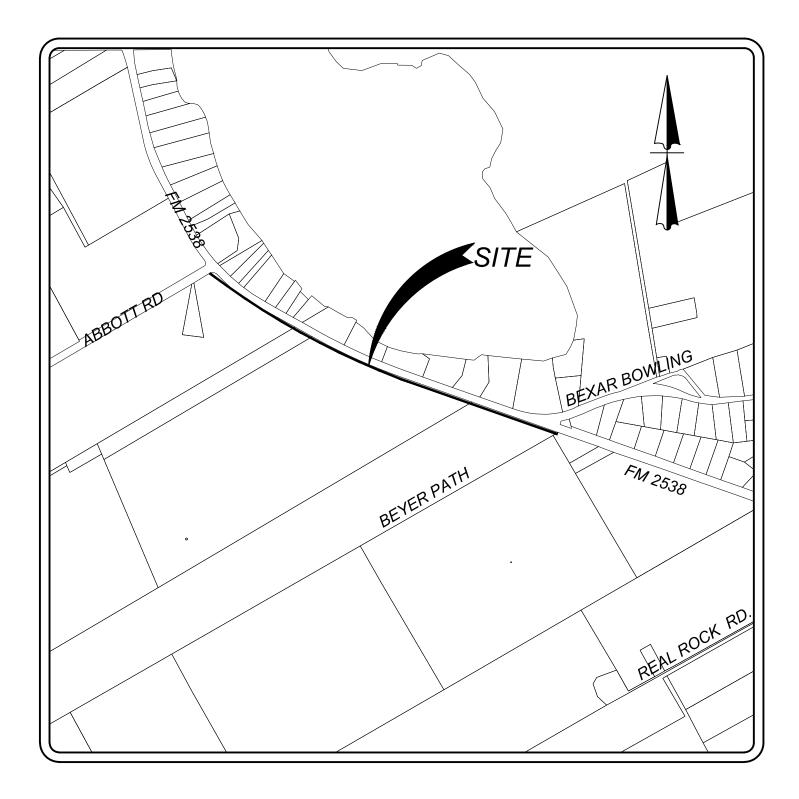
# CLEARWATER CREEK WATERLINE EXTENSION NORTH

# SAN ANTONIO, TEXAS WATER DISTRIBUTION IMPROVEMENTS



# LOCATION MAP

NOT TO SCALE

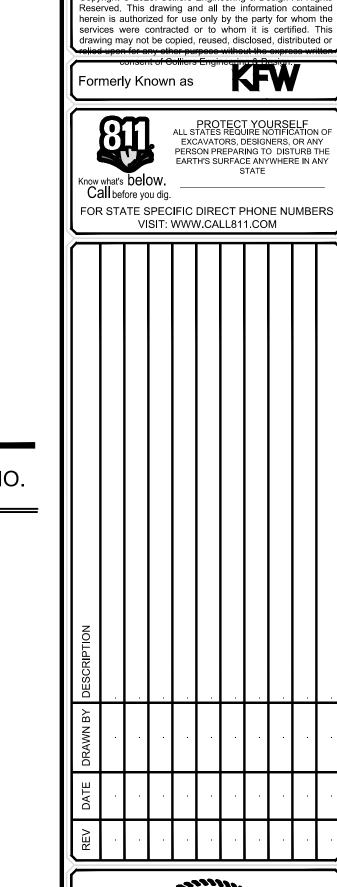
PERMITS OR APPROVALS MUST BE OBTAINED FROM THE FOLLOWING REGULATORY AGENCIES LISTED BELOW:

• CITY OF SAN ANTONIO
• GREEN VALLEY SPECIAL UTILITY DISTRICT - WATER

OWNER / APPLICANT:
LENNAR HOMES OF TEXAS LAND &
CONSTRUCTION LTD.
100 NE LOOP 410, SUITE 1125
SAN ANTONIO, TX 78216

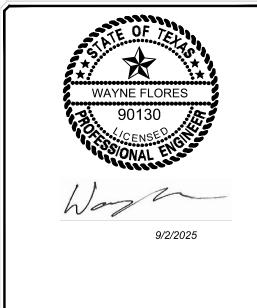
# INDEX

DESCRIPTION	SHEET NO
WATER COVER SHEET	7.0
WATER DISTRIBUTION PLAN	7.1
WATER DISTRIBUTION PLAN	7.2
WATER DETAIL SHEET	7.3
WATER DETAIL SHEET	7.4
STORMWATER POLLUTION PREVENTION PLAN	8.0
STORMWATER POLLUTION PREVENTION PLAN	8.1
STORMWATER POLLUTION PREVENTION DETAILS	8.2
STORMWATER POLLUTION PREVENTION DETAILS	8.3



**Colliers** 

Engineering



FINAL SUBDIVISION PLAN

F∩R

CLEARWATER CREEK
WATERLINE
EXTENSION NORTH

CITY OF SAN ANTONIO BEXAR COUNTY TEXAS

Engineering & Design

NEW BRAUNFELS (KFW)
640 North Walnut Avenue
Suite 1101
New Braunfels, TX 78130
Phone: 830.220.6042
COLLIERS ENGINEERING & DESIGN, INC
TBPE Firm#: F-14909
TBPLS Firm#: 10194550

 CALE:
 DATE:
 DRAWN BY:
 CHECKED BY:

 AS SHOWN
 10/16/2024
 MSG
 WF

 ROJECT NUMBER:
 DRAWING NAME:

 24007867A
 7.0 WATER COVER SHEET

WATER COVER SHEET

7.0

WATER
DISTRIBUTION QUANTITIES

DEVELOPER'S NAME: LENNAR HOMES OF TEXAS LAND & CONSTRUCTION LTD.

DEVELOPER'S ADDRESS: 100 NE LOOP 410, SUITE 1125

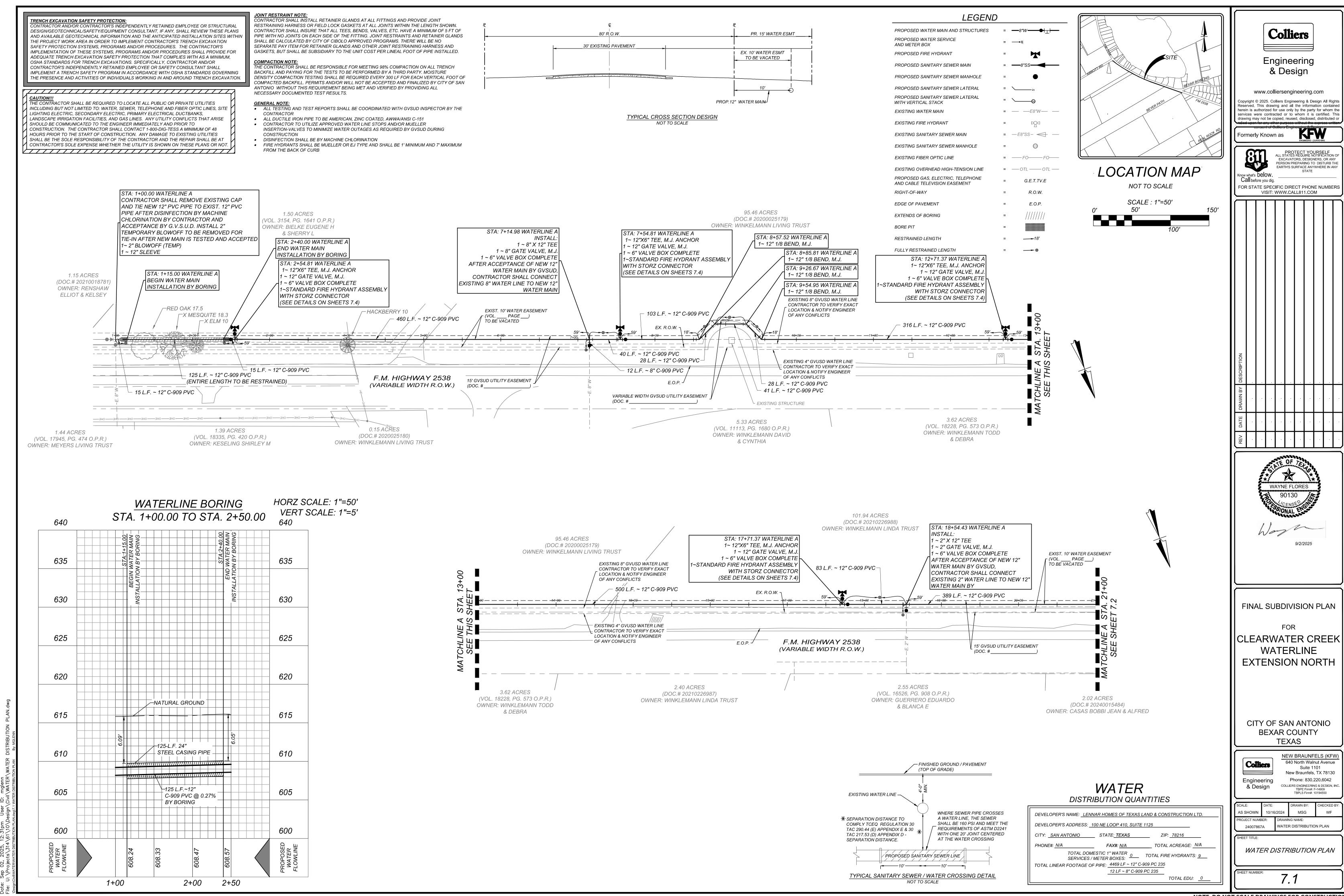
CITY: SAN ANTONIO STATE: TEXAS ZIP: 78216

PHONE#: N/A FAX#: N/A TOTAL ACREAGE: N/A

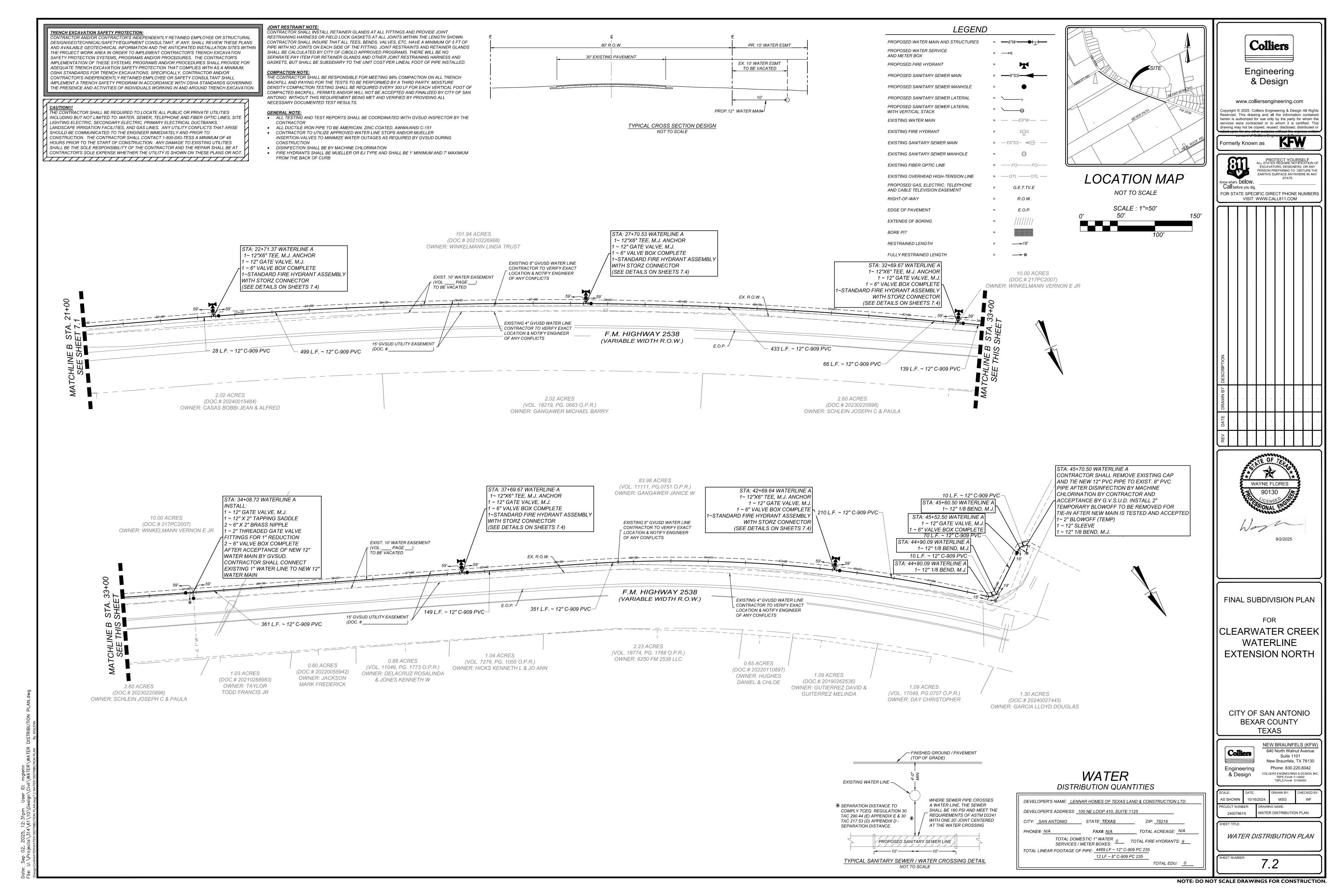
TOTAL DOMESTIC 1" WATER SERVICES / METER BOXES: 0 TOTAL FIRE HYDRANTS: 9

TOTAL LINEAR FOOTAGE OF PIPE: 4469 LF ~ 12" C-909 PC 235

12 LF ~ 8" C-909 PC 235

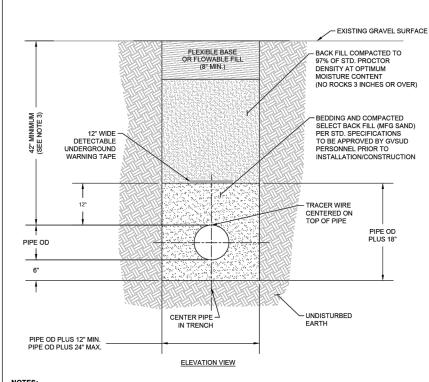


NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION



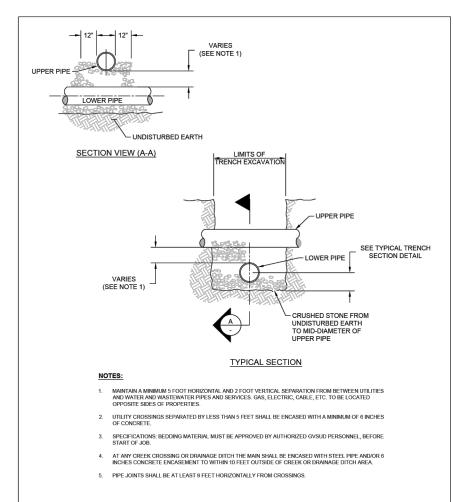
- 2. PVC MAINS 12-INCHES AND BELOW SHALL CONFORM TO AWWA C-909 PRESSURE CLASS 235 OR ABOVE DEPENDING ON SYSTEM PRESSURES, PVC MAIN GREATER THAN 12 INCHES SHALL CONFORM TO AWWA C-900 DR 18 OR ABOVE DEPENDING ON SYSTEM PRESSURES. WATER MAINS SHALL HAVE AN ABSOLUTE MINIMUM DEPTH OF 5-FEET BELOW ROADWAY LEVEL AND 42-INCHES IN ALL OTHER AREAS.
- 3. ALL WATER MAIN DUCTILE IRON FITTINGS SHALL BE MECHANICAL JOINT AND CONFORM TO ANSI/AWWA C-153 OR C-110. ALL BOLTS SHALL HAVE KOPR KOTE OR APPROVED EQUAL ANTI-SEIZE CORROSION RESISTANT COATING. VALVES SHALL BE ATTACHED TO TEES BY FOSTER ADAPTOR OR ANCHOR NIPPLE. FOSTER ADAPTER, ANCHOR NIPPLE, OR FORD UNI-FLANGE RETAINER GLANDS AND THRUST BLOCKS SHALL BE USED ON ALL FITTINGS AND VALVES.
- 4. TRACER WIRE SHALL BE INSTALLED ON ALL PIPELINES INCLUDING SERVICE LINES AND BROUGHT INTO VALVE AND METER BOXES FOR LOCATING PURPOSES. INSULATED WATER PROOF CONNECTORS SHALL BE USED TO SPLICE WIRES TOGETHER. A 12-INCH-WIDE DETECTABLE METAL TAPE SHALL BE PLACED ABOVE BEDDING INITIAL BACKFILL.
- 5. EXCEEDING MAXIMUM DEFLECTION IS PROHIBITED. THE ANGULAR DEFLECTION AT BELL-SPIGOT JOINTS SHOULD NOT EXCEED ONE (1) DEGREE. THIS WILL PRODUCE A 4-INCH OFFSET FOR EVERY 20-FOOT SECTION OF PIPE. JOINT DEFLECTION IS ACHIEVED AFTER THE JOINT IS ASSEMBLED IN STRAIGHT ALIGNMENT AND DEFLECTED TO THE REFERENCE MARK. THE BELL SHOULD BE BRACED TO ALLOW THE FREE END TO MOVE LATERALLY UNDER STEADY PRESSURE USING A PRY BAR OR OTHER SUITABLE MEANS. CARE SHOULD BE TAKEN NOT TO EXCEED THE MAXIMUM DEFLECTION ALLOWED OR TO DAMAGE THE PIPE WITH MACHINERY. ABRUPT CHANGES IN DIRECTION SHALL BE ACCOMPLISHED WITH FITTINGS.
- 6. OVER STRESSING THE BELL BY OVER INSERTING THE JOINTS, OVERBELLING, AND PASSING THE INSERTION REFERENCE MARK IS PROHIBITED AND WILL REQUIRE REMOVAL AND REINSTALLATION.
- 7. STANDARD FIRE HYDRANT SHALL INCLUDE HYDRANT, 6-INCH RESILIENT GATE VALVE AND BOX, ANCHOR FITTINGS, DUCTILE IRON PIPE, AND ALL APPURTENANCES. HYDRANTS SHALL BE LIMITED TO THOSE MANUFACTURED BY MUELLER, AVK, AMERICAN FLOW, CLOW, OR EAST JORDAN. ONLY MUELLER HYDRANTS AND EJ SHALL BE USED IN CITY OF CIBOLO'S JURISDICTION. HYDRANT UPPER BARREL SHALL BE FACTORY PAINTED RED. HYDRANTS SHALL HAVE A STORTZ CONNECTION ON STEAMER NOZZLE. FITTINGS FOR PLUG SHALL BE FULLY RESTRAINED AND TIED TO VALVE.

Page 1 of 4



- ALL WASTEWATER PVC PIPING SHALL BE GREEN IN COLOR. NO WATER DESIGNATED PIPE WILL BE USED IN WASTEWATE ALL WATER PIPING SHALL HAVE A MINIMUM PRESSURE CLASS OF 235 PSI, WATER PVC PIPING SHALL BE COLOR CODED BLUE. ALL WATER LINES AND WASTEWATER FORCEMAIN SHALL HAVE 42 INCHES MINIMUM COVER AND 72 INCHES MAXIMUM COVER. WASTEWATER GRAVITY LINES SHALL HAVE 42 INCHES MINIMUM COVER AND 15 FEET MAXIMUM COVER. CONTRACTOR SHALL NOT EXCEED THE MAXIMUM TRENCH ALLOWED AS INDICATED IN THE PLANS AND SPECIFICATIONS.
- DETECTABLE UNDERGROUND WARNING TAPE SHALL BE PLACED DIRECTLY ABOVE THE CENTERLINE OF THE PIPE AND ABOVE BEDDING, IN PIPE BEDDING PLACED BEFORE PIPING IS LAID UP TO BOTTOM OF PIPE COMPACTED TO 95% ASHTO DENSITY.
- PLACE IN 12 INCH LIFTS AFTER PIPE IS LAID TO 12 INCHES ABOVE THE PIPE. SELECT BACKFILL MATERIAL PLACED TO REQUIRED HEIGHT IN 6 INCH LIFTS.

CDCCNAINTCA	GREEN VALLEY SPECIAL UTILITY DISTRICT STANDARD DETAILS	TRENCH DETAIL FOR GRAVEL SU	RFACED AREA	
	SPECIAL UTILITY DISTRICT	REVISED: JANUARY 2024	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	DETAIL NO. W-2



UTILITIES CROSSING DETAIL

GREEN VALLEY SPECIAL UTILITY DISTRICT

JANUARY 2024

## 8. VALVES SHALL BE AWWA APPROVED RESILIENT WEDGE SEATED GATE VALVE, OPEN LEFT, AND LIMITED TO THOSE MANUFACTURED BY MUELLER, AVK, AMERICAN FLOW, CLOW, OR EAST

GVSUD CONSTRUCTION PLAN GENERAL NOTES

- 9. VALVES ARE PROHIBITED IN ADA RAMPS, CURBS, AND ROADWAYS. VALVES ARE PROHIBITED IN SIDEWALKS IN CITY OF NEW BRAUNFELS.
- 10. METER BOXES ARE PROHIBITED IN ANY SIDEWALKS, DRIVEWAYS, OR ROADWAYS. 11. SMALL SERVICE TAPS SHALL BE EITHER 1-INCH OR 2 INCH AND SHALL BE REHAU MUNICIPEX WITH CTS 200 PSI PLASTIC INSERT. SMALL SERVICE TAPS TO BE MADE WITH SINGLE BRASS STRAP TAPPING SADDLE WITH IRON PIPE THREADS. EXCEPTION: IF LOCATED WITHIN CITY OF CIBOLO- SERVICE TAPS TO BE MADE WITH DOUBLE STAINLESS STRAP EPOXY COATING SADDLES WITH IRON PIPE THREADS.
- 12. CASING REQUIRED FOR ALL LONG SMALL SERVICES. 1 INCH SERVICE REQUIRES 3 INCH CASING AND 2 INCH SERVICE REQUIRES 4 INCH CASING. CASING SHALL BE PVC SCHEDULE 40 OR
- 13. SINGLE 5/8" & 3/4" METER BOXES SHALL BE DFW36C 16" X 11". DUAL 5/8" & 3/4" METER BOXES SHALL BE DFW38C 17" X 15". 1-INCH METER BOXES SHALL BE DFW65C-14-1A 15 1/4" X 30 3/8". ALL METER BOXES SHALL BE PLASTIC WITH LIDS HAVING REBAR, ARM, AND KNOCKOUT. 14. THE FORD U BRANCH IS TO BE USED ON ALL DUAL SERVICES (U48-43Q) WITH THE 5/8" X 3/4" FEMALE THREAD ANGLE HEAD. ALL OTHER ANGLE HEADS WILL BE THE FORD Q NUT. ALL CORPORATION STOPS WILL BE IPS X Q NUT. ALL BRASS VALVES TO BE 'BALL' TYPE MINIMUM 200
- PSI PRESSURE RATING. "CC" THREADED CORPORATION STOPS PROHIBITED. 15. TAPPING MACHINES UTILIZED FOR INSTALLING ANY TYPE OF TAP 1-INCH TO 2-INCHES WILL BE OF THE PURGE TYPE, WHICH AT THE TIME OF TAPPING SHALL EXPEL ALL CHIPS AND RESIDUE TO ATMOSPHERE THROUGH AN APPROPRIATE OUTLET AND/OR BE ABLE TO RETAIN THE COUPON.
- 16. ALL WATER MAIN, PIPE, CASINGS, FITTINGS, AND VALVES SHALL BE LAID IN MANUFACTURED SAND EMBEDMENT PER DETAILS. THE SAND SHALL FULLY ENCASE ALL PIPES. INCLUDING FITTINGS AND VALVES, BY A MINIMUM OF 12-INCHES. ALL FITTINGS AND VALVES ARE TO RECEIVE THRUST BLOCKING, FOSTER ADAPTER, ANCHOR NIPPLE, FORD UNI-FLANGE RETAINER GLAND JOINT RESTRAINTS, AND BELL JOINT RESTRAINTS WHEN SPECIFIED BY GVSUD OR THE DISTRICT'S ENGINEER.
- 17. CONTRACTOR TO CURB CUT V'S FOR VALVES AND X'S FOR METERS.
- 18. PRIOR TO CONSTRUCTION OF THE SEWER AND WATER MAINS, ALL R.O.W. ROADWAYS AND PARKWAY SHALL HAVE REFERENCE SURVEY STAKING AND BE EXCAVATED OR PROPERLY FILLED TO SUB-GRADE ELEVATION.

Page 2 of 4

DETECTABLE UNDERGROUND WARNING TAPE SHALL BE PLACED DIRECTLY ABOVE THE CENTERLINE OF THE PIPE AND ABOVE BEDDING, IN ACCORDANCE WITH THE MANUFACTURER'S REQUIREMENTS. THE TAPE SHALL CONFORM TO THE SPECIFICATIONS AND COLOR CODED IN

TRENCH DETAIL FOR NON-PAVED AREAS

PIPE BEDDING PLACED BEFORE PIPING IS LAID UP TO BOTTOM OF PIPE COMPACTED TO 95% AASHTO DENSITY.

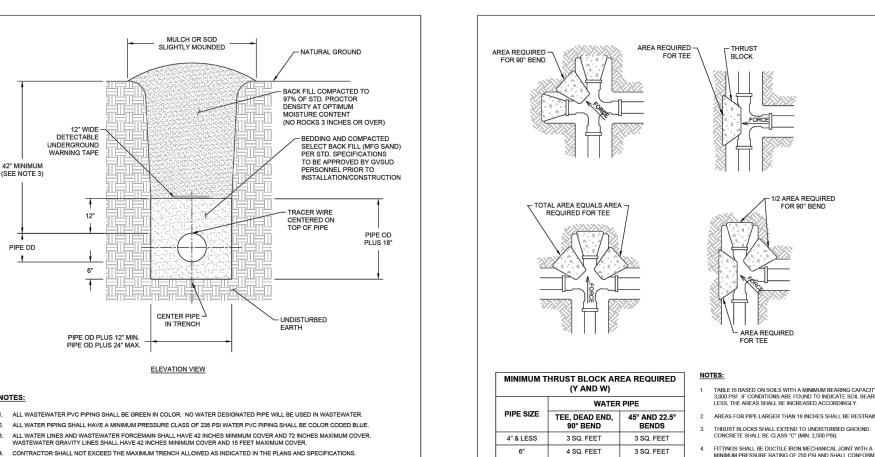
ACCORDANCE WITH APWA UNIFORM COLOR CODE

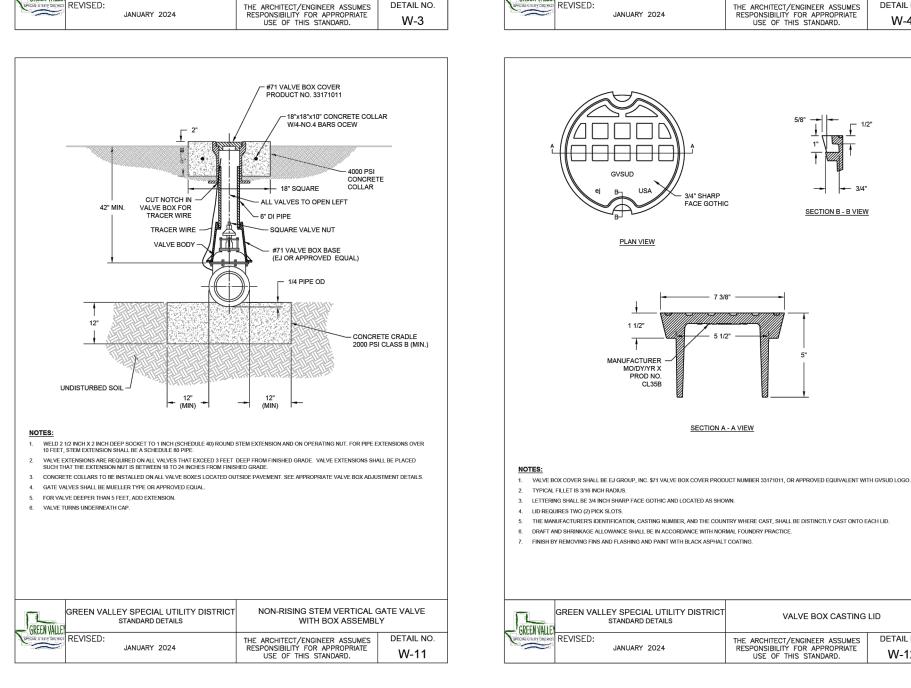
PLACE IN 12 INCH LIFTS AFTER PIPE IS LAID TO 12 INCHES ABOVE THE PIPE.

GREEN VALLEY SPECIAL UTILITY DISTRICT

STANDARD DETAILS

3. SELECT BACKFILL MATERIAL PLACED TO REQUIRED HEIGHT IN 6 INCH LIFTS.





# **GVSUD CONSTRUCTION PLAN GENERAL NOTES**

TEMPORARY FENCING.

CONSTRUCTED.

19. SURVEY STAKING OFFSETS ARE REQUIRED FOR ALL WATER MAIN AND APPURTENANCES. 20. THE EXISTENCE AND LOCATION OF UNDERGROUND UTILITIES INDICATED ON THE PLANS ARE TAKEN FROM AVAILABLE RECORDS AND ARE NOT GUARANTEED. CONTRACTOR SHALL INVESTIGATE AND FIELD VERIFY UTILITY LOCATIONS A MINIMUM OF 300 LF AHEAD OF CROSSING AND TIE-IN LOCATIONS. THE CONTRACTOR WILL BE HELD RESPONSIBLE FOR ANY DAMAGE TO AND FOR MAINTENANCE PROTECTION OF THE EXISTING UTILITIES, WHETHER THEY ARE SHOWN

GVSUD CONSTRUCTION PLAN GENERAL NOTES

- ON THE PLANS OR NOT. 21. ALL WASTEWATER PIPES CROSSING THE POTABLE WATER DISTRIBUTION SYSTEM WILL BE HELD IN STRICT ACCORDANCE WITH TCEQ RULES AND REGULATIONS. PROPOSED SUB-GRADE LIMITS AND DIMENSIONS MUST BE SHOWN ON THE PLANS, AND CONSTRUCTION PROCEDURES WILL BE INSPECTED TO VERIFY COMPLIANCE WITH TCEQ 290.44(E). 22. OTHER UTILITIES SHALL NOT BE LOCATED CLOSER THAN 3-FEET TO WATER MAINS.
- 23. THE GREEN VALLEY INSPECTOR SHALL BE NOTIFIED AT LEAST FORTY-EIGHT HOURS PRIOR TO 24. A FIELD PRE-CONSTRUCTION MEETING SHALL BE HELD BEFORE CONSTRUCTION BEGINS AND
- MATERIAL SHALL BE AVAILABLE ON-SITE FOR INSPECTION. 25. CONTRACTOR SHALL CHLORINATE NEW MAINS PER TCEQ AND ANSI/AWWA C651 AND DECHLORINATE DURING FLUSHING PER ANSI/AWWA C655; THE CONTRACTOR SHALL COORDINATE WITH THE GVSUD INSPECTOR TO WITNESS CHLORINATING AND PRESSURE
- TESTING OF NEW MAINS. ALL TEST RESULTS MUST BE PROVIDED TO GVSUD. 26. OPERATION OF EXISITING VALVES IN THE GVSUD WATER DISTRIBUTION SYSTEM SHALL ONLY BE AS APPROVED BY GVSUD AND IN THE PRESENCE OF GVSUD PERSONNEL. THE CONTRACTOR SHALL NOTIFY GVSUD WHEN A VALVE NEEDS TO BE OPERATED AND MAY ONLY OPERATE A VALVE IN THE PRESENCE OF THE GVSUD INSPECTOR.
- 27. NEW WATER MAINS AND APPURTENANCES SHALL PASS PRESSURE TESTING AND PASS THE MINIMUM PUBLIC HEALTH STANDARDS FOR BACTERIOLOGICAL QUALITY TESTING PRIOR TO ANY TIE IN TO THE EXISTING GVSUD WATER SYSTEM AS REQUIRED BY TCEQ AND ANSI/AWWA 28. HYDROSTATIC PRESSURE TESTING SHALL BE EVERY 200 LF (MAX) OF LINE OR AS APPROVED BY
- THE ENGINEER. ALL ERRORS OF WORKMANSHIP SHALL BE CORRECTED IMMEDIATELY. ALL PARTS OF THE PIPELINE SHALL BE BACKFILLED AND BRACED SUFFICIENTLY TO PREVENT MOVEMENT UNDER PRESSURE. 29. CONTRACTOR AND/OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR SAFETY

Page 3 of 4

6 SQ. FEET

18" 29 SQ. FEET 15 SQ. FEET

9 SQ. FEET 5 SQ. FEET

13 SQ. FEET 7 SQ. FEET 23 SQ. FEET 12 SQ. FEET

GREEN VALLEY SPECIAL UTILITY DISTRICT

STANDARD DETAILS

GVSUD

PLAN VIEW

JANUARY 2024

SECTION A - A VIEW

CONSULTANT SHALL IMPLEMENT A TRENCH AND CONFINED SPACE ENTRY SAFETY PROGRAM IN ACCORDANCE WITH OSHA STANDARDS GOVERNING THE PRESENCE AND ACTIVITIES OF INDIVIDUALS WORKING IN AND AROUND TRENCH EXCAVATION AND ALL RELATED WORK. ANY

CONCRETE THRUST BLOCKING

(1 OF 2)

HE ARCHITECT/ENGINEER ASSUMES
'ESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.

DETAIL NO.

W-4

SECTION B - B VIEW

VALVE BOX CASTING LID

IE ARCHITECT/ENGINEER ASSUMES ESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.

DETAIL NO.
W-12

5/8" --

35. THE CONTRACTOR SHALL PROVIDE THE ENGINEER WITH ALL THE INFORMATION AS REQUIRED SO THAT THE ENGINEER CAN SUPPLY GVSUD THE GIS PACKAGE FOR APPROVAL.

MATCH THE GPS 'X', 'Y', AND 'Z' COORDINATES.

THE CONTRACTOR AT CONTRACTOR'S EXPENSE

36. A FINAL WALK THRU FOR FINAL FIELD ACCPETANCE WILL BE SCHEDULED WITH THE CONTRACTOR AFTER THE PRELIMINARY WALK THRU PUNCH LIST ITEMS HAVE BEEN COMPLETED AND AFTER THE GIS PACKAGE IS APPROVED AND ACCEPTED BY GVSUD. 37. GVSUD CONTACT NUMBER: 830-914-2330

TRENCH PROTECTION SAFETY VIOLATION WILL BE DOCUMENTED AND WILL RESULT IN AN

31. NO TREES MAY BE PLANTED IN THE AREAS DESIGNATED AS WATER OR UTILITY EASEMENTS, OR

32. ALL GARBAGE OR SPOIL MATERIAL FROM THE WORK SHALL BE REMOVED FROM THE SITE BY

FOR THE GVSUD INSPECTOR AND ENGINEER. THE PLANS SHALL LIST MATERIAL

MANUFACTURERS, LINE LENGTH FROM FITTING TO FITTING, AND TAP LOCATIONS.

34. GPS FILES SHALL BE PROVIDED BY THE CONTRACTOR TO THE ENGINEER AND GVSUD

INSPECTOR FOR THE PLAN OF RECORD. CONTRACTOR SHALL PROVIDE AN ASCII COMMA

DELIMITED OR EXCEL FILE CONTAINING THREE-DIMENSIONAL GPS SURVEY POINTS WITH FOUR

APPURTENANCES, ENCASEMENTS, VAULTS, AND TANKS. THE ENGINEER SHALL FURNISH PLAN

OF RECORD DRAWINGS TO GVSUD FOR APPROVAL HAVING FINAL MEASUREMENTS AND THAT

(4) DECIMAL PLACES OF PRECISION. LESS THAN FOUR (4) INCHES OF HORIZONTAL POSITION

ACCURACY, AND LESS THAN EIGHT (8) INCHES OF VERTICAL POSITION ACCURACY. POINTS

SHALL BE PROVIDED FOR A MINIMUM OF THREE (3) CONTROL POINTS AND ALL FITTINGS,

33. CONTRACTOR SHALL PROVIDE "AS-BUILT" WATER LINE PLANS AT THE PRELIMINARY WALK THRU

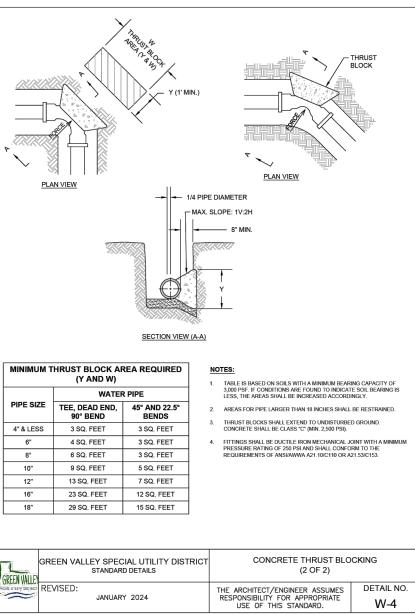
AREAS WHERE WATER MAINS AND WATER SERVICE CROSSINGS EXIST OR ARE PLANNED TO BE

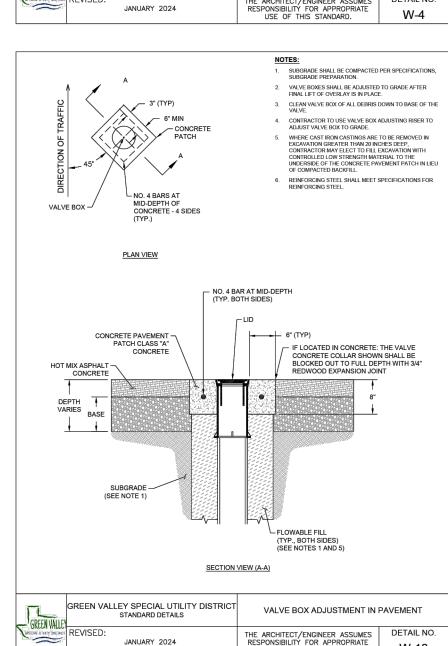
IMMEDIATE WORK STOPPAGE BY THE GVSUD INSPECTOR AT MINUMUM UNTIL THE NEXT

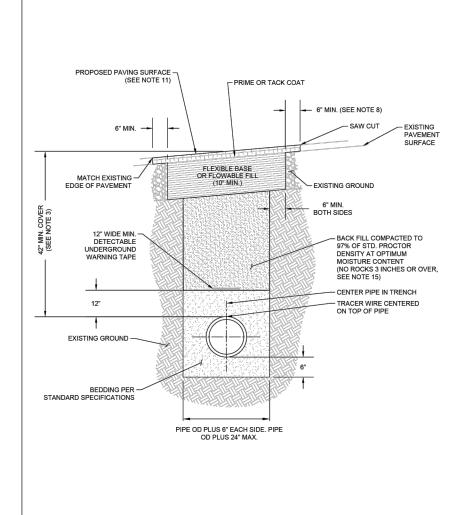
30. CONTRACTOR MUST PROTECT ALL UNATTENDED TRENCHES AND EXCAVATIONS WITH

REVISED: JULY 22,2022

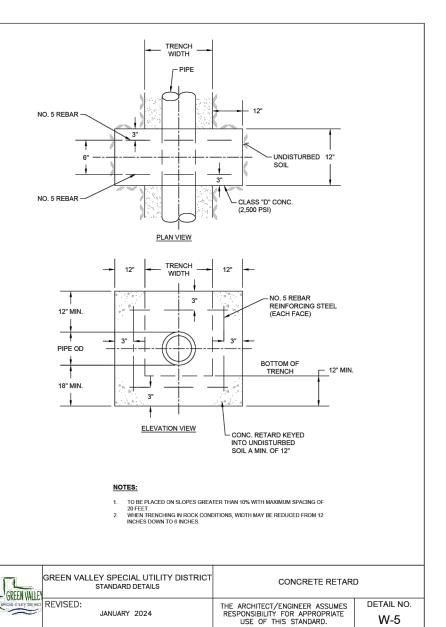


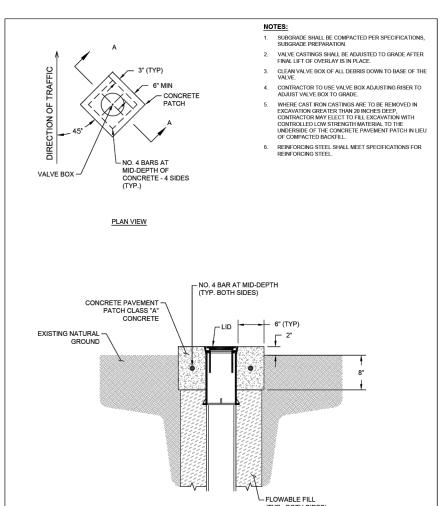


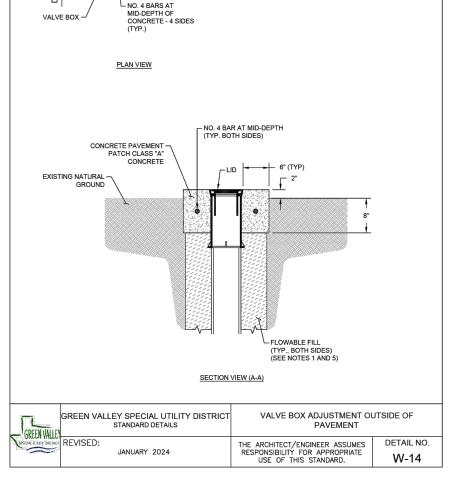


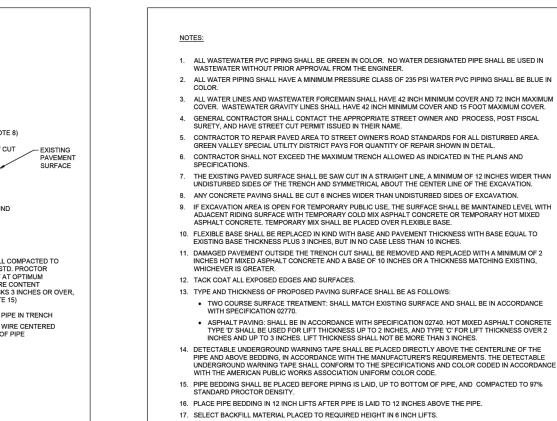


CDECNIVALIE	GREEN VALLEY SPECIAL UTILITY DISTRICT TRENCH DETAIL FOR PAVED STANDARD DETAILS (I OF 2)		D AREAS
SPECIAL UTILITY DISTRICT	REVISED:  JANUARY 2024	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	DETAIL NO. W-1







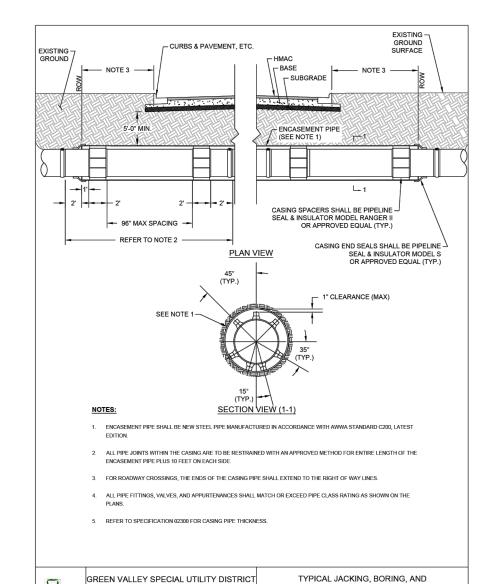


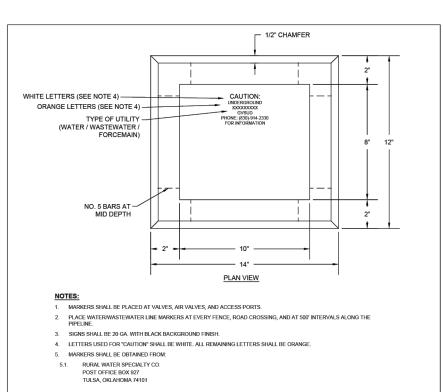
	GREEN VALLEY	GREEN VALLEY SPECIAL UTILITY DISTRICT STANDARD DETAILS	TRENCH DETAIL FOR PAVE (2 OF 2)	D AREAS
Ο.	SPECIAL UTILITY DISTRICT	REVISED:	THE ARCHITECT/ENGINEER ASSUMES	DETAIL NO.
		JANUARY 2024	RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	W-1

TWO COURSE SURFACE TREATMENT: SHALL MATCH EXISTING SURFACE AND SHALL BE IN ACCORDANCE WITH SPECIFICATION 02770.

ASPHALT PAVING: SHALL BE IN ACCORDANCE WITH SPECIFICATION 02740. HOT MIXED ASPHALT CONCRETE
TYPE 'D' SHALL BE USED FOR LIFT THICKNESS UP TO 2 INCHES, AND TYPE 'C' FOR LIFT THICKNESS OVER 2
INCHES AND UP TO 3 INCHES. LIFT THICKNESS SHALL NOT BE MORE THAN 3 INCHES.

WHICHEVER IS GREATER.



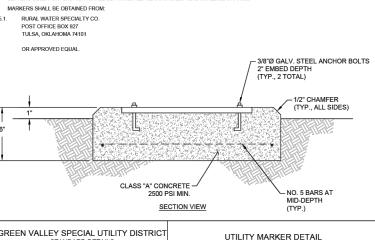


TUNNELING DETAIL

THE ARCHITECT/ENGINEER ASSUMES
RESPONSIBILITY FOR APPROPRIATE
USE OF THIS STANDARD.

DETAIL NO.
W-9

STANDARD DETAILS



REVISED:  JANUARY 2024  THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.  DETAIL NO W-16	Zee	GREEN VALLEY	GREEN VALLEY SPECIAL UTILITY DISTRICT STANDARD DETAILS	UTILITY MARKER DETAIL	
		SPECIAL UTILITY DISCINCT		RESPONSIBILITÝ FOR APPROPRIATE	DETAIL NO W-16

Colliers

Engineering & Design

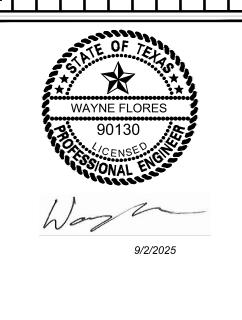
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FINAL SUBDIVISION PLAN

FOR CLEARWATER CREEK WATERLINE **EXTENSION NORTH** 

> CITY OF SAN ANTONIO **BEXAR COUNTY**

> > **TEXAS**

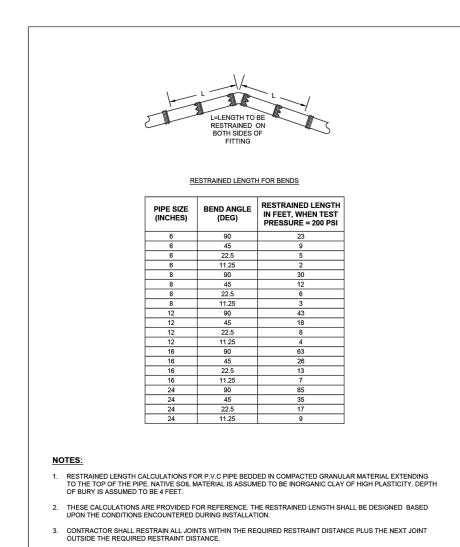
**NEW BRAUNFELS (KFW)** 640 North Walnut Avenue Colliers Suite 1101 New Braunfels, TX 78130 Phone: 830.220.6042 Engineering

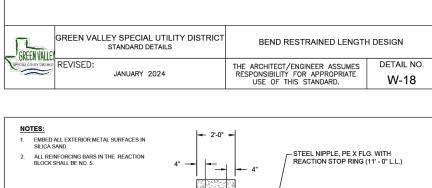
COLLIERS ENGINEERING & DESIGN, INC & Design TBPE Firm#: F-14909 TBPLS Firm#: 10194550 AS SHOWN 10/16/2024 MSG

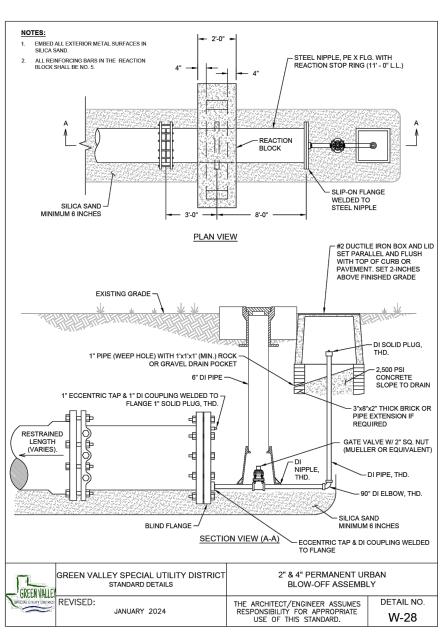
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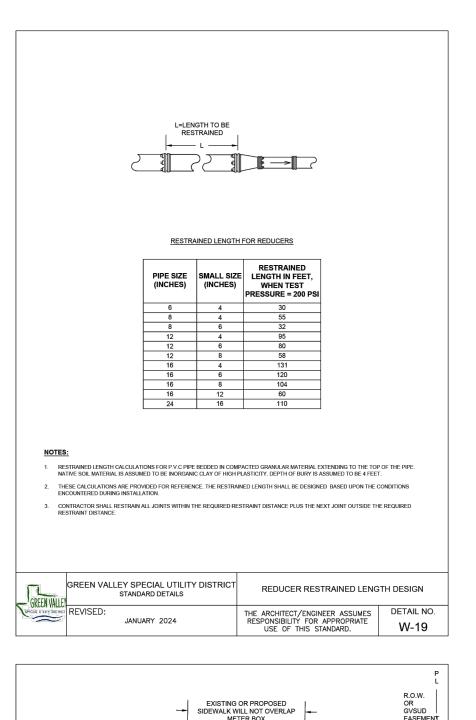
WATER DETAIL SHEET

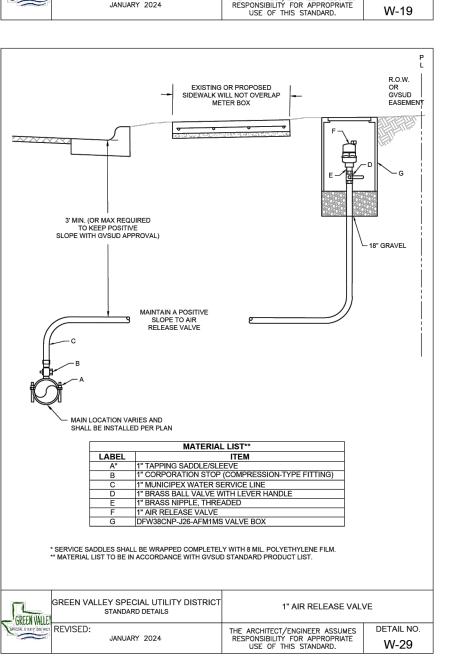
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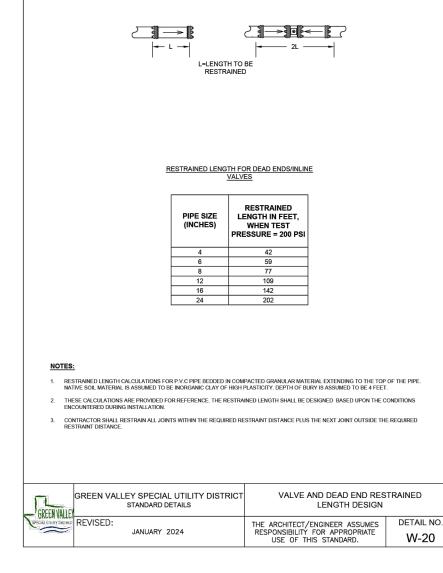


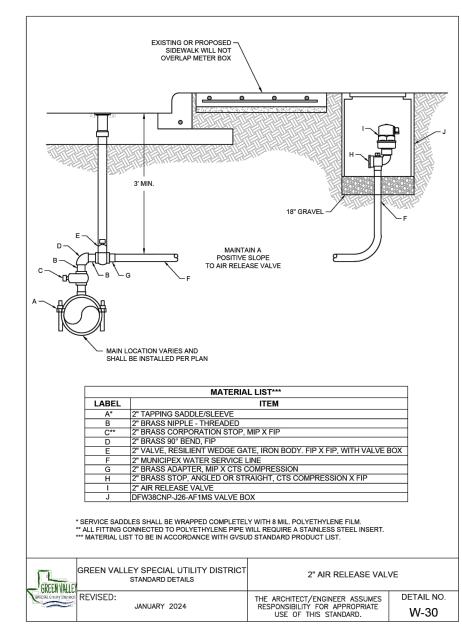


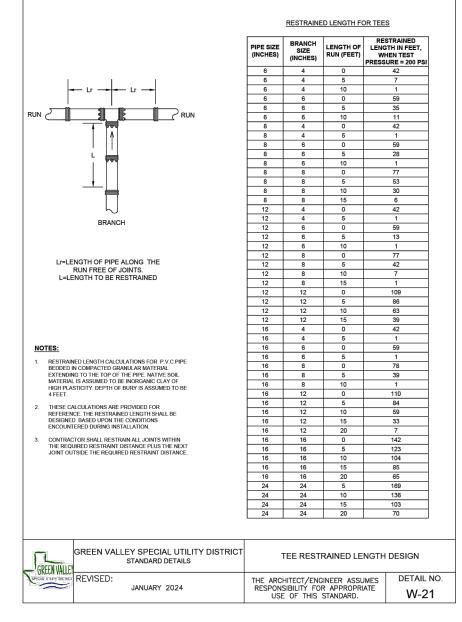


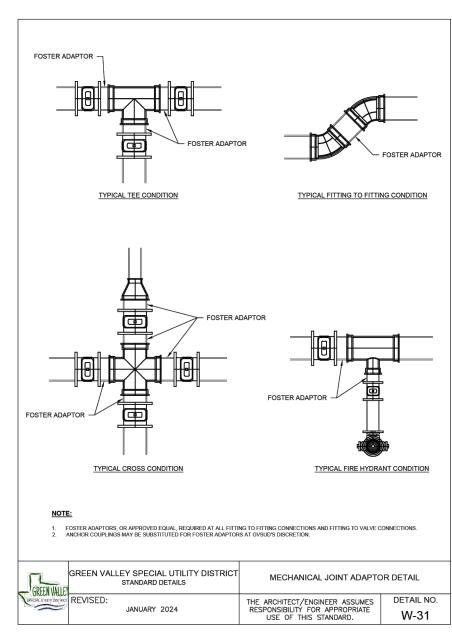


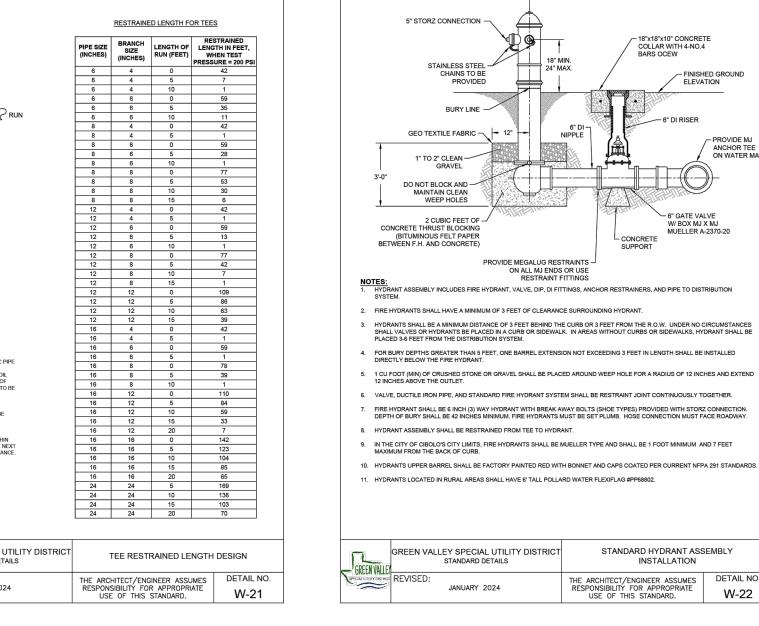


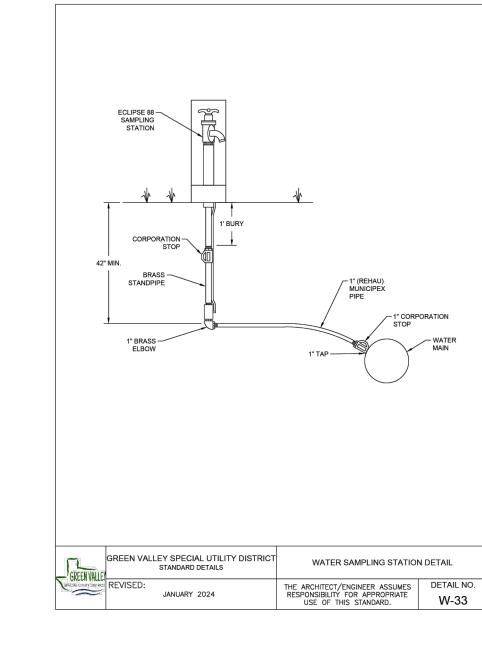


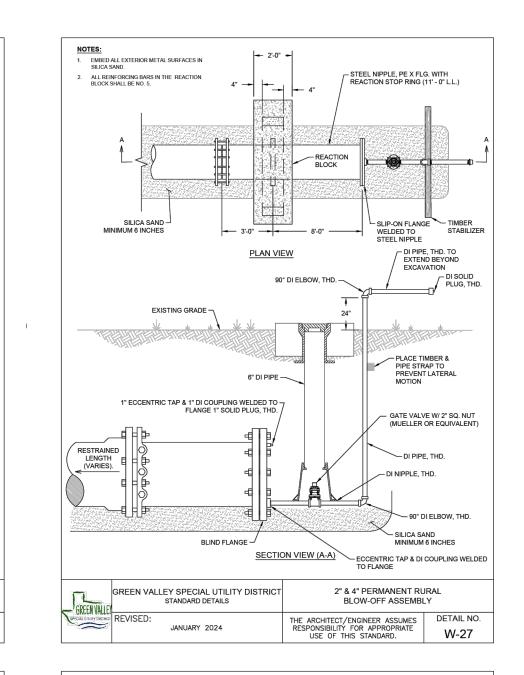


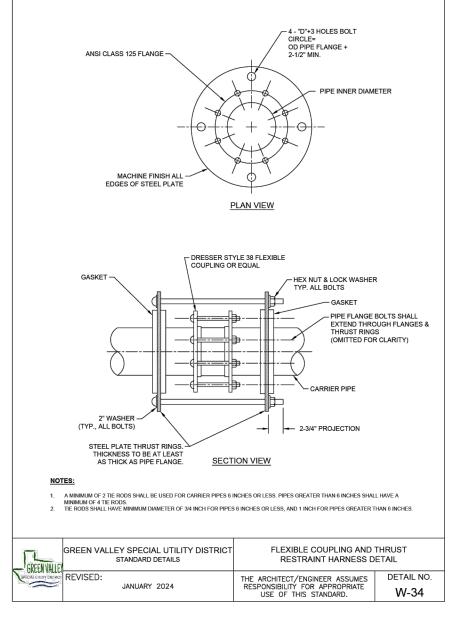


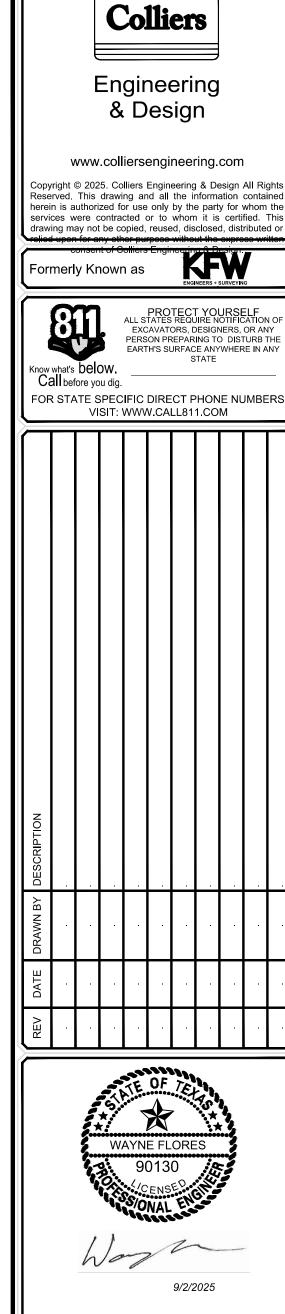


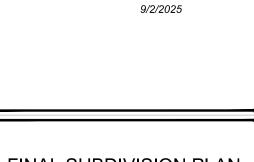












FINAL SUBDIVISION PLAN

FOR

**CLEARWATER CREEK** WATERLINE **EXTENSION NORTH** 

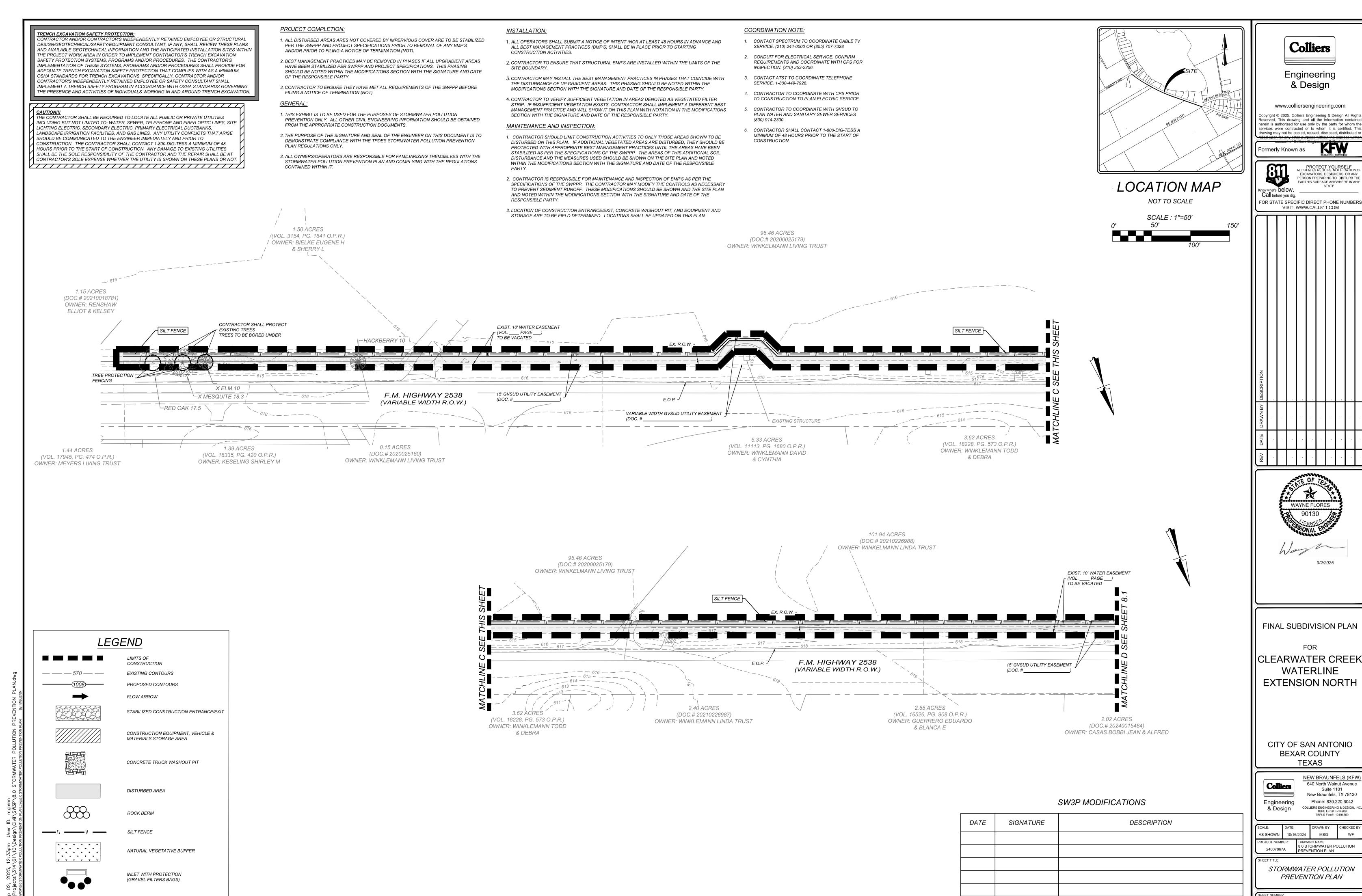
> CITY OF SAN ANTONIO **BEXAR COUNTY TEXAS**

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NEW BRAUNFELS (KFW) 640 North Walnut Avenue Suite 1101 New Braunfels, TX 78130 Phone: 830.220.6042 COLLIERS ENGINEERING & DESIGN, INC. TBPE Firm#: F-14909 TBPLS Firm#: 10194550

DRAWN BY: MSG AS SHOWN 10/16/2024 DRAWING NAME: 24007867A 7.4 WATER DETAIL SHEET

WATER DETAIL SHEET



SILT FENCE FOR TREE PROTECTION

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8.0

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FOR

**TEXAS** 

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COLLIERS ENGINEERING & DESIGN, INC

MSG

PREVENTION PLAN

3.0 STORMWATER POLLUTION

9/2/2025

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PERSON PREPARING TO DISTURB THI EARTH'S SURFACE ANYWHERE IN ANY

# TRENCH EXCAVATION SAFETY PROTECTION: ONTRACTOR AND/OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR STRUCTURAL DESIGN/GEOTECHNICAL/SAFETY/EQUIPMENT CONSULTANT, IF ANY, SHALL REVIEW THESE PLANS AND AVAILABLE GEOTECHNICAL INFORMATION AND THE ANTICIPATED INSTALLATION SITES WITHIN THE PROJECT WORK AREA IN ORDER TO IMPLEMENT CONTRACTOR'S TRENCH EXCAVATION SAFETY PROTECTION SYSTEMS, PROGRAMS AND/OR PROCEDURES. THE CONTRACTOR'S MPLEMENTATION OF THESE SYSTEMS, PROGRAMS AND/OR PROCEDURES SHALL PROVIDE FOR ADEQUATE TRENCH EXCAVATION SAFETY PROTECTION THAT COMPLIES WITH AS A MINIMUM, OSHA STANDARDS FOR TRENCH EXCAVATIONS. SPECIFICALLY, CONTRACTOR AND/OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR SAFETY CONSULTANT SHALL IMPLEMENT A TRENCH SAFETY PROGRAM IN ACCORDANCE WITH OSHA STANDARDS GOVERNING THE PRESENCE AND ACTIVITIES OF INDIVIDUALS WORKING IN AND AROUND TRENCH EXCAVATION. THE CONTRACTOR SHALL BE REQUIRED TO LOCATE ALL PUBLIC OR PRIVATE UTILITIES INCLUDING BUT NOT LIMITED TO: WATER, SEWER, TELEPHONE AND FIBER OPTIC LINES, SITE LIGHTING ELECTRIC, SECONDARY ELECTRIC, PRIMARY ELECTRICAL DUCTBANKS, LANDSCAPE IRRIGATION FACILITIES, AND GAS LINES. ANY UTILITY CONFLICTS THAT ARISE SHOULD BE COMMUNICATED TO THE ENGINEER IMMEDIATELY AND PRIOR TO CONSTRUCTION. THE CONTRACTOR SHALL CONTACT 1-800-DIG-TESS A MINIMUM OF 48 HOURS PRIOR TO THE START OF CONSTRUCTION. ANY DAMAGE TO EXISTING UTILITIES SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR AND THE REPAIR SHALL BE AT CONTRACTOR'S SOLE EXPENSE WHETHER THE UTILITY IS SHOWN ON THESE PLANS OR NOT.

### **PROJECT COMPLETION:** 1. ALL DISTURBED AREAS ARES NOT COVERED BY IMPERVIOUS COVER ARE TO BE STABILIZED PER THE SWPPP AND PROJECT SPECIFICATIONS PRIOR TO REMOVAL OF ANY BMP'S AND/OR PRIOR TO FILING A NOTICE OF TERMINATION (NOT).

2. BEST MANAGEMENT PRACTICES MAY BE REMOVED IN PHASES IF ALL UPGRADIENT AREAS HAVE BEEN STABILIZED PER SWPPP AND PROJECT SPECIFICATIONS. THIS PHASING SHOULD BE NOTED WITHIN THE MODIFICATIONS SECTION WITH THE SIGNATURE AND DATE

3. CONTRACTOR TO ENSURE THEY HAVE MET ALL REQUIREMENTS OF THE SWPPP BEFORE FILING A NOTICE OF TERMINATION (NOT).

OF THE RESPONSIBLE PARTY.

1. THIS EXHIBIT IS TO BE USED FOR THE PURPOSES OF STORMWATER POLLUTION PREVENTION ONLY. ALL OTHER CIVIL ENGINEERING INFORMATION SHOULD BE OBTAINED

FROM THE APPROPRIATE CONSTRUCTION DOCUMENTS.

2. THE PURPOSE OF THE SIGNATURE AND SEAL OF THE ENGINEER ON THIS DOCUMENT IS TO DEMONSTRATE COMPLIANCE WITH THE TPDES STORMWATER POLLUTION PREVENTION PLAN REGULATIONS ONLY.

3. ALL OWNERS/OPERATORS ARE RESPONSIBLE FOR FAMILIARIZING THEMSELVES WITH THE STORMWATER POLLUTION PREVENTION PLAN AND COMPLYING WITH THE REGULATIONS CONTAINED WITHIN IT.

101.94 ACRES

1. ALL OPERATORS SHALL SUBMIT A NOTICE OF INTENT (NOI) AT LEAST 48 HOURS IN ADVANCE AND ALL BEST MANAGEMENT PRACTICES (BMP'S) SHALL BE IN PLACE PRIOR TO STARTING CONSTRUCTION ACTIVITIES.

2. CONTRACTOR TO ENSURE THAT STRUCTURAL BMP'S ARE INSTALLED WITHIN THE LIMITS OF THE SITE BOUNDARY.

3. CONTRACTOR MAY INSTALL THE BEST MANAGEMENT PRACTICES IN PHASES THAT COINCIDE WITH THE DISTURBANCE OF UP GRADIENT AREAS. THIS PHASING SHOULD BE NOTED WITHIN THE MODIFICATIONS SECTION WITH THE SIGNATURE AND DATE OF THE RESPONSIBLE PARTY.

4. CONTRACTOR TO VERIFY SUFFICIENT VEGETATION IN AREAS DENOTED AS VEGETATED FILTER STRIP. IF INSUFFICIENT VEGETATION EXISTS, CONTRACTOR SHALL IMPLEMENT A DIFFERENT BEST MANAGEMENT PRACTICE AND WILL SHOW IT ON THIS PLAN WITH NOTATION IN THE MODIFICATIONS SECTION WITH THE SIGNATURE AND DATE OF THE RESPONSIBLE PARTY.

### MAINTENANCE AND INSPECTION:

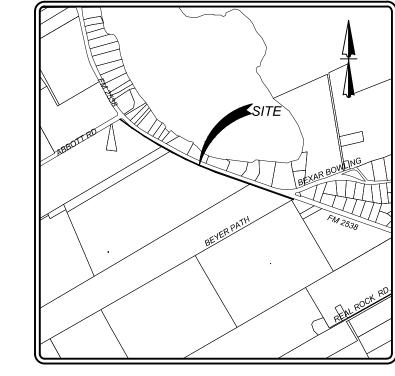
1. CONTRACTOR SHOULD LIMIT CONSTRUCTION ACTIVITIES TO ONLY THOSE AREAS SHOWN TO BE DISTURBED ON THIS PLAN. IF ADDITIONAL VEGETATED AREAS ARE DISTURBED, THEY SHOULD BE PROTECTED WITH APPROPRIATE BEST MANAGEMENT PRACTICES UNTIL THE AREAS HAVE BEEN STABILIZED AS PER THE SPECIFICATIONS OF THE SWPPP. THE AREAS OF THIS ADDITIONAL SOIL DISTURBANCE AND THE MEASURES USED SHOULD BE SHOWN ON THE SITE PLAN AND NOTED WITHIN THE MODIFICATIONS SECTION WITH THE SIGNATURE AND DATE OF THE RESPONSIBLE

2. CONTRACTOR IS RESPONSIBLE FOR MAINTENANCE AND INSPECTION OF BMP'S AS PER THE SPECIFICATIONS OF THE SWPPP. THE CONTRACTOR MAY MODIFY THE CONTROLS AS NECESSARY TO PREVENT SEDIMENT RUNOFF. THESE MODIFICATIONS SHOULD BE SHOWN AND THE SITE PLAN AND NOTED WITHIN THE MODIFICATIONS SECTION WITH THE SIGNATURE AND DATE OF THE RESPONSIBLE PARTY.

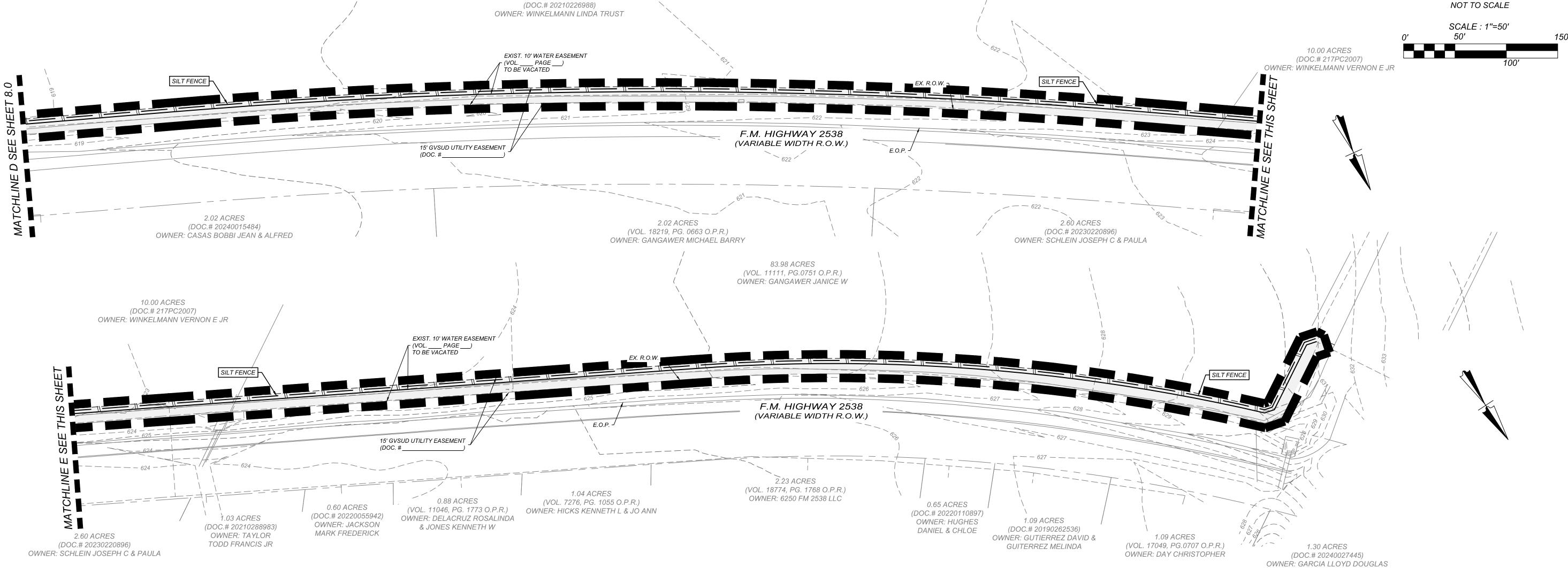
3. LOCATION OF CONSTRUCTION ENTRANCE/EXIT, CONCRETE WASHOUT PIT, AND EQUIPMENT AND STORAGE ARE TO BE FIELD DETERMINED. LOCATIONS SHALL BE UPDATED ON THIS PLAN.

## COORDINATION NOTE:

- 1. CONTACT SPECTRUM TO COORDINATE CABLE TV SERVICE. (210) 244-0500 OR (855) 707-7328
- 2. CONDUIT FOR ELECTRICAL SERVICE. CONFIRM REQUIREMENTS AND COORDINATE WITH CPS FOR INSPECTION. (210) 353-2256.
- 3. CONTACT AT&T TO COORDINATE TELEPHONE SERVICE. 1-800-449-7928.
- 4. CONTRACTOR TO COORDINATE WITH CPS PRIOR TO CONSTRUCTION TO PLAN ELECTRIC SERVICE.
- 5. CONTRACTOR TO COORDINATE WITH GVSUD TO PLAN WATER AND SANITARY SEWER SERVICES (830) 914-2330
- 6. CONTRACTOR SHALL CONTACT 1-800-DIG-TESS A MINIMUM OF 48 HOURS PRIOR TO THE START OF CONSTRUCTION.



# **LOCATION MAP**



# LEGEND CONSTRUCTION — — 570 — — EXISTING CONTOURS PROPOSED CONTOURS FLOW ARROW STABILIZED CONSTRUCTION ENTRANCE/EXIT CONSTRUCTION EQUIPMENT, VEHICLE & MATERIALS STORAGE AREA. CONCRETE TRUCK WASHOUT PIT DISTURBED AREA ROCK BERM SILT FENCE NATURAL VEGETATIVE BUFFER INLET WITH PROTECTION (GRAVEL FILTERS BAGS)

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SILT FENCE FOR TREE PROTECTION

# SW3P MODIFICATIONS

DATE	SIGNATURE	DESCRIPTION

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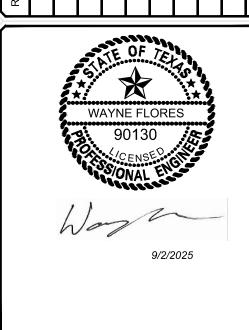
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FINAL SUBDIVISION PLAN

FOR CLEARWATER CREEK WATERLINE **EXTENSION NORTH** 

CITY OF SAN ANTONIO **BEXAR COUNTY TEXAS** 

Engineering & Design

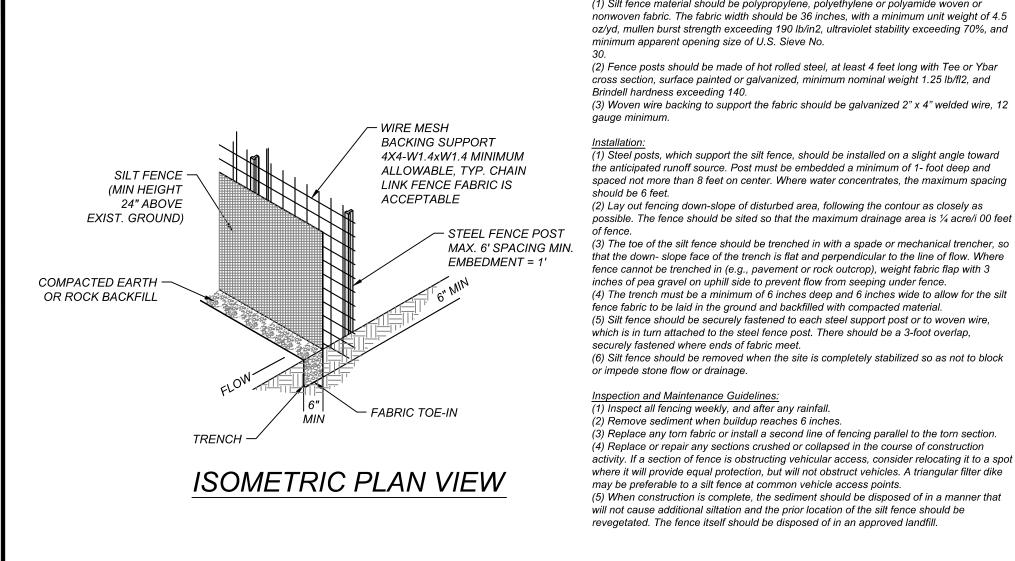
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NEW BRAUNFELS (KFW)

MSG AS SHOWN .0 STORMWATER POLLUTION 24007867A PREVENTION PLAN

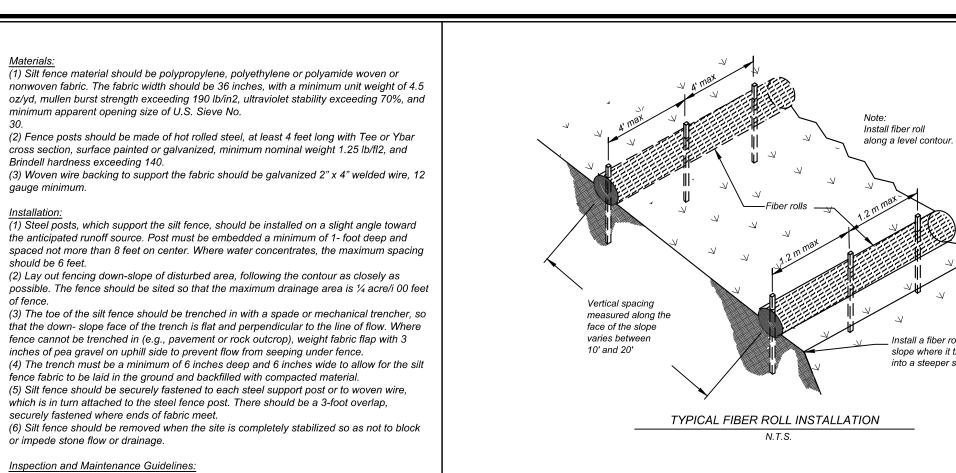
STORMWATER POLLUTION PREVENTION PLAN

8.1



SILT FENCE

SECTION A-A



TYPICAL FIBER ROLL INSTALLATION ENTRENCHMENT DETAIL

into a steeper slope

FIBER ROLL

THE MATERIAL, INSTALLATION, INSPECTION, AND MAINTENANCE OF FIBER ROLLS WILL BE PER THE MANUFACTURE'S SPECIFICATIONS AND SHALL ALSO COMPLY WITH THE TEXAS COMMISSION OF ENVIRONMENTAL QUALITY CURRENT "TECHNICAL GUIDANCE ON BEST MANAGEMENT PRACTICES" AS NOTED BELOW.

(1) Core material: Core material should be biodegradable or recyclable. Material may be compost, mulch, aspen wood fibers, chipped site vegetation, agricultural rice or wheat straw, coconut fiber, 100% recyclable fibers, or

(2) Containment Mesh: Containment mesh should be 100% biodegradable, photodegradable or recyclable such as burlap, twine, UV photodegradable plastic, polyester, or similar material. When the fiber role will remain in place as part of a vegetative system use biodegradable or photodegradable mesh. For temporary installation recyclable mesh is recommended.

(1) Locate fiber rolls on level contours spaced as follows: Slope inclination of 4:1 (H:V) or flatter: Fiber rolls should be placed at a

maximum interval of 20 ft. Slope inclination between 4:1 and 2:1 (H:V): Fiber Rolls should be placed at a maximum interval of 15 ft. (a closer spacing is more effective). Slope inclination 2:1 (H:V) or greater: Fiber Rolls should be placed at a maximum interval of 10 ft. (a closer spacing is more effective).

(2) Turn the ends of the fiber roll up slope to prevent runoff from going around the (3) Stake fiber rolls into a 2 to 4 in. deep trench with a width equal to the diameter of

(4) Drive stakes at the end of each fiber roll and spaced 4 ft maximum on center. (5) Use wood stakes with a nominal classification of 0.75 by 0.75 in. and minimum lenath of 24 in. (6) If more than one fiber roll is placed in a row, the rolls should be overlapped, not

Inspection and Maintenance Guidelines: (1) Inspect prior to forecast rain, daily during extended rain events, after rain events,

CONSTRUCTION

**EQUIPMENT** & VEHICLE STORAGE ANDMAINTENANCE

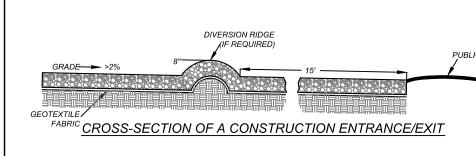
CONSTRUCTION

AND WASTE MATERIAL

STORAGE

AREA

(2) Repair or replace split, torn, unraveling, or slumping fiber rolls. (3) If the fiber roll is used as a sediment capture device, or as an erosion control device to maintain sheet flows, sediment that accumulates behind the role must be periodically removed in order to maintain its effectiveness. Sediment should be removed when the accumulation reaches one-half the designated sediment storage depth, usually one-half the distance between the top of the fiber roll and the adjacent ground surface. Sediment removed during maintenance may be incorporated into earthwork on the site or disposed of at an appropriate location.



GEOTEXTILE FABRIC

CONSTRUCTION ENTRANCE/EXIT

TO STABILIZE FOUNDATION

(1) The aggregate should consist of 4 to 8 inch washed stone over a stable foundation as specified in the plan.

(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/yd2, a mullen burst rating of 140 lb/in2, and an equivalent opening size greater than a number (4) If a washing facility is required, a level area with a minimum of 4 inch diameter washed stone or commercial rack should be included in the

plans. Divert wastewater to a sediment trap or basin.

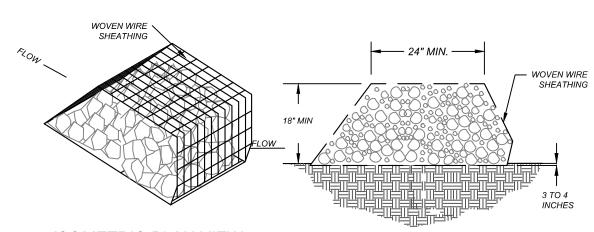
Installation: (North Carolina, 1993) (1) Avoid curves on public roads and steep slopes. Remove vegetation and other objectionable material from the foundation area. Grade crown foundation for positive drainage. (2) The minimum width of the entrance/exit should be 12 feet or the full width of exit roadway, whichever is greater. (3) The construction entrance should be at least 50 feet long. (4) If the slope toward the road exceeds 2%, construct a ridge, 6 to 8 inches high with 3:1 (H:V) side slopes, across the foundation approximately 15 feet from the entrance to divert runoff away from the public road. (5) Place geotextile fabric and grade foundation to improve stability, especially where wet conditions are anticipated. (6) Place stone to dimensions and grade shown on plans. Leave surface smooth and slope for drainage. (7) Divert all surface runoff and drainage from the stone pad to a sediment trap or basin. (8) Install pipe under pad as needed to maintain proper public road drainage.

Inspection and Maintenance Guidelines:
(1) 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 andlor cleanout of any measures used to trap sediment. (2) All sediment spilled, dropped, washed or tracked onto public rights-of-way should be removed immediately by contractor. (3) When necessary, wheels should be cleaned to remove sediment prior to entrance onto public right-of-way.

<u>Materials:</u>

(4) 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. (5) All sediment should be prevented from entering any storm drain, ditch or water course by using approved methods.

STABILIZED CONSTRUCTION ENTRANCE / EXIT



(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

(1) Lay out the woven wire sheathing perpendicular to the flow line. The sheathing should be 20 gauge woven wire mesh with 1 inch openings. (2) Berm should have a top width of 2 feet minimum with side slopes being 2:1 (H:V) or flatter.

overlap at least 2 inches, airl the berm retains its shape when walked upon. (5) Berm should be built along the contour at zero percent grade or as near as pos (6) The ends of the berm should be tied into existing upslope grade and the berm should be buried in a

Inspection and Maintenance Guidelines: (1) Inspection should be made weekly and after each rainfall by the responsible party. For installations

(5) 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. (6) The rock berm should be left in place until all upstream areas are stabilized and accumulated silt

**GENERAL NOTES:** 

THE TOP OF THE SACK GABIONS SHOULD BE LEVEL AND ORIENTED PERPENDICULAR TO THE DIRECTION OF FLOW.

FILTER FABRIC MATERIAL SHALL BE FASTENED TO WOVEN WIRE

FILTER FABRIC MATERIAL SHOULD MEET THE FOLLOWING

SPECIFICATIONS: RESISTANT TO ULTRAVIOLET LIGHT, FABRIC SHOULD BE NON-WOVEN GEOTEXTILE WITH MINIMUM WEIGHT OF 3.5 OUNCES PER SQUARE YARD, MINIMUM MULLEN BURST STRENGTH OF

200 POUNDS PER SQUARE INCH AND A FLOW THRU RATE OF 120

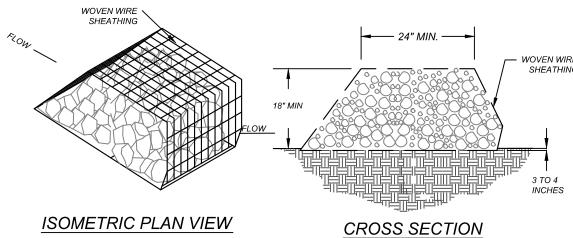
INSPECT WEEKLY OR AFTER EACH RAINFALL EVENT AND REPAIR OR

CONTAMINATED SEDIMENT MUST BE REMOVED AND DISPOSED OF

GALLONS PER MINUTE PER SQUARE FOOT OF FRONTAL AREA.

WHEN SILT REACHES A DEPTH OF 6 INCHES OR MORE ABOVE NATURAL GROUND, SILT SHALL BE REMOVED AND DISPOSED IN AN APPROVED MANNER THAT WILL NOT CONTRIBUTE TO RESILTATION.

STONE SIZE: ±4"-8" OPEN GRADED CRUSHED LIMESTONE.



or large volumes of flow are expected, where 5- to 8-inch diameter rocks may be used.

(3) Place the rock along the sheathing as shown in the diagram Figure 1-28), to a height not less than (4) Wrap the wire sheathing around the rock and secure with tie wire so that the ends of the sheathing

trench approximately 3 to 4 inches deep to prevent failure of the control.

in streambeds, additional daily inspections should be made. (2) Remove sediment and other debris when buildup reaches 6 inches and dispose of the accumulated silt in an approved manner that will not cause any additional siltation. (3) Repair any loose wire sheathing. (4) The berm should be reshaped as needed during inspection.

ROCK BERM

# WAYNE FLORES 9/2/2025

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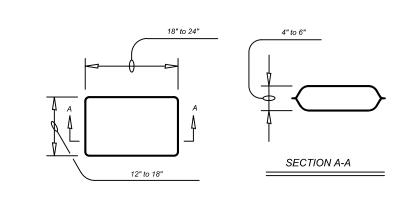
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ormerly Known as

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DETAIL ABOVE ILLUSTRATES MINIMUM DIMENSIONS. PIT CAN BE INCREASED IN

WASHOUT PIT SHALL BE LOCATED IN AN AREA EASILY ACCESSIBLE TO

FEATURES, STORM DRAINS, OPEN DITCHES, STREETS, OR STREAMS.

CONCRETE TRUCK WASHOUT PIT

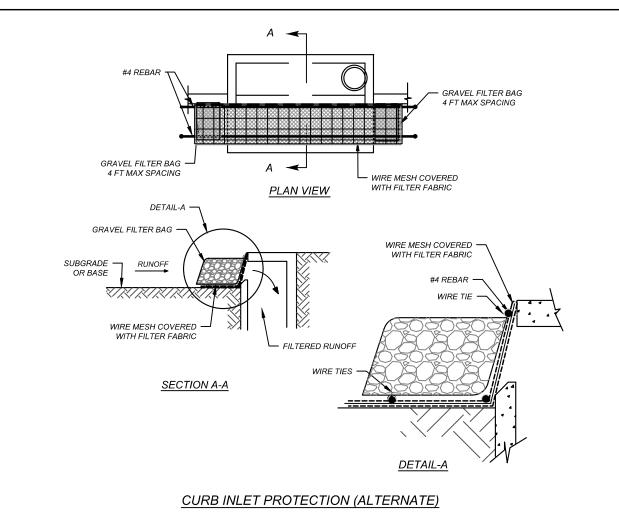
WASHOUT PIT SHALL NOT BE LOCATED IN AREAS SUBJECT TO INUNDATION FROM STORM WATER RUNOFF AND AT LEAST 50 FEET FROM SENSITIVE

# **GENERAL NOTES:**

**GENERAL NOTES:** 

THE FILTER BAG MATERIAL SHALL BE MADE OF POLYPROPYLENE, POLYETHYLENE OR POLYAMIDE WOVEN FABRIC, MIN UNIT WEIGHT OF 4 OUNCES/SY, MULLEN BURST STRENGTH EXCEEDING 300 PSI AND ULTRAVIOLET THE FILTER BAG SHALL BE FILLED WITH CLEAN, MEDIUM TO COARSE GRAVEL (0.31 TO 0.75 INCH DIAMETER).

GRAVEL FILTER BAG DETAIL



SECTION A-A

AINAGE AREA TRIBUTARY TO AN AREA DRAIN INSTALLED WITH A GRAVEL

MATERIAL IS WITHIN THREE INCHES OF THE TOP OF THE CONCRETE BLOCKS.
PERIODICALLY, THE GRAVEL SHOULD BE RAKED TO INCREASE INFILTRATION AND

**CURB INLET PROTECTION GRAVEL FILTER BAGS** 

ALL STORM DRAINAGE SYSTEMS INLETS SHOULD FILTER RUNOFF BEFORE

ALL CURB INLET GRAVEL FILTERS SHOULD BE INSPECTED AND REPAIRED

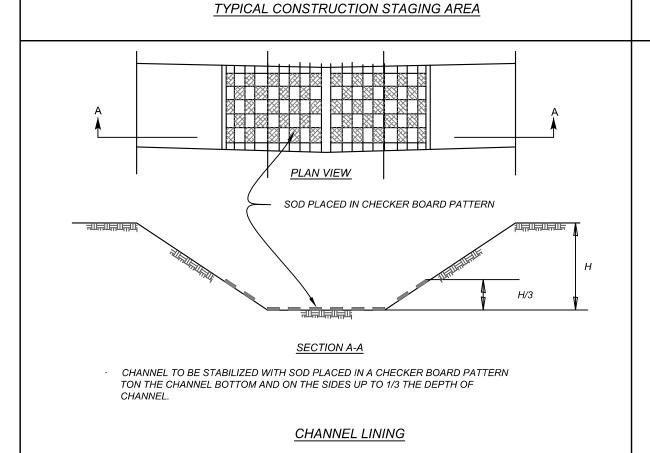
AFTER EACH RUNOFF EVENT. SEDIMENT SHOULD BE REMOVED WHEN

IF NO ADDITIONAL DOWNSTREAM TREATMENT EXISTS. THE MAXIMUM

**GENERAL NOTES:** 

FILTER SHOULD BE ONE ACRE.

FILTERING OF RUNOFF WATERS.



**ENTRANCE** 

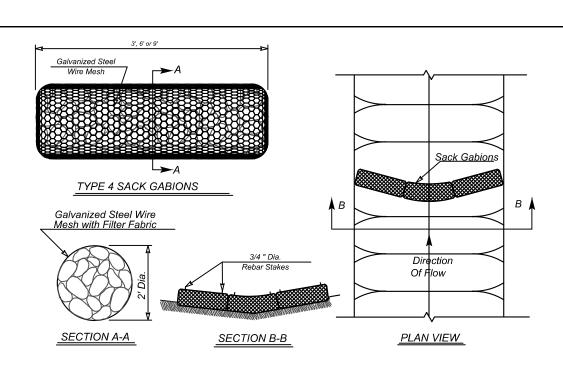
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FIELD

SILT FENCE

FLOW ARROWS

OFFICE



TYPE 4 SACK GABIONS

FINAL SUBDIVISION PLAN

CLEARWATER CREEK WATERLINE **EXTENSION NORTH** 

CITY OF SAN ANTONIO **BEXAR COUNTY** TEXAS

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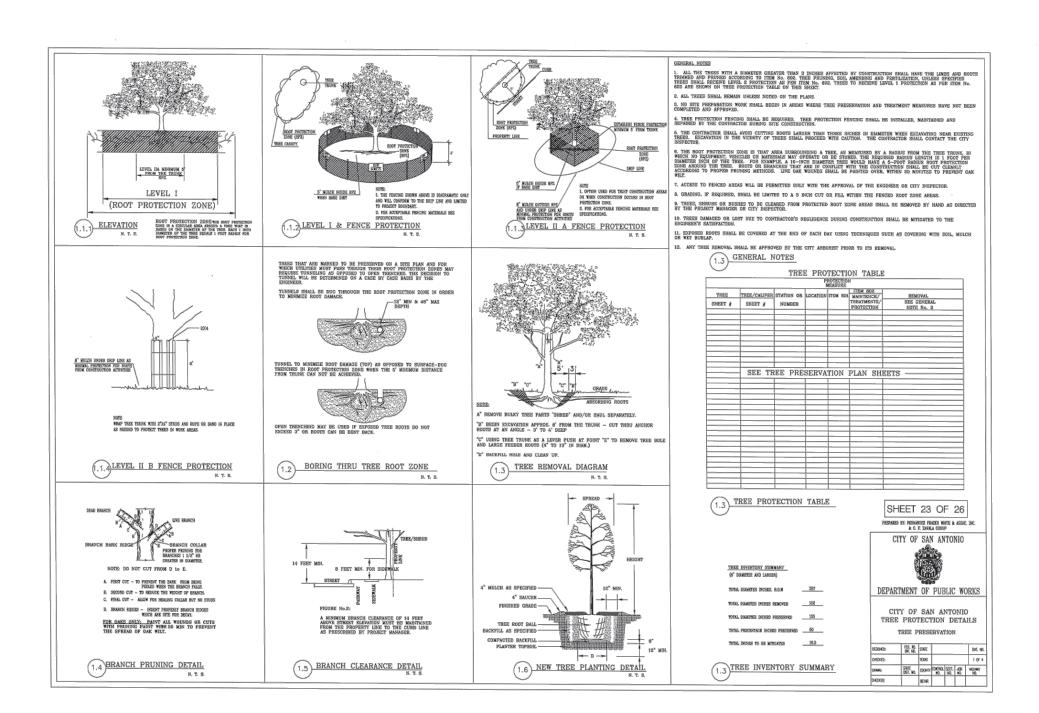
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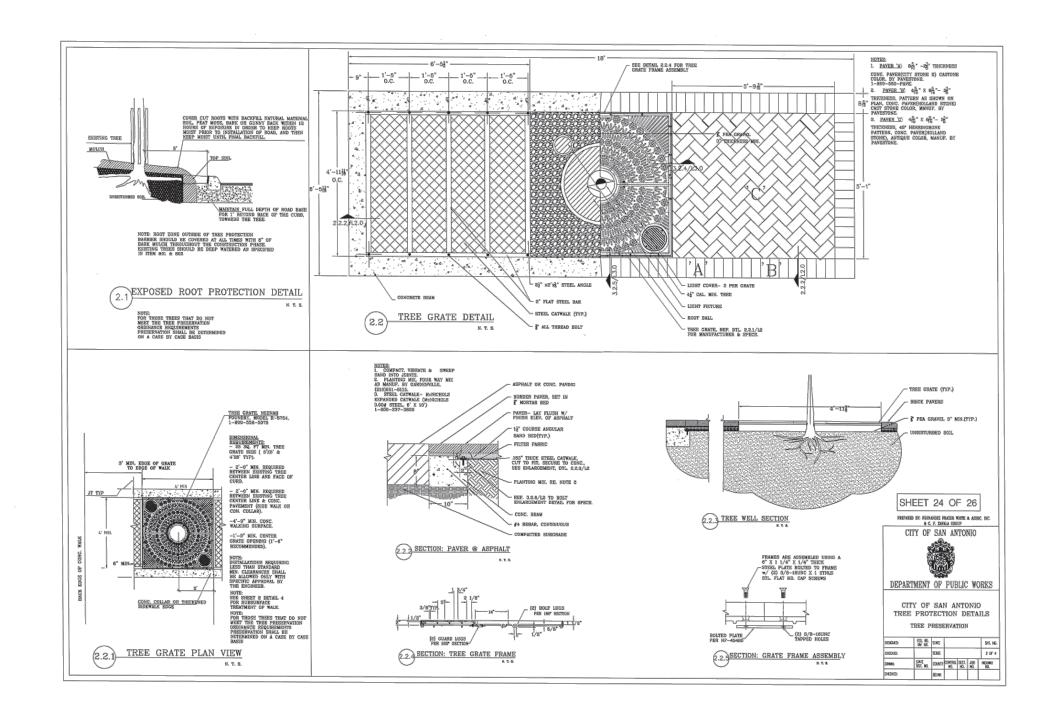
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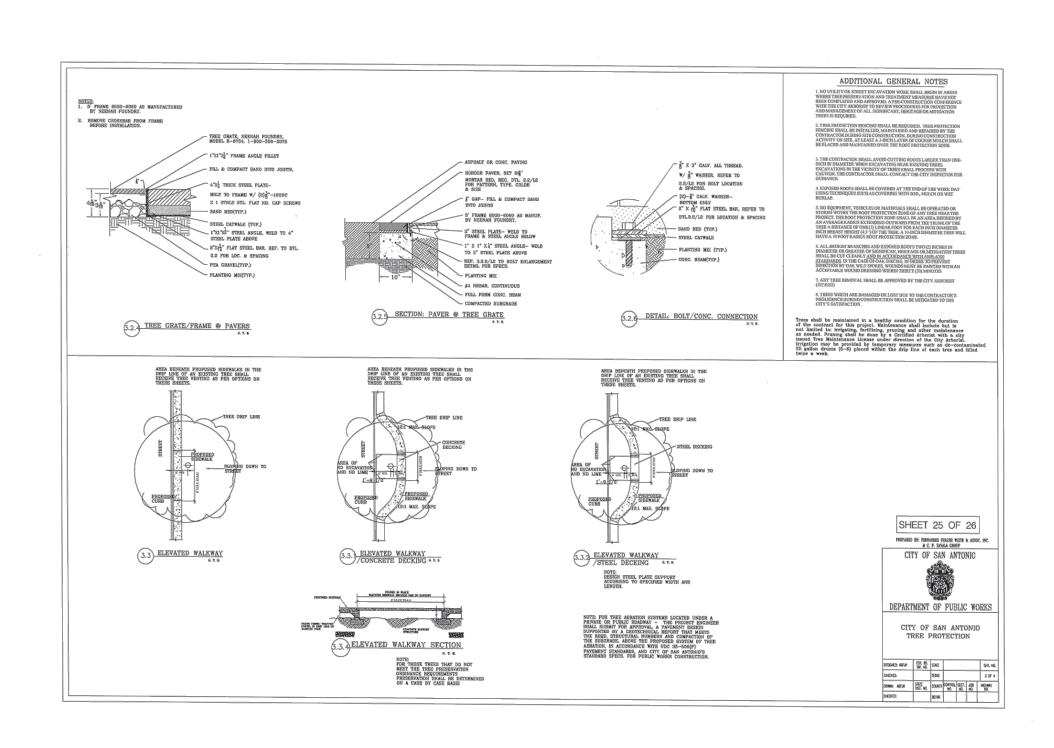
AS SHOWN MSG 2 STORMWATER POLLUTION 24007867A REVENTION DETAILS

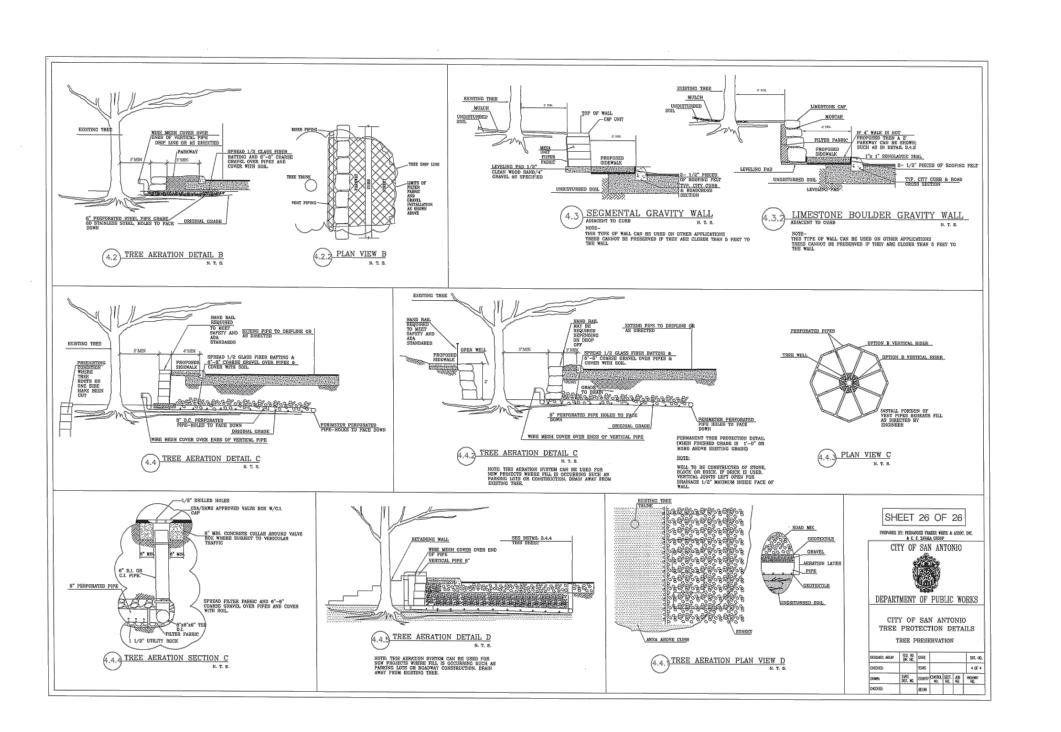
STORMWATER POLLUTION PREVENTION DETAILS

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.











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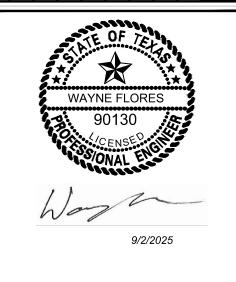
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FINAL SUBDIVISION PLAN

FOR

**CLEARWATER CREEK** WATERLINE **EXTENSION NORTH** 

> CITY OF SAN ANTONIO **BEXAR COUNTY TEXAS**

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AS SHOWN MSG 8.2 STORMWATER POLLUTION 24007867A PREVENTION DETAILS

STORMWATER POLLUTION PREVENTION DETAILS

8.3