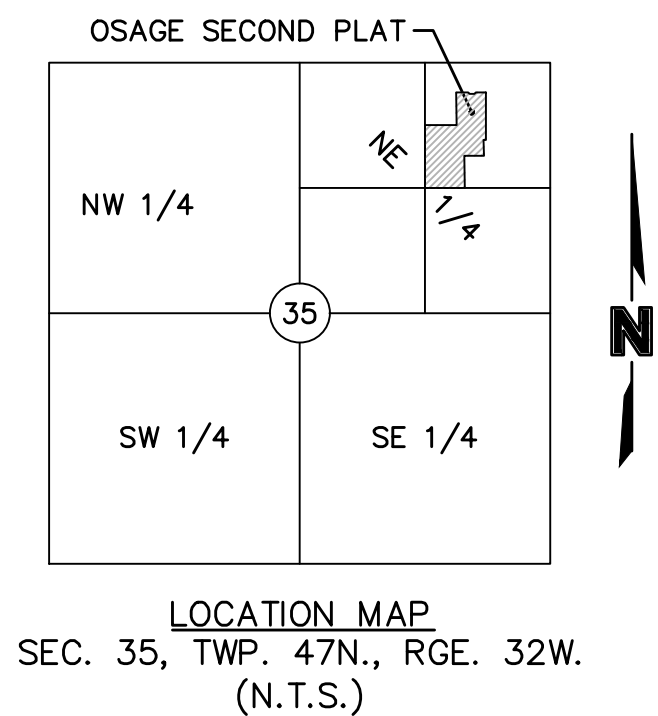


NE 1/4 SECTION 35, TOWNSHIP 47 N, RANGE 32 W.
IN LEE'S SUMMIT, JACKSON COUNTY, MISSOURI



PROJECT TEAM & UTILITY CONTACT LIST	
<u>OWNER / DEVELOPER</u> CLAYTON PROPERTIES GROUP, INC. D.B.A. SUMMIT HOMES 120 SE 30TH STREET CONTACT: VINCENT WALKER LEE'S SUMMIT, MO 64082 PHONE: 816.246.6700 EMAIL: VINCENT@SUMMITHOMESKC.COM	<u>UTILITY SERVICE NUMBERS</u> NAME: LEE'S SUMMIT PUBLIC WORKS PHONE: 816-969-1800 NAME: LEE'S SUMMIT WATER & SERVICES DEPARTMENT PHONE: 816-969-1940
<u>ENGINEER</u> OLSSON 1301 BURLINGTON ST. SUITE 100 NORTH KANSAS CITY, MO 64116 CONTACT: JULIE SELLERS, PE PHONE: 816.361.1177 EMAIL: JSSELLERS@OLSSON.COM	NAME: SPIRE (MGE) PHONE: 314-342-0500 NAME: AT&T PHONE: 800-286-8313 NAME: EVERGY PHONE: 816-471-5275
<u>SURVEYOR</u> OLSSON 1301 BURLINGTON ST. SUITE 100 NORTH KANSAS CITY, MO 64116 CONTACT: JASON ROUEBUSH PHONE: 816.361.1177 EMAIL: JROUEBUSH@OLSSON.COM	NAME: SPECTRUM (TWC) PHONE: 877-772-2253 NAME: GOOGLE FIBER PHONE: 877-454-6959



SHEET LIST	
NUMBER	TITLE
C301	TITLE SHEET
C302	GENERAL NOTES
C303	GENERAL LAYOUT
C304	WATER PLAN & PROFILE (LINE 1)
C305	WATER PLAN & PROFILE (LINE 2)
C306	WATER PLAN & PROFILE (LINE 3)
C307	WATER PLAN & PROFILE (LINE 3 CONT)
C308	WATER PLAN & PROFILE (LINE 4)
C309	DETAIL SHEET
C310	DETAIL SHEET

ASBUILT
02-03-2022

OLSSON HAS BEEN RETAINED TO PROVIDE AS-BUILT DRAWINGS FOR THIS PROJECT.

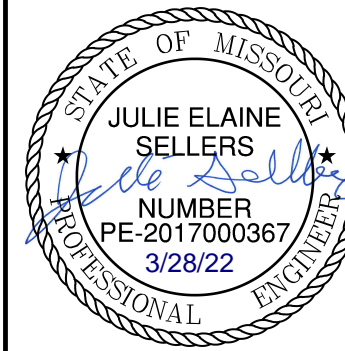


 JULIE SELLERS, P.E.
 CIVIL ENGINEER
 MO#2017000367

3/28/22

 DATE

Olsson

[illegible]

TITLE SHEET
 WATER MAIN EXTENSION PLANS
 OSAGE
 SECOND PLAT

drawn by: _____	D.F. / M.O. / A.A.	
checked by: _____	C.G.W.	
designed by: _____	A.A.	
QA/QC by: _____	J.E.S.	
project no.: _____	C19-2339	
drawing no.: _____		
date: _____	2020.11.03	

SHEET
C301

DWG: F:\2019\2001-2500\019-2339-C\40-Design\AutoCAD\Final Plans - As-builts\Sheets\GNCV\WATER\C_TTL01_C192339.dwg
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GENERAL NOTES

1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ENSURING THAT THE PLANS IN THEIR POSSESSION ARE THE MOST CURRENT VERSION ISSUED, ARE FULLY COORDINATED WITH ALL SUBCONTRACTORS, AND PRESENT ON SITE AT ALL TIMES. CURRENT PLANS PREPARED BY OLSSON MAY BE OBTAINED AT THE DIRECTION OF OLSSON'S CLIENT. DIRECT REQUESTS TO OLSSON MAY REQUIRE ADDITIONAL AUTHORIZATIONS, AGREEMENTS, AND/OR FEES. PLEASE CONTACT THE ENGINEER FOR INFORMATION.
2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DEVIATIONS FROM THESE PLANS UNLESS WRITTEN APPROVAL FROM ENGINEER, OWNER, AND DEVELOPER.
3. ALL WORK AND MATERIALS SHALL BE SUBJECT TO INSPECTION AND APPROVAL BY THE OWNER OR THE OWNER'S REPRESENTATIVE.
4. ALL ESTIMATES OF QUANTITIES ARE FOR INFORMATIONAL PURPOSES ONLY. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DETERMINING QUANTITIES AND ITEMS OF WORK.
5. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING ALL LABOR, MATERIALS, AND EQUIPMENT REQUIRED TO COMPLETE THE WORK SHOWN IN THE PLANS.
6. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL REQUIRED PERMITS, PAYING ALL FEES, AND FOR OTHERWISE COMPLYING WITH ALL APPLICABLE REGULATIONS GOVERNING THE WORK.
7. THE CONTRACTOR SHALL NOT ENGAGE IN ACTIVITIES THAT MAY ENCROACH ON WATERS OF THE U.S., INCLUDING WETLANDS, UNTIL ANY NECESSARY PERMITS MAY BE OBTAINED. THE CONTRACTOR SHALL REVIEW AND COMPLY WITH ALL CONDITIONS DESCRIBED IN THE PERMIT.
8. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR CONDITIONS OF THE JOB SITE, THE SAFETY OF ALL PERSONS INCLUDING VISITORS AND THE GENERAL PUBLIC, AND PROPERTY DURING PERFORMANCE OF THE WORK. THIS REQUIREMENT WILL APPLY CONTINUOUSLY THROUGHOUT THE PROJECT AND NOT BE LIMITED BY WORKING HOURS. ANY CONSTRUCTION OBSERVATION BY THE ENGINEER OF THE CONTRACTOR'S PERFORMANCE IS NOT INTENDED TO INCLUDE REVIEW OF THE ADEQUACY OF THE CONTRACTOR'S SAFETY MEASURES.
9. PRIOR TO COMMENCEMENT OF WORK THE CONTRACTOR SHALL NOTIFY AND COORDINATE WITH ALL UTILITY COMPANIES AND OBTAIN ANY RELEVANT INFORMATION. NOTIFY ENGINEER OF ANY DISCREPANCIES.
10. THE CONTRACTOR IS RESPONSIBLE FOR THE PROTECTION OF ALL BOUNDARY CORNERS AND SECTION CORNERS. ANY BOUNDARY CORNER AND/OR SECTION CORNER DISTURBED OR DAMAGED BY CONSTRUCTION ACTIVITIES SHALL BE RESET BY A LAND SURVEYOR LICENSED IN THE STATE OF MISSOURI, AT THE CONTRACTOR'S EXPENSE.
11. THE CONTRACTOR IS RESPONSIBLE FOR THE PROTECTION OF ADJACENT PROPERTIES AND SHALL TAKE ALL PRECAUTIONS NECESSARY TO PREVENT DAMAGE DURING CONSTRUCTION. THE CONTRACTOR IS ALSO RESPONSIBLE FOR REPAIRING ANY DAMAGE RESULTING FROM CONSTRUCTION ACTIVITIES.
12. PRIOR TO MOVING OFF THE JOB THE CONTRACTOR SHALL NOTIFY THE OWNER AND ENGINEER TO PERFORM A FINAL WALK-THROUGH OF THE CONSTRUCTION SITE.

REFERENCES

1. UNLESS EXPLICITLY DESCRIBED OTHERWISE WITHIN THESE PLANS THE FOLLOWING SHALL APPLY:
 - A. ALL CONSTRUCTION, INCLUDING THOSE LISTED BELOW, SHALL CONFORM TO THE LATEST CODES AND ORDINANCES OF LEE'S SUMMIT, MISSOURI.
 - B. ALL CONSTRUCTION IN MODOT RIGHT-OF-WAY SHALL CONFORM TO THE LATEST SPECIFICATIONS ADOPTED BY U.S. DEPARTMENT OF TRANSPORTATION AND MODOT.
 - C. ALL TRAFFIC CONTROL SIGNAGE SHALL CONFORM WITH THE CURRENT EDITION OF THE MANUAL FOR UNIFORM TRAFFIC CONTROL DEVICES (MUTCD).
 - D. ALL UTILITY EXTENSIONS AND CONSTRUCTION SHALL CONFORM TO THE STANDARDS AND SPECIFICATIONS OF THE UTILITY COMPANIES.
 - E. ALL EXTERIOR PAVEMENT (PCC, ASPHALT, ETC.) SHALL BE IN CONFORMANCE WITH THE SPECIFICATIONS OF LEE'S SUMMIT, MISSOURI
4. THE CONTRACTOR IS RESPONSIBLE FOR CONTACTING THE DELIVERY MANAGER AND COORDINATING ANY MAILBOXES THAT MAY BE DISTURBED. FAILURE TO DO SO MAY SUBJECT THE CONTRACTOR TO PROSECUTION BY THE FEDERAL GOVERNMENT.

EXISTING CONDITIONS

1. THE CONTRACTOR SHALL VISIT THE SITE AND BECOME FAMILIAR WITH THE EXISTING CONDITIONS OF THE PROJECT AREA.
2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PERFORMING THEIR OWN INVESTIGATIONS AND MAKING THEIR OWN ASSUMPTIONS REGARDING SITE SURFACE AND SUBSURFACE CONDITIONS. THIS INCLUDES THE LOCATION AND CONSISTENCY OF ANY EXISTING ROCK LAYERS UNDERLYING THE PROJECT SITE. CONTACT THE ENGINEER REGARDING ANY DISCREPANCIES THAT MAY AFFECT THE ABILITY TO CONSTRUCT FROM THESE PLANS AS DESIGNED.
3. EXISTING CONDITIONS WERE DETERMINED THROUGH A VARIETY OF METHODS THAT MAY INCLUDE SURVEY, AERIAL IMAGERY, AVAILABLE RECORDS, GIS DATA, ETC. SUBSURFACE CONDITIONS ARE APPROXIMATE AND MAY NOT INCLUDE ALL UTILITIES AND OTHER SITE IMPROVEMENTS PRESENT ON SITE. THE CONTRACTOR SHALL MAKE EXPLORATION EXCAVATIONS AND LOCATE EXISTING UNDERGROUND UTILITIES SUFFICIENTLY AHEAD OF CONSTRUCTION TO PERMIT REVISIONS TO PLANS WHEN CONFLICTS AND DISCREPANCIES ARE FOUND.

CONSTRUCTION

1. THE CONTRACTOR SHALL INSTALL TRAFFIC CONTROL WHILE WORKING IN THE PUBLIC RIGHT-OF-WAY AS SHOWN IN THESE PLANS. IF PLANS ARE NOT PROVIDED, CONTRACTOR SHALL COORDINATE AND PROVIDE CONTROLS TO THE SATISFACTION OF THE RIGHT-OF-WAY OWNER.
2. THE CONTRACTOR SHALL PROTECT ALL TREES OVER 3" CALIPER FROM DAMAGE. NO TREE SHALL BE REMOVED WITHOUT PERMISSION OF THE OWNER, UNLESS SHOWN OTHERWISE ON THESE PLANS.
3. THE CONTRACTOR SHALL DISPOSE ALL WASTE MATERIAL RESULTING

FROM THE PROJECT OFF-SITE AND IN STRICT CONFORMANCE WITH ALL LOCAL CODES AND ORDINANCES.

4. ALL MANHOLES, CATCH BASINS, UTILITY VALVES AND METER PITS ARE TO BE ADJUSTED OR REBUILT TO GRADE AS REQUIRED. NOT ALL ADJUSTMENTS ARE INDICATED IN THE PLANS.
5. THE CONTRACTOR SHALL STREET SWEEP OR OTHERWISE CLEAN ALL ACCESS ROUTES TO THE SITE AT CONCLUSION OF THE PROJECT.

SHOP DRAWINGS

1. THE CONTRACTOR SHALL SUBMIT SHOP DRAWING A MINIMUM OF 7 DAYS PRIOR TO THE REQUESTED DATE OF APPROVAL. ENGINEER SHALL REVIEW SHOP DRAWINGS OR SAMPLES CONFORMANCE WITH THE DESIGN FOR THIS PROJECT AS DESCRIBED IN THE PLANS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ERRORS OR OMISSIONS IN SHOP DRAWINGS. THE ENGINEER'S REVIEW SHALL NOT EXTEND TO MEANS OR METHODS OF CONSTRUCTION. CONTRACTOR SHALL BE RESPONSIBLE FOR ANY VARIATION FROM THE REQUIREMENTS OF THE CONTRACT DOCUMENTS UNLESS CONTRACTOR HAS NOTIFIED ENGINEER OF EACH SUCH VARIATION AT THE TIME OF SUBMISSION, AND OBTAINED ENGINEER'S WRITTEN APPROVAL OF EACH SUCH VARIATION. PRIOR TO SUBMITTING EACH SHOP DRAWING OR SAMPLE, CONTRACTOR SHALL HAVE REVIEWED AND VERIFIED:
 - A. ALL FIELD MEASUREMENTS, QUANTITIES, DIMENSIONS, SPECIFIED PERFORMANCE CRITERIA, INSTALLATION REQUIREMENTS, MATERIALS, CATALOG NUMBERS AND SIMILAR INFORMATION WITH RESPECT THERETO;
 - B. ALL MATERIALS WITH RESPECT TO INTENDED USE, FABRICATION, SHIPPING, HANDLING, STORAGE, ASSEMBLY AND INSTALLATION PERTAINING TO THE PERFORMANCE OF THE WORK;
 - C. ALL INFORMATION RELATIVE TO MEANS, METHODS, TECHNIQUES, SEQUENCES AND PROCEDURES OF CONSTRUCTION AND SAFETY PRECAUTIONS AND PROGRAMS INCIDENT THERETO;
 - D. CONTRACTOR SHALL ALSO HAVE REVIEWED AND COORDINATED EACH SHOP DRAWING OR SAMPLE WITH OTHER SHOP DRAWINGS AND SAMPLES, AND WITH THE REQUIREMENTS OF THE WORK AND THE CONTRACT DOCUMENTS.
 - E. ALL SUBMITTED SHOP DRAWINGS SHALL BEAR A STAMP OR SPECIFIC WRITTEN INDICATION AND SIGNATURE THAT CONTRACTOR HAS FULLY COMPLETED THE ABOVE TASKS.
2. SHOP DRAWINGS AS DESCRIBED ABOVE ARE REQUIRED FOR, BUT NOT LIMITED TO, THE FOLLOWING:
 - A. ALL SANITARY SEWER STRUCTURES TO BE INSTALLED WITH THIS PROJECT.
 - B. ANY ITEMS IN THESE PLANS THAT ALLOW FOR AN "APPROVED EQUAL" ALTERNATIVE.

WATER PLAN NOTES

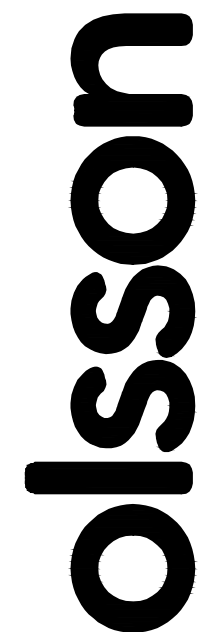
1. PRIOR TO COMMENCEMENT OF WORK THE CONTRACTOR SHALL NOTIFY AND COORDINATE CONSTRUCTION WITH UTILITY OWNER.
2. ALL PIPE LENGTHS ARE CALCULATED LINEARLY FROM CENTER OF FITTING OR WALL OF VAULT.
3. COORDINATES ARE PROVIDED ALONG PIPE CENTERLINE. ADDITIONAL COORDINATES PROVIDED ARE PER LOCAL CODES AND ORDINANCES OR AS AN AID WHEN ORIENTING INSTALLATIONS.
4. THE CONTRACTOR SHALL EXPOSE EXISTING UTILITIES AT LOCATIONS OF POSSIBLE CONFLICT AND POINTS OF CONNECTION PRIOR TO ANY CONSTRUCTION OF WATER.
5. WATER PIPE TRENCHES SHALL BE CONSTRUCTED SUCH THAT UNDISTURBED EXISTING SOIL OR FILL COMPACTED TO 95% PROCTOR DENSITY IS AT A DEPTH THAT IS 18" ABOVE TOP OF PROPOSED PIPE.
6. ALL PRIVATE WATER LINES SHALL BE A MINIMUM OF 48 INCHES AND MAXIMUM OF 60 INCHES BELOW THE FINISHED GRADE ELEVATIONS SHOWN HEREIN UNLESS OTHERWISE NOTED.
7. IF AN AS-BUILT OF A WATER LINE IS REQUIRED OR EXPECTED THE CONTRACTOR SHALL NOT BACKFILL THE TRENCH UNTIL AN AS-BUILT SURVEY IS CONDUCTED.
8. DISINFECTION AND PRESSURE TESTING OF WATER LINES SHALL BE PERFORMED AND PAID FOR BY THE CONTRACTOR AND AS REQUIRED BY THE UTILITY OWNER.
9. ALL EXISTING FIRE HYDRANTS ON SITE OR IN THE RIGHT-OF-WAY BETWEEN PROPERTY AND ROADWAY SHALL BE REPAINTED PER LOCAL CODES AND ORDINANCES.
10. TRACING TAPE SHALL BE INSTALLED ALONG ALL NON-METALLIC SURFACES OR AS DIRECTED BY LOCAL CODES AND ORDINANCES.

ESTIMATE OF QUANTITIES				
ITEM NO.	DESCRIPTION	UNIT	QUANTITY	AS-BUILT
1	8" C900 PLASTIC PIPE	L.F.	1792	1792*
2	8" CLASS 52 DIP WITH ZINC COATING	L.F.	20	20*
3	8" X 8" TEE	EA.	3	3*
4	STRAIGHT SET HYDRANT ASSEMBLY	EA.	1	1
5	FIRE HYDRANT ASSEMBLY (INCLUDING TEE)	EA.	4	4
6	8" GATE VALVES	EA.	7	6
7	8" SOLID SLEEVES	EA.	3	3*
*AS PROVIDED BY CONTRACTOR				


ASBUILT
02-03-2022

Accepted
Record Drawings

These plans have been reviewed for accuracy and are accepted for basic conformance to the approved construction drawings.



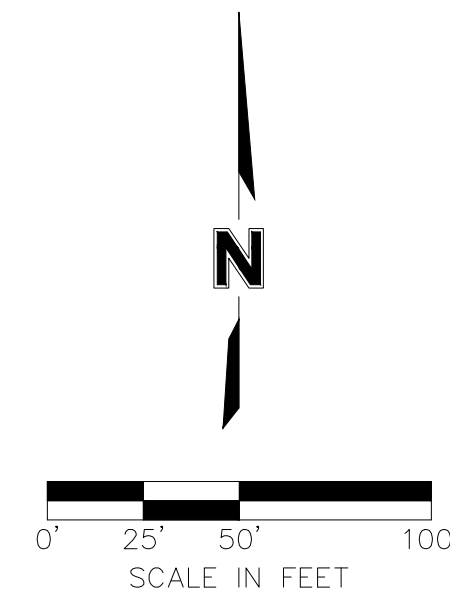
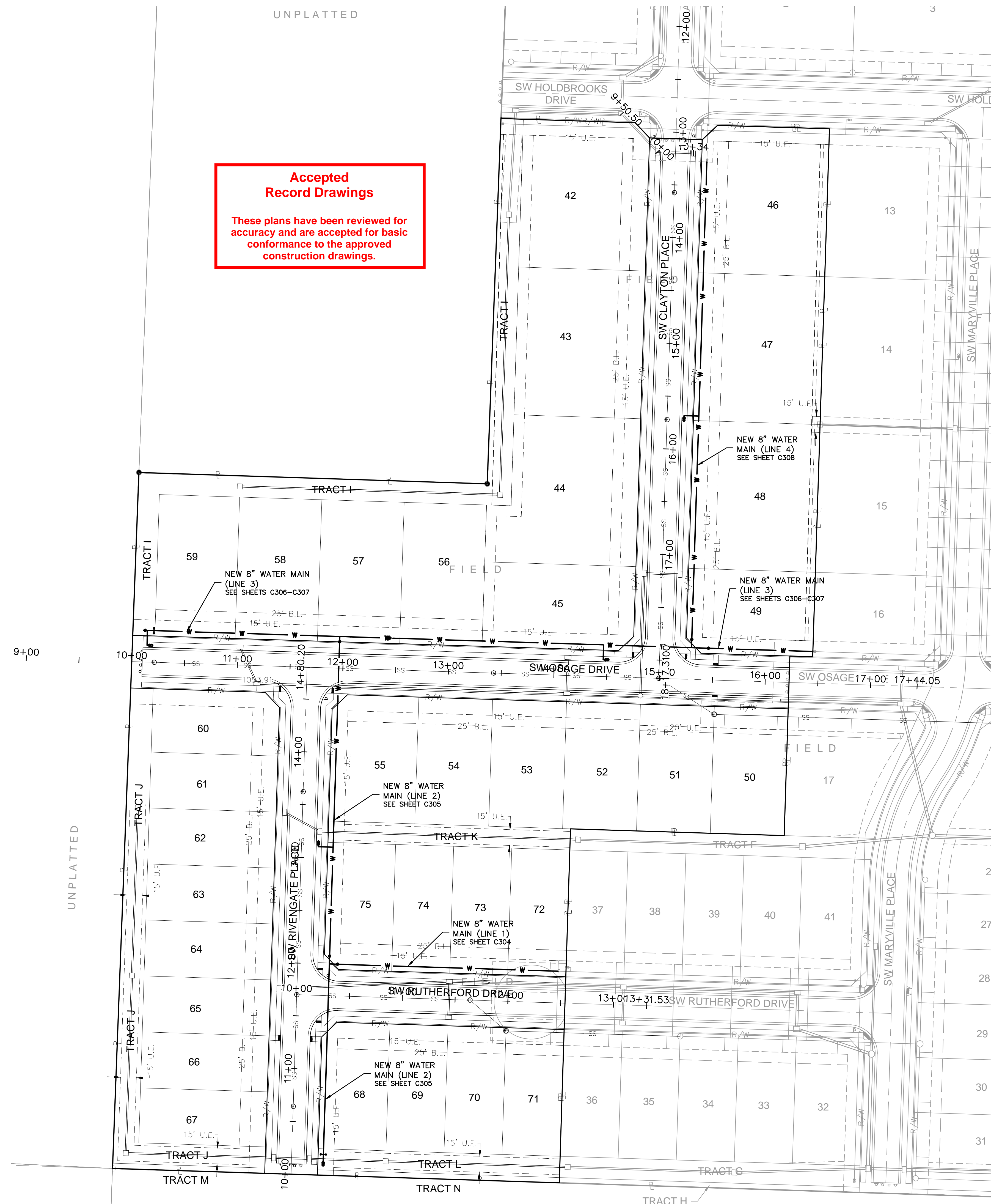
Olsson - Civil Engineering
Missouri Certificate of Authority #: 001592
1301 Burlington Street
North Kansas City, MO 64116
TEL 816.361.1177
www.olsson.com



REVISIONS DESCRIPTION	DATE	REV. NO.								
GENERAL NOTES WATER MAIN EXTENSION PLANS										2020
OSAGE SECOND PLAT										
drawn by: <u>D.F./M.O./A.A.</u> checked by: <u>C.G.W.</u> designed by: <u>A.A.</u> QA/QC by: <u>J.E.S.</u> project no.: <u>C19-2339</u> drawing no.: date: <u>2020.11.03</u>										
SHEET C302										

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NOT ASBUILT



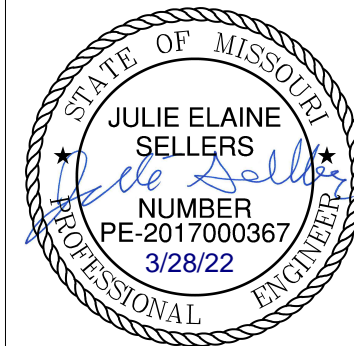
GENERAL LAYOUT WATER MAIN EXTENSION PLANS	OSAGE SECOND PLAT
--	----------------------

drawn by: D.F. / M.O. / A.A.
checked by: C.G.W.
designed by: A.A.
QA/QC by: J.E.S.
project no.: C19-2339
drawing no.:
date: 2020.11.03

SHEET
C303

0000

REVISIONS

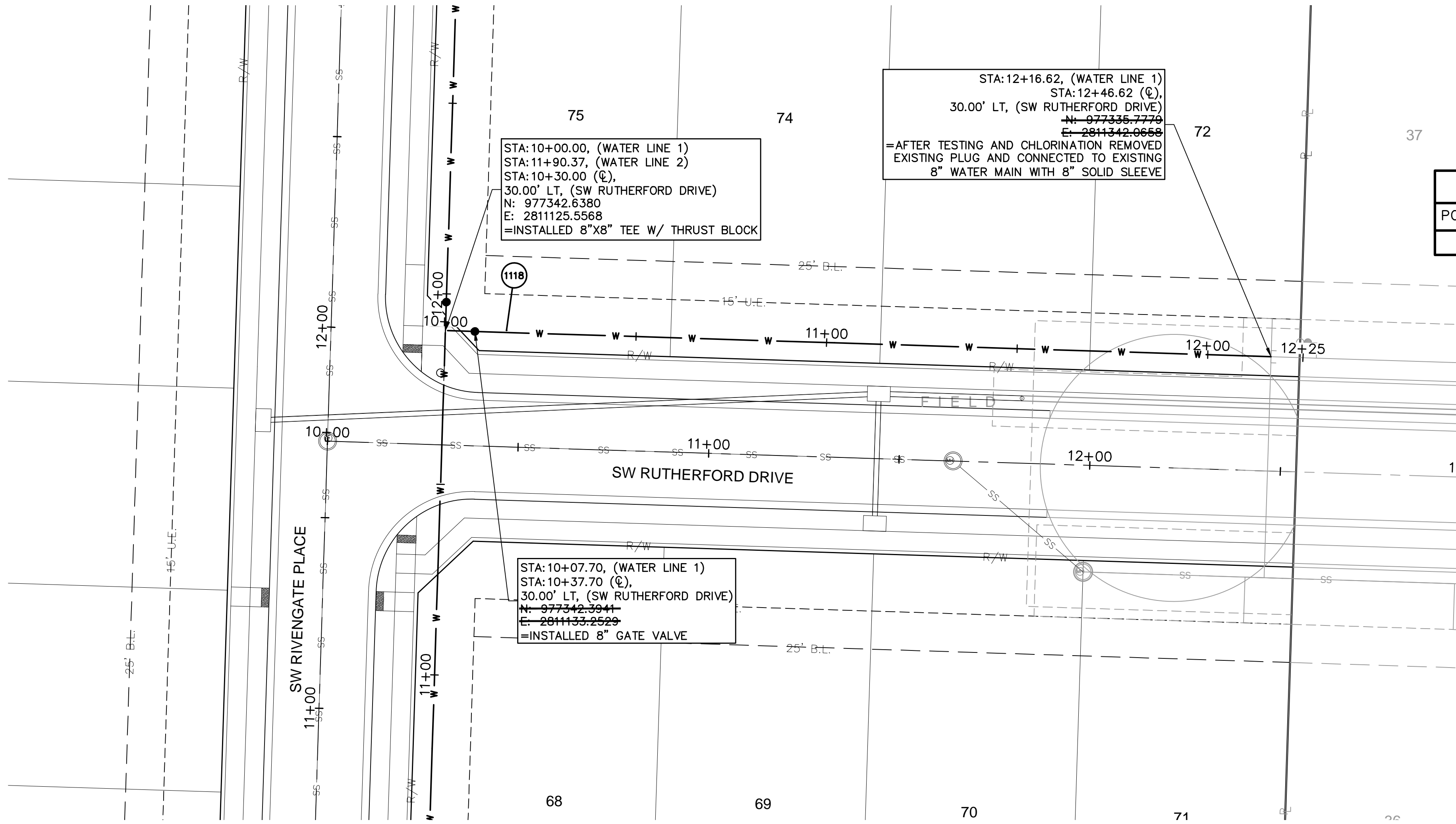


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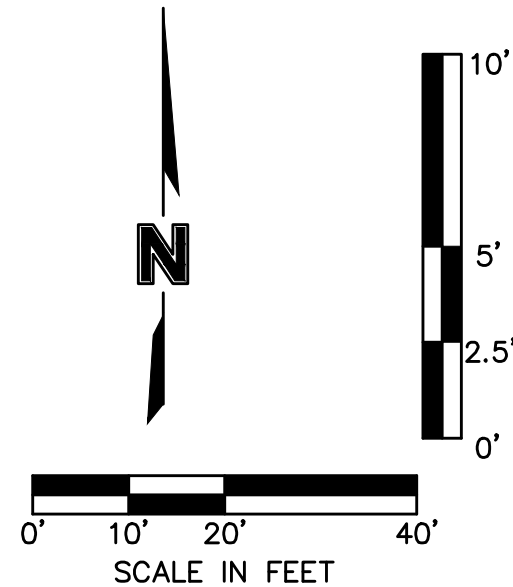
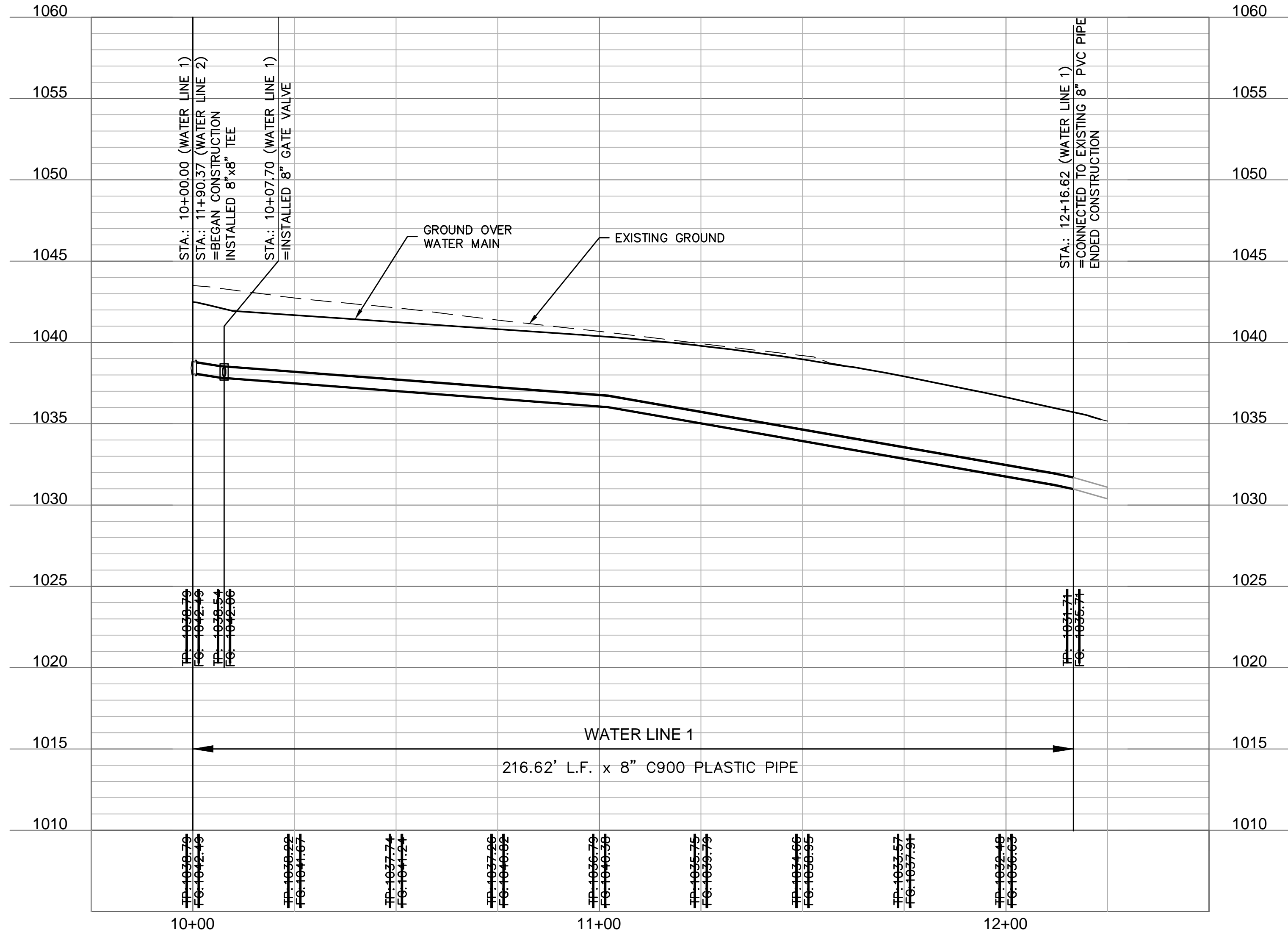
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POINT TABLE				
POINT #	NORTHING	EASTING	ELEVATION	FULL DESCRIPTION
1118	977342.6810	2811141.5800	1042.756	8" GATE VALVE

**Accepted
Record Drawings**

These plans have been reviewed for accuracy and are accepted for basic conformance to the approved construction drawings.



ASBUILT

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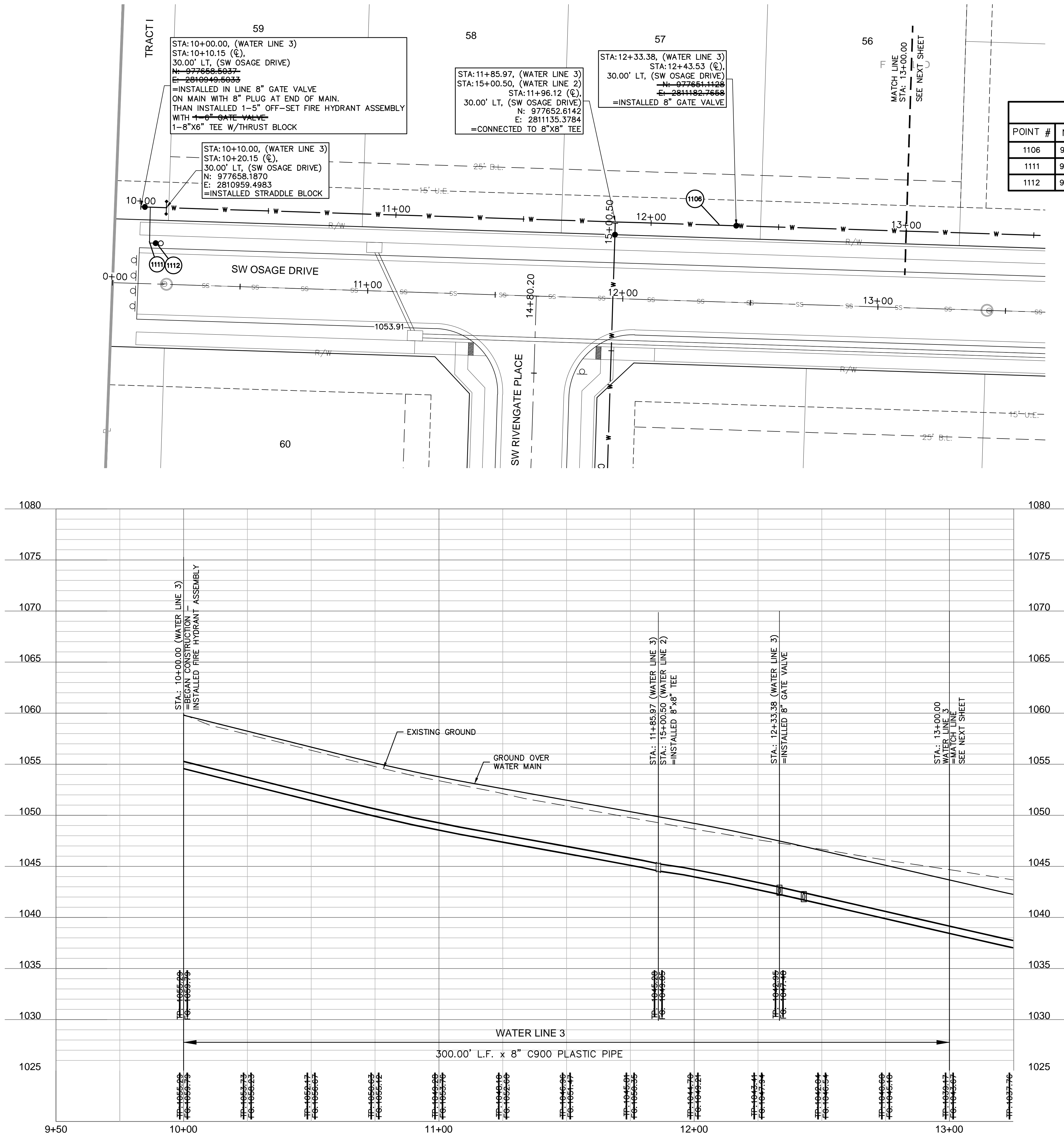
STATE OF MISSOURI
JULIE ELAINE SELLERS
NUMBER PE-2017000367
3/28/22
PROFESSIONAL ENGINEER

WATER PLAN & PROFILE (LINE 1)
WATER MAIN EXTENSION PLANS
OSAGE
SECOND PLAT
2020

drawn by: D.F./M.O./A.A.
checked by: C.G.W.
designed by: A.A.
QA/QC by: J.E.S.
project no.: C19-2339
drawing no.:
date: 2020.11.03

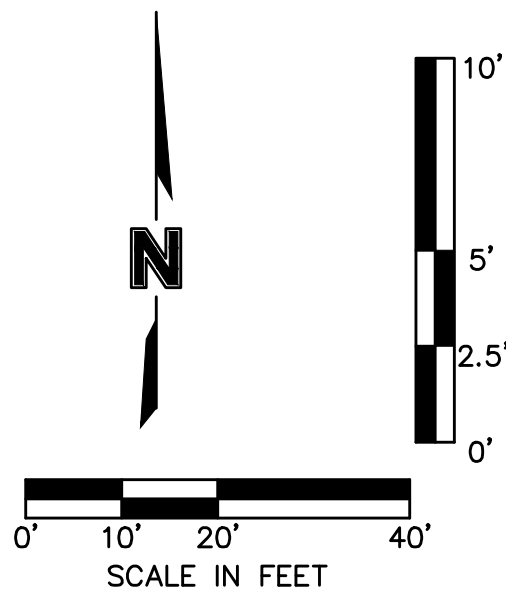
SHEET
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USER: asb\jor



**Accepted
Record Drawings**

These plans have been reviewed for accuracy and are accepted for basic conformance to the approved construction drawings.



POINT TABLE				
POINT #	NORTHING	EASTING	ELEVATION	FULL DESCRIPTION
1106	977651.6320	2811175.9920	1048.867	8" GATE VALVE
1111	977644.9060	2810952.8480	1059.677	6" GATE VALVE
1112	977644.4850	2810955.4750	1062.682	5" FIRE HYDRANT

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STATE OF MISSOURI
JULIE ELAINE SELLERS
NUMBER PE-2017000367
3/28/22
PROFESSIONAL ENGINEER

WATER PLAN & PROFILE (LINE 3)
WATER MAIN EXTENSION PLANS
OSAGE
SECOND PLAT

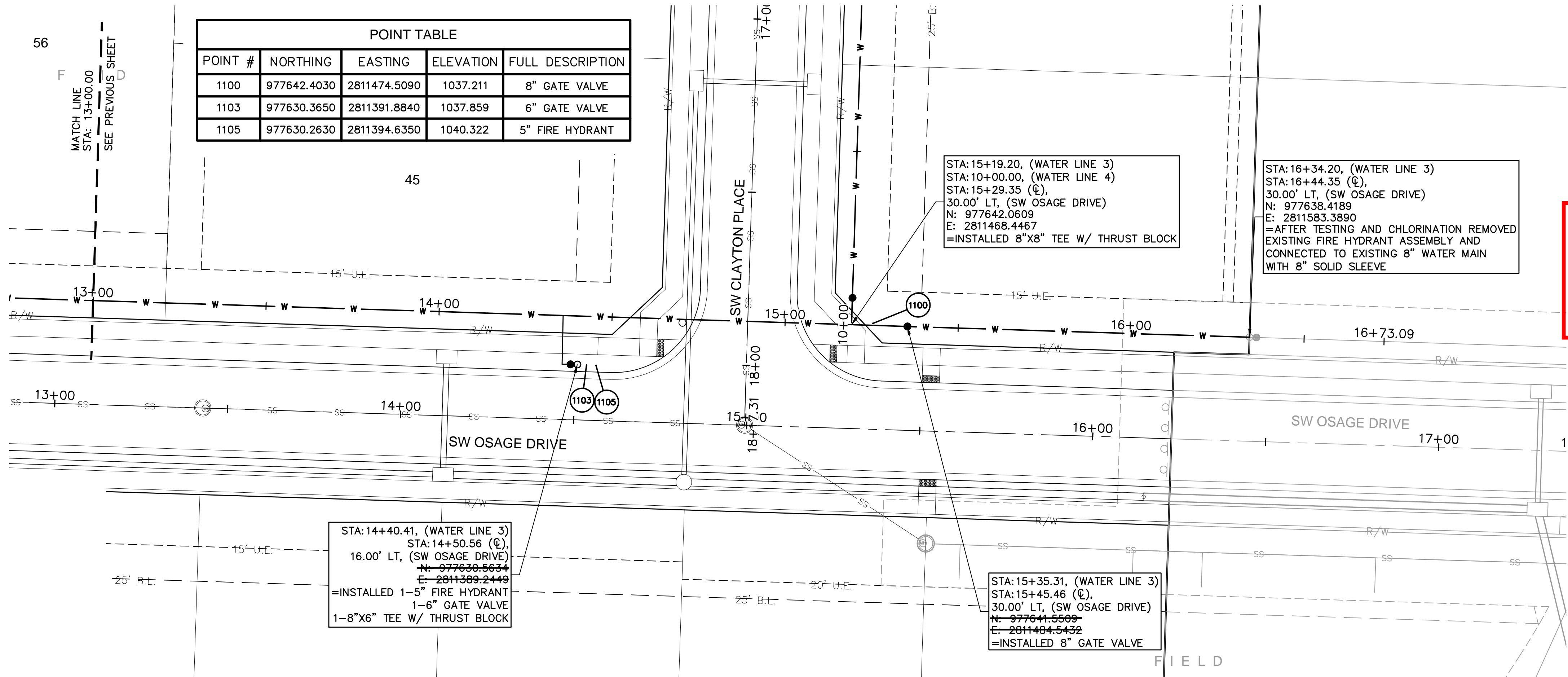
2020

drawn by: D.F./M.O./A.A.
checked by: C.G.W.
designed by: A.A.
QA/QC by: J.E.S.
project no.: C19-2339
drawing no.:
date: 2020.11.03

SHEET
C306

REVISIONS

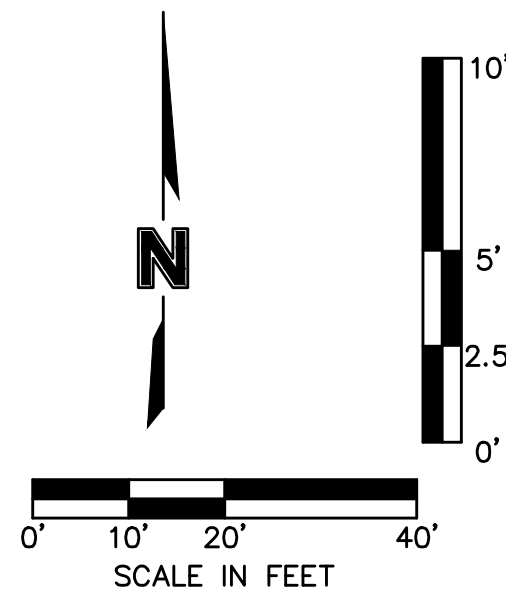
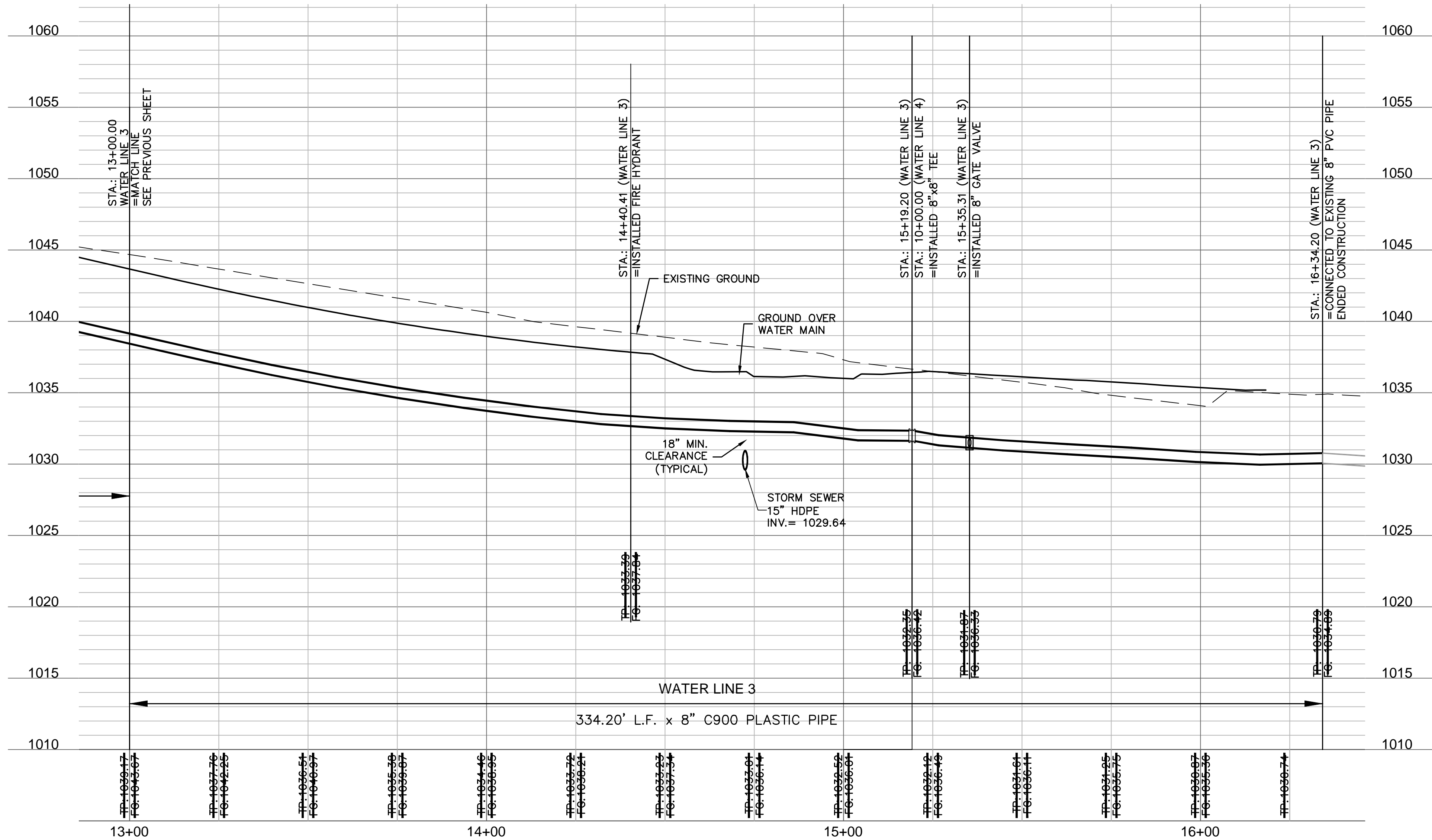
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USER: asb/for



ASBUILT

Accepted
Record Drawings

These plans have been reviewed for
accuracy and are accepted for basic
conformance to the approved
construction drawings.



WATER PLAN & PROFILE (LINE 3 CONT)
WATER MAIN EXTENSION PLANS

OSAGE
SECOND PLAT

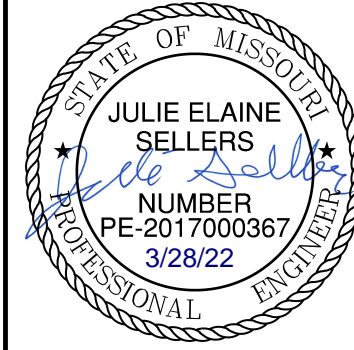
2020

REV. NO.

DATE

REVISIONS DESCRIPTION

REVISIONS

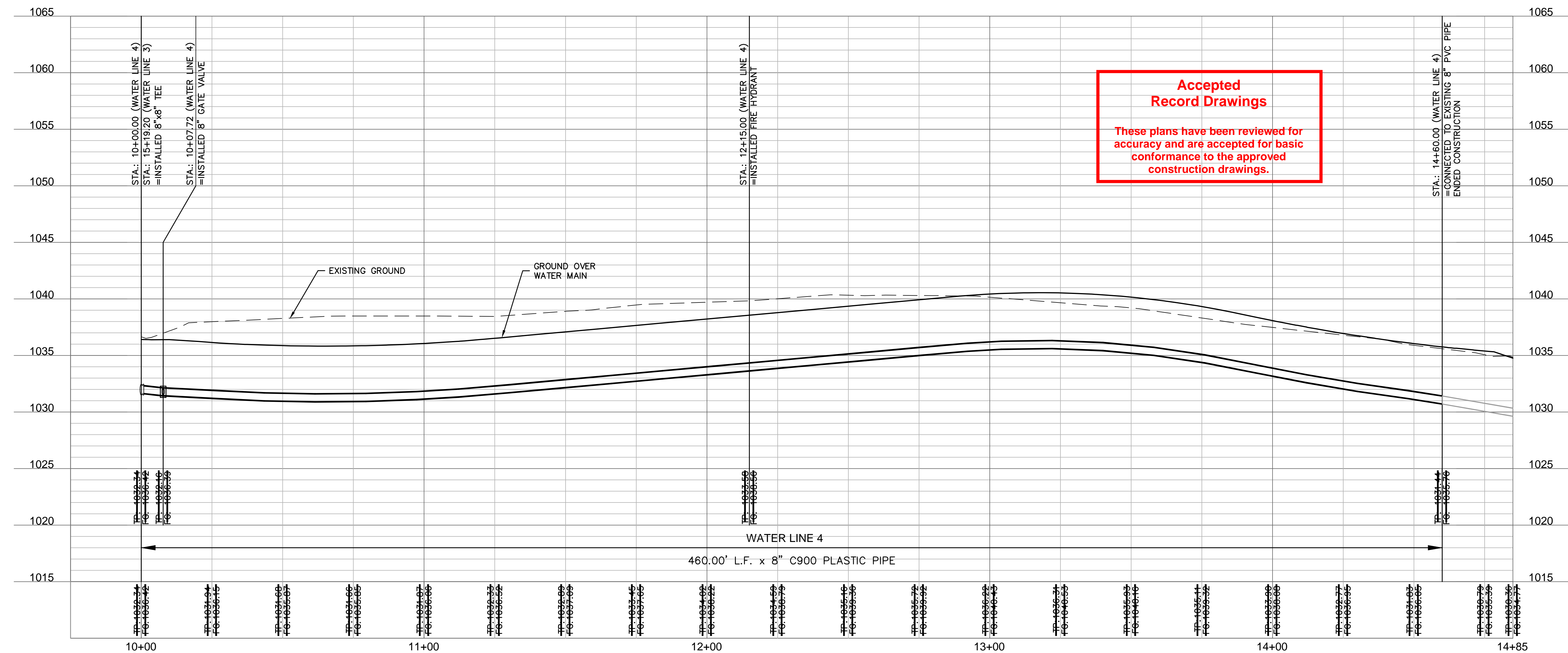


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drawn by: D.F./M.O./A.A.
checked by: C.G.W.
designed by: A.A.
QA/QC by: J.E.S.
project no.: C19-2339
drawing no.:
date: 2020.11.03

SHEET
C307



POINT TABLE				
POINT #	NORTHING	EASTING	ELEVATION	FULL DESCRIPTION
1102	977650.8390	2811468.8610	1037.414	8" GATE VALVE
1128	977852.2010	2811461.3820	1041.046	5" FIRE HYDRANT
1130	977854.7560	2811461.0130	1038.998	6" GATE VALVE

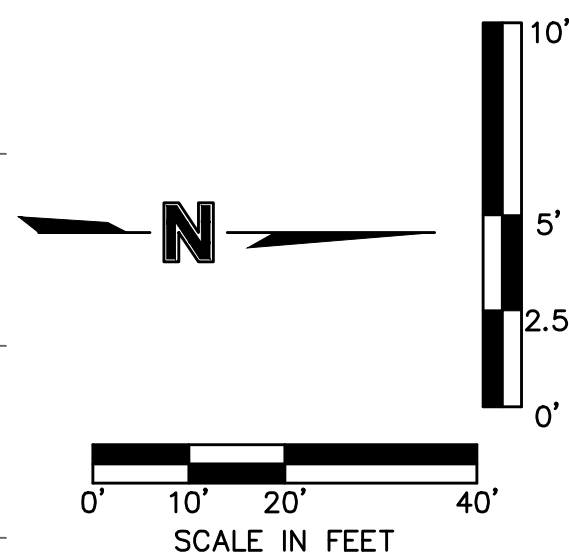
ASBUILT

STA:10+07.72, (WATER LINE 4)
STA:17+79.59 (C),
30.00' LT, (SW CLAYTON PLACE)
~~N: 977649.7770~~
~~E: 2811468.6911~~
=INSTALLED 8" GATE VALVE

STA:10+00.00, (WATER LINE 4)
STA:15+19.20, (WATER LINE 3)
STA:17+87.31 (C),
30.00' LT, (SW CLAYTON PLACE)
N: 977642.0609
E: 2811468.4467
=CONNECTED TO 8"x8" TEE

STA: 12+15.00, (WATER LINE 4)
STA: 15+72.31 (CL)
16.00' LT, (SW CLAYTON PLACE)
N: 977857.3964
E: 2811461.2626
=INSTALLED 1-5" FIRE HYDRANT
1-6" GATE VALVE
1-8"x6" TEE W/ THRUST BLOCK

STA:14+60.00, (WATER LINE 4)
STA:13+27.31 (℄),
30.00' LT, (SW CLAYTON PLACE)
N: 978101.8302
E: 2811483.0145
=AFTER TESTING AND CHLORINATION REMOVED
EXISTING FIRE HYDRANT ASSEMBLY AND
CONNECTED TO EXISTING 8" WATER MAIN
WITH 8" SOLID SLEEVE

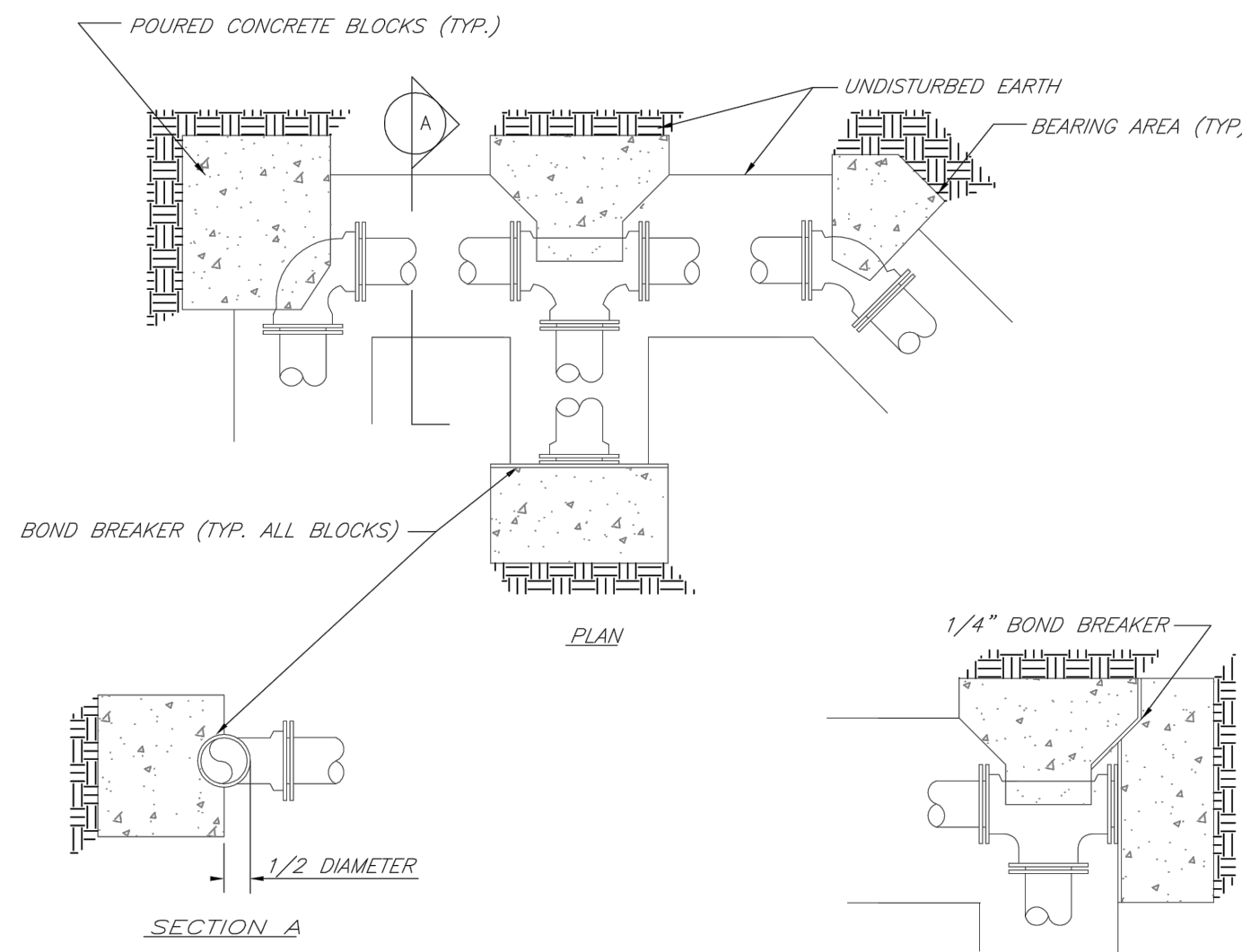


**Accepted
Record Drawings**

These plans have been reviewed for accuracy and are accepted for basic conformance to the approved construction drawings.

REQUIRED CONCRETE BEARING AREA (SQUARE FEET - SF)					
NOM. DIA. (INCHES)	TEE, PLUG	90 BEND	45 BEND	22.5 BEND	11.25 BEND
6	4.7	6.7	4.0	4.0	4.0
8	8.4	11.8	6.4	4.0	4.0
10	13.1	18.5	10.0	5.1	4.0
12	18.8	26.7	14.4	7.4	4.0
14	25.7	36.3	19.6	10.0	5.0
16	33.5	47.4	25.6	13.1	6.6
18	42.4	REST. JT.	32.5	16.5	8.3
20	REST. JT.	REST. JT.	40.1	20.4	10.3
24	REST. JT.	REST. JT.	REST. JT.	29.4	14.8

- NOTES:
1. ALL BENDS WITHOUT RESTRAINED JOINTS SHALL HAVE CONCRETE THRUST BLOCKS INSTALLED FOR RESTRAINT.
 2. MEGA LUGS MAY BE USED ONLY IN CONJUNCTION WITH CONCRETE THRUST BLOCKING.
 3. BEARING AREA MUST BE AGAINST UNDISTURBED SOIL.
 4. DO NOT COVER JOINTS OR BOLTS (WHERE APPLICABLE) WITH CONCRETE.

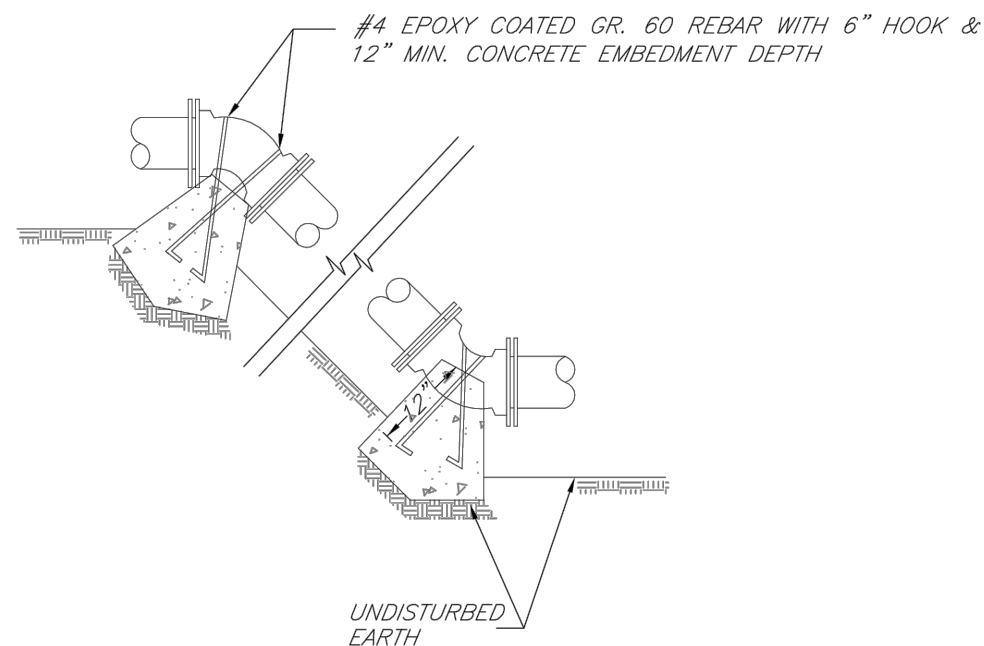


LEE'S SUMMIT
MISSOURI
PUBLIC WORKS ENGINEERING DIVISION | 220 SE GREEN STREET | LEE'S SUMMIT, MO 64063
HORIZONTAL THRUST BLOCKS

Date: 02/13
Drawn By: JN
Checked By: DL
FILE: WAT-1
Rev: 1/14
Rev:

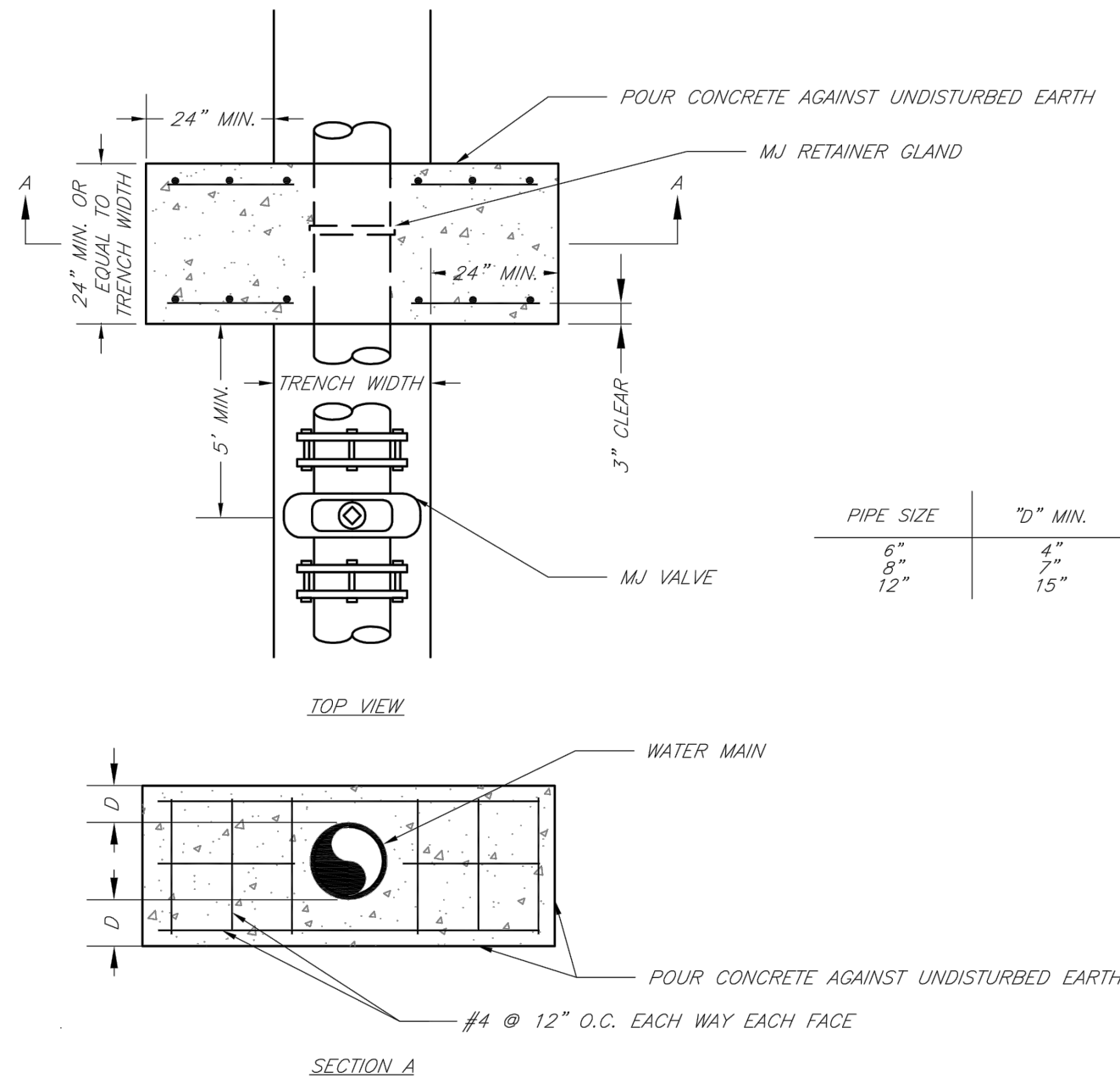
REQUIRED CONCRETE VOLUME (CUBIC FEET - CF)					
NOM. DIA. (INCHES)	TEE, PLUG	90 BEND	45 BEND	22.5 BEND	11.25 BEND
6	50.5	71.4	38.6	19.7	9.9
8	89.8	126.9	68.7	35.0	17.6
10	140.2	198.3	107.3	54.7	27.5
12	202.0	REST. JT.	154.6	78.8	39.6
14	REST. JT.	REST. JT.	210.4	107.3	53.9
16	REST. JT.	REST. JT.	REST. JT.	140.1	70.4
18	REST. JT.	REST. JT.	REST. JT.	177.3	89.1
20	REST. JT.	REST. JT.	REST. JT.	REST. JT.	110.0
24	REST. JT.	REST. JT.	REST. JT.	REST. JT.	158.4

- NOTES:
1. ALL BENDS WITHOUT RESTRAINED JOINTS SHALL HAVE CONCRETE THRUST BLOCKS INSTALLED FOR RESTRAINT.
 2. MEGA LUGS MAY BE USED ONLY IN CONJUNCTION WITH CONCRETE THRUST BLOCKING.
 3. BEARING MUST BE AGAINST UNDISTURBED SOIL.
 4. DO NOT COVER JOINTS OR BOLTS (WHERE APPLICABLE) WITH CONCRETE.



LEE'S SUMMIT
MISSOURI
PUBLIC WORKS ENGINEERING DIVISION | 220 SE GREEN STREET | LEE'S SUMMIT, MO 64063
VERTICAL THRUST BLOCKS

Date: 02/13
Drawn By: JN
Checked By: DL
FILE: WAT-2
Rev: 1/14
Rev:

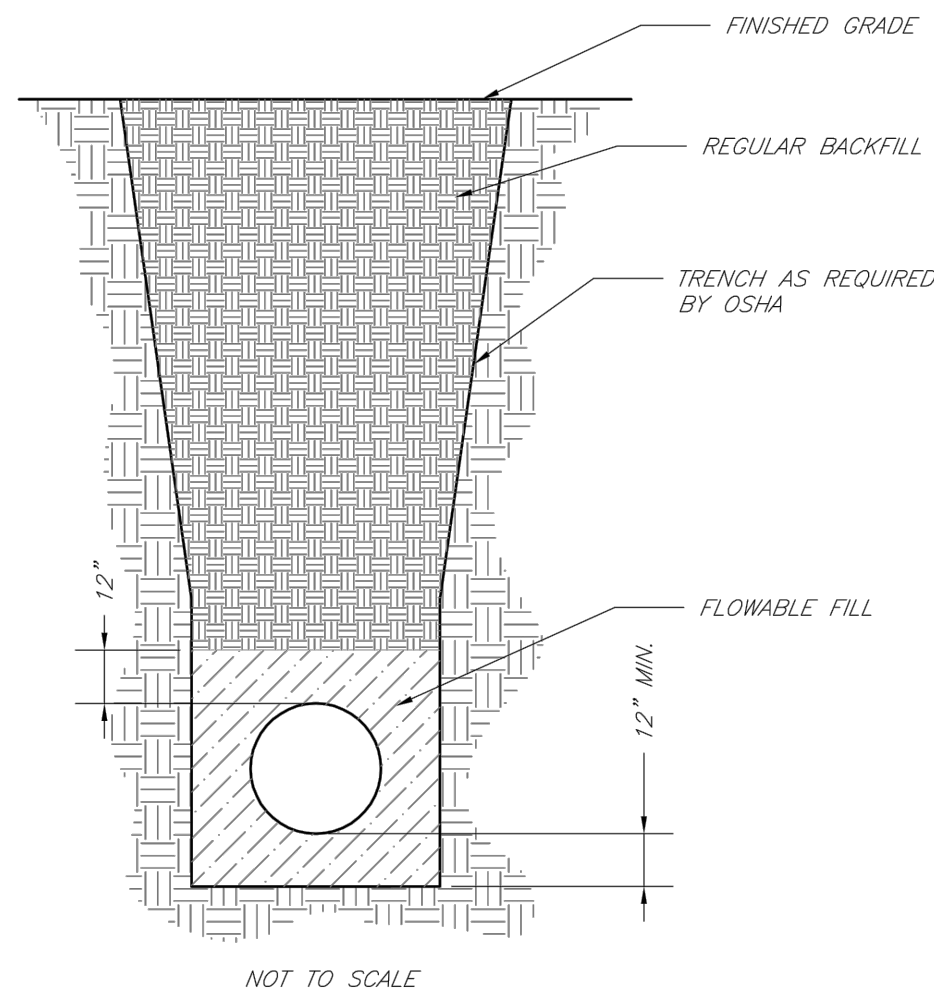


LEE'S SUMMIT
MISSOURI
PUBLIC WORKS ENGINEERING DIVISION | 220 SE GREEN STREET | LEE'S SUMMIT, MO 64063
STRADDLE BLOCK

Date: 02/13
Drawn By: JN
Checked By: DL
FILE: WAT-3
Rev: 1/14
Rev:

Accepted
Record Drawings

These plans have been reviewed for
accuracy and are accepted for basic
conformance to the approved
construction drawings.

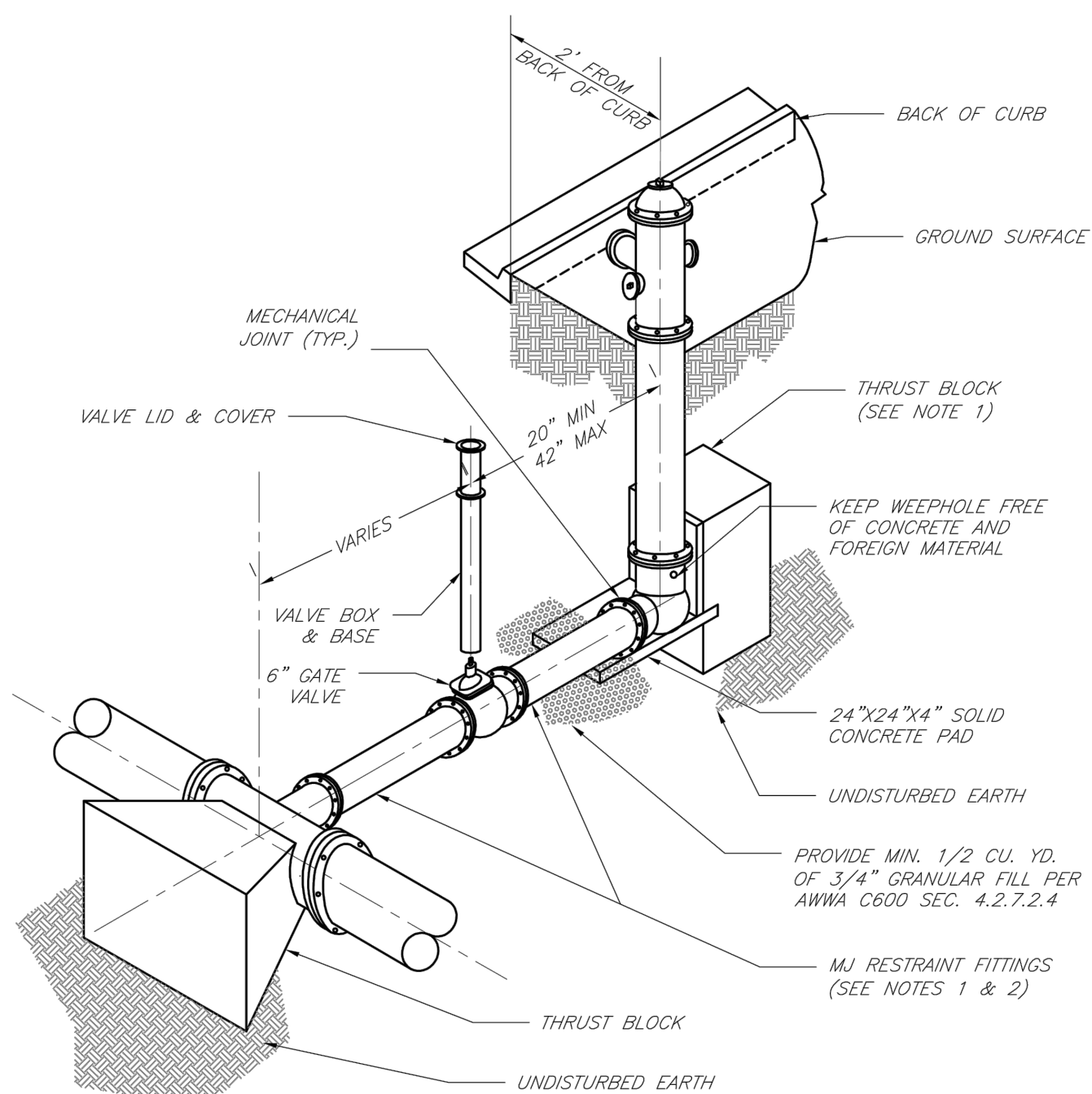


- NOTES:
1. FLOWABLE FILL SHALL MEET THE REQUIREMENTS OF THE CITY OF LEE'S SUMMIT DESIGN AND CONSTRUCTION MANUAL.
 2. REGULAR BACKFILL ABOVE THE TRENCH CHECK SHALL BE FREE OF DEBRIS, ORGANIC MATTER, AND STONES > 6" IN ANY DIMENSION.
 3. TOP OF FLOWABLE BACKFILL SHALL EXTEND 12" ABOVE THE TOP OF THE PIPE.
 4. LENGTH OF TRENCH CHECK SHALL BE A MINIMUM OF 12".



LEE'S SUMMIT
MISSOURI
PUBLIC WORKS ENGINEERING DIVISION | 220 SE GREEN STREET | LEE'S SUMMIT, MO 64063
TRENCH CHECK

Date: 02/13
Drawn By: JN
Checked By: DL
FILE: WAT-6
Rev: 1/14
Rev:

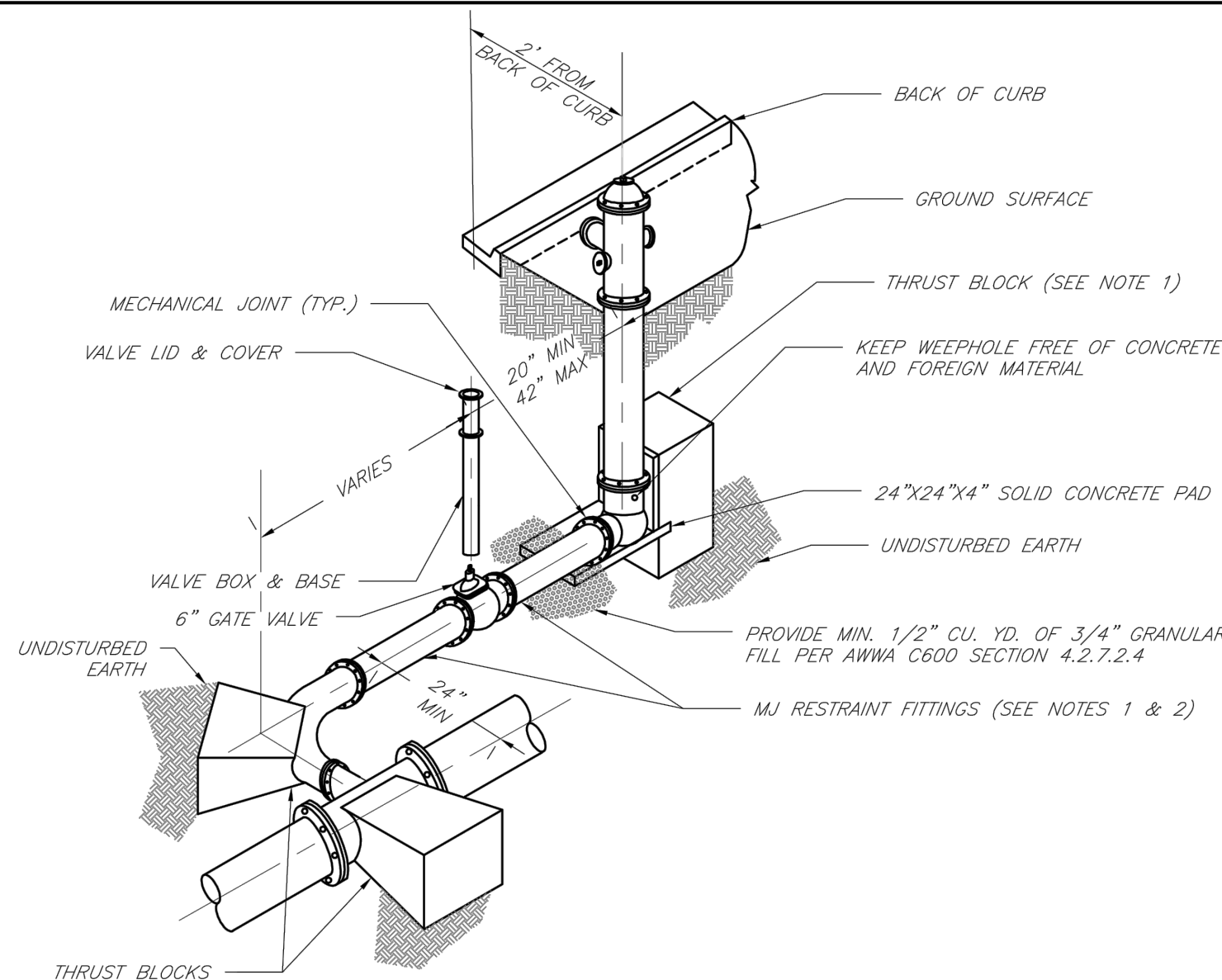


- NOTES:
1. WHEN RETAINER GLANDS ARE USED IN LIEU OF MECHANICAL JOINT (MJ) RESTRAINT FITTINGS, HORIZONTAL THRUST BLOCKS ARE REQUIRED.
 2. GATE VALVE MAY BE BOLTED DIRECTLY TO MJ RESTRAINT TEE.
 3. SEE APPROVED PRODUCTS LIST FOR WATER UTILITIES FOR FIRE HYDRANT, VALVES, VALVE BOX LID, AND COVER.
 4. BOTTOM HYDRANT FLANGE SHALL BE 2" TO 6" ABOVE FINISHED GRADE.
 5. FOR STREETS WITHOUT CURBS FIRE HYDRANTS SHALL BE PLACED WITHIN 1 FOOT OF THE R/W LINE, BUT NOT MORE THAN 10' FROM EDGE OF PAVEMENT. FIRE HYDRANT SHALL NOT BE PLACED IN BOTTOM OF DITCH.
 6. HYDRANT SHALL BE ROTATED AS DIRECTED BY INSPECTOR.



LEE'S SUMMIT
MISSOURI
PUBLIC WORKS ENGINEERING DIVISION | 220 SE GREEN STREET | LEE'S SUMMIT, MO 64063
HYDRANT INSTALLATION - STRAIGHT SET

Date: 02/13
Drawn By: JN
Checked By: DL
FILE: WAT-7
Rev: 1/14
Rev:



- NOTES:
1. WHEN RETAINER GLANDS ARE USED IN LIEU OF MECHANICAL JOINT (MJ) RESTRAINT FITTINGS, HORIZONTAL THRUST BLOCKS ARE REQUIRED.
 2. GATE VALVE MAY BE BOLTED DIRECTLY TO MJ RESTRAINT TEE.
 3. SEE APPROVED PRODUCTS LIST FOR WATER UTILITIES FOR FIRE HYDRANT, VALVES, VALVE BOX LID, AND COVER.
 4. BOTTOM HYDRANT FLANGE SHALL BE 2" TO 6" ABOVE FINISHED GRADE.
 5. FOR STREETS WITHOUT CURBS FIRE HYDRANTS SHALL BE PLACED WITHIN 1 FOOT OF THE R/W LINE, BUT NOT MORE THAN 10' FROM EDGE OF PAVEMENT. FIRE HYDRANT SHALL NOT BE PLACED IN BOTTOM OF DITCH.
 6. HYDRANT SHALL BE ROTATED AS DIRECTED BY INSPECTOR.



LEE'S SUMMIT
MISSOURI
PUBLIC WORKS ENGINEERING DIVISION | 220 SE GREEN STREET | LEE'S SUMMIT, MO 64063
HYDRANT WITH 90 DEGREE BEND

Date: 02/13
Drawn By: JN
Checked By: DL
FILE: WAT-8
Rev: 1/14
Rev:

NOT
ASBUILT

DETAIL SHEET
WATER MAIN EXTENSION PLANS

OSAGE
SECOND PLAT

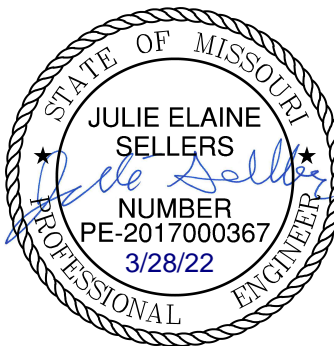
2020

REVISIONS DESCRIPTION

REV. NO. DATE

drawn by: D.F./M.O./A.A.
checked by: C.G.W.
designed by: A.A.
QA/QC by: J.E.S.
project no.: C19-2339
drawing no.:
date: 2020.11.03

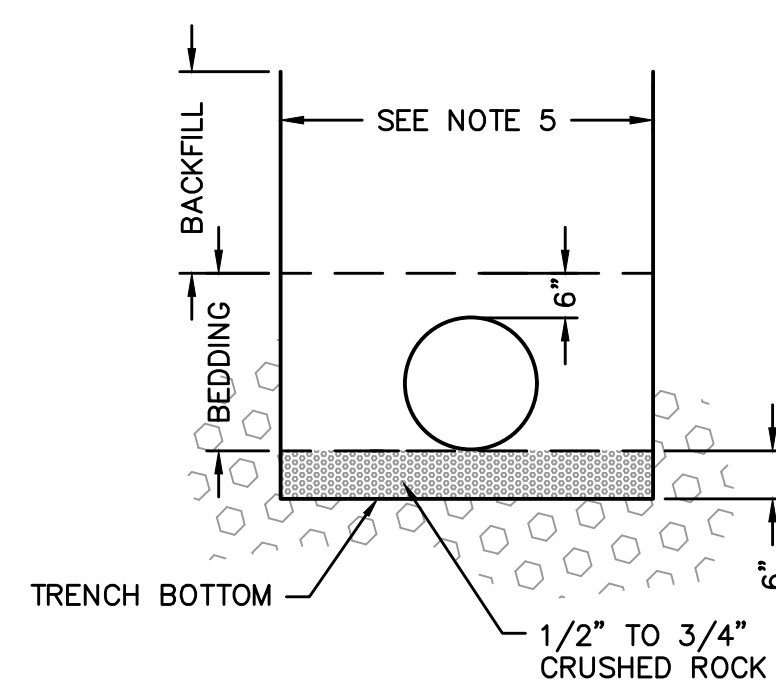
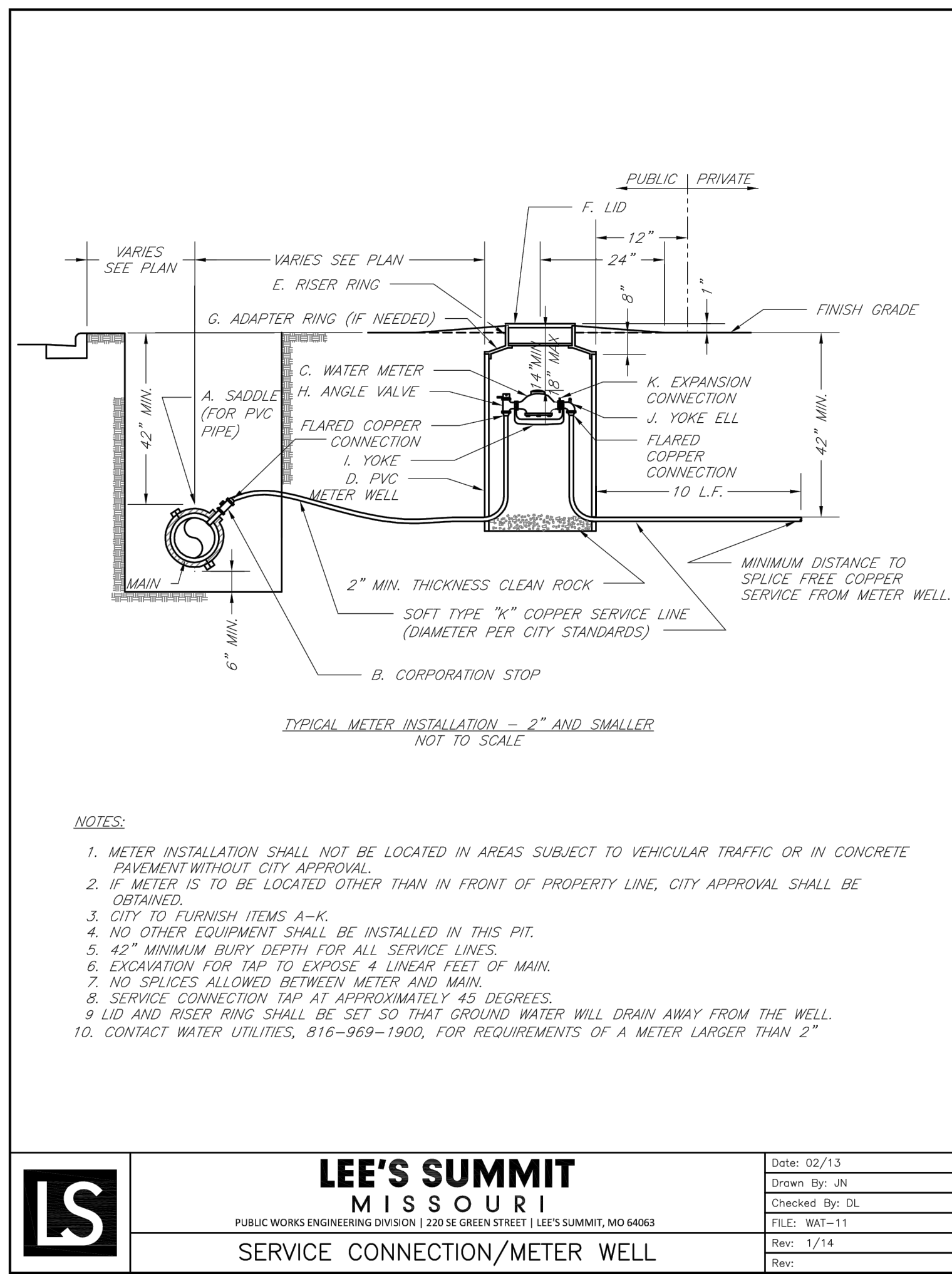
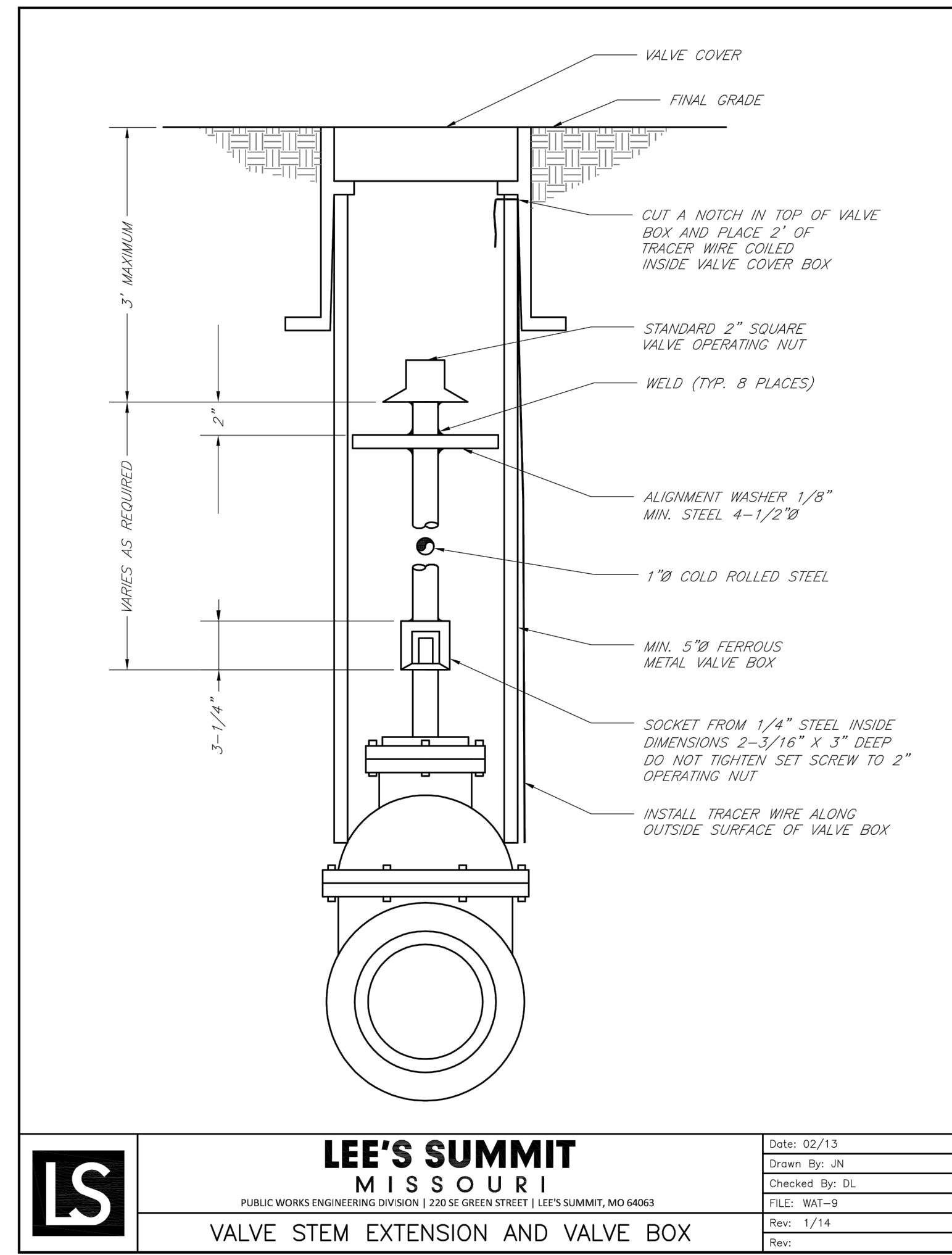
SHEET
C309



REVISIONS

olsson

Olsson - Civil Engineering
Missouri Certificate of Authority #: 001592
1301 Burlington Street
North Kansas City, MO 64116
TEL 816.361.1177
www.olson.com



TYPICAL TRENCH SECTION

NOTES:

1. BELL HOLES SHALL BE DUG SO THAT NO PART OF THE BELL SHALL BE IN CONTACT WITH THE TRENCH BOTTOM.
2. BEDDING AGGREGATE MATERIAL SHALL BE PER SECTION 6900 AND 2102 OF THE CITY DESIGN AND CONSTRUCTION MANUAL. BEDDING AGGREGATE SHALL BE PLACED FROM A LEVEL 6 INCHES BELOW THE BOTTOM OF THE PIPE TO A LEVEL 6 INCHES ABOVE THE TOP OF THE PIPE AS SHOWN ABOVE.
3. BACKFILL MATERIAL AND PLACEMENT SHALL BE PER SECTION 6900 AND 2102 OF THE CITY DESIGN AND CONSTRUCTION MANUAL.
4. TRENCHING SHALL BE IN ACCORDANCE WITH CURRENT OSHA REGULATIONS. SLOPES MUST NOT EXTEND BELOW TOP OF BEDDING.
5. MINIMUM AND MAXIMUM TRENCH WIDTHS SHALL BE IN ACCORDANCE WITH PIPE MANUFACTURERS RECOMMENDATION AS APPROVED ON ENGINEERING PLANS.

UNDERGROUND PIPE INSTALLATION FOR WATER PIPING

**Accepted
Record Drawings**

These plans have been reviewed for accuracy and are accepted for basic conformance to the approved construction drawings.