materials.

B. Do not remove topsoil when wet.

C. Remove and replace soils deemed unsuitable by classification and which are excessively moist due to lack surface water control.

3.4 SOIL REMOVAL

A. Stockpile topsoil to be re-used on site; remove remainder from site.

B. Stockpiles: Use areas designated on site; pile depth not to exceed 8 feet; protect from erosion.

3.5 FINISH GRADING

A. Before Finish Grading:

01. Verify building and trench backfilling have been inspected.
02. Verify subgrade has been contoured and compacted.

B. Remove debris, roots, branches, stones, in excess of 1/2 inch in size. Remove soil contaminated with petroleum products.

C. Where topsoil is to be placed, scarify surface to depth of 3 inches.

D. In areas where vehicles or equipment have compacted soil, scarify surface to depth of 3 inches.

E. Place topsoil to the following compacted thicknesses:

01. Areas to be Seeded with Grass: 3 inches.
02. Areas to be Sodded: 3 inches.
03. Shrub Beds: 12 inches.
04. Flower Beds: 6 inches.

F. Remove roots, weeds, rocks, and foreign material while spreading.

G. Near plants spread topsoil manually to prevent damage.

H. Fine grade topsoil to eliminate uneven areas and low spots. Maintain profiles and contour of subgrade.

I. Maintain stability of topsoil during inclement weather. Replace topsoil in areas where surface water has eroded thickness below specifications.

3.6 REPAIR AND RESTORATION

A. Existing Facilities, Utilities, and Site Features to Remain: If damaged due to this work, repair or replace to original condition.

B. Other Existing Vegetation to Remain: If damaged due to this work, replace with vegetation of equivalent species and size.

3.7 FIELD QUALITY CONTROL

A. See Section 31 2323.10 - Fill for Landscape for compaction density testing.

3.8 CLEANING

A. Remove unused stockpiled topsoil. Grade stockpile area to prevent standing water.

B. Leave site clean and raked, ready to receive landscaping.

END OF SECTION

SECTION 31 2316

EXCAVATION

PART 1 GENERAL

1.1SECTION INCLUDES

A. Excavating for footings, pile caps, and paving.

B. Trenching for utilities outside the building to utility main connections.

1.2 RELATED REQUIREMENTS

A. Section 01 5713 - Temporary Erosion and Sediment Control: Slope protection and erosion control.

B. Section 01 7000 - Execution and Closeout Requirements: Project conditions; protection of bench marks, survey control points, and existing construction to remain; reinstallation of removed products; temporary bracing and shoring. General requirements for dewatering of excavations and water control.

C. Section 31 2200 - Grading: Grading.

D. Section 31 2316.13 - Trenching: Excavating for utility trenches outside the building to utility main connections.

E. Section 31 2323 - Fill: Fill materials, backfilling, and compacting.

F. Section 33 4100 - Subdrainage: Filter aggregate and filter fabric for foundation drainage systems.

PART 3 EXECUTION

2.1 EXAMINATION

A. Verify that survey bench mark and intended elevations for the work are as indicated.

B. Survey existing adjacent structures and improvements and establish exact elevations at fixed points to act as benchmarks.

2.2 PREPARATION

A. Identify required lines, levels, contours, and datum locations.

B. See Section 31 2200 for topsoil removal.

C. Locate, identify, and protect utilities that remain and protect from damage.

D. Protect bench marks, survey control points, fences, sidewalks, paving, and curbs from excavating equipment and vehicular traffic.

E. Protect plants, lawns, and other features to remain.

F. Grade top perimeter of excavation to prevent surface water from draining into excavation. Provide temporary means and methods, as required, to maintain surface water diversion until no longer needed, or as directed by Landscape Architect.

2.3 EXCAVATING

A. Excavate to accommodate construction operations.

01. Hand trim excavations where shown on construction plans. Remove loose matter.

B. Notify Landscape Architect of unexpected subsurface conditions and discontinue affected Work in area until notified to resume work.

C. Preparation for Piling Work: Excavate to working elevations. Coordinate special requirements for piling.

D. Do not interfere with 45 degree bearing splay of foundations.

E. Remove lumped subsoil, boulders, and rock up to 1/3 cubic yard measured by volume. See Section 31 2316.26 for removal of larger material.

F. Provide temporary means and methods, as required, to remove all water from excavations until directed by Landscape Architect. Remove and replace soils deemed suitable by classification and which are excessively moist due to lack of dewatering or surface water control.

2.4 FILLING AND BACKFILLING

A. Do not fill or backfill until all debris, water, unsatisfactory soil materials, obstructions, and deleterious materials have been removed from excavation.

B. See Section 31 2323 for fill, backfill, and compaction requirements at general excavations.

C. See Section 31 2316.13 for fill, backfill, and compaction requirements at utility trenches.

D. See Section 31 2200 for rough and final grading and topsoil replacement requirements.

2.5 REPAIR

A. Correct areas that are over-excavated and load-bearing surfaces that are disturbed; see Section 31 2323.

2.6 CLEANING

A. Stockpile excavated material to be re-used in area designated on site in accordance with Section 31 2200.

B. Remove excavated material that is unsuitable for re-use from site.

C. Remove excess excavated material from site.

2.7 PROTECTION

A. Divert surface flow from rains or water discharges from the excavation.

B. Prevent displacement of banks and keep loose soil from falling into excavation; maintain soil stability.

C. Protect open excavations from rainfall, runoff, freezing groundwater, or excessive drying so as to maintain foundation subgrade in satisfactory, undisturbed condition.

D. Protect bottom of excavations and soil adjacent to and beneath foundation from freezing.

E. Keep excavations free of standing water and completely free of water during concrete placement.

END OF SECTION

SECTION 31 2316.13

TRENCHING

PART 1 GENERAL

1.1SECTION INCLUDES

A. Backfilling and compacting for utilities to utility main connections.

1.2 RELATED REQUIREMENTS

A. Document included with project manual: Geotechnical report; bore hole locations and findings of subsurface materials.

B. Section 31 2200 - Grading: Site grading.

C. Section 31 2316 - Excavation: Building and foundation excavating.

D. Section 31 2323 - Fill: Backfilling at building and foundations.

1.3 PRICE AND PAYMENT PROCEDURES

A. See Section 01 22 00 - Unit Prices, for general requirements applicable to unit prices for additional earthwork beyond the lump sum contract amount.

1.4 DEFINITIONS

A. Finish Grade Elevations: Indicated on drawings.

1.5 REFERENCE STANDARDS

A. AASHTO T 180 - Standard Specification for Moisture-Density Relations of Soils Using a 4.54 kg (10-lb) Rammer and a 457 mm (18 in.) Drop 2010.

B. ASTM D698 - Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft3 (600 kN-m/m3)) 2012.

C. ASTM D1557 - Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/ft3 (2,700 kN m/m3)) 2012.

D. ASTM D2487 - Standard Practice for Classification of Soils for Engineering Purposes (Unified Soil Classification System) 2011.

1.6 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements, for submittal procedures.

B. Materials Sources: Submit name of imported materials source.

C. Fill Composition Test Reports: Results of laboratory tests on proposed and actual materials used.

D. Compaction Density Test Reports.

1.7 DELIVERY, STORAGE, AND HANDLING

A. When necessary, store materials on site in advance of need.

B. When fill materials need to be stored on site, locate stockpiles where indicated.

01. Separate differing materials with dividers or stockpile separately to prevent intermixing.
02. Prevent contamination.
03. Protect stockpiles from erosion and deterioration of materials.

PART 2 PRODUCTS

2.1 FILL MATERIALS

A. General Fill: Subsoil excavated on-site.

01. Graded.
02. Free of lumps larger than 3 inches, rocks larger than 2 inches, and debris.
03. Complying with ASTM D2487 Group Symbol CL.

B. Topsoil: See Section 31 2200.

2.2 ACCESSORIES

A. Geotextile Fabric: Non-biodegradable, woven. Submit sample with manufacturer technical information for approval.

2.3 SOURCE QUALITY CONTROL

A. See Section 01 4000 - Quality Requirements, for general requirements for testing and analysis of soil material.

B. If tests indicate materials do not meet specified requirements, change material and retest.

PART 3 EXECUTION

3.1 EXAMINATION

A. Verify that survey bench marks and intended elevations for the work are as indicated.

3.2 PREPARATION

A. Identify required lines, levels, contours, and datum locations.

B. Protect bench marks, survey control points, existing structures, fences, sidewalks, paving, and curbs from excavating equipment and vehicular traffic.

C. Protect plants, lawns, rock outcroppings, and other features to remain.

D. Grade top perimeter of trenching area to prevent surface water from draining into trench. Provide temporary means and methods, as required, to maintain surface water diversion until no longer needed, or as directed by the Landscape Architect.

3.3 TRENCHING

A. Notify Landscape Landscape Architect of unexpected subsurface conditions and discontinue affected Work in area until notified to resume work.

B. Slope banks of excavations deeper than 4 feet to angle of repose or less until shored.

C. Do not interfere with 45 degree bearing splay of foundations.

D. Cut trenches wide enough to allow inspection of installed utilities.

E. Hand trim excavations. Remove loose matter.

F. Remove large stones and other hard matter that could damage piping or impede consistent backfilling or compaction.

G. Remove excavated material that is unsuitable for re-use from site.

H. Remove excess excavated material from site.

I. Provide temporary means and methods, as required, to remove all water from trenching until directed by the Landscape Architect. Remove and replace soils deemed unsuitable by classification and which are excessively moist due to lack of dewatering or surface water control.

J. Determine the prevailing groundwater level prior to trenching. If the proposed trench extends less than 1 foot into the prevailing groundwater, control groundwater intrusion with perimeter drains routed to sump pumps, or as directed by the Landscape Architect.

3.4 PREPARATION FOR UTILITY PLACEMENT

A. Cut out soft areas of subgrade not capable of compaction in place. Backfill with general fill.

B. Compact subgrade to density equal to or greater than requirements for subsequent fill material.

C. Until ready to backfill, maintain excavations and prevent loose soil from falling into excavation.

3.5 BACKFILLING

A. Backfill to contours and elevations indicated using unfrozen materials.

B. Fill up to subgrade elevations unless otherwise indicated.

C. Employ a placement method that does not disturb or damage other work.

D. Systematically fill to allow maximum time for natural settlement. Do not fill over porous, wet, frozen or spongy subgrade surfaces.

E. Maintain optimum moisture content of fill materials to attain required compaction density.

F. Granular Fill: Place and compact materials in equal continuous layers not exceeding 6 inches compacted depth.

G. Soil Fill: Place and compact material in equal continuous layers not exceeding 8 inches compacted depth.

H. Slope grade away from building or curbs a minimum 2.5 inches in 10 ft, unless noted otherwise. Make gradual grade changes. Blend slope into level areas.

I. Correct areas that are over-excavated.

01. Other areas: Use general fill, flush to required elevation, compacted to minimum 97 percent of maximum dry density.

J. Compaction Density Unless Otherwise Specified or Indicated:

01. Under paving, slabs-on-grade, and similar construction: 97 percent of maximum dry density.

K. Reshape and re-compact fills subjected to vehicular traffic.

3.6 BEDDING AND FILL AT SPECIFIC LOCATIONS

A. Use general fill unless otherwise specified or indicated.

3.7 TOLERANCES

A. Top Surface of General Backfilling: Plus or minus 1 inch from required elevations.

B. Top Surface of Backfilling Under Paved Areas: Plus or minus 1 inch from required elevations.

3.8 FIELD QUALITY CONTROL

A. See Section 01 4000 - Quality Requirements, for general requirements for field inspection and testing.

B. Evaluate results in relation to compaction curve determined by testing uncompacted material in accordance with ASTM D1557 ("modified Proctor"), AASHTO T 180, or ASTM D698 ("standard Proctor").

C. If tests indicate work does not meet specified requirements, remove work, replace and retest.

3.9 CLEANING

A. Leave unused materials in a neat, compact stockpile.

B. Remove unused stockpiled materials, leave area in a clean and neat condition. Grade stockpile area to prevent standing surface water.

C. Leave borrow areas in a clean and neat condition. Grade to prevent standing surface water.

END OF SECTION

SECTION 31 2323.10

FILL FOR LANDSCAPE

PART 1 GENERAL

1.1SECTION INCLUDES

A. Filling, backfilling, and compacting for paving.

B. Backfilling and compacting for utilities outside the building to utility main connections.

C. Filling holes, pits, and excavations generated as a result of removal (demolition) operations.

1.2 RELATED REQUIREMENTS

A. Section 01 5713 - Temporary Erosion and Sediment Control: Slope protection and erosion control.

B. Section 31 2200.10 - Grading for Landscape.

1.3 DEFINITIONS

A. Finish Grade Elevations: Indicated on drawings.

B. Subgrade Elevations:

01. At planting beds: 12” below finished grade elevations.
02. At seeded lawn areas: 3” below finished grade elevations.
03. At sodded lawn areas: 3” below finished grade elevations.

1.4 REFERENCE STANDARDS

A. AASHTO M 147 - Standard Specification for Materials for Aggregate and Soil-Aggregate Subbase, Base and Surface Courses 1965 (2012).

B. ASTM C136/C136M - Standard Test Method for Sieve Analysis of Fine and Coarse Aggregates 2014.

C. ASTM D2487 - Standard Practice for Classification of Soils for Engineering Purposes (Unified Soil Classification System) 2011.

1.5 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements, for submittal procedures.

B. See Section 31 2200.10 - Grading for Landscape, for soil test reports.

1.6 QUALITY ASSURANCE

1.7 DELIVERY, STORAGE, AND HANDLING

A. When necessary, store materials on site in advance of need.

B. When fill materials need to be stored on site, locate stockpiles where directed by Owner's representative.

01. Separate differing materials with dividers or stockpile separately to prevent intermixing.
02. Prevent contamination.
03. Protect stockpiles from erosion and deterioration of materials.

PART 2 PRODUCTS

2.1 FILL MATERIALS

A. General Fill: Subsoil excavated on-site.

01. Graded.
02. Free of lumps larger than 3 inches, rocks larger than 2 inches, and debris.

B. Granular Fill: Coarse aggregate, conforming to State of Texas Highway Department standard.

C. Sand: Natural river or bank sand; free of silt, clay, loam, friable or soluble materials, and organic matter.

01. Grade in accordance with ASTM D2487 Group Symbol SW.

D. Topsoil: Topsoil excavated on-site.

01. Amended as specified in Soils Test Report. See Section 31 2200.10 - Grading for Landscape.
02. Graded.
03. Free of roots, rocks larger than 1/2 inch, subsoil, debris, large weeds and foreign matter.
04. Dark brown fertile friable loamy topsoil, screened to remove rocks, clay lumps, clods, and vegetative material, and reasonably free of weeds and grasses. Physical make-up includes clay content between 7 27 percent, silt content between 15 35 percent, sand content less than 52 percent, and organic matter content between 4-12 percent of total dry weight.
05. Acidity range (pH) of 5.5 to 7.5.
06. Containing a minimum of 4 percent and a maximum of 25 percent inorganic matter.
07. Conforming to ASTM D2487 Group Symbol OH.

E. Container Soil Mix: For decorative pots and raised planters. Comprised of 33% pH balanced compost, 33% expanded shale, and 33% washed concrete sand, screened for ¾" maximum particle size as supplied by Soil Building Systems, (972) 831-8181.

2.2 SOURCE QUALITY CONTROL

A. See Section 01 4000 - Quality Requirements, for general requirements for testing and analysis of soil material.

B. Where fill materials are specified by reference to a specific standard, testing of samples for compliance will be provided before delivery to site.

C. If tests indicate materials do not meet specified requirements, change material and retest.

D. Imported topsoil may be tested independent of existing stockpiled topsoil and amended as specified in Soils Test Report.

PART 3 EXECUTION

3.1 EXAMINATION

A. Identify required lines, levels, contours, and datum locations.

B. Verify areas to be filled are not compromised with surface or ground water.

3.2 PREPARATION

A. Scarify and proof roll subgrade surface to a depth of 6 inches to identify soft spots.

B. Cut out soft areas of subgrade not capable of compaction in place. Backfill with general fill.

C. Compact subgrade to density equal to or greater than requirements for subsequent fill material.

D. Until ready to fill, maintain excavations and prevent loose soil from falling into excavation.

3.3 FILLING

A. Fill to contours and elevations indicated using unfrozen materials.

B. Fill up to subgrade elevations unless otherwise indicated.

C. Employ a placement method that does not disturb or damage other work.

D. Systematically fill to allow maximum time for natural settlement. Do not fill over porous, wet, frozen or spongy subgrade surfaces.

E. Maintain optimum moisture content of fill materials to attain required compaction density.

F. Granular Fill: Place and compact materials in equal continuous layers not exceeding 6 inches compacted depth.

G. Soil Fill: Place and compact material in equal continuous layers not exceeding 8 inches compacted depth.

H. Slope grade away from building minimum 2 inches in 10 feet, unless noted otherwise. Make gradual grade changes. Blend slope into level areas.

I. Correct areas that are over-excavated.

01. Other areas: Use general fill, flush to required elevation, compacted to minimum 97 percent of maximum dry density.

J. Compaction Density Unless Otherwise Specified or Indicated:

01. Under paving, slabs-on-grade, and similar construction: 97 percent of maximum dry density.

K. Reshape and re-compact fills subjected to vehicular traffic.

L. Maintain temporary means and methods, as required, to remove all water while fill is being placed as required, or until directed by the Landscape Architect. Remove and replace soils

deemed unsuitable by classification and which are excessively moist due to lack of dewatering or surface water control.

3.4 FILL AT SPECIFIC LOCATIONS

A. Use general fill unless otherwise specified or indicated.

B. Over Buried Utility Piping and Conduits in Trenchesand Irrigation Piping:

01. Bedding: Use sand.
02. Cover with general fill.
03. Fill up to subgrade elevation.
04. Compact in maximum 8 inch lifts to 95 percent of maximum dry density.

C. At Lawn Areas:

01. Use general fill.
02. Fill up to 3 inches below finish grade elevations.
03. Compact to 95 percent of maximum dry density.
04. See Section 31 2200.10 - Grading for Landscape for topsoil placement.

D. At Planting Areas Other Than Lawns :

01. Use general fill.
02. Fill up to 12 inches below finish grade elevations.
03. Compact to 85 percent of maximum dry density.
04. See Section 31 2200.10 - Grading for Landscape for topsoil placement.

E. Under Monolithic Paving :

01. Compact subsoil to 95 percent of its maximum dry density before placing fill.
02. Use general fill.
03. Fill up to subgrade elevation.
04. Compact to 95 percent of maximum dry density.

3.5 TOLERANCES

A. Top Surface of General Filling: Plus or minus 1 inch from required elevations.

3.6 CLEANING

A. See Section 01 7419 - Construction Waste Management and Disposal, for additional requirements.

B. Remove unused stockpiled materials, leave area in a clean and neat condition. Grade stockpile area to prevent standing surface water.

C. Leave borrow areas in a clean and neat condition. Grade to prevent standing surface water.

END OF SECTION

SECTION 32 0190

OPERATION AND MAINTENANCE OF PLANTING

PART 1 GENERAL

1.1SECTION INCLUDES

A. Maintain plants in manner that promotes health, growth, color and appearance, to quality levels specified; replace dead, dying, and damaged plants at no extra cost to Owner.

01. It is Contractor's responsibility to determine type and quantity of soil amendments and fertilizer required.
02. Perform soil analysis to determine type and quantity of soil amendments; test enough soil samples to obtain a comprehensive analysis; submit reports.

B. Maintain newly planted landscape plants, including turf (lawns), trees, shrubs, hedges, vines, ground cover, perennials, flowering bulbs, and annuals.

C. Operate permanent irrigation system.

D. Clean up landscaped areas.

E. Maintenance Period: The time frame covered by these requirements is 90 days:

01. Start Date: Project Date of Substantial Completion.

1.2 RELATED REQUIREMENTS

A. Section 01 5713 - Temporary Erosion and Sediment Control.

B. Section 31 2200.10 - Grading for Landscape.

C. Section 32 8423 - Underground Sprinklers.

D. Section 32 9219 - Seeding.

E. Section 32 9223 - Sodding.

F. Section 32 9300 - Plants.

1.3 REFERENCE STANDARDS

A. ANSI A300 Part 1 - American National Standard for Tree Care Operations -- Tree, Shrub and Other Woody Plant Maintenance -- Standard Practices 2008 (R2014).

B. ANSI Z133.1 - American National Standard For Arboricultural Operations - Pruning, Repairing, Maintaining, And Removing Trees, And Cutting Brush - Safety Requirements 2012.

C. ASTM D4972 - Standard Test Method for pH of Soils 2013.

1.4 PROPOSAL SUBMITTALS

A. Submit complete maintenance plan, showing:

01. Irrigation volume and frequency.
02. Fertilizer type, quantity, and schedule of application.
03. Soil amendment type, quantity, and schedule of application.
04. Personnel assigned, including supervisor.
05. Inspection procedures, diagnostics, and remedies.

1.5 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements, for submittal procedures.

B. Soil Tests and Analysis: Submit report showing number of samples, test results, and recommendations for soil amendments and fertilizer.

C. Product Data: Manufacturer's data sheets on each fertilizer, herbicide, pesticide, and other chemical material to be used, showing trade name, chemical composition, mixing instructions, recommended application rate, storage and handling instructions, and application instructions.

D. Installer Qualifications: As specified.

E. Site Reports: Include date, time, personnel, condition of plants, activities, temperature, precipitation, irrigation applied; record:

01. Each visit for maintenance purposes.
02. Volume of water applied and area applied to.
03. Diagnosis for treatment of unhealthy plants.
04. Pesticide application; provide all additional reports and recordkeeping required by law.
05. Herbicide application; provide all additional reports and recordkeeping required by law.
06. Removal of dead plants, with quantity and diagnosis.
07. Replanting.

1.6 QUALITY ASSURANCE

A. Installer Qualifications:

01. Maintenance Contractor: The contractual entity that performed the planting installation.

1.7 DELIVERY, STORAGE, AND HANDLING

A. Deliver U.S. EPA-controlled materials to site in original containers with legible labels indicating registration number and registered uses.

B. Deliver fertilizer and manufactured soil amendments to site in original containers bearing manufacturer's chemical analysis, name, trade name or trademark, and indication of compliance with applicable state and federal laws and regulations ; alternatively, bulk delivery with equivalent certificate is acceptable.

C. Store fertilizer, soil amendments, and mulch in dry locations away from contaminants.

D. Do not store pesticides, herbicides, or other chemical treatment materials in locations where they could damage seeds or plants.

1.8 CERTIFICATE OF SUBSTANTIAL COMPLETION:

A. Date of Review: Submit a written request to the Owner's Representative and Landscape Architect at least five (5) Working days prior to anticipated date of review.

B. Substantial Completion will be granted when the progress of the Work or designated portion thereof is sufficiently complete in accordance with the Contract Documents so that the Owner can occupy or utilize the Work for its intended use.

1.9 CONDITIONS FOR ACCEPTANCE OF WORK AT END OF ESTABLISHMENT PERIOD:

A. Each plant shall be alive and thriving, showing signs of growth and no signs of stress, disease, or other weaknesses.

B. Plants not meeting these conditions shall be replaced and a new 90 Day Establishment Period commenced for such plants.

1.10 CERTIFICATE OF FINAL ACCEPTANCE:

A. Date of Review: Submit a written request to the Owner's Representative at least five (5) working days prior to anticipated date of review at the end of the Establishment Period.

B. Work will be accepted by the Owner's Representative upon satisfactory completion of Work, including Establishment Period, but exclusive of replacement of materials under the Warranty Period.

C. Should the Contractor’s own Work prevent Final Acceptance of the site, the site shall be maintained at the Contractor’s expense until Final Acceptance of the Contractor’s Work.

1.11 CORRECTIVE WORK:

A. Work requiring corrective action or replacement in the judgment of the Owner’s Representative shall be performed within ten (10) calendar days after the Final Review.

B. Corrective Work and materials replacement shall be performed in accordance with the Drawings and Specifications, and shall be made by the Contractor at no cost to the Owner.

C. After corrective Work is completed, the Contractor shall again request a Final Review for Final Acceptance as outlined above.

D. Continue establishment of landscaped areas until corrective measures have been completed and accepted.

1.12 COMISSIONING

A. Upon Final Acceptance, the Owner will assume responsibility for maintenance of the Work. Issuance of Final Acceptance will not relieve the Contractor of their warranty obligations.

B. Prior to FInal Acceptance, Contractor may elect to submit a proposal to the Owner for continued maintenance during the plant warranty period described in Section 32 9300 - Plants.

01. The duration of the continued Maintenance Period is at the discretion of the Owner.
02. Rejection of the continued maintenance proposal will not relieve the Contractor of their warranty obligations.

C. If accepted, continued maintenance will commence on the date of Final Acceptance.

PART 2 PRODUCTS

2.1 FERTILIZERS AND SOIL AMENDMENTS

A. Fertilizers: Free flowing granular organic type containing nitrogen, phosphorus, and potassium, plus trace minerals and micro-nutrients; controlled release type is preferred.

01. Determine type and quantity based on soil analysis.

B. Soil Amendments: Type and quantity as required to achieve specified results, based on soil analysis.

2.2 APPLIED MATERIALS

A. Organic Mulch: Maintain general appearance of existing mulched areas; use one of the following types:

01. Shredded hardwood ranging in size from 1/2 inch to one inch.

B. Pesticides: U.S. EPA registered.

C. Herbicides for Use on Turf: U.S. EPA registered.

D. Water: Suitable for irrigation; Owner's water supply may be used.

PART 3 EXECUTION

3.1 EXAMINATION

A. If soil analysis has not already been performed, take sufficient samples to obtain a comprehensive analysis; perform analysis in accordance with ASTM D4972.

3.2 LANDSCAPE MAINTENANCE - GENERAL

A. Protect existing vegetation, pavements, and facilities from damage due to maintenance activities; restore damaged items to original condition or replace, at no extra cost to Owner.

B. General Cleanup: Remove debris from all landscape areas at least once a week and from turf areas before each mowing.

01. Debris consists of trash, rubbish, dropped leaves, downed branches and limbs of all sizes, dead vegetation, rocks, and other material not belonging in landscaped areas.
02. Remove debris from site and dispose of properly.

C. Watering, Soil Erosion, and Sedimentation Control: Comply with federal, state, local, and other regulations in force; prevent over-watering, run-off, erosion, puddling, and ponding.

01. Repair temporary erosion control mechanisms provided by others.
02. Repair eroded areas and replant, when caused by inadequate maintenance.
03. Prevent sediment from entering storm drains.

D. Trees: Exercise care to avoid girdling trees; provide protective collars if necessary; remove protective collars at end of maintenance period.

E. Fertilizing: Apply fertilizer only when necessary.

F. Earth Mound Watering Basins: Maintain in good condition and as required to permit efficient application of water without waste; reapply mulch if soil surface shows.

G. Drainage Channels: Remove obstructions in gutters, catch basins, storm drain inlets, yard drains, swales, ditches, and overflows.

01. Remove grates from catch basins to clean.
02. Prevent encroachment of other vegetation on turfed surface drainage channels.

H. Health Maintenance: Inspect all plants regularly for health:

01. Eradicate diseases and damaging pests, regardless of severity or speed of effect.
02. Treat accidental injuries and abrasions.
03. If a plant is unhealthy but not yet dead, according to specified definitions, determine reason(s) and take remedial action immediately.
04. Remove dead plants immediately upon determining that they are dead.

I. Pesticide and Herbicide Application: Comply with manufacturer's instructions and recommendations and applicable regulations.

01. Obtain Owner's approval prior to each application.
02. Apply in manner to prevent injury to personnel and damage to property due to either direct spray or drifting, both on and off Owner's property.
03. Use backflow preventers on hose bibbs used for mixing water; prevent spills.
04. Inspect equipment daily before application; repair leaks, clogs, wear, and damage.
05. Do not dispose of excess mixed material, unmixed material, containers, residue, rinse water, or contaminated articles on site; dispose of off site in legal manner.
06. Rinse water may be used as mix water for next batch of same formulation.
07. Contractor is responsible for all recordkeeping, submissions, and reports required by laws and regulations.

J. Replanting: Perform replacement and replanting immediately upon removal of dead plant.

3.3 IRRIGATION

A. Irrigation: Do not allow plants to wilt; apply water as required to supplement rainfall; do not waste water; do not water plants or areas not needing water; do not water during rainfall; shut off water flow when finished; repair leaks.

01. New automatic irrigation system may be used.
02. Do not drive water trucks over turf, seeded areas, or planting beds.
03. Provide backflow preventers on hose bibbs used for irrigation hoses.

B. Automatic Irrigation System: Obtain and follow manufacturer's operating and maintenance instructions.

01. Adjust to water landscape areas only.
02. Adjust sprinkler heads, drippers, valves, pumps, and controllers as required for optimum operation.
03. Drain and prepare for freezing weather; prepare and start up in spring.
04. During system warranty period notify Landscape Architect and system installer promptly of defects and leaks that adversely affect irrigation performance.
05. After end of system warranty period, service and repair all defects and leaks.

3.4 TURF MAINTENANCE

A. Maintain turf in manner required to produce turf that is healthy, uniform in color and leaf texture, and free from weeds and other undesirable growth.

01. Grass Density - Lawns: 20 plants per square foot, minimum.
02. Bare Spots - Lawns: 2 percent of total area, maximum; 6 inches square, maximum.
03. Keep turf relatively free of thatch, woody plant roots, diseases, nematodes, soil-borne insects, stones larger than 1 inch in diameter, and other materials detrimental to grass growth.
04. Limit broadleaf weeds and patches of foreign grass to a maximum of 2 percent of the total area.

B. Mowing: During growing season(s) mow turf to uniform height, in manner that prevents scalping, rutting, bruising, and uneven or rough cutting.

01. Prior to mowing clean all debris and leaves from turf surface.
02. Schedule frequency of mowing so that no more than one-quarter to one-third of grass leaf length is removed during a cutting.
03. Make each successive mowing at approximately 45 degrees to the previous mowing, if practical.
04. Cool Season Grasses:
    a. Reduce mowing height in fall and spring.
    b. Use rotary type mowers; mulcher type mowers may be used.

05. Warm Season Grasses:
    a. Increase mowing height slightly as fall approaches.
    b. Use reel type mowers; do not use mulcher mowers.

C. Summer Mowing Height for Lawns:

01. Bermuda, Common: 2 inches.
02. Buffalo Grass: 4 inches.
03. Rye, Perennial: 3 inches.
04. St. Augustine, Common: 3 inches.

D. Trimming: Immediately after each mowing, neatly trim perimeter of each turf area and around obstructions within turf area; match height and appearance of adjacent turf.

01. Adjacent to Pavements: Cut edges of turf to form a distinct, uniform turf edge.
02. Adjacent to Planting Beds and Permanently Mulched Areas: Cut edges of turf to form a distinct, uniform turf edge.
03. Around Other Trees and Poles: Where no planting bed or mulched area exists, trimming with string trimmer is acceptable.
04. At Fences: Trim on both sides of fence.
05. Irrigation Heads and Valve Boxes: Trim neatly so grass doesn't interfere with operation.

E. Fertilizer: Apply as recommended by manufacturer and at rate indicated by soil analysis.

01. Cool Season Grasses: Apply at least once, in Fall before first frost; do not apply high nitrogen fertilizer during Summer; Spring application is optional but must be reduced in quantity.
02. Warm Season Grasses: Make two applications, in Spring when grass begins to green up, and in Fall about 6 weeks before average first frost.

F. Reseeding: Comply with requirements of Section 32 9219.

G. Resodding: Comply with requirements of Section 32 9223.

3.5 PLANTING BED MAINTENANCE

A. Planting beds include all planted areas except turf.

B. Begin maintenance immediately after plants have been installed; inspect at least once a week and perform needed maintenance promptly.

C. Keep planting beds free of pests; remove weeds and grass by hand before reaching 1 inch height.

D. Do not allow climbing, twining, or creeping plants to encroach into other species.

E. Ground Cover and Vines:

01. Trim to encourage dense, well-developed growth covering intended areas.
02. Do not allow plants to grow up trees, shrubs, or vines or encroach into turf or drainage channels, unless the drainage channel is intended to be planted with ground cover.
03. Remove existing plants grown up trees, shrubs, and vines.

F. Flowering Plants: Remove dead flower heads; do not trim off leaves of flowering bulbs until they are brown.

G. Replace mulch as required and remove debris.

3.6 TREE AND SHRUB MAINTENANCE

A. Trees will be considered dead when main leader has died back or when 25 percent or more of crown has died ; except as otherwise indicated for palm trees.

B. Shrubs will be considered dead when 25 percent or more of plant has died.

C. Inspect woody plants for health by scraping up to 1/16 inch square area of bark; no green cambium layer below bark shall be evidence of death.

D. Adjust stakes, guys and turnbuckles, ties, and trunk wrap as required to promote growth and avoid girdling.

E. Fertilizing: Fertilize all trees at least once during maintenance period, preferably in the Fall; use accepted standards for determining type and method of fertilization.

F. Pruning: Unless otherwise indicated, prune only to maintain balanced natural shape; follow recommendations of ANSI A300 and ANSI Z133.1 and best local practices for species involved.

G. Shrubs: Prune at least once during maintenance period at best time to influence ultimate shape and size for the particular species.

01. Prune to balance the plant's form and according to its natural growth characteristics.
02. Remove water shoots, suckers, and branches not complying with desired shape and size.

H. Hedges: Trim to encourage growth into voids and gaps.

I. Young Trees: Prune at least once during maintenance period at best time to influence ultimate shape and size for the particular species; do not remove or cut off leader.

3.7 CLEANING

A. Remove fallen deciduous leaves in Fall; removal may wait until all leaves have fallen.

B. Clean adjacent pavements of plant debris and other debris generated by maintenance activities.

C. Remove and dispose of general cleanup debris and biodegradable debris in a proper manner; Owner's trash collection facilities may be used.

D. Remove and dispose of general cleanup debris and biodegradable debris in a proper manner.

01. Biodegradable Debris: Owner will designate a compost pile on site where biodegradable debris may be deposited; branches and bark are not considered biodegradable.
02. Branches and Bark: Owner will designate a wood chip storage area; machine-chip all branch and bark debris.
03. Non-Biodegradable Debris: Owner's trash collection facilities may be used.

3.8 CLOSEOUT ACTIVITIES

A. 10 days prior to end of maintenance period, submit request for final inspection.

B. Final inspection will be conducted by Landscape Architect.

END OF SECTION

SECTION 32 1313

CONCRETE PAVING FOR LANDSCAPE

PART 1 GENERAL

1.1SECTION INCLUDES

A. Concrete sidewalks.

1.2 RELATED REQUIREMENTS

A. Section 07 9200 - Joint Sealants: Sealing joints.

B. Section 31 2200.10 - Grading for Landscape: Preparation of the site for paving.

1.3 REFERENCE STANDARDS

A. ACI 211.1 - Standard Practice for Selecting Proportions for Normal, Heavyweight, and Mass Concrete 1991 (Reapproved 2009).

B. ACI 301 - Specifications for Structural Concrete 2016.

C. ACI 304R - Guide for Measuring, Mixing, Transporting, and Placing Concrete 2000.

D. ACI 305R - Hot Weather Concreting 2010.

E. ACI 306R - Cold Weather Concreting 2010.

F. ASTM A615/A615M - Standard Specification for Deformed and Plain Carbon-Steel Bars for Concrete Reinforcement 2020.

G. ASTM C33/C33M - Standard Specification for Concrete Aggregates 2016.

H. ASTM C39/C39M - Standard Test Method for Compressive Strength of Cylindrical Concrete Specimens 2015a.

I. ASTM C94/C94M - Standard Specification for Ready-Mixed Concrete 2015.

J. ASTM C150/C150M - Standard Specification for Portland Cement 2015.

K. ASTM C173/C173M - Standard Test Method for Air Content of Freshly Mixed Concrete by the Volumetric Method 2014.

L. ASTM C260/C260M - Standard Specification for Air-Entraining Admixtures for Concrete 2010a (Reapproved 2016).

M. ASTM C309 - Standard Specification for Liquid Membrane-Forming Compounds for Curing Concrete 2011.

N. ASTM C494/C494M - Standard Specification for Chemical Admixtures for Concrete 2013.

O. ASTM C618 - Standard Specification for Coal Fly Ash and Raw or Calcined Natural Pozzolan for Use in Concrete 2015.

P. ASTM C685/C685M - Standard Specification for Concrete Made by Volumetric Batching and Continuous Mixing 2014.

Q. ASTM D1751 - Standard Specification for Preformed Expansion Joint Filler for Concrete Paving and Structural Construction (Nonextruding and Resilient Bituminous Types) 2004 (Reapproved 2013).

R. ASTM D1752 - Standard Specification for Preformed Sponge Rubber Cork and Recycled PVC Expansion Joint Fillers for Concrete Paving and Structural Construction 2004a (Reapproved 2013).

S. ASTM D8139 - Standard Specification for Semi-Rigid, Closed-Cell Polypropylene Foam, Preformed Expansion Joint Fillers for Concrete Paving and Structural Construction 2017.

1.4 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements, for submittal procedures.

B. Product Data: Provide data on joint filler, admixtures, and curing compound.

PART 2 PRODUCTS

2.1 PAVING ASSEMBLIES

A. Comply with applicable requirements of ACI 301.

B. Concrete Sidewalks and Median Barrier: 3,000 psi 28 day concrete, 4 inches thick, buff color Portland cement, exposed aggregate finish.

2.2 FORM MATERIALS

A. Wood form material, profiled to suit conditions.

B. Joint Filler: Preformed; non-extruding bituminous type (ASTM D1751) or sponge rubber or cork (ASTM D1752).

01. Thickness: 1/2 inch.

2.3 REINFORCEMENT

A. Reinforcing Steel: ASTM A615/A615M, Grade 80 (80,000 psi) yield strength; deformed billet steel bars; unfinished.

B. Dowels: ASTM A615/A615M, Grade 40 - 40,000 psi yield strength; steel bars; unfinished finish.

C. Dowel Sleeves: Speed Dowel System, size as required for specified dowel diameter and length.

D. Tie-Wires: ASTM A82, 18 gauge minimum, black, annealed.

E. Chairs, Bolsters, Bar Supports, Spacers: Sized and shaped for adequate support of reinforcement during concrete placement. horizontal reinforcing, including welded wire fabric, shall be supported on approved chairs or supports.

F. Provide stainless steel, galvanized, plastic, or plastic-coated steel components for placement within 1-1/2 inches of weathering surfaces.

2.4 CONCRETE MATERIALS

A. Obtain cementitious materials from same source throughout.

B. Cement: ASTM C150/C150M, Normal - Type I Portland cement, gray color.

C. Fine and Coarse Mix Aggregates: ASTM C33/C33M.

D. Fly Ash: ASTM C618, Class C or F.

E. Calcined Pozzolan: ASTM C618, Class N.

F. Silica Fume: ACI 211.1.

G. Water: Clean, and not detrimental to concrete.

H. Air-Entraining Admixtures: ASTM C260/C260M.

I. Chemical Admixtures: ASTM C494/C494M, Type A - Water Reducing, Type C - Accelerating, and Type G - Water Reducing, High Range and Retarding.

2.5 ACCESSORIES

A. Curing Compound: ASTM C309, Type 1, Class A.

B. Slab Isolation Joint Filler: 1/2 inch thick, height equal to slab thickness, with removable top section that will form 1/2 inch deep sealant pocket after removal.

01. Material: ASTM D8139, semi-rigid, closed-cell polypropylene foam.

2.6 CONCRETE MIX DESIGN

A. Proportioning Normal Weight Concrete: Comply with ACI 211.1 recommendations.

B. Admixtures: Add acceptable admixtures as recommended in ACI 211.1 and at rates recommended by manufacturer.

C. Concrete Properties:

01. Compressive strength, when tested in accordance with ASTM C39/C39M at 28 days; 3500 psi.
02. Fly Ash Content: Maximum 15 percent of cementitious materials by weight.
03. Calcined Pozzolan Content: Maximum 10 percent of cementitious materials by weight.
04. Silica Fume Content: Maximum 5 percent of cementitious materials by weight.
05. Cement Content: Minimum 517 lb per cubic yard.
06. Water-Cement Ratio: Maximum 70 percent by weight.
07. Total Air Content: 4 percent, determined in accordance with ASTM C173/C173M.
08. Maximum Slump: 3 inches.

09. Maximum Aggregate Size: 1 inch.

2.7 MIXING

A. On Project Site: Mix in drum type batch mixer, complying with ASTM C685/C685M. Mix each batch not less than 1-1/2 minutes and not more than 5 minutes.

B. Transit Mixers: Comply with ASTM C94/C94M.

PART 3 EXECUTION

3.1 EXAMINATION

A. Verify compacted subgrade is acceptable and ready to support paving and imposed loads.

B. Verify gradients and elevations of base are correct.

3.2 SUBBASE

A. Prepare subbase in accordance with State of Texas Highways standards.

3.3 PREPARATION

A. Moisten base to minimize absorption of water from fresh concrete.

B. Coat surfaces of manhole frames with oil to prevent bond with concrete pavement.

C. Notify Landscape Architect minimum 24 hours prior to commencement of concreting operations.

3.4 FORMING

A. Place and secure forms to correct location, dimension, profile, and gradient.

B. Assemble formwork to permit easy stripping and dismantling without damaging concrete.

C. Place joint filler vertical in position, in straight lines. Secure to formwork during concrete placement.

3.5 REINFORCEMENT

A. Place reinforcement as indicated in drawings.

B. Place dowels to achieve pavement and curb alignment as detailed.

3.6 COLD AND HOT WEATHER CONCRETING

A. Follow recommendations of ACI 305R when concreting during hot weather.

B. Follow recommendations of ACI 306R when concreting during cold weather.

C. Do not place concrete when base surface temperature is less than 40 degrees F, or surface is wet or frozen.

3.7 PLACING CONCRETE

A. Place concrete in accordance with ACI 304R.

B. Do not place concrete when base surface is wet.

C. Ensure reinforcement, inserts, embedded parts, formed joints and dowels are not disturbed during concrete placement.

D. Place concrete continuously over the full width of the panel and between predetermined construction joints. Do not break or interrupt successive pours such that cold joints occur.

E. Apply surface retarder to all exposed surfaces in accordance with manufacturer's instructions.

3.8 JOINTS

A. Align curb, gutter, and sidewalk joints.

B. Place 3/8 inch wide expansion joints at 24 foot intervals and to separate paving from vertical surfaces and other components and in pattern indicated.

01. Form joints with joint filler extending from bottom of pavement to within 1/2 inch of finished surface.
02. Secure to resist movement by wet concrete.

C. Provide sawn joints as indicated, or at 8’-0” maximum on center each way.

D. Saw cut contraction joints 1/4 inch wide within 24 hours after finishing. Cut minimum 1/4 depth of slab.

3.9 FINISHING

A. Area Paving: Light broom, texture perpendicular to pavement direction.

B. Sidewalk Paving: Light broom, texture perpendicular to direction of travel with troweled and radiused edge 1/4 inch radius with window pane surrounds.

C. Place curing compound on exposed concrete surfaces immediately after finishing. Apply in accordance with manufacturer's instructions.

3.10 TOLERANCES

A. Maximum Variation of Surface Flatness: 1/4 inch in 10 ft.

B. Maximum Variation From True Position: 1/4 inch.

3.11 PROTECTION

A. Immediately after placement, protect pavement from premature drying, excessive hot or cold temperatures, and mechanical injury.

B. Do not permit pedestrian traffic over pavement for 7 days minimum after finishing.

END OF SECTION

SECTION 32 8423

UNDERGROUND SPRINKLERS

PART 1 GENERAL

1.1SECTION INCLUDES

A. Pipe and fittings, valves, sprinkler heads, emitters, bubblers, and accessories.

B. Control system.

1.2 RELATED REQUIREMENTS

A. Section 31 2316.13 - Trenching: Excavating and backfilling for irrigation piping.

B. Section 31 2323.10 - Fill for Landscape: Backfilling for irrigation piping.

1.3 UNIT PRICES - MEASUREMENT AND PAYMENT

A. See Section 01 2200 - Unit Prices, for additional unit price requirements.

1.4 REFERENCE STANDARDS

A. ASTM B32 - Standard Specification for Solder Metal 2008 (Reapproved 2014).

B. ASTM B42 - Standard Specification for Seamless Copper Pipe, Standard Sizes 2015a.

C. ASTM B88 - Standard Specification for Seamless Copper Water Tube 2014.

D. ASTM D2235 - Standard Specification for Solvent Cement for Acrylonitrile-Butadiene-Styrene (ABS) Plastic Pipe and Fittings 2004 (Reapproved 2011).

E. ASTM D2241 - Standard Specification for Poly (Vinyl Chloride) (PVC) Pressure-Rated Pipe (SDR Series) 2015.

F. ASTM D2321 - Standard Practice for Underground Installation of Thermoplastic Pipe for Sewers and Other Gravity-Flow Applications 2014.

G. ASTM D2564 - Standard Specification for Solvent Cements for Poly(Vinyl Chloride) (PVC) Plastic Piping Systems 2012.

H. NEMA 250 - Enclosures for Electrical Equipment (1000 Volts Maximum) 2014.

1.5 ADMINISTRATIVE REQUIREMENTS

A. Coordination: Coordinate the work with site backfilling, landscape grading and delivery of plant life.

1.6 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements, for submittal procedures.

B. Shop Drawings: Indicate piping layout to water source, location of sleeves under pavement, location and coverage of sprinkler heads, components, plant and landscaping features, schedule of fittings to be used.

C. Provide cut sheets and product data of all components.

D. Operation and Maintenance Data:

01. Provide instructions for operation and maintenance of system and controls, seasonal activation and shutdown, and manufacturer's parts catalog.
02. Provide schedule indicating length of time each valve is required to be open to provide a determined amount of water.

E. Record Documents: Record actual locations of all concealed components piping system.

1.7 QUALITY ASSURANCE

A. Manufacturer Qualifications: Company specializing in manufacturing products specified in this section, with not less than three years of documented experience.

B. Installer Qualifications: Company specializing in performing the work of this section with minimum 5 years of experience.

C. Do not alter the design hydraulics by installing additional tees or elbows unless approved in writing by the Landscape Architect. Failure to get approval may cause Contractor to expose buried pipe, at the Contractor’s expense, to assure no other alterations have been made.

1.8 COORDINATION

A. Coordinate the work with site backfilling, landscape grading and delivery of plant life.

1.9 MAINTENANCE

A. Installer's Field Services: Prepare and start systems and adjust spray patterns, flow controls, and controller programming during installation of the plant material and immediately prior to Final Acceptance.

PART 2 PRODUCTS

2.1 IRRIGATION SYSTEM

A. Per the material schedule and plan legend. No substitutions will be permitted without written authorization from the Landscape Architect.

2.2 PIPE MATERIALS

A. PVC Pipe: ASTM D2241; 200 psi pressure rated upstream from controls, 160 psi downstream; solvent welded sockets.

B. Copper Tube: ASTM B88 (ASTM B88M), Type K (A); annealed temper.

C. Copper Pipe: ASTM B42, regular type.

D. Fittings: Type and style of connection to match pipe.

E. Pipe Risers at Valves: 160 psi PVC pipe.

F. Solvent Cement: ASTM D 2564 for PVC pipe and fittings.

G. Solder and Flux: ASTM B32 solder, with suitable flux.

H. Sleeve Material: PVC, Class 200 or Schedule 40.

2.3 VALVES

A. Manufacturers:

01. Per the material schedule and plan legend. No substitutions will be permitted without written authorization from the Landscape Architect.
02. Substitutions: See Section 01 6000 - Product Requirements.

B. Gate Valves: Bronze construction non-rising stem.

C. Backflow Preventers: Iron body construction, double check valve type per local code.

D. Valve Box and Cover: Brooks, Carson, Ametek, or per local code.

2.4 CONTROLS

A. Manufacturers:

01. Per the material schedule and plan legend. No substitutions will be permitted without written authorization from the Landscape Architect .

B. Controller: Automatic controller, microprocessor solid state control with visible readout display, temporary override feature to bypass cycle for inclement weather, timer for a 240 station system, programmable for 7 days in quarter hour increments, with automatic start and shutdown. Controllers shall be equipped with both a rain and freeze sensor.

C. Controller Housing: NEMA 250 Type 3; weatherproof, watertight, with lockable access door.

D. Valves: Hydraulic; normally open; hydraulic tubing, including required fittings and accessories.

E. Wire Conductors: Color coded, 14 gauge minimum.

PART 3 EXECUTION

3.1 EXAMINATION

A. Verify location of existing utilities.

B. Verify that required utilities are available, in proper location, and ready for use.

3.2 PREPARATION

A. Piping layout indicated is diagrammatic only. Route piping to avoid plants, ground cover, and structures.

B. Layout and stake locations of system components.

C. Review layout requirements with other affected work. Coordinate locations of sleeves under paving to accommodate system.

3.3 TRENCHING

A. Trench Size:

01. Minimum Width: 6 inches.
02. Minimum Cover Over Installed Supply Piping: 18 inches.
03. Minimum Cover Over Installed Branch Piping: 12 inches.
04. Minimum Cover Over Installed Outlet Piping: 12 inches.

B. Trench to accommodate grade changes and slope to drains.

C. Maintain trenches free of debris, material, or obstructions that may damage pipe.

3.4 INSTALLATION

A. Install pipe, valves, controls, and outlets in accordance with manufacturer's instructions.

B. Connect to utilities.

C. Set outlets and box covers at finish grade elevations.

D. Provide for thermal movement of components in system.

E. Use threaded nipples for risers to each outlet.

F. After piping is installed, but before outlets are installed and backfilling commences, open valves and flush system with full head of water.

3.5 FIELD QUALITY CONTROL

A. Field inspection and testing will be performed under provisions of Section 01 4000 - Quality Requirements.

B. Prior to backfilling, test system for leakage at main piping to maintain 100 psi pressure for one hour.

C. System is acceptable if no leakage or loss of pressure occurs and system self drains during test period.

3.6 SYSTEMS STARTUP

A. Prepare and start system in accordance with manufacturer's instructions.

B. Adjust control system to achieve time cycles required.

C. Adjust head types for full water coverage as directed.

3.7 DEMONSTRATION

A. Instruct Owner's personnel in operation and maintenance of system, including adjusting of sprinkler heads. Use operation and maintenance material as basis for demonstration.

3.8 MAINTENANCE

A. See Section 01 7000 - Execution and Closeout Requirements, for additional requirements relating to maintenance service.

B. Provide one complete spring start-up and a fall shutdown by installer, at no extra cost to Owner.

END OF SECTION

SECTION 32 9219

SEEDING

PART 1 GENERAL

1.1SECTION INCLUDES

A. Preparation of subsoil.

B. Placing topsoil.

C. Seeding Hydroseeding, mulching and fertilizer.

D. Hydromulching for Lawn.

E. Drill Seeding for Native Grass / Wildflower Areas.

F. Maintenance.

1.2 RELATED REQUIREMENTS

A. Section 31 2200.10 - Grading for Landscape: Preparation of subsoil and placement of topsoil in preparation for work of this section.

B. Section 31 2323.10 - Fill for Landscape: Topsoil material.

C. Section 32 0190 - Operation and Maintenance of Planting: Post-occupancy maintenance.

1.3 DEFINITIONS

A. Weeds: Plant life not specified or scheduled.

1.4 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements, for submittal procedures.

B. Topdress Fertilizer (Certifications).

1.5 DELIVERY, STORAGE, AND HANDLING

A. Deliver grass seed mixture in sealed containers. Seed in damaged packaging is not acceptable. Deliver seed mixture in containers showing percentage of seed mix, year of production, net weight, date of packaging, and location of packaging.

B. Deliver fertilizer in waterproof bags showing weight, chemical analysis, and name of manufacturer.

1.6 INSPECTIONS

A. Make written request for inspection of finish grade prior to hydromulching.

B. Make written request for inspection that hydromulching operations have been completed. Such inspection is for the purpose of establishing the Maintenance Period.

C. Submit written requests for inspections to the Landscape Architect at least seven (7) days prior to anticipated inspection date.

1.7 WARRANTY PERIOD

A. Time Period: Warrant that all lawns, grasses and wildflower areas shall be in a healthy and flourishing condition of active growth six (6) months from date of Final Acceptance.

B. Appearance During Warranty:

01. Lawns: Shall be free of dead or dying patches, and all areas shall show foliage of a normal density, size and color. Complete lush cover with no brown sections or cracks showing.
02. Native Grasses / Wildflowers: Eighty (80%) percent coverage of growing plants within seeded area within twenty-one days of seeding date.

C. Delays: All delays in completion of planting operations which extend the planting into more than one planting season shall extend the Warranty Period correspondingly.

D. Exceptions: Contractor shall not be held responsible for failures due to neglect by Owner, vandalism, etc., during Warranty Period. Report such conditions in writing.

E. Replacements: Replace, without cost to Owner, and as soon as weather conditions permit, all lawns, grasses and wildflower areas not in a vigorous, thriving condition, as determined by Landscape Architect during and at the end of Warranty Period.

1.8 FINAL ACCEPTANCE

A. Work under this Section will be accepted by Landscape Architect upon satisfactory completion of all work, but exclusive of re-application under the Guarantee Period.

PART 2 PRODUCTS

2.1 SEED MIXTURE

A. Composition: Fresh, clean, certified, Class 'A', new crop seed.

B. Lawn Seed Mixture: The mixture to be used shall be proportioned by weight and consist of the following varieties to be sown at the rate of six (6) pounds per 1,000 square feet (210 pounds per acre):

01. Common Bermuda: 85% percent; 98% purity; 90% min. germination.
02. Lolium Perennial Ryegrass: 10% percent; 98% purity; 90% min. germination.
03. Poa Annual Ryegrass: 5% percent; 95% purity; 90% min. germination.

C. Native Grasses / Wildflower Seed Mixture: The mixture to be used shall be proportioned by weight and consist of the varieties scheduled in Drawings to be sown at the rate indicated in Drawings.

D. Weed Seed: Do not exceed 0.25%.

2.2 SOIL MATERIALS

A. Topsoil: As specified in Section 31 2323.10 - Fill for Landscape

2.3 ACCESSORIES

A. Mulching Material: Prepared wood cellulose fiber, dust form, free of growth or germination inhibiting ingredients.

B. Fertilizer: Complete Commerical Fertilizer; recommended for grass, with fifty percent of the elements derived from organic sources; of proportion necessary to eliminate any deficiencies of topsoil, as indicated by analysis.

C. Water: Clean, fresh and free of substances or matter which could inhibit vigorous growth of grass.

D. Erosion Fabric: 90 day Jute matting, open weave, where necessary to prevent soil erosion.

PART 3 EXECUTION

3.1 EXAMINATION

A. Verify that prepared soil base is ready to receive the work of this Section.

3.2 PREPARATION

A. Prepare subgrade in accordance with Section 31 2200.10 - Grading for Landscape.

B. Place topsoil in accordance with Section 31 2323.10 - Fill for Landscape.

C. Final Grading

01. Stones, Weeds, Debris: Verify that all areas to receive Lawns and Native Grass / Wildflower mixtures (as indicated in Drawings) are clear of stones larger than 1-1/2 in. diameter, weeds, debris and other extraneous materials.
02. Grades: Verify that grades are within 1 in. plus or minus of the required finished grades. Verify that soil preparation and fertilization has been installed in another section. Report all variations in writing.

D. Soil Moisture:

01. Excessive Moisture: Do not commence work of this section when soil moisture content is so great that excessive compaction will occur, nor when it is so dry that dust will form in air or that clods will not break readily.
02. Inadequate Moisture: Apply water, as necessary, to bring soil to an optimum moisture content for planting.

3.3 HYDROSEEDING

A. Apply seeded slurry with a hydraulic seeder at a rate of 2 lbs per 1000 sq ft evenly in two intersecting directions.

B. Do not hydroseed area in excess of that which can be mulched on same day.

C. Immediately following seeding, apply mulch to a thickness of 1/8 inches. Maintain clear of shrubs and trees.

D. Apply water with a fine spray immediately after each area has been mulched. Saturate to 4 inches of soil.

E. Following germination, immediately re-seed areas without germinated seeds that are larger than 4 by 4 inches.

3.4 HYDROMULCH SEEDING ON PREPARED FINISHED GRADE

A. Bed Preparation: Immediately after the finished grade has been approved, begin hydroseeding operation to reduce excessive weed growth.

B. Special Mulching Equipment: Hydraulic equipment used for the application of fertilizer, seed, and slurry of prepared wood fiber mulch shall have a built-in agitation system with an operating capacity sufficient to agitate, suspend, and homogeneously mix a slurry containing up to forty (40) pounds of fiber plus a combined total of seventy (70) pounds of fertilizer solids for each one hundred (100) gallons of water. The slurry distribution lines shall be large enough to prevent stoppage. The discharge line shall be equipped with a set of hydraulic spray nozzles which provide even distribution of the slurry on the slopes to be seeded. The slurry tank shall have a minimum capacity of eight hundred (800) gallons and shall be mounted on a traveling unit which may be either self-propelled or drawn with a separate unit which will place the slurry tank and spray nozzles within sufficient proximity to the areas to be seeded so as to provide uniform distribution without waste. The Landscape Architect may authorize equipment with smaller tank capacity provided that the equipment has the necessary agitation system and sufficient pump capacity to spray the slurry in a uniform coat.

C. Mixing: Care shall be taken that the slurry preparation takes place on the site of the work. The slurry preparation should begin by adding water to the tank when the engine is at half throttle. When the water level has reached the height of the agitator shaft, good recirculation shall be established and seed shall be added. Fertilizer shall then be added, followed by wood pulp mulch. The wood pulp mulch shall only be added to the mixture after the seed and when the tank is at least one-third filled with water. The engine throttle shall be opened to full speed when the tank is half filled with water. All the wood pulp mulch shall be added by the time the tank is two-thirds to three-fourths full. Spraying shall commence immediately when the tank is full.

D. Planting Season:

01. Seed should not be planted before soil temperature is above 65°F
02. Hydro mulch Bermuda Grass and Weeping Love Grass from May 1 to August 30.
03. Hydro mulch Annual Rye Grass from September 1 to April 30.
    a. When the permanent grass variety cannot be planted within the dates specified, seed Annual Rye Grass at a rate of 10 pounds per 1,000 square feet.

04. Notify owner prior to bid approval if the project schedule may not allow for warm season seeding and provide bid proposal for Annual Rye Grass including maintenance, eradication and conversion once ground temperature allows.

E. Application:

01. Contractor shall obtain approval of hydromulch area preparation from the Landscape Architect prior to application.

02. Operators of hydromulching equipment shall be thoroughly experienced in this type of application.
03. The operator shall apply the specified slurry mix in a motion to form a uniform, visible mat at specified rate, using the green color of the wood pulp as a guide.
04. Keep hydromulch within areas designated and keep from contact with other plant material.
05. Slurry mixture which has not been applied within four (4) hours of mixing shall not be used and shall be removed from the site.
06. Immediately after application, thoroughly wash off any plant material, planting areas, or paved areas not intended to receive slurry mix. Keep all paved and planting areas clean during maintenance operations.

F. Unseeded Areas: If, in the opinion of the Landscape Architect, unplanted skips and areas are noted after hydromulching, the Contractor shall be required to seed the unplanted areas with the grasses that were to have been planted at no additional cost to the Owner.

3.5 SEED PROTECTION

A. After application, the Contractor shall not operate any equipment over the covered area.

B. Cover seeded slopes where grade is 4 inches per foot or greater with erosion fabric. Roll fabric onto slopes without stretching or pulling.

C. Lay fabric smoothly on surface, bury top end of each section in 6 inch deep excavated topsoil trench. Provide 12 inch overlap of adjacent rolls. Backfill trench and rake smooth, level with adjacent soil.

D. Secure outside edges and overlaps at 36 inch intervals with stakes.

E. Lightly dress slopes with topsoil to ensure close contact between fabric and soil.

F. At sides of ditches, lay fabric laps in direction of water flow. Lap ends and edges minimum 6 inches.

3.6 MAINTENANCE

A. See Section 32 0190 - Operation and Maintenance of Planting for post-occupancy maintenance.

3.7 INSPECTIONS

A. Make written request for inspection after areas have been seeded and sodded.

B. Submit requests for inspections to Landscape Architect at least two (2) days prior to anticipated inspection date.

C. Inspection to determine acceptance of planted areas and lawns will be made by Landscape Architect upon request. Substantial Completion can be only be requested after grass has germinated and been mowed twice (minimum 3 weeks after germination).

D. Seeded lawns shall be considered acceptable when full established grass cover exceeds 95% of lawn area and no bare spots greater than 6 square inches exist with minimal weeds (i.e. less than 5 weed plants in 10'x10' area). Lawn areas not meeting this criteria shall be repaired with original materials/methods specified on plans or approved upgrade at no additional charge to the Owner. Provide regrading as necessary.

3.8 CLEAN-UP

A. General: Keep all areas of work clean, neat and orderly at all times. Keep all paved areas clean during planting operations.

B. Debris: Clean up and remove all deleterious materials and debris from the entire work area prior to Final Acceptance.

END OF SECTION

SECTION 32 9223

SODDING

PART 1 GENERAL

1.1SECTION INCLUDES

A. Preparation of subsoil.

B. Placing topsoil.

C. Fertilizing.

D. Sod installation.

E. Maintenance.

1.2 RELATED REQUIREMENTS

A. Section 31 2200.10 - Grading for Landscape: Preparation of subsoil and placement of topsoil in preparation for work of this section.

B. Section 31 2323.10 - Fill for Landscape: Topsoil material.

C. Section 32 0190 - Operation and Maintenance of Planting: Post-occupancy maintenance.

1.3 DEFINITIONS

A. Weeds: Plant life not specified or scheduled

1.4 REFERENCE STANDARDS

A. TPI (SPEC) - Guideline Specifications to Turfgrass Sodding 2006.

1.5 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements, for submittal procedures.

B. Certificate: Certify grass species and location of sod source.

1.6 QUALITY ASSURANCE

A. Sod Producer: Company specializing in sod production and harvesting with minimum five years experience, and certified by the State of Texas.

B. Installer Qualifications: Company approved by the sod producer.

1.7 DELIVERY, STORAGE, AND HANDLING

A. Deliver sod on pallets. Protect exposed roots from dehydration.

B. Do not deliver more sod than can be laid within 24 hours.

1.8 INSPECTIONS

A. Make written request for inspection of finish grade prior to sodding.

B. Make written request for inspection that sodding operations have been completed. Such inspection is for the purpose of establishing the Maintenance Period.

C. Submit written requests for inspections to the Landscape Architect at least seven (7) days prior to anticipated inspection date.

1.9 WARRANTY PERIOD

A. Time Period: Warrant that all lawns and grasses shall be in a healthy and flourishing condition of active growth six (6) months from date of Final Acceptance.

B. Appearance During Warranty: Lawns shall be free of dead or dying patches, and all areas shall show foliage of a normal density, size and color. Complete lush cover with no brown sections or cracks showing.

C. Delays: All delays in completion of planting operations which extend the planting into more than one planting season shall extend the Warranty Period correspondingly.

D. Exceptions: Contractor shall not be held responsible for failures due to neglect by Owner, vandalism, etc., during Warranty Period. Report such conditions in writing.

E. Replacements: Replace, without cost to Owner, and as soon as weather conditions permit, all lawn and grasses not in a vigorous, thriving condition, as determined by Landscape Architect during and at the end of Warranty Period.

F. Matching: Closely match all replacement sod with adjacent areas of lawn or grass. Apply all requirements of this Specification to all replacements

1.10 FINAL ACCEPTANCE

A. Work under this Section will be accepted by Landscape Architect upon satisfactory completion of all work, but exclusive of re-application under the Guarantee Period.

PART 2 PRODUCTS

2.1 MATERIALS

A. Sod: TPI, Certified Turfgrass Sod quality; cultivated grass sod; type indicated in plant schedule on Drawings; with strong fibrous root system, free of stones, burned or bare spots, relatively free of thatch; free from diseases and harmful insects; containing no more than 5 grassy and/or broadleaf weeds per 1000 sq ft; . Minimum age of 18 months, with root development that will support its own weight without tearing, when suspended vertically by holding the upper two corners.

B. Sod shall be rejected if found to contain the following weeds:Quackgrass, johnsongrass, poison ivy, nimbleweed, thistle, bindweed, bentgrass, perennial sorrel, bromegrass.

C. Topsoil: As specified in Section 31 2323.10 - Fill for Landscape.

2.2 ACCESSORIES

A. Wood Pegs: Softwood, sufficient size and length to ensure anchorage of sod on slope.

B. Wire Mesh: Interwoven hexagonal metal wire mesh of 2 inch size.

C. Edging: JD Russell, Duraedge, 3/16" thick x 6" depth, Black .

2.3 HARVESTING SOD

A. Machine cut sod and load on pallets in accordance with TPI Guidelines.

B. Cut sod in area not exceeding 1 sq yd, with minimum 1/2 inch and maximum 1 inch topsoil base.

2.4 TESTS

A. Provide analysis of topsoil fill under provisions of Section 01 4000.

PART 3 EXECUTION

3.1 EXAMINATION

A. Verify that prepared soil base is ready to receive the work of this section.

3.2 SOD BED PREPARATION

A. Place topsoil in accordance with Section 31 2200.

B. Prepare subgrade in accordance with Section 31 2200.10 - Grading for Landscape.

C. Place topsoil in accordance with Section 31 2323.10 - Fill for Landscape.

D. Final Grading

01. Stones, Weeds, Debris: Verify that all areas to receive lawns are clear of stones larger than 1-1/2 in. diameter, weeds, debris and other extraneous materials.
02. Grades: Verify that grades are within 1 in. plus or minus of the required finished grades. Verify that soil preparation and fertilization has been installed in another section. Report all variations in writing.
03. Rake areas to set exact line and final finish grade.

E. Rolling: Roll amended soil with 200 pound water-ballast roller.

F. Soil Moisture:

01. Excessive Moisture: Do not commence work of this section when soil moisture content is so great that excessive compaction will occur, nor when it is so dry that dust will form in air or that clods will not break readily.
02. Inadequate Moisture: Apply water, as necessary, to bring soil to an optimum moisture content for planting, immediately prior to laying the sod.

G. Timing: Sod immediately thereafter, provided the sod-bed has remained friable.

H. Install edging as directed on construction plans in straight lines to consistent depth.

3.3 FERTILIZING

A. Apply fertilizer in accordance with manufacturer's instructions.

B. Apply after smooth raking of topsoil and prior to installation of sod.

C. Apply fertilizer no more than 48 hours before laying sod.

D. Mix thoroughly into upper 2 inches of topsoil.

E. Lightly water to aid the dissipation of fertilizer.

3.4 LAYING SOD

A. Moisten prepared surface immediately prior to laying sod.

B. Lay sod within 24 hours after harvesting to prevent deterioration.

C. For sod rolls bound with plastic for transport and handling, remove and dispose of plastic prior to laying.

D. Lay sod smooth and tight with no open joints visible, and no overlapping; stagger end joints 12 inches minimum. Do not stretch or overlap sod pieces.

E. Where new sod adjoins existing grass areas, align top surfaces.

F. Where sod is placed adjacent to hard surfaces, such as curbs, pavements, etc., place top elevation of sod 1/2 inch below top of hard surface.

G. Cut sod to fit curves with a sharp knife.

H. Place top elevation of sod 1/2 inch below adjoining edging.

I. On berms and slopes lay sod with strips parallel to contours.

J. On slopes four inches per foot and steeper, lay sod perpendicular to slope and secure every row with wooden pegs at maximum 1 1/2 feet on center. Drive pegs flush with soil portion of sod.

K. Prior to placing sod, on slopes exceeding 8 inches per foot or where indicated, place wire mesh over topsoil. Securely anchor in place with wood pegs sunk firmly into the ground.

L. Water sodded areas immediately after installation. Saturate sod to 6 inches of soil.

M. After sod and soil have dried, roll sodded areas to ensure good bond between sod and soil and to remove minor depressions and irregularities. Roll sodded areas with roller not exceeding 200 lbs .

N. Immediately after installation of the sod, remove sod clumps and soil, wash off any plant materials and pavements not to have sod. Keep all areas clean during the maintenance period.

3.5 MAINTENANCE

A. See Section 32 0190 - Operation and Maintenance of Planting for post-occupancy maintenance.

3.6 CLEAN-UP

A. General: Keep all areas of work clean, neat and orderly at all times. Keep all paved areas clean during planting operations.

B. Debris: Clean up and remove all deleterious materials and debris from the entire work area prior to Final Acceptance.

END OF SECTION

SECTION 32 9300

PLANTS

PART 1 GENERAL

1.1SECTION INCLUDES

A. Preparation of subsoil.

B. Soil testing.

C. Topsoil bedding.

D. New trees, plants, and ground cover.

E. Mulch and Fertilizer.

F. Maintenance.

G. Tree Pruning.

1.2 RELATED REQUIREMENTS

A. Section 31 2323.10 - Fill for Landscape: Topsoil material.

B. Section 32 0190 - Operation and Maintenance of Planting: Post-occupancy maintenance.

C. Section 32 8423 - Underground Sprinklers

1.3 DEFINITIONS

A. Weeds: Any plant life not specified or scheduled.

B. Plants: Living trees, plants, and ground cover specified in this Section , and described in ANSI Z60.1.

1.4 REFERENCE STANDARDS

A. ANSI A300 Part 1 - Tree Care Industry Association - Pruning and Trimming Operations 2017.

B. ANSI A300 Part 6 - Tree Care Industry Association - Planting and transplanting trees, shrubs, palms, and other woody plants operations. 2012.

C. ANSI/AHIA Z60.1 - American National Standard for Nursery Stock 2014.

1.5 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements, for submittal procedures.

B. Provide the following Material Samples and Literature:

01. Photographic image of each variety and size of plant material shown on the plans and plant list and indicated in the specifications. Each image will include a clearly legible

measuring device, plant common name, plant botanical name, and the supplier's name, location and phone number. Submit representative photographs for review of plant materials in the required sizes and in available quantity at least ninety (90) Working days prior to shipment to the site.

02. Hardwood Mulch: One (1) gallon (sample) with analysis and literature including supplier's name, location and phone number.
03. Soil Amendments: One (1) gallon (sample) with analysis and literature including supplier's name, location and phone number.
04. Tree Staking/Guying: Literature for materials and shop drawings of installation details and procedures.
05. Plant Material Supplier: Ordering Document, Order Confirmation. Submit documentation within thirty (30) days after Award of Contract that plant materials have been located and are ready to be secured. Arrange specific review and/or tagging procedure of plant materials at time of submission.

C. Submittal Schedule: Products in this section which are required for submittal shall be submitted as one package.

1.6 QUALITY ASSURANCE

A. Plant material shall be subject to inspection and approval by Landscape Architect at place of growth or storage and upon delivery for conformity to specifications.

B. Samples: The Owner reserves the right to request samples of materials for conformity to specifications at time, including plants. Contractor shall furnish samples upon request. Rejected materials shall be immediately removed from the site at Contractor's expense. Cost of samples of materials not meeting specifications shall be paid by Contractor.

C. Nursery Qualifications: Company specializing in growing and cultivating the plants with three years documented experience.

D. Installer Qualifications: Company specializing in installing and planting the plants with 5 years experience.

E. Tree Pruner Qualifications: Company specializing in pruning trees with proof of Arborist Certification.

F. Tree Pruning: Conform to ANSI A300 Part 1.

G. Maintenance Services: Performed by installer.

H. Tagging:

01. Nursery review and plant selections: The Landscape Architect may elect to review of the material at the place of growth. Upon review and acceptance of plant material photograph, specific items will be selected for field review by the Landscape Architect. The Landscape Contractor shall arrange the review and accompany the Landscape Architect for reviews and tagging at place of growth, and upon delivery, for conformity to the specifications. Contractor shall insure a sufficient quantity of plants will be available whenever trips are arranged to a nursery for the purposes of tagging material for the project.
02. Plants identified as "specimen" or "selected" shall be approved and tagged at place of growth by Landscape Architect. For distant material, submit photographs with a clearly legible measuring device adjacent to plants for preliminary review. Such review shall not impair the right of review and rejection during progress of the Work.

03. Contractor is responsible for travel related expenses for tagging trips necessary to select and procure material. Owner and Landscape Architect will accompany contractor, but travel expense for these individuals are not included in contractor's scope of Work.
04. Plants inspected at the nursery by the Landscape Architect shall be tagged with serialized self-locking tags. Trees delivered to the site without these tags or with broken tags shall be sufficient reason for rejection.

I. Photographic Acceptance:

01. Photograph Acceptance and Nursery Review: Acceptance of material through photographs does not preclude rejection of unsatisfactory material upon delivery. The Landscape Architect reserves the right to refuse review from photographs or at the grower if, in his judgment suitable material or sufficient quantities are not available.

J. Substitutions:

01. Unavailable Material: If plant material is not available, the Contractor shall bring this to the attention of the Landscape Architect at least 3 days prior to the bid due date. If there is no notice of the lack of availability, it will be assumed that the Contractor has located sources for materials required to complete the Work. If proof is submitted that plant specified is not obtainable, a proposal will be considered for use of the nearest equivalent size or variety with corresponding adjustment of Contract price. Substantiate such proof in writing no later than 15 days after award of contract.
02. Prior to selecting alternate material, the Landscape Architect may, at his discretion, attempt to locate the material. Should the specified plant material be located by the Landscape Architect for the Contractor, the Contractor shall secure the material from the new source at no change to the contract price.
03. Substitutions of plant materials will not be permitted unless authorized in writing by Landscape Architect. If proof is submitted that plant specified is not obtainable, a proposal will be considered for use of the nearest equivalent size or variety with corresponding adjustment of Contract Price. Such proof shall be substantiated and submitted in writing to Landscape Architect no later than 15 days after award of contract. These provisions shall not relieve Contractor of the responsibility of obtaining specified materials in advance if special growing conditions or other arrangements must be made in order to supply specified materials.
04. Prior to selecting alternate material, the Landscape Architect may, at their discretion, attempt to locate the material. Should the specified plant material be located by the Landscape Architect for the Contractor, the Contractor shall secure the material from the new source at no change to the contract price.

1.7 DELIVERY, STORAGE, AND HANDLING

A. Deliver fertilizer in waterproof bags showing weight, chemical analysis, and name of manufacturer.

B. Protect and maintain plant life until planted.

C. Representative samples of varieties of plant material required will be tagged with labeling showing the botanical name, common name, size and grower. Material delivered to the site without this labeling is subject to rejection. Rejected material will be removed for the site and replaced at the Contractor's expense.

D. Storage: Store products with protection from weather or other conditions which would damage or impair the effectiveness of the product. Protect plant containers from sun during summer months with temperatures above 80 degrees F. During hot weather the Contractor shall

transport plant materials subject to heat damage between sunset and sunrise if transported in an open trailer or un-refrigerated box.

E. Loading and Moving: Do not lift or handle plants by tops, stems or trunks. Do not bind or handle plants in a manner that could damage or disfigure the plant material.

01. Protect trunks, stems, branches and root balls during tree tying, wrapping and loading operations.
02. Load balls or containers onto transport vehicle and secure in a manner that protects the structural integrity of the root balls.
03. The Contractor shall be solely responsible for the safe transportation of plants to the site and their condition upon arrival. Trees damaged or dehydrated during transit and/or storage will be rejected.
04. No trees are to be shipped and left in trailers or on trucks for storage. Arrange delivery so that the plant materials are shipped, off loaded, and safely stored or planted allowing the appropriate time from shipment to arrival with no delay. Balled and burlapped trees that are not planted the day of delivery shall be set upright and healed in with mulch until they are installed.
05. The Landscape Architect may inspect this operation and may reject plant material improperly handled.

F. Anti-Desiccant: At Contractor's option, spray evergreen or deciduous plant material in full leaf immediately before transporting with anti-desiccant. Apply an adequate film over trunks, branches, twigs and foliage.

G. This Section shall not be interpreted as relieving the Contractor of the responsibility of providing healthy, viable plants, nor shall it have affect upon the terms of the warranty specified herein.

1.8 FIELD CONDITIONS

A. Do not install plant life when ambient temperatures may drop below 35 degrees F or rise above 100 degrees F without written direction from the Landscape Architect or Owner’s Representative

B. Do not install plant life when wind velocity exceeds 30 mph.

1.9 WARRANTY

A. See Section 01 7800 - Closeout Submittals, for additional warranty requirements.

B. Warranty: Warrant that trees, shrubs, ground covers, and vines planted under this Contract will be healthy and in flourishing condition of active growth one (1) year from date of Final Acceptance. The Contractor shall be responsible for monitoring the condition of the landscape during the warranty period and for reporting problems, in writing, to the Owner’s Representative. Failure to report problems in a timely manner may make the Contractor responsible for the replacement of material damage from improper maintenance.

C. Delays: Delays in completion of planting operations which extend the planting into more than one planting season shall extend the Warranty Period correspondingly. Delays due to water restrictions may extend the warranty period. Requests for changes to the warranty period will be made in writing to the Owner’s Representative.

D. Condition of Plants: Plants shall be free of dead or dying branches and branch tips, with foliage of a normal density, size and color.

E. Replace, without cost to Owner and as soon as weather conditions permit, dead plants and plants not in vigorous, thriving condition, as determined by the Owner or Owner's Representative during and at the end of Warranty Period. Plants shall be free of dead or dying branches and branch tips, and shall bear foliage of a normal density, size and color. Replacements shall meet the specifications of the original plant material, and closely match adjacent specimens of the same variety.

F. Replacement Quantities:

01. A new Warranty shall commence on date of replacement.
02. Contractor shall be held responsible for as many replacements as necessary throughout the Warranty Period. The Contractor may ask for an alternate plant material in problem locations. The alternate plant material will be installed under the original warranty.

G. Contractor shall not be held responsible for failure due to neglect by the Owner, vandalism, or acts of God during Warranty Period. Report such conditions to the Landscape Architect in writing.

PART 2 PRODUCTS

2.1 PLANTS

A. Trees, Plants, Vines and Groundcovers: Species and size identifiable in Plant Schedule in drawings.

01. Unless otherwise noted in the specifications or plant list, plants shall be nursery grown in accordance with good horticultural practices under climatic conditions similar to those of project for at least two years unless specifically otherwise authorized by Landscape Architect in writing. Unless specifically noted otherwise, plants shall be exceptionally heavy, symmetrical, tightly knit, so trained or favored in development and appearance as to be superior in form, number of branches, compactness and symmetry.
02. Plants shall be sound, healthy and vigorous, well branched and densely foliated when in leaf. They shall be free of disease, insect pests, eggs, or larvae, and shall have healthy, well developed root systems. They shall be free from physical damage or adverse conditions that would prevent thriving growth.
03. Container grown native grasses and aquatics (non-woody plants) shall have well-established rootballs. Rootballs of non-woody plants must not be separated, broken up, or otherwise damage prior to or during installation.
04. Plants shall be true to species and variety and shall conform to measurements specified except that plants larger than specified may be used if approved by Landscape Architect. Use of such plants shall not increase Contract price. If larger plants are approved, the ball of earth or container size shall be increased as specified under applicable standards and subject to the approval of the Landscape Architect.
05. Plants shall be measured when branches are in their normal position. Height and spread dimensions specified refer to main body of plant and not branch tip to tip. Trunk caliper measurements shall be taken at a point on the trunk 6 inches above natural ground line for trees 4 inches in caliper and smaller, and at a point 12 inches above the natural ground line for trees larger than 4 inches in caliper. Caliper measurements shall be taken using a diameter tape, not calipers.
06. The measurements specified are the minimum size acceptable and are the measurements after pruning, where pruning is required. Plants that meet the measurements specified, but do not possess a normal balance between height and spread shall be rejected.
07. Container stock, when specified, shall be healthy, vigorous, well rooted, and established in the container in which it is growing. Container grown nursery stock shall have a well-established root system reaching the sides of the container to maintain a firm root ball when the container is removed, but shall not have excessive root growth encircling the

inside of the container. Samples must prove no root-bound conditions exist. Container plants that have cracked or broken balls of earth when taken from container shall be rejected. Container stock shall not be pruned before delivery. Field grown plants recently transplanted into containers will not be accepted. Unless specified as 'containerized', no balled and burlap trees transplanted into containers will be accepted.

08. Trees which have damaged, crooked or multiple leaders, unless specified, will be rejected. Trees with abrasions of the bark, sun scalds, disfiguring knots, or fresh cuts of limbs over 3/4 inch which have not completely calloused, will be rejected.
09. Balled and burlap (B&B) trees, when accepted shall have a minimum root ball size of ten (10x) times the caliper.
10. Nursery grown B&B material shall be pruned and thinned at the place of growth immediately prior to digging as required for packaging and safe moving. Trees that are over-pruned or misshapen due to improper pruning will be rejected. Method of pruning shall be as approved in the field by the Landscape Architect. Do not remove self-locking tags during this pruning prior to delivery to site.
11. Field collected, or plantation grown stock shall conform to the applicable standards.

2.2 SOIL MATERIALS

A. Topsoil: As specified in Section 31 2323.10 - Fill for Landscape

2.3 SOIL AMENDMENT MATERIALS

A. Pre-Plant Fertilizer: Containing fifty percent of the elements derived from organic sources; of proportion necessary to eliminate deficiencies of topsoil, as indicated in analysis.

B. Compost: Completely organic, aerobically composted humus product containing manure, wheat straw, plant matter, hardwood shavings and other organic components consisting of 80 percent vegetative material and 20 percent manure. Completely composted; free of weeds, weed seeds, insects, and pests. pH range 6.5-7.0. Supplied by Living Earth Technology, 972-869-9498 or approved equal.

C. Professional Bedding Soil: Hammer-milled, screened and aerobically composted organic matter containing 45 percent compost (as specified above), 45 percent decomposed pine bark and 10 percent screened sand. Supplied by Living Earth Technology, 972-869-9498 or approved equal.

D. Mixed Soil with Compost: Enriched topsoil comprised of composted organic matter and fine sand. Screened for maximum 1" particle size and blended for a uniform mixture, containing a minimum of 45 percent organic material. Supplied by Living Earth Technology, 972-869-9498 or approved equal.

E. Top-dress Fertilizer: Osmocote 14:14:14

F. Tree and Shrub Planting Fertilizer: Agriform 20-10-5 formula, 21-gram tablet.

G. Water: Clean, fresh, and free of substances or matter that could inhibit vigorous growth of plants.

H. Herbicide: selected by Contractor.

01. For pre-plant preparation, a broad-spectrum non-selective contact herbicide. For post-plant weed control, a granular or liquid-applied pre-emergent herbicide. Chemicals must be approved for use in the State of Texas and be applied by licensed applicators. The Owner and/or Owners' Representative must be notified at least 48 in advance of pesticide

applications. A copy of the applicator's log must be supplied to the Owner's Representative within 48 hours of chemical application.

I. Pesticide: selected by Contractor.

01. Pesticides may be used for specific pest infestations, but only in limited application. Broad-spectrum insecticides applied over large portions of landscape will not be allowed. Chemicals must be approved for use in the State of Texas and be applied by licensed applicators. The Owner and/or Owners' Representative must be notified at least 48 in advance of pesticide applications. A copy of the applicator's log must be supplied to the Owner's Representative within 48 hours of chemical application.

2.4 MULCH MATERIALS

A. Fine-ground shredded hardwood bark mulch – Double-ground, partially composted, and free of growth or germination inhibiting ingredients. pH range 6.0-7.0. Supplied by Living Earth Technology, 972-869-4332 or approved equal.

2.5 ACCESSORIES

A. Plant Staking Materials: Contractor shall use staking materials as necessary to meet the requirements of the specification, subject to approval. Refer to details for staking and/or guying requirements.

01. Tree Stakes: 1.25# studded metal T-Posts - 6 feet long.
02. Wire: High-tensile 12 gauge; 200,000 psi; Class III zinc coating. Refer to details.
03. Cable: 3/16 inch galvanized or stainless-steel aircraft cable; 7 x 19; min. 4,200 psi break strength; secured with drop-forged galvanized clips
04. Turnbuckles: Minimum 1/2x6 inch, hot-dipped galvanized or stainless steel, eye and eye.
05. Ground Anchors: 30 x 4 inch dia. galvanized ground screw for 3-4 inch caliper trees, 48 x 6 inch dia. for trees 5-6 inch caliper.

B. Plant Protectors: Reinforced black rubber hose sleeves over cable to protect plant stems, trunks, and branches. Tubing or thin-wall hose will not be accepted.

C. Removal: At the Contractor's expense, remove plant staking materials at the end of the Warranty Period.

D. Inspection Tubes: Shall be perforated 4 inch diameter SDR-35 PVC drainage pipe with a 4 inch flat, black, drain grate. Prime and paint above ground portion flat black. Below-grade pipe is to be wrapped with filter fabric or drain fabric sock.

E. Filter Fabric: Mirafi 135N as manufactured by Mirafi Construction Products, Pendergrass, GA or equal.

F. Steel Edging: 3/16 x 6 inch electrostatically applied, powder-coat painted steel as manufactured by the J.D. Russell Co., 1-800-888-6872 or equal.

G. Drainage Gravel: 5/8 to 1 inch, smooth, washed gravel

PART 3 EXECUTION

3.1 EXAMINATION

A. Verify that prepared subsoil and planters are ready to receive work.

B. Saturate soil with water to test drainage.

C. Verify that required underground utilities are available, in proper location, and ready for use.

D. Finish Grades: Verify that grades are within one (1 inches) inch, plus or minus, of required finish grade and that topsoil has been installed if applicable.

E. Notification: Submit written notification of conditions inconsistent with specifications for site grading as described in Section 31 2200.10 - Grading for Landscape.

3.2 PREPARATION OF SUBSOIL

A. Prepare subsoil to eliminate uneven areas. Maintain profiles and contours. Make changes in grade gradual. Blend slopes into level areas.

B. Remove foreign materials, weeds and undesirable plants and their roots. Remove contaminated subsoil.

C. Scarify subsoil to a depth of 3 inches where plants are to be placed. Repeat cultivation in areas where equipment, used for hauling and spreading topsoil, has compacted subsoil.

D. Dig pits and beds 6 inches larger than plant root system.

3.3 PLACING TOPSOIL

A. Spread topsoil to a minimum depth of 3 inches over area to be planted. Rake smooth.

B. Place topsoil during dry weather and on dry unfrozen subgrade.

C. Remove vegetable matter and foreign non-organic material from topsoil while spreading.

D. Grade topsoil to eliminate rough, low or soft areas, and to ensure positive drainage.

E. Install topsoil into pits and beds intended for plant root balls, to a minimum thickness of 12 inches.

3.4 PERCOLATION TEST

A. In soil that is not excessively dry or wet, dig hole 18-24 inches deep and a minimum of 4 inches wide. Diameter of hole should be uniform from top to bottom, with the bottom being flat.

B. Fill hole with water to the top and let stand for one hour.

C. Refill hole within 1-2 inches of the top.

D. Place a stick across the top of the hole and use measuring device to mark periodic drops in the water level.

E. Notify Landscape Architect in writing if percolation is less than 1 inch per hour.

3.5 TREE PIT PREPARATION

A. Excavation: Excavate planting pits and beds to the dimensions as shown on Detail Drawings, not less than two times the width of the rootball and slightly less than the depth of the rootball. Do not place trees on un-compacted backfill. If tree pits are excavated too deeply, add

soil excavated from the tree pit and compact so that the top of root ball will be at 1-2 inches above finished grade after settling.

B. Scarify the walls and bottom of plant pits immediately prior to the placement of plant and backfill mix. The Contractor shall remove glazing caused by an auger or other mechanical excavation equipment.

C. Tree Backfill Mix: Use native soil excavated from the tree pit. If the pit is excavated in rock, do not backfill with excavated material. Instead, use backfill with topsoil from on-site stockpile or import soil of a type similar to the existing site soil. Excess material is to be used for fine grading or lawfully disposed of at an off-site location depending on-site grade conditions.

D. Ornamental Tree Pit Backfill: Mix soil excavated from the pits mixed with Professional Bedding Soil in a 5:1 ratio. If the pit is excavated rock, do not use excavated material as backfill. Instead, use topsoil from on-site stockpile or import soil of a type similar to the existing site soil. Mix in the same 5:1 ratio with Professional Bedding Soil. Excess tree pit spoil material is to be used for fine grading, if needed depending on-site grade conditions, or lawfully disposed of at an off-site location at the Contractor's expense.

3.6 BED PREPARATION

A. Smooth planted areas to conform to specified grades after full settlement has occurred. Contractor shall bear final responsibility for proper surface drainage of planted areas. discrepancy in the drawings or specifications, obstructions on the site, or prior Work done by another party which Contractor feels precludes establishing proper drainage, shall be brought to the attention of the Landscape Architect in writing prior to Work being started.

B. Till subsoil to a depth of 6 inches where plants are to be placed. In areas where equipment or vehicular traffic has compacted subsoil, rip or scarify the sub-grade to a depth of 12 inches prior to tilling.

C. Amend soil as recommended in testing results as specified under Section 31 2200.10 - Grading for Landscape.

3.7 FERTILIZING

A. Apply fertilizer in accordance with manufacturer's instructions.

B. Apply after initial raking of topsoil.

C. Mix thoroughly into upper 2 inches of topsoil.

D. Lightly water to aid the dissipation of fertilizer.

3.8 TREE AND SPECIMEN SHRUB PLANTING

A. Install PVC inspection pipe (if applicable) vertically at edge of tree pit as shown in the details.

B. Container stock shall be removed carefully without pulling on the trunk or stem. If required, cut can on two sides with approved cutter. Do not use spade to cut cans. Do not lift or handle container plants by trunk. Prune away girdled roots and gently loosen root masses.

C. For boxed material, break vertical bands and remove top and bottom of container. Carefully lower plant into pit, by approved method, and adjust elevation. Cut horizontal bands and remove sides. Prune away girdled roots and gently loosen root masses.

D. Place B&B plants carefully in the prepared planting pit and adjust elevation. Backfill tree pit approximately 50 percent. Tamp soil and set tree plumb. Remove top 1/3 of the basket and burlap. Add and tamp the remainder of the backfill. Do not bind or handle plant with wire or rope at time to damage bark or break branches. Lift and handle plants only from bottom of ball. Improperly handled plant material is subject to rejection.

E. Place bare root plant materials so roots lie in a natural position. Backfill with soil mixture in 6-inch lifts. Maintain plant in vertical position.

F. Set plants plumb and orient for best appearance for review and final orientation by Landscape Architect, if requested.

G. Carefully fill pits and compact by watering and tamping each 8 inches of backfill to support root ball.

H. Fertilizer Tablets: Place evenly distributed in plant pits when backfilled 2/3 per the following schedule:

01. 15-gallon container - 3 tablets
02. 30-gallon container - 4 tablets
03. 65-gallon / 24 inch box - 6 tablets
04. 100-gallon / 36 inch box - 8 tablets
05. 200-gallon / 48 inch box - 10 tablets
06. 300-gallon / 60 inch box or 6 inch caliper - 12 tablets
07. For larger material, place 1 tablet per 1/2 inch inch caliper or 1 foot of height, whichever is less.

I. Adjustment: Adjust trees so that, after full settlement has occurred, the natural grade at the base of the trees is 1-2 inches above the adjacent finish grade and bottom of root flare is level with finish grade.

J. Smooth surrounding areas to conform to specified grades after full settlement has occurred. Contractor shall bear final responsibility for proper surface drainage of planted areas. Discrepancy in the drawings or specifications, obstructions on the site, or prior Work done by another party the Contractor feels precludes establishing proper drainage shall be brought to the attention of the Landscape Architect in writing.

K. Watering Basin: Form circular ring of earth to create a 3 inch high berm with tree or specimen shrub in the center. The inside diameter of the basin shall be equal to the diameter of the rootball.

L. Water trees immediately again after planting.

M. Apply pre-emergent weed control material in areas to receive mulch.

N. Spread mulch in watering basins to the depth of 3 inches.

O. Remove flagging, tags, plastic ties, wire, string, cord or other material that may damage the bark. DO NOT remove Landscape Architect’s lock-rings or plant identification tags until instructed by the Landscape Architect.

3.9 SHRUB AND GROUNDCOVER PLANTING

A. Amend soil as specified in Soils Test Report.

B. Tilling: Immediately prior to planting, re-till bed areas to be planted with groundcovers, perennials or seasonal color.

C. Planting: Set plant material so that the top of the rootball is slightly above the surrounding grade. Avoid air pockets. Equally space as directed by the details or plant list. Refer to details for plant mass or bed edge planting.

D. Fertilizer: Apply topdressing fertilizer to groundcovers, perennial and seasonal color beds. Backfill shrub pits 1/2 and add fertilizer tablets per the tablet below. Complete backfilling.

01. 3 or 5-gallon can - 1 tablet
02. 7 gallon can - 2 tablets
03. 15 gallon can - 3 tablets

E. Smooth surrounding areas to conform to specified grades after full settlement has occurred. Contractor shall bear final responsibility for proper surface drainage of planted areas. discrepancy in the drawings or specifications, obstructions on the site, or prior Work done by another party which Contractor feels precludes establishing proper drainage, shall be brought to the attention of the Landscape Architect in writing.

F. Water plant material immediately again after planting.

G. Apply pre-emergent weed control material in areas to receive mulch.

H. Spread mulch in bed areas to the depth of 2 inches. Keep mulch away from plant stems.

3.10 PLANTING

A. Place plants for best appearance.

B. Set plants vertical.

C. Remove non-biodegradable root containers.

D. Set plants in pits or beds, partly filled with prepared plant mix, at a minimum depth of 6 inches under each plant. Remove burlap, ropes, and wires, from the root ball.

E. Place bare root plant materials so roots lie in a natural position. Backfill soil mixture in 6 inch layers. Maintain plant life in vertical position.

F. Saturate soil with water when the pit or bed is half full of topsoil and again when full.

3.11 PLANT SUPPORT

A. Brace plants vertically with plant protector wrapped guy wires and stakes to the following:

01. Tree Caliper: 1 inch; Tree Support Method: 1 stake with one tie
02. Tree Caliper: 1 to 2 inches; Tree Support Method: 2 stakes with two ties
03. Tree Caliper: 2 to 4 inches; Tree Support Method: 3 guy wires with eye bolts and turn buckles
04. Tree Caliper: Over 4 inches; Tree Support Method: 4 guy wires with eye bolts and turn buckles

3.12 TREE PRUNING

A. Prune trees as recommended in ANSI A300 Part 1.

B. Prune newly planted trees as required to remove dead, broken, and split branches.

3.13 FIELD QUALITY CONTROL

A. Perform field inspection and testing in accordance with Section 01 4000.

3.14 MAINTENANCE

A. See Section 32 0190 - Operation and Maintenance of Planting for post-occupancy maintenance.

END OF SECTION