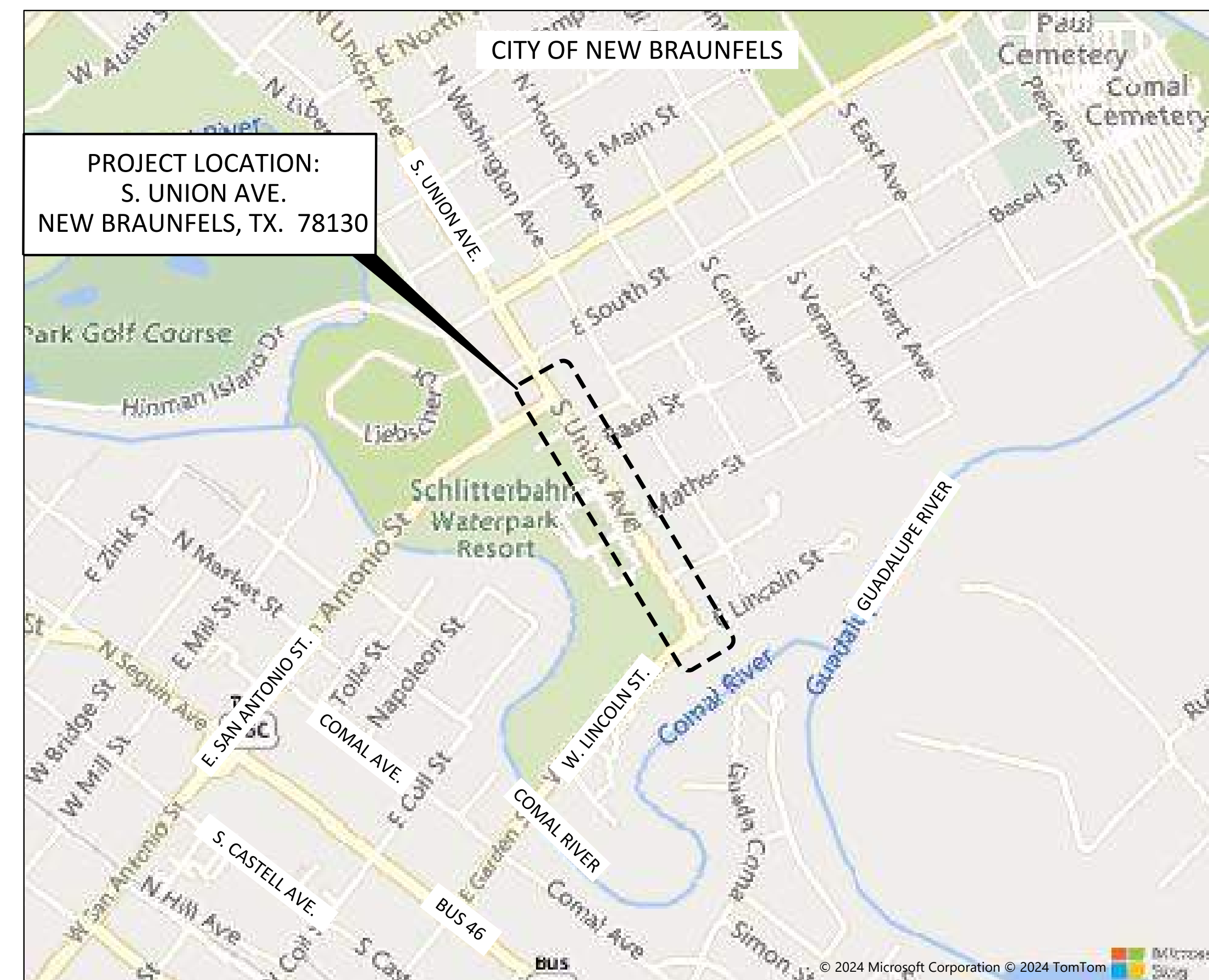
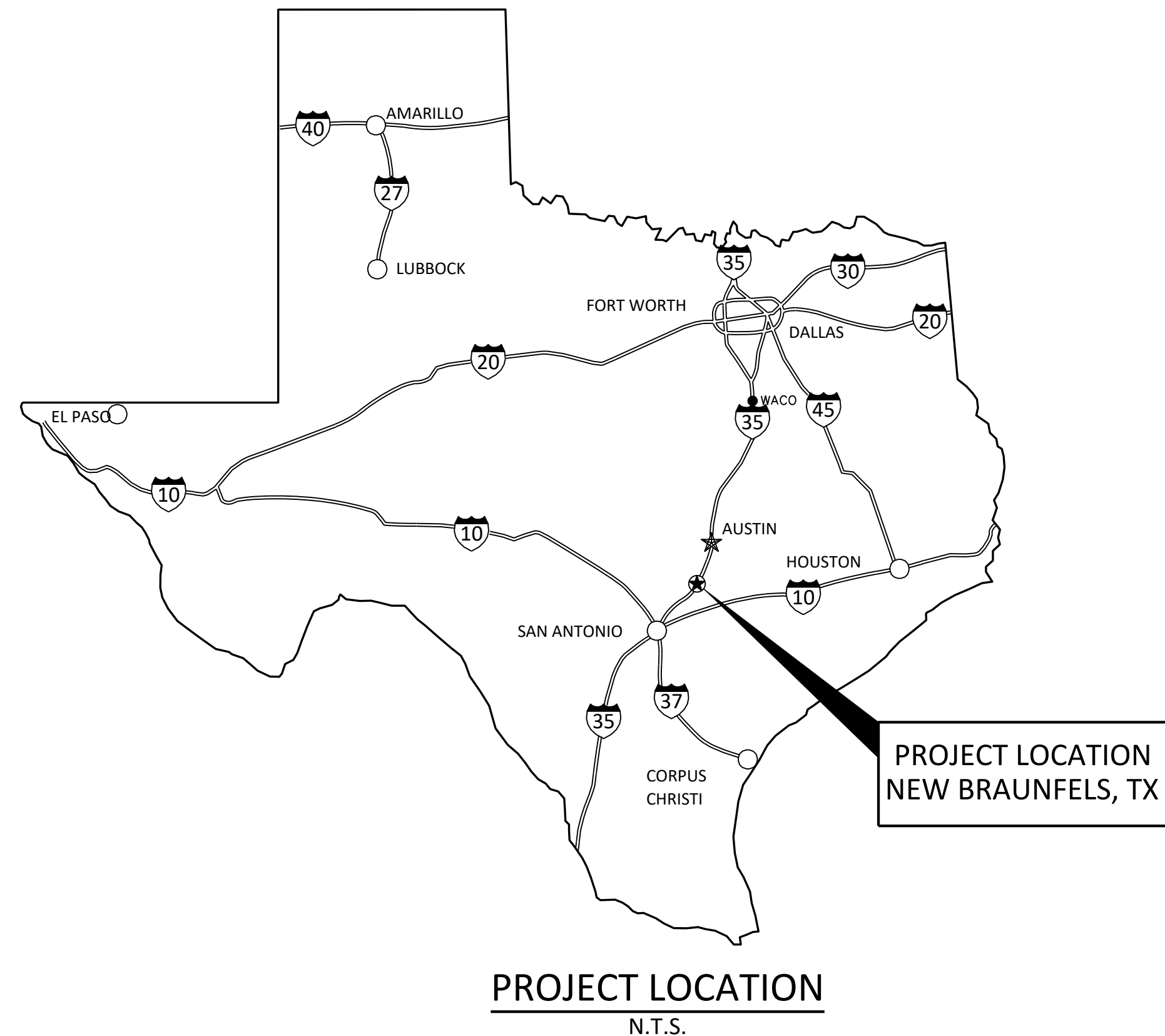


NEW BRAUNFELS UTILITIES

S. UNION AVE

WATER LINE IMPROVEMENTS



VICINITY MAP
N.T.S.



JUNE 2024

100% SUBMITTAL

WATER IS A PRECIOUS COMMODITY IN THE STATE OF TEXAS AND NEW BRAUNFELS UTILITIES (NBU) IS PASSIONATE ABOUT PROTECTING THE LOCAL RESOURCE. NBU'S CONTRACTOR SHALL BE FULLY RESPONSIBLE FOR ACQUIRING A FIRE HYDRANT METER SO THAT ALL WATER USED FOR CONSTRUCTION OR TESTING PURPOSES ARE PROPERLY ACCOUNTED FOR. NBU WILL NOT TOLERATE ANY WATER THEFT, REGARDLESS OF THE AMOUNT. IF WATER THEFT IS DISCOVERED NBU'S CONTRACTOR SHALL BE SUBJECT TO MONETARY PENALTIES, CRIMINAL CHARGES, AND STOPPAGE OF ALL CONSTRUCTION ACTIVITIES RELATED TO THE PROJECT. COSTS ASSOCIATED WITH ANY WORK STOPPAGE RESULTING FROM WATER THEFT SHALL BE AT THE FULL EXPENSE OF THE CONTRACTOR.



9601 McAllister Freeway, Suite 1008
San Antonio, Texas 78216
Phone - (210) 298-3800
Web - www.freese.com

FNI PROJECT NO. NBU22825-06S



Freese and Nichols, Inc.
Texas Registered Engineering Firm F-2144

SHEET INDEX

SHEET # DESCRIPTION

COVER

GENERAL

- G-1 - SHEET INDEX AND LEGEND
- G-2 - GENERAL NOTES
- G-3 - TCEQ NOTES
- G-4 - OVERALL PROJECT LAYOUT


CIVIL


- W-1 - STA. 1+00 TO STA. 9+00
- W-2 - STA. 9+00 TO END


DETAILS


- DT-1 - STANDARD DETAILS I
- DT-2 - WATER DETAILS I
- DT-3 - WATER DETAILS II
- DT-4 - WATER DETAILS III
- DT-5 - WATER DETAILS IV


EXISTING SYMBOL LEGEND


-  CONTROL POINT SET


 1/2 INCH IRON ROD FOUND


 SANITARY SEWER MANHOLE


 CLEAN OUT


 STORM SEWER MANHOLE


 TELEPHONE MANHOLE


 VENT PIPE


 POWER POLE


 GUY WIRE


 WATER METER


 WATER VALVE


 FIRE HYDRANT


 TELEPHONE PEDESTAL


 ELECTRIC JUNCTION BOX


 ELECTRIC METER


 ELECTRICAL CONDUIT


 TRAFFIC SIGNAL LIGHT POLE


 TREE


 LANDSCAPE BUSH


 LANDSCAPE LIGHT


 SIGN


 BOLLARD


 MAIL BOX



 FLAG POLE

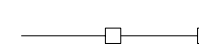
 SPIGOT

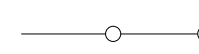
 SPRINKLER HEAD


 METAL POST


 FIRE HYDRANT


 FIRE DEPARTMENT CONNECTION
-  OVERHEAD UTILITY LINE

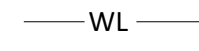
 CABLE FENCE

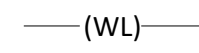
 PIPE FENCE


 APPARENT RIGHT-OF-WAY/BOUNDARY


 WASTEWATER LINE


 STORM LINE


 WATER LINE

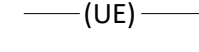
 WATER LINE [PER GIS]


 UNDERGROUND TELEPHONE LINE

 UNDERGROUND FIBER OPTIC LINE

 GAS LINE

 UNDERGROUND ELECTRIC

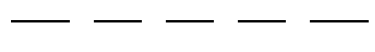
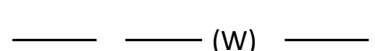

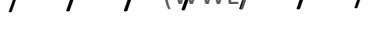
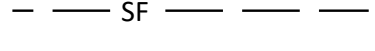

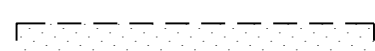
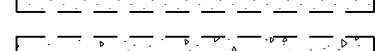



 UNDERGROUND ELECTRIC (PER GIS)

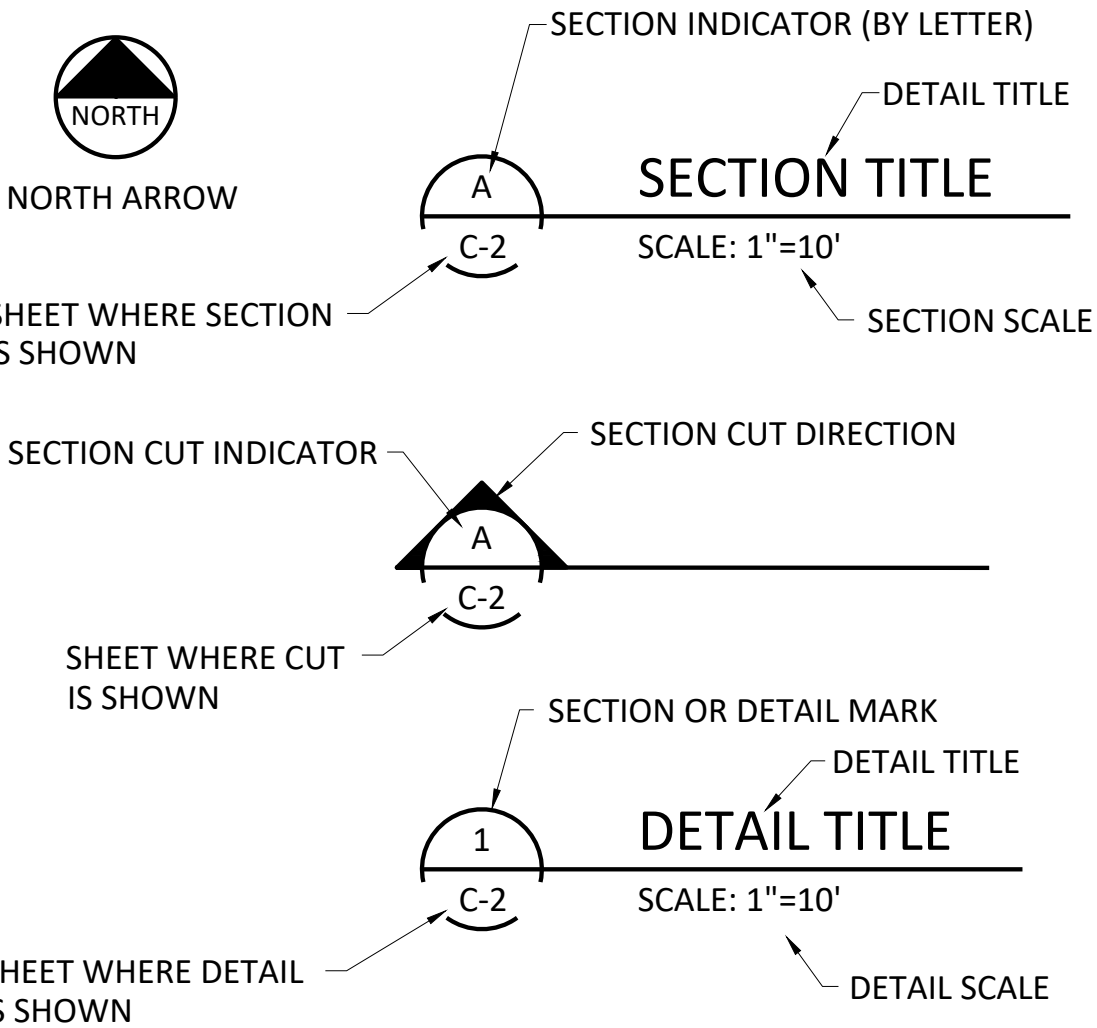
 APPROXIMATE FLOOD LINE

ABBREVIATIONS

PROP.	PROPOSED
EXIST.	EXISTING
TOC	PROP. TOP OF CONCRETE ELEVATION
FF	PROP. BUILDING FINISH FLOOR ELEVATION
FL	PROP. FLOW LINE ELEVATION
CL	CENTER LINE
R.O.W.	RIGHT OF WAY
TBM	TEMPORARY BENCH MARK
WL	WATER LINE
WWL	WASTEWATER LINE
SS	SANITARY SEWER
DI	DUCTILE IRON
MJ	MECHANICAL JOINT
CAV	COMBINATION AIR/VACUUM VALVE
ARV	AIR RELEASE VALVE
SAN.	SANITARY
T.O.P.	TOP OF PIPE ELEVATION
T.O.S.	TOP OF SLAB ELEVATION
TP1594.50	PROP. TOP OF PAVEMENT ELEVATION
NG	NATURAL GROUND
MH	MANHOLE
V.C.	VITRIFIED CLAY
A.C.	ASBESTOS CEMENT
BFV	BUTTERFLY VALVE
NSPI	NO SEPARATE PAY ITEM
NOI	NOTICE OF INTENT
NOT	NOTICE OF TERMINATION
TPT	TRAVERSE POINT

PROPOSED LEGEND

-  PERMANENT OR TEMPORARY EASEMENT
-  PROP. WATER LINE
-  UTILITY TO BE ABANDONED OR REMOVED
-  PROP. SILT FENCE
-  ASPHALT PAVEMENT REPAIR
-  ASPHALT PAVEMENT MILL AND OVERLAY REPAIR
-  CONCRETE PAVEMENT REPAIR
-  GRASS RESTORATION
-  CONTROL POINT
-  FIRE HYDRANT
-  FLOW ARROW



100% SUBMITTAL

Freeze and Nichols, Inc.
Texas Registered Engineering Firm F-2144



9601 McAllister Freeway, Suite 1008
San Antonio, Texas 78216
Phone - (210) 298-3800
Web - www.freeze.com

NEW BRAUNFELS UTILITIES
S. UNION AVE. WATER LINE
IMPROVEMENTS

GENERAL

SHEET INDEX AND LEGEND

F&N JOB NO.

NBU22825-065

DATE

6/6/2024

BY

DESIGNED

NR

DRAWN

NR

REVIS

EWL

CHECKED

DTB

FILE NAME

GN-ALL-NOTES.dwg

NO.

ISSUE

SHEET

G-1

SEQ.

Bar is one inch on original
drawing. If not one inch on
this sheet, adjust scale.

VERIFY SCALE
0 1

ACAD Ref: 24.2s (LMS Tech)
Filename: N:\STANDARD\NBU22825_065 Union Ave\GN-ALL-NOTES.dwg
Last Saved: 6/6/2024 10:26 PM. Saved By: 02568

UTILITY COMPANY NOTIFICATION:

CONTRACTOR SHALL NOTIFY THE FOLLOWING UTILITY COMPANIES 48 HOURS PRIOR TO EXCAVATION:

NEW BRAUNFELS UTILITIES	830-629-8400
(SEWER, WATER , ELECTRIC)	
SPECTRUM	866-874-2389
AT&T	800-288-2020
CENTERPOINT GAS	888-200-3788
TEXAS ONE CALL	811 OR 800-344-8377

CITY OF NEW BRAUNFELS CONSTRUCTION NOTES: 3/2020

- IF CONSTRUCTION HAS NOT COMMENCED WITHIN ONE-YEAR OF CITY APPROVAL FOR CONSTRUCTION INSPECTION, THAT APPROVAL IS NO LONGER VALID.
- THE MOST CURRENT EDITIONS OF THE CITY OF SAN ANTONIO STANDARD SPECIFICATIONS AND THE TEXAS DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR CONSTRUCTION OF HIGHWAYS, STREETS AND BRIDGES SHALL BE FOLLOWED FOR ALL CONSTRUCTION EXCEPT AS AMENDED BY THE CITY OF NEW BRAUNFELS STANDARD DETAILS.
- ALL RESPONSIBILITY FOR THE ADEQUACY OF THESE PLANS REMAINS WITH THE ENGINEER OF RECORD. IN ACCEPTING THESE PLANS, THE CITY OF NEW BRAUNFELS MUST RELY UPON THE ADEQUACY OF THE WORK OF THE ENGINEER OF RECORD.
- PRIOR TO THE START OF CONSTRUCTION, THE CONTRACTOR SHALL CONTACT THE CITY OF NEW BRAUNFELS TO SCHEDULE A PRECONSTRUCTION MEETING.
- FOR PUBLIC INFRASTRUCTURE PERMIT OR GRADING PERMIT PROJECTS:
 - FOR INSPECTIONS, YOU MUST CALL BEFORE 12:00 P.M., 48 HOURS PRIOR TO YOUR INSPECTION REQUEST.
 - EACH INSPECTION WILL BE ALLOTTED 1 HOUR UNLESS YOU REQUEST FOR MORE TIME.
 - ONCE YOUR REQUEST HAS BEEN ACCEPTED, YOU WILL RECEIVE A CALL FROM THE CITY OF NEW BRAUNFELS INSPECTOR.
- FOR COMMERCIAL PERMIT (CP) PROJECTS:
 - ALL INSPECTIONS ARE TO BE CALLED IN AT 830-221-4068 OR,
 - FAKED IN AT 830-608-2117 OR,
 - E-MAILED AT INSPECTIONS@NBTEXAS.ORG.
- IT IS THE CONTRACTOR'S RESPONSIBILITY TO SEE THAT ALL TEMPORARY AND PERMANENT TRAFFIC CONTROL DEVICES ARE PROPERLY INSTALLED AND MAINTAINED IN ACCORDANCE WITH THE PLANS AND LATEST EDITION OF THE TEXAS MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES. IF, IN THE OPINION OF THE ENGINEERING REPRESENTATIVE AND THE CONSTRUCTION INSPECTOR, THE BARRICADES AND SIGNS DO NOT CONFORM TO ESTABLISHED STANDARDS OR ARE INCORRECTLY PLACED OR ARE INSUFFICIENT IN QUANTITY TO PROTECT THE GENERAL PUBLIC, THE CONSTRUCTION INSPECTOR SHALL HAVE THE OPTION TO STOP OPERATIONS UNTIL SUCH TIME AS THE CONDITIONS ARE CORRECTED. IF THE NEED ARISES, ADDITIONAL TEMPORARY TRAFFIC CONTROL DEVICES MAY BE ORDERED BY THE ENGINEERING REPRESENTATIVE AT THE CONTRACTOR'S EXPENSE.
- A TXDOT TYPE II B-B BLUE REFLECTIVE RAISED PAVEMENT MARKER SHALL BE INSTALLED IN THE CENTER OF THE ROADWAY ADJACENT TO ALL FIRE HYDRANTS. IN LOCATIONS WHERE HYDRANTS ARE SITUATED ON CORNERS, BLUE REFLECTIVE RAISED PAVEMENT MARKERS SHALL BE INSTALLED ON BOTH APPROACHES WHICH FRONT THE HYDRANT. THE RAISED PAVEMENT MARKER SHALL MEET TXDOT MATERIAL, EPOXY AND ADHESIVE SPECIFICATIONS.

GROUNDWATER

- IT SHALL BE THE RESPONSIBILITY OF THE DEVELOPER, CONTRACTOR, SUBCONTRACTORS, BUILDERS, GEO-TECHNICAL ENGINEER, AND PROJECT ENGINEER TO IMMEDIATELY NOTIFY THE OFFICE OF THE CITY ENGINEER AND PROJECT ENGINEER IF THE PRESENCE OF GROUNDWATER WITHIN THE SITE IS EVIDENT. UPON NOTIFICATION THE PROJECT ENGINEER SHALL RESPOND WITH PLAN REVISIONS FOR THE MITIGATION OF THE GROUNDWATER ISSUE. THE CITY ENGINEER SHALL RESPOND WITHIN TWO (2) BUSINESS DAYS UPON RECEIPT OF THE MITIGATION PLAN. ALL CONSTRUCTION ACTIVITY, IMPACTED BY THE DISCOVERY OF GROUNDWATER, SHALL BE SUSPENDED UNTIL THE CITY ENGINEER GRANTS A WRITTEN APPROVAL OF THE GROUNDWATER MITIGATION PLAN.

RECORD DRAWINGS

- AS PER PLATTING ORDINANCE SECTION 118-38M.: WHEN ALL OF THE IMPROVEMENTS ARE FOUND TO BE CONSTRUCTED AND COMPLETED IN ACCORDANCE WITH THE APPROVED PLANS AND SPECIFICATIONS AND WITH THE CITY'S STANDARDS, AND UPON RECEIPT OF ONE SET OF "RECORD DRAWING" PLANS, AND A DIGITAL COPY OF ALL PLANS (PDF COPY) THE CITY ENGINEER SHALL ACCEPT SUCH IMPROVEMENTS FOR THE CITY OF NEW BRAUNFELS, SUBJECT TO THE GUARANTY OF MATERIAL AND WORKMANSHIP PROVISIONS IN THIS SECTION.

CONSTRUCTION NOTE

- ENGINEER OF RECORD IS RESPONSIBLE TO ENSURE THAT EROSION CONTROL MEASURES AND STORMWATER CONTROL SUFFICIENT TO MITIGATE OFF SITE IMPACTS ARE IN PLACE AT ALL STAGES OF CONSTRUCTION.

DRAINAGE NOTE

- DRAINAGE IMPROVEMENTS SUFFICIENT TO MITIGATE THE IMPACT OF CONSTRUCTION SHALL BE INSTALLED PRIOR TO ADDING IMPERVIOUS COVER.

FINISHED FLOOR ELEVATIONS

- THE ELEVATION OF THE LOWEST FLOOR SHALL BE AT LEAST 10 INCHES ABOVE THE FINISHED GRADE OF THE SURROUNDING GROUND, WHICH SHALL BE SLOPED IN A FASHION SO AS TO DIRECT STORMWATER AWAY FROM THE STRUCTURE. PROPERTIES ADJACENT TO STORMWATER CONVEYANCE STRUCTURES MUST HAVE FLOOR SLAB ELEVATION OR BOTTOM OF FLOOR JOISTS A MINIMUM OF ONE FOOT ABOVE THE 100-YEAR WATER FLOW ELEVATION IN THE STRUCTURE. DRIVEWAYS SERVING HOUSES ON THE DOWNHILL SIDE OF THE STREET SHALL HAVE A PROPERLY SIZED CROSS SWALE PREVENTING RUNOFF FROM ENTERING THE GARAGE.

SOILS TESTING

- PROCTORS SHALL BE SAMPLED FROM ON-SITE MATERIAL (ON-SITE IS DEFINED AS LIMITS OF CONSTRUCTION FOR THIS (-PLAN SET) AND A COPY OF THE PROCTOR RESULTS SHALL BE DELIVERED TO THE CITY OF NEW BRAUNFELS STREET INSPECTOR PRIOR TO ANY DENSITY TESTS.
- ALL ROADWAY COMPACTION TESTS SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR'S GEOTECHNICAL ENGINEER. FLEXIBLE BASE OR FILL/EMBANKMENT MATERIAL SHALL BE PLACED IN UNIFORM LAYERS NOT TO EXCEED EIGHT INCHES (8") LOOSE. THE REQUIRED DENSITY FOR THE FILL/EMBANKMENT MATERIAL SHALL MEET THE REQUIREMENTS OF TXDOT'S SPECIFICATION ITEM 132. THE REQUIRED DENSITY FOR THE FLEXIBLE BASE MATERIAL SHALL MEET THE REQUIREMENTS OF TXDOT'S SPECIFICATION ITEM 247. EACH LAYER OF MATERIAL, INCLUSIVE OF SUBGRADE, SHALL BE COMPACTED AS SPECIFIED AND TESTED FOR DENSITY AND MOISTURE IN ACCORDANCE WITH TEST METHODS 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. UPON COMPLETION OF TESTING, THE GEOTECHNICAL ENGINEER WILL PROVIDE THE CITY OF NEW BRAUNFELS STREET INSPECTOR WITH ALL TESTING DOCUMENTATION AND A CERTIFICATION STATING THAT THE PLACEMENT OF FLEXIBLE BASE, AND FILL MATERIAL, AND SUBGRADE, HAS BEEN COMPLETED IN ACCORDANCE WITH THE PLANS. ADDITIONAL DENSITY TESTS MAY BE REQUESTED BY THE CITY OF NEW BRAUNFELS INSPECTOR.

ITEM 340

- ASPHALTIC CONCRETE PAVEMENT SHALL BE THE TYPE OF HOT MIX ASPHALT AS DEFINED IN TXDOT'S STANDARD SPECIFICATIONS FOR CURRENT TXDOT STANDARD SPECIFICATIONS FOR CONSTRUCTION OF HIGHWAYS, STREET AND BRIDGES.
- THE CITY OF NEW BRAUNFELS WILL NOT ACCEPT THE USE OF RECYCLED ASPHALT PAVEMENT (RAP) OR RECYCLED ASPHALT SHINGLES (RAS) IN ASPHALT MIXTURES FOR NEW ROADWAYS. ANY DEBRIS INCLUSIONS WITHIN NEW ASPHALT PAVEMENTS WILL RESULT IN ASPHALT REMOVAL AND REPLACEMENT FROM CURB TO CURB FOR LIMITS TO BE DETERMINED BY THE CITY OF NEW BRAUNFELS.
- THE ASPHALTIC CONCRETE PAVEMENT SURFACE COURSE SHALL BE PLANT MIXED, HOT LAID TYPE "D" MEETING THE SPECIFICATION REQUIREMENTS OF TXDOT ITEM 340. THE ASPHALTIC CONCRETE PAVEMENT SUB-SURFACE COURSES SHALL BE PLANT MIXED, HOT LAID TYPE "B" MEETING THE SPECIFICATION REQUIREMENTS OF TXDOT ITEM 340. THE MIXTURE SHALL BE DESIGNED PER THE DESIGN REQUIREMENTS SPECIFIED IN TXDOT ITEM 340 AND SHALL BE COMPACTED TO BETWEEN 91 AND 95 PERCENT OF THE MAXIMUM THEORETICAL DENSITY AS DETERMINED BY TXDOT TEST METHOD TEX-227-F. PLACE THE MIXTURE WHEN THE ROADWAY SURFACE TEMPERATURE IS AT OR ABOVE 60°F. COMPLETE ALL COMPACTION OPERATIONS BEFORE THE PAVEMENT TEMPERATURE DROPS BELOW 160°F. THE ASPHALT CEMENT CONTENT BY PERCENT OF TOTAL MIXTURE WEIGHT SHALL FALL WITHIN A TOLERANCE OF +0.5 PERCENT FROM A SPECIFIC MIX DESIGN.

UTILITY TRENCH COMPACTION

- ALL UTILITY TRENCH COMPACTION TESTS WITHIN THE STREET PAVEMENT/SIDEWALK SECTION SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR'S GEOTECHNICAL ENGINEER. FILL MATERIAL SHALL BE PLACED IN UNIFORM LAYERS NOT TO EXCEED TWELVE INCHES (12") LOOSE. 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 TEST METHODS 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 COMPLETED IN ACCORDANCE WITH THE PLANS. ADDITIONAL DENSITY TESTS MAY BE REQUESTED BY THE CITY OF NEW BRAUNFELS INSPECTOR.
- THIS PROJECT INCLUDES UTILITY INSTALLATIONS GREATER THAN 5-FEET IN DEPTH LOCATED IN PUBLIC RIGHT-OF-WAY OR EASEMENTS. DEEP TRENCHES POSE COMPACTION TESTING AND CONSTRUCTION CHALLENGES AND CITY METHODS FOR TESTING AND COMPACTION MAY NOT BE ACHIEVABLE. A UTILITY COMPACTION PLAN WILL BE REQUIRED AND MUST BE SUBMITTED FOR APPROVAL TO CITY PRIOR TO UTILITY INSTALLATION.

CONSTRUCTION STABILIZED ENTRANCE

- SAWCUT CURB FOR CONSTRUCTION ENTRANCE.

- STABILIZED CONSTRUCTION AREA SHALL BE CONSTRUCTED OF 3"x5" ROCK TO BE PLACED A MINIMUM LENGTH OF 25-FT. AND MAINTAINED SO THAT CONSTRUCTION DEBRIS DOES NOT FALL WITHIN THE CITY RIGHT-OF-WAY. RIGHT-OF-WAY MUST BE CLEARED FROM MUD, ROCKS, ETC. AT ALL TIMES.

SIGNING AND PAVEMENT MARKING PLAN NOTES

- THE CONTRACTOR SHALL FURNISH AND INSTALL ALL REGULATORY AND WARNING SIGNS, STREETS NAME SIGNS AND SIGN MOUNTS IN ACCORDANCE WITH APPROVED ENGINEERING PLANS. THE CITY WILL INSPECT ALL SIGNS AT FINAL INSPECTION.
- THE CONTRACTOR SHALL INSTALL ALL PAVEMENT MARKINGS IN ACCORDANCE WITH APPROVED ENGINEERING PLANS. THE CONTRACTOR SHALL NOTIFY THE CITY AT LEAST TWENTY-FOUR (24 HOURS PRIOR TO THE INSTALLATION OF ALL SEALER AND FINAL MARKINGS. THE CITY WILL INSPECT ALL MARKINGS AT FINAL APPLICATION.

SEEDING AND ESTABLISHMENT OF VEGETATION WITHIN EARTHEN CHANNELS, STORMWATER BASINS AND DISTURBED AREAS

- SEEDING FOR THE PURPOSE OF ESTABLISHING VEGETATION WITHIN CONSTRUCTED EARTHEN CHANNELS, BASINS AND DISTURBED AREAS SHALL BE CONDUCTED IN ACCORDANCE WITH ITEM 164 (SEEDING FOR EROSION CONTROL OF TXDOT'S STANDARD SPECIFICATIONS FOR CONSTRUCTION AND MAINTENANCE OF HIGHWAYS, STREETS AND BRIDGES MANUAL. ONLY SEED TYPES AND MIXES SPECIFIED FOR THE SAN ANTONIO DISTRICT (DISTRICT 15 IN TABLES 1 AND 2 UNDER ITEM 164) SHALL BE UTILIZED. DURING THE COOL SEASON (SEPT 1-NOV 30), CEREAL RYE AND SEED SPECIES SPECIFIED FOR THE SAN ANTONIO DISTRICT IN TABLE 3 MAY BE USED. FOR COOL SEASON SEEDING APPLICATIONS, COOL SEASON SEED MIXES SHALL BE USED IN CONJUNCTION WITH SEED MIXES FOR THE SAN ANTONIO DISTRICT AS SPECIFIED IN TABLE 1 AND 2 UNDER ITEM 164.
- IT MAY BE DEEMED NECESSARY TO INCORPORATE TOPSOIL AND SOIL AMENDMENTS (I.E. COMPOST/ FERTILIZER) INTO EXISTING SOIL IN ORDER TO FACILITATE VEGETATION GROWTH. TOPSOIL, COMPOST AND FERTILIZER ADDITIONS SHALL BE CONDUCTED ACCORDING TO ITEMS 160, 161 AND 166 OF TXDOT'S STANDARD SPECIFICATIONS MANUAL, RESPECTIVELY.
- AREAS REQUIRING PERMANENT VEGETATION (EARTHEN CHANNELS, PONDS, ETC.) ARE REQUIRED TO MEET TXDOT SPECIFICATIONS FOR ITEM 160 TOPSOIL. TESTING PER TEX-128-E WILL BE REQUIRED AT THE CITY'S REQUEST.
- WATERING MAY ALSO BE NECESSARY TO FACILITATE AND EXPEDITE THE SPROUTING AND GROWTH OF VEGETATION. ITEM 168 OF TXDOT'S STANDARD SPECIFICATIONS MANUAL SHALL BE ADHERED TO FOR VEGETATIVE WATERING.
- IF EXTENDED DROUGHT CONDITIONS EXIST THAT HINDER OR PROHIBIT THE GROWTH AND ESTABLISHMENT OF VEGETATION, THE CONTRACTOR/ DEVELOPER SHALL PROVIDE A PLAN TO THE CITY OF NEW BRAUNFELS DESCRIBING THE MEASURES THAT WILL BE TAKEN TO STABILIZE EARTHEN DRAINAGE INFRASTRUCTURE UNTIL A TIME WHEN GROWING CONDITIONS BECOME MORE FAVORABLE.

GENERAL NOTES:

- CONTRACTOR SHALL ALLOW 24-HOUR ACCESS AND ENSURE ACCESSIBILITY TO ENTIRE SITE FOR NBU AND OTHER CONTRACTORS.
- CONTRACTOR SHALL COORDINATE AND SEQUENCE WORK WITH CONSTRUCTION BY OTHER CONTRACTORS.
- SWPPP WILL BE PREPARED AND IMPLEMENTED BY CONTRACTOR.
- CONTRACTOR TO MAINTAIN DRIVEWAY ACCESS TO PROPERTY OWNER AND CUSTOMERS AT ALL TIMES. PIPELINE INSTALLATION THROUGH DRIVEWAYS (FROM EXCAVATION TO PAVEMENT RESTORATION) SHALL BE LIMITED TO 3 CONSECUTIVE DAYS UNLESS OTHERWISE APPROVED BY NBU OR ENGINEER.
- NOT ALL WATER AND SEWER SERVICES WERE LOCATED BY THE SURVEYOR. CONTRACTOR TO VERIFY LOCATION OF ALL SERVICES SO AS NOT TO STRAND ANY PROPERTY OWNER.

Freeze and Nichols, Inc.
Texas Registered Engineering Firm F-2144

6-07-2024



9601 McAllister Freeway, Suite 1008
San Antonio, Texas 78216
Phone - (210) 298-3800
Web - www.freeze.com

NEW BRAUNFELS UTILITIES
S. UNION AVE. WATER LINE
IMPROVEMENTS

GENERAL

GENERAL NOTES

F&N JOB NO.	NBU22825-065
DATE	6/6/2024
DESIGNED	NR
DRAWN	EWL
REVISED	
CHECKED	DTB

BY	DATE	FILE NAME
		GN-ALL-NOTES.dwg

NO.	ISSUE	VERIFY SCALE
		0
		1
		Bar: is one inch on original drawing. If not one inch on this sheet, adjust scale.

SHEET

G-2

SEQ.

100% SUBMITTAL

GENERAL CONSTRUCTION NOTES:

1. THIS WATER DISTRIBUTION SYSTEM MUST BE CONSTRUCTED IN ACCORDANCE WITH THE CURRENT TEXAS COMMISSION ON ENVIRONMENTAL QUALITY (TCEQ) RULES AND REGULATIONS FOR PUBLIC WATER SYSTEMS 30 TEXAS ADMINISTRATIVE CODE (TAC) CHAPTER 290 SUBCHAPTER D. WHEN CONFLICTS ARE NOTED WITH LOCAL STANDARDS, THE MORE STRINGENT REQUIREMENT SHALL BE APPLIED. AT A MINIMUM, CONSTRUCTION FOR PUBLIC WATER SYSTEMS MUST ALWAYS MEET TCEQ'S "RULES AND REGULATIONS FOR PUBLIC WATER SYSTEMS."

- WHERE:
- Q = THE QUANTITY OF MAKEUP WATER IN GALLONS PER HOUR,
 - L = THE LENGTH OF THE PIPE SECTION BEING TESTED, IN FEET,
 - D = THE NOMINAL DIAMETER OF THE PIPE IN INCHES, AND
 - P = THE AVERAGE TEST PRESSURE DURING THE HYDROSTATIC TEST IN POUNDS PER SQUARE INCH (PSI).
- $$Q = \frac{LD\sqrt{P}}{148,000}$$
13. THE HYDROSTATIC LEAKAGE RATE FOR DUCTILE IRON (DI) PIPE AND APPURTENANCES SHALL NOT EXCEED THE AMOUNT ALLOWED OR RECOMMENDED BY FORMULAS IN AMERICA WATER WORKS ASSOCIATION (AWWA) C-600 AS REQUIRED IN 30 TAC §290.44(A)(5). PLEASE ENSURE THAT THE FORMULA FOR THIS CALCULATION IS CORRECT AND MOST CURRENT FORMULA IS IN USE;

WHERE:

- L = THE QUANTITY OF MAKEUP WATER IN GALLONS PER HOUR,
- S = THE LENGTH OF THE PIPE SECTION BEING TESTED, IN FEET,
- D = THE NOMINAL DIAMETER OF THE PIPE IN INCHES, AND
- P = THE AVERAGE TEST PRESSURE DURING THE HYDROSTATIC TEST IN POUNDS PER SQUARE INCH (PSI).

$$L = \frac{SD\sqrt{P}}{148,000}$$

19. THE CONTRACTOR SHALL DISINFECT THE NEW WATERLINES IN ACCORDANCE WITH AWWA STANDARD C-651-14 OR MOST RECENT, THEN FLUSH AND SAMPLE THE LINES BEFORE BEING PLACED INTO SERVICE. SAMPLES SHALL BE COLLECTED FOR MICROBIOLOGICAL ANALYSIS TO CHECK THE EFFECTIVENESS OF THE DISINFECTION PROCEDURE WHICH SHALL BE REPEATED IF CONTAMINATION PERSISTS. A MINIMUM OF ONE SAMPLE FOR EACH 1,000 FEET OF COMPLETED WATERLINE WILL BE REQUIRED OR AT THE NEXT AVAILABLE SAMPLING POINT BEYOND 1,000 FEET AS DESIGNATED BY THE DESIGN ENGINEER (\$290.44(F)(3)).

1. ALL MATERIALS AND CONSTRUCTION PROCEDURES WITHIN THE SCOPE OF THE PROJECT SHALL BE APPROVED BY NEW BRAUNFELS UTILITIES AND COMPLY WITH THE CURRENT "NEW BRAUNFELS UTILITIES WATER SYSTEMS CONNECTION/CONSTRUCTION POLICY".

23. UTILITY TRENCH COMPACTION WITH STREET R.O.W.
- A. ALL UTILITY TRENCH COMPACTION TEST WITHIN THE STREET PAVEMENT SECTION SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR'S GEO-TECHNICAL ENGINEER.
 - B. FILL MATERIAL SHALL BE PLACED IN UNIFORM LAYERS NOT TO EXCEED TWELVE INCHES (12") LOOSE.
 - C. EACH LAYER OF MATERIAL SHALL BE COMPACTED AS SPECIFIED AND TESTED FOR DENSITY AND MOISTURE IN ACCORDANCE WITH TEXT METHODS TEX-113-E, TEX 114-E, TEX-115-E.
 - D. THE NUMBER AND LOCATION OF REQUIRED TESTS SHALL BE DETERMINED BY THE GEO-TECHNICAL ENGINEER AND APPROVED BY THE CITY OF NEW BRAUNFELS STREET INSPECTOR.
 - E. UPON COMPLETION OF TESTING THE GEO-TECHNICAL 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 COMPLETED IN ACCORDANCE WITH THE PLANS.

1. THE POINT OF DELIVERY FOR AN OWNED AND MAINTAINED WATER LINE IS TYPICALLY THE DOMESTIC OR IRRIGATION WATER METER, FIRE LINE UP TO THE CONTAINMENT BACKFLOW DEVICE, OR HYDRANT METER OR AS DETERMINED BY NBU.

1. CONTRACTOR SHALL REVEGETATE DISTURBED AREAS IN A TIMELY MANNER UPON COMPLETION OF WORK. REVEGETATION SHALL BE IN ACCORDANCE WITH PROJECT SPECIFICATIONS.

3. RESTORATION OF THE SITE SHALL OCCUR PRIOR TO FINAL COMPLETION AND SHALL BE IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS.
3. CONTRACTOR SHALL IMPLEMENT BEST MANAGEMENT PRACTICES (BMPs) AS REQUIRED FOR EROSION AND SEDIMENT CONTROL WHETHER SHOWN ON THESE PLANS OR NOT. NO SEPARATE PAY ITEM.
4. SILT FENCING SHALL BE INSTALLED AROUND ALL DIRT STOCK PILES.
5. THE CONTRACTOR SHALL INSTALL EROSION/SEDIMENTATION CONTROLS AND TREE/NATURAL AREA PROTECTIVE FENCING PRIOR TO ANY SITE PREPARATION WORK (CLEARING, GRUBBING OR EXCAVATION).
6. THE PLACEMENT OF EROSION/SEDIMENTATION CONTROLS SHALL BE IN ACCORDANCE WITH THE APPROVED EROSION AND SEDIMENTATION CONTROL PLAN PROVIDED BY THE CONTRACTOR.
9. ANY SIGNIFICANT VARIATION IN MATERIALS OR LOCATIONS OF CONTROLS OR FENCES FROM THOSE SHOWN ON THE APPROVED PLANS WILL REQUIRE A REVISION AND MUST BE APPROVED BY THE REVIEWING ENGINEER.
8. THE CONTRACTOR IS REQUIRED TO INSPECT THE CONTROLS AND FENCES AT WEEKLY INTERVALS AND AFTER SIGNIFICANT RAINFALL EVENTS TO INSURE THAT THEY ARE FUNCTIONING PROPERLY. THE PERSON(S) RESPONSIBLE FOR MAINTENANCE OF CONTROLS AND FENCES SHALL IMMEDIATELY MAKE ANY NECESSARY REPAIRS TO DAMAGED AREAS. SILT ACCUMULATION AT INLET DEVICES SHOULD BE REMOVED WHEN THE DEPTH REACHES SIX (6) INCHES. SILT ACCUMULATION AT INLET DEVICES SHOULD BE REMOVED WHEN THE DEPTH REACHES TWO (2) INCHES.
9. FIELD REVISIONS TO THE EROSION/SEDIMENTATION CONTROL PLAN MAY BE REQUIRED BY THE CITY'S REPRESENTATIVE DURING THE COURSE OF CONSTRUCTION TO CORRECT CONTROL INADEQUACIES. ANY REVISIONS TO THE PERMITTED PLAN MUST BE APPROVED BY THE ENGINEER.
10. PERMANENT EROSION/SEDIMENTATION CONTROL: ALL DISTURBED AREAS SHALL BE RESTORED IN ACCORDANCE WITH THESE PLANS AND THE SPECIFICATIONS.

1. THE INDICATED REQUIREMENTS ARE THE MINIMUM REQUIREMENTS AS REQUIRED BY TCEQ. IF CONFLICTS EXIST BETWEEN THESE NOTES AND AS SPECIFIED IN THE PLANS AND SPECIFICATIONS THE MOST STRINGENT REQUIREMENT SHALL SUPERCEDE AS DETERMINED BY THE ENGINEER.
2. PER TPDES REQUIREMENTS, DISTURBED AREAS ON WHICH CONSTRUCTION ACTIVITIES HAVE CEASED (TEMPORARILY OR PERMANENTLY) SHALL BE STABILIZED WITHIN 14 DAYS UNLESS ACTIVITY RESUMES WITHIN 21 DAYS. SEEDING DOES NOT CONSTITUTE AS STABILIZATION.



**FREES
AND
NICHOLS**

9601 McAllister Freeway, Suite 1008
San Antonio, Texas 78216
Phone - (210) 298-3800
Web - www.freese.com

NEW BRAUNFELS UTILITIES
S. UNION AVE. WATER LINE
IMPROVEMENTS

GENERAL

TCEO NOTES

FRI JOB NO. NBU22825-065		DATE 6/6/2024		DESIGNED NR		DRAWN EWL		REVISD 		CHECKED 		DTB 	
NO. ISSUE		BY DATE		FILE NAME GN-ALL-NOTES.dwg		VERIFY SCALE Bar is one inch on original drawing, if not one inch on this sheet, adjust scale.		0		1			

SEQ.

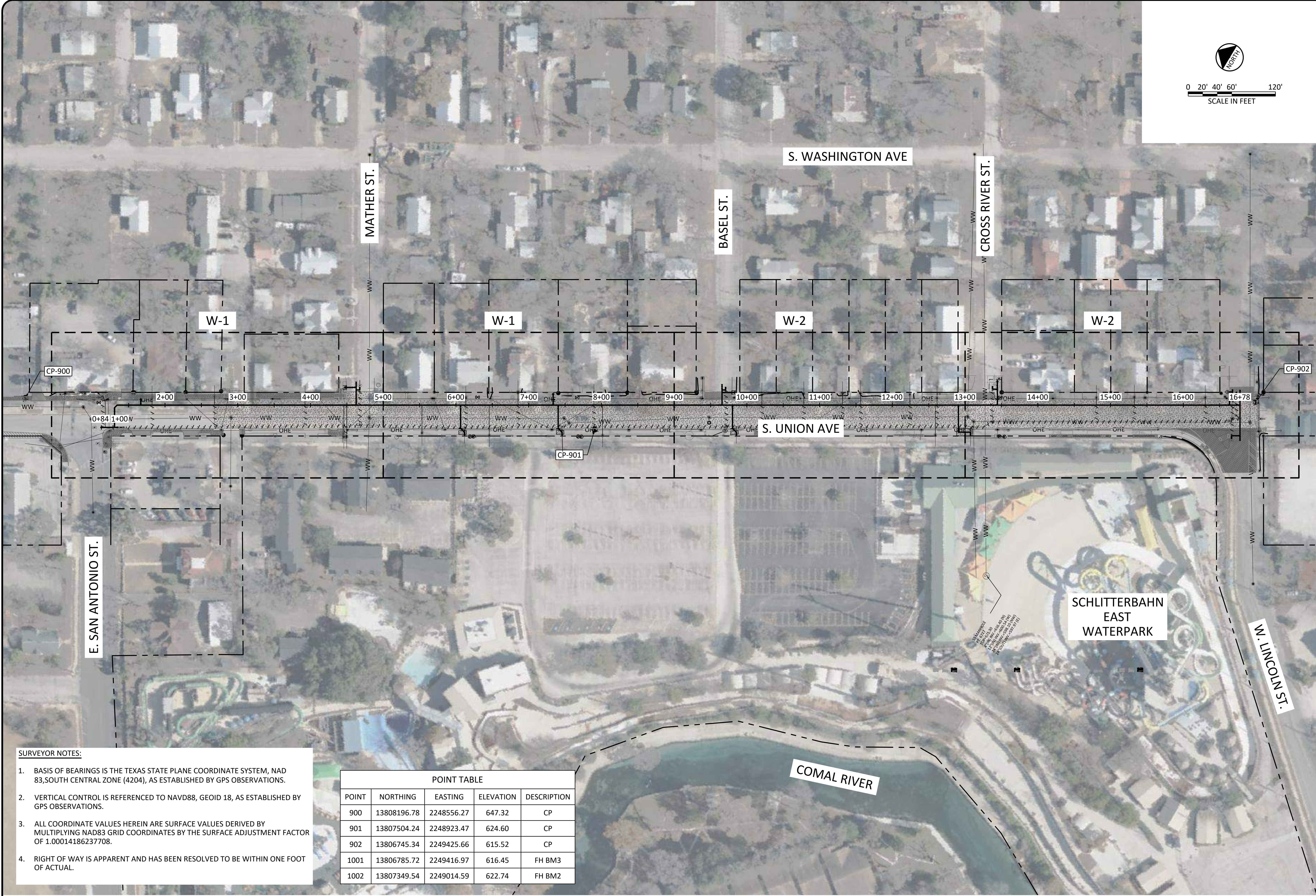
SEQ.

ACAD Ref: 24.2s (LMS Tech)
Filename: N:\WTU\NBU22825_06S Union Ave\Drawings\WTU-NBU-OVRL-SITE.dwg
Last Saved: 5/31/2024 9:57 AM. Saved By: 09688

SURVEYOR NOTES:

- BASIS OF BEARINGS IS THE TEXAS STATE PLANE COORDINATE SYSTEM, NAD 83,SOUTH CENTRAL ZONE (4204), AS ESTABLISHED BY GPS OBSERVATIONS.
- VERTICAL CONTROL IS REFERENCED TO NAVD88, GEOID 18, AS ESTABLISHED BY GPS OBSERVATIONS.
- ALL COORDINATE VALUES HEREIN ARE SURFACE VALUES DERIVED BY MULTIPLYING NAD83 GRID COORDINATES BY THE SURFACE ADJUSTMENT FACTOR OF 1.00014186237708.
- RIGHT OF WAY IS APPARENT AND HAS BEEN RESOLVED TO BE WITHIN ONE FOOT OF ACTUAL.

POINT TABLE				
POINT	NORTHING	EASTING	ELEVATION	DESCRIPTION
900	13808196.78	2248556.27	647.32	CP
901	13807504.24	2248923.47	624.60	CP
902	13806745.34	2249425.66	615.52	CP
1001	13806785.72	2249416.97	616.45	FH BM3
1002	13807349.54	2249014.59	622.74	FH BM2



100% SUBMITTAL

Freeze and Nichols, Inc.
Texas Registered Engineering Firm F-2144

06-07-2024

ERIN C. MILLS
120172
PROFESSIONAL ENGINEER
CIVIL

FREEZE & NICHOLS

9601 McAllister Freeway, Suite 1008
San Antonio, Texas 78216
Phone - (210) 298-3800
Web - www.freeze.com

NEW BRAUNFELS UTILITIES

S. UNION AVE. WATER LINE IMPROVEMENTS

GENERAL

OVERALL PROJECT LAYOUT

F&N JOB NO.
NBU22825-06S

DATE
6/6/2024

DESIGNED
ECM

DRAWN
ESL

REVISED
CHECKED

FILE NAME
WTU-NBU-OVRL-SITE.dwg

NO. ISSUE

BY

DATE

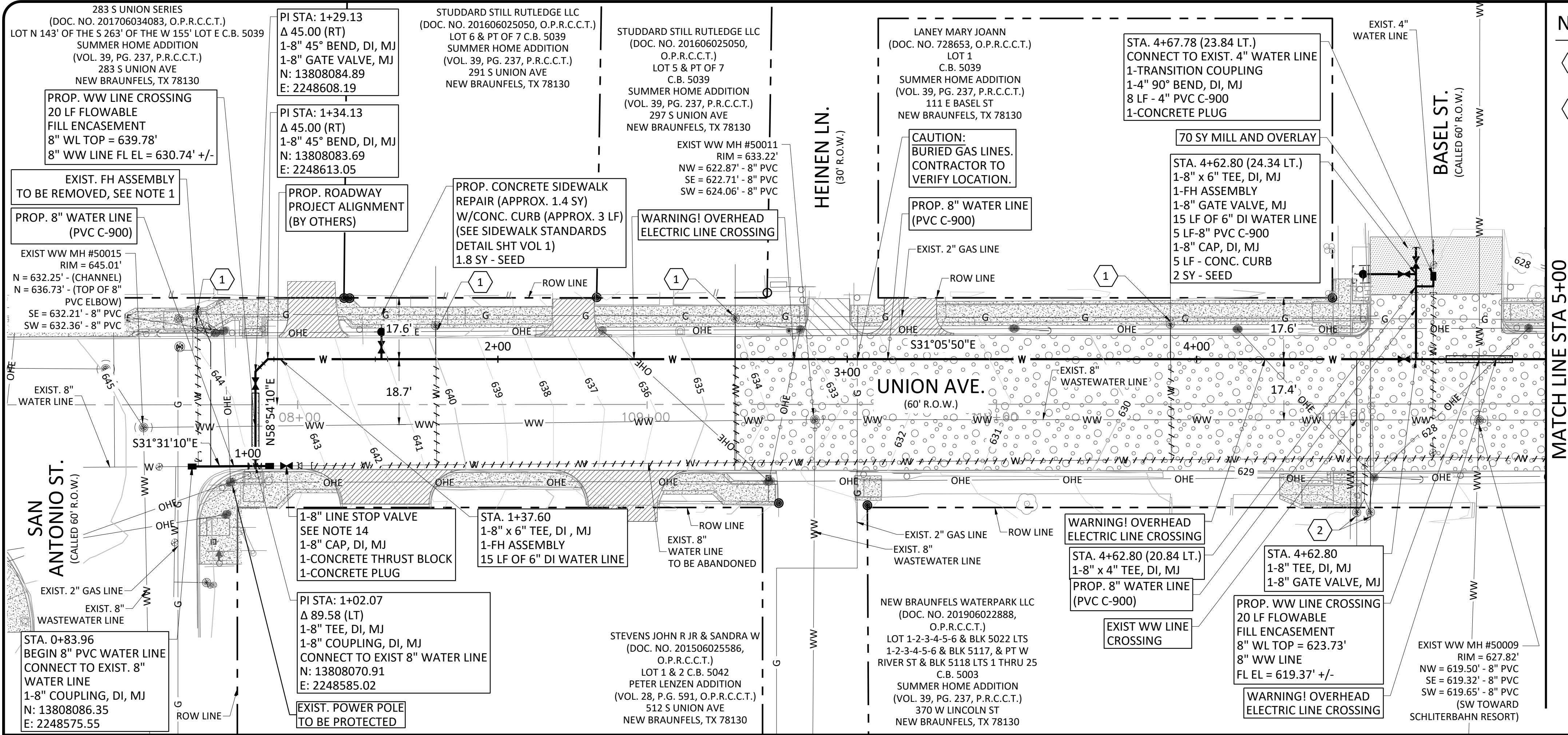
VERIFY SCALE
0 1
Bar is one inch on original drawing. If not one inch on this sheet, adjust scale.

SHEET
G-4

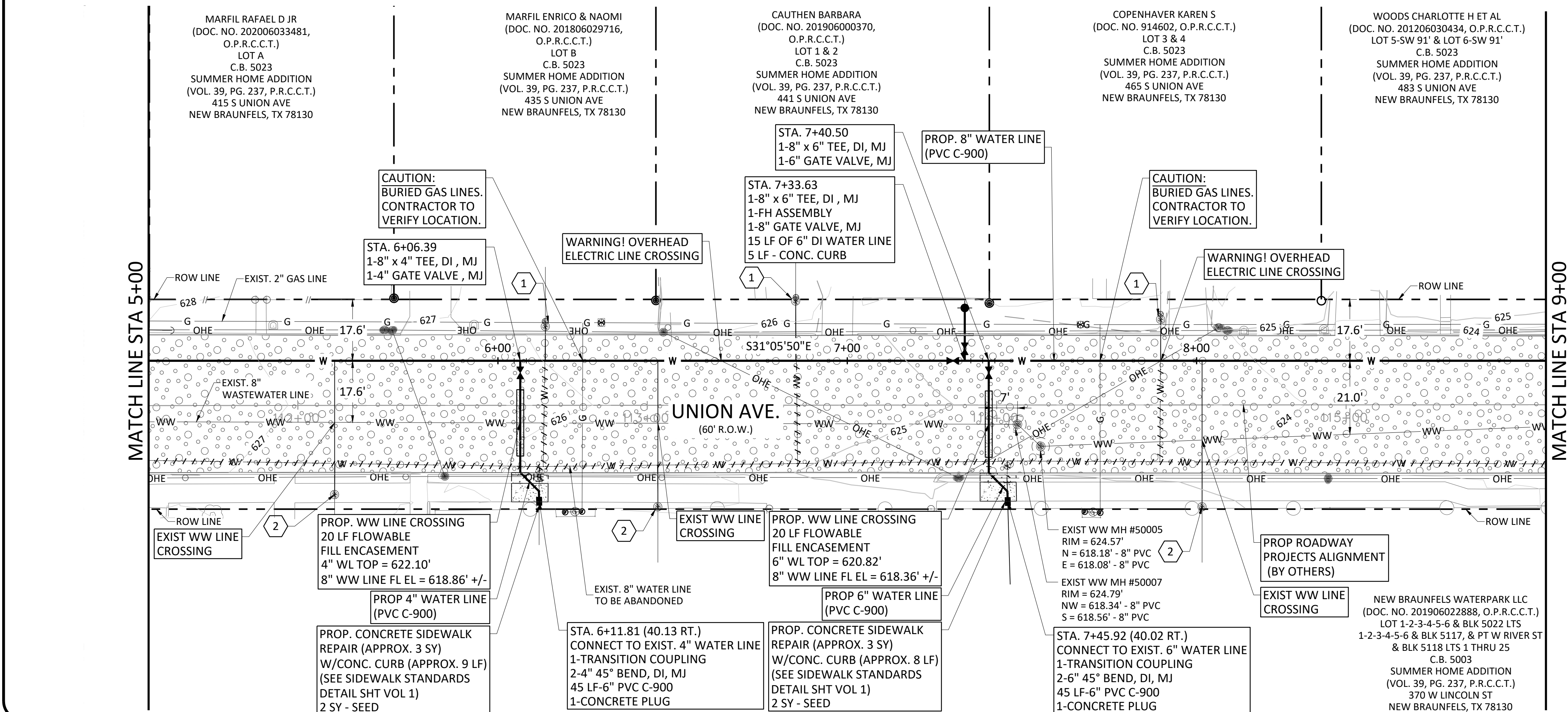
SEQ.

Plot Date: 6/6/2024 11:19 PM Plot By: 02568 Filename: N:\WTU\NBU22825_06S Union Ave\Drawings\WTU-NBU-OVRL-SITE.dwg

ACAD Ref: 24.2s (LMS Tech)
Filename: N:\WTU\NB022825_065 Union Ave\Drawings\WTU-NBU-PL01.dwg
Last Saved: 6/6/2024 11:10 PM. Saved By: 02568



- ### NOTES BY SYMBOL "⬡"
1. PROP. 1" WATER SERVICE, CONNECT TO EXISTING 5/8" METER AND REPLACE 3 LF OF CONCRETE CURB, SEE NOTE 11
2. PROP. 1" WATER SERVICE, CONNECT TO EXISTING METER AND REPLACE 3 LF OF CONCRETE CURB AND 1.7 SY OF CONCRETE SIDEWALK, SEE NOTE 11
- ### NOTES:
- REMOVE EXISTING 6" WATER LINE & FIRE HYDRANT. EXISTING FIRE HYDRANT TO STAY IN SERVICE UNTIL NEW FIRE HYDRANT IS FULLY OPERATIONAL, THEN IT WILL BE REMOVED. (NSPI) HYDRANTS MUST BE RETURNED TO NBU OPERATIONS.
 - CONTRACTOR SHALL VERIFY LOCATION OF ALL EXISTING WATER METERS.
 - FIRE HYDRANTS: FIRE HYDRANTS INSTALLATION (AND FLOW TESTING) SHALL BE PAID FOR AT THE UNIT BID PRICE FOR ALL FITTINGS, PIPING, VALVES, BETWEEN THE MAIN LINE AND THE FIRE HYDRANT; SETTING, ADJUSTING TO GRADE, ANCHORING IN PLACE, INSTALLING BLUE HYDRANT REFLECTORS, AND OTHER APPURTENANCES NECESSARY FOR PROPER OPERATION. FLOW TESTING SHALL BE COORDINATED AND RESULTS RECORDED BY CONTRACTOR.
 - APPROXIMATELY 12 WATER SERVICES TO BE INSTALLED THIS SHEET. CONTRACTOR TO FIELD VERIFY NUMBER, LOCATION AND DEPTH PRIOR TO ANY WATER LINE CONSTRUCTION.
 - ALL TIE-INS ARE SUBSIDIARY TO THE PRICE OF PIPE.
 - FIELD VERIFY SIZE, HORIZONTAL AND VERTICAL LOCATION OF EXISTING UTILITIES PRIOR TO ORDER OF PIPE AND MATERIALS. WATER LINE TIE-IN LOCATIONS SHOWN NEED TO BE FIELD VERIFIED AND MAY NEED TO BE FIELD ADJUSTED.
 - DEFLECT JOINTS AS REQUIRED TO ACHIEVE GRADES AND BENDS AS SHOWN. ALLOWABLE JOINT DEFLECTION SHALL BE NO GREATER THAN 75% OF PIPE MANUFACTURER'S RECOMMENDED MAXIMUM.
 - CONTRACTOR TO CONNECT PROPOSED WATER SERVICES TO EXISTING METERS ONCE LINE IS TESTED AND APPROVED BY NBU INSPECTOR. SERVICES ARE LISTED AS "EACH" IN THE BID FORM. ALL ITEMS NEEDED TO INSTALL THE SERVICE: BACKFILL, BASE MATERIAL, ASPHALT, 1" WATER LINE, APPURTENANCES, AND SEED ARE INCLUDED UNDER THE BID ITEM.
 - CONTRACTOR SHALL MAINTAIN ACCESS TO ALL DRIVEWAYS AT ALL TIMES.
 - CONTRACTOR SHALL CONFIRM LOCATION OF WATER METERS, AND ADJUST EXISTING METER TO ACCOMMODATE SIDEWALK IMPROVEMENTS.
 - PAVEMENT REPAIR LEGEND ON CITY OF NEW BRAUNFELS CITY WIDE STREETS PROGRAM: S. UNION AVE IMPROVEMENTS PLAN SHEET 35.
 - THE FOLLOWING ITEMS WILL BE COVERED UNDER THE CITY OF NEW BRAUNFELS CITY WIDE STREETS PROGRAM: S. UNION AVE IMPROVEMENTS PLAN DETAILS
 - CONCRETE CURB REPAIR, SHT 46
 - CONCRETE SIDEWALK, SHT 45
 - CONCRETE DRIVEWAY, SHT 45
 - LINE STOP WILL BE USED TO PROVIDE CONTINUOUS WATER TO RESIDENTS. CAP AND PLUG TO BE INSTALLED AFTER 8" WATER LINE.



- ### CAUTION!!
- UNDERGROUND GAS, WATER, ELECTRIC, TELEPHONE, CABLE TV AND OTHER UTILITIES MAY EXIST WITHIN THE WORK AREA. THE UTILITIES SHOWN ON THESE PLANS ARE APPROXIMATE AND FOR INFORMATION ONLY. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DAMAGE TO THE UTILITIES CAUSED BY THE CONTRACTOR'S OPERATION.

Freeze and Nichols, Inc.
Texas Registered Engineering Firm F-2144

ERIN C. MILLIS
120172
PROFESSIONAL ENGINEER

9601 McAllister Freeway, Suite 1008
San Antonio, Texas 78216
Phone - (210) 298-3800
Web - www.freezeandnichols.com

NEW BRAUNFELS UTILITIES
S. UNION AVE. WATER LINE
IMPROVEMENTS
CIVIL

STA. 1+00 TO STA. 9+00

FILE NO.	DATE	BY	ISSUE	NO.	DATE	BY	ISSUE
NBU22825-065	6/6/2024			0	6/6/2024		
DESIGNED	ECM			1	6/6/2024		
DRAWN	ESL						
REVIEWED							
CHECKED							
FILE NAME	WTU-NBU-PL01.dwg						

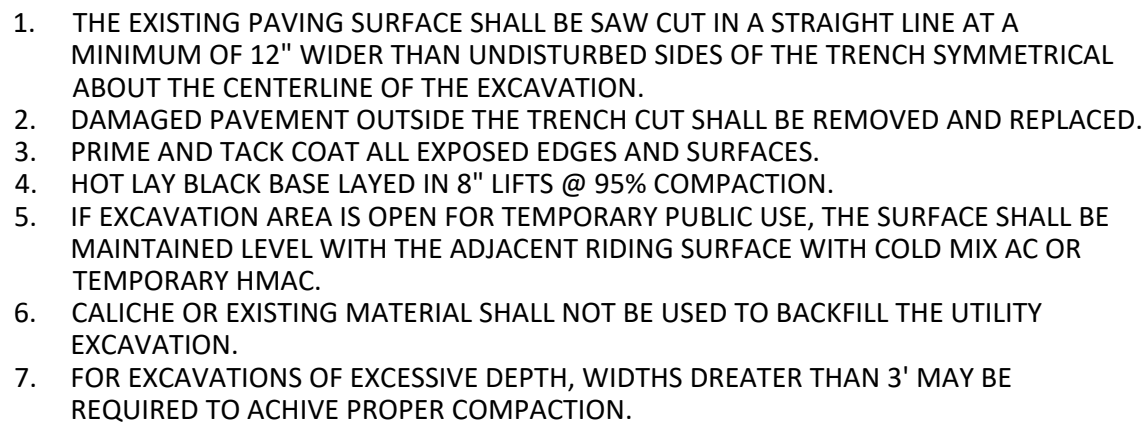
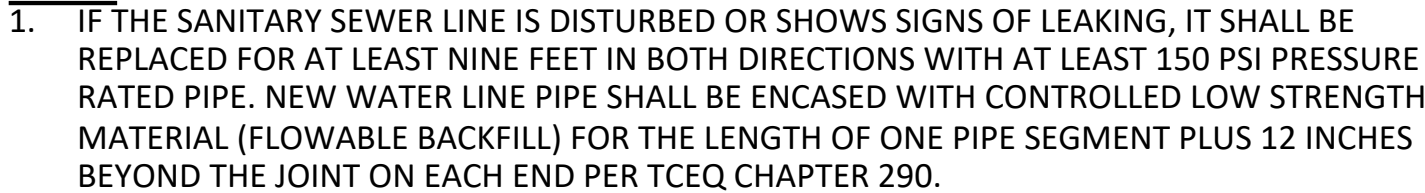
VERIFY SCALE

Bar is one inch on original drawing. If not one inch on this sheet, adjust scale.

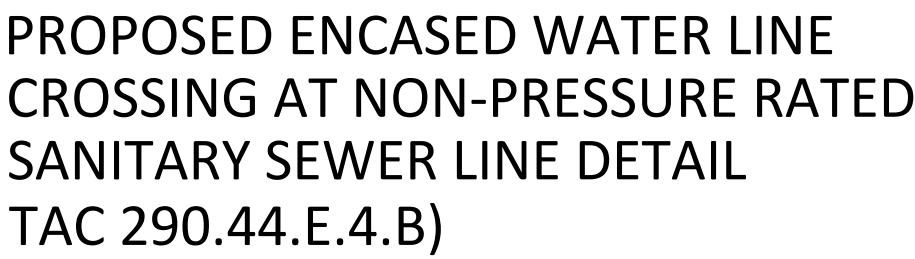
100% SUBMITTAL

W-1

SEQ.

CITY OF NEW BRAUNFELS
ENGINEERING DIVISION

2. IF 1' VERTICAL CLEARANCE CAN NOT BE OBTAINED, NOTIFY THE ENGINEER

JOINT RESTRAINT TABLE FOR TEES

Pipe Diameter (in)	Branch Pipe Diameter (in)	Length Along Run (ft)	Restraint Length
12	6	0	30 ft.
12	6	5	1 ft.
12	6	10	1 ft.
12	8	0	40 ft.
12	8	5	1 ft.
12	8	10	1 ft.
8	6	0	30 ft.
8	6	5	1 ft.
8	6	10	1 ft.
8	8	0	40 ft.
8	8	5	14 ft.
8	8	10	1 ft.
6	6	0	30 ft.
6	6	5	5 ft.
6	6	10	1 ft.
6	8	0	40 ft.
6	8	5	20 ft.
6	8	10	1 ft.
4	6	0	30 ft.
4	6	5	13 ft.
4	6	10	1 ft.
4	8	0	40 ft.
4	8	5	26 ft.
4	8	10	13 ft.

JOINT RESTRAINT TABLE FOR HORIZONTAL BENDS AT 6-FT DEPTH OF BURY

JOINT RESTRAINT TABLE FOR VALVES AND DEAD-ENDS

1. JOINT RESTRAINT LENGTHS WERE CALCULATED USING THE EBAA IRON, INC. RESTRAINT LENGTH CALCULATOR PROGRAM (VERSION 7.1.2.) AND THE FACTORS IN THE JOINT RESTRAINT CALCULATION FACTORS TABLE.

2. CONTRACTOR MUST RECALCULATE RESTRAINT LENGTHS IF THE INSPECTOR OR SITE CONDITIONS REQUIRE DIFFERENT FACTORS.

3. WHEN 2 HORIZONTAL 45° BENDS ARE PLACED TOGETHER TO CREATE A 90° BEND, RESTRAIN EACH SIDE OF THE 45° BENDS PER THE 90° BEND RESTRAINT REQUIREMENTS.

4. All CONNECTIONS, INCLUDING SERVICES/STUB-OUTS, FIRE HYDRANT LINES AND MAIN CONNECTIONS SHALL HAVE FULL RESTRAINT JOINTS AT THE MAIN.

5. WHEN CONNECTING INTO AN EXISTING WATER MAIN, CONTRACTOR SHALL PROVIDE ADEQUATE JOINT RESTRAINT. CONTRACTOR SHALL EITHER PROVIDE CONC. THRUST BLOCKING, AS PER NBU STANDARD DRAWING 221, OR ALL EXISTING JOINTS ON THE EXISTING MAIN SHALL BE RESTRAINED AS SHOWN IN THIS SHEET.

N.T.S.

100% SUBMITTAL



9601 McAllister Freeway, Suite 1008
San Antonio, Texas 78216
Phone - (210) 298-3800
Web - www.freese.com

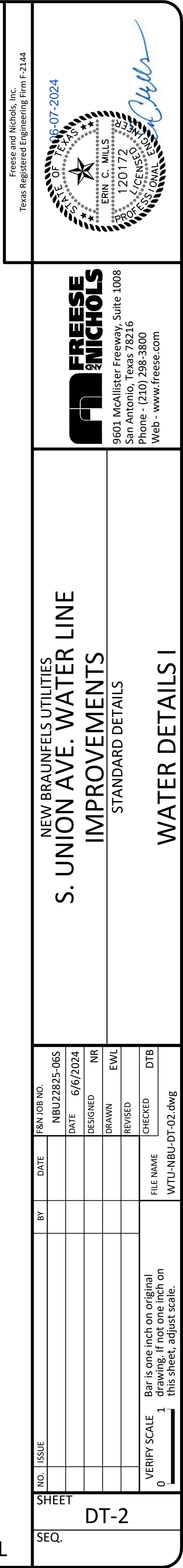
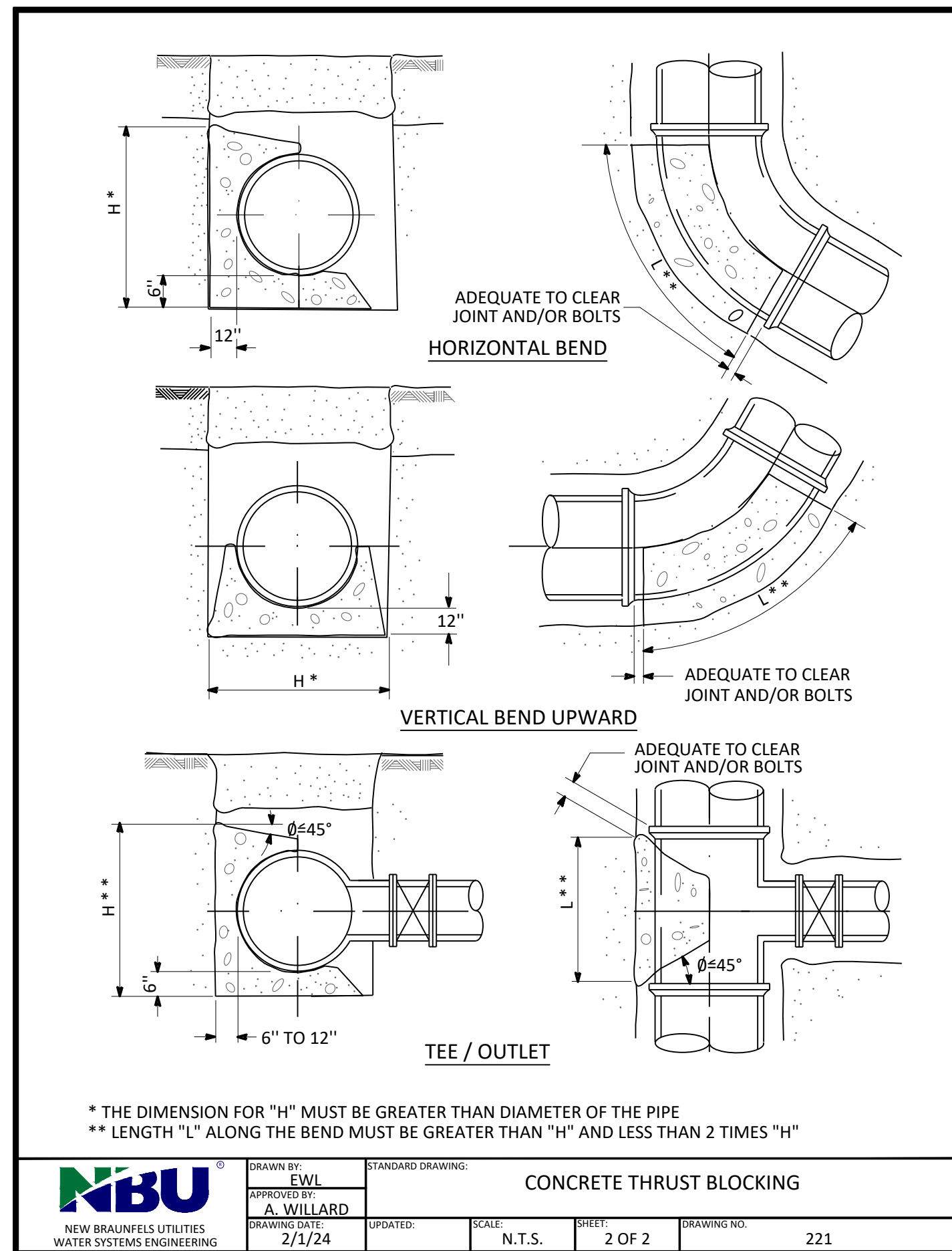
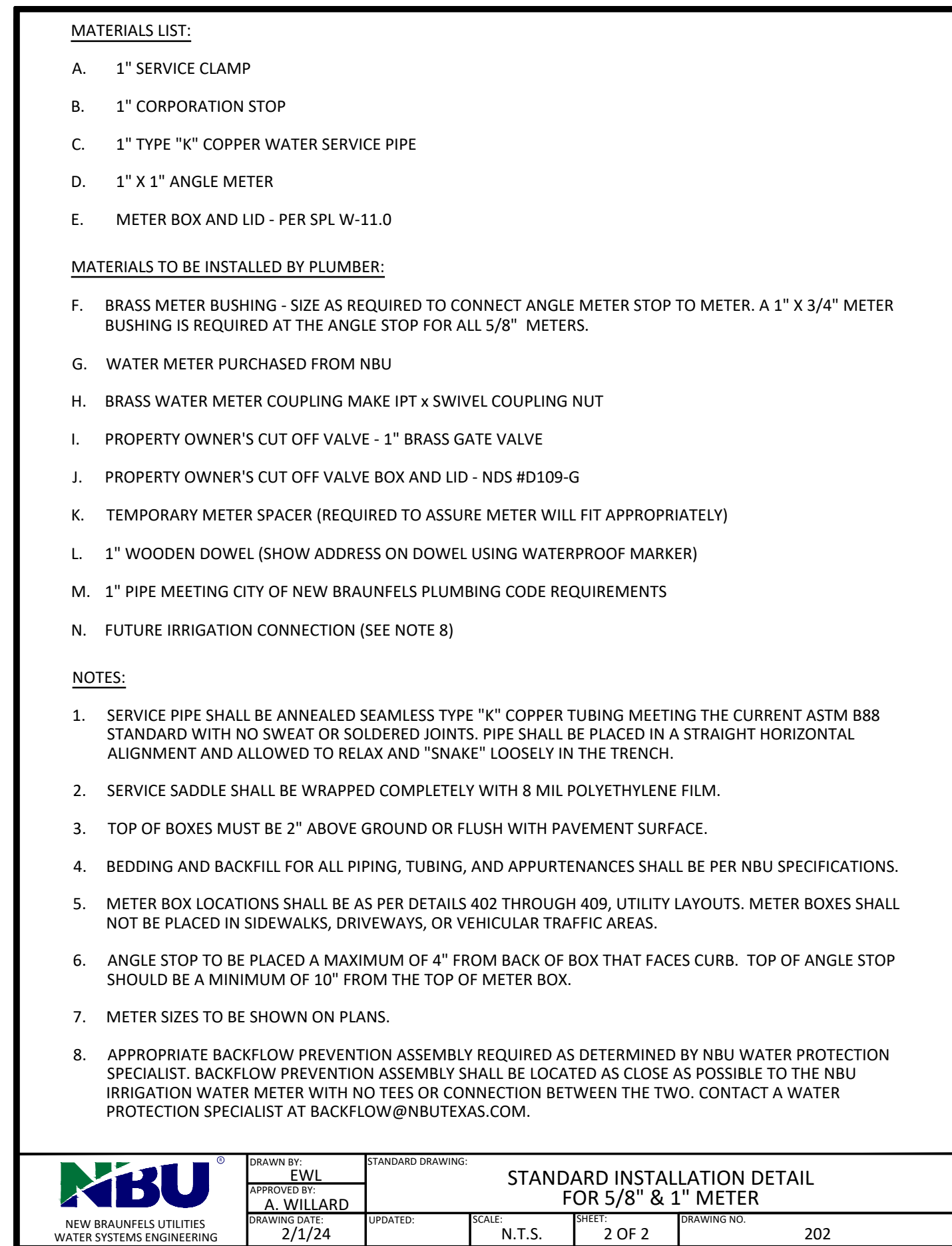
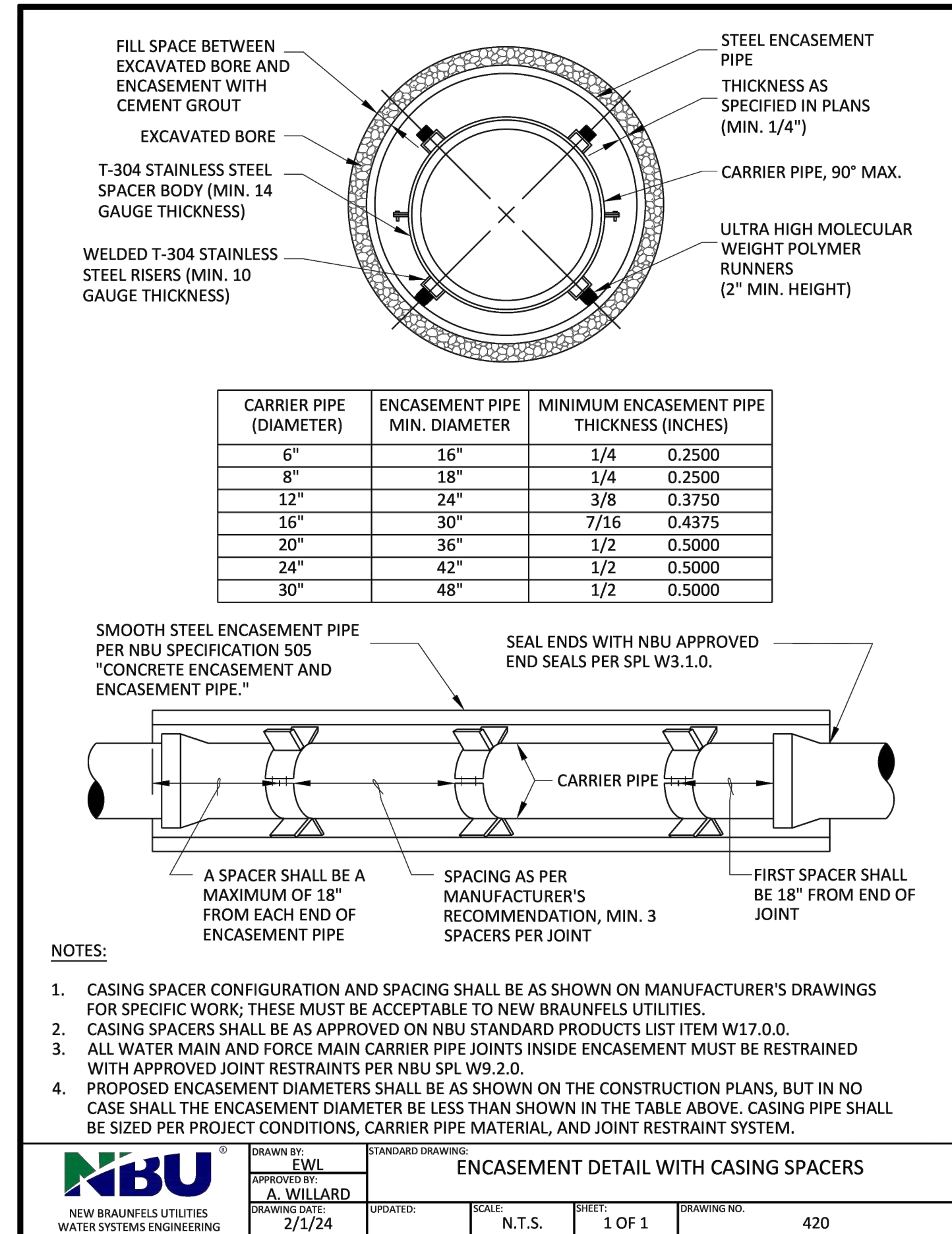
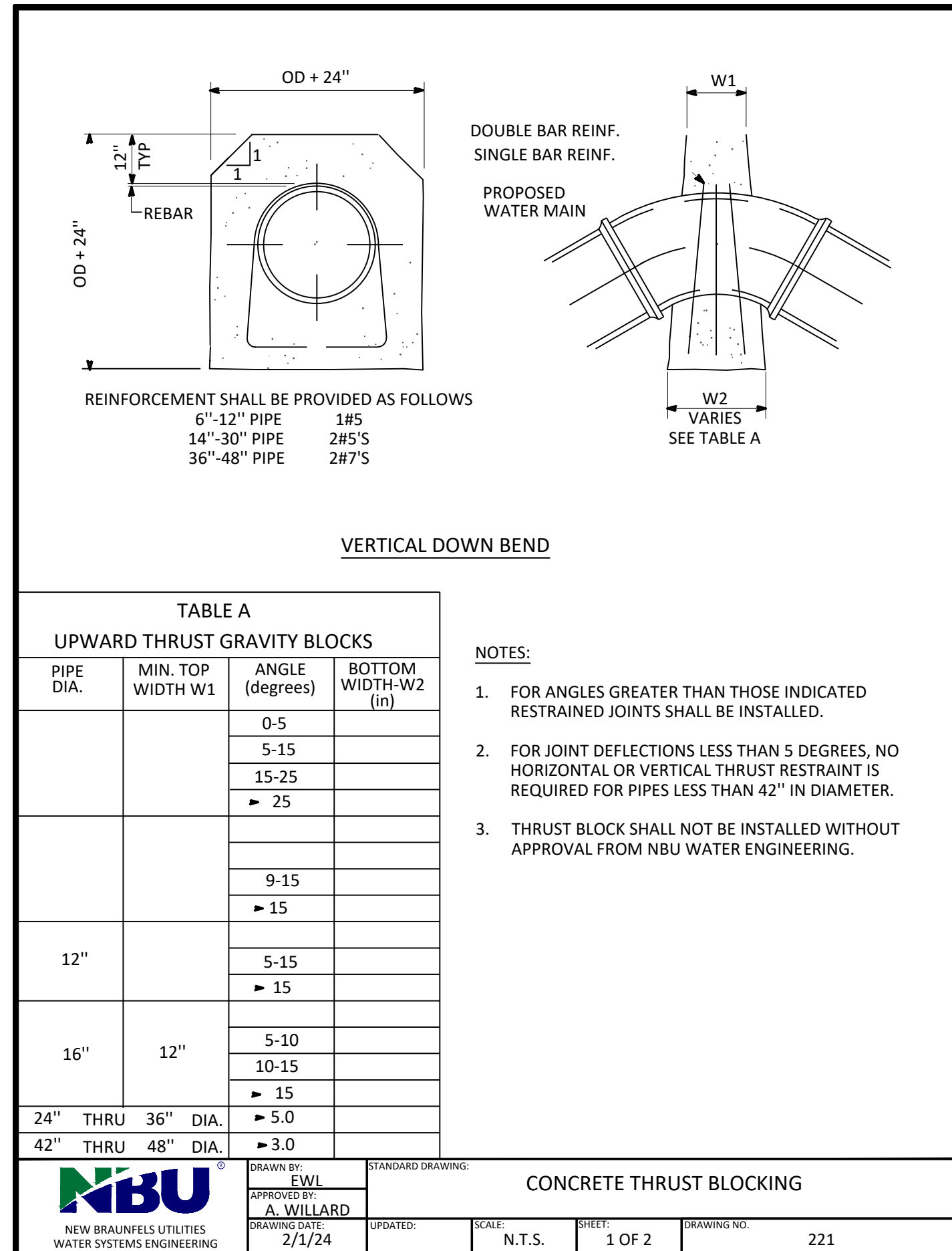
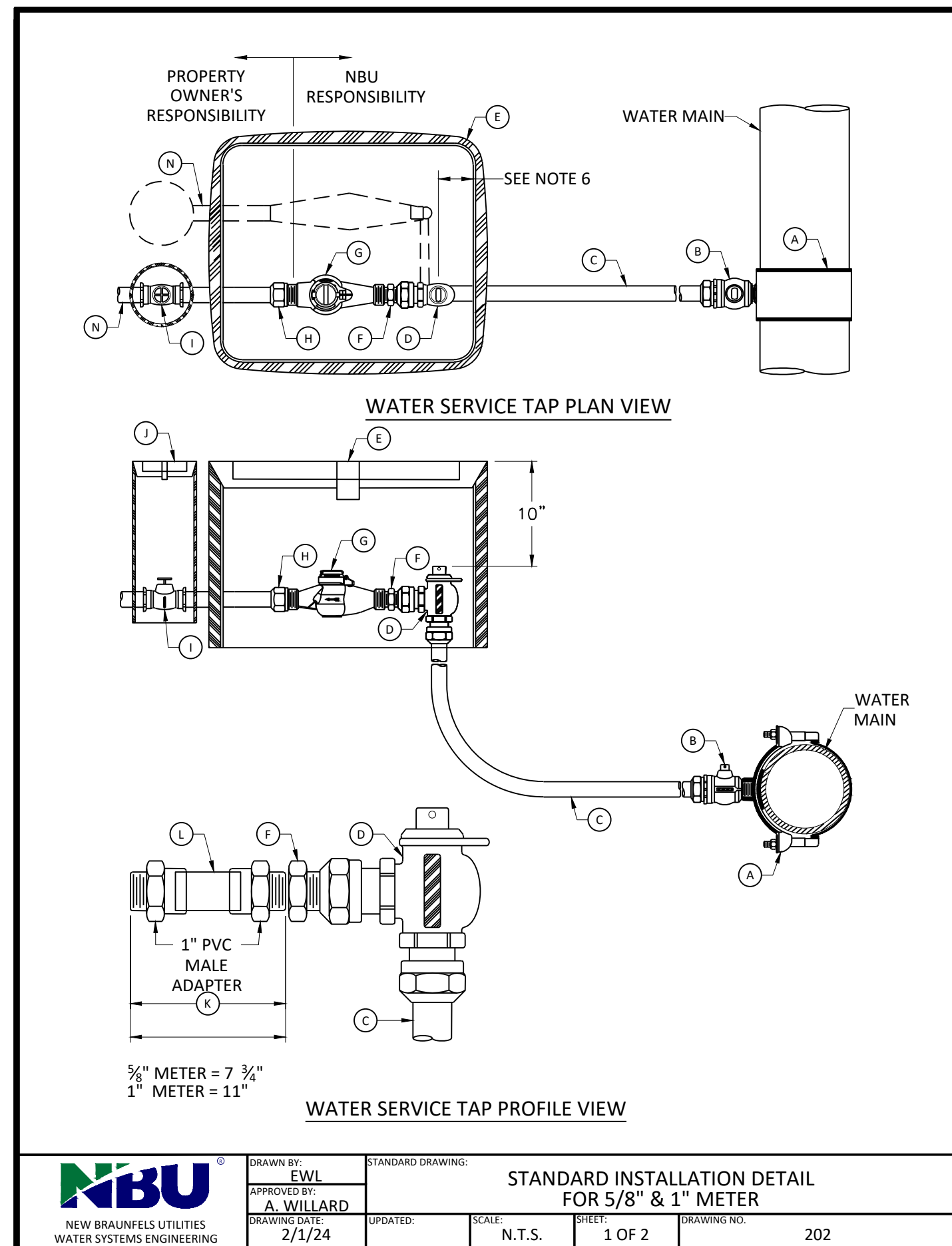
NEW BRAUNFELS UTILITIES
S. UNION AVE. WATER LINE
IMPROVEMENTS
STANDARD DETAILS

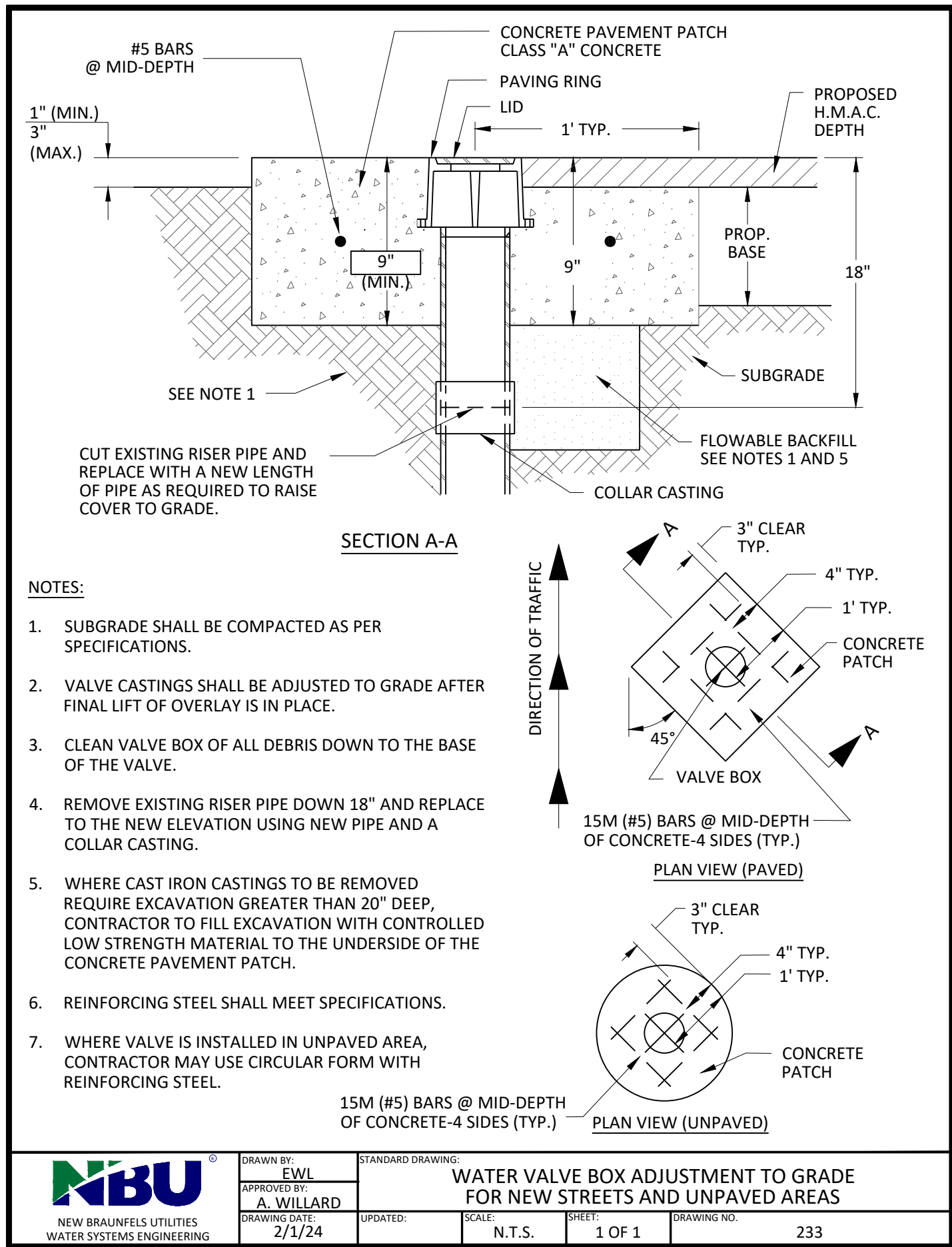
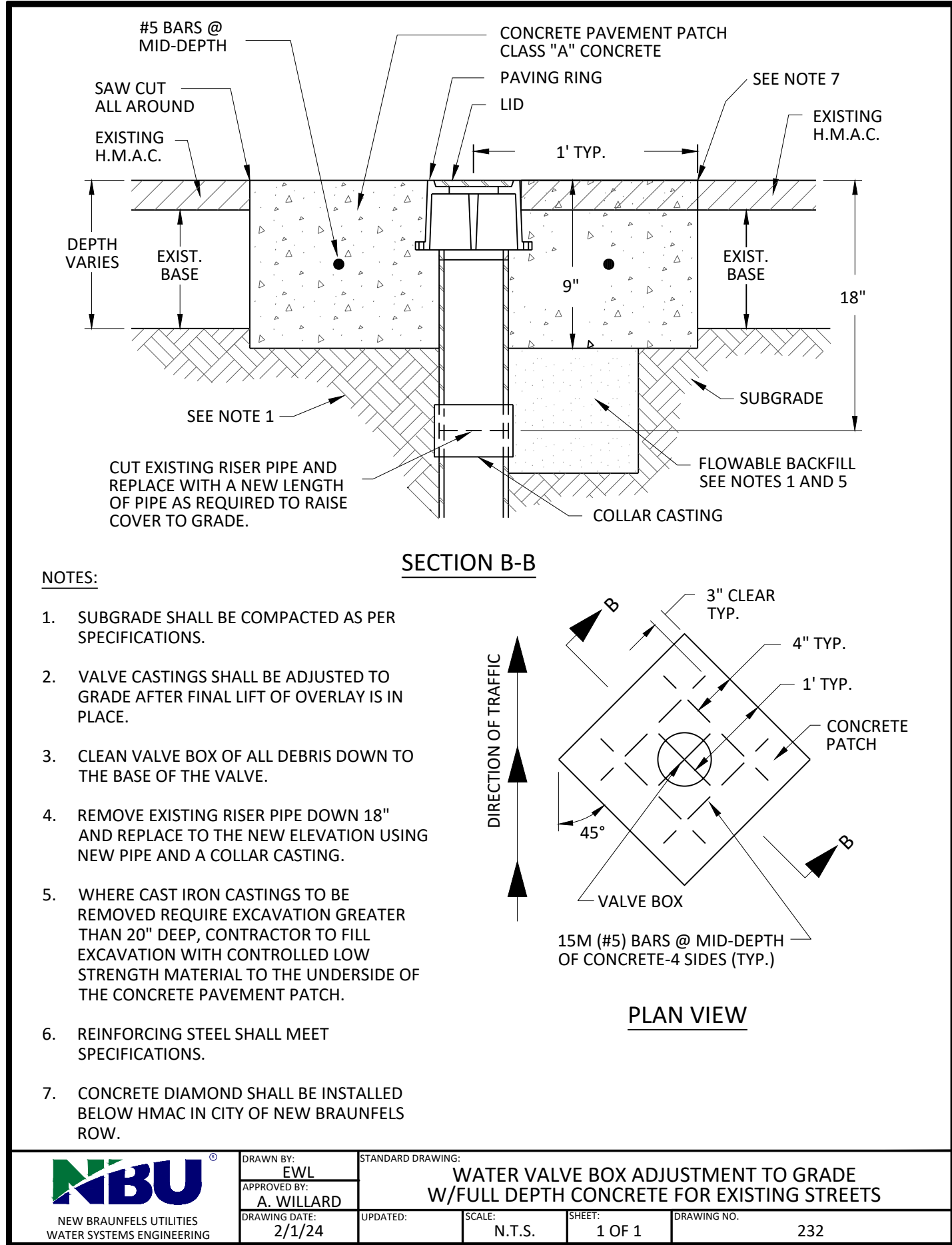
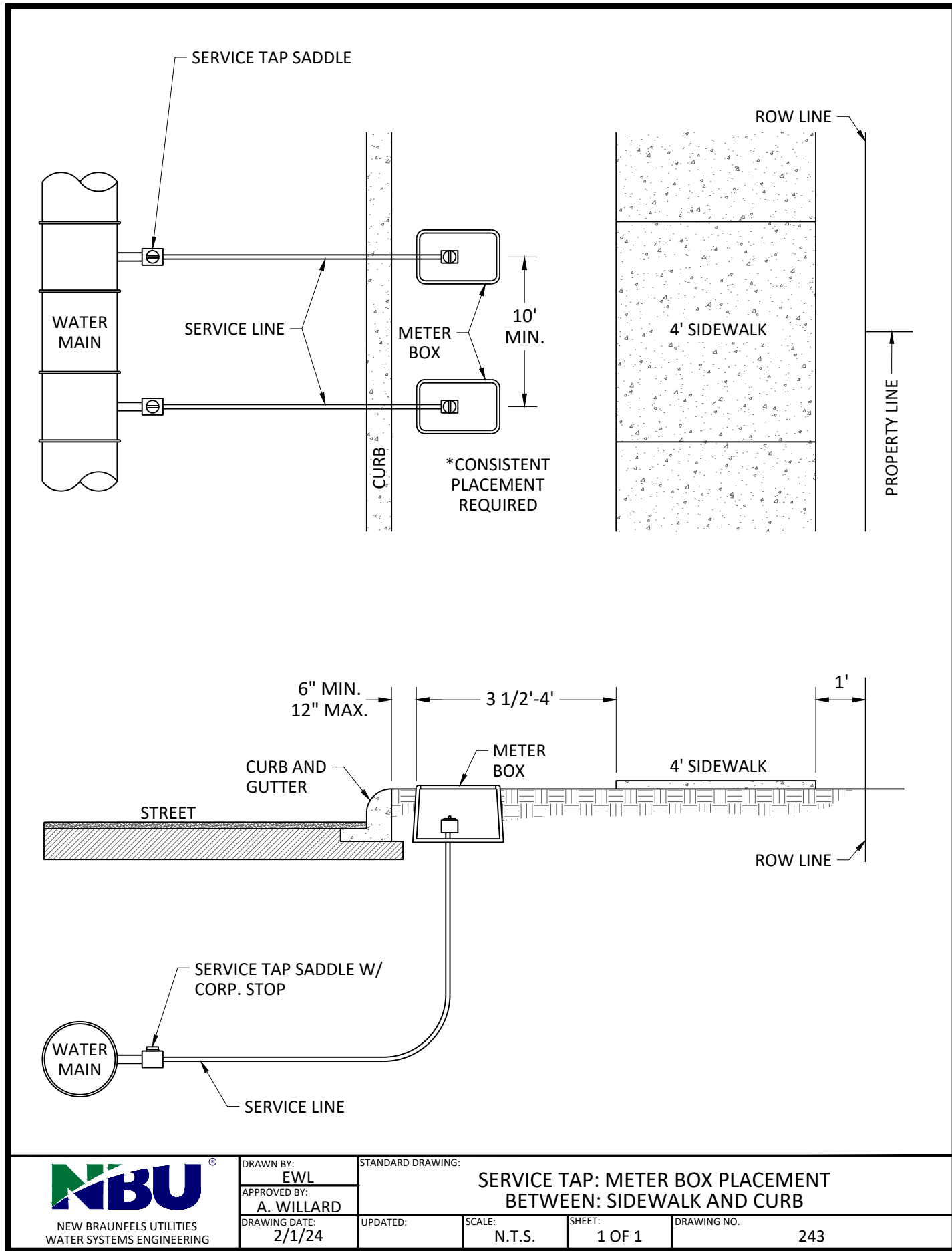
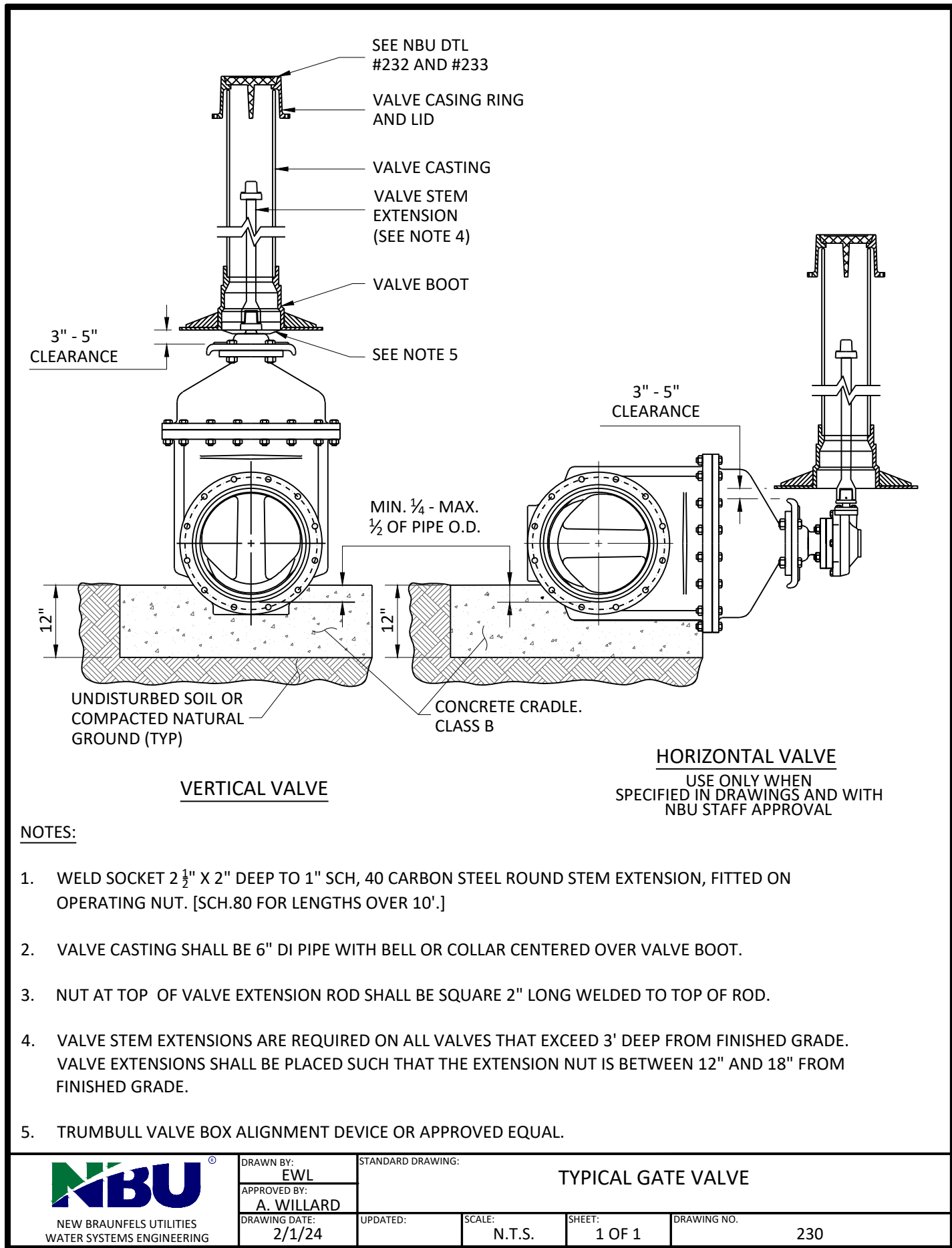
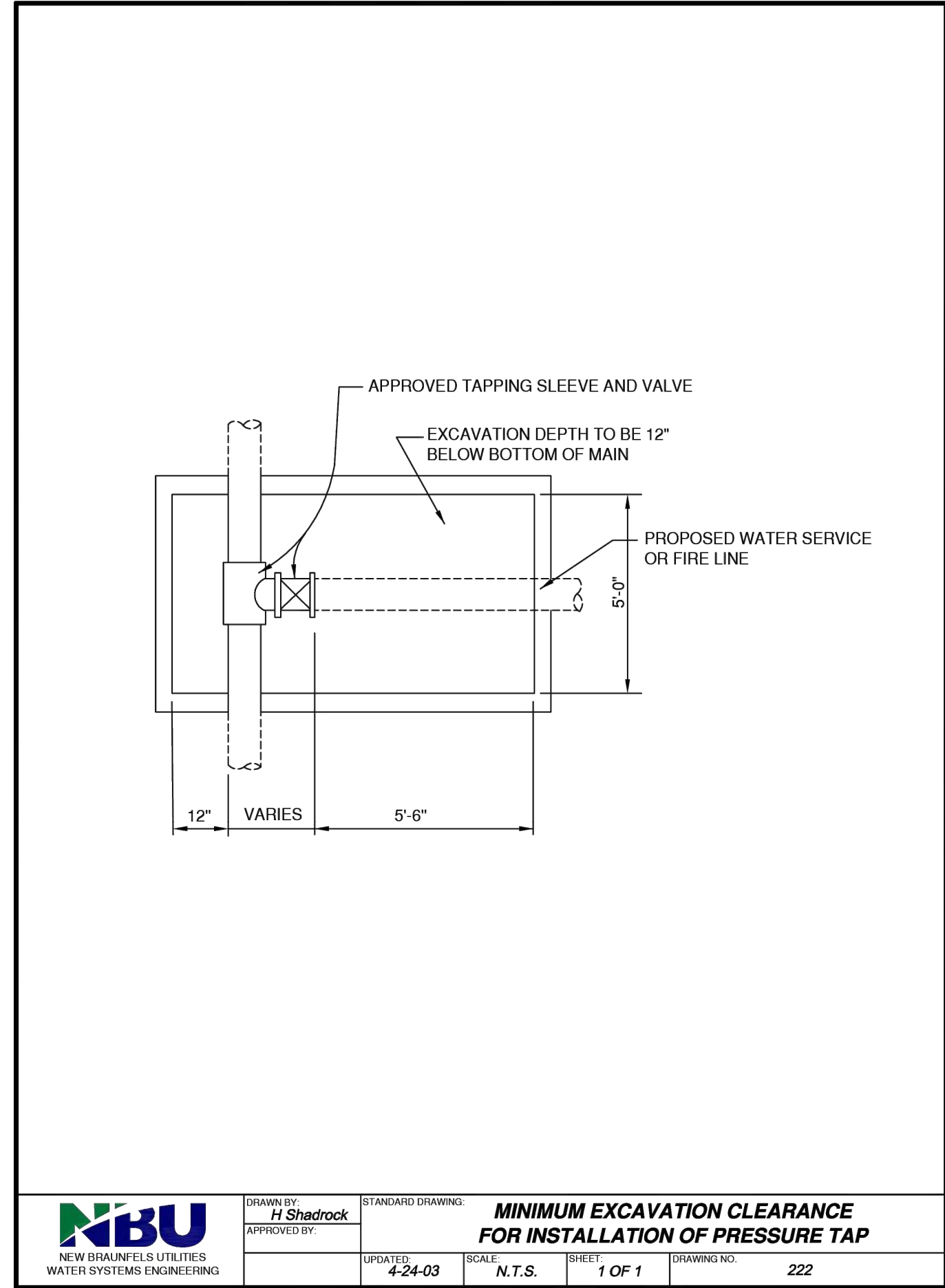
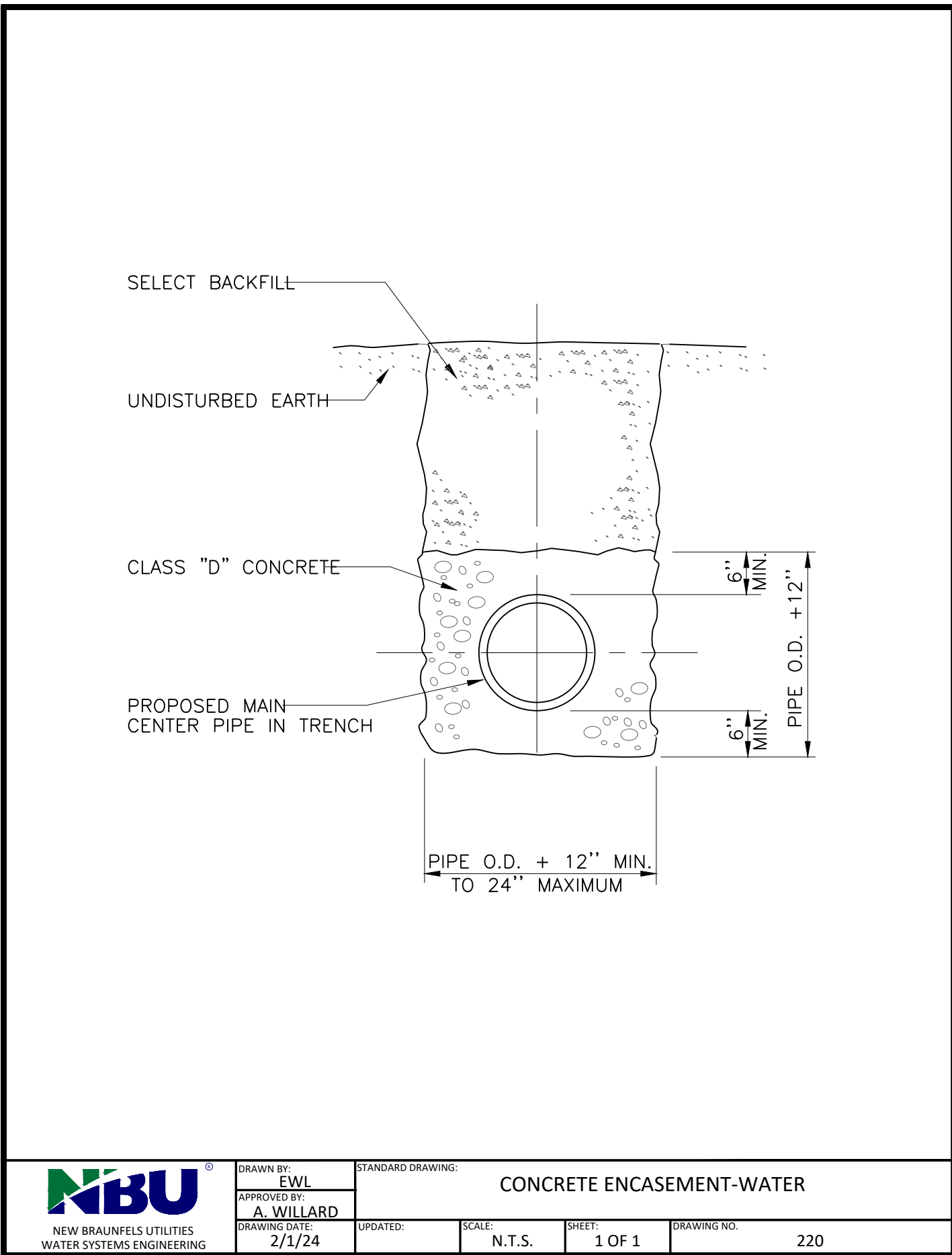
STANDARD DETAILS

STANDARD DETAILS I

[illegible]

Bar is one inch on original drawing. If not one inch on this sheet, adjust scale.





Freeze and Nichols, Inc.
Texas Registered Engineering Firm F-2344

2024

6-07-2024

ERIN C. MILLS
120172
PROFESSIONAL ENGINEER

Freeze and Nichols
9601 McAllister Freeway, Suite 1008
San Antonio, Texas 78216
Phone - (210) 298-3800
Web - www.freezeandnichols.com

NEW BRAUNFELS UTILITIES

S. UNION AVE. WATER LINE

IMPROVEMENTS

STANDARD DETAILS

WATER DETAILS II

FILE NO.	DATE	BY	ISSUE	NO.	FILE NAME
NBU22825-06S	6/6/2024				WTU-NBU-DT-03.dwg
DESIGNED	NR				
DRAWN	EWL				
REVISED					
CHECKED					
DTB					

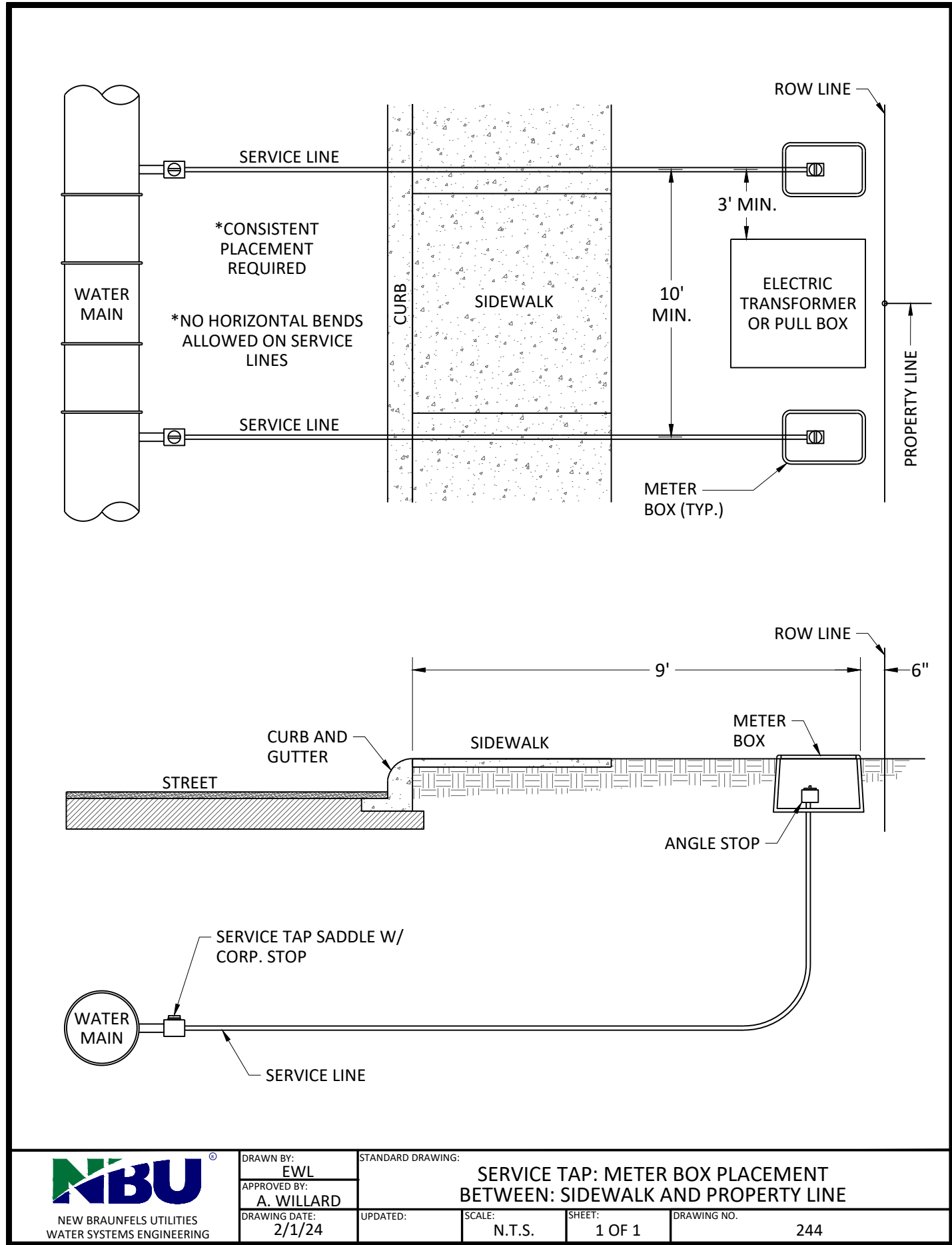
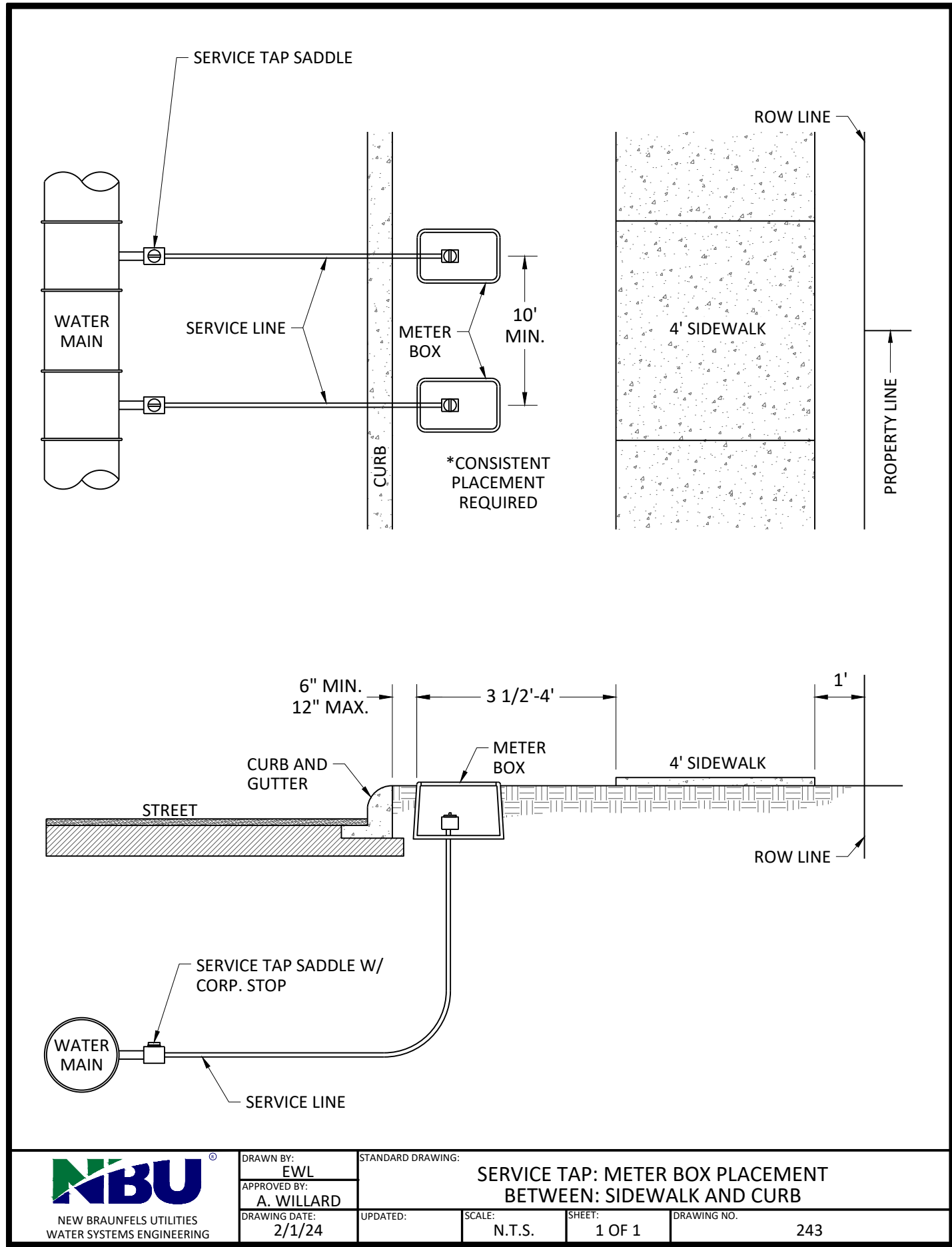
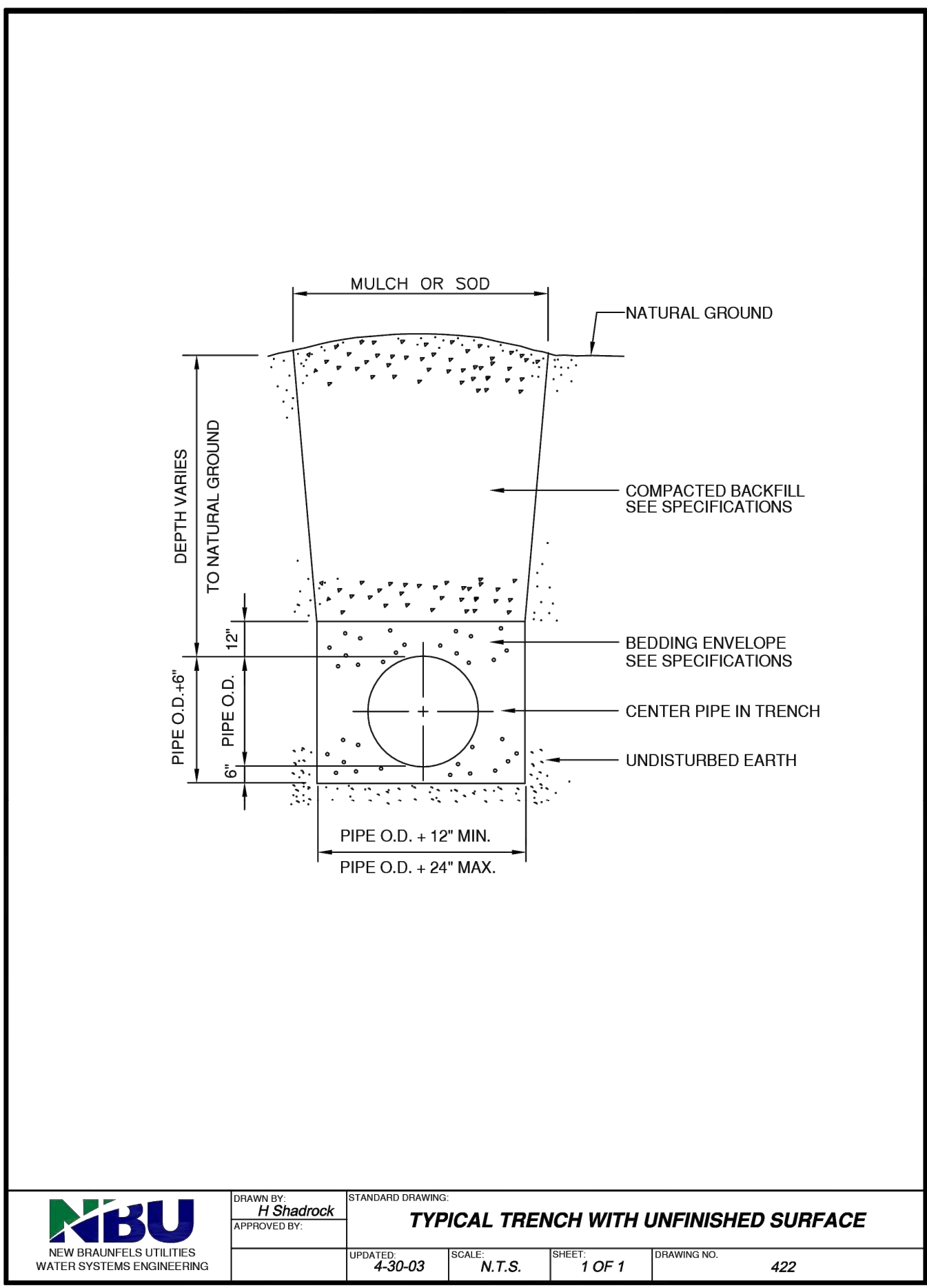
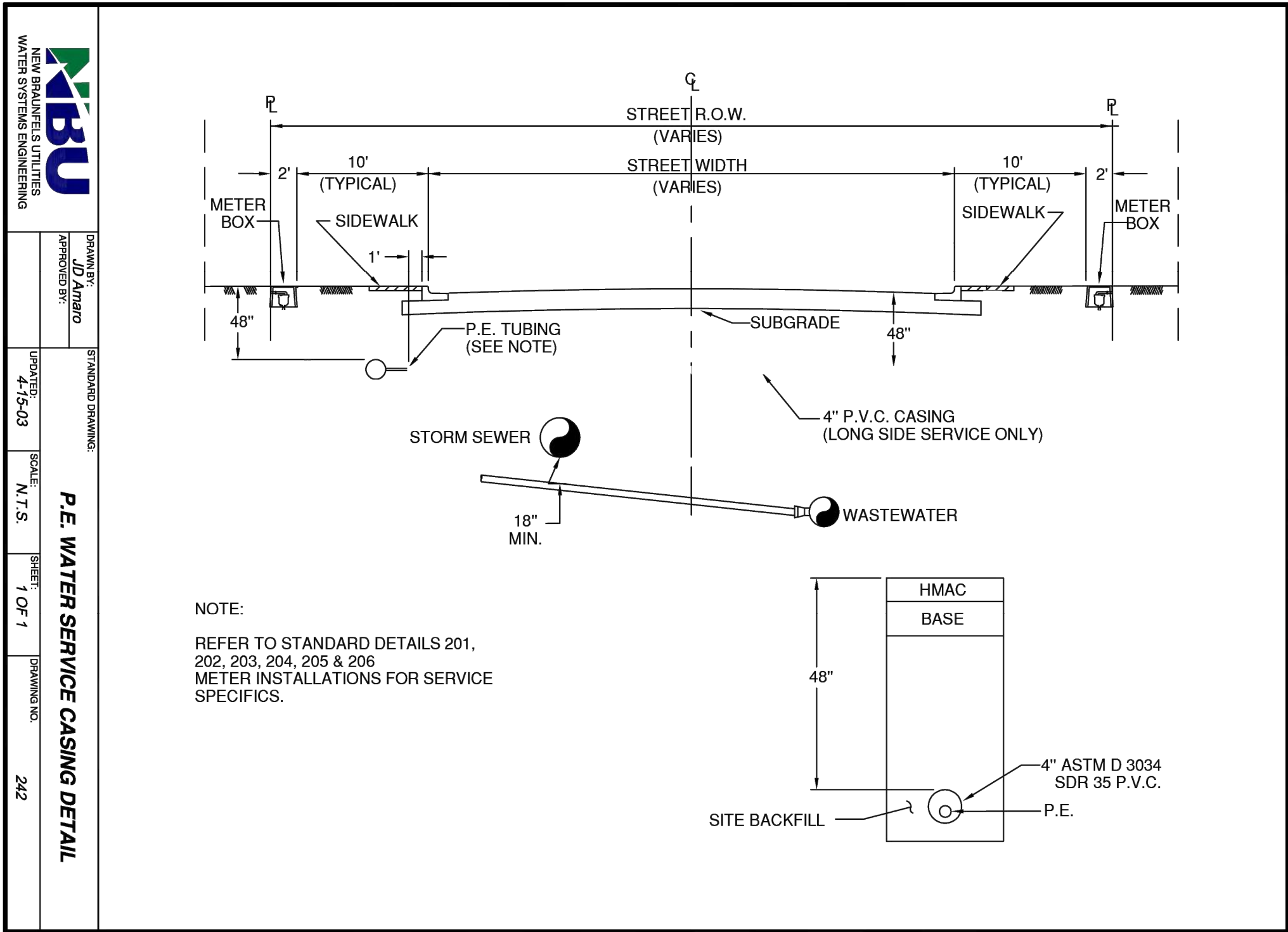
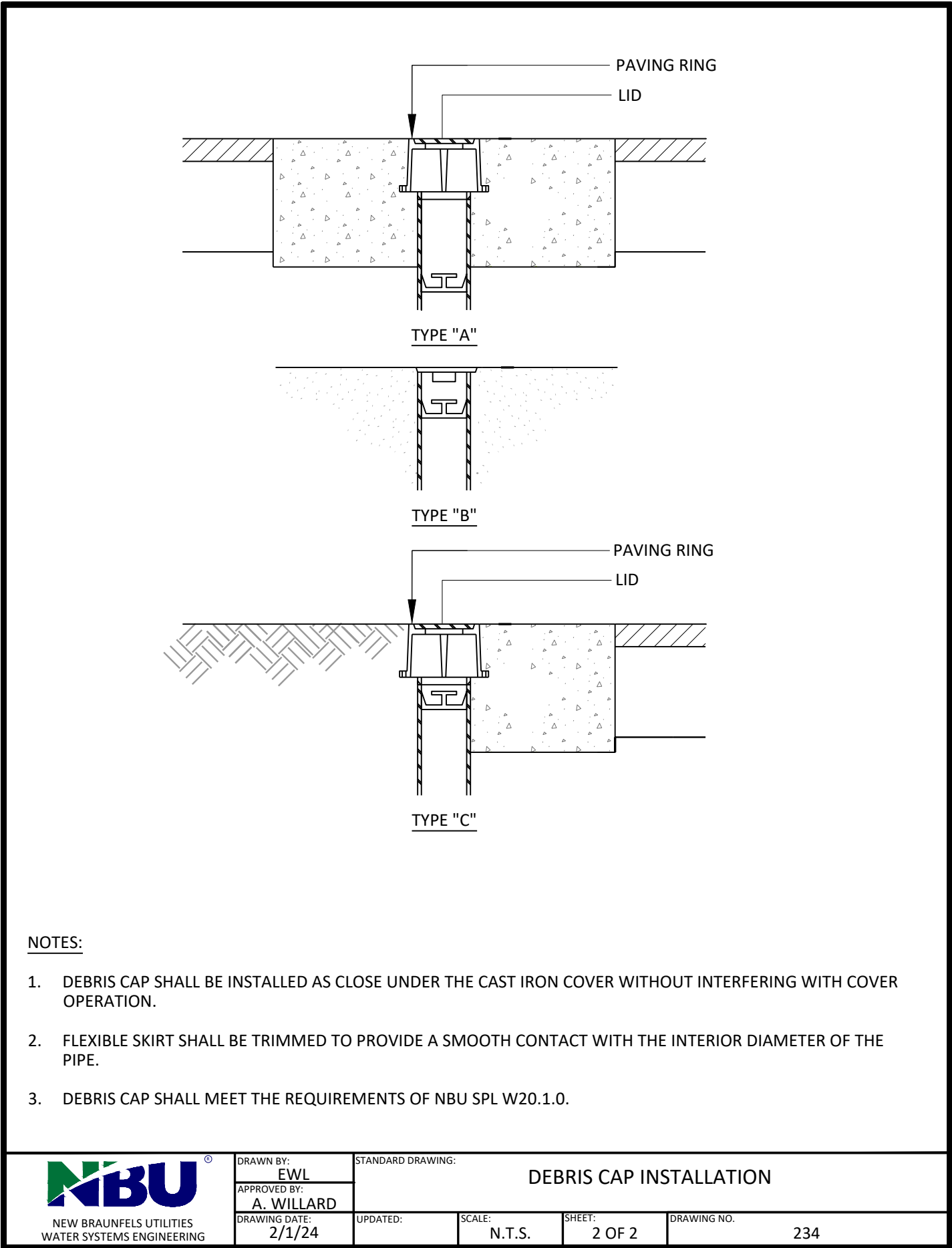
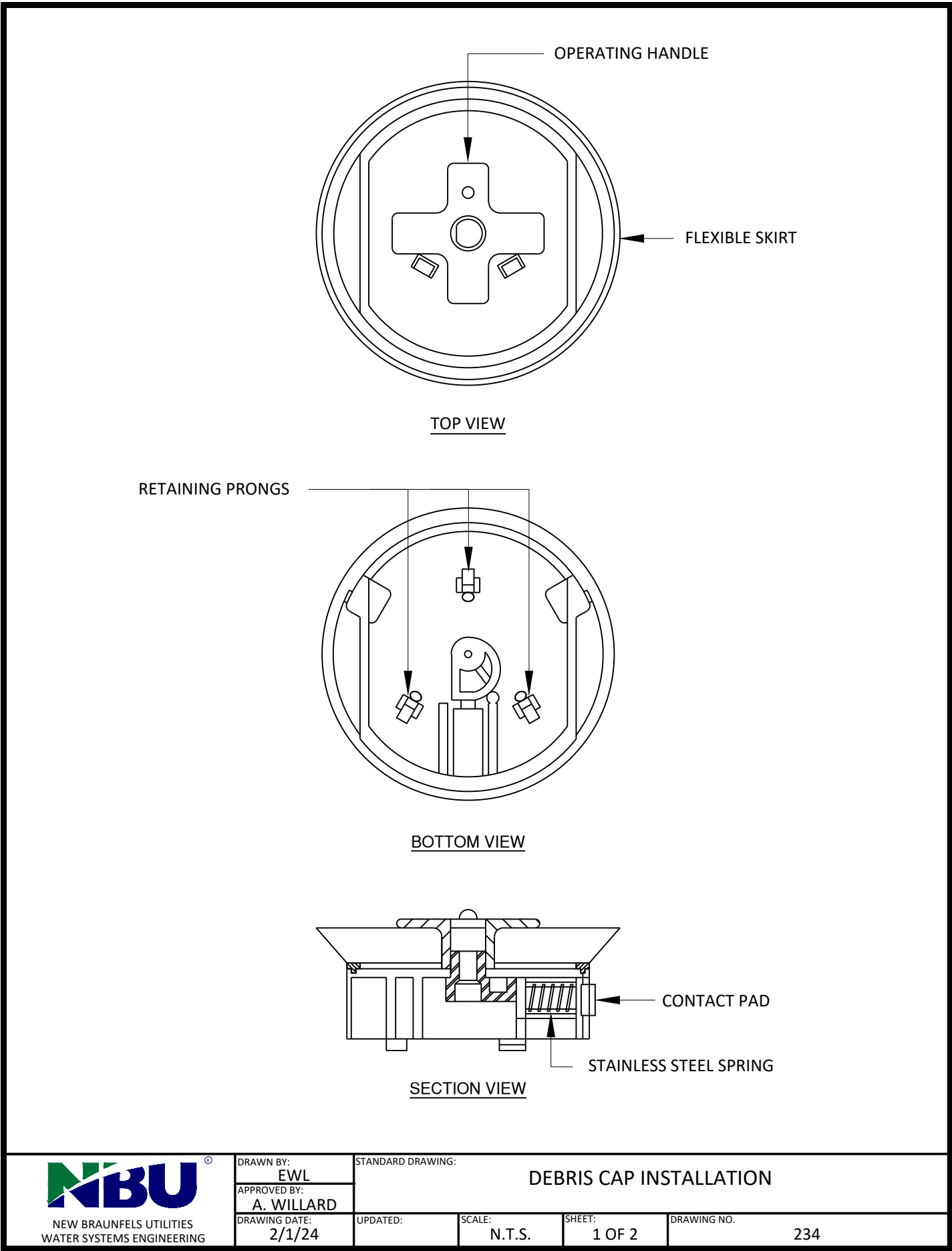
VERIFY SCALE 0 1
Bar is one inch on original drawing, if not one inch on this sheet, adjust scale.

SHEET

DT-3

SEQ.

ACAD Ref: 24.2s (LMS Tech)
Filename: N:\WTU\NBU22825_06S Union Ave\Drawings\WTU-NBU-DT-04.dwg
Last Saved: 5/31/2024 11:32 AM Saved By: 08688



Freeze and Nichols, Inc.
Texas Registered Engineering Firm F-2144

6-07-2024

STATE OF TEXAS

ERIN C. MILLS

120172

PROFESSIONAL ENGINEER

FREEZE & NICHOLS

9601 McAllister Freeway, Suite 1008
San Antonio, Texas 78216
Phone - (210) 298-3800
Web - www.freeze.com

NEW BRAUNFELS UTILITIES

S. UNION AVE. WATER LINE IMPROVEMENTS

STANDARD DETAILS

WATER DETAILS III

F&N JOB NO. NBU22825-06S

DATE 6/6/2024

DESIGNED NR

DRAWN EWL

REVIS

CHECKED DTB

FILE NAME WTU-NBU-DT-04.dwg

NO. 0

ISSUE

BY

DATE

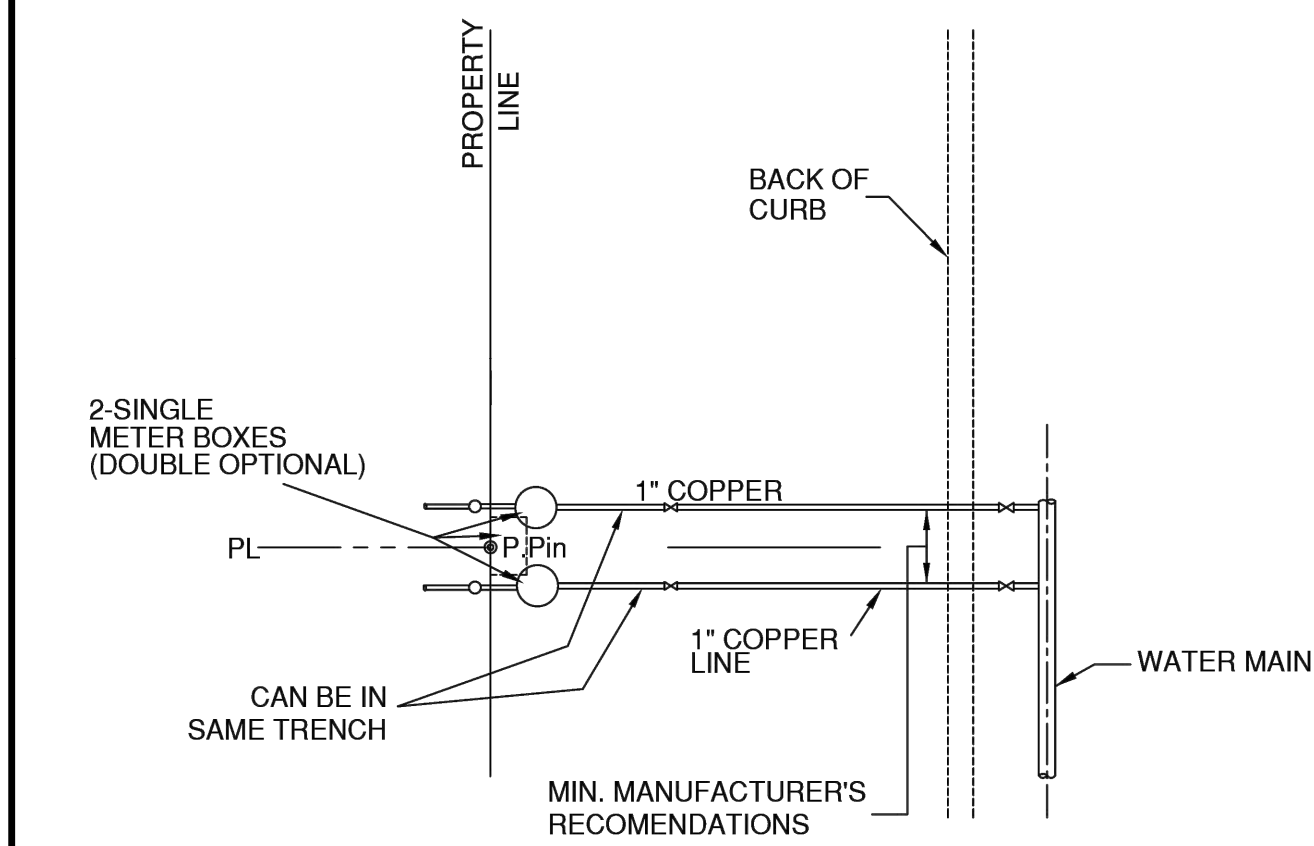
VERIFY SCALE 1

Bar is one inch on original drawing. If not one inch on this sheet, adjust scale.

SHEET DT-4

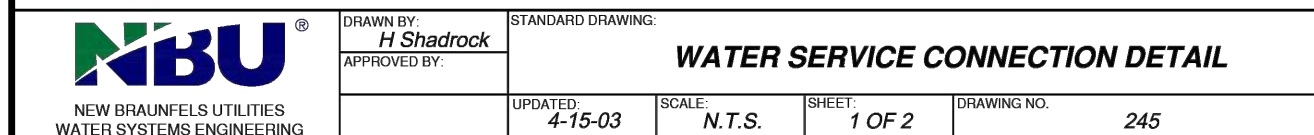
SEQ.

100% SUBMITTAL



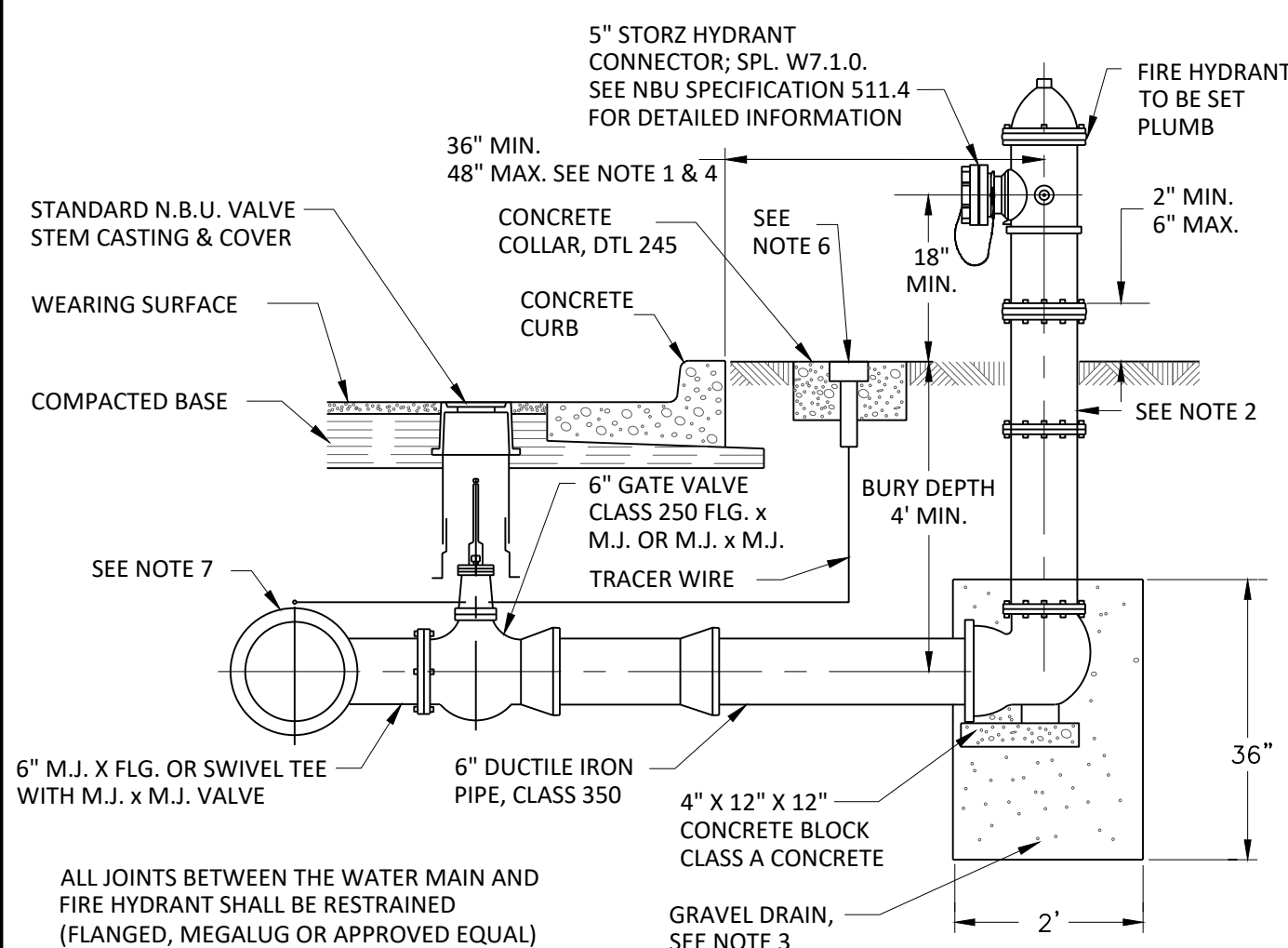
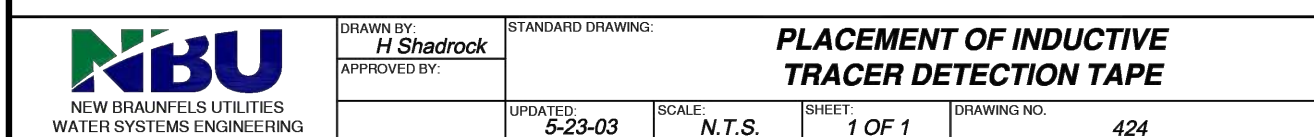
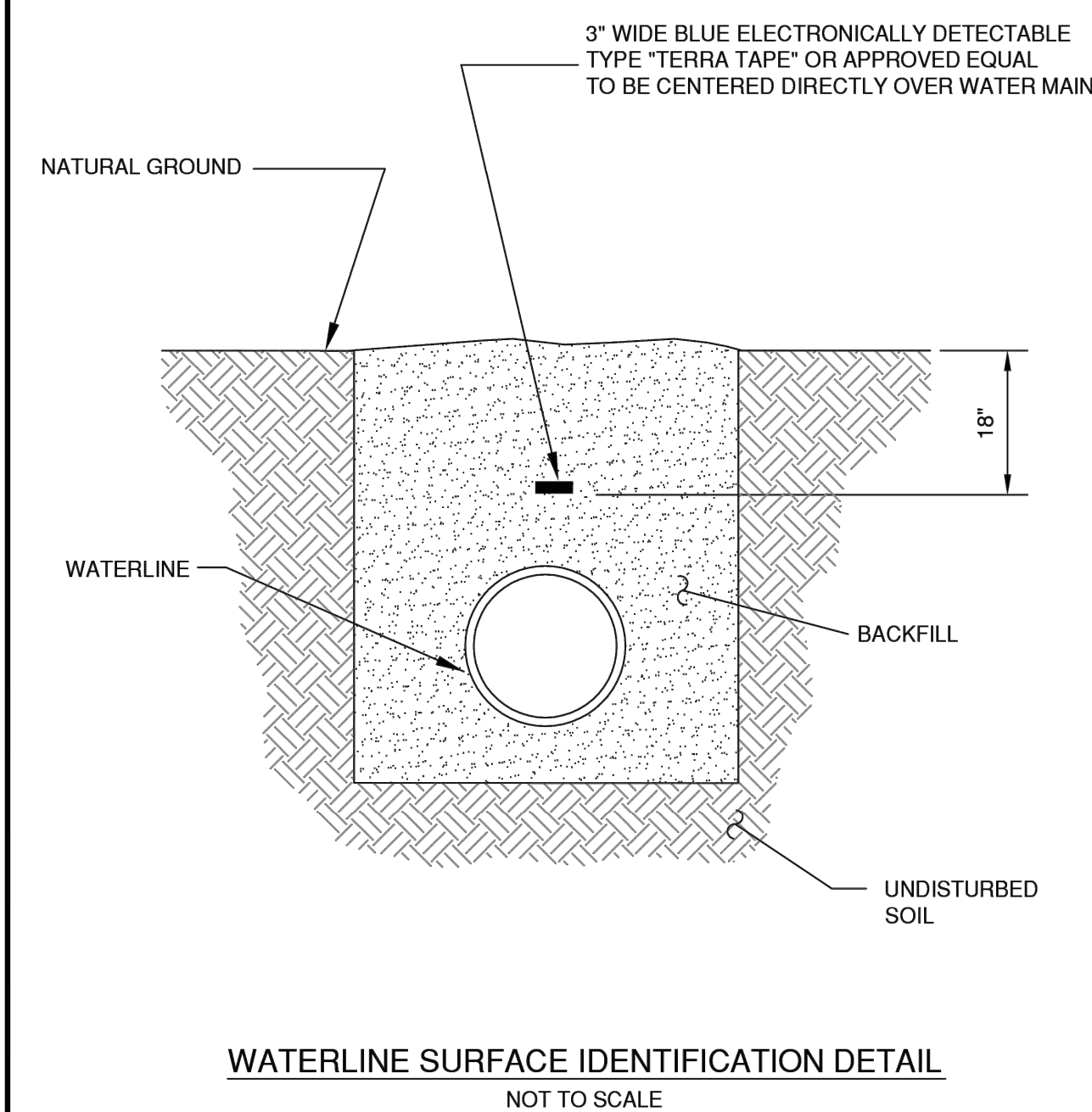
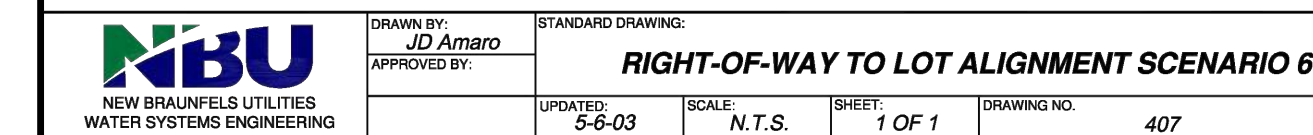
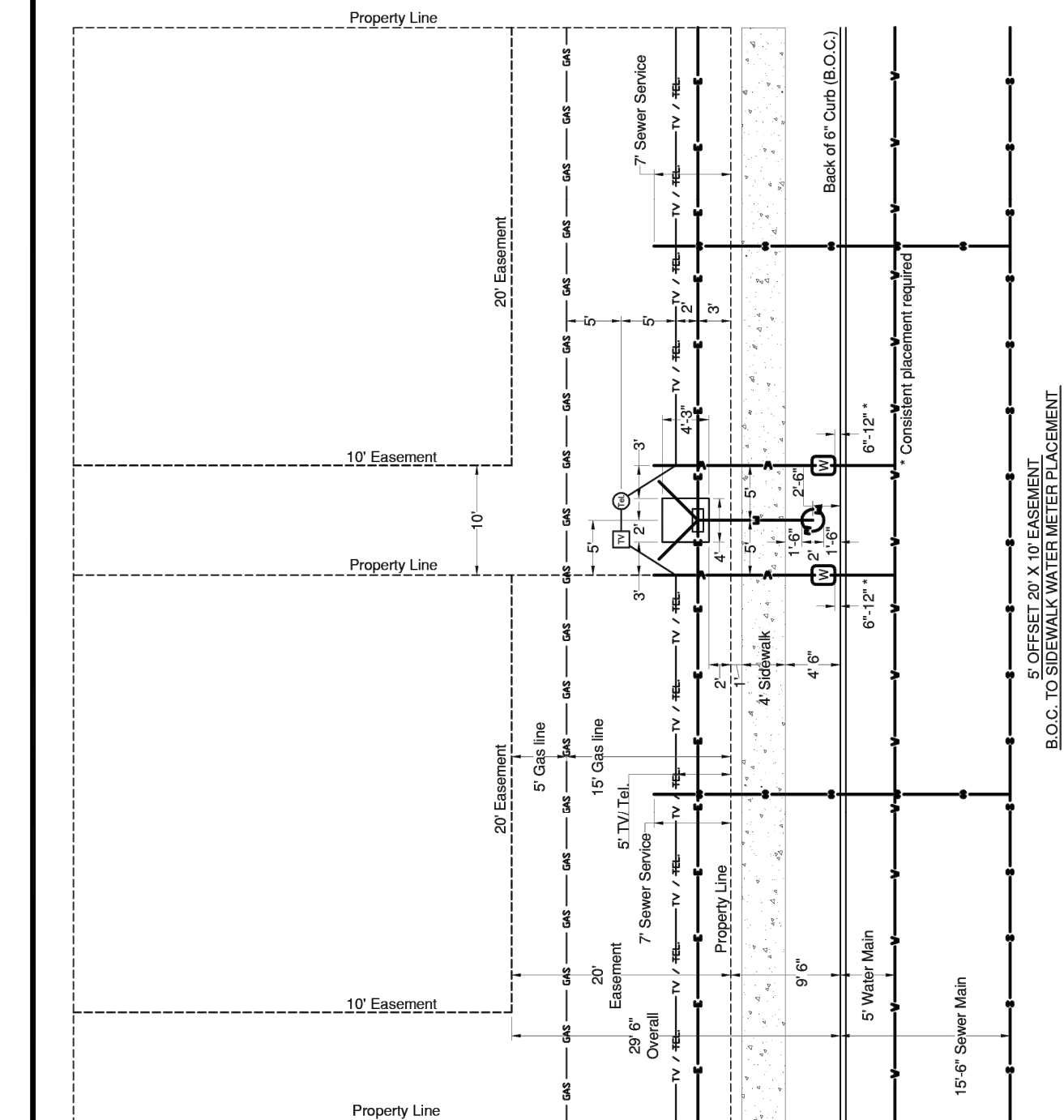
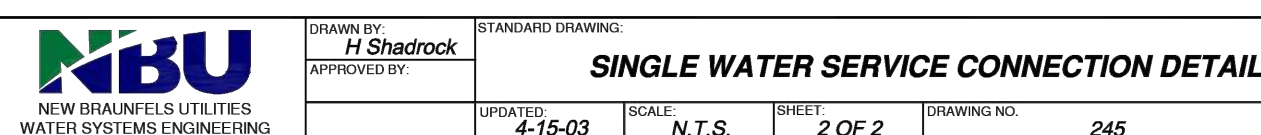
NOTES:

1. STANDARD LOCATIONS WITH NO SIDEWALK OR WHEN SIDEWALK IS NEXT TO CURB
2. END OF SERVICE PIPE TO BE 48" PAST PROPERTY LINE OR IF UNDERGROUND ELECTRIC IS PRESENT IN EASEMENT THEN SERVICE TO END 48" PAST ELECTRIC CONDUIT.



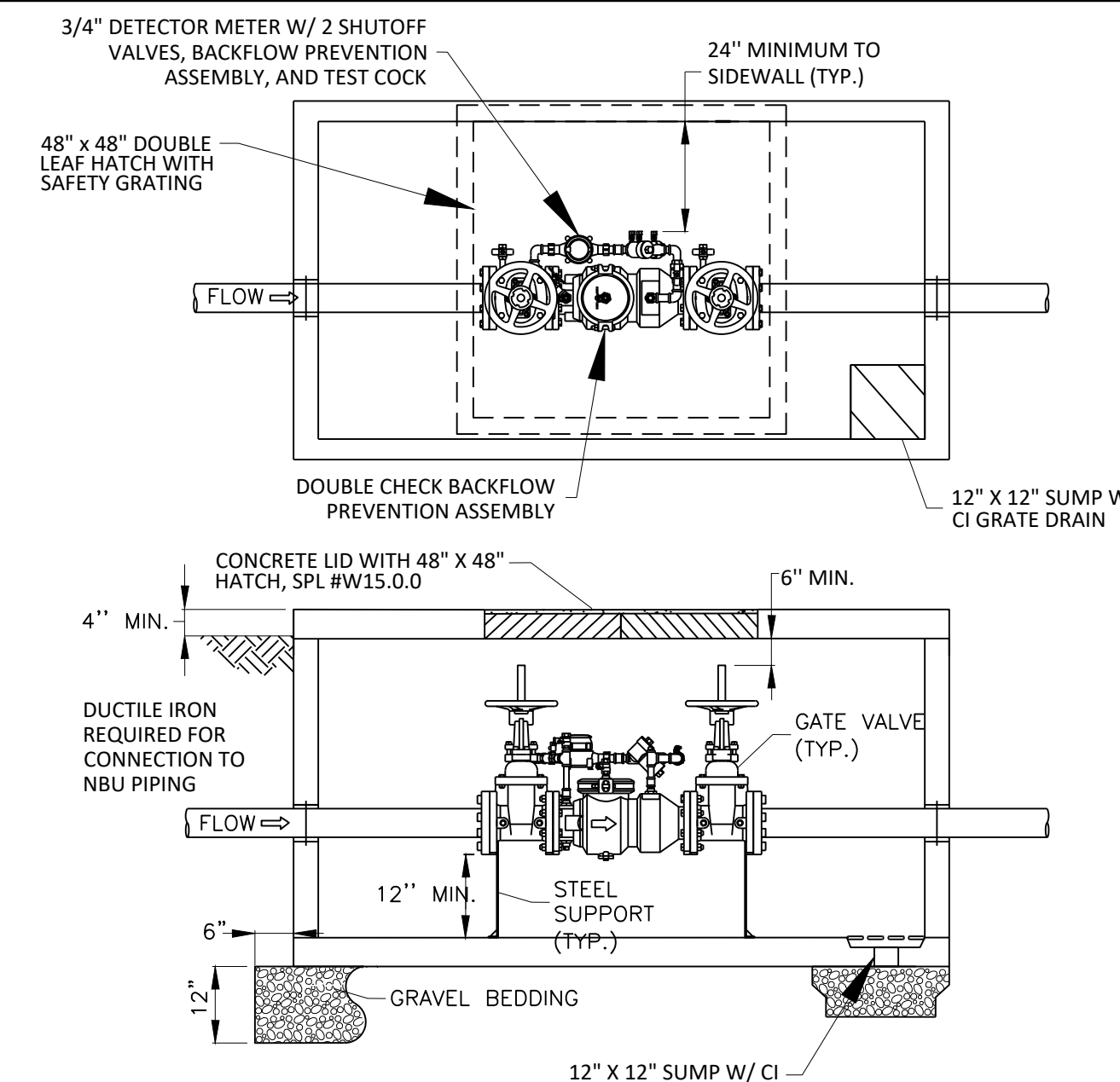
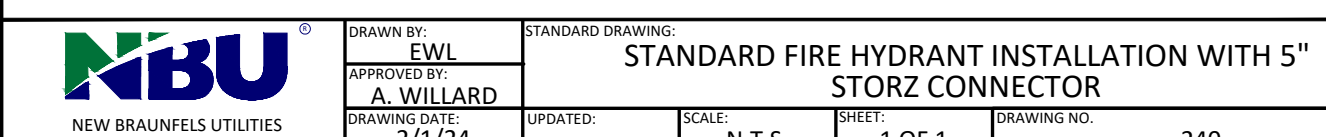
NOTES:

1. UTILITY CONTRACTOR INSTALLS WATER CONNECTION TO MAIN WATER PIPE, FITTINGS AND VALVES INCLUDING STOP VALVE, REFER TO INSTALLATION DETAILS FOR LOCATION OF STOP VALVES. ALL INSTALLATIONS SHALL BE MADE IN ACCORDANCE WITH INFORMATION SHOWN ON APPLICABLE STANDARD DRAWINGS AND WILL BE INSPECTED BY NEW BRAUNFELS UTILITIES (NBU) CONSTRUCTION INSPECTION PERSONNEL.
2. DEVELOPER/S CONTRACTOR TO INSTALL WATER LINES INCLUDING FITTINGS AND VALVES UP TO METER, INSTALL METER BOXES AND COVERS, ALL IN ACCORDANCE WITH INFORMATION ON APPLICABLE STANDARD DRAWING. A VENTED SPACER MAY BE USED TO ASSURE PROPER SPACING AND ALIGNMENT OF METER FITTINGS.
3. DEVELOPER AND/OR CUSTOMER IS RESPONSIBLE FOR METER BOX UNTIL METER IS INSTALLED AND IS CONNECTED. ANY MISSING OR DAMAGED PARTS SHALL BE REINSTALLED BY DEVELOPER/CUSTOMER WHO SHALL GUARANTEE, FOR A PERIOD OF ONE (1) YEAR FROM DATE OF ACCEPTANCE, THAT CONNECTIONS TO SYSTEMS ARE FREE FROM DEFECTS IN WORKMANSHIP OR MATERIALS. DEVELOPER/CUSTOMER ALSO HAS THE RESPONSIBILITY TO ASSURE THAT ALL VALVES AND STOPS, METER BOX AND REMAIN CLEAR OF SIDEWALKS AND OTHER OBSTRUCTIONS.
4. NEW BRAUNFELS UTILITIES (NBU) ACTIVITY IS LIMITED TO INSTALLATION OF THE WATER METER AND INSPECTION OF CONNECTIONS TO NBU'S WATER SYSTEMS. FOR MAINTENANCE PURPOSES, NBU'S RESPONSIBILITY ENDS AT THE CUSTOMER'S SIDE OF THE WATER METER.
5. NO METER BOX SHALL BE SET IN SIDEWALK AREA WITHOUT WRITTEN APPROVAL FROM THE WATER SYSTEMS ENGINEERING DEPARTMENT.



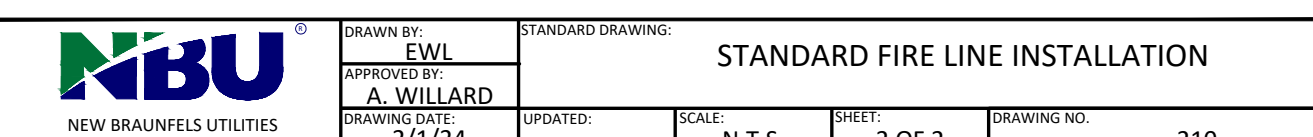
NOTES:

1. DIMENSIONS SHOWN ARE APPLICABLE FOR HYDRANTS INSTALLED BETWEEN CURB AND SIDEWALK. WHERE SIDEWALK ABUTS CURB, IN PUBLIC OR COMMERCIAL AREAS, THE OFFSET FROM BACK OF CURB SHALL BE 6' TO 9'. HYDRANTS ARE NOT TO BE PLACED IN SIDEWALK AREAS. SEE NEW BRAUNFELS UTILITIES STANDARD SPECIFICATIONS FOR LOCATION OF HYDRANT.
2. FOR BURY DEPTHS GREATER THAN 5', ONE BARREL EXTENSION NOT EXCEEDING 2' LENGTH SHALL BE INSTALLED DIRECTLY BELOW THE HYDRANT. NO MORE THAN ONE EXTENSION IS PERMITTED. IF THERE IS ONE OR MORE GRAVEL SHALL BE PLACED AROUND THE BOTTOM OF THE HYDRANT FOR A RADIUS OF AT LEAST 12" AND EXTEND AT LEAST 12" ABOVE THE OUTLET. DO NOT BLOCK DRAIN HOLES.
4. PROVIDE MINIMUM CLEARANCE TO OBSTRUCTIONS AROUND FIRE HYDRANT PER NBU STANDARD DETAIL 242.
5. FIRE HYDRANTS SHALL MEET THE REQUIREMENTS OF NBU SPL W7.0.0.
6. TEST STATION SHALL MEET THE REQUIREMENTS OF NBU SPL W18.1.0. MAX DISTANCE BETWEEN TEST KITS SHALL BE 600 LF. CONCRETE COLLAR SHALL HAVE 1" MINIMUM CLEARANCE TO FIRE HYDRANT ASSEMBLY.
7. PROVIDE THRUST RESTRAINT ON WATER MAIN IN BOTH DIRECTIONS FROM TEE. RESTRAINT LENGTH SHALL BE PER THRUST RESTRAINT CALCULATIONS WITH SAFETY FACTOR NOT LESS THAN 1.5.



NOTES

1. ALL BACKFLOW PREVENTION ASSEMBLIES SHALL HAVE LAB AND FIELD APPROVAL FROM THE UNIVERSITY OF SOUTHERN CALIFORNIA FOUNDATION FOR CROSS CONNECTION CONTROL AND HYDRAULIC RESEARCH.
2. ALL TEST COCKS MUST BE REDIRECTED UPWARD AND PLUGGED.
3. BACKFLOW PREVENTION ASSEMBLIES SHALL BE INSTALLED IN THE UPRIGHT HORIZONTAL POSITION, UNLESS OTHERWISE APPROVED. BACKFLOW PREVENTION ASSEMBLIES SHALL NOT BE ROTATED ON THEIR AXIS.
4. CLEARANCES SHALL BE AS INDICATED IN THE SPECIFICATIONS.
5. ACCESS OPENING MUST BE LARGE ENOUGH TO REMOVE LARGEST PORTION OF BACKFLOW PREVENTER, BUT NOT LESS THAN 48" IN LEAST DIMENSION.
6. ALL PIPE, VALVES, AND FITTINGS WITHIN THE VAULT SHALL RECEIVE A COATING SYSTEM PER NBU SPECIFICATION "HIGH PERFORMANCE COATINGS".



9601 McAllister Freeway, Suite 1008
San Antonio, Texas 78216
Phone - (210) 298-3800
Web - www.freese.com

NEW BRAUNFELS UTILITIES
S. UNION AVE. WATER LINE
IMPROVEMENTS
STANDARD DETAILS

STANDARD DETAILS

WATER DETAILS IV

NO.	ISSUE	BY	DATE	F&N JOB NO.
				NBU22825-065
				DATE 6/6/2024
				DESIGNED NIR
				DRAWN EWL
				REVISED
VERIFY SCALE				DTB
0	1			FILE NAME
Bar is one inch on original drawing. 1 inch on this drawing. 1 inch on this drawing. 1 inch on this drawing.				WTTI-NBU1-DT-05.dwg

VERIFY SCALE 1 0 Bar is one inch on original drawing. If not one inch on this sheet, adjust scale.

SHEET	DT-5
SEQ.	

100% SUBMITTAL