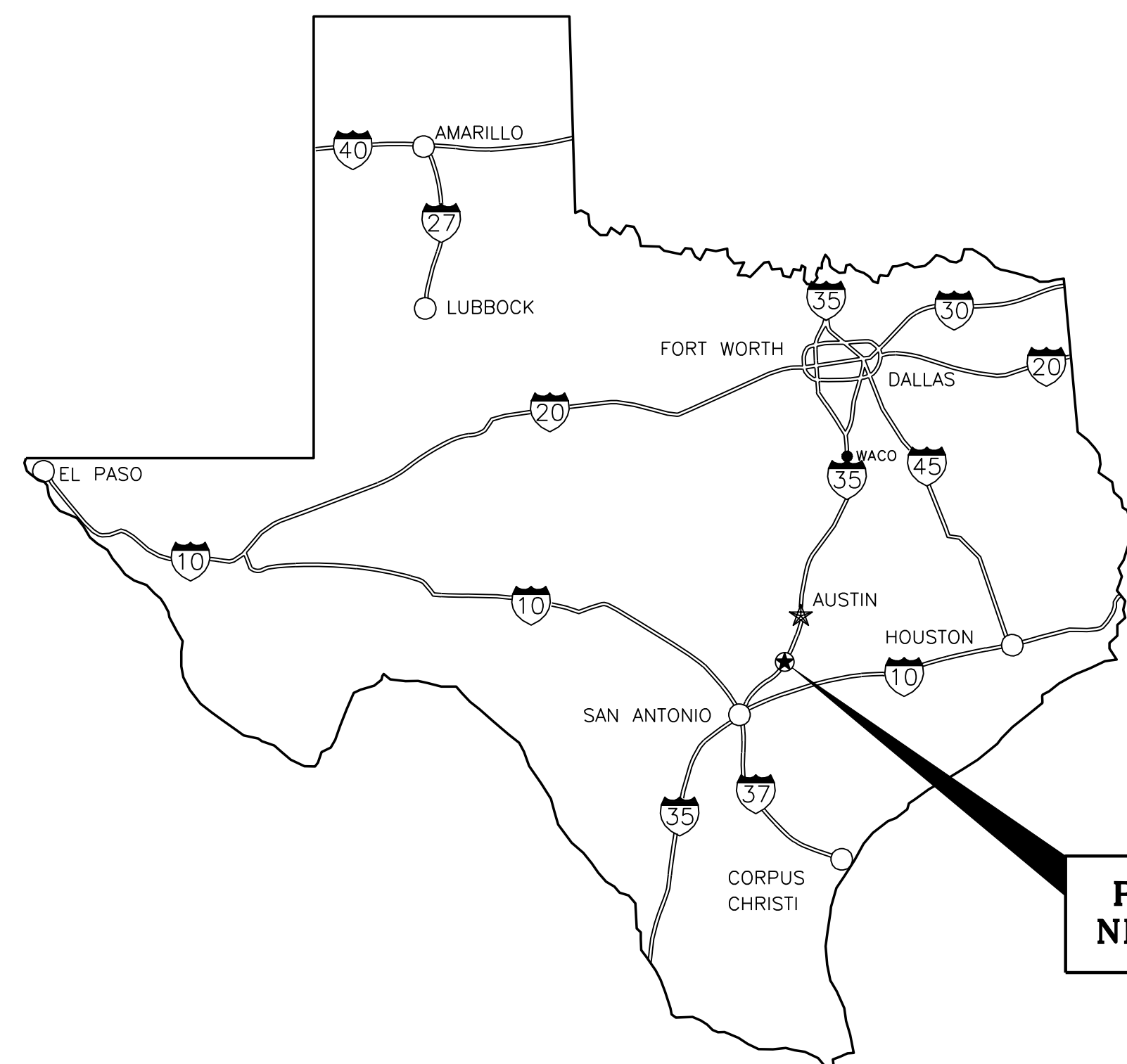
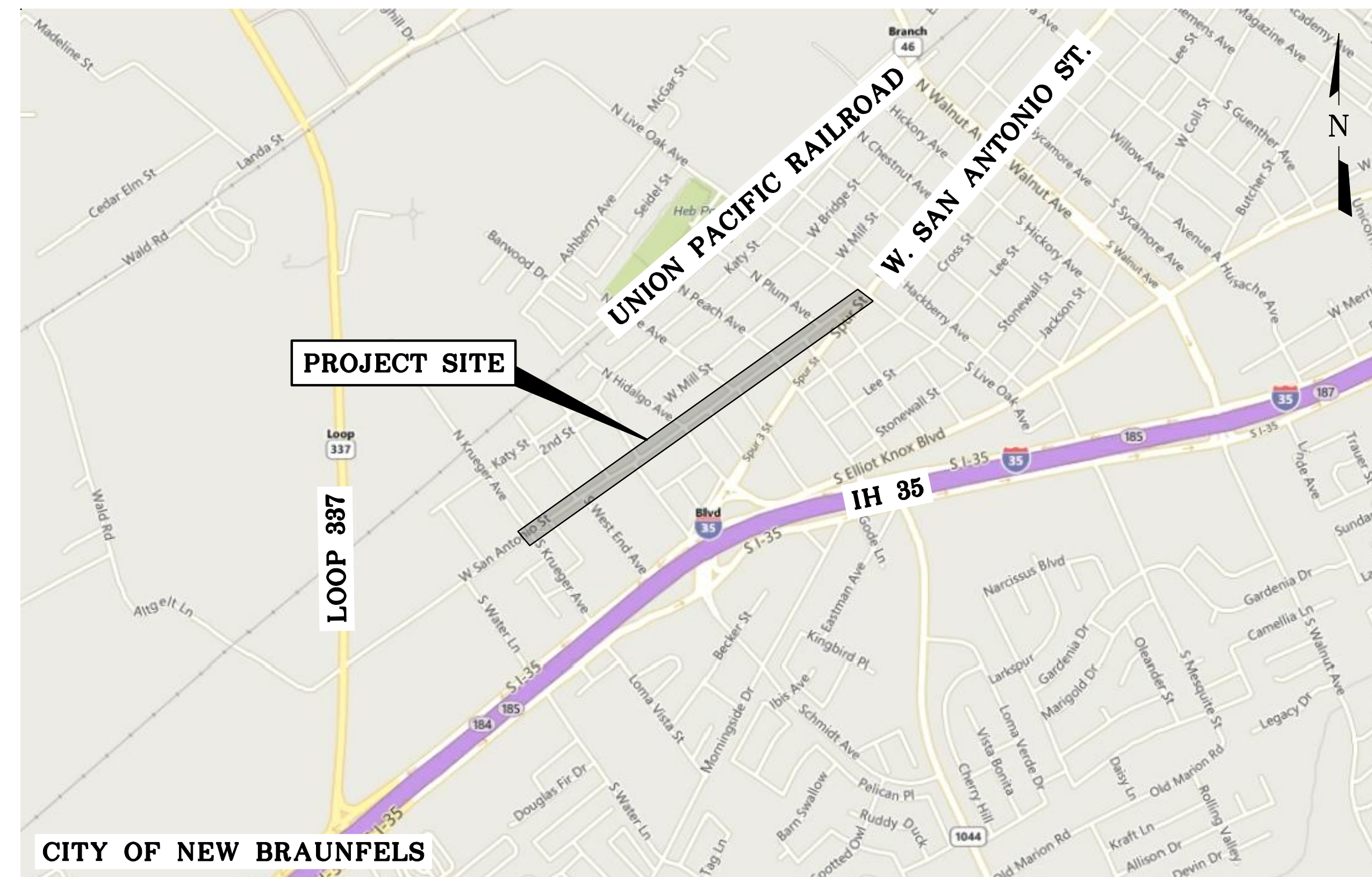


NEW BRAUNFELS UTILITIES SAN ANTONIO STREET WATER AND WASTEWATER RELOCATION VOLUME II



PROJECT LOCATION
N.T.S.



VICINITY MAP
N.T.S.

JULY 2019
100% SUBMITTAL

CITY OF NEW BRAUNFELS NOTES:

1. 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 ON UPON THE ADEQUACY OF WORK OF THE ENGINEER OF RECORD.
2. IF CONSTRUCTION HAS NOT COMMENCED WITHIN ONE YEAR OF CITY APPROVAL FOR CONSTRUCTION INSPECTION, THAT APPROVAL IS NO LONGER VALID.
3. DEVELOPMENT CATEGORY -
4. NO FEMA DEFINED FLOOD HAZARD AREAS WITHIN THE PROJECT SITE.
5. THE PROJECT SITE IS NOT WITHIN THE EDWARDS AQUIFER CONTRIBUTING ZONE, TRANSITION ZONE, OR RECHARGE ZONE.



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FNI PROJECT NO. NBU18539



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 I
- G-3 GENERAL NOTES II
- G-4 OVERALL PROJECT LAYOUT
- G-5 CONSTRUCTION QUANTITIES
- G-6 SHEET QUANTITIES I
- G-7 SHEET QUANTITIES II

SANITARY SEWER LINE A PLAN AND PROFILE

- SS-1 STA. 17+50 TO STA. 12+50
- SS-2 STA. 12+50 TO STA. 11+00

SANITARY SEWER LINE B PLAN AND PROFILE

- SS-3 STA. 23+00 TO STA. 18+50
- SS-4 STA. 18+50 TO STA. 14+50
- SS-5 STA. 14+50 TO STA. 10+50
- SS-6 STA. 10+50 TO STA. 14+00

SANITARY SEWER LINE C PLAN AND PROFILE

- SS-7 STA. 25+00 TO STA. 20+50
- SS-8 STA. 20+50 TO STA. 16+50
- SS-9 STA. 16+50 TO STA. 12+50
- SS-10 STA. 12+50 TO STA. 11+50
- SS-11 STA. 11+50 TO STA. 14+50

SANITARY SEWER LATERALS PLAN AND PROFILE

- SS-12 LATERAL LINES A1 AND A2
- SS-13 LATERAL LINES A3 AND A4
- SS-14 LATERAL LINES B1 AND B2
- SS-15 LATERAL LINES B3 AND B4
- SS-16 LATERAL LINES C1 AND C2
- SS-17 LATERAL LINES C3 AND C4
- SS-18 LATERAL LINE C5

12" WATER LINE PLAN

- W-1 STA. 10+00 TO STA. 18+00
- W-2 STA. 18+00 TO STA. 26+00
- W-3 STA. 26+00 TO STA. 34+00
- W-4 STA. 34+00 TO STA. 41+75
- W-5 STA. 41+75 TO STA. 49+75
- W-6 STA. 49+75 TO END

STANDARD DETAILS

- DT-1 STANDARD DETAILS
- DT-2 SANITARY SEWER DETAILS I
- DT-3 SANITARY SEWER DETAILS II
- DT-4 SANITARY SEWER DETAILS III
- DT-5 SANITARY SEWER DETAILS IV
- DT-6 WATER DETAILS I
- DT-7 WATER DETAILS II
- DT-8 WATER DETAILS III
- DT-9 WATER DETAILS IV

EXISTING KEY LEGEND:

- EDGE OF PAVEMENT
- PROPERTY LINE/RIGHT-OF-WAY
- FENCE (CHAINLINK)
- FENCE (WOOD)
- FENCE (IRON)
- FENCE (WIRE)
- GAS
- GAS LINE
- WL
- WATER LINE
- SS
- SAN. SEWER LINE
- OHE
- OVERHEAD ELECTRIC
- UT
- UNDERGROUND TELEPHONE
- TREE CANOPY
- EXISTING ROADWAY / CURB

PROPOSED LEGEND

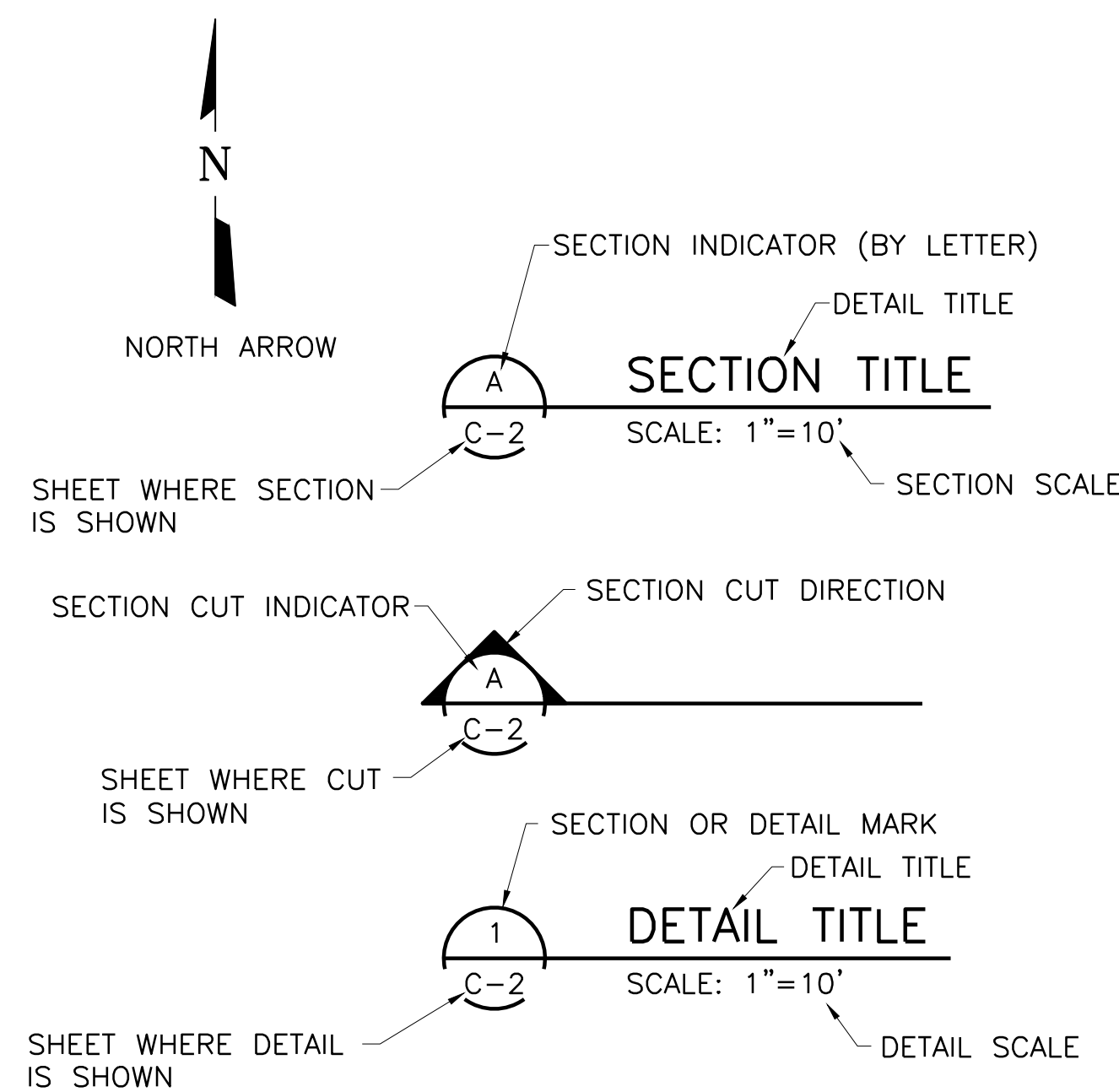
- SS SANITARY SEWER LINE
- W WATER LINE
- UTILITY TO BE ABANDONED OR REMOVED
- WATER SERVICE CONNECTION/WATER METER
- VALVE
- INSERTA-VALVE
- REDUCER
- RESTRAINED CAP
- FIRE HYDRANT
- TRANSITION COUPLING
- CONTROL POINT
- LOW STRENGTH FLOWABLE BACKFILL
- STEEL CASING
- PROPOSED SANITARY SEWER MANHOLE
- SANITARY SEWER SERVICE, W/ CLEANOUT

EXISTING SYMBOL LEGEND:

- 1/2 INCH IRON ROD FOUND
- 1/2 INCH IRON ROD WITH ORANGE PLASTIC CAP "HMT"
- 1/2 INCH IRON ROD WITH YELLOW PLASTIC CAP "3682"
- 1/2 INCH IRON ROD WITH ORANGE PLASTIC CAP "4069"
- 1/2 INCH IRON ROD WITH YELLOW PLASTIC CAP "KOLODIZE"
- 1/2 INCH IRON ROD WITH YELLOW PLASTIC CAP "MDS"
- 5/8 INCH IRON ROD WITH ORANGE PLASTIC CAP "PAPE DAWSON"
- 1/2 INCH IRON ROD WITH RED PLASTIC CAP "SOLTS KANK"
- 1/2 INCH IRON ROD WITH ORANGE PLASTIC CAP "TRI-COUNTY"
- 60D NAIL
- AXLE FOUND
- MAG NAIL FOUND
- SPINDLE FOUND
- CONCRETE MONUMENT FOUND-TYPE 1
- CONTROL POINT, 1/2 INCH IRON ROD WITH RED PLASTIC CAP "URBAN CONTROL"
- IRON BAR 1"x1"
- 1" IRON PIPE FOUND
- 1/2 INCH IRON ROD WITH YELLOW CAP "4907"
- BENCHMARK
- POST
- MAILBOX
- SIGN (DOUBLE POST)
- SIGN (SINGLE POST)
- C.O. CLEANOUT
- STORM MANHOLE
- WASTEWATER MANHOLE
- WATER MANHOLE
- GAS VALVE
- MARKER POST (GAS)
- LIGHT POST
- POWER POLE
- ANCHOR GUY WIRE
- ELECTRIC METER
- TELEPHONE PEDESTAL/BOX
- CABLE/TELEVISION PEDESTAL/BOX
- WATER VALVE
- WATER METER
- FIRE HYDRANT
- WATER FAUCET/SPIGOT
- BENCH
- BUSH/SHRUB
- TREE STUMP
- TREE AND TAG NUMBER
- 2" SPANISH #OAK

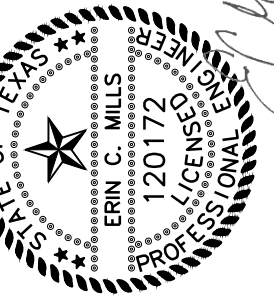
ABBREVIATIONS:

- (8"WW) WASTEWATER LINE SIZE BASED ON PLAN OF RECORD
- RCP REINFORCED CONCRETE PIPE
- CMP CORRUGATED METAL PIPE
- INV. INVERT ELEVATION



ABBREVIATIONS	
PROP.	PROPOSED
EXIST.	EXISTING
FL	PROP. FLOW LINE ELEVATION
CL	CENTER LINE
R.O.W.	RIGHT OF WAY
TBM	TEMPORARY BENCH MARK
WL	WATER LINE
SS	SANITARY SEWER
DI	DUCTILE IRON
MJ	MECHANICAL JOINT
CAV	COMBINATION AIR/VACUUM VALVE
ARV	AIR RELEASE VALVE
SAN.	SANITARY
NG	NATURAL GROUND
MH	MANHOLE
V.C.	VITRIFIED CLAY
A.C.	ASBESTOS CEMENT
NSPI	NO SEPARATE PAY ITEM
R.O.W.	RIGHT OF WAY
CMP	CORRUGATED METAL PIPE
INV.	INVERT ELEVATION

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NEW BRAUNFELS UTILITIES
**SAN ANTONIO STREET WATER
 AND WASTEWATER RELOCATION**
 GENERAL

SHEET INDEX AND LEGEND

NO.	ISSUE	DATE	BY	DESIGNED	DRAWN	REVISION	CHECKED	FILE NAME
		7/23/2019		ECM	DDH			GN-ALL-NOTES.dwg
VERIFY SCALE: Bar is one inch on original drawing, if not one inch on this sheet, adjust scale.								
SHEET								G-1
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**TEXAS COMMISSION ON ENVIRONMENTAL QUALITY
WATER DISTRIBUTION SYSTEM**

GENERAL CONSTRUCTION NOTES:

(FEBRUARY 2019)

- 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."
- ALL NEWLY INSTALLED PIPES AND RELATED PRODUCTS MUST CONFORM TO AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI)/NSF INTERNATIONAL STANDARD 61 AND MUST BE CERTIFIED BY AN ORGANIZATION ACCREDITED BY ANSI [§290.44(A)(1)].
- PLASTIC PIPE FOR USE IN PUBLIC WATER SYSTEMS MUST BEAR THE NSF INTERNATIONAL SEAL OF APPROVAL (NSF-PW) AND HAVE AN ASTM DESIGN PRESSURE RATING OF AT LEAST 150 PSI OR A STANDARD DIMENSION RATIO OF 26 OR LESS [§290.44(A)(2)].
- NO PIPE WHICH HAS BEEN USED FOR ANY PURPOSE OTHER THAN THE CONVEYANCE OF DRINKING WATER SHALL BE ACCEPTED OR RELOCATED FOR USE IN ANY PUBLIC DRINKING WATER SUPPLY [§290.44(A)(3)].
- ALL WATER LINE CROSSINGS OF WASTEWATER MAINS SHALL BE PERPENDICULAR [§290.44(E)(4)(B)].
- WATER TRANSMISSION AND DISTRIBUTION LINES SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS. HOWEVER, THE TOP OF THE WATER LINE MUST BE LOCATED BELOW THE FROST LINE AND IN NO CASE SHALL THE TOP OF THE WATER LINE BE LESS THAN 24 INCHES BELOW GROUND SURFACE [§290.44(A)(4)].
- THE MAXIMUM ALLOWABLE LEAD CONTENT OF PIPES, PIPE FITTINGS, PLUMBING FITTINGS, AND FIXTURES IS 0.25 PERCENT [§290.44(B)].
- THE CONTRACTOR SHALL INSTALL APPROPRIATE AIR RELEASE DEVICES WITH VENT OPENINGS TO THE ATMOSPHERE COVERED WITH 16-MESH OR FINER, CORROSION RESISTANT SCREENING MATERIAL OR AN ACCEPTABLE EQUIVALENT [§290.44(D)(1)].
- THE CONTRACTOR SHALL NOT PLACE THE PIPE IN WATER OR WHERE IT CAN BE FLOODED WITH WATER OR SEWAGE DURING ITS STORAGE OR INSTALLATION [§290.44(F)(1)].
- WHEN WATERLINES ARE LAID UNDER ANY FLOWING OR INTERMITTENT STREAM OR SEMI-PERMANENT BODY OF WATER THE WATERLINE SHALL BE INSTALLED IN A SEPARATE WATERTIGHT PIPE ENCASEMENT. VALVES MUST BE PROVIDED ON EACH SIDE OF THE CROSSING WITH FACILITIES TO ALLOW THE UNDERWATER PORTION OF THE SYSTEM TO BE ISOLATED AND TESTED [§290.44(F)(2)].
- PURSUANT TO 30 TAC §290.44(A)(5), THE HYDROSTATIC LEAKAGE RATE SHALL NOT EXCEED THE AMOUNT ALLOWED OR RECOMMENDED BY THE MOST CURRENT AWWA FORMULAS FOR PVC PIPE, CAST IRON AND DUCTILE IRON PIPE. INCLUDE THE FORMULAS IN THE NOTES ON THE PLANS.

THE HYDROSTATIC LEAKAGE RATE FOR POLYVINYL CHLORIDE (PVC) PIPE AND APPURTENANCES SHALL NOT EXCEED THE AMOUNT ALLOWED OR RECOMMENDED BY FORMULAS IN AMERICA WATER WORKS ASSOCIATION (AWWA) C-605 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:

- Q = THE QUANTITY OF MAKEUP WATER IN GALLONS PER HOUR, $Q = \frac{LD\sqrt{P}}{148,000}$
- 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).

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

- THE CONTRACTOR SHALL MAINTAIN A MINIMUM SEPARATION DISTANCE IN ALL DIRECTIONS OF NINE FEET BETWEEN THE PROPOSED WATERLINE AND WASTEWATER COLLECTION FACILITIES INCLUDING MANHOLES. IF THIS DISTANCE CANNOT BE MAINTAINED, THE CONTRACTOR MUST IMMEDIATELY NOTIFY THE PROJECT ENGINEER FOR FURTHER DIRECTION. SEPARATION DISTANCES, INSTALLATION METHODS, AND MATERIALS UTILIZED MUST MEET §290.44(E)(1)-(4).
- THE SEPARATION DISTANCE FROM A POTABLE WATERLINE TO A WASTEWATER MAIN OR LATERAL MANHOLE OR CLEANOUT SHALL BE A MINIMUM OF NINE FEET. WHERE THE NINE-FOOT SEPARATION DISTANCE CANNOT BE ACHIEVED, THE POTABLE WATERLINE SHALL BE ENCASED IN A JOINT OF AT LEAST 150 PSI PRESSURE CLASS PIPE AT LEAST 18 FEET LONG AND TWO NOMINAL SIZES LARGER THAN THE NEW CONVEYANCE. THE SPACE AROUND THE CARRIER PIPE SHALL BE SUPPORTED AT FIVE-FOOT INTERVALS WITH SPACERS OR BE FILLED TO THE SPRINGLINE WITH WASHED SAND. THE ENCASEMENT PIPE SHALL BE CENTERED ON THE CROSSING AND BOTH ENDS SEALED WITH CEMENT GROUT OR MANUFACTURED SEALANT [§290.44(E)(5)].
- FIRE HYDRANTS SHALL NOT BE INSTALLED WITHIN NINE FEET VERTICALLY OR HORIZONTALLY OF ANY WASTEWATER LINE, WASTEWATER LATERAL, OR WASTEWATER SERVICE LINE REGARDLESS OF CONSTRUCTION [§290.44(E)(6)].
- SUCTION MAINS TO PUMPING EQUIPMENT SHALL NOT CROSS WASTEWATER MAINS, WASTEWATER LATERALS, OR WASTEWATER SERVICE LINES. RAW WATER SUPPLY LINES SHALL NOT BE INSTALLED WITHIN FIVE FEET OF ANY TILE OR CONCRETE WASTEWATER MAIN, WASTEWATER LATERAL, OR WASTEWATER SERVICE LINE [§290.44(E)(7)].
- WATERLINES SHALL NOT BE INSTALLED CLOSER THAN TEN FEET TO SEPTIC TANK DRAINFIELDS [§290.44(E)(8)].
- 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)].
- DECHLORINATION OF DISINFECTING WATER SHALL BE IN STRICT ACCORDANCE WITH CURRENT AWWA STANDARD C655-09 OR MOST RECENT.

WASTEWATER NOTES:

(JANUARY 2019)

- THE CONTRACTOR SHALL MAINTAIN SERVICE TO EXISTING SANITARY SEWERS AT ALL TIMES DURING CONSTRUCTION.
- DUE TO FEDERAL REGULATIONS TITLE 49,PART 192,181, RELIANT ENERGY MUST MAINTAIN ACCESS TO GAS VALVES AT ALL TIMES. THE CONTRACTOR MUST PROTECT AND WORK AROUND GAS VALVES THAT ARE IN THE PROJECT AREAS.
- ALL 8" AND 10" SEWER PIPE AND FITTINGS IN THIS PROJECT ARE P.V.C. SDR-26, ASTM, D-3034, D-3212, F-477.
- ALL RESIDENTIAL SEWER SERVICE LATERALS SHALL BE EXTENDED TO THE PROPERTY LINE AND CAPPED AND SEALED.
- INITIAL BACKFILL OF SEWER LINES SHALL BE ¾" TO DUST OR PEA GRAVEL AS PER NBU SPECIFICATIONS.
- SECONDARY BACKFILL OF SEWER LINES SHALL GENERALLY CONSIST OF MATERIALS REMOVED FROM THE TRENCH AND SHALL BE FREE FROM BRUSH, DEBRIS AND TRASH, NO ROCKS OR STONES HAVING ANY DIMENSION LARGER THAN 6 INCHES AT THE LARGEST DIMENSION SHALL BE ALLOWED.
- ALL SEWER PIPES SHALL HAVE COMPRESSION OR MECHANICAL JOINTS AS PER 31 TAC 313.5 (C) (2)(II).
- FOR SEWER LINES LESS THAN 24" IN DIAMETER, SELECT INITIAL BACKFILL MATERIAL SHALL BE PLACED IN TWO LIFTS.
 - THE FIRST LIFT SHALL BE SPREAD UNIFORMLY AND SIMULTANEOUSLY ON EACH SIDE AND UNDER THE SHOULDERS OF THE PIPE TO THE MID POINT OR SPRING LINE OF THE PIPE.
 - THE SECOND LIFT SHALL BE PLACED TO A DEPTH AS SHOWN ON THE PIPE BACKFILL DETAIL. FOR PIPES LARGER THAN 24", 12" MAXIMUM LIFTS SHALL BE USED.
- ALL MANHOLES MUST BE WATER TIGHT, EITHER MONOLITHIC, CAST-IN-PLACE CONCRETE STRUCTURES OR PREFABRICATED MANHOLES SPECIFICALLY APPROVED BY NBU. THE MANHOLES SHALL HAVE WATER-TIGHT RINGS AND COVERS. WHEREVER THEY ARE WITHIN THE 100 YEAR FLOODPLAIN, THE MANHOLE COVERS SHALL BE BOLTED. EVERY FOURTH MANHOLE IN SEQUENCE SHALL HAVE AN ALTERNATE MEANS OF VENTING. 31 TAC 313.5 (C) (1) AND 31 TAC 317.2 (C) (5)(F).
- ALL MANHOLES SHALL BE CONSTRUCTED SO THAT THE TOP OF THE RING IS SURROUNDING GROUND EXCEPT WHEN LOCATED IN PAVED AREA. IN PAVED AREAS, THE MANHOLE RING SHALL BE FLUSH WITH PAVEMENT.
- ALL NEW MANHOLES ARE TO HAVE COVERS WITH 32" OPENINGS.
- SEWER PIPE CONNECTIONS TO PRE-CAST MANHOLES WILL BE COMPRESSION JOINTS OR MECHANICAL "BOOT TYPE" JOINT AS APPROVED BY NBU.
- SEWER LINES SHALL BE TESTED FROM MANHOLE TO MANHOLE.
- IN AREAS WHERE A NEW SANITARY SEWER MANHOLE IS TO BE CONSTRUCTED OVER AN EXISTING SANITARY SEWER SYSTEM, IT SHALL BE THE CONTACTOR'S RESPONSIBILITY TO TEST THE EXISTING MANHOLES BEFORE CONSTRUCTION. AFTER THE PROPOSED MANHOLE(S) HAS BEEN BUILT, THE CONTRACTOR SHALL RE-TEST THE EXISTING SYSTEM TO THE SATISFACTION OF THE CONSTRUCTION INSPECTOR. (NO SEPARATE PAY ITEM).
- WHERE THE MINIMUM 9 FOOT SEPARATION DISTANCE BETWEEN SEWER LINES AND WATER LINES / MAINS CANNOT BE MAINTAINED, THE INSTALLATION OF SEWER LINES SHALL BE IN STRICT ACCORDANCE WITH TCEQ. THE WASTEWATER LINE SHALL BE CONSTRUCTED OF CAST IRON, DUCTILE IRON OR PVC MEETING THE ASTM SPECIFICATION FOR BOTH PIPES AND JOINTS OF 150 PSI AND SHALL BE IN ACCORDANCE WITH 30 TAC 290.44 (E)(5).
- AFTER CONSTRUCTION, TESTING WILL BE DONE BY TV CAMERA BY THE CONTRACTOR AND OBSERVED BY INSPECTOR OF WATER SYSTEMS ENGINEERING PERSONNEL, AS THE CAMERA IS RUN THROUGH THE LINES. ANY ABNORMALITIES FOUND IN THE LINE, SUCH AS BROKEN PIPE OR MISALIGNED JOINTS, MUST BE REPLACED BY THE CONTRACTOR AT HIS EXPENSE. CONTRACTOR TO PROVIDE TV TAPES TO CONSTRUCTION INSPECTION FOR REVIEW PRIOR TO FINAL INSPECTION OF THE PROJECT.
- WATER JETTING THE BACKFILL WITHIN A STREET WILL NOT BE PERMITTED. SANITARY SEWER TRENCHES SUBJECT TO TRAFFIC SHALL CONFORM TO NBU CONNECTION & CONSTRUCTION POLICY MANUAL.
- NO TESTING WILL BE PERFORMED PRIOR TO 30 DAYS FROM COMPLETE INSTALLATION OF THE SANITARY SEWER LINES. THE FOLLOWING SEQUENCE WILL BE STRICTLY ADHERED TO:
 - PULL MANDREL
 - PERFORM AIR TEST
- WHERE REQUIRED, CONCRETE ENCASEMENT SHALL BE PLACED AS SHOWN ON THE STANDARD DETAIL SHEET.
- A MINIMUM OF 3 FEET OF COVER IS TO BE MAINTAINED OVER THE SANITARY SEWER MAIN AND LATERALS AT SUBGRADE, OTHERWISE CONCRETE ENCASEMENT WILL BE REQUIRED.
- SANITARY SEWER MAIN CONNECTIONS MADE DIRECTLY TO EXISTING MANHOLES WILL REQUIRE SUCCESSFUL TESTING OF THE MANHOLE IN ACCORDANCE WITH NBU CONNECTION & CONSTRUCTION POLICY MANUAL.
- TCEQ AND EPA REQUIRE EROSION AND SEDIMENTATION CONTROL FOR CONSTRUCTION OF SEWER COLLECTION SYSTEMS. DEVELOPER OR AUTHORIZED REPRESENTATIVE SHALL PROVIDE EROSION AND SEDIMENTATION CONTROL AS NOTES ON THE PROJECT'S PLAN AND PROFILE SHEETS. ALL TEMPORARY EROSION AND SEDIMENTATION CONTROLS SHALL BE REMOVED BY THE CONTRACTOR AT FINAL ACCEPTANCE OF THE PROJECT BY NBU WATER SYSTEMS.
- ALL MANHOLES NOT WITHIN PAVED STREETS SHALL HAVE LOCKING CONCRETE COLLAR TO SECURE RING AND COVER TO MANHOLE CONE PER NBU DETAIL DRAWING #329.
- ALL MANHOLES OVER THE EDWARDS AQUIFER RECHARGE ZONE SHALL HAVE LOCKING CONCRETE COLLAR TO SECURE RING AND COVER TO MANHOLE CONE PER NBU DETAIL DRAWING #329.
- ALL SEWER SERVICES SHALL HAVE CLEANOUT INSTALLED AT PROPERTY LINE PER NBU DETAIL DRAWING #302 AND #303.

WATER NOTES:

(MARCH 31, 2011)

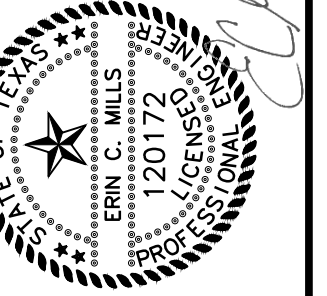
- ALL WATER MAINS SHALL BE AWWA C900 (CLASS 150 OR GREATER).
- WATER SERVICES SHALL BE SINGLE 1" COPPER TUBING.
- WATER LINE IS TO BE CONSTRUCTED IN ACCORDANCE WITH THE NBU SYSTEMS CONNECTION & CONSTRUCTION POLICY.
- WATER MAIN SHALL HAVE A MINIMUM OF 42 INCHES OF COVER, OTHERWISE CONCRETE ENCASEMENT WILL BE REQUIRED.
- EACH UNIT IN A DUPLEX, TRIPLEX, FOURPLEX, OR CONDOMINIUM SHALL BE PROVIDED WITH AN INDIVIDUAL WATER METER. A MASTER METER CAN BE CONSIDERED FOR SEPARATE BUILDINGS, HOWEVER, THOSE BUILDINGS MUST BE PLUMBED TO ALLOW SEPARATE METERS FOR FUTURE CONSIDERATION.
- CONTRACTOR WILL KEEP THE AREA ON TOP OF AND AROUND THE WATER METER BOX FREE OF ALL OBJECTS AND DEBRIS.
- INITIAL BACKFILL OF WATER LINES SHALL BE MANUFACTURED SAND OR PEA GRAVEL AS PER NBU SYSTEMS CONNECTION & CONSTRUCTION POLICY.
- SECONDARY BACKFILL OF WATER LINES SHALL GENERALLY CONSIST OF MATERIAL REMOVED FROM THE TRENCH AND SHALL BE FREE FROM BRUSH, DEBRIS AND TRASH OR STONES HAVING ANY DIMENSION LARGER THAN 6" INCHES AT THE LARGEST DIMENSION.
- HYDROSTATIC TESTING IS DONE FROM VALVE TO VALVE.
- NO METER BOXES TO BE SET IN DRIVEWAYS OR SIDEWALKS. ANY METER BOXES SET IN DRIVEWAYS OR SIDEWALKS WILL BE RELOCATED AT CONTRACTOR'S AND/OR DEVELOPER'S EXPENSE.
- METER BOXES MUST BE SET AT THE PROPOSED GRADE. ANY METER BOXES THAT ARE NOT SET AT THE FINAL GRADE WILL BE ADJUSTED AT CONTRACTOR'S AND/OR DEVELOPER'S EXPENSE.
- ACCEPTABLE METER BOXES ARE D13-BAMR AND D15-BAMR. NEW RESIDENTIAL LOTS ARE REQUIRED TO USE THE D15-BAMR METER BOXES (DOUBLE AMR). COMMERCIAL LOTS SHOULD CHOOSE WHICH BOX APPLIES TO THE DOMESTIC AND/OR IRRIGATION METER LAYOUT.
- THRUST BLOCKS WILL NOT BE ALLOWED ON THE SYSTEM WITHOUT SPECIAL APPROVAL. JOINTS WILL BE RESTRAINED WITH RESTRAINING SYSTEMS APPROVED BY NBU AND RESTRAINT LENGTH SHALL BE SUBMITTED TO NBU AT THE TIME OF PLAN SUBMITTAL.
- CONTRACTOR SHALL PLACE TRACER WIRE ON TOP OF THE WATER MAINS. TRACER WIRE SHOULD RUN FROM VALVE TO VALVE AND EXIT AT THE VALVE BOX. THE TRACER WIRE SHOULD BE ATTACHED TO THE TOP OF THE PIPE USING TAPE. EXCESS WIRE SHOULD BE LEFT WITHIN VALVE BOXES TO BE PLACED WITHIN LID OF COVER.

EROSION AND SEDIMENTATION CONTROL NOTES:

- CONTRACTOR SHALL REVEGETATE DISTURBED AREAS IN A TIMELY MANNER UPON COMPLETION OF WORK. REVEGETATION SHALL BE IN ACCORDANCE WITH PROJECT SPECIFICATIONS.
- RESTORATION OF THE SITE SHALL OCCUR PRIOR TO FINAL COMPLETION AND SHALL BE IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS.
- 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.
- SILT FENCING SHALL BE INSTALLED AROUND ALL DIRT STOCK PILES.
- THE CONTRACTOR SHALL INSTALL EROSION/SEDIMENTATION CONTROLS AND TREE/NATURAL AREA PROTECTIVE FENCING PRIOR TO ANY SITE PREPARATION WORK (CLEARING, GRUBBING OR EXCAVATION).
- THE PLACEMENT OF EROSION/SEDIMENTATION CONTROLS SHALL BE IN ACCORDANCE WITH THE APPROVED EROSION AND SEDIMENTATION CONTROL PLAN PROVIDED BY THE CONTRACTOR.
- 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.
- 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.
- 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.
- PERMANENT EROSION/SEDIMENTATION CONTROL: ALL DISTURBED AREAS SHALL BE RESTORED IN ACCORDANCE WITH THESE PLANS AND THE SPECIFICATIONS.

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Freese and Nichols, Inc.
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**NEW BRAUNFELS UTILITIES
SAN ANTONIO STREET WATER
AND WASTEWATER RELOCATION**

GENERAL

GENERAL NOTES I

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NOTE:

- 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.

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UTILITY COMPANY NOTIFICATION:

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

Table with utility company names and contact numbers: NEW BRAUNFELS UTILITIES (830-629-8400), TIME WARNER CABLE (210-835-1459), AT&T (210-283-1626), CENTERPOINT GAS (830-643-6434), TEXAS ONE CALL (800-545-6005).

NEW BRAUNFELS UTILITIES GENERAL CONSTRUCTION NOTES: (MODIFIED)

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 POLICIES WATER SYSTEMS." (MARCH 31, 2011)

- 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 POLICIES WATER SYSTEMS".
- 2. CONTRACTOR SHALL NOT PROCEED WITH ANY PIPE INSTALLATION WORK UNTIL THEY OBTAIN A COPY OF THE PLANS FROM THE CONSULTANT OR ENGINEER AND NOTIFY NBU WATER SYSTEMS ENGINEERING AT 830-608-8971 WITH AT LEAST THREE (3) WORKING DAYS (72 HOURS) NOTICE. WORK COMPLETED BY THE CONTRACTOR, WHICH HAS NOT RECEIVED A NOTICE TO PROCEED WITH NEW BRAUNFELS UTILITIES WATER SYSTEMS ENGINEERING WILL BE SUBJECT TO REMOVAL AND REPLACEMENT BY AND AT THE EXPENSE OF THE CONTRACTOR.
- 3. THE DEVELOPER DEDICATES THE WATER / WASTEWATER MAINS UPON COMPLETION BY THE DEVELOPER AND ACCEPTANCE BY THE NEW BRAUNFELS UTILITIES WATER SYSTEM. NBU WILL OWN AND MAINTAIN SAID WATER / WASTEWATER MAINS WHICH ARE LOCATED WITHIN SAID PARTICULAR SUBDIVISION. (AS APPLICABLE).
- 4. CONTRACTOR AGREES TO ASSUME SOLE AND COMPLETE RESPONSIBILITY FOR JOB SITE CONDITIONS DURING THE CONSTRUCTION OF THE PROJECT, INCLUDING SAFETY OF ALL PERSONS AND PROPERTY. THIS REQUIREMENT SHALL APPLY CONTINUOUSLY AND NOT BE LIMITED TO NORMAL WORKING HOURS. THE CONTRACTOR SHALL DEFEND, INDEMNIFY AND HOLD THE OWNERS AND THE ENGINEER AND HIS EMPLOYEES, PARTNERS OFFICERS, DIRECTORS, OR CONSULTANTS HARMLESS FROM ANY AND ALL LIABILITY, REAL OR ALLEGED, IN CONNECTION WITH THE PERFORMANCE OF THE WORK ON THIS PROJECT, EXCEPTING FROM LIABILITY ARISING FROM SOLE NEGLIGENCE OF THE OWNER OR ENGINEER, ENGINEER'S DIRECTORS, OFFICERS, EMPLOYEES, OR CONSULTANTS.
- 5. 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.
- 6. CONTRACTOR SHALL BE RESPONSIBLE FOR RESTORING TO ITS ORIGINAL OR BETTER CONDITION, ANY DAMAGES DONE TO EXISTING FENCES, CURBS, STREETS, DRIVEWAYS, LANDSCAPING AND STRUCTURES, AND EXISTING UTILITIES (NOT ADJUSTED ON PLANS). COST OF RESTORATIONS, IF ANY, SHALL BE THE CONTRACTOR'S ENTIRE EXPENSE.
- 7. THE CONTRACTOR SHALL AVOID CUTTING ROOTS LARGER THAN ONE INCH IN DIAMETER WHEN EXCAVATING NEAR EXISTING TREES. EXCAVATION IN VICINITY OF TREES SHALL PROCEED WITH CAUTION.
- 8. CONTRACTOR SHALL PROCURE ALL PERMITS AND LICENSES, PAY ALL CHARGES, FEES AND TAXES AND GIVE ALL NOTICES NECESSARY AND INCIDENTAL TO THE DUE AND LAWFUL PROSECUTION OF THE WORK.
- 9. NO EXTRA PAYMENT SHALL BE ALLOWED FOR WORK CALLED FOR ON THE PLANS BUT NOT INCLUDED ON THE BID SCHEDULE. THIS INCIDENTAL WORK WILL BE REQUIRED AND SHALL BE INCLUDED UNDER THE PAY ITEM TO WHICH IT RELATES.
- 10. CONTRACTOR IS RESPONSIBLE FOR REMOVAL OF ALL WASTE MATERIALS UPON PROJECT COMPLETION. THE CONTRACTOR SHALL NOT PERMANENTLY PLACE ANY WASTE MATERIALS IN THE 100-YEAR FLOOD PLAIN WITHOUT FIRST OBTAINING AN APPROVED FLOOD PLAIN DEVELOPMENT PERMIT.
- 11. THE CONTRACTOR SHALL NOT PLACE ANY MATERIALS ON THE RECHARGE ZONE OF THE EDWARDS AQUIFER WITHOUT AN APPROVED WATER POLLUTION ABATEMENT PLAN FROM THE TCEQ 31 TAC 313.4 AND 31 TAC 313.9.
- 12. BARRICADES AND WARNING SIGNS SHALL CONFORM TO THE "TEXAS MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" AND SHALL BE LOCATED TO PROVIDE MAXIMUM PROTECTION TO THE PUBLIC AS WELL AS CONSTRUCTION PERSONNEL AND EQUIPMENT WHILE PROVIDING CONTINUOUS TRAFFIC FLOW AT ALL TIMES DURING CONSTRUCTION. THE CONTRACTOR IS RESPONSIBLE FOR MAINTAINING ALL DEVICES DURING CONSTRUCTION.
- 13. CONTRACTOR IS REQUIRED TO VERIFY PROJECT ELEVATIONS. THE TERM "MATCH EXISTING" SHALL BE UNDERSTOOD TO SIGNIFY BOTH HORIZONTAL AND VERTICAL ALIGNMENT.
- 14. THE LOCATION OF UTILITIES, EITHER UNDERGROUND OR OVERHEAD, SHOWN WITHIN THE RIGHT OF WAY ARE APPROXIMATE AND SHALL BE VERIFIED BY THE CONTRACTOR BEFORE BEGINNING CONSTRUCTION OPERATIONS.
- 15. OSHA REGULATIONS PROHIBIT OPERATIONS THAT WILL BRING PERSONS OR EQUIPMENT WITHIN 10 FEET OF AN ENERGIZED LINE. WHERE WORKMEN AND/OR EQUIPMENT HAVE TO WORK CLOSE TO AN ENERGIZED ELECTRICAL LINE, THE CONTRACTOR SHALL NOTIFY THE ELECTRICAL POWER COMPANY INVOLVED AND MAKE WHATEVER ADJUSTMENTS NECESSARY TO ENSURE THE SAFETY OF THOSE WORKMEN.
- 16. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO LOCATE UTILITY SERVICE LINES AS REQUIRED FOR CONSTRUCTION. UTILITY COMPANIES ARE ALSO PREVIOUSLY MENTIONED IN "UTILITY COMPANY NOTIFICATION".
- 17. DUE TO FEDERAL REGULATIONS TITLE 49, PART 192 (8), GAS COMPANIES MUST MAINTAIN ACCESS TO GAS VALVES AT ALL TIMES. THE CONTRACTOR MUST PROTECT AND WORK AROUND ANY GAS VALVES THAT ARE IN THE PROJECT AREA.
- 18. THE CONTRACTOR IS FULLY RESPONSIBLE FOR THE TRAFFIC CONTROL AND WILL BE RESPONSIBLE FOR FURNISHING ALL TRAFFIC CONTROL DEVICES, AND FLAGGERS. THE CONSTRUCTION METHODS SHALL BE CONDUCTED TO PROVIDE THE LEAST POSSIBLE INTERFERENCE TO TRAFFIC SO AS TO PERMIT THE CONTINUOUS MOVEMENT OF THE TRAFFIC IN ONE DIRECTION AT ALL TIMES. THE CONTRACTOR SHALL CLEAN UP AND REMOVE FROM THE WORK AREA ANY LOOSE MATERIAL RESULTING FROM CONSTRUCTION OPERATIONS AT THE END OF EACH WORKDAY.
- 19. PRIOR TO ORDERING MATERIALS TO BE USED IN CONSTRUCTION, CONTRACTOR SHALL PROVIDE THE ENGINEER WITH FOUR (4) COPIES OF THE SOURCE, TYPE, GRADATION, MATERIAL SPECIFICATION DATA AND / OR SHOP DRAWINGS, AS APPLICABLE, TO SATISFY THE REQUIREMENTS OF THE FOLLOWING ITEMS AND ALL MATERIAL ITEMS REFERRED TO IN THESE LISTED ITEMS:
 - A. WATER MAINS AND SERVICES
 - B. SEWER MAINS AND SERVICES
- 20. NO METER BOXES TO BE SET IN DRIVEWAYS. ANY METER BOXES SET IN DRIVEWAYS WILL BE RELOCATED AT CONTRACTOR'S AND/OR DEVELOPER'S EXPENSE.
- 21. WHERE THE MINIMUM 9 FOOT SEPARATION DISTANCE BETWEEN SEWER LINES AND WATER LINES / MAINS CANNOT BE MAINTAINED, THE INSTALLATION OF SEWER LINES SHALL BE IN STRICT ACCORDANCE WITH TCEQ.
- 22. CONTRACTOR AND/OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR STRUCTURAL DESIGN/GEOTECHNICAL/SAFETY/EQUIPMENT CONSULTANT, IF ANY, SHALL REVIEW THESE PLANS AND AVAILABLE GEOTECHNICAL INFORMATION AND THE ANTICIPATED INSTALLATION SITE(S) WITHIN THE PROJECT WORK AREA IN ORDER TO IMPLEMENT CONTRACTOR'S TRENCH EXCAVATION SAFETY PROTECTION SYSTEMS, PROGRAMS AND/OR PROCEDURES. THE CONTRACTOR'S IMPLEMENTATION OF THE 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.

NEW BRAUNFELS UTILITIES

GENERAL CONSTRUCTION NOTES (CONT'D): (MODIFIED)

- 23. UTILITY TRENCH COMPACTION WITHIN STREET R.O.W.
 - A. ALL UTILITY TRENCH COMPACTION TEST WITHIN THE STREET PAVEMENT SECTION SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR'S CITY-APPROVED GEOTECHNICAL 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 TEST METHODS TEX-113-E, TEX-114-E, TEX-115-E.
 - D. THE NUMBER AND LOCATION OF REQUIRED TESTS SHALL BE N ACCORDANCE WITH THE SPECIFICATIONS 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.

CITY OF NEW BRAUNFELS CONSTRUCTION NOTES: (MODIFIED)

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.

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.

GROUNDWATER
IT SHALL BE THE RESPONSIBILITY OF THE 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 OWNER 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 GUARANTEES OF MATERIAL AND WORKMANSHIP PROVISIONS IN THIS SECTION.

CONSTRUCTION NOTE
CONTRACTOR 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.

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.

ROADWAY
ALL ROADWAY COMPACTION TESTS SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR'S CITY-APPROVED 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 THE 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.

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.

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 TABLE 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.

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 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.

CITY OF NEW BRAUNFELS CONSTRUCTION NOTES:

PRIOR TO THE START OF CONSTRUCTION WITHIN NEW BRAUNFELS CITY LIMITS, THE CONTRACTOR SHALL CONTACT THE CITY OF NEW BRAUNFELS TO SET A PRECONSTRUCTION MEETING. A 48-HOUR ADVANCED NOTIFICATION IS REQUIRED FOR ALL INSPECTION AND MEETING REQUESTS.

- ALL INSPECTIONS ARE TO BE CALLED IN AT 830-221-4068 OR,
- FAXED IN AT 830-608-2117 OR,
- EMAILED 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

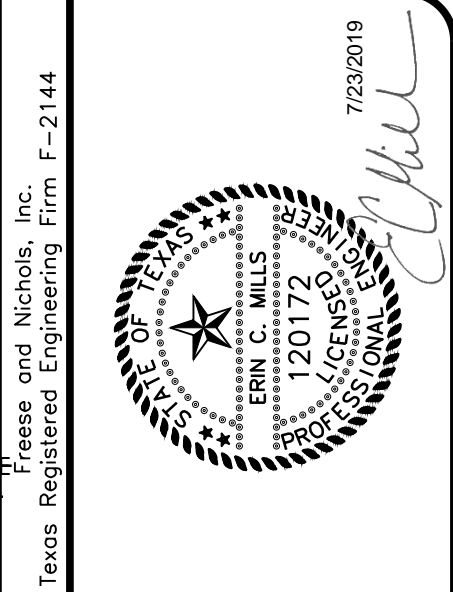
CONTRACTOR SHALL RESPOND WITH PLAN REVISIONS FOR THE MITIGATION OF THE GROUNDWATER ISSUE. THE CITY ENGINEER SHALL RESPOND WITHIN TWO (2) BUSINESS DAYS UPON RECEIPT OF THE MITIGATION PLAN. ALL CONSTRUCTION ACTIVITY, IMPACTED BY THE DISCOVERY OF GROUNDWATER, SHALL BE SUSPENDED UNTIL THE CITY ENGINEER GRANTS A WRITTEN APPROVAL OF THE GROUNDWATER MITIGATION PLAN.

CONSTRUCTION NOTE
CONTRACTOR IS RESPONSIBLE TO INSURE THAT EROSION CONTROL MEASURES AND STORMWATER CONTROL SUFFICIENT TO MITIGATE OFF SITE IMPACTS ARE IN PLACE AT ALL STAGES OF CONSTRUCTION.

CONSTRUCTION STABILIZED 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.



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NEW BRAUNFELS UTILITIES
SAN ANTONIO STREET WATER AND WASTEWATER RELOCATION
GENERAL
GENERAL NOTES II

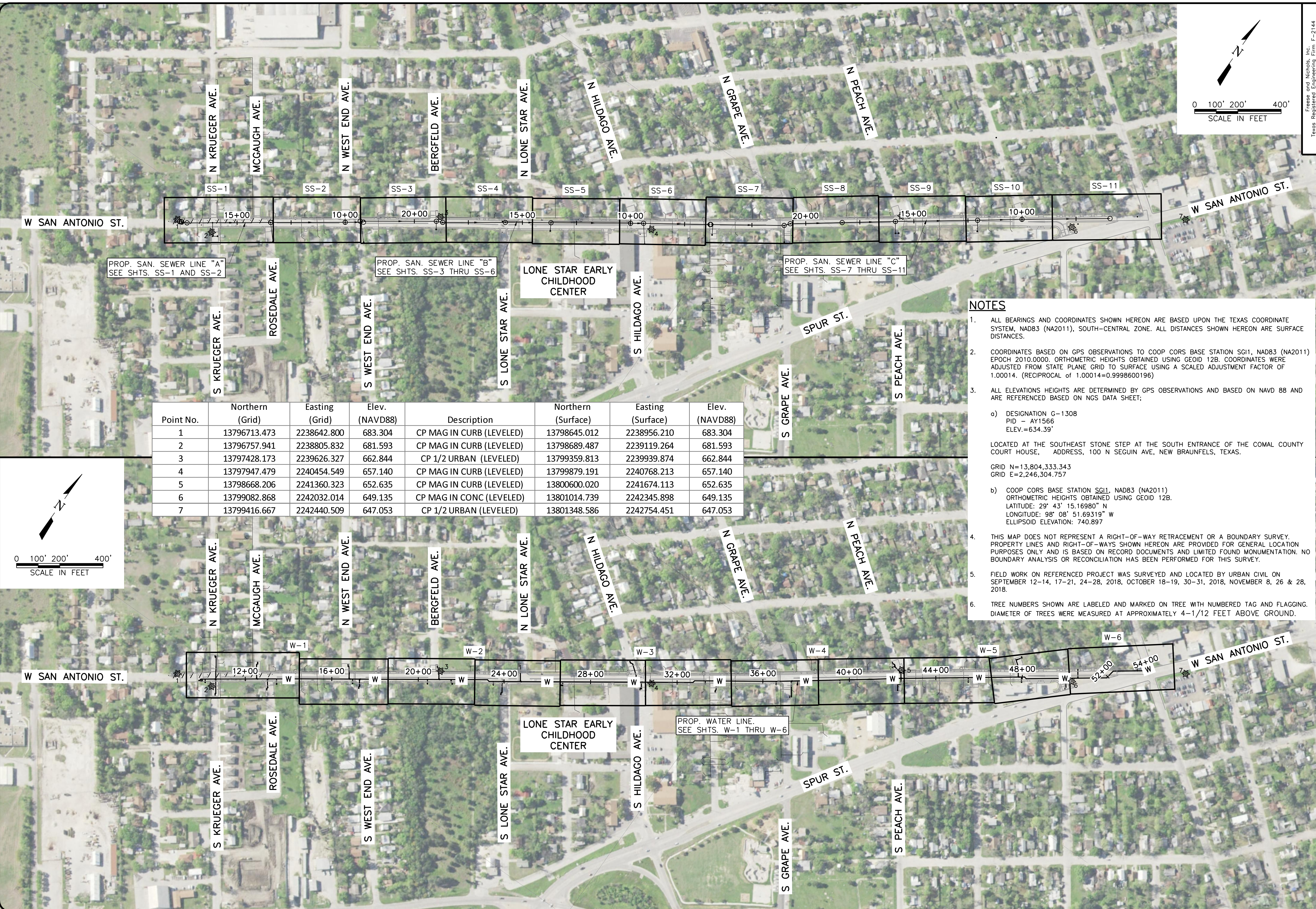
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PROP. SAN. SEWER LINE "A"
 SEE SHTS. SS-1 AND SS-2

PROP. SAN. SEWER LINE "B"
 SEE SHTS. SS-3 THRU SS-6

PROP. SAN. SEWER LINE "C"
 SEE SHTS. SS-7 THRU SS-11

Point No.	Northern (Grid)	Easting (Grid)	Elev. (NAVD88)	Description	Northern (Surface)	Easting (Surface)	Elev. (NAVD88)
1	13796713.473	2238642.800	683.304	CP MAG IN CURB (LEVELED)	13798645.012	2238956.210	683.304
2	13796757.941	2238805.832	681.593	CP MAG IN CURB (LEVELED)	13798689.487	2239119.264	681.593
3	13797428.173	2239626.327	662.844	CP 1/2 URBAN (LEVELED)	13799359.813	2239939.874	662.844
4	13797947.479	2240454.549	657.140	CP MAG IN CURB (LEVELED)	13799879.191	2240768.213	657.140
5	13798668.206	2241360.323	652.635	CP MAG IN CURB (LEVELED)	13800600.020	2241674.113	652.635
6	13799082.868	2242032.014	649.135	CP MAG IN CONC (LEVELED)	13801014.739	2242345.898	649.135
7	13799416.667	2242440.509	647.053	CP 1/2 URBAN (LEVELED)	13801348.586	2242754.451	647.053

PROP. WATER LINE.
 SEE SHTS. W-1 THRU W-6

NOTES

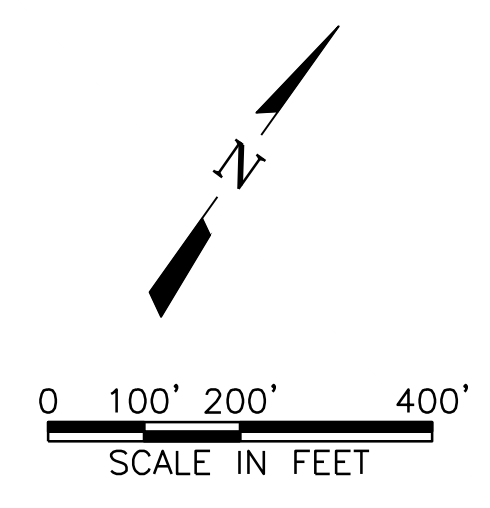
- ALL BEARINGS AND COORDINATES SHOWN HEREON ARE BASED UPON THE TEXAS COORDINATE SYSTEM, NAD83 (NA2011), SOUTH-CENTRAL ZONE. ALL DISTANCES SHOWN HEREON ARE SURFACE DISTANCES.
- COORDINATES BASED ON GPS OBSERVATIONS TO COOP CORS BASE STATION SGI1, NAD83 (NA2011) EPOCH 2010.0000, ORTHOMETRIC HEIGHTS OBTAINED USING GEOID 12B. COORDINATES WERE ADJUSTED FROM STATE PLANE GRID TO SURFACE USING A SCALED ADJUSTMENT FACTOR OF 1.00014. (RECIPROCAL OF 1.00014=0.9998600196)
- ALL ELEVATIONS HEIGHTS ARE DETERMINED BY GPS OBSERVATIONS AND BASED ON NAVD 88 AND ARE REFERENCED BASED ON NGS DATA SHEET;
 - a) DESIGNATION G-1308
 PID - AY1566
 ELEV.=634.39'


LOCATED AT THE SOUTHEAST STONE STEP AT THE SOUTH ENTRANCE OF THE COMAL COUNTY COURT HOUSE, ADDRESS, 100 N SEGUIN AVE, NEW BRAUNFELS, TEXAS.

GRID N=13,804,333.343
 GRID E=2,246,304.757

 - b) COOP CORS BASE STATION SGI1, NAD83 (NA2011)
 ORTHOMETRIC HEIGHTS OBTAINED USING GEOID 12B.
 LATITUDE: 29° 43' 15.16980" N
 LONGITUDE: 98° 08' 51.69319" W
 ELLIPSOID ELEVATION: 740.897

- THIS MAP DOES NOT REPRESENT A RIGHT-OF-WAY RETRACEMENT OR A BOUNDARY SURVEY. PROPERTY LINES AND RIGHT-OF-WAYS SHOWN HEREON ARE PROVIDED FOR GENERAL LOCATION PURPOSES ONLY AND IS BASED ON RECORD DOCUMENTS AND LIMITED FOUND MONUMENTATION. NO BOUNDARY ANALYSIS OR RECONCILIATION HAS BEEN PERFORMED FOR THIS SURVEY.
- FIELD WORK ON REFERENCED PROJECT WAS SURVEYED AND LOCATED BY URBAN CIVIL ON SEPTEMBER 12-14, 17-21, 24-28, 2018, OCTOBER 18-19, 30-31, 2018, NOVEMBER 8, 26 & 28, 2018.
- TREE NUMBERS SHOWN ARE LABELED AND MARKED ON TREE WITH NUMBERED TAG AND FLAGGING. DIAMETER OF TREES WERE MEASURED AT APPROXIMATELY 4-1/2 FEET ABOVE GROUND.





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NEW BRAUNFELS UTILITIES
**SAN ANTONIO STREET WATER
 AND WASTEWATER RELOCATION**
 GENERAL

OVERALL PROJECT LAYOUT

NO.	ISSUE	DATE	BY	DESIGNED	ECM	DRAWN	DDH	CHECKED	DTB

VERIFY SCALE: 1" = 40'

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

SHEET: **G-4**

SEQ.:

ITEM NO.	ITEM DESCRIPTION	UNIT	BASE QUANTITIES
NBU 210	ASPHALT STABILIZED BLACK BASE (GR 2 OR GR 4)(PG 64)	TON	506
NBU 509	TRENCH EXCAVATION SAFETY PROTECTION	LF	10462
32 11 23	PREPARATION OF RIGHT OF WAY	STA	53
NBU 632	INLET PROTECTION	LF	60
NBU 642	SILT FENCE	LF	1000
NBU 601	SEEDING / HYDROMULCH	LS	1
NBU 402	FLOWABLE FILL (ABANDON EXISTING WASTEWATER MH & WASTEWATER MAIN)	CY	75
NBU 510	6" SEWER SERVICE LATERAL	LF	2996
NBU 510	CLEANOUT	EA	107
NBU 506	48" STD PRECAST MANHOLE	EA	21
NBU 506	60" STD PRECAST MANHOLE	EA	1
NBU 510	8-INCH SDR-26 (ASTM D-3034) PVC SANITARY SEWER LINE (6' TO 10')	LF	4350
NBU 510	10-INCH SDR-26 (ASTM D-3034) PVC SANITARY SEWER LINE (6' TO 10')	LF	528
NBU 510	REMOVE/REPLACE 8-INCH SDR-26 (ASTM D-3034) PVC SANITARY SEWER LINE (6' TO 10')	LF	407
02 96 00	BYPASS PUMPING	DAY	4
NBU 510	2" PVC WATER MAIN, C900, DR-18	LF	85
NBU 510	6" PVC WATER MAIN, C900, DR-18	LF	165
NBU 510	8" PVC WATER MAIN, C900, DR-18	LF	1020
NBU 510	12" PVC WATER MAIN, C900, DR-18	LF	4390
NBU 510	18" STEEL CASING	LF	80
NBU 510	24" STEEL CASING	LF	200
NBU 511	2" 90 BEND	EA	5
NBU 511	2" RESTRAINED CAP	EA	5
NBU 511	6" 45 BEND, DI, MJ	EA	16
NBU 511	6" 90 BEND, DI, MJ	EA	3
NBU 511	6" DI WATER MAIN, CLASS 250	LF	288
NBU 511	6" GATE VALVE, MJ	EA	2
NBU 511	6" RESTRAINED CAP	EA	11
NBU 511	6" X 6" TEE, DI, MJ	EA	1
NBU 511	8" 45 BEND, DI, MJ	EA	10
NBU 511	8" 82.50 BEND, DI, MJ	EA	1
NBU 511	8" GATE VALVE, MJ	EA	17
NBU 511	8" 22.5 BEND	EA	1
NBU 511	8" RESTRAINED CAP	EA	10
NBU 511	8" X 2" TAPPING SADDLE WITH VALVE	EA	5
NBU 511	8" X 6" REDUCER, DI, MJ	EA	8
NBU 511	8" X 6" TEE, DI, MJ	EA	1
NBU 511	12" 22.5 BEND, DI, MJ	EA	1
NBU 511	12" 45 BEND, DI, MJ	EA	8
NBU 511	12" GATE VALVE, MJ	EA	15
NBU 511	12" X 12" TAPPING SLEEVE WITH VALVE	EA	1
NBU 511	12" X 6" TEE, DI, MJ	EA	16
NBU 511	12" X 8" CROSS, DI, MJ	EA	2
NBU 511	12" X 8" REDUCER, DI, MJ	EA	2
NBU 511	12" X 8" TEE, DI, MJ	EA	13
NBU 511	TRANSITION COUPLING	EA	20
NBU 511	3/4" WATER SERVICE RECONNECTION (SHORT)	EA	1
NBU 511	1" WATER METER	EA	53
NBU 511	1" WATER SERVICE LATERAL (LONG)	EA	76
NBU 511	1" WATER SERVICE LATERAL (SHORT)	EA	37
NBU 511	2" WATER METER	EA	1
NBU 511	2" WATER SERVICE LATERAL (SHORT)	EA	1
NBU 511	WATER METER BOX	EA	59
NBU 511	FIRE HYDRANT	EA	15
NBU 511	REMOVAL OF EXISTING FIRE HYDRANT & ASSOCIATED PIPING	EA	2
33 10 13	DISINFECTION	LF	5514
33 05 01.02	HYDROSTATIC TESTING	LF	5514
SA 100.1	MOBILIZATION	LS	1
SA 100.2	INSURANCE & BOND	LS	1

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 Texas Registered Engineering Firm F-2144



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NEW BRAUNFELS UTILITIES
**SAN ANTONIO STREET WATER
 AND WASTEWATER RELOCATION**
 GENERAL
CONSTRUCTION QUANTITIES

NO.	ISSUE	BY	DATE	NO.	DATE	DESIGNED	ECM	DRAWN	DDH	REVISION	CHECKED	DTB
				NBU18539	7/26/2019							
VERIFY SCALE: Bar is one inch on original drawing, if not one inch on this sheet, adjust scale.												
SHEET G-5												
SEQ.												

ITEM NO.	ITEM DESCRIPTION	UNIT	BASE NUMBERS	BASE QUANTITIES	SHEET
NBU 210	ASPHALT STABILIZED BLACK BASE (GR 2 OR GR 4)(PG 64)	TON	30	30	SS-01
550.1 (SA)	TRENCH EXCAVATION SAFETY PROTECTION	LF	631	631	SS-01
NBU 402	FLOWABLE FILL (ABANDON EXISTING WASTEWATER MH & WASTEWATER MAIN)	CY	5	5	SS-01
02 96 00	BYPASS PUMPING	DAY	0	0	SS-01
NBU 511	6" SEWER SERVICE LATERAL	LF	11	308	SS-01
NBU 510	CLEANOUT	EA	11	11	SS-01
NBU 506	48" STD PRECAST MANHOLE	EA	5	5	SS-01
NBU 506	60" STD PRECAST MANHOLE	EA	2	2	SS-01
NBU 510	8-INCH SDR-26 (ASTM D-3034) PVC SANITARY SEWER LINE (6' TO 10')	LF	631	631	SS-01

ITEM NO.	ITEM DESCRIPTION	UNIT	BASE NUMBERS	BASE QUANTITIES	SHEET
NBU 210	ASPHALT STABILIZED BLACK BASE (GR 2 OR GR 4)(PG 64)	TON	13	13	SS-02
NBU 509	TRENCH EXCAVATION SAFETY PROTECTION	LF	273	273	SS-02
NBU 402	FLOWABLE FILL (ABANDON EXISTING WASTEWATER MH & WASTEWATER MAIN)	CY	5	5	SS-02
02 96 00	BYPASS PUMPING	DAY	0	0	SS-02
NBU 511	6" SEWER SERVICE LATERAL	LF	11	308	SS-02
NBU 510	CLEANOUT	EA	11	11	SS-02
NBU 506	48" STD PRECAST MANHOLE	EA	3	3	SS-02
NBU 506	60" STD PRECAST MANHOLE	EA	2	2	SS-02
NBU 510	10-INCH SDR-26 (ASTM D-3034) PVC SANITARY SEWER LINE (6' TO 10')	LF	31	31	SS-02
NBU 510	8-INCH SDR-26 (ASTM D-3034) PVC SANITARY SEWER LINE (6' TO 10')	LF	250	250	SS-02

ITEM NO.	ITEM DESCRIPTION	UNIT	BASE NUMBERS	BASE QUANTITIES	SHEET
NBU 210	ASPHALT STABILIZED BLACK BASE (GR 2 OR GR 4)(PG 64)	TON	28	28	SS-03
NBU 509	TRENCH EXCAVATION SAFETY PROTECTION	LF	585	585	SS-03
NBU 402	FLOWABLE FILL (ABANDON EXISTING WASTEWATER MH & WASTEWATER MAIN)	CY	6	6	SS-03
02 96 00	BYPASS PUMPING	DAY	4	4	SS-03
NBU 511	6" SEWER SERVICE LATERAL	LF	9	252	SS-03
NBU 510	CLEANOUT	EA	9	9	SS-03
NBU 506	48" STD PRECAST MANHOLE	EA	3	3	SS-03
NBU 506	60" STD PRECAST MANHOLE	EA	1	1	SS-03
NBU 510	10-INCH SDR-26 (ASTM D-3034) PVC SANITARY SEWER LINE (6' TO 10')	LF	168	168	SS-03
NBU 510	REMOVE/REPLACE 8-INCH SDR-26 (ASTM D-3034) PVC SANITARY SEWER LINE (6' TO 10')	LF	331	331	SS-03
NBU 510	8-INCH SDR-26 (ASTM D-3034) PVC SANITARY SEWER LINE (6' TO 10')	LF	86	86	SS-03

ITEM NO.	ITEM DESCRIPTION	UNIT	BASE NUMBERS	BASE QUANTITIES	SHEET
NBU 210	ASPHALT STABILIZED BLACK BASE (GR 2 OR GR 4)(PG 64)	TON	19	19	SS-04
NBU 509	TRENCH EXCAVATION SAFETY PROTECTION	LF	400	400	SS-04
NBU 402	FLOWABLE FILL (ABANDON EXISTING WASTEWATER MH & WASTEWATER MAIN)	CY	8	8	SS-04
02 96 00	BYPASS PUMPING	DAY	0	0	SS-04
NBU 511	6" SEWER SERVICE LATERAL	LF	6	168	SS-04
NBU 510	CLEANOUT	EA	6	6	SS-04
NBU 506	48" STD PRECAST MANHOLE	EA	1	1	SS-04
NBU 510	REMOVE/REPLACE 8-INCH SDR-26 (ASTM D-3034) PVC SANITARY SEWER LINE (6' TO 10')	LF	0	0	SS-04
NBU 510	8-INCH SDR-26 (ASTM D-3034) PVC SANITARY SEWER LINE (6' TO 10')	LF	400	400	SS-04

ITEM NO.	ITEM DESCRIPTION	UNIT	BASE NUMBERS	BASE QUANTITIES	SHEET
NBU 210	ASPHALT STABILIZED BLACK BASE (GR 2 OR GR 4)(PG 64)	TON	21	21	SS-05
NBU 509	TRENCH EXCAVATION SAFETY PROTECTION	LF	441	441	SS-05
NBU 402	FLOWABLE FILL (ABANDON EXISTING WASTEWATER MH & WASTEWATER MAIN)	CY	6	6	SS-05
02 96 00	BYPASS PUMPING	DAY	0	0	SS-05
NBU 511	6" SEWER SERVICE LATERAL	LF	7	196	SS-05
NBU 510	CLEANOUT	EA	7	7	SS-05
NBU 506	48" STD PRECAST MANHOLE	EA	2	2	SS-05
NBU 510	8-INCH SDR-26 (ASTM D-3034) PVC SANITARY SEWER LINE (6' TO 10')	LF	441	441	SS-05

ITEM NO.	ITEM DESCRIPTION	UNIT	BASE NUMBERS	BASE QUANTITIES	SHEET
NBU 210	ASPHALT STABILIZED BLACK BASE (GR 2 OR GR 4)(PG 64)	TON	25	25	SS-06
NBU 509	TRENCH EXCAVATION SAFETY PROTECTION	LF	522	522	SS-06
NBU 402	FLOWABLE FILL (ABANDON EXISTING WASTEWATER MH & WASTEWATER MAIN)	CY	9	9	SS-06
02 96 00	BYPASS PUMPING	DAY	0	0	SS-06
NBU 511	6" SEWER SERVICE LATERAL	LF	11	308	SS-06
NBU 510	CLEANOUT	EA	11	11	SS-06
NBU 506	48" STD PRECAST MANHOLE	EA	3	3	SS-06
NBU 506	60" STD PRECAST MANHOLE	EA	2	2	SS-06
NBU 510	8-INCH SDR-26 (ASTM D-3034) PVC SANITARY SEWER LINE (6' TO 10')	LF	522	522	SS-06

ITEM NO.	ITEM DESCRIPTION	UNIT	BASE NUMBERS	BASE QUANTITIES	SHEET
NBU 210	ASPHALT STABILIZED BLACK BASE (GR 2 OR GR 4)(PG 64)	TON	24	24	SS-07
NBU 509	TRENCH EXCAVATION SAFETY PROTECTION	LF	506	506	SS-07
NBU 402	FLOWABLE FILL (ABANDON EXISTING WASTEWATER MH & WASTEWATER MAIN)	CY	11	11	SS-07
02 96 00	BYPASS PUMPING	DAY	1	1	SS-07
NBU 511	6" SEWER SERVICE LATERAL	LF	11	308	SS-07
NBU 510	CLEANOUT	EA	11	11	SS-07
NBU 506	48" STD PRECAST MANHOLE	EA	4	4	SS-07
NBU 506	60" STD PRECAST MANHOLE	EA	1	1	SS-07
NBU 510	REMOVE/REPLACE 8-INCH SDR-26 (ASTM D-3034) PVC SANITARY SEWER LINE (6' TO 10')	LF	76	76	SS-07
NBU 510	8-INCH SDR-26 (ASTM D-3034) PVC SANITARY SEWER LINE (6' TO 10')	LF	430	430	SS-07
NBU 510	10-INCH SDR-26 (ASTM D-3034) PVC SANITARY SEWER LINE (6' TO 10')	LF	329	329	SS-07

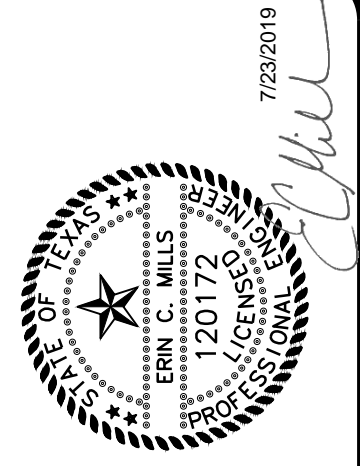
ITEM NO.	ITEM DESCRIPTION	UNIT	BASE NUMBERS	BASE QUANTITIES	SHEET
NBU 210	ASPHALT STABILIZED BLACK BASE (GR 2 OR GR 4)(PG 64)	TON	19	19	SS-08
NBU 509	TRENCH EXCAVATION SAFETY PROTECTION	LF	400	400	SS-08
NBU 402	FLOWABLE FILL (ABANDON EXISTING WASTEWATER MH & WASTEWATER MAIN)	CY	3	3	SS-08
02 96 00	BYPASS PUMPING	DAY	0	0	SS-08
NBU 511	6" SEWER SERVICE LATERAL	LF	9	252	SS-08
NBU 510	CLEANOUT	EA	9	9	SS-08
NBU 506	48" STD PRECAST MANHOLE	EA	1	1	SS-08
NBU 510	8-INCH SDR-26 (ASTM D-3034) PVC SANITARY SEWER LINE (6' TO 10')	LF	400	400	SS-08

ITEM NO.	ITEM DESCRIPTION	UNIT	BASE NUMBERS	BASE QUANTITIES	SHEET
NBU 210	ASPHALT STABILIZED BLACK BASE (GR 2 OR GR 4)(PG 64)	TON	23	23	SS-09
NBU 509	TRENCH EXCAVATION SAFETY PROTECTION	LF	470	470	SS-09
NBU 402	FLOWABLE FILL (ABANDON EXISTING WASTEWATER MH & WASTEWATER MAIN)	CY	6	6	SS-09
02 96 00	BYPASS PUMPING	DAY	0	0	SS-09
NBU 511	6" SEWER SERVICE LATERAL	LF	11	308	SS-09
NBU 510	CLEANOUT	EA	11	11	SS-09
NBU 506	48" STD PRECAST MANHOLE	EA	3	3	SS-09
NBU 510	8-INCH SDR-26 (ASTM D-3034) PVC SANITARY SEWER LINE (6' TO 10')	LF	470	470	SS-09

ITEM NO.	ITEM DESCRIPTION	UNIT	BASE NUMBERS	BASE QUANTITIES	SHEET
NBU 210	ASPHALT STABILIZED BLACK BASE (GR 2 OR GR 4)(PG 64)	TON	23	23	SS-10
NBU 509	TRENCH EXCAVATION SAFETY PROTECTION	LF	473	473	SS-10
NBU 402	FLOWABLE FILL (ABANDON EXISTING WASTEWATER MH & WASTEWATER MAIN)	CY	9	9	SS-10
02 96 00	BYPASS PUMPING	DAY	0	0	SS-10
NBU 511	6" SEWER SERVICE LATERAL	LF	15	420	SS-10
NBU 510	CLEANOUT	EA	15	15	SS-10
NBU 506	48" STD PRECAST MANHOLE	EA	2	2	SS-10
NBU 506	60" STD PRECAST MANHOLE	EA	2	2	SS-10
NBU 510	8-INCH SDR-26 (ASTM D-3034) PVC SANITARY SEWER LINE (6' TO 10')	LF	473	473	SS-10

ITEM NO.	ITEM DESCRIPTION	UNIT	BASE NUMBERS	BASE QUANTITIES	SHEET
NBU 210	ASPHALT STABILIZED BLACK BASE (GR 2 OR GR 4)(PG 64)	TON	12	12	SS-11
NBU 509	TRENCH EXCAVATION SAFETY PROTECTION	LF	247	247	SS-11
NBU 402	FLOWABLE FILL (ABANDON EXISTING WASTEWATER MH & WASTEWATER MAIN)	CY	6	6	SS-11
02 96 00	BYPASS PUMPING	DAY	0	0	SS-11
NBU 511	6" SEWER SERVICE LATERAL	LF	6	168	SS-11
NBU 510	CLEANOUT	EA	6	6	SS-11
NBU 506	48" STD PRECAST MANHOLE	EA	1	1	SS-11
NBU 510	8-INCH SDR-26 (ASTM D-3034) PVC SANITARY SEWER LINE (6' TO 10')	LF	247	247	SS-11

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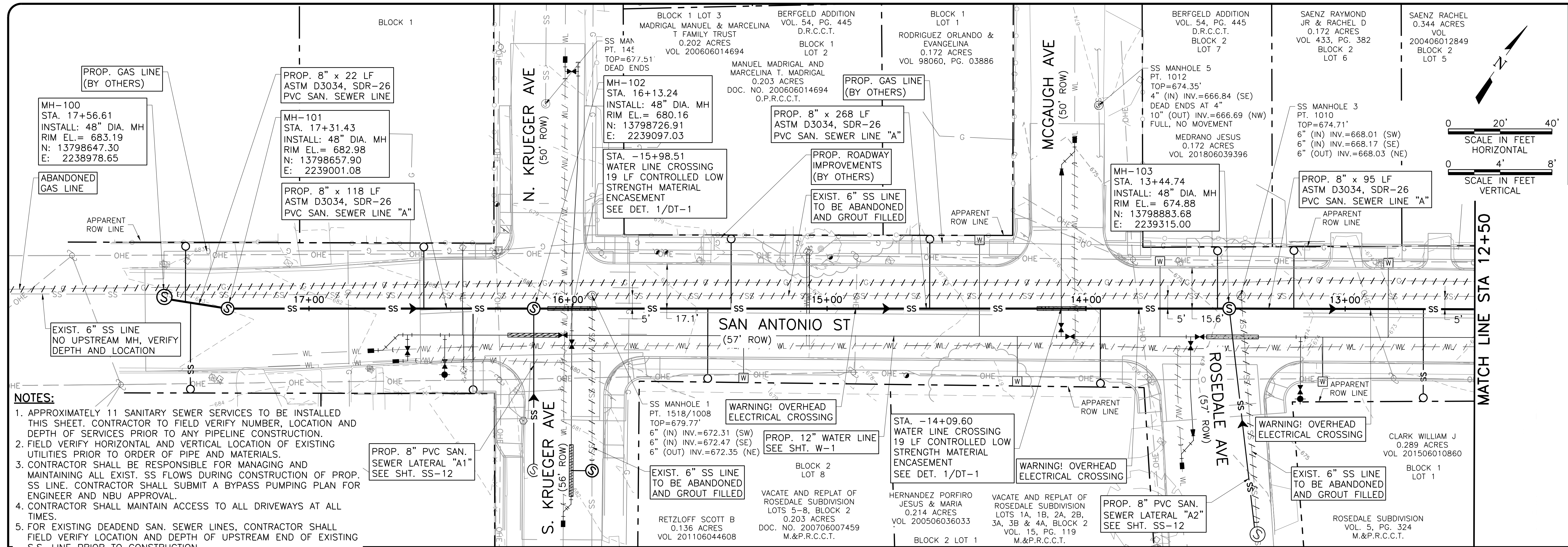
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NEW BRAUNFELS UTILITIES
**SAN ANTONIO STREET WATER
 AND WASTEWATER RELOCATION**
 GENERAL

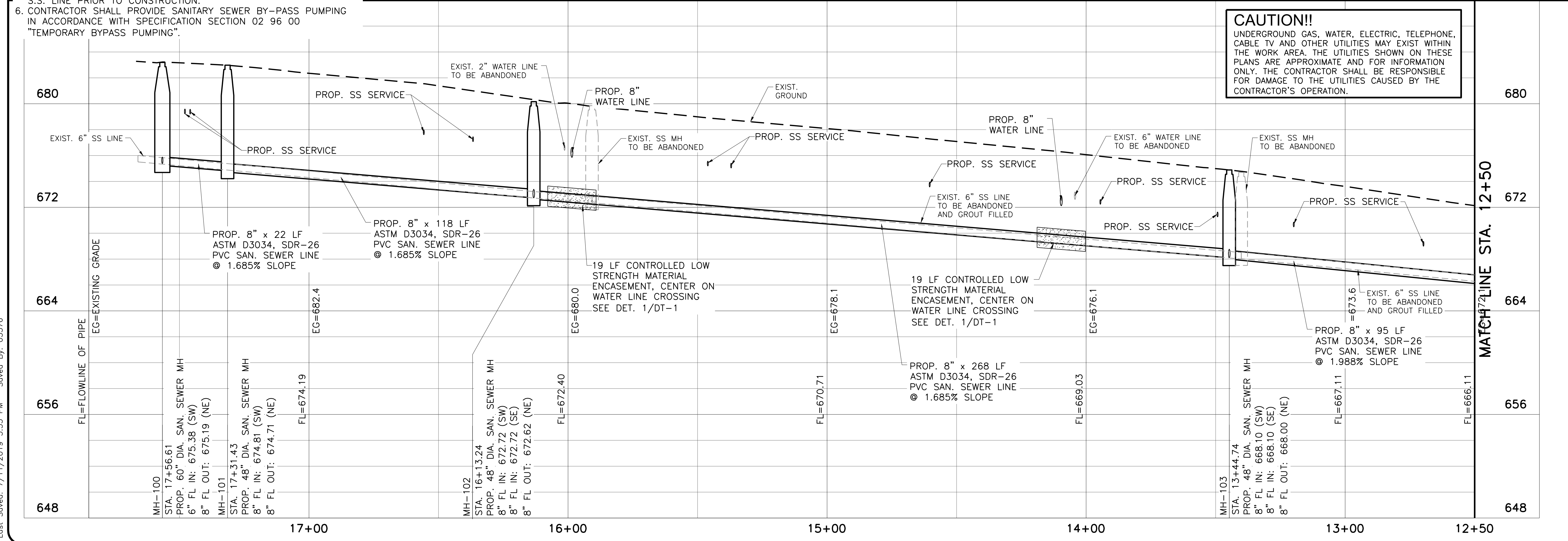
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DATE		7/23/2019		ECM
DESIGNED		ECM		DDH
DRAWN		DDH		
REVISED				
CHECKED				
REVISION				
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SHEET G-6				
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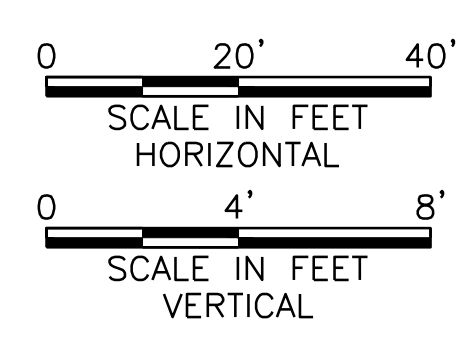
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- NOTES:**
- APPROXIMATELY 11 SANITARY SEWER SERVICES TO BE INSTALLED THIS SHEET. CONTRACTOR TO FIELD VERIFY NUMBER, LOCATION AND DEPTH OF SERVICES PRIOR TO ANY PIPELINE CONSTRUCTION.
 - FIELD VERIFY HORIZONTAL AND VERTICAL LOCATION OF EXISTING UTILITIES PRIOR TO ORDER OF PIPE AND MATERIALS.
 - CONTRACTOR SHALL BE RESPONSIBLE FOR MANAGING AND MAINTAINING ALL EXIST. SS FLOWS DURING CONSTRUCTION OF PROP. SS LINE. CONTRACTOR SHALL SUBMIT A BYPASS PUMPING PLAN FOR ENGINEER AND NBU APPROVAL.
 - CONTRACTOR SHALL MAINTAIN ACCESS TO ALL DRIVEWAYS AT ALL TIMES.
 - FOR EXISTING DEADEND SAN. SEWER LINES, CONTRACTOR SHALL FIELD VERIFY LOCATION AND DEPTH OF UPSTREAM END OF EXISTING S.S. LINE PRIOR TO CONSTRUCTION.
 - CONTRACTOR SHALL PROVIDE SANITARY SEWER BY-PASS PUMPING IN ACCORDANCE WITH SPECIFICATION SECTION 02 96 00 "TEMPORARY BYPASS PUMPING".



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.

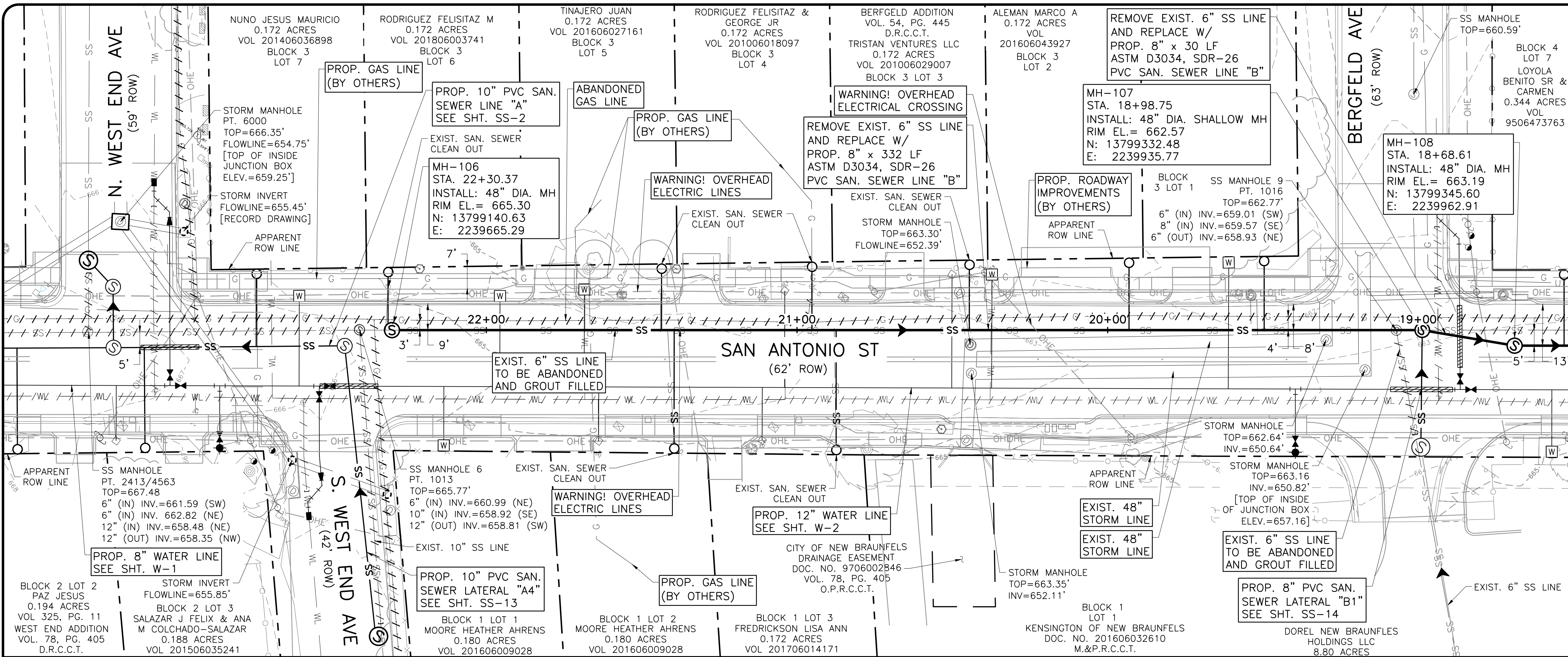


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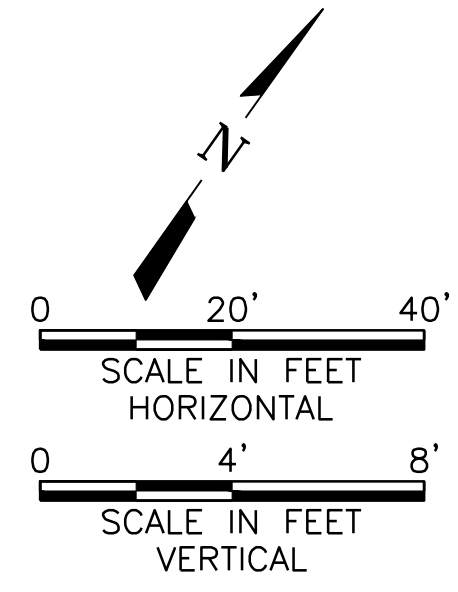
NEW BRAUNFELS UTILITIES
SAN ANTONIO STREET WATER AND WASTEWATER RELOCATION
SANITARY SEWER LINE A PLAN AND PROFILE
 STA. 17+50 TO STA. 12+50

NO.	ISSUE	BY	DATE	DESIGNED	ECM	DRAWN	DDH	REVIEWED	CHECKED	DTB
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VERIFY SCALE: Bar is one inch on original drawing, if not one inch on this sheet, adjust scale.										
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SHEET: SS-1										
SEQ.										



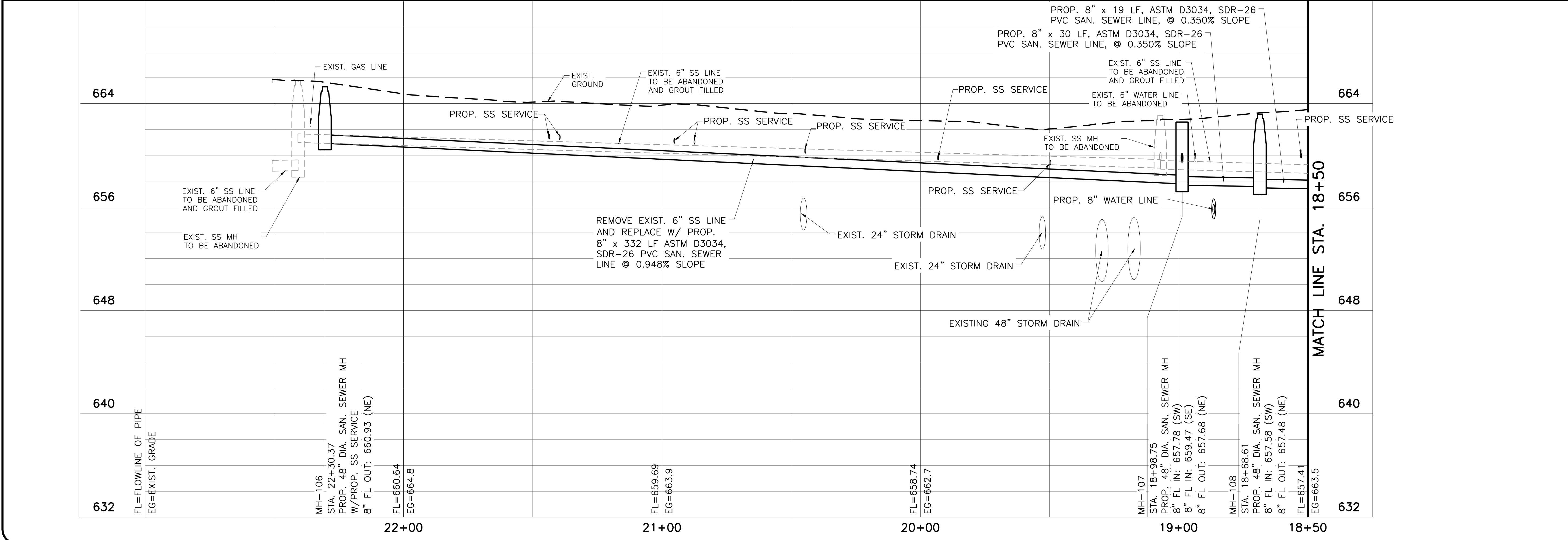
- NOTES:**
- APPROXIMATELY 9 SANITARY SEWER SERVICES TO BE INSTALLED THIS SHEET. CONTRACTOR TO FIELD VERIFY NUMBER, LOCATION AND DEPTH OF SERVICES PRIOR TO ANY PIPELINE CONSTRUCTION.
 - FIELD VERIFY HORIZONTAL AND VERTICAL LOCATION OF EXISTING UTILITIES PRIOR TO ORDER OF PIPE AND MATERIALS.
 - CONTRACTOR SHALL BE RESPONSIBLE FOR MANAGING AND MAINTAINING ALL EXIST. SS FLOWS DURING CONSTRUCTION OF PROP. SS LINE. CONTRACTOR SHALL SUBMIT A BYPASS PUMPING PLAN FOR ENGINEER AND NBU APPROVAL.
 - CONTRACTOR SHALL MAINTAIN ACCESS TO ALL DRIVEWAYS AT ALL TIMES.
 - FOR EXISTING DEADEND SAN. SEWER LINES, CONTRACTOR SHALL FIELD VERIFY LOCATION AND DEPTH OF UPSTREAM END OF EXISTING S.S. LINE PRIOR TO CONSTRUCTION.
 - CONTRACTOR SHALL PROVIDE SANITARY SEWER BY-PASS PUMPING IN ACCORDANCE WITH SPECIFICATION SECTION 02 96 00 "TEMPORARY BYPASS PUMPING".

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.



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SAN ANTONIO STREET WATER AND WASTEWATER RELOCATION
SANITARY SEWER LINE B PLAN AND PROFILE
 STA. 23+00 TO STA. 18+50

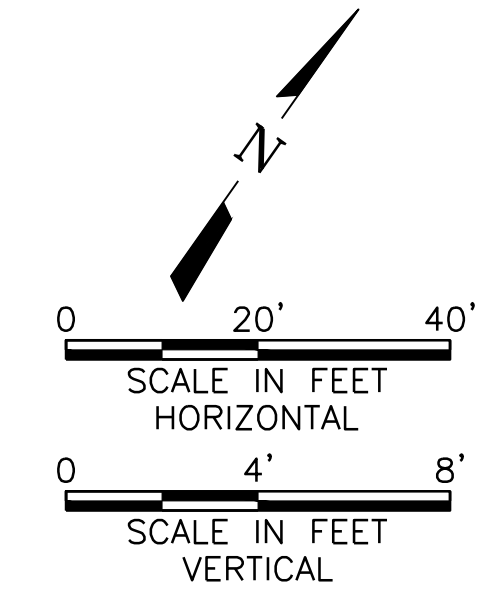
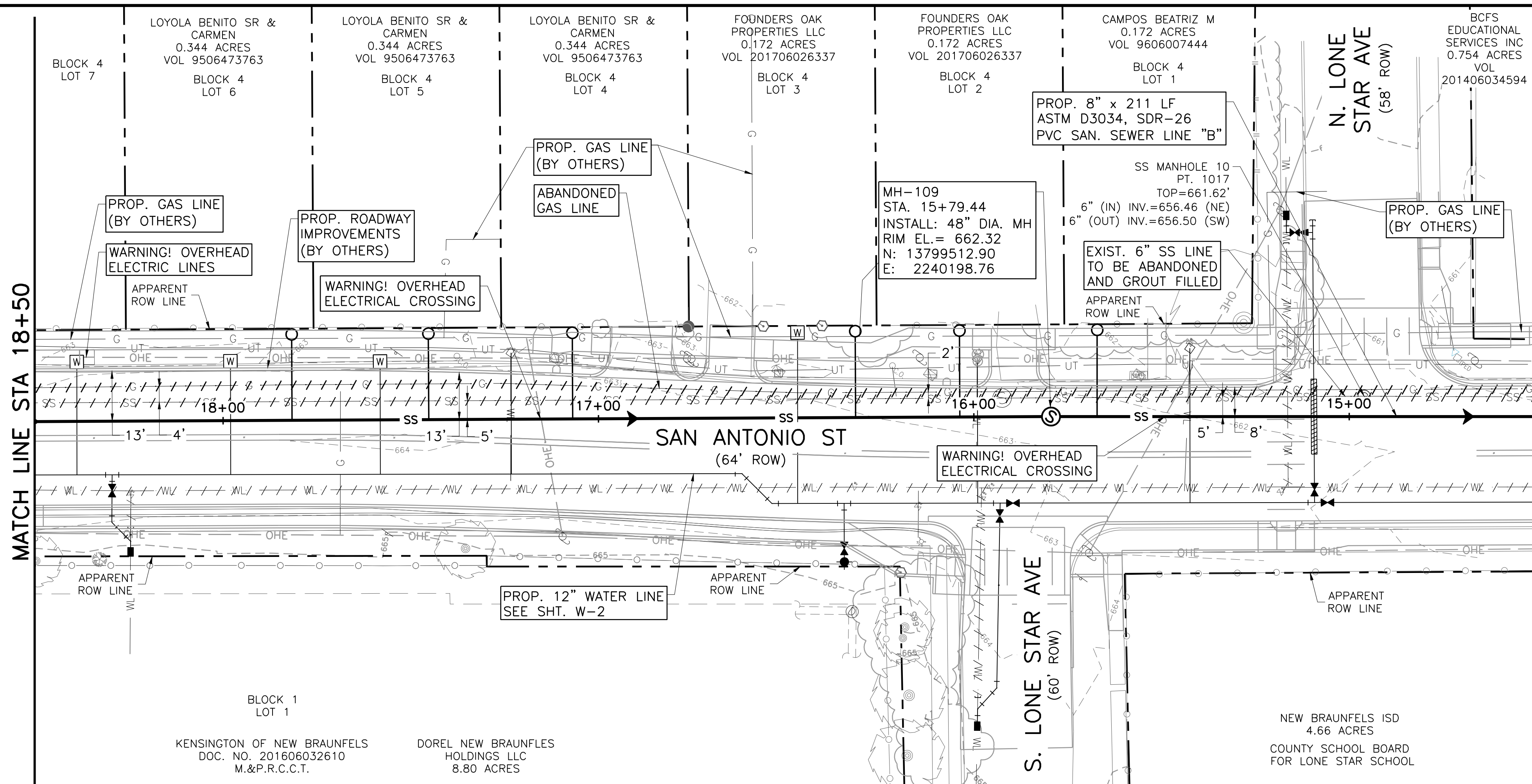


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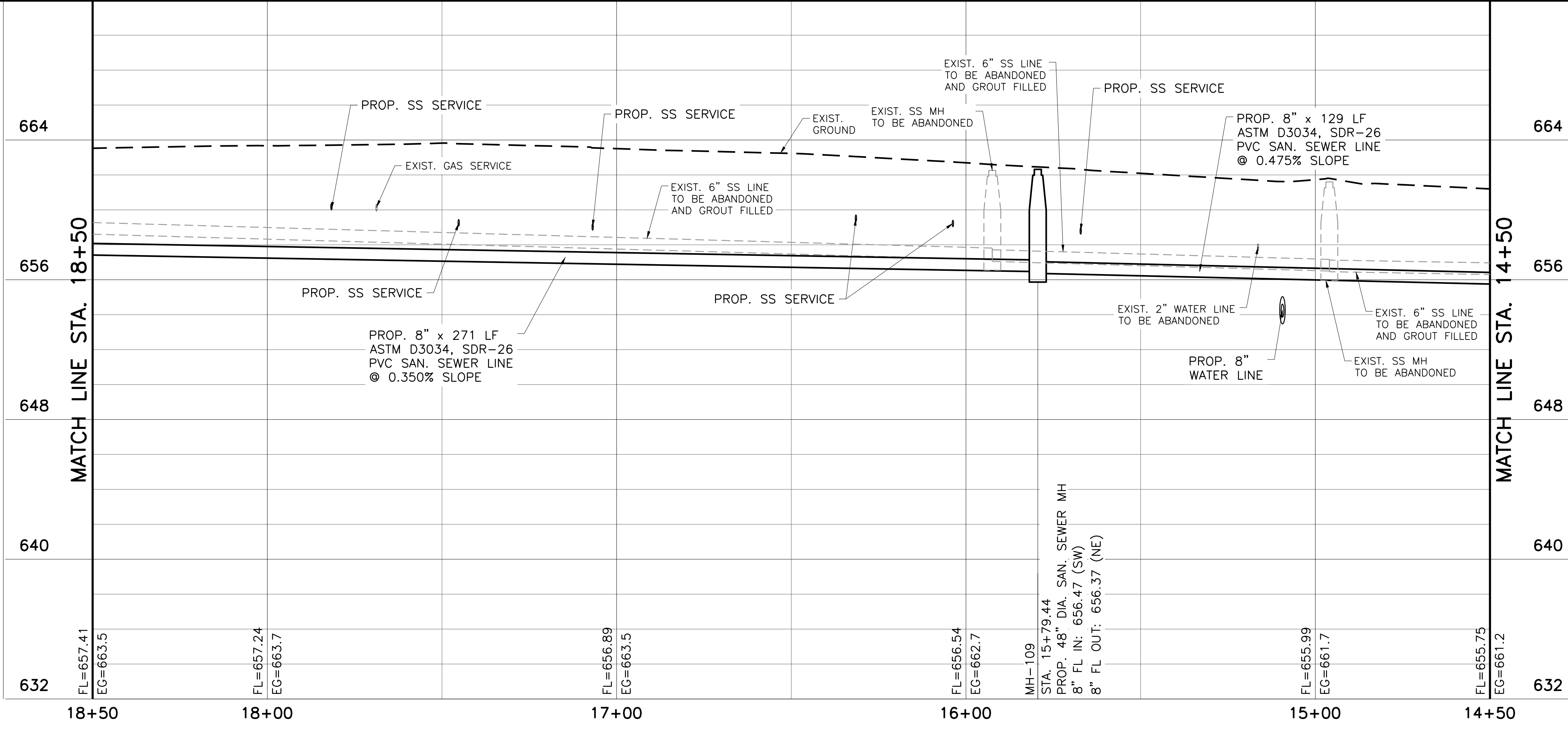
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SHEET **SS-3**

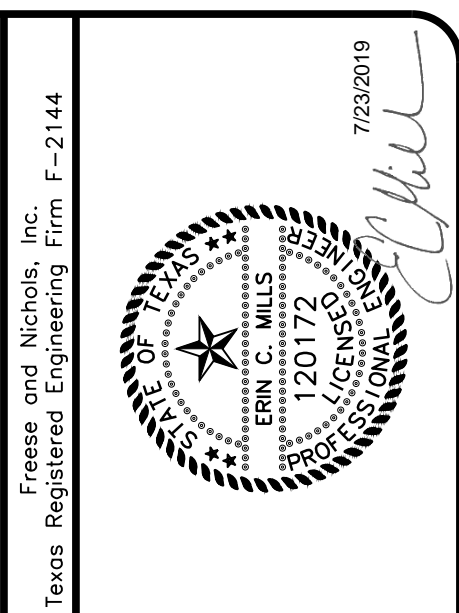


- NOTES:**
- APPROXIMATELY 6 SANITARY SEWER SERVICES TO BE INSTALLED THIS SHEET. CONTRACTOR TO FIELD VERIFY NUMBER, LOCATION AND DEPTH OF SERVICES PRIOR TO ANY PIPELINE CONSTRUCTION.
 - FIELD VERIFY HORIZONTAL AND VERTICAL LOCATION OF EXISTING UTILITIES PRIOR TO ORDER OF PIPE AND MATERIALS.
 - CONTRACTOR SHALL BE RESPONSIBLE FOR MANAGING AND MAINTAINING ALL EXIST. SS FLOWS DURING CONSTRUCTION OF PROP. SS LINE. CONTRACTOR SHALL SUBMIT A BYPASS PUMPING PLAN FOR ENGINEER AND NBU APPROVAL.
 - CONTRACTOR SHALL MAINTAIN ACCESS TO ALL DRIVEWAYS AT ALL TIMES.
 - FOR EXISTING DEADEND SAN. SEWER LINES, CONTRACTOR SHALL FIELD VERIFY LOCATION AND DEPTH OF UPSTREAM END OF EXISTING S.S. LINE PRIOR TO CONSTRUCTION.
 - CONTRACTOR SHALL PROVIDE SANITARY SEWER BY-PASS PUMPING IN ACCORDANCE WITH SPECIFICATION SECTION 02 96 00 "TEMPORARY BYPASS PUMPING".

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.



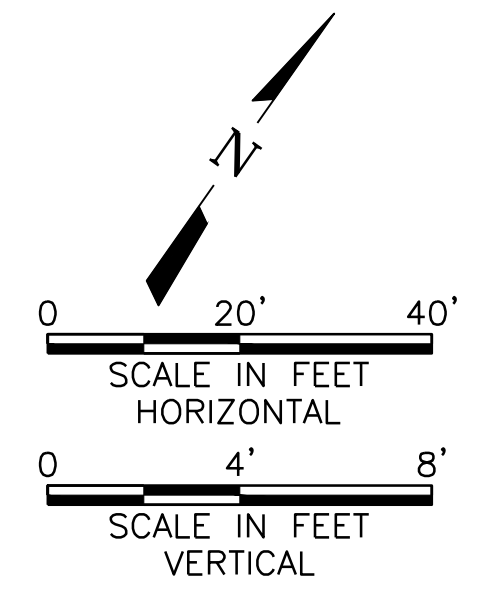
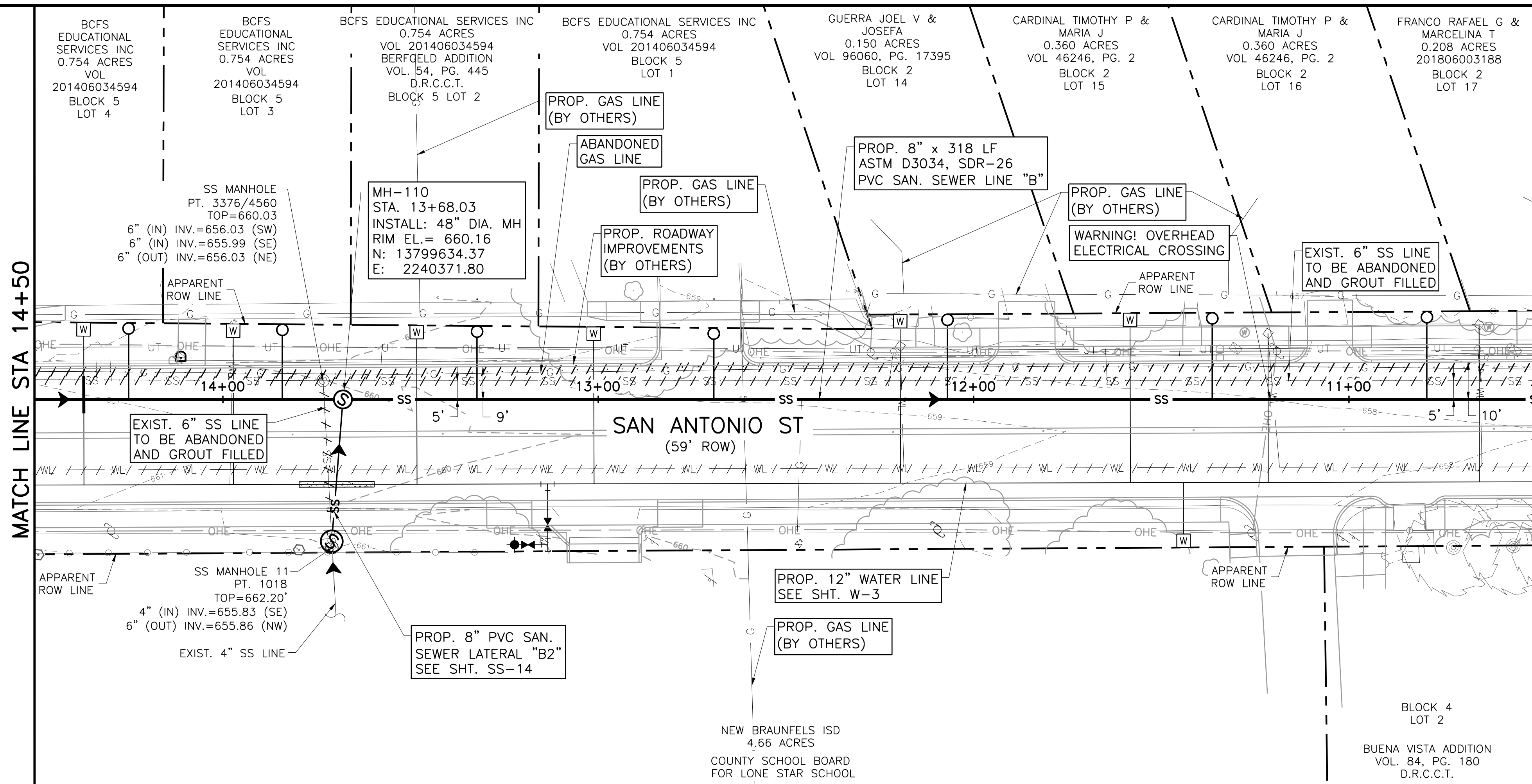
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 Fax - (210) 298-3801
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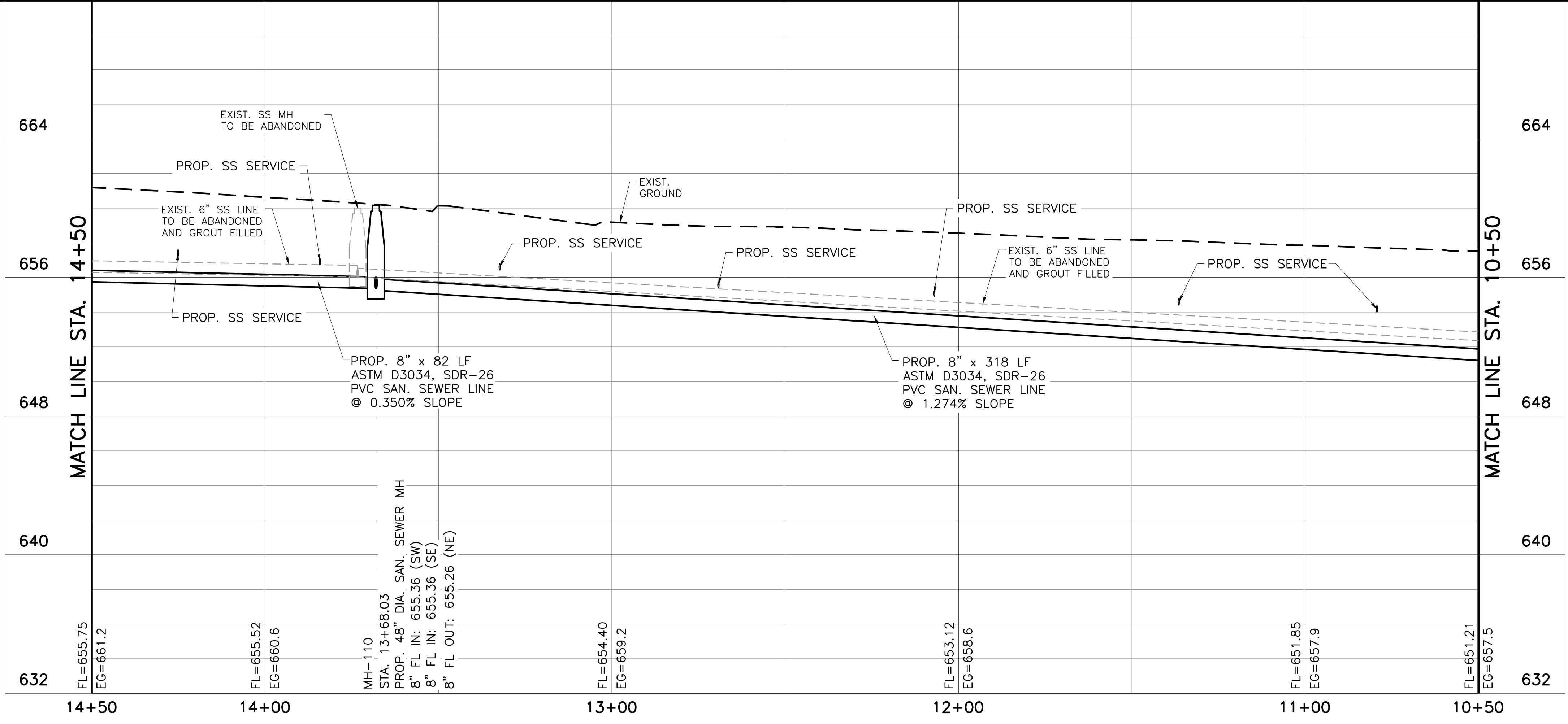
NEW BRAUNFELS UTILITIES
SAN ANTONIO STREET WATER AND WASTEWATER RELOCATION
 SANITARY SEWER LINE B PLAN AND PROFILE
 STA. 18+50 TO STA. 14+50

NO.	ISSUE	BY	DATE	DATE	DESIGNED	ECM	DRAWN	DDH	REVISION	CHECKED	DTB
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- NOTES:**
- APPROXIMATELY 7 SANITARY SEWER SERVICES TO BE INSTALLED THIS SHEET. CONTRACTOR TO FIELD VERIFY NUMBER, LOCATION AND DEPTH OF SERVICES PRIOR TO ANY PIPELINE CONSTRUCTION.
 - FIELD VERIFY HORIZONTAL AND VERTICAL LOCATION OF EXISTING UTILITIES PRIOR TO ORDER OF PIPE AND MATERIALS.
 - CONTRACTOR SHALL BE RESPONSIBLE FOR MANAGING AND MAINTAINING ALL EXIST. SS FLOWS DURING CONSTRUCTION OF PROP. SS LINE. CONTRACTOR SHALL SUBMIT A BYPASS PUMPING PLAN FOR ENGINEER AND NBU APPROVAL.
 - CONTRACTOR SHALL MAINTAIN ACCESS TO ALL DRIVEWAYS AT ALL TIMES.
 - FOR EXISTING DEADEND SAN. SEWER LINES, CONTRACTOR SHALL FIELD VERIFY LOCATION AND DEPTH OF UPSTREAM END OF EXISTING S.S. LINE PRIOR TO CONSTRUCTION.
 - CONTRACTOR SHALL PROVIDE SANITARY SEWER BY-PASS PUMPING IN ACCORDANCE WITH SPECIFICATION SECTION 02 96 00 "TEMPORARY BYPASS PUMPING".

CAUTION!!
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NEW BRAUNFELS UTILITIES
SAN ANTONIO STREET WATER AND WASTEWATER RELOCATION
SANITARY SEWER LINE B PLAN AND PROFILE
 STA. 14+50 TO STA. 10+50

NO.	ISSUE	BY	DATE	DATE	DESIGNED	ECM	DRAWN	DDH	REVISION	CHECKED	DTB
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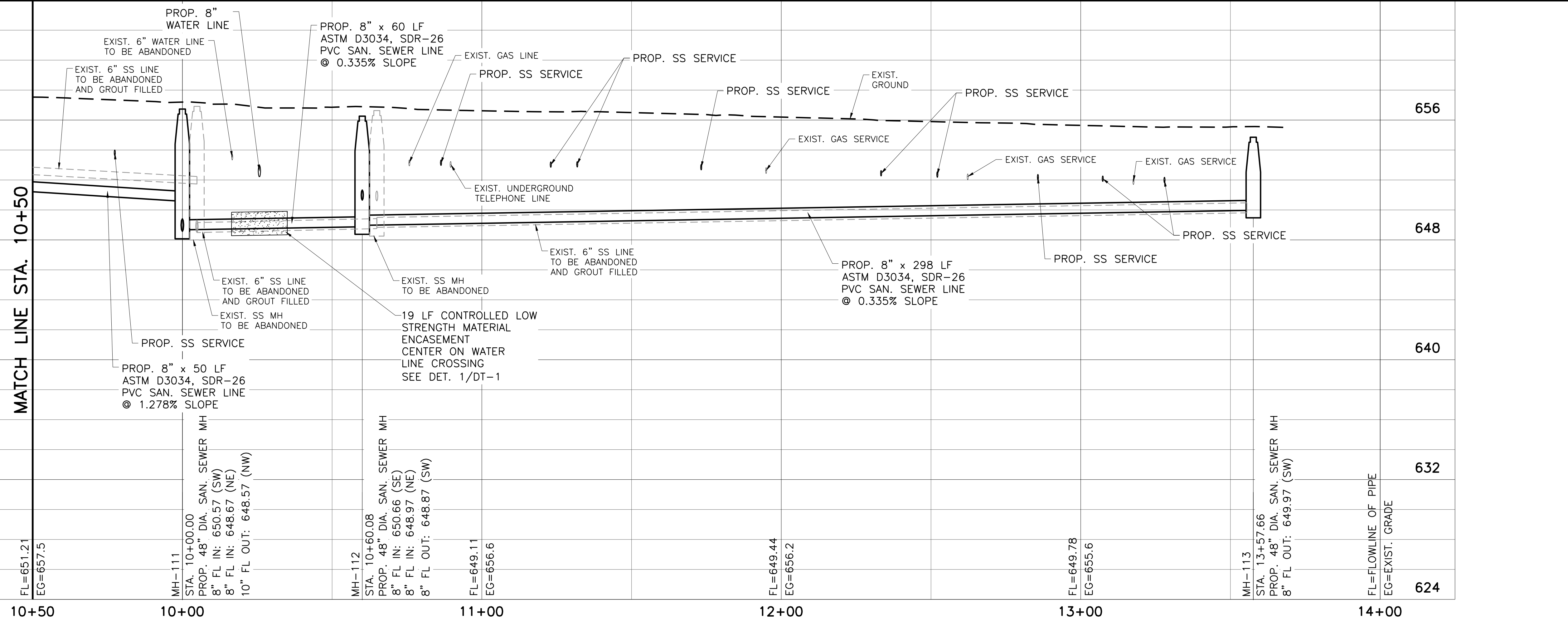
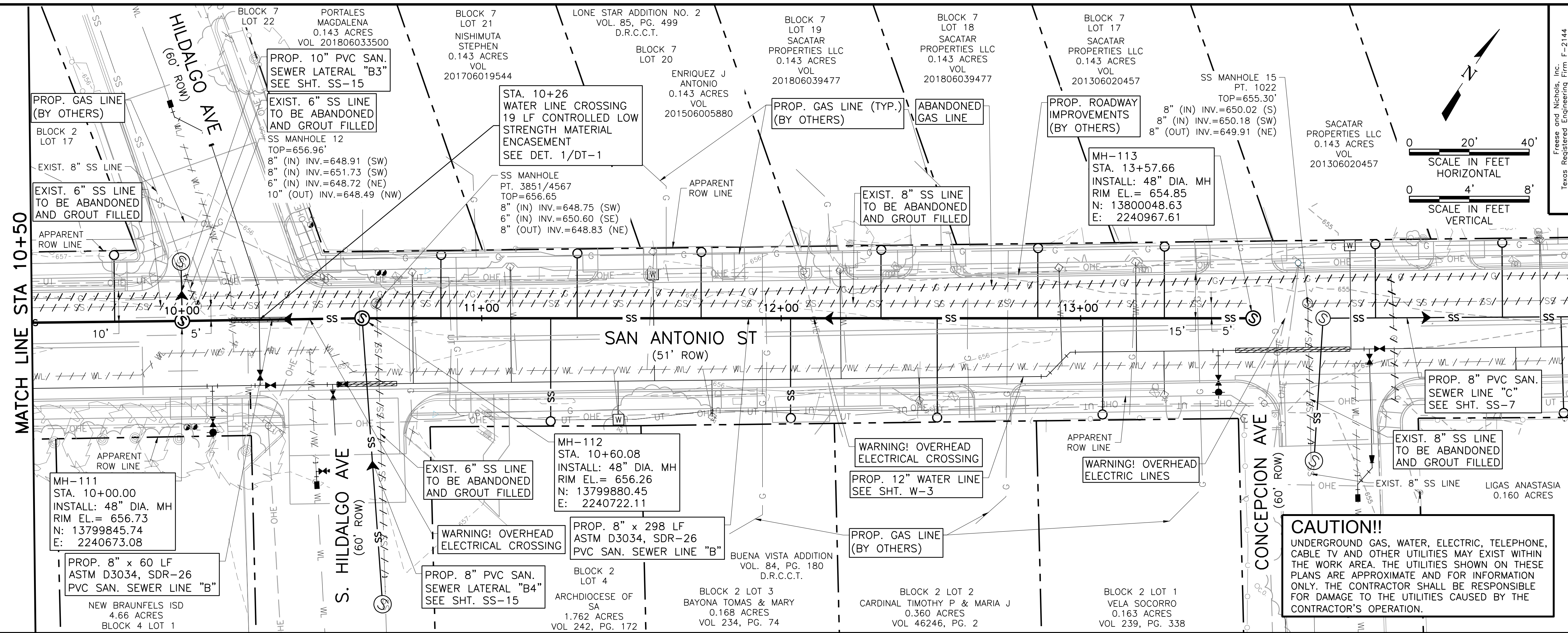
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SHEET: **SS-5**

SEQ.

NOTES:

- APPROXIMATELY 11 SANITARY SEWER SERVICES TO BE INSTALLED THIS SHEET. CONTRACTOR TO FIELD VERIFY NUMBER, LOCATION AND DEPTH OF SERVICES PRIOR TO ANY PIPELINE CONSTRUCTION.
- FIELD VERIFY HORIZONTAL AND VERTICAL LOCATION OF EXISTING UTILITIES PRIOR TO ORDER OF PIPE AND MATERIALS.
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- CONTRACTOR SHALL MAINTAIN ACCESS TO ALL DRIVEWAYS AT ALL TIMES.
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- CONTRACTOR SHALL PROVIDE SANITARY SEWER BY-PASS PUMPING IN ACCORDANCE WITH SPECIFICATION SECTION 02 96 00 "TEMPORARY BYPASS PUMPING".



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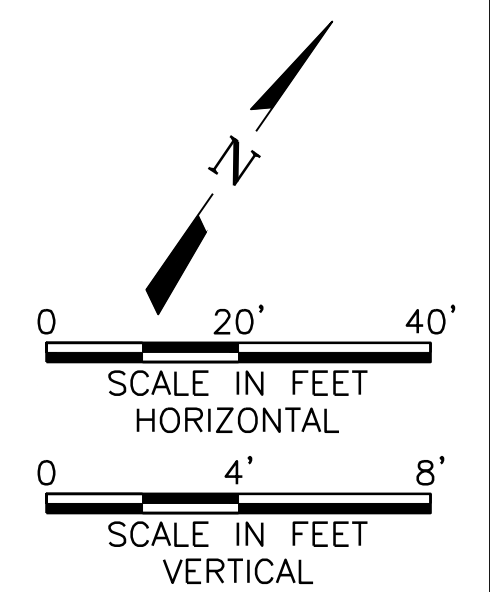
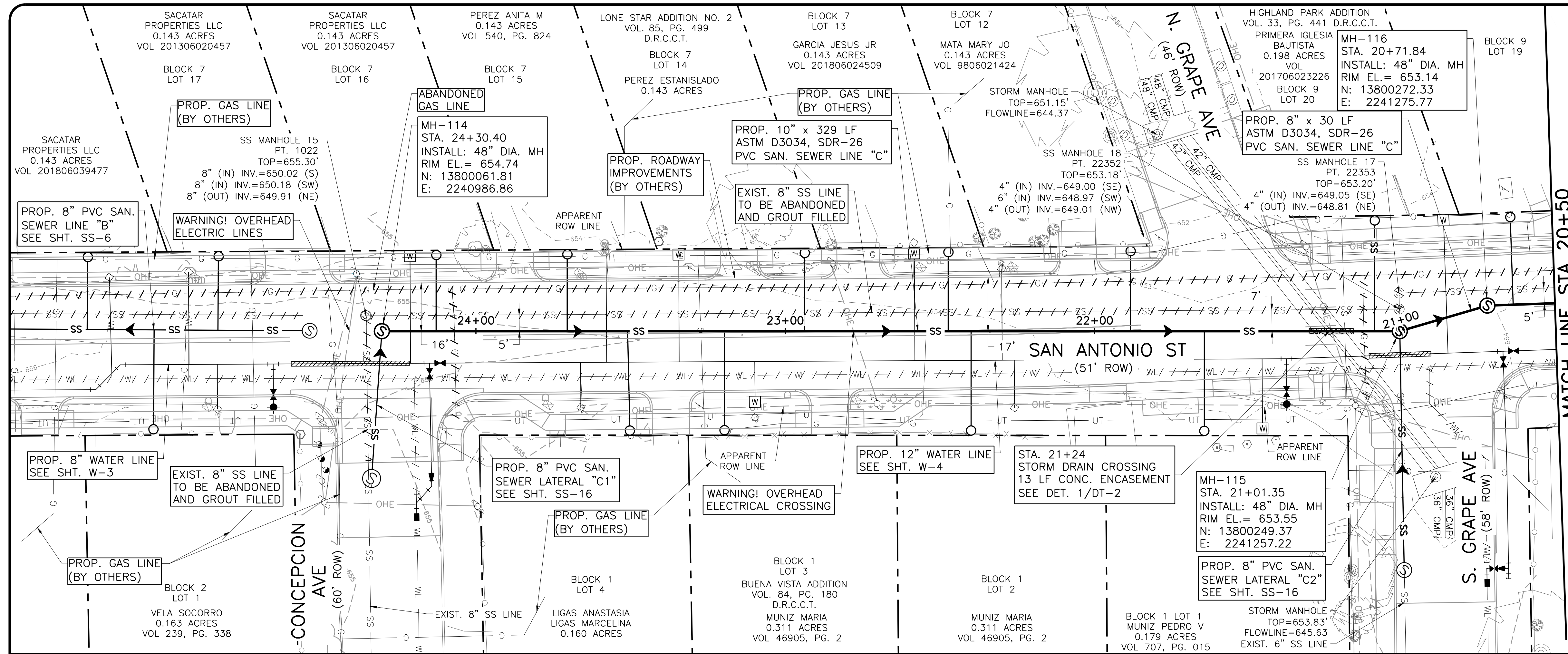


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NEW BRAUNFELS UTILITIES
SAN ANTONIO STREET WATER AND WASTEWATER RELOCATION
SANITARY SEWER LINE B PLAN AND PROFILE
 STA. 10+50 TO STA. 14+00

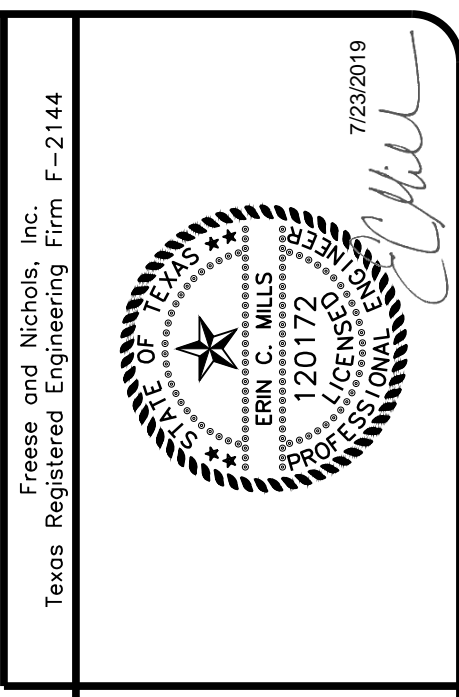
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SS-6										

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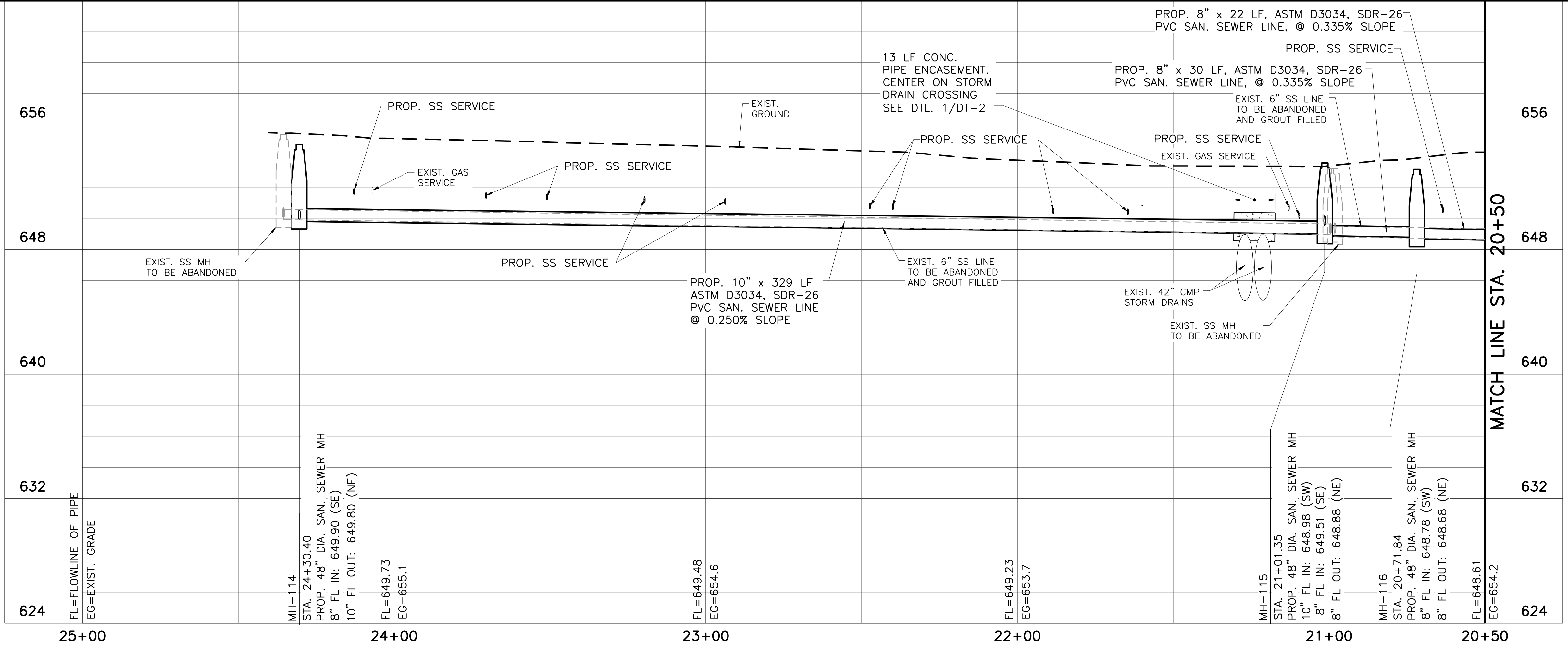
- NOTES:**
- APPROXIMATELY 11 SANITARY SEWER SERVICES TO BE INSTALLED THIS SHEET. CONTRACTOR TO FIELD VERIFY NUMBER, LOCATION AND DEPTH OF SERVICES PRIOR TO ANY PIPELINE CONSTRUCTION.
 - FIELD VERIFY HORIZONTAL AND VERTICAL LOCATION OF EXISTING UTILITIES PRIOR TO ORDER OF PIPE AND MATERIALS.
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CAUTION!!
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NEW BRAUNFELS UTILITIES
SAN ANTONIO STREET WATER AND WASTEWATER RELOCATION
SANITARY SEWER LINE C PLAN AND PROFILE
 STA. 25+00 TO STA. 20+50



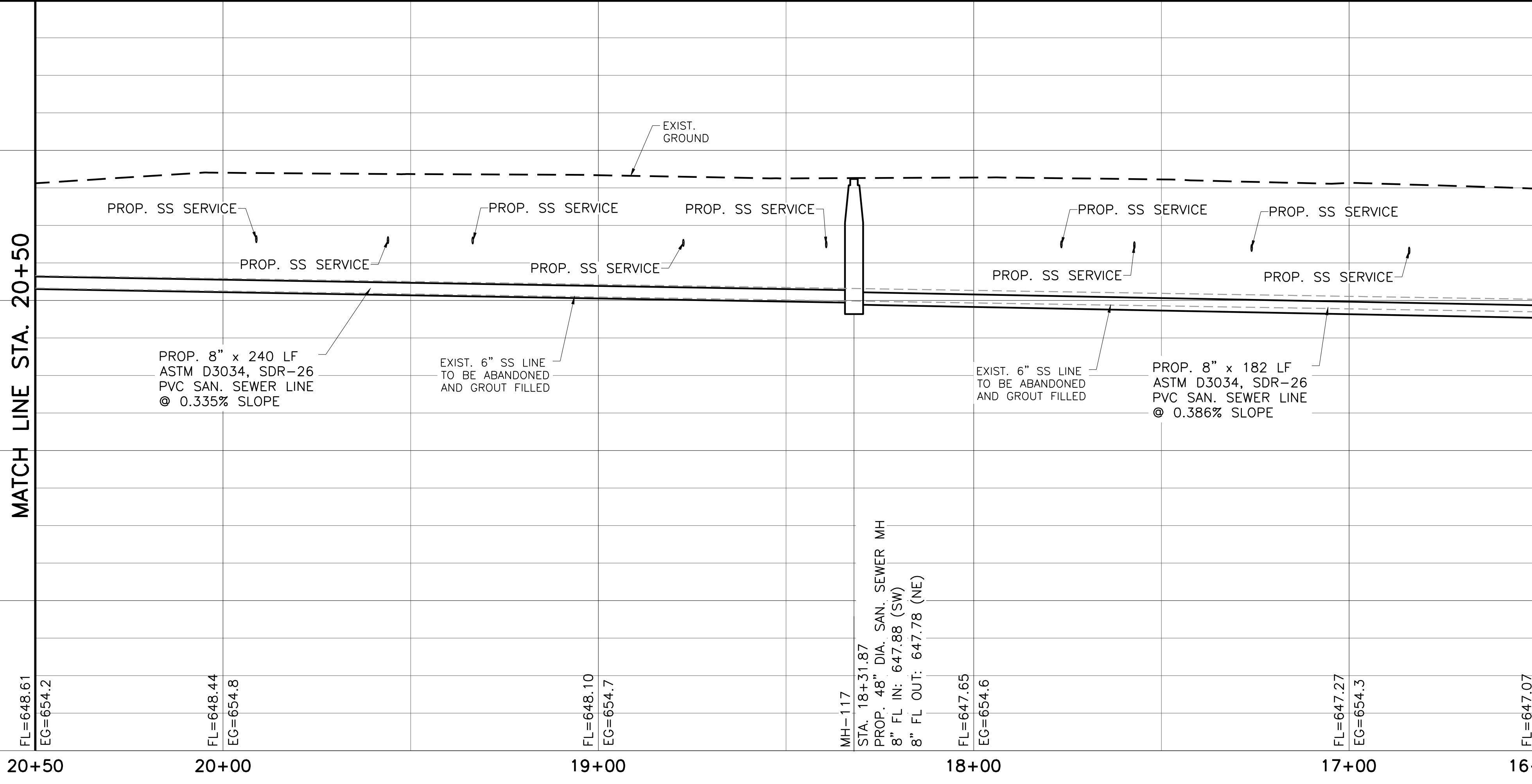
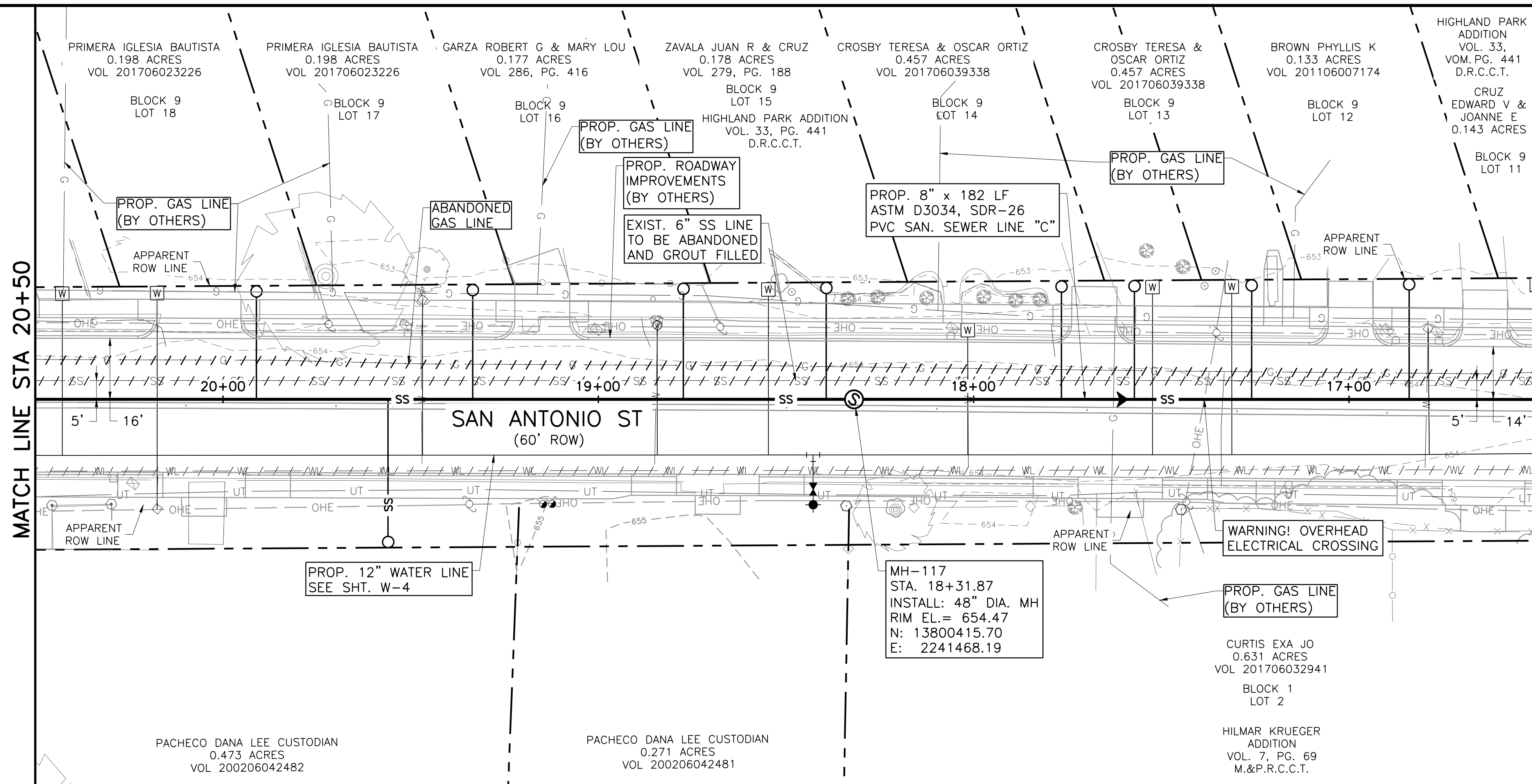
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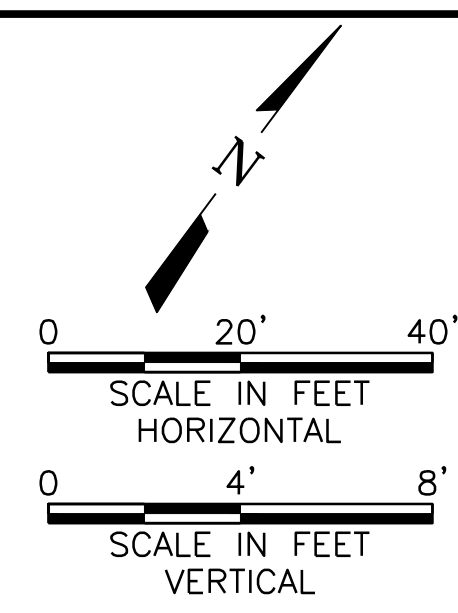
SHEET: **SS-7**

ACAD Rel: 21.0s (LMS Tech)
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- NOTES:**
- APPROXIMATELY 11 SANITARY SEWER SERVICES TO BE INSTALLED THIS SHEET. CONTRACTOR TO FIELD VERIFY NUMBER, LOCATION AND DEPTH OF SERVICES PRIOR TO ANY PIPELINE CONSTRUCTION.
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 Texas Registered Engineering Firm F-2144

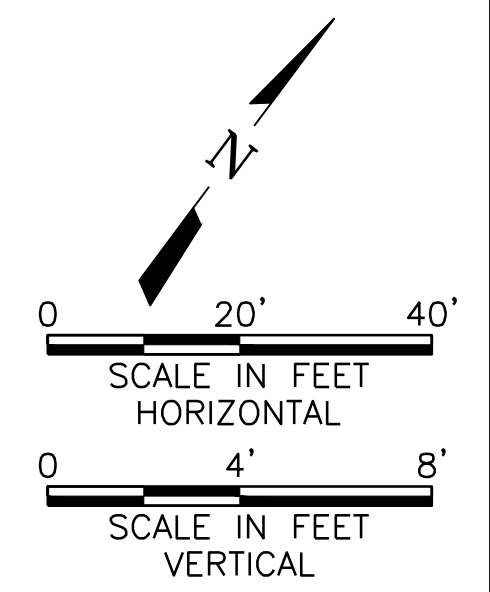
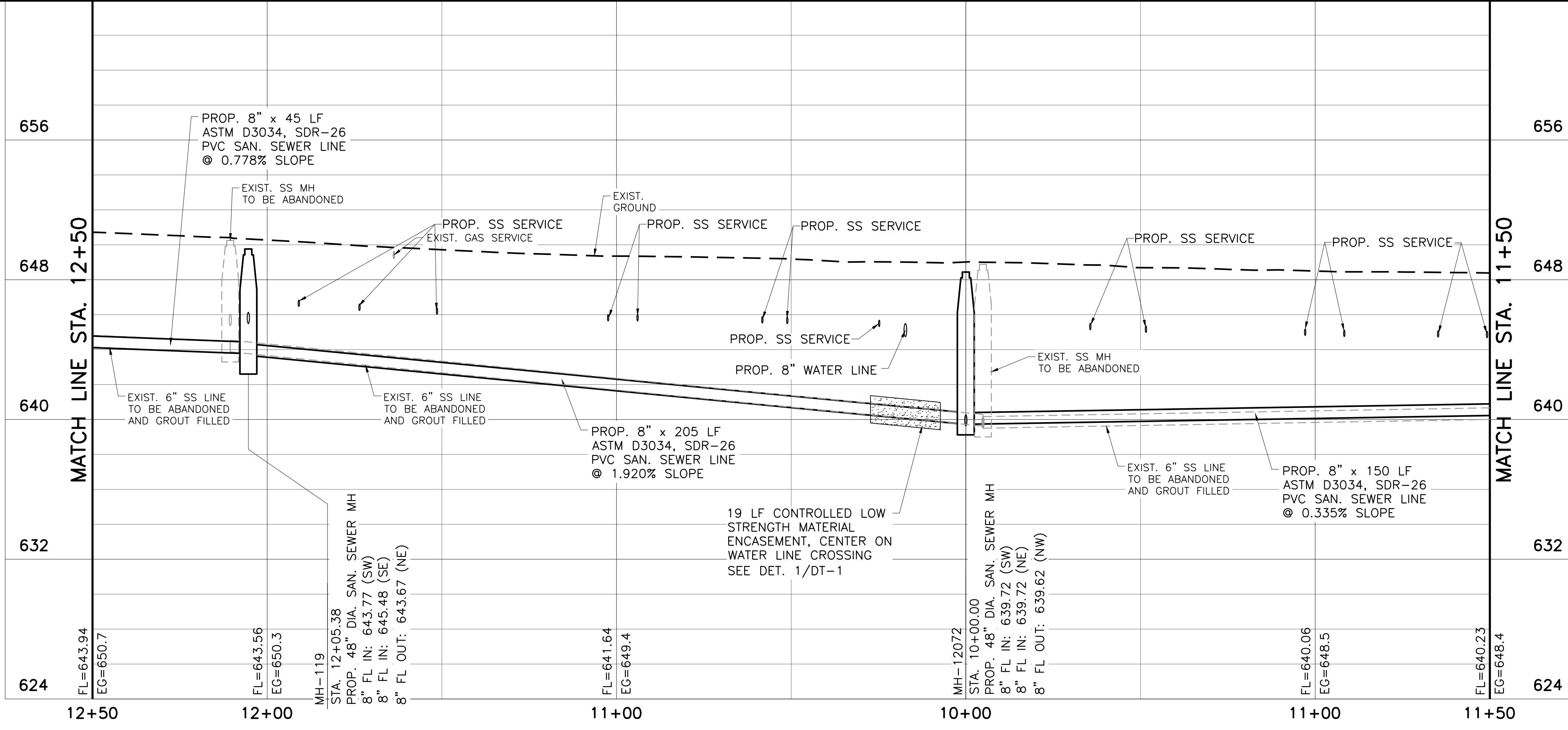
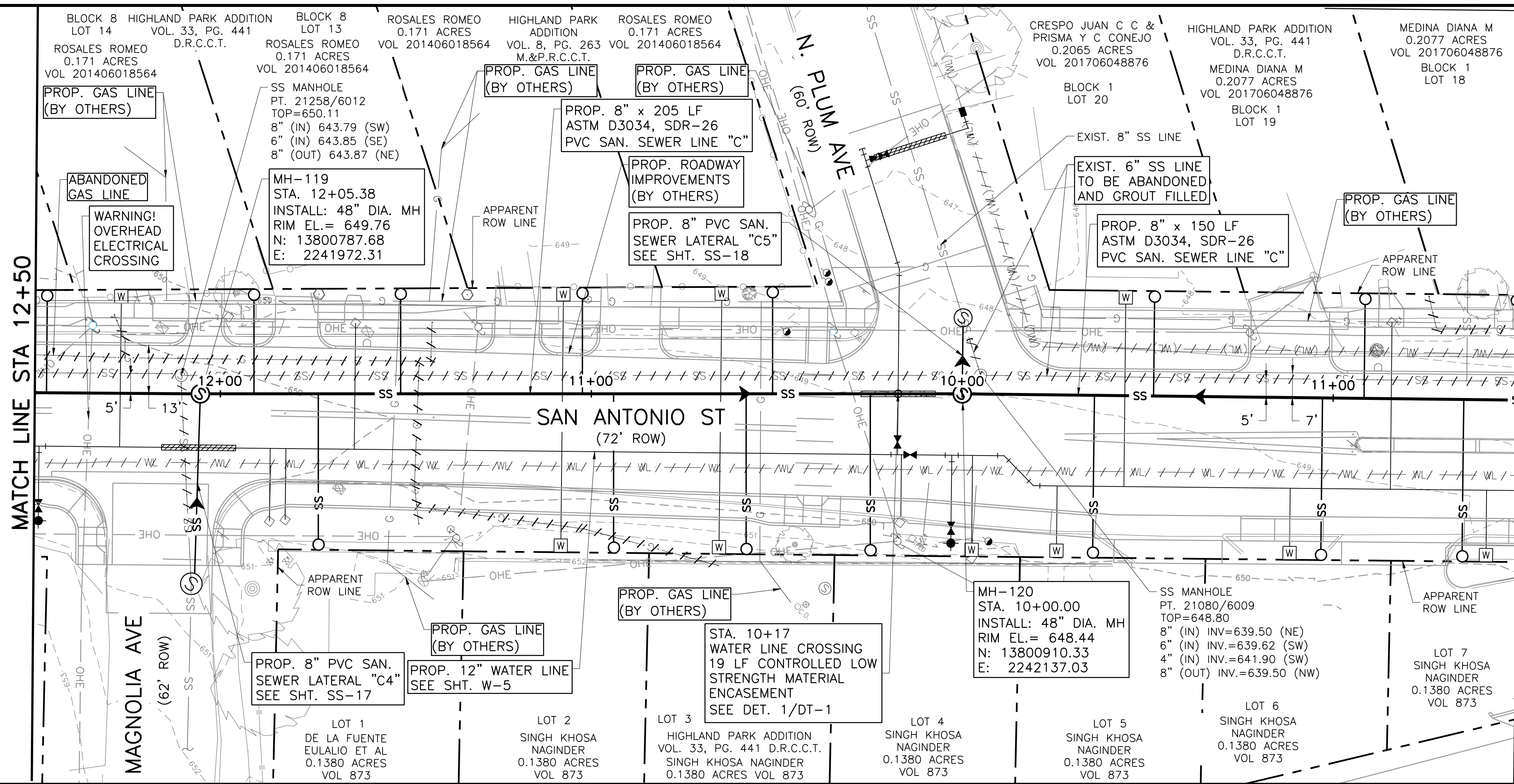
FRESE AND NICHOLS
 9601 McAllister Freeway, Suite 1008
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NEW BRAUNFELS UTILITIES
SAN ANTONIO STREET WATER AND WASTEWATER RELOCATION
SANITARY SEWER LINE C PLAN AND PROFILE
 STA. 20+50 TO STA. 16+50

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SHEET: **SS-8**



- NOTES:**
- APPROXIMATELY 14 SANITARY SEWER SERVICES TO BE INSTALLED THIS SHEET. CONTRACTOR TO FIELD VERIFY NUMBER, LOCATION AND DEPTH OF SERVICES PRIOR TO ANY PIPELINE CONSTRUCTION.
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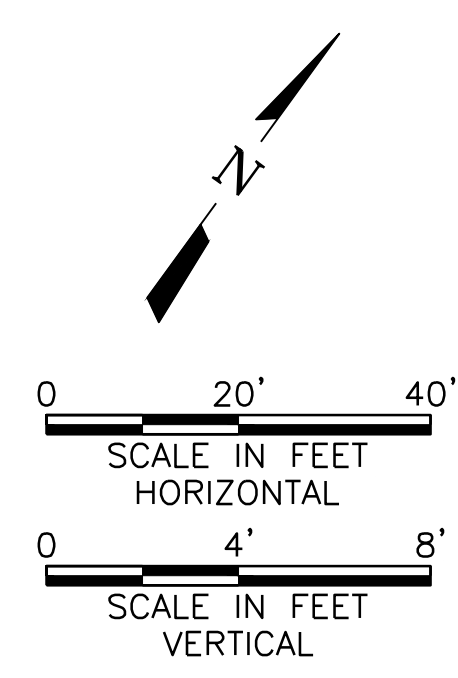
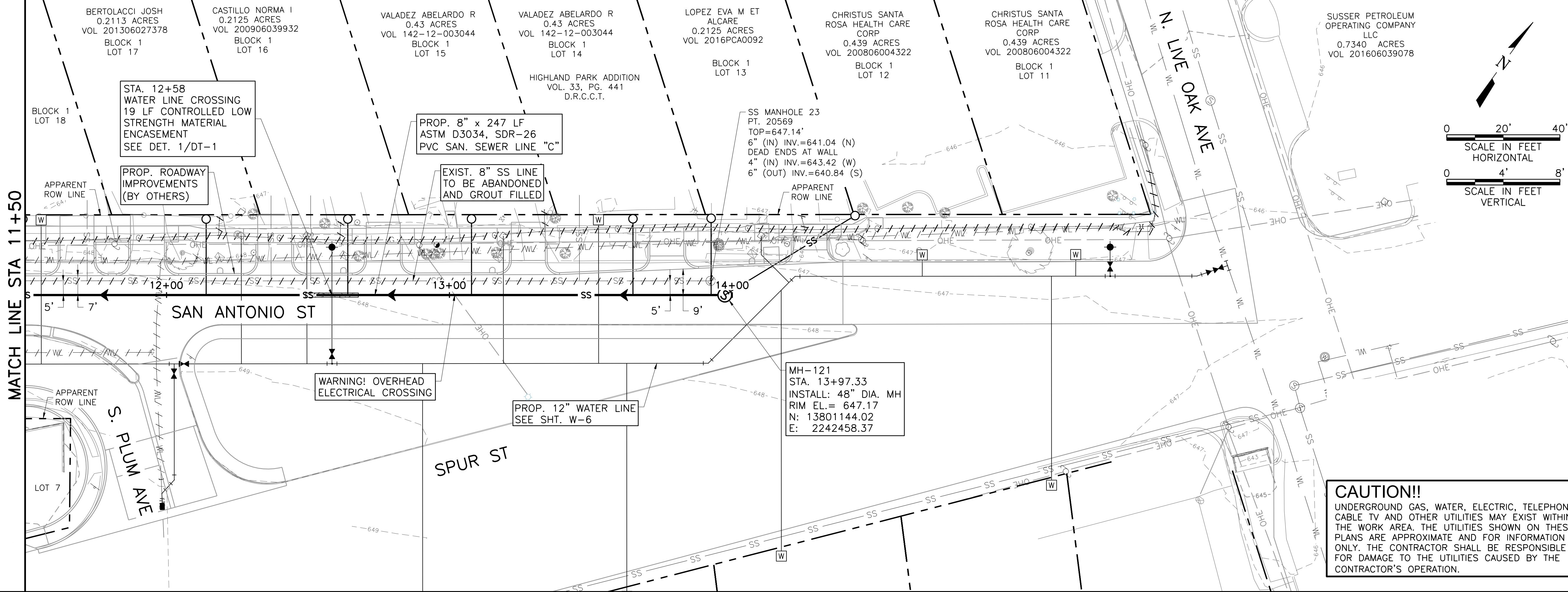
NEW BRAUNFELS UTILITIES
SAN ANTONIO STREET WATER AND WASTEWATER RELOCATION
SANITARY SEWER LINE C PLAN AND PROFILE
 STA. 12+50 TO STA. 11+50

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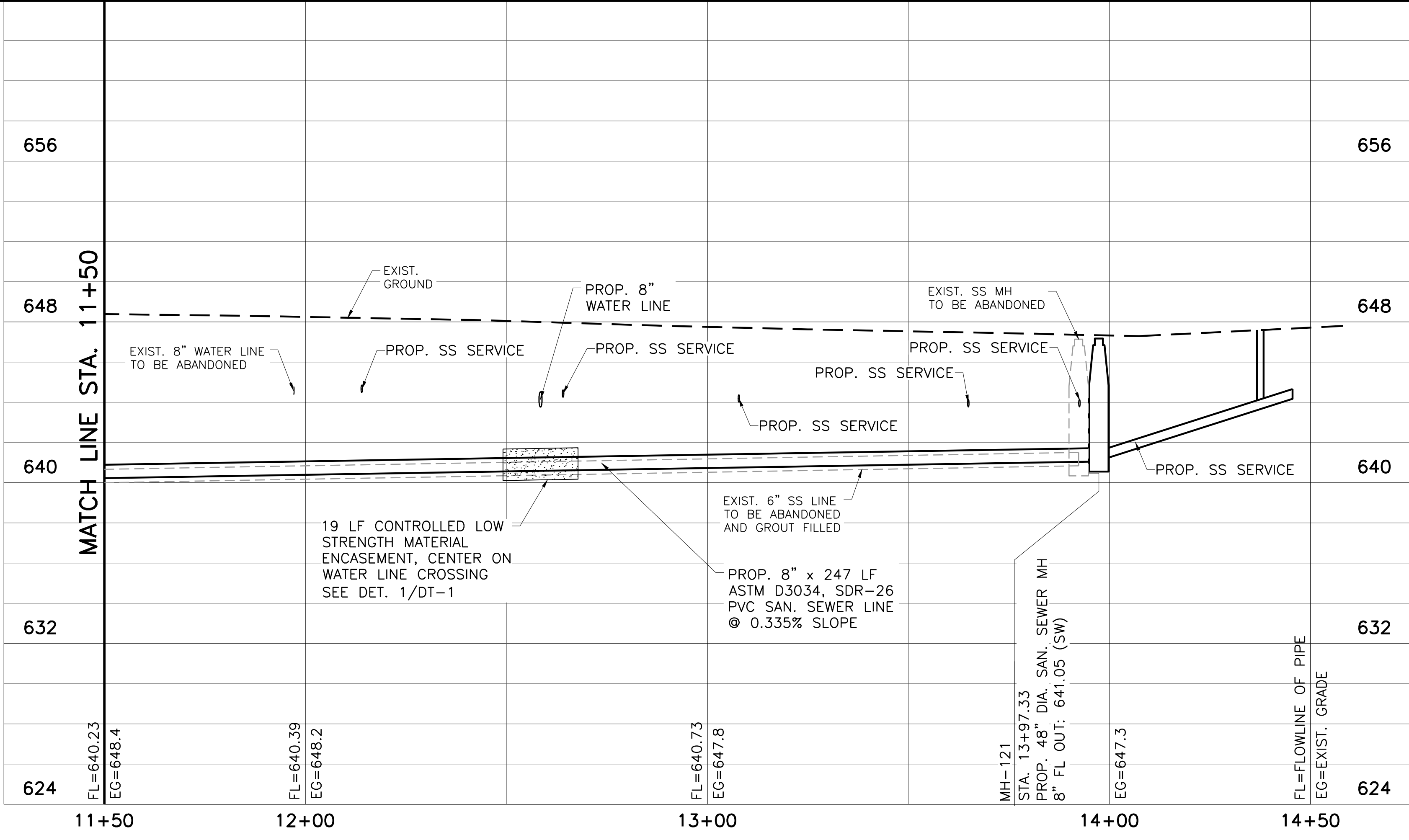
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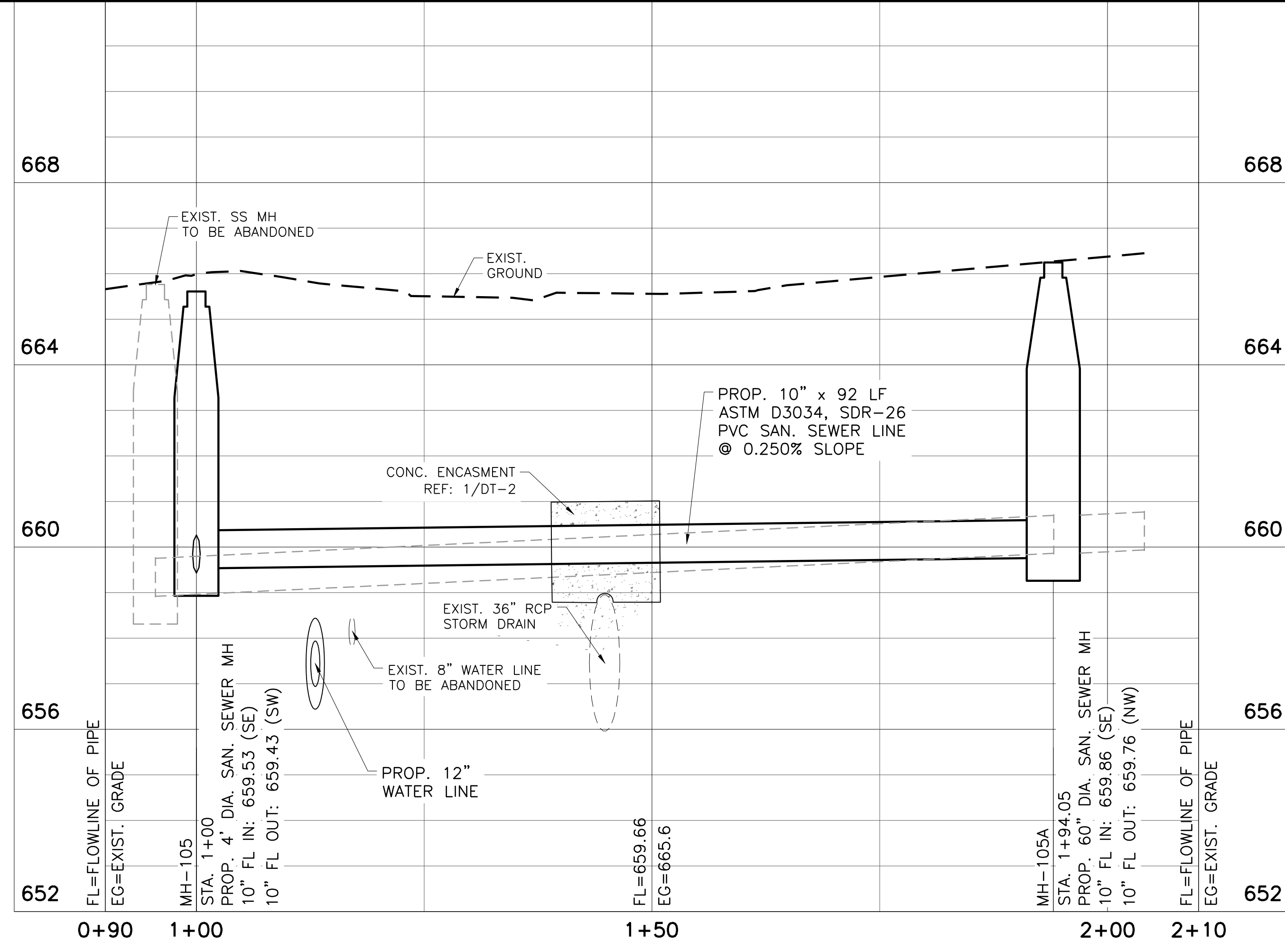
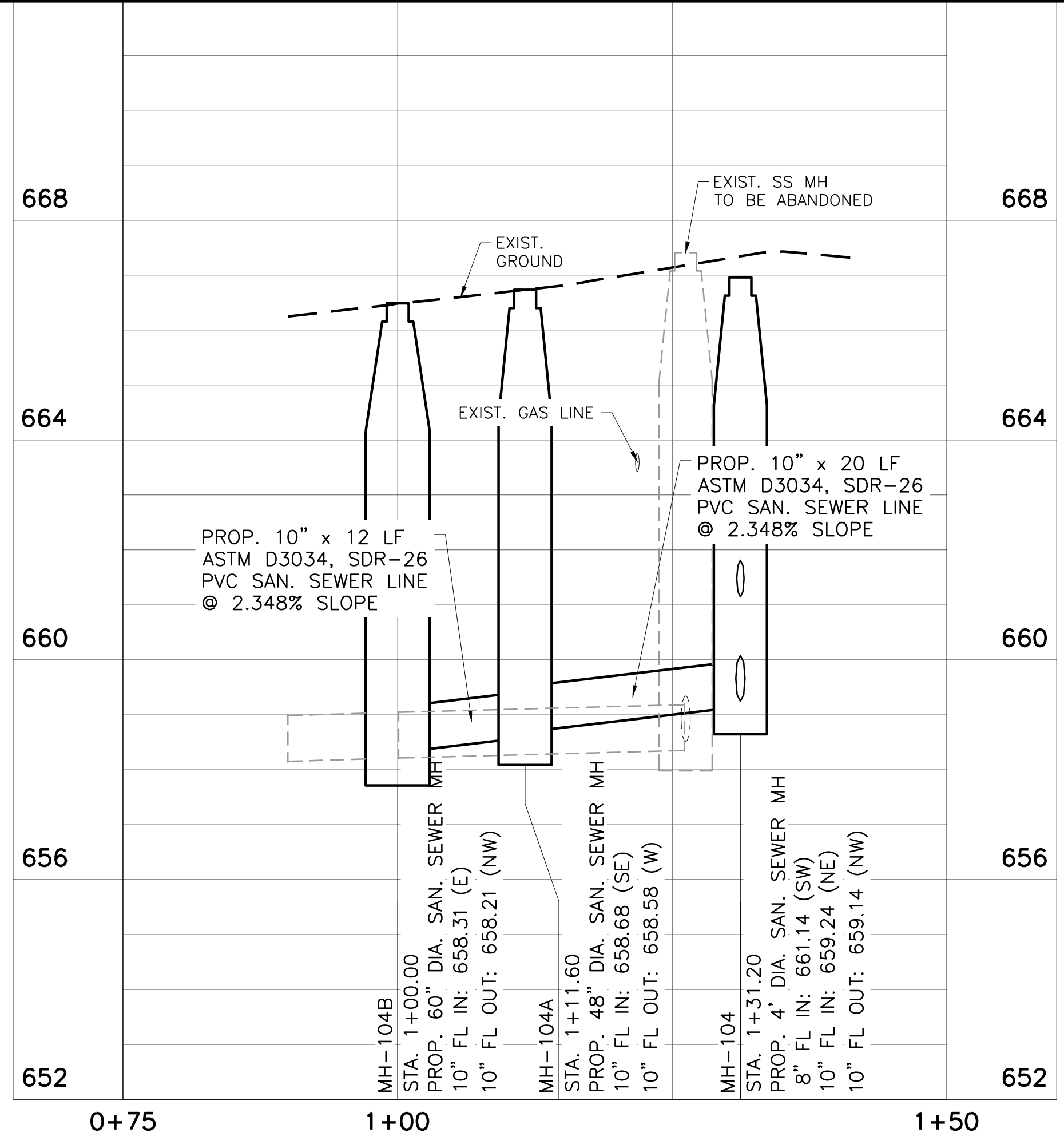
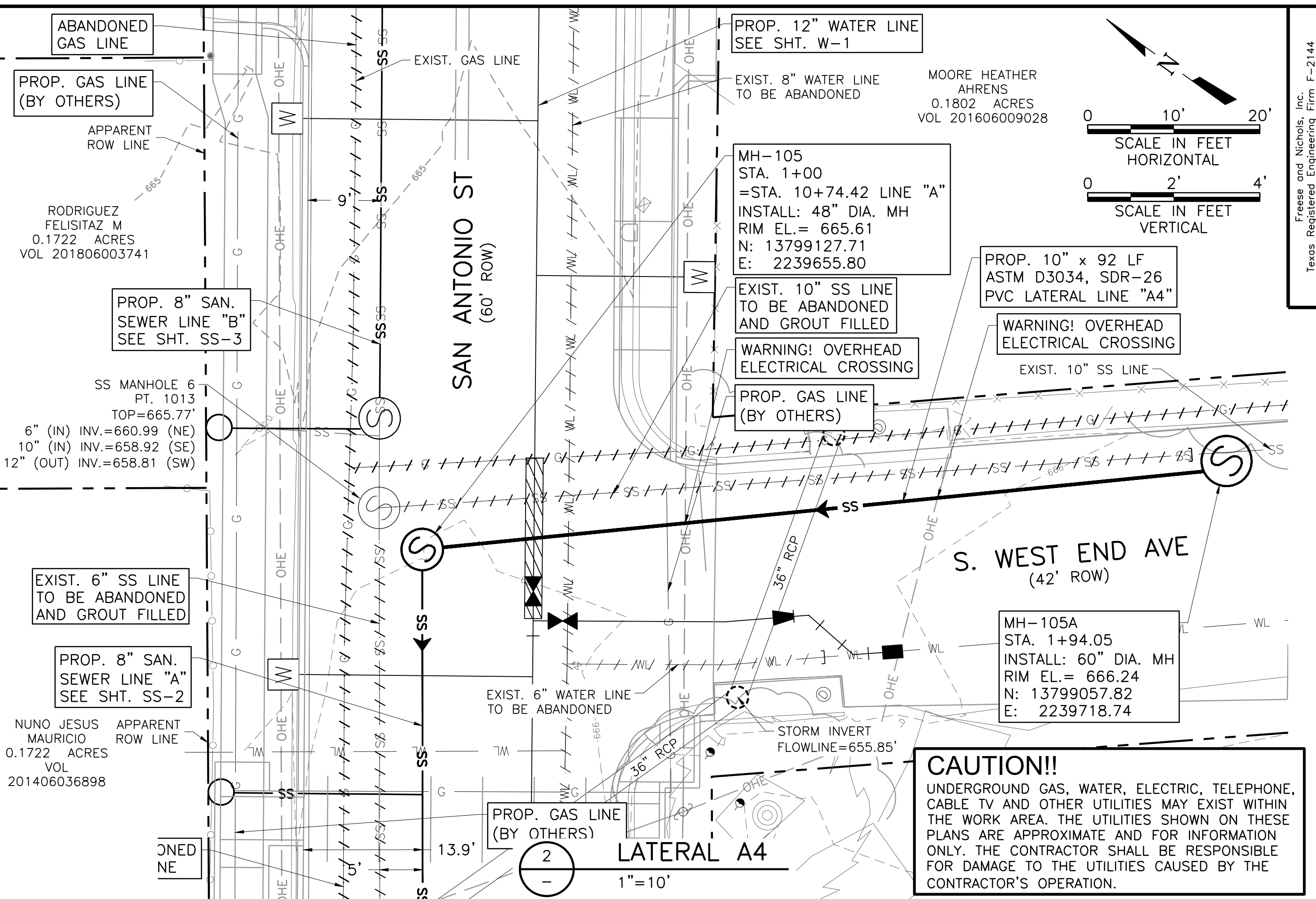
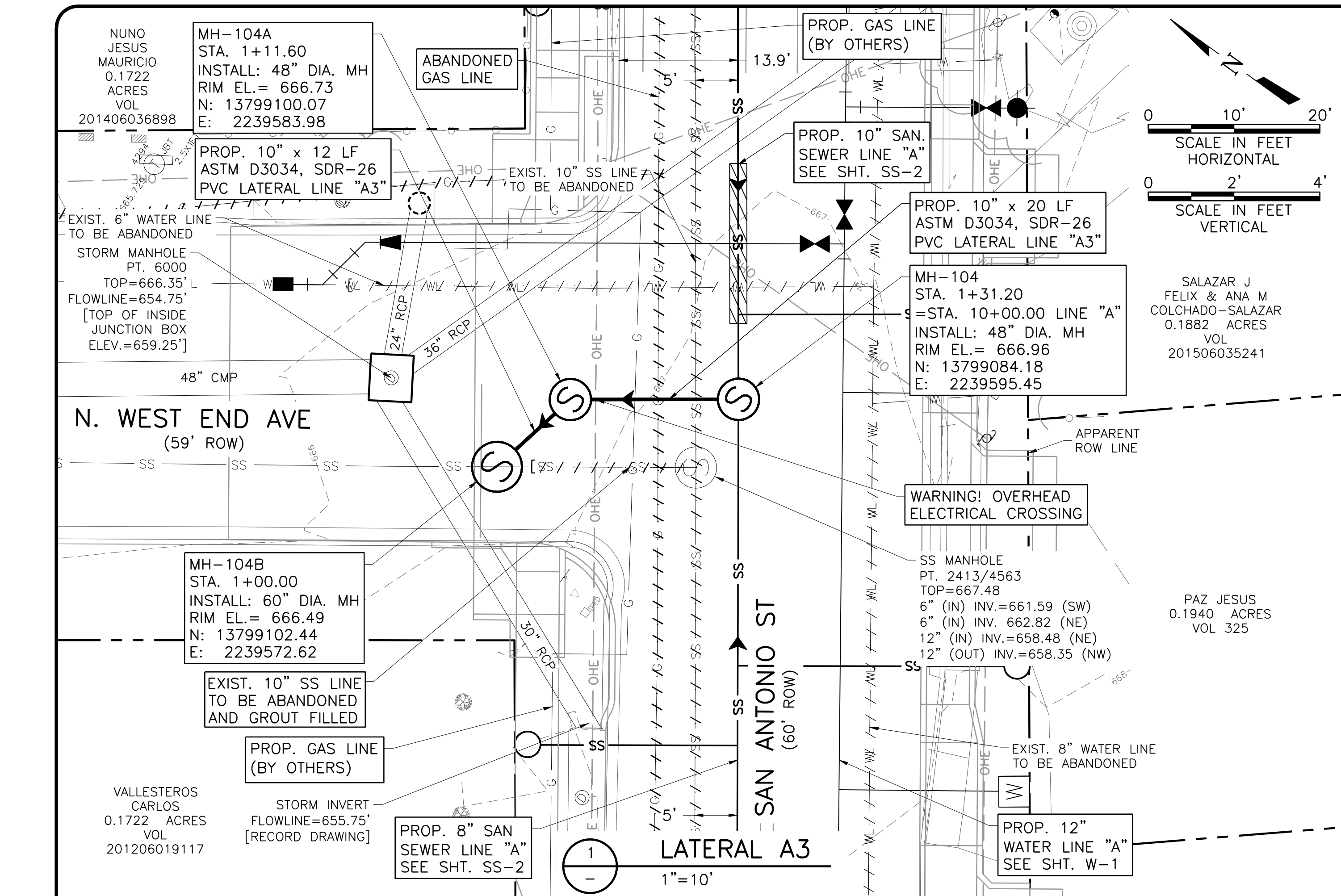
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NEW BRAUNFELS UTILITIES
SAN ANTONIO STREET WATER AND WASTEWATER RELOCATION
 SANITARY SEWER LINE A PLAN AND PROFILE
 LATERAL LINES A3 AND A4

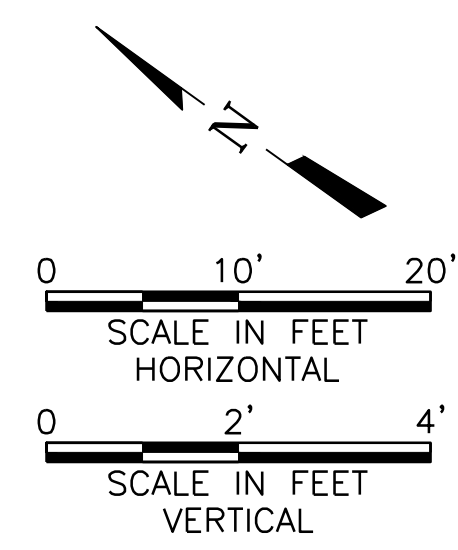
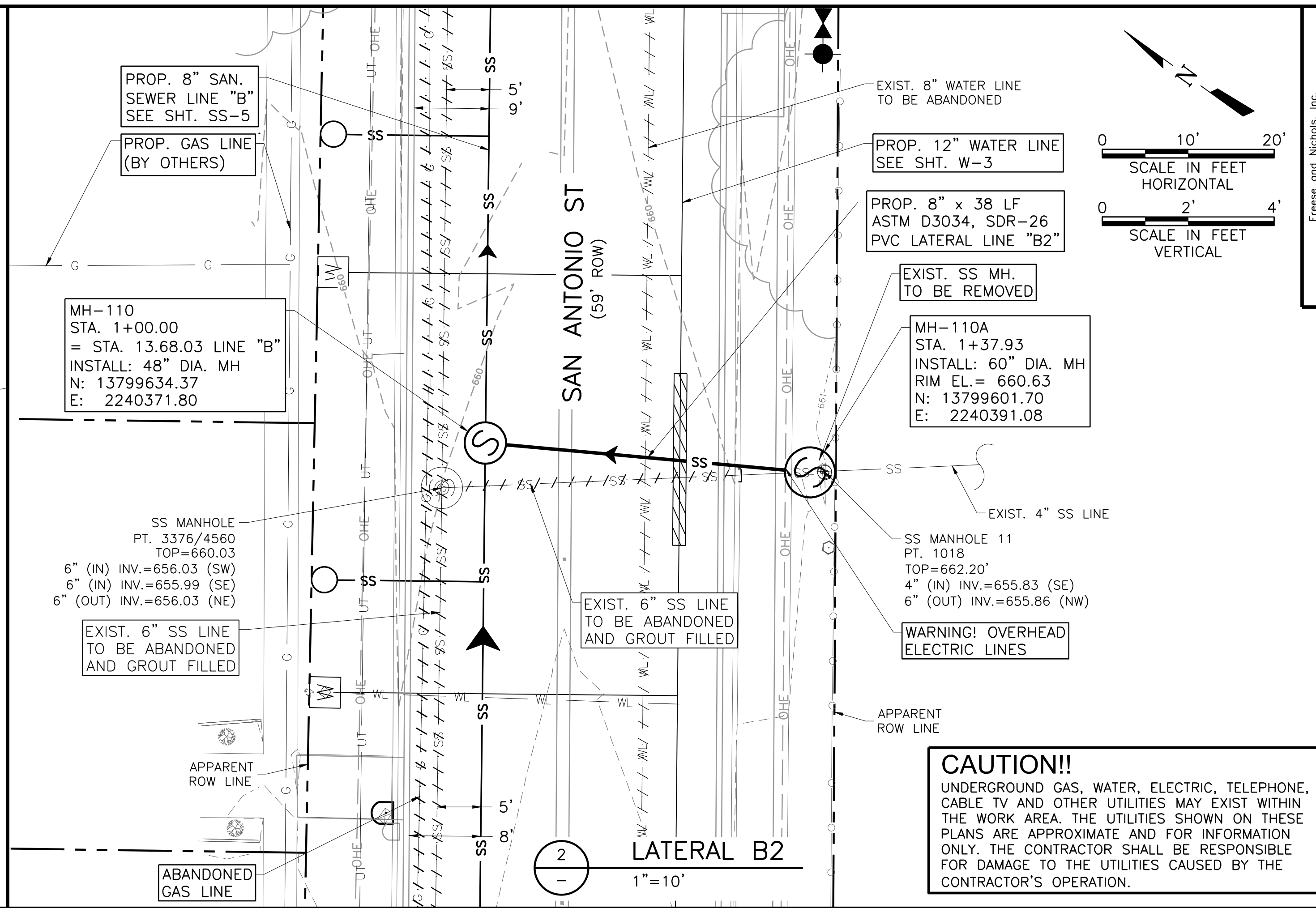
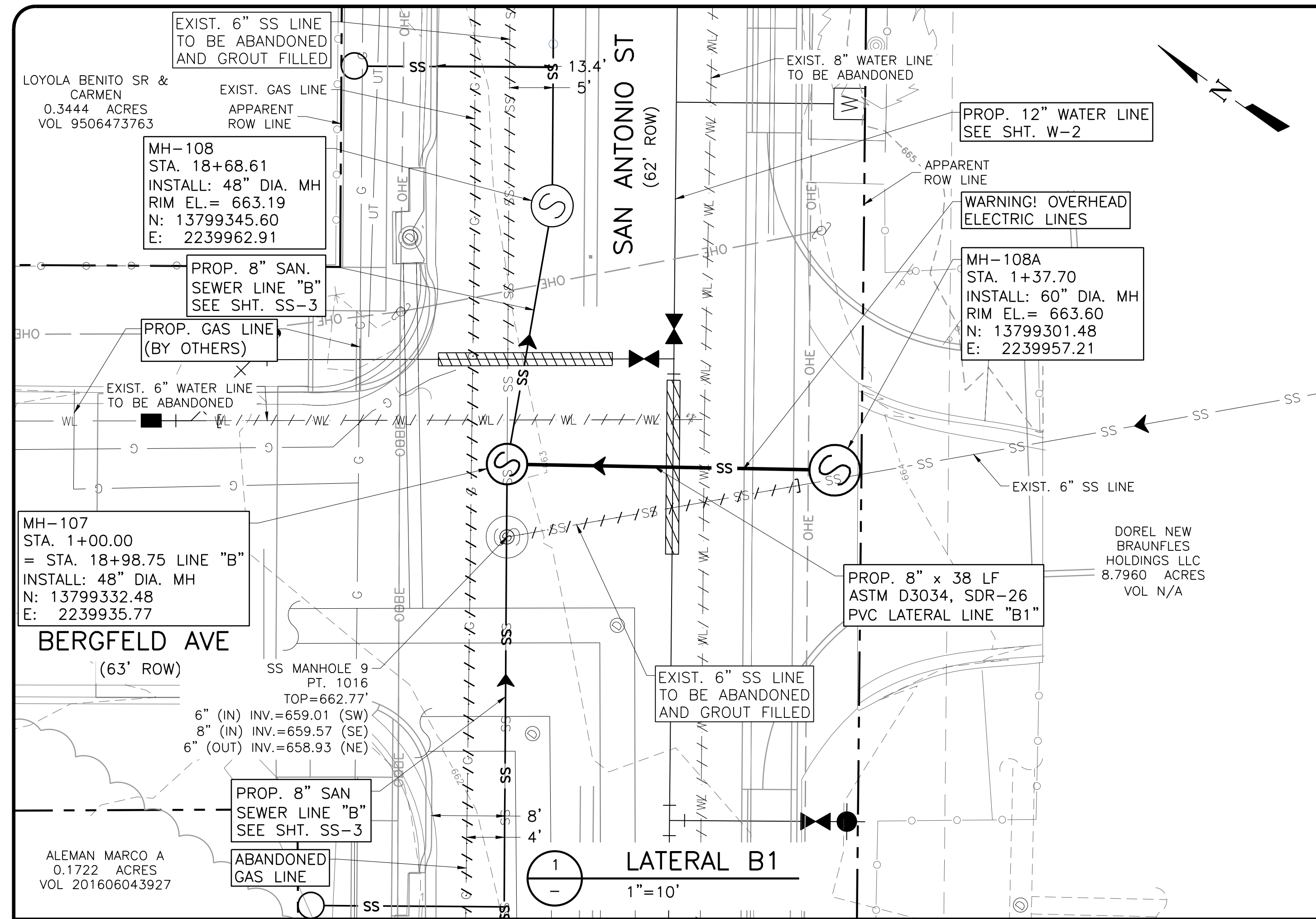
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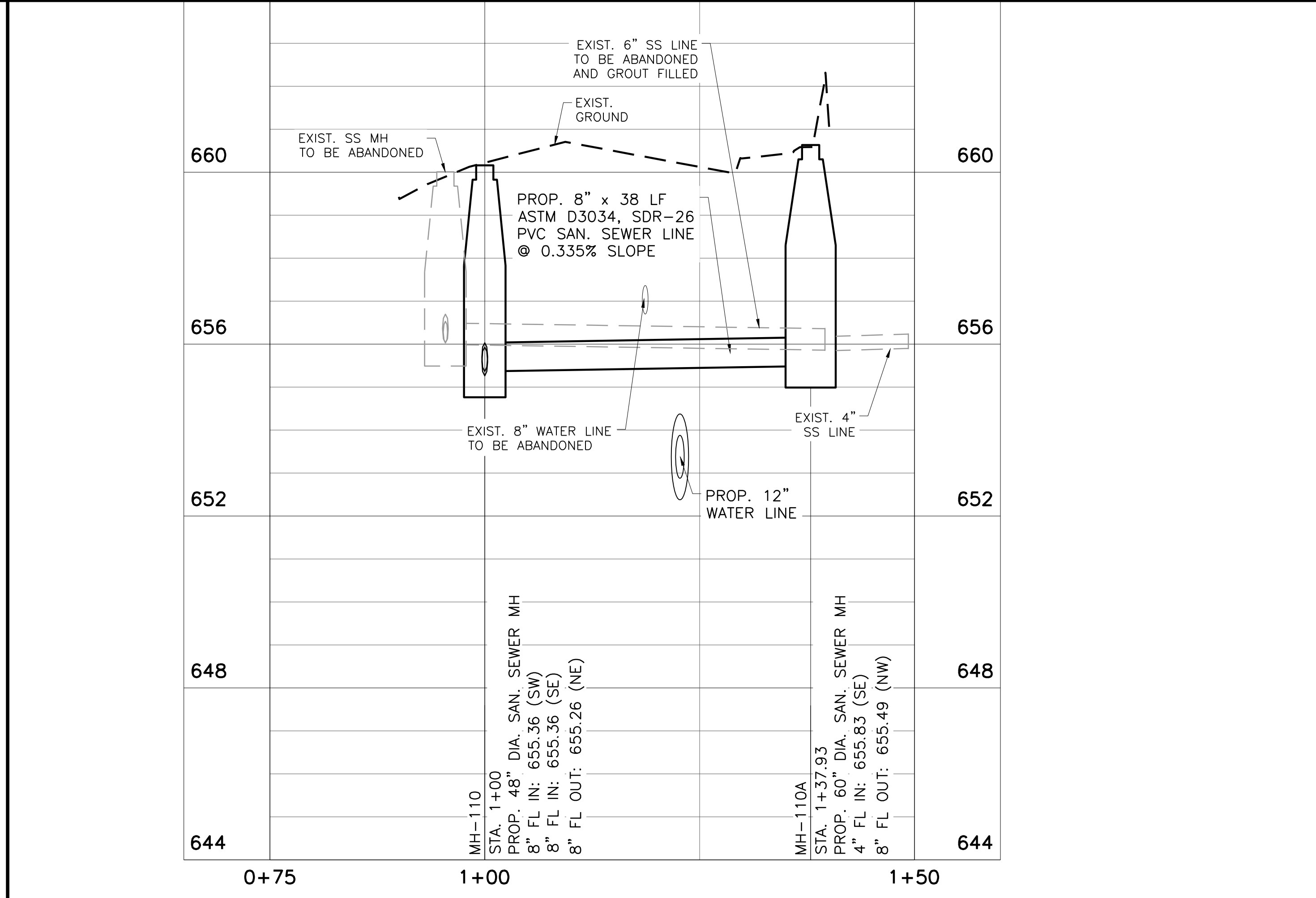
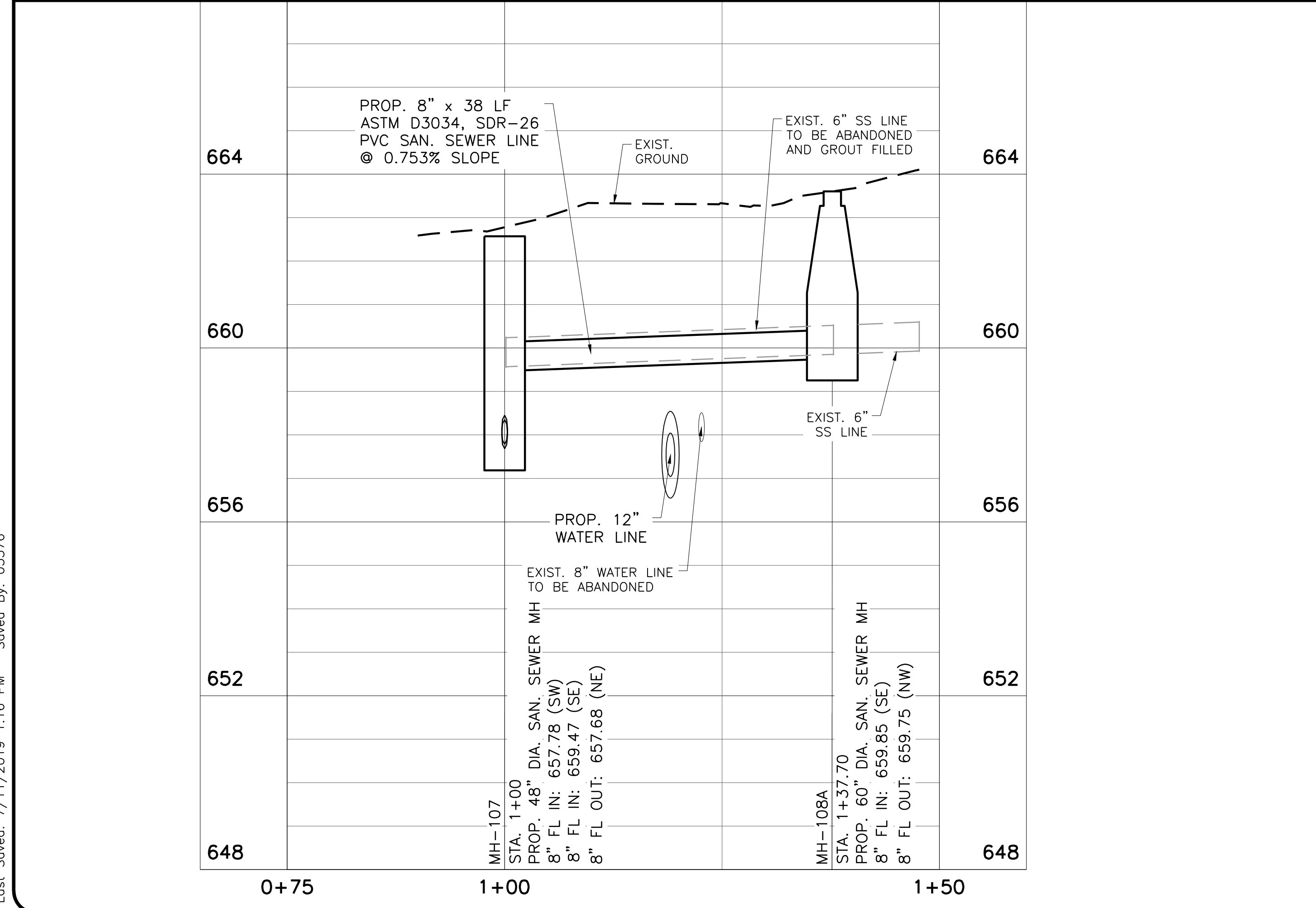
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NEW BRAUNFELS UTILITIES
SAN ANTONIO STREET WATER AND WASTEWATER RELOCATION
SANITARY SEWER LINE B PLAN AND PROFILE
LATERAL LINES B1 AND B2

NO.	ISSUE	DATE	BY	DESIGNED	ECM	DRAWN	DDH	REVISION	CHECKED	DTB

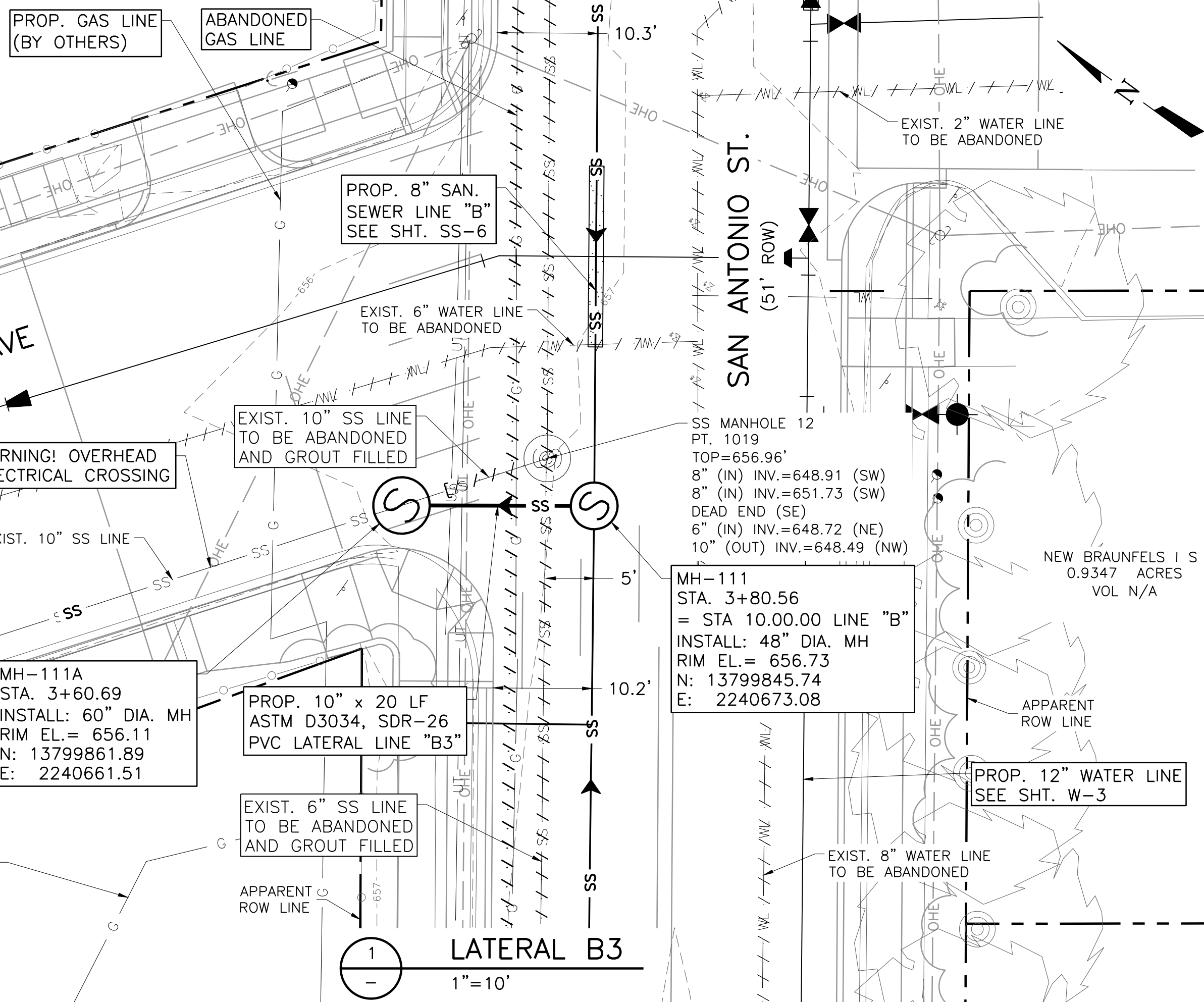
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VERIFY SCALE: Bar is one inch on original drawing, if not one inch on this sheet, adjust scale.

SHEET **SS-14**

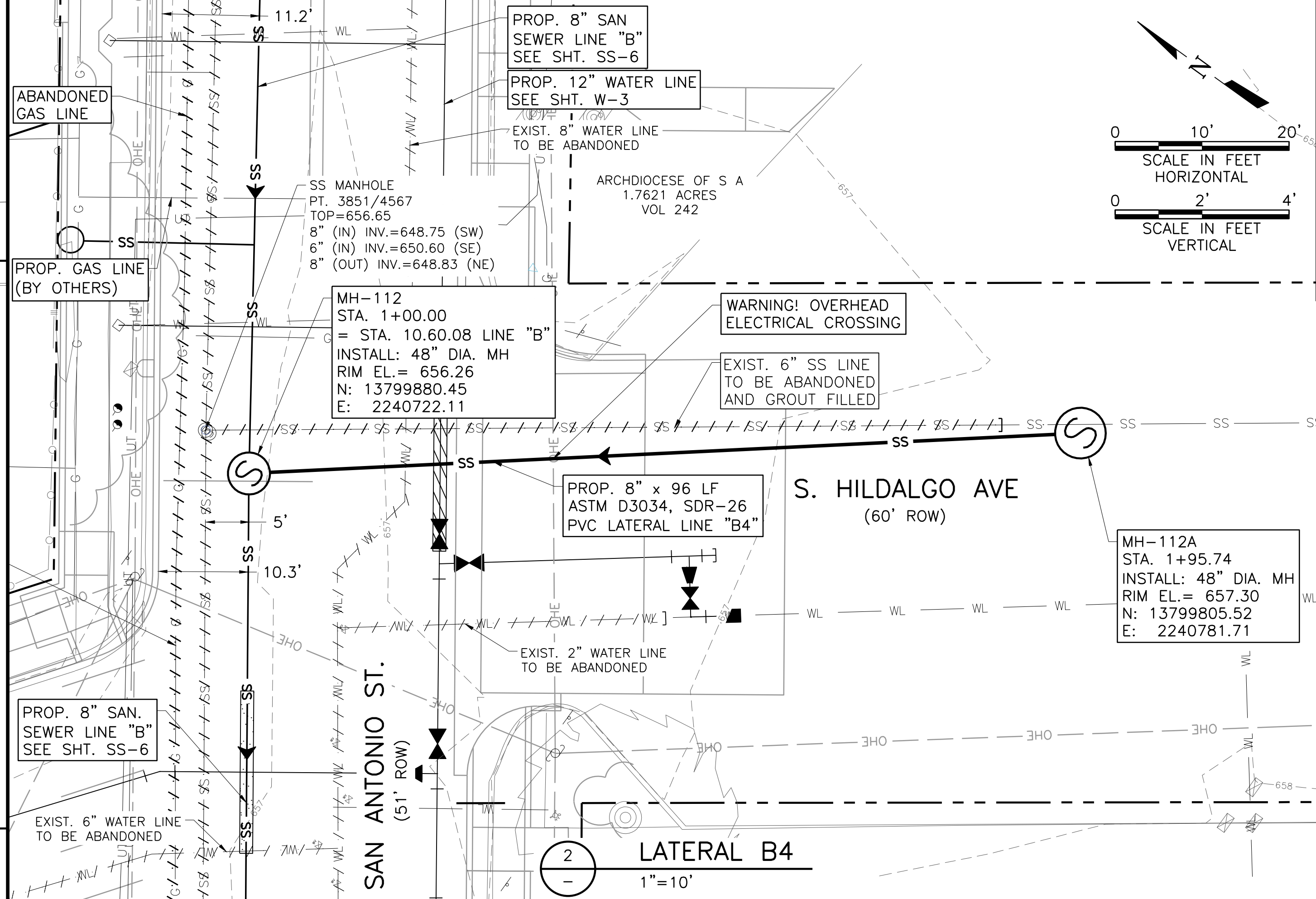
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PORTALES MAGDALENA
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VOL 201806033500



FRANCO RAFAEL G &
MARCELINA
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VOL 201806003188

LATERAL B3
1"=10'



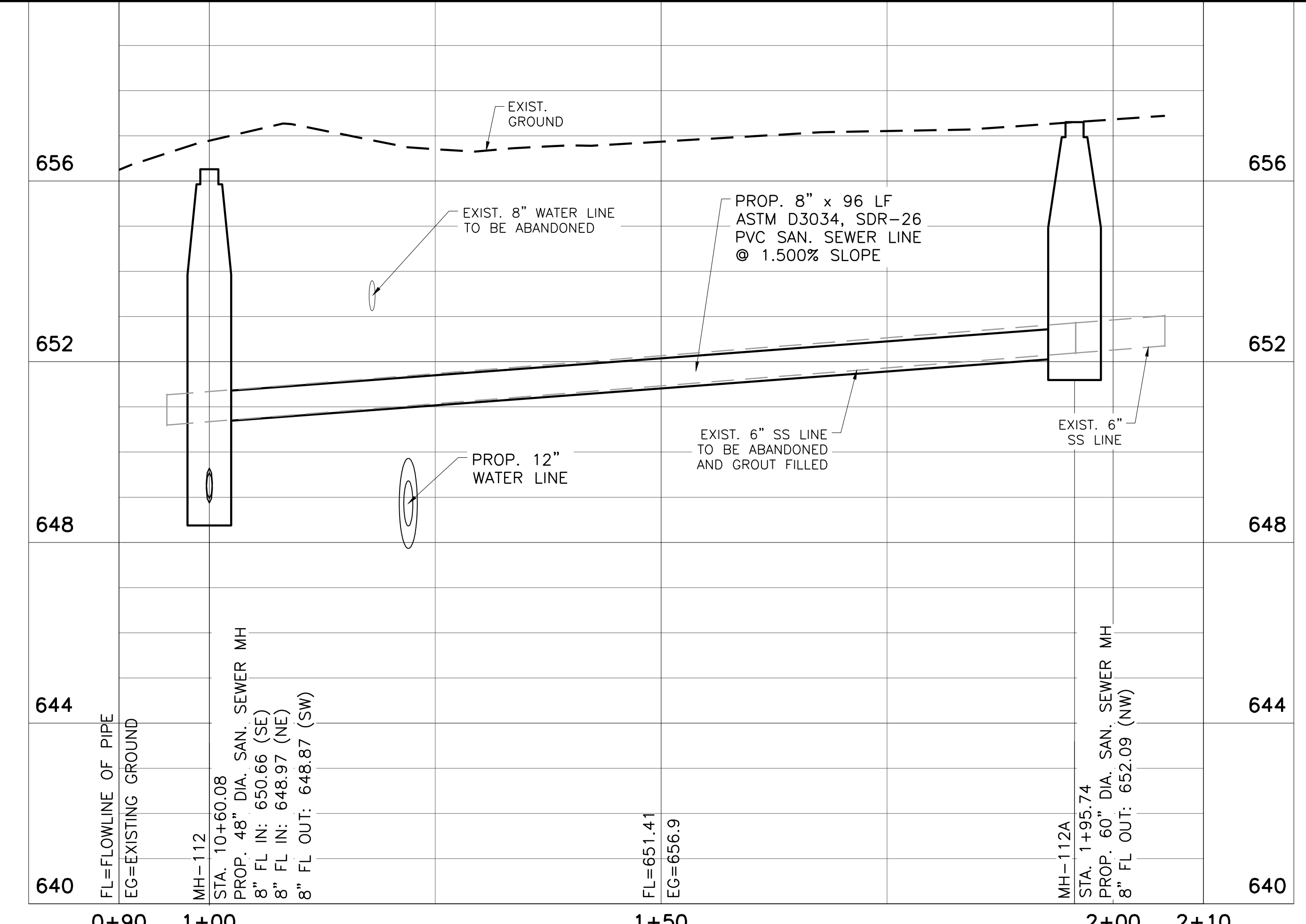
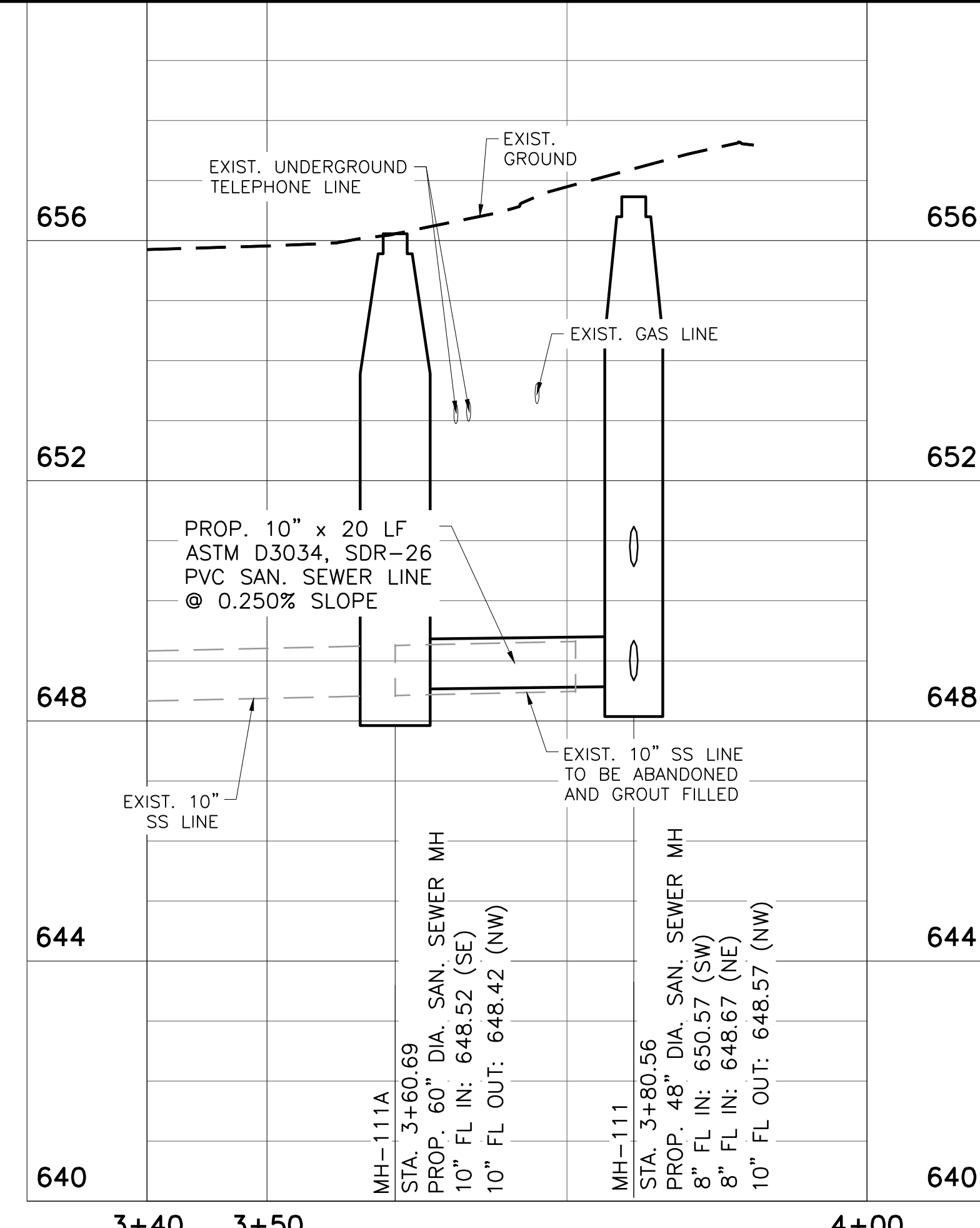
LATERAL B4
1"=10'

Freese and Nichols, Inc.
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Erin C. Mills
120172
Professional Engineer
State of Texas

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Fax - (210) 298-3801
Web - www.freese.com

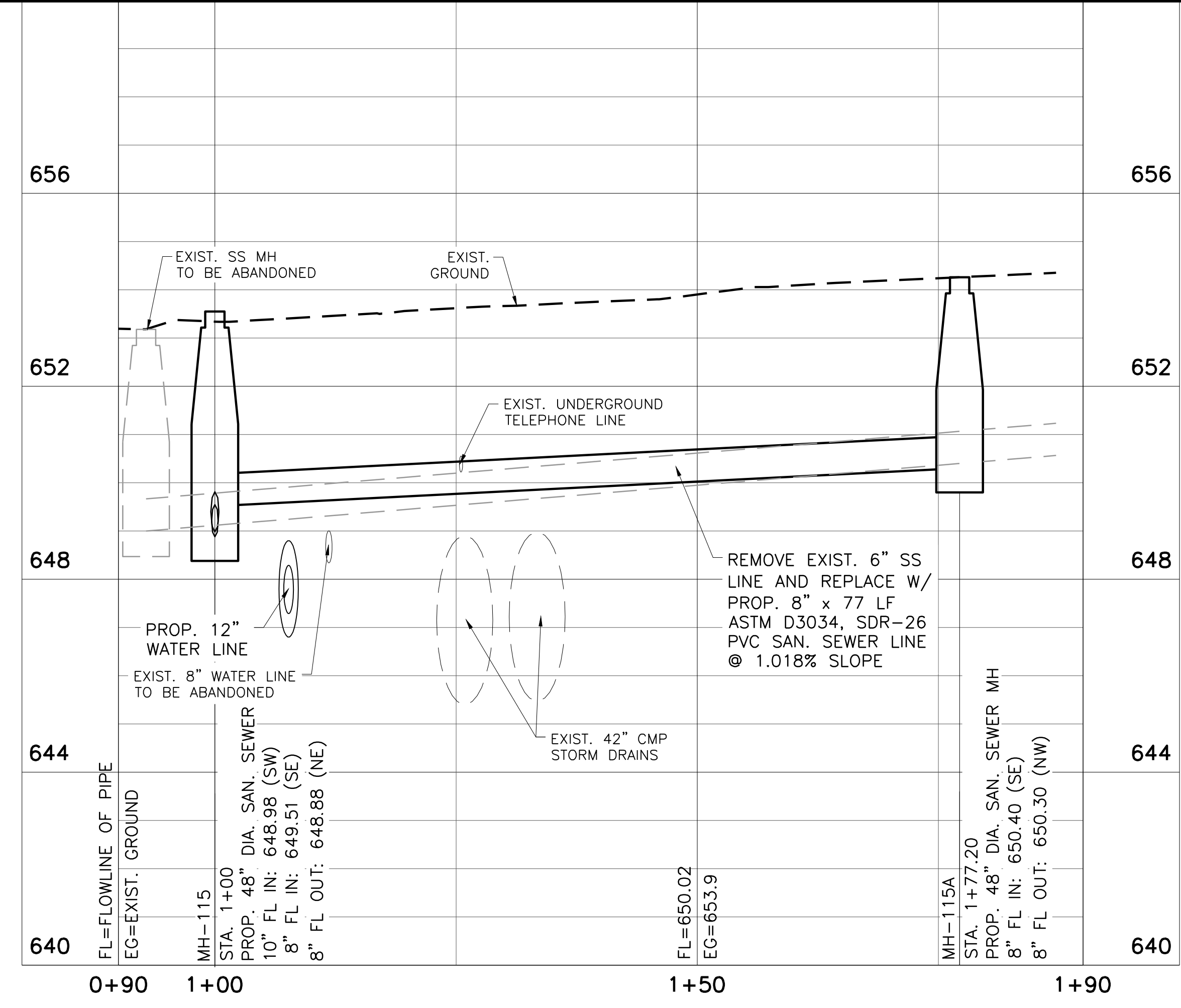
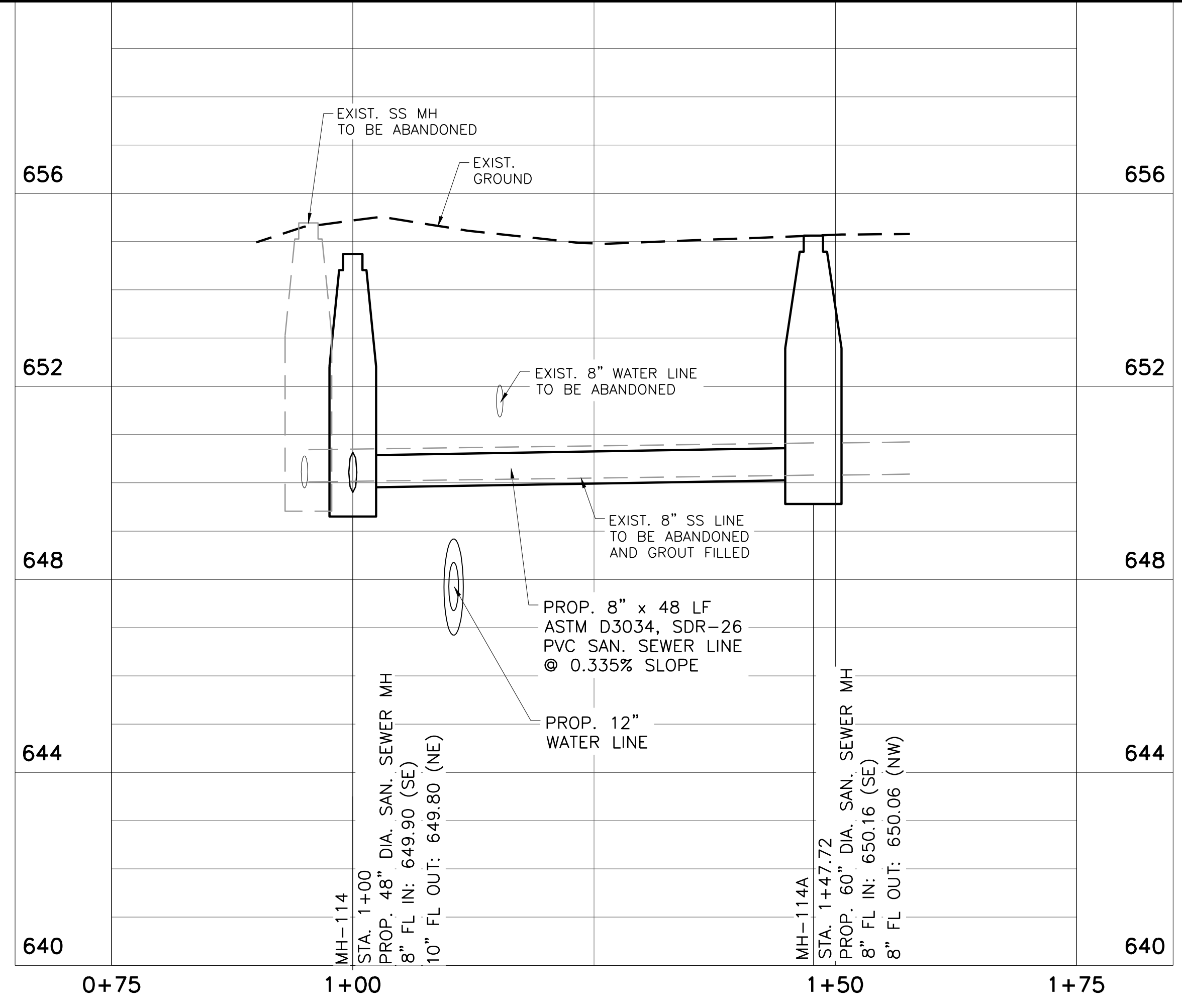
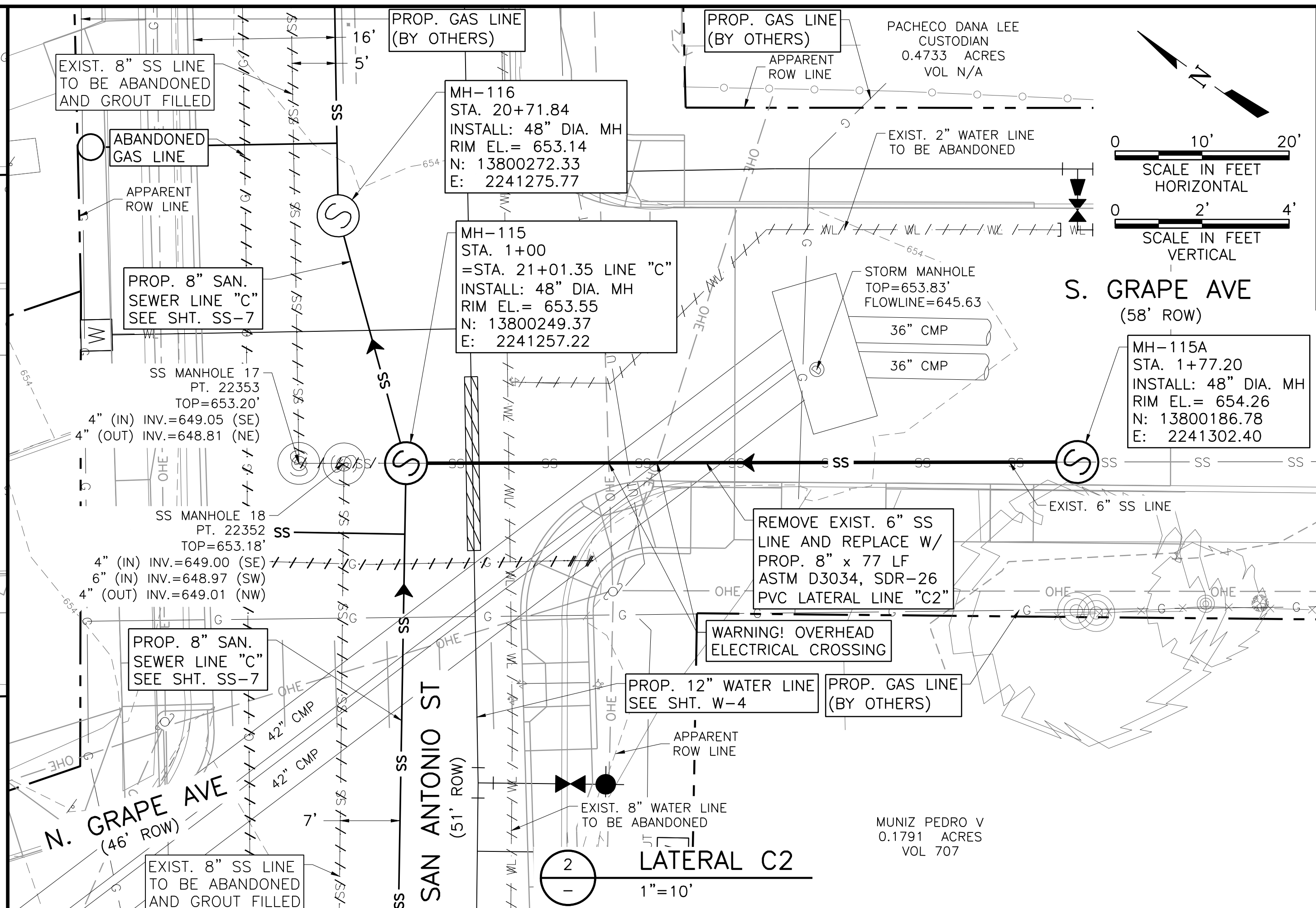
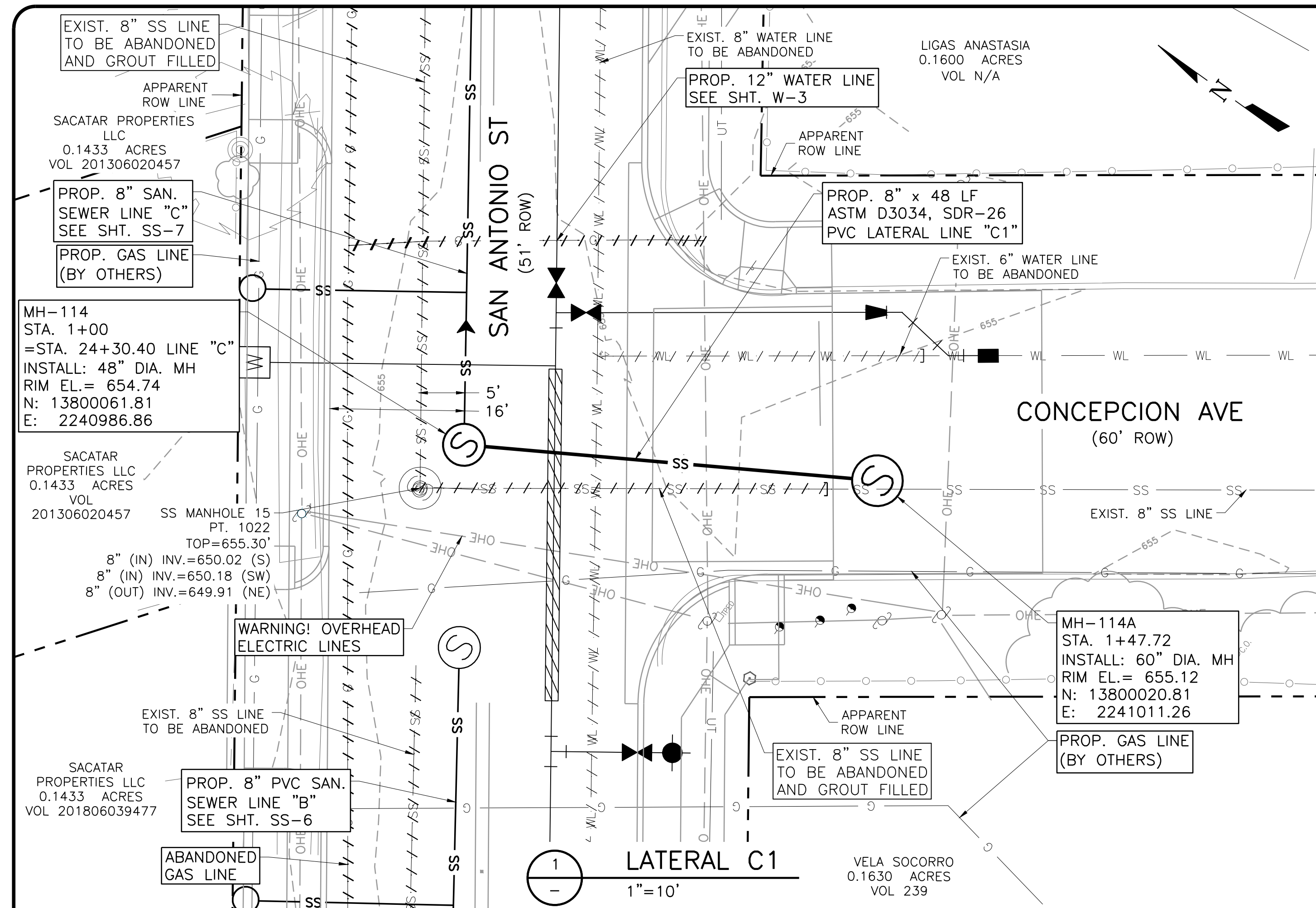
NEW BRAUNFELS UTILITIES
SAN ANTONIO STREET WATER AND WASTEWATER RELOCATION
SANITARY SEWER LINE B PLAN AND PROFILE
LATERAL LINES B3 AND B4



NO.	ISSUE	BY	DATE	DESIGNED	ECM	DRAWN	DDH	CHECKED	DTB
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NEW BRAUNFELS UTILITIES
SAN ANTONIO STREET WATER AND WASTEWATER RELOCATION
SANITARY SEWER LATERALS PLAN AND PROFILE
LATERAL LINES C1 AND C2

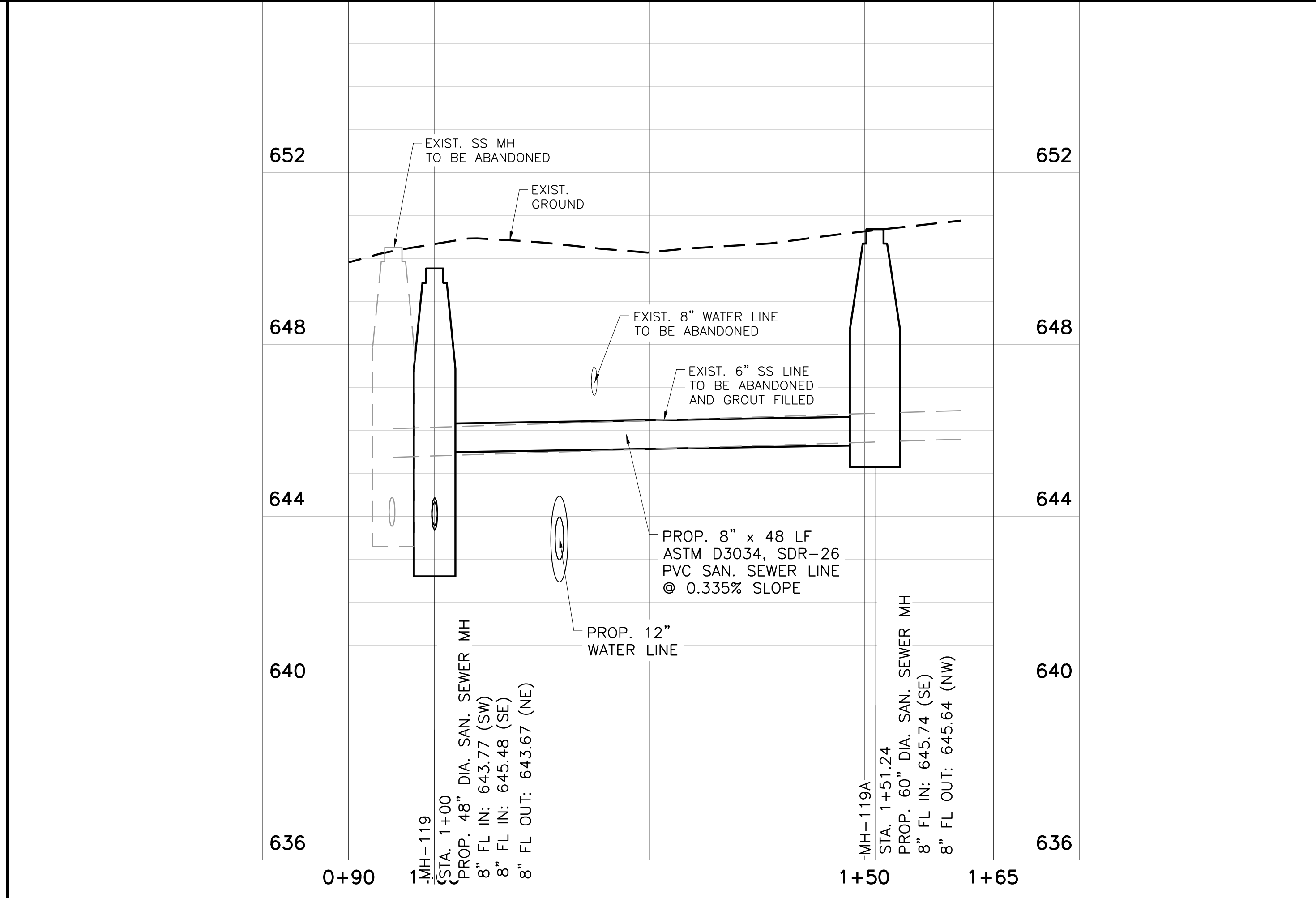
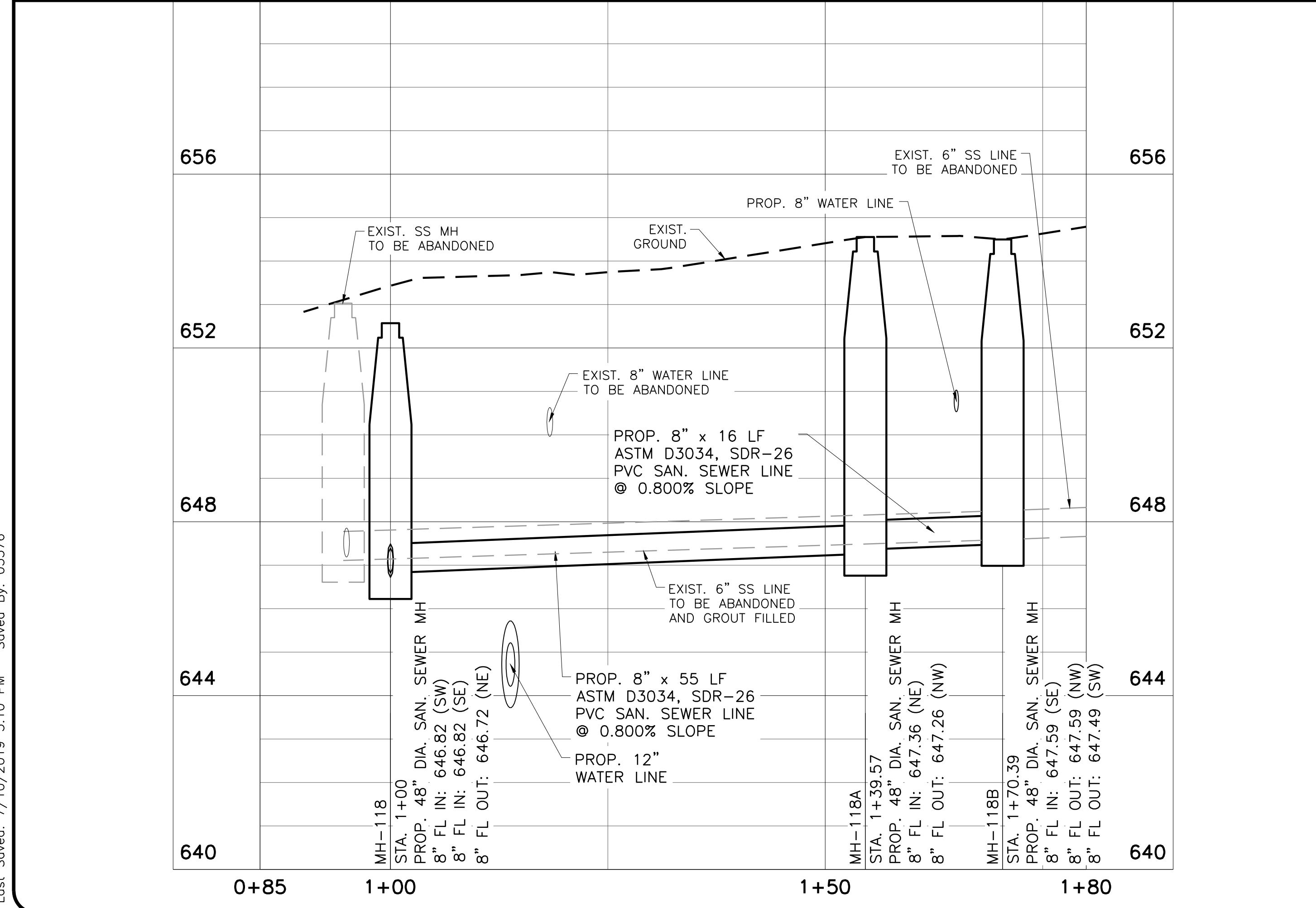
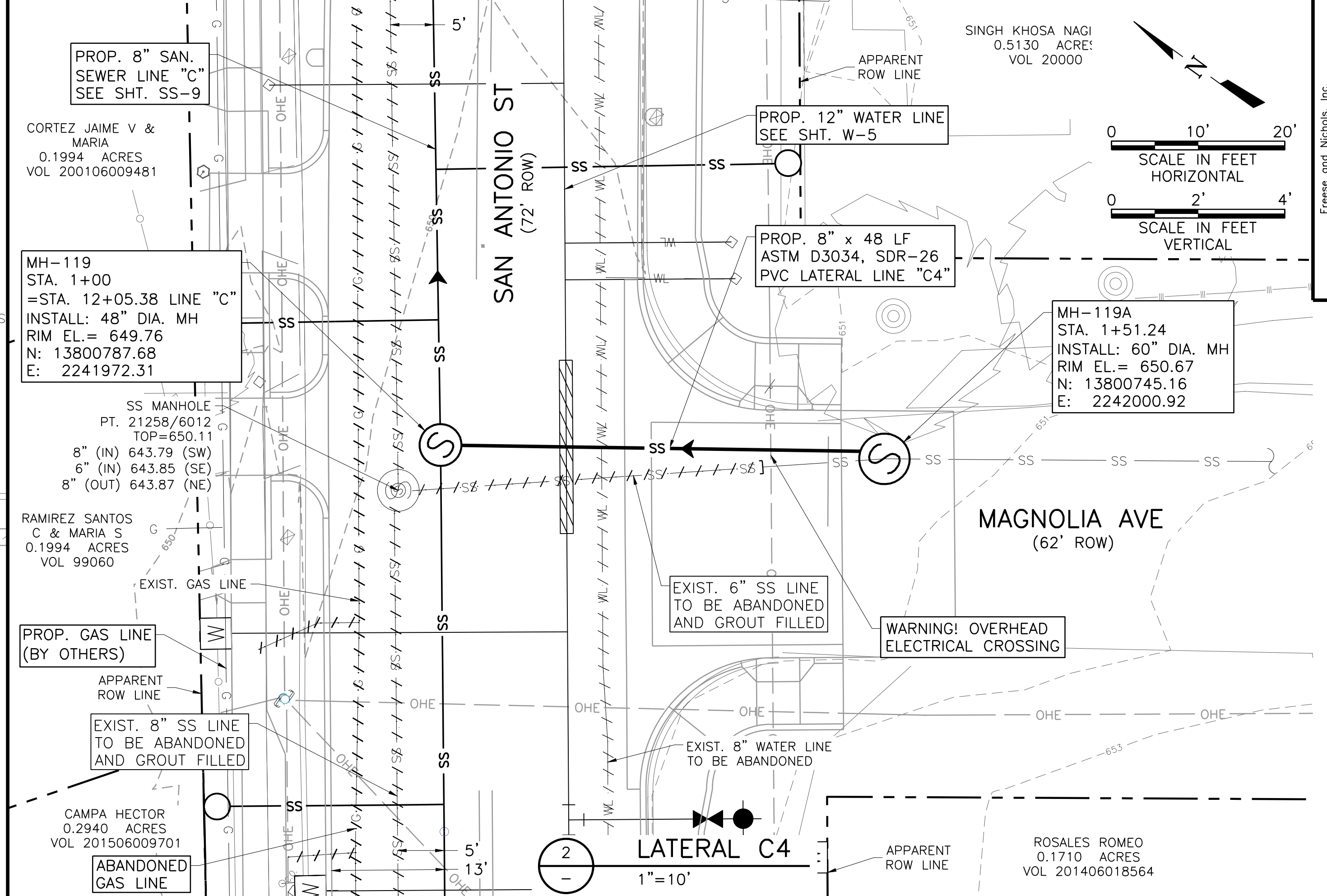
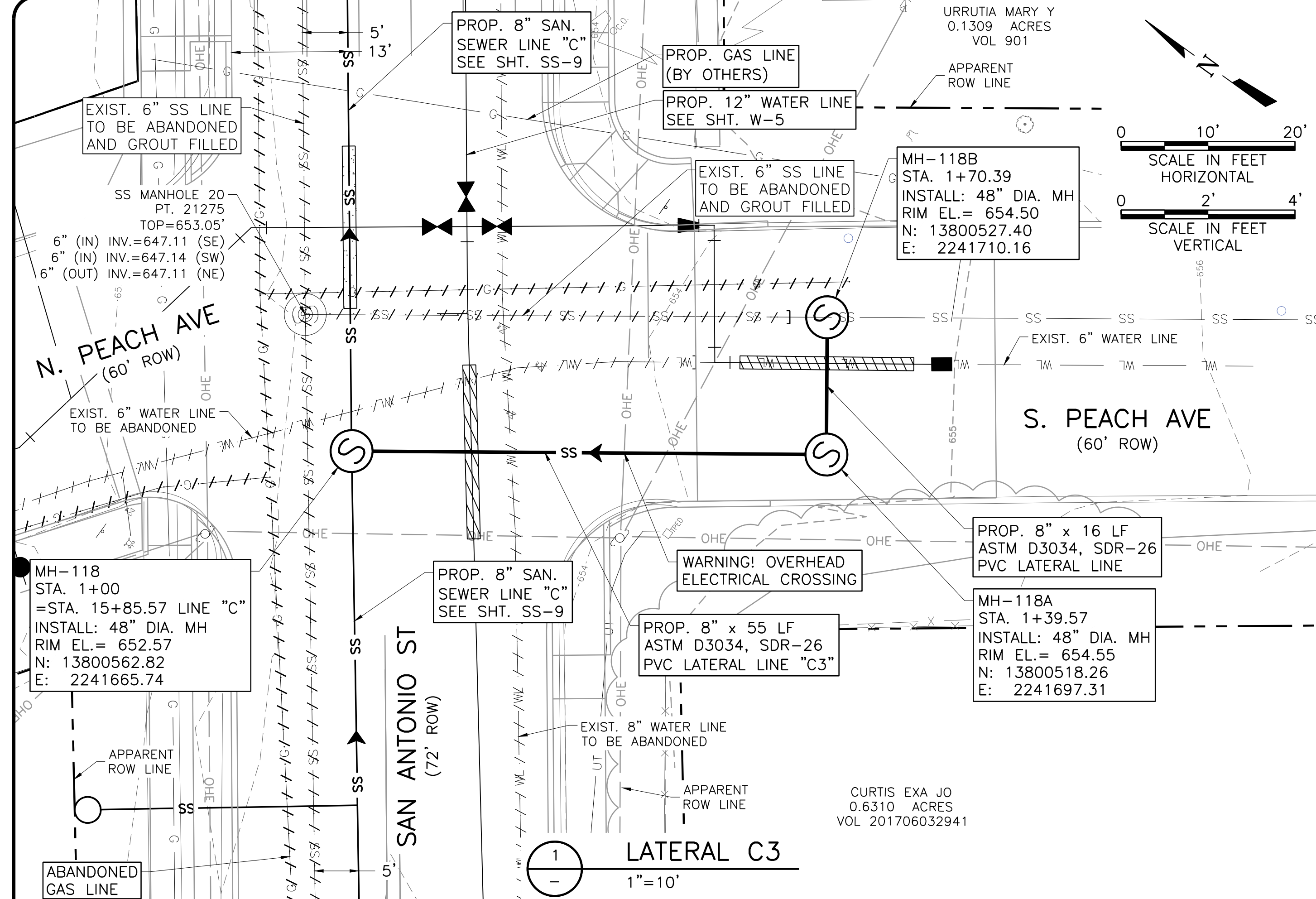
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NEW BRAUNFELS UTILITIES
SAN ANTONIO STREET WATER AND WASTEWATER RELOCATION
SANITARY SEWER LATERALS PLAN AND PROFILE
LATERAL LINES C3 AND C4

NO.	ISSUE	BY	DATE	ISSUE	NO.	ISSUE	BY	DATE

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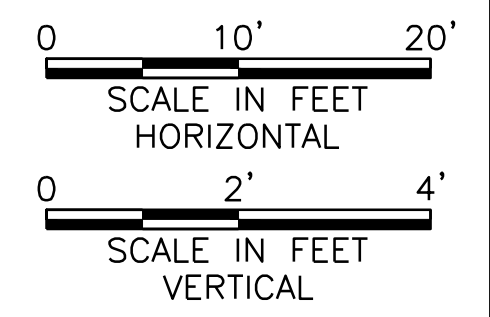
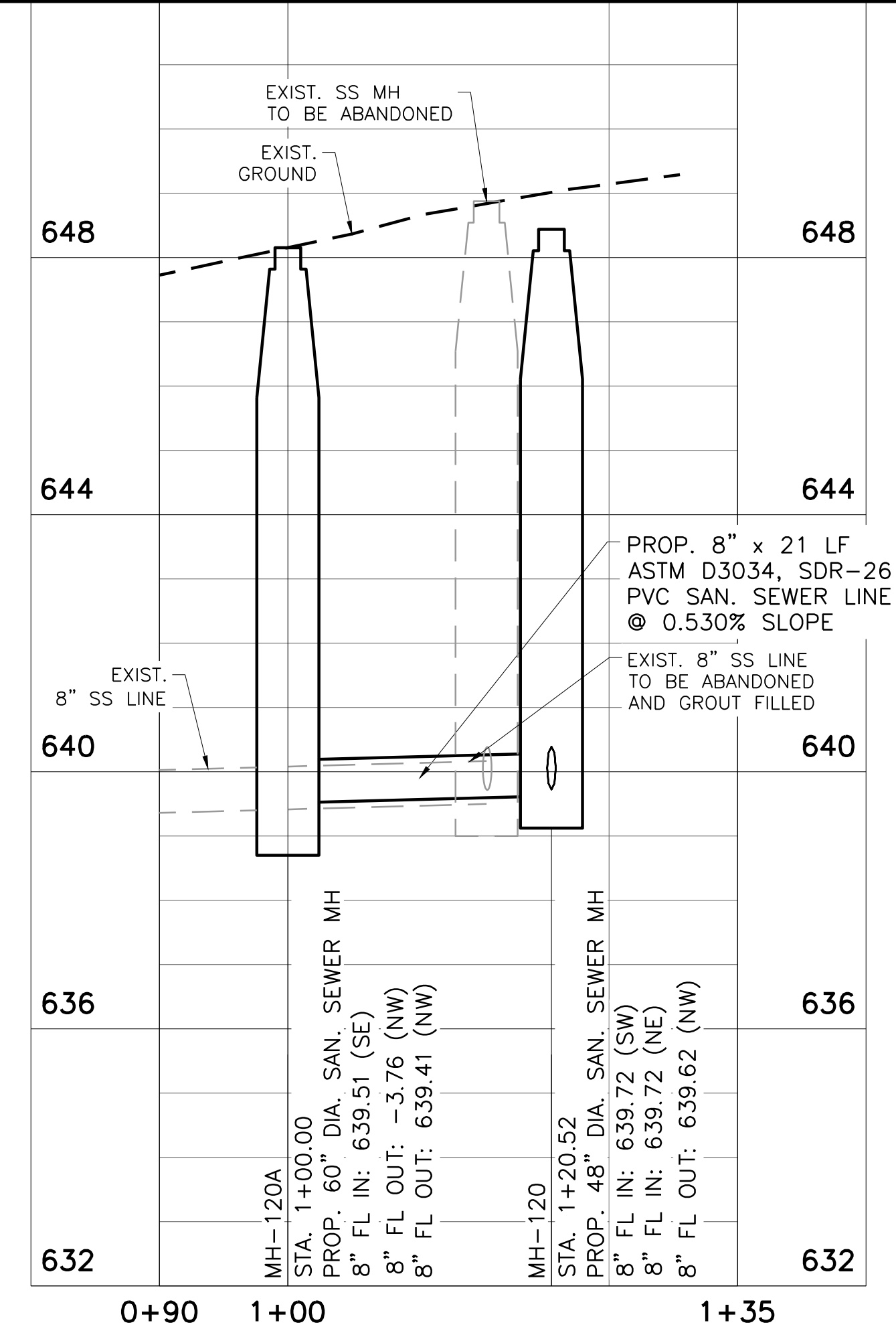
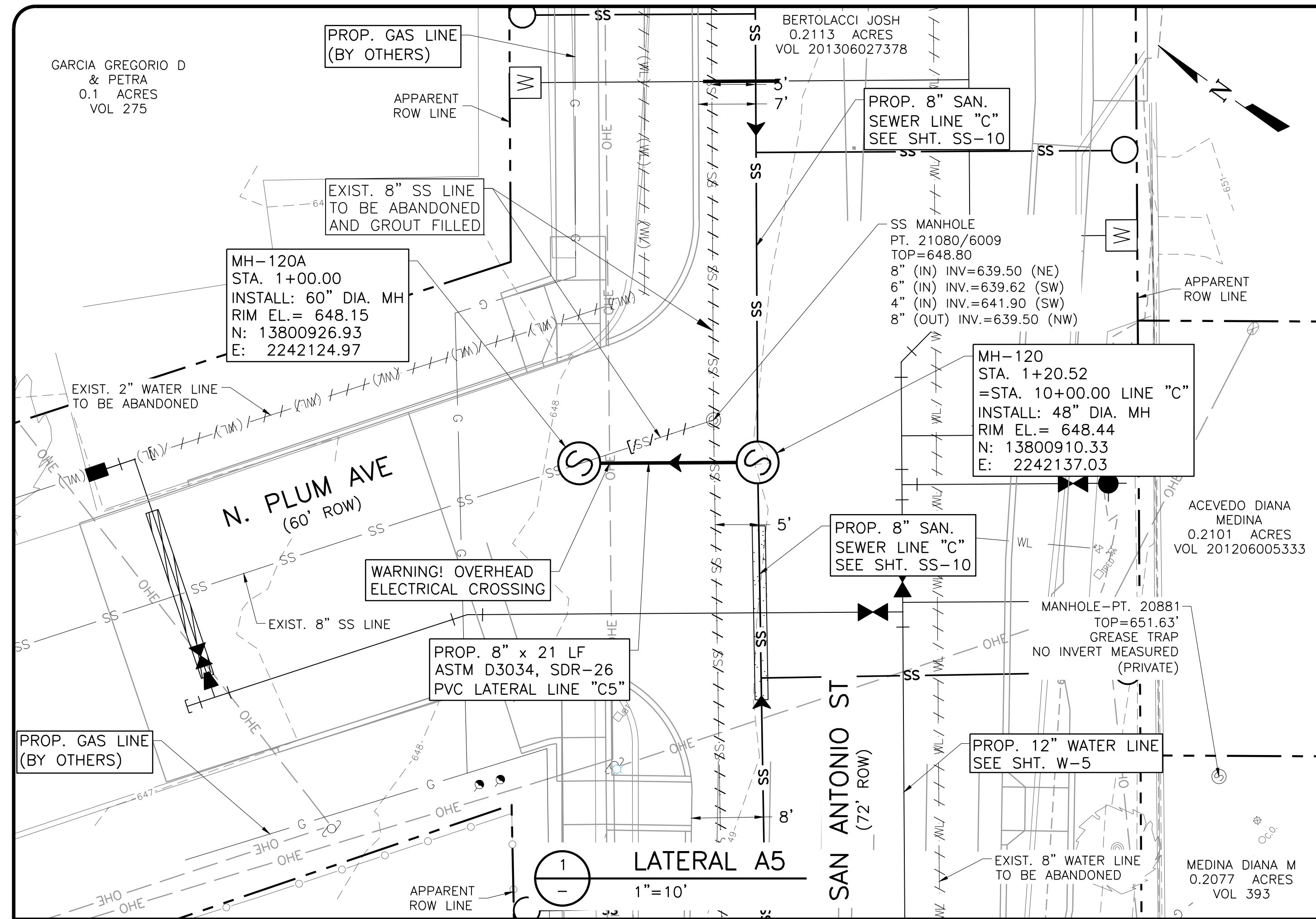
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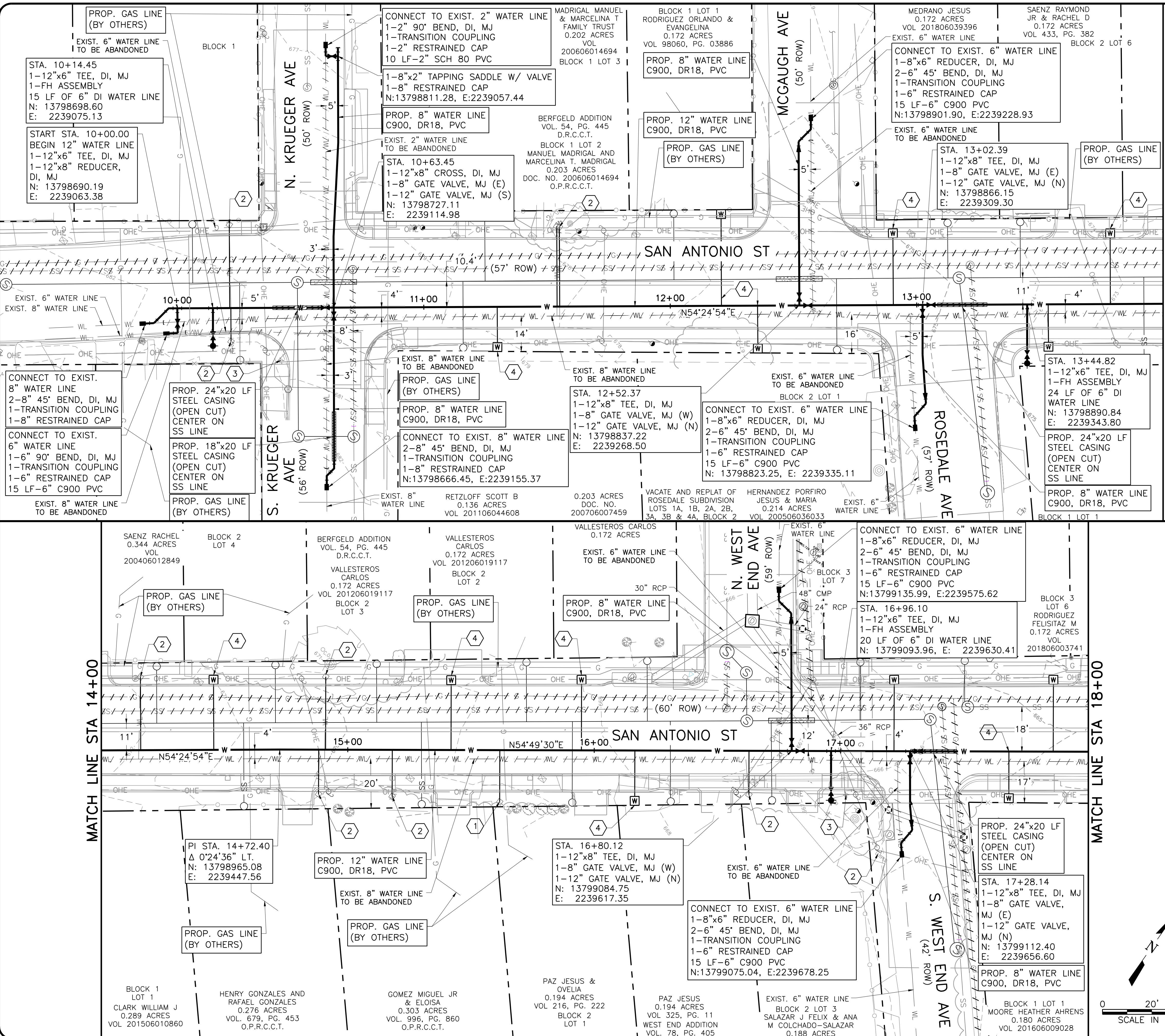
Erin C. Mills
 120172
 PROFESSIONAL ENGINEER
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NEW BRAUNFELS UTILITIES
SAN ANTONIO STREET WATER AND WASTEWATER RELOCATION
SANITARY SEWER LATERALS PLAN AND PROFILE
LATERAL LINE C5

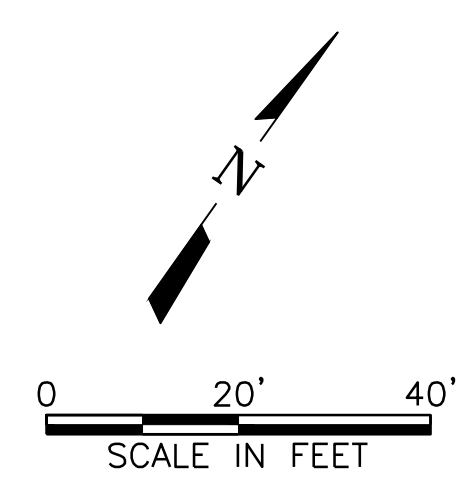
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MATCH LINE STA 14+00

MATCH LINE STA 18+00



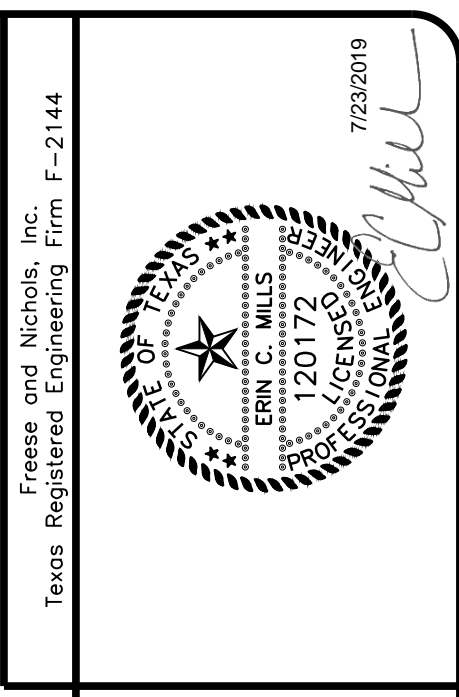
NOTES BY SYMBOL

- ① PROP. 3/4" WATER SERVICE, CONNECT TO EXISTING 5/8" METER AND INSTALL NEW METER BOX.
- ② PROP. 1" WATER SERVICE, CONNECT TO EXISTING METER AND INSTALL NEW METER BOX.
- ③ REMOVE EXISTING 6" WATER LINE & FIRE HYDRANT
- ④ PROPOSED 1" WATER SERVICE, METER & METER BOX.
- ⑤ PROPOSED 2" WATER SERVICE, METER & METER BOX.

NOTES:

1. EXISTING FIRE HYDRANT TO STAY IN SERVICE UNTIL NEW FIRE HYDRANT IS FULLY OPERATIONAL, THEN IT WILL BE REMOVED.
2. CONTRACTOR SHALL VERIFY LOCATION OF ALL EXISTING WATER METERS.
3. WATER LINE SHUT DOWN: CONTRACTOR WILL TIE IN ALL 8" TO 12" WATER MAINS AND THE SCHOOL MON-THUR BETWEEN 7PM-11PM.
4. RESIDENTIAL SERVICE SHALL NOT BE INTERRUPTED FOR MORE THAN 2 HOURS. CUSTOMERS WILL BE NOTIFIED 48 HRS IN ADVANCE OF SHUT-OFF
5. APPROXIMATELY 20 WATER SERVICES TO BE INSTALLED THIS SHEET. CONTRACTOR TO FIELD VERIFY NUMBER, LOCATION AND DEPTH PRIOR TO ANY WATER LINE CONSTRUCTION.
6. FIELD VERIFY 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.
7. 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.
8. CONTRACTOR TO CONNECT PROPOSED WATER SERVICES TO EXISTING METERS ONCE LINE IS TESTED AND APPROVED BY NBU INSPECTOR.
9. MINIMUM DEPTH OF COVER IS 48" FOR THE PROPOSED 12" WATER LINE, AND 42" MIN. DEPTH OF COVER FOR THE 8" AND SMALLER WATER LINES.
10. CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING TEMPORARY 2" WATER SERVICE TO ALL EXISTING WATER SERVICE METERS DURING CONSTRUCTION. (NO SEPARATE PAY ITEM) TEMPORARY WATER SERVICE SHALL BE PLACED TO ALLOW ACCESS TO PROPERTIES/DRIVEWAYS AT ALL TIMES.
11. CONTRACTOR SHALL MAINTAIN ACCESS TO ALL DRIVEWAYS AT ALL TIMES.
12. CONTRACTOR SHALL CONFIRM LOCATION OF WATER METERS.
13. REFER TO SPECIFICATION SECTION 01 35 00 "SPECIAL PROCEDURES" AND DETAILS 4, 5, 6 ON SHEET DT-3 FOR TEMPORARY WATER MAIN SEQUENCING AND INSTALLATION REQUIREMENTS. NO SEPARATE PAY ITEM (NSPI).

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.

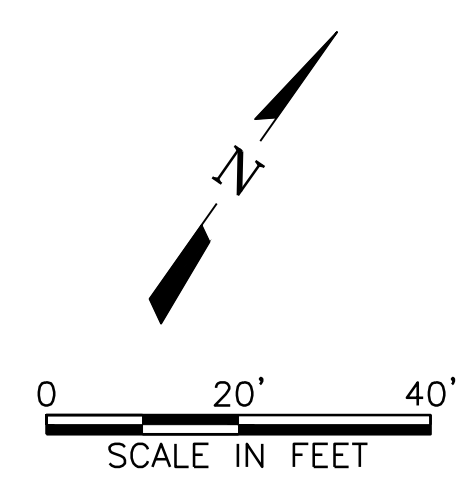
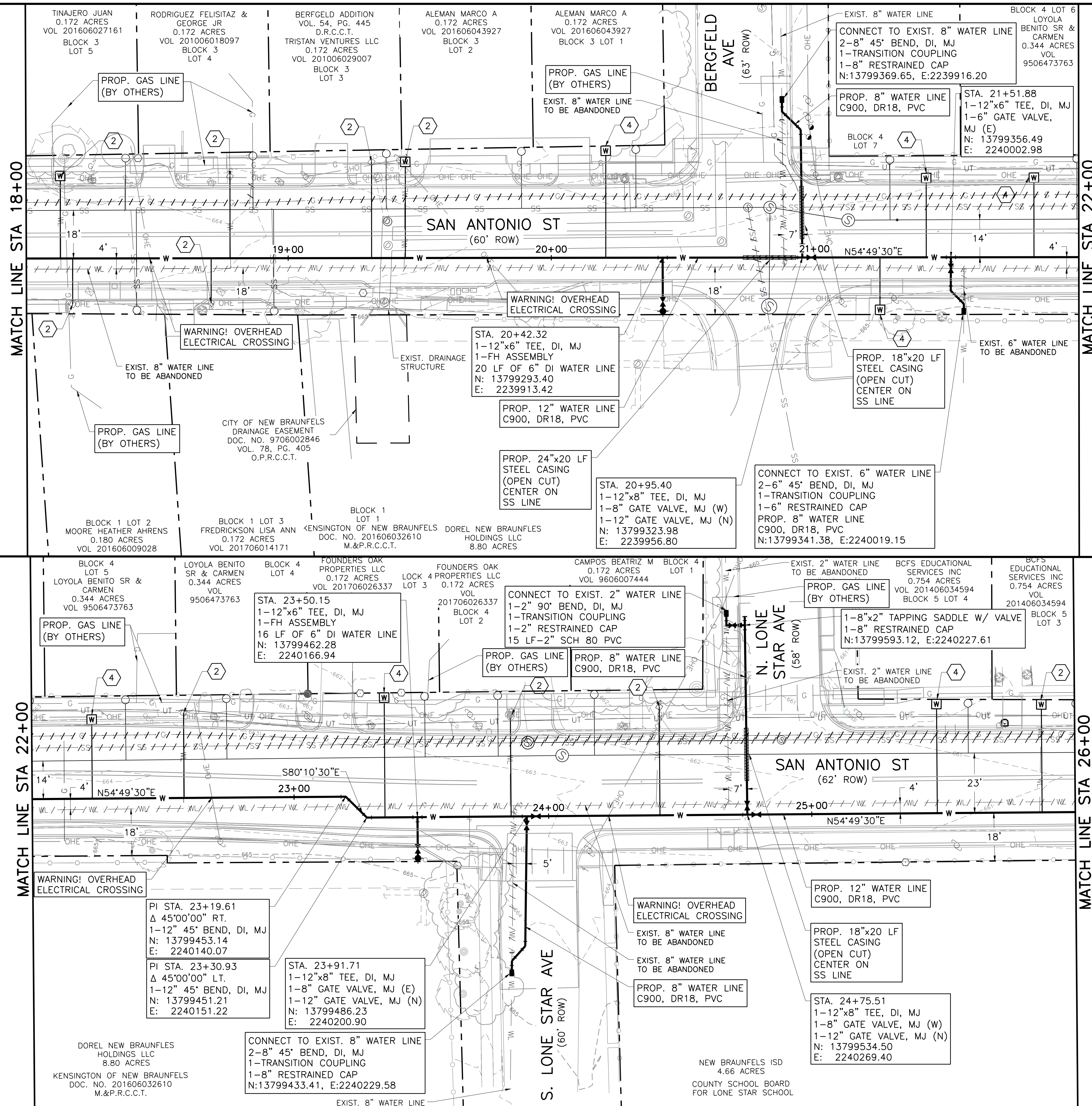


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NEW BRAUNFELS UTILITIES
 SAN ANTONIO STREET WATER
 AND WASTEWATER RELOCATION
 12" WATER LINE PLAN
 STA. 10+00 TO STA. 18+00

NO.	ISSUE	DATE	BY	DESIGNED	ECM	DRAWN	DDH	CHECKED	DTB
		7/23/2019							
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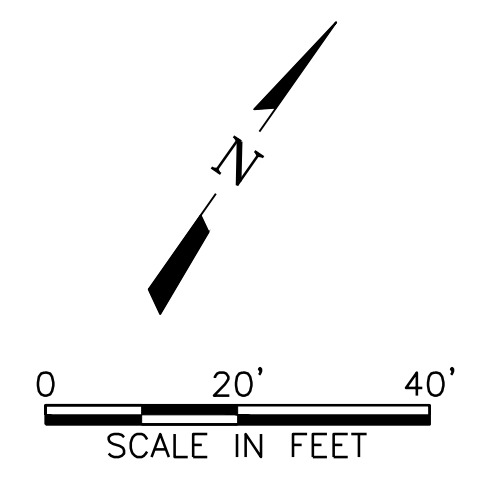


NOTES BY SYMBOL "⬡"

- ⬡ PROP. 3/4" WATER SERVICE, CONNECT TO EXISTING 5/8" METER AND INSTALL NEW METER BOX.
- ⬡ PROP. 1" WATER SERVICE, CONNECT TO EXISTING METER AND INSTALL NEW METER BOX.
- ⬡ REMOVE EXISTING 6" WATER LINE & FIRE HYDRANT
- ⬡ PROPOSED 1" WATER SERVICE, METER & METER BOX.
- ⬡ PROPOSED 2" WATER SERVICE, METER & METER BOX.

NOTES:

1. EXISTING FIRE HYDRANT TO STAY IN SERVICE UNTIL NEW FIRE HYDRANT IS FULLY OPERATIONAL, THEN IT WILL BE REMOVED.
2. CONTRACTOR SHALL VERIFY LOCATION OF ALL EXISTING WATER METERS.
3. WATER LINE SHUT DOWN: CONTRACTOR WILL TIE IN ALL 8" TO 12" WATER MAINS AND THE SCHOOL MON-THUR BETWEEN 7PM-11PM.
4. RESIDENTIAL SERVICE SHALL NOT BE INTERRUPTED FOR MORE THAN 2 HOURS. CUSTOMERS WILL BE NOTIFIED 48 HRS IN ADVANCE OF SHUT-OFF
5. APPROXIMATELY 20 WATER SERVICES TO BE INSTALLED THIS SHEET. CONTRACTOR TO FIELD VERIFY NUMBER, LOCATION AND DEPTH PRIOR TO ANY WATER LINE CONSTRUCTION.
6. FIELD VERIFY 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.
7. 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.
8. CONTRACTOR TO CONNECT PROPOSED WATER SERVICES TO EXISTING METERS ONCE LINE IS TESTED AND APPROVED BY NBU INSPECTOR.
9. MINIMUM DEPTH OF COVER IS 48" FOR THE PROPOSED 12" WATER LINE, AND 42" MIN. DEPTH OF COVER FOR THE 8" AND SMALLER WATER LINES.
10. CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING TEMPORARY 2" WATER SERVICE TO ALL EXISTING WATER SERVICE METERS DURING CONSTRUCTION. (NO SEPARATE PAY ITEM) TEMPORARY WATER SERVICE SHALL BE PLACED TO ALLOW ACCESS TO PROPERTIES/DRIVEWAYS AT ALL TIMES.
11. CONTRACTOR SHALL MAINTAIN ACCESS TO ALL DRIVEWAYS AT ALL TIMES.
12. CONTRACTOR SHALL CONFIRM LOCATION OF WATER METERS.
13. REFER TO SPECIFICATION SECTION 01 35 00 "SPECIAL PROCEDURES" AND DETAILS 4, 5, 6 ON SHEET DT-3 FOR TEMPORARY WATER MAIN SEQUENCING AND INSTALLATION REQUIREMENTS. NO SEPARATE PAY ITEM (NSPI).



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.

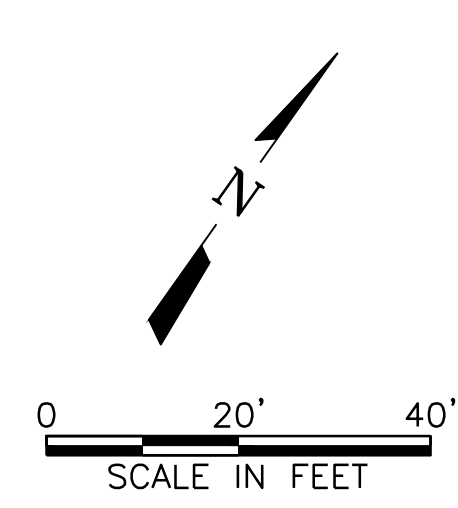
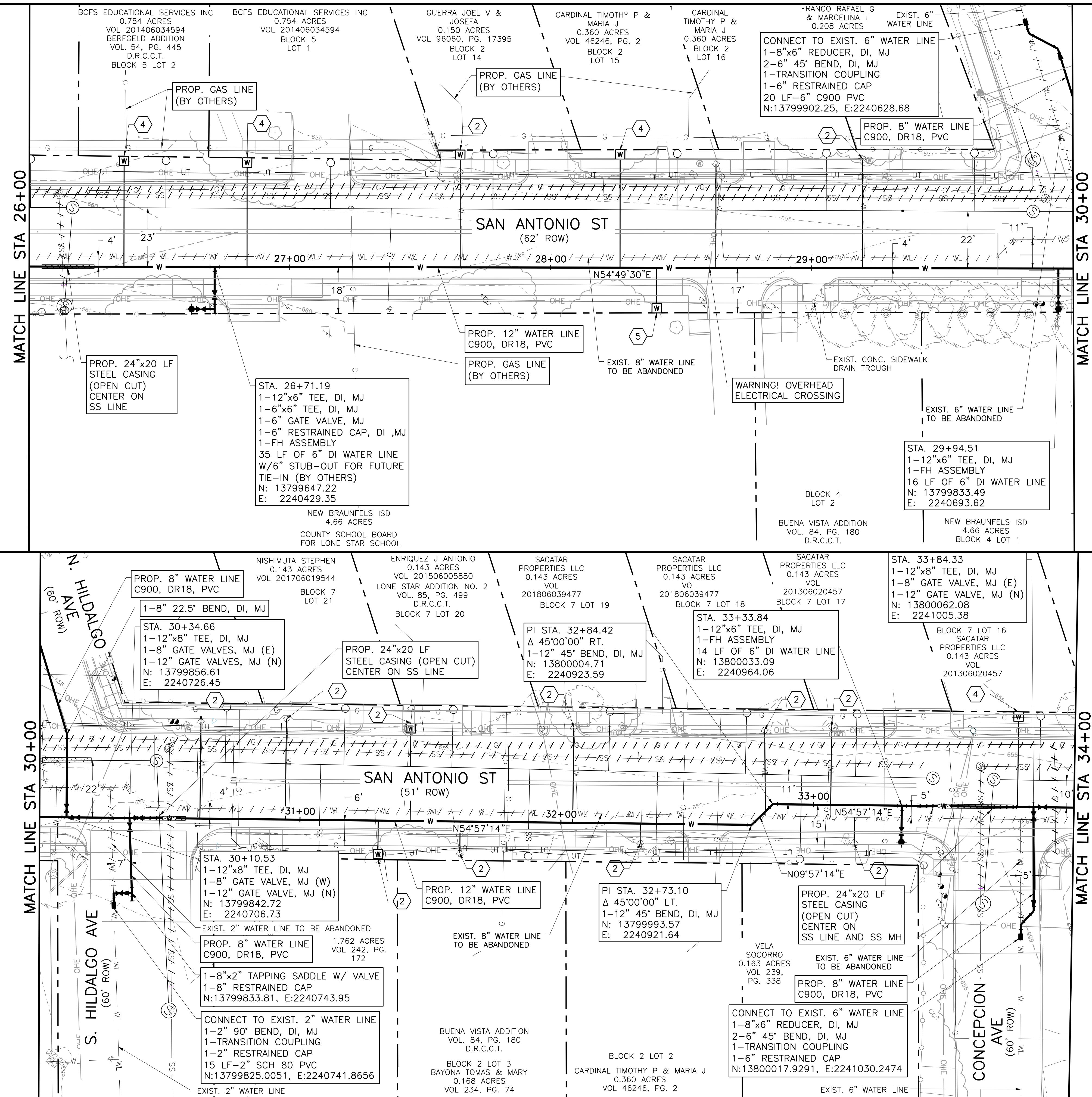
Freese and Nichols, Inc.
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NEW BRAUNFELS UTILITIES
SAN ANTONIO STREET WATER AND WASTEWATER RELOCATION
 12" WATER LINE PLAN
 STA. 18+00 TO STA. 26+00

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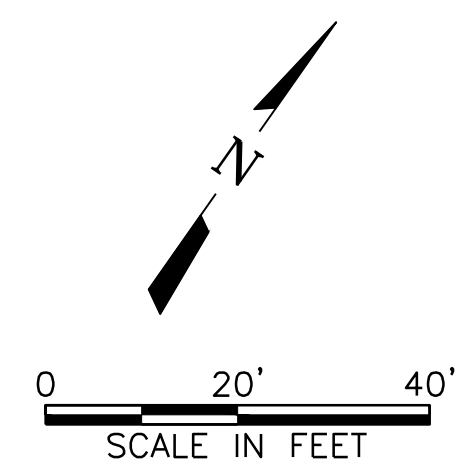
NOTES BY SYMBOL "⬡"

- ① PROP. 3/4" WATER SERVICE, CONNECT TO EXISTING 5/8" METER AND INSTALL NEW METER BOX.
- ② PROP. 1" WATER SERVICE, CONNECT TO EXISTING METER AND INSTALL NEW METER BOX.
- ③ REMOVE EXISTING 6" WATER LINE & FIRE HYDRANT
- ④ PROPOSED 1" WATER SERVICE, METER & METER BOX.
- ⑤ PROPOSED 2" WATER SERVICE, METER & METER BOX.

NOTES:

1. EXISTING FIRE HYDRANT TO STAY IN SERVICE UNTIL NEW FIRE HYDRANT IS FULLY OPERATIONAL, THEN IT WILL BE REMOVED.
2. CONTRACTOR SHALL VERIFY LOCATION OF ALL EXISTING WATER METERS.
3. WATER LINE SHUT DOWN: CONTRACTOR WILL TIE IN ALL 8" TO 12" WATER MAINS AND THE SCHOOL MON-THUR BETWEEN 7PM-11PM.
4. RESIDENTIAL SERVICE SHALL NOT BE INTERRUPTED FOR MORE THAN 2 HOURS. CUSTOMERS WILL BE NOTIFIED 48 HRS IN ADVANCE OF SHUT-OFF
5. APPROXIMATELY 20 WATER SERVICES TO BE INSTALLED THIS SHEET. CONTRACTOR TO FIELD VERIFY NUMBER, LOCATION AND DEPTH PRIOR TO ANY WATER LINE CONSTRUCTION.
6. FIELD VERIFY 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.
7. 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.
8. CONTRACTOR TO CONNECT PROPOSED WATER SERVICES TO EXISTING METERS ONCE LINE IS TESTED AND APPROVED BY NBU INSPECTOR.
9. MINIMUM DEPTH OF COVER IS 48" FOR THE PROPOSED 12" WATER LINE, AND 42" MIN. DEPTH OF COVER FOR THE 8" AND SMALLER WATER LINES.
10. CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING TEMPORARY 2" WATER SERVICE TO ALL EXISTING WATER SERVICE METERS DURING CONSTRUCTION. (NO SEPARATE PAY ITEM) TEMPORARY WATER SERVICE SHALL BE PLACED TO ALLOW ACCESS TO PROPERTIES/DRIVEWAYS AT ALL TIMES.
11. CONTRACTOR SHALL MAINTAIN ACCESS TO ALL DRIVEWAYS AT ALL TIMES.
12. CONTRACTOR SHALL CONFIRM LOCATION OF WATER METERS.
13. REFER TO SPECIFICATION SECTION 01 35 00 "SPECIAL PROCEDURES" AND DETAILS 4, 5, 6 ON SHEET DT-3 FOR TEMPORARY WATER MAIN SEQUENCING AND INSTALLATION REQUIREMENTS. NO SEPARATE PAY ITEM (NSPI).

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.



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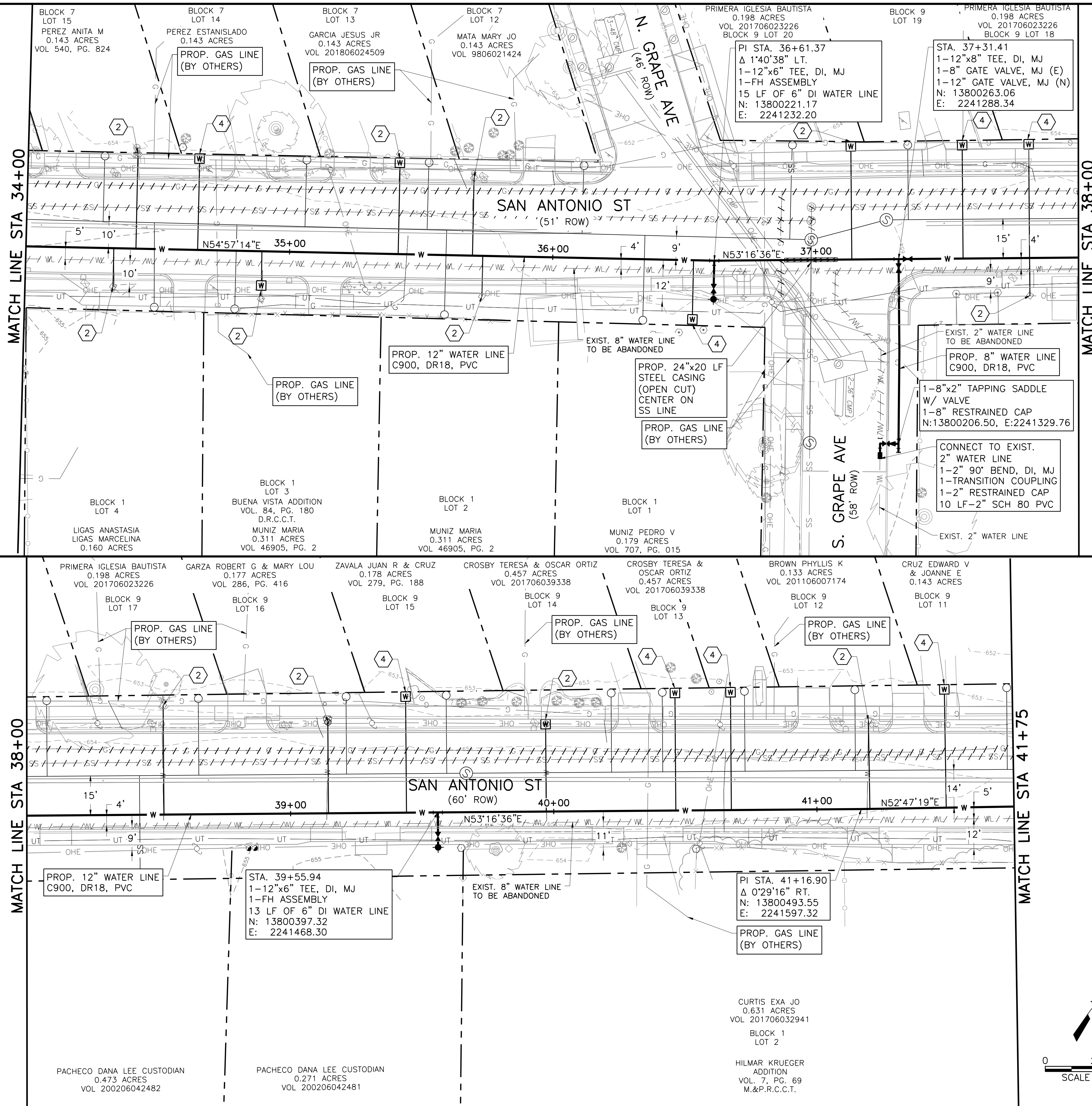
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NEW BRAUNFELS UTILITIES
SAN ANTONIO STREET WATER AND WASTEWATER RELOCATION
12" WATER LINE PLAN
 STA. 26+00 TO STA. 34+00

NO.	ISSUE	DATE	BY	FILE NAME
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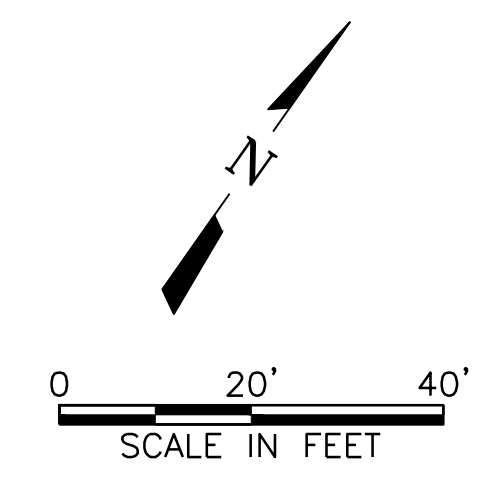
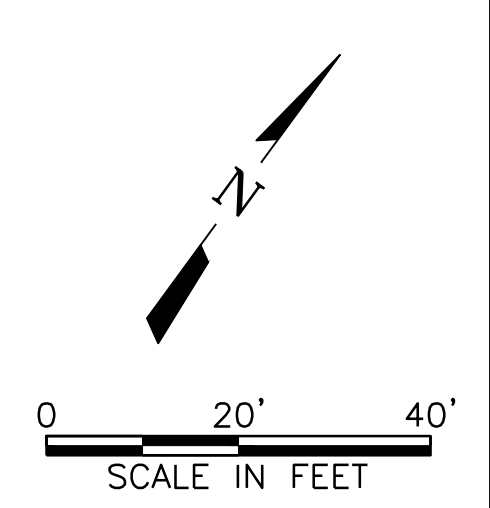


NOTES BY SYMBOL "○"

- ① PROP. 3/4" WATER SERVICE, CONNECT TO EXISTING 5/8" METER AND INSTALL NEW METER BOX.
- ② PROP. 1" WATER SERVICE, CONNECT TO EXISTING METER AND INSTALL NEW METER BOX.
- ③ REMOVE EXISTING 6" WATER LINE & FIRE HYDRANT
- ④ PROPOSED 1" WATER SERVICE, METER & METER BOX.
- ⑤ PROPOSED 2" WATER SERVICE, METER & METER BOX.

NOTES:

1. EXISTING FIRE HYDRANT TO STAY IN SERVICE UNTIL NEW FIRE HYDRANT IS FULLY OPERATIONAL, THEN IT WILL BE REMOVED.
2. CONTRACTOR SHALL VERIFY LOCATION OF ALL EXISTING WATER METERS.
3. WATER LINE SHUT DOWN:
CONTRACTOR WILL TIE IN ALL 8" TO 12" WATER MAINS AND THE SCHOOL MON-THUR BETWEEN 7PM-11PM.
4. RESIDENTIAL SERVICE SHALL NOT BE INTERRUPTED FOR MORE THAN 2 HOURS. CUSTOMERS WILL BE NOTIFIED 48 HRS IN ADVANCE OF SHUT-OFF
5. APPROXIMATELY 20 WATER SERVICES TO BE INSTALLED THIS SHEET. CONTRACTOR TO FIELD VERIFY NUMBER, LOCATION AND DEPTH PRIOR TO ANY WATER LINE CONSTRUCTION.
6. FIELD VERIFY 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.
7. 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.
8. CONTRACTOR TO CONNECT PROPOSED WATER SERVICES TO EXISTING METERS ONCE LINE IS TESTED AND APPROVED BY NBU INSPECTOR.
9. MINIMUM DEPTH OF COVER IS 48" FOR THE PROPOSED 12" WATER LINE, AND 42" MIN. DEPTH OF COVER FOR THE 8" AND SMALLER WATER LINES.
10. CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING TEMPORARY 2" WATER SERVICE TO ALL EXISTING WATER SERVICE METERS DURING CONSTRUCTION. (NO SEPARATE PAY ITEM) TEMPORARY WATER SERVICE SHALL BE PLACED TO ALLOW ACCESS TO PROPERTIES/DRIVEWAYS AT ALL TIMES.
11. CONTRACTOR SHALL MAINTAIN ACCESS TO ALL DRIVEWAYS AT ALL TIMES.
12. CONTRACTOR SHALL CONFIRM LOCATION OF WATER METERS.
13. REFER TO SPECIFICATION SECTION 01 35 00 "SPECIAL PROCEDURES" AND DETAILS 4, 5, 6 ON SHEET DT-3 FOR TEMPORARY WATER MAIN SEQUENCING AND INSTALLATION REQUIREMENTS. NO SEPARATE PAY ITEM (NSP).



CAUTION!!
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NEW BRAUNFELS UTILITIES
SAN ANTONIO STREET WATER AND WASTEWATER RELOCATION
12" WATER LINE PLAN
STA. 34+00 TO STA. 41+75

NO.	ISSUE	BY	DATE	NO.	ISSUE	BY	DATE

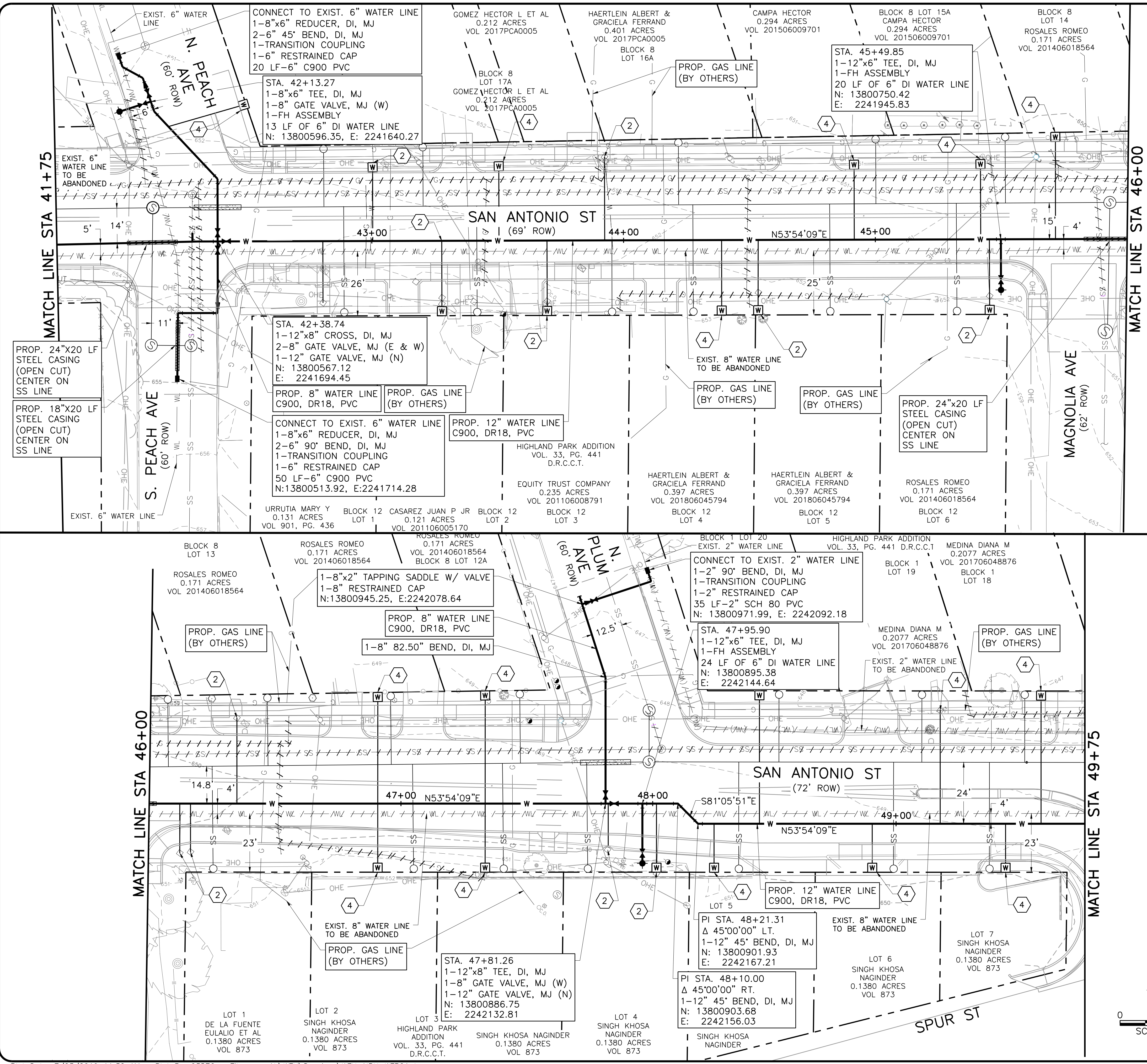
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SHEET: **W-4**

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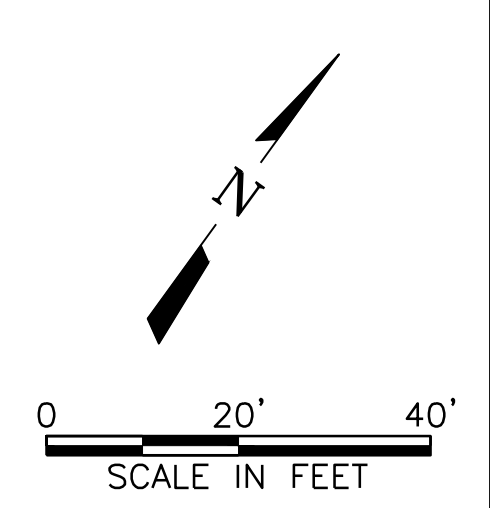
NOTES BY SYMBOL

- ① PROP. 3/4" WATER SERVICE, CONNECT TO EXISTING 5/8" METER AND INSTALL NEW METER BOX.
- ② PROP. 1" WATER SERVICE, CONNECT TO EXISTING METER AND INSTALL NEW METER BOX.
- ③ REMOVE EXISTING 6" WATER LINE & FIRE HYDRANT
- ④ PROPOSED 1" WATER SERVICE, METER & METER BOX.
- ⑤ PROPOSED 2" WATER SERVICE, METER & METER BOX.

NOTES:

1. EXISTING FIRE HYDRANT TO STAY IN SERVICE UNTIL NEW FIRE HYDRANT IS FULLY OPERATIONAL, THEN IT WILL BE REMOVED.
2. CONTRACTOR SHALL VERIFY LOCATION OF ALL EXISTING WATER METERS.
3. WATER LINE SHUT DOWN: CONTRACTOR WILL TIE IN ALL 8" TO 12" WATER MAINS AND THE SCHOOL MON-THUR BETWEEN 7PM-11PM.
4. RESIDENTIAL SERVICE SHALL NOT BE INTERRUPTED FOR MORE THAN 2 HOURS. CUSTOMERS WILL BE NOTIFIED 48 HRS IN ADVANCE OF SHUT-OFF
5. APPROXIMATELY 20 WATER SERVICES TO BE INSTALLED THIS SHEET. CONTRACTOR TO FIELD VERIFY NUMBER, LOCATION AND DEPTH PRIOR TO ANY WATER LINE CONSTRUCTION.
6. FIELD VERIFY 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.
7. 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.
8. CONTRACTOR TO CONNECT PROPOSED WATER SERVICES TO EXISTING METERS ONCE LINE IS TESTED AND APPROVED BY NBU INSPECTOR.
9. MINIMUM DEPTH OF COVER IS 48" FOR THE PROPOSED 12" WATER LINE, AND 42" MIN. DEPTH OF COVER FOR THE 8" AND SMALLER WATER LINES.
10. CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING TEMPORARY 2" WATER SERVICE TO ALL EXISTING WATER SERVICE METERS DURING CONSTRUCTION. (NO SEPARATE PAY ITEM) TEMPORARY WATER SERVICE SHALL BE PLACED TO ALLOW ACCESS TO PROPERTIES/DRIVEWAYS AT ALL TIMES.
11. CONTRACTOR SHALL MAINTAIN ACCESS TO ALL DRIVEWAYS AT ALL TIMES.
12. CONTRACTOR SHALL CONFIRM LOCATION OF WATER METERS.
13. REFER TO SPECIFICATION SECTION 01 35 00 "SPECIAL PROCEDURES" AND DETAILS 4, 5, 6 ON SHEET DT-3 FOR TEMPORARY WATER MAIN SEQUENCING AND INSTALLATION REQUIREMENTS. NO SEPARATE PAY ITEM (NSPI).

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.



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 Texas Registered Engineering Firm F-2144

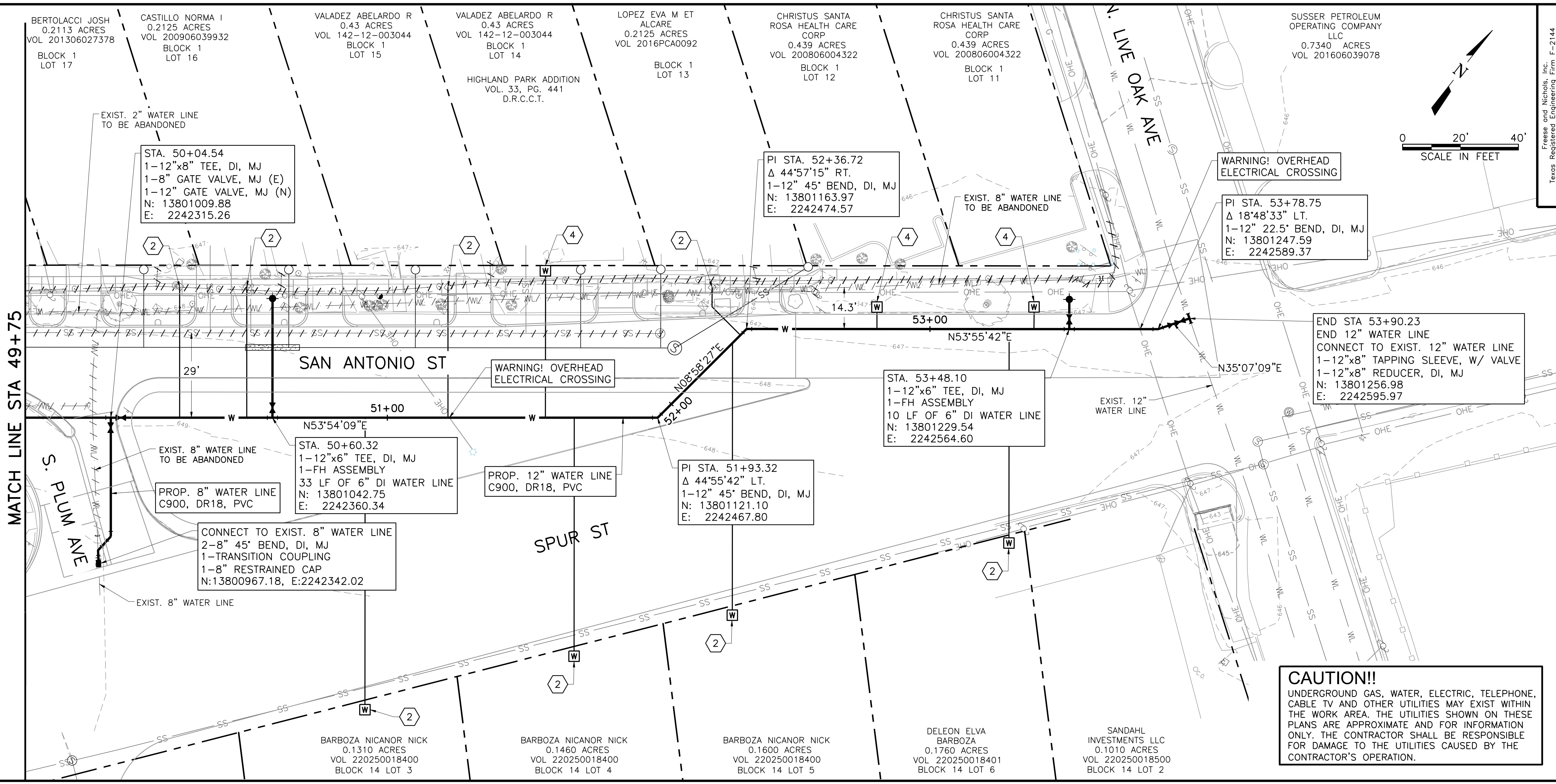
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 Web - www.freese.com

NEW BRAUNFELS UTILITIES
SAN ANTONIO STREET WATER AND WASTEWATER RELOCATION
12" WATER LINE PLAN
 STA. 41+75 TO STA. 49+75

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SHEET **W-5**



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NEW BRAUNFELS UTILITIES
SAN ANTONIO STREET WATER AND WASTEWATER RELOCATION
12" WATER LINE PLAN
STA. 49+75 TO END

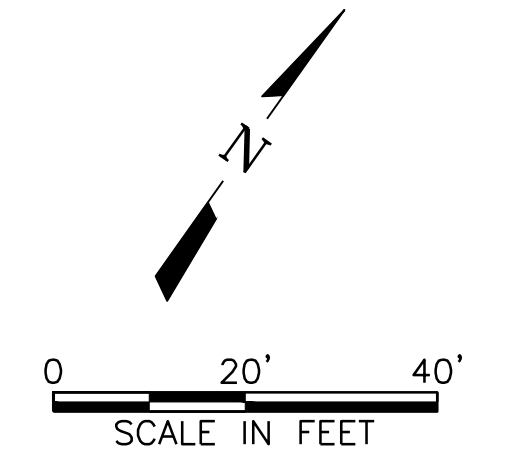
NOTES BY SYMBOL "⬡"

- ⬡ PROP. 3/4" WATER SERVICE, CONNECT TO EXISTING 5/8" METER AND INSTALL NEW METER BOX.
- ⬡ PROP. 1" WATER SERVICE, CONNECT TO EXISTING METER AND INSTALL NEW METER BOX.
- ⬡ REMOVE EXISTING 6" WATER LINE & FIRE HYDRANT
- ⬡ PROPOSED 1" WATER SERVICE, METER & METER BOX.
- ⬡ PROPOSED 2" WATER SERVICE, METER & METER BOX.

NOTES:

1. EXISTING FIRE HYDRANT TO STAY IN SERVICE UNTIL NEW FIRE HYDRANT IS FULLY OPERATIONAL, THEN IT WILL BE REMOVED.
2. CONTRACTOR SHALL VERIFY LOCATION OF ALL EXISTING WATER METERS.
3. WATER LINE SHUT DOWN:
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4. RESIDENTIAL SERVICE SHALL NOT BE INTERRUPTED FOR MORE THAN 2 HOURS. CUSTOMERS WILL BE NOTIFIED 48 HRS IN ADVANCE OF SHUT-OFF
5. APPROXIMATELY 24 WATER SERVICES TO BE INSTALLED THIS SHEET. CONTRACTOR TO FIELD VERIFY NUMBER, LOCATION AND DEPTH PRIOR TO ANY WATER LINE CONSTRUCTION.
6. FIELD VERIFY 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.
7. 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.
8. CONTRACTOR TO CONNECT PROPOSED WATER SERVICES TO EXISTING METERS ONCE LINE IS TESTED AND APPROVED BY NBU INSPECTOR.
9. MINIMUM DEPTH OF COVER IS 48" FOR THE PROPOSED 12" WATER LINE, AND 42" MIN. DEPTH OF COVER FOR THE 8" AND SMALLER WATER LINES.
10. CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING TEMPORARY 2" WATER SERVICE TO ALL EXISTING WATER SERVICE METERS DURING CONSTRUCTION. (NO SEPARATE PAY ITEM) TEMPORARY WATER SERVICE SHALL BE PLACED TO ALLOW ACCESS TO PROPERTIES/DRIVEWAYS AT ALL TIMES.
11. CONTRACTOR SHALL MAINTAIN ACCESS TO ALL DRIVEWAYS AT ALL TIMES.
12. CONTRACTOR SHALL CONFIRM LOCATION OF WATER METERS.
13. REFER TO SPECIFICATION SECTION 01 35 00 "SPECIAL PROCEDURES" AND DETAILS 4, 5, 6 ON SHEET DT-3 FOR TEMPORARY WATER MAIN SEQUENCING AND INSTALLATION REQUIREMENTS. NO SEPARATE PAY ITEM. (NSPI).

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.



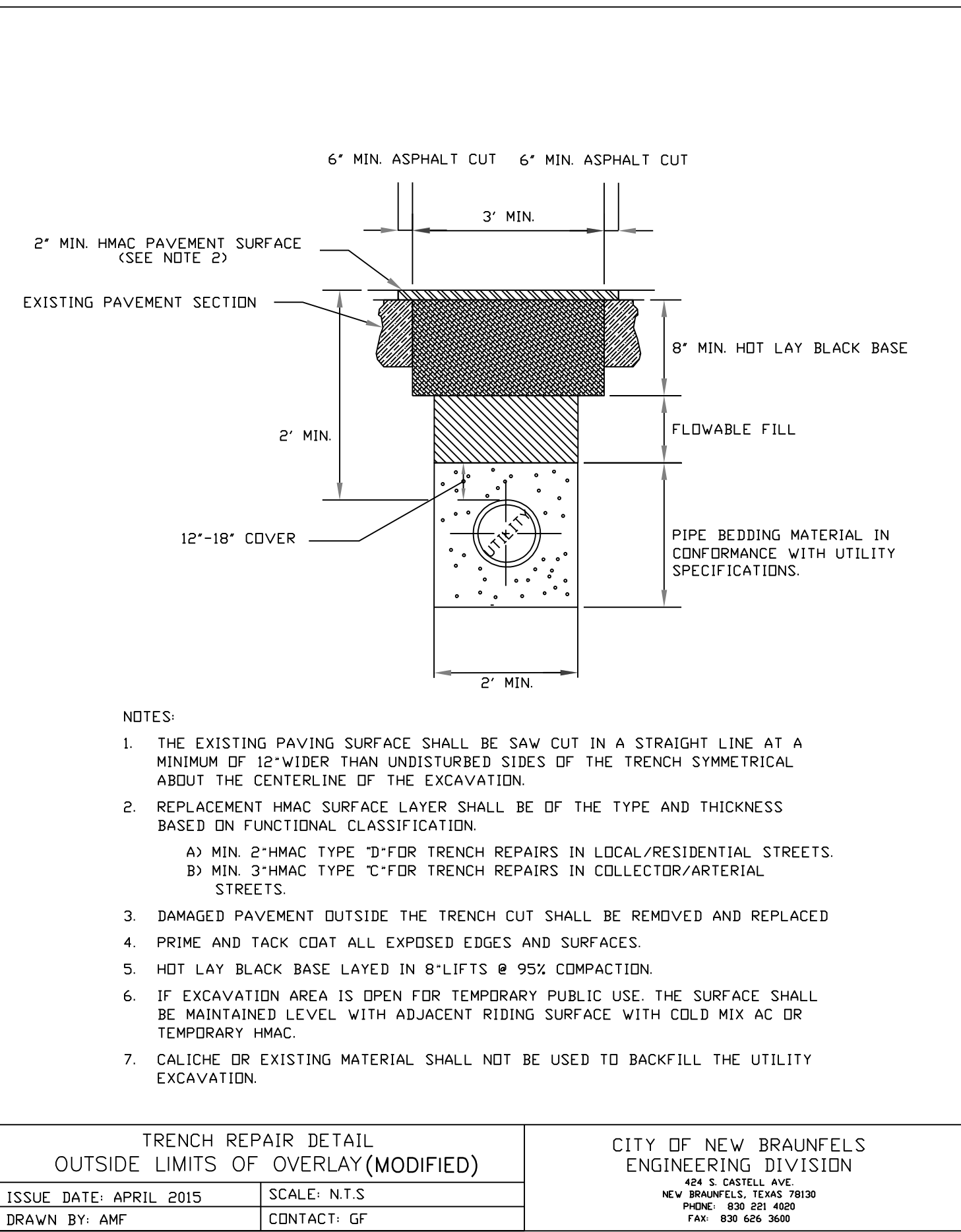
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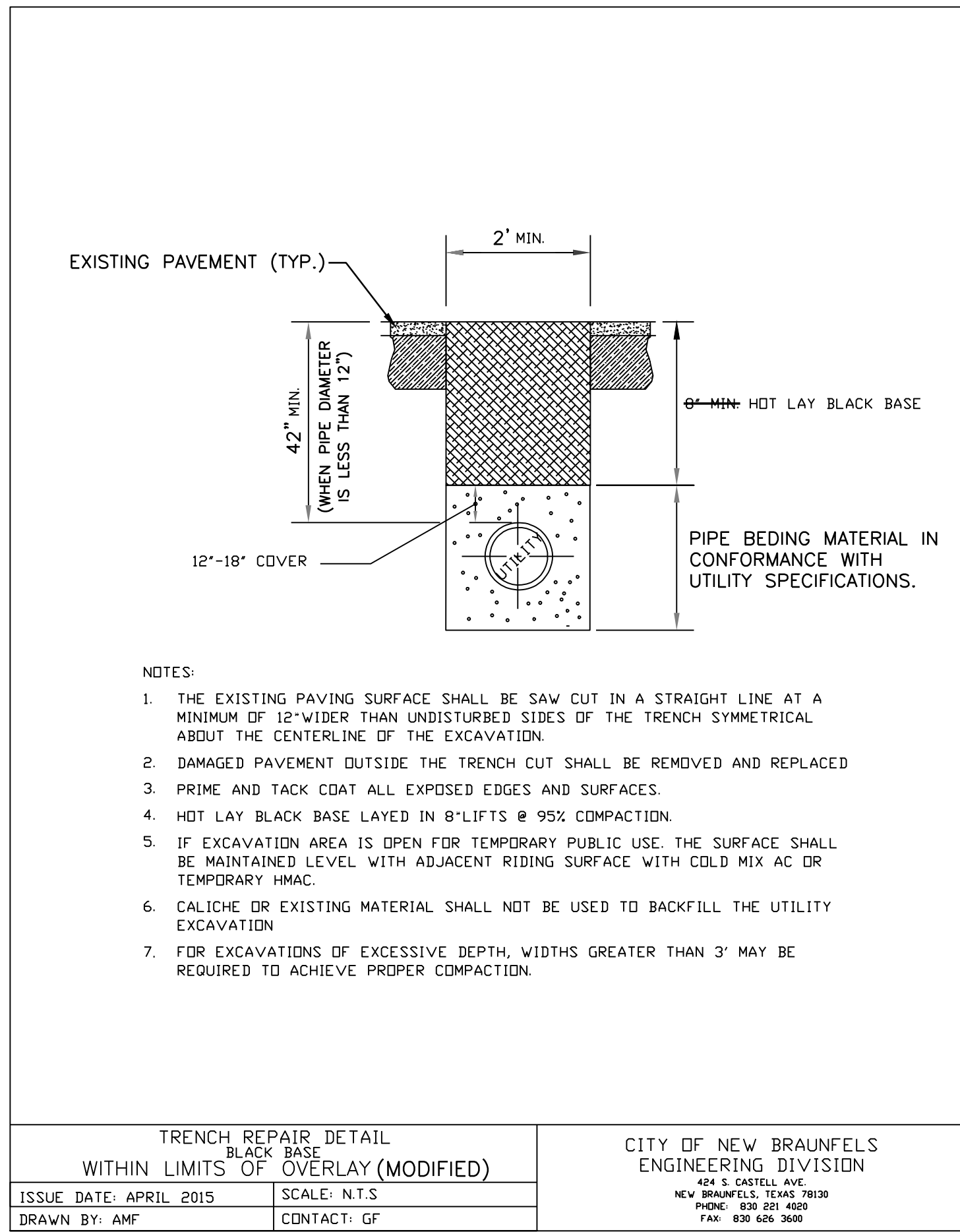
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DATE	7/23/2019				

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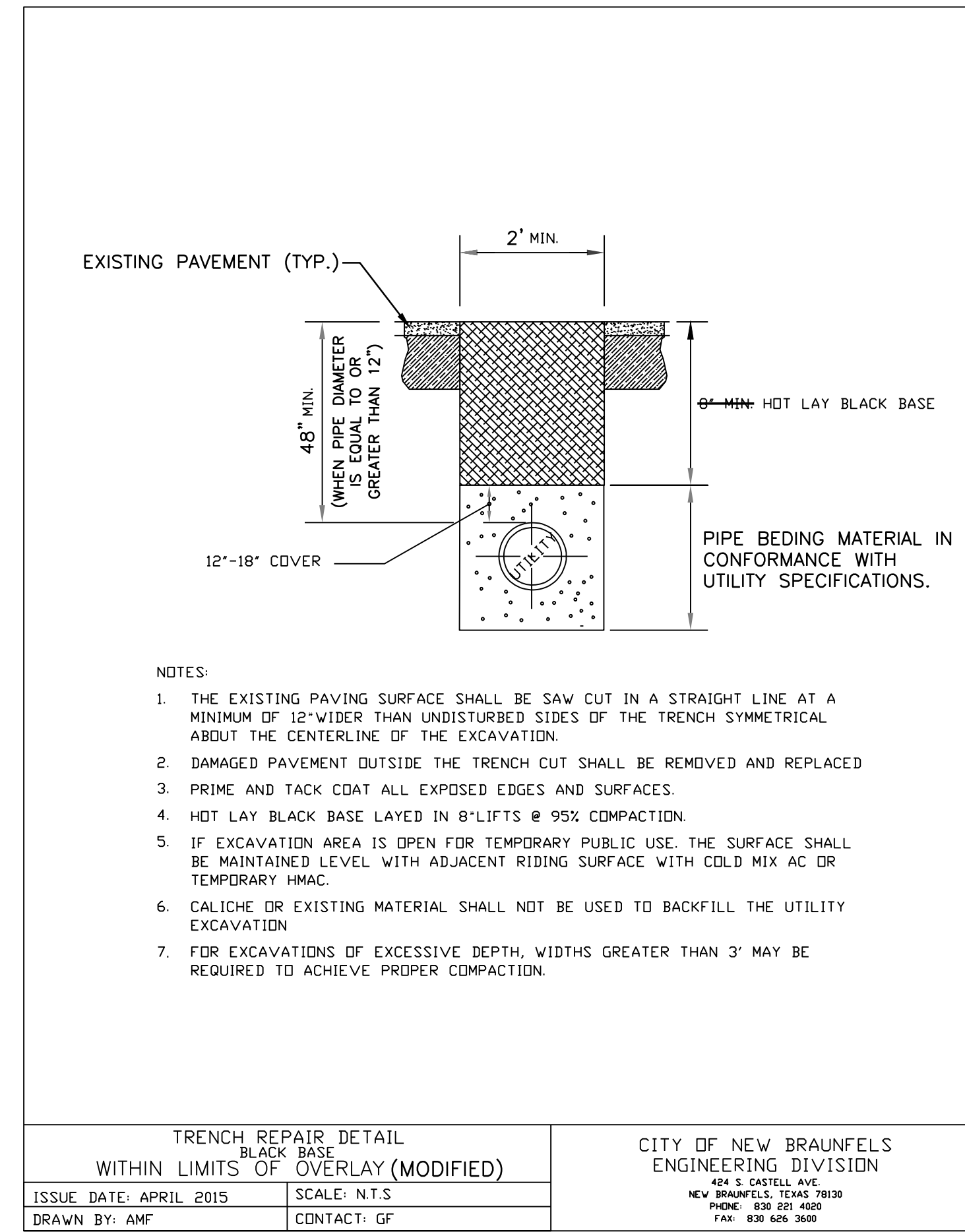
SHEET **W-6**



- NOTES:
1. THE EXISTING PAVING SURFACE SHALL BE SAW CUT IN A STRAIGHT LINE AT A MINIMUM OF 12" WIDER THAN UNDISTURBED SIDES OF THE TRENCH SYMMETRICAL ABOUT THE CENTERLINE OF THE EXCAVATION.
 2. REPLACEMENT HMAc SURFACE LAYER SHALL BE OF THE TYPE AND THICKNESS BASED ON FUNCTIONAL CLASSIFICATION.
 - A) MIN. 2" HMAc TYPE "D" FOR TRENCH REPAIRS IN LOCAL/RESIDENTIAL STREETS.
 - B) MIN. 3" HMAc TYPE "C" FOR TRENCH REPAIRS IN COLLECTOR/ARTERIAL STREETS.
 3. DAMAGED PAVEMENT OUTSIDE THE TRENCH CUT SHALL BE REMOVED AND REPLACED
 4. PRIME AND TACK COAT ALL EXPOSED EDGES AND SURFACES.
 5. HOT LAY BLACK BASE LAYED IN 8" LIFTS @ 95% COMPACTION.
 6. IF EXCAVATION AREA IS OPEN FOR TEMPORARY PUBLIC USE, THE SURFACE SHALL BE MAINTAINED LEVEL WITH ADJACENT RIDING SURFACE WITH COLD MIX AC OR TEMPORARY HMAc.
 7. CALICHE OR EXISTING MATERIAL SHALL NOT BE USED TO BACKFILL THE UTILITY EXCAVATION.



- NOTES:
1. THE EXISTING PAVING SURFACE SHALL BE SAW CUT IN A STRAIGHT LINE AT A MINIMUM OF 12" WIDER THAN UNDISTURBED SIDES OF THE TRENCH SYMMETRICAL ABOUT THE CENTERLINE OF THE EXCAVATION.
 2. DAMAGED PAVEMENT OUTSIDE THE TRENCH CUT SHALL BE REMOVED AND REPLACED
 3. PRIME AND TACK COAT ALL EXPOSED EDGES AND SURFACES.
 4. HOT LAY BLACK BASE LAYED IN 8" LIFTS @ 95% COMPACTION.
 5. IF EXCAVATION AREA IS OPEN FOR TEMPORARY PUBLIC USE, THE SURFACE SHALL BE MAINTAINED LEVEL WITH ADJACENT RIDING SURFACE WITH COLD MIX AC OR TEMPORARY HMAc.
 6. CALICHE OR EXISTING MATERIAL SHALL NOT BE USED TO BACKFILL THE UTILITY EXCAVATION.
 7. FOR EXCAVATIONS OF EXCESSIVE DEPTH, WIDTHS GREATER THAN 3' MAY BE REQUIRED TO ACHIEVE PROPER COMPACTION.



- NOTES:
1. THE EXISTING PAVING SURFACE SHALL BE SAW CUT IN A STRAIGHT LINE AT A MINIMUM OF 12" WIDER THAN UNDISTURBED SIDES OF THE TRENCH SYMMETRICAL ABOUT THE CENTERLINE OF THE EXCAVATION.
 2. DAMAGED PAVEMENT OUTSIDE THE TRENCH CUT SHALL BE REMOVED AND REPLACED
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 6. CALICHE OR EXISTING MATERIAL SHALL NOT BE USED TO BACKFILL THE UTILITY EXCAVATION.
 7. FOR EXCAVATIONS OF EXCESSIVE DEPTH, WIDTHS GREATER THAN 3' MAY BE REQUIRED TO ACHIEVE PROPER COMPACTION.

TRENCH REPAIR DETAIL
OUTSIDE LIMITS OF OVERLAY (MODIFIED)

CITY OF NEW BRAUNFELS
ENGINEERING DIVISION
424 S. CASTELL AVE.
NEW BRAUNFELS, TEXAS 78130
PHONE: 830 251 4500
FAX: 830 626 3600

ISSUE DATE: APRIL 2015 SCALE: N.T.S.
DRAWN BY: AMF CONTACT: GF

TRENCH REPAIR DETAIL
WITHIN LIMITS OF OVERLAY (MODIFIED)

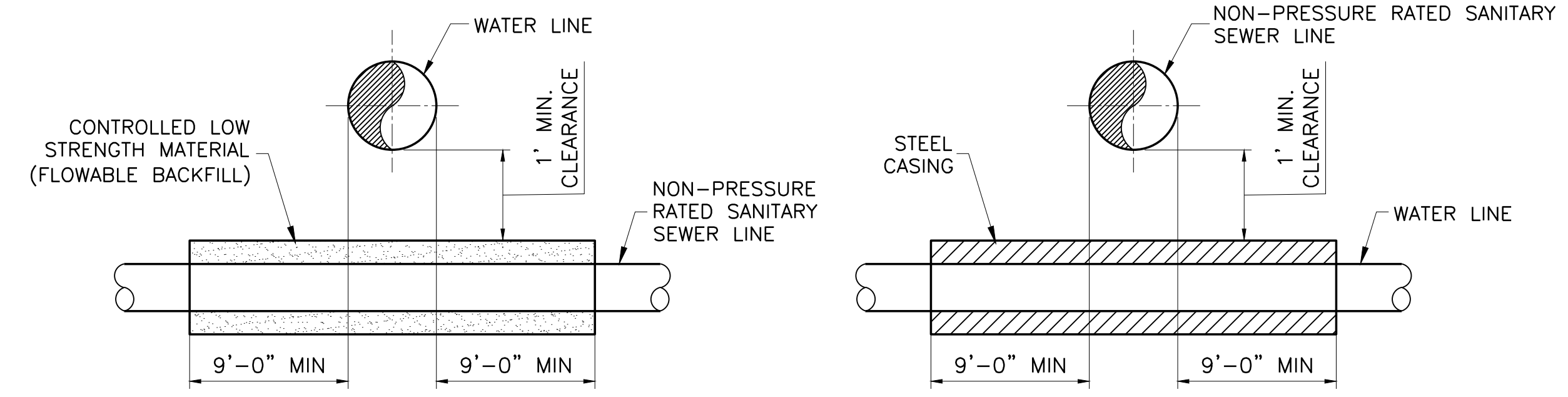
CITY OF NEW BRAUNFELS
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- NOTES:
1. IF THE SANITARY SEWER LINE IS DISTURBED OR SHOWS SIGNS OF LEAKING, IT SHALL BE REPLACED FOR AT LEAST NINE FEET IN BOTH DIRECTIONS WITH AT LEAST 150 PSI PRESSURE RATED PIPE. NEW SANITARY SEWER PIPE SHALL BE ENCASED WITH CONTROLLED LOW STRENGTH MATERIAL (FLOWABLE BACKFILL) FOR THE LENGTH OF ONE PIPE SEGMENT PLUS 12 INCHES BEYOND THE JOINT ON EACH END PER TCEQ CHAPTER 290.
 2. IF 1" VERTICAL CLEARANCE CAN NOT BE OBTAINED, NOTIFY THE ENGINEER

PROPOSED ENCASED WATER LINE
CROSSING AT NON-PRESSURE
RATED SANITARY SEWER LINE DETAIL
TAC 290.44.E.4.B)

1
DT-1
N.T.S.

Joint Restraint Calculations Factors					
PIPE MATERIAL	SOIL TYPE	SAFETY FACTOR	TRENCH TYPE	DEPTH OF BURY	TEST PRESSURE
PVC	CH-INORGANIC CLAY W/ GRANULAR BACKFILL	1.5 TO 1	5	4'-0"	150 PSI

Joint Restraint Table for Valves and Dead-Ends	
Pipe Diameter (IN)	PVC Pipe length to be Restrained (FT each way)
12	83

- JOINT RESTRAINT TABLES NOTES:**
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.

Joint Restraint Table for Horizontal Bends at 4-ft Depth of Bury			
Pipe Diameter (IN)	Bend Angle (DEG)	PVC Pipe length to be Restrained (FT each way)	
12	90	30	
12	45	13	
12	22.5	6	
12	11.25	3	

Joint Restraint Table for Tees			
Pipe Diameter (IN)	Branch Pipe Diameter (IN)	Length of Run (FT)	PVC Pipe length to be Restrained (FT each way)
12	6	0	44
12	6	5	1
12	6	10	1
12	8	0	58
12	8	5	18
12	8	10	1

Joint Restraint Table for Vertical Offsets at 4-FT or greater Depth of Bury						
Pipe Diameter (IN)	Bend Angle (DEG)	Low Side Depth (FT)	Upper Bend Retrained DI Pipe Length (FT each Way)	Lower Bend Retrained DI Pipe Length (FT each Way)	Upper Bend Retrained PVC Pipe Length (FT each Way)	Lower Bend Retrained PVC Pipe Length (FT each Way)
6	45	5	29	7	19	6
6	22.5	5	14	3	9	3
6	11.25	5	7	2	5	2
6	45	10	29	4	19	3
6	22.5	10	14	2	9	2
6	11.25	10	7	1	5	1
12	45	5	22	9	34	11
12	22.5	5	11	5	17	5
12	11.25	5	6	2	9	3
12	45	10	22	5	34	6
12	22.5	10	11	3	17	3
12	11.25	10	6	2	9	2

2
DT-1
RESTRAINED LENGTH VALUE TABLES
N.T.S.

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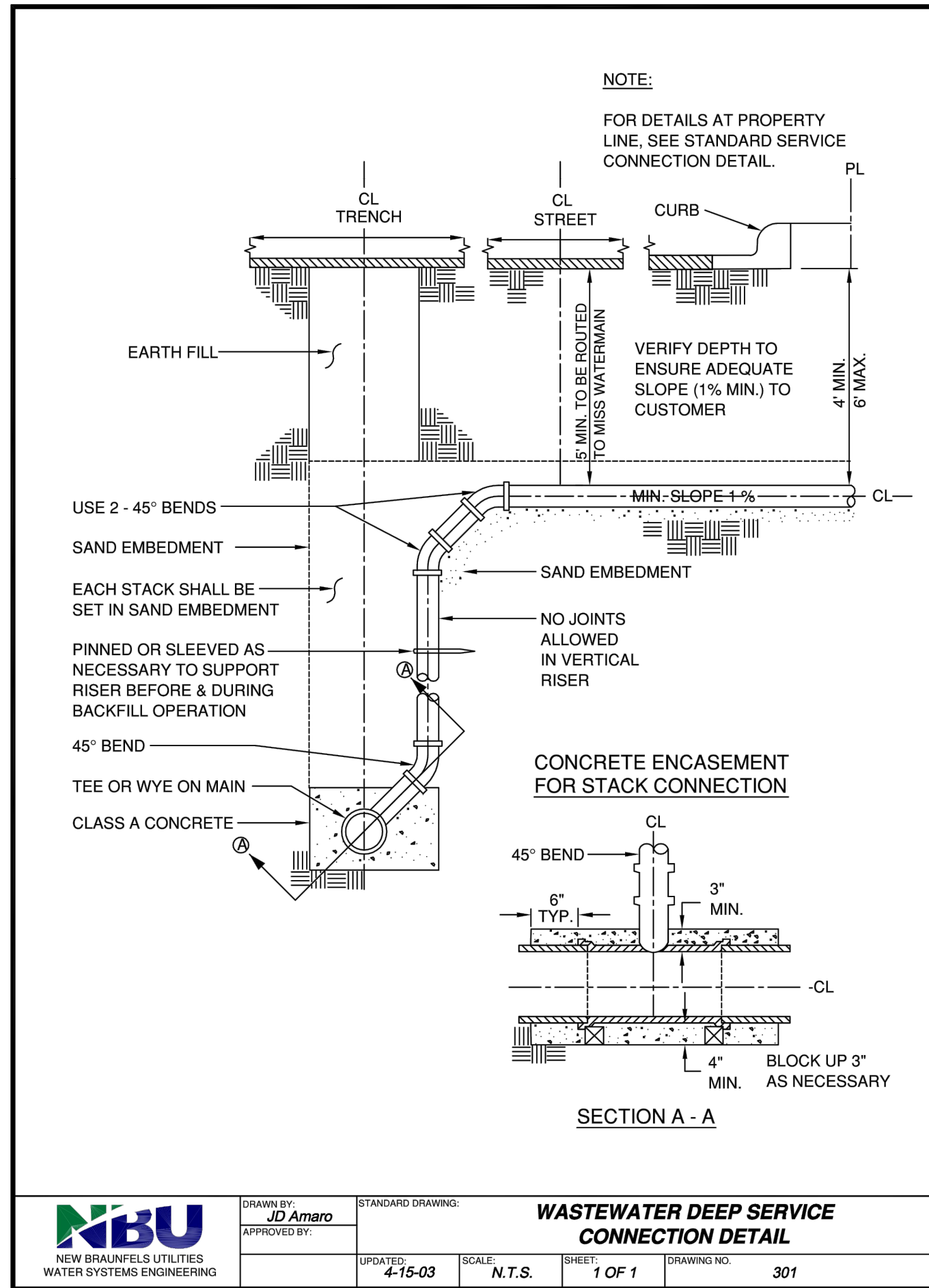
FREESE AND NICHOLS
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NEW BRAUNFELS UTILITIES
SAN ANTONIO STREET WATER
AND WASTEWATER RELOCATION
STANDARD DETAILS

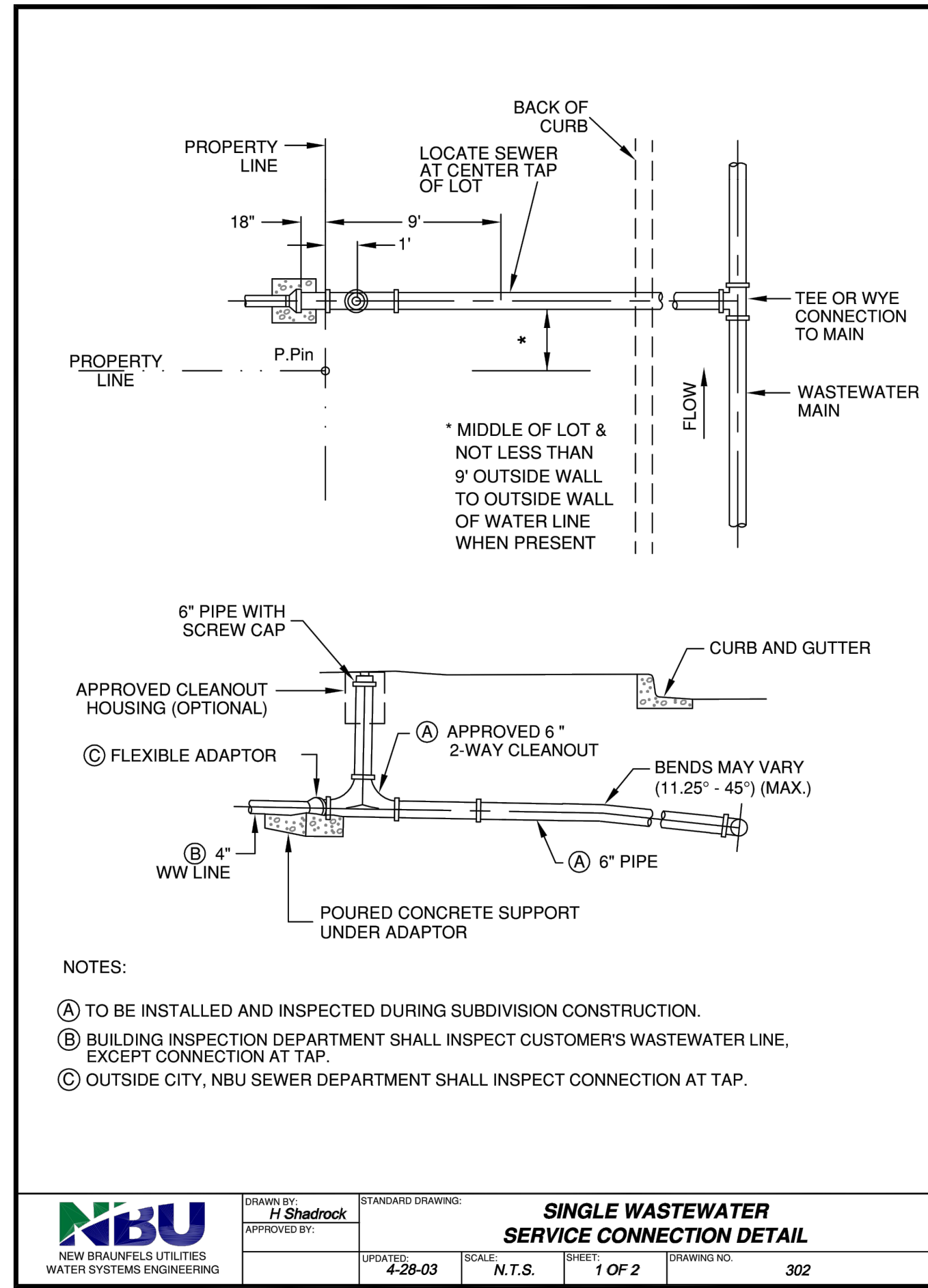
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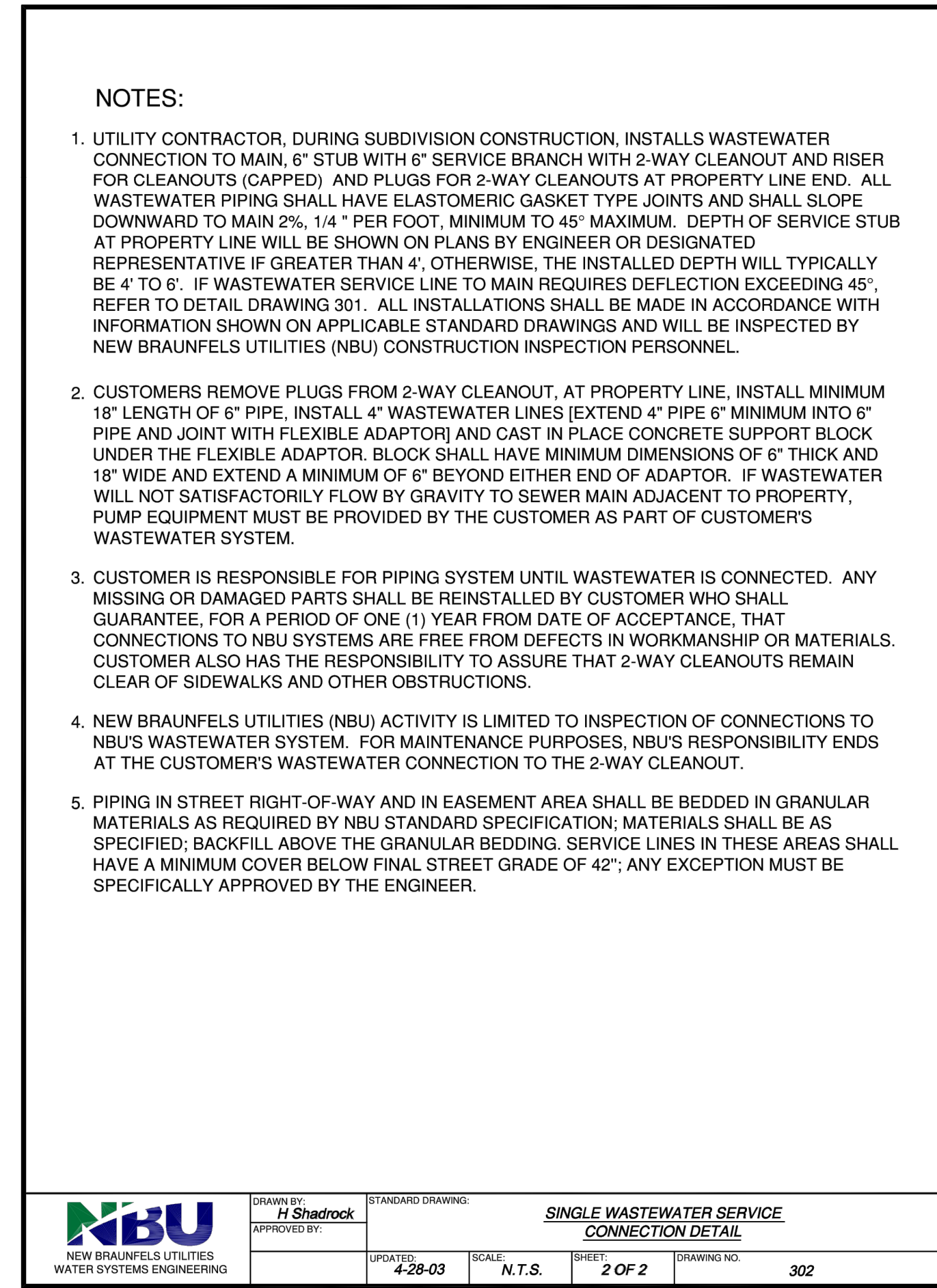
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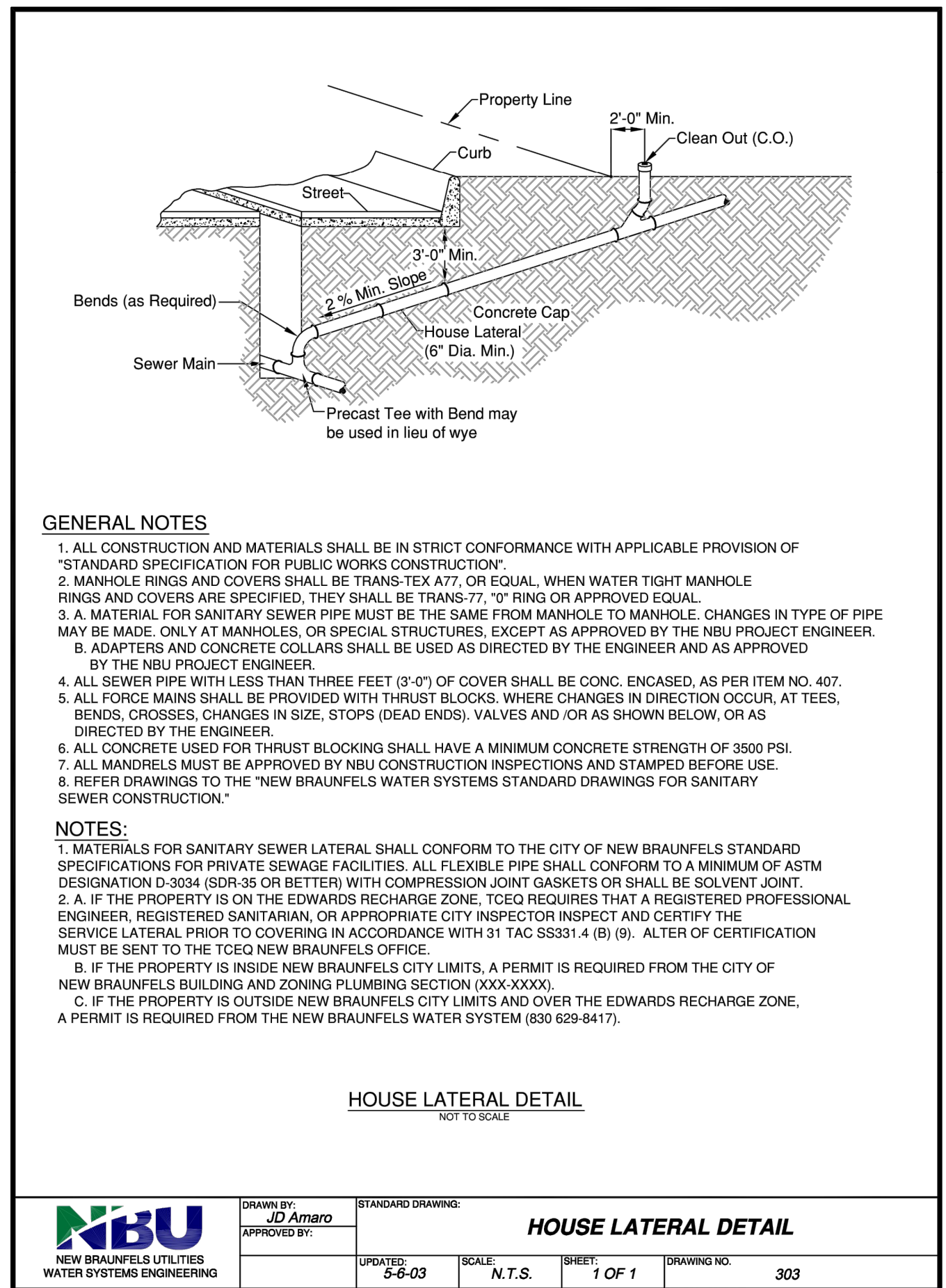
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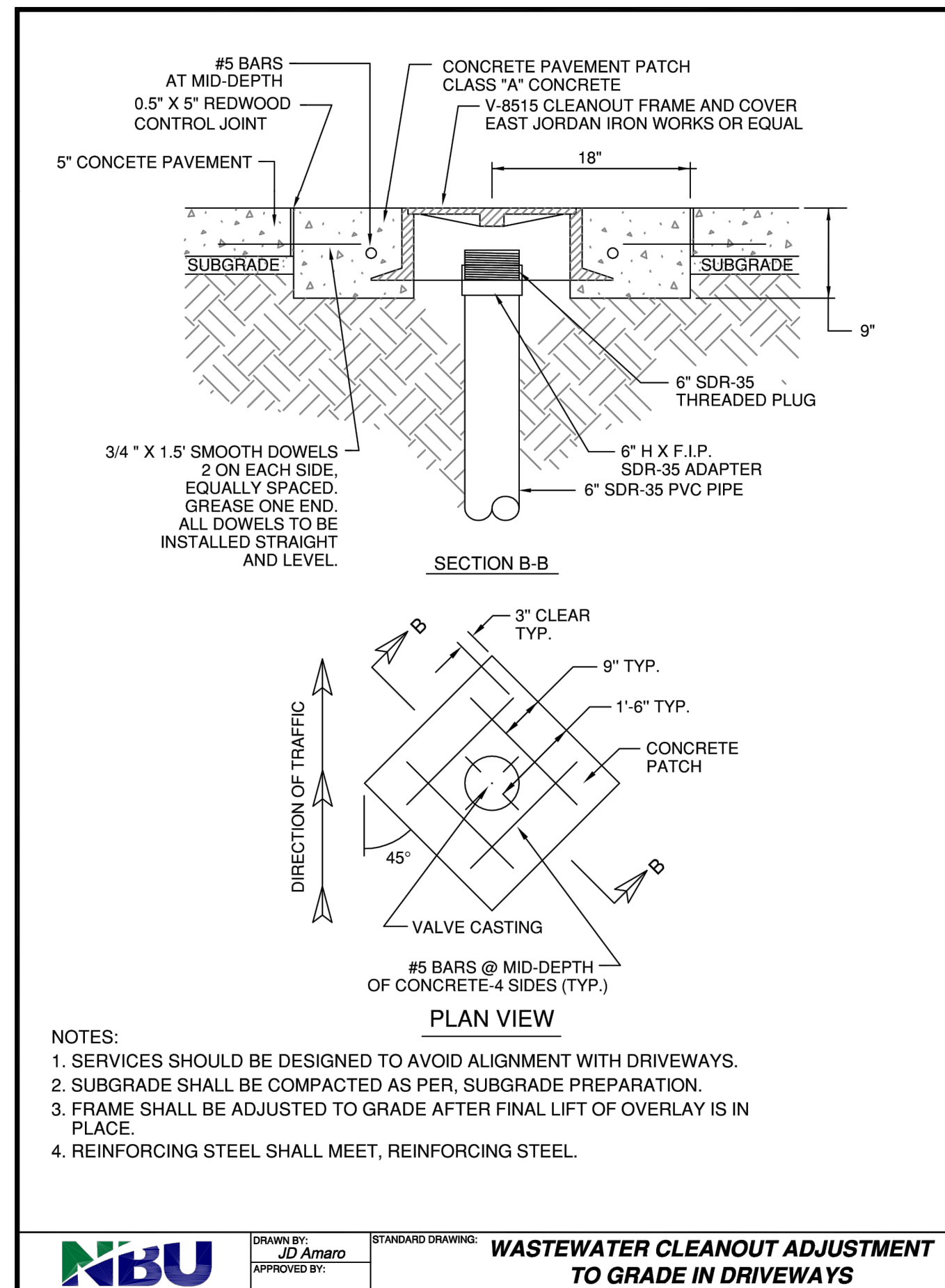
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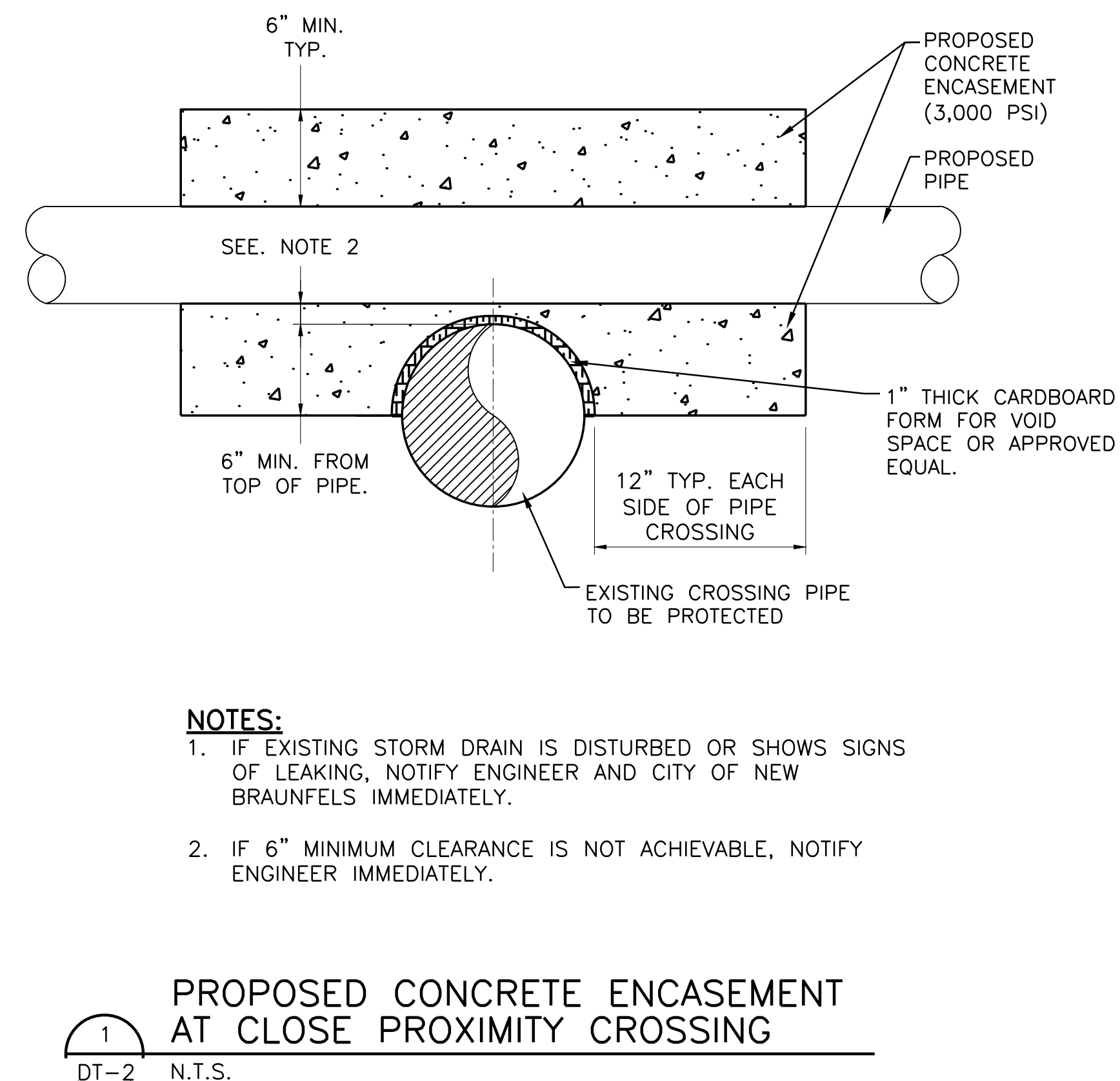
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NBU NEW BRAUNFELS UTILITIES WATER SYSTEMS ENGINEERING	DRAWN BY: JD Amaro	STANDARD DRAWING:	HOUSE LATERAL DETAIL		
	APPROVED BY:	UPDATED: 5-8-03	SCALE: N.T.S.	SHEET: 1 OF 1	DRAWING NO. 303



NBU NEW BRAUNFELS UTILITIES WATER SYSTEMS ENGINEERING	DRAWN BY: JD Amaro	STANDARD DRAWING:	WASTEWATER CLEANOUT ADJUSTMENT TO GRADE IN DRIVEWAYS		
	APPROVED BY:	UPDATED: 4-15-03	SCALE: N.T.S.	SHEET: 1 OF 1	DRAWING NO. 306



NBU NEW BRAUNFELS UTILITIES WATER SYSTEMS ENGINEERING	DRAWN BY: JD Amaro	STANDARD DRAWING:	PROPOSED CONCRETE ENCASEMENT AT CLOSE PROXIMITY CROSSING		
	APPROVED BY:	UPDATED: 4-15-03	SCALE: N.T.S.	SHEET: 1 OF 1	DRAWING NO. 306

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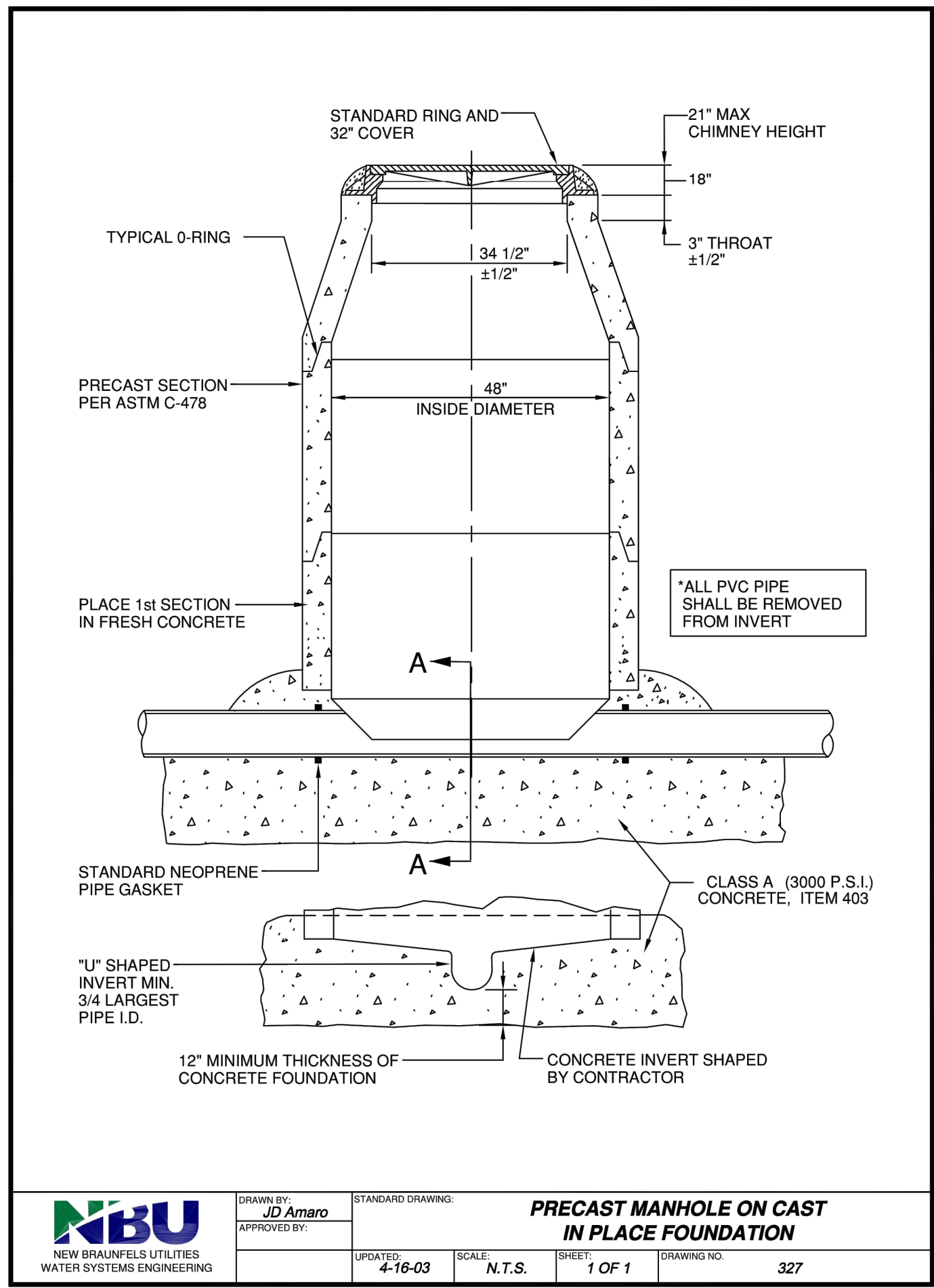
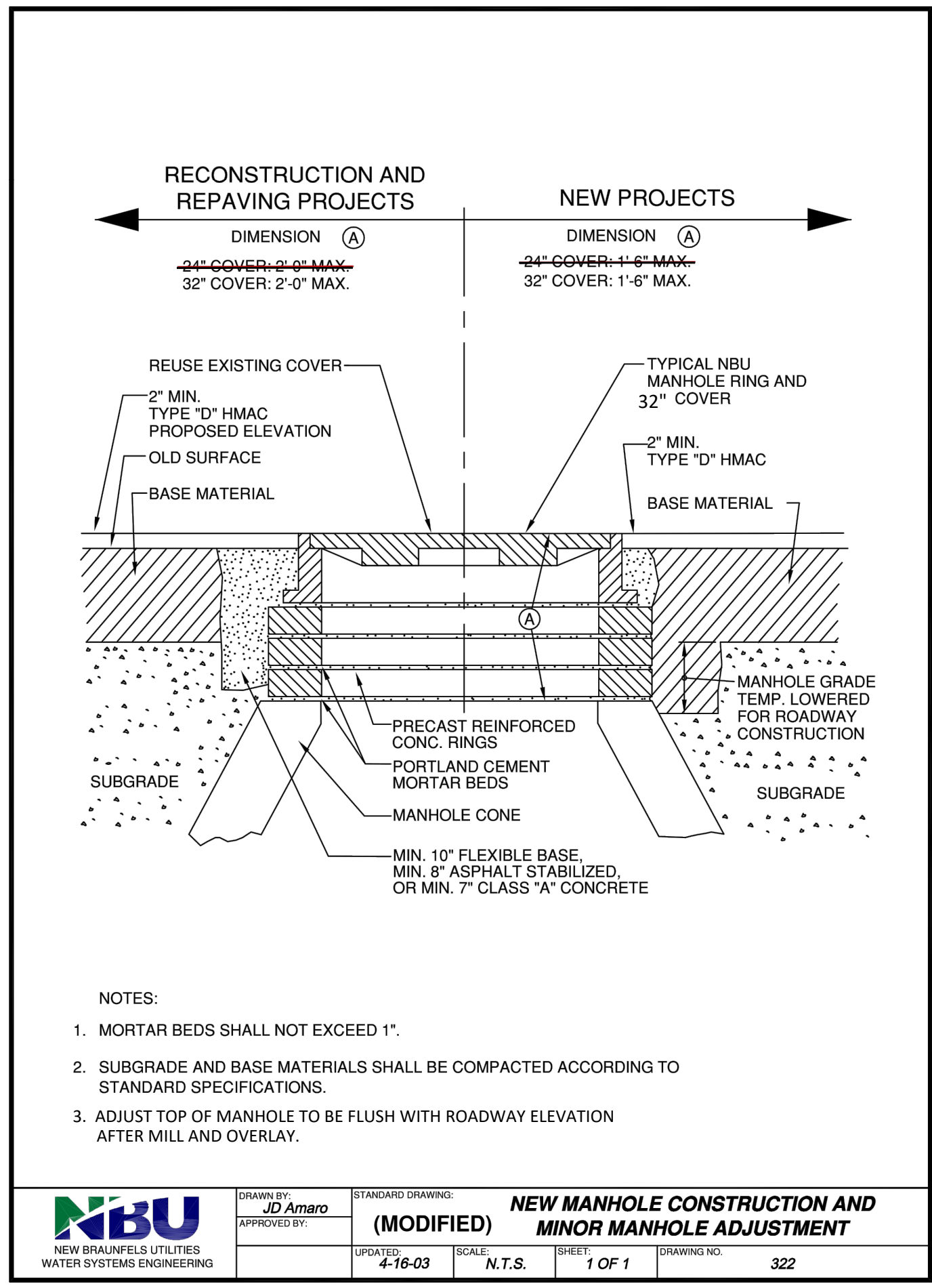
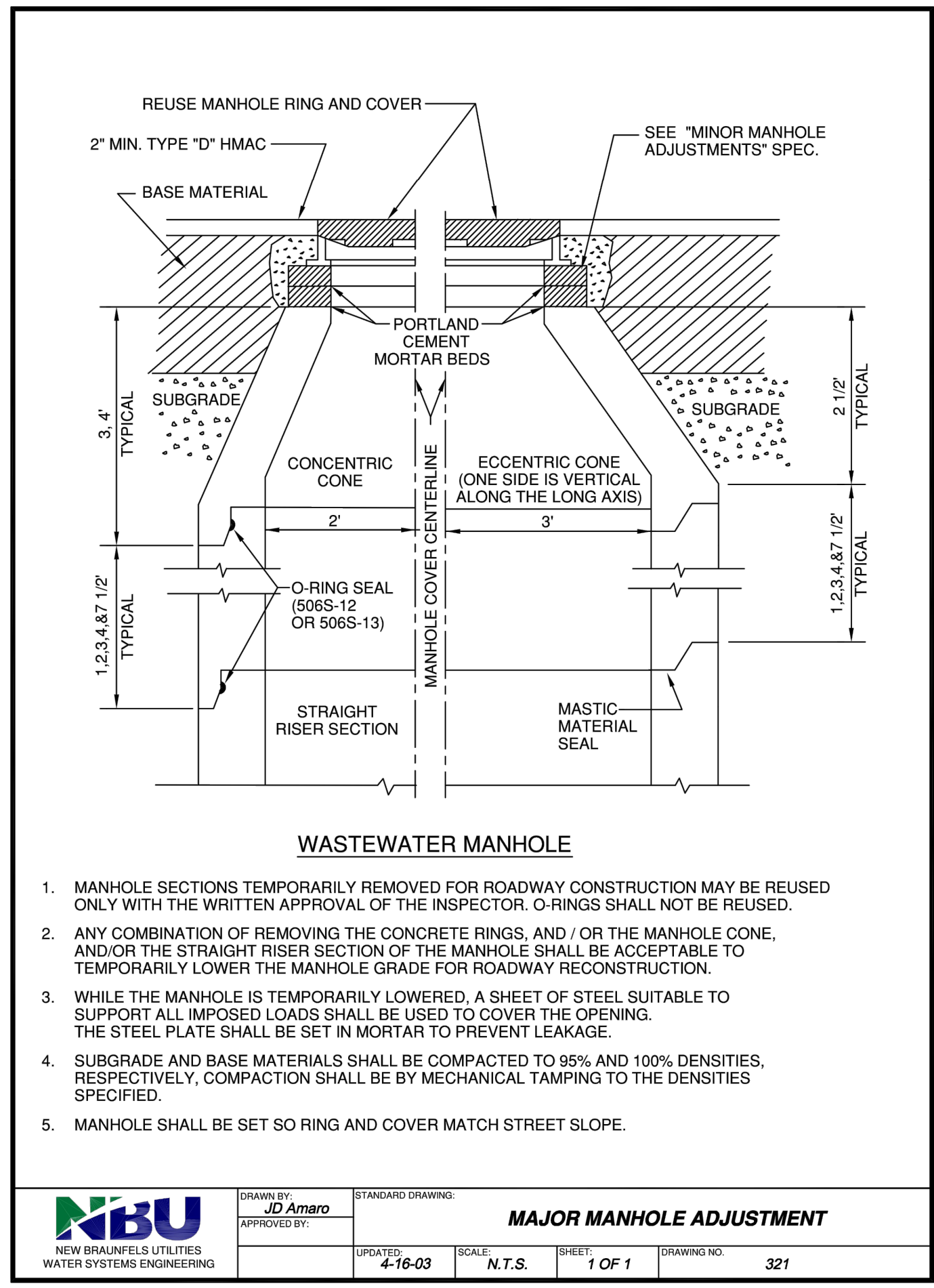
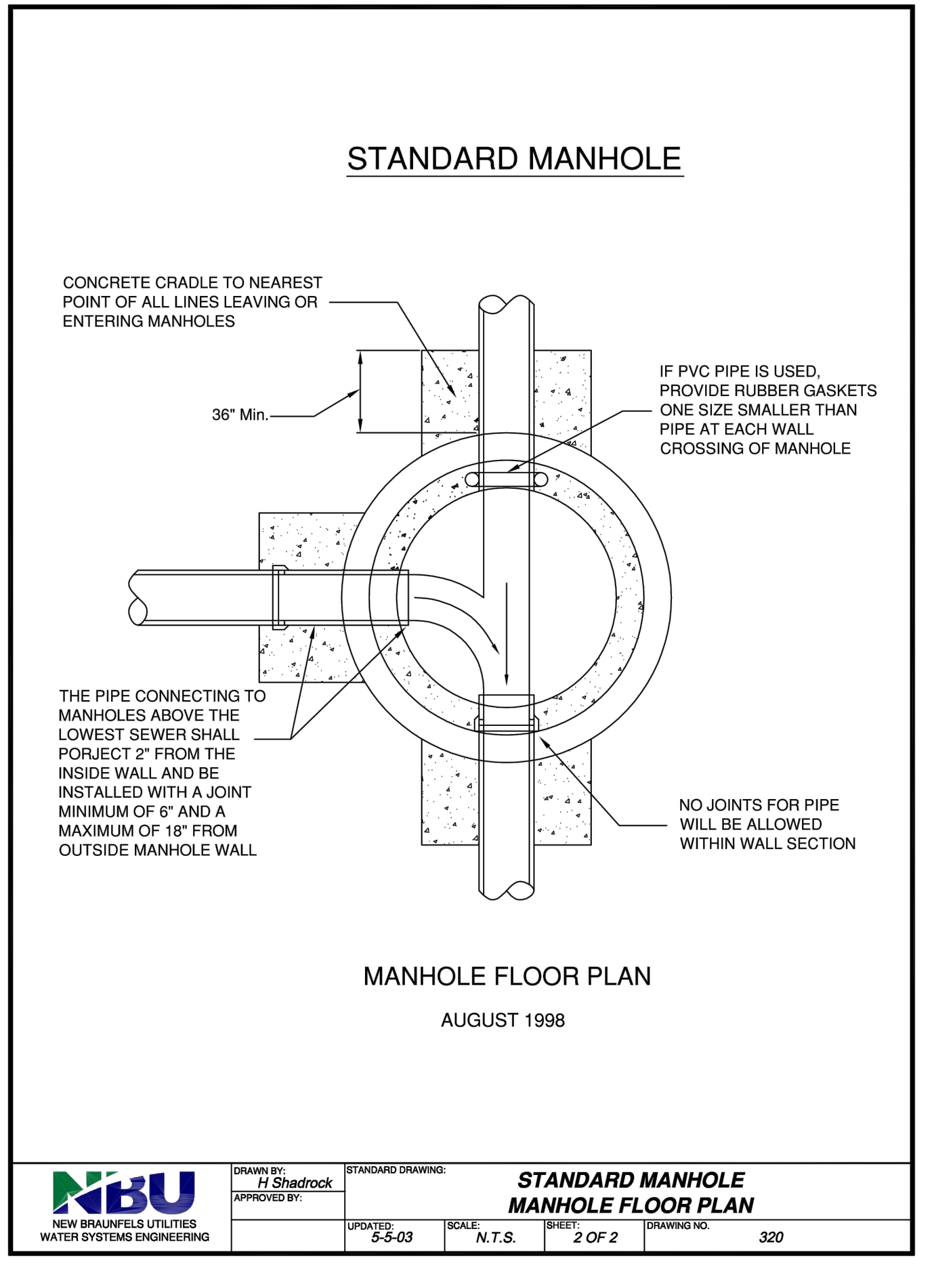
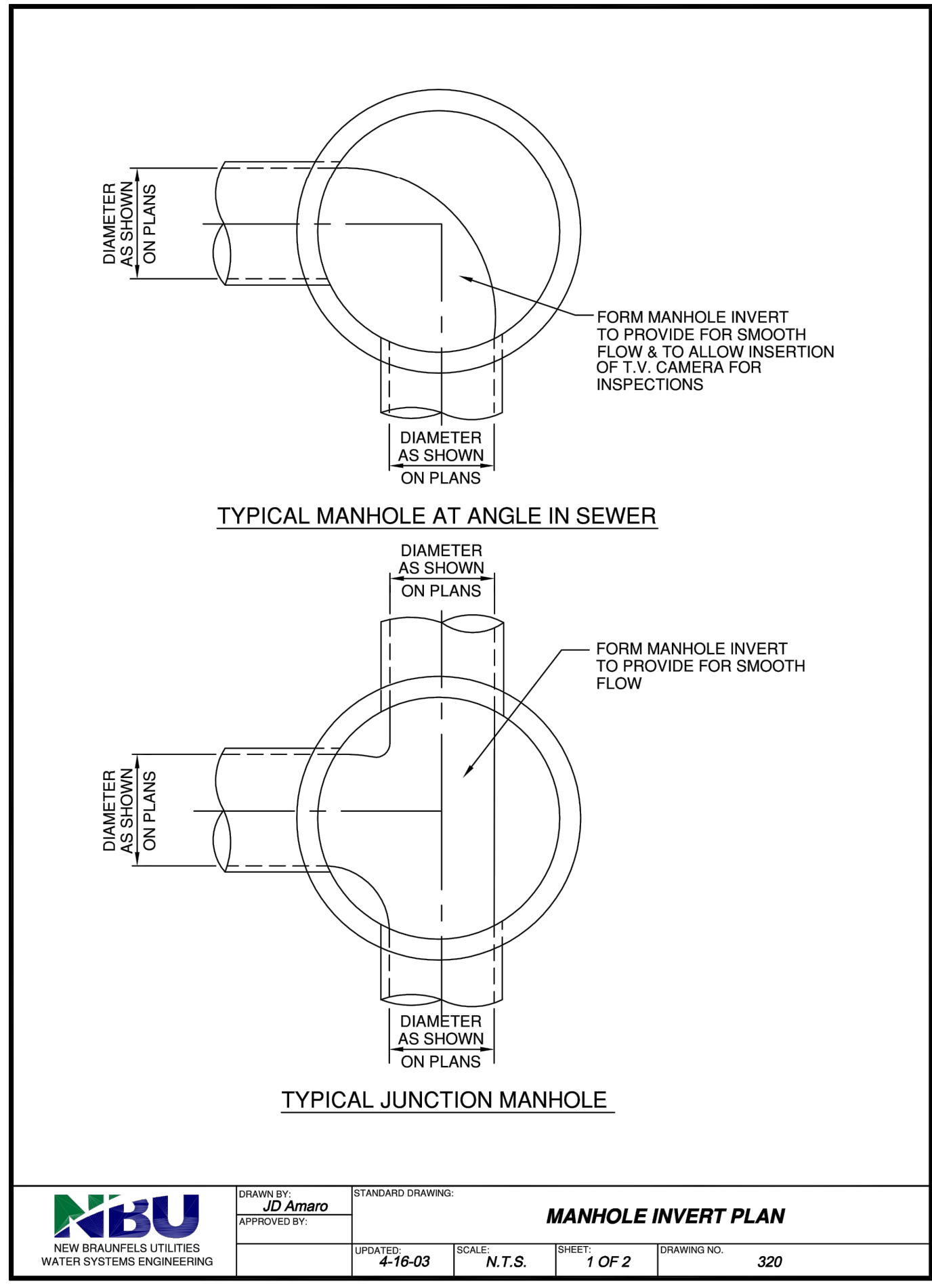
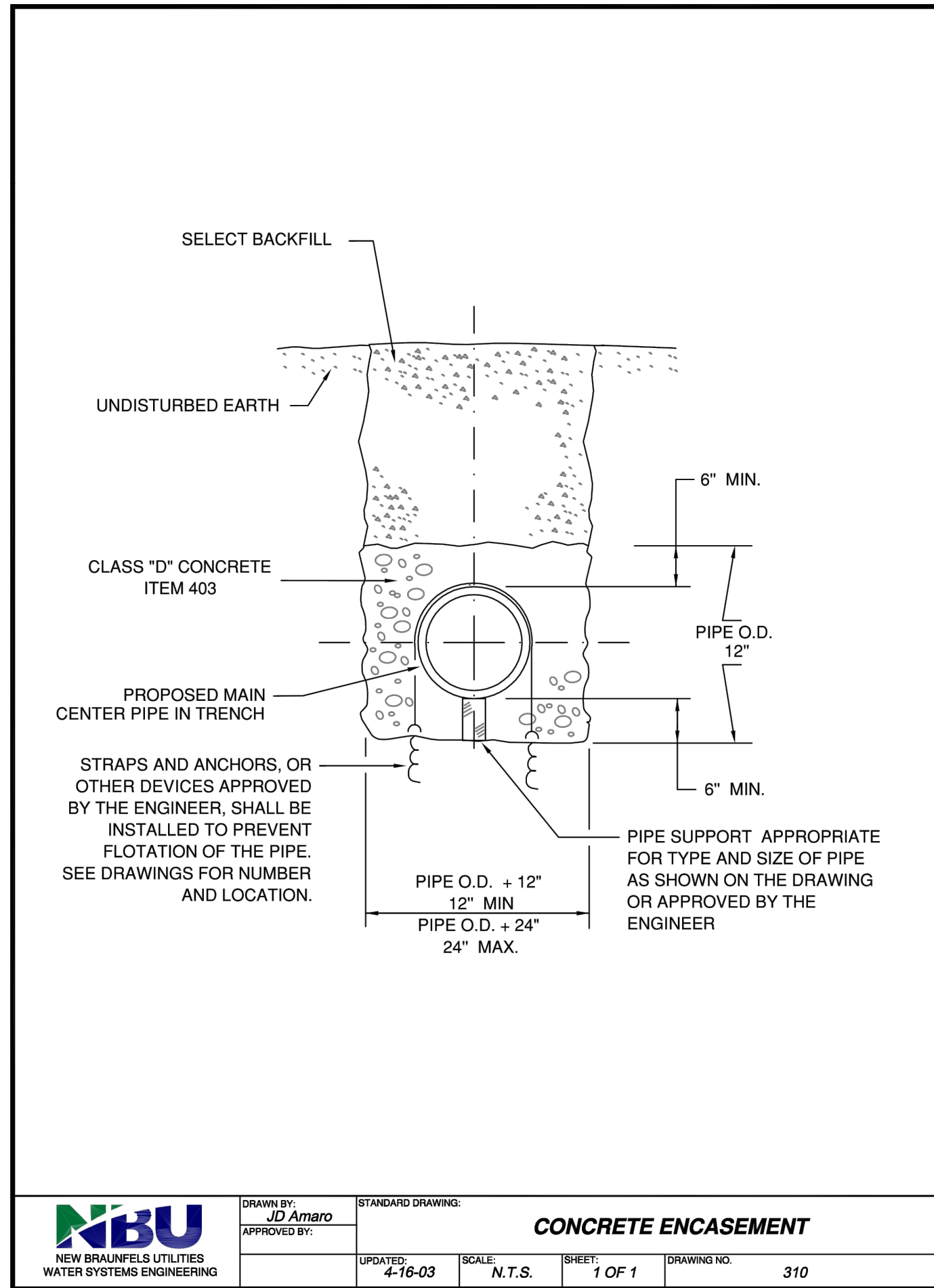
NEW BRAUNFELS UTILITIES
SAN ANTONIO STREET WATER AND WASTEWATER RELOCATION
STANDARD DETAILS
SANITARY SEWER DETAILS I

NO.	ISSUE	DATE	DESIGNED	ECM	DRAWN	DDH	REVIEWED	CHECKED	DTB	FILE NAME
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NEW BRAUNFELS UTILITIES
SAN ANTONIO STREET WATER AND WASTEWATER RELOCATION
STANDARD DETAILS

SANTARY SEWER DETAILS II

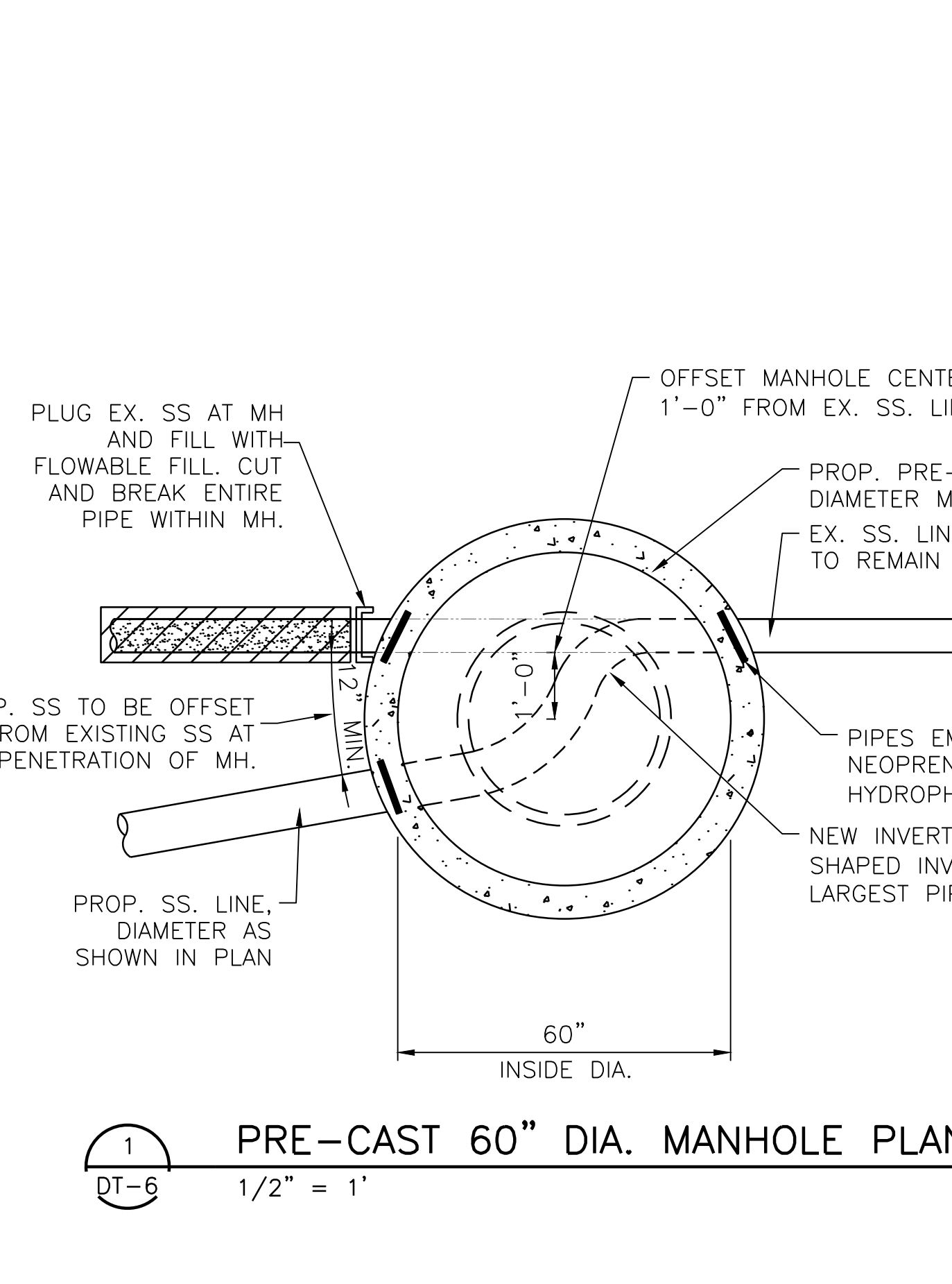
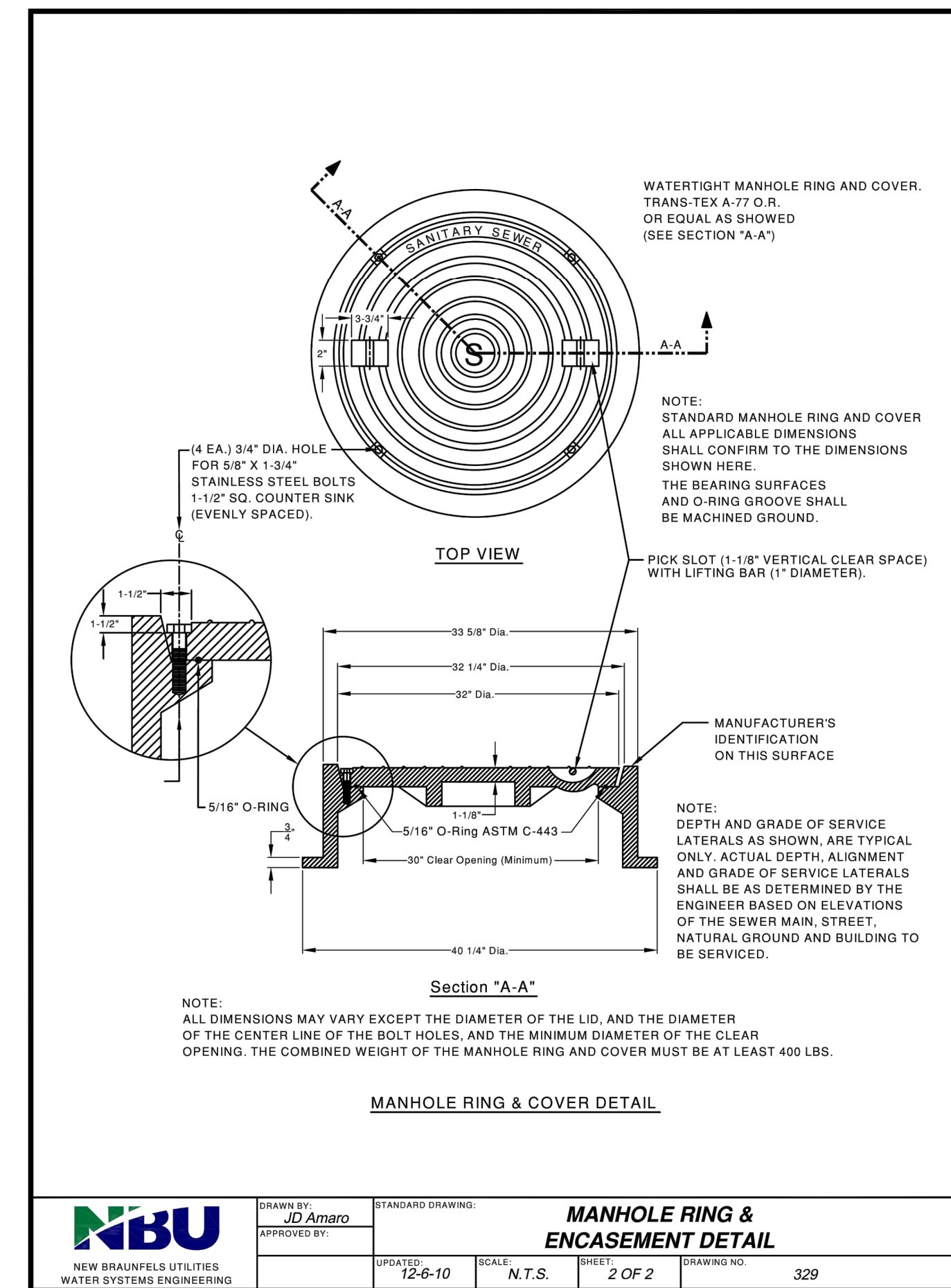
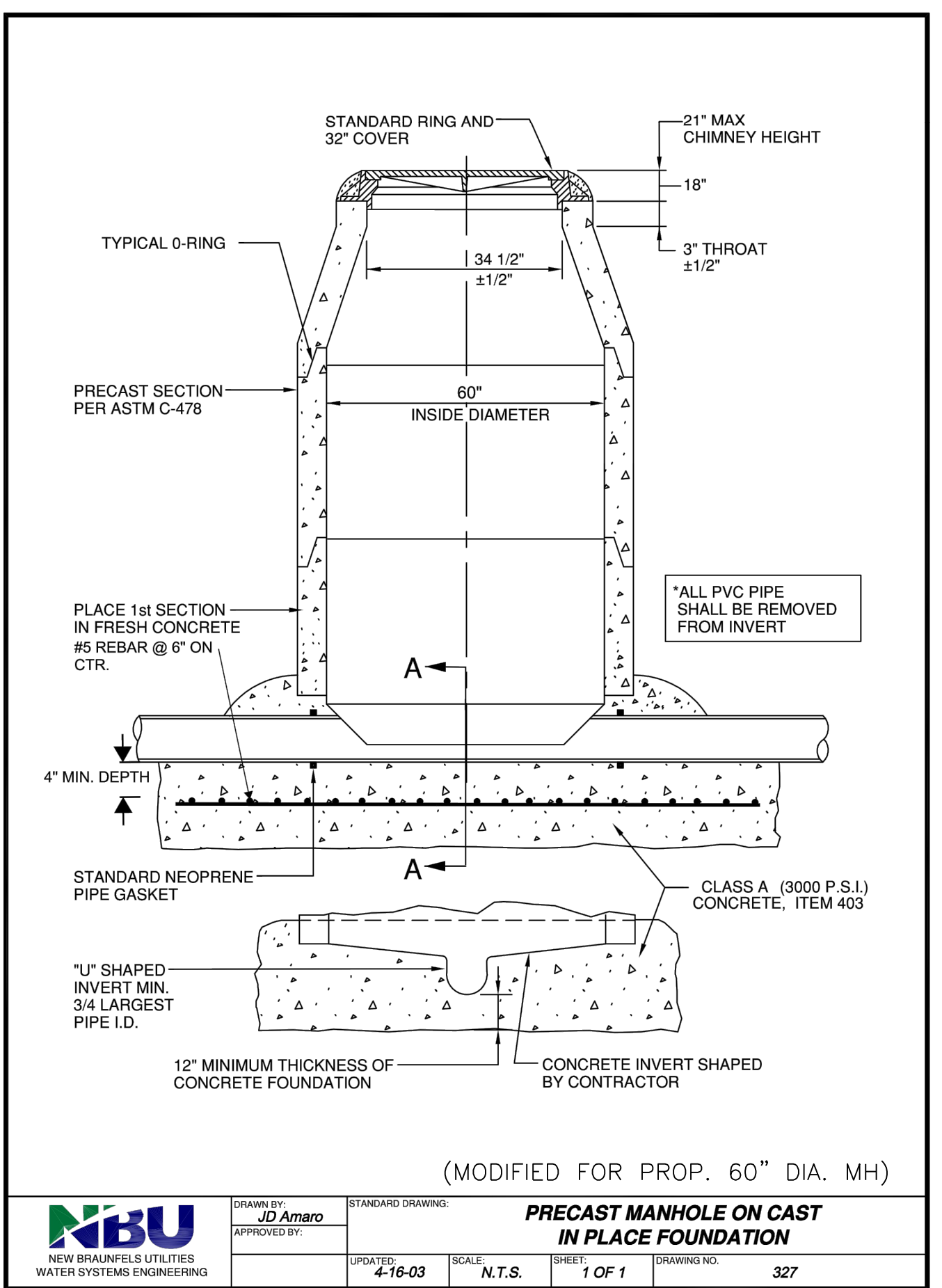
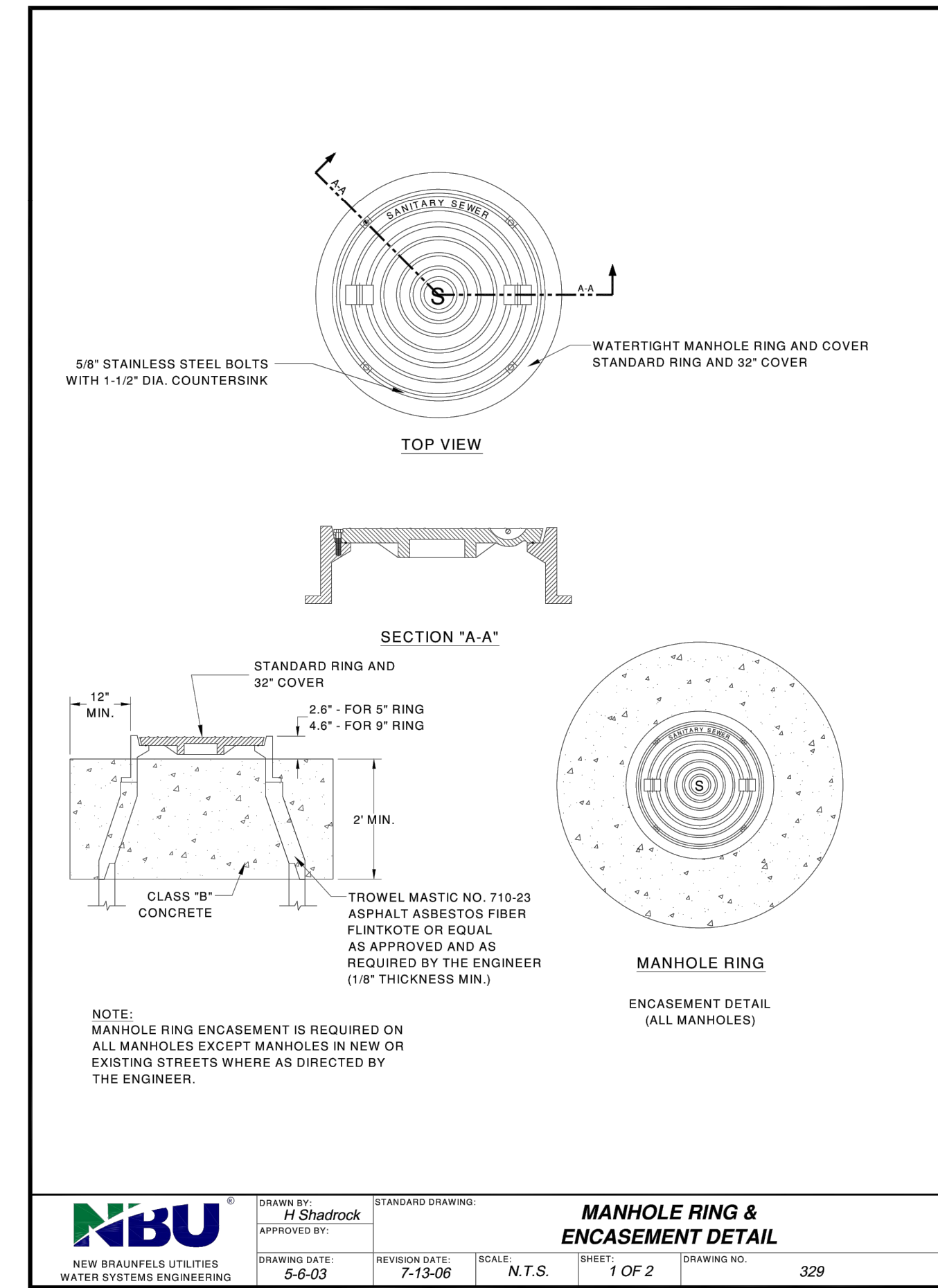
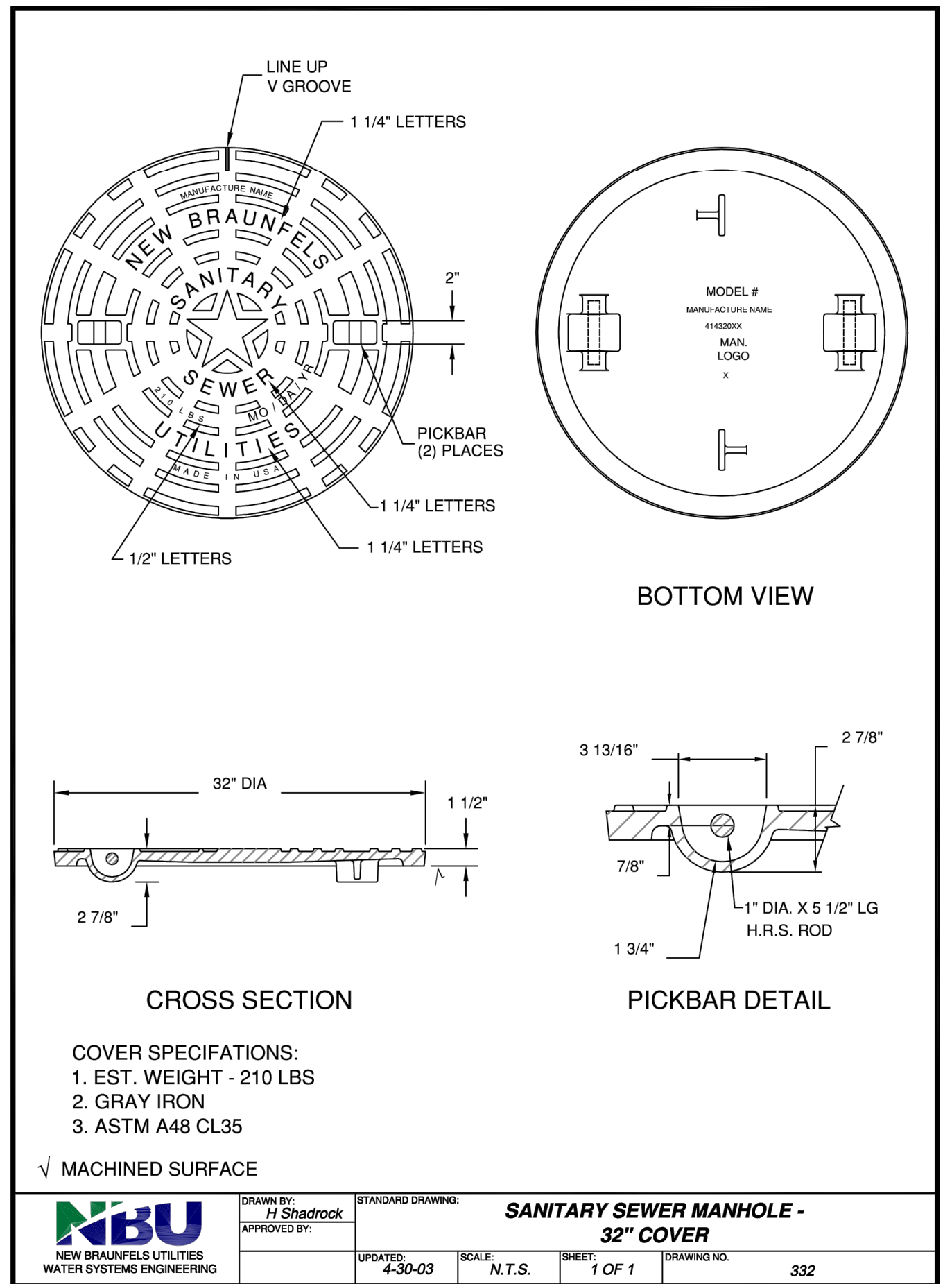
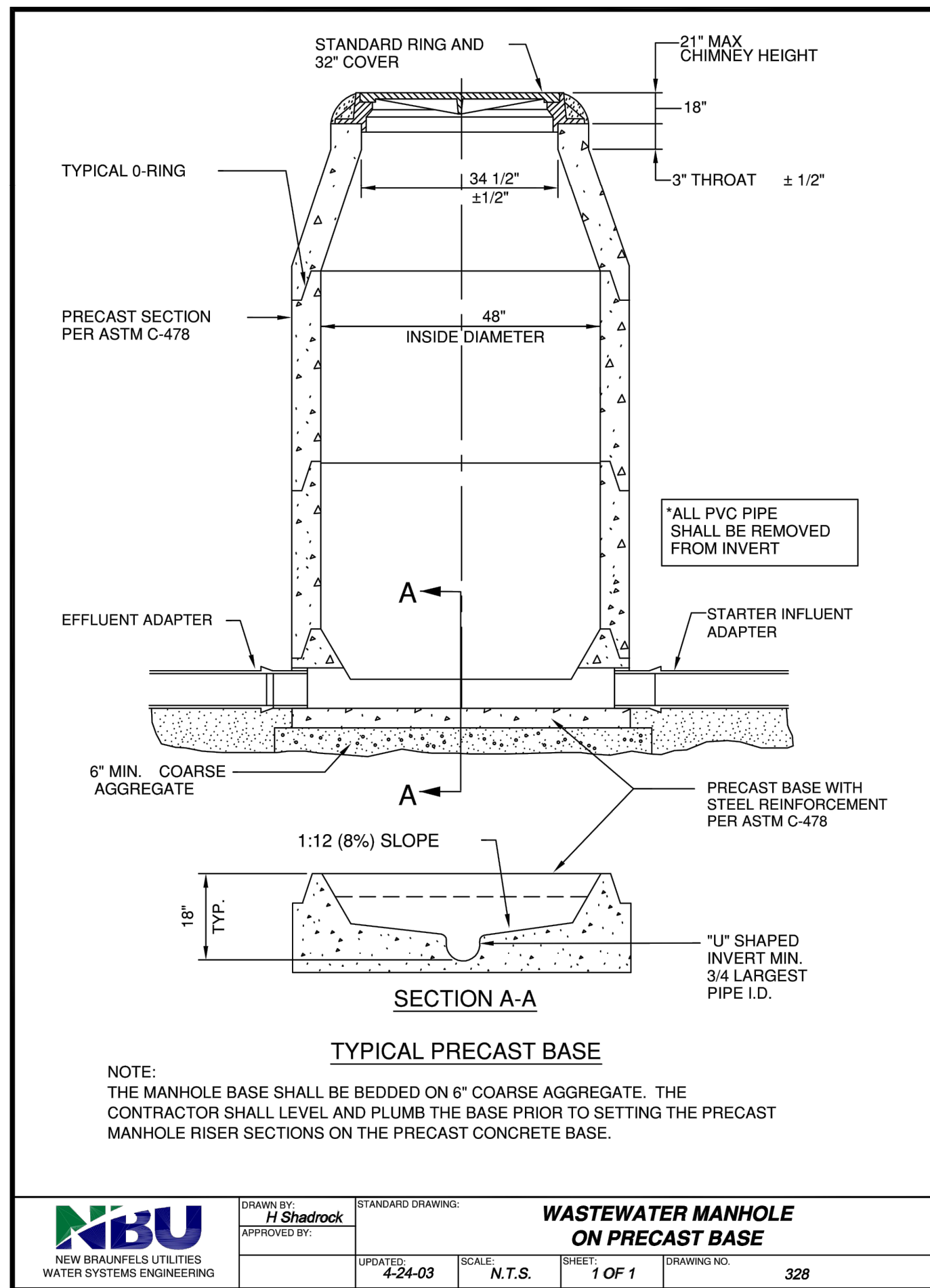
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SHEET DT-3

SEQ.

ACAD File: 21.0s (LMS Tech)
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PRECAST MANHOLE
ERM C. WILLS
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LICENSED PROFESSIONAL ENGINEER

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NEW BRAUNFELS UTILITIES
SAN ANTONIO STREET WATER AND WASTEWATER RELOCATION
STANDARD DETAILS

SANITARY SEWER DETAILS III

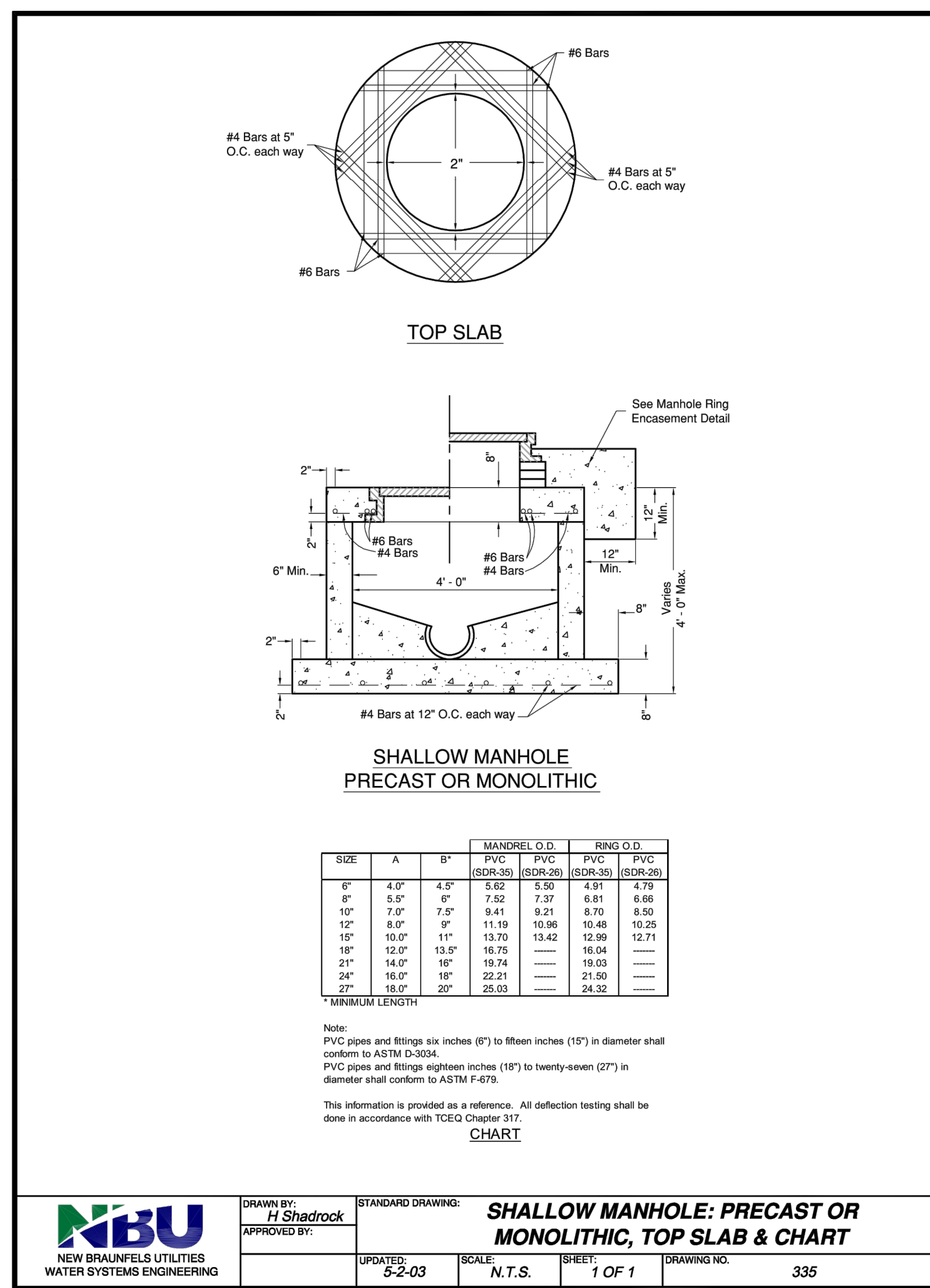
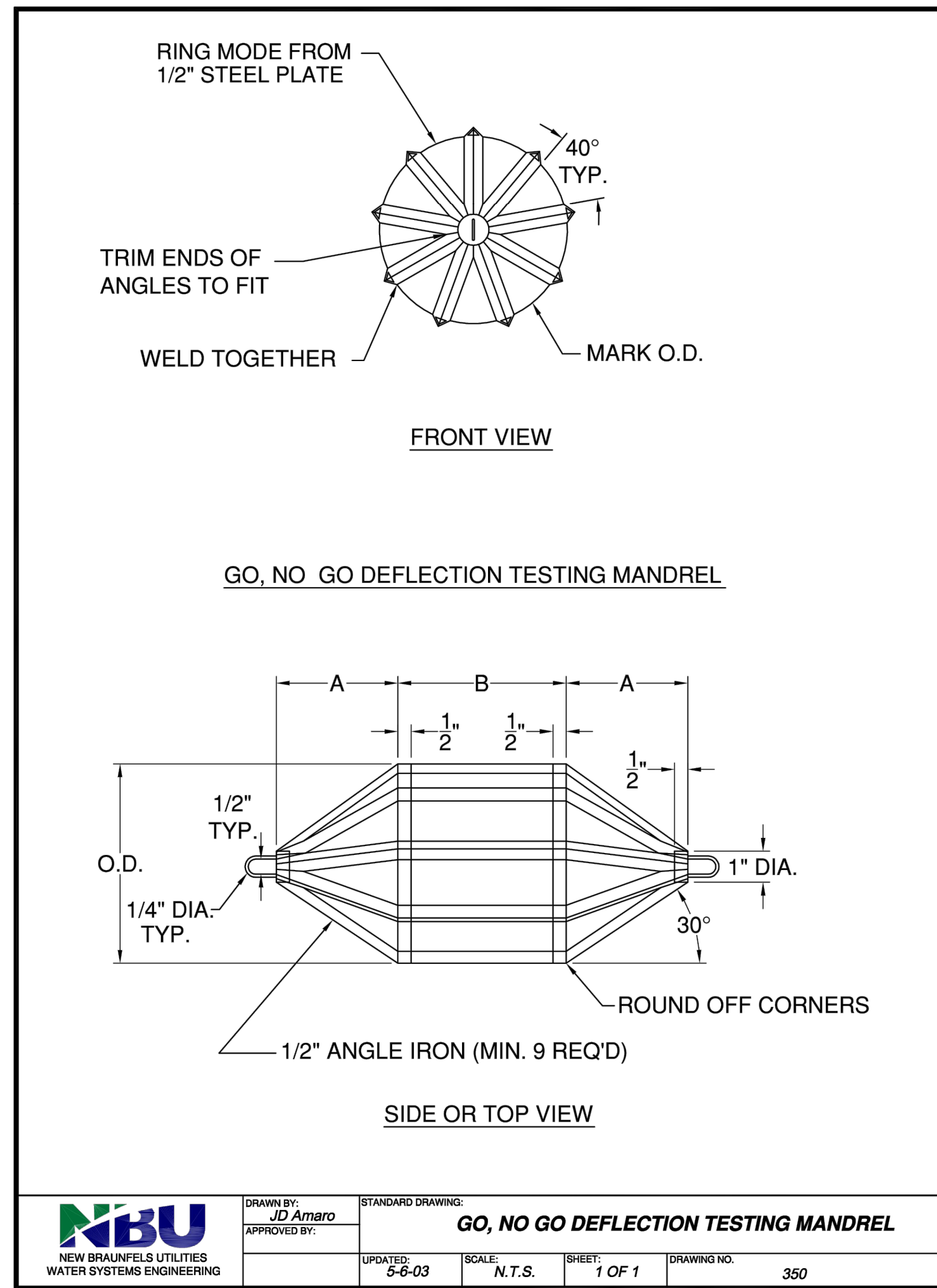
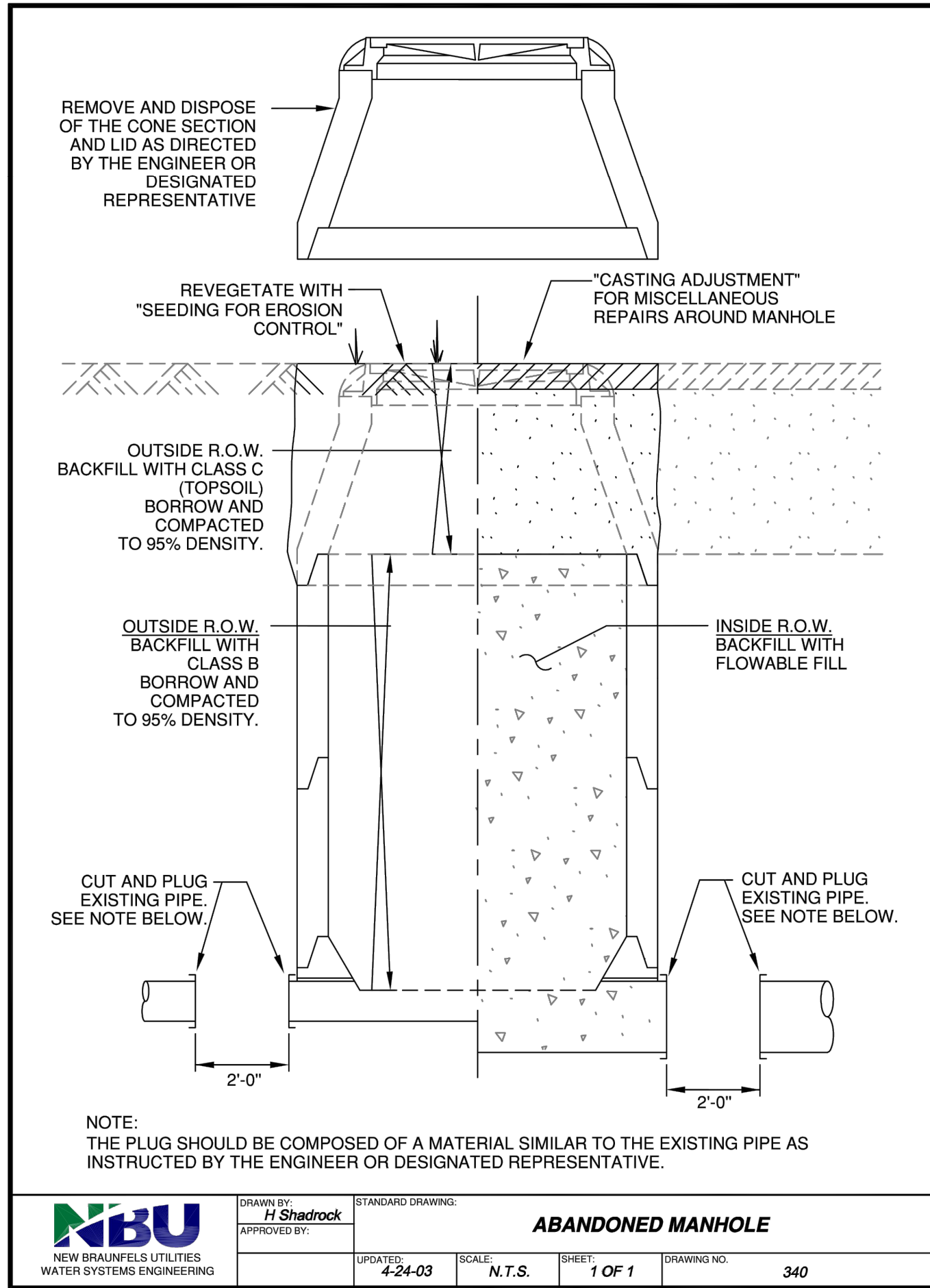
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VERIFY SCALE: Bar is one inch on original drawing, if not one inch on this sheet, adjust scale.

SHEET DT-4

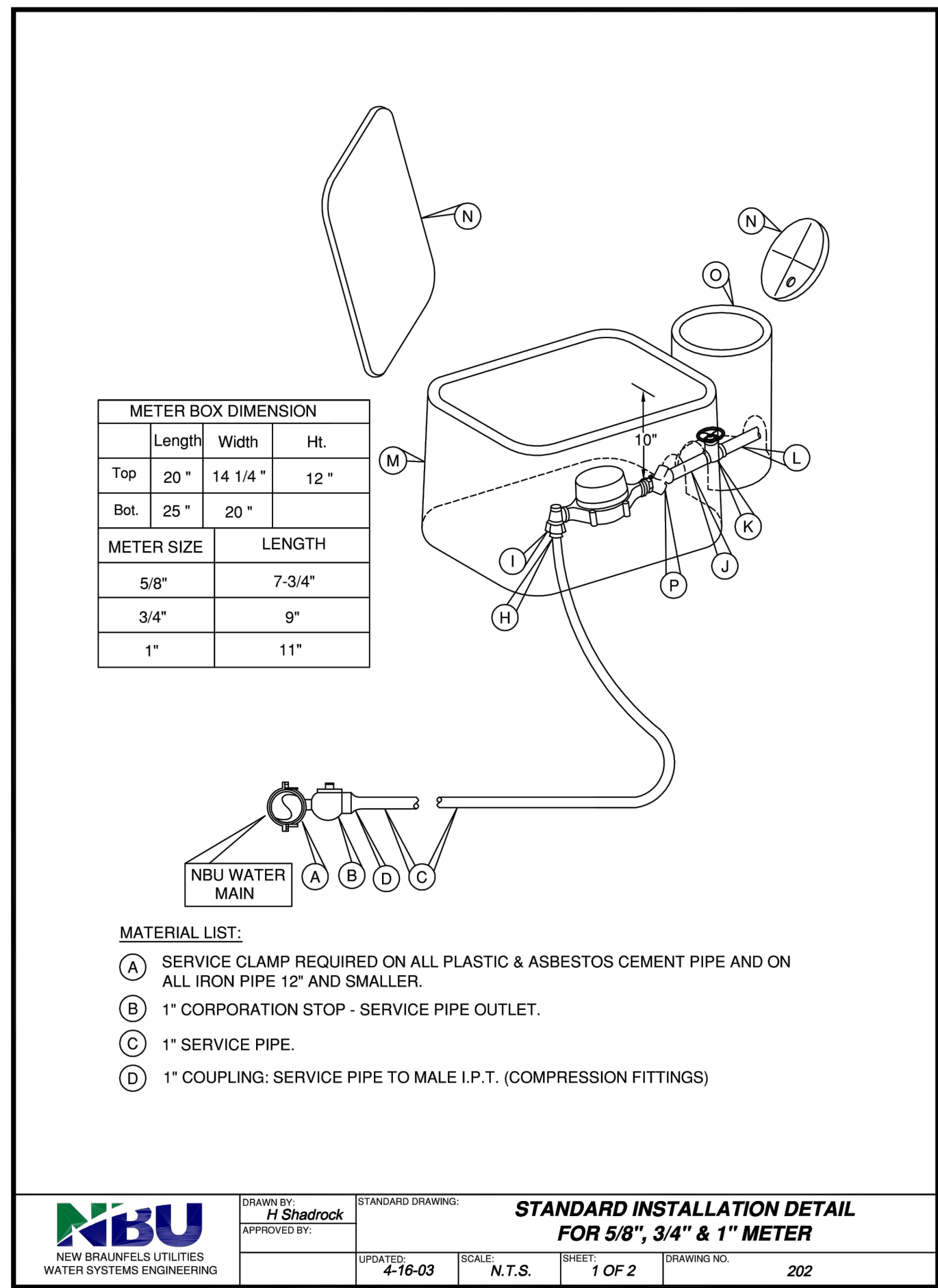
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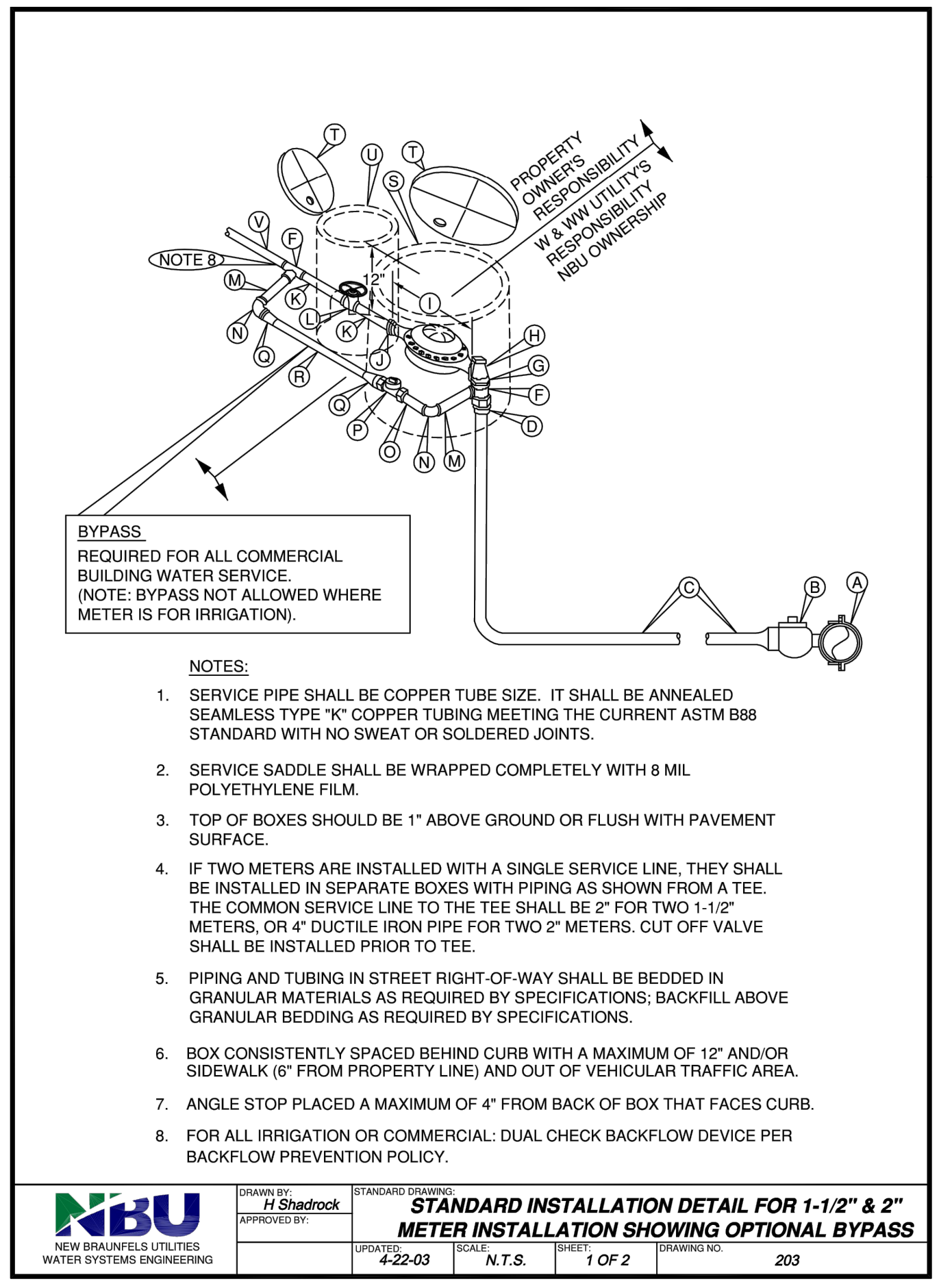


NEW BRAUNFELS UTILITIES
SAN ANTONIO STREET WATER AND WASTEWATER RELOCATION
 STANDARD DETAILS
SANITARY SEWER DETAILS IV

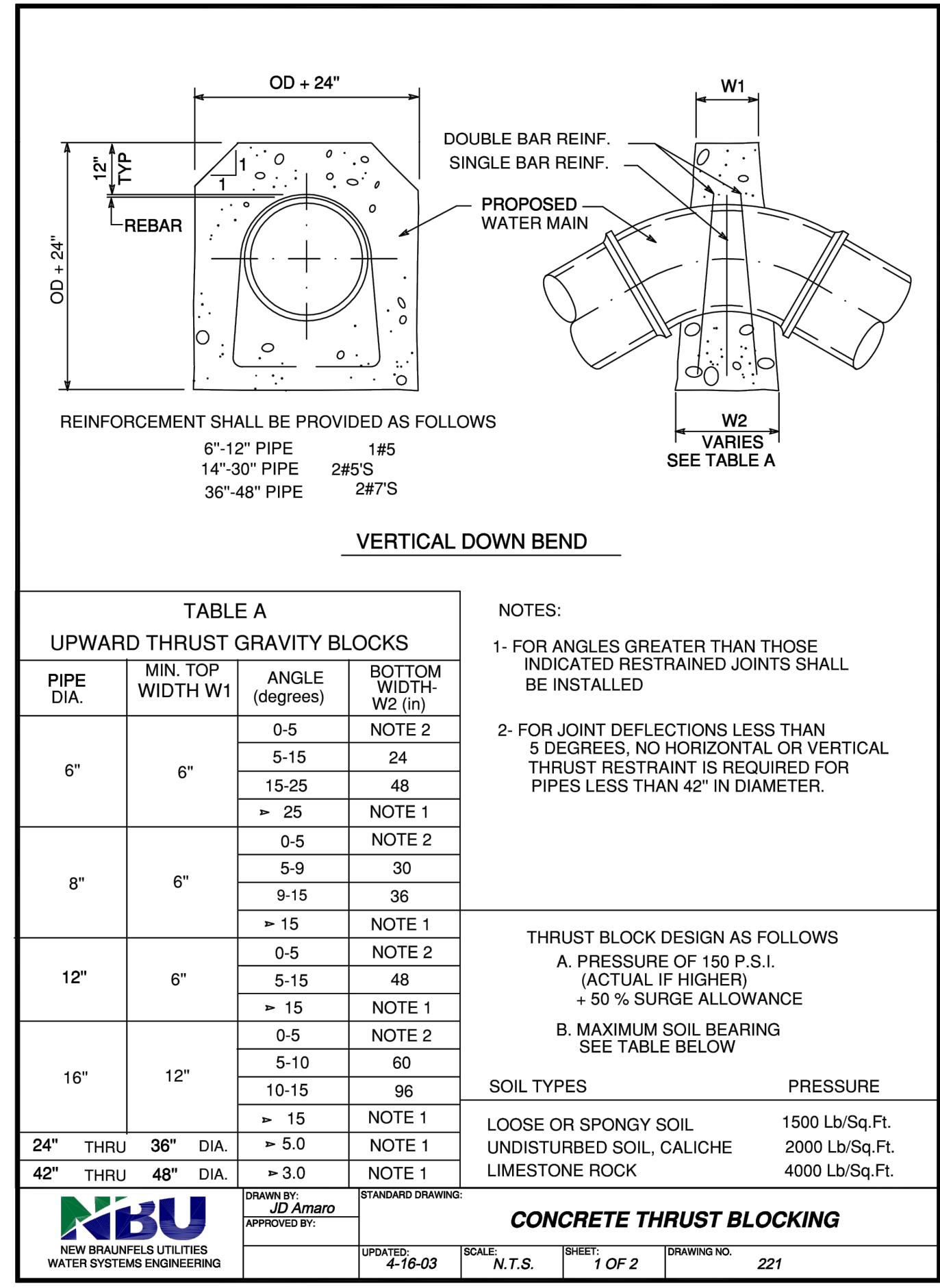
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VERIFY SCALE: Bar is one inch on original drawing, if not one inch on this sheet, adjust scale.											
FILE NAME: WTU-NBU-DT-MISC05.dwg											
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SEQ.											



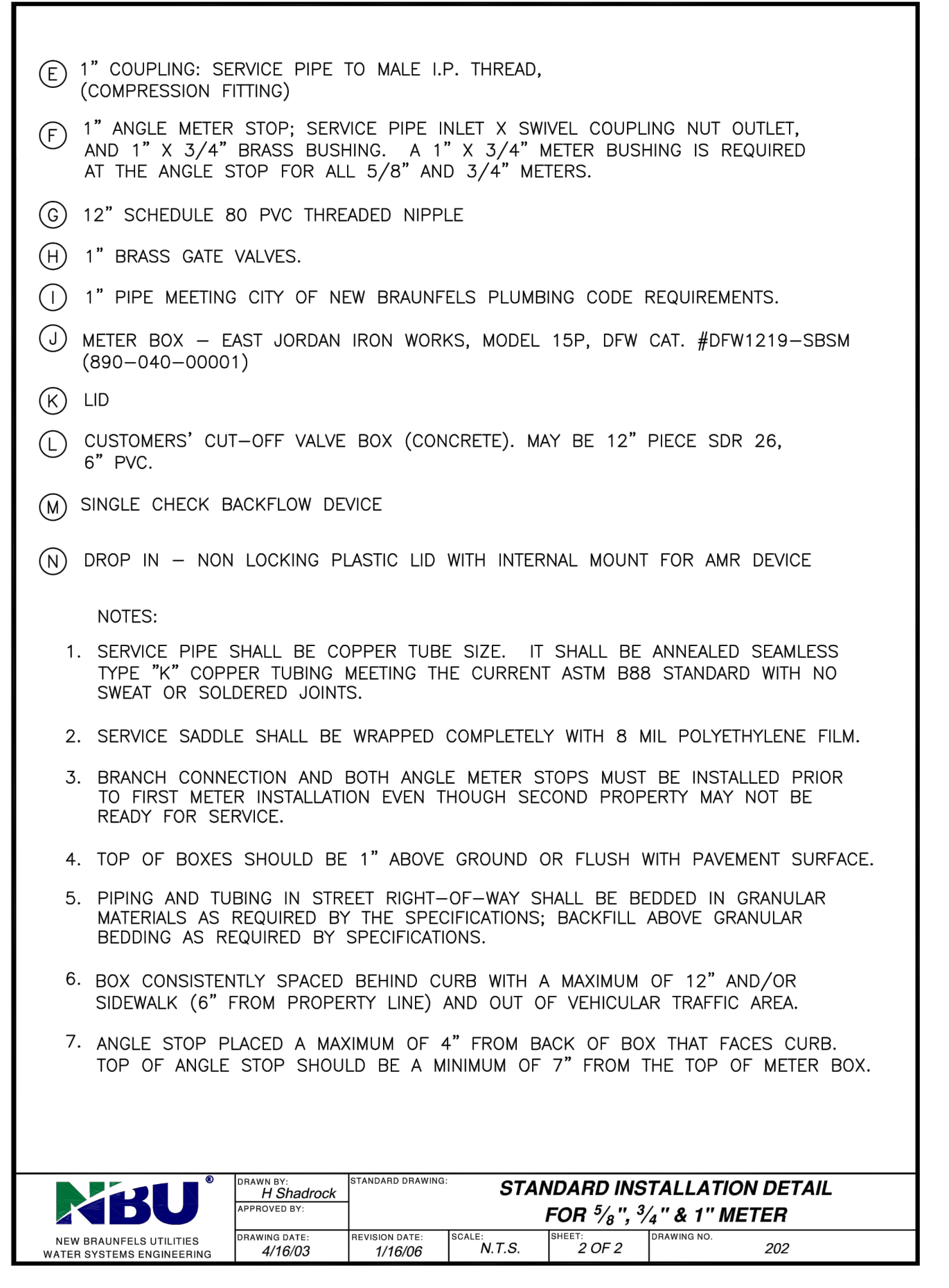
STANDARD INSTALLATION DETAIL FOR 5/8", 3/4" & 1" METER
 DRAWN BY: H Shadrook
 APPROVED BY: [Signature]
 UPDATED: 4-16-03 SCALE: N.T.S. SHEET: 1 OF 2 DRAWING NO: 202



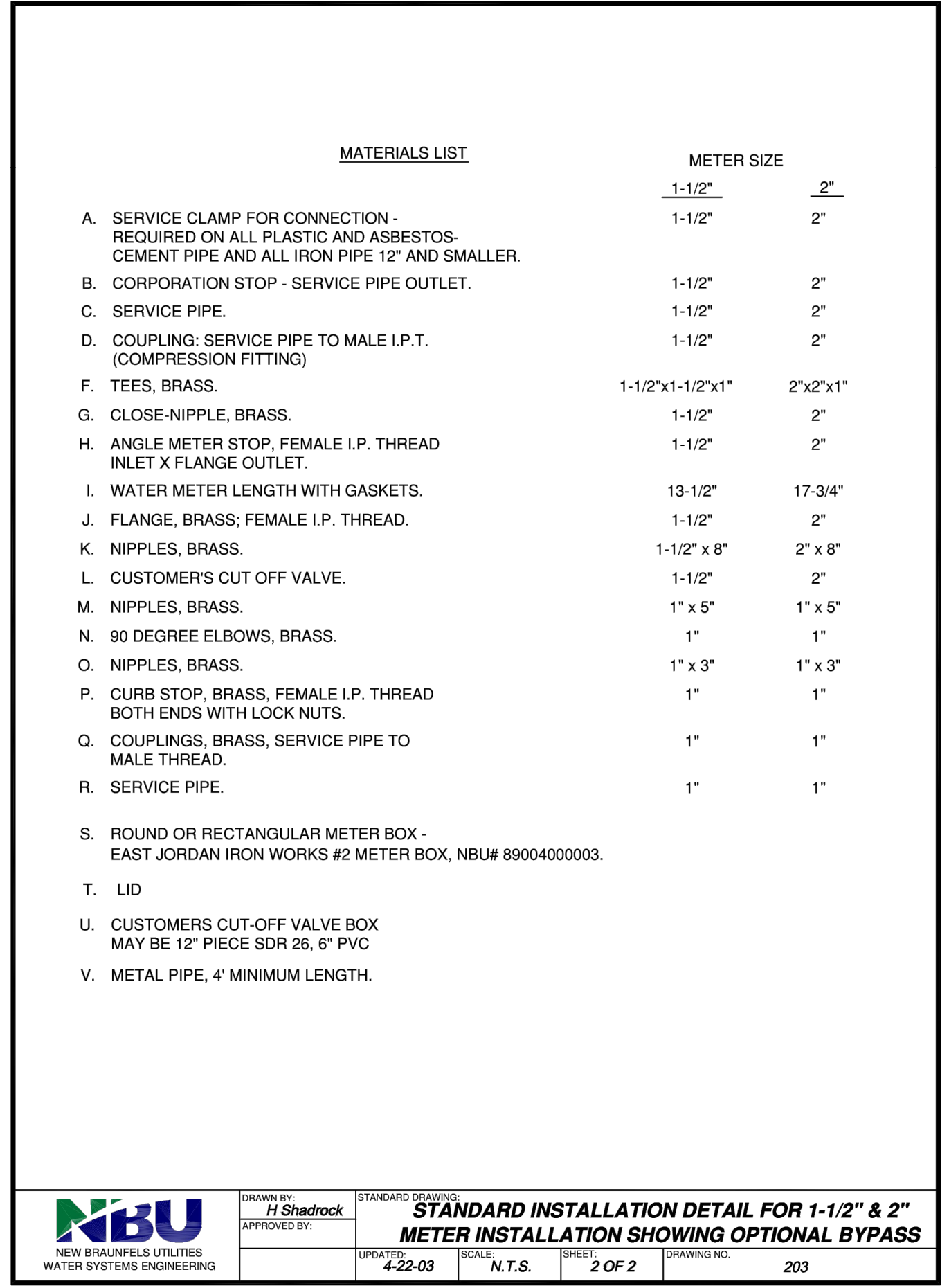
STANDARD INSTALLATION DETAIL FOR 1-1/2" & 2" METER INSTALLATION SHOWING OPTIONAL BYPASS
 DRAWN BY: H Shadrook
 APPROVED BY: [Signature]
 UPDATED: 4-22-03 SCALE: N.T.S. SHEET: 1 OF 2 DRAWING NO: 203



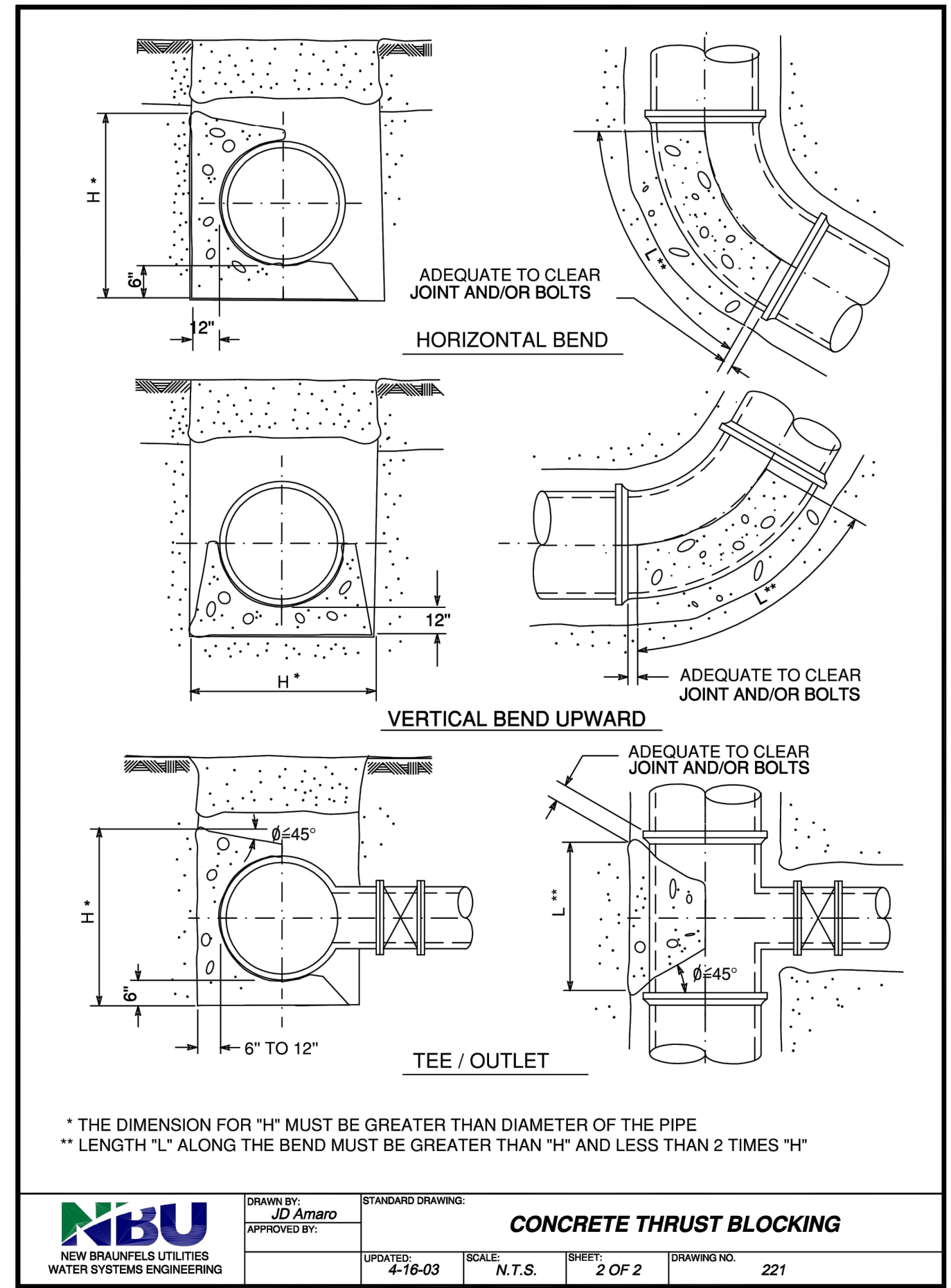
CONCRETE THRUST BLOCKING
 DRAWN BY: JD Amaro
 APPROVED BY: [Signature]
 UPDATED: 4-16-03 SCALE: N.T.S. SHEET: 1 OF 2 DRAWING NO: 221



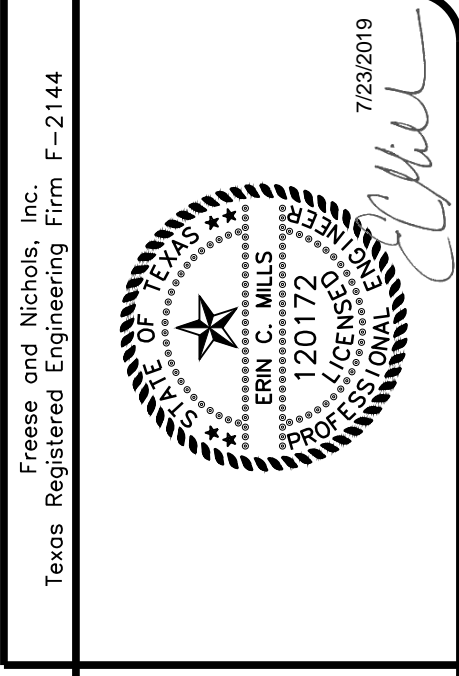
STANDARD INSTALLATION DETAIL FOR 5/8", 3/4" & 1" METER
 DRAWN BY: H Shadrook
 APPROVED BY: [Signature]
 DRAWING DATE: 4/16/03 REVISION DATE: 1/16/06 SCALE: N.T.S. SHEET: 2 OF 2 DRAWING NO: 202



STANDARD INSTALLATION DETAIL FOR 1-1/2" & 2" METER INSTALLATION SHOWING OPTIONAL BYPASS
 DRAWN BY: H Shadrook
 APPROVED BY: [Signature]
 UPDATED: 4-22-03 SCALE: N.T.S. SHEET: 2 OF 2 DRAWING NO: 203



CONCRETE THRUST BLOCKING
 DRAWN BY: JD Amaro
 APPROVED BY: [Signature]
 UPDATED: 4-16-03 SCALE: N.T.S. SHEET: 2 OF 2 DRAWING NO: 221



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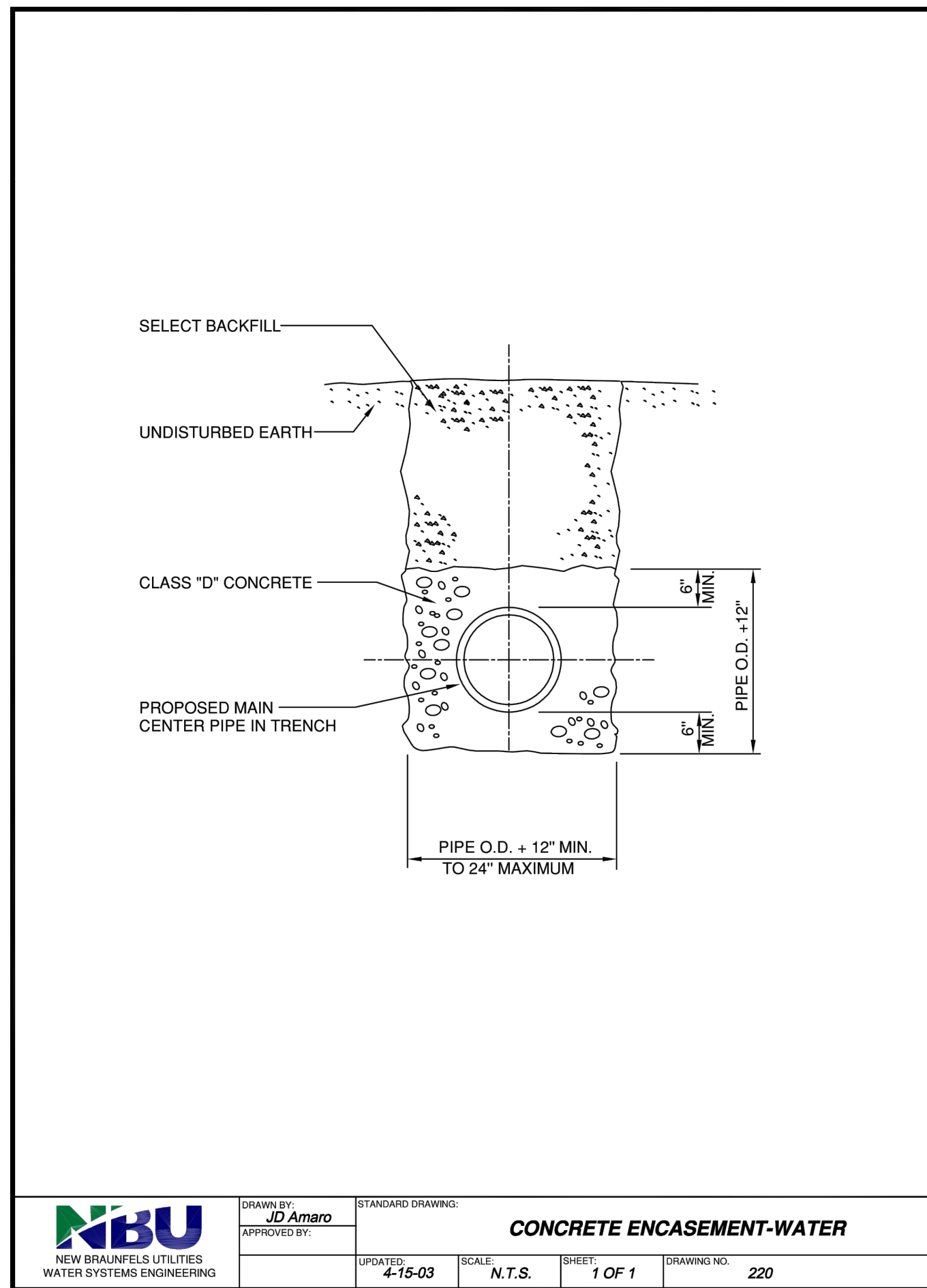
NEW BRAUNFELS UTILITIES
SAN ANTONIO STREET WATER AND WASTEWATER RELOCATION
 STANDARD DETAILS
WATER DETAILS I

NO.	ISSUE	DATE	BY	FILE NAME
1				WTU-NBU-DT-MISC06.dwg

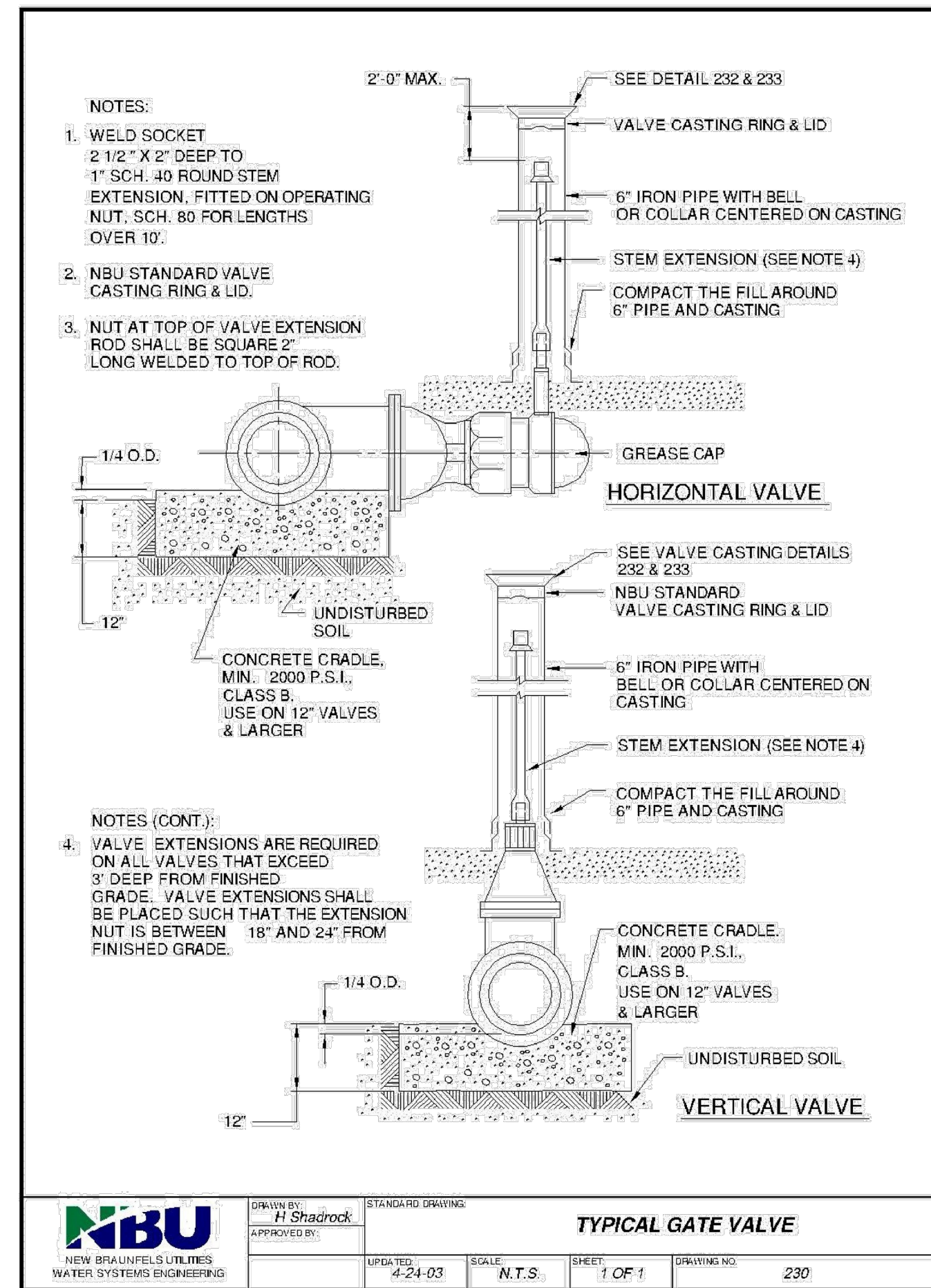
VERIFY SCALE: Bar is one inch on original drawing, if not one inch on this sheet, adjust scale.

SHEET **DT-6**
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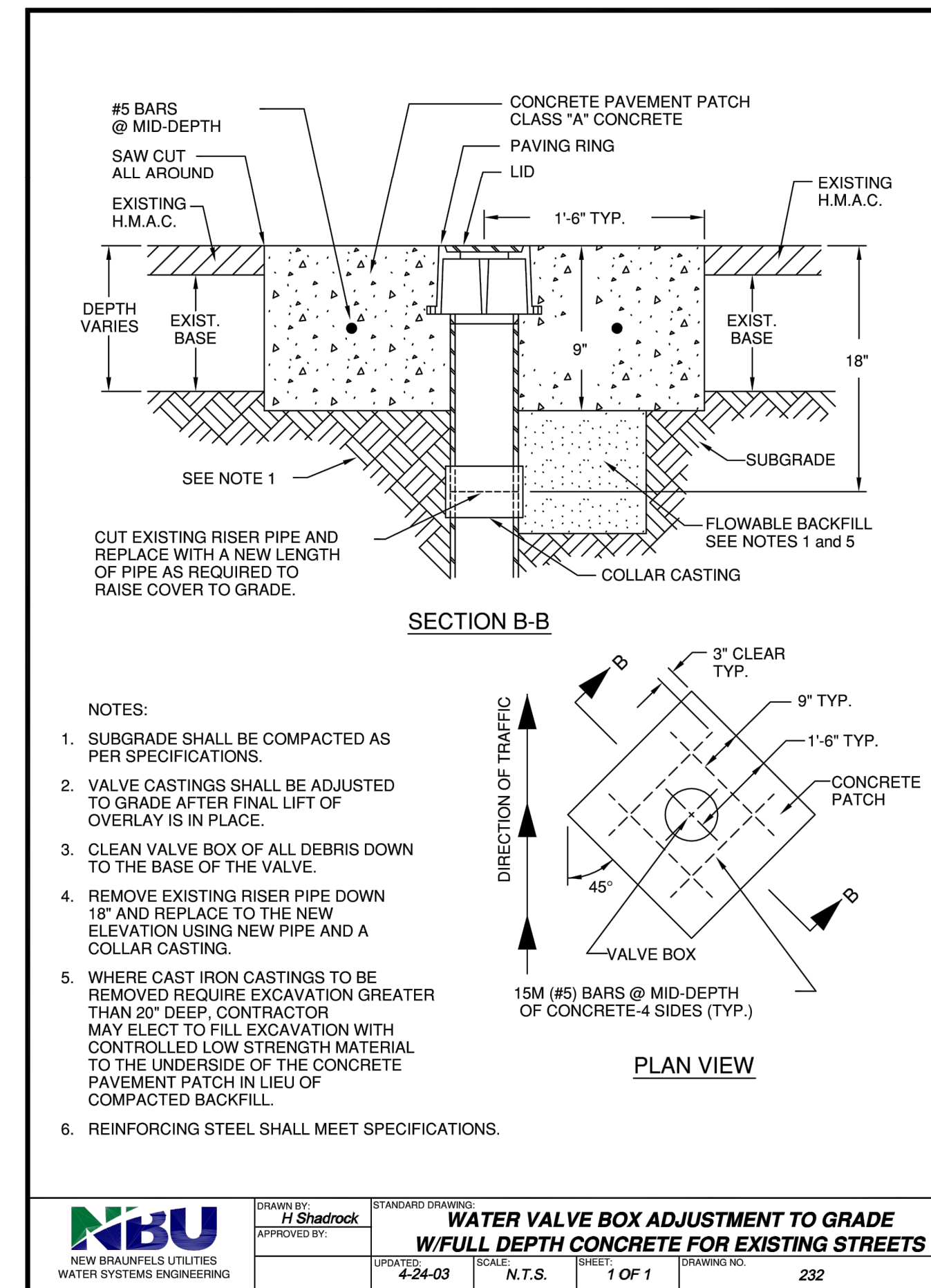
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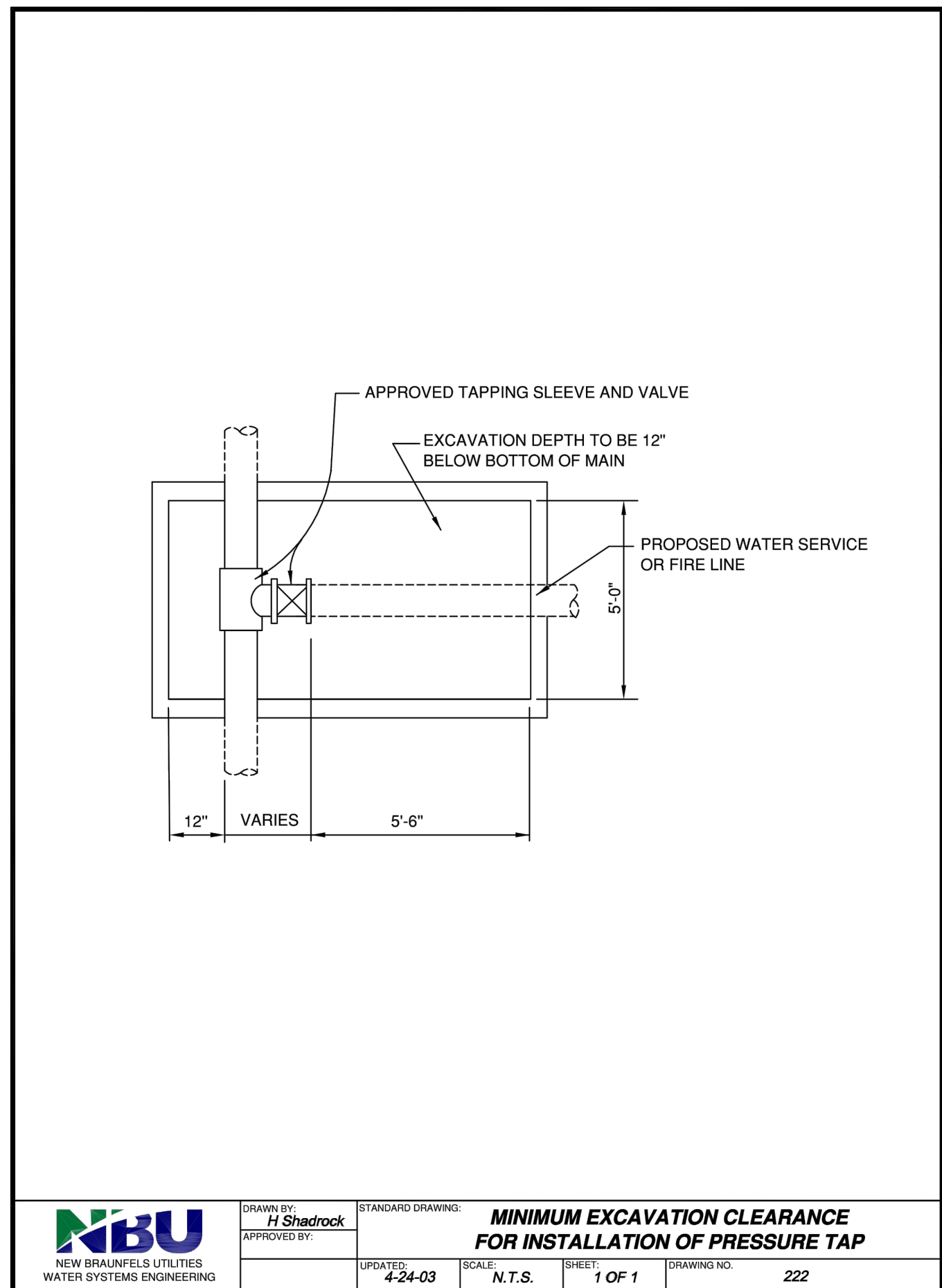
NBU NEW BRAUNFELS UTILITIES WATER SYSTEMS ENGINEERING	DRAWN BY: <i>JD Amaro</i>	STANDARD DRAWING: CONCRETE ENCASMENT-WATER
APPROVED BY:	DATE: 4-15-03	SCALE: N.T.S.
	SHEET: 1 OF 1	DRAWING NO. 220



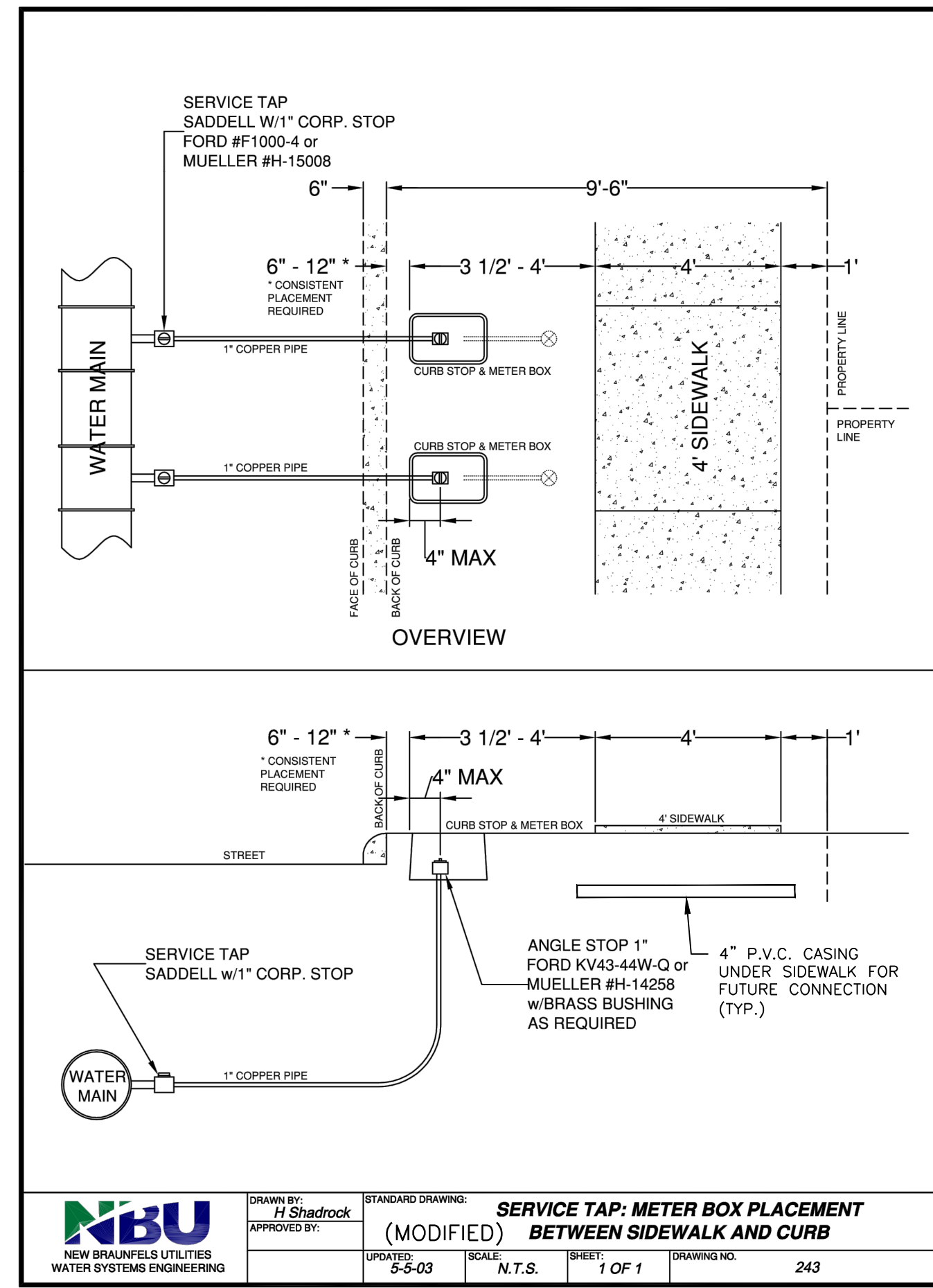
NBU NEW BRAUNFELS UTILITIES WATER SYSTEMS ENGINEERING	DRAWN BY: <i>H Shadrock</i>	STANDARD DRAWING: TYPICAL GATE VALVE
APPROVED BY:	DATE: 4-24-03	SCALE: N.T.S.
	SHEET: 1 OF 1	DRAWING NO. 220



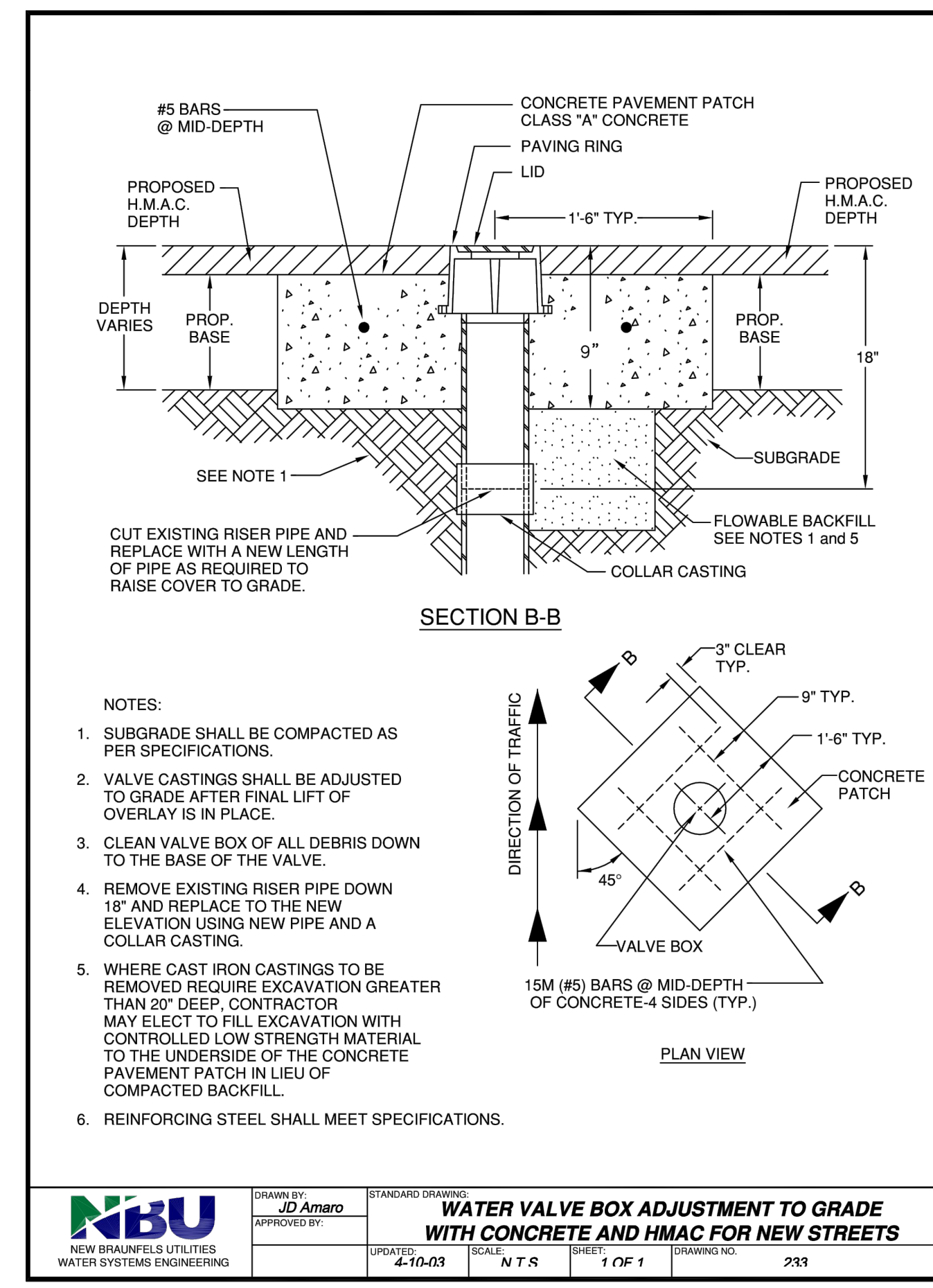
NBU NEW BRAUNFELS UTILITIES WATER SYSTEMS ENGINEERING	DRAWN BY: <i>H Shadrock</i>	STANDARD DRAWING: WATER VALVE BOX ADJUSTMENT TO GRADE W/FULL DEPTH CONCRETE FOR EXISTING STREETS
APPROVED BY:	DATE: 4-24-03	SCALE: N.T.S.
	SHEET: 1 OF 1	DRAWING NO. 232



NBU NEW BRAUNFELS UTILITIES WATER SYSTEMS ENGINEERING	DRAWN BY: <i>H Shadrock</i>	STANDARD DRAWING: MINIMUM EXCAVATION CLEARANCE FOR INSTALLATION OF PRESSURE TAP
APPROVED BY:	DATE: 4-24-03	SCALE: N.T.S.
	SHEET: 1 OF 1	DRAWING NO. 222



NBU NEW BRAUNFELS UTILITIES WATER SYSTEMS ENGINEERING	DRAWN BY: <i>H Shadrock</i>	STANDARD DRAWING: SERVICE TAP: METER BOX PLACEMENT (MODIFIED) BETWEEN SIDEWALK AND CURB
APPROVED BY:	DATE: 4-5-03	SCALE: N.T.S.
	SHEET: 1 OF 1	DRAWING NO. 243



NBU NEW BRAUNFELS UTILITIES WATER SYSTEMS ENGINEERING	DRAWN BY: <i>JD Amaro</i>	STANDARD DRAWING: WATER VALVE BOX ADJUSTMENT TO GRADE WITH CONCRETE AND HMA/C FOR NEW STREETS
APPROVED BY:	DATE: 4-10-03	SCALE: N.T.S.
	SHEET: 1 OF 1	DRAWING NO. 233

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 Texas Registered Engineering Firm F-2144
 7/23/2019

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NEW BRAUNFELS UTILITIES
**SAN ANTONIO STREET WATER
 AND WASTEWATER RELOCATION**
 STANDARD DETAILS
WATER DETAILS II

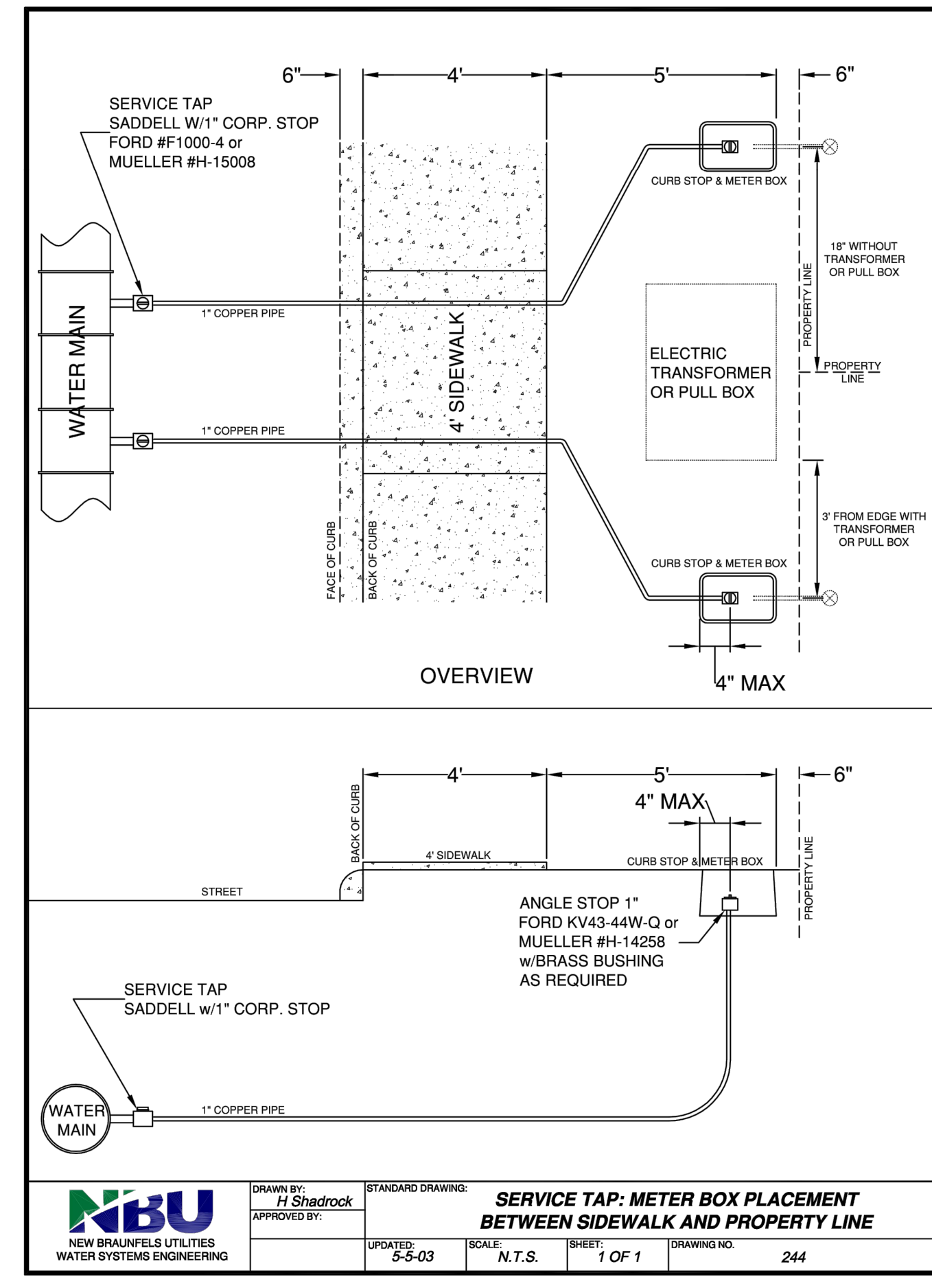
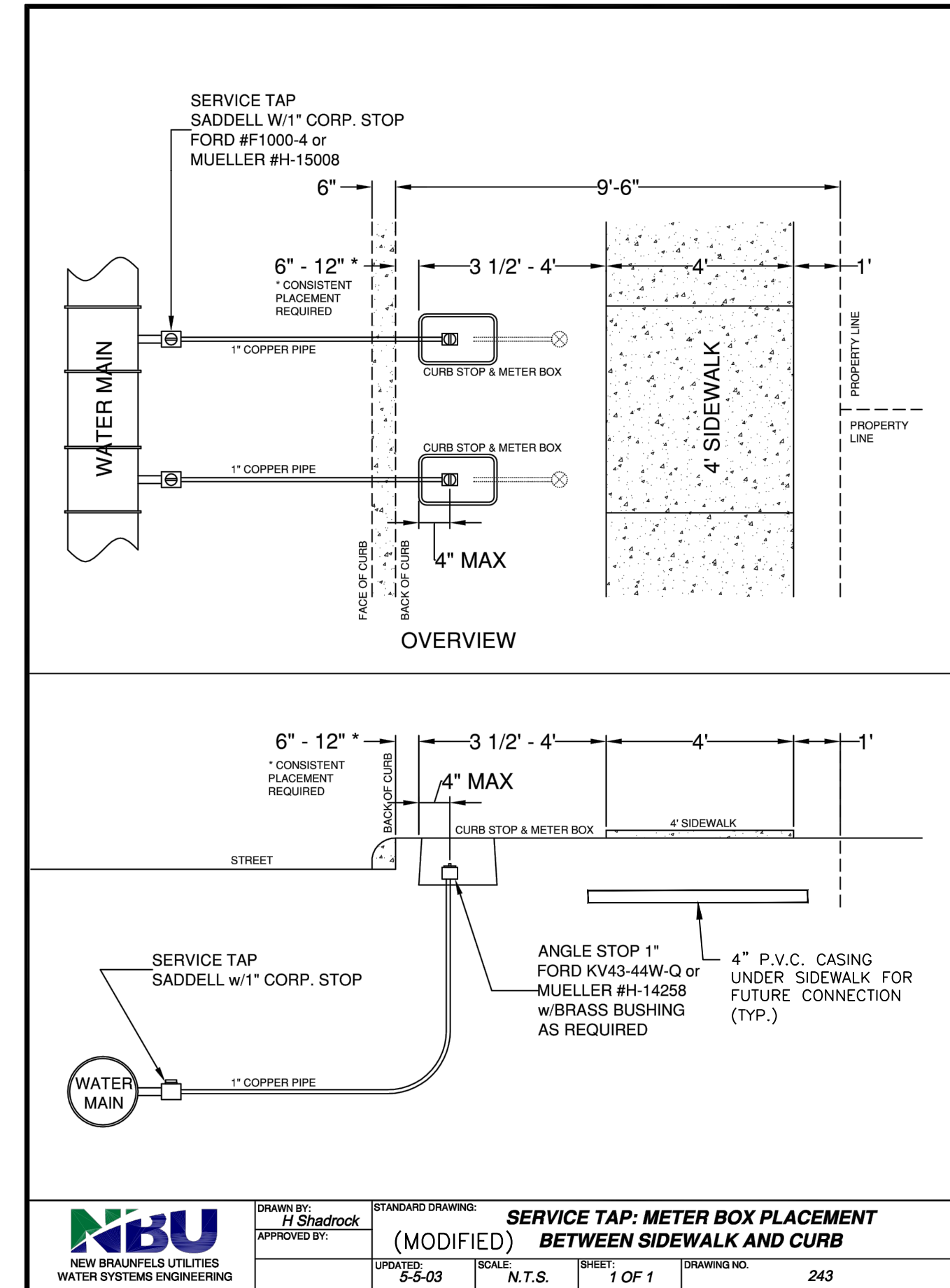
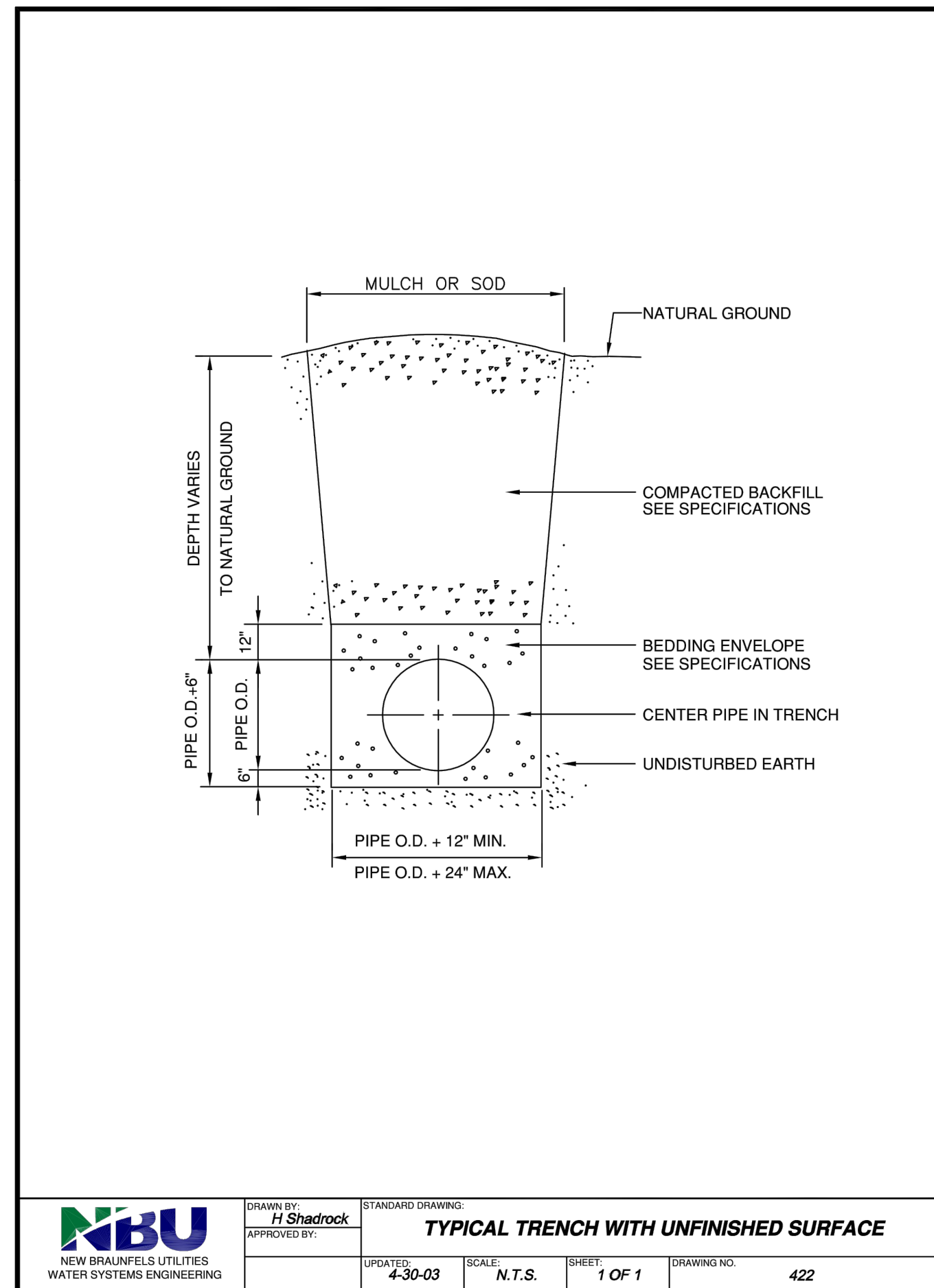
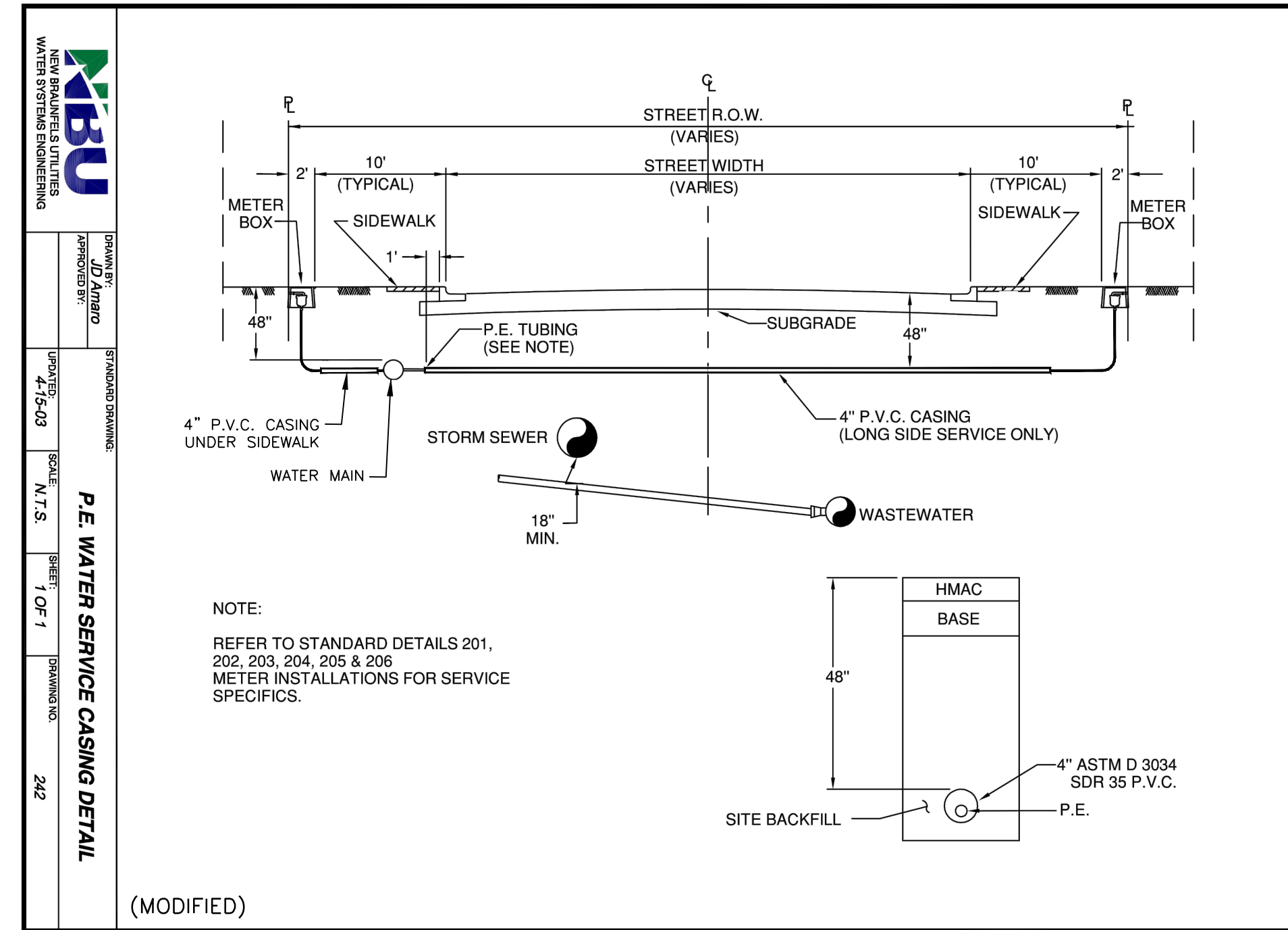
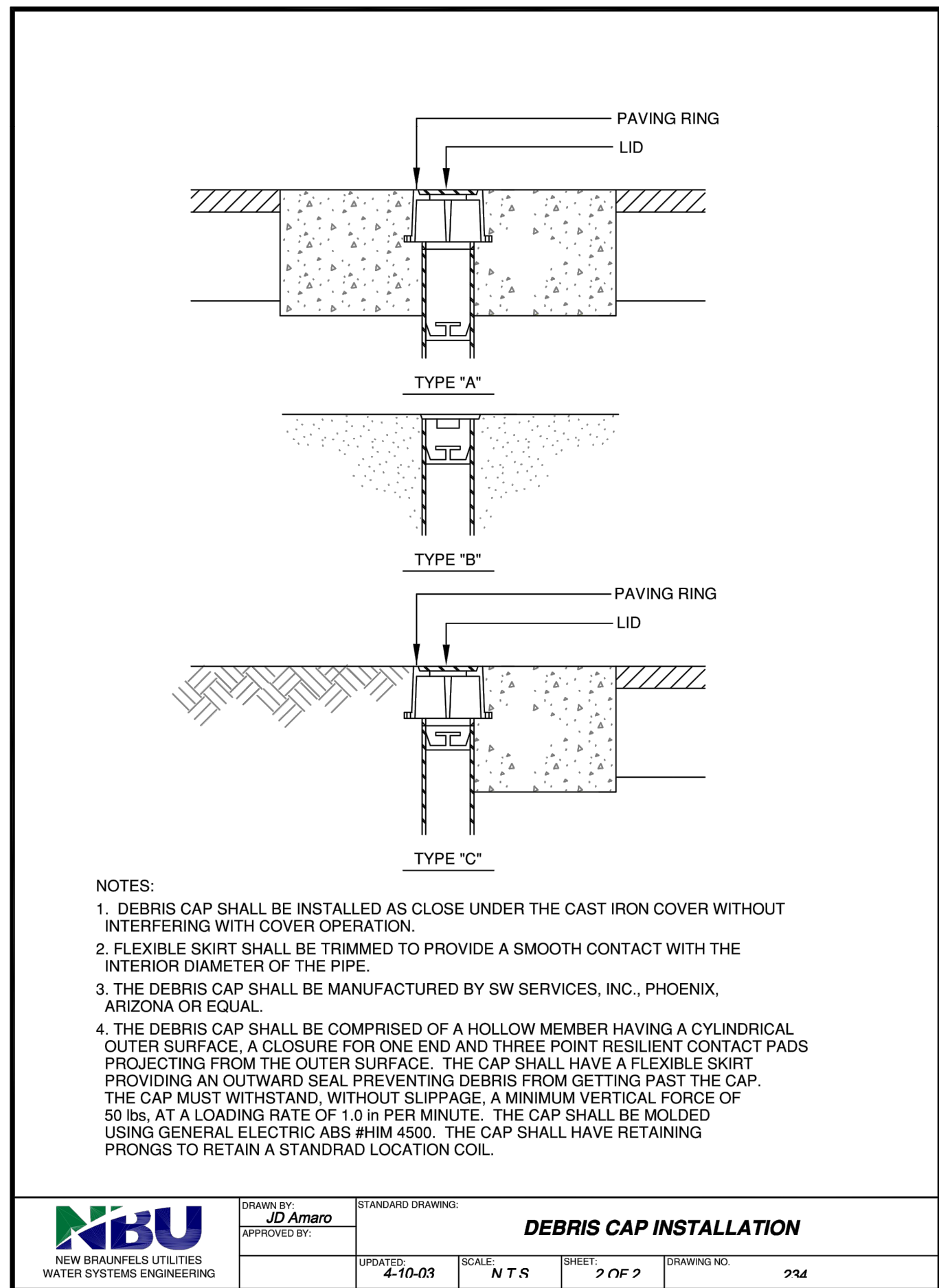
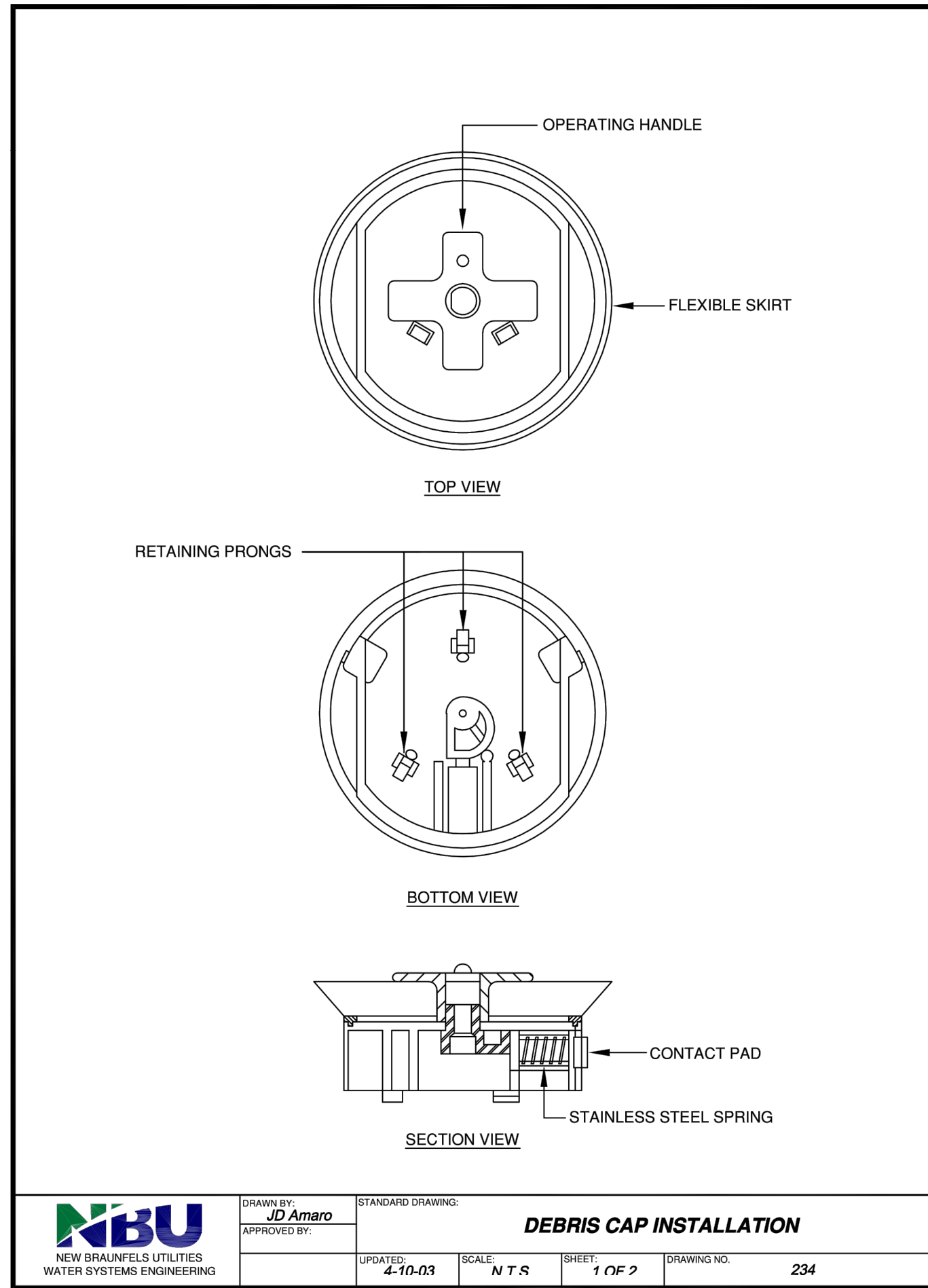
NO.	ISSUE	DATE	BY	REASON
1	ISSUE			

NO.	ISSUE	DATE	BY	REASON
1	ISSUE			

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SHEET **DT-7**

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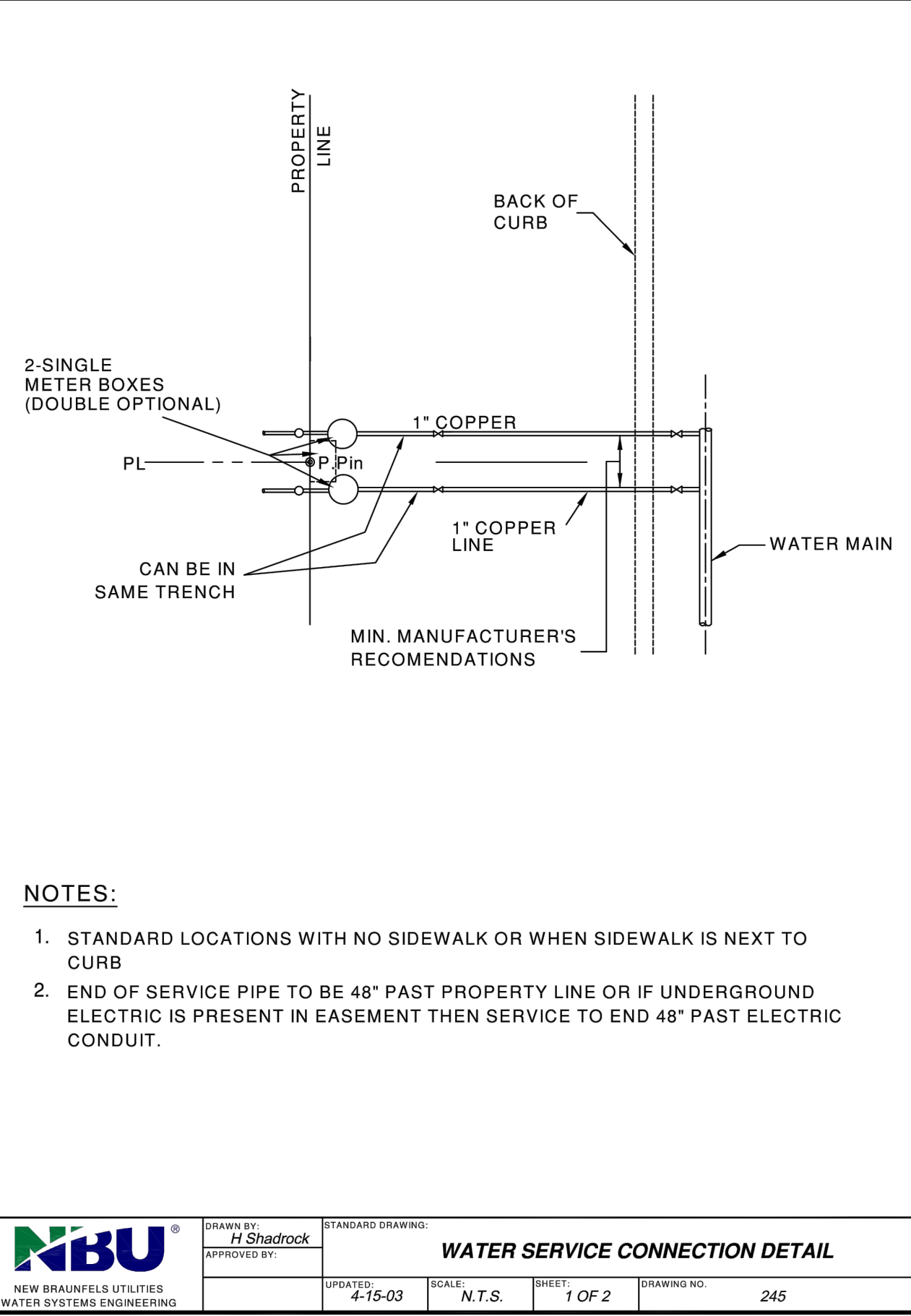
NEW BRAUNFELS UTILITIES
 SAN ANTONIO STREET WATER AND WASTEWATER RELOCATION
 STANDARD DETAILS
 WATER DETAILS III

NO.	ISSUE	BY	DATE	ISSUE	NO.	DATE	BY

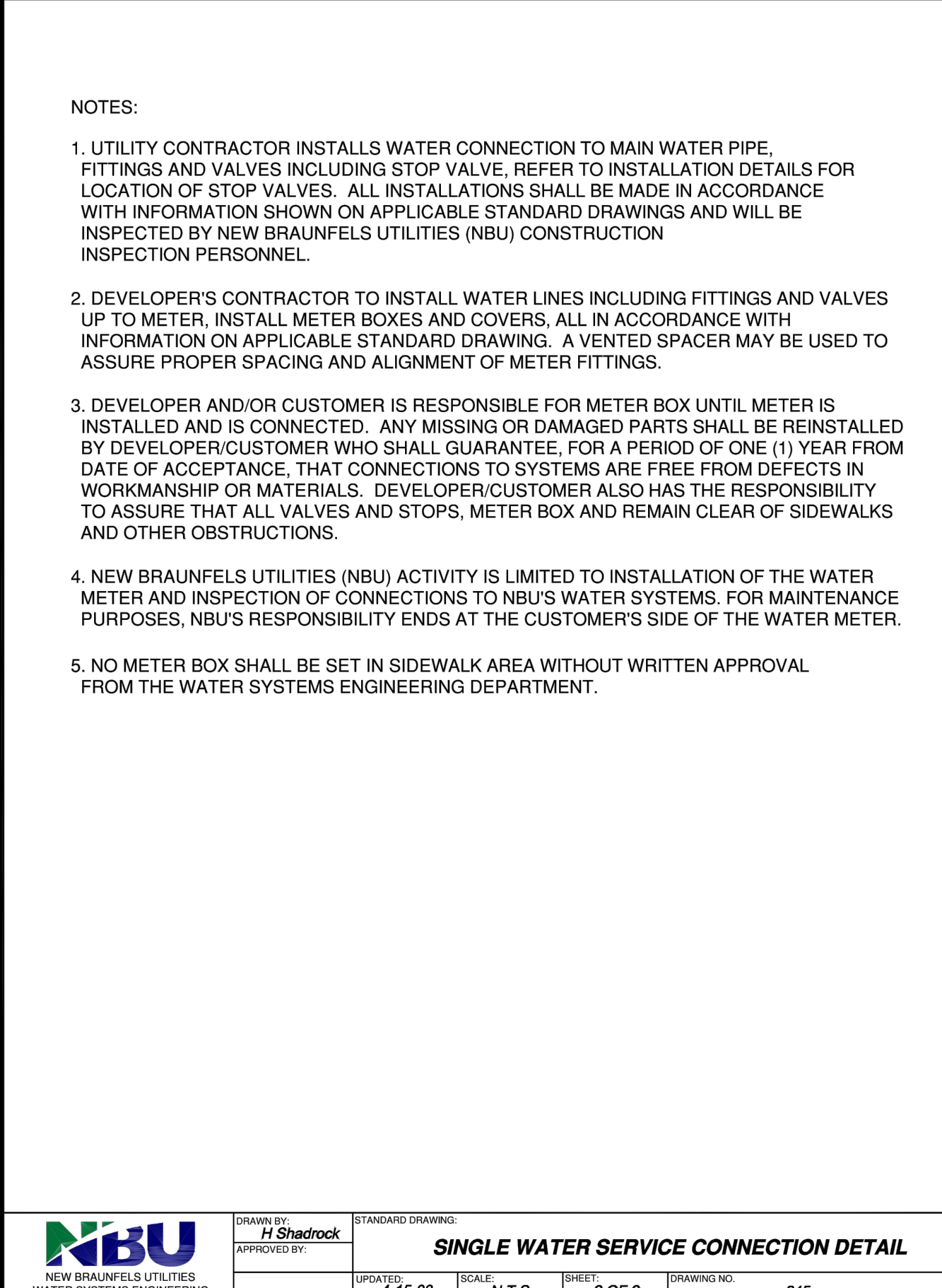
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SHEET DT-8

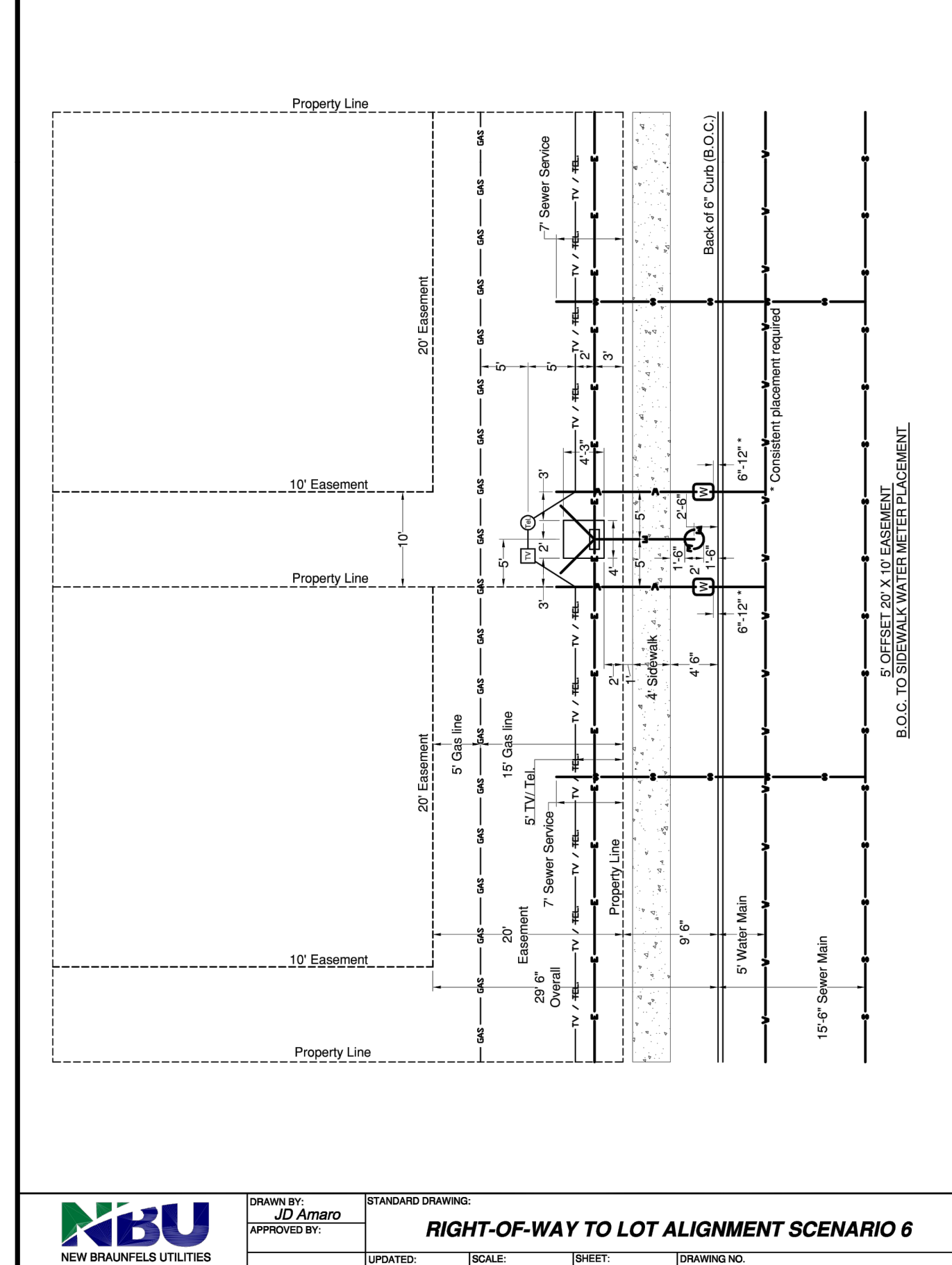
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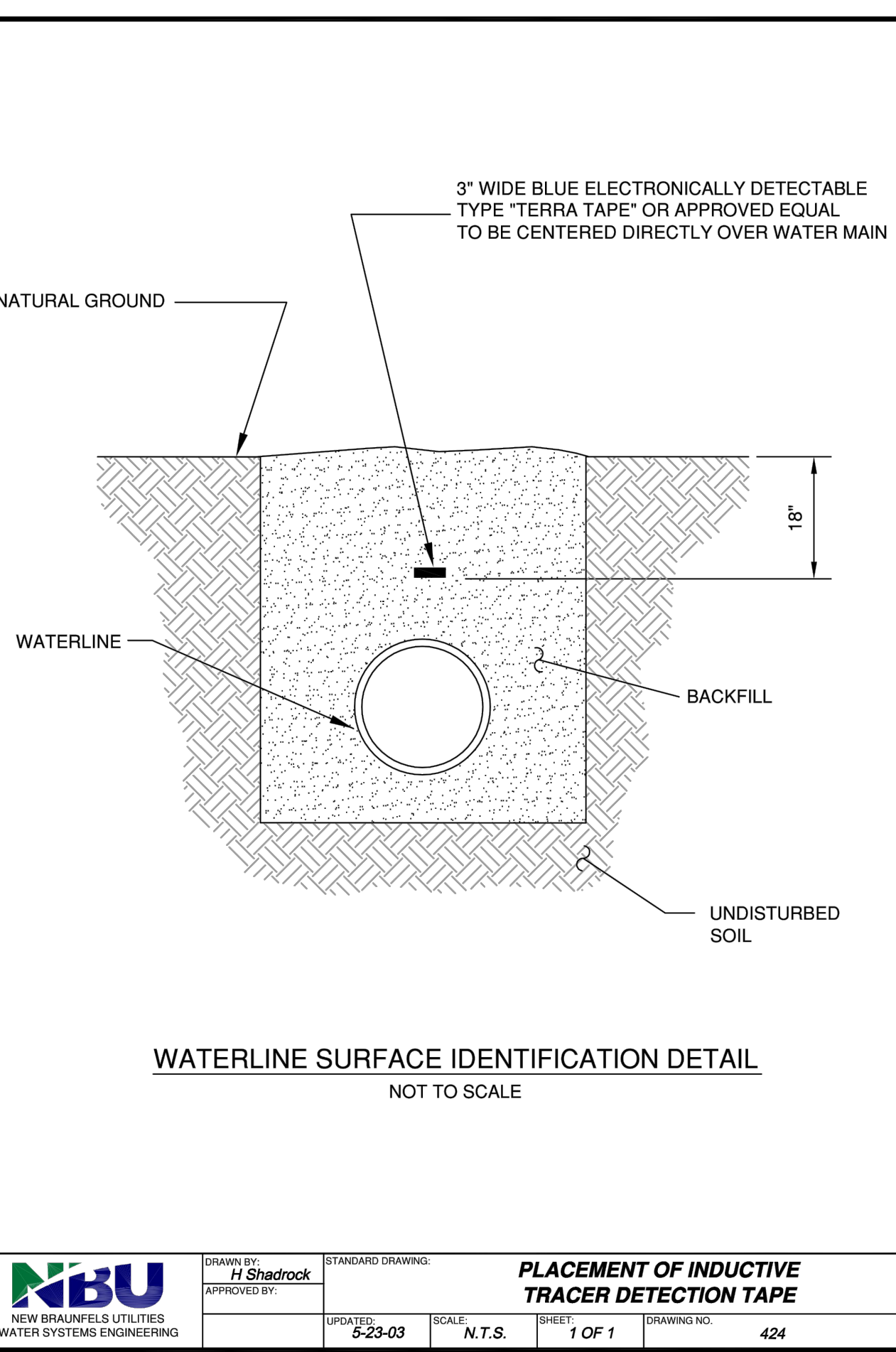
NBU NEW BRAUNFELS UTILITIES WATER SYSTEMS ENGINEERING	DRAWN BY: <i>H Shadrock</i>	STANDARD DRAWING:	WATER SERVICE CONNECTION DETAIL		
	APPROVED BY:	UPDATED: 4-15-03	SCALE: N.T.S.	SHEET: 1 OF 2	DRAWING NO. 245



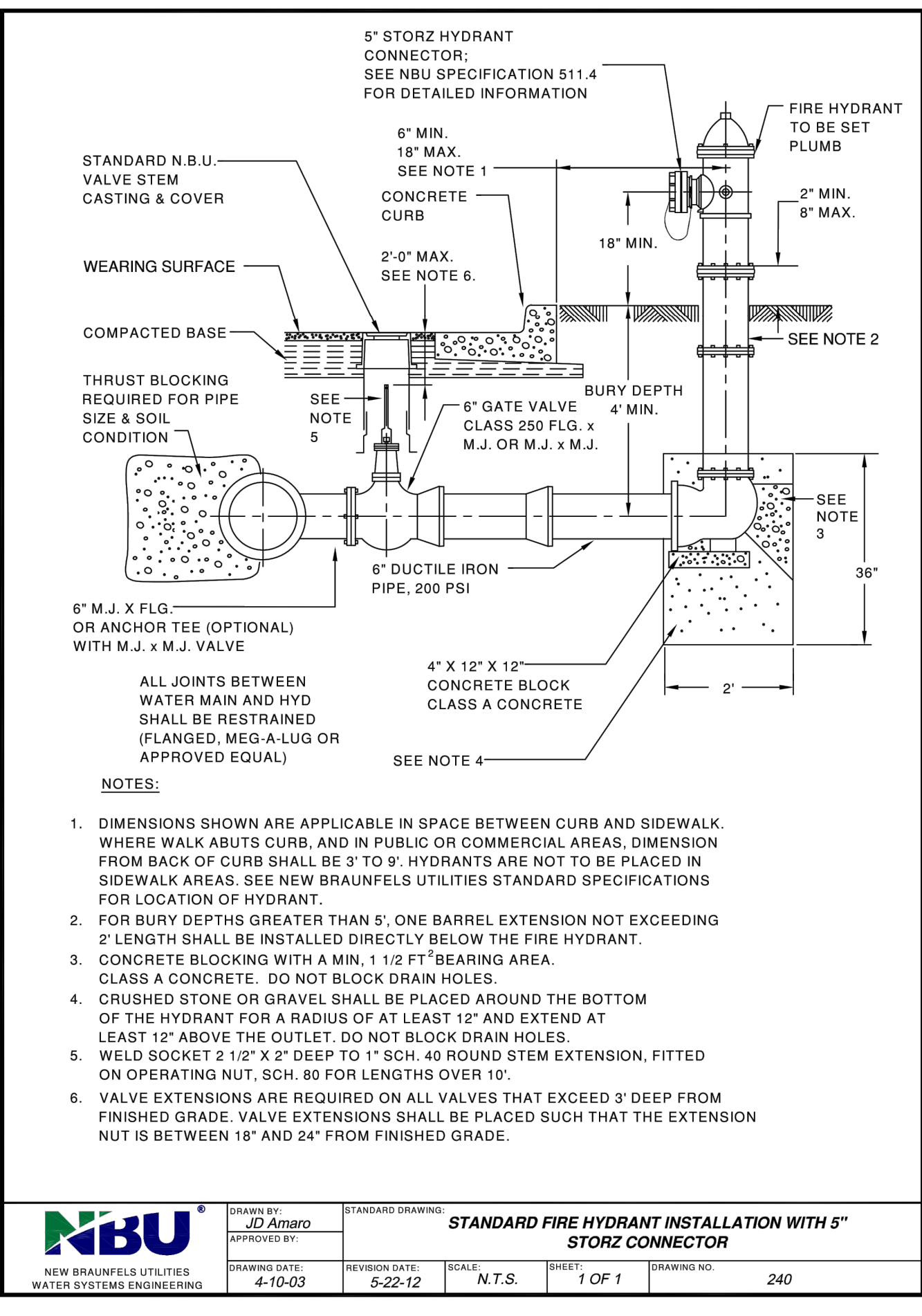
NBU NEW BRAUNFELS UTILITIES WATER SYSTEMS ENGINEERING	DRAWN BY: <i>H Shadrock</i>	STANDARD DRAWING:	SINGLE WATER SERVICE CONNECTION DETAIL		
	APPROVED BY:	UPDATED: 4-15-03	SCALE: N.T.S.	SHEET: 2 OF 2	DRAWING NO. 245



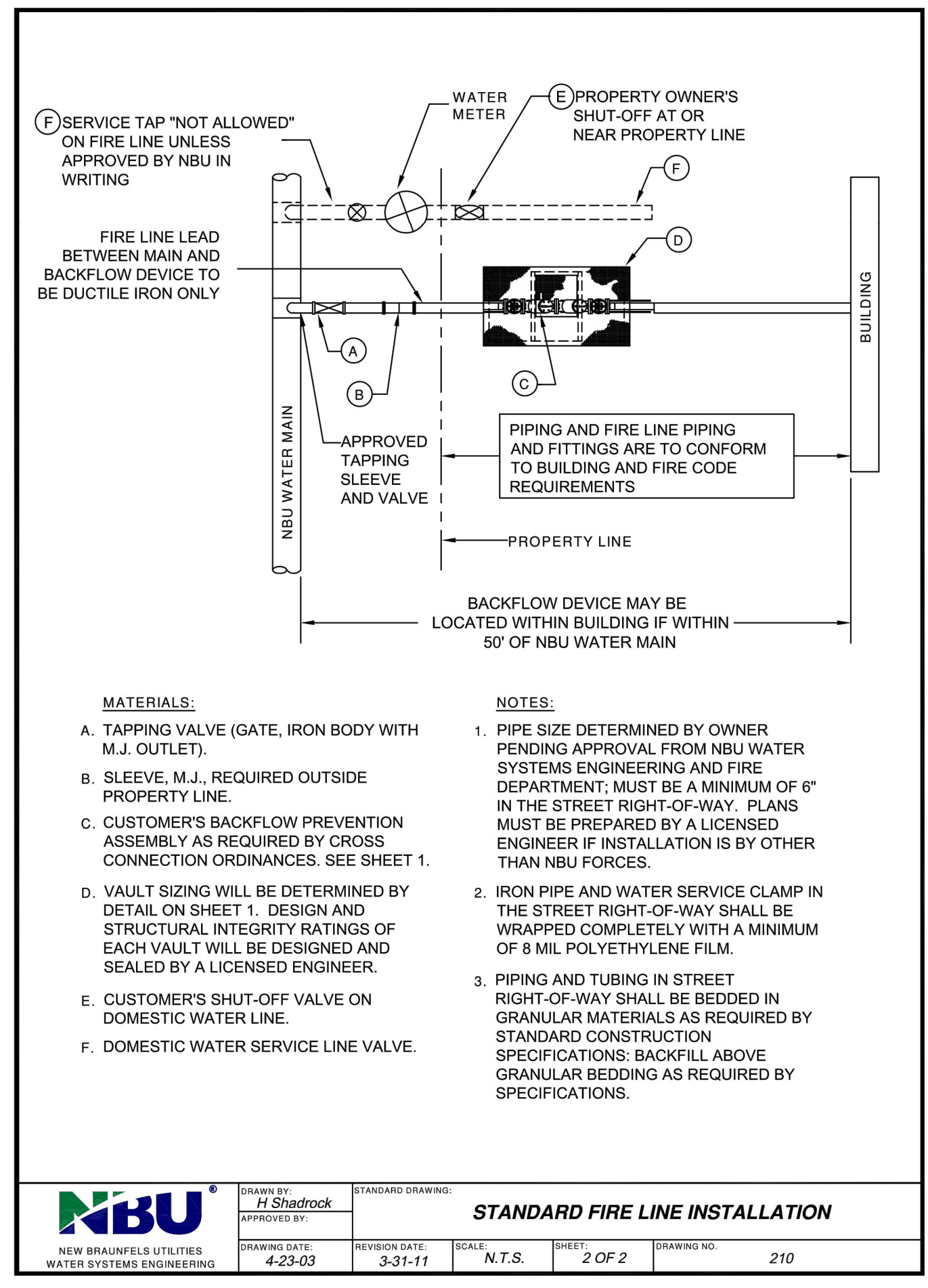
NBU NEW BRAUNFELS UTILITIES WATER SYSTEMS ENGINEERING	DRAWN BY: <i>JD Amaro</i>	STANDARD DRAWING:	RIGHT-OF-WAY TO LOT ALIGNMENT SCENARIO 6		
	APPROVED BY:	UPDATED: 5-6-03	SCALE: N.T.S.	SHEET: 1 OF 1	DRAWING NO. 407



NBU NEW BRAUNFELS UTILITIES WATER SYSTEMS ENGINEERING	DRAWN BY: <i>H Shadrock</i>	STANDARD DRAWING:	PLACEMENT OF INDUCTIVE TRACER DETECTION TAPE		
	APPROVED BY:	UPDATED: 5-23-03	SCALE: N.T.S.	SHEET: 1 OF 1	DRAWING NO. 424



NBU NEW BRAUNFELS UTILITIES WATER SYSTEMS ENGINEERING	DRAWN BY: <i>JD Amaro</i>	STANDARD DRAWING:	STANDARD FIRE HYDRANT INSTALLATION WITH 5" STORZ CONNECTOR		
	APPROVED BY:	REVISION DATE: 4-10-03	SCALE: N.T.S.	SHEET: 1 OF 1	DRAWING NO. 240



NBU NEW BRAUNFELS UTILITIES WATER SYSTEMS ENGINEERING	DRAWN BY: <i>H Shadrock</i>	STANDARD DRAWING:	STANDARD FIRE LINE INSTALLATION		
	APPROVED BY:	REVISION DATE: 4-23-03	SCALE: N.T.S.	SHEET: 2 OF 2	DRAWING NO. 210

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NEW BRAUNFELS UTILITIES
SAN ANTONIO STREET WATER AND WASTEWATER RELOCATION
STANDARD DETAILS
WATER DETAILS IV

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										WTU-NBU-DT-MISC06.dwg

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SHEET DT-9

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