

Edwards Aquifer Protection Program Construction Notes - Legal Disclaimer

The following/listed "construction notes" are intended to be advisory in nature only and do not constitute an approval or conditional approval by the Executive Director, nor do they constitute a comprehensive listing of rules or conditions to be followed during construction. Further actions may be required to achieve compliance with TCEQ regulations found in Title 30, Texas Administrative Code, Chapters 213 and 217, as well as local ordinances and regulations providing for the protection of water quality. Additionally, nothing contained in the following/listed "construction notes" restricts the powers of the Executive Director, the commission or any other governmental entity to prevent, correct, or curtail activities that result or may result in pollution of the Edwards Aguifer or hydrologically connected surface waters. The holder of any Edwards Aguifer Protection Plan containing construction notes" is still responsible for compliance with Title 30, Texas Administrative Code, Chapters 213 or any other applicable TCEQ regulation. as well as all conditions of an Edwards Aquifer Protection Plan through all phases of plan implementation. Failure to comply with any condition of the Executive Director's approval, whether or not in contradiction of any "construction notes," is a violation of TCEQ regulations and any violation is subject to administrative rules, orders, and penalties as provided under Title 30. Texas Administrative Code § 213.10 (relating to Enforcement). Such 13. violations may also be subject to civil penalties and injunction. The following/listed "construction notes" in no way represent an approved exception

- This Organized Sewage Collection System (SCS) must be constructed in accordance with 30 Texas Administrative Code (TAC) §213.5(c), the Texas Commission on Environmental Quality's (TCEQ) Edwards Aquifer Rules and any local government standard specifications. All contractors conducting regulated activities associated with this proposed regulated project must
- be provided with copies of the SCS plan and the TCEQ letter indicating the specific conditions of its approval. During the course of these regulated activities, the contractors must be required to keep on-site copies of the plan and the approval letter
- A written notice of construction must be submitted to the presiding TCEQ regional office at least 48 hours prior to the start of any regulated activities. This notice must include: the name of the approved project;
- the activity start date; and the contact information of the prime contractor
- Any modification to the activities described in the referenced SCS application following the date of approval may require the submittal of an SCS application to modify this approval, including the payment of appropriate fees and all information necessary for its review and approval.
- Prior to beginning any construction activity, all temporary erosion and sedimentation (E&S) control measures must be properly installed and maintained in accordance with the manufacturers specifications. These controls must remain in place until the disturbed areas have been permanently
- If any sensitive features are discovered during the wastewater line trenching activities, all regulated activities near the sensitive feature must be suspended immediately. The applicant must immediately notify the appropriate regional office of the TCEQ of the feature discovered. A geologist's assessment of the location and extent of the feature discovered must be reported to that regional office in writing and the applicant must submit a plan for ensuring the structural integrity of the sewer line or for modifying the proposed collection system alignment around the feature. The regulated activities near the sensitive feature may not proceed until the executive director has reviewed and approved the methods proposed to protect the sensitive feature and the Edwards Aquifer from any potentially adverse impacts to water quality while maintaining the structural integrity of the line.
- Sewer lines located within or crossing the 5-year floodplain of a drainage way will be protected from inundation and stream velocities which could cause erosion and scouring of backfill. The trench must be capped with concrete to prevent scouring of backfill, or the sewer lines must be encased in
- Blasting procedures for protection of existing sewer lines and other utilities will be in accordance with the National Fire Protection Association criteria. Sand is not allowed as bedding or backfill in trenches that have been blasted. If any existing sewer lines are damaged, the lines must be repaired
- All manholes constructed or rehabilitated on this project must have watertight size on size resilient connectors allowing for differential settlement. If manholes are constructed within the 100-year floodplain, the cover must have a gasket and be bolted to the ring. Where gasketed manhole covers are required for more than three manholes in sequence or for more than 1500 feet, alternate means of venting will be provided. Bricks are not an acceptable construction material for any portion of the
- The diameter of the manholes must be a minimum of four feet and the manhole for entry must have a minimum clear opening diameter of 30 inches. These dimensions and other details showing compliance with the commission's rules concerning manholes and sewer line/manhole inverts described in 30 TAC §217.55 are included on Plan Sheet 12 of 12
- It is suggested that entrance into manholes in excess of four feet deep be accomplished by means of a portable ladder. The inclusion of steps in a manhole is prohibited
- Where water lines and new sewer line are installed with a separation distance closer than nine feet (i.e., water lines crossing wastewater lines, water lines paralleling wastewater lines, or water lines next to manholes) the installation must meet the requirements of 30 TAC §217.53(d) (Pipe Design) and 30 TAC §290.44(e) (Water Distribution)
- Where sewers lines deviate from straight alignment and uniform grade all curvature of sewer pipe must be achieved by the following procedure which is recommended by the pipe
- If pipe flexure is proposed, the following method of preventing deflection of the joint must be used:\_
- Specific care must be taken to ensure that the joint is placed in the center of the trench and properly bedded in accordance with 30 TAC §217.54.

WOVEN WIRE FARRIC

(HOG WIRE) 12.5 GA.

SILT FENCE NOTES

ACRE/100 FEET OF FENCE

- 12. New sewage collection system lines must be constructed with stub outs for the connection of anticipated extensions. The location of such stub outs must be marked on the ground such that their location can be easily determined at the time of connection of the extensions. Such stub outs must be manufactured wyes or tees that are compatible in size and material with both the sewer line and the extension. At the time of original construction, new stub-outs must be constructed sufficiently to extend beyond the end of the street pavement. All stub-outs must be sealed with a manufactured cap to prevent leakage. Extensions that were not anticipated at the time of original construction or that are to be connected to an existing sewer line not furnished with stub outs must be connected using a manufactured saddle and in accordance with accepted plumbing techniques.
- If no stub-out is present an alternate method of joining laterals is shown in the detail on Plan Sheet \_12\_ of \_12\_. (For potential future laterals).
- The private service lateral stub-outs must be installed as shown on the plan and profile sheets on Plan Sheet \_4-11\_ of \_12\_ and marked after backfilling as shown in the detail on Plan Sheet \_12\_ of \_12\_.
- Trenching, bedding and backfill must conform with 30 TAC §217.54. The bedding and backfill for flexible pipe must comply with the standards of ASTM D-2321, Classes IA, IB, II or III. Rigid pipe bedding must comply with the requirements of ASTM C 12 (ANSI A 106.2) classes A. B or C.
- 14. Sewer lines must be tested from manhole to manhole. When a new sewer line is connected to an existing stub or clean-out, it must be tested from existing manhole to new manhole. If a stub or clean-out is used at the end of the proposed sewer line, no private service attachments may be connected between the last manhole and the cleanout unless it can be certified as conforming with the provisions of 30 TAC §213.5(c)(3)(E).
- All sewer lines must be tested in accordance with 30 TAC §217.57. The engineer must retain copies of all test results which must be made available to the executive director upon request. The engineer must certify in writing that all wastewater lines have passed all required testing to the appropriate regional office within 30 days of test completion and prior to use of the new collection system. Testing
- (a) For a collection system pipe that will transport wastewater by gravity flow, the design must specify an infiltration and exfiltration test or a low-pressure air test. A test must conform to the
- Low Pressure Air Test. A low pressure air test must follow the procedures described in American Society For Testing And Materials (ASTM) C-828, ASTM C-924, or ASTM F-1417 or other procedure
- approved by the executive director, except as to testing times as required in Table C.3 in (iv) Each size mandrel must use a separate proving ring. subparagraph (C) of this paragraph or Equation C.3 in subparagraph (B)(ii) of this (B) For sections of collection system pipe less than 36 inch average inside diameter, the

following procedure must apply, unless a pipe is to be tested as required by paragraph

- (2) of this subsection. A pipe must be pressurized to 3.5 pounds per square inch (psi) greater than the pressure exerted groundwater above the pipe
- i) Once the pressure is stabilized, the minimum time allowable for the pressure to drop from 3.5 psi gauge to 2.5 psi gauge is computed from the following equation: Equation C.3

  - T= time for pressure to drop 1.0 pound per square inch gauge
  - K= 0.000419 X D X L, but not less than 1.0 D= average inside pipe diameter in inches length of line of same size being tested, in feet

internal surface

approved by the executive director

STEEL POST -

Diamet	er (inches)	Minimum Time	Maximum Length for	Time 1
	' '	meter is shown in the f		
(C)	Since a K value of less than 1.0 may not be used, the minimum testing time for			

Q= rate of loss, 0.0015 cubic feet per minute per square foot

Pipe Diameter (inches)	Minimum Time (seconds)	Maximum Length for Minimum Time (feet)	Time for Longer Length (seconds/foot)
6	340	398	0.855
8	454	298	1.520
10	567	239	2.374
12	680	199	3.419
15	850	159	5.342
18	1020	133	7.693
21	1190	114	10.471
24	1360	100	13.676
27	1530	88	17.309
30	1700	80	21.369
33	1870	72	25.856

- (D) An owner may stop a test if no pressure loss has occurred during the first 25% of the calculated testing time.
- E) If any pressure loss or leakage has occurred during the first 25% of a testing period, then the test must continue for the entire test duration as outlined above or until failure. (F) Wastewater collection system pipes with a 27 inch or larger average inside diameter may be air tested at each joint instead of following the procedure outlined in this section. (G) A testing procedure for pipe with an inside diameter greater than 33 inches must be

**SECTION** 

- Infiltration/Exfiltration Test. The total exfiltration, as determined by a hydrostatic head test, must not exceed 50 gallons per inch of diameter per mile of pipe per 24 hours at a minimum test head of 2.0 feet
- above the crown of a pipe at an upstream manhole
- (B) An owner shall use an infiltration test in lieu of an exfiltration test when pipes are installed below the groundwater level (C) The total exfiltration, as determined by a hydrostatic head test, must not exceed 50 gallons
- per inch diameter per mile of pipe per 24 hours at a minimum test head of two feet above the crown of a pipe at an upstream manhole, or at least two feet above existing groundwater level, whichever is greater. (D) For construction within a 25-year flood plain, the infiltration or exfiltration must not exceed
- 10 gallons per inch diameter per mile of pipe per 24 hours at the same minimum test head as in subparagraph (C) of this paragraph.
- (E) If the quantity of infiltration or exfiltration exceeds the maximum quantity specified, an owner shall undertake remedial action in order to reduce the infiltration or exfiltration to an amount within the limits specified. An owner shall retest a pipe following a remediation
- (b) If a gravity collection pipe is composed of flexible pipe, deflection testing is also required. The
- following procedures must be followed: For a collection pipe with inside diameter less than 27 inches, deflection measurement (A) Mandrel Sizing.
- A rigid mandrel must have an outside diameter (OD) not less than 95% of the base inside diameter (ID) or average ID of a pipe, as specified in the appropriate standard by the ASTMs, American Water Works ssociation, UNI-BELL, or American National Standards Institute, or any related appendix. If a mandrel sizing diameter is not specified in the appropriate standard, the mandrel must have an OD equal to 95% of the ID of a pipe. In this case, the ID of the pipe, for the purpose of determining the OD
- of the mandrel, must equal be the average outside diameter minus two minimum wall thicknesses for OD controlled pipe and the average inside diameter for ID controlled pipe. ii) All dimensions must meet the appropriate standard.
- (B) Mandrel Design. A rigid mandrel must be constructed of a metal or a rigid plastic material that can withstand 200 psi without being deformed.
- A mandrel must have nine or more odd number of runners or legs. i) A barrel section length must equal at least 75% of the inside diameter of a pipe.
- (C) Method Options.
- An adjustable or flexible mandrel is prohibited. (ii) A test may not use television inspection as a substitute for a deflection test.
- If requested, the executive director may approve the use of a deflectometer or a mandrel with removable legs or runners on a case-by-case basis (2) For a gravity collection system pipe with an inside diameter 27 inches and greater, other test
- methods may be used to determine vertical deflection. A deflection test method must be accurate to within plus or minus 0.2% deflection An owner shall not conduct a deflection test until at least 30 days after the final backfill. Gravity collection system pipe deflection must not exceed five percent (5%)
- If a pipe section fails a deflection test, an owner shall correct the problem and conduct a second test after the final backfill has been in place at least 30 days.
- 16. All manholes must be tested to meet or exceed the requirements of 30 TAC §217.58. (a) All manholes must pass a leakage test.
- (b) An owner shall test each manhole (after assembly and backfilling) for leakage, separate and independent of the collection system pipes, by hydrostatic exfiltration testing, vacuum testing, or other method approved by the executive director.
- Hydrostatic Testing (A) The maximum leakage for hydrostatic testing or any alternative test methods is 0.025 gallons
- per foot diameter per foot of manhole depth per hour. (B) To perform a hydrostatic exfiltration test, an owner shall seal all wastewater pipes coming into a manhole with an internal pipe plug, fill the manhole with water, and maintain the test for at least one hour
- (C) A test for concrete manholes may use a 24-hour wetting period before testing to allow saturation of the concrete. Vacuum Testing.
- (A) To perform a vacuum test, an owner shall plug all lift holes and exterior joints with a non-shrink grout and plug all pipes entering a manhole. (B) No grout must be placed in horizontal joints before testing.

sewage collection system.

GEOTEXTILE FABRIC

TRENCH BACKFILL

- (C) Stub-outs, manhole boots, and pipe plugs must be secured to prevent movement while a vacuum is drawn.
- (D) An owner shall use a minimum 60 inch/lb torque wrench to tighten the external clamps that secure a test cover to the top of a manhole.
- (E) A test head must be placed at the inside of the top of a cone section, and the seal inflated in accordance with the manufacturer's recommendations There must be a vacuum of 10 inches of mercury inside a manhole to perform a valid
- (G) A test does not begin until after the vacuum pump is off.
- (H) A manhole passes the test if after 2.0 minutes and with all valves closed, the vacuum is at least 9.0 inches of mercury.

All private service laterals must be inspected and certified in accordance with 30 TAC 213.5(c)(3)(l). After installation of and, prior to covering and connecting a private service lateral to an existing organized sewage collection system, a Texas Licensed Professional Engineer, Texas Registered Sanitarian, or appropriate city inspector must visually inspect the private service lateral and the connection to the sewage collection system, and certify that it is constructed in conformity with the applicable provisions of his section. The owner of the collection system must maintain such certifications for five years and forward copies to the appropriate regional office upon request. Connections may only be made to an approved

2. THE AGGREGATE SHOULD BE PLACED WITH A MINIMUM THICKNESS OF 8 INCHES.

EQUIVALENT OPENING SIZE GREATER THAN A NUMBER 50 SIEVE.

6. THE CONSTRUCTION ENTRANCE SHOULD BE AT LEAST 50 FEET LONG.

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

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.

THE MINIMUM WIDTH OF THE ENTRANCE/EXIT SHOULD BE 12 FEET OR THE FULL WIDTH OF EXIT

PLACE GEOTEXTILE FABRIC AND GRADE FOUNDATION TO IMPROVE STABILITY, ESPECIALLY WHERE WET

8. PLACE STONE TO DIMENSIONS AND GRADE SHOWN. LEAVE SURFACE SMOOTH AND SLOPE FOR DRAINAGE.

THE ENTRANCE SHOULD BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOWING OF

SEDIMENT ONTO PUBLIC RIGHTS-OF-WAY. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH ADDITIONAL

STONE AS CONDITIONS DEMAND AND REPAIR AND/OR CLEANOUT OF ANY MEASURES USED TO TRAP

WHEN NECESSARY, WHEELS SHOULD BE CLEANED TO REMOVE SEDIMENT PRIOR TO ENTRANCE ONTO

ALL SEDIMENT SHOULD BE PREVENTED FROM ENTERING ANY STORM DRAIN, DITCH OR WATER COURSE

TEMPORARY CONSTRUCTION

ENTRANCE/EXIT DETAIL

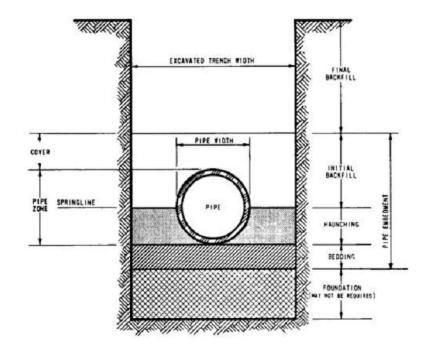
WHEN WASHING IS REQUIRED, IT SHOULD BE DONE ON AN AREA STABILIZED WITH CRUSHED STONE THAT

10. ALL SEDIMENT SPILLED, DROPPED, WASHED OR TRACKED ON TO PUBLIC RIGHTS-OF-WAY SHOULD BE

### Austin Regional Office San Antonio Regional Office 12100 Park 35 Circle, Building A 14250 Judson Road San Antonio, Texas 78233-4480 Austin, Texas 78753-1808 Phone (512) 339-2929 Phone (210) 490-3096 Fax (512) 339-3795 Fax (210) 545-4329

TCEQ PIPE BEDDING AND TRENCHING REQUIREMENTS (30 TAC 217.54)

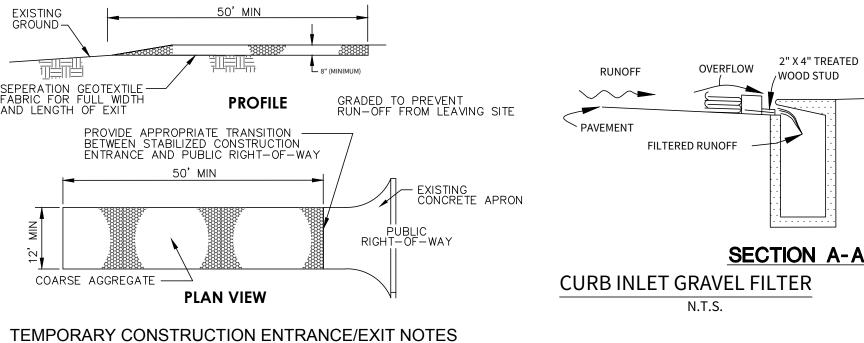
- 1. A rigid pipe must be laid with the adequate bedding, haunching, and initial backfill to support the anticipated load. The bedding classes that are allowed are A, B, or C, as described in American Society for Testing and Materials (ASTM) C 12. American National Standards Institute (ANSI) A 106.2, Water Environment Federation Manual of Practice No. 9 or American Society of Civil Engineers (ASCE) MOP 37.
- 2. A flexible pipe must be laid with the adequate bedding, haunching, and initial backfill to support the anticipated load. The bedding classes that are allowed are IA, IB, II, or III, as described in ASTM D-2321 or ANSI K65.171.
- 3. Debris, large clods, or stones that are greater than six inches in diameter, organic matter, or other unstable materials are prohibited as bedding, haunching, or initial backfill.
- 4. Backfill must not disturb the alignment of a collection system pipe. 5. If trenching encounters significant fracture, fault zones, caves, or solutional modification to the
- rock strata, an owner must halt construction until an engineer prepares a written report detailing how construction will accommodate these site conditions
- 1. Compaction of an embedment envelope must meet the manufacturer's recommendations for the collection system pipe used in a project. 2. Compaction of an embedment envelope must provide the modulus of soil reaction for the
- bedding material necessary to ensure a wastewater collection system pipe's structural integrity as required by §217.53 of this title (relating to Pipe Design). 3. The placement of the backfill above a pipe must not affect the structural integrity of a pipe.
- Envelope Size 1. A minimum clearance of 6.0 inches below and on each side of the bell of all pipes to the trench walls and floor is required.
- 2. The embedment material used for haunching and initial backfill must be installed to a minimum depth of 12 inches above the crown of a pipe.
- 1. The width of a trench must allow a pipe to be laid and jointed properly and must allow the backfill to be placed and compacted as needed. 2. The maximum and minimum trench width needed for safety and a pipe's structural integrity must be included in the report.
- 3. The width of a trench must be sufficient to properly and safely place and compact haunching
- 4. The space between a pipe and a trench wall must be wider than the compaction equipment used in the pipe zone.



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

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



## SAWS CONSTRUCTION NOTES **COUNTER PERMIT AND GENERAL CONSTRUCTION PERMIT JANUARY 2022**

### **GENERAL SECTION**

- 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
  - 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)
- 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.
- 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.

The Contractor is to make arrangements with the SAWS Construction Inspection Division at (210) 233-2973, on notification procedures that will be used to notify affected home residents and/or property owners 48 hours prior to beginning

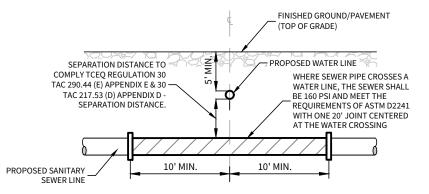
- Location and depth of existing utilities and service laterals shown on the plans are understood to be approximate. Actual locations and depths must be field verified by the Contractor at least 1 week prior to construction. It shall be the Contractor's responsibility to locate utility service lines as required for construction and to protect them during construction at no cost to SAWS.
- 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
- 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.
- 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
- The Contractor shall comply with City of San Antonio or other governing municipality's tree ordinances when excavating near trees.
- The Contractor shall not place any waste materials in the 100-year Flood Plain without first obtaining an approved Flood Plain Permit.
- Holiday Work: Contractors will not be allowed to perform SAWS work on SAWS recognized holidays. Request should be sent to constworkreg@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.
- 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. A copy of all testing reports shall be forwarded to SAWS Construction Inspection Division.

# **SEWER NOTES**

- . The Contractor is responsible for ensuring that no Sanitary Sewer Overflow (SSO) occurs as a result of their work. All contractor personnel responsible for SSO prevention and control shall be trained on 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) 233-2014. Provide the address of the spill and an estimated volume or 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.

All PVC pipe over 14 feet of cover shall be extra strength with minimum pipe stiffness of 115 psi

- D. Clean up spill site (return contained sewage to the collection system if possible) and properly dispose of 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 24
- Should the Contractor fail to address an SSO immediately and to SAWS satisfaction, they will be responsible for all costs incurred by SAWS, including any fines
- from EPA, TCEQ and/or any other Federal, State or Local Agencies. -
- 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. If bypass pumping is required, the Contractor shall perform such work in accordance with SAWS Standard Specification for Water and Sanitary Sewer Construction,
- Prior to tie-ins, any shutdowns of existing force mains of any size must be coordinated with the SAWS Construction Inspection Division at (210) 233-2973 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. Sewer pipe where water line crosses shall be 160 psi and meet the requirements of ASTM D2241, TAC 217.53 and TCEQ 290.44(e)(4)(B). Contractor shall center a 20'
- joint of 160 psi pressure rated PVC at the proposed water crossing. ELEVATIONS POSTED FOR TOP OF MANHOLES ARE FOR REFERENCE ONLY: It shall be the responsibility of the Contractor to make allowances and adjustments for top of manholes to match the finished grade of the project's improvements. (NSPI)
- Spills, Overflows, or Discharges of Wastewater: All spills, overflows, or discharges of wastewater, recycled water, petroleum products, or chemicals must be reported immediately to the SAWS Inspector assigned to the Counter Permit or General Construction Permit (GCP). This requirement applies to every spill, overflow, or
- Manhole and all pipe testing (including the TV inspection) must be performed and passed prior to Final Field Acceptance by SAWS Construction Inspection Division, as per the SAWS Specifications For Water and Sanitary Sewer Construction.



MERITAGE HOMES OF TEXAS, L.L.C. 2722 WEST BITTERS ROAD, SUITE 200 State TEXAS

TYPICAL SANITARY SEWER/ WATER CROSSING DETAIL

TRENCH EXCAVATION PROTECTION

**AROUND TRENCH EXCAVATION** 

CONTRACTOR AND/OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR STRUCTURAL DESIGN/GEOTECHNICAL/SAFETY/EOUIPMENT 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 AN

UPPER - EAST SEWERSHED - DOS RIOS \ LEON CREEK

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

**UBDIVISION** 

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STANCIA

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DATE 06/25/2024

PROJECT NO. 03473.010 DRAWN BY

CG/TCD/XV CHECKED BY

XV/AL

.2.8.4.7.9.7.8 ANDREW R. LOWR

TBPLS No. 10048500 PLAT NO. 23-11800329 SAWS JOB NO. 23-1641

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 CONSTRUCT

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 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 WHEN CONSTRUCTION IS COMPLETE, THE SEDIMENT SHOULD BE DISPOSED OF IN A MANNER THAT WILL NOT CAUSE ADDITIONAL SILTATION AND THE PRIOR LOCATION OF THE SILT FENCE SHOULD

OVERLAP, SECURELY FASTENED WHERE ENDS OF FABRIC MEET

10. INSPECT ALL FENCING WEEKLY, AND AFTER ANY RAINFALL

REMOVE SEDIMENT WHEN BUILDUP REACHES 6 INCHES.

BE REVEGETATED. THE FENCE ITSELF SHOULD BE DISPOSED OF IN AN APPROVED LANDFILL.

REPLACE ANY TORN FABRIC OR INSTALL A SECOND LINE OF FENCING PARALLEL TO THE TORN SECTION.

SILT FENCE DETAIL

WOVEN WIRE BACKING TO SUPPORT THE FABRIC SHOULD BE GALVANIZED 2" X 4" WELDED WIRE, 12 GAUGE MINIMUM.

AND SPACED NOT MORE THAN 8 FEET ON CENTER. WHERE WATER CONCENTRATES, THE MAXIMUM SPACING SHOULD BE 6 FEET.

SILT FENCE SHOULD BE REMOVED WHEN THE SITE IS COMPLETELY STABILIZED SO AS NOT TO BLOCK OR IMPEDE STORM FLOW OR DRAINAGE

SILT FENCE MATERIAL SHOULD BE POLYPROPYLENE, POLYETHYLENE OR POLYAMIDE WOVEN OR NONWOVEN FABRIC. THE FABRIC WIDTH SHOULD BE 36 INCHES, WITH A MINIMUM UNIT WEIGHT OF

LAY OUT FENCING DOWN-SLOPE OF DISTURBED AREA, FOLLOWING THE CONTOUR AS CLOSELY AS POSSIBLE. THE FENCE SHOULD BE SITED SO THAT THE MAXIMUM DRAINAGE AREA IS 1/4

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

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

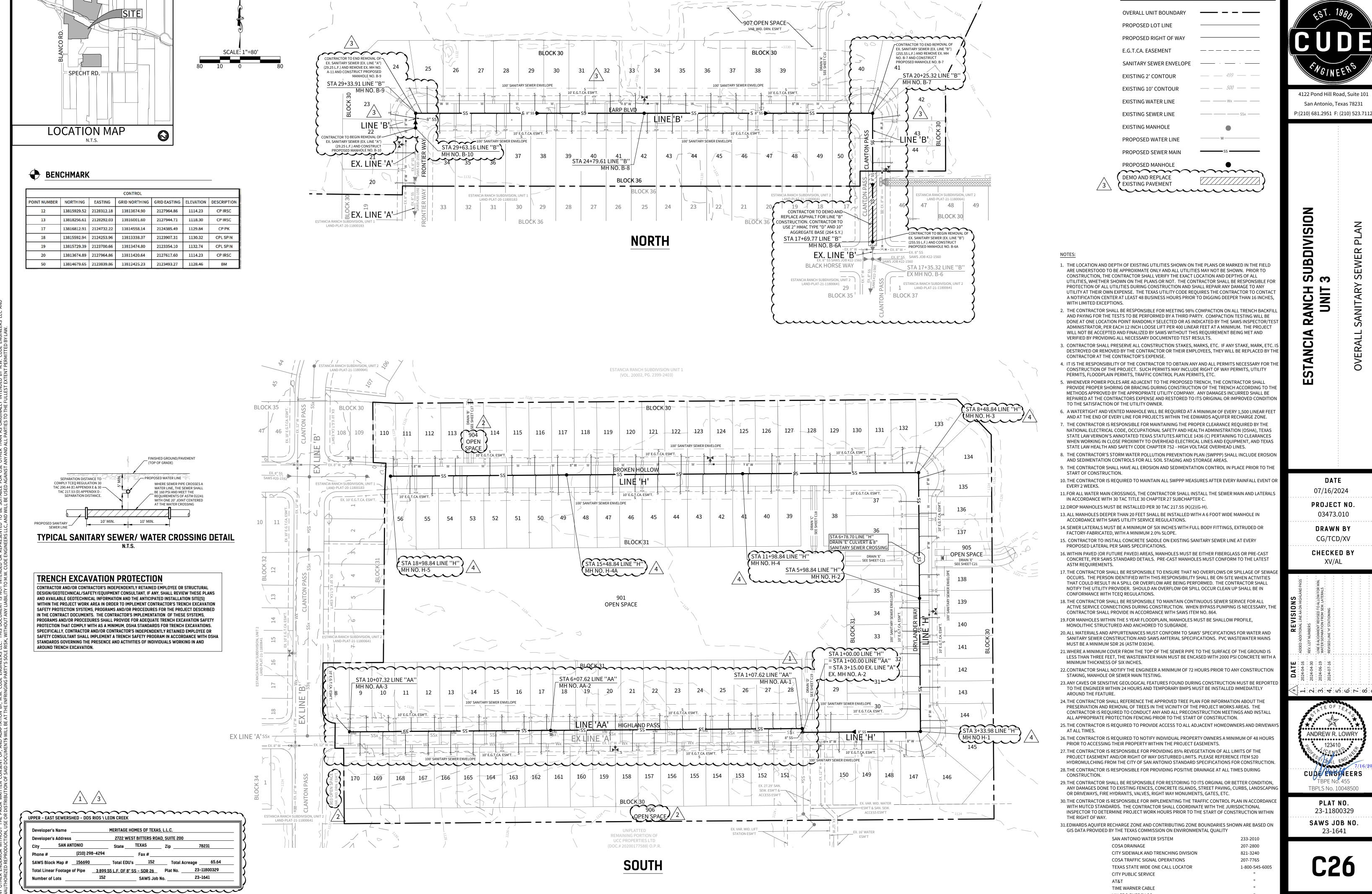
THE TRENCH MUST BE A MINIMUM OF 6 INCHES DEEP AND 6 INCHES WIDE TO ALLOW FOR THE SILT FENCE FABRIC TO BE LAID IN THE GROUND AND BACKFILLED WITH COMPACTED MATERIAL.

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 7

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 9.

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

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.



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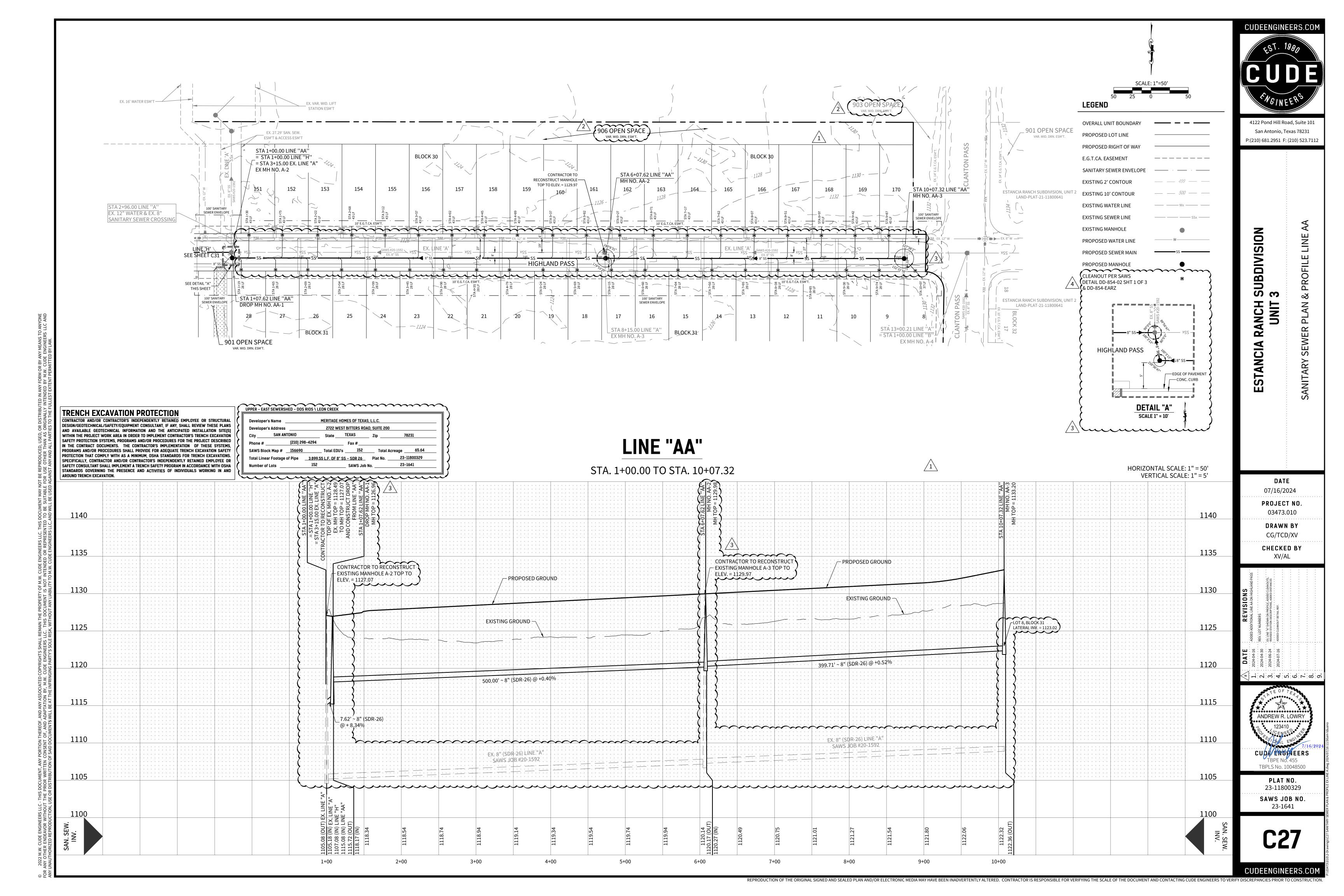
**LEGEND** 

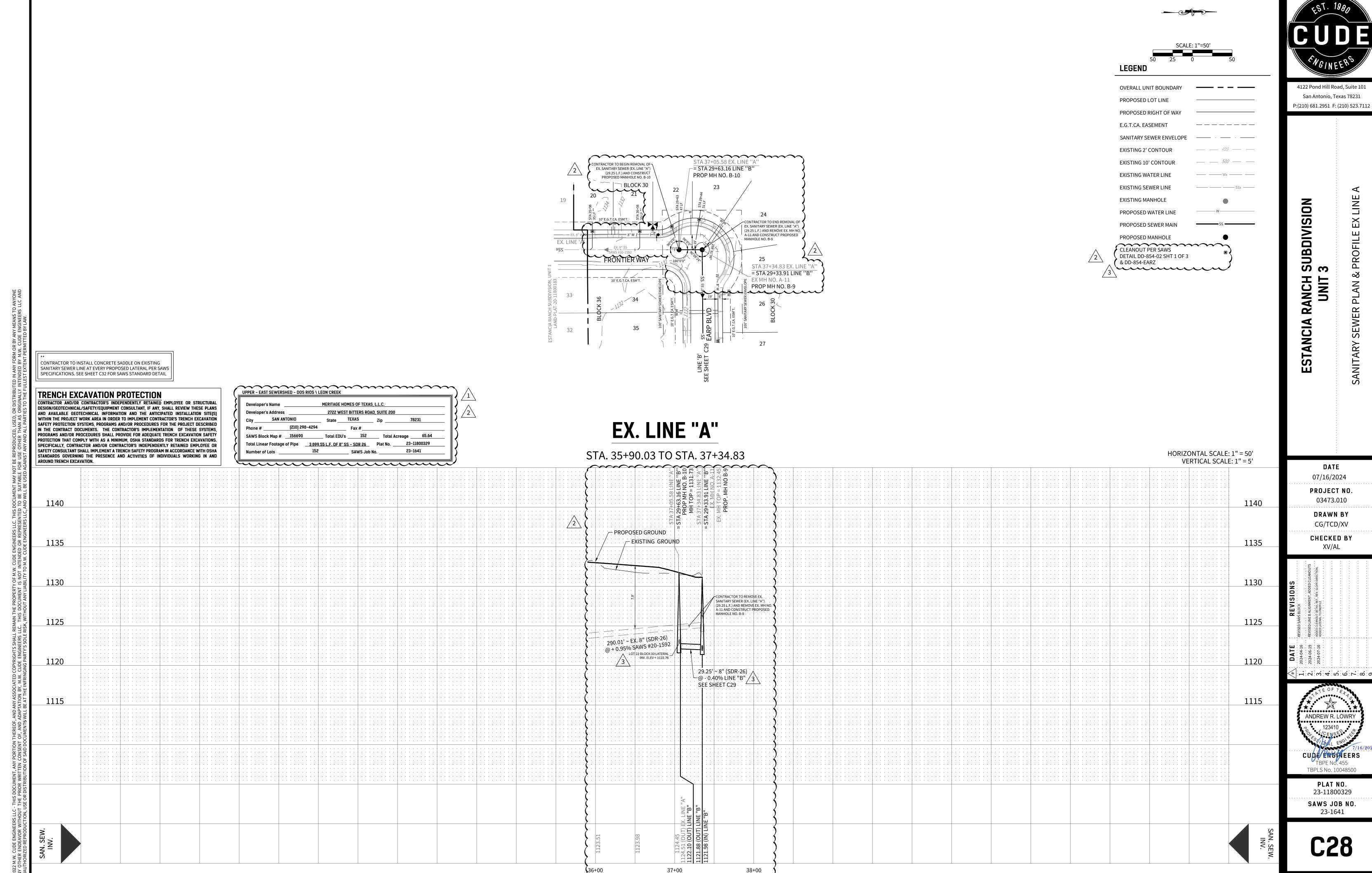
VALERO ENERGY CO. GREY FOREST UTILITIES

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

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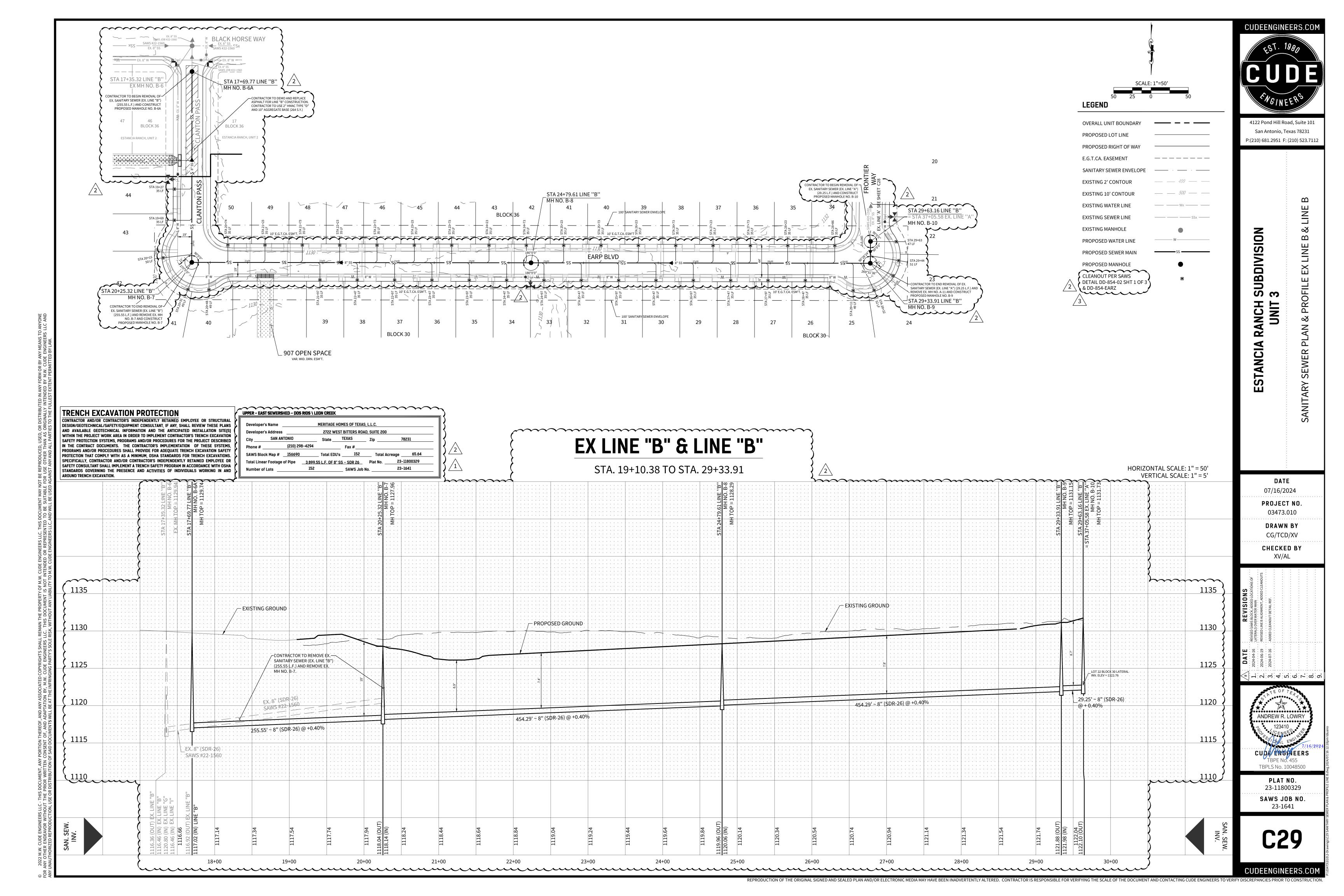


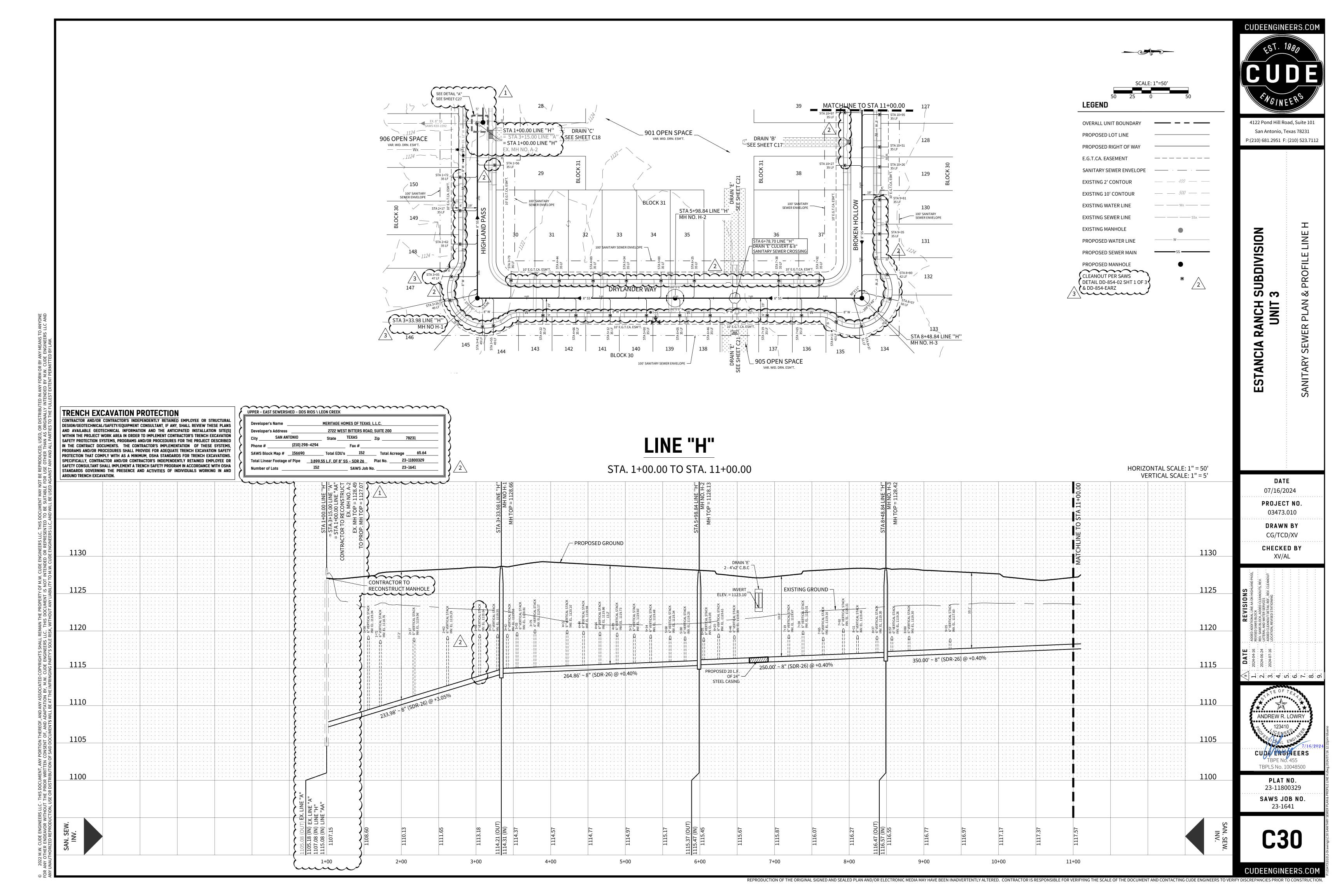
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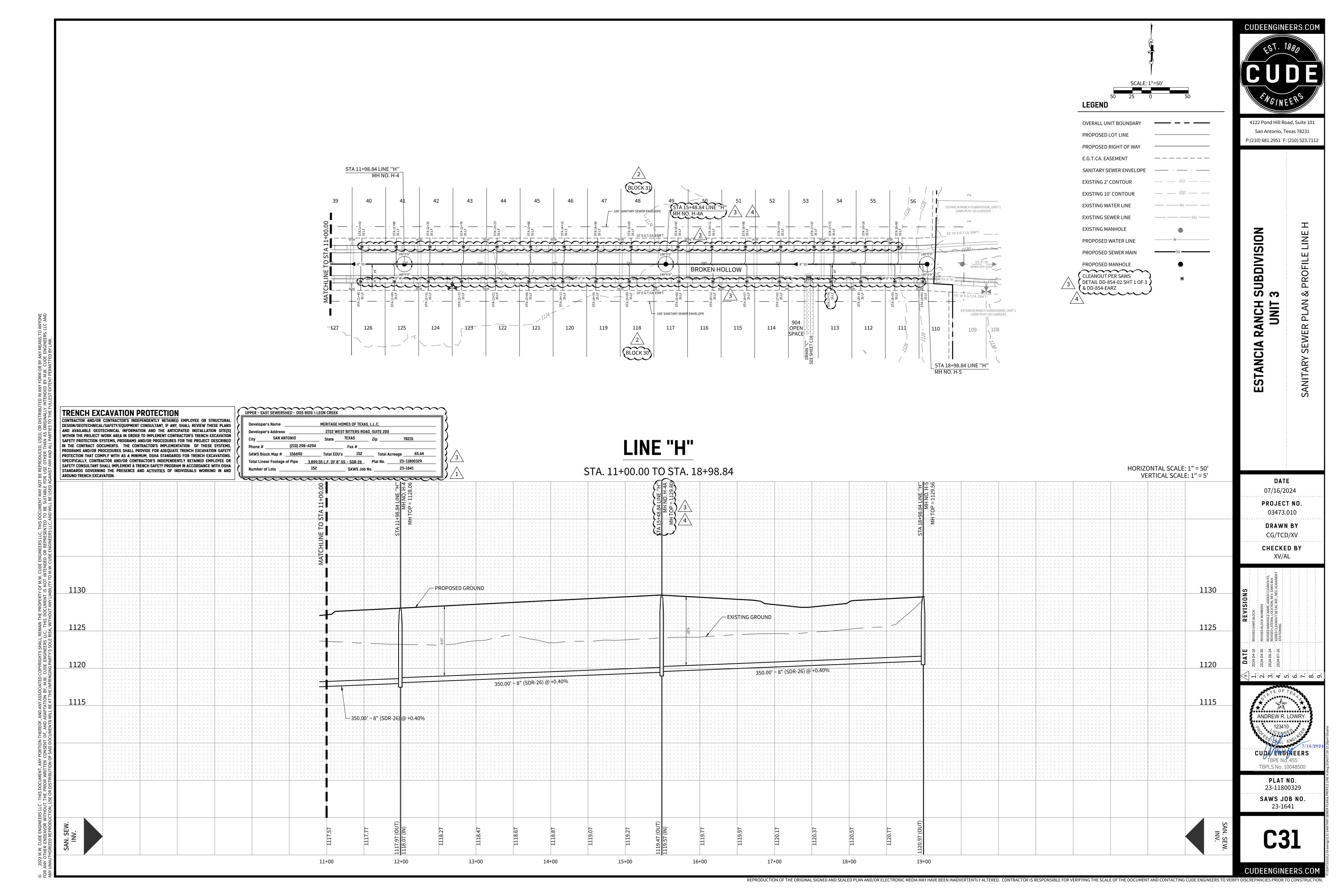
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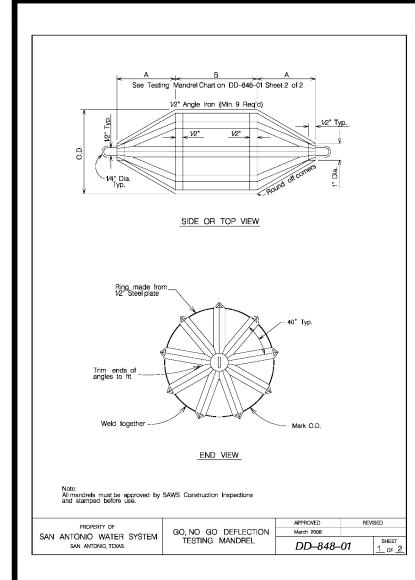
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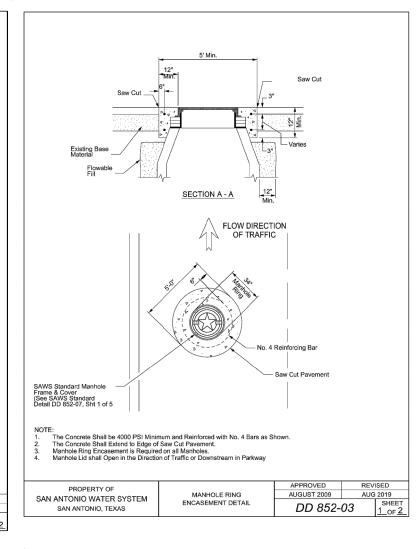
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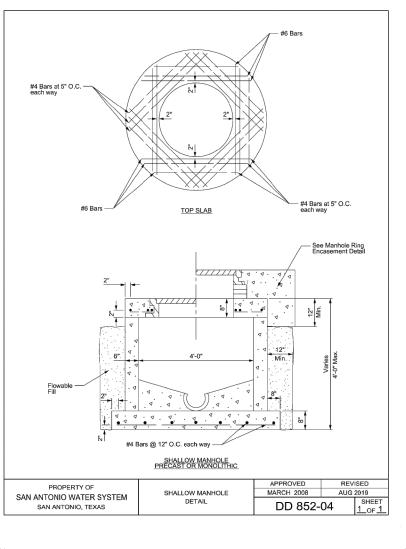


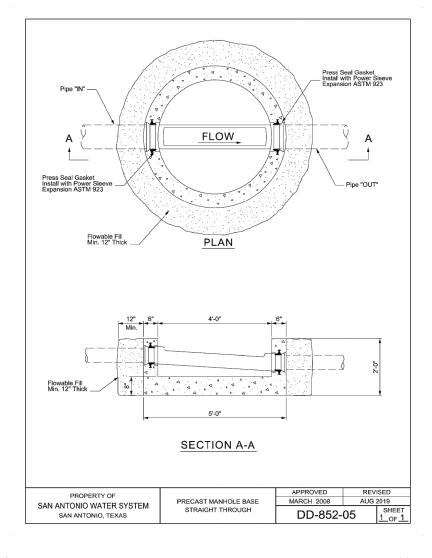


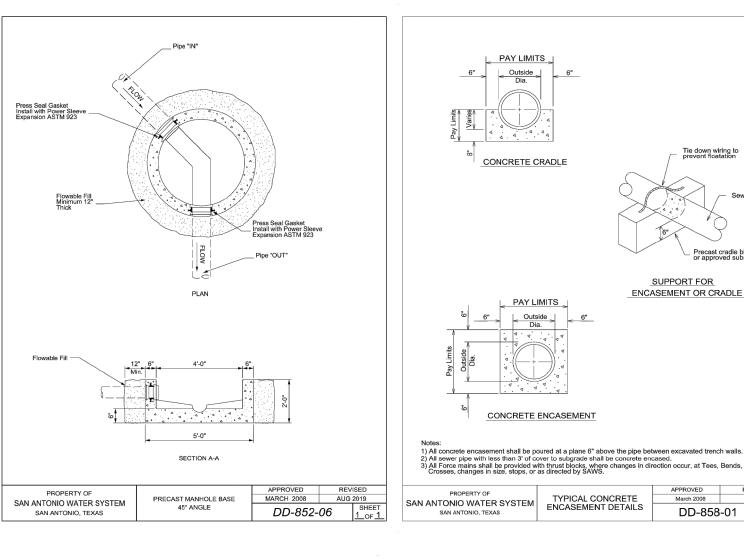


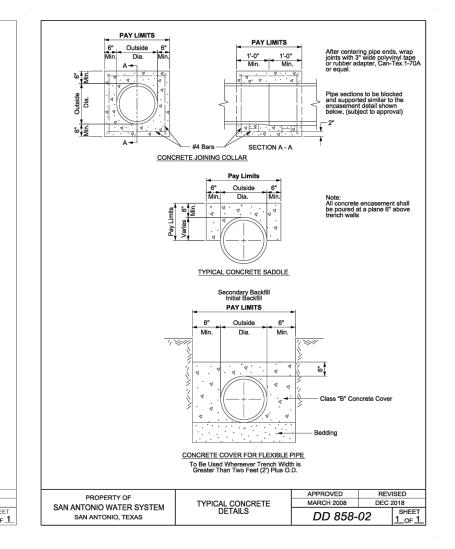


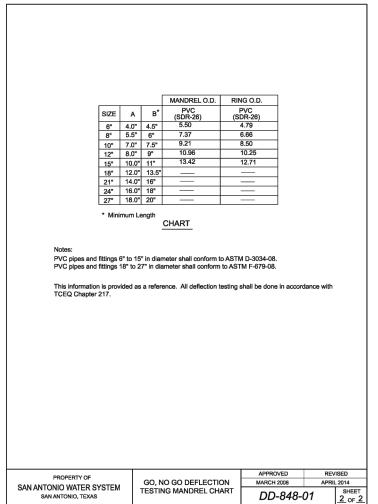


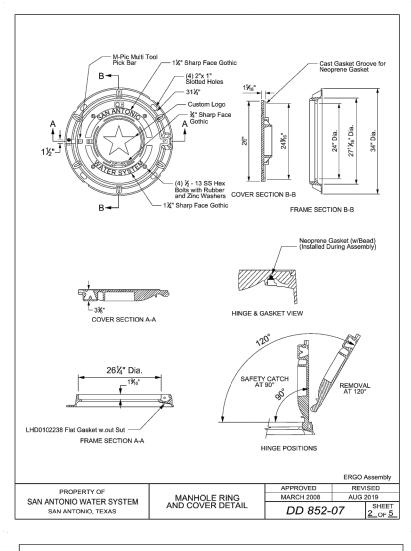


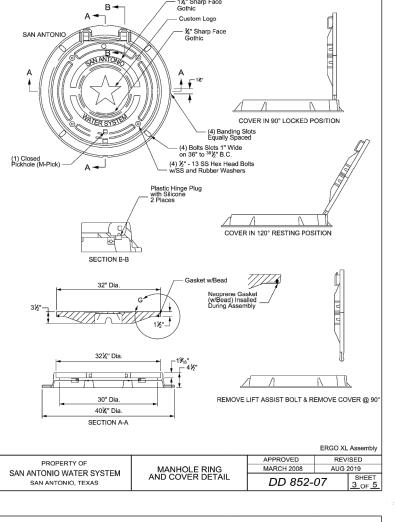


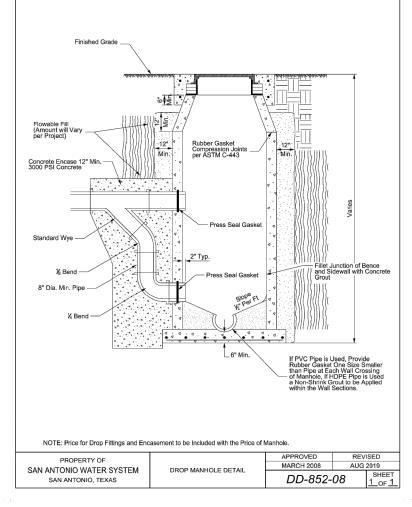


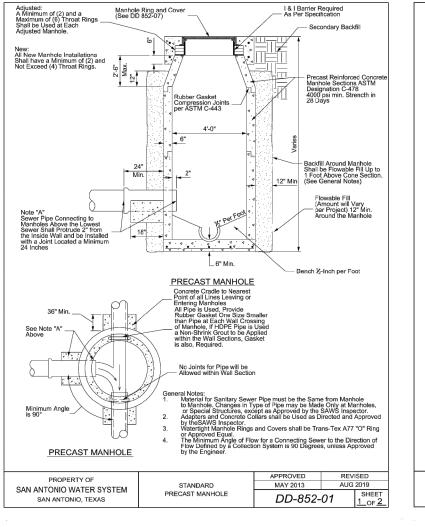


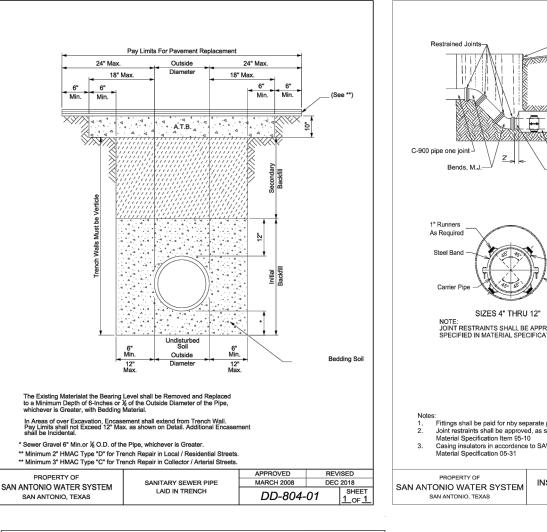








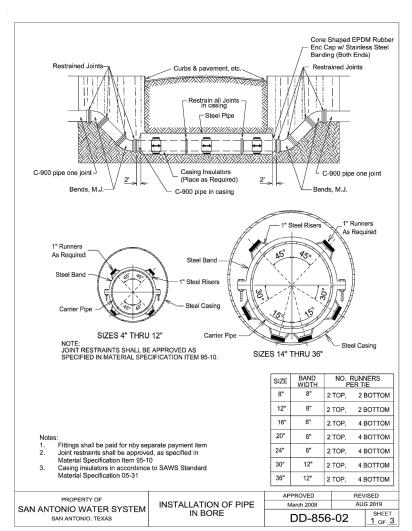


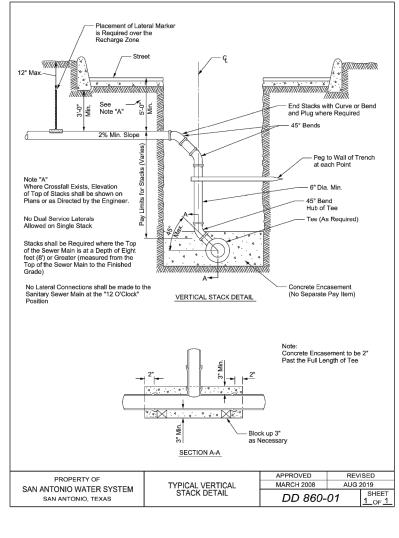


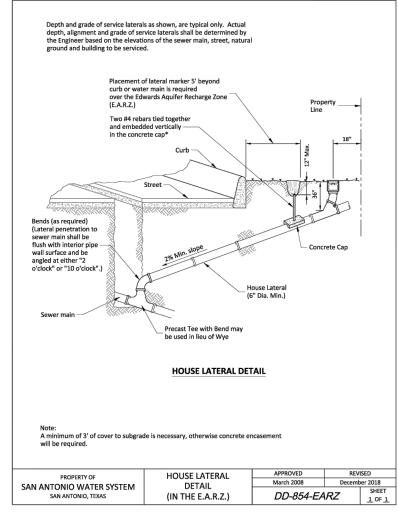
Tie down wiring to prevent floatation

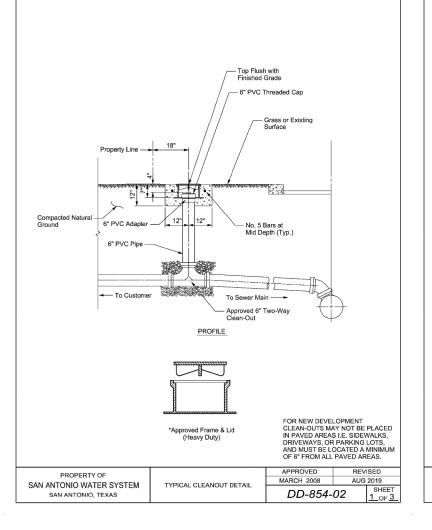
SUPPORT FOR ENCASEMENT OR CRADLE

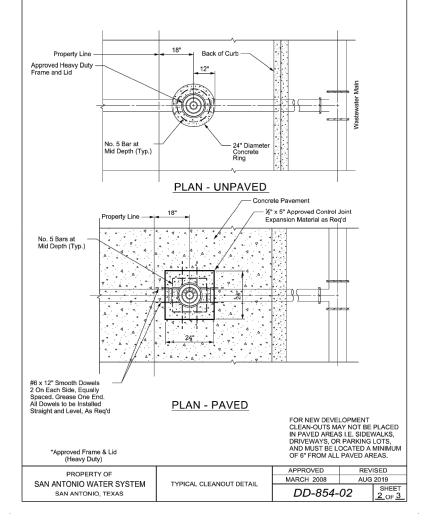
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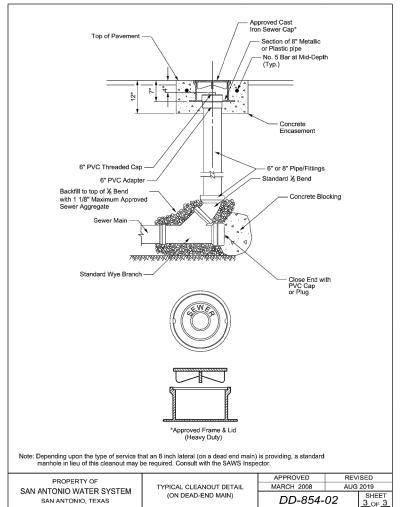


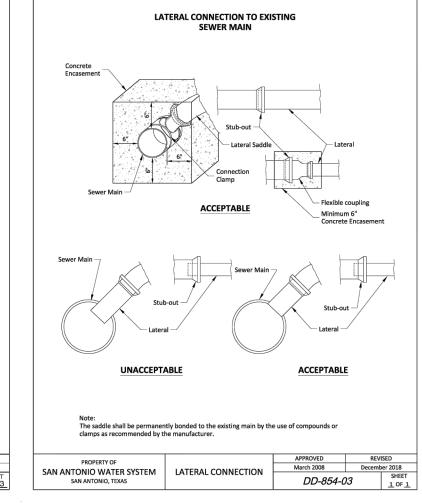


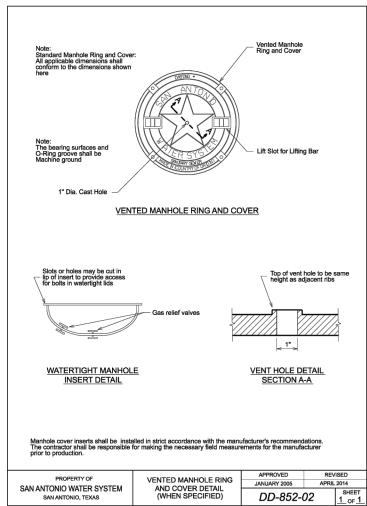


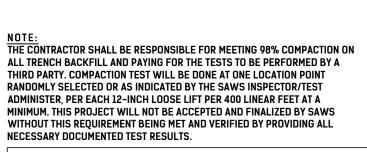




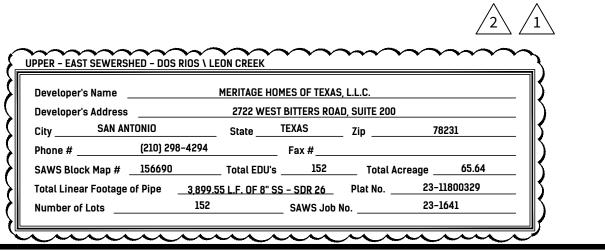


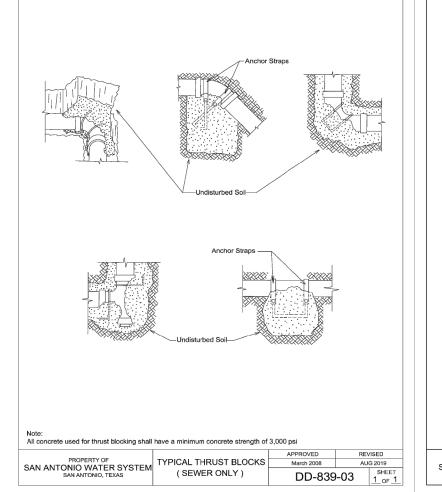


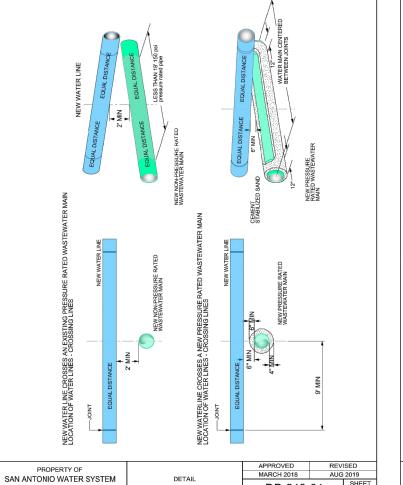




TRENCH EXCAVATION PROTECTION CONTRACTOR AND/OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR STRUCTURAL DESIGN/GEOTECHNICAL/SAFETY/EQUIPMENT CONSULTANT, IF ANY, SHALL REVIEW THESE PLANS AND AVAILABLE GEOTECHNICAL INFORMATION AND THE ANTICIPATED INSTALLATION SITE(S) WITHIN THE PROJECT WORK AREA IN ORDER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



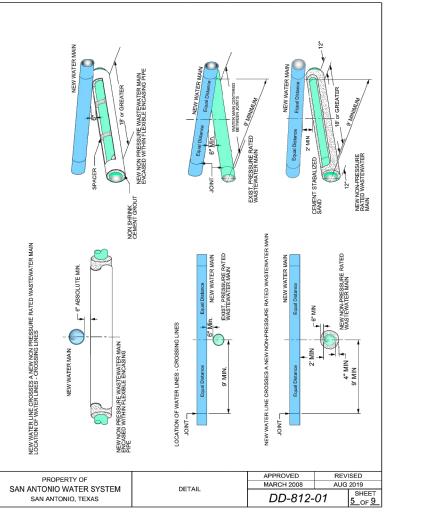


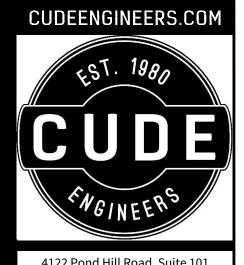


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SUBDIVISION 3 ESTANCIA RANCH ?

RD

SEWER

DATE 06/25/2024 PROJECT NO. 03473.010 DRAWN BY CG/TCD/XV

CHECKED BY XV/AL

ANDREW R. LOWRY CUDE ENGINEERS

> PLAT NO. 23-11800329 SAWS JOB NO. 23-1641

TBPLS No. 10048500

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