

GENERAL WATER NOTES

1. ALL MATERIALS AND CONSTRUCTION PROCEDURES WITHIN THE SCOPE OF THIS CONTRACT SHALL BE APPROVED BY THE SAN ANTONIO WATER SYSTEM (SAWS) AND COMPLY WITH THE PLANS, SPECIFICATIONS, GENERAL CONDITIONS AND WITH FOLLOWING AS APPLICABLE:
 - A. CURRENT TEXAS COMMISSION ON ENVIRONMENTAL QUALITY (TCEQ) FOR "DESIGN CRITERIA FOR DOMESTIC WASTEWATER SYSTEM", TEXAS ADMINISTRATIVE CODE (TAC), TITLE 30, PART 1 CHAPTER 217 AND "PUBLIC DRINKING WATER", TAC TITLE 30 PART 1 CHAPTER 290.
 - B. CURRENT TEXAS DEPARTMENT OF TRANSPORTATION (TXDOT) "STANDARD SPECIFICATIONS FOR CONSTRUCTION OF HIGHWAYS, STREETS AND DRAINAGE."
 - C. CURRENT "SAN ANTONIO WATER SYSTEM STANDARD SPECIFICATIONS FOR WATER AND SANITARY SEWER CONSTRUCTION."
 - D. CURRENT CITY OF SAN ANTONIO "STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION."
 - E. CURRENT CITY OF SAN ANTONIO "UTILITY EXCAVATION CRITERIA MANUAL."
2. THE CONTRACTOR IS TO MAKE ARRANGEMENTS WITH THE SAWS CONSTRUCTION INSPECTION DIVISION AT 233-3500, AND PROVIDE NOTIFICATION PROCEDURES THE CONTRACTOR WILL USE TO NOTIFY AFFECTED HOME RESIDENTS AND / OR PROPERTY OWNERS 48 HOURS PRIOR TO EXCAVATION.
3. LOCATIONS AND DEPTHS OF EXISTING UTILITIES AND SERVICE LATERALS SHOWN ON THE PLANS ARE UNDERSTOOD TO BE APPROXIMATE. ACTUAL LOCATIONS AND DEPTHS MUST BE FIELD VERIFIED BY THE CONTRACTOR 48 HOURS PRIOR TO CONSTRUCTION. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO LOCATE UTILITY SERVICE LINES, AS REQUIRED FOR CONSTRUCTION AND TO PROTECT THEM DURING CONSTRUCTION AT NO COST TO SAWS.
4. THE CONTRACTOR SHALL VERIFY THE EXACT LOCATION OF UNDERGROUND UTILITIES AND DRAINAGE STRUCTURES AT LEAST 48 HOURS PRIOR TO CONSTRUCTION WHETHER SHOWN ON THE PLANS OR NOT. THE FOLLOWING CONTACT INFORMATION IS SUPPLIED FOR VERIFICATION PURPOSES:

SAWS UTILITY LOCATES:	233-2009
SAWS PRODUCTION CONTROL CENTER:	233-2016
COSA DRAINAGE:	207-8048
COSA TRAFFIC SIGNAL OPERATIONS:	207-7720
TEXAS STATE WIDE ONE CALL LOCATOR:	1-800-545-6005 or 811
5. THE CONTRACTOR SHALL COMPLY WITH CITY OF SAN ANTONIO OR OTHER GOVERNING MUNICIPALITY'S TREE ORDINANCES WHEN EXCAVATING NEAR TREES.
6. THE CONTRACTOR SHALL NOT PLACE ANY WASTE MATERIALS OR SPOILS IN THE 100-YEAR FLOOD PLAIN WITHOUT FIRST OBTAINING AN APPROVED FLOOD PLAIN PERMIT.
7. PRIOR TO TIE-INS, ANY SHUTDOWNS OF EXISTING MAINS OF ANY SIZE MUST BE COORDINATED WITH THE SAWS CONSTRUCTION INSPECTION DIVISION AT 233-3500, AND / OR SAWS PRODUCTION GROUPS AT LEAST TWO WEEKS IN ADVANCE OF THE SHUTDOWN. THE CONTRACTOR MUST ALSO PROVIDE A SEQUENCE OF WORK AS RELATED TO THE TIE-INS; THIS IS AT NO ADDITIONAL COST TO SAWS OR THE PROJECT AND IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO SEQUENCE THE WORK ACCORDINGLY.
8. WHERE WATER LINES AND NEW SEWER LINES ARE INSTALLED WITH A SEPARATION DISTANCE CLOSER THAN NINE FEET, (I.E., WATER LINES CROSSING WASTEWATER LINES, WATER LINES PARALLELING WASTEWATER LINES, OR WATER LINES NEXT TO MANHOLES) THE INSTALLATION MUST MEET THE REQUIREMENTS OF 30 TAC 217.53(d) (PIPE DESIGN) AND 30 TAC 290.44(e) (WATER DISTRIBUTION).
9. ASBESTOS CEMENT (AC) PIPE, ALSO KNOWN AS TRANSITE PIPE, WHICH IS KNOWN TO CONTAIN ASBESTOS-CONTAINING MATERIAL (ACM), MAY BE LOCATED WITHIN THE PROJECT LIMITS. SPECIAL WASTE MANAGEMENT PROCEDURES AND HEALTH SAFETY REQUIREMENTS WILL BE APPLICABLE WHEN REMOVAL AND / OR DISTURBANCE OF THIS PIPE OCCURS. PAYMENT FOR SUCH WORK IS TO BE MADE UNDER SPECIAL SPECIFICATION ITEM FOR ASBESTOS CEMENT PIPE.
10. ANY WORK COMPLETED WITHOUT PRIOR WRITTEN AUTHORIZATION WHICH IS NOT INCLUDED IN THESE PLANS AND SPECIFICATIONS WILL NOT BE COMPENSATED BY THE SAN ANTONIO WATER SYSTEM.

AT&T NOTE:

THE EXISTENCE AND LOCATION OF UNDERGROUND CABLE INDICATED ON THE PLANS ARE TAKEN FROM THE BEST RECORDS AVAILABLE AND ARE NOT GUARANTEED TO BE ACCURATE. CONTRACTOR IS TO CONTACT THE TELEPHONE COMPANY LOCATOR 48 HOURS PRIOR TO EXCAVATION AT 1-800-828-5127. CONTRACTOR IS TO PROTECT AND SUPPORT TELEPHONE COMPANY PLANT DURING CONSTRUCTION.

CPS NOTES:

1. CALL THE TEXAS STATEWIDE ONE-CALL LOCATOR NUMBER 1-800-545-6005 or 811, 48 HOURS BEFORE BEGINNING ANY EXCAVATION.
2. DUE TO FEDERAL REGULATIONS, TITLE 49, PART 192.181, CPS 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.
3. THE CONTRACTOR WILL BE RESPONSIBLE FOR PROTECTING CPS ENERGY OVERHEAD AND UNDERGROUND ELECTRIC FACILITIES IF ADJACENT TO WORK AREAS.

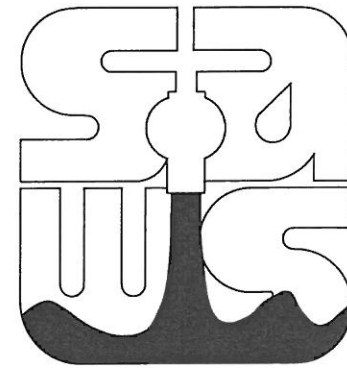
NOTE FOR CITY OF SAN ANTONIO FLATWORK

1. ALL LIMITS FOR CURB, SIDEWALK, AND TREE PREP BEYOND WHAT IS CONSIDERED INCIDENTAL TO NORMAL UTILITY CONSTRUCTION WILL BE ADDRESSED BY THE SAWS INSPECTOR. ALL COMMUNICATION FROM THE CITY WILL BE COORDINATED THROUGH THE SAWS INSPECTOR. SAWS INSPECTOR WILL ALSO DETERMINE IF ADDITIONAL COMPENSATION IS WARRANTED IF LIMITS EXCEED INCIDENTALS.

CONTRACTOR NOTES:

1. CONTRACTOR SHALL BE RESPONSIBLE FOR RESTORING TO ORIGINAL CONDITION OR BETTER ANY DAMAGE DONE TO EXISTING CURBS, SIDEWALKS, AND DRIVEWAYS.
2. CONTRACTOR SHALL CONDUCT HYDROSTATIC TESTING OF NEW MAIN IN ACCORDANCE WITH ITEM 841, "HYDROSTATIC TESTING OPERATIONS".

PLANS FOR WATER WORKS CONSTRUCTION

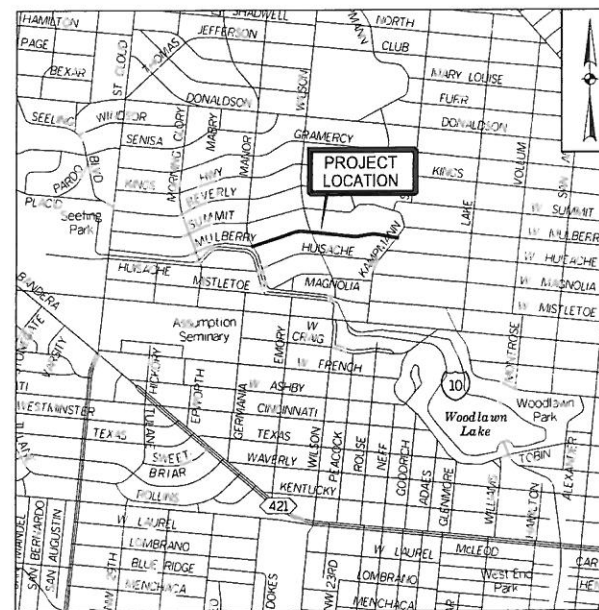


W. MULBERRY AVENUE from Manor Dr. to Kampmann Blvd. WATER LINE PLANS 100% Plans SAWS JOB NO. 14-5046

TABLE OF CONTENTS

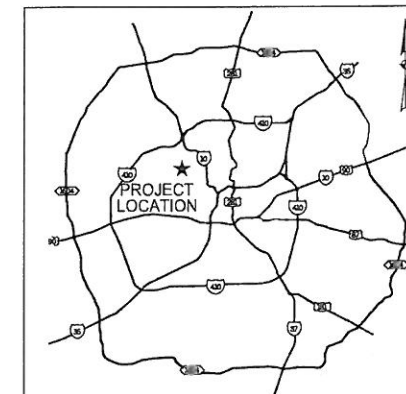
SHEET NO.	DESCRIPTION
1	TITLE SHEET AND TABLE OF CONTENTS
2	INDEX SHEET 1
3	INDEX SHEET 2
4	PROPOSED WATER LINE STA 10+00 TO STA 15+00
5	PROPOSED WATER LINE STA 15+00 TO STA 20+50
6	PROPOSED WATER LINE STA 20+50 TO STA 25+00
7	PROPOSED WATER LINE STA 25+00 TO STA 30+00
8	PROPOSED WATER LINE STA 30+00 TO STA 34+00
9	DETAILS
10	TREE PROTECTION DETAILS

ITEM NO.	SPEC NO.	DESCRIPTION	UNIT	QUANTITY
1w	103	REMOVE CONCRETE CURB	LF	12
2w	103	REMOVE SIDEWALKS & DRIVEWAYS	SF	112
5w	205	HOT MIX ASPHALTIC PAVEMENT - TYPE D (2" COMPACTED DEPTH)	SY	1211
7w	206	ASPHALT TREATED BASE (10" COMPACTED DEPTH)	SY	1020
12w	500	CONCRETE CURB, GUTTER, AND CONCRETE CURB AND GUTTER	LF	12
13w	502	CONCRETE SIDEWALKS	LF	11
14w	502	CONCRETE WHEELCHAIR RAMP	LF	6
22w	550	TRENCH PROTECTION	LF	2321
25w	818	8" PVC WATERLINE (RESTRAINED) (0'-6" CUT)	LF	2321
39w	824	RELAY 3/4" SHORT SERVICE	EA	25
40w	824	RELAY 3/4" LONG SERVICE	EA	27
41w	824	RELAY 1" SHORT SERVICE	EA	1
46w	824	RELAY 2" LONG SERVICE	EA	1
58w	828	8" GATE VALVE	EA	5
69w	833	EXISTING METER & NEW METER BOX RELOCATION	EA	52
70w	833	NEW METER BOX	EA	2
71w	834	FIRE HYDRANT	EA	1
72w	836	PIPE FITTINGS, ALL SIZES & TYPES	TN	0.61
73w	840	6" WATER TIE-INS	EA	2
74w	840	8" WATER TIE-INS	EA	2
80w	841	HYDROSTATIC TESTING	EA	1
81w	844	2" BLOW-OFF, TEMPORARY	EA	3
104w	3000	REMOVAL, TRANSPORTATION AND DISPOSAL OF VARIOUS SIZES OF AC PIPE	LF	74



LOCATION MAP N.T.S.

MARCH 17, 2015



VICINITY MAP

PREPARED BY:

OMEGA ENGINEERS, INC.

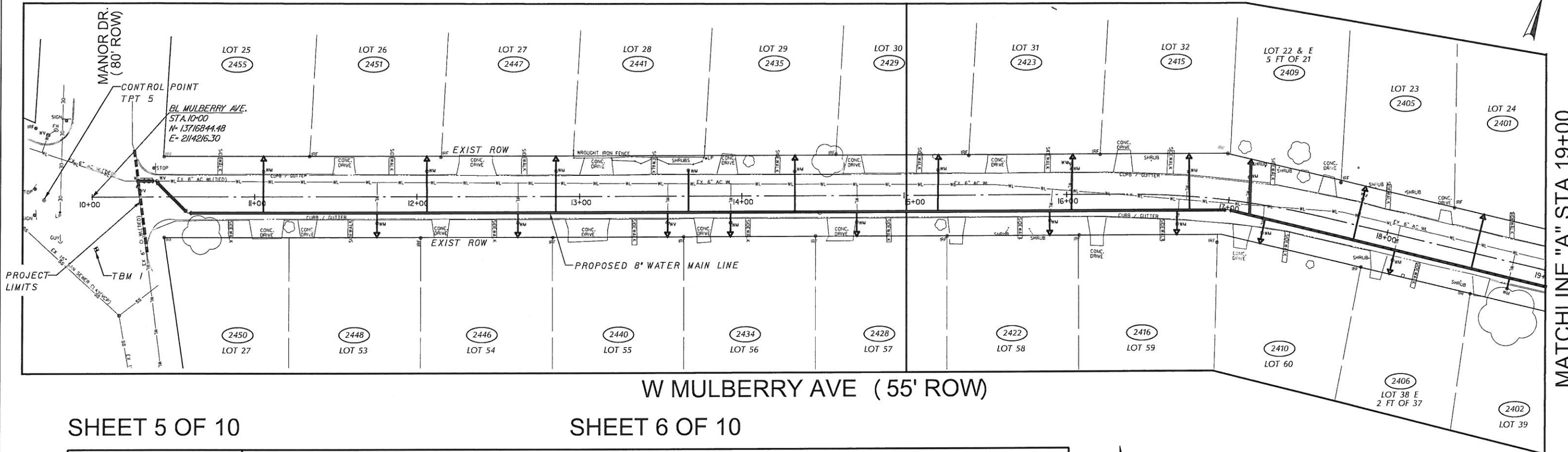
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RC
3-17-15

SHEET 4 OF 10

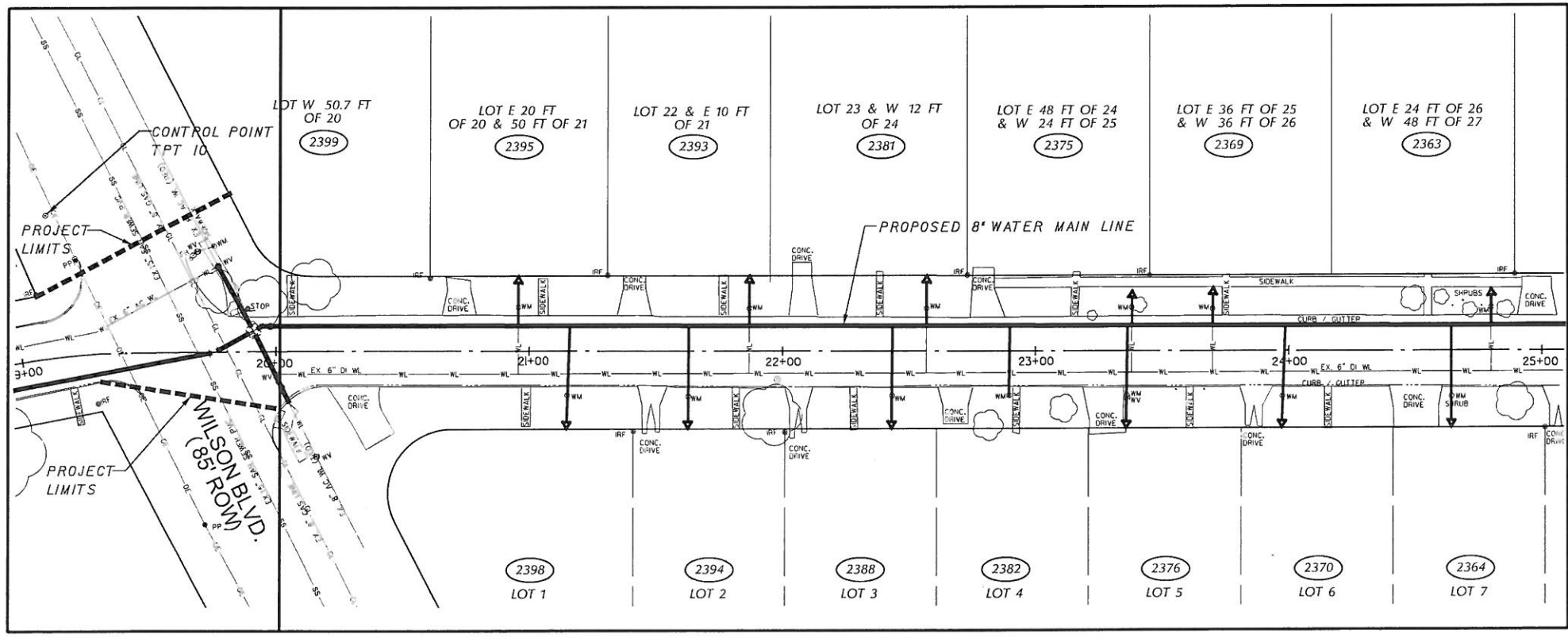
SHEET 5 OF 10



MATCHLINE "A" STA 19+00

SHEET 5 OF 10

SHEET 6 OF 10



MATCHLINE "A" STA 19+00

MATCHLINE "B" STA 25+00
(SEE SHEET 3 OF 10)

NOTE:
BENCHMARKS AND CONTROL
POINTS TABLE ON SHEET 3



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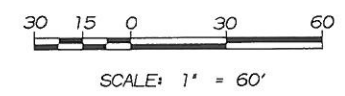
No.	Revision	Drawn	Approved	Date

REVISIONS
 W. MULBERRY AVENUE
 FROM MANOR TO KAMPMANN AVE.
 WATER LINE REPLACEMENT
 INDEX SHEET 1

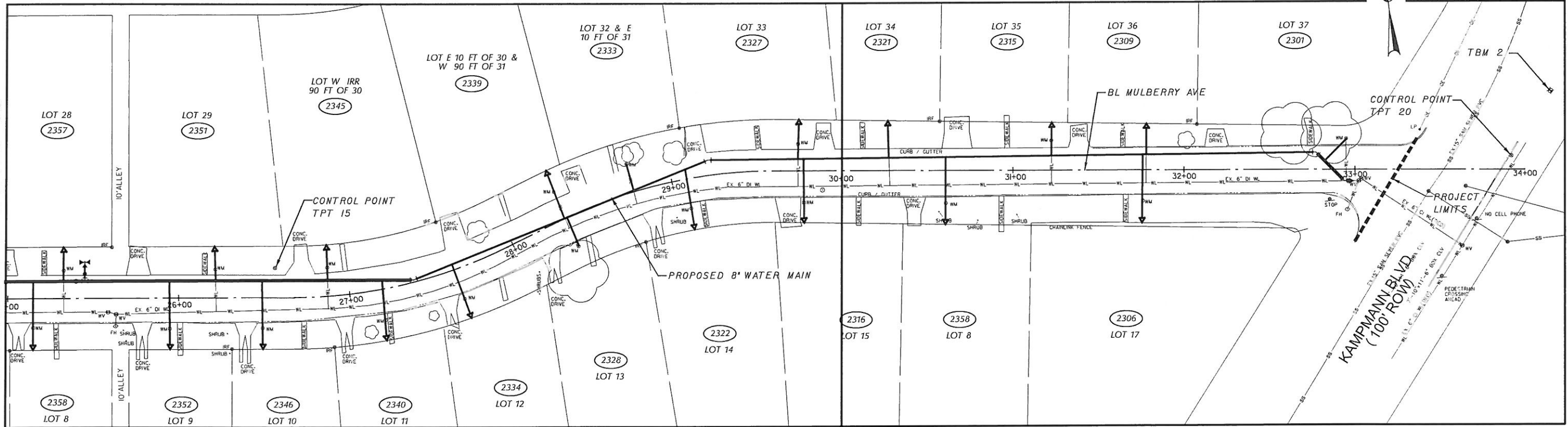
DEVELOPER: _____
 CONT. BUDGET PROJ.

SUBMITTED _____
 APPROVED _____

MAP No. _____ SHEET 2
 SECT. No. _____ OF 10
 DR. AA CK. RC JOB No. 14-5046



MATCHLINE "B" STA 25+00



W MULBERRY AVE (50' ROW)


BENCHMARKS AND CONTROL POINTS

POINT ID	NORTHING	EASTING	ELEVATION	DESCRIPTION
BL STA 10+00	13716844.48	2114216.30		BEGIN BASELINE
BL STA 34+00	13717000.64	2116567.71		END BASELINE
CP TPT 5	13716833.61	2114189.04	689.15	1/2" IRON ROD WITH RED CAP
CP TPT 10	13717138.21	2115095.08	690.75	1/2" IRON ROD WITH RED CAP
CP TPT 15	13717024.33	2115834.63	695.33	1/2" IRON ROD WITH RED CAP
CP TPT 20	13717009.57	2116560.24	688.50	1/2" IRON ROD WITH RED CAP
TBM 1	13716815.03	2114228.94	688.99	
TBM 2	13717044.52	2116587.00	688.72	

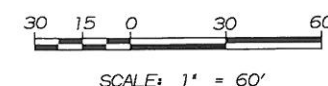


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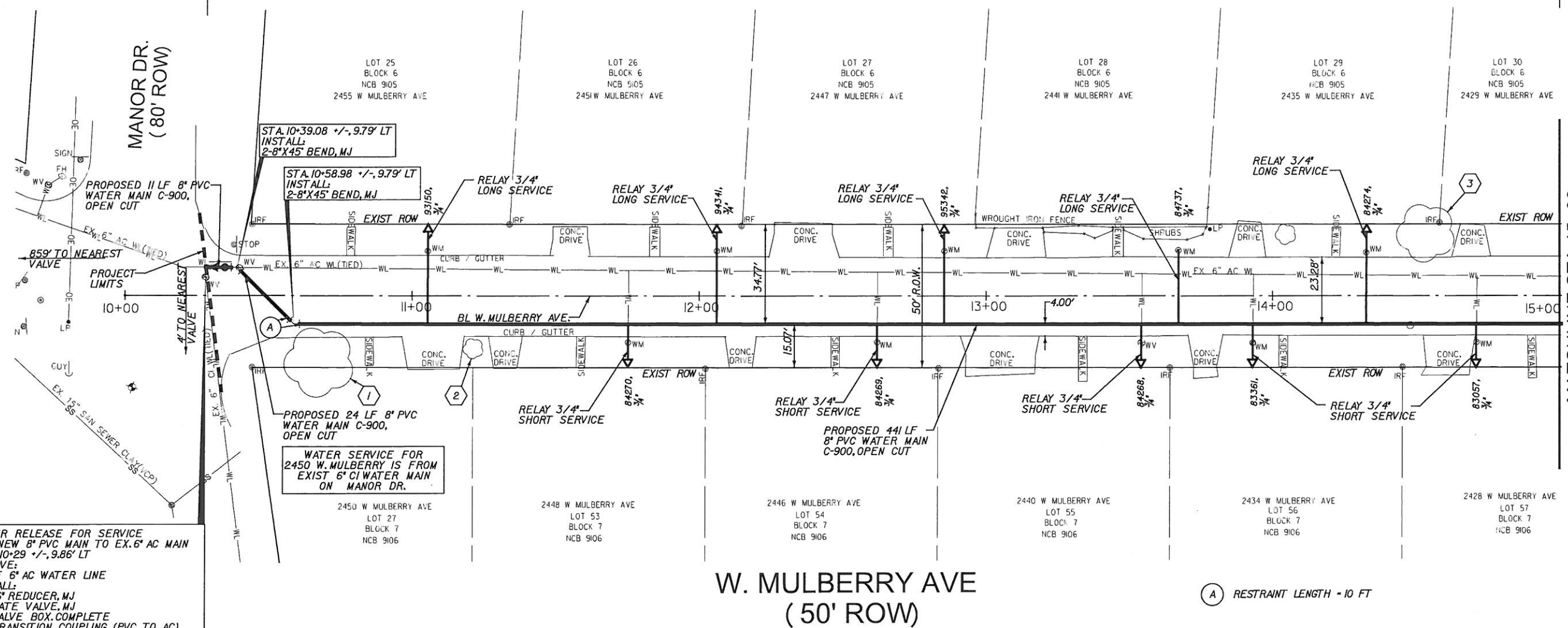
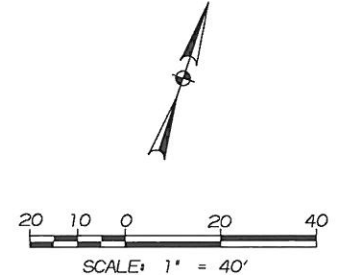
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REVISIONS

W. MULBERRY AVENUE
FROM MANOR TO KAMPMANN AVE.
WATER LINE REPLACEMENT
INDEX SHEET 2

DEVELOPER: _____
 CONT. **BUDGET PROJ.**
 SUBMITTED _____
 APPROVED _____
 MAP No. _____ SHEET 3
 SECT. No. _____ OF 10
 DR. AA CK. RC JOB No. 14-5046



SAWS SHALL MACHINE CHLORINATE NEW WATER MAIN
 ABANDON EXIST. 6" AC WATER LINE



TREE TABLE	
NUMBER	DESCRIPTION
1	2" OAK 10'D
2	7" HACKBERRY 20'D
3	20" CHINABERRY 40'D

AFTER RELEASE FOR SERVICE
 TIE NEW 8" PVC MAIN TO EX. 6" AC MAIN
 STA. 10+29 +/- 9.86' LT
 REMOVE:
 13 LF 6" AC WATER LINE
 INSTALL:
 1-8"X6" REDUCER, MJ
 1-8" GATE VALVE, MJ
 1-6" VALVE BOX, COMPLETE
 1-8" TRANSITION COUPLING (PVC TO AC)
 13 LF 8" PVC WATER MAIN, C-900
 CUT AS REQ'D

1-2" STD BLOW-OFF (TEMP)
 (SEE SAWS STD DWG DD-844-01
 SHEET 3 OF 4)

1-8" MJ X2" THR CI OR DI
 ECCENTRIC REDUCER, (TEMP)

CONTRACTOR TO PROVIDE CONCRETE
 BLOCKING AND RESTRAINING SYSTEM
 AT TIE-IN TO EXISTING MAIN

NOTES:

1. ASBESTOS CEMENT PIPE, ALSO KNOWN AS TRANSITE PIPE, WHICH IS KNOWN TO CONTAIN ASBESTOS-CONTAINING MATERIAL (ACM), MAY BE LOCATED WITHIN THE PROJECT LIMITS. SPECIAL WASTE MANAGEMENT PROCEDURES AND HEALTH SAFETY REQUIREMENTS WILL BE APPLICABLE WHEN REMOVAL AND / OR DISTURBANCE OF THIS PIPE OCCURS. PAYMENT FOR SUCH WORK IS TO BE MADE UNDER SPECIAL SPECIFICATION ITEM FOR ASBESTOS CEMENT PIPE.

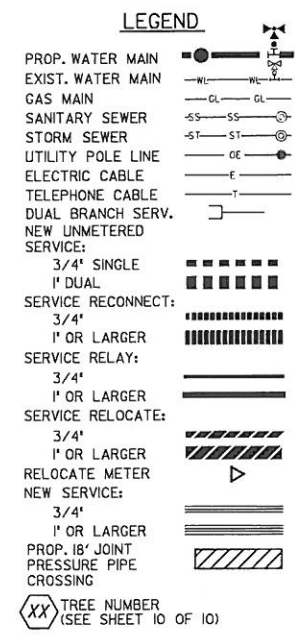
TRENCH EXCAVATION SAFETY NOTE

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 EXCAVATION, SPECIFICALLY, CONTRACTOR AND/OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR SAFETY CONSULTANT SHALL IMPLEMENT A TRENCH SAFETY PROGRAM IN ACCORDANCE WITH OSHA STANDARDS COVERING THE PRESENCE AND ACTIVITIES OF INDIVIDUALS WORKING IN AND AROUND TRENCH EXCAVATION.

W. MULBERRY AVE
 (50' ROW)

(A) RESTRAINT LENGTH = 10 FT

ITEM NO.	SPEC NO.	DESCRIPTION	UNIT	QUANTITY
5w	205	HOT MIX ASPHALTIC PAVEMENT - TYPE D (2" COMPACTED DEPTH)	SY	248
7w	206	ASPHALT TREATED BASE (10" COMPACTED DEPTH)	SY	195
22w	550	TRENCH PROTECTION	LF	476
25w	818	8" PVC WATERLINE (RESTRAINED) (0'-6" CUT)	LF	476
39w	824	RELAY 3/4" SHORT SERVICE	EA	5
40w	824	RELAY 3/4" LONG SERVICE	EA	5
58w	828	8" GATE VALVE	EA	1
69w	833	EXISTING METER & NEW METER BOX RELOCATION	EA	9
70w	833	NEW METER BOX	EA	1
72w	836	PIPE FITTINGS, ALL SIZES & TYPES	TN	0.16
73w	840	6" WATER TIE-INS	EA	1
81w	844	2" BLOW-OFF, TEMPORARY	EA	1
104w	3000	REMOVAL, TRANSPORTATION AND DISPOSAL OF VARIOUS SIZES OF AC PIPE	LF	13



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No.	Revision	Drawn	Approved	Date

REVISIONS

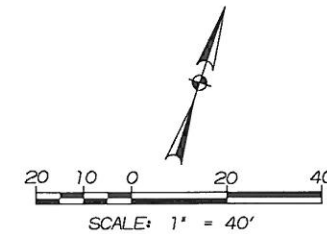
W. MULBERRY AVENUE
 FROM MANOR TO KAMPMANN AVE.
 WATER LINE REPLACEMENT
 STA. 10+00 TO STA. 15+00

DEVELOPER: _____
 CONT. BUDGET PROJ.

SUBMITTED _____
 APPROVED _____

MAP No. _____ SHEET 4
 SECT. No. _____ OF 10
 DR. AA CK. RC JOB No. 14-5046

SAWS SHALL MACHINE CHLORINATE NEW WATER MAIN
ABANDON EXIST. 6" AC WATER LINE



(SEE SHEET 4 OF 10)
MATCHLINE STA 15+00

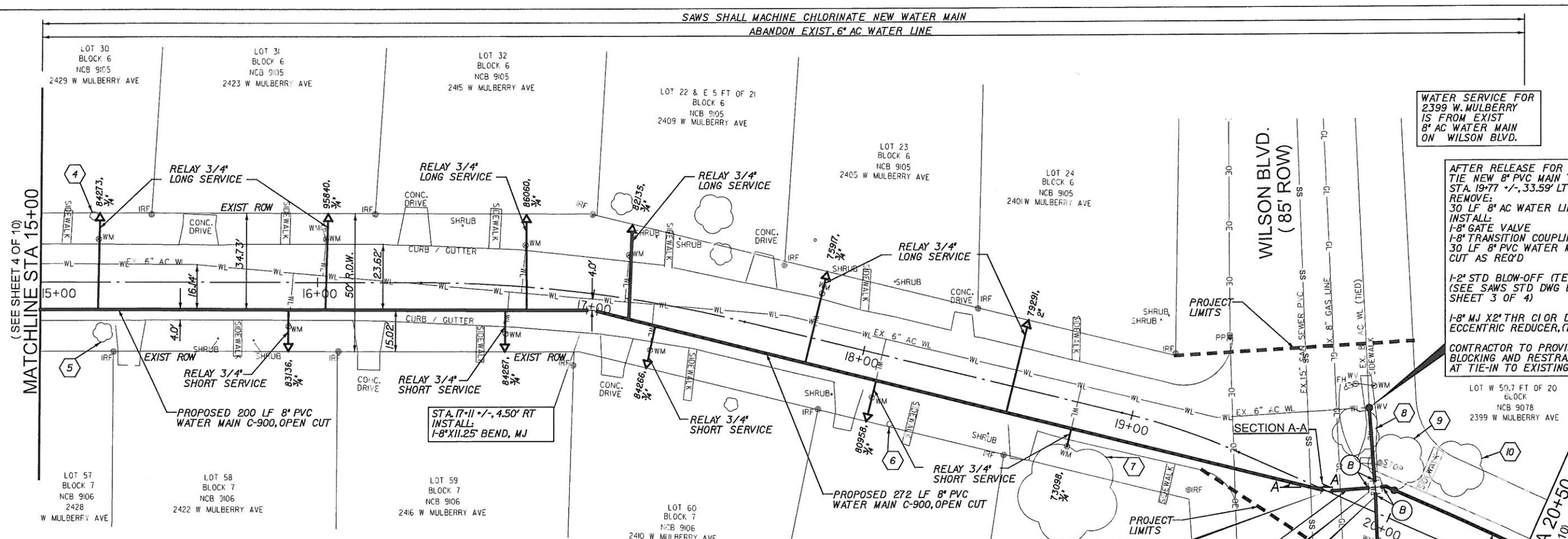
WATER SERVICE FOR 2399 W. MULBERRY IS FROM EXIST 8" AC WATER MAIN ON WILSON BLVD.

AFTER RELEASE FOR SERVICE TIE NEW 8" PVC MAIN TO EX. 8" AC MAIN STA. 19+77 +/- .33.59' LT REMOVE: 30 LF 8" AC WATER LINE INSTALL: 1-8" GATE VALVE 1-8" TRANSITION COUPLING (PVC TO AC) 30 LF 8" PVC WATER MAIN, C-900 CUT AS REQ'D

1-2" STD BLOW-OFF (TEMP) (SEE SAWS STD DWG DD-844-01 SHEET 3 OF 4)

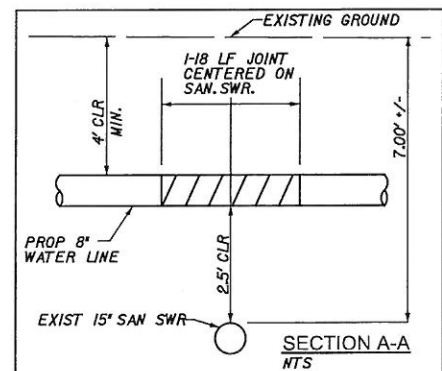
1-8" MJ X2" THR CI OR DI ECCENTRIC REDUCER, (TEMP)

CONTRACTOR TO PROVIDE CONCRETE BLOCKING AND RESTRAINING SYSTEM AT TIE-IN TO EXISTING MAIN



W. MULBERRY AVE
(50' ROW)

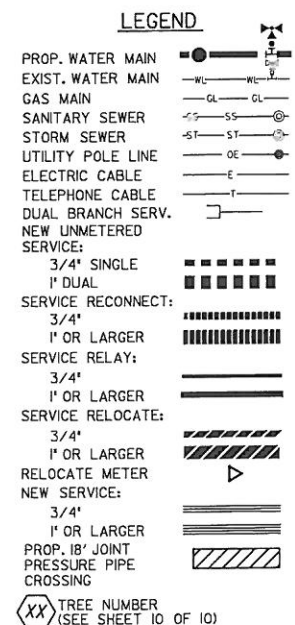
NUMBER	DESCRIPTION
4	3" MIMOSA 15' D
5	7" CHINABERRY 20' D
6	2" OAK 6' D
7	36" OAK 80' D
8	17" OAK 40' D
9	20" OAK 40' D
10	20" OAK 40' D



ITEM NO.	SPEC NO.	DESCRIPTION	UNIT	QUANTITY
1w	103	REMOVE CONCRETE CURB	LF	12
2w	103	REMOVE SIDEWALKS & DRIVEWAYS	SF	112
5w	205	HOT MIX ASPHALTIC PAVEMENT - TYPE D (2" COMPACTED DEPTH)	SY	314
7w	206	ASPHALT TREATED BASE (10" COMPACTED DEPTH)	SY	247
12w	500	CONCRETE CURB, GUTTER, AND CONCRETE CURB AND GUTTER	LF	12
13w	502	CONCRETE SIDEWALKS	SY	11
14w	502	CONCRETE WHEELCHAIR RAMP	SY	6
22w	550	TRENCH PROTECTION	LF	602
25w	818	8" PVC WATERLINE (RESTRAINED) (0'-6" CUT)	LF	602
39w	824	RELAY 3/4" SHORT SERVICE	EA	5
40w	824	RELAY 3/4" LONG SERVICE	EA	5
46w	824	RELAY 2" LONG SERVICE	EA	1
58w	828	8" GATE VALVE	EA	3
69w	833	EXISTING METER & NEW METER BOX RELOCATION	EA	11
72w	836	PIPE FITTINGS, ALL SIZES & TYPES	TN	0.22
74w	840	8" WATER TIE-INS	EA	2
81w	844	2" BLOW-OFF, TEMPORARY	EA	1
104w	3000	REMOVAL, TRANSPORTATION AND DISPOSAL OF VARIOUS SIZES OF AC PIPE	LF	61

AFTER RELEASE FOR SERVICE TIE NEW 8" PVC MAIN TO EX. 8" AC MAIN STA. 20+04 +/- .19.34' RT REMOVE: 31 LF 8" AC WATER LINE INSTALL: 1-8" GATE VALVE 1-6" VALVE BOX, COMPLETE 1-8" TRANSITION COUPLING (PVC TO AC) 31 LF 8" PVC WATER MAIN, C-900 CUT AS REQ'D

CONTRACTOR TO PROVIDE CONCRETE BLOCKING AND RESTRAINING SYSTEM AT TIE-IN TO EXISTING MAIN



(A) RESTRAINT LENGTH - 10 FT
(B) RESTRAINT LENGTH - 1 FT



NOTES:
1. ASBESTOS CEMENT PIPE, ALSO KNOWN AS TRANSITE PIPE, WHICH IS KNOWN TO CONTAIN ASBESTOS-CONTAINING MATERIAL (ACM), MAY BE LOCATED WITHIN THE PROJECT LIMITS. SPECIAL WASTE MANAGEMENT PROCEDURES AND HEALTH SAFETY REQUIREMENTS WILL BE APPLICABLE WHEN REMOVAL AND / OR DISTURBANCE OF THIS PIPE OCCURS. PAYMENT FOR SUCH WORK IS TO BE MADE UNDER SPECIAL SPECIFICATION ITEM FOR ASBESTOS CEMENT PIPE.

TRENCH EXCAVATION SAFETY NOTE
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 EXCAVATION. SPECIFICALLY, CONTRACTOR AND/OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR SAFETY CONSULTANT SHALL IMPLEMENT A TRENCH SAFETY PROGRAM IN ACCORDANCE WITH OSHA STANDARDS COVERING THE PRESENCE AND ACTIVITIES OF INDIVIDUALS WORKING IN AND AROUND TRENCH EXCAVATION.

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REVISIONS

No.	Revision	Drawn	Approved	Date

DEVELOPER: **W. MULBERRY AVENUE FROM MANOR TO KAMPMANN AVE. WATER LINE REPLACEMENT**

STA. 15+00 TO STA. 20+50

CONT. BUDGET PROJ.

SUBMITTED _____

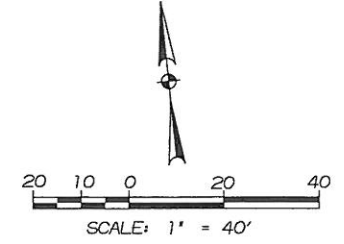
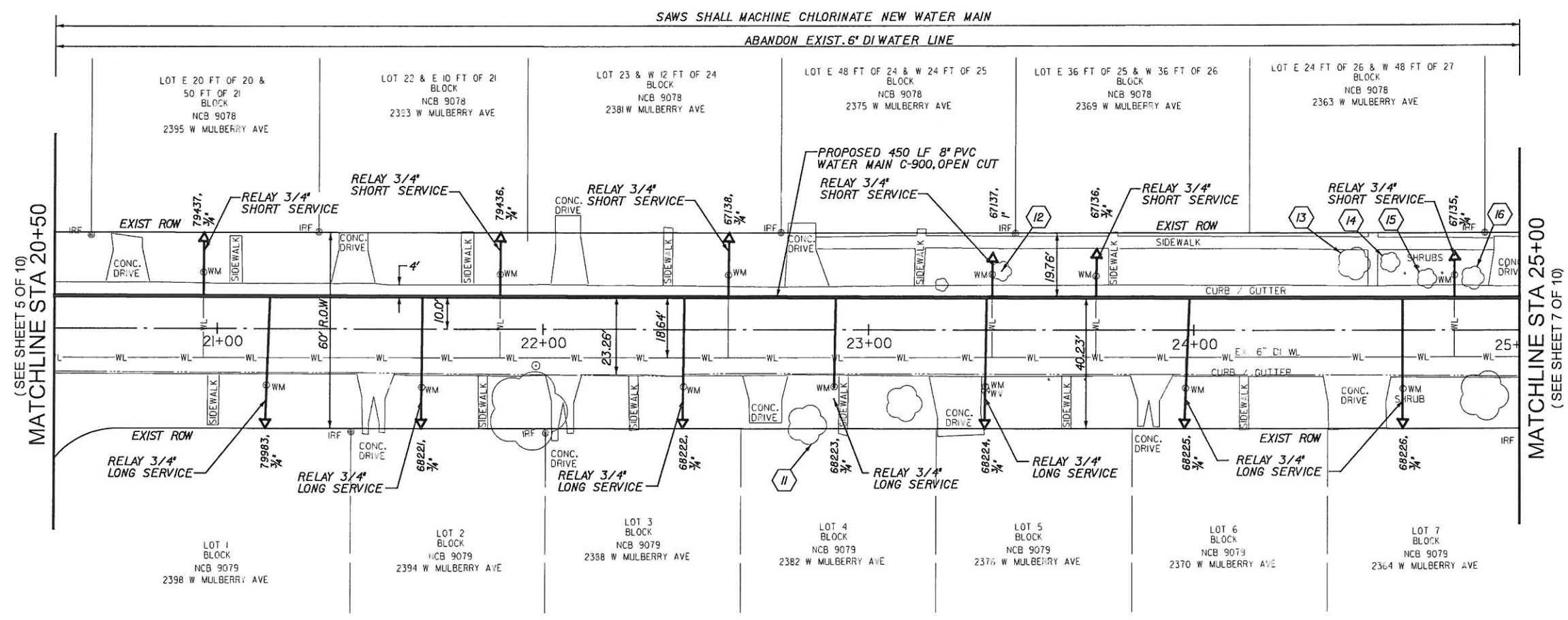
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MAP No. _____

SECT. No. _____

DR. AA CK. RC JOB No. 14-5046

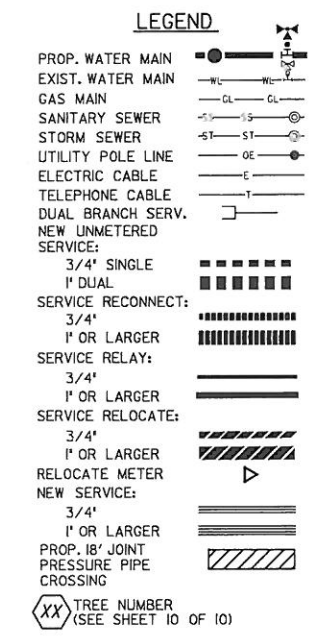
SHEET 5 OF 10



TREE TABLE	
NUMBER	DESCRIPTION
11	12" OAK 40'D
12	6" LIGUSTRUM 10'D
13	10" CEDAR 10'D
14	6" MOUNTAIN LAUREL 20'D
15	6" HUISACHE 30'D
16	7" MOUNTAIN LAUREL 30'D

**W. MULBERRY AVE
(60' ROW)**

ITEM NO.	SPEC NO.	DESCRIPTION	UNIT	QUANTITY
5w	205	HOT MIX ASPHALTIC PAVEMENT - TYPE D (2" COMPACTED DEPTH)	SY	235
7w	206	ASPHALT TREATED BASE (10" COMPACTED DEPTH)	SY	185
22w	550	TRENCH PROTECTION	LF	450
25w	818	8" PVC WATERLINE (RESTRAINED) (0'-6' CUT)	LF	450
39w	824	RELAY 3/4" SHORT SERVICE	EA	5
40w	824	RELAY 3/4" LONG SERVICE	EA	7
41w	824	RELAY 1" SHORT SERVICE	EA	1
69w	833	EXISTING METER & NEW METER BOX RELOCATION	EA	13



NOTES:

1. ASBESTOS CEMENT PIPE, ALSO KNOWN AS TRANSITE PIPE, WHICH IS KNOWN TO CONTAIN ASBESTOS-CONTAINING MATERIAL (ACM), MAY BE LOCATED WITHIN THE PROJECT LIMITS. SPECIAL WASTE MANAGEMENT PROCEDURES AND HEALTH SAFETY REQUIREMENTS WILL BE APPLICABLE WHEN REMOVAL AND / OR DISTURBANCE OF THIS PIPE OCCURS. PAYMENT FOR SUCH WORK IS TO BE MADE UNDER SPECIAL SPECIFICATION ITEM FOR ASBESTOS CEMENT PIPE.

TRENCH EXCAVATION SAFETY NOTE

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 EXCAVATION. SPECIFICALLY, CONTRACTOR AND/OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR SAFETY CONSULTANT SHALL IMPLEMENT A TRENCH SAFETY PROGRAM IN ACCORDANCE WITH OSHA STANDARDS COVERING THE PRESENCE AND ACTIVITIES OF INDIVIDUALS WORKING IN AND AROUND TRENCH EXCAVATION.



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No.	Revision	Drawn	Approved	Date

REVISIONS

**W. MULBERRY AVENUE
FROM MANOR TO KAMPMANN AVE.
WATER LINE REPLACEMENT**

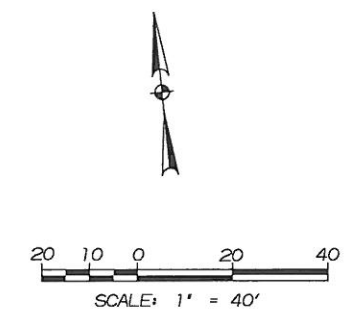
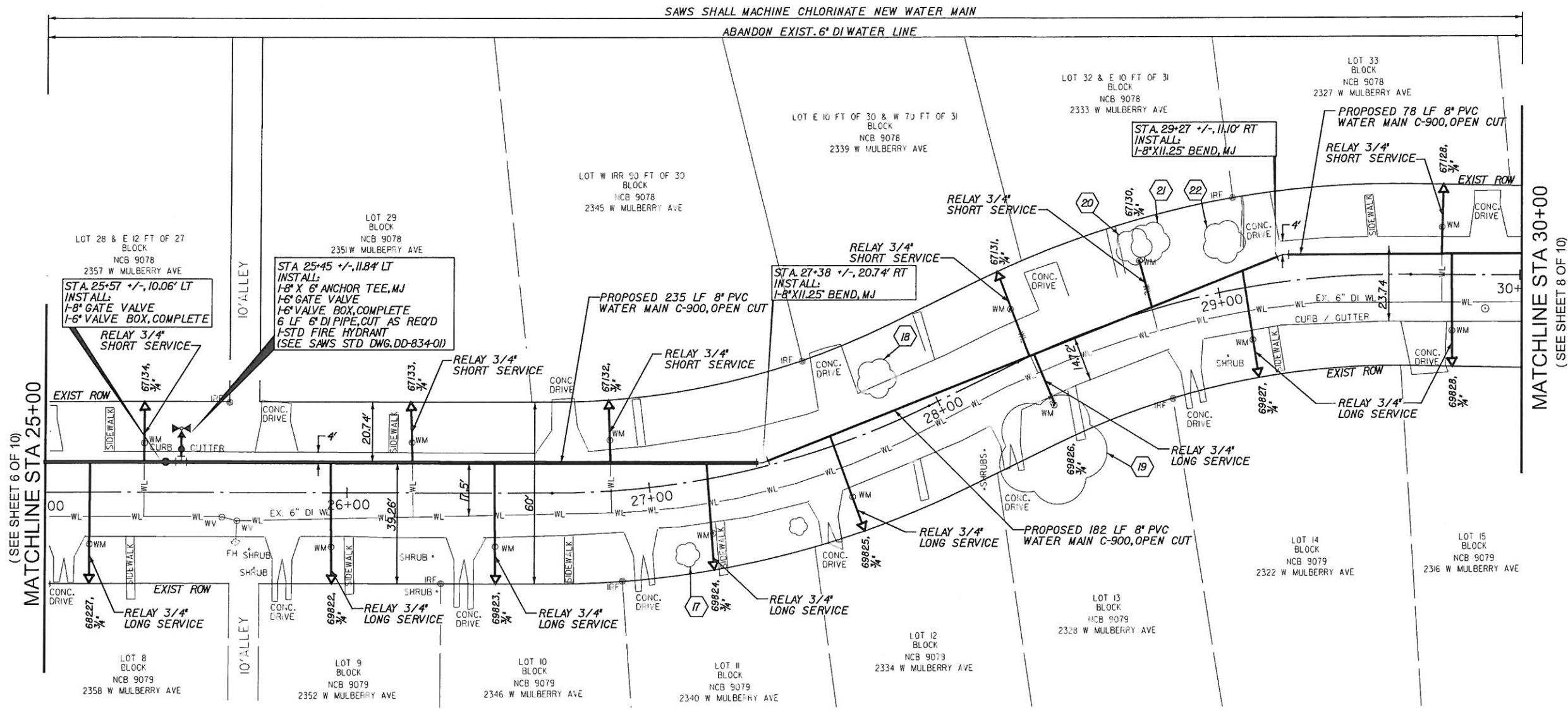
STA. 20+50 TO STA. 25+00

DEVELOPER: _____
 CONT. BUDGET PROJ. _____

SUBMITTED _____
 APPROVED _____

MAP No.	SHEET 6
SECT. No.	OF 10
DR. AA CK. RC	JOB No. 14-5046

SAWS SHALL MACHINE CHLORINATE NEW WATER MAIN
 ABANDON EXIST. 6" DI WATER LINE



TREE TABLE	
NUMBER	DESCRIPTION
17	8" OAK 30'D
18	13' CHINESE TALLOW 30'D
19	36' ASH 80'D
20	12' CREPE MYRTLE 10'D
21	12' CREPE MYRTLE 10'D
22	14' MOUNTAIN LAUREL 30'D

W. MULBERRY AVE
 (60' ROW)

NOTES:
 1. ASBESTOS CEMENT PIPE, ALSO KNOWN AS TRANSITE PIPE, WHICH IS KNOWN TO CONTAIN ASBESTOS-CONTAINING MATERIAL (ACM), MAY BE LOCATED WITHIN THE PROJECT LIMITS. SPECIAL WASTE MANAGEMENT PROCEDURES AND HEALTH SAFETY REQUIREMENTS WILL BE APPLICABLE WHEN REMOVAL AND / OR DISTURBANCE OF THIS PIPE OCCURS. PAYMENT FOR SUCH WORK IS TO BE MADE UNDER SPECIAL SPECIFICATION ITEM FOR ASBESTOS CEMENT PIPE.

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ITEM NO.	SPEC NO.	DESCRIPTION	UNIT	QUANTITY
5w	205	HOT MIX ASPHALTIC PAVEMENT - TYPE D (2" COMPACTED DEPTH)	SY	258
7w	206	ASPHALT TREATED BASE (10" COMPACTED DEPTH)	SY	203
22w	550	TRENCH PROTECTION	LF	495
25w	818	8" PVC WATERLINE (RESTRAINED) (0'-6" CUT)	LF	495
39w	824	RELAY 3/4" SHORT SERVICE	EA	6
40w	824	RELAY 3/4" LONG SERVICE	EA	8
58w	828	8" GATE VALVE	EA	1
69w	833	EXISTING METER & NEW METER BOX RELOCATION	EA	13
70w	833	NEW METER BOX	EA	1
71w	834	FIRE HYDRANT	EA	1
72w	836	PIPE FITTINGS, ALL SIZES & TYPES	TN	0.08

LEGEND

- PROP. WATER MAIN
- EXIST. WATER MAIN
- GAS MAIN
- SANITARY SEWER
- STORM SEWER
- UTILITY POLE LINE
- ELECTRIC CABLE
- TELEPHONE CABLE
- DUAL BRANCH SERV.
- NEW UNMETERED SERVICE:
- 3/4" SINGLE
- 1" DUAL
- SERVICE RECONNECT:
- 3/4"
- 1" OR LARGER
- SERVICE RELAY:
- 3/4"
- 1" OR LARGER
- SERVICE RELOCATE:
- 3/4"
- 1" OR LARGER
- RELOCATE METER
- NEW SERVICE:
- 3/4"
- 1" OR LARGER
- PROP. 18" JOINT PRESSURE PIPE CROSSING
- XX TREE NUMBER (SEE SHEET 10 OF 10)



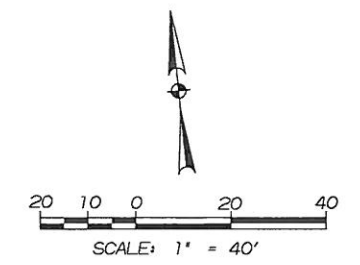
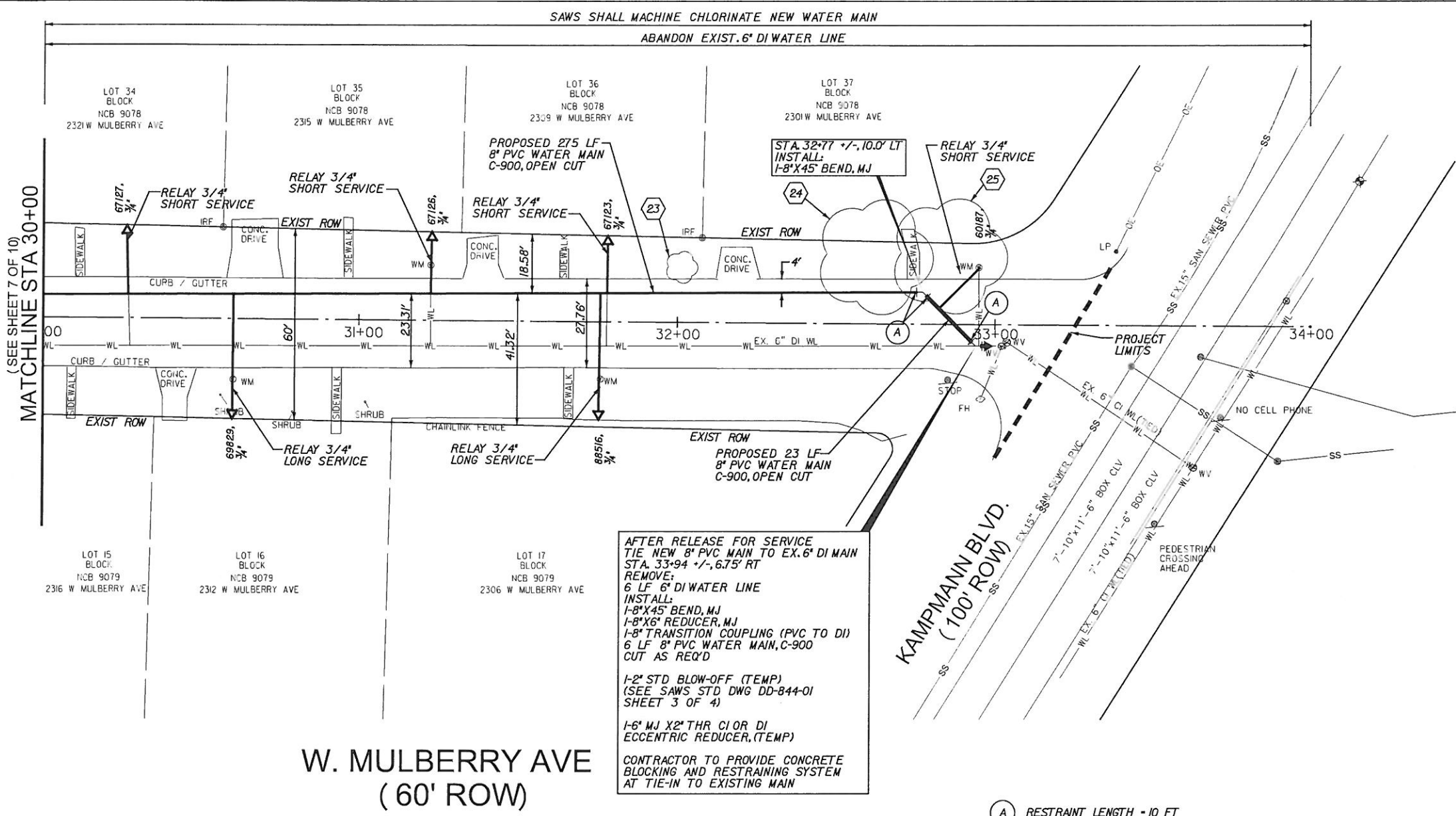
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No.	Revision	Drawn	Approved	Date

REVISIONS
 W. MULBERRY AVENUE
 FROM MANOR TO KAMPMANN AVE.
 WATER LINE REPLACEMENT
 STA. 25+00 TO STA. 30+00

DEVELOPER: _____
 CONT. _____ BUDGET PROJ.
 SUBMITTED _____
 APPROVED _____

MAP No. _____ SHEET 7 OF 10
 SECT. No. _____
 DR. AA CK. RC JOB No. 14-5046



TREE TABLE	
NUMBER	DESCRIPTION
23	10\"/>

MH 2009
 TOP ELEV. = 687.59
 IN = 677.16(IN)
 OUT = 677.15(S)
 N = 13716.994.71
 E = 216531.62

AFTER RELEASE FOR SERVICE
 TIE NEW 8\"/>

(A) RESTRAINT LENGTH - 10 FT

W. MULBERRY AVE
 (60' ROW)

NOTES:

1. ASBESTOS CEMENT PIPE, ALSO KNOWN AS TRANSITE PIPE, WHICH IS KNOWN TO CONTAIN ASBESTOS-CONTAINING MATERIAL (ACM), MAY BE LOCATED WITHIN THE PROJECT LIMITS. SPECIAL WASTE MANAGEMENT PROCEDURES AND HEALTH SAFETY REQUIREMENTS WILL BE APPLICABLE WHEN REMOVAL AND / OR DISTURBANCE OF THIS PIPE OCCURS. PAYMENT FOR SUCH WORK IS TO BE MADE UNDER SPECIAL SPECIFICATION ITEM FOR ASBESTOS CEMENT PIPE.

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ITEM NO.	SPEC NO.	DESCRIPTION	UNIT	QUANTITY
5w	205	HOT MIX ASPHALTIC PAVEMENT - TYPE D (2\"/>		


LEGEND

- PROP. WATER MAIN
- EXIST. WATER MAIN
- GAS MAIN
- SANITARY SEWER
- STORM SEWER
- UTILITY POLE LINE
- ELECTRIC CABLE
- TELEPHONE CABLE
- DUAL BRANCH SERV.
- NEW UNMETERED SERVICE:
- 3/4\"/>

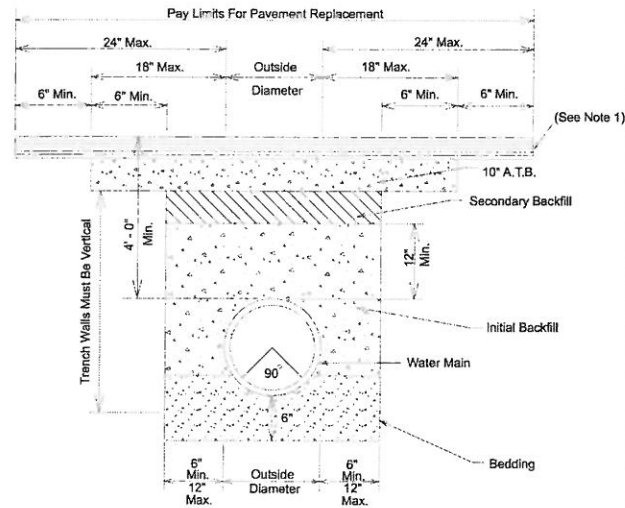


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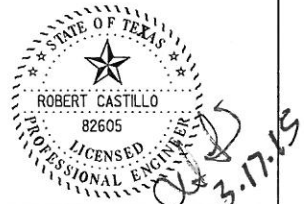
REVISIONS

W. MULBERRY AVENUE FROM MANOR TO KAMPMANN AVE. WATER LINE REPLACEMENT
 STA. 30+00 TO STA. 34+00

DEVELOPER: _____
 CONT. _____ BUDGET PROJ. _____
 SUBMITTED _____
 APPROVED _____
 MAP No. _____ SHEET 8 of 10
 SECT. No. _____
 DR. AA CK. RC JOB No. 14-5046



- 1) REPLACEMENT OF SURFACE LAYER SHALL BE OF THE TYPE AND THICKNESS BASED ON FUNCTIONAL CLASSIFICATION.
- a. Min 2" H/MAC Type "D" for trench repair in Local / Residential streets.
 - b. Min 3" H/MAC Type "C" for trench repair in Collector / Arterial streets.

PROPERTY OF SAN ANTONIO WATER SYSTEM SAN ANTONIO, TEXAS	POTABLE AND RECYCLED WATER MAIN DETAIL	APPROVED	REVISED
		MARCH 2008	APRIL 2014
		DD-812-01	SHEET 1 OF 1



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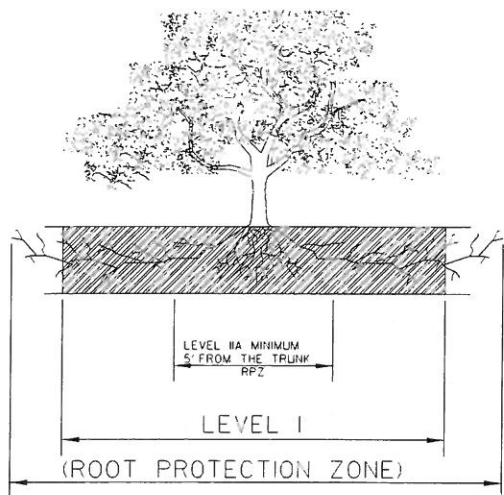
REVISIONS

**W. MULBERRY AVENUE
 FROM MANOR TO KAMPMANN AVE.
 WATER LINE REPLACEMENT
 DETAILS**

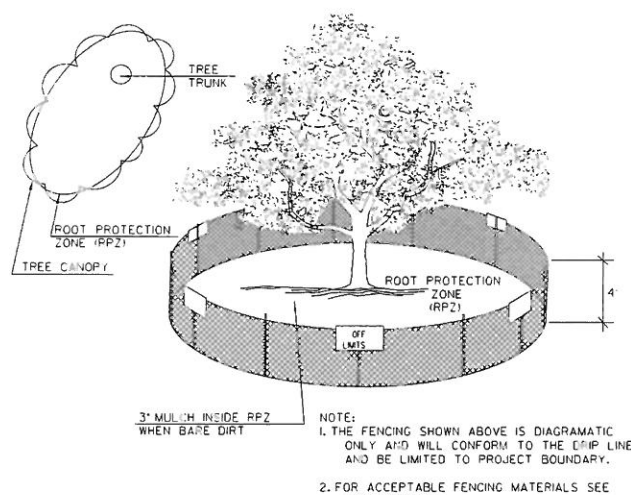
DEVELOPER: _____
 CONT. BUDGET PROJ.

SUBMITTED _____
 APPROVED _____

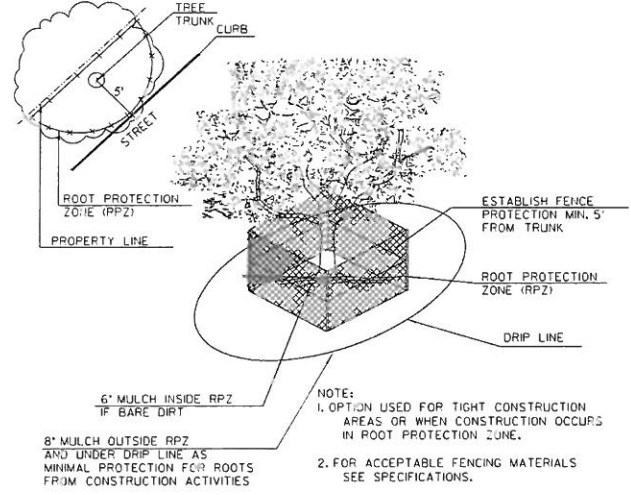
MAP No.		SHEET
SECT. No.		9
DR. AA CK. RC	JOB No. 14-5046	OF 10



1.1.1 ELEVATION
NTS
ROOT PROTECTION ZONE - THE ROOT PROTECTION ZONE IS A CIRCULAR AREA AROUND A TREE THAT IS BASED ON THE DIAMETER OF THE TREE. EACH INCH DIAMETER OF THE TREE EQUALS A FOOT RADIUS FOR ROOT PROTECTION ZONE.



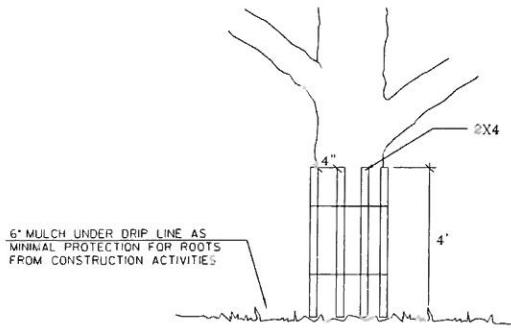
1.1.2 LEVEL I & FENCE PROTECTION
NTS
NOTE:
1. THE FENCING SHOWN ABOVE IS DIAGRAMATIC ONLY AND WILL CONFORM TO THE RPZ LINE AND BE LIMITED TO PROJECT BOUNDARY.
2. FOR ACCEPTABLE FENCING MATERIALS SEE SPECIFICATIONS.



1.1.3 LEVEL II A FENCE PROTECTION
NTS
NOTE:
1. OPTION USED FOR TIGHT CONSTRUCTION AREAS OR WHEN CONSTRUCTION OCCURS IN ROOT PROTECTION ZONE.
2. FOR ACCEPTABLE FENCING MATERIALS SEE SPECIFICATIONS.

GENERAL NOTES

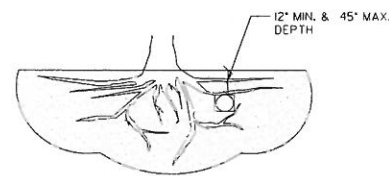
- ALL THE TREES WITH A DIAMETER GREATER THAN 3 INCHES AFFECTED BY CONSTRUCTION SHALL HAVE THE LIMBS AND ROOTS TRIMMED AND PRUNED ACCORDING TO ITEM NO. 802. TREE PRUNING, SOIL AMENDING AND FERTILIZATION, UNLESS SPECIFIED TREES SHALL RECEIVE LEVEL I PROTECTION AS PER ITEM NO. 802. TREES TO RECEIVE LEVEL I PROTECTION AS PER ITEM NO. 802 ARE SHOWN ON TREE PROTECTION TABLE ON THIS SHEET.
- ALL TREES SHALL REMAIN UNLESS NOTED ON THE PLANS.
- NO SITE PREPARATION WORK SHALL BEGIN IN AREAS WHERE TREE PRESERVATION AND TREATMENT MEASURES HAVE NOT BEEN COMPLETED AND APPROVED.
- TREE PROTECTION FENCING SHALL BE REQUIRED. TREE PROTECTION FENCING SHALL BE INSTALLED, MAINTAINED AND REPAIRED BY THE CONTRACTOR DURING SITE CONSTRUCTION.
- THE CONTRACTOR SHALL AVOID CUTTING ROOTS LARGER THAN 3 INCHES IN DIAMETER WHEN EXCAVATING NEAR EXISTING TREES. EXCAVATION IN THE VICINITY OF TREES SHALL PROCEED WITH CAUTION. THE CONTRACTOR SHALL CONTACT CITY INSPECTOR.
- THE ROOT PROTECTION ZONE IS THAT AREA SURROUNDING A TREE, AS MEASURED BY A RADIUS FROM THE TREE TRUNK, IN WHICH NO EQUIPMENT, VEHICLES OR MATERIALS MAY OPERATE OR BE STORED. THE REQUIRED RADIUS LENGTH IS 1 FOOT PER DIAMETER INCH OF THE TREE. FOR EXAMPLE, A 10-INCH DIAMETER TREE WOULD HAVE A 5-FOOT RADIUS PROTECTION ZONE AROUND THE TREE. ROOTS OR BRANCHES THAT ARE IN CONFLICT WITH THE CONSTRUCTION SHALL BE CUT CLEANLY ACCORDING TO PROPER PRUNING METHODS. LIVE OAK WOUNDS SHALL BE PAINTED OVER, WITHIN 20 MINUTES TO PREVENT OAK WILT.
- ACCESS TO FENCED AREAS WILL BE PERMITTED ONLY WITH THE APPROVAL OF THE ENGINEER OR CITY INSPECTOR.
- GRADING, IF REQUIRED, SHALL BE LIMITED TO A 3 INCH CUT OR FILL WITHIN THE FENCED ROOT ZONE AREAS.
- TREES, SHRUBS OR BUSHES TO BE CLEARED FROM PROTECTED ROOT ZONE AREAS SHALL BE REMOVED BY HAND AS DIRECTED BY THE PROJECT MANAGER OR CITY INSPECTOR.
- TREES LOST OR DAMAGED DUE TO CONTRACTOR'S NEGLIGENCE DURING CONSTRUCTION SHALL BE MITIGATED TO THE ENGINEER'S SATISFACTION.
- EXPOSED ROOTS SHALL BE COVERED AT THE END OF EACH DAY USING TECHNIQUES SUCH AS COVERING WITH SOIL, MULCH, OR WET BURLAP.
- ANY TREE REMOVAL SHALL BE APPROVED BY THE CITY ARBORIST PRIOR TO ITS REMOVAL.



1.1.4 LEVEL II B FENCE PROTECTION
NTS

TREES THAT ARE MARKED TO BE PRESERVED ON A SITE PLAN AND FOR WHICH UTILITIES MUST PASS THROUGH THEIR ROOT PROTECTION ZONES MAY REQUIRE TUNNELING AS OPPOSED TO OPEN TRENCHES. THE DECISION TO TUNNEL WILL BE DETERMINED ON A CASE BY CASE BASIS BY THE ENGINEER.

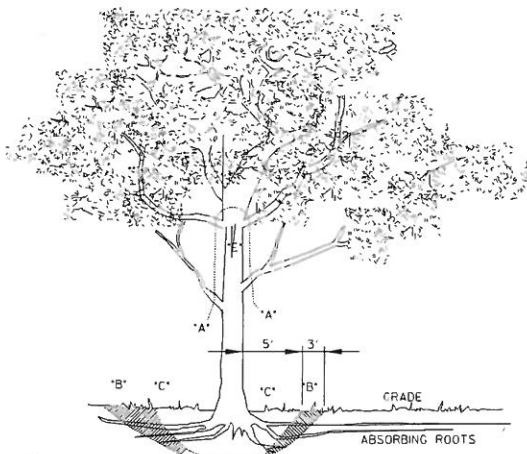
TUNNELS SHALL BE DUG THROUGH THE ROOT PROTECTION ZONE IN ORDER TO MINIMIZE ROOT DAMAGE.



TUNNEL TO MINIMIZE ROOT DAMAGE (TOP) AS OPPOSED TO SURFACE DUG TRENCHES IN ROOT PROTECTION ZONE WHEN THE 6' MINIMUM DISTANCE FROM THE TRUNK CANNOT BE ACHIEVED.

(OPEN TRENCHING MAY BE USED IF EXPOSED TREE ROOTS DO NOT EXCEED 3" OR ROOTS CAN BE BENT BACK.

1.2 BORING THROUGH ROOT ZONE
NTS



NOTE:
A - REMOVE BULKY TREE PARTS "SHIPPED" AND / OR HAUL SEPARATELY.
B - BEGIN EXCAVATION APPROXIMATELY 5' FROM TRUNK - CUT THROUGH ANCHOR ROOTS AT AN ANGLE - 3 TO 4" DEEP
C - USING TREE TRUNK AS A LEVER, PUSH AT POINT 'C' TO REMOVE TREE BOLE. LARGE FEEDER ROOTS (4' TO 10" IN DIAM.)
D - BACKFILL HOLE AND CLEAN UP.

1.3 TREE REMOVAL DIAGRAM
NTS

1.3 GENERAL NOTES

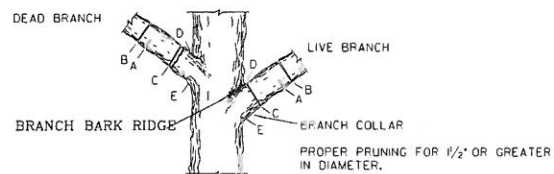
TREE PROTECTION TABLE

TREE SHEET #	TREE/CALIPER SHEET #	STATION OR NUMBER	LOCATION	PROTECTION MEASURE		REMOVAL SEE GENERAL NOTE No. 2
				ITEM 801	ITEM 802 MAINTENANCE/TREATMENTS/PROTECTION	
4	24" OAK 10'D	1	23.01' RT		LIIA - 1.1.3	
4	7" HACKBERRY 20'D	2	18.32' RT		LIIA - 1.1.3	
4	20" CHINABERRY 40'D	3	21.82' LT		LIIA - 1.1.3	
5	3" MIMOSA 15'D	4	23.93' LT		LIIA - 1.1.3	
5	7" CHINABERRY 20'D	5	18.03' RT		LIIA - 1.1.3	
5	2" OAK 6'D	6	23.56' RT		LIIA - 1.1.3	
5	36" OAK 80'D	7	32.54' RT		BORING - 1.2	
5	17" OAK 40'D	8	23.90' LT		BORING - 1.2	
5	20" OAK 40'D	9	19.81' LT		LIIA - 1.1.3	
5	20" OAK 40'D	10	26.28' LT		LIIA - 1.1.3	
6	12" OAK 40'D	11	29.02' RT		LIIA - 1.1.3	
6	6" LIGUSTRUM 10'D	12	18.03' LT		LIIA - 1.1.3	
6	10" CEDAR 10'D	13	20.44' LT		LIIA - 1.1.3	
6	6" MOUNTAIN LAUREL 20'D	14	20.88' LT		LIIA - 1.1.3	
6	6" HUISACHE 30'D	15	15.86' LT		LIIA - 1.1.3	
6	7" MOUNTAIN LAUREL 30'D	16	16.08' LT		LIIA - 1.1.3	
7	8" OAK 30'D	17	23.57' RT		LIIA - 1.1.3	
7	13" CHINESE TALLOW 30'D	18	15.59' RT		LIIA - 1.1.3	
7	36" ASH 80'D	19	30.73' RT		LIIA - 1.1.3	
7	12" CREPE MYRTLE 10'D	20	17.43' LT		LIIA - 1.1.3	
7	12" CREPE MYRTLE 10'D	21	21.82' LT		LIIA - 1.1.3	
7	14" MOUNTAIN LAUREL 30'D	22	16.24' LT		LIIA - 1.1.3	
8	10" OAK 15'D	23	17.31' LT		LIIA - 1.1.3	
8	36" PALM 40'D	24	21.08' LT		LIIA - 1.1.3	
8	36" PALM 40'D	25	21.50' LT		LIIA - 1.1.3	

1.3 TREE PROTECTION TABLE

TREE INVENTORY SUMMARY (8" DIAMETER AND LARGER)	
TOTAL DIAMETER INCHES, P.O.W	380
TOTAL DIAMETER INCHES REMOVED	0
TOTAL DIAMETER INCHES PRESERVED	380
TOTAL PERCENTAGE INCHES PRESERVED	100
TOTAL INCHES TO BE MITIGATED	0

1.3 TREE INVENTORY SUMMARY



- FIRST CUT - TO PREVENT THE BARK FROM BEING PEELED WHEN THE BRANCH FALLS.
- SECOND CUT - TO REDUCE THE WEIGHT OF THE BRANCH.
- FINAL CUT - ALLOW FOR HEALING COLLAR BUT NO STUBS.
- BRANCH RIDGES - INDENT PROPERLY BRANCH RIDGES WHICH ARE SITE FOR DECAY.

FOR OAKS ONLY: PAINT ALL WOUNDS OR CUTS WITH PRUNING PAINT WITHIN 20 MINUTES TO PREVENT THE SPREAD OF OAK WILT.

1.4 BRANCH PRUNING DETAIL
NTS

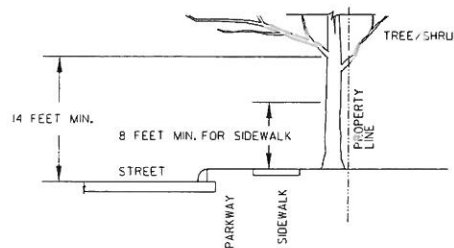
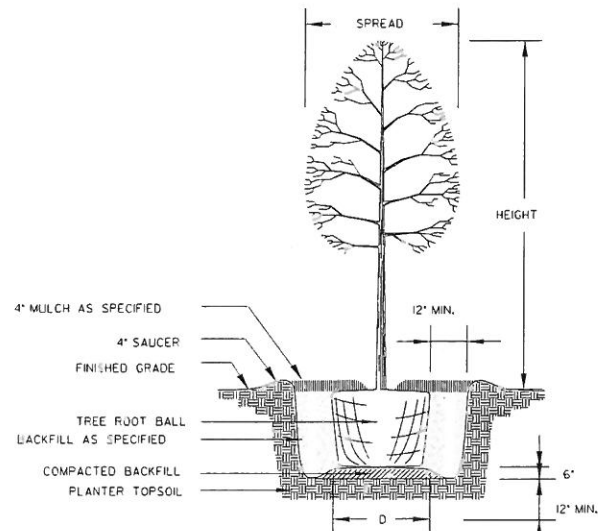


FIGURE NO. 2
A MINIMUM BRANCH CLEARANCE OF 14 FEET ABOVE STREET ELEVATION MUST BE MAINTAINED FROM THE PROPERTY LINE TO THE CURB LINE AS PRESCRIBED BY THE PROJECT MANAGER.

1.5 BRANCH CLEARANCE DETAIL
NTS



1.6 NEW TREE PLANTING DETAIL
NTS

CITY OF SAN ANTONIO



DEPARTMENT OF PUBLIC WORKS

**CITY OF SAN ANTONIO
TREE PROTECTION DETAILS
TREE PRESERVATION**

DESIGNED:	FED RD DW #14	STATE		SHT NO.	
CHECKED:		TEWPS		10	
DATE:	STATE DIST. NO.	COUNTY	CONTROL NO.	ECT NO.	JOB NO.
CHECKED:	EC:HR				HIGHWAY NO.