LENNAR HOMES OF TEXAS LAND AND CONSTRUCTION, LTD. ON BEHALF OF LONE OAK MUNICIPAL UTILITY DISTRICT (MUD)

INVITATION TO BIDDERS
CONSTRUCTION DOCUMENTS AND
TECHNICAL SPECIFICATIONS FOR
JARO NORTH SUBDIVISION UNIT 4

STREETS, DRAINAGE, WATER & WASTEWATER

NEW BRAUNFELS, TEXAS

April 17, 2026

HMT ENGINEERING AND SURVEYING
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Lone Oak Municipal Utility District

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JARO NORTH SUBDIVISION UNIT 4 **APRIL 2026**

INVITATION TO BID

1. Project Identification

a. **Project Name:** Jaro North Subdivision Unit 4
b. **Project Number:** 337.101
c. **Project Location:** Located west of FM 758 and SH 123. in Guadalupe County within the City of New Braunfels ETJ, Texas.
d. **Owner:** Lennar Homes of Texas Land and Construction, LTD on Behalf of Lone Oak MUD
e. **Owner's Representative:** Zoe Jasso, P.E.
HMT Engineering & Surveying
8122 Data Point, Ste. 400
San Antonio, Texas 78229
(830)625-8555
zoej@hmtnb.com

2. Pre-Bid Meeting

a. A non-mandatory pre-bid meeting will be held virtually at 1:00 P.M., local time, Monday, 04/27/26 via Zoom.

3. Bid Opening

a. Bid Place
i. Sealed bids will be received in the office of the Engineer:
Project Name: Jaro North Subdivision Unit 4
ATTN: Zoe Jasso, P.E.
c/o HMT Engineering & Surveying
8122 Data Point, Ste. 400
San Antonio, Texas 78229
(830)625-8555
Bid Due Date: 05/04/25 by 1:00 pm local time.

b. Bids will be opened publicly.

4. Rejection

a. The Owner reserves the right to reject any or all bids and to waive any informalities or minor defects.
b. In case of the lack of clarity or ambiguity in prices, the Owner reserves the right to accept the most advantageous or reject the bid.
c. All bids received after the closing time designated above will be returned unopened.

5. Delivery of Proposals

a. It is the Bidder's responsibility to deliver the bid proposal at the proper time to the proper place. The mere fact that a bid proposal was dispatched will not be considered. The Bidder must have the bid proposal delivered as specified above in (3) Bid Opening.

6. Time of Completion

a. The work needs to be completed in 300 calendar days from the notice to proceed.

INSTRUCTIONS TO BIDDERS

IMPORTANT NOTICE: Bidder must read ALL Instructions. Failure to do so may result in a non-responsive Bid. Failure to do so does not release Bidder from the obligation to comply.

1. Submission of Bids

1.1 In accordance with the Plans and Specifications prepared by the ENGINEER, any Proposal received after the published time of the bid opening will be returned unopened.

1.2 The OWNER reserves the right to reject any or all Bids if the OWNER believes that it would not be in the best interest of the Project to make an award to that Bidder, whether because the Bid is not responsive or the Bidder is unqualified or of doubtful financial ability or fails to meet any other pertinent standard or other criteria established by OWNER.

1.3 Bids shall be submitted at the location and time indicated in the Invitation to Bidders and shall be enclosed in an opaque sealed envelope, marked with the Project title (and, if applicable, the designated portion of the Project for which the Bid is submitted) and name and address of Bidder and accompanied by the Bid security and other required documents. If the Bid is sent through the mail or other delivery system, the sealed envelope shall be enclosed in a separate envelope with the notation “BID ENCLOSED” on the face of it. Bids which are not received by the time and at the location specified in the Bidding Documents, will be returned unopened to the Bidder.

1.4 By submitting a Bid, each Bidder agrees to fully and forever waive and release any claim (known or unknown) it has or may have against the OWNER, DEVELOPER, ARCHITECT and ENGINEER, and their respective attorneys, employees, consultants, representatives, agents, successors, assigns, officers, directors, and members arising under the statutes of Texas, tort, contract or otherwise; or out of or in connection with the: (i) administration, evaluation, or recommendation (or lack thereof) of any Bid; (ii) waiver of any requirements under the Bid Documents or the CONTRACT DOCUMENTS; (iii) acceptance or rejection of any bids; (iv) award of the Contract; and, (v) provision of references (positive or negative) in connection with any work performed by Bidder, and Bidder’s contractors and subcontractors in connection with the Project and the CONTRACT DOCUMENTS, to which Bidder hereby consents and authorizes.

1.5 All work must conform to Federal, State and local governmental rules and criteria.

1.6 The successful bidder will be required to enter into a Contract with the Owner, requiring full compliance and performance of the conditions of the proposal, plans and specifications as designed by HMT Engineering & Surveying (Engineer) and reviewed by the CITY OF NEW BRAUNFELS, and/or other agencies as required, and agrees to commence work within ten (10) days after notification to begin. It is the intent of the owner to start construction as soon as possible.

1.7 Bidders are required to inspect the site and inform themselves of all conditions affecting the execution of the work to be performed. The filing of the "Proposal" shall constitute an admission by the bidder that he has carried out the foregoing stipulations to his entire satisfaction. Quantities included in the plans and proposals are estimated and are to be regarded as approximate only. The Owner reserves the right to vary the quantities, to construct all, or any part, or to delete any part or item of work that may be deemed advisable.

1.8 The most current editions of the City of New Braunfels Standard Specifications, Texas Department of Transportation Standard Specifications, TCEQ, Guadelupe Valley Electric Co-op, Crystal Clear SUD, City of Seguin (Sewer), shall be followed for all construction except as amended by the City of New Braunfels and/or Guadalupe County.

1.9 Portions of this proposal may be deleted. Prices for all items must stand on their own.

1.10 Contractor to complete the material take-off for items bid lump sum to confirm the Engineer Quantities. Quantities shown are plan estimates only.

1.11 Direct all questions concerning this proposal to Josh Kelsey with HMT Engineers at (830) 625-8555 or at joshk@hmtnb.com

1.12 Contractor is responsible for compliance with the Texas Commission on Environmental Quality (TCEQ) Construction General Permit (CGP) TXR150000 requirements. Please review requirements at - https://www.tceq.texas.gov/permitting/stormwater/construction.

Responsibilities include, but are not limited to, implementation of all structural and non-structural Best Management Practices (BMPs) required by the CGP, the SWPPP for the project, or by any local rule or ordinance that applies to the project. This includes implementation of pollution prevention and housekeeping BMPs as well as the installation and maintenance of all stormwater control measures as designed and in accordance with the approved construction plans. The stormwater controls may include a temporary sediment basin that must be constructed to the approved specifications and functional before additional earth-disturbing activities continue at the project.

Lennar will develop the Storm Water Pollution Prevention Plan (SWP3) for the project in accordance with the approved plans and will provide electronic access to the SWP3 and related documents to the Contractor for review and signature. Lennar will assist the Contractor with SWP3 permitting via STEERS. The Contractor is responsible for all of their permitting fees.

Lennar will be responsible for conducting the SWP3 inspections. Contractor is responsible for completing the items listed in the SWP3 inspection report that apply to their work as soon as possible, and no later than 7-days. If an item cannot be completed within 7 days, Contractor will provide a reasonable extenuating circumstance that prevented the completion of the item. Contractor to provide written notification of what was completed and will include the completion date.

Discharges from dewatering activities, including discharges from dewatering of trenches and excavations, are prohibited, unless managed by appropriate controls to address sediment and prevent erosion. Personnel provided by the contractor must observe and evaluate dewatering controls at a minimum of once per day on the days where dewatering discharges from the construction site occur. Observations and evaluations must be documented on forms that will be provided by Lennar and included in the SWP3.

Contractor is responsible for reestablishing vegetation or non-vegetative erosion control in accordance with the SWPPP in all disturbed areas associated with the project. Stabilization must be initiated immediately whenever soil-disturbing

activities have ceased and will not begin for at least 14 calendar days. Stabilization will not be accepted until the vegetation meets a uniform (that is, evenly distributed, without large bare areas) perennial vegetative cover with a density of at least 70% of the native background vegetative cover or other temporary erosion control measures as approved by the engineer, Lennar and MS4.

Once the project completion is accepted by Lennar, the Contractor will complete and send a copy of their TCEQ Notice of Termination to the Land Development Manager and Lennar environmental team. Lennar will provide a copy to the MS4 and track submission in the project SWP3.

1.13 Contractor will receive an electronic copy of the Storm Water Pollution Prevention Plan (SWP3) for your review and use. Lennar will maintain the eSWP3 and will make it and associated documents readily available to authorities upon request.

1.14 Clearing and/or grading for the utility easements as well as removal of on-site deleterious material and trash shall be included in the base bid cost for site clearing and grading. Contractor is to clear entire project of all underbrush and undesirable vegetation. Contact Owner for extent and sequence of lot clearing and coordination with any applicable tree ordinance.

1.15 Excavated material that is free of organic matter and other deleterious substances may be disposed of on-site. No fill shall be placed within the flood plain without a Flood Plain Development Permit as applicable. Said material will be utilized as fill material for lots and easements as per the Grading Plan and compacted to meet 79G requirements with 95% Standard Density using ASTM 698 or TEX-114E. For fills greater than one (1) foot within building pad area, a 79G Letter will be required with testing complete per eight (8) inch lift. Testing to be paid by the Owner. Contractor shall get owners approval of test lab. Contractor shall pay re-testing due to failure of density requirements. All quantities are “In-place, tight” cubic yards.

1.16 Excavated material placed on lots shall have positive drainage to prevent any ponding of water, and provide a minimum final grade of 1.5% in all areas with the exception of building pads which shall have a minimum final grade of 1.0%.

1.17 Contractor shall submit a letter to Engineer after completion of final grading of utility easements, certifying that the grades on the utility easements are completed as per the grading plan.

1.18 Contractor shall be responsible for disposing of all waste materials off project site including, but not limited to, excess excavation not suitable for use as lot fill, concrete, trees, and any other material which is not part of the completed contract work. No separate pay item.

1.19 Street excavation includes cut in the parkways, as per design plans.

1.20 Contractor will protect existing utilities, structures, curb, fences and sidewalk during construction. Any damage will be repaired by the Contractor at no extra cost.

1.21 The streets are public. The Contractor must coordinate and schedule all testing required by the City of New Braunfels.

1.22 The Contractor will be required to coordinate work with the Utility companies that will be installing electric, telephone and TV.

1.23 The Contractor is responsible for coordinating with Utility companies to mark existing buried utilities that may be affected by construction. The Contractor will be responsible to repair damaged utilities due to construction.

1.24 Contractor to notify City of New Braunfels, Crystal Clear SUD, City of Seguin (Sewer), Guadelupe Valley Electric Co-op, Guadalupe County, AT&T, Time Warner Cable, and/or other appropriate Utility Providers prior to street (subgrade) and/or drain construction.

1.25 The Contractor shall coordinate with the Developer for placement of private conduit.

1.26 The Contractor is responsible for obtaining all final approvals and shall provide Engineer with street and grading "As-builts" at or before the final inspection. Copies of acceptance letters for such shall also be provided to Engineer, as applicable. One year warranty period shall begin at the date of the final acceptance letter as determined and provided by the City. Contractor is responsible for obtaining final approvals prior to the expiration of warranty period for County maintenance.

1.27 The Owner is to provide and pay for the first round of construction staking.

1.28 Water Tie-ins will not be measured and are considered subsidiary to other Water Improvement items.

1.29 Bid is due on or before 11:00 a.m. June 23, 2025. Please submit paper bid proposals to HMT Engineering & Surveying, the office of the engineer Zoe Jasso, P.E.

2. Copies of the Bidding Documents

2.1 Complete sets of the Bidding Documents in the number and for the deposit sum of $100, if any, stated in the Invitation to Bidders may be obtained from the ENGINEER’s Office. Checks for the Plans and Specifications shall be made payable to HMT Engineering and Surveying, Inc.

2.2 Copies of Bidding Documents are made available only for the purpose of obtaining Bids on the Work and do not confer a license or grant for any other use.

2.3 Complete sets of Bidding Documents must be used in preparing Bids; neither OWNER nor ENGINEER assume any responsibility for errors or misinterpretations resulting from the use of incomplete sets of Bidding Documents.

2.4 The Bidding Documents may include reports on the geotechnical, subsurface, physical or environmental conditions which contain information used by the ENGINEER and OWNER. Neither the ENGINEER nor OWNER are responsible for accuracy or completeness of any such information or data. Bidder shall have full responsibility for interpretation of the reports and use of the information for bidding and construction purposes.

3. Bid Security

3.1 No bid security required.

4. Contract Documents

Contract Documents include the Agreement, Addenda, all Conditions (General, Supplementary and Special), specifications and plans, the Bid Proposal, and any written modifications.

5. Defined Terms

Terms used in these Instructions to Bidders which are defined in the Standard General Conditions have the meanings assigned to them in the Standard General Conditions unless modified by the Supplementary and Special Conditions.

6. Bid Proposal Form

6.1 The Bid Proposal Form is included with the Bidding Documents; additional copies may be obtained from the ENGINEER.

6.2 All blanks on the Bid Proposal Form must be completed by printing in ink or by typewriter.

6.3 Bids by corporations must be executed in the corporate name by the president or a vice-president (or other corporate officer accompanied by evidence of authority to sign) and the corporate seal must be affixed and attested by the secretary or an assistant secretary. The corporate address and state of incorporation must be shown below the signature.

6.4 Bids by partnerships must be executed in the partnership name and signed by a partner, whose title must appear under the signature and the official address of the partnership must be shown below the signature. Bids by limited partnerships must be executed by an authorized representative of the general partner on behalf of the general partner.

6.5 All names must be typed or printed in ink below the signature. The address (including County), telephone number, e-mail address (if available), and facsimile number for communications regarding the Bid must be shown.

6.6 The Bid shall contain an acknowledgment of receipt of all Addenda (the numbers of which must be filled in on the Bid Proposal Form).

6.7 Evidence of authority to conduct business as an out-of-state corporation in the state where the Work is to be performed, shall be provided. State Contractor license number, if any, must also be shown.

7. Interpretations and Addenda

7.1 All questions about the meaning or intent of the Bidding Documents are to be directed to ENGINEER. As necessary, interpretations or clarifications will be issued by Addenda mailed or delivered to all parties having received the Bidding

Documents. Questions received less than three days prior to the date for opening of Bids may not be answered. Verbal discussions and answers are not binding.

7.2 Addenda may also be issued to modify the Bidding Documents as deemed advisable by OWNER or ENGINEER.

8. Self Performing

As a condition of this Agreement, the CONTRACTOR is required to self perform at least 60 percent of the work (based on total contract price awarded, complete in place) with personnel directly employed by CONTRACTOR.

9. Subcontractors, Suppliers and Others

9.1 If the Special Conditions require the identity of certain Subcontractors, Suppliers and other persons and organizations (including those who are to furnish the principal items of material and equipment) to be submitted to OWNER prior to the Effective Date of the Agreement, apparent Successful Bidder, and any other Bidder so requested, shall within five days after the Bid opening, submit to OWNER a list of all such Subcontractors, Suppliers and other persons and organizations.

9.2 OWNER reserves the right to reject a proposed subcontractor or supplier at its sole discretion. OWNER may request apparent Successful Bidder to submit an acceptable substitute without an increase in Bid price.

If apparent Successful Bidder declines to make any such substitution, OWNER may award the contract to another Bidder meeting the Bid requirements that proposes to use acceptable subcontractors, suppliers, and other persons and organizations. By declining to make requested substitutes, the apparent Successful Bidder will not sacrifice their Bid security.

9.3 No CONTRACTOR shall be required to employ any subcontractor, supplier, organization against whom CONTRACTOR has reasonable objection.

10. Examination of Contract Documents and Site

10.1 It is the responsibility of each Bidder before submitting a Bid:

10.1.1 To thoroughly examine the Contract Documents and other reports, tests, and drawings identified in the Bidding Documents and Special Conditions. Bidder is instructed to read <u>all</u> Bidding and Contract Documents before completing the bid form. Bidder is advised that failure to read Contract Documents, including without limitation, the General, Supplementary and Special Conditions, does not relieve Bidder from compliance with these documents.

10.1.1.1 Copies of available reports, tests and drawings will be produced by OWNER for review by Bidder on request. OWNER and ENGINEER disclaim any responsibility for the accuracy, true location and extent of surface and subsurface investigations that have been prepared by others.

10.1.1.2 Bidder is responsible for any interpretation or conclusion drawn from any reports, tests, and drawings, or any such data, interpretations, opinions or information, and OWNER and

ENGINEER disclaim any responsibility for such interpretations by Bidders, e.g., without limitation, projecting soil-bearing values, rock profiles, soil stability and the presence, level and extent of underground water or underground facilities.

10.1.1.3 Bidder will be responsible for considering how said reports, tests and drawings may relate to any aspect of the means, methods, techniques, sequences or procedures of construction to be employed by Bidder and safety precautions and programs performing the Work in accordance with the Contract Documents.

10.1.2 To visit the site to become familiar with and satisfy Bidder as to the general, local and site conditions that may affect cost, progress, performance or furnishing of the Work;

10.1.3 To consider Federal, State and local laws and regulations that may affect cost, progress, performance or furnishing of the Work;

10.1.4 To correlate Bidder's knowledge and observations of the site with the Contract Documents and such other related reports, tests and drawings;

10.1.5 To promptly notify ENGINEER of all conflicts, errors, ambiguities or discrepancies which Bidder has discovered in or between the Contract Documents and such other related documents.

10.2 On request, OWNER may provide each Bidder access to the site to conduct such examinations, investigations, explorations, tests and studies as each Bidder deems necessary for submission of a Bid. Bidder shall fill all holes and clean up and restore the site to its former conditions upon completion of such explorations, investigations, tests and studies.

11. Availability of Lands for Work, etc.

The lands upon which the Work is to be performed, rights-of-way and easements for access thereto and other lands designated for use by CONTRACTOR in performing the Work are identified in the Contract 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 the 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 Contract Documents.

12. Substitute and "Or-Equal" Items

All Bids shall be based on work, materials and equipment described in the Drawings or specified in the Specifications without consideration of possible substitute or "or-equal" items. Although the Drawings or Specifications may state a substitute or "or-equal" item of material or equipment may be furnished or used by CONTRACTOR if acceptable to ENGINEER, Bids shall not be based on any substitutions or as equal items. ENGINEER will not consider any application for substitute or as equal 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 Standard General Conditions and may be supplemented in the Special Conditions.

13. Contract Time

The number of calendar days within which, or the dates by which, the Work is to be substantially completed and the Work is to achieve final completion are set forth in the Agreement and in the Special Conditions.

14. Economic Disincentive for Late Completion of Work

The CONTRACTOR and the OWNER agree that time is of the essence of this Contract. The CONTRACTOR and the OWNER agree that the Agreement is based on completion of the Work by CONTRACTOR in the time specified in the Agreement. CONTRACTOR and the OWNER agree that for each and every calendar day the work or any portion thereof shall remain uncompleted after the expiration of the time limit set in the Contract, or as extended under the provisions for Extension of Time in this Contract, CONTRACTOR shall be liable to OWNER for an economic disincentive in an amount specified in the Special Conditions for such calendar day. The OWNER shall have the option to deduct and withhold said amount from any monies that the OWNER owes the CONTRACTOR or to recover such amount from the CONTRACTOR or the Sureties on the CONTRACTOR's bond.

15. Modification and Withdrawal of Bids

15.1 Bids 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 at any time prior to the opening of Bids.

15.2 If, within twenty-four 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, that Bidder will be disqualified from further bidding on the Work to be provided under the Contract Documents.

16. Opening of Bids

This is an open bid.

17. Bids to Remain Subject to Acceptance

17.1 All Bids will remain subject to acceptance for ninety (90) days after the day of the Bid opening, but OWNER may, in its sole discretion, release any Bid and return the Bid security prior to that date.

18. Award of Contract

18.1 If the contract is to be awarded, it will be awarded to the Successful Bidder as evaluated by OWNER. The Bid price shall include such amounts as the Bidder deems proper for overhead and profit.

18.2 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 or figures will be resolved in favor of the words. In case of any ambiguity or lack of clarity in stating the prices in the Bid, OWNER reserves the right to consider the most advantageous construction thereof or reject the Bid.

18.3 OWNER reserves the right to reject any or all Bids, including without limitation the rights to reject any or all nonconforming, non-responsive, unbalanced or conditional Bids. OWNER also reserves the right to waive all irregularities and defects in the Bids and the bidding process, except time of submitting a Bid.

18.4 OWNER may conduct such investigations as OWNER deems necessary to assist in the evaluation of any bid and to establish the responsibility, qualifications and financial ability of bidders, proposed subcontractors, suppliers and other persons and organizations to perform and furnish the Work in accordance with the CONTRACT DOCUMENTS to OWNER's satisfaction. OWNER may require Bidders to submit bank references and financial statements in connection with bid evaluation.

18.5 OWNER may also consider Bidder's (or Bidder's officers', partners', directors', affiliates') (i) prior dealings with OWNER or with any entity responsible for payment to Bidder under this Contract and (ii) the amount, size, number, cost and completion-status of any projects that Bidder currently has underway (including, without limitation, projects underway with OWNER or with any entity responsible for payment to Bidder under this Contract), and the amount, nature and quality of the manpower, materials and equipment available to bidder.

18.6 By submitting a Bid, each Bidder agrees to fully and forever waive and release any claim (known or unknown) it has or may have against the OWNER, DEVELOPER, ARCHITECT and ENGINEER, and their respective attorneys, employees,

consultants, representatives, agents, successors, assigns, officers, directors, and members arising under the statutes of Texas, tort, contract or otherwise; or out of or in connection with the: (i) administration, evaluation, or recommendation (or lack thereof) or any BID; (ii) waiver of any requirements under the Bid Documents or the CONTRACT DOCUMENTS; (iii) acceptance or rejection of any bids; (iv) award of the Contract; and (v) provision of references (positive or negative) in connection with any work performed by Bidder, and Bidder's contractors and subcontractors in connection with the Project and the CONTRACT DOCUMENTS, to which Bidder hereby consents and authorizes.

18.7 If the contract is to be awarded, OWNER will give the Successful Bidder Notice of Award within ninety (90) days after the day of the Bid opening.

18.8 Contractor shall complete substantial construction within 270 days for each unit.

19. Bonds

Standard General Conditions and the Special Conditions set forth OWNER's requirements, if any, as to Bonds. When the Successful Bidder delivers the executed Agreement to OWNER, it must be accompanied by the required payment and performance bonds.

20. Signing of Agreement

When OWNER gives a Notice of Award to the Successful Bidder, it will be accompanied by the required number of unsigned counterparts of the Agreement with all other written Contract Documents attached. Within seven days thereafter CONTRACTOR shall sign and deliver the required number of counterparts of the Agreement and attached documents to OWNER with the required Bonds. Within ten days thereafter OWNER shall deliver one fully signed counterpart to CONTRACTOR.

21. Retainage

The amount of retainage is set forth in the Special Conditions.

22. Sales Tax

22.1 Applicable taxes, licenses, fees and other similar items are part of the cost of the work and it shall be CONTRACTOR's responsibility to familiarize itself with these costs and to observe and comply with the laws and regulations relating to the same. The prices, sums, rates and other charges set forth in the CONTRACTOR's bid shall cover and include all such costs.

22.2 The Special Conditions will indicate if OWNER is exempt from sales tax.

23. Insurance Requirements

CONTRACTOR shall maintain such insurance as specified in the Standard General, Supplementary, and Special Conditions.

24. Estimates of Quantities

Contractor is to perform an independent quantity take-off prior to signing the contract, to verify that the quantities given in the bid proposal are within three percent (3%) of the actual quantities required to complete the construction represented by the plans and specifications. If any quantity is found to be in error of more than three percent (3%), the Contractor shall notify the Engineer seventy-two (72) hours prior to the bid opening.

25. Statement of Qualifications

No statement of qualifications required.

26. Prevailing Wage Rate

Minimum wage rates, if applicable to this Contract, shall be specified in the Special Conditions.

BID PROPOSAL

Date:_____

Bid of _____
(Legal Name of Bidder – Company)

[ ] an individual proprietorship

[ ] a corporation organized and existing under the laws of _____

[ ] a partnership consisting of _____

_____

[ ] a joint venture

[ ] other _____

FOR:

Jaro North Subdivision Unit 4

STREETS, DRAINAGE, WATER & WASTEWATER

TO:

LENNAR HOMES OF TEXAS LAND AND CONSTRUCTION, LTD. ON BEHALF OF LONE OAK MUD
100 NE Loop 410, Suite 1155
San Antonio, TX 78232

PROPOSAL BIDDING SHEET

JARO NORTH SUBDIVISION UNIT 4

STREETS, DRAINAGE, WATER & WASTEWATER

Gentlemen:

Pursuant to the foregoing Invitation and Instructions to Bidders, the undersigned bidder hereby proposes to do all the work for the unit prices bid to furnish all necessary superintendence, labor, machine, equipment, tools, materials, insurance and miscellaneous items, to complete all work according to the bids, as provided in the construction plan and contract documents for the **CONSTRUCTION OF JARO NORTH SUBDIVISION UNIT 4, LONE OAK UTILITY DISTRICT (MUD), STREETS, DRAINAGE, WATER AND WASTEWATER** and clean up the site to the satisfaction of the Owner/Engineer, and bind himself on acceptance of this proposal to execute a contract and bonds for completing said project within the time stated for the following prices, to wit:

JARO NORTH SUBDIVISION UNIT 4

LONE OAK MUNICIPAL UTILITY DISTRICT (MUD)

STREETS, DRAINAGE, WATER & WASTEWATER

ACKNOWLEDGMENT OF RECEIPT OF ADDENDUM

ADDENDUM NO. 1 _____
Signature Date

ADDENDUM NO. 2 _____
Signature Date

ADDENDUM NO. 3 _____
Signature Date

ADDENDUM NO. 4 _____
Signature Date

ADDENDUM NO. 5 _____
Signature Date

ADDENDUM NO. 6 _____
Signature Date

Bid Proposal Summary
Jaro Unit 4 Subdivision Bid Items

4/17/2026
Job No. 337.147

BIDDER'S NAME ..... _____
ADDRESS ..... _____
SIGNATURE AND TITLE ..... _____
DATE ..... _____

BID SUMMARY

SEDIMENT AND EROSION CONTROL	$ _____
SITEWORK	$ _____
STREET IMPROVEMENTS	$ _____
DRAINAGE IMPROVEMENTS	$ _____
SANITARY SEWER IMPROVEMENTS	$ _____
WATER IMPROVEMENTS	$ _____
OPTIONAL BID ITEMS	$ _____
TOTAL BID:	**$** _____

No shrinkage or swelling facor is accounted for in the engineering excavation and embankment quantities. Contractor to adjust unit price as he deems necessary to account for shrinkage and swelling.

***** Includes Bid Bond, 2 year - 10% Warranty Assignments or Bonds, Per City of New Braunfels, and Payment and Performance bond in the amount of bid.

****** Contractor is to perform an independent quantity take-off prior to signing the contract, to verify that the quantities given in the bid proposal are within three percent (3%) of the actual quantities required to complete the construction represented by the plans and specifications. If any quantity is found to be in error of more than three percent (3%), the Contractor shall notify the Engineer forty-eight (48) hours prior to signing the contract.

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Bidders Initials: _____
Date: _____

SEDIMENT AND EROSION CONTROL

ITEM	*DESCRIPTION*	*UNIT*	*QTY.*	*UNIT PRICE*	*COST*
1	Clearing & Grubbing (Drainage lots, offsite channels)	AC	7.1	$	$
2	Clearing & Grubbing for the R.O.W.	AC	7.0	$	$
3	Clearing & Grubbing of residential lots	AC	24.2	$	$
4	Stabilized Construction Entrance	EA	1	$	$
5	Concrete Washout Pit	EA	1	$	$
5	Silt Fence (Phase 1)	LF	5,522	$	$
6	Silt Fence (Phase 2)	LF	9,375	$	$
7	Type 3 Rock Berm	LF	368	$	$
8	Curb Inlet Protection (Filter Dike)	LF	80	$	$
9	Earthen Check Berm	LF	90	$	$
10	Re-vegetation of residential lots*	AC	24.17	$	$
11	Re-vegetation of parkways*	AC	1.49	$	$
12	Re-vegitation of drainage lots*	AC	7.14	$	$
				Total	***$***

* Contractor to establish vegitation prior to acceptance

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****** Commence of Construction:

1. Initial project clearing will need to be limited to the locations of the proposed temporary SWP3 Best Management Practices (BMP) designed by the engineer. These BMPs may include, but are not limited to:
Stabilized Construction Exit(s), Silt Fence, Discharge Point Rock Berms/Check Dams, Trash containment, Temporary Sediment Basins (if applicable), Demarcation of protected site features for exapmle; Wetlands, Environmental Buffers, Caves or Solution Features, and Habitats,
2. Prior to commencement of additional clearing or earth disturbing activities, the proposed BMPs will need to be installed by the Contractor and inspected by a Lennar Representative. Contractor must provide at minimum, 48-hours of notice to Lennar when the BMPs are scheduled to be installed and completed. The Lennar Representative will coordinate the Land Development Manager to release the project for construction.
When the project is located within the Bexar County controlled MS4, the Contractor must provide 48-hours of notice to the assigned Bexar County SWP3 Inspector noted on the Storm Water Quality (SWQ) permit letter.
3. When a Temporary Sediment Basin is required for the project, limited clearing of the proposed basin location and any material borrow areas to construct the Temporary Sediment Basin may occur during the initial BMP installation period. The Temporary Sediment Basin must be completely constructed to Engineer's design. This may include the following; Construction of the dewatering structure (Riser Pipe or Fair Cloth Skimmer and pump), Construction of the Emergency Overflow Structure, Installation of a sediment depth marker. Note-Once accessible to appropriate equipment, the only the Temporary Sediment Basin berms/slopes shall be temporarily stabilized.
4. General Contractor is to maintain all pollution control measures in effective operating condition throughout the contract period to the extent achievable. To ensure BMPs are operating effectively, and in accordance with the Construction General Permit, Lennar will provide regular and if applicable, post-rain event BMP inspections and inspection reports. The General Contractor will be provided an electronic copy of the BMP inspection report via email. weekly regarding issues with BMPs at the project through the Lennar SWP3 Inspection process. Items noted in the BMP Inspection report must be addressed by the General Contractor as soon as possible, and within 7 calendar days. General Contractor shall provide documentation to the assigned Lennar Land Development Project Manager to include:
a. Actions taken in response to the BMP inspection report and date(s) the actions were completed or,
b. Statement of extenuating circumstance as to why an item could not be completed within the 7-day timeframe and proposed scheduled date of completion.
5. Contractor to maintain Spill Response Supplies/Kit at the project location while actively working onsite.
6. When dewatering activities disccharge into onsite creeks or rivers, or discharge outside the limits of construction, daily dewatering inspections must be documented in accordance with the 03.05.2023 TCEQ Construction General Permit. Daily report must be sent to Lennar within 24-hours.

Bidders Initials: _____
Date: _____

Bid Proposal Summary
Jaro Unit 4 Subdivision Bid Items

4/17/2026
Job No. 337.147

SITEWORK

ITEM	*DESCRIPTION*	*UNIT*	*QTY.*	*UNIT PRICE*	*COST*
1	ROW Excavation	CY	10,776	$	$
2	ROW Embankment	CY	7,123	$	$
3	Drainage Excavation	CY	12,371	$	$
4	Drainage Embankment	CY	324	$	$
5	Lot Excavation	CY	17,486	$	$
6	Lot Embankment*	CY	42,223	$	$
7	Haul Excess Spoils to Navarro West**	CY	10,104	$	$

* Accounts for 10,135 CY of soil embanked Block 14 during Construction of Unit 2, refer to the exhibit and CAD file included in the bid package

* includes 19,141 CY of soils stockpiled from Jaro 2 and 3 grading

TOTAL ***$*** _____

Contractor to field verify and survey the existing site topography. No shrinkage or swelling factor is accounted for in the engineering excavation and embankment quantities. Contractor to adjust unit price as he deems necessary to account for shrinkage and swelling.

* All final lot grading shall be compacted in accordance with notes on the Lot Grading Plan, Sheets 3.0-3.2

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Bidders Initials: _____

Date: _____

Bid Proposal Summary
Jaro Unit 4 Subdivision Bid Items

4/17/2026
Job No. 337.147

STREET IMPROVEMENTS

ITEM	*DESCRIPTION*	*UNIT*	*QTY.*	*UNIT PRICE*	*COST*
Streets					
1	Tie to existing street	EA	2	$	$
2	Concrete Curb and Gutter	LF	11,972	$	$
3	3" HMAC Type 'D'	SY	18,633	$	$
4	12" Flex Base (Residential)	SY	25,273	$	$
5	8" Lime Treated Subgrade (Residential)	SY	25,273	$	$
6	Prime Coat (0.2 GAL/SY) (Residential)	GAL	3,727	$	$
7	4' Sidewalk	SY	236	$	$
8	Signage	LS	1	$	$
9	Sidewalk Ramps	EA	54	$	$
10	End of Road - Includes Markers, Bollards, and Header Curb	EA	3	$	$

TOTAL ***$*** _____

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Date: _____

DRAINAGE IMPROVEMENTS

ITEM	DESCRIPTION	UNIT	QTY.	UNIT PRICE	COST
Channel B					
1	Install Class 1 TRM	SY	2,498	$	$
2	3-36" RCP	LF	51	$	$
3	3-36" CD-CH-PW0-20 Headwall	EA	1	$	$
	3-36" & 42" CD-CH-PW0-20 Headwall	EA	1	$	$
3	2'X4' Box Culvert	LF	89	$	$
4	4'X2' PW Headwall	EA	2	$	$
5	6" Reinforced 3000 PSI Concrete Rip Rap w/ #3 BARS 18" O.C.E.W.	SY	518	$	$
				SUBTOTAL	***$***
Channel B2					
1	30" RCP Class IV	LF	67	$	$
2	30" RH-15 Headwall	EA	1	$	$
3	30" Pipe TXDOT CH-PW-O Headwall	EA	1	$	$
4	6" Reinforced 3000 PSI Concrete Rip Rap	SY	71	$	$
				SUBTOTAL	***$***
Storm B3					
1	42" RCP Class III	LF	63	$	$
2	30" RCP Class IV	LF	35	$	$
3	10' Curb Inlet	EA	1	$	$
4	10' Modified Curb Inlet	EA	1	$	$
5	5'X5' JB	EA	1	$	$
				SUBTOTAL	***$***
Storm B4-1					
1	6" Reinforced 3000 PSI Concrete Rip Rap w/ #3 BARS 18" O.C.E.W.	SY	61	$	$
2	36" RCP Class III	LF	35	$	$
3	2-36" RCP Class III	LF	159	$	$
4	15' Curb Inlet	EA	2	$	$
				SUBTOTAL	***$***
Storm B5					
1	6" Reinforced 3000 PSI Concrete Rip Rap w/ #3 BARS 18" O.C.E.W.	LF	53	$	$
2	RH-15 Headwall W/ S.E.T.	EA	1	$	$
3	2'X2' S.B.C.	LF	192	$	$
4	Install 18" Steel Casing for 8" Water Main	LF	19	$	$
5	15' Curb Inlet	EA	2	$	$
				SUBTOTAL	***$***

Bid Proposal Summary
Jaro Unit 4 Subdivision Bid Items

4/17/2026
Job No. 337.147

TOTAL ***$*** _____

* Note Earthwork Quantites are included w/ Excavation and Embankment

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Bidders Initials: _____
Date: _____

SANITARY SEWER IMPROVEMENTS

ITEM	*DESCRIPTION*	*UNIT*	*QTY.*	*UNIT PRICE*	*COST*
1	8" SDR Sanitary Sewer Pipe				
	8" SDR 26 (0'-6')	LF	-	$	$
	8" SDR 26 (6'-8')	LF	2,429	$	$
	8" SDR 26 (8'-10')	LF	2,680	$	$
	8" SDR 26 (10'-12')	LF	667	$	$
	8" SDR 26 (12'-14')	LF	175	$	$
	8" SDR 26 (14'-16')	LF	-	$	$
	8" SDR 26 (16'-18')	LF	-	$	$
2	*6" Sanitary Sewer Lateral (Extended to U.E.)	LF	5,326	$	$
3	6" Sanitary Sewer Lateral Vertical Stack	VF	24	$	$
4	Standard Manhole	EA	20	$	$
5	Drop Manhole	EA	3	$	$
6	Manhole Extra Depth (>8')	VF	27	$	$
7	Tie into Existing 8" Stub Out & Remove Cleanout and 8" CAP	EA	1	$	$
8	Tie into Existing Manhole	EA	1	$	$
9	Cap and Mark line	EA	1	$	$
10	Mandrel and Vacuum Testing	LS	1	$	$
11	Trench Excavation Protection	LF	5,951	$	$
12	TV / Video Sewer Line	LF	5,951	$	$

TOTAL ***$*** _____

* Unit cost of 6" Sanitary Sewer Lateral shall include trench excavation protection and 6" cleanout at property line.

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Bidders Initials: _____

Date: _____

Bid Proposal Summary
Jaro Unit 4 Subdivision Bid Items

WATER IMPROVEMENTS

ITEM	*DESCRIPTION*	*UNIT*	*QTY.*	*UNIT PRICE*	*COST*
1	Remove 2" Flush Valve and Connect to Existing 8" Water	EA	2	$	$
2	8" DI	LF	641	$	$
3	8" PVC C-900	LF	6,091	$	$
4	Trench Excavation Safety Protection	LF	6,732	$	$
5	Hydrostatic Testing	LS	1	$	$
6	Fire Hydrant Assembly	EA	10	$	$
7	5/8" Short Single Water Service	EA	14	$	$
8	5/8" Long Single Water Service	EA	4	$	$
9	5/8" Short Double Water Service	EA	62	$	$
10	5/8" Long Double Water Service	EA	37	$	$
11	5/8" Domestic Meter Boxes	EA	216	$	$
12	2" Permanent Flush Valve	EA	4	$	$
13	8" Gate Valve w/boxes	EA	50	$	$
14	Pipe Fittings	TN	3.60	$	$
15	24" Steel Casing for 8" Water Main at Storm and Channel Crossings	LF	187	$	$
16	24" DR 25 PVC Casing at Vista Ridge Pipeline Crossing	LF	15	$	$

TOTAL **$ -**

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Bidders Initials: _____

Date: _____

OPTIONAL BID ITEMS

ITEM	*DESCRIPTION*	*UNIT*	*QTY.*	*UNIT PRICE*	*COST*
Dry Utilities					
1	(5) 2 1/2" PVC	LF	1,499	$	$
2	(3) 2 1/2" PVC	LF	270	$	$
3	(4) 4" PVC	LF	114	$	$
4	(1) 2 1/2" PVC for GVEC Fiber	LF	114	$	$
5	(2) 2 1/2" PVC for GVEC Fiber	LF	162	$	$
6	(8) 4" PVC	LF	162	$	$
8	2-4" PVC for Spectrum and Hotwire Fiber	LF	2,321	$	$

TOTAL **$** _____

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******* A GVEC electric design has been included in the bid package. The contractor will be responsible for bidding all conduits shown as well as the additional 4" PVC pipes called out at each crossing location to be used by Hotwire and Spectrum. The PVC crossings are assumed to be 54 LF across 50' ROWs and 64' across 60' ROWs.

Bidders Initials: _____

Date: _____

Lennar Homes of Texas Land and Construction, LTD. On Behalf of

Jaro North Subdivision Unit 4

Lone Oak MUNICIPAL UTILITY DISTRICT (MUD)

WORK AGREEMENT No. _____

TO LAND BASE MASTER TRADE PARTNER AGREEMENT No. _____

CONTRACTOR'S STATE LICENSE No: _____
SUBCONTRACTOR'S STATE LICENSE No: _____

REGIONAL OPERATIONS CENTER: Grove
DIVISION OFFICE: San Antonio
WORK DESCRIPTION: _____
OWNER: _____
CONSTRUCTION LENDER: _____
PROJECT NAME: Jaro North Subdivision Unit 4, Lone Oak Municipal Utility District (MUD)
WORK AGREEMENT AMOUNT: _____

This Work Agreement to the Land Base Master Trade Partner Agreement (the "Work Agreement") is entered into _____ by and between Lennar Homes of Texas Land & Construction, LTD (a Texas Limited Partnership) on behalf of Lone Oak MUD ("Contractor"), whose address is 100 NE Loop 410, Suite 1155, San Antonio Texas 78232, and telephone number is (830) 914-2000, and _____ _____ ("Subcontractor"), whose address is _____ , and telephone number is _____.

RECITALS

A. Contractor and Subcontractor entered into that certain Land Base Master Trade Partner Agreement on or about _____, Contract No. _____(the "Agreement"). As used herein, and except as hereby expressly provided, all capitalized words and phrases shall have the same meanings as defined in the Agreement.

B. Contractor desires to have Subcontractor perform work within the Project referenced above (the "Project") as set forth in Subcontractor's bid package for the Project, which was submitted to Contractor via Contractor's electronic bid system, and is hereby approved by Contractor and incorporated herein by reference (the "Work").

C. Contractor and Subcontractor desire to amend the Agreement as more particularly set forth herein.

TERMS AND CONDITIONS

NOW, THEREFORE, in consideration of the foregoing recitals, and the covenants and conditions contained herein, and for other good and valuable consideration, the receipt of which is hereby acknowledged, Contractor and Subcontractor hereby agree to amend the Agreement as follows:

1. Contractor's Scope of Work is set forth in Exhibit "A" hereto.

2. Pricing is established in the "Pricing Schedule (Basis of Contract and Progress Billing Sheet)" attached hereto as Exhibit "B".

3. The Project Location shall be as set forth in Exhibit "C" hereto.

4. The List of Sub-subcontractors shall be as set forth in Exhibit “D” hereto.

5. The Plans and Specifications for the Work shall be as set forth in Exhibit “E” hereto.

6. The Construction Schedule shall be as set forth in Exhibit “F” hereto.

7. Work approved for construction is set forth in Subcontractor’s bid package for the Project described above.

8. Prior to commencing the Work, Subcontractor shall comply with all insurance requirements set forth in Schedule “4” to the Agreement which requirements are incorporated herein by this reference as though set forth herein, including, without limitation and if applicable, the “OCIP Addendum” if attached thereto. If the “Insurance Requirements” are added to or amended by this Work Agreement, they are set forth in the “Modified Insurance Requirements” attached hereto as Exhibit “G”.

9. The Pricing Schedule attached hereto shall be effective on the date set forth above. Any changes to the Work, or the Pricing Schedule, shall become effective only upon execution by all parties hereto of an amendment to the Work Agreement (the “Amendment”). Subcontractor Rates and Rental Rates are as set forth in Exhibit “H” hereto.

10. Contractor may, from time to time, issue written notices to proceed/purchase order requests identifying specific locations on which the Work is to be performed (“Scheduling Notice”, “Received Order”, or “Notice to Proceed”). Contractor shall have no obligation to issue any Scheduling Notice(s) during the term of this Work Agreement. **THIS WORK AGREEMENT IS NOT AN AUTHORIZATION TO PROCEED WITH WORK, AND SHALL NOT BECOME EFFECTIVE WITH RESPECT TO THE WORK OF SUBCONTRACTOR UNLESS AND UNTIL CONTRACTOR ISSUES SCHEDULING NOTICE(S) TO SUBCONTRACTOR AUTHORIZING THE SPECIFIC WORK OF SUBCONTRACTOR TO BE PERFORMED, AND THIS WORK AGREEMENT SHALL BE BINDING ONLY AS TO THE WORK SO AUTHORIZED BY CONTRACTOR. SUBCONTRACTOR SHALL PERFORM NO WORK WITHOUT RECEIVING CONTRACTOR’S WRITTEN SCHEDULING NOTICE(S) FOR SUCH WORK. SUBCONTRACTOR AGREES TO COMMENCE SUCH WORK AS MAY BE AUTHORIZED BY CONTRACTOR BY MEANS OF EACH SCHEDULING NOTICE(S), AND SUCH SCHEDULING NOTICE(S) SHALL BE EFFECTIVE IMMEDIATELY UPON ISSUANCE BY CONTRACTOR WITHOUT NEED FOR FURTHER ACCEPTANCE THEREOF BY SUBCONTRACTOR.** If the Work authorized by a Scheduling Notice is not commenced on the date specified in the Scheduling Notice, Contractor may, in its sole discretion, declare such Scheduling Notice null and void. Contractor may, but shall not be obligated to, furnish Subcontractor with a progress schedule for all or any portion of the Work which, if furnished, may be amended from time to time by Contractor and shall be considered a part of this Work Agreement. Subcontractor acknowledges that neither this Work Agreement nor the issuance by Contractor of a progress schedule constitute any representation by Contractor that a minimum or specified number of Scheduling Notices will be issued. As to that portion of the Work covered by a Scheduling Notice, such schedule shall control over any other provision of this Work Agreement or progress schedule regarding time for performance.

Except to the extent the Agreement is supplemented by this Work Agreement or such other Work Agreements that may have been entered into by the parties hereto pursuant to the Agreement, the terms and conditions of the Agreement shall remain unmodified and in full force and effect. In the event of conflict between the terms and conditions of the Agreement and the terms and conditions of this Work Agreement, the terms and conditions of this Work Agreement shall prevail, but only with respect to the Work covered hereby.

[Signatures on following page]

IN WITNESS WHEREOF, the parties hereto have executed this Work Agreement as of the day and year first above written.

Lennar Homes of Texas Land & Construction, LTD (a Texas Limited Partnership) on behalf of Jaro North Subdivision Unit 4, Lone Oak MUD
"Contractor"

By: _____

Name: Brian Barron

Title: Division President .

By: _____

Name: _____
Title: _____

By: _____

License No.: _____

_____
"Subcontractor"

By: _____

Name: _____

Title: _____

By: _____

Name: _____
Title: _____

Fed. I.D. No.: _____
License No.: _____

Exhibits to Work Agreement

Exhibit “A” Scope of Work
Exhibit “B” Pricing Schedule (Basis of Contract and Progress Billing Sheet)
Exhibit “C” Project Location
Exhibit “D” List of Sub-subcontractors
Exhibit “E” Plans and Specifications
Exhibit “F” Construction Schedule
Exhibit “G” Modified Insurance Requirements / OCIP Exhibit (if applicable)
Exhibit “H” Subcontractor Rates and Rental Rates
Exhibit “I” De-Watering Form

EXHIBIT “A” TO WORK AGREEMENT
SCOPE OF WORK

EXHIBIT “B” TO WORK AGREEMENT
PRICING SCHEDULE
(BASIS OF CONTRACT AND PROGRESS BILLING SHEET)

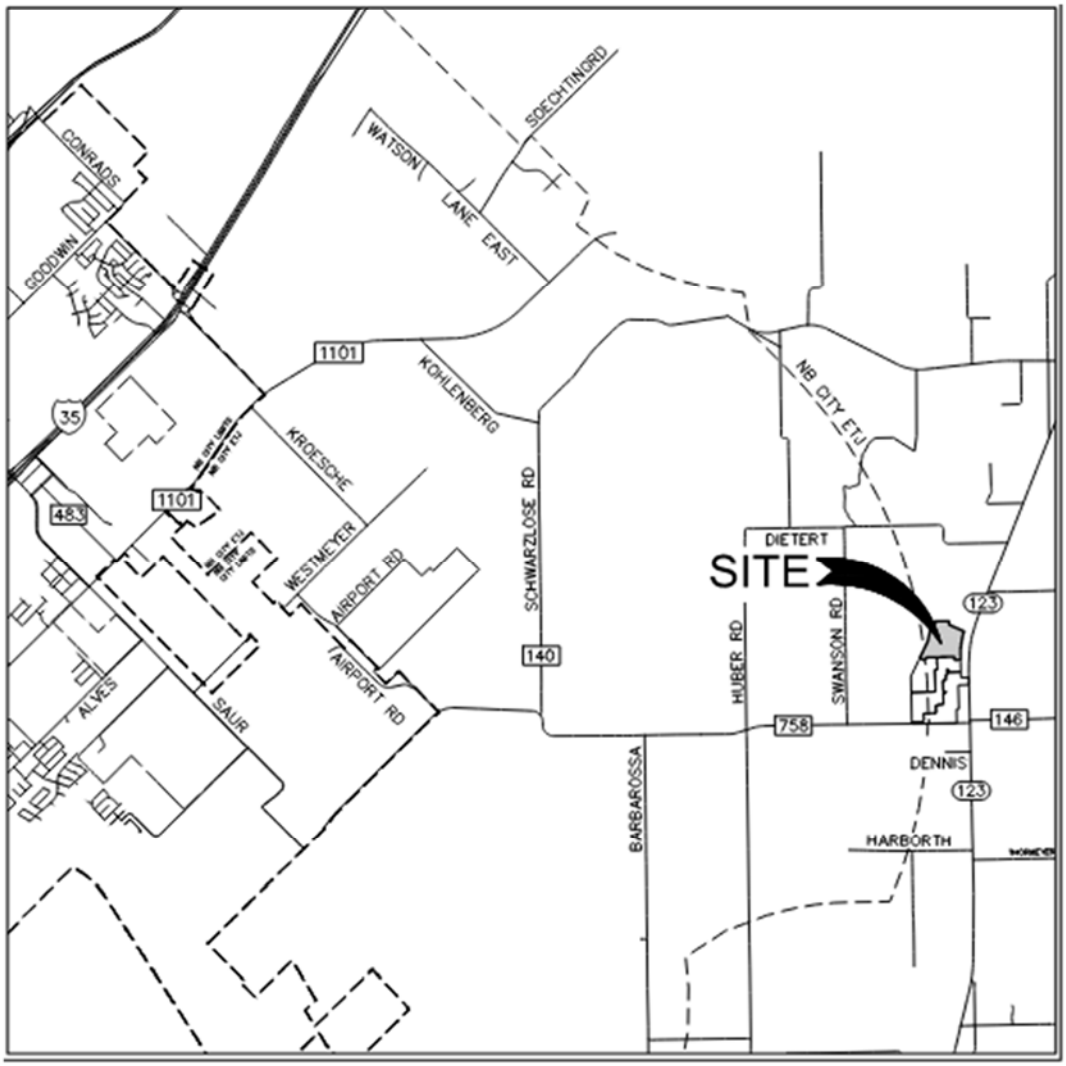
EXHIBIT "C" TO WORK AGREEMENT
PROJECT LOCATION

Real Property in New Braunfels ETJ, County of Guadalupe State of Texas described as follows:

FINAL PLAT ESTABLISHING

JARO NORTH, UNIT 4

38.301 TOTAL ACRES OF LAND LOCATED IN THE A.M. ESNAURIZAR SURVEY, ABSTRACT NO. 20, AND THE W.J. RAGSDALE SURVEY, ABSTRACT NO. 268, GUADALUPE COUNTY, TEXAS, CONSISTING OF A CALLED 55.967 ACRE TRACT RECORDED IN DOCUMENT NO. 202299029989, AND A CALLED 84.585 ACRE TRACT RECORDED IN DOCUMENT NO. 202299019628, OFFICIAL PUBLIC RECORDS, GUADALUPE COUNTY, TEXAS.



PROJECT LOCATION MAP SCALE: N.T.S.

LENNAR.

EXHIBIT “D” TO WORK AGREEMENT
LIST OF SUB-SUBCONTRACTORS

(Labor, Materials, Equipment, Supplies and/or Supervision)

List below the name and business address of each Sub-subcontractor approved by Contractor who will perform any portion of the Work under the Agreement. Also list the portion of the Work which will be done by such Sub-subcontractor. The listing of more than one Sub-subcontractor for each item of Work to be performed with the words "and/or" is not permitted.

WORK TO BE PERFORMED	% OF TOTAL CONTRACT	SUB-SUBCONTRACTOR'S NAME AND ADDRESS

EXHIBIT "E" TO WORK AGREEMENT
PLANS AND SPECIFICATIONS

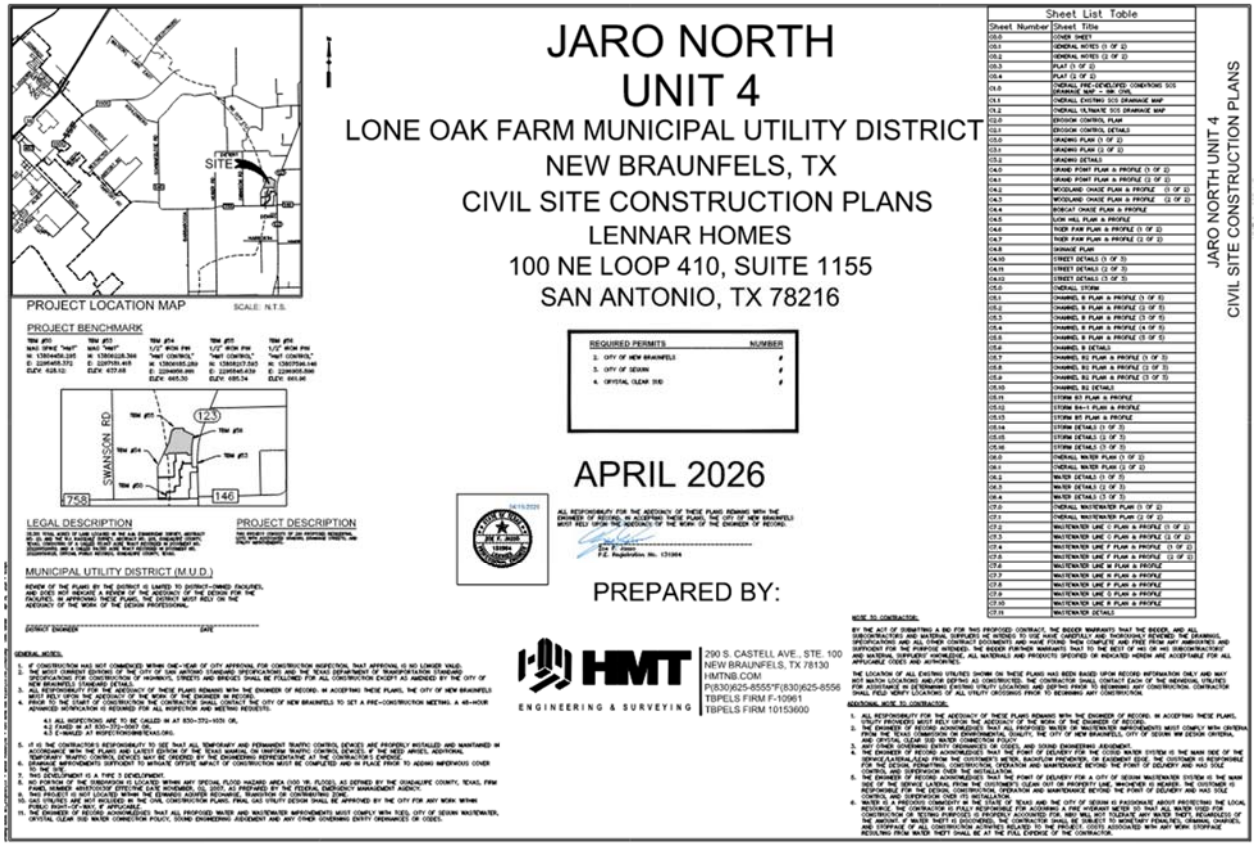


EXHIBIT “F” TO WORK AGREEMENT
CONSTRUCTION SCHEDULE

EXHIBIT “G” TO WORK AGREEMENT

MODIFIED INSURANCE REQUIREMENTS / OCIP EXHIBIT (if applicable)

EXHIBIT “H” TO WORK AGREEMENT
SUBCONTRACTOR RATES AND RENTAL RATES

In the event that additional work is undertaken which is not covered by the Agreement and Subcontractor elects to proceed on a "time and material" or cost plus basis, the rates provided below shall prevail. Rates shall include all labor and equipment to complete the Work. The rates shall be billing rates, with no further markups to be added, and all equipment shall include fuel, lubrication, operation and all maintenance. No overtime premium will be paid on equipment. Subcontractor’s performance of any such work on a "time and material" or cost plus basis shall be subject to the provisions of Section 11 of the Agreement.

EXHIBIT “I” DE-WATERING FORM

LENNAR®

Texas Construction Dewatering Discharge Form

Observe and evaluate the dewatering controls at a minimum of once per day while the dewatering discharges occur from the construction site. Complete this form within 24 hours following the evaluation. Keep hard copy in the SWPPP.

A. General Information

Community:	TPDES Permit No.:	Evaluation Date:
Name:		
Title:		

B. Complete the following items for each active construction dewatering discharge onsite.

General Comments:

Dewatering Discharge Location: _____

Approximate times the dewatering discharge began and ended today. *(If the dewatering discharge is a continuous discharge that continues after normal business hours, just check the box labeled 'Continuous'.)*	Time discharge began today: _____ Time discharge ended today: _____ ☐ Continuous
Estimate of the rate of discharge during this inspection.	_____ gallons per day
Did you observe any indications of pollutant discharge at the point of discharge (e.g., foam, oil sheen, noticeable odor, floating solids, suspended sediments, or other obvious indicators of stormwater pollution)?	☐ Yes ☐ No If Yes, document observations and actions needed in the table below. If No, proceed to the Certification and Signature section.

In the below table describe locations where erosion and discharges of sediment or other pollutants from the site have occurred; locations of BMPs that need to be maintained; locations of BMPs that failed to operate as designed or proved inadequate for a particular location; and locations where additional BMPs are needed. Document, initial, & date when the action taken has been completed on this page.

Date Noted:	**Description & Precise Location of Action Required Item(s):**	**Action Taken:**	**Date Actions Taken & Initial:**

Were any incidents of non-compliance observed during this construction dewatering discharge inspection? ☐ Yes ☐ No
If Yes, describe the incident(s): when, where, and why it happened; what action(s) was taken and when. Be specific.

Certification and Signature by BMP Inspector:

Check the following box if correct: ☐ There were no incidents of non-compliance noted during the inspection. The construction site is in compliance with the SWPPP and the Texas Construction General Permit.

By inserting my electronic signature below, I intend to sign this document and I hereby acknowledge and agree that my signature is being provided electronically and that my electronic signature and/or initials appearing on this report are the same as if I had affixed my original handwritten signature for the purpose of validity, enforceability, and admissibility. I acknowledge that I have access to this report.

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

Inspected By (Print Name): _____ Title: _____

Signature: _____ Date: _____

Company: _____

Certification and Signature by Permittee or "Duly Authorized Representative":

Check the following box if correct: ☐ There were no incidents of non-compliance noted during the inspection. The construction site is in compliance with the SWPPP and the Texas Construction General Permit.

By inserting my electronic signature below, I intend to sign this document and I hereby acknowledge and agree that my signature is being provided electronically and that my electronic signature and/or initials appearing on this report are the same as if I had affixed my original handwritten signature for the purpose of validity, enforceability, and admissibility. I acknowledge that I have access to this report.

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

Signature of Permittee or
"Duly Authorized Representative":

Print Name: _____ Title: _____

Signature: _____ Date: _____

[This area intentionally left blank.]

SCHEDULE "2" TO MTPA (LAND) BASE AGREEMENT
NOTICE TO PROCEED/SCHEDULING NOTICE

Notice is hereby given by Contractor's Representative that on this _____day _____, **20__**, _ ("Subcontractor"), is directed to commence construction of Work pursuant to Work Agreement No. ____, under MTPA (Land) Base Agreement Contract No. SAN_____("Agreement").

Subcontractor has **300** working days from this date within which to complete the Work as set forth in the Agreement. Time is of the essence with respect to the Agreement and, accordingly, Subcontractor promises to complete the Work within the specified period of time or be liable for liquidated damages, as stipulated in the Agreement.
[Include clear description of work to be completed, plans w/ dates, reports etc.]

Agreed to and accepted this **___ day of _____, 20__.**

_____

By: _____

Name: _____

Title: _____

Lennar homes of Texas Land Construction, LTD on behalf of Jaro North Subdivision Unit 4, Lone Oak MUD

_____

By: _____

Name: Brian Barron

Title: Division President

JARO NORTH SUBDIVISION UNIT 4
LONE OAK MUD

Technical Specifications

New Braunfels, Texas
April 2026

04/16/2026

Prepared by:

HMT
ENGINEERING & SURVEYING

290 S. Castell Avenue, Ste 100,
New Braunfels, TX 78130
(830) 625-8555
TBPELS FIRM F-10961
TBPELS FIRM 10153600

TECHNICAL SPECIFICATIONS TABLE OF CONTENTS	
Section	Title
0	Cover Sheet
0.01	Table of Contents
Section 1	**Technical Specifications**
1.04	General
1.05	Site Conditions
1.06	Contractor Use of Premises
1.07	Control of Work
1.08	Submittals
1.09	Change Management
1.10	Application for Payment Procedures
1.11	Execution and Close-Out

SECTION 1.04 - GENERAL

CITY OF NEW BRAUNFELS ETJ – JARO NORTH SUBDIVISION UNIT 4 – LONE OAK MUD

PART 1: GENERAL

1.01 SCOPE OF WORK

The work covered by these Specifications consists of furnishing all labor, equipment, machinery and materials and performing all operations in connection with the construction street and sidewalk improvements.

This work shall be awarded under one contract and shall include demolition; street full depth repairs, street mill, construction of concrete curbs, construction of concrete sidewalks, street overlay, and structures and appurtenances in accordance to the terms and conditions of the Contract Documents.

1.02 GOVERNING SPECIFICATIONS

Additional specifications to be included as part of these Contract Documents are as follows:

- City of New Braunfels
- TxDOT
- City of Seguin (Sewer)
- Crystal Clear Special Utility District (Water)
- Guadelupe Valley Electric Co-op (Electric)
- TCEQ

Any discrepancies between these specifications shall be resolved by the engineer prior to proceeding with construction.

1.03 CONSTRUCTION SITE

During construction, the Contractor shall keep the site free and clean from all rubbish and debris and shall clean-up the site promptly when notified to do so by the Engineer.

The Contractor shall, at his own expense, maintain streets free from dust, mud, excess earth or debris which constitutes a nuisance or danger to the public using the thoroughfare or the occupants of adjacent properties.

Care shall be taken to prevent spillage on streets over which hauling is done, and any such spillage or debris deposited on streets, due to the contractor's operations, shall be immediately removed.

1.04 BACKWORK

The Contractor shall coordinate his operations in such a manner as to prevent the amount of clean-up and completion of back work from becoming excessive. Should such a condition exist, the Engineer may order all or portions of the work to cease and refuse to allow any work to commence until the back work is done to the Engineer's satisfaction.

1.05 GRADING

The Contractor shall do such grading in the area adjacent to backfilled trenches and structures as may be necessary to leave the area in a neat and satisfactory condition approved by the Engineer.

1.06 INSPECTION OF WORK

The work covered under this Contract shall be inspected by the Engineer or the owner's authorized representative. The quality of material and the quality of installation of pipe and related equipment shall be to the satisfaction of the Inspector. It shall be the Contractor's responsibility for the construction methods and safety precautions in the undertaking of this Contract.

1.07 NOTIFICATION

The Engineer and Owner must be notified a minimum of 48-hours in advance of beginning construction.

1.08 CONSTRUCTION STAKING

The Engineer shall provide a minimum of one benchmark at each project site.

The Contractor shall provide his own construction staking. No additional payment shall be provided for construction staking. Related costs will be subsidiary to other payment items.

1.09 TESTING AND ACCEPTANCE OF IMPROVEMENTS

The Engineer and Owner representatives will be present at the testing of water and wastewater facilities. The Contractor will test all lines and be confident that the lines will be able to pass the test prior to calling the Engineer to observe the tests. No lines will be accepted by the Owner without the Engineer observing the tests and certifying to the lines passing the pressure tests as specified herein.

1.10 WORK IN FREEZING WEATHER

Portions of the work may continue as directed by the Engineer.

1.11 PROPERTY LINES AND MONUMENTS

The Contractor shall be responsible for the protection referred and resetting corner monuments if disturbed.

1.12 CONTRACTOR'S USE OF PREMISES

All proposed work is within existing Right of Way or easements. Should the contractor desire additional workspace, it will be the contractor's responsibility to procure said additional workspace.

1.13 TRADE NAMES

Except as specified otherwise, wherever in the Specifications an article or class of materials is designated by a trade name or by the name or catalog number of any marker, patentee, manufacturer, or dealer, such designated shall be taken as intending to mean and specify the articles described or another equal thereto in quality, finish, and serviceability for the purpose intended, as may be determined and judged by the Engineer in his sole discretion.

1.14 MATERIALS AND WORKMANSHIP

No material which has been used by the Contractor or any temporary purpose whatever is to be incorporated in the permanent structure without written consent of the Engineer. Where materials or equipment are specified by a trade or brand name, it is not the intention of the Owner to discriminate against an equal product of another manufacturer, but rather to set a definite standard of quality for performance, and to establish an equal basis for the evaluation of bids. Where the words "equivalent", "proper", or "equal to" are used, they shall be understood to mean that the item referred to shall be proper, the equivalent of, or equal to some engineer. Unless otherwise specified, all materials shall be the best of their respective kinds and shall be in all cases fully equal to approved samples. Notwithstanding that the words "or equal to" or other such expressions may be used in the specifications in connection with a material, manufactured article or process, the material, article or prices specifically designated shall be used, unless a substitute shall be approved in writing by the Engineer, and the Engineer shall have the right to require the use of such specifically designated materials, article or process.

1.15 MEASUREMENT AND PAYMENT

No separate payment for work performed under this item. Include cost of the same in contract price for all items of which this work is a component.

END OF SECTION

SECTION 1.05 - SITE CONDITIONS

CITY OF NEW BRAUNFELS ETJ – JARO NORTH SUBDIVISION UNIT 4 – LONE OAK MUD

PART 1: GENERAL

1.01 SUBSURFACE INFORMATION

A. The Contractor shall be responsible for any subsurface explorations and tests he deems necessary.

1.02 SITE INVESTIGATION AND REPRESENTATION

A. The Contractor acknowledges that he has satisfied himself as to the nature and location of the work; the general and local conditions, particularly those bearing upon availability of transportation, disposal, handling and storage of materials, availability of labor, water, electric power, roads, and uncertainties of weather, river/stream stages, or similar physical conditions at the site, the conformation and conditions of the ground; the character of equipment and facilities needed preliminary to and during the execution of the work and all other matters which can in any way affect the work or the cost thereof under the Contract.

B. The Contractor further acknowledges that he has satisfied himself as to the character, quality, and quantity of surface and subsurface materials to be encountered from inspecting the site and from evaluating information derived from exploratory work that has been done by the Owner as presented in the geotechnical report, as well as from information presented herein as a part of these Contract Documents. Any failure by the Contractor to acquaint himself with all the available information will not relieve him from responsibility for properly estimating the difficulty or cost of successfully performing the work. Neither the Owner nor the Engineer assume responsibility for any conclusion or interpretation made by the Contractor on the basis of the information made available by the Owner or the Engineer.

C. Existing ground profiles shown on the Plans were plotted from field surveys.

1.03 RESPONSIBILITY FOR UTILITY PROPERTIES AND SERVICE

A. Known utilities and structures adjacent to or encountered in the work are shown on the Drawings. The locations shown are taken from existing records and the best information available from existing plans; however, it is expected that there may be some discrepancies and omissions in the locations and quantities of utilities and structures shown. Those shown are for the convenience of the Contractor only, and no responsibility is assumed by either the Owner or the Engineer for their accuracy or completeness.

B. Neither the Owner nor his officers or agents shall be responsible to the Contractor for damages as a result of the Contractor's failure to protect utilities encountered in the work.

C. The Contractor shall at all times provide unobstructed access to fire hydrants, underground conduit, manholes, and water or gas valve boxes.

D. Where the Contractor's operations could cause damage which might result in considerable expense, loss, and inconvenience when his operations are adjacent to or near railway, telegraph, telephone, television, power, oil, gas, water, sewer, irrigation, or other systems, no

operations shall be commenced until the Contractor has made all arrangements necessary for the protection of these utilities and services.

E. The Contractor shall notify all utility offices that are affected by the construction operation at least 15 days in advance of commencing construction operations. The Contractor shall not expose any utility without first obtaining permission from the affected agency. Once permission has been granted, locate and, if necessary, expose and provide temporary support for all existing underground utilities in advance of operations.

F. The Contractor shall be solely and directly responsible to the Owners and operators of such utility properties for any damage, injury, expense, loss, inconvenience, delay, suits, actions, or claims of any character brought because of any injuries or damage that may result from the construction operations under this Contract.

G. In the event of interruption to domestic water, sewer, storm drain, or other utility services as a result of accidental breakage due to construction operations, the Contractor shall promptly notify the proper authority and cooperate with said authority in restoration of service as promptly as possible and bear all costs of repair. In no event shall interruption of any water or utility service be allowed unless prior approval is granted by the owner of the utility.

H. The Contractor shall replace, at his own expense, any and all other existing utilities or structures removed or damaged during construction, unless otherwise provided for in these Contract Documents.

I. Where existing utility lines or structures are so located as to physically conflict with permanent structures to be constructed under this Contract, the conflicting utility line or structure shall be permanently relocated. Such relocations shall be considered as required by their CONTRACT.

J. The Contractor shall give immediate notice to the Engineer, the Owner and the owner of the utility (where applicable) when a physical conflict is determined to exist. The actual relocation of a public utility will be accomplished by the owner of the utility at his expense unless otherwise specified in these Contract Documents. Any delays resulting from the required relocations of the utilities are the responsibility of the Contractor.

K. Where existing utility lines or structures are so located as to interfere with the Contractor's execution of the work, but do not physically conflict with completed manholes or other permanent structures to be constructed under this Contract, any modification, alteration, or relocation of interfering utility, either permanent or temporary, shall be accomplished at the expense of the Contractor.

L. The Contractor shall give immediate notice to the Engineer and the Owner of the utility when an interference is determined to exist and shall obtain approval to relocate such utility or to discontinue service therein from the Engineer and the owner of the utility. The owner of the utility shall have the right to do all work required to discontinue, relocate, and replace interfering utilities and charge the Contractor for all costs thereof. When approved by the Engineer and the owner of the utility, all work required to discontinue, relocate, and replace interfering utilities may be done by, or arranged for, by the Contractor. All such discontinuance, relocation, and replacement shall be accomplished in accordance with all requirements of the owner of the utility.

1.04 INTERFERING STRUCTURES

A. Take necessary precautions to prevent damage to existing structures whether on the surface, aboveground, or underground. An attempt has been made to show major structures on the Plans. While the information has been compiled from the best available sources, it's completeness and accuracy cannot be guaranteed, and it is presented as a guide to avoid known possible difficulties.

B. Protect existing structures from damage, whether or not they lie within the right-of-way or the limits of the easements obtained by the Owner. Where existing structures must be removed to properly carry out the work, or are damaged during the work, they shall be restored at the Contractor's own expense to at least their original condition and to the satisfaction of the Engineer.

C. The Contractor may, with the approval of the Engineer and without additional compensation, remove and replace in a condition as good as or better than original, any small interfering structures such as fences and signposts that interfere with the Contractor's operations.

1.05 FIELD RELOCATION

During the progress of the work, minor relocations of the work may be necessary. Such relocations shall be made only by direction of the Engineer and the Owner. If existing structures are encountered that will prevent construction as shown, notify the Engineer before continuing with the work in order that the Engineer may make such field revisions as necessary to avoid conflict with the existing structures. If the Contractor shall fail to notify the Engineer when an existing structure is encountered and proceeds with the work despite this interference, he shall be responsible for any damage that may occur.

1.06 LAND MONUMENTS

The Contractor shall preserve or replace any existing Federal, State, County, City, and private land monuments encountered. All monument replacement by the Contractor shall be performed by a land surveyor licensed in the State of Texas.

1.07 PAYMENT

The work specified in this Section shall be considered incidental and payment will be included as part of the appropriate lump sum or unit prices specified in the Bid Form.

PART 2: PRODUCTS (NOT USED)

PART 3: EXECUTION (NOT USED)

END OF SECTION

SECTION 1.06- CONTRACTOR'S USE OF PREMISES

CITY OF NEW BRAUNFELS ETJ – JARO NORTH SUBDIVISION UNIT 4 – LONE OAK MUD

PART 1: GENERAL

1.01 DESCRIPTION

A. Contractor shall limit his use of the premises, for Work and for storage, to the areas designated on the Drawings, or approved by Owner.

B. Contractor shall submit to the Owner for approval a plan of operations, designating proposed areas of the property to be used for his operations, material storage, equipment storage, employee's parking, offices and shops. The area shall effect minimal interference with the present operations.

C. Contractor shall assume full responsibility for the protection and safekeeping of products under this Contract stored on the site.

D. Contractor shall move any stored Products, under Contractor's control, which interfere with operations of the Owner.

E. Contractor shall obtain and pay for the use of additional storage or work areas needed for operations.

F. Any damage to existing facilities, including contamination, which may be caused by Contractor's personnel, callers, visitors, materials or equipment, shall be repaired or corrected at the sole expense of the Contractor.

G. Any fence that is damaged or removed by the Contractor will be replaced at the Contractor's expense in like kind, and to the satisfaction of the Engineer and the Owner.

PART 2: PRODUCTS (NOT USED)

PART 3: EXECUTION (NOT USED)

END OF SECTION

SECTION 1.07 - CONTROL OF WORK

CITY OF NEW BRAUNFELS ETJ – JARO NORTH SUBDIVISION UNIT 4 – LONE OAK MUD

PART 1: GENERAL

1.01 PLANT

The Contractor shall furnish plans and equipment which will be efficient, appropriate and large enough to secure a satisfactory quality of work and a rate of progress which will insure the completion of the work within the time stipulated in the Proposal. If at any time such plan appears to the Engineer to be inefficient, inappropriate or insufficient for securing the quality of work required or for producing the rate of progress aforesaid, he may order the Contractor to increase the efficiency, change the character or increase the plans and equipment, and the Contractor shall conform to such order. Failure of the Engineer to give such an order shall in no way relieve the Contractor of his obligations to secure the quality of work and rate of progress required.

1.02 PRIVATE LAND

The Contractor shall not enter or occupy private land outside of easements, except by written permission of the respective landowner.

1.03 PIPE LOCATIONS

Pipelines shall be located substantially as indicated on the Drawings, but the Engineer and the Owner reserve the right to make such modifications in locations as may be found desirable to avoid interference with existing structures or for other reasons. Where fittings are noted on the Drawings, such notation is for the Contractor's convenience and does not relieve him from laying and jointing different or additional items where required.

1.04 OPEN EXCAVATIONS

A. All open excavations shall be adequately safeguarded by providing temporary barricades, caution signs, lights and other means to prevent accidents to persons, and damage to property. The Contractor shall, at his own expense, provide suitable and safe bridges and other crossings for accommodating travel by pedestrians and workmen. Bridges provided for access during construction shall be removed when no longer required. The length or size of excavation will be controlled by the particular surrounding conditions, but shall always be confined to the limits prescribed by the Engineer. If the Excavation becomes a hazard, or if it excessively restricts traffic at any point, the Engineer may require special construction procedures such as limiting the length of the open trench, prohibiting staking excavated material in the street, and requiring that the trench shall not remain open overnight.

B. The Contractor shall take precautions, such as fences and barricades, to prevent injury to the public due to open trenches. All trenches, excavated material, equipment, or other obstacles that could be dangerous to the public shall be well lighted at night.

1.05 TEST PITS

Test pits for the purpose of locating underground pipelines or structures in advance of the construction shall be excavated and backfilled by the Contractor at the direction of the Engineer and the Owner. Test pits shall be backfilled immediately after their purpose has been satisfied and the surface restored and maintained in a manner satisfactory to the Engineer and the Owner.

1.06 MAINTENANCE OF TRAFFIC

A. Unless permission to close a street is received in writing from the proper authority, all excavated material shall be placed so that vehicular and pedestrian traffic may be maintained at all times. If the Contractor's operations cause traffic hazards, he shall repair the road surface, provide temporary ways, erect wheel guards or fences, or take other measures for safety satisfactory to the Engineer.

B. Detours around construction will be subject to the approval of the Owner and the Engineer. Where detours are permitted, the Contractor shall provide all necessary barricades and signs as required to divert the flow of traffic. While Traffic is detoured, the Contractor shall expedite construction operations and periods when traffic is being detoured will be strictly controlled by the Owner.

C. The Contractor shall take precautions to prevent injury to the public due to open trenches. Night watchmen may be required where special hazards exist, or police protection provided for traffic while work is in progress. The Contractor shall be fully responsible for damage or injuries whether or not police protection has been provided.

1.07 CARE AND PROTECTION OF PROPERTY

The Contractor shall be responsible for the preservation of all public and private property, and shall use every precaution necessary to prevent damage thereto. If any direct or indirect damage is done to public or private property by or on account of any act, omission, neglect, or misconduct in the execution of the work on the part of the Contractor, such property shall be restored by the Contractor, at his expense, to a condition similar or equal to that existing before the damage was done, or he shall make good the damage in some other manner acceptable to the Engineer.

1.08 MAINTENANCE OF FLOW

The Contractor shall, at his own cost, provide for flow of sewers, drains and water courses interrupted during the progress of the work, and shall immediately cart away and remove all offensive matter. The entire procedure of maintaining existing flow shall be fully discussed with the Engineer and the Owner well in advance of the interruption of any flow.

1.09 COOPERATION WITIN THIS CONTRACT

A. The Contractor shall cooperate with Subcontractors or trades, and shall assist in incorporating the work of other trades where necessary or required.

B. Cutting and patching, drilling and fitting shall be carried out where required by the Contractor and his Subcontractor having jurisdiction, unless otherwise indicated herein or directed by the Engineer.

1.10 CLEANUP

During the course of the work, the contractor shall keep the site of his operations in as clean and neat a condition as is possible. He shall dispose of all residue resulting from the construction work and, at the conclusion of the work, he shall remove and haul away any surplus excavation, broken pavement, lumber, equipment, temporary structures, and any other refuse remaining from the construction operations, and shall leave the entire site of the work in a neat and orderly condition.

1.11 PAYMENT

Payment for the work in this Section will be included as part of the total lump sum or appropriate unit prices stated in the Bid Form.

PART 2: PRODUCTS (NOT USED)

PART 3: EXECUTION (NOT USED)

END OF SECTION

SECTION 1.08 – SUBMITTALS

CITY OF NEW BRAUNFELS ETJ – JARO NORTH SUBDIVISION UNIT 4 – LONE OAK MUD

PART 1: GENERAL

1.01 DESCRIPTION OF REQUIREMENTS

A. This Section specifies the general methods and requirements of submissions applicable to the following work-related submittals: Shop Drawings, Product Data, Samples, Mock Ups, Construction Photographs, and Construction or Submittal Schedules. Detailed submittal requirements will be specified in the technical specifications sections.

B. All submittals shall be clearly identified by reference to Specification Section, Paragraph, Drawing No. or Detail as applicable. Submittals shall be clear and legible and of sufficient size for sufficient presentation of data.

1.02 SHOP DRAWINGS, PRODUCT DATA, SAMPLES

A. Shop Drawings

1. Shop drawings as specified in individual work Sections include, but are not necessarily limited to, custom-prepared data such as fabrication and erection/installation (working) drawings, scheduled information, setting diagrams, actual shop work manufacturing instructions, custom templates, special wiring diagrams, coordination drawings, individual system or equipment inspection and test reports including performance curves and certifications, as applicable to the Work.

2. All shop drawings submitted by subcontractors for approval shall be sent directly to the Contractor for checking. The Contractor shall be responsible for their submission at the proper time so as to prevent delays in delivery of materials.

3. The Contractor shall check all subcontractor's shop drawings regarding measurements, size of members, materials, and details to satisfy himself that they conform to the intent of the Drawings and Specifications. Shop drawings found to be inaccurate or otherwise in error shall be returned to the subcontractors for correction before submission thereof.

4. All details on shop drawings submitted for approval shall show clearly the relation of the various parts to the main members and lines of the structure, and where correct fabrication of the work depends upon field measurements, such measurements shall be made and noted on the drawings before being submitted for approval.

B. Product Data

1. Product data as specified in individual Sections, include, but are not necessarily limited to, standard prepared data for manufactured products (sometimes referred to as catalog data), such as the manufacturer's product specification and installation instructions, availability of colors and patterns, manufacturer's printed statements of compliance and applicability, roughing-in diagrams and templates, catalog cuts, product photographs, standard wiring diagrams, printed performance curves and operational-range diagrams, production or quality control inspection and test reports and certifications, mill reports, product operating and maintenance instructions and recommended spare-parts listing and printed product warranties, as applicable to the Work.

C. Samples

1. Samples specified in individual Sections, include, but are not necessarily limited to, physical examples of the work such as sections of manufactured or fabricated work, small cuts or containers of materials, complete units of repetitively-used products, color/texture/pattern swatches and range sets, specimens for coordination of visual effect, graphic symbols and units of work to be used by the Engineer or Owner for independent inspection and testing, as applicable to the Work.

1.03 CONTRACTOR'S RESPONSIBILITIES

A. The Contractor shall review shop drawings, product data and samples, including those by subcontractors, prior to submission to determine and verify the following:

1. Field measurements

2. Field construction criteria

3. Catalog numbers and similar data

4. Conformance with the Specifications

B. Each shop drawing, sample and product data submitted by the Contractor shall have affixed to it the following Certification Statement including the Contractor's Company name and signed by the Contractor: "Certification Statement: by this submittal, I hereby represent that I have determined and verified all field measurements, field construction criteria, materials, dimensions, catalog numbers and similar data and I have checked and coordinated each item with other applicable approved shop drawings and all Contract requirements." Shop drawings and product data sheets 11-in X 17-in and smaller shall be bound together in an orderly fashion and bear the above Certification Statement on the cover sheet. The cover sheet shall fully describe the packaged data and include a listing of all items within the package. Provide to the Resident Project Representative a copy of each submittal transmittal sheet for shop drawings, product data and samples at the time of submittal of said drawings, product data and samples to the Engineer.

C. The Contractor shall utilize a 10-character submittal identification numbering system in the following manner:

1. The first character shall be a D, S, P, M, or R, which represents Shop/Working Drawing and other Product Data (D), Sample (S), Preliminary Submittal (P), Operating/Maintenance Manual (M), or Request for Information (R).

2. The next five digits shall be the applicable Specification Section Number.

3. The next three digits shall be the numbers 001-999 to sequentially number each initial separate item or drawing submitted under each specific Section number.

4. The last character shall be a letter, A-Z, indicating the submission, or resubmission of the same Drawing (i.e. A=1st submission, B=2nd submission, C=3d submission, etc.). A typical submittal number would be as follows:

D = 03300-008-B
D = Shop Drawing
03300 = Specification Section for Concrete
008 = The eighth initial submittal under this specification section
B = The second submission (first resubmission) of that particular shop drawing

D. Notify the Engineer in writing, at the time of submittal, of any deviations in the submittals from the requirements of the Contract Documents.

E. The review and approval of shop drawings, samples or product data by the Engineer shall not relieve the Contractor from his/her responsibility with regard to the fulfillment of the terms of the Contract. All risks of error and omission are assumed by the Contractor and the Engineer will have no responsibility therefore.

F. No portion of the work requiring a shop drawing, sample, or product data shall be started nor shall any materials be fabricated or installed prior to the approval or qualified approval of such item. Fabrication performed, materials purchased or on-site construction accomplished which does not conform to approved shop drawings and data shall be at the Contractor's risk. The Owner will not be liable for any expense or delay due to corrections or remedies required to accomplish conformity.

G. Project work, materials, fabrication, and installation shall conform with approved shop drawings, applicable samples, and product data.

1.04 SUBMISSION REQUIREMENTS

A. Make submittals promptly in accordance with approved schedule, and in such sequence as to cause no delay in the Work or in the work of any other contractor.

B. Each submittal must also be submitted in electronic PDF format.

C. Each submittal, appropriately coded, will be returned within 30 working days following receipt of submittal by the Engineer.

D. Number of submittals required:

1. Shop Drawings as defined in Paragraph 1.02 A: Six copies. Two of these copies will be returned to the Contractor. If the Contractor desires more than two copies returned, they shall submit extra copies.

2. Product Data as defined in Paragraph 1.02 B: Three copies.

3. Samples: Submit the number stated in the respective Specification Sections.

E. Submittals shall contain:

1. The date of submission and the dates of any previous submissions.

2. The Project title and number.

3. Contractor identification.

4. The names of:

   a. Contractor
   b. Supplier
   c. Manufacturer

5. Identification of the product, with the specification section number, page and paragraph(s).

6. Field dimensions, clearly identified as such.

7. Relation to adjacent or critical features of the Work or materials.

8. Applicable standards, such as ASTM or Federal Specification numbers.

9. Identification of deviations from Contract Documents.

10. Identification of revisions on resubmittals.

11. An 8-in X 3-in blank space for Contractor and Engineer stamps.

1.05 REVIEW OF SHOP DRAWINGS, PRODUCT DATA, WORKING DRAWINGS AND SAMPLES

A. The review of shop drawings, data, and samples will be for general conformance with the design concept and Contract Documents. They shall not be construed as:

   1. permitting any departure from the Contract requirements;

   2. relieving the Contractor of responsibility for any errors, including details, dimensions, and materials; and/or

   3. approving departures from details furnished by the Engineer, except as otherwise provided herein.

B. The Contractor remains responsible for details and accuracy, for coordinating the work with all other associated work and trades, for selecting fabrication processes, for techniques of assembly, and for performing work in a safe manner.

C. If the shop drawings, data or samples as submitted describe variations and show a departure from the Contract requirements which Engineer finds to be in the interest of the Owner and to be so minor as not to involve a change in Contract Price or time for performance, the Engineer may return the reviewed drawings without noting an exception.

D. Submittals will be returned to the Contractor under one of the following codes.

   Code 1 — "APPROVED" is assigned when there are no notations or comments on the submittal. When returned under this code the Contractor may release the equipment and/or material for manufacture.

Code 2 — "APPROVED AS NOTED". This code is assigned when a confirmation of the notations and comments IS NOT required by the Contractor. The Contractor may release the equipment or material for manufacture; however, all notations and comments must be incorporated into the final product.

Code 3 — "APPROVED AS NOTED/CONFIRM". This combination of codes is assigned when a confirmation of the notations and comments IS required by the Contractor. The Contractor may release the equipment or material for manufacture; however, all notations and comments must be incorporated into the final product. This confirmation shall specifically address each omission and nonconforming item that was noted. Confirmation is to be received by the Engineer within 15 calendar days of the date of the Engineer's transmittal requiring the confirmation.

Code 4 — "APPROVED AS NOTED/RESUBMIT". This combination of codes is assigned when notations and comments are extensive enough to require a resubmittal of the package. The Contractor may release the equipment or material for manufacture; however, all notations and comments must be incorporated into the final product. This resubmittal is to address all comments, omissions and non-conforming items that were noted. Resubmittal is to be received by the Engineer within 15 calendar days of the date of the Engineer's transmittal requiring the resubmittal.

Code 5 — "NOT APPROVED" is assigned when the submittal does not meet the intent of the Contract Documents. The Contractor must resubmit the entire package revised to bring the submittal into conformance. It may be necessary to resubmit using a different manufacturer/vendor to meet the Contract Documents.

Code 6 — "COMMENTS ATTACHED" is assigned where there are comments attached to the returned submittal which provide additional data to aid the Contractor.

Codes 1 through 5 designate the status of the reviewed submittal with Code 6 showing there has been an attachment of additional data.

E. Resubmittals will be handled in the same manner as first submittals. On resubmittals the Contractor shall direct specific attention, in writing on the letter of transmittal and on resubmitted shop drawings by use of revision triangles or other similar methods, to revisions other than the corrections requested by the Engineer, on previous submissions. Any such revisions which are not clearly identified shall be made at the risk of the Contractor. The Contractor shall make corrections to any work done because of this type revision that is not in accordance to the Contract Documents as may be required by the Engineer.

F. Partial submittals may not be reviewed. The Engineer will be the only judge as to the completeness of a submittal. Submittals not complete will be returned to the Contractor, and will be considered "Not Approved" until resubmitted. The Engineer may at his/her option provide a list or mark the submittal directing the Contractor to the areas that are incomplete.

G. If the Contractor considers any correction indicated on the shop drawings to constitute a change to the Contract Documents, the Contractor shall give written notice thereof to the Engineer at least seven working days prior to release for manufacture.

H. When the shop drawings have been completed to the satisfaction of the Engineer, the Contractor shall carry out the construction in accordance therewith and shall make no further changes therein except upon written instructions from the Engineer.

1.06 DISTRIBUTION

A. Distribute reproductions of approved shop drawings and copies of approved product data and samples, where required, to the job site file and elsewhere as directed by the Engineer. Number of copies shall be as directed by the Engineer but shall not exceed 6.

1.07 MOCK UPS

A. Mock Up units as specified in individual Sections, include but are not necessarily limited to, complete units of the standard of acceptance for that type of work to be used on the Project. Remove at the completion of the Work or when directed.

1.08 CONSTRUCTION PHOTOGRAPHS

A. The Contractor shall have an average of five color photographs per month made of the work during its progress and ten color photographs of the completed facilities. The photographs shall be of such views and taken at such times as the Engineer directs.

B. All photographic work shall be done by a qualified, established commercial photographer acceptable to the Engineer. Three prints of each photograph shall be furnished promptly to the Engineer, and each print shall have a glossy finish and be mounted in plastic sleeving on a substantial backing. The overall dimensions of each mounted print shall be 8 X 10-in with 1-1/4-in flexible binding margin on the long top side to permit storage in standard 3-ring binders.

C. The film negatives shall be retained in the files of the photographer until the completion of the project and shall then be turned over to the Owner.

D. Each photograph shall have attached to the backing a paper label, approximately 2-1/4-in wide by 1-3/4-in high containing thereon in neat lettering:

1. Contractor's name

2. Short Description of View

3. Photo No. and Date Taken

4. Photographer's Firm Name

1.09 GENERAL PROCEDURES FOR SUBMITTALS

A. Coordination of Submittal Times: Prepare and transmit each submittal sufficiently in advance of performing the related work or other applicable activities, or within the time specified in the individual work sections, of the Specifications, so that the installation will not be delayed by processing times including disapproval and resubmittal (if required), coordination with other submittals, testing, purchasing, fabrication, delivery and similar sequenced activities. No

extension of time will be authorized because of the Contractor's failure to transmit submittals sufficiently in advance of the Work.

PART 2: PRODUCTS (NOT USED)

PART 3: EXECUTION (NOT USED)

END OF SECTION

SECTION 1.09 – CHANGE MANAGEMENT

CITY OF NEW BRAUNFELS ETJ – JARO NORTH SUBDIVISION UNIT 4 – LONE OAK MUD

PART 1: GENERAL

1.01 REQUESTS FOR CHANGE PROPOSAL

A. Construction Manager will initiate Modifications by issuing a Request for Change Proposal (RCP).
   a. Construction Manager and Design Professional will prepare a description of proposed Modifications.

   b. Construction Manager will issue the Request for Change Proposal form to Contractor. A number will be assigned to the Request for a Change Proposal when issued.

   c. Return a Change Proposal in accordance with Paragraph 1.02 for evaluation by the OPT.

1.02 CHANGE PROPOSALS

A. Submit a Change Proposal (CP) to the Construction Manager for Contractor initiated changes in the Documents or in response to a Request for Change Proposal. Submit the Change Proposal and attach the forms provided by the Construction Manager.

   1. Use the Change Proposal form provided by the Construction Manager.

   2. Include with the Change Proposal:

      a. A complete description of the proposed Modification if Contractor initiated or proposed changes to the Owners description of the proposed Modification.

      b. The reason the Modification is requested, if not in response to a Request for a Change Proposal.

      c. A detailed breakdown of the cost of the change if the Modification requires a change in Contract Price. The itemized breakdown is to include:

         1) List of materials and equipment to be installed;
         2) Man hours for labor by classification;
         3) Equipment used in construction;
         4) Consumable supplies, fuels, and materials;
         5) Royalties and patent fees;
         6) Bonds and insurance;
         7) Overhead and profit;
         8) Field office costs;
         9) Home office cost; and
         10) Other items of cost.

d. Provide the level of detail outlined in the paragraph above for each Subcontractor or Supplier actually performing the Work, if Work is to be provided by a Subcontractor or Supplier. Indicate appropriate Contractor mark ups for Work provided through Subcontractors and Suppliers. Provide the level of detail outlined in the paragraph above for self-performed Work.

e. Submit Change Proposals that comply with the General Conditions for Cost of Work.

f. Provide a revised schedule. Show the effect of the change on the Project Schedule and the Contract Times.

B. Submit a Change Proposal to the Construction Manager to request a Field Order.

C. A Change Proposal is required for all substitutions or deviations from the Contract Documents.

D. Request changes to products in accordance with Section 01008 "Submittals."

1.03 CONSTRUCTION MANAGER WILL EVALUATE THE REQUEST FOR A MODIFICATION

A. Construction Manager will issue a Modification per the General Conditions if the Change Proposal is acceptable to the Owner. Construction Manager will issue a Change Order or Contract Amendment for any changes in Contract Price or Contract Times.

1. Change Orders and Contract Amendments will be sent to the Contractor for execution with a copy to the Owner recommending approval. A Work Change Directive may be issued if Work needs to progress before the Change Order or Contract Amendment can be authorized by the Owner.

2. Work Change Directives, Change Orders, and Contract Amendments can only be approved by the Owner.

a. Work performed on the Change Proposal prior to receiving a Work Change Directive or approval of the Change Order or Contract Amendment is performed at the Contractor's risk.

b. No payment will be made for Work on Change Orders or Contract Amendments until approved by the Owner.

B. Contractor may be informed that the Change Proposal is not approved and construction is to proceed in accordance with the Contract Documents.

1.04 EQUAL NON-SPECIFIED PRODUCTS

A. The products of the listed manufacturers are to be furnished where the Specifications list several manufacturers and do not specifically list "or equal" or "or approved equal" products. Use of any products other than those specifically listed is a substitution. Follow the procedures in Paragraph 1.05 for a substitution.

B. Contractor may submit other manufacturers' products that are in full compliance with the Specifications where Specifications list one or more manufacturers followed by the phrase "or equal" or "or approved equal."

1. Submit a Shop Drawing as required by Section 01008 "Submittals." to document that the proposed product is equal or superior to the specified product.

2. Prove that the product is equal. It is not the Owner's responsibility to prove the product is not equal.

a. Indicate on a point-by-point basis for each specified feature that the product is equal to the Contract Document requirements.

b. Make a direct comparison with the specified manufacturer's published data sheets and available information. Provide this printed material with the Shop Drawing.

c. The decision of the Design Professional regarding the acceptability of the proposed product is final.

3. Provide a certification that, in furnishing the proposed product as an equal, the Contractor:

a. Has thoroughly examined the proposed product and has determined that it is equal or superior in all respects to the product specified.

b. Has determined that the product will perform in the same manner and result in the same process as the specified product.

c. Will provide the same warranties and/or bonds as for the product specified.

d. Will assume all responsibility to coordinate any modifications that may be necessary to incorporate the product into the construction and will waive all claims for additional Work which may be necessary to incorporate the product into the Project which may subsequently become apparent.

d. Will maintain the same time schedule as for the specified product.

C. A Change Proposal is not required for any product that is in full compliance with the Contract Documents. If the product is not in full compliance, it may be offered as a Substitution.

1.05 SUBSTITUTIONS

A. Substitutions are defined as any product that the Contractor proposes to provide for the Project in lieu of the specified product. Submit a Change Proposal per Paragraph 1.02 along with documents required for a Shop Drawing as required by Section 01008 "Submittals." to request approval of a substitution.

B. Prove that the product is acceptable as a substitute. It is not the Design Professional's responsibility to prove the product is not acceptable as a substitute.

1. Indicate on a point-by-point basis for each specified feature that the product is acceptable to meet the intent of the Contract Documents requirements.

2. Make a direct comparison with the specified Suppliers published data sheets and available information. Provide this printed material with the Shop Drawing.

3. The decision of the Design Professional regarding the acceptability of the proposed substitute product is final.

C. Provide a certification that, in making the substitution request, the Contractor:

1. Has determined that the substituted product will perform in substantially the same manner and result in the same ability to meet the specified performance as the specified product;

2. Will provide the same warranties and/or bonds for the substituted product as specified or as would be provided by the manufacturer of the specified product;

3. Will assume all responsibility to coordinate any modifications that may be necessary to incorporate the substituted product into the Project and will waive all claims for additional Work which may be necessary to incorporate the substituted product into the Project which may subsequently become apparent; and

4. Will maintain the same time schedule as for the specified product.

D. Pay for review of substitutions in accordance with Section 01008 "Submittals."

PART 2: PRODUCTS (NOT USED)

PART 3: EXECUTION (NOT USED)

END OF SECTION

SECTION 1.10 – APPLICATION FOR PAYMENT PROCEDURES

CITY OF NEW BRAUNFELS ETJ – JARO NORTH SUBDIVISION UNIT 4 – LONE OAK MUD

PART 1: GENERAL

1.01 SUMMARY

A. Submit Applications for Payment for completed Work and for materials and equipment in accordance with the General Conditions, the Special Conditions, the Agreement, and this Section. The Contract Price is to include costs for:

1. Providing the Work in accordance with the Contract Documents;

2. Installing Owner furnished equipment and materials, if any;

3. Providing Work for alternates and allowances, if any;

4. Providing Work for extra work items, if any and if authorized

5. Commissioning, startup, training, and initial maintenance and operation;

6. Acceptance testing at the manufacturer's facilities or at the Site;

7. All home office overhead costs and expenses, including profit made directly or indirectly from the Project;

8. Project management, contract administration, and field office and field operations staff including supervision, clerical support, and technology system support;

9. Professional services including design fees, legal fees, and other professional services;

10. Bonds and insurance;

11. Permits, licenses, patent fees, and royalties;

12. Taxes;

13. Providing all documentation and Samples required by the Contract Documents;

14. Facilities and equipment at the Site including:

a. Field offices, office furnishings, and all related office supplies, software, and equipment,

b. Storage facilities for Contractor's use and storage facilities for stored materials and equipment including spare parts storage,

c. Shops, physical plant, construction equipment, small tools, vehicles, and technology and telecommunications equipment,

d. Safety equipment and facilities to provide safe access and working conditions for workers and for others working at the Site,

e. Temporary facilities for power and communications,

f. Potable water and sanitation facilities, and

g. Mobilization and demobilization for all these facilities and equipment.

15. Products, materials, and equipment stored at the Site or other suitable location in accordance with 1.04 General Conditions.
16. Products, materials, and equipment permanently incorporated into the Project;
17. Temporary facilities for managing water including facilities for pumping, storage, and treatment as required for construction and protection of the environment;
18. Temporary facilities for managing environmental conditions and Constituents of Concern;
19. Temporary facilities such as sheeting, shoring, bracing, formwork, embankments, storage facilities, working areas, and other facilities required for construction of the Project;
20. Temporary and permanent facilities for protection of all overhead, surface, or underground structures or features;
21. Temporary and permanent facilities for removal, relocation, or replacement of any overhead, surface, or underground structures or features;
22. Products, materials, and equipment consumed during the construction of the Project;
23. Contractor labor and supervision to complete the Project including that provided through Subcontractors or Suppliers;
24. Correcting Defective Work during the Contract Times, during the Correction Period, or as required to meet any warranty provision of the Contract Documents;
25. Risk associated with weather and environmental conditions, startup, and initial operation of facilities including equipment, processes, and systems;
26. Contractor safety programs, including management, administration, and training;
27. Maintenance of facilities including equipment, processes, and systems until operation is transferred to Owner;
28. Warranties, extended or special warranties, or extended service agreements;
29. Cleanup and disposal of any and all surplus materials; and
30. Demobilization of all physical, temporary facilities not incorporated into the Project.

B. Include the cost not specifically set forth as an individual payment item but required to provide a complete and functional system in the Contract Price.

C. Provide written approval of the surety company providing performance and payment bonds for the Schedule of Values, Application for Payment form, and method of payment prior to submitting the first Application for Payment. Submit approval using the “Consent of Surety Company to Payment Procedures” form provided by the Construction Manager. Payment will not be made without this approval.

D. Construction Manager may withhold processing the Applications for Payment if any of the following processes or documentation is not up to date:

1. Progress Schedule

2. Project videos and photographs

3. Record Documents per Section 1.11- "Execution and Closeout Requirements" Subsection 1.09 "Record Documents"

1.02 SCHEDULE OF VALUES

A. Divide the Contract Price into an adequate number of line items to allow more accurate determination of the earned value for each line item when evaluating progress payments. Submit a detailed Schedule of Values for the Project at least 10 days prior to submitting the first Application for Payment using forms provided by the Construction Manager.

B. Do not apply for payment until the Schedule of Values has been approved by the Construction Manager.

C. Divide the cost associated with each line item in the Schedule of Values into installation and materials components.

1. Installation cost is to include all cost associated with the line item except materials cost.

2. Materials cost is the direct cost (as verified by invoice values) for products, materials, and equipment to be permanently incorporated into the Project associated with the line item.

3. Installation cost is to include all direct costs and a proportionate amount of the indirect costs for the Work associated with each line item. Include costs not specifically set forth as an individual payment item but required to provide a complete and functional system.

4. The sum of materials and installation costs for all line items must equal the Contract Price.

D. Use each unit price line item in the Agreement as a line item in the Schedule of Values. The sum of materials and installation costs for each line item for unit price contracts must equal the value of the line item in the Agreement. In addition to the installation cost described in Paragraph 1.02.C.3, installation costs for unit price items are to include costs for waste and overages.

1. Installation and materials cost may be left as a single installation component if:

a. Contractor does not intend to request payment for stored materials for that line item; or

b. Work in the line item will be completed within a single payment period.

2. Provide adequate detail to allow a more accurate determination of the earned value for installation costs, expressed as a decimal fraction of Work completed, for each line item.

3. Installation cost line items may not exceed $50,000.00. Items that are not subdivided into smaller units may only be included in the Application for Payment when Work on the entire unit is complete.

4. Lump sum items may be divided into an estimated number of units to estimate earned value. The estimated number of units times the cost per unit must equal the lump sum amount for that line item.

5. Include Contractor's overhead and profit in the installation costs each line item in proportion to the value of the line item to the Contract Price.

6. Include cost not specifically set forth as an individual payment item but required to provide a complete and functional system in the Contract Price for each item.

7. Line items may be used to establish the value of Work to be added or deleted from the Project.

E. Include a breakdown of both mobilization and demobilization costs in the Schedule of Values. The total cost for both mobilization and demobilization may not exceed 5 percent of the total Contract Price. Payment for mobilization and demobilization will be based on the earned value of Work completed. Payment for these costs will only be made for Work completed for the following:

1. Bonds and insurance;

2. Transportation and setup for equipment;

3. Transportation and/or erection of all field offices, sheds, and storage facilities;

4. Salaries for preparation of documents required before the first Application for Payment; and

5. Salaries for field personnel directly related to the mobilization of the Project.

1.03 SCHEDULE OF ANTICIPATED PAYMENTS

A. Submit a schedule of the anticipated Application for Payments showing the anticipated application numbers, submission dates, and the amount to be requested for each Application for Payment on the form provided by the Construction Manager.

B. Update the schedule of anticipated payments as necessary to provide a reasonably accurate indication of the funds required to make payments each month to the Contractor for Work performed.

1.04 ALTERNATES, ALLOWANCES, AND EXTRA WORK ITEMS

A. Include line items and amounts for specified alternate Work and allowances for Work in the Agreement, if any.

B. Include line items and amounts for Extra Work items in the Agreement, if any.

1.05 RETAINAGE AND SET-OFFS

A. Retainage will be withheld from each Application for Payment per the Agreement.

B. Reduce payments for set-offs per the General Conditions as directed by the Construction Manager.

1.06 PROCEDURES FOR SUBMITTING AN APPLICATION FOR PAYMENT

A. Submit a draft Application for Payment to the Construction Manager each month at least 20 days before the date established in the Agreement for Owner to make progress payments. Do not submit Applications for Payment more often than monthly. Review the draft Application for Payment with the Construction Manager to determine concurrence with:

1. Values requested for materials and equipment, stored or incorporated into the Project as documented by invoices;

2. The earned value for installation costs for each line item in the Application for Payment form expressed as a percent complete for that line item;

3. The quantity of Work completed for each unit price item;

4. Amount of retainage to be held; and

5. Set-offs included in the Application for Payment.

B. Submit Applications for Payment to the Construction Manager after agreement has been reached on the draft Application for Payment with the Construction Manager.

C. Provide all information requested in the Application for Payment form. Do not leave any blanks incomplete. If information is not applicable, enter "N/A" in the space provided.

1. Number each application sequentially and include the dates for the application period.

2. Complete the "Contract Time Summary" section on the Application for Payment form. If the Final Completion date shows the Project is more than 30 days behind schedule, revise the Schedule of Anticipated Payments to correspond to the updated schedule required.

3. Complete the "Summary of Earned Value and Set-offs" section on the Application for

Payment form. Show the total amounts for earned value of original Contract performed, earned value for Work on approved Contract Amendments and Change Orders, retainage and set-offs.

4. Sign and date the Contractor's Certification on the Application for Payment form that all Work, including materials, covered by this Application for Payment have been completed or delivered and stored in accordance with the Contract Documents, that all amounts have been paid for Work, materials, and equipment for which previous Payment has been made by the Owner, and that the current payment amount shown in this Application for Payment is now due.

5. Include "Attachment A - Tabulation of Earned Value of Original Contract Performed" to show the value of materials stored and successfully incorporated into the Project and the earned value for installation of the Work for each line item in the Application for Payment for Work. Attachment A includes Work on the original Contract Price and on approved Contract Amendments and Change Orders.

6. Include "Attachment B - Tabulation of Values for Materials and Equipment" to track invoices used to support amounts requested as materials in Attachment A. Enter materials to show the amount of the invoice assigned to each item in Attachment A if an invoice includes materials used on several line items.

7. Include "Attachment C - Summary of Set-offs" to document set-offs made per the Contract Documents. Show each set-off as it is applied. Show a corresponding line item to reduce the set-off amount if a payment held by a set-off is released for payment.

8. Include "Attachment D - Retainage Calculation" to show method for calculating retainage. The amount of retainage with respect to progress payments is stipulated in the Agreement. Any request for a reduction in retainage must be accompanied by a Consent of Surety to Reduction or Partial Release of Retainage.

9. Include "Attachment E - EVA Calculation" and the EVA Chart showing the anticipated and actual total earned value of fees, Work, and materials. Create a graphic representation (curve) of the anticipated progress on the Project each month. Compare the anticipated cumulative total earned value of fees, Work, and materials to the actual total earned value of fees, Work, and materials to determine performance on budget and schedule. Adjust the table and curve to incorporate Modifications.

D. Submit attachments in Portable Document Format (PDF).

1. Generate attachments to the Application for Payment using the Excel spreadsheet provided by the Construction Manager.

2. Submit PDF documents with adequate resolution to allow documents to be printed in a format equivalent to the document original. Documents are to be scalable to allow printing on standard 8.5"x11" or 11"x17" paper.

1.07 ADJUSTMENTS TO THE SCHEDULE OF VALUES IN THE APPLICATION FOR PAYMENT

A. Submit a Change Proposal to request any changes to the Schedule of Values incorporated into the Application for Payment once approved. A Field Order will be issued by the Construction Manager to modify the Application for Payment form if approved.

B. Payment for materials and equipment shown in the Application for Payment will be made for the total of associated invoice amounts, up to the value shown for materials in the Application for Payment for that line item.

1. If the total amount for invoices for materials and equipment for a line item are less than the amount shown for the materials component of that line item in the Application for Payment, and it can be demonstrated that no additional materials or equipment are required to complete Work described in that item, the difference between the total invoice for materials and equipment and the materials component for that line item can be added to the installation component of that Work item.

2. Costs for material and equipment in excess of the value shown in the Schedule of Values may not be paid for under other line items.

1.08 CONSTRUCTION MANAGER'S RESPONSIBILITY

A. Construction Manager will review each draft Application for Payment with Contractor to reach an agreement on the amount to be recommended to Owner for payment. Contractor is to revise the Application for Payment to incorporate changes, if any, resulting from this review process.

B. Construction Manager will review the Application for Payment to determine that the Application for Payment has been properly submitted and is in accordance with the agreed to draft Application for Payment.

C. Construction Manager will either recommend payment of the Application for Payment to Owner or notify the Contractor of the reasons for not recommending payment. Contractor may make necessary corrections and resubmit the Application for Payment. Construction Manager will review resubmitted Application for Payment and reject or recommend payment of the Application for Payment to Owner as appropriate.

D. Construction Manager's recommendation of the Application for Payment constitutes a representation that based on its experience and the information available:

1. The Work has progressed to the point indicated;

2. The quality of the Work is generally in accordance with the Contract Documents; and

3. Requirements prerequisite to payment have been met.

E. This representation is subject to:

1. Further evaluation of the Work as a functioning whole;

2. The results of subsequent tests called for in the Contract Documents; or

3. Any other qualifications stated in the recommendation.

F. Construction Manager does not represent by recommending payment that:

1. Inspections made to check the quality or the quantity of the Work as it was performed were exhaustive or extended to every aspect of the Work in progress; or

2. Other matters or issues that might entitle Contractor to additional compensation or entitle Owner to withhold payment to Contractor exist.

G. Neither Construction Manager's review of Contractor's Work for the purposes of recommending payments nor Construction Manager's recommendation of payment imposes responsibility on the Construction Manager or Owner:

1. To supervise, direct, or control the Work;

2. For the means, methods, techniques, sequences, or procedures of construction, or safety precautions and programs;

3. For Contractor's failure to comply with Laws and Regulations applicable to Contractor's performance of the Work;

4. To make examinations to ascertain how or for what purposes Contractor has used the monies paid on account of the Contract Price; or

5. To determine that title to the Work, materials, or equipment has passed to Owner free and clear of Liens.

1.09 FINAL APPLICATION FOR PAYMENT

A. Include adjustments to the Contract Price in the final Application for Payment for:

1. Approved Change Orders and Contract Amendments;

2. Allowances not previously adjusted by Change Order;

3. Deductions for Defective Work that have been accepted by the Owner;

4. Penalties and bonuses;

5. Deduction for all final set-offs; and

6. Other adjustments if needed.

B. Construction Manager will prepare a final Change Order reflecting the approved adjustments to the Contract Price which have not been covered by previously approved Change Orders and, if necessary, to reconcile estimated unit price quantities with actual

quantities.

C. Submit the final Application for Payment per the General Conditions, including the final Change Order. Provide the following with the final Application for Payment:

1. Evidence of payment or release of Liens on the forms provided by the Construction Manager and as required by the General Conditions.

2. Consent from surety to final payment.

D. Final payment will also require additional procedures and documentation per Section 1.11 “Execution and Closeout.”

1.10 PAYMENT BY OWNER

A. Owner is to pay the amount recommended for monthly payments within 30 days after receipt of the Construction Manager’s recommended Application for Payment.

PART 2: PRODUCTS (NOT USED)

PART 3: EXECUTION (NOT USED)

END OF SECTION

SECTION 1.11 – EXECUTION AND CLOSEOUT REQUIREMENTS

CITY OF NEW BRAUNFELS ETJ – JARO NORTH SUBDIVISION UNIT 4 – LONE OAK MUD

PART 1: GENERAL

1.01 SUMMARY

A. Comply with requirements of the General Conditions and specified administrative procedures in closing out the Contract.

1.02 DOCUMENTATION

A. Submit affidavits and releases on forms provided by the Construction Manager.

1.03 SUBSTANTIAL COMPLETION

A. The following requirements must be met for the Project or a designated portion of the Work to be Substantially Complete per the General Conditions:

1. Work must be fully functional and able to operate in accordance with the Contract Documents without special or extraordinary efforts on the part of the Owner.

B. Conduct inspections with superintendent, Subcontractors, and Suppliers for the Work or a designated portion of the Work prior to calling for a Substantial Completion inspection by the OPT. Create a list of deficiencies in the Work that must be completed for the Project to qualify for Substantial Completion. Review the list with the Construction Manager or the designated member of the OPT. The Construction Manager or the designated member of the OPT may assist the Contractor with this effort; however, it is the Contractor's responsibility to create and manage this list of deficiencies until corrections are made.

C. Correct the identified deficiencies prior to calling for a Substantial Completion inspection.

D. Notify the Construction Manager that the Work or a designated portion of the Work is Substantially Complete per the General Conditions. Include a list of the items remaining to be completed or corrected before the Project will be considered for Final Completion.

E. OPT will visit the Site to observe the Work within a reasonable time after notification is received to determine the status of the Project.

F. Construction Manager will notify the Contractor that the Work is either Substantially Complete or that additional Work must be performed before the Project will be considered Substantially Complete.

1. Construction Manager will notify the Contractor of items that must be completed before the Project will be considered Substantially Complete.

2. Correct the noted deficiencies in the Work.

3. Notify the Construction Manager when the items of Work in the Construction

Manager's notice have been completed.

4. OPT will revisit the Site and repeat the process.

5. Construction Manager will issue a Certificate of Substantial Completion to the Contractor when the OPT considers the Project to be Substantially Complete. The certificate will include a tentative list of items to be corrected before Final Payment will be recommended.

6. Review the list and notify the Construction Manager of any objections to items on the list within 10 days after receiving the Certificate of Substantial Completion.

1.04 TRANSFER OF UTILITIES

A. Transfer utilities to the Owner when the Certificate of Substantial Completion has been issued.

B. Submit final meter

1.05 CLOSEOUT REQUIREMENTS

A. Provide the following before Final Completion:

1. Record Documents per this document, Section 1.09 "Record Documents";

2. Keys and keying schedule;

3. Warranties, bonds, and service agreements;

4. Equipment Installation Reports;

5. Shop Drawings, Product Data, operation and maintenance manuals, and other documentation required by the Contract Documents;

6. Specified spare parts and special tools;

7. Certificates of occupancy, operating certificates, or other similar releases required to allow the Owner unrestricted use of the Work and access to services and utilities;

8. Evidence of continuing insurance and bond coverage as required by the Contract Documents; and

9. Final videos and photographs

1.06 WARRANTIES, BONDS, AND SERVICES AGREEMENTS

A. Provide warranties, bonds, and service agreements required by the individual Sections of the Specifications.

B. The date for the start of warranties, bonds, and service agreements is established per the

General Conditions.

C. Compile warranties, bonds, and service agreements and review these documents for compliance with the Contract Documents.

1. Each document is to be signed by the respective Supplier or Subcontractor.

2. Each document is to include:

a. The product or Work item description;

b. The firm name, with the name of the principal, address, and telephone number;

c. Scope of warranty, bond, or services agreement;

d. Date, duration, and expiration date for each warranty bond and service agreement;

e. Procedures to be followed in the event of a failure; and

f. Specific instances that might invalidate the warranty or bond.

D. Submit digital copies of the documents to the Construction Manager for review.

E. Submit warranties, bonds, and services agreements within 10 days after equipment or components placed in service.

1.07 FINAL COMPLETION

A. Conduct inspections with Superintendent, Subcontractors, and Suppliers prior to calling for a Final Completion inspection by the OPT. Create a list of deficiencies in the Work that must be completed for the Project to qualify for the Final Completion inspection. Review the list with the Construction Manager or the designated member of the OPT. The Construction Manager or the designated member of the OPT may assist the Contractor with this effort; however, it is the Contractor's responsibility to create and manage this list of deficiencies until corrections are made.

B. Identify, list, and correct deficiencies prior to calling for a Final Completion inspection. The Project at the call for Final Completion represents the Contractor's interpretation of a project completed in conformance with the Contract Documents and reflects the Contractor's representation of a quality project meeting the Owner's expectations.

C. Notify the Construction Manager when:

1. Work has been completed and complies with the Contract Documents;

2. Equipment and systems have been tested per the Contract Documents and are fully operational;

3. Final operation and maintenance manuals have been provided to the Owner and all operator training has been completed;

4. Specified spare parts and special tools have been provided;

5. Work is complete and ready for final inspection;

6. Final documentation for all outstanding Modifications and Claims (other than those listed on the Certificate of Final Completion) have been processed and are ready for incorporation into the final Application for Payment; and

7. Closeout requirements in Paragraph [1.05] have been completed.

D. OPT will visit the Site to determine if the Project is complete and ready for final payment within a reasonable time after the notice is received.

E. Construction Manager will notify the Contractor that the Project is complete or will notify the Contractor that Work is Defective.

F. Take immediate steps to correct Defective Work. Notify the Construction Manager when Defective Work has corrected. OPT will visit the Site to determine if the Project is complete and the Work is acceptable. Construction Manager will issue a Certificate of Final Completion to the Contractor when the Project is complete or will notify the Contractor that Work is Defective.

G. Submit the request for final payment with closeout documentation described in Paragraph 1.06 if notified that the Project is complete and the Work is acceptable.

1.08 REINSPECTION FEES

A. Owner may impose a set-off against the Application for Payment in accordance with the General Conditions to compensate the OPT for additional visits to the Project if additional work is required.

1.09 RECORD DOCUMENTS

A. Maintain one complete set of printed Record Documents at the Site including:

1. Drawings;

2. Specifications;

3. Addenda;

4. Modifications;

5. Product Data and approved Shop Drawings;

6. Construction photographs;

7. Test Reports;

8. Clarifications and other information provided in Request for Information responses; And

9. Reference standards.

B. Store printed Record Documents and Samples in the Contractor's field office.

1. Record Documents are to remain separate from documents used for construction.

2. Provide files and racks for the storage of Record Documents.

3. Provide a secure storage space for the storage of Samples.

4. Maintain Record Documents in clean, dry, legible conditions, and in good order.

5. Make Record Documents and Samples available at all times for inspection by the OPT.

C. Maintain an electronic record of Specifications and Addenda to identify products provided in PDF format.

1. Reference the Product Data number, Shop Drawing number, and O&M manual number for each product and item of equipment furnished or installed.

2. Reference Modifications by type and number for all changes.

D. Maintain an electronic record of Drawings in PDF format.

1. Reference the Product Data number, Shop Drawing number, and O&M manual number for each product and item of equipment furnished or installed.

2. Reference Modifications by type and number for all changes.

3. Record information as construction is being performed. Do not conceal any Work until the required information is recorded.

4. Mark drawings to record actual construction.

a. Depths of various elements of the foundation in relation to finished first floor datum or the top of walls.

b. Horizontal and vertical locations of underground utilities and appurtenances constructed, and existing utilities encountered during construction.

c. Location of utilities and appurtenances concealed in the Work. Refer measurements to permanent structures on the surface. Include the following equipment:

1) Piping;

2) Ductwork;
3) Equipment and control devices requiring periodic maintenance or repair;
4) Valves, unions, traps, and tanks;
5) Services entrance;
6) Feeders; and
7) Outlets.

d. Changes of dimension and detail.

e. Changes by Modifications.

f. Information in Requests for Information or included in the Decision Register.

g. Details not on the original Drawings. Include field verified dimensions and clarifications, interpretations, and additional information issued in response to Requests for Information.

5. Mark Drawings with the following colors:

a. Highlight references to other documents, including Modifications in blue.

b. Highlight mark ups for new or revised Work (lines added) in yellow.

c. Highlight items deleted or not installed (lines to be removed) in red.

d. Highlight items constructed per the Contract Documents in green.

6. Submit Record Documents to Construction Manager for review and acceptance 30 days prior to Final Completion of the Project.

E. Applications for Payment will not be recommended for payment if Record Documents are found to be incomplete or not in order. Final payment will not be recommended without complete Record Documents.

PART 2: PRODUCTS (NOT USED)

PART 3: EXECUTION (NOT USED)

END OF SECTION

GEOTECHNICAL ENGINEERING REPORT

Jaro North Phase 1 - Streets and Preliminary Foundation Recommendations
FM 758 & Highway 123
Seguin, Texas

PSI Project No. 0312-3209

PREPARED FOR:

Lennar
100 Northeast Loop 410, Suite 1155
San Antonio, Texas 78216

June 13, 2024

BY:

PROFESSIONAL SERVICE INDUSTRIES, INC.
3 Burwood Lane
San Antonio, Texas 78216
Phone: (210) 342-9377

Professional Service Industries, Inc.
3 Burwood Lane
San Antonio, Texas 78216
Office – (210) 342-9377

June 13, 2024

Lennar
100 Northeast Loop 410, Suite 1155
San Antonio, Texas 78216

Attn: Mr. Richard Mott

RE: GEOTECHNICAL ENGINEERING REPORT
Jaro North Phase 1 - Streets and Preliminary Foundation Recommendations
FM 758 & Highway 123
Seguin, Texas
PSI Project No. 0312-3209

Dear Mr. Mott:

Professional Service Industries, Inc. (PSI), an Intertek company, is pleased to submit this Geotechnical Engineering Report for the above-referenced project. This report includes the results from the field and laboratory investigation along with recommendations for use in preparation of the appropriate design and construction documents for this project.

PSI appreciates the opportunity to provide this Geotechnical Engineering Report and looks forward to continuing participation during the design and construction phases of this project. PSI also has great interest in providing materials testing and inspection services during the construction of this project and will be glad to meet with you to further discuss how we can be of assistance as the project advances.

If there are questions pertaining to this report, or if PSI may be of further service, please contact us at your convenience.

Respectfully submitted,

PROFESSIONAL SERVICE INDUSTRIES, INC.
Texas Board of Professional Engineers Certificate of Registration # F003307

Louis Ratcliffe, E.I.T.
Project Engineer

Philip L. Johnson, P.E.
Senior Geotechnical Engineer
Principal Consultant - Geotechnical Services

June 13, 2024

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1.0 PROJECT INFORMATION

1.1 PROJECT AUTHORIZATION

Professional Service Industries, Inc. (PSI), an Intertek company, has completed a field exploration and geotechnical evaluation for the proposed Jaro North Phase 1 - Streets and Preliminary Foundation Recommendations project. Mr. Richard Mott, representing Lennar, authorized PSI's services on April 26, 2024, by signing PSI Proposal No. 424364. PSI's proposal contained a proposed scope of work, lump sum fee, and PSI's General Conditions.

1.2 PROJECT DESCRIPTION

Based on information provided by the Client and PSI's review of a site plan entitled "Jaro North Subdivision", prepared by INK Civil, dated October 26, 2021, and the results of this geotechnical investigation, a summary of our understanding of the proposed project is provided below in the following Project Description table.

TABLE 1.1: PROJECT DESCRIPTION

Project Items	Approximately 107 Acres of residential lots and approximately 18,000 lineal feet of subdivision streets
Anticipated Building Construction Types	Residences will be 1 or 2-story wood-framed
Existing Grade Change within Building	Varied
Finished Floor Elevations	Not available at this time
Anticipated Foundation Types	Monolithic Stiffened Beam and Slab-on-Grade
Anticipated Maximum Design Column Loads	75 kips
Anticipated Maximum Design Wall Loads	2.0 kips per Lineal Foot
Pavement for Parking and Drives	Flexible Asphalt (HMAC)
Design Traffic Load	Local Streets: 300,000 ESALs Collector Streets: 1,000,000 ESALs Primary and Secondary Arterial: 2,000,000 ESALs

The geotechnical recommendations presented in this report are based on the available project information, structure locations, and the subsurface materials encountered during the field investigation. If the information presented above is incorrect, please inform PSI so that the recommendations presented in this report can be amended, as necessary. PSI will not be responsible for the implementation of provided recommendations if not notified of changes in the project.

1.3 PURPOSE AND SCOPE OF SERVICES

The purpose of this study is to evaluate the subsurface conditions at the site and develop geotechnical engineering recommendations and guidelines for use in preparing the design and other related construction documents for the proposed project. The scope of services included drilling soil borings, performing laboratory testing, and preparing this geotechnical engineering report.

This report briefly outlines the available project information, describes the site and subsurface conditions, and presents the following:

- General site development and subgrade preparation recommendations.

- Estimated potential soil movements associated with collapsing, shrinking and swelling soils and methods to reduce these movements.
- Recommendations for site excavation, fill compaction, and the use of on-site and imported fill material under pavements.
- Preliminary recommendations for building pad preparation for ground-supported slabs based on the existing conditions.
- Preliminary recommendations for the design of foundations for supporting the proposed structures, which may include Wire Reinforcing Institute (WRI) and Post-Tensioning Institute (PTI) design criteria for slab-on-grade foundations designed for the existing conditions.
- Seismic design site classification per the 2018 International Building Code.
- Recommendations for the design of flexible asphaltic pavement systems for the proposed residential streets per the City of Seguin Pavement Design Standards.

The scope of services for this geotechnical exploration did not include an environmental, mold nor detailed seismic/fault assessment for determining the presence or absence of wetlands, or hazardous or toxic materials in the soil, bedrock, surface water, groundwater, or air on or below, or around this site. Statements in this report or on the boring logs regarding odors, colors, and unusual or suspicious items or conditions are strictly for informational purposes. The report also does not include a detailed settlement analysis or slope stability analysis.

2.0 SITE AND SUBSURFACE CONDITIONS

2.1 SITE DESCRIPTION

The following table provides a generalized description of the existing site conditions based on visual observations during the field activities, as well as other available information.

TABLE 2.1: SITE DESCRIPTION

Site Location	Latitude: 29.7074°; Longitude: -97.9694° FM 758 & Highway 123 in Seguin, Texas
Site History	Undeveloped Land
Existing Site Ground Cover	Grass
Existing Grade/Elevation Changes	Sloping down in all directions from high area near the center of the site
Site Geology (Geologic Atlas of Texas)	Navarro Group and Marlbrook Marl (Knb)
Site Boundaries/Neighboring Development	Undeveloped property surrounds the site
Ground Surface Soil Support Capability for Operational Stability and Site Access	Firm Enough for Field Equipment when Dry

2.2 FIELD EXPLORATION

Field exploration for the project consisted of drilling a total of **nineteen (19) borings**. The boring design element, approximate depths and drilling footage are provided in the following table.

TABLE 2.2: FIELD EXPLORATION SUMMARY

Design Element	Number of Borings	Boring Depth (ft)	Drilling Footage (feet)
Streets	19	15	285
TOTAL:	**19**	**---**	**285**

The boring locations were selected by PSI personnel and located in the field using a recreational-grade GPS system. Elevations of the ground surface at the boring locations were not provided and should be surveyed by others prior to construction, if required. We have estimated ground surface elevations at the boring locations from the topographic survey provided (or from Google Earth) and estimate an approximate 1-foot accuracy. The references to elevations of various subsurface strata are based on depths below existing grade at the time of drilling. The approximate boring locations are depicted on the Boring Location Plan provided in the Appendix.

TABLE 2.3: FIELD EXPLORATION DESCRIPTION

Drilling Equipment	Truck-Mounted Drilling Equipment
Drilling Method	Continuous Flight-Auger
Field Testing	Hand Penetrometer Standard Penetration Test (ASTM D1586)
Sampling Procedure	ASTM D1587/1586
Sampling Frequency	Continuously to a Depth of 10 Feet and at 5-foot Intervals Thereafter
Frequency of Groundwater Level Measurements	During and After Drilling
Boring Backfill Procedures	Soil Cuttings
Sample Preservation and Transportation Procedure	General Accordance with ASTM D4220

During field activities, the encountered subsurface conditions were observed, logged, and visually classified (in general accordance with ASTM D2487). Field notes were maintained to summarize soil types and descriptions, water levels, changes in subsurface conditions, and drilling conditions.

2.3 LABORATORY TESTING PROGRAM

PSI supplemented the field exploration with a laboratory testing program to determine additional engineering characteristics of the subsurface soils encountered. The laboratory testing program included:

TABLE 2.4: LABORATORY TESTING PROGRAM

Laboratory Test	Procedure Specification
Visual Classification	ASTM D2488
Moisture Content	ASTM D2216
Atterberg Limits	ASTM D4318
Material Finer than No. 200 Sieve	ASTM D1140
California Bearing Ratio (CBR)	ASTM D1883
Sulfate Content in Soils	TEX-145-E
Soil-Lime Testing	TEX-121-E, Part III

The laboratory testing program was conducted in general accordance with applicable ASTM Test Methods. The results of the laboratory tests are provided on the Boring Logs in the Appendix. Portions of samples not altered or consumed by laboratory testing will be discarded 60 days from the date shown on this report.

2.4 SITE GEOLOGY

We reviewed the **Seguin Sheet of the Geologic Atlas of Texas** in an effort to determine the geologic setting of the project site and surrounding areas. The Geologic Atlas of Texas was developed by the Bureau of Economic Geology at The University of Texas using aerial photography, data from various oil and gas exploration companies, and very limited ground reconnaissance. Our review indicates that the project site is located in the **Navarro Group and Marlbrook Marl** ("upper Taylor marl") undivided. The San Antonio Sheet generally describes the **Navarro Group and Marlbrook Marl** as consisting of marl and clay with minor sandstone and siltstone in the upper part of the formation and a lower part consisting of clay. The lower clay beds are dominantly montmorillonitic and weathers to a very thick black clayey soil. The thickness of the upper part of the formation can be as much as 580 feet while the lower part can have a thickness on the order of 400 feet.

2.5 SUBSURFACE CONDITIONS

The results of the field and laboratory investigation have been used to develop a generalized subsurface profile at the project site. The following subsurface descriptions highlight the major subsurface stratification features and material characteristics.

TABLE 2.5: GENERALIZED SUBSURFACE PROFILE TABLE

Top (ft)	Bot. (ft)	Soil Type	ω (%)	LL (%)	PI	-200 Sieve (%)	N	PP
0	4.5 – 15	Fat Clay	10 – 41	54 – 113	34 – 85	86 – 100	4 – 48	1.5 – 4.5
4.5 – 6.5	6.5 - 15	Marl[7]	4 – 16	26 – 43	10 -26	65 – 72	23 – 50/1”	--

Note:

1. *ω = Moisture Content (%)*
2. *LL= Liquid limit (%)*
3. *PI = Plasticity Index*
4. *-#200 Sieve = % Passing the #200 Sieve*
5. *N = Standard Penetration Test blow count (blows/foot)*
6. *PP – Hand Penetrometer*
7. *Marl encountered at borings B-01, B-04, B-05, and B-06*

The material properties for the marl were obtained by laboratory testing, however, these tests were performed on grab samples from cuttings or Standard Penetration Test samples where the rock-like materials had been broken down to its finer constituent materials. Therefore, the reported properties reflect the nature of broken-down rock-like material, which was considered in the analysis and recommendations provided in this report.

The boring logs included in the Appendix should be reviewed for specific information at the boring locations. The boring logs include soil descriptions, stratifications, locations of the samples, and field and laboratory test data. The descriptions provided on the logs only represent the conditions at the specific boring location. The stratifications represent the approximate boundaries between subsurface materials. The actual transitions between strata may be more gradual and less distinct. Variations will occur and should be expected across the site.

2.5.1 GROUNDWATER INFORMATION

Water level measurements were performed during drilling and after completion of drilling. Specific information concerning groundwater is noted on each boring log presented in the Appendix of this report. Groundwater **was not** encountered during the field investigation of this site.

Groundwater levels fluctuate seasonally as a function of rainfall, proximity to creeks, rivers and lakes, the infiltration rate of the soil, seasonal and climatic variations and land usage. In relatively pervious soils, such as sandy soils, the indicated depths are a relatively reliable indicator of groundwater levels. In relatively impervious soils, water levels observed in the borings may not provide a reliable indication of groundwater elevations, even after several days. If a detailed water level evaluation is required, observation wells or piezometers can be installed at the site to monitor water levels.

The groundwater levels presented in this report were measured at the time of PSI field activities. The contractor should be prepared to control groundwater, if encountered during construction activities.

3.0 GEOTECHNICAL EVALUATION AND RECOMMENDATIONS

3.1 GEOTECHNICAL DISCUSSION

Based upon the information gathered from the soil borings and laboratory testing, the clay soils encountered at this site within the seasonally active zone (estimated to extend to a depth of approximately 15 feet below the existing ground surface) have a **very high** potential for expansion. PSI recommends the expansive potential (i.e. Potential Vertical Movement (PVM)) of these soils be addressed in the design and construction of this project to reduce the potential for foundation movements.

An improved foundation pad must be constructed under soil-supported floor slab and foundation elements due to the presence of expansive foundation soils. Several methods are available to reduce the shrink/swell movement. PSI typically recommends excavating unacceptable soils and, after scarifying and moisture conditioning the exposed subgrade, replacement with some of the removed existing excavation soils used as compacted reconditioned fill and finally select fill materials are placed and compacted up to the bottom of the floor slab.

The following design recommendations have been developed based on the previously described project characteristics and subsurface conditions encountered. If there are changes in the project criteria, PSI should be retained to determine if modifications in the recommendations will be required. The findings of such a review would be presented in a supplemental report. Once final design plans and specifications are available, a general review by PSI is recommended to observe that the conditions assumed in the project description are correct and to verify that the earthwork and foundation recommendations are properly interpreted and implemented within the construction documents.

3.2 POTENTIAL VERTICAL MOVEMENT OF EXPANSIVE SOILS (PVM)

The soils encountered at the soil boring locations exhibit a **very high** potential for volumetric changes, due to fluctuations in soil moisture content. PSI has conducted laboratory testing on the soils to estimate the expansive soil potential with soil moisture variations. These soil moisture variations are based on historical climate change data for a particular site. Determining the soil potential for shrinking and swelling, combined with historical climate variation, aids the engineer in quantifying the soil movement potential of the soils supporting the floor slab and shallow foundations based on climate variations. Shrink/swell movement procedures using two soil modeling systems, the Post Tensioning Institute's (PTI) "Design of Post-Tensioned Slabs-on-Ground, 3rd Edition" and Texas Department of Transportation (TxDOT) method TEX-124-E, were utilized to approximate the Potential Vertical Movement (PVM) for this location.

The anticipated shrink/swell movement (PVM) is a soil movement estimated in consideration of soil properties and climatic moisture changes at a particular geographic location. Foundations on expansive soils are designed with sufficient stiffness to resist these soil movements to an acceptable magnitude.

3.2.1 SHRINK/SWELL MOVEMENT (PVM) ESTIMATE

Based on laboratory testing results and the TEX-124-E and the PTI methods, the potential vertical movement within the proposed project area was estimated to be approximately **6 inches.**

It is not possible to accurately quantify actual soil moisture changes and resulting shrink/swell movements. The PVM and referenced structural movement values provided should be considered approximate values

based on industry standard practice and experience. Extreme soil moisture variations could occur due to unusual drought severity, leaking water or sewer lines, perched groundwater infiltration, or seasonal springs. Also, soil transpiration from trees located adjacent to or previously underneath the building, downspouts directing roof discharge under the foundation, poor drainage or irrigation line breaks could lead to excessive movements.

Therefore, because of these unknown factors, the shrink/swell potential of soils can often be significantly underestimated using the previously mentioned methods of evaluating PVM.

The unknown factors previously mentioned cannot be determined at the time of the geotechnical study. Therefore, estimated shrink/swell movements are calculated only in consideration of historical climate data related to soil moisture variations from climate changes. Movements in excess of those estimated should be anticipated and regular maintenance should be provided to address these issues throughout the life of the structure.

3.3 PRELIMINARY FOUNDATION RECOMMENDATIONS DISCUSSION

Based on information provided to PSI, information obtained during the field operations, results of the laboratory testing, and PSI's experience with similar projects, recommendations for a monolithic stiffened Beam and slab-on-grade type foundation are presented in this report. If an alternative foundation type is desired, PSI can provide alternative recommendations in a supplemental letter upon request.

3.3.1 BUILDING PAD EARTHWORK RECOMMENDATIONS FOR EXISTING CONDITIONS

Building pad preparation should consist of proofrolling the exposed subgrade then placement of on-site soils in moisture conditioned compacted lifts to achieve finish floor grade, as needed. A minimal amount of site earthwork is expected at this site since the area is planned to be mass graded and fills will be placed in a controlled manner during mass grading operations. The following table provides general recommendations for the installation of a building pad based on the site's existing conditions.

TABLE 3.1: BUILDING PAD PREPARATION FOR EXISTING CONDITIONS

Application	Waffle Slab with Soil-Supported Floor Slab
Building pad preparation	The loose soils should be removed and stockpiled for use, provided the material properties meet the requirements listed.
Foundation Improvement Method	Remove and replace loose soils with moisture conditioned compacted on-site soils.
Minimum Over-Excavation	**As required to remove loose soils**
Horizontal Undercut Extent beyond foundation perimeter	5 feet
Subgrade Proof-Rolling	Proof-roll subgrade with rubber-tired, 20-ton (loaded) construction equipment; Alternate Equipment can be used with Geotechnical Engineer Approval. Remove rutting or excessively deflecting soils; Replace failing soils with moisture conditioned compacted on-site soils
Exposed Subgrade Treatment	Proof-roll

Building pad fill thickness	**As required to achieve the finished building pad elevation.**
Fill requirements	On-site soils or imported materials may be used as fill. Refer to Table 3.2 for compaction requirements. On-site or imported materials should meet the following specifications: Allowable PI from 12 to 40 Percent Passing No. 200 Sieve > 25% Max Particle Size < 3”
Vapor Retarder Material	Approved by Architect/Structural Engineer
Maximum Loose Lift Thickness	8 inches

3.3.2 Compaction and Testing Recommendations for Foundation Pad Areas

The following table outlines foundation pad compaction recommendations in consideration of appropriate vertical movement reduction method.

Table 3.2: Compaction Recommendations

Location	Material	Density Test Method	Plasticity Index	Percent Compaction	Optimum Moisture Content	Testing Frequency
Building Pad Areas	Subgrade, Fill	ASTM D698	PI ≥ 25	94% to 98%	≥ +2%	1 per 5,000 SF; min. 3 per lift
			PI < 25	≥ 95%	0 to +4%	

3.4 Design Measures to Reduce Changes in Soil Moisture

The design and construction of a grade-supported foundation should include the following elements:

- Roof drainage should be controlled by gutters and carried well away from the structure.
- The ground surface adjacent to the building perimeter should be sloped and maintained a minimum of 5% grade away from the building for 10 feet to result in positive surface flow or drainage away from the building perimeter. In areas adjacent to the building controlled by ADA, concrete flatwork slopes should not be more than 2% within 10 feet of the building.
- Hose bibs, sprinkler heads, and other external water connections should be placed well away from the foundation perimeter such that surface leakage cannot readily infiltrate into the subsurface or compacted fills placed under the proposed foundations and slabs.
- No trees or other vegetation over 6 feet in height shall be planted within 15 feet of the structure unless specifically accounted for in the foundation design.
- Utility bedding should not include gravel near the perimeter of the foundation. Compacted clay or flowable fill trench backfill should be used in lieu of permeable bedding materials between 2 feet inside the building to 4 feet beyond the exterior of the building edge to reduce the potential for water to infiltrate within utility bedding and backfill material.

- Paved areas around the structure are helpful in maintaining soil moisture equilibrium. It will be very beneficial to have pavement, sidewalks or other flatwork located immediately adjacent to the building to both reduce intrusion of surface water into the more permeable select fill and to reduce soil moisture changes along the exterior portion of the floor due to soil moisture changes from drought, excessive rainfall or irrigation, etc.
- Flower beds and planter boxes should be piped or watertight to prevent water infiltration under the building.
- Experience indicates that landscape irrigation is a common source of foundation movement problems and pavement distress. Repairing irrigation lines as soon as possible after leakage commences will benefit foundation performance greatly.
- Building pad and pavement subgrade should be protected and covered within 48 hours to reduce changes in the natural moisture regime from rainfall events or excessive drying from heat and wind.

3.5 PRELIMINARY FOUNDATION DESIGN RECOMMENDATIONS

The following sections outline geotechnical design requirements for the recommended foundation options.

3.5.1 STIFFENED BEAM AND SLAB-ON-GROUND FOUNDATION (WAFFLE SLAB) RECOMMENDATIONS

A waffle slab type foundation is generally used to support relatively light structures where soil conditions are relatively uniform and where uplift and settlement can be tolerated. The intent of a stiffened beam and slab-on-grade foundation is to allow the structure and foundation to move with soil movements while providing sufficient stiffness to limit differential movements within the superstructure to an acceptable magnitude. The foundation may be designed using the Design of Slab-On-Ground Foundations published by the Wire Reinforcement Institute, Inc. (August 1981, updated March 1996). Alternately, the foundation may be designed using the 3rd Edition of the Design of Post-Tensioned Slabs-on-Ground published by the Post-Tensioning Institute (PTI DC10.1-08). The following table is applicable for a conventionally reinforced "Waffle Slab" with subgrade prepared in accordance with Section 3.3, which details foundation pad preparation and construction recommendations.

TABLE 3.3: WRI WAFFLE SLAB DESIGN PARAMETERS

Effective Plasticity Index	57
Soil/Climatic Rating Factor (1–C)	0.36
Allowable Bearing Pressure for Grade Beams	2,500 psf
Bearing Stratum at Bottom of Grade Beams	Compacted on-site soils
Penetration of Perimeter Beams Below Final Exterior Grade	At least 30 inches

PSI is providing PTI design values for the Structural Engineer's design. These design values are estimated from the "Volflo" computer program in consideration of the existing soil conditions in the building area and local experience. The following table is applicable for a conventionally reinforced or post-tensioned slab-on-grade with building prepared in accordance with Section 3.3, which details foundation pad preparation and construction recommendations.

TABLE 3.4: PTI WAFFLE SLAB DESIGN PARAMETERS

Edge Moisture Variation Distance Center Lift, e_m Edge Lift, e_m	 5.0 feet 2.7 feet
Differential Soil Movement Center Lift, y_m Edge Lift, y_m	 -2.4 inches 3.4 inches
Allowable Bearing Pressure for Grade Beams	2,500 psf
Bearing Stratum at Bottom of Grade Beams	Compacted on-site soils
Penetration of Perimeter Beams Below Final Exterior Grade	At least 30 inches

Utilities that project through slab and grade beam foundations should be designed either with some degree of flexibility or with sleeves in order to prevent damage to these lines as a result of vertical movement. Contraction, control or expansion joints should be designed and placed in interior wall partitions to minimize and control wall cracking as a result of foundation movements. Properly planned placement of these joints will assist in controlling the degree and location of material cracking which normally occurs due to material shrinkage, thermal affects, soil movements and other related factors.

3.6 SITE SEISMIC DESIGN RECOMMENDATIONS

For the purposes of seismic design, based on the encountered site conditions and local geology, PSI interpreted the subsurface conditions to satisfy the **Site Class D** criteria for use at this site as defined by the International Building Code (IBC). The site class is based on the subsurface conditions encountered at the soil borings, the results of field and laboratory testing, experience with similar projects in this area, and considering the site prepared as recommended herein. The table below provides recommended seismic parameters for the project based on IBC 2018/ASCE 7-16.

TABLE 3.5: RECOMMENDED DESIGN SEISMIC PARAMETERS

Project/Structure Centroid Coordinates (WGS84 - Decimal Degree)	**29.7074°; -98.9694°**
Seismic Parameter	**IBC 2018/ASCE 7-16**
Site Class	D
Risk Category	II
0.2 sec (S_S)	0.047
1.0 sec (S_1)	0.02
Site Coefficient 0.2sec, F_a	1.6
Site Coefficient 1.0 sec, F_v	2.4
0.2 sec (S_{DS})	0.05
1.0 sec (S_{D1})	0.032

4.0 PAVEMENT DESIGN RECOMMENDATIONS

4.1 PAVEMENT DESIGN PARAMETERS

PSI understands that flexible pavements will be considered for this project. Therefore, pavement design recommendations based on the criteria presented in the *City of Seguin Road Adequacy & Access Technical Guidance* (revised January 2024), an average daily traffic volume of <1000 (Approximately 300,000 18-kip Equivalent Single Axle Loads (ESALs)) for flexible pavement was evaluated for a street classification of Local Streets. An average daily traffic volume of <3000 (1,000,000 18-kip ESALs for flexible pavement was evaluated for a street classification of Collector streets. An average daily traffic volume of >3000 (2,000,000 18-kip ESALs) for flexible pavement was evaluated for a street classification of Primary and Secondary Arterial streets. PSI utilized the "AASHTO Guide for Design of Pavement Structures" published by the American Association of State Highway and Transportation Officials to evaluate the pavement thickness recommendations in this report. This method of design considers pavement performance, traffic, roadbed soil, pavement materials, environment, drainage, and reliability. Each of these items is incorporated into the design methodology. PSI is available to provide laboratory testing and engineering evaluation to refine the site-specific design parameters and sections, upon request.

PSI collected bulk soil samples of the native soils encountered at the site to conduct Atterberg Limits, Percent Finer than the No. 200 Sieve, California Bearing Ratio (CBR) test, and Lime Series Testing. The results for the Moisture Density Relationship and the CBR Tests are presented in the Appendix. The following table presents the results from our laboratory testing performed on the native soil.

TABLE 4.1: NATIVE SOIL TEST SUMMARY

Material	Liquid Limit (ASTM D4318)	Plasticity Index (ASTM D4318)	Percent Passing No. 200 Sieve	Laboratory CBR Value (ASTM D1883)	Lime Series (TxDOT TEX-121-E)
Fat Clay (CH)	75	53	90	3.1	6%

Based on the results of the laboratory testing, PSI has provided recommended pavement sections for pavements constructed on an improved subgrade. Details regarding the basis for this design are presented in the table below.

TABLE 4.2: PAVEMENT DESIGN PARAMETERS AND ASSUMPTIONS (RIGID AND FLEXIBLE)

City of Seguin Local Streets	
Reliability, percent	70
Initial Serviceability Index, Flexible Pavement	4.2
Terminal Serviceability Index	2.0
Design Traffic Loading, Flexible Pavement, without bus	300,000 equivalent single axle loads (ESALs)
Standard Deviation, Flexible Pavement	0.45
Subgrade California Bearing Ratio (CBR)	3.1
Subgrade Modulus of Subgrade Reaction, k in pci	100

City of Seguin Collector Streets	
Reliability, percent	90
Initial Serviceability Index, Flexible Pavement	4.2
Terminal Serviceability Index	2.0
Design Traffic Loading, Flexible Pavement	1,000,000 equivalent single axle loads (ESALs)
Standard Deviation, Flexible Pavement	0.45
Subgrade California Bearing Ratio (CBR)	3.1
Subgrade Modulus of Subgrade Reaction, k in pci	100
City of Seguin Primary and Secondary Arterials	
Reliability, percent	95
Initial Serviceability Index, Flexible Pavement	4.2
Terminal Serviceability Index	2.0
Design Traffic Loading, Flexible Pavement	2,000,000 equivalent single axle loads (ESALs)
Standard Deviation, Flexible Pavement	0.45
Subgrade California Bearing Ratio (CBR)	3.1
Subgrade Modulus of Subgrade Reaction, k in pci	100

Asphaltic concrete pavements founded on top of expansive soils will be subjected to PVM soil movements estimated and presented in this report. These potential soil movements are typically activated to some degree during the life of the pavement. Consequently, pavements can be expected to crack and require periodic maintenance to reduce damage to the pavement structure.

During the paving life, maintenance to seal surface cracks within asphalt paving should be undertaken to achieve the desired paving life. Perimeter drainage should be controlled to prevent or retard influx of surface water from areas surrounding the paving. Water penetration leads to paving degradation. Water penetration into base or subgrade materials, sometimes due to irrigation or surface water infiltration leads to pre-mature paving degradation. Curbs should be used in conjunction with asphalt paving to reduce potential for infiltration of moisture into the base course. Curbs should extend the full depth of the base course and should extend at least 3 inches into the underlying clayey subgrade. The base layer should be tied into the area inlets to drain water that may collect in the base.

Material specifications, construction considerations, and section requirements are presented in following sections.

The presented recommended pavement sections are based on the field and laboratory test results for the project, local pavement design practice, design assumptions presented herein and previous experience with similar projects. The project Civil Engineer should verify that the ESAL and other design values are appropriate for the expected traffic and design life of the project. PSI should be notified in writing if the assumptions or design parameters are incorrect or require modification.

4.2 Pavement Section Recommendations

PSI anticipated that the roadways and parking areas will be used primarily by passenger vehicles and delivery vehicles. PSI is providing parking and drive area sections based on experience with similar facilities constructed on similar soil conditions for the design traffic loading anticipated.

4.2.1 Flexible Pavement

Recommendations for flexible asphaltic concrete pavement for roadways and parking areas are provided below.

Figure 4.1: Flexible Pavement Typical Section

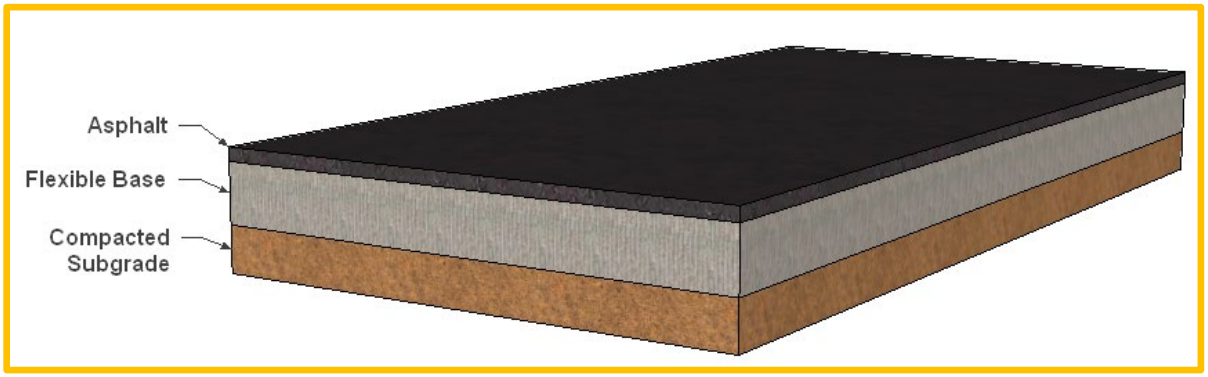


Table 4.3: Flexible Pavement Section Options

Material	Thicknesses		
Traffic Type	Local	Collector	Arterial
Hot Mix Asphaltic Concrete	3”	4”	5”
Import Flexible Base	8”	12”	14”
Compacted Subgrade[1, 2]		8”	

1. Lime treatment of subgrade to a depth of 8-inches will be required for subgrade with a PI greater than 20.
2. Clay subgrade may be stabilized using 6% lime if compaction is not achieved using moisture conditioning.

4.2.2 General Pavement Design and Construction Recommendations

Table 4.4: Pavement Design and Construction Recommendations

Minimum Undercut Depth	6 inches or as needed to remove roots
Low-Density Soil Treatment	**After clearing and grubbing, remove/replace upper 12 inches of exposed soils in maximum 9-inch loose lifts. moisture-condition and compact as Subgrade in Table 4.5.**
Reuse Excavated Soils	Must be free of roots and debris and meet material requirements of intended use
Exposed Subgrade Treatment	**After moisture conditioning and recompacting the low-density subgrade soils, proof-roll with rubber-tired vehicle weighing at least 20 tons. A representative of the Geotechnical Engineer should be present during proof-roll.**

Proof-Rolled Pumping and Rutting Areas	Excavate to firmer materials and replace with compacted general or select fill under direction of a representative of the Geotechnical Engineer
General Fill	Materials free of roots, debris, and other deleterious materials with a maximum rock size of 4 inches with a CBR greater than 3
Minimum General Fill Thickness	As required to achieve grade
Maximum General Fill Loose Lift Thickness	9 Inches
Lime Treatment	Performed in general accordance with COSA Item 108. Subgrade stabilized with lime should achieve a pH of 12.4 or greater. Estimate 5% by dry weight or 30 lbs per square yard.
Flexible Base	COSA Item 200
Maximum Flexible Base Loose Lift Thickness	9 Inches
Hot Mix Asphaltic Concrete	COSA Item 205 Type C

TABLE 4.5: COMPACTION AND TESTING RECOMMENDATIONS FOR PAVEMENT AREAS

Location	Material	Density Test Method	Soil Type	Percent Compaction	Optimum Moisture Content	Testing Frequency
Pavement Areas	Subgrade, General Fill Soil, Low PI Material	Tex-114-E	PI ≥ 25	94% to 98%	0 to +4%	1 per 10,000 SF; min. 3 tests
			PI < 25	≥ 95%	0 to +4%	
	Flexible Base Material	TEX-113-E	COSA Item 200	≥ 95%	±3%	1 per 5,000 SF; min. 3 per lift

5.0 CONSTRUCTION CONSIDERATIONS

Geotechnical Engineer Involvement at the Time of Construction – Foundation pad preparation recommendations on expansive clay sites in this area depend on the soil moisture conditions that exist due to the prevailing climate at the time of construction as well as the expansive properties of the clay.

It is recommended that the foundation pad recommendations presented in this report be confirmed immediately prior to construction by the Geotechnical-Engineer-of Record (GER). Wetter climate conditions near the time of construction can lead to a significant reduction in pad preparation requirements which can often be a substantial percentage of site development cost.

Having a Geotechnical Engineer retained to review the earthwork recommendations in the Construction Documents and be an active participant in team meetings near the time of construction can often result in project cost savings. Therefore, PSI recommends that an AASHTO accredited 3rd party laboratory with qualified professional engineers who specialize in geotechnical engineering be retained to provide observation and testing of construction activities involved in the foundations, earthwork, pavements and related activities of this project. As the GER, PSI's services can be retained as the 3rd party laboratory. PSI's participation would be advantageous to the project flow and value engineering during construction since we are most familiar with the existing soil conditions at the site.

The geotechnical engineer often does not have available all design information at the time of writing the original report since the report is done very early in the design process. The GER can be of great benefit immediately prior to construction since definitive information regarding the location of the building, surrounding flatwork, pavements, planned landscaping, and drainage features is available at that time. The GER can then write Supplement letters to the original geotechnical report often resulting in less risk and significant project cost savings.

PSI cannot accept responsibility for conditions which deviate from those described in this report, nor for the performance of the foundations or pavements if not engaged to also provide construction observation and materials testing for this project. The PSI geotechnical engineer of record should also be engaged by the Design Team during construction, even if periodic on-call testing is contracted with PSI Construction Services.

5.1 Initial Site Preparation Considerations

5.1.1 Subgrade Preparation for Site Work Outside Building Pad and Pavement Areas

Grade adjustments outside of the foundation pad and pavement areas can be made using select or general fill materials. The clean excavated onsite soils may also be reused in areas not sensitive to movement.

Table 5.1: Subgrade Preparation for Non-Structural - General Fill

Minimum Undercut Depth	6 inches or as needed to remove roots, organic and/or deleterious materials
Exposed Subgrade Treatment	Proof-roll subgrade with rubber-tired 20-ton (loaded) construction equipment Alternate Equipment can be used with Geotechnical Engineer Approval
Proof-Rolled Pumping and Rutting Areas	Excavate to firmer materials and replace with compacted general or select fill under direction of a representative of the Geotechnical Engineer
General Fill Type	Any clean material free of roots, debris and other deleterious material with a maximum particle size of 4 inches
Maximum General Fill Loose Lift Thickness	8 inches

Table 5.2: Fill Compaction Recommendations Outside of Building and Pavement Areas

Location	Material	Test Method for Density Determination	Plasticity Index	Percent Compaction	Optimum Moisture Content	Testing Frequency
Outside of Structure / Pavement Areas	General Fill	ASTM D698	PI ≥ 25	94% to 98%	0 to +4%	1 per 10,000 SF; min. 3 per lift
			PI < 25	≥ 95%	0 to +4%	

5.1.2 Existing Site Conditions

The following table outlines construction considerations in consideration of demolition of existing paving and procedures for abandoning old utility lines.

Table 5.3: Considerations for Demolition and Abandoning Utilities

Existing Pavement	
Former paving located within footing of proposed structures	Remove concrete and/or HMAC surface course and base entirely or review impact on case by case basis
Former paving located within footprint of proposed new paving	Remove concrete and/or HMAC surface course and evaluate if base can be reused
Abandoned Utilities	
Utilities of former structures located within new footprint of proposed structure	Remove pipe, bedding and backfill and then replace with select fill placed using controlled compaction
Utilities of former structures located outside of footprint of proposed structure	Abandon in place using a grout plug

5.2 MOISTURE SENSITIVE SOILS/WEATHER RELATED CONCERNS

Soils are sensitive to disturbances caused by construction traffic and changes in moisture content. During wet weather periods, increases in the moisture content of the soil can cause significant reduction in the soil strength and support capabilities. In addition, soils which become wet may be slow to dry and thus significantly retard the progress of grading and compaction activities. It will, therefore, be advantageous to perform earthwork, foundation, and construction activities during dry weather. A relatively all-weather compacted crushed limestone cap having a thickness of at least 6 inches should be provided as a working surface.

5.3 EXCAVATION OBSERVATIONS

Excavations should be observed by a representative of PSI prior to continuing construction activities in those areas. PSI needs to assess the encountered materials and confirm that site conditions are consistent with those discussed in this report. This is especially important to identify the condition and acceptability of the exposed subgrades under foundations and other structures that are sensitive to movement. Soft or loose soil zones encountered at the bottom of the excavations should be removed to the level of competent soils as directed by the Geotechnical Engineer or their representative. Cavities formed as a result of excavation of soft or loose soil zones should be backfilled with compacted select fill or lean concrete.

After opening, excavations should be observed, and concrete should be placed as quickly as possible to avoid exposure to wetting and drying. Surface run-off water should be drained away from the excavations and not be allowed to pond. Excavations left open for more than 48 hours should be protected to reduce evaporation or entry of moisture.

5.4 DRAINAGE CONSIDERATIONS

Water should not be allowed to collect in or adjacent to foundation excavations, on foundation surfaces, or on prepared subgrades within the construction area during or after construction. Proper drainage around grade-supported sidewalks and flatwork is important to reduce potential movements. Excavated areas should be sloped toward one corner to facilitate removal of collected rainwater, groundwater, or surface runoff. Providing rapid, positive drainage away from the building reduces moisture variations within the underlying soils and will aid in reducing the magnitude of potential movements.

5.5 EXCAVATIONS AND TRENCHES

Excavation equipment capabilities and field conditions may vary. Geologic processes are erratic and large variations can occur in small vertical and/or lateral distances. Details regarding “means and methods” to accomplish the work (such as excavation equipment and technique selection) are the sole responsibility of the project contractor. The comments contained in this report are based on small diameter borehole observations. The performance of large excavations may differ as a result of the differences in excavation sizes.

The marl is typically hard and rock-like in some portions of the stratum. Excavations penetrating the marl and marl removal as part of site grading will likely require high-powered, heavy-duty rock excavation equipment.

The Occupational Safety and Health Administration (OSHA) Safety and Health Standards (29 CFR Part 1926, Revised October 1989), require that excavations be constructed in accordance with the current OSHA guidelines. Furthermore, the State of Texas requires that detailed plans and specifications meeting OSHA standards be prepared for trench and excavation retention systems used during construction. PSI understands that these regulations are being strictly enforced, and if they are not closely followed, the owner and the contractor could be liable for substantial penalties.

The contractor is solely responsible for designing and constructing stable, temporary excavations and should shore, slope, or bench the sides of the excavations as required to maintain stability of both the excavation sides and bottom. The contractor's "responsible person", as defined in 29 CFR Part 1926, should evaluate the soil exposed in the excavations as part of the contractor's safety procedures. In no case should slope height, slope inclination, or excavation depth, including utility trench excavation depth, exceed those specified in local, State, and Federal safety regulations.

PSI is providing this information as a service to the client. PSI does not assume responsibility for construction site safety or the contractor's or other parties' compliance with local, State, and Federal safety or other regulations. A trench safety plan was beyond the scope of our services for this project.

6.0 REPORT LIMITATIONS

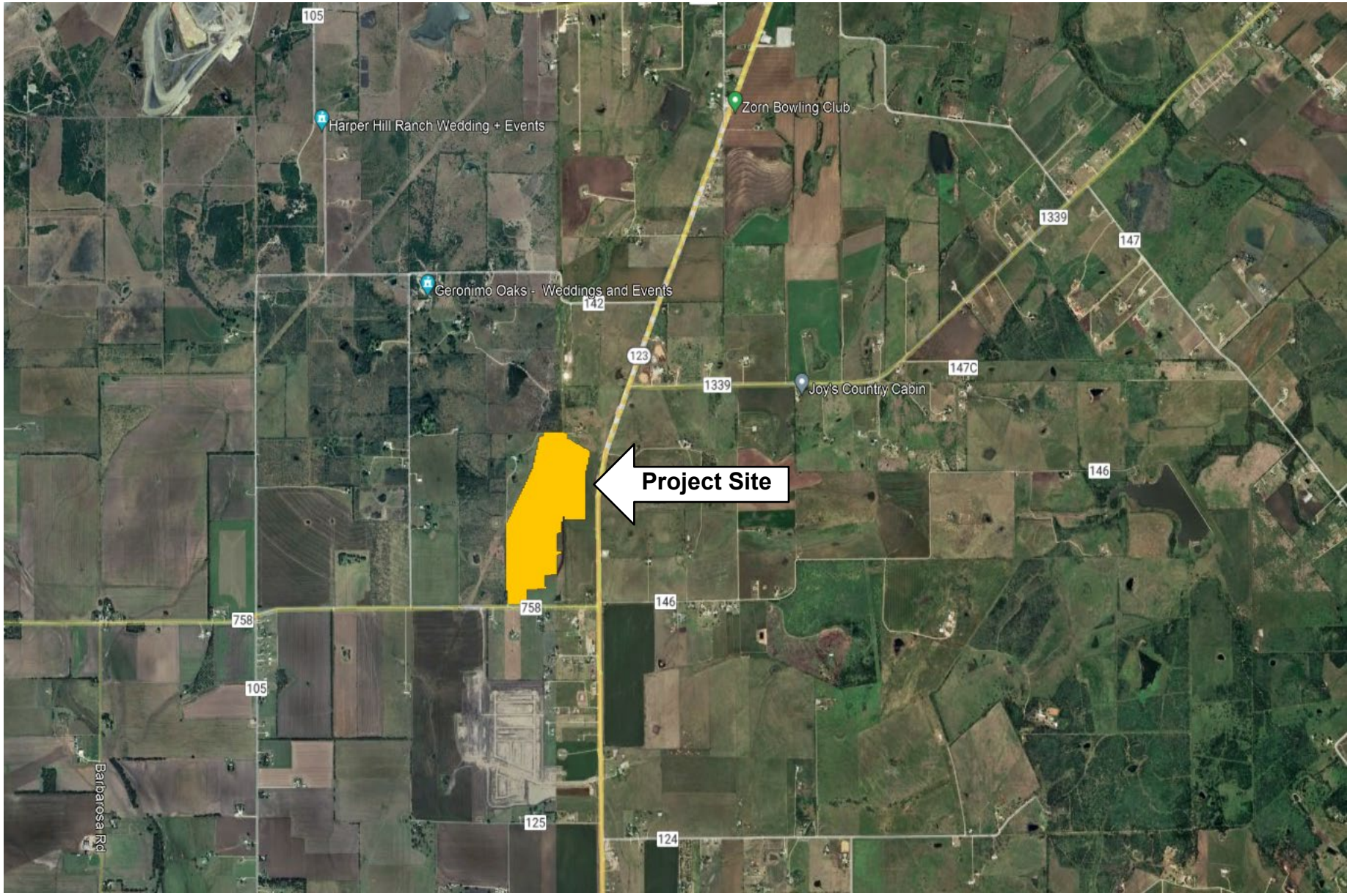
The recommendations submitted in this report are based on the available subsurface information obtained by PSI and design details furnished by the client for the proposed project. If there are revisions to the plans for this project, or if deviations from the subsurface conditions noted in this report are encountered during construction, PSI should be notified immediately to determine if changes in the foundation recommendations are required. If PSI is not notified of such changes, PSI will not be responsible for the impact of those changes on the project.

The Geotechnical Engineer warrants that the findings, recommendations, specifications, or professional advice contained herein have been made in accordance with generally accepted professional Geotechnical Engineering practices in the local area. No other warranties are implied or expressed. This report may not be copied without the expressed written permission of PSI.

After the plans and specifications are more complete, the Geotechnical Engineer should be retained and provided the opportunity to review the final design plans and specifications to check that the engineering recommendations have been properly incorporated in the design documents. At this time, it may be necessary to submit supplementary recommendations. If PSI is not retained to perform these functions, PSI will not be responsible for the impact of those conditions on the project.

This report has been prepared for the exclusive use of Lennar for specific application to the proposed Jaro North Phase 1 - Streets and Preliminary Foundation Recommendations to be constructed at FM 758 & Highway 123 in Seguin, Texas.

APPENDIX



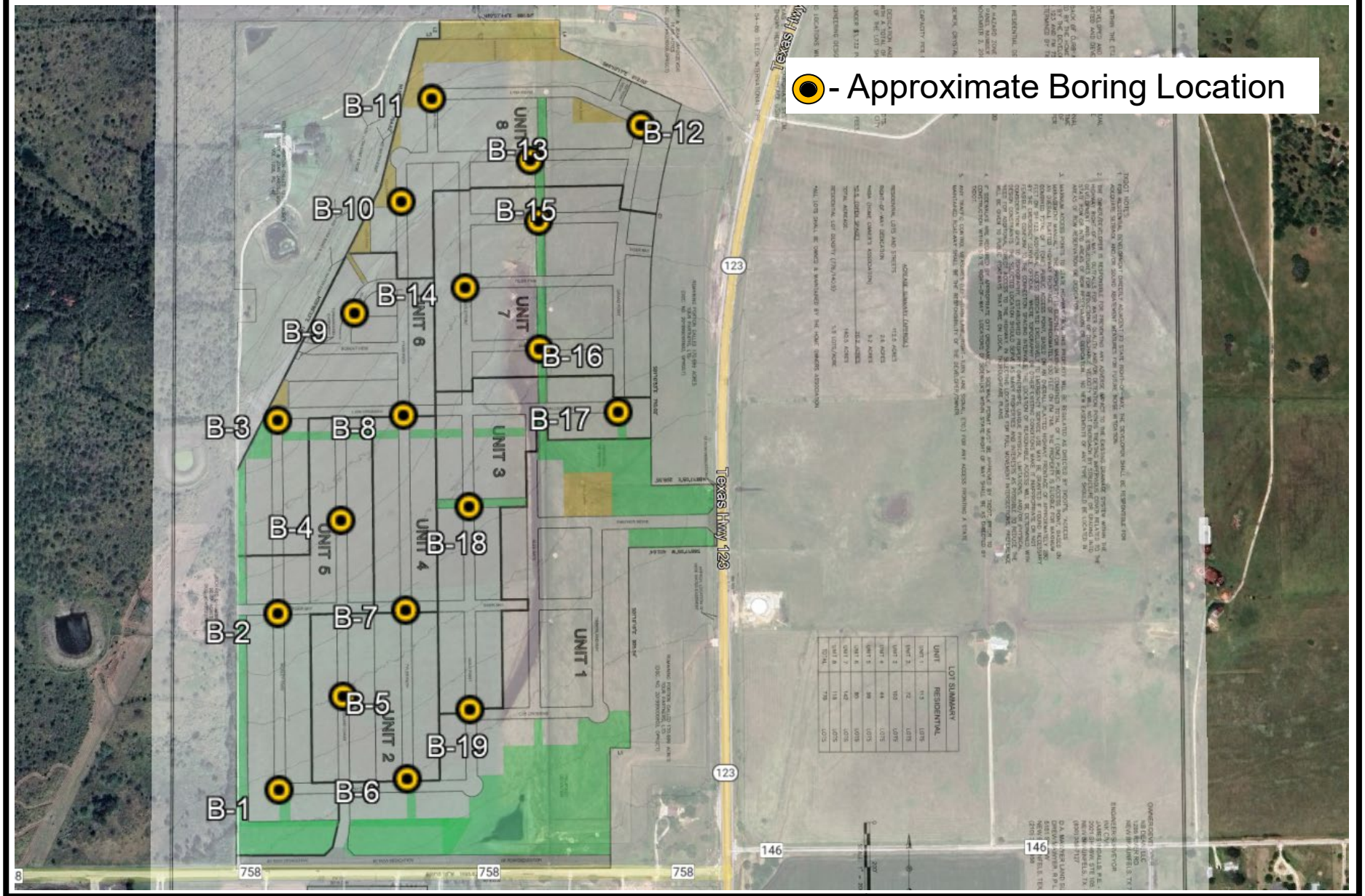
intertek psi
3 Burwood Lane, San Antonio, Texas
(210) 342-9377 FAX (210) 342-9401

Site Vicinity Map

Jaro North Subdivision Phase 1
FM 758 & Highway 123
Seguin, Texas
PSI Project No.: 0312-3209

NOT TO SCALE

N



intertek psi
3 Burwood Lane, San Antonio, Texas
(210) 342-9377 FAX (210) 342-9401

Boring Location Plan

Jaro North Subdivision Phase 1
FM 758 & Highway 123
Seguin, Texas
PSI Project No.: 0312-3209

NOT TO SCALE

N

CBR Results

CALIFORNIA BEARING RATIO - ASTM D1883

Project Name: Jaro North Subdivison Phase 1 Date: 6/12/2024
Project Number: 0312-3209
Material Description: Fat Clay (CH)

Number of Blows/Lift:	30	Wt. Hammer (lbs):	5.5
Maximum Lab Dry Density (pcf):	91.5	Drop (in):	12
95% of Max Dry Density (pcf):	86.9	Opt. Moisture:	24.9
		Piston Area (in^2):	3.00
Equipment ID:	7CBR311	Moisture Added (%)	16.706

CBR Mold Information

Wt. of Mold (g):	7171
Weight of Mold & Soil (g):	10512
Weigh of Soil (g):	3341
Wet Density (pcf):	98.18
Dry Density (pcf):	**84.13**
Volume of Mold (ft^3):	0.075

Compaction and Moisture Data

Compaction		Molded Moisture		
			Before	After
Wt. of Mold:		Tare ID:	X104	C101
Mold Dia:		Wet + Tare:	309.41	284.61
Mold Height:		Dry + Tare:	264.7	244.65
Spacer Disc		Tare:	95.44	88.23
Height:		% Moist	26.415	25.550

Soaking Data

Date	Time	Days	Reading	Swell (%)
6/3/2024	10:37 AM	0	0.0394	--
6/4/2024	10:45 AM	1	0.0487	23.60%
6/5/2024	10:15 AM	2	0.0521	32.23%
6/6/2024	10:20 AM	3	0.0526	33.50%
6/7/2024	8:25 AM	4	0.0528	34.01%

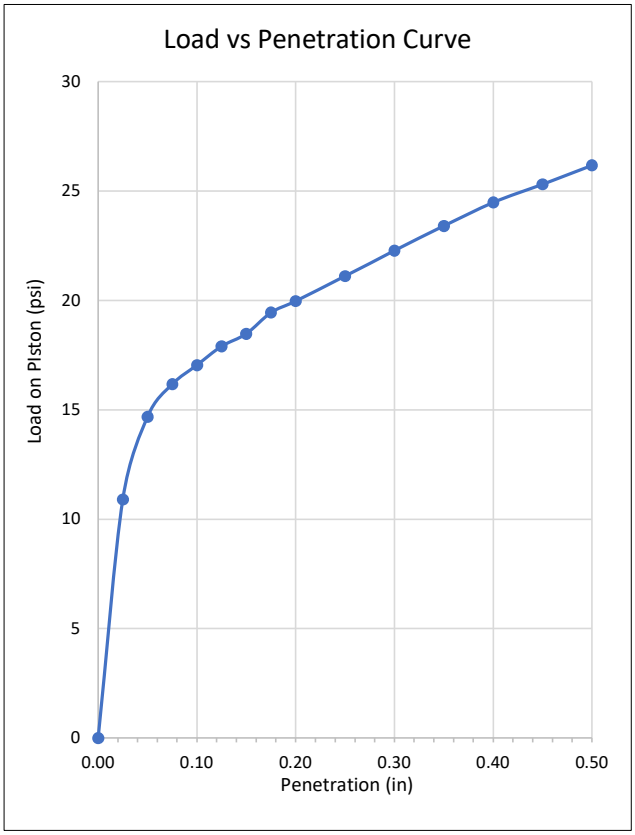
After Moisture Top 1"

Tare ID:	X103
Wet + Water:	280.82
Dry + Tare:	229.93
Tare:	88.06
% Moisture:	**35.9**

Actual Compaction:	**92%**

Compaction Test Results

Penetration (in/mm)		Reading Data Ratio @ 1.3mm/0.05 in per minute		
		Load (lb)	Total psi	CBR
0.000	0.000	0.0	0.0	
0.025	0.635	32.7	10.9	
0.050	1.270	44.0	14.7	
0.075	1.910	48.5	16.2	
0.100	2.540	51.1	17.0	1.7
0.125	3.180	53.7	17.9	
0.150	3.810	55.4	18.5	
0.175	4.450	58.3	19.4	
0.200	5.080	59.9	20.0	1.3
0.250	6.350	63.3	21.1	
0.300	7.620	66.8	22.3	
0.350	8.890	70.2	23.4	
0.400	10.160	73.4	24.5	
0.450	11.430	75.9	25.3	
0.500	12.700	78.5	26.2	



CALIFORNIA BEARING RATIO - ASTM D1883

Project Name: Jaro North Subdivison Phase 1 Date: 6/12/2024
Project Number: 0312-3209
Material Description: Fat Clay (CH)

Number of Blows/Lift:	40	Wt. Hammer (lbs):	5.5
Maximum Lab Dry Density (pcf):	91.5	Drop (in):	12
95% of Max Dry Density (pcf):	86.925	Opt. Moisture:	24.9
		Piston Area (in^2):	3.00
Equipment ID:	4CBR311	Moisture Added (%)	16.706

CBR Mold Information

Wt. of Mold (g):	7168
Weight of Mold & Soil (g):	10520.5
Weigh of Soil (g):	3352.5
Wet Density (pcf):	98.52
Dry Density (pcf):	**84.42**
Volume of Mold (ft^3):	0.075

Compaction and Moisture Data

Compaction		Molded Moisture		
			Before	After
Wt. of Mold:		Tare ID:	X112	X107
Mold Dia:		Wet + Tare:	250.12	293.93
Mold Height:		Dry + Tare:	218.03	251.47
Spacer Disc		Tare:	92.24	89.08
Height:		% Moist	25.511	26.147

Soaking Data

Date	Time	Days	Reading	Swell (%)
6/3/2024	12:15 PM	0	0.0185	--
6/4/2024	10:45 AM	1	0.0286	54.59%
6/5/2024	10:15 AM	2	0.0312	68.65%
6/6/2024	10:20 AM	3	0.0327	76.76%
6/7/2024	8:25 AM	4	0.0336	81.62%

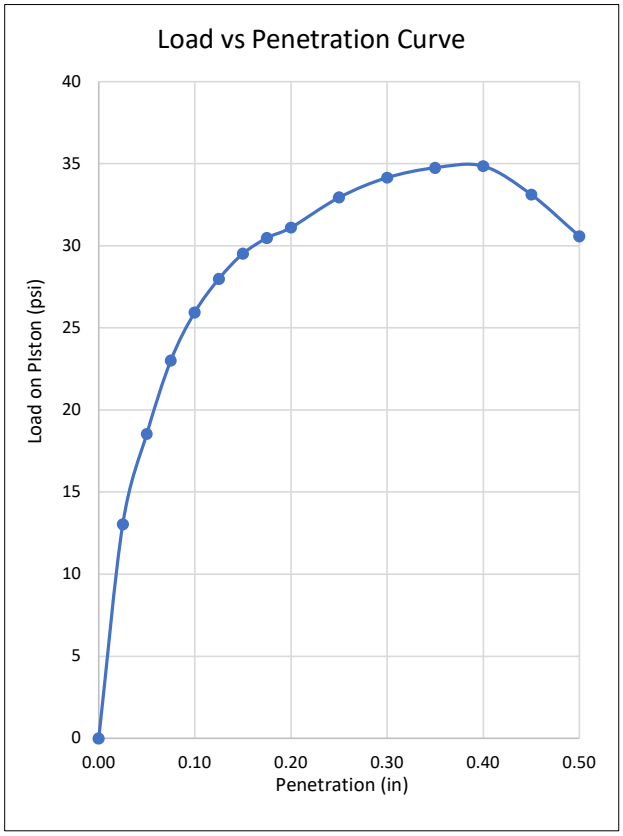
After Moisture Top 1"

Tare ID:	X101
Wet + Water:	254.52
Dry + Tare:	209.57
Tare:	86.25
% Moisture:	**36.450**

Actual Compaction:	**92%**

Compaction Test Results

Penetration (in/mm)		Reading Data Ratio @ 1.3mm/0.05 in per minute		
		Load (lb)	Total psi	CBR
0.000	0.000	0.0	0.0	
0.025	0.635	39.1	13.0	
0.050	1.270	55.6	18.5	
0.075	1.910	69.0	23.0	
0.100	2.540	77.8	25.9	2.6
0.125	3.180	83.9	28.0	
0.150	3.810	88.5	29.5	
0.175	4.450	91.4	30.5	
0.200	5.080	93.3	31.1	2.1
0.250	6.350	98.8	32.9	
0.300	7.620	102.4	34.1	
0.350	8.890	104.2	34.7	
0.400	10.160	104.5	34.8	
0.450	11.430	99.3	33.1	
0.500	12.700	91.7	30.6	



CALIFORNIA BEARING RATIO - ASTM D1883

Project Name: Jaro North Subdivison Phase 1 Date: 6/12/2024
Project Number: 0312-3209
Material Description: Fat Clay (CH)

Number of Blows/Lift:	50	Wt. Hammer (lbs):	5.5
Maximum Lab Dry Density (pcf):	91.5	Drop (in):	12
95% of Max Dry Density (pcf):	86.925	Opt. Moisture:	24.9
		Piston Area (in^2):	3.00
Equipment ID:	12CBR311	Moisture Added (%)	16.706

CBR Mold Information

Wt. of Mold (g):	7147
Weight of Mold & Soil (g):	10723.5
Weigh of Soil (g):	3676.5
Wet Density (pcf):	108.04
Dry Density (pcf):	**92.57**
Volume of Mold (ft^3):	0.075

Compaction and Moisture Data

Compaction		Molded Moisture		
			Before	After
Wt. of Mold:		Tare ID:	X561	A101
Mold Dia:		Wet + Tare:	250.86	302.1
Mold Height:		Dry + Tare:	217.21	258.35
Spacer Disc		Tare:	88.41	89.84
Height:		% Moist	26.126	25.963

Soaking Data

Date	Time	Days	Reading	Swell (%)
6/3/2024	11:30 AM	0	0.0425	--
6/4/2024	10:45 AM	1	0.505	1088.24%
6/5/2024	10:15 AM	2	0.0528	24.24%
6/6/2024	10:20 AM	3	0.0541	27.29%
6/7/2024	8:25 AM	4	0.055	29.41%

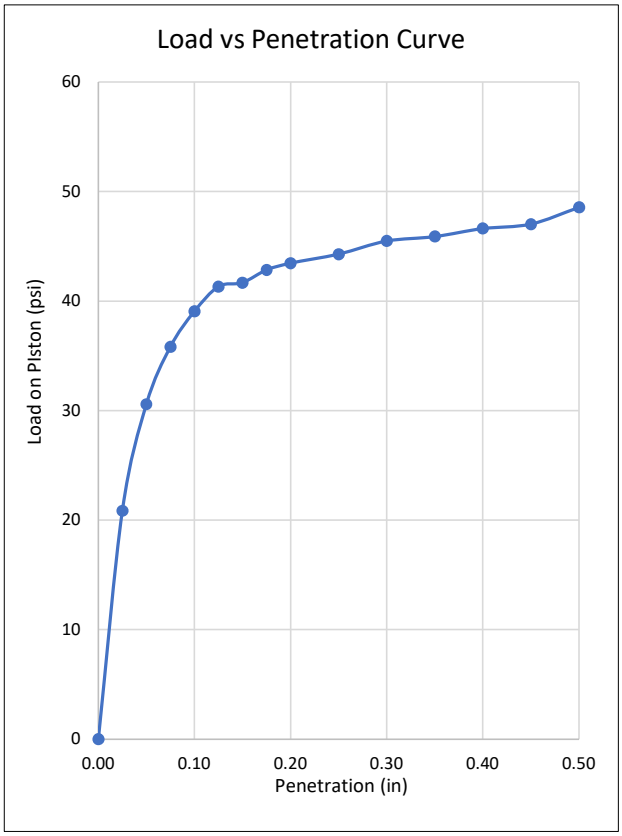
After Moisture Top 1"

Tare ID:	X333
Wet + Water:	252.72
Dry + Tare:	212.28
Tare:	95.89
% Moisture:	**34.745**

Actual Compaction:	**101%**

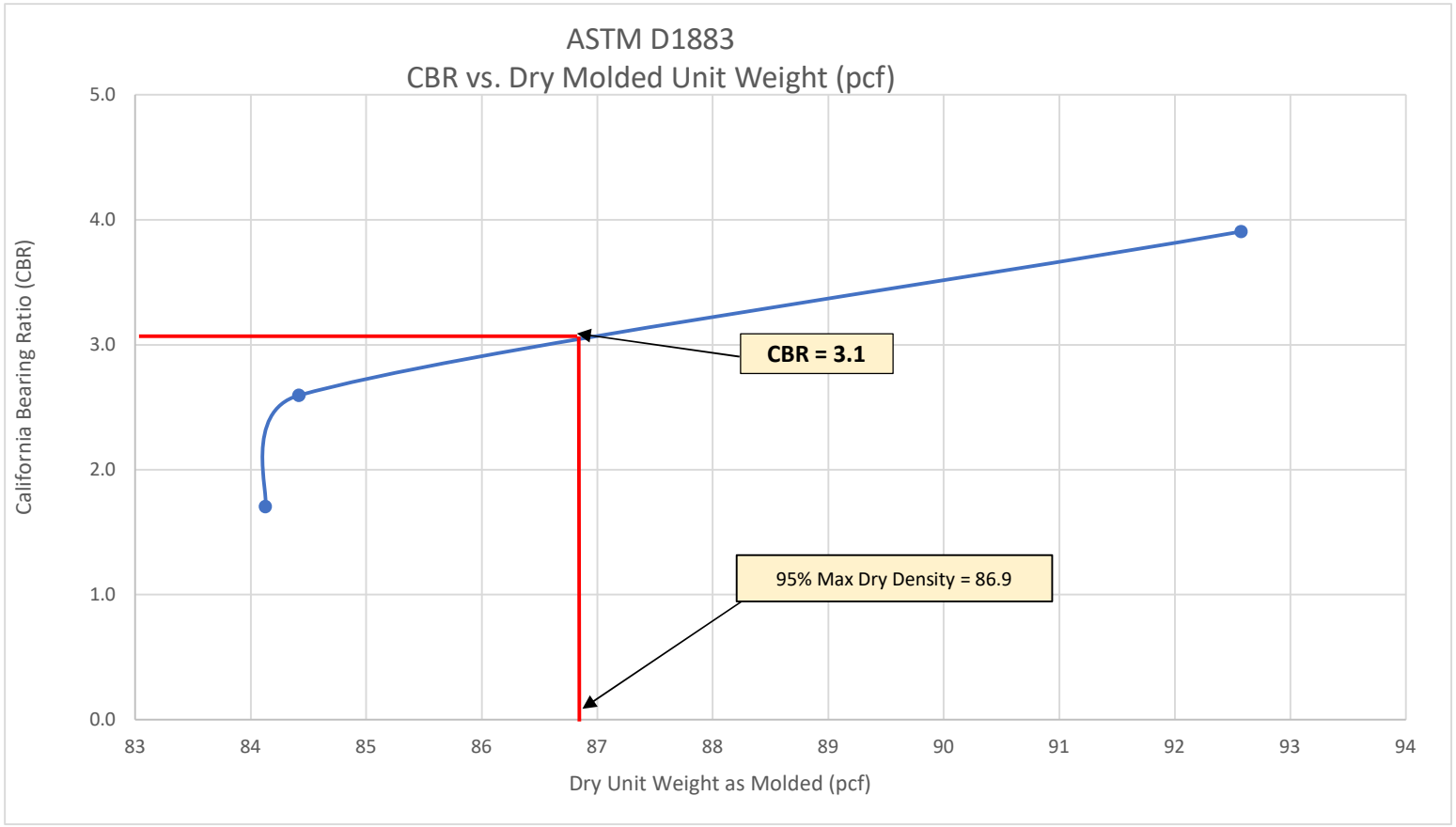
Compaction Test Results

Penetration (in/mm)		Reading Data Ratio @ 1.3mm/0.05 in per minute		
		Load (lb)	Total psi	CBR
0.000	0.000	0.0	0.0	
0.025	0.635	62.5	20.8	
0.050	1.270	91.7	30.6	
0.075	1.910	107.4	35.8	
0.100	2.540	117.1	39.1	3.9
0.125	3.180	123.9	41.3	
0.150	3.810	125.0	41.7	
0.175	4.450	128.5	42.9	
0.200	5.080	130.3	43.5	2.9
0.250	6.350	132.8	44.3	
0.300	7.620	136.4	45.5	
0.350	8.890	137.6	45.9	
0.400	10.160	139.8	46.6	
0.450	11.430	141.0	47.0	
0.500	12.700	145.6	48.6	



Test No.	Blows/lift	Dry Unit Weight	% Compact.	Water Content %	CBR at 0.1 in	CBR at 0.2 in
1	30	84.13	92%	35.9	1.7	1.3
2	40	84.42	92%	36.4	2.6	2.1
3	50	92.57	101%	34.7	3.9	2.9

95% Max Dry Density (pcf)	86.9	Selected CBR Value	3.1	Fat Clay (CH)



Jaro North Subdivison Phase 1
Seguin, Texas

PSI Project No. 0312-3209

Boring Logs

Jaro North Subdivision Phase I
FM 758 & Highway 123, Seguin, Texas
Project No. 0312-3209

BORING B-01

LOCATION: See Boring Location Plan

DEPTH, FT.	SYMBOL	SAMPLES	WATER	SOIL DESCRIPTION	MOISTURE CONTENT	% RETAINED #4	% PASSING #200	SPT (N) & TCP (T) VALUES	% REC	%RQD	LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	HAND PEN (TSF) / UNC CMP (TSF) 2.0 4.0 6.0 PL 20 WC 40 LL 60	UNCONF. COMP. (TSF)	UNIT DRY WT. (LB/CU FT)
				Elevation:												
				FAT CLAY (CH), brown, stiff to hard	21			11								
					28	0	92	33			96	30	66			
5				MARL, tan, hard	13			50/1"								
					5			42								
10					7	0	72	45			33	15	19			
					4			50/1"								
15				Boring terminated at approximately 15 feet.												
20																

COMPLETION DEPTH: 15.0 Feet
DATE: 5/7/24

DEPTH TO GROUND WATER
SEEPAGE (ft.): NONE ENCOUNTERED
END OF DRILLING (ft.): NONE ENCOUNTERED
DELAYED WATER LEVEL (FT): NONE ENCOUNTERED

Jaro North Subdivision Phase I
FM 758 & Highway 123, Seguin, Texas
Project No. 0312-3209

BORING B-02

LOCATION: See Boring Location Plan

DEPTH, FT.	SYMBOL	SAMPLES	WATER	SOIL DESCRIPTION	MOISTURE CONTENT	% RETAINED #4	% PASSING #200	SPT (N) & TCP (T) VALUES	% REC	%RQD	LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	UNCONF. COMP. (TSF)	UNIT DRY WT. (LB/CU FT)
				Elevation:											
				FAT CLAY (CH), brown, stiff to very stiff	29			8							
					19			13							
5					18	0	91	19			84	26	58		
				- Transitions to a tan color at 6.5 feet	13			23							
					23			15							
10															
					28	0	96	19			80	23	57		
15				Boring terminated at approximately 15 feet.											
20															

HAND PEN (TSF) ○ UNC CMP (TSF) ●
2.0 4.0 6.0
PL 20 WC 40 LL 60

COMPLETION DEPTH: 15.0 Feet
DATE: 5/7/24

intertek psi

DEPTH TO GROUND WATER
SEEPAGE (ft.): NONE ENCOUNTERED
END OF DRILLING (ft.): NONE ENCOUNTERED
DELAYED WATER LEVEL (FT): NONE ENCOUNTERED

Jaro North Subdivision Phase I
FM 758 & Highway 123, Seguin, Texas
Project No. 0312-3209

BORING B-03

LOCATION: See Boring Location Plan

DEPTH, FT.	SYMBOL	SAMPLES	WATER	SOIL DESCRIPTION	MOISTURE CONTENT	% RETAINED #4	% PASSING #200	SPT (N) & TCP (T) VALUES	% REC	%RQD	LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	UNCONF. COMP. (TSF)	UNIT DRY WT. (LB/CU FT)
				Elevation:											
				FAT CLAY (CH), brown, stiff to very stiff	37		90	4			97	31	66		
					20			16							
5					21			23							
				- Transitions to a tan color at 6.5 feet	26	0	96	20			82	30	52		
					26			17							
10															
					25			19							
15				Boring terminated at approximately 15 feet.											
20															

HAND PEN (TSF) ○ UNC CMP (TSF) ●
2.0 4.0 6.0
PL WC LL
20 40 60

COMPLETION DEPTH: 15.0 Feet
DATE: 5/7/24

intertek psi

DEPTH TO GROUND WATER
SEEPAGE (ft.): NONE ENCOUNTERED
END OF DRILLING (ft.): NONE ENCOUNTERED
DELAYED WATER LEVEL (FT): NONE ENCOUNTERED

Jaro North Subdivision Phase I
FM 758 & Highway 123, Seguin, Texas
Project No. 0312-3209

BORING B-04

LOCATION: See Boring Location Plan

DEPTH, FT.	SYMBOL	SAMPLES	WATER	SOIL DESCRIPTION	MOISTURE CONTENT	% RETAINED #4	% PASSING #200	SPT (N) & TCP (T) VALUES	% REC	%RQD	LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	UNCONF. COMP. (TSF)	UNIT DRY WT. (LB/CU FT)
				Elevation:											
				FAT CLAY (CH), brown, firm to very stiff	36			4							
					41	0	89	15			96	28	68		
5				MARL, tan, hard	4	0	72	45			26	16	10		
				FAT CLAY (CH), tan, very stiff	19			15							
					22			19							
10															
					25			19							
15				Boring terminated at approximately 15 feet.											
20															

HAND PEN (TSF) ○ UNC CMP (TSF) ●
2.0 4.0 6.0
PL 20 WC 40 LL 60

COMPLETION DEPTH: 15.0 Feet
DATE: 5/7/24

DEPTH TO GROUND WATER
SEEPAGE (ft.): NONE ENCOUNTERED
END OF DRILLING (ft.): NONE ENCOUNTERED
DELAYED WATER LEVEL (FT): NONE ENCOUNTERED

Jaro North Subdivision Phase I
FM 758 & Highway 123, Seguin, Texas
Project No. 0312-3209

BORING B-05

LOCATION: See Boring Location Plan

DEPTH, FT.	SYMBOL	SAMPLES	WATER	SOIL DESCRIPTION	MOISTURE CONTENT	% RETAINED #4	% PASSING #200	SPT (N) & TCP (T) VALUES	% REC	%RQD	LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	HAND PEN (TSF) / UNC CMP (TSF) 2.0 4.0 6.0 PL WC LL 20 40 60	UNCONF. COMP. (TSF)	UNIT DRY WT. (LB/CU FT)
				Elevation:												
				FAT CLAY (CH), brown, stiff to hard	31	0	90	14			92	31	61			
					27			48								
5				MARL, tan, very stiff to hard	16			23								
					5			66								
					15			44								
10																
					11	0	67	41			43	17	26			
15				Boring terminated at approximately 15 feet.												
20																

COMPLETION DEPTH: 15.0 Feet
DATE: 5/8/24

intertek psi

DEPTH TO GROUND WATER
SEEPAGE (ft.): NONE ENCOUNTERED
END OF DRILLING (ft.): NONE ENCOUNTERED
DELAYED WATER LEVEL (FT): NONE ENCOUNTERED

Jaro North Subdivision Phase I
FM 758 & Highway 123, Seguin, Texas
Project No. 0312-3209

BORING B-06

LOCATION: See Boring Location Plan

DEPTH, FT.	SYMBOL	SAMPLES	WATER	SOIL DESCRIPTION	MOISTURE CONTENT	% RETAINED #4	% PASSING #200	SPT (N) & TCP (T) VALUES	% REC	%RQD	LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	HAND PEN (TSF) / UNC CMP (TSF) 2.0 4.0 6.0 / PL WC LL 20 40 60	UNCONF. COMP. (TSF)	UNIT DRY WT. (LB/CU FT)
				Elevation:												
				FAT CLAY (CH), brown, stiff to hard	30			8								
					26	0	100	40			89	30	59			
5				MARL, tan, very stiff to hard	16			37								
					10	0	65	46			30	15	15			
					15			74								
10																
					7			87								
15				Boring terminated at approximately 15 feet.												
20																

COMPLETION DEPTH: 15.0 Feet
DATE: 5/8/24

intertek psi

DEPTH TO GROUND WATER
SEEPAGE (ft.): NONE ENCOUNTERED
END OF DRILLING (ft.): NONE ENCOUNTERED
DELAYED WATER LEVEL (FT): NONE ENCOUNTERED

Jaro North Subdivision Phase I
FM 758 & Highway 123, Seguin, Texas
Project No. 0312-3209

BORING B-07

LOCATION: See Boring Location Plan

DEPTH, FT.	SYMBOL	SAMPLES	WATER	SOIL DESCRIPTION	MOISTURE CONTENT	% RETAINED #4	% PASSING #200	SPT (N) & TCP (T) VALUES	% REC	%RQD	LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	UNCONF. COMP. (TSF)	UNIT DRY WT. (LB/CU FT)
				Elevation:											
				FAT CLAY (CH), brown, stiff to hard	25	0	86	9			89	29	60		
					23			33							
5				- Transitions to a tan color at 4.5 feet	22			28							
					25	0	92	27			85	32	50		
10					26			20							
					26			23							
15				Boring terminated at approximately 15 feet.											
20															

HAND PEN (TSF) ○ UNC CMP (TSF) ●
2.0 4.0 6.0
PL WC LL
20 40 60

COMPLETION DEPTH: 15.0 Feet
DATE: 5/8/24

intertek psi

DEPTH TO GROUND WATER
SEEPAGE (ft.): NONE ENCOUNTERED
END OF DRILLING (ft.): NONE ENCOUNTERED
DELAYED WATER LEVEL (FT): NONE ENCOUNTERED

Jaro North Subdivision Phase I
FM 758 & Highway 123, Seguin, Texas
Project No. 0312-3209

BORING B-08

LOCATION: See Boring Location Plan

DEPTH, FT.	SYMBOL	SAMPLES	WATER	SOIL DESCRIPTION	MOISTURE CONTENT	% RETAINED #4	% PASSING #200	SPT (N) & TCP (T) VALUES	% REC	%RQD	LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	UNCONF. COMP. (TSF)	UNIT DRY WT. (LB/CU FT)
				Elevation:											
				FAT CLAY (CH), brown, firm to hard	37			7							
					25	0	90	17			113	28	85		
5				- Transitions to a tan color at 4.5 feet	25	0	93	15			86	29	57		
					23			17							
10					25			18							
					26			42							
15				Boring terminated at approximately 15 feet.											
20															

HAND PEN (TSF) ○ UNC CMP (TSF) ●
2.0 4.0 6.0
PL WC LL
20 40 60

COMPLETION DEPTH: 15.0 Feet
DATE: 5/8/24

DEPTH TO GROUND WATER
SEEPAGE (ft.): NONE ENCOUNTERED
END OF DRILLING (ft.): NONE ENCOUNTERED
DELAYED WATER LEVEL (FT): NONE ENCOUNTERED

Jaro North Subdivision Phase I
FM 758 & Highway 123, Seguin, Texas
Project No. 0312-3209

BORING B-09

LOCATION: See Boring Location Plan

DEPTH, FT.	SYMBOL	SAMPLES	WATER	SOIL DESCRIPTION	MOISTURE CONTENT	% RETAINED #4	% PASSING #200	SPT (N) & TCP (T) VALUES	% REC	%RQD	LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	HAND PEN (TSF) / UNC CMP (TSF) 2.0 4.0 6.0 PL WC LL 20 40 60	UNCONF. COMP. (TSF)	UNIT DRY WT. (LB/CU FT)
				Elevation:												
				FAT CLAY (CH), brown, stiff to hard	33			9								
					21			24								
5					28	0	89	22			73	30	43			
				- Transitions to a tan color at 6.5 feet	23			21								
					23			27								
10																
					30	0	93	33			84	30	54			
15				Boring terminated at approximately 15 feet.												
20																

COMPLETION DEPTH: 15.0 Feet
DATE: 5/8/24

DEPTH TO GROUND WATER
SEEPAGE (ft.): NONE ENCOUNTERED
END OF DRILLING (ft.): NONE ENCOUNTERED
DELAYED WATER LEVEL (FT): NONE ENCOUNTERED

Jaro North Subdivision Phase I
FM 758 & Highway 123, Seguin, Texas
Project No. 0312-3209

BORING B-10

LOCATION: See Boring Location Plan

DEPTH, FT.	SYMBOL	SAMPLES	WATER	SOIL DESCRIPTION	MOISTURE CONTENT	% RETAINED #4	% PASSING #200	SPT (N) & TCP (T) VALUES	% REC	%RQD	LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	UNCONF. COMP. (TSF)	UNIT DRY WT. (LB/CU FT)
				Elevation:											
				FAT CLAY (CH), brown, stiff to very stiff	28			11							
					18			27							
5					24	0	96	22			82	23	59		
				- Transitions to a tan color at 6.5 feet	25			24							
					18	0	97	21			73	26	47		
10															
					25			27							
15				Boring terminated at approximately 15 feet.											
20															

HAND PEN (TSF) ○ UNC CMP (TSF) ●
2.0 4.0 6.0
PL 20 WC 40 LL 60

COMPLETION DEPTH: 15.0 Feet
DATE: 5/8/24

DEPTH TO GROUND WATER
SEEPAGE (ft.): NONE ENCOUNTERED
END OF DRILLING (ft.): NONE ENCOUNTERED
DELAYED WATER LEVEL (FT): NONE ENCOUNTERED

Jaro North Subdivision Phase I
FM 758 & Highway 123, Seguin, Texas
Project No. 0312-3209

BORING B-11

LOCATION: See Boring Location Plan

DEPTH, FT.	SYMBOL	SAMPLES	WATER	SOIL DESCRIPTION	MOISTURE CONTENT	% RETAINED #4	% PASSING #200	SPT (N) & TCP (T) VALUES	% REC	%RQD	LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	UNCONF. COMP. (TSF)	UNIT DRY WT. (LB/CU FT)
				Elevation:											
				FAT CLAY (CH), brown, stiff to very stiff	30			8							
					25			25							
5					27	0	93	29			79	25	54		
				- Transitions to a tan color at 6.5 feet	25	0	99	28			76	24	52		
					22			23							
10															
					23			27							
15				Boring terminated at approximately 15 feet.											
20															

HAND PEN (TSF) ○ UNC CMP (TSF) ●
2.0 4.0 6.0
PL WC LL
20 40 60

COMPLETION DEPTH: 15.0 Feet
DATE: 5/8/24

intertek psi

DEPTH TO GROUND WATER
SEEPAGE (ft.): NONE ENCOUNTERED
END OF DRILLING (ft.): NONE ENCOUNTERED
DELAYED WATER LEVEL (FT): NONE ENCOUNTERED

Jaro North Subdivision Phase I
FM 758 & Highway 123, Seguin, Texas
Project No. 0312-3209

BORING B-12

LOCATION: See Boring Location Plan

DEPTH, FT.	SYMBOL	SAMPLES	WATER	SOIL DESCRIPTION	MOISTURE CONTENT	% RETAINED #4	% PASSING #200	SPT (N) & TCP (T) VALUES	% REC	%RQD	LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	HAND PEN (TSF) / UNC CMP (TSF) 2.0 4.0 6.0 / PL WC LL 20 40 60	UNCONF. COMP. (TSF)	UNIT DRY WT. (LB/CU FT)
				Elevation:												
				FAT CLAY (CH), brown, stiff to hard	10	0	88	8			88	27	81			
					24			18								
5					20			24								
				- Transitions to a tan color at 6.5 feet	25			26								
					25	0	97	28			68	23	45			
10																
					24			31								
15				Boring terminated at approximately 15 feet.												
20																

COMPLETION DEPTH: 15.0 Feet
DATE: 5/8/24

DEPTH TO GROUND WATER
SEEPAGE (ft.): NONE ENCOUNTERED
END OF DRILLING (ft.): NONE ENCOUNTERED
DELAYED WATER LEVEL (FT): NONE ENCOUNTERED

Jaro North Subdivision Phase I
FM 758 & Highway 123, Seguin, Texas
Project No. 0312-3209

BORING B-13

LOCATION: See Boring Location Plan

DEPTH, FT.	SYMBOL	SAMPLES	WATER	SOIL DESCRIPTION	MOISTURE CONTENT	% RETAINED #4	% PASSING #200	SPT (N) & TCP (T) VALUES	% REC	%RQD	LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	UNCONF. COMP. (TSF)	UNIT DRY WT. (LB/CU FT)
				Elevation:											
				FAT CLAY (CH), brown, stiff to very stiff	26			7							
					16	0	86	25			67	17	50		
5					20			25							
				- Transitions to a tan color at 6.5 feet	27	0	91	22			81	26	55		
					22			23							
10															
					24			23							
15				Boring terminated at approximately 15 feet.											
20															

HAND PEN (TSF) ○ UNC CMP (TSF) ●
2.0 4.0 6.0
PL WC LL
20 40 60

COMPLETION DEPTH: 15.0 Feet
DATE: 5/9/24

intertek psi

DEPTH TO GROUND WATER
SEEPAGE (ft.): NONE ENCOUNTERED
END OF DRILLING (ft.): NONE ENCOUNTERED
DELAYED WATER LEVEL (FT): NONE ENCOUNTERED

Jaro North Subdivision Phase I
FM 758 & Highway 123, Seguin, Texas
Project No. 0312-3209

BORING B-14

LOCATION: See Boring Location Plan

DEPTH, FT.	SYMBOL	SAMPLES	WATER	SOIL DESCRIPTION	MOISTURE CONTENT	% RETAINED #4	% PASSING #200	SPT (N) & TCP (T) VALUES	% REC	%RQD	LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	HAND PEN (TSF) / UNC CMP (TSF) 2.0 4.0 6.0 PL WC LL 20 40 60	UNCONF. COMP. (TSF)	UNIT DRY WT. (LB/CU FT)
				Elevation:												
				FAT CLAY (CH), brown, very stiff	31	0	90	17			76	27	49			
					25			18								
5					24			17								
				- Transitions to a tan color at 6.5 feet	23	0	98	16			54	20	34			
					21			19								
10																
					28			21								
15				Boring terminated at approximately 15 feet.												
20																

COMPLETION DEPTH: 15.0 Feet
DATE: 5/9/24

DEPTH TO GROUND WATER
SEEPAGE (ft.): NONE ENCOUNTERED
END OF DRILLING (ft.): NONE ENCOUNTERED
DELAYED WATER LEVEL (FT): NONE ENCOUNTERED

Jaro North Subdivision Phase I
FM 758 & Highway 123, Seguin, Texas
Project No. 0312-3209

BORING B-15

LOCATION: See Boring Location Plan

DEPTH, FT.	SYMBOL	SAMPLES	WATER	SOIL DESCRIPTION	MOISTURE CONTENT	% RETAINED #4	% PASSING #200	SPT (N) & TCP (T) VALUES	% REC	%RQD	LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	UNCONF. COMP. (TSF)	UNIT DRY WT. (LB/CU FT)
				Elevation:											
				FAT CLAY (CH), brown, stiff to very stiff	25			10							
					27			21							
5					25	0	100	19			84	27	57		
				- Transitions to a tan color at 6.5 feet	25			22							
					23			21							
10															
					28	0	97	23			69	29	40		
15				Boring terminated at approximately 15 feet.											
20															

HAND PEN (TSF) ○ UNC CMP (TSF) ●
2.0 4.0 6.0
PL WC LL
20 40 60

COMPLETION DEPTH: 15.0 Feet
DATE: 5/9/24

DEPTH TO GROUND WATER
SEEPAGE (ft.): NONE ENCOUNTERED
END OF DRILLING (ft.): NONE ENCOUNTERED
DELAYED WATER LEVEL (FT): NONE ENCOUNTERED

Jaro North Subdivision Phase I
FM 758 & Highway 123, Seguin, Texas
Project No. 0312-3209

BORING B-16

LOCATION: See Boring Location Plan

DEPTH, FT.	SYMBOL	SAMPLES	WATER	SOIL DESCRIPTION	MOISTURE CONTENT	% RETAINED #4	% PASSING #200	SPT (N) & TCP (T) VALUES	% REC	%RQD	LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	UNCONF. COMP. (TSF)	UNIT DRY WT. (LB/CU FT)
				Elevation:											
				FAT CLAY (CH), brown, stiff to hard	36			8							
					19	0	87	31			94	22	72		
5					21			22							
				- Transitions to a tan color at 6.5 feet	18	0	95	13			84	26	58		
					22			21							
10															
					27			18							
15				Boring terminated at approximately 15 feet.											
20															

HAND PEN (TSF) ○ UNC CMP (TSF) ●
2.0 4.0 6.0
PL 20 WC 40 LL 60

COMPLETION DEPTH: 15.0 Feet
DATE: 5/9/24

DEPTH TO GROUND WATER
SEEPAGE (ft.): NONE ENCOUNTERED
END OF DRILLING (ft.): NONE ENCOUNTERED
DELAYED WATER LEVEL (FT): NONE ENCOUNTERED

Jaro North Subdivision Phase I
FM 758 & Highway 123, Seguin, Texas
Project No. 0312-3209

BORING B-17

LOCATION: See Boring Location Plan

DEPTH, FT.	SYMBOL	SAMPLES	WATER	SOIL DESCRIPTION	MOISTURE CONTENT	% RETAINED #4	% PASSING #200	SPT (N) & TCP (T) VALUES	% REC	%RQD	LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	HAND PEN (TSF) / UNC CMP (TSF) 2.0 4.0 6.0 PL 20 WC 40 LL 60	UNCONF. COMP. (TSF)	UNIT DRY WT. (LB/CU FT)
				Elevation:												
				FAT CLAY (CH), brown, stiff to hard												
					32	0	90				90	26	64			
					35											
5					24											
				- Transitions to a tan color at 6.5 feet												
					20											
					24											
10																
					26	0	98				97	23	74			
15				Boring terminated at approximately 15 feet.												
20																

COMPLETION DEPTH: 15.0 Feet
DATE: 5/10/24

DEPTH TO GROUND WATER
SEEPAGE (ft.): NONE ENCOUNTERED
END OF DRILLING (ft.): NONE ENCOUNTERED
DELAYED WATER LEVEL (FT): NONE ENCOUNTERED

Jaro North Subdivision Phase I
FM 758 & Highway 123, Seguin, Texas
Project No. 0312-3209

BORING B-18

LOCATION: See Boring Location Plan

DEPTH, FT.	SYMBOL	SAMPLES	WATER	SOIL DESCRIPTION	MOISTURE CONTENT	% RETAINED #4	% PASSING #200	SPT (N) & TCP (T) VALUES	% REC	%RQD	LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	UNCONF. COMP. (TSF)	UNIT DRY WT. (LB/CU FT)
				Elevation:											
				FAT CLAY (CH), brown, stiff to hard	33										
					31										
5					26	0	86				78	28	50		
				- Transitions to a tan color at 6.5 feet	23										
					27	0	96				93	29	64		
10															
					27										
15				Boring terminated at approximately 15 feet.											
20															

HAND PEN (TSF) ○ UNC CMP (TSF) ●
2.0 4.0 6.0
PL WC LL
20 40 60

COMPLETION DEPTH: 15.0 Feet
DATE: 5/10/24

intertek psi

DEPTH TO GROUND WATER
SEEPAGE (ft.): NONE ENCOUNTERED
END OF DRILLING (ft.): NONE ENCOUNTERED
DELAYED WATER LEVEL (FT): NONE ENCOUNTERED

Jaro North Subdivision Phase I
FM 758 & Highway 123, Seguin, Texas
Project No. 0312-3209

BORING B-19

LOCATION: See Boring Location Plan

DEPTH, FT.	SYMBOL	SAMPLES	WATER	SOIL DESCRIPTION	MOISTURE CONTENT	% RETAINED #4	% PASSING #200	SPT (N) & TCP (T) VALUES	% REC	%RQD	LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	HAND PEN (TSF) / UNC CMP (TSF) 2.0 4.0 6.0 PL 20 WC 40 LL 60	UNCONF. COMP. (TSF)	UNIT DRY WT. (LB/CU FT)
				Elevation:												
				FAT CLAY (CH), brown, very stiff to hard	25											
					26		86				87	29	58			
5					18											
				- Transitions to a tan color at 6.5 feet	24											
					24											
10																
					25	0	94				79	28	51			
15				Boring terminated at approximately 15 feet.												
20																

COMPLETION DEPTH: 15.0 Feet
DATE: 5/10/24

intertek psi

DEPTH TO GROUND WATER
SEEPAGE (ft.): NONE ENCOUNTERED
END OF DRILLING (ft.): NONE ENCOUNTERED
DELAYED WATER LEVEL (FT): NONE ENCOUNTERED

KEY TO TERMS AND SYMBOLS USED ON LOGS

ROCK CLASSIFICATION

RECOVERY

DESCRIPTION OF RECOVERY	% CORE RECOVERY
Incompetent	< 40
Competent	40 TO 70
Fairly Continuous	70 TO 90
Continuous	90 TO 100

ROCK QUALITY DESIGNATION (RQD)

DESCRIPTION OF ROCK QUALITY	RQD
Very Poor (VPo)	0 TO 25
Poor (Po)	25 TO 50
Fair (F)	50 TO 75
Good (Gd)	75 TO 90
Excellent (ExInt)	90 TO 100

CONSISTENCY OF COHESIVE SOILS

CONSISTENCY	N-VALUE (Blows/Foot)	SHEAR STRENGTH (tsf)	HAND PEN VALUE (tsf)
Very Soft	0 TO 2	0 TO 0.125	0 TO 0.25
Soft	2 TO 4	0.125 TO 0.25	0.25 TO 0.5
Firm	4 TO 8	0.25 TO 0.5	0.5 TO 1.0
Stiff	8 TO 15	0.5 TO 1.0	1.0 TO 2.0
Very Stiff	15 TO 30	1.0 TO 2.0	2.0 TO 4.0
Hard	>30	>2.0 OR 2.0+	>4.0 OR 4.0+

SOIL DENSITY OR CONSISTENCY

DENSITY (GRANULAR)	CONSISTENCY (COHESIVE)	THD (BLOWS/FT)	FIELD IDENTIFICATION
Very Loose (VLo)	Very Soft (VSo)	0 TO 8	Core (height twice diameter) sags under own weight
Loose (Lo)	Soft (So)	8 TO 20	Core can be pinched or imprinted easily with finger
Slightly Compact (SlCmpt)	Stiff (St)	20 TO 40	Core can be imprinted with considerable pressure
Compact (Cmpt)	Very Stiff (VSt)	40 TO 80	Core can only be imprinted slightly with fingers
Dense (De)	Hard (H)	80 TO 5"/100	Core cannot be imprinted with fingers but can be penetrated with pencil
Very Dense (VDe)	Very Hard (VH)	5"/100 to 0"/100	Core cannot be penetrated with pencil

DEGREE OF PLASTICITY OF COHESIVE SOILS

DEGREE OF PLASTICITY	PLASTICITY INDEX (PI)	SWELL POTENTIAL
None or Slight	0 to 4	None
Low	4 to 20	Low
Medium	20 to 30	Medium
High	30 to 40	High
Very High	>40	Very High

BEDROCK HARDNESS

MORHS' SCALE	CHARACTERISTICS	EXAMPLES	APPROXIMATE THD PEN TEST	
5.5 to 10	Rock will scratch knife	Sandstone, Chert, Schist, Granite, Gneiss, some Limestone	Very Hard (VH)	0" to 2"/100
3 to 5.5	Rock can be scratched with knife blade	Siltstone, Shale, Iron Deposits, most Limestone	Hard (H)	1" to 5"/100
1 to 3	Rock can be scratched with fingernail	Gypsum, Calcite, Evaporites, Chalk, some Shale	Soft (So)	4" to 6"/100

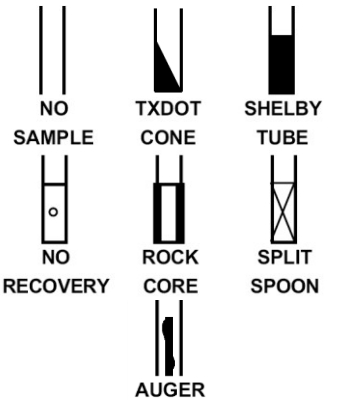
MOISTURE CONDITION OF COHESIVE SOILS

DESCRIPTION	CONDITION
Absence of moisture, dusty, dry to touch	DRY
Damp but no visible water	MOIST
Visible free water	WET

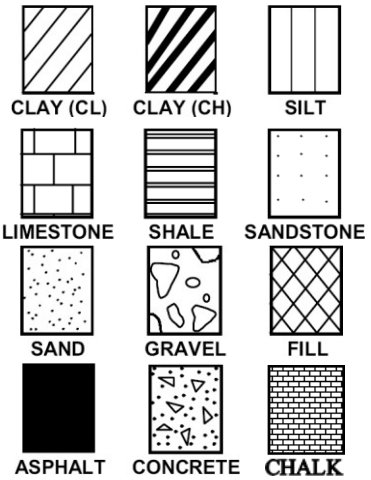
RELATIVE DENSITY FOR GRANULAR SOILS

APPARENT DESNITY	SPT (BLOWS/FT)	CALIFORNIA SAMPLER (BLOWS/FT)	MODIFIED CA. SMAPLER (BLOWS/FT)	RELATIVE DENSITY (%)
Very Loose	0 to 4	0 to 5	0 to 4	0 to 15
Loose	4 to 10	5 to 15	5 to 12	15 to 35
Medium Dense	10 to 30	15 to 40	12 to 35	35 to 65
Dense	30 to 50	40 to 70	35 to 60	65 to 85
Very Dense	>50	>70	>60	85 to 100

SAMPLER TYPES



SOIL TYPES



ABBREVIATIONS

PL – Plastic Limit
LL – Liquid Limit
WC – Percent Moisture

Q_P – Hand Penetrometer
Q_U – Unconfined Compression Test
UU – Unconsolidated Undrained Triaxial

Note: Plot Indicates Shear Strength as Obtained By Above Tests

WATER SEEPAGE

WATER LEVEL AT END OF DRILLING

CLASSIFICATION OF GRANULAR SOILS

U.S. STANDARD SIEVE SIZE(S)

6"	3"	3/4"	4	10	40	200		
BOULDERS	COBBLES	GRAVEL		SAND			SILT OR CLAY	CLAY
		COARSE	FINE	COARSE	MEDIUM	FINE		

A COMPLETE BUILDING SOLUTION

Everything you need from start to finish – Assurance, Testing, Inspection, and Certification

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Environmental Consulting & Geotechnical Services

Assuring site and subsurface conditions meet the criteria for purchase, development and construction.

Building Systems Consulting

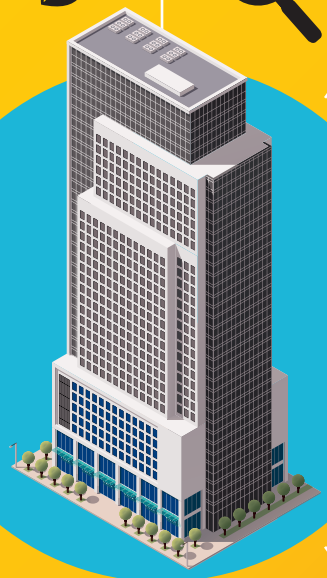
Industry professionals provide a variety of acoustic, fire, AV, roofing system and enclosure consulting services to ensure proper design and installation of a building's critical systems.

Decommissioning & Due Diligence

Supporting the redevelopment and transfer of property assets via environmental and property assessments and engineering services.

Building Product & Construction Materials Testing

Providing testing for virtually all types of building products, construction materials, and systems for safety, retail, code, and performance purposes.



Property Management Support Services

Providing a variety of building systems testing, inspection, and consulting services to optimize the value and life of the property asset.

Product Certification & Code Evaluation

The ETL and Warnock Hersey Marks show a product or system's conformance to code and ensures the on-going verification of compliance.

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On-site (air infiltration, water leakage, and structural performance for fenestration) or in lab validation of a curtain wall's design, workmanship, and material selection to ensure its performance.

Field Labeling

Providing on-site services of opening systems that need to be re-labeled or making recommendations for upgraded materials.

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Assessing a building or facility for a variety of sources (air, asbestos, lead, mold) to minimize the risk of factors adverse to human health.

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As a leader in providing comprehensive solutions to industries around the globe, Intertek-PSI prides itself on bringing the expertise and services necessary for our clients to meet all of their needs across their entire operation. **Our Assurance, Testing, Inspection, and Certification (A.T.I.C.)** suite of services ensures that whatever your needs may be – assurance, testing, inspection, certification, or all of the above, that those needs will be met by Intertek-PSI.

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Construction Project
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Building Maintenance
Evaluation of a building's condition through inspection and testing, investigation, and remediation plan development.

Decommissioning & Transfer
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