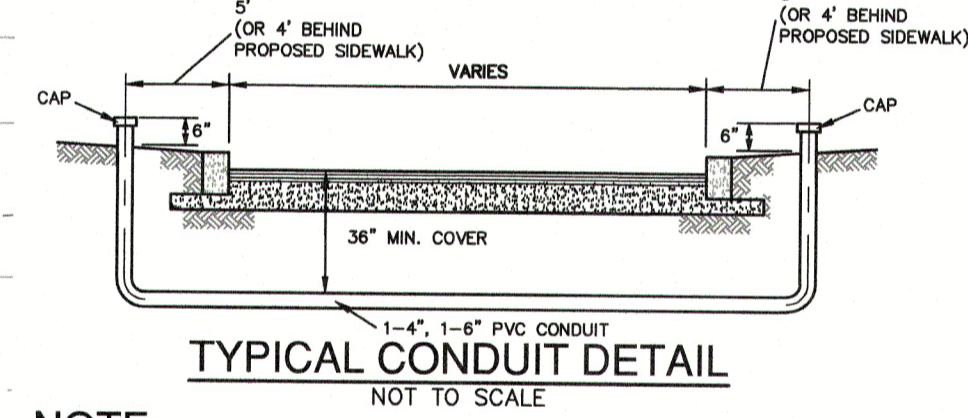
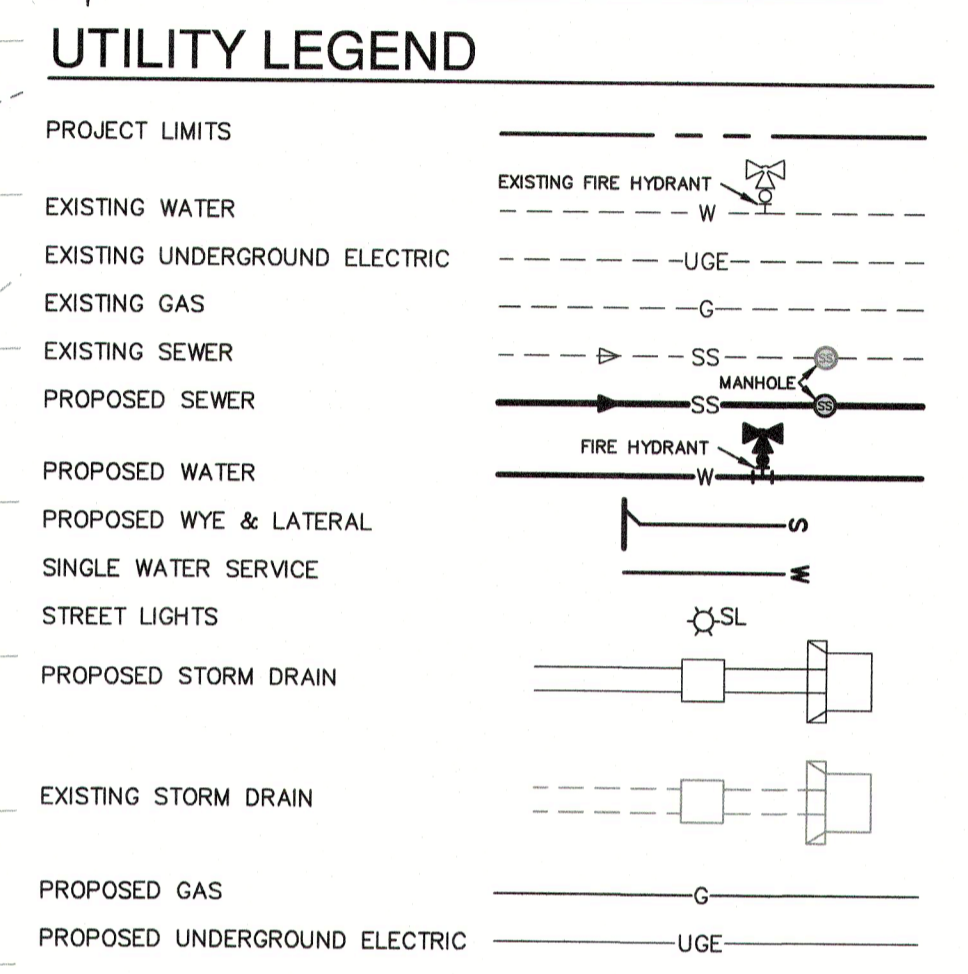
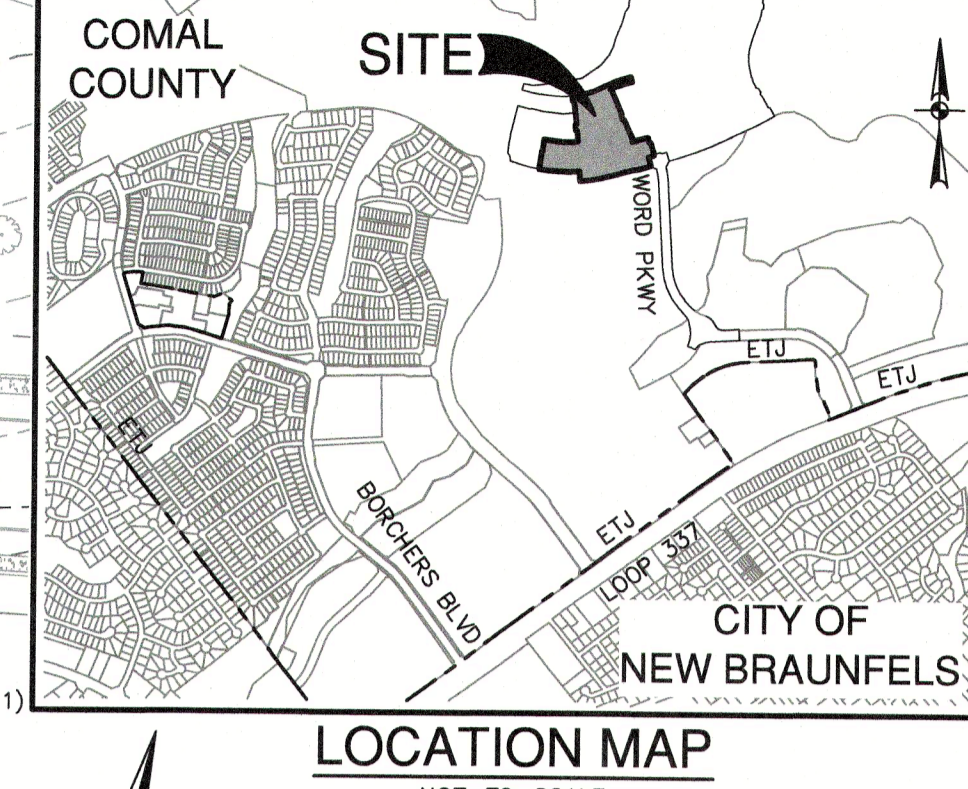
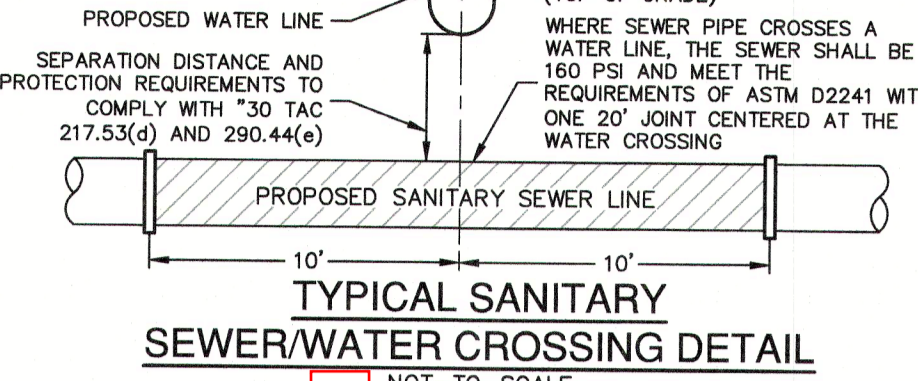


NBU PRESSURE ZONE:
PROPOSED WATER MAIN IS WITHIN NBU PRESSURE ZONE 5.

MATCHLINE "A"
SEE THIS SHEET



NOTE:
1. 1-1/2", 1-8" P.V.C. SCHEDULE 40 WILL BE REQUIRED FOR IRRIGATION UTILITIES CROSSING.

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 30 INCHES. 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.

CITY OF NEW BRAUNFELS NOTES

- NO VALVES, HYDRANTS, ETC. SHALL BE CONSTRUCTED WITHIN CURBS, SIDEWALKS, OR DRIVEWAYS.
- ALL UTILITIES TO BE CONSTRUCTED PRIOR TO STREETS.
- THIS PROJECT INCLUDES UTILITY INSTALLATIONS GREATER THAN 5-FOOT IN DEPTH. DEEP TRENCHING, POSE, COMPACTION TESTING AND CONSTRUCTION CHALLENGES AND CITY METHODS FOR TESTING AND COMPACTION MAY NOT BE ACHIEVABLE. A UTILITY CONSTRUCTION PLAN WILL BE REQUIRED AND MUST BE SUBMITTED FOR APPROVAL TO CITY PRIOR TO UTILITY INSTALLATION.
- UTILITY TRENCH COMPACTION - ALL UTILITY TRENCH COMPACTION TESTS WITHIN THE STREET PAVEMENT/SIDEWALK SECTION SHALL BE THE RESPONSIBILITY OF THE DEVELOPER'S GEOTECHNICAL ENGINEER. FILL MATERIAL SHALL BE PLACED IN UNIFORM LAYERS NOT TO EXCEED TWELVE INCHES (12") THICK. DETERMINE THE MAXIMUM LIFT THICKNESS BASED ON THE ABILITY OF THE COMPACTING OPERATION AND EQUIPMENT USED TO MEET THE REQUIRED DENSITY. EACH LAYER OF MATERIAL SHALL BE COMPACTED TO A MINIMUM 95% DENSITY AND TESTED FOR DENSITY AND MOISTURE IN ACCORDANCE WITH TEXAS METRICS TEX-113-E, TEX-114-E, TEX-115-E. THE NUMBER AND LOCATION OF REQUIRED TESTS SHALL BE DETERMINED BY THE GEOTECHNICAL ENGINEER AND APPROVED BY THE CITY OF NEW BRAUNFELS STREET INSPECTOR. AT A MINIMUM, TESTS SHALL BE TAKEN EVERY 200 LF FOR EACH LIFT AND EVERY OTHER SERVICE LINE. UPON COMPLETION OF TESTING THE GEOTECHNICAL ENGINEER SHALL PROVIDE THE CITY OF NEW BRAUNFELS STREET INSPECTOR WITH ALL TESTING DOCUMENTATION AND A CERTIFICATION STATING THAT THE PLACEMENT OF FILL MATERIAL HAS BEEN PERFORMED IN ACCORDANCE WITH THE PLANS. ADDITIONAL DENSITY TESTS MAY BE REQUESTED BY THE CITY OF NEW BRAUNFELS INSPECTOR.

CAUTION!!
CONTRACTOR SHALL BE REQUIRED TO LOCATE ALL PUBLIC OR PRIVATE UTILITIES INCLUDING BUT NOT LIMITING TO: WATER, SEWER, TELEPHONE AND FIBER OPTIC LINES, SITE LIGHTING ELECTRICAL, SECONDARY ELECTRICAL, 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 CONTRACT "TEXAS 911" 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.

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

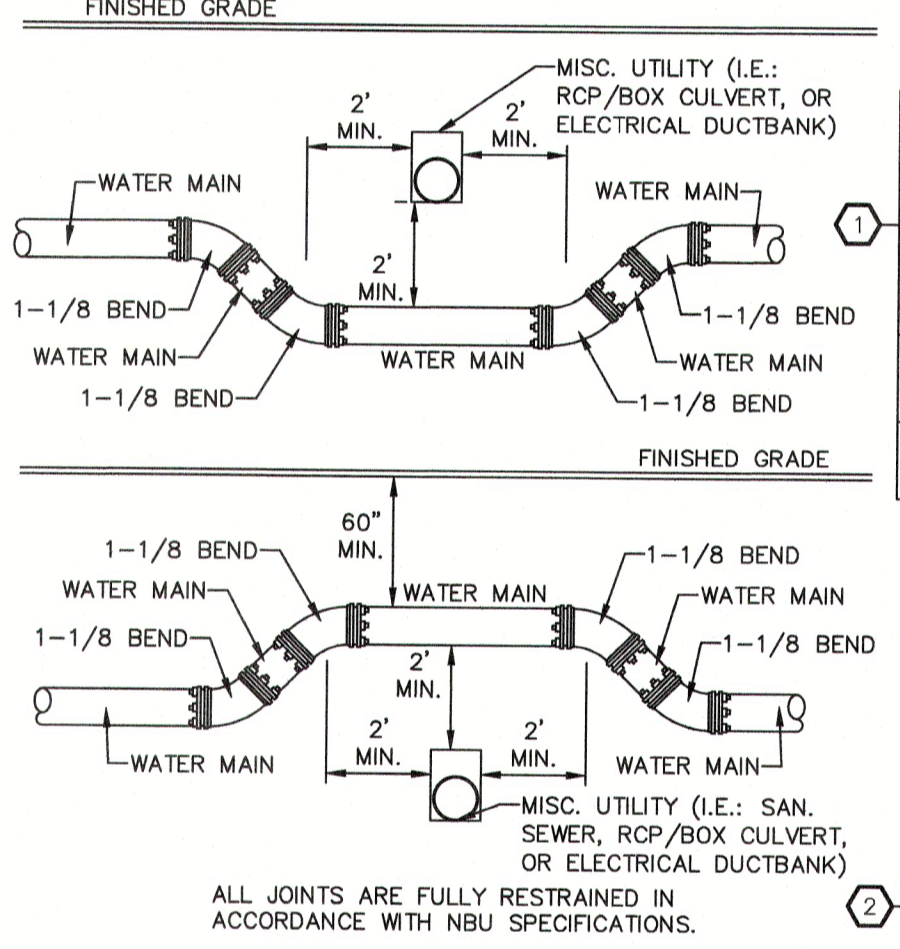
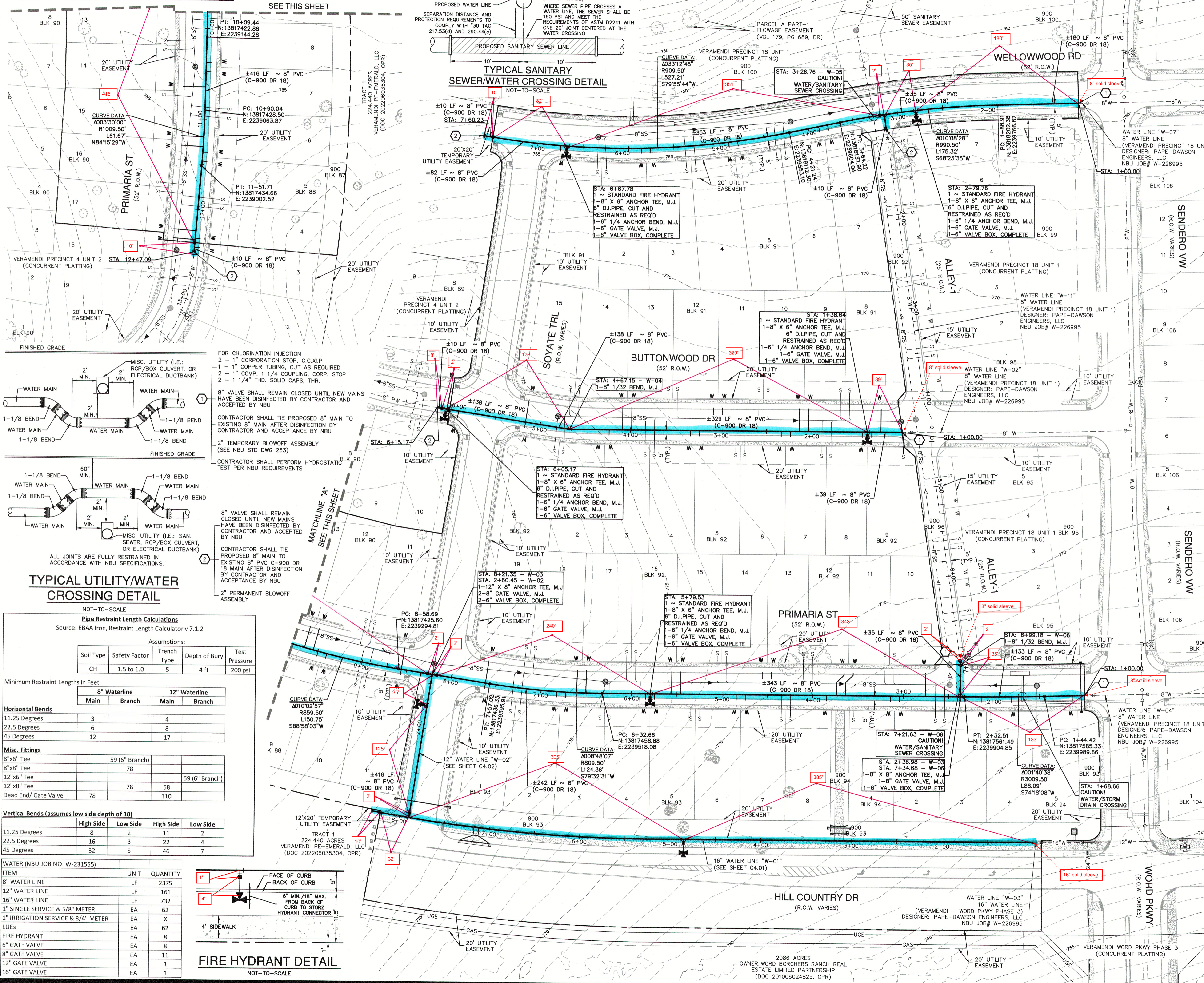
DATE: _____
NO. REVISION: _____

9-26-2024
JOCELYN PEREZ
98367
REGISTERED PROFESSIONAL ENGINEER
Texas
Professional Engineer
Joelyn Perez

PAPE-DAWSON ENGINEERS
1672 INDEPENDENCE DR. STE 102 | NEW BRAUNFELS, TX 78132 | 800.632.5683
TEXAS ENGINEERING FIRM #479 | TEXAS SURVEYING FIRM #1008480

VERAMENDI PRECINCT 4 UNIT 1
NEW BRAUNFELS, TEXAS
OVERALL WATER DISTRIBUTION PLAN

PLAT NO. _____
JOB NO. 30001-65
DATE 09-05-2023
DESIGNER GDL
CHECKED GDL DRAWN CA
SHEET **C4.00**



TYPICAL UTILITY/WATER CROSSING DETAIL
NOT-TO-SCALE

Pipe Restraint Length Calculators
Source: EBAA Iron, Restraint Length Calculator v 7.1.2

Assumptions:

Soil Type	Safety Factor	Trench Type	Depth of Bury	Test Pressure
CH	1.5 to 1.0	5	4 ft	200 psi

Minimum Restraint Lengths in Feet

Horizontal Bends	8" Waterline		12" Waterline	
	Main	Branch	Main	Branch
11.25 Degrees	3	4	4	5
22.5 Degrees	6	8	8	10
45 Degrees	12	17	17	22

Misc. Fittings

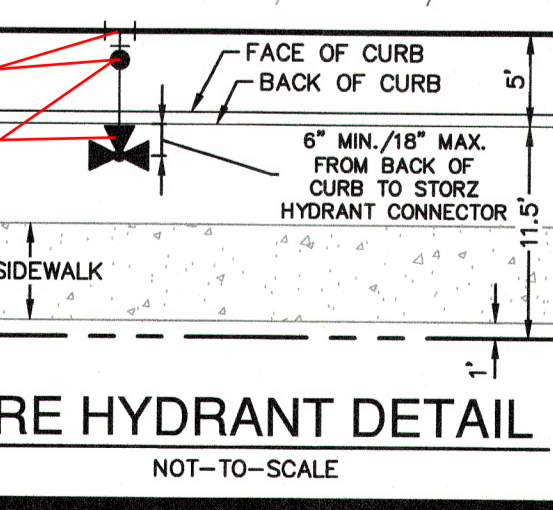
Fitting	8" (6" Branch)	12" (6" Branch)
8"x6" Tee	59	78
8"x8" Tee	78	110
12"x6" Tee	78	110
12"x8" Tee	78	110
Dead End/Gate Valve	78	110

Vertical Bends (assumes low side depth of 10')

Vertical Bends	High Side		Low Side	
	High Side	Low Side	High Side	Low Side
11.25 Degrees	8	2	11	2
22.5 Degrees	16	3	22	4
45 Degrees	32	5	46	7

WATER (NBU JOB NO. W-231555)

ITEM	UNIT	QUANTITY
8" WATER LINE	LF	2375
12" WATER LINE	LF	161
16" WATER LINE	LF	732
1" SINGLE SERVICE & 5/8" METER	EA	62
1" IRRIGATION SERVICE & 3/4" METER	EA	X
LUES	EA	62
FIRE HYDRANT	EA	8
6" GATE VALVE	EA	8
8" GATE VALVE	EA	11
12" GATE VALVE	EA	1
16" GATE VALVE	EA	1



FIRE HYDRANT DETAIL
NOT-TO-SCALE

Date: March 8, 2023, 3:56 PM - User: j_equival
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