

2751 NORTHEAST DOUGLAS STREET
LEE'S SUMMIT, MISSOURI 64064

CONSTRUCTION PLANS
FOR
KANSAS CITY - LEE'S SUMMIT
REGIONAL AIRPORT

CITY PROJECT NO. 17932172

TM AVIATION HANGAR

SANITARY AND WATER LINE SUBMITTAL

APRIL 30, 2025

CALL MISSOURI ONE-CALL SYSTEMS
BEFORE EXCAVATING
1-800-DIG-RITE

DESIGN AIRCRAFT - GEOMETRY
CANADAIR CL-600
AIRCRAFT APPROACH CATEGORY C
AIRPLANE DESIGN GROUP II
DESIGN AIRCRAFT - STRUCTURE
GRUMMAN GULFSTREAM IV
GROSS WEIGHT - 71,800 LBS
EQUIVALENT ANNUAL DEPARTURES - 651

MAXIMUM EQUIPMENT HEIGHT: 100'

UNICOM/CTAF FREQUENCY - 122.80



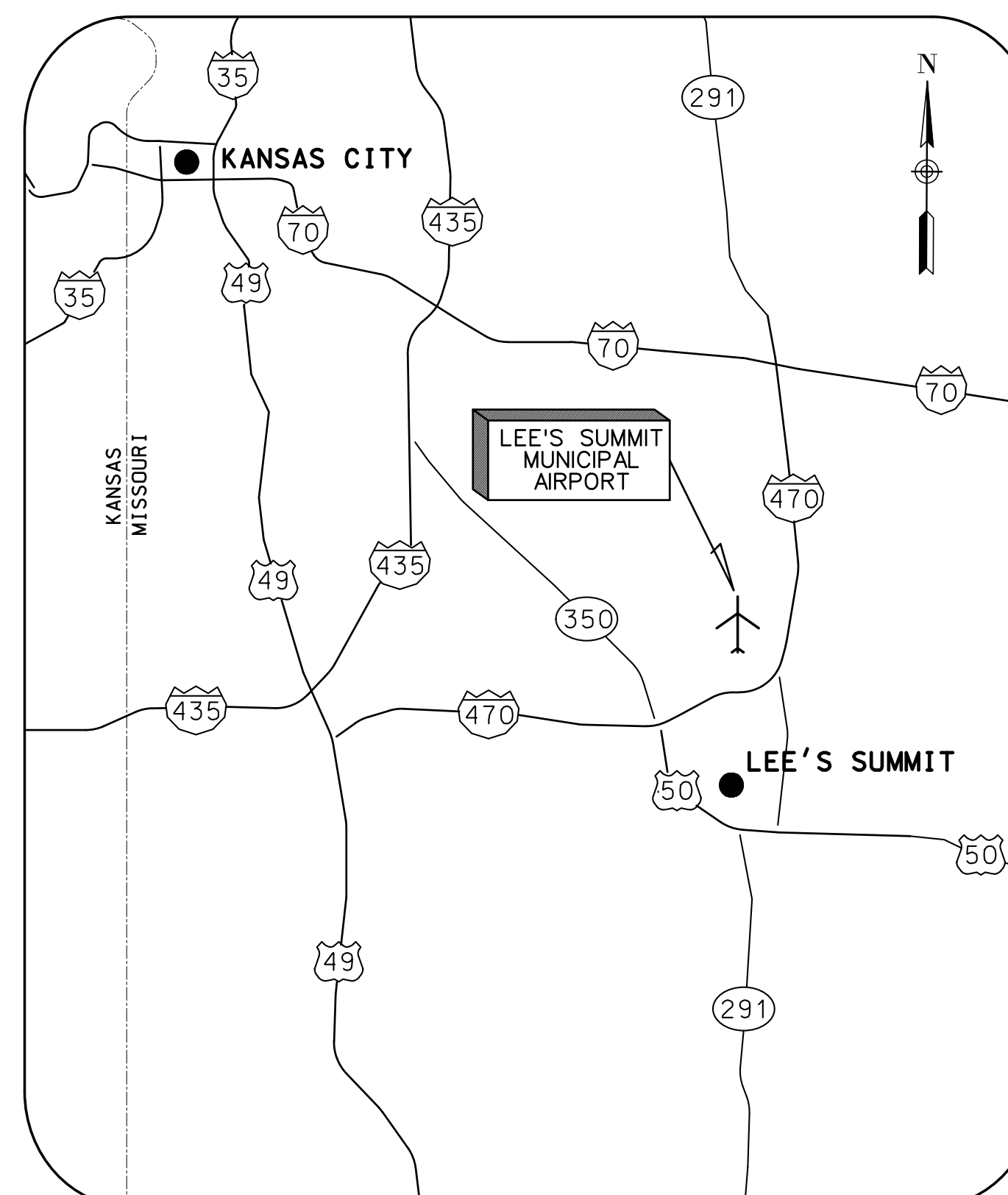
22001238

©Copyright CMT, Inc.
PROFESSIONAL ENGINEERING - 000631
CRAWFORD MURPHY & TILLY, INC.
CONSULTING ENGINEERS

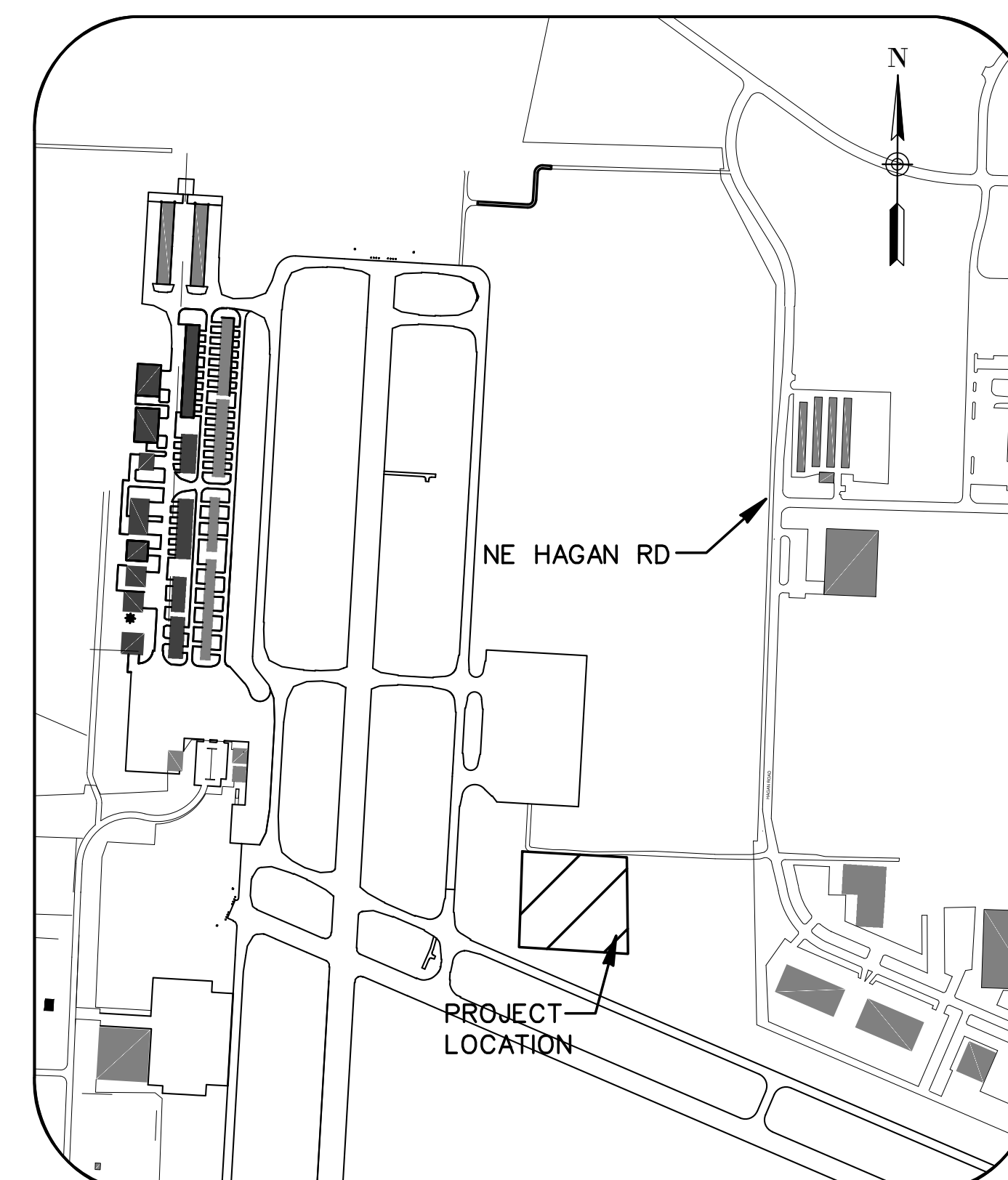
■ SPRINGFIELD, IL ■ AURORA, IL ■ ST. LOUIS, MO
■ EDWARDSVILLE, IL ■ CHICAGO, IL ■ PEORIA, IL ■ ROCKFORD, IL
■ INDIANAPOLIS, IN ■ COLUMBUS, OH ■ SPRINGFIELD, MO
■ KANSAS CITY, MO ■ LA BELLE, FL ■ MOLINE, IA

SUBMITTED BY GERALD BOLLINGER

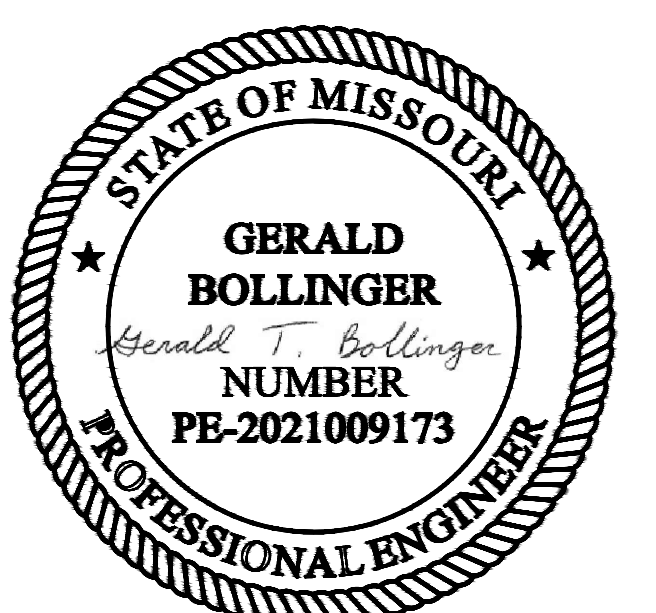
DATE APRIL 7, 2025

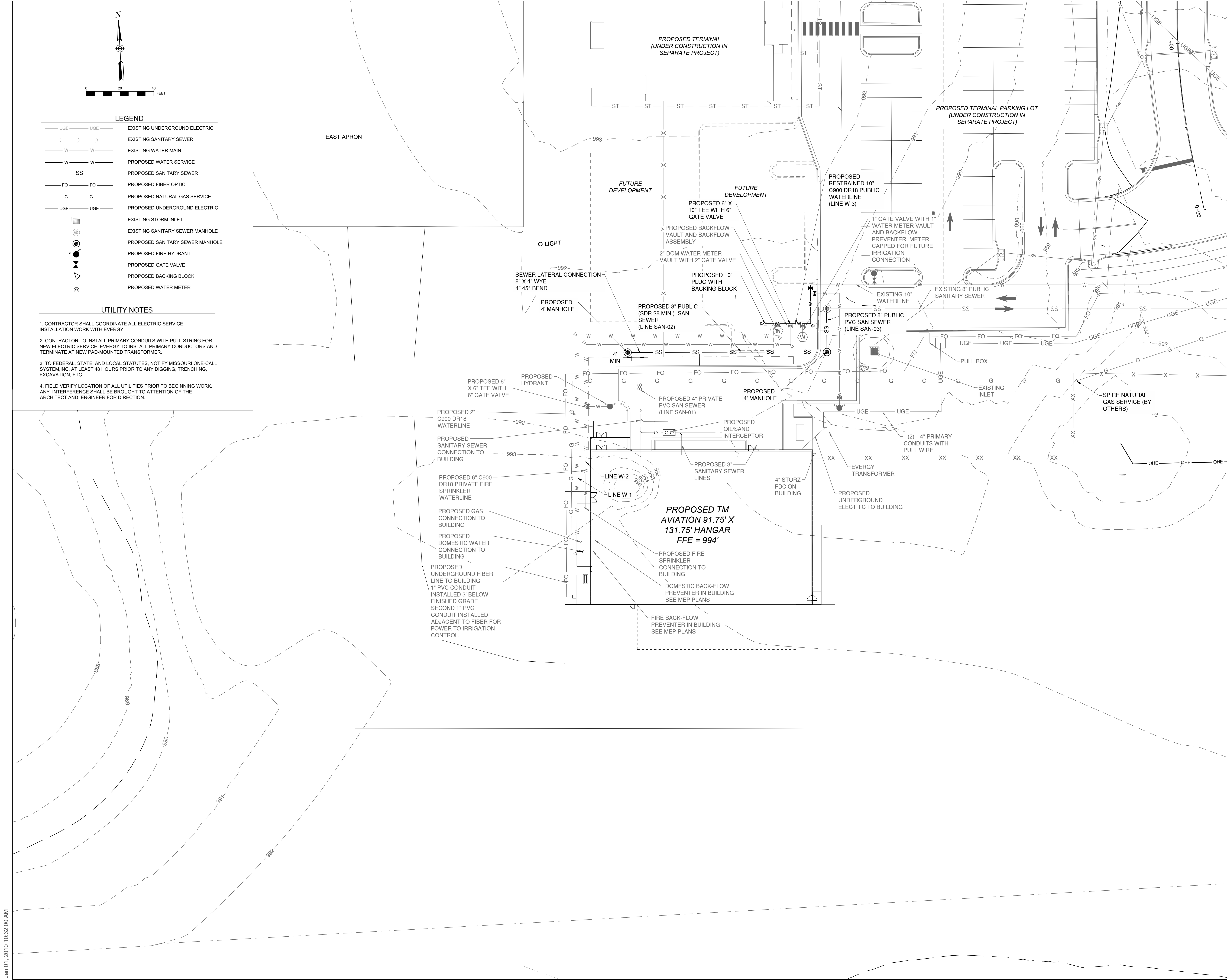


LOCATION MAP



SITE PLAN





1627 MAIN STREET, SUITE 600
KANSAS CITY, MO 64108



1627 MAIN STREET, SUITE 100
KANSAS CITY, MO 64108

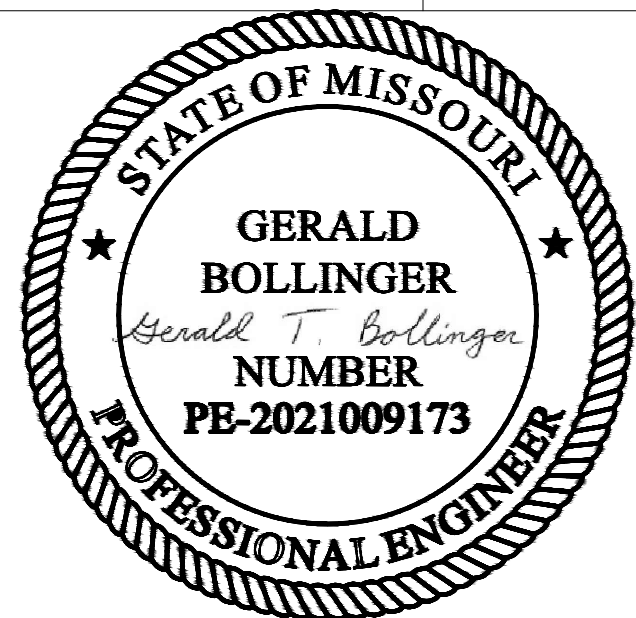


1100 MAIN ST, STE 1800
KANSAS CITY, MO 64105



1301 BURLINGTON
NORTH KANSAS CITY, MO 64116

KC - LEE'S SUMMIT REGIONAL
LEE'S SUMMIT, MISSOURI
TM AVIATION HANGAR
CITY PROJECT NO. - XXXXXXXX



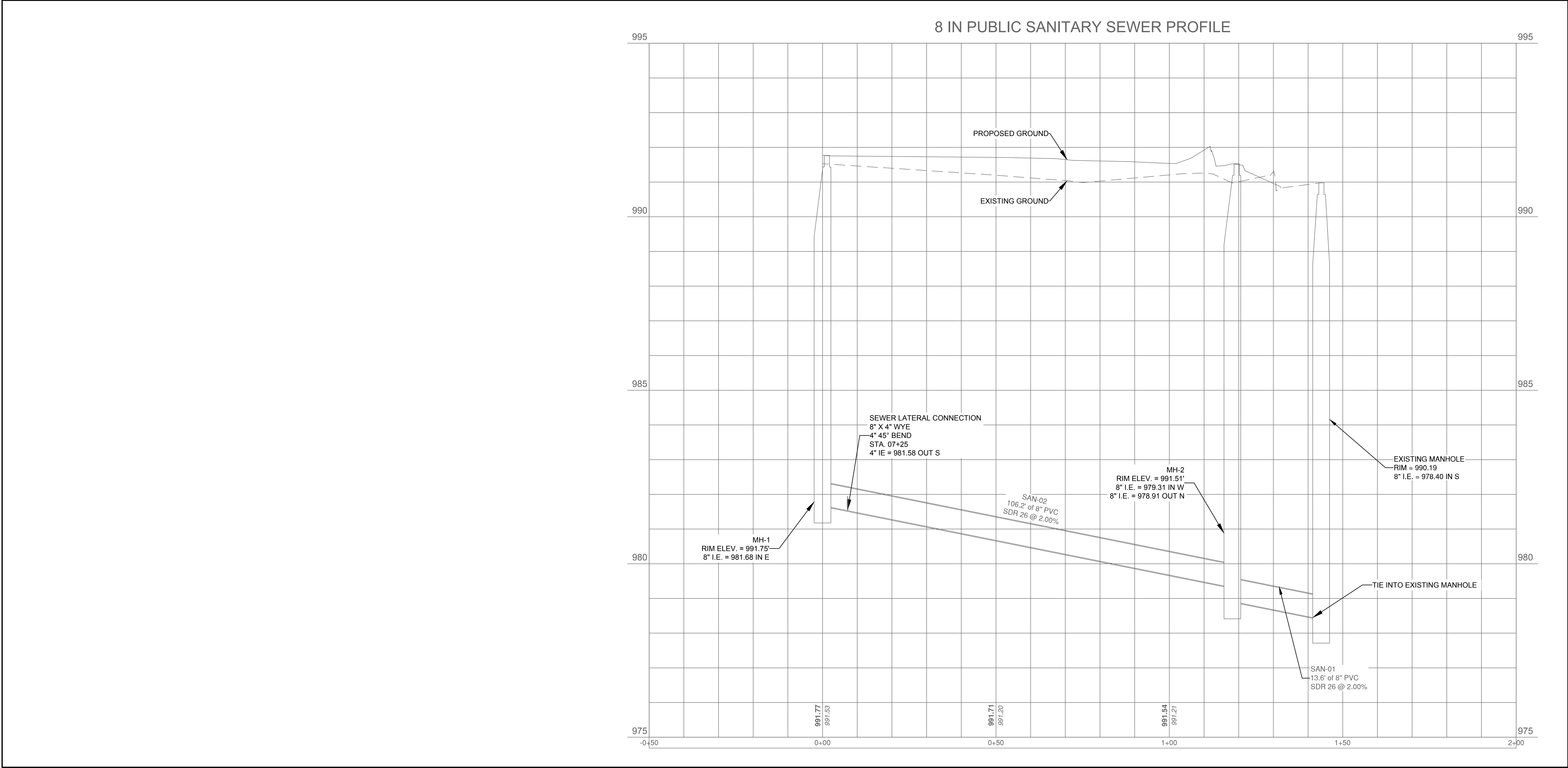
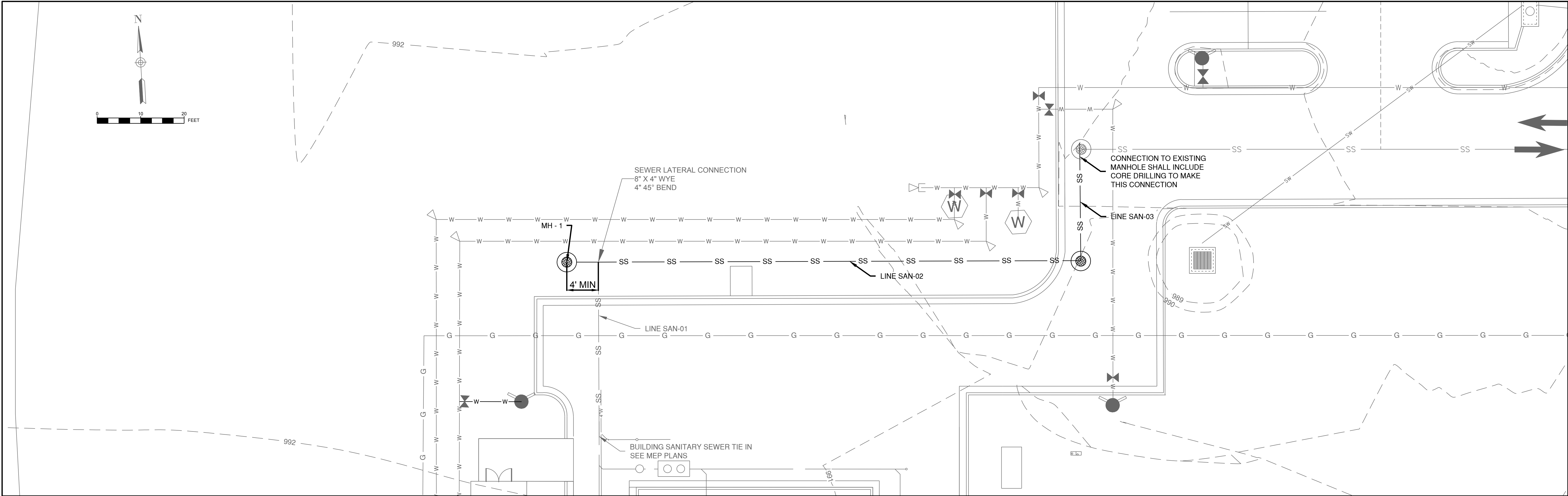
March 21, 2025

MARK	DATE	DESCRIPTION
PROJECT NO:	PERMIT SET	
PROJECT NO:	Project Number	
CAD FILE:	FILE NAME	
DESIGNED BY:		
DRAWN BY:		
CHECKED BY:		
APPROVED BY:		
COPYRIGHT 2025		
SHEET TITLE		

UTILITY PLAN

C-115

SHEET OF 39



1627 MAIN STREET, SUITE 600
KANSAS CITY, MO 64108



1627 MAIN STREET, SUITE 100
KANSAS CITY, MO 64108



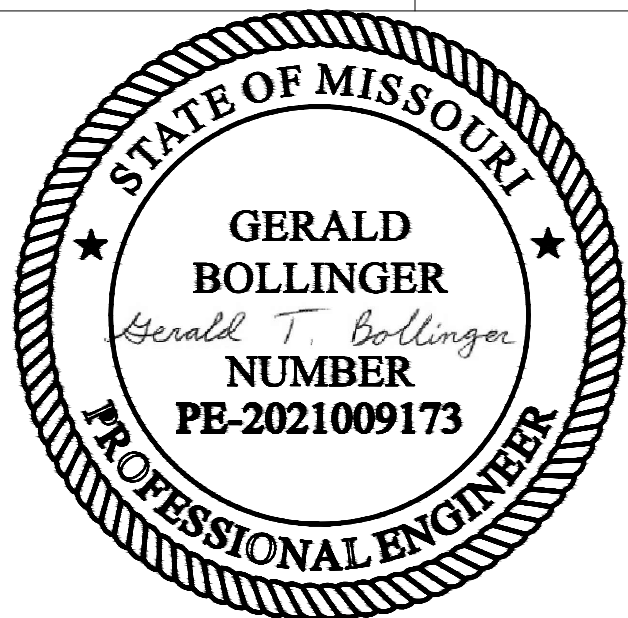
1100 MAIN ST, STE 1800
KANSAS CITY, MO 64105



1301 BURLINGTON
NORTH KANSAS CITY, MO 64116

KC - LEE'S SUMMIT REGIONAL
LEE'S SUMMIT, MISSOURI

TM AVIATION HANGAR
CITY PROJECT NO. - XXXXXXXX



March 21, 2025

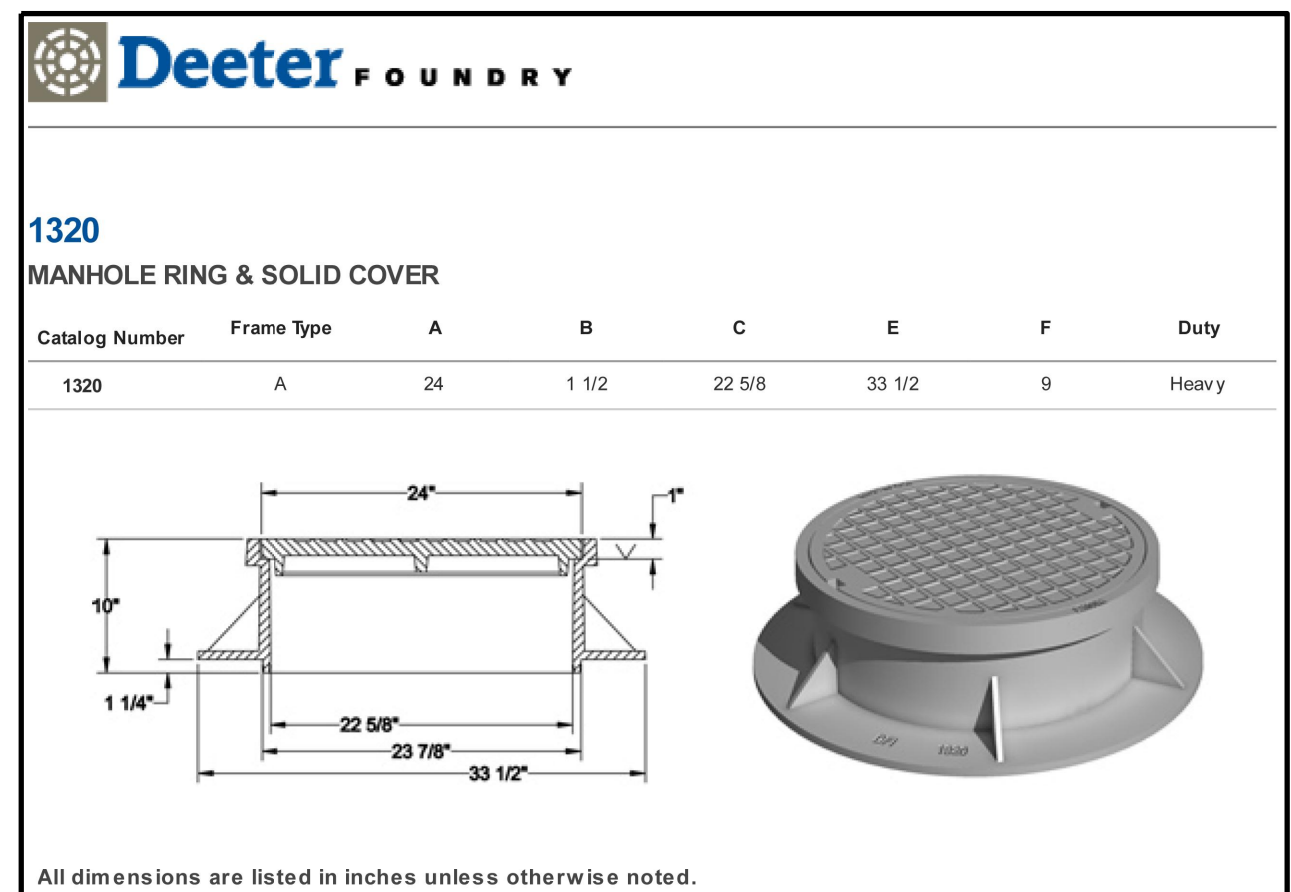
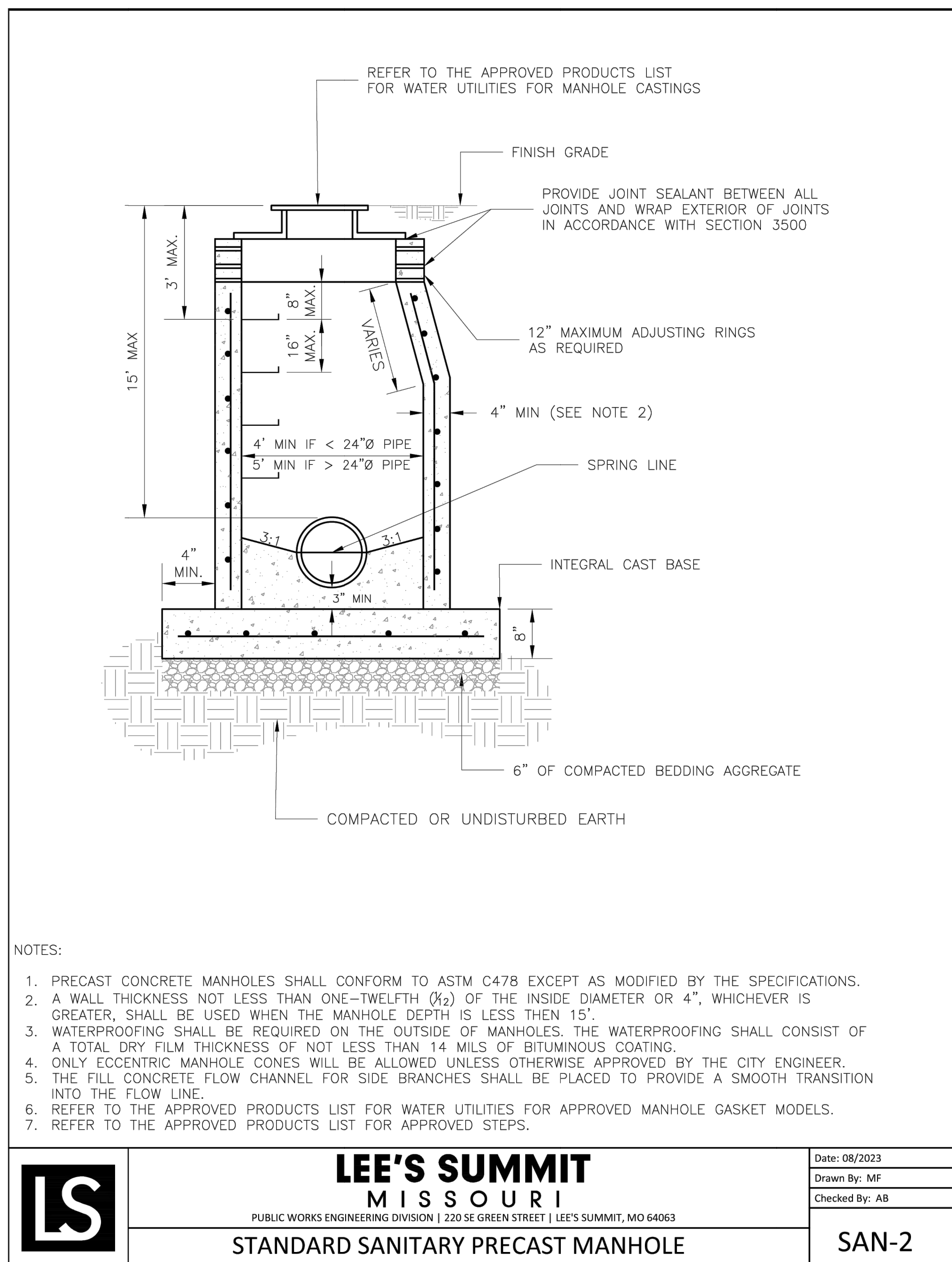
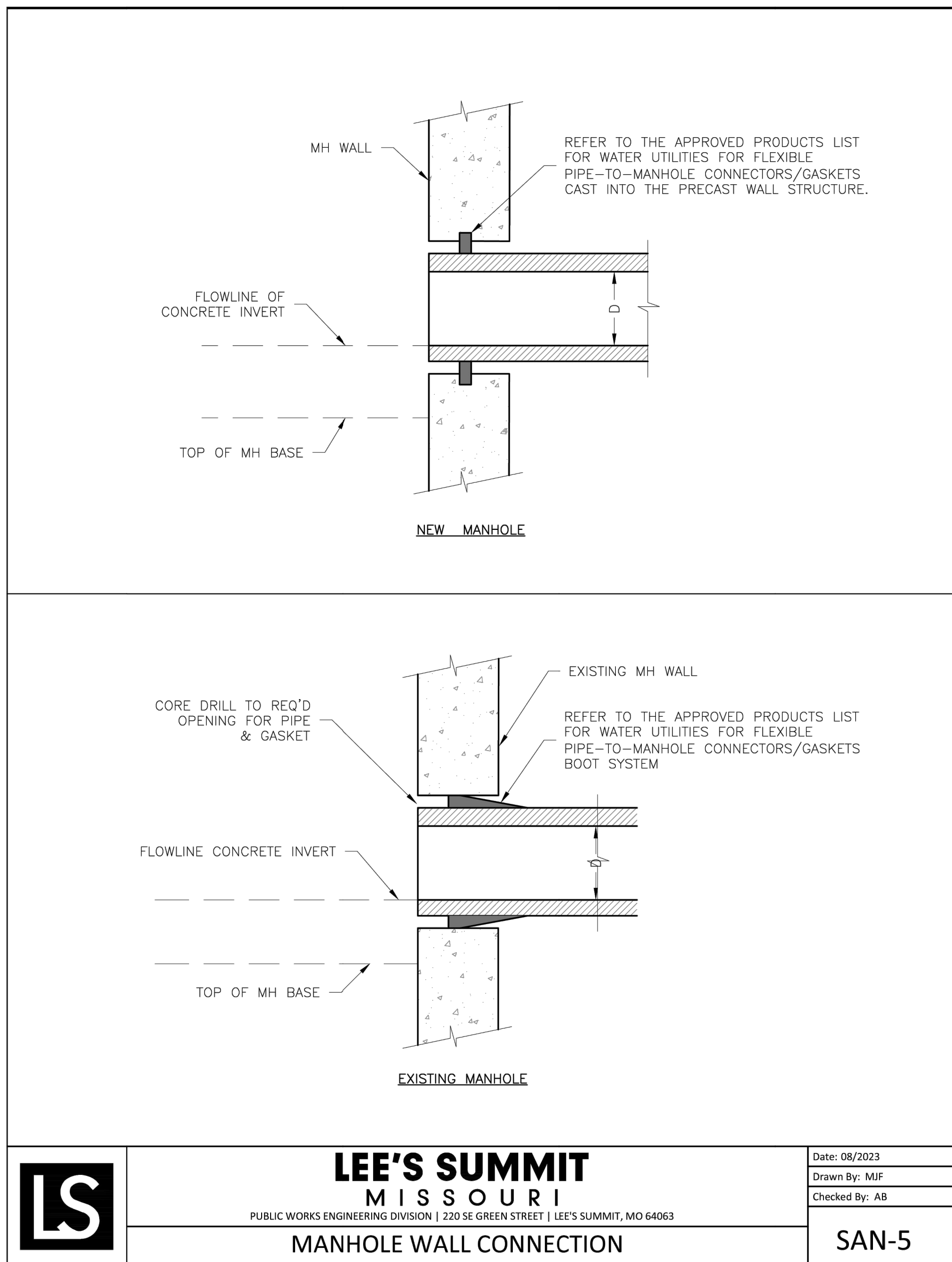
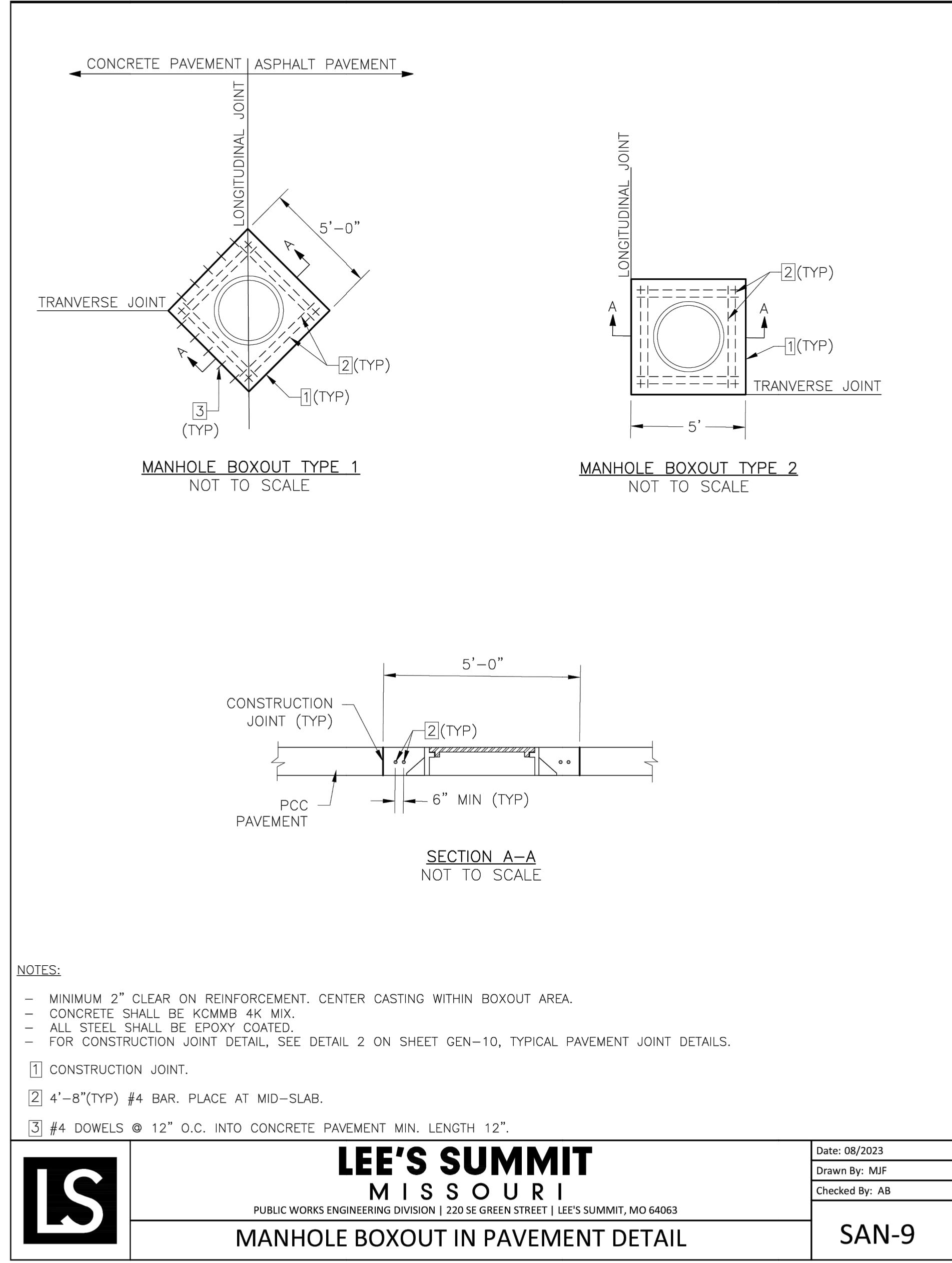
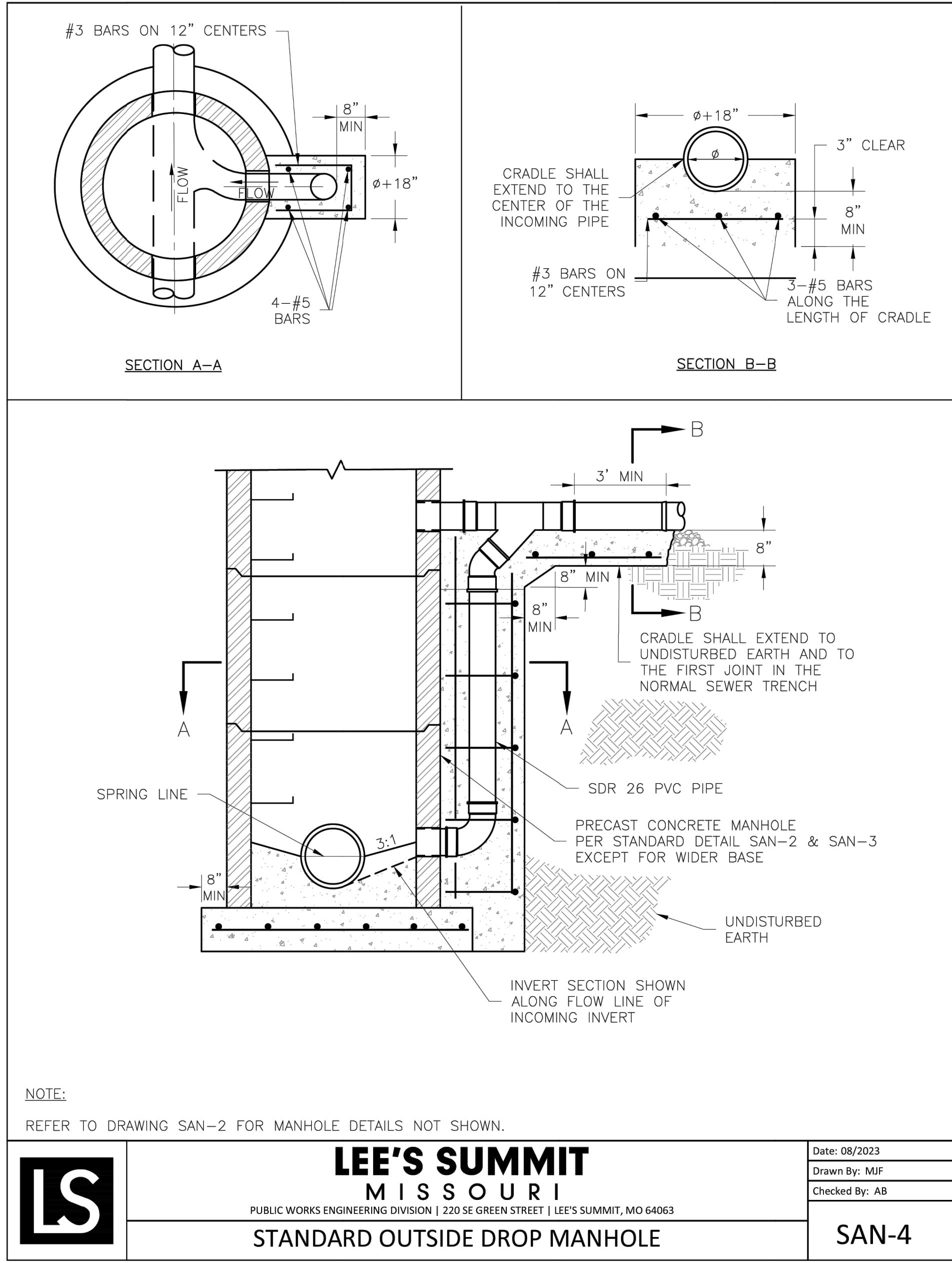
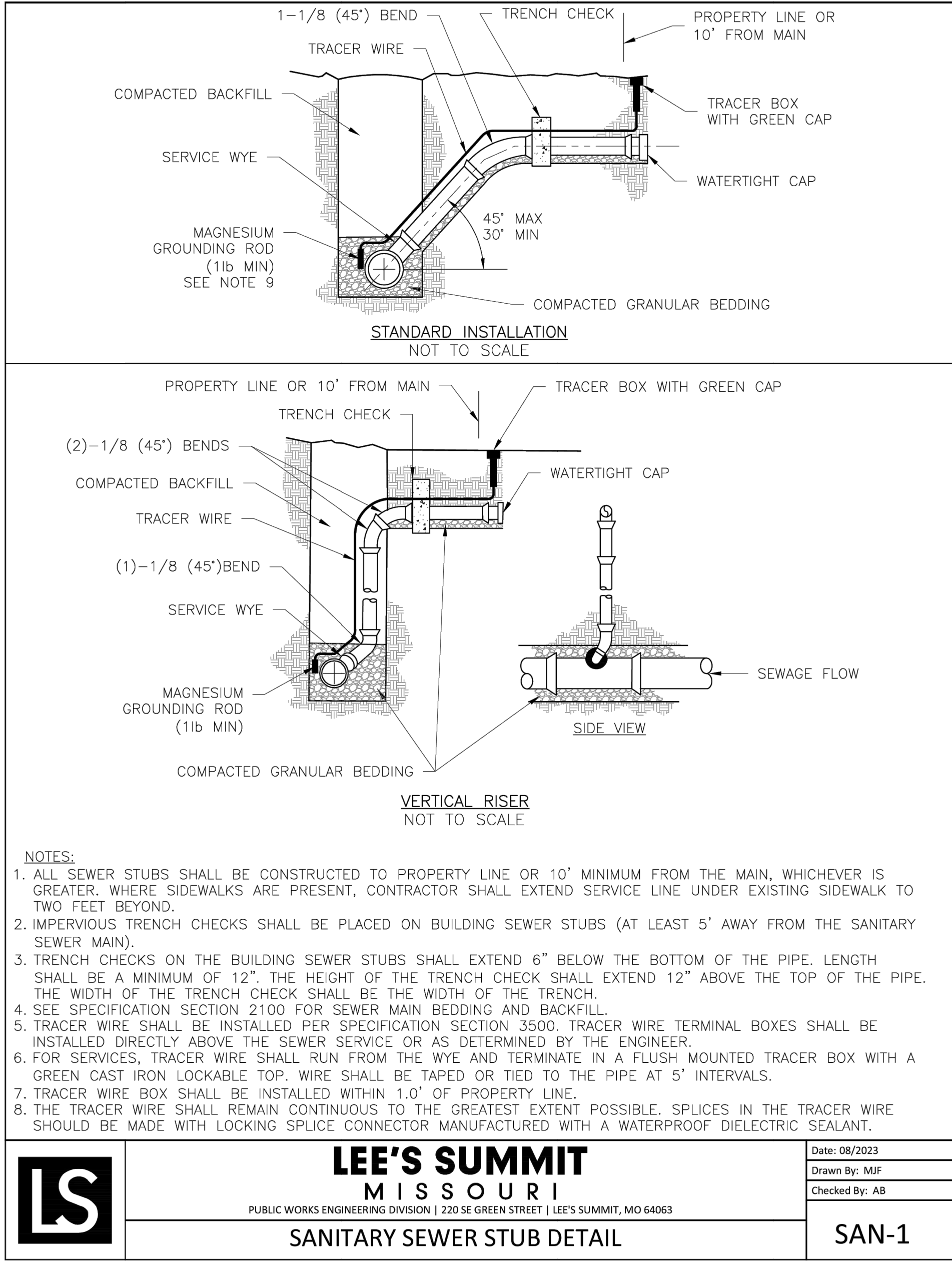
MARK	DATE	DESCRIPTION
PROJECT NO:		PERMIT SET
PROJECT NO:		Project Number
CAD FILE:		FILE NAME
DESIGNED BY:		
DRAWN BY:		
CHECKED BY:		
APPROVED BY:		
COPYRIGHT 2025		
SHEET TITLE		

SANITARY SEWER
PLAN & PROFILE

C-116

SHEET OF 39

Jan 01, 2010 10:32:00 AM



NOTE:

1. PER CITY REQUIREMENTS MANHOLE FRAME AND COVER SHALL BE DEETER 1320, CLAY & BAILEY 2007, EJ 1502, R.B. AGARWALLA & CO 2007-01-6000 OR AN APPROVED EQUAL.
2. SANITARY SEWER LID SHALL INCLUDE THE PHRASE "CITY OF LEE'S SUMMIT" IN 1.5" LETTERING. SANITARY SEWER LID SHALL INCLUDE THE WORD "SEWER" IN 3" LETTERING (ALL CAPS).

MANHOLE FRAME & COVER
N.T.S. D1



1627 MAIN STREET, SUITE 600
KANSAS CITY, MO 64108



1627 MAIN STREET, SUITE 100
KANSAS CITY, MO 64108

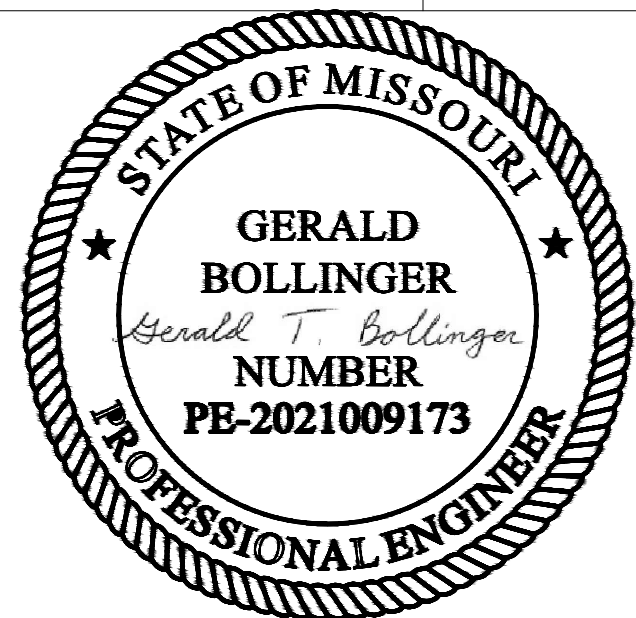


1100 MAIN ST, STE 1800
KANSAS CITY, MO 64105



1301 BURLINGTON
NORTH KANSAS CITY, MO 64116

KC - LEE'S SUMMIT REGIONAL
LEE'S SUMMIT, MISSOURI
TM AVIATION HANGAR
CITY PROJECT NO. - XXXXXXXX



March 21, 2025

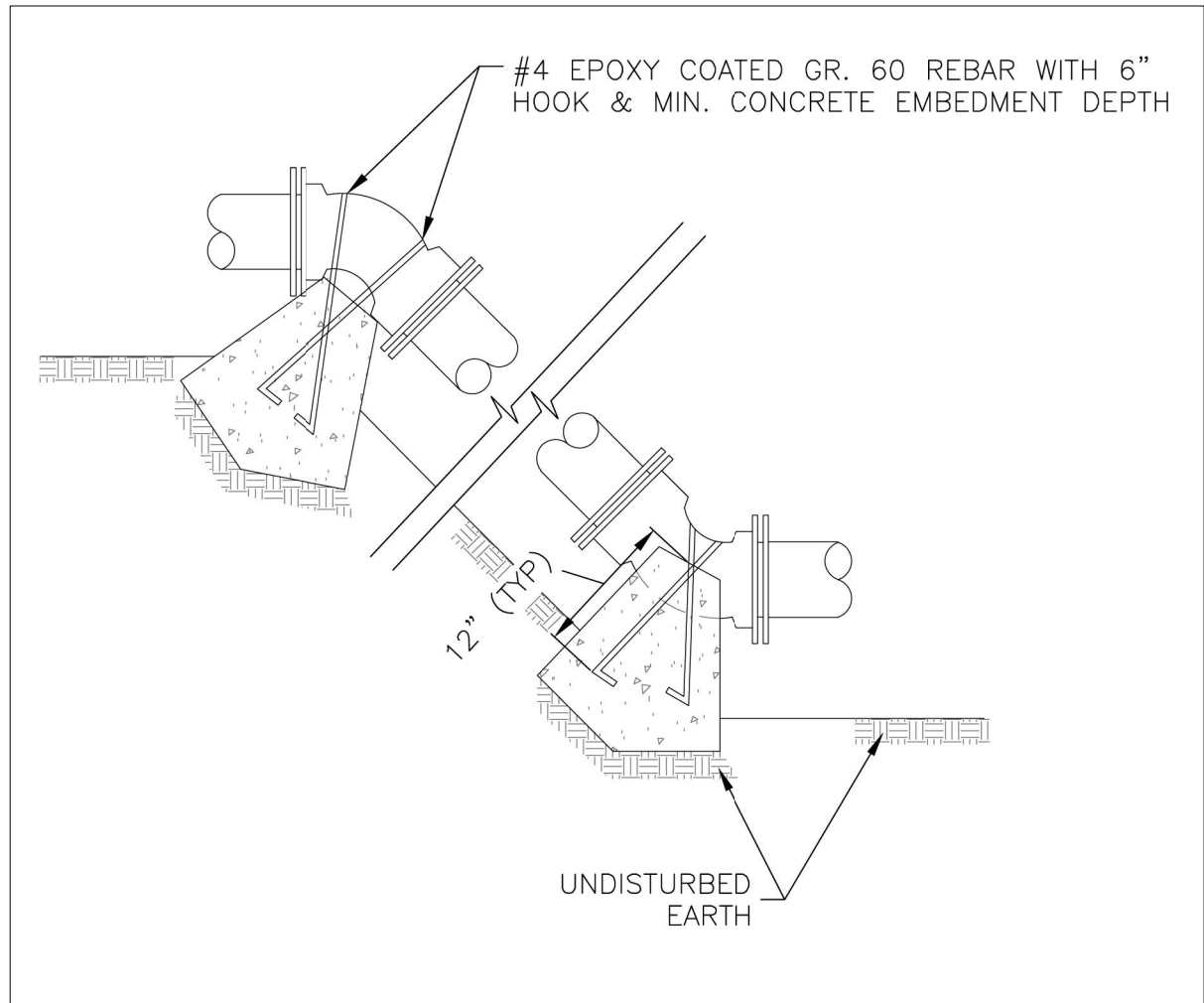
MARK	DATE	DESCRIPTION
PROJECT NO:	PERMIT SET	
PROJECT NO:	Project Number	
CAD FILE:	FILE NAME	
DESIGNED BY:		
DRAWN BY:		
CHECKED BY:		
APPROVED BY:		
COPYRIGHT 2025		
SHEET TITLE		

SANITARY SEWER
DETAILS

C-117

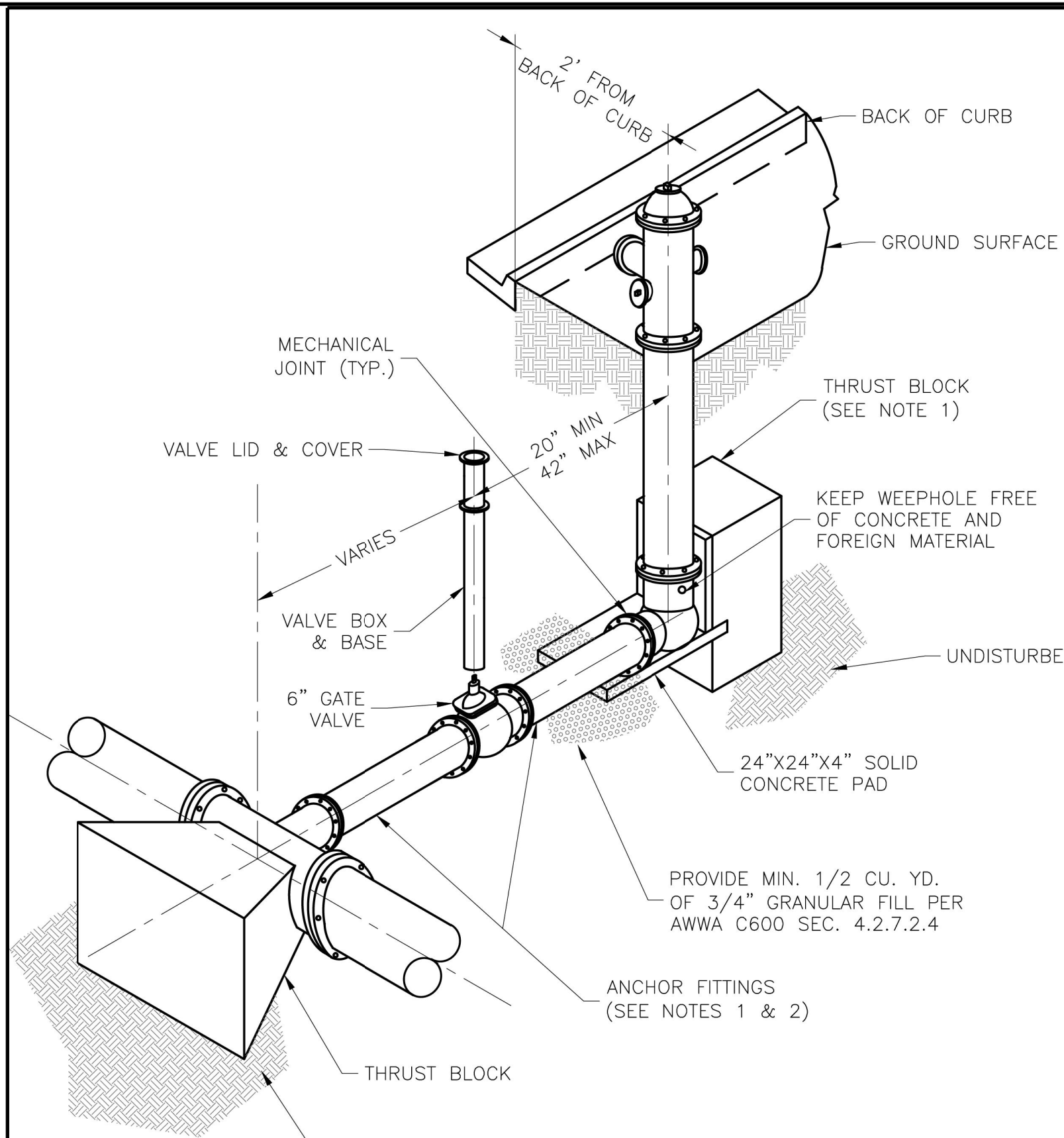
SHEET OF 39

Jan 01, 2010 10:32:00 AM



- 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.

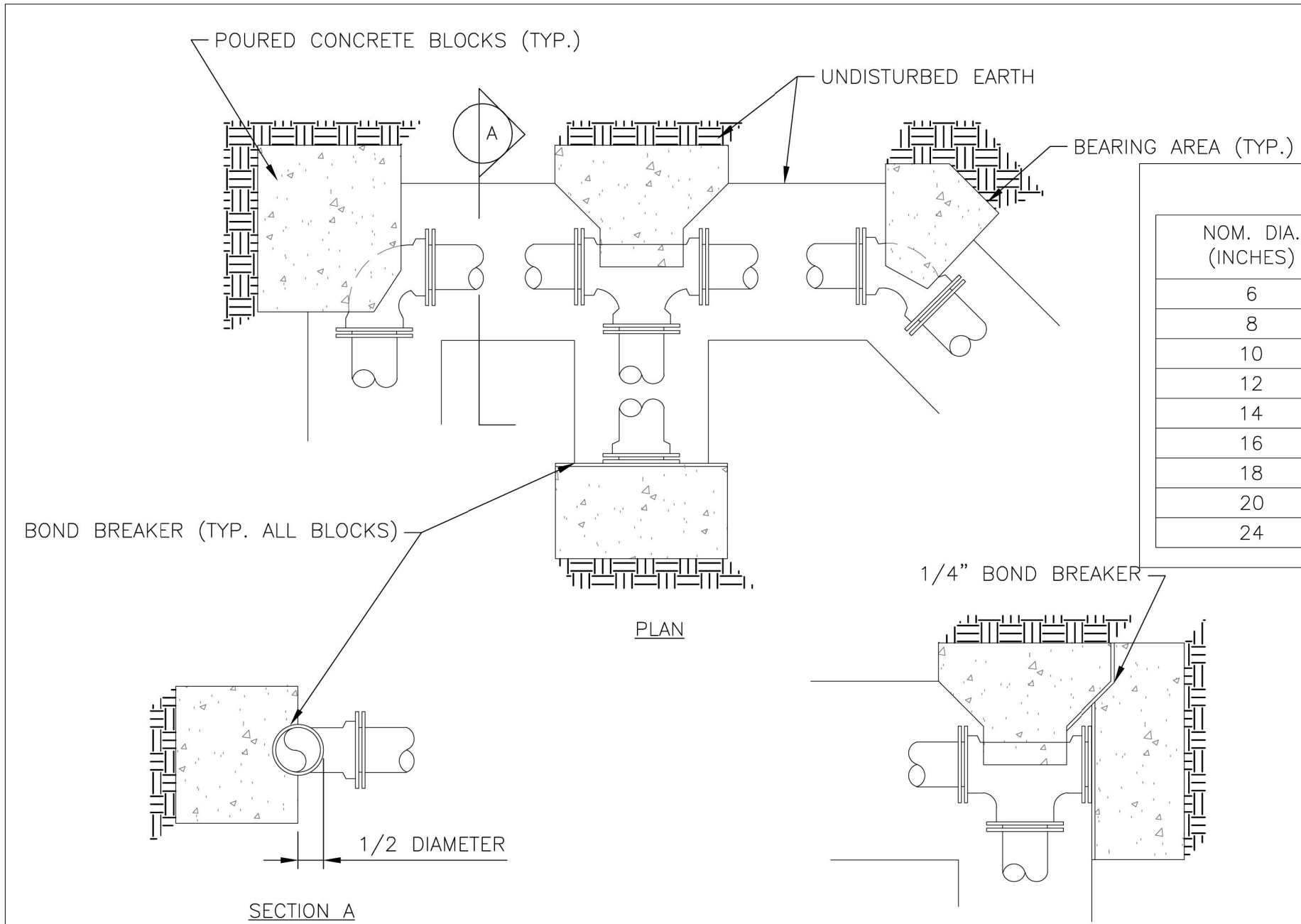
VERTICAL THRUST BLOCK
N.T.S. WAT-2



- NOTES:
1. WHEN RETAINER GLANDS ARE USED IN LIEU OF ANCHOR FITTINGS, HORIZONTAL THRUST BLOCKS ARE REQUIRED.
 2. GATE VALVE MAY BE BOLTED DIRECTLY TO ANCHOR 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.

FIRE HYDRANT ASSEMBLY DETAIL
N.T.S. WAT-7

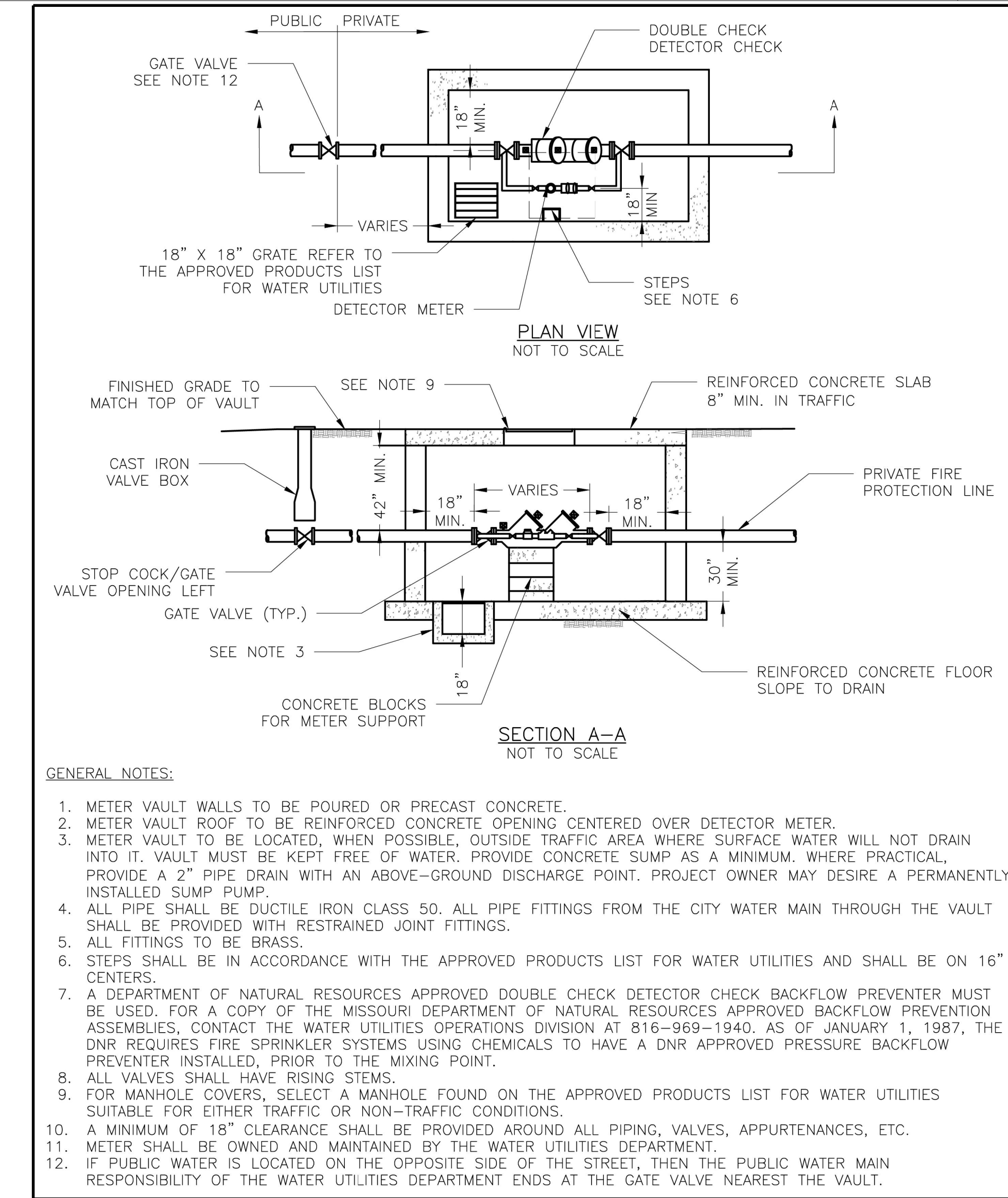
REQUIRED CONCRETE VOLUME (CUBIC FEET - CF)					
NOM. DIA. (INCHES)	180 TEE, PLUG	90 BEND	45 BEND	22.5 BEND	11.25 BEND
6	50.5	71.4	38.6	19.7	9.9
8	89.8	126.9	68.7	35.0	17.6
10	140.2	198.3	107.3	54.7	27.5
12	202.0	287.1	154.6	78.8	39.6
14	REST. JT.	REST. JT.	210.4	107.3	53.9
16	REST. JT.	REST. JT.	REST. 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 AREA MUST BE AGAINST UNDISTURBED SOIL.
 4. DO NOT COVER JOINTS OR BOLTS (WHERE APPLICABLE) WITH CONCRETE.

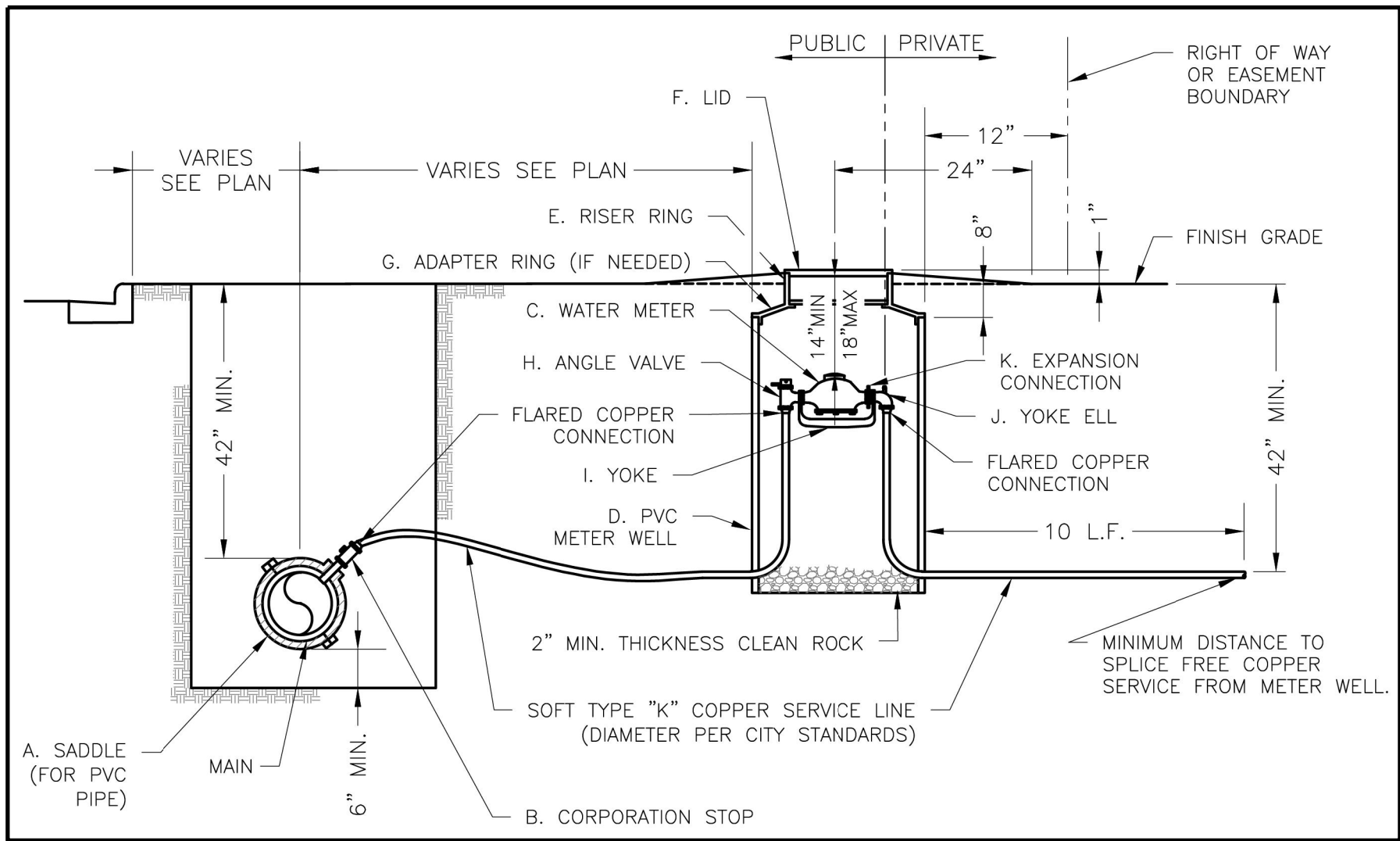
HORIZONTAL THRUST BLOCK
N.T.S. WAT-1

REQUIRED CONCRETE BEARING AREA (SQUARE FEET - SF)					
NOM. DIA. (INCHES)	180 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



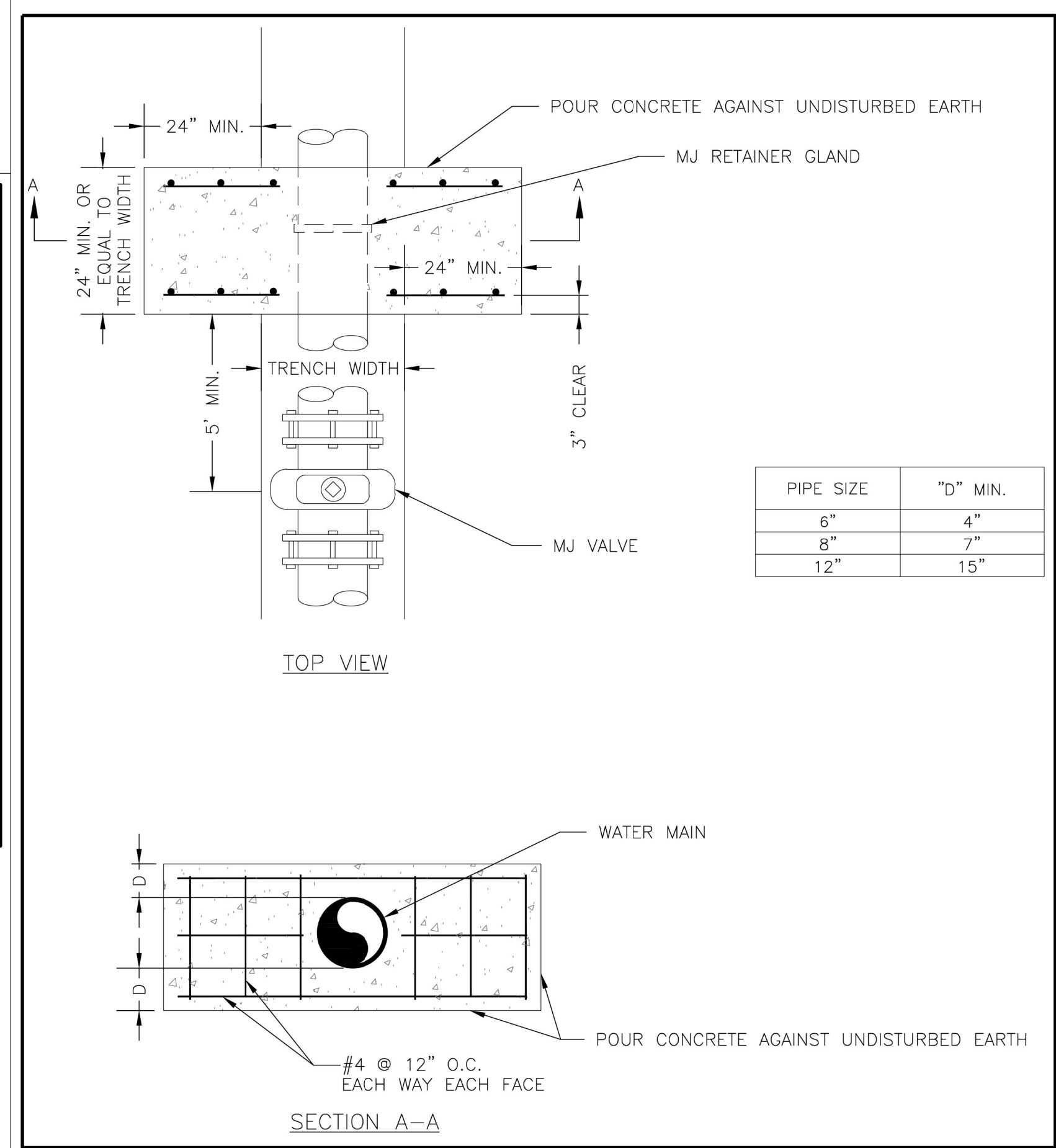
- GENERAL NOTES:
1. METER VAULT WALLS TO BE POURED OR PRECAST CONCRETE.
 2. METER VAULT ROOF TO BE REINFORCED CONCRETE OPENING CENTERED OVER DETECTOR METER.
 3. METER VAULT TO BE LOCATED, WHEN POSSIBLE, OUTSIDE TRAFFIC AREA WHERE SURFACE WATER WILL NOT DRAIN INTO IT. VAULT MUST BE KEPT FREE OF WATER. PROVIDE CONCRETE SUMP AS A MINIMUM. WHERE PRACTICAL, PROVIDE A 2" PIPE DRAIN WITH AN ABOVE-GROUND DISCHARGE POINT. PROJECT OWNER MAY DESIRE A PERMANENTLY INSTALLED SUMP PUMP.
 4. ALL PIPE SHALL BE DUCTILE IRON CLASS 50. ALL PIPE FITTINGS FROM THE CITY WATER MAIN THROUGH THE VAULT SHALL BE PROVIDED WITH RESTRAINED JOINT FITTINGS.
 5. ALL FITTINGS TO BE BRASS.
 6. STEPS SHALL BE IN ACCORDANCE WITH THE APPROVED PRODUCTS LIST FOR WATER UTILITIES AND SHALL BE ON 16" CENTERS.
 7. A DEPARTMENT OF NATURAL RESOURCES APPROVED DOUBLE CHECK DETECTOR CHECK BACKFLOW PREVENTER MUST BE USED. FOR A COPY OF THE MISSOURI DEPARTMENT OF NATURAL RESOURCES APPROVED BACKFLOW PREVENTION ASSEMBLIES, CONTACT THE WATER UTILITIES OPERATIONS DIVISION AT 816-969-1940. AS OF JANUARY 1, 1987, THE DNR REQUIRES FIRE SPRINKLER SYSTEMS USING CHEMICALS TO HAVE A DNR APPROVED PRESSURE BACKFLOW PREVENTER INSTALLED, PRIOR TO THE MIXING POINT.
 8. ALL VALVES SHALL HAVE RISING STEMS.
 9. FOR MANHOLE COVERS, SELECT A MANHOLE FOUND ON THE APPROVED PRODUCTS LIST FOR WATER UTILITIES SUITABLE FOR EITHER TRAFFIC OR NON-TRAFFIC CONDITIONS.
 10. A MINIMUM OF 18" CLEARANCE SHALL BE PROVIDED AROUND ALL PIPING, VALVES, APPURTENANCES, ETC.
 11. METER SHALL BE OWNED AND MAINTAINED BY THE WATER UTILITIES DEPARTMENT.
 12. IF PUBLIC WATER IS LOCATED ON THE OPPOSITE SIDE OF THE STREET, THEN THE PUBLIC WATER MAIN RESPONSIBILITY OF THE WATER UTILITIES DEPARTMENT ENDS AT THE GATE VALVE NEAREST THE VAULT.

BACKFLOW PREVENTION VAULT
N.T.S. WAT-12

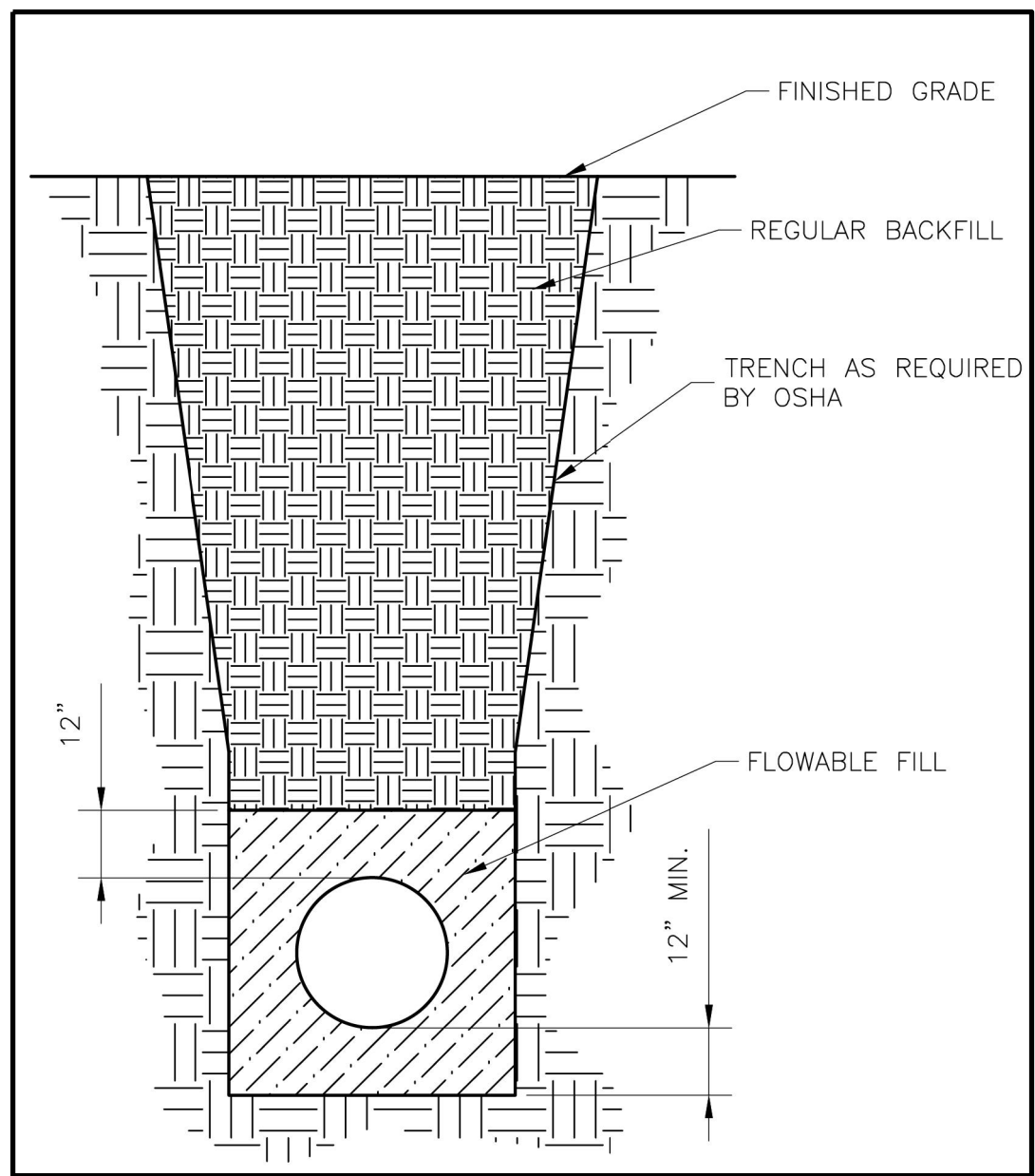


- NOTES:
1. METER INSTALLATION SHALL NOT BE LOCATED IN AREAS SUBJECT TO VEHICULAR TRAFFIC OR IN CONCRETE PAVEMENT WITHOUT CITY APPROVAL.
 2. IF METER IS TO BE LOCATED OTHER THAN IN FRONT OF PROPERTY LINE, CITY APPROVAL SHALL BE OBTAINED.
 3. CITY TO FURNISH ITEMS A-K.
 4. NO OTHER EQUIPMENT SHALL BE INSTALLED IN THIS PIT.
 5. 42" MINIMUM BURY DEPTH FOR ALL SERVICE LINES.
 6. EXCAVATION FOR TAP TO EXPOSE 4 LINEAR FEET OF MAIN.
 7. NO SPLICES ALLOWED BETWEEN METER AND MAIN.
 8. SERVICE CONNECTION TAP AT APPROXIMATELY 45 DEGREES.
 9. LID AND RISER RING SHALL BE SET SO THAT GROUND WATER WILL DRAIN AWAY FROM THE WELL.
 10. CONTACT WATER UTILITIES, 816-969-1900, FOR REQUIREMENTS OF A METER LARGER THAN 2".

SERVICE CONNECTION WITH METER WELL
N.T.S. WAT-11



STRADDLE BLOCK DETAIL
N.T.S. WAT-3



WATER TRENCH CHECK DETAIL
N.T.S. WAT-6



1627 MAIN STREET, SUITE 600
KANSAS CITY, MO 64108



1627 MAIN STREET, SUITE 100
KANSAS CITY, MO 64108

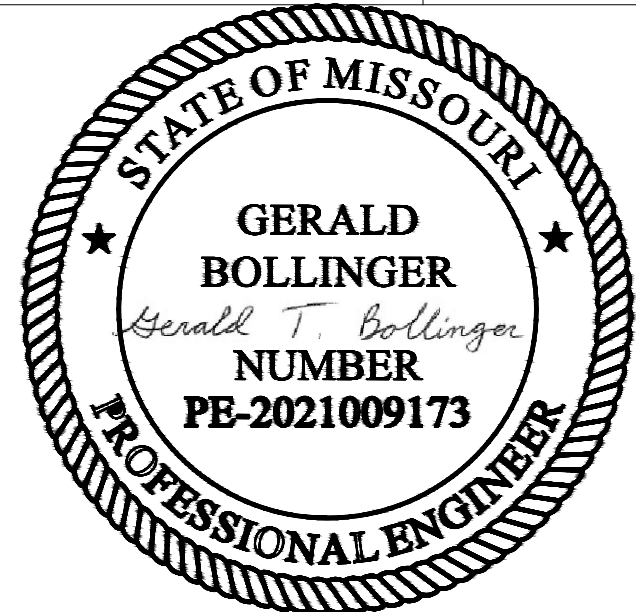


1100 MAIN ST, STE 1800
KANSAS CITY, MO 64105



1301 BURLINGTON
NORTH KANSAS CITY, MO 64116

KC - LEE'S SUMMIT REGIONAL
LEE'S SUMMIT, MISSOURI
TM AVIATION HANGAR
CITY PROJECT NO. - XXXXXXXX



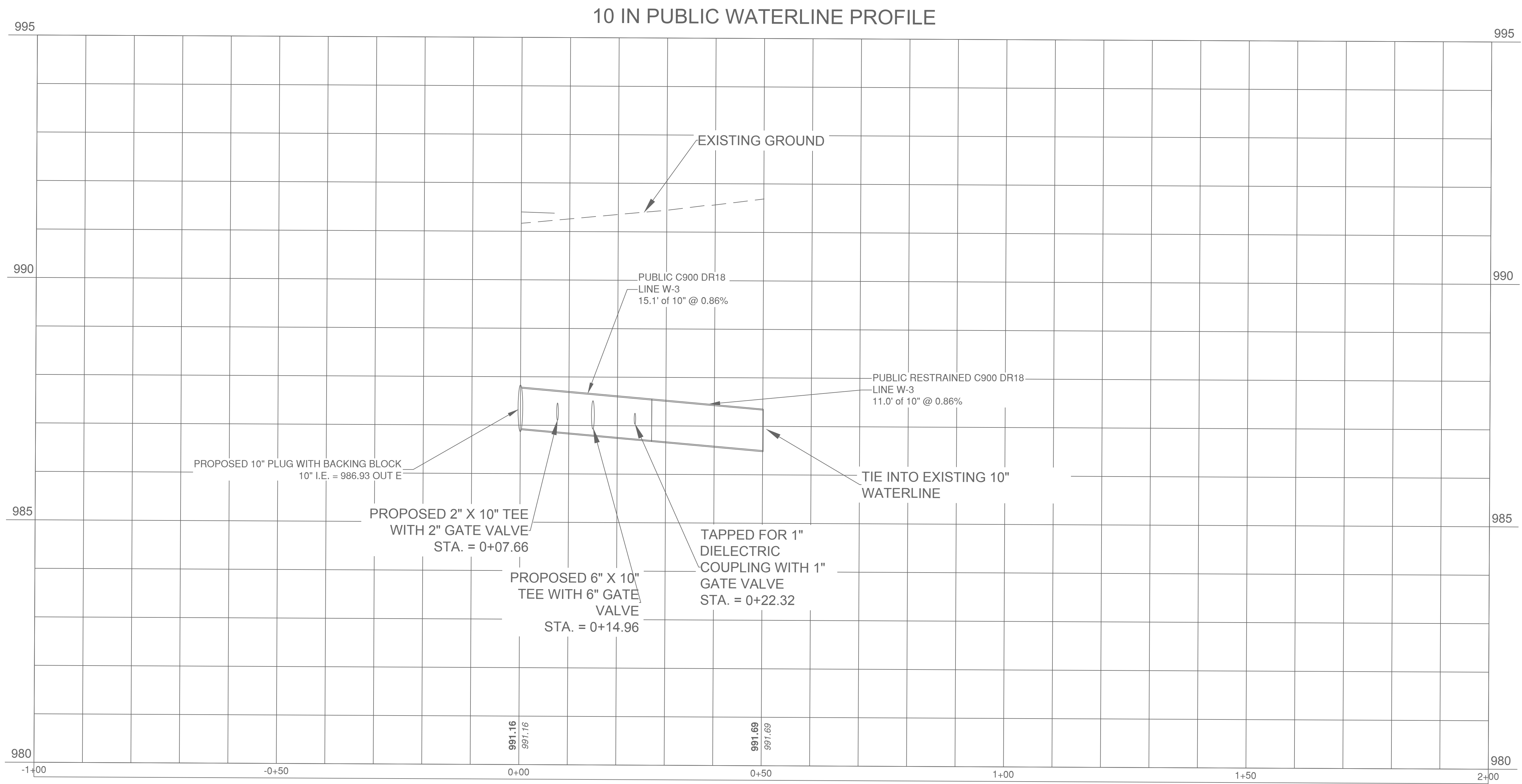
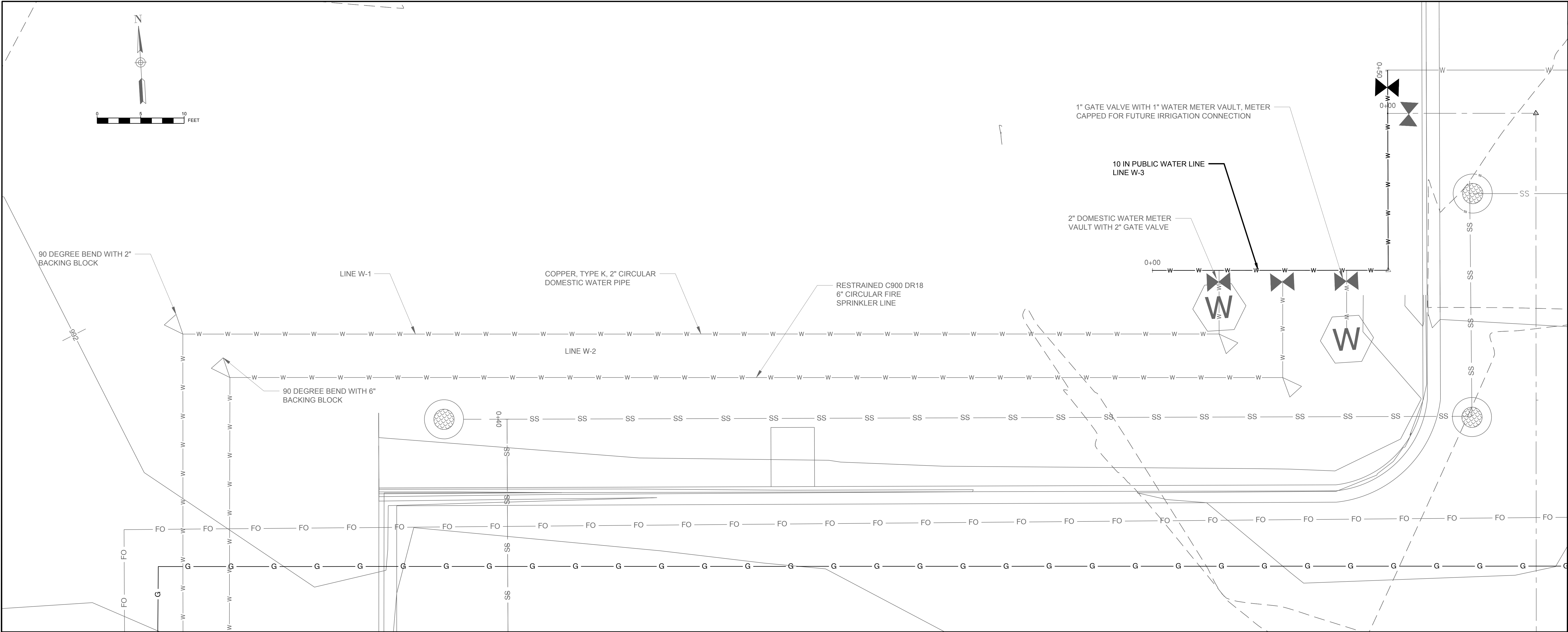
March 21, 2025

MARK	DATE	DESCRIPTION
PROJECT NO.	PERMIT SET	
PROJECT NO.	Project Number	
CAD FILE:	FILE NAME	
DESIGNED BY:		
DRAWN BY:		
CHECKED BY:		
APPROVED BY:		
COPYRIGHT 2025		
SHEET TITLE		

WATERLINE DETAILS

C-118

SHEET OF 39



1627 MAIN STREET, SUITE 600
KANSAS CITY, MO 64108



1627 MAIN STREET, SUITE 100
KANSAS CITY, MO 64108



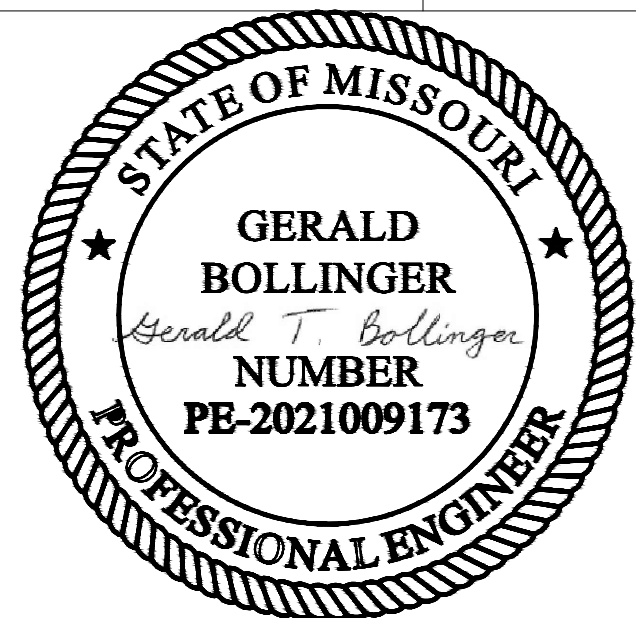
1100 MAIN ST, STE 1800
KANSAS CITY, MO 64105



1301 BURLINGTON
NORTH KANSAS CITY, MO 64116

KC - LEE'S SUMMIT REGIONAL
LEE'S SUMMIT, MISSOURI

TM AVIATION HANGAR
CITY PROJECT NO. - XXXXXXXX



March 21, 2025

MARK	DATE	DESCRIPTION
PROJECT NO:	PERMIT SET	
PROJECT NO:	Project Number	
CAD FILE:	FILE NAME	
DESIGNED BY:		
DRAWN BY:		
CHECKED BY:		
APPROVED BY:		
COPYRIGHT 2025		
SHEET TITLE		

WATERLINE PROFILE

C-119

SHEET OF 39