

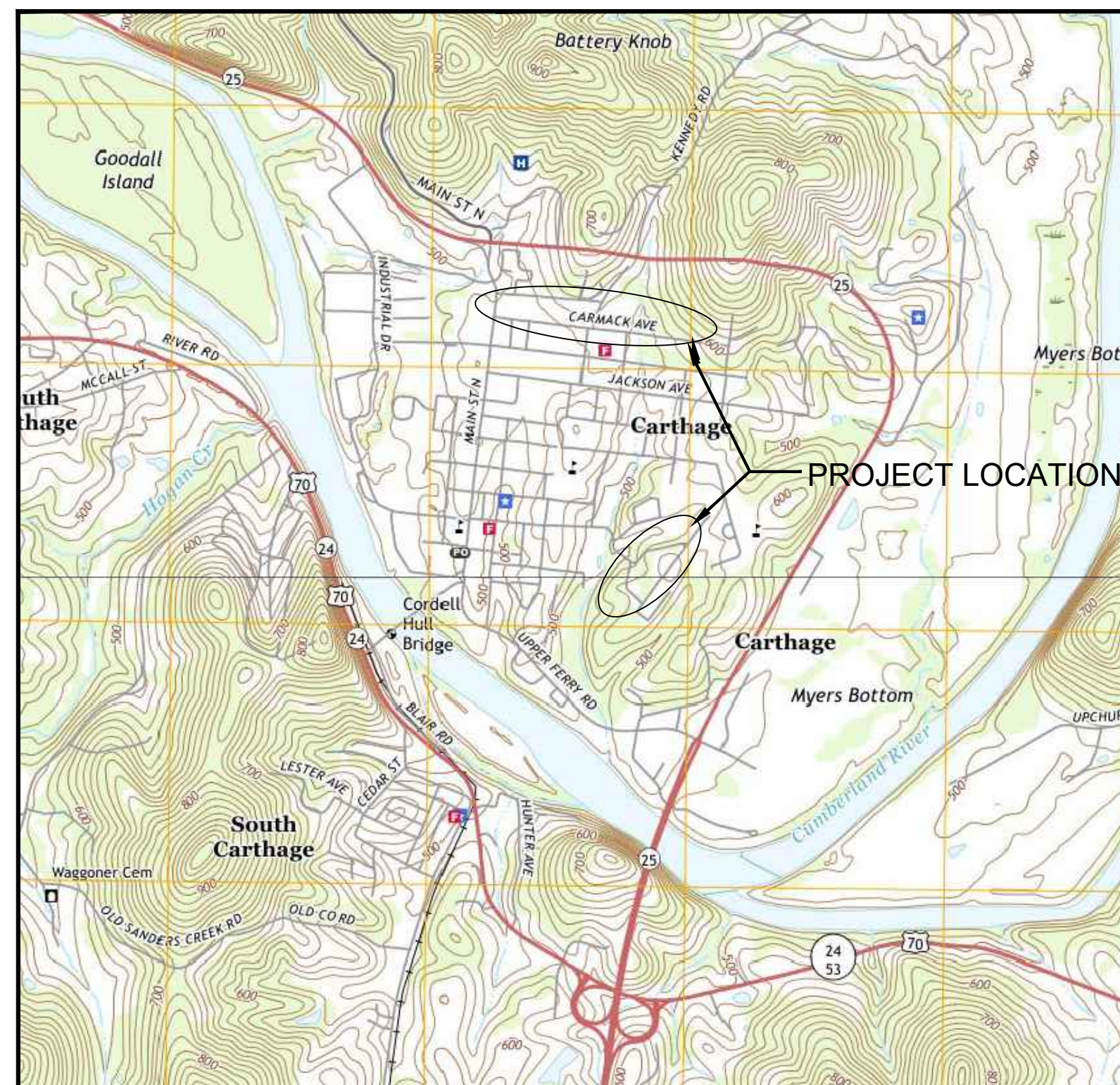
# TOWN OF CARTHAGE, TENNESSEE

# 2023 WATER MAIN REPLACEMENTS

## DECEMBER 2023

### GENERAL NOTES

1. THE CONTRACTOR IS RESPONSIBLE FOR NOTIFYING TENN. ONE CALL (1-800-351-1111) FOR LOCATING UTILITIES.
2. ALL WATER LINES SHALL BE ENCASED IN CONCRETE ACROSS DITCHES, UNDER CULVERTS, AND WHERE DEPTH OF COVER IS LESS THAN 2-1/2 FEET IN OPEN FIELDS AND 3 FEET IN ROADWAYS, AS DIRECTED BY THE ENGINEER.
3. NO PORTION OF THE NEW WATER LINE SHALL BE CONNECTED TO EXISTING LINES, OR PLACED IN SERVICE, UNTIL THE NEW WORK HAS BEEN TESTED, CLEANED AND APPROVED BY THE OWNER OR OWNERS AUTHORIZED REPRESENTATIVE.
4. THE CONTRACTOR SHALL RESTORE ALL CULVERTS, FENCES, WALLS, HEDGES, SHRUBS, SIGNS, LIGHT AND POWER POLES, STREET MARKERS, MAIL BOXES, WATER LINES, GAS LINES, GAS AND WATER METERS AND BOXES INCLUDING SHUTOFFS, AND LAWNS DISTURBED BY CONSTRUCTION OPERATIONS TO THEIR ORIGINAL CONDITIONS. THE COST OF THIS WORK SHALL BE MERGED IN THE UNIT BID AND CONTRACT PRICES FOR THE PROPOSED SEWER AND/OR WATER MAINS.
5. IN EASEMENTS, CONTRACTOR SHALL PROTECT AND RESTORE SAID PROPERTY TO A CONDITION EQUAL TO OR BETTER THAN THAT EXISTING AT THE COMMENCEMENT OF CONSTRUCTION, EXCEPT AS NOTED.
6. THE CONTRACTOR SHALL OBTAIN ALL ADDITIONAL PERMITS FROM THE STATE AND/OR CITY/COUNTY ROAD COMMISSIONS TO CROSS ALL HIGHWAYS AND STREETS.
7. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY MINOR GRADE AND/OR ALIGNMENT CHANGES NECESSARY TO CONSTRUCT THE PROPOSED SEWER AND/OR WATER MAINS DUE TO CONFLICTS WITH EXISTING PIPE AND/OR UTILITIES ON OR ADJACENT TO THE SITE.
8. THE LOCATIONS AND SIZES OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK IN EACH AREA. HE AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY HIS FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.
9. THE CONTRACTOR SHALL PROVIDE ADEQUATE SIGNS AND/OR BARRICADES REQUIRED TO PROVIDE FOR THE SAFETY OF THE TRAVELING PUBLIC. TRAFFIC CONTROL DEVICES SHALL MEET WITH THE REQUIREMENTS OF THE "MANUAL OF UNIFORMED TRAFFIC CONTROL DEVICES" (MUTCD). ALL COSTS FOR THESE ITEMS OF WORK WILL BE MERGED INTO UNIT PRICE CONSTRUCTION ITEMS.
10. ALL MATERIALS, CONSTRUCTION METHODS, TESTING AND WORKMANSHIP SHALL BE IN FULL COMPLIANCE WITH THE OWNER/OPERATOR STANDARD WATER AND SEWER SPECIFICATIONS, AWWA REGULATIONS, AND STATE OF TENNESSEE DIVISION OF WATER SUPPLY REGULATIONS.
11. THE CONTRACTOR SHALL TAKE ALL NECESSARY MEASURES TO CONTROL EROSION AND WATER POLLUTION THROUGH THE CONSTRUCTION PERIOD.
12. THE CONTRACTOR'S ATTENTION IS DIRECTED TO THE FACT THAT PORTIONS OF THE PROPOSED WATER AND/OR SEWER MAINS ARE TO BE CONSTRUCTED UNDER EXISTING DRIVEWAYS, ROADWAYS AND/OR PARKING LOTS. THE CONTRACTOR SHALL BE REQUIRED TO FURNISH AND PLACE CRUSHED STONE BACKFILL AT THESE LOCATIONS FROM THE WATER AND/OR SEWER MAIN BEDDING AND ENVELOPE TO THE ROADWAY SURFACE. ALL COSTS ASSOCIATED WITH FURNISHING AND PLACING THIS CRUSHED STONE BACKFILL SHALL BE MERGED INTO THE UNIT PRICE FOR WATER AND/OR SEWER MAINS UNDER ROADWAYS. NO SEPARATE PAYMENT SHALL BE MADE FOR CRUSHED STONE BACKFILL.
13. THE CONTRACTOR SHALL BE REQUIRED TO USE RUBBER TIRE EQUIPMENT WHEN WORKING IN PUBLIC STREETS OR ROADS WHICH ARE NOT TO BE REPAVED BY AN OVERLAY METHOD.
14. THE CONTRACTOR SHALL STRIP TOPSOIL IN GARDENS AND/OR CULTIVATED AREAS AND LAWNS. UPON COMPLETION OF PIPELINE INSTALLATION, THE CONTRACTOR SHALL REPLACE ROCK FREE TOPSOIL TO A DEPTH OF 8-INCHES IN YARDS AND 24-INCHES IN THE GARDENS AND/OR CULTIVATED AREAS.
15. THE CONTRACTOR SHALL HAVE A SET OF STATE APPROVED DRAWINGS AND THE PROJECT SPECIFICATIONS AT THE JOB SITE AT ALL TIMES. DRAWINGS, SPECIFICATIONS AND OTHER CONTRACT DOCUMENTS FORM A COMPLETE SET. INFORMATION CONTAINED IN ONE IS NOT NECESSARILY IN OTHER DOCUMENTS.
16. WORK DONE IN ROADS SHALL BE DONE IN A MANNER AS TO MINIMIZE NUISANCE AND INCONVENIENCE TO ADJACENT PROPERTY OWNERS AND THE GENERAL PUBLIC. PROPERTY OWNERS SHALL BE GIVEN A MINIMUM OF 24 HOURS ADVANCE NOTICE OF DRIVEWAY CLOSURE AND PROVISIONS SHALL BE MADE TO PROVIDE ACCESS TO PROPERTY IN CASE OF EMERGENCY.
17. PROVIDE ADEQUATE TRAFFIC CONTROL AND MAINTAIN THROUGH TRAFFIC - AT LEAST ONE WAY - WHILE WORK PROGRESSES. IF A STREET CLOSURE IS NECESSARY, OBTAIN NECESSARY PERMIT AND PROVIDE AND MAINTAIN ADEQUATE TRAFFIC CONTROL SIGNS AND DEVICES AS APPROVED BY THE PROPER AUTHORITY AND IN ACCORDANCE WITH THE LATEST "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" (MUTCD).
18. THE CONTRACTOR SHALL FURNISH ALL LABOR, TOOLS, EQUIPMENT, MATERIALS, TAPS, ADEQUATELY SIZED FLUSHING CONNECTIONS AND/OR ADDITIONAL TAPS/CONNECTIONS AND ANY OTHER CONNECTIONS REQUIRED FOR COMPLETING FLUSHING/TEST IN FULL COMPLIANCE WITH PROJECT TESTING REQUIREMENTS, CITY REQUIREMENTS, STATE REGULATIONS, AND AWWA REGULATIONS.
19. ALL FITTINGS AND VALVES SHALL BE RESTRAINED.
20. ALL ENVIRONMENTAL POLLUTION & EROSION CONTROL PREVENTION WORK (EX. SEDIMENT TUBE, SILT FENCING, ETC) ARE TO BE INSTALLED PRIOR TO ANY UTILITY WORK BEING DONE ON THE PROJECT. ALL EROSION CONTROL MEASURES THAT ARE SHOWN ON THESE DRAWINGS ARE THE MINIMUM REQUIRED AND MAY BE AMENDED BY ANY ENVIRONMENTAL PERMITS AND/OR PROJECT SPECIFICATIONS. ALL ENVIRONMENTAL PERMIT REQUIREMENTS ARE TO BE FOLLOWED AT ALL TIMES AND ALL COSTS FOR EROSION CONTROL SHALL TO BE MERGED INTO EXISTING UNIT PRICE ITEMS.



LOCATION MAP  
NOT TO SCALE

### LEGEND FOR PLAN AND PROFILE SHEETS

PROPOSED WATER LEGEND	
	PROPOSED WATER MAIN
	PROPOSED M.J. SLEEVE
	PROPOSED WATER MAIN IN CASING
	PROPOSED AIR RELEASE VALVE
	PROPOSED FIRE HYDRANT ASSEMBLY
	PROPOSED GATE VALVE
	PROPOSED REDUCER
	PROPOSED FITTING WITH THRUST BLOCK
	PROPOSED WATER SERVICE ASSEMBLY
	SILT FENCE FOR EROSION CONTROL
	STONE SEDIMENT FILTER RING

EXISTING TOPO			
—SA—SA—	SANITARY SEWER MAIN		WATER VALVE
—W—W—	WATER MAIN		WATER METER
—G—G—	GAS MAIN		GAS VALVE
—UGT—T—	TELEPHONE CABLE (UNDERGROUND/AERIAL)		GAS METER
—SS—SS—	STORM SEWER		TELEPHONE BOX
—X—X—X—	PROPERTY LINE		TREE
—	FENCE		HEDGE
—	CREEK/DRAINAGE DITCH		SHRUB
—	ROCK WALL		STREET OR SIGN POST
	CULVERT PIPE		LIGHT OR LAMP POST
	INLET OR CATCH BASIN		MAILBOX
	CONCRETE MONUMENT		EXISTING SEWER CLEANOUT
	PROPERTY IRON		FIRE HYDRANT
	TELEPHONE OR POWER POLE		
	POWER POLE WITH GUY WIRE		
	BUILDING HATCH		
	CONCRETE SIDEWALK HATCH		

### CONTACTS

#### OWNER

TOWN OF CARTHAGE  
314 SPRING STREET  
CARTHAGE, TENNESSEE, 37030  
(615) 735-1881

#### ELECTRIC COMPANY

UPPER CUMBERLAND ELECTRIC MEMBERSHIP CORPORATION  
138 GORDONSVILLE HIGHWAY  
CARTHAGE, TENNESSEE 37030  
(615) 735-2940

#### GAS COMPANY

UPPER CUMBERLAND ELECTRIC MEMBERSHIP CORPORATION  
138 GORDONSVILLE HIGHWAY  
CARTHAGE, TENNESSEE 37030  
(615) 735-2940

### CITY COUNCIL

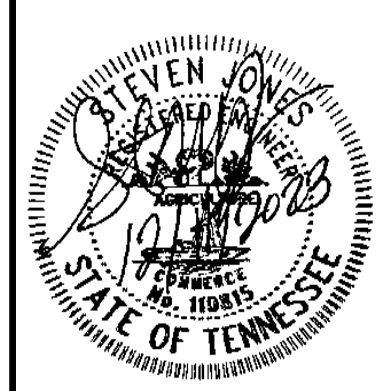
MAYOR	STEPHEN BABCOCK
VICE MAYOR	BILL REECE
ALDERWOMAN	BARBARA KANNAPEL
ALDERMAN	STEVE BABCOCK
ALDERMAN	COLE EBEL
ALDERMAN	JESSE PETERS
ALDERMAN	SAM PETTY

### INDEX OF SHEETS

SHEET NO.	DESCRIPTION
1	TITLE SHEET, LOCATION MAP, GENERAL NOTES, LEGEND
2	INDEX LOCATION MAP
3-9	WATER MAIN PLAN AND PROFILE
10	MISCELLANEOUS DETAILS

SUBMITTED BY:   
WATER MANAGEMENT SERVICES, LLC TENNESSEE CERTIFICATE 110815 DATE: 12/14/23  
APPROVED BY:   
MAYOR DATE: 12-14-2023

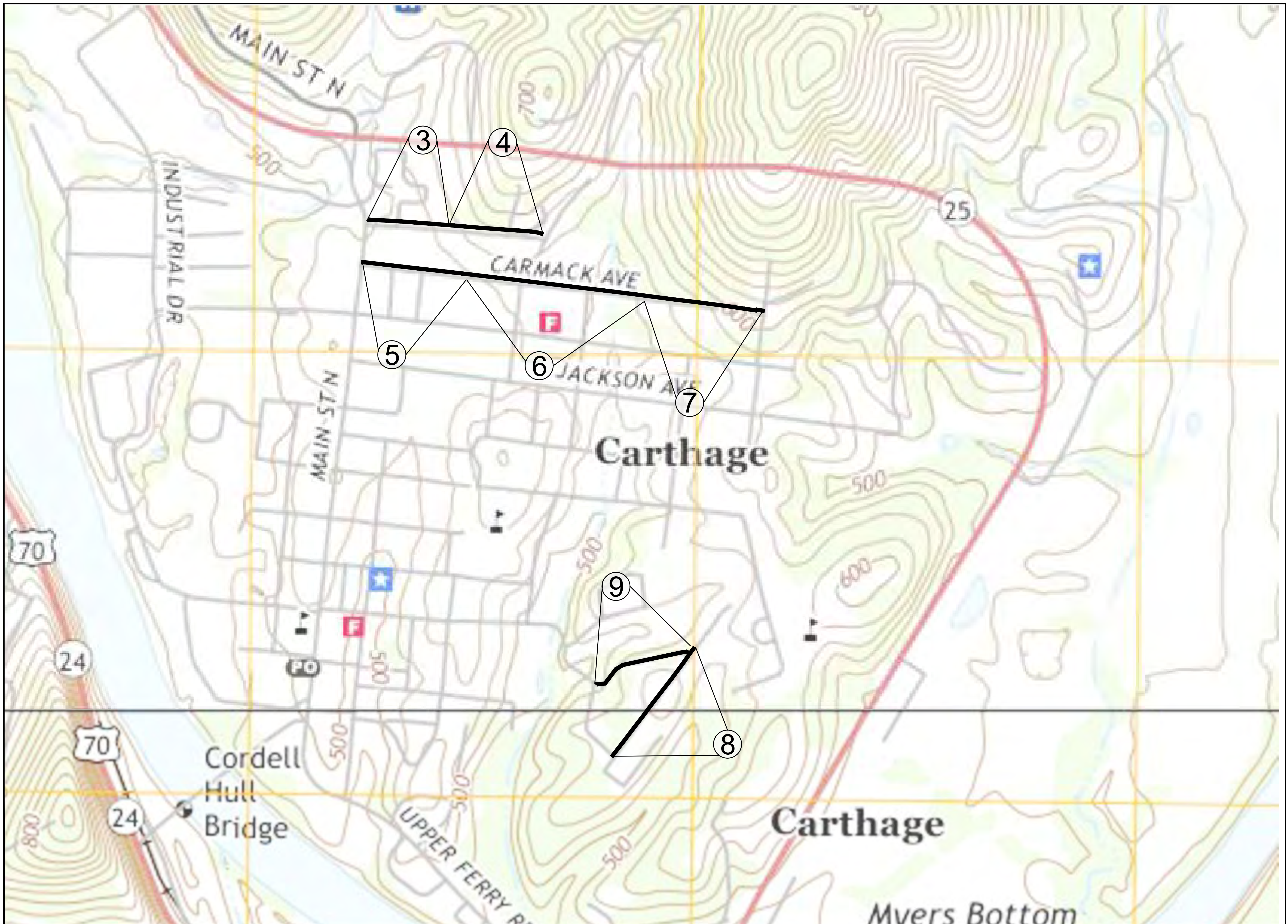
PROJECT NO. 22155  
TOWN OF CARTHAGE  
DEPARTMENT OF PUBLIC WORKS  
2023  
WATER MAIN REPLACEMENTS  
MAP, LEGEND, NOTES, SIGNATURES & INDEX



WATER MANAGEMENT SERVICES, LLC  
PROFESSIONAL ENGINEERING SERVICES  
NASHVILLE, TENNESSEE

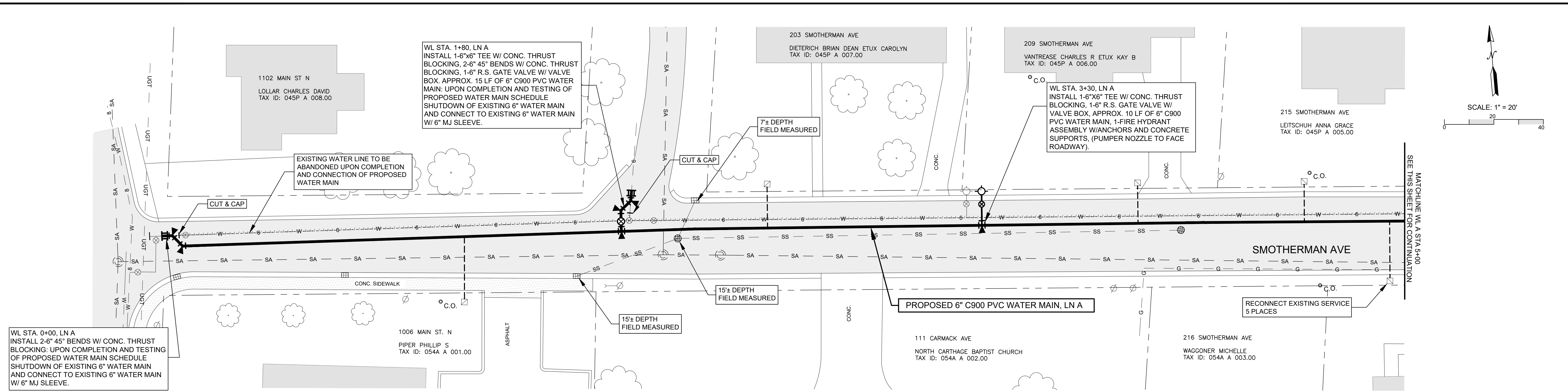
NO.	REVISION DESCRIPTION	DATE
DESIGNED BY	SMJ	
DRAWN BY	JDS	
CHECKED BY	SMJ	
DATE		12/04/23
PROJECT NO.	1	10
		22155





PROJECT NO. 22155	
TOWN OF CARTHAGE DEPARTMENT OF PUBLIC WORKS	2023
WATER MAIN REPLACEMENTS INDEX LOCATION MAP	
	
	
WATER MANAGEMENT SERVICES, LLC PROFESSIONAL ENGINEERING SERVICES NASHVILLE, TENNESSEE	
DESIGNED BY SMJ	DATE
DRAWN BY JDS	REVISION DESCRIPTION
CHECKED BY SMJ	
DATE 12/04/23	
<b>2</b> of <b>10</b> PROJECT NO. 22155	





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4. ALL EXISTING PERMANENT CONSTRUCTED (BRICK, ROCK) MAILBOXES SHALL BE LEFT IN PLACE AND PROTECTED AT ALL TIMES. CONTRACTOR IS TO ALLOW USE AND ACCESS TO THE MAILBOXES AT ALL TIMES.
5. PIPE MAY BE DEFLECTED (CURVED) TO CHANGE ALIGNMENT AND/OR GRADE OR TO AVOID OBSTRUCTIONS. HOWEVER, THE DEFLECTION SHALL BE LIMITED TO 80% MAXIMUM ALLOWED BY THE PIPE MANUFACTURER'S RECOMMENDATION.
6. MINIMUM COVER FOR ALL WATER MAINS SHALL BE 30-INCHES IN NON-ROADWAY AREAS. IN ROADWAY AREAS AND BORES, THE MINIMUM COVER IN DRIVEWAYS OR ROADWAY AREAS SHALL BE 36-INCHES, EXTRA DEPTH SHALL BE REQUIRED TO CLEAR UNDER EXISTING UTILITIES.

NOTE: ALL ENVIRONMENTAL POLLUTION & EROSION CONTROL PREVENTION WORK (EX. SEDIMENT TUBE, SILT FENCING, ETC) ARE TO BE INSTALLED PRIOR TO ANY UTILITY WORK BEING DONE IN THE AREA. ALL MEASURES THAT ARE SHOWN ON THIS PLAN SHEET ARE APPROXIMATE, AND SUPERSEDED BY ANY ENVIRONMENTAL PERMITS WITHIN THIS PROJECT'S SPECIFICATIONS. ALL ENVIRONMENTAL PERMIT REQUIREMENTS ARE TO BE FOLLOWED AT ALL TIMES AND COST FOR ALL THIS WORK IS TO BE MERGED INTO EXISTING UNIT PRICE ITEMS.

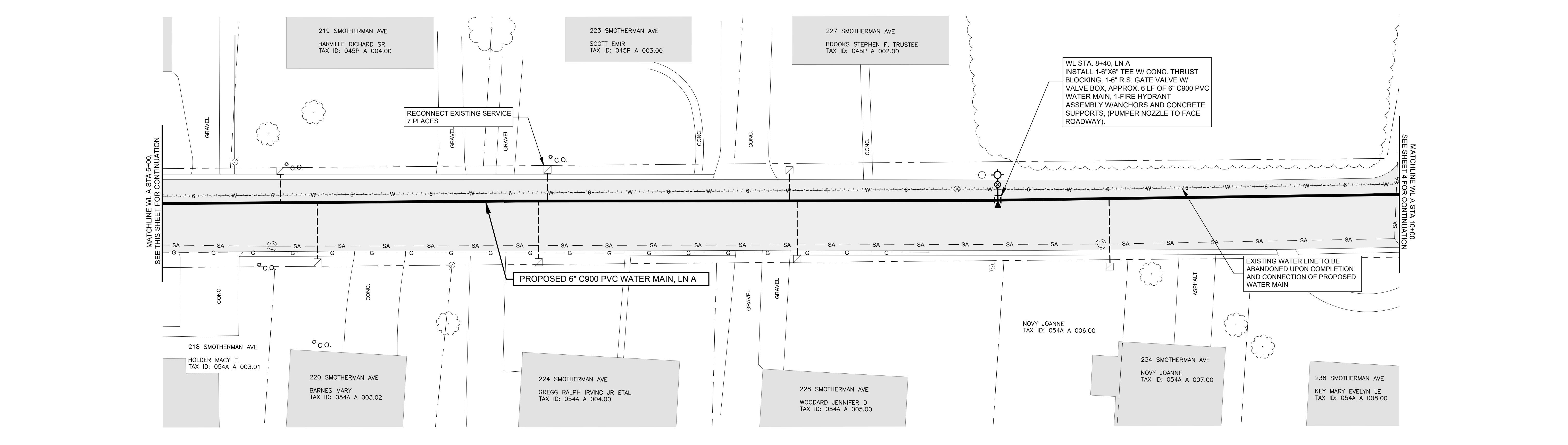
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NOTE: THE CONTRACTOR'S ATTENTION IS DIRECTED TO THE FACT THAT EXPLOSIVE BLASTING OF TRENCHES SHALL NOT BE ALLOWED ON THIS PROJECT DUE TO CLOSE PROXIMITY OF RESIDENCES, STREAMS, EXISTING UTILITIES AND OTHER CONSIDERATIONS. TRENCH EXCAVATION, INCLUDING ROCK EXCAVATION, SHALL BE ACCOMPLISHED BY ROCK TRENCHERS, HOE-RAMS, AND ALTERNATE MEANS OTHER THAN THE USE OF EXPLOSIVES. THIS NO BLASTING REQUIREMENT MAY BE WAIVED BY THE OWNER/ENGINEER IN SPECIFIC SITUATIONS SUCH AS DEEP CUTS IN AREAS REMOTE FROM EXISTING STRUCTURES AND EXISTING UTILITIES. THE CONTRACTOR MUST SPECIFICALLY REQUEST THIS WAIVER AND MUST DETAIL THE EXTENT OF BLASTING PROCEDURES DESIRED. IF THIS WAIVER IS GRANTED, THE OWNER/ENGINEER WILL ONLY ALLOW SELECTIVE "POP SHOTS" IN THE TRENCHES TO AN OPEN TRENCH FACE WITH ADEQUATE COVER AND MATTING.

NOTE: THE CONTRACTOR SHALL THOROUGHLY CLEAN AND LIGHTLY DUST ALL CONNECTORS TO EXISTING WATER MAINS; INCLUDING SLEEVE, TEE, ETC. WITH CALCIUM HYPOCHLORITE POWDER IN ACCORDANCE WITH AWWA C-651-86; SECTION 10 OR LATEST REVISION. THIS SHALL BE REQUIRED FOR ALL CONNECTIONS ON THIS PROJECT.



PROJECT NO. 22155

TOWN OF CARTHAGE  
DEPARTMENT OF PUBLIC WORKS  
2023  
WATER MAIN REPLACEMENTS  
SMOTHERMAN AVE PLAN SHEET

**WATER MANAGEMENT SERVICES, LLC**  
PROFESSIONAL ENGINEERING SERVICES  
NASHVILLE, TENNESSEE

NO.	REVISION DESCRIPTION	DATE

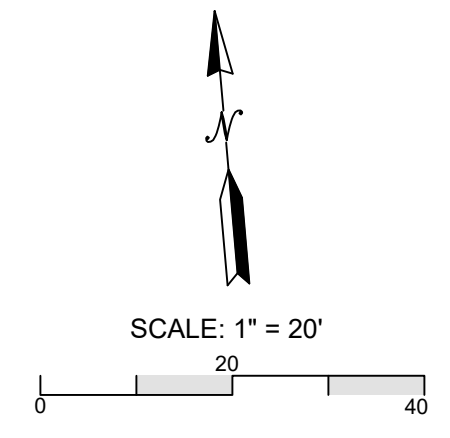
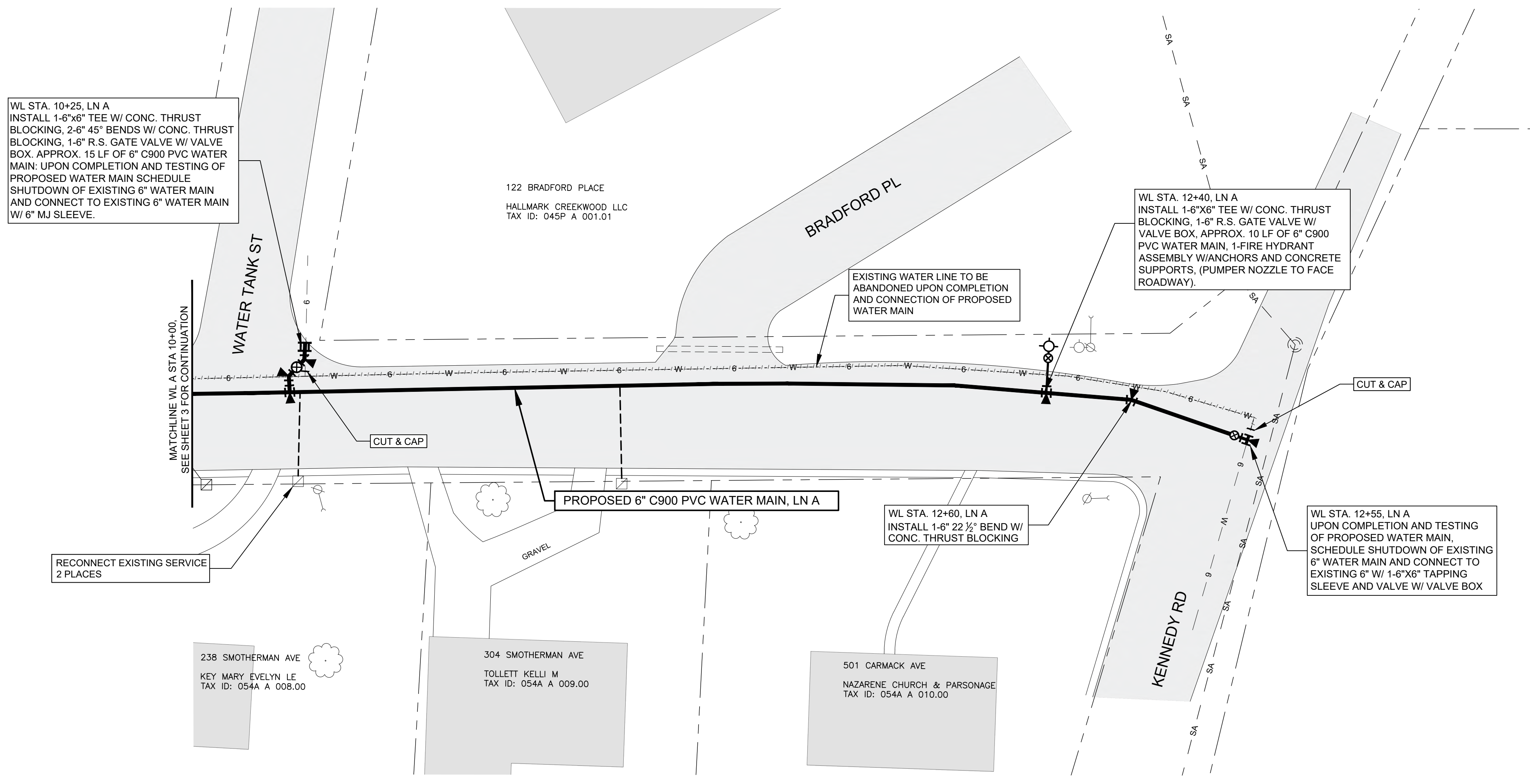
DESIGNED BY: SMJ  
 DRAWN BY: JDS  
 CHECKED BY: SMJ  
 DATE: 12/04/23

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of 10

PROJECT NO. 22155





WL STA. 10+25, LN A  
 INSTALL 1-6"x6" TEE W/ CONC. THRUST  
 BLOCKING, 2-6" 45° BENDS W/ CONC. THRUST  
 BLOCKING, 1-6" R.S. GATE VALVE W/ VALVE  
 BOX, APPROX. 15 LF OF 6" C900 PVC WATER  
 MAIN; UPON COMPLETION AND TESTING OF  
 PROPOSED WATER MAIN SCHEDULE  
 SHUTDOWN OF EXISTING 6" WATER MAIN  
 AND CONNECT TO EXISTING 6" WATER MAIN  
 W/ 6" MJ SLEEVE.

122 BRADFORD PLACE  
 HALLMARK CREEKWOOD LLC  
 TAX ID: 045P A 001.01

WL STA. 12+40, LN A  
 INSTALL 1-6"x6" TEE W/ CONC. THRUST  
 BLOCKING, 1-6" R.S. GATE VALVE W/  
 VALVE BOX, APPROX. 10 LF OF 6" C900  
 PVC WATER MAIN, 1-FIRE HYDRANT  
 ASSEMBLY W/ANCHORS AND CONCRETE  
 SUPPORTS, (PUMPER NOZZLE TO FACE  
 ROADWAY).

EXISTING WATER LINE TO BE  
 ABANDONED UPON COMPLETION  
 AND CONNECTION OF PROPOSED  
 WATER MAIN

MATCHLINE WL A STA. 10+00.  
 SEE SHEET 3 FOR CONTINUATION

RECONNECT EXISTING SERVICE  
 2 PLACES

PROPOSED 6" C900 PVC WATER MAIN, LN A

WL STA. 12+60, LN A  
 INSTALL 1-6" 22 1/2° BEND W/  
 CONC. THRUST BLOCKING

WL STA. 12+55, LN A  
 UPON COMPLETION AND TESTING  
 OF PROPOSED WATER MAIN,  
 SCHEDULE SHUTDOWN OF EXISTING  
 6" WATER MAIN AND CONNECT TO  
 EXISTING 6" W/ 1-6"x6" TAPPING  
 SLEEVE AND VALVE W/ VALVE BOX

238 SMOTHERMAN AVE  
 KEY MARY EVELYN LE  
 TAX ID: 054A A 008.00

304 SMOTHERMAN AVE  
 TOLLETT KELLI M  
 TAX ID: 054A A 009.00

501 CARMACK AVE  
 NAZARENE CHURCH & PARSONAGE  
 TAX ID: 054A A 010.00

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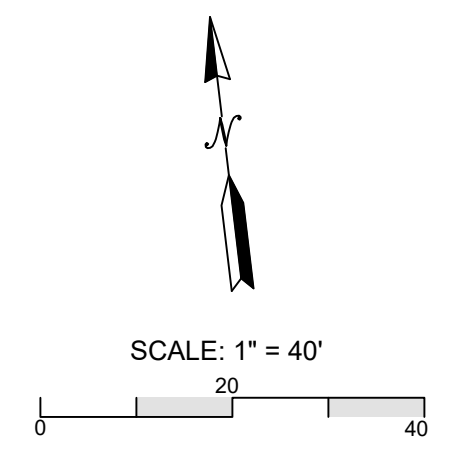
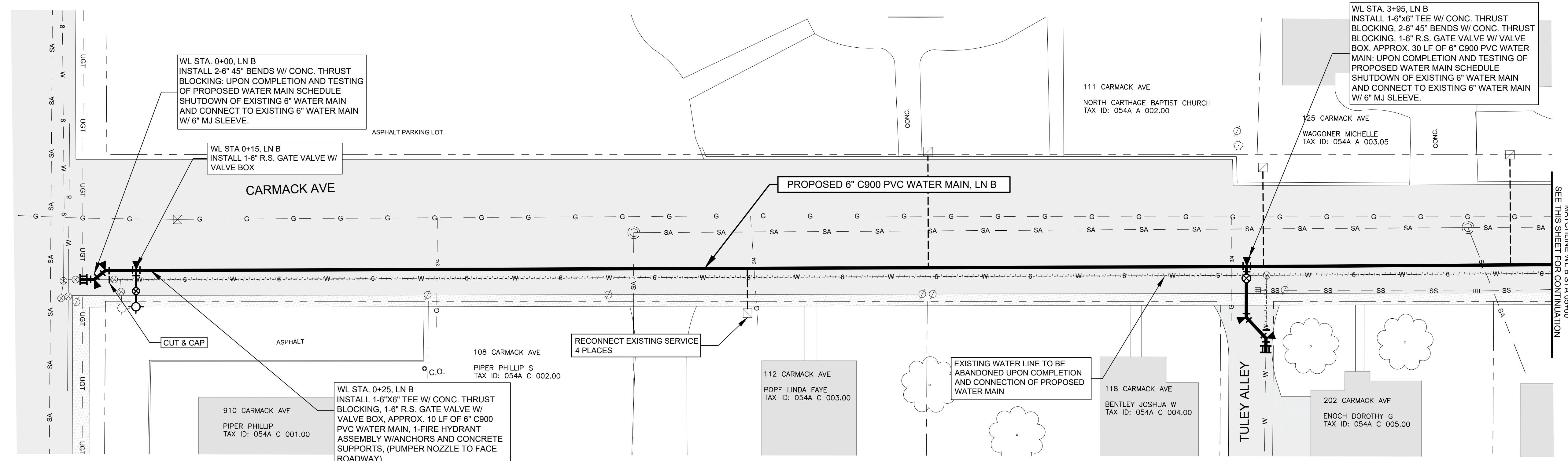
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PROJECT NO. 22155	
TOWN OF CARTHAGE DEPARTMENT OF PUBLIC WORKS	2023 WATER MAIN REPLACEMENTS SMOTHERMAN AVE PLAN SHEET
	
 <b>WATER MANAGEMENT SERVICES, LLC</b> PROFESSIONAL ENGINEERING SERVICES NASHVILLE, TENNESSEE	
	DATE
	REVISION DESCRIPTION
	NO.
DESIGNED BY SMJ	
DRAWN BY JDS	
CHECKED BY SMJ	
DATE 12/04/23	
<div style="font-size: 2em; font-weight: bold;">4</div> <div style="font-size: 1.5em; font-weight: bold;">of 10</div>	
PROJECT NO. 22155	



ADDITIVE ALTERNATE SHEET



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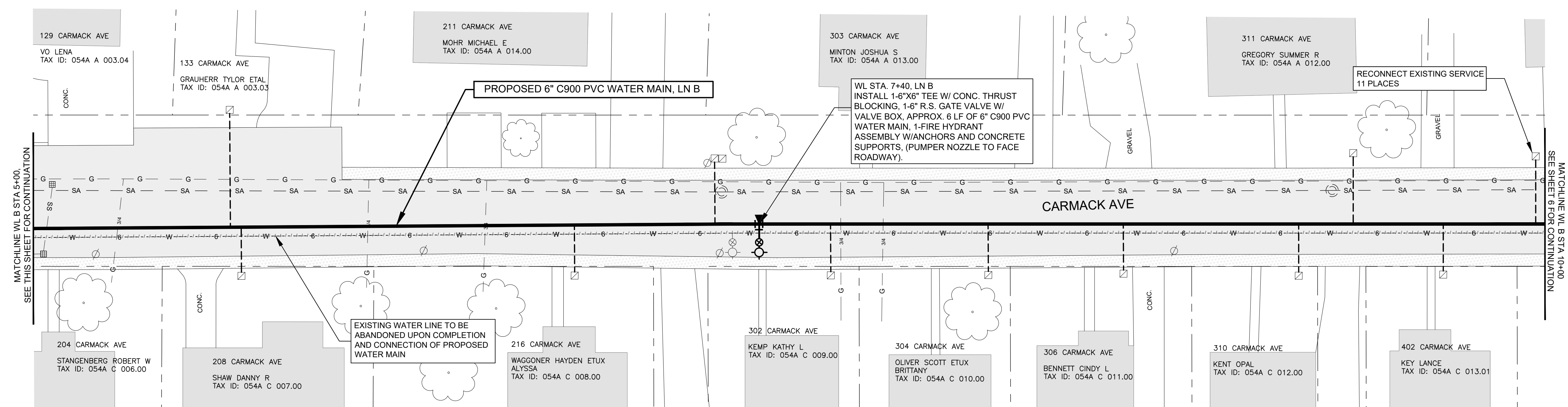
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ADDITIVE ALTERNATE SHEET



PROJECT NO. 22155

TOWN OF CARTHAGE  
DEPARTMENT OF PUBLIC WORKS  
2023  
WATER MAIN REPLACEMENTS  
CARMACK AVE PLAN SHEET -  
ADDITIVE ALTERNATE SHEET

**WATER MANAGEMENT SERVICES, LLC**  
PROFESSIONAL ENGINEERING SERVICES  
NASHVILLE, TENNESSEE

NO.	REVISION DESCRIPTION	DATE

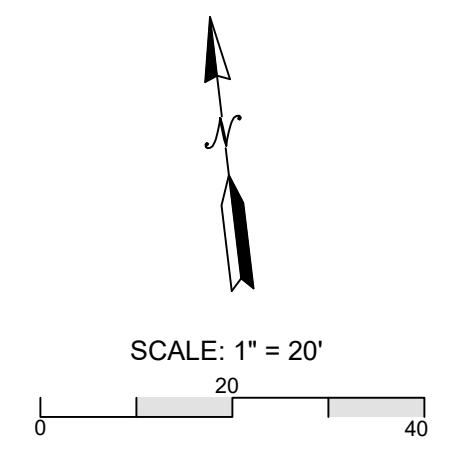
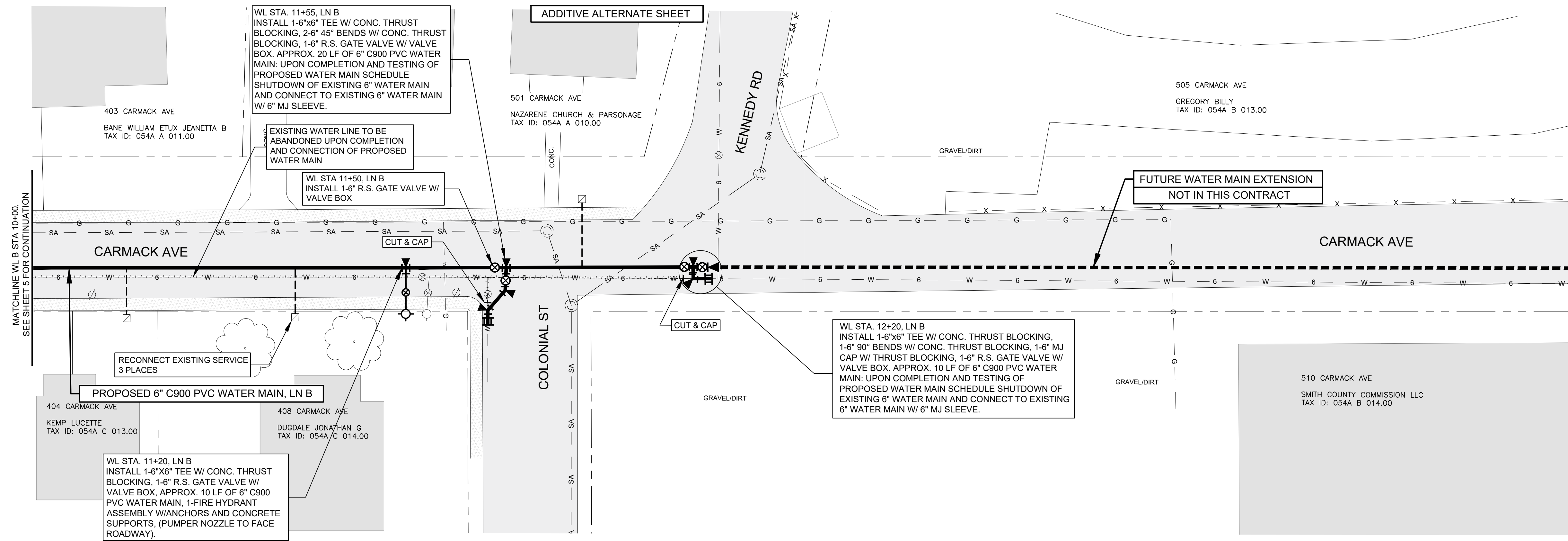
DESIGNED BY: SMJ  
DRAWN BY: JDS  
CHECKED BY: SMJ  
DATE: 12/04/23

5

of 10

PROJECT NO. 22155





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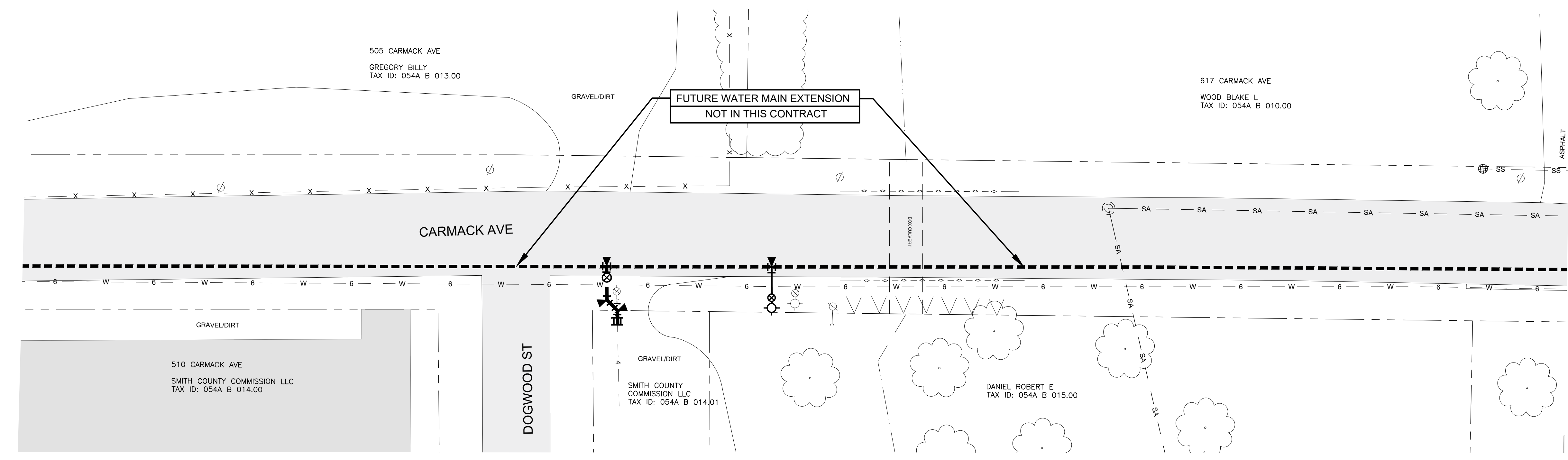
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2023  
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PROFESSIONAL ENGINEERING SERVICES  
NASHVILLE, TENNESSEE

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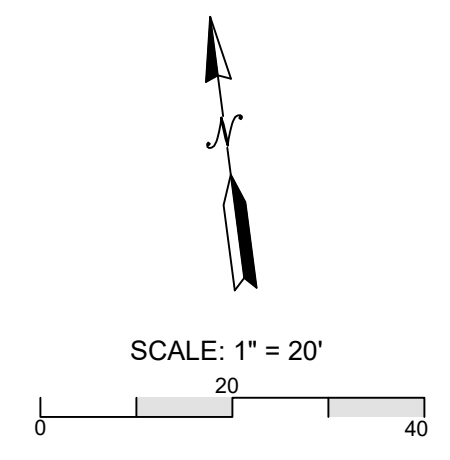
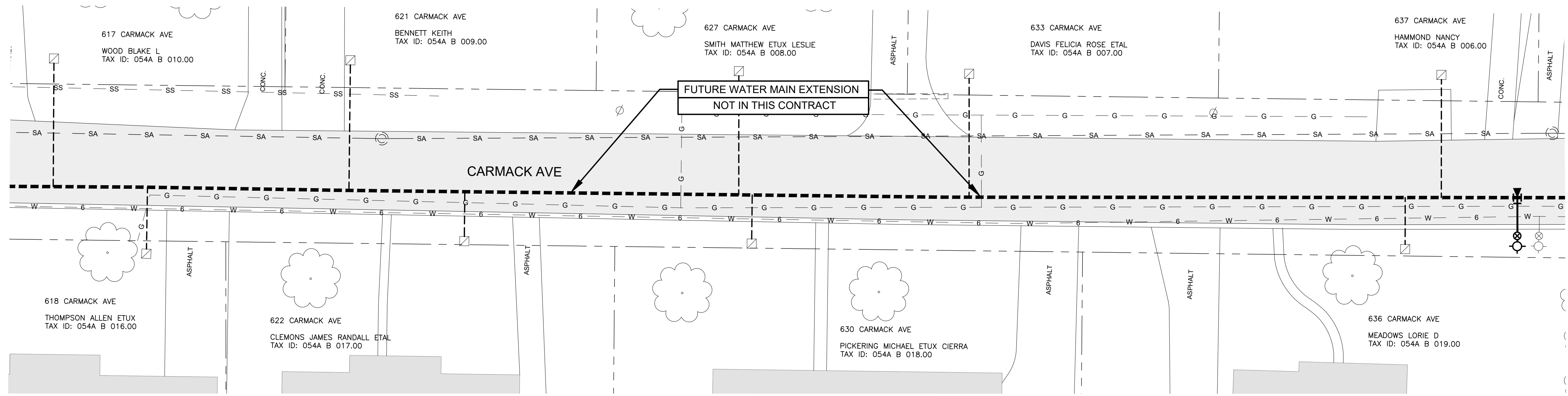
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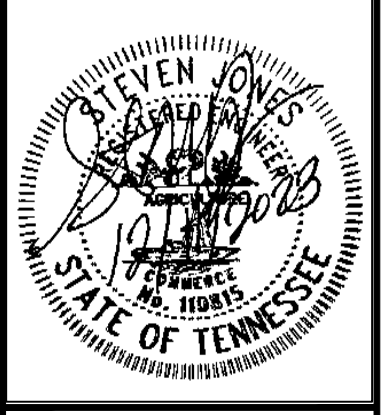
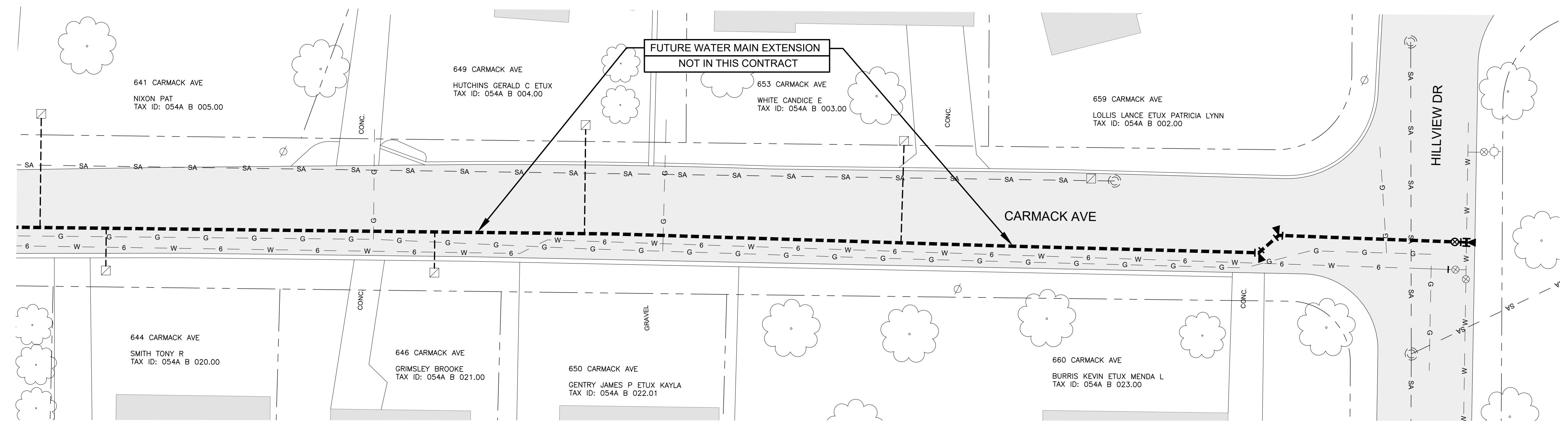
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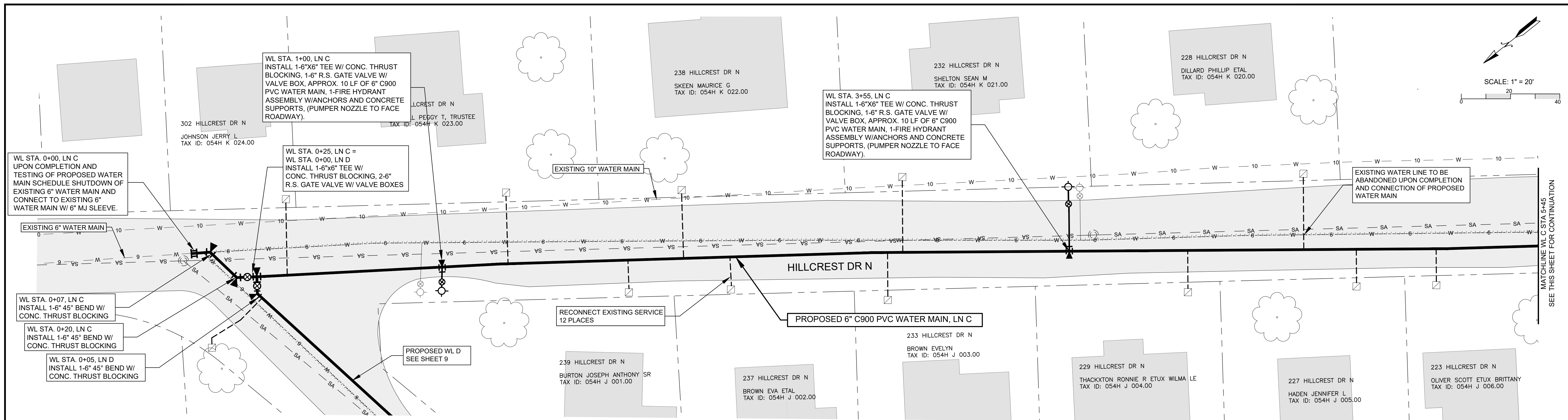


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PROFESSIONAL ENGINEERING SERVICES  
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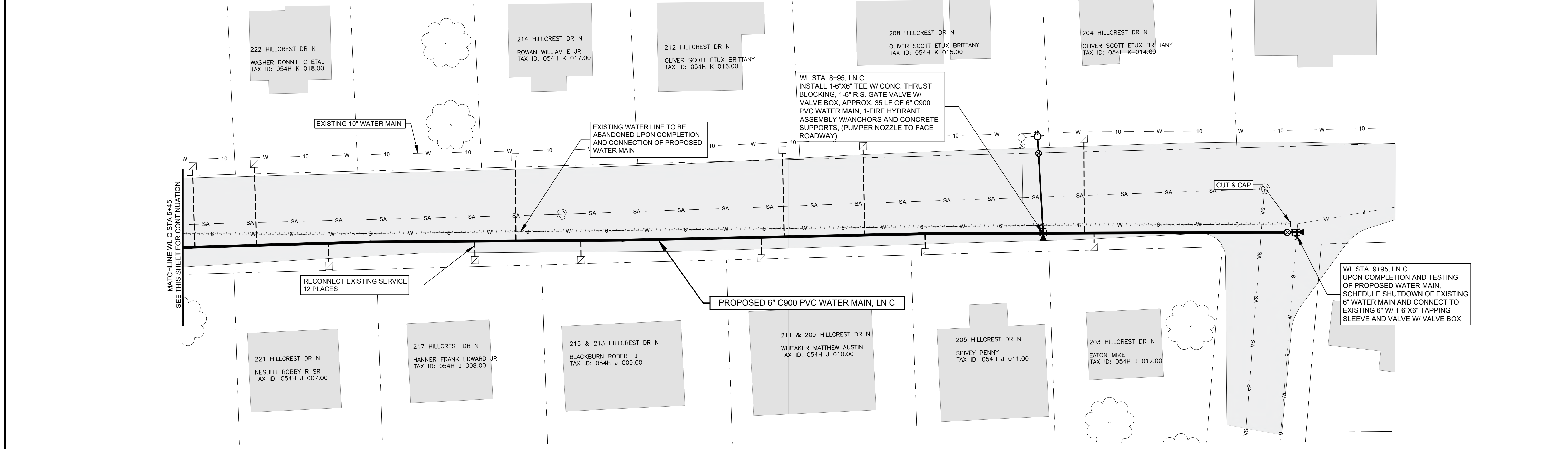
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PROJECT NO. 22155

TOWN OF CARTHAGE  
DEPARTMENT OF PUBLIC WORKS  
2023  
WATER MAIN REPLACEMENTS  
CARMACK AVE PLAN SHEET

**WATER MANAGEMENT SERVICES, LLC**  
PROFESSIONAL ENGINEERING SERVICES  
NASHVILLE, TENNESSEE

NO.	REVISION DESCRIPTION	DATE

DESIGNED BY: SMJ  
DRAWN BY: JDS  
CHECKED BY: SMJ  
DATE: 12/04/23

8

of 10

PROJECT NO. 22155



WL STA. 0+25, LN C =  
WL STA. 0+00, LN D  
SEE SHEET 8 FOR NOTES

WL STA. 0+05, LN D  
INSTALL 1-6" 45° BEND W/  
CONC. THRUST BLOCKING

PROPOSED WL C  
SEE SHEET 8

RECONNECT EXISTING SERVICE  
7 PLACES

PROPOSED 6" C900 PVC WATER MAIN, LN D

SCALE: 1" = 20'  
0 20 40

MATCHLINE WL D STA. 5+00  
SEE THIS SHEET FOR CONTINUATION

102 WALTON AVE  
GRISHAM TIMOTHY DWAIN  
TAX ID: 054H H 005.00

108 WALTON AVE  
HUNTER WILMA J ETAL  
TAX ID: 054H H 006.00

110 WALTON AVE  
HUNT CHARLES LE  
TAX ID: 054H H 007.00

114 WALTON AVE  
STEIGNER JESSE  
TAX ID: 054H H 008.00

118 WALTON AVE  
BILBREY WESLEY ETUX TONYA  
TAX ID: 054H H 009.00

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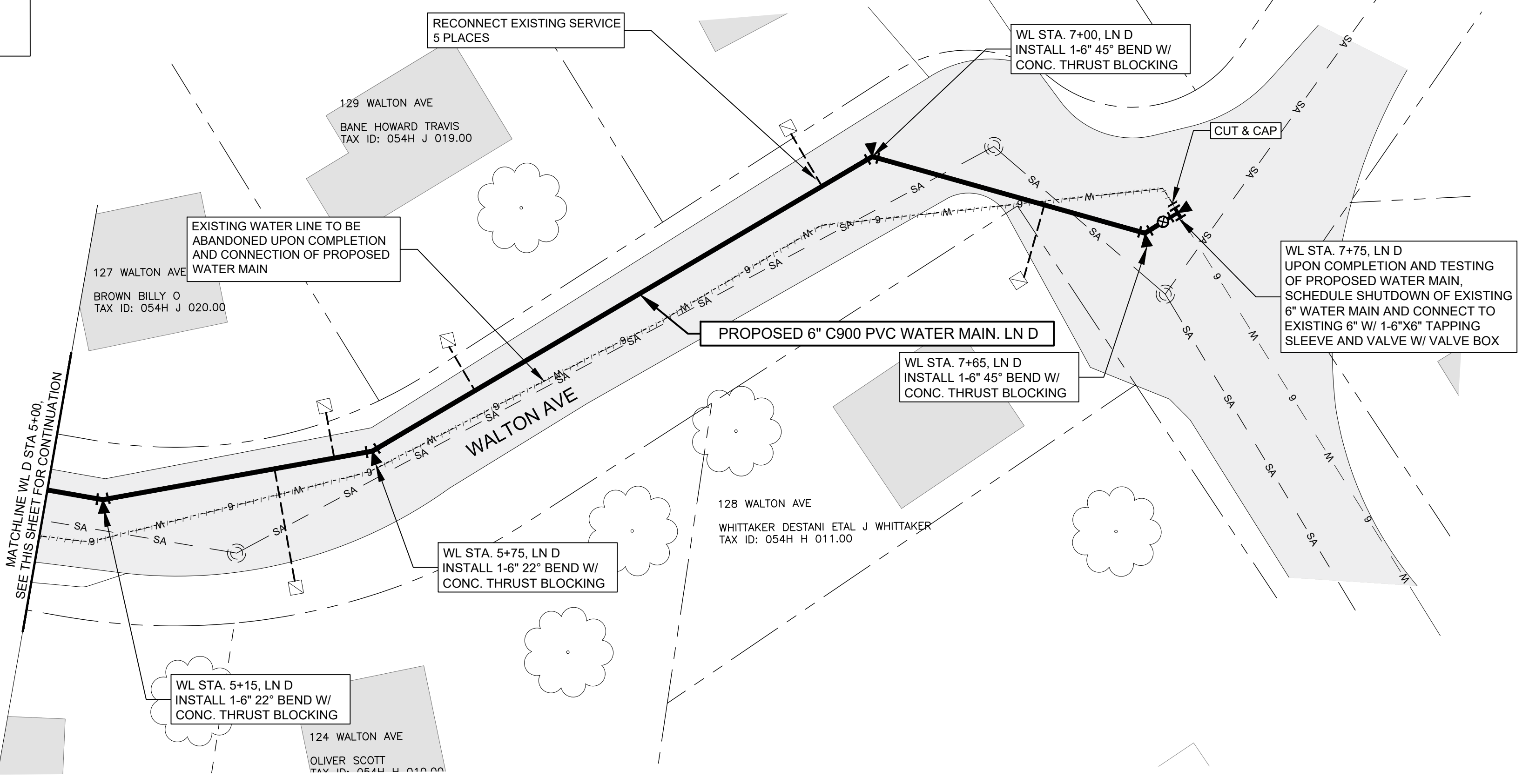
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MATCHLINE WL D STA. 5+00  
SEE THIS SHEET FOR CONTINUATION

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INSTALL 1-6" 22° BEND W/  
CONC. THRUST BLOCKING

WL STA. 5+75, LN D  
INSTALL 1-6" 22° BEND W/  
CONC. THRUST BLOCKING

WL STA. 7+65, LN D  
INSTALL 1-6" 45° BEND W/  
CONC. THRUST BLOCKING

WL STA. 7+00, LN D  
INSTALL 1-6" 45° BEND W/  
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129 WALTON AVE  
BANE HOWARD TRAVIS  
TAX ID: 054H J 019.00

127 WALTON AVE  
BROWN BILLY O  
TAX ID: 054H J 020.00

128 WALTON AVE  
WHITTAKER DESTANI ETAL J WHITTAKER  
TAX ID: 054H H 011.00

124 WALTON AVE  
OLVER SCOTT  
TAX ID: 054H H 012.00

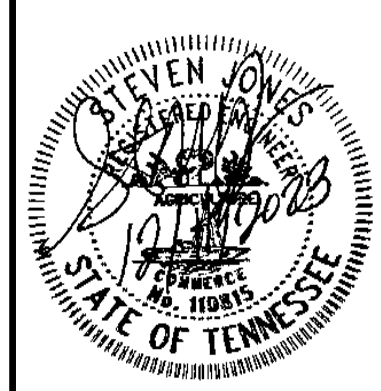
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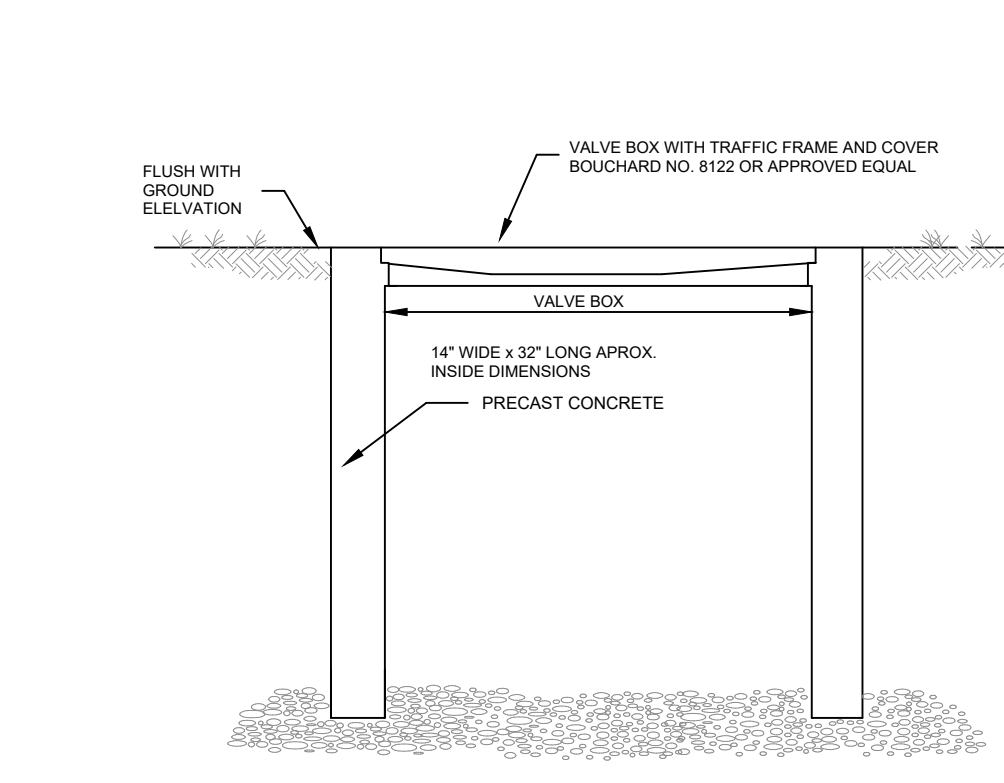
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9 of 10  
PROJECT NO. 22155

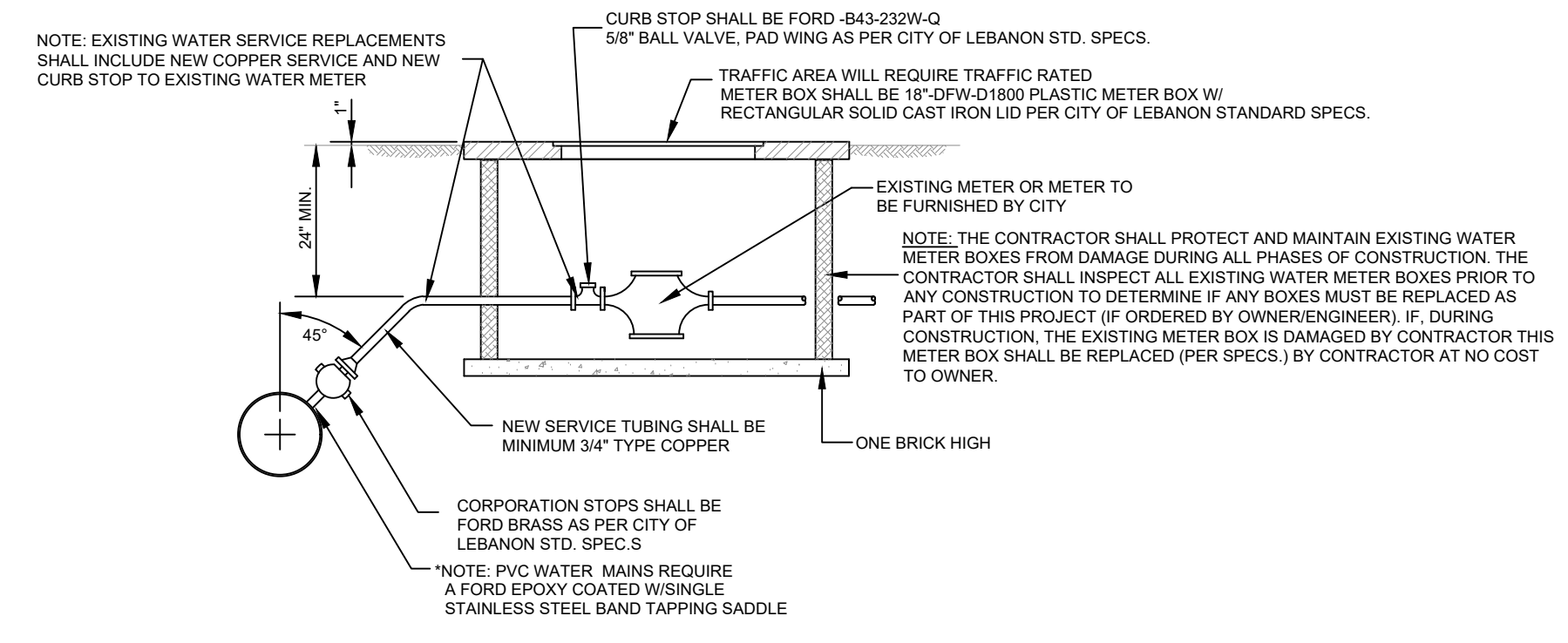




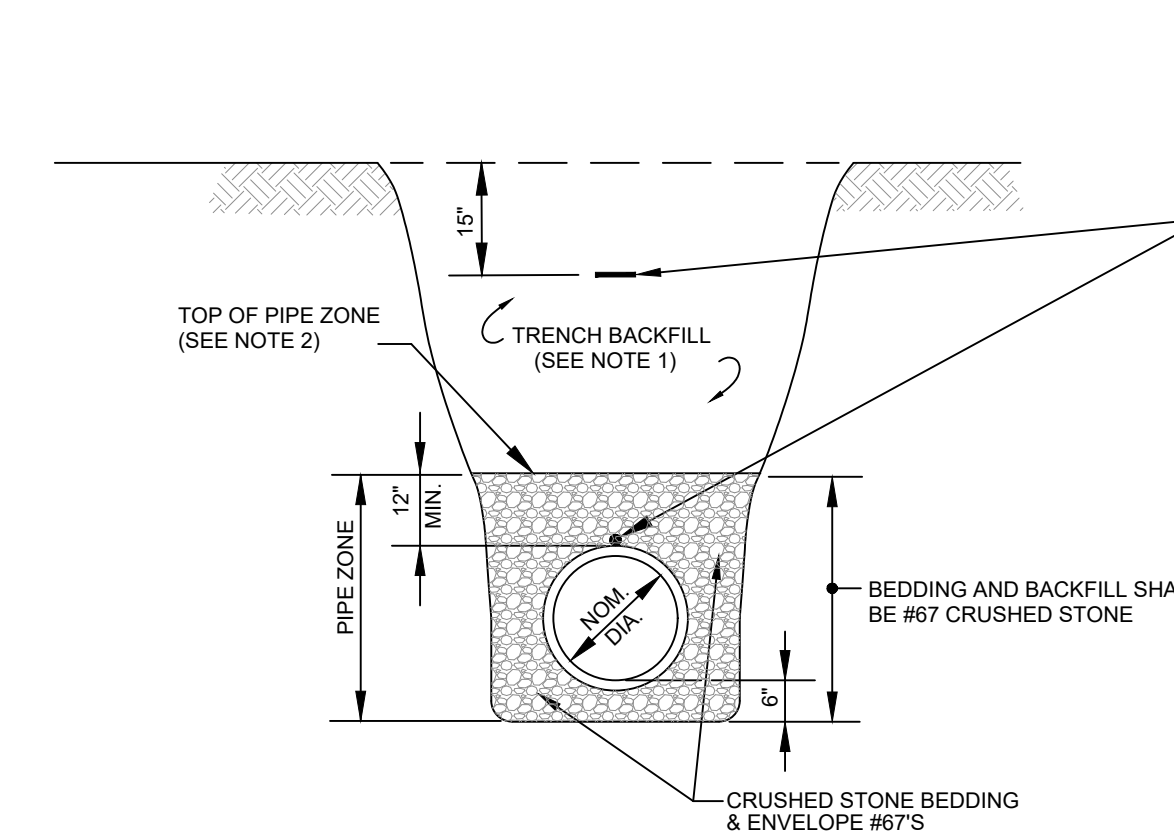
NO.	REVISION DESCRIPTION	DATE
DESIGNED BY	SMJ	
DRAWN BY	JDS	
CHECKED BY	SMJ	
DATE		12/04/23



**BOX AND COVER**  
**TRAFFIC TYPE WATER METER BOX AND COVER**  
(FOR USE IN TRAFFIC AREAS)  
NOT TO SCALE



**TYPICAL SERVICE ASSEMBLY (3/4"-2")**  
NO SCALE



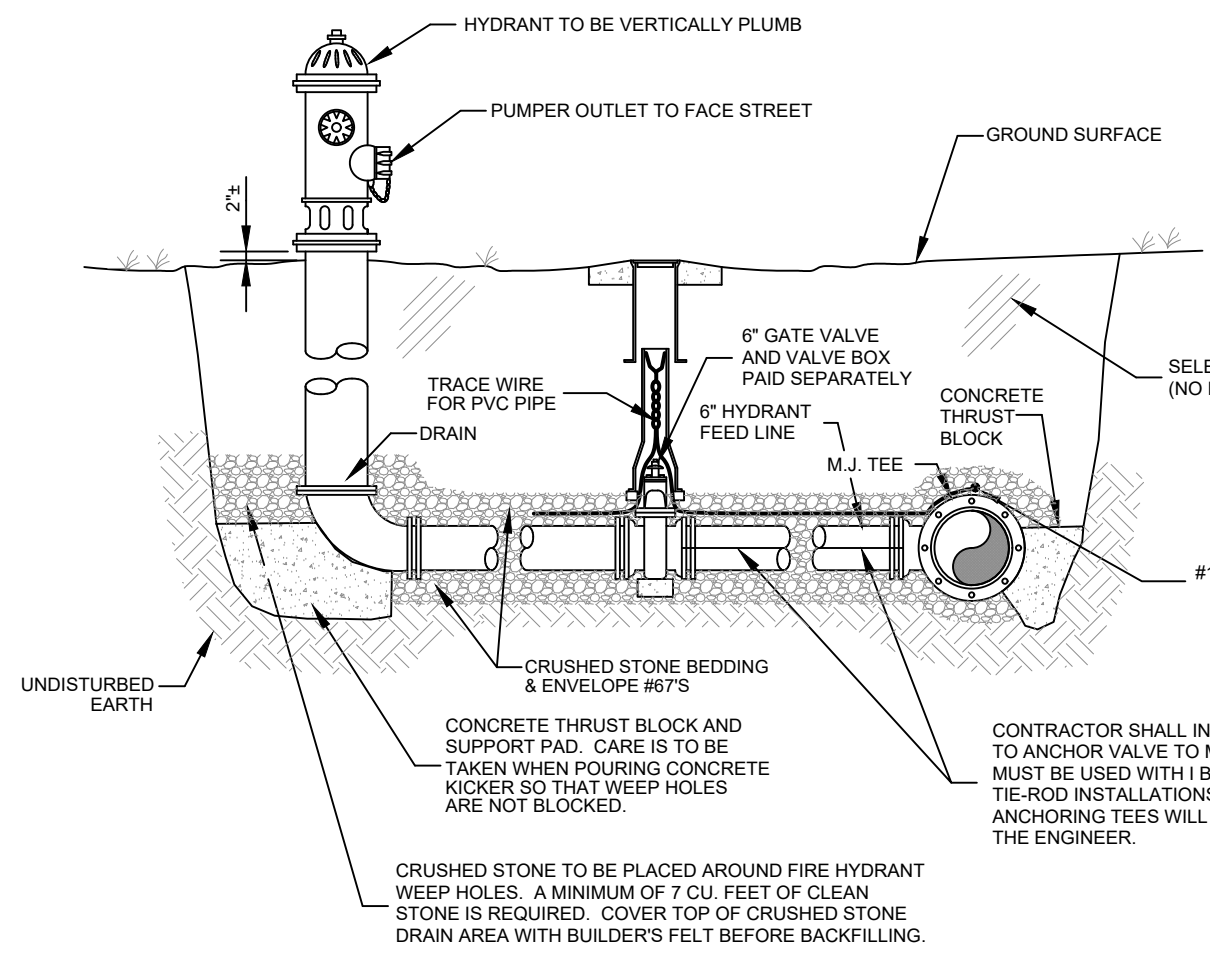
**WATER LINE INSTALLATION**  
NOT TO SCALE

NOTE: FOR INSTALLATION OF PVC WATER MAIN MATERIALS THE CONTRACTOR SHALL PROVIDE AND INSTALL 3/4" DETECTION TAPE AS PER SPECIFICATIONS. THIS DETECTION TAPE SHALL BE PLACED OVER THE NEWLY INSTALLED WATER MAIN AT A LEVEL OF 15-INCHES BELOW THE FINISH GROUND SURFACE.

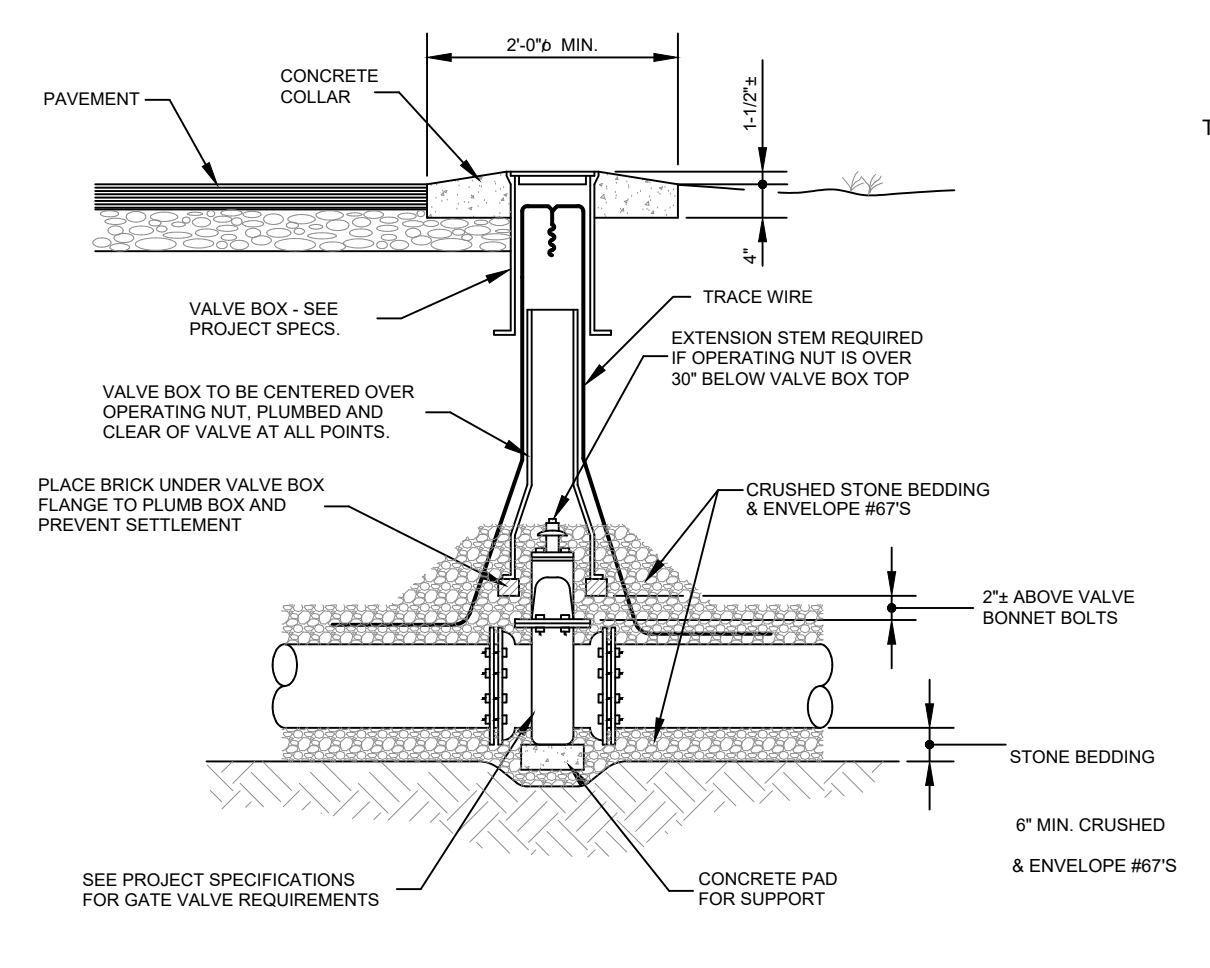
ADDITIONALLY, THE CONTRACTOR SHALL PROVIDE AND INSTALL A 14-GAUGE INSULATED COPPER WIRE DIRECTLY ON TOP OF THE NEWLY INSTALLED WATER MAIN. THIS COPPER WIRE SHALL BE STUBBED UP INTO EACH VALVE BOX ALONG THE WATER MAIN ALIGNMENT. THIS STUB-UP SHALL BE SUITABLY SECURED IN THE VALVE BOX TO BE READILY ATTACHED TO PIPE LOCATING EQUIPMENT. ANY SPLICES OF THIS WIRE SHALL BE PERFORMED IN A MANNER APPROVED BY THE ENGINEER.

NOTES:

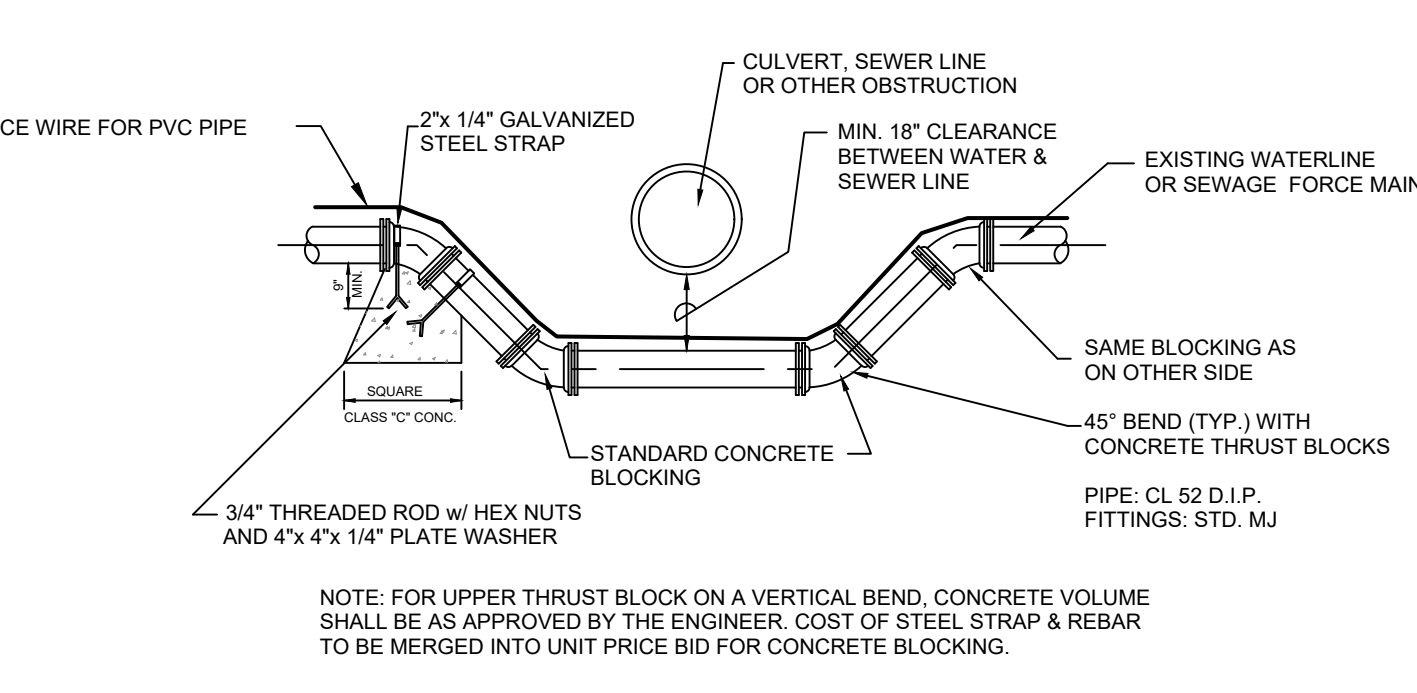
- SEE PROJECT SPECIFICATIONS FOR BACKFILL REQUIREMENTS.
- "PIPE ZONE" EXTENDS TO 12" ABOVE TOP OF PIPE AND IS AREA IN WHICH SPECIAL CARE IS TO BE GIVEN TO PLACEMENT AND COMPACTION TO PROTECT PIPE DURING AND AFTER LAYING.
- LIMIT TRENCH WIDTH AT TOP OF PIPE TO NOMINAL PIPE DIAMETER PLUS 24", UNLESS PERMITTED OTHERWISE BY ENGINEER.
- TRENCH SHALL BE DUG TO GIVE PIPE FULL AND CONTINUOUS SUPPORT. ALL ROCK AND LOOSE DIRT TO BE REMOVED TO WITHIN 6" OF PIPE - BED TO PIPE GRADE WITH CRUSHED STONE #67 BEDDING. BEDDING FROM PIPE GRADE TO 12" OVER PIPE SHALL BE #67 CRUSHED STONE.
- PIPE TO BE CONTINUOUSLY SUPPORTED ALONG LENGTH OF PIPE BARREL EXCEPT AT BELLS. BELL HOLES REQUIRED SUCH THAT NO BEARING LOAD IS TAKEN BY THE BELL.



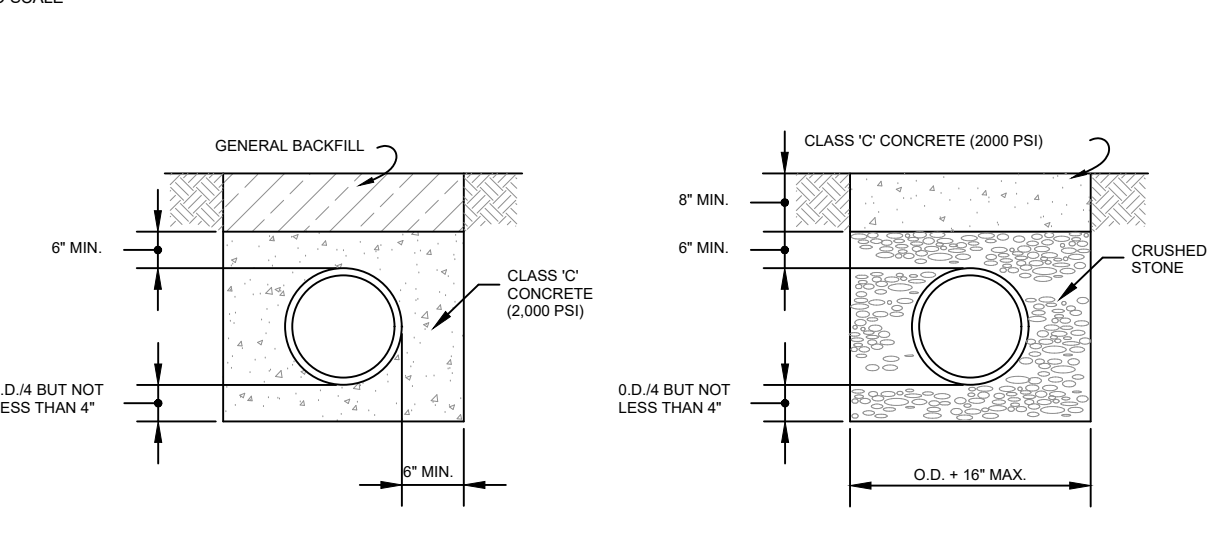
**TYPICAL FIRE HYDRANT INSTALLATION**  
NOT TO SCALE



**TYPICAL GATE VALVE INSTALLATION**  
NOT TO SCALE

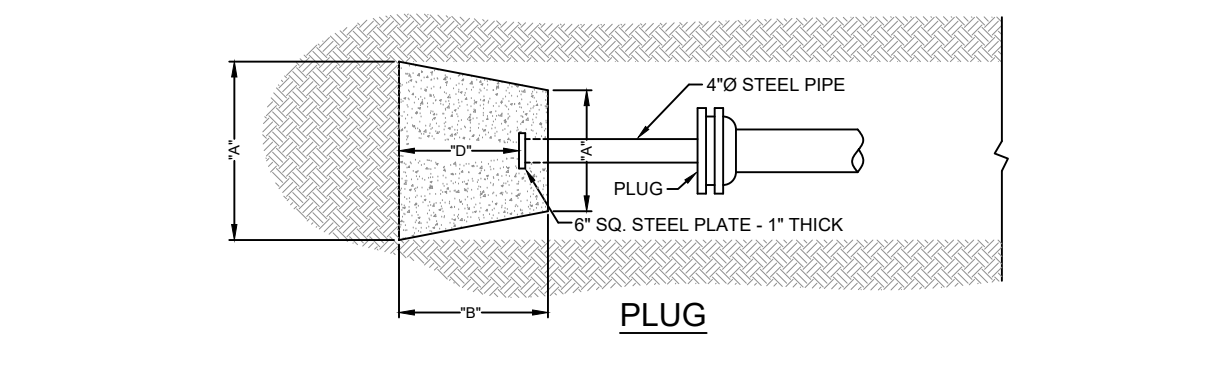
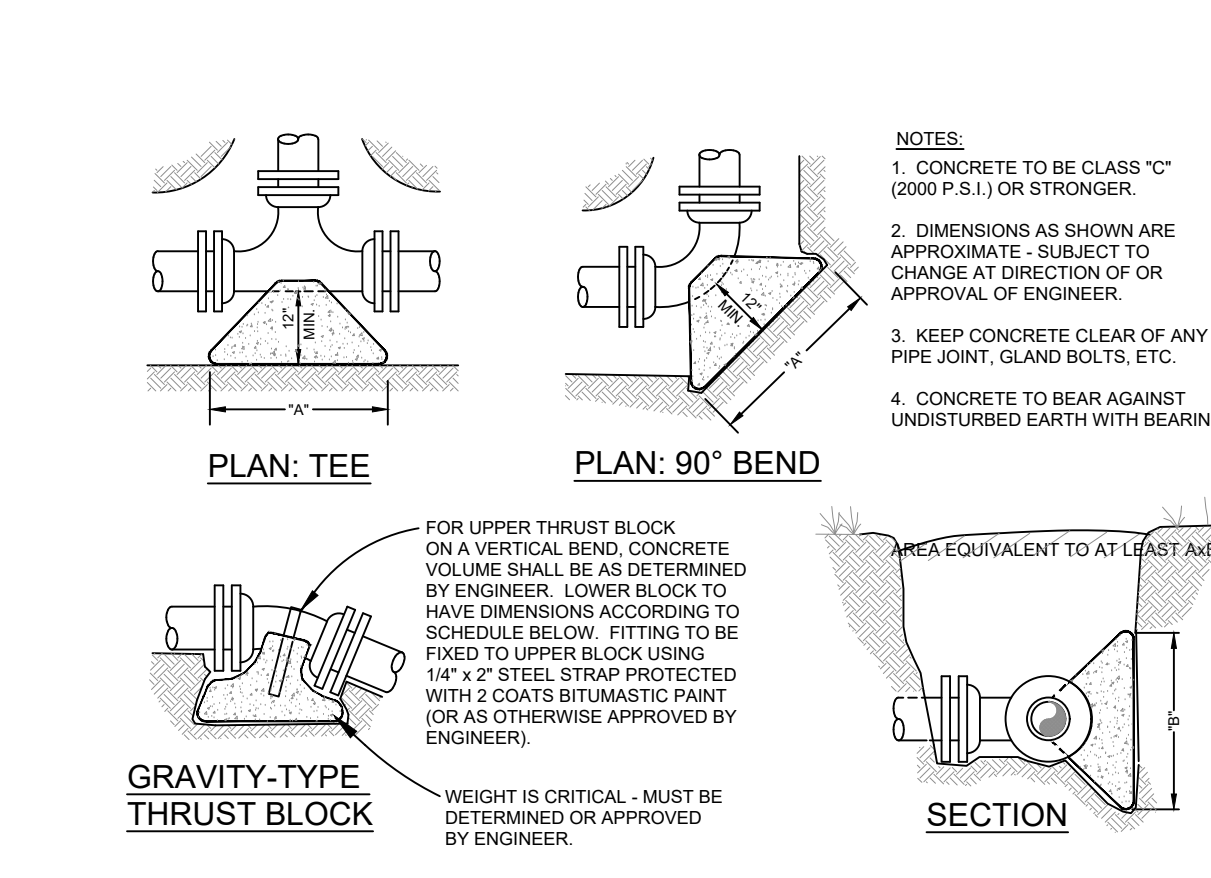


**METHOD OF CROSSING EXISTING UTILITIES OR OTHER OBSTRUCTION**  
NOT TO SCALE



**CONCRETE ENCASEMENT**  
**CONCRETE CAP**  
NOT TO SCALE

**CONCRETE CAP AND ENCASUREMENT DETAILS**  
NOT TO SCALE



**GRAVITY-TYPE THRUST BLOCK**  
**PLUG**

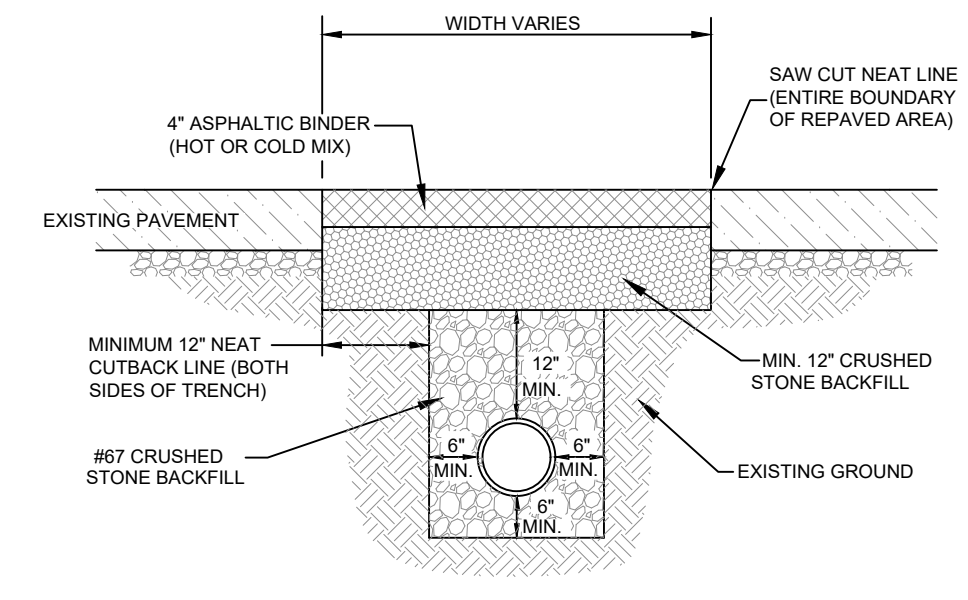
**SCHEDULE OF MINIMUM BEARING AREA REQUIRED**  
BASED ON 200 PSI INTERNAL PRESSURE AND 4000 PSF SOIL BEARING CAPACITY\*

PIPE SIZE	TEE OR DEAD END	90° BEND	45° BEND	22 1/2° BEND	11 1/4° BEND
4"	1.0	1.5	1.0	1.0	1.0
6"	2.5	3.0	2.0	1.0	1.0
8"	4.0	5.5	3.0	1.5	1.0
10"	6.0	8.5	4.5	2.5	1.5
12"	8.5	12.0	6.5	3.0	2.0
16"	15.0	21.5	11.5	6.0	3.0
18"	20.0	27.5	15.0	8.0	4.0
20"	24.0	33.5	18.5	9.5	5.0
24"	34.0	48.0	26.0	13.5	7.0
30"	53.0	76.5	41.0	21.5	12.0
36"	76.5	110.0	59.0	30.5	17.5

VALUES ARE TABULATED IN SQUARE FEET

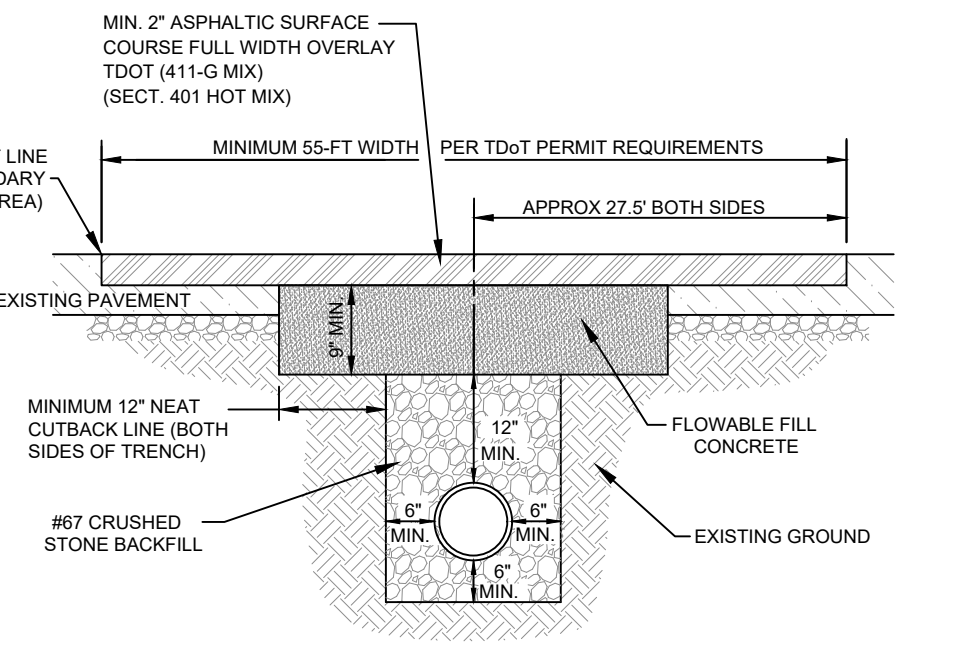
\*Engineer to confirm actual required dimensions before construction of the Thrust Block. Bearing Area (square feet) = A/(width) x B/(height)

**CONCRETE THRUST BLOCK DETAILS FOR BOTH WATER AND FORCE MAINS**  
NOT TO SCALE



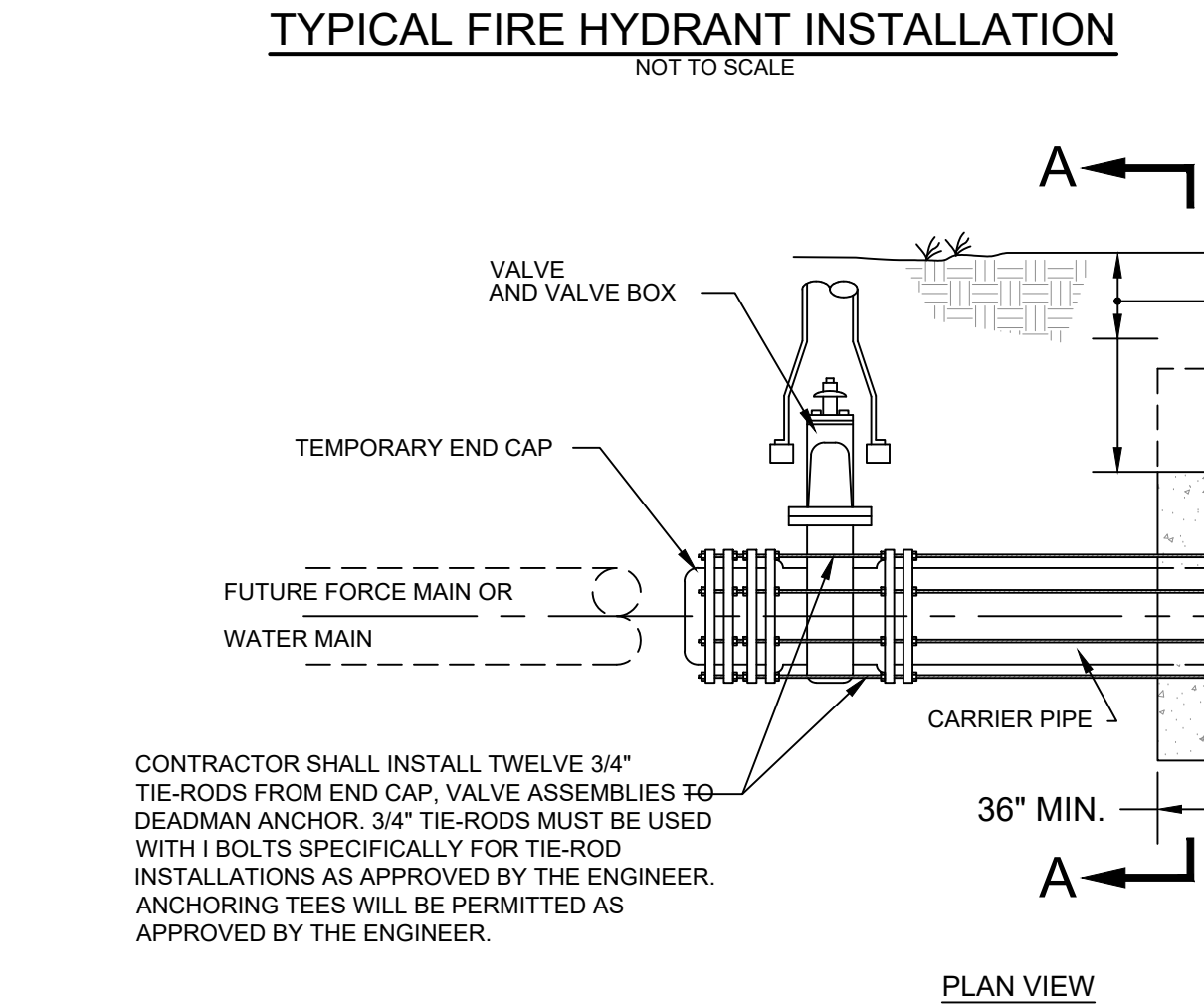
**TYPICAL "BINDER TRENCH" SECTION REPAIR PAVING**  
NOT TO SCALE

NOTE: CONTRACTOR'S RESPONSIBILITY TO ENSURE ALL UP TO DATE LOCAL & CITY PAVING REQUIREMENTS & METHODS ARE TO BE FOLLOWED. IF CONFLICT FROM THIS DETAIL IS FOUND, CONTRACTOR SHALL BE REQUIRED TO PAVE ACCORDING TO THE LOCAL UPDATED METHODS & REQUIREMENTS.

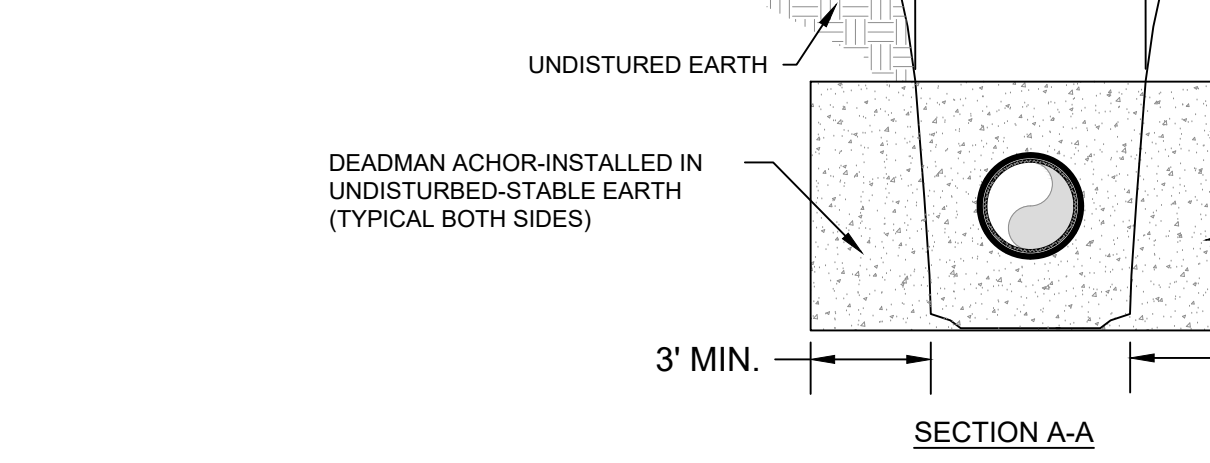


**TYPICAL "TDOT ROADWAY" ASPHALT SECTION REPAIR PAVING (411-E) INSIDE ROADWAY ENCROACHMENT**  
NOT TO SCALE

NOTE: CONTRACTOR'S RESPONSIBILITY TO ENSURE ALL UP TO DATE TDOT PAVING REQUIREMENTS & METHODS ARE TO BE FOLLOWED. IF CONFLICT FROM THIS DETAIL IS FOUND, CONTRACTOR SHALL BE REQUIRED TO PAVE ACCORDING TO THE TDOT UPDATED METHODS & REQUIREMENTS.



**TYPICAL DEADMAN ANCHOR FOR VALVE INSTALLATION**  
NOT TO SCALE



**DEADMAN ANCHOR FOR VALVE INSTALLATION**  
NOT TO SCALE

CONTRACTOR SHALL INSTALL TWELVE 3/4" TIE-RODS FROM END CAP. VALVE ASSEMBLIES TO DEADMAN ANCHOR. 3/4" TIE-RODS MUST BE USED WITH BOLTS SPECIFICALLY FOR TIE-ROD INSTALLATIONS AS APPROVED BY THE ENGINEER. ANCHORING TEES WILL BE PERMITTED AS APPROVED BY THE ENGINEER.