TRES LAURELS

UNIT 2B 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

CUDE ENGINEERS
SAN ANTONIO | AUSTIN | SAN MARCOS

4122 POND HILL ROAD, STE 101
SAN ANTONIO, TEXAS 78231

PHONE: (210) 681-2951
CUDEENGINEERS.COM

TBPE NO. 455
TBPELS NO. 10048500

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INVITATION TO BIDDERS

M.W. CUDE ENGINEERS, L.L.C 4122 Pond Hill Road, Suite 101 San Antonio, Texas 78231 210.681.2951 (tel) 210.523.7112 (fax)

LENNAR HOMES OF TEXAS LAND AND CONSTRUCTION, LTD.

INVITATION TO BIDDERS
CONSTRUCTION DOCUMENTS AND
TECHNICAL SPECIFICATIONS FOR
Tres Laurels 2B

STREETS, DRAINAGE, WATER & WASTEWATER CONSTRUCTION

BEXAR COUNTY, TEXAS

October 23, 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 6th, 2025**, for the following project:

Scope of Work in this Contract includes:

- Water, Sewer, and Drainage to serve 167 single-family lots in Tres Laurels Unit 4A
- Approximately 3,083 LF of Onsite Roads
- Approximately 2,882 LF of Onsite Sewer
- Approximately 3,150 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 **Thursday October 30th, 2025.**

A virtual bid opening will occur at **10:00 AM**, local time **Thursday November 6th, 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 6th, 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 Thursday November 6th, 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 2B

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 2B

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 2B, 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 2B

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 2B

M.W. CUDE ENGINEERS, L.L.C 4122 Pond Hill Road, Suite 101 San Antonio, Texas 78231 210.681.2951 (tel) 210.523.7112 (fax)

8/20/2025

Job No. 3050.018

BID PROPOSAL SCHEDULE
TRES LAURELS SUBDIVISION PHASE 2B

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 facor is accounted for in the engineering excavation and embankment quantities. Contractor to adjust unit price as he deems necessary to account for shrinkage and swelling.

* Includes Bid Bond, 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 _____

8/20/2025

Job No. 3050.018

BID PROPOSAL SCHEDULE
TRES LAURELS SUBDIVISION PHASE 2B
SEDIMENTATION & EROSION CONTROL

NO.	DESCRIPTION	UNIT OF MEASURE	APPROX. QUANTITIES	UNIT PRICES	COST
Phase 2B					
1.	Stabilized Construction Entrance	EA	3	$ -	$ -
2.	Concrete Washout Pit	EA	2	$ -	$ -
3.	Silt Fence (Phase 1)	LF	1768	$ -	$ -
4.	Silt Fence (Phase 2)	LF	6024	$ -	$ -
5.	Inlet Protection	LF	80	$ -	$ -
6.	Rock Berm	LF	160	$ -	$ -
7.	Earthen Check Berm	LF	200	$ -	$ -
				TOTAL	$ -

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*** Commence of Construction:

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

`

Bidders Initials _____

Date _____

10/15/2025

Job No. 3050.018

BID PROPOSAL SCHEDULE
TRES LAURELS SUBDIVISION PHASE 2B
LOT GRADING

NO.	DESCRIPTION	UNIT OF MEASURE	APPROX. QUANTITIES	UNIT PRICES	COST
Phase 2B					
1.	Overall Clearing & Grubbing (Disturbed Area)	AC	16.0	$ -	$ -
2.	Overall Excavation	CY	7,020	$ -	$ -
3.	Overall Embankment*	CY	21,250	$ -	$ -
				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 _____

8/21/2025

Job No. 3050.018

BID PROPOSAL SCHEDULE
TRES LAURELS SUBDIVISION PHASE 2B
STREET IMPROVEMENTS

18292

NO.	DESCRIPTION	UNIT OF MEASURE	APPROX. QUANTITIES	UNIT PRICES	COST
Phase 2B					
1	Mobilization	LS	1	$ -	$ -
2	Street Excavation	CY	7,150	$ -	$ -
3	Street Embankment (Final)(Dens. Cont.)(Type B)	CY	3,800	$ -	$ -
4	Contractor to remove existing header curb	LF	90	$ -	$ -
5	Contractor to Remove Existing Guard Posts	EA	15	$ -	$ -
6	2" HMAC Type "D"	SY	10,403	$ -	$ -
7	9" Flexible Base (Compacted Depth)	SY	10,403	$ -	$ -
8	6" Lime Treated Subgrade (27 LB/SY)	SY	10,403	$ -	$ -
9	Concrete Header Curb	LF	30	$ -	$ -
10	Concrete Curb	LF	6,024	$ -	$ -
11	Timber Guard Post	EA	5	$ -	$ -
12	Concrete Sidewalk	SY	84	$ -	$ -
13	R1-1 STOP (30")(High Intensity)	EA	3	$ -	$ -
14	OM-4 End of Road marker (18"X18")	EA	3	$ -	$ -
15	9" [229mm] Street Name, Block Number (VARIES x9")(High Intesity)	EA	10	$ -	$ -
16	Type II Blue Raised Pavement Marker	EA	5	$ -	$ -
				TOTAL	$ -

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Bidders Initials

Date

8/21/2025

Job No. 3050.018

BID PROPOSAL SCHEDULE
TRES LAURELS SUBDIVISION PHASE 2B
DRAINAGE IMPROVEMENTS

NO.	DESCRIPTION	UNIT OF MEASURE	APPROX. QUANTITIES	UNIT PRICES	COST
Phase 2B					
1	Channel Excavation	CY	2,050	$ -	$ -
2	Sidewalk Drain	EA	1	$ -	$ -
3	Precast Reinforced Concrete Box Culvert (3' x 2')	LF	50	$ -	$ -
4	Type D Inlet (Complete) (15 FT)	EA	1	$ -	$ -
5	Type D Inlet (Complete) (20 FT)	EA	1	$ -	$ -
6	30" R.C.P.	LF	323	$ -	$ -
7	Concrete Structure (Headwalls)	CY	7	$ -	$ -
8	Concrete Rip-Rap (5" Thick)	SY	195	$ -	$ -
9	Revegetation (Disturbed Open Space)	SY	7,067	$ -	$ -
10	8"-12" Rock Rubble	SY	48	$ -	$ -
11	Concrete Collars	EA	2	$ -	$ -
12	Baffle Blocks	CY	2	$ -	$ -
13	Sidewalk Pipe Railing	LF	39	$ -	$ -
				TOTAL	$ -

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Bidders Initials _____

Date _____

8/21/2025

Job No. 3050.018

BID PROPOSAL SCHEDULE
TRES LAURELS SUBDIVISION PHASE 2B
WATER IMPROVEMENTS

NO.	DESCRIPTION	UNIT OF MEASURE	APPROX. QUANTITIES	UNIT PRICES	COST
Phase 2B					
1	Remove Existing Blowoff & Tie To Existing 8" Main	EA	3	$ -	$ -
2	Trench Excavation Safety Protection	LF	3150	$ -	$ -
3	8" C-900, DR18 Class 235 PVC Pipe	LF	3150	$ -	$ -
4	Ductile Iron Fittings	TON	1.38	$ -	$ -
5	8" Gate Valve & Boxes, M.J.	EA	5	$ -	$ -
6	3/4" Short Single Service with 5/8" meter	EA	101	$ -	$ -
7	3/4" Long Single Service with 5/8" meter	EA	102	$ -	$ -
8	3/4" Irrigation Service with 3/4" meter	EA	1	$ -	$ -
9	Meter Boxes	EA	204	$ -	$ -
10	Fire Hydrant Assembly	EA	5	$ -	$ -
11	24" Steel Casing	LF	27	$ -	$ -
12	2" Blowoffs (Perm.)	EA	1	$ -	$ -
13	2" Blowoffs (Temp.)	EA	3	$ -	$ -
14	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 _____

10/23/2025

Job No. 3050.018

BID PROPOSAL SCHEDULE
TRES LAURELS SUBDIVISION PHASE 2B
MISCELLANEOUS IMPROVEMENTS

NO.	DESCRIPTION	UNIT OF MEASURE	APPROX. QUANTITIES*	UNIT PRICES	COST
Phase 2B					
1	Revegetation (Disturbed Area Within Lots)	SY	53,509	$ -	$ -
2	Primary Crossing PVC Sleeve Bundle (3-6" SCH 80 & 2-4" SCH 40)	LF	295	$ -	$ -
3	Secondary Crossing PVC Sleeve Bundle (1-6" SCH 80 & 2-4" SCH 40)	LF	2,395	$ -	$ -
4	Centric PVC Sleeve (1-4" SCH 40)	LF	587	$ -	$ -
5	Import****	CY	2,949	$ -	$ -
				TOTAL	$ -

* Quantity provided is just to acquire Unit Price. True Quanitites 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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**** CLOMR grading completed by others, contractor to verify grades prior to commencing construction.

Bidders Initials _____

Date _____

GEOTECHNICAL REPORT
(TTL Project No. 000230902935.02)

M.W. CUDE ENGINEERS, L.L.C 4122 Pond Hill Road, Suite 101 San Antonio, Texas 78231 210.681.2951 (tel) 210.523.7112 (fax)

GEOTECHNICAL ENGINEERING REPORT

Tres Laurels
Units 2 and 3

Grosenbacher Road
San Antonio, Bexar County, Texas

Prepared for:

Lennar
San Antonio, Texas

Prepared by:
TTL, Inc.
San Antonio, Texas

Project No. 000230902935.02
April 24, 2025

17215 Jones Maltsberger Rd.
Suite 101
San Antonio, TX 78247
210.888.6100
www.TTLUSA.com

April 24, 2025

Mr. Richard Mott, P.E.
Vice President of Land Development
Lennar
100 NE Loop 410, Suite 1155
San Antonio, Texas 78216

O: 210.403.6282
E: Richard.Mott@Lennar.com

RE: Pavement Design Report
Tres Laurels Units 2 and 3
Grosenbacher Road
San Antonio ETJ, Bexar County, Texas
TTL Project No.000230902935.02

Dear Mr. Mott:

TTL, Inc., (TTL) is pleased to submit this pavement design report for the above-referenced project. If you have questions regarding our report or if additional services are needed, please do not hesitate to contact us.

The enclosed report contains a brief description of the site conditions and our understanding of the project. The pavement section design recommendations contained within this report are based on our understanding of the proposed development, the results of our field exploration and laboratory tests, and our experience with similar projects.

We appreciate the opportunity to provide these Geotechnical Services for your project and look forward to continuing participation during the design and construction phases of this project. Our scope for this project included a Phase I Environmental Site Assessment. Results of that service are presented under separate cover.

Respectfully submitted,

TTL, Inc.

Rakshith P C Gowda, P.E.
Project Professional

04/24/2025

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Exploration Procedures
Laboratory Procedures

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1.0 PROJECT INFORMATION

Project information was provided by Mr. Richard Mott, P.E., and Ms. Taylor Hagg with Lennar in email conversations since August 31, 2023. We received the following file:

- Tres Laurels MDP

The conclusions and recommendations in this report are based on our understanding of the project. We should be provided additional information as it is developed if it could change or clarify our understanding of the project.

1.1 Project Description

Item	Description
Project Location	The project site is located on Grosenbacher Road southwest of its intersection with Marbach Road in the San Antonio ETJ, Bexar County, Texas. A Site Location Map is provided in Appendix A.
Proposed Development	Units 2 and 3 of the subdivision will consist of approximately 86.3 acres of land. We understand Units 2 and 3 of this subdivision will involve the construction of about 381 single-family homes and approximately 12,220 linear feet of streets.
Proposed Street Construction	The streets are expected to consist of Local Type A, Local Type B, and Collector streets designed per Bexar County and City of San Antonio (COSA) design criteria.
Pavements	The pavements will only consist of flexible pavements; concrete pavements are not planned in the proposed subdivision.

If the above information is not correct, please contact us so that we can make the necessary modifications to our recommendations, if needed.

1.2 Scope of Services and Authorization

The purposes of our services were to explore the subsurface conditions at the project site and develop geotechnical recommendations for design and construction of subdivision streets. The scope did not include addressing earthwork for grading of residential lots, stability of slopes, foundation support of residential or amenity structures, driveways for individual lots, or other civil and structural design aspects of the project. The scope of work included 10 borings to 10 feet below existing grade. This Project was authorized on October 23, 2023, by Mr. Richard Mott with Lennar by acceptance of our Agreement for Services, No. P00230902935.00, dated September 7, 2023. Our scope was increased after the start of the project to include clearing through the wooded site to access boring locations.

2.0 EXPLORATION FINDINGS

2.1 Site Conditions

Item	Description
Existing Conditions	Based on Google Earth aerial imagery and site reconnaissance, the site consists of undeveloped ranchland covered with brush and trees. A pond, approximately 0.21 acres in area present about 300 feet northwest from the northwest corner of Unit 2, and Potranca Creek meanders south from the northeastern corner along the eastern property boundary.

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Existing Topography	Topographic information was not provided to TTL. The ground surface appears to slope down to the south and east towards Potranca Creek from a hill in the northwest corner of the property. Publicly available information suggests more than 130 feet of elevation difference between the top of the hill and the majority of the site. Unit 2 is in the southeast part of the property where there appears to be less than about 20 feet of ground elevation difference. Unit 3 is located in the northwest part of the site where the ground slopes down from the hill.
Flood Zones	Review of Federal Emergency Management Agency (FEMA) flood maps shows most of the site is located within Zone X, an area determined to be outside the 100-year floodplain. However, the eastern portion of the site associated with Potranca Creek lies within Zone A, which is an area subject to a 100-year flood event.
Water Wells	TTL identified five monitoring wells on the property during our exploration. Two water wells were identified in Unit 3 project area.

2.2 Site Geology

The Geologic Atlas of Texas indicated Unit 2 is located over the Navarro Group and Marlbrook Marl (Kknm) of Cretaceous geologic age. The lower part of this formation typically consists of montmorillonitic clays, which typically have high plasticity, and is approximately 400 feet in thickness. This formation is known to contain expansive clays within the project area. Our review indicated Unit 3 is located over the Anacacho Limestone (Kac) of the late cretaceous geologic age. The formation typically contains alternating beds of limestone and marl. The formation is approximately 500 ft thick. The marl and limestone weather in-place to produce residual (left over) soil overburden typically consisting of lean clays, fat clays, clayey sands, and clayey gravels, depending on the parent bedrock.

2.3 Subsurface Stratigraphy

Subsurface conditions within the limits of the project were evaluated by drilling ten exploratory borings. Additionally, soil bulk samples were collected to test for the California Bearing Ratio (CBR) value to be used for our pavement design recommendations. The locations at which the borings were performed and CBR bulk samples were taken are indicated on the Boring Location Plan in Appendix A. Samples obtained during our field exploration were transported to our laboratory where they were reviewed by a geotechnical professional. Representative samples were selected and tested to determine pertinent engineering properties and characteristics for use in our evaluation of the project site.

Based on visual observations and laboratory testing, the following types of subsurface materials were encountered:

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Stratum	Approximate Thickness of Stratum	Material Description	Material Properties[1]
Residuum (Borings B 01 to B-07)	0 to 10 feet	Fat Clay, Fat Clay with Sand, Fat Clay with Gravel and Sandy Fat Clay (USCS – CH), firm to very stiff, dark brown, light brown, brown and olive brown, calcareous OR Lean Clay with Sand, Sandy Lean Clay and Sandy Lean Clay with Gravel (USCS – CL), firm to very stiff, dark brown, brown, light brown, olive brown, yellowish-brown, calcareous, cemented OR Clayey Sand and Clayey Sand with Gravel (USCS – SC), medium dense to dense, light brown and brown, calcareous OR Silty Sand (USCS – SM), very dense, light brown and brown, calcareous, cemented OR Clayey Gravel with Sand (USCS – GC), dense, light brown, calcareous	N-value: 5 bpf to 50/0" bpf. MC: 5% to 24%, with most results between 10% and 20% LL: 30 to 97 PI: 14 to 75 <200: 33% to 98%
Limestone, Limestone with Interbedded Marl and Chalk (Borings B 08 to B-10)	2 to 10 feet	Limestone, Limestone with Interbedded Marl, Chalk, soft to hard rock, olive brown, tan, and light brown, completely to highly weathered	N-value: 50/0" bpf.
Termination	At depths of 10 feet below existing grade		

[1]Includes N-values of applicable samples in bpf = blows per foot, MC = Moisture Content, LL = Liquid Limit, PI = Plasticity Index, <200 = Percent of material passing number 200 sieve

The boring logs presented in Appendix A represent our interpretation of the subsurface conditions at each individual boring location. Our interpretation is based on tests and observations performed during drilling operations, classification of the soil samples by a geotechnical engineer in general

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accordance with the Unified Soil Classification System (USCS), which is defined by ASTM D2487 and D2488, and laboratory tests conducted on the retrieved soil samples. The lines designating the interfaces between various strata on the boring logs represent the approximate strata boundary. The transition between strata may be more gradual than shown, especially where indicated by a broken line. Conditions can vary and may be different at locations between borings.

2.4 Subsurface Water Conditions

Subsurface water was not encountered during drilling or upon completion of the soil borings. The presence or absence of subsurface water during a geotechnical exploration may not be indicative of long-term subsurface water conditions at the project site. Subsurface water may exist as a continuous water surface (sometimes called the "water table") present below the ground surface year-round resulting from long-term accumulation of water above or between relatively impervious subsurface strata. The water level can fluctuate up or down throughout the year due to seasonal changes in climate, precipitation, vegetation, surface runoff, water levels in nearby water bodies, and other factors. The groundwater level below the site may fluctuate up or down in response to such changes and may be at different levels than indicated on the exploration logs at times after the exploration.

Sometimes shallow temporary subsurface water conditions can develop as a result of above-normal rates of precipitation or surface runoff that exceed the rate at which the infiltration can pass through the subsurface strata. These temporary water levels are called "perched" or "trapped" water levels, and they can change rapidly over short horizontal distances and short durations of time. It is often not possible to distinguish between a temporary perched water level or the groundwater table based on one-time observations of water levels in open boreholes.

3.0 GEOTECHNICAL CONSIDERATIONS

The following geotechnical considerations have been prepared based on the information developed during this Project, our experience with similar projects, and our knowledge of sites with similar surface and subsurface conditions.

3.1 Expansive Soils

Many of the soils at the site are expansive and can shrink and swell in response to seasonal changes in soil moisture content. The expansive potential of a given soil profile may be characterized using the Potential Vertical Rise (PVR) methodology as described in the Texas Department of Transportation (TxDOT) Method TEX-124-E. This methodology is used to estimate how much a given point located on the ground surface may move due to volumetric changes in the soil resulting from fluctuations in soil moisture content. Based on our laboratory test results, we estimate the PVR of some site soils ranges from about 6 inches to 7 inches in its present condition.

In pavement areas, volumetric changes in the expansive clay subgrade may cause vertical and horizontal movements that result in undulating surface effects. These movements may eventually lead to curb and pavement cracking (both transverse and longitudinal). Remedial methods to address this issue include:

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- removing the expansive soils and replacing them with a non-expansive soil;
- reducing the expansive potential of the soil by chemical injection; or,
- moisture-conditioning, lime stabilizing, and installing a vertical moisture barrier.

Other subgrade preparation methods are also available.

The City of San Antonio requires the pavement subgrade to be treated with hydrated lime regardless of other subgrade preparation methods. The purpose of lime treatment of an expansive clay pavement subgrade is to 1) improve the strength of the clayey soil, 2) make the soil more resistant to water absorption, which reduces the potential for soil softening, and 3) lower the plasticity index (PI) of the treated zone to reduce the potential for volume changes resulting from moisture content changes. However, the lime treatment is limited to the upper 6 to 12 inches of the pavement subgrade. This depth of treatment is not sufficient to prevent expansive soil movements associated with the "active zone" (i.e., the zone of seasonal moisture variation), which extends to a depth of about 10 feet below the ground surface based on our borings. Consequently, one of the remedial measures mentioned above will be needed to reduce the potential for pavement movements even though the pavement subgrade will be treated with lime. TTL needs to be contacted if any of the aforementioned remedial measures is implemented to facilitate the provision of suitable recommendations.

Utility trenches that traverse beneath the pavements are potential avenues for subsurface water to migrate beneath the pavements. We recommend a 'clay soil plug' should be used for the bedding and backfill where utilities cross below pavements.

3.2 Shallow Bedrock

Bedrock was encountered in borings B-08 to B-10 at depths ranging between 2 feet and 8 feet below existing grade. Excavations into bedrock would require blasting or hoe-ramming to remove the rock material. Conventional grading and excavation equipment should be capable of excavating the soil overburden above the bedrock. We recommend the project budget include a contingency for rock excavation.

4.0 EARTHWORK RECOMMENDATIONS

4.1 Subgrade Preparation and Treatment

The intended performance of earth supported elements such as pavements and utilities are contingent upon following the earthwork recommendations and guidelines outlined in this section. Earthwork activities on the project should be observed and evaluated by TTL personnel. The evaluation of earthwork should include observing and testing fill and backfill soils placed.

If possible, site development should be performed during seasonably dry weather, and excavation and site preparation should not be performed during or immediately following periods of heavy precipitation or freezing temperatures. Positive surface drainage should be maintained during grading operations and construction to prevent water from ponding on the surface. Surface water run-off from off-site areas should be diverted around the site using berms or ditches. The fill subgrade can be

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rolled smooth to enhance drainage if precipitation is expected but should then be scarified prior to resuming fill placement operations. Subgrades damaged by construction equipment should be promptly repaired to reduce the potential for further degradation. Our geoprofessional should provide recommendations for treatment if the subgrade materials become wet, dry, or frozen. When work activities are interrupted by heavy rainfall, fill operations should not be resumed until the moisture content and density of the previously placed fill materials are as recommended in this report. The following earthwork recommendations should be performed prior to pavement and utility construction.

4.1.1 Stripping

Subgrade preparation should begin with stripping the existing vegetation and any otherwise unsuitable materials from pavement construction areas.

- Stripping should extend at least 5 feet (horizontal) beyond the construction limits or to the property lines, whichever is less. Experience suggests the stripping depth may need to be 12 to 18 inches to completely grub and remove the roots.
- Organic-laden strippings including root masses and loose topsoil should be removed from the site or disposed of at designated on-site areas located outside the limits of current or future development.
- Strippings should not be used as fill below pavements, utilities, or structures, and strippings should not be used to construct slopes or permanent berms.

4.1.2 Proof-rolling

After stripping and excavating to the design subgrade elevation, the stability of exposed subgrades should be evaluated by proof-rolling according to the following recommendations.

- Perform proof-rolling with a rubber-tired vehicle having a gross vehicle weight of at least 20 tons (such as a loaded tandem-axle dump truck, or similar size/weight construction equipment).
- Proof-rolling equipment should make multiple closely-spaced overlapping passes in perpendicular directions over the subgrade at a walking pace.
- The subgrade should be relatively smooth and free of wheel ruts, sheepsfoot roller dimples, loose clods of soil, or loose gravel, and the subgrade should not be desiccated, cracked, wet, or frozen.
- A TTL geotechnical engineer or their representative should observe the proof-rolling to identify, document, and mark areas of unstable subgrade response, such as pumping, rutting, or shoving, if any.

4.1.3 Subgrade Treatment

Depending on final grading and time of year construction takes place, some area of weak or unstable subgrade could be encountered. The following methods are options for producing stable subgrade conditions depending on the nature of the unstable conditions, the location and size of the unstable area, and the time available to address the unstable condition.

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- Undercut soft, weak, and unstable soils by excavating below subgrade level to expose stable soils. Place and compact backfill meeting requirements outlined in Section 4.2 of this report to restore the design subgrade level. Contact TTL if undercutting deeper than about 3 feet is needed.
- Soil subgrade areas requiring fill placement should be scarified to a depth of about 8 inches and moisture-conditioned to between the optimum moisture content and 4 percentage points above the optimum moisture content. The moisture-conditioned subgrade should then be compacted to at least 95 percent of the maximum dry density determined in accordance with ASTM D698. The subgrade should be moisture conditioned immediately prior to fill placement so the subgrade maintains its compaction moisture content and does not have time to dry out.

Subgrades damaged by construction equipment should be promptly repaired. Our geoprofessional should provide recommendations for treatment if the subgrade materials become wet, dry, or frozen. Near-surface soils will degrade and will need to be undercut if they are subjected to freeze/thaw.

4.1.4 Pavement Earthwork

The intended performance of roadway pavement is contingent upon following the earthwork recommendations and guidelines outlined in this section

- After proof-rolling and replacing any weak yielding zones, the clay subgrade should be treated with hydrated lime to a depth of at least 6 inches in accordance with TxDOT Item 260. The lime should be in slurry form. It is anticipated that approximately 6 percent hydrated lime by weight will be required (approximately 35 pounds per square yard). The soil-lime mixture should be placed between optimum moisture content and +4 percentage points of the optimum moisture content and shall be compacted to at least 95 percent of the maximum dry density determined in accordance with standard Proctor compaction effort (ASTM D 698).
- For pavement subgrades the earthwork described here should result in approximately 6 inches of lime treated soil below the design pavement subgrade elevation.
- **For pavements located in natural drainage path areas, one of the following additional measures should be constructed beneath the soil subgrade level:**
  - Prepare the subgrade with 12 inches of moisture conditioned soils beneath 6 to 8 inches of lime treated soils, or
  - Prepare the subgrade with at least 12 inches of lime-treated soil.

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4.1.5 Existing Pond

The identified area of the existing pond lies outside the development zones of Unit 2 and Unit 3. Should any development occur at this location, specific measures need to be taken to enhance stability and suitability for construction. The existing pond should be drained and wet, unstable soils within the pond (muck) should be removed and disposed of at on-site areas located outside the limits of current or future development or they should be disposed of off-site. The de-mucked subgrade should be proof-rolled according to Section 4.1.2 to assess stability of the subgrade, and unstable areas should be stabilized according to Section 4.1.3. Additional recommendations and measures may be necessary. Notification of the proposed construction should be extended to TTL, who should be authorized to furnish further recommendations.

4.2 Compacted Fill

Compacted fill materials may consist of general or select fill depending upon its intended use. The general fill material may consist of onsite soils or select fill materials. General fill material should possess good compaction characteristics that will provide uniform support for pavements or other facilities not extremely sensitive to moments. Select fill materials are typically selected for specific engineering characteristics and performance criteria. These characteristics and criteria are typically dependent on the requirements of the pavement or other facilities they are intended to support.

General and select fill materials should be clean and free of any vegetation, roots, organic materials, trash or garbage, construction debris, or other deleterious materials. The following table provides more specific requirements for general and select fill materials.

Material Type	Characteristics	Compaction Procedures	Compaction Control [1, 2]
SELECT LEAN CLAY FILL (COMPACTED FILL)	Maximum particle size: 3 inches. Maximum gravel and oversize particle content: 15 percent retained on a ¾-inch sieve. At least 70 percent of total material (by weight) passing the No. 200 sieve Maximum allowable organic content: 3 percent by weight, but large roots are not allowed. Liquid Limit: Not more than 40. Plasticity Index: Between 8 and 15. Designation as a CL in accordance with the Unified Soil Classification System (USCS).	Maximum loose lift thickness: 8 inches with compacted thickness of about 6 inches. Compaction requirement: Compaction should be to at least 95 percent of the standard Proctor maximum (ASTM D 698) dry density for non-roadway areas and TEX-114-E for roadway areas. Moisture content at time of compaction: within minus 2 to plus 3 percent of the material's optimum moisture content.	Pavement Areas and Slopes: One field density test every 10,000 square feet per lift, with a minimum of two tests per lift. Utility Trenches: One field density test per structure or one test per every 100 linear feet, per lift.
SELECT GRANULAR FILL (COMPACTED FILL)	Crushed stone (limestone) meeting Type A, Grades 1, 2, or 3; Crushed or uncrushed gravel meeting Type B, Grades 1, 2, or 3; Crushed concrete meeting Type D, Grades 1, 2, or 3; of the 2014 TxDOT Standard Specifications for Construction and Maintenance of Highways, Streets, and Bridges. Designation as a GC or GM in accordance with the USCS.	Maximum loose lift thickness: 8 inches. Compaction requirement: Compaction should be to at least 98 percent of the TEX-113-E dry density. Moisture content at time of compaction: within minus 2 to plus 3 percent of the material's optimum moisture content.	Pavement Areas and Slopes: One field density test every 10,000 square feet per lift, with a minimum of two tests per lift. Utility Trenches: One field density test per structure or one test per every 100 linear feet, per lift.

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Material Type	Characteristics	Compaction Procedures	Compaction Control [1, 2]
	Clayey gravel (may locally be referred to as "pit-run" material) or caliche • CBR > 3 • Liquid Limit (LL): No greater than 40 • PI: Between 7 and 20 • Maximum particle size: 3 inches. • At least 50 percent of total material (by weight) retained on the No. 200 sieve • Designation as a GC in accordance with the USCS Commercial Grade Base (may locally be referred to as "three-quarters to dust" material) that is produced by some local/regional quarries. • CBR > 3 • Liquid Limit (LL): No greater than 40 • PI: Less than 20 • Passing 3/4 Sieve: 100% • Passing 3/8 Sieve: 50%-75% • Passing #4 Sieve: 30%-60% • Passing #200: 5%-12%		
[1]For preliminary planning only. Our technician/engineer should determine the actual test frequency. [2] In addition, the fill must be stable under the influence of compaction equipment. Heavy construction traffic should not be allowed to travel on compacted fill areas, except on designated haul roads, to reduce the potential for damaging a previously compacted fill subgrade			

If grading occurs during wet, cool weather, when drying soils is more difficult and time-consuming, the grading contractor may have difficulty achieving suitable moisture conditions for proper compaction of soil fill. In the event that the on-site soils cannot be compacted due to wet weather the on-site soils would need to dry out before continuing. If time does not allow for the on-site soils to dry out naturally then lime treatment or removal and replacement with select fill can be considered to continue earthwork operations. This operation should be observed and evaluated by qualified geotechnical personnel experienced in earthwork operations.

4.3 Excavation Conditions

4.3.1 Temporary Slopes and OSHA Soil Types

The Occupational Safety and Health Administration (OSHA) Safety and Health Standards (29 CFR Part 1926) requires excavations be constructed in accordance with the current OSHA guidelines. The contractor is solely responsible for designing and constructing stable, temporary excavations and should shore, slope, or bench the sides of the excavations as required to maintain stability of both the excavation sides and bottom if workers will enter an excavation. The contractor's 'competent person' as defined in 29 CFR Part 1926 should evaluate the required excavations and the soils exposed by those excavations and determine appropriate means as part of the contractor's safety procedures.

OSHA requires excavations deeper than 4 feet be shored or appropriately sloped. Currently available and practiced methods for achieving excavation stability include sloping, benching, shoring, and the use of trench shields. In excavations that are less than 20 feet deep, OSHA addresses maximum allowable slopes on "Maximum Allowable Slopes" Table as reproduced below.

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Soil or Rock Type	Maximum Allowable Slopes (H:V)[1] for Excavations Less Than 20 Feet Deep[2]	
Stable Rock	Vertical	90°
Type A	¾:1	53°
Type B	1:1	45°
Type C	1½:1	34°

1. Slopes or benching for excavations that exceed 20 feet shall be designed by a licensed professional engineer and may not use these tabulated values.
2. For Type A soils, a short-term maximum allowable slope of ½:1 (63°) is allowed in excavations that are 12 feet deep or less. For excavations deeper than 12 feet, the short-term allowable slope shown above applies. OSHA defines short-term as a period of 24 hours or less.

Based on the results of our field and laboratory testing the site soils appear to be OSHA Type B and C soils. Bedrock may classify as Type A or Stable Rock, depending on condition and degree of fracturing from blasting or excavation. We have provided this information solely as a service to our client. The actual OSHA regulations should be consulted prior to any excavations that would be subject to OSHA regulations. TTL is not responsibile for any construction site safety or the contractor's or other parties' compliance with local, state, and federal safety or other regulations.

4.3.2 Anticipated Excavation Conditions

The near-surface clayey soils can likely be excavated with conventional earthmoving equipment. However, Chalk, Marl, and Limestone may be difficult to excavate with conventional earthmoving equipment and will likely need heavy-duty rock excavation equipment and techniques, like blasting or hoe-ramming, to excavate them.

4.3.3 Drainage During Construction

Water should not be allowed to collect in roadway excavations or on prepared subgrades within the construction area. Excavated areas should be sloped toward designated drainage points to facilitate removal of any collected rainwater, subsurface water, or surface runoff. Positive surface drainage should be provided to reduce infiltration of surface water into subgrades and fill bodies during construction and promote prompt removal of water from the project site.

Water should not be allowed to collect on completed pavement surfaces after construction. Excavated areas should be sloped to facilitate the removal of collected water. Positive site surface drainage should be provided to reduce infiltration of surface water beneath the pavement surface. The grades should be sloped and surface drainage should be collected such that water is channeled to collection points and discharged away from the roadway or into storm sewers. In addition, curbs should be designed as full-depth curbs that extend through the base section and at least 3 inches into the subgrade to help reduce the potential for water infiltration into the pavement section. Consideration may also be given to the installation of wick drains behind the curbs to intercept and remove water

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from the pavement perimeter before the water infiltrates the pavement section. All concrete/asphalt interfaces, if any, should be sealed using a sealant compatible with both materials.

4.4 Long-Term Drainage Considerations

Long-term drainage conditions can have a significant impact on the performance of pavements and utilities. We recommend site drainage be developed to prevent ponding of water on completed pavements. When establishing final grades, the ground surface around pavements should have sufficient slope to promote rapid surface drainage away from pavements.

5.0 INFRASTRUCTURE RECOMMENDATIONS

5.1 Utilities

We recommend the following installation guidelines for buried utilities.

- The bottoms of the utility trench excavations should be clean of loose soils and debris prior to placement of the utility pipe or cable.
- Recommendations for utility trench bedding and backfill are provided in Section 4.2 of this report.
- As an alternate, utility trenches may be backfilled with flowable fill materials that terminate at a depth sufficient to allow for the construction of pavements. Flowable fill should have a minimum 28-day compressive strength of 100 pounds per square inch (psi). The flowable fill should have a 28-day compressive strength low enough (not more than 400 psi) that it can readily be excavated. Flowable fill is defined as materials complying with Item 401 of the 2014 TxDOT Standard Specifications.
- Where granular bedding is used for pipe bedding, consideration should be given to the placement of non-woven filter fabric (Mirafi 140N, or equal) around the bedding materials within the trench to reduce the potential for piping fines through the bedding material. Piping of fines within utility trenches often results in pronounced subsidence of the ground surface over time that could affect pavements constructed over the utility trenches. The filter fabric should be overlapped at ends and edges per manufacturer's recommendations and should wrap over the top of the crushed stone.

5.2 Landscape Considerations

TTL realizes landscaping is vital to the aesthetics of any project and is generally typical for residential construction. The owner and design team should be made aware that placing large bushes and trees adjacent to the pavements may contribute to future distress as the vegetation can cause changes to the moisture content of the pavement subgrade. Landscape beds should not be closer than 5 feet to the edge of the pavement and should not contain plants or shrubs that will exceed a mature height of about 3 to 4 feet. Large bushes and trees that will generally exceed these heights should be planted away from the pavements so their canopy or "drip line" does not extend over the pavement when the tree reaches maturity.

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Excessive watering should be avoided as excessive irrigation of landscaped areas adjacent to, near, or up-gradient from pavements can contribute to water migration into pavement sections. This migration could cause moisture fluctuations in the underlying clay subgrade which could in turn result in excessive soil movements and loss of subgrade strength.

5.3 Pavement Design Considerations

Based on the Bexar County and COSA design guidelines, the following design parameters were used for design of the pavement sections:

Acceptable Pavement Structural Sections			
	Local Type A	Local Type B	Collector Street
Reliability, %	70	90	90
Standard Deviation, So	0.45	0.45	0.45
Initial Serviceability Index, po	4.2	4.2	4.2
Terminal Serviceability Index, pt	2.0	2.0	2.5
Design Life, years	20	20	20
18-kip ESALs	100,000	2,000,000	2,000,000
Minimum Structural Number	2.02	2.92	2.92
Maximum Structural Number	3.18	5.08	5.08

We performed CBR tests at three compaction levels (i.e., 90%, 95% and 100%) on the bulk samples. Based on laboratory test results, CBR values of about 2.0 and 3.2 percent were obtained for the existing untreated subgrade compacted to at least 95 percent of the maximum dry density determined in accordance with ASTM D 698. TTL recommends a CBR value of 2.0 percent be used to represent the pavement subgrade conditions at this site. There are a number of published correlations relating CBR to the Resilient Modulus (MR). In accordance with the COSA and Bexar County design guidelines, we used MR = 1,500 times the CBR to estimate the MR in psi. Pavement design methods are intended to provide structural sections with adequate thickness over a particular subgrade such that wheel loads are reduced to a level the subgrade can support.

The COSA pavement guidelines require lime treatment of clay subgrades with a PI greater than 20. CBR and the boring samples obtained from this subdivision indicates a PI value over 20. Therefore, the subgrade at this site shall be treated with hydrated lime in accordance with TxDOT Item 260. Based on our experience we anticipate approximately 6 percent hydrated lime will be required (approximately 33 pounds per square yard to treat a 6-inch-thick layer of clay). However, the actual percentage should be determined by laboratory tests on samples of the subgrade materials prior to construction.

The index properties of the actual subgrade soils exposed after site grading should be checked to determine whether or not lime treatment is required because mass grading operations may alter the subgrade conditions compared to those used in our design analyses.

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5.3.1 Final Pavement Sections

Following are the recommended pavement sections for Local Type A, Local Type B, and Collector.

Component	Local Type A without Bus Traffic	
	Pavement Material Thickness, inches	
Hot Mixed Asphaltic Concrete – Type D	3 inches	2 inches
Prime Coat	Yes	Yes
Granular Base Course (Type A, Grade 1 or 2)	12 inches	9 inches
Tensar TX Type-3 Geogrid	No	Yes
Lime Treated Subgrade[1]	6 inches	6 inches
Required Structural Number	2.88	2.88
Provided Structural Number[1]	3.00	3.06
Required 18-kip ESALs	100,000	100,000
Estimated Provided 18-kip ESALs	107,500	120,700

[1]Structural Number for Lime Treated Subgrade was not used in the Pavement Section Calculations.

Component	Local Type B		
	Pavement Material Thickness, inches		
Hot Mixed Asphaltic Concrete – Type D	2 inches	2 inches	3½ inches
Hot Mixed Asphaltic Concrete – Type C	2 inches	4 inches	4 inches[2]
Dense-Grade Hot-Mix Asphaltic Concrete Base Course (Type B, Item- 341)	4½ inches	None	None
Prime Coat	Yes	Yes	Yes
Granular Base Course (Type A, Grade 1 or 2)	11 inches	10 inches	12 inches
Tensar TX Type-3 Geogrid	No	Yes	No
Lime Treated Subgrade[1]	6 inches	6 inches	6 inches
Required Structural Number	4.97	4.97	4.97
Provided Structural Number[1]	5.01	4.98	4.98
Required 18-kip ESALs	2,000,000	2,000,000	2,000,000

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Component	Local Type B		
	Pavement Material Thickness, inches		
Estimated Provided 18-kip ESALs	2,149,400	2,055,500	2,055,500

[1]Structural Number for Lime Treated Subgrade was not used in the Pavement Section Calculations.

Component	Collector		
	Pavement Material Thickness, inches		
Hot Mixed Asphaltic Concrete – Type D	2 inches	3 inches	4 inches
Hot Mixed Asphaltic Concrete – Type C	2 inches	4 inches	4 inches
Dense-Grade Hot-Mix Asphaltic Concrete Base Course (Type B, Item- 341)	5 inches	None	None
Prime Coat	Yes	Yes	Yes
Granular Base Course (Type A, Grade 1 or 2)	12 inches	10 inches	14 inches
Tensar TX Type-3 Geogrid	No	Yes	No
Lime Treated Subgrade[1]	6 inches	6 inches	6 inches
Required Structural Number	5.34	5.34	5.34
Provided Structural Number[1]	5.34	5.42	5.48
Required 18-kip ESALs	2,000,000	2,000,000	2,000,000
Estimated Provided 18-kip ESALs	2,018,200	2,247,400	2,434,800

[1]Structural Number for Lime Treated Subgrade was not used in the Pavement Section Calculations.

5.3.2 General Guidelines for Pavements

Pavement construction shall conform to the latest edition of Bexar County/ City of San Antonio Design and Construction guidelines.

On most projects, rough site grading is accomplished relatively early in the construction phase. However, as construction proceeds, excavations are made into these areas; dry weather may desiccate some areas; rainfall and surface water saturates some areas; heavy traffic from concrete and other delivery vehicles disturbs the subgrade; and many surface irregularities are filled in with loose soils to improve trafficability temporarily. As a result, the pavement subgrade should be evaluated by proof-rolling according to Section 4.1.2 and observed by TTL immediately prior to pavement construction. This is particularly important in and around utility trench cuts. Unstable areas should be reworked and compacted at that time.

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Adequately designed pavements may still experience cracking and deformation from shrink/swell movements of the subgrade. Long-term pavement performance will be dependent upon several factors, including maintaining subgrade moisture levels and providing for preventive maintenance. The following recommendations should be considered at a minimum:

- Maintain and promote proper surface drainage away from pavement edges;
- Consider appropriate edge drainage systems;
- Provide drainage from areas anticipated for frequent wetting (e.g., landscape beds, discharge area, collection areas, etc.).
- Promptly place joint sealant to seal cracks;
- Seal all landscaped areas in or adjacent to pavements to reduce moisture migration into pavement subgrade soils; and
- Place compacted, clay backfill against the exterior side of curb and gutter.

Preventive maintenance should be planned and provided through an on-going pavement management program. These activities are intended to slow the rate of pavement deterioration. This consists of both localized maintenance (e.g. crack and joint sealing and patching) and global maintenance (e.g. surface sealing). Preventive maintenance is usually the first priority when implementing a planned pavement maintenance program. Prior to implementing any maintenance, additional engineering observation is recommended to assess the need for the type and extent of preventive maintenance.

5.3.3 Drainage Adjacent to Pavements

The performance of the pavement system will depend, in part, on the stability of the moisture content of the soils and base underlying the pavement surface. The subgrade soils located near the edge of pavement structure are more susceptible to changes in moisture that occur due to natural seasonal moisture fluctuations. The edges can dry and shrink during drought conditions relative to the center of the pavement. During wet climate periods, the edges can swell relative to the center of the pavement. The shrinking and swelling of subgrade soils near the edge of pavements can result in longitudinal surface cracking parallel to the pavement. To help reduce the chances for moisture content variations of the subgrade soils, backfill behind the curbs should consist of compacted lean clay. The use of landscape mulch or topsoil could provide an easy avenue for surface water to infiltrate behind and beneath curbs and adversely impact curb and pavement performance. Consideration should also be given to locating sidewalks immediately adjacent to the curbs as an added measure to reduce moisture changes below the pavement.

Proper drainage along or adjacent to the pavement edge or curbs is ***very important***. The Project Civil Engineer should design final grades so there is rapid, positive drainage away from the pavement/curb edge. Also, asphaltic concrete pavement areas should be sloped to reduce the potential for ponding of water on the asphaltic concrete surface. The importance of proper runoff and drainage cannot be overemphasized and should be thoroughly considered by the Project Civil Engineer.

5.3.4 Pavement Section Materials

Pavement materials should conform to the latest edition of City of San Antonio/ Bexar County design and construction guidelines. Presented below are selection and preparation guidelines for various materials that may be used to construct the pavement sections. Submittals should be made for each

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pavement material. The submittals should be reviewed by TTL and appropriate members of the Project Team. The submittals should provide test information necessary to verify full compliance with the recommended or specified material properties.

Hot Mix Asphaltic Concrete Surface - The paving mixture and construction methods should conform to Item 340, "Hot Mix Asphaltic Concrete, Type C or D" of the Standard Specifications by TxDOT. The mix should be compacted between 91 and 95 percent of the maximum theoretical density as measured by TEX-227-F. The asphalt cement content by percent of total mixture weight should fall within a tolerance of ±0.3 percent asphalt cement from the specific mix. In addition, the mix should be designed so 75 to 85 percent of the voids in the mineral aggregate (VMA) are filled with asphalt cement. The asphalt cement grades should conform to the table shown below.

<table>
<tr><th colspan="4">Asphalt Cement Grades</th></tr>
<tr><th rowspan="2">Street Classifications</th><th colspan="3">Minimum PG Asphalt Cement Grade</th></tr>
<tr><th>Surface Courses</th><th>Binder and Level up courses</th><th>Base Courses</th></tr>
<tr><td>Arterials</td><td>PG 76-22</td><td rowspan="2">PG 70-22</td><td rowspan="4">PG 64-22</td></tr>
<tr><td>Collector and Local Type B Streets</td><td>PG 70-22</td></tr>
<tr><td>Local Type A Street</td><td>PG 64-22</td><td rowspan="2">PG 64-22</td></tr>
</table>

Aggregates known to be prone to stripping (i.e. loss of adhesion between the aggregate surface and the asphalt cement) should not be used in the hot mix. The mix should have at least 70 percent strength retention when tested in accordance with TEX-531-C.

Pavement specimens, which shall be either cores or sections of asphaltic pavement, should be tested according to Test Method TEX-207-F. The nuclear-density gauge or other methods which correlate satisfactorily with results obtained from Project pavement specimens may be used when approved by a registered engineer. Unless otherwise shown on the plans, the Contractor shall be responsible for obtaining the required pavement specimens at their expense and in a manner and at locations selected by the Engineer.

Hot Mix Asphaltic Concrete Base – The paving mixture and construction methods shall conform to Item 340, "Hot Mix Asphaltic Concrete, Type B" of the standard specifications by TxDOT. The mix should be compacted between 95 and 98 percent of the maximum theoretical density as measured by Tex-227-F. The asphalt cement content by percent of total mixture weight should

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fall within a tolerance of ± 0.3 percent asphalt cement from the specific mix. In addition, the mix should be designed so 77 to 87 percent of the VMA are filled with asphalt cement.

Prime Coat - The prime coat should consist of sealing the base with an oil such as MC-30 or AE-P asphalt cement. The prime coat should be applied at a rate not to exceed 0.35 gallon per square yard with materials that meet TxDOT Item 300. The prime coat is intended to improve the bond between the granular base and asphalt layers to reduce the potential for shear slipping along the interface. It may also reduce the penetration of rainfall and other moisture into the base.

Granular Base Material - Base material should be composed of crushed limestone base meeting the requirements of 2014 TxDOT Item 247, Type A, Grade 1 or 2; and should have no more than 15 percent of the material passing the No. 200 sieve. The base should be compacted to at least 95 percent of the maximum dry density determined in accordance with test method TEX-113-E at moisture contents ranging between 2 percent below and 3 percent above the optimum moisture content.

Lime Treatment - Lime treatment is required by COSA/Bexar County. only on the clay subgrade. The subgrade should be treated with hydrated lime in accordance with TxDOT Item 260. We estimate approximately 6 percent hydrated lime will be required (approximately 33 pounds per square yard to treat a 6-inch-thick layer of clay). However, the actual percentage should be determined by laboratory tests. The optimum hydrated lime content should result in a soil-lime mixture with a pH of at least 12.4 when tested in accordance with ASTM C 977, Appendix XI. The contractor should perform lime series tests of the specific subgrade conditions to evaluate the appropriate amount of lime required.

The hydrated lime should initially be blended with a mixing device such as a pulvermixer. After sufficient moisture conditioning, the treated soil mixture should be compacted to at least 95 percent of the maximum dry density as determined in accordance with the standard Proctor (ASTM D 698) method at moisture contents from optimum moisture content to 4 percentage points above the optimum moisture content.

5.4 Concrete Durability

According to the 2021 IBC, concrete exposed to sulfate-containing solutions should be selected for sulfate resistance in accordance with ACI 318, which defines four levels of exposure (S0 to S4) based on the concentration of sulfate in soil. Laboratory testing was conducted on soil samples recovered during the field exploration to assess the sulfate content within site soil. The results of the laboratory tests are presented in the following table.

Summary of Laboratory Test Results			
Boring No.	Sample Depth (ft.)	% Sulfate by Mass	ACI 318-19 Exposure Class
B-01	½ - 2	<0.02	S0

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Summary of Laboratory Test Results			
Boring No.	Sample Depth (ft.)	% Sulfate by Mass	ACI 318-19 Exposure Class
B-08	2½ - 4	<0.02	S0

The sulfate test results indicate the tested samples have sulfate concentrations within limits for ACI 318 exposure level S0.

6.0 LIMITATIONS

This geotechnical engineering report has been prepared for the exclusive use of our Client for specific application to this Project. This geotechnical engineering report has been prepared in accordance with generally accepted geotechnical engineering practices using that level of care and skill ordinarily exercised by licensed members of the engineering profession currently practicing under similar conditions in the same locale. No warranties, express or implied, are intended or made.

TTL understands this geotechnical engineering report will be used by the Client and various designers and contractors involved with the Project. TTL should be invited to attend Project meetings (in person or teleconferencing) or be contacted in writing to address applicable issues relating to the geotechnical engineering aspects of the Project.

This geotechnical engineering report is based upon the information provided to us by the Client and other entities associated with the Project, results of the field exploration, laboratory testing, and engineering analyses and evaluations performed by TTL as described in this report. The Client and readers of this report should realize subsurface variations and anomalies may exist across the site which may not be revealed by our field exploration. Furthermore, the Client and readers should realize that site conditions can change due to the modifying effects of seasonal and climatic conditions and conditions at times after our exploration may be different than reported herein. The nature and extent of such site or subsurface variations may not become evident until construction commences or is in progress. If site and subsurface anomalies or variations exist or develop, TTL should be contacted and authorized to immediately evaluate such variations and, if necessary, provide applicable recommendations.

Unless stated otherwise in this report or in the contract documents between TTL and Client, our scope of services for this Project did not include, either specifically or by implication, environmental or biological assessment of the site or buildings, or any identification or prevention of pollutants, hazardous materials or conditions at the site or within buildings. If the Client is concerned about the potential for such contamination or pollution, TTL should be contacted to provide a scope of additional services to address the environmental concerns. In addition, TTL is not responsible for permitting, site safety, excavation support, and dewatering requirements.

Should the nature, design, or location of the Project, as outlined in this geotechnical engineering report be modified, the geotechnical engineering recommendations and guidelines provided in this document

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will not be considered valid unless TTL is authorized to review the changes and either verifies or modifies the applicable Project changes in writing.

Additional information about the use and limitations of a geotechnical report is provided within the Geoprofessional Business Association document included at the end of this report.

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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 sitewide-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

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APPENDIX A
ILLUSTRATIONS

TTL

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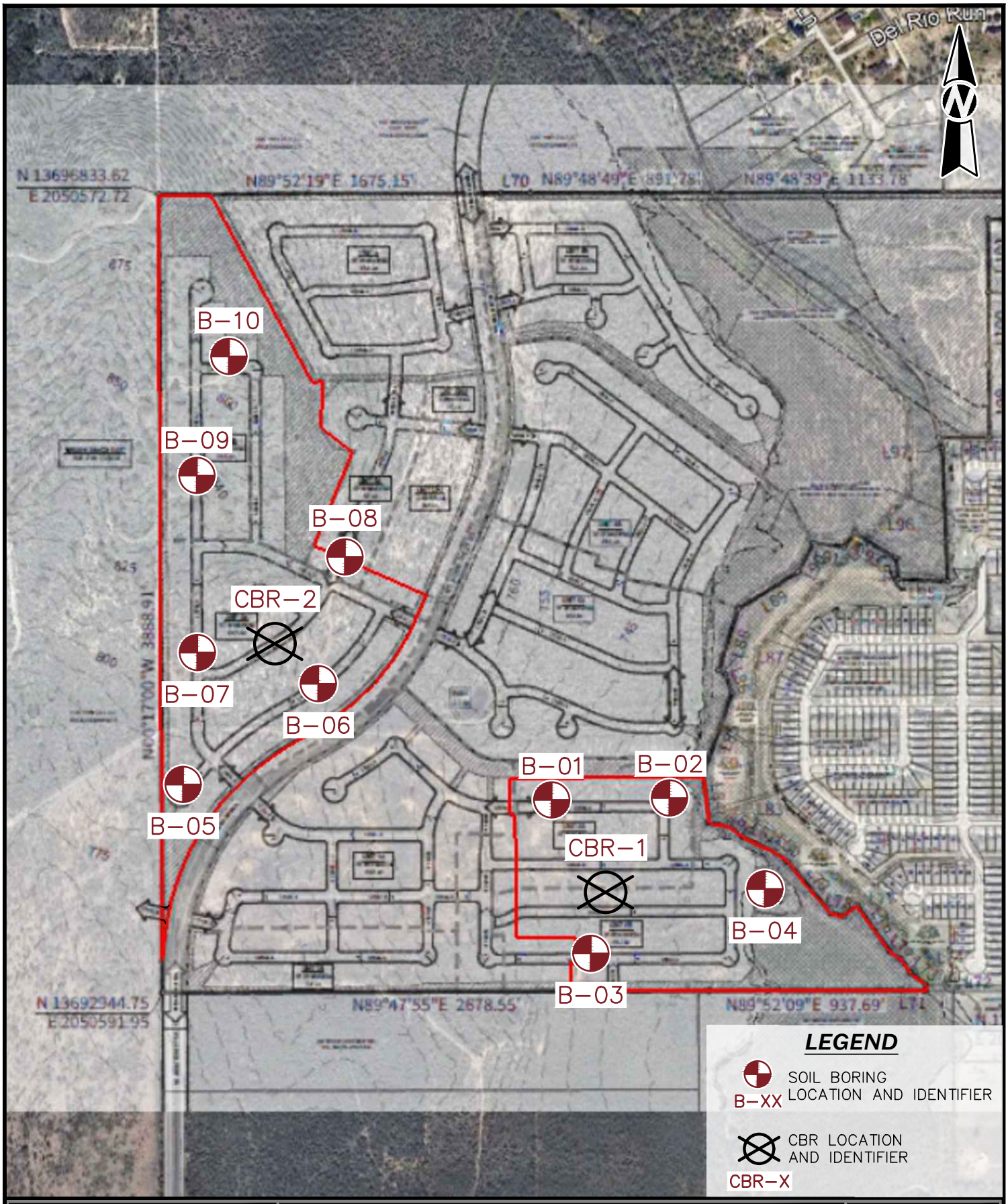
TBPELS Firm Registration No. F-12622 | TBPG Firm Registration No. 50456

TRES LAURELS UNITS 2 AND 3

GROSENBACHER ROAD
SAN ANTONIO ETJ, BEXAR COUNTY, TEXAS

Drawn By:	RG
Checked By:	DB
Date:	02/20/2024
Scale:	NOT TO SCALE
Proj. No.:	000230902935.02
File Name:	Exhibits.dwg

SITE LOCATION MAP



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Scale:	NOT TO SCALE
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File Name:	Exhibits.dwg

BORING AND CBR LOCATION PLAN

SOIL LEGEND

FINE- AND COARSE-GRAINED SOIL INFORMATION

FINE-GRAINED SOILS (SILTS AND CLAYS)

SPT N-Value	Consistency	Estimated Q_u (TSF)
0 - 1	Very Soft	0 - 0.25
2 - 4	Soft	0.25 - 0.5
5 - 8	Firm	0.5 - 1.0
9 - 15	Stiff	1.0 - 2.0
16 - 30	Very Stiff	2.0 - 4.0
31+	Hard	4.0+

Q_u = Unconfined Compression Strength

COARSE-GRAINED SOILS (SANDS AND GRAVELS)

SPT N-Value	Relative Density
0 - 4	Very Loose
5 - 10	Loose
11 - 30	Medium Dense
31 - 50	Dense
51+	Very Dense

PARTICLE SIZE

Name	Size (US Std. Sieve)
Boulders	>300 mm (>12 in.)
Cobbles	75 mm to 300 mm (3 - 12 in.)
Coarse Gravel	19 mm to 75 mm (3/4 - 3 in.)
Fine Gravel	4.75 mm to 19 mm (#4 - 3/4 in.)
Coarse Sand	2 mm to 4.75 mm (#10 - #4)
Medium Sand	0.425 mm to 2 mm (#40 - #10)
Fine Sand	0.075 mm to 0.425 mm (#200 - #40)
Silts and Clays	< 0.075 mm (< #200)

RELATIVE PROPORTIONS OF SAND AND GRAVEL

Descriptive Terms	Percent of Dry Weight
"Trace"	< 15
"With"	15 - 30
Modifier	> 30

RELATIVE PROPORTIONS OF CLAYS AND SILTS

Descriptive Terms	Percent of Dry Weight
"Trace"	< 5
"With"	5 - 12
Modifier	> 12

CRITERIA FOR DESCRIBING MOISTURE CONDITION

Description	Criteria
Dry	Absence of moisture, dusty, dry to the touch
Moist	Damp, but no visible water
Wet	Visible free water, usually soil is below water table

CRITERIA FOR DESCRIBING CEMENTATION

Description	Criteria
Weak	Crumbles or breaks with handling or little finger pressure
Moderate	Crumbles or breaks with considerable finger pressure
Strong	Will not crumble or break with finger pressure

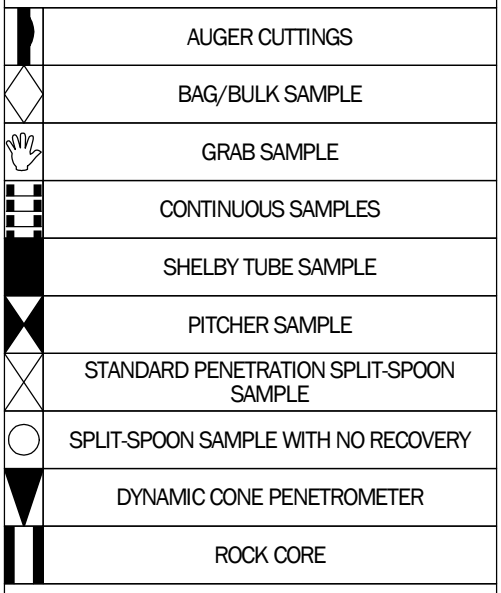
CRITERIA FOR DESCRIBING STRUCTURE

Description	Criteria
Stratified	Alternating layers of varying material or color with layers at least 6 mm thick; note the thickness
Laminated	Alternating layers of varying material or color with the layers less than 6 mm thick; note thickness
Fissured	Breaks along definite planes of fracture with little resistance to fracturing
Slickensided	Fracture planes appear polished or glossy, sometimes striated
Blocky	Cohesive soil that can be broken down into small angular lumps which resist further breakdown
Lensed	Inclusion of small pockets of different soils such as small lenses of sand scattered through a mass of clay; note thickness
Homogeneous	Same color and appearance throughout

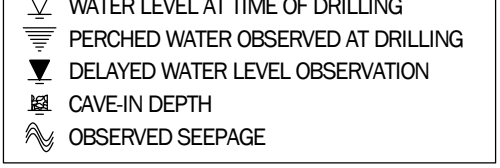
ABBREVIATIONS AND ACRONYMS

WOH	Weight of Hammer	N-Value	Sum of the blows for last two 6-in increments of SPT
WOR	Weight of Rod		
Ref.	Refusal	NA	Not Applicable or Not Available
ATD	At Time of Drilling	OD	Outside Diameter
DCP	Dynamic Cone Penetrometer	PPV	Pocket Penetrometer Value
Elev.	Elevation	SFA	Solid Flight Auger
ft.	feet	SH	Shelby Tube Sampler
HSA	Hollow Stem Auger	SS	Split-Spoon Sampler
ID	Inside Diameter	SPT	Standard Penetration Test
in.	inches	USCS	Unified Soil Classification System
lbs	pounds		

SAMPLERS AND DRILLING METHODS



WATER LEVEL SYMBOLS



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UNIFIED SOIL CLASSIFICATION SYSTEM (USCS)

COARSE GRAINED SOILS (>50% of the material is larger than the #200 sieve)	GRAVELS (>50% of coarse fraction is larger than the #4 sieve)	CLEAN GRAVEL WITH <5% FINES	Cu > 4 Cc = 1-3	GW	Well-graded gravels, gravel-sand mixtures with trace or no fines
			Cu < 4 and/or Cc < 1 Cc > 3	GP	Poorly-graded gravels, gravel-sand mixtures with trace or no fines
		GRAVEL WITH 5% TO 12% FINES	Cu > 4 Cc = 1-3	GW-GM	Well-graded gravels, gravel-sand mixtures with silt fines
				GW-GC	Well-graded gravels, gravel-sand mixtures with clay fines
			Cu < 4 and/or Cc < 1 Cc > 3	GP-GM	Poorly-graded gravels, gravel-sand mixtures with silt fines
				GP-GC	Poorly-graded gravels, gravel-sand mixtures with clay fines
		GRAVEL WITH MORE THAN 12% FINES		GM	Silty gravels, gravel-silt-sand mixtures
				GC	Clayey gravels, gravel-sand-clay mixtures
				GC-GM	Clayey gravels, gravel-sand-clay-silt mixtures
	SANDS (>50% of coarse fraction is smaller than the #4 sieve)	CLEAN SAND WITH <5% FINES	Cu > 6 Cc = 1-3	SW	Well-graded sands, sand-gravel mixtures with trace or no fines
			Cu < 6 and/or Cc < 1 Cc > 3	SP	Poorly-graded sands, sand-gravel mixtures with trace or no fines
		SAND WITH 5% TO 12% FINES	Cu > 6 Cc = 1-3	SW-SM	Well-graded sands, sand-gravel mixtures with silt fines
				SW-SC	Well-graded sands, sand-gravel mixtures with clay fines
			Cu < 6 and/or Cc < 1 Cc > 3	SP-SM	Poorly-graded sands, sand-gravel mixtures with silt fines
				SP-SC	Poorly-graded sands, sand-gravel mixtures with clay fines
		SAND WITH MORE THAN 12% FINES		SM	Silty sands, sand-gravel-silt mixtures
				SC	Clayey sands, sand-gravel-clay mixtures
				SC-SM	Clayey sands, sand-gravel-clay-silt mixtures
FINE GRAINED SOILS (>50% of material is smaller than the #200 sieve)		SILTS & CLAYS (Liquid Limit less than 50)		ML	Inorganic silts with low plasticity
				CL	Inorganic clays of low plasticity, gravelly or sandy clays, silty clays, lean clays
				CL-ML	Inorganic clay-silts of low plasticity, gravelly clays, sandy clays, silty clays, lean clays
				OL	Organic silts and organic silty clays of low plasticity
		SILTS & CLAYS (Liquid Limit more than 50)		MH	Inorganic silts of high plasticity, elastic silts
				CH	Inorganic clays of high plasticity, fat clays
				OH	Organic clays and organic silts of high plasticity

USCS - HIGHLY ORGANIC SOILS

Primarily organic matter, dark in color, organic odor

PT	Peat, humus, swamp soils with high organic contents

OTHER MATERIALS

- BITUMINOUS CONCRETE (ASPHALT)
- CONCRETE
- CRUSHED STONE/AGGREGATE BASE
- TOPSOIL
- FILL
- UNDIFFERENTIATED ALLUVIUM
- UNDIFFERENTIATED OVERBURDEN
- BOULDERS AND COBBLES

UNIFORMITY COEFFICIENT

$$C_u = D_{60}/D_{10}$$

COEFFICIENT OF CURVATURE

$$C_C = (D_{30})^2/(D_{60} \times D_{10})$$

Where:

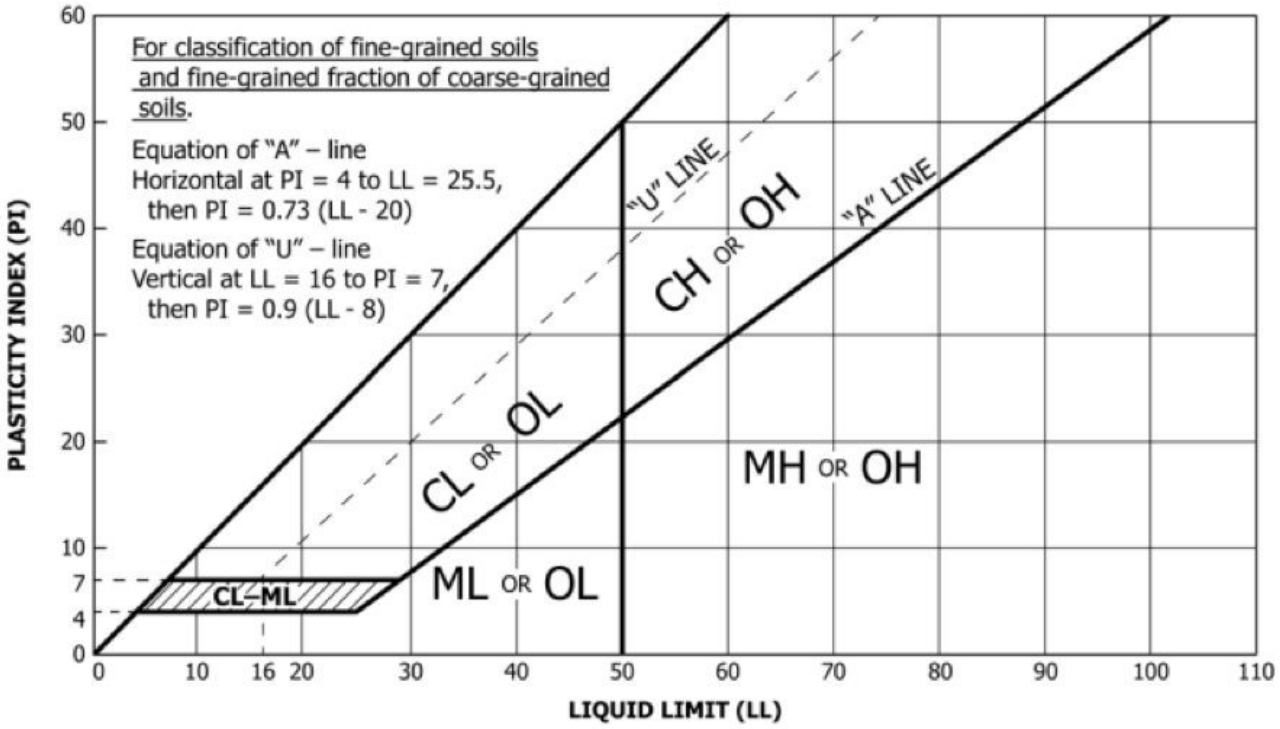
D_{60} = grain diameter at 60% passing

D_{30} = grain diameter at 30% passing

D_{10} = grain diameter at 10% passing

TTL

PLASTICITY CHART FOR USCS CLASSIFICATION OF FINE-GRAINED SOILS



IMPORTANT NOTES ON TEST BORING RECORDS

1) The report and graphics key are an integral part of these logs. All data and interpretations in this log are subject to the explanations and limitations stated in the report.

2) Lines separating strata on the logs represent approximate boundaries only. Actual transitions may be gradual or differ from those shown. Solid lines are used to indicate a change in the material type, particularly a change in the USCS classification. Dashed lines are used to separate two materials that have the same material type, but that differ with respect to two or more other characteristics (e.g. color, consistency).

3) No warranty is provided as to the continuity of soil or rock conditions between individual sample locations.

4) Logs represent general soil and rock conditions observed at the point of exploration on the date indicated.

5) In general, Unified Soil Classification System (USCS) designations presented on the logs were based on visual classification in the field and were modified where appropriate based on gradation and index property testing.

6) Fine-grained soils that plot within the hatched area on the Plasticity Chart, and coarse-grained soils with between 5% and 12% passing the #200 sieve require dual USCS symbols as presented on the previous page.

7) If the sampler is not able to be driven at least 6 inches, then 50/X" indicates that the sampler advanced X inches when struck 50 times with a 140-pound hammer falling 30 inches.

8) If the sampler is driven at least 6 inches, but cannot be driven either of the subsequent two 6-inch increments, then either 50/X" or the sum of the second 6-inch increment plus 50/X" for the third 6-inch increment will be indicated.
Example 1: Recorded SPT blow counts are 16 - 50/4", the SPT N-value will be shown as N = 50/4"
Example 2: Recorded SPT blow counts are 18 - 25 - 50/2", the SPT N-value will be shown as N = 75/8"

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Log of B-01

Drilling Co.:	*TTL, Inc.*	**TTL** Project No.:	*000230902935.02*
Driller:	*T. Timmermann*	Date Drilled:	*12/18/2023*
Logged by:	*M. Green*	Boring Depth:	*10 feet*
Equipment:	*CME 550X*	Boring Elevation:	*Ground Surface*
Hammer Type:	*Automatic*	Coordinates:	*Longitude: -98.7374 Latitude: 29.3957*
Drilling Method:	*Solid Flight Auger w/SPT Sampling*	Water Level at Time of Drilling:	*Not Encount.*
		Cave-In at Time of Drilling:	*N/A*
		Delayed Water Level:	*N/A*
		Delayed Water Observation Date:	*N/A*

Remarks:
Subsurface water was not encountered during drilling. The borehole was backfilled with soil cuttings after drilling activities were completed.

ELEVATION (ft)	DEPTH (ft)	GRAPHIC LOG	MATERIALS DESCRIPTION	SAMPLE DATA: TYPE	BORE/CORE DATA: N-VALUE BLOWS/FT (1st 6" 2nd 6" 3rd 6")	P: TONS/SQFT	% RQD / % REC	MOISTURE CONTENT (%)	ATTERBERG LIMITS (%): LL	PL	PI	DRY DENSITY (pcf)	SHEAR STRENGTH (psf)	FAILURE STRAIN (%)	CONFINING PRESSURE (psi)	% PASSING #200 SIEVE
	0		RESIDUMM: FAT CLAY; firm and stiff, dark brown, moist (CH)													
	1				2 - 2 - 3 N = 5			18								
	2															
	3				4 - 5 - 6 N = 11			18								92.7
	4															
	5		- calcareous between 4½ and 6 feet		2 - 3 - 5 N = 8			21	73	31	42					
	6		FAT CLAY WITH SAND; very stiff, light brown, calcareous, with gypsum seams, moist (CH)													
	7				8 - 12 - 17 N = 29			18								81.1
	8		CLAYEY GRAVEL WITH SAND; dense, light brown, calcareous, dry (GC)													
	9				14 - 17 - 15 N = 32			5								42.4
	10		Boring terminated at 10 feet.													
	11															
	12															
	13															
	14															

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Log of B-02

Drilling Co.:	*TTL, Inc.*	**TTL** Project No.:	*000230902935.02*
Driller:	*T. Timmermann*	Date Drilled:	*12/18/2023*
Logged by:	*M. Green*	Boring Depth:	*10 feet*
Equipment:	*CME 550X*	Boring Elevation:	*Ground Surface*
Hammer Type:	*Automatic*	Coordinates:	*Longitude: -98.7356 Latitude: 29.3958*
Drilling Method:	*Solid Flight Auger w/SPT Sampling*	Water Level at Time of Drilling:	*Not Encount.*
		Cave-In at Time of Drilling:	*N/A*
		Delayed Water Level:	*N/A*
		Delayed Water Observation Date:	*N/A*

Remarks:
Subsurface water was not encountered during drilling. The borehole was backfilled with soil cuttings after drilling activities were completed.

ELEVATION (ft)	DEPTH (ft)	GRAPHIC LOG	MATERIALS DESCRIPTION	SAMPLE DATA: TYPE	BORE/CORE DATA: 1st 6" / 2nd 6" / 3rd 6" / N-VALUE BLOWS/FT	P: TONS/SQFT	% RQD / % REC	MOISTURE CONTENT (%)	ATTERBERG LIMITS (%): LIQUID LIMIT (LL)	PLASTIC LIMIT (PL)	PLASTICITY INDEX (PI)	DRY DENSITY (pcf)	SHEAR STRENGTH (psf)	FAILURE STRAIN (%)	CONFINING PRESSURE (psi)	% PASSING #200 SIEVE
	0		RESIDUMM: FAT CLAY; stiff to very stiff, dark brown, moist (CH)													
	1				4 - 4 - 7 N = 11			14								85.4
	2		- calcareous between 2½ and 4 feet													
	3				8 - 11 - 15 N = 26			13	58	25	33					
	4		LEAN CLAY WITH SAND; very stiff, light brown, calcareous, dry (CL)													
	5				9 - 11 - 12 N = 23			9								73.8
	6															
	7				8 - 8 - 14 N = 22			8	36	21	15					
	8															
	9				10 - 13 - 14 N = 27			7								76.3
	10		Boring terminated at 10 feet.													
	11															
	12															
	13															
	14															

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Log of B-03

Drilling Co.:	*TTL, Inc.*	**TTL** Project No.:	*000230902935.02*
Driller:	*T. Timmermann*	Date Drilled:	*12/18/2023*
Logged by:	*M. Green*	Boring Depth:	*10 feet*
Equipment:	*CME 550X*	Boring Elevation:	*Ground Surface*
Hammer Type:	*Automatic*	Coordinates:	*Longitude: -98.7368 Latitude: 29.3938*
Drilling Method:	*Solid Flight Auger w/SPT Sampling*	Water Level at Time of Drilling:	*Not Encount.*
		Cave-In at Time of Drilling:	*N/A*
		Delayed Water Level:	*N/A*
		Delayed Water Observation Date:	*N/A*

Remarks:
Subsurface water was not encountered during drilling. The borehole was backfilled with soil cuttings after drilling activities were completed.

ELEVATION (ft)	DEPTH (ft)	GRAPHIC LOG	MATERIALS DESCRIPTION	SAMPLE DATA: TYPE	BORE/CORE DATA: N-VALUE BLOWS/FT (1st 6" - 2nd 6" - 3rd 6")	P: TONS/SQFT	% RQD / % REC	MOISTURE CONTENT (%)	ATTERBERG LIMITS (%): LIQUID LIMIT (LL)	PLASTIC LIMIT (PL)	PLASTICITY INDEX (PI)	DRY DENSITY (pcf)	SHEAR STRENGTH (psf)	FAILURE STRAIN (%)	CONFINING PRESSURE (psi)	% PASSING #200 SIEVE
	0		RESIDUMM: FAT CLAY; stiff, dark brown, calcareous, moist (CH)													
	1				5 - 6 - 8 N = 14			17								
	2		CLAYEY GRAVEL; medium dense, dark brown, calcareous, dry (GC)													
	3				9 - 10 - 16 N = 26			4								
	4		FAT CLAY; very stiff to hard, light brown, calcareous, with trace of gravel to 6 feet, moist (CH)													
	5				4 - 10 - 15 N = 25			17	69	27	42					88.6
	6		- with gypsum seams between 6½ and 8 feet													
	7				11 - 18 - 27 N = 45			16								89.8
	8															
	9				6 - 10 - 11 N = 21				57	17	40					
	10		Boring terminated at 10 feet.													
	11															
	12															
	13															
	14															

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Log of B-04

Drilling Co.:	*TTL, Inc.*	**TTL** Project No.:	*000230902935.02*
Driller:	*T. Timmermann*	Date Drilled:	*12/18/2023*
Logged by:	*M. Green*	Boring Depth:	*10 feet*
Equipment:	*CME 550X*	Boring Elevation:	*Ground Surface*
Hammer Type:	*Automatic*	Coordinates:	*Longitude: -98.7341 Latitude: 29.3946*
Drilling Method:	*Solid Flight Auger w/SPT Sampling*	Water Level at Time of Drilling:	*Not Encount.*
		Cave-In at Time of Drilling:	*N/A*

Remarks:
Subsurface water was not encountered during drilling. The borehole was backfilled with soil cuttings after drilling activities were completed.

Delayed Water Level: *N/A*
Delayed Water Observation Date: *N/A*

ELEVATION (ft)	DEPTH (ft)	GRAPHIC LOG	MATERIALS DESCRIPTION	SAMPLE DATA: TYPE	BORE/CORE DATA: N-VALUE BLOWS/FT (1st 6" 2nd 6" 3rd 6")	P: TONS/SQFT	% RQD / % REC	MOISTURE CONTENT (%)	ATTERBERG LIMITS (%): LIQUID LIMIT (LL)	PLASTIC LIMIT (PL)	PLASTICITY INDEX (PI)	DRY DENSITY (pcf)	SHEAR STRENGTH (psf)	FAILURE STRAIN (%)	CONFINING PRESSURE (psi)	% PASSING #200 SIEVE
	0		RESIDUMM: FAT CLAY WITH SAND; stiff to very stiff, dark brown, moist (CH)													
	1				4 - 5 - 8 N = 13			14	56	16	40					
	2		- calcareous between 2½ and 6 feet													
	3				7 - 8 - 12 N = 20			13								84.8
	4		- WITH GRAVEL between 4½ and 6 feet													
	5				4 - 8 - 13 N = 21			15								
	6		CLAYEY SAND WITH GRAVEL; dense, brown to light brown, calcareous, dry (SC)													
	7				10 - 17 - 19 N = 36			9								33.0
	8															
	9				17 - 22 - 19 N = 41			4								33.2
	10		Boring terminated at 10 feet.													
	11															
	12															
	13															
	14															

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Log of B-05

Drilling Co.:	*TTL, Inc.*	**TTL** Project No.:	*000230902935.02*
Driller:	*T. Timmermann*	Date Drilled:	*12/14/2023*
Logged by:	*S. Aleti*	Boring Depth:	*10 feet*
Equipment:	*CME 550X*	Boring Elevation:	*Ground Surface*
Hammer Type:	*Automatic*	Coordinates:	*Longitude: -98.743 Latitude: 29.3959*
Drilling Method:	*Solid Flight Auger w/SPT Sampling*	Water Level at Time of Drilling:	*Not Encount.*
		Cave-In at Time of Drilling:	*N/A*

Remarks:
Subsurface water was not encountered during drilling. The borehole was backfilled with soil cuttings after drilling activities were completed.

Delayed Water Level: *N/A*
Delayed Water Observation Date: *N/A*

ELEVATION (ft)	DEPTH (ft)	GRAPHIC LOG	MATERIALS DESCRIPTION	SAMPLE DATA: TYPE	BORE/CORE DATA: N-VALUE BLOWS/FT (1st 6" 2nd 6" 3rd 6")	P: TONS/SQFT	% RQD / % REC	MOISTURE CONTENT (%)	ATTERBERG LIMITS (%): LIQUID LIMIT (LL)	PLASTIC LIMIT (PL)	PLASTICITY INDEX (PI)	DRY DENSITY (pcf)	SHEAR STRENGTH (psf)	FAILURE STRAIN (%)	CONFINING PRESSURE (psi)	% PASSING #200 SIEVE
	0		RESIDUMM: FAT CLAY; very stiff to stiff, dark brown to olive brown, calcareous, moist (CH)													
	1				7 - 8 - 9 N = 17			15	70	18	52					
	2															
	3				10 - 9 - 11 N = 20			15								90.5
	4		- with interbedded CHALK seams between 4½ and 6 feet													
	5				9 - 8 - 8 N = 16			11	65	17	48					
	6		- becomes olive brown and brown below 6½ feet													
	7				8 - 9 - 10 N = 19			11								94.4
	8															
	9				5 - 6 - 6 N = 12			21	78	26	52					
	10		Boring terminated at 10 feet.													
	11															
	12															
	13															
	14															

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Log of B-06

Drilling Co.:	*TTL, Inc.*	**TTL** Project No.:	*000230902935.02*
Driller:	*T. Timmermann*	Date Drilled:	*12/14/2023*
Logged by:	*S. Aleti*	Boring Depth:	*10 feet*
Equipment:	*CME 550X*	Boring Elevation:	*Ground Surface*
Hammer Type:	*Automatic*	Coordinates:	*Longitude: -98.7411 Latitude: 29.3974*
Drilling Method:	*Solid Flight Auger w/SPT Sampling*	Water Level at Time of Drilling:	*Not Encount.*
		Cave-In at Time of Drilling:	*N/A*

Remarks:
Subsurface water was not encountered during drilling. The borehole was backfilled with soil cuttings after drilling activities were completed.

Delayed Water Level: *N/A*
Delayed Water Observation Date: *N/A*

ELEVATION (ft)	DEPTH (ft)	GRAPHIC LOG	MATERIALS DESCRIPTION	SAMPLE DATA: TYPE	BORE/CORE DATA: N-VALUE BLOWS/FT (1st 6" 2nd 6" 3rd 6")	P: TONS/SQFT	% RQD / % REC	MOISTURE CONTENT (%)	ATTERBERG LIMITS (%): LL	PL	PI	DRY DENSITY (pcf)	SHEAR STRENGTH (psf)	FAILURE STRAIN (%)	CONFINING PRESSURE (psi)	% PASSING #200 SIEVE
	0		RESIDUMM: FAT CLAY; stiff to very stiff, dark brown to olive brown, calcareous, moist (CH)													
	1				3 - 4 - 6 N = 10			26								
	2		- with interbedded LIMESTONE seams between 2½ and 4 feet													
	3				8 - 7 - 9 N = 16			16	88	21	67					
	4															
	5				5 - 8 - 10 N = 18			22								96.7
	6															
	7				11 - 14 - 16 N = 30			23								96.2
	8		- becomes olive brown and gray below 8½ feet													
	9				4 - 9 - 10 N = 19			24	97	22	75					
	10		Boring terminated at 10 feet.													
	11															
	12															
	13															
	14															

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Log of B-07

Drilling Co.:	*TTL, Inc.*	**TTL** Project No.:	*000230902935.02*
Driller:	*T. Timmermann*	Date Drilled:	*12/14/2023*
Logged by:	*S. Aleti*	Boring Depth:	*10 feet*
Equipment:	*CME 550X*	Boring Elevation:	*Ground Surface*
Hammer Type:	*Automatic*	Coordinates:	*Longitude: -98.7428 Latitude: 29.3976*
Drilling Method:	*Solid Flight Auger w/SPT Sampling*	Water Level at Time of Drilling:	*Not Encount.*
		Cave-In at Time of Drilling:	*N/A*
		Delayed Water Level:	*N/A*
		Delayed Water Observation Date:	*N/A*

Remarks:
Subsurface water was not encountered during drilling. The borehole was backfilled with soil cuttings after drilling activities were completed.

ELEVATION (ft)	DEPTH (ft)	GRAPHIC LOG	MATERIALS DESCRIPTION	SAMPLE DATA: TYPE	BORE/CORE DATA: N-VALUE BLOWS/FT (1st 6" 2nd 6" 3rd 6")	P: TONS/SQFT	% RQD / % REC	MOISTURE CONTENT (%)	ATTERBERG LIMITS (%): LL	PL	PI	DRY DENSITY (pcf)	SHEAR STRENGTH (psf)	FAILURE STRAIN (%)	CONFINING PRESSURE (psi)	% PASSING #200 SIEVE
	1		RESIDUMM: LEAN CLAY WITH SAND; firm to stiff, dark brown, calcareous, moist (CL)		2 - 3 - 4 N = 7			17								
	2															
	3				6 - 7 - 8 N = 15			13								82.7
	4		SANDY LEAN CLAY WITH GRAVEL; very stiff, olive brown and brown, calcareous, dry (CL)													
	5				7 - 7 - 10 N = 17			8								59.0
	6		CLAYEY GRAVEL WITH SAND; dense, light brown, calcareous, dry (GC)													
	7				13 - 13 - 18 N = 31			6								33.3
	8		SANDY FAT CLAY; very stiff, olive brown, dry (CH)													
	9				6 - 6 - 10 N = 16			9	71	17	54					
	10		Boring terminated at 10 feet.													
	11															
	12															
	13															
	14															

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Log of B-08

Drilling Co.:	*TTL, Inc.*	**TTL** Project No.:	*000230902935.02*
Driller:	*T. Timmermann*	Date Drilled:	*12/14/2023*
Logged by:	*S. Aleti*	Boring Depth:	*10 feet*
Equipment:	*CME 550X*	Boring Elevation:	*Ground Surface*
Hammer Type:	*Automatic*	Coordinates:	*Longitude: -98.7406 Latitude: 29.399*
Drilling Method:	*Air Rotary w/SPT Sampling*	▽ Water Level at Time of Drilling:	*Not Encount.*
		▨ Cave-In at Time of Drilling:	*N/A*
		▼ Delayed Water Level:	*N/A*
		Delayed Water Observation Date:	*N/A*

Remarks:
Subsurface water was not encountered during drilling. The borehole was backfilled with soil cuttings after drilling activities were completed.

ELEVATION (ft)	DEPTH (ft)	GRAPHIC LOG	MATERIALS DESCRIPTION	SAMPLE DATA: TYPE	BORE/CORE DATA: N-VALUE BLOWS/FT (1st 6" / 2nd 6" / 3rd 6")	P: TONS/SQFT	% RQD / % REC	MOISTURE CONTENT (%)	ATTERBERG LIMITS (%): LIQUID LIMIT (LL)	PLASTIC LIMIT (PL)	PLASTICITY INDEX (PI)	DRY DENSITY (pcf)	SHEAR STRENGTH (psf)	FAILURE STRAIN (%)	CONFINING PRESSURE (psi)	% PASSING #200 SIEVE
	1		SANDY LEAN CLAY; hard, light brown, calcareous, moist (CL)		5 - 10 - 21 N = 31			5								67.3
	2		LEAN CLAY WITH SAND; hard, light brown to yellowish-brown, calcareous, with interbedded CHALK seams, moist (CH)													
	3				25 - 34 - 50/5 N = 84/11"			4	30	16	14					
	4															
	5				50/5 N = 50/5"			4								
	6															
	7				34 - 50/2 N = 50/2"			7								
	8		CHALK; soft rock, tan and light brown, weathered (ROCK)													
	9				50/6 N = 50/6"			5								
	10		Boring terminated at 10 feet.													
	11															
	12															
	13															
	14															

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Log of B-09

Drilling Co.:	*TTL, Inc.*	**TTL** Project No.:	*000230902935.02*
Driller:	*T. Timmermann*	Date Drilled:	*12/14/2023*
Logged by:	*S. Aleti*	Boring Depth:	*10 feet*
Equipment:	*CME 550X*	Boring Elevation:	*Ground Surface*
Hammer Type:	*Automatic*	Coordinates:	*Longitude: -98.7428 Latitude: 29.3999*
Drilling Method:	*Solid Flight Augers (0'-6') and Air Rotary (6'-10'), w/SPT Sampling*	▽ Water Level at Time of Drilling:	*Not Encount.*
		▨ Cave-In at Time of Drilling:	*N/A*

Remarks:
Subsurface water was not encountered during drilling. The borehole was backfilled with soil cuttings after drilling activities were completed.

▼ Delayed Water Level: *N/A*

Delayed Water Observation Date: *N/A*

ELEVATION (ft)	DEPTH (ft)	GRAPHIC LOG	MATERIALS DESCRIPTION	SAMPLE DATA: TYPE	BORE/CORE DATA: N-VALUE BLOWS/FT (1st 6" / 2nd 6" / 3rd 6")	P: TONS/SQFT	% RQD / % REC	MOISTURE CONTENT (%)	ATTERBERG LIMITS (%): LL	PL	PI	DRY DENSITY (pcf)	SHEAR STRENGTH (psf)	FAILURE STRAIN (%)	CONFINING PRESSURE (psi)	% PASSING #200 SIEVE
	1		RESIDUMM: CLAYEY SAND; medium dense, brown, calcareous, with trace of gravel, dry (SC)		6 - 9 - 14 N = 23			8								49.0
	2		SILTY SAND; very dense, light brown, calcareous, cemented, with trace of gravel, dry (SM)		50/4 N = 50/4"			5								
	3															
	4		CHALK; soft rock, tan, weathered (ROCK)		50/0 N = 50/0"											
	5															
	6		LEAN CLAY WITH SAND; hard, olive brown, calcareous, cemented, dry (CL)													
	7				40 - 50/4 N = 50/4"			7								
	8		CHALK; soft rock, tan and light brown, weathered (ROCK)		50/0 N = 50/0"											
	9															
	10		Boring terminated at 10 feet.													
	11															
	12															
	13															
	14															

X:\2023\09\23-09-02935.00 - LENNAR - TRES LAURELS UNITS 2 AND 3\GEOTECHNICAL\DATA\000230902935.00 -- TRES LAURELS.GPJ 10/22/24 Report:AEP-GEOTECH LOG - LAT LONG

This boring log shall not be separated from the corresponding Instrument of Service; no third party may rely upon this boring log or the corresponding Instrument of Service absent a written TTL Secondary Client Agreement.

Lennar
Tres Laurels Units 2 and 3
Grosenbacher Road
San Antonio ETJ, Bexar County, Texas

Log of B-10

Drilling Co.:	*TTL, Inc.*	**TTL** Project No.:	*000230902935.02*
Driller:	*T. Timmermann*	Date Drilled:	*12/14/2023*
Logged by:	*S. Aleti*	Boring Depth:	*10 feet*
Equipment:	*CME 550X*	Boring Elevation:	*Ground Surface*
Hammer Type:	*Automatic*	Coordinates:	*Longitude: -98.7423 Latitude: 29.4016*
Drilling Method:	*Air Rotary w/SPT Sampling*	Water Level at Time of Drilling:	*Not Encount.*
		Cave-In at Time of Drilling:	*N/A*

Remarks:
Subsurface water was not encountered during drilling. The borehole was backfilled with soil cuttings after drilling activities were completed.

Delayed Water Level: *N/A*
Delayed Water Observation Date: *N/A*

ELEVATION (ft)	DEPTH (ft)	GRAPHIC LOG	MATERIALS DESCRIPTION	SAMPLE DATA: TYPE	BORE/CORE DATA: N-VALUE BLOWS/FT (1st 6" / 2nd 6" / 3rd 6")	P: TONS/SQFT	% RQD / % REC	MOISTURE CONTENT (%)	ATTERBERG LIMITS (%): LIQUID LIMIT (LL)	PLASTIC LIMIT (PL)	PLASTICITY INDEX (PI)	DRY DENSITY (pcf)	SHEAR STRENGTH (psf)	FAILURE STRAIN (%)	CONFINING PRESSURE (psi)	% PASSING #200 SIEVE
	1		RESIDUUM: SILTY SAND; very dense, light brown and brown, calcareous, dry (SM)		15 - 50/0 N = 50/0"			7								
	2		LIMESTONE; moderately hard to hard rock, olive brown, weathered (ROCK)		50/1 N = 50/1"											
	3															
	4				50/0 N = 50/0"											
	5															
	6															
	7				50/2 N = 50/2"											
	8		- with MARL (ROCK) seams below 8½ feet													
	9				50/0 N = 50/0"			7								
	10		Boring terminated at 10 feet.													
	11															
	12															
	13															
	14															

X:\2023\09\23-09-02935.00 - LENNAR - TRES LAURELS UNITS 2 AND 3\GEOTECHNICAL\DATA\00230902935.00 -- TRES LAURELS.GPJ 10/22/24 Report:AEP-GEOTECH LOG - LAT LONG

This boring log shall not be separated from the corresponding Instrument of Service; no third party may rely upon this boring log or the corresponding Instrument of Service absent a written TTL Secondary Client Agreement.

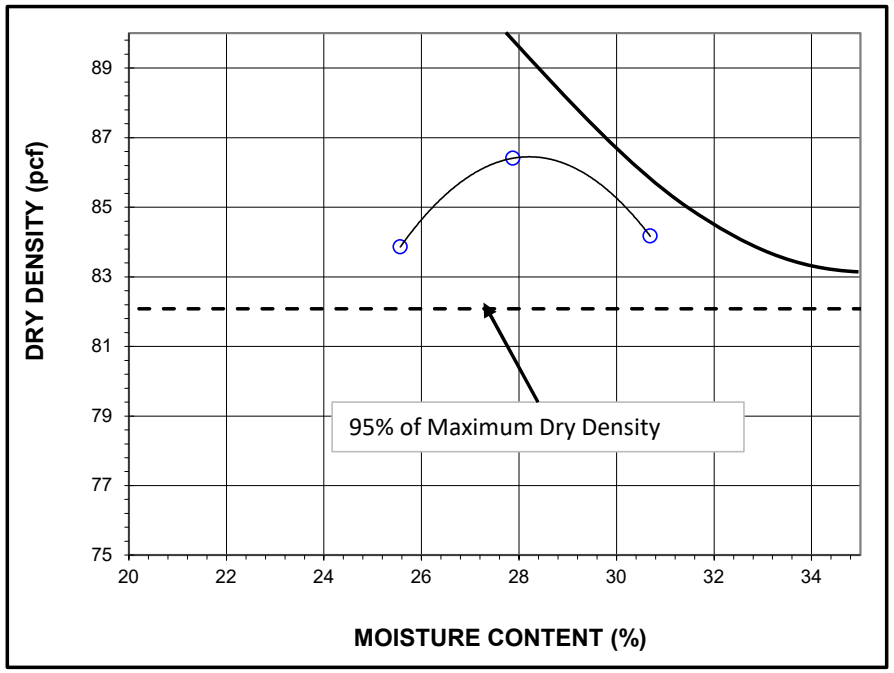
Boring	Depth	USCS	Water Content (%)	Liquid Limit	Plastic Limit	Plasticity Index	% Gravel	% Sand	Maximum Size (mm)	% Passing #200 % Silt % Clay (If hydrometer data available)	D50 (mm)
B-01	2.5 - 4	---	18	---	---	---	---	---	0.075	92.7	---
B-01	4.5 - 6	---	21	73	31	42	---	---	---	---	---
B-01	6.5 - 8	---	18	---	---	---	---	---	0.075	81.1	---
B-01	8.5 - 10	---	5	---	---	---	30.5	27.1	38.1	42.4	0.242
B-02	0.5 - 2	---	14	---	---	---	---	---	0.075	85.4	---
B-02	2.5 - 4	---	13	58	25	33	---	---	---	---	---
B-02	4.5 - 6	---	9	---	---	---	---	---	0.075	73.8	---
B-02	6.5 - 8	---	8	36	21	15	---	---	---	---	---
B-02	8.5 - 10	---	7	---	---	---	---	---	0.075	76.3	---
B-03	4.5 - 6	CH	17	69	27	42	---	---	0.075	88.6	---
B-03	6.5 - 8	---	16	---	---	---	---	---	0.075	89.8	---
B-03	8.5 - 10	---	---	57	17	40	---	---	---	---	---
B-04	0.5 - 2	---	14	56	16	40	---	---	---	---	---
B-04	2.5 - 4	---	13	---	---	---	---	---	0.075	84.8	---
B-04	6.5 - 8	---	9	---	---	---	28.1	38.9	38.1	33.0	0.458
B-04	8.5 - 10	---	4	---	---	---	25.9	40.9	38.1	33.2	0.411
B-05	0.5 - 2	---	15	70	18	52	---	---	---	---	---
B-05	2.5 - 4	---	15	---	---	---	---	---	0.075	90.5	---
B-05	4.5 - 6	---	11	65	17	48	---	---	---	---	---
B-05	6.5 - 8	---	11	---	---	---	---	---	0.075	94.4	---
B-05	8.5 - 10	---	21	78	26	52	---	---	---	---	---
B-06	2.5 - 4	---	16	88	21	67	---	---	---	---	---
B-06	4.5 - 6	---	22	---	---	---	---	---	0.075	96.7	---
B-06	6.5 - 8	---	23	---	---	---	---	---	0.075	96.2	---
B-06	8.5 - 10	---	24	97	22	75	---	---	---	---	---
B-07	2.5 - 4	---	13	---	---	---	---	---	0.075	82.7	---
B-07	4.5 - 6	---	8	---	---	---	15.5	25.5	38.1	59.0	---
B-07	6.5 - 8	---	6	---	---	---	48.2	18.5	38.1	33.3	3.192
B-07	8.5 - 10	---	9	71	17	54	---	---	---	---	---
B-08	0.5 - 2	---	5	---	---	---	---	---	0.075	67.3	---
B-08	2.5 - 3.9	---	4	30	16	14	---	---	---	---	---
B-09	0.5 - 2	---	8	---	---	---	12.3	38.7	38.1	49.0	0.083

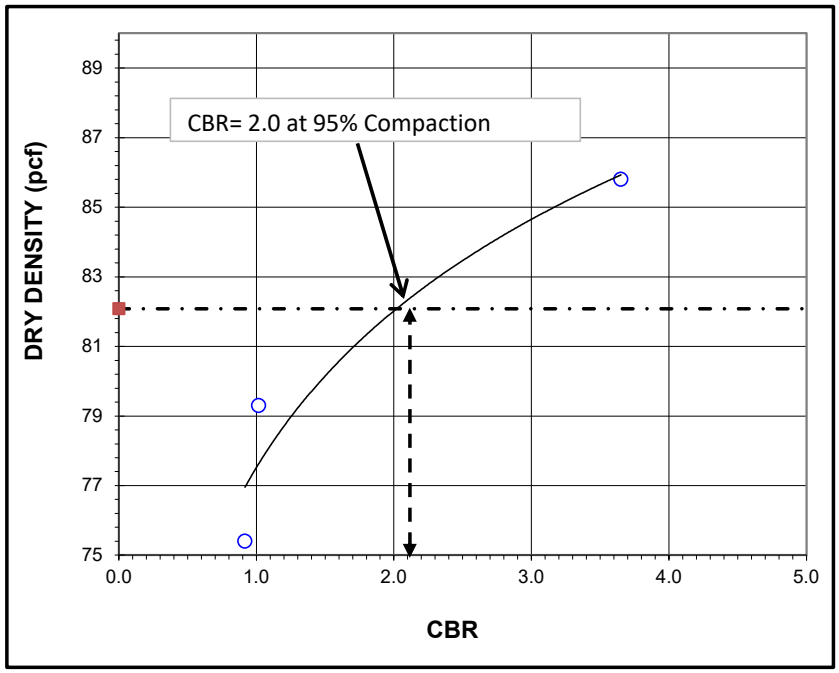
TTL

Summary of Laboratory Test Results

Client: Lennar
Project: Tres Laurels Units 2 and 3
Location: San Antonio ETJ, Bexar County, Texas
Project Number: 000230902935.02

X:\2023\09\23-09-02935.00 - LENNAR - TRES LAURELS UNITS 2 AND 3\GEOTECHNICAL\DATA\000230902935.00 -- TRES LAURELS.GPJ 4/5/24 Report:SOIL SUMMARY - GEOTECH





Sample: **CBR Sample No. 1**
Proctor Test Method: Standard Proctor (ASTM D-698)
CBR Test Method: California Bearing Ratio (ASTM D-1883)
Material: Fat Clay (CH)

Sample Depth: Between 0 and 5 feet below existing ground surface
Optimum Moisture Content: 28.2 %
Maximum Dry Unit Weight: 86.4 pcf
% Passing # 200 Sieve 91.9 %
Atterberg Limits: LL= 55 ; PL = 23 , PI = 32

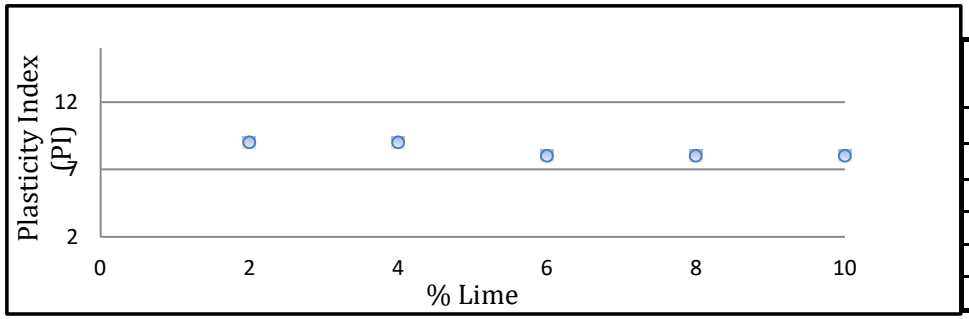
TTL
17215 Jones Maltsberger Rd, Suite 101
San Antonio, Texas 78247
T: 210-888-6100
WWW.TTLUSA.COM

TRES LAURELS UNITS 2 AND 3
GROSENBACHER ROAD

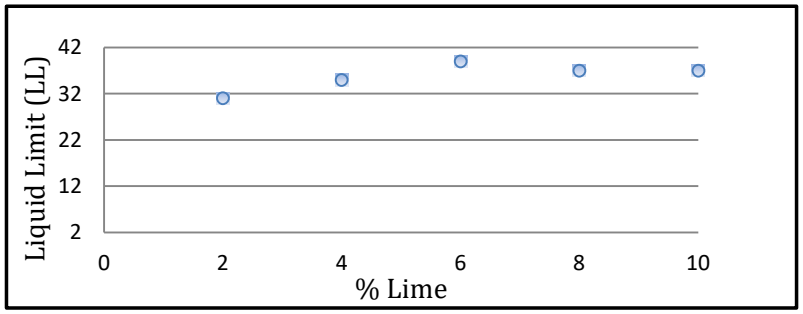
SAN ANTONIO ETJ, BEXAR COUNTY, TEAXS

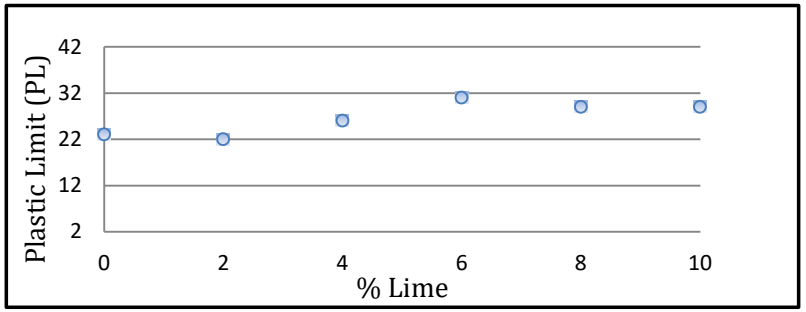
Drawn By: RG
Checked By: DB
Proj No:000230902935.02
File Name

CBR PLOT



% Lime	Plasticity Index (PI)	pH	Liquid Limit (LL)	Plastic Limit (PL)
0	32	7.41	55	23
2	9	12.37	31	22
4	9	12.41	35	26
6	8	12.43	39	31
8	8	12.43	37	29
10	8	12.43	37	29





Test Location: **CBR Sample 1**
Material: SANDY LEAN CLAY (CL); dark brown
Test Method: TxDOT Item 260, Lime Treatment
Test Method: ASTM C 977, Appendix XI; pH:Lime Saturation Content

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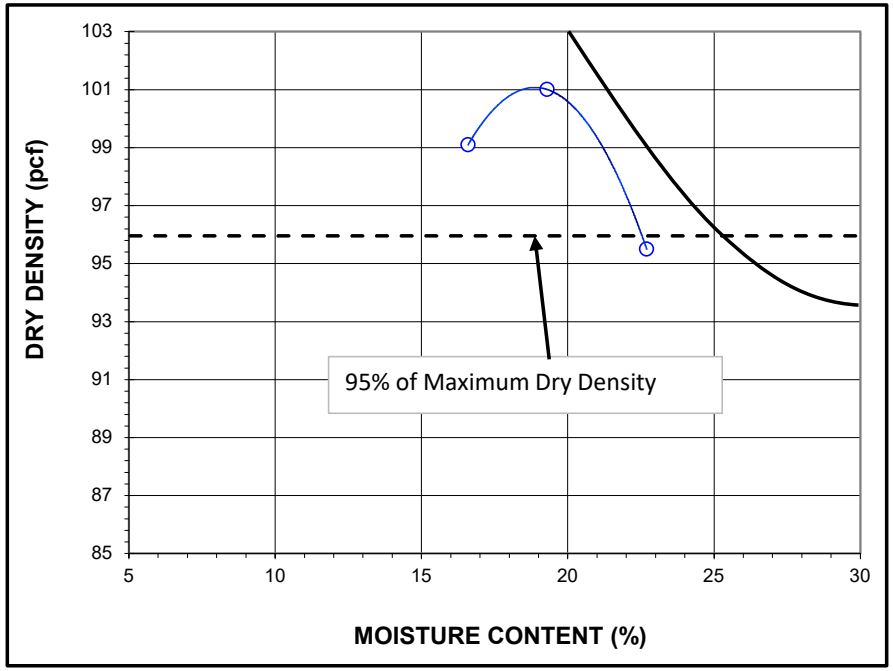
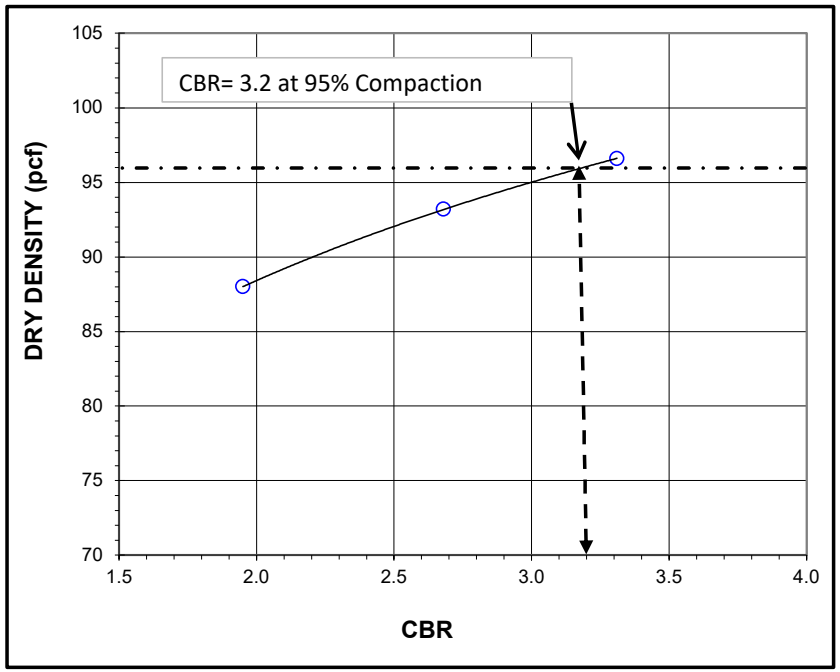
TRES LAURELS UNITS 2 AND 3
GROSENBACHER ROAD

SAN ANTONIO ETJ, BEXAR COUNTY, TEAXS

Drawn By: RG
Checked By: DB
Proj No:000230902935.02
File Name

LIME SERIES





Sample: **CBR Sample No. 2**
Proctor Test Method: Standard Proctor (ASTM D-698)
CBR Test Method: California Bearing Ratio (ASTM D-1883)
Material: SANDY LEAN CLAY (CL); dark brown

Sample Depth: Between 0 and 5 feet below existing ground surface
Optimum Moisture Content: 19.5 %
Maximum Dry Unit Weight: 101 pcf
% Passing # 200 Sieve 67.6 %
Atterberg Limits: LL = 35 , PL = 22 , PI = 13

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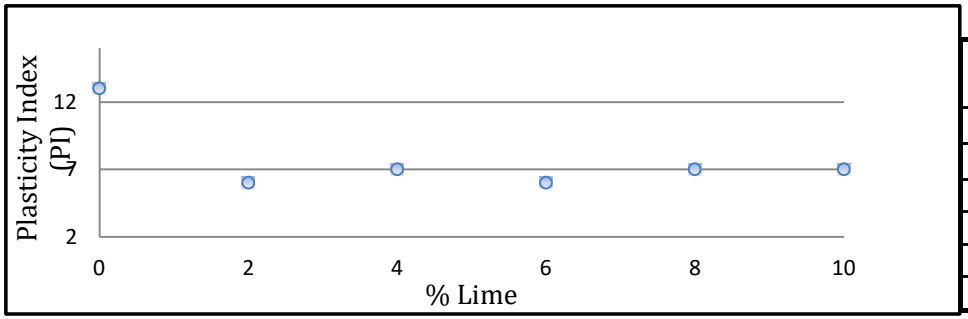
TRES LAURELS UNITS 2 AND 3
GROSENBACHER ROAD

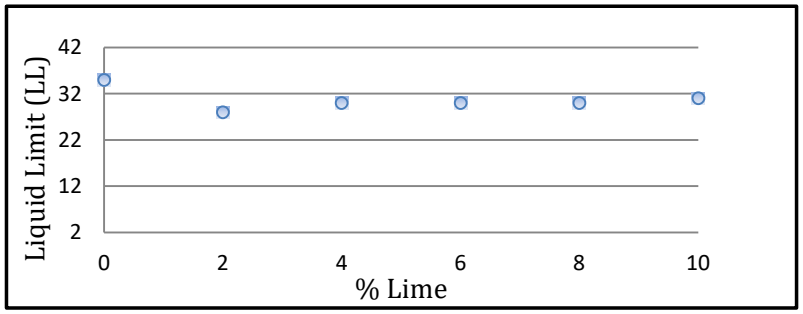
SAN ANTONIO ETJ, BEXAR COUNTY, TEAXS

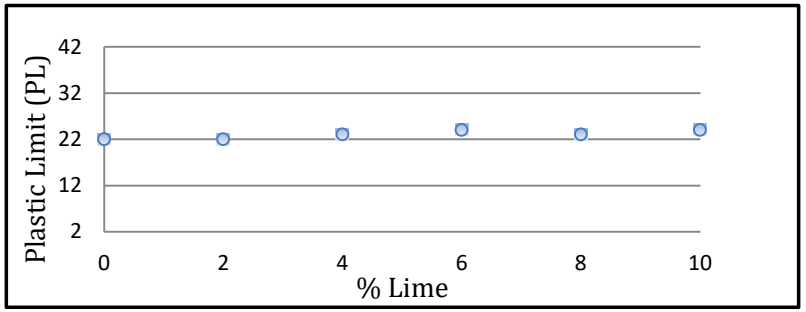
Drawn By: RG
Checked By: DB
Proj No:000230902935.02
File Name

CBR PLOT



% Lime	Plasticity Index (PI)	pH	Liquid Limit (LL)	Plastic Limit (PL)
0	13	8.15	35	22
2	6	11.63	28	22
4	7	12.28	30	23
6	6	12.36	30	24
8	7	12.40	30	23
10	7	12.44	31	24





Test Location: **CBR Sample No. 2**
Material: SANDY LEAN CLAY (CL); dark brown
Test Method: TxDOT Item 260, Lime Treatment
Test Method: ASTM C 977, Appendix XI; pH:Lime Saturation Content

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TRES LAURELS UNITS 2 AND 3
GROSENBACHER ROAD

SAN ANTONIO ETJ, BEXAR COUNTY, TEAXS

Drawn By: RG
Checked By: DB
Proj No:000230902935.02
File Name

LIME SERIES

APPENDIX B
REFERENCE MATERIALS

EXPLORATION PROCEDURES

Field Locating of Exploratory Borings

Exploratory borings were located in the field by a TTL professional using a handheld GPS and should not be considered more accurate than implied by the methods used. Surveying the test locations for vertical and horizontal control was beyond the scope of this exploration.

Soil Borings

The borings were drilled using air rotary drilling methods by an all-terrain drill rig. Soil samples were obtained at selected depths in general accordance with the Standard Penetration Test (SPT) described in ASTM D1586. For this test, a split-barrel sampler is driven into the soil through three increments of 6 inches with blows from a 140-pound hammer falling 30 inches. The number of hammer blows required to advance the split-barrel sampler through each increment is recorded, and the sum of the final two blow counts is called the "N-value," with units of blows per foot (bpf). Where it was not possible to advance the sampler through a full 6-inch increment with 50 hammer blows, driving the sampler was terminated and the sampler penetration was measured. N-values for this condition are reported as “50/x,” where x is the sampler penetration in inches. The N- values recorded during the sampling process provide an index to the strength and compressibility of the soil. These N-values and other data are shown at the depths of occurrence on boring logs in Appendix A.

Subsurface Water Measurements

Each borehole was checked for the presence of groundwater after removing the drill tools by lowering a measuring tape down the open borehole. The depth to subsurface water level and/or cave-in depth, if encountered, was recorded. Measurements are reported on the boring logs in Appendix A.

Backfilling Boreholes

After completion of drilling, each borehole was backfilled utilizing the drill cuttings. Auger cuttings sometimes consolidate after backfilling causing the top of the backfill column to settle and leaving an open hole at the ground surface. Return trips to the site to top-off backfill that may settle were not part of our scope of services.

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LABORATORY TESTING PROCEDURES

Classification and Index Testing

The recovered soil samples were classified in the laboratory by a geoprofessional using the USCS as a guide. Samples were tested for the following properties in general accordance with the applicable ASTM standards:

- Moisture content (ASTM D2216),
- Atterberg Limits (ASTM D4318),
- Amount of Material Finer than N0.200 Sieve in Soils by Washing (ASTM D1140),
- Particle-Size Distribution of Soils using Sieve Analysis (ASTM D6913);
- Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort (ASTM D698);
- Standard Test Method for California Bearing Ratio (CBR) of Laboratory-Compacted Soils ASTM (D1883);
- Standard Test Method for Using pH to Estimate the Soil-Lime Proportion Requirement for Soil Stabilization (ASTM D6276); and
- Water Soluble Sulfate in Soil (ASTM C1580).

Results of test for moisture content, Atterberg Limits, and percent material passing the No. 200 sieve are presented on individual boring logs in Appendix A. These results are also tabulated on the Summary of Laboratory Results sheet in Appendix A.

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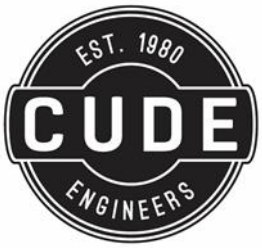
ATTACHMENTS

M.W. CUDE ENGINEERS, L.L.C 4122 Pond Hill Road, Suite 101 San Antonio, Texas 78231 210.681.2951 (tel) 210.523.7112 (fax)



TRES LAURELS, UNIT 2B
CONSTRUCTION PLANS

M.W. CUDE ENGINEERS, L.L.C 4122 Pond Hill Road, Suite 101 San Antonio, Texas 78231 210.681.2951 (tel) 210.523.7112 (fax)

CIVIL PLANS

- C0.00 GENERAL NOTES

- C1.00 STORM WATER POLLUTION PREVENTION PLAN
- C1.D1 STORM WATER POLLUTION PREVENTION PLAN DETAILS

- C2.00 GRADING PLAN

- C3.00 UTILITY PLAN

- C4.00 SANITARY SEWER MASTER PLAN
- C4.01 SANITARY SEWER PLAN & PROFILE – LINE 1L
- C4.02 SANITARY SEWER PLAN & PROFILE – LINE 1L
- C4.03 SANITARY SEWER PLAN & PROFILE – LINE 1G
- C4.D1 SANITARY SEWER GENERAL NOTES & DETAILS

- C5.00 WATER DISTRIBUTION PLAN
- C5.D1 WATER DISTRIBUTION NOTES & DETAILS

- C6.00 ULTIMATE MASTER DRAINAGE PLAN
- C6.01 DRAIN PLAN & PROFILE – DRAIN 2B
- C6.02 DRAIN PLAN & PROFILE – DRAIN 2D
- C6.03 DRAIN PLAN & PROFILE – DRAIN 2E
- C6.04 DRAIN PLAN & PROFILE – DRAIN 2F (SHEET 1 OF 3)
- C6.05 DRAIN PLAN & PROFILE – DRAIN 2F (SHEET 2 OF 3)
- C6.06 DRAIN PLAN & PROFILE – DRAIN 2F (SHEET 3 OF 3)
- C6.D1 DRAINAGE DETAILS
- C6.D2 DRAINAGE DETAILS
- C6.D3 DRAINAGE DETAILS

- C7.00 STREET PLAN & PROFILE – TENOCH
- C7.01 STREET PLAN & PROFILE – CONQUISTADORES
- C7.02 STREET PLAN & PROFILE – JOSE MARIA
- C7.03 STREET PLAN & PROFILE – ZEMPOALA
- C7.04 STREET PLAN & PROFILE – LA CUCHILLA
- C7.D1 STREET DETAILS
- C7.D2 STREET DETAILS
- C7.D3 STREET DETAILS

- C8.00 TRAFFIC SIGNAGE PLAN
- C8.D1 SIGNAGE DETAILS
- C8.D2 SIGNAGE DETAILS

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

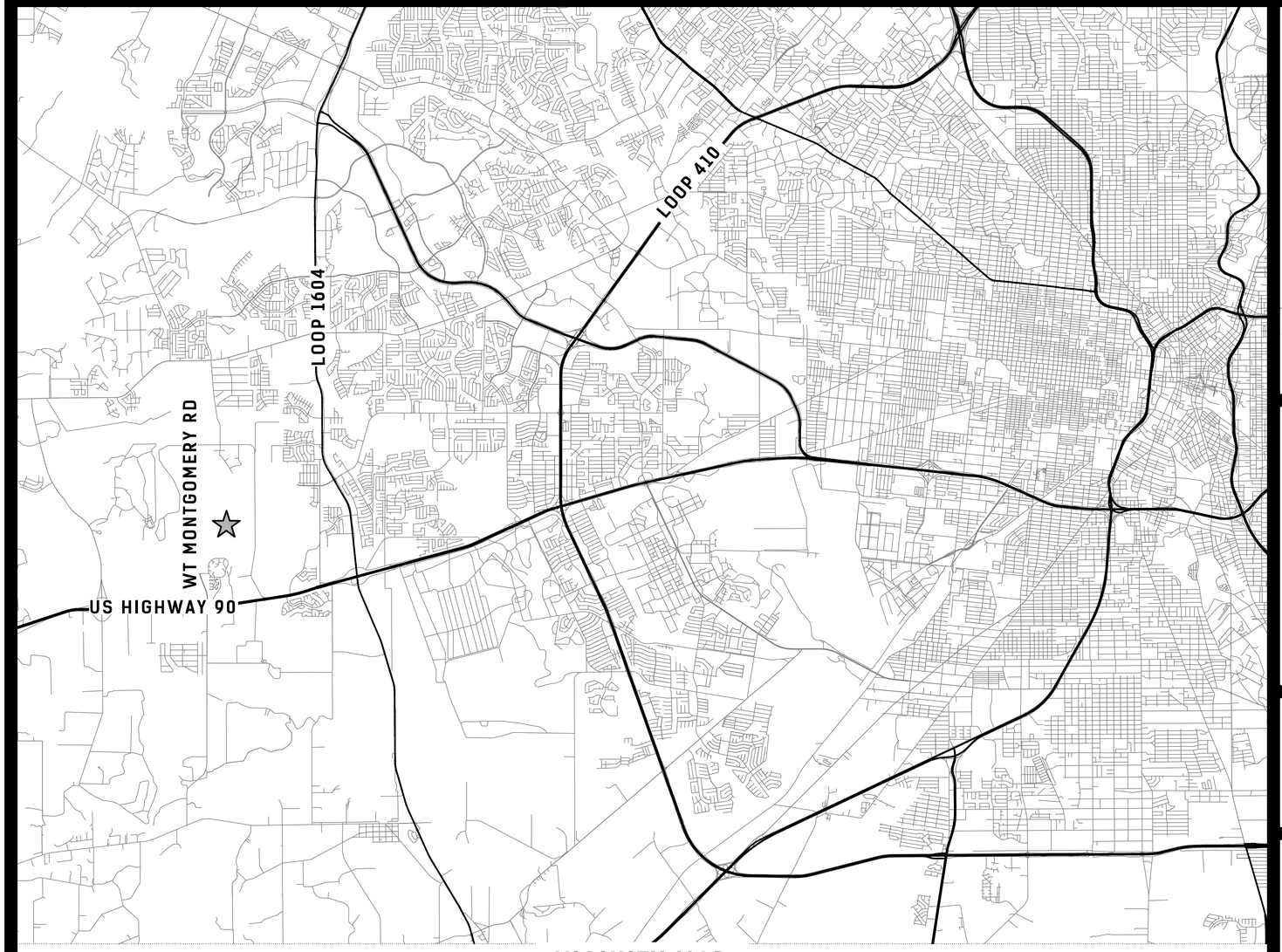
Developer's Name	LENNAR HOMES OF TEXAS LAND AND CONSTRUCTION, LTD				
Developer's Address	100 NE LOOP 410, SUITE 1155				
City	SAN ANTONIO	State	TX	Zip	78259
Phone #	210-403-6200	Fax #	–		
SAWS Block Map #	082-566, 082-568, 084-566	Total EDU's	203	Total Acreage	23.93
Total Linear Footage of Pipe	2,882 L.F. OF 8" SS – SDR 26			Plat No.	24-11800283
Number of Lots	203	SAWS Job No.	24-1607		

SAWS PRESSURE ZONE 930

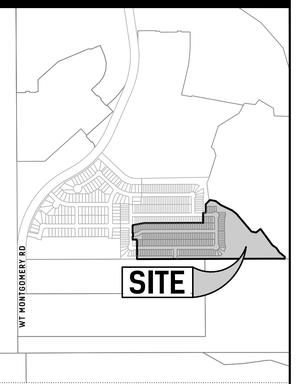
Developer's Name	LENNAR HOMES OF TEXAS LAND AND CONSTRUCTION, LTD				
Developer's Address	100 NE LOOP 410, SUITE 1155				
City	SAN ANTONIO	State	TX	Zip	78259
Phone #	210-403-6200	Fax #	–		
SAWS Block Map #	082-566, 082-568, 084-566	Total EDU's	204.5	Total Acreage	23.93
Total Linear Footage of Pipe	8" – 3,150 L.F.			Plat No.	24-11800283
Number of Lots	203	SAWS Job No.	XX-XXXX		

CONSTRUCTION DOCUMENTS FOR

TRES LAURELS UNIT 2B



VICINITY MAP
N.T.S.



LOCATION MAP
SCALE: 1" = 1000'

CUDEENGINEERS.COM

EST. 1980 CUDE ENGINEERS

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

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: 20-11100028

PLAT NUMBER: 24-11800283

PROJECT NUMBER: 03050.18

08/18/2025
STATE OF TEXAS
CHRISTOPHER J. CHAFFEE
127282
LICENSED PROFESSIONAL ENGINEER

I HAVE REVIEWED THIS PLAN SET FOR QUALITY ASSURANCE AND QUALITY CONTROL PURPOSES.

08/18/2025
STATE OF TEXAS
MATTHEW A. TRINKLE
147558
LICENSED PROFESSIONAL ENGINEER

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

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© D:\03050\0118.3.DWG,C1 Plan.dwg, 8/25/2025 8:18:33 AM, Matt

GENERAL NOTES

1. ALL CONSTRUCTION SHALL CONFORM TO THE CITY OF SAN ANTONIO STANDARD SPECIFICATIONS FOR CONSTRUCTION JUNE 2008, OR LATEST.
2. 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.
3. THE CONTRACTOR SHALL PROVIDE ACCESS FOR THE DELIVERY OF MAIL BY THE U.S. POSTAL SERVICE.
4. 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).
5. 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.
6. IF THE NEED ARISES, ADDITIONAL BARRICADES AND DIRECTIONAL DEVICES MAY BE ORDERED BY THE TRAFFIC ENGINEERING REPRESENTATIVE AT THE CONTRACTOR'S EXPENSE.
7. 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.
8. CONTRACTOR SHALL NOTIFY THE CITY INSPECTOR TWENTY FOUR (24) HOURS PRIOR TO BACKFILL OF ANY UTILITY TRENCHES TO SCHEDULE FOR DENSITY TEST AS REQUIRED.
9. 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.
10. 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

11. 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.
12. ALL WASTE MATERIAL SHALL BECOME PROPERTY OF THE CONTRACTOR AND SHALL BE HIS SOLE REPONSIBILITY 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.
13. THE CONTRACTOR SHALL NOT PLACE ANY WASTE MATERIAL IN THE 100-YEAR FLOOD PLAIN WITHOUT FIRST OBTAINING AN APPROVED FLOOD PLAIN DEVELOPMENT PERMIT.
14. THE CONTRACTOR SHALL MAINTAIN ALL ADJOINING STREETS AND TRAVELED ROUTES FREE FROM SPILLED AND /OR TRACKED CONSTRUCTION MATERIALS AND /OR DEBRIS.
15. 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.
16. 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.
17. 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.
18. 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

1. NO UTILITY OR STREET EXCAVATION WORK SHALL BEGIN IN AREAS WHERE TREE PRESERVATION AND TREATMENT MEASURES HAVE NOT BEEN COMPLETED AND APPROVED.
2. 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).
3. 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.
4. ROOTS WILL BE CUT WITH A ROCK SAW OR BY HAND, NOT BY AN EXCAVATOR OR OTHER ROAD CONSTRUCTION EQUIPMENT.
5. ALL CURB AND SIDEWALK WORK SHALL USE ALTERNATIVE CONSTRUCTION METHODS TO MINIMIZE EXTENSIVE ROOT DAMAGE TO TREES (REFER TO DETAILS).
6. EXPOSED ROOTS SHALL BE COVERED AT THE END OF THE DAY USING TECHNIQUES SUCH AS COVERING WITH SOIL, MULCH, OR WET BURLAP.
7. 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.
8. 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.
9. NO WIRES, NAILS OR OTHER MATERIAL MAY BE ATTACHED TO PROTECTED TREES.
10. 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.
11. NO EXCESSIVE TREE TRIMMING WILL BE PERMITTED.
12. 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).
13. 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.
14. ANY TREE REMOVAL SHALL BE APPROVED BY THE CITY ARBORIST. (207-8053)
15. TREES WHICH ARE DAMAGED OR LOST DUE TO THE CONTRACTOR'S NEGLIGENCE DURING CONSTRUCTION SHALL BE MITIGATED TO THE CITY'S SATISFACTION.
16. 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

1. THE CONTRACTOR SHALL PROVIDE AND MAINTAIN VEHICULAR AND PEDESTRIAN ACCESS AT ALL TIMES TO LOCAL RESIDENCES AND BUSINESSES.
2. 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.
3. 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.
4. 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___

CUDEENGINEERS.COM

CUDE ENGINEERS

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

TRES LAURELS
UNIT 2B

GENERAL NOTES

DATE
03/27/2025

PROJECT NO.
03050.018

DRAWN BY
JW

CHECKED BY
SPM/DF

REVISIONS
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10.

04/22/2025

STATE OF TEXAS
MATTHEW A. TRINKLE
147558
LICENSED PROFESSIONAL ENGINEER

CUDE ENGINEERS
TBPELS No. 10048500

PLAT NO.
24-11800283

C0.00

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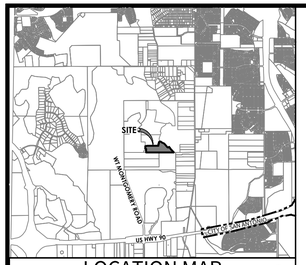


LOCATION MAP

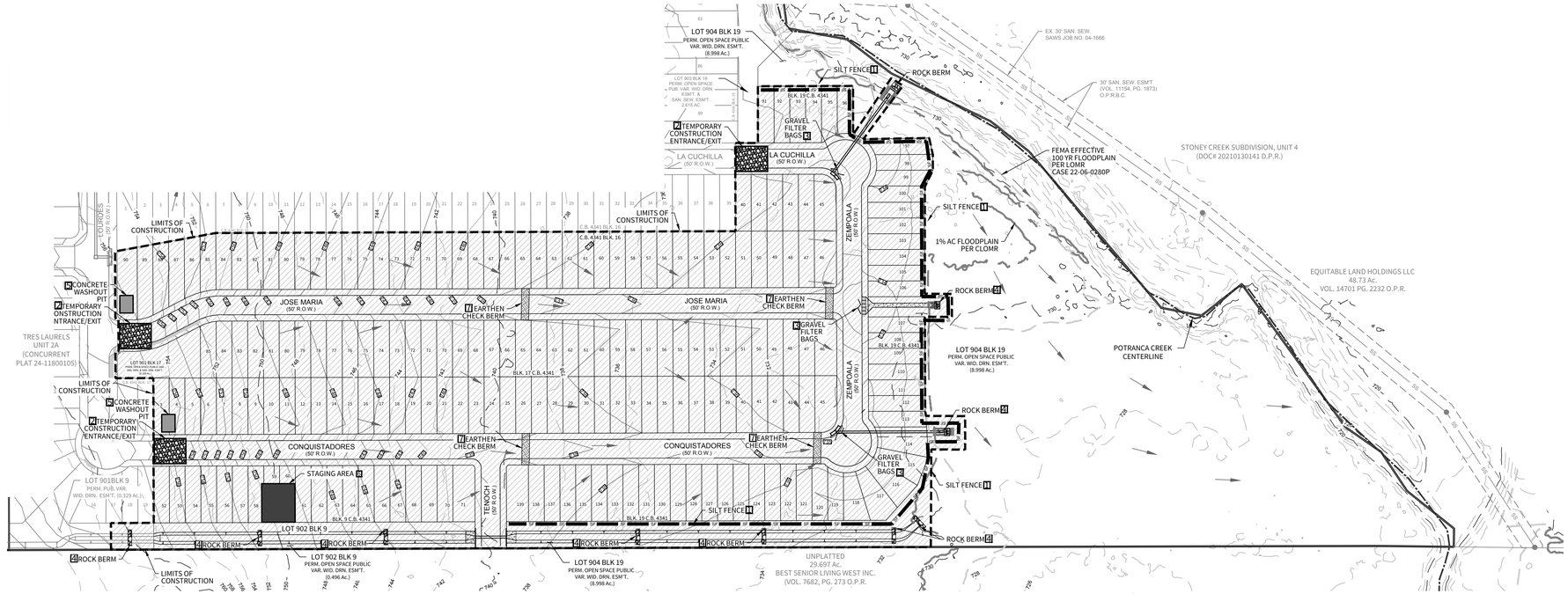
N.T.S.

OWNER/DEVELOPER:

LENNAR HOMES
CONTACT PERSON: RICHARD MOTT
1922 DRY CREEK WAY, SUITE 101
SAN ANTONIO, TEXAS 78259

CIVIL ENGINEER:

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



NOTE:

1. 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.
2. CONTRACTOR TO PROVIDE SILT FENCE ALONG BACK OF CURB POST-CONSTRUCTION OF STREET RIGHT-OF-WAY.
3. AREA OF SOIL DISTURBANCES INCLUDE STREET RIGHT-OF-WAYS, UTILITY EASEMENTS & LOTS.
4. THE BEXAR COUNTY 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.
5. INSTALL SILT FENCE "J" HOOKS AS NECESSARY AT AN INTERVAL NO GREATER THAN 50' TO COMPLETE INSTALLATION.
6. ALL SWPPP PERMITS AND TEMPORARY CONTROLS TO BE IN PLACE PRIOR TO COMMENCEMENT OF CONSTRUCTION.
7. 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.
8. 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.
9. EARTHEN BERMS TO BE INSTALLED WHILE ESTABLISHMENT OF GRADE AND VEGETATION. ROCK BERMS SHALL BE INSTALLED ONCE CHANNELS ARE TO FINAL GRADE AND VEGETATION IS ESTABLISHED.
10. FLOOPLAIN TO BE STAKED.

LEGEND

- PROPERTY LINE
- EXISTING CONTOURS — 930 —
- BMP ITEM NUMBER [1]
- TEMPORARY CONSTRUCTION ENTRANCE/EXIT
- SILT FENCE — SF —
- FLOW ARROW EX. GROUND
- FLOW ARROW PROP. GROUND
- STAGING AREA
- CONCRETE WASHOUT PIT
- LIMITS OF CONSTRUCTION TEMPORARY STABILIZATION
- ROCK BERM
- EARTHEN CHECK BERM

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San Antonio, Texas 78231
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TRES LAURELS UNIT 2B

STORMWATER POLLUTION PREVENTION PLAN

DATE
04/10/2025

PROJECT NO.
03050.018

DRAWN BY
JW

CHECKED BY
SPM/DF

REVISIONS
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04/10/2025
STATE OF TEXAS
MATTHEW A. TRINKLE
147558
LICENSED
PROFESSIONAL ENGINEER

CUDE ENGINEERS
TBPELS No. 10048500

PLAT NO.
24-11800283

C1.00

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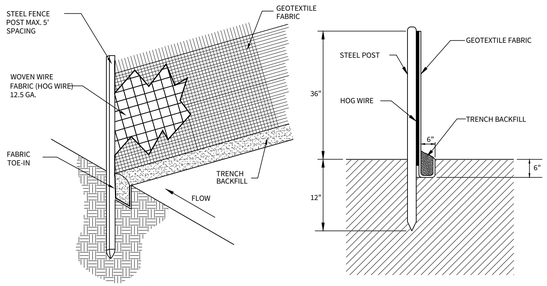
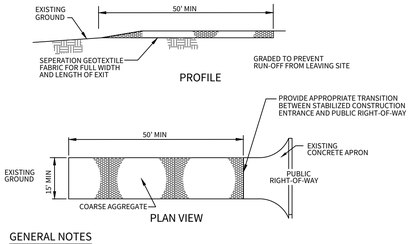


NOTES:

1. 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. SIEVE NO. 30.
2. FENCE POSTS SHOULD BE MADE OF HOT ROLLED STEEL, AT LEAST 4 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.
3. WOVEN WIRE BACKING TO SUPPORT THE FABRIC SHOULD BE GALVANIZED 2" X 4" WELDED WIRE, 12.5 GAUGE MINIMUM.
4. 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.
5. 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 ¼ ACRE/100 FEET OF FENCE.
6. 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 OUTCROP), WEIGHT FABRIC FLAP WITH 3 INCHES OF PEA GRAVEL ON UPHILL SIDE TO PREVENT FLOW FROM SEEPING UNDER FENCE.
7. 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.
8. 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.
9. SILT FENCE SHOULD BE REMOVED WHEN THE SITE IS COMPLETELY STABILIZED SO AS NOT TO BLOCK OR IMPEDE STORM FLOW OR DRAINAGE.
10. REMOVE SEDIMENT WHEN BUILDUP REACHES 6 INCHES, OR INSTALL A SECOND LINE OF FENCING PARALLEL TO THE OLD FENCE.
11. REPLACE ANY TORN FABRIC OR INSTALL A SECOND LINE OF FENCING PARALLEL TO THE TORN SECTION.
12. 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.

1 SILT FENCE DETAIL

SCALE: NONE



GENERAL NOTES

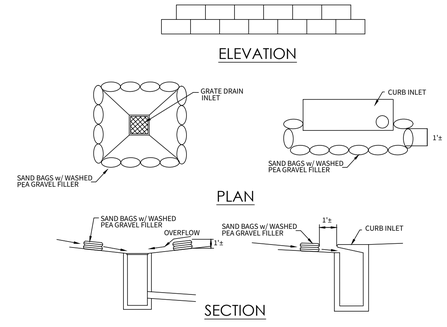
1. LENGTH SHALL BE AS SHOWN ON THE CONSTRUCTION DRAWINGS BUT NOT LESS THAN 50 FEET.
2. THICKNESS SHALL BE NOT LESS THAN 8 INCHES.
3. WIDTH SHALL BE NOT LESS THAN FULL WIDTH OF ALL POINTS OF INGRESS OR EGRESS.
4. STABILIZED AREA MAY BE WIDENED OR LENGTHENED TO ACCOMODATE A TRUCK WASHING AREA WHEN SHOWN ON THE CONSTRUCTION DRAWING. AN OUTLET SEDIMENT TRAP MUST BE PROVIDED FOR THE TRUCK WASHING AREA.
5. 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:

1. THE AGGREGATE SHOULD CONSIST OF 4 TO 8 INCH WASHED STONE OVER A STABLE FOUNDATION.
2. THE AGGREGATE SHOULD BE PLACED WITH A MINIMUM THICKNESS OF 8 INCHES.
3. 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.
4. AVOID CURVES ON PUBLIC ROADS AND STEEP SLOPES. REMOVE VEGETATION AND OTHER OBJECTIONABLE MATERIAL FROM THE FOUNDATION AREA. GRADE CROWN FOUNDATION FOR POSITIVE DRAINAGE.
5. THE MINIMUM WIDTH OF THE ENTRANCE/EXIT SHOULD BE 12 FEET OR THE FULL WIDTH OF EXIT ROADWAY, WHICHEVER IS GREATER.
6. THE CONSTRUCTION ENTRANCE SHOULD BE AT LEAST 50 FEET LONG.
7. PLACE GEOTEXTILE FABRIC AND GRADE FOUNDATION TO IMPROVE STABILITY, ESPECIALLY WHERE WET CONDITIONS ARE ANTICIPATED.
8. PLACE STONE TO DIMENSIONS AND GRADE SHOWN. LEAVE SURFACE SMOOTH AND SLOPE FOR DRAINAGE.
9. 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.
10. ALL SEDIMENT SPILLED, DROPPED, WASHED OR TRACKED ON TO PUBLIC RIGHTS-OF-WAY SHOULD BE REMOVED IMMEDIATELY BY CONTRACTOR.
11. WHEN NECESSARY, WHEELS SHOULD BE CLEANED TO REMOVE SEDIMENT PRIOR TO ENTRANCE ONTO PUBLIC RIGHT-OF-WAY.
12. 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.
13. ALL SEDIMENT SHOULD BE PREVENTED FROM ENTERING ANY STORM DRAIN, DITCH OR WATER COURSE.

2 TEMPORARY CONSTRUCTION ENTRANCE / EXIT

SCALE: NONE

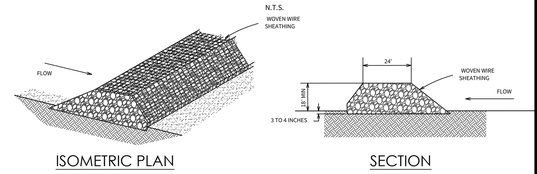


BAGGED GRAVEL INLET FILTER NOTES

1. 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.
2. THE BAG LENGTH SHOULD BE 24 INCHES, WIDTH SHOULD BE 18 INCHES AND THICKNESS SHOULD BE 6 INCHES.
3. THE GRAVEL BAGS SHOULD BE FILLED WITH ¾" GRAVEL .
4. 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.
5. 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.
6. INSPECTION SHOULD BE MADE WEEKLY AND AFTER EACH RAINFALL. REPAIR OR REPLACEMENT SHOULD BE MADE PROMPTLY AS NEEDED BY THE CONTRACTOR.
7. CHECK PLACEMENT OF DEVICE TO PREVENT GAPS BETWEEN DEVICE AND CURB.
8. 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.
9. STRUCTURES SHOULD BE REMOVED AND THE AREA STABILIZED ONLY AFTER THE REMAINING DRAINAGE AREA HAS BEEN PROPERLY STABILIZED.
10. BAGGED GRAVEL INLET FILTERS TO BE USED DURING THE LAND DEVELOPMENT STAGE AND NOT THE HOME DEVELOPMENT STAGE.

3 BAGGED GRAVEL INLET FILTER

SCALE: NONE

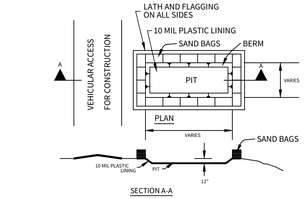


NOTES:

1. 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 SHOAT RINGS.
2. 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.
3. LAY OUT THE WOVEN WIRE SHEATHING PERPENDICULAR TO THE FLOW LINE.
4. BERM SHOULD HAVE A TOP WIDTH OF 2 FEET MINIMUM WITH SIDE SLOPES BEING 2:1 (H:V) OR FLATTER.
5. PLACE THE ROCK ALONG THE SHEATHING TO A HEIGHT NOT LESS THAN 18".
6. 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.
7. BERM SHOULD BE BUILT ALONG THE CONTOUR AT ZERO PERCENT GRADE OR AS NEAR AS POSSIBLE.
8. 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.
9. 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.
10. 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.
11. 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.
12. THE ROCK BERM SHOULD BE LEFT IN PLACE UNTIL ALL UPSTREAM AREAS ARE STABILIZED AND ACCUMULATED SILT REMOVED.

4 ROCK BERM DETAIL

SCALE: NONE

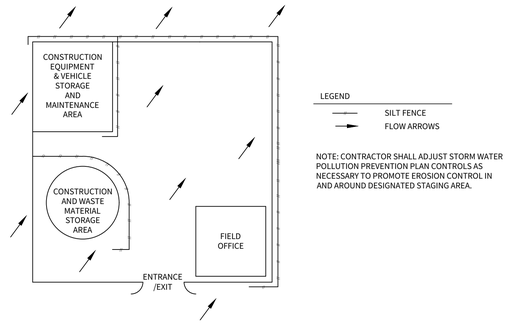


NOTES:

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

5 CONCRETE TRUCK WASHOUT PIT

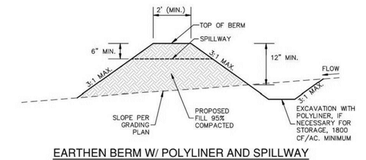
SCALE: NONE



NOTE: CONTRACTOR SHALL ADJUST STORM WATER POLLUTION PREVENTION PLAN CONTROLS AS NECESSARY TO PROMOTE EROSION CONTROL IN AND AROUND DESIGNATED STAGING AREA.

6 TYP. CONSTRUCTION STAGING AREA

SCALE: NONE



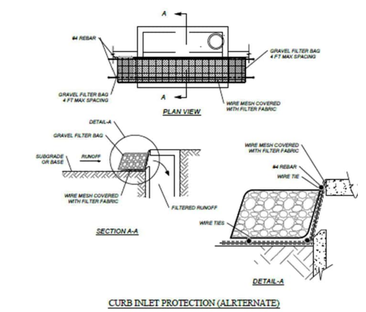
EARTHEN BERM W/ POLYLINER AND SPILLWAY

NOT TO SCALE

NOTE: EARTHEN BERMS ARE TO SPAN ACROSS PROPOSED STREET SECTION (APPROX. 30-FEET WIDE) FROM CURB TO CURB

7 EARTHEN CHECK BERM

SCALE: NONE



CURB INLET PROTECTION (ALTERNATE)

8 CURB INLET PROTECTION (ALTERNATE)

SCALE: NONE

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P:(210) 681.2951

TRES LAURELS UNIT 2B

STORMWATER POLLUTION PREVENTION PLAN STANDARD DETAILS

DATE 03/27/2025

PROJECT NO. 03050.018

DRAWN BY JW

CHECKED BY SPM/DF

REVISIONS

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04/22/2025

STATE OF TEXAS — MATTHEW A. TRINKLE — 147558 — LICENSED PROFESSIONAL ENGINEER

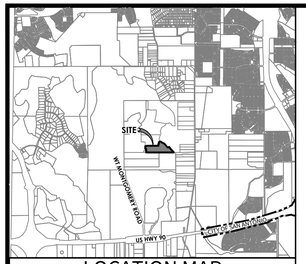
CUDE ENGINEERS
TBPELS No. 10048500

PLAT NO. 24-11800283

C1.D1

P:\03050\2025-2\WD\4 Plans\D_01 SWPPP\SWPPP.dwg 2025/03/27 1:53pm mmata

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.



LOCATION MAP

N.T.S.

OWNER/DEVELOPER:

LENNAR HOMES
CONTACT PERSON: RICHARD MOTT
1922 DRY CREEK WAY, SUITE 101
SAN ANTONIO, TEXAS 78259

CIVIL ENGINEER:

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

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 79G. HUD 79G REQUIREMENTS FOR FILL MATERIAL OF 6 INCHES AND MORE WILL BE CONDUCTED. ALL CUT AREAS WILL ALSO MEET THE REQUIREMENTS FOR HUD 79G COMPACTION TESTING. IN ADDITION, ENGINEERS MUST PROVIDED VERIFICATION OF ALL AREAS WHICH DO NOT REQUIRE HUD 79G.

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 THD--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.

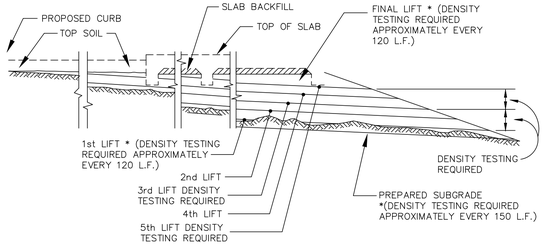
11. DENSITY TESTS

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 REWORKED 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.



DENSITY TEST FREQUENCY

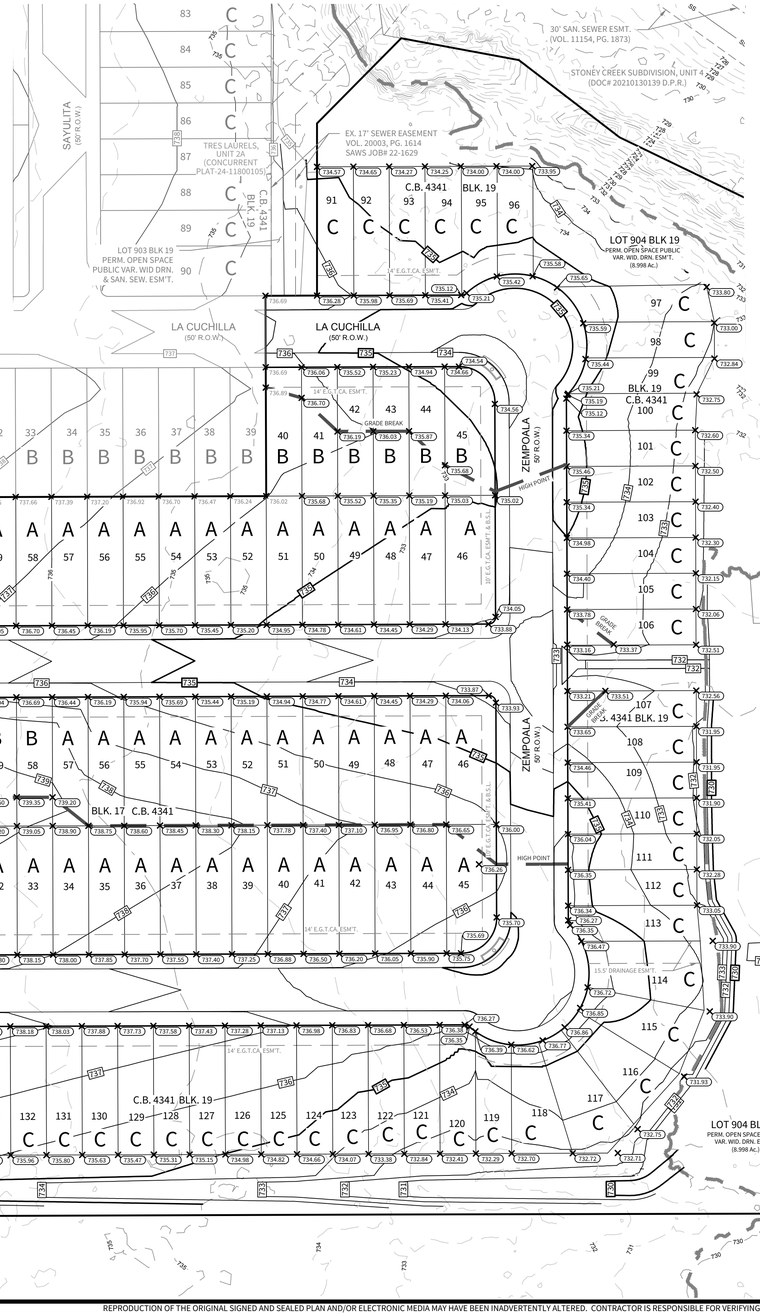
NOT TO SCALE

SCALE: 1"=50'

0 50 100

LEGEND

PROPOSED CONTOUR	1000
EXISTING CONTOUR	1000
PROPOSED ELEVATION	297.50
EXISTING ELEVATION	972.00
GRADE BREAK	GRADE BREAK
CLOMR FLOODPLAIN	



NOTE:

LOT GRADING BASED ON SLABS BEING 20' BEHIND FRONT PROPERTY LINE.

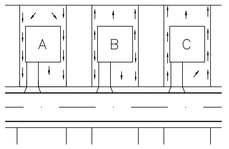
MINIMUM SLAB EXPOSURE IS 1.0'.

ALL ELEVATIONS AT FRONT PROPERTY LINE ARE 0.20' ABOVE CURB ELEVATION ON LOCAL TYPE "A" STREETS.

TYPICAL PAD SIZES ARE 65' x 15' ON LOCAL TYPE "A" STREETS.

CONTRACTOR TO REFERENCE TREE PRESERVATION PLAN.

CONTOURS SHOWN ON STREET ARE TOP OF STREET.



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TRES LAURELS UNIT 2B

SITE GRADING PLAN

DATE
04/22/2025

PROJECT NO.
03050.018

DRAWN BY
JW

CHECKED BY
SPM/DF

REVISIONS

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STATE OF TEXAS
MATTHEW A. TRINKLE
147558
LICENSED PROFESSIONAL ENGINEER
04/22/2025

CUDE ENGINEERS
TBPELS No. 10048500

PLAT NO.
24-11800283

C2.00

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.

*CONDUIT NOTES:

1. CONTRACTOR SHALL INSTALL PERMANENT MARKERS IN PROPOSED CURB WHERE CONDUITS CROSS THE ROADWAY (BOTH SIDES).
2. CONDUITS SHALL BE PVC WITH MINIMUM BURY OF 36 INCHES BELOW PROPOSED FINISHED GRADE. SCHEDULE 80 TO BE USED FOR CPS CONDUITS, ALL OTHER CONDUITS ARE SCHEDULE 40.
3. ALL CONDUITS SHALL BE EXTENDED BEHIND CURBS OR PROPOSED SIDEWALKS A MINIMUM OF 3 FEET AND CAPPED FOR FUTURE USE.
4. ALL CONDUIT SLEEVES TO BE USED FOR ELECTRIC GAS, OR TELECOMMUNICATION UTILITY CROSSINGS SHALL BE INSTALLED TO MEET OR EXCEED DESIGN REQUIREMENTS FOR THE UTILITY AGENCY WHICH THEY ARE SERVING, INCLUDING BUT NOT LIMITED TO THE DEPTH, TRENCH PLACEMENT, AND PROXIMITY TO OTHER UTILITIES. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR VERIFYING AND INSTALLING THE CONDUIT SLEEVES TO MEET THESE SPECIFICATIONS INCLUDING COORDINATING WITH THE UTILITY AGENCY FOR ANY REQUIRED INSPECTIONS.
5. CONDUIT ONLY TO BE INSTALLED IF STREET BASE AND DRAINAGE COMPLETION PRECEDES CPS UTILITY LINE INSTALLATION.
6. CONDUIT ONLY TO BE INSTALLED IF INSTALLATION IS AUTHORIZED BY THE DEVELOPER.

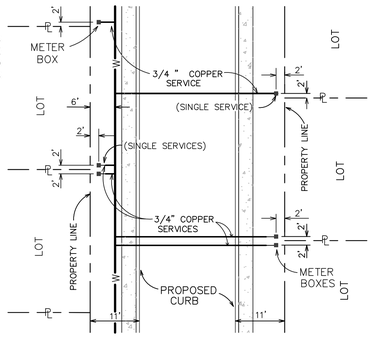
NOTE:

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



WATER METER BOX LOCATION
N.T.S.

LEGEND

EXISTING SANITARY SEWER	EX.8"SS
PROPOSED SANITARY SEWER	8"SS
EXISTING SANITARY SEWER MANHOLE	
PROPOSED SANITARY SEWER MANHOLE	
EXISTING WATER MAIN	EX.8"W
PROPOSED WATER MAIN	8"W
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	EX. OHE
PROPOSED OVERHEAD ELECTRIC	OHE
EXISTING GAS MAIN	EX.2"GAS
PROPOSED GAS MAIN	8"GAS
EXISTING POWER POLE	
PROPOSED POWER POLE	
PROPOSED LIGHT POLE	
ELECTRIC, GAS, TELEPHONE, & CABLE T.V. EASEMENT	E.G.T.CA. ESM'T
BUILDING SETBACK LINE	B.S.L.
LANDSCAPE	L.S.
UTILITY CONDUIT CROSSING	UTIL
IRRIGATION CONDUIT CROSSING	IRR

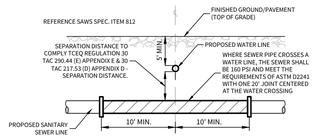
TRENCH EXCAVATION SAFETY PROTECTION

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.

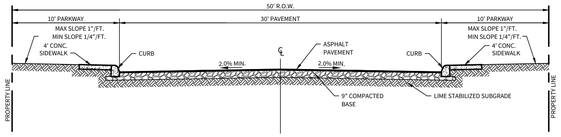
SCALE: 1"=50'
0 50 100

CAUTION!!!

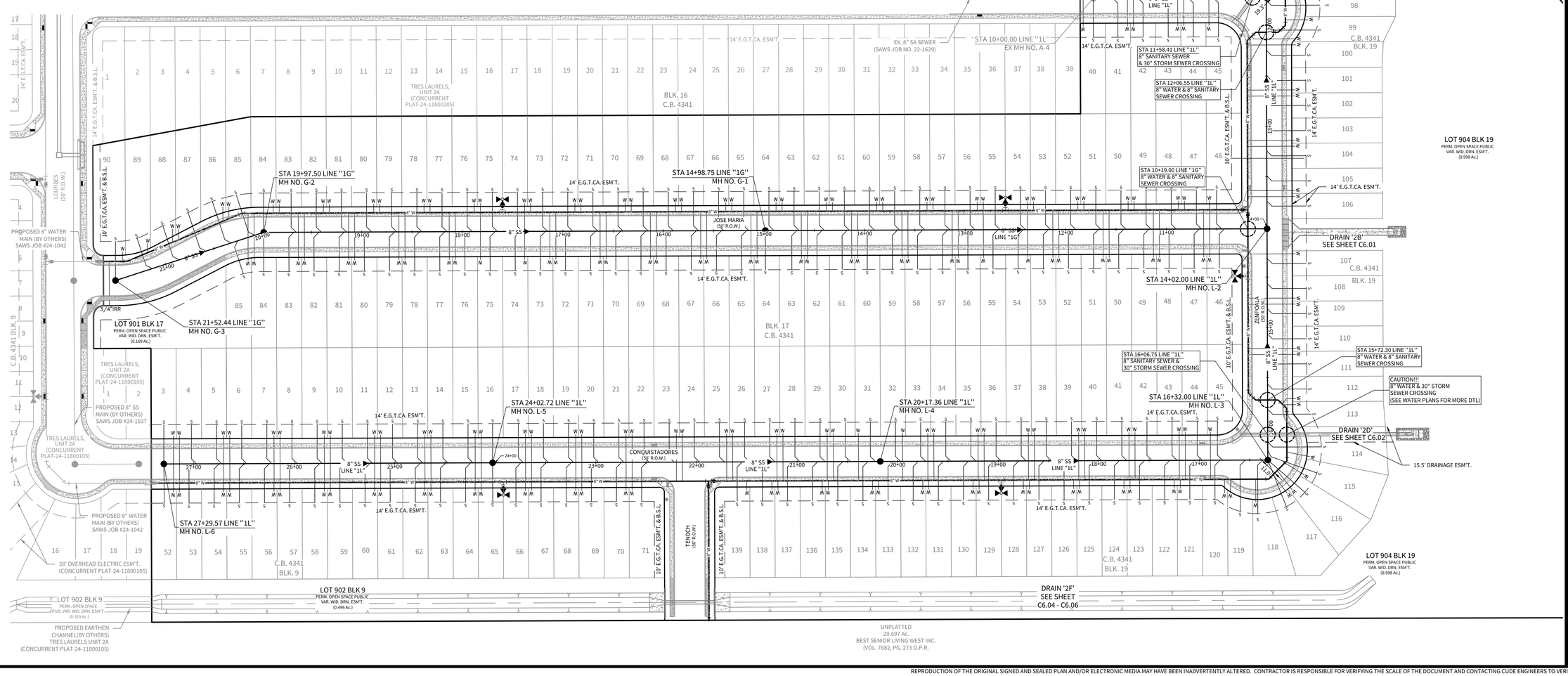
THE CONTRACTOR SHALL BE AWARE THAT UNDERGROUND DRAIN, ELECTRIC, GAS, SEWER AND WATER LINES EXIST ALONG LA CUCHILLA AND LOURDES. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO HAVE THESE UTILITIES LOCATED PRIOR TO COMMENCING CONSTRUCTION. THE CONTRACTOR SHALL USE EXTREME CAUTION WHEN WORKING IN THIS AREA.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



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



TYPICAL LOCAL "A" STREET CROSS-SECTION



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TRES LAURELS UNIT 2B

UTILITY LAYOUT PLAN

DATE
04/17/2025

PROJECT NO.
03050.018

DRAWN BY
JW

CHECKED BY
SPM/DF

REVISIONS
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STATE OF TEXAS
MATTHEW A. TRINKLE
147558
LICENSED
PROFESSIONAL ENGINEER
04/22/2025

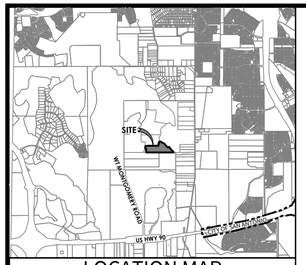
CUDE ENGINEERS
TBPELS No. 10048500

PLAT NO.
24-11800283

SAWS JOB NO.
24-1607

C3.00

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.



LOCATION MAP
N.T.S.

OWNER/DEVELOPER:

LENNAR HOMES
CONTACT PERSON: RICHARD MOTT
1922 DRY CREEK WAY, SUITE 101
SAN ANTONIO, TEXAS 78259

CIVIL ENGINEER:

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

CAUTION!!!

THE CONTRACTOR SHALL BE AWARE THAT UNDERGROUND DRAIN, ELECTRIC, GAS, SEWER AND WATER LINES EXIST ALONG LA CUCHILLA AND LOURDES. 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.

BENCHMARK BM-1

BENCHMARK TO BE SET BY ENGINEER PRIOR TO CONSTRUCTION.

SANITARY SEWER NOTES

1. 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.
2. NO VERTICAL STACKS SHALL BE ALLOWED, UNLESS OTHERWISE NOTED ON PLANS.
3. WHEN HORIZONTAL DISTANCE BETWEEN SEWER PIPES AND WATER MAIN IS LESS THAN 9 FT. OF SEPARATION, SEWER MAIN SHALL BE INSTALLED WITH 160 PSI (MIN) PRESSURE PIPE AND FITTINGS IN ACCORDANCE WITH SAWS CONSTRUCTION CRITERIA FOR CONSTRUCTION OF SEWER MAINS IN THE VICINITY OF WATER MAINS.
4. ALL SEWER PIPES SHALL BE PVC (SDR 26), UNLESS OTHERWISE NOTED.
5. 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.
6. CONTOURS SHOWN ARE GRAPHICAL USE ONLY.
7. MANHOLE OPENING ARE 30" AS PER TCEQ CHAPTER 217.55.
8. CONTRACTOR TO INSTALL PERMANENT MARKERS AT THE END OF ALL SEWER LATERALS, PER HOUSE LATERAL DETAIL DD-854-01.
9. ALL 6" SEWER LATERALS WILL BE SET AT A MINIMUM 2% SLOPE.

NOTES:

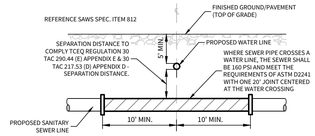
1. ALL EXCAVATED MATERIAL SHALL BE PLACED ON THE UPGRADIENT SIDE OF THE SEWER TRENCH THUS ALLOWING THE TRENCH TO INTERCEPT ANY SILT CONTAMINATED RUNOFF.
2. ALL LATERALS TO BE BUILT TO FRONT UTILITY EASEMENT LINE.
3. ALL LATERAL SHALL BE INSTALLED @ MIN. 2.0% SLOPE, UNLESS OTHERWISE NOTED.
4. ALL SANITARY 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	210-233-2010
CoSA DRAINAGE	210-207-2800
CITY SIDEWALK TRENCHING DIVISION	210-821-3240
CoSA TRAFFIC SIGNAL OPERATIONS	210-207-7765
TEXAS STATE WIDE ONE CALL LOCATOR	1-800-545-6005
CITY PUBLIC SERVICE	"
AT&T	"
TIME WARNER	"
VALERO ENERGY CO.	"

10. BACKFILL MUST COMPLY WITH SAWS SPECIFICATIONS 804.4.
11. 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.
12. 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.
13. ALL EXCAVATED MATERIAL SHALL BE PLACED ON THE UPGRADIENT SIDE OF THE SEWER TRENCH THUS ALLOWING THE TRENCH TO INTERCEPT ANY SILT CONTAINMENT RUNOFF.
14. ALL LATERALS TO BE BUILT TO FRONT UTILITY EASEMENT LINE.
15. 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.

KEYNOTES:

1. CONTRACTOR TO ADJUST MANHOLE TOP TO MATCH PROPOSED GRADING AND RECOAT MANHOLE PER SAWS SPECIFICATIONS
2. CONTRACTOR TO USE A LATERAL SADDLE TO MAKE SEWER LATERAL CONNECTION TO EXISTING MAIN



TYPICAL SANITARY SEWER/ WATER CROSSING DETAIL

N.T.S.

SEWER/WATER LINE CROSSINGS	
LINE	STATION
"1L"	12+06.55
"1L"	15+72.30
"1G"	10+19.00

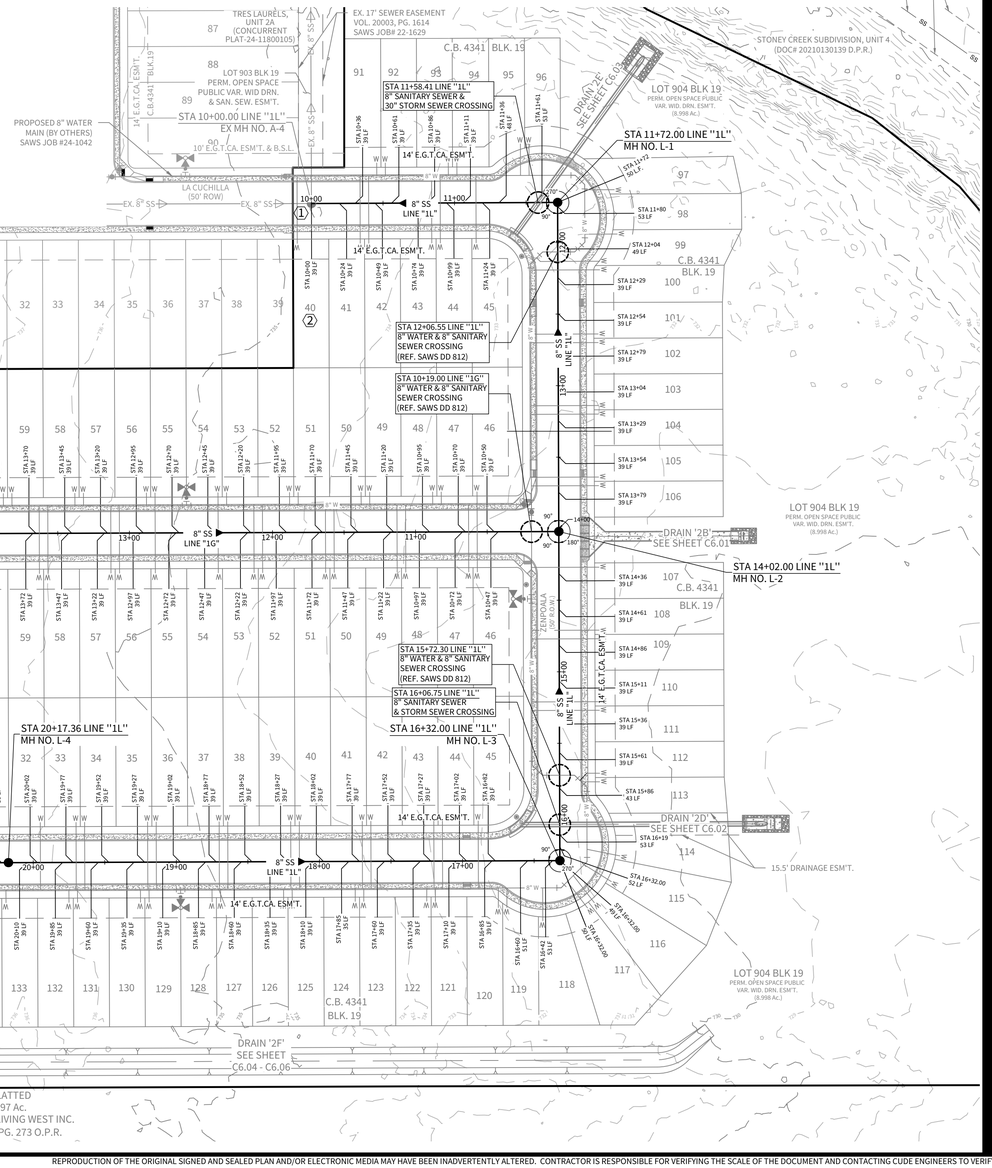
TRENCH EXCAVATION SAFETY PROTECTION

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.

SCALE: 1"=50'
0 50 100

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

Developer's Name	LENNAR HOMES OF TEXAS LAND AND CONSTRUCTION, LTD		
Developer's Address	100 NE LOOP 410, SUITE 1155		
City	SAN ANTONIO	State TX	Zip 78259
Phone #	210-403-6200	Fax #	-
SAWS Block Map #	082-566, 082-568, 084-566	Total EDU's	203
Total Linear Footage of Pipe	2,882 L.F. OF 8" SS - SDR 26	Total Acreage	23.93
Number of Lots	203	Plot No.	24-11800283
		SAWS Job No.	24-1607



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

TRES LAURELS UNIT 2B

SANITARY SEWER MASTER PLAN

DATE 04/17/2025
PROJECT NO. 03050.018
DRAWN BY JW
CHECKED BY SPM/DF

REVISIONS
1. 2. 3. 4. 5. 6. 7. 8. 9. 10.

04/22/2025
STATE OF TEXAS MATTHEW A. TRINKLE 147558 LICENSED PROFESSIONAL ENGINEER
CUDE ENGINEERS
TBPELS No. 10048500

PLAT NO. 24-11800283
SAWS JOB NO. 24-1607

C4.00

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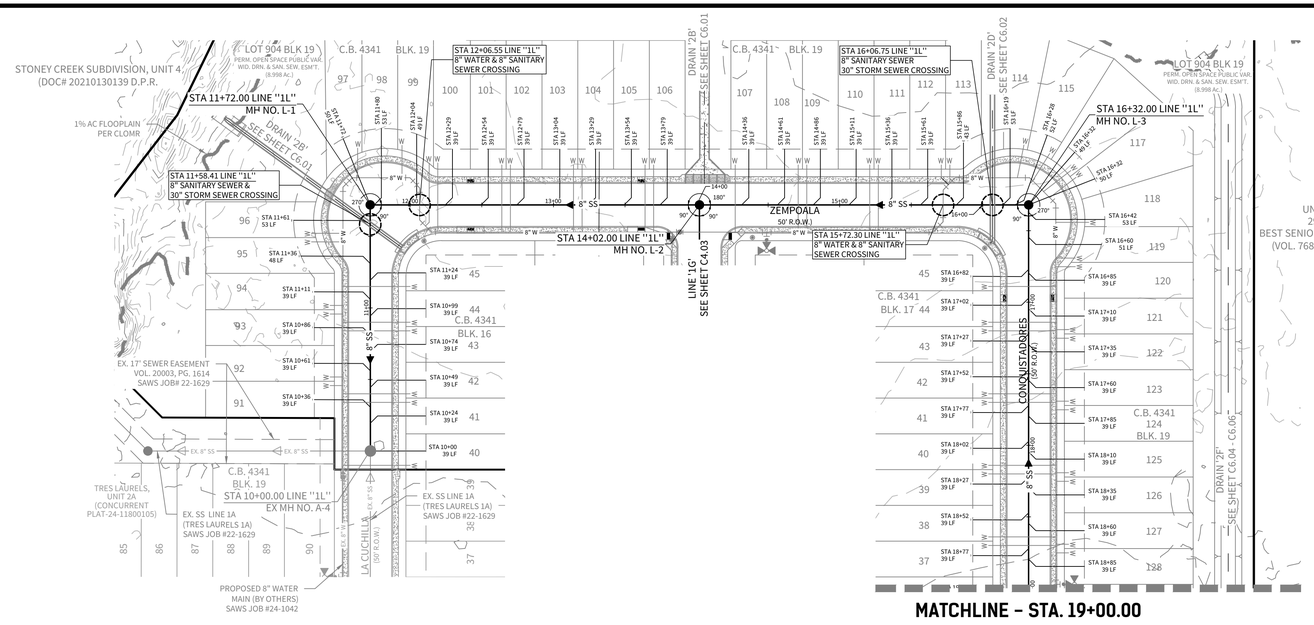

SCALE: 1"=50'
0 50 100

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

CAUTION!!!
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TRENCH EXCAVATION PROTECTION
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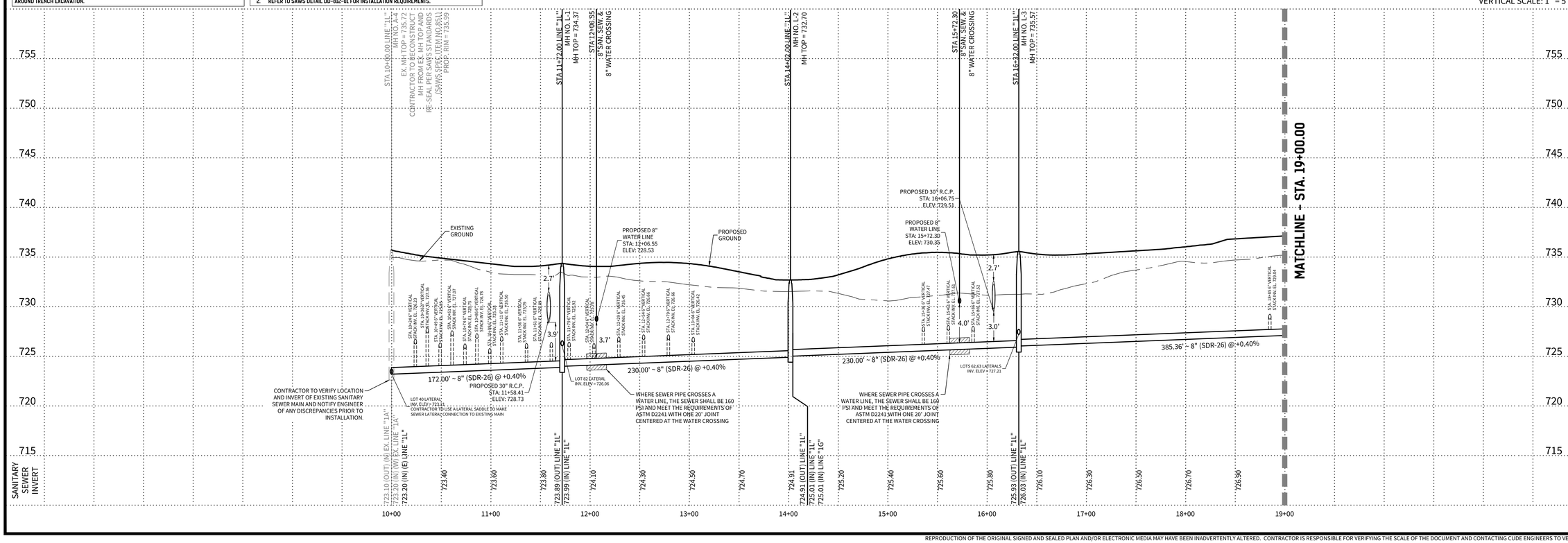
NOTE:
LATERALS FOR LOTS 71-74 BLOCK 19 AND THE SEWER AND WATER CROSSING AT STATION 13+83.00 DO NOT MAINTAIN TWO FEET OF VERTICAL SEPARATION BETWEEN THE WATER LINE. CONTRACTOR TO ADHERE TO TCEQ AND SAWS GUIDELINES.
1. EACH PORTION OF THE COLLECTION SYSTEM PIPE WITHIN NINE FEET OF THE WATER SUPPLY PIPE MUST BE CONSTRUCTED USING AT LEAST 150 PSI PRESSURE CLASS PIPE.
   1.A. HAVE AT LEAST 6 INCHES OF SEPARATION BETWEEN THE OUTSIDES OF THE PIPES, BE CENTERED ON THE CROSSING, BE AT LEAST 18 FEET LONG, AND TERMINATE AT JOINTS THAT ARE DESIGNED TO SEAL AT ATMOSPHERIC PRESSURE.
2. REFER TO SAWS DETAIL DD-812-01 FOR INSTALLATION REQUIREMENTS.

LINE "1L"

STA. 10+00.00 TO STA. 19+00.00

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



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

Developer's Name	LENNAR HOMES OF TEXAS LAND AND CONSTRUCTION, LTD				
Developer's Address	100 NE LOOP 410, SUITE 1155				
City	SAN ANTONIO	State	TX	Zip	78259
Phone #	210-403-6200	Fax #	-		
SAWS Block Map #	082-566, 082-568, 084-566	Total EDU's	203	Total Acreage	23.93
Total Linear Footage of Pipe	2,882 L.F. OF 8" SS - SDR 26			Plat No.	24-11800283
Number of Lots	203	SAWS Job No.			24-1607

CUDEENGINEERS.COM
CUDE ENGINEERS
4122 Pond Hill Road, Suite 101
San Antonio, Texas 78231
P:(210) 681.2951

TRES LAURELS UNIT 2B

SANITARY SEWER PLAN & PROFILE - LINE '1L'

DATE 04/17/2025
PROJECT NO. 03050.018
DRAWN BY JW
CHECKED BY SPM/DF

REVISIONS
1. 2. 3. 4. 5. 6. 7. 8. 9. 10.

04/22/2025
STATE OF TEXAS
MATTHEW A. TRINKLE
147558
LICENSED PROFESSIONAL ENGINEER
CUDE ENGINEERS
TBPELS No. 10048500

PLAT NO. 24-11800283
SAWS JOB NO. 24-1607

C4.01

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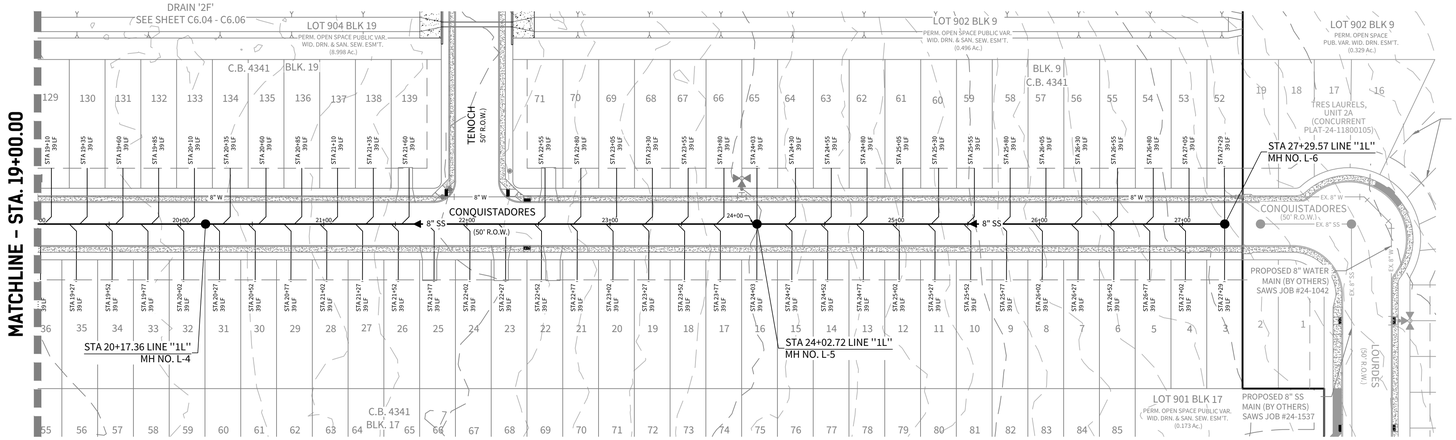

NOTE:
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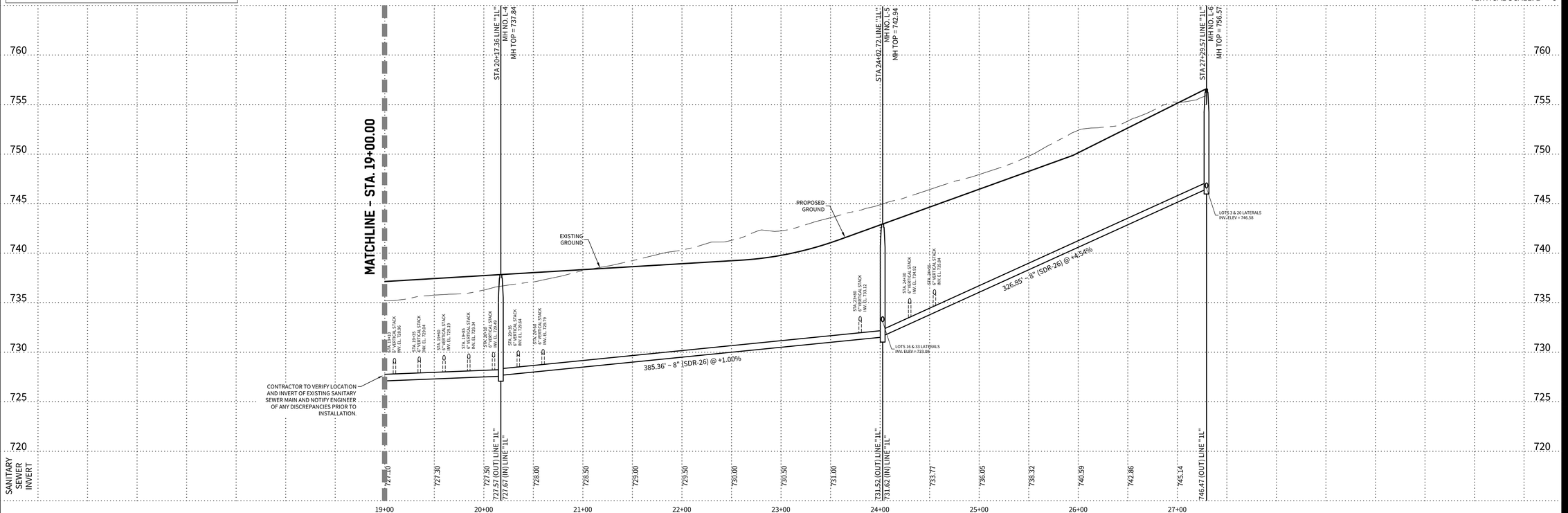
LINE "1L"

STA. 19+00.00 TO STA. 27+29.57

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



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

Developer's Name	LENNAR HOMES OF TEXAS LAND AND CONSTRUCTION, LTD				
Developer's Address	100 NE LOOP 410, SUITE 1155				
City	SAN ANTONIO	State	TX	Zip	78259
Phone #	210-403-6200	Fax #	-		
SAWS Block Map #	082-566, 082-568, 084-566	Total EDU's	203	Total Acreage	23.93
Total Linear Footage of Pipe	2,882 L.F. OF 8" SS – SDR 26			Plat No.	24-11800283
Number of Lots	203	SAWS Job No.			24-1607

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

TRES LAURELS UNIT 2B

SANITARY SEWER PLAN & PROFILE – LINE "1L"

DATE
03/27/2025

PROJECT NO.
03050.018

DRAWN BY
JW

CHECKED BY
SPM/DF

REVISIONS
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10.

04/22/2025
STATE OF TEXAS
MATTHEW A. TRINKLE
147558
LICENSED PROFESSIONAL ENGINEER

CUDE ENGINEERS
TBPELS No. 10048500

PLAT NO.
24-11800283

SAWS JOB NO.
24-1607

C4.02

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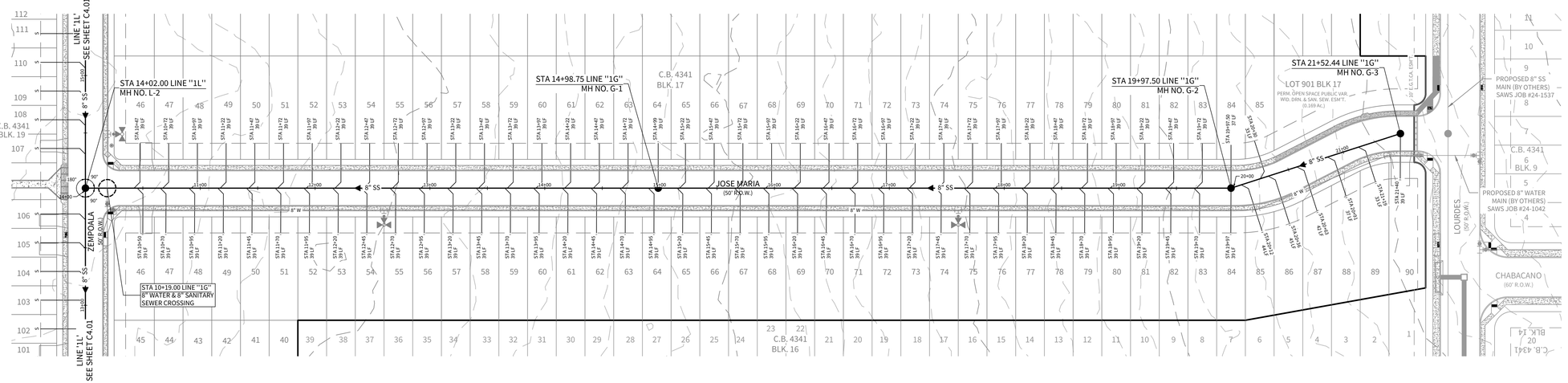

SCALE: 1"=50'
0 50 100

NOTE:
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NOTE:
LATERALS FOR LOTS 46-54 BLOCK 16 DO NOT MAINTAIN TWO FEET OF VERTICAL SEPARATION BETWEEN THE WATER LINE. CONTRACTOR TO ADHERE TO TCEQ AND SAWS GUIDELINES.
1. EACH PORTION OF THE COLLECTION SYSTEM PIPE WITHIN NINE FEET OF THE WATER SUPPLY PIPE MUST BE CONSTRUCTED USING AT LEAST 150 PSI PRESSURE CLASS PIPE.
   1.A. HAVE AT LEAST 6 INCHES OF SEPARATION BETWEEN THE OUTSIDES OF THE PIPES. BE CENTERED ON THE CROSSING, BE AT LEAST 18 FEET LONG, AND TERMINATE AT JOINTS THAT ARE DESIGNED TO SEAL AT ATMOSPHERIC PRESSURE.
2. REFER TO SAWS DETAIL DD-812-01 FOR INSTALLATION REQUIREMENTS.

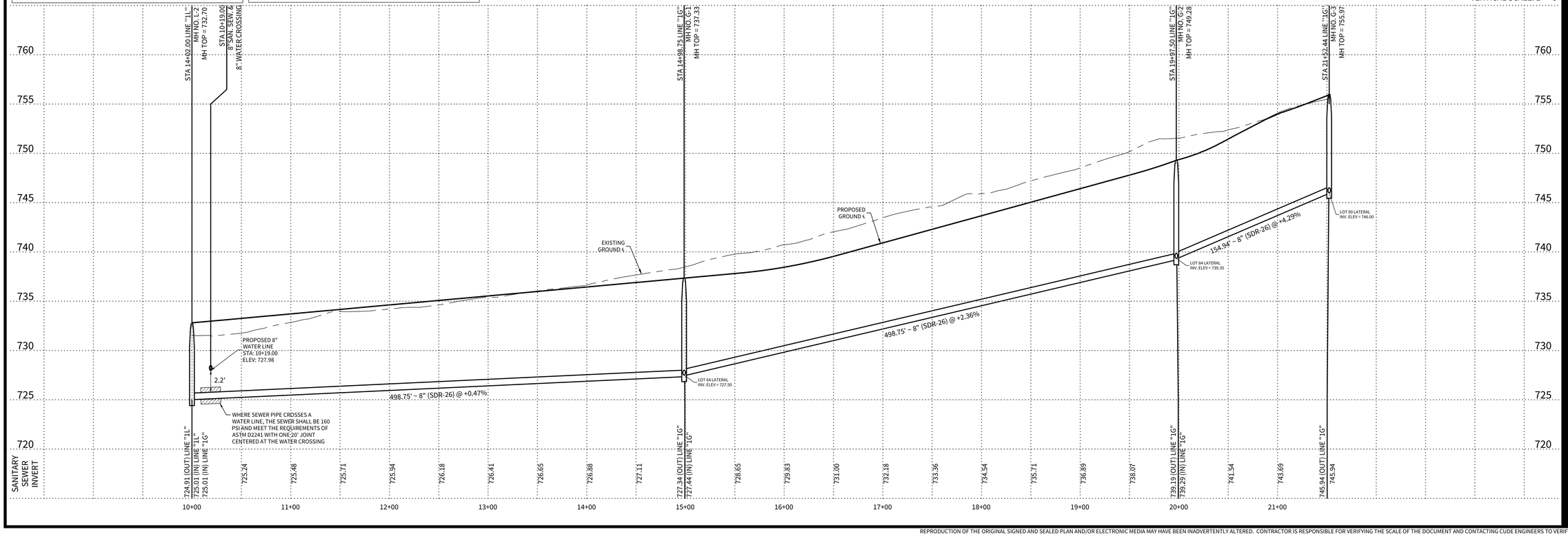
LINE "1G"

STA. 10+00.00 TO STA. 21+52.44

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

Developer's Name	LENNAR HOMES OF TEXAS LAND AND CONSTRUCTION, LTD		
Developer's Address	100 NE LOOP 410, SUITE 1155		
City	SAN ANTONIO	State TX	Zip 78259
Phone #	210-403-6200	Fax #	-
SAWS Block Map #	082-566, 082-568, 084-566	Total EDU's	203
Total Acreage	23.93		
Total Linear Footage of Pipe	2,882 L.F. OF 8" SS - SDR 26	Plat No.	24-11800283
Number of Lots	203	SAWS Job No.	24-1607

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



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

TRES LAURELS UNIT 2B

SANITARY SEWER PLAN & PROFILE - LINE '1G'

DATE 03/27/2025
PROJECT NO. 03050.018
DRAWN BY JW
CHECKED BY SPM/DF

REVISIONS
1.
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04/22/2025
STATE OF TEXAS
MATTHEW A. TRINKLE
147558
LICENSED PROFESSIONAL ENGINEER
CUDE ENGINEERS
TBPELS No. 10048500

PLAT NO. 24-11800283
SAWS JOB NO. 24-1607

C4.03

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

GENERAL CONSTRUCTION

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:
   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", TAC 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 PUBLIC WORKS CONSTRUCTION".
   E. CURRENT CITY OF SAN ANTONIO "UTILITY EXCAVATION CRITERIA MANUAL" (UECM).
2. THE CONTRACTOR SHALL NOT PROCEED WITH ANY PIPE INSTALLATION WORK UNTIL THEY OBTAIN A COPY OF THE APPROVED COUNTER PERMIT OR GENERAL CONSTRUCTION PERMIT (GCP) FROM THE CONSULTANT AND HAS BEEN NOTIFIED BY SAWS CONSTRUCTION INSPECTION DIVISION TO PROCEED WITH THE WORK AND HAS ARRANGED A MEETING WITH THE INSPECTOR AND CONSULTANT FOR THE WORK REQUIREMENTS. WORK COMPLETED BY THE CONTRACTOR WITHOUT AN APPROVED COUNTER PERMIT AND/OR A GCP WILL BE SUBJECT TO REMOVAL AND REPLACEMENT AT THE EXPENSE OF THE CONTRACTORS AND/OR THE DEVELOPER.
3. THE CONTRACTOR SHALL OBTAIN THE SAWS STANDARD DETAILS FROM THE SAWS WEBSITE, HTTP://WWW.SAWS.ORG/BUSINESS_CENTER/SPECS. UNLESS OTHERWISE NOTED WITHIN THE DESIGN PLANS.
4. THE CONTRACTOR IS TO MAKE ARRANGEMENTS WITH THE SAWS CONSTRUCTION INSPECTION DIVISION AT 233-2973, ON NOTIFICATION PROCEDURES THAT WILL BE USED TO NOTIFY AFFECTED HOME RESIDENTS AND/OR PROPERTY OWNERS 48 HOURS PRIOR TO BEGINNING ANY WORK.
5. LOCATION AND DEPTH 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 AT LEAST 1 WEEK 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 AT LEAST 1-2 WEEKS PRIOR TO CONSTRUCTION WHETHER SHOWN ON PLANS OR NOT. PLEASE ALLOW UP TO 7 BUSINESS DAYS FOR LOCATES REQUESTING PIPE LOCATION MARKERS ON SAWS FACILITIES. THE FOLLOWING CONTACT INFORMATION ARE SUPPLIED FOR VERIFICATION PURPOSES:
   - SAWS UTILITY LOCATES: HTTP://WWW.SAWS.ORG/SERVICE/LOCATES
   - COSA DRAINAGE (210) 207-0724 OR (210) 207-6026
   - COSA TRAFFIC SIGNAL OPERATIONS (210) 206-8480
   - COSA TRAFFIC SIGNAL DAMAGES (210) 207-3951
   - TEXAS STATE WIDE 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 IF DAMAGES ARE MADE AS A RESULT OF THE PROJECT'S CONSTRUCTION.
8. ALL WORK IN TEXAS DEPARTMENT OF TRANSPORTATION (TXDOT) AND/OR BEXAR COUNTY RIGHT-OF-WAY SHALL BE DONE IN ACCORDANCE WITH RESPECTIVE CONSTRUCTION SPECIFICATIONS AND PERMIT REQUIREMENTS.
9. THE CONTRACTOR SHALL COMPLY WITH CITY OF SAN ANTONIO OR OTHER GOVERNING MUNICIPALITY'S TREE ORDINANCES WHEN EXCAVATING NEAR TREES.
10. THE CONTRACTOR SHALL NOT PLACE ANY WASTE MATERIALS IN THE 100-YEAR FLOOD PLAIN WITHOUT FIRST OBTAINING AN APPROVED FLOOD PLAIN PERMIT.
11. HOLIDAY WORK: CONTRACTORS WILL NOT BE ALLOWED TO PERFORM SAWS WORK ON SAWS RECOGNIZED HOLIDAYS. REQUEST SHOULD BE SENT TO CONSTWORKREQ@SAWS.ORG.
    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.
    ANY AND ALL SAWS UTILITY WORK INSTALLED WITHOUT HOLIDAY/WEEKEND APPROVAL WILL BE SUBJECT TO BE UNCOVERED FOR PROPER INSPECTION.
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.
13. A COPY OF ALL TESTING REPORTS SHALL BE FORWARDED TO SAWS CONSTRUCTION INSPECTION DIVISION.

SEWER NOTES

1. THE CONTRACTOR IS RESPONSIBLE FOR ENSURING THAT NO SANITARY SEWER OVERFLOW (SSO) OCCURS AS A RESULT OF THEIR WORK. ALL CONTRACTORS 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 TELEVISING THE AFFECTED SEWER MAINS (AT SAWS DIRECTION) WITHIN 25 HOURS.

   SHOULD THE CONTRACTOR FAIL TO ADDRESS AN SSO IMMEDIATELY AND TO SAWS SATSIFACTION, 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.

SANITARY SEWER NOTES

1. 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.
2. NO VERTICAL STACKS SHALL BE ALLOWED, UNLESS OTHERWISE NOTED ON PLANS.
3. WHEN HORIZONTAL DISTANCE BETWEEN SEWER PIPES AND WATER MAIN IS LESS THAN 9 FT. OF SEPARATION, SEWER MAIN SHALL BE INSTALLED WITH 160 PSI (MIN) PRESSURE PIPE AND FITTINGS IN ACCORDANCE WITH SAWS CONSTRUCTION CRITERIA FOR CONSTRUCTION OF SEWER MAINS IN THE VICINITY OF WATER MAINS.
4. ALL SEWER PIPES SHALL BE PVC (SDR 26), UNLESS OTHERWISE NOTED.
5. 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.
6. CONTOURS SHOWN ARE GRAPHICAL USE ONLY.
7. MANHOLE OPENING ARE 30" AS PER TCEQ CHAPTER 217.55.
8. CONTRACTOR TO INSTALL PERMANENT MARKERS AT THE END OF ALL SEWER LATERALS, PER HOUSE LATERAL DETAIL DD-854-01.
9. ALL 6" SEWER LATERALS WILL BE SET AT A MINIMUM 2% SLOPE.
10. BACKFILL MUST COMPLY WITH SAWS SPECIFICATIONS 804.4.
11. 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.
12. 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.
13. ALL EXCAVATED MATERIAL SHALL BE PLACED ON THE UPGRADIENT SIDE OF THE SEWER TRENCH THUS ALLOWING THE TRENCH TO INTERCEPT ANY SILT CONTAINMENT RUNOFF.
14. ALL LATERALS TO BE BUILT TO FRONT UTILITY EASEMENT LINE.
15. 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.

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 (TNRCC) 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.

TCEQ – 30 TAC290.44(e)

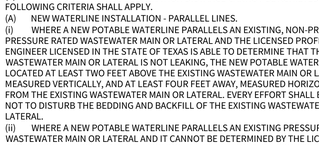
(e) LOCATION OF WATERLINES. THE FOLLOWING RULES APPLY TO INSTALLATIONS OF WATERLINES, WASTEWATER MAINS OR LATERALS, AND OTHER CONVEYANCES/APPURTENANCES IDENTIFIED AS POTENTIAL SOURCES OF CONTAMINATION. FURTHERMORE, ALL RATINGS SPECIFIED SHALL BE DEFINED BY ASTM OR AWWA STANDARDS UNLESS STATED OTHERWISE. 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) WHERE 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 NEW WASTEWATER LINE, MEASURED VERTICALLY, AND AT LEAST FOUR FEET AWAY, MEASURED HORIZONTALLY, FROM THE REPLACED WASTEWATER MAIN OR LATERAL.
(iii) WHERE A NEW POTABLE WATERLINE PARALLELS A NEW WASTEWATER MAIN, THE WASTEWATER MAIN OR LATERAL SHALL BE CONSTRUCTED OF 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.
(iii) 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. THE POTABLE WATERLINE SHALL BE AT LEAST TWO FEET ABOVE 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. THE MATERIALS AND METHOD OF INSTALLATION SHALL CONFORM TO ONE OF THE FOLLOWING OPTIONS:
(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.

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.



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

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

Developer's Name	LENNAR HOMES OF TEXAS LAND AND CONSTRUCTION, LTD		
Developer's Address	100 NE LOOP 410, SUITE 1155		
City	SAN ANTONIO	**State** TX	**Zip** 78259
Phone #	210-403-6200	**Fax #**	-
SAWS Block Map #	082-566, 082-568, 084-569	**Total EDU's**	203
Total Acreage	23.93		
Total Linear Footage of Pipe	2,882 L.F. OF 8" SS – SDR 26	**Plat No.**	24-11800283
Number of Lots	203	**SAWS Job No.**	24-1607

CUDEENGINEERS.COM

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

TRES LAURELS UNIT 2B

SANITARY SEWER GENERAL NOTES & DETAILS

DATE 04/17/2025
PROJECT NO. 03050.018
DRAWN BY JW
CHECKED BY SPM/DF

REVISIONS
1.
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3.
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9.
10.

04/22/2025

STATE OF TEXAS · MATTHEW A. TRINKLE · 147558 · LICENSED PROFESSIONAL ENGINEER

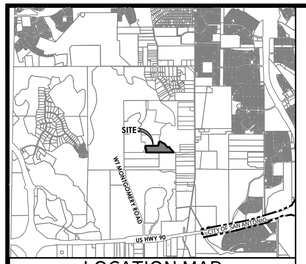
CUDE ENGINEERS
TBPELS No. 10048500

PLAT NO. 24-11800283
SAWS JOB NO. 24-1607

C4.D1

P:\03050\02\16-2 Civil\C4.0 Plans\D4_GS SSDP.dwg, 2025/04/17 7:53am, Matt Trinkle

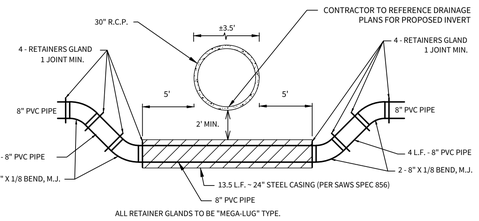
REPRODUCTION OF THE ORIGINAL SIGNED AND SEALED PLAN AND/OR ELECTRONIC MEDIA MAY HAVE BEEN INADVERTENTLY ALTERED. CONTRACTOR IS RESPONSIBLE FOR VERIFYING THE SCALE OF THE DOCUMENT AND CONTACTING CUDE ENGINEERS TO VERIFY DISCREPANCIES PRIOR TO CONSTRUCTION.



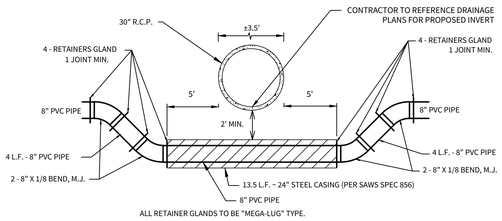
LOCATION MAP
N.T.S.

LEGEND

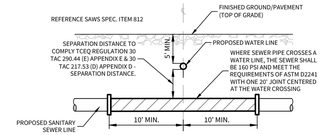
EXISTING SANITARY SEWER	EX.8"SS
PROPOSED SANITARY SEWER	8"SS
EXISTING SANITARY SEWER MANHOLE	
PROPOSED WATER MAIN	8"W
EXISTING WATER MAIN	EX. 8"W
EXISTING STANDARD FIRE HYDRANT	
PROPOSED STANDARD FIRE HYDRANT	
PROPOSED STANDARD GATE VALVE	
PROPOSED PERMANENT BLOWOFF	
ELECTRIC, GAS, TELEPHONE, & CABLE T.V. EASEMENT	E.G.T.CA. ESM'T
PROPOSED 3/4" WATER SERVICE WITH 5/8" METER	



DETAIL 'A' - DRAIN '2D'/ WATER CROSSING
SIDE VIEW (THIS DETAIL IS VERTICAL ONLY, NOT HORIZONTAL.) N.T.S.



DETAIL 'B' - DRAIN '2E'/ WATER CROSSING
SIDE VIEW (THIS DETAIL IS VERTICAL ONLY, NOT HORIZONTAL.) N.T.S.



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

OWNER/DEVELOPER:

LENNAR HOMES
CONTACT PERSON: RICHARD MOTT
1922 DRY CREEK WAY, SUITE 101
SAN ANTONIO, TEXAS 78259

CIVIL ENGINEER:

M.W. CUDE ENGINEERS, L.L.C.
CONTACT PERSON: SEAN McFARLAND, P.E.
4122 POND HILL ROAD, 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.

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.

KEYNOTES:

1 FOR CHLORINATION INJECTION:
2 - 1" CORPORATION STOP, C.C. X I.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 STOP
CONTRACTOR SHALL PROVIDE A 2" JUMPER CONNECTION TO LOAD NEW MAIN.

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

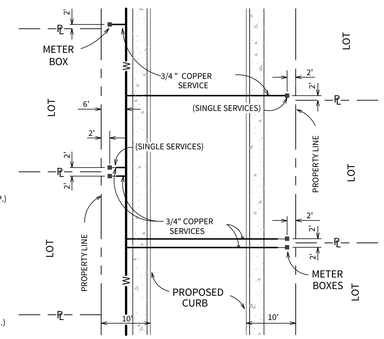
8" VALVE TO REMAIN CLOSED UNTIL AFTER DISINFECTION & ACCEPTANCE BY SAWS

1 - 8" SOLID SLEEVE, M.J.

1 - 2" BLOWOFF ASSEMBLY (TEMP.)
1 - 8" M.J. X 2" THR. DI. ECCENTRIC REDUCER (TEMP.)
SEE SAWS STD. DWG. DD-844-01 (SHEET 2 OF 4)

2 1 - STD. FIRE HYDRANT ASSEMBLY (SEE S.A.W.S. STD. DWG DD-834-01)
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 - 6" D.J. PIPE, CUT AS REQ'D.

3 1 - 2" BLOWOFF ASSEMBLY (PERM.)
1 - 8" M.J. X 2" THR. DI. ECCENTRIC REDUCER (PERM.)
SEE SAWS STD. DWG. DD-844-01 (SHEET 2 OF 4)
1 - 2" X 2" TEE, M.J. ANCHOR
1 - 8" GATE VALVE, M.J.
1 - 6" VALVE BOX, COMPLETE
SEE S.A.W.S. STD. DWG DD-844-02



WATER METER BOX LOCATION
N.T.S.

SAWS PRESSURE ZONE 930

Developer's Name	LENNAR HOMES OF TEXAS LAND AND CONSTRUCTION, LTD		
Developer's Address	100 NE LOOP 410, SUITE 1155		
City	SAN ANTONIO	State TX	Zip 78259
Phone #	210-403-6200	Fax #	-
SAWS Block Map #	082-566, 082-568, 084-566	Total EDU's 204.5	Total Acreage 23.93
Total Linear Footage of Pipe	8" - 3,150 L.F.		Plat No. 24-11800283
Number of Lots	203	SAWS Job No.	XX-XXXX

SCALE: 1"=50'
0 50 100

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

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.

CUDEENGINEERS.COM
CUDE ENGINEERS EST. 1980
4122 Pond Hill Road, Suite 101
San Antonio, Texas 78231
P:(210) 681.2951

TRES LAURELS UNIT 2B

WATER DISTRIBUTION MASTER PLAN

DATE
04/22/2025

PROJECT NO.
03050.018

DRAWN BY
JW

CHECKED BY
SPM/DF

REVISIONS
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04/22/2025
STATE OF TEXAS
MATTHEW A. TRINKLE
147558
LICENSED PROFESSIONAL ENGINEER

CUDE ENGINEERS
TBPELS No. 10048500

PLAT NO.
24-11800283

SAWS JOB NO.

C5.00

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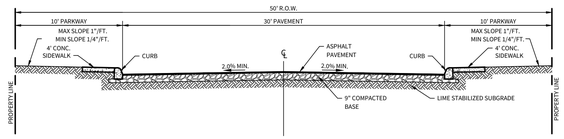
SAWS STANDARD GENERAL CONSTRUCTION NOTES ASSOCIATED WITH 2021 SAWS STANDARD SPECS *REVISED DECEMBER 2021*

GENERAL CONSTRUCTION

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:
   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", TAC 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 PUBLIC WORKS CONSTRUCTION".
   E. CURRENT CITY OF SAN ANTONIO "UTILITY EXCAVATION CRITERIA MANUAL" (UECM).
2. THE CONTRACTOR SHALL NOT PROCEED WITH ANY PIPE INSTALLATION WORK UNTIL THEY OBTAIN A COPY OF THE APPROVED COUNTER PERMIT OR GENERAL CONSTRUCTION PERMIT (GCP) FROM THE CONSULTANT AND HAS BEEN NOTIFIED BY SAWS CONSTRUCTION INSPECTION DIVISION TO PROCEED WITH THE WORK AND HAS ARRANGED A MEETING WITH THE INSPECTOR AND CONSULTANT FOR THE WORK REQUIREMENTS. WORK COMPLETED BY THE CONTRACTOR WITHOUT AN APPROVED COUNTER PERMIT AND/OR A GCP WILL BE SUBJECT TO REMOVAL AND REPLACEMENT AT THE EXPENSE OF THE CONTRACTORS AND/OR THE DEVELOPER.
3. THE CONTRACTOR SHALL OBTAIN THE SAWS STANDARD DETAILS FROM THE SAWS WEBSITE, HTTP://WWW.SAWS.ORG/BUSINESS_CENTER/SPECS. UNLESS OTHERWISE NOTED WITHIN THE DESIGN PLANS.
4. THE CONTRACTOR IS TO MAKE ARRANGEMENTS WITH THE SAWS CONSTRUCTION INSPECTION DIVISION AT 233-2973, ON NOTIFICATION PROCEDURES THAT WILL BE USED TO NOTIFY AFFECTED HOME RESIDENTS AND/OR PROPERTY OWNERS 48 HOURS PRIOR TO BEGINNING ANY WORK.
5. LOCATION AND DEPTH 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 AT LEAST 1 WEEK 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 AT LEAST 1-2 WEEKS PRIOR TO CONSTRUCTION WHETHER SHOWN ON PLANS OR NOT. PLEASE ALLOW UP TO 7 BUSINESS DAYS FOR LOCATES REQUESTING PIPE LOCATION MARKERS ON SAWS FACILITIES. THE FOLLOWING CONTACT INFORMATION ARE SUPPLIED FOR VERIFICATION PURPOSES:
   - SAWS UTILITY LOCATES: HTTP://WWW.SAWS.ORG/SERVICE/LOCATES
   - COSA DRAINAGE (210) 207-0724 OR (210) 207-6026
   - COSA TRAFFIC SIGNAL OPERATIONS (210) 206-8480
   - COSA TRAFFIC SIGNAL DAMAGES (210) 207-3951
   - TEXAS STATE WIDE 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 IF DAMAGES ARE MADE AS A RESULT OF THE PROJECT'S CONSTRUCTION.
8. ALL WORK IN TEXAS DEPARTMENT OF TRANSPORTATION (TXDOT) AND/OR BEXAR COUNTY RIGHT-OF-WAY SHALL BE DONE IN ACCORDANCE WITH RESPECTIVE CONSTRUCTION SPECIFICATIONS AND PERMIT REQUIREMENTS.
9. THE CONTRACTOR SHALL COMPLY WITH CITY OF SAN ANTONIO OR OTHER GOVERNING MUNICIPALITY'S TREE ORDINANCES WHEN EXCAVATING NEAR TREES.
10. THE CONTRACTOR SHALL NOT PLACE ANY WASTE MATERIALS IN THE 100-YEAR FLOOD PLAIN WITHOUT FIRST OBTAINING AN APPROVED FLOOD PLAIN PERMIT.
11. HOLIDAY WORK: CONTRACTORS WILL NOT BE ALLOWED TO PERFORM SAWS WORK ON SAWS RECOGNIZED HOLIDAYS. REQUEST SHOULD BE SENT TO CONSTWORKREQ@SAWS.ORG.

    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.

    ANY AND ALL SAWS UTILITY WORK INSTALLED WITHOUT HOLIDAY/WEEKEND APPROVAL WILL BE SUBJECT TO BE UNCOVERED FOR PROPER INSPECTION.
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.
13. A COPY OF ALL TESTING REPORTS SHALL BE FORWARDED TO SAWS CONSTRUCTION INSPECTION DIVISION.



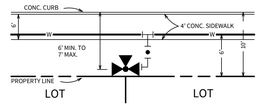
TYPICAL LOCAL "A" STREET CROSS-SECTION

WATER SECTION

1. 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
2. ASBESTOS CEMENT (AC) PIPE, ALSO KNOWN AS TRANSITE PIPE WHICH IS KNOWN TO CONTAIN ASBESTOSCONTAINING MATERIAL (ACM), MAY BE LOCATED WITHIN THE PROJECT LIMITS. SPECIAL WASTE MANAGEMENT PROCEDURES AND HEALTH AND SAFETY REQUIREMENTS WILL BE APPLICABLE WHEN REMOVAL AND/OR DISTURBANCE OF THIS PIPE OCCURS. SUCH WORK IS TO BE MADE UNDER SPECIAL SPECIFICATION ITEM NO. 3000, "SPECIAL SPECIFICATION FOR HANDLING ASBESTOS CEMENT PIPE".
3. VALVE REMOVAL: WHERE THE CONTRACTOR IS TO ABANDON A WATER MAIN, THE CONTROL VALVE LOCATED ON THE ABANDONING BRANCH WILL BE REMOVED AND REPLACED WITH A CAP/PLUG. (NSPI)
4. 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.
5. ALL VALVES SHALL READ "OPEN RIGHT".
6. PRVS REQUIRED: CONTRACTOR TO VERIFY THAT NO PORTION OF THE TRACT IS BELOW GROUND ELEVATION OF 951 FEET WHERE THE STATIC PRESSURE WILL NORMALLY EXCEED 80 PSI. AT ALL SUCH LOCATIONS WHERE THE GROUND LEVEL IS BELOW 951 FEET, THE DEVELOPER OR BUILDER SHALL INSTALL AT EACH LOT, ON THE CUSTOMER'S SIDE OF THE METER, AN APPROVED TYPE PRESSURE REGULATOR IN CONFORMANCE WITH THE PLUMBING CODE OF THE CITY OF SAN ANTONIO. NO DUAL SERVICES ALLOWED FOR ANY LOT(S) IF *PRV IS/ARE REQUIRED FOR SUCH LOT(S), ONLY SINGLE SERVICE CONNECTIONS SHALL BE ALLOWED. *NOTE: A PRESSURE REGULATOR IS ALSO KNOWN AS A PRESSURE REDUCING VALVE (PRV).
7. PIPE DISINFECTION WITH DRY HTH FOR PROJECTS LESS THAN 800 LINEAR FEET. (ITEM NO. 847.3): MAINS SHALL BE DISINFECTED WITH DRY HTH 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.
8. BACKFLOW PREVENTION DEVICES:

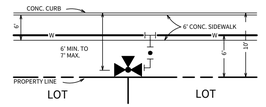
   ☐ ALL IRRIGATION SERVICES WITHIN RESIDENTIAL AREAS ARE REQUIRED TO HAVE BACKFLOW PREVENTION DEVICES.

   ☐ ALL COMMERCIAL BACKFLOW PREVENTION DEVICES MUST BE APPROVED BY SAWS PRIOR TO INSTALLATION.
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.
10. DIVISION VALVES SHOWN ON PLANS OR NOT SHOWN ON PLANS BUT FOUND IN THE FIELD SHALL ONLY BE OPERATED BY SAWS DISTRIBUTION AND COLLECTION STAFF AND ONLY WITH PRIOR WRITTEN APPROVAL OF THE SAWS DIRECTOR OF PRODUCTION AND OPERATIONS AND PROPER COORDINATION WITH ALL SAWS DEPARTMENTS. CONTRACTOR SHALL PROVIDE WRITTEN NOTIFICATION TO THE INSPECTOR A MINIMUM OF TWO WEEKS IN ADVANCE TO START THE COORDINATION PROCESS AND WILL BE INFORMED BY THE INSPECTOR WHEN THE DIVISION VALVE WILL BE OPERATED BY THE SAWS DISTRIBUTION AND COLLECTION STAFF. THE DIVISION VALVE CAN ONLY BE OPERATED BY SAWS DISTRIBUTION AND COLLECTION STAFF MEMBER NOT THE INSPECTOR OR THE CONTRACTOR. OPERATION OF A DIVISION VALVE WITHOUT THE EXPRESS PRIOR WRITTEN APPROVAL OF THE SAWS DISTRIBUTION AND COLLECTION STAFF WILL CONSTITUTE A MATERIAL BREACH OF ANY WRITTEN SAWS CONTRACT OR PERMIT IN ADDITION TO SUBJECTING THE CONTRACTOR TO LIABILITY FOR ANY AND ALL FINES, FEES, OR OTHER DAMAGES, DIRECT OR CONSEQUENTIAL, THAT MAY ARISE FROM OR BE CAUSED BY THE OPERATION OF THE VALVE WITHOUT PRIOR WRITTEN PERMISSION. PLEASE BE INFORMED THAT THE APPROVAL OF THE OPERATION OR OPENING OR CLOSING OF A DIVISION VALVE CAN TAKE SEVERAL WEEKS FOR APPROVAL. DIVISION VALVES WILL ALSO HAVE A VALVE LID LABELED DIVISION VALVE AND A LOCKING MECHANISM INSTALLED WITH A KEY. THE LOCK AND KEY MECHANISM WILL BE PAID FOR BY THE CONTRACTOR BUT WILL BE INSTALLED BY SAWS DISTRIBUTION AND COLLECTION STAFF
11. 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.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
12. ALL PIPES SHALL BE C900 CLASS 235 DR-18, UNLESS OTHERWISE NOTED.
13. ALL METERS SHALL BE 5/8", UNLESS OTHERWISE NOTED.



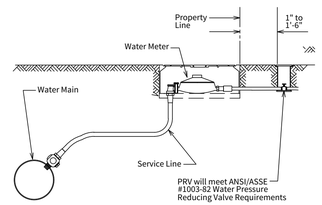
NOTE:
1. EXCLUSIVE OF THE TEE, PAYMENT FOR THE FIRE HYDRANT SHALL INCLUDE ALL FITTINGS, 6" D.I. PIPE AND 6" GATE VALVE & BOX.
2. FIRE HYDRANT TO BE INSTALLED OUTSIDE OF THE LIMITS OF ALL PROPOSED SIDEWALKS.

TYPICAL FIRE HYDRANT DETAIL (4' SIDEWALK/ 50' ROW)
N.T.S.



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.

TYPICAL FIRE HYDRANT DETAIL (6' SIDEWALK/ 60' ROW)
N.T.S.



3/4" THRU 2" SERVICE PRESSURE REDUCING VALVE
N.T.S.

SAWS PRESSURE ZONE 930

Developer's Name	LENNAR HOMES OF TEXAS LAND AND CONSTRUCTION, LTD		
Developer's Address	100 NE LOOP 410, SUITE 1155		
City	SAN ANTONIO	State TX	Zip 78259
Phone #	210-403-6200	Fax #	-
SAWS Block Map #	082-560, 082-568, 084-566	Total EDU's 204.5	Total Acreage 23.93
Total Linear Footage of Pipe	8" - 3,150 L.F.	Plat No.	24-11800283
Number of Lots	203	SAWS Job No.	XX-XXXX

CAUTION!!!

THE CONTRACTOR SHALL BE AWARE THAT UNDERGROUND DRAIN, ELECTRIC, GAS, WATER AND SEWER LINES EXIST ALONG LA CUCHILLA AND LOURDES. 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.

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.

CUDEENGINEERS.COM

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

TRES LAURELS UNIT 2B

WATER DISTRIBUTION NOTES & DETAILS

DATE 04/17/2025

PROJECT NO. 03050.018

DRAWN BY JW

CHECKED BY SPM/DF

REVISIONS
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04/22/2025

STATE OF TEXAS · MATTHEW A. TRINKLE · 147558 · LICENSED PROFESSIONAL ENGINEER

CUDE ENGINEERS
TBPELS No. 10048500

PLAT NO. 24-11800283

SAWS JOB NO. XX-XXXX

C5.D1

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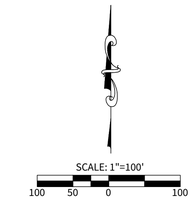
REPRODUCTION OF THE ORIGINAL SIGNED AND SEALED PLAN AND/OR ELECTRONIC MEDIA MAY HAVE BEEN INADVERTENTLY ALTERED. CONTRACTOR IS RESPONSIBLE FOR VERIFYING THE SCALE OF THE DOCUMENT AND CONTACTING CUDE ENGINEERS TO VERIFY DISCREPANCIES PRIOR TO CONSTRUCTION.

LOCATION MAP
N.T.S.

Project Name: Tres Laurels – Unit 2B — **Precipitation** — **PA4**

Calculation Summary for Time of Concentrations & Ultimate Flow (USED FOR SIZING CURB INLET AND VERIFYING STREET CAPACITY)

HYDROLOGY				Sheet Flow Tc Compuations						Shallow Conc. Tc Compuations					Concentrated Tc Computations				Overall	INTENSITY				Q FLOW				
Drainage Shed/ Computation Point	Shed Area (Ac.)	AREA OF ACCUMULATION (Ac.)	C	*Length < 100'*	N-Value	Upstream Elev.	Downstream Elev	Slope	Time of Concentration	*Length*	Paved (Y or N)	Downstream Elev	Slope	Time of Concentration	*Length*	Velocity (fps)	Downstream Elev	Time of Concentration	Time of Concentration (min)	I5	I10	I25	I100	Q5	Q10	Q25	Q100	Drainage Shed	
1	6.20		0.75	*100*	0.24	756.7	755.3	1.4%	15.0	*1328.9*	Y	732.86	1.7%	8.30					23	4.21	4.86	5.77	7.17	19.58	22.60	26.83	33.34	1	2E
2	9.94		0.75	*100*	0.24	780.0	774.3	5.7%	8.47	*1656.0*	Y	732.97	2.5%	8.59					17	4.91	5.68	6.76	8.42	36.60	42.34	50.40	62.77	2	2B
3	5.62		0.75	*100*	0.24	769.9	764.1	5.9%	8.4	*1283.4*	Y	734.90	2.3%	6.98					15	5.24	6.08	7.24	9.03	22.09	25.63	30.52	38.06	3	2D
4	1.77		0.75	*100*	0.24	738.8	737.5	1.3%	15.3						*535.61*	2.25	729.98	3.97	19	4.63	5.36	6.37	7.93	6.15	7.12	8.46	10.53	4	2F
5	1.25		0.75	*78.51*	0.24	750.0	748.0	2.6%	9.6						*311.93*	2.83	737.08	1.84	11	6.02	7.05	8.43	10.54	5.64	6.61	7.90	9.88	5	2F
6	3.08		0.75	*100*	0.24	788.0	785.5	2.5%	11.8	*494.6*	N	759.29	5.3%	2.21					14	5.42	6.31	7.53	9.39	12.52	14.58	17.39	21.69	6	2F
J1	0.00	4.33	0.75	*100*	0.24	788.0	785.5	2.5%	11.8	*511.2*	N	759.29	5.1%	2.32	*544.93*	4.56	737.08	1.99	16	5.06	5.87	6.99	8.71	16.43	19.06	22.70	28.29	J1	2F
J2	0.00	6.10	0.75	*100*	0.24	788.0	785.5	2.5%	11.8	*511.2*	N	759.29	5.1%	2.32	*1204.07*	4.20	729.98	4.78	18	4.76	5.51	6.56	8.16	21.78	25.21	30.01	37.33	J2	2F



OWNER/DEVELOPER:

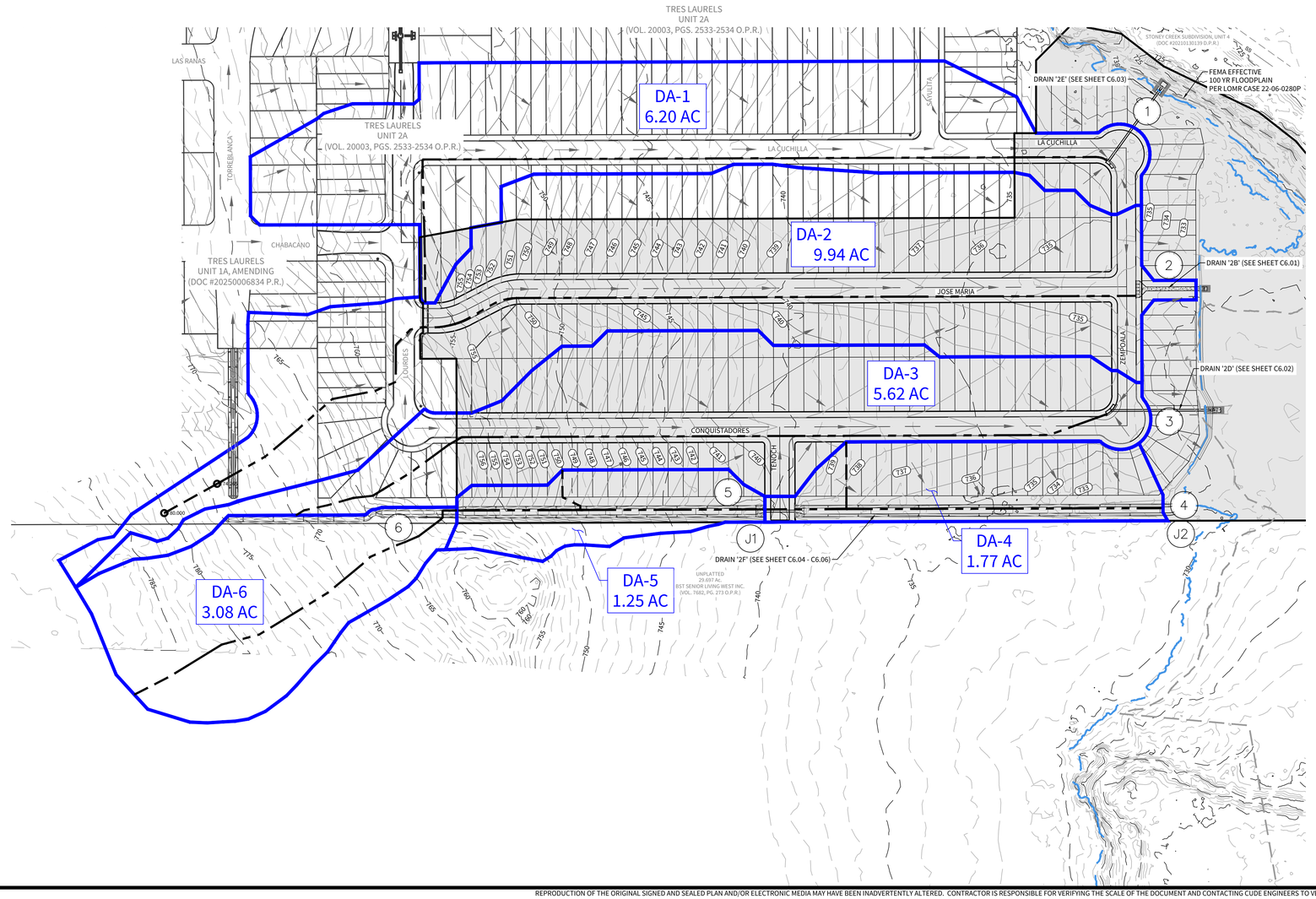
LENNAR HOMES
CONTACT PERSON: RICHARD MOTT
1922 DRY CREEK WAY, SUITE 101
SAN ANTONIO, TEXAS 78259

CIVIL ENGINEER:

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

LEGEND

- SITE BOUNDARY
- DRAINAGE AREA
- 1% CHANCE ANNUAL FEMA F/P
- Tc FLOW PATH
- FLOW ARROW PROP. GROUND
- FLOW ARROW EX. GROUND
- ACCUMULATION POINT (XX)



CUDEENGINEERS.COM

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

TRES LAURELS UNIT 2B

ULTIMATE MASTER DRAINAGE PLAN

DATE
07/17/2025

PROJECT NO.
03050.018

DRAWN BY
JW

CHECKED BY
SPM/DF

REVISIONS
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07/28/2025
STATE OF TEXAS
MATTHEW A. TRINKLE
147558
LICENSED
PROFESSIONAL ENGINEER

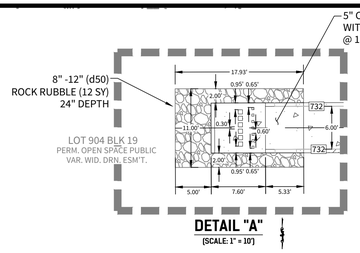
CUDE ENGINEERS
TBPELS No. 10048500

PLAT NO.
24-11800283

C6.00

P:\03050\003\CD\Drawings\08_dmp_Unit-2B.dwg, 2025/07/31 10:18:am, milla

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.



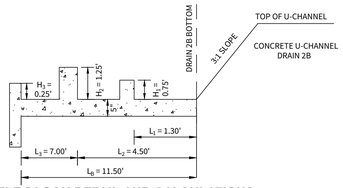
DETAIL "A"
(SCALE: 1" = 10')

NOTES:

1. REFER TO GENERAL NOTES AND SPECIFICATIONS C0.00.
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, SEECING, OR SODDING & WATERING FOR THE TIME PERIOD NEEDED TO ACHIEVE 85% VEGETATION.
8. REFERENCE TYPICAL CONCRETE CHANNEL RIP-RAP STANDARDS FOUND ON SHEET C6.03.
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

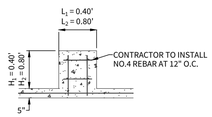
ROCK RIP RAP NOTES:

1. TOP OF ROCK RIP-RAP TO BE SET FLUSH WITH PROPOSED GRADE OF THE CHANNEL.
2. CONTRACTOR TO COMPACT SUBGRADE BELOW LIMITS OF ROCK RIP-RAP TO 95% STANDARD PROCTOR.
3. ROCK RIP-RAP TO BE INSTALLED TO A DEPTH TWO (2) FEET BELOW PROPOSED GROUND SHOWN ON THESE PLANS. SHOULD COMPETENT BEDROCK BE ENCOUNTERED AT A DEPTH SHALLOWER THAN TWO FEET (2'), CONTRACTOR TO INSTALL ROCK RIP-RAP DIRECTLY ON TOP OF COMPETENT BEDROCK.
4. ROCK SIZE — 6"-16", D_{50} = 12"
   ROCK UNIT WEIGHT — 157 PCF MIN.
   VOIDS — 35% MAX.

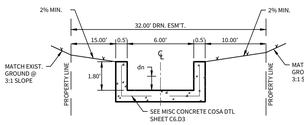


BAFFLE BLOCK DETAIL AND CALCULATIONS
(N.T.S.)

TAILWATER DEPTH = 0
Fr = 1.004
Y_C = 1.19 FT
Y_2 = 1.56 FT
Y_3 = 1.19 FT
BASIN OUTLET VELOCITY = 5.73 FT/S

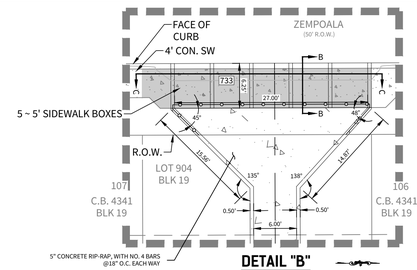


BAFFLE BLOCK
DRAIN "2B" REINFORCEMENT DETAIL
(N.T.S.)



DRAIN "2B" SECTION
(N.T.S.)
"A–A" STA. 1+80.84 TO STA. 2+85.20

	"A-A"
Q_{25} (cfs)	50.40
B_W (ft)	6
z	-
n	0.015
S (%)	0.50
d_n (ft)	1.29
V (fps)	6.51
SHEAR STRESSS 25YR	0.28



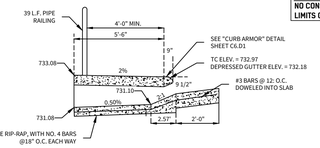
DETAIL "B"
(SCALE: 1" = 10')

GENERAL SPECIFICATIONS FOR COMPACTED FILL

1. 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 THD–TEX–113–E COMPACTION PROCEDURE.
2. THE MATERIALS USED SHALL BE FREE FROM ORGANIC MATTER AND OTHER DELETERIOUS SUBSTANCES, SUCH AS TREES, BRUSH AND RUBBISH.
3. 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.

BEXAR COUNTY FLOODPLAIN GENERAL CONSTRUCTION NOTE:

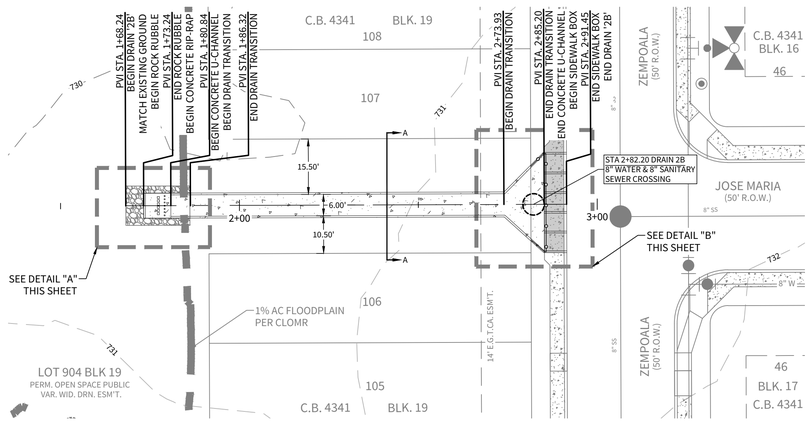
NO CONSTRUCTION AND/OR WASTE MATERIAL SHALL BE PLACED IN EXISTING LOWS THAT WILL BLOCK OR ALTER FLOW LIMITS OF EXISTING NATURAL DRAINAGE OR PLACED WITHIN THE LIMITS OF EXISTING FLOODPLAIN.



DRAIN 2B
SECTION "B–B"
SIDEWALK BOX DETAIL SECTION
(N.T.S)

TRENCH EXCAVATION PROTECTION

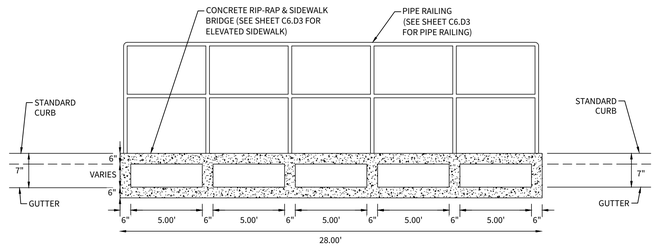
CONTRACTOR AND/OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR STRUCTURAL DESIGN/GEOTECHNICAL/SAFETY/EQUIPMENT CONSULTANT, IF ANY, SHALL REVIEW THESE PLANS AND AVAILABLE GEOTECHNICAL INFORMATION AND THE ANTICIPATED INSTALLATION SITE(S) WITHIN THE PROJECT WORK AREA IN ORDER TO IMPLEMENT CONTRACTOR'S 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.



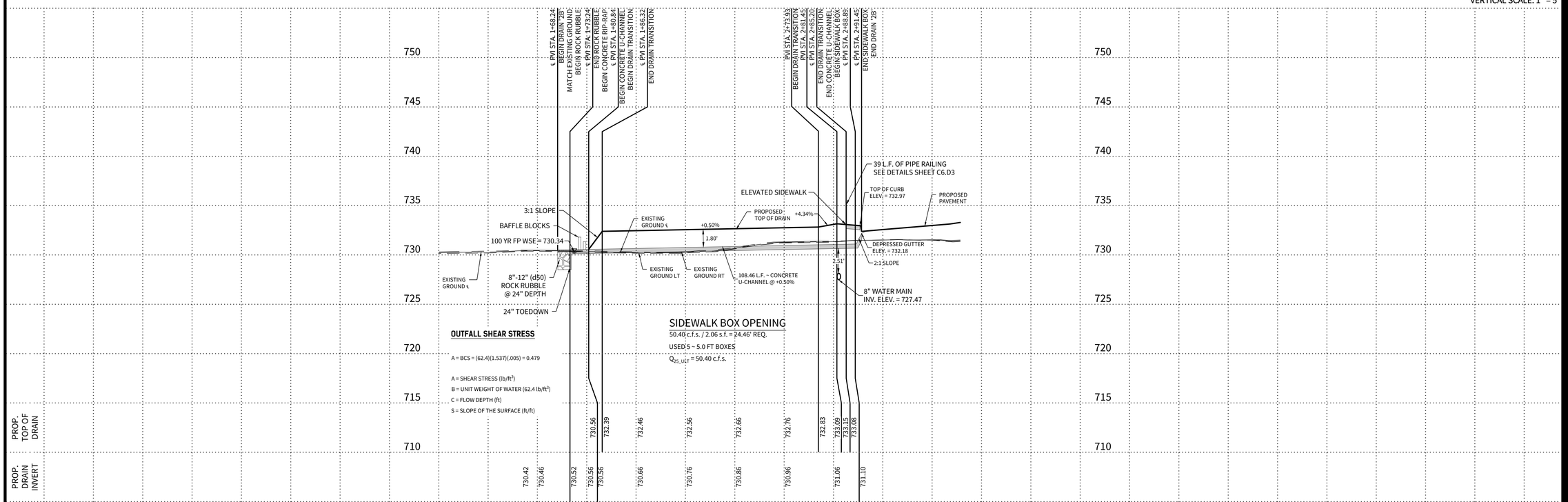
DRAIN '2B'

STA. 1+68.24 TO STA. 2+91.45

DRAIN 2B
SECTION "C–C"
SECTION THRU SIDEWALK BOX
(N.T.S)



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



CUDEENGINEERS.COM

CUDE ENGINEERS

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

TRES LAURELS
UNIT 2B

DRAIN PLAN & PROFILE - DRAIN '2B'

DATE
07/31/2025

PROJECT NO.
03050.018

DRAWN BY
JW

CHECKED BY
SPM/DF

REVISIONS
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07/30/2025
STATE OF TEXAS
MATTHEW A. TRINKLE
147558
LICENSED PROFESSIONAL ENGINEER

CUDE ENGINEERS
TBPELS No. 10048500

PLAT NO.
24-11800283

C6.01

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.

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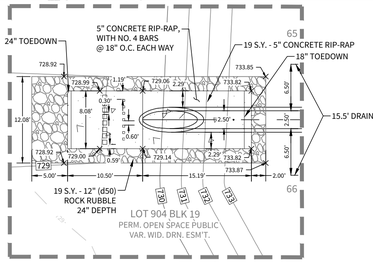

DETAIL "A"
(SCALE: 1" = 10')

NOTES:

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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.
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ROCK RIP RAP NOTES:

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2. CONTRACTOR TO COMPACT SUBGRADE BELOW LIMITS OF ROCK RIP-RAP TO 95% STANDARD PROCTOR.
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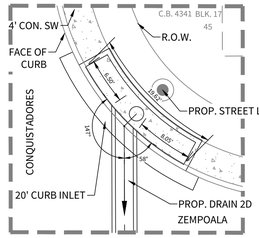
4. ROCK SIZE — 8"-16", D_{50} = 12"
   ROCK UNIT WEIGHT — 157 PCF MIN.
   VOIDS — 35% MAX.



DETAIL "B"
(SCALE: 1" = 10')

GENERAL SPECIFICATIONS FOR COMPACTED FILL

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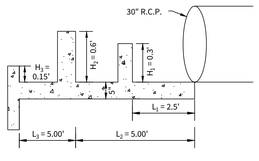
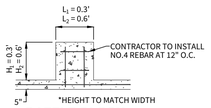


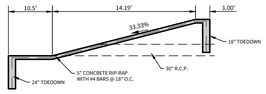
BAFFLE BLOCK DETAIL AND CALCULATIONS

TAILWATER DEPTH = 0.19'
Fr = 0.959
Y_C = 0.883 FT
Y_2 = 1.537 FT
Y_3 = 0.883 FT

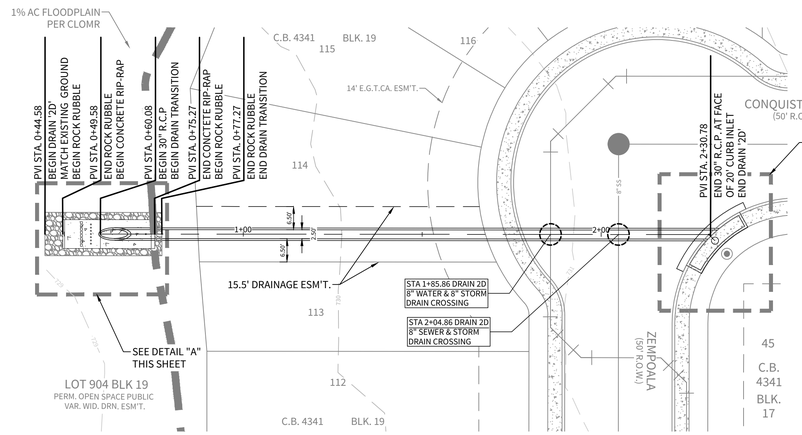
BASIN OUTLET VELOCITY = 5.020 FT/S



BAFFLE BLOCK
DRAIN "2D" REINFORCEMENT DETAIL

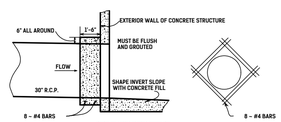


DRAIN "2D" CONCRETE RIP–RAP DETAIL
(N.T.S.)



BEXAR COUNTY FLOODPLAIN GENERAL CONSTRUCTION NOTE:
NO CONSTRUCTION AND/OR WASTE MATERIAL SHALL BE PLACED IN EXISTING LOWS THAT WILL BLOCK OR ATLER FLOW LIMITS OF EXISTING NATURAL DRAINAGE OR PLACED WITHIN THE LIMITS OF EXISTING FLOODPLAIN.

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.

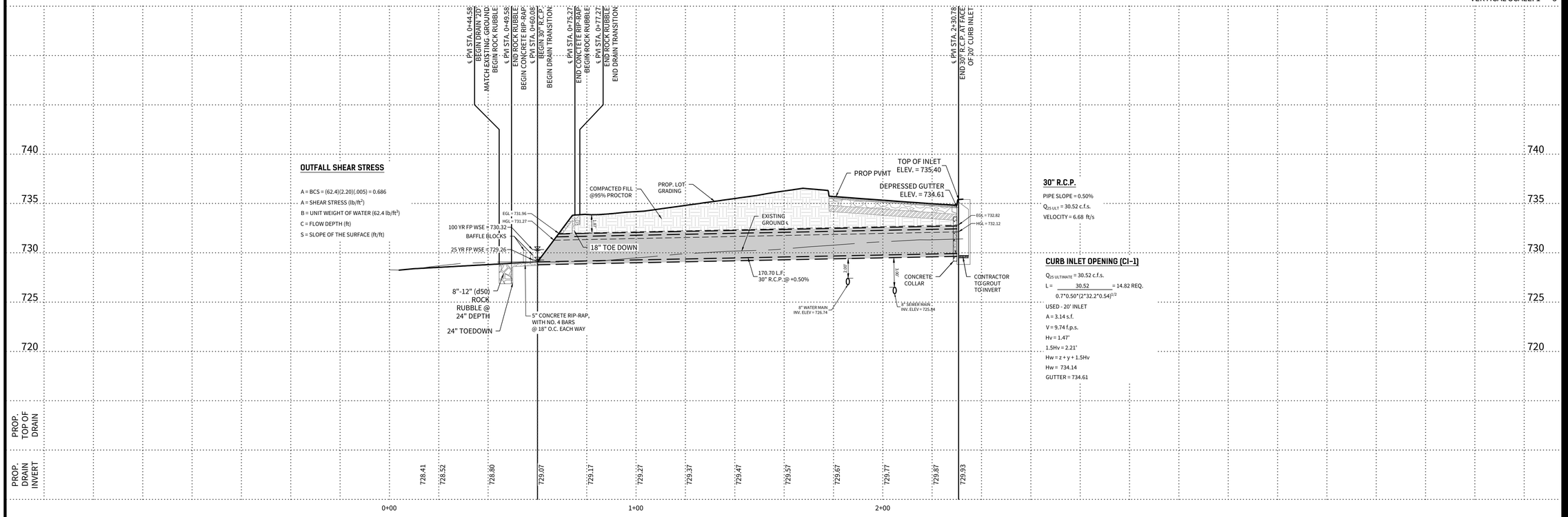


CONCRETE COLLAR DETAIL
(N.T.S.)

DRAIN 2D

STA. 0+44.58 TO STA. 2+30.78

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



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CUDE ENGINEERS

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

TRES LAURELS UNIT 2B

DRAIN PLAN & PROFILE - DRAIN '2D'

DATE
07/17/2025

PROJECT NO.
03050.018

DRAWN BY
JW

CHECKED BY
SPM/DF

REVISIONS
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06/17/2025
STATE OF TEXAS
MATTHEW A. TRINKLE
147558
LICENSED PROFESSIONAL ENGINEER

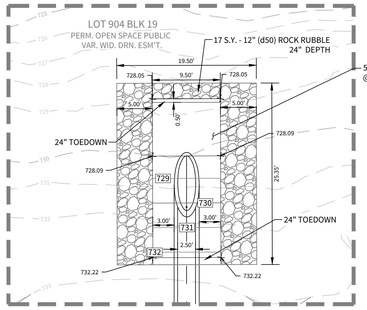
CUDE ENGINEERS
TBPELS No. 10048500

PLAT NO.
24-11800283

C6.02

P:\03050.018\3.3Civil\4.0Permit\04_SD\10DP1.dwg 2025/07/17 13:55:08am mdia

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.



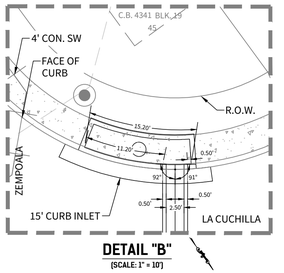
INSET "A"
(SCALE: 1" = 10')

NOTES:

1. REFER TO GENERAL NOTES AND SPECIFICATIONS CO.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.D3.
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

ROCK RIP RAP NOTES:

1. TOP OF ROCK RIP-RAP TO BE SET FLUSH WITH PROPOSED GRADE OF THE CHANNEL.
2. CONTRACTOR TO COMPACT SUBGRADE BELOW LIMITS OF ROCK RIP-RAP TO 95% STANDARD PROCTOR.
3. ROCK RIP-RAP TO BE INSTALLED TO A DEPTH TWO (2) FEET BELOW PROPOSED GROUND SHOWN ON THESE PLANS. SHOULD COMPETENT BEDROCK BE ENCOUNTERED AT A DEPTH SHALLOWER THAN TWO FEET (2'), CONTRACTOR TO INSTALL ROCK RIP-RAP DIRECTLY ON TOP OF COMPETENT BEDROCK.
4. ROCK SIZE 8"-16", D_{50} = 12"
   ROCK UNIT WEIGHT 157 PCF MIN.
   VOIDS 35% MAX.



DETAIL "B"
(SCALE: 1" = 10')

GENERAL SPECIFICATIONS FOR COMPACTED FILL

1. 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 THD--TEX--113--E COMPACTION PROCEDURE.
2. THE MATERIALS USED SHALL BE FREE FROM ORGANIC MATTER AND OTHER DELETERIOUS SUBSTANCES, SUCH AS TREES, BRUSH AND RUBBISH.
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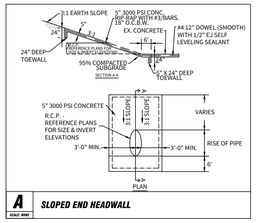

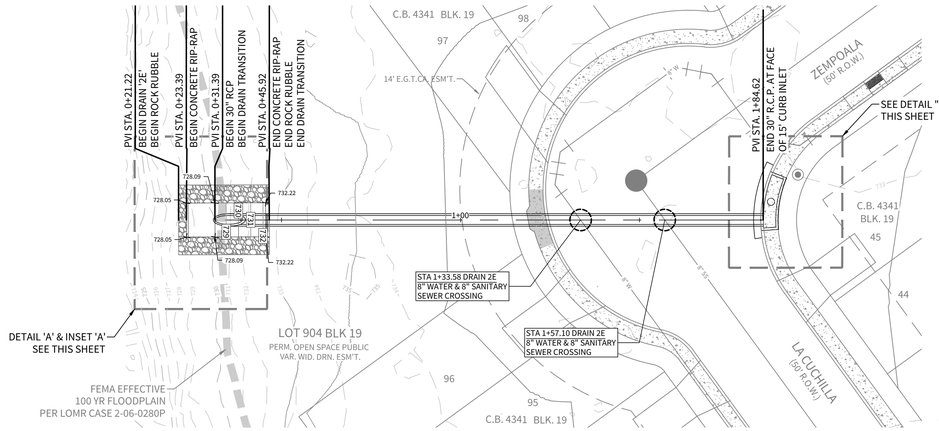

DRAIN 2E

STA. 0+21.22 TO STA. 1+84.62

BEXAR COUNTY FLOODPLAIN GENERAL CONSTRUCTION NOTE:

NO CONSTRUCTION AND/OR WASTE MATERIAL SHALL BE PLACED IN EXISTING LOWS THAT WILL BLOCK OR ALTER FLOW LIMITS OF EXISTING NATURAL DRAINAGE OR PLACED WITHIN THE LIMITS OF EXISTING FLOODPLAIN.

TRENCH EXCAVATION PROTECTION

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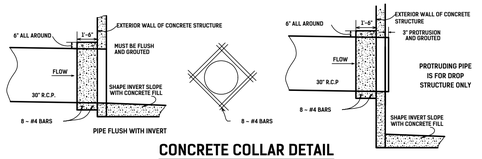
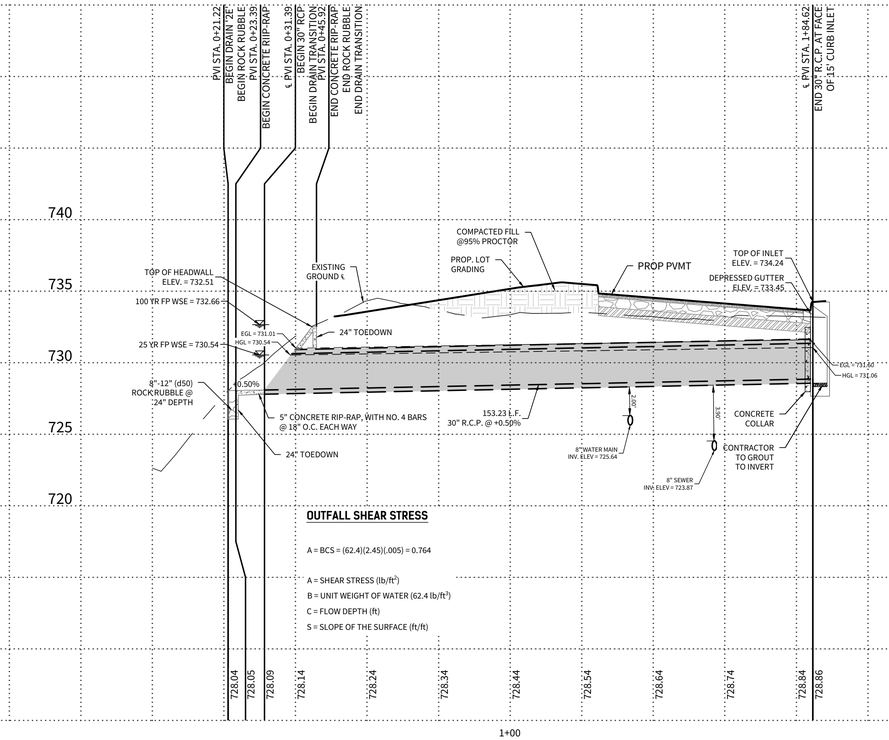


CONCRETE COLLAR DETAIL
(N.T.S.)

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



OUTFALL SHEAR STRESS

A = BCS = (62.4)(2.45)(.005) = 0.764

A = SHEAR STRESS (lb/ft^2)
B = UNIT WEIGHT OF WATER (62.4 lb/ft^3)
C = FLOW DEPTH (ft)
S = SLOPE OF THE SURFACE (ft/ft)

30" R.C.P.

PIPE SLOPE = 0.50%
$Q_{25\,ULT}$ = 26.83 c.f.s.
VELOCITY = 5.49 ft/s

CURB INLET OPENING (CI-1)

$Q_{25\,ULTIMATE}$ = 26.83 c.f.s.

$L = \frac{26.83}{0.7*0.50*(2*32.2*0.54)^{1/2}} = 13.02$ REQ.

USED - 15' INLET
A = 4.91 s.f.
V = 5.62 f.p.s.
Hv = 0.49'
1.5Hv = 0.74'
Hw = z + y + 1.5Hv
Hw = 732.10
GUTTER = 733.45

CUDEENGINEERS.COM

CUDE ENGINEERS

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

TRES LAURELS UNIT 2B

DRAIN PLAN & PROFILE - DRAIN '2E'

DATE
07/31/2025

PROJECT NO.
03050.018

DRAWN BY
JW

CHECKED BY
SPM/DF

REVISIONS
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10.

07/30/2025

STATE OF TEXAS
MATTHEW A. TRINKLE
147558
LICENSED
PROFESSIONAL ENGINEER

CUDE ENGINEERS
TBPELS No. 10048500

PLAT NO.
24-11800283

C6.03

P:\03050.018\2-SNG\C4-FSem\04_SD\100FP.dwg 2025/07/31 2:19pm mdia

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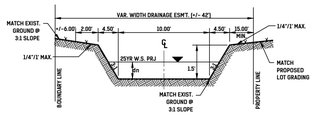
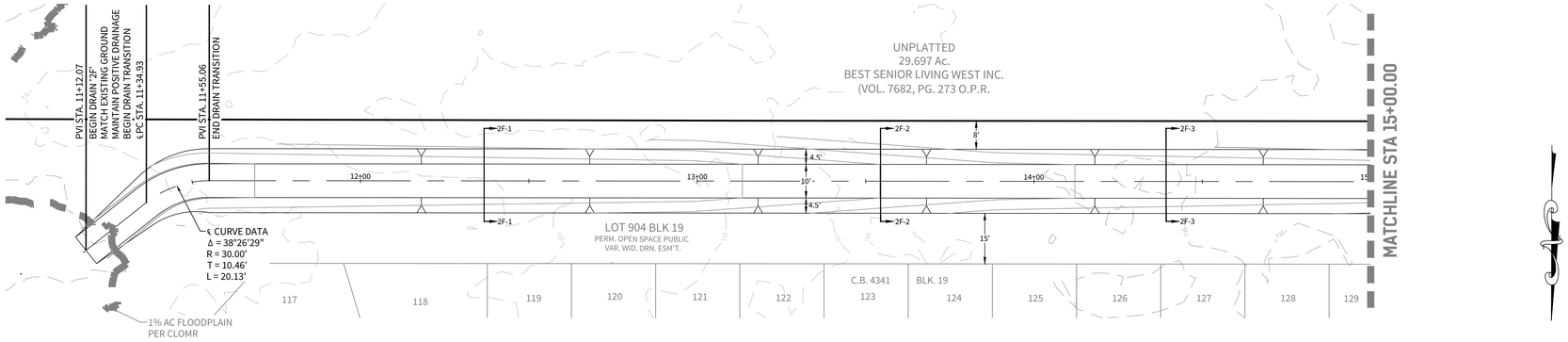


DRAIN "2F" SECTIONS (N.T.S.)

"2F-1" STA. 11+55.06 TO STA. 12+99.25
"2F-2" STA.12+99.25 TO STA. 13+88.86
"2F-3" STA.13+88.86 TO STA. 15+00.00

	"2F-1"	"2F-2"	"2F-3"
$Q_{25\ PRJ}$ (cfs)	30.01	30.01	30.01
B_W (ft)	10.00	10.00	10.00
z	3:1	3:1	3:1
n	0.035	0.035	0.035
S (%)	0.50	2.45	0.65
$d_{<25\ PRJ}$ (ft)	0.94	0.60	0.88
$V_{25\ PRJ}$ (fps)	2.49	4.24	2.70
SHEAR STRESS 25YR	0.24	0.78	0.29
RETARDANCE CLASS	E	C	E



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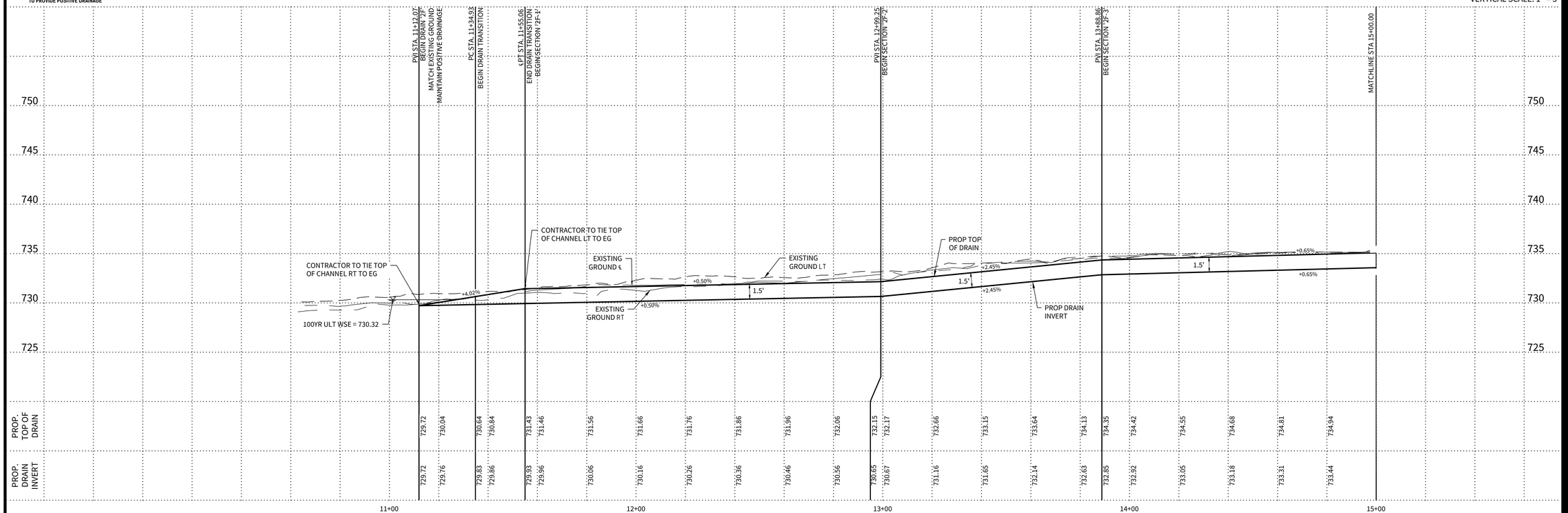
DRAIN 2F

STA. 11+12.07 TO STA. 15+00.00

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



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TRES LAURELS
UNIT 2B

DRAIN PLAN & PROFILE - DRAIN '2F'

DATE
07/31/2025

PROJECT NO.
03050.018

DRAWN BY
JW

CHECKED BY
SPM/DF

REVISIONS
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07/30/2025
STATE OF TEXAS
MATTHEW A. TRINKLE
147558
LICENSED
PROFESSIONAL ENGINEER

CUDE ENGINEERS
TBPELS No. 10048500

PLAT NO.
24-11800283

C6.04

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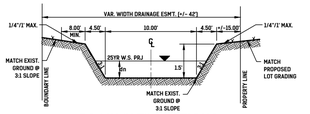
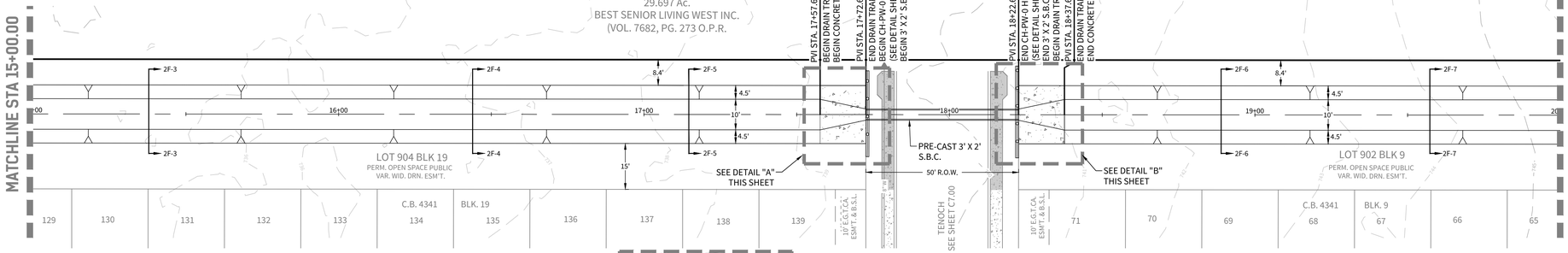
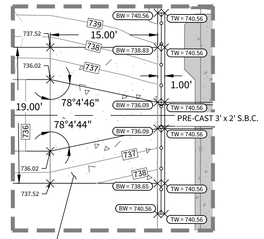


DRAIN "2F" SECTIONS (N.T.S.)

"2F-3" STA. 15+00.00 TO STA. 16+14.56
"2F-4" STA. 16+14.56 TO STA. 16+76.18
"2F-5" STA. 16+76.18 TO STA. 17+57.65
"2F-6" STA. 18+37.65 TO STA. 19+75.57
"2F-7" STA. 19+75.57 TO STA. 20+00.00

	"2F-3"	"2F-4"	"2F-5"	"2F-6"	"2F-7"
$Q_{25\text{-}PRJ}$ (cfs)	30.01	30.01	30.01	22.70	22.70
B_W (ft)	10.00	10.00	10.00	10.00	10.00
z	3:1	3:1	3:1	3:1	3:1
n	0.035	0.035	0.035	0.035	0.035
S (%)	0.65	2.10	0.50	2.62	3.60
$d_{=.25\ PRJ}$ (ft)	0.88	0.63	0.94	0.50	0.46
$V_{.25\ PRJ}$ (fps)	2.70	4.01	2.49	3.95	4.34
SHEAR STRESS 25YR	0.29	0.70	0.24	0.71	0.97
RETARDANCE CLASS	E	C	E	C	B





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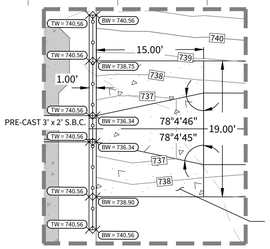

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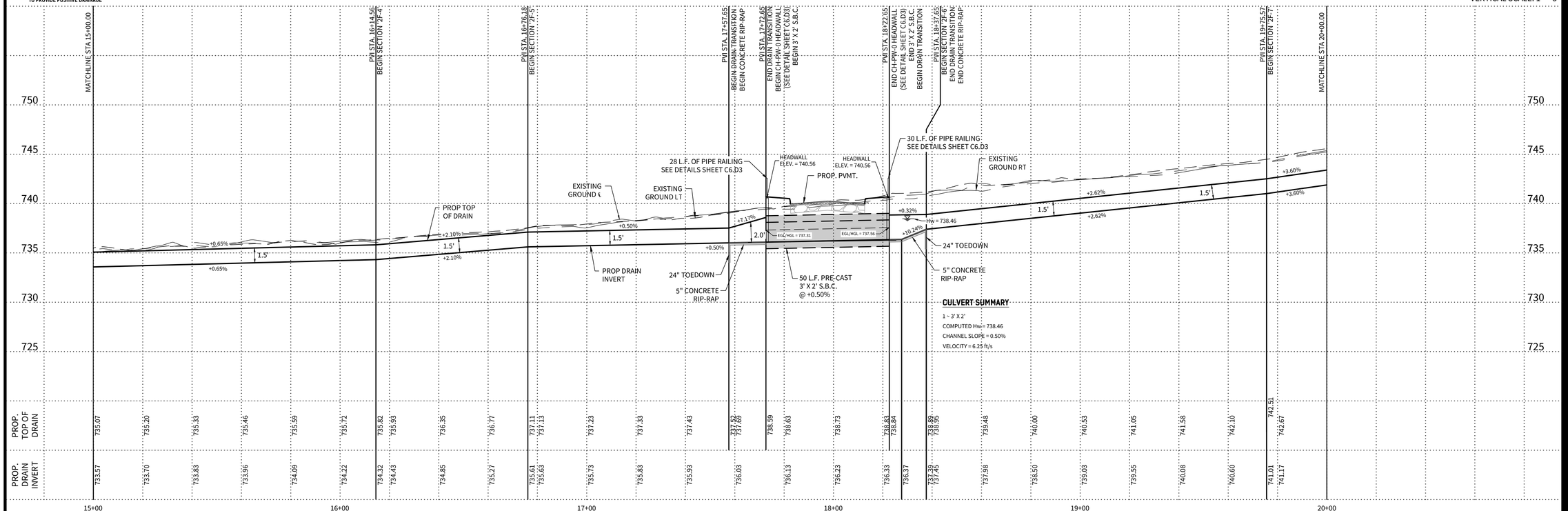
DRAIN 2F

STA. 15+00.00 TO STA. 20+00.00

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



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

TRES LAURELS
UNIT 2B

DRAIN PLAN & PROFILE - DRAIN '2F'

DATE
07/31/2025

PROJECT NO.
03050.018

DRAWN BY
JW

CHECKED BY
SPM/DF

REVISIONS
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07/30/2025
STATE OF TEXAS
MATTHEW A. TRINKLE
147558
LICENSED
PROFESSIONAL ENGINEER

CUDE ENGINEERS
TBPELS No. 10048500

PLAT NO.
24-11800283

C6.05

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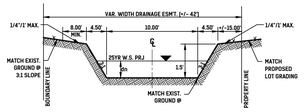
J:\03050\03050.3 Drawings\C6 Profiles\03050.3 Drain 2F.dwg, 2025/07/31 9:57 AM, Jim Wells

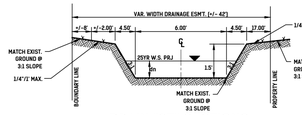
REPRODUCTION OF THE ORIGINAL SIGNED AND SEALED PLAN AND/OR ELECTRONIC MEDIA MAY HAVE BEEN INADVERTENTLY ALTERED. CONTRACTOR IS RESPONSIBLE FOR VERIFYING THE SCALE OF THE DOCUMENT AND CONTACTING CUDE ENGINEERS TO VERIFY DISCREPANCIES PRIOR TO CONSTRUCTION.



DRAIN "2F" SECTIONS (N.T.S.)

"2F-7" STA. 20+00.00 TO STA. 21+57.55
"2F-8" STA. 21+57.55 TO STA. 21+91.18
"2F-9" STA. 21+91.18 TO STA. 23+22.66

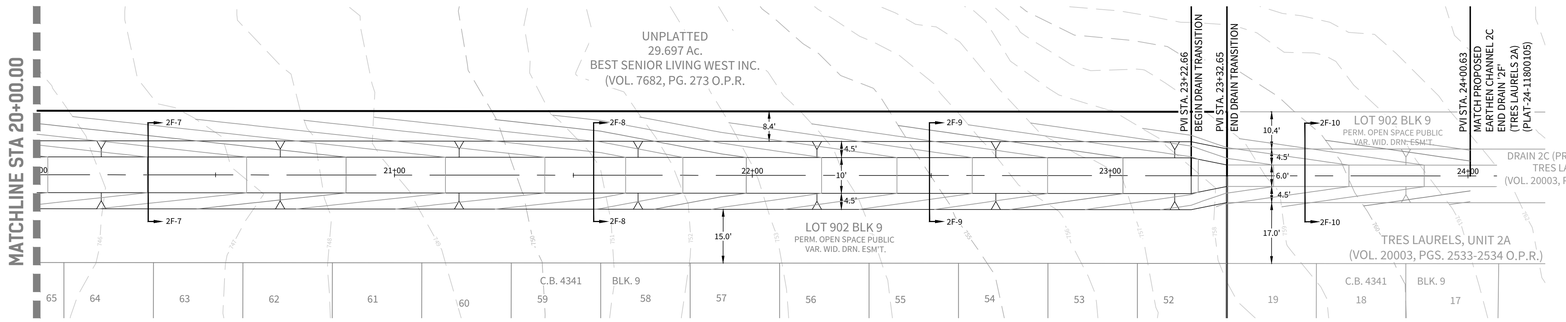
	"2F-7"	"2F-8"	"2F-9"
$Q_{25\,YR}$(cfs)	22.70	22.70	22.70
B_W (ft)	10.00	10.00	10.00
z	3:1	3:1	3:1
n	0.035	0.035	0.035
S (%)	3.60	6.25	4.75
$d_{0.25\,YR}$/(ft)	0.46	0.39	0.43
$V_{25\,YR}$/(fps)	4.34	5.21	4.68
SHEAR STRESS 25YR	0.97	1.36	1.13
RETARDANCE CLASS	C	B	B



DRAIN "2F" SECTIONS (N.T.S.)

"2F-10" STA. 23+32.65 TO 24+00.63

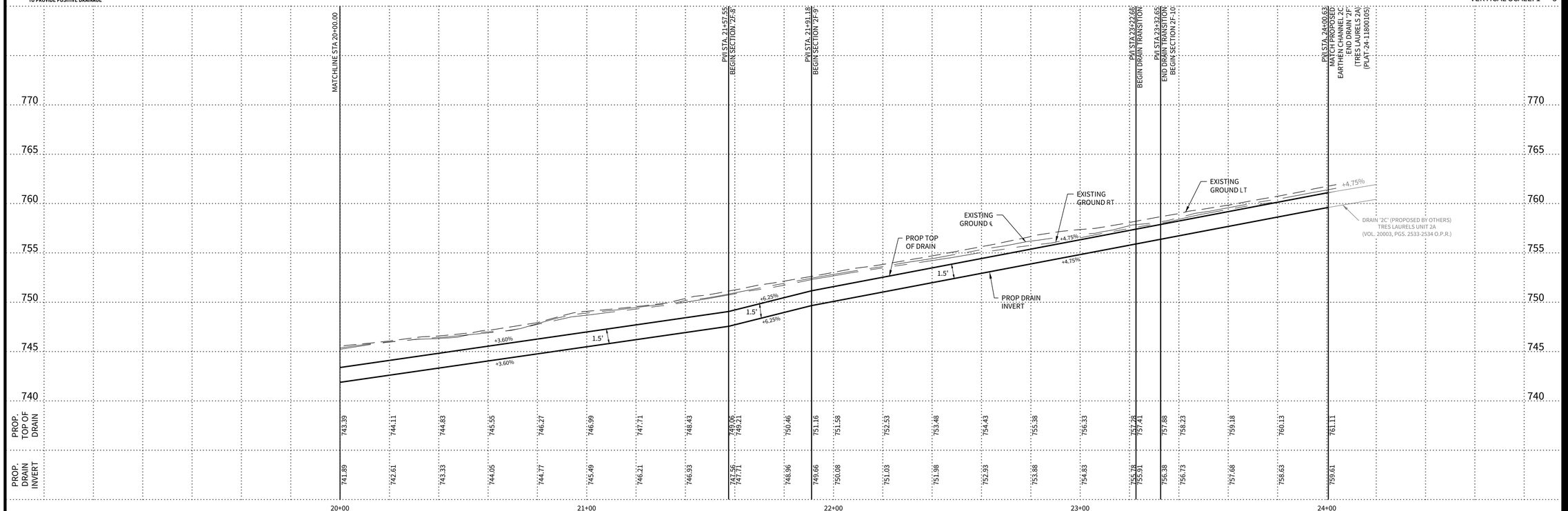
	"2F-10"
$Q_{25\,YR}$(cfs)	17.39
B_W (ft)	6.00
z	3:1
n	0.035
S (%)	4.75
$d_{0.25\,YR}$/(ft)	0.48
$V_{25\,YR}$/(fps)	4.87
SHEAR STRESS 25YR	1.17
RETARDANCE CLASS	B



DRAIN 2F

STA. 20+00.00 TO STA. 24+00.63

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



NOTES:

1. REFER TO GENERAL NOTES AND SPECIFICATIONS C0.00.
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 C6.03.
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

GENERAL SPECIFICATIONS FOR COMPACTED FILL

1. 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 THD--TEX--113--E COMPACTION PROCEDURE.
2. THE MATERIALS USED SHALL BE FREE FROM ORGANIC MATTER AND OTHER DELETERIOUS SUBSTANCES, SUCH AS TREES, BRUSH AND RUBBISH.
3. 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.

BEXAR COUNTY FLOODPLAIN GENERAL CONSTRUCTION NOTE:

NO CONSTRUCTION AND/OR WASTE MATERIAL SHALL BE PLACED IN EXISTING LOWS THAT WILL BLOCK OR ATLER FLOW LIMITS OF EXISTING NATURAL DRAINAGE OR PLACED WITHIN THE LIMITS OF EXISTING FLOODPLAIN.

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.

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

TRES LAURELS UNIT 2B

DRAIN PLAN & PROFILE - DRAIN '2F'

DATE
08/16/2025

PROJECT NO.
03050.018

DRAWN BY
JW

CHECKED BY
SPM/DF

REVISIONS
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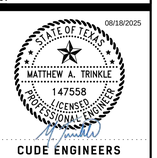
08/18/2025



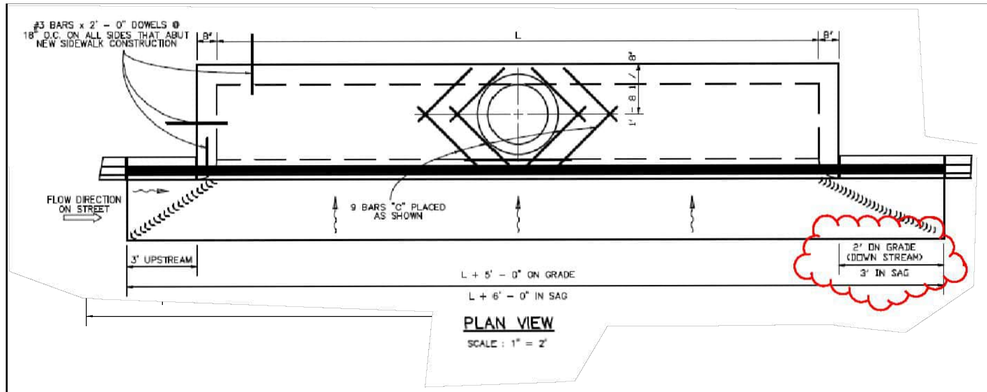
CUDE ENGINEERS
TBPELS No. 10048500

PLAT NO.
24-11800283

C6.06

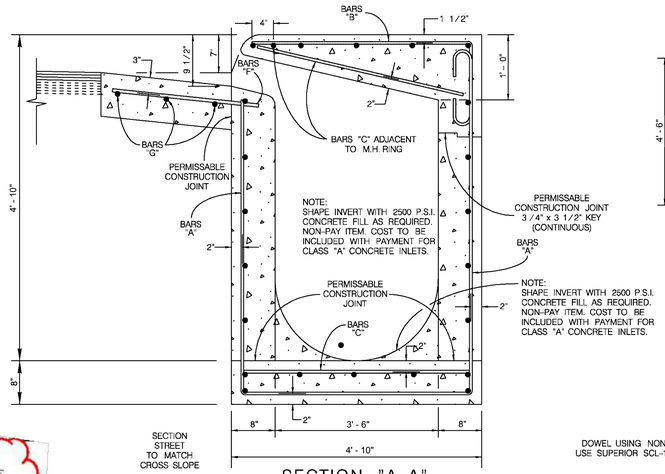
© CUDE ENGINEERS | C:\Users\JW\Desktop\Tres Laurels\Tres Laurels 2B\Tres Laurels 2B_Drain 2F.dwg, 2025/08/18 2:54pm, JWells

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.



PLAN VIEW

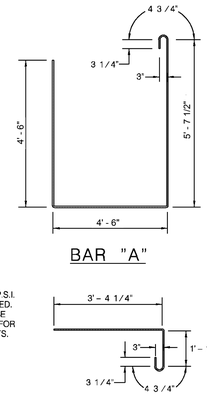
SCALE : 1" = 2'



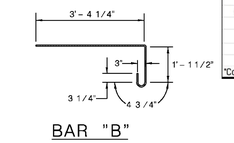
SECTION STREET TO MATCH CROSS SLOPE

SECTION "A-A"

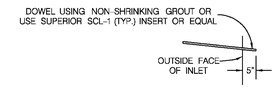
SCALE : 1" = 1'



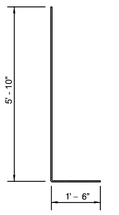
BAR "A"



BAR "B"



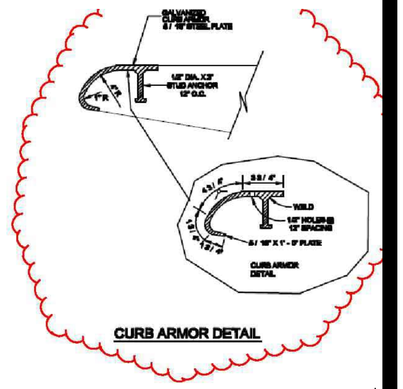
BAR "F"



BAR "E"

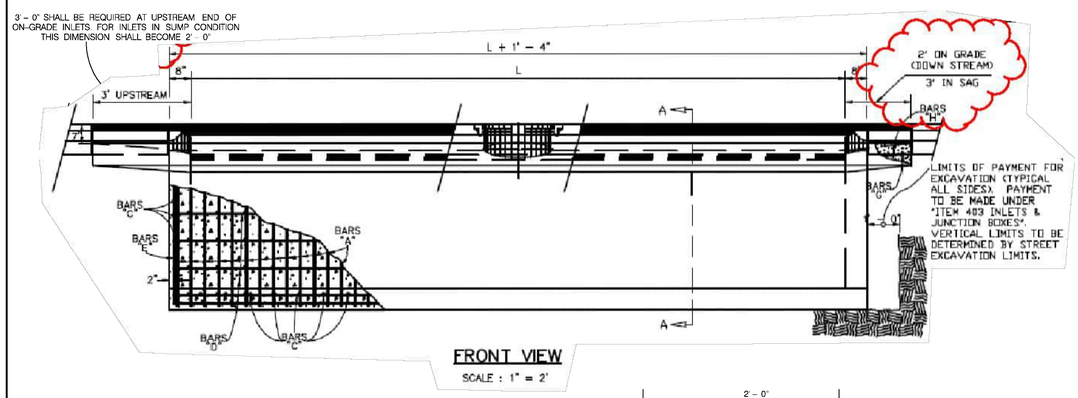
INLET LENGTH	REINFORCING STEEL SCHEDULE						
		BAR	No.	Size	Spa.	Length	Weight lbs.
		A	51	4	5' o.c.	15' 9 1/2"	537.99
DRAIN "2D"		B	51	4	5"	6' 7 3/4"	226.41
L= 20'		C	51	4	9"	4' 6"	153.31
DEPTH= 5.5'		D	25	4	10"	21' 1"	352.09
		E	12	4	10 1/2"	7' 4"	58.78
		F	22	5	12"	2' 3"	51.63
		G	3	4	12"	24' 8"	49.43
		H	5	5	12"	1' 8"	8.69
*Concrete Total = 11.77 C.Y.		Manhole Casting = 260 lbs.				Steel Total = 1698.33 lbs.	

INLET LENGTH	REINFORCING STEEL SCHEDULE						
		BAR	No.	Size	Spa.	Length	Weight lbs.
		A	39	4	5' o.c.	15' 9 1/2"	411.40
DRAIN "2E"		B	39	4	5"	6' 7 3/4"	173.14
L= 15'		C	44	4	9"	4' 6"	132.26
DEPTH= 5.5'		D	25	4	10"	16' 1"	268.59
		E	12	4	10 1/2"	7' 4"	58.78
		F	17	5	12"	2' 3"	39.89
		G	3	4	12"	19' 8"	39.41
		H	5	5	12"	1' 8"	8.69
*Concrete Total = 9.19 C.Y.		Manhole Casting = 260 lbs.				Steel Total = 1392.18 lbs.	



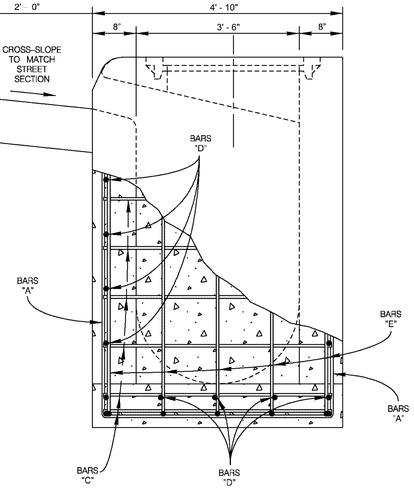
CURB ARMOR DETAIL

* THESE FIGURES DO NOT EXCLUDE CONCRETE & STEEL INTERCEPTED BY MANHOLE AND REINFORCED CONC. PIPE
* INCLUDES CONCRETE GUTTER FOR ON GRADE INLET. REDUCE BY .05 C.Y. FOR INLETS IN SUMP.



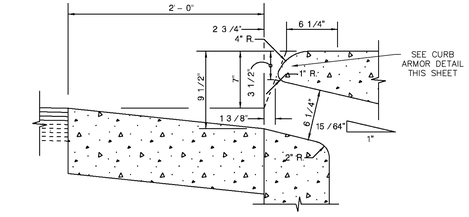
FRONT VIEW

SCALE : 1" = 2'



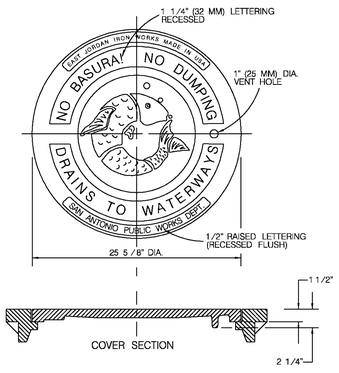
SIDE VIEW

SCALE : 1" = 1'



OPENING DETAIL FOR CURB SECTION

SCALE : 1" = 6"

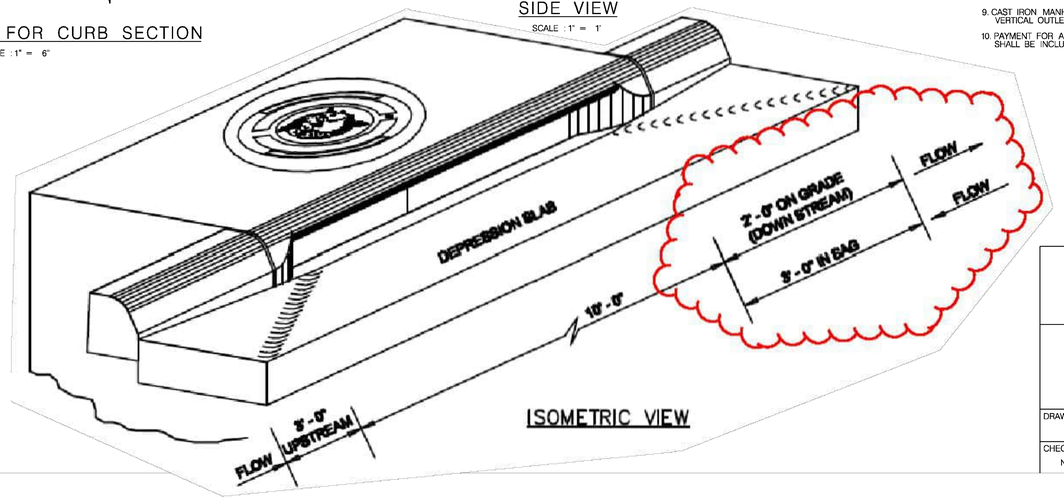


MANHOLE LID & RING DETAIL (ITEM 409)

SCALE : 1" = 8"

NOTES FOR MANHOLE LID AND RING

1. FOR LID DESIGN OUTSIDE OF CITY OF SAN ANTONIO, DELETE "SAN ANTONIO PUBLIC WORKS DEPT.".
2. CASTING NUMBER AND MANUFACTURER'S I.D. ON LID AND RING.
3. LOAD BEARING CAPABILITY OF HS-20 MINIMUM.
4. THE LOAD BEARING SURFACES SHALL BE MACHINE GROUND.
5. THE COMBINED WEIGHT OF THE MANHOLE RING AND COVER MUST BE AT LEAST 260 LBS.



ISOMETRIC VIEW

GENERAL NOTES

1. ALL BARS INTERCEPTING MANHOLE RING & REINFORCING CONCRETE PIPE SHALL BE FIELD CUT.
2. CONCRETE FOR STRUCTURES SHALL BE CLASS "A", 3000 PSI IN 28 DAYS.
3. ALL DIMENSIONS RELATING TO REINFORCING STEEL ARE TO CENTER BARS.
4. ALL EXPOSED CORNERS SHALL BE CHAMFERED TO 3 /4".
5. CONSTRUCTION JOINT SHOWN AT FLOWLINE MAY BE RAISED A MAXIMUM OF 6" AT THE CONTRACTOR'S DISCRETION. ADJUST LENGTH OF VERTICAL STEEL AS REQUIRED.
6. ALL REINFORCING STEEL SHALL CONFORM TO A.S.T.M. A 615, GRADE 60 REQUIREMENTS.
7. INVERT OF DROP INLET TO BE SHAPED WITH CONCRETE FILL TO AFFECT DRAINAGE TO OUTLET PIPE.
8. DELETE 4 "C" BARS FROM SCHEDULE QUANTITIES IF MANHOLE RING AND COVER ARE PLACED AT END OF INLET.
9. CAST IRON MANHOLE RING AND COVER TO BE PLACED NEXT TO OUTLET PIPE, EXCEPT FOR VERTICAL OUTLET PIPE IN WHICH CASE MANHOLE RING AND COVER WILL BE OFFSET.
10. PAYMENT FOR ALL EXCAVATION, BACK FILLING, CONCRETE, REINFORCING STEEL, RING AND COVER SHALL BE INCLUDED IN THE UNIT COST OF ITEM 403 "STORM SEWER JUNCTION BOXES AND INLETS".

JANUARY 2005

STANDARD PLANS
CITY OF SAN ANTONIO, TEXAS
DEPARTMENT OF PUBLIC WORKS

TYPE "C" INLET DETAILS

DRAWN BY: V. VASQUEZ	DATE	REVISIONS	SCALE: SEE ABOVE
CHECKED BY: NAT HARDY, P.E.			DATE:
			SHEET: OF

CUDEENGINEERS.COM
EST. 1980 CUDE ENGINEERS
4122 Pond Hill Road, Suite 101
San Antonio, Texas 78231
P:(210) 681.2951

TRES LAURELS
UNIT 2B

DRAINAGE DETAILS

DATE
03/27/2025

PROJECT NO.
03050.018

DRAWN BY
JW

CHECKED BY
SPM/DF

REVISIONS
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04/22/2025
STATE OF TEXAS
MATTHEW A. TRINKLE
147558
LICENSED PROFESSIONAL ENGINEER

CUDE ENGINEERS
TBPELS No. 10048500

PLAT NO.
24-11800283

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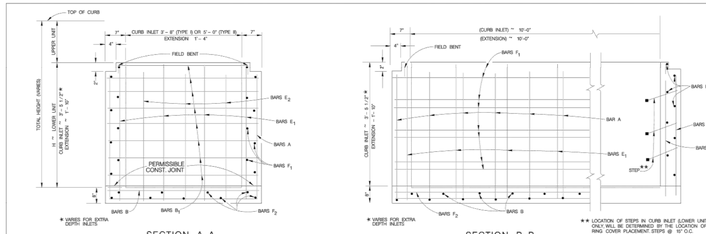


SECTION A–A

SECTION B–B

REINFORCING STEEL

LOWER UNIT 10' X 3'-8" (TYPE I)				
BAR	NO.	SIZE	SPAC.	LENGTH
A	12	#4	12"	VARIES
B	11	#4	12"	4'-4"
B_1	VARIES	#4	12"	4'-4"
F_1	20	#4	10"±	VARIES
F_2	6	#4	10"±	VARIES
F_3	VARIES	#4	12"±	10'-10"
F_3	9	#4	----	10'-10"

LOWER UNIT 10' X 5'-0" (TYPE II)				
BAR	NO.	SIZE	SPAC.	LENGTH
A	12	#4	12"	VARIES
B	11	#4	12"	5'-10"
B_1	VARIES	#4	12"	5'-10"
E_1	22	#4	10"±	VARIES
E_2	8	#4	10"±	VARIES
F_3	VARIES	#4	12"±	10'-10"
F_3	11	#4	----	10'-10"

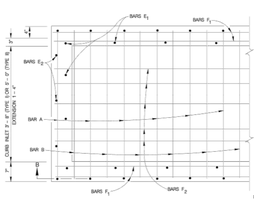
GENERAL NOTES

1. 5' INLETS AND 5' EXTENSIONS MUST BE IN ACCORDANCE WITH THE LATEST TXDOT CURB INLET TYPE "C" AND EXTENSION TYPE E (L-C).
2. TYPE C-I INLET TO BE USED ONLY WHEN STORM DRAIN PIPE IS IN-LINE WITH CURB INLET AND APPROVED BY THE ENGINEER.
3. QUANTITIES SHOWN ARE FOR CONTRACTIONS INFORMATION ONLY.
4. CONCRETE FOR STRUCTURES SHALL BE CLASS "A", 3000 PSI IN 28 DAYS.
5. ALL DIMENSIONS RELATING TO REINFORCING STEEL ARE TO CENTER OF BARS.
6. ALL REINFORCING STEEL SHALL HAVE A MINIMUM COVER OF 1 1/2".
7. ALL REINFORCING STEEL SHALL CONFORM TO A.S.T.M A-615, GRADE 60 REQUIREMENTS.
8. ALL EXPOSED CORNERS SHALL BE CHAMFERED 3 /4".
9. DEPRESSION SLAB SHALL RECEIVE A WOOD FLOAT FINISH.
10. FACE OF INLET TO CONFORM TO FACE OF CURB LINE.
11. ALL BARS INTERCEPTING MANHOLE RING & COVER SHALL BE CUT OR BENT.
12. PAYMENT FOR ALL EXCAVATION, BACK-FILLING, CONCRETE, REINFORCING STEEL, RING AND COVER, CURB ARMOR AND STEPS SHALL BE INCLUDED IN THE UNIT COST OF ITEM 403 "STORM SEWER JUNCTION BOXES AND INLETS".
13. CAST IRON MANHOLE RING AND COVER TO BE PLACED NEXT TO OUTLET PIPE EXCEPT FOR VERTICAL OUTLET PIPE IN WHICH CASE MANHOLE RING AND COVER WILL BE OFFSET.
14. GALVANIZED BOLTS, NUTS WASHERS, PLATES AND GASKETS ARE SUBSIDIARY TO INLETS.
15. THE CONTRACTOR SHALL PROVIDE AN ADEQUATE MEANS TO LIFT AND PLACE THE INLETS, WHEN USING PRECAST UNITS.
16. ALL BARS AT PIPE BLOCKOUT LOCATIONS SHALL BE CUT OR BEND.
17. ALL LOWER UNITS SHALL RECEIVE INVERT MORTAR SHAPING.
18. PIPE BLOCKOUTS IN INLET WALLS SHOULD NOT EXCEED 3' BEYOND THE OUTER SHELL OF THE PIPE TAKING INTO ACCOUNT THE SKEW OF THE PIPE AS NECESSARY. CONSTRUCTION JOINT MAY BE RAISED A MAXIMUM OF 6".

PHASE CONSTRUCTION

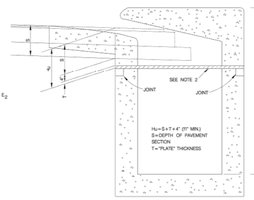
NOTES FOR PHASE CONSTRUCTION (WHEN DIRECTED BY THE ENGINEER):

1. THE CURB INLET AND EXTENSION SHALL BE CONSTRUCTED TO A DEPTH "Hu" BELOW THE INLET AND EXTENSION GUTTER LINE ELEVATION.
2. CAP THE CURB INLET AND EXTENSION WITH A STEEL PLATE APPROVED BY THE ENGINEER AND CONSTRUCT THE ROADWAY OVER Hfs, HLA1s.
3. AFTER THE ROADWAY IS COMPLETED, BUT PRIOR TO THE FINAL HMAC OVERLAY, SAW CUT THE PAVEMENT, REMOVE THE PLATE AND COMPLETE THE UPPER PORTION OF THE CURB INLET AND / OR EXTENSION.

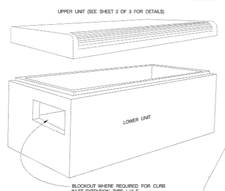


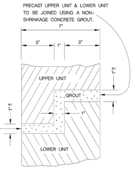
FLOOR STEEL

WALL STEEL



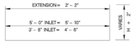
PLAN



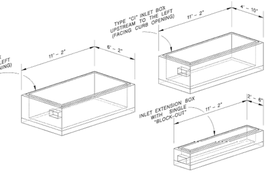


JOINT DETAIL

WHEN USING PRECAST UPPER UNIT, THIS SPACE IS FOR MAKING MINOR HORIZONTAL AND VERTICAL ADJUSTMENTS TO ACCOMODATE A FIT BETWEEN THE UPPER AND LOWER UNIT THAT ALLOWS FOR A MATCH LINE AND GRADE BETWEEN THE ROADWAY CURB AND THE UPPER UNIT OF THE INLET.



BARS A
(LOWER UNIT)



CONCRETE INLET BOX CONFIGURATIONS (LOWER UNITS)

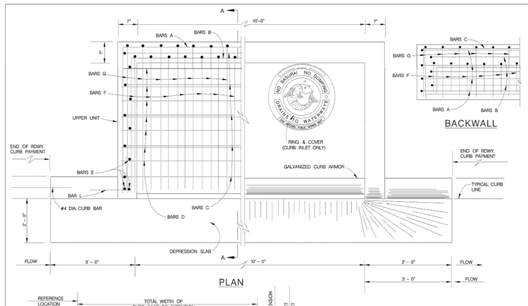
MAY 2009

CITY OF SAN ANTONIO
CAPITAL IMPROVEMENTS MANAGEMENT SERVICES DEPARTMENT

TYPE "C" INLET (TYPE I & II) & INLET EXTENSION STANDARDS
SHEET 1 OF 3

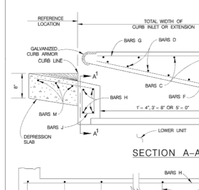
% SUBMITTAL	PROJECT NO.:	DATE:

DRAWN BY: V. VASQUEZ DSGN BY: L.E. MALTOS, P.E. CHKD BY: R.S. HOSSEIN, P.E. SHEET NO.: ___ OF ___

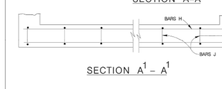


PLAN

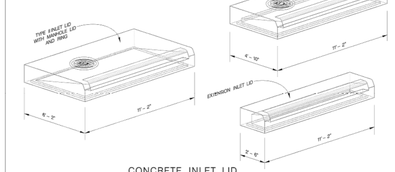
BACKWALL



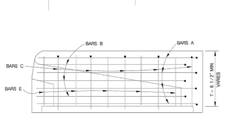
SECTION A–A



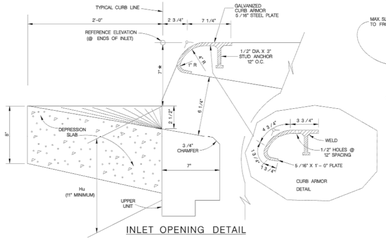
SECTION A1 – A1



CONCRETE INLET LID CONFIGURATIONS (UPPER UNITS)



END WALL

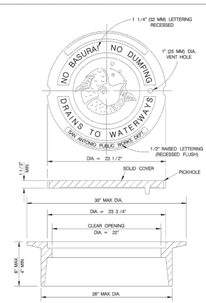


INLET OPENING DETAIL

REINFORCING STEEL (FOR Hu=11")

UPPER UNIT 10' X 3'-8" (TYPE I)					
BAR	NO.	SIZE	SPAC.	LENGTH	WEIGHT
A	4	#4	----	19'-10"	53
B	3	#4	----	15'-10"	38
C	5	#4	11"	13'-2"	44
D	7	#4	6"	10'-10"	51
E	10	#4	11"	7'-2"	9
F	21	#6	6"	4'-8"	147
G	22	#6	6"	5'-8"	187
H	4	#4	----	10'-10"	29
J	12	#4	12"	3'-8"	28
L	4	#4	----	3'-0"	5
M	3	#4	----	14'-8"	29
TOTAL WEIGHT					620 LBS.

UPPER UNIT 10' X 5'-0" (TYPE II)					
BAR	NO.	SIZE	SPAC.	LENGTH	WEIGHT
A	4	#4	----	22'-8"	60
B	3	#4	----	17'-4"	43
C	7	#4	11"	13'-2"	62
D	11	#4	6"	10'-10"	80
E	16	#4	11"	7'-2"	13
F	21	#6	6"	5'-8"	179
G	22	#6	6"	7'-0"	231
H	4	#4	----	10'-10"	29
J	12	#4	12"	3'-8"	28
L	4	#4	----	3'-0"	5
M	3	#4	----	14'-8"	29
TOTAL WEIGHT					759 LBS.



MANHOLE LID & RING DETAIL (ITEM 409)

NOTES FOR MANHOLE LID AND RING

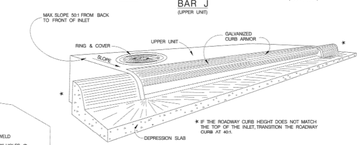
1. FOR LID DESIGN OUTSIDE OF CITY OF SAN ANTONIO, DELETE "SAN ANTONIO PUBLIC WORKS DEPT.".
2. CASTING NUMBER AND MANUFACTURER'S I.D. ON LID AND RING.
3. LOAD BEARING CAPABILITY OF H5-20 MINIMUM.
4. THE LOAD BEARING SURFACES SHALL BE MACHINE GROUND.
5. THE COMBINED WEIGHT OF THE MANHOLE RING AND COVER MUST BE AT LEAST 360 LBS.

SEE SHEET 1 OF 3 FOR GENERAL NOTES.

CLASS "A" CONCRETE QUANTITIES (FOR Hu = 11")

DEPRESSION SLAB	C.Y.
10' INLET	0.7
10' EXTENSION	0.7

UPPER UNIT (ONLY)	C.Y.
10' X 3'-8" CURB INLET	1.9
10' X 5'-0" CURB INLET	2.7
EXTENSION	1.0



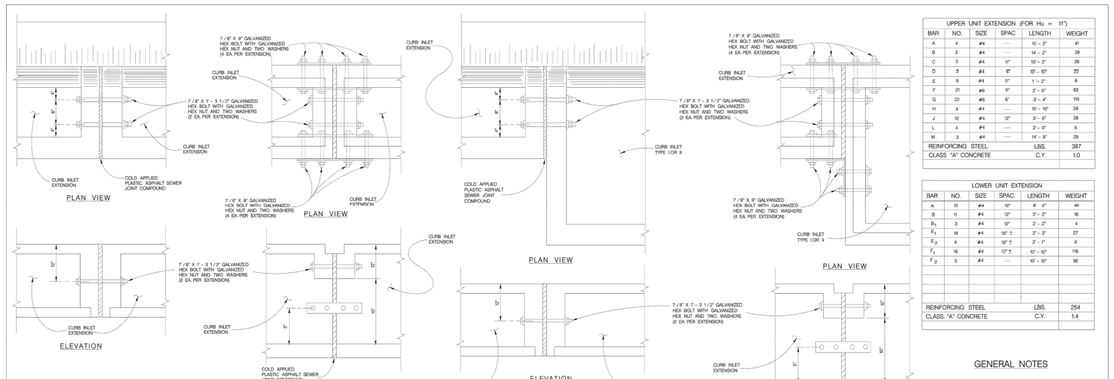
MAY 2009

CITY OF SAN ANTONIO
CAPITAL IMPROVEMENTS MANAGEMENT SERVICES DEPARTMENT

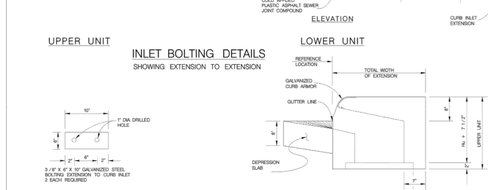
TYPE "C" INLET (TYPE I & II) & INLET EXTENSION STANDARDS
SHEET 2 OF 3

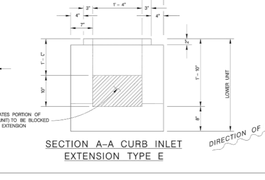
% SUBMITTAL	PROJECT NO.:	DATE:

DRAWN BY: V. VASQUEZ DSGN BY: L.E. MALTOS, P.E. CHKD BY: R.S. HOSSEIN, P.E. SHEET NO.: ___ OF ___

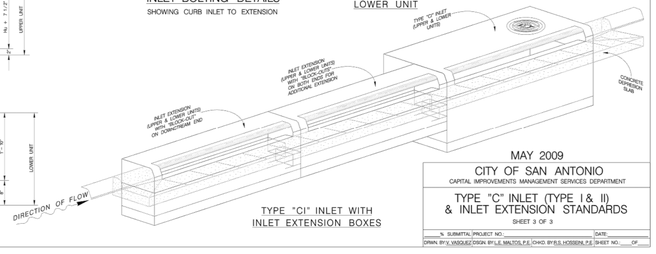


INLET BOLTING DETAILS
SHOWING EXTENSION TO EXTENSION





SECTION A–A CURB INLET EXTENSION TYPE E



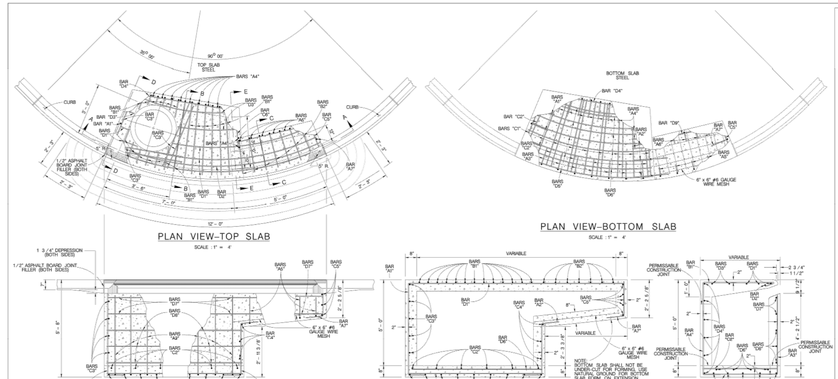
TYPE "CI" INLET WITH INLET EXTENSION BOXES

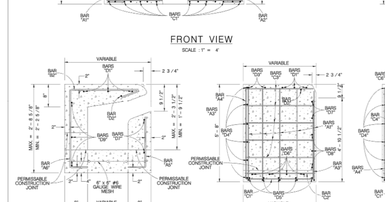
UPPER UNIT EXTENSION (FOR Hu = 11")					
BAR	NO.	SIZE	SPAC.	LENGTH	WEIGHT
A	4	#4	----	19'-10"	41
B	3	#4	----	14'-2"	28
C	3	#4	11"	13'-2"	26
D	3	#4	6"	10'-10"	22
E	8	#4	11"	1'-2"	6
F	21	#6	6"	2'-0"	63
G	22	#6	6"	3'-4"	110
H	4	#4	----	10'-10"	29
J	12	#4	12"	3'-8"	28
L	4	#4	----	2'-0"	5
M	3	#4	----	14'-8"	29
REINFORCING STEEL				LBS.	387
CLASS "A" CONCRETE				C.Y.	1.0

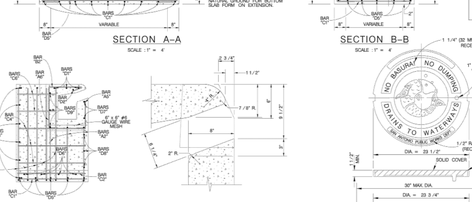
LOWER UNIT EXTENSION					
BAR	NO.	SIZE	SPAC.	LENGTH	WEIGHT
A	10	#4	10"	6' - 0"	40
B	11	#4	12"	2' - 2"	16
B_1	3	#4	12"	2' - 2"	4
E_1	18	#4	10" ±	2' - 3"	27
E_2	4	#4	10" ±	2' - 1"	6
F_3	16	#4	12" ±	10' - 10"	116
F_3	5	#4	----	10' - 10"	36
REINFORCING STEEL				LBS.	254
CLASS "A" CONCRETE				C.Y.	1.4

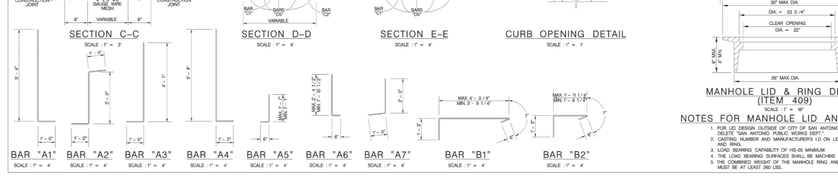
GENERAL NOTES

1. WHEN INLET EXTENSIONS ARE REQUIRED FOR ON GRADE INLETS THE EXTENSIONS SHALL BE PLACED ON THE UPSTREAM END OF THE INLET.
2. FOR CURB INLET EXTENSION REINFORCING STEEL, NOTES & VARIOUS OTHER APPLICABLE DETAILS NOT FOUND ON THIS SHEET REFER TO SHEETS 1 & 2.









REINFORCING STEEL SCHEDULE

SHAPE	BAR	NO.	SIZE	SPACE	LENGTH	WEIGHT
	A1	5	4	12" C-C	6' - 4"	21
	A2	3	4	12"	5' - 0"	10
	A3	8	4	12"	5' - 7"	30
	A4	16	5	6 1/2"	6' - 4"	106
	A5	5	3	12"	MAX = 3' - 7" MIN = 3' - 0 1/2"	3
	A6	7	4	8"	MAX = 4' - 4 1/2" MIN = 4' - 2 1/2"	12
	A7	3	3	12"	3' - 0"	3
	B1	13	5	6 1/2"	MAX = 5' - 10 3/4" MIN = 5' - 2 1/4"	80
	B2	7	4	6"	MAX = 5' - 10 3/4" MIN = 5' - 2 1/4"	17
STRAIGHT	C1	9	4	12"	MAX = 4' - 3 1/2" MIN = 4' - 1 1/2"	24
STRAIGHT	C2	6	4	18"	MAX = 4' - 3 1/2" MIN = 4' - 1 1/2"	17
STRAIGHT	C3	9	4	12"	3' - 11"	23
STRAIGHT	C4	3	4	12"	3' - 11"	8
STRAIGHT	C5	4	3	7 1/2"	2' - 0"	3
STRAIGHT	C6	2	4	AS SHOWN	2' - 3"	3
	D1	3	4	12"	MAX = 12' - 10" MIN = 12' - 4"	24
	D2	1	4	AS SHOWN	12" - 7"	8
	D3	2	4	12"	MAX = 8' - 5" MIN = 8' - 0"	9
STRAIGHT	D4	6	4	12"	5' - 5"	24
	D5	5	4	12"	MAX = 8' - 0" MIN = 7' - 7"	24
	D6	4	4	12"	MAX = 8' - 5" MIN = 8' - 0"	19
	D7	2	3	12"	12' - 10"	10
	D8	3	4	12"	6' - 0"	16
STRAIGHT	D9	3	3	12"	4' - 5"	5
					TOTAL =	499 LBS.

ESTIMATED QUANTITIES

ITEM	UNIT	NEAT QUANTITY
CLASS "A" CONCRETE	C.Y.	
REINFORCING STEEL	LBS.	499
STORM SEWER CASTINGS	LBS.	260

* THESE FIGURES DO NOT EXCLUDE CONCRETE & STEEL INTERCEPTED BY REINFORCED CONCRETE PIPE AND MANHOLE / CURB.

GENERAL NOTES

1. ALL BARS INTERCEPTING REINFORCED CONCRETE PIPE & MANHOLE RING SHALL BE FIELD CUT.
2. CONCRETE FOR STRUCTURE SHALL BE CLASS "A", 3000 P.S.I. IN 28 DAYS.
3. ALL DIMENSIONS RELATING TO REINFORCING STEEL ARE TO CENTER OF BARS.
4. ALL EXPOSED CORNERS SHALL BE CHAMFERED 3 /4".
5. CONSTRUCTION JOINT SHOWN AT FLOWLINE MAY BE RAISED A MAXIMUM OF 6" AT THE OPTION OF THE CONTRACTOR. ADJUST LENGTH OF VERTICAL STEEL AS REQUIRED.
6. ALL REINFORCING STEEL SHALL MEET A.S.T.M. SPECIFICATION A-615, GRADE 60.
7. INVERT OF DROP INLET TO BE SHAPED WITH CONCRETE FILL (2500 P.S.I. MINIMUM) TO EFFECT DRAINAGE TO OUTLET PIPE.
8. ALL CONSTRUCTION JOINTS SHALL BE KEYED 3 /4" x 3 1/2".
9. PAYMENT FOR ALL EXCAVATION, BACKFILLING, CONCRETE, REINFORCING STEEL, RING & COVER SHALL BE INCLUDED IN THE UNIT COST OF ITEM 403 "STORM SEWER JUNCTION BOXES AND INLETS".

JANUARY 2005

CITY OF SAN ANTONIO
CAPITAL IMPROVEMENTS MANAGEMENT SERVICES DEPARTMENT

TYPE "D" INLET STANDARDS

% SUBMITTAL	PROJECT NO.:	DATE:

DRAWN BY: V. VASQUEZ DSGN BY: ___ CHKD BY: ___ SHEET NO.: ___ OF ___

CUDEENGINEERS.COM

CUDE ENGINEERS

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

TRES LAURELS
UNIT 2B

DRAINAGE DETAILS

DATE
03/27/2025

PROJECT NO.
03050.018

DRAWN BY
JW

CHECKED BY
SPM/DF

REVISIONS
1.
2.
3.
4.
5.
6.
7.
8.
9.
10.

04/22/2025

STATE OF TEXAS
MATTHEW A. TRINKLE
147558
LICENSED PROFESSIONAL ENGINEER

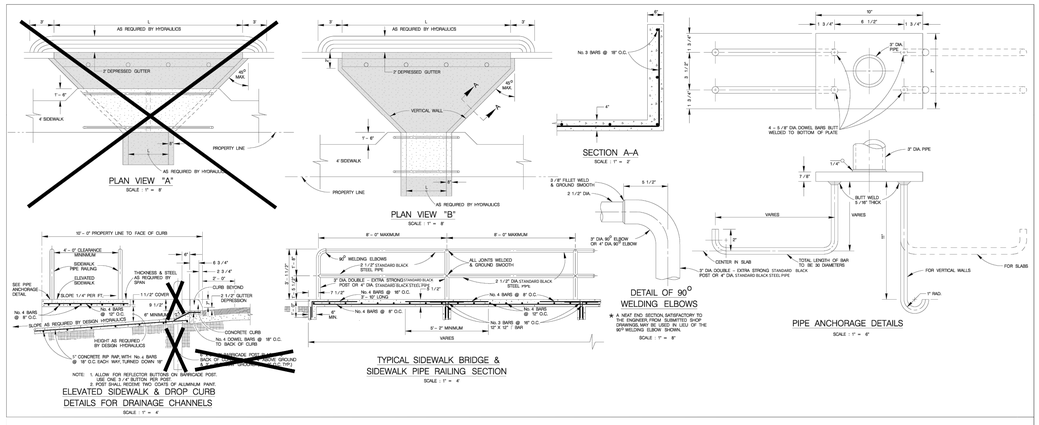
CUDE ENGINEERS
TBPELS No. 10048500

PLAT NO.
24-11800283

C6.D2

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.

P:\03050\03813 DWG\Arterials\03 DWG\Final\03050_03813 Drainage Details.dwg, 3/27/2025 9:27:12 PM, jwestmoreland

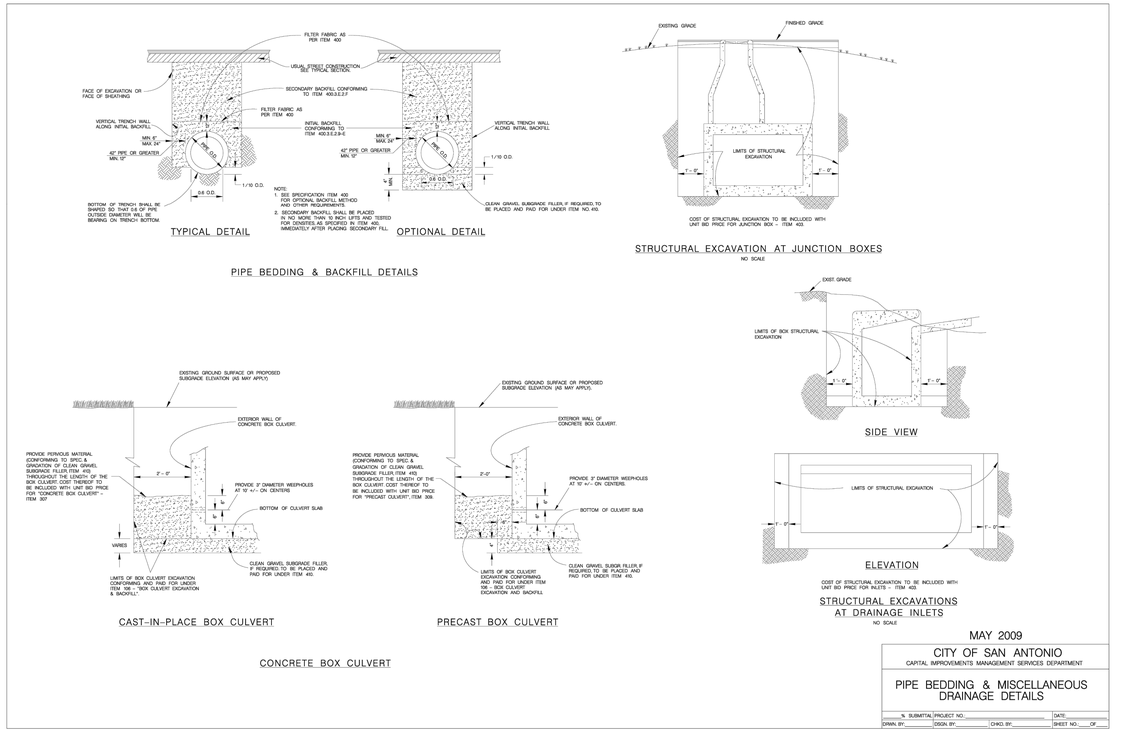


JANUARY 2005

CITY OF SAN ANTONIO
CAPITAL IMPROVEMENTS MANAGEMENT SERVICES DEPARTMENT

ELEVATED SIDEWALK & RETARD STANDARDS

% SUBMITTAL	PROJECT NO.:	DATE:
DRWN. BY: V. VASQUEZ	DSGN. BY:	CHKD. BY:	SHEET NO. ___ OF ___



MAY 2009

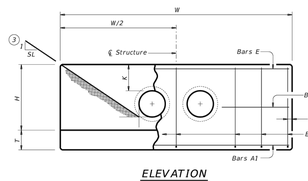
CITY OF SAN ANTONIO
CAPITAL IMPROVEMENTS MANAGEMENT SERVICES DEPARTMENT

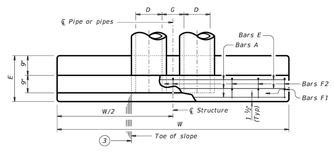
PIPE BEDDING & MISCELLANEOUS DRAINAGE DETAILS

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

TABLE OF VARIABLE DIMENSIONS AND QUANTITIES FOR ONE HEADWALL (5)

Dia of Pipe (D)	Slope	Values for One Pipe: W	Reinf (Lbs) (1)	Conc (CY) (2)	Values To Be Added for Each Addt'l Pipe: W	Reinf (Lbs) (1)	Conc (CY) (2)
12"	P:1	9' - 0"	122	1.1	1' - 9"	15	0.2
15"		10' - 3"	136	1.3	2' - 2"	16	0.2
18"		11' - 6"	163	1.5	2' - 8"	19	0.3
21"		12' - 9"	200	1.8	3' - 1"	31	0.4
24"		14' - 0"	217	2.1	3' - 7"	34	0.4
27"		15' - 3"	254	2.4	3' - 11"	37	0.5
30"		16' - 6"	272	2.7	4' - 4"	40	0.6
33"		17' - 9"	314	3.1	4' - 8"	43	0.6
36"		19' - 0"	371	3.9	5' - 1"	46	0.8
42"		21' - 6"	442	4.9	5' - 10"	52	1.0
48"		25' - 0"	569	6.4	6' - 7"	59	1.3
54"		27' - 6"	701	7.5	7' - 6"	82	1.6
60"		30' - 0"	794	8.8	8' - 3"	90	1.8
66"		32' - 6"	894	10.2	8' - 9"	96	2.0
72"		35' - 0"	1,055	11.7	9' - 4"	103	2.3
12"	P:3:1	13' - 0"	175	1.6	1' - 9"	14	0.2
15"		14' - 9"	193	1.9	2' - 2"	17	0.2
18"		16' - 6"	228	2.2	2' - 8"	19	0.3
21"		18' - 3"	299	2.6	3' - 1"	31	0.4
24"		20' - 0"	323	3.0	3' - 7"	33	0.4
27"		21' - 9"	371	3.5	3' - 11"	37	0.5
30"		23' - 6"	415	4.0	4' - 4"	40	0.5
33"		25' - 3"	469	4.6	4' - 8"	43	0.6
36"		27' - 0"	556	5.7	5' - 1"	46	0.8
42"		30' - 6"	675	7.1	5' - 10"	52	1.0
48"		35' - 6"	837	9.2	6' - 7"	59	1.3
54"		39' - 0"	1,015	11.0	7' - 6"	84	1.6
60"		42' - 6"	1,171	12.9	8' - 3"	91	1.8
66"		46' - 0"	1,298	14.9	8' - 9"	98	2.0
72"		49' - 6"	1,561	17.1	9' - 4"	103	2.3
12"	P:4:1	17' - 0"	229	2.0	1' - 9"	15	0.2
15"		19' - 3"	266	2.4	2' - 2"	17	0.2
18"		21' - 6"	308	2.9	2' - 8"	19	0.3
21"		23' - 9"	382	3.5	3' - 1"	31	0.3
24"		26' - 0"	430	3.9	3' - 7"	34	0.4
27"		28' - 3"	486	4.7	3' - 11"	37	0.5
30"		30' - 6"	539	5.2	4' - 4"	40	0.6
33"		32' - 9"	603	6.0	4' - 8"	42	0.6
36"		35' - 0"	738	7.5	5' - 1"	47	0.8
42"		39' - 6"	881	9.3	5' - 10"	52	1.0
48"		46' - 0"	1,102	12.1	6' - 7"	61	1.3
54"		50' - 6"	1,364	14.4	7' - 6"	84	1.6
60"		55' - 0"	1,547	16.9	8' - 3"	91	1.8
66"		59' - 6"	1,741	19.5	8' - 9"	98	2.0
72"		64' - 0"	2,077	22.4	9' - 4"	102	2.3
12"	K:1	25' - 0"	336	3.0	1' - 9"	14	0.2
15"		28' - 3"	384	3.6	2' - 2"	17	0.2
18"		31' - 6"	452	4.2	2' - 8"	19	0.3
21"		34' - 9"	581	5.1	3' - 1"	31	0.4
24"		38' - 0"	644	5.8	3' - 7"	34	0.4
27"		41' - 3"	737	6.9	3' - 11"	37	0.5
30"		44' - 6"	807	7.7	4' - 4"	39	0.6
33"		47' - 9"	912	8.9	4' - 8"	44	0.6
36"		51' - 0"	1,108	11.0	5' - 1"	48	0.8
42"		57' - 6"	1,318	13.7	5' - 10"	54	1.0
48"		67' - 0"	1,682	17.9	6' - 7"	59	1.3
54"		73' - 6"	2,072	21.3	7' - 6"	83	1.6
60"		80' - 0"	2,351	24.9	8' - 3"	89	1.8
66"		86' - 6"	2,643	28.9	8' - 9"	96	2.0
72"		93' - 0"	3,121	33.1	9' - 4"	101	2.3





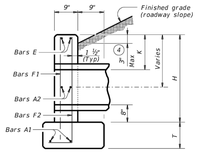


TABLE OF CONSTANT DIMENSIONS

Dia of Pipe (D)	G	K (5)	H	T	E
12"	0' - 9"	1' - 0"	2' - 8"	0' - 9"	1' - 9"
15"	0' - 11"	1' - 0"	2' - 11"	0' - 9"	1' - 9"
18"	1' - 2"	1' - 0"	3' - 2"	0' - 9"	1' - 9"
21"	1' - 4"	1' - 0"	3' - 5"	0' - 9"	2' - 0"
24"	1' - 7"	1' - 0"	3' - 8"	0' - 9"	2' - 0"
27"	1' - 8"	1' - 0"	3' - 11"	0' - 9"	2' - 3"
30"	1' - 10"	1' - 0"	4' - 2"	0' - 9"	2' - 3"
33"	1' - 11"	1' - 0"	4' - 5"	0' - 9"	2' - 6"
36"	2' - 1"	1' - 0"	4' - 8"	1' - 0"	2' - 6"
42"	2' - 4"	1' - 0"	5' - 2"	1' - 0"	2' - 9"
48"	2' - 7"	1' - 3"	5' - 11"	1' - 0"	3' - 0"
54"	3' - 0"	1' - 3"	6' - 5"	1' - 0"	3' - 3"
60"	3' - 3"	1' - 3"	6' - 11"	1' - 0"	3' - 6"
66"	3' - 3"	1' - 3"	7' - 5"	1' - 0"	3' - 9"
72"	3' - 4"	1' - 3"	7' - 11"	1' - 0"	4' - 0"

TABLE OF REINFORCING STEEL (6)

Bar	Size	Spa	No.
A1	#5	~	2
A2	#5	1' - 6"	~
E	#5	~	2
F	#5	1' - 0"	~

MATERIAL NOTES:
Provide Grade 60 reinforcing steel.
Provide Class C concrete (f'c = 3,600 psi).

GENERAL NOTES:
Designed according to AASHTO LRFD Bridge Design Specifications.
Do not mount bridge rails of any type directly to these culvert headwalls.
This standard may not be used for wall heights, H, exceeding the values shown.

Cover dimensions are clear dimensions, unless noted otherwise.
Reinforcing dimensions are out-to-out of bars.

(1) Total quantities include one 3'-1" lap for bars over 60' in length.

(2) Quantities shown are for concrete pipe and will increase slightly for metal pipe installations.

(3) Indicated slope is perpendicular to centerline pipe or pipes.

(4) For vehicle safety, construct curbs no more than 3" above finished grade. Reduce curb heights, if necessary, to meet these requirements. No changes will be made in quantities and no additional compensation will be allowed for this work.

(5) Dimensions shown are usual and maximum.

(6) Dimensions shown are for one structure end only (one headwall).

Texas Department of Transportation | Bridge Division Standard

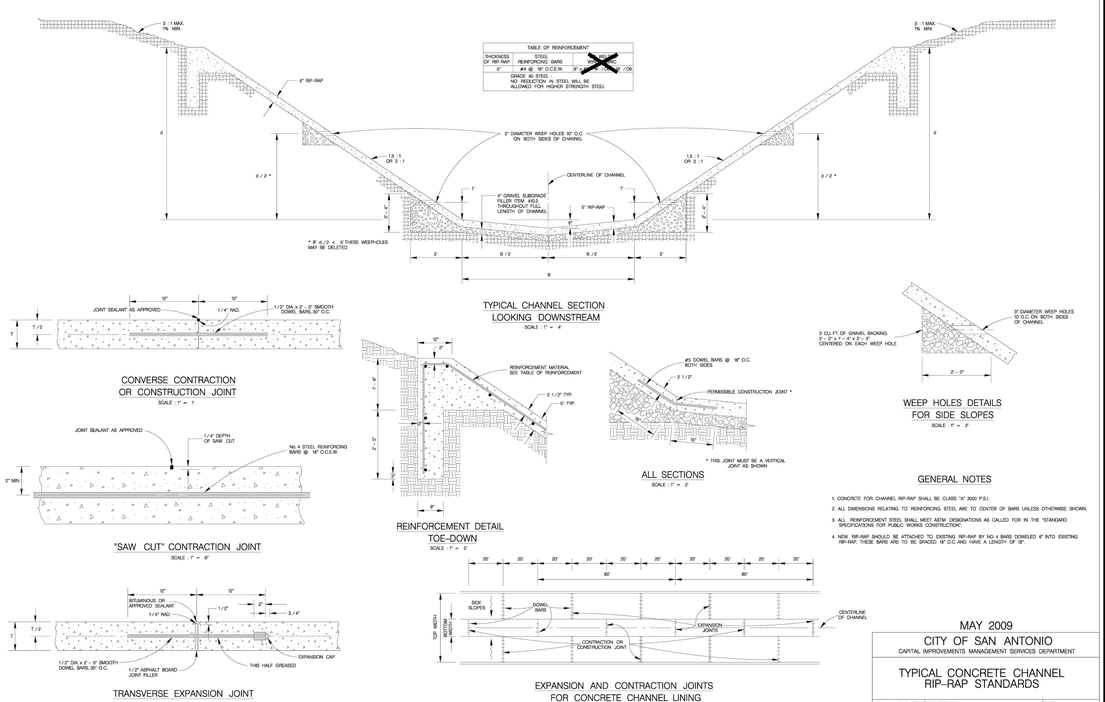
CONCRETE HEADWALLS WITH PARALLEL WINGS FOR NON-SKEWED PIPE CULVERTS

CH-PW-0

File: CD-CH-PW0-20.dgn	DN: TxDOT	CK: TxDOT	CW: TxDOT	CK: TxDOT
©TxDOT February 2020	CONT	SECT	JOB	HIGHWAY
REVISIONS	DIST	COUNTY		SHEET NO.

DATE:
FILE:

DISCLAIMER:
The use of this standard is governed by the "Texas Engineering Practice Act". No warranty of any kind is made by TxDOT for any purpose whatsoever. TxDOT assumes no responsibility for errors or omissions resulting from the use of this standard.



MAY 2009

CITY OF SAN ANTONIO
CAPITAL IMPROVEMENTS MANAGEMENT SERVICES DEPARTMENT

TYPICAL CONCRETE CHANNEL RIP–RAP STANDARDS

% SUBMITTAL	PROJECT NO.:	DATE:
DRAWN BY: V. VASQUEZ	DSGN. BY:	CHKD. BY:	SHEET NO. ___ OF ___

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CUDE ENGINEERS

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

TRES LAURELS UNIT 2B

DRAINAGE DETAILS

DATE
08/16/2025

PROJECT NO.
03050.018

DRAWN BY
JW

CHECKED BY
SPM/DF

REVISIONS
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08/18/2025

STATE OF TEXAS
MATTHEW A. TRINKLE
147558
LICENSED PROFESSIONAL ENGINEER

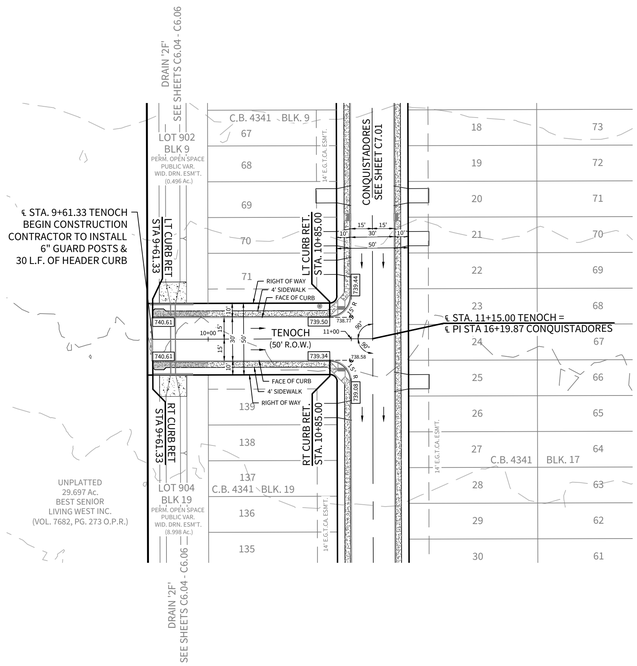
CUDE ENGINEERS
TBPELS No. 10048500

PLAT NO.
24-11800283

C6.D3

P:\03050\03.0 DWG\4-Plans\04 CD Detail\dwg 2025/08/18 3:54pm jwa

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.



ELEVATIONS:

XXXX.XX PROPOSED TOP OF CONCRETE CURB ELEVATION

XXXX.XX PROPOSED ASPHALT PAVEMENT ELEVATION

- STREET WASHOUT (SEE DETAIL SHEET C7.D1)

- SIDEWALK TO BE CONSTRUCTED WITH INFRASTRUCTURE (DEVELOPER RESPONSIBLE)

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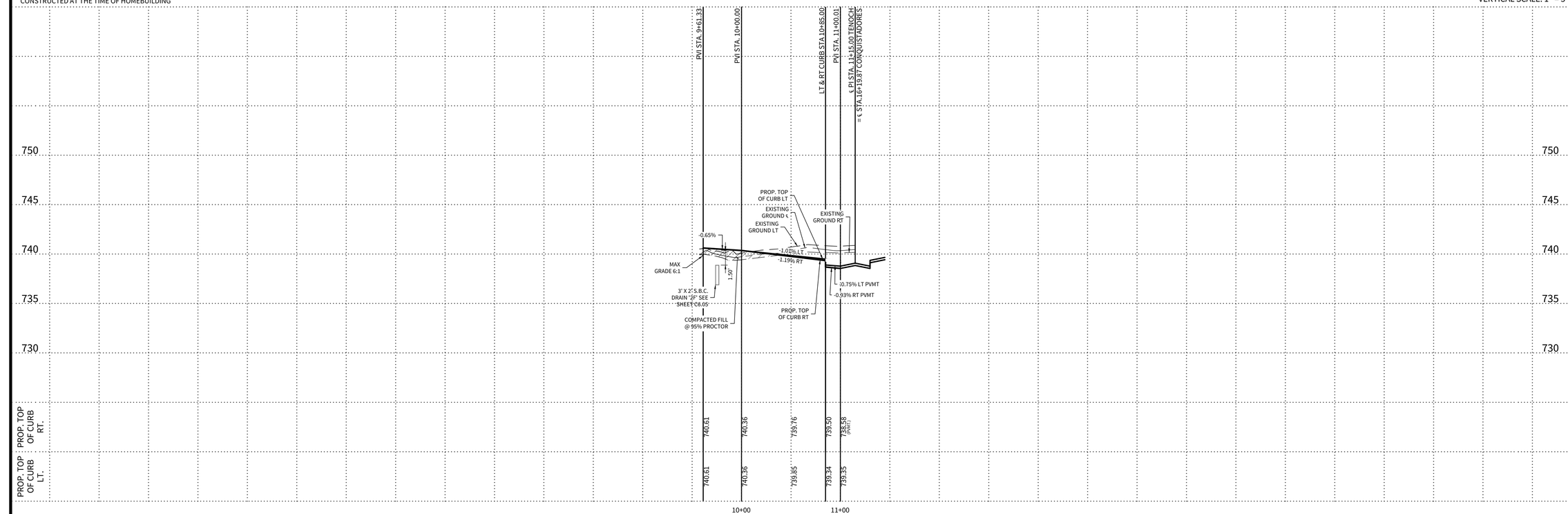
TENOCH

STA. 9+61.33 TO STA. 11+15.00

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

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



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TRES LAURELS UNIT 2B

STREET PLAN & PROFILE - TENOCH

DATE
07/17/2025

PROJECT NO.
03050.018

DRAWN BY
JW

CHECKED BY
SPM/DF

REVISIONS
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06/17/2025
STATE OF TEXAS
MATTHEW A. TRINKLE
147558
LICENSED PROFESSIONAL ENGINEER

CUDE ENGINEERS
TBPELS No. 10048500

PLAT NO.
24-11800283

C7.00

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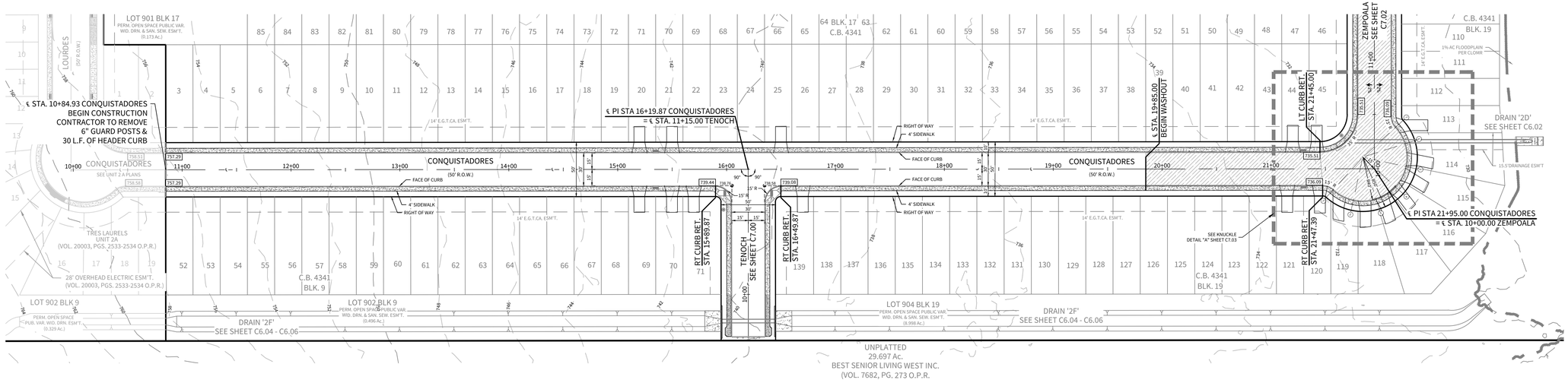
REPRODUCTION OF THE ORIGINAL SIGNED AND SEALED PLAN AND/OR ELECTRONIC MEDIA MAY HAVE BEEN INADVERTENTLY ALTERED. CONTRACTOR IS RESPONSIBLE FOR VERIFYING THE SCALE OF THE DOCUMENT AND CONTACTING CUDE ENGINEERS TO VERIFY DISCREPANCIES PRIOR TO CONSTRUCTION.



ELEVATIONS:

XXXX.XX PROPOSED TOP OF CONCRETE CURB ELEVATION

XXXX.XX PROPOSED ASPHALT PAVEMENT ELEVATION

- STREET WASHOUT (SEE DETAIL SHEET C7.D1)

- SIDEWALK TO BE CONSTRUCTED WITH INFRASTRUCTURE (DEVELOPER RESPONSIBLE)

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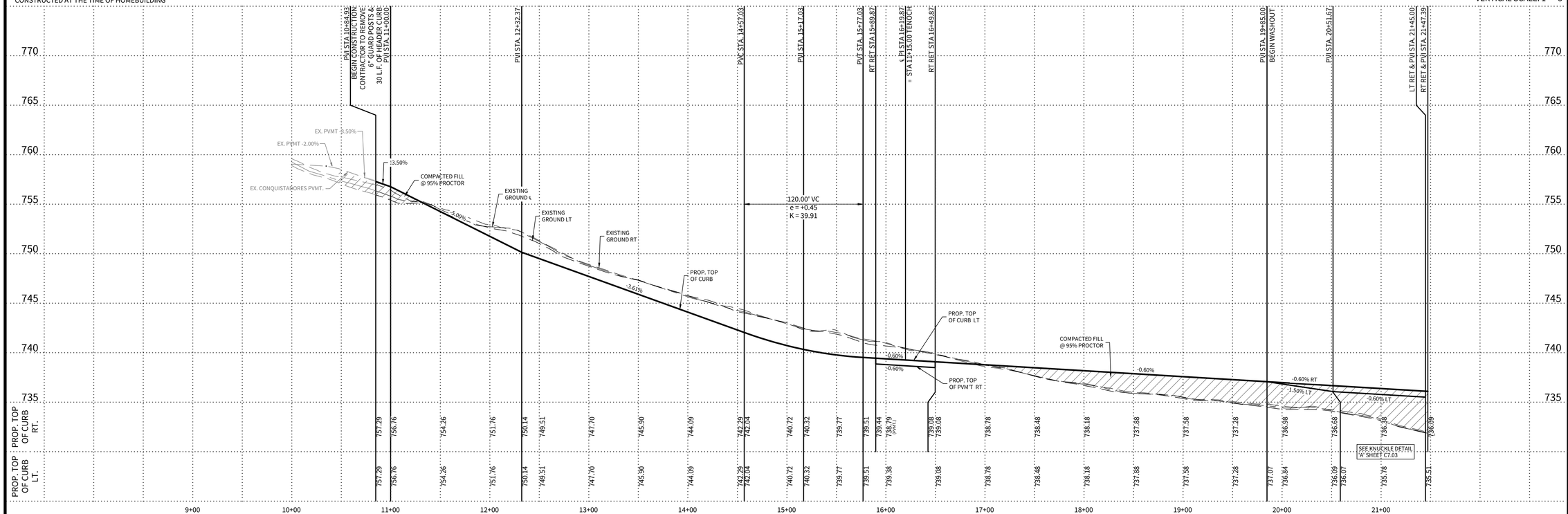
CONQUISTADORES

STA. 10+84.93 TO STA. 21+47.39

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

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



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TRES LAURELS UNIT 2B

STREET PLAN & PROFILE - CONQUISTADORES

DATE
08/16/2025

PROJECT NO.
03050.018

DRAWN BY
JW

CHECKED BY
SPM/DF

REVISIONS
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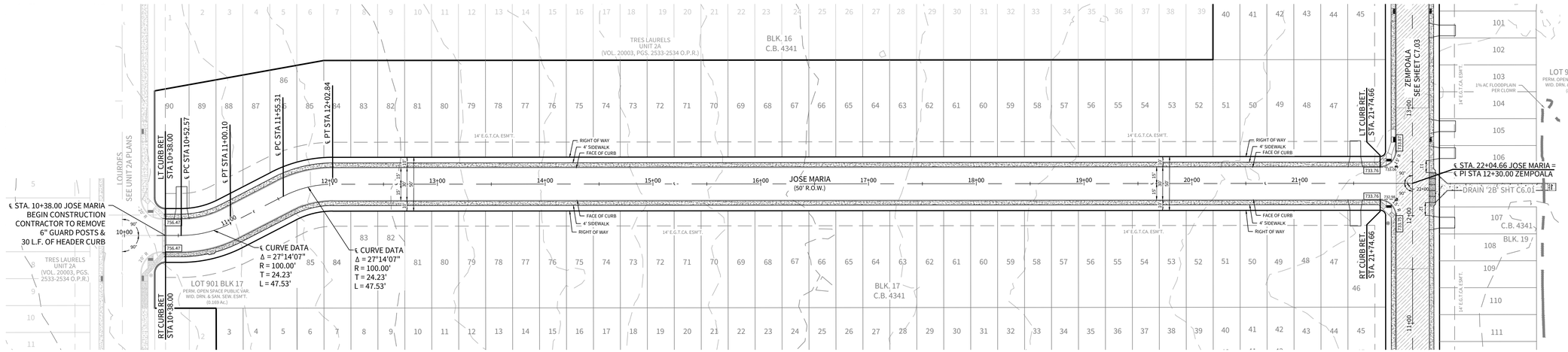
08/18/2025
STATE OF TEXAS
MATTHEW A. TRINKLE
147558
LICENSED PROFESSIONAL ENGINEER

CUDE ENGINEERS
TBPELS No. 10048500

PLAT NO.
24-11800283

C7.01

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.



ELEVATIONS:

xxxx.xx PROPOSED TOP OF CONCRETE CURB ELEVATION

xxxx.xx PROPOSED ASPHALT PAVEMENT ELEVATION

- STREET WASHOUT (SEE DETAIL SHEET C7.D1)

- SIDEWALK TO BE CONSTRUCTED WITH INFRASTRUCTURE (DEVELOPER RESPONSIBLE)

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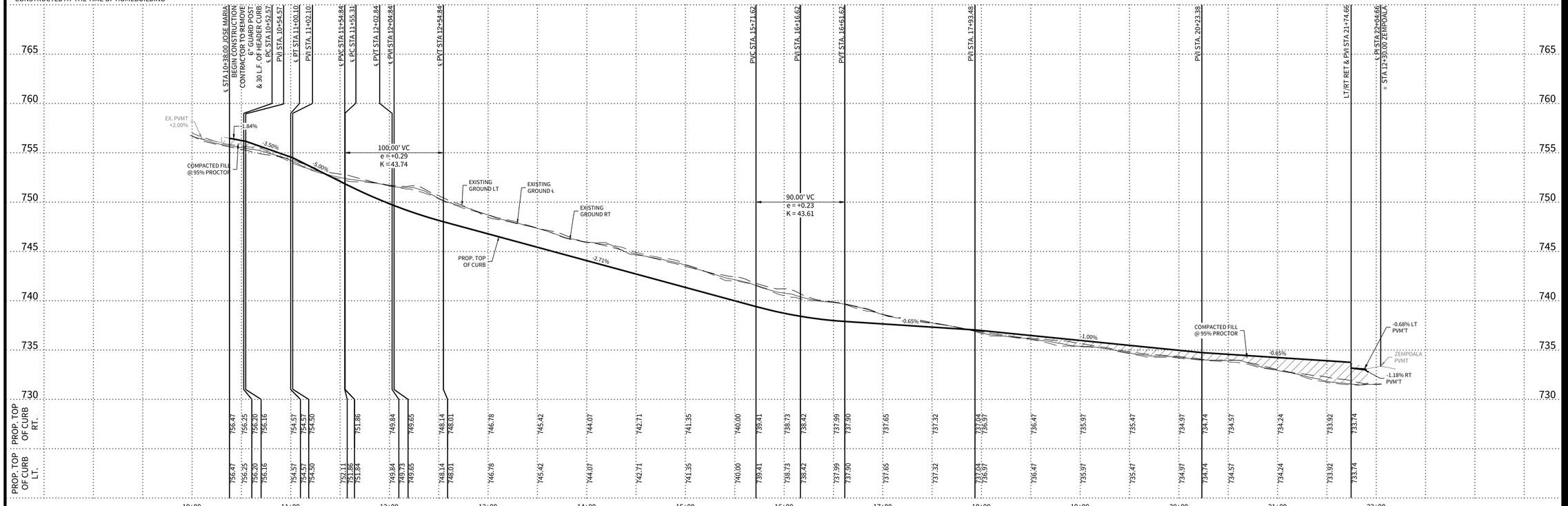
JOSE MARIA

STA. 10+38.00 TO STA. 22+04.66



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

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

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STREET PLAN & PROFILE - JOSE MARIA

DATE 07/17/2025

PROJECT NO. 03050.018

DRAWN BY JW

CHECKED BY SPM/DF

REVISIONS

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06/17/2025

STATE OF TEXAS
MATTHEW A. TRINKLE
147558
LICENSED PROFESSIONAL ENGINEER

CUDE ENGINEERS
TBPELS No. 10048500

PLAT NO. 24-11800283

C7.02

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.

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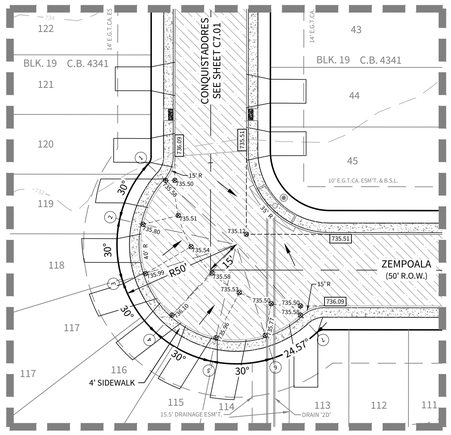
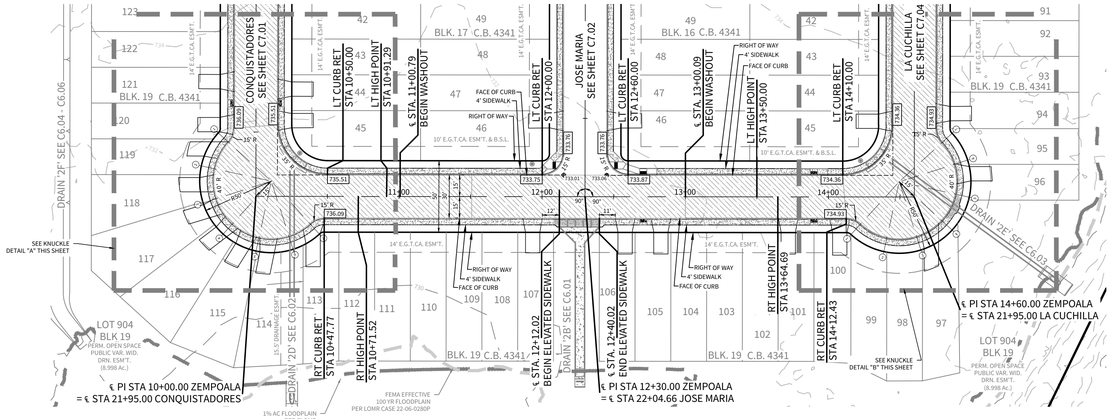
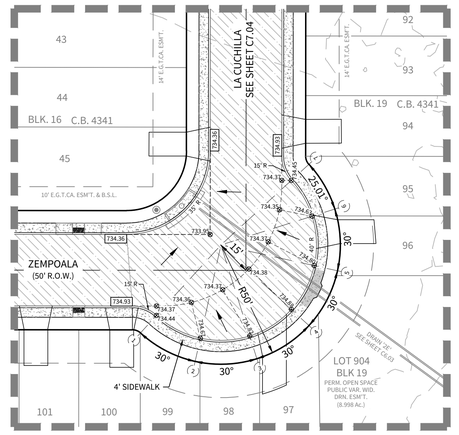


KNUCKLE DETAIL "A"

SCALE: 1" = 30'





KNUCKLE DETAIL "B"

SCALE: 1" = 30'

ELEVATIONS:

xxxx.xx PROPOSED TOP OF CONCRETE CURB ELEVATION

xxxx.xx PROPOSED ASPHALT PAVEMENT ELEVATION

- STREET WASHOUT (SEE DETAIL SHEET C7.D1)

- SIDEWALK TO BE CONSTRUCTED WITH INFRASTRUCTURE (DEVELOPER RESPONSIBLE)

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ZEMPOALA

STA. 10+47.77 TO STA. 14+12.43

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

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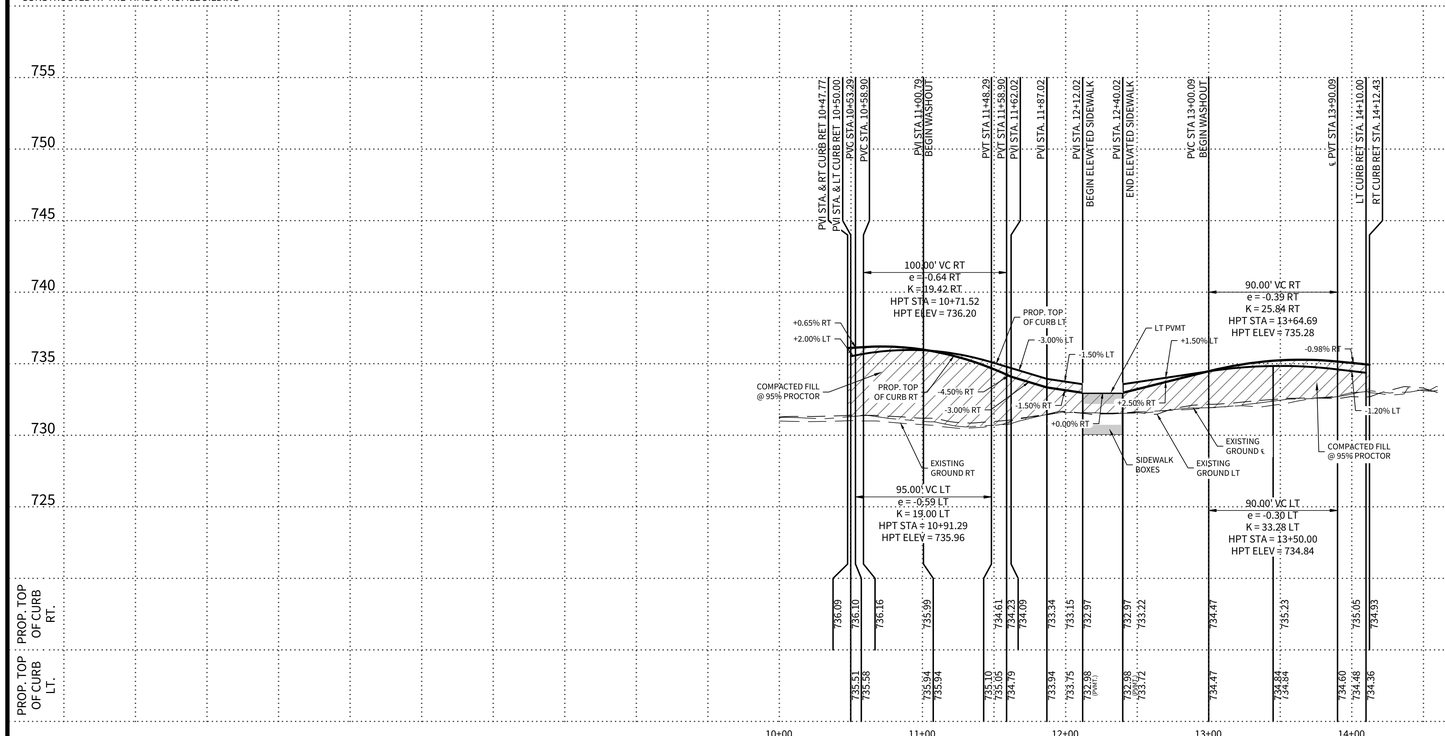

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TRES LAURELS UNIT 2B

STREET PLAN & PROFILE - ZEMPOALA

DATE
08/16/2025

PROJECT NO.
03050.018

DRAWN BY
JW

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SPM/DF

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08/18/2025

STATE OF TEXAS
MATTHEW A. TRINKLE
147558
LICENSED
PROFESSIONAL ENGINEER

CUDE ENGINEERS
TBPELS No. 10048500

PLAT NO.
24-11800283

C7.03

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ELEVATIONS:

XXXX.XX PROPOSED TOP OF CONCRETE CURB ELEVATION

XXXX.XX PROPOSED ASPHALT PAVEMENT ELEVATION

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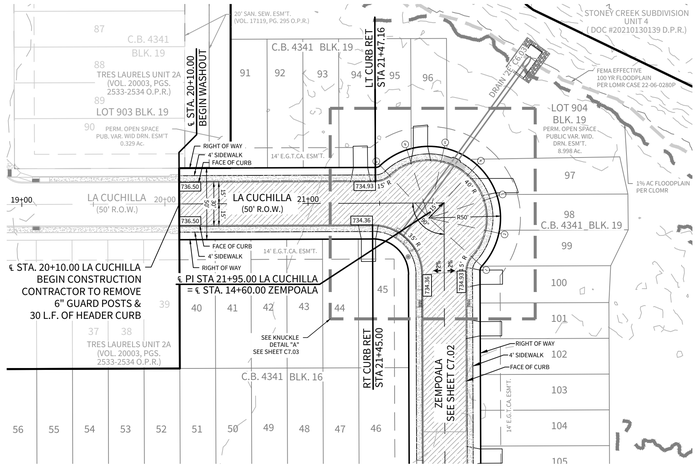
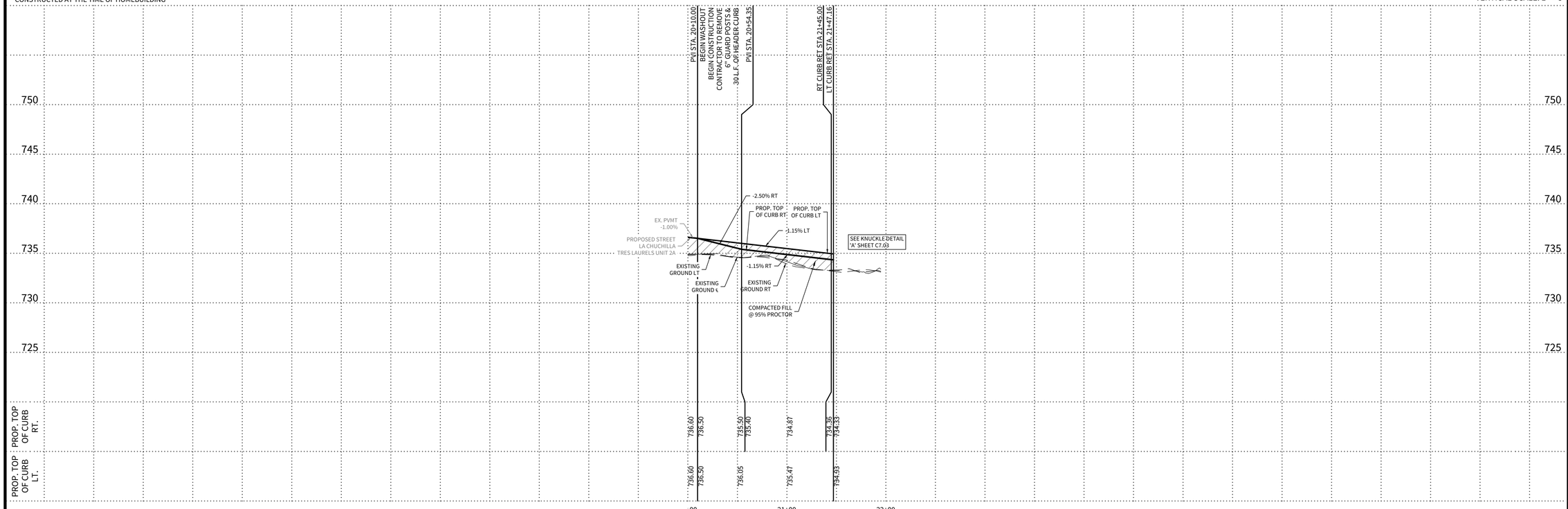


LA CUCHILLA

STA.20+10.00 TO STA. 21+47.16



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TRES LAURELS UNIT 2B

STREET PLAN & PROFILE - LA CUCHILLA

DATE
07/17/2025

PROJECT NO.
03050.018

DRAWN BY
JW

CHECKED BY
SPM/DF

REVISIONS
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06/17/2025
STATE OF TEXAS
MATTHEW A. TRINKLE
147558
LICENSED PROFESSIONAL ENGINEER

CUDE ENGINEERS
TBPELS No. 10048500

PLAT NO.
24-11800283

C7.04

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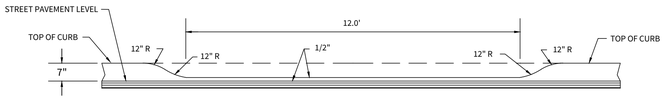
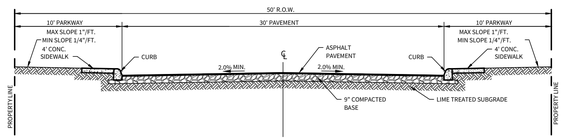
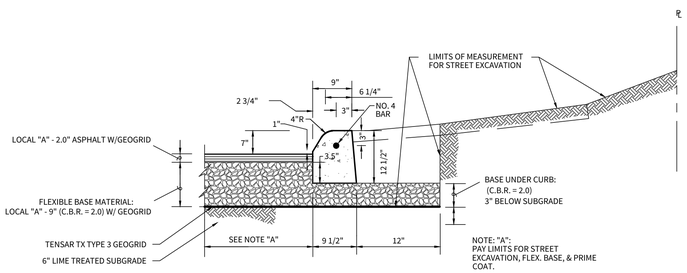
REPRODUCTION OF THE ORIGINAL SIGNED AND SEALED PLAN AND/OR ELECTRONIC MEDIA MAY HAVE BEEN INADVERTENTLY ALTERED. CONTRACTOR IS RESPONSIBLE FOR VERIFYING THE SCALE OF THE DOCUMENT AND CONTACTING CUDE ENGINEERS TO VERIFY DISCREPANCIES PRIOR TO CONSTRUCTION.



TYPICAL DRIVEWAY CUT SECTION



TYPICAL LOCAL "A" STREET CROSS-SECTION



CURB 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.	"

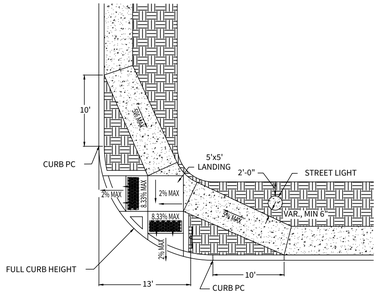
DETAILS ON THIS DRAWING ARE NOT TO SCALE

STREET PAVEMENT DESIGN OPTIONS

GEOTECH ENGINEER WILL BE PRESENT TO DETERMINE IF LIME TREATMENT IS REQUIRED. IF LIME TREATMENT IS REQUIRED, BEXAR COUNTY PUBLIC WORKS WILL BE INFORMED OF ALL CHANGES. REVISIONS WILL BE SUBMITTED INDICATING WHERE LIME TREATMENT WAS USED, ALONG WITH STATIONING. CONTRACTOR TO REVIEW GEOTECH RECOMMENDATIONS PRIOR TO FINAL SUBGRADE PREP. (REF. TTL, INC. PROJECT #PROJECT NO. 000230902935.01 PREPARED ON OCTOBER 22ND, 2024)

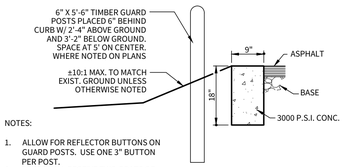
STREET TYPE	HMAC TYPE "D"	FLEX BASE (TY A GR 2)	TENSAR TX GEOGRID	LIME TREATED SUBGRADE	BASE UNDER CURB	STRUCTURAL NUMBER
LOCAL "A" (C.B.R. = 2.0)	2"	9"	YES	6.0" (35 LBS/SY)	3"	3.06

NOTE:
1. FILL MATERIAL FOR SUBGRADES BELOW PAVED AREAS SHALL BE OF NATIVE MATERIALS (NO STONES LARGER THAN 3") & BE OF SIMILAR CHARACTERISTICS AS FOUND WITHIN THE PAVED AREAS. FILL MATERIAL SHALL BE PLACED IN MAX. 8" LOOSE LIFTS & BE COMPACTED TO AT LEAST 95% MAX DRY DENSITY. FILL MATERIAL SHALL HAVE A PLASTICITY INDEX OF NO MORE THAN 20 & A CBR OF 2.0.
2. IF THE FILL MATERIAL CONSISTS OF A PLASTICITY INDEX OF LESS THAN 20, THEN LIME TREATMENT WILL NOT BE NEEDED. CONTRACTOR SHALL MAKE ALL EFFORTS TO USE FILL MATERIAL FROM AREAS OF SIMILAR SUBGRADE MATERIAL FOR ROADWAY EMBANKMENTS. ANY OFFSITE FILL MATERIAL SHALL BE TESTED TO VERIFY MINIMUM PI AND CBR VALUES ARE WITHIN CALCULATED PARAMETERS.
3. PI VALUES OBTAINED FROM THE SOIL SAMPLES TAKEN NEAR THE SURFACE RANGES FROM 40 TO 42 IN THE CLAY SUBGRADE SOIL. PER GEOTECH REPORT, LIME TREATMENT IS RECOMMENDED WHERE SUITABLE FILL MATERIAL IS NOT USED.



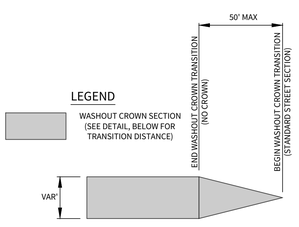
ADA RAMP INTERSECTION LAYOUT DETAIL (TYPE 10 DIRECTIONAL RAMPS)
N.T.S.

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

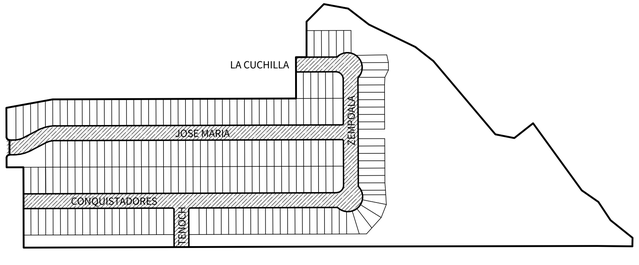


NOTES:
1. ALLOW FOR REFLECTOR BUTTONS ON GUARD POSTS. USE ONE 3" BUTTON PER POST.
2. POSTS WILL RECEIVE TWO COATS OF ALUMINUM PAINT.

HEADER CURB DETAIL
N.T.S.

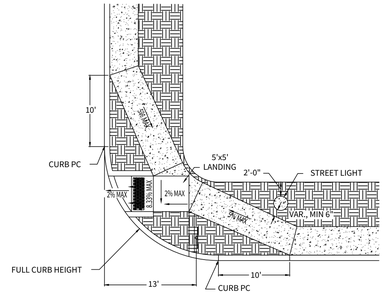


WASHOUT CROWN TRANSITION DETAIL
N.T.S.



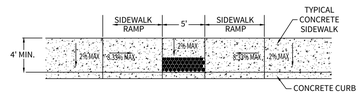
LOCAL TYPE A

STREET PAVEMENT DESIGN DETAIL

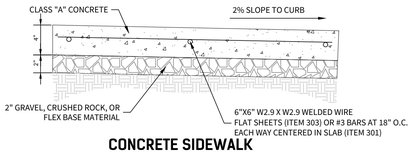


ADA RAMP INTERSECTION LAYOUT DETAIL (TYPE 10 DIRECTIONAL RAMPS – SINGLE DIRECTION)
N.T.S.

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.



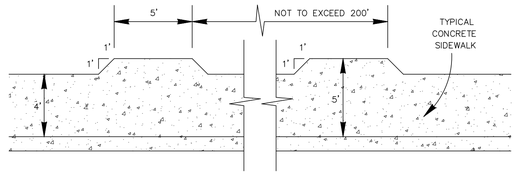
CONCRETE SIDEWALK
N.T.S.

PAVEMENT DESIGN SCHEMATIC

NOTE:
1. REFERENCE GEOTECHNICAL REPORT (PROJECT NO. 000230902935.02 PREPARED BY TTL ON APRIL 24TH, 2025) FOR BORING INFORMATION AND CBR LOCATIONS.

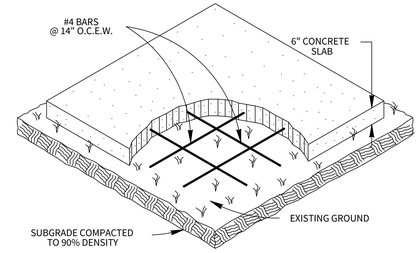
LEGEND:

LOCAL "A"	
CONQUISTADORES	STA 10+84.93 – STA 21+47.39
LA CUCHILLA	STA 20+10.00 – STA 21+95.00
JOSE MARIA	STA 10+38.00 – STA 22+04.66
TENOCH	STA 09+41.33 – STA 11+15.00
ZEMPOALA	STA 10+47.77 – STA 14+12.43



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.

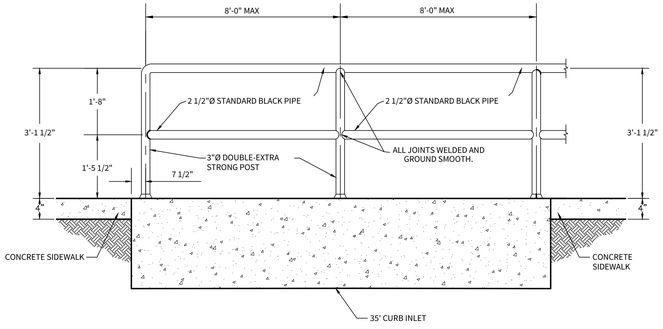


MAIL BOX PAD NOTE:

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



TYPICAL DRAIN HANDRAIL

NOTES:

1) PIPE RAILING SHALL BE PAINTED WITH ALUMINUM PAINT.

LIME TREATMENT:

TO INCLUDE A LIME TREATMENT LAYER AS PART OF THE STRUCTURAL PAVEMENT SYSTEM, THE APPLICATION RATE OF LIME SHALL BE DETERMINED BASED ON LABORATORY TESTING AND SHALL BE THE LOWEST PERCENTAGE OF LIME THAT PROVIDES:

- A pH OF 12.4 OR THE HIGHEST pH ACHIEVED IN ACCORDANCE WITH ASTM D6276 STANDARD TEST METHOD FOR USING pH TO ESTIMATE THE SOIL-LIME PROPORTION REQUIREMENT FOR SOIL STABILIZATION,
- A PI OF LESS THAN 20 IN ACCORDANCE WITH ASTM D4318 STANDARD TEST METHODS FOR LIQUID LIMIT, PLASTIC LIMIT, AND PLASTICITY INDEX OF SOILS,
- AN UNCONFINED COMPRESSIVE STRENGTH (UCS) AT 7-DAYS OF AT LEAST 160 PSI IN ACCORDANCE WITH ASTM D5102 STANDARD TEST METHODS FOR UNCONFINED COMPRESSIVE STRENGTH OF COMPACTED SOIL-LIME MIXTURES (PROCEDURE B) (IN ADDITION, CURING SHOULD OCCUR FOR 7 DAYS AT 40°C AND SPECIMENS SHOULD BE SUBJECTED TO 24-HR CAPILLARY SOAK PRIOR TO TESTING), AND
- [OPTIONAL CRITERIA FOR EXPANSIVE SOILS] A THREE DIMENSIONAL EXPANSION OF LESS THAN 1% (OR MAYBE 2%).

FOR CONSTRUCTION VERIFICATION THE FOLLOWING SHALL BE CONDUCTED IN THE FIELD:

- AFTER INITIAL MIXING THE SOIL-LIME MIXTURE SHALL MELLOW FOR A PERIOD OF TWO TO THREE (2-3) DAYS. MAINTAIN MOISTURE DURING MELLOWING;
- AFTER MELLOWING AND FINAL MIXING, THE PULVERIZATION SHALL BE CHECKED USING THE FOLLOWING CRITERIA (REMOVE NON-SLAKING AGGREGATES RETAINED ON THE ¾ INCH SIEVE FROM THE SAMPLE):
  - MINIMUM PASSING 1 ¾" SIEVE 100
  - MINIMUM PASSING ¾" SIEVE 85
  - MINIMUM PASSING NO. 4 SIEVE 60
- SAMPLE SOIL-LIME MIXTURE FOR DETERMINATION OF MAXIMUM DRY DENSITY (MDD). IN THE LABORATORY, MOLD SPECIMENS TO 95% OF MDD AT OPTIMUM MOISTURE CONTENT AND VERIFY UCS TO BE AT LEAST 160 PSI IN ACCORDANCE WITH PROCEDURE OUTLINED ABOVE FOR MIXTURE DESIGN.
- COMPACT AND CHECK FIELD DENSITY (MINIMUM OF 95% OF MDD REQUIRED);
- CURE FOR AN ADDITIONAL 2 TO 5 DAYS (TOTAL MELLOWING AND CURING TIME SHOULD TOTAL AT LEAST 5 DAYS).
- VERIFY DEPTH OF LIME STABILIZED LAYER TO DEPTH AS NOTED ON PLAN TO WITHIN +/- 1.0 INCH.

CUDEENGINEERS.COM
CUDE ENGINEERS
4122 Pond Hill Road, Suite 101
San Antonio, Texas 78231
P:(210) 681.2951

TRES LAURELS UNIT 2B

STREET DETAILS (1 OF 3)

DATE 06/05/2025
PROJECT NO. 03050.018
DRAWN BY JW
CHECKED BY SPM/DF

REVISIONS
1. 2. 3. 4. 5. 6. 7. 8. 9. 10.

06/17/2025
STATE OF TEXAS
MATTHEW A. TRINKLE
147558
LICENSED PROFESSIONAL ENGINEER
CUDE ENGINEERS
TBPELS No. 10048500

PLAT NO. 24-11800283

C7.D1

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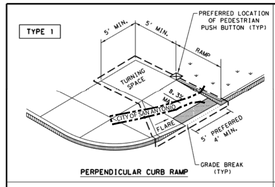
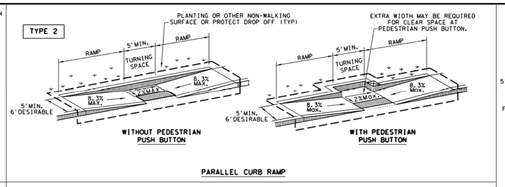
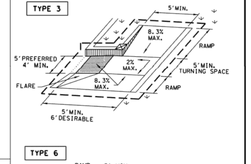
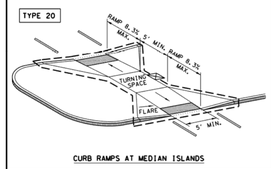


PERPENDICULAR CURB RAMP

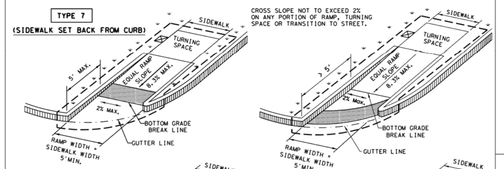


PARALLEL CURB RAMP

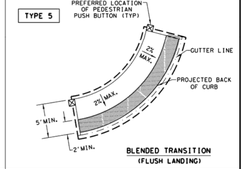




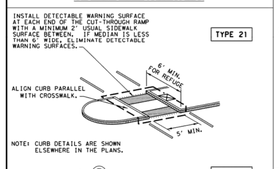
CURB RAMPS AT MEDIAN ISLANDS

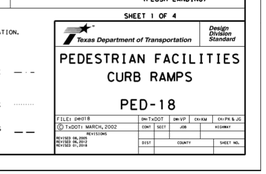


DIRECTIONAL RAMPS WITHIN RADIUS

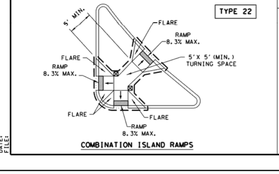


COMBINATION CURB RAMPS

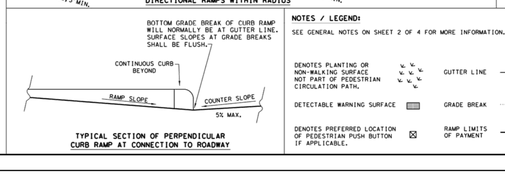




BLENDED TRANSITION (FLUSH LANDING)



COMBINATION ISLAND RAMPS



TYPICAL SECTION OF PERPENDICULAR CURB RAMP AT CONNECTION TO ROADWAY

NOTES / LEGEND:

SEE GENERAL NOTES ON SHEET 2 OF 4 FOR MORE INFORMATION.

DENOTES PLANTING OR NON-WALKING SURFACE NOT PART OF PEDESTRIAN CIRCULATION PATH. — GUTTER LINE

DETECTABLE WARNING SURFACE — GRADE BREAK

DENOTES PREFERRED LOCATION OF PEDESTRIAN PUSH BUTTON IF APPLICABLE. — RAMP LIMITS OF PAYMENT

SHEET 1 OF 4

Texas Department of Transportation | Design Division Standard

PEDESTRIAN FACILITIES CURB RAMPS

PED-18

FILE: ped18	dn:TxDOT	ck:	dw:	ck:
© TxDOT: MARCH, 2002	CONT	SECT	JOB	HIGHWAY
REVISIONS				
	DIST	COUNTY		SHEET NO.

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DATE:
FILE:

GENERAL NOTES

CURB RAMPS

1. Install a curb ramp or blended transition at each pedestrian street crossing.
2. All slopes shown are maximum allowable. Cross slopes of 1.5% and lesser running should be used. Adjust curb ramp length or grade of approach sidewalks as directed.
3. Maximum allowable cross slope on sidewalk and curb ramp surfaces is 2%.
4. The minimum sidewalk width is 5'. Where the sidewalk is adjacent to the back of curb, a 6' sidewalk width is desirable. Where a 5' sidewalk cannot be provided due to site constraints, sidewalk width may be reduced to 4' for short distances. 5'x 5' passing areas at intervals not to exceed 200' are required.
5. Turning Spaces shall be 5'x 5' minimum. Cross slope shall be maximum 2%.
6. Clear space at the bottom of curb ramps shall be a minimum of 4'x 4' wholly contained within the crosswalk and wholly outside the parallel vehicular travel path.
7. Provide flared sides where the pedestrian circulation path crosses the curb ramp. Flared sides shall be sloped at 10% maximum, measured parallel to the curb. Returned curbs may be used only where pedestrians would not normally walk across the ramp, either because the adjacent surface is planted, substantially obstructed, or otherwise protected.
8. Additional information on curb ramp location, design, light reflective value and texture may be found in the latest draft of the Proposed Guidelines for Pedestrian Facilities in the Public Right of Way (PROWAG) as published by the U.S. Architectural and Transportation Barriers Compliance Board (Access Board).
9. To serve as a pedestrian refuge area, the median should be a minimum of 6' wide, measured from back of curbs. Medians should be designed to provide accessible passage over or through them.
10. Small channelization islands, which do not provide a minimum 5'x 5' landing at the top of curb ramps, shall be cut through level with the surface of the street.
11. Crosswalk dimensions, crosswalk markings and stop bar locations shall be as shown elsewhere in the plans. At intersections where crosswalk markings are not required, curb ramps shall align with theoretical crosswalks unless otherwise directed.
12. Provide curb ramps to connect the pedestrian access route at each pedestrian street crossing. Handrails are not required on curb ramps.
13. Curb ramps and landings shall be constructed and paid for in accordance with Item 531 "Sidewalks".
14. Place concrete at a minimum depth of 5" for ramps, flares and landings, unless otherwise directed.
15. Furnish and install No. 3 reinforcing steel bars at 18" o.c. both ways, unless otherwise directed.
16. Provide a smooth transition where the curb ramps connect to the street.
17. Curbs shown on sheet 1 within the limits of payment are considered part of the curb ramp for payment, whether it is concrete curb, gutter, or combined curb and gutter.
18. Existing features that comply with applicable standards may remain in place unless otherwise shown on the plans.

DETECTABLE WARNING MATERIAL

19. Curb ramps must contain a detectable warning surface that consists of raised truncated domes complying with PROWAG. The surface must contrast visually with adjoining surfaces, including the flares. Furnish and install an approved cast-in-place dark brown or dark red detectable warning surface material adjacent to unpainted concrete, unless specified elsewhere in the plans.
20. Detectable Warning Materials must meet TxDOT Departmental Materials Specification DMS 4350 and be listed on the Material Producer List. Install products in accordance with manufacturer's specifications.
21. Detectable warning surfaces must be firm, stable and slip resistant.
22. Detectable warning surfaces shall be a minimum of 24 inches in depth in the direction of pedestrian travel, and extend the full width of the curb ramp or landing where the pedestrian access route enters the street.
23. Detectable warning surfaces shall be located so that the edge nearest the curb line is at the back of curb and neither end of that edge is greater than 5 feet from the back of curb. Detectable warning surfaces may be curved along the corner radius.
24. Shaded areas on Sheet 1 of 4 indicate the approximate location for the detectable warning surface for each curb ramp type.

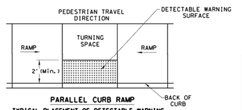
DETECTABLE WARNING PAVERS (IF USED)

25. Furnish detectable warning paver units meeting all requirements of ASTM C-936, C-33. Lay in a two by two unit basket weave pattern or as directed.
26. Lay full-size units first followed by closure units consisting of at least 25 percent (25%) of a full unit. Cut detectable warning paver units using a power saw.

SIDEWALKS

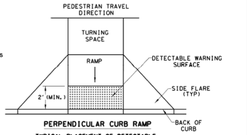
27. Provide clear ground space at operable parts, including pedestrian push buttons. Operable parts shall be placed within unobstructed reach range specified in PROWAG section R406.
28. Place traffic signal or illumination poles, ground boxes, controller boxes, signs, drainage facilities and other items so as not to obstruct the pedestrian access route or clear ground space.
29. Street grades and cross slopes shall be as shown elsewhere in the plans.
30. Changes in level greater than 1/4 inch are not permitted.
31. The least possible grade should be used to maximize accessibility. The running slope of sidewalks and crosswalks within the public right of way may follow the grade of the parallel roadway. Where a continuous grade greater than five percent (5%) must be provided, handrails may be desirable to improve accessibility. Handrails may also be needed to protect pedestrians from potentially hazardous conditions. If provided, handrails shall comply with PROWAG R409.
32. Handrail extensions shall not protrude into the usable landing area or into intersecting pedestrian routes.
33. Driveways and turnouts shall be constructed and paid for in accordance with Item "Intersections, Driveways and Turnouts". Sidewalks shall be constructed and paid for in accordance with Item, "Sidewalks".
34. Sidewalk details are shown elsewhere in the plans.

DETECTABLE WARNING SURFACE DETAILS



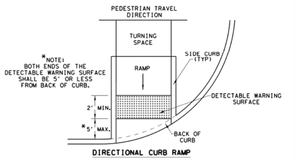
PARALLEL CURB RAMP

TYPICAL PLACEMENT OF DETECTABLE WARNING SURFACE ON LANDING AT STREET EDGE.



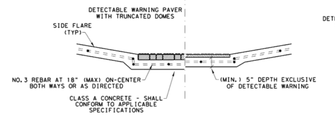
PERPENDICULAR CURB RAMP

TYPICAL PLACEMENT OF DETECTABLE WARNING SURFACE ON SLOPING RAMP RUN.



DIRECTIONAL CURB RAMP

TYPICAL PLACEMENT OF DETECTABLE WARNING SURFACE ON SLOPING RAMP RUN.



SECTION VIEW DETAIL
CURB RAMP AT DETECTIBLE WARNINGS

SHEET 2 OF 4

Texas Department of Transportation | Design Division Standard

PEDESTRIAN FACILITIES CURB RAMPS

PED-18

FILE: ped18	dn:TxDOT	ck:	dw:	ck:
© TxDOT: MARCH, 2002	CONT	SECT	JOB	HIGHWAY
REVISIONS				
	DIST	COUNTY		SHEET NO.

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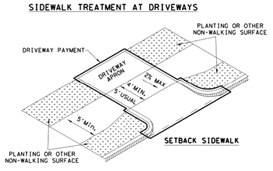
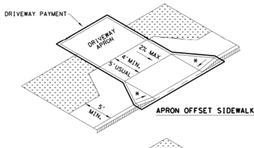
DATE:
FILE:

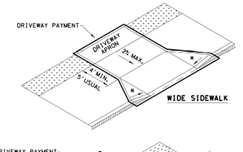
SIDEWALK TREATMENT AT DRIVEWAYS



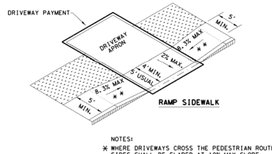
SETBACK SIDEWALK



APRON OFFSET SIDEWALK

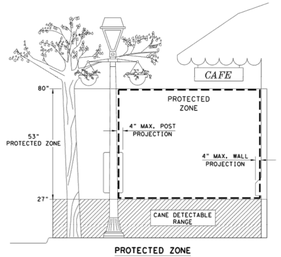


WIDE SIDEWALK



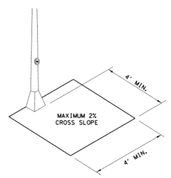
RAMP SIDEWALK

NOTES:
* WHERE DRIVEWAYS CROSS THE PEDESTRIAN ROUTE, SIDES SHALL BE FLARED AT 10% MAX SLOPE.
** IF CURB HEIGHT IS GREATER THAN 6 INCHES, USE GRADE LESS THAN OR EQUAL TO 5%. HANDRAIL AND DETECTABLE WARNING ARE NOT REQUIRED.

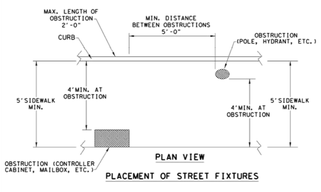


PROTECTED ZONE

NOTE: IN PEDESTRIAN CIRCULATION AREA, MAXIMUM 4" PROJECTION FOR POST OR WALL MOUNTED OBJECTS BETWEEN 27" AND 80" ABOVE THE SURFACE.

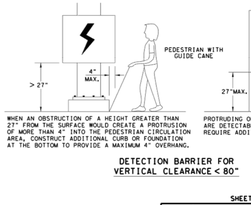


CLEAR SPACE ADJACENT TO PEDESTRIAN PUSH BUTTON



PLAN VIEW
PLACEMENT OF STREET FIXTURES

NOTE: ITEMS NOT INTENDED FOR PUBLIC USE. MINIMUM 4' X 4' CLEAR GROUND SPACE REQUIRED AT PUBLIC USE FIXTURES.



WHEN AN OBSTRUCTION OF A HEIGHT GREATER THAN 27" FROM THE SURFACE WOULD CREATE A PROTRUSION OF MORE THAN 4" INTO THE PEDESTRIAN CIRCULATION AREA, CONSTRUCT ADDITIONAL CURB OR FOUNDATION AT THE BOTTOM TO PROVIDE A MAXIMUM 4" OVERHANG.

PROTRUDING OBJECTS OF A HEIGHT ≤27" ARE DETECTABLE BY CANE AND DO NOT REQUIRE ADDITIONAL TREATMENT.

DETECTION BARRIER FOR VERTICAL CLEARANCE < 80"

SHEET 3 OF 4

Texas Department of Transportation | Design Division Standard

PEDESTRIAN FACILITIES CURB RAMPS

PED-18

FILE: ped18	dn:TxDOT	ck:	dw:	ck:
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	DIST	COUNTY		SHEET NO.

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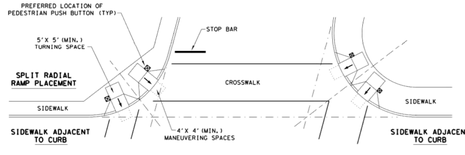
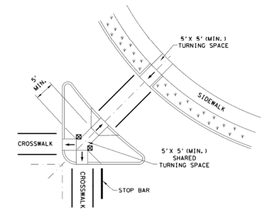
DATE:
FILE:

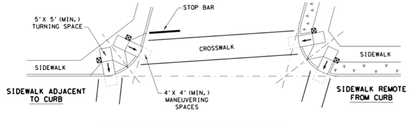
TYPICAL CROSSING LAYOUTS
SEE SHEET 1 OF 4 FOR DETAILS AND DIMENSIONS



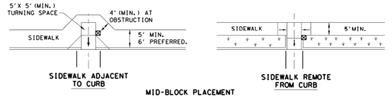
SKEWED INTERSECTION WITH "LARGE" RADIUS



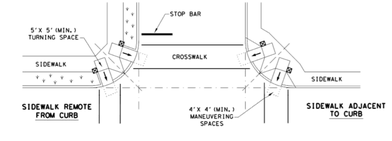
AT INTERSECTION W/FREE RIGHT TURN & ISLAND



SKEWED INTERSECTION WITH "SMALL" RADIUS



MID-BLOCK PLACEMENT PERPENDICULAR RAMPS



NORMAL INTERSECTION WITH "SMALL" RADIUS

LEGEND:

SHOWS DOWNWARD SLOPE. →

DENOTES PREFERRED LOCATION OF PEDESTRIAN PUSH BUTTON (IF APPLICABLE). ⊠

DENOTES PLANTING OR NON-WALKING SURFACE NOT PART OF PEDESTRIAN CIRCULATION PATH.

SHEET 4 OF 4

Texas Department of Transportation | Design Division Standard

PEDESTRIAN FACILITIES CURB RAMPS

PED-18

FILE: ped18	dn:TxDOT	ck:	dw:	ck:
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REVISIONS				
	DIST	COUNTY		SHEET NO.

CUDEENGINEERS.COM

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

TRES LAURELS
UNIT 2B

STREET DETAILS (2 OF 3)

DATE
03/27/2025

PROJECT NO.
03050.018

DRAWN BY
JW

CHECKED BY
SPM/DF

REVISIONS
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5.
6.
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8.
9.
10.

04/22/2025
STATE OF TEXAS
MATTHEW A. TRINKLE
147558
LICENSED PROFESSIONAL ENGINEER

CUDE ENGINEERS
TBPELS No. 10048500

PLAT NO.
24-11800283

C7.D2

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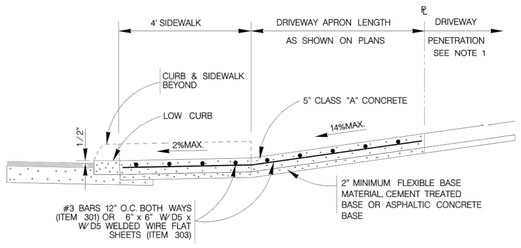
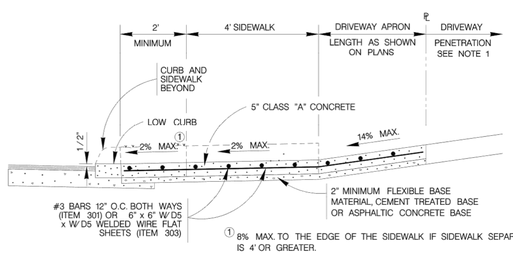


TYPICAL RESIDENTIAL DRIVEWAY SECTION

WITH SIDEWALK ABUTTING CURB

ITEM 503.1

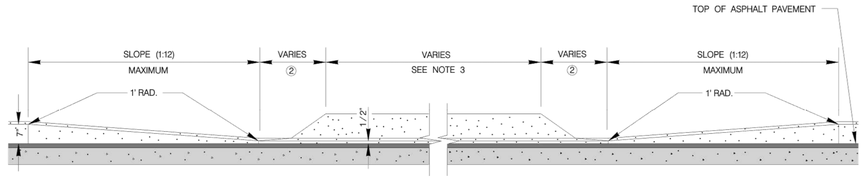


① 8% MAX. TO THE EDGE OF THE SIDEWALK IF SIDEWALK SEPARATION IS 4' OR GREATER.

TYPICAL RESIDENTIAL DRIVEWAY SECTION

WITH SIDEWALK SEPARATED FROM CURB

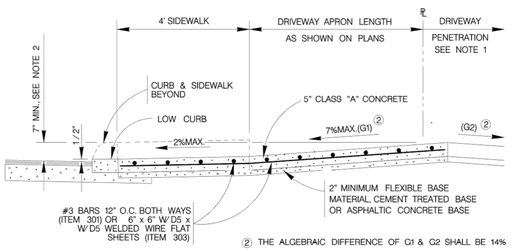
ITEM 503.1



② RESIDENTIAL : 2' MAXIMUM; COMMERCIAL: SEE PLAN VIEW

CURB PROFILE AT DRIVEWAY

WITH SIDEWALK ABUTTING CURB

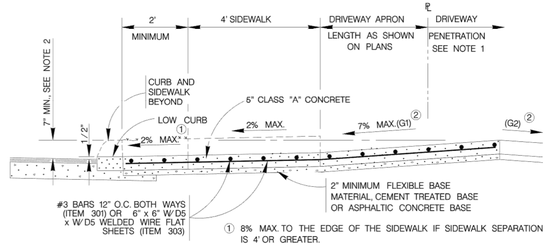


② THE ALGEBRAIC DIFFERENCE OF G1 & G2 SHALL BE 14% OR LESS

TYPICAL RESIDENTIAL DRIVEWAY SECTION

WHERE PROPERTY IS LOWER THAN STREET & SIDEWALK IS ABUTTING CURB

ITEM 503.1



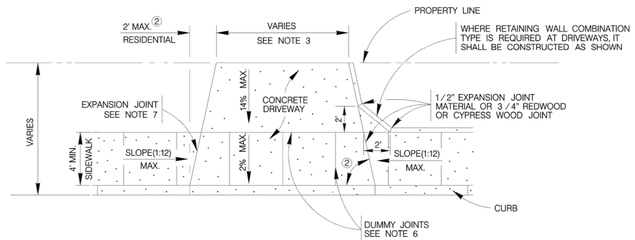
① 8% MAX. TO THE EDGE OF THE SIDEWALK IF SIDEWALK SEPARATION IS 4' OR GREATER.

② THE ALGEBRAIC DIFFERENCE OF G1 & G2 SHALL BE 14% OR LESS

TYPICAL RESIDENTIAL DRIVEWAY SECTION

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

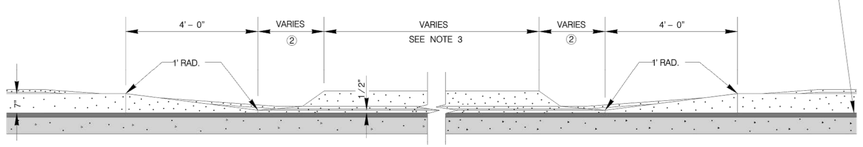
ITEM 503.1



② 45° FOR COMMERCIAL DRIVEWAY

TYPICAL DRIVEWAY PLAN VIEW

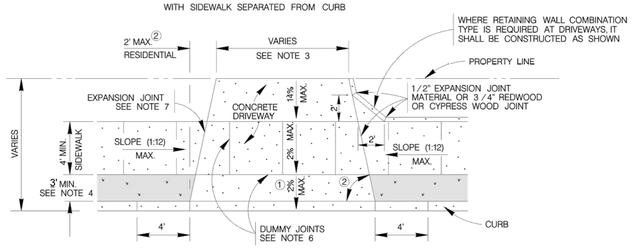
WITH SIDEWALK ABUTTING CURB



② RESIDENTIAL : 2' MAXIMUM; COMMERCIAL: SEE PLAN VIEW

CURB PROFILE AT DRIVEWAY

WITH SIDEWALK SEPARATED FROM CURB



① 8% MAX. TO THE EDGE OF THE SIDEWALK IF SIDEWALK SEPARATION IS 4' OR GREATER.

② 45° FOR COMMERCIAL DRIVEWAY

TYPICAL DRIVEWAY PLAN VIEW

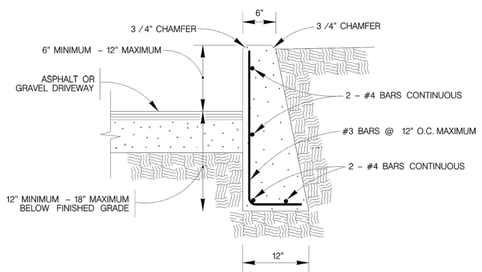
WITH SIDEWALK SEPARATED FROM CURB

CONCRETE DRIVEWAY NOTES

1. 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
2. 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.
3. 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'

4. 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.
5. 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.
6. 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.
7. 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.
8. 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%.
9. SIDEWALK RAMP SURFACE SHALL BE BRUSH FINISHED.



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

DRIVEWAY – CONCRETE RETAINING WALL

ON COMPACTED SUBGRADE

ITEM 307.1

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

CUDEENGINEERS.COM

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

TRES LAURELS UNIT 2B

STREET DETAILS (3 OF 3)

DATE 03/27/2025

PROJECT NO. 03050.018

DRAWN BY JW

CHECKED BY SPM/DF

REVISIONS
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04/22/2025
STATE OF TEXAS
MATTHEW A. TRINKLE
147558
LICENSED
PROFESSIONAL ENGINEER

CUDE ENGINEERS
TBPELS No. 10048500

PLAT NO. 24-11800283

C7.D3

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NOTE:

CONTRACTOR TO COORDINATE SIGN PLACEMENT WITH SIDEWALK/ADA RAMP CONSTRUCTION TO AVOID ANY POSSIBLE CONFLICTS.

GENERAL NOTES

1. A BEXAR COUNTY R.O.W. PERMIT MUST BE OBTAINED PRIOR TO WORKING IN EXISTING BEXAR COUNTY R.O.W.
2. ALL MARKINGS SHALL BE THERMOPLASTIC.

SCALE: 1"=50'

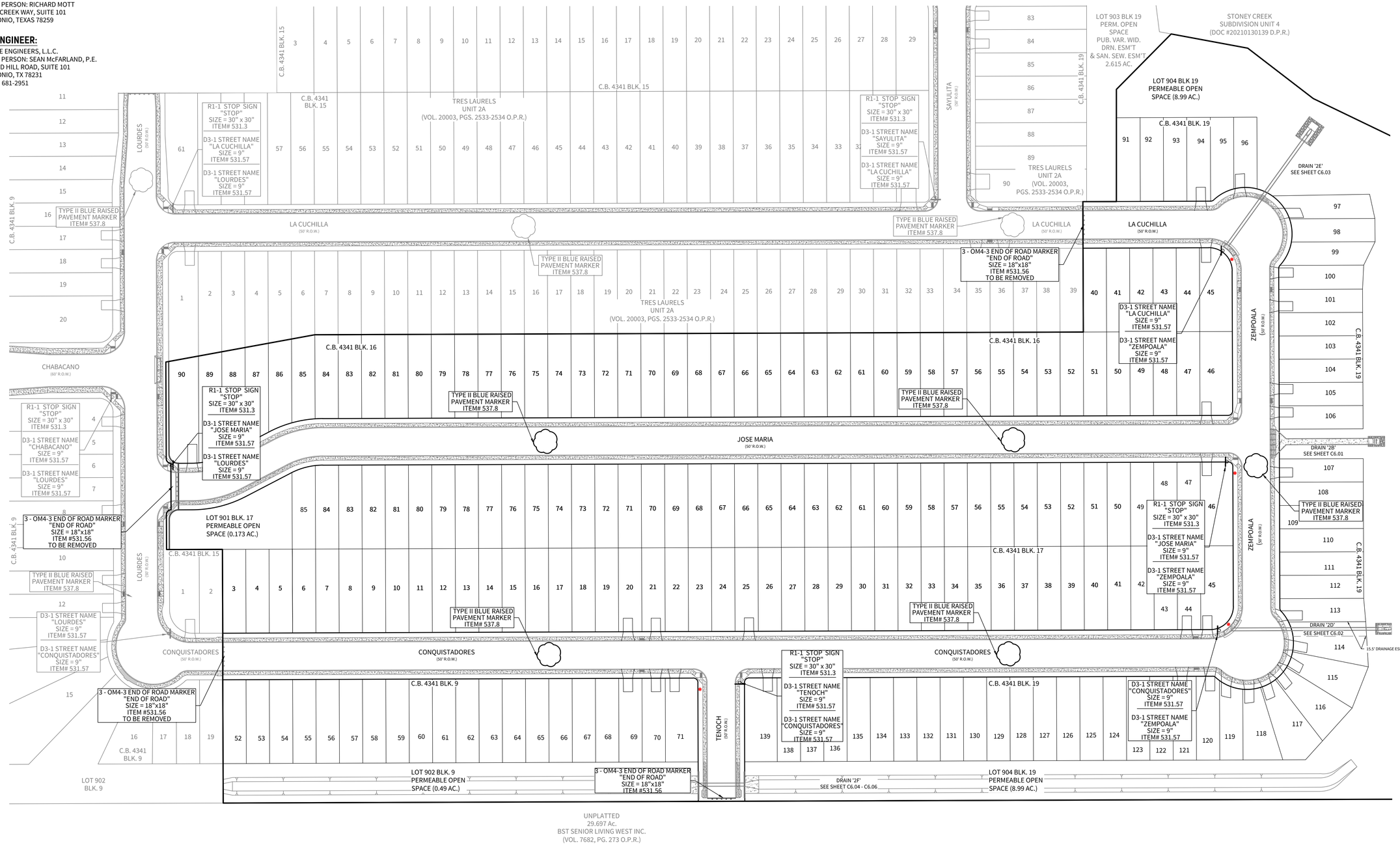
0 50 100

OWNER/DEVELOPER:

LENNAR HOMES
CONTACT PERSON: RICHARD MOTT
1922 DRY CREEK WAY, SUITE 101
SAN ANTONIO, TEXAS 78259

CIVIL ENGINEER:

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



CUDEENGINEERS.COM

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

TRES LAURELS UNIT 2B

TRAFFIC & SIGNAGE PLAN

DATE
08/16/2025

PROJECT NO.
03050.018

DRAWN BY
JW

CHECKED BY
SPM/DF

REVISIONS
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08/18/2025

STATE OF TEXAS
MATTHEW A. TRINKLE
147558
LICENSED
PROFESSIONAL ENGINEER

CUDE ENGINEERS
TBPELS No. 10048500

PLAT NO.
24-11800283

C8.00

P:\03050\2021\2.2\SIGN\Plan\SIG_GN TRAF.dwg, 2025/08/18 3:54pm, mlala

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DATE:
FILE:

SIGN SUPPORT DESCRIPTIVE CODES

(Descriptive Codes correspond to project estimate and quantities sheets)

SM RD SGN ASSM TY XXXXX(X)XX(X-XXXX)

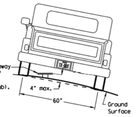
Post Type
- FRP = Fiberglass Reinforced Plastic Pipe (see SMD(FRP))
- TMT = Thin-Walled Tubing (see SMD(TMT))
- 10BWG = 10 BWG Tubing (see SMD(SLIP-1) to (SLIP-3))
- S80 = Schedule 80 Pipe (see SMD(SLIP-1) to (SLIP-3))

Number of Posts (1 or 2)

Anchor Type
- UA = Universal Anchor - Concreted (see SMD(FRP) and (TMT))
- UB = Universal Anchor - Bolted down (see SMD(FRP) and (TMT))
- WA = Wedge Anchor Steel - (see SMD(TMT))
- WP = Wedge Anchor Plastic (see SMD(TMT))
- SA = Slipbase - Concreted (see SMD(SLIP-1) to (SLIP-3))
- SB = Slipbase - Bolted Down (see SMD(SLIP-1) to (SLIP-3))

Sign Mounting Designation
- P = Prefab. "P"sign" (see SMD(SLIP-1) to (SLIP-3), (TMT), (FRP))
- T = Prefab. "T" (see SMD(SLIP-1) to (SLIP-3), (TMT))
- U = Prefab. "U" (see SMD(SLIP-1) to (SLIP-3))
- IF REQUIRED:
- TEXT or ZW = Number of Extensions (see SMD(SLIP-1) to (SLIP-3), (TMT))
- BW = Extruded Wind Beam (see SMD(SLIP-1) to (SLIP-3))
- WC = 1.12 m/ft Wing Channel (see SMD(SLIP-1) to (SLIP-3))
- EXAL = Extruded Aluminum Sign Panels (see SMD(SLIP-3))

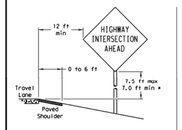
REQUIRED CLEARANCE FOR BREAKAWAY SUPPORT



To avoid vehicle undercarriage snagging, any substantial remains of a breakaway support, when it is broken away, should not project more than 4 inches above a 60-inch chord (i.e., typical space between wheel paths).

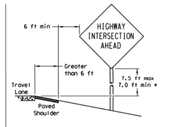
SIGN LOCATION

PAVED SHOULDERS



LESS THAN 6 FT. WIDE

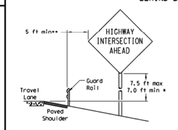
When the shoulder is 6 ft. or less in width, the sign must be placed at least 12 ft. from the edge of the travel lane.



GREATER THAN 6 FT. WIDE

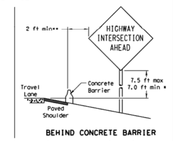
When the shoulder is greater than 6 ft in width, the sign must be placed at least 6 ft. from the edge of the shoulder.

BEHIND BARRIER



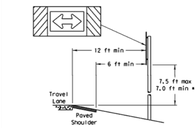
BEHIND GUARDRAIL

**Sign clearance based on distance required for proper guard rail or concrete barrier performance.

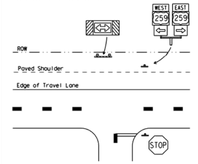


BEHIND CONCRETE BARRIER

T-INTERSECTION



When this sign is needed at the end of a two-lane, two way roadway, the right edge of the sign should be in line with the centerline of the roadway. Place as close to ROW as practical.



* Signs shall be mounted using the following condition that results in the greatest sign elevations
(1) a minimum of 7 to a maximum of 7.5 feet above the edge of the travel lane or
(2) a minimum of 7 to a maximum of 7.5 feet above the grade at the base of the support when sign is installed on the backslope.

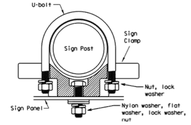
The maximum values may be increased when directed by the Engineer.

See the Traffic Operations Division website for detailed drawings of sign clamps, Triangular Slipbase System components and Wedge Anchor System components.

The website address is:
http://www.txdot.gov/publications/traffic.htm

TYPICAL SIGN ATTACHMENT DETAIL

Single Signs

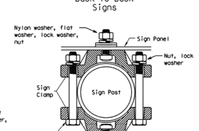


Bolts used to mount sign panels to the clamp are 5/16-18 UNC galvanized square head with nut, nylon washer, flat washer and lock washer. The bolt length is 1 inch for aluminum.

When two sign clamps are used to mount signs back-to-back, use a 5/16-18 UNC galvanized hex head per ASTM A307 with nut and helical-spring lock washer. The approximate bolt lengths for various post sizes and sign clamp types are given in the table at right. The bolt length may need to be adjusted depending upon field conditions.

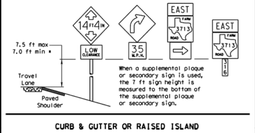
Sign clamps may be either the specific size clamp or the universal clamp.

Back-to-Back Signs



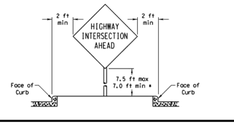
Pipe Diameter	Approximate Bolt Length	
	Specific Clamp	Universal Clamp
2" nominal	3"	3 or 3 1/2"
2 1/2" nominal	3 or 3 1/2"	3 1/2 or 4"
3" nominal	3 1/2 or 4"	4 1/2"

SIGNS WITH PLAQUES

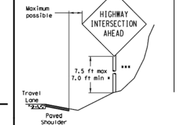


When a supplemental plaque or secondary sign is used, the 7 ft sign height is measured to the bottom of the supplemental plaque or secondary sign.

CURB & GUTTER OR RAISED ISLAND



RESTRICTED RIGHT-OF-WAY (When 6 ft min. is not possible.)



Right-of-way restrictions may be created by rocks, water, vegetation, fences, buildings, a narrow island, or other factors.

In situations where a lateral restriction prevents the minimum horizontal clearance from the edge of the travel lane, signs should be placed as far from the travel lane as practical.

*** Post may be shorter if protected by guardrail or if Engineer determines the post could not be hit due to extreme slope.

Texas Department of Transportation
Traffic Operations Division

SIGN MOUNTING DETAILS SMALL ROADSIDE SIGNS GENERAL NOTES & DETAILS

SMD(GEN)-08

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9-08 REVISIONS	CONT	SECT	JOB	HIGHWAY
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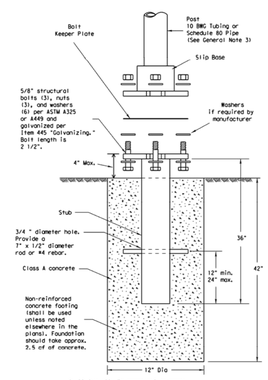
TRIANGULAR SLIPBASE INSTALLATION GENERAL REQUIREMENTS



SM RD SGN ASSM TY XXXXX(X)SA(X-XXXX)

NOTE

There are various devices approved for the Triangular Slipbase System. Please reference the Material Producer List for approved slip base systems. http://www.txdot.gov/business/producer_list.htm The devices shall be installed per manufacturers' recommendations. Installation procedures shall be provided to the Engineer by Contractor.

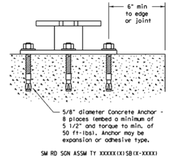
GENERAL NOTES:
1. Slip base shall be permanently marked to indicate manufacturer, Methods, design, and location of marking are subject to approval of the TxDOT Traffic Standards Engineer.
2. Material used as post with this system shall conform to the following specifications:
   10 BWG Tubing (2.875" outside diameter)
   0.134" nominal wall thickness
   Seamless or electric-resistance welded steel tubing or pipe
   Steel shall be HSLAS Gr 55 per ASTM A1011 or ASTM A1008
   Other steels may be used if they meet the following:
   55,000 PSI minimum yield strength
   70,000 PSI minimum tensile strength
   20% minimum elongation in 2"
   Wall thickness (uncoated) shall be within the range of 0.122" to 0.138"
   Outside diameter (uncoated) shall be within the range of 2.867" to 2.883"
   Galvanization per ASTM A123 or ASTM A653 G210. For precoated steel tubing (ASTM A653), recoat tube outside diameter weld seam by metallizing with zinc wire per ASTM B833.
   Schedule 80 Pipe (2.875" outside diameter)
   0.276" nominal wall thickness
   Steel tubing per ASTM A500 Gr C
   Other seamless or electric-resistance welded steel tubing or pipe with equivalent outside diameter and wall thickness may be used if they meet the following:
   46,000 PSI minimum yield strength
   62,000 PSI minimum tensile strength
   21% minimum elongation in 2"
   Wall thickness (uncoated) shall be within the range of 0.248" to 0.304"
   Outside diameter (uncoated) shall be within the range of 2.855" to 2.895"
   Galvanization per ASTM A123
3. See the Traffic Operations Division website for detailed drawings of sign clamps and Texas Universal Triangular Slipbase System components. The website address is:
   http://www.txdot.gov/publications/trraffic.htm
4. Sign supports shall not be spliced except where shown. Sign support posts shall not be spliced.

ASSEMBLY PROCEDURE

Foundation
1. Prepare 12-inch diameter by 42-inch deep hole. If solid rock is encountered, the depth of the foundation may be reduced such that it is embedded a minimum of 18 inches into the solid rock.
2. The Engineer may permit batches of concrete less than 2 cubic yards to be mixed with a portable, motor-driven concrete mixer. For small placements less than 0.5 cubic yards, hand mixing in a suitable container may be allowed by Engineer. Concrete shall be Class A.
3. Push the pipe end of the slip base stub into the center of the concrete. Rotate the stub back and forth while pushing it down into the concrete to assure good contact between the concrete and stub. Continue to work the stub into the concrete until it is between 2 to 4 inches above the ground.
4. Plumb the stub. Allow a minimum of 4 days to set, unless otherwise directed by the Engineer.
5. The triangular slipbase system is multidirectional and is designed to release when struck from any direction.

Support
1. Cut support so that the bottom of the sign will be 7 to 7.5 feet above the edge of the traveley (i.e., edge of the closest lane) when slip plate is below the edge of pavement or 7 to 7.5 feet above slip plate when the slip plate is above the edge of the travelway. The cut shall be plumb and straight.
2. Attach sign to support using connections shown. When multiple signs are installed on the same support, ensure the minimum clearance between each sign is maintained. See SMD(SLIP-2) for clearances based on sign types.

CONCRETE ANCHOR



SM RD SGN ASSM TY XXXXX(X)SB(X-XXXX)

Concrete anchor consists of 5/8" diameter stud bolt with UNC series bolt threads on the upper end. Heavy hex nut per ASTM A563, and hardened washer per ASTM F436. The stud bolt shall have a minimum yield and ultimate tensile strength of 50 and 75 KSI, respectively. Nuts, bolts and washers shall be galvanized per Item 445, "Galvanizing." Adhesive type anchors shall have stud bolts, nuts, and washers as specified above. Drilled, "Epoxy and Adhesives," adhesive anchors may be loaded after adequate epoxy cure time per the manufacturer's recommendations. Top of bolt shall extend at least flush with top of the nut when installed. The anchor, when installed in 4000 psi normal-weight concrete with a 5 1/2" minimum embedment, shall have a minimum allowable tension and shear of 3900 and 3100 psi, respectively.

Texas Department of Transportation
Traffic Operations Division

SIGN MOUNTING DETAILS SMALL ROADSIDE SIGNS TRIANGULAR SLIPBASE SYSTEM

SMD(SLIP-1)-08

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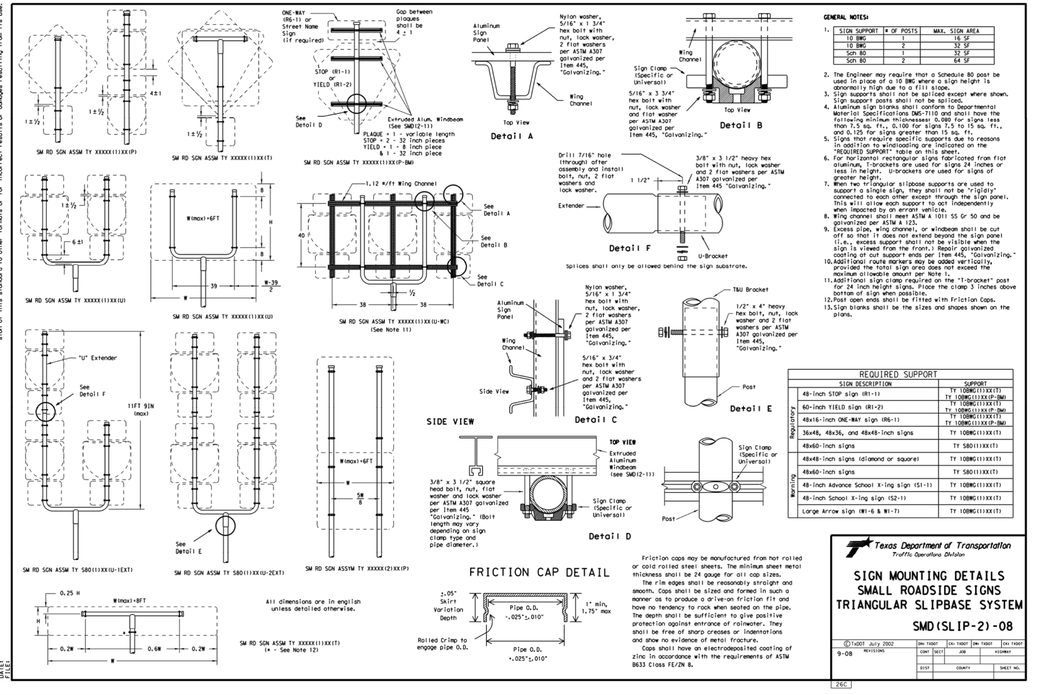
DATES:
FILES:


ONE-WAY (R6-1) or Street Name Sign (if required)
Gap between plaques shall be 4 ± 1
STOP (R1-1) or YIELD (R1-2)
See Detail B
Extruded Alum. Windbeam (See SMD(12-11))
PLAQUE = 1 - variable length STOP = 2 - 32 inch pieces YIELD = 1 - 8 inch piece 1 - 32 inch piece
SM RD SGN ASSM TY XXXXX(1)XX(P)
SM RD SGN ASSM TY XXXXX(1)XX(T)
Aluminum Sign Panel
Nylon washer, 5/16" x 1 3/4" hex bolt with nut, lock washer, 2 flat washers per ASTM A307 galvanized per Item 445, "Galvanizing."
Wing Channel
Top View
Detail A
Detail B
5/16" x 3 3/4" hex bolt with nut, lock washer and flat washer per ASTM A307 galvanized per Item 445, "Galvanizing."
Drill 7/16" hole through after assembly and install bolt, nut, 2 flat washers and lock washer.
3/8" x 3 1/2" heavy hex bolt with nut, lock washer and 2 flat washers per ASTM A307 galvanized per Item 445 "Galvanizing."
Extender
1 1/2"
U-Bracket
Detail F
SM RD SGN ASSM TY XXXXX(1)XX(U)
Wmax)+6FT
W-3½ 2
SM RD SGN ASSM TY XXXXX(1)XX(U)
1.12 m/ft Wing Channel
See Detail A
See Detail B
See Detail C
40 ft
38
½
SM RD SGN ASSM TY XXXXX(1)XX(U-WC1) (See Note 11)
Splices shall only be allowed behind the sign substrate.
Aluminum Sign Panel
Wing Channel
Side View
Nylon washer, 5/16" x 1 3/4" hex bolt with nut, lock washer, 2 flat washers per ASTM A307 galvanized per Item 445, "Galvanizing."
5/16" x 3/4" hex bolt with nut, lock washer and 2 flat washers per ASTM A307 galvanized per Item 445, "Galvanizing."
Detail C
T&U Bracket
1/2" x 4" heavy hex bolt, nut, lock washer and 2 flat washers per ASTM A307 galvanized per Item 445, "Galvanizing."
Post
Detail E
"U" Extender
See Detail F
11FT SIGN (max)
SIDE VIEW
TOP VIEW
Extruded Aluminum Windbeam (see SMD12-11))
3/8" x 3 1/2" square head bolt, nut, flat washer and lock washer per ASTM A307 galvanized per Item 445, "Galvanizing." (Bolt length may vary depending on sign clamp type and pipe diameter.)
Sign Clamp (Specific or Universal)
Post
Detail D
SM RD SGN ASSM TY SB(11)XX(U-1EXT)
Wmax)+6FT
SB
B
See Detail E
SM RD SGN ASSM TY SB(11)XX(U-2EXT)
SM RD SGN ASSM TY XXXXX(2)XX(P)
GENERAL NOTES:
1. | SIGN SUPPORT | # OF POSTS | MAX. SIGN AREA |
   | --- | --- | --- |
   | 10 BWG | 1 | 16 SF |
   | 10 BWG | 2 | 32 SF |
   | Sch 80 | 1 | 32 SF |
   | Sch 80 | 2 | 64 SF |
2. The Engineer may require that a Schedule 80 post be used in place of a 10 BWG where a sign height is abnormally high due to a fill slope.
3. Sign supports shall not be spliced except where shown. Sign support posts shall not be spliced.
4. Aluminum sign blanks shall conform to Departmental Material Specifications DMS-7110 and shall have the following minimum thicknesses: 0.080 for signs less than 7.5 sq. ft.; 0.100 for signs 7.5 to 15 sq. ft., 0.125 for signs greater than 15 sq. ft.
5. Sign fabrication specific details due to reasons in addition to windloading are indicated on the "REQUIRED SUPPORT" table on this sheet.
6. For horizontal rectangular signs fabricated from flat aluminum, T-brackets are used for signs 24 inches or less in height. U-brackets are used for signs of greater height.
7. When two triangular slipbase supports are used to support a single sign, they shall not be "rigidly" connected to each other except through the sign panel. This will allow each support to act independently when impacted by an errant vehicle.
8. Bolts conforming to ASTM A 449, ASTM A 1011 SS Gr 50 and be galvanized per ASTM A 153.
9. Excess pipe, wing channel, or windbeam shall be cut off so that it does not extend beyond the sign panel (i.e., excess support shall not be visible when the sign is viewed from the front.) Repair galvanized coating at cut support ends per Item 445, "Galvanizing."
10. Additional route markers may be added vertically, provided the total sign area does not exceed the maximum allowable amount per Note 1.
11. Additional sign clamp required on the "T-bracket" post for 24 inch height signs. Place the clamp 3 inches above bottom of sign when possible.
12. Post open ends shall be fitted with friction caps.
13. Sign blanks shall be the sizes and shapes shown on the plans.

REQUIRED SUPPORT		
	SIGN DESCRIPTION	SUPPORT
Regulatory	48-inch STOP sign (R1-1)	TY 10BWG(1)XX(T) TY 10BWG(1)XX(P-BW)
	60-inch YIELD sign (R1-2)	TY 10BWG(1)XX(T) TY 10BWG(1)XX(P-BW)
	48x16-inch ONE-WAY sign (R6-1)	TY 10BWG(1)XX(T) TY 10BWG(1)XX(P-BW)
	36x48, 48x36, and 48x48-inch signs	TY 10BWG(1)XX(T)
	48x60-inch signs	TY S80(1)XX(T)
	48x48-inch signs (diamond or square)	TY 10BWG(1)XX(T)
	48x60-inch signs	TY S80(1)XX(T)
Warning	48-inch Advance School X-ing sign (S1-1)	TY 10BWG(1)XX(T)
	48-inch School X-ing sign (S2-1)	TY 10BWG(1)XX(T)
	Large Arrow sign (W1-6 & W1-7)	TY 10BWG(1)XX(T)

FRICTION CAP DETAIL

Friction caps may be manufactured from hot rolled or cold rolled steel sheets. The minimum sheet metal thickness shall be 24 gauge for all cap sizes.

The rim edges shall be reasonably straight and smooth. Caps shall be sized and formed in such a manner as to produce a drive-on friction fit and have no tendency to rock when seated on the pipe. The depth shall be sufficient to give positive protection against entrance of rainwater. They shall be free of sharp creases or indentations and show no evidence of metal fracture.

Caps shall have an electrodeposited coating of zinc in accordance with the requirements of ASTM B633 Class FE/ZN 8.

All dimensions are in english unless detailed otherwise.

SM RD SGN ASSM TY XXXXX(1)XX(T) (+ See Note 12)

Texas Department of Transportation
Traffic Operations Division

SIGN MOUNTING DETAILS SMALL ROADSIDE SIGNS TRIANGULAR SLIPBASE SYSTEM

SMD(SLIP-2)-08

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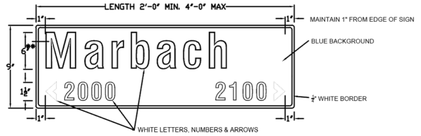
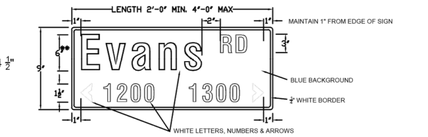
9" GROUND MOUNT STREET NAME SIGNS



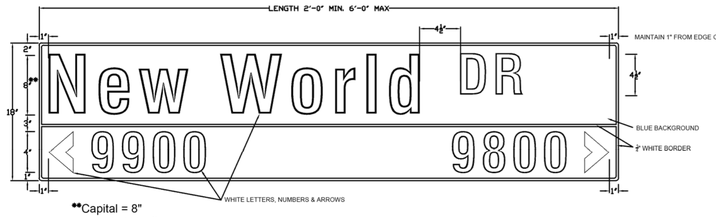
**Capital = 6"
Lower case =4 ½"

9" GROUND MOUNT STREET NAME SIGNS WITH STREET DESIGNATION



**Capital = 6"
Lower case =4 ½"

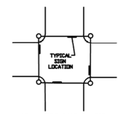
18" OVERHEAD STREET NAME SIGNS



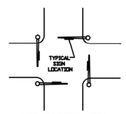
**Capital = 8"
Lower case =6"

	18" OVERHEAD SIGN	9" GROUND MOUNT SIGNS
HEIGHT	18" (381 mm)	9" (228 mm)
LENGTH	48" (1200 mm) MIN. 72" (1800 mm) MAX. 6" (150mm) INCREMENTS OF LENGTH	24" (600 mm) MIN. 48" (1200 mm) MAX. 6" (150mm) INCREMENTS OF LENGTH
THICKNESS	0.125" (3 mm)	
SUBSTRATE	ALUMINUM ALLOY, 5052-H38 (ASTM B-209 GOLD CHROMATE FINISH	
SIGN FACE MATERIALS	BLUE FILM ✱ OVER DIAMOND GRADE - ASTM Type XI Non-Fluorescent	BLUE FILM ✱ OVER HIGH INTENSITY PRISMATIC- ASTM Type IV
LEGENDS AND SYMBOLS	SERIES D, B OR C IF NAME OTHERWISE EXCEEDS MAXIMUM SIGN LENGTH	
COLOR	WHITE LEGEND ON BLUE BACKGROUND	
LETTER TRACKING	17% (USUAL) 10% (MIN.)	10%

✱ ACRYLIC ELECTRONIC CUTTABLE FILM



SPAN WIRE INSTALLATION



MAST ARM INSTALLATION

SIGN FACE MATERIALS
SHALL CONFORM TO

1. STANDARD SPECIFICATIONS FOR CONSTRUCTION OF ROADS & BRIDGES ON FEDERAL HIGHWAY PROJECTS - FP-03 U.S. CUSTOMARY UNITS SECTION 718
2. GENERAL SERVICES ADMINISTRATION FEDERAL SPECIFICATIONS L-S-300C
3. ASTM D 4956 - 09e1

INFRASTRUCTURE SERVICES DEPARTMENT
PUBLIC WORKS DIVISION

STREET NAME SIGNING DETAILS

DESIGNED BY: MPT
DRAWN BY: MPT
CHECKED BY: MPT
PLN/MJ/11
FILE NO./ REVISION/Dwg.

SHEET 1

CUDEENGINEERS.COM

CUDE ENGINEERS

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

TRES LAURELS
UNIT 2B

TXDOT & BEXAR COUNTY DETAILS - SIGN MOUNTING

DATE
03/27/2025

PROJECT NO.
03050.018

DRAWN BY
JW

CHECKED BY
SPM/DF

REVISIONS
1.
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04/22/2025

STATE OF TEXAS
MATTHEW A. TRINKLE
147556
LICENSED PROFESSIONAL ENGINEER

CUDE ENGINEERS
TBPELS No. 10048500

PLAT NO.
24-11800283

C8.D1

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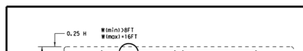
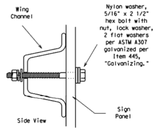
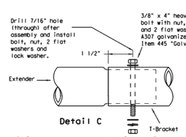


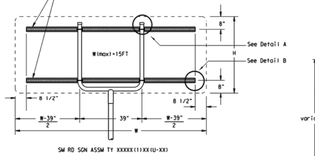


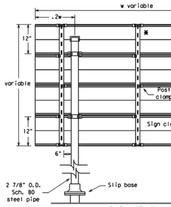
Detail B



Detail C

Splices shall only be allowed behind the sign substrate.



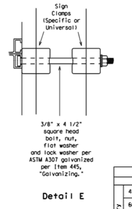


Typical Sign Mount

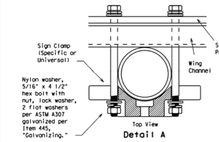
SM RD SGN ASSM TY SMD(2)XX(P-EXAL)

* Additional stiffener placed at approximate center of signs when sign width is greater than 10'.

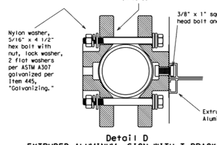
See Detail E for clamp installation



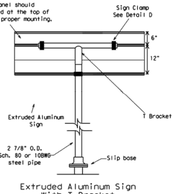
Detail E



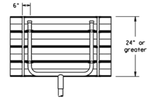
Detail A



Detail D
EXTRUDED ALUMINUM SIGN WITH T BRACKET



Extruded Aluminum Sign With T Bracket



Use Extruded Alum. Windbeam as stiffeners See SMD (2-11) for additional details

See Detail E for clamp installation

GENERAL NOTES:

SIGN SUPPORT	# OF POSTS	MAX. SIGN AREA
10 BWG	1	16 SF
10 BWG	2	32 SF
Sch 80	1	32 SF
Sch 80	2	64 SF

2. The Engineer may require that a Schedule 80 post be used in place of a 10 BWG where a sign height is abnormally high due to a flat slope.
3. Slip bases shall be used on all posts except where shown. Slip support posts shall not be spliced.
4. Aluminum sign blanks shall conform to Departmental Material Specifications DMS-7110 and shall have the following minimum thicknesses: 0.080 for signs less than 7.5 sq. ft., 0.100 for signs 7.5 to 15 sq. ft., and 0.125 for signs greater than 15 sq. ft.
5. Signs that require specific supports due to reasons in addition to windloading are indicated on the "REQUIRED SUPPORT" table on this sheet.
6. For horizontal rectangular signs fabricated from flat aluminum, T-brackets are used for signs 24 inches or less in height. U-brackets are used for signs of greater height.
7. When two rectangular slipbase supports are used to support a single sign, they shall not be "rigidly" connected to each other except through the sign panel. This will allow each support to act independently when impacted by an errant vehicle.
8. Wing channel shall meet ASTM A 1011 SS Gr 50 and be galvanized per ASTM A 123.
9. Excess pipe, wing channel, or windbeam shall be cut off so that it does not extend beyond the sign panel (i.e., excess support shall not be visible when the sign is viewed from the front.) Repair galvanized surfaces at cut support ends per Item 445, "Galvanizing."
10. Slip bases shall be the sizes and shapes shown on the plans.
11. Additional sign clamp required on the "T-bracket" post for 24 inch high signs. Place the clamp 3 inches above bottom of sign when possible.
12. Post open ends shall be fitted with friction caps.

REQUIRED SUPPORT

	SIGN DESCRIPTION	SUPPORT
Regulatory	48-inch STOP sign (R1-1)	TY 10BWG(1)XX(T) TY 10SWG(1)XX(P-SW)
	60-inch YIELD sign (R1-2)	TY 10SWG(1)XX(T) TY 10SWG(1)XX(P-SW)
	48x16-inch ONE-WAY sign (R6-1)	TY 10SWG(1)XX(T) TY 10SWG(1)XX(P-SW)
	36x48, 48x36, and 48x48-inch signs	TY 10SWG(1)XX(T)
	48x60-inch signs	TY SB0(1)XX(T)
	48x48-inch signs (diamond or square)	TY 10BWG(1)XX(T)
	48x60-inch signs	TY SB0(1)XX(T)
Warning	48-inch Advance School X-ing sign (S1-1)	TY 10BWG(1)XX(T)
	48-inch School X-ing sign (S2-1)	TY 10BWG(1)XX(T)
	Large Arrow sign (W1-6 & W1-7)	TY 10BWG(1)XX(T)

Texas Department of Transportation
Traffic Operations Division

SIGN MOUNTING DETAILS SMALL ROADSIDE SIGNS TRIANGULAR SLIPBASE SYSTEM

SMD(SLIP-3)-08

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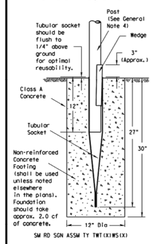
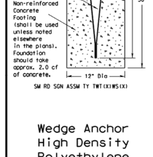
Wedge Anchor Steel System

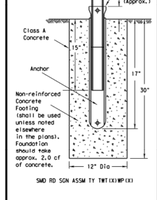


SM RD SGN ASSM TY TWT(XX)WS(X)



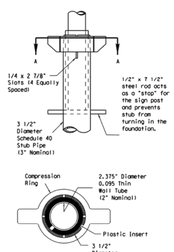
SM RD SGN ASSM TY TWT(XX)UA(P)

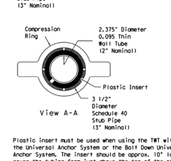
Wedge Anchor High Density Polyethylene (HDPE) System



SMD RD SGN ASSM TY TWT(XX)WP(X)

Universal Anchor System with Thin-Walled Tubing Post





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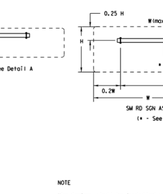
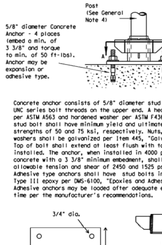
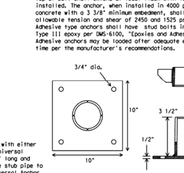


Plastic insert must be used when using the TWT with either the Universal Anchor System or the Bolt Down Universal Anchor System. The insert should be approx. 10" long and cover the tubing from just above the top of the stub pipe to the bottom of the sign post when using the Universal Anchor System. The insert should be cut to approx. 4 1/2" when used with the Bolt Down Universal Anchor System.

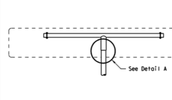


Concrete anchor consists of 5/8" diameter stud bolt with UNC series bolt threads on the upper end. A heavy hex nut per ASTM A563 and hardened washer per ASTM F436. The stud bolt shall have minimum yield and ultimate tensile strengths of 50 and 75 ksi, respectively. Nuts, bolts and washers shall be galvanized per Item 445, "Galvanizing." Top of bolt shall extend at least flush with top of nut when installed. The anchor, when installed in 4000 psi normal-weight concrete with a 3 3/8" minimum embedment, shall have a minimum allowable tension and shear of 2450 and 1525 psi, respectively. Adhesive type anchors shall have stud bolts installed with Type III epoxy per DMS-6100, "Epoxies and Adhesives." Adhesive anchors may be loaded after adequate epoxy cure time per the manufacturer's recommendations.

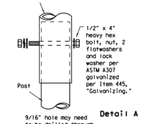


SM RD SGN ASSM TY TWT(XX)UB(P)

Sign Installation Using a Prefabricated T-Bracket for Thin-Wall Tubing Post



SM RD SGN ASSM TY TWT(XX)(X)(T)
(* See General Note 6)



Detail A

NOTE

The devices shall be installed per manufacturer's recommendations. Installation procedures shall be provided to the Engineer by Contractor.

GENERAL NOTES:

1. The Wedge Anchor System and the Universal Anchor System with thin wall tubing post may be used to support up to 10 square feet of sign area.
2. The tubular socket, wedge and prefabricated T-bracket shall be permanently marked to indicate manufacturer. Method, design, and location of marking are subject to the approval of the TxDOT Traffic Standards Engineer.
3. Except for posts 113 BWG Tubing, clamps, nuts and bolts, all components shall be prequalified. A list of prequalified vendors may be obtained from the Material Producer List web page. The website address is: http://www.txdot.gov/business/producer list.htm
4. Material used as post with this system shall conform to the following specifications:
   13 BWG Tubing (2.375" outside diameter) (TWT)
   0.095" nominal wall thickness
   Seamless or electric-resistance welded steel tubing
   Steel shall be HSLAS Gr 55 per ASTM A1018 or ASTM A1008
   Other steels may be used if they meet the following:
   55,000 PSI minimum yield strength
   70,000 PSI minimum tensile strength
   18% minimum elongation in 2"
   Wall thickness (uncoated) shall be within the range of .083" to .099"
   Outside diameter (uncoated) shall be within the range of 2.369" to 2.381"
   Galvanization per ASTM 123 or ASTM A653 G210. For precoated steel tubing (ASTM A653), recoat tube outside diameter weld seam by metallizing with zinc wire per ASTM B833.
5. Sign blanks shall be the sizes and shapes shown on the plans.
6. Additional sign clamp required on the "T-bracket" post for 24" high signs. Place clamp at least 3" above bottom of sign when possible.
7. Sign supports shall not be spliced except where shown. Sign support posts shall not be spliced.
8. See the Traffic Operations Division website for detailed drawings of sign clamps and Wedge Anchor System components. The website address is: http://www.txdot.gov/publications/traffic.htm

WEDGE ANCHOR SYSTEM INSTALLATION PROCEDURE

1. Dig foundation hole. Where solid rock is encountered at ground level, the foundation shall be a minimum depth of 18". When solid rock is encountered below ground level, the foundation shall extend in the solid rock a minimum depth of 18" or provide a minimum foundation depth of 30". If solid rock is encountered, the socket/stub may be reduced in length as required to a minimum length of 18". Any material removed from the socket/stub shall be from the bottom and the clearance requirements given on SMD(SIGN) must be followed. The inner surfaces of the socket/stub must remain free of concrete or other debris.
2. The Engineer may permit batches of concrete less than 2 cubic yards to be mixed with a portable, motor driven concrete mixer. For small placements less than 0.5 cubic yards, hand mixing in a suitable container may be allowed by Engineer. Place concrete into hole until it is approximately flush with the ground. Concrete shall be Class A.
3. Insert tubular socket into concrete until top of socket is approximately 1/4 " above the concrete footing.
4. Plumb the socket. Allow a minimum 4 days for concrete to set, unless otherwise directed by Engineer..
5. Attach the sign to the sign post.
6. Insert the sign post into socket and align sign face with roadway.
7. Drive the wedge into the socket to secure post. This will leave approximately 3 inches of the wedge exposed.

UNIVERSAL ANCHOR SYSTEM INSTALLATION PROCEDURE

1. Dig foundation hole. Where solid rock is encountered at ground level, the foundation shall be a minimum depth of 18". When solid rock is encountered below ground level, the foundation shall extend in the solid rock a minimum depth of 18" or provide a minimum foundation depth of 30". If solid rock is encountered, the socket/stub may be reduced in length as required to a minimum length of 18". Any material removed from the socket/stub shall be from the bottom and the clearance requirements given on SMD(SIGN) must be followed. The inner surfaces of the socket/stub must remain free of concrete or other debris.
2. Insert base post in hole to depths shown and backfill hole with concrete.
3. Level and plumb the base post using a torpedo level and allow concrete adequate time to set. The bottom of the slots provided in the stub pipe shall remain above the top of the concrete foundation.
4. Attach the sign to the sign post.
5. Install plastic insert around bottom of post.
6. Insert sign post into base post. Lower until the post comes to rest on steel rod.
7. Seat compression ring using a hammer. Typically, the top of compression ring will be approximately level with top of stub post when optimally installed.
8. Check sign post by hand to see if it is unable to turn. If loose, increase the tightening of the compression ring.

Texas Department of Transportation
Traffic Operations Division

SIGN MOUNTING DETAILS SMALL ROADSIDE SIGNS WEDGE & UNIVERSAL ANCHOR WITH THIN WALL TUBING POST

SMD(TWT)-08

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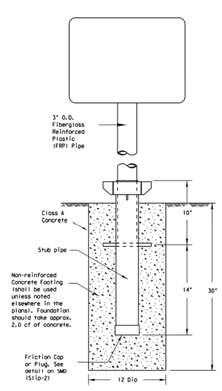
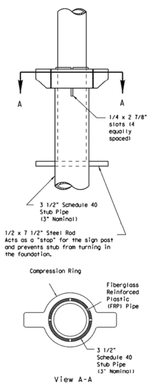
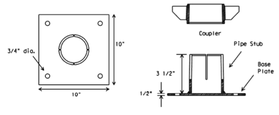
Universal Anchor System with Fiberglass Reinforced Plastic (FRP) Post





Concrete anchor consists of 5/8" diameter stud bolt with UNC series bolt threads on the upper end. A heavy hex nut per ASTM A563 and hardened washer per ASTM F436. The stud bolt shall have minimum yield and ultimate tensile strengths of 50 and 75 ksi, respectively. Nuts, bolts and washers shall be galvanized per Item 445, "Galvanizing." Top of bolt shall extend at least flush with top of nut when installed. The anchor, when installed in 4000 psi normal-weight concrete with a 3 3/8" minimum embedment, shall have a minimum allowable tension and shear of 2450 and 1525 psi, respectively. Adhesive type anchors shall have stud bolts installed with Type III epoxy per DMS-6100, "Epoxies and Adhesives." Adhesive anchors may be loaded after adequate epoxy cure time per the manufacturer's recommendations.

BOLT-DOWN DETAILS



SM RD SGN ASSM TY FRP(XX)UB(P)

SM RD SGN ASSM TY FRP(XX)UA(P)

GENERAL NOTES:

1. FRP sign supports for a single type sign support may be used for signs up to and including 16 square feet. Dual post installation may be used for signs up to and including 32 square feet.
2. All nuts, bolts and washers shall be galvanized per Item 445, "Galvanizing."
3. See the Traffic Operations Division website for detailed drawings of sign clamps. The website address is: http://www.txdot.gov/publications/traffic.htm

FRP POST REQUIREMENTS

1. Materials shall conform to the requirements of Departmental Material Specification DMS-4410 and will be furnished in a yellow or gray color as specified elsewhere in the plans.
2. Thickness of FRP sign support is 0.125" + 0.031", - 0.0".
3. FRP sign supports are prequalified by the Traffic Operations Division. Prequalification procedures are obtained by writing:
   Texas Department of Transportation
   Traffic Operations Division
   125 East 11th Street
   Austin, Texas 78701-2483

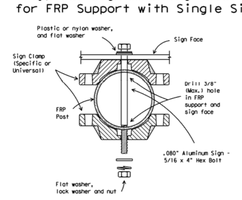
UNIVERSAL ANCHOR SYSTEM INSTALLATION PROCEDURES

1. Dig foundation hole. Where solid rock is encountered at ground level, the foundation shall be a minimum depth of 18". When solid rock is encountered below ground level, the foundation shall extend in the solid rock a minimum depth of 18" or provide a minimum foundation depth of 30". If solid rock is encountered, the socket/stub may be reduced in length as required to a minimum length of 18". Any material removed from the socket/stub shall be from the bottom and the clearance requirements given on SMD(SIGN) must be followed. The inner surfaces of the socket/stub must remain free of concrete or other debris.
2. The Engineer may permit batches of concrete less than 2 cubic yards to be mixed with a portable, motor driven concrete mixer. For small placements less than 0.5 cubic yards, hand mixing in a suitable container may be allowed by Engineer. Concrete shall be Class A.
3. Insert base post in foundation hole to depths shown and fill hole with concrete. Cut base post from bottom and ensure a minimum of 18" embedment if installed in solid rock.
4. Level and plumb the base post with coupler using a torpedo level and let concrete set a minimum of 4 days, unless otherwise directed by Engineer. Bottom of base post slots shall be above the concrete footing.
5. Attach sign to FRP post.
6. Insert sign post into base post. Lower until the post comes to rest on the steel rod.
7. Use hammer to ensure the coupler is firmly seated. Top of coupler should be level with top of base post in most instances.
8. Check sign to ensure there is no twist. If loose, increase the tightening of coupler.

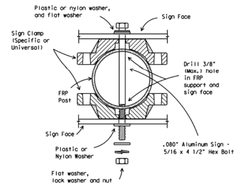
BOLT DOWN SIGN SUPPORT

1. Position base plate with coupler on existing concrete.
2. Drill holes into concrete and insert the 5/8" diameter bolts with wedge anchors, and tighten nuts.
3. Attach sign to FRP post.
4. Insert bottom of sign post into pipe stub.
5. Use hammer to ensure the coupler is firmly seated. Top of coupler should be level with top of base post in most instances.
6. Check sign to ensure there is no twist. If loose, increase the tightening of coupler.

Typical Sign Mounting Detail for FRP Support with Single Sign



Typical Sign Mounting Detail for FRP Support with Back-to-Back Signs



Texas Department of Transportation
Traffic Operations Division

SIGN MOUNTING DETAILS SMALL ROADSIDE SIGNS UNIVERSAL ANCHOR SYSTEM WITH FRP POST

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CUDE ENGINEERS

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San Antonio, Texas 78231
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TRES LAURELS
UNIT 2B

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03/27/2025

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03050.018

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JW

CHECKED BY
SPM/DF

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STATE OF TEXAS
MATTHEW A. TRINKLE
147558
LICENSED PROFESSIONAL ENGINEER

CUDE ENGINEERS
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PLAT NO.
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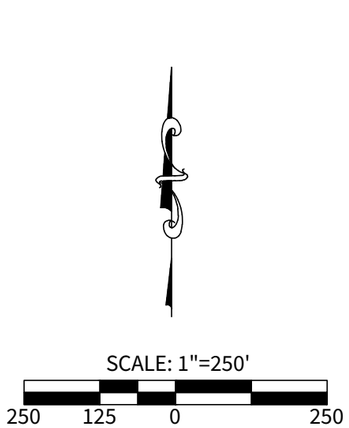
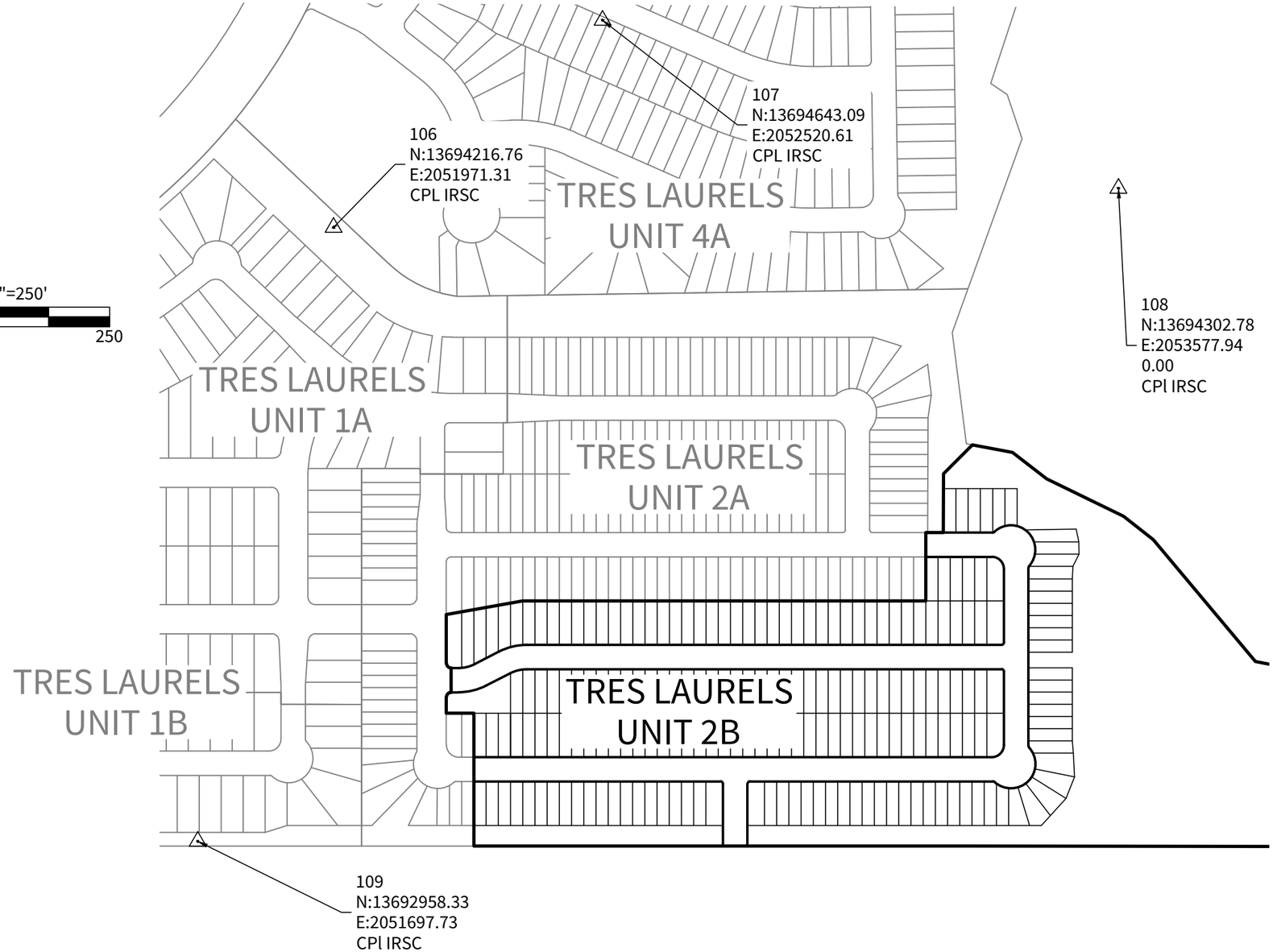
REPRODUCTION OF THE ORIGINAL SIGNED AND SEALED PLAN AND/OR ELECTRONIC MEDIA MAY HAVE BEEN INADVERTENTLY ALTERED. CONTRACTOR IS RESPONSIBLE FOR VERIFYING THE SCALE OF THE DOCUMENT AND CONTACTING CUDE ENGINEERS TO VERIFY DISCREPANCIES PRIOR TO CONSTRUCTION.

CONTROL POINT EXHIBIT

M.W. CUDE ENGINEERS, L.L.C 4122 Pond Hill Road, Suite 101 San Antonio, Texas 78231 210.681.2951 (tel) 210.523.7112 (fax)





NO.	NORTHING	EASTING	DISCRIPTION
106	13694216.76	2051971.31	CPI IRSC
107	13694643.09	2052520.61	CPI IRSC
108	13694302.78	2053577.94	CPI IRSC
109	13692958.33	2051697.73	CPL IRSC

CUDEENGINEERS.COM

CUDE ENGINEERS

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

TRES LAURELS – UNIT 2B

CONTROL POINT EXHIBIT

DATE
08/21/2025

PROJECT NO.
03050.018

DRAWN BY
IV

CHECKED BY
MAT

CUDE ENGINEERS
TBPE No. 455

EX-CP

P:\03050\018\2-DWG\1-Exhibits\2025-08-21 - Control Point Exhibit.dwg 2025/08/21 3:25pm ivilla

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CONSTRUCTION PERMITS

M.W. CUDE ENGINEERS, L.L.C 4122 Pond Hill Road, Suite 101 San Antonio, Texas 78231 210.681.2951 (tel) 210.523.7112 (fax)

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 Suaceda
Cell: 210-216-6932
Email: tyler.sauceda@bexar.org

Emergency Contact Information: Marcus Walters 830-388-1002

Tres Laurels Unit 02-B

Project Type: Single Family Development - New Infrastructure

Acres of Disturbance: 16.00

Permit Number: **SWQ FY24_3248** Permit Issued: **5/27/2025**

Anticipated Work Start Date: **12/1/2024**

Anticipated Work Stop Date: **12/1/2025**

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 - Water Line
Fill
Onsite Utility - Cable/Telephone
Clearing / Mass Grading
Onsite Utility - Sanitary Sewer
Onsite Utility - Gas
Onsite Utility - Electric

Other Required Permits

Floodplain Permit 25-001 - Pending other Permits	**TCEQ NOI: TXR1507PH /Lennar Homes of Texas Land and Construction, Ltd.**
Post Construction Permit 2339	**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.

POST THIS PERMIT ON SITE

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, Tx78213

Pre-Construction Storm Water Control Measure Permit

Tres Laurels Unit 02-B

Permit Number: PC FY24_2339

Issued: 5/27/2025

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	Plant 2 trees per lot	- PC Inspector to verify tree planting at time of permit closure - PC Inspector to verify preserved trees at time of permit closure - COSA Signed RSWMP form for FILO

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,

Joan Montgomery

Joan Montgomery PE
Storm Water Quality Engineer

COUNTY OF BEXAR
PUBLIC WORKS DEPARTMENT

1948 Probandt St
San Antonio, TX 78214

Main (210) 335-6700
Fax (210) 335-6713

FLOOD PLAIN DEVELOPMENT PERMIT

Permit Number: 25-001 **Issued On:** June 2, 2025

Permit expires as described in **ARTICLE 4, SECTION F** of the **Flood Damage Prevention Court Order.**

Permit Holder

Mosaic Land Development
6812 West Ave Ste. 100,
SAN ANTONIO Texas 78213

Location of Property:

Tres Laurels Unit 02-B Plat 24-11800283

Permitted Work

Clearing/Grading		Outside Floodplain
Onsite Utility - Cable/Telephone		Outside Floodplain
Onsite Utility - Electric		Outside Floodplain
Onsite Utility - Gas		Outside Floodplain
Onsite Utility - Sanitary Sewer		Outside Floodplain
Onsite Utility - Water Line		Outside Floodplain
Street and Drain Construction		Outside Floodplain

Conditions Under Which Permit Is Issued:

Residential Subdivision within FEMA floodplain. Comply with Storm Water Quality Permit SWQ FY 24_3248. No construction activities within floodplain.

(06) Permittee is responsible to obtain all necessary licenses, approvals, or permits from Federal, State or local governmental agencies (including Section 404 of the Federal Water Pollution Control Act Amendments of 1972, 33 U.S.C. 1334) from which prior approval is required. Attached is list of permits required by Bexar County Public Works and Environmental Services.

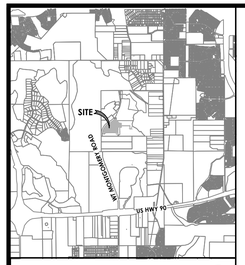
(11) Other conditions: Approval of this permit shall not create liability on the part of Bexar County, the Flood Plain Administrator or any officer or employee of Bexar County in the event flooding or flood damage does occur.

Approved by: _____ June 2 2025

Robert Brach, PE — Date
Bexar County Flood Plain Administrator Representative Agent

_____

Art Reinhardt, PE, CFM
Director of Public Works / County Engineer



LOCATION MAP

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
FAX: (210) 523-7112

SCALE: 1"=200'
200 100 0 200

LEGEND

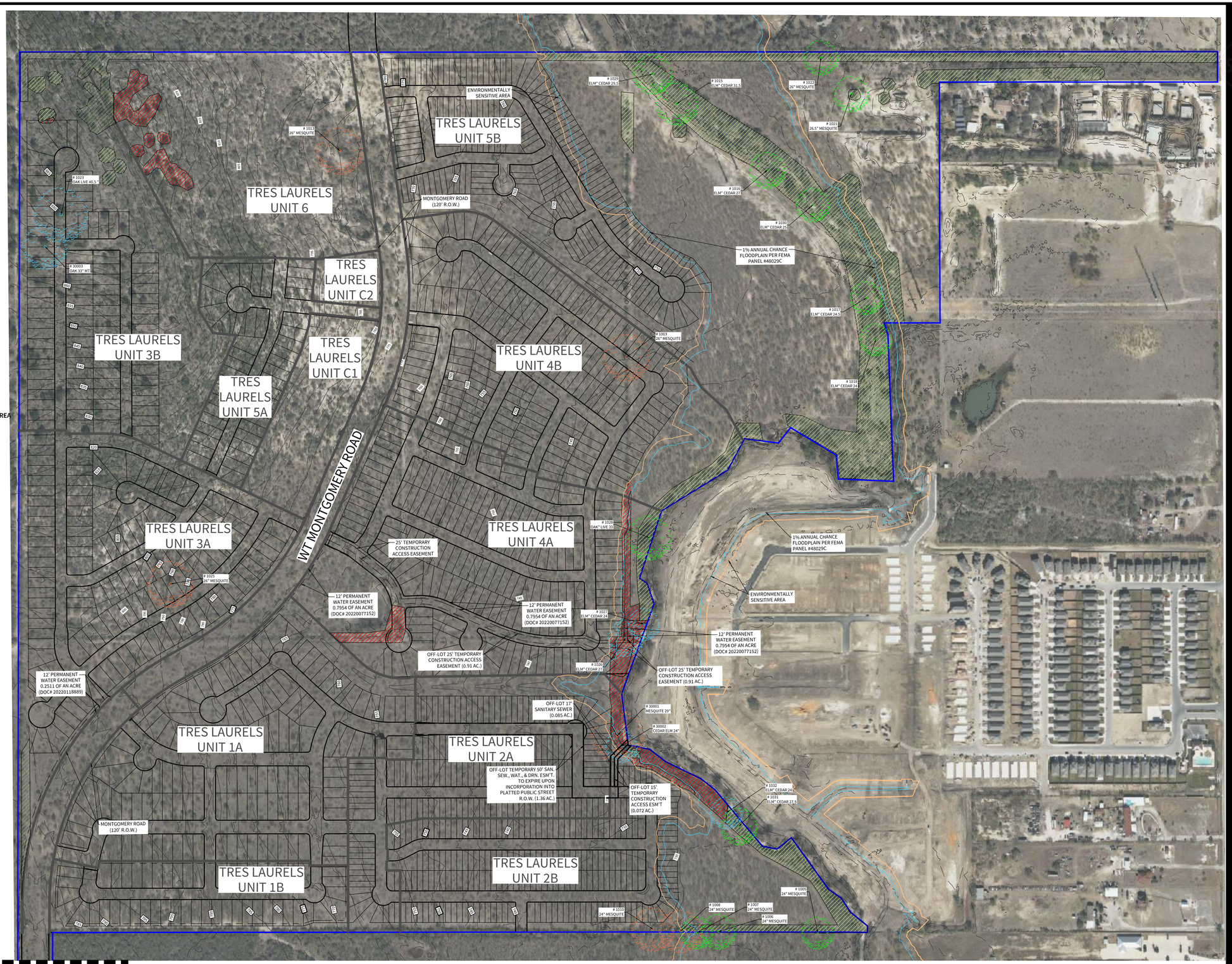
- PROJECT BOUNDARY
- REMOVED CANOPY
- PRESERVED CANOPY
- 100-YEAR EFFECTIVE FLOODPLAIN
- 30' ENVIRONMENTALLY SENSITIVE AREA
- HERITAGE TREE TO BE PRESERVED
- HERITAGE TREE TO BE REMOVED
- EXEMPT TREE TO BE REMOVED
- 800 PROPOSED CONTOUR
- 800 EXISTING CONTOUR

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
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TRES LAURELS

TREE CANOPY PRESERVATION PLAN

DATE
12/05/2024

PROJECT NO.
03050.006

DRAWN BY
MAT/IRV/DAF

CHECKED BY
SPM/CJC

REVISIONS
1.
2.
3.
4.
5.
6.
7.
8.

City of San Antonio Plan Reviewed
Development Services Dept

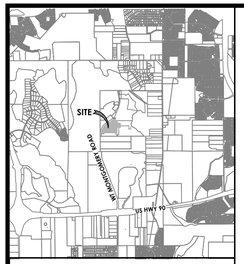
CUDE ENGINEERS
TBPE No. 455
TBPLS No. 10048500

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.



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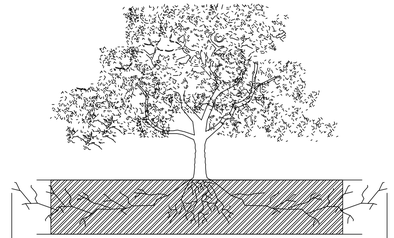
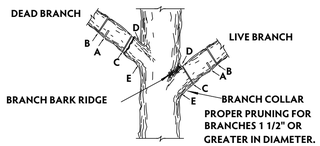
4122 POND HILL ROAD, SUITE 101
SAN ANTONIO, TX 78231
TEL: (210) 681-2951
FAX: (210) 523-7112

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**	
	$	**-**		



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.

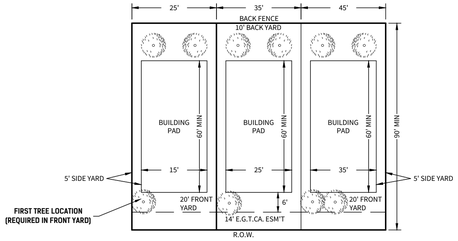


PROPER PRUNING FOR BRANCHES 1 1/2" OR GREATER IN DIAMETER.

NOTE: DO NOT CUT FROM D to E.

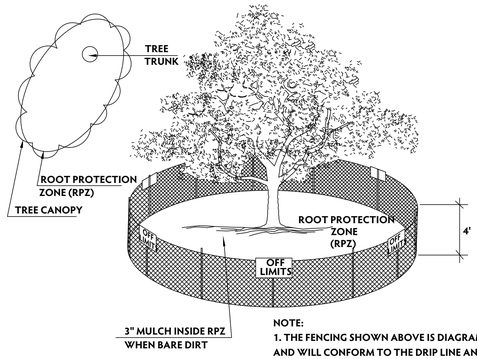
A. FIRST CUT - TO PREVENT THE BARK FROM BEING PEELED WHEN THE BRANCH FALLS.
B. SECOND CUT - TO REDUCE THE WEIGHT OF BRANCH.
C. FINAL CUT - ALLOW FOR HEALING COLLAR BUT NO STUBS
D. BRANCH RIDGES - INDENT PROPERLY BRANCH RIDGES WHICH ARE SITE FOR DECAY.

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:
1. TREES MUST BE FROM THE CITY OF SAN ANTONIO PREFERRED PLANT LIST. TWO TREES MINIMUM ARE REQUIRED TO BE PLANTED FOR EACH
2. RESIDENTIAL LOT WITH ONE OF THOSE TREES REQUIRED TO BE PLANTED IN THE FRONT YARD.
3. TREES PLANTED IN THE SOUTH OR WEST OF PROPOSED HOME SHALL RECEIVE ENERGY CREDIT PER UDC SECTION 35-523.



NOTE:
1. THE FENCING SHOWN ABOVE IS DIAGRAMATIC ONLY AND WILL CONFORM TO THE DRIP LINE AND LIMITED TO PROJECT BOUNDARY.
2. FOR ACCEPTABLE FENCING MATERIALS SEE SPECIFICATIONS.

1.1.2 LEVEL I & FENCE PROTECTION

N. T. S.

NOTES:
1. TRES LAURELS SUBDIVISION IS SUBJECT TO THE CITY OF SAN ANTONIO 2010 TREE ORDINANCE
2. 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.
3. ANY SUBSEQUENT NOTES DEALING WITH ROOT PROTECTION DO NOT APPLY TO RESIDENTIAL DEVELOPMENTS.
4. 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.
5. A (CHAINLINK OR ORANGE MESH FENCE) BARRIER AROUND THE RPZ SHALL BE ERECTED AND MAINTAINED UNTIL CONSTRUCTION IS COMPLETED.
6. 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.
7. THE RPZ SHALL BE COVERED WITH 6" OF COARSE MULCH TO REDUCE MOISTURE STRESS.
8. 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.
9. 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.
10. THE RPZ SHALL REMAIN PERVIOUS, I.E. GROUND COVER OR TURF AT COMPLETION OF LANDSCAPE DESIGN.
11. 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.)
12. 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										
Description	Number of Trees	Diameter (in.)	Required Diameter	Extra Diameter (in.)	Shade Value	(Sq. Ft.)	Energy Credit	Total Planted Diameter (in.)	TOTAL MITIGATION (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	822	647,325.00
1 extra tree per lot (35' lot width) (E.C.)	348	1.5	-	1.5	875.0	1.5	522	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	1,287	1,013,512.50
TOTAL	**4,404**							**6,606**	**2,631**	**4,158,787.50**

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**
	1325		

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TRES LAURELS

TREE CANOPY PRESERVATION PLAN

DATE
11/18/2024

PROJECT NO.
03050.006

DRAWN BY
MAT/IRV/DAF

CHECKED BY
SPM/CJC

REVISIONS
1.
2.
3.
4.
5.
6.
7.
8.

City of San Antonio Plan Reviewed
Development Services Dept
CUDE ENGINEERS
TBPE No. 455
TBPLS No. 10048500

PLAT NO.
22-11800270

TPP-2

2 OF 2

©2024 M.W. CUDE ENGINEERS, L.L.C. | 03050\006\Drawings\05_Sheet Files\Arch\TPP-2.dwg | 2024-11-18 12:52pm | mmcdade
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.

Permit Issuance Information

Report Date: 7/15/2024

Application No	TRE-APP-APP24-38801546
Permit No	TRE-PMT-24-38900272
Site Address	3411 GROSENBACHER RD, CITY OF SAN ANTONIO ETJ, TX 78245
Type of Record	Building/Permits/Tree Permit/Permit
Date Issued	07/15/2024
Record Status	Active
Primary Applicant	Cude Engineers
Scope of Work	PLAT-24-11800283 - Tres Laurels Unit 2B Platting

Approval Comments

Completeness Review	Comments Tree permit application submittal complete.

Permit Issuance Information

Report Date: 7/15/2024

Technical Review - Tree Land Development	Comments	***SCOPE OF WORK: PLATTING AND TREE REMOVAL FOR RESIDENTIAL DEVELOPMENT*** ***REFER TO TRE-APP-APP22-38801338 FOR OVERALL APPROVED TREE PRESERVATION PLAN***
		
		// STATUS: APPROVED 7.15.24 (UNIT 2B ONLY - 2010 TREE STAND DELINEATION METHOD)
		
		// PLEASE SEE COMMENTS/CONDITIONS BELOW:
		
		-(4)-1.5” CALIPER NATIVE MEDIUM TO LARGE SHADE TREES ARE REQUIRED PER LOT AT BUILDING STAGE FOR MITIGATION AND CANOPY COVER REQUIREMENTS. 2 OUT OF THE 4 TREES SHALL BE PLANTED ON THE SOUTH OR WEST SIDE OF BUILDING FOR ENERGY CONSERVATION CREDIT.
		-NO STREETSCAPE OR TREE CANOPY BOND REQUIRED.
		-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. NO TREES OR UNDERSTORY SHALL BE REMOVED WITHOUT PRIOR APPROVAL OF THE CITY ARBORIST OFFICE PER 35-477(H).
-CONSTRUCTION ON INDIVIDUAL RESIDENTIAL LOTS OUTSIDE OF CITY LIMITS 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.
-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). INSPECTIONS CAN BE

SCHEDULED ONLINE THROUGH ACCELA.
-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 IMPOSED BY THE CITY ARBORIST READILY AVAILABLE AT THE SITE AT ALL TIMES DURING WHICH AUTHORIZED WORK IS IN PROGRESS.
ALL OFFSITE STAGING, STORAGE, PROJECT TRAILERS, EMPLOYEE PARKING, ETC. IS REQUIRED APPLY FOR A TEMPORARY USES APPLICATION AND TO COMPLY WITH THE TERMS AND CONDITIONS OF THE APPROVED TREE PERMIT.
-**FAILURE TO SCHEDULE A FENCING INSPECTION PRIOR TO START OF WORK MAY RESULT IN A STOP WORK ORDER OR A PENALTY OF $1000.00 OR BOTH.
- A DO NOT RECORD IS PLACED ON THIS PLAT. THE APPLICANT/OWNER IS RESPONSIBLE FOR SCHEDULING A TREE FINAL INSPECTION PRIOR TO PLAT RECORDATION TO ENSURE THE PROJECT MEETS THE TERMS AND CONDITIONS OF APPROVAL PER 35-523. MUST SCHEDULE AND PASS FINAL TREE INSPECTION AFTER OTHER DISCIPLINE HOLDS ARE REMOVED AND/OR WITHIN THREE (3) WEEKS PRIOR TO RECORDATION.

SCHEDULE VIA BUILD SA.
- TREE PLANTING SOIL REQUIREMENT NOTE: PER 35-523(M)(7), ALL TREE PLANTING SUBJECT TO SECTION 35-523(M) SHALL BE REQUIRED TO BE PLANTED IN SOIL THAT IS SUITABLE FOR ESTABLISHING AND SUSTAINING THE PLANTINGS, IN ADDITION TO CONTAINING SUITABLE SOIL PARTICLE SIZE AND DEPTH OF SOIL ZONE, THE SOIL MUST CONTAIN SUFFICIENT ORGANIC MATTER AND NUTRIENTS. TESTING AND CONFIRMATION BY A LANDSCAPE ARCHITECT, OR A TEXAS LICENSED SOIL TESTING FIRM SHALL BE COMPLETED TO ENSURE THE SOILS ARE SUITABLE. IN LIEU OF CONFIRMATION BY A LANDSCAPE ARCHITECT, OR A TEXAS LICENSED SOIL TESTING FIRM, SOIL MAY BE AMENDED WITH COMPOST BY ADDING THREE (3) INCHES OF COMPOST BLENDED INTO EVERYONE (1) FOOT OF SOIL. FOR COMPLETE SOIL REPLACEMENT, SUCH AS TREE PLANTINGS, AN AMOUNT OF TWENTY-FIVE (25) PERCENT COMPOST MAY BE ADDED TO SEVENTY-FIVE (75) PERCENT NATIVE SOIL.

// NOTE: APPLICATION IS FOR PLATTING AND TREE REMOVAL PURPOSES. TREE REVIEW APPROVAL IS FOR TREE REMOVAL WITHIN UNIT 2B ONLY. ANY

Permit Issuance Information

Report Date: 7/15/2024

SITE WORK OR TREE REMOVAL OUTSIDE OF UNIT 2B SHALL REQUIRED A SEPARATE TREE APPLICATION BE SUBMITTED AND APPROVED PRIOR TO START OF WORK.

Required Inspections	Inspection Status
Tree - Fencing	Pending
Tree - Fencing Follow Up	Pending
Tree - Final	Pending
Tree - Pre-Construction Meeting	Pending

Related Records

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

Record Number	Record Type	Status
LAND-PLAT-24-11800283	Major Plat	Additional Info Required
TRE-APP-APP22-38801338	Tree Affidavit/Permit Application	Issued

CPS ELECTRIC OHE/URD DESIGN

M.W. CUDE ENGINEERS, L.L.C 4122 Pond Hill Road, Suite 101 San Antonio, Texas 78231 210.681.2951 (tel) 210.523.7112 (fax)

CUSTOMER ENGINEERING
RESIDENTIAL DEVELOPMENT

CPS ENERGY™

CONSTRUCTION COMPLETED

BY:

DATE:

CONST CTR:

FERG MAP PAGE 645, D2

OH DESIGN			PROJ #	A-0011
WORK REQUEST NO	WORK REQUEST TITLE / ADDRESS			
40963223	TRES LAURELS UNIT 2B / OH			
PLANNED BY	PHONE	CELL	DATE PLANNED	NOTES
R WILEY	5874	485-8309	11/26/24	2: EX. POLES + 2: CUTOUTS
REVIEWED BY	PHONE	CELL	DATE REVIEWED	
J RAMZINSKI	2931	288-6476	12/02/24	
PAGE				
SERVICE CENTER				PD13519-47_JH
SWD				
X,Y GRID COORDINATES			CIRCUIT NO	SCALE
X 2052736.000000	Y 13690900.000000		R442	1 " = 100 '

BURIED FACILITIES

	CATV	WATER	TELEPHONE	SEWER	ELECTRIC	GAS	OTHER
CLEAR	☐	☐	☐	☐	☐	☐	☐
NOTED ON SKETCH	☐	☐	☐	☐	☐	☐	☐

COPIES TOTAL

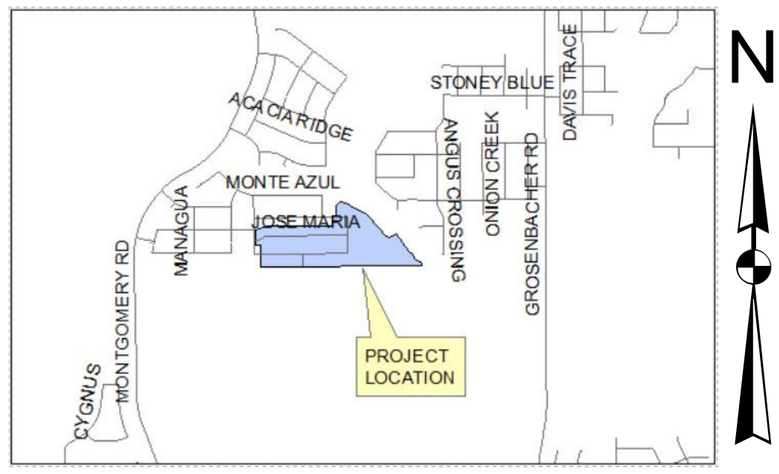
STATE OF TEXAS
DANA L. CUTTER
97400
LICENSED
PROFESSIONAL ENGINEER

1/3/2025

PAPE-DAWSON ENGINEERS
FIRM REGISTRATION #470

ASSOCIATED WITH:
URD WR# 40977495
STLT WR# 40963224

SKETCH 17 X 22, 1" = 100'



LOCATION MAP

NOTE TO DEVELOPER:

1. DEVELOPER IS RESPONSIBLE FOR COORDINATING WITH CPS PRIOR TO THE INSTALLATION OF DRAINAGE STRUCTURES TO ENSURE PROPER COVERAGE REQUIREMENTS CAN BE MAINTAINED FOR CPS FACILITIES. SLEEVES AND/OR CONCRETE ENCASEMENT MAY ALSO BE A REQUIREMENT OF THE DEVELOPER.

2. SEE CIVIL ENGINEERING OVERALL UTILITY AND DRAINAGE PLANS FOR THE LOCATION OF UTILITIES AND DRAINS IN THE CONSTRUCTION AREA.

3. FOREMAN TO LOCATE ALL BURIED UTILITIES.

FOR MISSING PINS CALL ENGINEER

ENGINEER: CUDE ENGINEERS
ADDRESS: 4122 POND HILL RD, SUITE 101
PHONE: 210-681-2951
CONTACT: MATTHEW TRINKLE

DEVELOPER: LENNAR HOMES OF TEXAS LAND AND CONSTRUCTION, LTD
ADDRESS: 100 NE LOOP 410 SUITE 1155
PHONE: 210-889-5516
CONTACT: RICHARD MOTT

"ATTENTION FOREMAN"
PLEASE CONTACT SUPERVISOR PRIOR TO ENERGIZING!!

A STORMWATER PERMIT IS ACTIVE FOR THIS CONSTRUCTION SITE. PLEASE CALL STORMCON ENVIRONMENTAL AT LEAST 48 HOURS PRIOR TO ANY SOIL DISTURBANCE.

STORMCON POC: BRANDON BAXTER
210-771-1221 (CELL) brandon@stormcon.us

PROJECT NAME: TRES LAURELS UNIT 2B DIRT: X ROCK: # OF POLES:

 # OF TRANSFORMERS: GY: HV: X 50KVA: 75KVA 100KVA:

OVERHEAD (OH) & EASEMENT REQUIREMENTS:
*Any single phase OH line requires a minimum of 20' (FT) easement with poles set in the center of the easement.
*Any multi-phase (2 or 3 phase) OH line requires a minimum of 28' (FT) easement with poles set in the center of the easement.
*Small conductor (W2AS) easement: to be cleared, to final grade and have drivable access.
*Large conductor (4/0, 336 & 556) easement: to be cleared, to final grade & have all-weather drivable access (per CPSE specifications)
*Guy wire/Anchors: require 25' to 30' past OH pole w/ 5' additional easement past anchor (30'-35' of easement required).
*URD/UG primary riser pole 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.

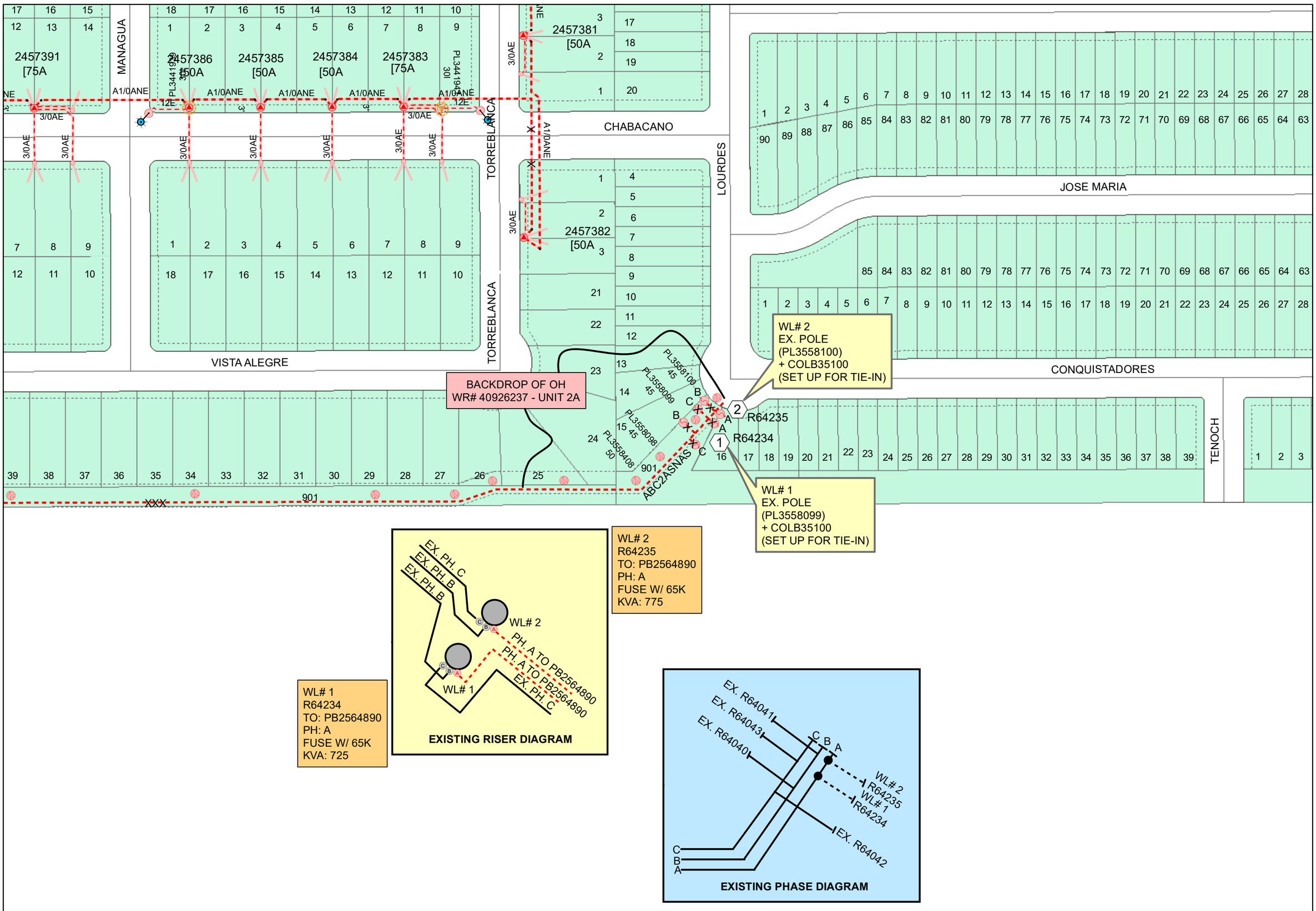
ATTENTION: DEVELOPERS / ENGINEERS / CONTRACTORS

WHEN TRENCHING IS IN FRONT LOT CONSTRUCTION, WATER &/OR SEWER SERVICES ARE NOT TO BE PLACED UNTIL CPS ENERGY FACILITES 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 SUBDIVISION UNTIL PERMANENT ALL-WEATHER DRIVABLE ACCESS TO PRIMARY RISER POLSES IS COMPLETED BY CUSTOMER

CPS ENERGY WILL NOT BE LIABLE FOR ANY DAMAGES TO WATER &/OR SEWER SERVICES

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

* ANY FOREIGN UTILITY OTHER THAN CPS ENERGY WILL BE REQUIRED TO MAINTAIN A MINIMUM OF 6' (FT) 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



EXISTING RISER DIAGRAM

WL# 2
R64235
TO: PB2564890
PH: A
FUSE W/ 65K
KVA: 775

WL# 1
R64234
TO: PB2564890
PH: A
FUSE W/ 65K
KVA: 725

EXISTING PHASE DIAGRAM

CUSTOMER ENGINEERING
RESIDENTIAL DEVELOPMENT

CONSTRUCTION COMPLETED

BY:

DATE:

CONST CTR:

FERG MAP PAGE 645, D2

URD ELECTRIC DESIGN				PROJ # A-0012
WORK REQUEST NO	WORK REQUEST TITLE / ADDRESS			
40977495	TRES LAURELS UNIT 2B/ URD			
PLANNED BY	PHONE	CELL	DATE PLANNED	NOTES
R WILEY	5874	485-8309	11/26/24	
REVIEWED BY	PHONE	CELL	DATE REVIEWED	
J RAMZINSKI	2931	288-6476	12/02/24	203 LOTS
PAGE				
SERVICE CENTER				PD13519-47_JH
X 2052736.000000	Y 13690900.000000	CIRCUIT NO R442	SCALE 1 " = 100 '	

BURIED FACILITIES

	CATV	WATER	TELEPHONE	SEWER	ELECTRIC	GAS	OTHER
CLEAR	☐	☐	☐	☐	☐	☐	☐
NOTED ON SKETCH	☐	☐	☐	☐	☐	☐	☐

COPIES TOTAL

STATE OF TEXAS
DANA L. CUTTER
97400
LICENSED
PROFESSIONAL ENGINEER

1/3/2025

PAPE-DAWSON ENGINEERS
FIRM REGISTRATION #470

ASSOCIATED WITH:
OH WR# 40963223
STLT WR# 40963224

A STORMWATER PERMIT IS ACTIVE FOR THIS CONSTRUCTION SITE. PLEASE CALL STORMCON ENVIRONMENTAL AT LEAST 48 HOURS PRIOR TO ANY SOIL DISTURBANCE.

STORMCON POC: BRANDON BAXTER
210-771-1221 (CELL) brandon@stormcon.us

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2. SEE CIVIL ENGINEERING OVERALL UTILITY AND DRAINAGE PLANS FOR THE LOCATION OF UTILITIES AND DRAINS IN THE CONSTRUCTION AREA.

3. FOREMAN TO LOCATE ALL BURIED UTILITIES.

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ADDRESS: 4122 POND HILL RD, SUITE 101
PHONE: 210-681-2951
CONTACT: MATTHEW TRINKLE

LENNAR HOMES OF TEXAS LAND AND CONSTRUCTION, LTD
ADDRESS: 100 NE LOOP 410 SUITE 1155
PHONE: 210-889-5516
CONTACT: RICHARD MOTT

PROJECT NAME:	TRES LAURELS UNIT 2B			# OF LOTS / # OF UNITS:	203 / 203
DIRT:	X	ROCK:		# OF SE6D:	79
KVA PER LOT / TOTAL KVA:	14 / 3100	HOME SQ FT:	1400		
TOTAL TRENCH FOOTAGE:	JOINT (ELEC & GAS):		ELEC. ONLY:	9230	GAS ONLY:
STREET CROSSINGS:	CUSTOMER SLEEVES:		CPS TRENCH/FLOWABLE FILL:	X	TOTAL CROSSINGS: 48
# OF STREETLIGHTS:	100W: 4	250W:	UNINCORPORATED:	X	CITY: ANSL:

OF URD PADMOUNT TRANSFORMERS:

GY:		HV:	
	:50KVA		:50KVA
	:75KVA	10	:75KVA
	:100KVA	18	:100KVA
	:167KVA		:167KVA
	:250KVA		:250KVA

* ANY FOREIGN UTILITY OTHER THAN CPS ENERGY WILL BE REQUIRED TO MAINTAIN A MINIMUM OF 6' (FT) PARALLEL SEPARATION FROM ANY CPS ENERGY INFRASTRUCTURE
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"ATTENTION" DEVELOPERS / ENGINEERS / CONTRACTORS
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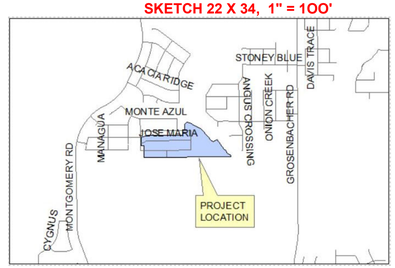
WHEN TRENCHING IN RIGHT OF WAY, WATER & SEWER SERVICES WILL NEED TO BE ROLLED BACK &/OR OUT OF CPS ENERGY TRENCHLINE
CPS ENERGY WILL NOT BE LIABLE
FOR ANY DAMAGES TO WATER &/OR SEWER SERVICES
WHERE CPS ENERGY AND SEWER/WATER SERVICES/MAIN ARE CROSSING STREET CPS ENERGY REQUIRES A MINIMUM OF 6' (FT) OF HORIZONTAL SEPARATION (when paralleling) AND 1' (FT) VERTICAL SEPARATION (when crossing) TO AVOID CONFLICTS

SKETCH 22 X 34, 1" = 100'



LOCATION MAP

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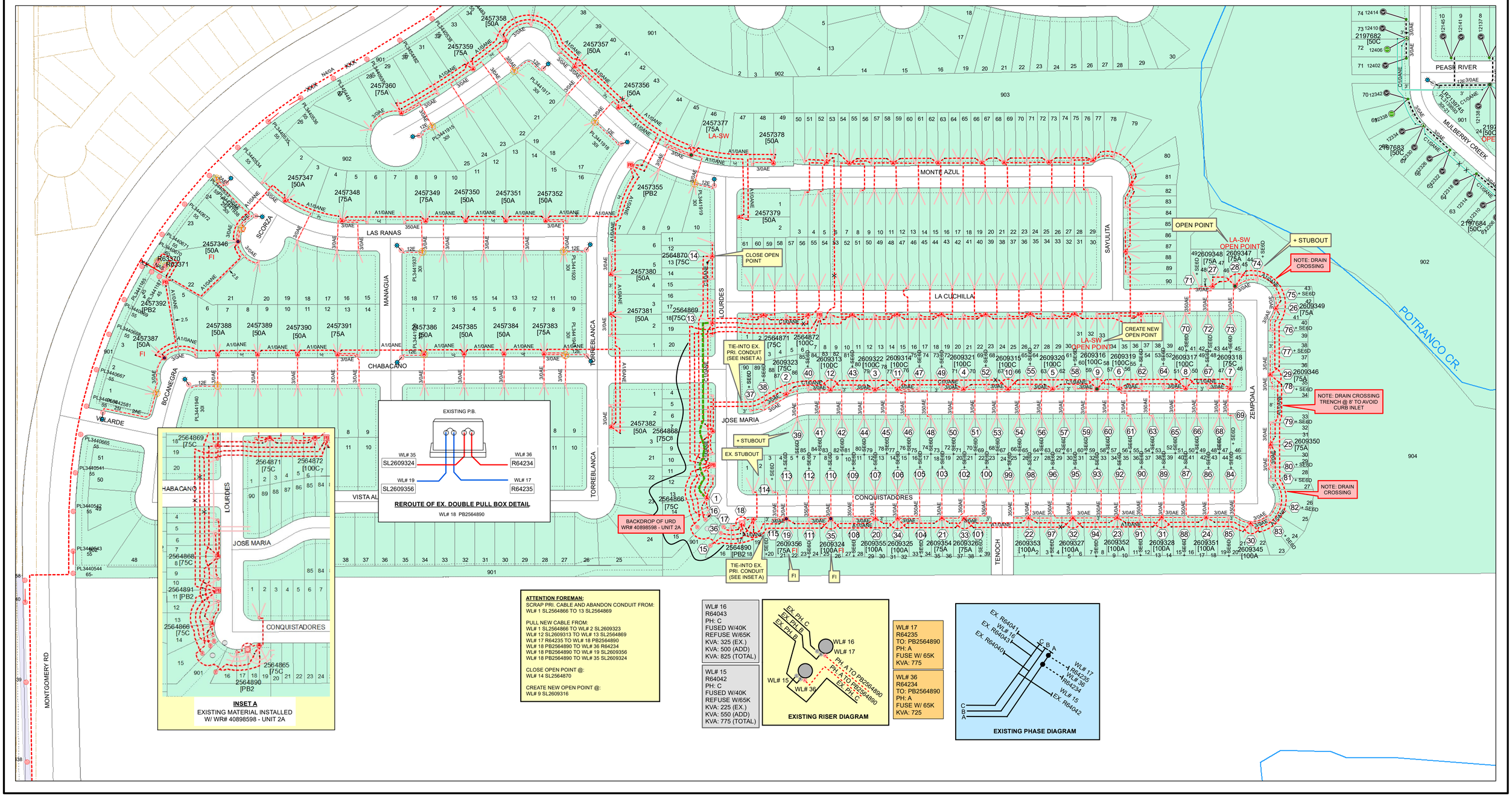
MONTE AZUL
LAS RANAS
SCORZA
MANAGUA
CHABACANO
BOCANEGRA
VILLARDE
HABACANO
VISTA AL
JOSE MARIA
LOURDES
TORREBLANCA
LA CUCHILLA
SAYULITA
CONQUISTADORES
ZEMPOALA
TENOCH
MONTGOMERY RD
POTRANCO CR.
PEASE RIVER
MULBERRY CREEK
OPEN POINT
CLOSE OPEN POINT
LA-SW OPEN POINT
CREATE NEW OPEN POINT
+ STUBOUT
EX. STUBOUT
TIE-INTO EX. PRI. CONDUIT (SEE INSET A)
TIE-INTO EX. PRI. CONDUIT (SEE INSET A)
NOTE: DRAIN TRENCH @ 8' TO AVOID CURB INLET
NOTE: DRAIN CROSSING
NOTE: DRAIN CROSSING TRENCH @ 8' TO AVOID CURB INLET
BACKDROP OF URD WR# 40898598 - UNIT 2A
2457346 [50A FI] R63370 R63371
2457387 [50A FI]
2457392 [PB2]
2457358 [50A]
2457359 [75A]
2457360 [75A]
2457356 [50A]
2457357 [50A]
2457377 [75A LA-SW]
2457378 [50A]
2457355 [PB2]
2457379 [50A]
2457347 [50A]
2457348 [75A]
2457349 [75A]
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R2139182
R2139183
R2139184

CUSTOMER ENGINEERING
RESIDENTIAL DEVELOPMENT

CPS ENERGY™

CONSTRUCTION COMPLETED

BY:

DATE:

CONST CTR:

FERG MAP PAGE 645, D2

STREET LIGHT DESIGN				PROJ # A-0008
WORK REQUEST NO	WORK REQUEST TITLE / ADDRESS			
40963224	TRES LAURELS UNIT 2B / STLT			
PLANNED BY	PHONE	CELL	DATE PLANNED	NOTES
R WILEY	5874	485-8309	11/26/24	
REVIEWED BY	PHONE	CELL	DATE REVIEWED	
J RAMZINSKI	2931	288-6476	12/02/24	+ 4: STLTS
PAGE				
SERVICE CENTER				
SWD				PD13519-47_JH
X,Y GRID COORDINATES			CIRCUIT NO	SCALE
X 2052736.000000	Y 13690900.000000		R442	1 " = 100 '

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CLEAR	☐	☐	☐	☐	☐	☐	☐
NOTED ON SKETCH	☐	☐	☐	☐	☐	☐	☐

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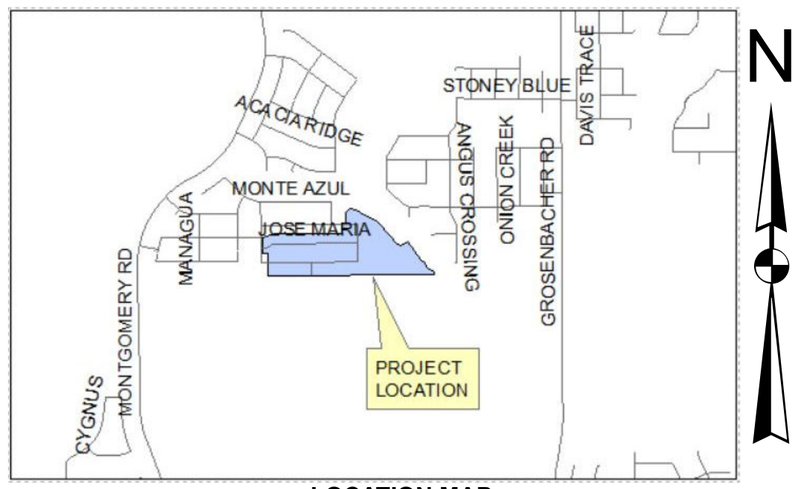

LOCATION MAP

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STORMCON POC: BRANDON BAXTER
210-771-1221 (CELL) brandon@stormcon.us

PROJECT NAME: TRES LAURELS UNIT 2B # OF LOTS / # OF UNITS: 203 / 203

DIRT: X ROCK: # OF SE6D: 79 KVA PER LOT / TOTAL KVA: 14 / 3100 HOME SQ FT: 1400

TOTAL TRENCH FOOTAGE: JOINT (ELEC & GAS): ELEC. ONLY: 9230 GAS ONLY:

STREET CROSSINGS: CUSTOMER SLEEVES: CPS TRENCH/FLOWABLE FILL: X TOTAL CROSSINGS: 48

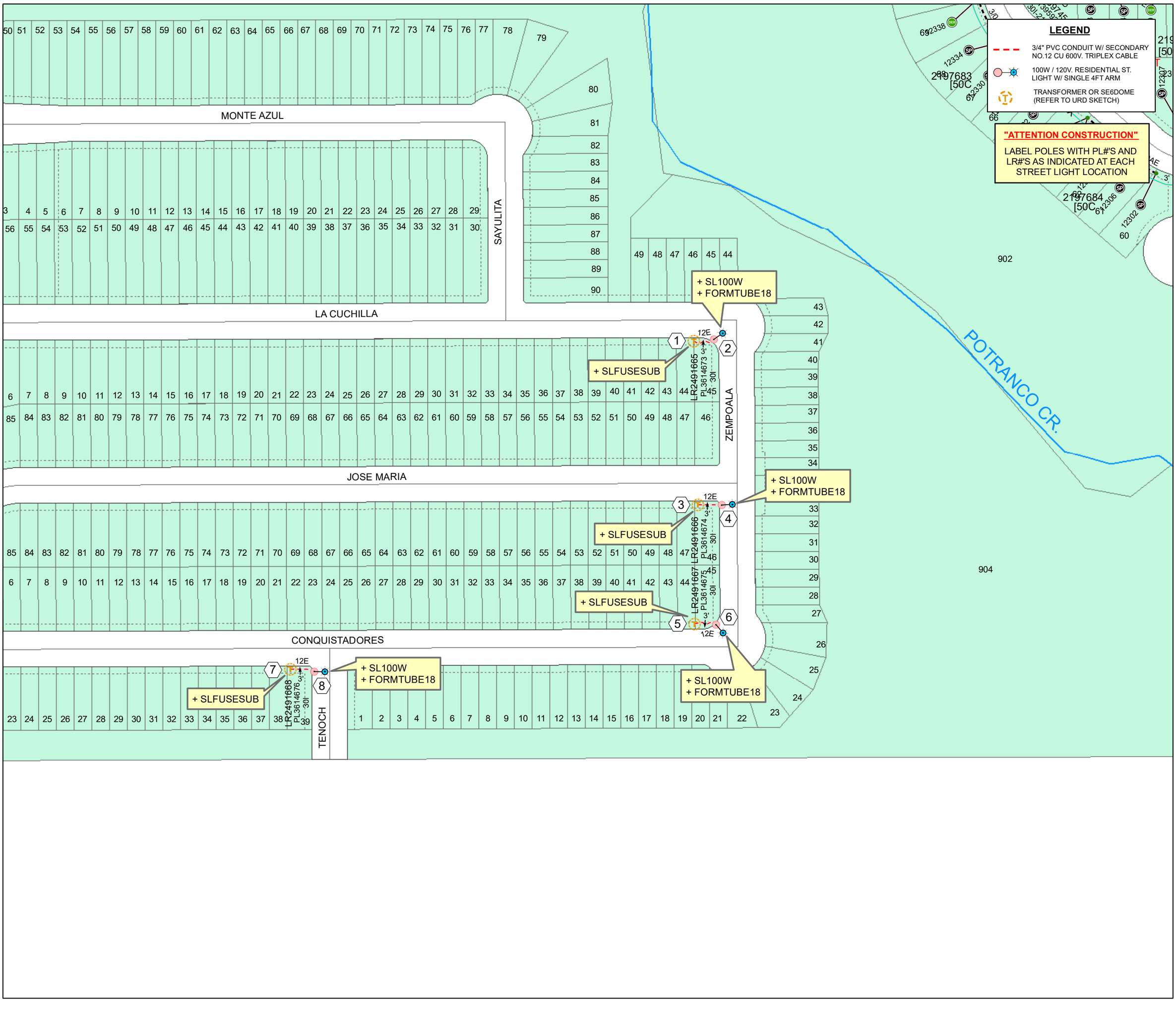
 # OF STREETLIGHTS: 100W: 4 250W: UNINCORPORATED: X CITY: ANSL:

 # OF URD PADMOUNT TRANSFORMERS:

GY:		HV:	
	:50KVA		:50KVA
	:75KVA	10	:75KVA
	:100KVA	18	:100KVA
	:167KVA		:167KVA
	:250KVA		:250KVA

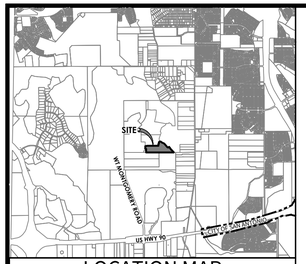
* ANY FOREIGN UTILITY OTHER THAN CPS ENERGY WILL BE REQUIRED TO MAINTAIN A MINIMUM OF 6' (FT) PARALLEL SEPARATION FROM ANY CPS ENERGY INFRASTRUCTURE
* CPS ENERGY APPROVES THIS DRAWING FOR THIS PROJECT ONLY. CPS ENERGY RESERVES THE RIGHT TO APPROVE OR REJECT ANY DEVIATIONS ON ANY FUTURE PROJECTS

"ATTENTION"
DEVELOPERS / ENGINEERS / CONTRACTORS
WHEN TRENCHING IS IN FRONT LOT CONSTRUCTION, WATER &/OR SEWER SERVICES ARE NOT TO BE PLACED UNTIL CPS ENERGY FACILITES 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



CONDUIT PLAN

M.W. CUDE ENGINEERS, L.L.C 4122 Pond Hill Road, Suite 101 San Antonio, Texas 78231 210.681.2951 (tel) 210.523.7112 (fax)



LOCATION MAP

N.T.S.

OWNER/DEVELOPER:

LENNAR HOMES
CONTACT PERSON: RICHARD MOTT
1922 DRY CREEK WAY, SUITE 101
SAN ANTONIO, TEXAS 78259

CIVIL ENGINEER:

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

SCALE: 1"=60'

0 60 120

NOTES:

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,

1. CONTRACTOR SHALL INSTALL PERMANENT MARKERS IN PROPOSED CURB WHERE CONDUITS CROSS THE ROADWAY (BOTH SIDES).
2. CONDUITS SHALL BE PVC WITH MINIMUM BURY OF 36 INCHES BELOW PROPOSED FINISHED GRADE. SCHEDULE 80 TO BE USED FOR CPS CONDUITS, ALL OTHER CONDUITS ARE SCHEDULE 40.
3. ALL CONDUITS SHALL BE EXTENDED BEHIND CURBS OR PROPOSED SIDEWALKS A MINIMUM OF 3 FEET AND CAPPED FOR FUTURE USE.
4. ALL CONDUIT SLEEVES TO BE USED FOR ELECTRIC, GAS, OR TELECOMMUNICATION UTILITY CROSSINGS SHALL BE INSTALLED TO MEET OR EXCEED DESIGN REQUIREMENTS FOR THE UTILITY AGENCY WHICH THEY ARE SERVING, INCLUDING BUT NOT LIMITED TO THE DEPTH, TRENCH PLACEMENT, AND PROXIMITY TO OTHER UTILITIES. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR VERIFYING AND INSTALLING THE CONDUIT SLEEVES TO MEET THESE SPECIFICATIONS INCLUDING COORDINATING WITH THE UTILITY AGENCY FOR ANY REQUIRED INSPECTIONS.
5. STREET BASE AND DRAINAGE COMPLETION PRECEDES CPS UTILITY LINE INSTALLATION.
6. 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.

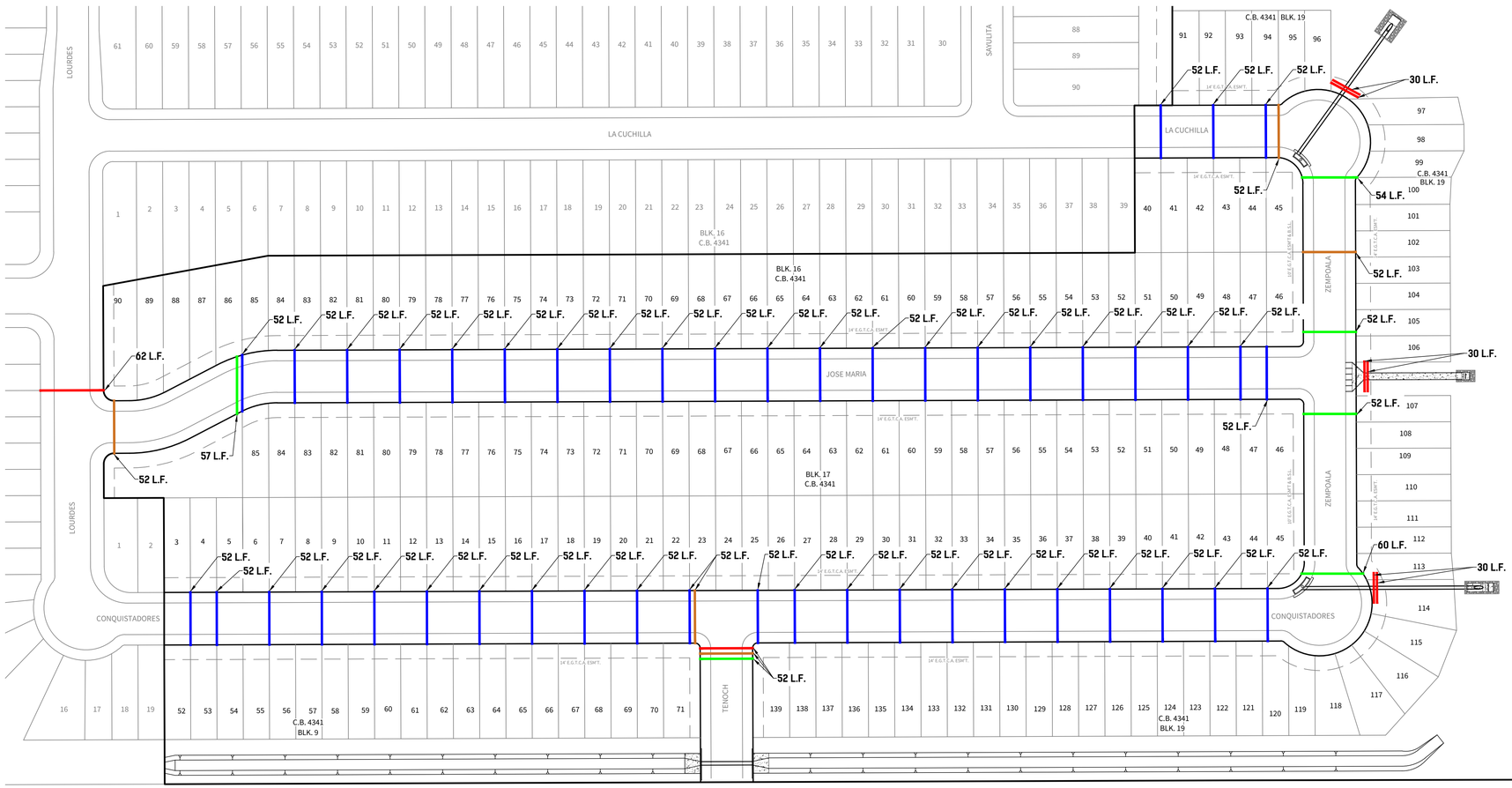
LEGEND

EXISTING SANITARY SEWER	EX.8"SS
PROPOSED SANITARY SEWER	8"SS
EXISTING SANITARY SEWER MANHOLE	
PROPOSED SANITARY SEWER MANHOLE	
EXISTING WATER MAIN	EX.8"W
PROPOSED WATER MAIN	8"W
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	OHE
PROPOSED OVERHEAD ELECTRIC	OHE
EXISTING GAS MAIN	EX.2"GAS
PROPOSED GAS MAIN	2"GAS
EXISTING POWER POLE	
PROPOSED POWER POLE	
PROPOSED LIGHT POLE WITH 100W LED LIGHT	
ELECTRIC, GAS, TELEPHONE, & CABLE T.V. EASEMENT	E.G.T.CA. ESM'T
BUILDING SETBACK LINE	B.S.L.
LANDSCAPE	L.S.
UTILITY CONDUIT CROSSING	UTIL
IRRIGATION CONDUIT CROSSING	IRR

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

1 – 4" SCH. 40 CENTRIC GAS
1 – 4" SCH. 40 CENTRIC TELECOMMUNICATIONS



CUDEENGINEERS.COM

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

TRES LAURELS UNIT 2B

CONDUIT PLAN

DATE
10/23/2025

PROJECT NO.
03050.018

DRAWN BY
JW

CHECKED BY
SPM/DF

REVISIONS
1.
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10.

CUDE ENGINEERS
TBPELS No. 10048500

PLAT NO.
24-11800283

E1

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.

P:\03050\018\3-SHEET EXHIBITS\03050-018-2-1- Conduit Plan.dwg 10/23/2025 10:18am Jwilla

DIGITAL FILES

M.W. CUDE ENGINEERS, L.L.C 4122 Pond Hill Road, Suite 101 San Antonio, Texas 78231 210.681.2951 (tel) 210.523.7112 (fax)