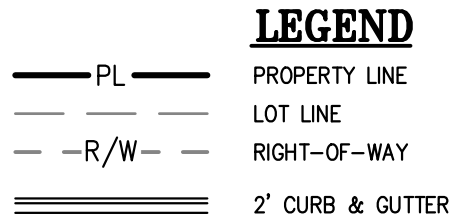
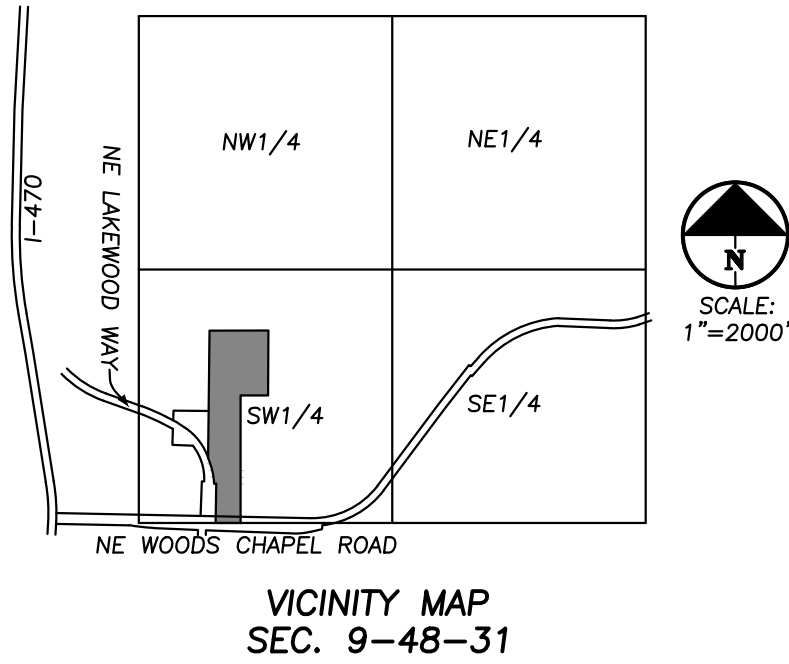


WATER MAIN PLANS  
FOR  
ORCHARD WOODS

IN THE CITY OF LEE’S SUMMIT, JACKSON COUNTY, MISSOURI



UTILITY COMPANIES:

MISSOURI GAS ENERGY (816) 969-2218  
LUCAS WALLS (LUCAS.WALLS@SUG.COM)  
3025 SOUTHEAST CLOVER DRIVE  
LEE’S SUMMIT, MO 64082

EVERGY (816) 347-4339  
PHILLIP INGRAM (PHILLIP.INGRAM@KCPL.COM)  
RON DEJARNETTE (RON.DEJARNETTE@KCPL.COM) (816) 347-4316  
1300 HAMBLIN ROAD  
LEE’S SUMMIT, MO 64081

STORM SEWER (PUBLIC WORKS DEPARTMENT) (816) 969-1800  
220 SE GREEN STREET  
LEE’S SUMMIT, MO 64063

SANITARY SEWER & WATER (WATER UTILITIES DEPT.) (816)-969-1900  
1200 SE HAMBLEM ROAD,  
LEE’S SUMMIT, MO 64081

AT&T (913) 383-4929  
MR. CLAYTON ANSPAUGH (CA4089@ATT.COM) (913) 383-4849-FAX  
9444 NALL AVENUE  
OVERLAND PARK, KANSAS 66207



UTILITY NOTES:  
VISUAL INDICATIONS OF UTILITIES ARE AS SHOWN.  
UNDERGROUND LOCATIONS SHOWN, AS FURNISHED BY THEIR  
LESSORS, ARE APPROXIMATE AND SHOULD BE VERIFIED IN  
THE FIELD AT THE TIME OF CONSTRUCTION. FOR ACTUAL  
FIELD LOCATIONS OF UNDERGROUND UTILITIES CALL 811.

Know what’s below.  
Call before you dig.

GENERAL NOTES:

- ALL CONSTRUCTION TO FOLLOW THE CITY OF LEE’S SUMMIT DESIGN AND CONSTRUCTION MANUAL AS ADOPTED BY ORDINANCE 5813.
- ALL WORKMANSHIP AND MATERIALS SHALL BE SUBJECT TO THE INSPECTION AND APPROVAL OF THE ENGINEERING DEPARTMENT OF THE CITY OF LEE’S SUMMIT, MISSOURI.
- LINEAL FOOT MEASUREMENTS SHOWN ON THE PLANS ARE HORIZONTAL MEASUREMENTS, NOT SLOPE MEASUREMENTS. ALL PAYMENTS SHALL BE MADE ON HORIZONTAL MEASUREMENTS.
- NO GEOLOGICAL INVESTIGATION HAS BEEN PERFORMED ON THE SITE.
- THE UTILITY LOCATIONS SHOWN ON THESE PLANS ARE TAKEN FROM UTILITY COMPANY RECORDS AND APPARENT FIELD LOCATIONS. THE CONTRACTOR SHALL VERIFY THE LOCATION AND DEPTH OF ALL UTILITIES PRIOR TO CONSTRUCTION.
- THE CONTRACTOR SHALL ADHERE TO THE PROVISIONS OF THE SENATE BILL NUMBER 583, 78TH GENERAL ASSEMBLY OF THE STATE OF MISSOURI. THE BILL REQUIRES THAT ANY PERSON OR FIRM DOING EXCAVATION ON PUBLIC RIGHT OF WAY DO SO ONLY AFTER GIVING NOTICE TO, AND OBTAINING INFORMATION FROM, UTILITY COMPANIES. STATE LAW REQUIRES 48 HOURS ADVANCE NOTICE. THE CONTRACTOR MAY ALSO UTILIZE THE FOLLOWING TOLL FREE PHONE NUMBER PROVIDED BY “MISSOURI ONE CALL SYSTEM, INC.”: 1-800-DIG-RITE. THIS PHONE NUMBER IS APPLICABLE ANYWHERE WITHIN THE STATE OF MISSOURI. PRIOR TO COMMENCEMENT OF WORK, THE CONTRACTOR SHALL NOTIFY ALL THOSE COMPANIES WHICH HAVE FACILITIES IN THE NEAR VICINITY OF THE CONSTRUCTION TO BE PERFORMED. PRIOR TO ORDERING PRECAST STRUCTURES, SHOP DRAWING SHALL BE SUBMITTED TO THE DESIGN ENGINEER FOR APPROVAL.
- THE CONTRACTOR SHALL PROTECT ALL MAJOR TREES FROM DAMAGE. NO TREE SHALL BE REMOVED WITHOUT PERMISSION OF THE OWNER, UNLESS SHOWN OTHERWISE.
- CLEARING AND GRUBBING OPERATIONS AND DISPOSAL OF ALL DEBRIS THEREFROM SHALL BE PERFORMED BY THE CONTRACTOR IN STRICT ACCORDANCE WITH ALL LOCAL CODES AND ORDINANCES.
- ALL WASTE MATERIAL RESULTING FROM THE PROJECT SHALL BE DISPOSED OF OFF-SITE BY THE CONTRACTOR, OR AS DIRECTED BY THE OWNER AT NO ADDITIONAL COST.
- ALL EXCAVATIONS SHALL BE UNCLASSIFIED. NO SEPARATE PAYMENT WILL BE MADE FOR ROCK EXCAVATION.
- THE CONTRACTOR SHALL CONTROL THE EROSION AND SILTATION DURING ALL PHASED OF CONSTRUCTION AND SHALL KEEP THE STREETS CLEAN OF MUD AND DEBRIS.
- THE CONTRACTOR SHALL CONTACT THE CITY’S DEVELOPMENT SERVICES ENGINEERING INSPECTION TO SCHEDULE A PRE-CONSTRUCTION MEETING WITH A FIELD ENGINEERING INSPECTOR PRIOR TO ANY LAND DISTURBANCE WORK AT (816) 969-1200
- THE CONTRACTOR SHALL CONTACT THE RIGHT OF WAY INSPECTOR AT 816-969-1800 PRIOR TO ANY LAND DISTURBANCE ACTIVITIES WITHIN THE RIGHT OF WAY. THESE ACTIVITIES MAY REQUIRE A PERMIT.
- THE CONTRACTOR SHALL PROVIDE AND MAINTAIN ALL TRAFFIC HANDLING MEASURES NECESSARY TO ENSURE THAT THE GENERAL PUBLIC IS PROTECTED AT ALL TIMES. TRAFFIC CONTROL SHALL CONFORM TO THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD-LATEST EDITION).
- ALL SANITARY SEWER LATERALS SHALL HAVE A TRENCH CHECK, CONSISTING OF FLOWABLE BACKFILL, INSTALLED DURING CONSTRUCTION. TRENCH CHECK SHALL EXTEND TO BOTTOM OF TRENCH, TO WIDTH OF TRENCH, TO 12 INCHES ABOVE PIPE, FOR A MINIMUM LENGTH OF 12 INCHES. TRENCH CHECK SHALL BE LOCATED AT LEAST 5 FEET FROM SANITARY MAIN.

SUMMARY OF QUANTITIES

PREPARED BY: KSJ CHECKED BY: KAD  
1-27-2023

ITEM	DESCRIPTION	QUANTITY	UNITS
1	8" C-900 PVC*	2376	L.F.
2	8"x8"x8" Tee	4	EA.
3	8" Gate Valve	12	EA.
4	Valve Box, Cover, & Lid	12	EA.
5	Tap Ex. 8" Main	1	EA.
6	8" 11.25" Bend W/ Horizontal Thrust Block	12	EA.
7	8" 22.5" Bend W/ Horizontal Thrust Block	1	EA.
8	8" 45" Bend W/ Horizontal Thrust Block	3	EA.
9	8" 90" Bend W/ Horizontal Thrust Block	1	EA.
10	8" 45" Bend W/ Vertical Thrust Block	14	EA.
11	Temporary In-Line Fire Hydrant Assembly	2	EA.
12	Fire Hydrant Assembly	5	EA.
13	Remove Existing 8" Gate Valve & Blow Off Assembly	1	LS.
14	Trench & Backfill Under Pavement	181	L.F.
15	Misc. Fittings	1	LS.

\* UNCLASSIFIED TRENCH & TAMPED BACKFILL

EARTHWORK:

- PRIOR TO EARTHWORK ACTIVITIES, PRE-DISTURBANCE EROSION AND SEDIMENT CONTROL DEVICES SHALL BE IN PLACE PER THE STORM WATER POLLUTION PREVENTION PLAN AND/OR THE EROSION AND SEDIMENT CONTROL PLAN PREPARED FOR THIS SITE.
- ALL BACKFILL MATERIAL SHALL BE PLACED IN MAXIMUM 6-INCH LIFTS AND COMPACTED TO 95-PERCENT OF MAXIMUM DENSITY AS DEFINED USING A STANDARD PROCTOR TEST (AASHTO T99/ASTM 698).
- BACKFILL MATERIALS SHALL NOT INCLUDE ORGANIC MATTER, DEBRIS OR TOPSOIL.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR REDISTRIBUTING THE TOPSOIL OVER PROPOSED TURF AND LANDSCAPED AREAS TO A MINIMUM DEPTH OF 6-INCHES BELOW FINAL GRADE.
- ALL AREAS SHALL BE GRADED FOR POSITIVE DRAINAGE. UNLESS NOTED OTHERWISE THE FOLLOWING GRADES SHALL APPLY:
  - TURF AREAS – 2.5% MINIMUM, 4H:1V MAXIMUM
- ALL DISTURBED AREAS SHALL BE FERTILIZED, SEEDED AND MULCHED IMMEDIATELY AFTER EXCAVATION ACTIVITIES HAVE CEASED. SEEDING SHALL BE PER THE EROSION AND SEDIMENT CONTROL PLAN AND/OR LANDSCAPE PLAN. IF NOT SPECIFIED SEEDING SHALL BE PER APWA SECTION 2400, LATEST EDITION. UNLESS OTHERWISE NOTED, SEEDING SHALL BE SUBSIDIARY TO THE CONTRACT PRICE FOR PIPE INSTALLATION.
- CONTRACTOR SHALL ADHERE TO THE REPORTING REQUIREMENTS OUTLINED IN THE STORM WATER POLLUTION PREVENTION PLAN (SWPPP) PREPARED FOR THIS PROJECT. EROSION AND SEDIMENT CONTROL DEVICES SHALL BE PROPERLY MAINTAINED AND KEPT CLEAN OF SILT AND DEBRIS AND IN GOOD WORKING ORDER. ADDITIONAL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE INSTALLED AS REQUIRED.

UTILITIES:

- EXISTING UTILITIES HAVE BEEN SHOWN TO THE GREATEST EXTENT POSSIBLE BASED UPON INFORMATION PROVIDED TO THE ENGINEER. THE CONTRACTOR IS RESPONSIBLE FOR CONTACTING THE RESPECTIVE UTILITY COMPANIES AND FIELD LOCATING UTILITIES PRIOR TO CONSTRUCTION AND IDENTIFYING ANY POTENTIAL CONFLICTS. ALL CONFLICTS SHALL IMMEDIATELY BE BROUGHT TO THE ATTENTION OF THE ENGINEER.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING ANY REQUIRED UTILITY RELOCATIONS. UTILITIES DAMAGED THROUGH THE NEGLIGENCE OF THE CONTRACTOR SHALL BE REPAIRED AT THE CONTRACTOR’S EXPENSE.
- CONTRACTOR SHALL VERIFY FLOW-LINES AND STRUCTURE TOPS PRIOR TO CONSTRUCTION, AND SHALL NOTIFY ENGINEER OF ANY DISCREPANCIES. PROVIDE SHOP DRAWINGS FOR ALL PRECAST AND MANUFACTURED UTILITY STRUCTURES FOR REVIEW BY THE ENGINEER PRIOR TO CONSTRUCTION OF THE STRUCTURES.
- UTILITY SEPARATION: WATERLINES SHALL HAVE A MINIMUM OF 10 FEET HORIZONTAL AND 2 FEET VERTICAL SEPARATION FROM ALL SANITARY AND STORM SEWER LINES. IF MINIMUM SEPARATIONS CAN NOT BE OBTAINED, DUCTILE IRON PIPE, DIP, SHALL BE REQUIRED 10 FEET IN EACH DIRECTION OF THE CONFLICT ON THE WATER LINE.
- PAYMENT FOR TRENCHING, BACKFILLING, PIPE EMBEDMENT, FLOWABLE FILL, BACKFILL MATERIALS, CLEAN UP, SEEDING, SODDING AND ANY OTHER ITEMS NECESSARY FOR THE CONSTRUCTION OF THE UTILITY LINE SHALL BE INCLUDED IN THE CONTRACT PRICE FOR THE UTILITY INSTALLATION.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR CONTACTING RESPECTIVE UTILITY COMPANIES 48-HOURS IN ADVANCE FOR THE INSPECTION OF ANY PROPOSED UTILITY MAIN EXTENSION OR SERVICE LINE OR SERVICE CONNECTION TO ANY EXISTING MAIN.
- TRENCH SPOILS SHALL BE NEATLY PLACED ONSITE ADJACENT TO THE TRENCH, AND COMPACTED TO PREVENT SATURATION AND EXCESS SEDIMENT RUNOFF. UNSUITABLE MATERIALS, ROCK AND SHALE, ASPHALT, CONCRETE, TREES, BRUSH ETC. SHALL BE PROPERLY DISPOSED OF OFFSITE. MATERIALS MAY BE WASTED ONSITE AT THE DIRECTION OF THE OWNER OR HIS APPOINTED REPRESENTATIVE.

PREPARED & SUBMITTED BY:

PHELPS ENGINEERING, INC.  
1270 N. WINCHESTER  
OLATHE, KS 66061  
913-393-1155 OFFICE  
913-393-1166 FAX  
CONTACT: JUDD CLAUSSEN, P.E.

OWNER:

ENTRES DEVELOPMENT, LLC  
ATTN: DANIEL VILLANUEVA  
424 NE BROCKTON DR  
LEE’S SUMMIT MO, 64064  
(310) 760-6205

BENCHMARKS:

BM #1  
CENTER LINE FRONT FACE OF CURB INLET SOUTHEAST COR. OF  
INTERSECTION OF NE LAKEWOOD WAY, PRIVATE DRIVE FOR HOPE CHAPEL,  
AND PRIVATE DRIVE FOR LEE’S SUMMIT WATER TOWER.  
ELEVATION = 963.96

BM #2  
“+” CUT S.W. CORNER CURB INLET EAST SIDE OF INTERSECTION OF NE  
SUWANNEE DRIVE & NE PIEDMONT DRIVE  
ELEVATION=965.22

INDEX

- COVER SHEET
- GENERAL LAYOUT
- WATER LINE 1 PLAN & PROFILE
- WATER LINE 2 PLAN & PROFILE
- WATER LINES 3 & 4 PLAN & PROFILE
- WATER LINE DETAILS



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Fax: (913) 393-1166  
www.phelpsiengineering.com

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ENGINEERING  
IMPLEMENTATION



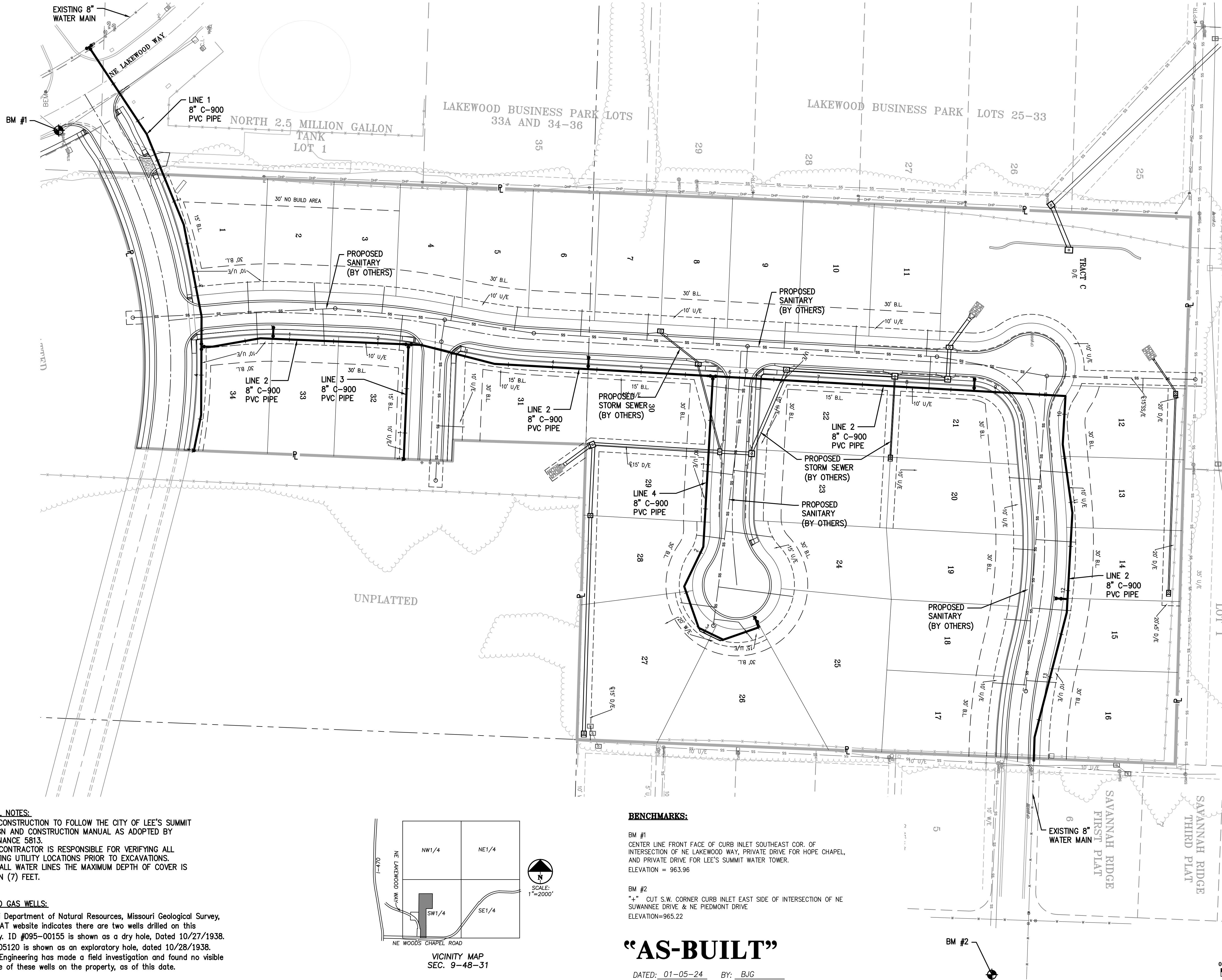
COVER SHEET  
ORCHARD WOODS  
LEE’S SUMMIT, JACKSON COUNTY, MISSOURI

PROJECT NO.	211142	No.	Date	Revisions:	By	App.
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CHECKED: DEU	APPROVED: DEU	2	01/18/23	REVISED PER CITY COMMENTS	JMO	DEU
CERTIFICATE OF AUTHORIZATION						
LAND SURVEYING - LS-82						
ENGINEERING - E-361						
CERTIFICATE OF AUTHORIZATION						
LAND SURVEYING-2007001028						
ENGINEERING-2007000209						

SHEET

1

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**PHELPS ENGINEERING, INC.**  
1270 N. Winchester  
Olathe, Kansas 66061  
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Fax (913) 393-1165  
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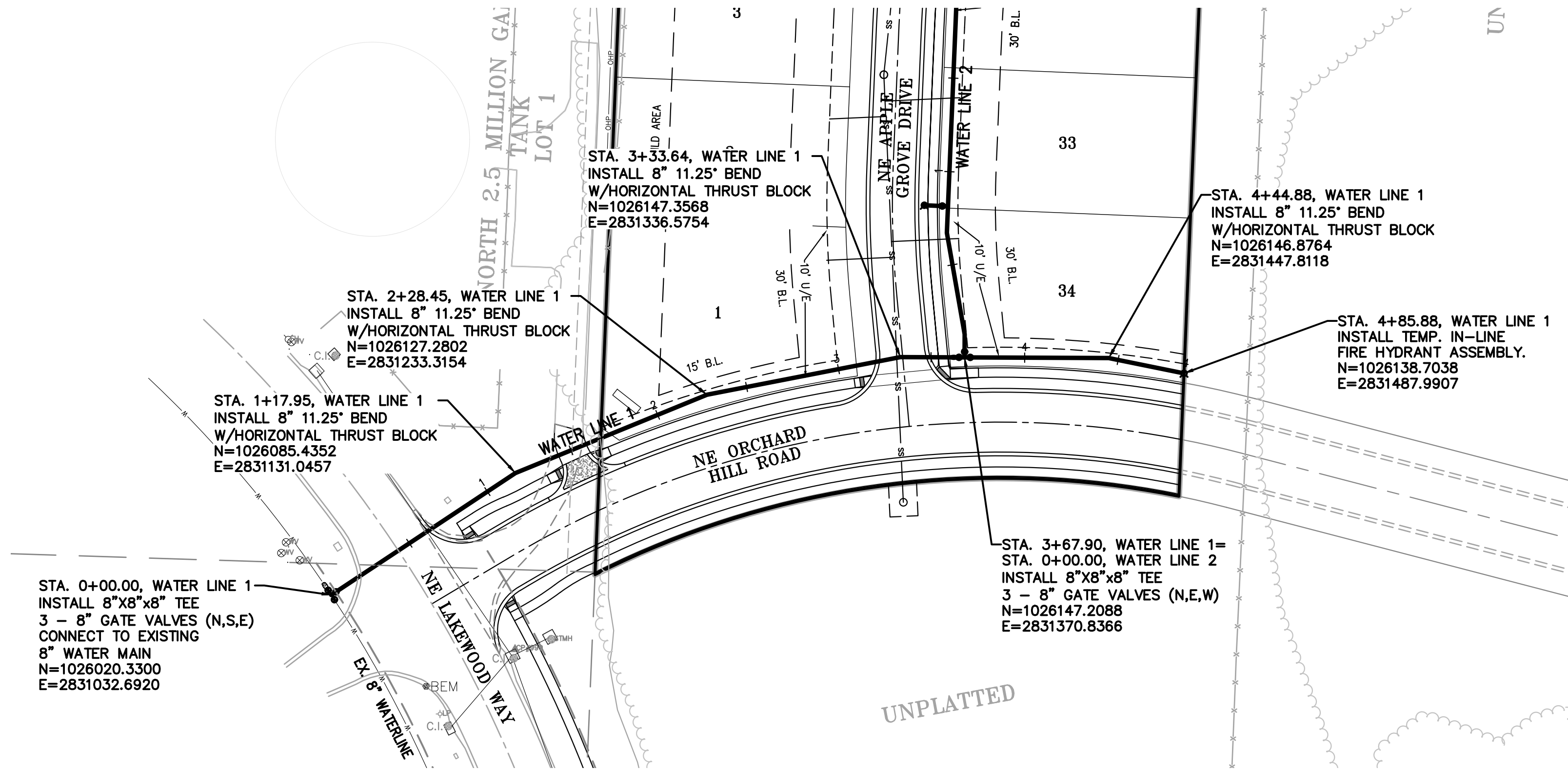


**GENERAL LAYOUT**  
ORCHARD WOODS  
LEE'S SUMMIT, JACKSON COUNTY, MISSOURI

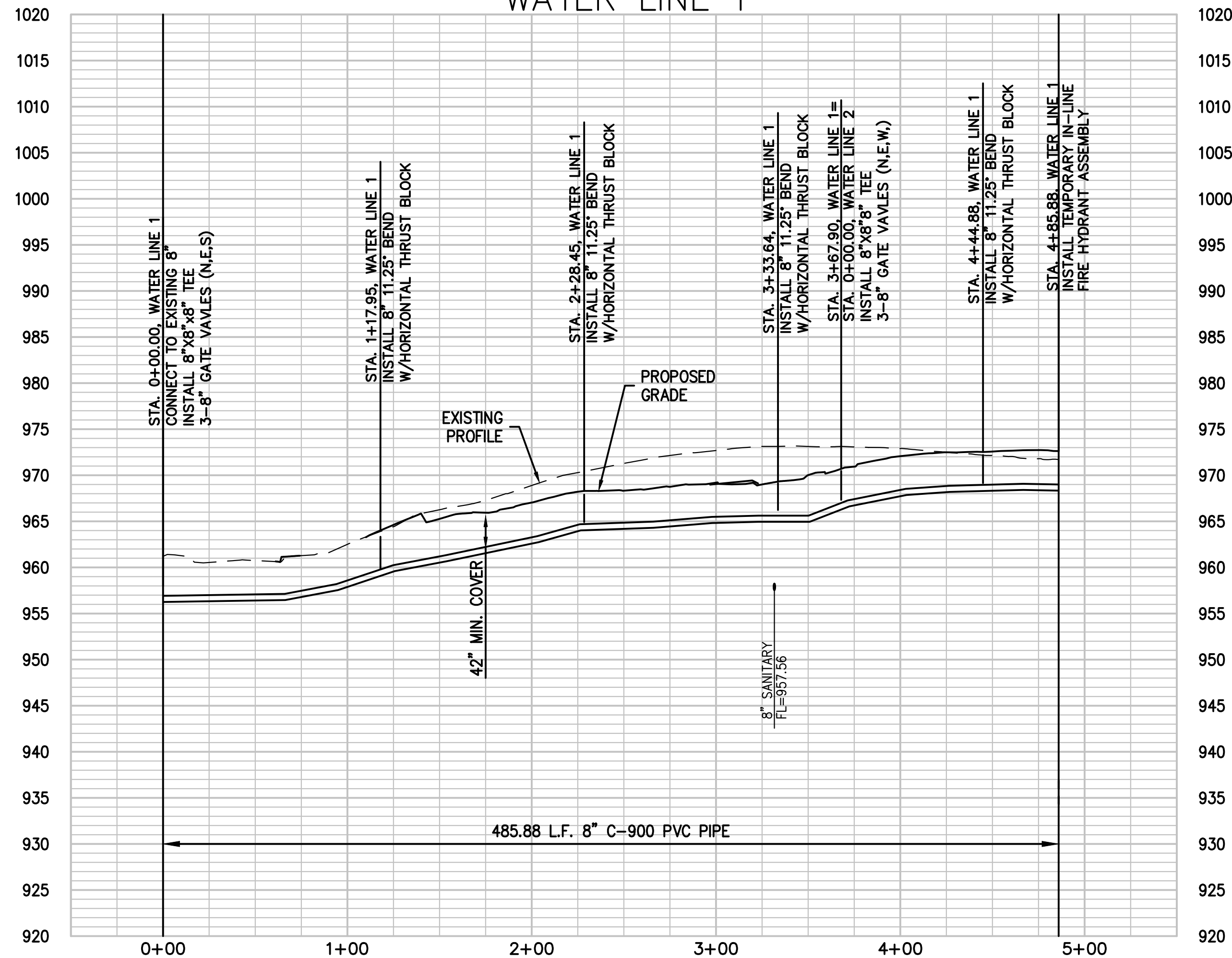
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CHECKER: DEU	2	01/18/23	01/18/23	JMO	DEU
CORPORATE DATE OF AUTHORIZATION					
LAND SURVEYING - LS-82					
ENGINEERING - E-SF					
CERTIFICATE OF AUTHORIZATION					
LAND SURVEYING-200701028					
ENGINEERING-200700209					

**SHEET**  
**2**

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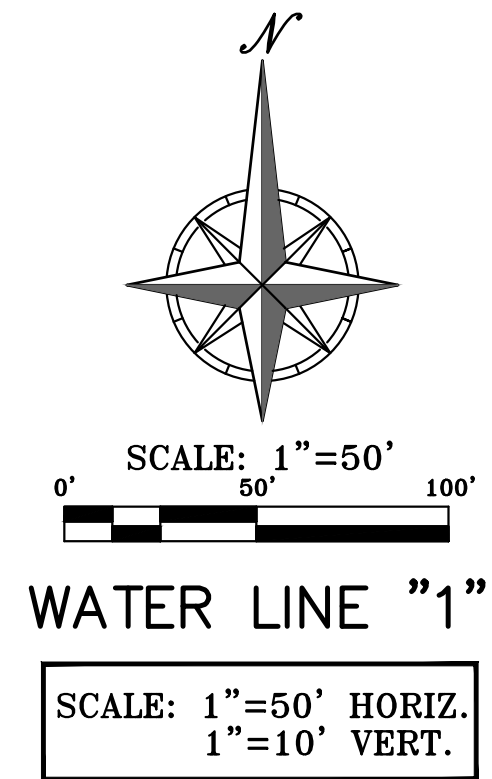


WATER LINE 1



# "AS-BUILT"

DATED: 01-05-24 BY: BJG



## GENERAL NOTES:

- ALL CONSTRUCTION TO FOLLOW THE CITY OF LEE'S SUMMIT DESIGN AND CONSTRUCTION MANUAL AS ADOPTED BY ORDINANCE 5813.
- THE CONTRACTOR IS RESPONSIBLE FOR VERIFYING ALL EXISTING UTILITY LOCATIONS PRIOR TO EXCAVATIONS.
- FOR ALL WATER LINES THE MAXIMUM DEPTH OF COVER IS SEVEN (7) FEET.



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www.phelpsen지니어ing.com

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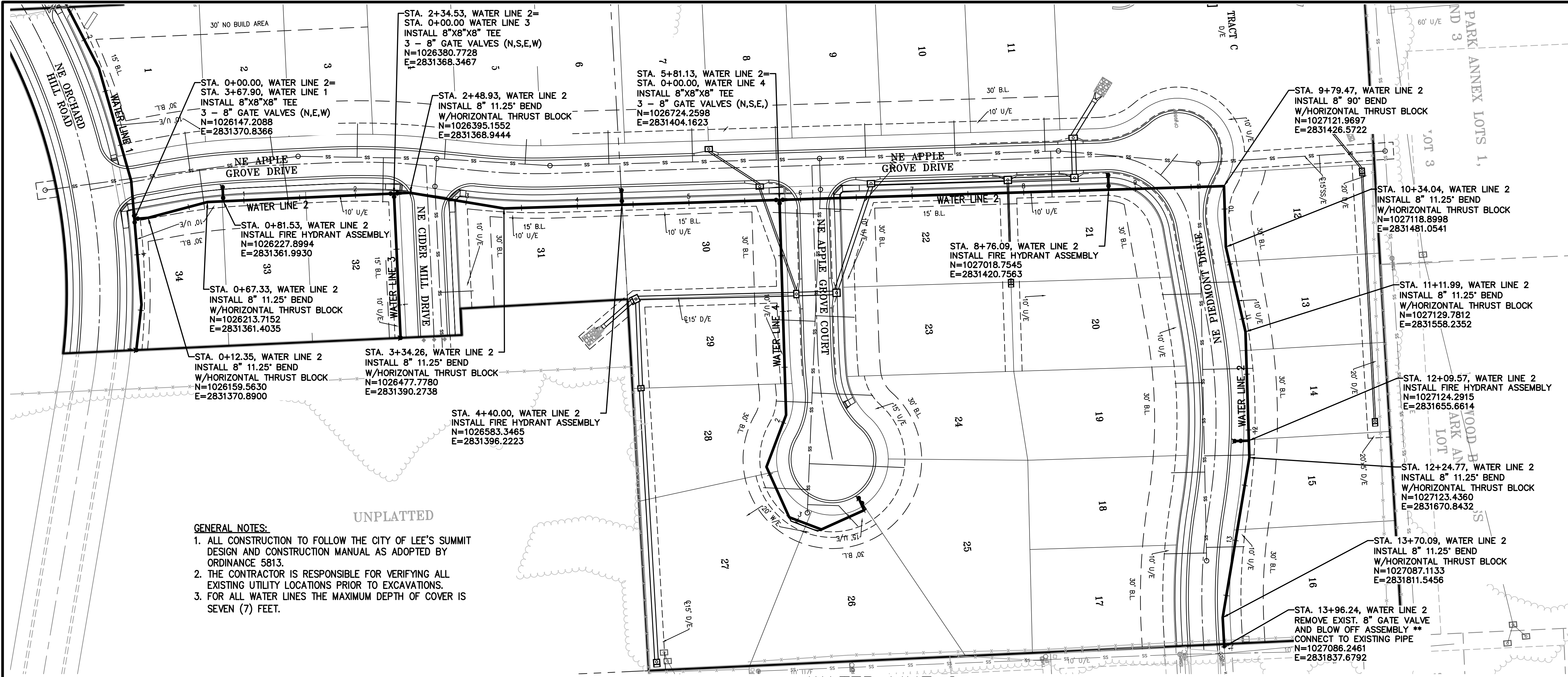
## WATERLINE PLAN & PROFILE

ORCHARD WOODS  
LEE'S SUMMIT, JACKSON COUNTY, MISSOURI

PROJECT NO.	211142	No.	Date	Revisions:	By	App.
DATE: 11-14-2022	DRAWN: KSJ	1	12/15/22	REVISED PER CITY COMMENTS	KSJ	DEU
CHECKED: DEU	APPROVED: DEU	2	01/18/23	REVISED PER CITY COMMENTS	JMO	DEU
CORPORATE OF AUTHORIZATION						
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ENGINEERING - E-361						
CERTIFICATE OF AUTHORIZATION						
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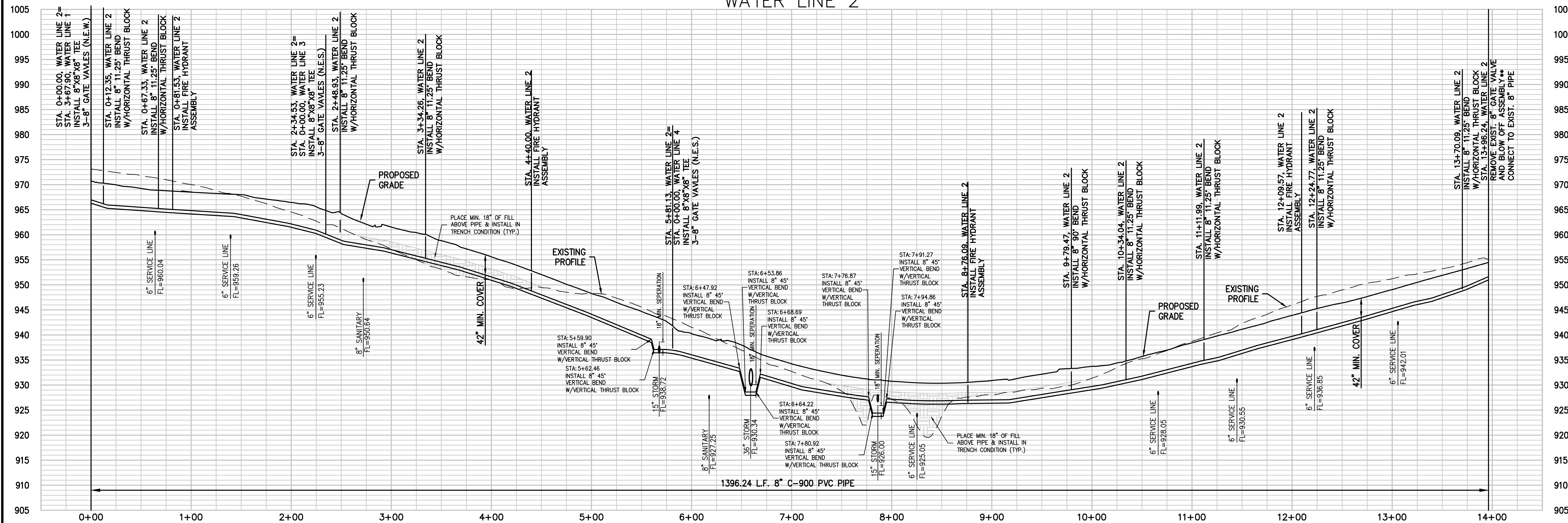
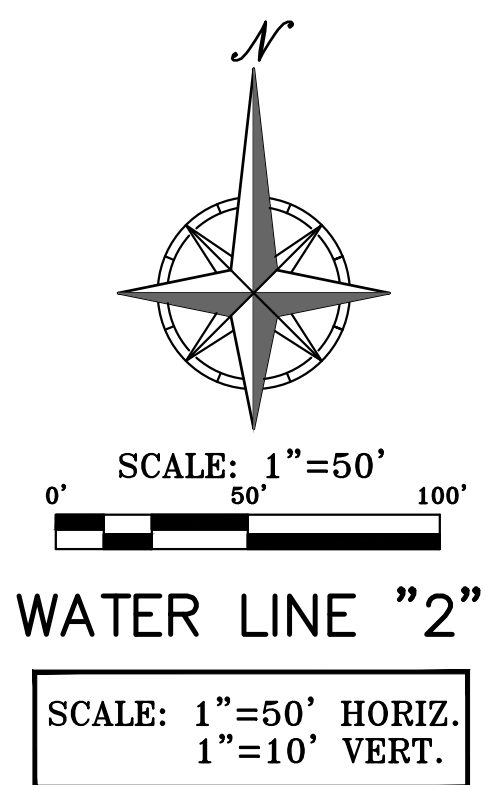
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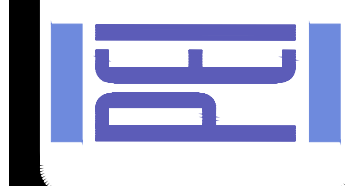
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**"AS-BUILT"**  
DATED: 01-05-24 BY: BJG



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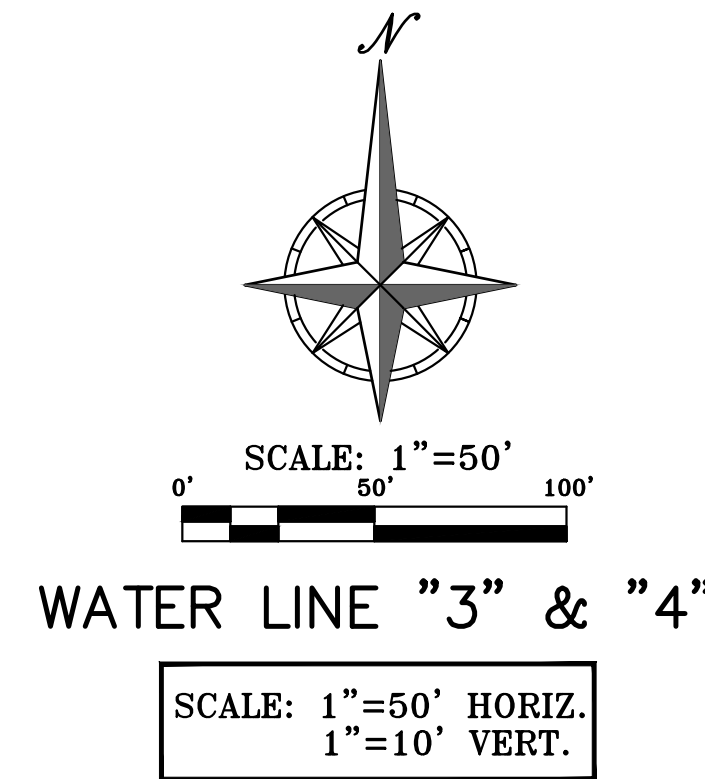
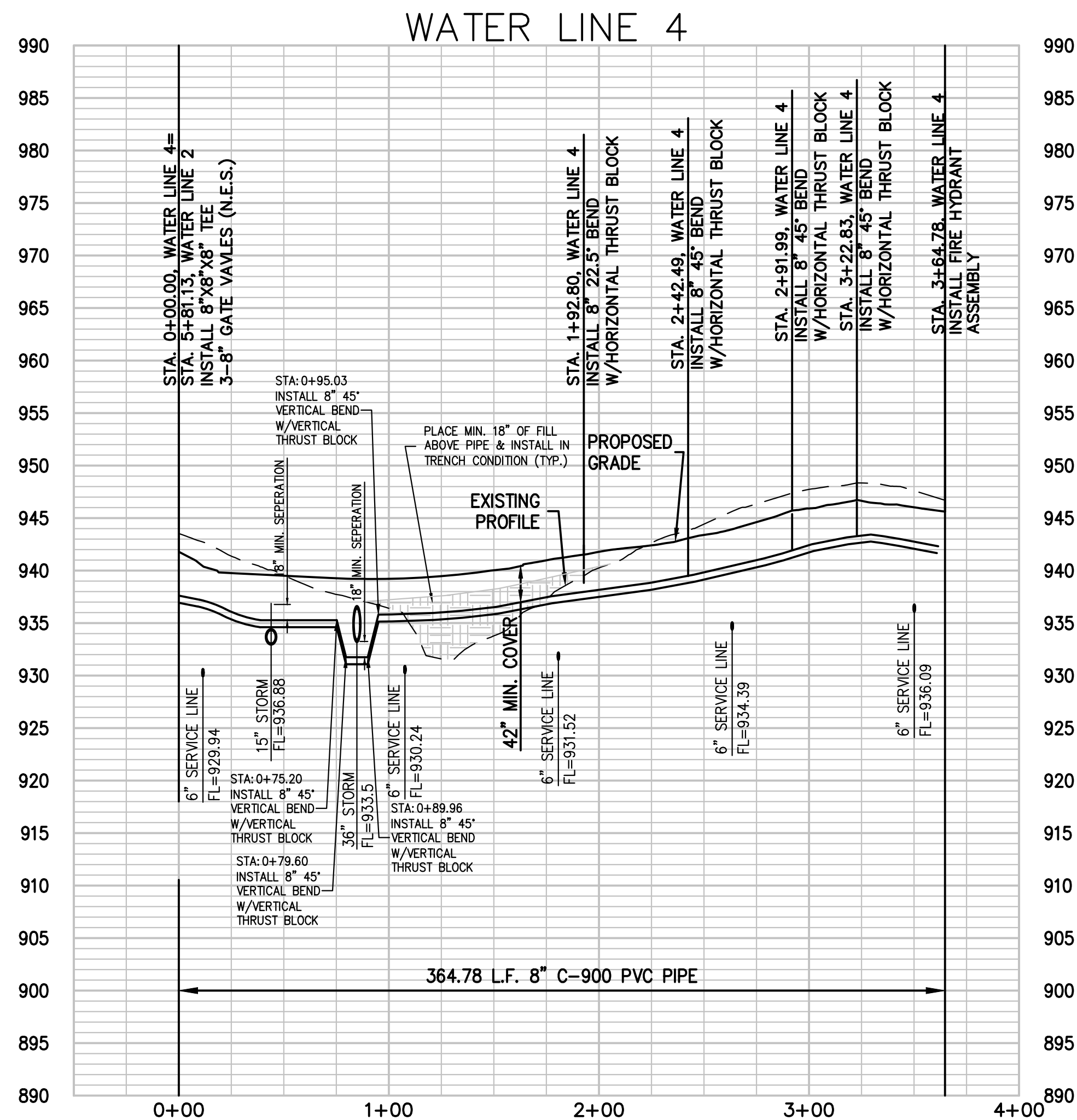
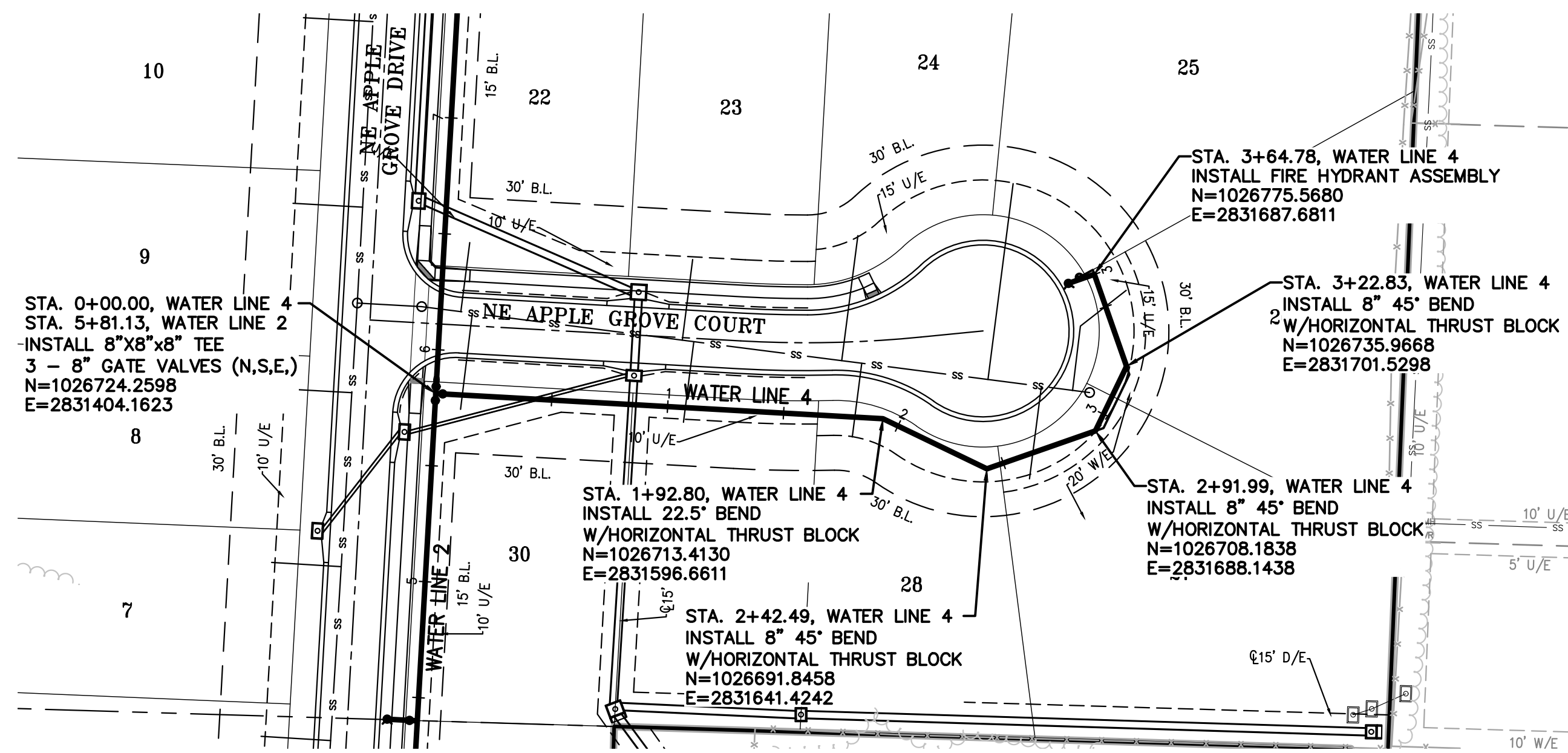
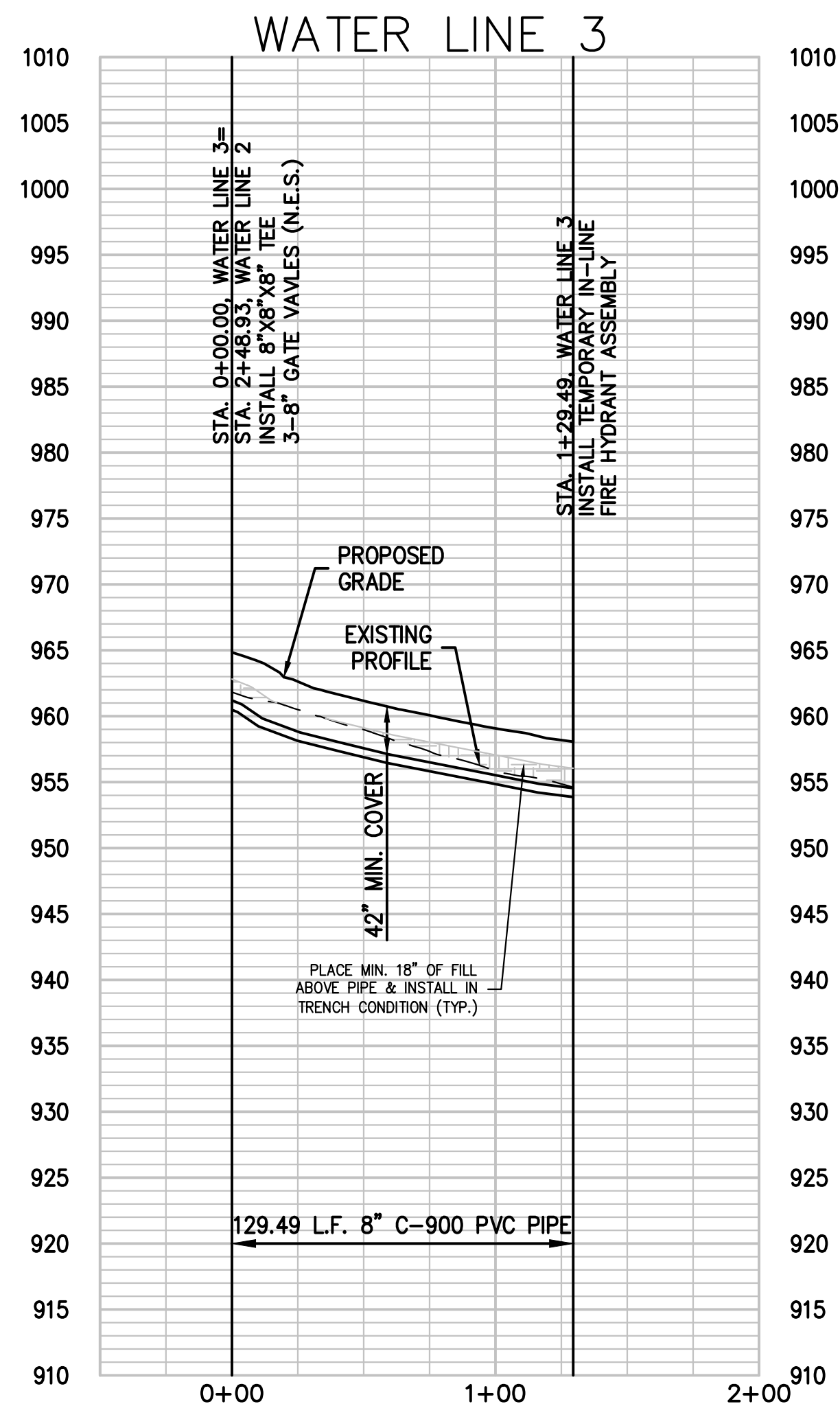
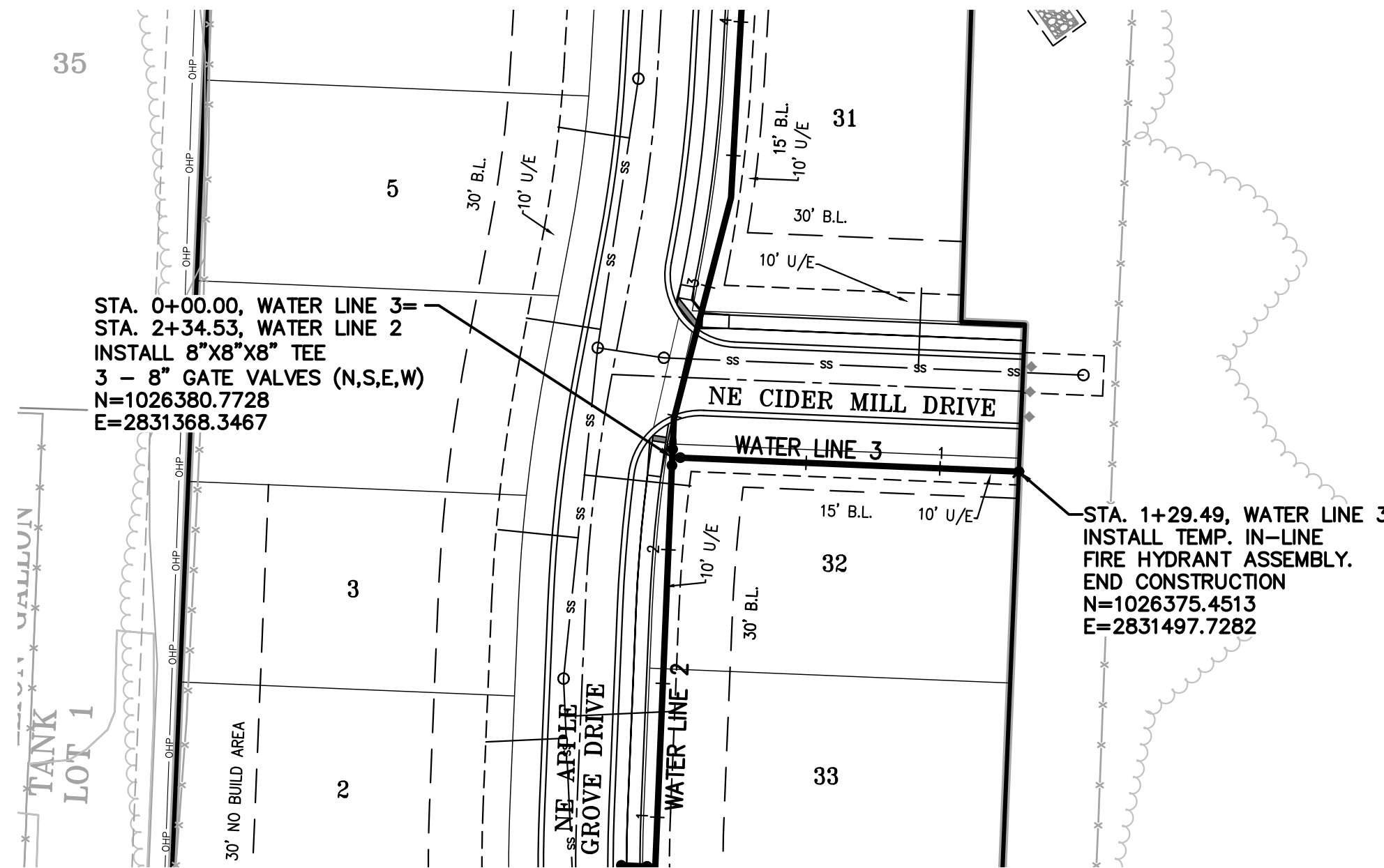
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ENGINEERING  
IMPLEMENTATION



**WATERLINE PLAN & PROFILE**  
ORCHARD WOODS  
LEE'S SUMMIT, JACKSON COUNTY, MISSOURI

PROJECT NO.	211142	Date	No.	Revisions:	By	App.
DATE 11-14-2022	DRAWN/KSJ	1	12/15/22	REVISED PER CITY COMMENTS	KSJ	DEU
CHECKER DEU APPROVED DEU	2	01/18/23		REVISED PER CITY COMMENTS	JMO	DEU
CORPORATE OF AUTHORIZATION						
LAND SURVEYING - LS-82						
ENGINEERING - E-361						
CERTIFICATE OF AUTHORIZATION						
LAND SURVEYING-200701028						
ENGINEERING-200700028						

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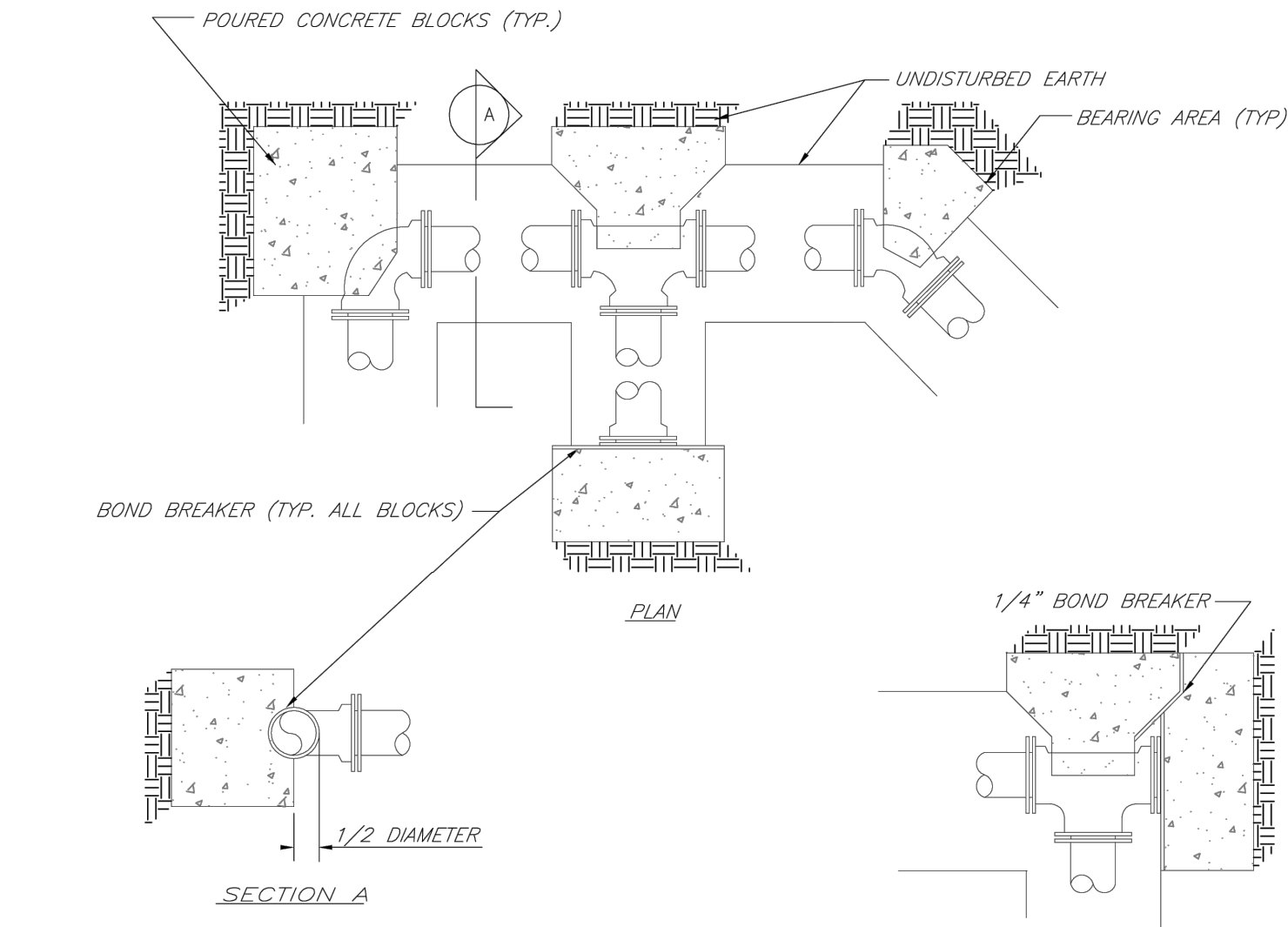


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PROJECT NO.	21142	Date	By	App.
CHECKER: DEU APPROVED: DEU	1	12/15/22	KSJ	DEU
CORPORATE DATE OF AUTHORIZATION	2	01/18/23	JMO	DEU
LAND SURVEYING - LS-82				
ENGINEERING - E-361				
CERTIFICATE OF AUTHORIZATION				
LAND SURVEYING-200701028				
ENGINEERING-200700039				

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	18.6	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	14.9

- 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.

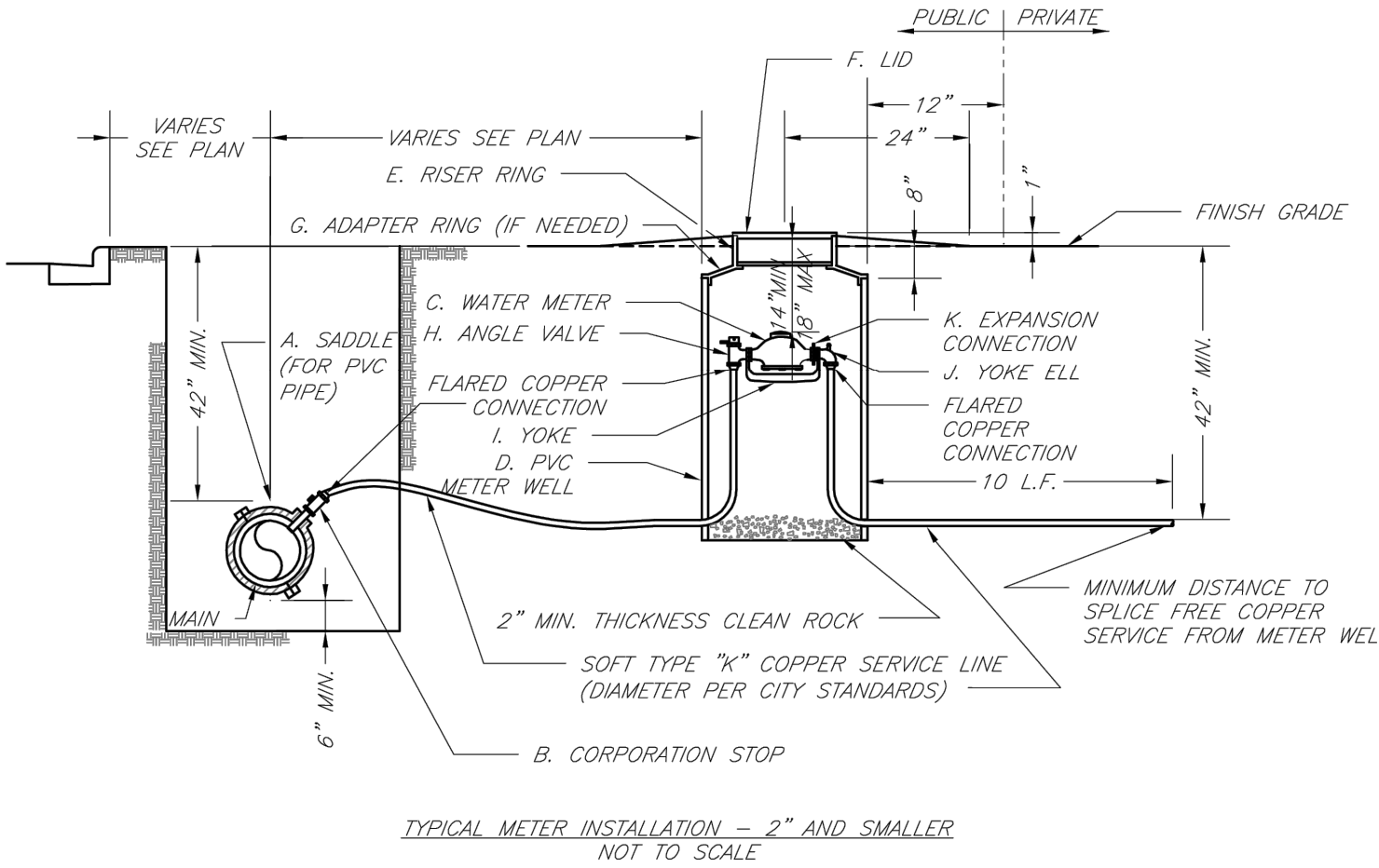


LS

**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



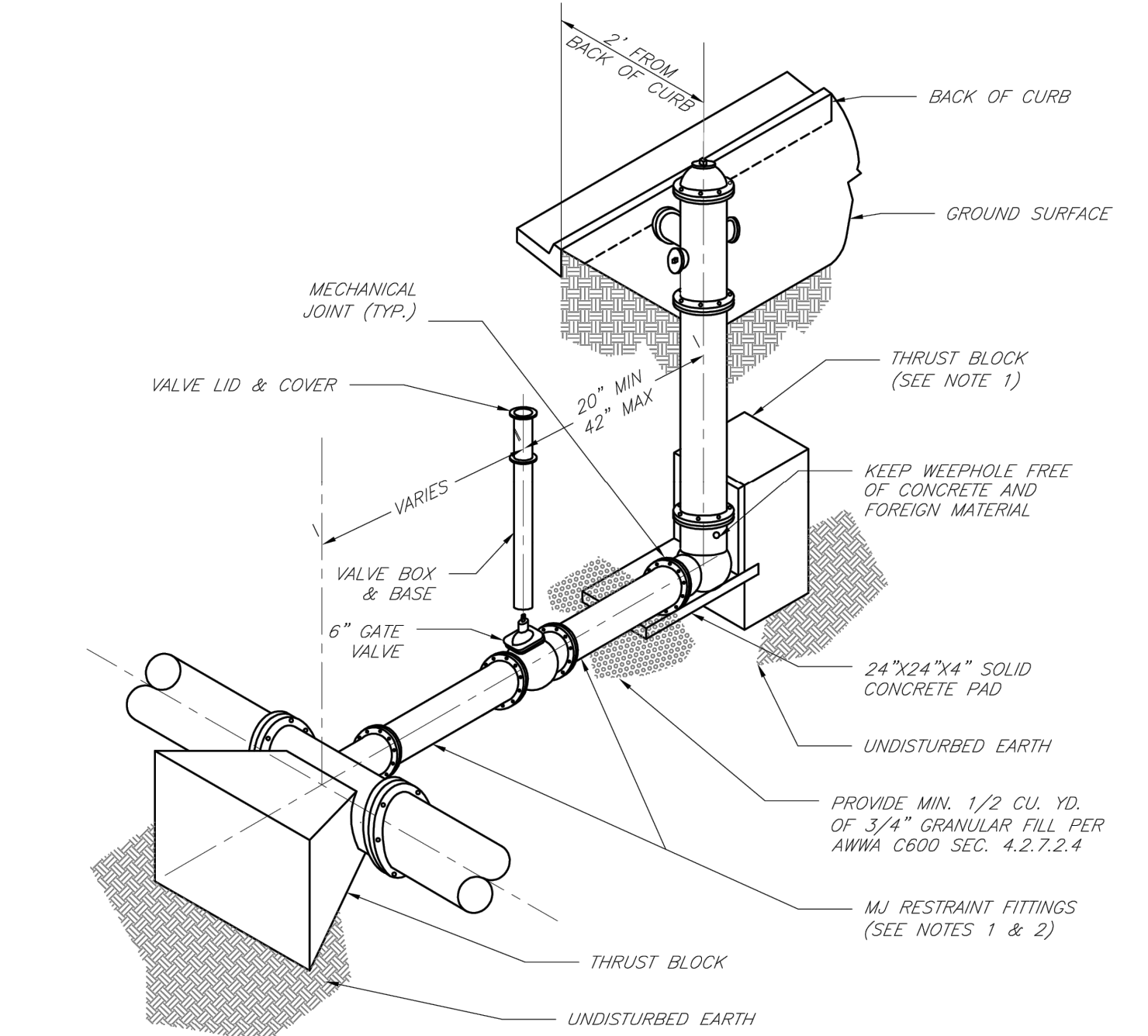
- NOTES:
1. METER INSTALLATION SHALL NOT BE LOCATED IN AREAS SUBJECT TO VEHICULAR TRAFFIC OR IN CONCRETE PAVEMENT WITHOUT CITY APPROVAL.
  2. IF METER IS TO BE LOCATED OTHER THAN IN FRONT OF PROPERTY LINE, CITY APPROVAL SHALL BE OBTAINED.
  3. CITY TO FURNISH ITEMS A-K.
  4. NO OTHER EQUIPMENT SHALL BE INSTALLED IN THIS PIT.
  5. 42\"/>

LS

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

SERVICE CONNECTION/METER WELL

Date: 02/13  
Drawn By: JN  
Checked By: DL  
FILE: WAT-11  
Rev: 1/14



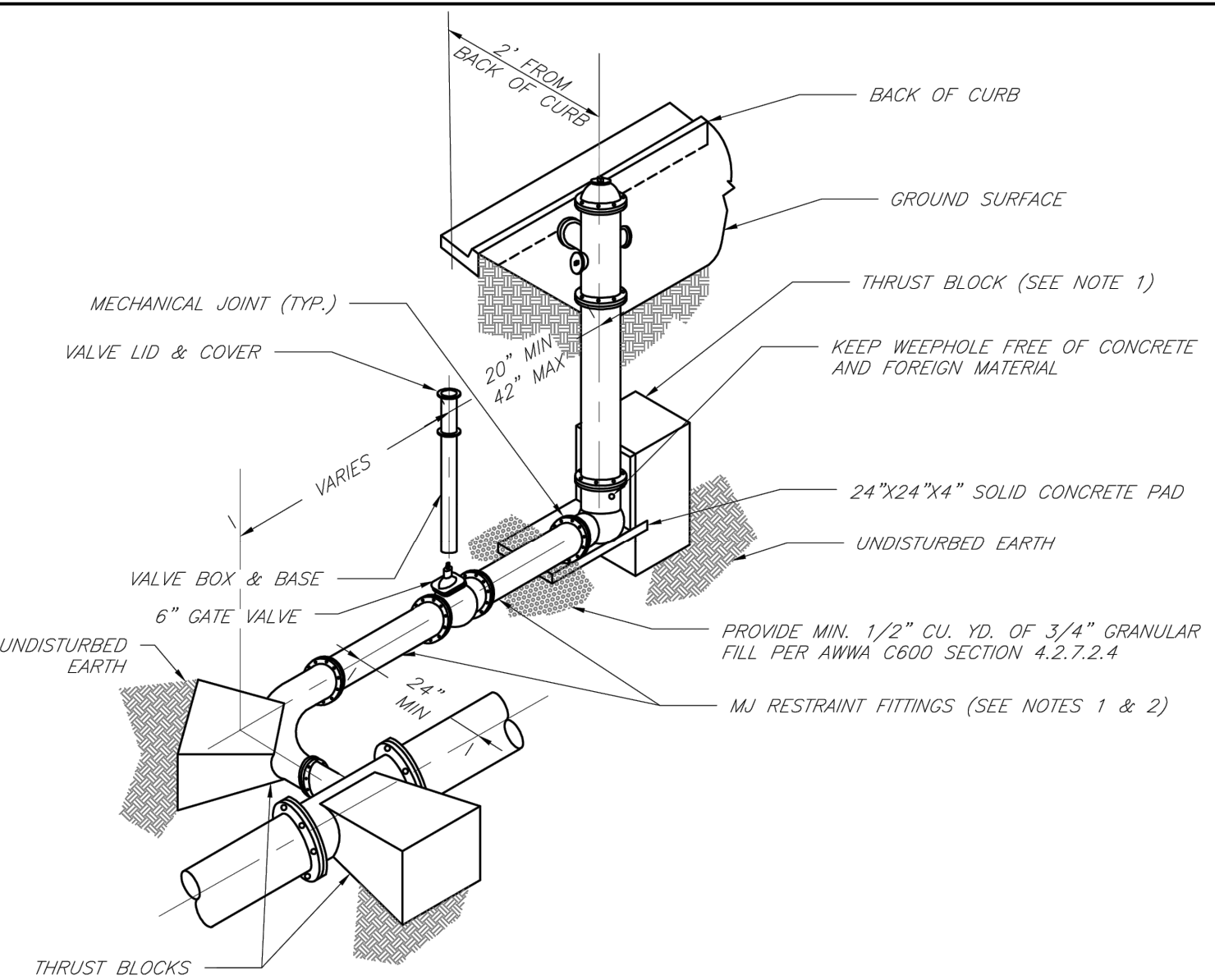
- NOTES:
1. WHEN RETAINER GLANDS ARE USED IN LIEU OF MECHANICAL JOINT (MJ) RESTRAINT FITTINGS, HORIZONTAL THRUST BLOCKS ARE REQUIRED.
  2. GATE VALVE MAY BE BOLTED DIRECTLY TO MJ RESTRAINT TEE.
  3. SEE APPROVED PRODUCTS LIST FOR WATER UTILITIES FOR FIRE HYDRANT, VALVES, VALVE BOX LID, AND COVER.
  4. BOTTOM HYDRANT FLANGE SHALL BE 2\"/>

LS

**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



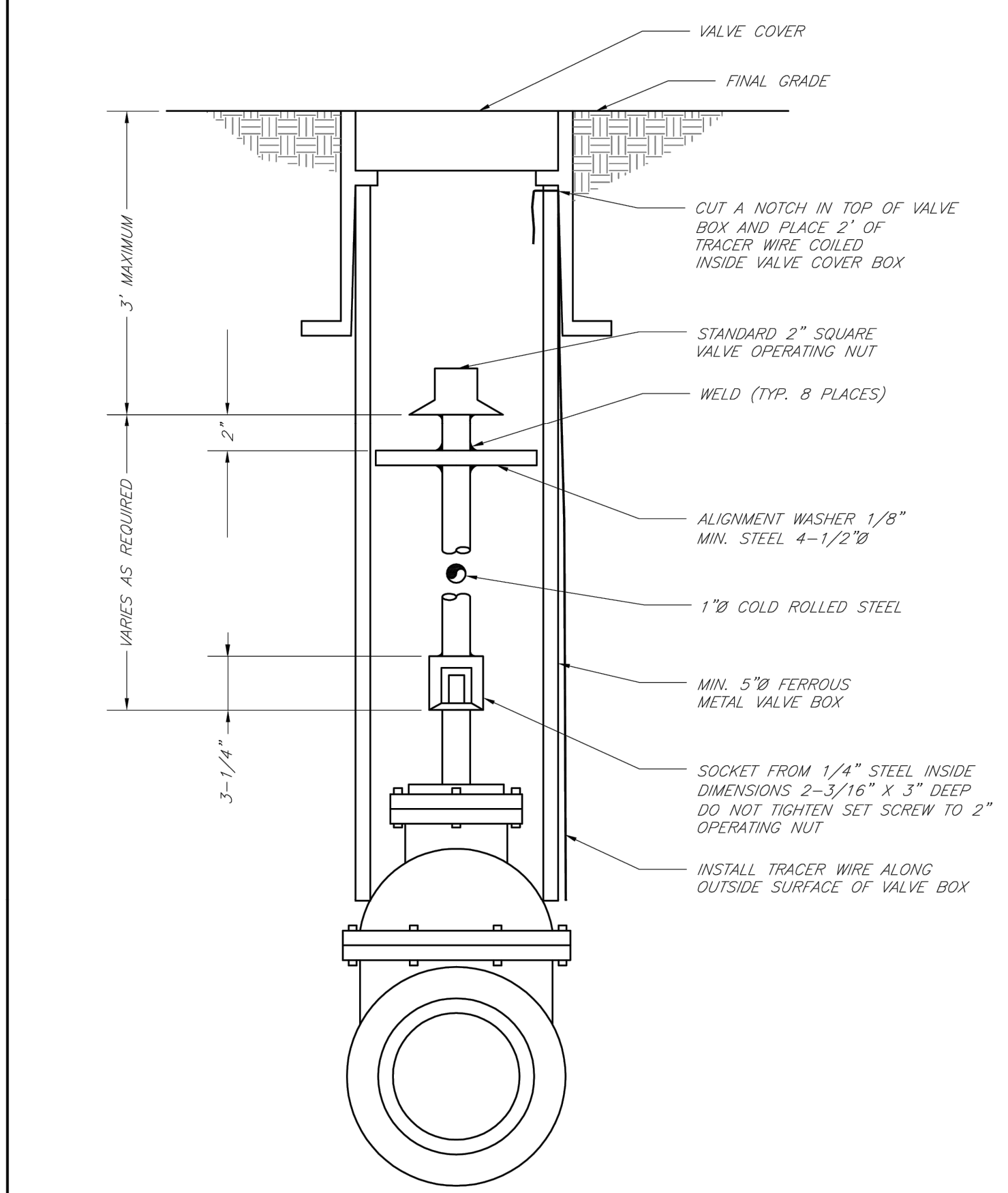
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  4. BOTTOM HYDRANT FLANGE SHALL BE 2\"/>

LS

**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



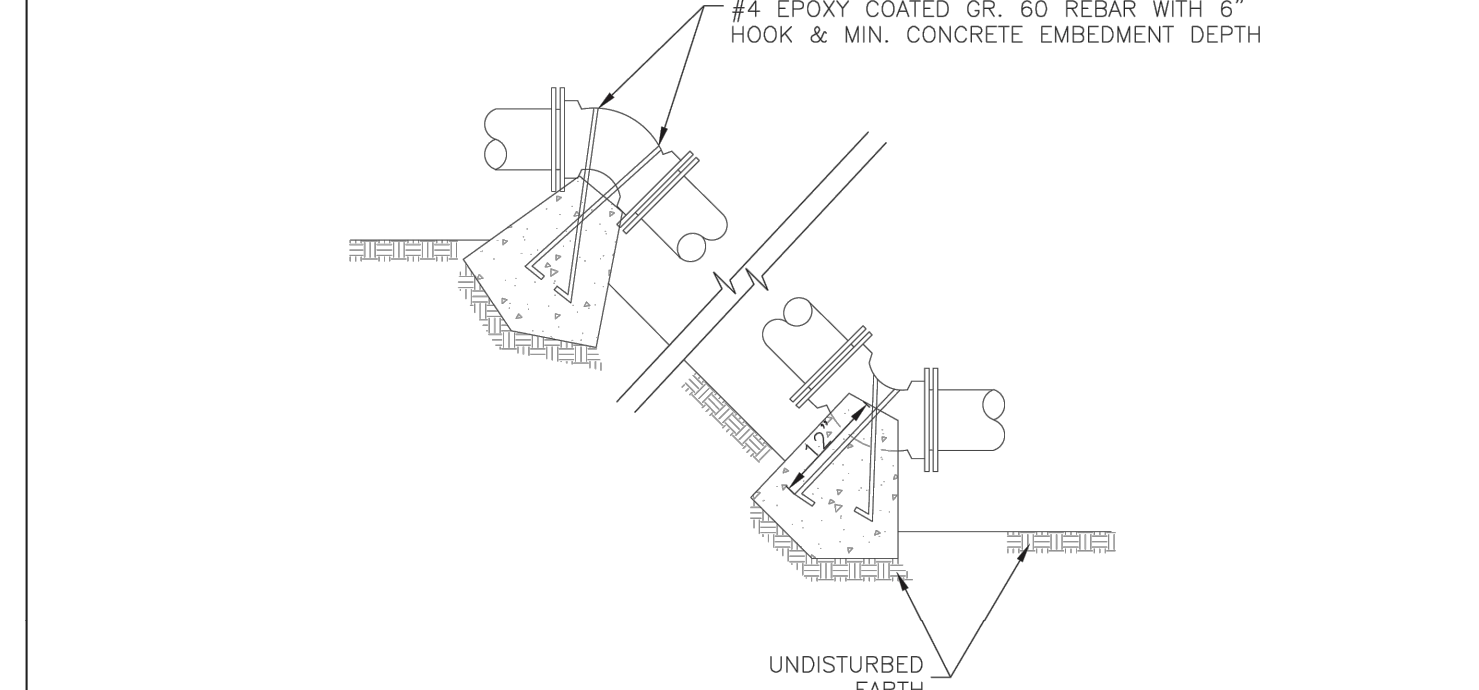
LS

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

VALVE STEM EXTENSION AND VALVE BOX

Date: 02/13  
Drawn By: JN  
Checked By: DL  
FILE: WAT-9  
Rev: 1/14

REQUIRED CONCRETE VOLUME (CUBIC FEET - CF)					
NOM. DIA. (INCHES)	180 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.

LS

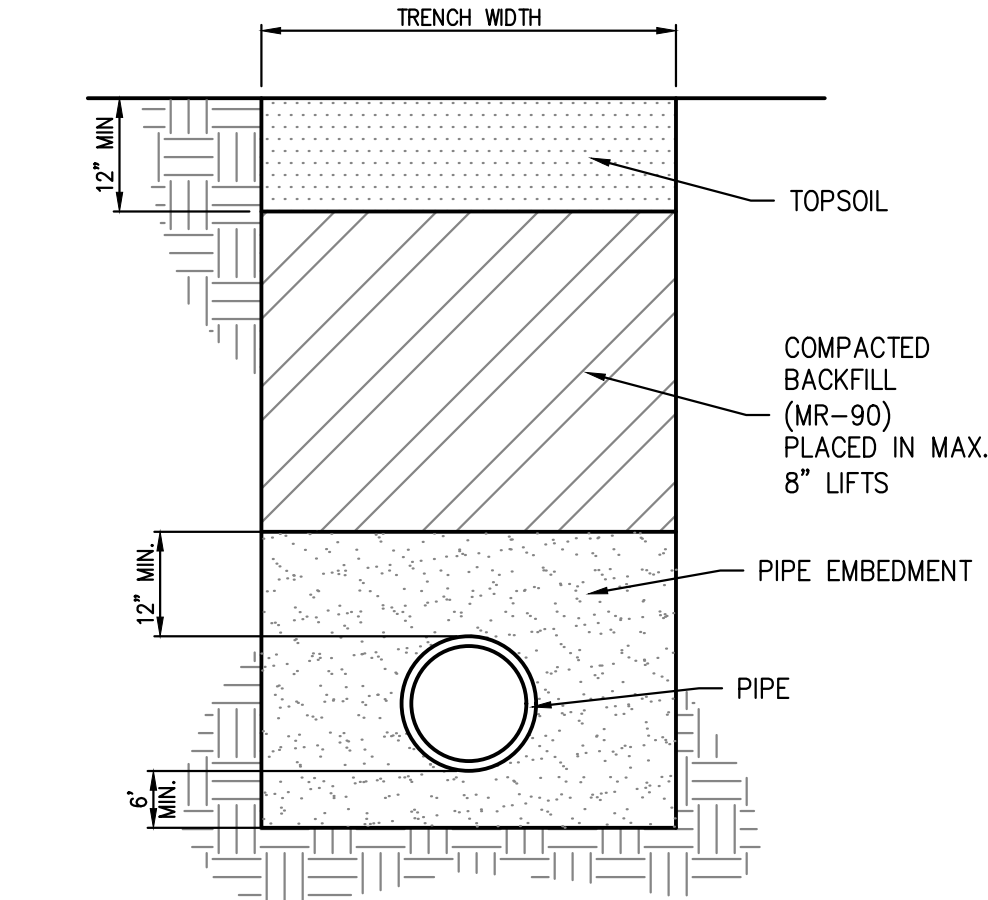
**LEE'S SUMMIT**  
MISSOURI  
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VERTICAL THRUST BLOCK

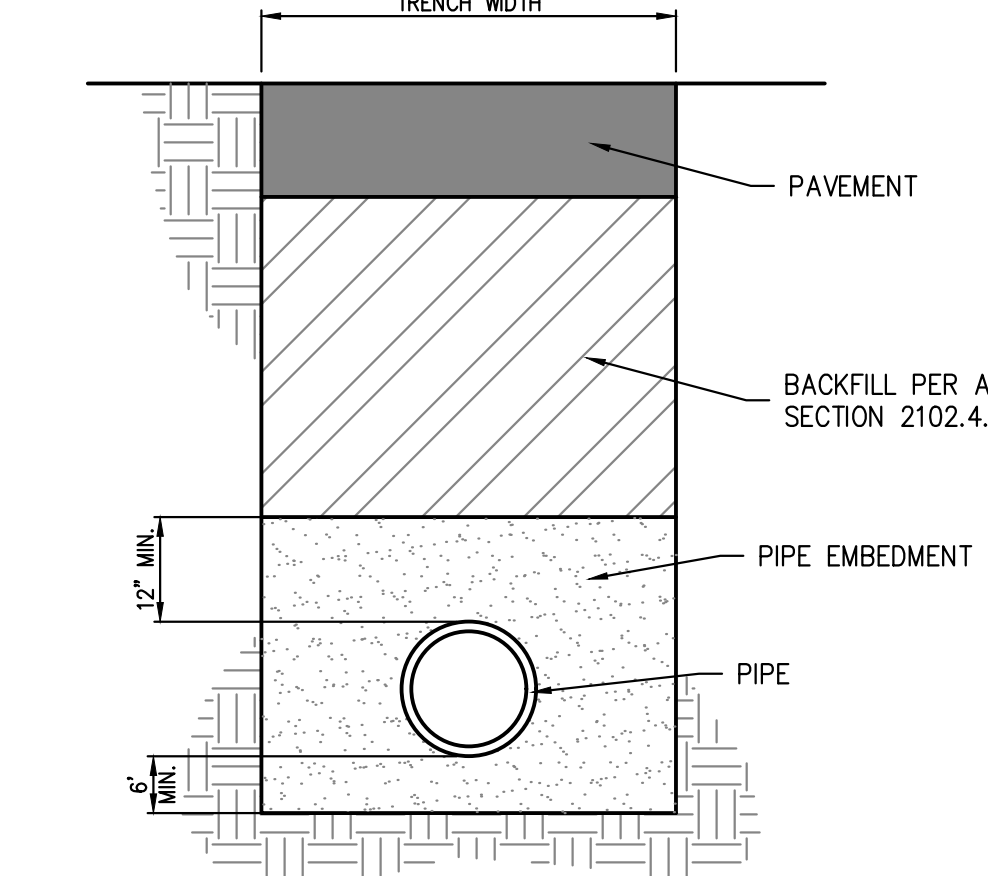
Date: WAT-2  
Drawn By: JN  
Checked By: DL

“AS-BUILT”

DATED: 01-05-24 BY: BJB



TRENCH AND BACKFILL DETAIL  
N.T.S.



TRENCH AND BACKFILL DETAIL  
UNDER PAVEMENT DETAIL  
N.T.S.

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WATER MAIN DETAILS  
ORCHARD WOODS  
LEE'S SUMMIT, JACKSON COUNTY, MISSOURI

PROJECT NO.	211142	No.	Date	Revisions:	By	App.
DATE 11-14-2022	DRANKS	1	12/15/22	REVISED PER CITY COMMENTS	KSJ	DEU
CHECKED DEU	APPROVED DEU	2	01/18/23	REVISED PER CITY COMMENTS	JMO	DEU
CORPORATE DATE OF AUTHORIZATION	DATE OF AUTHORIZATION					
LAND SURVEYING - LS-82	LAND SURVEYING - E-SF					
CERTIFICATE OF AUTHORIZATION	CERTIFICATE OF AUTHORIZATION					
LAND SURVEYING - 200701028	LAND SURVEYING - 200701028					