



TRES LAURELS

UNIT 1B SUBDIVISION

OCTOBER 2025
SAN ANTONIO, TEXAS

BID PACKAGE

PREPARED FOR:

LENNAR HOMES OF TEXAS, LLC
100 NE LOOP 410, SUITE 1150
SAN ANTONIO, TX 78216

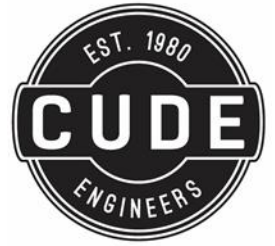
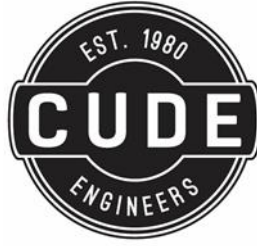


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INVITATION TO BIDDERS

LENNAR HOMES OF TEXAS LAND AND CONSTRUCTION, LTD.

**INVITATION TO BIDDERS
CONSTRUCTION DOCUMENTS AND
TECHNICAL SPECIFICATIONS FOR
Tres Laurels 1B**

**STREETS, DRAINAGE, WATER & WASTEWATER CONSTRUCTION
BEXAR COUNTY, TEXAS**

October 21, 2025

Sealed **bids** addressed to Lennar Homes of Texas LLC will be received at the office of Cude Engineers, 4122 Pond Hill Road, Suite 101, San Antonio Texas 78231 until **10:00 AM**, Local Time, **November 4th, 2025**, for the following project:

Scope of Work in this Contract includes:

- Water, Sewer, and Drainage to serve 50 single-family lots in Tres Laurels Unit 1B
- Approximately 1,382 LF of Onsite Roads
- Approximately 1,195 LF of Onsite Sewer
- Approximately 1,231 LF of Onsite Water

Instruction to bidders and other bid documents will be available for review or to download at www.CivCastUSA.com. Timeline for **Questions** will close at **10:00 AM**, local time **Tuesday October 28th, 2025**.

A virtual bid opening will occur at **10:00 AM**, local time **Tuesday November 4th, 2025**.

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 CUDE ENGINEERS (Engineer) and reviewed by the CITY OF SAN ANTONIO, 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 San Antonio Standard Specifications, Texas Department of Transportation Standard Specifications and San Antonio Water Systems shall be followed for all construction except as amended by the City of San Antonio.
- 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 Matthew Trinkle and Chris Chaffee at mtrinkle@cudeengineers.com and cchaffee@cudeengineers.com with Cude Engineers at (210) 681-2951.
- 1.12 Contractor is responsible for all Texas Commission on Environmental Quality (TCEQ) Storm Water Pollution Prevention Plan (SW3P) requirements, including but not limited to setting up, installing and maintaining the erosion and sedimentation controls as designed and shall inspect the controls every two weeks and after every significant rainfall (1/2 inch or greater) to ensure significant disturbance to the structure has not occurred. Sediment deposited after a significant rainfall shall be removed and placed in a designated soil disposal area. Contractor to maintain erosion control inspection reports as required by the TCEQ and provide Owner with one complete set of all SW3P inspection reports, including updates and modifications, prior to receiving final payment for the project.
- 1.13 Contractor must keep a copy of the Storm Water Pollution Prevention Plan (SW3P) on site and readily available for authorities.
- 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 San Antonio and/or Bexar County.
- 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 San Antonio, Bexar County, CPS, 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 City maintenance.
- 1.27 The Owner is to provide and pay for construction staking.
- 1.28 Water Tie-ins are will not be measured and are considered subsidiary to other Water Improvement items.
- 1.29 All Sanitary Sewer pipe to be SDR-26.
- 1.30 **Bid is due on or before 10:00 a.m. November 4th, 2025.** Please submit bid to Adrian Todsen, John Bare and Richard Mott of Lennar Homes of Texas Land and Construction, LTD.

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 Cude Engineers.
- 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 all 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

A virtual bid opening will occur at **10:00 AM**, local time **Tuesday November 4th, 2025**.

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.

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

Unless otherwise noted in the Special Conditions, the quantities listed in the Bid Proposal shall be considered as approximate and will be used only for comparison of Bids. Payment to the CONTRACTOR will be made only for the actual quantities of work performed or materials furnished in accordance with the contract. The quantities may be increased or decreased as provided in the Standard General Conditions without in any way invalidating the unit Bid prices.

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.

27. Civil Engineer Responsibilities:

- 27.1 The Engineer does not guarantee the performance of, and shall have no responsibility for, the acts or omissions of any Contractor, Subcontractor, Supplier or any other entity furnishing materials or performing any work on the project. Engineer shall not be responsible for the means, methods, techniques, sequences or procedures of construction selected by the Contractor(s) or the safety precautions and programs incident to the work of the Contractor(s).
- 27.2 The engineering design of this project was performed by a representative of the Owner, referred to in these Specifications as the "Engineer" who will exercise the authority and functions of the Owner in the following respects:
 - Staking the work for construction and furnishing all necessary cut sheets.
 - Checking of shop and working drawings furnished by the Contractor.
 - Consultation and advice during construction and rendering those decisions requiring interpretation of the Plans and Specifications.
 - Periodic visits to the project for consultation with the Owner.
 - Assist in the final inspection.
 - Assist in processing of the monthly and final estimate.
- 27.3 Staking of requested infrastructure within 72 hours of notification by Contractor. Re-staking will be Charged to the Contractor by the Owner.
- 27.4 Staking Criteria
 - General - The Contractor will be provided with construction stakes delineating each phase of the Project as to line and grade, appropriate benchmark information and cut sheets. Detailed transfer of elevations, lines and grades to structures and other features of the work shall be done by the Contractor.
 - Clearing Staking - CUDE will set staking for clearing of street right-of-ways, drainage right-of-ways, utility easements, drainage easements, and lot grading. Staking will consist of laths defining the centerline of streets and the limits of the non-street ROW or easements.
 - Contractor's Responsibility - When horizontal control points, benchmarks, construction stakes and iron lot pins have been set,

the preservation of such stakes/pins as to position, elevation and/or marking shall become the responsibility of the Contractor. Should any of the original construction stakes/pins be destroyed by the Contractor's operation, or by any other parties or means whatsoever, the replacement of such stakes/pins will be at the expense of the Contractor. Prior to beginning each phase of work, the contractor shall check for stakes/pins that have been destroyed and request re-staking before commencing work on that phase. Any re-staking requested after work has started on that phase will be charged to the Contractor. Upon completion of construction, any iron pins that have been destroyed/disturbed by the Contractor will be re-set by the Engineer at the expense of the Contractor.

- Contractor's Work Area - The Contractor shall confine all construction operations to the limits of the street right-of-way or respective easement in which work is occurring. Contractors working in easements within the client's property limits may use an area twenty-five feet (25') wide and immediately adjacent to the easement, however, clearing within the working area shall be limited to brush; no trees shall be removed. The use of any additional area for construction operations, haul road, material storage, equipment and personnel parking and vehicle traffic is expressly prohibited without written approval from the Owner and/or Engineer specifying the locations and permitted use.
- Street Staking - Construction staking shall consist of a single line of hubs at 100-foot common intervals on the water main side of the street and at 50-foot intervals on curves, PC's and PT's, on both sides of the street. All hubs shall be set at five feet (5') outside the street ROW. The line of hubs shall also be used for water main construction. In addition, the location of blow-offs and Fire hydrants will be staked on this line.
- Sanitary Sewer Staking - Construction stakes will consist of a single line of offset hubs spaced at 100-foot common intervals, at manhole locations and at other special features; with guard stakes showing the stationing and the offset.
- Water Staking - See Street Staking. Front property iron pins will be set after street subgrade and parkways have been graded. A wooden stake indicating the adjacent lots shall be placed at each property corner pin. These iron pins shall be used for installation of service lines and meter boxes. The Contractor is responsible for not disturbing these iron pins.
- Drain Staking - Construction stakes will consist of a single line of offset hubs spaced at 50-foot common intervals, at PI's at beginning and end of transitions, at manhole locations and at other special features; set flush with the ground, located along one right-of-way or street line, or offset as necessary, with guard stakes showing the station and the offset. Inlets and other structures will be staked separately.
- Utility Staking - Upon receipt of the CPS's construction design, the designated lot pins shall be set. A wooden stake indicating the adjacent lots shall be placed at each property corner pin. CPS shall utilize these pins for their construction.
- Each of these staking bullets mentioned above are to be staked in one trip to the site. Separate staking dates due to contractor request will result in additional services to be charged to the contractor by

- the owner. The contractor is to submit any modifications to the above-noted staking terms in writing along with the bid proposal.
- 27.5 Unless otherwise provided or ordered, all inspections will be performed by an authorized representative of the authorities having jurisdiction over the work, referred to in these Specifications as the "Inspector" who will exercise authority and function in the following respects:
- Review laboratory, mill and shop tests of materials and equipment for compliance with the Plans and Specifications.
 - General supervision and administration of the authorized construction and review of all work performed for compliance with Plans and Specifications.
 - Accept the completed work for the authority having jurisdiction over the work.
 - The Inspector shall have the authority to stop the work whenever such stoppage may be necessary to insure the proper execution of the Contract. The Inspector shall also have the authority to reject all work and materials which do not conform to the Contract. The Contractor shall give the Inspector timely notice of the readiness for inspection of all work requiring inspection. If any underground work is performed without approval or consent of the Inspector, it shall be uncovered for inspection and properly restored at the Contractor's expense.
- 27.6 Cude Engineers will not inspect conduit locations and/or depths for CPS, AT&T or Spectrum/Charter infrastructure.

28. Contractor Responsibilities:

- 28.1 Contractor will be responsible for coordinating and scheduling all required meetings and inspections as needed. A minimum of 72 hours notice must be given to the Engineer for any requested site visits. Any and all costs for re-testing of sewer and water facilities due to failure to meet specifications or lack of preparedness will be paid by the Contractor.
- 28.2 Re-staking of stakes set by Engineer will be charged to the Contractor by the Owner.
- 28.3 The location and depths of existing utilities shown on the plans were placed on the plans from the best available information from various sources. The Contractor is required to verify the location and depth, prior to construction, of all utilities shown on the plans. The Contractor's attention is hereby specifically directed to the information regarding the existing utility structures, lines and mains which are known to exist and may be encountered within and adjacent to the limits of the work covered by this contract. The existence and location of the underground utilities indicated on the Plans are taken from the best records available and are not guaranteed but shall be investigated and verified by the Contractor before starting work. The Contractor shall be held responsible for any damage to, and for maintenance and protection of, existing utilities which cross proposed construction. The cost of temporarily relocating utilities for the convenience of the Contractor shall be paid by the Contractor. In instances where gas or water mains are exposed during the course of construction, the purveyor shall be notified prior to backfilling operations in order that protective coatings on mains may be inspected or repaired. It shall be the responsibility of the Contractor to determine the exact location of the existing utilities which cross proposed construction. It is the Contractor's responsibility to excavate bridging, if necessary, during construction, so as to maintain continuous service. It shall be his responsibility to backfill around the utility facility and to complete construction so as to leave the line firmly and securely bedded in its original position. In areas where utilities near the construction area would be damaged by soil movement, slips or cave-ins, the

- Contractor shall take all precautions to protect such utilities from damage and the Contractor shall be fully responsible for and shall pay for the repair of such damage without additional cost to the Owner or the purveyor.
- 28.4 It shall be the Contractor's responsibility to perform a final "site clean" after construction activity has ceased and obtained all final acceptances. The Contractor will be responsible for hauling off and disposing of all infrastructure construction related debris, regardless of origin.
- 28.5 The responsibility shall be upon the Contractor to provide and maintain at his own expense an adequate supply of water for his use for construction and domestic consumption. Any connections and piping that the Contractor deems necessary shall be installed at his expense and at locations approved by the Water Purveyor. Before final acceptance, all temporary connections and piping installed shall be removed in a manner satisfactory to the Engineer.
- 28.6 All electric current required by the Contractor shall be furnished at his own expense. All necessary meters, switches, connections and wiring shall be installed at his expense and at locations approved by the Electric Company. Before final acceptance, all meters, switches, connections and wiring installed by the Contractor shall be removed in a manner satisfactory to the Engineer.
- 28.7 Contractor shall coordinate with Owner for parking and placement of all materials and equipment. Owner will not be responsible for any damaged, stolen or vandalized equipment, vehicles, etc.
- 28.8 Only those trees designated by the Engineer will be removed by the Contractor during construction operations. The Contractor shall be required to lay out all proposed improvements and notify the Engineer prior to any tree removal necessary for the execution of work. Trees which are intended to remain, and which are damaged beyond repair or removed, shall be replaced by the Contractor at no extra cost. Trees shall be trimmed and when doing so will avoid removal or damage. Trimmed or damaged trees shall be treated and repaired by persons with experience in this specialty and who are approved by the Engineer. This work is incidental to construction. (No separate pay item.) In the area where excavation or construction occurs within two feet of the canopy of a tree to be saved, the Contractor shall saw cut the edge of the excavation. This will allow for a clean cut of the tree roots and enable the Contractor to excavate in the proximity of trees with minimal damage to the root system. Contact the Engineer if in doubt where to saw cut. This work is incidental to construction. (No separate pay item.)
- 28.9 Contractor shall notify owner/Engineer if any evidence of ground water is present during any phase of the construction process.
- 28.10 Contractor is responsible for installing and maintaining the erosion and sedimentation controls as designed and shall inspect the controls weekly (7 days) and after every significant rainfall to ensure significant disturbance to the structure has not occurred. Sediment deposited after a significant rainfall shall be removed and placed in designated soil disposal area. Contractor to provide Owner with one complete set of all SW3P inspection reports, including updates and modifications, prior to receiving final payment for project. Contractor is also responsible for replacing SW3P measures if damaged during construction. Contractor must keep and maintain a copy of the Storm Water Pollution Prevention Plan (SW3P) on site and readily available for authorities.
- 28.11 Excavated material that is free of organic matter and other deleterious substances may be disposed on-site, as approved by Owner. 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. No fill shall be placed within natural lows unless indicated on grading plan. Fills in lot areas required compaction testing for every twelve (12") inch lift and fills greater than one foot deep within building pad areas require compaction testing for every six (6") inch lift.

- 28.12 Contractor shall coordinate with the Owner's choice of geotechnical testing lab to schedule all geotechnical and compaction testing.
- 28.13 The Owner will pay for all geotechnical testing required for verification of conformance with the project specifications as needed for acceptances and future permitting for uses determined by the Owner. Any and all costs for re-testing due to failure to meet specifications or lack of preparedness will be paid by the Contractor.
- 28.14 Contractor will be required to coordinate work with the utility companies that will be installing electric, telephone and TV. Contractor is responsible for coordinating with utility companies to mark existing buried utilities regardless of construction plan depiction plan, error or omission that may be affected by construction. The Contractor will be responsible to repair damaged utilities due to construction. It is the sole responsibility of the contractor to identify all potential conflicts between existing and proposed facilities.
- 28.15 Contractor shall coordinate with the Owner for placement of private conduit.
- 28.16 Contractor shall be responsible for periodic sweeping of existing streets adjacent to the site to insure they are free from silt and debris. It shall be the Contractors responsibility to perform a final "site clean" after construction activity has ceased. The Contractor will be responsible for hauling off and disposing of all infrastructure construction related debris, regardless of origin.
- 28.17 Contractor agrees that it will, as part of the award of this contract, obtain and provide to Owner all interim and final field inspection approvals, all interim and final completion approvals or certificate by governing utility and governmental authorities in writing. The applicable warranty period shall follow required governmental requirements for the jurisdiction the project is located in. Contractor agrees to provide plan of record documents within 30 days of substantial completion of project.
- 28.18 Contractor shall submit a letter to the Engineer and Owner prior to acceptance of infrastructure by all jurisdictional entities, that certifies the final grading of the lots is within 0.25' of the surface file provided by the Engineer. In addition, all spot elevations shown on the grading plan must be certified that the grade is within 0.1'. The Owner reserves the right to perform an as-built topographic survey to confirm such certification at or near substantial grading completion of the project. If errors or discrepancies are found, the Contractor shall be responsible for correcting grades at their own expense. The Contractor will also be responsible for additional as-built topographic survey costs incurred by the Owner for corrections to a miss on grades.
- 28.19 Contractor is responsible for the hydromulch (soil, seeding, or sodding and watering) of all earthen drainage channels, detention ponds, and on-site and off-lot grading. 85% of channel surface must have established vegetation prior to acceptance of the channel by the City of San Antonio and Bexar County. Hydromulch pay item to include soil, seeding, or sodding and watering for the time period needed to achieve 85% vegetation.
- 28.20 Contractor to haul excess material to a future unit within the Tres Laurels Subdivision. Contractor shall coordinate with owner/Engineer of location of excess material to be placed.

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:

Tres Laurels 1B

STREETS, DRAINAGE, WATER & WASTEWATER CONSTRUCTION

TO:

LENNAR HOMES OF TEXAS LAND AND CONSTRUCTION, LTD.
100 NE Loop 410, Suite 1155
San Antonio, TX 78216

PROPOSAL BIDDING SHEET

Tres Laurels 1B

STREETS, DRAINAGE, WATER & WASTEWATER CONSTRUCTION

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 TRES LAURELS 1B, STREETS, DRAINS, WATER AND WASTEWATER UTILITIES** 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:

Tres Laurels 1B

STREETS, DRAINAGE, WATER & WASTEWATER CONSTRUCTION

ACKNOWLEDGMENT OF RECEIPT OF ADDENDUM

ADDENDUM NO. 1 _____
Signature Date

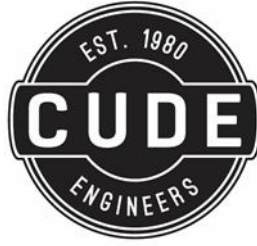
ADDENDUM NO. 2 _____
Signature Date

ADDENDUM NO. 3 _____
Signature Date

ADDENDUM NO. 4 _____
Signature Date

ADDENDUM NO. 5 _____
Signature Date

ADDENDUM NO. 6 _____
Signature Date



BID FORM – UNIT 1B

BID PROPOSAL SCHEDULE TRES LAURELS SUBDIVISION PHASE 1B

BIDDER'S NAME: _____

BID SUMMARY

SEDIMENTATION AND EROSION CONTROL	\$ -
LOT GRADING IMPROVEMENTS	\$ -
DRAINAGE IMPROVEMENTS	\$ -
STREET IMPROVEMENTS	\$ -
WATER IMPROVEMENTS	\$ -
SANITARY SEWER IMPROVEMENTS	\$ -
MISCELLANEOUS IMPROVEMENTS	\$ -
TOTAL BASE BID:	\$ -

**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.**

* Includes Bid Bond, Warranty Assignments or Bonds, Per City of San Antonio, and SAWS Requirements

** 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.

*** Bids shall include all Unit Price costs as indicated by the Contract Documents and Bid Form. The bid price submitted by the Contractor shall be the sum of the unit prices times the estimated quantity of each item shown in the bid form. However, the Contractor shall guarantee himself of the accuracy of the quantities shown in the bid form. The quantities shown are estimates only and indicate only the magnitude of the project and a basis for bid comparison. Any discrepancies in quantity or work necessary to fulfill the intent of the plans shall be included, whether a bid item is included or not. Any work required for which a bid item is not shown shall be considered subsidiary to other work items.

Bidders Initials _____
Date _____

BID PROPOSAL SCHEDULE
TRES LAURELS SUBDIVISION PHASE 1B
SEDIMENTATION & EROSION CONTROL

NO.	DESCRIPTION	UNIT OF MEASURE	APPROX. QUANTITIES	UNIT PRICES	COST
Phase 1B					
1.	Stabilized Construction Entrance	EA	1	\$ -	\$ -
2.	Concrete Washout Pit	EA	1	\$ -	\$ -
3.	Silt Fence (Phase 1)	LF	2138	\$ -	\$ -
4.	Silt Fence (Phase 2)	LF	2686	\$ -	\$ -
5.	Inlet Protection	LF	12	\$ -	\$ -
6.	Rock Berm	LF	13	\$ -	\$ -
TOTAL					\$ -

- * 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.
- ** Bids shall include all Unit Price costs as indicated by the Contract Documents and Bid Form. The bid price submitted by the Contractor shall be the sum of the unit prices times the estimated quantity of each item shown in the bid form. However, the Contractor shall guarantee himself of the accuracy of the quantities shown in the bid form. The quantities shown are estimates only and indicate only the magnitude of the project and a basis for bid comparison. Any discrepancies in quantity or work necessary to fulfill the intent of the plans shall be included, whether a bid item is included or not. Any work required for which a bid item is not shown shall be considered subsidiary to other work items.
- *** 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 example; 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.
 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 discharge 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 SCHEDULE
TRES LAURELS SUBDIVISION PHASE 1B
LOT GRADING**

NO.	DESCRIPTION	UNIT OF MEASURE	APPROX. QUANTITIES	UNIT PRICES	COST
Phase 1B					
1.	Overall Clearing & Grubbing (Disturbed Area)	AC	9.37	\$ -	\$ -
2.	Overall Excavation	CY	5,432	\$ -	\$ -
3.	Overall Embankment*	CY	3,370	\$ -	\$ -
TOTAL					\$ -

* The contractor is to field verify and survey the existing site topography.

** Contractor to field verify and survey the existing site topography and submit information to engineer prior to submitting final bid for verification. 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 C2.00

**** 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.

***** Bids shall include all Unit Price costs as indicated by the Contract Documents and Bid Form. The bid price submitted by the Contractor shall be the sum of the unit prices times the estimated quantity of each item shown in the bid form. However, the Contractor shall guarantee himself of the accuracy of the quantities shown in the bid form. The quantities shown are estimates only and indicate only the magnitude of the project and a basis for bid comparison. Any discrepancies in quantity or work necessary to fulfill the intent of the plans shall be included, whether a bid item is included or not. Any work required for which a bid item is not shown shall be considered subsidiary to other work items.

Bidders Initials

Date

BID PROPOSAL SCHEDULE
TRES LAURELS SUBDIVISION PHASE 1B
STREET IMPROVEMENTS

Job No. 10/15/2025
3050.017

18292

NO.	DESCRIPTION	UNIT OF MEASURE	APPROX. QUANTITIES	UNIT PRICES	COST
Phase 1B					
1	Mobilization	LS	1	\$ -	\$ -
2	Street Excavation	CY	4,120	\$ -	\$ -
3	Street Embankment (Final)(Dens. Cont.)(Type B)	CY	317	\$ -	\$ -
4	Contractor to remove existing header curb	LF	96	\$ -	\$ -
5	Contractor to Remove Existing Guard Posts	EA	20	\$ -	\$ -
6	2" HMAC Type "D"	SY	5,020	\$ -	\$ -
7	14.50" Flexible Base (Compacted Depth)	SY	4,754	\$ -	\$ -
8	2" HMAC Type "C"	SY	266	\$ -	\$ -
9	23" Flexible Base (Compacted Depth)	SY	266	\$ -	\$ -
10	6" Lime Treated Subgrade (32 LB/SY)	SY	5,020	\$ -	\$ -
11	Concrete Curb	LF	2,686	\$ -	\$ -
12	Concrete Sidewalk	SY	12	\$ -	\$ -
13	R1-1 STOP (30")(High Intensity)	EA	1	\$ -	\$ -
14	9" [229mm] Street Name, Block Number (VARIES x9")(High Intensity)	EA	6	\$ -	\$ -
15	Type II Blue Raised Pavement Marker	EA	2	\$ -	\$ -
TOTAL					\$ -

* 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.

** Bids shall include all Unit Price costs as indicated by the Contract Documents and Bid Form. The bid price submitted by the Contractor shall be the sum of the unit prices times the estimated quantity of each item shown in the bid form. However, the Contractor shall guarantee himself of the accuracy of the quantities shown in the bid form. The quantities shown are estimates only and indicate only the magnitude of the project and a basis for bid comparison. Any discrepancies in quantity or work necessary to fulfill the intent of the plans shall be included, whether a bid item is included or not. Any work required for which a bid item is not shown shall be considered subsidiary to other work items.

Bidders Initials _____
Date _____

BID PROPOSAL SCHEDULE
TRES LAURELS SUBDIVISION PHASE 1B
DRAINAGE IMPROVEMENTS

NO.	DESCRIPTION	UNIT OF MEASURE	APPROX. QUANTITIES	UNIT PRICES	COST
Phase 1B					
1	Sidewalk Drain	EA	2	\$ -	\$ -
2	Channel Excavation	CY	4	\$ -	\$ -
3	Concrete Rip-Rap (5" Thick)	SY	27	\$ -	\$ -
4	Revegetation (Disturbed Open Space)	SY	135	\$ -	\$ -
5	8"-12" Rock Rubble	SY	12	\$ -	\$ -
6	Sidewalk Pipe Railing	LF	11	\$ -	\$ -
TOTAL					\$ -

* 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 _____

BID PROPOSAL SCHEDULE
TRES LAURELS SUBDIVISION PHASE 4A
WATER IMPROVEMENTS

NO.	DESCRIPTION	UNIT OF MEASURE	APPROX. QUANTITIES	UNIT PRICES	COST
Phase 1B					
1	Remove Existing Blowoff & Tie To Existing 8" Main	EA	2	\$ -	\$ -
2	Trench Excavation Safety Protection	LF	1230	\$ -	\$ -
3	8" C-900, DR18 Class 235 PVC Pipe	LF	1230	\$ -	\$ -
4	Ductile Iron Fittings	TON	0.54	\$ -	\$ -
5	3/4" Short Single Service with 5/8" meter	EA	27	\$ -	\$ -
6	3/4" Long Single Service with 5/8" meter	EA	23	\$ -	\$ -
7	Meter Boxes	EA	50	\$ -	\$ -
8	Fire Hydrant Assembly	EA	2	\$ -	\$ -
9	2" Blowoffs (Temp.)	EA	2	\$ -	\$ -
10	Hydrostatic Testing	EA	1	\$ -	\$ -
TOTAL					\$ -

* Cast Iron fittings weights were determined by mechanical joint compact

** Service cost shall include the cost of the 4" PVC Sleeve

*** 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 _____

**BID PROPOSAL SCHEDULE
TRES LAURELS SUBDIVISION PHASE 1b
SANITARY SEWER IMPROVEMENTS**

NO.	DESCRIPTION	UNIT OF MEASURE	APPROX. QUANTITIES	UNIT PRICES	COST
Phase 1B					
1	8" SDR Sanitary Sewer Pipe				
	8" SDR 26 (6'-10')	LF	66	\$ -	\$ -
	8" SDR 26 (10'-14')	LF	760	\$ -	\$ -
	8" SDR 26 (14'-18')	LF	249	\$ -	\$ -
	8" SDR 26 (18'-22')	LF	120	\$ -	\$ -
2	Standard Manhole	EA	4	\$ -	\$ -
3	Extra Depth Manhole	VF	21	\$ -	\$ -
4	6" Sanitary Sewer Lateral (SDR-26)	LF	1,869	\$ -	\$ -
5	Vertical Stacks	LF	130	\$ -	\$ -
6	WYE	EA	50	\$ -	\$ -
7	Trench Excavation Protection	LF	1,195	\$ -	\$ -
8	TV / Video Sewer Line	LF	1,195	\$ -	\$ -
TOTAL					\$ -

* Unit cost of 6" Sanitary Sewer Lateral shall include trench excavation protection.

*** Note: Refer quantities to the current San Antonio Water System (SAWS) Standard Specifications for Construction. SAWS approval is required. Contractor shall provide proof of trench compaction test results as tested by a Geotechnical Engineer, to comply with SAWS. Cost of first time testing to be paid by owner. Cost of required retesting shall be paid by Contractor.

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Bidders Initials _____
Date _____

BID PROPOSAL SCHEDULE
LAURELS SUBDIVISION PHASE 1B
MISCELLANEOUS IMPROVEMENTS

TRES

NO.	DESCRIPTION	UNIT OF MEASURE	APPROX. QUANTITIES*	UNIT PRICES	COST
Phase 1B					
1	Revegetation (Disturbed Area Within Lots)	SY	31,868	\$ -	\$ -
2	Primary Crossing PVC Sleeve Bundle (3-6" SCH 80 & 2-4" SCH 40)	LF	157	\$ -	\$ -
3	Secondary Crossing PVC Sleeve Bundle (1-6" SCH 80 & 2-4" SCH 40)	LF	520	\$ -	\$ -
4	Export****	CY	5881	\$ -	\$ -
TOTAL					\$ -

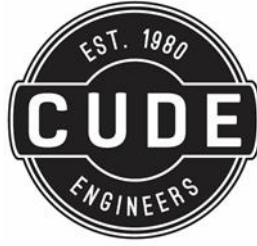
* Quantity provided is just to acquire Unit Price. True Quantities will be provided once final CPS Design is complete.

** 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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**** Export to be stockpiled on future Unit 2B, Contractor to coordinate location of stockpile with Engineer

Bidders Initials _____
Date _____



GEOTECHNICAL REPORT

(InTEC Project No. S251271-R1)



**Subsurface Exploration and Pavement Analysis
Proposed New Streets
Tres Laurels, Units 1B, 4B, 5A, 5B
San Antonio, Texas**

InTEC Project No. S251271-R1
September 26, 2025



1922 Dry Creek Way, Suite 101
San Antonio, Texas 78259

Integrated Testing and Engineering Company of San Antonio, L.P.

12028 Radium, San Antonio, Texas 78216—Phone: (210) 525 9033—Fax: (210) 525 9032—www.InTEC-SA.com



Integrated Testing and Engineering Company of San Antonio, L.P.
Geotechnical & Environmental Engineering • Construction Services • Geologic Assessment

September 26, 2025

Lennar Homes

1922 Dry Creek Way, Suite 101
San Antonio, Texas 78259

Attention: **Mr. Richard Mott, P.E.**

Email: richard.mott@lennar.com

Re: Subsurface Exploration and Pavement Analysis
Proposed New Streets
Tres Laurels, Units 1B, 4B, 5A, 5B
San Antonio, Texas

InTEC Project No. S251271-R1

Ladies & Gentlemen:

Integrated Testing and Engineering Company of San Antonio (InTEC) has completed a **subsurface exploration and pavement thickness evaluation report** at the above referenced project site. The results of the exploration are presented in this report.

We appreciate and wish to thank you for the opportunity to be of service to you on this project. If we can be of additional assistance during the foundations explorations, and materials testing-quality control phase of construction, please call us.

Sincerely,

InTEC of San Antonio

Murali Subramaniam, Ph. D., P.E.
Vice President



09/26/2025

EXECUTIVE SUMMARY

The soil conditions at the location of the **proposed new streets at Tres Laurels, Units 1B, 4B, 5A, 5B in San Antonio, Texas** were obtained from **excavating 15 test pits to a depth of 6 to 10 feet**. Laboratory tests were performed on selected specimens to evaluate the engineering characteristics of various soil strata encountered in the test pits.

- The subsurface soils at the test pit locations primarily consist of brown clays, tan clays, tan calcareous clays, and marl with caliche and gravel.
- The results of our exploration, laboratory testing, and engineering evaluation indicate that the underlying soils consist predominantly of **moderately plastic to highly plastic clays**, with significant potential for shrink-swell behavior due to changes in moisture content.
- **Estimated potential vertical rise (PVR)** using TxDOT Test Method TEX-124-E ranges from **2 to 4 ½ inches** at the current site grades. These values are based on standard modeling assumptions and **should not be interpreted as exact predictions of future movement**.
- The proposed pavements at this site may be supported by flexible pavement sections.
- **Cut and fill information is not available for our review at this time.** Based on the soils encountered in the test pits, Clay or Calcareous Clay / Marl subgrades are anticipated.
- At the time of construction, if the final street subgrade consists of material other than encountered in our test pits, the recommendations may have to be revised.
- As requested, pavement section recommendations for Local Type streets are presented.
- Ground water was not encountered in the test pits at the time of excavation.
- The performance of the recommended pavement sections depends on **proper drainage, moisture control, construction practices**, and long-term **post-construction maintenance**. Shrink Swell related movements should be anticipated due to natural variability in subsurface conditions and soil behavior.

This summary is intended for general guidance only. **Detailed descriptions, analysis, assumptions, and recommendations** are included in the full report and should be reviewed in their entirety. The contents of this report are based on **site conditions at the time of exploration**, and **any deviation from those conditions may require reevaluation** by the geotechnical engineer.

Summary Table A – Input Parameters used in Asphalt Pavement Section Calculation

	Local Type A (no bus traffic)	Local Type A (with bus traffic)	Local B
ESAL	100,000	1,000,000	2,000,000
Reliability Level	R-70	R-70	R-90
Initial and Terminal Serviceability	4.2 and 2.0	4.2 and 2.0	4.2 and 2.0
Standard Deviation	0.45	0.45	0.45
Service Life	20 years	20 years	20 years
If heavy truck traffic is anticipated, please contact InTEC with anticipated traffic data for revised recommendations.			

Summary Table B – Minimum Flexible Pavement Recommendations – CBR = 2.0

Street Classification	Asphaltic Concrete			Aggregate Base, Inches	Geogrid	Treated Subgrade, Inches	Structural Number
	Type D, inches	Type C, inches	Type B, inches				
Local Type A (no bus traffic)	3.00	-	-	11.50	No	6" LT	2.93
	3.00	-	-	9.50	Yes	6" LT	2.93
	2.00	-	-	14.50	No	6" LT	2.91
	2.00	-	-	12.00	Yes	6" LT	2.92
	2.00	-	6.00	-	No	6" LT	2.92
Local Type A (with bus traffic)	3.00	-	-	19.50	No	6" LT	4.05
	3.00	-	-	16.50	Yes	6" LT	4.12
	3.00	-	8.50	-	No	6" LT	4.21
Local Type B	2.00	2.00	-	23.00	No	6" LT	4.98
	2.00	2.00	-	19.00	Yes	6" LT	4.99
	4.00	-	9.50	-	No	6" LT	4.99

Design Notes:

- The results of our laboratory testing and engineering evaluation indicate that the underlying shallow clays are **moderately plastic to highly plastic in character**. Potential vertical movement on the order of **2 to 4 ½ inches** is estimated at existing grade elevation.
- Clay or Calcareous Clay / Marl subgrades are anticipated. Pavement section recommendations are based on clay subgrade, with a Design CBR value of 2.0.
- Input parameters are shown in Table No. 3 (Summary Table A). Please call us to provide pavement recommendations, if needed, for different input values.

Subgrade Notes (*):

- Cut and fill data are not available at this time.
- Fill used to raise the grade in clay areas:
 - approved fill material free should have a minimum CBR value of 2.0 and a maximum Plasticity Index value of 45 (on site material). Lime application rates should be re-evaluated and tested for sulfate content prior to use of the fill material.
 - The fill material should be approved by the geotechnical engineer, free of deleterious material, and the gravel size should not exceed 3 inches in size. The material should be placed and compacted as per applicable city / county guidelines.
 - The subgrade, prior to placement of fill, should be proof rolled to identify weak areas. Any identified weak areas should be recompacted.
- Fill used to raise the grade in calcareous clay / marl areas:
 - Existing clays should be removed to marl / limestone stratum prior to placement of fill.

- approved fill material free should have a minimum CBR value of 5.0 and a maximum Plasticity Index value of 20.
- Based on the thickness of the clays encountered in the test pits, we anticipate the final pavement subgrade Plasticity Index value to be either less than or equal to 20 or greater than 20.
- **If the subgrade Plasticity Index values are less than or equal to 20, as per City of San Antonio or Bexar County requirements, subgrade TREATMENT is not needed.**
- Subgrade should be **TREATED** using lime or cement. Lime application rates are presented here. Please contact InTEC for cement application rates.
 - Treated to a depth of 6 inches using 6 percent lime content.
 - The subgrade soils should be tested for soil sulfate content prior to lime application. If the soil sulfate content is higher than 3000 ppm, an alternate procedure will be needed.
 - Lime application rate of **32 lbs per sq yard for 6-inch depth** of treatment is recommended.
 - Cement may be used in lieu of lime. Cement application rate should be determined at the time of construction.

General Notes:

- Input parameters are shown in Table No. 3 (Summary Table A). Please call us to provide pavement recommendations, if needed, for different input values. If repetitive truck or heavy truck traffic is anticipated, please contact us for revised pavement recommendations.
- Pavement section recommendations are based on a subgrade CBR value of 2.0. The pavement recommendations are not based on the shrink / swell characteristics of the underlying soils. The pavement can experience cracking and deformation due to shrinkage and swelling characteristics of the soils as described in the *Vertical Movements* section of this report. Use of geogrid helps reduce shrink / swell related pavement distress.
- Significant pavement distress has been observed during construction phase with the combination of construction traffic and irrigation water / rain water getting underneath the asphalt.
- If water is allowed to get underneath the asphalt / concrete or if moisture content of the base or subgrade changes significantly, then pavement distress will occur. Moisture penetration underneath the asphalt pavement surface should be reduced. One of the following methods should be used:
 - Deeper curbs; such as curbs extending a minimum of 3 inches into subgrade.
 - Compacted clays backfilled against the curbs.
- In addition, water should not be allowed to get underneath the pavement section at the time of home construction.

Geogrid:

- One layer of geogrid, Tensar Triax TX130 or better, installed on top of treated subgrade as per manufacturer's guidelines.

Subgrade Verification:

- The final pavement subgrade should be verified and delineated as needed for different subgrade conditions by InTEC.

Summary Table C – Summary of Pavement Materials

Pavement Section	Material	Stabilization or Treatment	Thickness
Subgrade	Clays	Treatment - Sulfate content should be tested prior to treatment	As recommended in pavement options (6 inches)
Base	TxDOT Item 247 A1-2	-	As recommended in pavement options (maximum of 6 inches per lift)
Asphalt	Type B, C, D	-	As recommended in pavement options
Geogrid	Tensar Triax TX130	One layer	As per manufacturer's recommendations

See report for more details

Summary Table D – Applicable procedures and minimum density and moisture percentages

All applicable city or county guidelines should be used. The following City of San Antonio Standard Specifications for Construction, June 2008, may be followed if specific guidelines are not available. Some of the relevant procedures are shown below.

Pavement Material	Procedure *	Density and Moisture Control
Subgrade fill (maximum 6 inch thick lifts)	Item 107	As per construction specifications
Treated Subgrade (6 inch thick lift)	Item 108- lime	As per construction specifications
Aggregate Base TxDOT Item 247 A1-2 (maximum 6 inch thick lift)	Item 200	As per construction specifications
Asphalt HMAC Type B, C, D	Item 205, 206	As per construction specifications
Geogrid	Manufacturer's Guidelines	-

(*) City of San Antonio Standard Specifications for Construction, June 2008

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INTRODUCTION

General

This report presents the results of our **subsurface exploration and pavement thickness evaluation** for the **proposed new streets at Tres Laurels, Units 1B, 4B, 5A, 5B in San Antonio, Texas**. This project was authorized by **Mr. Richard Mott, P.E.**

Purpose and Scope of Services

The purpose of our subsurface investigation was to evaluate the site's subsurface and ground water conditions and provide pavement thickness recommendations for the planning and development phases of the project. Our scope of services includes the following:

- 1) excavating and sampling of 15 test pits – to depths of 6 to 10 feet;
- 2) evaluation of the in-place conditions of the subsurface soils through field penetration tests;
- 3) observing the ground water conditions during drilling operations;
- 4) performing laboratory tests such as Atterberg limits, California Bearing Ratio (C.B.R.), Lime Series, and Moisture content tests;
- 5) review and evaluation of the field and laboratory test programs during their execution with modifications of these programs, when necessary, to adjust to subsurface conditions revealed by them;
- 6) compilation, generalization and analyses of the field and laboratory data in relation to the project requirements;
- 7) estimate of potential vertical movements;
- 8) preparation of pavement guidelines;
- 9) preparation of a written geotechnical engineering report for use by the members of the design team in their preparation of construction, contract, and specifications documents.

The Scope of Services **did not include slope stability or any environmental assessment** for the presence or absence of wetlands or hazardous or toxic materials in the soil, surface water, groundwater, or air, on or below or around this site. Any statements in this report or on the Test Pit Logs regarding odors, colors or unusual or suspicious items or conditions are strictly for the information of the client.

Project Description

The proposed project involves the development of the new streets at Tres Laurels, Units 1B, 4B, 5A, 5B in San Antonio, Texas.

- The proposed pavement areas are anticipated to include Local type streets.
- Cut and fill information are not available for our use at this time.
- Clay or Calcareous Clay / Marl subgrades are anticipated.
- Review of the geologic map indicates the site is located within Kpg, Pecan Gap Chalk, and Kknm, Navarro Group and Marlbrook Marl, formations. The Bexar County Karst Map indicates the site is located within “Karst Zone 3” (areas that probably do not contain listed invertebrate karst species).

SUBSURFACE EXPLORATION

Scope

The field exploration to determine the engineering characteristics of the subsurface materials included a reconnaissance of the project site, excavating the test pits, and obtaining bulk samples.

Fifteen test pits were excavated at the approximate locations shown on the Test Pit Location Plan, Plate 1, included in the Illustration section of this report. These test pits were **excavated to depths of 6 to 10 feet below the presently existing ground surface**. Test pit locations were selected by the project geotechnical engineer and established in the field by the drilling crew using normal taping procedures. Test pits were excavated to recover samples from different depths.

Excavating and Sampling

The test pits were performed with a mini-excavator. Test Pit samples of the subsurface materials were obtained and the samples were identified according to test pit number and depth, encased in polyethylene plastic wrapping to protect against moisture loss, and transported to our laboratory in special containers.

Water Level Measurements

Ground water was not encountered in the test pits at the time of excavation. In relatively pervious soils, such as sandy soils, the indicated elevations are considered reliable ground water levels. In relatively impervious soils, the accurate determination of the ground water elevation may not be possible even after several days of observation. Seasonal variations, temperature and recent rainfall conditions may influence the levels of the ground water table and volumes of water will depend on the permeability of the soils.

Field Logs

A field log was prepared for each test pit. Each log contained information concerning the sampling method, samples attempted and recovered, indications of the presence of various materials such as silt, clay, gravel or sand and observations of ground water. It also contained an interpretation of subsurface conditions between samples. **Therefore, these logs included both factual and interpretive information.**

Presentation of the Data

The final logs represent our interpretation of **the contents of the field logs for the purpose delineated by our client**. The final logs are included on **Plates 2 thru 16** included in the Illustration section. A key to classification terms and symbols used on the logs is presented on **Plate 17**.

LABORATORY TESTING PROGRAM

Purpose

In addition to the field exploration, a supplemental laboratory testing program was conducted to determine additional **pertinent engineering characteristics** of the subsurface materials necessary in evaluating the soil parameters.

Laboratory Tests

All phases of the laboratory testing program were performed in **general accordance with the indicated applicable** ASTM Specifications as indicated in Table No. 1.

Table No. 1 – Laboratory Testing Procedures

Laboratory Test	Applicable Test Standard
Liquid Limit, Plastic Limit and Plasticity Index of the Soils	ASTM D 4318
Moisture Content	ASTM D 2216
California Bearing Ratio	ASTM D 1883
pH	ASTM D 6276

In the laboratory, each sample **was observed and classified by a geotechnical engineer**. As a part of this classification procedure, the natural water contents of selected specimens were determined. Liquid and plastic limit tests were performed on representative specimens to determine the plasticity characteristics of the different soil strata encountered.

Presentation of the Data

In summary, the tests presented were conducted in the laboratory to evaluate the engineering characteristics of the subsurface materials. The results of all these tests are presented on appropriate Test Pit Logs. These laboratory test results were used to classify the soils encountered generally according to the Unified Soil Classification System (ASTM D 2487).

GENERAL SUBSURFACE CONDITIONS

Soil Stratigraphy

The soils underlying the site may be grouped into **two generalized strata** with similar physical and engineering properties. The lines designating the interface between soil strata on the logs represent approximate boundaries. Transition between materials may be gradual. The soil stratigraphy information at the test pit locations are presented in **Test Pit Logs, Plates 2 thru 16**. The soil conditions in between test pits may vary across the site. We should be called upon at the time of construction to verify the soil conditions between our test pits.

The engineering characteristics of the underlying soils, based the results of the laboratory tests performed in selected samples, are summarized and presented in the following paragraphs.

Fill was encountered to an approximate depth of 1.5-ft in Test Pit TP-4. Fill depths are likely to vary across the site.

The underlying dark brown to brown clays, dark brown clays, tan and gray clays, tan silty clays, tan gravelly clays, and light tan calcareous clays to marl are moderately plastic to highly plastic with tested liquid limit values varying from 27 to 67 and plasticity index values ranging from 15 to 45.

The above description is of a generalized nature to highlight the major soil stratification features and soil characteristics. The Test Pit Logs should be consulted for specific information at each test pit location.

Soil stratigraphy may vary between test pit locations. If deviations from the noted subsurface conditions are encountered during construction, they should be brought to the attention of InTEC. We may revise the recommendations after evaluating the significance of the changed conditions.

Ground Water Observations

Ground water was not encountered in the test pits at the time of excavation. Short term field observations generally do not provide accurate ground water levels. The contractor should check the subsurface water conditions prior to any excavation activities. The low permeability of the soils would require several days or longer for ground water to enter and stabilize in the test pit holes. Ground water levels will fluctuate with seasonal climatic variations and changes in the land use.

It is not unusual to encounter shallow groundwater during or after periods of rainfall. The surface water tends to percolate down through the surface until it encounters a relatively impervious layer.

PAVEMENTS ON EXPANSIVE SOIL

General

There are many plastic clays that swell considerably when water is added to them and then shrink with the loss of water. Pavements constructed on these clays are subjected to large uplifting forces caused by the swelling.

In the characterization of a pavement site, two major factors that contribute to potential shrink-swell problems must be considered. Problems can arise if a) the soil has expansive and shrinkage properties and b) the environmental conditions that cause moisture changes to occur in the soil.

Evaluation of the Shrink-Swell Potential of the Soils

Subsurface sampling, laboratory testing and data analyses are used in the evaluation of the shrink-swell potential of the soils under the pavements.

The Mechanism of Swelling

The mechanism of swelling in expansive clays is complex and is influenced by a number of factors. Basically, expansion is a result of changes in the soil-water system that disturbs the internal stress equilibrium. Clay particles in general have negative electrical charges on their surfaces and positively charged ends. The negative charges are balanced by actions in the soil water and give rise to an electrical interparticle force field. In addition, adsorptive forces exist between the clay crystals and water molecules, and Van Der Waals surface forces exist between particles. Thus, there exists an internal electro-chemical force system that must be in equilibrium with the externally applied stresses and capillary tension in the soil water. If the soil water chemistry is changed either by changing the amount of water or the chemical composition, the interparticle force field will change. If the change in internal forces is not balanced by a corresponding change in the state of stress, the particle spacing will change so as to adjust the interparticle forces until equilibrium is reached. This change in particle spacing manifests itself as a shrinkage or swelling.

Initial Moisture Condition and Moisture Variation

Volume change in an expansive soil mass is the result of increases or decreases in water content. The initial moisture content influences the swell and shrink potential relative to possible limits, or ranges, in moisture content. Moisture content alone is useless as an indicator or predictor of shrink-swell potential. The

relationship of moisture content to limiting moisture contents such as the plastic limit and liquid limit must be known.

If the moisture content is below or near plastic limit, the soils have high potential to swell. It has been reported that expansive soils with liquidity index* in the range of 0.20 to 0.40 will tend to experience little additional swell.

The availability of water to an expansive soil profile is influenced by many environmental and manmade factors. Generally, the upper few feet of the profile are subjected to the widest ranges of moisture variation, and are least restrained against movement by overburden. This upper stratum of the profile is referred to as the active zone. Moisture variation in the active zone of a natural soil profile is affected by climatic cycles at the surface, and fluctuating groundwater levels at the lower moisture boundary. The surficial boundary moisture conditions are changed significantly simply by placing a barrier such as a building floor slab or pavement between the soil and atmospheric environment. Other obvious and direct causes of moisture variation result from altered drainage conditions or man-made sources of water, such as irrigation or leaky plumbing. The latter factors are difficult to quantify and incorporate into the analysis, but should be controlled to the extent possible for each situation. For example, proper drainage and attention to landscaping are simple means of minimizing moisture fluctuations near structures, and should always be taken into consideration.

Man Made Conditions That Can Be Altered

There are a number of factors that can influence whether a soil might shrink or swell and the magnitude of this movement. For the most part, either the owner or the designer has some control over whether the factor will be avoided altogether or if not avoided, the degree to which the factor will be allowed to influence the shrink-swell process.

Antecedent Rainfall Ratio This is a measure of the local climate and is defined as the total monthly rainfall for the month of and the month prior to laying the pavement divided by twice the average monthly rate measured for the period. The intent of this ratio is to give a relative measure of ground moisture conditions at the time the pavement is placed. Thus, if a pavement is placed at the end of a wet period, the pavement should be expected to experience some loss of support around the perimeter as the wet soils begin to dry out and shrink. The opposite effect could be

* LIQUIDITY INDEX = (NATURAL WATER CONTENT - PLASTIC LIMIT) / (LIQUID LIMIT - PLASTIC LIMIT)

anticipated if the pavement is placed at the end of an extended dry period; as the wet season occurs, uplift around the perimeter may occur as the soil at the edge of the slab pavement in moisture content.

Age of Pavement The length of time since the pavement was cast provides an indication of the type of swelling of the soil profile that can be expected to be found beneath the pavement.

Drainage This provides a measure of the slope of the ground surface with respect to available free surface water that may accumulate around the pavement. Most builders are aware of the importance of sloping the final grade of the soil away from the pavement so that rain water is not allowed to collect and pond against or adjacent to the pavement. If water were allowed to accumulate next to the pavement, it would provide an available source of free water to the expansive soil underlying the pavement. Similarly, surface water drainage patterns or swales must not be altered so that runoff is allowed to collect next to the pavement.

Pre-Construction Vegetation Large amount of vegetation existing on a site before construction may have desiccated the site to some degree, especially where large trees grew before clearing. Constructing over a desiccated soil can produce some dramatic instances of heave and associated structural distress and damage as it wets up.

Post-Construction Vegetation **The type, amount, and location of vegetation that has been allowed to grow since construction can cause localized desiccation. Planting trees or large shrubs near a building can result in loss of foundation support as the tree or shrub removes water from the soil and dries it out.** Conversely, the opposite effect can occur if flowerbeds or shrubs are planted next to the foundation and these beds are kept well-watered or flooded. This practice can result in swelling of the soil around the perimeter where the soil is kept wet.

Site Grading, Lot Slopes, and Earthwork Effects In addition to the environmental and man-made factors described above, the grading and earthwork operations performed during site development can significantly influence the potential for shrink-swell movement at any given lot.

Cut and Fill Conditions During site development, many residential lots are brought to design grade through cut and fill operations. Fill soils, if not properly compacted at the time of placement, may experience post-construction volume changes due to wetting, drying, or consolidation. When fill

soils overlay natural undisturbed expansive clays, the combination of differing material types and histories can create non-uniform movement potential across the building pad. Transition zones, where cut and fill areas meet within the foundation footprint, are particularly sensitive and may result in localized differential movement under changing moisture conditions.

Lot Slopes and Surface Water Drainage The slope of the lot also plays a role in the long-term performance of foundations on expansive soils. Sloped lots may result in preferential surface water runoff toward one side of the structure, increasing the risk of moisture accumulation and differential heave if drainage is not properly controlled. Additionally, on sloped sites underlain by expansive soils, lateral soil movement may occur over time due to creep and shrink-swell cycles. This movement is typically oriented downslope and may contribute to gradual lateral displacement of light foundation systems unless proper design measures are incorporated.

As with other moisture-related factors, careful attention to site grading, uniform pad preparation, and positive drainage away from structures are critical elements in mitigating the effects of expansive soils. Special consideration should be given to areas of deep fill, slope transitions, or where cut/fill differentials exist within the foundation footprint.

Utilities Underneath the Pavement The utilities such as sewer, water, electricity, gas, and communication lines are often installed underneath the streets. The sewer utility construction, for example, typically involves trenching to the desired depth, installing gravel a gravel bed underneath the sewer main, installing primary backfill (gravel), and placing back the secondary backfill (generally excavated soils). The secondary backfill material is compacted in lifts. In addition, sewer service lines run laterally from each house (for a typical subdivision, approximately every 50-ft). These trenches with gravel and onsite material backfill are conducive to carrying water. In addition, the sewer service lines can carry water from behind the curb. Occasionally, the sewer line may be encased in concrete which will cause ponding of any travelling water within the sewer trenches. Any water travelling within these trenches can cause expansive clays to swell. If the backfill is not adequately compacted or if excessive water is flowing in these trenches, the trench backfill can potentially settle.

Summation

It is beyond the scope of this investigation to do more than point out that the above factors have a definite influence on the amount and type of swell to which a pavement is subjected during its useful life. The design engineer must be aware of these factors as he develops his design and make adjustments as necessary according to the results of special measurements or from his engineering experience and judgment.

DESIGN ENGINEERING ANALYSIS

Pavement Design Considerations

Review of the test pits and test data indicates that the following factors will affect the pavement design and construction at this site:

- 1) The site is underlain by moderately plastic to highly plastic clays. Structures supported on or within these soils will be subjected to potential vertical movements on the order of **2 to 4 ½ inches**.
- 2) The strengths of the underlying soils are adequate to support the proposed new streets.
- 3) Based on the stratigraphy observed at this site, the final street subgrade is anticipated to be in the Clay or Calcareous Clay / Marl strata. The final street subgrade should be verified by InTEC at the time of construction.
- 4) Ground water was not encountered in the test pits at the time of excavation.

Vertical Movements

The potential vertical rise (PVR) for slab-on grade construction at the location of the structures had been estimated using Texas Department of Transportation Procedure TXDOT-124-E. This method utilizes the liquid limits, plasticity indices, and in-situ moisture contents for soils in the seasonally active zone, estimated to be about twelve to fifteen feet at the project site.

The estimated PVR value provided is based on the proposed floor system applying a sustained surcharge load of approximately 1.0 lb. per square inch on the subgrade materials. **Potential vertical movement on the order of 2 to 4 ½ inches was estimated at the existing grade elevation.**

The PVR values are based on the current site grades. If cut and fill operations in excess of 6 inches are performed, the PVR values could change significantly. Higher PVR values than the above-mentioned values will occur in areas where water is allowed to pond for extended periods.

If proper drainage is not maintained (allowing subgrade moisture content to change significantly) and / or if the pavement is underlain by utility trenches and the utilities leak (a) potential vertical movements will be

much greater than 2 to 3 times the anticipated vertical movements will be realized and (b) the subgrade strength may be significantly lowered.

If the finish grade elevation is higher than the existing grade, compacted select fill should be used to raise the grade level. Any select fill should be placed and compacted as recommended under *Select Fill* in the “Construction Guidelines” section of this report. Each lift should be compacted and tested by InTEC to verify Compaction Compliance.

If the clays underlying the compacted / treated subgrade soils is moisture conditioned to a thickness of 18 inches, potential vertical movement on the order of 3 inches is estimated.

It should be noted that expansive clay does not shrink/swell without changes in moisture content, and thus good site design is very important to minimize movements. Coping with problems of shrink/swell due to expansive clays is a “fact of life” in the Texas region of south western U.S.A.

PAVEMENT GUIDELINES

General

Pavement area at this unit is expected to include Local type streets. The following recommendations are presented as a guideline for pavement design and construction. These recommendations are based on a) our previous experience with subgrade soils like those encountered at this site, b) pavement sections which have proved to be successful under similar design conditions, c) final pavement grades will provide adequate drainage for the pavement areas and that water will not be allowed to enter the pavement system by either edge penetration adjacent to landscape areas or penetration from the surface due to surface ponding, or inadequate maintenance of pavement joints, or surface cracks that may develop.

Pavement Design

Pavement designs provide an adequate thickness of structural sections over a particular subgrade (in order to reduce the wheel load to a distributed level so that the subgrade can support load). The support characteristics of the subgrade are based on strength characteristics of the subgrade soils and not on the shrinkage and swelling characteristics of the clays. Therefore, the pavement sections may be adequate from a structural stand point, may still experience cracking and deformation due to shrinkage and swelling characteristics of the soils. In addition, if the proposed new pavements are used to carry temporary construction traffic, then heavier sections may be needed. Please contact InTEC to discuss options.

It is very important to minimize moisture changes in the subgrade to lower the shrinkage and swell movements of the subgrade clays. The pavement and adjacent areas should be well drained. Proper maintenance should be performed by sealing the cracks as soon as they develop to prevent further water penetrations and damage. In our experience,

- (a) majority of the pavement distress observed over the years were caused by changes in moisture content of the underlying subgrade and / or excessive moisture in the base section,
- (b) pavements with a grade of one percent or more have performed better than the pavements with allowable minimum grade,

- (c) pavements with no underground utilities have performed better than pavements with underground utilities and the associated laterals,
- (d) pavements that are at a higher-grade elevation than the surrounding lots have performed better, and
- (e) any design effort that minimizes moisture penetration into the pavement layers have performed better.

“Alligator” Type Cracks

A layer of aggregate base is typically used underneath the concrete curbs around the pavement areas. This layer of aggregate base underneath the concrete curb is conducive to the infiltration of surface water into the pavement areas. Water infiltration into the subgrade and / or base layer can result in “alligator type” cracks especially when accompanied by construction traffic. Increased moisture content of the pavement sections will significantly impact its support characteristics. Moisture penetration into pavement layers can be reduced by (a) penetrating the concrete curbs at least three inches into the native clays soils, (b) installing French Drains on the outside of the curbs, or (c) installing a moisture barrier such as a trench filled with bentonite or flowable fill. Alligator type cracks are also caused by weak / soft pockets within the pavement layers. Thoroughly proof rolling the subgrade and base layers will help identify the soft spots and densify as needed.

Longitudinal Cracks

Asphalt pavements in highly expansive soil conditions, such as the soils encountered at this site, can develop longitudinal cracks along the pavement edges. The longitudinal cracking typically occurs about 1 to 4 feet inside of the pavement edges and they run parallel to the pavement edge. Longitudinal or reflective cracks may also be observed over utility trenches. The longitudinal cracks are generally caused by differential drying and shrinkage of the underlying expansive clays. The moisture content change of the underlying subgrade clays can be reduced by installing moisture barriers. Vertical moisture barriers along the edge of the pavement or horizontal moisture barriers such as paved sidewalks or geogrid will help control the development of the longitudinal cracks.

Periodic Maintenance

The pavements constructed on clay subgrades such as the one encountered at this site will be subjected to shrink / swell related movements. Hence, proper maintenance should be performed by sealing the cracks as soon as they develop to prevent further water penetrations and damage.

Pavement Sections

Local type residential streets may be designed with flexible pavements. The final finish street subgrade is expected to be in the Clay or Calcareous Clay / Marl subgrade areas. Minimum flexible pavement sections for the anticipated subgrades are presented in Table No. 2 in the following page. The project geotechnical engineer should delineate the streets for different subgrades at the time of construction. Input parameters used in the pavement section calculations are presented in Table No. 3.

- If pavement design for parameters other than those shown in Table No. 3 is needed or if repetitive / heavy truck traffic is anticipated, please contact us for additional pavement section recommendations.
- The recommended pavement sections are based on the subgrade soil support characteristics.
- The pavement sections are not based on shrink / swell characteristics of the subgrade soils.
- The subgrade soil support characteristics will be significantly affected by changes in moisture content.

The cut and fill information is not available at this time. The final street subgrade should be verified by InTEC at the time of construction.

Table No. 2 – Minimum Flexible Pavement Recommendations – CBR = 2.0

Street Classification	Asphaltic Concrete			Aggregate Base, Inches	Geogrid	Treated Subgrade, Inches	Structural Number
	Type D, inches	Type C, inches	Type B, inches				
Local Type A (no bus traffic)	3.00	-	-	11.50	No	6" LT	2.93
	3.00	-	-	9.50	Yes	6" LT	2.93
	2.00	-	-	14.50	No	6" LT	2.91
	2.00	-	-	12.00	Yes	6" LT	2.92
	2.00	-	6.00	-	No	6" LT	2.92
Local Type A (with bus traffic)	3.00	-	-	19.50	No	6" LT	4.05
	3.00	-	-	16.50	Yes	6" LT	4.12
	3.00	-	8.50	-	No	6" LT	4.21
Local Type B	2.00	2.00	-	23.00	No	6" LT	4.98
	2.00	2.00	-	19.00	Yes	6" LT	4.99
	4.00	-	9.50	-	No	6" LT	4.99

Design Notes:

- The results of our laboratory testing and engineering evaluation indicate that the underlying shallow clays are **moderately plastic to highly plastic in character**. Potential vertical movement on the order of **2 to 4 ½ inches** is estimated at existing grade elevation.
- Clay or Calcareous Clay / Marl subgrades are anticipated. Pavement section recommendations are based on clay subgrade, with a Design CBR value of 2.0.
- Input parameters are shown in Table No. 3 (Summary Table A). Please call us to provide pavement recommendations, if needed, for different input values.

Subgrade Notes (*):

- Cut and fill data are not available at this time.
- Fill used to raise the grade in clay areas:
 - approved fill material free should have a minimum CBR value of 2.0 and a maximum Plasticity Index value of 45 (on site material). Lime application rates should be re-evaluated and tested for sulfate content prior to use of the fill material.
 - The fill material should be approved by the geotechnical engineer, free of deleterious material, and the gravel size should not exceed 3 inches in size. The material should be placed and compacted as per applicable city / county guidelines.
 - The subgrade, prior to placement of fill, should be proof rolled to identify weak areas. Any identified weak areas should be recompacted.
- Fill used to raise the grade in calcareous clay / marl areas:
 - Existing clays should be removed to marl / limestone stratum prior to placement of fill.

- approved fill material free should have a minimum CBR value of 5.0 and a maximum Plasticity Index value of 20.
- Based on the thickness of the clays encountered in the test pits, we anticipate the final pavement subgrade Plasticity Index value to be either less than or equal to 20 or greater than 20.
- **If the subgrade Plasticity Index values are less than or equal to 20, as per City of San Antonio or Bexar County requirements, subgrade TREATMENT is not needed.**
- Subgrade should be **TREATED** using lime or cement. Lime application rates are presented here. Please contact InTEC for cement application rates.
 - Treated to a depth of 6 inches using 6 percent lime content.
 - The subgrade soils should be tested for soil sulfate content prior to lime application. If the soil sulfate content is higher than 3000 ppm, an alternate procedure will be needed.
 - Lime application rate of **32 lbs per sq yard for 6-inch depth** of treatment is recommended.
 - Cement may be used in lieu of lime. Cement application rate should be determined at the time of construction.

General Notes:

- Input parameters are shown in Table No. 3 (Summary Table A). Please call us to provide pavement recommendations, if needed, for different input values. If repetitive truck or heavy truck traffic is anticipated, please contact us for revised pavement recommendations.
- Pavement section recommendations are based on a subgrade CBR value of 2.0. The pavement recommendations are not based on the shrink / swell characteristics of the underlying soils. The pavement can experience cracking and deformation due to shrinkage and swelling characteristics of the soils as described in the *Vertical Movements* section of this report. Use of geogrid helps reduce shrink / swell related pavement distress.
- Significant pavement distress has been observed during construction phase with the combination of construction traffic and irrigation water / rain water getting underneath the asphalt.
- If water is allowed to get underneath the asphalt / concrete or if moisture content of the base or subgrade changes significantly, then pavement distress will occur. Moisture penetration underneath the asphalt pavement surface should be reduced. One of the following methods should be used:
 - Deeper curbs; such as curbs extending a minimum of 3 inches into subgrade.
 - Compacted clays backfilled against the curbs.
- In addition, water should not be allowed to get underneath the pavement section at the time of home construction.

Geogrid:

- One layer of geogrid, Tensar Triax TX130 or better, installed on top of treated subgrade as per manufacturer's guidelines.

Subgrade Verification:

- The final pavement subgrade should be verified and delineated as needed for different subgrade conditions by InTEC.

Table No. 3 – Input Parameters used in Asphalt Pavement Section Calculation

	Local Type A (no bus traffic)	Local Type A (with bus traffic)	Local B
ESAL	100,000	1,000,000	2,000,000
Reliability Level	R-70	R-70	R-90
Initial and Terminal Serviceability	4.2 and 2.0	4.2 and 2.0	4.2 and 2.0
Standard Deviation	0.45	0.45	0.45
Service Life	20 years	20 years	20 years
If heavy truck traffic is anticipated, please contact InTEC with anticipated traffic data for revised recommendations.			

Subgrade Preparation

It is important that any existing pavement and organic and compressible soils are removed and the exposed subgrade is properly prepared prior to pavement installation. The subgrade should be prepared as described in the applicable city / county Guidelines. Base course material should be placed immediately upon completion of the subgrade compaction operation to prevent drying of the soils due to exposure.

The finish grade elevation of the subgrade should be such that water drains downward freely towards a drainage area. At the drainage area, 3x5 rock may be provided at the subgrade level and the collected water at the drainage area should be taken out (such as into the existing concrete drainage channel). If any voids in the subgrade should be filled in with the same subgrade material and compacted in lifts.

The approved fill material should be placed in 8-inch lifts (6 inches compacted) and compacted as recommended in the Site Preparation section of the Construction Guidelines presented in this report.

Deeper Fill

If the fill depth exceeds 4 feet, the potential subgrade settlement should be considered. The fill material should have the minimum design CBR value. The fills should be placed in 6-inch thick lifts and compacted to a minimum of 98 percent of the maximum dry density at a minimum moisture content of optimum moisture content (Tex 114E). If the fill depths exceed 10-ft, each lift should be compacted to a minimum of

100 percent of the maximum dry density at a moisture content between optimum minus 2 and optimum plus 2 percent of the optimum moisture content (Tex 114E). In areas where culvert crossing are planned, above recommendations should be followed in backfilling around the culvert. Please contact InTEC with the cut and fill information to evaluate the effect of proposed cut and fill on the recommendations and to provide fill material and compaction recommendations.

Base Course

Based on the survey of available materials in the area, a base course of crushed limestone aggregate or gravel appears to be the most practical material for asphalt pavement project. The base course should conform to Texas State Department of Highways and Public Transportation Standard Specification, Item 247, Type A, Grade 1-2. The aggregate base course should be installed as per applicable city / county Guidelines.

At a minimum the base course should be brought to near optimum moisture conditions and compacted in lifts to at least 95 percent of maximum dry density as determined by test method TxDOT 113E.

Asphaltic Concrete

The asphaltic concrete surface course should conform to City of San Antonio Standard Construction Guidelines, 2008. The asphaltic concrete should be installed as per applicable city / county Guidelines.

Perimeter Drainage

It is important that proper perimeter drainage be provided so that infiltration of surface water from compacted areas surrounding the pavement is minimized, or if this is not possible, curbs should extend through the base and into the subgrade. A crack sealant compatible to both asphalt and concrete should be installed at the concrete-asphalt interfaces.

Wherever there are drastic grade changes in the pavement area (such as from 3 to 4 percent grade to 1 to 2 percent grade) 3 x 5 inch gravel subgrade with a subsurface drain system (such as Akwadrain® on the sides of the pavement) and outlet should be considered. This aspect will provide for a better drainage system in this area. Please contact InTEC for drainage recommendations.

CONSTRUCTION GUIDELINES

Construction Monitoring

InTEC, as the Geotechnical Engineer of Record, should be actively involved in monitoring earthwork and foundation construction. Proper performance of foundation systems depends not only on design but also on quality construction practices. Contact InTEC prior to construction to incorporate foundation and earthwork monitoring into the project's quality control plan.

Site Preparation

Site preparation will consist of removal of the organic material, preparation of the subgrade, and Remove organic materials, vegetation, and loose soils to a depth of at least 6 inches in areas where floor slabs or pavements are planned. Subgrade should be approved by InTEC and proof rolled. Recompect to at least 95% of maximum dry density (ASTM D698) within -1% to $+3\%$ of optimum moisture content. Exposed subgrade should be kept moist and approved before fill placement.

Old underground utilities beneath proposed structures should be removed or sealed. Backfill should be compacted in 6-inch lifts to 95% of maximum dry density within the specified moisture range.

If cut/fill operations occur beneath the building pad, fill thickness should be uniform to reduce differential movement. Voids from tree or structure removal must be compacted per recommendations.

Proof Rolling

Use a 25-ton pneumatic roller with 10 passes and tire pressures per manufacturer specs to achieve 90 psi ground contact pressure. InTEC must observe proof rolling. Weak zones should be removed and replaced with select fill. Retest areas that do not meet density.

Maintain positive drainage throughout construction to avoid ponding or construction delays.

Compaction

Site grading plan is not available for review at this time. If any low areas or disturbed areas encountered during construction should be appropriately prepared and compacted. Any deleterious or wet materials should be removed and wasted. The fill placement in the low areas should not be in a "bowl shape". The

sides of the fill area should be “squared up” and the excavated bottom should be proof rolled as described in *Proof Rolling* section of this report. On site material, with no deleterious material, may be used to raise the grade. After proof rolling operation, the fill should be placed in 6-inch lifts and compacted to a minimum of **95 percent of the maximum dry density as determined by ASTM D 698 test method within optimum and three percent above optimum moisture content**. Each lift should be tested by InTEC for compaction compliance and approved before placement of the subsequent lifts. The exposed subgrade should not be allowed to dry out prior to placing structural fill. It is recommended that any given lot does not straddle filled areas and natural areas to help lower differential movement of the structures.

Select Fill

Use crushed limestone with LL < 40, PI = 5–20, and <30% passing No. 200 sieve. Max particle size: 3 inches. Place in 6-inch compacted lifts and compact to 95% of ASTM D 698 dry density within $\pm 2\%$ of optimum moisture. Each lift must be tested and approved by InTEC.

General Fill

General fill materials may consist of clean on-site material, select fill materials, or any clean imported fill material. The purpose of a general fill is to provide soils with good compaction characteristics that will provide uniform support for any non-habitable structures that are not movement sensitive. The general fill material should be free of any deleterious material, construction debris, organic material, and should not have gravels larger than 6 inches in maximum dimension. The top two feet of fill material used underneath pavement areas should not have gravels larger than 3 inches in maximum dimension.

It should be understood that the use of the general fill may result in greater than anticipated potential vertical movements and differential movements. If the greater potential vertical movements or differential soil movements cannot be tolerated, then select fill material should be used and should conform to the Select Fill recommendations.

General Fill Compaction

The general fill materials should be placed in lifts not to exceed 8 inches thick and compacted to a minimum of 95 percent of the maximum dry density as determined by test method ASTM D 698 at a moisture content within 3 percent of the optimum water content. Each lift should be compacted and tested by a

representative of a geotechnical laboratory to verify compaction compliance and approved before placement of the subsequent lifts.

The general fill compaction requirements can also be discussed and determined in consultation with the owner prior to construction.

Ground Water

In any areas where significant cuts (2-ft or more) are made to establish final grades for pavement, attention should be given to possible seasonal water seepage that could occur through natural cracks and fissures in the newly exposed stratigraphy. Subsurface drains may be required to intercept seasonal groundwater seepage. The need for these or other dewatering devices on should be carefully addressed during construction. Our office could be contacted to visually inspect final pads to evaluate the need for such drains.

The ground water seepage may happen several years after construction if the rainfall rate or drainage changes within the project site or outside the project site. If seepage run off occurs towards the pavement areas an engineer should be called on to evaluate its effect and provision of French Drains at this location.

Drainage

Ground water seepage was not encountered in the test pits at the time of excavation. However, minor ground water seepage may be encountered within the pavement areas and grading excavations at the time of construction, especially after periods of heavy precipitation. **Small quantities of seepage may be handled by conventional sump and pump methods of dewatering.**

Temporary Drainage Measures

Temporary drainage provisions should be established, as necessary, to minimize water runoff into the construction areas. If standing water does accumulate, it should be removed by pumping as soon as possible.

Adequate protection against sloughing of soils should be provided for workers and inspectors entering the excavations. This protection should meet O.S.H.A. and other applicable building codes.

Construction Slopes

- Temporary Slopes: 1H:1V in Stratum I and II clays.
- Fill Slopes: 1H:1V, compacted in 3–5 ft lifts.
- Permanent Slopes: Max 3H:1V. Use 5H:1V where pedestrian access is expected.

Time of Construction

If the pavement is installed during or after an extended dry period, the subgrade may experience greater movement around the edges when the soil moisture content increases, such as due to rain or irrigation. Similarly, a pavement installed during or after a wet period may experience greater movement around the edges during the subsequent drying of the soils.

Control Testing and Field Observation

Subgrade preparation and base and asphalt placement should be monitored by the project geotechnical engineer or his representative of InTEC. As a guideline, at least one in-place density test should be **performed for every 100 lineal feet (or as per respective city and county requirements, whichever requires more frequent testing) of street of compacted surface lift.** However, a minimum of three density tests should be performed by InTEC on the subgrade or subsequent lifts of compaction. Any areas not meeting the required compaction should be re-compacted and retested until compliance is met.

DRAINAGE AND MAINTENANCE

Proper drainage and long-term moisture management are **critical** to the performance of the proposed structures and pavements, particularly due to the presence of **expansive soils** at the site. Seasonal or localized changes in moisture content can lead to **unpredictable slab and foundation movements**, especially if water is allowed to collect near building perimeters or utility corridors.

◆ Roof Drainage & Plumbing

- All roof drainage must be directed **at least 10 feet away** from the foundation using gutters, downspouts, and splash blocks or extensions.
- If positive surface slope cannot be provided, closed pipe systems discharging to a storm sewer are preferred.
- Plumbing leaks, especially beneath the slab or within utility trenches, must be identified and repaired **immediately** to prevent localized swelling and loss of support.

◆ Lot Grading & Flatwork

- Final grading should slope away from the structure at a **minimum of 5%** for the first 10 feet.
- Pavements, sidewalks, and patios within this zone should follow the same slope guideline and be designed to **accommodate post-construction movement**, especially in fill areas or expansive clay zones.
- Joints between slabs and structures should be **sealed and inspected regularly**. Water should not be allowed to pond in planters, depressions, or along unsealed joints.

◆ Landscaping & Vegetation

- **Large trees and deep-rooted plants** should not be planted within a horizontal distance equal to their mature height from the foundation.
- Planters adjacent to the structure should be self-contained and designed to prevent moisture infiltration to foundation soils.

- Irrigation systems and sprinkler mains should be located a **minimum of 5 feet** away from buildings, and designed to prevent overwatering near foundations.

◆ Utility Trenches

- Trenches for utilities often include granular bedding, which can act as **conduits for water** to reach the building pad.
- All trenches must be properly compacted and should include **cut-off collars or clay plugs** where lines cross building footprints to prevent subsurface water migration.

◆ Long-Term Maintenance and Considerations

- The **PVR (Potential Vertical Rise)** values estimated in this report assume that all drainage systems are installed and maintained properly. Failure to do so may result in **actual movements 2–3 times greater** than those predicted.
- During **extended dry periods**, observe the perimeter of the structure. If soil is pulling away from the foundation, **controlled watering** should be applied to avoid sudden moisture shifts when rain returns.
- Any future modifications to drainage, site grading, landscaping, or nearby construction should be carefully evaluated for impact on foundation performance.

LIMITATIONS

The analyses and recommendations submitted in this report are based upon the data obtained from **15 test pits excavated at the site**. This report may not reflect the exact variations of the soil conditions across the site. The pavement recommendations presented in the report should be reviewed and confirmed based on the proposed cut and fill and observation at the time of construction.

The data and interpretations presented are professional opinions, not exact representations of all subsurface conditions. These recommendations are **confirmation-dependent** and should be reviewed by InTEC during construction to validate assumed conditions.

This report is **not intended to inform means, methods, or construction logistics** such as equipment selection, cost estimation, or contractor scheduling. If the report is used for bidding or other unintended purposes, it is done **solely at the contractor's risk**.

Revisions may be required if:

- the proposed structure or grading is changed;
- drainage or site use is altered;
- significant cut and fill activities are performed; or
- excessive time has passed since the field exploration.

The geotechnical engineer affirms that the findings and advice herein are consistent with the standard of care for geotechnical engineers practicing in this region. However, **no other warranties, express or implied, are provided**.

This report has been prepared for the exclusive use of **Lennar Homes** for pavement thickness evaluation for the **proposed new streets at Tres Laurels, Units 1B, 4B, 5A, 5B in San Antonio, Texas**.

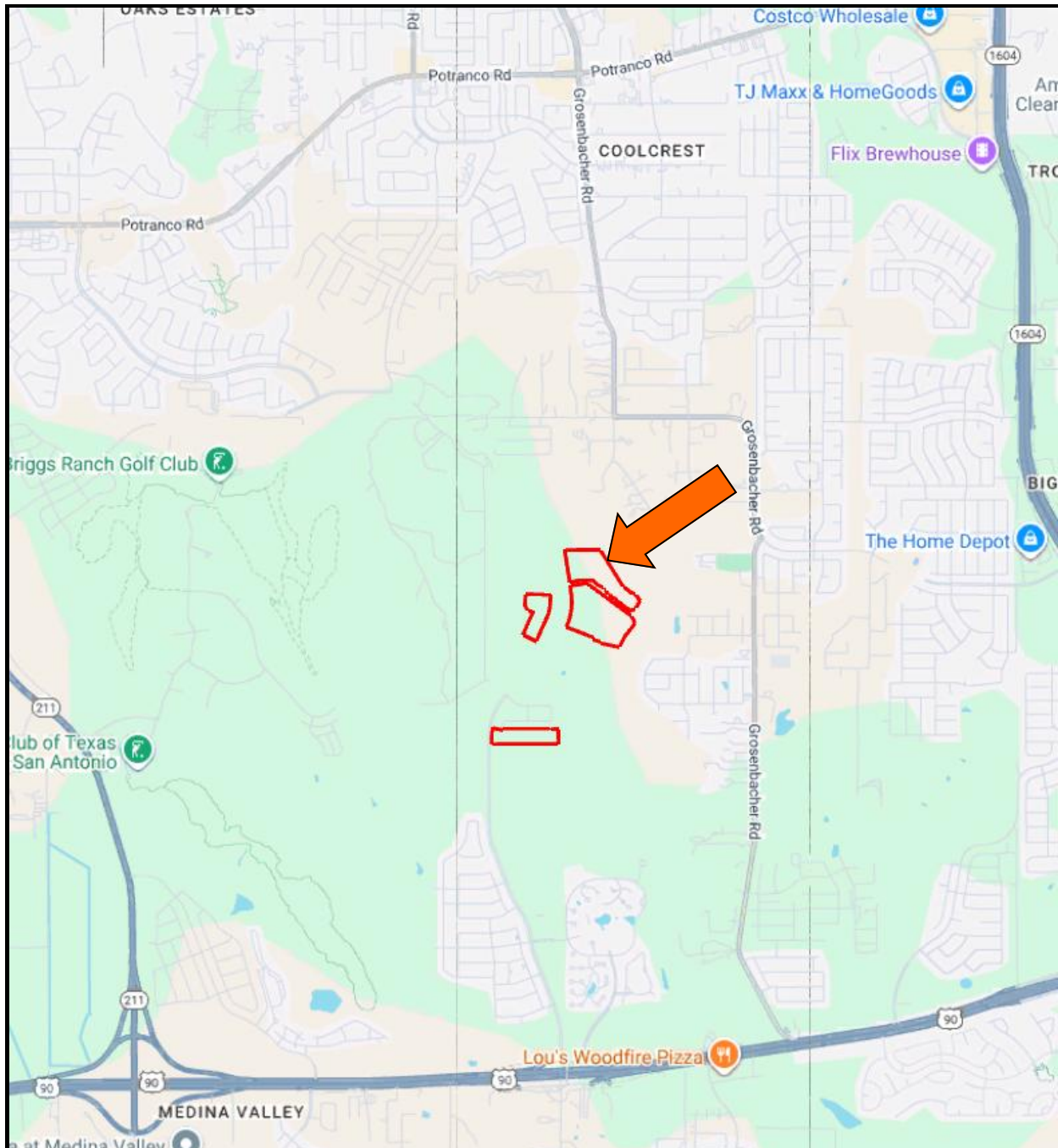
Illustration Section

Description	Plate No.
Vicinity Map	Plate 1A
Aerial Map	Plate 1B
Topographic Map	Plate 1C
Geologic Map	Plate 1D
Soil Map	Plates 1E-1 & 1E-2
Bexar County Karst Map	Plate 1F
Approximate Test Pit Locations	Plate 1G
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Information on Geotechnical Report	Appendix

Subsurface Exploration and Pavement Analysis
Proposed New Streets
Tres Laurels, Units 1B, 4B, 5A, 5B
San Antonio, Texas

InTEC Project Number:
S251271

Date:
08/29/2025

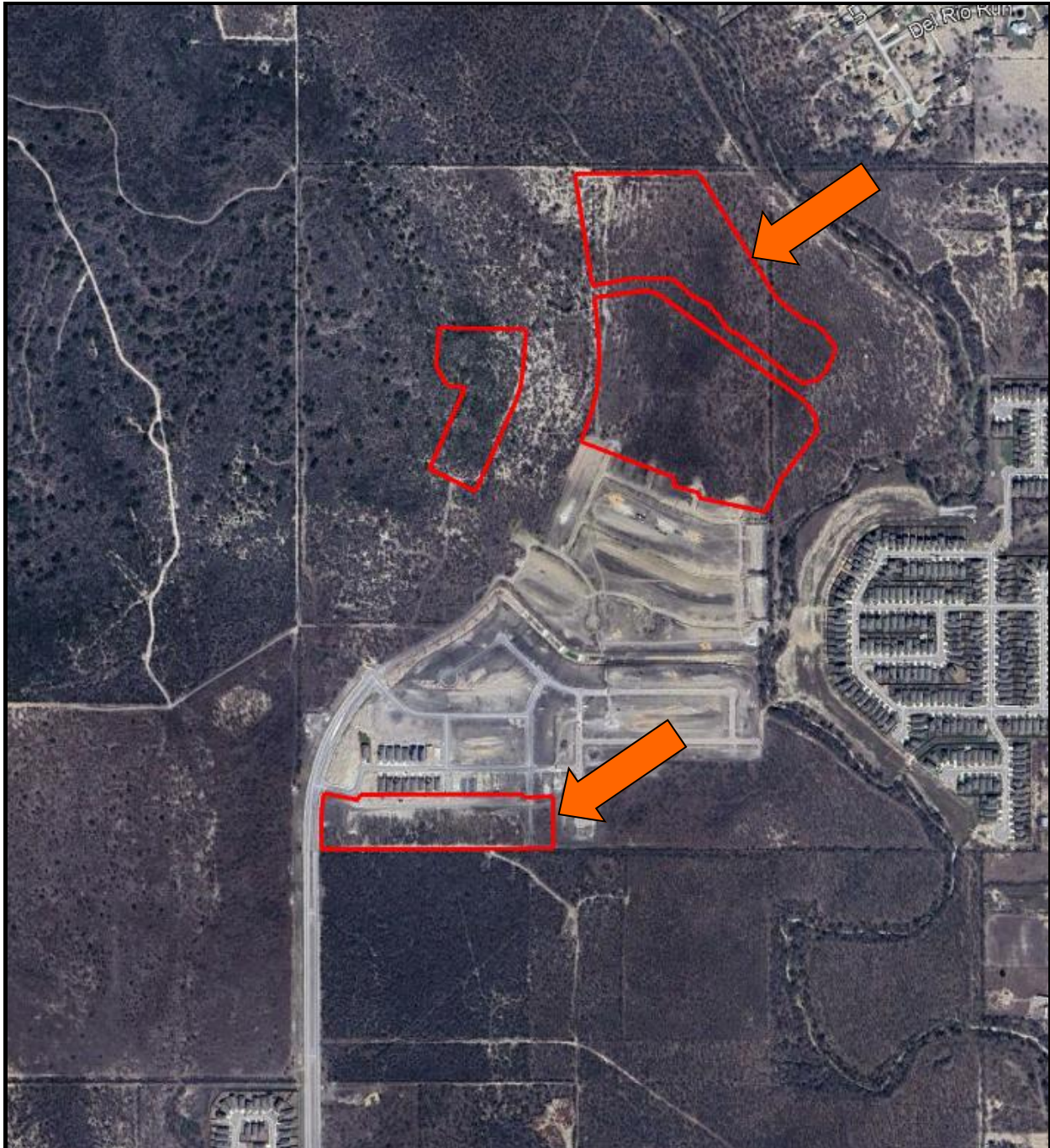


Subsurface Exploration and Pavement Analysis
Proposed New Streets
Tres Laurels, Units 1B, 4B, 5A, 5B
San Antonio, Texas

Vicinity Map

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08/29/2025

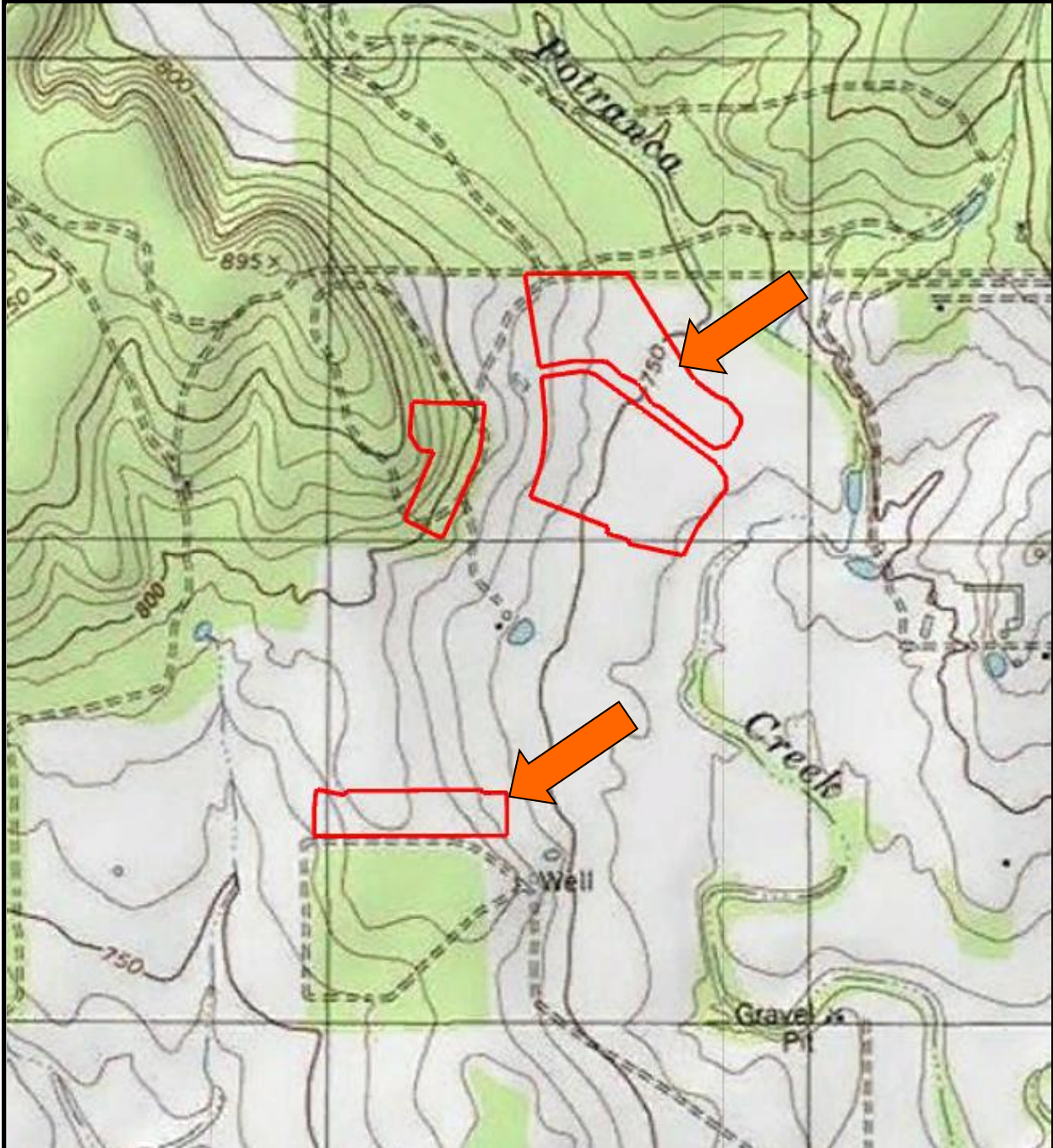


Subsurface Exploration and Pavement Analysis
Proposed New Streets
Tres Laurels, Units 1B, 4B, 5A, 5B
San Antonio, Texas

Aerial Map—Approximate Location

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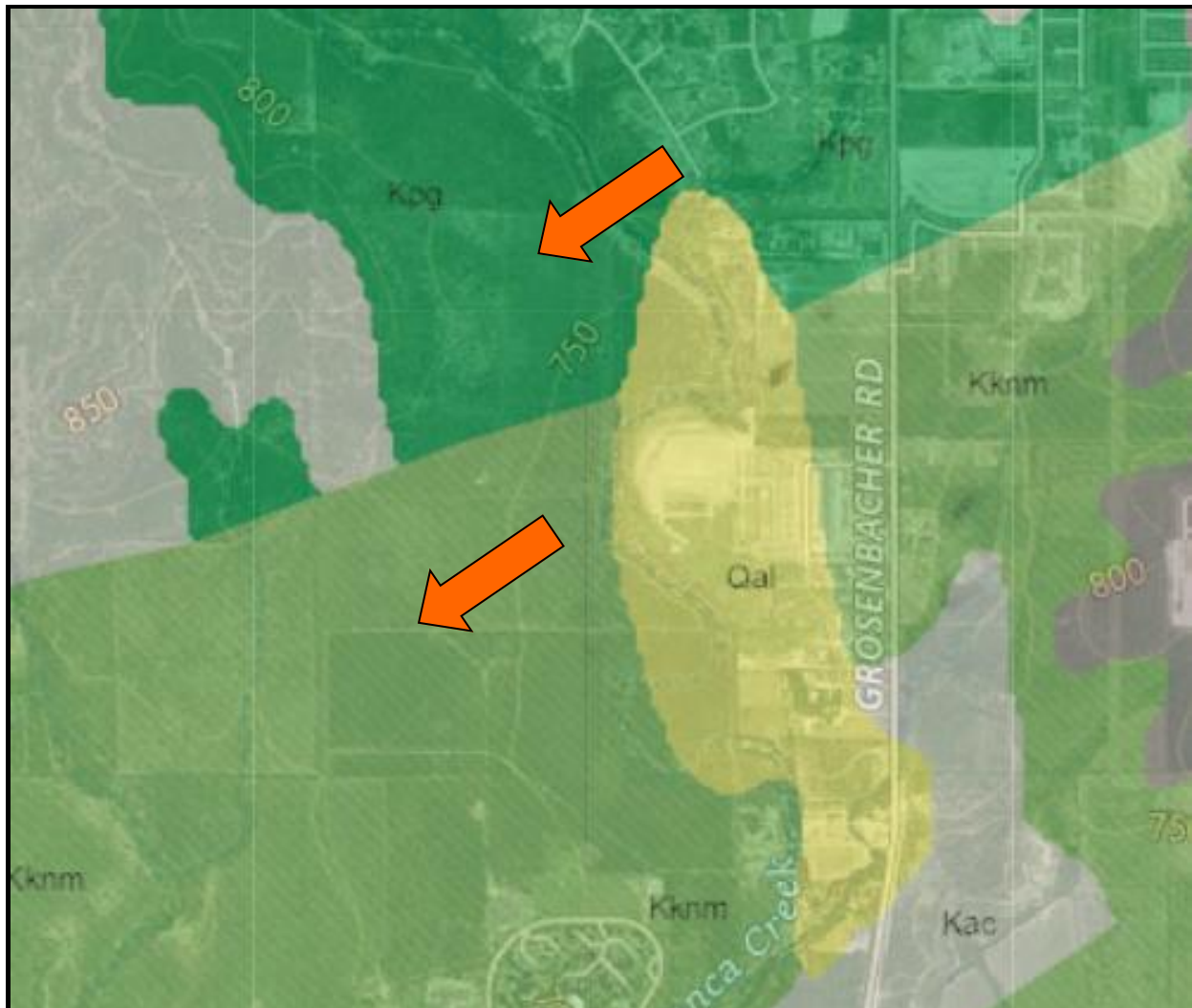


Subsurface Exploration and Pavement Analysis
Proposed New Streets
Tres Laurels, Units 1B, 4B, 5A, 5B
San Antonio, Texas

Topographic Map—Approximate Location

InTEC Project Number:
S251271

Date:
08/29/2025



Kpg—Pecan Gap Chalk

chalk and chalky marl, more calcareous westward, very light yellow to yellowish brown, weathers to form moderately deep soil, seldom exposed; *Exogyra ponderosa* common; thickness 100-400 feet, thins westward to eastern Medina County where it is overlain by Anacacho Limestone, beyond this point included with Austin Chalk

Kknm—Navarro Group and Marlbrook Marl

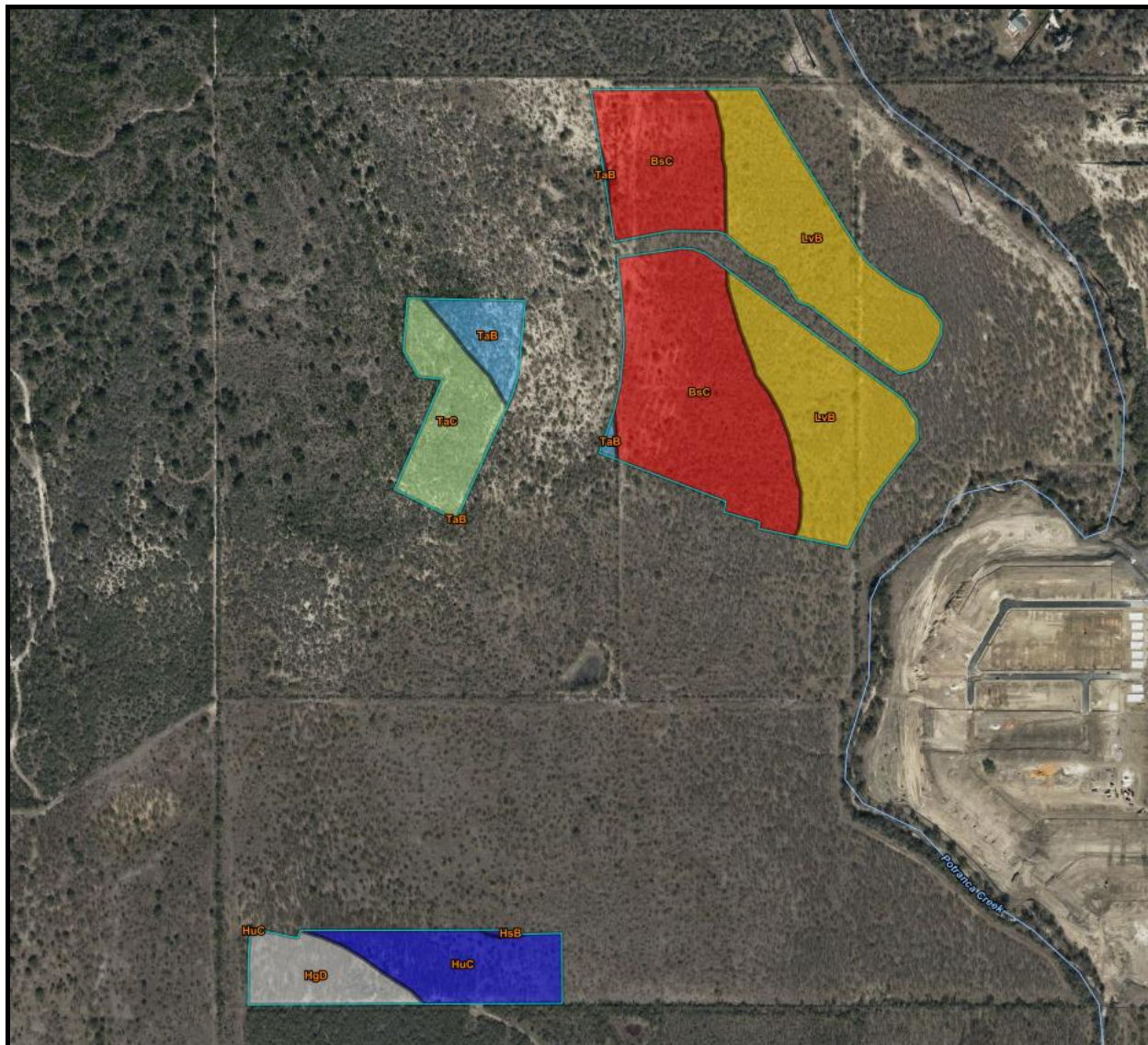
Navarro Group and Marlbrook Marl ("upper Taylor marl") undivided, Kknm. Upper part—marl, clay, sandstone, and siltstone; marl and clay, glauconitic, contain concretions of limonite and siderite; sandstone, fine grained, and siltstone, yellow brown, contain concretions of hard bluish-gray siliceous limestone 2 to 10 feet in diameter; sandstone beds have little lateral continuity and become more abundant westward; thickness up to 580 feet. Lower part—clay, dominantly montmorillonitic, unctuous, greenish gray to brownish gray; weathers to a very thick, black, clayey soil; thickness 400± feet. Total thickness 980± feet

Subsurface Exploration and Pavement Analysis
Proposed New Streets
Tres Laurels, Units 1B, 4B, 5A, 5B
San Antonio, Texas

Geologic Map—Approximate Location

InTEC Project Number:
S251271

Date:
08/29/2025



Bexar County, Texas

Map unit symbol and soil name	Pct. of map unit	Hydrologic group	Depth	USDA texture	Classification		Pct Fragments		Percentage passing sieve number—				Liquid limit	Plasticity index
					Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
			<i>In</i>				<i>L-R-H</i>	<i>L-R-H</i>	<i>L-R-H</i>	<i>L-R-H</i>	<i>L-R-H</i>	<i>L-R-H</i>	<i>L-R-H</i>	<i>L-R-H</i>
BsC—Whitewright-Austin complex, 1 to 5 percent slopes														
Whitewright	65	D	0-6	Clay loam	CH, CL	A-6, A-7-6	0- 0- 0	0- 3- 5	95-98-100	90-95-100	80-90-100	60-79- 98	34-43 -52	15-24-32
			6-15	Silty clay, silty clay loam, clay loam, gravelly clay loam	CH, CL	A-6, A-7-6	0- 0- 0	0- 3- 5	85-93-100	80-90-100	70-85-100	60-79- 98	34-43 -52	15-24-32
			15-20	Bedrock	—	—	—	—	—	—	—	—	—	—
Austin	35	C	0-28	Silty clay	CH, CL	A-7-6	0- 0- 0	0- 3- 5	95-98-100	90-95-100	80-90-100	75-86- 96	45-57 -69	25-35-44
			28-42	Silty clay, clay, silty clay loam	CH, CL	A-6, A-7-6	0- 0- 0	0- 3- 5	95-98-100	90-95-100	80-90-100	75-86- 96	35-50 -65	16-28-40
			42-72	Bedrock	—	—	—	—	—	—	—	—	—	—

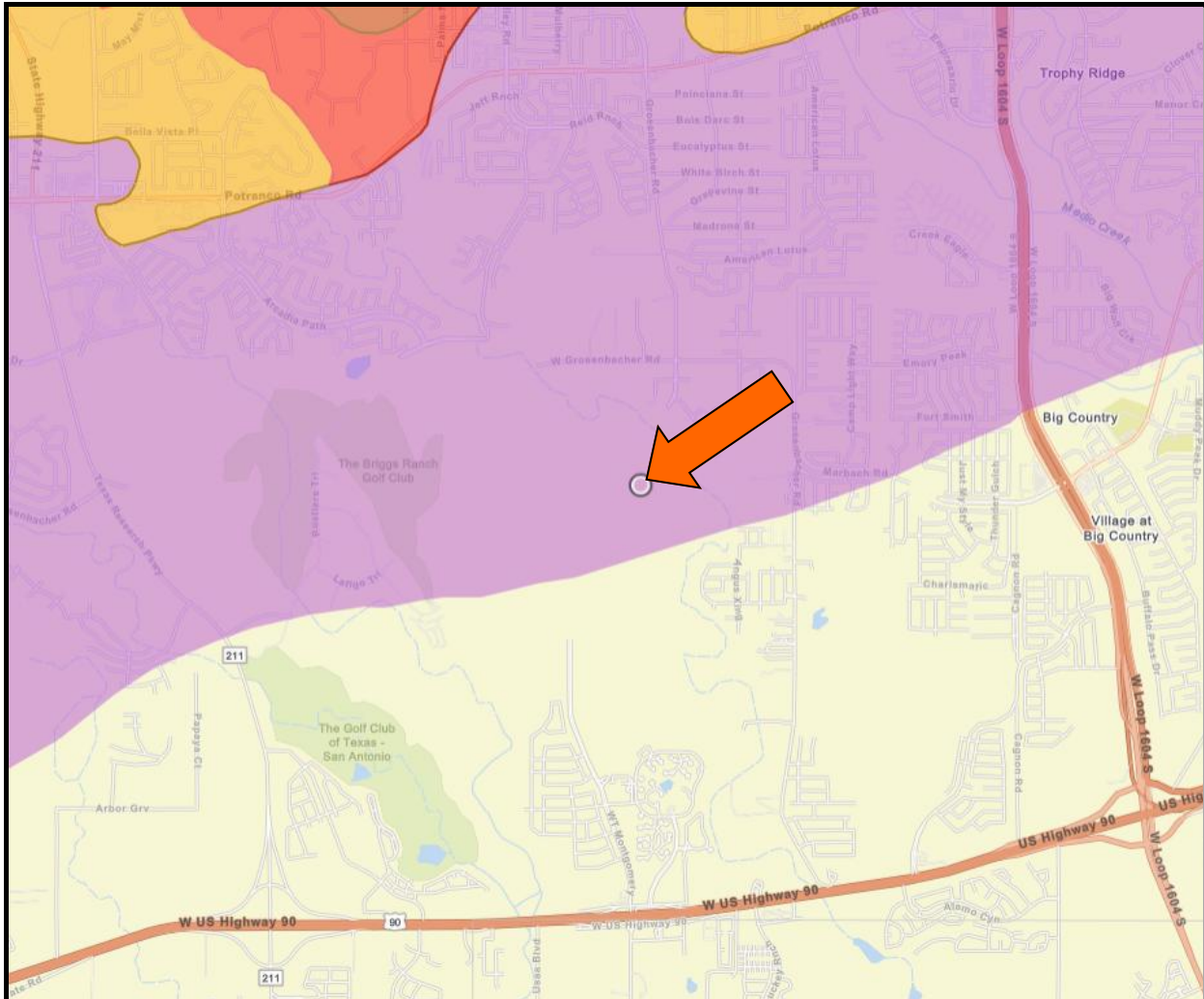
Subsurface Exploration and Pavement Analysis
Proposed New Streets
Tres Laurels, Units 1B, 4B, 5A, 5B
San Antonio, Texas

Soil Map—Approximate Location

InTEC Project Number:
S251271

Date:
08/29/2025

Bexar County, Texas														
Map unit symbol and soil name	Pct. of map unit	Hydrologic group	Depth	USDA texture	Classification		Pct Fragments		Percentage passing sieve number—				Liquid limit	Plasticity index
					Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
			In				L-R-H	L-R-H	L-R-H	L-R-H	L-R-H	L-R-H	L-R-H	L-R-H
HgD—Rock outcrop-Olmos complex, 5 to 25 percent slopes														
Rock outcrop	80	D	0-80	Bedrock	—	—	—	—	—	—	—	—	—	—
Olmos	15	D	0-13	Very cobbly loam	SC, CL, GC	A-2-6, A-6	0-0-0	21-26-35	61-72-89	52-65-86	44-58-81	32-43-62	32-35-36	13-15-16
			13-14	Cemented material	—	—	—	—	—	—	—	—	—	—
			14-26	Cemented material	—	A-2-4, A-2-6, A-4	—	—	—	—	—	—	—	—
			26-80	Cemented material	—	A-2-4, A-2-6, A-4	—	—	—	—	—	—	—	—
HsB—Houston Black clay, 1 to 3 percent slopes														
Houston black	80	D	0-6	Clay	CH	A-7-6	0-0-0	0-0-0	96-98-100	92-96-100	81-92-100	71-81-90	63-70-76	34-44-49
			6-70	Clay, silty clay	CH	A-7-6	0-0-0	0-0-0	98-98-100	96-96-100	85-92-100	74-81-90	58-70-76	38-44-49
			70-80	Clay, silty clay	CH	A-7-6	0-0-0	0-0-0	94-96-100	86-92-100	74-88-100	65-78-95	61-71-75	37-45-50
HuC—Houston Black gravelly clay, 3 to 5 percent slopes														
Houston black	90	D	0-13	Gravelly clay	CH, GC	A-7-6	0-0-0	0-3-4	65-69-77	46-57-74	41-55-74	35-48-67	63-70-76	38-44-49
			13-63	Clay	CH	A-7-6	0-0-0	0-0-0	98-98-99	96-96-98	85-92-98	74-81-89	63-70-71	38-44-49
			63-86	Clay	CH	A-7-6	0-0-0	0-0-0	95-96-99	88-93-98	75-89-98	66-79-93	61-71-75	37-45-50
LvB—Lewisville silty clay, 1 to 3 percent slopes														
Lewisville	85	C	0-15	Silty clay	CH	A-7-6	0-0-0	0-0-0	94-96-100	94-96-100	91-95-100	87-90-100	52-52-59	28-29-34
			15-38	Silty clay, clay loam, silty clay loam	CH, CL	A-6, A-7-6	0-0-0	0-0-0	95-96-100	95-96-100	83-95-100	76-88-100	39-49-57	18-26-32
			38-69	Silty clay, clay loam, silty clay loam	CH, CL	A-6, A-7-6	0-0-0	0-0-0	81-89-100	81-89-100	71-88-100	65-82-100	39-50-59	18-27-34
TaB—Eckrant cobbly clay, 1 to 8 percent slopes														
Eckrant	85	D	0-4	Cobbly clay	CH, CL	A-7-6	0-3-15	28-34-55	75-92-100	74-92-100	68-88-100	60-78-93	45-60-70	25-32-40
			4-11	Extremely cobbly silty clay, very cobbly silty clay, extremely cobbly clay, very cobbly clay, very stony clay	CH, CL, GC	A-2-7, A-7-6	0-14-22	28-36-67	33-72-82	30-70-81	27-67-81	24-60-77	45-60-70	25-32-40
			11-80	Bedrock	—	—	—	—	—	—	—	—	—	—
TaC—Eckrant very cobbly clay, 5 to 15 percent slopes														
Eckrant	90	D	0-4	Very cobbly clay	CH, GC	A-7-6	0-3-12	9-23-45	49-59-80	46-58-79	43-55-79	37-48-79	49-60-70	25-31-42
			4-12	Very cobbly clay, very cobbly clay loam, cobbly clay, extremely cobbly silty clay	CH, CL, GC	A-2-7, A-7-6	0-2-21	27-46-63	21-50-83	18-48-82	15-46-82	13-41-82	45-61-70	23-32-43
			12-30	Bedrock	—	—	—	—	—	—	—	—	—	—
Subsurface Exploration and Pavement Analysis Proposed New Streets Tres Laurels, Units 1B, 4B, 5A, 5B San Antonio, Texas						Soil Map—Continued								
						InTEC Project Number: S251271					Date: 08/29/2025			



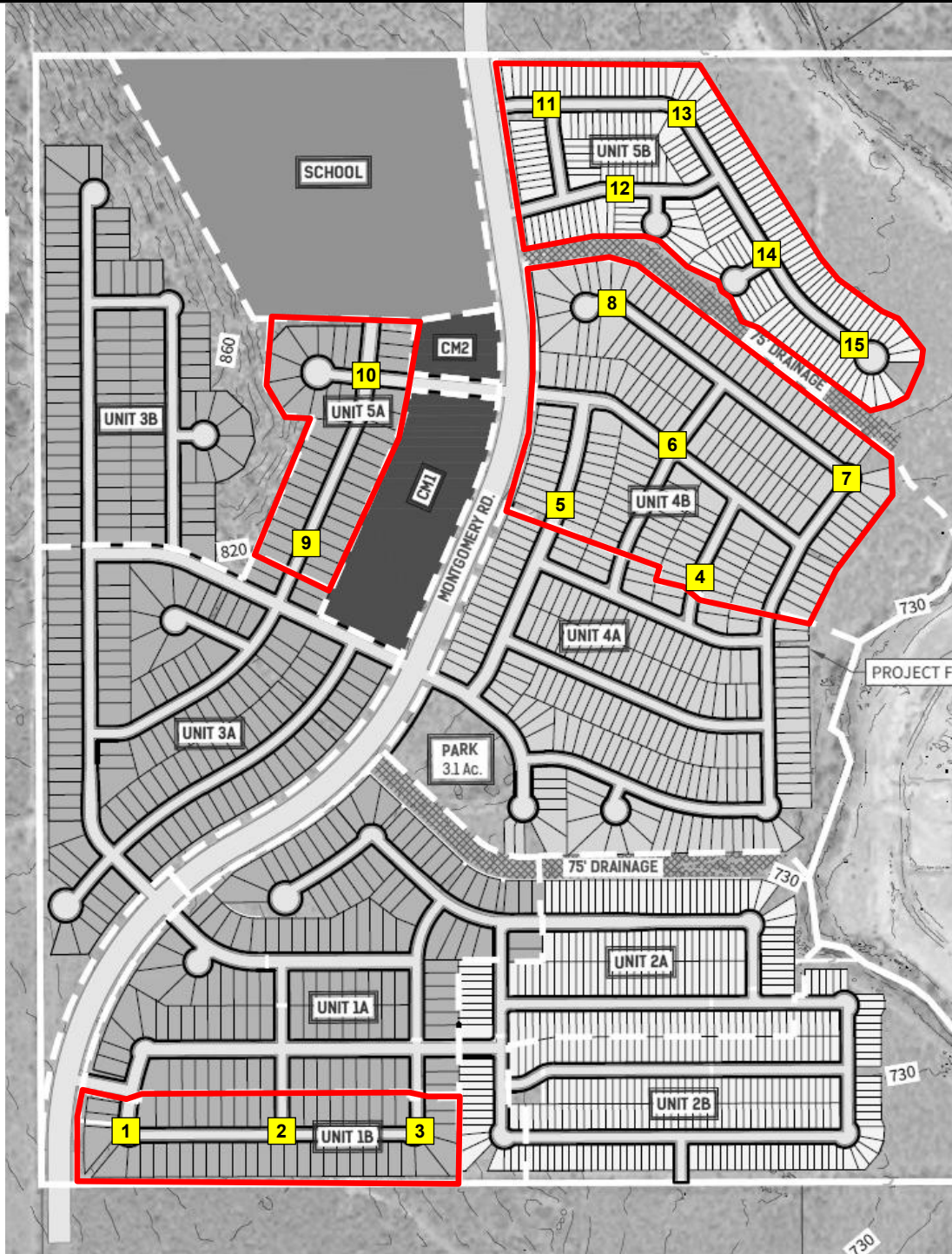
1	• Karst Zone 1 - Areas known to contain listed invertebrate karst species
2	• Karst Zone 2 - Areas having a high probability of containing suitable habitat for listed invertebrate karst species
3	• Karst Zone 3 - Areas that probably do not contain listed invertebrate karst species
4	• Karst Zone 4 - Areas which require further research but are generally equivalent to Zone 3, although they may include sections which could be classified as Zone 2 or Zone 5 as more information becomes available
5	• Karst Zone 5 - Areas which do not contain listed invertebrate karst species

Subsurface Exploration and Pavement Analysis
Proposed New Streets
Tres Laurels, Units 1B, 4B, 5A, 5B
San Antonio, Texas

Bexar County Karst Map

InTEC Project Number:
S251271

Date:
08/29/2025



Subsurface Exploration and Pavement Analysis
 Proposed New Streets
 Tres Laurels, Units 1B, 4B, 5A, 5B
 San Antonio, Texas

Approximate Test Pit Locations

InTEC Project Number:
S251271

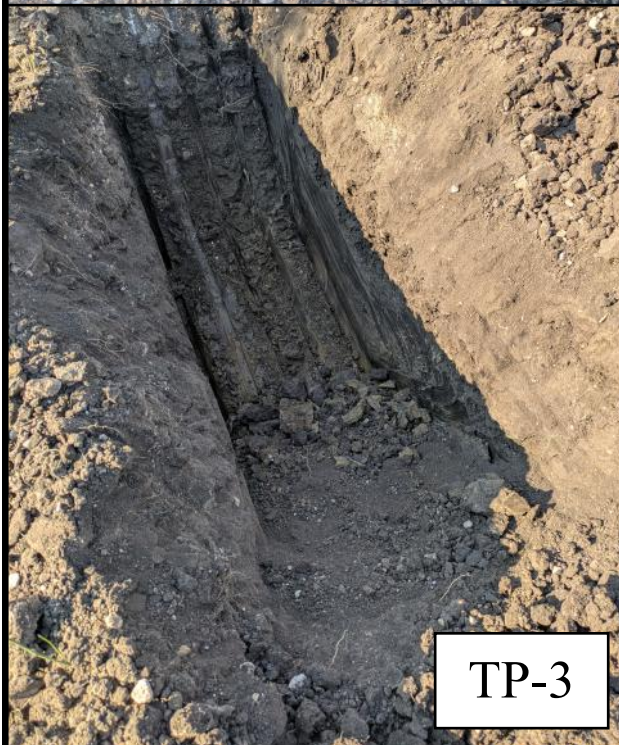
Date:
 08/29/2025



TP-1



TP-2



TP-3



TP-4

Subsurface Exploration and Pavement Analysis
Proposed New Streets
Tres Laurels, Units 1B, 4B, 5A, 5B
San Antonio, Texas

Test Pit Photos

InTEC Project Number:
S251271

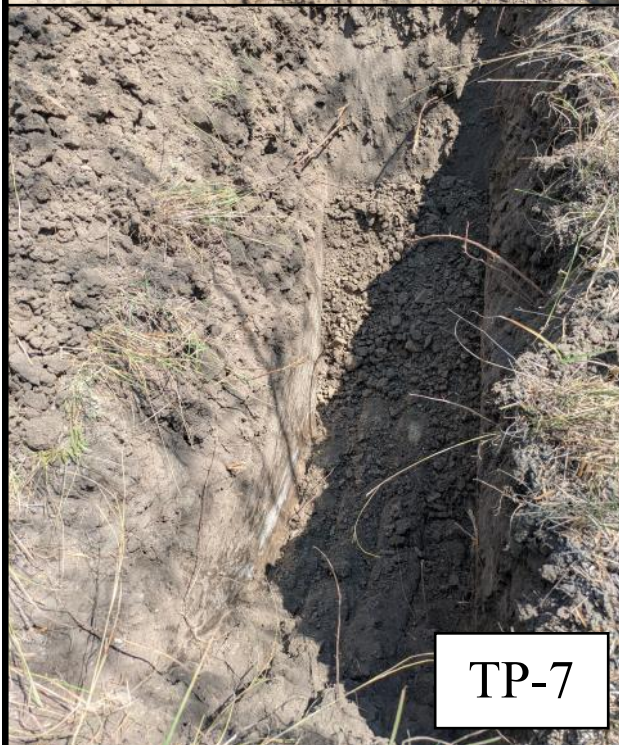
Date:
08/29/2025



TP-5



TP-6



TP-7



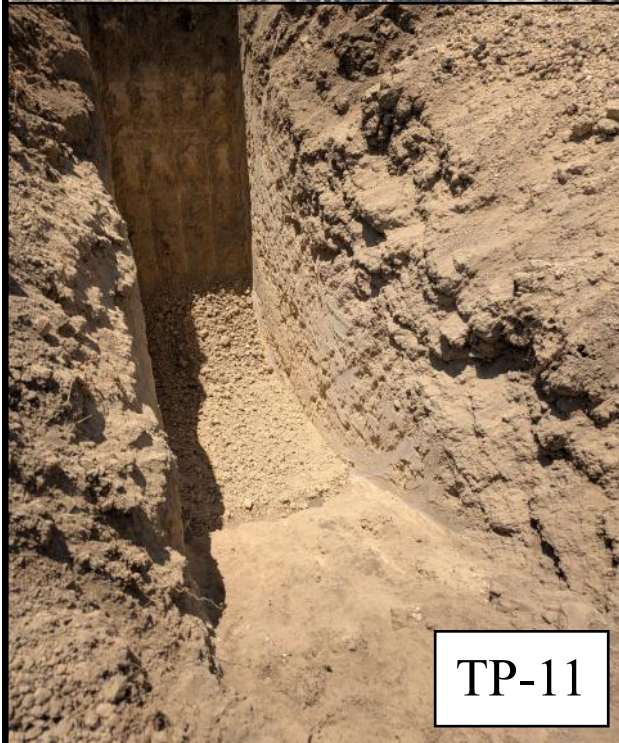
TP-8

Subsurface Exploration and Pavement Analysis
Proposed New Streets
Tres Laurels, Units 1B, 4B, 5A, 5B
San Antonio, Texas

Test Pit Photos

InTEC Project Number:
S251271

Date:
08/29/2025



Subsurface Exploration and Pavement Analysis
Proposed New Streets
Tres Laurels, Units 1B, 4B, 5A, 5B
San Antonio, Texas

Test Pit Photos

InTEC Project Number:
S251271

Date:
08/29/2025



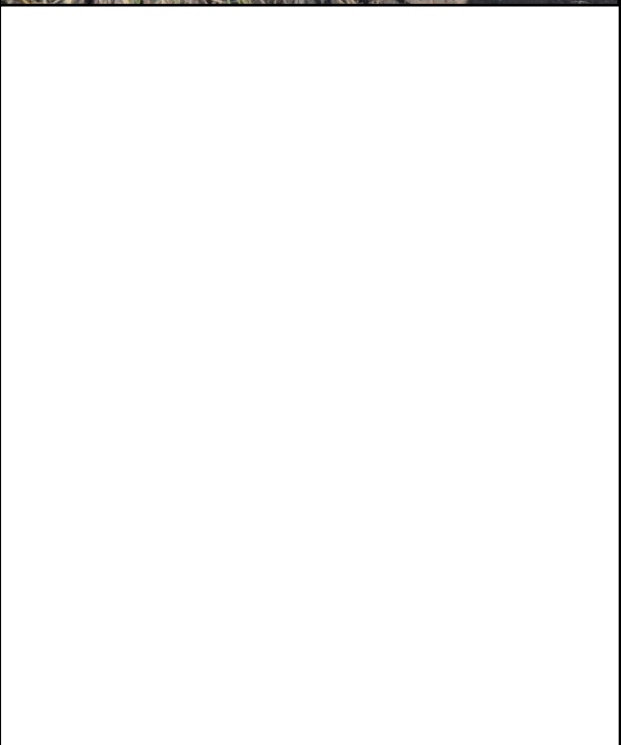
TP-13



TP-14



TP-15



Subsurface Exploration and Pavement Analysis Proposed New Streets Tres Laurels, Units 1B, 4B, 5A, 5B San Antonio, Texas	Test Pit Photos	
	InTEC Project Number: S251271	Date: 08/29/2025

PROJECT: Tres Laurels, Units 1B, 4B, 5A, 5B LOCATION: San Antonio, Texas CLIENT: Lennar Homes										PROJECT NO: S251271 DATE: 09/11/2025										 TEST PIT NO. TP-1																			
DEPTH (feet)	SYMBOL	SAMPLES	SOIL DESCRIPTION	% MINUS 200 SIEVE	UNIT DRY WT IN PCF	S.S. BY P.P	BLOWS PER FOOT	SHEAR STRENGTH TSF	LIQUID LIMIT	PLASTICITY INDEX	Plastic Limit Liquid Limit Moisture Content % - • 20 40 60 80																												
0		TP	Dark Brown Clay -with Gravel						41	24																													
TP		Tan Silty Clay -with Caliche and Gravel -with Calcareous Clay Seams																																					
TP																																							
TP																																							
TP																																							
10			Mini-Excavator Refusal TP = Test Pit Sample																																				
15																																							
20																																							
25																																							
30																																							
35																																							
Notes:										Ground Water Observed: No										Completion Depth (ft): 10																			
S.S by P.P - Shear Strength in TSF by Hand Penetrometer										S.S. - Split Spoon Sample S.T. - Shelby Tube Sample										HA - Hand Auger AU - Auger Sample										Plate: 2									

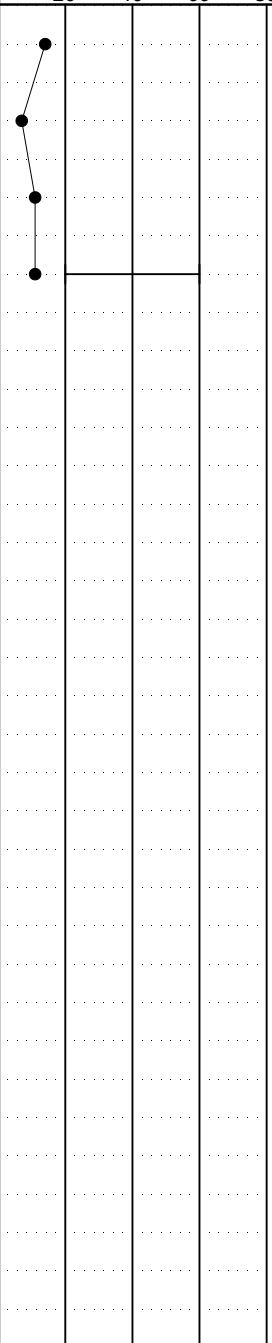
PROJECT NO: S251271

DATE: 09/11/2025

CLIENT: Lennar Homes



TEST PIT NO. TP-2

DEPTH (feet)	SYMBOL	SAMPLES	SOIL DESCRIPTION	% MINUS 200 SIEVE	UNIT DRY WT IN PCF	S.S. BY P.P	BLOWS PER FOOT	SHEAR STRENGTH TSF	LIQUID LIMIT	PLASTICITY INDEX	Plastic Limit Liquid Limit Moisture Content % - • 20 40 60 80
0											
		TP	Dark Brown Clay -with Gravel						60	40	
		TP									
5		TP	Tan Silty Clay -with Caliche and Gravel -with Calcareous Clay Seams								
		TP									
10			Mini-Excavator Refusal TP = Test Pit Sample								
15											
20											
25											
30											
35											

Notes:

Ground Water Observed: No

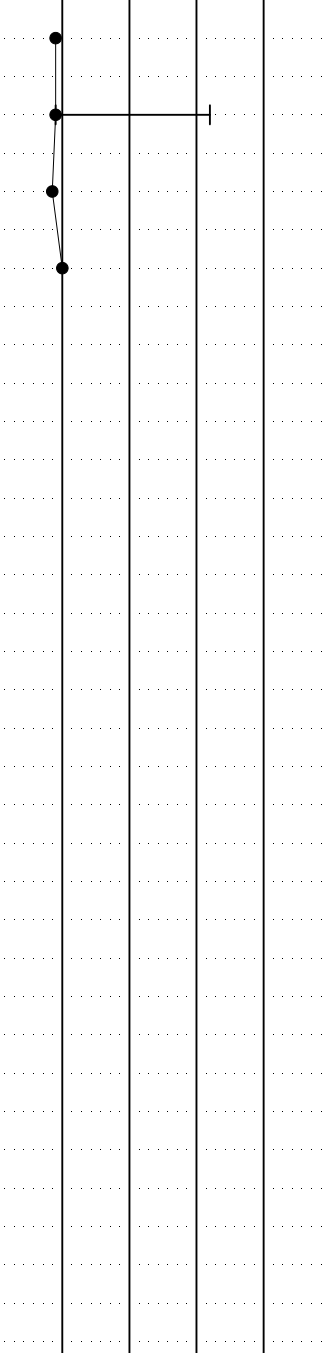
Completion Depth (ft): 8

**S.S by P.P - Shear Strength in TSF
by Hand Penetrometer**

S.S. - Split Spoon Sample
S.T. - Shelby Tube Sample

HA - Hand Auger
AU - Auger Sample

Plate: 3

PROJECT: Tres Laurels, Units 1B, 4B, 5A, 5B LOCATION: San Antonio, Texas CLIENT: Lennar Homes										PROJECT NO: S251271 DATE: 09/11/2025										 TEST PIT NO. TP-3																											
DEPTH (feet)	SYMBOL	SAMPLES	SOIL DESCRIPTION	% MINUS 200 SIEVE	UNIT DRY WT IN PCF	S.S. BY P.P	BLOWS PER FOOT	SHEAR STRENGTH TSF	LIQUID LIMIT	PLASTICITY INDEX	Plastic Limit — Liquid Limit Moisture Content % - •																																				
0											20 40 60 80																																				
		TP	Dark Brown to Brown Clay								64	42																																			
		TP																																													
5		TP																																													
		TP	Tan and Gray Clay -with Caliche																																												
10			Mini-Excavator Refusal TP = Test Pit Sample																																												
15																																															
20																																															
25																																															
30																																															
35																																															
Notes:												Ground Water Observed: No												Completion Depth (ft): 8																							
S.S by P.P - Shear Strength in TSF by Hand Penetrometer												S.S. - Split Spoon Sample S.T. - Shelby Tube Sample												HA - Hand Auger AU - Auger Sample												Plate: 4											

PROJECT NO: S251271

DATE: 09/11/2025

CLIENT: Lennar Homes



TEST PIT NO. TP-4

[illegible]

Notes:

Ground Water Observed: No

Completion Depth (ft): 9

**S.S by P.P - Shear Strength in TSF
by Hand Penetrometer**

S.S. - Split Spoon Sample
S.T. - Shelby Tube Sample

HA - Hand Auger
AU - Auger Sample

Plate: 5

PROJECT NO: S251271

DATE: 09/11/2025

CLIENT: Lennar Homes



TEST PIT NO. TP-5

[illegible]

Notes:

Ground Water Observed: No

Completion Depth (ft): 8

S.S by P.P - Shear Strength in TSF by Hand Penetrometer

S.S. - Split Spoon Sample
S.T. - Shelby Tube Sample

HA - Hand Auger
AU - Auger Sample

Plate: 6

PROJECT: Tres Laurels, Units 1B, 4B, 5A, 5B LOCATION: San Antonio, Texas CLIENT: Lennar Homes PROJECT NO: S251271 DATE: 09/11/2025										 TEST PIT NO. TP-8									
DEPTH (feet)	SYMBOL	SAMPLES	SOIL DESCRIPTION	% MINUS 200 SIEVE	UNIT DRY WT IN PCF	S.S. BY P.P	BLOWS PER FOOT	SHEAR STRENGTH TSF	LIQUID LIMIT	PLASTICITY INDEX	Plastic Limit Liquid Limit Moisture Content % - • 20406080								
0																			
		TP	Dark Brown to Brown Clay																
		TP							60	39									
5		TP																	
		TP	Tan and Gray Clay -with Caliche																
10			Mini-Excavator Refusal TP = Test Pit Sample																
15																			
20																			
25																			
30																			
35																			
Notes:												Ground Water Observed: No				Completion Depth (ft): 8			
S.S by P.P - Shear Strength in TSF by Hand Penetrometer				S.S. - Split Spoon Sample S.T. - Shelby Tube Sample				HA - Hand Auger AU - Auger Sample				Plate: 9							

PROJECT NO: S251271

DATE: 09/11/2025

CLIENT: Lennar Homes



TEST PIT NO. TP-9

[illegible]

Notes:

Ground Water Observed: No

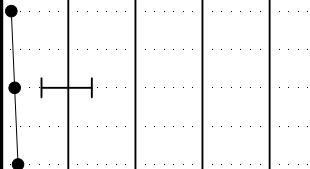
Completion Depth (ft): 6

**S.S by P.P - Shear Strength in TSF
by Hand Penetrometer**

S.S. - Split Spoon Sample
S.T. - Shelby Tube Sample

HA - Hand Auger
AU - Auger Sample

Plate: 10

PROJECT: Tres Laurels, Units 1B, 4B, 5A, 5B LOCATION: San Antonio, Texas CLIENT: Lennar Homes										PROJECT NO: S251271 DATE: 09/11/2025										 TEST PIT NO. TP-10																					
DEPTH (feet)	SYMBOL	SAMPLES	SOIL DESCRIPTION	% MINUS 200 SIEVE	UNIT DRY WT IN PCF	S.S. BY P.P	BLOWS PER FOOT	SHEAR STRENGTH TSF	LIQUID LIMIT	PLASTICITY INDEX	Plastic Limit Liquid Limit Moisture Content % - • 20 40 60 80																														
0		TP	Dark Brown Clay						27	15																															
TP		Light Tan Calcareous Clay to Marl -with Caliche																																							
TP																																									
5			Mini-Excavator Refusal TP = Test Pit Sample																																						
10																																									
15																																									
20																																									
25																																									
30																																									
35																																									
Notes:												Ground Water Observed: No										Completion Depth (ft): 6																			
S.S by P.P - Shear Strength in TSF by Hand Penetrometer												S.S. - Split Spoon Sample S.T. - Shelby Tube Sample										HA - Hand Auger AU - Auger Sample										Plate: 11									

PROJECT: Tres Laurels, Units 1B, 4B, 5A, 5B

LOCATION: San Antonio, Texas

CLIENT: Lennar Homes

PROJECT NO: S251271

DATE: 09/11/2025



TEST PIT NO. TP-11

DEPTH (feet)	SYMBOL	SAMPLES	SOIL DESCRIPTION	% MINUS 200 SIEVE	UNIT DRY WT IN PCF	S.S. BY P.P	BLOWS PER FOOT	SHEAR STRENGTH TSF	LIQUID LIMIT	PLASTICITY INDEX	Plastic Limit — Liquid Limit Moisture Content % - •					
0											20	40	60	80		
		TP	Dark Brown Clay								●			●		
		TP	Tan Silty Clay -with Marl Seams													
5		TP								35					20	
		TP														
10			Mini-Excavator Refusal TP = Test Pit Sample													
15																
20																
25																
30																
35																

Notes:

Ground Water Observed: No

Completion Depth (ft): 8

S.S by P.P - Shear Strength in TSF
by Hand Penetrometer

S.S. - Split Spoon Sample
S.T. - Shelby Tube Sample

HA - Hand Auger
AU - Auger Sample

Plate: 12

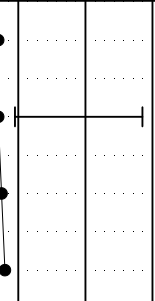
PROJECT NO: S251271

DATE: 09/11/2025

CLIENT: Lennar Homes



TEST PIT NO. TP-12

DEPTH (feet)	SYMBOL	SAMPLES	SOIL DESCRIPTION	% MINUS 200 SIEVE	UNIT DRY WT IN PCF	S.S. BY P.P	BLOWS PER FOOT	SHEAR STRENGTH TSF	LIQUID LIMIT	PLASTICITY INDEX	Plastic Limit Liquid Limit Moisture Content % - • 20 40 60 80
0											
		TP	Dark Brown Clay						57	38	
		TP									
5		TP									
		TP	Tan and Gray Clay -with Caliche								
10			Mini-Excavator Refusal TP = Test Pit Sample								
15											
20											
25											
30											
35											

Notes:

Ground Water Observed: No

Completion Depth (ft): 8

**S.S by P.P - Shear Strength in TSF
by Hand Penetrometer**

S.S. - Split Spoon Sample
S.T. - Shelby Tube Sample

HA - Hand Auger
AU - Auger Sample

Plate: 13

PROJECT: Tres Laurels, Units 1B, 4B, 5A, 5B LOCATION: San Antonio, Texas CLIENT: Lennar Homes										PROJECT NO: S251271 DATE: 09/11/2025										 TEST PIT NO. TP-13																					
DEPTH (feet)	SYMBOL	SAMPLES	SOIL DESCRIPTION	% MINUS 200 SIEVE	UNIT DRY WT IN PCF	S.S. BY P.P	BLOWS PER FOOT	SHEAR STRENGTH TSF	LIQUID LIMIT	PLASTICITY INDEX	Plastic Limit Liquid Limit Moisture Content % - • 20 40 60 80																														
0																																									
		TP	Dark Brown Clay																																						
		TP																																							
5		TP								57	34																														
		TP	Tan and Gray Clay -with Caliche																																						
10			Mini-Excavator Refusal TP = Test Pit Sample																																						
15																																									
20																																									
25																																									
30																																									
35																																									
Notes:												Ground Water Observed: No										Completion Depth (ft): 8																			
S.S by P.P - Shear Strength in TSF by Hand Penetrometer												S.S. - Split Spoon Sample S.T. - Shelby Tube Sample										HA - Hand Auger AU - Auger Sample										Plate: 14									

PROJECT NO: S251271

DATE: 09/11/2025

CLIENT: Lennar Homes



TEST PIT NO. TP-14

[illegible]

Notes:

Ground Water Observed: No

Completion Depth (ft): 8

**S.S by P.P - Shear Strength in TSF
by Hand Penetrometer**

S.S. - Split Spoon Sample
S.T. - Shelby Tube Sample

HA - Hand Auger
AU - Auger Sample

Plate: 15

KEY TO CLASSIFICATIONS AND SYMBOLS

<u>Soil Fractions</u>		<u>Soil or Rock Types</u> (Shown in symbols column) (Predominate Soil Types Shown Heavy)		
<u>Component</u>	<u>Size Range</u>			
Boulders	Greater than 12"			
Cobbles	3" - 12"			
Gravel	3" - #4 (4.76mm)			
Coarse	3" - 3/4"			
Fine	3/4" - #4			
Sand	#4 - #200 (0.074mm)			
Coarse	#4 - #10 (2.00mm)			
Medium	#10 - #40 (0.42mm)			
Fine	#40 - #200 (0.074mm)			
Silt and Clay	Less than #200			
		Silt	Clay	Marl
		Shale	Sand	Sandy Gravel
		Limestone	Sandy Clay	Gravel

TERMS DESCRIBING SOIL CONSISTENCY

<u>Description</u> (Cohesive <u>Soils</u>)	<u>Unconfined</u> <u>Compression</u> <u>TSF</u>	<u>Blows/Ft.</u> <u>Std. Penetration</u> <u>Test</u>	<u>Description</u> (Cohesionless <u>Soils</u>)	<u>Blows/Ft.</u> <u>Std. Penetration</u> <u>Tests</u>
Very Soft	0.25	<2	Very Loose	0 - 4
Soft	0.25 - 0.50	2 - 4	Loose	4 - 10
Firm	0.50 - 1.00	4 - 8	Medium Dense	10 - 30
Stiff	1.00 - 2.00	8 - 15	Dense	30 - 50
Very Stiff	2.00 - 4.00	15 - 30	Very Dense	50
Hard	>4.00	>30		

SOIL STRUCTURE

Calcareous	Containing deposits of calcium carbonate; generally nodular.
Slickenside	Having inclined planes of weakness that are slick and glossy in appearance.
Laminated	Composed of thin layers of varying color and texture.
Fissured	Containing shrinkage cracks frequently filled with fine sand or silt. Usually more or less vertical.
Interbedded	Composed of alternate layers of different soil types.
Jointed	Consisting of hair cracks that fall apart as soon as the confining pressure is removed.
Varved	Consisting of alternate thin layers of sand, silt or clay formed by variations in sedimentations during the various seasons of the year, of often exhibiting contrasting colors when partially dried. Each layer is generally less than 1/2" in thickness.
Stratified	Composed of, or arranged in layers (usually 1 inch or more)
Well-graded	Having a wide range of grain sizes and substantial amount of all intermediate particle sizes.
Poorly or Gap-graded	Having a range of sizes with some intermediate sizes missing.
Uniformly-graded	Predominantly of one grain size.

Subsurface Exploration and Pavement Analysis
Proposed New Streets
Tres Laurels, Units 1B, 4B, 5A, 5B
San Antonio, Texas

InTEC Project Number:
S251271

Date:
08/29/2025

Calculations

CBR = 2.0

Subsurface Exploration and Pavement Analysis
Proposed New Streets
Tres Laurels, Units 1B, 4B, 5A, & 5B
San Antonio, Texas

InTEC Project Number:
S251271-R1

Date:
09/25/2025

Asphalt Pavement Design Analysis

Tensar.
A Division of CMC

Design		Reference	
Project		Location	
Customer		Designer	Murali Subramaniam
Company	InTEC	Date	September 26, 2025

Method of analysis

The calculation method used to create this Tensar software output is the design method for flexible pavements given in the AASHTO Guide for Design of Pavement Structures 1993. The enhancement of performance due to the inclusion of Tensar geogrids in the stabilised layer is derived empirically from full scale pavement tests and trafficking trials carried out by independent authorities.

Results



Stabilized
132,800 ESALs



Unstabilized
113,700 ESALs

	Thickness	Coeff.	SN
HMA layer 1	3 in	0.440	1.200
Aggregate base (NX750)	6 in	0.300	1.800
Structural number (SN)			3.000

	Thickness	Coeff.	SN
HMA layer 1	3 in	0.440	1.320
Aggregate base	11.5 in	0.140	1.610
Structural number (SN)			2.930

Parameters

Project Information

Target ESALs	Subgrade resilient modulus	Reliability	Standard deviation	Serviceability	
				Initial	Terminal
100,000	3,000 psi	70%	0.45	4.2	2

This report was prepared using Tensar+ (2.20.0)
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Subsurface Exploration and Pavement Analysis
Proposed New Streets
Tres Laurels, Units 1B, 4B, 5A, & 5B
San Antonio, Texas

Local Type A (without Bus Traffic)

InTEC Project Number:
S251271-R1

Date:
09/25/2025

Asphalt Pavement Design Analysis

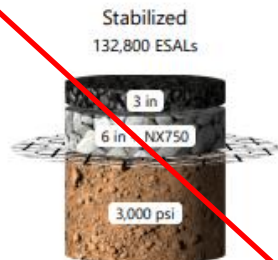
Tensar
A Division of CMC

Design		Reference	
Project		Location	
Customer		Designer	Murali Subramaniam
Company	InTEC	Date	September 26, 2025

Method of analysis

The calculation method used to create this Tensar software output is the design method for flexible pavements given in the AASHTO Guide for Design of Pavement Structures 1993. The enhancement of performance due to the inclusion of Tensar geogrids in the stabilised layer is derived empirically from full scale pavement tests and trafficking trials carried out by independent authorities.

Results



Stabilized
132,800 ESALs



Unstabilized
108,700 ESALs

	Thickness	Coeff.	SN
HMA layer 1	3 in	0.400	1.200
Aggregate base (NX750)	6 in	0.300	1.800
Structural number (SN)			3.000

	Thickness	Coeff.	SN
HMA layer 1	2 in	0.440	0.880
Aggregate base	14.5 in	0.140	2.030
Structural number (SN)			2.910

Parameters

Project Information

Target ESALs	Subgrade resilient modulus	Reliability	Standard deviation	Serviceability	
				Initial	Terminal
100,000	3,000 psi	70%	0.45	4.2	2

This report was prepared using Tensar+ (2.20.6)

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Subsurface Exploration and Pavement Analysis
Proposed New Streets
Tres Laurels, Units 1B, 4B, 5A, & 5B
San Antonio, Texas

Local Type A (without Bus Traffic)

InTEC Project Number:
S251271-R1

Date:
09/25/2025

Asphalt Pavement Design Analysis

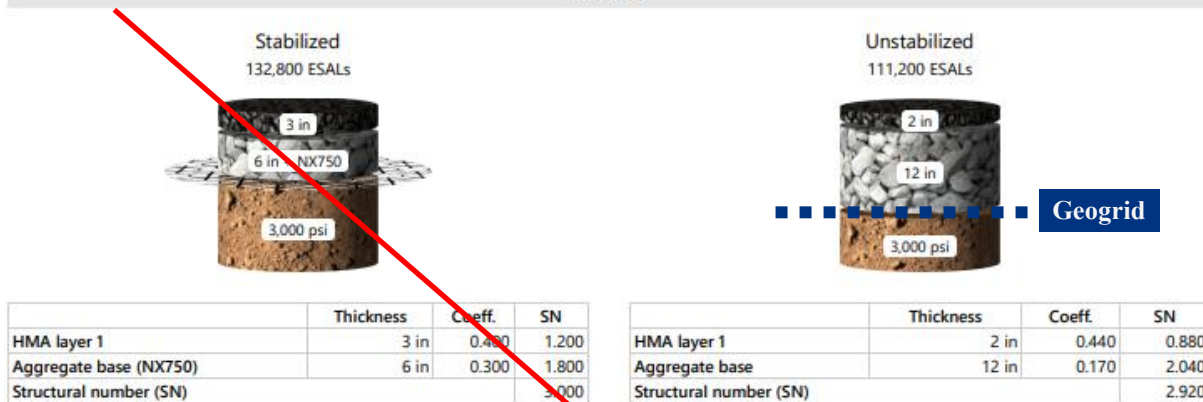
Tensar
A Division of CMC

Design		Reference	
Project		Location	
Customer		Designer	Murali Subramaniam
Company	INTEC	Date	September 26, 2025

Method of analysis

The calculation method used to create this Tensar software output is the design method for flexible pavements given in the AASHTO Guide for Design of Pavement Structures 1993. The enhancement of performance due to the inclusion of Tensar geogrids in the stabilised layer is derived empirically from full scale pavement tests and trafficking trials carried out by independent authorities.

Results



Parameters

Project Information

Target ESALs	Subgrade resilient modulus	Reliability	Standard deviation	Serviceability	
				Initial	Terminal
100,000	3,000 psi	70%	0.45	4.2	2

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Geogrid option calculated with adjusted structural coefficient value (0.17)

Subsurface Exploration and Pavement Analysis
Proposed New Streets
Tres Laurels, Units 1B, 4B, 5A, & 5B
San Antonio, Texas

Local Type A (without Bus Traffic)

INTEC Project Number:
S251271-R1

Date:
09/25/2025

Asphalt Pavement Design Analysis

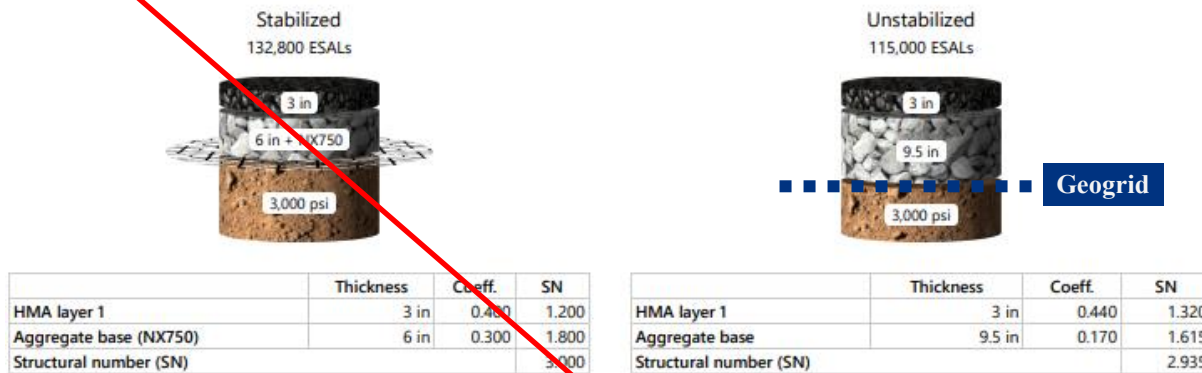
Tensar.
A Division of CMC

Design		Reference	
Project		Location	
Customer		Designer	Murali Subramaniam
Company	InTEC	Date	September 26, 2025

Method of analysis

The calculation method used to create this Tensar software output is the design method for flexible pavements given in the AASHTO Guide for Design of Pavement Structures 1993. The enhancement of performance due to the inclusion of Tensar geogrids in the stabilised layer is derived empirically from full scale pavement tests and trafficking trials carried out by independent authorities.

Results



Parameters

Project Information

Target ESALs	Subgrade resilient modulus	Reliability	Standard deviation	Serviceability	
				Initial	Terminal
100,000	3,000 psi	70%	0.45	4.2	2

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Geogrid option calculated with adjusted structural coefficient value (0.17)

Subsurface Exploration and Pavement Analysis
Proposed New Streets
Tres Laurels, Units 1B, 4B, 5A, & 5B
San Antonio, Texas

Local Type A (without Bus Traffic)

InTEC Project Number:
S251271-R1

Date:
09/25/2025

Asphalt Pavement Design Analysis

Tensar
A Division of CMC

Design		Reference	
Project		Location	
Customer		Designer	Murali Subramaniam
Company	InTEC	Date	September 26, 2025

Method of analysis

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Results



Total HMA thickness should be within the same range on both pavement sections for accurate comparison: 2-3 in | 3-6 in | 6-14 in

	Thickness	Coeff.	SN		Thickness	Coeff.	SN
HMA layer 1	3 in	0.400	1.200	HMA layer 1	2 in	0.440	0.880
Aggregate base (NX750)	6 in	0.300	1.800	HMA layer 2	6 in	0.340	2.040
Structural number (SN)			3.000	Structural number (SN)			2.920

Parameters

Project Information

Target ESALs	Subgrade resilient modulus	Reliability	Standard deviation	Serviceability	
				Initial	Terminal
100,000	3,000 psi	70%	0.45	4.2	2

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Subsurface Exploration and Pavement Analysis
Proposed New Streets
Tres Laurels, Units 1B, 4B, 5A, & 5B
San Antonio, Texas

Local Type A (without Bus Traffic)

InTEC Project Number:
S251271-R1

Date:
09/25/2025

Asphalt Pavement Design Analysis

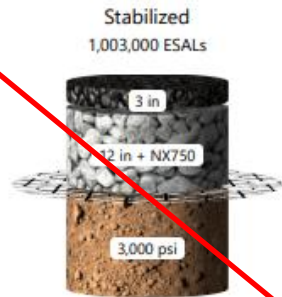
Tensar.
A Division of CMC

Design		Reference	
Project		Location	
Customer		Designer	Murali Subramaniam
Company	InTEC	Date	September 26, 2025

Method of analysis

The calculation method used to create this Tensar software output is the design method for flexible pavements given in the AASHTO Guide for Design of Pavement Structures 1993. The enhancement of performance due to the inclusion of Tensar geogrids in the stabilised layer is derived empirically from full scale pavement tests and trafficking trials carried out by independent authorities.

Results



Stabilized
1,003,000 ESALs



Unstabilized
1,013,500 ESALs

	Thickness	Coeff.	SN
HMA layer 1	3 in	0.400	1.200
Aggregate base (NX750)	12 in	0.237	2.844
Structural number (SN)			4.044

	Thickness	Coeff.	SN
HMA layer 1	3 in	0.440	1.320
HMA layer 2	2 in	0.140	0.280
Aggregate base	17.5 in	0.140	2.450
Structural number (SN)			4.050

Parameters

Project Information

Target ESALs	Subgrade resilient modulus	Reliability	Standard deviation	Serviceability	
1,000,000	3,000 psi	70%	0.45	Initial	Terminal
				4.2	2

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Subsurface Exploration and Pavement Analysis
Proposed New Streets
Tres Laurels, Units 1B, 4B, 5A, & 5B
San Antonio, Texas

Local Type A (with Bus Traffic)

InTEC Project Number:
S251271-R1

Date:
09/25/2025

Asphalt Pavement Design Analysis

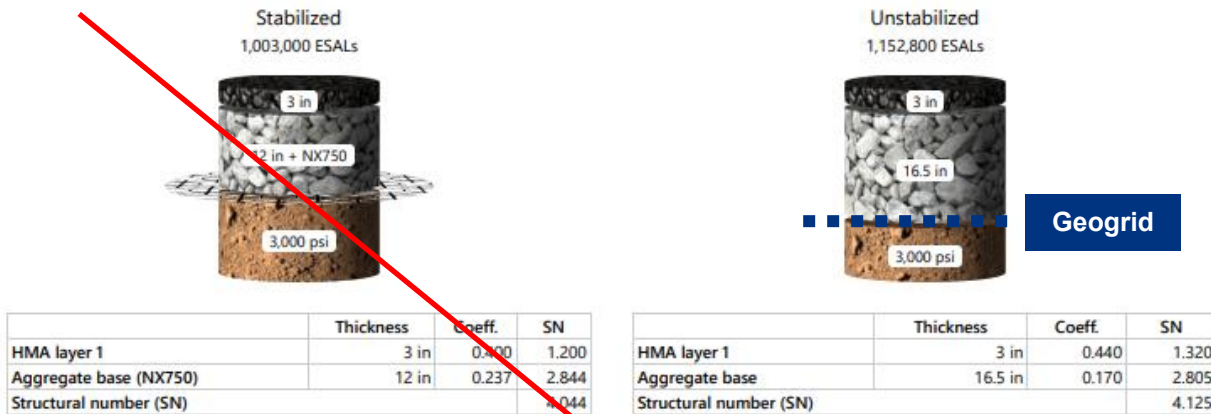
Tensar
A Division of CMC

Design		Reference	
Project		Location	
Customer		Designer	Murali Subramaniam
Company	InTEC	Date	September 26, 2025

Method of analysis

The calculation method used to create this Tensar software output is the design method for flexible pavements given in the AASHTO Guide for Design of Pavement Structures 1993. The enhancement of performance due to the inclusion of Tensar geogrids in the stabilised layer is derived empirically from full scale pavement tests and trafficking trials carried out by independent authorities.

Results



Parameters

Project Information

Target ESALs	Subgrade resilient modulus	Reliability	Standard deviation	Serviceability	
				Initial	Terminal
1,000,000	3,000 psi	70%	0.45	4.2	2

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Geogrid option calculated with adjusted structural coefficient value

Subsurface Exploration and Pavement Analysis
Proposed New Streets
Tres Laurels, Units 1B, 4B, 5A, & 5B
San Antonio, Texas

Local Type A (with Bus Traffic)

InTEC Project Number:
S251271-R1

Date:
09/25/2025

Asphalt Pavement Design Analysis

Tensar.
A Division of CMC

Design		Reference	
Project		Location	
Customer		Designer	Murali Subramaniam
Company	InTEC	Date	September 26, 2025

Method of analysis

The calculation method used to create this Tensar software output is the design method for flexible pavements given in the AASHTO Guide for Design of Pavement Structures 1993. The enhancement of performance due to the inclusion of Tensar geogrids in the stabilised layer is derived empirically from full scale pavement tests and trafficking trials carried out by independent authorities.

Results



Total HMA thickness should be within the same range on both pavement sections for accurate comparison: 2-3 in | 3-6 in | 6-14 in

	Thickness	Coeff.	SN
HMA layer 1	3 in	0.400	1.200
Aggregate base (NX750)	12 in	0.237	2.844
Structural number (SN)			4.044

	Thickness	Coeff.	SN
HMA layer 1	3 in	0.440	1.320
HMA layer 2	8.5 in	0.340	2.890
Structural number (SN)			4.210

Parameters

Project Information

Target ESALs	Subgrade resilient modulus	Reliability	Standard deviation	Serviceability	
				Initial	Terminal
1,000,000	3,000 psi	70%	0.45	4.2	2

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Subsurface Exploration and Pavement Analysis
Proposed New Streets
Tres Laurels, Units 1B, 4B, 5A, & 5B
San Antonio, Texas

Local Type A (with Bus Traffic)

InTEC Project Number:
S251271-R1

Date:
09/25/2025

Asphalt Pavement Design Analysis

Tensar
A Division of CMC

Design		Reference	
Project		Location	
Customer		Designer	Murali Subramaniam
Company	InTEC	Date	September 26, 2025

Method of analysis

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Results



Total HMA thickness should be within the same range on both pavement sections for accurate comparison: 2-3 in | 3-6 in | 6-14 in

	Thickness	Coeff.	SN
HMA layer 1	3 in	0.400	1.200
Aggregate base (NX750)	18 in	0.210	3.780
Structural number (SN)			4.980

	Thickness	Coeff.	SN
HMA layer 1	4 in	0.440	1.760
HMA layer 2	6 in	0.140	0.840
Aggregate base	17 in	0.140	2.380
Structural number (SN)			4.980

Parameters

Project Information

Target ESALs	Subgrade resilient modulus	Reliability	Standard deviation	Serviceability	
				Initial	Terminal
2,000,000	3,000 psi	90%	0.45	4.2	2

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Subsurface Exploration and Pavement Analysis
Proposed New Streets
Tres Laurels, Units 1B, 4B, 5A, & 5B
San Antonio, Texas

Local Type B

InTEC Project Number:
S251271-R1

Date:
09/25/2025

Asphalt Pavement Design Analysis

Tensar
A Division of CMC

Design		Reference	
Project		Location	
Customer		Designer	Murali Subramaniam
Company	InTEC	Date	September 26, 2025

Method of analysis

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Results



Total HMA thickness should be within the same range on both pavement sections for accurate comparison: 2-3 in | 3-6 in | 6-14 in

	Thickness	Coeff.	SN
HMA layer 1	3 in	0.400	1.200
Aggregate base (NX750)	18 in	0.210	3.780
Structural number (SN)			4.980

	Thickness	Coeff.	SN
HMA layer 1	4 in	0.440	1.760
HMA layer 2	6 in	0.170	1.020
Aggregate base	13 in	0.170	2.210
Structural number (SN)			4.990

Parameters

Project Information

Target ESALs	Subgrade resilient modulus	Reliability	Standard deviation	Serviceability	
				Initial	Terminal
2,000,000	3,000 psi	90%	0.45	4.2	2

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Geogrid option calculated with adjusted
structural coefficient value

Subsurface Exploration and Pavement Analysis
Proposed New Streets
Tres Laurels, Units 1B, 4B, 5A, & 5B
San Antonio, Texas

Local Type B

InTEC Project Number:
S251271-R1

Date:
09/25/2025

Asphalt Pavement Design Analysis

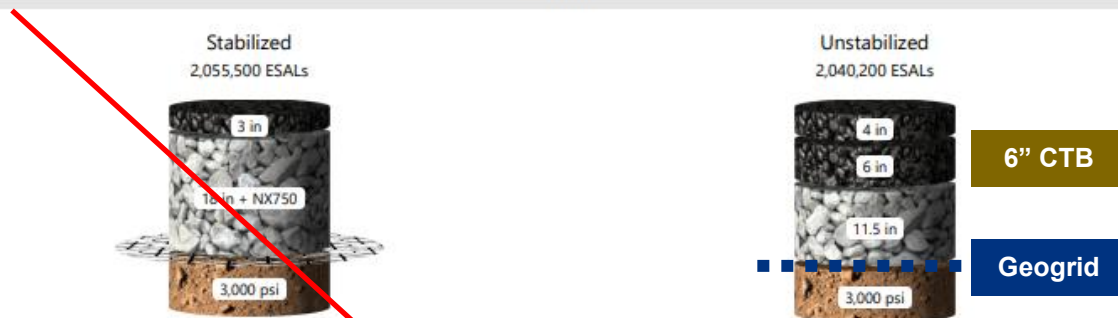
Tensar
A Division of CMC

Design		Reference	
Project		Location	
Customer		Designer	Murali Subramaniam
Company	InTEC	Date	September 26, 2025

Method of analysis

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Results



Total HMA thickness should be within the same range on both pavement sections for accurate comparison: 2-3 in | 3-6 in | 6-14 in

	Thickness	Coeff.	SN
HMA layer 1	3 in	0.400	1.200
Aggregate base (NX750)	18 in	0.210	2.780
Structural number (SN)			4.980

	Thickness	Coeff.	SN
HMA layer 1	4 in	0.440	1.760
HMA layer 2	6 in	0.210	1.260
Aggregate base	11.5 in	0.170	1.955
Structural number (SN)			4.975

Parameters

Project Information

Target ESALs	Subgrade resilient modulus	Reliability	Standard deviation	Serviceability	
				Initial	Terminal
2,000,000	3,000 psi	90%	0.45	4.2	2

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6" CTB

Cement Treated Base

Geogrid option calculated with adjusted
structural coefficient value

Subsurface Exploration and Pavement Analysis
Proposed New Streets
Tres Laurels, Units 1B, 4B, 5A, & 5B
San Antonio, Texas

Local Type B

InTEC Project Number:
S251271-R1

Date:
09/25/2025

Asphalt Pavement Design Analysis

Tensar.
A Division of CMC

Design		Reference	
Project		Location	
Customer		Designer	Murali Subramaniam
Company	InTEC	Date	September 26, 2025

Method of analysis

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Results



Total HMA thickness should be within the same range on both pavement sections for accurate comparison: 2-3 in | 3-6 in | 6-14 in

	Thickness	Coeff.	SN
HMA layer 1	3 in	0.400	1.200
Aggregate base (NX750)	18 in	0.210	5.780
Structural number (SN)			4.980

	Thickness	Coeff.	SN
HMA layer 1	4 in	0.440	1.760
HMA layer 2	9.5 in	0.340	3.230
Structural number (SN)			4.990

Parameters

Project Information

Target ESALs	Subgrade resilient modulus	Reliability	Standard deviation	Serviceability	
				Initial	Terminal
2,000,000	3,000 psi	90%	0.45	4.2	2

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Subsurface Exploration and Pavement Analysis
Proposed New Streets
Tres Laurels, Units 1B, 4B, 5A, & 5B
San Antonio, Texas

Local Type B

InTEC Project Number:
S251271-R1

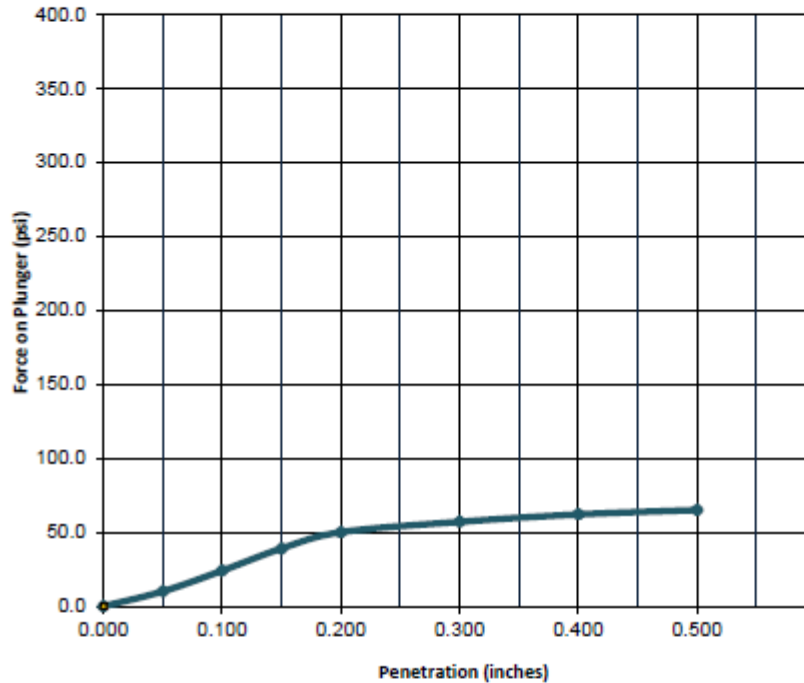
Date:
09/25/2025

InTEC of San Antonio

ASTM D-1883 California Bearing Ratio Test Report



Load Penetration Curve



CBR Results

Results	A	B	C	D	Average
0.1 in Pen.	2.4				
0.2 in Pen.	3.3				
Moisture (%)	19.20				
Density (pcf)	101.40				
Final Moisture (%)	27.60				
Final Density (pcf)	89.10				

Project Number	S251271		Sample Location	
Project Name	Tres Laurels, 1B, 4B, 5A, 5B		Specimen A	Vicinity of TP-3
Date	9/19/2025			
Client	Lennar Homes		Specimen C	
			Specimen D	
Job Ref.			Liquid Limit:	62.0
Sample Num.			Plastic Limit:	20.0
Remarks	Dark Brown Clay			

Subsurface Exploration and Pavement Analysis
Proposed New Streets
Tres Laurels, Units 1B, 4B, 5A, & 5B
San Antonio, Texas

CBR Test Results (Clay)

InTEC Project Number:
S251271-R1

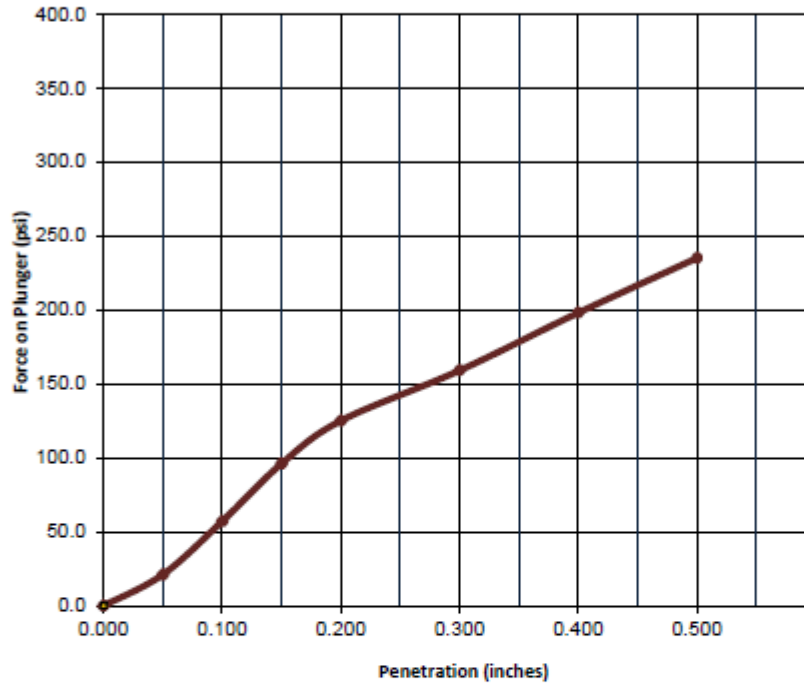
Date:
09/25/2025

InTEC of San Antonio

ASTM D-1883 California Bearing Ratio Test Report



Load Penetration Curve



CBR Results

Results	A	B	C	D	Average
0.1 in Pen.	5.7				
0.2 in Pen.	8.3				
Moisture (%)	11.40				
Density (pcf)	120.70				
Final Moisture (%)	18.20				
Final Density (pcf)	101.60				

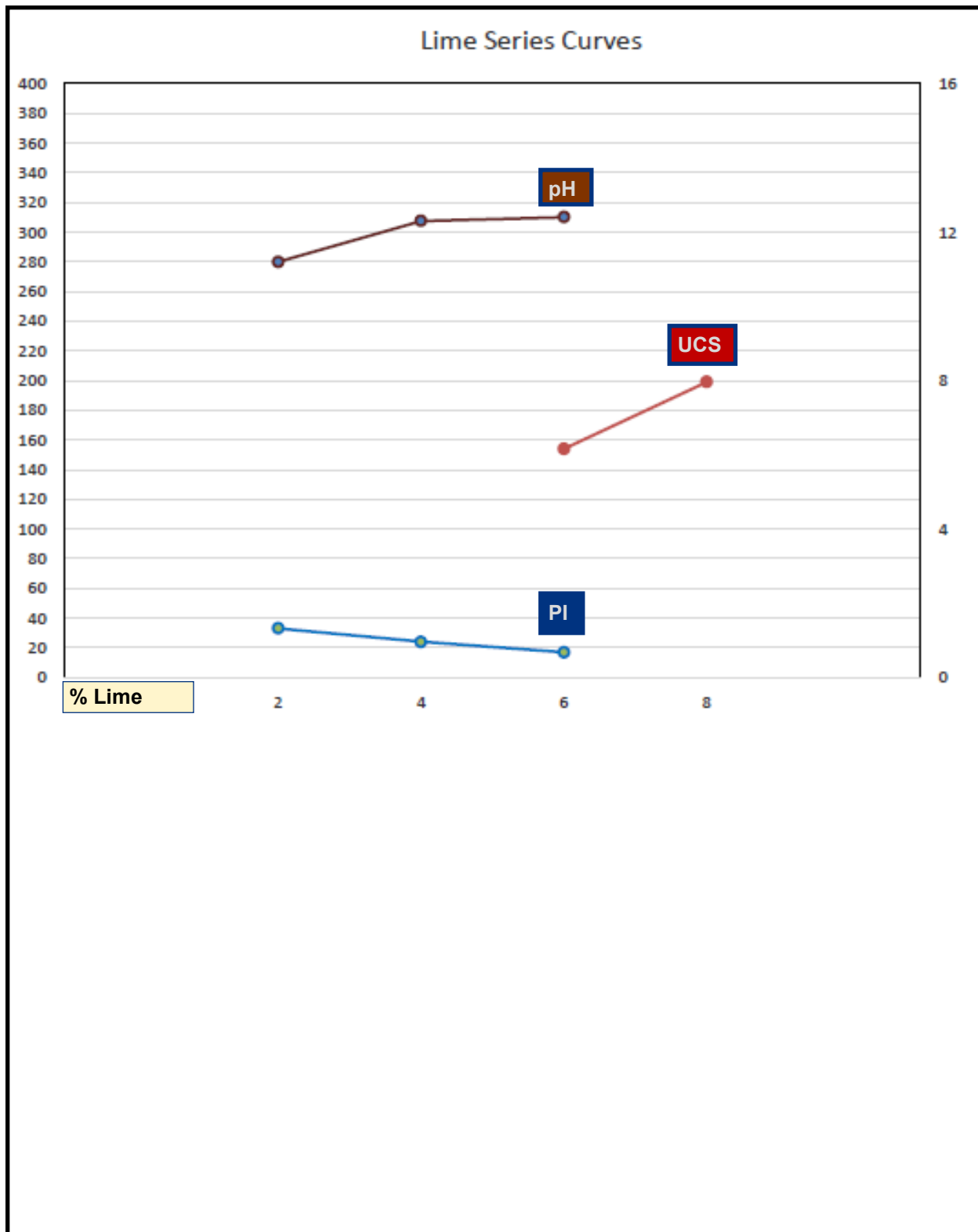
Project Number	S251271	Sample Location	
Project Name	Tres Laurels, 1B, 4B, 5A, 5B	Specimen A	Vicinity of TP-10
Date	9/17/2025		
Client	Lennar Homes	Specimen C	
		Specimen D	
Job Ref.		Liquid Limit:	31.0
Sample Num.		Plastic Limit:	14.0
Remarks	Tan Calcareous Clay, Marl, Caliche		

Subsurface Exploration and Pavement Analysis
Proposed New Streets
Tres Laurels, Units 1B, 4B, 5A, & 5B
San Antonio, Texas

CBR Test Results (Marl)

InTEC Project Number:
S251271-R1

Date:
09/25/2025



Subsurface Exploration and Pavement Analysis
Proposed New Streets
Tres Laurels, Units 1B, 4B, 5A, & 5B
San Antonio, Texas

Lime Series

InTEC Project Number:
S251271-R1

Date:
09/25/2025

Appendix

Subsurface Exploration and Pavement Analysis
Proposed New Streets
Tres Laurels, Units 1B, 4B, 5A, & 5B
San Antonio, Texas

InTEC Project Number:
S251271-R1

Date:
09/25/2025

Important Information about This Geotechnical-Engineering Report

Subsurface problems are a principal cause of construction delays, cost overruns, claims, and disputes.

While you cannot eliminate all such risks, you can manage them. The following information is provided to help.

The Geoprofessional Business Association (GBA) has prepared this advisory to help you – assumedly a client representative – interpret and apply this geotechnical-engineering report as effectively as possible. In that way, you can benefit from a lowered exposure to problems associated with subsurface conditions at project sites and development of them that, for decades, have been a principal cause of construction delays, cost overruns, claims, and disputes. If you have questions or want more information about any of the issues discussed herein, contact your GBA-member geotechnical engineer. Active engagement in GBA exposes geotechnical engineers to a wide array of risk-confrontation techniques that can be of genuine benefit for everyone involved with a construction project.

Understand the Geotechnical-Engineering Services Provided for this Report

Geotechnical-engineering services typically include the planning, collection, interpretation, and analysis of exploratory data from widely spaced borings and/or test pits. Field data are combined with results from laboratory tests of soil and rock samples obtained from field exploration (if applicable), observations made during site reconnaissance, and historical information to form one or more models of the expected subsurface conditions beneath the site. Local geology and alterations of the site surface and subsurface by previous and proposed construction are also important considerations. Geotechnical engineers apply their engineering training, experience, and judgment to adapt the requirements of the prospective project to the subsurface model(s). Estimates are made of the subsurface conditions that will likely be exposed during construction as well as the expected performance of foundations and other structures being planned and/or affected by construction activities.

The culmination of these geotechnical-engineering services is typically a geotechnical-engineering report providing the data obtained, a discussion of the subsurface model(s), the engineering and geologic engineering assessments and analyses made, and the recommendations developed to satisfy the given requirements of the project. These reports may be titled investigations, explorations, studies, assessments, or evaluations. Regardless of the title used, the geotechnical-engineering report is an engineering interpretation of the subsurface conditions within the context of the project and does not represent a close examination, systematic inquiry, or thorough investigation of all site and subsurface conditions.

Geotechnical-Engineering Services are Performed for Specific Purposes, Persons, and Projects, and At Specific Times

Geotechnical engineers structure their services to meet the specific needs, goals, and risk management preferences of their clients. A geotechnical-engineering study conducted for a given civil engineer

will not likely meet the needs of a civil-works constructor or even a different civil engineer. Because each geotechnical-engineering study is unique, each geotechnical-engineering report is unique, prepared *solely* for the client.

Likewise, geotechnical-engineering services are performed for a specific project and purpose. For example, it is unlikely that a geotechnical-engineering study for a refrigerated warehouse will be the same as one prepared for a parking garage; and a few borings drilled during a preliminary study to evaluate site feasibility will not be adequate to develop geotechnical design recommendations for the project.

Do not rely on this report if your geotechnical engineer prepared it:

- for a different client;
- for a different project or purpose;
- for a different site (that may or may not include all or a portion of the original site); or
- before important events occurred at the site or adjacent to it; e.g., man-made events like construction or environmental remediation, or natural events like floods, droughts, earthquakes, or groundwater fluctuations.

Note, too, the reliability of a geotechnical-engineering report can be affected by the passage of time, because of factors like changed subsurface conditions; new or modified codes, standards, or regulations; or new techniques or tools. *If you are the least bit uncertain about the continued reliability of this report, contact your geotechnical engineer before applying the recommendations in it. A minor amount of additional testing or analysis after the passage of time – if any is required at all – could prevent major problems.*

Read this Report in Full

Costly problems have occurred because those relying on a geotechnical-engineering report did not read the report in its entirety. Do not rely on an executive summary. Do not read selective elements only. *Read and refer to the report in full.*

You Need to Inform Your Geotechnical Engineer About Change

Your geotechnical engineer considered unique, project-specific factors when developing the scope of study behind this report and developing the confirmation-dependent recommendations the report conveys. Typical changes that could erode the reliability of this report include those that affect:

- the site's size or shape;
- the elevation, configuration, location, orientation, function or weight of the proposed structure and the desired performance criteria;
- the composition of the design team; or
- project ownership.

As a general rule, *always* inform your geotechnical engineer of project or site changes – even minor ones – and request an assessment of their impact. *The geotechnical engineer who prepared this report cannot accept*

responsibility or liability for problems that arise because the geotechnical engineer was not informed about developments the engineer otherwise would have considered.

Most of the “Findings” Related in This Report Are Professional Opinions

Before construction begins, geotechnical engineers explore a site’s subsurface using various sampling and testing procedures. *Geotechnical engineers can observe actual subsurface conditions only at those specific locations where sampling and testing is performed.* The data derived from that sampling and testing were reviewed by your geotechnical engineer, who then applied professional judgement to form opinions about subsurface conditions throughout the site. Actual site-wide subsurface conditions may differ – maybe significantly – from those indicated in this report. Confront that risk by retaining your geotechnical engineer to serve on the design team through project completion to obtain informed guidance quickly, whenever needed.

This Report’s Recommendations Are Confirmation-Dependent

The recommendations included in this report – including any options or alternatives – are confirmation-dependent. In other words, they are not final, because the geotechnical engineer who developed them relied heavily on judgement and opinion to do so. Your geotechnical engineer can finalize the recommendations *only after observing actual subsurface conditions* exposed during construction. If through observation your geotechnical engineer confirms that the conditions assumed to exist actually do exist, the recommendations can be relied upon, assuming no other changes have occurred. *The geotechnical engineer who prepared this report cannot assume responsibility or liability for confirmation-dependent recommendations if you fail to retain that engineer to perform construction observation.*

This Report Could Be Misinterpreted

Other design professionals’ misinterpretation of geotechnical-engineering reports has resulted in costly problems. Confront that risk by having your geotechnical engineer serve as a continuing member of the design team, to:

- confer with other design-team members;
- help develop specifications;
- review pertinent elements of other design professionals’ plans and specifications; and
- be available whenever geotechnical-engineering guidance is needed.

You should also confront the risk of constructors misinterpreting this report. Do so by retaining your geotechnical engineer to participate in prebid and preconstruction conferences and to perform construction-phase observations.

Give Constructors a Complete Report and Guidance

Some owners and design professionals mistakenly believe they can shift unanticipated-subsurface-conditions liability to constructors by limiting the information they provide for bid preparation. To help prevent the costly, contentious problems this practice has caused, include the complete geotechnical-engineering report, along with any attachments or appendices, with your contract documents, *but be certain to note*

conspicuously that you’ve included the material for information purposes only. To avoid misunderstanding, you may also want to note that “informational purposes” means constructors have no right to rely on the interpretations, opinions, conclusions, or recommendations in the report. Be certain that constructors know they may learn about specific project requirements, including options selected from the report, *only* from the design drawings and specifications. Remind constructors that they may perform their own studies if they want to, and *be sure to allow enough time* to permit them to do so. Only then might you be in a position to give constructors the information available to you, while requiring them to at least share some of the financial responsibilities stemming from unanticipated conditions. Conducting prebid and preconstruction conferences can also be valuable in this respect.

Read Responsibility Provisions Closely

Some client representatives, design professionals, and constructors do not realize that geotechnical engineering is far less exact than other engineering disciplines. This happens in part because soil and rock on project sites are typically heterogeneous and not manufactured materials with well-defined engineering properties like steel and concrete. That lack of understanding has nurtured unrealistic expectations that have resulted in disappointments, delays, cost overruns, claims, and disputes. To confront that risk, geotechnical engineers commonly include explanatory provisions in their reports. Sometimes labeled “limitations,” many of these provisions indicate where geotechnical engineers’ responsibilities begin and end, to help others recognize their own responsibilities and risks. *Read these provisions closely.* Ask questions. Your geotechnical engineer should respond fully and frankly.

Geoenvironmental Concerns Are Not Covered

The personnel, equipment, and techniques used to perform an environmental study – e.g., a “phase-one” or “phase-two” environmental site assessment – differ significantly from those used to perform a geotechnical-engineering study. For that reason, a geotechnical-engineering report does not usually provide environmental findings, conclusions, or recommendations; e.g., about the likelihood of encountering underground storage tanks or regulated contaminants. *Unanticipated subsurface environmental problems have led to project failures.* If you have not obtained your own environmental information about the project site, ask your geotechnical consultant for a recommendation on how to find environmental risk-management guidance.

Obtain Professional Assistance to Deal with Moisture Infiltration and Mold

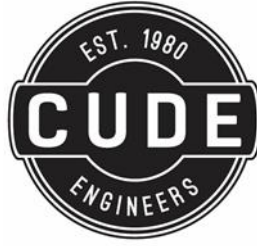
While your geotechnical engineer may have addressed groundwater, water infiltration, or similar issues in this report, the engineer’s services were not designed, conducted, or intended to prevent migration of moisture – including water vapor – from the soil through building slabs and walls and into the building interior, where it can cause mold growth and material-performance deficiencies. Accordingly, *proper implementation of the geotechnical engineer’s recommendations will not of itself be sufficient to prevent moisture infiltration.* Confront the risk of moisture infiltration by including building-envelope or mold specialists on the design team. *Geotechnical engineers are not building-envelope or mold specialists.*



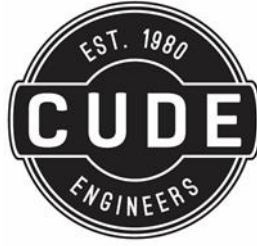
GEOPROFESSIONAL
BUSINESS
ASSOCIATION

Telephone: 301/565-2733

e-mail: info@geoprofessional.org www.geoprofessional.org



ATTACHMENTS



TRES LAURELS, UNIT 1B CONSTRUCTION PLANS

- C0.00 - GENERAL NOTES
- C1.00 - STORMWATER POLLUTION PREVENTION PLAN
- C1.D1 - STORMWATER POLLUTION PREVENTION PLAN STANDARD DETAILS

- C2.00 - SITE GRADING PLAN

- C3.00 - UTILITY LAYOUT PLAN

- C4.00 - SANITARY SEWER MASTER PLAN
- C4.01 - SANITARY SEWER PLAN & PROFILE - LINE '2E'
- C4.D1 - SANITARY SEWER GENERAL NOTES

- C5.00 - WATER DISTRIBUTION PLAN
- C5.D1 - WATER DISTRIBUTION SYSTEM GENERAL NOTES

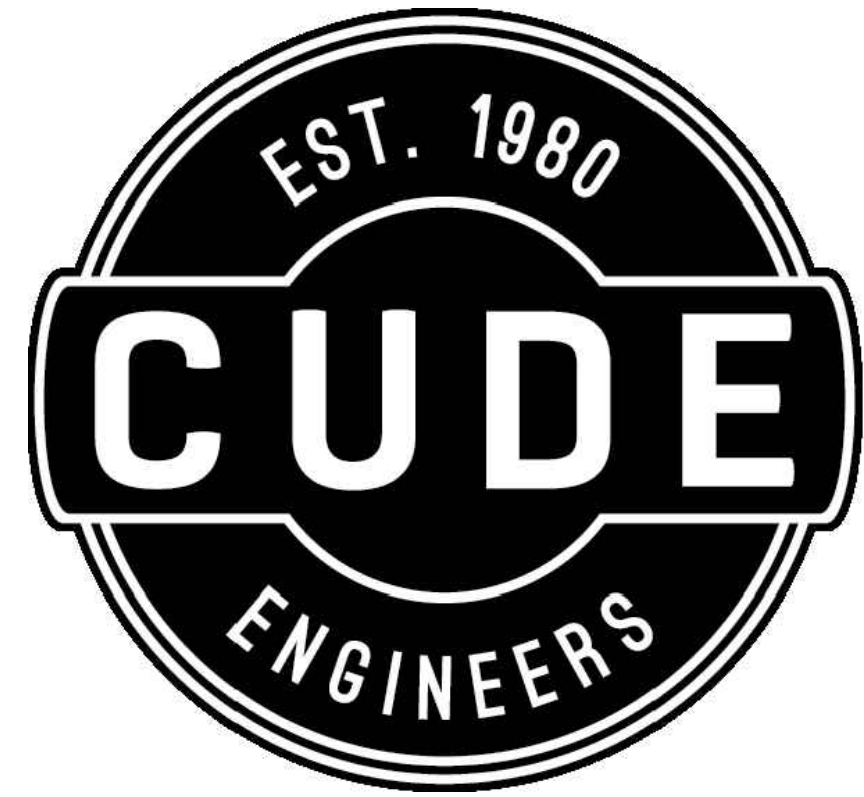
- C6.00 - PROPOSED DRAINAGE MASTER PLAN
- C6.01 - ULTIMATE DRAINAGE MASTER PLAN
- C6.02 - DRAINAGE PLAN & PROFILE - DRAIN '1B'
- C6.D1 - COSA ELEVATED SIDEWALK & COSA CONCRETE RIP-RAP DETAILS

- C7.01 - STREET PLAN & PROFILE - BOCANEGRA
- C7.02 - STREET PLAN & PROFILE - VISTA ALEGRE
- C7.03 - STREET PLAN & PROFILE - MANAGUA
- C7.04 - STREET PLAN & PROFILE - TORREBLANCA
- C7.D1 - STANDARD STREET DETAILS
- C7.D2 - STREET DETAILS
- C7.D3 - STREET DETAILS

- C8.00 - TRAFFIC SIGNAGE PLAN
- C8.D1 - TXDOT & BEXAR COUNTY DETAILS - SIGN MOUNTING
- C8.D2 - TXDOT DETAILS - SIGN MOUNTING

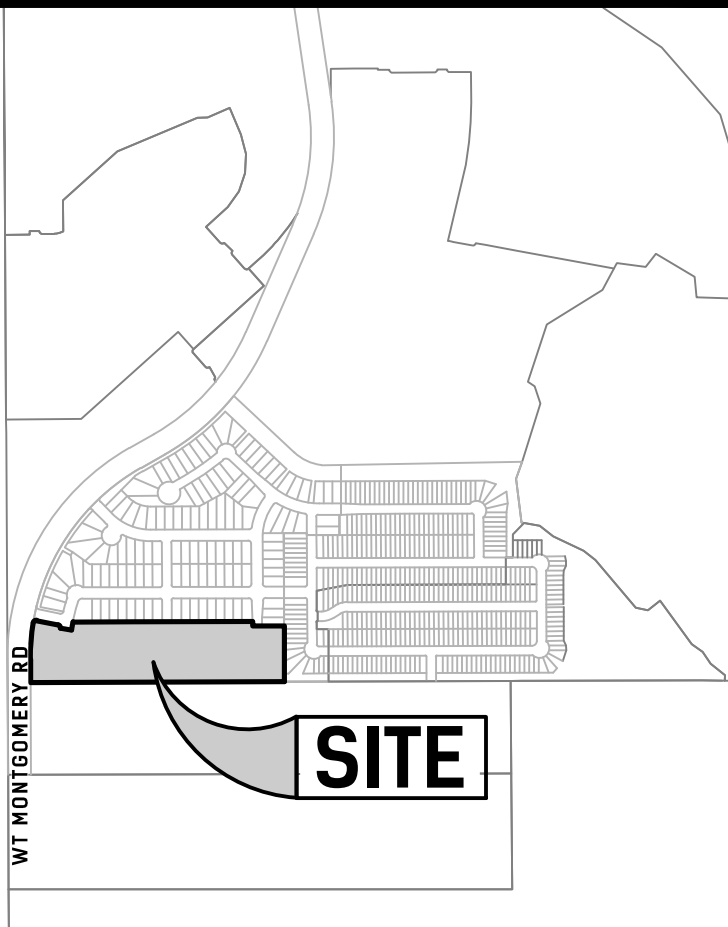
CONSTRUCTION DOCUMENTS FOR

TRES LAURELS UNIT 1B



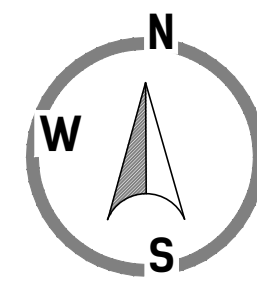
SAN ANTONIO | AUSTIN | SAN MARCOS

4122 POND HILL ROAD, SUITE 101
SAN ANTONIO, TEXAS 78231
P:(210) 681.2951 F:(210) 523.7112
TBPE FIRM NO. 455
TBPLS FIRM NO. 10048500
SBE CERTIFIED FIRM



LOCATION MAP
SCALE: 1" = 1000'

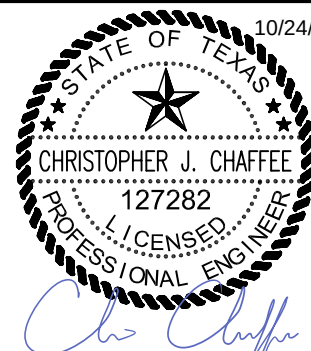
DEVELOPER:
LENNAR HOMES OF TEXAS LAND
AND CONSTRUCTION, LTD.
CONTACT PERSON: RICHARD MOTT
100 NE LOOP 410, SUITE 1155
SAN ANTONIO, TEXAS 78216
TEL: (210) 403-6200



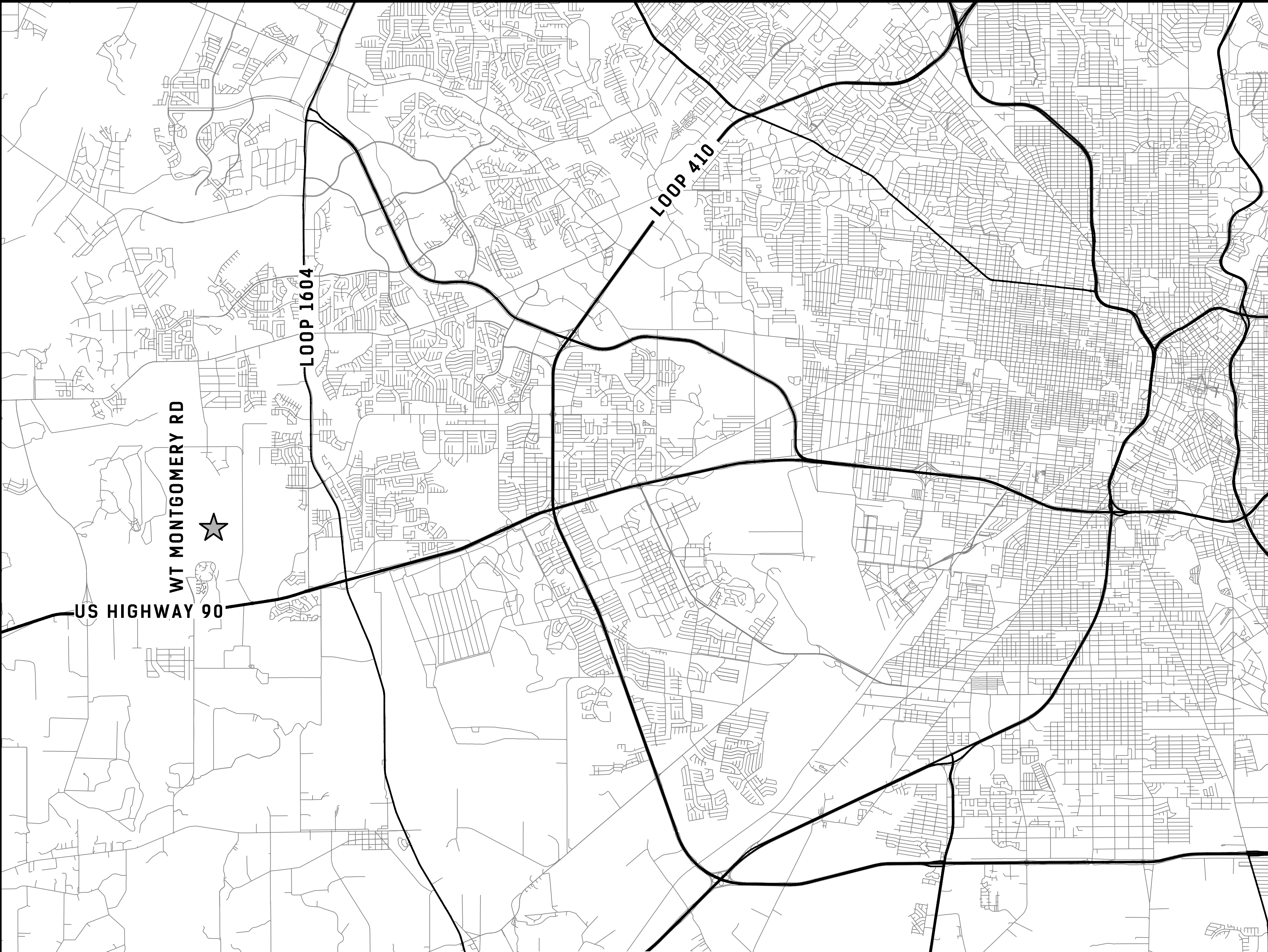
MDP NUMBER:
24-11100004

PLAT NUMBER:
24-11800221

PROJECT NUMBER:
03050.17



THIS PLAN SET HAS BEEN PREPARED,
DESIGNED AND REVIEWED UNDER MY
DIRECT SUPERVISION.



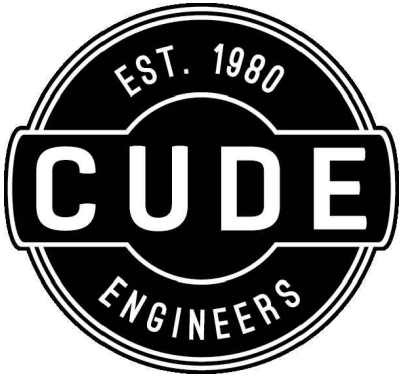
VICINITY MAP
N.T.S.

SEWER: SOUTH SEWERSHED - DOS RIOS W.R.C. (LOWER MEDINA RIVER WATERSHED)

Developer's Name	LENNAR HOMES				
Developer's Address	100 NE LOOP 410 SUITE 1155				
City	SAN ANTONIO	State	TX	Zip	78216
Phone #	(210) 403-6200	Fax #			
SAWS Block Map #		Total EDU's	50	Total Acreage	9.371
Total Linear Footage of Pipe	1,195 L.F. OF 8" SS - SDR 26	Plat No.	24-11800221		
Number of Lots	50	SAWS Job No.	24-1611		

SAWS PRESSURE ZONE 950

Developer's Name	LENNAR HOMES				
Developer's Address	100 NE LOOP 410 SUITE 1155				
City	SAN ANTONIO	State	TX	Zip	78216
Phone #	(210) 403-6200	Fax #			
SAWS Block Map #		Total EDU's	50	Total Acreage	9.371
Total Linear Footage of Pipe	1,231 L.F. - 8" PVC	Plat No.	24-11800221		
Number of Lots	50	SAWS Job No.	XX-XXXX		



4122 Pond Hill Road, Suite 101
San Antonio, Texas 78231
P:(210) 681.2951

TRES LAURELS

UNIT 1B

GENERAL NOTES

GENERAL NOTES

- ALL CONSTRUCTION SHALL CONFORM TO THE CITY OF SAN ANTONIO STANDARD SPECIFICATIONS FOR CONSTRUCTION JUNE 2008, OR LATEST.
- NO EXTRA PAYMENT SHALL BE ALLOWED FOR WORK CALLED FOR ON THE PLANS, BUT NOT INCLUDED IN THE BID PROPOSAL. THIS INCIDENTAL WORK WILL BE REQUIRED AND SHALL BE INCLUDED IN THE PAY ITEM TO WHICH IT RELATES.
- THE CONTRACTOR SHALL PROVIDE ACCESS FOR THE DELIVERY OF MAIL BY THE U.S. POSTAL SERVICE.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR RESTORING TO ITS ORIGINAL OR BETTER CONDITION ANY DAMAGE DONE TO EXISTING FENCES, CONCRETE ISLANDS, STREET PAVING, CURBS, SHRUBS, BUSHES OR DRIVEWAYS. (NO SEPARATE PAY ITEM).
- IT IS THE CONTRACTOR'S RESPONSIBILITY TO SEE THAT ALL SIGNS AND BARRICADES ARE PROPERLY INSTALLED AND MAINTAINED. ALL LOCATIONS AND DISTANCES WILL BE DECIDED UPON IN THE FIELD BY THE CONTRACTOR, USING THE "TEXAS MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES". THE CITY'S CONSTRUCTION INSPECTOR AND TRAFFIC ENGINEERING REPRESENTATIVE WILL ONLY BE RESPONSIBLE TO INSPECT BARRICADES AND SIGNS. IF, IN THE OPINION OF THE TRAFFIC ENGINEERING REPRESENTATIVE AND THE CONSTRUCTION INSPECTOR, THE BARRICADES AND SIGNS DO NOT CONFORM TO ESTABLISHED STANDARDS OR ARE INCORRECTLY PLACED OR ARE INSUFFICIENT IN QUANTITY TO PROTECT THE GENERAL PUBLIC, THE CONSTRUCTION INSPECTOR SHALL HAVE THE OPTION TO STOP OPERATIONS UNTIL SUCH TIME AS THE CONDITIONS ARE CORRECTED.
- IF THE NEED ARISES, ADDITIONAL BARRICADES AND DIRECTIONAL DEVICES MAY BE ORDERED BY THE TRAFFIC ENGINEERING REPRESENTATIVE AT THE CONTRACTOR'S EXPENSE.
- DUE TO FEDERAL REGULATIONS TITLE 49, PART 192.171 C.P.S. MUST MAINTAIN ACCESS TO GAS VALVES AT ALL TIMES. THE CONTRACTOR MUST PROTECT AND WORK AROUND ANY GAS VALVES THAT ARE IN THE PROJECT AREA.
- CONTRACTOR SHALL NOTIFY THE CITY INSPECTOR TWENTY FOUR (24) HOURS PRIOR TO BACKFILL OF ANY UTILITY TRENCHES TO SCHEDULE FOR DENSITY TEST AS REQUIRED.
- CONTRACTOR SHALL PRESERVE ALL CONSTRUCTION STAKES, MARKS, ETC. IF ANY ARE DESTROYED OR REMOVED BY THE CONTRACTOR OR HIS EMPLOYEES, THEY SHALL BE REPLACED AT THE CONTRACTOR'S EXPENSE.
- CONTRACTOR SHALL NOTIFY ALL UTILITY COMPANIES PRIOR TO CONSTRUCTION TO DETERMINE THE LOCATION OF EXISTING UTILITIES. CONTRACTOR SHALL NOTIFY THE FOLLOWING AT LEAST FORTY-EIGHT (48) HOURS PRIOR TO EXCAVATION OPERATION:

SAN ANTONIO WATER SYSTEM (SAWS)	233-2010
BEXAR METROPOLITAN WATER DISTRICT (BEXAR MET)	354-6538 / 357-5741
COSA DRAINAGE	207-8048
COSA SIGNAL OPERATIONS	207-7720 / 207-7765
TEXAS STATE WIDE ONE CALL LOCATOR	1-800-344-8377
- CITY PUBLIC SERVICE ENERGY	
- TIME WARNER	
- AT&T	
- MCI	
- THE EXISTENCE AND LOCATION OF UNDERGROUND UTILITIES INDICATED ON THE PLANS ARE TAKEN FROM AVAILABLE RECORDS AND ARE NOT GUARANTEED, BUT SHALL BE INVESTIGATED AND VERIFIED BY THE CONTRACTOR BEFORE STARTING WORK. THE CONTRACTOR SHALL BE HELD RESPONSIBLE FOR ANY DAMAGE TO AND FOR THE MAINTENANCE AND PROTECTION OF THE EXISTING UTILITIES EVEN IF THEY ARE NOT SHOWN ON THE PLANS. LOCATION AND DEPTH OF EXISTING UTILITIES SHOWN HERE ARE APPROXIMATE ONLY. ACTUAL LOCATIONS AND DEPTHS MUST BE VERIFIED BY THE CONTRACTOR PRIOR TO CONSTRUCTION AND HE SHALL BE RESPONSIBLE FOR PROTECTION OF SAME DURING CONSTRUCTION.
- ALL WASTE MATERIAL SHALL BECOME PROPERTY OF THE CONTRACTOR AND SHALL BE HIS SOLE RESPONSIBILITY TO DISPOSE OF THIS MATERIAL OFF THE LIMITS OF THE PROJECT. NO WASTE MATERIAL SHALL BE PLACED IN EXISTING LOWS THAT WILL BLOCK OR ALTER FLOW LIMITS OF EXISTING ARTIFICIAL OR NATURAL DRAINAGE.
- THE CONTRACTOR SHALL NOT PLACE ANY WASTE MATERIAL IN THE 100-YEAR FLOOD PLAIN WITHOUT FIRST OBTAINING AN APPROVED FLOOD PLAIN DEVELOPMENT PERMIT.
- THE CONTRACTOR SHALL MAINTAIN ALL ADJOINING STREETS AND TRAVELED ROUTES FREE FROM SPILLED AND /OR TRACKED CONSTRUCTION MATERIALS AND /OR DEBRIS.
- IF THE CONTRACTOR ENCOUNTERS ANY ARCHAEOLOGICAL DEPOSITS DURING CONSTRUCTION OPERATIONS, THE CONTRACTOR MUST STOP EXCAVATION IMMEDIATELY, CONTACT THE CITY INSPECTOR, AND CALL THE CITY HISTORIC PRESERVATION OFFICE AT 207-7306 OR 207-3327 FOR AN ARCHAEOLOGICAL INVESTIGATION. THE CONTRACTOR CANNOT BEGIN EXCAVATION AGAIN WITHOUT WRITTEN PERMISSION FROM THE CITY.

IF MORE THAN THREE (3) DAYS ARE REQUIRED FOR INVESTIGATION (NOT INCLUDING HOLIDAY AND WEEKENDS) AND IF THE CONTRACTOR IS UNABLE TO WORK IN OTHER AREAS, THEN THE CONTRACTOR WILL BE ALLOWED TO NEGOTIATE FOR ADDITIONAL CONSTRUCTION TIME UPON WRITTEN REQUEST WITHIN TEN (10) DAYS AFTER THE FIRST NOTICE TO THE CITY OF ARCHAEOLOGICAL INVESTIGATION FOR EACH EVENT.

IF THE TIME REQUIRED FOR INVESTIGATION IS LESS THAN OR EQUAL TO THREE (3) DAYS FOR EACH EVENT, CONTRACT DURATION WILL NOT BE EXTENDED.
- IF SUSPECTED CONTAMINATION IS ENCOUNTERED DURING CONSTRUCTION OPERATIONS, C.O.S.A. SHALL BE NOTIFIED IMMEDIATELY WHEN CONTAMINATED SOILS AND /OR GROUNDWATER ARE ENCOUNTERED AT LOCATIONS NOT IDENTIFIED IN THE PLANS. THE NOTIFICATION SHOULD INCLUDE THE STATION NUMBER, TYPE OF CONTAMINATED MEDIA, EVIDENCE OF CONTAMINATION AND MEASURES TAKEN TO CONTAIN THE CONTAMINATED MEDIA AND PREVENT PUBLIC ACCESS. THE CONTAMINATED SOIL AND /OR GROUNDWATER SHALL NOT BE REMOVED FROM THE LOCATION WITHOUT PRIOR C.O.S.A. APPROVAL.

THE CONTRACTOR MUST STOP THE EXCAVATION IMMEDIATELY AND CONTACT THE C.O.S.A. INSPECTOR. THE CONTRACTOR CANNOT BEGIN EXCAVATION ACTIVITIES WITHOUT WRITTEN PERMISSION FROM THE CITY.
- CONTRACTOR IS TO INCLUDE A MAILBOX POST BLOCKOUT FOR VACANT LOTS AND ALL RESIDENCES WHICH DO NOT HAVE MAILBOXES AT THE CURB. BLOCKOUTS ARE PROVIDED FOR FUTURE USE BY THE POST OFFICE.

- CONTRACTOR SHALL NOT REMOVE OR ADJUST ANY VIA FACILITIES. THE CONTRACTOR MUST CONTACT VIA FOURTEEN DAYS PRIOR, FOR THE REMOVAL OF BENCHES, STOP POLES OR ANY OTHER VIA FACILITIES THAT MAY BE PRESENT. PLEASE PROVIDE THIRTY DAYS PRIOR NOTICE FOR SHELTER REMOVAL (TELEPHONE NOS: (210) 362-2155 OR (210) 362-2096). THE CONTRACTOR WILL BE LIABLE FOR ANY DAMAGES TO VIA FACILITIES NOT REMOVED BY VIA. THE CONTRACTOR IS REQUIRED TO REPLACE ALL FLATWORK REMOVED OR DAMAGED IN THE COURSE OF EXECUTING THE CONTRACT UNLESS OTHERWISE NOTED BY VIA. THE CONTRACTOR WILL BE RESPONSIBLE FOR PROTECTING VIA FACILITIES IF ADJACENT TO WORK AREA.

TREE PROTECTION AND PRESERVATION GENERAL NOTES

- NO UTILITY OR STREET EXCAVATION WORK SHALL BEGIN IN AREAS WHERE TREE PRESERVATION AND TREATMENT MEASURES HAVE NOT BEEN COMPLETED AND APPROVED.
- TREE PROTECTION FENCING SHALL BE REQUIRED. TREE PROTECTION FENCING SHALL BE INSTALLED, MAINTAINED AND REPAIRED BY THE CONTRACTOR DURING SITE CONSTRUCTION. DURING CONSTRUCTION ACTIVITY, AT LEAST A SIX-INCH LAYER OF COARSE MULCH SHALL BE PLACED AND MAINTAINED OVER THE ROOT PROTECTION ZONE (NO SEPARATE PAY ITEM).
- THE CONTRACTOR SHALL AVOID CUTTING ROOTS LARGER THAN ONE INCH IN DIAMETER WHEN EXCAVATING NEAR EXISTING TREES. EXCAVATION IN THE VICINITY OF TREES SHALL PROCEED WITH CAUTION. THE CONTRACTOR SHALL CONTACT THE CITY INSPECTOR FOR GUIDANCE.
- ROOTS WILL BE CUT WITH A ROCK SAW OR BY HAND, NOT BY AN EXCAVATOR OR OTHER ROAD CONSTRUCTION EQUIPMENT.
- ALL CURB AND SIDEWALK WORK SHALL USE ALTERNATIVE CONSTRUCTION METHODS TO MINIMIZE EXTENSIVE ROOT DAMAGE TO TREES (REFER TO DETAILS).
- EXPOSED ROOTS SHALL BE COVERED AT THE END OF THE DAY USING TECHNIQUES SUCH AS COVERING WITH SOIL, MULCH, OR WET BURLAP.
- NO EQUIPMENT, VEHICLES OR MATERIALS SHALL OPERATE OR BE STORED WITHIN THE ROOT PROTECTION ZONE OF ANY TREE NEAR THE PROJECT. ROOT PROTECTION ZONE IS 1 FOOT OF RADIUS PER INCH OF TREE'S DIAMETER. A 10-INCH DIAMETER TREE WOULD HAVE A 10 FOOT RADIUS ROOT PROTECTION ZONE AROUND THE TREE. ROOTS OR BRANCHES IN CONFLICT WITH THE CONSTRUCTION SHALL BE CUT CLEANLY ACCORDING TO PROPER PRUNING METHODS. OAK WOUNDS SHALL BE PAINTED OVER WITHIN 30 MINUTES TO PREVENT OAK WILT.
- SAPLINGS, SHRUBS OR BUSHES TO BE CLEARED FROM THE PROTECTED ROOT ZONE AREA OF A LARGE TREE SHALL BE REMOVED BY HAND AS DESIGNATED BY THE INSPECTOR.
- NO WIRES, NAILS OR OTHER MATERIAL MAY BE ATTACHED TO PROTECTED TREES.
- TREES, TREE LIMBS, BUSHES AND SHRUBS LOCATED IN THE CITY STREET OR ALLEY RIGHT-OF-WAY OR PERMANENT EASEMENTS WHICH INTERFERE WITH PROPOSED CONSTRUCTION ACTIVITIES SHALL BE PROPERLY PRUNED FOLLOWING THE ANSI A-300 STANDARDS FOR PRUNING. ALL TREE PRUNING SHALL BE COMPLETED BY A CITY OF SAN ANTONIO TREE MAINTENANCE LICENSED CONTRACTOR (ARTICLE 21-171, CITY CODE) ONLY AFTER APPROVAL FROM THE CAPITAL PROJECTS MANAGEMENT THROUGH THE INSPECTOR.
- NO EXCESSIVE TREE TRIMMING WILL BE PERMITTED.
- ALL DEBRIS GENERATED BY THE PRUNING AND TRIMMING OF THE TREES AND /OR BUSHES SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND SHALL BE DISPOSED OF PROPERLY (NO SEPARATE PAY ITEM).
- TREES MUST BE MAINTAINED IN GOOD HEALTH THROUGHOUT THE CONSTRUCTION PROCESS. MAINTENANCE MAY INCLUDE, BUT NOT LIMITED TO: WATERING THE ROOT PROTECTION ZONE, WASHING FOLIAGE, FERTILIZATION, PRUNING, ADDITIONAL MULCH APPLICATIONS AND OTHER MAINTENANCE AS NEEDED ON THE PROJECT.
- ANY TREE REMOVAL SHALL BE APPROVED BY THE CITY ARBORIST. (207-8053)
- TREES WHICH ARE DAMAGED OR LOST DUE TO THE CONTRACTOR'S NEGLIGENCE DURING CONSTRUCTION SHALL BE MITIGATED TO THE CITY'S SATISFACTION.
- TREE PLANTING FOR MITIGATION OR ENHANCEMENT: ALL PLANTED TREES SHALL BE MAINTAINED IN A HEALTHY CONDITION AT ALL TIMES. THIS INCLUDES IRRIGATION, FERTILIZING, PRUNING AND OTHER MAINTENANCE AS NEEDED ON THE PROJECT. TREES THAT DIE WITHIN TWELVE (12) MONTHS SHALL BE REPLACED WITH A TREE OF EQUAL SIZE AND SPECIES.

ACCESSIBILITY REQUIREMENTS

- THE CONTRACTOR SHALL PROVIDE AND MAINTAIN VEHICULAR AND PEDESTRIAN ACCESS AT ALL TIMES TO LOCAL RESIDENCES AND BUSINESSES.
- WHEN THE WORK REQUIRES THE EXCAVATION OF THE STREET AND THE REMOVAL OF THE EXISTING DRIVEWAY APPROACHES AND SIDEWALKS, THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING TEMPORARY ALL-WEATHER ACCESS TO THE BUSINESSES AND RESIDENCES. THE TEMPORARY DRIVEWAY APPROACHES SHALL BE CONSTRUCTED WITH FLEXIBLE BASE OR GRAVEL MATERIAL AT NO SEPARATE COST TO THE CITY.
- PRIOR TO INITIATING THE CONSTRUCTION OF NEW DRIVEWAY APPROACHES, THE CONTRACTOR SHALL GIVE ADVANCE WARNING IN PERSON, OR IN WRITING, OF AT LEAST 48 HOURS TO EACH RESIDENCE THAT WILL BE IMMEDIATELY AFFECTED, SO THAT ALTERNATE PLANS MAY BE MADE BY THE RESIDENTS.
- FOR BUSINESSES WITH MORE THAN ONE DRIVEWAY, AT LEAST ONE DRIVEWAY SHALL REMAIN OPEN WHILE THE OTHER NEW DRIVEWAY APPROACHES ARE CONSTRUCTED. FOR BUSINESSES WITH ONLY ONE DRIVEWAY, THE NEW DRIVEWAY APPROACH SHALL BE CONSTRUCTED IN HALF WIDTHS, UNLESS A TEMPORARY ASPHALT DRIVEWAY IS FIRST INSTALLED AT NO SEPARATE COST TO THE CITY.

NOTE TO CONSULTANT

DO NOT MODIFY, DELETE OR ADD TO THE CITY OF SAN ANTONIO'S GENERAL NOTES STANDARD SHEET. IF MODIFICATIONS ARE REQUIRED, FOLLOW THE INSTRUCTIONS ON THE "SUPPLEMENTAL GENERAL NOTES" SHEET.

DECEMBER 2009

CITY OF SAN ANTONIO

CAPITAL IMPROVEMENTS MANAGEMENT SERVICES DEPARTMENT

CITY OF SAN ANTONIO
GENERAL NOTES

_____% SUBMITTAL	PROJECT NO.: _____	DATE: _____
DRWN. BY: _____	DSGN. BY: _____	CHKD. BY: _____
		SHEET NO.: ____ OF ____

DATE

07/15/2024

PROJECT NO.

03050.017

DRAWN BY

RM / IV

CHECKED BY

MAT/CJC

REVISIONS

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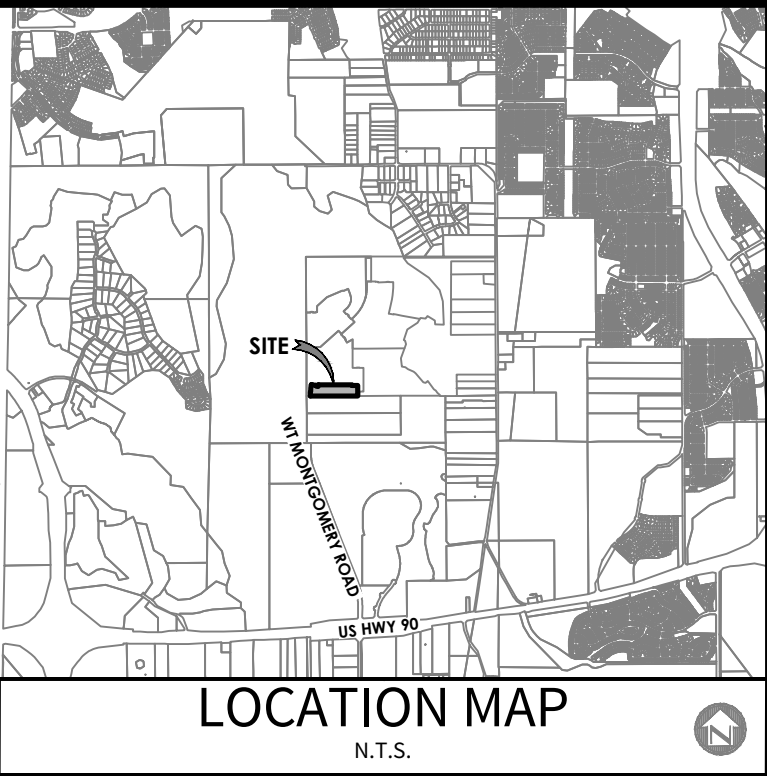


CUDE ENGINEERS
TBPELS No. 10048500

PLAT NO.

24-11800221

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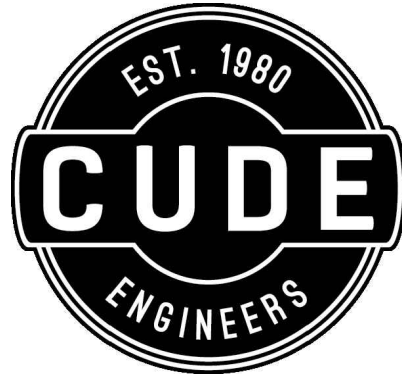
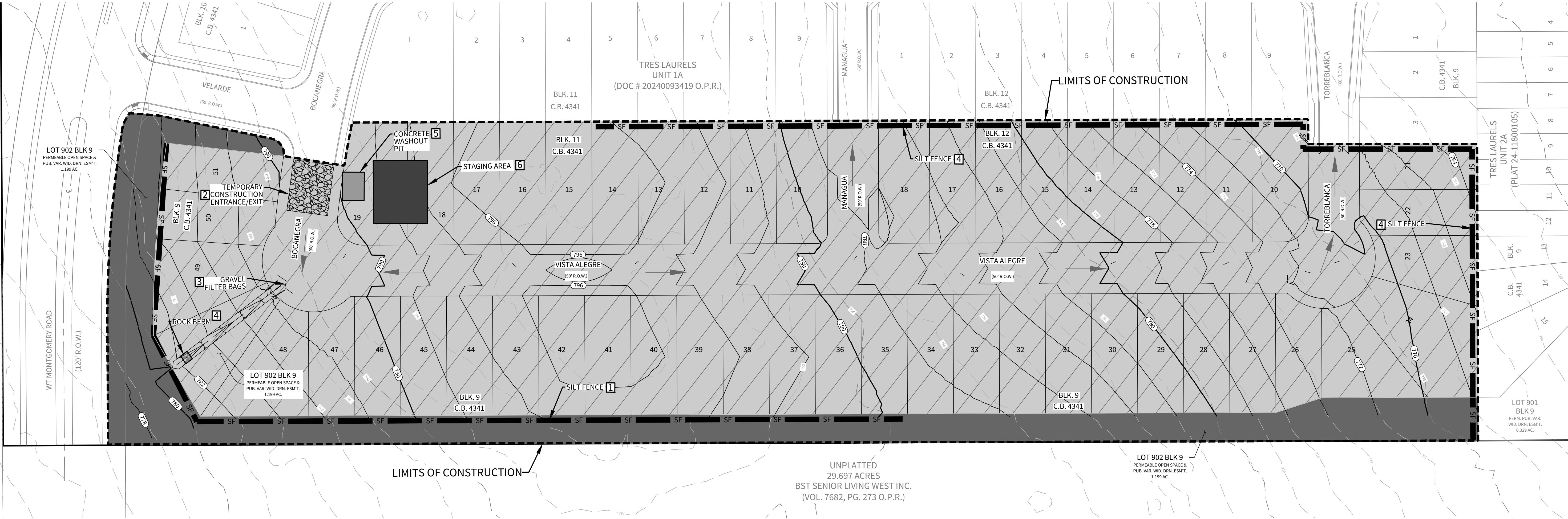
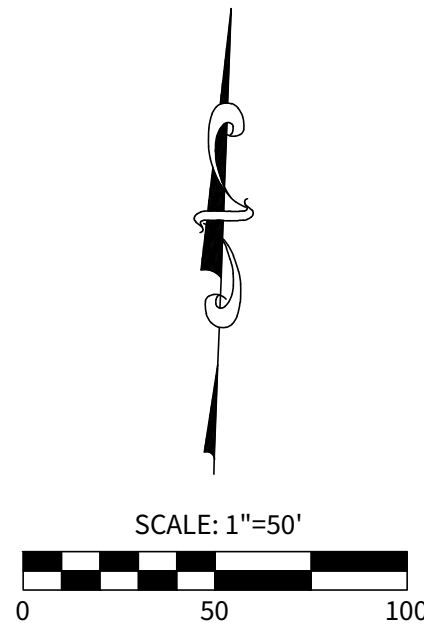


OWNER/DEVELOPER:
LENNAR HOMES OF TEXAS LAND
AND CONSTRUCTION, LTD.
A TEXAS LIMITED PARTNERSHIP
100 NE LOOP 410, SUITE 1155
SAN ANTONIO, TX 78216

CIVIL ENGINEER:
M.W. CUDE ENGINEERS, L.L.C.
CONTACT: CHRIS CHAFFEE, P.E.
4122 POND HILL RD, SUITE 101
SAN ANTONIO, TX 78231
TEL: (210) 681-2951

LEGEND	
PROPERTY LINE	— — — — —
EXISTING CONTOURS	— 930 —
PROPOSED CONTOURS	— 754 —
BMP ITEM NUMBER	1
TEMPORARY CONSTRUCTION ENTRANCE/EXIT	[Pattern]
SILT FENCE	SF
FLOW ARROW EX. GROUND	→
FLOW ARROW PROP. GROUND	→
STAGING AREA	[Solid Black]
CONCRETE WASHOUT PIT	[Solid Grey]
LIMITS OF CONSTRUCTION	[Dashed Line]
TEMPORARY STABILIZATION	[Light Grey]
PERMANENT STABILIZATION	[Dark Grey]
ROCK BERM	[Pattern]

- NOTE:**
- ALL SILT FENCES AND/OR ROCK BERMS AND TEMPORARY CONSTRUCTION ENTRANCES/EXITS SHALL BE PLACED AT THE MOST DOWN-GRADIENT POINT OF CONSTRUCTION AS SHOWN ON THIS SITE PLAN. CONTRACTOR SHALL TAKE INTO CONSIDERATION ANY PROPOSED CONSTRUCTION THAT MAY TAKE PLACE AT THESE LOCATIONS. ANY RELOCATION OF SILT FENCE, ROCK BERMS AND/OR TEMPORARY CONSTRUCTION ENTRANCES/EXITS SHALL BE AT THE CONTRACTOR'S EXPENSE.
 - CONTRACTOR TO PROVIDE SILT FENCE ALONG BACK OF CURB POST-CONSTRUCTION OF STREET RIGHT-OF-WAY.
 - AREA OF SOIL DISTURBANCES INCLUDE STREET RIGHT-OF-WAYS, UTILITY EASEMENTS & LOTS.
 - THE CITY INSPECTOR HAS THE AUTHORITY TO HAVE THE CONTRACTOR MODIFY THE EROSION CONTROLS AT THE DEVELOPER'S EXPENSE. THE DEVELOPER SHALL BE NOTIFIED OF THESE MODIFICATIONS PRIOR TO COMMENCEMENT OF MODIFICATIONS.
 - INSTALL SILT FENCE "J" HOOKS AS NECESSARY AT AN INTERVAL NO GREATER THAN 50' TO COMPLETE INSTALLATION.
 - ALL SWPPP PERMITS AND TEMPORARY CONTROLS TO BE IN PLACE PRIOR TO COMMENCEMENT OF CONSTRUCTION.
 - THE SWPPP PLAN AND BMP'S SHOWN ARE INTENDED TO BE PLACED BY THE CONTRACTOR PRIOR TO THE RESPECTIVE WORK TO BE PERFORMED. THE CONTRACTOR WILL BE REQUIRED TO PERFORM ROUTINE INSPECTIONS, MAINTAIN/ADJUST ALL BMP'S, AND LIKEWISE PROVIDE ADDITIONAL BMP'S IF ANY PROVE TO BE INEFFECTIVE AS REQUIRED BY TPDES CONSTRUCTION GENERAL PERMIT TXR150000.
 - TEMPORARY STABILIZATION MUST BE COMPLETED NO MORE THAN 14 CALENDAR DAYS AFTER INITIATION OF SOIL STABILIZATION MEASURES, AND FINAL STABILIZATION OF 80% COVERAGE MUST BE ACHIEVED PRIOR TO TERMINATION OF PERMIT COVERAGE.



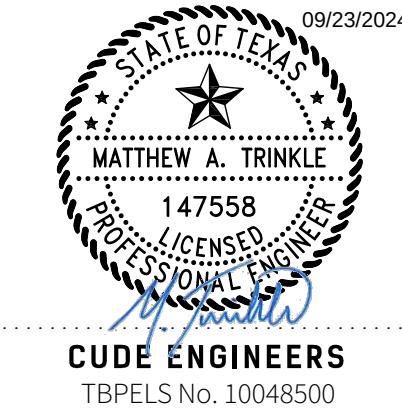
4122 Pond Hill Road, Suite 101
San Antonio, Texas 78231
P:(210) 681.2951

TRES LAURELS
UNIT 1B

STORMWATER POLLUTION PREVENTION PLAN

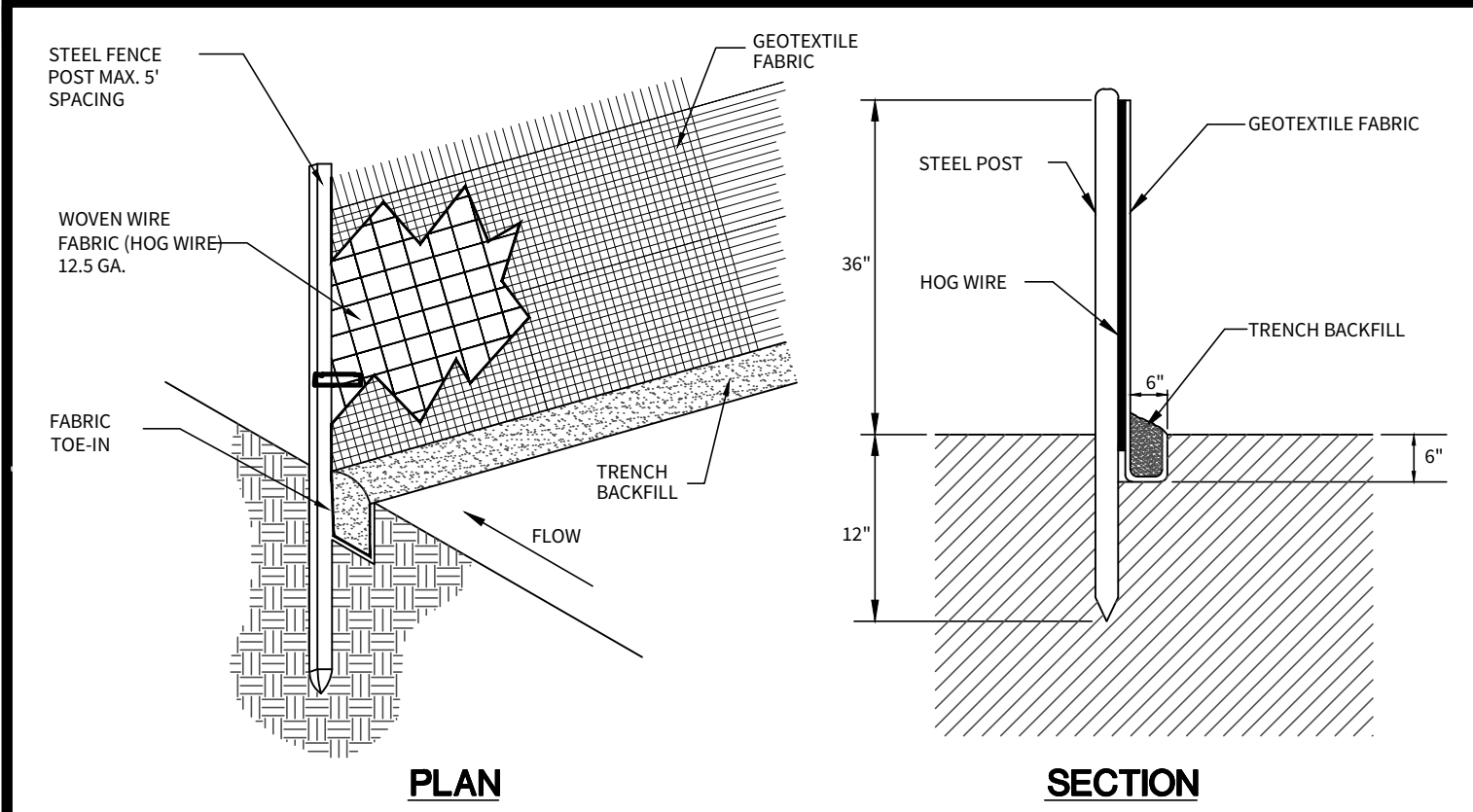
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09/23/2024
PROJECT NO.
03050.017
DRAWN BY
RM / IV
CHECKED BY
MAT/CJC

REVISIONS	
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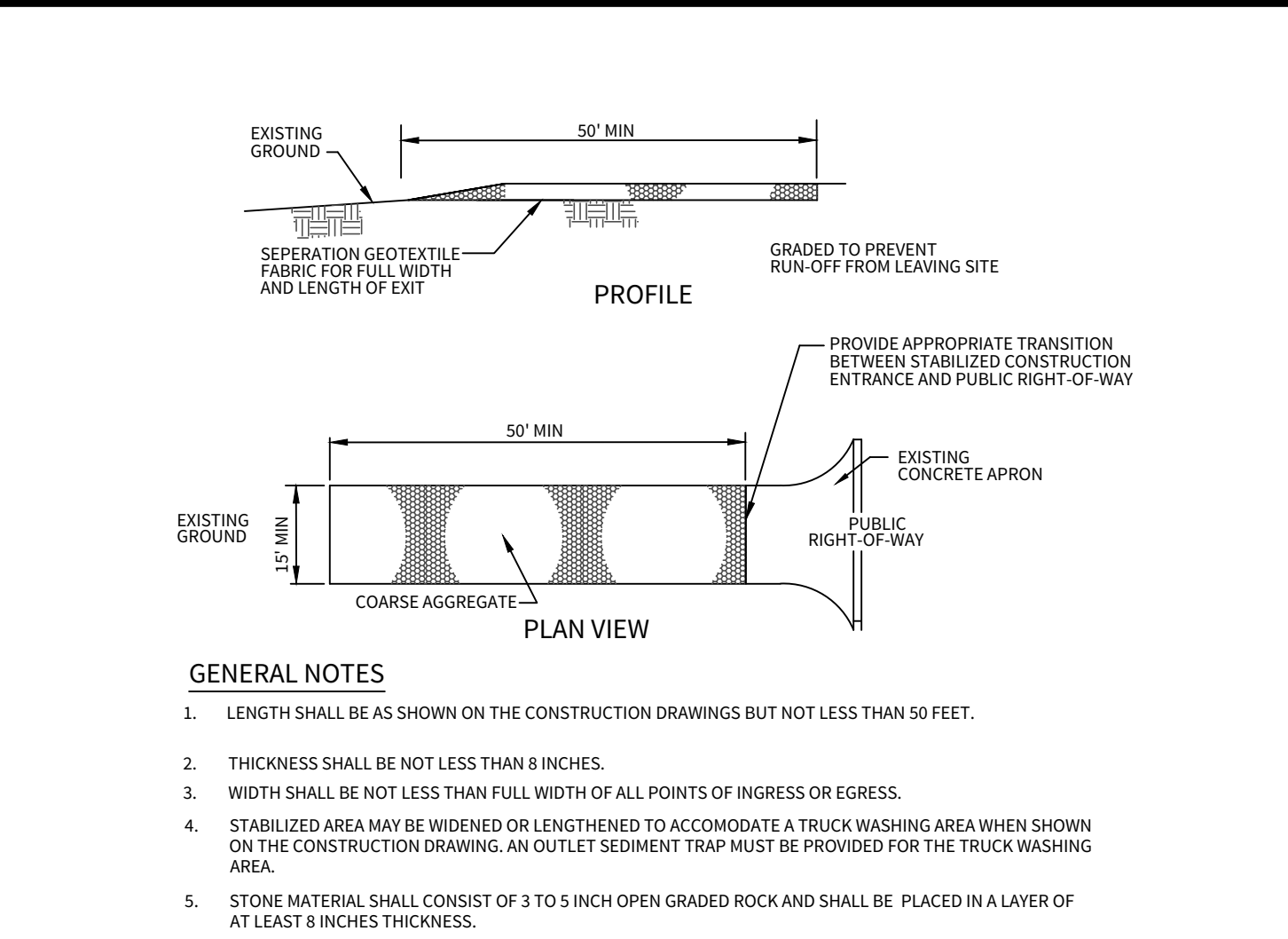


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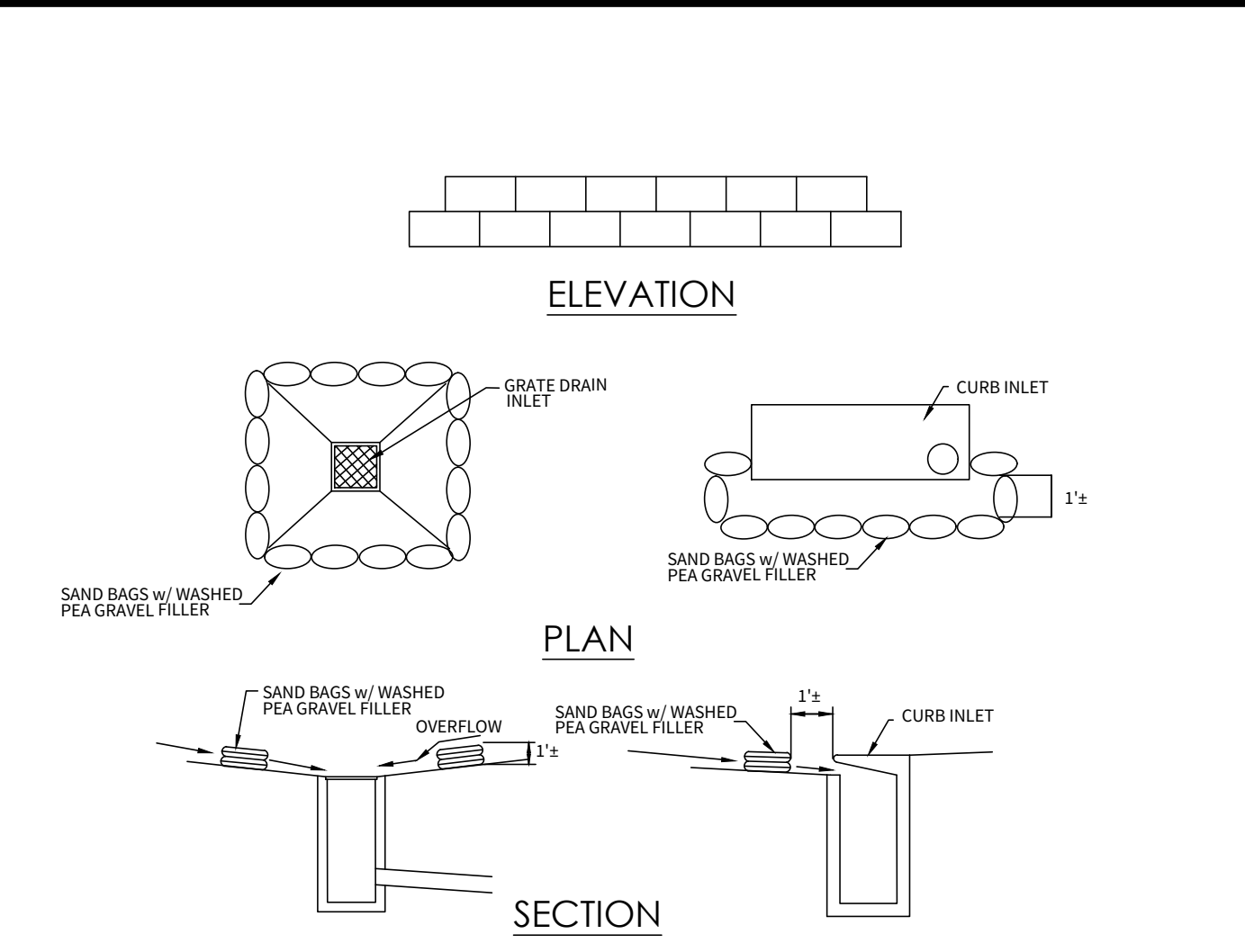
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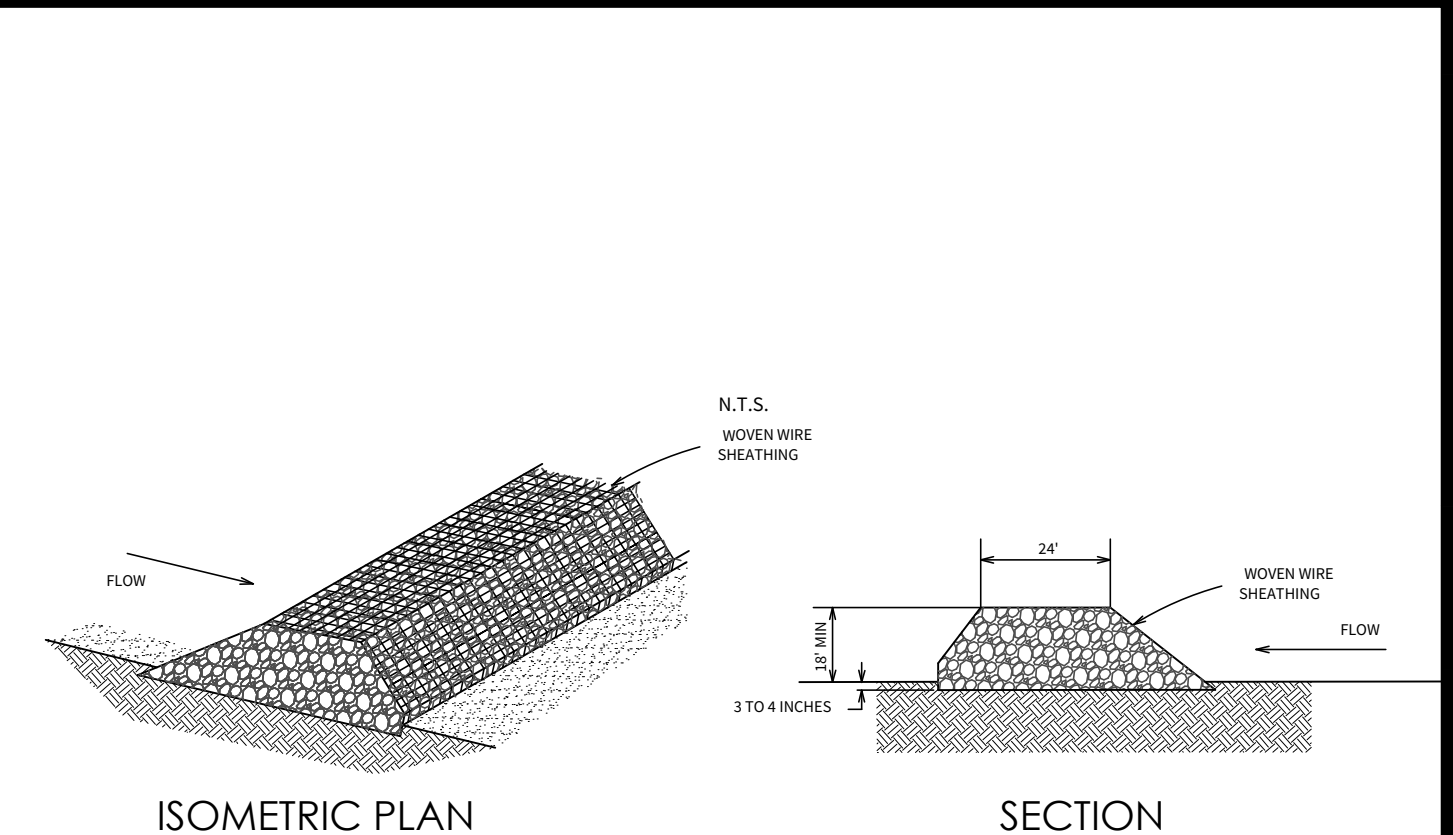
- NOTES:**
- SILT FENCE MATERIAL SHOULD BE POLYPROPYLENE, POLYETHYLENE OR POLYAMIDE WOVEN OR NON WOVEN FABRIC. THE FABRIC WIDTH SHOULD BE 36 INCHES, WITH A MINIMUM UNIT WEIGHT OF 4.5 OZ/YD, MULLEN BURST STRENGTH EXCEEDING 190 LB/IN 2, ULTRAVIOLET STABILITY EXCEEDING 70%, AND MINIMUM APPARENT OPENING SIZE OF U.S. SEIVE NO. 30.
 - FENCE POSTS SHOULD BE MADE OF HOT ROLLED STEEL, AT LEAST A FEET LONG WITH TEE OR Y-BAR CROSS SECTION, SURFACE PAINTED OR GALVANIZED, MINIMUM NOMINAL WEIGHT 1.25 LB/FT 2, AND BRINDELL HARDNESS EXCEEDING 140.
 - WOVEN WIRE BACKING TO SUPPORT THE FABRIC SHOULD BE GALVANIZED 2" X 4" WELDED WIRE, 12.5 GAUGE MINIMUM.
 - STEEL POSTS, WHICH SUPPORT THE SILT FENCE, SHOULD BE INSTALLED ON A SLIGHT ANGLE TOWARD THE ANTICIPATED RUNOFF SOURCE. POST MUST BE EMBEDDED A MINIMUM OF 1 FOOT DEEP AND SPACED NOT MORE THAN 5 FEET ON CENTER.
 - LAY OUT FENCING DOWN SLOPE OF DISTURBED AREA, FOLLOWING THE CONTOUR AS CLOSELY AS POSSIBLE. THE FENCE SHOULD BE SITED SO THAT THE MAXIMUM DRAINAGE AREA IS 1/4 ACRE/100 FEET OF FENCE.
 - THE TOE OF THE SILT FENCE SHOULD BE TRENCHED IN WITH A SPADE OR MECHANICAL TRENCHER, SO THAT THE DOWN-SLOPE FACE OF THE TRENCH IS FLAT AND PERPENDICULAR TO THE LINE OF FLOW. WHERE FENCE CANNOT BE TRENCHED IN (E.G., PAVEMENT OR ROCK OUTCROPI), WEIGHT FABRIC FLAP WITH 3 INCHES OF PEA GRAVEL ON UPHILL SIDE TO PREVENT FLOW FROM SEEPING UNDER FENCE.
 - THE TRENCH MUST BE A MINIMUM OF 6 INCHES DEEP AND 6 INCHES WIDE TO ALLOW FOR THE SILT FENCE FABRIC TO BE LAID IN THE GROUND AND BACKFILLED WITH COMPACTED MATERIAL.
 - SILT FENCE SHOULD BE SECURELY FASTENED TO EACH STEEL SUPPORT POST OR TO WOVEN WIRE, WHICH IS IN TURN ATTACHED TO THE STEEL FENCE POST. THERE SHOULD BE A 3-FOOT OVERLAP, SECURELY FASTENED WHERE ENDS OF FABRIC MEET.
 - SILT FENCE SHOULD BE REMOVED WHEN THE SITE IS COMPLETELY STABILIZED SO AS NOT TO BLOCK OR IMPEDE STORM FLOW OR DRAINAGE.
 - REMOVE SEDIMENT WHEN BUILDUP REACHES 6 INCHES, OR INSTALL A SECOND LINE OF FENCING PARALLEL TO THE OLD FENCE.
 - REPLACE ANY TORN FABRIC OR INSTALL A SECOND LINE OF FENCING PARALLEL TO THE TORN SECTION.
 - REPLACE OR REPAIR ANY SECTIONS CRUSHED OR COLLAPSED IN THE COURSE OF CONSTRUCTION ACTIVITY. IF A SECTION OF FENCE IS OBSTRUCTING VEHICULAR ACCESS, CONSIDER RELOCATING IT TO A SPOT WHERE IT WILL PROVIDE EQUAL PROTECTION, BUT WILL NOT OBSTRUCT VEHICLES. A TRIANGULAR FILTER DIKE MAY BE PREFERABLE TO A SILT FENCE AT COMMON VEHICLE ACCESS POINTS.



- GENERAL NOTES**
- LENGTH SHALL BE AS SHOWN ON THE CONSTRUCTION DRAWINGS BUT NOT LESS THAN 50 FEET.
 - THICKNESS SHALL BE NOT LESS THAN 8 INCHES.
 - WIDTH SHALL BE NOT LESS THAN FULL WIDTH OF ALL POINTS OF INGRESS OR EGRESS.
 - STABILIZED AREA MAY BE WIDENED OR LENGTHENED TO ACCOMMODATE A TRUCK WASHING AREA WHEN SHOWN ON THE CONSTRUCTION DRAWING. AN OUTLET SEDIMENT TRAP MUST BE PROVIDED FOR THE TRUCK WASHING AREA.
 - STONE MATERIAL SHALL CONSIST OF 3 TO 5 INCH OPEN GRADED ROCK AND SHALL BE PLACED IN A LAYER OF AT LEAST 8 INCHES THICKNESS.
- NOTES:**
- THE AGGREGATE SHOULD CONSIST OF 4 TO 8 INCH WASHED STONE OVER A STABLE FOUNDATION.
 - THE AGGREGATE SHOULD BE PLACED WITH A MINIMUM THICKNESS OF 8 INCHES.
 - THE GEOTEXTILE FABRIC SHOULD BE DESIGNED SPECIFICALLY FOR USE AS A SOIL FILTRATION MEDIA WITH AN APPROXIMATE WEIGHT OF 6 OZ/YD 2, A MULLEN BURST RATING OF 140 LB/IN 2, AND AN EQUIVALENT OPENING SIZE GREATER THAN A NUMBER 50 SIEVE.
 - AVOID CURVES ON PUBLIC ROADS AND STEEP SLOPES. REMOVE VEGETATION AND OTHER OBJECTIONABLE MATERIAL FROM THE FOUNDATION AREA. GRADE CROWN FOUNDATION FOR POSITIVE DRAINAGE.
 - THE MINIMUM WIDTH OF THE ENTRANCE/EXIT SHOULD BE 12 FEET OR THE FULL WIDTH OF EXIT ROADWAY, WHICHEVER IS GREATER.
 - THE CONSTRUCTION ENTRANCE SHOULD BE AT LEAST 50 FEET LONG.
 - PLACE GEOTEXTILE FABRIC AND GRADE FOUNDATION TO IMPROVE STABILITY, ESPECIALLY WHERE WET CONDITIONS ARE ANTICIPATED.
 - PLACE STONE TO DIMENSIONS AND GRADE SHOWN. LEAVE SURFACE SMOOTH AND SLOPE FOR DRAINAGE.
 - THE ENTRANCE SHOULD BE MAINTAINED IN A CONDITION, WHICH WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHTS-OF-WAY. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH ADDITIONAL STONE AS CONDITIONS DEMAND AND REPAIR AND/OR CLEANOUT OF ANY MEASURES USED TO TRAP SEDIMENT.
 - ALL SEDIMENT SPILLED, DROPPED, WASHED OR TRACKED ON TO PUBLIC RIGHTS-OF-WAY SHOULD BE REMOVED IMMEDIATELY BY CONTRACTOR.
 - WHEN NECESSARY, WHEELS SHOULD BE CLEANED TO REMOVE SEDIMENT PRIOR TO ENTRANCE ONTO PUBLIC RIGHT-OF-WAY.
 - WHEN WASHING IS REQUIRED, IT SHOULD BE DONE ON AN AREA STABILIZED WITH CRUSHED STONE THAT DRAINS INTO AN APPROVED SEDIMENT TRAP OR SEDIMENT BASIN.
 - ALL SEDIMENT SHOULD BE PREVENTED FROM ENTERING ANY STORM DRAIN, DITCH OR WATER COURSE.



- BAGGED GRAVEL INLET FILTER NOTES**
- THE GRAVEL BAG MATERIAL SHOULD BE POLYPROPYLENE, POLYETHYLENE, POLYAMIDE OR COTTON BURLAP WOVEN FABRIC, MINIMUM UNIT WEIGHT 4 OZ/YD 2, MULLEN BURST STRENGTH EXCEEDING 300 PSI AND ULTRAVIOLET STABILITY EXCEEDING 70 PERCENT.
 - THE BAG LENGTH SHOULD BE 24 INCHES, WIDTH SHOULD BE 18 INCHES AND THICKNESS SHOULD BE 6 INCHES.
 - THE GRAVEL BAGS SHOULD BE FILLED WITH 3/4" GRAVEL.
 - WHEN A GRAVEL BAG IS FILLED WITH GRAVEL, THE OPEN END OF THE GRAVEL BAG SHOULD BE STAPLED OR TIED WITH NYLON OR POLY CORD.
 - THE GRAVEL BAGS SHOULD BE PLACED AS SHOWN ON THE DETAIL. THE GRAVEL BAGS SHALL BE STACKED TO FORM A CONTINUOUS BARRIER AROUND THE INLETS. THE BAGS SHOULD BE TIGHTLY ABUTTED AGAINST EACH OTHER TO PREVENT RUNOFF FROM FLOWING BETWEEN THE BAGS.
 - INSPECTION SHOULD BE MADE WEEKLY AND AFTER EACH RAINFALL. REPAIR OR REPLACEMENT SHOULD BE MADE PROMPTLY AS NEEDED BY THE CONTRACTOR.
 - CHECK PLACEMENT OF DEVICE TO PREVENT GAPS BETWEEN DEVICE AND CURB.
 - REMOVE SEDIMENT WHEN BUILDUP REACHES A DEPTH OF 3 INCHES. REMOVED SEDIMENT SHOULD BE DEPOSITED IN A SUITABLE AREA AND IN SUCH A MANNER THAT IT WILL NOT ERODE.
 - STRUCTURES SHOULD BE REMOVED AND THE AREA STABILIZED ONLY AFTER THE REMAINING DRAINAGE AREA HAS BEEN PROPERLY STABILIZED.



- NOTES:**
- THE BERM STRUCTURE SHOULD BE SECURED WITH A WOVEN WIRE SHEATHING HAVING MAXIMUM OPENING OF 1 INCH AND A MINIMUM WIRE DIAMETER OF 20 GAUGE GALVANIZED AND SHOULD BE SECURED WITH SHOOT RINGS.
 - CLEAN, OPEN GRADED 3 TO 5 INCH DIAMETER ROCK SHOULD BE USED, EXCEPT IN AREAS WHERE HIGH VELOCITIES OR LARGE VOLUMES OF FLOW ARE EXPECTED, WHERE 5-TO 8-INCH DIAMETER ROCKS MAY BE USED.
 - LAY OUT THE WOVEN WIRE SHEATHING PERPENDICULAR TO THE FLOW LINE.
 - BERM SHOULD HAVE A TOP WIDTH OF 2 FEET MINIMUM WITH SIDE SLOPES BEING 2:1 (H:V) OR FLATTER.
 - PLACE THE ROCK ALONG THE SHEATHING TO A HEIGHT NOT LESS THAN 18".
 - WRAP THE WIRE SHEATHING AROUND THE ROCK AND SECURE WITH TIE WIRE SO THAT THE ENDS OF THE SHEATHING OVERLAP AT LEAST 2 INCHES, AND THE BERM RETAINS ITS SHAPE WHEN WALKED UPON.
 - BERM SHOULD BE BUILT ALONG THE CONTOUR AT ZERO PERCENT GRADE OR AS NEAR AS POSSIBLE.
 - THE ENDS OF THE BERM SHOULD BE TIED INTO EXISTING UPSLOPE GRADE AND THE BERM SHOULD BE BURIED IN A TRENCH APPROXIMATELY 3 TO 4 INCHES DEEP TO PREVENT FAILURE OF THE CONTROL.
 - INSPECTION SHOULD BE MADE WEEKLY AND AFTER EACH RAINFALL BY THE RESPONSIBLE PARTY. FOR INSTALLATIONS IN STREAMBEDS, ADDITIONAL DAILY INSPECTIONS SHOULD BE MADE. THE BERM SHOULD BE RESHAPED AS NEEDED DURING INSPECTION.
 - REMOVE SEDIMENT AND OTHER DEBRIS WHEN BUILDUP REACHES 6 INCHES AND DISPOSE OF THE ACCUMULATED SILT OF IN AN APPROVED MANNER AND REPAIR ANY LOOSE WIRE SHEATHING.
 - THE BERM SHOULD BE REPLACED WHEN THE STRUCTURE CEASES TO FUNCTION AS INTENDED DUE TO SILT ACCUMULATION AMONG THE ROCKS, WASHOUT, CONSTRUCTION TRAFFIC DAMAGE, ETC.
 - THE ROCK BERM SHOULD BE LEFT IN PLACE UNTIL ALL UPSTREAM AREAS ARE STABILIZED AND ACCUMULATED SILT REMOVED.

1 SILT FENCE DETAIL

SCALE: NONE

2 TEMPORARY CONSTRUCTION ENTRANCE / EXIT

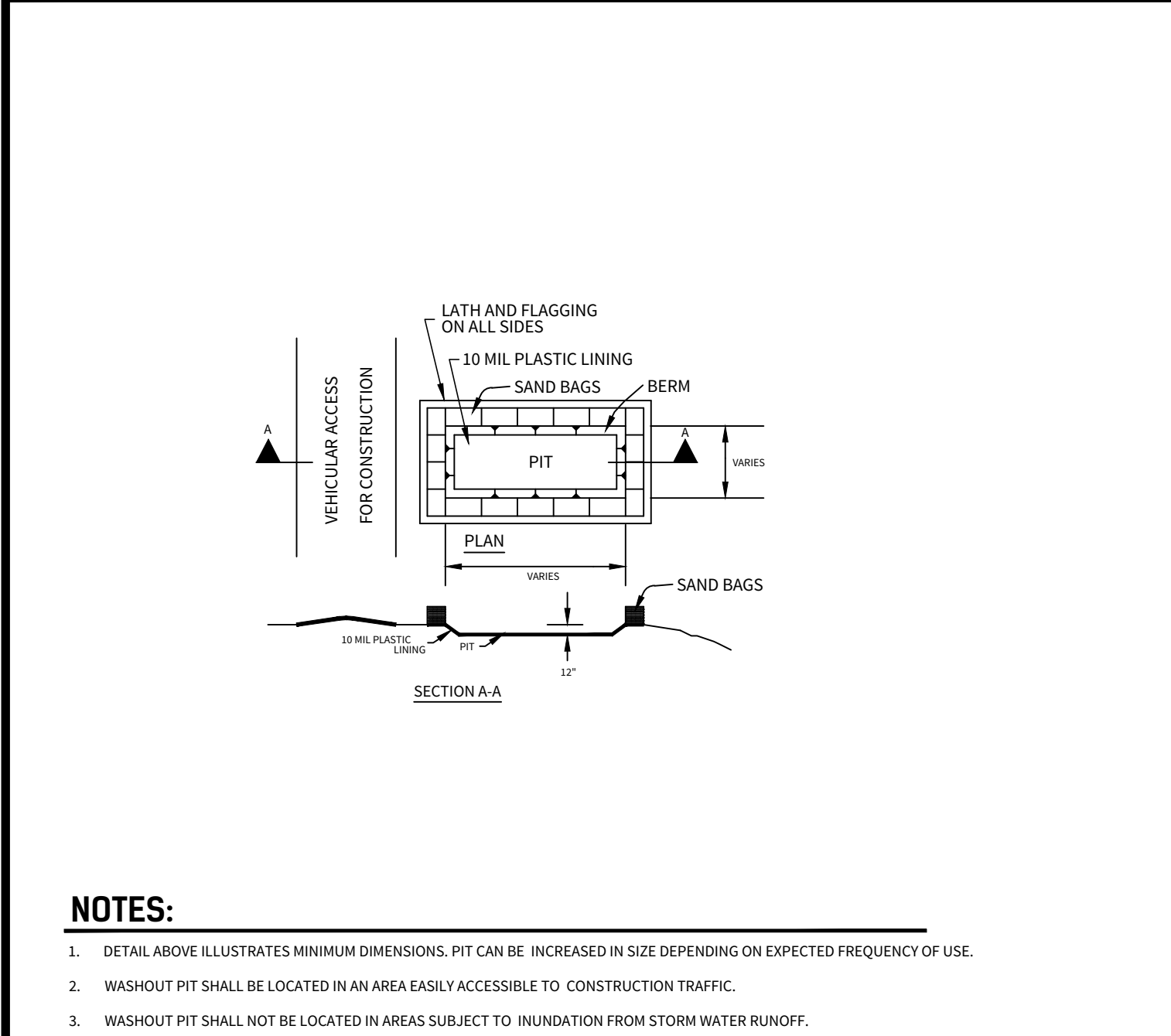
SCALE: NONE

3 BAGGED GRAVEL INLET FILTER

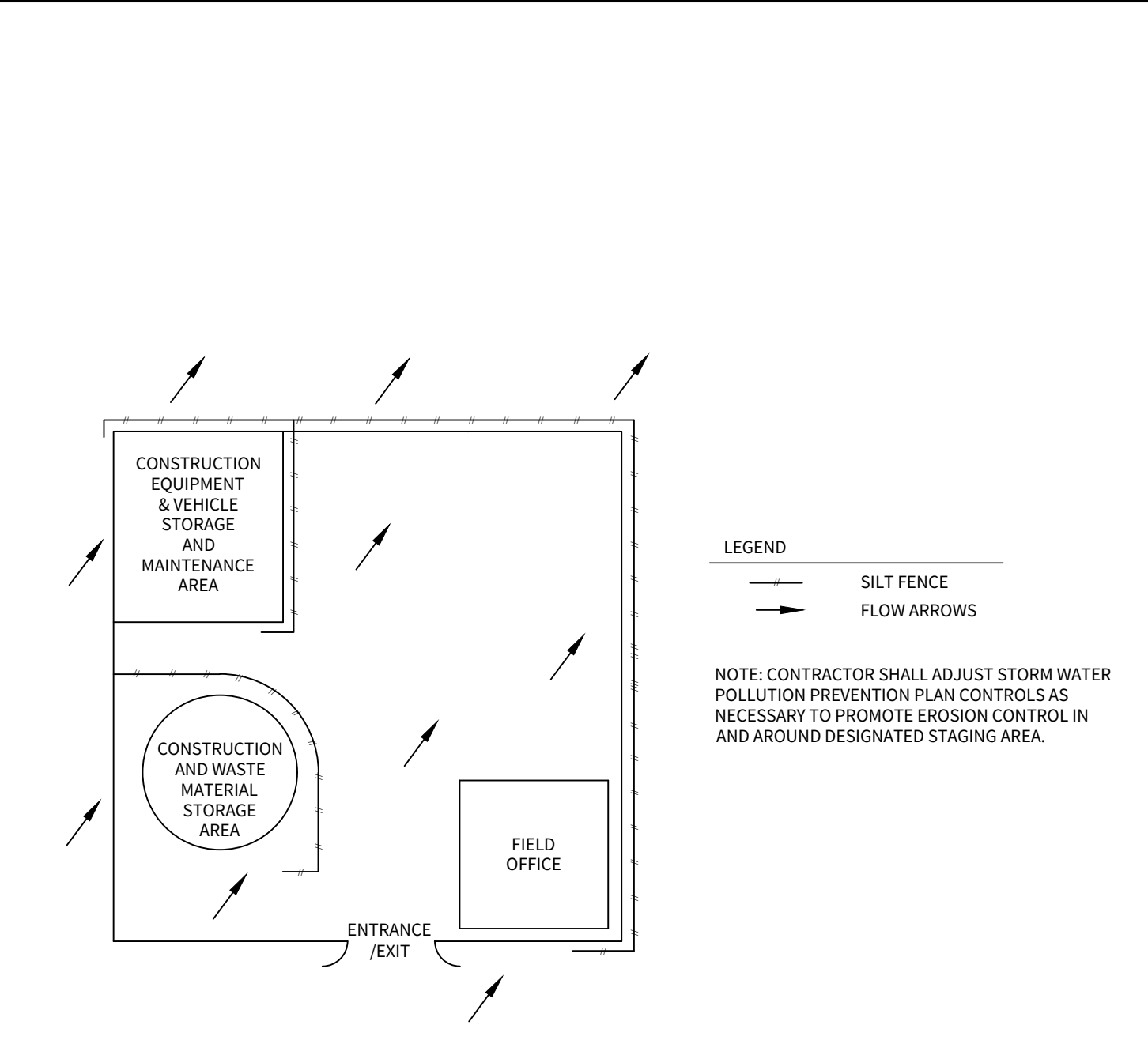
SCALE: NONE

4 ROCK BERM DETAIL

SCALE: NONE



- NOTES:**
- DETAIL ABOVE ILLUSTRATES MINIMUM DIMENSIONS. PIT CAN BE INCREASED IN SIZE DEPENDING ON EXPECTED FREQUENCY OF USE.
 - WASHOUT PIT SHALL BE LOCATED IN AN AREA EASILY ACCESSIBLE TO CONSTRUCTION TRAFFIC.
 - WASHOUT PIT SHALL NOT BE LOCATED IN AREAS SUBJECT TO INUNDATION FROM STORM WATER RUNOFF.



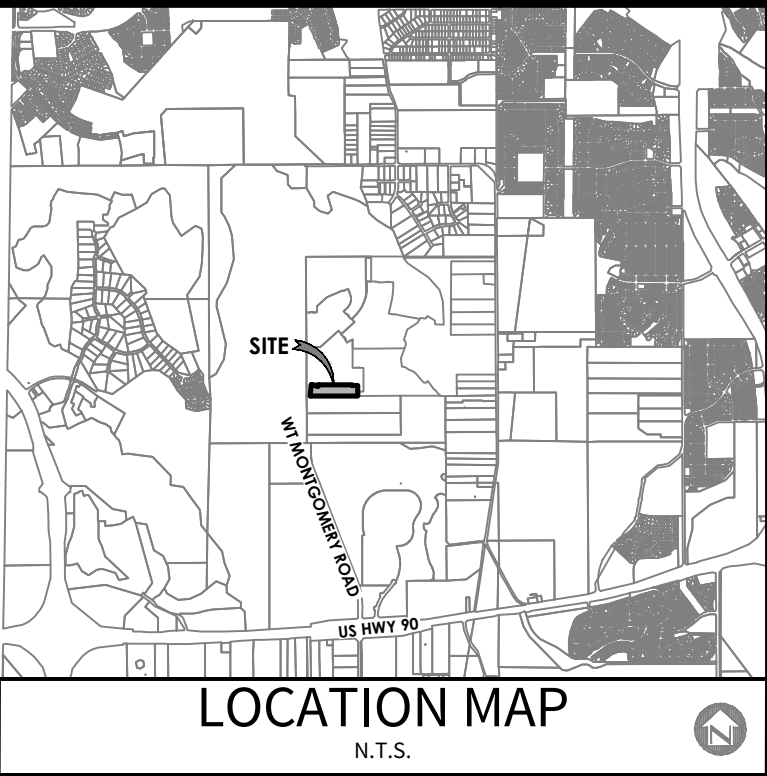
- LEGEND**
- SILT FENCE
 - FLOW ARROWS
- NOTE:** CONTRACTOR SHALL ADJUST STORM WATER POLLUTION PREVENTION PLAN CONTROLS AS NECESSARY TO PROMOTE EROSION CONTROL IN AND AROUND DESIGNATED STAGING AREA.

5 CONCRETE TRUCK WASHOUT PIT

SCALE: NONE

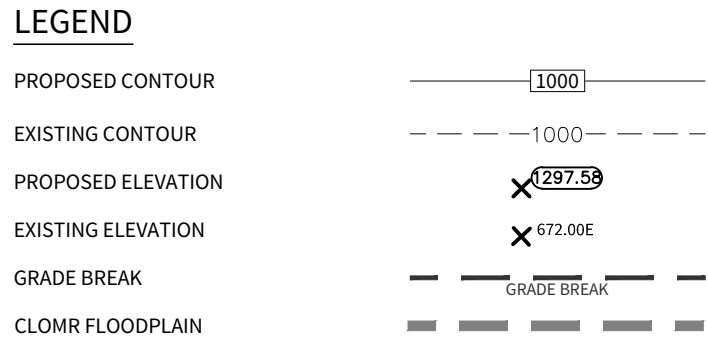
6 TYP. CONSTRUCTION STAGING AREA

SCALE: NONE

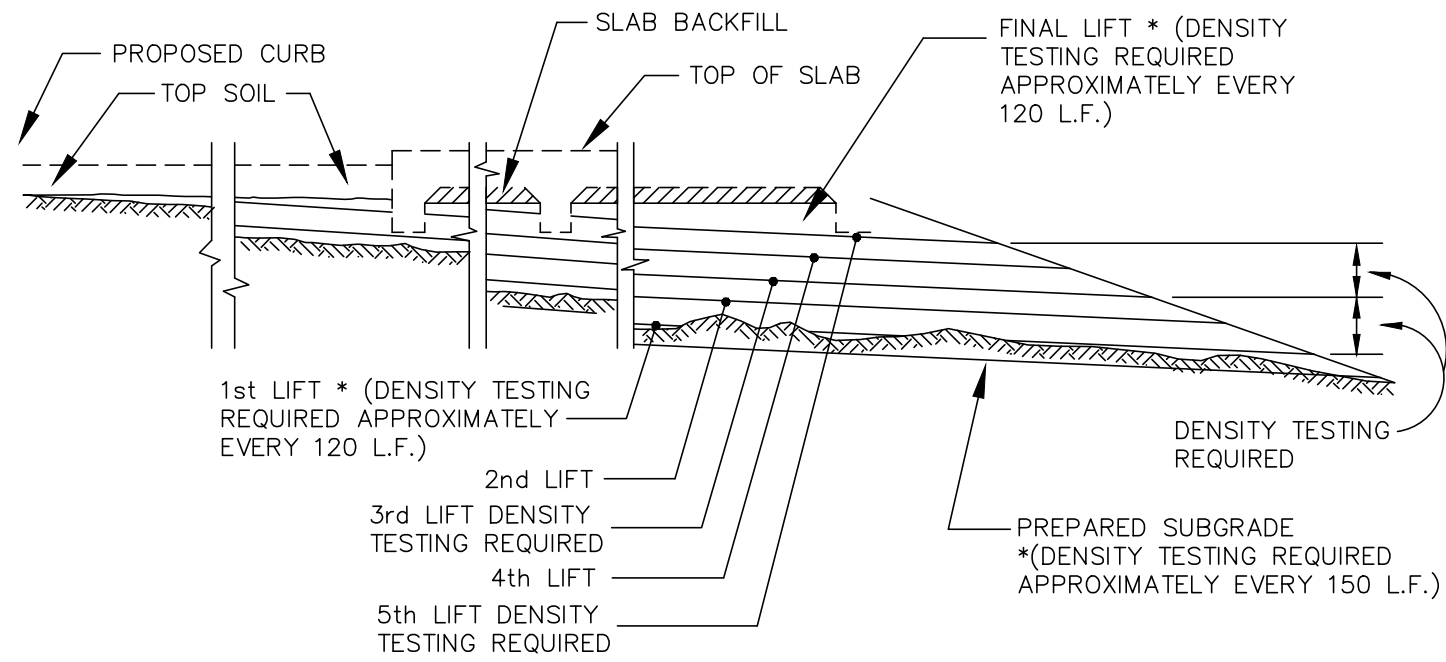
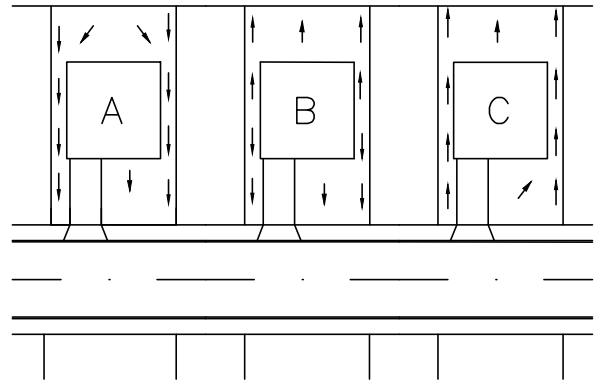


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SAN ANTONIO, TX 78231
TEL: (210) 681-2951



NOTE:
LOT GRADING BASED ON SLABS BEING 20' BEHIND FRONT PROPERTY LINE.
MINIMUM SLAB EXPOSURE IS 1.0'.
ALL ELEVATIONS AT FRONT PROPERTY LINE ARE 0.20' ABOVE CURB ELEVATION ON LOCAL TYPE "A" STREETS.
TYPICAL PAD SIZES ARE 80' x 35' ON LOCAL TYPE "A" STREETS.
CONTRACTOR TO REFERENCE TREE PRESERVATION PLAN.
CONTOURS SHOWN ON STREET ARE TOP OF STREET.



DENSITY TEST FREQUENCY
NOT TO SCALE

GENERAL SPECIFICATIONS FOR SITE PREPARATION

1. GENERAL DESCRIPTION

THIS ITEM SHALL CONSIST OF ALL CLEARING AND GRUBBING, DEMOLITION, PREPARATION OF LAND TO BE FILLED, FILLING OF THE LAND, SPREADING, COMPACTION TESTING AND INSPECTION OF THE FILL, AND ALL SUBSIDIARY WORK NECESSARY TO COMPLETE THE GRADING OF THE CUT AND FILL AREAS TO CONFORM WITH THE LINES, GRADES AND SLOPES AS SHOWN ON THE APPROVED PLANS.

ALL LOT GRADING MUST MEET REQUIREMENTS OF FHA/HUD HANDBOOK 4140.3, SPECIFICATIONS FOR LAND DEVELOPMENTS ON CONTROLLED EARTHWORK, DATASHEET 796. HUD 796 REQUIREMENTS FOR FILL MATERIAL OF 6 INCHES AND MORE WILL BE CONDUCTED. ALL CUT AREAS WILL ALSO MEET THE REQUIREMENTS FOR HUD 796 COMPACTION TESTING. IN ADDITION, ENGINEERS MUST PROVIDED VERIFICATION OF ALL AREAS WHICH DO NOT REQUIRE HUD 796.

2. CLEARING THE AREA TO BE FILLED

ALL TIMBER, LOGS, TREES, BRUSH AND RUBBISH SHALL BE REMOVED FROM THE SITE.

3. SCARIFYING THE AREA TO BE FILLED

ALL ORGANIC MATTER SHALL BE REMOVED FROM THE SURFACE UPON WHICH THE FILL IS TO BE PLACED, AND THE SURFACE SHALL THEN BE DISKED OR SCARIFIED TO A MINIMUM DEPTH OF SIX INCHES (6"), ALL SURFACE RUTS OR OTHER UNEVEN FEATURES WILL BE LEVELED PRIOR TO FIELD DENSITY TESTING.

4. COMPACTING THE AREA TO BE FILLED

FOLLOWING THE CLEARING AND DISKING OR SCARIFYING OF THE FILL AREA, IT SHALL BE BLADED UNTIL IT IS UNIFORM AND FREE FROM LARGE CLODS. THE AREA SHALL BE BROUGHT TO THE ADEQUATE MOISTURE CONTENT AND COMPACTED (TYPICALLY) TO NOT LESS THAN NINETY PERCENT (90%) OF MAXIMUM DENSITY IN ACCORDANCE WITH THE CURRENT ASTM D 1557 COMPACTION PROCEDURE, OR 95% OF MAXIMUM DENSITY IN ACCORDANCE WITH THE CURRENT TMD-TEX-113-E COMPACTION PROCEDURE.

5. FILL MATERIALS

THE MATERIALS USED SHALL BE FREE FROM ORGANIC MATTER AND OTHER DELETERIOUS SUBSTANCES, SUCH AS TREES, BRUSH AND RUBBISH.

6. DEPTH AND MIXING OF FILL LAYERS

THE SELECTED FILL MATERIAL SHALL BE PLACED IN LEVEL, UNIFORM LAYERS WHICH, WHEN COMPACTED, SHALL HAVE A DENSITY CONFORMING TO THAT STIPULATED ABOVE. EACH LAYER SHALL BE THOROUGHLY MIXED DURING THE SPREADING TO ENSURE UNIFORMITY OF MATERIAL IN EACH LAYER. COMPACTED LAYER THICKNESS MAY VARY DEPENDING ON THE COMPACTION EQUIPMENT OF DEMONSTRATED CAPABILITY. THE MAXIMUM LOOSE DEPTH FOR ANY MATERIAL SHALL NOT EXCEED TWELVE INCHES (12"). FOR TESTING REQUIREMENTS OF FILL MATERIAL, SEE DENSITY TESTING.

7. ROCK

WHEN FILL MATERIAL INCLUDES ROCK, THE MAXIMUM ROCK SIZE SHALL BE AS APPROVED BY THE GEOTECHNICAL ENGINEER. NO LARGE ROCKS SHALL BE ALLOWED TO NEST AND ALL VOIDS MUST BE FILLED WITH SMALL STONES OR SOIL AND ADEQUATELY COMPACTED. NO LARGE ROCKS WILL BE PERMITTED WITHIN EIGHTEEN INCHES (18") OF THE FINISHED GRADE.

8. COMPACTION OF FILL LAYER

COMPACTION EQUIPMENT SHALL BE CAPABLE OF COMPACTING THE FILL TO THE SPECIFIED DENSITY. COMPACTION SHALL BE ACCOMPLISHED WHILE THE FILL MATERIAL IS AT OR NEAR THE APPROPRIATE MOISTURE CONTENT. COMPACTION OF EACH LAYER SHALL BE CONTINUOUS OVER THE ENTIRE STRUCTURAL AREA (BENEATH PROPOSED STRUCTURES).

9. COMPACTION OF SLOPES

THE FACES OF FILL SLOPES SHALL BE COMPACTED. COMPACTING OPERATIONS SHALL BE CONTINUED UNTIL THE SLOPE FACES ARE STABLE BUT NOT TOO DENSE FOR PLANTING ON THE SLOPES. COMPACTION OF THE SLOPE FACES MAY BE DONE PROGRESSIVELY IN INCREMENTS OF THREE TO FIVE FEET (3' TO 5') IN FILL HEIGHT AS THIS FILL PROGRESSES OR AFTER THE FILL HAS BEEN BROUGHT TO ITS TOTAL HEIGHT.

10. MOISTURE CONTENT

THE FILL MATERIAL SHALL BE COMPACTED AT THE APPROPRIATE MOISTURE CONTENT SPECIFIED FOR THE SOILS BEING USED. APPROPRIATE MOISTURE CONTENT IS DEFINED, TYPICALLY, AS OPTIMUM MOISTURE CONTENT; HOWEVER, FOR EXPANSIVE SOILS IT MAY BE GREATER THAN OPTIMUM MOISTURE CONTENT, AND OTHER MOISTURE CONTENTS MAY BE NECESSARY TO PRODUCE THE DESIRED RESULTS WITH CERTAIN SOILS.

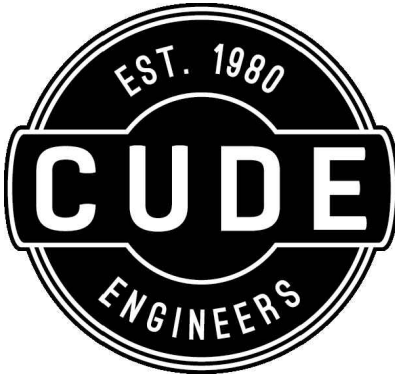
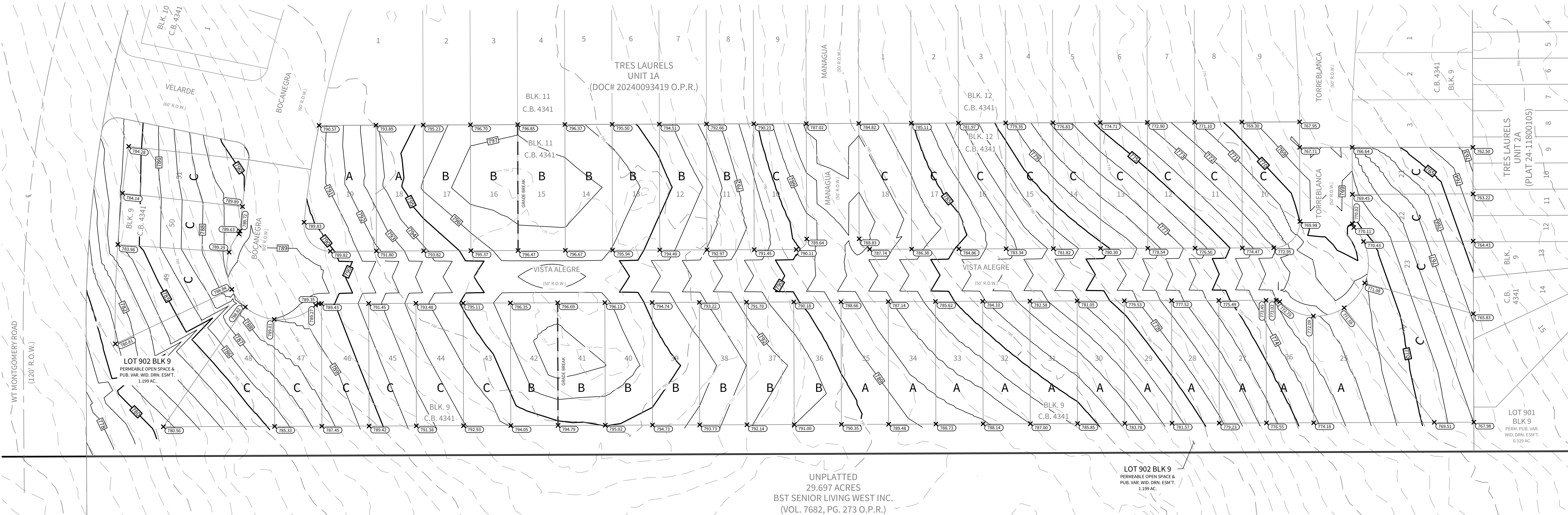
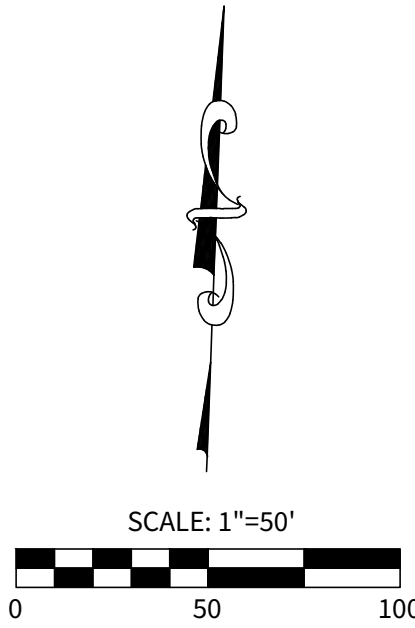
11. DENSITY TESTS

FIELD DENSITY TESTS SHALL BE PERFORMED ON LAYERS OF FILL WHEN THE FILL IS BEING PLACED AS DIRECTED BY THE GEOTECHNICAL ENGINEER. THE MAXIMUM FILL HEIGHT BETWEEN DENSITY TESTING SHALL BE EIGHTEEN INCHES (18"). ALL TESTING SHALL BE REQUESTED BY THE CONTRACTOR TO MEET THE CONTRACTOR'S CONSTRUCTION SCHEDULE. NOTIFICATION BY THE CONTRACTOR TO CONDUCT TESTS SHALL BE AT LEAST THE DAY BEFORE. THIS NOTIFICATION SHALL INCLUDE THE FILL AREA LOCATION (LOT AND BLOCK), THE LIFT OR HEIGHT OF FILL AND APPROXIMATE DESIRED TIME OF TESTING. WHEN THESE TESTS INDICATE THAT THE DENSITY OF ANY LAYER OF FILL OR PORTION THEREOF IS BELOW THE REQUIRED DENSITY, THE PARTICULAR LAYER OR PORTION SHALL BE REMOVED AND RETESTED AT THE EXPENSE OF THE CONTRACTOR UNLESS THE CONTRACTOR CAN SHOW EVIDENCE THAT CIRCUMSTANCES BEYOND HIS CONTROL REQUIRED THE RETESTING. GENERALLY, THE SPECIFIC TESTING WILL BE AS FOLLOWS AND CONDUCTED BY GEOTECHNICAL ENGINEER.

1. THE LAND TO BE FILLED (PREPARED SUBGRADE) SHALL BE PREPARED AND TESTED AT A FREQUENCY AS DETERMINED BY THE GEOTECHNICAL ENGINEER.
2. THE FIRST LIFT OF COMPACTED FILL (GENERALLY 8 TO 12-IN.) SHALL BE TESTED AS DETERMINED BY THE GEOTECHNICAL ENGINEER. ANY AREAS SUPPORTING THE PROPOSED STRUCTURES REQUIRING FILL SHALL BE TESTED FOR DENSITY COMPLIANCE.
3. FILLS SHALL BE TESTED A MAXIMUM OF EACH EIGHTEEN INCHES (18") OF FILL.
4. TEST RESULTS WILL BE PROVIDED BY THE FIELD TECHNICIAN TO THE CONTRACTOR WHEN POSSIBLE; HOWEVER, ALL TEST RESULTS ARE TO BE REVIEWED BY THE GEOTECHNICAL ENGINEER FOR COMPLIANCE. THE ENGINEER WILL NOTIFY THE CONTRACTOR OF ALL THE TEST RESULTS.

12. CUT/FILL LOTS

AREAS INVOLVING CUT ON ONE PORTION AND FILL ON ANOTHER PORTION OF A SPECIFIC LOT SHALL BE PREPARED TO A MINIMUM DEPTH OF 6-IN. AND WILL BE THE SAME MATERIAL CLASSIFICATION AT THE SAME COMPACTION AND MOISTURE CONTENT. A MINIMUM OF TWO (2) FIELD DENSITY TESTS SHALL BE REQUIRED ON EACH CUT/FILL LOT FOR THE PURPOSE OF DETERMINING UNIFORMITY OF THE AREA SUPPORTING THE PROPOSED STRUCTURES.



4122 Pond Hill Road, Suite 101
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P:(210) 681.2951

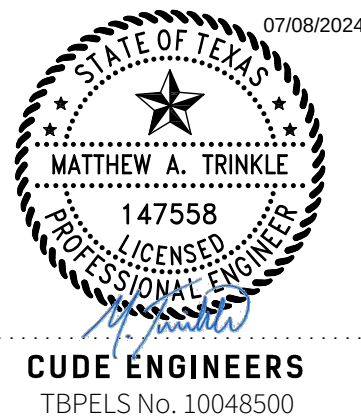
TRES LAURELS
UNIT 1B

SITE GRADING PLAN

DATE
07/16/2024
PROJECT NO.
03050.017
DRAWN BY
RM / IV
CHECKED BY
MAT/CJC

REVISIONS

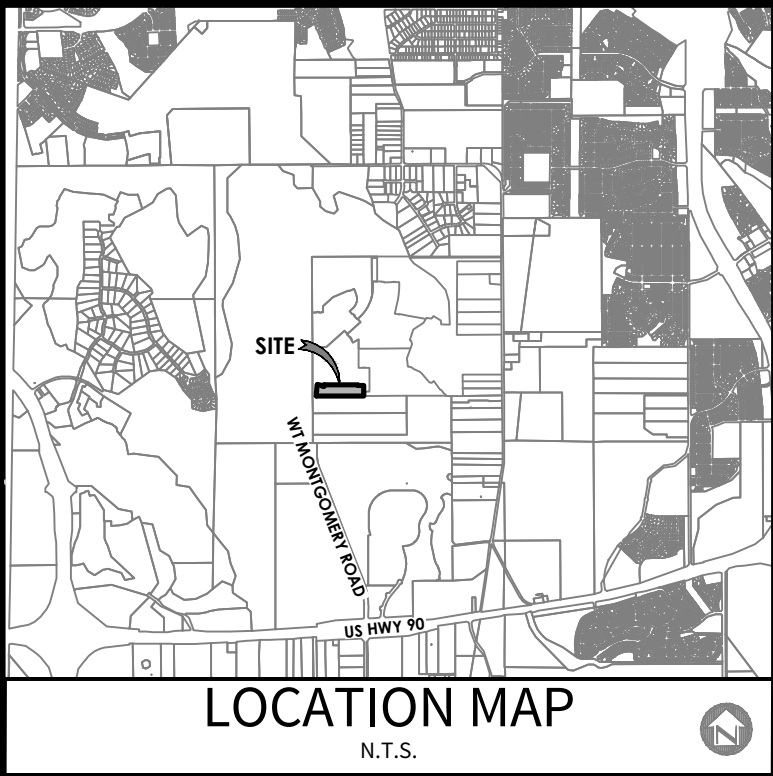
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CUDE ENGINEERS
TBPELS No. 10048500

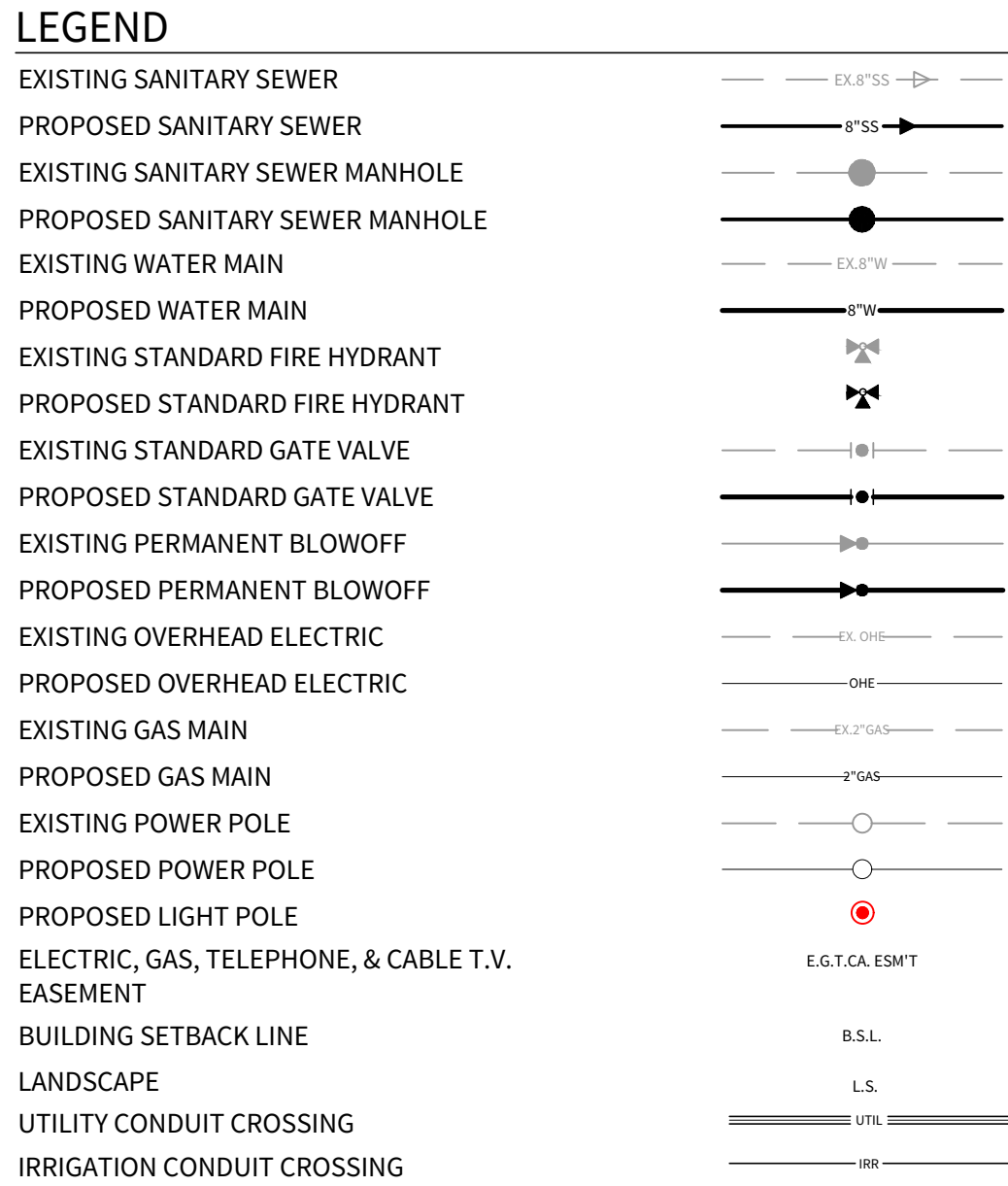
PLAT NO.
24-11800221

C2.00



OWNER/DEVELOPER:
LENNAR HOMES OF TEXAS LAND
AND CONSTRUCTION, LTD.
A TEXAS LIMITED PARTNERSHIP
100 NE LOOP 410, SUITE 1155
SAN ANTONIO, TX 78216

CIVIL ENGINEER:
M.W. CUDE ENGINEERS, L.L.C.
CONTACT: CHRIS CHAFFEE, P.E.
4122 POND HILL RD, SUITE 101
SAN ANTONIO, TX 78231
TEL: (210) 681-2951



NOTE:

THE LOCATIONS AND DEPTHS OF EXISTING UTILITIES, INCLUDING SERVICE LATERALS AND DRAINAGE STRUCTURES SHOWN ON THE PLANS ARE APPROXIMATE ONLY. THE CONTRACTOR SHALL VERIFY THE EXACT LOCATION AND DEPTHS OF UNDERGROUND UTILITIES AT LEAST 48 HOURS PRIOR TO CONSTRUCTION WHETHER SHOWN ON PLANS OR NOT, AND TO PROTECT THE SAME DURING CONSTRUCTION.

AT&T AND TIME WARNER CABLE LINES TO GO INTO JOINT TRENCH WITH C.P.S. ENERGY LOTS WITH CONFLICTING TRANSFORMER / SECONDARY ENCLOSURE ELECTRIC SERVICE AND WATER METER PLACED 5' FROM PROPERTY LINE WHERE THE CONFLICT OCCURS.

TYPICAL UTILITY CROSSINGS WILL HAVE 3 - 6" SCH 80 PVC CONDUIT WITH SWEEPS, 2 - 4" SCH 40 PVC CONDUIT WITH SWEEPS, THE TOTAL AMOUNT OF CONDUIT TO BE USED WILL BE DETERMINED DURING CONSTRUCTION.

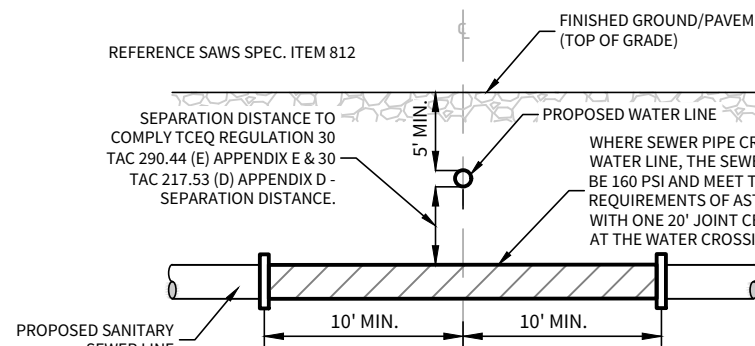
TYPICAL IRRIGATION CROSSING WILL HAVE 3 - 4" SCH 40 PVC CONDUIT WITH SWEEPS,

*** CONDUIT ONLY TO BE INSTALLED IF:**

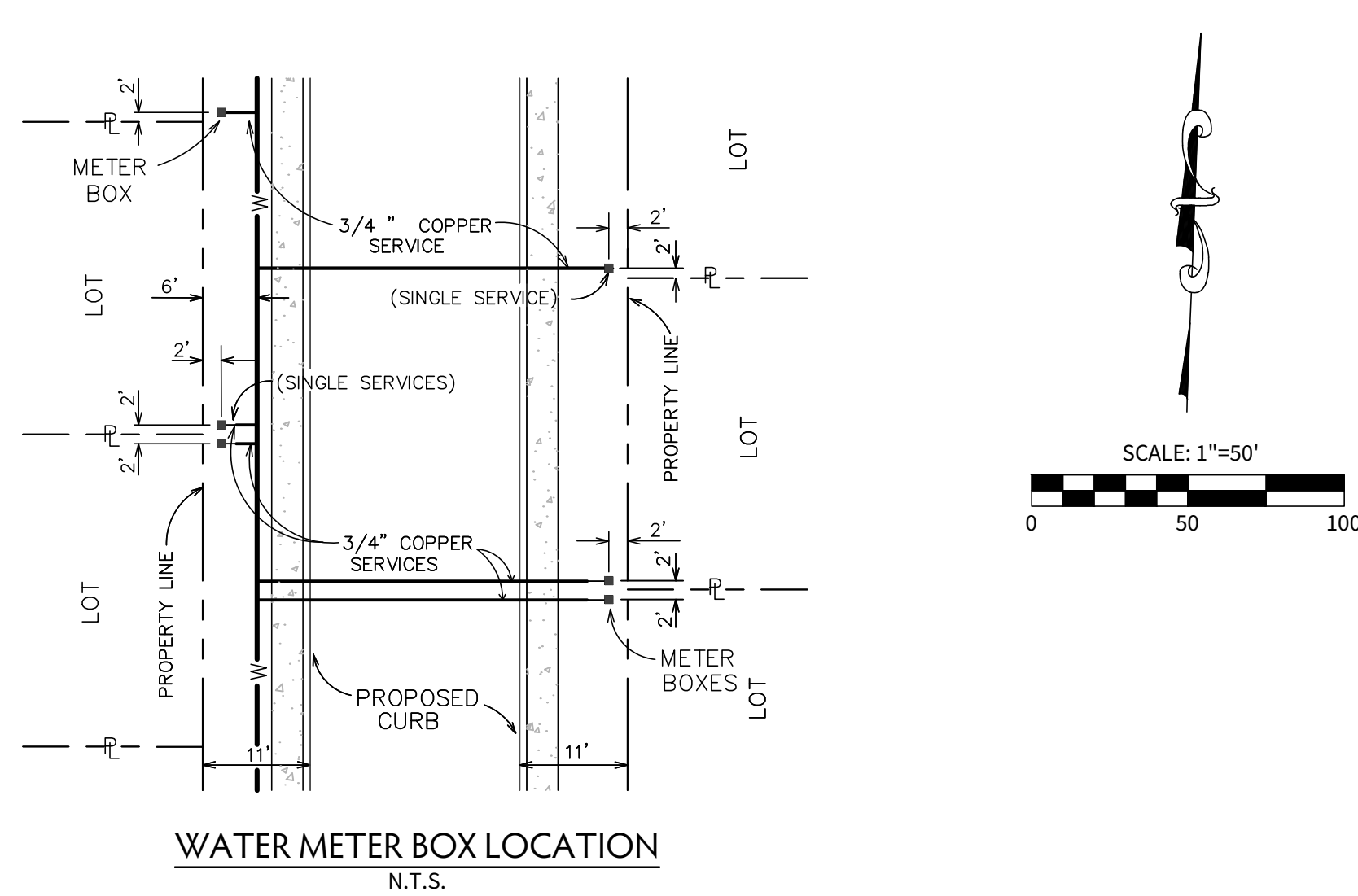
- 1.) STREET BASE AND DRAINAGE COMPLETION PRECEDES CPS UTILITY LINE INSTALLATION.
- 2.) INSTALLATION IS AUTHORIZED BY THE DEVELOPER.

TRENCH EXCAVATION SAFETY PROTECTION

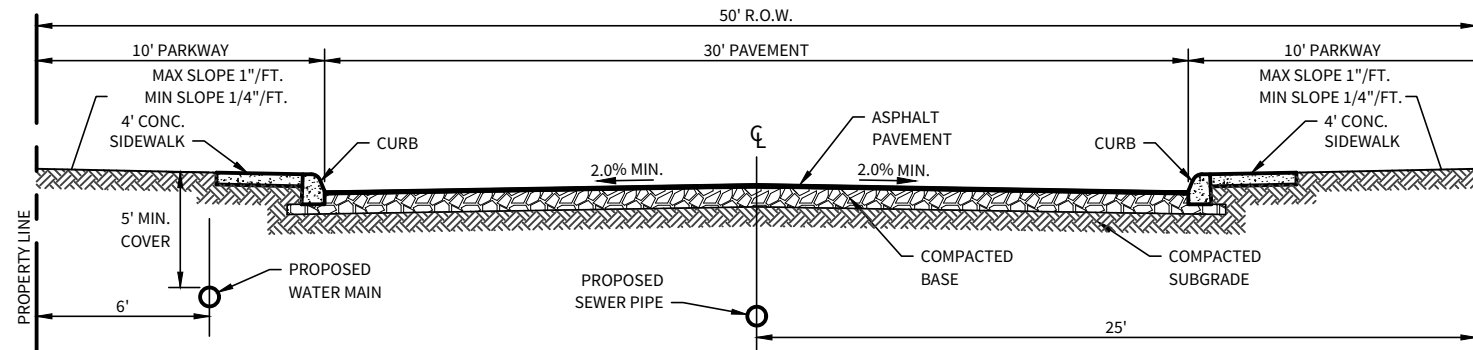
Contractor and/or Contractor's independently retained employee or structural design/geotechnical/safety/equipment consultant, if any, shall review these plans and available geotechnical information and the anticipated installation site(s) within the project work area in order to implement Contractor's trench excavation safety protection systems, programs and/or procedures for the project described in the contract documents. The Contractor's implementation of these systems, programs and/or procedures shall provide for adequate trench excavation safety protection that comply with as a minimum, OSHA standards for trench excavations. Specifically, Contractor and/or Contractor's independently retained employee or safety consultant shall implement a trench safety program in accordance with OSHA standards governing the presence and activities of individuals working in and around trench excavation.



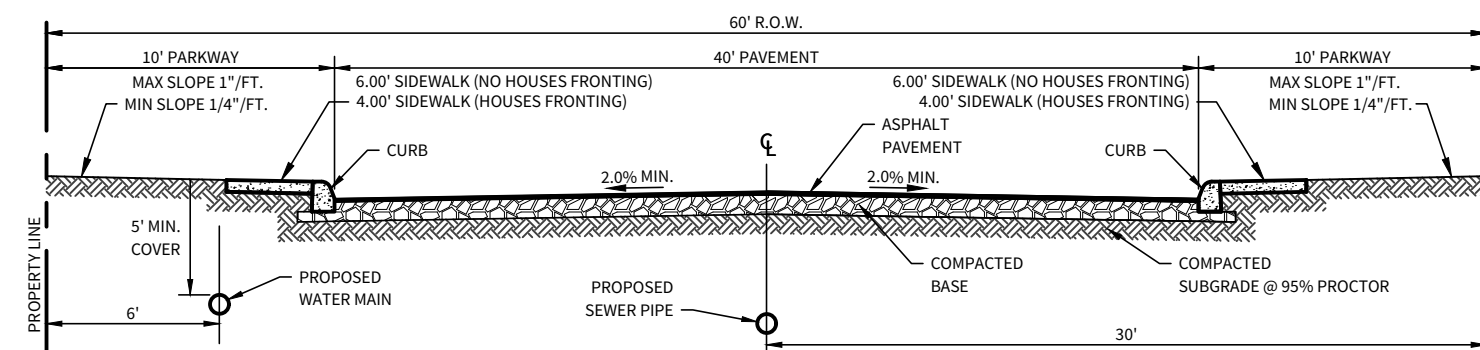
TYPICAL SANITARY SEWER / WATER CROSSING DETAIL
N.T.S.



WATER METER BOX LOCATION
N.T.S.



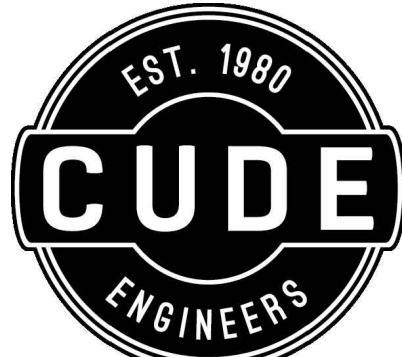
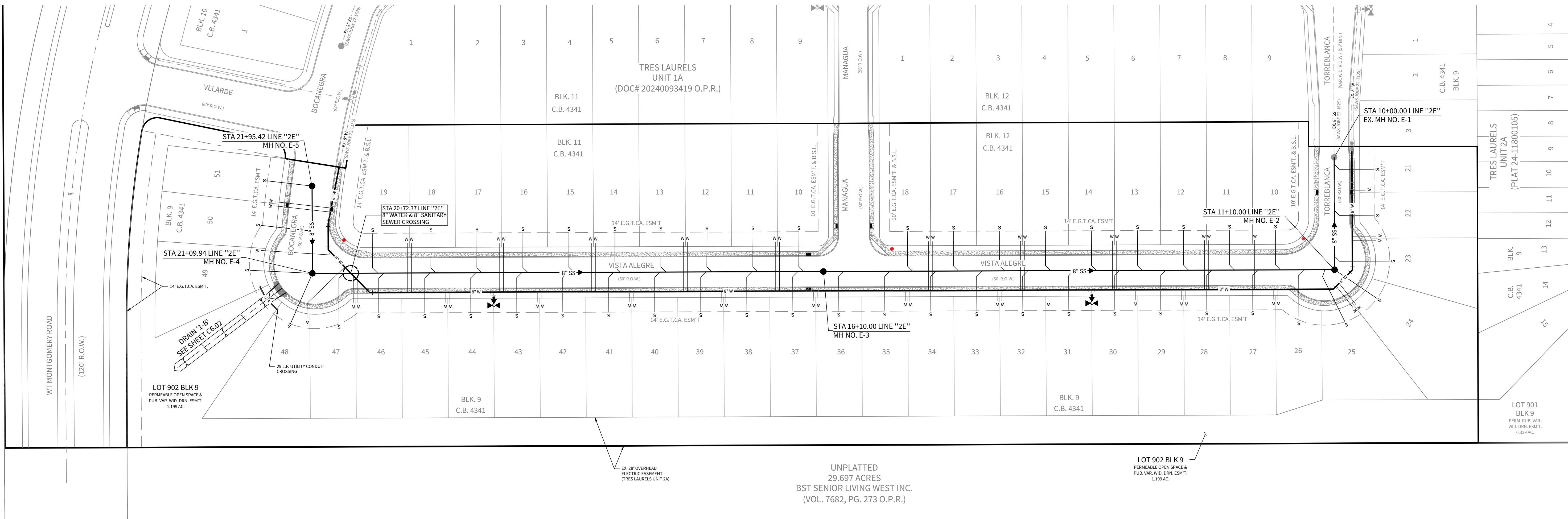
LOCAL "A" STREET CROSS-SECTION



LOCAL "B" STREET CROSS-SECTION

CAUTION!!!

THE CONTRACTOR SHALL BE AWARE THAT UNDERGROUND ELECTRIC, GAS, SEWER, & WATER LINES EXIST ALONG BOCANEGRA AND TORREBLANCA. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO HAVE THESE UTILITIES LOCATED PRIOR TO COMMENCING CONSTRUCTION. THE CONTRACTOR SHALL USE EXTREME CAUTION WHEN WORKING IN THIS AREA. ANY DAMAGE DONE TO THESE EXISTING FACILITIES WILL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR TO REPAIR.



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TRES LAURELS
UNIT 1B

UTILITY LAYOUT PLAN

DATE
10/24/2024

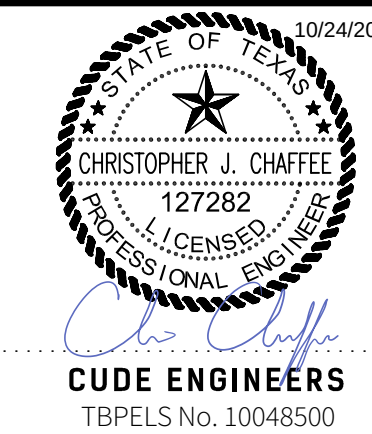
PROJECT NO.
03050.017

DRAWN BY
RM / IV

CHECKED BY
MAT/CJC

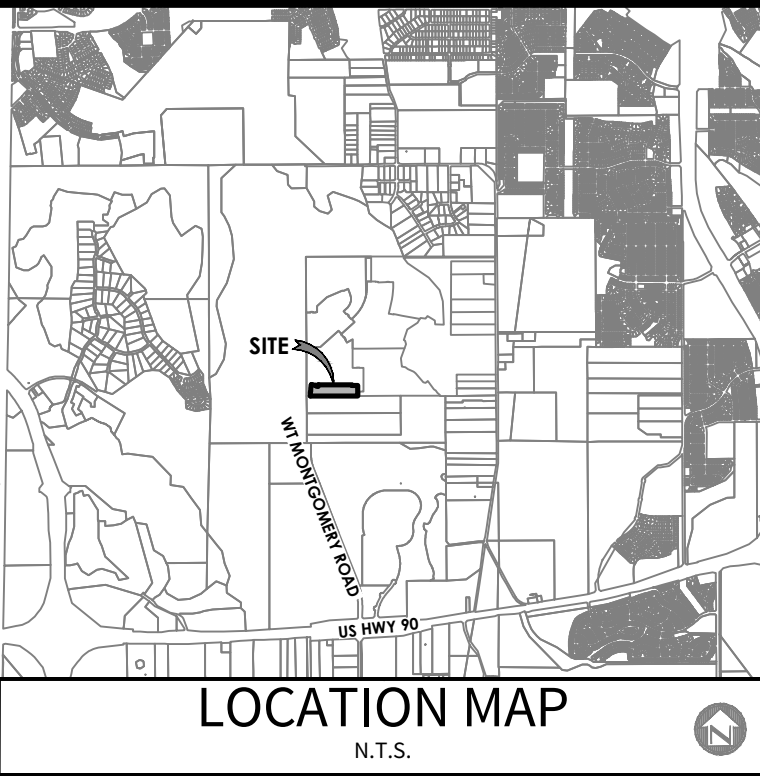
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PLAT NO.
24-11800221

C3.00

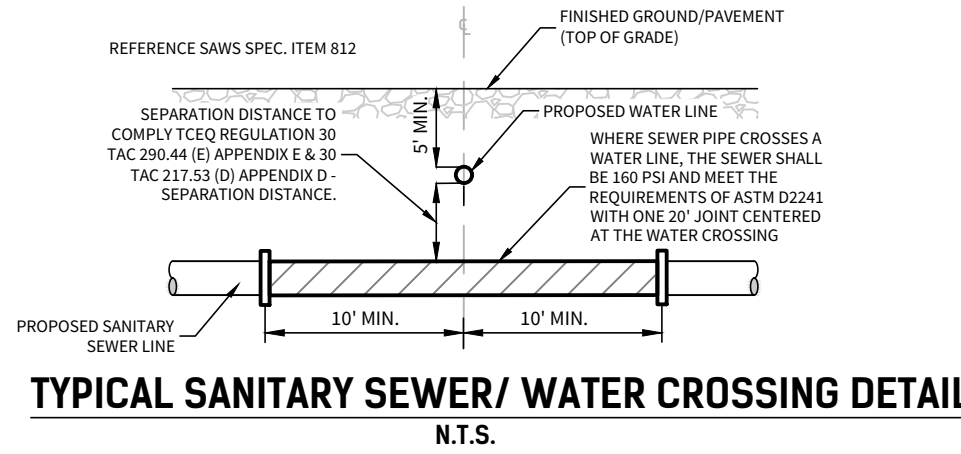


OWNER/DEVELOPER:
LENNAR HOMES OF TEXAS LAND
AND CONSTRUCTION, LTD.
A TEXAS LIMITED PARTNERSHIP
100 NE LOOP 410, SUITE 1155
SAN ANTONIO, TX 78216

CIVIL ENGINEER:
M.W. CUDE ENGINEERS, L.L.C.
CONTACT: CHRIS CHAFFEE, P.E.
4122 POND HILL RD, SUITE 101
SAN ANTONIO, TX 78231
TEL: (210) 681-2951

TRENCH EXCAVATION SAFETY PROTECTION

Contractor and/or Contractor's independently retained employee or structural design/geotechnical/safety/equipment consultant, if any, shall review these plans and available geotechnical information and the anticipated installation site(s) within the project work area in order to implement Contractor's trench excavation safety protection systems, programs and/or procedures for the project described in the contract documents. The Contractor's implementation of these systems, programs and/or procedures shall provide for adequate trench excavation safety protection that comply with as a minimum, OSHA standards for trench excavations. Specifically, Contractor and/or Contractor's independently retained employee or safety consultant shall implement a trench safety program in accordance with OSHA standards governing the presence and activities of individuals working in and around trench excavation.



SEWER/WATER LINE CROSSINGS	
LINE	STATION
"2E"	20+72.37

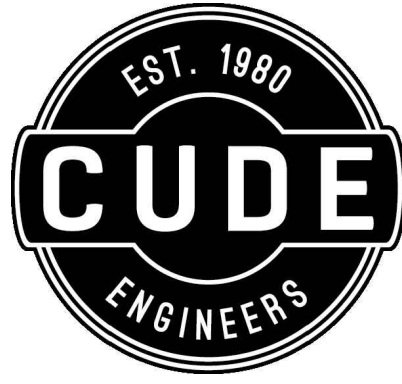
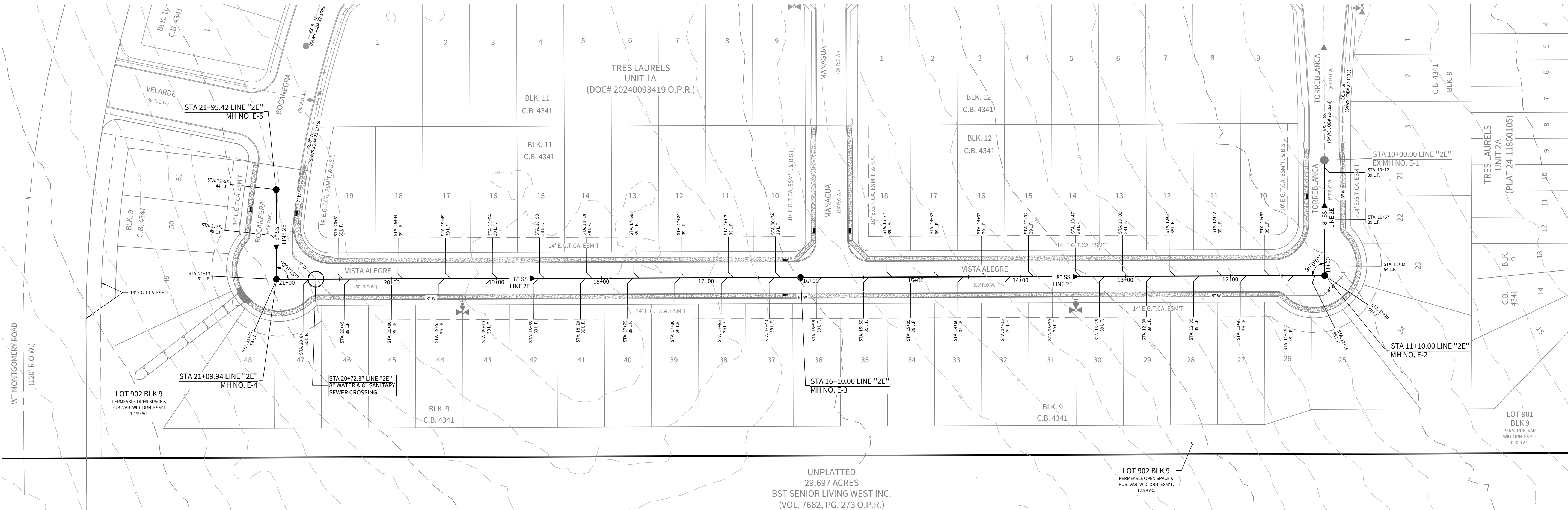
SANITARY SEWER NOTES

- SEWER PIPE WHERE WATER LINE CROSSES SHALL BE 160 P.S.I. AND MEET THE REQUIREMENTS OF ASTM D2241 WITH ONE 20' JOINT CENTERED AT WATER MAIN.
- NO VERTICAL STACKS SHALL BE ALLOWED, UNLESS OTHERWISE NOTED ON PLANS.
- WHEN HORIZONTAL DISTANCE BETWEEN SEWER PIPES AND WATER MAIN IS LESS THAN 9 FT. OF SEPARATION, SEWER MAIN SHALL BE INSTALLED WITH 160 P.S.I. (MIN.) PRESSURE PIPE AND FITTINGS IN ACCORDANCE WITH SAWS CONSTRUCTION CRITERIA FOR CONSTRUCTION OF SEWER MAINS IN THE VICINITY OF WATER MAINS.
- ALL SEWER PIPES SHALL BE PVC (SDR 26), UNLESS OTHERWISE NOTED.
- PRIOR TO CONSTRUCTION CONTRACTOR IS TO VERIFY EXISTING INVERT OF EXISTING SANITARY SEWER MAINS AND ALERT ENGINEER IMMEDIATELY OF ANY DIFFERENCE FROM INVERT SHOWN ON PLANS.
- CONTOURS SHOWN ARE FOR GRAPHICAL USE ONLY.
- MANHOLE OPENING ARE 30" AS PER TCEQ CHAPTER 217.55.
- CONTRACTOR TO INSTALL PERMANENT MARKERS AT THE END OF ALL SEWER LATERALS, PER HOUSE LATERAL DETAIL DD-854-01.
- ALL 6" SEWER LATERALS WILL BE SET AT A MINIMUM 2% SLOPE.
- BACKFILL MUST COMPLY WITH SAWS SPECIFICATIONS 804.4.
- TOPS OF EXISTING MANHOLES SHALL BE ADJUSTED AS NECESSARY TO BE FLUSH WITH PROPOSED PAVEMENT ELEVATIONS, AND TO BE 0.50 FEET ABOVE FINISHED GROUND ELEVATIONS IN UNPAVED AREAS WITH WATER TIGHT LIDS.
- CONTRACTOR TO INSTALL SERVICE LATERAL USING A LATERAL SADDLE (SAWS DETAIL DD 854-0). THE SADDLE SHALL BE PERMANENTLY BONDED TO THE EXISTING MAIN BY THE USE OF COMPOUNDS AND CLAMPS AS RECOMMENDED BY THE MANUFACTURER AND APPROVED BY THE SAN ANTONIO WATER SYSTEM.
- ALL EXCAVATED MATERIAL SHALL BE PLACED ON THE UPGRADIENT SIDE OF THE SEWER TRENCH THUS ALLOWING THE TRENCH TO INTERCEPT ANY SILT CONTAMINATED RUNOFF.
- ALL LATERALS TO BE BUILT TO FRONT UTILITY EASEMENT LINE.
- THE LOCATIONS AND DEPTHS OF ALL EXISTING UTILITIES, INCLUDING SERVICE LATERALS AND DRAINAGE STRUCTURES SHOWN ON THE PLANS ARE APPROXIMATE ONLY. THE CONTRACTOR SHALL VERIFY THE EXACT LOCATION AND DEPTHS OF UNDERGROUND UTILITIES AT LEAST 48 HOURS PRIOR TO CONSTRUCTION WHETHER SHOWN ON PLANS OR NOT, AND TO PROTECT THE SAME DURING CONSTRUCTION.



BENCHMARK BM-1
BENCHMARK TO BE SET BY ENGINEER PRIOR TO CONSTRUCTION.

SEWER: SOUTH SEWERSHED - DOS RIOS W.R.C. (LOWER MEDINA RIVER WATERSHED)	
Developer's Name	LENNAR HOMES
Developer's Address	100 NE LOOP 410 SUITE 1155
City	SAN ANTONIO
State	TX
Zip	78216
Phone #	(210) 403-6200
Fax #	-
SAWS Block Map #	50
Total EDU's	50
Total Acreage	9.371
Total Linear Footage of Pipe	1,195 L.F. OF 8" SS - SDR 26
Plat No.	24-11800221
Number of Lots	50
SAWS Job No.	24-1611



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TRES LAURELS
UNIT 1B

SANITARY SEWER MASTER PLAN

DATE

10/24/2024

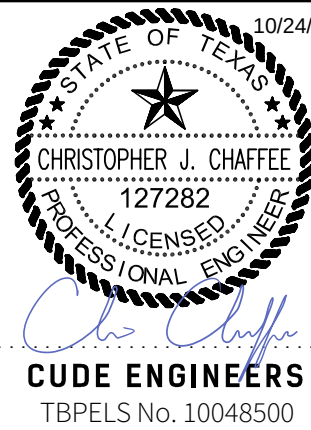
PROJECT NO.
03050.017

DRAWN BY
RM / IV

CHECKED BY
MAT/CJC

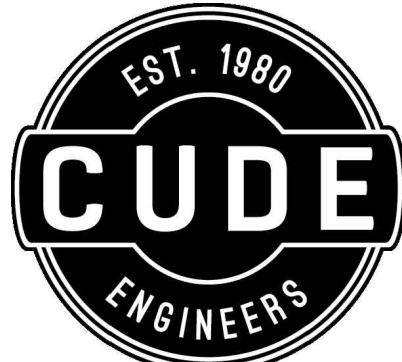
REVISIONS

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PLAT NO.
24-11800221
SAWS JOB NO.
24-1611

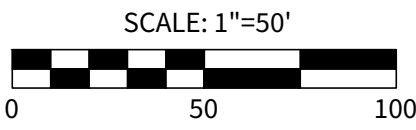
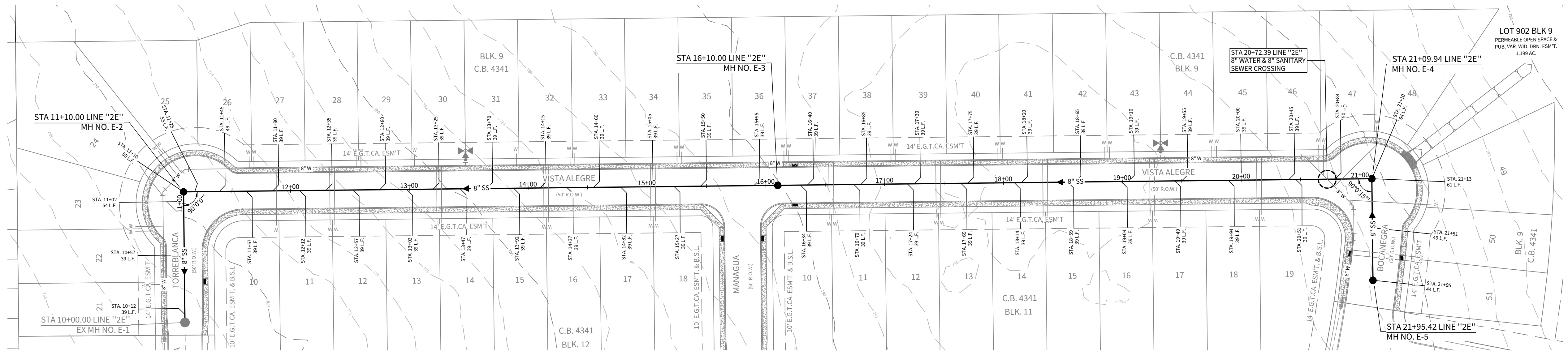
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4122 Pond Hill Road, Suite 101
San Antonio, Texas 78231
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TRES LAURELS
UNIT 1B

SANITARY SEWER PLAN & PROFILE -
LINE '2E'

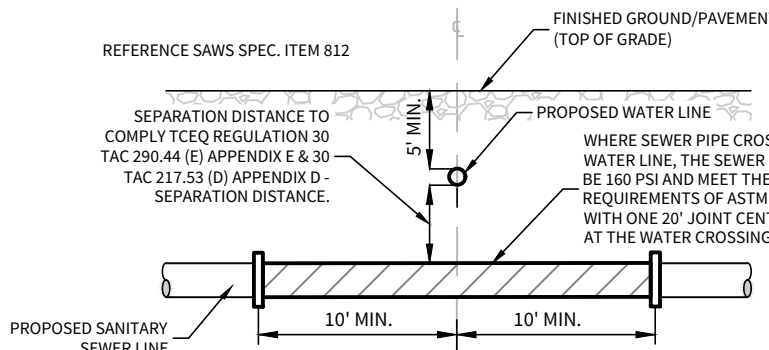


NOTE:

CONTRACTOR TO VERIFY LOCATION AND INVERT OF EXISTING SEWER MAIN AND NOTIFY ENGINEER OF ANY DISCREPANCIES PRIOR TO INSTALLATION.

TRENCH EXCAVATION SAFETY PROTECTION

Contractor and/or Contractor's independently retained employee or structural design/geotechnical/safety/equipment consultant, if any, shall review these plans and available geotechnical information and the anticipated installation site(s) within the project work area in order to implement Contractor's trench excavation safety protection systems, programs and/or procedures for the project described in the contract documents; the Contractor's implementation of these systems, programs and/or procedures shall provide for adequate trench excavation safety protection that comply with as a minimum, OSHA standards for trench excavations. Specifically, Contractor and/or Contractor's independently retained employee or safety consultant shall implement a trench safety program in accordance with OSHA standards governing the presence and activities of individuals working in and around trench excavation.



TYPICAL SANITARY SEWER/ WATER CROSSING DETAIL
N.T.S.

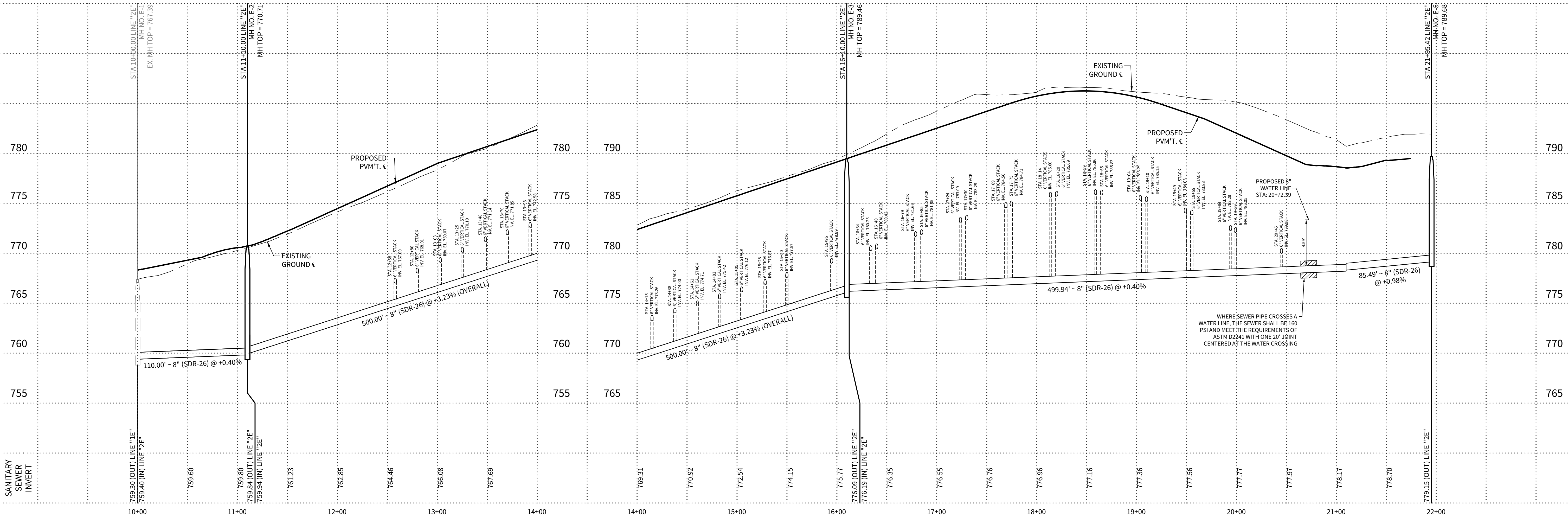
LINE 2E

STA. 10+00.00 TO STA. 21+95.42

SEWER: SOUTH SEWERSHED - DOS RIOS W.R.C. (LOWER MEDINA RIVER WATERSHED)

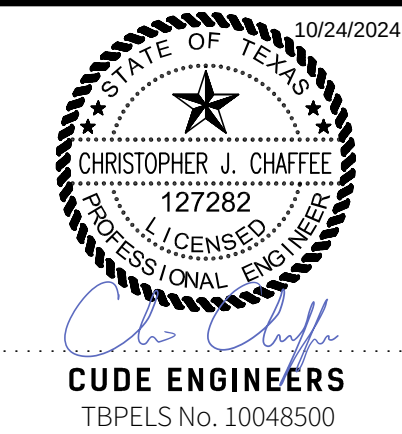
Developer's Name	LENNAR HOMES		
Developer's Address	100 NE LOOP 410 SUITE 1155		
City	SAN ANTONIO	State	TX
Zip	78216		
Phone #	(210) 403-6200	Fax #	-
SAWS Block Map #		Total EDU's	50
Total Linear Footage of Pipe	1,195 L.F. OF 8" SS - SDR 26	Total Acreage	9.371
Number of Lots	50	Plat No.	24-11800221
		SAWS Job No.	24-1611

HORIZONTAL SCALE: 1" = 50'
VERTICAL SCALE: 1" = 5'



DATE	10/24/2024
PROJECT NO.	03050.017
DRAWN BY	RM / IV
CHECKED BY	MAT/CJC
REVISIONS	

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PLAT NO.
24-11800221
SAWS JOB NO.
24-1611

C4.01

SAWS STANDARD GENERAL CONSTRUCTION NOTES ASSOCIATED WITH 2021
SAWS STANDARD SPECS REVISED DECEMBER 2021

GENERAL CONSTRUCTION

1. ALL MATERIALS AND CONSTRUCTION PROCEDURES WITH THE SCOPE OF CONTRACT SHALL BE APPROVED BY THE SAN ANTONIO WATER SYSTEM (SAWS) AND COMPLY WITH THE PLANS, SPECIFICATIONS, GENERAL CONDITIONS AND WITH THE FOLLOWING AS APPLICABLE:
- A. CURRENT TEXAS COMMISSION ON ENVIRONMENTAL QUALITY (TCEQ) "DESIGN CRITERIA FOR DOMESTIC WASTEWATER SYSTEM," TEXAS ADMINISTRATIVE CODE (TAC) TITLE 30 PART 1 CHAPTER 217 AND "PUBLIC DRINKING WATER," TAX TITLE 30 PART 1 CHAPTER 290.
- B. CURRENT TxDOT "STANDARD SPECIFICATIONS FOR CONSTRUCTION OF HIGHWAYS, STREETS, AND DRAINAGE."
- C. CURRENT "SAN ANTONIO WATER SYSTEM STANDARD SPECIFICATIONS FOR WATER AND SANITARY SEWER CONSTRUCTION."
- D. CURRENT CITY OF SAN ANTONIO "STANDARD SPECIFICATIONS FOR CONSTRUCTION."
- E. CURRENT CITY OF SAN ANTONIO "UTILITY EXCAVATION CRITERIA MANUAL" (UECM).

2. THE CONTRACTOR SHALL OBTAIN SAWS STANDARD DETAILS FROM SAWS WEBSITE, https://apps.saws.org/business_center/specs/constspecs/ UNLESS OTHERWISE NOTED WITHIN DESIGN PLANS.
3. THE CONTRACTOR IS TO NOTIFY AND MAKE ARRANGEMENTS WITH THE SAWS CONSTRUCTION INSPECTION DIVISION AT 210-233-3500 (DURING REGULAR SAWS WORKING HOURS) AND PROVIDE NOTIFICATION PROCEDURES THE CONTRACTOR WILL USE TO NOTIFY AFFECTED HOME RESIDENTS AND/OR PROPERTY OWNERS TWO (2) WEEKS PRIOR TO EXCAVATION. OUTSIDE OF REGULAR SAWS WORKING HOURS THE SAWS EOC SHOULD BE CONTACTED AT 210-704-7297.
4. IF NECESSARY, CONTRACTOR WILL COORDINATE USE OF SAWS PREMISES AT NO ADDITIONAL COST TO SAWS. SUCH EFFORTS INCLUDE, BUT ARE NOT LIMITED TO, OBTAINING SECURITY IDENTIFICATION BADGES REQUIRED FOR ACCESS TO SAWS FACILITIES.
5. LOCATIONS AND DEPTHS OF EXISTING UTILITIES AND SERVICE LATERALS SHOWN ON THE PLANS ARE UNDERSTOOD TO BE APPROXIMATE. ACTUAL LOCATIONS AND DEPTHS MUST BE FIELD VERIFIED BY THE CONTRACTOR PRIOR TO CONSTRUCTION. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO LOCATE UTILITY SERVICE LINES AS REQUIRED FOR CONSTRUCTION AND TO PROTECT THEM DURING CONSTRUCTION AT NO COST TO SAWS.
6. THE CONTRACTOR SHALL VERIFY THE EXACT LOCATION OF UNDERGROUND UTILITIES AND DRAINAGE STRUCTURES PRIOR TO CONSTRUCTION WHETHER SHOWN ON PLANS OR NOT. AS-BUILTS FOR SAWS INFRASTRUCTURE CAN BE OBTAINED AT WEBSITE BELOW. CONTRACTOR SHALL COORDINATE PHYSICAL LOCATES FOR SAWS INFRASTRUCTURE THROUGH THE SAWS INSPECTOR. PLEASE ALLOW UP TO 7 BUSINESS DAYS FOR LOCATES REQUESTING PIPE LOCATION MARKERS ON SAWS INFRASTRUCTURE. THE FOLLOWING CONTACT INFORMATION ARE SUPPLIED FOR VERIFICATION PURPOSES:

SAN ANTONIO WATER SYSTEM:
REQUEST AS-BUILTS: <https://www.saws.org/service/locates-service/>

COSA DRAINAGE: 210-206-8433
COSA TRAFFIC SIGNAL OPERATIONS: 210-207-7720
TEXAS STATEWIDE ONE CALL LOCATOR: 1-800-545-6005 OR 811

7. THE CONTRACTOR SHALL BE RESPONSIBLE FOR RESTORING EXISTING FENCES, CURBS, STREETS, DRIVEWAYS, SIDEWALKS, LANDSCAPING, AND STRUCTURES TO ITS ORIGINAL OR BETTER CONDITION AS A RESULT OF DAMAGES DONE BY THE PROJECT'S CONSTRUCTION.
8. CONTRACTOR SHALL NOT MAKE USE OF DUMPSTERS OR WASTE BINS THAT ARE INTENDED TO SERVE RESIDENTS AND/OR BUSINESS.
9. ALL WORK IN TEXAS DEPARTMENT OF TRANSPORTATION AND BEXAR COUNTY RIGHT-OF-WAY SHALL BE DONE IN ACCORDANCE WITH RESPECTIVE CONSTRUCTION SPECIFICATIONS AND PERMIT.
10. THE CONTRACTOR SHALL COMPLY WITH CITY OF SAN ANTONIO OR OTHER GOVERNING MUNICIPALITY'S TREE ORDINANCES WHEN EXCAVATING NEAR TREES.
11. ALL WORK WITHIN THE 100-YEAR FLOODPLAIN SHALL BE DONE IN ACCORDANCE WITH FLOODPLAIN DEVELOPMENT PERMIT.
12. ANY WORK COMPLETED WITHOUT PRIOR WRITTEN AUTHORIZATION WHICH IS NOT INCLUDED IN THESE PLANS AND SPECIFICATIONS WITH NOT BE COMPENSATED BY THE SAN ANTONIO WATER SYSTEM.
13. HOLIDAY WORK: CONTRACTORS WILL NOT BE ALLOWED TO PERFORM SAWS WORK ON SAWS RECOGNIZED HOLIDAYS.
- WEEKEND WORK: CONTRACTORS ARE REQUIRED TO SUBMIT REQUEST TO THE SAWS INSPECTION CONSTRUCTION DEPARTMENT BY 12:00 PM ON THE WEDNESDAY PRIOR TO THE WEEKEND BEING REQUESTED. REQUEST SHOULD BE SENT TO constworkreq@saws.org.

ANY AND ALL SAWS UTILITY INSTALLED WITHOUT WEEKEND APPROVAL WILL BE SUBJECT TO BY UNCOVERED FOR PROPER INSPECTION AT NO COST TO SAWS.

14. PRE-CON SITE VIDEO: BEFORE THE START OF ANY CONSTRUCTION. THE SITE MUST BE VIDEO RECORDED BY THE CONTRACTOR WITH ONE COPY SUBMITTED TO SAWS INSPECTIONS. A PRE-SITE VIDEO WILL PROVIDE ACCURATE DOCUMENTATION OF THE EXISTING CONDITIONS (NSPI).
15. POWER POLE BRACING: CONTRACTORS SHOULD BE ADVISED THAT THERE ARE EXISTING OVERHEAD UTILITY POLES ALONG THE PROJECT CORRIDOR. CONTRACTORS SHOULD FURTHER BE ADVISED THAT IS DISTANCE FROM THE OUTSIDE FACE OF A UTILITY TRENCH TO THE FACE OF A UTILITY POLE IS LESS THAN 5 FEET, SAID UTILITY POLES IS SUBJECT TO BRACING, BASED ON DOCUMENTATION MADE BY UTILITY POLE OWNER. COSTS INCURRED BY CONTRACTOR FOR BRACING OF THESE UTILITY POLES IS SUBSIDIARY TO THAT RESPECTIVE UTILITY COMPANY'S WORK. IT IS ADVISABLE FOR THE CONTRACTOR TO REVIEW THE CONSTRUCTION DOCUMENTS AND VISIT THE CONSTRUCTION SITE TO DETERMINE POTENTIAL IMPACTS.
16. CONSTRUCTION SEQUENCING: IT IS THE CONTRACTOR'S SOLE RESPONSIBILITY TO SCHEDULE SEQUENCING FOR REMOVAL AND INSTALLATION OF EXISTING AND PROPOSED SAWS UTILITIES IN CONJUNCTION WITH GENERAL PROJECT CONSTRUCTION. SEQUENCE OF CONSTRUCTION ACTIVITIES SHALL BE CONSIDERED IN ORDER TO MINIMIZE THE EXTENT AND DURATION OF DISTURBANCES.
17. CONTRACTOR SHALL COMPLY WITH APPLICABLE REGULATIONS INCLUDING, BUT NOT LIMITED TO, THOSE OVERSEEN BY THE U.S. OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA). OSHA INFORMATION AND RELATED MATERIALS MAY BE OBTAINED AT <https://www.osha.gov/> OR AT THE OSHA SAN ANTONIO OFFICE LOCATED AT FOUNTAINHEAD TOWER, SUITE 605 8200 W. INTERSTATE 10 SAN ANTONIO, TX 78230 WHICH IS ALSO REACHABLE AT (210) 472-5040.
18. TRENCH EXCAVATION SAFETY PROTECTION: CONTRACTOR AND/OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR STRUCTURAL DESIGN/GEOTECHNICAL/SAFETY/EQUIPMENT CONSULTANT, IF ANY, SHALL REVIEW THESE PLANS AND AVAILABLE GEOTECHNICAL INFORMATION AND THE ANTICIPATED INSTALLATION SITE(S) WITHIN THE PROJECT WORK AREAS IN ORDER TO IMPLEMENT CONTRACTOR'S TRENCH EXCAVATION SAFETY PROTECTION, PROGRAMS, AND/OR PROCEDURES. THE CONTRACTOR'S IMPLEMENTATION OF THE SYSTEMS, PROGRAMS, AND/OR PROCEDURES SHALL PROVIDE FOR ADEQUATE TRENCH EXCAVATION PROTECTION THAT COMPLIES WITH, AS A MINIMUM, OSHA STANDARDS FOR TRENCH EXCAVATIONS. SPECIFICALLY, CONTRACTOR AND/OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR SAFETY CONSULTANT SHALL IMPLEMENT A TRENCH SAFETY PROGRAM IN ACCORDANCE WITH OSHA STANDARDS GOVERNING THE PRESENCE AND ACTIVITIES OF INDIVIDUALS WORKING IN AND AROUND TRENCH EXCAVATION.
19. COMPACTION NOTE (ITEM 804): THE CONTRACTOR SHALL BE RESPONSIBLE FOR MEETING THE COMPACTION REQUIREMENTS ON ALL TRENCH BACKFILL AND FOR PAYING FOR THE TESTS PERFORMED BY A THIRD PARTY. COMPACTION TESTS WILL BE DONE AT ONE LOCATION POINT RANDOMLY SELECTED, OR AS INDICATED BY THE SAWS INSPECTOR AND/OR THE TEST ADMINISTRATOR, PER EACH 12-INCH LOOSE LIFT PER 400 LINEAR FEET AT MINIMUM. THIS PROJECT WILL NOT BE ACCEPTED AND FINALIZED BY SAWS WITHOUT THIS REQUIREMENT BEING MET AND VERIFIED BY PROVIDING ALL NECESSARY DOCUMENTED TEST RESULTS.

TRENCH EXCAVATION PROTECTION

CONTRACTOR AND/OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR STRUCTURAL DESIGN/GEOTECHNICAL/SAFETY/EQUIPMENT CONSULTANT, IF ANY, SHALL REVIEW THESE PLANS AND AVAILABLE GEOTECHNICAL INFORMATION AND THE ANTICIPATED INSTALLATION SITE(S) WITHIN THE PROJECT WORK AREA IN ORDER TO IMPLEMENT CONTRACTOR'S TRENCH EXCAVATION SAFETY PROTECTION SYSTEMS, PROGRAMS AND/OR PROCEDURES FOR THE PROJECT DESCRIBED IN THE CONTRACT DOCUMENTS. THE CONTRACTOR'S IMPLEMENTATION OF THESE SYSTEMS, PROGRAMS AND/OR PROCEDURES SHALL PROVIDE FOR ADEQUATE TRENCH EXCAVATION SAFETY PROTECTION THAT COMPLY WITH AS A MINIMUM, OSHA STANDARDS FOR TRENCH EXCAVATIONS. SPECIFICALLY, CONTRACTOR AND/OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR SAFETY CONSULTANT SHALL IMPLEMENT A TRENCH SAFETY PROGRAM IN ACCORDANCE WITH OSHA STANDARDS GOVERNING THE PRESENCE AND ACTIVITIES OF INDIVIDUALS WORKING IN AND AROUND TRENCH EXCAVATION.

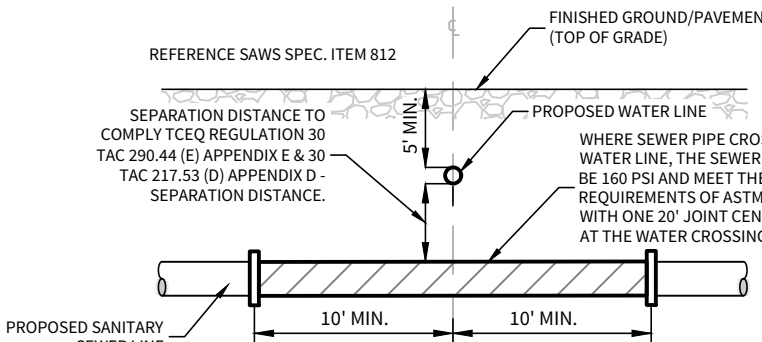
SEWER NOTES

1. THE CONTRACTOR IS RESPONSIBLE FOR ENSURING THAT NO SANITARY SEWER OVERFLOW (SSO) OCCURS AS A RESULT OF THEIR WORK. ALL CONTRACTOR'S PERSONNEL RESPONSIBLE FOR SSO PREVENTION AND CONTROL SHALL BE TRAINED ON A PROPER RESPONSE. SHOULD AN SSO OCCUR, THE CONTRACTOR SHALL:
- A. IDENTIFY THE SOURCE OF THE SSO AND NOTIFY SAWS EMERGENCY OPERATIONS CENTER (EOC) IMMEDIATELY AT 210-704-SAWS (210-704-7297). PROVIDE THE ADDRESS OF THE SPILL AND AN ESTIMATED VOLUME OF FLOW.
- B. ATTEMPT TO ELIMINATE THE SOURCE OF THE SSO.
- C. CONTAIN SEWAGE FROM THE SSO TO THE EXTENT OF PREVENTING A POSSIBLE CONTAMINATION OF WATERWAYS.
- D. CLEAN UP SPILL SITE (RETURN CONTAINED SEWAGE TO THE COLLECTION SYSTEM IF POSSIBLE) AND PROPERLY DISPOSE OF THE CONTAMINATED SOIL/MATERIALS.
- E. CLEAN THE AFFECTED SEWER MAINS AND REMOVE ANY DEBRIS.
- F. MEET ALL POST-SSO REQUIREMENTS AS PER THE EPA CONSENT DECREE, INCLUDING LINE CLEANING AND TELEVISION THE AFFECTED SEWER MAINS (AT SAWS DIRECTION) WITHIN 25 HOURS.

SHOULD THE CONTRACTOR FAIL TO ADDRESS AN SSO IMMEDIATELY AND TO SAWS SATISFACTION, THEY WILL BE RESPONSIBLE FOR ALL COSTS INCURRED BY SAWS, INCLUDING AND FINES FROM EPA.

NO SEPARATE MEASUREMENT OR PAYMENT SHALL BE MADE FOR THIS WORK. ALL WORK SHALL BE DONE ACCORDING TO GUIDELINES SET BY THE TCEQ AND SAWS.

2. THE CONTRACTOR SHALL PROVIDE BYPASS PUMPING OF SEWAGE AROUND EACH SEGMENT OF PIPE TO BE REPLACED, IN ACCORDANCE WITH SAWS STANDARD SPECIFICATION ITEM NO. 865, "BYPASS PUMPING SMALL DIAMETER SANITARY SEWER MAINS" AND STANDARD SPECIFICATION ITEM NO. 864, "BYPASS PUMPING LARGE DIAMETER SANITARY SEWER MAINS" AS APPLICABLE. PAYMENT FOR SUCH WORK WILL BE MADE UNDER THE APPROPRIATE BID ITEM ASSOCIATED WITH SANITARY SEWER BYPASS PUMPING IN ACCORDANCE WITH SAWS STANDARD SPECIFICATIONS 865 AND 864.
3. PRIOR TO TIE-INS, ANY SHUTDOWNS OF EXISTING FORCE MAINS OF ANY SIZE MUST BE COORDINATED WITH THE SAWS CONSTRUCTION INSPECTION DIVISION AT 210-233-3500 AND/OR SAWS PRODUCTION GROUPS AT LEAST TWO WEEKS OR MORE IN ADVANCE OF THE SHUTDOWN. THE CONTRACTOR MUST ALSO PROVIDE A SEQUENCE OF WORK AS RELATED TO THE TIE-INS; THIS IS AT NO ADDITIONAL COST TO SAWS OR THE PROJECT AND IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO SEQUENCE THE WORK ACCORDINGLY.
4. ELEVATIONS POSTED FOR TOP OF MANHOLES ARE FOR REFERENCE ONLY: IT SHALL BE THE RESPONSIBILITY FOR THE CONTRACTOR TO MAKE ALLOWANCES AND ADJUSTMENTS FOR TOP OF MANHOLES TO MATCH THE FINISHED GRADE OF THE PROJECT'S IMPROVEMENTS (NSPI).
5. MANHOLE REMOVAL: WHERE EXISTING MANHOLES ARE TO BE REPLACED BY THE CONTRACTOR, THE EXISTING MANHOLES SHALL BE REMOVED (NSPI).
6. SMART MANHOLE COVERS: THE CONTRACTOR SHALL NOTIFY SAWS EOC AT 210-704-SAWS (210-233-7297) AND EITHER AMERICA ESPINOZA AT 210-233-2934 OR JOSE A. MARTINEZ AT 210-233-3071 A MINIMUM OF 72 HOURS, NOT COUNTING WEEKENDS OR SAWS HOLIDAYS, BEFORE WORKING ON THE PIPE OR MANHOLE, IN ORDER TO HAVE SAWS REMOVE THE SMART COVER. ANY DAMAGE DONE TO THE SMART COVER WILL BE CHARGED TO THE CONTRACTOR THROUGH A CHANGE ORDER.
7. FLOW METERS IN MANHOLES: THE CONTRACTOR SHALL NOTIFY BOBBY JOHNSON AT 210-233-3493 OR ABEL BORUNDA AT 210-233-3704 A MINIMUM OF 72 HOURS, NOT COUNTING WEEKENDS OR SAWS HOLIDAYS, BEFORE WORKING ON THE PIPE MANHOLE, IN ORDER TO HAVE SAWS REMOVE THE FLOW METER IN THE MANHOLE. ANY DAMAGE DONE TO THE FLOW METER WILL BE CHARGED TO THE CONTRACTOR THROUGH A CHANGE ORDER.



TYPICAL SANITARY SEWER/ WATER CROSSING DETAIL
N.T.S.

SUPPLEMENTARY

No extra-payment shall be allowed for work called for on the plans but not included on the bid schedule. This incidental work will be required and shall be included under the pay item to which it relates.

The Developer dedicates the sanitary sewer mains upon completion by the Developer and acceptance by the San Antonio Water System. The San Antonio Water System will own and maintain said sanitary sewer mains which are located within this particular subdivision. (As applicable)

The Developer will be responsible for the lift station maintenance fee in effect at the time of certification. The current maintenance fee per lift station will be collected prior to plat recordation.

All PVC Sewer Pipe with over 14 feet of cover shall be extra strength pipe, Minimum Stiffness of 115 PSI.

WORK COMPLETED BY THE CONTRACTOR WHICH HAS NOT RECEIVED A WORK ORDER OR THE NOTICE TO PROCEED WITH THE SAN ANTONIO WATER SYSTEM CONSTRUCTION INSPECTION DIVISION WILL BE SUBJECT TO REMOVAL AND REPLACEMENT BY AND AT THE EXPENSE OF THE CONTRACTOR.

The Contractor is responsible to ensure that no overflows of sewage occurs. Should this occur the Contractor shall:

- A. Identify the source of the spill and attempt to eliminate any additional spillage. Notify SAWS Construction Inspections Division at 233-3500.
- B. Contain the spill in place and prevent contamination of streams.
- C. Clean up the spill and dispose of contaminated materials.
- D. Disinfect the area of the spill with a mixture of HTH chlorine and water.
- E. Identify and train personnel responsible for spillage prevention and control.

No separate measurement or payment shall be made for this work. All work shall be done in according to guidelines set by the Texas Natural Resource Contamination Commission (TNRCQ) and the San Antonio Water System.

Service Lateral Connections:

- A. The exact location and elevation of the service laterals and manholes shall be field verified by the Contractor (NSPI).
- B. A minimum of 3 feet of cover is to be maintained over the sanitary sewer laterals or subgrade.
- C. All sewer lateral services for future connections as identified on plan and profiles, shall be capped and sealed.
- D. The Contractor shall be responsible for disconnecting each existing service line from the existing water main and re-connecting the service to the new service main. The Contractor shall be responsible for maintaining continuous service (NSPI).
- E. Laterals shall be constructed to serve all existing houses and vacant lots.

The Contractor shall provide by-pass pumping of sewage around each segment of pipe to be replaced, in accordance with SAWS special specification "Sanitary Sewer". Payment for such work will be made under the bid item "Sanitary Sewer (By-Pass Pumping)" as per SAWS special specification "Sanitary Sewer".

Prior to tie-ins, any shutdowns of existing force mains of any size must be coordinated with the SAWS inspection and/or SAWS production groups at least one week or more in advance of the shutdown. The Contractor must also provide a sequence of work as related to the tie-ins; this is at no additional cost to SAWS or the project and it is the responsibility of the Contractor to sequence the work accordingly.

WASTEWATER SPILLS, OVERFLOWS OR DISCHARGES

1. SPILLS, OVERFLOWS, OR DISCHARGES OF WASTEWATER
Attention contractors: All spills, overflows, or discharges of wastewater, recycled water, petroleum products, or chemicals must be reported immediately to the SAWS Inspector assigned to your counter permit or General Construction Permit (GCP). This requirement applies to every spill, overflow, or discharge - regardless of size. Your compliance will enable SAWS to fulfill regulatory reporting requirements.

It is the Contractor's responsibility to control sewer flows so that a spill overflow, or discharge does not occur. In the event that a spill, overflow, or discharge occurs, the Contractor may be liable for:

1. All fines, penalties, or other costs assessed to or against SAWS by any State, Federal, or other governmental agency.
2. SAWS staff and material costs to respond to the spill, overflow, or discharge, or to mitigate the effects of the spill, overflow, or discharge, or to support the cleanup effort.
3. All damages caused to SAWS, or any other persons or entities that result from the spill, overflow or discharge.

NOTES:

1. ALL EXCAVATED MATERIAL SHALL BE PLACED ON THE UPGRADIENT SIDE OF THE SEWER TRENCH THIS ALLOWING THE TRENCH TO INTERCEPT ANY SILT CONTAMINATED RUNOFF.
2. ALL LATERALS TO BE BUILT TO FRONT UTILITY EASEMENT LINE.
3. ALL LATERAL SHALL BE INSTALLED @ MIN. 2.0% SLOPE, UNLESS OTHERWISE NOTED.
4. ALL SANITARY SEWER PIPE SHALL BE PVC THAT MEETS ASTM SPECIFICATION, SDR-26, UNLESS OTHERWISE NOTED ON THE PLANS.
5. THE LOCATIONS AND DEPTHS OF ALL EXISTING UTILITIES, INCLUDING SERVICE LATERALS AND DRAINAGE STRUCTURES SHOWN ON THE PLANS ARE APPROXIMATE ONLY. THE CONTRACTOR SHALL VERIFY THE EXACT LOCATION AND DEPTHS OF UNDERGROUND UTILITIES AT LEAST 48 HOURS PRIOR TO CONSTRUCTION WHETHER SHOWN ON PLANS OR NOT, AND TO PROTECT THE SAME DURING CONSTRUCTION.

SAN ANTONIO WATER SYSTEM
COSA DRAINAGE
CITY SIDEWALK TRENCHING DIVISION
COSA TRAFFIC SIGNAL OPERATIONS
TEXAS STATE WIDE ONE CALL LOCATOR
CITY PUBLIC SERVICE
AT&T
TIME WARNER
VALERO ENERGY CO.

210-233-2010
210-207-2800
210-821-3240
210-207-7765
1-800-545-6005

SAN ANTONIO WATER SYSTEM
CRITERIA FOR SEWER MAIN CONSTRUCTION
IN THE VICINITY OF WATER MAINS

I. For separation distance requirements between sewer mains & water mains, see the 30 TAC §217.53 Pipe Design notes included on this sheet.

II. Corrosion protected mechanical coupling devices of a cast iron or ductile iron material shall be used.

III. Plan & profile must show type of crossing and material to use.

TCEQ - 30 TAC290.44(e)

(e) Location of waterlines. The following rules apply to installations of waterlines, wastewater mains or laterals, and other conveyances/appearances identified as potential sources of contamination. Furthermore, all ratings specified shall be defined by ASTM or AWWA standards unless stated otherwise. New mains, service lines, or laterals are those that are installed where no main, service line, or lateral previously existed, or where existing mains, service lines, or laterals are replaced with pipes of different size or material.

(1) When new potable water distribution lines are constructed, they shall be installed no closer than nine feet in all directions to wastewater collection facilities. All separation distances shall be measured from the outside surface of each of the respective pieces.

(2) Potable water distribution lines and wastewater mains or laterals that form parallel utility lines shall be installed in separate trenches.

(3) No physical connection shall be made between a drinking water supply and a sewer line. Any appurtenance shall be designed and constructed so as to prevent any possibility of sewage entering the drinking water system.

(4) Where the nine-foot separation distance cannot be achieved, the following criteria shall apply.

(A) New waterline installation - parallel lines.

(i) Where a new potable waterline parallels an existing, non-pressure or pressure rated wastewater main or lateral and the licensed professional engineer licensed in the State of Texas is able to determine that the existing wastewater main or lateral is not leaking, the new potable waterline shall be located at least two feet above the existing wastewater main or lateral, measured vertically, and at least four feet away, measured horizontally, from the existing wastewater main or lateral. Every effort shall be exerted not to disturb the bedding and backfill of the existing wastewater main or lateral.

(ii) Where a new potable waterline parallels an existing pressure-rated wastewater main or lateral and it cannot be determined by the licensed professional engineer if the existing line is leaking, the existing wastewater main or lateral shall be replaced with at least 150 psi pressure-rated pipe. The new potable waterline shall be located at least two feet above the wastewater main or lateral, measured vertically, and at least four feet away, measured horizontally, from the wastewater main or lateral.

(B) New waterline installation - crossing lines.

(i) Where a new potable waterline crosses above a wastewater main or lateral, the segment of the waterline pipe shall be centered over and must be perpendicular to the wastewater main or lateral such that the joints of the waterline pipe are equidistant and at least nine feet horizontally from the centerline of the wastewater main or lateral. When crossing an existing wastewater main or lateral and it is disturbed or shows signs of leaking, the wastewater main or lateral shall be replaced for at least nine feet in both directions (18 feet total) with at least 150 psi pressure-rated pipe embedded in cement stabilized sand (see clause (v) of this subparagraph) for the total length of one pipe segment plus 12 inches beyond the joint on each end.

(i) The potable waterline shall be at least two feet above an existing, non-pressure rated wastewater main or lateral.

(ii) The potable waterline shall be at least six inches above an existing, pressure-rated wastewater main or lateral.

(i) Where a new potable waterline crosses a new, non-pressure rated wastewater main or lateral, the segment of the waterline pipe shall be centered over and shall be perpendicular to the wastewater main or lateral such that the joints of the waterline pipe are equidistant and at least nine feet horizontally from the centerline of the wastewater main or lateral. Whenever possible, the crossing shall be centered between the joints of the wastewater main or lateral. The wastewater pipe shall have a minimum pipe stiffness of 115 psi at 5.0% deflection. The wastewater main or lateral shall be embedded in cement stabilized sand (see clause (v) of this subparagraph) for the total length of one pipe segment plus 12 inches beyond the joint on each end.

(i) Within nine feet horizontally of either side of the waterline, the wastewater pipe and joints shall be constructed with pipe material having a minimum pressure rating of at least 150 psi. An absolute minimum vertical separation distance of two feet shall be provided. The wastewater main or lateral shall be located below the waterline.

NOTE:

THE LOCATIONS AND DEPTHS OF EXISTING UTILITIES, INCLUDING SERVICE LATERALS AND DRAINAGE STRUCTURES SHOWN ON THE PLANS ARE APPROXIMATE ONLY. THE CONTRACTOR SHALL VERIFY THE EXACT LOCATION AND DEPTHS OF UNDERGROUND UTILITIES AT LEAST 48 HOURS PRIOR TO CONSTRUCTION WHETHER SHOWN ON PLANS OR NOT, AND TO PROTECT THE SAME DURING CONSTRUCTION.

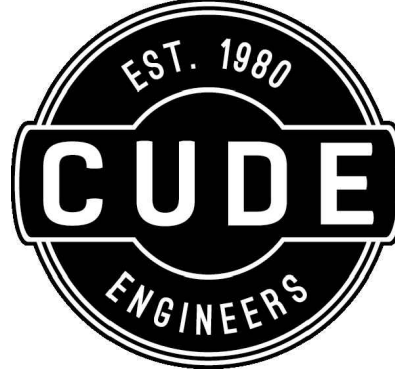
SAN ANTONIO WATER SYSTEM
COSA DRAINAGE
CITY SIDEWALK AND TRENCHING DIVISION
COSA TRAFFIC SIGNAL OPERATIONS
TEXAS STATE WIDE ONE CALL LOCATOR
CITY PUBLIC SERVICE
AT&T
TIME WARNER
VALERO ENERGY CO.

210-233-2010
210-207-2800
210-821-3240
210-207-7765
1-800-545-6005

AT&T AND TIME WARNER CABLE LINES TO GO INTO JOINT TRENCH WITH C.P.S. ENERGY LOTS WITH CONFLICTING TRANSFORMER/ SECONDARY ENCLOSURE ELECTRIC SERVICE AND WATER METER PLACED 5' FROM PROPERTY LINE WHERE THE CONFLICT OCCURS.

SEWER: SOUTH SEWERSHED - DOS RIOS W.R.C. (LOWER MEDINA RIVER WATERSHED)

Developer's Name	LENNAR HOMES			
Developer's Address	100 NE LOOP 410 SUITE 1155			
City	SAN ANTONIO	State	TX	
Zip	78216			
Phone #	(210) 403-6200	Fax #	-	
SAWS Block Map #	Total EDUs	50	Total Acreage	9.371
Total Linear Footage of Pipe	1,195 L.F. OF 8" SS - SDR 26	Plat No.	24-11800221	
Number of Lots	50	SAWS Job No.	XX-XXXX	



4122 Pond Hill Road, Suite 101

San Antonio, Texas 78231

P:(210) 681.2951

TRES LAURELS

UNIT 1B

SANITARY SEWER GENERAL NOTES

DATE

07/15/2024

PROJECT NO.

03050.017

DRAWN BY

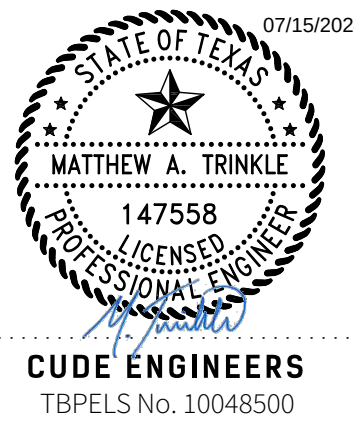
RM / IV

CHECKED BY

MAT/JJC

REVISIONS

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CUDE ENGINEERS
TBPELS No. 10048500

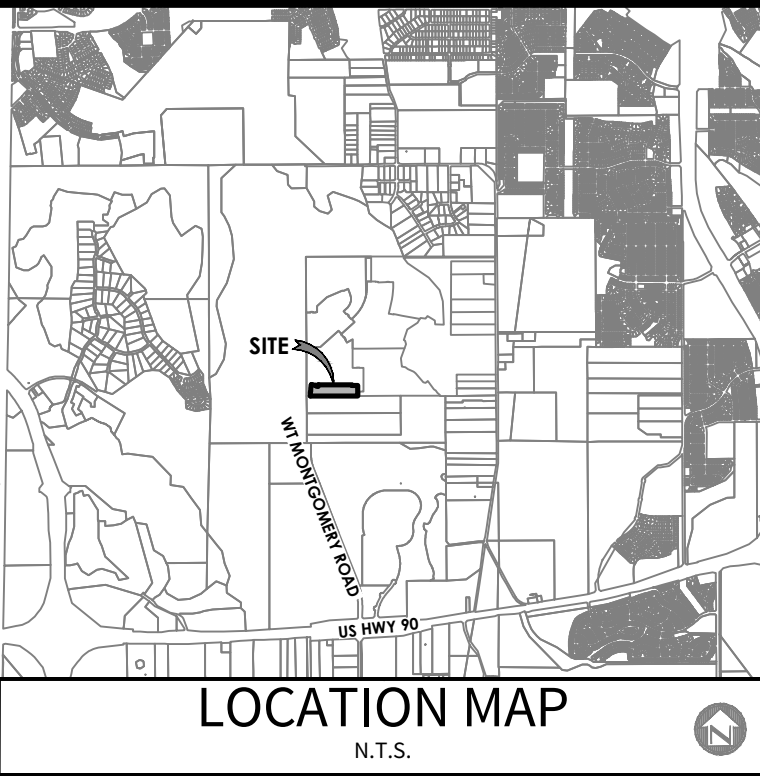
PLAT NO.

24-11800221

SAWS JOB NO.

XX-XXXX

C4.D1



OWNER/DEVELOPER:
LENNAR HOMES OF TEXAS LAND
AND CONSTRUCTION, LTD.
A TEXAS LIMITED PARTNERSHIP
100 NE LOOP 410, SUITE 1155
SAN ANTONIO, TX 78216

CIVIL ENGINEER:
M.W. CUDE ENGINEERS, L.L.C.
CONTACT: CHRIS CHAFFEE, P.E.
4122 POND HILL RD, SUITE 101
SAN ANTONIO, TX 78231
TEL: (210) 681-2951

LEGEND

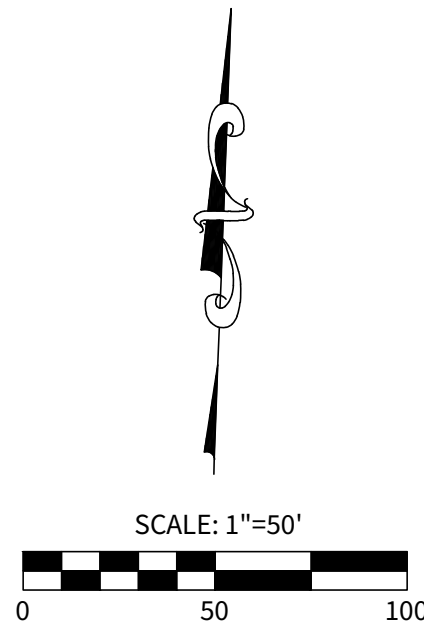
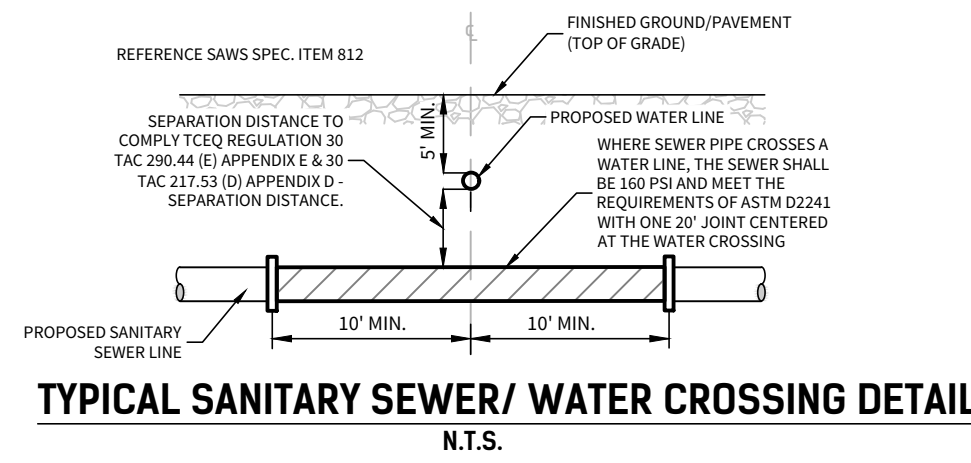
- EXISTING SANITARY SEWER
- PROPOSED SANITARY SEWER
- EXISTING SANITARY SEWER MANHOLE
- PROPOSED WATER MAIN
- EXISTING WATER MAIN
- EXISTING STANDARD FIRE HYDRANT
- PROPOSED STANDARD FIRE HYDRANT
- PROPOSED STANDARD GATE VALVE
- PROPOSED PERMANENT BLOWOFF
- ELECTRIC, GAS, TELEPHONE, & CABLE T.V. EASEMENT
- PROPOSED 3/4" WATER SERVICE WITH 5/8" METER

TRENCH EXCAVATION SAFETY PROTECTION

Contractor and/or Contractor's independently retained employee or structural design/geotechnical/safety/equipment consultant, if any, shall review these plans and available geotechnical information and the anticipated installation site(s) within the project work area in order to implement Contractor's trench excavation safety protection systems, programs and/or procedures for the project described in the contract documents. The Contractor's implementation of these systems, programs and/or procedures shall provide for adequate trench excavation safety protection that comply with as a minimum, OSHA standards for trench excavations. Specifically, Contractor and/or Contractor's independently retained employee or safety consultant shall implement a trench safety program in accordance with OSHA standards governing the presence and activities of individuals working in and around trench excavation.

R.O.W. PERMIT NOTE:

A BEXAR COUNTY PERMIT MUST BE OBTAINED BEFORE WORKING IN BEXAR COUNTY RIGHTS-OF-WAY.



KEYNOTES:

- FOR CHLORINATION INJECTION:
2 - 1" CORPORATION STOP, C.C. X L.P.
2 - 1" COPPER TUBING, CUT AS REQ.
2 - 1" 1/4" THD. SOLID CAPS, THR.
2 - 1" COMP. X 1 1/4" COUPLING, CURB
CONTRACTOR SHALL PROVIDE A 2" JUMPER CONNECTION TO LOAD NEW MAIN.

AFTER RELEASED FOR SERVICE,
CONTRACTOR TO TIE NEW 8" PVC WATER MAIN INTO EXIST. 8" PVC WATER MAIN WITH ±5 L.F. OF 8" WATER MAIN. CUT AS REQUIRED.

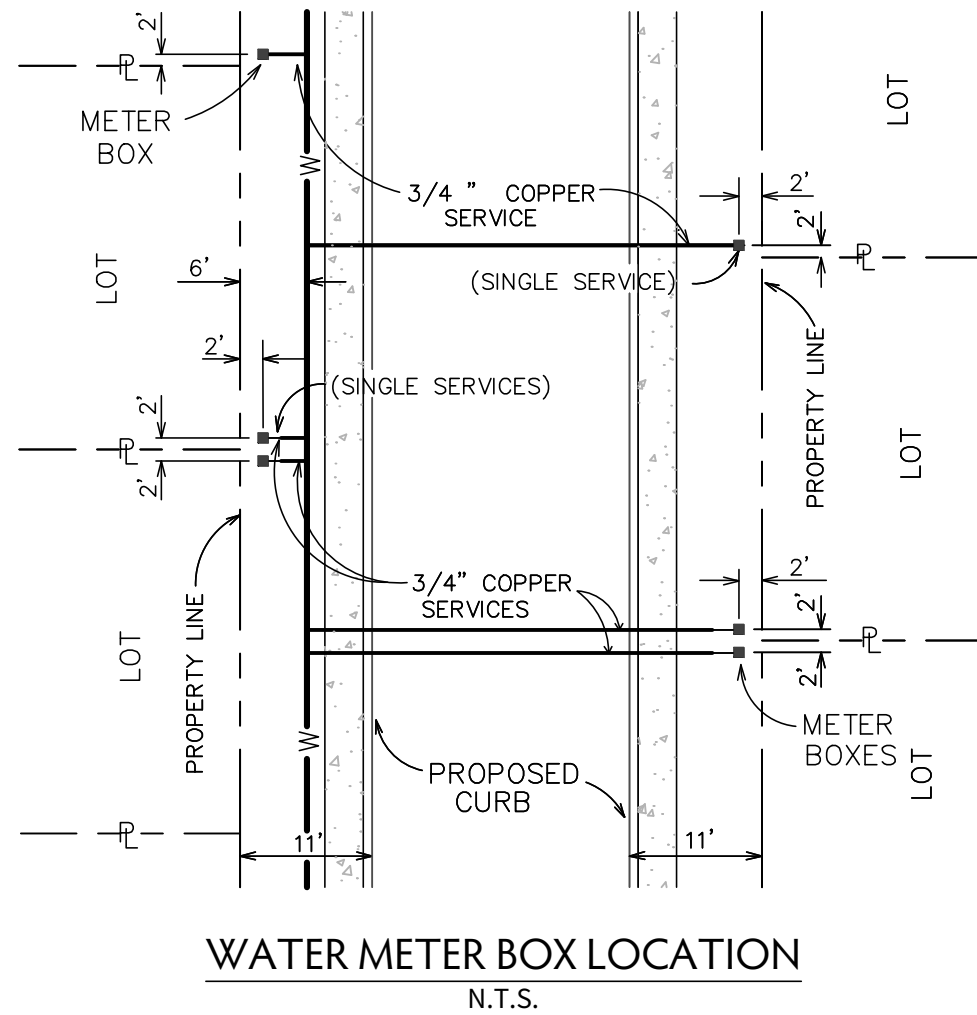
8" VALVE TO REMAIN CLOSED UNTIL AFTER DISINFECTION & ACCEPTANCE BY SAWS

1 - 8" SOLID SLEEVE

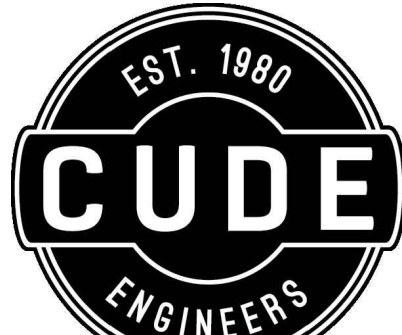
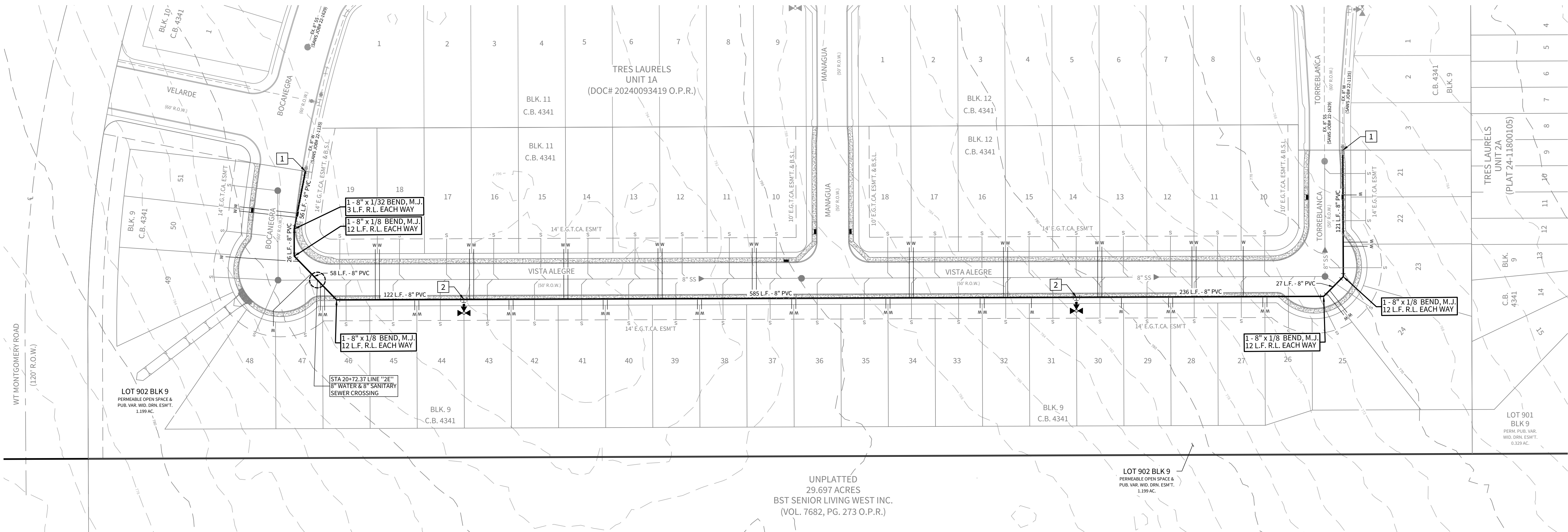
1 - 2" BLOWOFF ASSEMBLY (TEMP.)

SEE SAWS STD. DWG. DD-844-01

- 1 - 8" x 6" TEE, M.J. ANCHOR
1 - 6" x 1/4 BEND, M.J.
1 - 6" GATE VALVE, M.J.
1 - 6" VALVE BOX, COMPLETE
1 - STD. FIRE HYDRANT
1 - 6" O.I. PIPE, CUT AS REQ'D.
SEE S.A.W.S. STD. DWG DD-834-01 (SHEET 1 OF 3)



SAWS PRESSURE ZONE 950				
Developer's Name	LENNAR HOMES			
Developer's Address	100 NE LOOP 410 SUITE 1155			
City	SAN ANTONIO	State	TX	Zip 78216
Phone #	(210) 403-6200	Fax #		
SAWS Block Map #		Total EDU's	50	Total Acreage 9.371
Total Linear Footage of Pipe	1,231 L.F. - 8" PVC	Plat No.	24-11800221	
Number of Lots	50	SAWS Job No.	XX-XXXX	



4122 Pond Hill Road, Suite 101
San Antonio, Texas 78231
P:(210) 681.2951

TRES LAURELS UNIT 1B

WATER DISTRIBUTION PLAN

DATE

10/24/2024

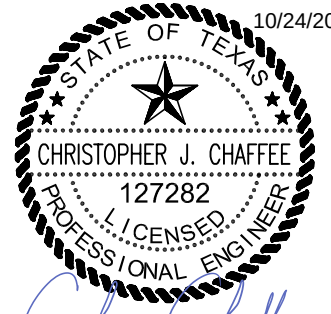
PROJECT NO.
03050.017

DRAWN BY
RM / IV

CHECKED BY
MAT/CJC

REVISIONS

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CUDE ENGINEERS
TBPels No. 10048500

PLAT NO.
24-11800221

SAWS JOB NO.
XX-XXXX

C5.00

1. ALL MATERIALS AND CONSTRUCTION PROCEDURES WITHIN THE SCOPE OF THIS CONTRACT SHALL BE APPROVED BY THE SAN ANTONIO WATER SYSTEM (SAWS) AND COMPLY WITH THE PLANS, SPECIFICATIONS, GENERAL CONDITIONS AND WITH THE FOLLOWING AS APPLICABLE:

- WEEKEND WORK: CONTRACTORS ARE REQUIRED TO NOTIFY THE SAWS INSPECTION
CONSTRUCTION DEPARTMENT 48 HOURS IN ADVANCE TO REQUEST WEEKEND
WORK. REQUEST SHOULD BE SENT TO CONSTWORKREQ@SAWS.ORG.

12. COMPACTION NOTE (ITEM 804): THE CONTRACTOR SHALL BE RESPONSIBLE FOR MEETING THE COMPACTION REQUIREMENTS ON ALL TRENCH BACKFILL AND FOR PAYING FOR THE TESTS PERFORMED BY A THIRD PARTY. COMPACTION TESTS WILL BE DONE AT ONE LOCATION POINT RANDOMLY SELECTED, OR AS INDICATED BY THE SAWS INSPECTOR AND/OR THE TEST ADMINISTRATOR, PER EACH 12-INCH LOOSE LIFT PER 400 LINEAR FEET AT A MINIMUM. THIS PROJECT WILL NOT BE ACCEPTED AND FINALIZED BY SAWS WITHOUT THIS REQUIREMENT BEING MET AND VERIFIED BY PROVIDING ALL NECESSARY DOCUMENTED TEST RESULTS.

- PRIOR TO TIE-INS, ANY SHUTDOWNS OF EXISTING MAINS OF ANY SIZE MUST BE COORDINATED WITH THE SAWS CONSTRUCTION INSPECTION DIVISION AT LEAST ONE WEEK IN ADVANCE OF THE SHUTDOWN. THE CONTRACTOR MUST ALSO PROVIDE A SEQUENCE OF WORK AS RELATED TO THE TIE-INS; THIS IS AT NO ADDITIONAL COST TO SAWS OR THE PROJECT AND IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO SEQUENCE THE WORK ACCORDINGLY. FOR WATER MAINS 12" OR HIGHER: SAWS EMERGENCY OPERATIONS CENTER (210) 233-2014

- F. SUITABLE ANCHORAGE/THRUST BLOCKING OR JOINT RESTRAINT SHALL BE PROVIDED AT ALL OF THE FOLLOWING MAIN LOCATIONS: DEAD ENDS, PLUGS, CAPS, TEES, CROSSES, VALVES, AND BENDS, IN ACCORDANCE WITH THE STANDARD DRAWINGS DD-839 SERIES AND ITEM NO. 839, IN THE SAWS STANDARD SPECIFICATIONS FOR CONSTRUCTION.

7. PIPE DISINFECTION WITH DRY HYTH FOR PROJECTS LESS THAN 800 LINEAR FEET. (ITEM NO. 847.3): MAINS SHALL BE DISINFECTED WITH DRY HYTH WHERE SHOWN IN THE CONTRACT DOCUMENTS OR AS DIRECTED BY THE INSPECTOR, AND SHALL NOT EXCEED A TOTAL LENGTH OF 800 FEET. THIS METHOD OF DISINFECTION WILL ALSO BE FOLLOWED FOR MAIN REPAIRS. THE CONTRACTOR SHALL UTILIZE ALL APPROPRIATE SAFETY MEASURE TO PROTECT HIS PERSONNEL DURING DISINFECTION OPERATIONS.

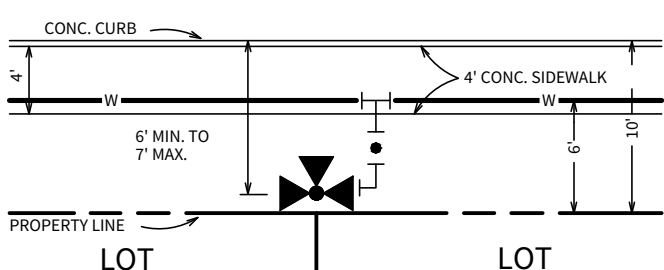
9. FINAL CONNECTION TO THE EXISTING WATER MAIN SHALL NOT BE MADE UNTIL THE WATER MAIN HAS BEEN PRESSURE TESTED, CHLORINATED, AND SAWS HAS RELEASED THE MAIN FOR TIE-IN AND USE.

1. IN AN EFFORT TO MEET THE CITY OF SAN ANTONIO'S FIRE FLOW REQUIREMENTS FOR THE PROPOSED RESIDENTIAL DEVELOPMENT, THE PUBLIC WATER MAIN SYSTEM HAS BEEN DESIGNED FOR A MINIMUM FIRE FLOW DEMAND OF 1000 G.M.P.M. AT 25 P.S.I. RESIDUAL PRESSURE. THE FIRE FLOW REQUIREMENTS FOR INDIVIDUAL STRUCTURES WILL BE REVIEWED DURING THE BUILDING PERMIT PROCESS IN ACCORDANCE WITH THE PROCEDURES SET FORTH BY THE CITY OF SAN ANTONIO DIRECTOR OF DEVELOPMENT SERVICES AND THE SAN ANTONIO FIRE DEPARTMENT FIRE MARSHAL

-
- The diagram illustrates a typical lot layout. It shows a horizontal line representing the 'PROPERTY LINE' separating two 'LOT's. Above the property line, there is a '6' CONC. CURB' and a '6' CONC. SIDEWALK'. The sidewalk is labeled '6' MIN. TO 7' MAX.' and has a width 'W'. The curb has a width 'C'. The distance from the curb to the property line is '10'.

NOTE:

1. EXCLUSIVE OF THE TEE, PAYMENT FOR THE FIRE HYDRANT SHALL INCLUDE ALL FITTINGS, 6" D.I. PIPE AND 6" GATE VALVE & BOX.
2. FIRE HYDRANT TO BE INSTALLED OUTSIDE OF THE LIMITS OF ALL PROPOSED SIDEWALKS.



NOTE:

1. EXCLUSIVE OF THE TEE, PAYMENT FOR THE FIRE HYDRANT SHALL INCLUDE ALL FITTINGS, 6" D.I. PIPE AND 6" GATE VALVE & BOX.
2. FIRE HYDRANT TO BE INSTALLED OUTSIDE OF THE LIMITS OF ALL PROPOSED SIDEWALKS.

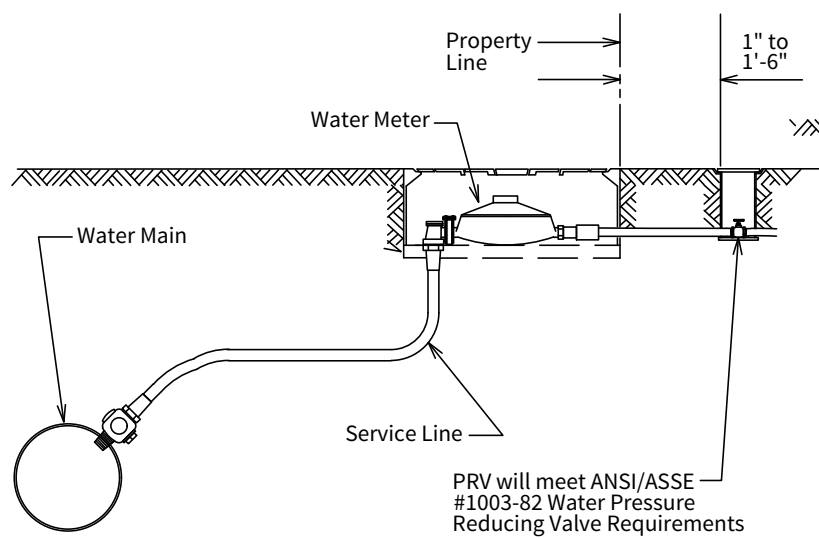
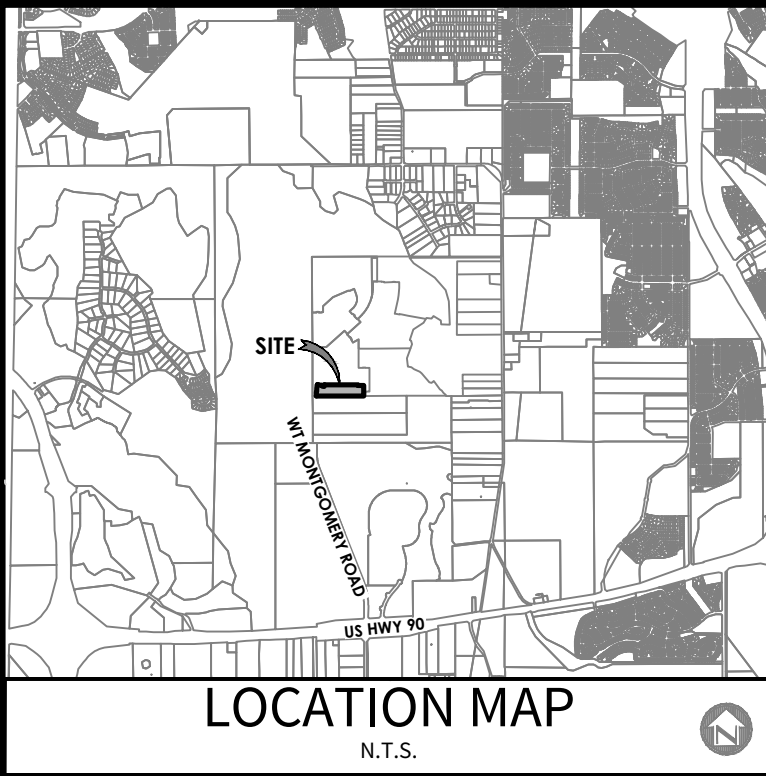


Figure 10: Typical Street Cross Section. The diagram illustrates a cross-section of a street with the following components and dimensions:

- 10' PARKWAY:** MAX SLOPE 3.0% MIN SLOPE 1.5%.
- 6.00' SIDEWALK (NO HOUSES FRONTING):** 6.00' SIDEWALK (HOUSES FRONTING).
- 4.00' PAVEMENT:** 4.00' SIDEWALK (NO HOUSES FRONTING), 4.00' SIDEWALK (HOUSES FRONTING).
- 2.00' MIN. ASPHALT PAVEMENT:** 2.00' MIN. ASPHALT PAVEMENT.
- 2.00' MIN. CURB:** 2.00' MIN. CURB.
- 2.00' MIN. COMPACTED BASE:** 2.00' MIN. COMPACTED BASE.
- 2.00' MIN. COMPACTED SUBGRADE @ 95% PROCTOR:** 2.00' MIN. COMPACTED SUBGRADE @ 95% PROCTOR.
- 5' MIN. COVER:** 5' MIN. COVER.
- PROPOSED WATER MAIN:** PROPOSED WATER MAIN.
- PROPOSED SEWER PIPE:** PROPOSED SEWER PIPE.
- 30':** 30'.
- SECTION:** SECTION.

SAWS PRESSURE ZONE 950

Developer's Name		LENNAR HOMES	
Developer's Address		100 NE LOOP 410 SUITE 1155	
City	SAN ANTONIO	State	TX
Zip	78216		
Phone #	(210) 403-6200	Fax #	-
SAWS Block Map		Total EDU's	50
		Total Acreage	9.371
Total Linear Footage of Pipe		1,231 L.F. - 8" PVC	Plat No.
Number of Lots		50	24-11800221
		SAWS Job No.	XX-XXXX



LEGEND

SITE BOUNDARY

DRAINAGE AREA

Tc FLOW PATH (SHEET FLOW)

Tc FLOW PATH (SHALLOW CONC.)

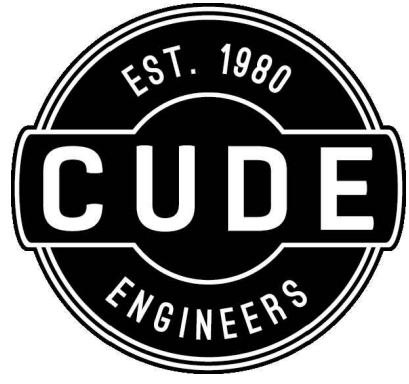
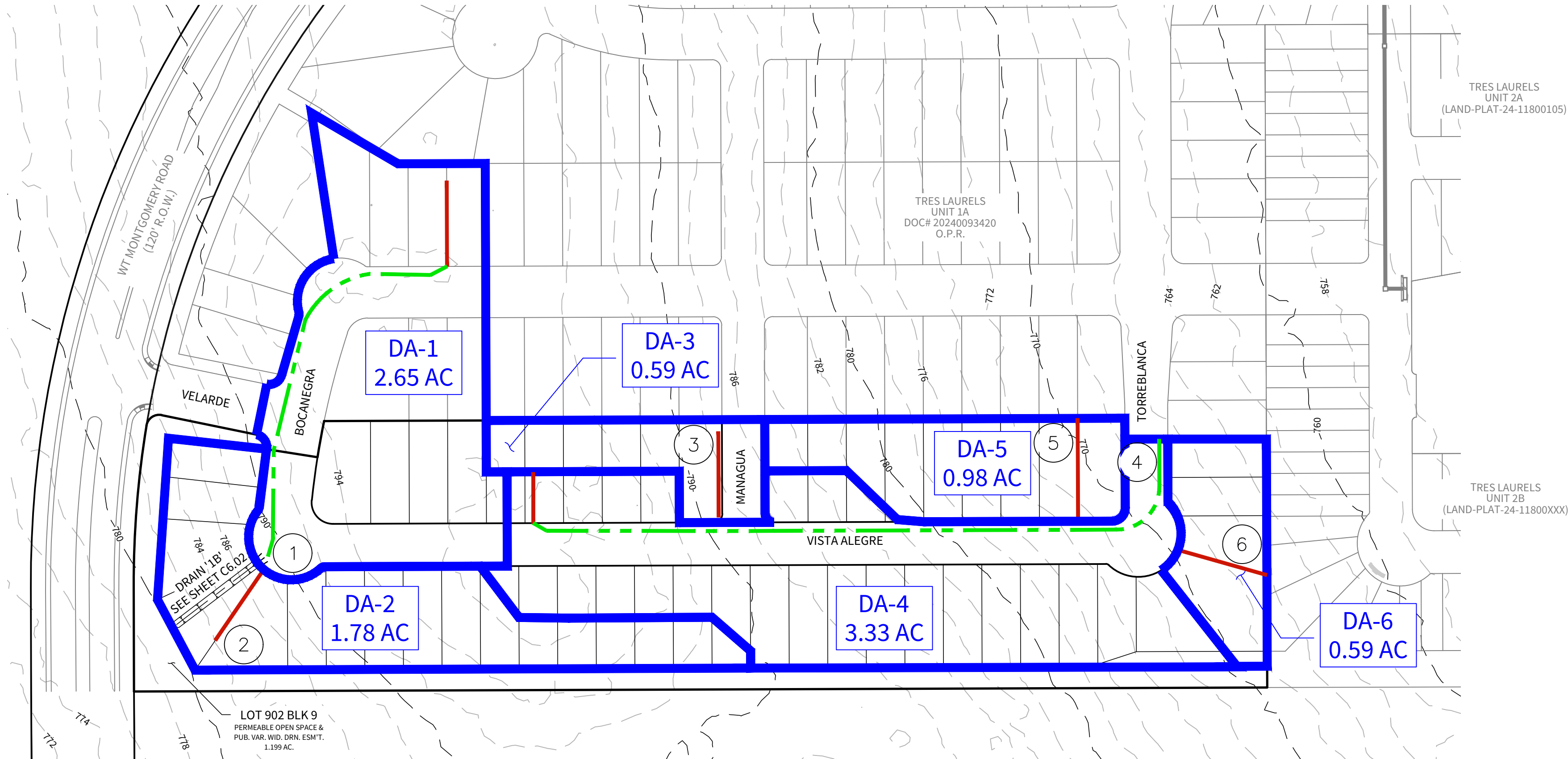
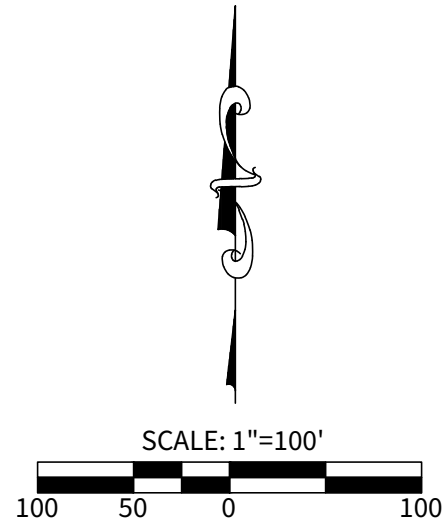
Tc FLOW PATH (CONCENTRATED)

FLOW ARROW PROP. GROUND

FLOW ARROW EX. GROUND

ACCUMULATION POINT

Project Name: Tres Laurels – Unit 1B														Precipitation				PA4								
Calculation Summary for Time of Concentrations & Proposed Flow (USED FOR SIZING CURB INLET AND VERIFYING STREET CAPACITY)																										
HYDROLOGY					Sheet Flow Tc Computations					Shallow Conc. Tc Computations					Concentrated Tc Computations			Overall	INTENSITY			Q FLOW				
Drainage Shed/ Computation Point	Structure / Description	Shed Area (Ac.)	AREA OF ACCUMULATION (Ac.)	C	Length < 100'	Paved (Y or N)	Upstream Elev.	Downstream Elev	Slope	Time of Concentration	Length	Paved (Y or N)	Downstream Elev	Slope	Time of Concentration	Length	Velocity (fps)	Time of Concentration	Time of Concentration (min)	I5	I25	I100	Q5	Q25	Q100	Drainage Shed
1	Bocanegra Drain 1-B 10' Elevated Sidewalk (In Sag)	2.65	= 1	0.67	100	N	796	795	1.50%	14	470	Y	789	1.22%	4				17	4.91	6.76	8.42	8.72	12.00	14.95	1
2		1.78	= 2	0.67	100	N	796	795	1.44%	14									14	5.42	7.53	9.39	6.46	8.98	11.20	2
3	Managua	0.59	= 3	0.67	100	N	788	787	1.31%	14									14	5.42	7.53	9.39	2.14	2.98	3.71	3
4	Vista Alegre / Torreblanca	3.33	= 4	0.67	60	N	797	797	1.35%	14	817	Y	769	3.44%	4				17	4.91	6.76	8.42	10.95	15.08	18.79	4
5		0.98	= 5	0.67	100	N	774	770	4.23%	11									11	6.02	8.43	10.54	3.95	5.54	6.92	5
6		0.59	= 6	0.67	100	N	771	766	4.87%	11									11	6.02	8.43	10.54	2.38	3.33	4.17	6



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TRES LAURELS
UNIT 1B

PROPOSED DRAINAGE MASTER PLAN

DATE

10/23/2024

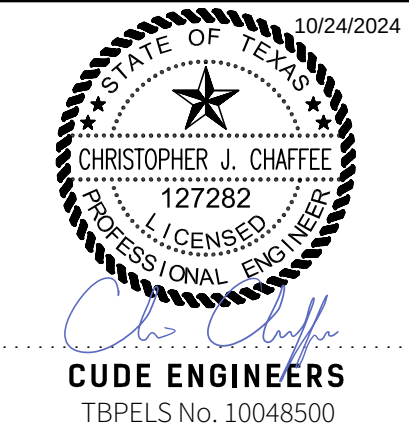
PROJECT NO.
03050.017

DRAWN BY
RM / IV

CHECKED BY
MAT/CJC

REVISIONS

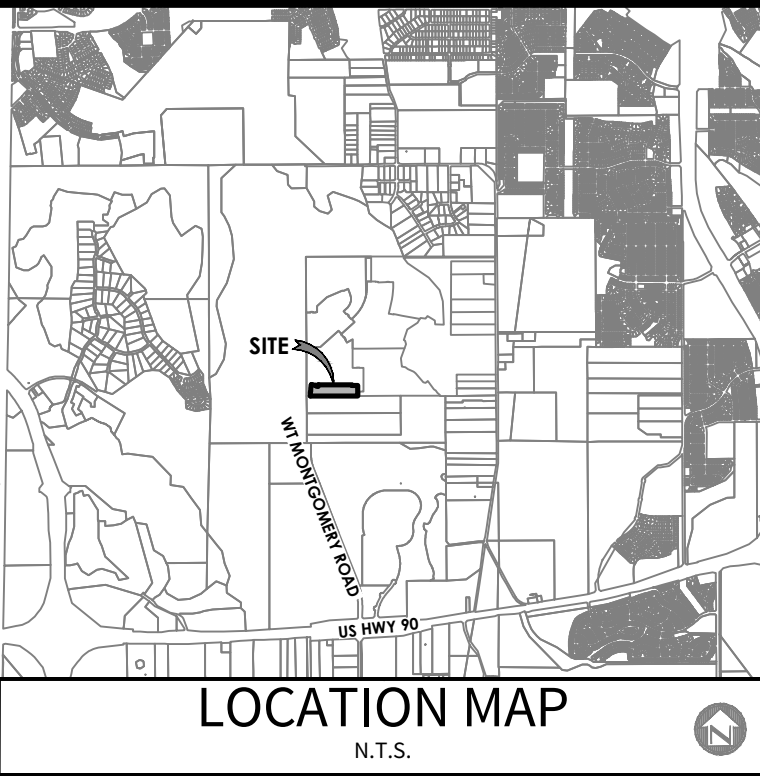
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CUDE ENGINEERS
TBPELS No. 10048500

PLAT NO.
24-11800221

C6.00



LEGEND

SITE BOUNDARY

DRAINAGE AREA

Tc FLOW PATH (SHEET FLOW)

Tc FLOW PATH (SHALLOW CONC.)

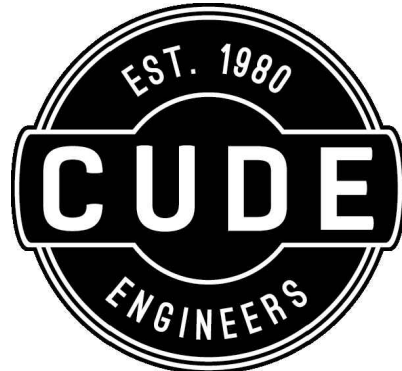
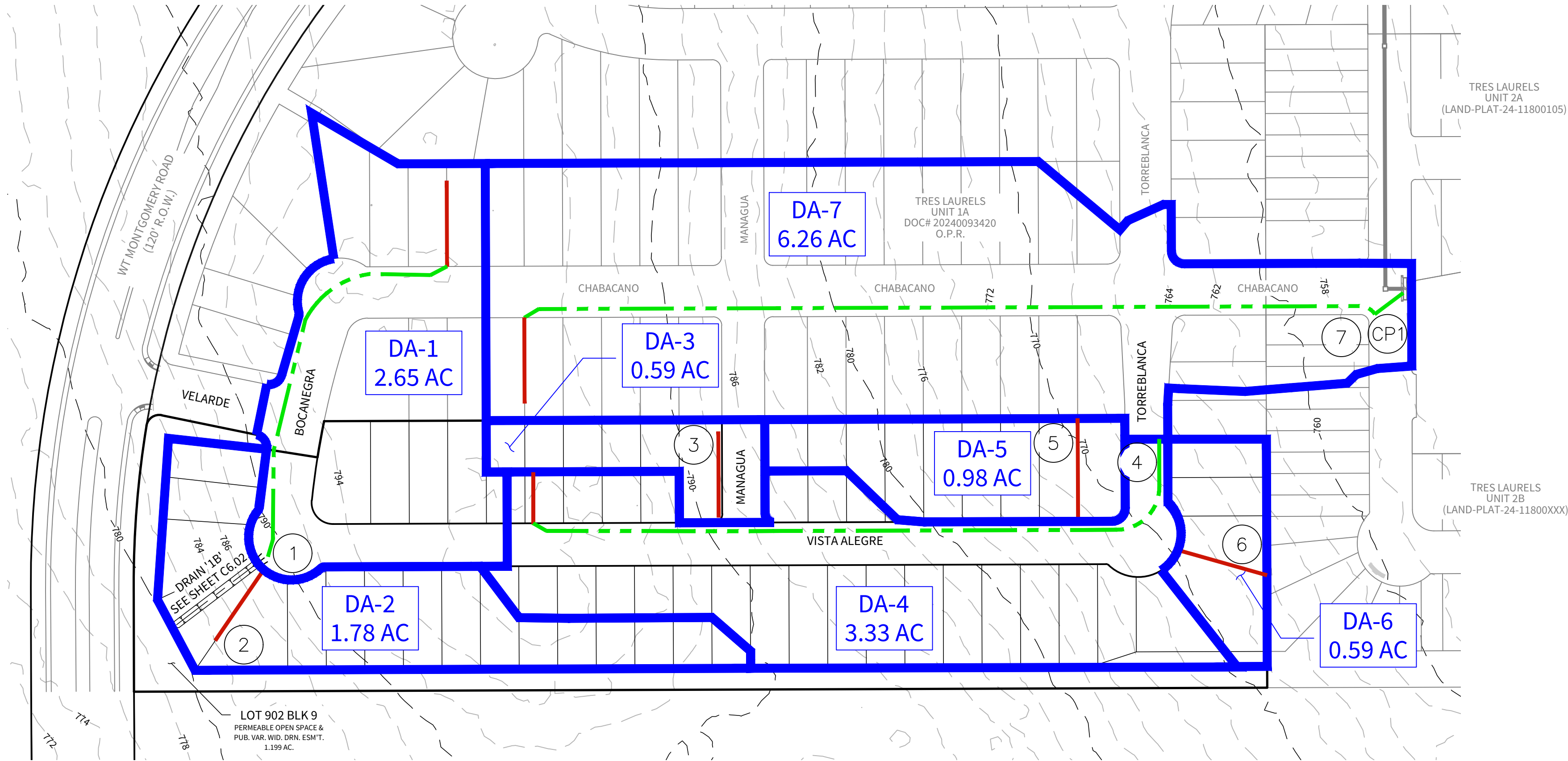
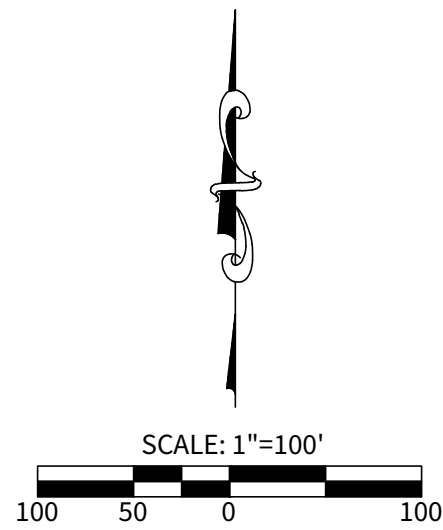
Tc FLOW PATH (CONCENTRATED)

FLOW ARROW PROP. GROUND

FLOW ARROW EX. GROUND

ACCUMULATION POINT

Project Name: Tres Laurels – Unit 1B														Precipitation			PA4									
Calculation Summary for Time of Concentrations & Proposed Flow (USED FOR SIZING CURB INLET AND VERIFYING STREET CAPACITY)																										
HYDROLOGY					Sheet Flow Tc Computations					Shallow Conc. Tc Computations				Concentrated Tc Computations			Overall	INTENSITY			Q FLOW					
Drainage Shed/ Computation Point	Structure / Description	Shed Area (Ac.)	AREA OF ACCUMULATION (Ac.)	C	Length < 100'	Paved (Y or N)	Upstream Elev.	Downstream Elev	Slope	Time of Concentration	Length	Paved (Y or N)	Downstream Elev	Slope	Time of Concentration	Length	Velocity (fps)	Time of Concentration	Time of Concentration (min)	I5	I25	I100	Q5	Q25	Q100	Drainage Shed
1	Bocanegra Drain 1-B 10' Elevated Sidewalk (In Sag)	2.65	= 1	0.67	100	N	796	795	1.50%	14	470	Y	789	1.22%	4				17	4.91	6.76	8.42	8.72	12.00	14.95	1
2		1.78	= 2	0.67	100	N	796	795	1.44%	14									14	5.42	7.53	9.39	6.46	8.98	11.20	2
3	Managua	0.59	= 3	0.67	100	N	788	787	1.31%	14									14	5.42	7.53	9.39	2.14	2.98	3.71	3
4	Vista Alegre / Torreblanca	3.33	= 4	0.67	60	N	797	797	1.35%	14	817	Y	769	3.44%	4				17	4.91	6.76	8.42	10.95	15.08	18.79	4
5		0.98	= 5	0.67	100	N	774	770	4.23%	11									11	6.02	8.43	10.54	3.95	5.54	6.92	5
6		0.59	= 6	0.67	100	N	771	766	4.87%	11									11	6.02	8.43	10.54	2.38	3.33	4.17	6
7		6.26	= 7	0.72	100	N	796	795	1.50%	14	1040	Y	755	3.81%	4				18	4.76	6.56	8.16	21.45	29.57	36.78	7
CP1		11.16	= 3+4+5+7	0.70	60	N	797	797	1.35%	14	1300	Y	755	3.21%	6				20	4.51	6.21	7.71	35.13	48.37	60.06	CP1



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TRES LAURELS
UNIT 1B
ULTIMATE DRAINAGE MASTER PLAN

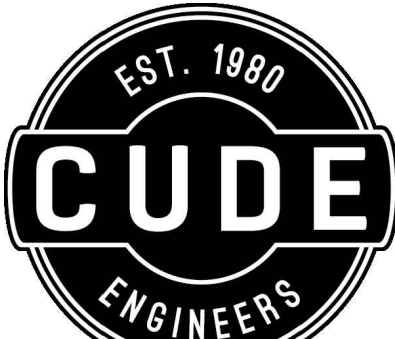
DATE
10/23/2024
PROJECT NO.
03050.017
DRAWN BY
RM / IV
CHECKED BY
MAT/CJC

REVISIONS	
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STATE OF TEXAS
CHRISTOPHER J. CHAFFEE
127282
LICENSED PROFESSIONAL ENGINEER
CUDE ENGINEERS
TBPELS No. 10048500

PLAT NO.
24-11800221

C6.01

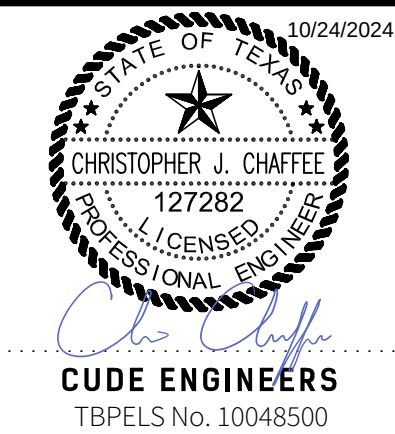


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TRES LAURELS
UNIT 1B

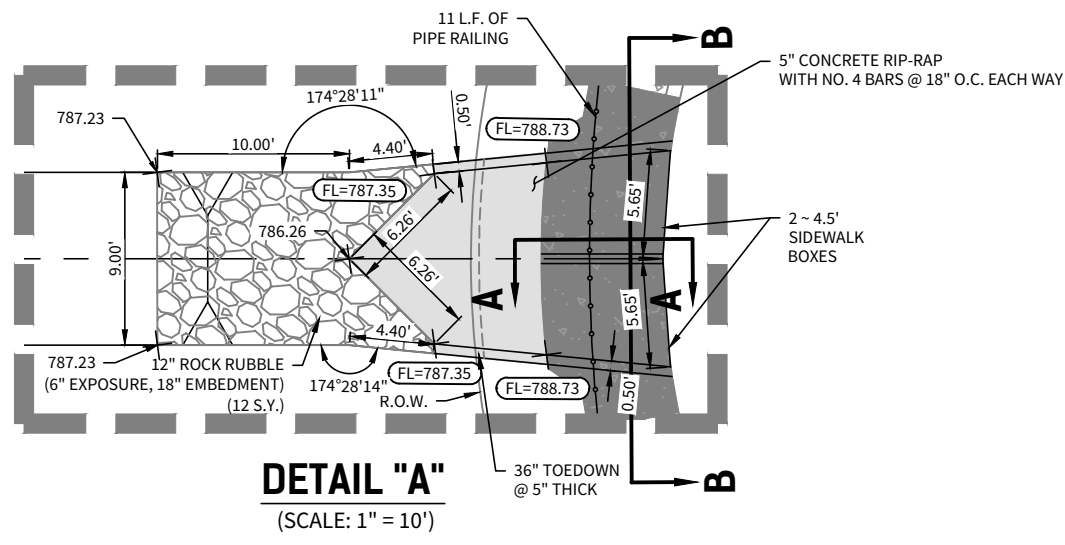
DRAINAGE PLAN & PROFILE -
DRAIN '1B'

DATE
10/24/2024
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MAT/CJC
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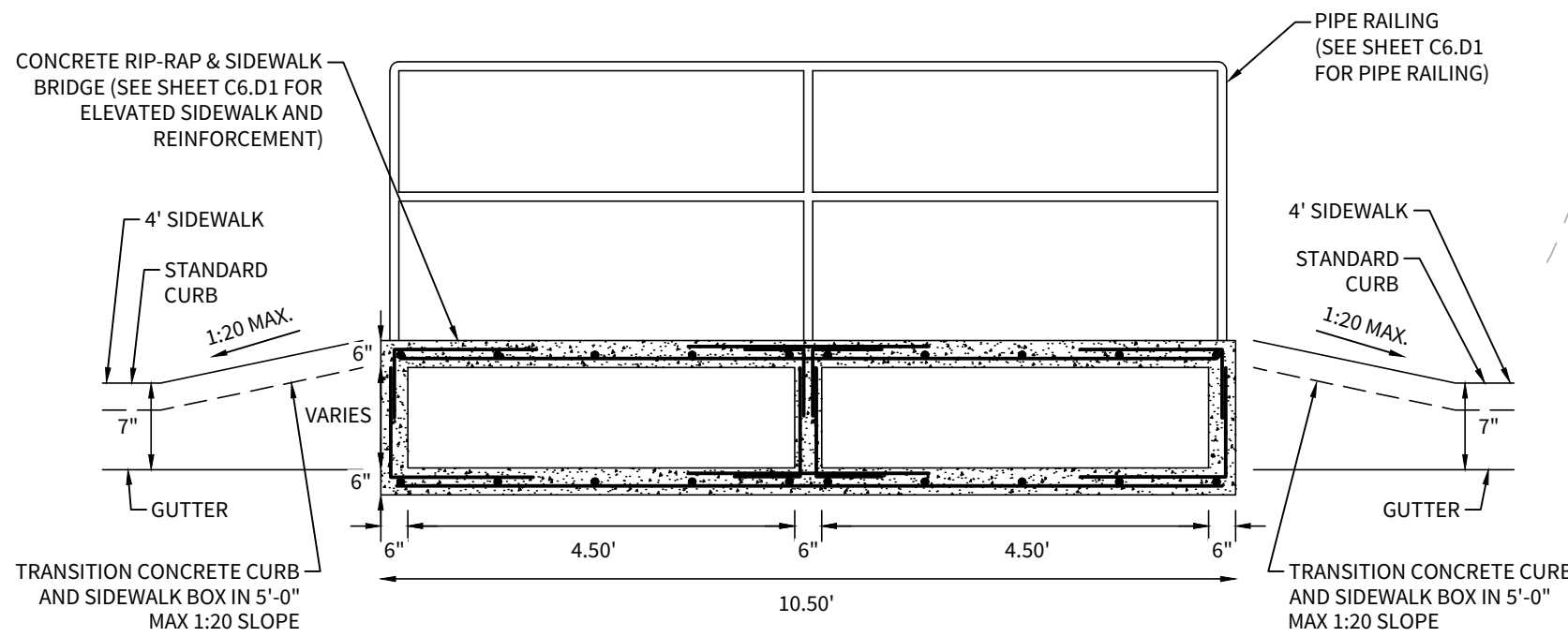


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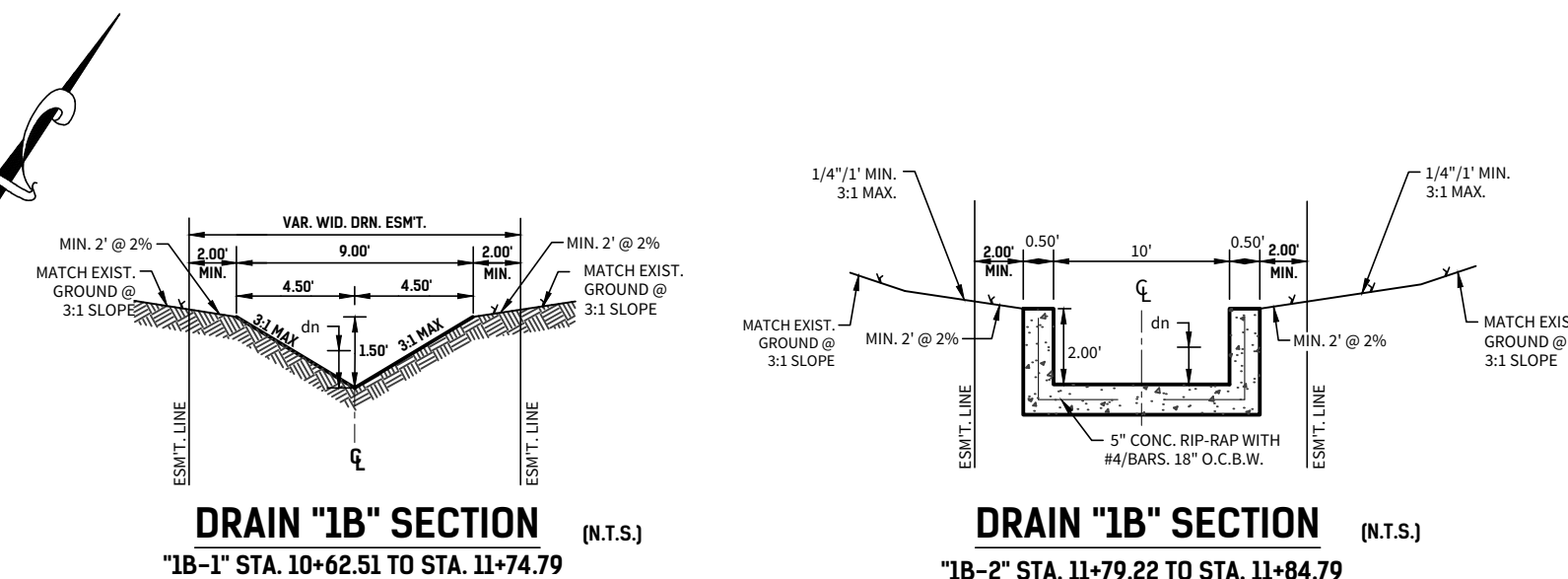
C6.02



**DRAIN 1B
SECTION "A-A"
SIDEWALK BOX DETAIL SECTION**
(N.T.S.)



**DRAIN 1B
SECTION "B-B"
SECTION THRU SIDEWALK BOX**
(N.T.S.)



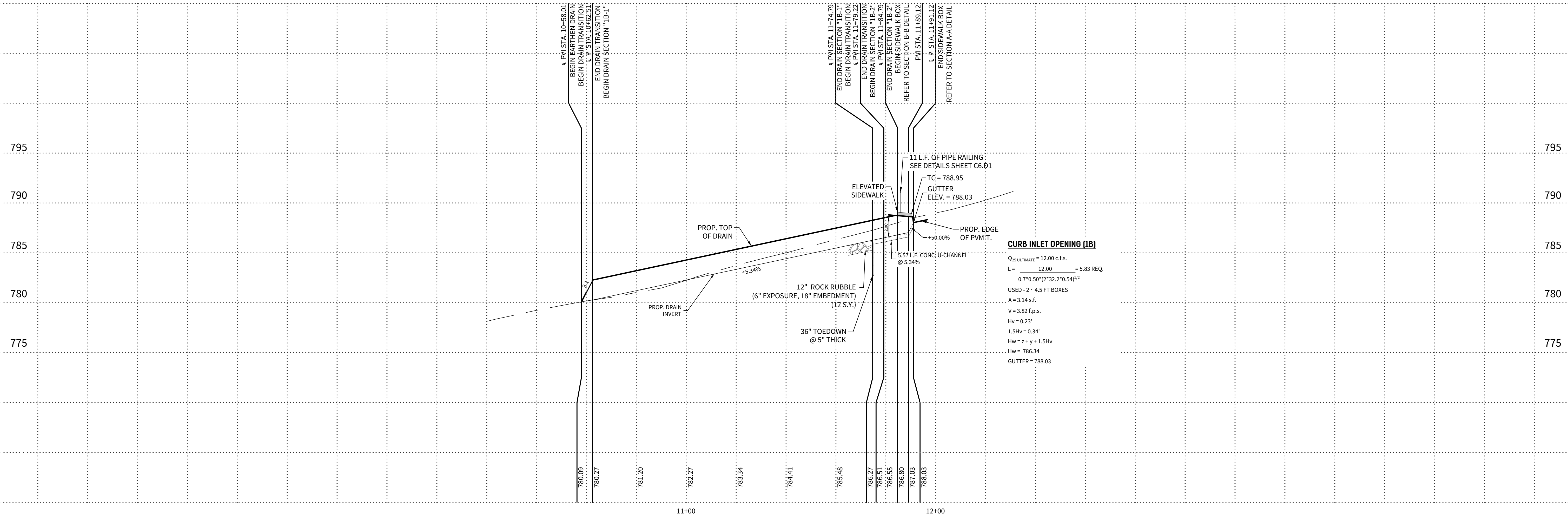
- NOTES:**
1. REFER TO GENERAL NOTES AND SPECIFICATIONS C6.00.
 2. CONTRACTOR TO ENSURE POSITIVE DRAINAGE AT ALL GRADE BREAKS.
 3. THE CONTRACTOR SHALL NOTIFY A UTILITY COORDINATOR AT LEAST 48 HOURS PRIOR TO PERFORMING ANY EXCAVATION ACTIVITY ADJACENT TO THE CONSTRUCTION OF AN ON-SITE DRAINAGE FACILITIES TO PROTECT ANY UNIDENTIFIED EXISTING UNDERGROUND UTILITY FACILITY FROM DAMAGE OR HARM. THE CONTRACTOR SHALL HAVE THE SOLE RESPONSIBILITY FOR ANY DAMAGES TO UTILITIES AS A RESULT OF NOT LOCATING UNDERGROUND UTILITY RESOURCES.
 4. ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE STANDARDS AND SPECIFICATIONS OF THE CITY OF SAN ANTONIO.
 5. ANY AREAS EXPOSED TO HIGH VELOCITY FLOWS SHALL EITHER HAVE A 6" THICK GABION MATTRESS INSTALLED OR THE INSTALLATION OF APPROPRIATE GEOTECHNICAL LINER AS DIRECTED BY THE CONSTRUCTION ENGINEER IN CHARGE.
 6. ALL CONCRETE SHALL BE A MINIMUM OF 3500 PSI @ 28 DAYS COMPRESSIVE STRENGTH UNLESS OTHERWISE SPECIFIED HEREIN ON THESE DOCUMENTS.
 7. 85% OF CHANNEL SURFACE MUST HAVE ESTABLISHED VEGETATION PRIOR TO ACCEPTANCE OF THE CHANNEL BY THE CITY OF SAN ANTONIO & BEXAR COUNTY. HYDROMULCH PAY ITEM TO INCLUDE SOIL SEEDING, OR SODDING & WATERING FOR THE TIME PERIOD NEEDED TO ACHIEVE 85% VEGETATION.
 8. REFERENCE TYPICAL CONCRETE CHANNEL RIP-RAP STANDARDS FOUND ON SHEET C6.01.
 9. A BEXAR COUNTY R.O.W. PERMIT MUST BE OBTAINED PRIOR TO WORKING IN EXISTING BEXAR COUNTY R.O.W.
 10. CONTRACTOR TO RECONSTRUCT EXISTING SIDEWALK, AS NECESSARY, FOR PROPOSED SIDEWALK TRANSITION.
 11. CONTRACTOR TO GROUT BOTTOM/FLOW LINE OF SEWER MANHOLES AND/OR CURB INLETS AS NECESSARY TO PROVIDE POSITIVE DRAINAGE.

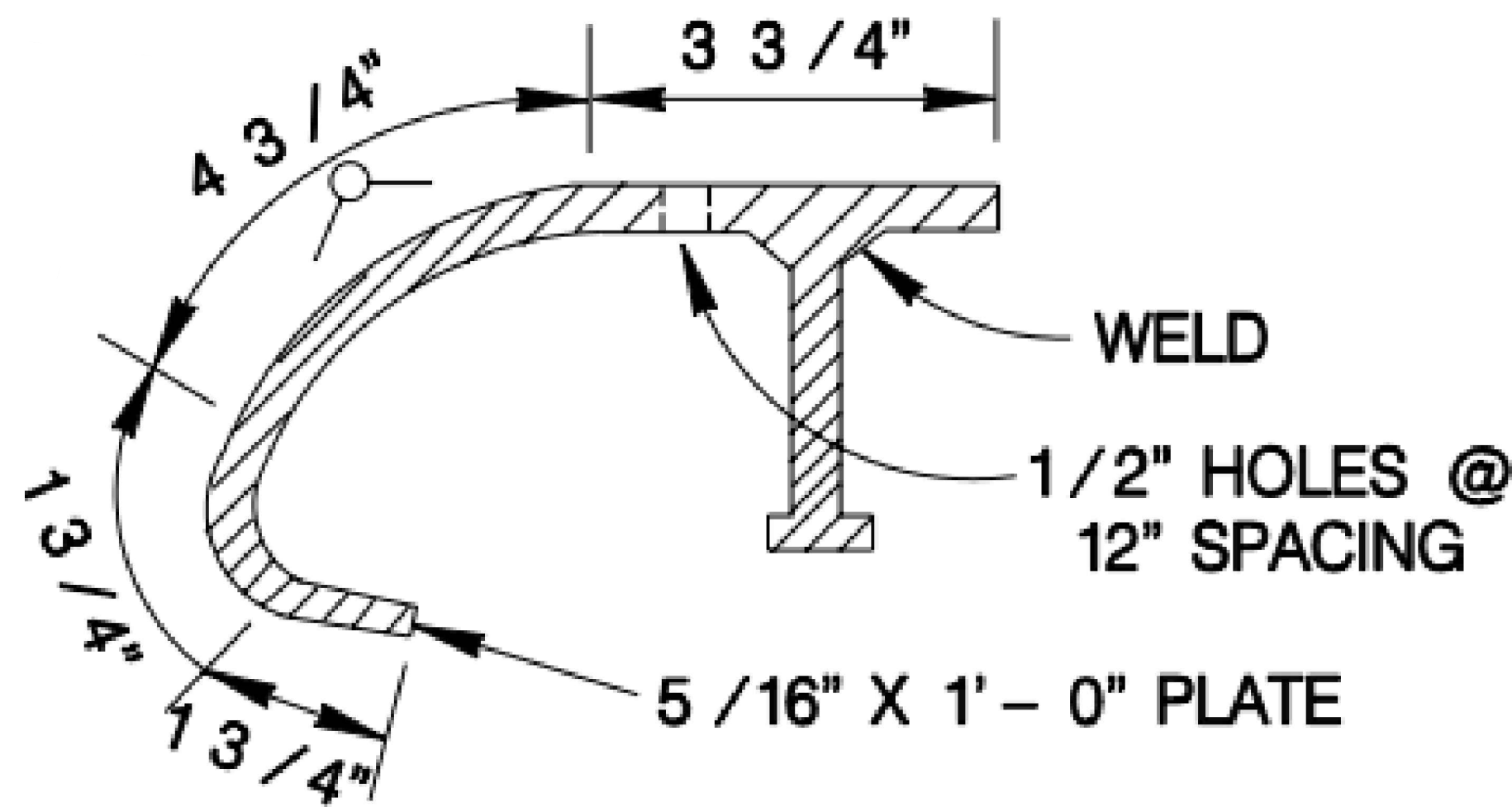
TRENCH EXCAVATION PROTECTION
CONTRACTOR AND/OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR STRUCTURAL DESIGN/GEOTECHNICAL/SAFETY/EQUIPMENT CONSULTANT, IF ANY, SHALL REVIEW THESE PLANS AND AVAILABLE GEOTECHNICAL INFORMATION AND THE ANTICIPATED INSTALLATION SITES WITHIN THE PROJECT WORK AREA IN ORDER TO IMPLEMENT CONTRACTOR'S TRENCH EXCAVATION SAFETY PROTECTION SYSTEMS, PROGRAMS AND/OR PROCEDURES FOR THE PROJECT DESCRIBED IN THE CONTRACT DOCUMENTS. THE CONTRACTOR'S IMPLEMENTATION OF THESE SYSTEMS, PROGRAMS AND/OR PROCEDURES SHALL PROVIDE FOR ADEQUATE TRENCH EXCAVATION SAFETY PROTECTION THAT COMPLY WITH AS A MINIMUM, OSHA STANDARDS FOR TRENCH EXCAVATIONS. SPECIFICALLY, CONTRACTOR AND/OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR SAFETY CONSULTANT SHALL IMPLEMENT A TRENCH SAFETY PROGRAM IN ACCORDANCE WITH OSHA STANDARDS GOVERNING THE PRESENCE AND ACTIVITIES OF INDIVIDUALS WORKING IN AND AROUND TRENCH EXCAVATION.

DRAIN 1B

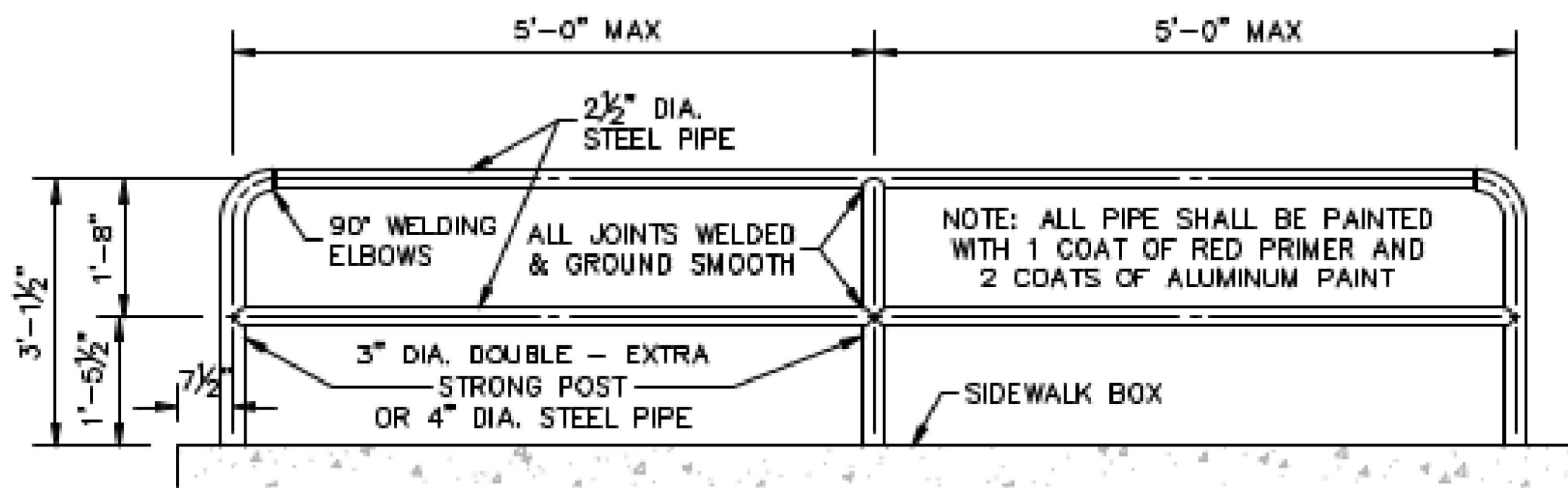
STA. 10+58.01 TO STA. 11+91.12

HORIZONTAL SCALE: 1" = 20'
VERTICAL SCALE: 1" = 5'





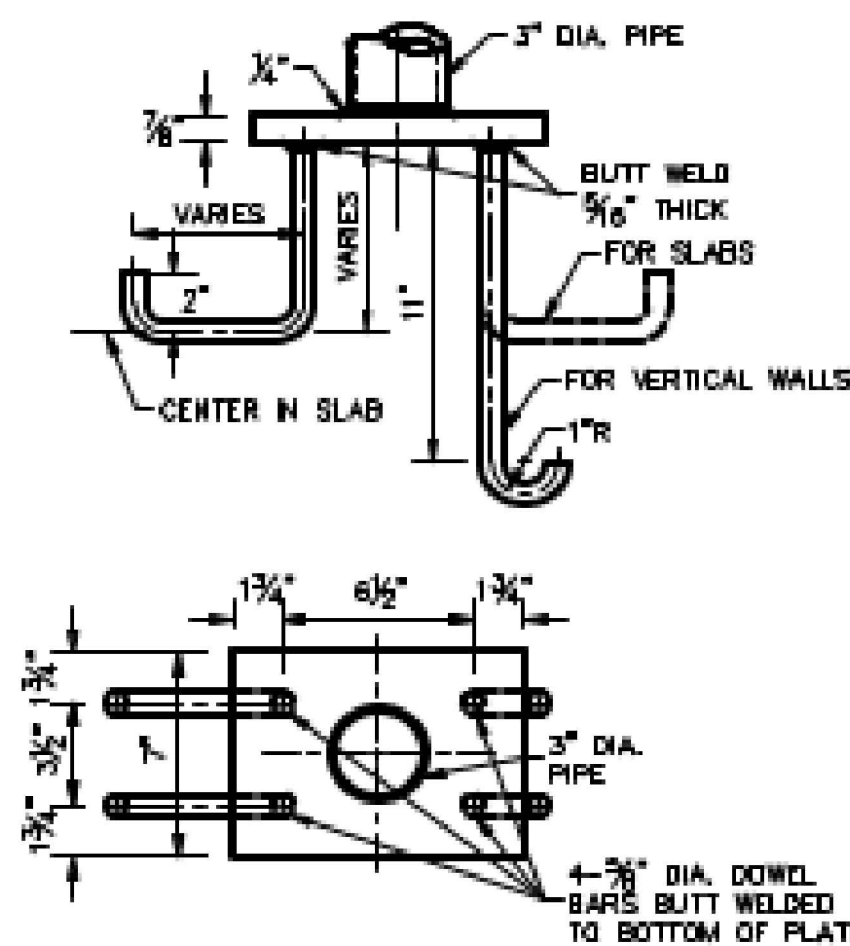
CURB ARMOR
DETAIL



NOTE: ALL CONSTRUCTION OF HANDRAIL SHALL FOLLOW THE CITY OF SAN ANTONIO STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION.

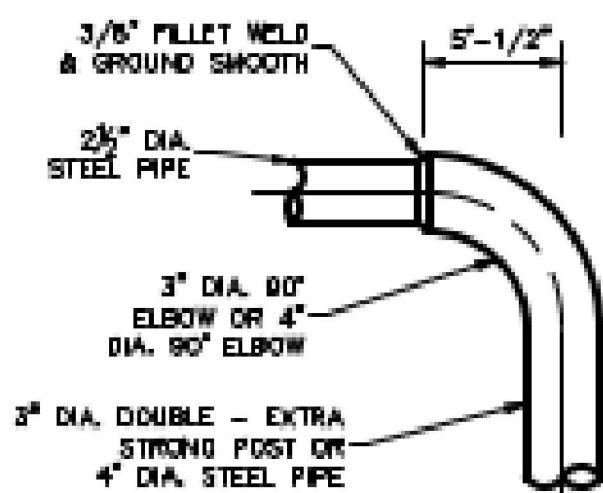
PIPE RAILING DETAIL

NOT-TO-SCALE



PIPE ANCHORAGE DETAIL

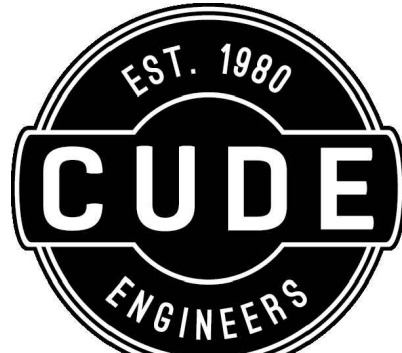
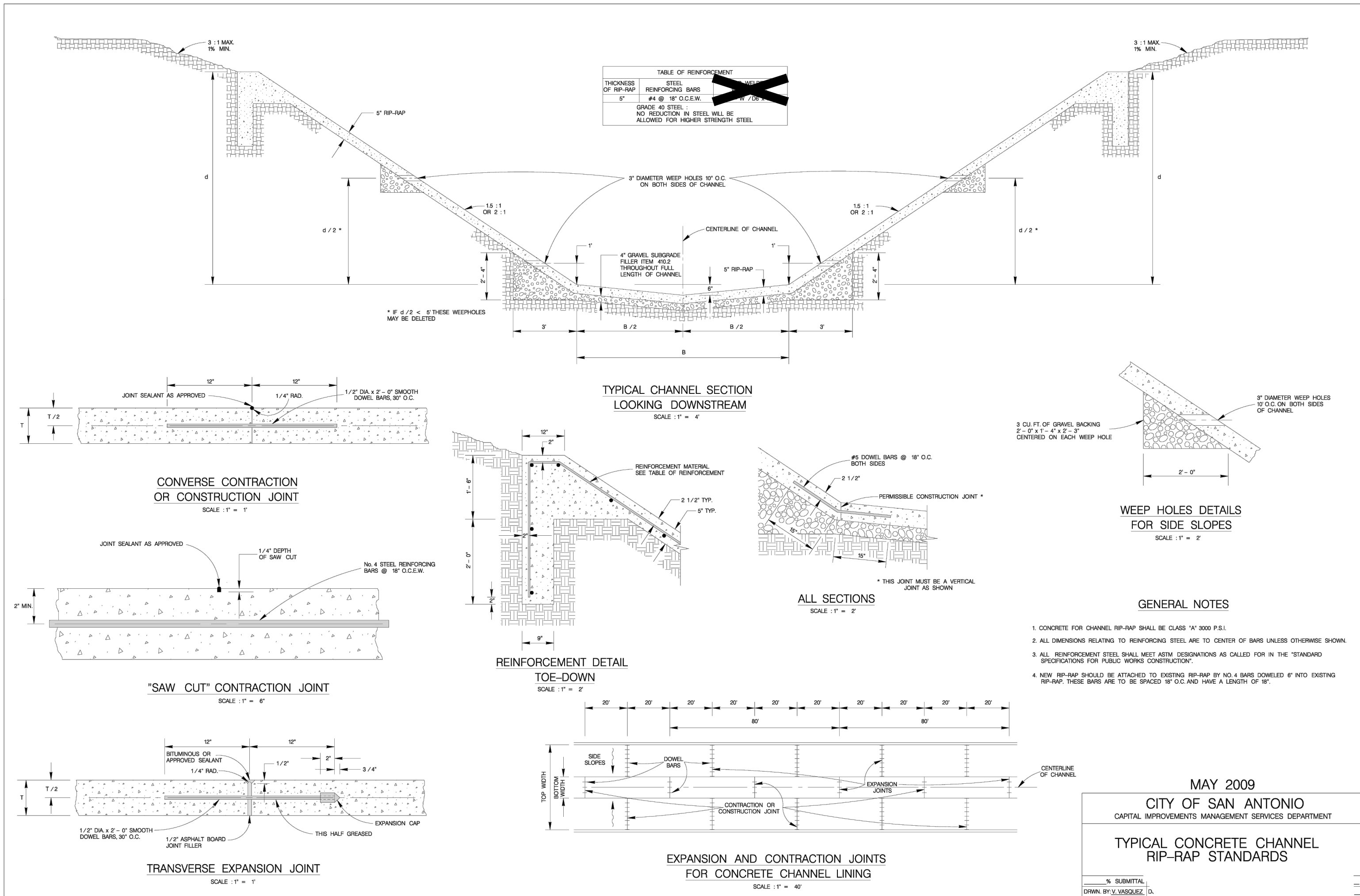
NOT-TO-SCALE



NOTE: A NEAT END SECTION, SATISFACTORY TO THE ENGINEER, FROM SUBMITTED SHOP DRAWINGS, MAY BE USED IN LIEU OF THE 90° WELDING ELBOW SHOWN.

DETAIL OF 90°
WELDING ELBOW

NOT-TO-SCALE

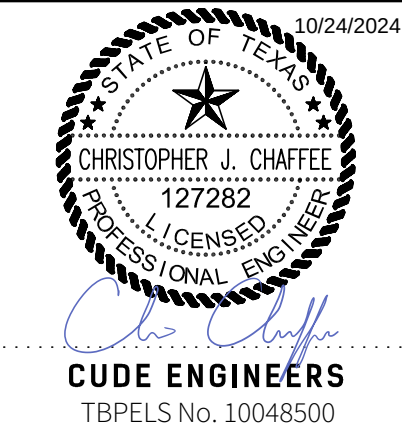


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TRES LAURELS
UNIT 1B
COSA ELEVATED SIDEWALK &
COSA CONCRETE CHANNEL RIP-RAP DETAILS

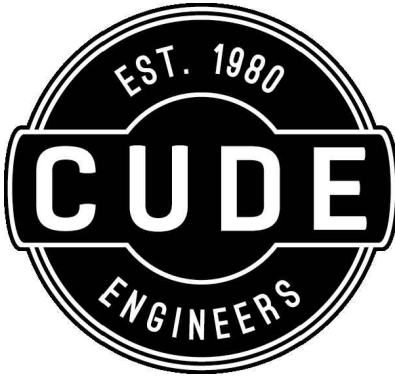
DATE
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PROJECT NO.
03050.017
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RM / IV
CHECKED BY
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REVISIONS
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PLAT NO.
24-11800221

C6.D1

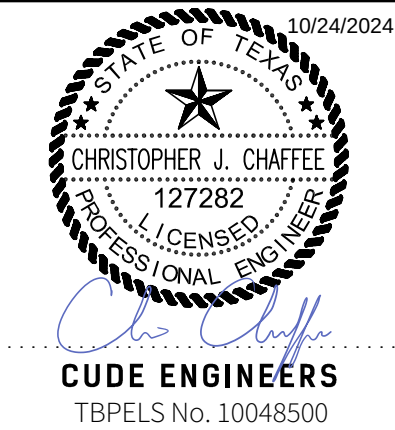


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TRES LAURELS
UNIT 1B
STREET PLAN & PROFILE -
BOCANEGRA

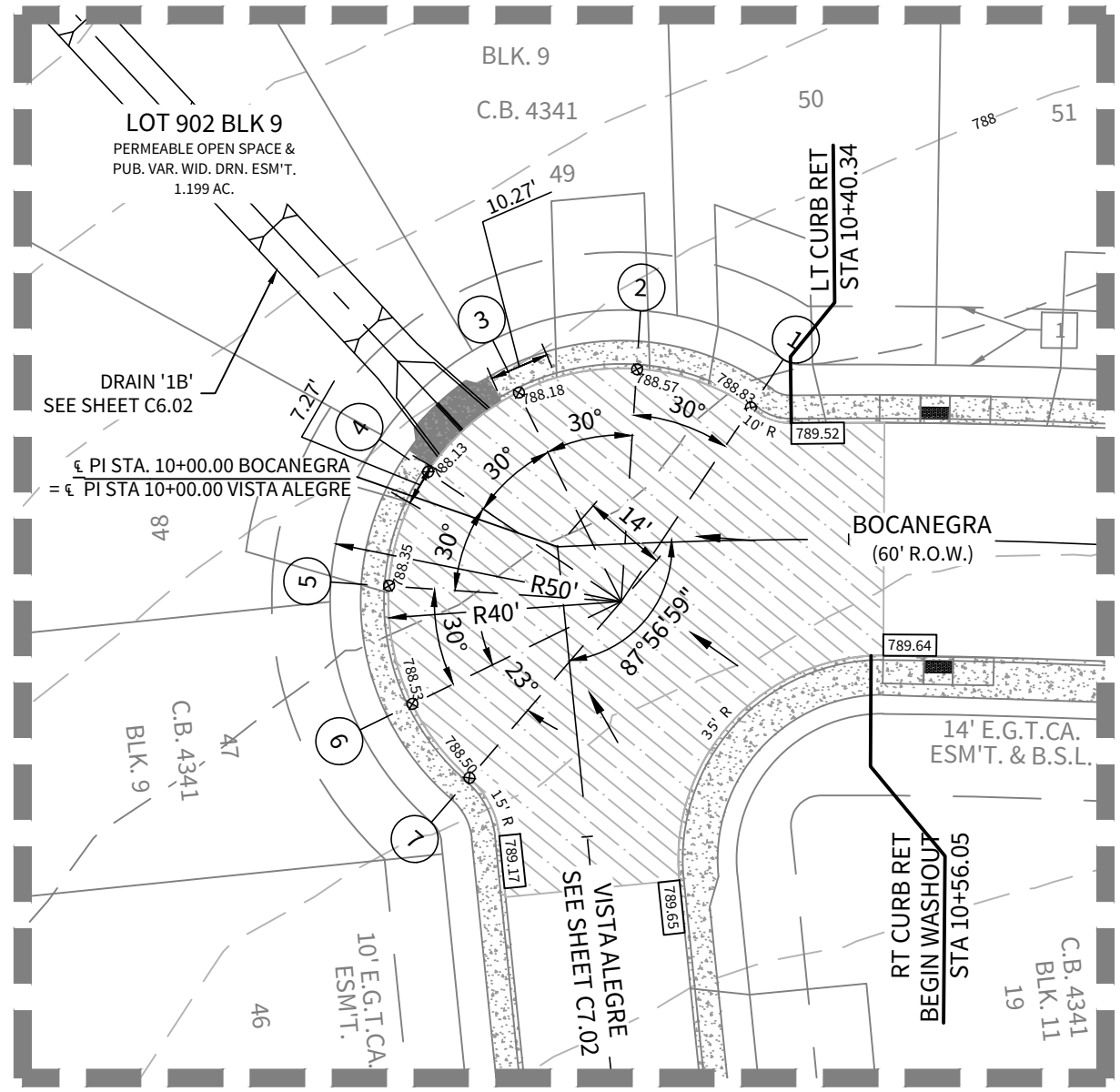
DATE
10/23/2024
PROJECT NO.
03050.017
DRAWN BY
RM / IV
CHECKED BY
MAT/CJC

REVISIONS
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PLAT NO.
24-11800221

C7.01



KNUCKLE DETAIL "A"
SCALE: 1" = 30'

NOTE: A BEXAR COUNTY PERMIT MUST BE
OBTAINED BEFORE WORKING IN BEXAR
COUNTY RIGHT OF WAY

HORIZONTAL SCALE: 1" = 50'
VERTICAL SCALE: 1" = 5'

BOCANEGRA

STA. 10+00.00 TO STA. 11+08.28

KEYNOTES:

1 14' E.G.T.C.A. ESM'T.

ELEVATIONS:

XXXXXX PROPOSED TOP OF CONCRETE
CURB ELEVATION

XXXXXX PROPOSED ASPHALT PAVEMENT
ELEVATION

- STREET WASHOUT (SEE DETAIL SHEET C7.D1)

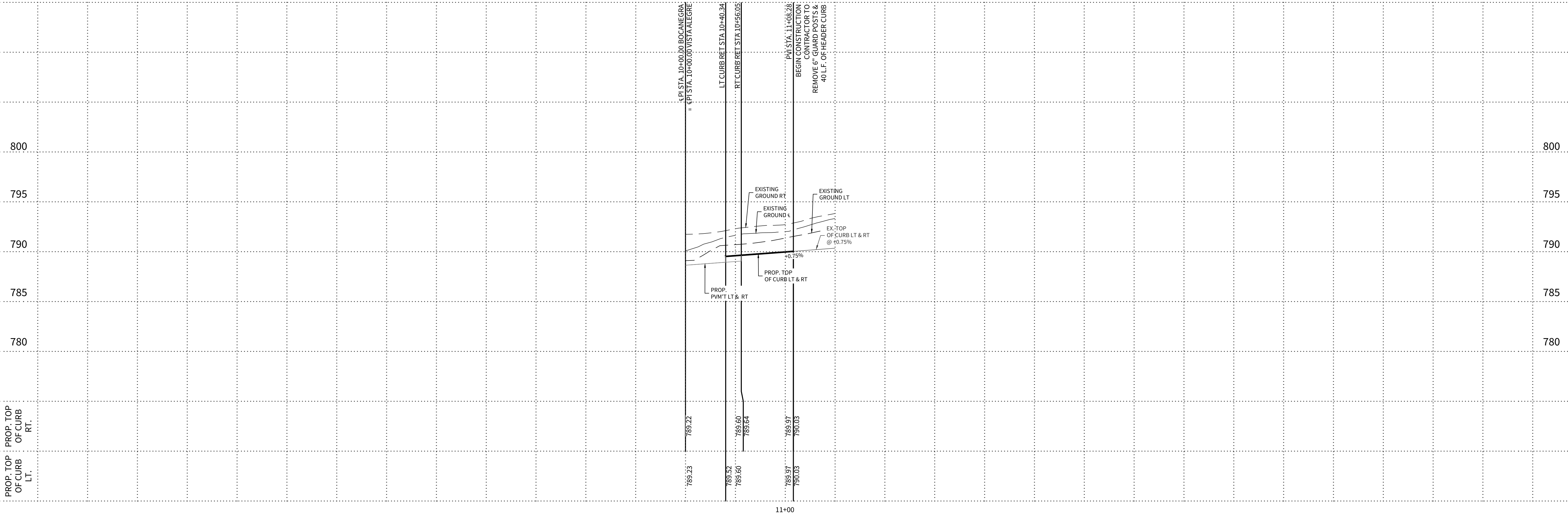
- SIDEWALK TO BE CONSTRUCTED WITH INFRASTRUCTURE (DEVELOPER RESPONSIBLE)

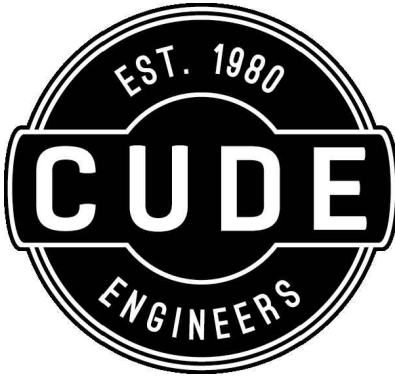
TXDOT TYPE "2" WHEEL CHAIR RAMPS ARE INDICATED THUS
" " UNLESS OTHERWISE NOTED. (SHEET C7.D1)

TYPE "10" DIRECTIONAL WHEEL CHAIR RAMPS ARE INDICATED
THUS " " UNLESS OTHERWISE NOTED. (SHEET C7.D1)

FOR ADA RAMPS AT SIDEWALK INTERSECTIONS.
DETECTABLE WARNING PAVER WITH TRUNCATED DOMES ONLY.
ADA RAMPS TO BE CONSTRUCTED WITH INFRASTRUCTURE.
WHERE RESIDENTIAL LOT FRONTAGE DOES NOT EXIST, ALL ADA
RAMPS ADJACENT TO A RESIDENTIAL LOT SHALL BE
CONSTRUCTED AT THE TIME OF HOMEBUILDING

DRIVEWAYS SHOWN ON THIS PLAN ARE FOR THE SOLE
PURPOSE OF INDICATING A POTENTIAL CONFLICT WITH CURB
RAMP, DRAINAGE INFRASTRUCTURE, OR OTHER CONFLICT.
DRIVEWAY LOCATION IS SUBJECT TO CHANGE BASED ON HOME
SELECTION AND FINAL LOT DESIGN.



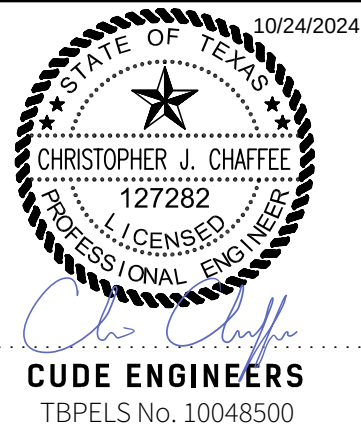


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TRES LAURELS
UNIT 1B
STREET PLAN & PROFILE -
VISTA ALEGRE

DATE
10/23/2024
PROJECT NO.
03050.017
DRAWN BY
RM / IV
CHECKED BY
MAT/CJC

REVISIONS	
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PLAT NO.
24-11800221

C7.02

KEYNOTES:

1 14' E.G.T.CA. ESM'T.

ELEVATIONS:

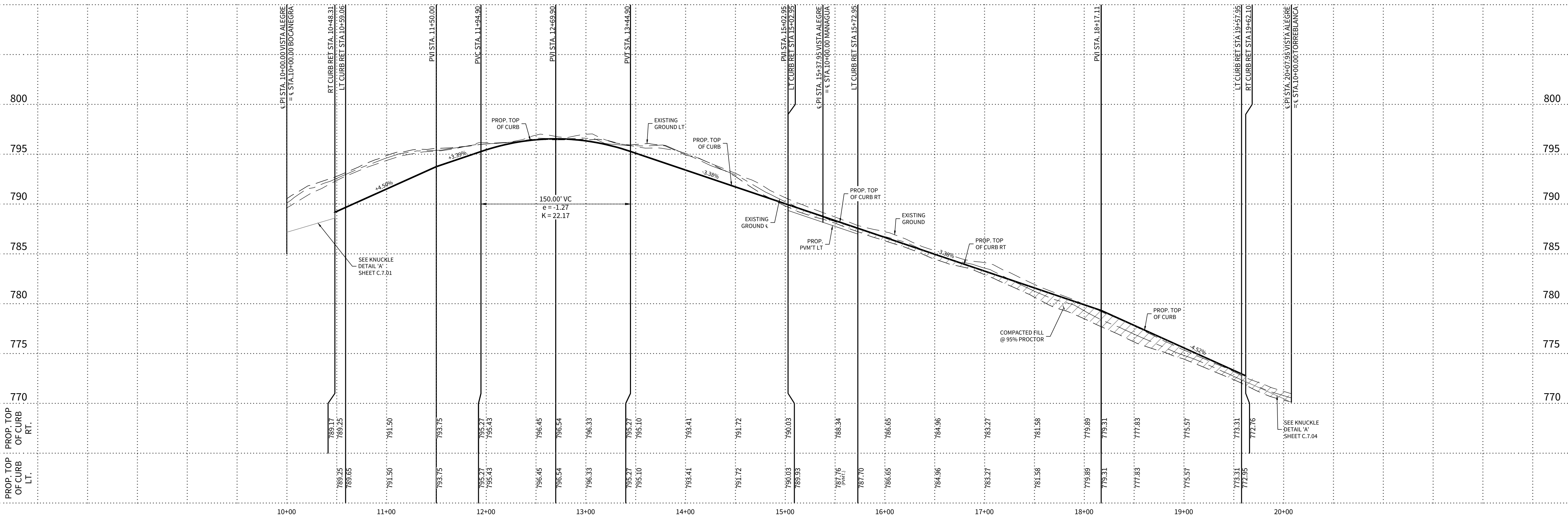
XXXXXX PROPOSED TOP OF CONCRETE CURB ELEVATION
XXXXXX PROPOSED ASPHALT PAVEMENT ELEVATION

STREET WASHOUT (SEE DETAIL SHEET C7.D1)
SIDEWALK TO BE CONSTRUCTED WITH INFRASTRUCTURE (DEVELOPER RESPONSIBLE)

TXDOT TYPE "2" WHEEL CHAIR RAMPS ARE INDICATED THUS
UNLESS OTHERWISE NOTED. (SHEET C7.D1)
TYPE "10" DIRECTIONAL WHEEL CHAIR RAMPS ARE INDICATED THUS
UNLESS OTHERWISE NOTED. (SHEET C7.D1)

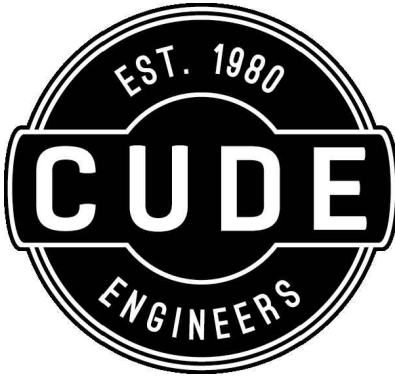
FOR ADA RAMPS AT SIDEWALK INTERSECTIONS.
DETECTABLE WARNING PAVER WITH TRUNCATED DOMES ONLY.
ADA RAMPS TO BE CONSTRUCTED WITH INFRASTRUCTURE.
WHERE RESIDENTIAL LOT FRONTAGE DOES NOT EXIST, ALL ADA
RAMPS ADJACENT TO A RESIDENTIAL LOT SHALL BE
CONSTRUCTED AT THE TIME OF HOMEBUILDING

DRIVEWAYS SHOWN ON THIS PLAN ARE FOR THE SOLE
PURPOSE OF INDICATING A POTENTIAL CONFLICT WITH CURB
RAMP, DRAINAGE INFRASTRUCTURE, OR OTHER CONFLICT.
DRIVEWAY LOCATION IS SUBJECT TO CHANGE BASED ON HOME
SELECTION AND FINAL LOT DESIGN.



NOTE: A BEXAR COUNTY PERMIT MUST BE
OBTAINED BEFORE WORKING IN BEXAR
COUNTY RIGHT OF WAY

HORIZONTAL SCALE: 1" = 50'
VERTICAL SCALE: 1" = 5'



4122 Pond Hill Road, Suite 101
San Antonio, Texas 78231
P-(210) 681.2951

TRES LAURELS
UNIT 1B
STREET PLAN & PROFILE -
MANAGUA

KEYNOTES:

1 14' E.G.T.CA. ESM'T.

ELEVATIONS:

XXXXXX PROPOSED TOP OF CONCRETE CURB ELEVATION

XXXXXX PROPOSED ASPHALT PAVEMENT ELEVATION

STREET WASHOUT (SEE DETAIL SHEET C7.D1)

SIDEWALK TO BE CONSTRUCTED WITH INFRASTRUCTURE (DEVELOPER RESPONSIBLE)

TXDOT TYPE "2" WHEEL CHAIR RAMPS ARE INDICATED THUS " " UNLESS OTHERWISE NOTED. (SHEET C7.D1)

TYPE "10" DIRECTIONAL WHEEL CHAIR RAMPS ARE INDICATED THUS " " UNLESS OTHERWISE NOTED. (SHEET C7.D1)

FOR ADA RAMPS AT SIDEWALK INTERSECTIONS.
DETECTABLE WARNING PAVER WITH TRUNCATED DOMES ONLY.
ADA RAMPS TO BE CONSTRUCTED WITH INFRASTRUCTURE.
WHERE RESIDENTIAL LOT FRONTAGE DOES NOT EXIST, ALL ADA
RAMPS ADJACENT TO A RESIDENTIAL LOT SHALL BE
CONSTRUCTED AT THE TIME OF HOMEBUILDING

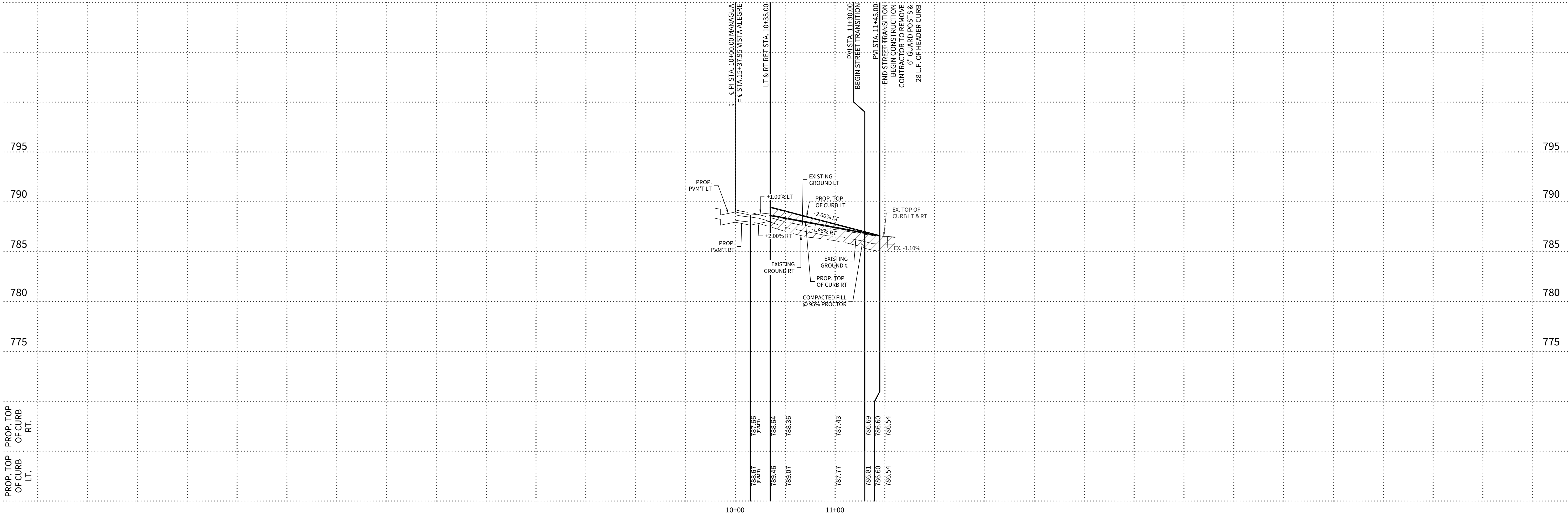
DRIVEWAYS SHOWN ON THIS PLAN ARE FOR THE SOLE
PURPOSE OF INDICATING A POTENTIAL CONFLICT WITH CURB
RAMP, DRAINAGE INFRASTRUCTURE, OR OTHER CONFLICT.
DRIVEWAY LOCATION IS SUBJECT TO CHANGE BASED ON HOME
SELECTION AND FINAL LOT DESIGN.

NOTE: A BEXAR COUNTY PERMIT MUST BE
OBTAINED BEFORE WORKING IN BEXAR
COUNTY RIGHT OF WAY

HORIZONTAL SCALE: 1" = 50'
VERTICAL SCALE: 1" = 5'

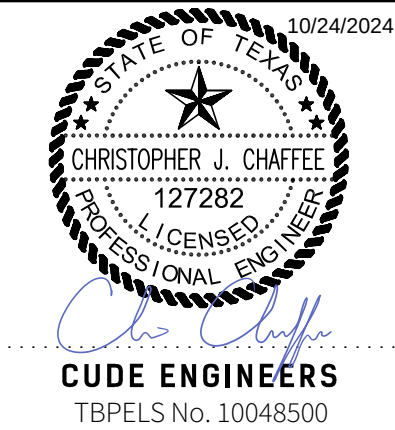
MANAGUA

STA. 10+00.00 TO STA. 11+45.00



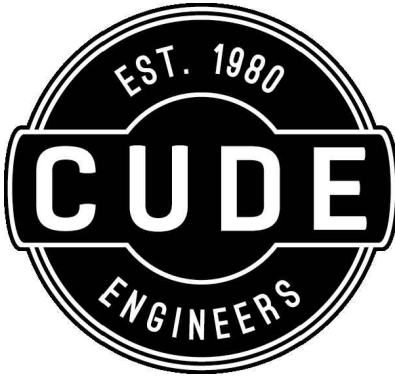
DATE
10/23/2024
PROJECT NO.
03050.017
DRAWN BY
RM / IV
CHECKED BY
MAT/CJC

REVISIONS
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PLAT NO.
24-11800221

C7.03



4122 Pond Hill Road, Suite 101
San Antonio, Texas 78231
P:(210) 681.2951

TRES LAURELS
UNIT 1B
STREET PLAN & PROFILE -
TORREBLANCA

DATE

10/24/2024

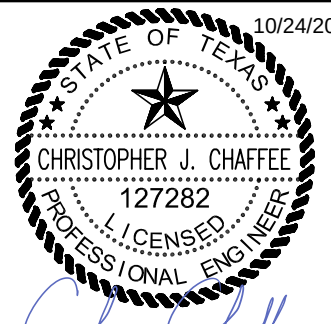
PROJECT NO.
03050.017

DRAWN BY
RM / IV

CHECKED BY
MAT/CJC

REVISIONS

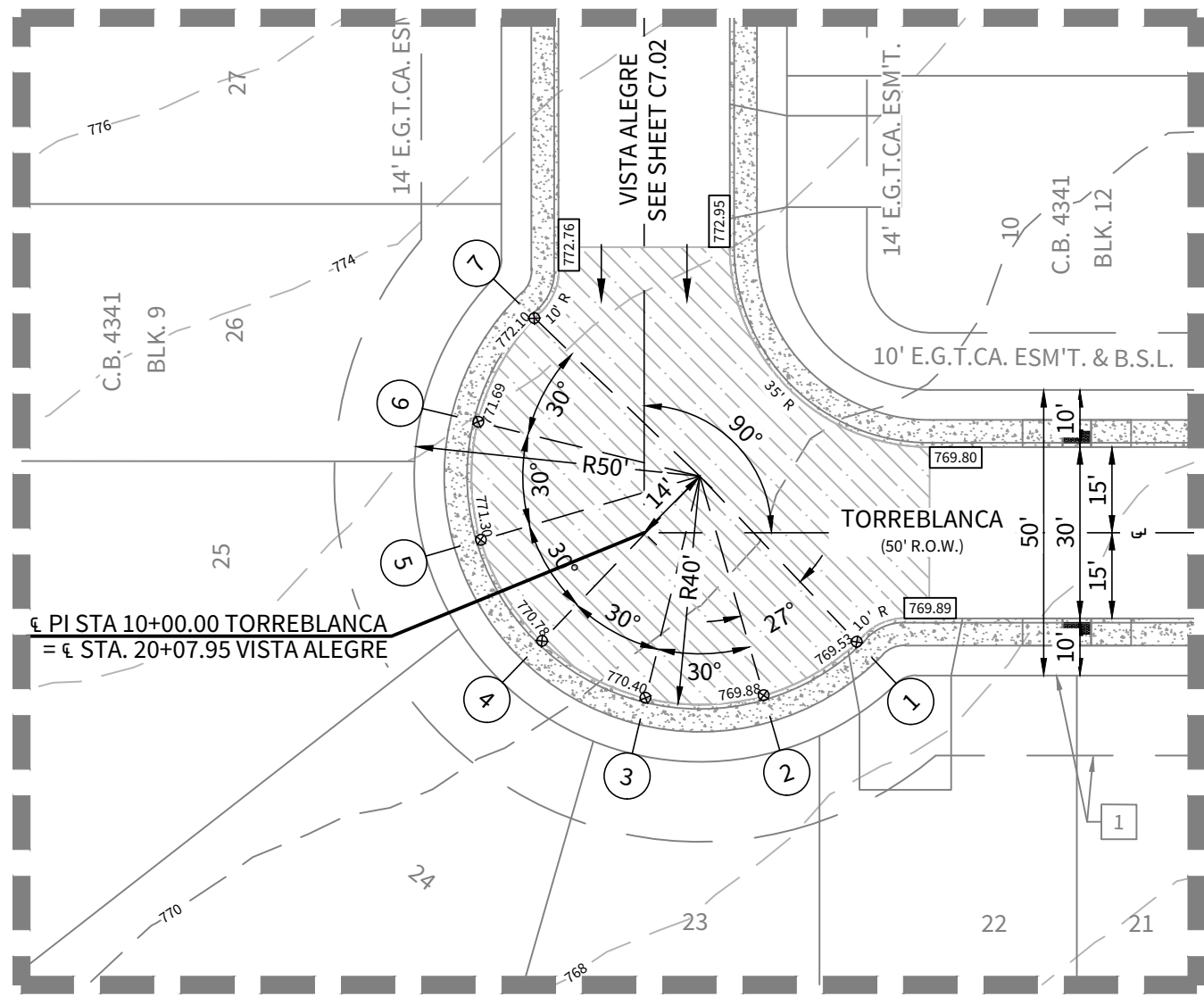
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CUDE ENGINEERS
TBPELS No. 10048500

PLAT NO.
24-11800221

C7.04



KNUCKLE DETAIL "A"
SCALE: 1" = 30'

NOTE: A BEXAR COUNTY PERMIT MUST BE
OBTAINED BEFORE WORKING IN BEXAR
COUNTY RIGHT OF WAY

HORIZONTAL SCALE: 1" = 50'
VERTICAL SCALE: 1" = 5'

TORREBLANCA

STA. 10+00.00 TO STA. 11+20.70

KEYNOTES:

1 14' E.G.T.CA. ESM'T.

ELEVATIONS:

XXXXXX PROPOSED TOP OF CONCRETE
CURB ELEVATION

XXXXXX PROPOSED ASPHALT PAVEMENT
ELEVATION

- STREET WASHOUT (SEE DETAIL SHEET C7.D1)

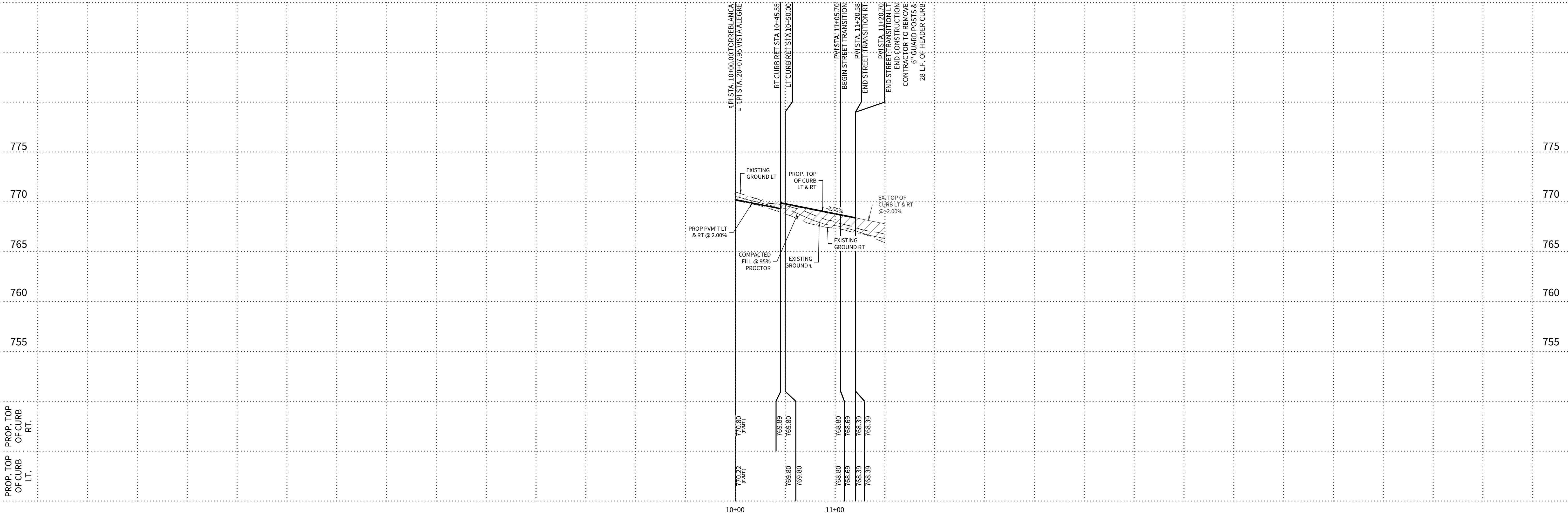
- SIDEWALK TO BE CONSTRUCTED WITH INFRASTRUCTURE (DEVELOPER RESPONSIBLE)

TXDOT TYPE "2" WHEEL CHAIR RAMPS ARE INDICATED THUS
" " UNLESS OTHERWISE NOTED. (SHEET C7.D1)

TYPE "10" DIRECTIONAL WHEEL CHAIR RAMPS ARE INDICATED
THUS " " UNLESS OTHERWISE NOTED. (SHEET C7.D1)

FOR ADA RAMPS AT SIDEWALK INTERSECTIONS.
DETECTABLE WARNING PAVER WITH TRUNCATED DOMES ONLY.
ADA RAMPS TO BE CONSTRUCTED WITH INFRASTRUCTURE.
WHERE RESIDENTIAL LOT FRONTAGE DOES NOT EXIST, ALL ADA
RAMPS ADJACENT TO A RESIDENTIAL LOT SHALL BE
CONSTRUCTED AT THE TIME OF HOMEBUILDING

DRIVEWAYS SHOWN ON THIS PLAN ARE FOR THE SOLE
PURPOSE OF INDICATING A POTENTIAL CONFLICT WITH CURB
RAMP, DRAINAGE INFRASTRUCTURE, OR OTHER CONFLICT.
DRIVEWAY LOCATION IS SUBJECT TO CHANGE BASED ON HOME
SELECTION AND FINAL LOT DESIGN.



TYPICAL DRIVEWAY CUT SECTION

TYPICAL LOCAL "A" STREET CROSS-SECTION

CURB SECTION

TYPICAL LOCAL TYPE "B" STREET CROSS-SECTION

GENERAL NOTES

THE LOCATIONS AND DEPTHS OF ALL EXISTING UTILITIES, INCLUDING SERVICE LATERALS AND DRAINAGE STRUCTURES SHOWN ON THE PLANS ARE APPROXIMATE ONLY. THE CONTRACTOR SHALL VERIFY THE EXACT LOCATION AND DEPTHS OF UNDERGROUND UTILITIES AT LEAST 48 HOURS PRIOR TO CONSTRUCTION WHETHER SHOWN ON PLANS OR NOT, AND TO PROTECT THE SAME DURING CONSTRUCTION.

SAN ANTONIO WATER SYSTEM	233-2010
COSA DRAINAGE	207-2800
CITY SIDEWALK AND TRENCHING DIVISION	821-3240
COSA TRAFFIC SIGNAL OPERATIONS	207-7765
TEXAS STATE WIDE ONE CALL LOCATOR	1-800-545-6005
C.P.S. ENERGY	"
AT&T	"
SPECTRUM	"
VALERO ENERGY CO.	"

DETAILS ON THIS DRAWING ARE NOT TO SCALE

ADA RAMP INTERSECTION LAYOUT DETAIL
(TYPE 10 DIRECTIONAL RAMPS)
N.T.S.

NOTES:

1. STREET LIGHTS SHALL BE INSTALLED 2' WITHIN R.O.W. AND A MINIMUM DISTANCE OF 6" FROM THE PROPOSED SIDEWALK.

NOTES:

1. ALLOW FOR REFLECTOR BUTTONS ON GUARD POSTS. USE ONE 3" BUTTON PER POST.
2. POSTS WILL RECEIVE TWO COATS OF ALUMINUM PAINT.

HEADER CURB DETAIL

N.T.S.

LEGEND

WASHOUT CROWN SECTION
(SEE DETAIL, BELOW FOR
TRANSITION DISTANCE)

WASHOUT CROWN TRANSITION DETAIL

N.T.S

 LOCAL TYPE A

 LOCAL TYPE E

STREET PAVEMENT DESIGN DETAIL

ADA RAMP INTERSECTION LAYOUT DETAIL
(TYPE 10 DIRECTIONAL RAMPS - SINGLE DIRECTION)
N.T.S.

NOTES:

1. STREET LIGHTS SHALL BE INSTALLED 2' WITHIN R.O.W. AND A MINIMUM DISTANCE OF 6" FROM THE PROPOSED SIDEWALK.

ADA RAMP LAYOUT DETAIL
(TYPE 2 SIDEWALK RAMP)
N.T.S.

N.T.S.

CONCRETE SIDEWALK
N.T.S.

N.T.S.

SIDEWALK PASSING SPACE

1. FOR LOCAL TYPE "A" STREETS, SIDEWALKS SHALL HAVE A MINIMUM UNOBSTRUCTED WIDTH OF 4' AND IF SEPARATED FROM THE CURB, THE SIDEWALK SHALL BE LOCATED A MINIMUM OF 3' FROM THE BACK OF CURB.
2. SIDEWALKS LESS THAN 5 FEET IN WIDTH SHALL BE PROVIDED WITH A PASSING SPACE AT A MAXIMUM SPACING OF 200 FEET.

MAIL BOX PAD NOTE:

1. THE CONTRACTOR WILL CONSTRUCT SLABS FOR "TEMPORARY MAIL BOX COLLECTION PAD" FOR THE UNITED STATES POSTAL SERVICE WITH LOCATIONS AND SIZES SPECIFIED BY THE CITY ENGINEER DURING CONSTRUCTION.
2. THE CONSTRUCTION OF SLABS SHALL CONFORM TO ITEM 513 "REMOVING AND RELOCATING MAILBOXES".
3. PAYMENT WILL BE MADE UNDER ITEM 513.2 "COMMUNITY MAILBOX SLAB - PER SQUARE YARD".
4. UNIT PRICE WILL INCLUDE REMOVAL OF "TEMPORARY MAIL BOX COLLECTION PAD" SLABS AT THE END OF THE PROJECT. NO SEPARATE PAY ITEM.

COMMUNITY MAIL BOX SLAB

ITEM 513.2

PAVEMENT DESIGN SCHEMATIC

NOTE:
1. REFERENCE GEOTECHNICAL REPORT (INTEC PROJECT NO. S251271-R1
SEPTEMBER 26, 2025) FOR BORING INFORMATION AND CBR LOCATIONS

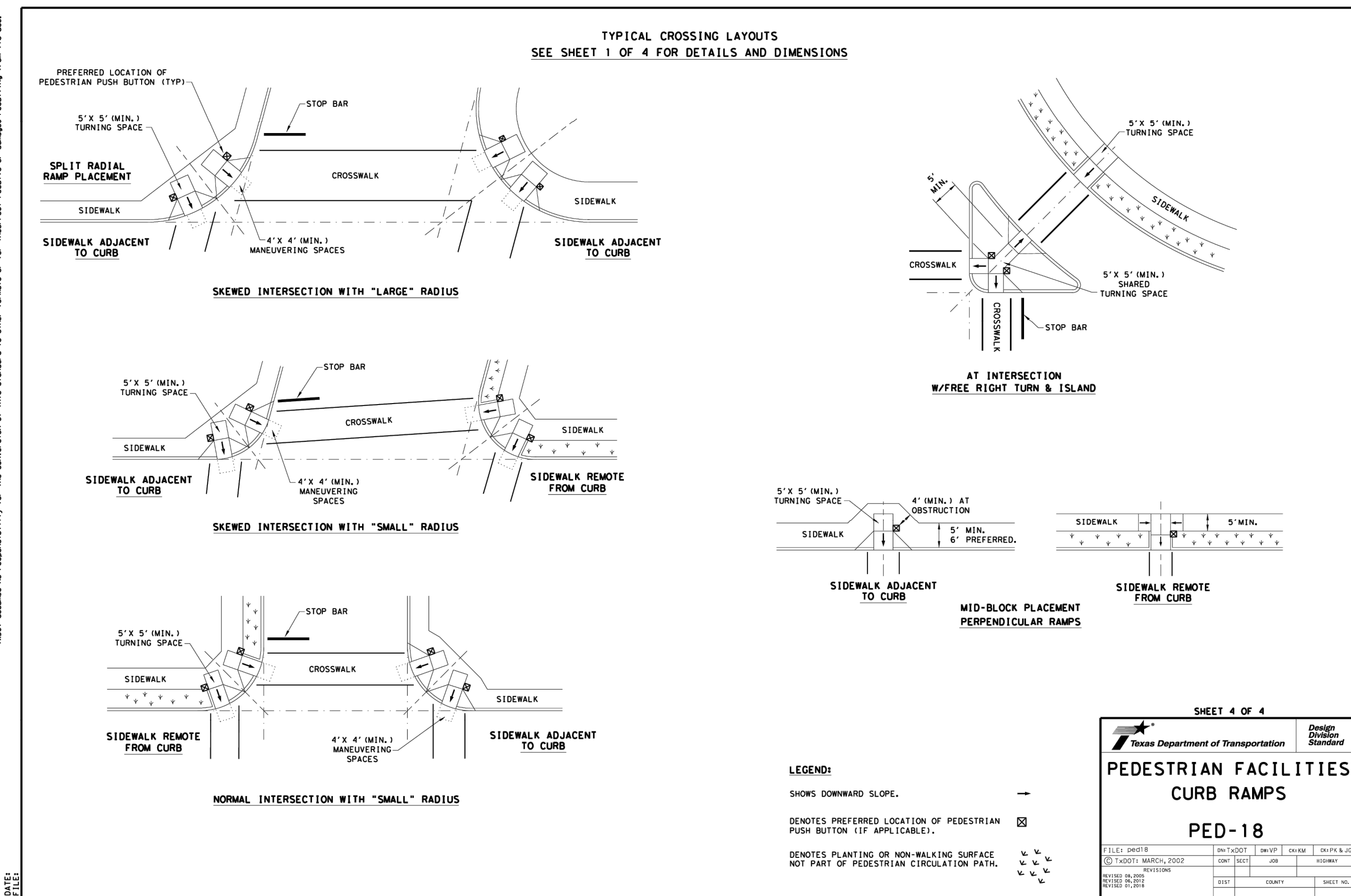
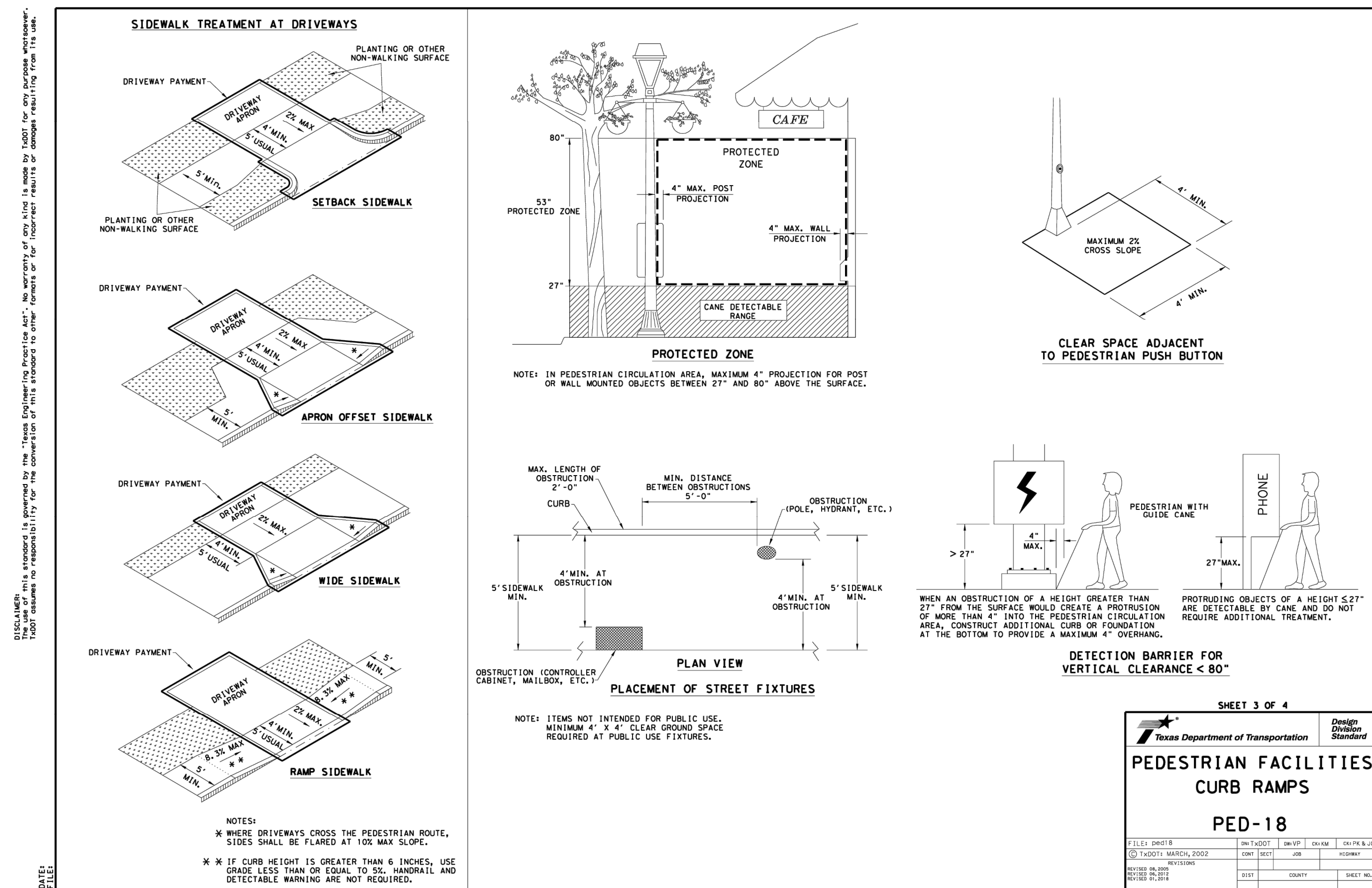
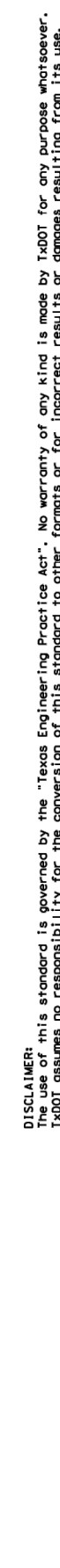
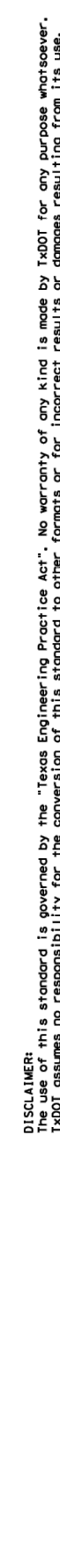
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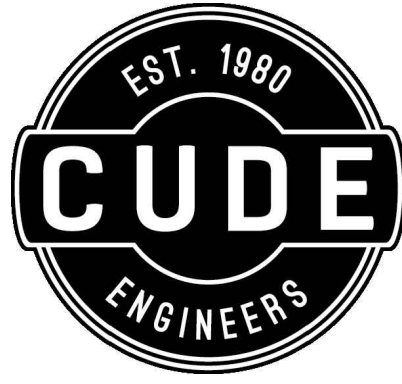
 LOCAL "B"
BOCANEGRA STA 10+00.00 - STA 11+08.28

	LOCAL "A"	
	VISTA ALEGRE	STA 10+00.00 - STA 20+07.95
	MANAGUA	STA 10+00.00 - STA 11+45.00
	TORREBLANCA	STA 10+00.00 - STA 11+20.70

SELECT FILL & SUBGRADE NOTES FROM INTEC PROJECT NO. S251271-R1 SEPTEMBER 26, 2025 :

1. FOR SELECT FILL MATERIAL USE CRUSHED LIMESTONE WITH LL < 40, PI = 5-20, AND <30% PASSING NO. 200 SIEVE. MAX PARTICLE SIZE: 3 INCHES. PLACE IN 6-INCH COMPACTED LIFTS AND COMPACT TO 95% OF ASTM D 698 DRY DENSITY WITHIN ± 2% OF OPTIMUM MOISTURE. EACH LIFT MUST BE TESTED AND APPROVED BY INTEC.
2. FILL USED TO RAISE THE GRADE IN CLAY AREAS: APPROVED FILL MATERIAL SHOULD HAVE A MINIMUM CBR VALUE OF 2.0 AND A MAXIMUM PLASTICITY INDEX VALUE OF 45 (ON SITE MATERIAL). LIME APPLICATION RATES SHOULD BE RE-EVALUATED AND TESTED FOR SULFATE CONTENT PRIOR TO USE OF THE FILL MATERIAL.
THE FILL MATERIAL SHOULD BE APPROVED BY THE GEOTECHNICAL ENGINEER, FREE OF DELETERIOUS MATERIAL, AND THE GRAVEL SIZE SHOULD NOT EXCEED 3 INCHES IN SIZE. THE MATERIAL SHOULD BE PLACED AND COMPACTED AS PER APPLICABLE CITY/COUNTY GUIDELINES. THE SUBGRADE, PRIOR TO PLACEMENT OF FILL, SHOULD BE PROOF ROLLED TO IDENTIFY WEAK AREAS. ANY IDENTIFIED WEAK AREAS SHOULD BE RECOMPACTED.
3. FILL USED TO RAISE THE GRADE IN CALCAREOUS CLAY/MARL AREAS: EXISTING CLAYS SHOULD BE REMOVED TO MARL/LIMESTONE STRATUM PRIOR TO PLACEMENT OF FILL.
APPROVED FILL MATERIAL FREE SHOULD HAVE A MINIMUM CBR VALUE OF 5.0 AND A MAXIMUM PLASTICITY INDEX VALUE OF 20.
4. BASED ON THE THICKNESS OF THE CLAYS ENCOUNTERED IN THE TEST PITS, WE ANTICIPATE THE FINAL PAVEMENT SUBGRADE PLASTICITY INDEX VALUE TO BE EITHER LESS THAN OR EQUAL TO 20 OR GREATER THAN 20.
5. IF THE SUBGRADE PLASTICITY INDEX VALUES ARE LESS THAN OR EQUAL TO 20, AS PER CITY OF SAN ANTONIO OR BEXAR COUNTY REQUIREMENTS, SUBGRADE TREATMENT IS NOT NEEDED.
6. SUBGRADE SHOULD BE TREATED USING LIME OR CEMENT. LIME APPLICATION RATES ARE PRESENTED HERE. PLEASE CONTACT INTEC FOR CEMENT APPLICATION RATES.
 - TREATED TO A DEPTH OF 6 INCHES USING 6 PERCENT LIME CONTENT.
 - THE SUBGRADE SOILS SHOULD BE TESTED FOR SOIL SULFATE CONTENT PRIOR TO LIME APPLICATION. IF THE SOIL SULFATE CONTENT IS HIGHER THEN 300 PPM, AN ALTERNATE PROCEDURE WILL BE NEEDED.
 - LIME APPLICATION RATE OF 32 LBS PER SQ YARD FOR 6-INCH DEPTH OF TREATMENT IS RECOMMENDED.
 - CEMENT MAY BE USED IN LIEU OF LIME. CEMENT APPLICATION RATE SHOULD BE DETERMINED AT THE TIME OF CONSTRUCTION.





4122 Pond Hill Road, Suite 101
San Antonio, Texas 78231
P:(210) 681.2951

TRES LAURELS

UNIT 1B

STREET DETAILS

DATE

08/29/2024

PROJECT NO.
03050.017

DRAWN BY
RM / IV

CHECKED BY
MAT/CJC

REVISIONS

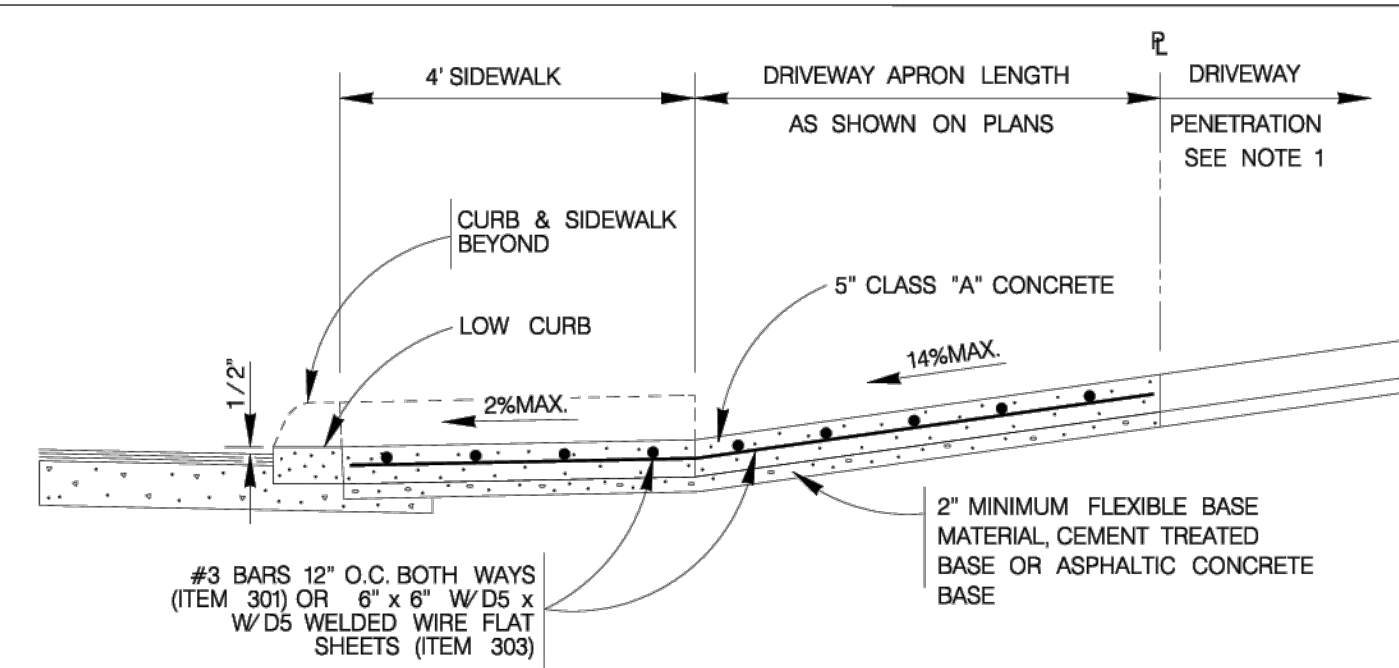
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CUDE ENGINEERS
TBPELS No. 10048500

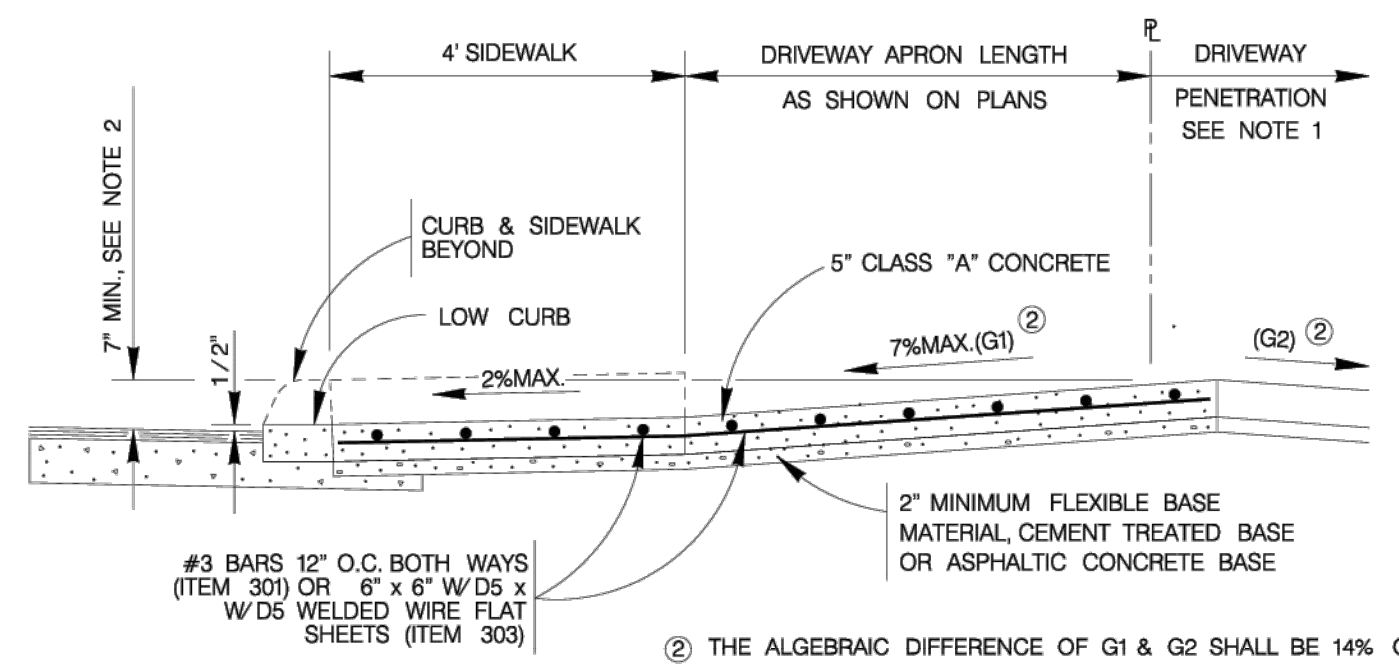
PLAT NO.
24-11800221

C7.D3



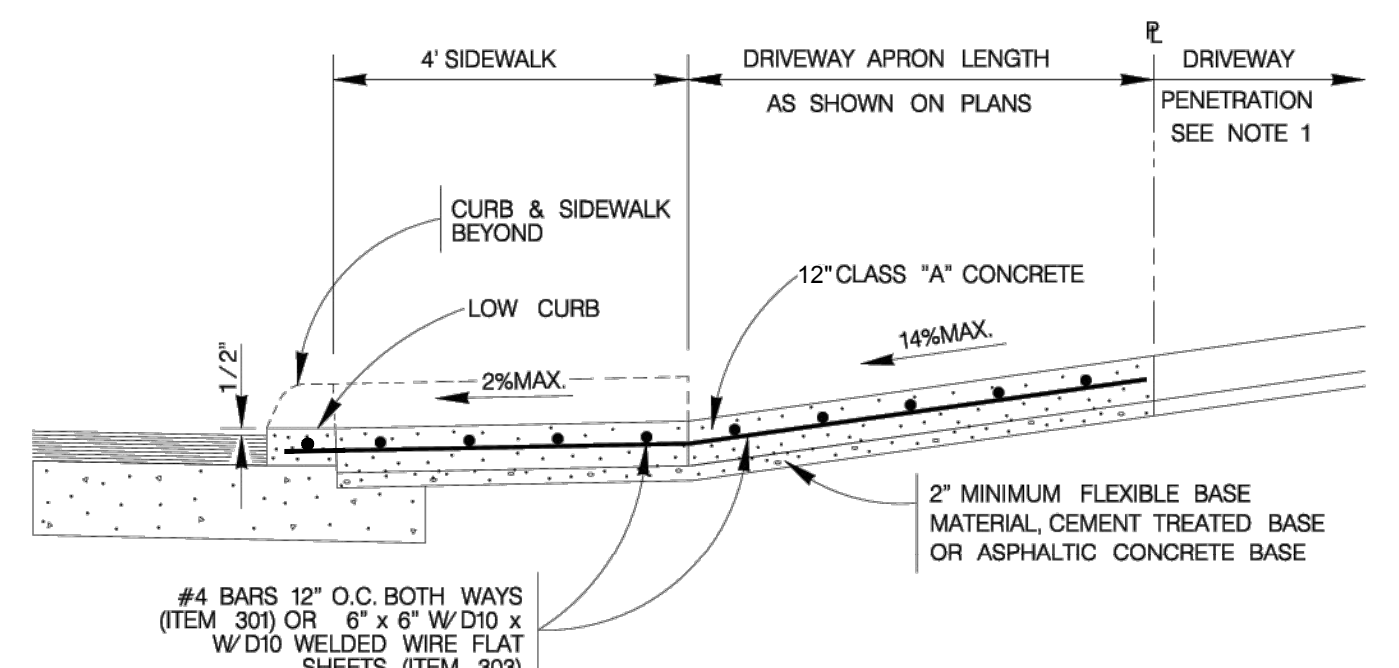
TYPICAL RESIDENTIAL DRIVEWAY SECTION

WITH SIDEWALK ABUTTING CURB
ITEM 503.1



TYPICAL RESIDENTIAL DRIVEWAY SECTION

WHERE PROPERTY IS LOWER THAN STREET & SIDEWALK IS ABUTTING CURB
ITEM 503.1



TYPICAL COMMERCIAL DRIVEWAY SECTION

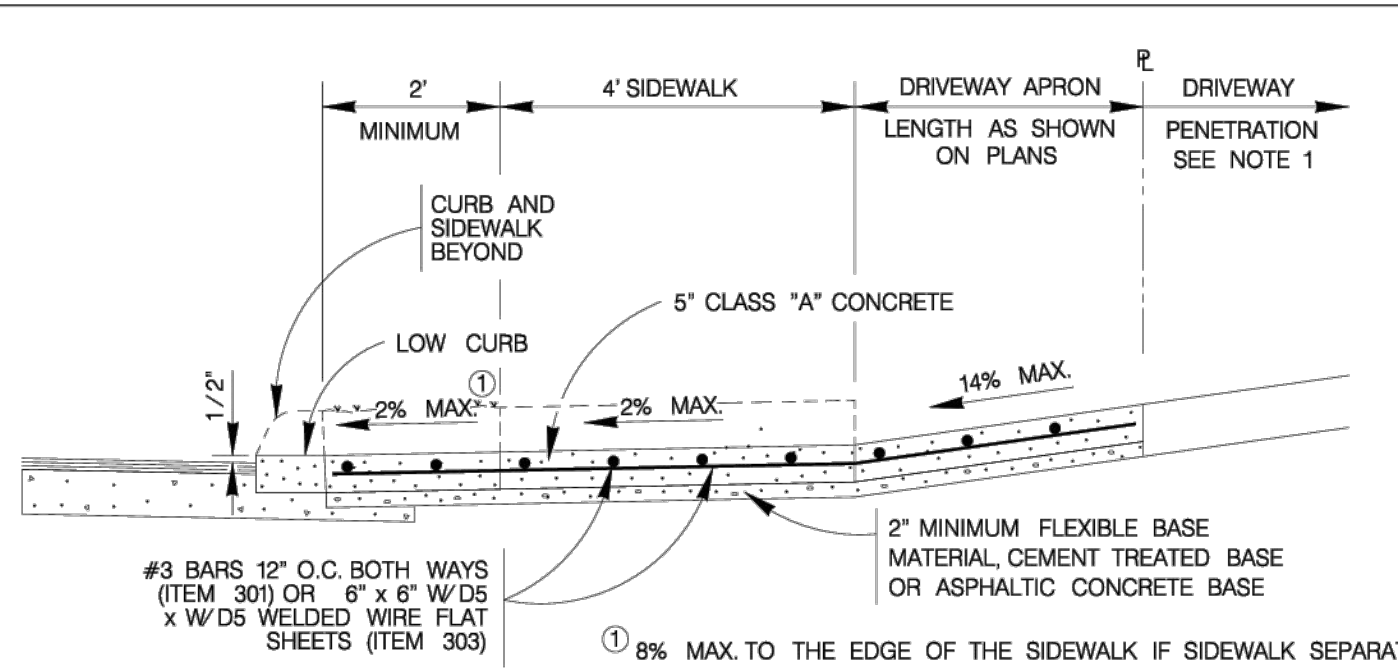
WITH SIDEWALK ABUTTING CURB
ITEM 503.2

CONCRETE DRIVEWAY NOTES

- DRIVEWAY PENETRATION REFERS TO A PORTION OF THE DRIVEWAY THAT MAY BE NECESSARY TO RECONSTRUCT WITHIN PRIVATE PROPERTY TO COMPLY WITH A MAXIMUM DRIVEWAY SLOPE. THIS PORTION OF THE DRIVEWAY SHALL BE PAID FOR UNDER THE FOLLOWING ITEMS AS MAY APPLY:
A) CONCRETE DRIVEWAY PAID FOR UNDER ITEM NO. 503.1 OR 503.2.
B) ASPHALTIC CONCRETE DRIVEWAY PAID FOR UNDER ITEM NO. 503.4 AND SHALL INCLUDE A MINIMUM OF 1" ASPHALT TYPE 'D' & 6" FLEXIBLE BASE
C) GRAVEL DRIVEWAY PAID FOR UNDER ITEM NO. 503.5 AND SHALL INCLUDE A MINIMUM OF 6" FLEXIBLE BASE
- 7" MINIMUM HEIGHT WILL NOT NECESSARILY OCCUR AT THE PROPERTY LINE. IT MAY OCCUR WITHIN THE RIGHT OF WAY OR WITHIN THE DRIVEWAY PENETRATION ON PRIVATE PROPERTY.
- THE PROPOSED DRIVEWAY SHOULD MATCH THE EXISTING WIDTH AT THE PROPERTY LINE BUT UNLESS AUTHORIZED BY THE CITY TRAFFIC ENGINEER, THE WIDTH SHALL BE WITHIN THE FOLLOWING VALUES:

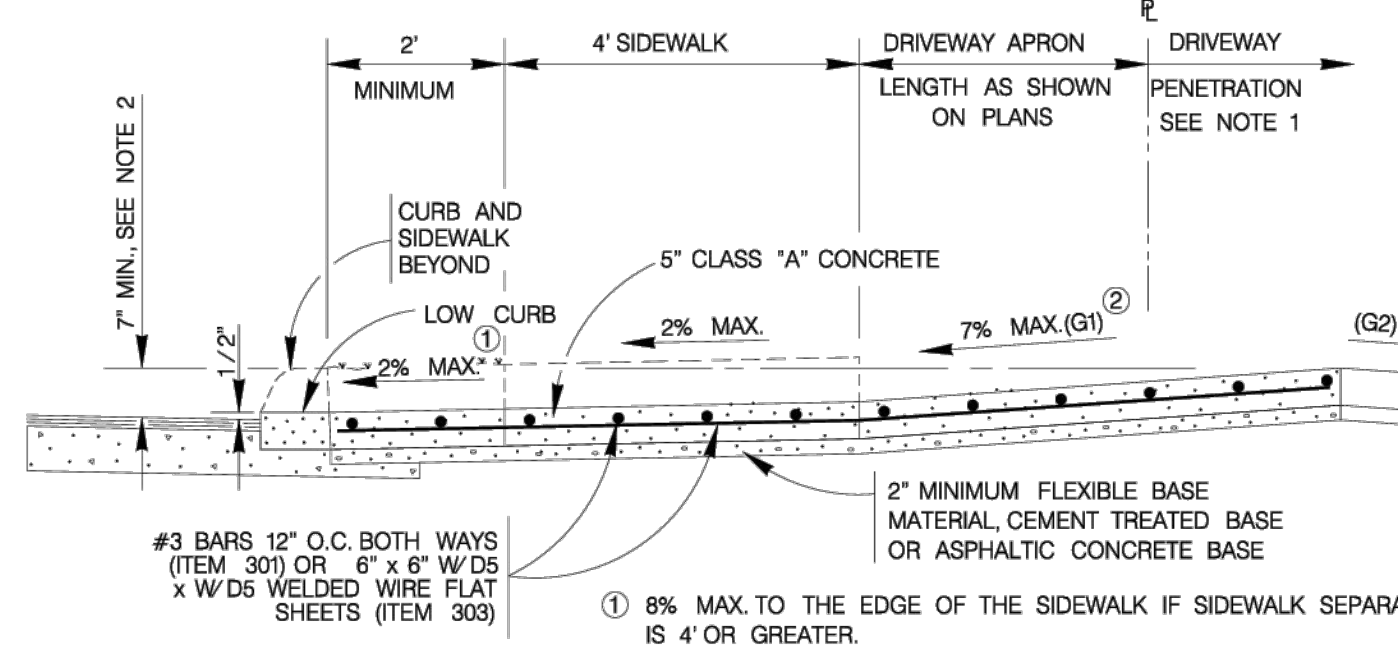
TYPE	MINIMUM	MAXIMUM
RESIDENTIAL	10'	20'
COMMERCIAL - ONE WAY	12'	20'
COMMERCIAL - TWO WAY	24'	30'

- FOR LOCAL TYPE "A" STREETS, SIDEWALK SHALL HAVE A MINIMUM WIDTH OF 4' AND IF SEPARATED FROM THE CURB, THE SIDEWALK SHALL BE LOCATED A MINIMUM OF 3' FROM THE BACK OF CURB.
- FOR OTHER THAN LOCAL TYPE "A" STREETS, THE SIDEWALK SHALL HAVE A MINIMUM WIDTH OF 4' AND SEPARATED A MINIMUM OF 3' FROM THE BACK OF CURB OR, AS AN OPTION, THE SIDEWALK SHALL HAVE A MINIMUM WIDTH OF 6' WHEN LOCATED AT THE BACK OF CURB.
- DUMMY JOINTS PARALLEL TO THE CURB SHALL BE PLACED WHERE THE SIDEWALK MEETS THE DRIVEWAY. DUMMY JOINTS PERPENDICULAR TO THE CURB, AND WITHIN THE BOUNDARIES OF THE PARALLEL DUMMY JOINTS, SHALL BE PLACED AT INTERVALS EQUAL TO THE WIDTH OF THE SIDEWALK.
- A MINIMUM OF TWO ROUND AND SMOOTH DOWEL BARS 3/8" IN DIAMETER AND 18" IN LENGTH SHALL BE SPACED 18" APART AT EACH EXPANSION JOINT.
- SIDEWALK RAMP LENGTHS SHALL BE OF SUFFICIENT LENGTH TO MAINTAIN 8.33% (1:12) MAXIMUM SLOPE. WHERE SIDEWALKS CROSS DRIVEWAYS, SIDEWALK CROSS SLOPE SHALL NOT EXCEED 2%.
- SIDEWALK RAMP SURFACE SHALL BE BRUSH FINISHED.



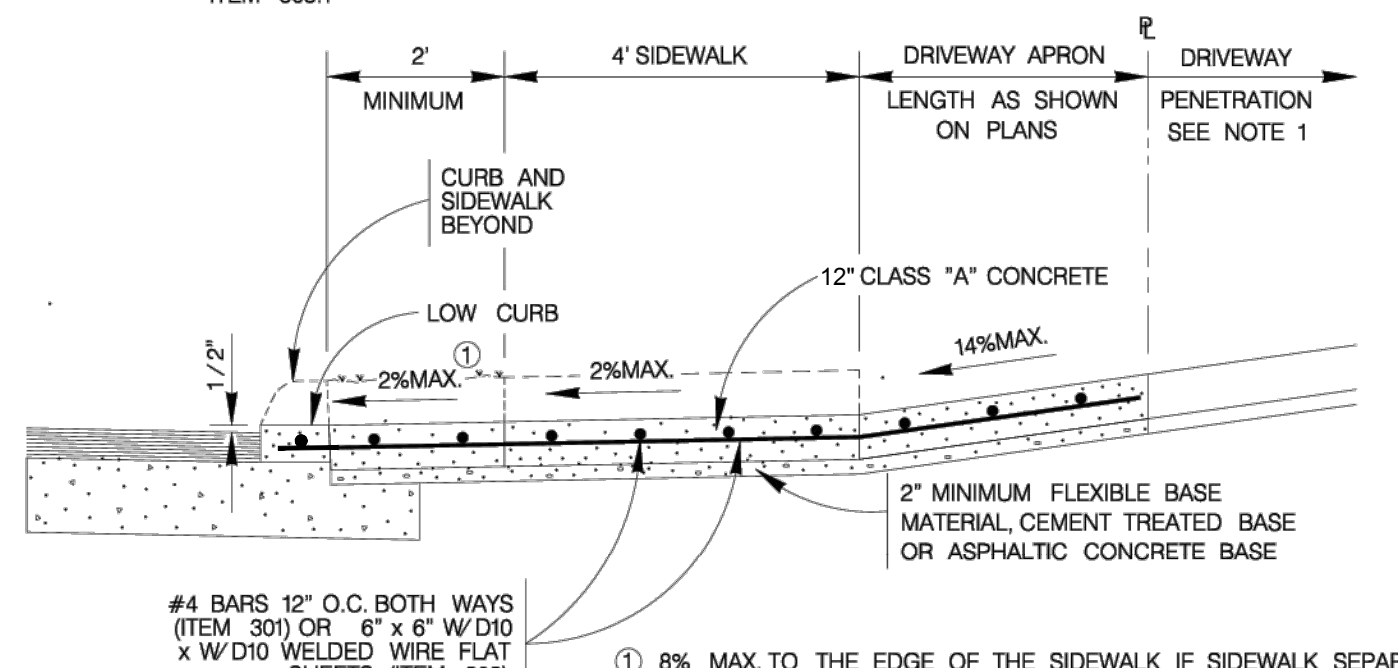
TYPICAL RESIDENTIAL DRIVEWAY SECTION

WITH SIDEWALK SEPARATED FROM CURB
ITEM 503.1



TYPICAL RESIDENTIAL DRIVEWAY SECTION

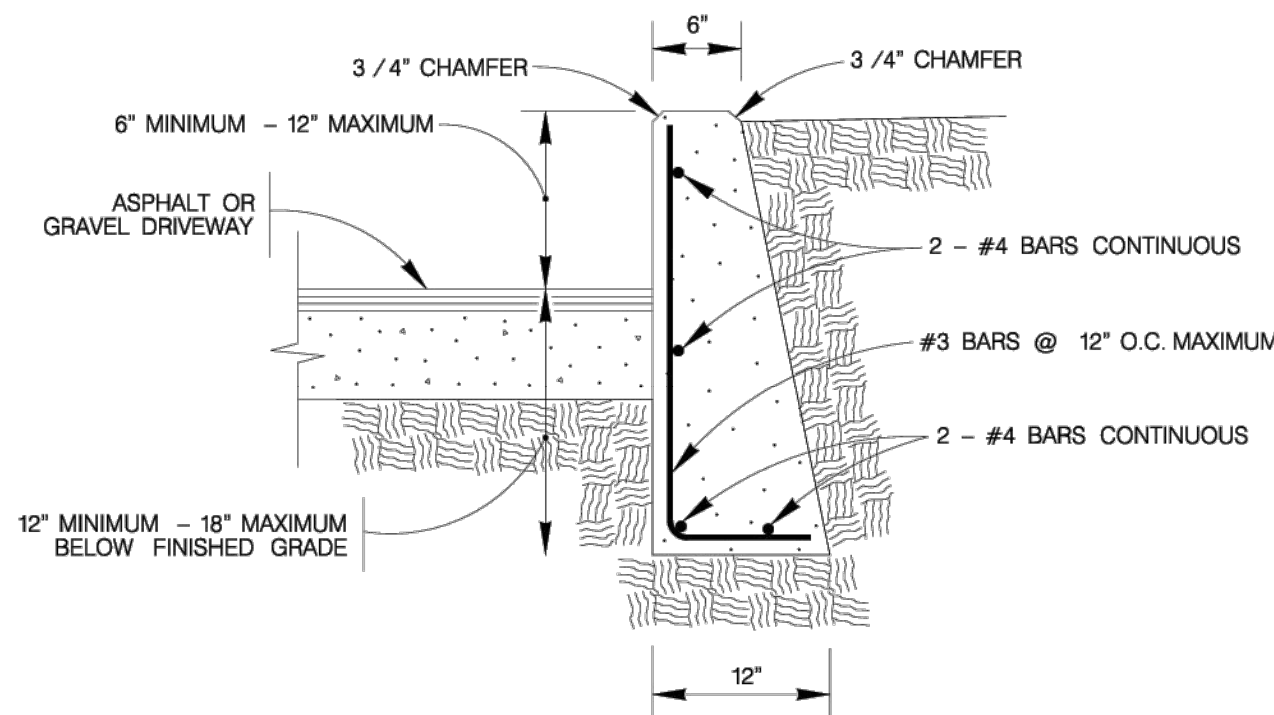
WHERE PROPERTY IS LOWER THAN STREET & SIDEWALK IS SEPARATED FROM CURB
ITEM 503.1



TYPICAL COMMERCIAL DRIVEWAY SECTION

WITH SIDEWALK SEPARATED FROM CURB
ITEM 503.2

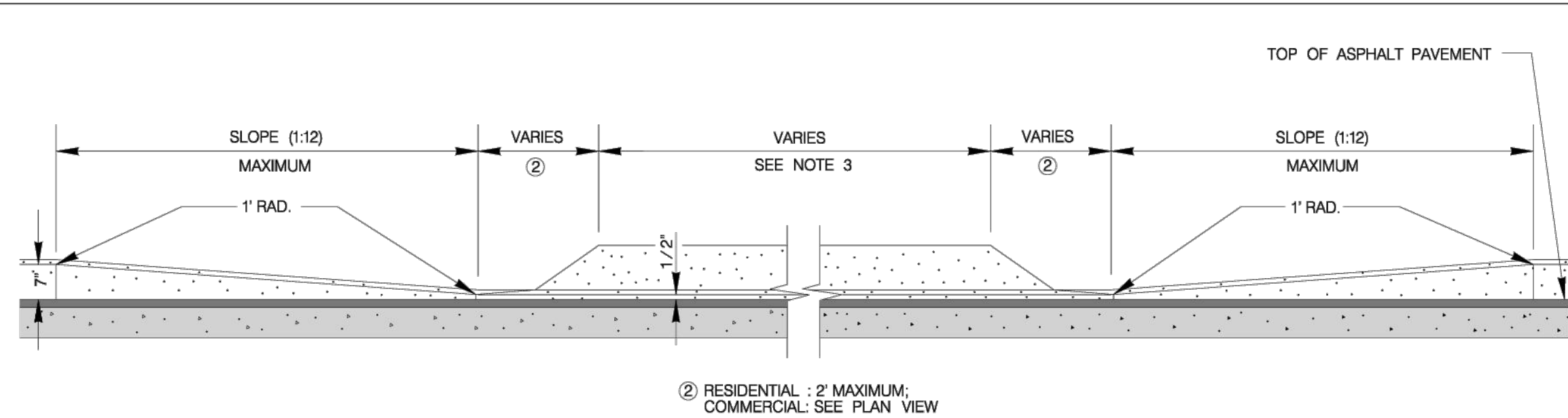
*REVISED AT THE REQUEST OF
BEXAR COUNTY ENGINEER 8/6/2024.



- NOTE:
- COST OF REINFORCEMENT TO BE INCLUDED IN UNIT COST OF ITEM 307.1.
 - CONCRETE RETAINING WALL COMBINATION TYPE SHALL BE USED FOR CONCRETE DRIVEWAYS.

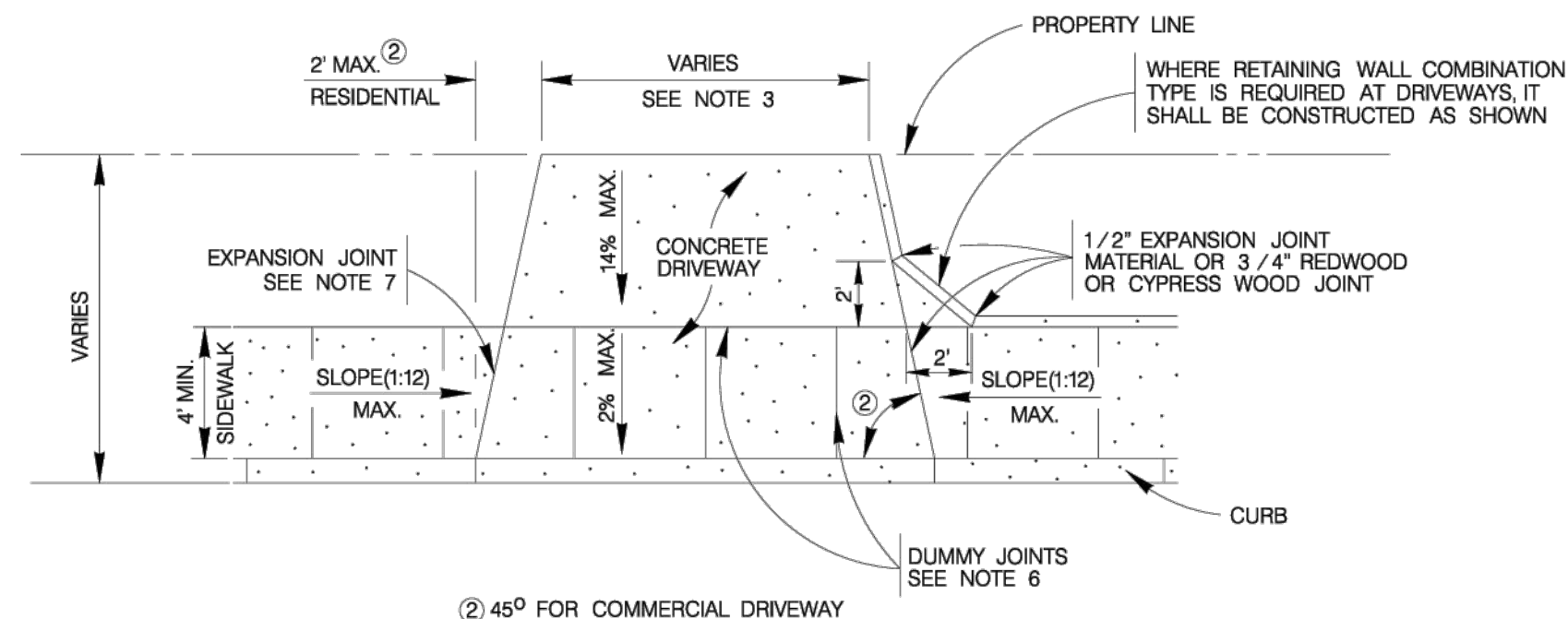
DRIVEWAY - CONCRETE RETAINING WALL

ON COMPACTED SUBGRADE
ITEM 307.1



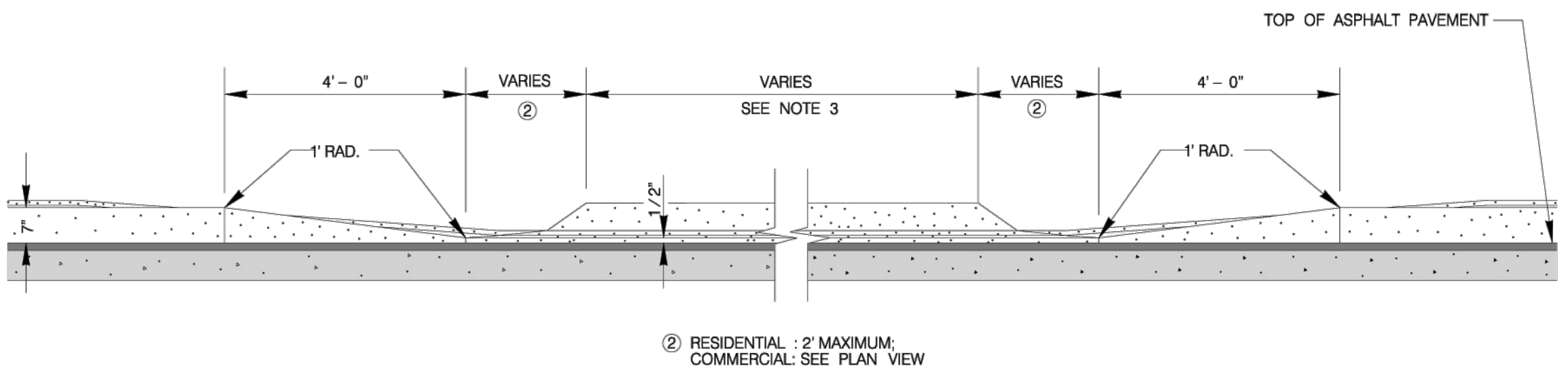
CURB PROFILE AT DRIVEWAY

WITH SIDEWALK ABUTTING CURB



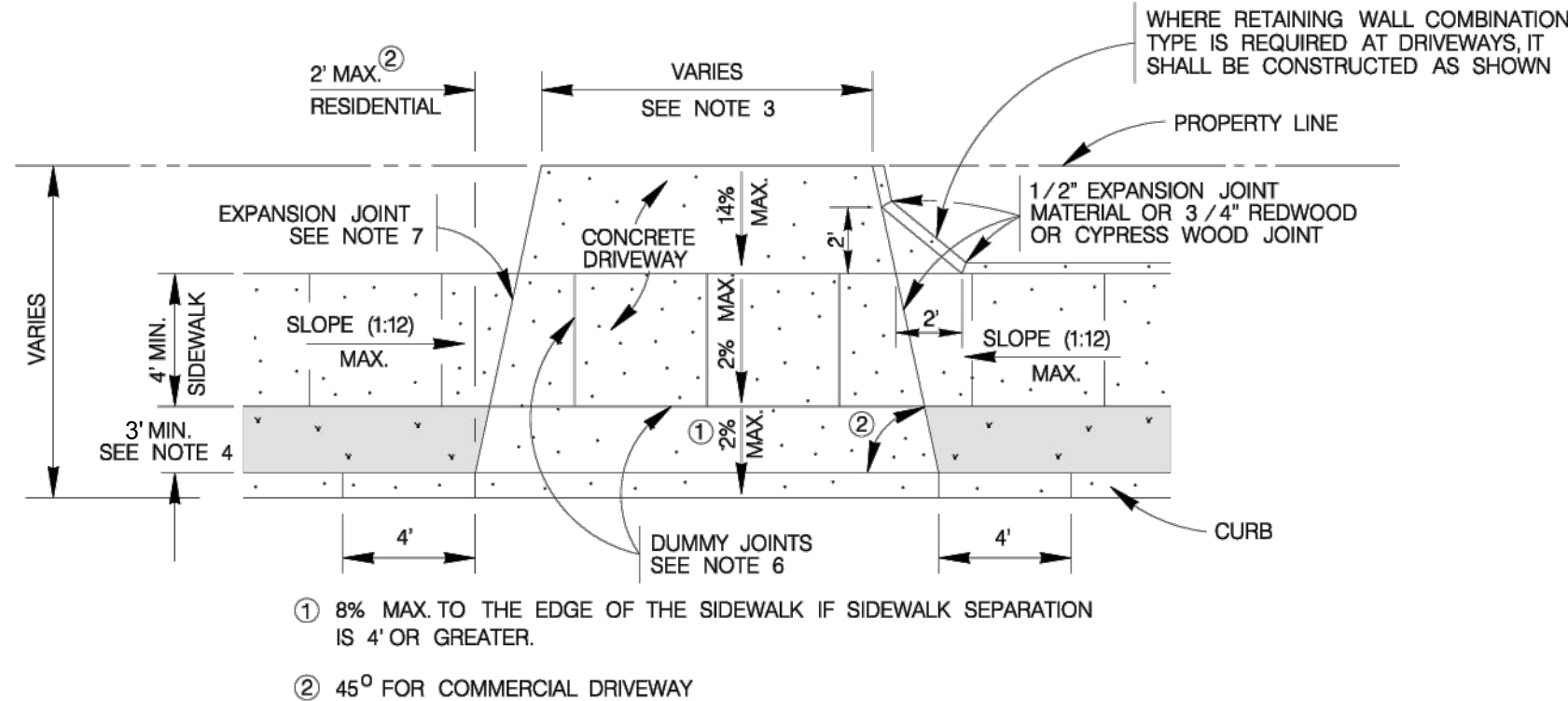
TYPICAL DRIVEWAY PLAN VIEW

WITH SIDEWALK ABUTTING CURB



CURB PROFILE AT DRIVEWAY

WITH SIDEWALK SEPARATED FROM CURB



TYPICAL DRIVEWAY PLAN VIEW

WITH SIDEWALK SEPARATED FROM CURB

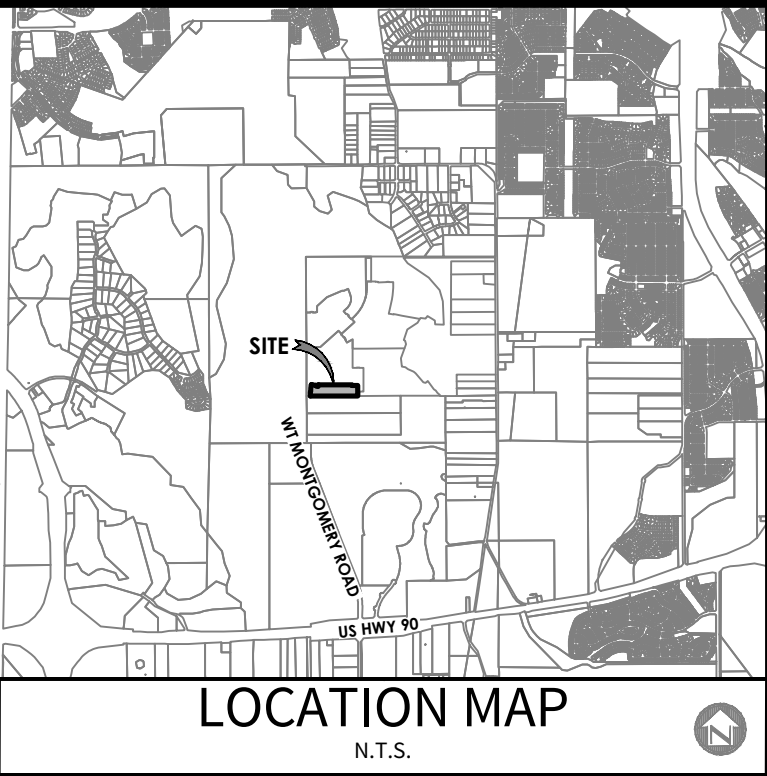
MAY 2009

CITY OF SAN ANTONIO

CAPITAL IMPROVEMENTS MANAGEMENT SERVICES DEPARTMENT

CONCRETE DRIVEWAY STANDARDS

% SUBMITTAL PROJECT NO.: DATE:
DRWN. BY: V. VASQUEZ DSGN. BY: CHKD. BY: R.S. HOSSEINI, P.E. SHEET NO.: OF



OWNER/DEVELOPER:

LENNAR HOMES OF TEXAS LAND
AND CONSTRUCTION, LTD.
A TEXAS LIMITED PARTNERSHIP
100 NE LOOP 410, SUITE 1155
SAN ANTONIO, TX 78216

CIVIL ENGINEER:

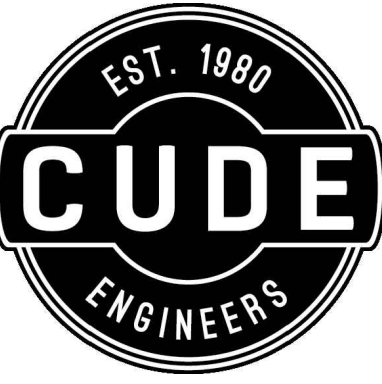
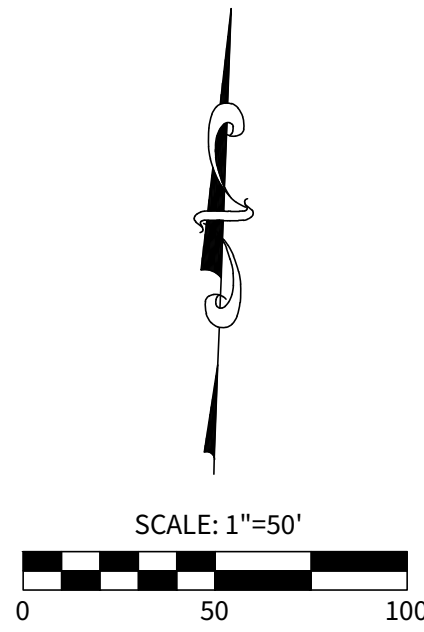
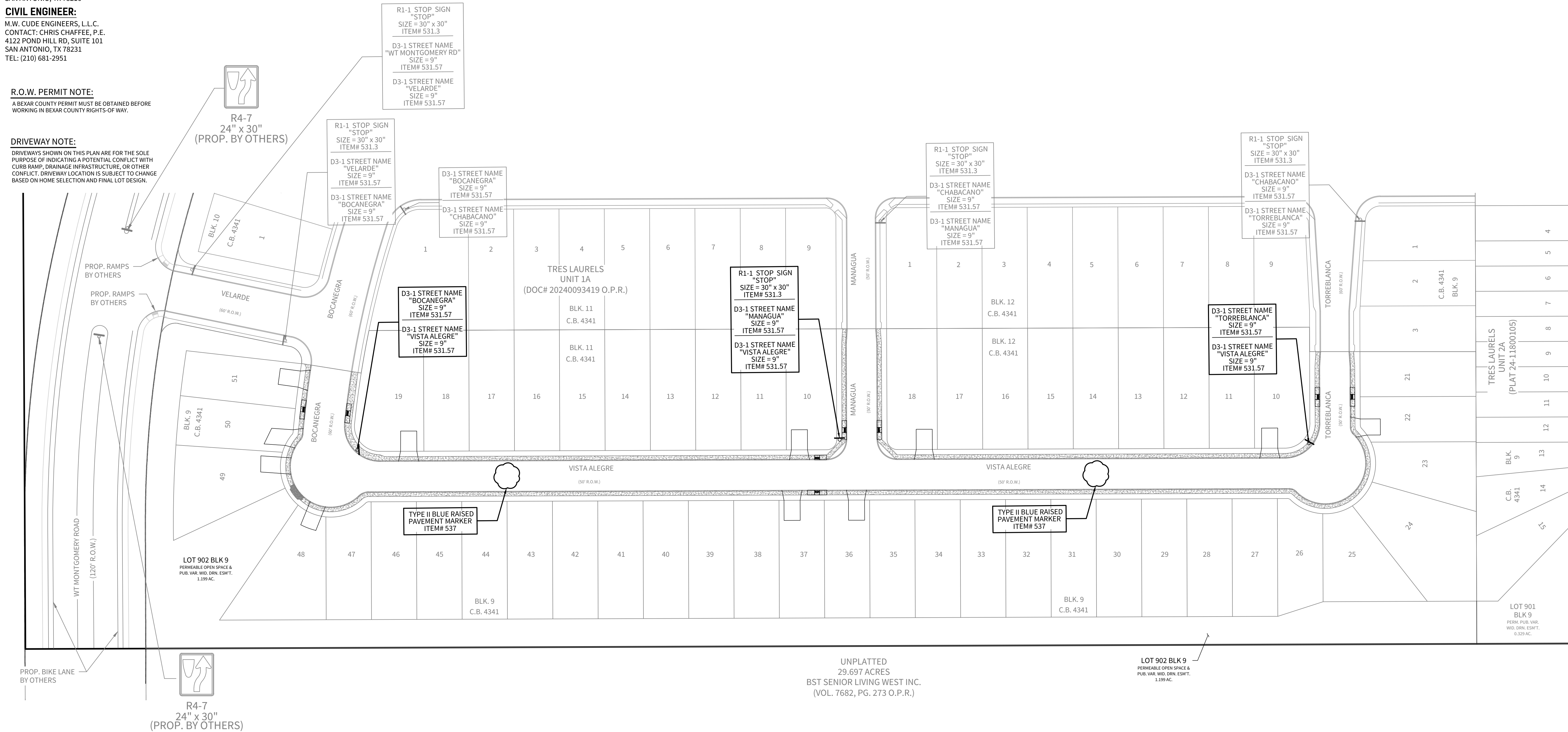
M.W. CUDE ENGINEERS, L.L.C.
CONTACT: CHRIS CHAFFEE, P.E.
4122 POND HILL RD, SUITE 101
SAN ANTONIO, TX 78231
TEL: (210) 681-2951

R.O.W. PERMIT NOTE:

A BEXAR COUNTY PERMIT MUST BE OBTAINED BEFORE
WORKING IN BEXAR COUNTY RIGHTS-OF-WAY.

DRIVEWAY NOTE:

DRIVEWAYS SHOWN ON THIS PLAN ARE FOR THE SOLE
PURPOSE OF INDICATING A POTENTIAL CONFLICT WITH
CURB RAMP, DRAINAGE INFRASTRUCTURE, OR OTHER
CONFLICT. DRIVEWAY LOCATION IS SUBJECT TO CHANGE
BASED ON HOME SELECTION AND FINAL LOT DESIGN.



4122 Pond Hill Road, Suite 101
San Antonio, Texas 78231
P:(210) 681.2951

**TRES LAURELS
UNIT 1B**

TRAFFIC SIGNAGE PLAN

DATE

10/24/2024

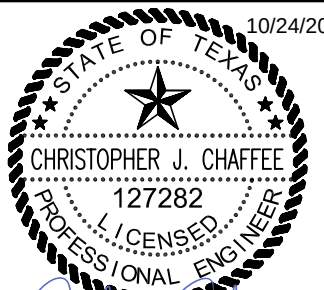
PROJECT NO.
03050.017

DRAWN BY
RM / IV

CHECKED BY
MAT/CJC

REVISIONS

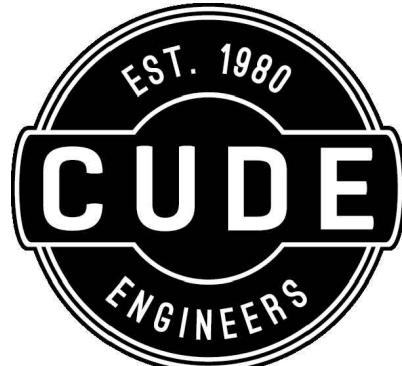
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CUDE ENGINEERS
TBPELS No. 10048500

PLAT NO.
24-11800221

C8.00



4122 Pond Hill Road, Suite 101
San Antonio, Texas 78231
P-(210) 681.2951

TRES LAURELS

UNIT 1B

TXDOT DETAIL - SIGN MOUNTING

DATE

07/15/2024

PROJECT NO.

03050.017

DRAWN BY

RM/IV

CHECKED BY

MAT/CJC

REVISIONS

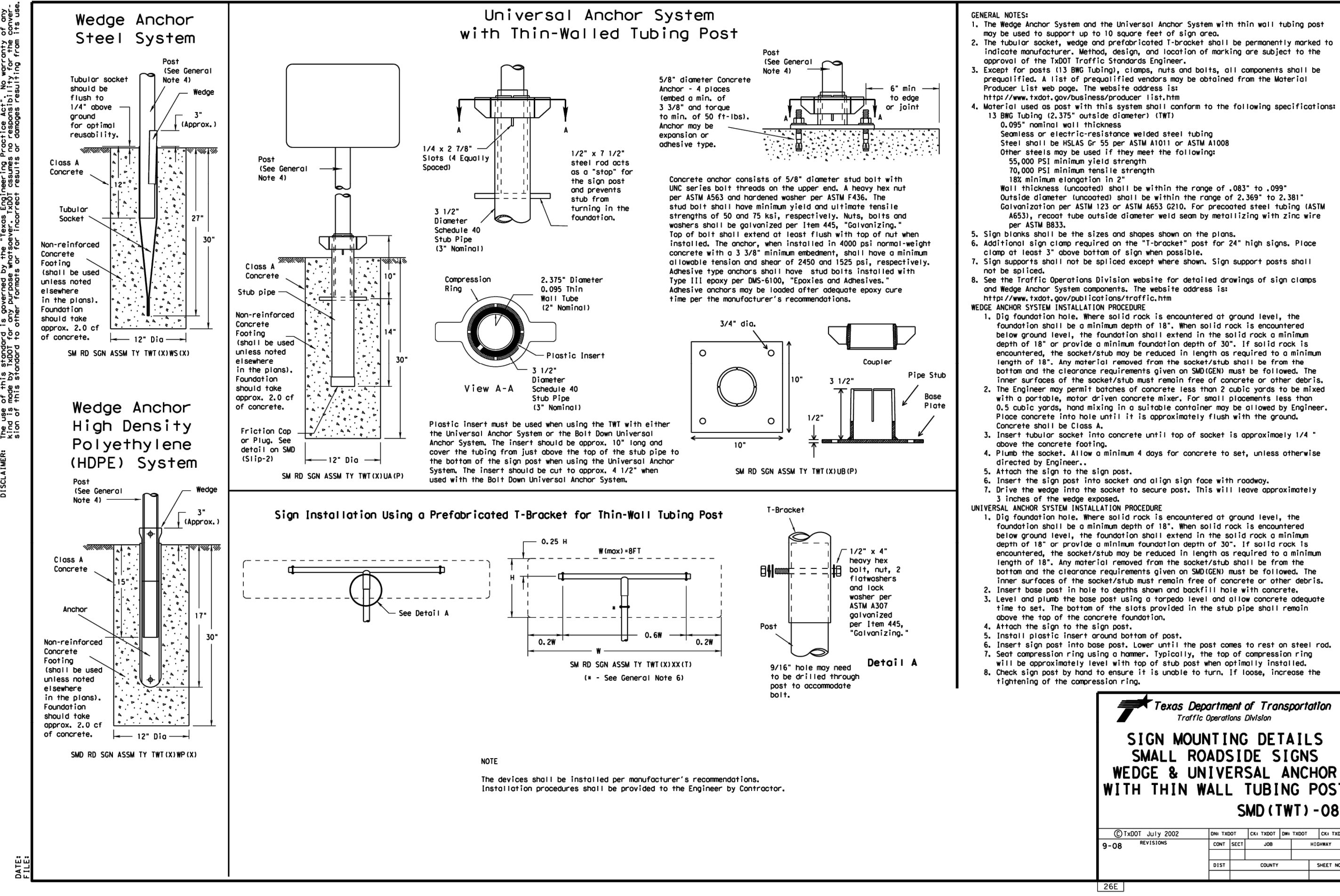
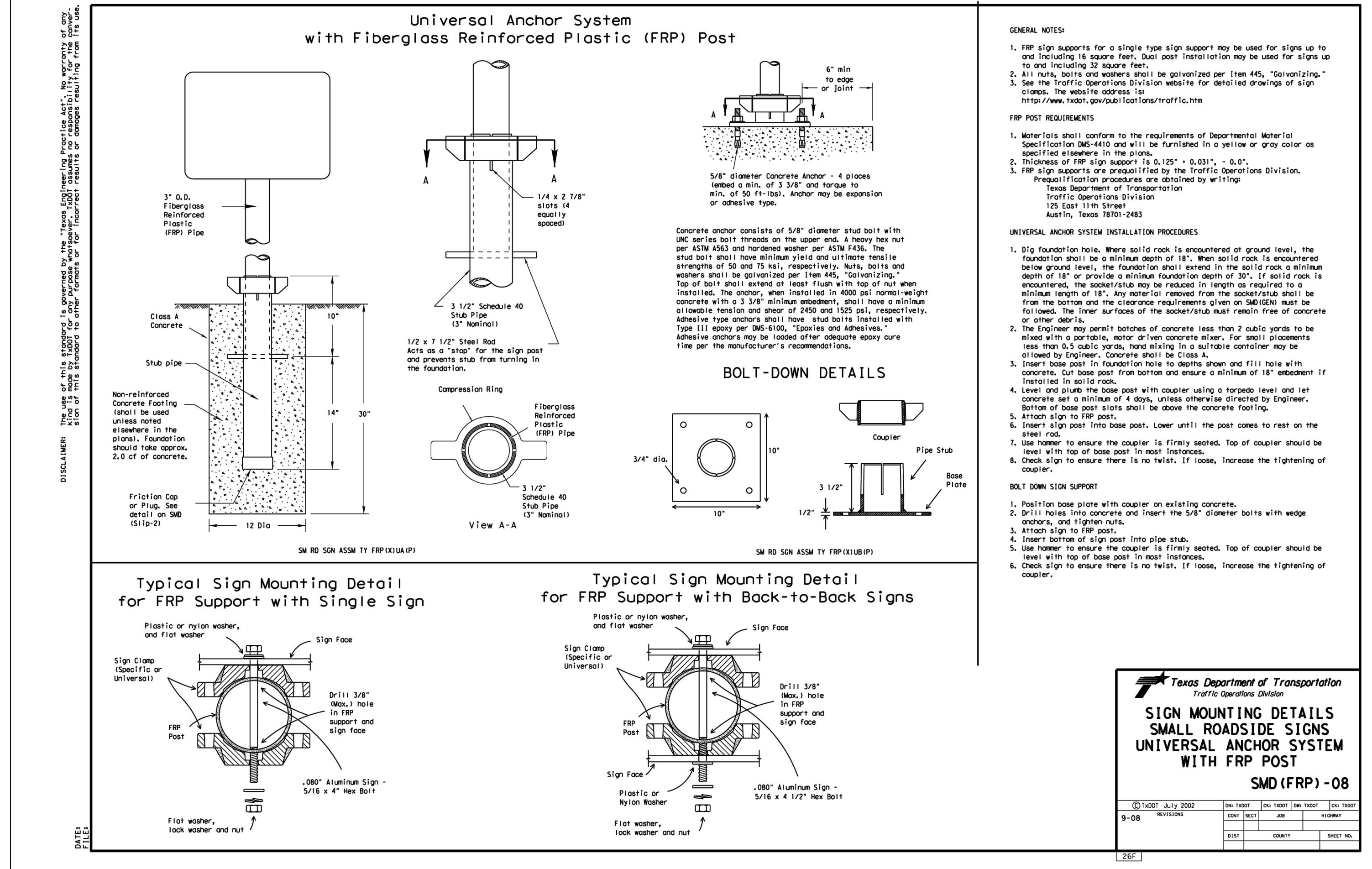
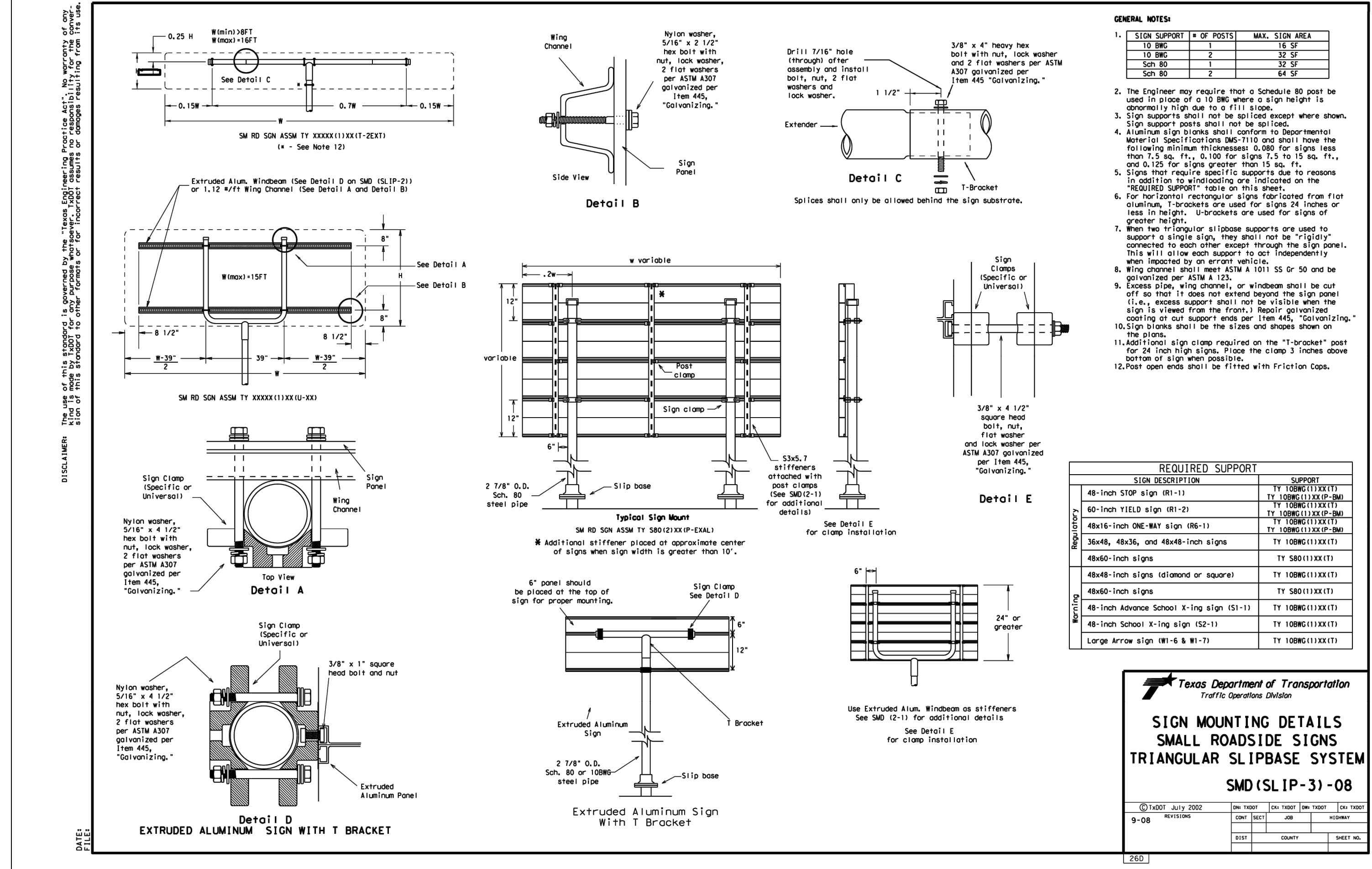
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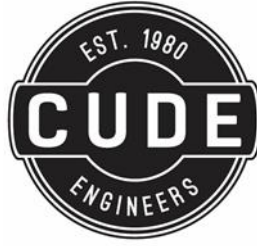


CUDE ENGINEERS
TBPES No. 10048500

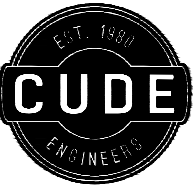
PLAT NO.
24-11800221

C8.D2





CONTROL POINT EXHIBIT



4122 Pond Hill Road, Suite 101
San Antonio, Texas 78231
P:(210) 681.2951 F: (210) 523.7112

TRES LAURELS – UNIT 1B
CONTROL POINT EXHIBIT

DATE
08/21/2025

PROJECT NO.
03050.017

DRAWN BY
IV

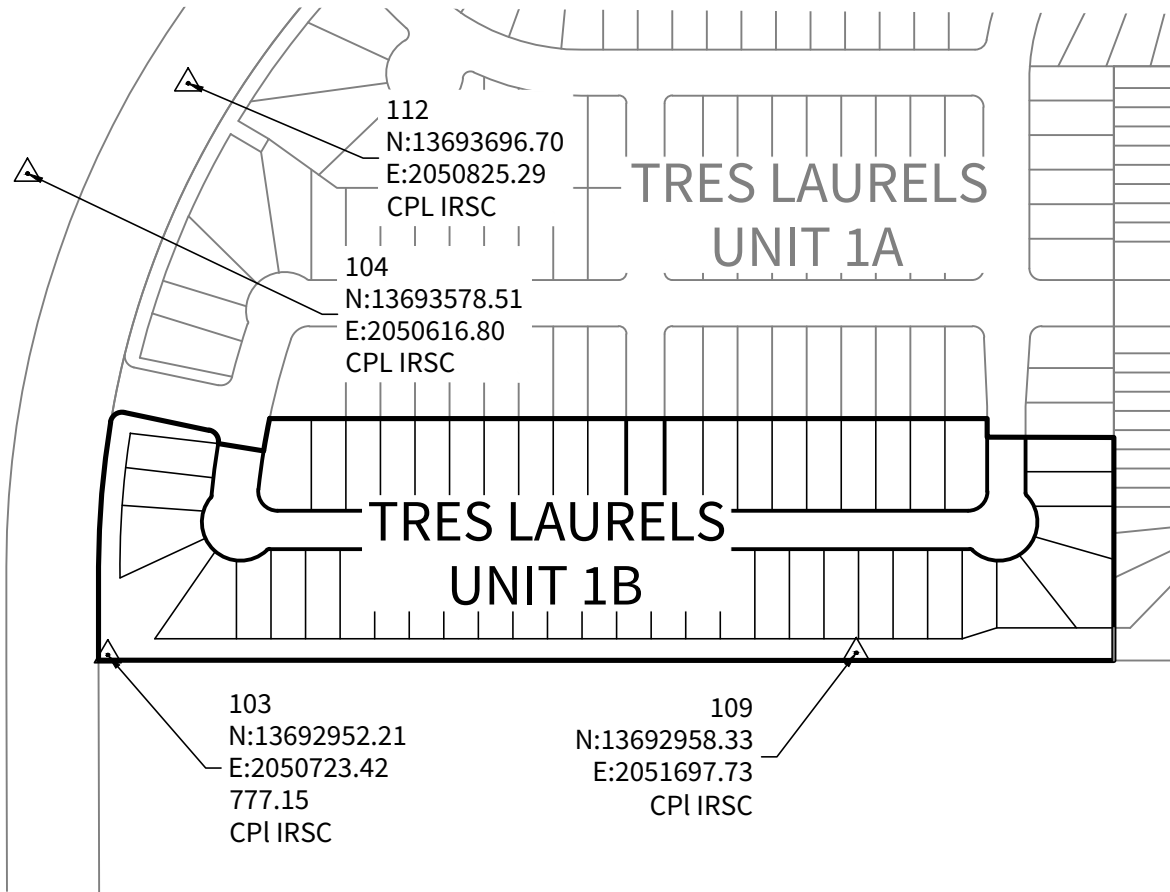
CHECKED BY
MAT

CUDE ENGINEERS
TBPE No. 455

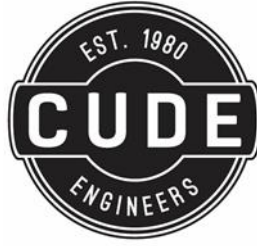
EX-CP



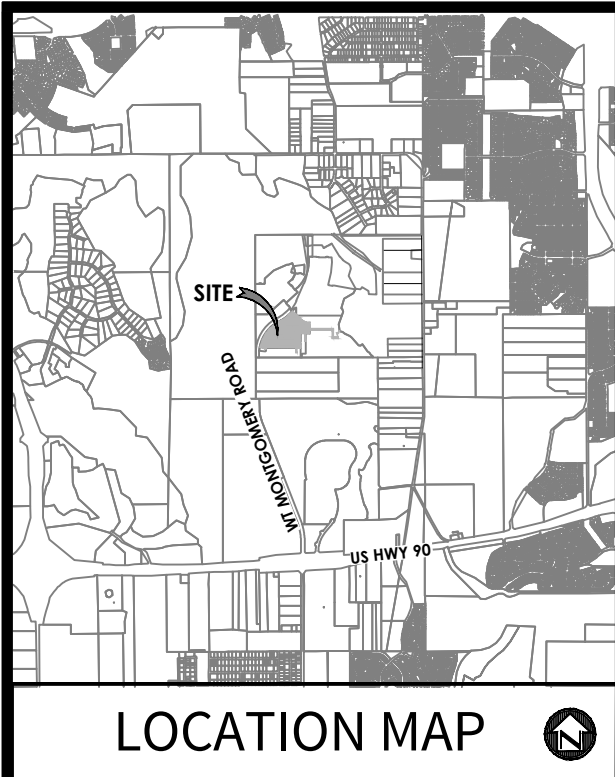
SCALE: 1"=250'



NO.	NORTHING	EASTING	DISCRIPTION
103	13692952.21	2050723.42	CPI IRSC
104	13693578.51	2050616.80	CPI IRSC
109	13692958.33	2051697.73	CPI IRSC
112	13693696.70	2050825.29	CPL IRSC



CONSTRUCTION PERMITS



OWNER/DEVELOPER:
LENNAR HOMES
CONTACT PERSON: RICHARD MOTT
100 NE LOOP 410 SUITE 1155
SAN ANTONIO, TX 78231
TEL: (210) 403-6200

CIVIL ENGINEER:
M.W. CUDE ENGINEERS, L.L.C.
CONTACT PERSON: CHRIS CHAFFEE, P.E.
4122 POND HILL ROAD, SUITE 101
SAN ANTONIO, TX 78231
TEL: (210) 681-2951
FAX: (210) 523-7112

LEGEND

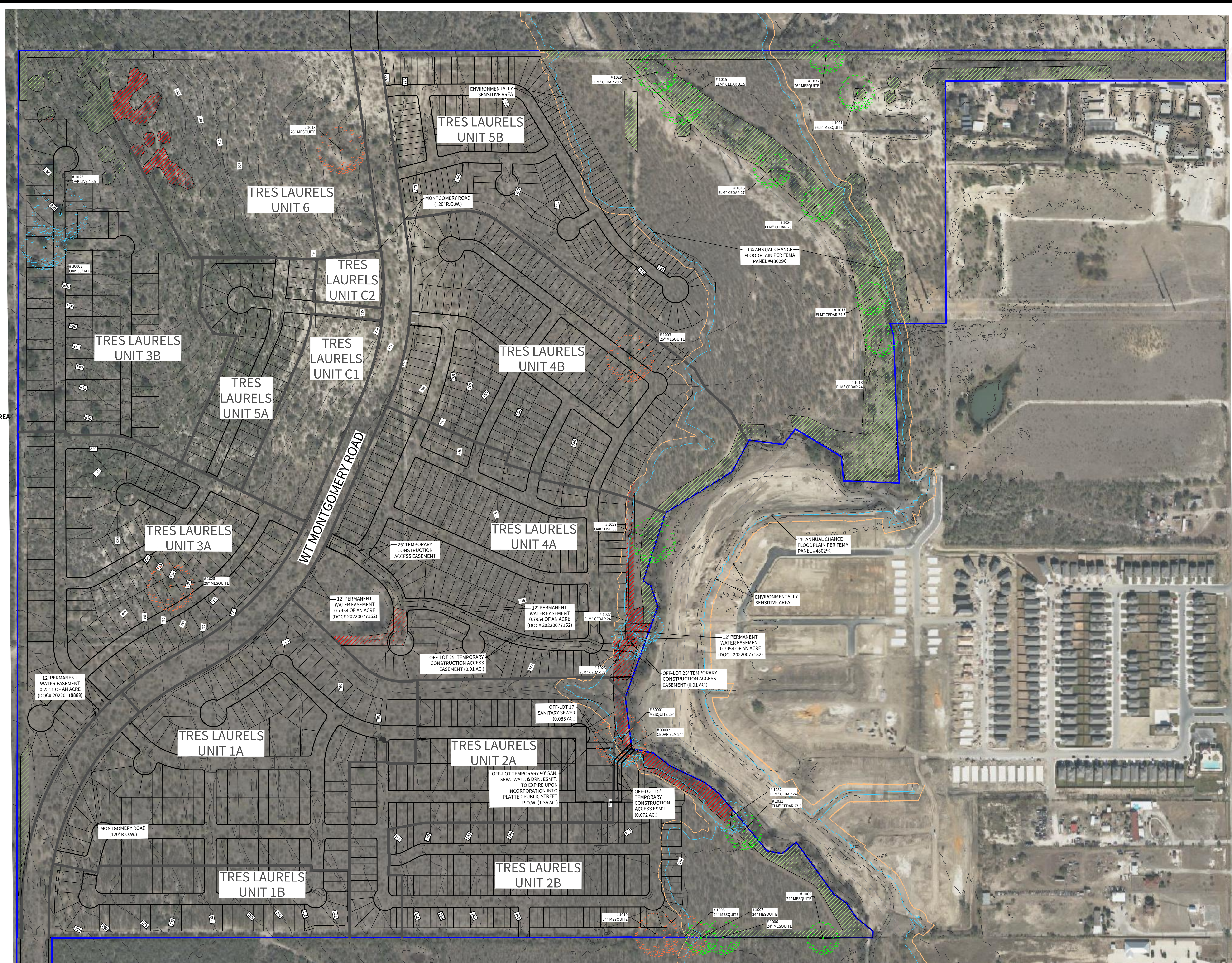
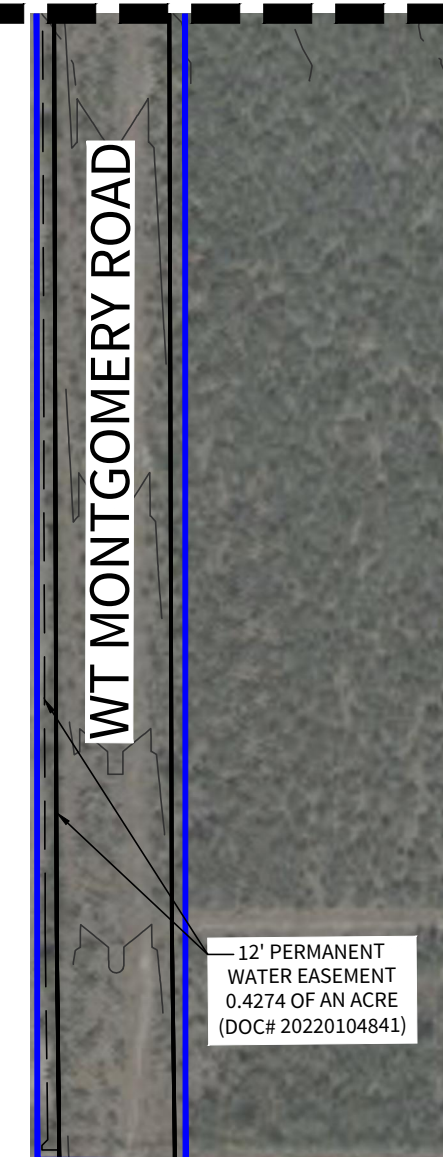
- PROJECT BOUNDARY
- REMOVED CANOPY
- PRESERVED CANOPY
- 100-YEAR EFFECTIVE FLOODPLAIN
- 30' ENVIRONMENTALLY SENSITIVE AREA
- HERITAGE TREE TO BE PRESERVED
- HERITAGE TREE TO BE REMOVED
- EXEMPT TREE TO BE REMOVED
- PROPOSED CONTOUR
- EXISTING CONTOUR

TRE-APP-APP22-38801338

**TREE PRESERVATION
APPROVED**
DATE **12/23/2024**
BY *Eric Rodriguez*

Amendment #3

MATCHLINE A



MATCHLINE A



**DEVELOPMENT SERVICES
TREE PROTECTION SECTION
REVIEWED FOR COMPLIANCE**



**DEVELOPMENT SERVICES
Tree Pre-Construction Meeting
Required prior to Site Work**

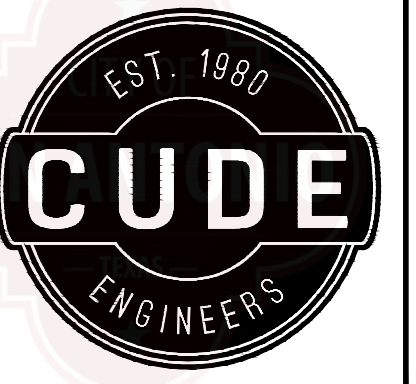


**It shall be the responsibility of the
permit holder to maintain a copy of the
approved tree plans, approved tree
permit and the conditions of approval
readily available at all times.**



**Failure to schedule a fencing inspection
prior to start of work may result in a stop
Work order or a Penalty of \$1,000.00 or
both. UDC §35-523 (k)(2)**

CUDEENGINEERS.COM



4122 Pond Hill Road, Suite 101
San Antonio, Texas 78231
P: (210) 681-2951 F: (210) 523-7112

TRES LAURELS

TREE CANOPY PRESERVATION PLAN

DATE

12/05/2024

PROJECT NO.

03050.006

DRAWN BY

MAT/IRV/DAF

CHECKED BY

SPM/CJC

REVISIONS

-
-
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Development Services Dept

CUDE ENGINEERS

TBPE No. 455

TBPLS No. 10048500

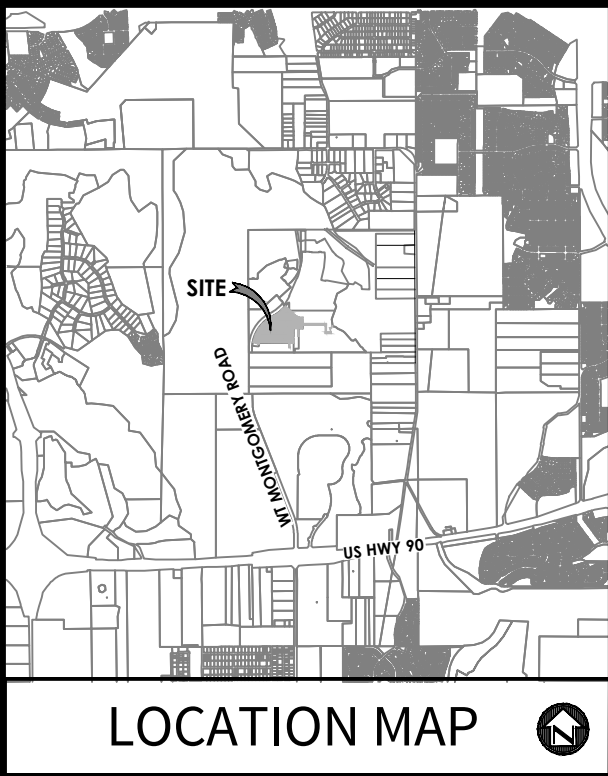
PLAT NO.

22-11800270

TPP-1

1 OF 2

REPRODUCTION OF THE ORIGINAL SIGNED AND SEALED PLAN AND/OR ELECTRONIC MEDIA MAY HAVE BEEN INADVERTENTLY ALTERED. CONTRACTOR IS RESPONSIBLE FOR VERIFYING THE SCALE OF THE DOCUMENT AND CONTACTING CUDE ENGINEERS TO VERIFY DISCREPANCIES PRIOR TO CONSTRUCTION.



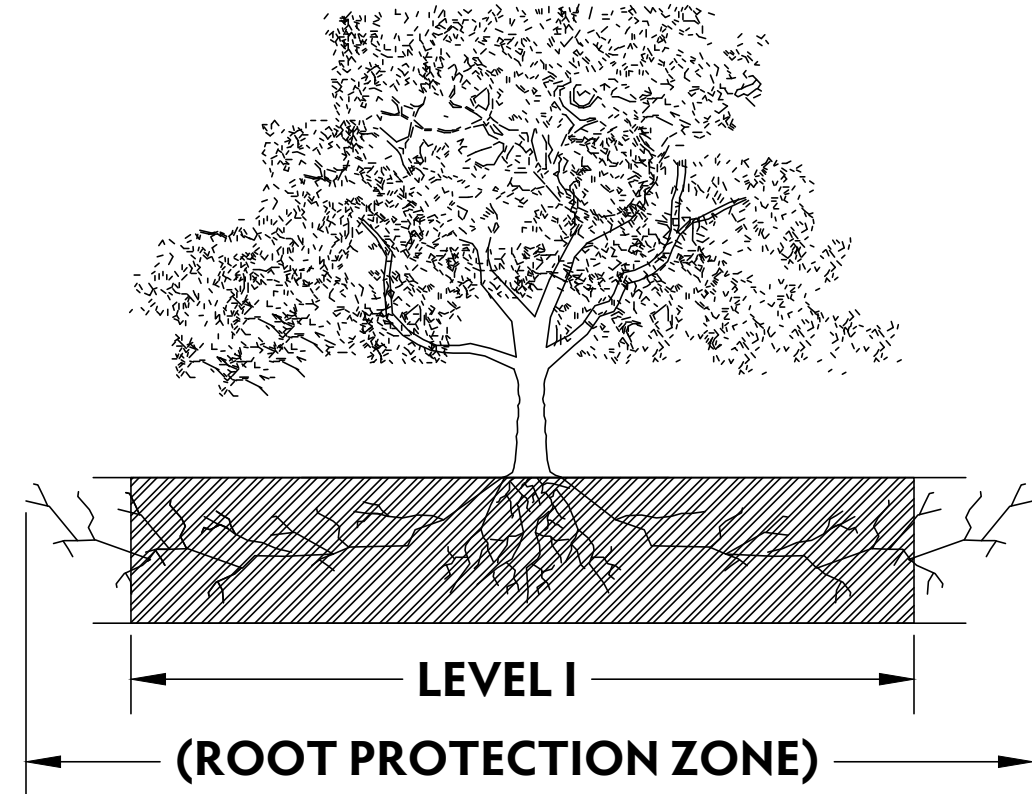
OWNER/DEVELOPER:
LENNAR HOMES
CONTACT PERSON: RICHARD MOTT
100 NE LOOP 410 SUITE 1155
SAN ANTONIO, TX 78216
TEL: (210) 403-6200

CIVIL ENGINEER:
M.W. CUDE ENGINEERS, L.L.C.
CONTACT PERSON: CHRIS CHAFFEE, P.E.
4122 POND HILL ROAD, SUITE 101
SAN ANTONIO, TX 78231
TEL: (210) 681-2951
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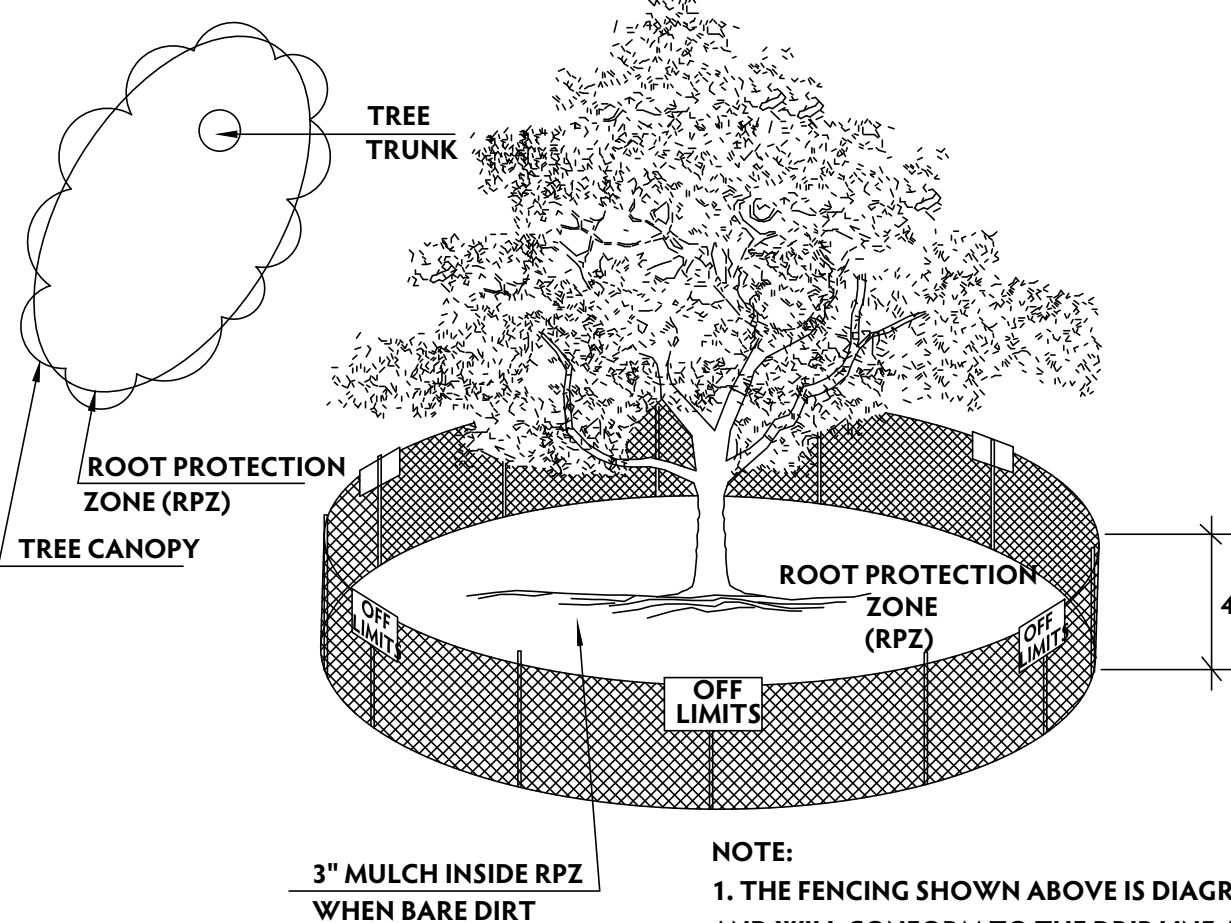
TREE CANOPY PRESERVATION REQUIREMENTS AND CALCULATIONS (RESIDENTIAL)				
		VALUE	UNIT	COMMENTS
Overall Preservation				
	Total	1,017,680.00	Sq. Ft.	
	Removed	152,406.00	Sq. Ft.	
	Preserved	865,274.00	Sq. Ft.	85.02%
100 yr Floodplain				
Protected				
	Total	608,941.00	Sq. Ft.	
	Removed	66,925.00	Sq. Ft.	
	Preserved	542,016.00	Sq. Ft.	89.01%
	Required 80%			0.00% Mitigation
Heritage				
	Total	369.00	in.	
	Removed	75.00	in.	
	Preserved	294.00	in.	79.67%
	Required 100%			20.33% Mitigation
VARIANCE REQUIRED FOR MITIGATION IN FLOODPLAIN				
Enviromentally Sensitive Areas				
Protected				
	Total	48,189.00	Sq. Ft.	
	Removed	18,503.00	Sq. Ft.	
	Preserved	29,686.00	Sq. Ft.	61.60%
	Required 80%			18.40% Mitigation
Heritage				
	Total	24.00	in.	
	Removed (Non-Exempt)	24.00	in.	
	Preserved	-	in.	0.00%
	Required 100%			100.00% Mitigation
VARIANCE REQUIRED FOR MITIGATION IN ESA				
Outside of Floodplain				
Protected				
	Total	360,550.00	Sq. Ft.	
	Removed	79,530.55	Sq. Ft.	
	Preserved	281,019.45	Sq. Ft.	77.94%
	Required 30%			0.00% Mitigation
Heritage				
	Total	126.00	in.	
	Removed (Non-Exempt)	73.50	in.	
	Preserved	52.50	in.	41.67%
	Required 100%			58.33% Mitigation
PRESERVATION MITIGATION REQUIRED				
100 yr Floodplain - Protected Required Mitigation		-	Sq. Ft.	
100 yr Floodplain - Heritage Required Mitigation		75.00	in.	(removed)
		225.00	in.	(removed x 3)
Enviromentally Sensitive Areas - Protected Required Mitigation		8,866.00	Sq. Ft.	
Enviromentally Sensitive Areas - Heritage Required Mitigation		24.00	in.	(removed)
		72.00	in.	(removed x 3)
Outside of Floodplain - Protected Required Mitigation		-	Sq. Ft.	
Outside of Floodplain - Heritage Required Mitigation		74.00	in.	(removed)
		222.00	in.	(removed x 3)
Total - Protected Mitigation Required		8,866.00	Sq. Ft.	
**Assumed M-L trees from Appendix E		169.21	in.	(Sq. Ft. / 875)*16.7
Total - Heritage Mitigation Required		519.00	in.	
TOTAL MITIGATION REQUIRED		688.21	in.	
PRESERVATION MITIGATION PROVIDED				
Total Inches Planted		2,631.00	in.	
		TOTAL MITIGATION (in.) FROM THE "TOTAL PLANTED TREES" TABLE		
Total Inches to be Paid		-	in.	No payment is required based off mitigation.
		\$	-	(\$200 per inch)
POST CONSTRUCTION TREE CANOPY REQUIRED (RESIDENTIAL)				
Total Area Outside of Floodplain		242.47	Ac.	
Number of Residential Dwellings		1,325	Dwellings	
Required Canopy (38%)		4,013,557.42	Sq. Ft.	
Preserved Canopy (ESA & Outside of Floodplain)		310,705.45	Sq. Ft.	
Preserved Heritage Canopy (ESA & Outside of Floodplain)		1,100.00	Sq. Ft.	
Required Canopy to be Planted		3,701,751.97	Sq. Ft.	
POST CONSTRUCTION TREE CANOPY REQUIRED (COMMERCIAL)				
Total Area Outside of Floodplain		8.00	Ac.	
Required Canopy (25%)		87,120.00	Sq. Ft.	
Preserved Canopy (ESA & Outside of Floodplain)			Sq. Ft.	
Required Canopy to be Planted		87,120.00	Sq. Ft.	
POST CONSTRUCTION TREE CANOPY MITIGATION PROVIDED				
Total Canopy Planted		4,158,787.50	Sq. Ft.	
		TOTAL MITIGATION (SQ. FT.) FROM THE "TOTAL PLANTED TREES" TABLE		
Total Required Canopy		3,788,871.97	Sq. Ft.	
Canopy Mitigation		-	Sq. Ft.	
Total inches to be paid		-	in.	No payment is required based off canopy requirements.
		\$	-	(\$200 per inch)
TOTAL MITIGATION				
Total inches to be paid		-	in	
		\$	-	

TOTAL PLANTED TREES									
Description	Number of Trees	Diameter (in.)	Required Diameter	Extra Diameter (in.)	Shade Value	(Sq. Ft.)	Energy Credit	Total Planted Diameter (in.)	TOTAL MITIGATION (in.)
Required 2 trees per lot (NON-E.C.)	2,650	1.5	1.5	-		875.0	-	3,975	-
1 extra tree per lot (25' lot width) (E.C.)	548	1.5	-	1.5		875.0	1.5	822	822
1 extra tree per lot (35' lot width) (E.C.)	348	1.5	-	1.5		875.0	1.5	522	522
2 extra tree per lot (45' lot width) (E.C.)	858	1.5	-	1.5		875.0	1.5	1,287	1,287
TOTAL	4,404							6,606	2,631

TOTAL PLANTED TREES									
Description	Number of Trees	Diameter (in.)	Required Diameter	Extra Diameter (in.)	Shade Value	(Sq. Ft.)	Energy Credit	Total Planted Diameter (in.)	TOTAL MITIGATION (Sq. Ft.)
Required 2 trees per lot (NON-E.C.)	2,650	1.5	1.5	-		875.0	-	3,975	2,086,875.00
1 extra tree per lot (25' lot width) (E.C.)	548	1.5	-	1.5		875.0	1.5	822	647,325.00
1 extra tree per lot (35' lot width) (E.C.)	348	1.5	-	1.5		875.0	1.5	522	411,075.00
2 extra tree per lot (45' lot width) (E.C.)	858	1.5	-	1.5		875.0	1.5	1,287	1,013,512.50
TOTAL	4,404							6,606	4,158,787.50



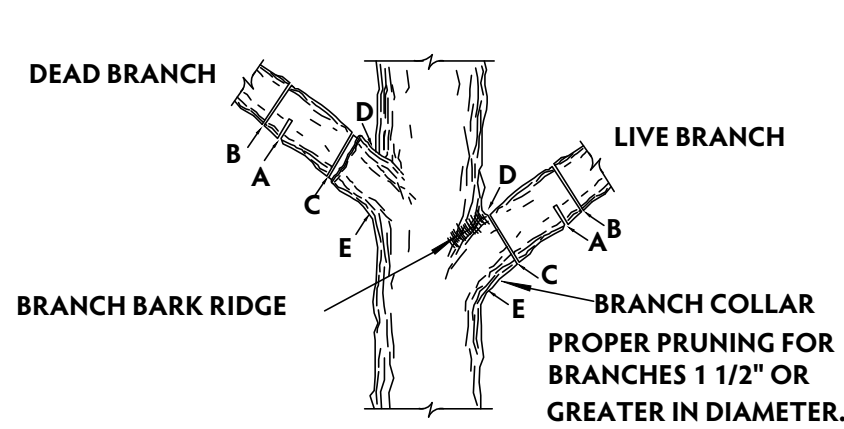
ROOT PROTECTION ZONE
THE ROOT PROTECTION ZONE IS A CIRCULAR AREA AROUND A TREE THAT IS BASED ON THE DIAMETER OF THE TREE. EACH 1 INCH DIAMETER OF THE TREE EQUALS 1 FOOT RADIUS FOR ROOT PROTECTION ZONE.



1.1.2

LEVEL I & FENCE PROTECTION

N. T. S.

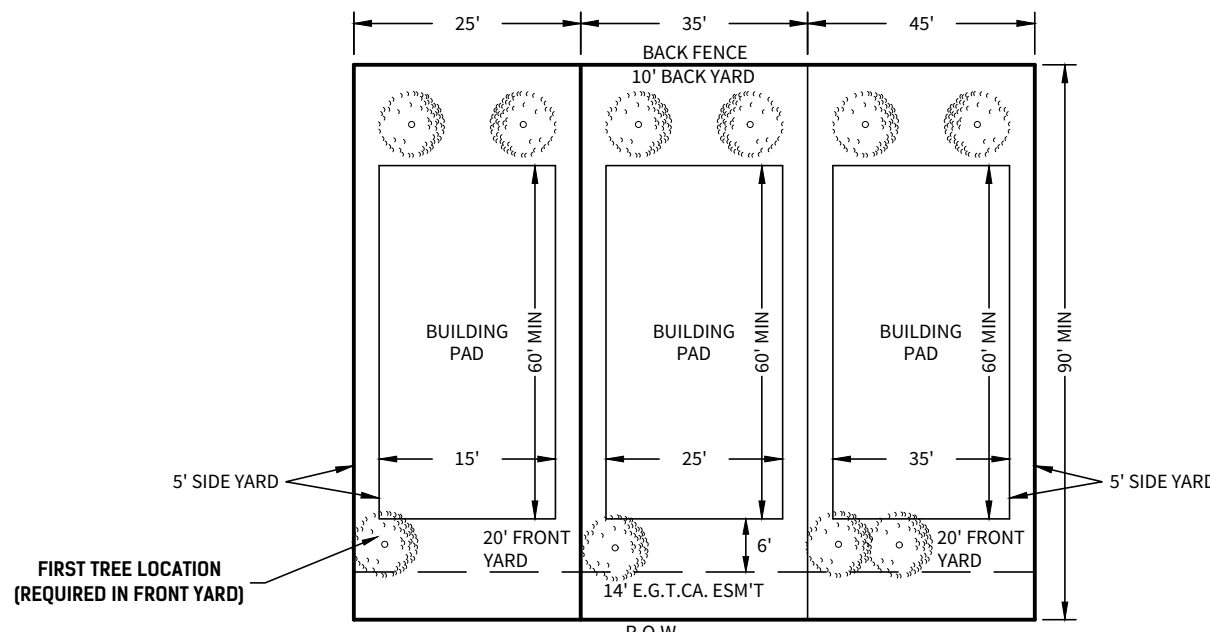


NOTE: DO NOT CUT FROM D to E.

- FIRST CUT - TO PREVENT THE BARK FROM BEING PEELED WHEN THE BRANCH FALLS.
- SECOND CUT - TO REDUCE THE WEIGHT OF BRANCH.
- FINAL CUT - ALLOW FOR HEALING COLLAR BUT NO STUBS

- BRANCH RIDGES - INDENT PROPERLY BRANCH RIDGES WHICH ARE SITE FOR DECAY.

FOR OAKS ONLY: PAINT ALL WOUNDS OR CUTS WITH PRUNING PAINT WITHIN 20 MIN TO PREVENT THE SPREAD OF OAK WILT.



LOT PLANTING DETAIL

NOTES:

NOTES:

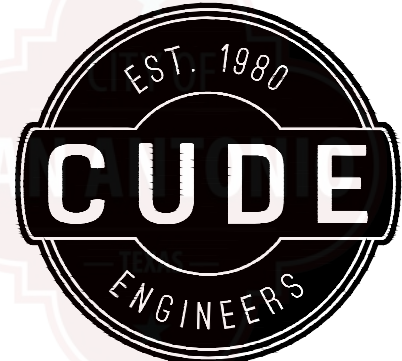
- TRES LAURELS SUBDIVISION IS SUBJECT TO THE CITY OF SAN ANTONIO 2010 TREE ORDINANCE
- NON-EXEMPT TREES ARE CLASSIFIED AS TREES LOCATED OUTSIDE EXEMPT AREAS (STREET R.O.W. & EASEMENTS) & ARE THE TREES USED IN CALCULATING MINIMUM PRESERVATION REQUIREMENTS PER THE 2010 TREE ORDINANCE.
- ANY SUBSEQUENT NOTES DEALING WITH ROOT PROTECTION DO NOT APPLY TO RESIDENTIAL DEVELOPMENTS.
- ALL EXISTING TREES DENOTED ON THIS PLAN TO BE PRESERVED AS SHOWN AND PROTECTED AT THE ROOT PROTECTION ZONE (RPZ). THE RPZ SHALL BE DETERMINED BY TREE SIZE (RECOMMENDED 12" RADIUS FROM TRUNK FOR EVERY 1" DIAMETER OF TRUNK AT 4.5' FROM GROUND) WITH A MINIMUM 5' DIAMETER FROM THE TRUNK.
- A (CHAINLINK OR ORANGE MESH FENCE) BARRIER AROUND THE RPZ SHALL BE ERECTED AND MAINTAINED UNTIL CONSTRUCTION IS COMPLETED.
- RPZ SHALL BE SUSTAINED IN A NATURAL STATE AND SHALL BE FREE FROM VEHICULAR OR MECHANICAL TRAFFIC; NO FILL, EQUIPMENT, LIQUIDS, OR CONSTRUCTION DEBRIS SHALL BE PLACED INSIDE THE PROTECTIVE BARRIER.
- THE RPZ SHALL BE COVERED WITH 6" OF COARSE MULCH TO REDUCE MOISTURE STRESS.
- ANY DAMAGE DONE TO EXISTING TREE CROWNS OR ROOT SYSTEMS SHALL BE REPAIRED IMMEDIATELY. ALL WOUNDS TO OAKS WILL BE PAINTED WITH PRUNING PAINT WITHIN 30 MINUTES AFTER DAMAGE. ROOTS EXPOSED DURING CONSTRUCTION OPERATIONS WILL BY CUT CLEANLY.
- THE PROPOSED FINISH GRADE AND ELEVATION OF LAND WITHIN THE ROOT PROTECTION ZONE OF ANY TREE TO BE PRESERVED SHALL NOT BE RAISED OR LOWERED MORE THEN 3". WELLING AND RETAINING METHODS ARE ALLOWED OUTSIDE THE RPZ.
- THE RPZ SHALL REMAIN PERVIOUS, I.E. GROUND COVER OR TURF AT COMPLETION OF LANDSCAPE DESIGN.
- PROTECTED TREES SHALL BE PROTECTED UNTIL SUCH TIME AS THE CONCRETE WORK CAN BE STAKED TO DETERMINE ITS DISTANCE FROM SIGNIFICANT TREES. (IF FOUND THAT THE CONCRETE WORK WILL BE CLOSER THAN 5', THE CONTRACTOR WILL MEET WITH REPRESENTATIVES OF THE ENVIRONMENTAL REVIEW DEPARTMENT TO MINIMIZE IMPACT.)
- CONTRACTOR TO UPDATE TREE PRESERVATION PLAN FOR CHANGES DURING CONSTRUCTION AND NOTIFY ENGINEER ACCORDINGLY. THE REVISED TREE PRESERVATION PLAN WILL BE RESUBMITTED AND APPROVED BY THE CITY OF SAN ANTONIO ARBORIST DEPARTMENT UPON FINAL ACCEPTANCE OF ALL SUBDIVISION IMPROVEMENTS.



DEVELOPMENT SERVICES
TREE PROTECTION SECTION
REVIEWED FOR COMPLIANCE

TRES LAURELS HERITAGE TREES									
		FLOOD PLAIN		ESA		OUTSIDE OF FLOOD PLAIN			
POINT #	SPECIES	PRESERVE	REMOVE	PRESERVE	REMOVE	EXEMPT TO BE REMOVED VERY POOR CONDITION	PRESERVE	REMOVE	EXEMPT TO BE REMOVED VERY POOR CONDITION
1003	MESQUITE								26
1005	MESQUITE	24							
1006	MESQUITE	24							
1007	MESQUITE	24							
1008	MESQUITE								24
1010	MESQUITE								24
1013	MESQUITE								26
1015	ELM	31.5							
1016	ELM	27							
1017	ELM	24.5							
1018	ELM	24							
1021	MESQUITE						26.5		
1022	MESQUITE						26		
1023	OAK							40.5	
1025	MESQUITE								26
1026	ELM		27						
1027	ELM		24						
1028	OAK	33							
1029	ELM	29.5							
1030	ELM	25							
1031	ELM	27.5							
1032	ELM		24						
30001	MESQUITE					29			
30002	ELM				24				
30003	OAK							33	
TOTAL		294	75	0	24	29	52.5	73.5	126

TOTAL PLANTED TREES			
Unit	25' LOTS	35' LOTS	45' LOTS
1A	0	0	124
1B	0	0	50
2A	167	0	0
2B	203	0	0
3A	0	0	119
3B	0	0	92
4A	0	177	0
4B	0	171	0
5A	0	0	44
5B	178	0	0
TOTAL	548	348	429



4122 Pond Hill Road, Suite 101
San Antonio, Texas 78231
P:(210) 681-2951 F:(210) 523-7112

TRES LAURELS

TREE CANOPY PRESERVATION PLAN

DATE

11/18/2024

PROJECT NO.
03050.006

DRAWN BY
MAT/IRV/DAF

CHECKED BY
SPM/CJC

REVISIONS

-
-
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-
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-



Development Services Dept
CUDE ENGINEERS
TBPE No. 455
TBPLS No. 10048500

PLAT NO.
22-11800270

TPP-2



Permit Issuance Information

Report Date: 7/2/2024

Application No	TRE-APP-APP24-38801481		
Permit No	TRE-PMT-24-38901481		
Site Address	3411 GROSENBACHER RD, CITY OF SAN ANTONIO ETJ, TX 78245		
Type of Record	Building/Permits/Tree Permit/Permit		
Date Issued	07/02/2024		
Record Status	Active		
Primary Applicant	Cude Engineers		
Scope of Work	PLAT-24-11800221 - Tres Laurels, Unit 1B Platting		
Approval Comments			
Completeness Review	Comments	Completeness review approved, required documents submitted. No tree removal permitted with this approval including in the right-of-way or easements. Technical review pending payment of invoiced tree permitting fees and passed preliminary tree inspection.	



Permit Issuance Information

Report Date: 7/2/2024

Technical Review - Tree Land Development

Comments Originally Approved on 3/23/2023 as A4, 2010 Tree Ordinance. *Master Tree Permit* ER
Variance Approved by Planning Commission on 3/08/2023

*Revised 5/15/2024 (Amendment #1) - E. Rodriguez

*Copy of approval and stamped plans must be posted on site during site work

*Tree fencing inspection required before site work.
// NOTE: APPLICATION IS FOR PLATTING, SITE WORK AND TREE REMOVAL PURPOSES. TREE REVIEW APPROVAL IS FOR PLATTING AND TREE REMOVAL WITHIN UNIT 1B ONLY. A SEPARATE TREE PERMIT APPLICATION WILL BE REQUIRED FOR EACH SUBSEQUENT UNIT PRIOR TO TREE REMOVAL.

*PRIOR TO COMMENCEMENT OF ANY ACTIVITIES REQUIRING A TREE PERMIT, THE APPLICANT SHALL SCHEDULE A PRE-CONSTRUCTION MEETING WITH THE CITY ARBORIST TO REVIEW PROCEDURES FOR PROTECTION AND MANAGEMENT OF ALL SIGNIFICANT, HERITAGE OR MITIGATION TREES (CAN BE SCHEDULED WITH TREE FENCING INSPECTION)



Permit Issuance Information

Report Date: 7/2/2024

*PRIOR TO PLAT RECORDATION, A FINAL TREE INSPECTION IS REQUIRED TO VERIFY COMPLIANCE WITH APPROVED TREE PRESERVATION PLAN. Use Build SA TO SCHEDULE INSPECTION. REFERENCE TRE-APP-APP22-38801338. ALL PLATTED UNITS WILL REQUIRE A FINAL TREE INSPECTION PRIOR TO RECORDATION.

*FOUR, 1.5 INCH CALIPER MEDIUM TO LARGE SHADE TREES PER LOT REQUIRED TO BE PLANTED AT BUILDING STAGE. TWO OF THE FOUR TREES SHALL BE PLANTED ON THE SOUTHERN OR WESTERN EXPOSURE OF HOUSE IN ORDER TO RECEIVE THE ENERGY CONSERVATION CREDIT.

*CONSTRUCTION ON INDIVIDUAL RESIDENTIAL LOTS OUTSIDE OF CITY LIMITS AND WITHIN EXTRATERRITORIAL JURISDICTION ARE REQUIRED TO SUBMIT A TREE PERMIT APPLICATION REFERENCING APPROVED TREE PRESERVATION PLAN TO VERIFY COMPLIANCE AT BUILDING STAGE. FAILURE TO DO SO COULD INCUR CESSATION OF ON-SITE CONSTRUCTION, ADDITIONAL MITIGATION, AND/OR WORK WITHOUT PERMIT PENALTIES. A TREE FINAL INSPECTION IS



Permit Issuance Information

Report Date: 7/2/2024

REQUIRED TO BE SCHEDULED FOR EACH LOT TO VERIFY TREE PLANTINGS.

*TREE SAVE AREA TO BE LEFT UNDISTURBED IN ITS NATURAL CONDITION. TREE SAVE AREAS MUST BE DESIGNATED AS SUCH WHEN AREA IS PLATTED (35-523 (E)(3) TREE STAND DELINEATION ALTERNATIVE. A. STANDARDS)

TREE PRESERVATION OUTSIDE OF FLOODPLAIN = 81.42%
Heritage Tree Preservation = 41.67%

TREE PRESERVATION INSIDE FLOODPLAIN = 92.59%
Heritage Tree Preservation inside Floodplain = 79.67%

TREE PRESERVATION INSIDE ESA = 61.60%
Heritage Tree Preservation inside ESA = 0%

*This subdivision is subject to a Master Tree Plan (TRE-APP-APP22-38801338) which requires compliance by the owners of all property within the plat boundary, and their employees and contractors, and shall be binding on all successors in title except for owners of single-family residential lots subdivided hereunder for which construction of a residential structure has been completed. The Master Tree Plan is on file at the City of San Antonio Arborists Office.



Permit Issuance Information

Report Date: 7/2/2024

No Trees or Understory shall be removed without prior approval of the City Arborist Office per 35-477(h).

*Use Master Tree Permit TRE-APP-APP22-38801338 on Tree Permits for future residential lot submittals to avoid permit fees. A \$100.00 review fee will be assessed for each individual lot at building stage – tree permit required.
Commercial/Non-residential Areas will be assessed permit fees on a per acre basis.

*SECTION 35-477 (h) Amendments. Notification and approval of the city arborist are required if changes need to be made to an approved tree preservation plan. Approval of the changes must be received from the city arborist, in writing, before commencement of any work that is the subject of the change or field adjustment.

Required Inspections

Tree - Fencing
Tree - Fencing Follow Up
Tree - Final
Tree - Pre-Construction Meeting

Inspection Status

Pending
Pending
Pending
Pending

Related Records

(This is other Permits Created from the Applications, Amendments etc)

Record Number
LAND-PLAT-24-11800221

Record Type
Major Plat

Status
Under Review



COUNTY OF BEXAR
PUBLIC WORKS DEPARTMENT

1948 Probandt St.
San Antonio, TX 78214
(210) 335-6700 (voice)
(210) 335-6713 (fax)

Permit Holder Information

Mosaic Land Development

6812 West Ave Ste 100 San Antonio, TX 78213
210-764-9575 blake@mosaiclanddevelopment.com

Bexar County Inspector Contact Information

Name: Tyler Saucedo
Cell: 210-216-6932
Email: tyler.saucedo@bexar.org

Emergency Contact Information: Blake Yantis 210-764-9575

Tres Laurels Unit 01-B

Project Type: Single Family Residential

Acres of Disturbance: 9.37

Permit Number: **SWQ FY24_3156**

Permit Issued: **11/26/2024**

Anticipated Work Start Date: **12/16/2024**

Anticipated Work Stop Date: **12/19/2025**

After the initial storm water quality protection measures (BMPs) identified in the permit are installed and before you begin disturbing the area within the BMPs, notify the Bexar County Storm Water Quality Inspector identified on this permit by text and e-mail SWQ@bexar.org at least two (2) working days before starting work.

The TCEQ Site Construction Notice or NOI, a copy of this permit, and all other required permits listed below on this permit **MUST BE POSTED** on the construction site. The inspector will verify that **ALL REQUIRED PERMITS** identified below have been obtained and the BMPs have been installed.

Activities Covered Under This Permit

Infrastructure (Streets and Drains)

Onsite Utility - Sanitary Sewer

Onsite Utility - Fiber

Onsite Utility - Water Line

Fill

Clearing / Mass Grading

Onsite Utility - Cable/Telephone

Onsite Utility - Electric

Other Required Permits

TCEQ NOI: TXR1507PH - Lennar Homes of Texas Land and Construction, Ltd.

Post Construction Permit 2259

Mitigation Required

Storm Water Quality Permits do not expire. When work is complete, contact the Storm Water Quality Inspector to conduct a final inspection to verify the Post Construction Permit is finalized, all temporary storm water quality Best Management Practices (BMPs) have been removed, vegetation has been established to an acceptable level, and all permanent post construction BMPs have been installed. Sending the NOT to TCEQ does not automatically retire the Bexar County Permit. If you have any questions, please contact Kimberly Olivier at (210)309-9145.



COUNTY OF BEXAR

PUBLIC WORKS DEPARTMENT

1948 Probandt St

San Antonio, TX 78214

(210) 335-6700 (automated system)

Permit Holder Information

Mosaic Land Development

6812 West Ave Ste 100

San Antonio, TX 78213

Pre-Construction Storm Water Control Measure Permit

Tres Laurels Unit 1B

Permit Number: PC FY24_2259

Issued: 11/26/2024

The following items listed below are permanent best management practices (BMPs) to be installed during the construction and/or implemented after completion of this development. In order to complete the Post-Construction portion of this permit, submit the documents identified in the Action to Complete Permit section for each BMP to Kimberly Olivier after construction and contact the Storm Water Inspector for a final inspection.

Please be aware this permit is NOT COMPLETE until the Post-Construction portion of the permit application has been approved.

Post Construction Best Management Practices (BMPs) to be Constructed or Implemented		
BMP Type to be Verified	Location	Action to Complete Permit
Tree Canopy	Residential Lots - 4 Trees per Lot	- PC Inspector to verify tree planting at time of permit closure

A copy of this permit must be displayed at the construction site.

Failure to complete this permit is a violation of the 'Bexar County Storm Water Pollution Prevention' Court Order and will result in a citation or fine.

If you have any further questions, please contact Storm Water Quality Division at 210-335-6651.

Respectfully,

Robert Brach PE

Development Services Engineer



STORM DRAINAGE COURTESY INSPECTIONS

Date: November 18, 2024

Lennar Homes of Texas Land and Construction Ltd.

Developer Name – Print or Type

100 NE Loop 410, Suite 1155

Developer Street Name

San Antonio, Texas 78216

Developer City, State, Zip

RE: Tres Laurels - Unit 1B - LAND-PLAT-24-11800221
Subdivision Name & Plat No.

Gentlemen:

This is in regard to your request for courtesy inspection on **storm drainage** construction work proposed for the above subdivision prior to the subdivision's plat approval by the City Planning Commission.

Please be advised that approval for such courtesy inspection is conditioned upon your signing this letter whereby you acknowledge your understanding and acceptance of the obligations and conditions found herein. When such letter, properly signed, has been received by our office, we shall evidence our agreement to such courtesy inspection through the issuance of a pre-plat approval courtesy inspection order form to your contractor.

Such courtesy inspection order will specifically deny issuance of a letter of acceptance for work completed pursuant to the order until the subdivision plat has been approved by the Director of Development Services and written approval authorizing such acceptance has been issued by the City's Director of Public Works.

The obligations on the part of Lennar Homes of Texas Land and Construction Ltd. (hereinafter referred to as "Developer") for which he does by agree as a condition precedent for issuance of the described inspection order as follows:

1. Agreement to the review and approval by the City's Director of Development Services of all storm drainage design plans on all proposed storm drainage systems necessary to serve the properties proposed by the referenced plat and all supportive storm drainage documentation pursuant to the requirements and provision of Chapter 35, Article V (Development Standards) of the Unified Development Code.

RE: Tres Laurels - Unit 1B - LAND-PLAT-24-11800221
Subdivision Name & Plat No.

2. Acknowledgement by the Developer that the referenced subdivision plat is subject to change until approval of plat is granted by the City's Planning Commission and construction of any public or private improvements associated with the subdivision constitutes a risk solely upon the developer; further agreement by Developer, that any correction of any damages caused by his or his agent's actions or any design or construction changes necessary to accommodate any change deemed necessary to the plat by the City's Planning Commission or any other public improvement by parties having jurisdictional authority will be executed as directed by the City's Director of Development Services, at Developer's sole cost.
3. Acknowledgement on the part of Developer that the issuance of such pre-plat courtesy inspection order in no way grants vested rights to Developer for the development of such property, and further, that such inspection form may not be relied upon for approval of any proposed plats of land affected by such storm drainage work.
4. The Developer understands and agrees that this courtesy inspection letter will not be signed and approved until all Public Work's site improvement plans have been submitted to the City's Director of Development Services. A signed copy of this letter shall accompany the plans to be used by the contractor and the inspector.

Agreement and acceptance of Developer's obligations shall be evidenced by his signature in the appropriate space provided below and receipt of this letter by the City's Director of Development Services.

Very truly yours,

Juan M. Ramirez

Director of Development Services

IN WITNESS OF WHICH, I hereby agree this 18 day of November, 2024, that the obligations and conditions of the above are thoroughly understood and acceptable to me.

ATTEST: *Roy Olivarez*

BY: *Richard Mott*

TITLE: Director of Land Development

TITLE: VP of Land Development

REV: 10/10



CITY OF SAN ANTONIO
DEVELOPMENT SERVICES DEPARTMENT

P.O.BOX 839966 | SAN ANTONIO TEXAS 78283-3966



STREET COURTESY INSPECTIONS

Date: November 18, 2024

Lennar Homes of Texas Land and Construction Ltd.

Developer Name – Print or Type

100 NE Loop 410, Suite 1155

Developer Street Name

San Antonio, Texas 78216

Developer City, State, Zip

RE: Tres Laurels - Unit 1B - LAND-PLAT-24-11800221
Subdivision Name & Plat No.

Gentlemen:

This is in regard to your request for courtesy inspection on **street construction** work proposed for the above subdivision prior to the subdivision's plat approval by the City Planning Commission.

Please be advised that approval for such courtesy inspection is conditioned upon your signing this letter whereby you acknowledge your understanding and acceptance of the obligations and conditions found herein. When such letter, properly signed, has been received by our office, we shall evidence our agreement to such courtesy inspection through the issuance of a pre-plat approval courtesy inspection order form to your contractor.

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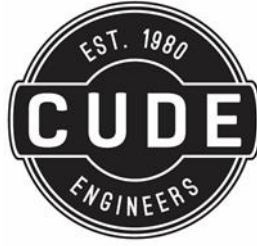
ATTEST: *Roy Olivarez*

BY: *Richard Mott*

TITLE: Director of Land Development

TITLE: VP of Land Development

REV: 10/10



CPS ELECTRIC OHE/URD DESIGN

BY: _____

DATE: _____

CONST CTR: _____

FERGUSON MAP GRID:
645 - C2, D2

OH DESIGN						PROJECT #						A-0011																											
WORK REQUEST NO								WORK REQUEST TITLE / ADDRESS																															
40793544								TRES LAURELS SUBDIVISION UNIT 1B / OH																															
PLANNED BY				PHONE				CELL PHONE				DATE PLANNED				NOTES																							
C. MAHA				5139				726-217-4142				8/22/2024				INSTALL: 3 POLES & 2 CUT-OUTS																							
REVIEWED BY				PHONE				CELL PHONE				DATE REVIEWED																											
J. RAMZINSKI				2931				210-288-6476				8/22/2024																											
PAGE																																							
1 of 1																																							
SERVICE CENTER																																							
SWD																																							
X-Y GRID COORDINATES												CIRCUIT NO												SCALE															
X				2,050,359				Y				13,690,741				R422				1" = 100'																			
BURIED FACILITIES																																							
CLEAR		CATV	WATER	TELEPHONE	SEWER	ELECTRIC	GAS	OTHER																															
NOTED ON SKETCH		☒	☒	☒	☒	☒	☒	☒																															
COPIES																TOTAL																							
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SKETCH SIZE 17 X 22 1" = 100'																																							



Harmon M. Clare
ENTRUST SOLUTIONS GROUP
 F-11507 – REV August 22, 2024
 210-248-9031

LOCATES AND PERMITS

Bexar CNTY Permit

ASSOCIATED WORK ORDERS

40793543 - URD
40799854 - STLT

ENVIRONMENTAL NOTES

A stormwater permit is active for this construction site. Please contact Brandon Baxter at Stormcon at least 48 hours prior to any soil disturbance at 210-771-1221 or brandon@stormcon.us.

Crews are to immediately stop work and contact CPS Energy Environmental Department at 210-353-2551 if karst (cave-like or voids) features are identified during construction activities.

FIELD MEETING NOTES

L. DUNCAN
ENTRUST SOLUTIONS GROUP



PROJECT NAME:	Tres Laurels Unit 1B			DIRT:	X	ROCK:	NA	# OF POLES:	3	
# OF OH TRANSFORMERS:	GY:	NA	HV:	X	50KVA:	NA	75KVA:	NA	100KVA:	NA

Overhead (OH) & Easement Requirements:

- *Any single phase OH line requires 20' (FT) of easement minimum with poles set in the center of the easement.
- *Any multi-phase (2 or 3 phase) OH line requires 28' (FT) of easement minimum with poles set in the center of the easement.
- *Small conductor (W2AS) - easement to be cleared, to final grade and has drivable access.
- *Large conductor (4/0, 336 & 556)-easement to be cleared, to final grade & has all-weather drivable access (per CPSE specifications).
- *Guy wire/Anchors - requires 25' to 30' past OH pole w/ 5' additional easement past anchor (30'-35' of easement required).
- *URD/UG primary riser poles required to be set at/near a street (within 25' (FT) maximum from curb) or to have an all-weather drivable access (per CPSE specifications).
- *Customer is responsible for staking all utility poles, anchors (for guy wires) and streetlights.

ATTENTION: DEVELOPERS / ENGINEERS / CONTRACTORS

WHEN TRENCHING IS IN FRONT LOT CONSTRUCTION, WATER &/OR SEWER SERVICES ARE NOT TO BE PLACED UNTIL CPS ENERGY FACILITIES ARE INSTALLED.

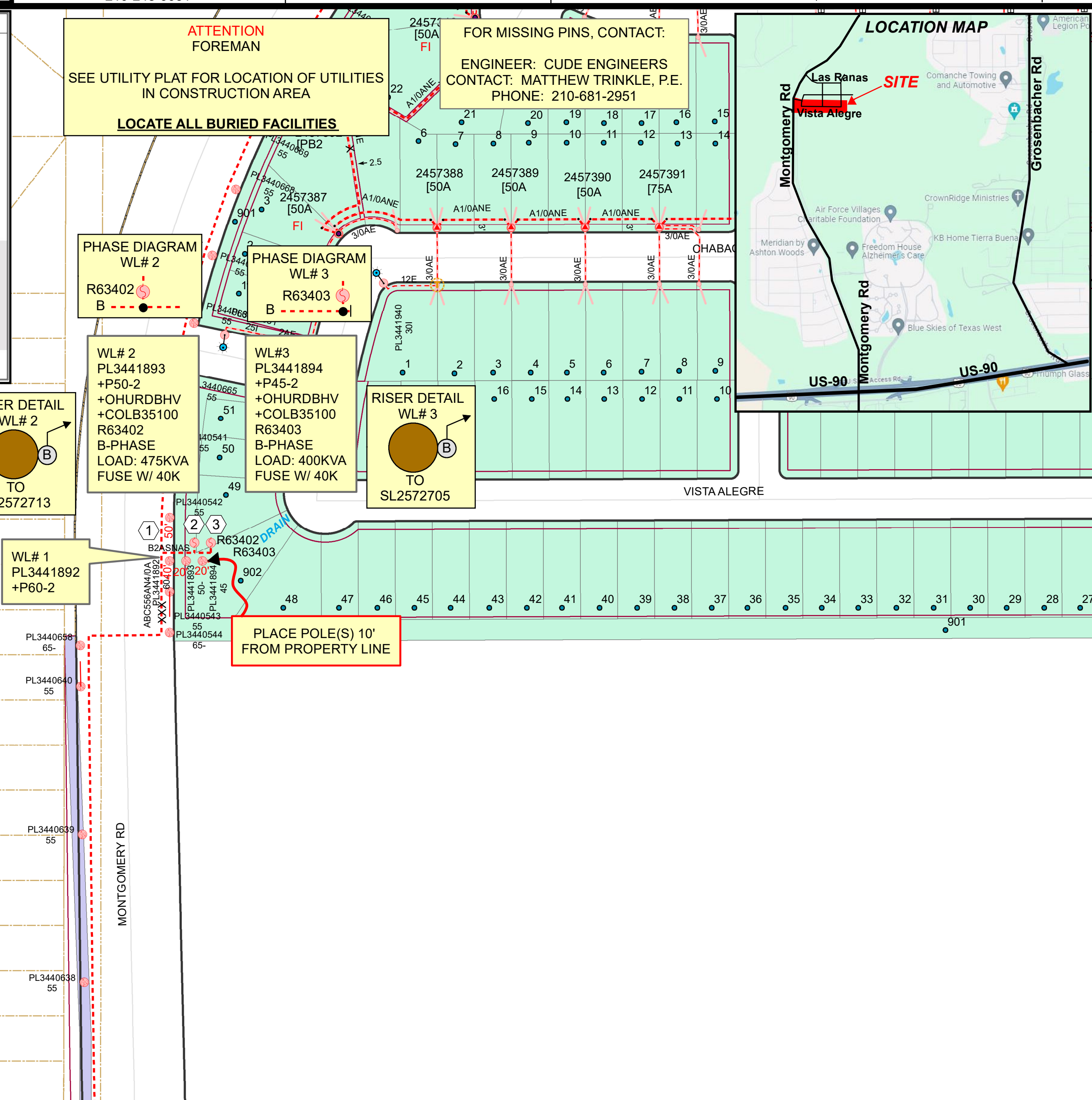
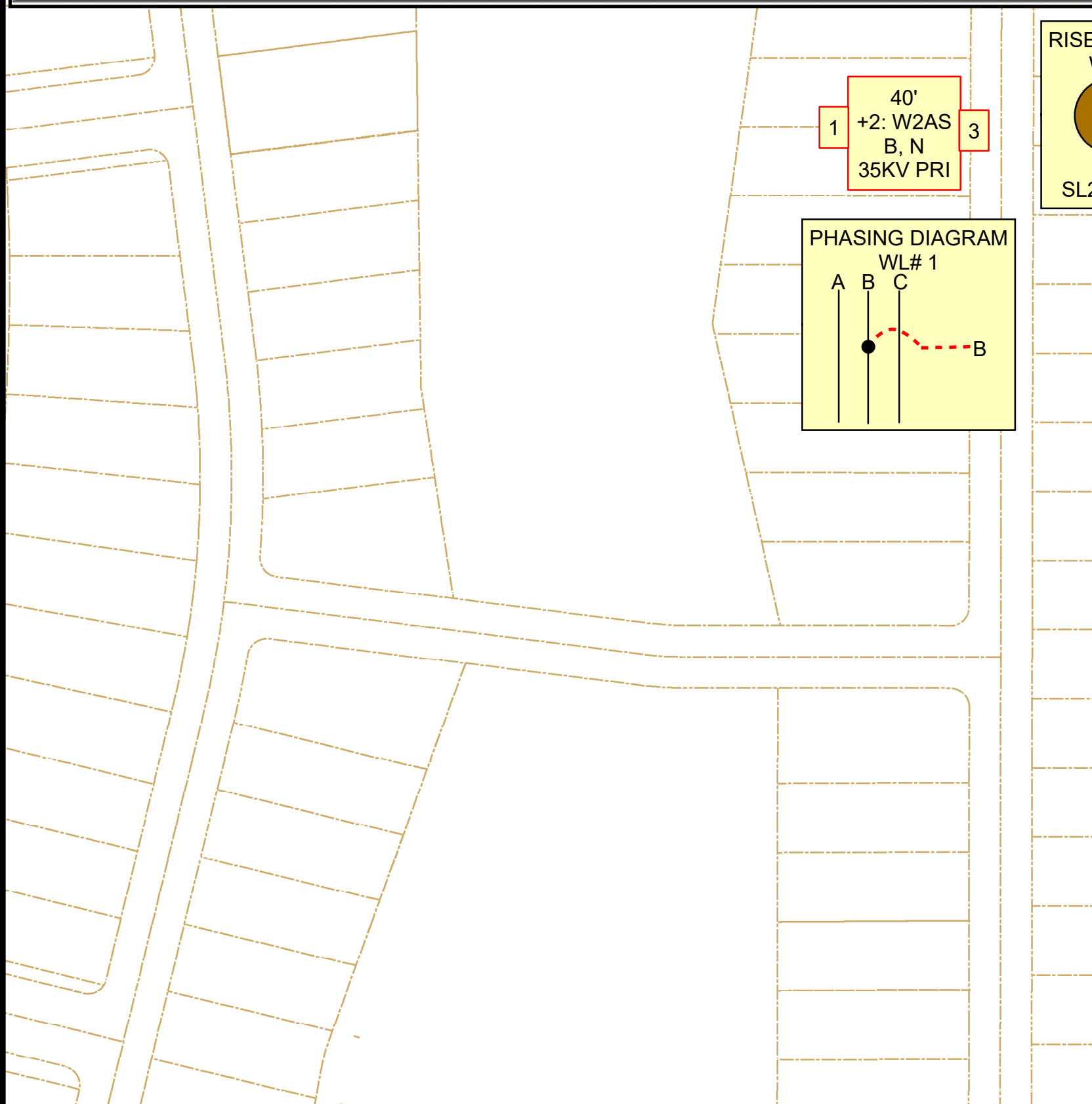
WHEN TRENCHING IN RIGHT OF WAY, WATER & SEWER SERVICES WILL NEED TO BE ROLLED BACK &/OR OUT OF CPS ENERGY TRENCHLINE. CPSE WILL NOT ENERGIZE ANY SUBDIVISIONS UNTIL PERMANENT ALL-WEATHER DRIVABLE ACCESS TO PRIMARY RISER POLES IS COMPLETED BY CUSTOMER.

CPSE WILL NOT BE LIABLE FOR ANY DAMAGES TO WATER &/OR SEWER SERVICES.

WHERE CPS ENERGY AND SEWER/WATER SERVICES/MAIN ARE CROSSING STREET, CPS ENERGY REQUIRES A MINIMUM OF 6' (FT) OF HORIZONTAL SEPARATION (when paralleling) AND 1' (FT) VERTICAL SEPARATION (when crossing) TO AVOID CONFLICTS/DAMAGE.

***ANY FOREIGN UTILITY OTHER THAN CPS ENERGY IS REQUIRED TO MAINTAIN A MINIMUM OF 6' OF PARALLEL SEPARATION FROM ANY CPS ENERGY INFRASTRUCTURE.**

***CPS ENERGY APPROVES THIS DRAWING FOR THIS PROJECT ONLY. CPS ENERGY RESERVES THE RIGHT TO APPROVE OR REJECT ANY DEVIATIONS ON ANY FUTURE PROJECTS.**





CONSTRUCTION COMPLETED

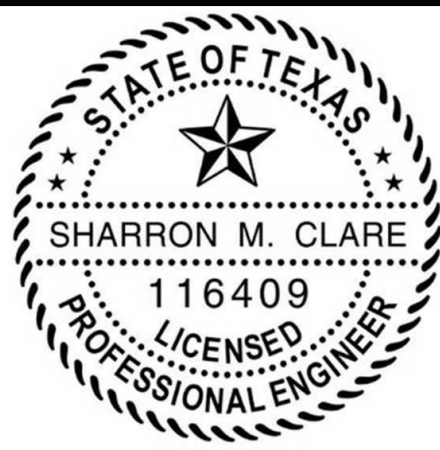
BY: _____

DATE: _____

CONST CTR: _____

FERGUSON MAP GRID:
645 - C2, D2

URD DESIGN		PROJECT # A-0012	
WORK REQUEST NO		WORK REQUEST TITLE / ADDRESS	
40793543		TRES LAURELS UNIT 1B / URD	
PLANNED BY	PHONE	CELL PHONE	DATE PLANNED
C. MAHA	5139	726-217-4142	8/22/2024
REVIEWED BY	PHONE	CELL PHONE	DATE REVIEWED
J. RAMZINSKI	2931	210-288-6476	8/22/2024
PAGE		50 LOTS	
1 of 1			
SERVICE CENTER			
SWD			
X,Y GRID COORDINATES		CIRCUIT NO	SCALE
X	2,050,359	Y	13,690,741
		R422	1" = 100'
BURIED FACILITIES			
CATV	WATER	TELEPHONE	SEWER
ELECTRIC	GAS	OTHER	
NOTED ON SKETCH			
COPIES			
TOTAL			
SKETCH SIZE 17 X 22 1" = 100'			



Sharron M. Clare
ENTRUST SOLUTIONS GROUP
F-11507 - REV August 22, 2024
210-248-9031

LOCATES AND PERMITS

Bexar CNTY Permit

ASSOCIATED WORK ORDERS

40793544 - OH
40799854 - STLT

ENVIRONMENTAL NOTES

A stormwater permit is active for this construction site. Please contact Brandon Baxter at Stormcon at least 48 hours prior to any soil disturbance at 210-771-1221 or brandon@stormcon.us.

Crews are to immediately stop work and contact CPS Energy Environmental Department at 210-353-2551 if karst (cave-like or voids) features are identified during construction activities.

FIELD MEETING NOTES

L. DUNCAN
ENTRUST SOLUTIONS GROUP

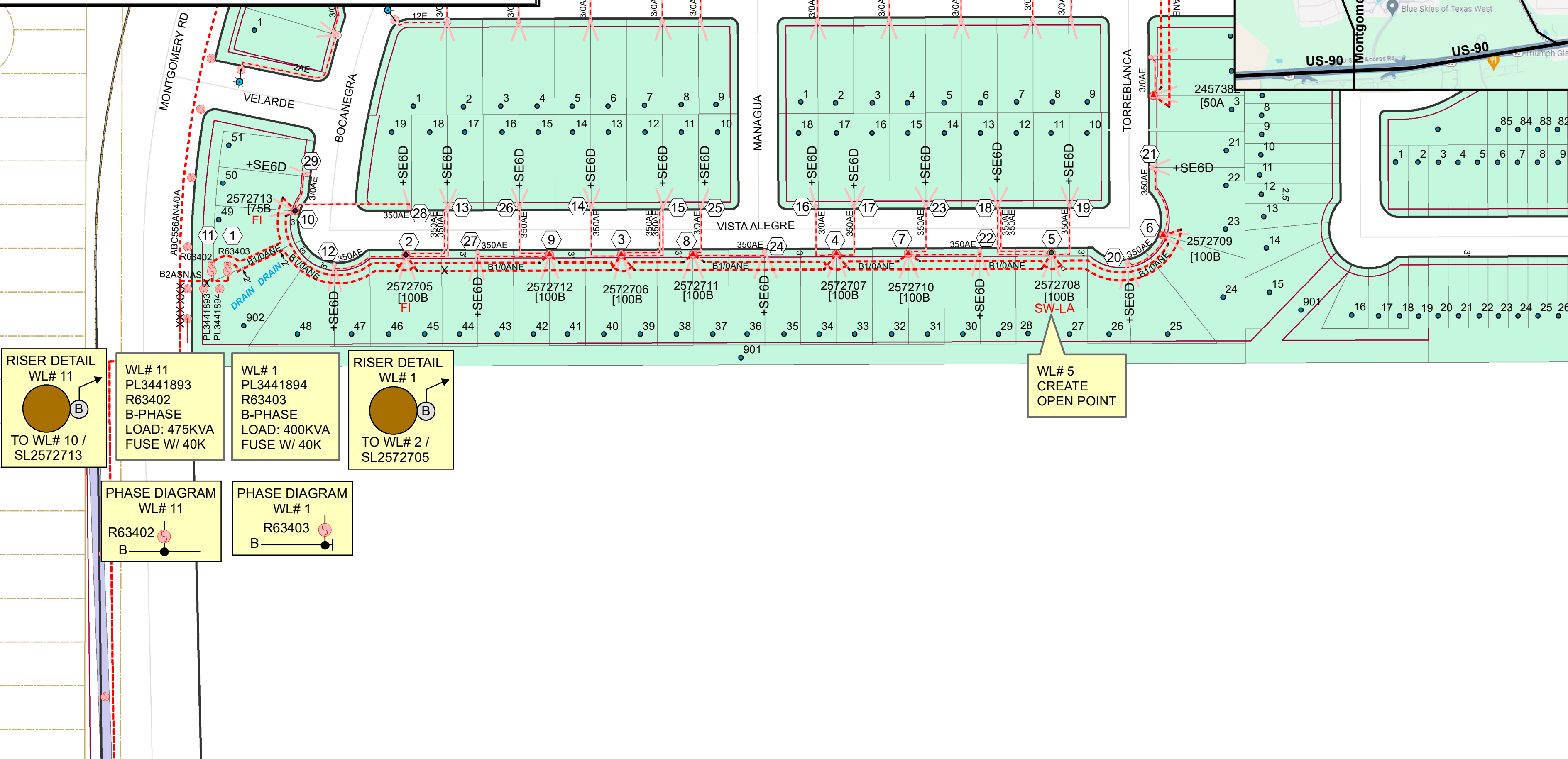
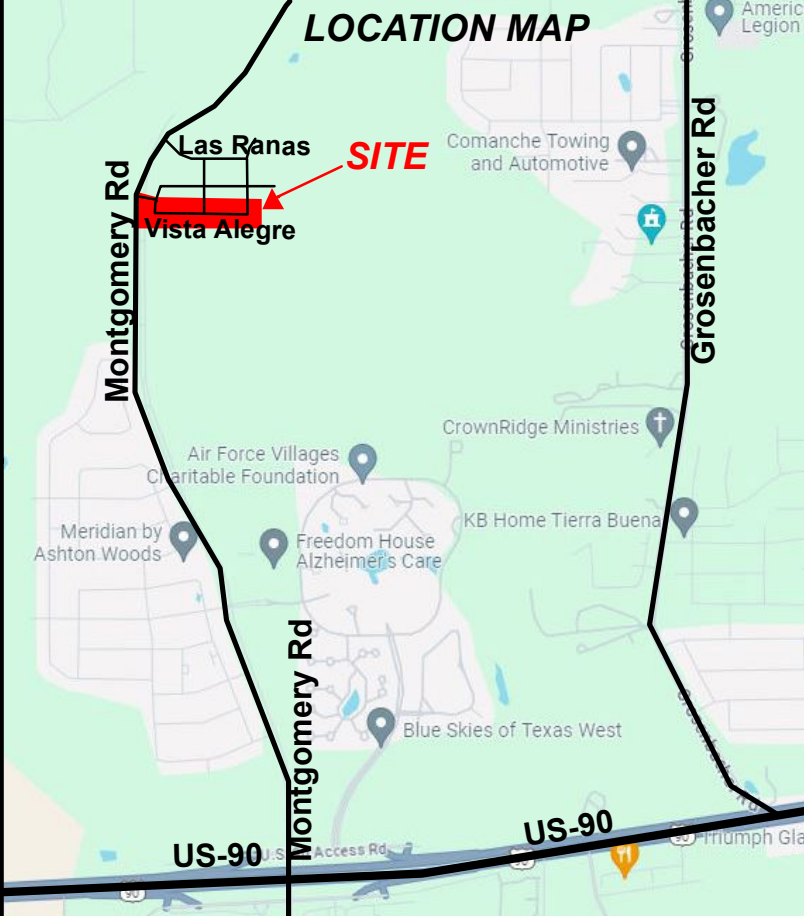


PROJECT NAME:	Tres Laurels Unit 1B Redesign		HOME SQ FT:	2,800	# OF LOTS/# OF UNITS:	50					
DIRT:	☒	ROCK:	☒	# OF SE6D:	18	KVA PER LOT/TOTAL KVA:	23 / 875				
TOTAL TRENCH FOOTAGE (JOINT-ELEC & GAS):		NA	TRENCH-GAS ONLY:		NA	TRENCH-ELEC ONLY:		2,050			
STREET CROSSINGS:		CUSTOMER SLEEVES	NA	CPSE TRENCH/FLOWABLE FILL		☒	# OF CROSSINGS:	11			
# OF STREETLIGHTS:		100W:	3	250W:		UNINCORPORATED:	☒	CITY:	NA	ANSL:	NA
# OF URD PADMOUNT TRANSFORMERS:											
GY:	NA	:50 KVA	HV:	0	:50 KVA						
	NA	:75 KVA		1	:75 KVA						
	NA	:100 KVA		8	:100 KVA						
	NA	:167 KVA		NA	:167 KVA						
	NA	:250 KVA		NA	:250 KVA						
ATTENTION: DEVELOPERS / ENGINEERS / CONTRACTORS											
WHEN TRENCHING IS IN FRONT LOT CONSTRUCTION, WATER &/OR SEWER SERVICES ARE NOT TO BE PLACED UNTIL CPS ENERGY FACILITIES ARE INSTALLED.											
WHEN TRENCHING IN RIGHT OF WAY, WATER & SEWER SERVICES WILL NEED TO BE ROLLED BACK &/OR OUT OF CPS ENERGY TRENCHLINE.											
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ATTENTION
FOREMAN
SEE UTILITY PLAT FOR LOCATION OF UTILITIES
IN CONSTRUCTION AREA
LOCATE ALL BURIED FACILITIES

FOR MISSING PINS, CONTACT:
ENGINEER: CUDE ENGINEERS
CONTACT: MATTHEW TRINKLE, P.E.
PHONE: 210-681-2951

LOCATION MAP





CONSTRUCTION COMPLETED

BY: _____

DATE: _____

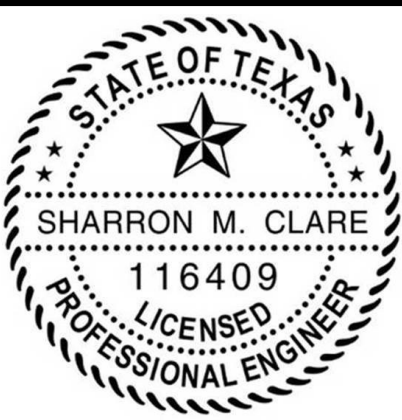
CONST CTR: _____

FERGUSON MAP GRID:
645 - C2, D2

STREETLIGHT DESIGN

WORK REQUEST NO.		WORK REQUEST TITLE / ADDRESS	
40799854		TRES LAURELS SUBDIVISION UNIT 1B / STLT (100W)	
PLANNED BY	PHONE	CELL PHONE	DATE PLANNED
C. MAHA	5139	726-217-4142	8/12/2024
REVIEWED BY	PHONE	CELL PHONE	DATE REVIEWED
J. RAMZINSKI	2931	210-288-6476	8/12/2024
PAGE			
1 of 1			
SERVICE CENTER			
SWD			
X,Y GRID COORDINATES		CIRCUIT NO.	SCALE
X	2,050,359	Y	13,690,741
		R422	1" = 100'
BURIED FACILITIES			
CLEAR	CATV	WATER	TELEPHONE
NOTED ON SKETCH			
COPIES			
TOTAL			
SKETCH SIZE 17 X 22			
1" = 100'			

INSTALL
3 - 100W UNINCORPORATED
STREETLIGHTS



Sharron M. Clare

ENTRUST SOLUTIONS GROUP
F-11507 - REV August 22, 2024
210-248-9031

LOCATES AND PERMITS

ASSOCIATED WORK ORDERS

40793543 - URD
40793544 - OH

ENVIRONMENTAL NOTES

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FIELD MEETING NOTES

L. DUNCAN
ENTRUST SOLUTIONS GROUP

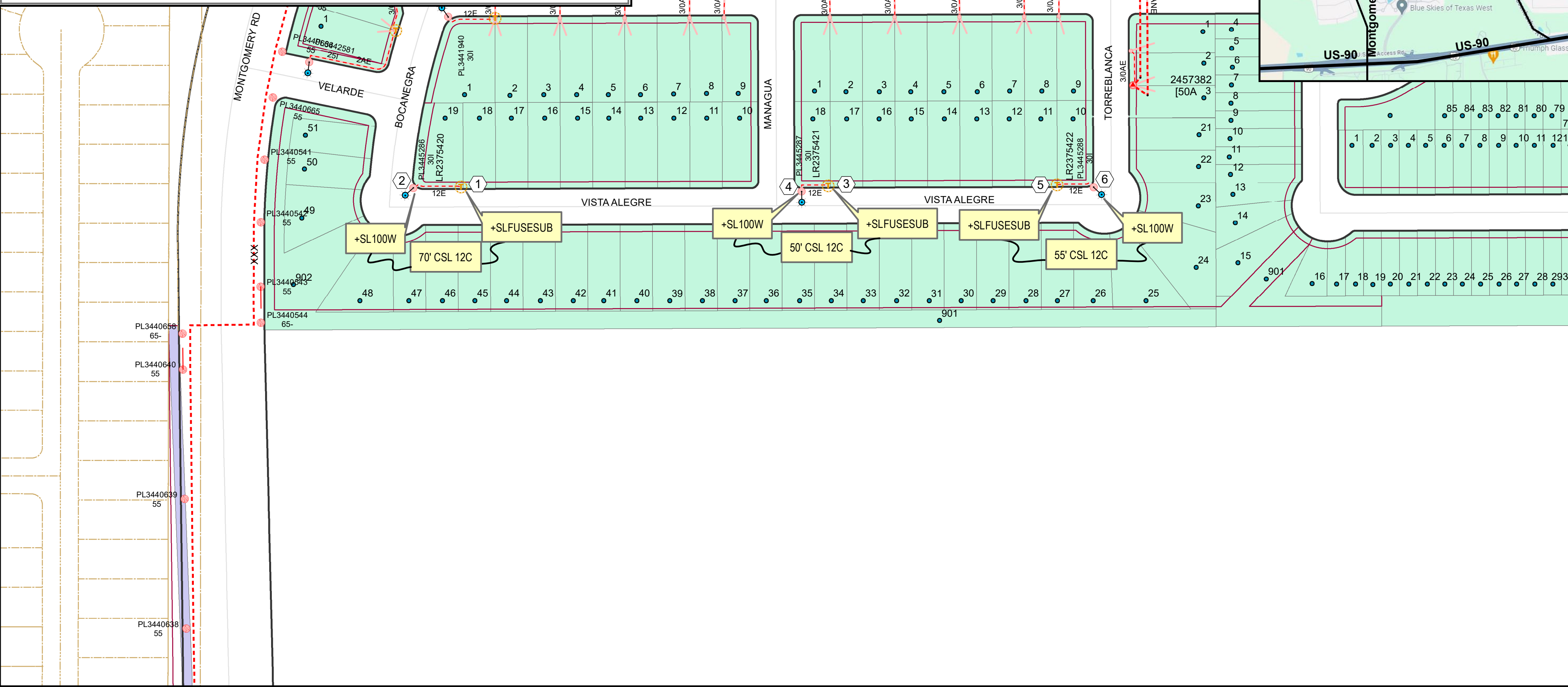
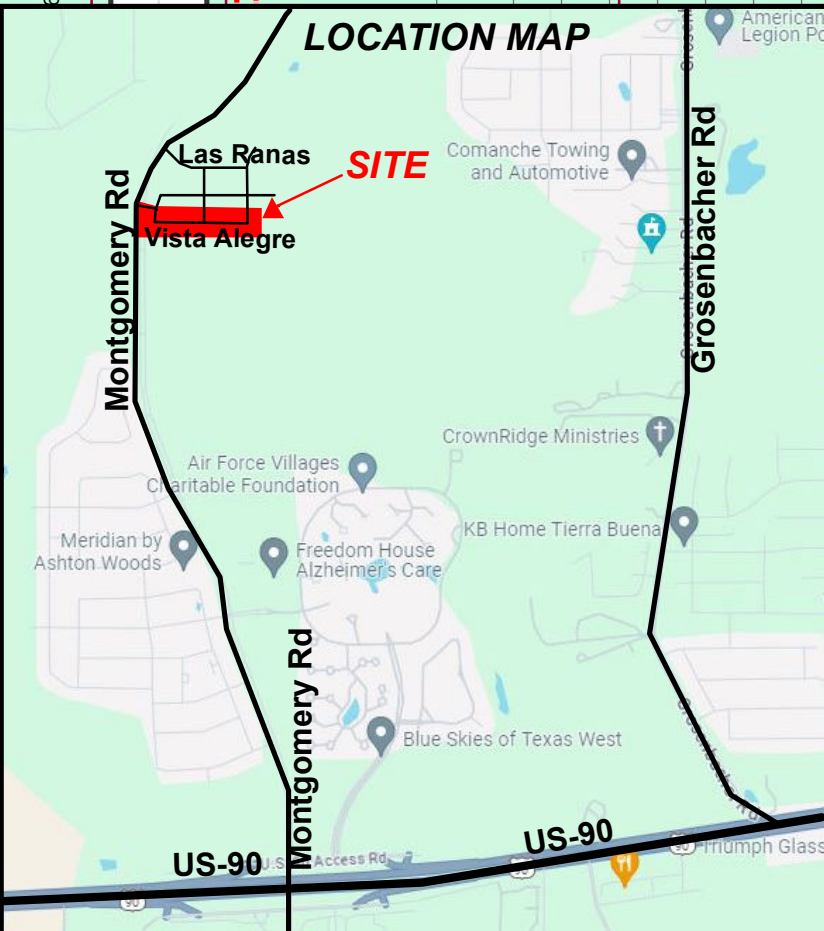


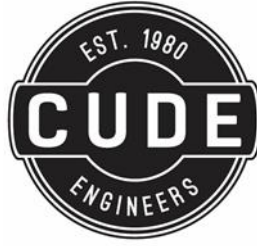
PROJECT NAME:	Tres Laurels Unit 1B Redesign		HOME SQ. FT.:	2,800	# OF LOTS/# OF UNITS:	50	
DIRT:	☒	ROCK:	☒	# OF SE6D:	18	KVA PER LOT/TOTAL KVA:	23 / 875
TOTAL TRENCH FOOTAGE (JOINT-ELEC & GAS):		NA		TRENCH-GAS ONLY:		NA	
TRENCH-ELEC ONLY:		2,050		TRENCH-GAS ONLY:		NA	
STREET CROSSINGS:		CUSTOMER SLEEVES		CPSE TRENCH/FLOWABLE FILL		☒	
# OF STREETLIGHTS:		100W: 3		250W:		UNINCORPORATED: ☒	
# OF URD PADMOUNT TRANSFORMERS:		GY: NA :50 KVA		HV: 0 :50 KVA		NA :75 KVA	
		NA :75 KVA		1 :75 KVA		NA :100 KVA	
		NA :100 KVA		8 :100 KVA		NA :167 KVA	
		NA :167 KVA		NA :167 KVA		NA :250 KVA	
		NA :250 KVA		NA :250 KVA			
ATTENTION: DEVELOPERS / ENGINEERS / CONTRACTORS WHEN TRENCHING IS IN FRONT LOT CONSTRUCTION, WATER &/OR SEWER SERVICES ARE NOT TO BE PLACED UNTIL CPS ENERGY FACILITIES ARE INSTALLED. WHEN TRENCHING IN RIGHT OF WAY, WATER & SEWER SERVICES WILL NEED TO BE ROLLED BACK &/OR OUT OF CPS ENERGY TRENCHLINE. CPS ENERGY WILL NOT BE LIABLE FOR ANY DAMAGES TO WATER &/OR SEWER SERVICES. WHERE CPS ENERGY AND SEWER/WATER SERVICES/MAIN ARE CROSSING STREET, CPS ENERGY REQUIRES A MINIMUM OF 6' (FT) OF HORIZONTAL SEPARATION (when paralleling) AND 1' (FT) VERTICAL SEPARATION (when crossing) TO AVOID CONFLICTS/DAMAGE. *ANY FOREIGN UTILITY OTHER THAN CPS ENERGY IS REQUIRED TO MAINTAIN A MINIMUM OF 6' OF PARALLEL SEPARATION FROM ANY CPS ENERGY INFRASTRUCTURE. *CPS ENERGY APPROVES THIS DRAWING FOR THIS PROJECT ONLY. CPS ENERGY RESERVES THE RIGHT TO APPROVE OR REJECT ANY DEVIATIONS ON ANY FUTURE PROJECTS.							

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FOREMAN
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IN CONSTRUCTION AREA
LOCATE ALL BURIED FACILITIES

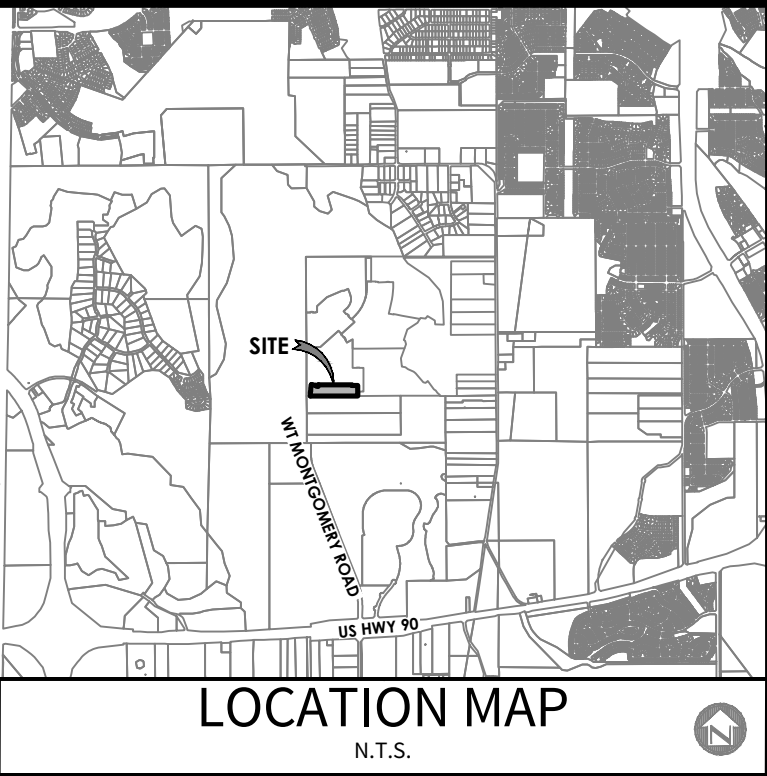
ATTENTION
CONSTRUCTION
LABEL POLES WITH PL#S & LR#S
AS INDICATED AT EACH STLT LOCATION.

FOR MISSING PINS, CONTACT:
ENGINEER: CUDE ENGINEERS
CONTACT: MATTHEW TRINKLE, P.E.
PHONE: 210-681-2951





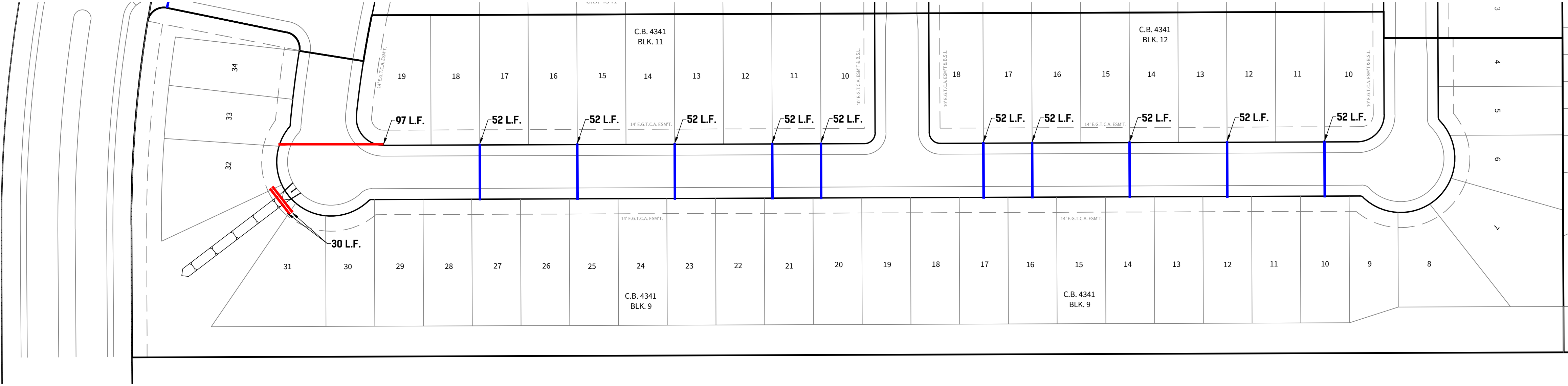
CONDUIT PLAN



LOCATION MAP
N.T.S.



SCALE: 1"=60'
0 60 120



NOTE:

THE LOCATIONS AND DEPTHS OF EXISTING UTILITIES, INCLUDING SERVICE LATERALS AND DRAINAGE STRUCTURES SHOWN ON THE PLANS ARE APPROXIMATE ONLY. THE CONTRACTOR SHALL VERIFY THE EXACT LOCATION AND DEPTHS OF UNDERGROUND UTILITIES AT LEAST 48 HOURS PRIOR TO CONSTRUCTION WHETHER SHOWN ON PLANS OR NOT, AND TO PROTECT THE SAME DURING CONSTRUCTION.

AT&T AND TIME WARNER CABLE LINES TO GO INTO JOINT TRENCH WITH C.P.S. ENERGY LOTS WITH CONFLICTING TRANSFORMER / SECONDARY ENCLOSURE ELECTRIC SERVICE AND WATER METER PLACED 5' FROM PROPERTY LINE WHERE THE CONFLICT OCCURS.

TYPICAL UTILITY CROSSINGS WILL HAVE
2 - 6" SCH 80 PVC CONDUIT WITH SWEEPS,
2 - 4" SCH 40 PVC CONDUIT WITH SWEEPS,
THE TOTAL AMOUNT OF CONDUIT TO BE USED WILL BE DETERMINED DURING CONSTRUCTION.

TYPICAL IRRIGATION CROSSING WILL HAVE
3 - 4" SCH 40 PVC CONDUIT WITH SWEEPS,

TRENCH EXCAVATION SAFETY PROTECTION

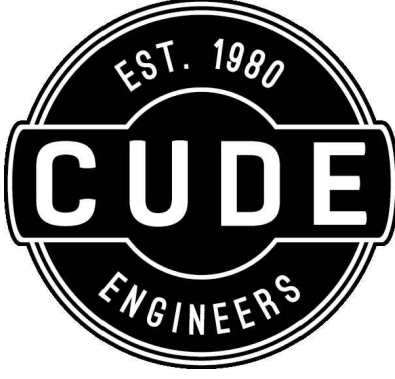
Contractor and/or Contractor's independently retained employee or structural design/geotechnical/safety/equipment consultant, if any, shall review these plans and available geotechnical information and the anticipated installation site(s) within the project work area in order to implement Contractor's trench excavation safety protection systems, programs and/or procedures for the project described in the contract documents. the Contractor's implementation of these systems, programs and/or procedures shall provide for adequate trench excavation safety protection that comply with as a minimum, OSHA standards for trench excavations. specifically, Contractor and/or Contractor's independently retained employee or safety consultant shall implement a trench safety program in accordance with OSHA standards governing the presence and activities of individuals working in and around trench excavation.

LEGEND

- EXISTING SANITARY SEWER
- PROPOSED SANITARY SEWER
- EXISTING SANITARY SEWER MANHOLE
- PROPOSED SANITARY SEWER MANHOLE
- EXISTING WATER MAIN
- PROPOSED WATER MAIN
- EXISTING STANDARD FIRE HYDRANT
- PROPOSED STANDARD FIRE HYDRANT
- EXISTING STANDARD GATE VALVE
- PROPOSED STANDARD GATE VALVE
- EXISTING PERMANENT BLOWOFF
- PROPOSED PERMANENT BLOWOFF
- EXISTING OVERHEAD ELECTRIC
- PROPOSED OVERHEAD ELECTRIC
- EXISTING GAS MAIN
- PROPOSED GAS MAIN
- EXISTING POWER POLE
- PROPOSED POWER POLE
- PROPOSED LIGHT POLE WITH 100W LED LIGHT
- ELECTRIC, GAS, TELEPHONE, & CABLE T.V. EASEMENT
- BUILDING SETBACK LINE
- LANDSCAPE
- UTILITY CONDUIT CROSSING
- IRRIGATION CONDUIT CROSSING

- PRIMARY CROSSING - A
1 - 6" SCH. 80 CPS ELEC.
1 - 4" SCH. 40 AT&T
1 - 4" SCH. 40 SPECTRUM
- SECONDARY CROSSING - A
1 - 6" SCH. 80 CPS ELEC.
1 - 4" SCH. 40 AT&T
1 - 4" SCH. 40 SPECTRUM

*GAS CONDUIT PENDING DESIGN FROM CENTRIC



4122 Pond Hill Road, Suite 101
San Antonio, Texas 78231
P:(210) 681.2951

TRES LAURELS
UNIT 1B

CONDUIT PLAN

DATE
08/21/2025

PROJECT NO.
03050.017

DRAWN BY
RM / IV

CHECKED BY
MAT/CJC

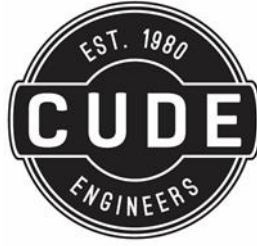
REVISIONS

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CUDE ENGINEERS
TBPELS No. 10048500

PLAT NO.
24-11800221

E1



DIGITAL FILES