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SERVICES >> ENGINEERS

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TEXAS REGISTERED ENGINEERING FIRM F-181

Contract Documents
and
Technical Specifications

PR South, Inc.

**Parmer Ranch, Phases 2, 3, & 4
Drainage, Paving, Wastewater
and Water System Improvements**

A Northwest Williamson County Municipal Utility District No. 2 Project
Williamson County, Texas

Owner/Developer:
PR South, Inc.
6706 W Courtyard
Austin, Texas 78730

Engineer:
Steger Bizzell
1978 South Austin Avenue
Georgetown, TX 78626

June 2, 2021

Project No. 22223

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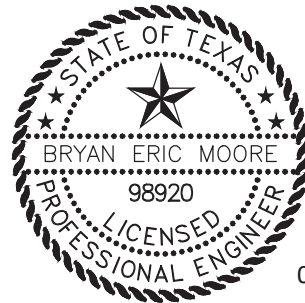
Contract Documents
and
Specifications

Parmer Ranch, Phases 2, 3, & 4
Drainage, Paving, Wastewater
and Water System Improvements

Northwest Williamson County Municipal Utility District No. 2
A Parmer Ranch Partners, L.P. Improvements Project
Williamson County, Texas

Owner/Developer
PR South, Inc.
6706 W Courtyard
Austin, Texas 78730

Engineer
Steger Bizzell
1978 South Austin Avenue
Georgetown, TX 78626



06/07/2021

Steger Bizzell Project No. 22223

Texas Registered Engineering Firm No. F-181

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CONTRACT DOCUMENTS
and
SPECIFICATIONS

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Technical Specifications:

City of Georgetown:
Construction Specifications and Standards Manual – June 21, 2006
<https://files.georgetown.org/construction-specifications-drainage-criteria/>

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INVITATION TO BID

Sealed bids will be received by the **PR South, Inc.** on behalf of **Northwest Williamson County Municipal Utility District No. 2** at the offices of **Steger Bizzell, 1978 South Austin Avenue, Georgetown, TX 78626, on Wednesday June 23, 2021 at 3:00 p.m.** and immediately thereafter publicly opened and read, for constructing the following project:

Parmer Ranch, Phases 2, 3, & 4
Drainage, Paving, Wastewater
and Water System Improvements
City of Georgetown
Williamson County, Texas

The project consists of furnishing, installing, and providing all labor and materials associated with the drainage, paving, wastewater and water systems infrastructure improvement associated with the Phases 2, 3, & 4 of the Parmer Ranch Subdivision as more fully described in the Drawings and contract documents.

Bids must be submitted on the complete project. Bids must be enclosed in a sealed envelope, addressed to **PR South, Inc. – Northwest Williamson County Municipal Utility District No. 2** **ATTN: Project Engineer, Steger Bizzell, 1978 South Austin Avenue, Georgetown, Texas 78626** and the outside of the envelope must be marked Parmer Ranch, Phases 2, 3, & 4, Drainage, Paving, Wastewater and Water System Improvements. All bids must be made on blank forms provided and included in the bound document. The name, address, and license number of the Bidder must be plainly marked thereon.

Bidding Documents will only be made available electronically. To obtain access to the files for no charge, please contact Steger Bizzell – bids@stegerbizzell.com, 1978 S. Austin Ave, Georgetown, TX 78626, (512) 930-9412. Bids not accompanied by cashier's check or bid bond will not be considered.

Each bid must be accompanied by cash or a certified cashier's check, drawn on a bank or trust company authorized to do business in the State of Texas, payable to **PR South, Inc.** in an amount at least equal to five percent (5%) of the total amount of the bid, as a guarantee that a contract will be entered into within ten (10) days of the award of the contract. In lieu of cash or a certified check, the Bidder may submit a bid bond in the form prescribed in the Instructions to Bidders.

Performance and Payment Bonds, when required, shall be executed on forms furnished by OWNER. Each bond shall be issued in an amount of one hundred percent (100%) of the Contract

Amount by a solvent surety or insurance company licensed to do business in the State of Texas and as specifically prescribed in the General Conditions and Supplemental Conditions.

Minimum insurance requirements are specified in the General Conditions and Supplemental Conditions. The successful Bidder and its subcontractors shall pay to laborers, workmen, and mechanics the prevailing wage rates as required by the Supplemental Conditions.

The right is reserved to reject any or all bids, to waive minor technicalities, and to award a contract or contracts which, in the opinion of the Owner, appear to be in its best interest. A minor technicality is one that does not affect the competitiveness of the Bid. The Owner reserves the right to hold any or all proposals for the period of time from the opening of bids as specified in Section 00300, Bid Form.

A **non-mandatory pre-bid video/teleconference** for this project will be held on Tuesday June 15, 2021, at 10:00 a.m. local time (CST) hosted by Steger Bizzell. The project site will be available for inspection by prospective bidders immediately following the pre-bid conference.

To obtain information on the bid, pre-bid conference and to register for the bid list, email bids@stegerbizzell.com.

Publication Dates:

Williamson County Sun:

Sunday, June 6, 2021

Wednesday, June 9, 2021

Sunday, June 13, 2021

GENERAL INFORMATION TO BIDDERS

A – PROJECT LOCATION

These improvements for the Northwest Williamson County Municipal Utility District No. 2 are being constructed within the City of Georgetown located in Williamson County, Texas. The project is generally located to the east of Parmer Ranch Boulevard, to the south of Ronald Reagan Boulevard, and to the North of F.M. 2338.

B – SCOPE OF WORK.

The project consists of furnishing, installing, and providing all labor and materials associated with the drainage, paving, wastewater and water systems infrastructure improvement associated with the Phases 2, 3, & 4 of the Parmer Ranch Subdivision to serve Northwest Williamson County Municipal Utility District No. 2 being constructed within the City of Georgetown in accordance with the approved construction plans and specifications for the City of Georgetown and Northwest Williamson County Municipal Utility District No. 2. (the District).

C – PAYMENTS TO CONTRACTOR

Contractor shall submit pay estimates to the Engineer on the 30th day of the month. Estimates submitted to the Engineer and received by Owner by the 5th day of the following month will be paid by the 28th day of the month less 10% retainage. Partial Lien Releases must accompany each pay estimate. A final pay estimate and a Full Lien Release must be submitted to the Engineer and Owner prior to final payment release of retainage. Retainage will be paid 30 days after the contractor receives final acceptance letters from the City of Georgetown, the District, and the Owner. The Owner will only pay for work completed and installed and will not fund materials or other inventory stored on site.

D – TESTING LABORATORIES

The testing laboratory shall be selected and paid for once by the Owner. The contractor shall be responsible for all laboratory re-testing required for original test failure.

E. ADDITIONAL ITEMS

The contract documents contain the provisions required for the construction of the project. Information obtained from an officer, agent, or employee of the owner or any other person shall not affect the risks or obligations assumed by the contractor or relieve him from fulfilling any of the conditions of the contract. There is a liquidated damage provision in the contract. Additionally, standard proof of insurance, release provisions, and approved pay estimate schedule are part of the contract.

This contract has both unit prices and lump sum bid items and is a complete bid for all items included in bid documents. Bidder must verify all quantities necessary to complete all improvements listed and contained in the approved construction plans and specifications and will provide a turnkey finished product. There will be no change orders for quantity estimates to complete the project unless the Owner, Engineer, the City or the District makes changes to the approved construction plans.

All unit costs are for items installed complete and in place.

Bidders must satisfy themselves of the accuracy of the estimated quantities in the BID Schedule by examination of the site and a review of the drawings and specifications including any addenda. After bids have been submitted, the bidder shall not assert that there was a misunderstanding concerning the quantities of work or of the nature of the work to be done.

Each bidder is responsible for inspecting the site and for reading and being thoroughly familiar with the contract documents. The failure or omission of any bidder to do any of the foregoing shall in no way relieve any bidder from any obligation in respect to his bid.

Any area that is disturbed must be re-established with a minimum of 6" of topsoil and shall be re-vegetated. The topsoil must be free of any rocks or debris. Retainage shall be held until proper vegetation is established to the satisfaction of the City, Owner, and/or District.

The ENGINEER is Steger Bizzell, 1978 S. Austin Avenue, Georgetown, Texas 78626.

SECTION #00100

INSTRUCTIONS TO BIDDERS

ARTICLE 1: DEFINED TERMS

- 1.01 Terms used in these Instructions to Bidders will have the meanings indicated in the General Conditions and Supplementary Conditions. Additional terms used in these Instructions to Bidders have the meanings indicated below which are applicable to both the singular and plural thereof:
- A. *Bidder*--The individual or entity who submits a Bid directly to OWNER or OWNER's representative.
 - B. *Issuing Office*--The office from which the Bidding Documents are to be issued.
 - C. *Successful Bidder*--The Bidder submitting a responsive Bid to whom OWNER (on the basis of OWNER's evaluation as hereinafter provided) makes an award.

ARTICLE 2: COPIES OF BIDDING DOCUMENTS

- 2.01 Complete sets of the Bidding Documents in the number and for the non-refundable deposit sum, if any, stated in the Advertisement or Invitation to Bid may be obtained from the Issuing Office.
- 2.02 Complete sets of Bidding Documents must be used in preparing Bids; neither OWNER nor ENGINEER assumes any responsibility for errors or misinterpretations resulting from the use of incomplete sets of Bidding Documents.
- 2.03 OWNER and ENGINEER in making copies of Bidding Documents available on the above terms do so only for the purpose of obtaining Bids for the Work and do not confer a license or grant for any other use.

ARTICLE 3: QUALIFICATIONS OF BIDDERS

3.01 To demonstrate Bidder's qualifications to perform the Work, Bidder shall submit written evidence such as financial data, previous experience, present commitments, and such other data as may be called for below.

A. **Section 00400 Statement of Bidder's Experience, including Attachments.**

ARTICLE 4: EXAMINATION OF BIDDING DOCUMENTS, OTHER RELATED DATA, AND SITE

4.01 *Subsurface and Physical Conditions*

A. The Supplementary Conditions identify:

1. Those reports of explorations and tests of subsurface conditions at or contiguous to the Site that Engineer has used in preparing the Bidding Documents.
2. Those drawings of physical conditions in or relating to existing surface and subsurface structures at or contiguous to the Site (except Underground Facilities) that ENGINEER has used in preparing the Bidding Documents.

B. Copies of reports and drawings referenced in paragraph 4.01.A will be made available by ENGINEER to any Bidder on request. Those reports and drawings are not part of the Contract Documents, but the "technical data" contained therein upon which Bidder is entitled to rely as provided in paragraph 4.02 of the General Conditions and established in paragraph 4.02 of the Supplementary Conditions. Bidder is responsible for any interpretation or conclusion Bidder draws from any "technical data" or any other data, interpretations, opinions or information contained in such reports or shown or indicated in such drawings.

4.02 *Underground Facilities*

A. Information and data shown or indicated in the Bidding Documents with respect to existing Underground Facilities at or contiguous to the Site is based upon information and data furnished to OWNER and ENGINEER by owners of such Underground Facilities.

- 4.03 Provisions concerning responsibilities for the adequacy of data furnished to prospective Bidders with respect to subsurface conditions, other physical conditions and Underground Facilities, and possible changes in the Bidding Documents due to differing or unanticipated conditions appear in paragraphs 4.02, 4.03, and 4.04 of the General Conditions. Provisions concerning responsibilities for the adequacy of data furnished to prospective Bidders with respect to a Hazardous Environmental Condition at the Site, if any, and possible changes in the Contract Documents due to any Hazardous Environmental Condition uncovered or revealed at the Site which was not shown or indicated in the Drawings or Specifications or identified in the Contract Documents to be within the scope of the Work appear in paragraph 4.06 of the General Conditions.
- 4.04 On request, OWNER will provide Bidder access to the Site to conduct such examinations, investigations, explorations, tests, and studies as Bidder deems necessary for submission of a Bid. Bidder shall fill all holes and clean up and restore the Site to its former condition upon completion of such explorations, investigations, tests, and studies.
- 4.05 In submitting this Bid, the Bidder represents that:
- A. Bidder has examined and carefully studied the Bidding Documents, including any Addenda and the other related data identified in the Bidding Documents;
 - B. Bidder has visited the Site and become familiar with and is satisfied as to the general, local, and Site conditions that may affect cost, progress, and performance of the Work;
 - C. Bidder is familiar with and is satisfied as to all federal, state, and local laws and regulations that may affect cost, progress, or performance of the Work;
 - D. Bidder has carefully studied (1) all reports of explorations and tests of subsurface conditions at or contiguous to the Site and all drawings of physical conditions in or relating to existing surface or subsurface structures at or contiguous to the Site (except Underground Facilities) which have been identified in the Supplementary Conditions as provided in paragraph 4.02 of the General Conditions;
 - E. Bidder has obtained and carefully studied (or accepts the consequences and responsibility for not doing so) all additional or supplementary examinations, investigations, explorations, tests, studies, and data concerning conditions (surface, subsurface, and Underground Facilities) at or contiguous to the Site which may affect cost, progress, or performance of the Work or which relate to any aspect of the means, methods, techniques, sequences, and procedures of construction to be employed by Bidder, including any specific means, methods, techniques, sequences, and procedures of construction expressly required by the Bidding Documents to be employed by Bidder, and safety precautions and programs incident thereto;

- F. Bidder does not consider that any further examinations, investigations, explorations, tests, studies, or data are necessary for the determination of its Bid for performance of the Work at the price(s) bid and within the times and in accordance with the other terms and conditions of the Bidding Documents;
 - G. Bidder is aware of the general nature of the work to be performed by OWNER and others at the Site that relates to the Work as indicated in the Bidding Documents;
 - H. Bidder has correlated the information known to Bidder, information and observations obtained from visits to the Site, reports and drawings identified in the Bidding Documents, and all additional examinations, investigations, explorations, tests, studies, and data with the Bidding Documents;
 - I. Bidder has promptly given ENGINEER written notice of all conflicts, errors, ambiguities, or discrepancies that Bidder discovers in the Bidding Documents and confirmed that the written resolution thereof by ENGINEER is acceptable to Bidder; and
 - J. The Bidding Documents are generally sufficient to indicate and convey understanding of all terms and conditions for the performance of the Work for which this Bid is submitted.
- 4.06 The submission of a Bid will constitute an incontrovertible representation by Bidder that Bidder has complied with every requirement of this Article 4, that without exception the Bid is premised upon performing and furnishing the Work required by the Bidding Documents and applying any specific means, methods, techniques, sequences, and procedures of construction that may be shown or indicated or expressly required by the Bidding Documents, that Bidder has given ENGINEER written notice of all conflicts, errors, ambiguities, and discrepancies that Bidder has discovered in the Bidding Documents and the written resolutions thereof by ENGINEER are acceptable to Bidder, and that the Bidding Documents are generally sufficient to indicate and convey understanding of all terms and conditions for performing and furnishing the Work.

ARTICLE 5: PRE-BID CONFERENCE

- 5.01 A non-mandatory pre-Bid video/teleconference will be held at 10:00 a.m. on Tuesday June 15, 2021 hosted by the Engineer, Steger Bizzell. Representatives of OWNER and ENGINEER will be present to discuss the Project. Bidders are encouraged to attend and participate in the conference. ENGINEER will transmit to all prospective Bidders of record such Addenda as ENGINEER considers necessary in response to questions arising

at the conference. Oral statements may not be relied upon and will not be binding or legally effective.

ARTICLE 6: SITE AND OTHER AREAS

6.01 The Site is identified in the Bidding Documents. All additional lands and access thereto required for temporary construction facilities, construction equipment, or storage of materials and equipment to be incorporated in the Work are to be obtained and paid for by CONTRACTOR. Easements for permanent structures or permanent changes in existing facilities are to be obtained and paid for by OWNER unless otherwise provided in the Bidding Documents.

ARTICLE 7: INTERPRETATIONS AND ADDENDA

7.01 All questions about the meaning or intent of the Bidding Documents are to be submitted to ENGINEER in writing. Interpretations or clarifications considered necessary by ENGINEER in response to such questions will be issued by Addenda mailed or delivered to all parties recorded by ENGINEER as having received the Bidding Documents. Questions received less than five (5) days prior to the date for opening of Bids may not be answered. Only questions answered by Addenda will be binding. Oral and other interpretations or clarifications will be without legal effect.

7.02 Addenda may be issued to clarify, correct, or change the Bidding Documents as deemed advisable by OWNER or ENGINEER.

ARTICLE 8: BID SECURITY

8.01 A Bid must be accompanied by Bid security made payable to OWNER in an amount of five percent (5%) of Bidder's maximum Bid price and in the form of a certified or bank check or a Bid Bond [on the form attached] issued by a surety meeting the requirements of paragraphs 5.01 and 5.02 of the General Conditions.

8.02 The Bid security of the Successful Bidder will be retained until such Bidder has executed the Contract Documents, furnished the required contract security and met the other conditions of the Notice of Award, whereupon the Bid security will be returned. If the Successful Bidder fails to execute and deliver the Contract Documents and furnish the required contract security within 15 days after the Notice of Award, OWNER may annul the Notice of Award and the Bid security of that Bidder will be forfeited. The Bid security of other Bidders whom OWNER believes to have a reasonable chance of receiving the award may be retained by OWNER until the earlier of seven days after the Effective Date

of the Agreement or 121 days after the Bid opening, whereupon Bid security furnished by such Bidders will be returned.

- 8.03 Bid security of other Bidders whom OWNER believes do not have a reasonable chance of receiving the award will be returned within seven days after the Bid opening.

ARTICLE 9: CONTRACT TIMES

- 9.01 The number of days within which, or the dates by which, the Work is to be (a) Substantially Completed and (b) also completed and ready for final payment are set forth in Section 500, Standard Form of Agreement.

ARTICLE 10: LIQUIDATED DAMAGES

- 10.01 Provisions for liquidated damages are set forth in Section 500, Standard Form of Agreement, Article 4.03.

ARTICLE 11: SUBSTITUTE AND "OR-EQUAL" ITEMS

- 11.01 The Contract, if awarded, will be on the basis of materials and equipment specified or described in the Bidding Documents without consideration of possible substitute or "or-equal" items. Whenever it is specified or described in the Bidding Documents that a substitute or "or-equal" item of material or equipment may be furnished or used by CONTRACTOR if acceptable to ENGINEER, application for such acceptance will not be considered by ENGINEER until after the Effective Date of the Agreement. The procedure for submission of any such application by CONTRACTOR and consideration by ENGINEER is set forth in the General Conditions and may be supplemented in the General Requirements.

ARTICLE 12: SUBCONTRACTORS, SUPPLIERS, AND OTHERS

- 12.01 Bidder shall identify the major Subcontractors Bidder proposes for this Project in Section 00400 Statement of Bidder's Experience. Such list shall be accompanied by an experience statement with pertinent information regarding similar projects and other evidence of qualification for each such Subcontractor, Supplier, individual, or entity as provided on Attachment E of Statement of Bidder's Experience. If OWNER or ENGINEER, after due investigation, has reasonable objection to any proposed Subcontractor, Supplier, individual, or entity, OWNER may, before the Notice of Award is given, request apparent

Successful Bidder to submit a substitute, in which case apparent Successful Bidder shall submit an acceptable substitute.

- 12.02 If apparent Successful Bidder declines to make any such substitution, OWNER may award the Contract to another Bidder that proposes to use acceptable Subcontractors, Suppliers, individuals, or entities. Declining to make requested substitutions will not constitute grounds for forfeiture of the Bid security of any Bidder. Any Subcontractor, Supplier, individual, or entity so listed and against which OWNER or ENGINEER makes no written objection prior to the giving of the Notice of Award will be deemed acceptable to OWNER and ENGINEER subject to revocation of such acceptance after the Effective Date of the Agreement as provided in paragraph 6.06 of the General Conditions.
- 12.03 CONTRACTOR shall not be required to employ any Subcontractor, Supplier, individual, or entity against whom CONTRACTOR has reasonable objection.

ARTICLE 13: PREPARATION OF BID

- 13.01 The Bid form is included with the Bidding Documents. Additional copies may be obtained from ENGINEER.
- 13.02 All blanks on the Bid form shall be completed by printing in ink or by typewriter and the Bid signed. A Bid price shall be indicated for each [section, Bid item, alternative, adjustment unit price item, and unit price item] listed therein, or the words "No Bid," "No Change," or "Not Applicable" entered.
- 13.03 A Bid by a corporation shall be executed in the corporate name by the president or a vice-president or other corporate officer accompanied by evidence of authority to sign. The corporate seal shall be affixed and attested by the secretary or an assistant secretary. The corporate address and state of incorporation shall be shown below the signature.
- 13.04 A Bid by a partnership shall be executed in the partnership name and signed by a partner (whose title must appear under the signature), accompanied by evidence of authority to sign. The official address of the partnership shall be shown below the signature.
- 13.05 A Bid by a limited liability company shall be executed in the name of the firm by a member and accompanied by evidence of authority to sign. The state of formation of the firm and the official address of the firm must be shown below the signature.
- 13.06 A Bid by an individual shall show the Bidder's name and official address.
- 13.07 A Bid by a joint venture shall be executed by each joint venturer in the manner indicated on the Bid form. The official address of the joint venture must be shown below the signature.

- 13.08 All names shall be typed or printed in ink below the signatures.
- 13.09 The Bid shall contain an acknowledgment of receipt of all Addenda, the numbers of which shall be filled in on the Bid form.
- 13.10 The address, telephone number, and email address for communications regarding the Bid shall be shown.
- 13.11 The Bid shall contain evidence of Bidder's authority and qualification to do business in Texas or covenant to obtain such qualification prior to award of the Contract. Bidder's Texas state contractor license number for, if any, shall also be shown on the Bid form.

ARTICLE 14: BASIS OF BID; EVALUATION OF BIDS

14.01 Unit Price

- A. Bidders shall submit a Bid on a unit price basis for each item of Work listed in the Bid schedule.
- B. The total of all estimated prices will be determined as the sum of the products of the estimated quantity of each item and the unit price Bid for the item. The final quantities and Contract Price will be determined in accordance with paragraph 11.03 of the General Conditions.
- C. Discrepancies between the multiplication of units of Work and unit prices 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. Discrepancies between words and figures will be resolved in favor of the words.
- 14.02 The Bid price shall include such amounts as the Bidder deems proper for overhead and profit on account of cash allowances, if any, named in the Contract Documents as provided in paragraph 11.03 of the General Conditions.
- 14.03 Any excess material as the result of an unbalanced project will be hauled by the contractor to a stockpile designated by the Owner's project manager within a half mile radius of the project site, at no extra cost to the Owner. Any import material to be hauled in as a result of an unbalanced project will be loaded, hauled and placed by the contractor from a suitable material stockpile (if available) within a half mile radius of the project site, at no extra cost to the Owner.

ARTICLE 15: SUBMITTAL OF BID

15.01 Each prospective Bidder is furnished one separate unbound copy each of the Bid form, and, if required, the Bid Bond form. The unbound copy of the Bid form shall be completed and **one original and one copy** shall be submitted with the Bid security and the following data:

A. **Section 00400 Statement of Bidder's Experience, including Attachments.**

15.02 A Bid shall be submitted no later than the date and time prescribed and at the place indicated in the advertisement or Invitation to Bid and shall be enclosed in an opaque sealed envelope plainly marked with the Project title (and, if applicable, the designated portion of the Project for which the Bid is submitted), the Bid Number, the name and address of Bidder, and shall be accompanied by the Bid security and other required documents. If a Bid is sent by mail or other delivery system, the sealed envelope containing the Bid shall be enclosed in a separate envelope plainly marked on the outside with the notation "BID ENCLOSED." A mailed or hand delivered Bid shall be addressed to:

Steger Bizzell
ATTN: Bryan Moore
1978 South Austin Avenue
Georgetown, TX 78626

ARTICLE 16: MODIFICATION AND WITHDRAWAL OF BID

16.01 A Bid may be modified or withdrawn by an appropriate document duly executed in the manner that a Bid must be executed and delivered to the place where Bids are to be submitted prior to the date and time for the opening of Bids.

16.02 If within 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, that Bidder may withdraw its Bid, and the Bid security will be returned. Thereafter, if the Work is rebid, that Bidder will be disqualified from further bidding on the Work and will surrender the bid bond.

ARTICLE 17: OPENING OF BIDS

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

ARTICLE 18: BIDS TO REMAIN SUBJECT TO ACCEPTANCE

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

ARTICLE 19: AWARD OF CONTRACT

- 19.01 OWNER reserves the right to reject any or all Bids, including without limitation, nonconforming, nonresponsive, unbalanced, or conditional Bids. OWNER further reserves the right to reject the Bid of any Bidder whom it finds, after reasonable inquiry and evaluation, to be non-responsible. OWNER may reject the Bid of any Bidder if OWNER believes that it would not be in the best interest of the Project to make an award to that Bidder. OWNER reserves the right to waive minor technicalities and make an award to best serve the interest of the OWNER.
- 19.02 More than one Bid for the same Work from an individual or entity under the same or different names will not be considered. Reasonable grounds for believing that any Bidder has an interest in more than one Bid for the Work may be cause for disqualification of that Bidder and the rejection of all Bids in which that Bidder has an interest.
- 19.03 In evaluating Bids, OWNER will consider whether or not the Bids comply with the prescribed requirements, and such alternates, unit prices and other data, as may be requested in the Bid Form or prior to the Notice of Award.
- 19.04 In evaluating Bidders, OWNER will consider the qualifications of Bidders and may consider the qualifications and experience of Subcontractors, Suppliers, and other individuals or entities proposed for those portions of the Work for which the identity of Subcontractors, Suppliers, and other individuals or entities must be submitted as provided in Section 00400 Statement of Bidder's Experience.

- 19.05 OWNER may conduct such investigations as OWNER deems necessary to establish the responsibility, qualifications, and financial ability of Bidders, proposed Subcontractors, Suppliers, individuals, or entities to perform the Work in accordance with the Contract Documents.
- 19.06 If the Contract is to be awarded, OWNER will award the Contract to the lowest responsible Bidder.
- 19.07 No Contract will be awarded or binding upon OWNER until it has been signed by its authorized representative.

ARTICLE 20: CONTRACT SECURITY AND INSURANCE

- 20.01 Article 5 of the General Conditions, as may be modified by the Supplementary Conditions, sets forth OWNER'S requirements as to performance and payment Bonds and insurance. When the Successful Bidder delivers the executed Agreement to OWNER, it must be accompanied by such Bonds.
- 20.02 The CONTRACTOR shall not commence Work until he has furnished certification of all insurance required and such has been approved by the Owner, nor shall the CONTRACTOR allow any subcontractor to commence Work until proof of all similar insurance that is required of the Subcontractor has been furnished and approved. The OWNER must be an additional insured on the policies and the policies must provide coverage to OWNER for work under this Contract. A certificate of insurance that contains the following language, or similar language, **WILL NOT BE ACCEPTED** as evidence that OWNER is an additional insured and covered under the policies: "ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AMEND, EXTEND, OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW." The Certificate of Liability Insurance form included in the Bid Documents must be used by the CONTRACTOR's Insurer, and CONTRACTOR's Insurer must furnish a full and complete copy of the underlying insurance policy to the OWNER upon OWNER's request to establish proof of insurance.

ARTICLE 21: SIGNING OF AGREEMENT

- 21.01 When OWNER gives a Notice of Award to the Successful Bidder, it shall be accompanied by the required number of unsigned counterparts of the Agreement with the other Contract Documents which are identified in the Agreement as attached thereto. Within 15 days thereafter, Successful Bidder shall sign and deliver the required number of counterparts of the Agreement and attached documents to OWNER. Within ten days

thereafter, OWNER shall deliver one fully signed counterpart to Successful Bidder with a complete set of the Drawings with appropriate identification.

- 21.02 Prior to Notice To' Proceed by the Developer, the contractor shall submit a detailed construction schedule to the Developer for review. This schedule will be used to assure completion of the job within the number of total days specified in the proposal.

ARTICLE 22: SALES AND USE TAXES

- 22.01 OWNER is exempt from Texas state sales and use taxes on materials and equipment to be incorporated in the Work, pursuant to the provisions of Section 151.309(5) of the Texas Tax Code. Said taxes shall not be included in the Bid. Refer to paragraph 6.10 of the General Conditions for additional information.

ARTICLE 23: RETAINAGE

- 23.01 Under paragraph 14.02 of the General Conditions, retainage in the amount of ten percent (10%) will be withheld, and such retainage will be withheld until thirty (30) days after Final Completion.

SECTION #00300

BID FORM

PROJECT IDENTIFICATION:

**PR South, Inc.
on behalf of
Northwest Williamson County Municipal Utility District No. 2**

**Parmer Ranch, Phases 2, 3, & 4
Drainage, Paving, Wastewater
and Water System Improvements
City of Georgetown
Williamson County, Texas**

THIS BID IS SUBMITTED TO:

**Steger Bizzell
1978 South Austin Avenue
Georgetown, Texas 78626**

- 1.01** The undersigned Bidder proposes and agrees, if this Bid is accepted, to enter into an Agreement with OWNER in the form included in the Bidding Documents to perform all Work as specified or indicated in the Bidding Documents for the prices and within the times indicated in this Bid and in accordance with the other terms and conditions of the Bidding Documents.
- 1.02** BIDDER understands and agrees that the OWNER has the right to reject any or all Bids and to waive any minor technicalities.
- 2.01** Bidder accepts all of the terms and conditions of the Advertisement or Invitation to Bid and Instructions to Bidders, including without limitation those dealing with the disposition of Bid security. The Bid will remain subject to acceptance for 90 days after the Bid opening, or for such longer period of time that Bidder may agree to in writing upon request of OWNER.
- 3.01** In submitting this Bid, Bidder represents, as set forth in the Agreement, that:
 - A.** Bidder has examined and carefully studied the Bidding Documents, the other related data identified in the Bidding Documents, and the following Addenda, receipt of all which is hereby acknowledged.

Addendum No.

Addendum Date

- B. Bidder has visited the Site and become familiar with and is satisfied as to the general, local and Site conditions that may affect cost, progress, and performance of the Work.
- C. Bidder is familiar with and is satisfied as to all federal, state and local laws and regulations that may affect cost, progress and performance of the Work.
- D. Bidder has carefully studied all: (1) reports of explorations and tests of subsurface conditions at or contiguous to the Site and all drawings of physical conditions in or relating to existing surface or subsurface structures at or contiguous to the Site which have been identified in the Supplementary Conditions as provided in paragraph 4.02 of the General Conditions.
- E. Bidder has obtained and carefully studied (or assumes responsibility for having done so) all additional or supplementary examinations, investigations, explorations, tests, studies and data concerning conditions (surface, subsurface and Underground Facilities) at or contiguous to the Site which may affect cost, progress, or performance of the Work or which relate to any aspect of the means, methods, techniques, sequences, and procedures of construction to be employed by Bidder, including applying the specific means, methods, techniques, sequences, and procedures of construction expressly required by the Bidding Documents to be employed by Bidder, and safety precautions and programs incident thereto.
- F. Bidder does not consider that any further examinations, investigations, explorations, tests, studies, or data are necessary for the determination of this Bid for performance of the Work at the price(s) bid and within the times and in accordance with the other terms and conditions of the Bidding Documents.
- G. Bidder is aware of the general nature of work to be performed by OWNER and others at the Site that relates to the Work as indicated in the Bidding Documents.
- H. Bidder has correlated the information known to Bidder, information and observations obtained from visits to the Site, reports and drawings identified in the Bidding Documents, and all additional examinations, investigations, explorations, tests, studies, and data with the Bidding Documents.

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

J. The Bidding Documents are generally sufficient to indicate and convey understanding of all terms and conditions for the performance of the Work for which this Bid is submitted.

4.01 Bidder further represents that this Bid is genuine and not made in the interest of or on behalf of any undisclosed individual or entity and is not submitted in conformity with any agreement or rules of any group, association, organization or corporation; Bidder has not directly or indirectly induced or solicited any other Bidder to submit a false or sham Bid; Bidder has not solicited or induced any individual or entity to refrain from bidding; and Bidder has not sought by collusion to obtain for itself any advantage over any other Bidder or over OWNER.

5.01 Bidder will complete the Work in accordance with the Contract Documents for the following price(s):

BID:

NORTHWEST WILLIAMSON COUNTY M.U.D. NO.2 PARMER RANCH PHASES 2, 3, & 4 BID SET 6/7/2021					
<i>Item No.</i>	<i>Description of Item</i>	<i>Approx. Qty</i>	<i>Unit</i>	<i>Unit Price</i>	<i>Total</i>
A. EROSION AND SEDIMENTATION CONTROL					
A1	Furnish & Install & Remove Silt Fence, complete as detailed and specified	9,558	LF		
A2	Furnish & Install & Remove Stabilized Construction Entrance, complete as detailed and specified	3	EA		
A3	Furnish & Install & Remove 10' Curb Inlet Protection, complete as detailed and specified	44	EA		
A4	Furnish & Install & Remove Tree Protection Fence, complete as detailed and specified	1,564	LF		

**NORTHWEST WILLIAMSON COUNTY M.U.D. NO.2
PARMER RANCH PHASES 2, 3, & 4
BID SET
6/7/2021**

<i>Item No.</i>	<i>Description of Item</i>	<i>Approx. Qty</i>	<i>Unit</i>	<i>Unit Price</i>	<i>Total</i>
A5	Furnish & Install & Remove Tree Protection Planks, complete as detailed and specified	1,564	LF		
A6	Clearing and Grubbing, complete in place as detailed and specified	38.65	AC		
A7	Furnish, Install, Maintain & Remove Concrete Washout Basin, complete as detailed and specified	1.00	LS		
EROSION AND SEDIMENTATION CONTROL SUBTOTAL					
B. EXCAVATION AND EMBANKMENT					
B1	Furnish & Install 6" Sandy Loam Topsoil within ROW, complete as detailed and specified	13,724	SY		
B2	Furnish & Install 4" Sandy Loam in Storm Outfall Channels and Berms	3,595	SY		
B3	Furnish & Install 6" of Re-vegetation, complete as detailed and specified	17,319	SY		
B4	3" Right-of-Way Stripping, complete in place as detailed and specified	34,566	SY		
B5	Excavate existing material, as detailed and specified		CY		
B6	Furnish and Install 8" of Lime for all Roads, complete as detailed and specified (As Required)	22,943	SY		
B7	Roadway Embankment, complete in place as detailed and specified		CY		
B8	Subgrade Preparation, complete in place as detailed and specified	22,943	SY		
EXCAVATION AND EMBANKMENT SUBTOTAL					

**NORTHWEST WILLIAMSON COUNTY M.U.D. NO.2
PARMER RANCH PHASES 2, 3, & 4
BID SET
6/7/2021**

<i>Item No.</i>	<i>Description of Item</i>	<i>Approx. Qty</i>	<i>Unit</i>	<i>Unit Price</i>	<i>Total</i>
C. PAVEMENT AND SUBGRADE					
C1	Furnish & Install 8" Compacted Flex Base, complete in place as detailed and specified	18,081	SY		
C2	Furnish & Install 11" Compacted Flex Base, complete in place as detailed and specified	2,810	SY		
C3	Furnish & Install Curb Backfill, complete in place as detailed and specified	12,310	LF		
C4	Furnish & Install 2" HMAC Type C Asphalt, complete in place as detailed and specified	20,891	SY		
C5	Furnish & Install 4" Mountable Curb and Gutter, complete in place as detailed and specified	11,790	LF		
C6	Furnish & Install Ribbon Curb, complete in place as detailed and specified	520	LF		
C7	Furnish & Install Curb Expansion Joints at 40' O.C., complete in place as detailed and specified	295	EA		
C8	Furnish & Install (2) - #4 Rebars in All Curb, complete in place as detailed and specified	11,790	LF		
C9	Furnish & Install Curb Ramp, complete in place as detailed and specified	32	EA		
C10	Furnish & Install 4"-5' wide Sidewalk, complete in place as detailed and specified	2,580	SY		
PAVEMENT AND SUBGRADE SUBTOTAL					

**NORTHWEST WILLIAMSON COUNTY M.U.D. NO.2
PARMER RANCH PHASES 2, 3, & 4
BID SET
6/7/2021**

<i>Item No.</i>	<i>Description of Item</i>	<i>Approx. Qty</i>	<i>Unit</i>	<i>Unit Price</i>	<i>Total</i>
D. DRAINAGE IMPROVEMENTS					
D1	Furnish & Install SD19 Concrete Rip-Rap, complete in place as detailed and specified	3	EA		
D2	Furnish & Install SD19 Concrete Rip-Rap and Energy Dissipaters, complete in place as detailed and specified	2	EA		
D3	Furnish & Install Concrete Inlet with 24" x 24" grate for Tree Well Drain (all depths), complete in place as detailed and specified	2	EA		
D4	Furnish & Install 24" HDPE PIPE (all depths), complete in place as detailed and specified	715	LF		
D5	Furnish & Install 18" CLASS III RCP (all depths), complete in place as detailed and specified	2,051	LF		
D6	Furnish & Install 24" CLASS III RCP (all depths), complete in place as detailed and specified	1,017	LF		
D7	Furnish & Install 30" CLASS III RCP (all depths), complete in place as detailed and specified	851	LF		
D8	Furnish & Install 36" CLASS III RCP (all depths), complete in place as detailed and specified	449	LF		
D9	Furnish & Install 42" CLASS III RCP (all depths), complete in place as detailed and specified	335	LF		

**NORTHWEST WILLIAMSON COUNTY M.U.D. NO.2
 PARMER RANCH PHASES 2, 3, & 4
 BID SET
 6/7/2021**

<i>Item No.</i>	<i>Description of Item</i>	<i>Approx. Qty</i>	<i>Unit</i>	<i>Unit Price</i>	<i>Total</i>
D10	Furnish & Install 48" CLASS III RCP (all depths), complete in place as detailed and specified	812	LF		
D11	Furnish & Install & Remove Trench Safety for Stormwater	6,230	LF		
D12	Furnish & Install 4' Diameter Stormwater Manhole (all depths), complete in place as detailed and specified	1	EA		
D13	Furnish & Install 5' Diameter Stormwater Manhole (all depths), complete in place as detailed and specified	3	EA		
D14	Furnish & Install 4'x4' Junction Box with Stormwater Manhole (all depths), complete in place as detailed and specified	3	EA		
D15	Furnish & Install 5'x5' Junction Box with Stormwater Manhole (all depths), complete in place as detailed and specified	3	EA		
D16	Furnish & Install 6'x6' Junction Box with Stormwater Manhole (all depths), complete in place as detailed and specified	1	EA		
D17	Furnish & Install 10' Curb Inlet (all depths), complete in place as detailed and specified	44	EA		
DRAINAGE IMPROVEMENTS SUBTOTAL					

**NORTHWEST WILLIAMSON COUNTY M.U.D. NO.2
PARMER RANCH PHASES 2, 3, & 4
BID SET
6/7/2021**

<i>Item No.</i>	<i>Description of Item</i>	<i>Approx. Qty</i>	<i>Unit</i>	<i>Unit Price</i>	<i>Total</i>
E. WATER QUALITY POND IMPROVEMENTS					
E1	Batch Detention Pond (Including Trash Rack / Riser Pipe, Manhole and Actuator Valve, Control Release System, Drain Pipes with Outfall Structure and Splash Pad, Concrete Weir Structures, Rip Rap, Erosion Control Blanket, 6" Topsoil, Revegetation, Signage, and all other appurtenances) - complete in place as detailed and specified	1	LS		
WATER QUALITY POND IMPROVEMENTS SUBTOTAL					
F. WATER IMPROVEMENTS					
F1	Furnish & Install 8" C900 PVC DR-18 Water Line including pipe, fittings, restraints, and all other appurtenances (all depths), complete in place as detailed and specified	3,956	LF		
F2	Furnish & Install 12" C900 PVC DR-18 Water Line including pipe, fittings, restraints, and all other appurtenances (all depths), complete in place as detailed and specified	2,262	LF		
F3	Furnish & Install 24" Steel Encasement - Direct Burial for Water Line, and all other appurtenances (all depths), complete in place as detailed and specified	120	LF		

**NORTHWEST WILLIAMSON COUNTY M.U.D. NO.2
PARMER RANCH PHASES 2, 3, & 4
BID SET
6/7/2021**

<i>Item No.</i>	<i>Description of Item</i>	<i>Approx. Qty</i>	<i>Unit</i>	<i>Unit Price</i>	<i>Total</i>
F4	Furnish & Install 24" Steel Encasement - Jack and Bore for Water Line and all other appurtenances (all depths), complete in place as detailed and specified	107	LF		
F5	Furnish & Install (3) 4" SCH 40 PVC Irrigation Sleeves, complete in place as detailed and specified	1,500	LF		
F6	Furnish & Install 8" Gate Valve and Box, complete in place as detailed and specified	9	EA		
F7	Furnish & Install 12" Gate Valve and Box, complete in place as detailed and specified	18	EA		
F8	Furnish & Install 2" Air Release Valve Assembly and Manhole per COG Standard Details W12 and W13, complete in place as detailed and specified	1	EA		
F9	Furnish & Install Fire Hydrant Assembly with 6" Gate Valve, complete in place as detailed and specified	11	EA		
F10	Furnish & Install & Remove Trench Safety for Water/Irrigation	9,945	LF		
F11	Furnish Trench Safety Design for Water/ Irrigation	1	LS		
F12	Connect to Existing Water Line	3	EA		
F13	Furnish and Install cap for future connection	1	EA		
F14	Furnish and Install 12" full circle tapping sleeve and 12" gate valve (existing 12" water service)	1	EA		

**NORTHWEST WILLIAMSON COUNTY M.U.D. NO.2
PARMER RANCH PHASES 2, 3, & 4
BID SET
6/7/2021**

<i>Item No.</i>	<i>Description of Item</i>	<i>Approx. Qty</i>	<i>Unit</i>	<i>Unit Price</i>	<i>Total</i>
F15	Furnish and Install 8" full circle tapping sleeve and 8" gate valve (existing 24" water service)	1	EA		
F16	Furnish and Install Double Water Service connection per detail, complete in place as detailed and specified	69	EA		
F17	Furnish and Install Single Water Service connection per detail, complete in place as detailed and specified	14	EA		
WATER IMPROVEMENTS SUBTOTAL					
G. WASTEWATER IMPROVEMENTS					
G1	Furnish & Install 8" SDR-26 PVC 8'-10', complete in place as detailed and specified	1,827	LF		
G2	Furnish & Install 8" SDR-26 PVC 10'-12', complete in place as detailed and specified	645	LF		
G3	Furnish & Install 8" DR-18 PVC 8'-10', complete in place as detailed and specified	60	LF		
G4	Furnish & Install 8" DR-18 PVC 10'-12', complete in place as detailed and specified	20	LF		
G5	Furnish & Install 12" SDR-26 PVC 8'-10', complete in place as detailed and specified	254	LF		
G6	Furnish & Install 12" SDR-26 PVC 10'-12', complete in place as detailed and specified	634	LF		
G7	Furnish & Install 12" SDR-26 PVC 12'-14', complete in place as detailed and specified	501	LF		

**NORTHWEST WILLIAMSON COUNTY M.U.D. NO.2
PARMER RANCH PHASES 2, 3, & 4
BID SET
6/7/2021**

<i>Item No.</i>	<i>Description of Item</i>	<i>Approx. Qty</i>	<i>Unit</i>	<i>Unit Price</i>	<i>Total</i>
G8	Furnish & Install 12" SDR-26 PVC 14'-16', complete in place as detailed and specified	142	LF		
G9	Furnish & Install 12" SDR-26 PVC 16'-20', complete in place as detailed and specified	400	LF		
G10	Furnish & Install 12" SDR-26 PVC 20'-24', complete in place as detailed and specified	953	LF		
G11	Furnish & Install 12" DR-18 PVC 8'-10', complete in place as detailed and specified	20	LF		
G12	Furnish & Install 12" DR-18 PVC 10'-12', complete in place as detailed and specified	634	LF		
G13	Furnish & Install 12" DR-18 PVC 16'-20', complete in place as detailed and specified	400	LF		
G14	Furnish & Install 24" Steel Encasement - Direct Burial 7'-10', complete in place as detailed and specified	134	LF		
G15	Furnish & Install 24" Steel Encasement - Jack and Bore 7'-10', complete in place as detailed and specified	107	LF		
G16	Furnish & Install 4' diameter wastewater manhole (0'-8' depths), complete in place as detailed and specified	34	EA		
G17	Furnish & Install 4' diameter wastewater manhole (extra depth), complete in place as detailed and specified	146	VF		
G18	Furnish & Install & Remove Trench Safety for Wastewater	6,765	LF		

**NORTHWEST WILLIAMSON COUNTY M.U.D. NO.2
PARMER RANCH PHASES 2, 3, & 4
BID SET
6/7/2021**

<i>Item No.</i>	<i>Description of Item</i>	<i>Approx. Qty</i>	<i>Unit</i>	<i>Unit Price</i>	<i>Total</i>
G19	Furnish and Install Double Wastewater Service connection per detail, complete in place as detailed and specified	65	EA		
G20	Furnish and Install Single Wastewater Service connection per detail, complete in place as detailed and specified	10	EA		
G21	Connect to existing wastewater stub out	2	EA		
WASTEWATER IMPROVEMENTS SUBTOTAL					
H. SIGNING, STRIPING, AND SITE IMPROVEMENTS					
H1	Furnish & Install Stop Sign and Street Name Signs, complete in place as detailed and specified	5	EA		
H2	Furnish & Install Stop Sign, No Outlet Sign, and Street Name Signs, complete in place as detailed and specified	3	EA		
H3	Furnish & Install 24" White Stop Bar, complete in place as detailed and specified	192	SF		
H4	Furnish & Install Single Head Street Lights and Foundations, complete in place as detailed and specified	16	EA		
H5	Furnish & Install Double Head Street Lights and Foundations, complete in place as detailed and specified	1	EA		
H6	Furnish & Install Boundary Wall, complete in place as detailed and specified	1,069	LF		

Unit Prices have been computed in accordance with paragraph 11.03.B of the General Conditions. Bidder acknowledges that estimated quantities are not guaranteed, and are solely for the purpose of comparison of Bids, and final payment for all Unit Price Bid items will be based on actual quantities provided, determined as provided in the Contract Documents.

6.01 Bidder agrees that the Work will be substantially complete within 200 calendar days after the date of the written Notice-to-Proceed and to fully complete project and ready for final payment within 240 calendar days after the date of the written Notice to Proceed.

6.02 Bidder accepts the provisions of the Agreement as to liquidated damages in the event of failure to complete the Work within the times specified above, which shall be stated in the Supplemental Conditions.

6.03 The following documents are attached to and made a condition of this Bid:

A. Required Bid security in the form of _____;

B. Section 00400, Statement of Bidder's Experience, including Attachments.

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

SUBMITTED on _____, 20____.

If Bidder is:

An Individual

Name (typed or printed): _____

By: _____ (SEAL)
(Individual's signature)

Doing business as: _____

Business address: _____

Phone No.: _____ FAX No.: _____

A Partnership

Partnership Name: _____ (SEAL)

By: _____
(Signature of general partner -- attach evidence of authority to sign)

Name (typed or printed): _____

Business address: _____

Phone No.: _____ FAX No.: _____

A Corporation

Corporation Name: _____ (SEAL)

State of Incorporation: _____

Type (General Business, Professional, Service, Limited Liability): _____

By: _____
(Signature -- attach evidence of authority to sign)

Name (typed or printed): _____

Title: _____
(CORPORATE SEAL)

Attest _____
(Signature of Corporate Secretary)

Business address: _____

Phone No.: _____ FAX No.: _____

Date of Qualification to do business is _____.

A Joint Venture

Joint Venturer Name: _____ (SEAL)

By: _____
(Signature of joint venture partner -- attach evidence of authority to sign)

Name (typed or printed): _____

Title: _____

Business address: _____

Phone No.: _____ FAX No.: _____

Joint Venturer Name: _____ (SEAL)

By: _____
(Signature -- attach evidence of authority to sign)

Name (typed or printed): _____

Title: _____

Business address: _____

Phone No.: _____ FAX No.: _____

Phone and FAX Number, and Address for receipt of official communications:

(Each joint venturer must sign. The manner of signing for each individual, partnership, and corporation that is a party to the joint venture should be in the manner indicated above.)

SECTION #00400

STATEMENT OF BIDDERS EXPERIENCE

Project Name:

Parmer Ranch, Phases 2, 3, & 4
Drainage, Paving, Wastewater
and Water System Improvements
City of Georgetown
Williamson County, Texas

All questions on this form must be answered and data given must be clear and comprehensive. If necessary, questions may be continued on separately attached sheets.

PART 1, PART 2, and PART 3 below are to be submitted as part of the Bid.

PART 1 – GENERAL

- 1.1 Bidder must submit Attachments A through I contained in this Statement of Bidder's Experience form signed and notarized with its Bid. Failure to do so will constitute an incomplete Bid, which will be rejected. Information must be provided to the OWNER as part of the formal Bid. Submit the required forms in accordance with Section 00100, Instructions to Bidders.
- 1.2 The Bidder and OWNER agree that, in determining the apparent low Bid, the responsibility of the Bidders will be considered in awarding a Contract for this Project. In connection therewith, all Bidders are required to submit a set of additional completed attachments to the Statement of Bidder's Experience Form for the OWNER's consideration. The Contract will be awarded by the OWNER to the lowest responsible Bidder. Submit the required forms in accordance with Section 00100, Instructions to Bidders.

PART 2 – BIDDER'S INFORMATION

2.1 Bidder's Information

In order to make a responsive Bid, Bidder must answer all questions completely and all information must be clear, accurate and comprehensive. If necessary, questions may be answered on separate attached sheets. **The forms to complete this requirement are attached hereto as Attachment A.**

PART 3 – EXPERIENCE REQUIREMENTS

The Bidder must provide the following information with its Bid:

- 3.1 In order to make a responsive Bid, the Bidder must provide evidence of a minimum of three successfully completed projects of comparable size, complexity and scope within the United

States successfully completed by the Bidder within the past five (5) years, meeting the criteria listed on this form in subsection 3.1.1, if applicable. This documentation shall be presented sufficiently and completely to demonstrate that similar installations are a primary business focus and service provided by the Bidder, and that such services have been successfully provided by the Bidder for at least **five (5)** continuous year(s). **The forms to complete this requirement are attached hereto as Attachment B.**

If the Bidder chooses to fulfill any of the specific experience requirements listed in this document with subcontracted resources, the Bidder must indicate so on Attachment B, to be submitted with its bid. Additionally, Attachment D must be submitted with its bid in accordance with paragraph 1.1, above.

3.1.1 The Bidder shall demonstrate experience in the following area(s) on its successfully completed projects:

- At least two of the three projects identified by the Bidder in its experience statement must have included the construction of residential subdivision improvements including: local streets, detention and water quality ponds, eight-inch water and eight-inch gravity wastewater improvements.

3.2 In order to make a responsive Bid, the Bidder shall provide information on the experience of its proposed Project Manager and Superintendent by completing Attachment C, located at the end of this Section. The submitted Attachment C should include information and resumes for both the Bidder's Project Manager and Superintendent, indicating a minimum of three (3) successfully completed projects of similar size, complexity, and scope within the past ten (10) years. **The forms to complete this requirement are attached hereto as Attachment C.**

The Bidder shall provide the following information at the time of bid.

3.3 The same requirements shall apply to each major Subcontractor proposed for this project. Should it be the intention of the Bidder to perform all or a portion of these services with its own forces, the Bidder shall provide previous project experience in the respective section demonstrating that the Bidder has previously successfully performed these services. Bidder must provide information on each major Subcontractor by completing Attachment D, located at the end of this Section. **The forms to complete this requirement are attached hereto as Attachment D.**

The OWNER seeks CONTRACTORS that can complete the Work within the Contract time given for completion. Anything that might negatively impact a Bidder's ability to timely complete the Work may result in the Bidder being determined to not be the most responsible Bidder.

3.4 A completed Attachment E (located at the end of this section) providing a list of equipment that is available to the CONTRACTOR / Subcontractor(s) and specifically intended to be used on the Work under this Contract, and notification whether the equipment is owned or to be leased by the CONTRACTOR and/or Subcontractor(s).

3.5 A completed Attachment F (located at the end of this section) providing a list of the available workforce for the various disciplines and crafts required for the Work on this

project including the number of work crews, and number of employees anticipated to be assigned to the project.

- 3.6 A completed Attachment G (located at the end of this section) providing a list of all current projects.** Include the following: a brief statement regarding the job type, the estimated project duration, project contact, and project description of all jobs that Bidder is currently committed to or are currently underway. **Authentication**

The Bidder must authenticate and acknowledge the preceding information by providing witness in the presence of a notary public duly licensed and authorized to act in that capacity under the laws and statutes of the State of Texas, on the form provided on the following page. **The forms to complete this requirement are attached hereto as Attachment H.**

Attachment A
BIDDER'S INFORMATION
(To be returned with the Bid)

Bidder must answer all questions completely and all information must be clear, accurate and comprehensive. If necessary, questions may be answered on separate attached sheets.

- A. Name of Bidder: _____
- B. Bidder's Permanent Address: _____
- C. Bidder's Phone No.: _____
- D. Number of years in business under current company name: _____

(Note: A minimum of five (5) year's existence as a business is required under the current company name. Changes in company name during the experience period are acceptable if the continuity of the company structure can be demonstrated. Attach separate documentation, if applicable.)

If response is "YES" for questions E – H, attach brief description or explanation

- E. Has the Bidder ever defaulted on a contract?
YES (___) NO (___)
- F. Are there currently any judgments, claims, or lawsuits pending against the Bidder?
YES (___) NO (___)
- G. Does Bidder currently have any claims, judgments or lawsuits pending against any prior client?
YES (___) NO (___)
- H. Is the Bidder or principals of Bidder now, or has the Bidder or principals of Bidder ever been, involved in any bankruptcy or reorganization proceedings?
YES (___) NO (___)

Attachment B

STATEMENT OF EXPERIENCE

(To be returned with the Bid)

Using the summary format included below, list and describe Bidder's construction experience for a minimum of three (3) successfully completed projects of comparable size, scope and complexity to the Work described in the Contract Documents. The Bidder must have completed the projects within the past five (5) years. Part 3 of this section outlines the experience requirements which must be demonstrated with the three (3) successfully completed sample projects. (Use additional sheets as deemed necessary or appropriate.)

Are any of the experience requirements outlined in Part 3 to be fulfilled by subcontracted resources? (circle one) YES / NO

NOTE: If yes, Attachment D (Statement of Experience for Bidder's Listed Subcontractors) and Attachment I (Authentication of Bid Submittal) as well as any other required Post-Bid forms must be submitted as a Post-Bid Submittal as outlined in Paragraph 1.2 of Section #00400.

(Experience Records Begin on Next Page)

Project No. 1 - Experience

Name of Project: _____ Location: _____

OWNER's Name and Address: _____

OWNER's Contact Person (Print): _____ Phone/Fax No.: _____ / _____

Payment Bond (circle one) YES / NO

Performance Bond (circle one) YES / NO

Initial Contract Price: _____ Final Contract Price: _____

Contract Start Date: _____ (Date of Notice To Proceed)

Contract Time: _____ () Calendar Days () Working Days

Contract Substantial Completion Date: _____

Actual Substantial Completion Date: _____

If contract completion time extensions were added to the contract as a result of Bidder's responsibilities, provide a short explanation of each.

Project Description and Statement of Relevance to this Contract:

Project No. 2 - Experience

Name of Project: _____ Location: _____

OWNER's Name and Address: _____

OWNER's Contact Person (Print): _____ Phone/Fax No.: _____ / _____

Payment Bond (circle one) YES / NO

Performance Bond (circle one) YES / NO

Initial Contract Price: _____ Final Contract Price: _____

Contract Start Date: _____ (Date of Notice To Proceed)

Contract Time: _____ () Calendar Days () Working Days

Contract Substantial Completion Date: _____

Actual Substantial Completion Date: _____

If contract completion time extensions were added to the contract as a result of Bidder's responsibilities, provide a short explanation of each.

Project Description and Statement of Relevance to this Contract:

Project No. 3 - Experience

Name of Project: _____ Location: _____

OWNER's Name and Address: _____

OWNER's Contact Person (Print): _____ Phone/Fax No.: _____ / _____

Payment Bond (circle one) YES / NO

Performance Bond (circle one) YES / NO

Initial Contract Price: _____ Final Contract Price: _____

Contract Start Date: _____ (Date of Notice To Proceed)

Contract Time: _____ () Calendar Days () Working Days

Contract Substantial Completion Date: _____

Actual Substantial Completion Date: _____

If contract completion time extensions were added to the contract as a result of Bidder's responsibilities, provide a short explanation of each.

Project Description and Statement of Relevance to this Contract:

Attachment C

**STATEMENT OF EXPERIENCE FOR BIDDER'S LISTED PROJECT MANAGER &
SUPERINTENDENT**

(To be returned with the Bid)

Attach resumes for the following personnel who will be assigned to this project. The resumes must demonstrate that these individuals have worked on at least three similar, successfully completed projects in the capacity of Project Manager or Superintendent, or other supervisory capacity, as applicable, during the last 10 years.

Project Manager (name): _____

Superintendent (name): _____

Insert Resumes & Experience

Attachment D

STATEMENT OF EXPERIENCE FOR BIDDER'S LISTED SUBCONTRACTORS

(To be returned with the Bid)

Name of Bidder: _____

Bidder must supply the following project history information for each major Subcontractor included for the Work. OWNER may reject any Subcontractor whose project history information OWNER deems insufficient for the task. Bidder must answer all questions completely and all information must be clear, accurate and comprehensive. If necessary, questions may be answered on separate attached sheets. Use multiple copies of Attachment E to ensure a submittal for every Major Subcontractor.

Major Subcontractor's type of work: _____

Name of Major Subcontractor: _____

Subcontractor's Permanent Address: _____

Subcontractor's Phone No.: _____

Number of years in business under current company name: _____

Project No. 1 - Major Subcontractor's Experience Information

Name of Project: _____ Location: _____

OWNER's Name and Address: _____

OWNER's Contact Person (Print): _____ Phone No.: _____

Project Description and Statement of Relevance to this Contract: _____

_____ Subcontract Price: _____

Contract Start Date: _____ (Date of Notice To Proceed)

Contract Time: _____ () Calendar Days () Working Days

Contract Substantial Completion Date: _____

Actual Substantial Completion Date: _____

If contract completion time extensions were added to the contract as a result of subcontract responsibilities, provide a short explanation of each.

Project No. 2 - Major Subcontractor's Experience Information

Name of Project: _____ Location: _____

OWNER's Name and Address: _____

OWNER's Contact Person (Print): _____ Phone No.: _____

Project Description and Statement of Relevance to this Contract: _____

Subcontract Price: _____

Contract Start Date: _____ (Date of Notice To Proceed)

Contract Time: _____ () Calendar Days () Working Days

Contract Substantial Completion Date: _____

Actual Substantial Completion Date: _____

If contract completion time extensions were added to the contract as a result of subcontract responsibilities, provide a short explanation of each.

Project No. 3 - Major Subcontractor's Experience Information

Name of Project: _____ Location: _____

OWNER's Name and Address: _____

OWNER's Contact Person (Print): _____ Phone No.: _____

Project Description and Statement of Relevance to this Contract: _____

Subcontract Price: _____

Contract Start Date: _____ (Date of Notice To Proceed)

Contract Time: _____ () Calendar Days () Working Days

Contract Substantial Completion Date: _____

Actual Substantial Completion Date: _____

If contract completion time extensions were added to the contract as a result of subcontract responsibilities, provide a short explanation of each.

Attachment F

AVAILABLE WORKFORCE

(To be returned with the Bid)

Provide a list of the available workforce for the various disciplines and crafts required for the Work on this project including the number of work crews, and number and worker classification for each equipment operator, mechanic and laborer for that portion of the Work that Bidder will actually perform.

Number of Anticipated Work Crews: _____

<u>DISCIPLINE OR CRAFT</u>	<u>NO. OF EMPLOYEES</u>	<u>COMMITTED TO ANOTHER PROJECT?</u> (Yes / No)	<u>AVAILABLE / RELEASE DATE</u>
Professional (specify)			
Superintendent			
Technical (specify)			
Skilled Workers (specify)			
Semiskilled Workers (specify)			
Equipment Operators (list)			
Other			
Other			
Other			

Use additional pages, as necessary

Attachment G
CURRENT PROJECT LISTING

(To be returned with the Bid)

Provide a list of **all current projects**. Include the following: a brief statement regarding the job type, the estimated project duration, project contact, and project description of all jobs that Bidder is currently committed to or are currently underway.

Name of Project: _____ **Location:** _____

Type of Job: _____

Project Start Date: _____ Estimated Completion Date: _____

Project Contact: _____

Brief Description: _____

Name of Project: _____ **Location:** _____

Type of Job: _____

Project Start Date: _____ Estimated Completion Date: _____

Project Contact: _____

Brief Description: _____

Name of Project: _____ **Location:** _____

Type of Job: _____

Project Start Date: _____ Estimated Completion Date: _____

Project Contact: _____

Brief Description: _____

Use additional pages, as necessary

Attachment H

AUTHENTICATION OF BID SUBMITTAL

(To be returned with the Bid)

The Bidder must authenticate and acknowledge the preceding information by providing witness in the presence of a notary public duly licensed and authorized to act in that capacity under the laws and statutes of the State of Texas, on the form provided on the following page.

NOTARIZE ONLY THE LAST PAGE OF THIS FORM

Signed By: _____

Typed Name: _____

Typed Title: _____

Limited Partnership Acknowledgement

State of Texas

County of _____

Before me _____ (insert Notary's name), a Notary Public, on this day personally appeared _____ (insert name of person signing on behalf of general partner of limited partnership), _____, title of officer or manager and _____, name of corporation or LLC); the General Partner of _____ (insert name of limited partnership), known to me personally or on the basis of legally sufficient identification to be the person whose name is subscribed to the foregoing instrument and acknowledged to me that he or she executed the same for the purposes and consideration therein expressed.

[Seal] Given under my hand and seal of office this __day of _____, A.D., 20_____.

Notary Public, State of Texas

Signed By: _____

Typed Name: _____

Typed Title: _____

Corporation or Limited Liability Company Acknowledgement

State of Texas

County of _____

Before me _____ (insert Notary's name), a Notary Public, on this day personally appeared _____ (insert name of person signing on behalf of corporation or LLC) as _____ (title of officer or manager and name of corporation or LLC); known to me personally or on the basis of legally sufficient identification to be the person whose name is subscribed to the foregoing instrument and acknowledged to me that he or she executed the same for the purposes and consideration therein expressed.

[Seal] Given under my hand and seal of office this __day of _____, A.D., 20_____.

Notary Public, State of Texas

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SECTION #00410

BID BOND

BIDDER (Name and Address):

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

OWNER (Name and Address):

PR South, Inc.
6706 W Courtyard
Austin, Texas 78730

BID NO:

BID DUE DATE: Wednesday June 23, 2021 at 3:00 p.m.

PROJECT:

Parmer Ranch, Phases 2, 3, & 4 Drainage, Paving, Wastewater and Water System Improvements
City of Georgetown
Williamson County, Texas

BOND

BOND NUMBER:

DATE (Not later than Bid due date):

PENAL SUM:

(Words)

(Figures)

IN WITNESS WHEREOF, Surety and Bidder, intending to be legally bound hereby, subject to the terms printed on the reverse side hereof, do each cause this Bid Bond to be duly executed on its behalf by its authorized officer, agent, or representative.

BIDDER

SURETY

_____(Seal)
Bidder's Name and Corporate Seal

_____(Seal)
Surety's Name and Corporate Seal

By: _____
Signature and Title

By: _____
Signature and Title
(Attach Power of Attorney)

Attest: _____
Signature and Title

Attest: _____
Signature and Title

Note: (1) Above addresses are to be used for giving required notice.
(2) Any singular reference to Bidder, Surety, OWNER or other party shall be considered plural where applicable.

1. Bidder and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors and assigns to pay to OWNER upon default of Bidder the penal sum set forth on the face of this Bond.

2. Default of Bidder shall occur upon the failure of Bidder to deliver within the time required by the Bidding Documents (or any extension thereof agreed to in writing by OWNER) the executed Agreement required by the Bidding Documents and any Performance and Payment Bonds required by the Bidding Documents.

3. This obligation shall be null and void if:

3.1. OWNER accepts Bidder's Bid and Bidder delivers within the time required by the Bidding Documents (or any extension thereof agreed to in writing by OWNER) the executed Agreement required by the Bidding Documents and any Performance and Payment Bonds required by the Bidding Documents, or

3.2. All Bids are rejected by OWNER, or

3.3. OWNER fails to issue a Notice of Award to Bidder within the time specified in the Bidding Documents (or any extension thereof agreed to in writing by Bidder and, if applicable, consented to by Surety when required by paragraph 5 hereof).

4. Payment under this Bond will be due and payable upon default by Bidder and within 30 calendar days after receipt by Bidder and Surety of written notice of default from OWNER, which notice will be given with reasonable promptness, identifying this Bond and the Project and including a statement of the amount due.

5. Surety waives notice of and any and all defenses based on or arising out of any time extension to issue Notice of Award agreed to in writing by OWNER and Bidder, provided that the total time for issuing Notice of Award including extensions shall not in the aggregate exceed 90 days from Bid due date without Surety's written consent.

6. No suit or action shall be commenced under this Bond prior to 30 calendar days after the notice of default required in paragraph 4 above is received by Bidder and Surety and in no case later than one year after Bid due date.

7. Any suit or action under this Bond shall be commenced only in a court of competent jurisdiction located in the state in which the Project is located.

8. Notices required hereunder shall be in writing and sent to Bidder and Surety at their respective addresses

shown on the face of this Bond. Such notices may be sent by personal delivery, commercial courier or by United States Registered or Certified Mail, return receipt requested, postage pre-paid, and shall be deemed to be effective upon receipt by the party concerned.

9. Surety shall cause to be attached to this Bond a current and effective Power or Attorney evidencing the authority of the officer, agent or representative who executed this Bond on behalf of Surety to execute, seal and deliver such Bond and bind the Surety thereby.

10. This Bond is intended to conform to all applicable statutory requirements. Any applicable requirement of any applicable statute that has been omitted from this Bond shall be deemed to be included herein as if set forth at length. If any provision of this Bond conflicts with any applicable statute, then the provision of said statute shall govern and the remainder of this Bond that is not in conflict therewith shall continue in full force and effect.

11. The term "Bid" as used herein includes a Bid, offer or proposal as applicable.

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Design and Construction Related Documents
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Arthur Schwartz, Esq.
General Counsel
National Society of Professional Engineers
1420 King Street
Alexandria, VA 22314

Phone: (703) 684-2845
Fax: (703) 836-4875
e-mail: aschwartz@nspe.org

You acknowledge that you have read this agreement, understand it and agree to be bound by its terms and conditions. You further agree that it is the complete and exclusive statement of the agreement between us which supersedes any proposal or prior agreement, oral or written, and any other communications between us relating to the subject matter of this agreement.

Notice of Award

Date: _____

Project: Parmer Ranch, Phases 2, 3, & 4 Drainage, Paving, Wastewater and Water System Improvements

Owner: PR South, Inc.

Owner's Bid No.:

Contract:

Engineer's Project No.: 22223

Bidder:

Bidder's Address:

You are notified that your Bid dated June 23, 2021 for the above Contract has been considered. You are the Successful Bidder and are awarded a Contract for Parmer Ranch, Phases 2, 3, & 4 Drainage, Paving, Wastewater and Water System Improvements City of Georgetown Williamson County, Texas.

The Contract Price of your Contract is _____ Dollars and _____ Cents (\$_____).

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

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

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

1. Deliver to the Owner 4 fully executed counterparts of the Contract Documents.
2. Deliver with the executed Contract Documents the Contract security [Bonds] as specified in the Instructions to Bidders (Article 20), General Conditions (Paragraph 5.01), and Supplementary Conditions (Paragraph SC-5.01).
3. Other conditions precedent:

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

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

PR South, Inc.

Owner

By: _____

Authorized Signature

_____ Title

Copy to Engineer

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Phone: (703) 684-2845
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e-mail: aschwartz@nspe.org

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(202) 347-7474
www.acec.org

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(800) 548-2723
www.asce.org

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**AGREEMENT
BETWEEN OWNER AND CONTRACTOR FOR
CONSTRUCTION CONTRACT (STIPULATED PRICE)**

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INTRODUCTION

This Agreement between Owner and Contractor for Construction Contract (Stipulated Price) (“Agreement”) has been prepared for use with the Suggested Instructions to Bidders for Construction Contracts (“Instructions to Bidders”) (EJCDC® C-200, 2013 Edition); the Suggested Bid Form for Construction Contracts (“Bid Form”) (EJCDC® C 410, 2013 Edition); and the Standard General Conditions of the Construction Contract (“General Conditions”) (EJCDC® C-700, 2013 Edition). Their provisions are interrelated, and a change in one may necessitate a change in the others. See also the Guide to the Preparation of Supplementary Conditions (EJCDC® C-800, 2013 Edition), and the Commentary on the 2013 EJCDC Construction Documents (EJCDC® C-001, 2013 Edition).

In construction contracting, as a general matter the “agreement” is the legal instrument executed (signed) by the project owner and the construction contractor, binding the parties to the terms of the contract. See CSI Project Delivery Practice Guide (2011), Section 11.1.2, p. 210, and CSI Construction Specification Practice Guide (2011), Section 5.1, p. 75. This EJCDC Agreement form serves that basic function, by identifying the parties and Contract Documents, and establishing the Contract Price and Contract Times. This Agreement form is specifically intended for stipulated price (fixed price) contracts—that is, contracts in which Owner and Contractor identify specific lump sums and unit prices as Contractor’s compensation for performing the Work. For construction contracts in which the Contract Price is primarily based on costs incurred during construction, users should select EJCDC® C-525, Agreement between Owner and Contractor for Construction Contract (Cost-Plus).

This Agreement form is drafted to be flexible enough to be used on projects that are competitively bid, and for public and private contracts that are negotiated or awarded through a proposal process or otherwise. On competitively bid projects, the following documentary information would typically be made available to bidders:

- Bidding Requirements, which include the Advertisement or invitation to bid, the Instructions to Bidders, and the Bid Form that is suggested or prescribed, all of which provide information and guidance for all Bidders, and Bid Form supplements (if any) such as Bid Bond and Qualifications Statement.
- Contract Documents, which include the Agreement, performance and payment bonds, the General Conditions, the Supplementary Conditions, the Drawings, and the Specifications.
- Documents referred to in the Supplementary Conditions or elsewhere as being of interest to bidders for reference purposes, but which are not Contract Documents.

Together, the Bidding Requirements and the Contract Documents are referred to as the Bidding Documents. (The terms “Bidding Documents,” “Bidding Requirements,” and “Contract Documents” are defined in Article 1 of the General Conditions.) The Bidding Requirements are not Contract Documents because much of their substance pertains to the relationships prior to the award of the Contract and has little effect or impact thereafter. Many contracts are awarded without even going through a bidding process, and thus have no Bidding Requirements, illustrating that the bidding items are typically superfluous to the formation of a binding and comprehensive construction contract. In some cases, however, a bid or proposal will contain numerous line items and their prices; in such case the actual bid or proposal document may be attached as an exhibit to the Agreement to avoid extensive rekeying.

Suggested provisions are accompanied by “Notes to User” and bracketed notes and prompts to assist in preparing the Agreement. The provisions have been coordinated with the other forms produced by EJCDC. Much of the language should be usable on most projects, but modifications and additional provisions will often be necessary. When modifying the suggested language or writing additional provisions, the user must check the other documents thoroughly for conflicts and coordination of terms, and make appropriate revisions in all affected documents.

All parties involved in construction projects benefit significantly from a standardized approach in the location of subject matter throughout the documents. Experience confirms the danger of addressing the same subject matter in more than one location; doing so frequently leads to confusion and unanticipated legal consequences. When preparing documents for a construction project, careful attention should be given to the guidance provided in EJCDC® N-122/AIA® A521, Uniform Location of Subject Matter (2012 Edition), available at no charge from the EJCDC website, www.ejcdc.org, and from the websites of EJCDC’s sponsoring organizations.

CSI MasterFormat™ (50-Division format) designates Document “00 52 XX” for various forms of the owner-contractor agreement. If this format is used, the first page of the Agreement would be numbered 00 52 13-1 (or other appropriate third pair of numbers, in accordance with MasterFormat™).

Instructions and restrictions regarding the use of this document are set out in the License Agreement that accompanied the document at the time of purchase. To prepare the Agreement for inclusion in a Project Manual or for use in a specific contractual engagement, (1) remove the cover pages and this Introduction, (2) fill in Project-specific information and make revisions to the Agreement, following the guidance in the Notes to Users and bracketed notes and prompts, and the advice of legal counsel, and (3) delete the Notes to Users and bracketed notes and prompts.

**AGREEMENT
BETWEEN OWNER AND CONTRACTOR
FOR CONSTRUCTION CONTRACT (STIPULATED PRICE)**

THIS AGREEMENT is by and between PR South, Inc. (“Owner”) and
_____ (“Contractor”).

Owner and Contractor hereby agree as follows:

ARTICLE 1 – WORK

1.01 Contractor shall complete all Work as specified or indicated in the Contract Documents. The Work is generally described as follows:

ARTICLE 2 – THE PROJECT

A. The Project, of which the Work under the Contract Documents is a part, is generally described as follows: Northwest Williamson County Municipal Utility District No. 2 - Parmer Ranch, Phases 2, 3, & 4 Drainage, Paving, Wastewater and Water System Improvements

ARTICLE 3 – ENGINEER

3.01 The part of the Project that pertains to the Work has been designed by Steger Bizzell.
3.02 The Owner has retained Steger Bizzell (“Engineer”) to act as Owner’s representative, assume all duties and responsibilities, and have the rights and authority assigned to Engineer in the Contract Documents in connection with the completion of the Work in accordance with the Contract Documents.

ARTICLE 4 – CONTRACT TIMES

4.01 *Time of the Essence*

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

4.02 *Contract Times: Days*

A. The Work will be substantially completed within 200 **calendar** days after the date when the Contract Times commence to run as provided in Paragraph 4.01 of the General Conditions, and completed and ready for final payment in accordance with Paragraph 15.06 of the General Conditions within 240 **calendar** days after the date when the Contract Times commence to run.

4.03 *Liquidated Damages*

A. Contractor and Owner recognize that time is of the essence as stated in Paragraph 4.01 above and that Owner will suffer financial and other losses if the Work is not completed and Milestones not achieved within the times specified in Paragraph 4.02 above, plus any extensions thereof allowed in accordance with the Contract. The parties also recognize the delays, expense, and difficulties involved in proving in a legal or arbitration proceeding the actual loss suffered by Owner if the Work is not completed on time. Accordingly, instead of

requiring any such proof, Owner and Contractor agree that as liquidated damages for delay (but not as a penalty):

1. Substantial Completion: Contractor shall pay Owner \$ 750.00 for each day that expires after the time (as duly adjusted pursuant to the Contract) specified in Paragraph 4.02.A above for Substantial Completion until the Work is substantially complete.
2. Completion of Remaining Work: After Substantial Completion, if Contractor shall neglect, refuse, or fail to complete the remaining Work within the Contract Times (as duly adjusted pursuant to the Contract) for completion and readiness for final payment, Contractor shall pay Owner \$ 750.00 for each day that expires after such time until the Work is completed and ready for final payment.
3. Liquidated damages for failing to timely attain Substantial Completion and final completion are not additive and will not be imposed concurrently.

4.04 *Special Damages*

- A. In addition to the amount provided for liquidated damages, Contractor shall reimburse Owner (1) for any fines or penalties imposed on Owner as a direct result of the Contractor's failure to attain Substantial Completion according to the Contract Times, and (2) for the actual costs reasonably incurred by Owner for engineering, construction observation, inspection, and administrative services needed after the time specified in Paragraph 4.02 for Substantial Completion (as duly adjusted pursuant to the Contract), until the Work is substantially complete.
- B. After Contractor achieves Substantial Completion, if Contractor shall neglect, refuse, or fail to complete the remaining Work within the Contract Times, Contractor shall reimburse Owner for the actual costs reasonably incurred by Owner for engineering, construction observation, inspection, and administrative services needed after the time specified in Paragraph 4.02 for Work to be completed and ready for final payment (as duly adjusted pursuant to the Contract), until the Work is completed and ready for final payment.

ARTICLE 5 – CONTRACT PRICE

- 5.01 Owner shall pay Contractor for completion of the Work in accordance with the Contract Documents the amounts that follow, subject to adjustment under the Contract:
- A. For all Work, at the prices stated in Contractor's Bid, attached hereto as an exhibit in Section 00300 Bid Form.

ARTICLE 6 – PAYMENT PROCEDURES

6.01 *Submittal and Processing of Payments*

- A. Contractor shall submit Applications for Payment in accordance with Article 15 of the General Conditions. Applications for Payment will be processed by Engineer as provided in the General Conditions.

6.02 *Progress Payments; Retainage*

- A. Owner shall make progress payments on account of the Contract Price on the basis of Contractor's Applications for Payment on or about the 28th day of each month during performance of the Work as provided in ~~Paragraph 6.02.A.1 below~~ Section 00030 C –

Payments to Contractor, provided that such Applications for Payment have been submitted in a timely manner and otherwise meet the requirements of the Contract. All such payments will be measured by the Schedule of Values established as provided in the General Conditions (and in the case of Unit Price Work based on the number of units completed) or, in the event there is no Schedule of Values, as provided elsewhere in the Contract.

1. Prior to Substantial Completion, progress payments will be made in an amount equal to the percentage indicated below but, in each case, less the aggregate of payments previously made and less such amounts as Owner may withhold, including but not limited to liquidated damages, in accordance with the Contract
 - a. 90 percent of Work completed (with the balance being retainage).

6.03 *Final Payment*

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

ARTICLE 7 – INTEREST

7.01 All amounts not paid when due shall bear interest at the rate of zero percent per annum.

ARTICLE 8 – CONTRACTOR’S REPRESENTATIONS

- 8.01 In order to induce Owner to enter into this Contract, Contractor makes the following representations:
- A. Contractor has examined and carefully studied the Contract Documents, and any data and reference items identified in the Contract Documents.
 - B. Contractor has visited the Site, conducted a thorough, alert visual examination of the Site and adjacent areas, and become familiar with and is satisfied as to the general, local, and Site conditions that may affect cost, progress, and performance of the Work.
 - C. Contractor is familiar with and is satisfied as to all Laws and Regulations that may affect cost, progress, and performance of the Work.
 - D. Contractor has carefully studied all: ~~(1) reports of explorations and tests of subsurface conditions at or adjacent to the Site and all drawings of physical conditions relating to existing surface or subsurface structures at the Site that have been identified in the Supplementary Conditions, especially with respect to Technical Data in such reports and drawings, and (2) reports and drawings relating to Hazardous Environmental Conditions, if any, at or adjacent to the Site that have been identified in the Supplementary Conditions, especially with respect to Technical Data in such reports and drawings.~~
 - E. Contractor has considered the information known to Contractor itself; information commonly known to contractors doing business in the locality of the Site; information and observations obtained from visits to the Site; the Contract Documents; and the Site-related reports and drawings identified in the Contract Documents, with respect to the effect of such information, observations, and documents on (1) the cost, progress, and performance of the Work; (2) the means, methods, techniques, sequences, and procedures of construction to be employed by Contractor; and (3) Contractor’s safety precautions and programs.

- F. Based on the information and observations referred to in the preceding paragraph, Contractor agrees that no further examinations, investigations, explorations, tests, studies, or data are necessary for the performance of the Work at the Contract Price, within the Contract Times, and in accordance with the other terms and conditions of the Contract.
- G. Contractor is aware of the general nature of work to be performed by Owner and others at the Site that relates to the Work as indicated in the Contract Documents.
- H. Contractor has given Engineer written notice of all conflicts, errors, ambiguities, or discrepancies that Contractor has discovered in the Contract Documents, and the written resolution thereof by Engineer is acceptable to Contractor.
- I. The Contract Documents are generally sufficient to indicate and convey understanding of all terms and conditions for performance and furnishing of the Work.
- J. Contractor's entry into this Contract constitutes an incontrovertible representation by Contractor that without exception all prices in the Agreement are premised upon performing and furnishing the Work required by the Contract Documents.

ARTICLE 9 – CONTRACT DOCUMENTS

9.01 *Contents*

- A. The Contract Documents consist of the following:
 - 1. Parmer Ranch, Phases 2, 3, & 4 Drainage, Paving, Wastewater and Water System Improvements Contract Documents and Technical Specification, inclusive.
 - 2. Construction Plans for Parmer Ranch, Phases 2, 3, & 4 Drainage, Paving, Wastewater and Water System Improvements (2021-3-CON), inclusive.
 - 3. City of Georgetown: Construction Specifications and Standards Manual – June 21, 2006
- B. The Contract Documents may only be amended, modified, or supplemented as provided in the General Conditions.

ARTICLE 10 – MISCELLANEOUS

10.01 *Terms*

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

10.02 *Assignment of Contract*

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

10.03 *Successors and Assigns*

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

10.04 *Severability*

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

10.05 *Contractor's Certifications*

- A. Contractor certifies that it has not engaged in corrupt, fraudulent, collusive, or coercive practices in competing for or in executing the Contract. For the purposes of this Paragraph 10.05:
 1. "corrupt practice" means the offering, giving, receiving, or soliciting of any thing of value likely to influence the action of a public official in the bidding process or in the Contract execution;
 2. "fraudulent practice" means an intentional misrepresentation of facts made (a) to influence the bidding process or the execution of the Contract to the detriment of Owner, (b) to establish Bid or Contract prices at artificial non-competitive levels, or (c) to deprive Owner of the benefits of free and open competition;
 3. "collusive practice" means a scheme or arrangement between two or more Bidders, with or without the knowledge of Owner, a purpose of which is to establish Bid prices at artificial, non-competitive levels; and
 4. "coercive practice" means harming or threatening to harm, directly or indirectly, persons or their property to influence their participation in the bidding process or affect the execution of the Contract.

10.06 *Other Provisions*

- A. Owner stipulates that if the General Conditions that are made a part of this Contract are based on EJCDC® C-700, Standard General Conditions for the Construction Contract, published by the Engineers Joint Contract Documents Committee®, and if Owner is the party that has furnished said General Conditions, then Owner has plainly shown all modifications to the standard wording of such published document to the Contractor, through a process such as highlighting or "track changes" (redline/strikeout), or in the Supplementary Conditions.

IN WITNESS WHEREOF, Owner and Contractor have signed this Agreement.

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

OWNER:

CONTRACTOR:

PR South, Inc. _____

By: _____

By: _____

Title: _____

Title: _____

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

Attest: _____

Attest: _____

Title: _____

Title: _____

Address for giving notices:

Address for giving notices:

License No.: _____
(where applicable)

(If Owner is a corporation, attach evidence of authority to sign. If Owner is a public body, attach evidence of authority to sign and resolution or other documents authorizing execution of this Agreement.)

NOTE TO USER: Use in those states or other jurisdictions where applicable or required.

Engineers Joint Documents Committee
Design and Construction Related Documents
Instructions and License Agreement

Instructions

Before you use any EJCDC document:

1. Read the License Agreement. You agree to it and are bound by its terms when you use the EJCDC document.
2. Make sure that you have the correct version for your word processing software.

How to Use:

1. While EJCDC has expended considerable effort to make the software translations exact, it can be that a few document controls (e.g., bold, underline) did not carry over.
2. Similarly, your software may change the font specification if the font is not available in your system. It will choose a font that is close in appearance. In this event, the pagination may not match the control set.
3. If you modify the document, you must follow the instructions in the License Agreement about notification.
4. Also note the instruction in the License Agreement about the EJCDC copyright.

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You should carefully read the following terms and conditions before using this document. Commencement of use of this document indicates your acceptance of these terms and conditions. If you do not agree to them, you should promptly return the materials to the vendor, and your money will be refunded.

The Engineers Joint Contract Documents Committee ("EJCDC") provides **EJCDC Design and Construction Related Documents** and licenses their use worldwide. You assume sole responsibility for the selection of specific documents or portions thereof to achieve your intended results, and for the installation, use, and

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2. Use **EJCDC Design and Construction Related Documents** in printed form for bona fide contract documents.
3. Copy **EJCDC Design and Construction Related Documents** into any machine readable or printed form for backup or modification purposes in support of your use of **EJCDC Design and Construction Related Documents**.

You agree that you will:

1. Reproduce and include EJCDC's copyright notice on any printed or machine-readable copy, modification, or portion merged into another document or program. All proprietary rights in **EJCDC Design and Construction Related Documents** are and shall remain the property of EJCDC.
2. Not represent that any of the contract documents you generate from **EJCDC Design and Construction Related Documents** are EJCDC documents unless (i) the document text is used without alteration or (ii) all additions and changes to, and deletions from, the text are clearly shown.

You may not use, copy, modify, or transfer EJCDC Design and Construction Related Documents, or any copy, modification or merged

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If you transfer possession of any copy, modification or merged portion of EJCDC Design and Construction Related Documents to another party, your license is automatically terminated.

Term:

The license is effective until terminated. You may terminate it at any time by destroying **EJCDC Design and Construction Related Documents** altogether with all copies, modifications and merged portions in any form. It will also terminate upon conditions set forth elsewhere in this Agreement or if you fail to comply with any term or condition of this Agreement. You agree upon such termination to destroy **EJCDC Design and Construction Related Documents** along with all copies, modifications and merged portions in any form.

Limited Warranty:

EJCDC warrants the CDs and diskettes on which **EJCDC Design and Construction Related Documents** is furnished to be free from defects in materials and workmanship under normal use for a period of ninety (90) days from the date of delivery to you as evidenced by a copy of your receipt.

There is no other warranty of any kind, either expressed or implied, including, but not limited to the implied warranties of merchantability and fitness for a particular purpose. Some states do not allow the exclusion of implied warranties, so the above exclusion may not apply to you. This warranty gives you specific legal rights and you may also have other rights which vary from state to state.

EJCDC does not warrant that the functions contained in **EJCDC Design and Construction Related Documents** will meet your requirements or that the operation of **EJCDC Design and Construction Related Documents** will be uninterrupted or error free.

Limitations of Remedies:

EJCDC's entire liability and your exclusive remedy shall be:

1. the replacement of any document not meeting EJCDC's "Limited Warranty" which is returned to EJCDC's selling agent with a copy of your receipt, or
2. if EJCDC's selling agent is unable to deliver a replacement CD or diskette which is free of defects in materials and workmanship, you may terminate this Agreement by returning EJCDC Document and your money will be refunded.

In no event will EJCDC be liable to you for any damages, including any lost profits, lost savings or other incidental or consequential damages arising out of the use or inability to use **EJCDC Design and Construction Related Documents** even if EJCDC has been advised of the possibility of such damages, or for any claim by any other party.

Some states do not allow the limitation or exclusion of liability for incidental or consequential damages, so the above limitation or exclusion may not apply to you.

General:

You may not sublicense, assign, or transfer this license except as expressly provided in this Agreement. Any attempt otherwise to sublicense, assign, or transfer any of the rights, duties, or obligations hereunder is void.

This Agreement shall be governed by the laws of the State of Virginia. Should you have any questions concerning this Agreement, you may contact EJCDC by writing to:

Arthur Schwartz, Esq.
General Counsel
National Society of Professional

Engineers

1420 King Street
Alexandria, VA 22314

Phone: (703) 684-2845

Fax: (703) 836-4875

e-mail: aschwartz@nspe.org

You acknowledge that you have read this agreement, understand it and agree to be bound by its terms and conditions. You further agree that it is the complete and exclusive statement of the agreement between us which supersedes any proposal or prior agreement, oral or written, and any other communications between us relating to the subject matter of this agreement.



Notice to Proceed

Date: _____

Project: Parmer Ranch, Phases 2, 3, & 4 Drainage, Paving, Wastewater and Water System Improvements	
Owner: PR South, Inc.	Owner's Bid No.:
Contract:	Engineer's Project No.: 22223
Bidder:	
Bidder's Address:	

You are notified that the Contract Times under the above Contract will commence to run on _____. On or before that date, you are to start performing your obligations under the Contract Documents. In accordance with Article 4 of the Agreement, the number of days to achieve Substantial Completion is 200, and the number of days to achieve readiness for final payment is 240.

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

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

_____ *[add other requirements]*.

PR South, Inc.
 Owner
 Given by:
 Authorized Signature

 Title

 Date

Copy to Engineer

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Design and Construction Related Documents
Instructions and License Agreement**

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Limited Warranty:

EJCDC warrants the CDs and diskettes on which **EJCDC Design and Construction Related Documents** is furnished to be free from defects in materials and workmanship under normal use for a period of ninety (90) days from the date of delivery to you as evidenced by a copy of your receipt.

There is no other warranty of any kind, either expressed or implied, including, but not limited to the implied warranties of merchantability and fitness for a particular purpose. Some states do not allow the exclusion of implied warranties, so the above exclusion may not apply to you. This warranty gives you specific legal rights and you may also have other rights which vary from state to state.

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2. if EJCDC's selling agent is unable to deliver a replacement CD or diskette which is free of defects in materials and workmanship, you may terminate this Agreement by returning EJCDC Document and your money will be refunded.

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Arthur Schwartz, Esq.

General Counsel
National Society of Professional Engineers
1420 King Street
Alexandria, VA 22314

Phone: (703) 684-2845
Fax: (703) 836-4875
e-mail: aschwartz@nspe.org

You acknowledge that you have read this agreement, understand it and agree to be bound by its terms and conditions. You further agree that it is the complete and exclusive statement of the agreement between us which supersedes any proposal or prior agreement, oral or written, and any other communications between us relating to the subject matter of this agreement.

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

STANDARD GENERAL CONDITIONS OF THE CONSTRUCTION CONTRACT

Prepared by

ENGINEERS JOINT CONTRACT DOCUMENTS COMMITTEE

and

Issued and Published Jointly by

ACEC

AMERICAN COUNCIL OF ENGINEERING COMPANIES



ASCE American Society
of Civil Engineers

PE National Society of
Professional Engineers
Professional Engineers in Private Practice

AMERICAN COUNCIL OF ENGINEERING COMPANIES

ASSOCIATED GENERAL CONTRACTORS OF AMERICA

AMERICAN SOCIETY OF CIVIL ENGINEERS

PROFESSIONAL ENGINEERS IN PRIVATE PRACTICE
A Practice Division of the
NATIONAL SOCIETY OF PROFESSIONAL ENGINEERS

Endorsed by



CONSTRUCTION SPECIFICATIONS INSTITUTE

These General Conditions have been prepared for use with the Suggested Forms of Agreement Between Owner and Contractor (EJCDC C-520 or C-525, 2007 Editions). Their provisions are interrelated and a change in one may necessitate a change in the other. Comments concerning their usage are contained in the Narrative Guide to the EJCDC Construction Documents (EJCDC C-001, 2007 Edition). For guidance in the preparation of Supplementary Conditions, see Guide to the Preparation of Supplementary Conditions (EJCDC C-800, 2007 Edition).

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American Council of Engineering Companies
1015 15th Street N.W., Washington, DC 20005
(202) 347-7474
www.acec.org

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STANDARD GENERAL CONDITIONS OF THE CONSTRUCTION CONTRACT

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ARTICLE 1 – DEFINITIONS AND TERMINOLOGY

1.01 *Defined Terms*

- A. Wherever used in the Bidding Requirements or Contract Documents and printed with initial capital letters, the terms listed below will have the meanings indicated which are applicable to both the singular and plural thereof. In addition to terms specifically defined, terms with initial capital letters in the Contract Documents include references to identified articles and paragraphs, and the titles of other documents or forms.
1. *Addenda*—Written or graphic instruments issued prior to the opening of Bids which clarify, correct, or change the Bidding Requirements or the proposed Contract Documents.
 2. *Agreement*—The written instrument which is evidence of the agreement between Owner and Contractor covering the Work.
 3. *Application for Payment*—The form acceptable to Engineer which is to be used by Contractor during the course of the Work in requesting progress or final payments and which is to be accompanied by such supporting documentation as is required by the Contract Documents.
 4. *Asbestos*—Any material that contains more than one percent asbestos and is friable or is releasing asbestos fibers into the air above current action levels established by the United States Occupational Safety and Health Administration.
 5. *Bid*—The offer or proposal of a Bidder submitted on the prescribed form setting forth the prices for the Work to be performed.
 6. *Bidder*—The individual or entity who submits a Bid directly to Owner.
 7. *Bidding Documents*—The Bidding Requirements and the proposed Contract Documents (including all Addenda).
 8. *Bidding Requirements*—The advertisement or invitation to bid, Instructions to Bidders, Bid security of acceptable form, if any, and the Bid Form with any supplements.
 9. *Change Order*—A document recommended by Engineer which is signed by Contractor and Owner and authorizes an addition, deletion, or revision in the Work or an adjustment in the Contract Price or the Contract Times, issued on or after the Effective Date of the Agreement.
 10. *Claim*—A demand or assertion by Owner or Contractor seeking an adjustment of Contract Price or Contract Times, or both, or other relief with respect to the terms of the Contract. A demand for money or services by a third party is not a Claim.
 11. *Contract*—The entire and integrated written agreement between the Owner and Contractor concerning the Work. The Contract supersedes prior negotiations, representations, or agreements, whether written or oral.

12. *Contract Documents*—Those items so designated in the Agreement. Only printed or hard copies of the items listed in the Agreement are Contract Documents. Approved Shop Drawings, other Contractor submittals, and the reports and drawings of subsurface and physical conditions are not Contract Documents.
13. *Contract Price*—The moneys payable by Owner to Contractor for completion of the Work in accordance with the Contract Documents as stated in the Agreement (subject to the provisions of Paragraph 11.03 in the case of Unit Price Work).
14. *Contract Times*—The number of days or the dates stated in the Agreement to: (i) achieve Milestones, if any; (ii) achieve Substantial Completion; and (iii) complete the Work so that it is ready for final payment as evidenced by Engineer's written recommendation of final payment.
15. *Contractor*—The individual or entity with whom Owner has entered into the Agreement.
16. *Cost of the Work*—See Paragraph 11.01 for definition.
17. *Drawings*—That part of the Contract Documents prepared or approved by Engineer which graphically shows the scope, extent, and character of the Work to be performed by Contractor. Shop Drawings and other Contractor submittals are not Drawings as so defined.
18. *Effective Date of the Agreement*—The date indicated in the Agreement on which it becomes effective, but if no such date is indicated, it means the date on which the Agreement is signed and delivered by the last of the two parties to sign and deliver.
19. *Engineer*—The individual or entity named as such in the Agreement.
20. *Field Order*—A written order issued by Engineer which requires minor changes in the Work but which does not involve a change in the Contract Price or the Contract Times.
21. *General Requirements*—Sections of Division 1 of the Specifications.
22. *Hazardous Environmental Condition*—The presence at the Site of Asbestos, PCBs, Petroleum, Hazardous Waste, or Radioactive Material in such quantities or circumstances that may present a substantial danger to persons or property exposed thereto.
23. *Hazardous Waste*—The term Hazardous Waste shall have the meaning provided in Section 1004 of the Solid Waste Disposal Act (42 USC Section 6903) as amended from time to time.
24. *Laws and Regulations; Laws or Regulations*—Any and all applicable laws, rules, regulations, ordinances, codes, and orders of any and all governmental bodies, agencies, authorities, and courts having jurisdiction.
25. *Liens*—Charges, security interests, or encumbrances upon Project funds, real property, or personal property.
26. *Milestone*—A principal event specified in the Contract Documents relating to an intermediate completion date or time prior to Substantial Completion of all the Work.

27. *Notice of Award*—The written notice by Owner to the Successful Bidder stating that upon timely compliance by the Successful Bidder with the conditions precedent listed therein, Owner will sign and deliver the Agreement.
28. *Notice to Proceed*—A written notice given by Owner to Contractor fixing the date on which the Contract Times will commence to run and on which Contractor shall start to perform the Work under the Contract Documents.
29. *Owner*—The individual or entity with whom Contractor has entered into the Agreement and for whom the Work is to be performed.
30. *PCBs*—Polychlorinated biphenyls.
31. *Petroleum*—Petroleum, including crude oil or any fraction thereof which is liquid at standard conditions of temperature and pressure (60 degrees Fahrenheit and 14.7 pounds per square inch absolute), such as oil, petroleum, fuel oil, oil sludge, oil refuse, gasoline, kerosene, and oil mixed with other non-Hazardous Waste and crude oils.
32. *Progress Schedule*—A schedule, prepared and maintained by Contractor, describing the sequence and duration of the activities comprising the Contractor's plan to accomplish the Work within the Contract Times.
33. *Project*—The total construction of which the Work to be performed under the Contract Documents may be the whole, or a part.
34. *Project Manual*—The bound documentary information prepared for bidding and constructing the Work. A listing of the contents of the Project Manual, which may be bound in one or more volumes, is contained in the table(s) of contents.
35. *Radioactive Material*—Source, special nuclear, or byproduct material as defined by the Atomic Energy Act of 1954 (42 USC Section 2011 et seq.) as amended from time to time.
36. *Resident Project Representative*—The authorized representative of Engineer who may be assigned to the Site or any part thereof.
37. *Samples*—Physical examples of materials, equipment, or workmanship that are representative of some portion of the Work and which establish the standards by which such portion of the Work will be judged.
38. *Schedule of Submittals*—A schedule, prepared and maintained by Contractor, of required submittals and the time requirements to support scheduled performance of related construction activities.
39. *Schedule of Values*—A schedule, prepared and maintained by Contractor, allocating portions of the Contract Price to various portions of the Work and used as the basis for reviewing Contractor's Applications for Payment.

40. *Shop Drawings*—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.
41. *Site*—Lands or areas indicated in the Contract Documents as being furnished by Owner upon which the Work is to be performed, including rights-of-way and easements for access thereto, and such other lands furnished by Owner which are designated for the use of Contractor.
42. *Specifications*—That part of the Contract Documents consisting of written requirements for materials, equipment, systems, standards and workmanship as applied to the Work, and certain administrative requirements and procedural matters applicable thereto.
43. *Subcontractor*—An individual or entity having a direct contract with Contractor or with any other Subcontractor for the performance of a part of the Work at the Site.
44. *Substantial Completion*—The time at which the Work (or a specified part thereof) has progressed to the point where, in the opinion of Engineer, the Work (or a specified part thereof) is sufficiently complete, in accordance with the Contract Documents, so that the Work (or a specified part thereof) can be utilized for the purposes for which it is intended. The terms “substantially complete” and “substantially completed” as applied to all or part of the Work refer to Substantial Completion thereof.
45. *Successful Bidder*—The Bidder submitting a responsive Bid to whom Owner makes an award.
46. *Supplementary Conditions*—That part of the Contract Documents which amends or supplements these General Conditions.
47. *Supplier*—A manufacturer, fabricator, supplier, distributor, materialman, or vendor having a direct contract with Contractor or with any Subcontractor to furnish materials or equipment to be incorporated in the Work by Contractor or Subcontractor.
48. *Underground Facilities*—All underground pipelines, conduits, ducts, cables, wires, manholes, vaults, tanks, tunnels, or other such facilities or attachments, and any encasements containing such facilities, including those that convey electricity, gases, steam, liquid petroleum products, telephone or other communications, cable television, water, wastewater, storm water, other liquids or chemicals, or traffic or other control systems.
49. *Unit Price Work*—Work to be paid for on the basis of unit prices.
50. *Work*—The entire construction or the various separately identifiable parts thereof required to be provided under the Contract Documents. Work includes and is the result of performing or providing all labor, services, and documentation necessary to produce such construction, and furnishing, installing, and incorporating all materials and equipment into such construction, all as required by the Contract Documents.

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

1.02 *Terminology*

A. The words and terms discussed in Paragraph 1.02.B through F are not defined but, when used in the Bidding Requirements or Contract Documents, have the indicated meaning.

B. *Intent of Certain Terms or Adjectives:*

1. The Contract Documents include the terms “as allowed,” “as approved,” “as ordered,” “as directed” or terms of like effect or import to authorize an exercise of professional judgment by Engineer. In addition, the adjectives “reasonable,” “suitable,” “acceptable,” “proper,” “satisfactory,” or adjectives of like effect or import are used to describe an action or determination of Engineer as to the Work. It is intended that such exercise of professional judgment, action, or determination will be solely to evaluate, in general, the Work for compliance with the information in the Contract Documents and with the design concept of the Project as a functioning whole as shown or indicated in the Contract Documents (unless there is a specific statement indicating otherwise). The use of any such term or adjective is not intended to and shall not be effective to assign to Engineer any duty or authority to supervise or direct the performance of the Work, or any duty or authority to undertake responsibility contrary to the provisions of Paragraph 9.09 or any other provision of the Contract Documents.

C. *Day:*

1. The word “day” means a calendar day of 24 hours measured from midnight to the next midnight.

D. *Defective:*

1. The word “defective,” when modifying the word “Work,” refers to Work that is unsatisfactory, faulty, or deficient in that it:

a. does not conform to the Contract Documents; or

b. does not meet the requirements of any applicable inspection, reference standard, test, or approval referred to in the Contract Documents; or

- c. has been damaged prior to Engineer's recommendation of final payment (unless responsibility for the protection thereof has been assumed by Owner at Substantial Completion in accordance with Paragraph 14.04 or 14.05).

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

1. The word "furnish," when used in connection with services, materials, or equipment, shall mean to supply and deliver said services, materials, or equipment to the Site (or some other specified location) ready for use or installation and in usable or operable condition.
 2. The word "install," when used in connection with services, materials, or equipment, shall mean to put into use or place in final position said services, materials, or equipment complete and ready for intended use.
 3. The words "perform" or "provide," when used in connection with services, materials, or equipment, shall mean to furnish and install said services, materials, or equipment complete and ready for intended use.
 4. When "furnish," "install," "perform," or "provide" is not used in connection with services, materials, or equipment in a context clearly requiring an obligation of Contractor, "provide" is implied.
- F. Unless stated otherwise in the Contract Documents, words or phrases that have a well-known technical or construction industry or trade meaning are used in the Contract Documents in accordance with such recognized meaning.

ARTICLE 2 – PRELIMINARY MATTERS

2.01 Delivery of Bonds and Evidence of Insurance

- A. When Contractor delivers the executed counterparts of the Agreement to Owner, Contractor shall also deliver to Owner such bonds as Contractor may be required to furnish.
- B. *Evidence of Insurance:* Before any Work at the Site is started, Contractor and Owner shall each deliver to the other, with copies to each additional insured identified in the Supplementary Conditions, certificates of insurance (and other evidence of insurance which either of them or any additional insured may reasonably request) which Contractor and Owner respectively are required to purchase and maintain in accordance with Article 5.

2.02 Copies of Documents

- A. Owner shall furnish to Contractor up to ten printed or hard copies of the Drawings and Project Manual. Additional copies will be furnished upon request at the cost of reproduction.

2.03 Commencement of Contract Times; Notice to Proceed

- A. The Contract Times will commence to run on the thirtieth day after the Effective Date of the Agreement or, if a Notice to Proceed is given, on the day indicated in the Notice to Proceed. A Notice to Proceed may be given at any time within 30 days after the Effective Date of the

Agreement. In no event will the Contract Times commence to run later than the sixtieth day after the day of Bid opening or the thirtieth day after the Effective Date of the Agreement, whichever date is earlier.

2.04 *Starting the Work*

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

2.05 *Before Starting Construction*

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

2.06 *Preconstruction Conference; Designation of Authorized Representatives*

- A. Before any Work at the Site is started, a conference attended by Owner, Contractor, Engineer, and others as appropriate will be held to establish a working understanding among the parties as to the Work and to discuss the schedules referred to in Paragraph 2.05.A, procedures for handling Shop Drawings and other submittals, processing Applications for Payment, and maintaining required records.
- B. At this conference Owner and Contractor each shall designate, in writing, a specific individual to act as its authorized representative with respect to the services and responsibilities under the Contract. Such individuals shall have the authority to transmit instructions, receive information, render decisions relative to the Contract, and otherwise act on behalf of each respective party.

2.07 *Initial Acceptance of Schedules*

- A. At least 10 days before submission of the first Application for Payment a conference attended by Contractor, Engineer, and others as appropriate will be held to review for acceptability to Engineer as provided below the schedules submitted in accordance with Paragraph 2.05.A. Contractor shall have an additional 10 days to make corrections and adjustments and to complete

and resubmit the schedules. No progress payment shall be made to Contractor until acceptable schedules are submitted to Engineer.

1. The Progress Schedule will be acceptable to Engineer if it provides an orderly progression of the Work to completion within the Contract Times. Such acceptance will not impose on Engineer responsibility for the Progress Schedule, for sequencing, scheduling, or progress of the Work, nor interfere with or relieve Contractor from Contractor's full responsibility therefor.
2. Contractor's Schedule of Submittals will be acceptable to Engineer if it provides a workable arrangement for reviewing and processing the required submittals.
3. Contractor's Schedule of Values will be acceptable to Engineer as to form and substance if it provides a reasonable allocation of the Contract Price to component parts of the Work.

ARTICLE 3 – CONTRACT DOCUMENTS: INTENT, AMENDING, REUSE

3.01 *Intent*

- A. The Contract Documents are complementary; what is required by one is as binding as if required by all.
- B. It is the intent of the Contract Documents to describe a functionally complete project (or part thereof) to be constructed in accordance with the Contract Documents. Any labor, documentation, services, materials, or equipment that reasonably may be inferred from the Contract Documents or from prevailing custom or trade usage as being required to produce the indicated result will be provided whether or not specifically called for, at no additional cost to Owner.
- C. Clarifications and interpretations of the Contract Documents shall be issued by Engineer as provided in Article 9.

3.02 *Reference Standards*

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

performance of the Work or any duty or authority to undertake responsibility inconsistent with the provisions of the Contract Documents.

3.03 *Reporting and Resolving Discrepancies*

A. *Reporting Discrepancies:*

1. *Contractor's Review of Contract Documents Before Starting Work:* Before undertaking each part of the Work, Contractor shall carefully study and compare the Contract Documents and check and verify pertinent figures therein and all applicable field measurements. Contractor shall promptly report in writing to Engineer any conflict, error, ambiguity, or discrepancy which Contractor discovers, or has actual knowledge of, and shall obtain a written interpretation or clarification from Engineer before proceeding with any Work affected thereby.
2. *Contractor's Review of Contract Documents During Performance of Work:* If, during the performance of the Work, Contractor discovers any conflict, error, ambiguity, or discrepancy within the Contract Documents, or between the Contract Documents and (a) any applicable Law or Regulation, (b) any standard, specification, manual, or code, or (c) any instruction of any Supplier, then Contractor shall promptly report it to Engineer in writing. Contractor shall not proceed with the Work affected thereby (except in an emergency as required by Paragraph 6.16.A) until an amendment or supplement to the Contract Documents has been issued by one of the methods indicated in Paragraph 3.04.
3. Contractor shall not be liable to Owner or Engineer for failure to report any conflict, error, ambiguity, or discrepancy in the Contract Documents unless Contractor had actual knowledge thereof.

B. *Resolving Discrepancies:*

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

3.04 *Amending and Supplementing Contract Documents*

- A. The Contract Documents may be amended to provide for additions, deletions, and revisions in the Work or to modify the terms and conditions thereof by either a Change Order or a Work Change Directive.

- B. The requirements of the Contract Documents may be supplemented, and minor variations and deviations in the Work may be authorized, by one or more of the following ways:
1. A Field Order;
 2. Engineer's approval of a Shop Drawing or Sample (subject to the provisions of Paragraph 6.17.D.3); or
 3. Engineer's written interpretation or clarification.

3.05 *Reuse of Documents*

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

3.06 *Electronic Data*

- A. Unless otherwise stated in the Supplementary Conditions, the data furnished by Owner or Engineer to Contractor, or by Contractor to Owner or Engineer, that may be relied upon are limited to the printed copies (also known as hard copies). Files in electronic media format of text, data, graphics, or other types are furnished only for the convenience of the receiving party. Any conclusion or information obtained or derived from such electronic files will be at the user's sole risk. If there is a discrepancy between the electronic files and the hard copies, the hard copies govern.
- B. Because data stored in electronic media format can deteriorate or be modified inadvertently or otherwise without authorization of the data's creator, the party receiving electronic files agrees that it will perform acceptance tests or procedures within 60 days, after which the receiving party shall be deemed to have accepted the data thus transferred. Any errors detected within the 60-day acceptance period will be corrected by the transferring party.
- C. When transferring documents in electronic media format, the transferring party makes no representations as to long term compatibility, usability, or readability of documents resulting from the use of software application packages, operating systems, or computer hardware differing from those used by the data's creator.

ARTICLE 4 – AVAILABILITY OF LANDS; SUBSURFACE AND PHYSICAL CONDITIONS; HAZARDOUS ENVIRONMENTAL CONDITIONS; REFERENCE POINTS

4.01 *Availability of Lands*

- A. Owner shall furnish the Site. Owner shall notify Contractor of any encumbrances or restrictions not of general application but specifically related to use of the Site with which Contractor must comply in performing the Work. Owner will obtain in a timely manner and pay for easements for permanent structures or permanent changes in existing facilities. If Contractor and Owner are unable to agree on entitlement to or on the amount or extent, if any, of any adjustment in the Contract Price or Contract Times, or both, as a result of any delay in Owner's furnishing the Site or a part thereof, Contractor may make a Claim therefor as provided in Paragraph 10.05.
- B. Upon reasonable written request, Owner shall furnish Contractor with a current statement of record legal title and legal description of the lands upon which the Work is to be performed and Owner's interest therein as necessary for giving notice of or filing a mechanic's or construction lien against such lands in accordance with applicable Laws and Regulations.
- C. Contractor shall provide for all additional lands and access thereto that may be required for temporary construction facilities or storage of materials and equipment.

4.02 *Subsurface and Physical Conditions*

- A. *Reports and Drawings:* The Supplementary Conditions identify:
 - 1. those reports known to Owner of explorations and tests of subsurface conditions at or contiguous to the Site; and
 - 2. those drawings known to Owner of physical conditions relating to existing surface or subsurface structures at the Site (except Underground Facilities).
- B. *Limited Reliance by Contractor on Technical Data Authorized:* Contractor may rely upon the accuracy of the "technical data" contained in such reports and drawings, but such reports and drawings are not Contract Documents. Such "technical data" is identified in the Supplementary Conditions. Except for such reliance on such "technical data," Contractor may not rely upon or make any claim against Owner or Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors with respect to:
 - 1. the completeness of such reports and drawings for Contractor's purposes, including, but not limited to, any aspects of the means, methods, techniques, sequences, and procedures of construction to be employed by Contractor, and safety precautions and programs incident thereto; or
 - 2. other data, interpretations, opinions, and information contained in such reports or shown or indicated in such drawings; or
 - 3. any Contractor interpretation of or conclusion drawn from any "technical data" or any such other data, interpretations, opinions, or information.

4.03 *Differing Subsurface or Physical Conditions*

- A. *Notice:* If Contractor believes that any subsurface or physical condition that is uncovered or revealed either:
1. is of such a nature as to establish that any “technical data” on which Contractor is entitled to rely as provided in Paragraph 4.02 is materially inaccurate; or
 2. is of such a nature as to require a change in the Contract Documents; or
 3. differs materially from that shown or indicated in the Contract Documents; or
 4. is of an unusual nature, and differs materially from conditions ordinarily encountered and generally recognized as inherent in work of the character provided for in the Contract Documents;

then Contractor shall, promptly after becoming aware thereof and before further disturbing the subsurface or physical conditions or performing any Work in connection therewith (except in an emergency as required by Paragraph 6.16.A), notify Owner and Engineer in writing about such condition. Contractor shall not further disturb such condition or perform any Work in connection therewith (except as aforesaid) until receipt of written order to do so.

- B. *Engineer’s Review:* After receipt of written notice as required by Paragraph 4.03.A, Engineer will promptly review the pertinent condition, determine the necessity of Owner’s obtaining additional exploration or tests with respect thereto, and advise Owner in writing (with a copy to Contractor) of Engineer’s findings and conclusions.

C. *Possible Price and Times Adjustments:*

1. The Contract Price or the Contract Times, or both, will be equitably adjusted to the extent that the existence of such differing subsurface or physical condition causes an increase or decrease in Contractor’s cost of, or time required for, performance of the Work; subject, however, to the following:
 - a. such condition must meet any one or more of the categories described in Paragraph 4.03.A; and
 - b. with respect to Work that is paid for on a unit price basis, any adjustment in Contract Price will be subject to the provisions of Paragraphs 9.07 and 11.03.
2. Contractor shall not be entitled to any adjustment in the Contract Price or Contract Times if:
 - a. Contractor knew of the existence of such conditions at the time Contractor made a final commitment to Owner with respect to Contract Price and Contract Times by the submission of a Bid or becoming bound under a negotiated contract; or
 - b. the existence of such condition could reasonably have been discovered or revealed as a result of any examination, investigation, exploration, test, or study of the Site and

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

- c. Contractor failed to give the written notice as required by Paragraph 4.03.A.
3. If Owner and Contractor are unable to agree on entitlement to or on the amount or extent, if any, of any adjustment in the Contract Price or Contract Times, or both, a Claim may be made therefor as provided in Paragraph 10.05. However, neither Owner or Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors shall be liable to Contractor for any claims, costs, losses, or damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) sustained by Contractor on or in connection with any other project or anticipated project.

4.04 *Underground Facilities*

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

1. Owner and Engineer shall not be responsible for the accuracy or completeness of any such information or data provided by others; and
2. the cost of all of the following will be included in the Contract Price, and Contractor shall have full responsibility for:
 - a. reviewing and checking all such information and data;
 - b. locating all Underground Facilities shown or indicated in the Contract Documents;
 - c. coordination of the Work with the owners of such Underground Facilities, including Owner, during construction; and
 - d. the safety and protection of all such Underground Facilities and repairing any damage thereto resulting from the Work.

B. *Not Shown or Indicated:*

1. If an Underground Facility is uncovered or revealed at or contiguous to the Site which was not shown or indicated, or not shown or indicated with reasonable accuracy in the Contract Documents, Contractor shall, promptly after becoming aware thereof and before further disturbing conditions affected thereby or performing any Work in connection therewith (except in an emergency as required by Paragraph 6.16.A), identify the owner of such Underground Facility and give written notice to that owner and to Owner and Engineer. Engineer will promptly review the Underground Facility and determine the extent, if any, to which a change is required in the Contract Documents to reflect and document the

consequences of the existence or location of the Underground Facility. During such time, Contractor shall be responsible for the safety and protection of such Underground Facility.

2. If Engineer concludes that a change in the Contract Documents is required, a Work Change Directive or a Change Order will be issued to reflect and document such consequences. An equitable adjustment shall be made in the Contract Price or Contract Times, or both, to the extent that they are attributable to the existence or location of any Underground Facility that was not shown or indicated or not shown or indicated with reasonable accuracy in the Contract Documents and that Contractor did not know of and could not reasonably have been expected to be aware of or to have anticipated. If Owner and Contractor are unable to agree on entitlement to or on the amount or extent, if any, of any such adjustment in Contract Price or Contract Times, Owner or Contractor may make a Claim therefor as provided in Paragraph 10.05.

4.05 *Reference Points*

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

4.06 *Hazardous Environmental Condition at Site*

- A. *Reports and Drawings:* The Supplementary Conditions identify those reports and drawings known to Owner relating to Hazardous Environmental Conditions that have been identified at the Site.
- B. *Limited Reliance by Contractor on Technical Data Authorized:* Contractor may rely upon the accuracy of the "technical data" contained in such reports and drawings, but such reports and drawings are not Contract Documents. Such "technical data" is identified in the Supplementary Conditions. Except for such reliance on such "technical data," Contractor may not rely upon or make any claim against Owner or Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors with respect to:
 1. the completeness of such reports and drawings for Contractor's purposes, including, but not limited to, any aspects of the means, methods, techniques, sequences and procedures of construction to be employed by Contractor and safety precautions and programs incident thereto; or
 2. other data, interpretations, opinions and information contained in such reports or shown or indicated in such drawings; or
 3. any Contractor interpretation of or conclusion drawn from any "technical data" or any such other data, interpretations, opinions or information.

- C. Contractor shall not be responsible for any Hazardous Environmental Condition uncovered or revealed at the Site which was not shown or indicated in Drawings or Specifications or identified in the Contract Documents to be within the scope of the Work. Contractor shall be responsible for a Hazardous Environmental Condition created with any materials brought to the Site by Contractor, Subcontractors, Suppliers, or anyone else for whom Contractor is responsible.
- D. If Contractor encounters a Hazardous Environmental Condition or if Contractor or anyone for whom Contractor is responsible creates a Hazardous Environmental Condition, Contractor shall immediately: (i) secure or otherwise isolate such condition; (ii) stop all Work in connection with such condition and in any area affected thereby (except in an emergency as required by Paragraph 6.16.A); and (iii) notify Owner and Engineer (and promptly thereafter confirm such notice in writing). Owner shall promptly consult with Engineer concerning the necessity for Owner to retain a qualified expert to evaluate such condition or take corrective action, if any. Promptly after consulting with Engineer, Owner shall take such actions as are necessary to permit Owner to timely obtain required permits and provide Contractor the written notice required by Paragraph 4.06.E.
- E. Contractor shall not be required to resume Work in connection with such condition or in any affected area until after Owner has obtained any required permits related thereto and delivered written notice to Contractor: (i) specifying that such condition and any affected area is or has been rendered safe for the resumption of Work; or (ii) specifying any special conditions under which such Work may be resumed safely. If Owner and Contractor cannot agree as to entitlement to or on the amount or extent, if any, of any adjustment in Contract Price or Contract Times, or both, as a result of such Work stoppage or such special conditions under which Work is agreed to be resumed by Contractor, either party may make a Claim therefor as provided in Paragraph 10.05.
- F. If after receipt of such written notice Contractor does not agree to resume such Work based on a reasonable belief it is unsafe, or does not agree to resume such Work under such special conditions, then Owner may order the portion of the Work that is in the area affected by such condition to be deleted from the Work. If Owner and Contractor cannot agree as to entitlement to or on the amount or extent, if any, of an adjustment in Contract Price or Contract Times as a result of deleting such portion of the Work, then either party may make a Claim therefor as provided in Paragraph 10.05. Owner may have such deleted portion of the Work performed by Owner's own forces or others in accordance with Article 7.
- G. To the fullest extent permitted by Laws and Regulations, Owner shall indemnify and hold harmless Contractor, Subcontractors, and Engineer, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to a Hazardous Environmental Condition, provided that such Hazardous Environmental Condition: (i) was not shown or indicated in the Drawings or Specifications or identified in the Contract Documents to be included within the scope of the Work, and (ii) was not created by Contractor or by anyone for whom Contractor is responsible. Nothing in this Paragraph 4.06.G shall obligate Owner to indemnify any individual or entity from and against the consequences of that individual's or entity's own negligence.

- H. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to a Hazardous Environmental Condition created by Contractor or by anyone for whom Contractor is responsible. Nothing in this Paragraph 4.06.H shall obligate Contractor to indemnify any individual or entity from and against the consequences of that individual's or entity's own negligence.
- I. The provisions of Paragraphs 4.02, 4.03, and 4.04 do not apply to a Hazardous Environmental Condition uncovered or revealed at the Site.

ARTICLE 5 – BONDS AND INSURANCE

5.01 *Performance, Payment, and Other Bonds*

- A. Contractor shall furnish performance and payment bonds, each in an amount at least equal to the Contract Price as security for the faithful performance and payment of all of Contractor's obligations under the Contract Documents. These bonds shall remain in effect until one year after the date when final payment becomes due or until completion of the correction period specified in Paragraph 13.07, whichever is later, except as provided otherwise by Laws or Regulations or by the Contract Documents. Contractor shall also furnish such other bonds as are required by the Contract Documents.
- B. All bonds shall be in the form prescribed by the Contract Documents except as provided otherwise by Laws or Regulations, and shall be executed by such sureties as are named in the list of "Companies Holding Certificates of Authority as Acceptable Sureties on Federal Bonds and as Acceptable Reinsuring Companies" as published in Circular 570 (amended) by the Financial Management Service, Surety Bond Branch, U.S. Department of the Treasury. All bonds signed by an agent or attorney-in-fact must be accompanied by a certified copy of that individual's authority to bind the surety. The evidence of authority shall show that it is effective on the date the agent or attorney-in-fact signed each bond.
- C. If the surety on any bond furnished by Contractor is declared bankrupt or becomes insolvent or its right to do business is terminated in any state where any part of the Project is located or it ceases to meet the requirements of Paragraph 5.01.B, Contractor shall promptly notify Owner and Engineer and shall, within 20 days after the event giving rise to such notification, provide another bond and surety, both of which shall comply with the requirements of Paragraphs 5.01.B and 5.02.

5.02 *Licensed Sureties and Insurers*

- A. All bonds and insurance required by the Contract Documents to be purchased and maintained by Owner or Contractor shall be obtained from surety or insurance companies that are duly licensed or authorized in the jurisdiction in which the Project is located to issue bonds or insurance policies for the limits and coverages so required. Such surety and insurance companies shall also

meet such additional requirements and qualifications as may be provided in the Supplementary Conditions.

5.03 *Certificates of Insurance*

- A. Contractor shall deliver to Owner, with copies to each additional insured and loss payee identified in the Supplementary Conditions, certificates of insurance (and other evidence of insurance requested by Owner or any other additional insured) which Contractor is required to purchase and maintain.
- B. Owner shall deliver to Contractor, with copies to each additional insured and loss payee identified in the Supplementary Conditions, certificates of insurance (and other evidence of insurance requested by Contractor or any other additional insured) which Owner is required to purchase and maintain.
- C. Failure of Owner to demand such certificates or other evidence of Contractor's full compliance with these insurance requirements or failure of Owner to identify a deficiency in compliance from the evidence provided shall not be construed as a waiver of Contractor's obligation to maintain such insurance.
- D. Owner does not represent that insurance coverage and limits established in this Contract necessarily will be adequate to protect Contractor.
- E. The insurance and insurance limits required herein shall not be deemed as a limitation on Contractor's liability under the indemnities granted to Owner in the Contract Documents.

5.04 *Contractor's Insurance*

- A. Contractor shall purchase and maintain such insurance as is appropriate for the Work being performed and as will provide protection from claims set forth below which may arise out of or result from Contractor's performance of the Work and Contractor's other obligations under the Contract Documents, whether it is to be performed by Contractor, any Subcontractor or Supplier, or by anyone directly or indirectly employed by any of them to perform any of the Work, or by anyone for whose acts any of them may be liable:
 - 1. claims under workers' compensation, disability benefits, and other similar employee benefit acts;
 - 2. claims for damages because of bodily injury, occupational sickness or disease, or death of Contractor's employees;
 - 3. claims for damages because of bodily injury, sickness or disease, or death of any person other than Contractor's employees;
 - 4. claims for damages insured by reasonably available personal injury liability coverage which are sustained:

- a. by any person as a result of an offense directly or indirectly related to the employment of such person by Contractor, or
 - b. by any other person for any other reason;
5. claims for damages, other than to the Work itself, because of injury to or destruction of tangible property wherever located, including loss of use resulting therefrom; and
 6. claims for damages because of bodily injury or death of any person or property damage arising out of the ownership, maintenance or use of any motor vehicle.
- B. The policies of insurance required by this Paragraph 5.04 shall:
1. with respect to insurance required by Paragraphs 5.04.A.3 through 5.04.A.6 inclusive, be written on an occurrence basis, include as additional insureds (subject to any customary exclusion regarding professional liability) Owner and Engineer, and any other individuals or entities identified in the Supplementary Conditions, all of whom shall be listed as additional insureds, and include coverage for the respective officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of all such additional insureds, and the insurance afforded to these additional insureds shall provide primary coverage for all claims covered thereby;
 2. include at least the specific coverages and be written for not less than the limits of liability provided in the Supplementary Conditions or required by Laws or Regulations, whichever is greater;
 3. include contractual liability insurance covering Contractor's indemnity obligations under Paragraphs 6.11 and 6.20;
 4. contain a provision or endorsement that the coverage afforded will not be canceled, materially changed or renewal refused until at least 30 days prior written notice has been given to Owner and Contractor and to each other additional insured identified in the Supplementary Conditions to whom a certificate of insurance has been issued (and the certificates of insurance furnished by the Contractor pursuant to Paragraph 5.03 will so provide);
 5. remain in effect at least until final payment and at all times thereafter when Contractor may be correcting, removing, or replacing defective Work in accordance with Paragraph 13.07; and
 6. include completed operations coverage:
 - a. Such insurance shall remain in effect for two years after final payment.
 - b. Contractor shall furnish Owner and each other additional insured identified in the Supplementary Conditions, to whom a certificate of insurance has been issued, evidence satisfactory to Owner and any such additional insured of continuation of such insurance at final payment and one year thereafter.

5.05 *Owner's Liability Insurance*

- A. In addition to the insurance required to be provided by Contractor under Paragraph 5.04, Owner, at Owner's option, may purchase and maintain at Owner's expense Owner's own liability insurance as will protect Owner against claims which may arise from operations under the Contract Documents.

5.06 *Property Insurance*

- A. Unless otherwise provided in the Supplementary Conditions, Owner shall purchase and maintain property insurance upon the Work at the Site in the amount of the full replacement cost thereof (subject to such deductible amounts as may be provided in the Supplementary Conditions or required by Laws and Regulations). This insurance shall:
1. include the interests of Owner, Contractor, Subcontractors, and Engineer, and any other individuals or entities identified in the Supplementary Conditions, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them, each of whom is deemed to have an insurable interest and shall be listed as a loss payee;
 2. be written on a Builder's Risk "all-risk" policy form that shall at least include insurance for physical loss or damage to the Work, temporary buildings, falsework, and materials and equipment in transit, and shall insure against at least the following perils or causes of loss: fire, lightning, extended coverage, theft, vandalism and malicious mischief, earthquake, collapse, debris removal, demolition occasioned by enforcement of Laws and Regulations, water damage (other than that caused by flood), and such other perils or causes of loss as may be specifically required by the Supplementary Conditions.
 3. include expenses incurred in the repair or replacement of any insured property (including but not limited to fees and charges of engineers and architects);
 4. cover materials and equipment stored at the Site or at another location that was agreed to in writing by Owner prior to being incorporated in the Work, provided that such materials and equipment have been included in an Application for Payment recommended by Engineer;
 5. allow for partial utilization of the Work by Owner;
 6. include testing and startup; and
 7. be maintained in effect until final payment is made unless otherwise agreed to in writing by Owner, Contractor, and Engineer with 30 days written notice to each other loss payee to whom a certificate of insurance has been issued.
- B. Owner shall purchase and maintain such equipment breakdown insurance or additional property insurance as may be required by the Supplementary Conditions or Laws and Regulations which will include the interests of Owner, Contractor, Subcontractors, and Engineer, and any other individuals or entities identified in the Supplementary Conditions, and the officers, directors,

members, partners, employees, agents, consultants and subcontractors of each and any of them, each of whom is deemed to have an insurable interest and shall be listed as a loss payee.

- C. All the policies of insurance (and the certificates or other evidence thereof) required to be purchased and maintained in accordance with this Paragraph 5.06 will contain a provision or endorsement that the coverage afforded will not be canceled or materially changed or renewal refused until at least 30 days prior written notice has been given to Owner and Contractor and to each other loss payee to whom a certificate of insurance has been issued and will contain waiver provisions in accordance with Paragraph 5.07.
- D. Owner shall not be responsible for purchasing and maintaining any property insurance specified in this Paragraph 5.06 to protect the interests of Contractor, Subcontractors, or others in the Work to the extent of any deductible amounts that are identified in the Supplementary Conditions. The risk of loss within such identified deductible amount will be borne by Contractor, Subcontractors, or others suffering any such loss, and if any of them wishes property insurance coverage within the limits of such amounts, each may purchase and maintain it at the purchaser's own expense.
- E. If Contractor requests in writing that other special insurance be included in the property insurance policies provided under this Paragraph 5.06, Owner shall, if possible, include such insurance, and the cost thereof will be charged to Contractor by appropriate Change Order. Prior to commencement of the Work at the Site, Owner shall in writing advise Contractor whether or not such other insurance has been procured by Owner.

5.07 *Waiver of Rights*

- A. Owner and Contractor intend that all policies purchased in accordance with Paragraph 5.06 will protect Owner, Contractor, Subcontractors, and Engineer, and all other individuals or entities identified in the Supplementary Conditions as loss payees (and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them) in such policies and will provide primary coverage for all losses and damages caused by the perils or causes of loss covered thereby. All such policies 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 of the insureds or loss payees thereunder. Owner and Contractor waive all rights against each other and their respective officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them for all losses and damages caused by, arising out of or resulting from any of the perils or causes of loss covered by such policies and any other property insurance applicable to the Work; and, in addition, waive all such rights against Subcontractors and Engineer, and all other individuals or entities identified in the Supplementary Conditions as loss payees (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 as trustee or otherwise payable under any policy so issued.

- B. Owner waives all rights against Contractor, Subcontractors, and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them for:
1. loss due to business interruption, loss of use, or other consequential loss extending beyond direct physical loss or damage to Owner's property or the Work caused by, arising out of, or resulting from fire or other perils whether or not insured by Owner; and
 2. loss or damage to the completed Project or part thereof caused by, arising out of, or resulting from fire or other insured peril or cause of loss covered by any property insurance maintained on the completed Project or part thereof by Owner during partial utilization pursuant to Paragraph 14.05, after Substantial Completion pursuant to Paragraph 14.04, or after final payment pursuant to Paragraph 14.07.
- C. Any insurance policy maintained by Owner covering any loss, damage or consequential loss referred to in Paragraph 5.07.B shall contain provisions to the effect that in the event of payment of any such loss, damage, or consequential loss, the insurers will have no rights of recovery against Contractor, Subcontractors, or Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them.

5.08 *Receipt and Application of Insurance Proceeds*

- A. Any insured loss under the policies of insurance required by Paragraph 5.06 will be adjusted with Owner and made payable to Owner as fiduciary for the loss payees, as their interests may appear, subject to the requirements of any applicable mortgage clause and of Paragraph 5.08.B. Owner shall deposit in a separate account any money so received and shall distribute it in accordance with such agreement as the parties in interest may reach. If no other special agreement is reached, the damaged Work shall be repaired or replaced, the moneys so received applied on account thereof, and the Work and the cost thereof covered by an appropriate Change Order.
- B. Owner as fiduciary shall have power to adjust and settle any loss with the insurers unless one of the parties in interest shall object in writing within 15 days after the occurrence of loss to Owner's exercise of this power. If such objection be made, Owner as fiduciary shall make settlement with the insurers in accordance with such agreement as the parties in interest may reach. If no such agreement among the parties in interest is reached, Owner as fiduciary shall adjust and settle the loss with the insurers and, if required in writing by any party in interest, Owner as fiduciary shall give bond for the proper performance of such duties.

5.09 *Acceptance of Bonds and Insurance; Option to Replace*

- A. If either Owner or Contractor has any objection to the coverage afforded by or other provisions of the bonds or insurance required to be purchased and maintained by the other party in accordance with Article 5 on the basis of non-conformance with the Contract Documents, the objecting party shall so notify the other party in writing within 10 days after receipt of the certificates (or other evidence requested) required by Paragraph 2.01.B. Owner and Contractor shall each provide to the other such additional information in respect of insurance provided as the other may reasonably request. If either party does not purchase or maintain all of the bonds and insurance required of such party by the Contract Documents, such party shall notify the other

party in writing of such failure to purchase prior to the start of the Work, or of such failure to maintain prior to any change in the required coverage. Without prejudice to any other right or remedy, the other party may elect to obtain equivalent bonds or insurance to protect such other party's interests at the expense of the party who was required to provide such coverage, and a Change Order shall be issued to adjust the Contract Price accordingly.

5.10 *Partial Utilization, Acknowledgment of Property Insurer*

- A. If Owner finds it necessary to occupy or use a portion or portions of the Work prior to Substantial Completion of all the Work as provided in Paragraph 14.05, no such use or occupancy shall commence before the insurers providing the property insurance pursuant to Paragraph 5.06 have acknowledged notice thereof and in writing effected any changes in coverage necessitated thereby. The insurers providing the property insurance shall consent by endorsement on the policy or policies, but the property insurance shall not be canceled or permitted to lapse on account of any such partial use or occupancy.

ARTICLE 6 – CONTRACTOR’S RESPONSIBILITIES

6.01 *Supervision and Superintendence*

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

6.02 *Labor; Working Hours*

- A. Contractor shall provide competent, suitably qualified personnel to survey and lay out the Work and perform construction as required by the Contract Documents. Contractor shall at all times maintain good discipline and order at the Site.
- B. Except as otherwise required for the safety or protection of persons or the Work or property at the Site or adjacent thereto, and except as otherwise stated in the Contract Documents, all Work at the Site shall be performed during regular working hours. Contractor will not permit the performance of Work on a Saturday, Sunday, or any legal holiday without Owner's written consent (which will not be unreasonably withheld) given after prior written notice to Engineer.

6.03 *Services, Materials, and Equipment*

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

6.04 *Progress Schedule*

- A. Contractor shall adhere to the Progress Schedule established in accordance with Paragraph 2.07 as it may be adjusted from time to time as provided below.
 - 1. Contractor shall submit to Engineer for acceptance (to the extent indicated in Paragraph 2.07) proposed adjustments in the Progress Schedule that will not result in changing the Contract Times. Such adjustments will comply with any provisions of the General Requirements applicable thereto.
 - 2. Proposed adjustments in the Progress Schedule that will change the Contract Times shall be submitted in accordance with the requirements of Article 12. Adjustments in Contract Times may only be made by a Change Order.

6.05 *Substitutes and "Or-Equals"*

- A. Whenever an item of material or equipment is specified or described in the Contract Documents by using the name of a proprietary item or the name of a particular Supplier, the specification or description is intended to establish the type, function, appearance, and quality required. Unless the specification or description contains or is followed by words reading that no like, equivalent, or "or-equal" item or no substitution is permitted, other items of material or equipment or material or equipment of other Suppliers may be submitted to Engineer for review under the circumstances described below.
 - 1. "*Or-Equal*" Items: If in Engineer's sole discretion an item of material or equipment proposed by Contractor is functionally equal to that named and sufficiently similar so that no change in related Work will be required, it may be considered by Engineer as an "or-equal" item, in which case review and approval of the proposed item may, in Engineer's sole discretion, be accomplished without compliance with some or all of the requirements for approval of proposed substitute items. For the purposes of this Paragraph 6.05.A.1, a

proposed item of material or equipment will be considered functionally equal to an item so named if:

- a. in the exercise of reasonable judgment Engineer determines that:
 - 1) it is at least equal in materials of construction, quality, durability, appearance, strength, and design characteristics;
 - 2) it will reliably perform at least equally well the function and achieve the results imposed by the design concept of the completed Project as a functioning whole; and
 - 3) it has a proven record of performance and availability of responsive service.
- b. Contractor certifies that, if approved and incorporated into the Work:
 - 1) there will be no increase in cost to the Owner or increase in Contract Times; and
 - 2) it will conform substantially to the detailed requirements of the item named in the Contract Documents.

2. *Substitute Items:*

- a. If in Engineer's sole discretion an item of material or equipment proposed by Contractor does not qualify as an "or-equal" item under Paragraph 6.05.A.1, it will be considered a proposed substitute item.
- b. Contractor shall submit sufficient information as provided below to allow Engineer to determine if the item of material or equipment proposed is essentially equivalent to that named and an acceptable substitute therefor. Requests for review of proposed substitute items of material or equipment will not be accepted by Engineer from anyone other than Contractor.
- c. The requirements for review by Engineer will be as set forth in Paragraph 6.05.A.2.d, as supplemented by the General Requirements, and as Engineer may decide is appropriate under the circumstances.
- d. Contractor shall make written application to Engineer for review of a proposed substitute item of material or equipment that Contractor seeks to furnish or use. The application:
 - 1) shall certify that the proposed substitute item will:
 - a) perform adequately the functions and achieve the results called for by the general design,
 - b) be similar in substance to that specified, and
 - c) be suited to the same use as that specified;
 - 2) will state:

- a) the extent, if any, to which the use of the proposed substitute item will prejudice Contractor's achievement of Substantial Completion on time,
 - b) whether use of the proposed substitute item in the Work will require a change in any of the Contract Documents (or in the provisions of any other direct contract with Owner for other work on the Project) to adapt the design to the proposed substitute item, and
 - c) whether incorporation or use of the proposed substitute item in connection with the Work is subject to payment of any license fee or royalty;
- 3) will identify:
- a) all variations of the proposed substitute item from that specified, and
 - b) available engineering, sales, maintenance, repair, and replacement services; and
- 4) shall contain an itemized estimate of all costs or credits that will result directly or indirectly from use of such substitute item, including costs of redesign and claims of other contractors affected by any resulting change.

- B. *Substitute Construction Methods or Procedures:* If a specific means, method, technique, sequence, or procedure of construction is expressly required by the Contract Documents, Contractor may furnish or utilize a substitute means, method, technique, sequence, or procedure of construction approved by Engineer. Contractor shall submit sufficient information to allow Engineer, in Engineer's sole discretion, to determine that the substitute proposed is equivalent to that expressly called for by the Contract Documents. The requirements for review by Engineer will be similar to those provided in Paragraph 6.05.A.2.
- C. *Engineer's Evaluation:* Engineer will be allowed a reasonable time within which to evaluate each proposal or submittal made pursuant to Paragraphs 6.05.A and 6.05.B. Engineer may require Contractor to furnish additional data about the proposed substitute item. Engineer will be the sole judge of acceptability. No "or equal" or substitute will be ordered, installed or utilized until Engineer's review is complete, which will be evidenced by a Change Order in the case of a substitute and an approved Shop Drawing for an "or equal." Engineer will advise Contractor in writing of any negative determination.
- D. *Special Guarantee:* Owner may require Contractor to furnish at Contractor's expense a special performance guarantee or other surety with respect to any substitute.
- E. *Engineer's Cost Reimbursement:* Engineer will record Engineer's costs in evaluating a substitute proposed or submitted by Contractor pursuant to Paragraphs 6.05.A.2 and 6.05.B. Whether or not Engineer approves a substitute so proposed or submitted by Contractor, Contractor shall reimburse Owner for the reasonable charges of Engineer for evaluating each such proposed substitute. Contractor shall also reimburse Owner for the reasonable charges of Engineer for making changes in the Contract Documents (or in the provisions of any other direct contract with Owner) resulting from the acceptance of each proposed substitute.

- F. *Contractor's Expense*: Contractor shall provide all data in support of any proposed substitute or "or-equal" at Contractor's expense.

6.06 *Concerning Subcontractors, Suppliers, and Others*

- A. Contractor shall not employ any Subcontractor, Supplier, or other individual or entity (including those acceptable to Owner as indicated in Paragraph 6.06.B), whether initially or as a replacement, against whom Owner may have reasonable objection. Contractor shall not be required to employ any Subcontractor, Supplier, or other individual or entity to furnish or perform any of the Work against whom Contractor has reasonable objection.
- B. If the Supplementary Conditions require the identity of certain Subcontractors, Suppliers, or other individuals or entities to be submitted to Owner in advance for acceptance by Owner by a specified date prior to the Effective Date of the Agreement, and if Contractor has submitted a list thereof in accordance with the Supplementary Conditions, Owner's acceptance (either in writing or by failing to make written objection thereto by the date indicated for acceptance or objection in the Bidding Documents or the Contract Documents) of any such Subcontractor, Supplier, or other individual or entity so identified may be revoked on the basis of reasonable objection after due investigation. Contractor shall submit an acceptable replacement for the rejected Subcontractor, Supplier, or other individual or entity, and the Contract Price will be adjusted by the difference in the cost occasioned by such replacement, and an appropriate Change Order will be issued. No acceptance by Owner of any such Subcontractor, Supplier, or other individual or entity, whether initially or as a replacement, shall constitute a waiver of any right of Owner or Engineer to reject defective Work.
- C. Contractor shall be fully responsible to Owner and Engineer for all acts and omissions of the Subcontractors, Suppliers, and other individuals or entities performing or furnishing any of the Work just as Contractor is responsible for Contractor's own acts and omissions. Nothing in the Contract Documents:
1. shall create for the benefit of any such Subcontractor, Supplier, or other individual or entity any contractual relationship between Owner or Engineer and any such Subcontractor, Supplier or other individual or entity; nor
 2. shall create any obligation on the part of Owner or Engineer to pay or to see to the payment of any moneys due any such Subcontractor, Supplier, or other individual or entity except as may otherwise be required by Laws and Regulations.
- D. Contractor shall be solely responsible for scheduling and coordinating the Work of Subcontractors, Suppliers, and other individuals or entities performing or furnishing any of the Work under a direct or indirect contract with Contractor.
- E. Contractor shall require all Subcontractors, Suppliers, and such other individuals or entities performing or furnishing any of the Work to communicate with Engineer through Contractor.
- F. The divisions and sections of the Specifications and the identifications of any Drawings shall not control Contractor in dividing the Work among Subcontractors or Suppliers or delineating the Work to be performed by any specific trade.

G. All Work performed for Contractor by a Subcontractor or Supplier will be pursuant to an appropriate agreement between Contractor and the Subcontractor or Supplier which specifically binds the Subcontractor or Supplier to the applicable terms and conditions of the Contract Documents for the benefit of Owner and Engineer. Whenever any such agreement is with a Subcontractor or Supplier who is listed as a loss payee on the property insurance provided in Paragraph 5.06, the agreement between the Contractor and the Subcontractor or Supplier will contain provisions whereby the Subcontractor or Supplier waives all rights against Owner, Contractor, Engineer, and all other individuals or entities identified in the Supplementary Conditions to be listed as insureds or loss payees (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 such policies and any other property insurance applicable to the Work. If the insurers on any such policies require separate waiver forms to be signed by any Subcontractor or Supplier, Contractor will obtain the same.

6.07 *Patent Fees and Royalties*

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

6.08 *Permits*

- A. Unless otherwise provided in the Supplementary Conditions, Contractor shall obtain and pay for all construction permits and licenses. Owner shall assist Contractor, when necessary, in obtaining such permits and licenses. Contractor shall pay all governmental charges and inspection fees necessary for the prosecution of the Work which are applicable at the time of opening of Bids, or, if there are no Bids, on the Effective Date of the Agreement. Owner shall pay all charges of utility owners for connections for providing permanent service to the Work.

6.09 *Laws and Regulations*

- A. Contractor shall give all notices required by and shall comply with all Laws and Regulations applicable to the performance of the Work. Except where otherwise expressly required by applicable Laws and Regulations, neither Owner nor Engineer shall be responsible for monitoring Contractor's compliance with any Laws or Regulations.
- B. If Contractor performs any Work knowing or having reason to know that it is contrary to Laws or Regulations, Contractor shall bear all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such Work. However, it shall not be Contractor's responsibility to make certain that the Specifications and Drawings are in accordance with Laws and Regulations, but this shall not relieve Contractor of Contractor's obligations under Paragraph 3.03.
- C. Changes in Laws or Regulations not known at the time of opening of Bids (or, on the Effective Date of the Agreement if there were no Bids) having an effect on the cost or time of performance of the Work shall be the subject of an adjustment in Contract Price or Contract Times. If Owner and Contractor are unable to agree on entitlement to or on the amount or extent, if any, of any such adjustment, a Claim may be made therefor as provided in Paragraph 10.05.

6.10 *Taxes*

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

6.11 *Use of Site and Other Areas*

A. *Limitation on Use of Site and Other Areas:*

1. Contractor shall confine construction equipment, the storage of materials and equipment, and the operations of workers to the Site and other areas permitted by Laws and Regulations, and shall not unreasonably encumber the Site and other areas with construction equipment or other materials or equipment. Contractor shall assume full responsibility for any damage to any such land or area, or to the owner or occupant thereof, or of any adjacent land or areas resulting from the performance of the Work.

2. Should any claim be made by any such owner or occupant because of the performance of the Work, Contractor shall promptly settle with such other party by negotiation or otherwise resolve the claim by arbitration or other dispute resolution proceeding or at law.
 3. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to any claim or action, legal or equitable, brought by any such owner or occupant against Owner, Engineer, or any other party indemnified hereunder to the extent caused by or based upon Contractor's performance of the Work.
- B. *Removal of Debris During Performance of the Work:* During the progress of the Work Contractor shall keep the Site and other areas free from accumulations of waste materials, rubbish, and other debris. Removal and disposal of such waste materials, rubbish, and other debris shall conform to applicable Laws and Regulations.
- C. *Cleaning:* Prior to Substantial Completion of the Work Contractor shall clean the Site and the Work and make it ready for utilization by Owner. At the completion of the Work Contractor shall remove from the Site all tools, appliances, construction equipment and machinery, and surplus materials and shall restore to original condition all property not designated for alteration by the Contract Documents.
- D. *Loading Structures:* Contractor shall not load nor permit any part of any structure to be loaded in any manner that will endanger the structure, nor shall Contractor subject any part of the Work or adjacent property to stresses or pressures that will endanger it.

6.12 *Record Documents*

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

6.13 *Safety and Protection*

- A. Contractor shall be solely responsible for initiating, maintaining and supervising all safety precautions and programs in connection with the Work. Such responsibility does not relieve Subcontractors of their responsibility for the safety of persons or property in the performance of their work, nor for compliance with applicable safety Laws and Regulations. Contractor shall take all necessary precautions for the safety of, and shall provide the necessary protection to prevent damage, injury or loss to:

1. all persons on the Site or who may be affected by the Work;
 2. all the Work and materials and equipment to be incorporated therein, whether in storage on or off the Site; and
 3. other property at the Site or adjacent thereto, including trees, shrubs, lawns, walks, pavements, roadways, structures, utilities, and Underground Facilities not designated for removal, relocation, or replacement in the course of construction.
- B. Contractor shall comply with all applicable Laws and Regulations relating to the safety of persons or property, or to the protection of persons or property from damage, injury, or loss; and shall erect and maintain all necessary safeguards for such safety and protection. Contractor shall notify owners of adjacent property and of Underground Facilities and other utility owners when prosecution of the Work may affect them, and shall cooperate with them in the protection, removal, relocation, and replacement of their property.
- C. Contractor shall comply with the applicable requirements of Owner's safety programs, if any. The Supplementary Conditions identify any Owner's safety programs that are applicable to the Work.
- D. Contractor shall inform Owner and Engineer of the specific requirements of Contractor's safety program with which Owner's and Engineer's employees and representatives must comply while at the Site.
- E. All damage, injury, or loss to any property referred to in Paragraph 6.13.A.2 or 6.13.A.3 caused, directly or indirectly, in whole or in part, by Contractor, any Subcontractor, Supplier, or any other individual or entity directly or indirectly employed by any of them to perform any of the Work, or anyone for whose acts any of them may be liable, shall be remedied by Contractor (except damage or loss attributable to the fault of Drawings or Specifications or to the acts or omissions of Owner or Engineer or anyone employed by any of them, or anyone for whose acts any of them may be liable, and not attributable, directly or indirectly, in whole or in part, to the fault or negligence of Contractor or any Subcontractor, Supplier, or other individual or entity directly or indirectly employed by any of them).
- F. Contractor's duties and responsibilities for safety and for protection of the Work shall continue until such time as all the Work is completed and Engineer has issued a notice to Owner and Contractor in accordance with Paragraph 14.07.B that the Work is acceptable (except as otherwise expressly provided in connection with Substantial Completion).

6.14 *Safety Representative*

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

6.15 *Hazard Communication Programs*

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

6.16 *Emergencies*

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

6.17 *Shop Drawings and Samples*

- A. Contractor shall submit Shop Drawings and Samples to Engineer for review and approval in accordance with the accepted Schedule of Submittals (as required by Paragraph 2.07). Each submittal will be identified as Engineer may require.

1. *Shop Drawings:*

- a. Submit number of copies specified in the General Requirements.
- b. Data shown on the Shop Drawings will be complete with respect to quantities, dimensions, specified performance and design criteria, materials, and similar data to show Engineer the services, materials, and equipment Contractor proposes to provide and to enable Engineer to review the information for the limited purposes required by Paragraph 6.17.D.

2. *Samples:*

- a. Submit number of Samples specified in the Specifications.
 - b. Clearly identify each Sample as to material, Supplier, pertinent data such as catalog numbers, the use for which intended and other data as Engineer may require to enable Engineer to review the submittal for the limited purposes required by Paragraph 6.17.D.
- B. Where a Shop Drawing or Sample is required by the Contract Documents or the Schedule of Submittals, any related Work performed prior to Engineer's review and approval of the pertinent submittal will be at the sole expense and responsibility of Contractor.

C. *Submittal Procedures:*

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

D. *Engineer's Review:*

1. Engineer will provide timely review of Shop Drawings and Samples in accordance with the Schedule of Submittals acceptable to Engineer. Engineer's review and approval will be only to determine if the items covered by the submittals will, after installation or incorporation in the Work, conform to the information given in the Contract Documents and be compatible with the design concept of the completed Project as a functioning whole as indicated by the Contract Documents.
2. Engineer's review and approval will not extend to means, methods, techniques, sequences, or procedures of construction (except where a particular means, method, technique, sequence, or procedure of construction is specifically and expressly called for by the Contract Documents) or to safety precautions or programs incident thereto. The review and approval of a separate item as such will not indicate approval of the assembly in which the item functions.
3. Engineer's review and approval shall not relieve Contractor from responsibility for any variation from the requirements of the Contract Documents unless Contractor has complied with the requirements of Paragraph 6.17.C.3 and Engineer has given written approval of each

such variation by specific written notation thereof incorporated in or accompanying the Shop Drawing or Sample. Engineer's review and approval shall not relieve Contractor from responsibility for complying with the requirements of Paragraph 6.17.C.1.

E. *Resubmittal Procedures:*

1. Contractor shall make corrections required by Engineer and shall return the required number of corrected copies of Shop Drawings and submit, as required, new Samples for review and approval. Contractor shall direct specific attention in writing to revisions other than the corrections called for by Engineer on previous submittals.

6.18 *Continuing the Work*

- A. Contractor shall carry on the Work and adhere to the Progress Schedule during all disputes or disagreements with Owner. No Work shall be delayed or postponed pending resolution of any disputes or disagreements, except as permitted by Paragraph 15.04 or as Owner and Contractor may otherwise agree in writing.

6.19 *Contractor's General Warranty and Guarantee*

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

6. any inspection, test, or approval by others; or
7. any correction of defective Work by Owner.

6.20 *Indemnification*

- A. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to the performance of the Work, provided that any such claim, cost, loss, or damage is attributable to bodily injury, sickness, disease, or death, or to injury to or destruction of tangible property (other than the Work itself), including the loss of use resulting therefrom but only to the extent caused by any negligent act or omission of Contractor, any Subcontractor, any Supplier, or any individual or entity directly or indirectly employed by any of them to perform any of the Work or anyone for whose acts any of them may be liable .
- B. In any and all claims against Owner or Engineer or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors by any employee (or the survivor or personal representative of such employee) of Contractor, any Subcontractor, any Supplier, or any individual or entity directly or indirectly employed by any of them to perform any of the Work, or anyone for whose acts any of them may be liable, the indemnification obligation under Paragraph 6.20.A shall not be limited in any way by any limitation on the amount or type of damages, compensation, or benefits payable by or for Contractor or any such Subcontractor, Supplier, or other individual or entity under workers' compensation acts, disability benefit acts, or other employee benefit acts.
- C. The indemnification obligations of Contractor under Paragraph 6.20.A shall not extend to the liability of Engineer and Engineer's officers, directors, members, partners, employees, agents, consultants and subcontractors arising out of:
 1. the preparation or approval of, or the failure to prepare or approve maps, Drawings, opinions, reports, surveys, Change Orders, designs, or Specifications; or
 2. giving directions or instructions, or failing to give them, if that is the primary cause of the injury or damage.

6.21 *Delegation of Professional Design Services*

- A. Contractor will not be required to provide professional design services unless such services are specifically required by the Contract Documents for a portion of the Work or unless such services are required to carry out Contractor's responsibilities for construction means, methods, techniques, sequences and procedures. Contractor shall not be required to provide professional services in violation of applicable law.
- B. If professional design services or certifications by a design professional related to systems, materials or equipment are specifically required of Contractor by the Contract Documents,

Owner and Engineer will specify all performance and design criteria that such services must satisfy. Contractor shall cause such services or certifications to be provided by a properly licensed professional, whose signature and seal shall appear on all drawings, calculations, specifications, certifications, Shop Drawings and other submittals prepared by such professional. Shop Drawings and other submittals related to the Work designed or certified by such professional, if prepared by others, shall bear such professional's written approval when submitted to Engineer.

- C. Owner and Engineer shall be entitled to rely upon the adequacy, accuracy and completeness of the services, certifications or approvals performed by such design professionals, provided Owner and Engineer have specified to Contractor all performance and design criteria that such services must satisfy.
- D. Pursuant to this Paragraph 6.21, Engineer's review and approval of design calculations and design drawings will be only for the limited purpose of checking for conformance with performance and design criteria given and the design concept expressed in the Contract Documents. Engineer's review and approval of Shop Drawings and other submittals (except design calculations and design drawings) will be only for the purpose stated in Paragraph 6.17.D.1.
- E. Contractor shall not be responsible for the adequacy of the performance or design criteria required by the Contract Documents.

ARTICLE 7 – OTHER WORK AT THE SITE

7.01 Related Work at Site

- A. Owner may perform other work related to the Project at the Site with Owner's employees, or through other direct contracts therefor, or have other work performed by utility owners. If such other work is not noted in the Contract Documents, then:
 - 1. written notice thereof will be given to Contractor prior to starting any such other work; and
 - 2. if Owner and Contractor are unable to agree on entitlement to or on the amount or extent, if any, of any adjustment in the Contract Price or Contract Times that should be allowed as a result of such other work, a Claim may be made therefor as provided in Paragraph 10.05.
- B. Contractor shall afford each other contractor who is a party to such a direct contract, each utility owner, and Owner, if Owner is performing other work with Owner's employees, proper and safe access to the Site, provide a reasonable opportunity for the introduction and storage of materials and equipment and the execution of such other work, and properly coordinate the Work with theirs. Contractor shall do all cutting, fitting, and patching of the Work that may be required to properly connect or otherwise make its several parts come together and properly integrate with such other work. Contractor shall not endanger any work of others by cutting, excavating, or otherwise altering such work; provided, however, that Contractor may cut or alter others' work with the written consent of Engineer and the others whose work will be affected. The duties and responsibilities of Contractor under this Paragraph are for the benefit of such utility owners and

other contractors to the extent that there are comparable provisions for the benefit of Contractor in said direct contracts between Owner and such utility owners and other contractors.

- C. If the proper execution or results of any part of Contractor's Work depends upon work performed by others under this Article 7, Contractor shall inspect such other work and promptly report to Engineer in writing any delays, defects, or deficiencies in such other work that render it unavailable or unsuitable for the proper execution and results of Contractor's Work. Contractor's failure to so report will constitute an acceptance of such other work as fit and proper for integration with Contractor's Work except for latent defects and deficiencies in such other work.

7.02 *Coordination*

- A. If Owner intends to contract with others for the performance of other work on the Project at the Site, the following will be set forth in Supplementary Conditions:
 - 1. the individual or entity who will have authority and responsibility for coordination of the activities among the various contractors will be identified;
 - 2. the specific matters to be covered by such authority and responsibility will be itemized; and
 - 3. the extent of such authority and responsibilities will be provided.
- B. Unless otherwise provided in the Supplementary Conditions, Owner shall have sole authority and responsibility for such coordination.

7.03 *Legal Relationships*

- A. Paragraphs 7.01.A and 7.02 are not applicable for utilities not under the control of Owner.
- B. Each other direct contract of Owner under Paragraph 7.01.A shall provide that the other contractor is liable to Owner and Contractor for the reasonable direct delay and disruption costs incurred by Contractor as a result of the other contractor's wrongful actions or inactions.
- C. Contractor shall be liable to Owner and any other contractor under direct contract to Owner for the reasonable direct delay and disruption costs incurred by such other contractor as a result of Contractor's wrongful action or inactions.

ARTICLE 8 – OWNER'S RESPONSIBILITIES

8.01 *Communications to Contractor*

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

8.02 *Replacement of Engineer*

- A. In case of termination of the employment of Engineer, Owner shall appoint an engineer to whom Contractor makes no reasonable objection, whose status under the Contract Documents shall be that of the former Engineer.

8.03 *Furnish Data*

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

8.04 *Pay When Due*

A. Owner shall make payments to Contractor when they are due as provided in Paragraphs 14.02.C and 14.07.C.

8.05 *Lands and Easements; Reports and Tests*

A. Owner's duties with respect to providing lands and easements and providing engineering surveys to establish reference points are set forth in Paragraphs 4.01 and 4.05. Paragraph 4.02 refers to Owner's identifying and making available to Contractor copies of reports of explorations and tests of subsurface conditions and drawings of physical conditions relating to existing surface or subsurface structures at the Site.

8.06 *Insurance*

A. Owner's responsibilities, if any, with respect to purchasing and maintaining liability and property insurance are set forth in Article 5.

8.07 *Change Orders*

A. Owner is obligated to execute Change Orders as indicated in Paragraph 10.03.

8.08 *Inspections, Tests, and Approvals*

A. Owner's responsibility with respect to certain inspections, tests, and approvals is set forth in Paragraph 13.03.B.

8.09 *Limitations on Owner's Responsibilities*

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

8.10 *Undisclosed Hazardous Environmental Condition*

A. Owner's responsibility in respect to an undisclosed Hazardous Environmental Condition is set forth in Paragraph 4.06.

8.11 *Evidence of Financial Arrangements*

A. Upon request of Contractor, Owner shall furnish Contractor reasonable evidence that financial arrangements have been made to satisfy Owner's obligations under the Contract Documents.

8.12 *Compliance with Safety Program*

- A. While at the Site, Owner's employees and representatives shall comply with the specific applicable requirements of Contractor's safety programs of which Owner has been informed pursuant to Paragraph 6.13.D.

ARTICLE 9 – ENGINEER'S STATUS DURING CONSTRUCTION

9.01 *Owner's Representative*

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

9.02 *Visits to Site*

- A. Engineer will make visits to the Site at intervals appropriate to the various stages of construction as Engineer deems necessary in order to observe as an experienced and qualified design professional the progress that has been made and the quality of the various aspects of Contractor's executed Work. Based on information obtained during such visits and observations, Engineer, for the benefit of Owner, will determine, in general, if the Work is proceeding in accordance with the Contract Documents. Engineer will not be required to make exhaustive or continuous inspections on the Site to check the quality or quantity of the Work. Engineer's efforts will be directed toward providing for Owner a greater degree of confidence that the completed Work will conform generally to the Contract Documents. On the basis of such visits and observations, Engineer will keep Owner informed of the progress of the Work and will endeavor to guard Owner against defective Work.
- B. Engineer's visits and observations are subject to all the limitations on Engineer's authority and responsibility set forth in Paragraph 9.09. Particularly, but without limitation, during or as a result of Engineer's visits or observations of Contractor's Work, Engineer will not supervise, direct, control, or have authority over or be responsible for Contractor's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the performance of the Work.

9.03 *Project Representative*

- A. If Owner and Engineer agree, Engineer will furnish a Resident Project Representative to assist Engineer in providing more extensive observation of the Work. The authority and responsibilities of any such Resident Project Representative and assistants will be as provided in the Supplementary Conditions, and limitations on the responsibilities thereof will be as provided in Paragraph 9.09. If Owner designates another representative or agent to represent Owner at the Site who is not Engineer's consultant, agent or employee, the responsibilities and authority and limitations thereon of such other individual or entity will be as provided in the Supplementary Conditions.

9.04 *Authorized Variations in Work*

- A. Engineer may authorize minor variations in the Work from the requirements of the Contract Documents which do not involve an adjustment in the Contract Price or the Contract Times and are compatible with the design concept of the completed Project as a functioning whole as indicated by the Contract Documents. These may be accomplished by a Field Order and will be binding on Owner and also on Contractor, who shall perform the Work involved promptly. If Owner or Contractor believes that a Field Order justifies an adjustment in the Contract Price or Contract Times, or both, and the parties are unable to agree on entitlement to or on the amount or extent, if any, of any such adjustment, a Claim may be made therefor as provided in Paragraph 10.05.

9.05 *Rejecting Defective Work*

- A. Engineer will have authority to reject Work which Engineer believes to be defective, or that Engineer believes will not produce a completed Project that conforms to the Contract Documents or that will prejudice the integrity of the design concept of the completed Project as a functioning whole as indicated by the Contract Documents. Engineer will also have authority to require special inspection or testing of the Work as provided in Paragraph 13.04, whether or not the Work is fabricated, installed, or completed.

9.06 *Shop Drawings, Change Orders and Payments*

- A. In connection with Engineer's authority, and limitations thereof, as to Shop Drawings and Samples, see Paragraph 6.17.
- B. In connection with Engineer's authority, and limitations thereof, as to design calculations and design drawings submitted in response to a delegation of professional design services, if any, see Paragraph 6.21.
- C. In connection with Engineer's authority as to Change Orders, see Articles 10, 11, and 12.
- D. In connection with Engineer's authority as to Applications for Payment, see Article 14.

9.07 *Determinations for Unit Price Work*

- A. Engineer will determine the actual quantities and classifications of Unit Price Work performed by Contractor. Engineer will review with Contractor the Engineer's preliminary determinations on such matters before rendering a written decision thereon (by recommendation of an Application for Payment or otherwise). Engineer's written decision thereon will be final and binding (except as modified by Engineer to reflect changed factual conditions or more accurate data) upon Owner and Contractor, subject to the provisions of Paragraph 10.05.

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

- A. Engineer will be the initial interpreter of the requirements of the Contract Documents and judge of the acceptability of the Work thereunder. All matters in question and other matters between Owner and Contractor arising prior to the date final payment is due relating to the acceptability

of the Work, and the interpretation of the requirements of the Contract Documents pertaining to the performance of the Work, will be referred initially to Engineer in writing within 30 days of the event giving rise to the question.

- B. Engineer will, with reasonable promptness, render a written decision on the issue referred. If Owner or Contractor believes that any such decision entitles them to an adjustment in the Contract Price or Contract Times or both, a Claim may be made under Paragraph 10.05. The date of Engineer's decision shall be the date of the event giving rise to the issues referenced for the purposes of Paragraph 10.05.B.
- C. Engineer's written decision on the issue referred will be final and binding on Owner and Contractor, subject to the provisions of Paragraph 10.05.
- D. When functioning as interpreter and judge under this Paragraph 9.08, Engineer will not show partiality to Owner or Contractor and will not be liable in connection with any interpretation or decision rendered in good faith in such capacity.

9.09 *Limitations on Engineer's Authority and Responsibilities*

- A. Neither Engineer's authority or responsibility under this Article 9 or under any other provision of the Contract Documents nor any decision made by Engineer in good faith either to exercise or not exercise such authority or responsibility or the undertaking, exercise, or performance of any authority or responsibility by Engineer shall create, impose, or give rise to any duty in contract, tort, or otherwise owed by Engineer to Contractor, any Subcontractor, any Supplier, any other individual or entity, or to any surety for or employee or agent of any of them.
- B. Engineer will not supervise, direct, control, or have authority over or be responsible for Contractor's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the performance of the Work. Engineer will not be responsible for Contractor's failure to perform the Work in accordance with the Contract Documents.
- C. Engineer will not be responsible for the acts or omissions of Contractor or of any Subcontractor, any Supplier, or of any other individual or entity performing any of the Work.
- D. Engineer's review of the final Application for Payment and accompanying documentation and all maintenance and operating instructions, schedules, guarantees, bonds, certificates of inspection, tests and approvals, and other documentation required to be delivered by Paragraph 14.07.A will only be to determine generally that their content complies with the requirements of, and in the case of certificates of inspections, tests, and approvals that the results certified indicate compliance with, the Contract Documents.
- E. The limitations upon authority and responsibility set forth in this Paragraph 9.09 shall also apply to the Resident Project Representative, if any, and assistants, if any.

9.10 *Compliance with Safety Program*

- A. While at the Site, Engineer's employees and representatives shall comply with the specific applicable requirements of Contractor's safety programs of which Engineer has been informed pursuant to Paragraph 6.13.D.

ARTICLE 10 – CHANGES IN THE WORK; CLAIMS

10.01 *Authorized Changes in the Work*

- A. Without invalidating the Contract and without notice to any surety, Owner may, at any time or from time to time, order additions, deletions, or revisions in the Work by a Change Order, or a Work Change Directive. Upon receipt of any such document, Contractor shall promptly proceed with the Work involved which will be performed under the applicable conditions of the Contract Documents (except as otherwise specifically provided).
- B. If Owner and Contractor are unable to agree on entitlement to, or on the amount or extent, if any, of an adjustment in the Contract Price or Contract Times, or both, that should be allowed as a result of a Work Change Directive, a Claim may be made therefor as provided in Paragraph 10.05.

10.02 *Unauthorized Changes in the Work*

- A. Contractor shall not be entitled to an increase in the Contract Price or an extension of the Contract Times with respect to any work performed that is not required by the Contract Documents as amended, modified, or supplemented as provided in Paragraph 3.04, except in the case of an emergency as provided in Paragraph 6.16 or in the case of uncovering Work as provided in Paragraph 13.04.D.

10.03 *Execution of Change Orders*

- A. Owner and Contractor shall execute appropriate Change Orders recommended by Engineer covering:
 - 1. changes in the Work which are: (i) ordered by Owner pursuant to Paragraph 10.01.A, (ii) required because of acceptance of defective Work under Paragraph 13.08.A or Owner's correction of defective Work under Paragraph 13.09, or (iii) agreed to by the parties;
 - 2. changes in the Contract Price or Contract Times which are agreed to by the parties, including any undisputed sum or amount of time for Work actually performed in accordance with a Work Change Directive; and
 - 3. changes in the Contract Price or Contract Times which embody the substance of any written decision rendered by Engineer pursuant to Paragraph 10.05; provided that, in lieu of executing any such Change Order, an appeal may be taken from any such decision in accordance with the provisions of the Contract Documents and applicable Laws and Regulations, but during any such appeal, Contractor shall carry on the Work and adhere to the Progress Schedule as provided in Paragraph 6.18.A.

10.04 *Notification to Surety*

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

10.05 *Claims*

- A. *Engineer's Decision Required:* All Claims, except those waived pursuant to Paragraph 14.09, shall be referred to the Engineer for decision. A decision by Engineer shall be required as a condition precedent to any exercise by Owner or Contractor of any rights or remedies either may otherwise have under the Contract Documents or by Laws and Regulations in respect of such Claims.
- B. *Notice:* Written notice stating the general nature of each Claim shall be delivered by the claimant to Engineer and the other party to the Contract promptly (but in no event later than 30 days) after the start of the event giving rise thereto. The responsibility to substantiate a Claim shall rest with the party making the Claim. Notice of the amount or extent of the Claim, with supporting data shall be delivered to the Engineer and the other party to the Contract within 60 days after the start of such event (unless Engineer allows additional time for claimant to submit additional or more accurate data in support of such Claim). A Claim for an adjustment in Contract Price shall be prepared in accordance with the provisions of Paragraph 12.01.B. A Claim for an adjustment in Contract Times shall be prepared in accordance with the provisions of Paragraph 12.02.B. Each Claim shall be accompanied by claimant's written statement that the adjustment claimed is the entire adjustment to which the claimant believes it is entitled as a result of said event. The opposing party shall submit any response to Engineer and the claimant within 30 days after receipt of the claimant's last submittal (unless Engineer allows additional time).
- C. *Engineer's Action:* Engineer will review each Claim and, within 30 days after receipt of the last submittal of the claimant or the last submittal of the opposing party, if any, take one of the following actions in writing:
 - 1. deny the Claim in whole or in part;
 - 2. approve the Claim; or
 - 3. notify the parties that the Engineer is unable to resolve the Claim if, in the Engineer's sole discretion, it would be inappropriate for the Engineer to do so. For purposes of further resolution of the Claim, such notice shall be deemed a denial.
- D. In the event that Engineer does not take action on a Claim within said 30 days, the Claim shall be deemed denied.
- E. Engineer's written action under Paragraph 10.05.C or denial pursuant to Paragraphs 10.05.C.3 or 10.05.D will be final and binding upon Owner and Contractor, unless Owner or Contractor

invoke the dispute resolution procedure set forth in Article 16 within 30 days of such action or denial.

- F. No Claim for an adjustment in Contract Price or Contract Times will be valid if not submitted in accordance with this Paragraph 10.05.

ARTICLE 11 – COST OF THE WORK; ALLOWANCES; UNIT PRICE WORK

11.01 Cost of the Work

- A. *Costs Included:* The term Cost of the Work means the sum of all costs, except those excluded in Paragraph 11.01.B, necessarily incurred and paid by Contractor in the proper performance of the Work. When the value of any Work covered by a Change Order or when a Claim for an adjustment in Contract Price is determined on the basis of Cost of the Work, the costs to be reimbursed to Contractor will be only those additional or incremental costs required because of the change in the Work or because of the event giving rise to the Claim. Except as otherwise may be agreed to in writing by Owner, such costs shall be in amounts no higher than those prevailing in the locality of the Project, shall not include any of the costs itemized in Paragraph 11.01.B, and shall include only the following items:
1. Payroll costs for employees in the direct employ of Contractor in the performance of the Work under schedules of job classifications agreed upon by Owner and Contractor. Such employees shall include, without limitation, superintendents, foremen, and other personnel employed full time on the Work. Payroll costs for employees not employed full time on the Work shall be apportioned on the basis of their time spent on the Work. Payroll costs shall include, but not be limited to, salaries and wages plus the cost of fringe benefits, which shall include social security contributions, unemployment, excise, and payroll taxes, workers' compensation, health and retirement benefits, bonuses, sick leave, vacation and holiday pay applicable thereto. The expenses of performing Work outside of regular working hours, on Saturday, Sunday, or legal holidays, shall be included in the above to the extent authorized by Owner.
 2. Cost of all materials and equipment furnished and incorporated in the Work, including costs of transportation and storage thereof, and Suppliers' field services required in connection therewith. All cash discounts shall accrue to Contractor unless Owner deposits funds with Contractor with which to make payments, in which case the cash discounts shall accrue to Owner. All trade discounts, rebates and refunds and returns from sale of surplus materials and equipment shall accrue to Owner, and Contractor shall make provisions so that they may be obtained.
 3. Payments made by Contractor to Subcontractors for Work performed by Subcontractors. If required by Owner, Contractor shall obtain competitive bids from subcontractors acceptable to Owner and Contractor and shall deliver such bids to Owner, who will then determine, with the advice of Engineer, which bids, if any, will be acceptable. If any subcontract provides that the Subcontractor is to be paid on the basis of Cost of the Work plus a fee, the Subcontractor's Cost of the Work and fee shall be determined in the same manner as Contractor's Cost of the Work and fee as provided in this Paragraph 11.01.

4. Costs of special consultants (including but not limited to engineers, architects, testing laboratories, surveyors, attorneys, and accountants) employed for services specifically related to the Work.
5. Supplemental costs including the following:
 - a. The proportion of necessary transportation, travel, and subsistence expenses of Contractor's employees incurred in discharge of duties connected with the Work.
 - b. Cost, including transportation and maintenance, of all materials, supplies, equipment, machinery, appliances, office, and temporary facilities at the Site, and hand tools not owned by the workers, which are consumed in the performance of the Work, and cost, less market value, of such items used but not consumed which remain the property of Contractor.
 - c. Rentals of all construction equipment and machinery, and the parts thereof whether rented from Contractor or others in accordance with rental agreements approved by Owner with the advice of Engineer, and the costs of transportation, loading, unloading, assembly, dismantling, and removal thereof. All such costs shall be in accordance with the terms of said rental agreements. The rental of any such equipment, machinery, or parts shall cease when the use thereof is no longer necessary for the Work.
 - d. Sales, consumer, use, and other similar taxes related to the Work, and for which Contractor is liable, as imposed by Laws and Regulations.
 - e. Deposits lost for causes other than negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable, and royalty payments and fees for permits and licenses.
 - f. Losses and damages (and related expenses) caused by damage to the Work, not compensated by insurance or otherwise, sustained by Contractor in connection with the performance of the Work (except losses and damages within the deductible amounts of property insurance established in accordance with Paragraph 5.06.D), provided such losses and damages have resulted from causes other than the negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable. Such losses shall include settlements made with the written consent and approval of Owner. No such losses, damages, and expenses shall be included in the Cost of the Work for the purpose of determining Contractor's fee.
 - g. The cost of utilities, fuel, and sanitary facilities at the Site.
 - h. Minor expenses such as telegrams, long distance telephone calls, telephone service at the Site, express and courier services, and similar petty cash items in connection with the Work.
 - i. The costs of premiums for all bonds and insurance Contractor is required by the Contract Documents to purchase and maintain.

B. *Costs Excluded:* The term Cost of the Work shall not include any of the following items:

1. Payroll costs and other compensation of Contractor's officers, executives, principals (of partnerships and sole proprietorships), general managers, safety managers, engineers, architects, estimators, attorneys, auditors, accountants, purchasing and contracting agents, expeditors, timekeepers, clerks, and other personnel employed by Contractor, whether at the Site or in Contractor's principal or branch office for general administration of the Work and not specifically included in the agreed upon schedule of job classifications referred to in Paragraph 11.01.A.1 or specifically covered by Paragraph 11.01.A.4, all of which are to be considered administrative costs covered by the Contractor's fee.
2. Expenses of Contractor's principal and branch offices other than Contractor's office at the Site.
3. Any part of Contractor's capital expenses, including interest on Contractor's capital employed for the Work and charges against Contractor for delinquent payments.
4. Costs due to the negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable, including but not limited to, the correction of defective Work, disposal of materials or equipment wrongly supplied, and making good any damage to property.
5. Other overhead or general expense costs of any kind and the costs of any item not specifically and expressly included in Paragraphs 11.01.A.

C. *Contractor's Fee:* When all the Work is performed on the basis of cost-plus, Contractor's fee shall be determined as set forth in the Agreement. When the value of any Work covered by a Change Order or when a Claim for an adjustment in Contract Price is determined on the basis of Cost of the Work, Contractor's fee shall be determined as set forth in Paragraph 12.01.C.

D. *Documentation:* Whenever the Cost of the Work for any purpose is to be determined pursuant to Paragraphs 11.01.A and 11.01.B, Contractor will establish and maintain records thereof in accordance with generally accepted accounting practices and submit in a form acceptable to Engineer an itemized cost breakdown together with supporting data.

11.02 Allowances

A. It is understood that Contractor has included in the Contract Price all allowances so named in the Contract Documents and shall cause the Work so covered to be performed for such sums and by such persons or entities as may be acceptable to Owner and Engineer.

B. *Cash Allowances:*

1. Contractor agrees that:
 - a. the cash allowances include the cost to Contractor (less any applicable trade discounts) of materials and equipment required by the allowances to be delivered at the Site, and all applicable taxes; and

- b. Contractor's costs for unloading and handling on the Site, labor, installation, overhead, profit, and other expenses contemplated for the cash allowances have been included in the Contract Price and not in the allowances, and no demand for additional payment on account of any of the foregoing will be valid.

C. *Contingency Allowance:*

1. Contractor agrees that a contingency allowance, if any, is for the sole use of Owner to cover unanticipated costs.
- D. Prior to final payment, an appropriate Change Order will be issued as recommended by Engineer to reflect actual amounts due Contractor on account of Work covered by allowances, and the Contract Price shall be correspondingly adjusted.

11.03 *Unit Price Work*

- A. Where the Contract Documents provide that all or part of the Work is to be Unit Price Work, initially the Contract Price will be deemed to include for all Unit Price Work an amount equal to the sum of the unit price for each separately identified item of Unit Price Work times the estimated quantity of each item as indicated in the Agreement.
- B. The estimated quantities of items of Unit Price Work are not guaranteed and are solely for the purpose of comparison of Bids and determining an initial Contract Price. Determinations of the actual quantities and classifications of Unit Price Work performed by Contractor will be made by Engineer subject to the provisions of Paragraph 9.07.
- C. Each unit price will be deemed to include an amount considered by Contractor to be adequate to cover Contractor's overhead and profit for each separately identified item.
- D. Owner or Contractor may make a Claim for an adjustment in the Contract Price in accordance with Paragraph 10.05 if:
 1. the quantity of any item of Unit Price Work performed by Contractor differs materially and significantly from the estimated quantity of such item indicated in the Agreement; and
 2. there is no corresponding adjustment with respect to any other item of Work; and
 3. Contractor believes that Contractor is entitled to an increase in Contract Price as a result of having incurred additional expense or Owner believes that Owner is entitled to a decrease in Contract Price and the parties are unable to agree as to the amount of any such increase or decrease.

ARTICLE 12 – CHANGE OF CONTRACT PRICE; CHANGE OF CONTRACT TIMES

12.01 *Change of Contract Price*

- A. The Contract Price may only be changed by a Change Order. Any Claim for an adjustment in the Contract Price shall be based on written notice submitted by the party making the Claim to the

Engineer and the other party to the Contract in accordance with the provisions of Paragraph 10.05.

B. The value of any Work covered by a Change Order or of any Claim for an adjustment in the Contract Price will be determined as follows:

1. where the Work involved is covered by unit prices contained in the Contract Documents, by application of such unit prices to the quantities of the items involved (subject to the provisions of Paragraph 11.03); or
2. where the Work involved is not covered by unit prices contained in the Contract Documents, by a mutually agreed lump sum (which may include an allowance for overhead and profit not necessarily in accordance with Paragraph 12.01.C.2); or
3. where the Work involved is not covered by unit prices contained in the Contract Documents and agreement to a lump sum is not reached under Paragraph 12.01.B.2, on the basis of the Cost of the Work (determined as provided in Paragraph 11.01) plus a Contractor's fee for overhead and profit (determined as provided in Paragraph 12.01.C).

C. *Contractor's Fee*: The Contractor's fee for overhead and profit shall be determined as follows:

1. a mutually acceptable fixed fee; or
2. if a fixed fee is not agreed upon, then a fee based on the following percentages of the various portions of the Cost of the Work:
 - a. for costs incurred under Paragraphs 11.01.A.1 and 11.01.A.2, the Contractor's fee shall be 15 percent;
 - b. for costs incurred under Paragraph 11.01.A.3, the Contractor's fee shall be five percent;
 - c. where one or more tiers of subcontracts are on the basis of Cost of the Work plus a fee and no fixed fee is agreed upon, the intent of Paragraphs 12.01.C.2.a and 12.01.C.2.b is that the Subcontractor who actually performs the Work, at whatever tier, will be paid a fee of 15 percent of the costs incurred by such Subcontractor under Paragraphs 11.01.A.1 and 11.01.A.2 and that any higher tier Subcontractor and Contractor will each be paid a fee of five percent of the amount paid to the next lower tier Subcontractor;
 - d. no fee shall be payable on the basis of costs itemized under Paragraphs 11.01.A.4, 11.01.A.5, and 11.01.B;
 - e. the amount of credit to be allowed by Contractor to Owner for any change which results in a net decrease in cost will be the amount of the actual net decrease in cost plus a deduction in Contractor's fee by an amount equal to five percent of such net decrease; and

- f. when both additions and credits are involved in any one change, the adjustment in Contractor's fee shall be computed on the basis of the net change in accordance with Paragraphs 12.01.C.2.a through 12.01.C.2.e, inclusive.

12.02 *Change of Contract Times*

- A. The Contract Times may only be changed by a Change Order. Any Claim for an adjustment in the Contract Times shall be based on written notice submitted by the party making the Claim to the Engineer and the other party to the Contract in accordance with the provisions of Paragraph 10.05.
- B. Any adjustment of the Contract Times covered by a Change Order or any Claim for an adjustment in the Contract Times will be determined in accordance with the provisions of this Article 12.

12.03 *Delays*

- A. Where Contractor is prevented from completing any part of the Work within the Contract Times due to delay beyond the control of Contractor, the Contract Times will be extended in an amount equal to the time lost due to such delay if a Claim is made therefor as provided in Paragraph 12.02.A. Delays beyond the control of Contractor shall include, but not be limited to, acts or neglect by Owner, acts or neglect of utility owners or other contractors performing other work as contemplated by Article 7, fires, floods, epidemics, abnormal weather conditions, or acts of God.
- B. If Owner, Engineer, or other contractors or utility owners performing other work for Owner as contemplated by Article 7, or anyone for whom Owner is responsible, delays, disrupts, or interferes with the performance or progress of the Work, then Contractor shall be entitled to an equitable adjustment in the Contract Price or the Contract Times, or both. Contractor's entitlement to an adjustment of the Contract Times is conditioned on such adjustment being essential to Contractor's ability to complete the Work within the Contract Times.
- C. If Contractor is delayed in the performance or progress of the Work by fire, flood, epidemic, abnormal weather conditions, acts of God, acts or failures to act of utility owners not under the control of Owner, or other causes not the fault of and beyond control of Owner and Contractor, then Contractor shall be entitled to an equitable adjustment in Contract Times, if such adjustment is essential to Contractor's ability to complete the Work within the Contract Times. Such an adjustment shall be Contractor's sole and exclusive remedy for the delays described in this Paragraph 12.03.C.
- D. Owner, Engineer, and their officers, directors, members, partners, employees, agents, consultants, or subcontractors shall not be liable to Contractor for any claims, costs, losses, or damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) sustained by Contractor on or in connection with any other project or anticipated project.
- E. Contractor shall not be entitled to an adjustment in Contract Price or Contract Times for delays within the control of Contractor. Delays attributable to and within the control of a Subcontractor or Supplier shall be deemed to be delays within the control of Contractor.

ARTICLE 13 – TESTS AND INSPECTIONS; CORRECTION, REMOVAL OR ACCEPTANCE OF DEFECTIVE WORK

13.01 *Notice of Defects*

- A. Prompt notice of all defective Work of which Owner or Engineer has actual knowledge will be given to Contractor. Defective Work may be rejected, corrected, or accepted as provided in this Article 13.

13.02 *Access to Work*

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

13.03 *Tests and Inspections*

- A. Contractor shall give Engineer timely notice of readiness of the Work for all required inspections, tests, or approvals and shall cooperate with inspection and testing personnel to facilitate required inspections or tests.
- B. Owner shall employ and pay for the services of an independent testing laboratory to perform all inspections, tests, or approvals required by the Contract Documents except:
 - 1. for inspections, tests, or approvals covered by Paragraphs 13.03.C and 13.03.D below;
 - 2. that costs incurred in connection with tests or inspections conducted pursuant to Paragraph 13.04.B shall be paid as provided in Paragraph 13.04.C; and
 - 3. as otherwise specifically provided in the Contract Documents.
- C. If Laws or Regulations of any public body having jurisdiction require any Work (or part thereof) specifically to be inspected, tested, or approved by an employee or other representative of such public body, Contractor shall assume full responsibility for arranging and obtaining such inspections, tests, or approvals, pay all costs in connection therewith, and furnish Engineer the required certificates of inspection or approval.
- D. Contractor shall be responsible for arranging and obtaining and shall pay all costs in connection with any inspections, tests, or approvals required for Owner's and Engineer's acceptance of materials or equipment to be incorporated in the Work; or acceptance of materials, mix designs, or equipment submitted for approval prior to Contractor's purchase thereof for incorporation in the Work. Such inspections, tests, or approvals shall be performed by organizations acceptable to Owner and Engineer.

- E. If any Work (or the work of others) that is to be inspected, tested, or approved is covered by Contractor without written concurrence of Engineer, Contractor shall, if requested by Engineer, uncover such Work for observation.
- F. Uncovering Work as provided in Paragraph 13.03.E shall be at Contractor's expense unless Contractor has given Engineer timely notice of Contractor's intention to cover the same and Engineer has not acted with reasonable promptness in response to such notice.

13.04 *Uncovering Work*

- A. If any Work is covered contrary to the written request of Engineer, it must, if requested by Engineer, be uncovered for Engineer's observation and replaced at Contractor's expense.
- B. If Engineer considers it necessary or advisable that covered Work be observed by Engineer or inspected or tested by others, Contractor, at Engineer's request, shall uncover, expose, or otherwise make available for observation, inspection, or testing as Engineer may require, that portion of the Work in question, furnishing all necessary labor, material, and equipment.
- C. If it is found that the uncovered Work is defective, Contractor shall pay all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such uncovering, exposure, observation, inspection, and testing, and of satisfactory replacement or reconstruction (including but not limited to all costs of repair or replacement of work of others); and Owner shall be entitled to an appropriate decrease in the Contract Price. If the parties are unable to agree as to the amount thereof, Owner may make a Claim therefor as provided in Paragraph 10.05.
- D. If the uncovered Work is not found to be defective, Contractor shall be allowed an increase in the Contract Price or an extension of the Contract Times, or both, directly attributable to such uncovering, exposure, observation, inspection, testing, replacement, and reconstruction. If the parties are unable to agree as to the amount or extent thereof, Contractor may make a Claim therefor as provided in Paragraph 10.05.

13.05 *Owner May Stop the Work*

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

13.06 *Correction or Removal of Defective Work*

- A. Promptly after receipt of written notice, Contractor shall correct all defective Work, whether or not fabricated, installed, or completed, or, if the Work has been rejected by Engineer, remove it from the Project and replace it with Work that is not defective. Contractor shall pay all claims,

costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such correction or removal (including but not limited to all costs of repair or replacement of work of others).

- B. When correcting defective Work under the terms of this Paragraph 13.06 or Paragraph 13.07, Contractor shall take no action that would void or otherwise impair Owner's special warranty and guarantee, if any, on said Work.

13.07 *Correction Period*

- A. If within one year after the date of Substantial Completion (or such longer period of time as may be prescribed by the terms of any applicable special guarantee required by the Contract Documents) or by any specific provision of the Contract Documents, any Work is found to be defective, or if the repair of any damages to the land or areas made available for Contractor's use by Owner or permitted by Laws and Regulations as contemplated in Paragraph 6.11.A is found to be defective, Contractor shall promptly, without cost to Owner and in accordance with Owner's written instructions:
 - 1. repair such defective land or areas; or
 - 2. correct such defective Work; or
 - 3. if the defective Work has been rejected by Owner, remove it from the Project and replace it with Work that is not defective, and
 - 4. satisfactorily correct or repair or remove and replace any damage to other Work, to the work of others or other land or areas resulting therefrom.
- B. If Contractor does not promptly comply with the terms of Owner's written instructions, or in an emergency where delay would cause serious risk of loss or damage, Owner may have the defective Work corrected or repaired or may have the rejected Work removed and replaced. All claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such correction or repair or such removal and replacement (including but not limited to all costs of repair or replacement of work of others) will be paid by Contractor.
- C. In special circumstances where a particular item of equipment is placed in continuous service before Substantial Completion of all the Work, the correction period for that item may start to run from an earlier date if so provided in the Specifications.
- D. Where defective Work (and damage to other Work resulting therefrom) has been corrected or removed and replaced under this Paragraph 13.07, the correction period hereunder with respect to such Work will be extended for an additional period of one year after such correction or removal and replacement has been satisfactorily completed.

- E. Contractor's obligations under this Paragraph 13.07 are in addition to any other obligation or warranty. The provisions of this Paragraph 13.07 shall not be construed as a substitute for, or a waiver of, the provisions of any applicable statute of limitation or repose.

13.08 *Acceptance of Defective Work*

- A. If, instead of requiring correction or removal and replacement of defective Work, Owner (and, prior to Engineer's recommendation of final payment, Engineer) prefers to accept it, Owner may do so. Contractor shall pay all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) attributable to Owner's evaluation of and determination to accept such defective Work (such costs to be approved by Engineer as to reasonableness) and for the diminished value of the Work to the extent not otherwise paid by Contractor pursuant to this sentence. If any such acceptance occurs prior to Engineer's recommendation of final payment, a Change Order will be issued incorporating the necessary revisions in the Contract Documents with respect to the Work, and Owner shall be entitled to an appropriate decrease in the Contract Price, reflecting the diminished value of Work so accepted. If the parties are unable to agree as to the amount thereof, Owner may make a Claim therefor as provided in Paragraph 10.05. If the acceptance occurs after such recommendation, an appropriate amount will be paid by Contractor to Owner.

13.09 *Owner May Correct Defective Work*

- A. If Contractor fails within a reasonable time after written notice from Engineer to correct defective Work, or to remove and replace rejected Work as required by Engineer in accordance with Paragraph 13.06.A, or if Contractor fails to perform the Work in accordance with the Contract Documents, or if Contractor fails to comply with any other provision of the Contract Documents, Owner may, after seven days written notice to Contractor, correct, or remedy any such deficiency.
- B. In exercising the rights and remedies under this Paragraph 13.09, Owner shall proceed expeditiously. In connection with such corrective or remedial action, Owner may exclude Contractor from all or part of the Site, take possession of all or part of the Work and suspend Contractor's services related thereto, take possession of Contractor's tools, appliances, construction equipment and machinery at the Site, and incorporate in the Work all materials and equipment stored at the Site or for which Owner has paid Contractor but which are stored elsewhere. Contractor shall allow Owner, Owner's representatives, agents and employees, Owner's other contractors, and Engineer and Engineer's consultants access to the Site to enable Owner to exercise the rights and remedies under this Paragraph.
- C. All claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) incurred or sustained by Owner in exercising the rights and remedies under this Paragraph 13.09 will be charged against Contractor, and a Change Order will be issued incorporating the necessary revisions in the Contract Documents with respect to the Work; and Owner shall be entitled to an appropriate decrease in the Contract Price. If the parties are unable to agree as to the amount of the adjustment, Owner may make a Claim therefor as

provided in Paragraph 10.05. Such claims, costs, losses and damages will include but not be limited to all costs of repair, or replacement of work of others destroyed or damaged by correction, removal, or replacement of Contractor's defective Work.

- D. Contractor shall not be allowed an extension of the Contract Times because of any delay in the performance of the Work attributable to the exercise by Owner of Owner's rights and remedies under this Paragraph 13.09.

ARTICLE 14 – PAYMENTS TO CONTRACTOR AND COMPLETION

14.01 Schedule of Values

- A. The Schedule of Values established as provided in Paragraph 2.07.A will serve as the basis for progress payments and will be incorporated into a form of Application for Payment acceptable to Engineer. Progress payments on account of Unit Price Work will be based on the number of units completed.

14.02 Progress Payments

A. Applications for Payments:

1. At least 20 days before the date established in the Agreement for each progress payment (but not more often than once a month), Contractor shall submit to Engineer for review an Application for Payment filled out and signed by Contractor covering the Work completed as of the date of the Application and accompanied by such supporting documentation as is required by the Contract Documents. If payment is requested on the basis of materials and equipment not incorporated in the Work but delivered and suitably stored at the Site or at another location agreed to in writing, the Application for Payment shall also be accompanied by a bill of sale, invoice, or other documentation warranting that Owner has received the materials and equipment free and clear of all Liens and evidence that the materials and equipment are covered by appropriate property insurance or other arrangements to protect Owner's interest therein, all of which must be satisfactory to Owner.
2. Beginning with the second Application for Payment, each Application shall include an affidavit of Contractor stating that all previous progress payments received on account of the Work have been applied on account to discharge Contractor's legitimate obligations associated with prior Applications for Payment.
3. The amount of retainage with respect to progress payments will be as stipulated in the Agreement.

B. Review of Applications:

1. Engineer will, within 10 days after receipt of each Application for Payment, either indicate in writing a recommendation of payment and present the Application to Owner or return the Application to Contractor indicating in writing Engineer's reasons for refusing to recommend payment. In the latter case, Contractor may make the necessary corrections and resubmit the Application.

2. Engineer's recommendation of any payment requested in an Application for Payment will constitute a representation by Engineer to Owner, based on Engineer's observations of the executed Work as an experienced and qualified design professional, and on Engineer's review of the Application for Payment and the accompanying data and schedules, that to the best of Engineer's knowledge, information and belief:
 - a. the Work has progressed to the point indicated;
 - b. the quality of the Work is generally in accordance with the Contract Documents (subject to an evaluation of the Work as a functioning whole prior to or upon Substantial Completion, the results of any subsequent tests called for in the Contract Documents, a final determination of quantities and classifications for Unit Price Work under Paragraph 9.07, and any other qualifications stated in the recommendation); and
 - c. the conditions precedent to Contractor's being entitled to such payment appear to have been fulfilled in so far as it is Engineer's responsibility to observe the Work.
3. By recommending any such payment Engineer will not thereby be deemed to have represented that:
 - a. inspections made to check the quality or the quantity of the Work as it has been performed have been exhaustive, extended to every aspect of the Work in progress, or involved detailed inspections of the Work beyond the responsibilities specifically assigned to Engineer in the Contract Documents; or
 - b. there may not be other matters or issues between the parties that might entitle Contractor to be paid additionally by Owner or entitle Owner to withhold payment to Contractor.
4. Neither Engineer's review of Contractor's Work for the purposes of recommending payments nor Engineer's recommendation of any payment, including final payment, will impose responsibility on Engineer:
 - a. to supervise, direct, or control the Work, or
 - b. for the means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or
 - c. for Contractor's failure to comply with Laws and Regulations applicable to Contractor's performance of the Work, or
 - d. to make any examination to ascertain how or for what purposes Contractor has used the moneys paid on account of the Contract Price, or
 - e. to determine that title to any of the Work, materials, or equipment has passed to Owner free and clear of any Liens.
5. Engineer may refuse to recommend the whole or any part of any payment if, in Engineer's opinion, it would be incorrect to make the representations to Owner stated in

Paragraph 14.02.B.2. Engineer may also refuse to recommend any such payment or, because of subsequently discovered evidence or the results of subsequent inspections or tests, revise or revoke any such payment recommendation previously made, to such extent as may be necessary in Engineer's opinion to protect Owner from loss because:

- a. the Work is defective, or completed Work has been damaged, requiring correction or replacement;
- b. the Contract Price has been reduced by Change Orders;
- c. Owner has been required to correct defective Work or complete Work in accordance with Paragraph 13.09; or
- d. Engineer has actual knowledge of the occurrence of any of the events enumerated in Paragraph 15.02.A.

C. Payment Becomes Due:

1. Ten days after presentation of the Application for Payment to Owner with Engineer's recommendation, the amount recommended will (subject to the provisions of Paragraph 14.02.D) become due, and when due will be paid by Owner to Contractor.

D. Reduction in Payment:

1. Owner may refuse to make payment of the full amount recommended by Engineer because:
 - a. claims have been made against Owner on account of Contractor's performance or furnishing of the Work;
 - b. Liens have been filed in connection with the Work, except where Contractor has delivered a specific bond satisfactory to Owner to secure the satisfaction and discharge of such Liens;
 - c. there are other items entitling Owner to a set-off against the amount recommended; or
 - d. Owner has actual knowledge of the occurrence of any of the events enumerated in Paragraphs 14.02.B.5.a through 14.02.B.5.c or Paragraph 15.02.A.
2. If Owner refuses to make payment of the full amount recommended by Engineer, Owner will give Contractor immediate written notice (with a copy to Engineer) stating the reasons for such action and promptly pay Contractor any amount remaining after deduction of the amount so withheld. Owner shall promptly pay Contractor the amount so withheld, or any adjustment thereto agreed to by Owner and Contractor, when Contractor remedies the reasons for such action.
3. Upon a subsequent determination that Owner's refusal of payment was not justified, the amount wrongfully withheld shall be treated as an amount due as determined by Paragraph 14.02.C.1 and subject to interest as provided in the Agreement.

14.03 *Contractor's Warranty of Title*

- A. Contractor warrants and guarantees that title to all Work, materials, and equipment covered by any Application for Payment, whether incorporated in the Project or not, will pass to Owner no later than the time of payment free and clear of all Liens.

14.04 *Substantial Completion*

- A. When Contractor considers the entire Work ready for its intended use Contractor shall notify Owner and Engineer in writing that the entire Work is substantially complete (except for items specifically listed by Contractor as incomplete) and request that Engineer issue a certificate of Substantial Completion.
- B. Promptly after Contractor's notification, Owner, Contractor, and Engineer shall make an inspection of the Work to determine the status of completion. If Engineer does not consider the Work substantially complete, Engineer will notify Contractor in writing giving the reasons therefor.
- C. If Engineer considers the Work substantially complete, Engineer will deliver to Owner a tentative certificate of Substantial Completion which shall fix the date of Substantial Completion. There shall be attached to the certificate a tentative list of items to be completed or corrected before final payment. Owner shall have seven days after receipt of the tentative certificate during which to make written objection to Engineer as to any provisions of the certificate or attached list. If, after considering such objections, Engineer concludes that the Work is not substantially complete, Engineer will, within 14 days after submission of the tentative certificate to Owner, notify Contractor in writing, stating the reasons therefor. If, after consideration of Owner's objections, Engineer considers the Work substantially complete, Engineer will, within said 14 days, execute and deliver to Owner and Contractor a definitive certificate of Substantial Completion (with a revised tentative list of items to be completed or corrected) reflecting such changes from the tentative certificate as Engineer believes justified after consideration of any objections from Owner.
- D. At the time of delivery of the tentative certificate of Substantial Completion, Engineer will deliver to Owner and Contractor a written recommendation as to division of responsibilities pending final payment between Owner and Contractor with respect to security, operation, safety, and protection of the Work, maintenance, heat, utilities, insurance, and warranties and guarantees. Unless Owner and Contractor agree otherwise in writing and so inform Engineer in writing prior to Engineer's issuing the definitive certificate of Substantial Completion, Engineer's aforesaid recommendation will be binding on Owner and Contractor until final payment.
- E. Owner shall have the right to exclude Contractor from the Site after the date of Substantial Completion subject to allowing Contractor reasonable access to remove its property and complete or correct items on the tentative list.

14.05 *Partial Utilization*

- A. Prior to Substantial Completion of all the Work, Owner may use or occupy any substantially completed part of the Work which has specifically been identified in the Contract Documents, or which Owner, Engineer, and Contractor agree constitutes a separately functioning and usable part of the Work that can be used by Owner for its intended purpose without significant interference with Contractor's performance of the remainder of the Work, subject to the following conditions:
1. Owner at any time may request Contractor in writing to permit Owner to use or occupy any such part of the Work which Owner believes to be ready for its intended use and substantially complete. If and when Contractor agrees that such part of the Work is substantially complete, Contractor, Owner, and Engineer will follow the procedures of Paragraph 14.04.A through D for that part of the Work.
 2. Contractor at any time may notify Owner and Engineer in writing that Contractor considers any such part of the Work ready for its intended use and substantially complete and request Engineer to issue a certificate of Substantial Completion for that part of the Work.
 3. Within a reasonable time after either such request, Owner, Contractor, and Engineer shall make an inspection of that part of the Work to determine its status of completion. If Engineer does not consider that part of the Work to be substantially complete, Engineer will notify Owner and Contractor in writing giving the reasons therefor. If Engineer considers that part of the Work to be substantially complete, the provisions of Paragraph 14.04 will apply with respect to certification of Substantial Completion of that part of the Work and the division of responsibility in respect thereof and access thereto.
 4. No use or occupancy or separate operation of part of the Work may occur prior to compliance with the requirements of Paragraph 5.10 regarding property insurance.

14.06 *Final Inspection*

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

14.07 *Final Payment*

A. *Application for Payment:*

1. After Contractor has, in the opinion of Engineer, satisfactorily completed all corrections identified during the final inspection and has delivered, in accordance with the Contract Documents, all maintenance and operating instructions, schedules, guarantees, bonds, certificates or other evidence of insurance, certificates of inspection, marked-up record documents (as provided in Paragraph 6.12), and other documents, Contractor may make application for final payment following the procedure for progress payments.

2. The final Application for Payment shall be accompanied (except as previously delivered) by:
 - a. all documentation called for in the Contract Documents, including but not limited to the evidence of insurance required by Paragraph 5.04.B.6;
 - b. consent of the surety, if any, to final payment;
 - c. a list of all Claims against Owner that Contractor believes are unsettled; and
 - d. complete and legally effective releases or waivers (satisfactory to Owner) of all Lien rights arising out of or Liens filed in connection with the Work.
3. In lieu of the releases or waivers of Liens specified in Paragraph 14.07.A.2 and as approved by Owner, Contractor may furnish receipts or releases in full and an affidavit of Contractor that: (i) the releases and receipts include all labor, services, material, and equipment for which a Lien could be filed; and (ii) all payrolls, material and equipment bills, and other indebtedness connected with the Work for which Owner might in any way be responsible, or which might in any way result in liens or other burdens on Owner's property, have been paid or otherwise satisfied. If any Subcontractor or Supplier fails to furnish such a release or receipt in full, Contractor may furnish a bond or other collateral satisfactory to Owner to indemnify Owner against any Lien.

B. Engineer's Review of Application and Acceptance:

1. If, on the basis of Engineer's observation of the Work during construction and final inspection, and Engineer's review of the final Application for Payment and accompanying documentation as required by the Contract Documents, Engineer is satisfied that the Work has been completed and Contractor's other obligations under the Contract Documents have been fulfilled, Engineer will, within ten days after receipt of the final Application for Payment, indicate in writing Engineer's recommendation of payment and present the Application for Payment to Owner for payment. At the same time Engineer will also give written notice to Owner and Contractor that the Work is acceptable subject to the provisions of Paragraph 14.09. Otherwise, Engineer will return the Application for Payment to Contractor, indicating in writing the reasons for refusing to recommend final payment, in which case Contractor shall make the necessary corrections and resubmit the Application for Payment.

C. Payment Becomes Due:

1. Thirty days after the presentation to Owner of the Application for Payment and accompanying documentation, the amount recommended by Engineer, less any sum Owner is entitled to set off against Engineer's recommendation, including but not limited to liquidated damages, will become due and will be paid by Owner to Contractor.

14.08 *Final Completion Delayed*

- A. If, through no fault of Contractor, final completion of the Work is significantly delayed, and if Engineer so confirms, Owner shall, upon receipt of Contractor's final Application for Payment

(for Work fully completed and accepted) and recommendation of Engineer, and without terminating the Contract, make payment of the balance due for that portion of the Work fully completed and accepted. If the remaining balance to be held by Owner for Work not fully completed or corrected is less than the retainage stipulated in the Agreement, and if bonds have been furnished as required in Paragraph 5.01, the written consent of the surety to the payment of the balance due for that portion of the Work fully completed and accepted shall be submitted by Contractor to Engineer with the Application for such payment. Such payment shall be made under the terms and conditions governing final payment, except that it shall not constitute a waiver of Claims.

14.09 *Waiver of Claims*

- A. The making and acceptance of final payment will constitute:
1. a waiver of all Claims by Owner against Contractor, except Claims arising from unsettled Liens, from defective Work appearing after final inspection pursuant to Paragraph 14.06, from failure to comply with the Contract Documents or the terms of any special guarantees specified therein, or from Contractor's continuing obligations under the Contract Documents; and
 2. a waiver of all Claims by Contractor against Owner other than those previously made in accordance with the requirements herein and expressly acknowledged by Owner in writing as still unsettled.

ARTICLE 15 – SUSPENSION OF WORK AND TERMINATION

15.01 *Owner May Suspend Work*

- A. At any time and without cause, Owner may suspend the Work or any portion thereof for a period of not more than 90 consecutive days by notice in writing to Contractor and Engineer which will fix the date on which Work will be resumed. Contractor shall resume the Work on the date so fixed. Contractor shall be granted an adjustment in the Contract Price or an extension of the Contract Times, or both, directly attributable to any such suspension if Contractor makes a Claim therefor as provided in Paragraph 10.05.

15.02 *Owner May Terminate for Cause*

- A. The occurrence of any one or more of the following events will justify termination for cause:
1. Contractor's persistent failure to perform the Work in accordance with the Contract Documents (including, but not limited to, failure to supply sufficient skilled workers or suitable materials or equipment or failure to adhere to the Progress Schedule established under Paragraph 2.07 as adjusted from time to time pursuant to Paragraph 6.04);
 2. Contractor's disregard of Laws or Regulations of any public body having jurisdiction;
 3. Contractor's repeated disregard of the authority of Engineer; or

4. Contractor's violation in any substantial way of any provisions of the Contract Documents.
- B. If one or more of the events identified in Paragraph 15.02.A occur, Owner may, after giving Contractor (and surety) seven days written notice of its intent to terminate the services of Contractor:
 1. exclude Contractor from the Site, and take possession of the Work and of all Contractor's tools, appliances, construction equipment, and machinery at the Site, and use the same to the full extent they could be used by Contractor (without liability to Contractor for trespass or conversion);
 2. incorporate in the Work all materials and equipment stored at the Site or for which Owner has paid Contractor but which are stored elsewhere; and
 3. complete the Work as Owner may deem expedient.
 - C. If Owner proceeds as provided in Paragraph 15.02.B, Contractor shall not be entitled to receive any further payment until the Work is completed. If the unpaid balance of the Contract Price exceeds all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) sustained by Owner arising out of or relating to completing the Work, such excess will be paid to Contractor. If such claims, costs, losses, and damages exceed such unpaid balance, Contractor shall pay the difference to Owner. Such claims, costs, losses, and damages incurred by Owner will be reviewed by Engineer as to their reasonableness and, when so approved by Engineer, incorporated in a Change Order. When exercising any rights or remedies under this Paragraph, Owner shall not be required to obtain the lowest price for the Work performed.
 - D. Notwithstanding Paragraphs 15.02.B and 15.02.C, Contractor's services will not be terminated if Contractor begins within seven days of receipt of notice of intent to terminate to correct its failure to perform and proceeds diligently to cure such failure within no more than 30 days of receipt of said notice.
 - E. Where Contractor's services have been so terminated by Owner, the termination will not affect any rights or remedies of Owner against Contractor then existing or which may thereafter accrue. Any retention or payment of moneys due Contractor by Owner will not release Contractor from liability.
 - F. If and to the extent that Contractor has provided a performance bond under the provisions of Paragraph 5.01.A, the termination procedures of that bond shall supersede the provisions of Paragraphs 15.02.B and 15.02.C.

15.03 *Owner May Terminate For Convenience*

- A. Upon seven days written notice to Contractor and Engineer, Owner may, without cause and without prejudice to any other right or remedy of Owner, terminate the Contract. In such case, Contractor shall be paid for (without duplication of any items):

1. completed and acceptable Work executed in accordance with the Contract Documents prior to the effective date of termination, including fair and reasonable sums for overhead and profit on such Work;
 2. expenses sustained prior to the effective date of termination in performing services and furnishing labor, materials, or equipment as required by the Contract Documents in connection with uncompleted Work, plus fair and reasonable sums for overhead and profit on such expenses;
 3. all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) incurred in settlement of terminated contracts with Subcontractors, Suppliers, and others; and
 4. reasonable expenses directly attributable to termination.
- B. Contractor shall not be paid on account of loss of anticipated profits or revenue or other economic loss arising out of or resulting from such termination.

15.04 *Contractor May Stop Work or Terminate*

- A. If, through no act or fault of Contractor, (i) the Work is suspended for more than 90 consecutive days by Owner or under an order of court or other public authority, or (ii) Engineer fails to act on any Application for Payment within 30 days after it is submitted, or (iii) Owner fails for 30 days to pay Contractor any sum finally determined to be due, then Contractor may, upon seven days written notice to Owner and Engineer, and provided Owner or Engineer do not remedy such suspension or failure within that time, terminate the Contract and recover from Owner payment on the same terms as provided in Paragraph 15.03.
- B. In lieu of terminating the Contract and without prejudice to any other right or remedy, if Engineer has failed to act on an Application for Payment within 30 days after it is submitted, or Owner has failed for 30 days to pay Contractor any sum finally determined to be due, Contractor may, seven days after written notice to Owner and Engineer, stop the Work until payment is made of all such amounts due Contractor, including interest thereon. The provisions of this Paragraph 15.04 are not intended to preclude Contractor from making a Claim under Paragraph 10.05 for an adjustment in Contract Price or Contract Times or otherwise for expenses or damage directly attributable to Contractor's stopping the Work as permitted by this Paragraph.

ARTICLE 16 – DISPUTE RESOLUTION

16.01 *Methods and Procedures*

- A. Either Owner or Contractor may request mediation of any Claim submitted to Engineer for a decision under Paragraph 10.05 before such decision becomes final and binding. The mediation will be governed by the Construction Industry Mediation Rules of the American Arbitration Association in effect as of the Effective Date of the Agreement. The request for mediation shall be submitted in writing to the American Arbitration Association and the other party to the Contract. Timely submission of the request shall stay the effect of Paragraph 10.05.E.

- B. Owner and Contractor shall participate in the mediation process in good faith. The process shall be concluded within 60 days of filing of the request. The date of termination of the mediation shall be determined by application of the mediation rules referenced above.
- C. If the Claim is not resolved by mediation, Engineer's action under Paragraph 10.05.C or a denial pursuant to Paragraphs 10.05.C.3 or 10.05.D shall become final and binding 30 days after termination of the mediation unless, within that time period, Owner or Contractor:
 - 1. elects in writing to invoke any dispute resolution process provided for in the Supplementary Conditions; or
 - 2. agrees with the other party to submit the Claim to another dispute resolution process; or
 - 3. gives written notice to the other party of the intent to submit the Claim to a court of competent jurisdiction.

ARTICLE 17 – MISCELLANEOUS

17.01 *Giving Notice*

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

17.02 *Computation of Times*

- A. 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. If the last day of any such period falls on a Saturday or Sunday or on a day made a legal holiday by the law of the applicable jurisdiction, such day will be omitted from the computation.

17.03 *Cumulative Remedies*

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

17.04 *Survival of Obligations*

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

17.05 *Controlling Law*

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

17.06 *Headings*

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

SECTION 00800

SUPPLEMENTARY CONDITIONS

GENERAL

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

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

SC-1.01 DEFINED TERMS

Add the following defined terms to Section 1.01:

- 53** *Calendar Day*: "Calendar Day" is any day of the week or month, no days being excepted.
- 54** *Working Day*: A "Working Day" is defined as any day not including Saturdays, Sundays or any legal holidays, in which weather or other conditions, not under the control of the CONTRACTOR, will permit construction of the principal units of the work for a period of not less than seven (7) hours between 7:00 a.m. and 6:00 p.m.
- 55** *Working Times*: Times of day(s) during which work may be performed. Unless authorized by the Owner, all Work shall be performed between 7:00am and 6:00pm on weekdays and, if previously authorized by as provided for in Section 6.02 herein, as applicable, between 9:00 am and 6:00 pm on Saturdays, Sundays, or Legal Holidays. When the CONTRACTOR has been authorized to perform Work during hours outside Working Times, such hours shall be considered time worked on Working days. Notwithstanding the preceding, emergency work may be done without prior permission only as provided in paragraph 6.16 herein.
- 56** *Proposal Documents*: The advertisement or invitation for Proposals, Instruction to Offerors, the Proposal form, the Contract Documents and Addenda (NOTE: this definition only applies where proposals, rather than bids have been solicited and where allowed under the Local Government Code).

SC-3.02 REFERENCE STANDARDS

Add the following to Section 3.02 C:

- 3** Standard specifications, codes, rules and regulations referred to in these specifications by basic name or designation only shall be considered to be of the latest issue with all amendments as of the date of the advertisement for bids, unless one particular issue is specifically named.

Where standards in these specifications are in conflict with those of the City of Georgetown, the City of Georgetown standards shall apply. Where no specification is shown, the City of Georgetown's standards shall apply.

SC-4.01 Availability of Lands

Add the following paragraph immediately after paragraph 4.01.C:

- D.** The Developer shall approve the proposed access roads which shall be used for the movement of personnel and equipment. The initial access roads shall be subject to change by the Developer, occasioned by the progress of the work or unforeseen conditions. The CONTRACTOR shall be permitted to propose alternate routes in accordance with permit limitations imposed upon him by state, county or municipal road or highway departments. No change in haul routes shall be the basis for extra payment

SC-4.02 SUBSURFACE AND PHYSICAL CONDITIONS

Add the following paragraphs immediately after paragraph 4.02.B:

- C.** In the preparation of the Contract Documents ENGINEER relied upon the following reports of explorations and tests of subsurface conditions at the Site:
 - 1. Geotechnical Report dated April 2021 prepared by MLA Geotechnical entitled: "Geotechnical Investigation Pavement Thickness Recommendations, Parmer Ranch Phases 2, 3, & 4, Georgetown, Texas." The "technical data" contained in such report upon which the CONTRACTOR may rely includes the Log of Borings provided in the Appendix to this Report.
 - 2. CONTRACTOR represents that he has satisfied himself as to the subsurface conditions at the Site of the Work. The Contract Documents, including subsurface conditions, are for information purposes only and are not warranted or represented in any manner to accurately show the conditions at the Site of the Work. All risks of differing site conditions shall be borne solely by the CONTRACTOR.
- D.** The Engineer has made a reasonable effort to locate all underground facilities. The CONTRACTOR shall immediately report to the Engineer any additional underground facilities, which he discovers. It shall be the CONTRACTOR 's responsibility to determine the true location and depth of all underground facilities if their preservation is necessary to the existing Owner of said facility. The Engineer will determine whatever existing improvements are to be relocated, or grade and alignment of pipe changed. Where necessary to move existing services, poles, guy wires, pipelines, etc., as determined by the Engineer, the CONTRACTOR will make arrangements with the Owner of the utility to be moved and have it moved. The cost of any utility relocation will be at the " CONTRACTOR 's sole expense. The Owner will not be liable for relocation costs or damages on account of delays due to changes made by owners of privately owned utilities, which hinder progress of the work.

SC-5.02 LICENSED SURETIES AND INSURERS

Add the following to Section 5.02 A:

Surety and insurance companies from which the bonds and insurance for this Project are purchased shall have a Best's rating of no less than A:VII, in addition to other requirements specified herein.

SC-5.04 CONTRACTOR'S LIABILITY INSURANCE

Add the following to Section 5.04.B.1:

Include the following parties or entities as additional insured:

Steger Bizzell	PR South, Inc.
1978 S. Austin Ave	6706 W Courtyard
Georgetown, TX 78626	Austin, TX 78730

SC-5.04 Contractor's Liability Insurance

Replace Paragraph 5.04 with the following SC-5.04

5.04 *Other Requirements: Bond and Insurance.*

A. General Requirements:

1. CONTRACTOR shall purchase and maintain insurance in the types and amounts indicated below for the duration of the Contract (unless a longer duration is specified), which shall include items owned by OWNER in the care, custody and control of CONTRACTOR prior to and during the term of the Contract and all warranty periods. Failure to purchase and maintain the required insurance shall be grounds for Termination of the Contract or Suspension of the Work by OWNER. Except for the Worker's Compensation policy, the other insurance policies required by the Contract to be obtained by CONTRACTOR must state that OWNER, its officials, directors, employees, representatives, and volunteers are added as additional insureds with regard to operations and activities by or on behalf of the named insureds performed under contract with OWNER. The additional insured status must cover completed operations as well, and the policy covering completed work must remain in effect until the expiration of the statute of repose.
2. CONTRACTOR must complete and forward the required Certificates of Insurance to OWNER before the Contract is executed as verification of coverage required below. CONTRACTOR shall not commence Work until the required insurance is obtained and until such insurance has been reviewed by OWNER. Approval of insurance by OWNER shall not relieve or decrease the liability of CONTRACTOR hereunder and shall not be construed to be a limitation of liability on the part of CONTRACTOR. CONTRACTOR must also complete and forward the required Certificates of Insurance to OWNER whenever a previously identified policy period has expired as verification of continuing coverage.

3. Contractor's insurance coverage is to be written by companies licensed to do business in the State of Texas at the time the policies are issued and shall be written by companies with A.M. Best ratings of B+VII or better, except for hazardous material insurance which shall be written by companies with A.M. Best ratings of A- or better.
4. All endorsements naming the OWNER as additional insured, waivers, and notices of cancellation endorsements as well as the Certificate of Insurance shall indicate: Parmer Ranch Partners LP.
5. To the maximum extent permitted by law, contractor hereby agrees to save, indemnify and keep harmless Owner, its affiliates, and their respective officers, directors, partners, shareholders, members, employees, successors and assigns (collectively, "Indemnitees"), against: all liability, expenses (including reasonable attorney's fees) claims, judgments, suits, or demands for damages to persons or property arising out of, resulting from or relating to contractor's performance of the work under this Agreement or contractor's breach of this Agreement ("Claims") unless such Claims have been specifically determined by the trier of fact to be the sole negligence of Indemnitees. Contractor's duty to indemnify Indemnitees shall arise at the time written notice of a Claim is first provided to Indemnitees regardless of whether claimant has filed suit on the Claim. Contractor's duty to indemnify Indemnitees shall arise even if Indemnitees are the only parties sued by claimant and/or claimant alleges that Indemnitees' negligence was the sole cause of claimant's damages. Contractor's indemnification obligation shall include, but not be limited to, any Claim made against Indemnitees by: (a) a contractor's agent who has been injured on property owned by Indemnitees; (b) a homeowner or association; and (c) a third party claiming patent, trademark, or copyright infringement.

Contractor will defend Claims which may be brought or threatened against Indemnitees and will pay on behalf of Indemnitees any expenses incurred by reason of such Claims including, but not limited to, court costs, expert costs and reasonable attorney fees incurred in defending or investigating such Claims. Such payment on behalf of Indemnitees shall be in addition to any and all other legal remedies available to Indemnitees and shall not be considered Indemnitees' exclusive remedy.

In the event Indemnitees are required to mediate or arbitrate a Claim with a homeowner arising out of or relating to the work performed under this Agreement, Indemnitees may, in their sole discretion, require contractor to participate in the mediation and/or arbitration in accordance with the Federal Arbitration Act. The Construction Industry Arbitration Rules of the American Arbitration Association ("AAA") and the Supplementary Consumer Residential Construction Industry Arbitration Rules of the AAA Rules shall apply. Any judgment rendered by the arbitrator(s) may be confirmed, entered and enforced in any court having jurisdiction and the contractor shall be bound by that decision.

The provisions of this Indemnity Paragraph XIX shall survive expiration or termination of this Agreement and/or completion of the work of contractor and shall continue until such time it is determined by final judgment that the Claim against Indemnitees is fully and finally barred by the statute of limitations.

Contractor's indemnification and defense obligations shall not be limited by the amounts or types of insurance that contractor is required to carry under this Agreement or that contractor does in fact carry.

Contractor shall carry, with insurance companies rated A- VII or better by A.M. Best Company, the following insurance coverage continuously during the life of this Agreement, and thereafter as provided below:

Commercial General Liability Coverage

(a) Commercial General Liability Insurance ("CGL") coverage shall be on an occurrence form containing limits of at least \$1,000,000 per occurrence/\$1,000,000 general aggregate/\$1,000,000 products-completed operations, protecting against property damage, bodily injury and personal injury claims arising from the exposures of:

(i) Premises or ongoing operations;

(ii) Products-completed operations, which shall:

(A) cover materials designed, furnished and/or modified in any way by contractor;

(B) have a separate aggregate limit at least equal to the CGL per occurrence limit; and .

(C) be maintained through the longer of the statute of limitations or repose period for construction defect and products liability claims in the state where the work is performed. Policies and/or endorsements cannot include any provisions that terminate products-completed operations coverage at the end of a policy period or limit the coverage in any other way with respect to additional insureds;

(iii) Independent contractors;

(iv) Contractual liability; and

(v) Property damage resulting from explosion, collapse, or underground (x, c, u) exposures (if applicable).

- (b) The CGL coverage must be primary. Any of Owner's insurance shall be considered excess for the purpose of responding to claims.
- (c) The policy may not contain exclusions for the work, including but not limited to exclusions for residential construction, attached product. (if applicable) or liability that arises from a dispute governed by a notice and opportunity to repair statute
- (d) Contractor shall add Owner as an additional insured on the COL policy by having the insurance carrier issue an additional insured endorsement(s) at least as broad as the ISO CO 2010 11/85 Additional Insured - Owners, Lessees or Contractors Form B endorsement. Owner's additional insured status under the COL policy must not be limited by amendatory language to the policy. Further, this endorsement shall:
 - (i) Provide coverage for both premises/ongoing operations and products completed operations to the benefit of the additional insured; and
 - (ii) Provide coverage to the full extent of the actual limits of contractor's coverage even if such actual limits exceed the minimum limits required by this Agreement.
- (e) Owners and Contractors Protective Liability Policies ("OCP") cannot fulfill the requirement for CGL coverage under this Agreement.
- (f) In the event that contractor opts to participate in any alternative general liability insurance program offered through Owner as a means to fulfill the requirement for COL coverage, contractor agrees that Owner may deduct premium payments due contractor under this Agreement.
- (g) In the event that contractor provides work for a project covered by an Owner Controlled Insurance Program ("OCIP") arranged by Owner, the CGL requirements are hereby waived for purposes of that project only.

Automobile Liability Coverage

Contractor shall carry automobile liability coverage with a combined single limit of \$1,000,000 insuring against bodily injury and/or property damage arising out of the operation, maintenance, use, loading or unloading of any auto including owned, non-owned, and hired autos. Owner must be added as an additional insured for automobile liability.

Worker's Compensation and Employer's Liability Coverage

- (a) Contractor shall carry workers' compensation insurance providing statutory benefits imposed by applicable state or federal law such that: (1) Owner will have no liability to contractor, its employees or contractor's agents; and (2) contractor will satisfy all workers' compensation obligations imposed by state law.
- (b) This policy must include a documented waiver of subrogation in favor of Owner (in states where permitted).
- (c) If any of contractor's employees or contractor's agents are subject to the rights and obligations of the Longshoremen and Harbor Workers Act or any other maritime law or act, the workers' compensation insurance must be broadened to provide additional required coverage.
- (d) For purposes of workers' compensation coverage, contractor agrees that contractor, contractor's employees and contractor's agents are not employees of Owner or its affiliates, and are therefore not beneficiaries of any Owner coverage.
- (e) Contractor may satisfy its workers' compensation obligations by providing documentation of current authorization from the appropriate state authorities for the

state(s) where work is performed indicating that contractor is adequately self-insured for workers' compensation claims.

- (f) Contractor agrees to carry employer's liability coverage with limits of not less than:
 - (i) \$500,000 - Each Accident
 - (ii) \$500,000 - Aggregate Policy Limit for Disease
 - (iii) \$500,000 - Each Employee

Umbrella or Excess Coverage

To the extent contractor carries umbrella or excess insurance above the minimum required limits stated in this Agreement, the protection afforded Owner in the umbrella or excess liability insurance shall be as broad or broader, than the coverage present in the underlying insurance and in accordance with this Agreement. Each umbrella or excess liability policy shall specifically state that the insurance provided by the contractor shall be considered primary.

Contractor must disclose all applicable policy deductibles and/or self-insured retentions ("SIR") and agrees to be liable for all costs within the deductibles and/or SIR.

Certificates of Insurance

Contractor shall evidence that such insurance is in force by furnishing Owner with a certificate of insurance, or if required by Owner, certified copies of the policies. The certificate shall state the type of work being performed, and shall be incorporated into this Agreement. The certificate shall evidence the requirements of this Agreement, including but not limited to, specifying that:

- (a) Owner is an additional insured on the CGL and automobile policies, and if applicable the umbrella and/or excess policies, by referencing and attaching the required endorsement;
- (b) Contractor's coverage is primary and Owner's insurance is excess for any Claims;
- (c) Contractor's COL policy contains contractual liability coverage;
- (d) Contractor's workers' compensation policy includes a waiver of subrogation in favor of Owner (in states where permitted), by referencing and attaching the required endorsement; and
- (e) All coverage applies in the state where the work is performed.

Contractor's Agent(s)

- (a) If contractor should subcontract any work, contractor shall nevertheless be bound to indemnify Owner as provided in this Agreement on behalf of contractor's agent(s). In addition, contractor shall require that contractor's agent(s) also be bound to indemnify Owner as provided in this Agreement. Contractor represents and warrants that contractor's agent(s) shall carry insurance as set forth in this Agreement prior to permitting contractor's agent(s) to commence its work.
- (b) Contractor shall require in its purchase orders that its suppliers indemnify contractor and Owner from all losses arising from any materials or supplies included in any work.

Insurance Modifications to This Agreement

- (a) Any attempt by the contractor to cancel or modify insurance coverage required by this Agreement, or any failure by the contractor to maintain such coverage, shall be a default under this Agreement and, upon such default, Owner will have the right to immediately terminate this Agreement and/or exercise any of its rights at law or at equity. In addition to any other remedies, Owner may, at its discretion, withhold payment of any sums due under this Agreement until contractor provides adequate proof of insurance.
- (b) The amounts and types of insurance set forth above are minimums required by Owner and shall not substitute for an independent determination by contractor of the amounts and types of insurance which contractor shall determine to be reasonably necessary to protect itself and its work.
- (c) Owner reserves the right to modify these insurance requirements, and if contractor continues to perform work or accepts work orders, contractor agrees to be bound by such modifications 30 days after receipt of the modified provisions.

Additional Insurance Requirements

The contract for construction of the project shall require the contractor to provide and maintain the types and minimum coverages of insurance specified below from the time the District issues a notice to proceed with construction of the project and extending until the project is accepted by the District.

- (a) The contractor shall be required to present the Owner with current insurance certificates showing the required coverages before any workers or materials are brought to the construction site. LCRA will be named as an additional insured on such insurance certificate. The insurance coverages shall include, and the certificates shall reflect, carrier's written endorsement that the coverage afforded will not be canceled, materially changed or renewal refused until at least 30 days prior written notice has been given to the Owner.
- (b) If the contractor engages subcontractors for construction, the contractor shall either provide coverage for subcontractors in the contractor's insurance policies or require each subcontractor to secure insurance of the same types and with the same coverage limits.
- (c) The contractor's insurance coverage must be written by companies licensed to do business in the State of Texas at the time the policies are issued and shall be written by companies with A.M. Best ratings of A- VII or better. The policies of insurance so required by this section to be purchased and maintained shall include at least the specific coverages for, and shall be written for not less than, the costs for the construction of the work, or as required by law, whichever is greater. Such insurance shall include, at a minimum coverage for the following types of claims that might arise out of the construction of the work:
 - (i) claims under workers' compensation, disability benefits, and other similar employee benefit laws;
 - (ii) claims for damages because of bodily injury, occupational sickness or disease, or death of contractor's employees;
 - (iii) claims for damages because of bodily injury, sickness or disease, or death of any person other than contractor's employees;
 - (iv) claims for damages, other than to the work itself, because of injury to or destruction of tangible property, wherever located, including loss of use resulting therefrom, and,

(v) claims for damages because of bodily injury or death of any person or property damage arising out of the ownership, maintenance or use of any motor vehicle.

6. OWNER shall be entitled, upon request and without expense, to receive certified copies of policies and endorsements thereto and may make any reasonable requests for deletion or revision or modification of particular policy terms, conditions, limitations, or exclusions except where policy provisions are established by law or regulations binding upon either of the parties hereto or the underwriter on any such policies.

SC-5.045 Bonds.

A. *General.*

1. Bonds, when required by the Contract, shall be executed on forms furnished by or acceptable to OWNER. All bonds signed by an agent must be accompanied by a certified copy of such agent's authority to act. The contractor shall be responsible for providing all bonds in the name of the Owner and the District. The contractor shall include the costs for all bonds as job-related expenses. No separate payment will be made.
2. If the surety on any bond furnished by CONTRACTOR is declared bankrupt or becomes insolvent or its right to do business is terminated in the State of Texas or it ceases to meet the requirements of the preceding paragraph, CONTRACTOR shall within ten (10) days thereafter substitute another bond and surety, both of which must be acceptable to OWNER.
3. When Performance Bonds and/or Payment Bonds are required, each shall be issued in an amount of one hundred percent (100%) of the Contract Amount as security for the faithful performance and/or payment of all CONTRACTOR's obligations under the Contract Documents. Performance Bonds and Payment Bonds shall be issued by a solvent surety company authorized to do business in the State of Texas and shall meet any other requirements established by law or by OWNER pursuant to applicable law. Any surety duly authorized to do business in Texas may write Performance and Payment Bonds on a project without reinsurance to the limit of 10 percent of its capital and surplus. Such a surety must reinsure any obligations over 10 percent.

B. *Performance Bond.*

1. CONTRACTOR shall furnish OWNER with a Performance Bond in the form set out by OWNER. The Performance Bond shall be effective for the Contract Time and through all warranty period(s).
2. If a Performance Bond is required to be furnished, it shall extend for the one year warranty period, or longer if the warranty periods are longer.

C. *Payment Bond.*

1. If the Contract Amount exceeds \$25,000, CONTRACTOR shall furnish OWNER with a Payment Bond in the form set out by OWNER.
- D. Power of Attorney. Each bond shall be accompanied by a valid Power of Attorney (issued by the surety company and attached, signed and sealed with the corporate embossed seal, to the bond) authorizing the attorney in fact who signs the bond to commit the company to the terms of the bond, and stating any limit in the amount for which the attorney can issue a single bond.
- E. Minimum Standards for Sureties. Sureties shall be listed on the US Department of the Treasury's Listing Approved Sureties stating companies holding Certificates of Authority as acceptable sureties on Federal Bonds and acceptable reinsuring companies (Department Circular 570).

SC-6.13.B Trench and Shoring Safety

Add the following Paragraph 6.13.B.1.

As required by the Texas Health & Safety Code, Title 9, Subtitle A, Chapter 756, Subchapter C, Contractor is required to comply with the trench safety standards of the Occupational Safety and Health Administration, 29 C.F.R. 1926, Subpart P, Excavations, in effect during the period of construction of the Project. Contractor agrees to comply with, and Owner agrees to include in the Bid Documents, a copy of any special shoring requirements, if any, required for the Project. Owner agrees to furnish to Contractor a copy of any geotechnical information that was obtained by the Owner for use by the Contractor in the design of the trench safety system, if any.

SC-7.01.A Other Work at the Site

Replace 7.01.A with the following Paragraph 7.01.A.

When two or more contractors are employed on related or adjacent work or obtain materials from the same material source, or when work must be completed by one contractor before another can begin, each shall conduct his operations in such a manner as not to cause an unnecessary delay or hindrance to the other. Each contractor shall be responsible to the other for all damage to work, to persons, or to property caused to the other by his operations, and for loss caused the other due to unreasonable or unjustified delays or failure to finish the work or portions thereof, or furnish materials within the time requested.

The Developer or Engineer shall under no circumstances be liable or responsible for guaranteeing or assuring that any claims among contractors shall be paid; and any representation, expressed or implied, that any contractor to whom a contract is awarded is responsible or will be able to respond for damages is expressly negated.

SC-14.02 Article 14 - Payments To Contractor And Completion

Change the 1st sentence in Paragraph 14.02.C.1 from “Ten days after presentation of the Application for Payment to OWNER...” to “Thirty (30) days after presentation of the Application for Payment to OWNER...”

SC-14.10 Add the following Paragraph 14.10:
14.10 Time of Completion and Liquidated Damages

The time set forth in the proposal for the completion of the work is an essential element of the contract. The contractor and Owner understand and agree that a breach of this contract, as to completion on time, will cause damage to the Developer. The parties agree that each and every calendar day the work or any portion thereof shall remain uncompleted after the expiration of the time limit, the amount of \$750.00 per day will be deducted from the money due or to become due the contractor, not as a penalty, but as liquidated damages and added expense of engineering and overhead.

The contractor shall within ten days from the beginning of any delay notify the Engineer, in writing, of the causes of delay. The Engineer shall ascertain the facts and the extent of delay, and his finding of the facts thereon shall be final and conclusive.

SC-17.02 Delete the second sentence of Paragraph 17.02.

SC-17.07 Independent Contractor

Add the following Paragraph 17.07:

The Contract shall not be construed as creating an employer/employee relationship, a partnership, or a joint venture. The Contractor’s services shall be those of an independent contractor. The Contractor agrees and understands that the Contract does not grant any rights or privileges established for employees of the Owner.

SC-17.08 Cleanup

Add the following Paragraph 17.08:

Upon completion and before making application for acceptance of the work, the contractor shall clean all streets, borrow pits and all ground occupied by him in connection with the work of all rubbish, excess materials, temporary structures, and equipment. All parts of the work shall be left in a neat and presentable condition deemed satisfactory to the Owner.

SC-17.09 Utilities for Construction

Add the following Paragraph 17.09:

- A. Water - Water for all construction purposes shall be supplied by the contractor.
- B. Electricity - The contractor will be responsible for making his own provisions for electric power required for construction purposes and will pay all power cost.
- C. Telephone - The contractor will be responsible for making his own arrangements for telephone services at the construction site and will pay all cost.

SC-17.10 FHA Certification of Completion Parameters

Add the following Paragraph 17.10:

The contractor shall be responsible for seeing that the testing lab performs all tests required by FHA specifications and that all site fill has been placed in accordance with FHA specifications data sheet 79G and these specifications. Lots which are required to be benched shall be within 0.1' of proposed grade and within 0.3' of level. Streets shall be graded to $\pm 0.1'$ of proposed grades.

END OF SECTION

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Change Order

No. _____

Date of Issuance: _____ Effective Date: _____

Project: Parmer Ranch, Phases 2, 3, & 4 Drainage, Paving, Wastewater and Water System Improvements	Owner: PR South, Inc.	Owner's Bid No.:
Contract:		Date of Contract:
Contractor:		Engineer's Project No.: 22223

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

Description:

Attachments (list documents supporting change):

CHANGE IN CONTRACT PRICE:	CHANGE IN CONTRACT TIMES:
Original Contract Price: \$ _____	Original Contract Times: <input type="checkbox"/> Working days <input checked="" type="checkbox"/> Calendar days Substantial completion (days or date): _____ Ready for final payment (days or date): _____
[Increase] [Decrease] from previously approved Change Orders No. _____ to No. _____: \$ _____	[Increase] [Decrease] from previously approved Change Orders No. _____ to No. _____: Substantial completion (days): _____ Ready for final payment (days): _____
Contract Price prior to this Change Order: \$ _____	Contract Times prior to this Change Order: Substantial completion (days or date): _____ Ready for final payment (days or date): _____
[Increase] [Decrease] of this Change Order: \$ _____	[Increase] [Decrease] of this Change Order: Substantial completion (days or date): _____ Ready for final payment (days or date): _____
Contract Price incorporating this Change Order: \$ _____	Contract Times with all approved Change Orders: Substantial completion (days or date): _____ Ready for final payment (days or date): _____

RECOMMENDED: By: _____ Engineer (Authorized Signature) Date: _____	ACCEPTED: By: _____ Owner (Authorized Signature) Date: _____	ACCEPTED: By: _____ Contractor (Authorized Signature) Date: _____
---	---	--

Approved by Funding Agency (if applicable):

Date: _____

Change Order Instructions

A. GENERAL INFORMATION

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

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

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

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

B. COMPLETING THE CHANGE ORDER FORM

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

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

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

Appendix A

Geotechnical Report

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GEOTECHNICAL INVESTIGATION PAVEMENT THICKNESS RECOMMENDATIONS

Parmer Ranch Phases 2, 3, & 4 Georgetown, Texas

Report For:

Parmer Ranch Partners, LP
5560 Tennyson Parkway, Suite 250
Plano, Texas 75034

April 2021

Engineer's Job # 21101100.012

MLA Geotechnical TBPE FIRM # F-2684
Geotechnical Engineering and
Construction Materials Testing
"put us to the test"

Christopher P. Elliott
Vice President

Timothy R. Weston, P.E.
President

4/2/21



Matthew J. Rodriguez, P.E.
Senior Engineer

4/1/21

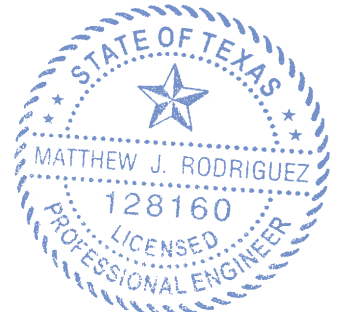


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GEOTECHNICAL INVESTIGATION PAVEMENT THICKNESS RECOMMENDATIONS

Parmer Ranch Phases 2, 3, & 4 Georgetown, Texas

BACKGROUND

The purpose of this investigation was to determine subsurface conditions relative to the establishment and design of pavement thickness sections for *Parmer Ranch Phases 2, 3, & 4* located in Georgetown, Texas. Authorization to perform this exploration and analysis was by Agreement for Engineering Services signed by Mr. Joe Owen of Parmer Ranch Partners, LP on February 9, 2021.

More specifically, the purposes of this investigation were to determine the soil profile, the engineering characteristics of the foundation soil and to provide criteria for use by the design engineers in preparing the pavement thickness designs for the subdivision streets. The scope included a review of geologic literature, a reconnaissance of the immediate site, the subsurface exploration, field and laboratory testing, and an engineering analysis and evaluation of the foundation materials.

Index and engineering properties of the different soil types encountered on this project were determined and used as a basis for assigning parameters for pavement thickness. Pavement thicknesses were then designed using the computerized procedure adopted by the City of Austin, March 24, 1988, “Municipal Pavement Structural Design and Life Cycle Cost Analysis System, MFPS⁽¹⁾.” Input data and assumptions as well as results are listed in later sections of this report. Output from the computer analysis is enclosed in *Appendix C*.

The exploration and analysis of the subsurface conditions reported herein is considered in sufficient detail and scope to form a reasonable basis for the preliminary pavement thickness designs. The recommendations submitted are based on the available soil information and the assumed preliminary design for the proposed streets. Any revision in the plans for the proposed

street system from those stated in this report should be brought to the attention of the geotechnical engineer so that he may determine if changes in the recommendations are required.

MLA Geotechnical should be retained to monitor site work and construction so that these preliminary recommendations may be finalized, and so that deviations from expected conditions can be properly evaluated.

This report has been prepared for the exclusive use of the client and their design professionals for specific application to the proposed project in accordance with generally accepted soils and pavement engineering practice. This report is not intended to be used as a specification or construction contract document, but as a guide and information source to those qualified professionals who prepare such documents.

FIELD AND LABORATORY INVESTIGATION

Twelve borings were performed to various depths spaced at locations as shown on the enclosed Logs of Boring and Plan of Borings using a truck-mounted drilling rig. Water was not introduced into the borings. The field investigation included completing the soil borings, performing field tests, and recovering samples. Representative soil samples were selected for laboratory index tests including Atterberg Limits and moisture content tests. The results of these tests and stratigraphy are presented on the Logs of Boring and Test Pit found in *Appendix A*. A key to the Soil Classification and symbols is located behind the last Log of Boring. See *Appendix B* for details of field and laboratory procedures, as applicable.

SITE TOPOGRAPHY, DRAINAGE AND VEGETATION

The site is situated on variably sloping topography with natural slopes ranging from approximately 2 to 10 percent. The vegetation at this site consists native grasses and mature trees. Regionally this site drains to south.

SUBSURFACE CONDITIONS AND LOCAL GEOLOGY

Soil Profiles

The soil profile revealed in the borings generally consists of an upper layer of dark brown high plasticity clay (CH) underlain by yellowish tan low plasticity clay (CL). The clay layers are underlain by severely weathered and intact limestone.

Geology

The proposed project site is underlain by an outcropping of the Edwards formation, *Ked*^(2,3). This limestone formation is the youngest member of the Fredericksburg Group and forms a cap on most of the Edwards Plateau. The Fredericksburg Group is from the Lower Cretaceous Period. It is underlain by the Glen Rose Formation and overlain by the Georgetown Formation. Full sections of the Edwards in Central Texas are about 300 feet thick.

Locally, the Edwards limestone is known to contain extremely hard strata, along with occasional marl or clay seams. In some zones, the limestone is dolomitic and contains some quartz and chert deposits. Soil weathering profiles are generally thin and usually are reddish brown high plasticity clay. Iron stained reddish earth is sometimes found throughout the section and is a result of solution weathering. Some caverns have been encountered in the Edwards in the Central Texas area.

Faults

Published geology maps do not indicate the presence of a fault on the project site and faulted conditions were not noted in the borings.

Ground Water

Ground water was not noted in the borings during this investigation. However, this formation is capable of producing varying quantities of ground water depending upon the antecedent rainfall conditions.

MFPS ANALYSIS AND DESIGN

Pavement thickness sections were developed using the computerized pavement analysis software called “*Municipal Pavement Structural Design and Life Cycle Cost Analysis*” also known as MFPS⁽¹⁾. This program accepts a number of input variables and predicts the performance of the pavement section including the number and type of overlays required for the specified pavement design life. The different sections are ranked on total cost, overlay cost, user cost, routine maintenance cost, and salvage value.

In the absence of project specific data, the City of Austin guidelines for estimating material costs, civil design information and traffic data were used. An estimate of anticipated traffic usage was made from the street classification inferred from the subdivision plat. Minimum layer thicknesses used Table 3-11 of the City of Austin’s *Transportation Criteria Manual* ⁽⁴⁾. Pavement layer properties and costs used are shown in *Appendix C* in the program output.

Flexible pavement thickness sections developed from MFPS were crosschecked with recognized minimum pavement thickness analysis to ensure that an adequate ultimate load carrying capacity was provided. The MFPS results are included in *Appendix C*.

We assume that the pavements will be built at or near the existing grade and that the typical road cut will be on the order of 0 feet to 2 feet. Pavement options for the expected subgrade conditions are presented in the following table. Final pavement sections should be evaluated in the field by the Geotechnical Engineer.

Total Equivalent 18K Axle Loads

Street Classification	Design ESALs
Local Street	20,000
Residential Collector	80,000
Major Collector	290,000

RECOMMENDATIONS - PAVEMENT THICKNESS SECTIONS

The recommendations below constitute a pavement design intended to address the subsurface and traffic conditions for each street classification. This information is intended to be incorporated into a set of civil engineering plans such that the pavement cross sections (including curb and gutter details) and street classifications specific to each street (which are unknown at this time) can be appropriately addressed.

Street Classification	Subgrade Material	Hot Mix Asphaltic Concrete, in	Crushed Limestone Base, in
Local Street	Subgrade PI < 20*	2.0	8
Residential Collector	Subgrade PI < 20*	2.0	10
Major Collector	Subgrade PI < 20*	2.0	11

Notes:

1. * - After the streets are rough cut, any high PI clay (PI > 20) existing in the subgrade should be removed and replaced with low PI material (PI < 20). As an alternative, the high PI subgrade may be lime stabilized to a depth of 8 inches.
2. The surface clay must first be tested for sulfate reaction and a mix design should be completed to determine the proper lime content, lime type, mixing procedure and curing conditions required.
3. The subgrade improvement should be extended 18 inches beyond the back of the curb line.
4. These pavement thickness designs are intended to transfer the load from the anticipated traffic conditions.
5. The responsibility of assigning street classification to the streets in this project is left to the civil engineer.
6. If pavement designs other than those listed above are desired, please contact MLA Geotechnical.

CONSTRUCTION CONSIDERATIONS

Ground Water

Should ground water become a problem during excavation, or if surface water accumulates during a rainy period, saturated soil should be dried out and/or removed and replaced with crushed limestone base.

Pavement

1. Subgrade and Foundation Soil Preparation
 - a. Strip and remove from construction area any top soil, organics and vegetation to a minimum depth of 6 inches below the existing natural ground surface.
 - b. Fill sections may be composed of low PI ($PI < 20$) on-site material excluding top soil, vegetation, and organics. Fills should be compacted in lifts not exceeding 8 inches after compaction and meet Section SD3 of the City of Georgetown's "Construction Specifications and Standards ⁽⁵⁾."
 - c. Compaction of cut areas, on-grade areas, and fill sections should be to 95 percent of TxDOT TEX-114-E. Compaction should be performed with the moisture content of the soil adjusted to within 3 percent of optimum for soils with a PI less than 20. For soils with a PI greater than 20, the moisture content should range from optimum to 3 percent above optimum. If exposed limestone is suspected the geotechnical engineer should be notified to provide a field confirmation.
 - d. Proof-roll the subgrade as per City of Georgetown's current "Construction Specifications and Standards" Item No. 216 prior to placement of the first course of flexible base.
2. Lime Stabilized Subgrade
 - a. Lime stabilization of the subgrade should be performed in accordance with TxDOT Item 260, as applicable.

- b. The surface clay should be tested for sulfate reaction to make sure that lime stabilization is feasible.
 - c. The surface clay shall be tested using the Atterberg Limits procedure (ASTM D 4318) to determine the percent lime to be added. This should be done by adding varying percentages of lime to samples of the surface soil and then determining the Plasticity Index of each sample. The lowest percentage of lime added that significantly reduces the Plasticity Index of the lime-clay sample, as determined by the Geotechnical Engineer, shall be the percent lime to be added in the field.
2. Base Course
- a. Base material shall meet the specifications outlined by City of Georgetown's Construction Specifications and Standards.
 - b. Thickness of the base course should be as shown on the enclosed *Recommendations - Pavement Thickness Sections*.
 - c. Base course compaction shall be 100 percent of TxDOT TEX-113-E using 13.26 ft. lbs./cu.in. compaction effort. The moisture content during compaction shall be maintained within 3 percent of optimum moisture content. Density control by means of field density determination shall be exercised.
 - d. After compaction, testing, and curing of the base material, the surface shall be primed using an Asphalt Emulsified Petroleum (AE-P) primer or other acceptable priming material as per City of Georgetown's Construction Specifications and Standards.
3. Surface Course Options
- a. The recommended surfacing option consists of hot-mix asphalt. This surfacing shall consist of a hot-mix asphaltic concrete (HMAC) meeting the requirement of Item 340, Type "D" of the current City of Georgetown's Construction

Specifications and Standards. Thickness should be as shown on the included
Recommendations - Pavement Thickness Sections.

4. General Conditions

- a. Should at any stage in the construction of the street pavements a non-stable or weaving condition of the subgrade or base course be noted under loads of construction equipment, such areas should be delineated and the Geotechnical Engineer consulted for remedial action before completing the pavement section.
- b. Seepage areas or unusual subgrade soil conditions should be similarly brought to the Geotechnical Engineer's attention before proceeding with pavement completion.
- c. Where pavements are trenched for utilities, a thickness of compacted flexible sub-base should be placed below the new crushed stone base. The sub-base should be meet the specifications outlined by City of Georgetown's Construction Specifications and Standards. This sub-base should be compacted in 8-inch lifts to 95 percent of TEX-113-E and be a minimum of 18 inches thick or twice the design base thickness (if greater).
- d. Trenches beneath structures should be strategically backfilled with borrow or suitable material excavated from the trench and free of stone or rock over 8 inches in diameter. The backfill should be compacted to 95 percent of the maximum dry density when determined by TxDOT test method Tex-114-E. The moisture content should be within 2 percent of the optimum moisture content at the time of compaction. If stormwater trenches are backfilled with freely draining materials such as crushed stone, pea gravel or sand, the trench must be sloped a minimum of 0.5 percent to provide positive drainage to daylight.
- e. If ground water or seepage is encountered at the time of construction, French drains may be required to drain or intercept the flow of water from the subsurface

pavement materials. These drains should be sloped a minimum of 0.5 percent to provide positive drainage to daylight. French drains should be constructed in general accordance with ASTM D 2321 "Standard Practice for Underground Installation of Thermoplastic Pipe of Sewer and Other Gravity Flow Applications⁽⁶⁾." The French drain design should be reviewed by the geotechnical engineer prior to installation.

- f. All pavements should be constructed with a curb and gutter system on all sides.

RECOMMENDATIONS – WET POND

It is our understanding that wet ponds are planned for this site. These recommendations have been developed based upon our experience with wet ponds on sites such as this one. All site preparation and earthwork should be consistent with the City of Austin Standard Specification Items in Series 100 and 200, as applicable and as per the City of Austin Environmental Criteria Manual Section 1 unless elsewhere specified in this report.

1. Excavation for the wet pond may be performed using ordinary power equipment to the surface of limestone as shown on the Logs of Boring. Excavation within the limestone will require heavy-duty rock excavating equipment.
2. Embankments using on-site material constructed with side slopes of 3:1 (horizontal to vertical) are expected to stand freely. In addition, the maximum cut side slope should also be 3:1 (horizontal to vertical) in the pond area.
3. A pond “liner” will be required for the pond. Compacted clay liners have been used in similar subsurface conditions with acceptable results. A compacted clay liner placed on the bottom and side slopes of the entire pond should be a minimum of 12 inches thick. Greater thickness may be required depending upon the planned pond use. The clay liner material, compaction and construction should meet the enclosed *Quality Assurance/Quality Control Recommendations for Clay Liners for Wet Ponds*.
4. In the design of wet ponds, a single small leak can often cause drainage of the entire wet pond. Consequently, care must be taken to preserve the integrity of the pond liner at all possible points that water may find a path to exit the pond. Possible point leakage can be caused by the following:
 - Drain pipes between pools and where drain pipes or other elements penetrate the pond liner are potential leakage areas. Gravel bedding for inlet and outlet drain pipes or crossover pipes is often the source of leakage. Care should be taken to make a good, tight contact between pipe trenches and the pond liner. Please note

that compaction of the clay liner beneath inlet and outlet structures is recommended. This means that the compacted liner should be completed in the vicinity of inlet and outlet structures prior to construction of the inlet and outlet structures.

- Leaking storm sewer pipe, drain pipe and/or crossover pipe joints that could potentially hold water because they are below the permanent pool elevation of the pond should be sealed to make the joints water tight.
 - Erosion of the pond liner can occur due to the velocity of water entering the pond or traveling within the pond. Velocity should be suitably reduced to avoid eroding the pond liner.
 - The liner will typically crack in areas not submerged in water because the liner will be exposed to the heat. When the water level in the pond rises and reaches the formerly exposed liner, water can leak out. This is usually caused by evaporation of the water in a wet pond due to an extended period without significant rainfall. Consequently, all wet ponds should typically have a source of water other than storm runoff that can keep the pond at a constant level.
 - After completion of the compacted clay liner, the pond should be filled with water to the permanent pool elevation as soon as possible. Care should be taken to keep the pond liner wet until the pond can be filled by watering the liner regularly such that cracks do not form in the liner surface. If the pond liner is allowed to dry out before the pond is filled with water, it will likely crack, lose its integrity and leak once it is filled with water.
5. If a seepage condition occurs in the subsurface beneath the pond liner prior to filling the pond with water, the liner can possibly be compromised. This often occurs when the pond is rough cut and liner construction is about to begin. These seeps are often large enough to partially fill the pond with water prior to liner construction, making liner

construction impossible. The key to getting the pond liner constructed is to intercept the ground water before it reaches the pond and take the water to another location so that the excavation for the pond will dry out. This is often accomplished using intercepting trenches and/or wells. Pumping of the water to another location is usually required. Input from the earthwork contractor on the best method to intercept the water before it gets to the pond is key to solving these problems as they arise. Once the seepage of water into the pond excavation is stopped and the excavation dried out, the pond liner can be constructed. Upon completion of pond liner construction, the pond must be filled with water prior to abandoning the dewatering trenches or wells. If the dewatering solution is abandoned prior to filling the pond, water pressure can build up behind the pond liner and seep through the liner, destroying the liner's integrity. Consequently, the contractor should identify seep areas during and after excavation is complete to assist in developing a dewatering plan prior to placing the pond liner.

6. The liner should extend a minimum of two feet above the permanent pool elevation of the completed pond.
7. Pond liner design and construction should be done in accordance with the enclosed *Quality Assurance/Quality Control Recommendations for Clay Liners for Wet Ponds*.
8. For a pond to be constructed properly by an earthwork contractor, a set of plans including cross sections, details and testing specifications should be developed by the civil engineer. The geotechnical engineer should be retained to review the plans, specifications and details for the ponds and pond liners prior to construction. The geotechnical engineer should also be retained to monitor the construction of the pond liners.

Quality Assurance/Quality Control Recommendations for Clay Liners for Wet Ponds

The following recommendations for quality control and quality assurance with respect to material testing and construction recommendations shall apply to clay liners for ponds that are to have permanent pools. Pond construction details are specifically not included in this document and should be provided by the civil engineer for the project based upon the recommendations contained herein. In addition, no hydrologic or environmental analysis of the pond has been performed in developing these recommendations.

Section 1: Material Qualification

1. Selection of clay liner material shall be guided by the following criteria.

Material Property	Requirement	Testing Standard
Minimum Liquid Limit	> 50	ASTM D 4318
Minimum Plasticity Index	> 30	ASTM D 4318
Minimum Percent Passing # 200 Sieve	> 60 %	ASTM D 422
Maximum Particle Size	< 1 inch	ASTM D 422
Maximum Laboratory Permeability	< 1×10^{-7} cm/sec	ASTM D 5084

2. Clay liner material shall be free of organics and debris, such as tree limbs, bark, leaves, trash or other deleterious material.
3. The maximum clay clod size during liner placement and compaction shall be approximately one inch.
4. For each potential source of pond liner material, enough material shall be provided by the earthwork contractor to run the tests listed in the table under Item 1 of Section 1. During permeability testing, the samples should be compacted in the laboratory to the density and moisture levels indicated in Section 3B Item 2 of this document.
5. At the same time that the tests listed in Item 1 of Section 1 are run, the moisture density relationship (ASTM D 698) must be determined for use during field compaction testing of the clay liner.
6. If all requirements listed under Item 1 of Section 1 are met, then the material provided shall be considered accepted for use in the construction of the compacted clay liner. If all requirements are not met, then another material must be chosen and tested for compliance with the material recommendations in Section 1.
7. If the subgrade material consists of soil, then Atterberg Limits, gradation and a moisture density relationship should be determined for the subgrade soils in preparation for subgrade moisture and density testing during construction. These tests should be run in accordance with the standards listed in Section 6 of this document.

Section 2: General

1. A compacted clay liner placed on the bottom and side slopes of the entire pond should be a minimum of 12 inches thick. Greater thickness may be required depending upon the planned pond use, as determined by the civil engineer. The clay liner shall be placed in maximum 6-inch thick lifts after compaction.
2. The liner should extend a minimum of two feet above the permanent pool elevation of the completed pond.
3. The clay liner shall extend below and around all concrete ramps, inflow/outflow headwall structures, aprons, walls, and other miscellaneous structures within the pond interior.
4. The velocity of water entering the pond should be suitably reduced to avoid eroding the pond liner.
5. Embankments constructed of clay liner material may be constructed with maximum side slopes of 3:1 (horizontal to vertical). In addition, the maximum cut side slope may also be 3:1 (horizontal to vertical) in the pond area.
6. Storm sewer pipe, drain pipe and/or crossover pipe joints that could potentially hold water because they are below the permanent pool elevation of the pond should be sealed to make the joints water tight.
7. Groundwater control during excavation and construction of the clay liner is the responsibility of the contractor. Groundwater control must be provided such that it results in the stable and dry subgrade that is required for clay liner construction. An appropriate dewatering plan that could involve intercepting trenches,

- wells, pumps, sumps or other means to dewater the pond subgrade must be developed. The dewatering must be maintained throughout the entire liner construction process until the pond is completely filled to the permanent pool elevation.
8. Utilities with inlets/outlets below the permanent pond water level shall be completely backfilled with clay liner material, bentonite or another material acceptable to both the City of Austin and the geotechnical engineer.
 9. After completion of the compacted clay liner, the pond should be filled with water to the permanent pool elevation as soon as possible. Until the pond can be completely filled with water to the permanent pool elevation, the pond liner must be kept wet by watering the liner regularly such that cracks do not form in the liner surface.
 10. As required in the City of Austin Environmental Criteria Manual Section 1.6.2.C, a water balance study should be provided to determine the requirements for maintaining the proper pond water level should be conducted by the project civil engineer.
 11. The completed clay liner must have a minimum one-foot thick soil cover overlying the compacted liner surface. This layer may need to be thicker in the area of the vegetative bench based upon expected root depth of the plants to be placed in the wet pond. The roots of the plants in the vegetative bench should not penetrate the clay liner.
 12. For a pond to be constructed properly by an earthwork contractor, a set of plans including cross sections and details should be developed by the project civil engineer.

Section 3: Construction

A. Recommendations

1. Any loose material shall be removed from the subgrade prior to clay liner construction. If the subgrade consists of soil, then the subgrade shall be scarified to a depth of 6 inches, moisture conditioned and recompacted in accordance with Section 3B Item 1. If the subgrade consists of weathered or intact limestone, the surface shall be reasonably cleaned of any loose material and moisture conditioning and recompaction shall not be required.
2. The clay liner shall be constructed monolithically in the bottom and side slopes of the pond.
3. Compact lifts of the subgrade and clay liner with properly ballasted penetrating pad foot compactors. A minimum of 2 passes shall be required on each lift. A pass is defined as one trip of compacting equipment over the lift and back to the starting point by a single drum roller or one trip across the lift surface from one side to the other if the roller has both front and back compacting rollers. This requirement is to allow thorough remolding of the clay layer by kneading action. The final 6-inch lift (surface layer) of the clay liner shall be compacted with a smooth-wheeled vibratory roller to provide a smooth finish to the completed clay liner.
4. Each clay liner lift shall satisfy the moisture and density requirements listed in Section 3B, Item 2 of this document before the next lift is placed.
5. Cracking and/or crusting of each lift surface shall be avoided as much as possible. If cracking and/or crusting of the lift surface occurs before placement of the next lift, this area shall be sprinkled with water, scarified to a depth below cracking/crusting, and recompacted as outlined in this section before placement of a subsequent lift.
6. During construction, finished lifts or portions of the compacted clay liner shall be kept wet enough to prevent drying and cracking of the clay.
7. Sections of liner that are constructed next to a completed section should not be constructed by "butting" the entire thickness of the new liner section next to the completed section. Instead, the edge of the completed section of clay liner shall be benched at mid-depth for a width of approximately 12 inches such that the section being newly constructed and the completed section are offset in a stair-step fashion without a construction joint through the entire liner thickness.

8. At the end of each day's construction, completed lifts or sections of compacted clay liner shall be sealed by rolling with a rubber tire or smooth drum roller and kept wet enough to prevent drying and cracking of the clay until liner construction resumes.
9. Any areas that do not meet the moisture or density requirements during compaction testing shall be reworked and retested until the material meets the specifications.

B. Field Testing

1. If the subgrade consists of soil, then the subgrade below the clay liner shall be compacted to at least 95 percent of the maximum dry density determined by the Standard Proctor Test, ASTM D 698. If the subgrade soil has a plasticity index (PI) of 25 or greater, then the moisture content at the time of compaction shall be between optimum and 4 percent above the optimum moisture content. If the subgrade soil has a plasticity index (PI) of less than 25, then the moisture content at the time of compaction shall be between 3 percent below (-3%) and 3 percent above (+3%) the optimum moisture content. If the subgrade consists of limestone or weathered limestone, then moisture and density control is not required.
2. The clay liner shall be compacted to at least 95 percent of the maximum dry density as determined by the Standard Proctor Test, ASTM D 698. The moisture content at time of compaction shall be at or above the optimum moisture content.
3. An individual lift or section shall be tested for moisture and density upon the completion of compaction (prior to subsequent lift or section placement) using a nuclear density gauge. The resulting penetration from the driving pin of the nuclear density gauge shall be back filled with bentonite powder. The compacted clay lift or section shall meet the project specifications listed in Item 2 of Section 3B for moisture and density prior to placement of additional clay liner material.
4. The frequency of testing of the clay liner during construction shall be governed by the following criteria.

Test	Test Requirement	Testing Frequency	Testing Standard
In Place Nuclear Density	Greater than 95%	1 per 5,000 sq. ft. per lift (minimum 3 per lift)	ASTM D 2922
In Place Nuclear Moisture	Greater than optimum	1 per 5,000 sq. ft. per lift (minimum 3 per lift)	ASTM D 3017
Liquid Limit	Greater Than 50	At 25%, 50%, 75% and 100% of liner construction	ASTM D 4318
Plasticity Index	Greater Than 30**	At 25%, 50%, 75% and 100% of liner construction	ASTM D 4318
% Passing # 200 Sieve	Greater Than 60 %	At 25%, 50%, 75% and 100% of liner construction	ASTM D 422
Maximum Particle Size	Less than 1 inch	At 25%, 50%, 75% and 100% of liner construction	ASTM D 422
Completed Liner Thickness	Surveyed Liner Thickness	At Beginning and End of Liner Construction	Surveyed by RPLS (See Item 5 below)
Thickness of Soil Cover Over Liner	Surveyed Soil Cover Thickness	At Beginning and End of Soil Cover Layer Placement	Surveyed by RPLS (See Item 5 below)

** The Plasticity Index (PI) should be within 10 percentage points of the PI determined during testing of the proposed liner material (Section 1, Item 1).

5. As required in the City of Austin Environmental Criteria Manual Section 1.6.2.C.1., the as built thickness of the clay liner shall be determined by survey methods performed by a professional surveyor registered in the state of Texas. Prior to the placement of any portion of the clay liner, the excavation surface shall be surveyed in a sufficient manner to establish the pond bottom and sideslopes. Upon completion of the clay liner, and prior to the construction of any other pond elements, the top of the clay liner shall be surveyed to

verify that the specified thickness of clay liner has been achieved, and the top of the clay liner is at the civil engineer's specified grades and slopes, within a tolerance of 0 to +0.2 feet. Areas that do not meet the specified thickness, grades, and slopes shall be corrected and re-surveyed. The same data points should be used for both the pre and post liner construction surveys. The same data points should also be used to survey the pond upon completion of the soil cover layer to verify soil cover layer thickness over the pond liner.

6. Any repair required to fix damage to completed portions of the clay liner shall be governed by Section 4 of this document.
7. Areas that do not meet the moisture or density specifications during initial testing shall be reworked and retested until the material meets the specifications.

Section 4: Repair

1. For any area of the clay liner that becomes damaged during construction, the damaged area shall be overexcavated to at least one foot beyond the damaged area in all directions.
2. The full depth of the clay liner shall be reconstructed in the damaged area using the previous specifications.
3. Between undamaged liner and the damaged area, the clay liner shall be benched at mid-depth such that the area being repaired and the undisturbed liner are offset in a stair-step fashion without a construction joint through the entire liner thickness.
4. Compaction equipment that is appropriate for the size of the damaged area shall be utilized.
5. All repaired clay liner areas shall be tested against the project specifications for the moisture and density listed in Section 3B, Item 2 prior to acceptance.
6. Repairs that do not meet the density and moisture specifications shall be reworked and retested.

Section 5: Documentation

1. Test reports shall be issued for all tests performed and shall indicate whether the test result is in compliance with the project specifications.
2. The Construction Materials Testing (CMT) firm shall issue a daily representative's report. This report shall include, as a minimum:
 - Date of Testing
 - CMT field technician name
 - A description of the work performed during the day
 - The type(s) of equipment used by contractor
 - Tests performed by the CMT field technician
 - Any failed tests or non-compliant areas that require retesting or corrective action
3. After liner construction is complete and all test results are acceptable, a Soil and Liner Evaluation Report (SLER) shall be prepared by the CMT firm. This report shall be sealed by a professional engineer registered in the state of Texas. This letter shall summarize the types of tests performed and state that the results are in general conformance with the project plans and specifications referring to previous reports regarding the clay liner.
4. After completion of the post liner construction survey, the Professional Surveyor shall prepare and seal a letter documenting the surveying process and the thickness of the clay liner. This letter shall include as an attachment a drawing indicating survey point locations with elevations at each point for pre liner construction and post liner construction.

Section 6: Test References

1. ASTM D 422 - Standard Test Method for Particle Size Analysis of Soils
2. ASTM D 698 - Standard Test Method for Moisture-Density Relations of Soils and Soil Aggregate Mixtures
3. ASTM D 1140 - Standard Test Method for Amount of Material in Soils Finer Than the No.200 Sieve
4. ASTM D 2216 - Standard Test Method for Laboratory Determination of Water (moisture) Content of Soil, Rock, and Soil Aggregate Mixtures

Parmer Ranch Phases 2, 3, & 4
Engineer's Job No.: 21101100.012

5. ASTM D 2487 - Classification of Soils for Engineering Purposes
6. ASTM D 2922 - Standard Test Method for Density of Soil and Soil-Aggregate In Place by Nuclear Methods
7. ASTM D 3017 - Standard Test Method for Moisture Content of Soils in Place by Nuclear Method
8. ASTM D 4318 - Standard Test Method for Liquid Limit, Plastic Limit and Plasticity Index of Soils
9. ASTM D 5084 - Standard Test Method for Permeability of Fine Grained Soils

QUALITY ASSURANCE CONSIDERATIONS

Type of Work	Item	Sample Frequency	Sample Size	Minimum Testing
General Earthwork and Fill Material	Soil	1 per Soil Type	110 lbs.	<ul style="list-style-type: none"> ◆ Sieve ◆ P.I. ◆ Moisture Density Relationship
Base Course	Compaction	1 per 5000 ft ² per lift (min. of 3 per lift)	300 lbs.	<ul style="list-style-type: none"> ◆ Field Density Test ◆ Proof rolling w/25 ton pneumatic roller
Subgrade	Compaction	-----		
Concrete or HMAC	Mix Design	1 per concrete class		<ul style="list-style-type: none"> ◆ Review & approval with confirmatory cylinders/cores ◆ Plant & materials approval, testing, if questionable
	Aggregates (coarse & fine)	1 per 500 cu. Yd. Min. 1 per job	30 lbs.	Sieve, organic impurities, specific gravity
HMAC Surface Course	HMAC	1 per 2000 square yard single pass. Minimum 3 each days laydown		<ul style="list-style-type: none"> ◆ 3 cores for density ◆ Extraction/gradation tests ◆ Stability tests ◆ Thickness ◆ Temperature

Note: All sampling and testing must meet all of the requirements outlined by the City of Georgetown's Construction Specifications and Standards.

REFERENCES

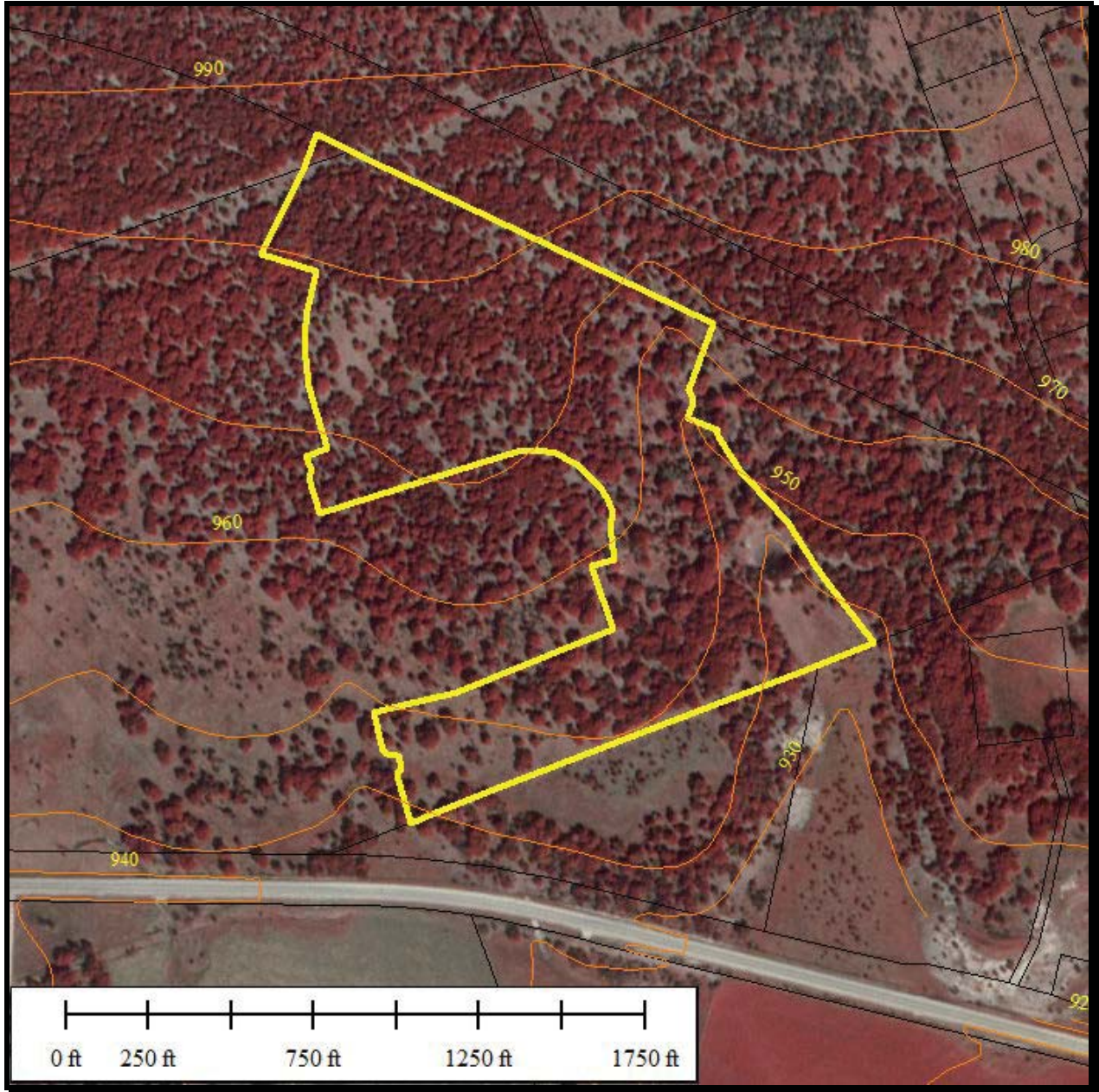
1. "Municipal Pavement Structural Design and Life Cycle Cost Analysis", City of Austin, Austin, Texas, December 1992.
2. Local geologic maps published by The Bureau of Economic Geology. Austin, Texas including:
"Geologic Atlas of Texas" 15-minute quadrangles. March 9, 2004 geospatial data.
"Geologic Map of the Austin Area, Texas 1992" Geology of Austin Area Plate VII.
"Geologic Map of the West Half of Taylor Texas, 30 x 60 min quad. 2005. misc. map 43
"Geologic Map of the New Braunfels, Texas 30 x 60 min quad" 2000. misc. map 39
3. "The Geology of Texas, Volume I, Stratigraphy", The University of Texas Bulletin No. 3232: August 22, 1932, The University of Texas, Austin, Texas, 1981.
4. "Transportation Criteria Manual", City of Austin, January 1998.
5. City of Georgetown's "Construction Specifications and Standards", Latest Adopted Revision.
6. "ASTM D-2321-89 Standard Practice for Underground Installation of Thermoplastic Pipe Sewers and Other Gravity Flow Applications", ASTM International, 100 Barr Harbor Drive, PO Box C700, West Conshohocken, Pennsylvania, USA 19428-2959.

LIMITATION OF REPORT

Conditions of the site at locations other than the boring locations are not expressed or implied, and conditions may be different at different times from the time of this investigation. Contractors or others desiring more complete information are advised to secure their own supplemental borings. The analysis and recommendations contained herein are based on the available data as shown in this report and the writer's professional expertise, experience and training, and no other warranty is expressed or implied concerning the satisfactory use of these recommendations or data.

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APPENDIX A
GEOTECHNICAL DATA

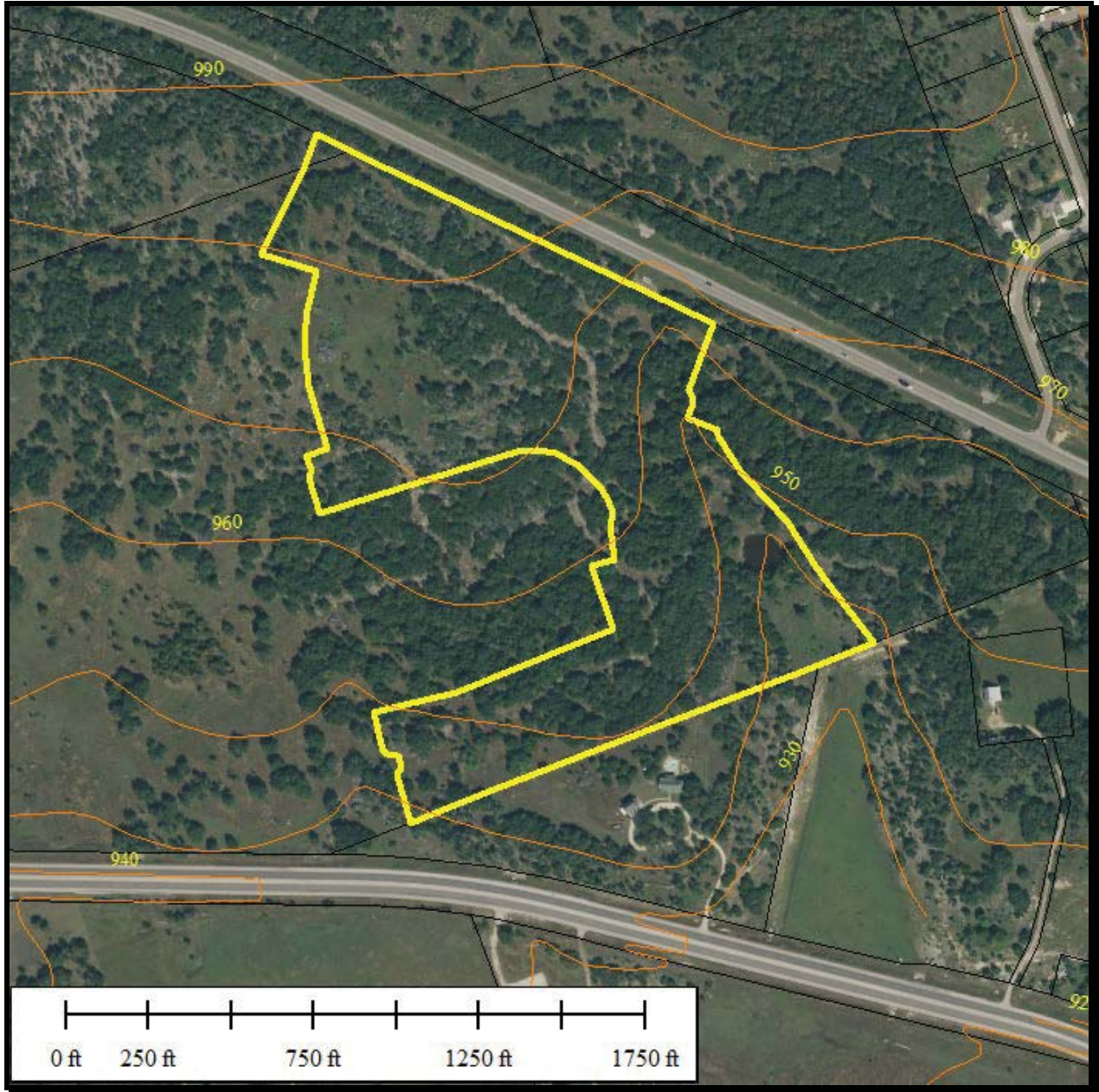


**Approximate location of site in yellow
CAPCOG contours (2008) in orange
Williamson County parcels (2019) in black**

NAPP Aerial Photograph of Site – 1995

Source: TEXAS NATURAL RESOURCES INFORMATION SYSTEM
3.75-minute DOQQ. 1-meter ground resolution. apx. date 1995-6
(<http://www.tnris.state.tx.us/digital.htm>)



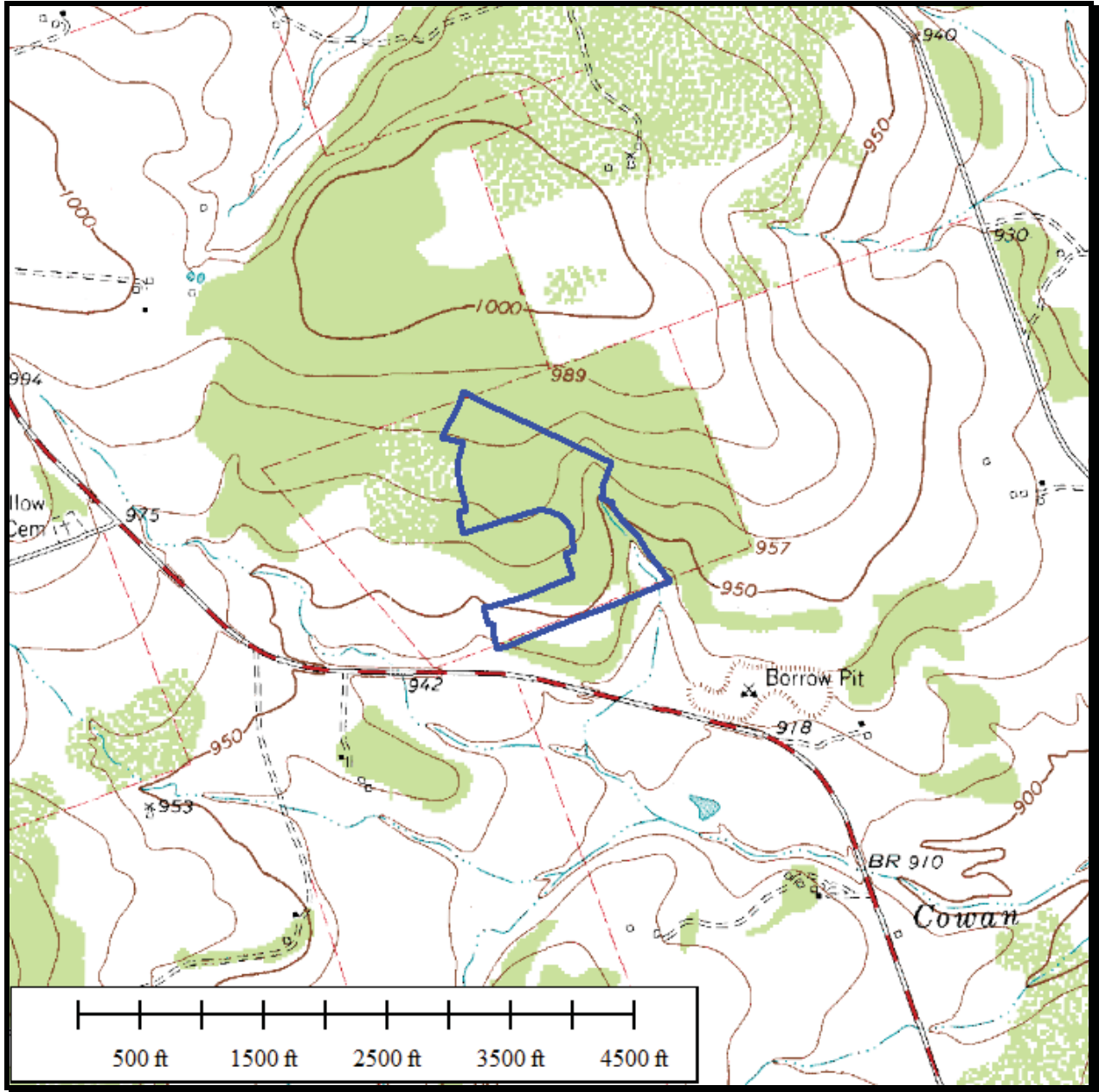


**Approximate location of site in yellow
CAPCOG contours (2008) in orange
Williamson County parcels (2019) in black**

Aerial Photograph of Site – 2018

Source: TEXAS NATURAL RESOURCES INFORMATION SYSTEM
Apx. Date - 2018
(<https://tnris.org/>)



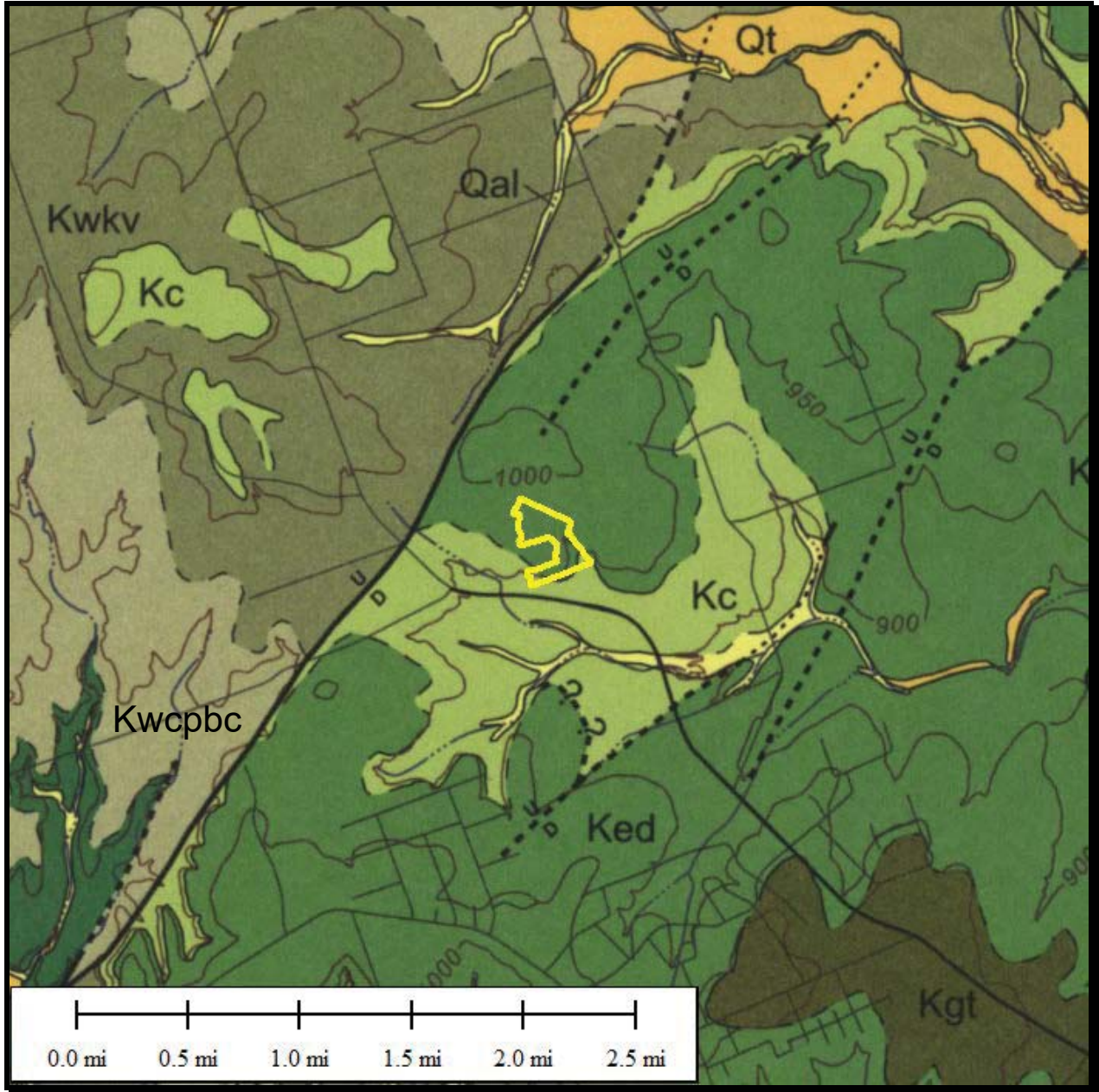


Approximate location of site in blue

**U.S. 7.5 Minute Series Topographic Map
Leander Northeast Quadrangle, Texas
Contour Interval = 10 feet**

Source: TEXAS NATURAL RESOURCES INFORMATION SYSTEM
(<http://www.tnris.state.tx.us/digital.htm>)



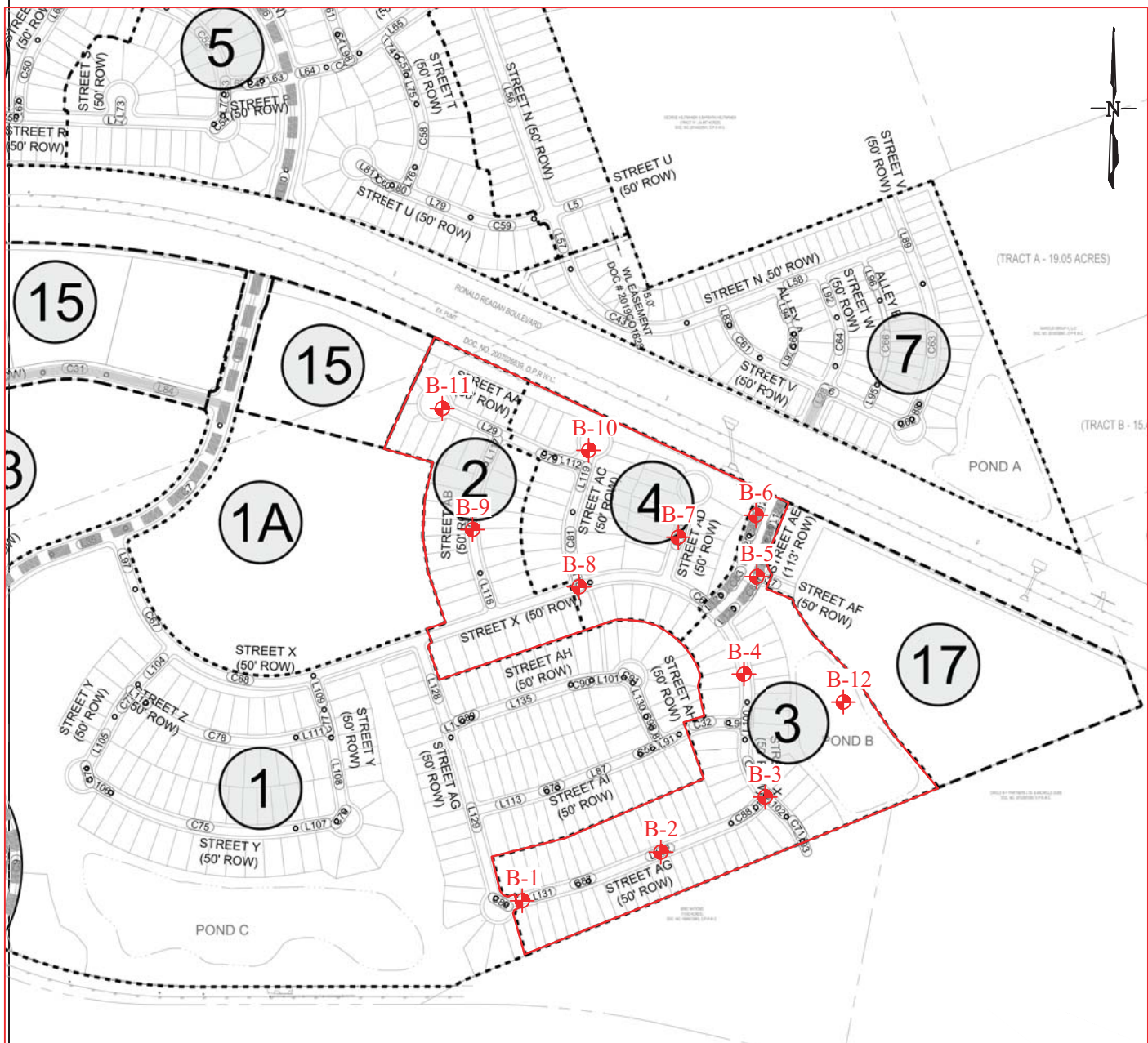


Approximate location of site in yellow

Geologic Setting of Site
Geologic Map of the West Half of Taylor Texas, 30 x 60 Minute
Quadrangle (2005)
Contour Interval = 50 feet

Source: Bureau of Economic Geology, The University of Texas at Austin. Misc. Map 43





SCALE = N.T.S.

PAGE 1 OF 1

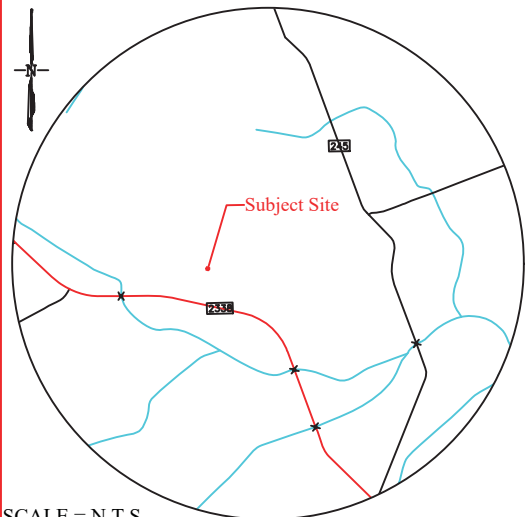
PLAN OF BORINGS

Parmer Ranch Phases 2, 3, & 4
 Georgetown, Texas
 Job. No.: 21101100.012
 Client: Parmer Ranch Partners, LP

LEGEND

- B-# Boring Number
- ◆ Approx. Boring Location

VICINITY MAP



SCALE = N.T.S.



"put us to the test"

LOG OF BORING

Boring B-1
PAGE 1 OF 1

Job Name: Parmer Ranch Phases 2, 3, & 4
Job Location: Georgetown, Texas
Engineer's Job #: 21101100.012
Client: Parmer Ranch Partners, LP

Drill Date: March 2, 2021
Hole Size: 4.5 in.

Ground Elevation: n/a

Ground Water Levels:

AT TIME OF DRILLING: ---
 AT END OF DRILLING: ---
 AFTER DRILLING: ---

Notes:

DEPTH, ft.	GRAPHIC LOG	MATERIAL DESCRIPTION	GEOLOGY U.S.C.S.	POCKET PEN. (tsf)	<div style="text-align: center;"> -2um -#200 -#4 ● Moisture Content, % PL ————— LL </div>	Plasticity Index, %
0		CLAY, dark brown, damp	CH	-		
		CLAY, yellowish brown, damp	CL	-		
		LIMESTONE, pale brown, medium to hard, dry		-		
5			Ked	-		
		Termination Depth: 6.2 feet				
10						
15						
20						
25						
30						

21101100.012 - PARMER RANCH PHASES 2, 3, & 4 - LOGS.GPJ 4/2/21



"put us to the test"

LOG OF BORING

Boring B-2

PAGE 1 OF 1

Job Name: Parmer Ranch Phases 2, 3, & 4
Job Location: Georgetown, Texas
Engineer's Job #: 21101100.012
Client: Parmer Ranch Partners, LP

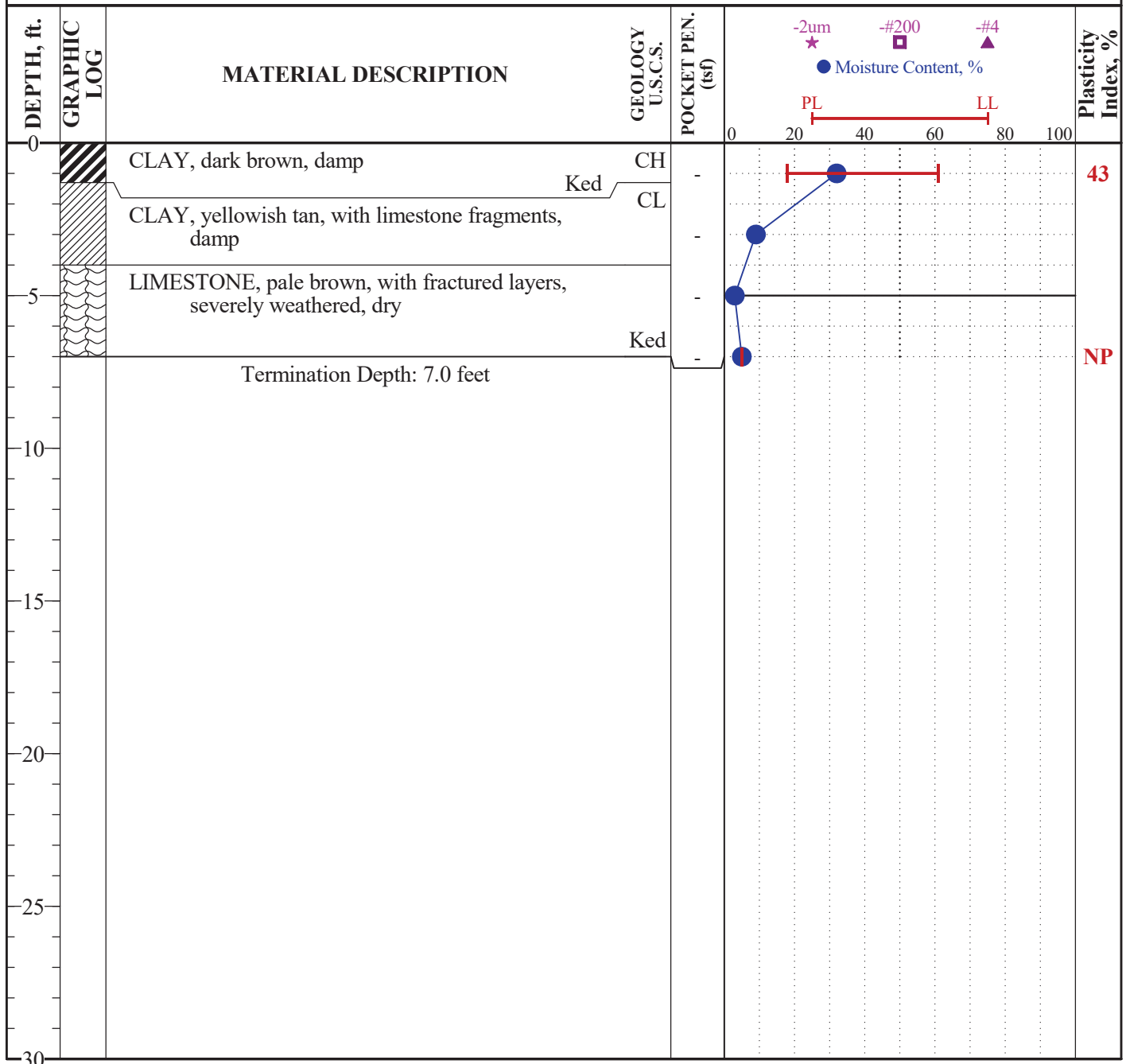
Drill Date: March 2, 2021
Hole Size: 4.5 in.

Ground Elevation: n/a

Ground Water Levels:

AT TIME OF DRILLING: ---
 AT END OF DRILLING: ---
 AFTER DRILLING: ---

Notes:



21101100.012 - PARMER RANCH PHASES 2, 3, & 4 - LOGS.GPJ 4/2/21



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LOG OF BORING

Boring B-3
PAGE 1 OF 1

Job Name: Parmer Ranch Phases 2, 3, & 4
Job Location: Georgetown, Texas
Engineer's Job #: 21101100.012
Client: Parmer Ranch Partners, LP

Drill Date: March 2, 2021
Hole Size: 4.5 in.

Ground Elevation: n/a

Ground Water Levels:

AT TIME OF DRILLING: ---
 AT END OF DRILLING: ---
 AFTER DRILLING: ---

Notes:

DEPTH, ft.	GRAPHIC LOG	MATERIAL DESCRIPTION	GEOLOGY U.S.C.S.	POCKET PEN. (tsf)	<div style="text-align: center;"> -2um -#200 -#4 ● Moisture Content, % PL LL </div>	Plasticity Index, %
0		CLAY, dark brown, damp	CH	-		
2.0		CLAY, reddish tan, with limestone fragments, damp ...yellowish tan, without limestone fragments below 2.0'	CL	-		
5			Ked	-		
7.0		Termination Depth: 7.0 feet		-		
10				-		
15				-		
20				-		
25				-		
30				-		

21101100.012 - PARMER RANCH PHASES 2, 3, & 4 - LOGS.GPJ 4/2/21



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LOG OF BORING

Boring B-4
PAGE 1 OF 1

Job Name: Parmer Ranch Phases 2, 3, & 4
Job Location: Georgetown, Texas
Engineer's Job #: 21101100.012
Client: Parmer Ranch Partners, LP

Drill Date: March 2, 2021
Hole Size: 4.5 in.

Ground Elevation: n/a

Ground Water Levels:

AT TIME OF DRILLING: ---
 AT END OF DRILLING: ---
 AFTER DRILLING: ---

Notes:

DEPTH, ft.	GRAPHIC LOG	MATERIAL DESCRIPTION	GEOLOGY U.S.C.S.	POCKET PEN. (tsf)	<div style="text-align: center;"> -2um -#200 -#4 ● Moisture Content, % PL ————— LL 0 20 40 60 80 100 </div>	Plasticity Index, %
0		CLAY, dark brown, damp	CH	-		
		LIMESTONE, pale brown, medium to hard, dry	Ked	-		
5		Termination Depth: 3.8 feet				
10						
15						
20						
25						
30						

21101100.012 - PARMER RANCH PHASES 2, 3, & 4 - LOGS.GPJ 4/2/21



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LOG OF BORING

Boring B-5

PAGE 1 OF 1

Job Name: Parmer Ranch Phases 2, 3, & 4

Job Location: Georgetown, Texas

Engineer's Job #: 21101100.012

Client: Parmer Ranch Partners, LP

Drill Date: March 2, 2021

Ground Elevation: n/a

Ground Water Levels:

Hole Size: 4.5 in.

AT TIME OF DRILLING: ---

AT END OF DRILLING: ---

AFTER DRILLING: ---

Notes:

DEPTH, ft.	GRAPHIC LOG	MATERIAL DESCRIPTION	GEOLOGY U.S.C.S.	POCKET PEN. (tsf)	<div style="text-align: center;"> -2um -#200 -#4 ● Moisture Content, % PL ————— LL </div>	Plasticity Index, %
0		CLAY, dark brown, damp	CH	-		
		LIMESTONE, pale brown, medium to hard, dry	Ked	-		
5		Termination Depth: 3.5 feet				
10						
15						
20						
25						
30						

21101100.012 - PARMER RANCH PHASES 2, 3, & 4 - LOGS.GPJ 4/2/21



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LOG OF BORING

Boring B-6

PAGE 1 OF 1

Job Name: Parmer Ranch Phases 2, 3, & 4
Job Location: Georgetown, Texas
Engineer's Job #: 21101100.012
Client: Parmer Ranch Partners, LP

Drill Date: March 2, 2021
Hole Size: 4.5 in.

Ground Elevation: n/a

Ground Water Levels:

AT TIME OF DRILLING: ---
 AT END OF DRILLING: ---
 AFTER DRILLING: ---

Notes:

DEPTH, ft.	GRAPHIC LOG	MATERIAL DESCRIPTION	GEOLOGY U.S.C.S.	POCKET PEN. (tsf)		Plasticity Index, %
0		CLAY, dark brown, damp	CH	-	●	NP
		LIMESTONE, pale brown, with fractured layers, severely weathered, dry		-	●	NP
		LIMESTONE, pale brown, medium to hard, dry		-	●	
5		Termination Depth: 6.2 feet	Ked	-	●	
10						
15						
20						
25						
30						

21101100.012 - PARMER RANCH PHASES 2, 3, & 4 - LOGS.GPJ 4/2/21



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LOG OF BORING

Boring B-7
PAGE 1 OF 1

Job Name: Parmer Ranch Phases 2, 3, & 4
Job Location: Georgetown, Texas
Engineer's Job #: 21101100.012
Client: Parmer Ranch Partners, LP

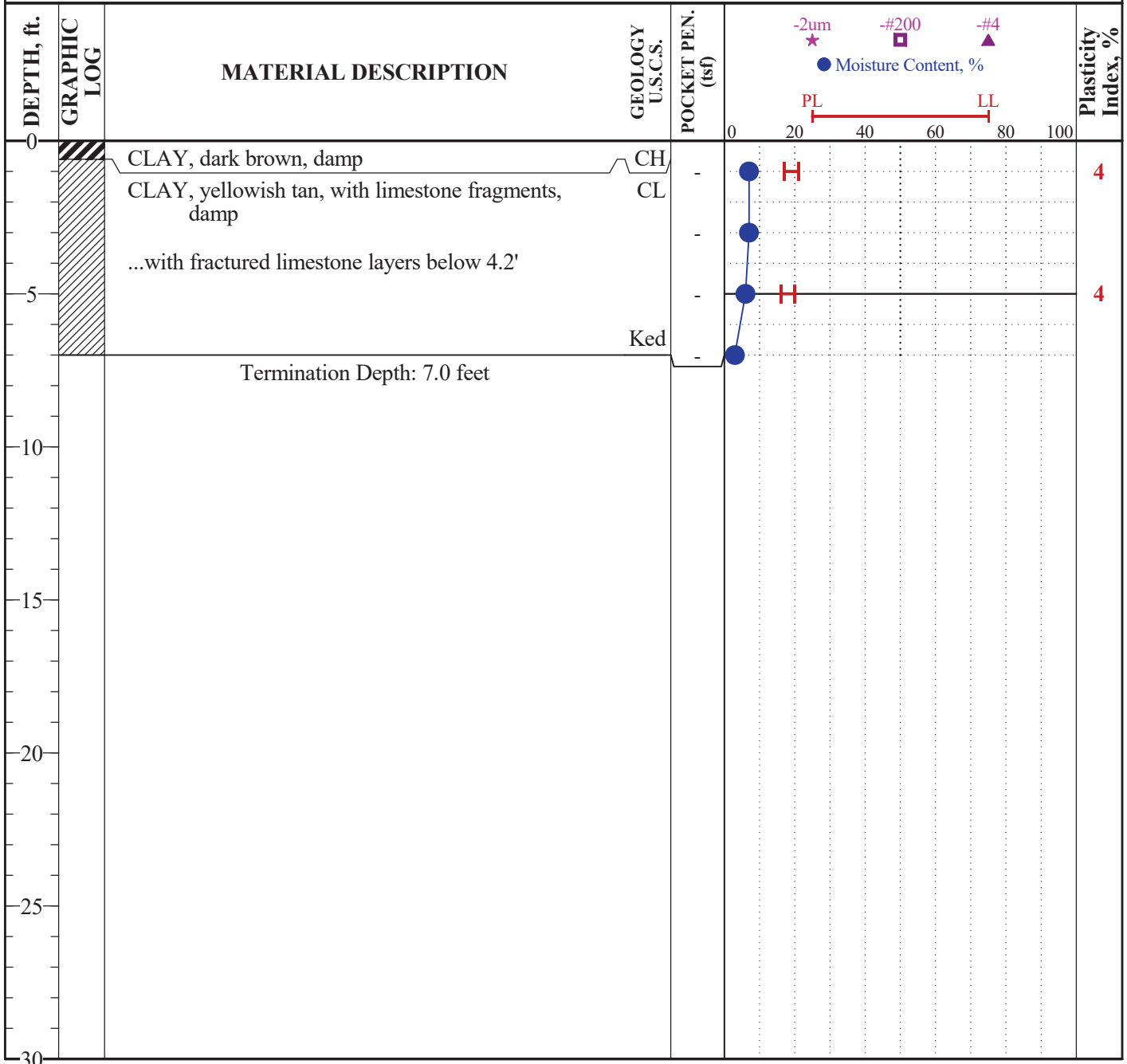
Drill Date: March 2, 2021
Hole Size: 4.5 in.

Ground Elevation: n/a

Ground Water Levels:

AT TIME OF DRILLING: ---
 AT END OF DRILLING: ---
 AFTER DRILLING: ---

Notes:



21101100.012 - PARMER RANCH PHASES 2, 3, & 4 - LOGS.GPJ 4/2/21



"put us to the test"

LOG OF BORING

Boring B-8
PAGE 1 OF 1

Job Name: Parmer Ranch Phases 2, 3, & 4
Job Location: Georgetown, Texas
Engineer's Job #: 21101100.012
Client: Parmer Ranch Partners, LP

Drill Date: March 2, 2021
Hole Size: 4.5 in.

Ground Elevation: n/a

Ground Water Levels:

AT TIME OF DRILLING: ---
 AT END OF DRILLING: ---
 AFTER DRILLING: ---

Notes:

DEPTH, ft.	GRAPHIC LOG	MATERIAL DESCRIPTION	GEOLOGY U.S.C.S.	POCKET PEN. (tsf)	<div style="display: flex; justify-content: space-between; align-items: center;"> <div style="text-align: center;"> <p>-2um ★</p> <p>-#200 □</p> <p>-#4 ▲</p> <p>● Moisture Content, %</p> </div> <div style="text-align: center;"> <p>PL — LL</p> </div> </div>	Plasticity Index, %
0		CLAY, dark brown, damp	CH	-		
		LIMESTONE, pale brown, medium to hard, dry	Ked	-		
5		Termination Depth: 3.3 feet				
10						
15						
20						
25						
30						

21101100.012 - PARMER RANCH PHASES 2, 3, & 4 - LOGS.GPJ 4/2/21



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LOG OF BORING

Boring B-9
PAGE 1 OF 1

Job Name: Parmer Ranch Phases 2, 3, & 4
Job Location: Georgetown, Texas
Engineer's Job #: 21101100.012
Client: Parmer Ranch Partners, LP

Drill Date: March 2, 2021
Hole Size: 4.5 in.

Ground Elevation: n/a

Ground Water Levels:

AT TIME OF DRILLING: ---
 AT END OF DRILLING: ---
 AFTER DRILLING: ---

Notes:

DEPTH, ft.	GRAPHIC LOG	MATERIAL DESCRIPTION	GEOLOGY U.S.C.S.	POCKET PEN. (tsf)	<div style="text-align: center;"> -2um -#200 -#4 ● Moisture Content, % PL ————— LL 0 20 40 60 80 100 </div>	Plasticity Index, %
0		CLAY, dark brown, damp	CH	-		
5		LIMESTONE, pale brown, medium to hard, dry	Ked	-		
5		Termination Depth: 4.9 feet				
10						
15						
20						
25						
30						

21101100.012 - PARMER RANCH PHASES 2, 3, & 4 - LOGS.GPJ 4/2/21



"put us to the test"

LOG OF BORING

Job Name: Parmer Ranch Phases 2, 3, & 4
Job Location: Georgetown, Texas
Engineer's Job #: 21101100.012
Client: Parmer Ranch Partners, LP

Boring B-10
PAGE 1 OF 1

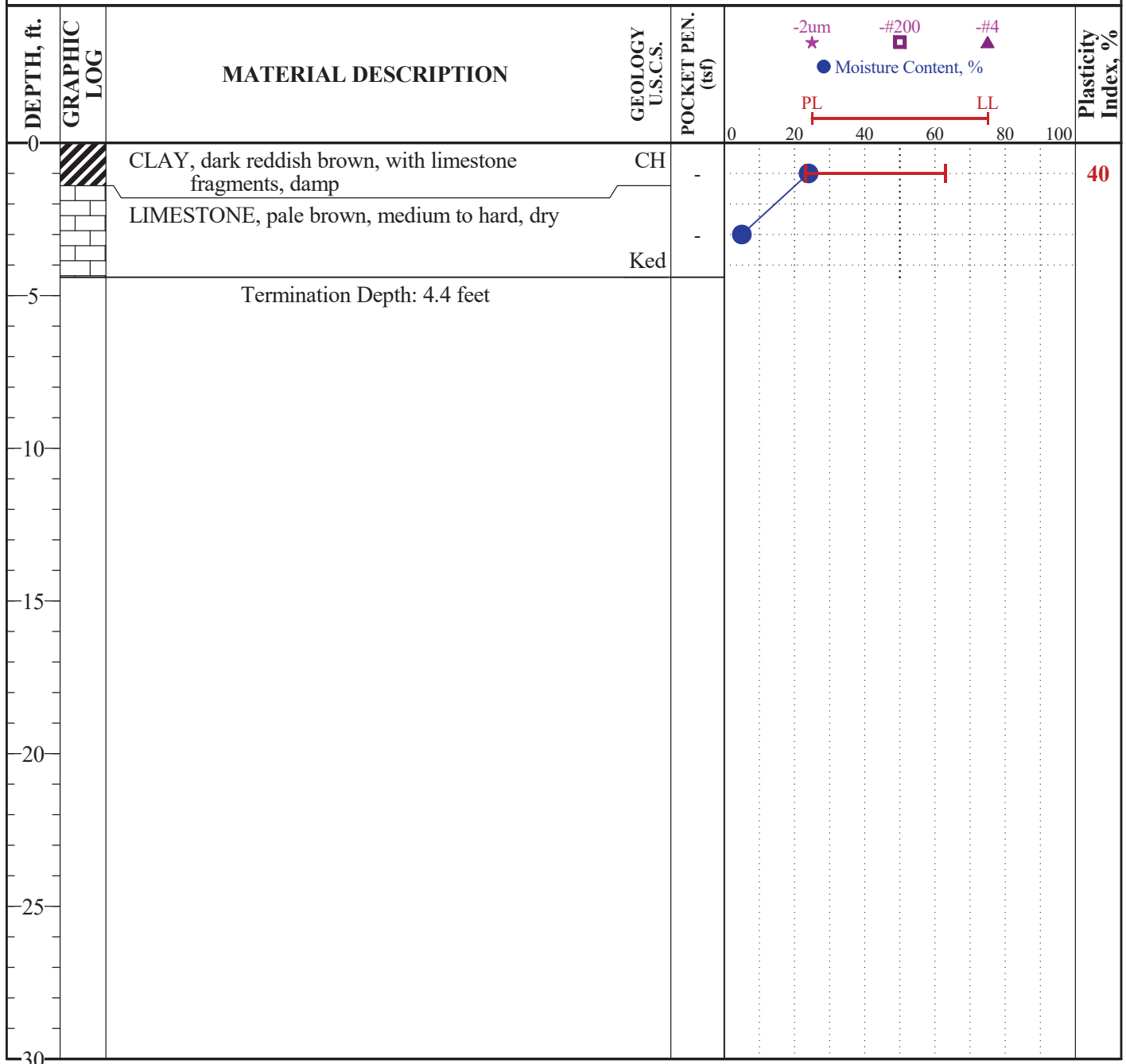
Drill Date: March 2, 2021
Hole Size: 4.5 in.

Ground Elevation: n/a

Ground Water Levels:

AT TIME OF DRILLING: ---
 AT END OF DRILLING: ---
 AFTER DRILLING: ---

Notes:



21101100.012 - PARMER RANCH PHASES 2, 3, & 4 - LOGS.GPJ 4/2/21



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LOG OF BORING

Job Name: Parmer Ranch Phases 2, 3, & 4
Job Location: Georgetown, Texas
Engineer's Job #: 21101100.012
Client: Parmer Ranch Partners, LP

Boring B-11
 PAGE 1 OF 1

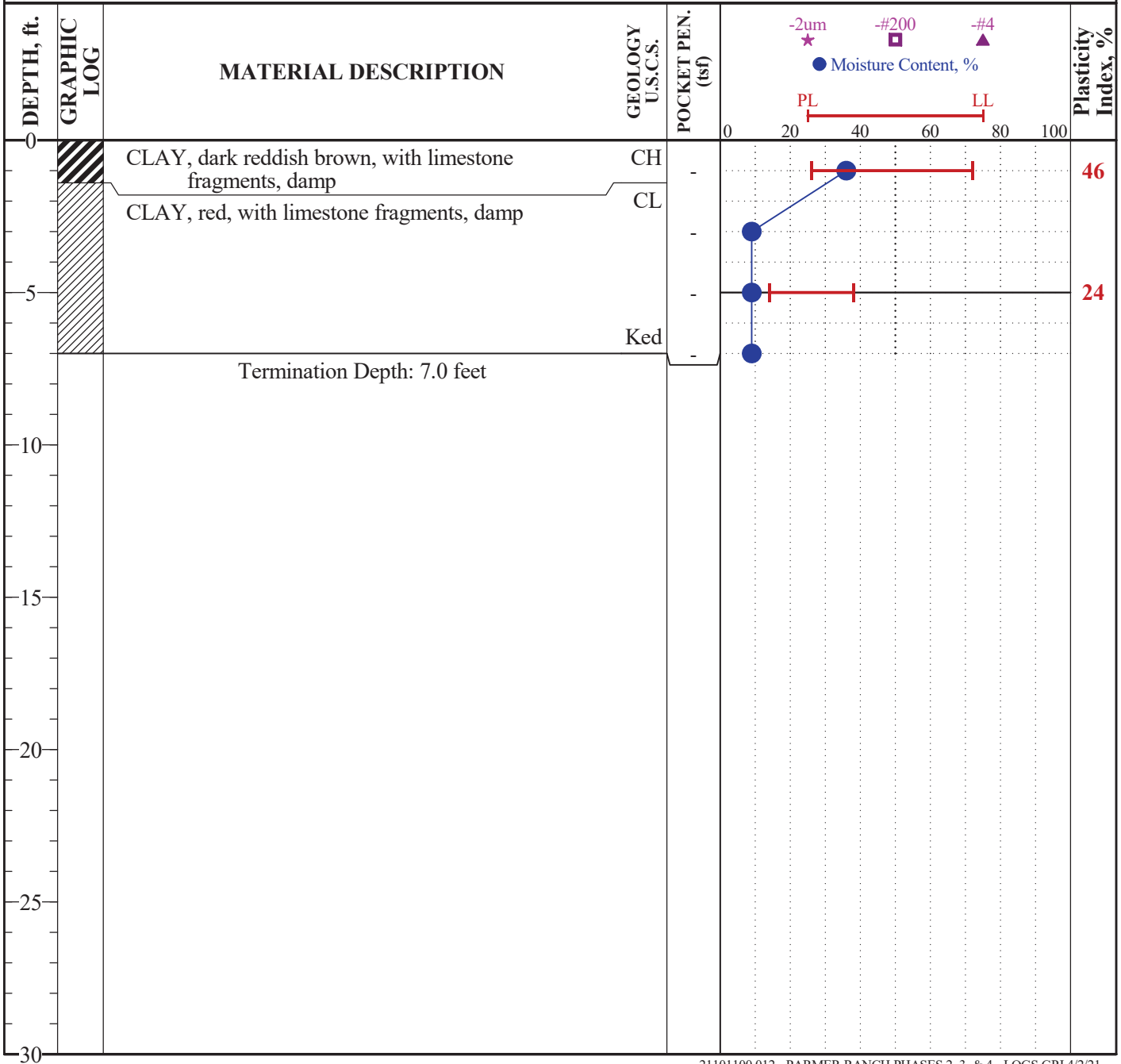
Drill Date: March 2, 2021
Hole Size: 4.5 in.

Ground Elevation: n/a

Ground Water Levels:

AT TIME OF DRILLING: ---
 AT END OF DRILLING: ---
 AFTER DRILLING: ---

Notes:



21101100.012 - PARMER RANCH PHASES 2, 3, & 4 - LOGS.GPJ 4/2/21



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LOG OF BORING

Job Name: Parmer Ranch Phases 2, 3, & 4
Job Location: Georgetown, Texas
Engineer's Job #: 21101100.012
Client: Parmer Ranch Partners, LP

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PAGE 1 OF 1

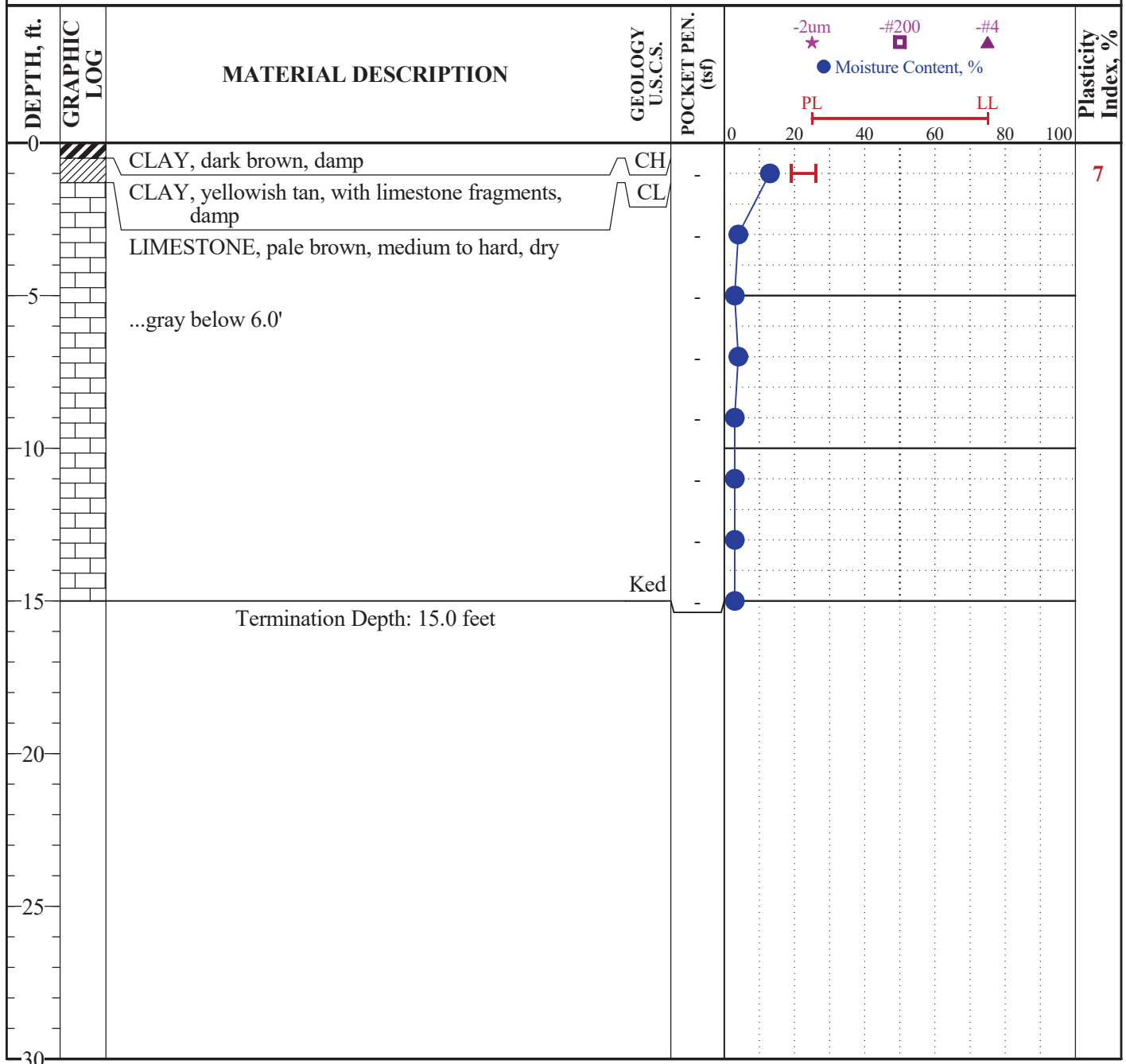
Drill Date: March 2, 2021
Hole Size: 4.5 in.

Ground Elevation: n/a

Ground Water Levels:

AT TIME OF DRILLING: ---
 AT END OF DRILLING: ---
 AFTER DRILLING: ---

Notes:



21101100.012 - PARMER RANCH PHASES 2, 3, & 4 - LOGS.GPJ 4/2/21

SOIL CLASSIFICATION CHART

MAJOR DIVISIONS			SYMBOLS		TYPICAL DESCRIPTIONS		
			GRAPH	LETTER			
COARSE GRAINED SOILS	GRAVEL AND GRAVELLY SOILS	CLEAN GRAVELS		GW	WELL-GRADED GRAVELS, GRAVEL - SAND MIXTURES, LITTLE OR NO FINES		
		(LITTLE OR NO FINES)		GP	POORLY-GRADED GRAVELS, GRAVEL - SAND MIXTURES, LITTLE OR NO FINES		
		GRAVELS WITH FINES		GM	SILTY GRAVELS, GRAVEL - SAND - SILT MIXTURES		
	MORE THAN 50% OF COARSE FRACTION RETAINED ON NO. 4 SIEVE	(APPRECIABLE AMOUNT OF FINES)		GC	CLAYEY GRAVELS, GRAVEL - SAND - CLAY MIXTURES		
		SAND AND SANDY SOILS	CLEAN SANDS		SW	WELL-GRADED SANDS, GRAVELLY SANDS, LITTLE OR NO FINES	
			(LITTLE OR NO FINES)		SP	POORLY-GRADED SANDS, GRAVELLY SAND, LITTLE OR NO FINES	
SANDS WITH FINES		SM	SILTY SANDS, SAND - SILT MIXTURES				
MORE THAN 50% OF MATERIAL IS LARGER THAN NO. 200 SIEVE SIZE	MORE THAN 50% OF COARSE FRACTION PASSING ON NO. 4 SIEVE	(APPRECIABLE AMOUNT OF FINES)		SC	CLAYEY SANDS, SAND - CLAY MIXTURES		
		FINE GRAINED SOILS	SILTS AND CLAYS	LIQUID LIMIT LESS THAN 50		ML	INORGANIC SILTS AND VERY FINE SANDS, ROCK FLOUR, SILTY OR CLAYEY FINE SANDS OR CLAYEY SILTS WITH SLIGHT PLASTICITY
				(LITTLE OR NO FINES)		CL	INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, GRAVELLY CLAYS, SANDY CLAYS, SILTY CLAYS, LEAN CLAYS
	ORGANIC SILTS AND ORGANIC SILTY CLAYS OF LOW PLASTICITY			OL			
	CLAYS	LIQUID LIMIT GREATER THAN 50	INORGANIC CLAYS OF HIGH PLASTICITY		CH		
			LOW PI CLAYS WITH APPRECIABLE HIGH PI MOTTLING, CLAY WITH BORDERLINE CLASSIFICATION		CL-CH		
SOILS OF MODERATE PLASTICITY				CL-CH			
OTHER MATERIALS				FILL	MATERIAL NOT NATURALLY DEPOSITED		
				LS	WEATHERED LIMESTONE INTACT LIMESTONE		

NOTE: DUAL SYMBOLS ARE USED TO INDICATE BORDERLINE SOIL CLASSIFICATIONS

Key to Terms and Abbreviations

Descriptive Terms Characterizing Soils and Rock	Standard Description Abbreviations and Terms	Symbols and Abbreviations for Test Data
<p>Argillaceous – having appreciable amounts of clay in the soil or rock mass. Used most often in describing limestones, occasionally sandstones.</p> <p>Calcareous – containing appreciable quantities of calcium carbonate. Can be either nodular or “powder.”</p> <p>Crumbly – cohesive soils which break into small blocks or crumbs on drying.</p> <p>Evaporite – deposits of salts and other soluble compounds. Most commonly calcium carbonate or gypsum. May be in either “powder” or visible crystal form.</p> <p>Ferruginous – having deposits of iron or nodules, typically oxidized and dark red in color.</p> <p>Ferrous – see Ferruginous</p> <p>Fissured – containing shrinkage cracks frequently filled with fine sand or silt, usually more or less vertical.</p> <p>Fossiliferous – containing appreciable quantities of fossils, fossil fragments, or traces of fossils</p> <p>Laminated – composed of thin layers of varying color or texture. Layers are typically distinct and varying in composition from sand to silt and clay.</p> <p>Mottled – characterized as having multiple colors organized in a marbled pattern.</p> <p>Slickensided – having inclined planes of weakness that are slick and glossy in appearance.</p> <p>Varved – see Laminated.</p>	<p>brn = brown dk = dark lt = light wx = weathered calc = calcareous sw = severely weathered cw = completely weathered n/a = not available b. = below</p> <p>Engineering Units pcf = pounds per cubic foot psf = pounds per square foot tsf = tons per square foot pF = picofarad psi = pounds per square inch kips = thousand pounds (force) ksf = kips per square foot</p>	<p>LL = Liquid Limit PL = Plastic Limit PI = Plasticity Index (LL-PL) NP = non-plastic γ_d = dry unit weight q_u = unconfined compressive strength q_c = confined compressive strength SPT = standard penetration test TCP = Texas cone penetration test (Texas Highway Department) N or N_{SPT} = blows per foot from SPT N_{TCP} = blows per foot from TCP SCR = standard core recovery RQD = rock quality designation RQI = see RQD</p>

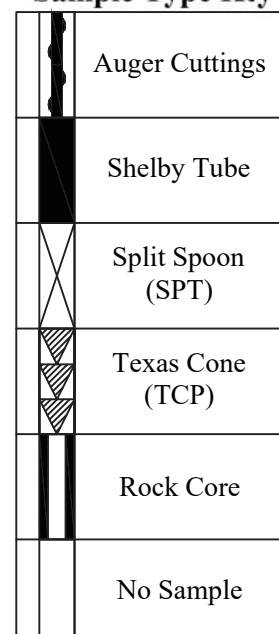
Terms Describing Consistency of Soil and Rock

COARSE GRAINED MATERIAL		SEDIMENTARY ROCK	
DESCRIPTIVE TERM	BLOWS/FT (SPT)	DESCRIPTIVE TERM	STRENGTH, TSF
very loose	0 – 4	soft	4 – 8
loose	4 – 10	medium	8 – 15
firm (medium)	10 – 30	hard	15 – 50
dense	30 – 50	very hard	over 50
very dense	over 50		

Describing Consistency of Fine Grained Soil

DESCRIPTIVE TERM	BLOWS/FT (SPT)	UNCONFINED COMPRESSION, TSF
very soft	< 2	< 0.25
soft	2 – 4	0.25 – 0.50
medium stiff	4 – 8	0.50 – 1.00
stiff	8 – 15	1.00 – 2.00
very stiff	15 – 30	2.00 – 4.00
hard	over 30	over 4.00

Sample Type Key



Revised: October 2018

APPENDIX B

STANDARD FIELD AND LABORATORY PROCEDURES

STANDARD FIELD AND LABORATORY PROCEDURES

STANDARD FIELD PROCEDURES

Drilling and Sampling

Borings and test pits are typically staked in the field by the drillers, using simple taping or pacing procedures and locations are assumed to be accurate to within several feet. Unless noted otherwise, ground surface elevations (GSE) when shown on logs are estimated from topographic maps and are assumed to be accurate to within a foot. A Plan of Borings or Plan of Test Pits showing the boring locations and the proposed structures is provided in the Appendix.

A log of each boring or pit is prepared as drilling and sampling progressed. In the laboratory, the driller's classification and description is reviewed by a Geotechnical Engineer. Individual logs of each boring or pit are provided in the Appendix. Descriptive terms and symbols used on the logs are in accordance with the Unified Soil Classification System (ASTM D-2487). A reference key is also provided. The stratification of the subsurface material represents the soil conditions at the actual boring locations, and variations may occur between borings. Lines of demarcation represent the approximate boundary between the different material types, but the transition may be gradual.

A truck-mounted rotary drill rig utilizing rotary wash drilling or continuous flight hollow or solid stem auger procedures is used to advance the borings, unless otherwise noted. A backhoe provided by others is used to place test pits. Test pits are advanced to the required depth, refusal (typically bedrock) or to the limits of the equipment. Samples of soil are obtained from the borings or test pit spoils for subsequent laboratory study. Samples are sealed in plastic bags and marked as to depth and boring/pit locations in the field. Cores are wrapped in a polyethylene wrap to preserve field moisture conditions, placed in core boxes and marked as to depth and core runs. Unless notified to the contrary, samples and cores will be stored for 90 days, then discarded.

Standard Penetration Test and Split-Barrel Sampling of Soils (ASTM D-1586) (SPT)

This sampling method consists of driving a 2 inch outside diameter split barrel sampler using a 140 pound hammer freely falling through a distance of 30 inches. The sampler is first seated 6 inches into the material to be sampled and then driven an additional 12 inches. The number of blows required to drive the sampler the final 12 inches is known as the Standard Penetration Resistance. The results of the SPT is recorded on the boring logs as "N" values.

Thin-Walled Tube Sampling of Soils (ASTM D-1587) (Shelby Tube Sampling)

This method consists of pushing thin walled steel tubes, usually 3 inches in diameter, into the soils to be sampled using hydraulic pressure or other means. Cohesive soils are usually sampled in this manner and relatively undisturbed samples are recovered.

Soil Investigation and Sampling by Auger Borings (ASTM D-1452)

This method consists of auguring a hole and removing representative soil samples from the auger flight or bit at intervals or with each change in the substrata. Disturbed samples are obtained and this method is, therefore, limited to situations where it is satisfactory to determine the approximate subsurface profile and obtain samples suitable for Index Property testing.

Diamond Core Drilling for Site Investigation (ASTM D-2113)

This method consists of advancing a hole into hard strata by rotating a single or double tube core barrel equipped with a cutting bit. Diamond, tungsten carbide, or other cutting agents may be used for the bit. Wash water or air is used to remove the cuttings and to cool the bit. Normally, a 3 inch outside diameter by 2-1/8 inch inside diameter coring bit is used unless otherwise noted. The rock or hard material recovered within the core barrel is examined in the field and in the laboratory and the cores are stored in partitioned boxes. The intactness of all rock core specimens is evaluated in two ways. The first method is the Standard Core Recovery (SCR) expressed as the length of the total core recovered divided by the length of the core run, expressed as a percentage:

$$\text{SCR} = \frac{\text{total core length recovered}}{\text{length of core run}} \times 100\%$$

This value is exhibited on the boring logs as the Standard Core Recovery (SCR).

The second procedure for evaluating the intactness of the rock cores is by Rock Quality Designation (RQD). The RQD provides an additional qualitative measure of soundness of the rock. This index is determined by measuring the intact recovered core unit which exceed four inches in length divided by the total length of the core run:

$$\text{RQD} = \frac{\text{all core lengths greater than 4"}}{\text{length of core run}} \times 100\%$$

The RQD is also expressed as a percentage and is shown on the boring logs.

Vane Shear Tests

In-situ vane shear tests may be used to determine the shear strength of soft to medium cohesive soil. This test consists of placing a four-bladed vane in the undisturbed soil and determining the torsional force applied at the ground surface required to cause the cylindrical perimeter surface of the vane to be sheared. The torsional force sufficient to cause shearing is converted to a unit of shearing resistance or cohesion of the soil surrounding the cylindrical surface.

THD Cone Penetrometer Test

The THD Cone Penetrometer Test is a standard field test to determine the relative density or consistency and load carrying capacity of foundation soils. This test is performed in much the same manner as the Standard Penetration Test described above. In this test, a 3 inch diameter penetrometer cone is used in place of a split-spoon sampler. This test calls for a 170-pound weight falling 24 inches. The actual test in hard materials consists of driving the penetrometer cone and accurately recording the inches of penetration for the first and second 50 blows for a total of 100 blows. These results are then correlated using a table of load capacity vs. number of inches penetrated per 100 blows.

Pocket Penetrometer Test

A pocket penetrometer or hand penetrometer is a small device used to estimate the shear capacity or unconfined compressive strength of a soil sample. The device consists of a spring-loaded probe which measures the pressure required to penetrate the probe into a soil sample for specified depth. This test can only be performed on cohesive soil samples. This pressure is reported in tons per square foot (tsf) on the Logs of Boring. A hyphen (-) indicates that the soil sample was too loose or too soft to perform the test. This test is considered rudimentary and too inaccurate to be used for direct design parameters; however, this test is useful for correlations among soil strata and general stiffness descriptions.

Ground Water Observation

Ground moisture observations are made during the operations and are reported on the logs of boring or pit. Moisture condition of cuttings are noted, however, the use of water for circulation precludes direct observation of wet conditions. Water levels after completing the borings or pits are noted. Seasonal variations, temperatures and recent rainfall conditions may influence the levels of the ground water table and water may be present in excavations, even though not indicated on the logs.

STANDARD LABORATORY PROCEDURES

To adequately characterize the subsurface material at this site, some or all of the following laboratory tests are performed. The results of the actual tests performed are shown graphically on the Logs of Boring or Pit.

Moisture Content - ASTM D-2216

Natural moisture contents of the samples (based on dry weight of soil) are determined for selected samples at depths shown on the respective boring logs. These moisture contents are useful in delineating the depth of the zone of moisture change and as a gauge of correlation between the various index properties and the engineering properties of the soil. For example, the relationship between the plasticity index and moisture content is a source of information for the correlation of shear strength data.

Dry Density - ASTM D-7263

The dry density, γ_d , (bulk density or unit weight) of the samples is determined for selected samples at depths shown on the respective boring logs using Method B of the aforementioned ASTM standard. The in-situ density was determined from undisturbed SPT samples and the dry density was calculated using moisture content results. These dry density values are useful for calculating other characteristic values such as porosity, void ratio, and mass composition of soil. Additionally, these values can also be used to assess the degree of compaction or consolidation of fill materials.

Atterberg Limits - ASTM D-4318

The Atterberg Limits are the moisture contents at the time the soil meets certain arbitrarily defined tests. At the moisture content defined as the plastic limit, P_w , the soil is assumed to change from a semi-solid state to a plastic state. By the addition of more moisture, the soil may be brought up to the moisture content defined as the liquid limit, L_w , or that point where the soil changes from a plastic state to a liquid state. A soil existing at a moisture content between these two previously described states is said to be in a plastic state. The difference between the liquid limit, L_w , and the plastic limit, P_w , is termed the plasticity index, I_w . As the plasticity index increases, the ability of a soil to attract water and remain in a plastic state increases. The Atterberg Limits that were determined are plotted on the appropriate log.

The Atterberg Limits are quite useful in soil exploration as an indexing parameter. Using the Atterberg Limits and grain size analysis, A. Casagrande developed the Unified Soils Classification System (USCS) which is widely used in the geotechnical engineering field. This system related the liquid limit to the plasticity index by dividing a classification chart into various zones according to degrees of plasticity of clays and silts. Although the Atterberg Limits are an indexing parameter, K. Terzaghi has related these limits to various engineering properties of a soil. Some of these relationships are as follows:

1. As the grain size of the soil decreases, the Atterberg Limits increase.
2. As the percent clay in the soil increases, the Atterberg Limits increase.
3. As the shear strength increases, the Atterberg Limits decrease.
4. As the compressibility of a soil increases, the Atterberg Limits increase.

Free Swell Test - ASTM D-4546-96

The free swell test assesses the potential for swell of soil. This value is useful for the design of various structures such as slab-on-ground foundations, piers and piles, and underground utilities. Method B of the aforementioned ASTM standard determines the amount of swell (vertical heave) of a sample. This is done by placing the sample in a consolidometer under a seating load equal to the overburden pressure and giving the sample free access to water. The height is measured and the swell is calculated as the vertical displacement divided by the original height of the specimen. The results of these tests are presented on the Logs of Boring at the depth of the samples tested.

Swell Pressure Test - ASTM D-4546-96

The swell pressure test assesses the potential for swell of soil. This value is useful for the design of various structures such as slab-on-ground foundations, piers and piles, and underground utilities. Method C of the aforementioned ASTM standard determines the pressure required to keep a soil sample at equilibrium under swelling conditions. This is done by placing the sample in a consolidometer under a seating load and giving the sample free access to water. A constant height of the sample is maintained and the vertical pressure on the sample is adjusted until equilibrium is reached. The vertical pressure on the sample at equilibrium is reported as the swell pressure. The results of these tests are presented on the Logs of Boring at the depth of the samples tested.

Soil Suction Test - ASTM D-5298-94

Soil suction (potential) tests are performed to determine both the matric and total suction values for the samples tested. Soil suction measures the free energy of the pore water in a soil. In a practical sense, soil suction is an indication of the affinity of a given soil sample to retain water. Soil suction provides useful information on a variety of characteristics of the soil that are affected by the soil water including volume change, deformation, and strength.

Soil suction tests are performed using the filter paper method per ASTM D-5298. Results of these tests are shown graphically on the logs of boring and tabulated in summary sheet of laboratory data.

For matric suction values found using this method, it should be noted that when the soil is in a dry state adequate contact between the filter paper and the soil may not be possible. This lack of contact may result in the determination of total suction instead of matric suction.

Triaxial Shear Test - ASTM D-2850-70

Triaxial tests may be performed on samples that are approximately 2.83 inches in diameter, unless a smaller diameter sample was necessary to achieve a more favorable length:diameter (L:D) ratio. A minimum length to diameter ratio (L:D) of 2.0 is maintained to reduce end effects.

The triaxial tests are typically unconsolidated-undrained using nitrogen gas for chamber confining pressure. Confining pressures are selected to conform to in-situ hydrostatic pressure considering the earth to be a fluid of 120 pcf. In this test, undisturbed Shelby tube samples are trimmed so that their ends are square and then pressed in a triaxial compression machine. The load at which failure occurs is the compressive strength. The results of the triaxial tests and the correlated hand penetrometer strengths can be utilized to develop soil shear strength values. These test provide the confined compressive strength, q_c , which are presented on the Logs of Boring at the depth of the samples tested.

Unconfined Compressive Strength of Rock Cores - ASTM D-2938

The unconfined compressive strength, q_u , is a valuable parameter useful in the design of foundation footings. This value, q_u , is related to the shearing resistance of the rock and thus to the capacity of the rock to support a load. In completing this test it is imperative that the length:diameter ratio of the core specimens are maintained at a minimum of 2:1. This ratio is set so that the shear plane will not extend through either of the end caps. If the ratio is less than 2.0 a correction is applied to the result.

Grain Size Analysis - ASTM D-421 and D-422

Grain size analysis tests are performed to determine the particle size and distribution of the samples tested. The grain size distribution of the soils coarser than the Standard Number 200 sieve is determined by passing the sample through a standard set of nested sieves, and the distribution of sizes smaller than the No. 200 sieve is determined by a sedimentation process, using a hydrometer. The results are given on the log of Boring/Pit or on Grain Size Distribution semi-log graphs within the report.

Slake Durability Test - ASTM D-4644

The slake durability test provides an index for the durability of a shale, or similar rock, considering the effects of wetting, drying, and abrasion. This index is used to quantify the strength of weak rock formations when exposed to natural wetting and drying cycles, especially in the context of underground tunneling and excavation. The index, $I_d(2)$, represents the percentage, by mass, of rock material retained after two wetting and drying cycles. These cycles are simulated by oven drying the sample followed by ten minutes of tumbling and soaking in water within a drum and trough apparatus. After tumbling and soaking, the sample is oven-dried and the mass of the sample is recorded. The results of these tests are presented on the Logs of Boring at the depth of the samples tested.

Brazilian Tensile Strength - ASTM D-3967

The Brazilian (splitting) tensile strength, σ_t , is useful in rock mechanics design, especially in regard to tunneling. This value is an indirect representation of the true uniaxial tensile strength. The Brazilian test is typically used more commonly than direct tensile strength tests because it is less difficult, more cost effective, and more represented of in-situ conditions. The test is conducted by mechanically compressing a rock core sample along its vertical diameter, causing the sample to fail due to tension along the horizontal diameter caused by the Poisson effect.

CERCHAR Abrasivity Index (CAI) Test - ASTM D-7625

The CERCHAR Abrasivity Index (CAI) is used to determine the abrasivity of rocks. This is particularly useful in assessing the potential wearing on cutting tools during excavation. The CAI of a rock is determined by the CERCHAR test, which consists of scraping steel pins across a rock surface and measuring the wear of each pin. The rock specimen is held in a mechanical vice, while a conical steel pin fastened to a 15-pound head is drug across the face of the specimen using a lever being pulled 1 centimeter in 1 second. The CAI is calculated based on the resultant diameter on the end of the pin.

APPENDIX C
MFPS COMPUTER OUTPUT

```

MM      MM  FFFFFFFF  PPPPPPPP  SSSSS  11
MMM     MMM FFFFFFFF  PPPPPPPP  SSSSSS  111
MMMM  MMMM  FF        PP      PP  SS      SS  1111
MMMMMMMMMM FF        PP      PP  SS        11
MM  MMM  MM  FFFFFFFF  PPPPPPPP  SSSSSS  11
MM  M  MM  FFFFFFFF  PPPPPPPP  SSSSSS  11
MM      MM  FF        PP                SS  11
MM      MM  FF        PP      SS      SS  11
MM      MM  FF        PP                SSSSSS  111111
MM      MM  FF        PP                SSSSS  111111

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MUNICIPAL FLEXIBLE PAVEMENT DESIGN SYSTEM
 VERSION 1.0, SEPTEMBER 1983
 MOVED TO MICROCOMPUTER OCTOBER 1985 (P.J.- BRE)

NOTICE --

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MFPS-1 MUNICIPAL FLEXIBLE PAVEMENT DESIGN SYSTEM, VERSION 1.0, 8/83
 ADAPTED FROM TEXAS SDHPT FPS-11 PROGRAM FOR CITY OF AUSTIN
 BY ARE INC, CONSULTING ENGINEERS, AUSTIN, TEXAS

PROBLEM TITLE (DESCRIPTION)
 21101100.012 - Parmer Ranch Phases 2, 3, & 4, Local Streets

***** PAVEMENT *****

TOTAL NUMBER OF LANES IN FACILITY 2
 TOTAL NUMBER OF CURBS IN FACILITY 2
 NUMBER OF LAYERS CONSIDERED IN THIS PROBLEM 2
 LANE WIDTH (FEET) 13.50
 CURB HEIGHT (INCHES). 6.00
 CONCRETE CURB CONSTRUCTION COST (\$/LF). 5.50
 THICKENED EDGE FIXED COST (\$/LF).00
 THICKENED EDGE INCREMENTAL COST (\$/IN/LF)00

***** LAYER *****

LAYER NO.	LAYER CODE	LAYER DESCRIPTION	MIN. DEPTH (IN.)	MAX. DEPTH (IN.)	THICK. INCR. (IN.)	COST (\$/CY)	COST (\$/SY)	SALV. VALUE (%)	STIFF. COEF.
1	H	HMAC	2.00	4.00	.50	84.00	.00	30.0	.960
2	F	FLEX. BASE	8.00	18.00	1.00	20.00	.00	20.0	.500

***** SUBGRADE *****

SWELLING PROBABILITY. 1.00
 SWELLING RATE CONSTANT.12
 POTENTIAL VERTICAL RISE (INCHES). 1.00
 SUBGRADE EXCAVATION COST (\$/CY) 7.50
 SUBGRADE COST (\$/SY).00
 SUBGRADE STIFFNESS COEFFICIENT.210

***** AC OVERLAY *****

MINIMUM AC OVERLAY THICKNESS (INCHES) 1.50
 MAXIMUM ACCUMULATED OVERLAY THICKNESS (INCHES). 3.00
 AVERAGE LEVEL-UP THICKNESS (INCHES)50
 OVERLAY COST (\$/CY) 55.00
 OVERLAY COST (\$/SY)00
 OVERLAY SALVAGE VALUE (%) 30.00
 AC OVERLAY STIFFNESS COEFFICIENT.960
 OVERLAY EDGE TAPERING COST (\$/LF)00
 OVERLAY EDGE MILLING COST (\$/LF). 3.25
 AC OVERLAY PRODUCTION RATE (CY/HR). 40.0

MFPS-1 MUNICIPAL FLEXIBLE PAVEMENT DESIGN SYSTEM, VERSION 1.0, 8/83
 ADAPTED FROM TEXAS SDHPT FPS-11 PROGRAM FOR CITY OF AUSTIN
 BY ARE INC, CONSULTING ENGINEERS, AUSTIN, TEXAS

PROBLEM TITLE (DESCRIPTION)
 21101100.012 - Parmer Ranch Phases 2, 3, & 4, Local Streets

***** DESIGN CONSTRAINTS *****

CONFIDENCE LEVEL (%) 90.00
 LENGTH OF ANALYSIS PERIOD (YEARS) 20.0
 MINIMUM TIME TO FIRST OVERLAY (YEARS) 20.0
 MINIMUM TIME BETWEEN OVERLAYS (YEARS) 5.0
 MAXIMUM THICKNESS OF INITIAL CONSTR. (INCHES) . . 22.00
 MAXIMUM FUNDS AVAILABLE FOR INITIAL CONSTR. (\$) . 50.00
 DISCOUNT RATE (%) 5.00

***** PERFORMANCE *****

SERVICEABILITY INDEX AFTER INITIAL CONSTRUCTION . 4.20
 TERMINAL SERVICEABILITY INDEX 1.00
 SERVICEABILITY INDEX AFTER OVERLAY CONSTRUCTION . 4.00

***** MAINTENANCE *****

FIRST YEAR COST OF ROUTINE MAINTENANCE.00
 ANNUAL INCREMENTAL INCREASE IN MAINTENANCE COST . 150.00

***** TRAFFIC *****

AVERAGE DAILY TRAFFIC GROWTH RATE (%) 3.00
 DIRECTIONAL DISTRIBUTION FACTOR (%) 50.00
 LANE DISTRIBUTION FACTOR (%) 100.00
 PERCENT TRUCKS IN AVERAGE DAILY TRAFFIC 2.00
 18-KIP EQUIVALENCY FACTOR FOR STD. CITY TRUCK . . .40
 INITIAL ADT ON FACILITY (VPD) 500.

***** TRAFFIC DELAY *****

INDEX TO DETOUR MODEL 2
 NO. OF OPEN LANES THROUGH OVERLAY ZONE
 IN OVERLAY DIRECTION 1
 IN NON-OVERLAY DIRECTION 1
 AVERAGE APPROACH SPEED TO OVERLAY ZONE (MPH). . . 15.
 AVERAGE SPEED THROUGH OVERLAY ZONE (MPH)
 IN OVERLAY DIRECTION 15.
 IN NON-OVERLAY DIRECTION 15.
 DISTANCE OVER WHICH TRAFFIC IS SLOWED (MILES)
 IN OVERLAY DIRECTION20
 IN NON-OVERLAY DIRECTION20
 DETOUR DISTANCE (MILES) 1.00
 NO. OF HOURS PER DAY OVERLAY CONSTRUCTION OCCURS. 7.00
 ADT ARRIVING EACH HOUR OF CONSTRUCTION (%) . . . 14.00

MFPS-1 MUNICIPAL FLEXIBLE PAVEMENT DESIGN SYSTEM, VERSION 1.0, 8/83
 ADAPTED FROM TEXAS SDHPT FPS-11 PROGRAM FOR CITY OF AUSTIN
 BY ARE INC, CONSULTING ENGINEERS, AUSTIN, TEXAS

PROBLEM TITLE (DESCRIPTION)
 21101100.012 - Parmer Ranch Phases 2, 3, & 4, Local Streets

SUMMARY OF THE BEST DESIGN STRATEGIES
 IN ORDER OF INCREASING TOTAL COST

	1	2

MATERIAL ARRANGEMENT	H	HF

SUBGRADE EXC. COST	.83	2.08
CURB CONSTR. COST	3.67	3.67
THICKENED EDGE COST	.00	.00

TAPERING COSTS	.00	.00
MILLING COSTS	.00	.00

INIT. CONST. COST	13.83	14.86
OVERLAY CONST. COST	.00	.00
USER COST	.00	.00
ROUTINE MAINT. COST	1.96	1.96
SALVAGE VALUE	-1.06	-.86

TOTAL COST	14.74	15.96

LAYER DEPTH (INCHES)		
D(1)	4.00	2.00
D(2)	.00	8.00

OVERLAY POLICY(INCH)		
(INCLUDING LEVEL-UP)		

PERF. TIME (YEARS)		
T(1)	26.02	40.00

SWELLING CLAY LOSS		
(SERVICEABILITY)		
SC(1)	.32	.33

THE TOTAL NUMBER OF FEASIBLE DESIGNS ENCOUNTERED WAS 56

```

MM      MM  FFFFFFFF  PPPPPPP  SSSSS  11
MMM     MMM  FFFFFFFF  PPPPPPP  SSSSSS  111
MMMM  MMMM  FF        PP      PP  SS      SS  1111
MMMMMMMMMM  FF        PP      PP  SS        11
MM  MMM  MM  FFFFFFFF  PPPPPPP  SSSSSS  11
MM  M  MM  FFFFFFFF  PPPPPPP  SSSSSS  11
MM      MM  FF        PP                SS  11
MM      MM  FF        PP                SS  11
MM      MM  FF        PP                SSSSSS  111111
MM      MM  FF        PP                SSSSS  111111

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MUNICIPAL FLEXIBLE PAVEMENT DESIGN SYSTEM
 VERSION 1.0, SEPTEMBER 1983
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MFPS-1 MUNICIPAL FLEXIBLE PAVEMENT DESIGN SYSTEM, VERSION 1.0, 8/83
 ADAPTED FROM TEXAS SDHPT FPS-11 PROGRAM FOR CITY OF AUSTIN
 BY ARE INC, CONSULTING ENGINEERS, AUSTIN, TEXAS

PROBLEM TITLE (DESCRIPTION)
 21101100.012 - Parmer Ranch Phases 2, 3, & 4, Residential Collectors

***** PAVEMENT *****

TOTAL NUMBER OF LANES IN FACILITY 2
 TOTAL NUMBER OF CURBS IN FACILITY 2
 NUMBER OF LAYERS CONSIDERED IN THIS PROBLEM 2
 LANE WIDTH (FEET) 18.50
 CURB HEIGHT (INCHES). 6.00
 CONCRETE CURB CONSTRUCTION COST (\$/LF). 5.50
 THICKENED EDGE FIXED COST (\$/LF).00
 THICKENED EDGE INCREMENTAL COST (\$/IN/LF)00

***** LAYER *****

LAYER NO.	LAYER CODE	LAYER DESCRIPTION	MIN. DEPTH (IN.)	MAX. DEPTH (IN.)	THICK. INCR. (IN.)	COST (\$/CY)	COST (\$/SY)	SALV. VALUE (%)	STIFF. COEF.
1	H	HMAC	2.00	4.00	.50	84.00	.00	30.0	.960
2	F	FLEX. BASE	10.00	18.00	1.00	20.00	.00	20.0	.500

***** SUBGRADE *****

SWELLING PROBABILITY. 1.00
 SWELLING RATE CONSTANT.12
 POTENTIAL VERTICAL RISE (INCHES). 1.10
 SUBGRADE EXCAVATION COST (\$/CY) 7.50
 SUBGRADE COST (\$/SY).00
 SUBGRADE STIFFNESS COEFFICIENT.210

***** AC OVERLAY *****

MINIMUM AC OVERLAY THICKNESS (INCHES) 1.50
 MAXIMUM ACCUMULATED OVERLAY THICKNESS (INCHES). 3.00
 AVERAGE LEVEL-UP THICKNESS (INCHES)50
 OVERLAY COST (\$/CY) 55.00
 OVERLAY COST (\$/SY)00
 OVERLAY SALVAGE VALUE (%) 30.00
 AC OVERLAY STIFFNESS COEFFICIENT.960
 OVERLAY EDGE TAPERING COST (\$/LF)00
 OVERLAY EDGE MILLING COST (\$/LF). 3.25
 AC OVERLAY PRODUCTION RATE (CY/HR). 40.0

MFPS-1 MUNICIPAL FLEXIBLE PAVEMENT DESIGN SYSTEM, VERSION 1.0, 8/83
 ADAPTED FROM TEXAS SDHPT FPS-11 PROGRAM FOR CITY OF AUSTIN
 BY ARE INC, CONSULTING ENGINEERS, AUSTIN, TEXAS

PROBLEM TITLE (DESCRIPTION)
 21101100.012 - Parmer Ranch Phases 2, 3, & 4, Residential Collectors

***** DESIGN CONSTRAINTS *****

CONFIDENCE LEVEL (%) 90.00
 LENGTH OF ANALYSIS PERIOD (YEARS) 20.0
 MINIMUM TIME TO FIRST OVERLAY (YEARS) 20.0
 MINIMUM TIME BETWEEN OVERLAYS (YEARS) 5.0
 MAXIMUM THICKNESS OF INITIAL CONSTR. (INCHES) . . 22.00
 MAXIMUM FUNDS AVAILABLE FOR INITIAL CONSTR. (\$) . 50.00
 DISCOUNT RATE (%) 5.00

***** PERFORMANCE *****

SERVICEABILITY INDEX AFTER INITIAL CONSTRUCTION . 4.20
 TERMINAL SERVICEABILITY INDEX 1.50
 SERVICEABILITY INDEX AFTER OVERLAY CONSTRUCTION . 4.00

***** MAINTENANCE *****

FIRST YEAR COST OF ROUTINE MAINTENANCE.00
 ANNUAL INCREMENTAL INCREASE IN MAINTENANCE COST . 150.00

***** TRAFFIC *****

AVERAGE DAILY TRAFFIC GROWTH RATE (%) 3.50
 DIRECTIONAL DISTRIBUTION FACTOR (%) 50.00
 LANE DISTRIBUTION FACTOR (%) 100.00
 PERCENT TRUCKS IN AVERAGE DAILY TRAFFIC 2.90
 18-KIP EQUIVALENCY FACTOR FOR STD. CITY TRUCK . . .53
 INITIAL ADT ON FACILITY (VPD) 1000.

***** TRAFFIC DELAY *****

INDEX TO DETOUR MODEL 2
 NO. OF OPEN LANES THROUGH OVERLAY ZONE
 IN OVERLAY DIRECTION 1
 IN NON-OVERLAY DIRECTION 1
 AVERAGE APPROACH SPEED TO OVERLAY ZONE (MPH). . . 15.
 AVERAGE SPEED THROUGH OVERLAY ZONE (MPH)
 IN OVERLAY DIRECTION 15.
 IN NON-OVERLAY DIRECTION 15.
 DISTANCE OVER WHICH TRAFFIC IS SLOWED (MILES)
 IN OVERLAY DIRECTION20
 IN NON-OVERLAY DIRECTION20
 DETOUR DISTANCE (MILES) 1.00
 NO. OF HOURS PER DAY OVERLAY CONSTRUCTION OCCURS. 7.00
 ADT ARRIVING EACH HOUR OF CONSTRUCTION (%) . . . 14.00

MFPS-1 MUNICIPAL FLEXIBLE PAVEMENT DESIGN SYSTEM, VERSION 1.0, 8/83
 ADAPTED FROM TEXAS SDHPT FPS-11 PROGRAM FOR CITY OF AUSTIN
 BY ARE INC, CONSULTING ENGINEERS, AUSTIN, TEXAS

PROBLEM TITLE (DESCRIPTION)
 21101100.012 - Parmer Ranch Phases 2, 3, & 4, Residential Collectors

SUMMARY OF THE BEST DESIGN STRATEGIES
 IN ORDER OF INCREASING TOTAL COST

1

 MATERIAL ARRANGEMENT HF

 SUBGRADE EXC. COST 2.50
 CURB CONSTR. COST 2.68
 THICKENED EDGE COST .00

 TAPERING COSTS .00
 MILLING COSTS .00

 INIT. CONST. COST 15.40
 OVERLAY CONST. COST .00
 USER COST .00
 ROUTINE MAINT. COST 1.43
 SALVAGE VALUE -.95

 TOTAL COST 15.88

 LAYER DEPTH (INCHES)
 D(1) 2.00
 D(2) 10.00

 OVERLAY POLICY(INCH)
 (INCLUDING LEVEL-UP)

 PERF. TIME (YEARS)
 T(1) 38.06

 SWELLING CLAY LOSS
 (SERVICEABILITY)
 SC(1) .36

THE TOTAL NUMBER OF FEASIBLE DESIGNS ENCOUNTERED WAS 45

```

MM      MM  FFFFFFFF  PPPPPPPP  SSSSS  11
MMM     MMM  FFFFFFFF  PPPPPPPP  SSSSSS  111
MMMM  MMMM  FF        PP      PP  SS      SS  1111
MMMMMMMMMM  FF        PP      PP  SS        11
MM  MMM  MM  FFFFFFFF  PPPPPPPP  SSSSSS  11
MM  M  MM  FFFFFFFF  PPPPPPPP  SSSSSS  11
MM      MM  FF        PP                SS  11
MM      MM  FF        PP      SS      SS  11
MM      MM  FF        PP                SSSSSS  111111
MM      MM  FF        PP                SSSSS  111111

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MUNICIPAL FLEXIBLE PAVEMENT DESIGN SYSTEM
 VERSION 1.0, SEPTEMBER 1983
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PROBLEM TITLE (DESCRIPTION)
 21101100.012 - Parmer Ranch Phases 2, 3, & 4, Major Collector

***** PAVEMENT *****

TOTAL NUMBER OF LANES IN FACILITY 2
 TOTAL NUMBER OF CURBS IN FACILITY 2
 NUMBER OF LAYERS CONSIDERED IN THIS PROBLEM 2
 LANE WIDTH (FEET) 20.50
 CURB HEIGHT (INCHES). 6.00
 CONCRETE CURB CONSTRUCTION COST (\$/LF). 5.50
 THICKENED EDGE FIXED COST (\$/LF).00
 THICKENED EDGE INCREMENTAL COST (\$/IN/LF)00

***** LAYER *****

LAYER NO.	LAYER CODE	LAYER DESCRIPTION	MIN. DEPTH (IN.)	MAX. DEPTH (IN.)	THICK. INCR. (IN.)	COST (\$/CY)	COST (\$/SY)	SALV. VALUE (%)	STIFF. COEF.
1	H	HMAC	2.00	4.00	.50	84.00	.00	30.0	.960
2	F	FLEX. BASE	10.00	18.00	1.00	20.00	.00	20.0	.500

***** SUBGRADE *****

SWELLING PROBABILITY. 1.00
 SWELLING RATE CONSTANT.12
 POTENTIAL VERTICAL RISE (INCHES). 1.00
 SUBGRADE EXCAVATION COST (\$/CY) 7.50
 SUBGRADE COST (\$/SY).00
 SUBGRADE STIFFNESS COEFFICIENT.210

***** AC OVERLAY *****

MINIMUM AC OVERLAY THICKNESS (INCHES) 1.50
 MAXIMUM ACCUMULATED OVERLAY THICKNESS (INCHES). 3.00
 AVERAGE LEVEL-UP THICKNESS (INCHES)50
 OVERLAY COST (\$/CY) 55.00
 OVERLAY COST (\$/SY)00
 OVERLAY SALVAGE VALUE (%) 30.00
 AC OVERLAY STIFFNESS COEFFICIENT.960
 OVERLAY EDGE TAPERING COST (\$/LF)00
 OVERLAY EDGE MILLING COST (\$/LF). 3.25
 AC OVERLAY PRODUCTION RATE (CY/HR). 40.0

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PROBLEM TITLE (DESCRIPTION)
 21101100.012 - Parmer Ranch Phases 2, 3, & 4, Major Collector

***** DESIGN CONSTRAINTS *****

CONFIDENCE LEVEL (%). 90.00
 LENGTH OF ANALYSIS PERIOD (YEARS) 20.0
 MINIMUM TIME TO FIRST OVERLAY (YEARS) 20.0
 MINIMUM TIME BETWEEN OVERLAYS (YEARS) 5.0
 MAXIMUM THICKNESS OF INITIAL CONSTR. (INCHES) . . 22.00
 MAXIMUM FUNDS AVAILABLE FOR INITIAL CONSTR. (\$) . 50.00
 DISCOUNT RATE (%) 5.00

***** PERFORMANCE *****

SERVICEABILITY INDEX AFTER INITIAL CONSTRUCTION . 4.20
 TERMINAL SERVICEABILITY INDEX 1.50
 SERVICEABILITY INDEX AFTER OVERLAY CONSTRUCTION . 4.00

***** MAINTENANCE *****

FIRST YEAR COST OF ROUTINE MAINTENANCE.00
 ANNUAL INCREMENTAL INCREASE IN MAINTENANCE COST . 150.00

***** TRAFFIC *****

AVERAGE DAILY TRAFFIC GROWTH RATE (%) 4.00
 DIRECTIONAL DISTRIBUTION FACTOR (%) 50.00
 LANE DISTRIBUTION FACTOR (%). 100.00
 PERCENT TRUCKS IN AVERAGE DAILY TRAFFIC 4.90
 18-KIP EQUIVALENCY FACTOR FOR STD. CITY TRUCK . . .53
 INITIAL ADT ON FACILITY (VPD) 2000.

***** TRAFFIC DELAY *****

INDEX TO DETOUR MODEL 2
 NO. OF OPEN LANES THROUGH OVERLAY ZONE
 IN OVERLAY DIRECTION 1
 IN NON-OVERLAY DIRECTION 1
 AVERAGE APPROACH SPEED TO OVERLAY ZONE (MPH). . . 15.
 AVERAGE SPEED THROUGH OVERLAY ZONE (MPH)
 IN OVERLAY DIRECTION 15.
 IN NON-OVERLAY DIRECTION 15.
 DISTANCE OVER WHICH TRAFFIC IS SLOWED (MILES)
 IN OVERLAY DIRECTION20
 IN NON-OVERLAY DIRECTION20
 DETOUR DISTANCE (MILES) 1.00
 NO. OF HOURS PER DAY OVERLAY CONSTRUCTION OCCURS. 7.00
 ADT ARRIVING EACH HOUR OF CONSTRUCTION (%). . . . 14.00

MFPS-1 MUNICIPAL FLEXIBLE PAVEMENT DESIGN SYSTEM, VERSION 1.0, 8/83
 ADAPTED FROM TEXAS SDHPT FPS-11 PROGRAM FOR CITY OF AUSTIN
 BY ARE INC, CONSULTING ENGINEERS, AUSTIN, TEXAS

PROBLEM TITLE (DESCRIPTION)
 21101100.012 - Parmer Ranch Phases 2, 3, & 4, Major Collector

SUMMARY OF THE BEST DESIGN STRATEGIES
 IN ORDER OF INCREASING TOTAL COST

	1	2

MATERIAL ARRANGEMENT	HF	HF

SUBGRADE EXC. COST	2.71	2.60
CURB CONSTR. COST	2.41	2.41
THICKENED EDGE COST	.00	.00

TAPERING COSTS	.00	.00
MILLING COSTS	.00	.00

INIT. CONST. COST	15.90	16.41
OVERLAY CONST. COST	.00	.00
USER COST	.00	.00
ROUTINE MAINT. COST	1.29	1.29
SALVAGE VALUE	-.99	-1.08

TOTAL COST	16.20	16.62

LAYER DEPTH (INCHES)		
D(1)	2.00	2.50
D(2)	11.00	10.00

OVERLAY POLICY(INCH)		
(INCLUDING LEVEL-UP)		

PERF. TIME (YEARS)		
T(1)	21.08	21.38

SWELLING CLAY LOSS		
(SERVICEABILITY)		
SC(1)	.31	.31

THE TOTAL NUMBER OF FEASIBLE DESIGNS ENCOUNTERED WAS 44