

2751 NORTHEAST DOUGLAS STREET
LEE'S SUMMIT, MISSOURI 64064

WATER LINE
CONSTRUCTION PLANS
FOR
LEE'S SUMMIT
MUNICIPAL AIRPORT

CITY PROJECT NO. 47732472

LXT EASTSIDE DEVELOPMENT

ISSUED-FOR-BID PLAN SET

JANUARY 04, 2024

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

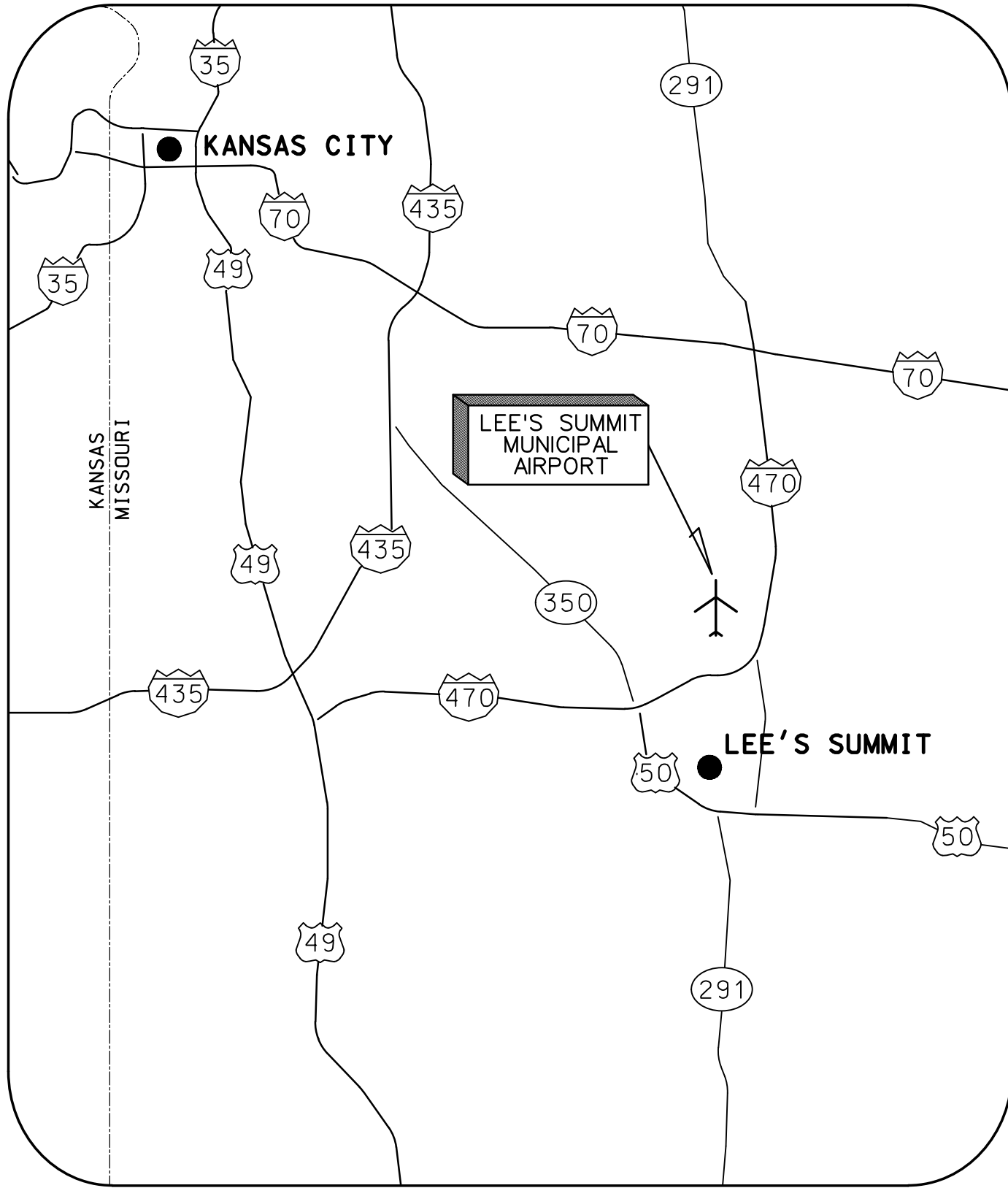
MAXIMUM EQUIPMENT HEIGHT: 100'

UNICOM/CTAF FREQUENCY - 122.80

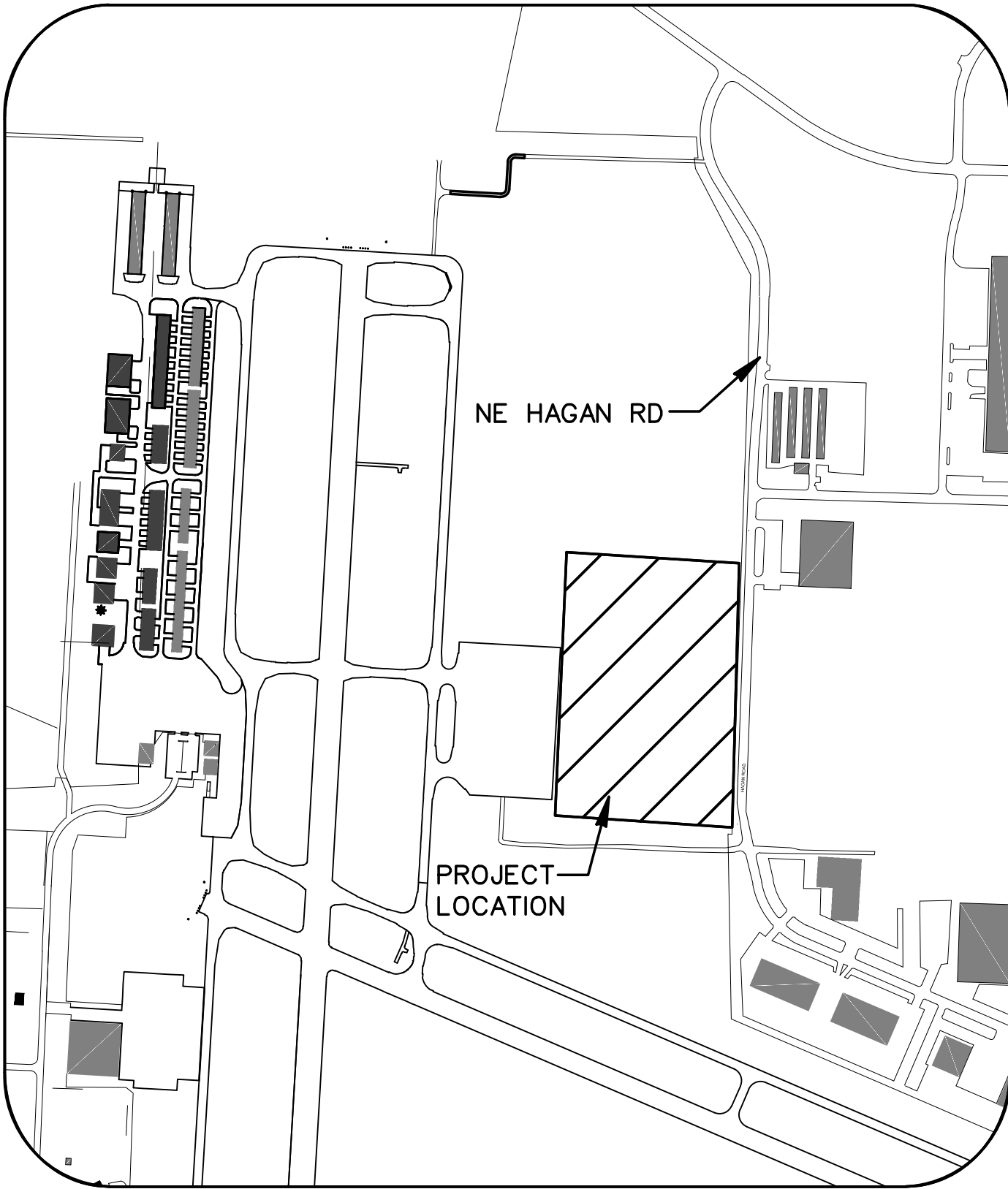


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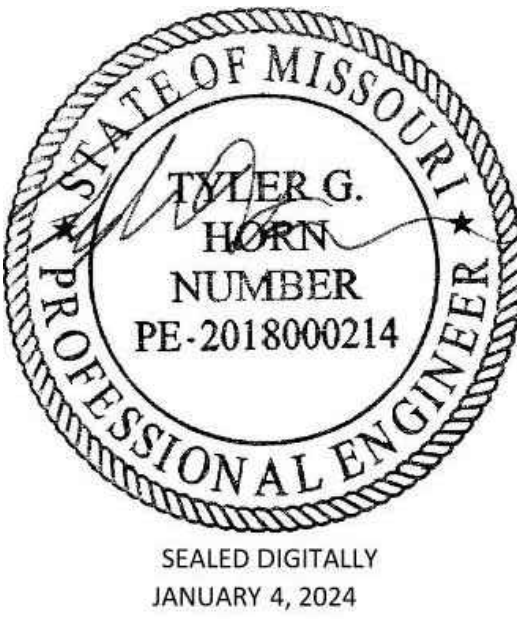
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PROFESSIONAL ENGINEERING - 000631
CRAWFORD MURPHY & TILLY, INC.
CONSULTING ENGINEERS
■ SPRINGFIELD, IL ■ AURORA, IL ■ ST. LOUIS, MO
■ EDWARDSVILLE, IL ■ CHICAGO, IL ■ PEORIA, IL ■ ROCKFORD, IL
■ INDIANAPOLIS, IN ■ COLUMBUS, OH ■ SPRINGFIELD, MO
■ KANSAS CITY, MO ■ LA BELLE, FL ■ MOLINE, IA
SUBMITTED BY TYLER HORN, PE
DATE JANUARY 04, 2024

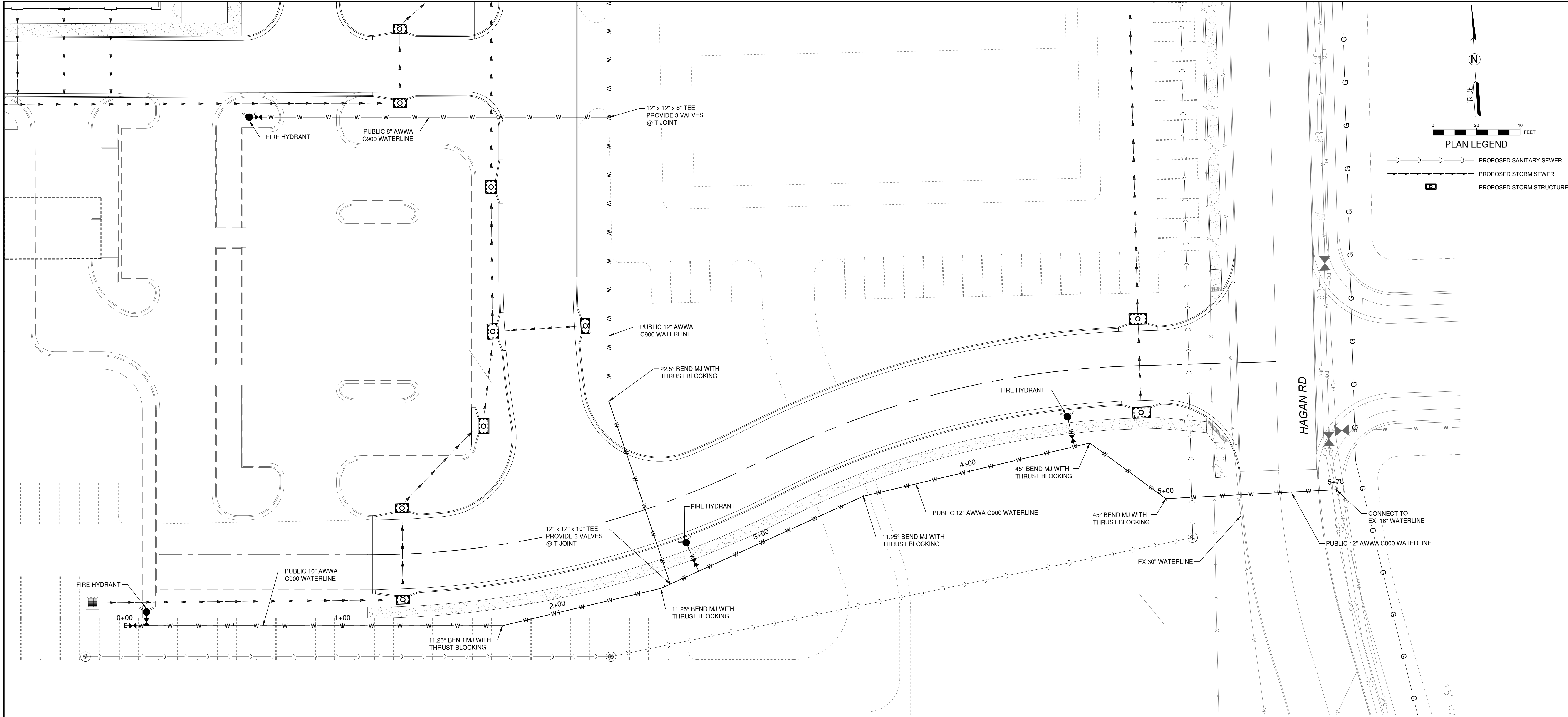


LOCATION MAP



SITE PLAN





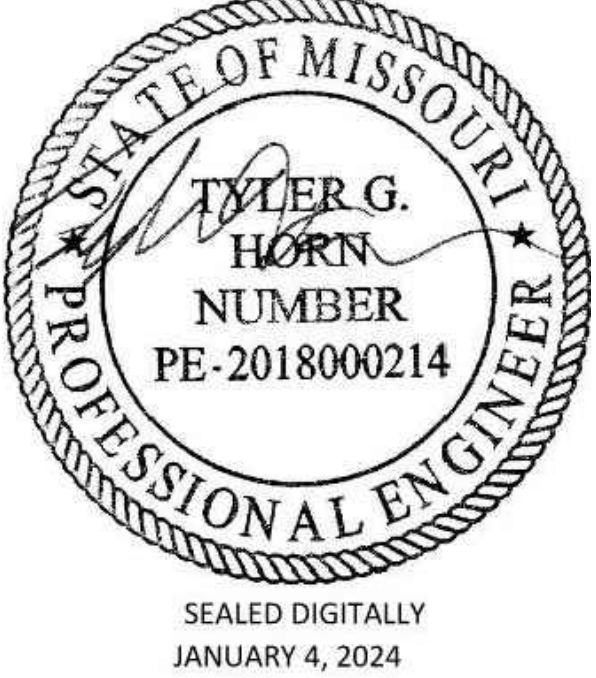
1627 MAIN STREET, SUITE 600
KANSAS CITY, MO 64108

1627 MAIN STREET, #100
KANSAS CITY, MO 64108

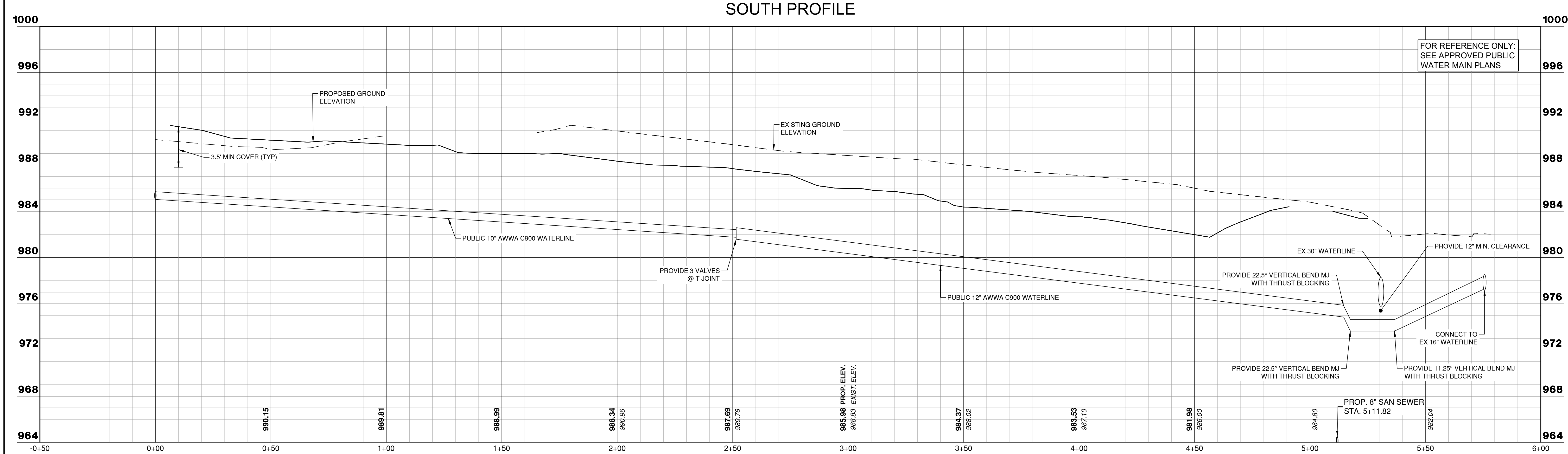
1301 BURLINGTON STREET
NORTH KANSAS CITY, MO 64116

LEE'S SUMMIT MUNICIPAL AIRPORT
LEE'S SUMMIT, MISSOURI

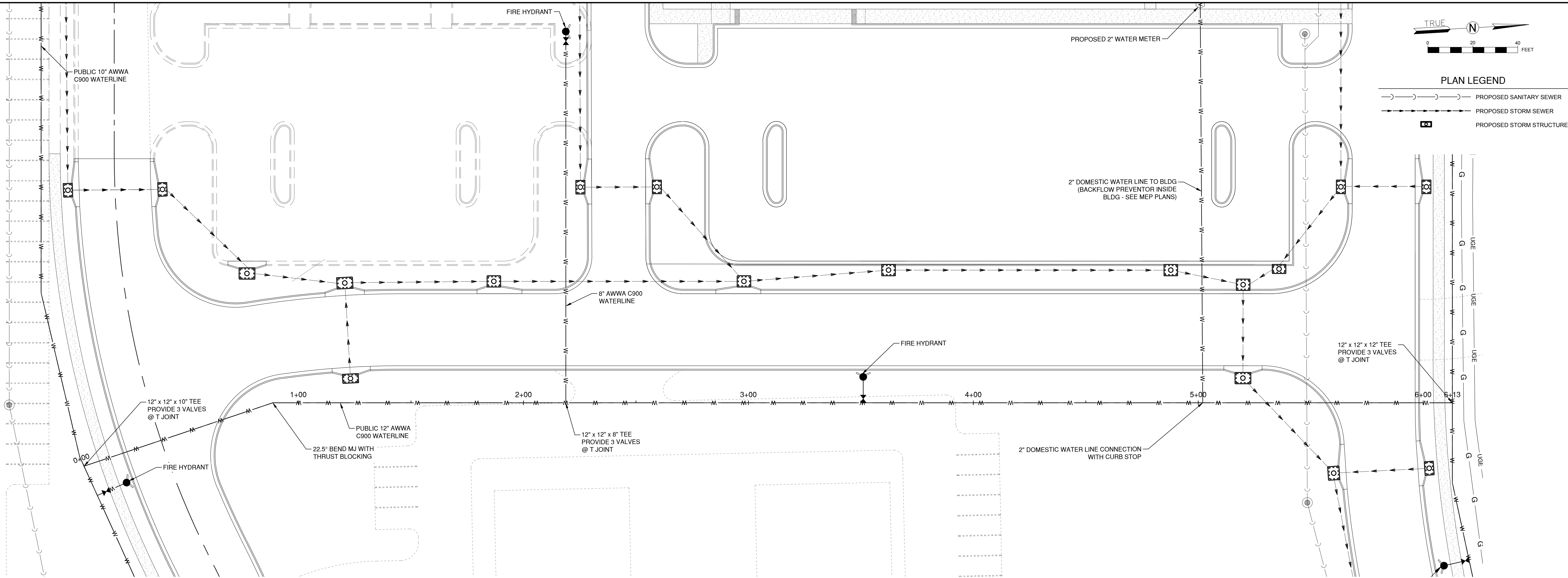
EASTSIDE DEVELOPMENT
CITY PROJECT NO. - 47732472



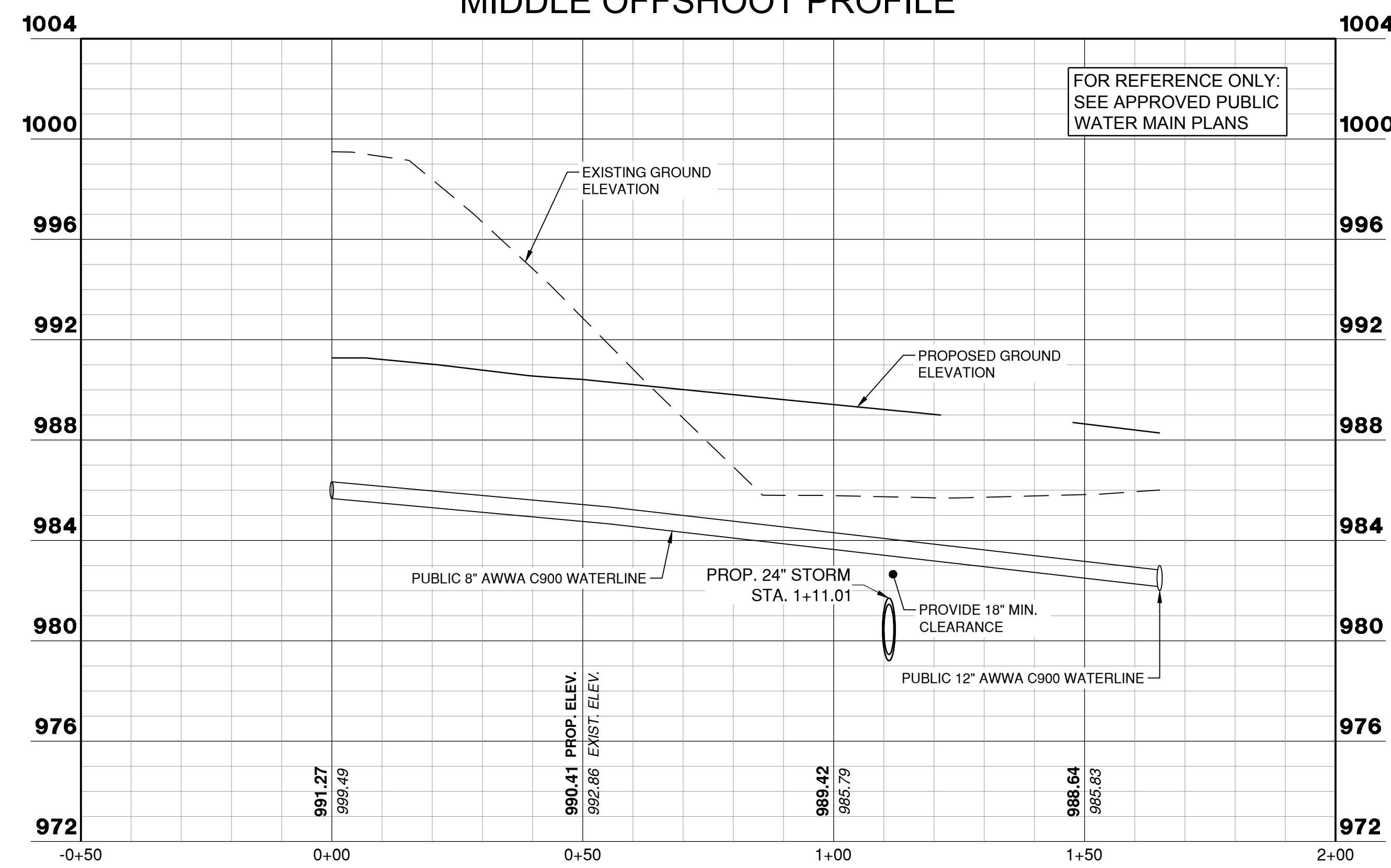
LEE'S SUMMIT MUNICIPAL AIRPORT LEE'S SUMMIT, MO		
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PROJECT NO: 47732472		
CAD DWG FILE: WATER LINE PLAN & PROFILES		
DESIGNED BY: WLC		
DRAWN BY: WLC		
CHECKED BY: JRC		
APPROVED BY: TGH		
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SHEET TITLE		
WATER LINE PLAN & PROFILE - SHEET 1		
C100		
SHEET 1 OF 4		



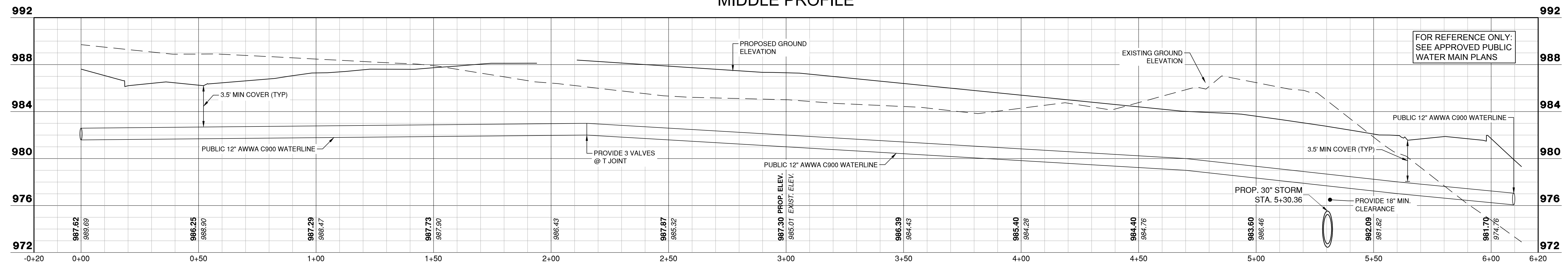
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MIDDLE OFFSHOOT PROFILE



MIDDLE PROFILE



1627 MAIN STREET, SUITE 600
KANSAS CITY, MO 64108



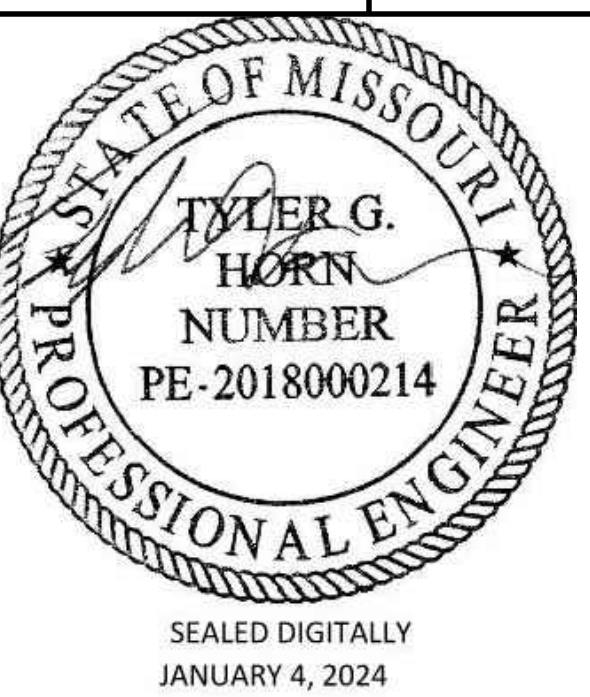
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KANSAS CITY, MO 64108



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NORTH KANSAS CITY, MO 64116

LEE'S SUMMIT MUNICIPAL AIRPORT
LEE'S SUMMIT, MISSOURI

EASTSIDE DEVELOPMENT
CITY PROJECT NO. - 47732472



SEALED DIGITALLY
JANUARY 4, 2024

LEE'S SUMMIT MUNICIPAL AIRPORT
LEE'S SUMMIT, MO

MARK DATE DESCRIPTION

PROJECT NO: 47732472
CAD DWG FILE: WATER LINE PLAN & PROFILES
DESIGNED BY: WLC
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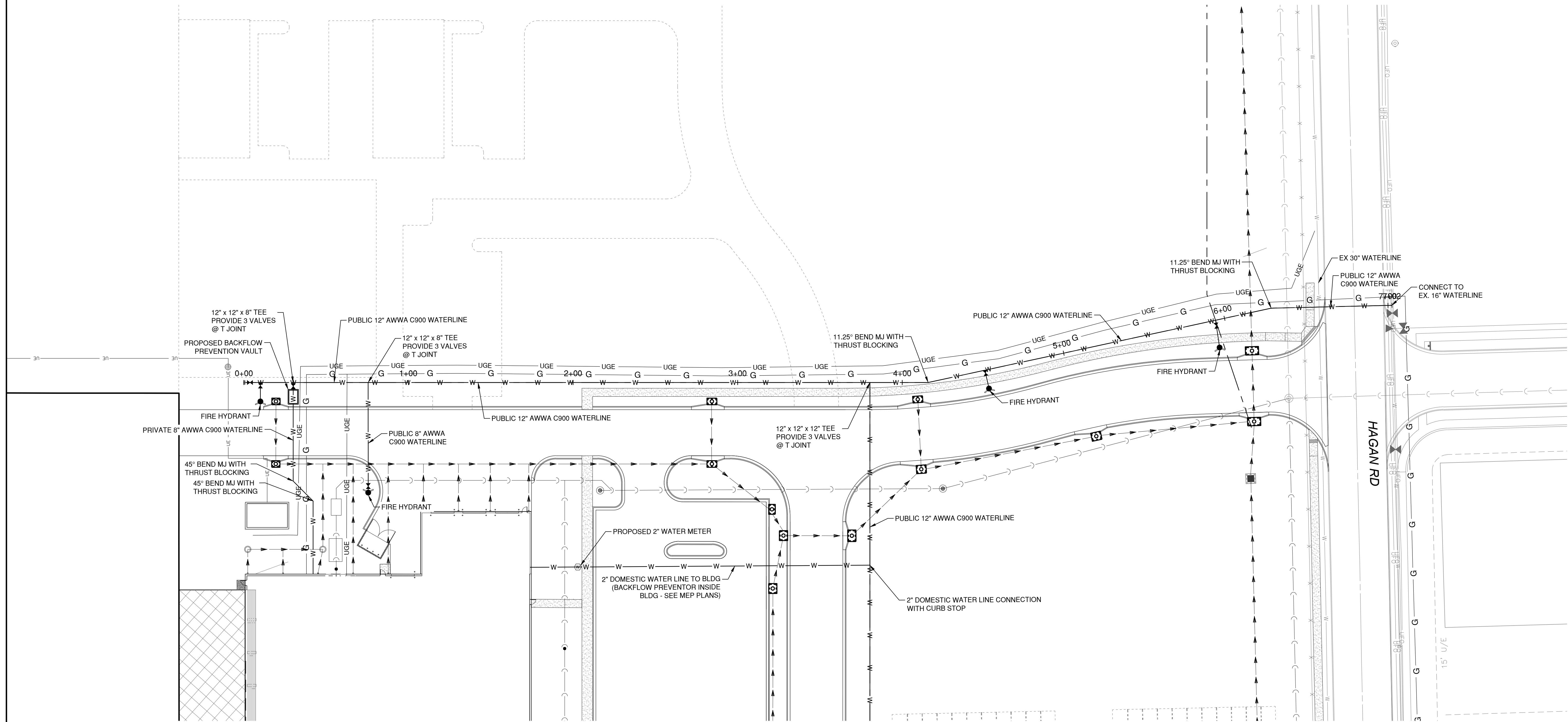
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WATER LINE PLAN &
PROFILE - SHEET 2

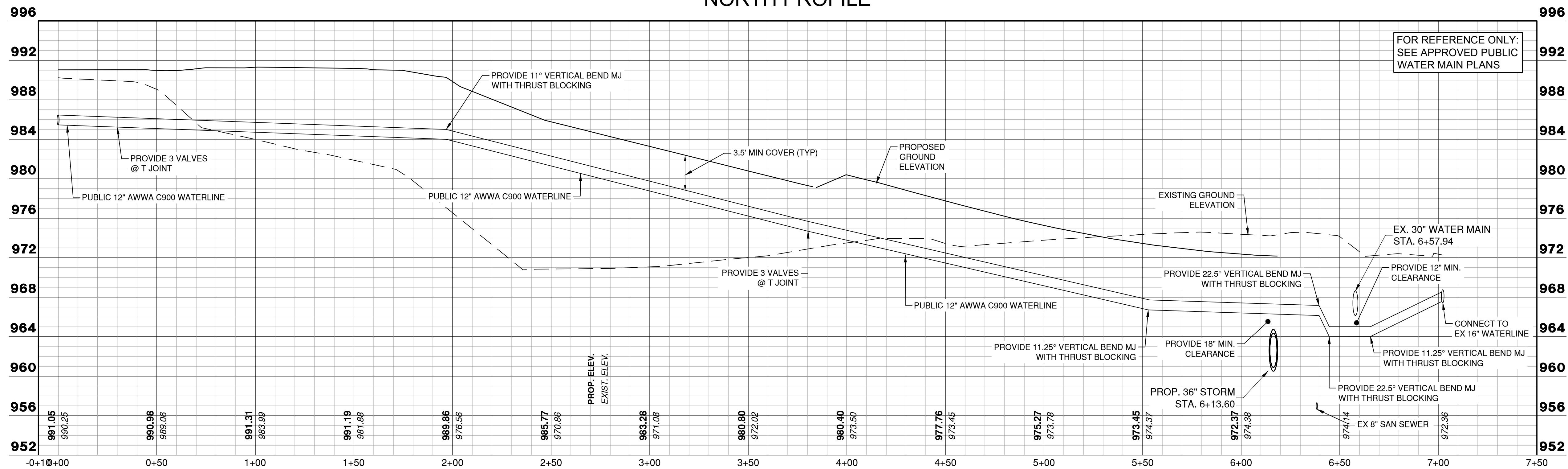
C101

SHEET 2 OF 4

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NORTH PROFILE



1627 MAIN STREET, SUITE 600
KANSAS CITY, MO 64108



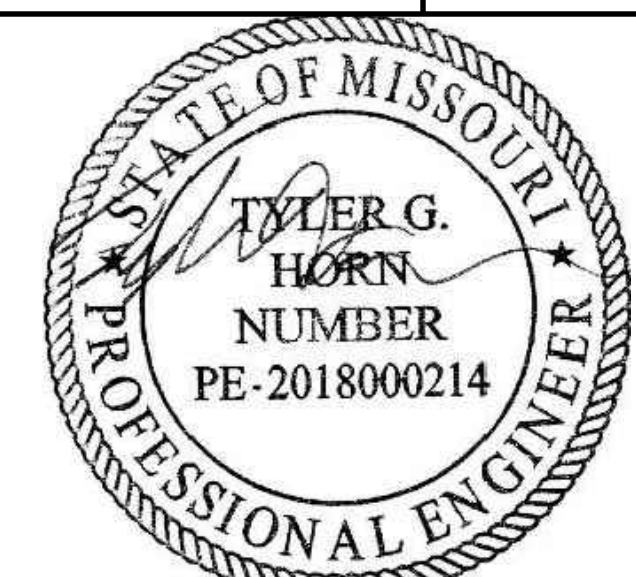
1627 MAIN STREET, #100
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NORTH KANSAS CITY, MO 64116

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LEE'S SUMMIT, MO

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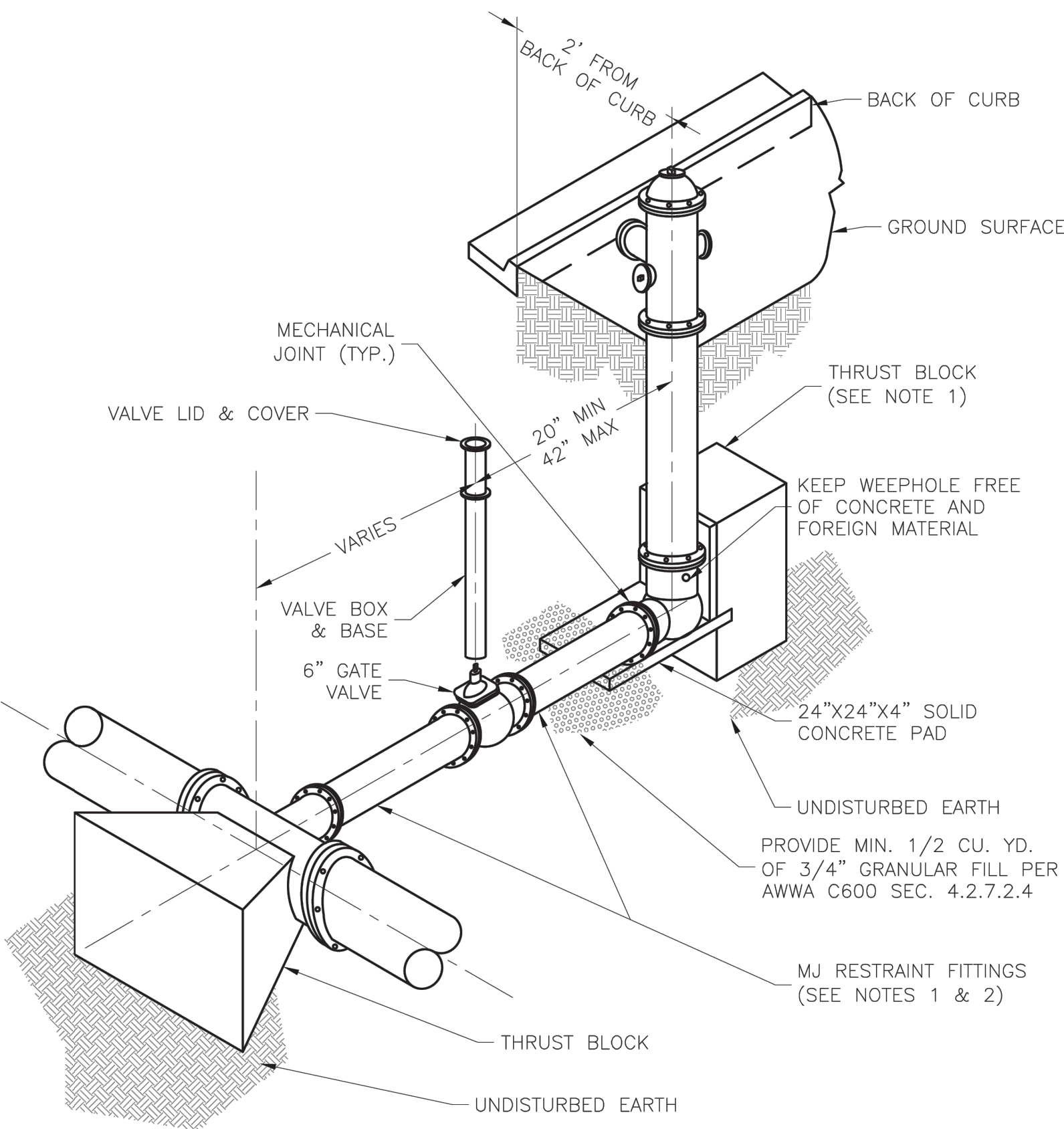
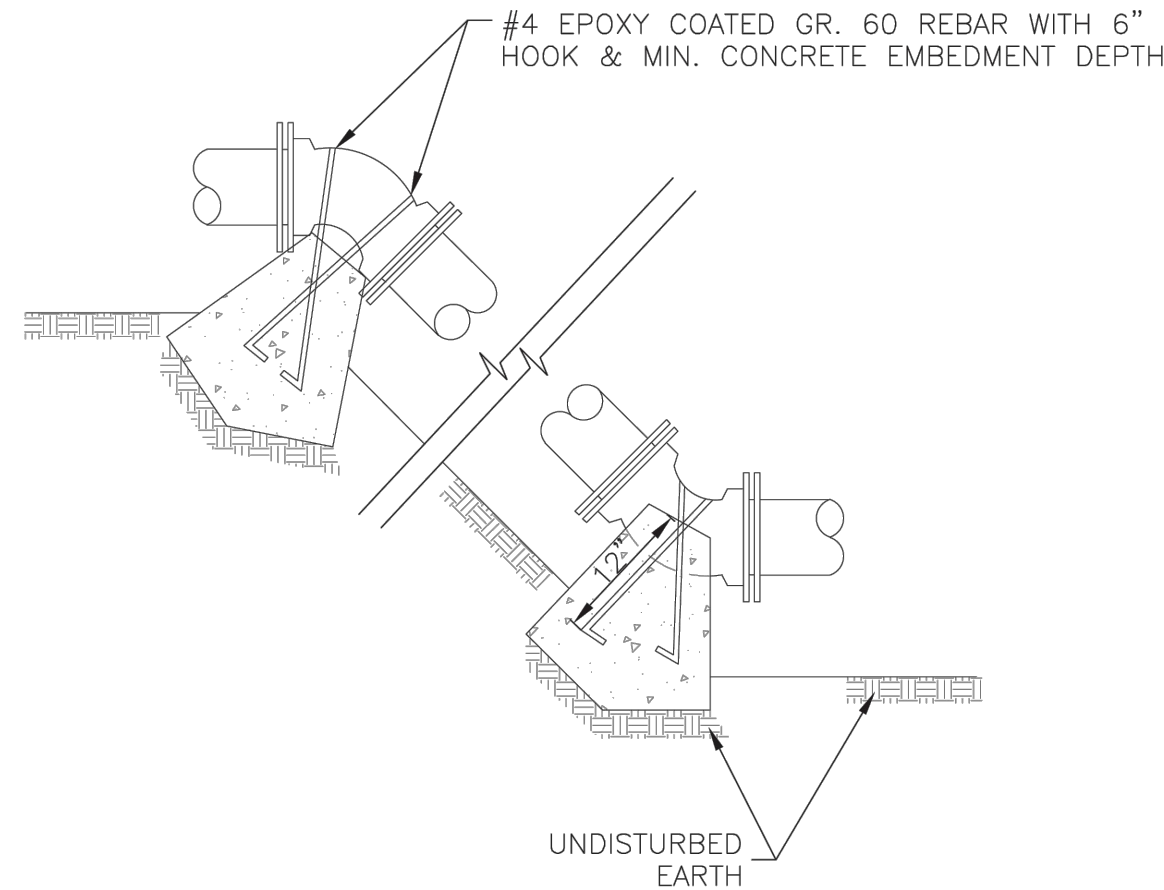
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WATER LINE PLAN &
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C102

SHEET 3 OF 4

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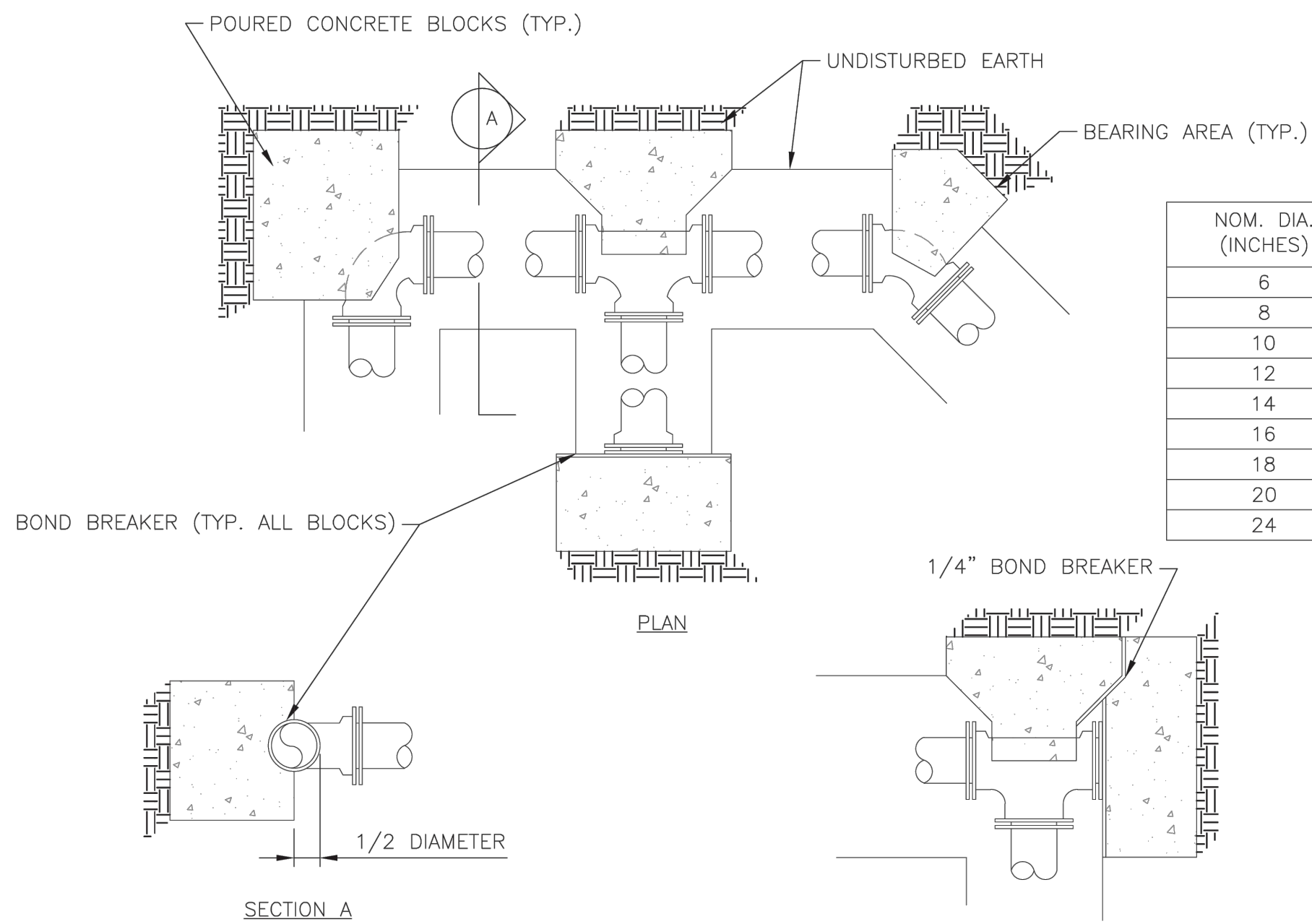


- NOTES:
1. WHEN RETAINER GLANDS ARE USED IN LIEU OF MECHANICAL JOINT (MJ) RESTRAINT FITTINGS, HORIZONTAL THRUST BLOCKS ARE REQUIRED.
 2. GATE VALVE MAY BE BOLTED DIRECTLY TO MJ RESTRAINT TEE.
 3. SEE APPROVED PRODUCTS LIST FOR WATER UTILITIES FOR FIRE HYDRANT, VALVES, VALVE BOX LID, AND COVER.
 4. BOTTOM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

FIRE HYDRANT ASSEMBLY DETAIL
N.T.S. D2

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	293.7	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

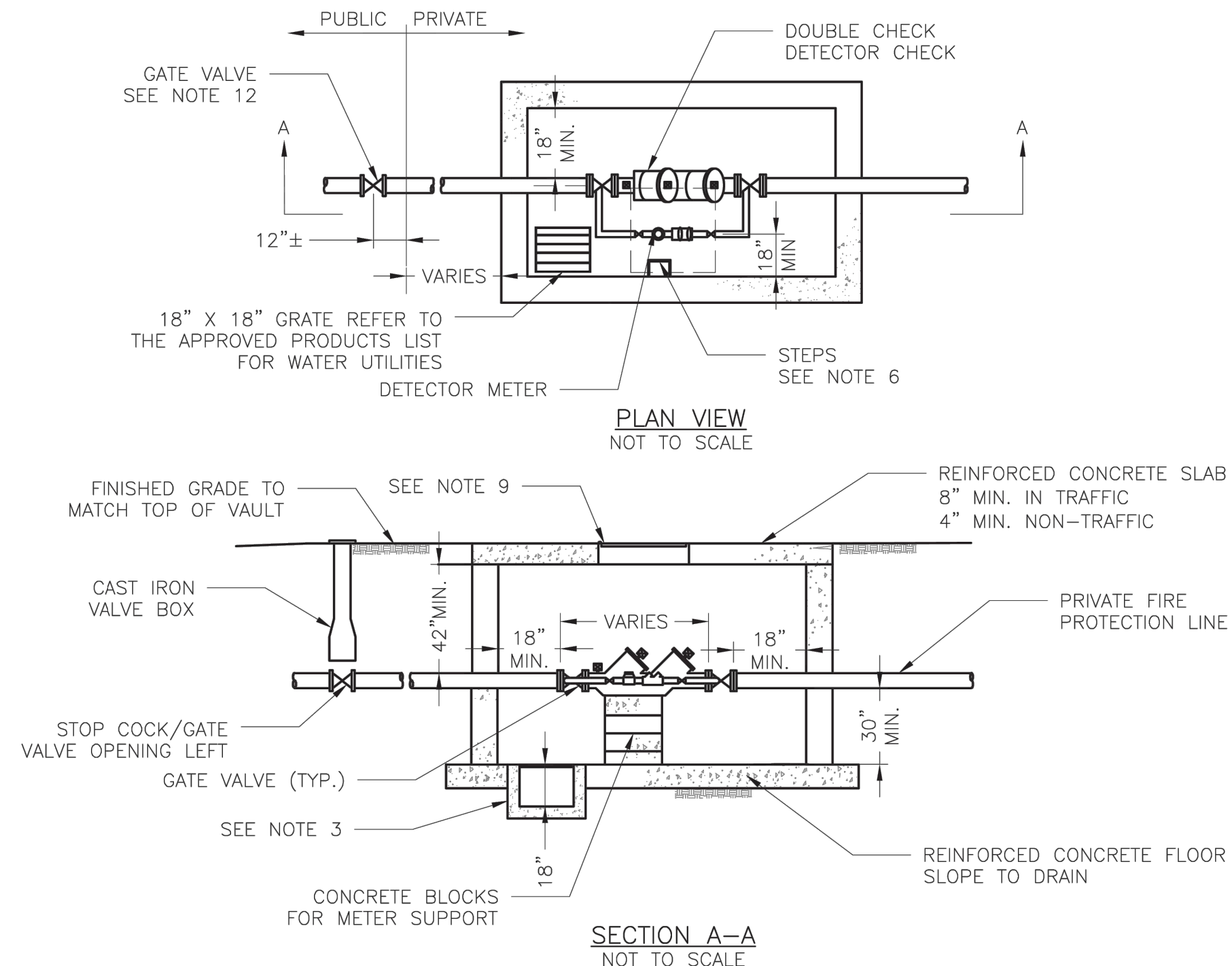
VERTICAL THRUST BLOCK
N.T.S. D3



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

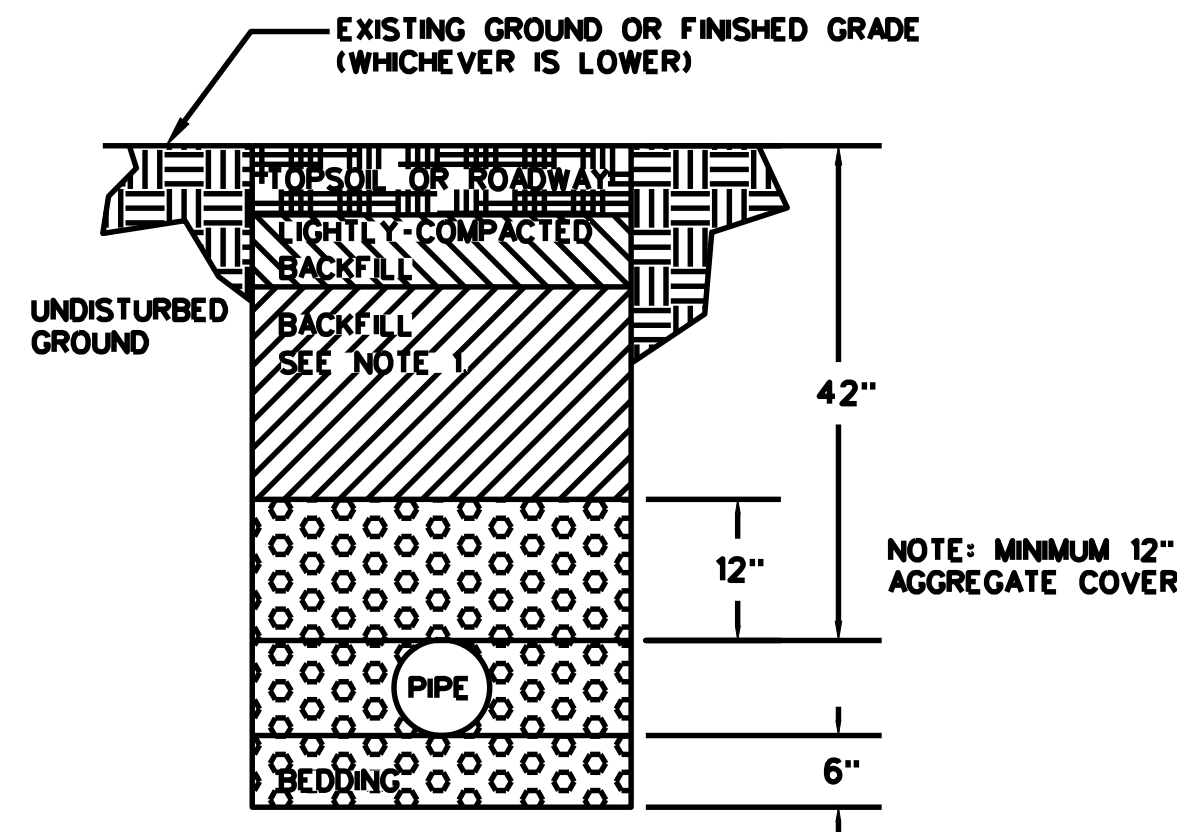
HORIZONTAL THRUST BLOCK
N.T.S. D5

- 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.



- 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. D15



- NOTES:
1. BACKFILL OF ALL PIPES UNDER ROADWAYS, CURB AND GUTTER AND ALL OTHER PAVED AREAS WITHIN THE RIGHT OF WAY SHALL CONSIST OF FLOWABLE BACKFILL AS SPECIFIED IN SECTION 2602.2.H MIX DESIGN TYPE: A. THE FLOWABLE FILL SHALL EXTEND TO 2 FEET FROM BACK OF CURB TO 2 FEET BACK OF CURB, UP TO 18 INCHES BELOW FINISHED GRADE. FOR EXISTING ROADWAYS FLOWABLE SHALL BE EXTEND UP TO THE BASE OF PAVEMENT.

TRENCHING AND BACKFILL DETAIL
N.T.S. D7



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CAD DWG FILE: DETAILS

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CHECKED BY: JRC

APPROVED BY: TGH

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SHEET TITLE

SITE DETAILS

C103

SHEET 4 OF 4