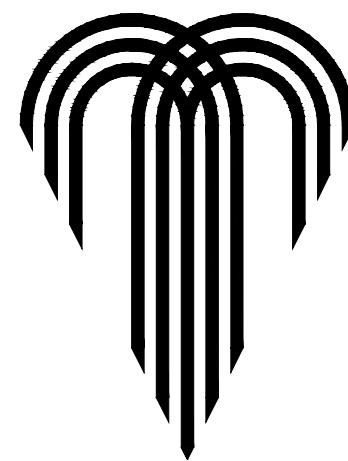


WATER MAIN EXTENSION

FOR HAWTHORN RIDGE 1ST PLAT

LEE'S SUMMIT, JACKSON, MO



OLSSON ASSOCIATES
Olsson Associates - Civil Engineering
Professional Engineer
North Kansas City, MO 64116
TEL 816.587.4320
FAX 816.587.1393
www.olssonassociates.com

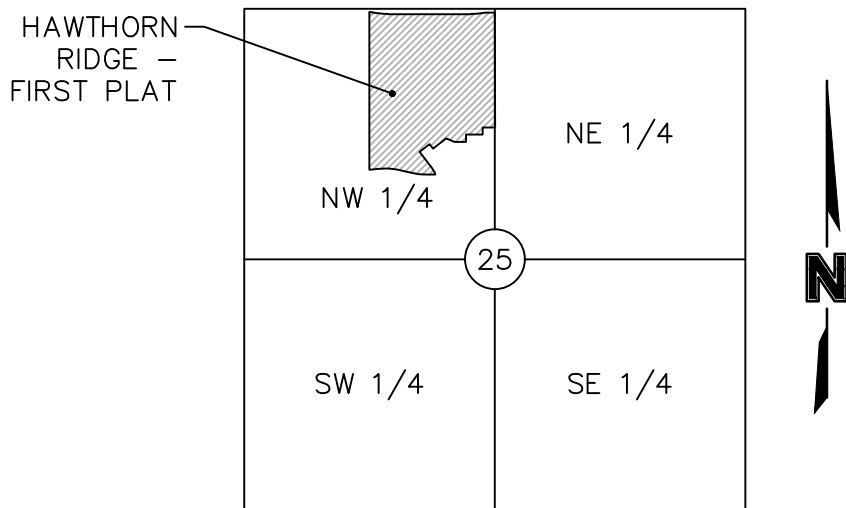


NO.	REV.	DATE	BY	REVISIONS DESCRIPTION
1		04.12.2017	MGD	Revised per city comments
2		11.20.2017	MGD	Revised per city comments
3		01.08.2018		Prepared for bid
		06.27.2018		Water main 6 and Temp Hydrant revised
		03.04.2019		As-built Submittal

1 COVER SHEET WATER MAIN EXTENSION HAWTHORN RIDGE 1ST PLAT LEE'S SUMMIT, MO	2018

drawn by: D.A.H.O.
checked by: M.G.D.
designed by: P.M.D.
QA/QC by: K.S.J.
project no.: 017-0188
date: 03.03.2017

SHEET
1



LOCATION MAP

Sec. 25, Twp. 47 N., Rge. 32 W.
(N.T.S.)

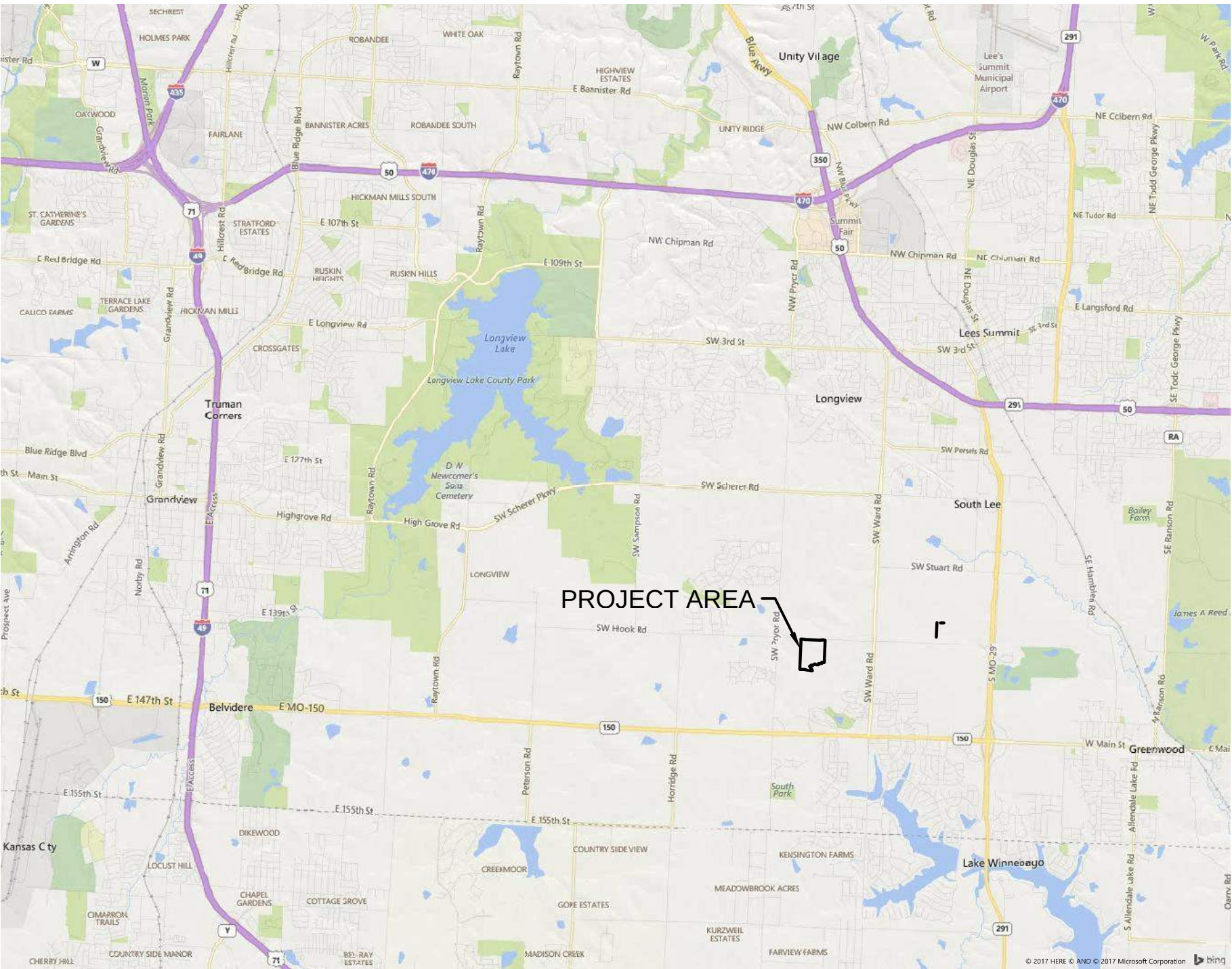
- ☐ NOT FOR CONSTRUCTION
- ☒ REVIEWED FOR CONSTRUCTION

DEVELOPMENT TEAM CONTACT INFORMATION

CIVIL ENGINEER		
	MELISSA G DEGONIA, P.E. OLSSON ASSOCIATES	1301 BURLINGTON, SUITE 100 NORTH KANSAS CITY, MO 64116 TEL: 816.587.4320 FAX: 816.587.1393 MDEGONIA@OLSSONASSOCIATES.COM
OWNER/DEVELOPER		
	DAVID PRICE CMH PARKS, INC. D/B/A SUMMIT CUSTOM HOMES	120 SE 30TH ST LEE'S SUMMIT, MO 64082 TEL: 816.246.6700 DAVID@SUMMITCUSTOMHOMESKC.COM

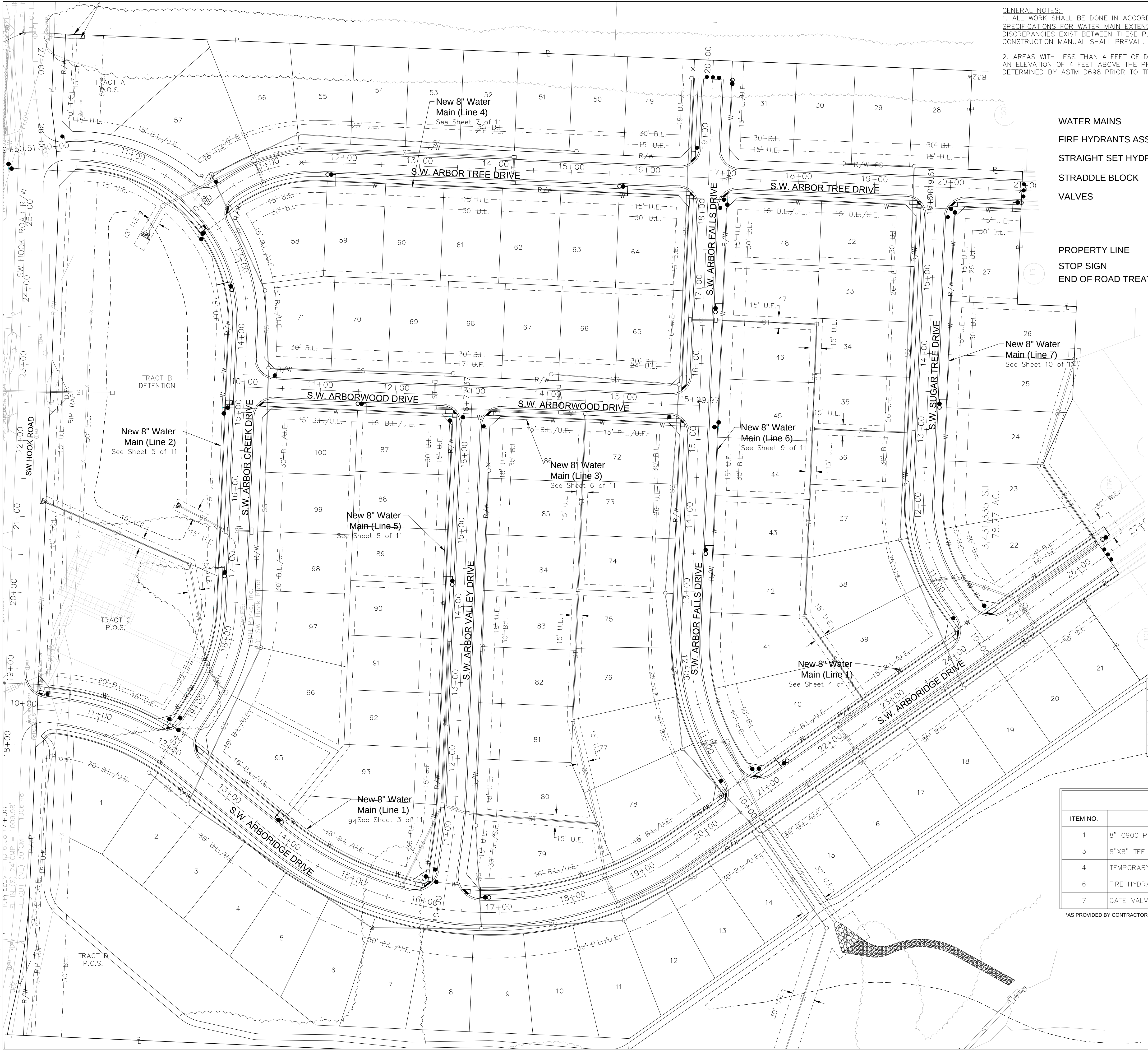
UTILITY SERVICE NUMBERS

LEE'S SUMMIT PUBLIC WORKS	816-969-1800
LEE'S SUMMIT WATER & SEWER DEPARTMENT	816-696-1940
MISSOURI GAS ENERGY	816-756-5252
AT&T	800-286-8313
KCP&L	816-471-5275
TIME WARNER CABLE	816-358-5360
GOOGLE FIBER	877-454-6959



USER: dherandez

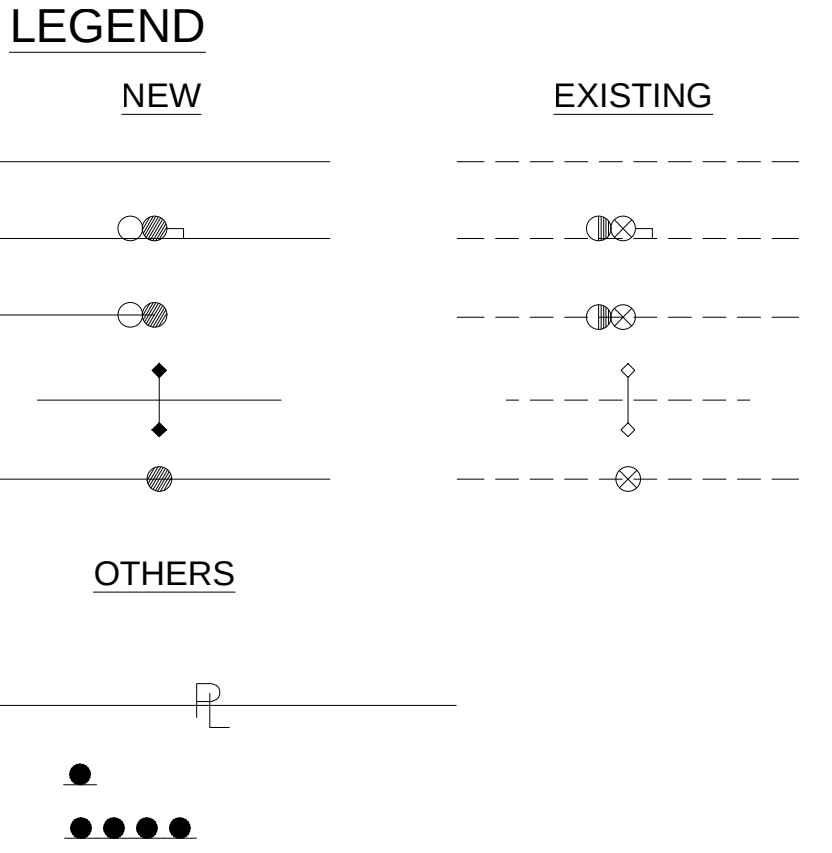
DWG: F:\2017\0001-0500\017-0188\40-Design\AutoCAD\Final Plans\ASBUILT\GEN02_017-0188.dwg
DATE: Feb 19, 2019 6:37pm



GENERAL NOTES:
1. ALL WORK SHALL BE DONE IN ACCORDANCE WITH THE MOST RECENT VERSION OF THE STANDARDS AND SPECIFICATIONS FOR WATER MAIN EXTENSIONS OF THE LEE'S SUMMIT, MISSOURI WATER SERVICES DEPARTMENT. WHERE DISCREPANCIES EXIST BETWEEN THESE PLANS AND THE DESIGN AND CONSTRUCTION MANUAL, THE DESIGN AND CONSTRUCTION MANUAL SHALL PREVAIL.
2. AREAS WITH LESS THAN 4 FEET OF DEPTH FROM EXISTING GRADE TO PROPOSED TOP OF PIPE SHALL BE FILLED TO AN ELEVATION OF 4 FEET ABOVE THE PROPOSED TOP OF PIPE, COMPACTED 95% OF STANDARD PROCTOR DENSITY AS DETERMINED BY ASTM D698 PRIOR TO TRENCHING FOR PIPE INSTALLATION.

- WATER MAINS
FIRE HYDRANTS ASSEMBLY
STRAIGHT SET HYDRANT ASSEMBLY
STRADDLE BLOCK
VALVES

- PROPERTY LINE
STOP SIGN
END OF ROAD TREATMENT



SEE SHEET 10 FOR OFFSITE WATER MAIN EXTENSION

AS BUILT

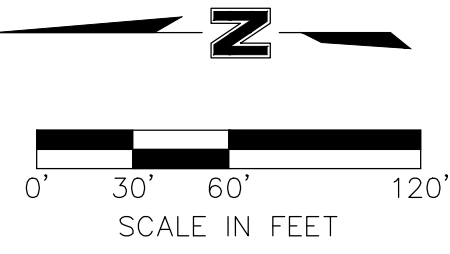
DATE: 12/11/2018

Record Drawing

CONTROL POINT TABLE				
Point Number	Northing	Easting	Point Elevation	Raw Description
800	983674.9350'	2813892.5500'	1016.38'	CP 800
801	983630.4880'	2815280.9210'	1019.74'	CP 801
802	981004.3220'	2812429.0660'	994.50'	CP 802
803	980493.4250'	2815984.1140'	1024.20'	CP 803
902	983638.8300'	2814391.8860'	1021.01'	CP 902

ESTIMATE OF QUANTITIES				
ITEM NO.	DESCRIPTION	UNIT	QUANTITY	AS-BUILT
1	8" C900 PLASTIC PIPE	L.F.	6581	*6581
3	8"x8" TEE	EA.	10	10
4	TEMPORARY HYDRANT ASSEMBLY	EA.	1	1
6	FIRE HYDRANT ASSEMBLY	EA.	15	15
7	GATE VALVES	E.A.	21	21

*AS PROVIDED BY CONTRACTOR



OLSSON ASSOCIATES

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North Kansas City, MO 64116
TEL 816.597.4320
FAX 816.597.1393
www.olssonassociates.com

STATE OF MISSOURI
MELISSA G. DEGENIA
Professional Engineer
03/14/2018

2 GENERAL LAYOUT

HAWTHORN RIDGE
1ST PLAT

LEE'S SUMMIT, MO

drawn by: D.A.H.O.
checked by: M.G.D.
designed by: P.M.D.
QA/QC by: K.S.J.
project no.: 017-0188
date: 03.03.2017

SHEET
2

BY: MGD
MGD

REVISIONS DESCRIPTION

NO. REV. DATE

1 04.19.2017 Revised per city comments

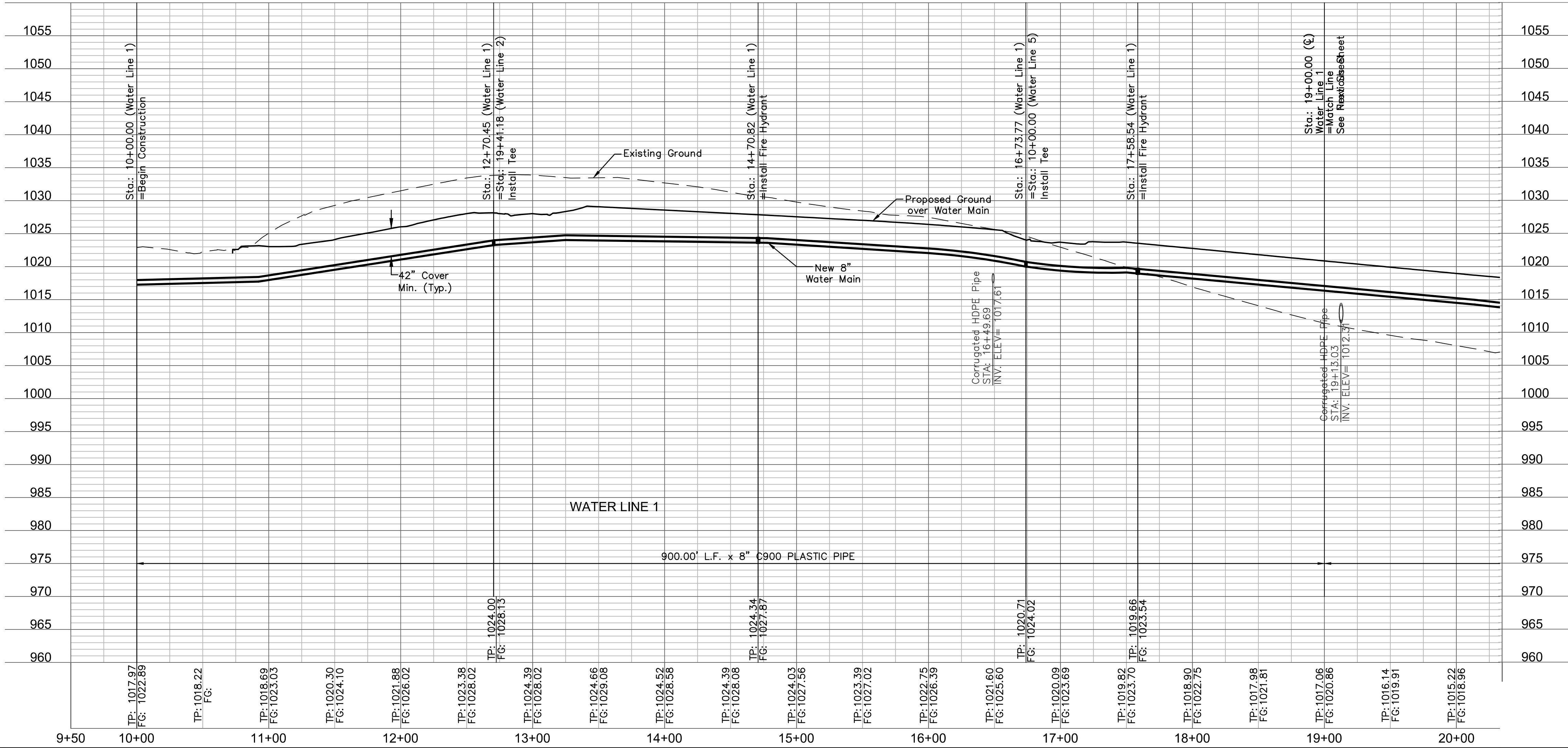
2 11.20.2017 Quantities Revised

3 08.27.2018 Quantities Revised

2018

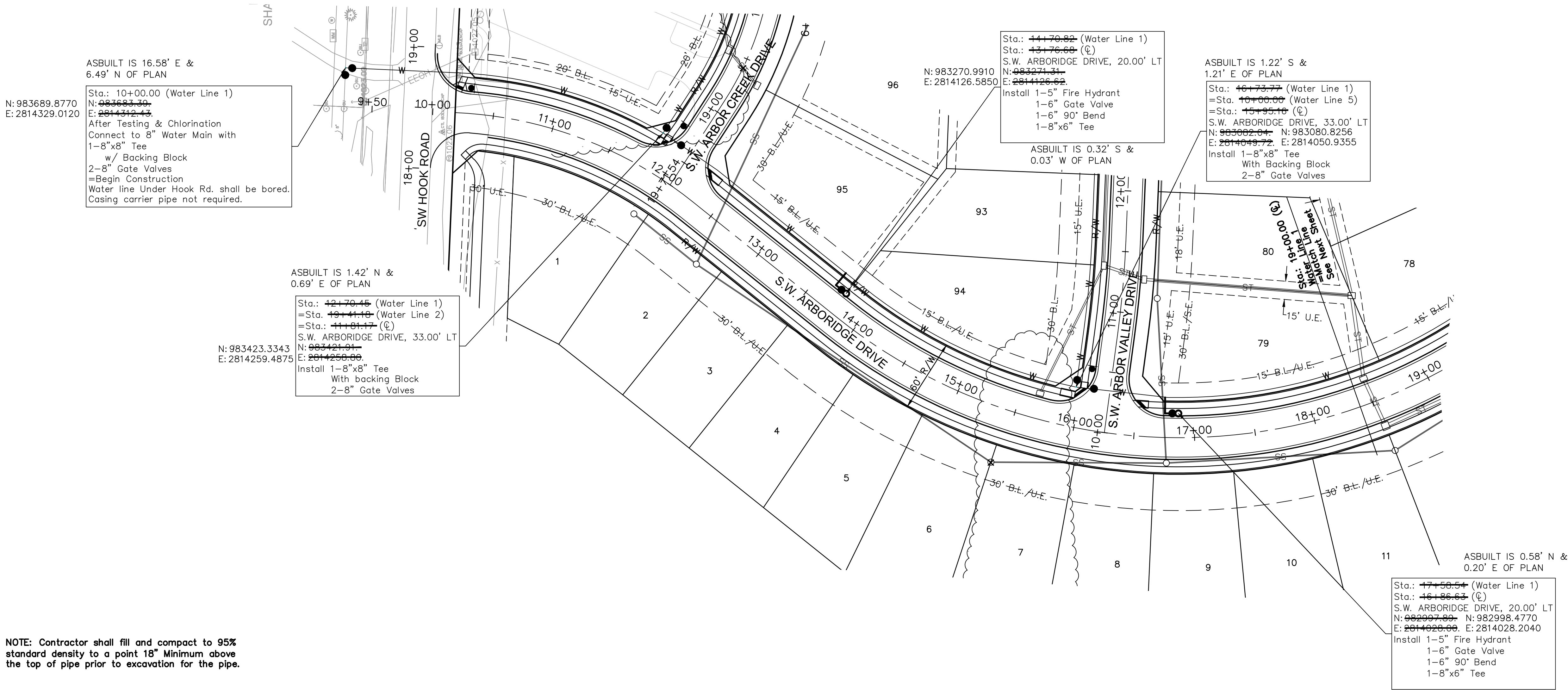
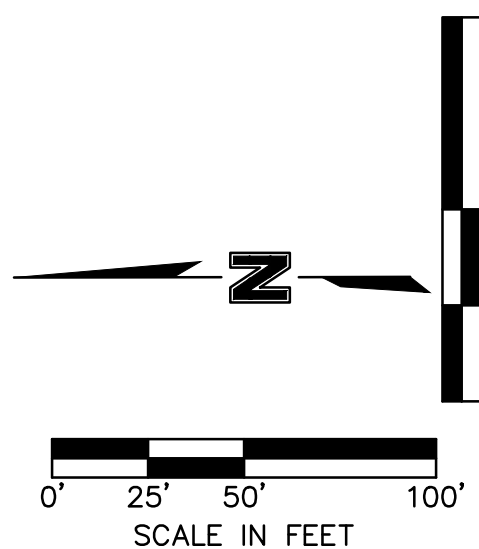
REVISIONS

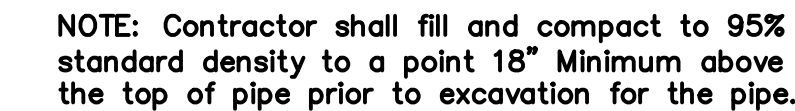
NOTE: Contractor shall fill and compact to 95% standard density to a point 18" Minimum above the top of pipe prior to excavation for the pipe.



AS BUILT
DATE: 12/11/2018

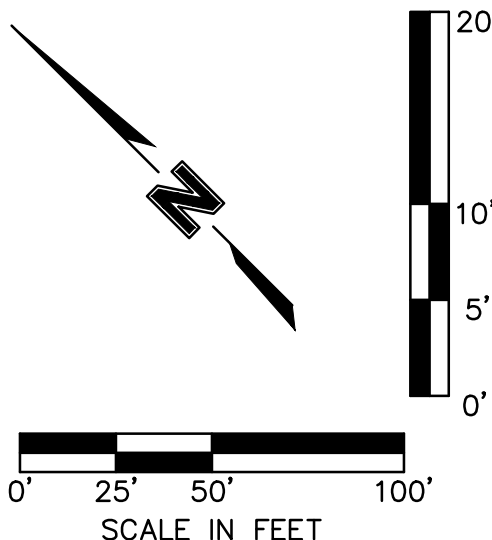
Record Drawing

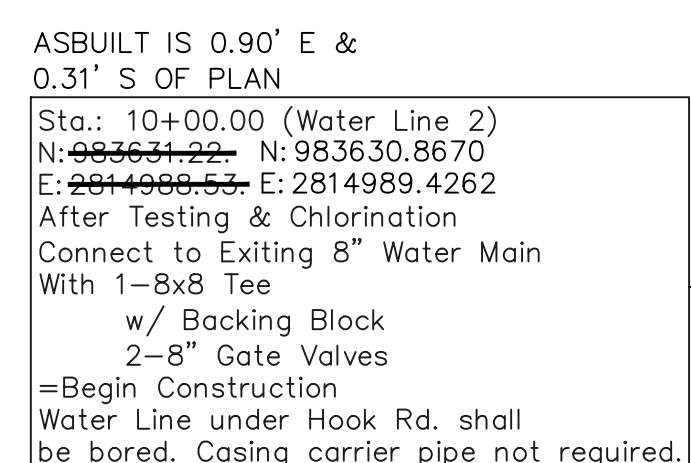




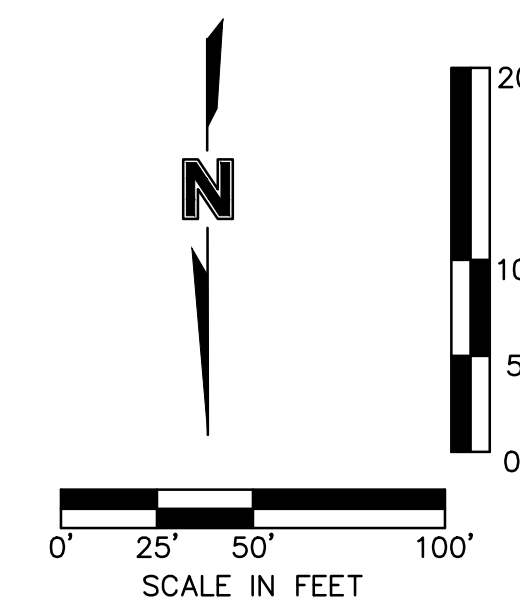
DATE: 12/11/2018

Record Drawing

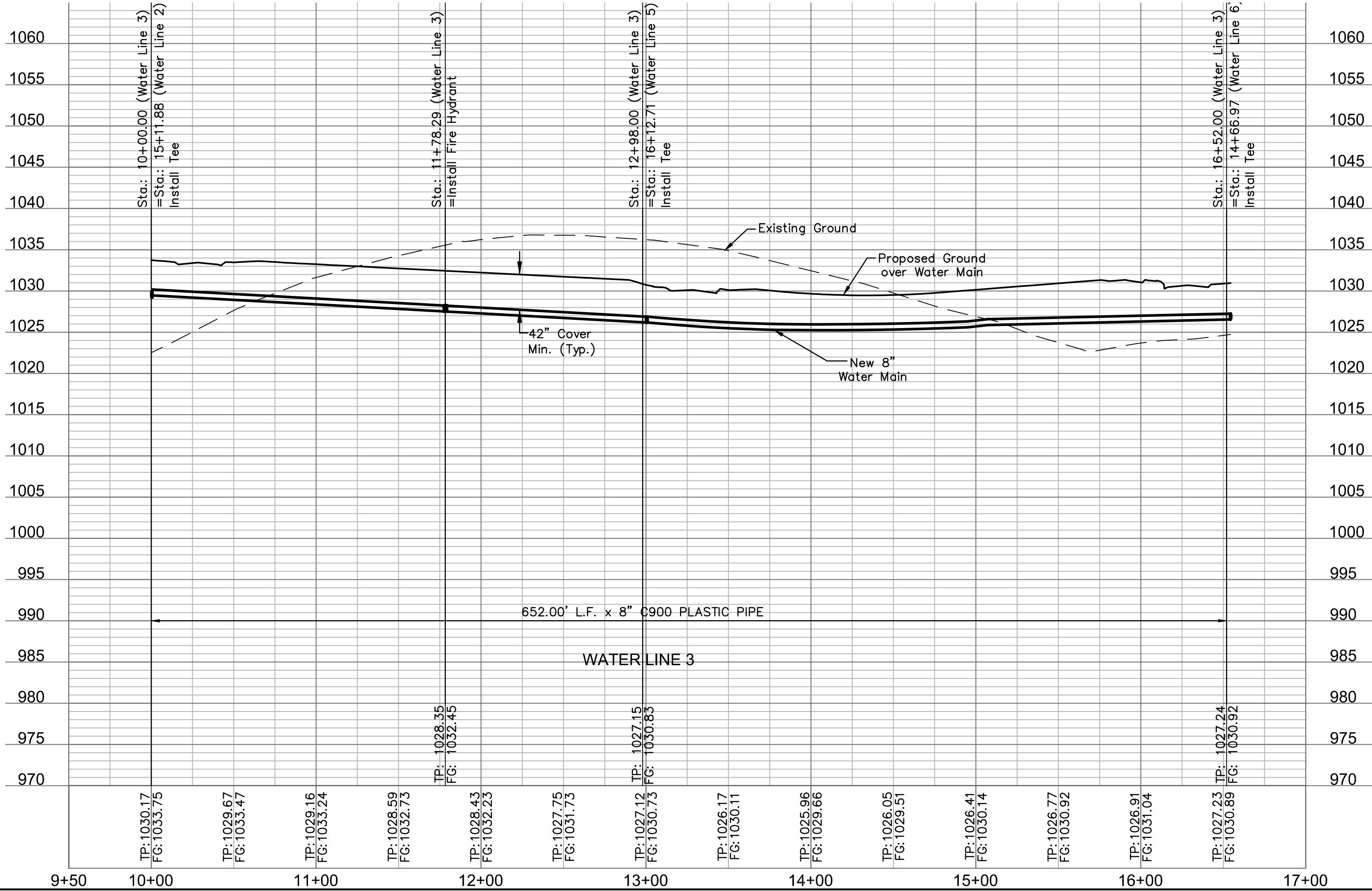




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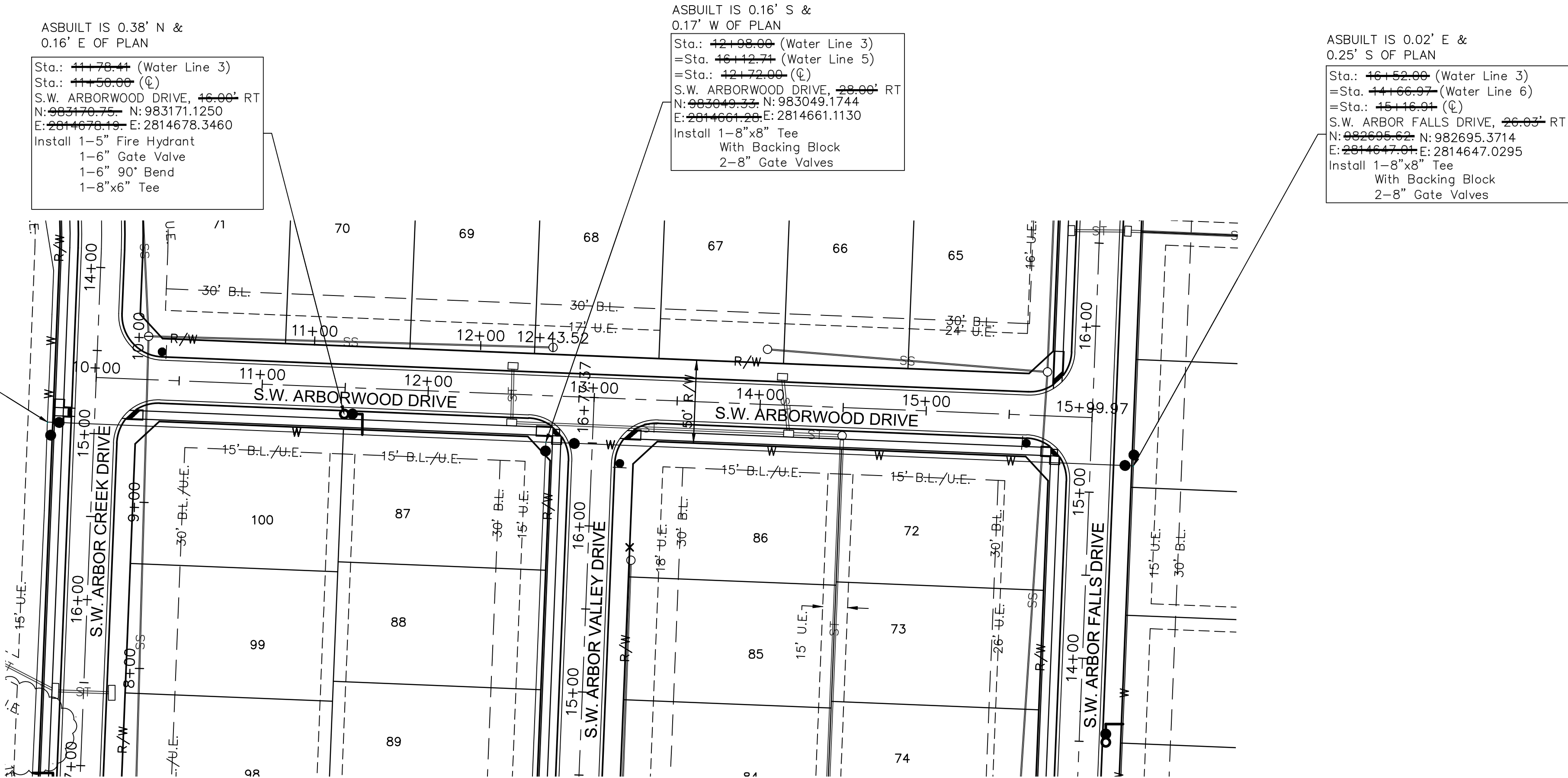
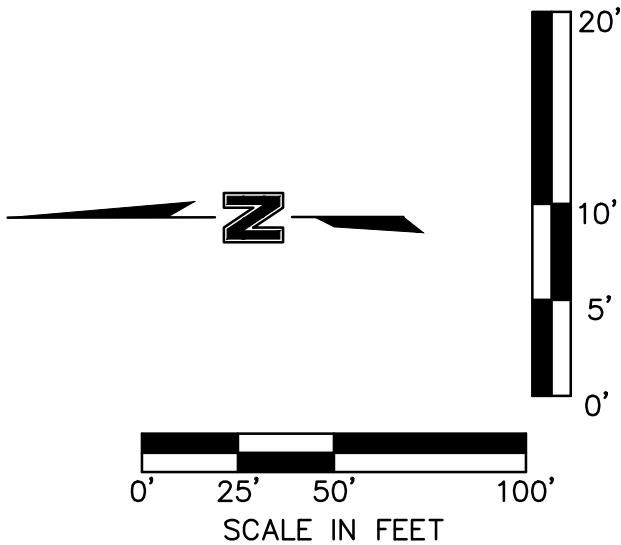


NOTE: Contractor shall fill and compact to 95% standard density to a point 18" Minimum above the top of pipe prior to excavation for the pipe.



AS BUILT
DATE: 12/11/2018

Record Drawing



OLSSON ASSOCIATES

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Professional Engineer
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TEL 816.897.4320
FAX 816.897.1393
www.olssonassociates.com

STATE OF MISSOURI
MELISSA G. DEGENIA
PROFESSIONAL ENGINEER
NUMBER
001700682
DATE
03/14/2018

BY
MGD

REVISIONS DESCRIPTION
1 Grading note Added

DATE
04/12/2017

NO. REV
1

2018

REVISIONS

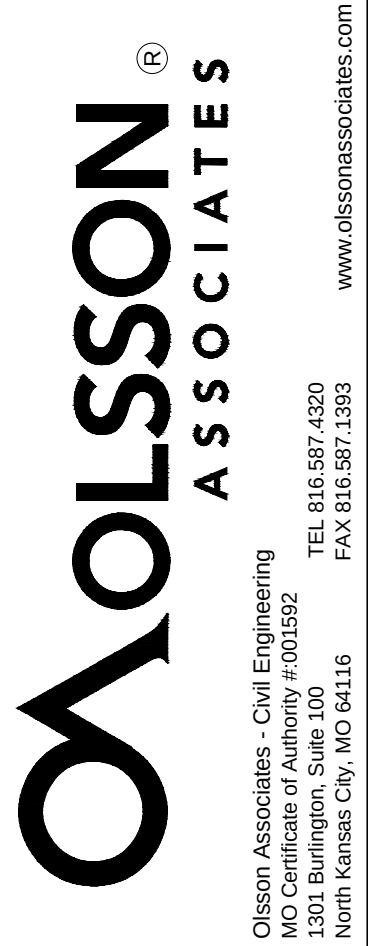
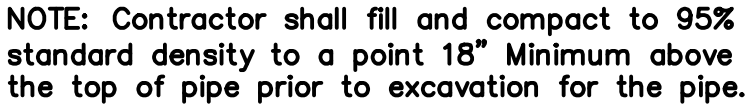
6 WATER MAIN PLAN & PROFILE

HAWTHORN RIDGE
1ST PLAT

LEE'S SUMMIT, MO

drawn by: D.A.H.O.
checked by: M.G.D.
designed by: P.M.L.B.
QA/QC by: K.S.J.
project no.: 017-0188
date: 03.03.2017

SHEET
6

[illegible]

7 WATER MAIN PLAN & PROFILE

HAWTHORN RIDGE
1ST PLAT

LEE'S SUMMIT, MO

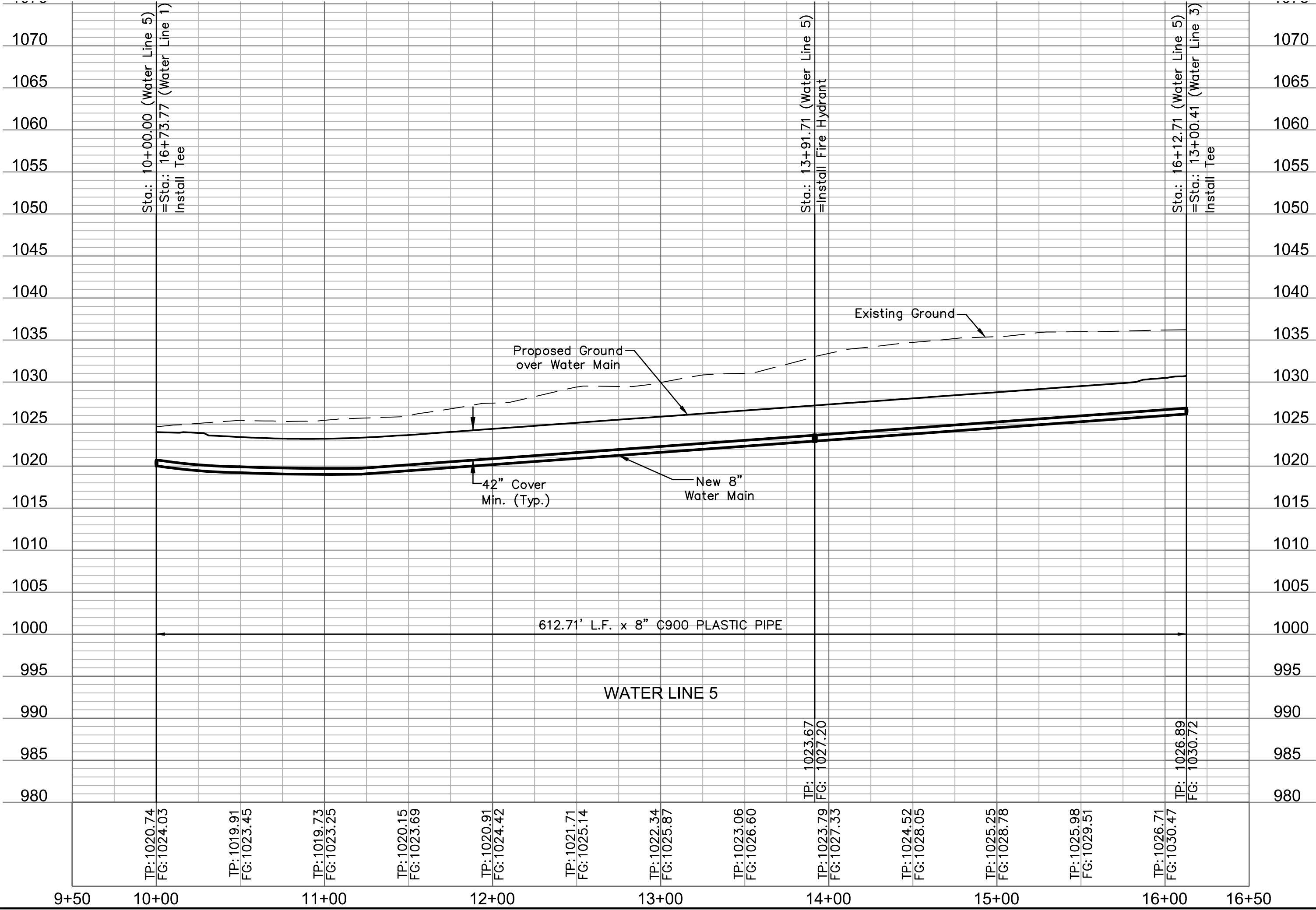
drawn by: D.A.H.Q
checked by: M.G.D.
designed by: P.M.D
QA/QC by: K.S.J
project no.: 017-0188
date: 03.03.2017

SHEET
7

ASBUILT IS 1.22' S &
1.21' E OF PLAN
Sta.: ~~16+73.77~~ (Water Line 1)
=Sta.: ~~16+00.00~~ (Water Line 5)
=Sta.: ~~16+00.00~~ (C)
S.W. ARBORIDGE DRIVE, 33.00' LT
N: 983082.04, N: 983080.8256
E: ~~2814040.72~~ E: 2814050.9355
Connect to 8"x8" Tee Installed
with Water Line 1.

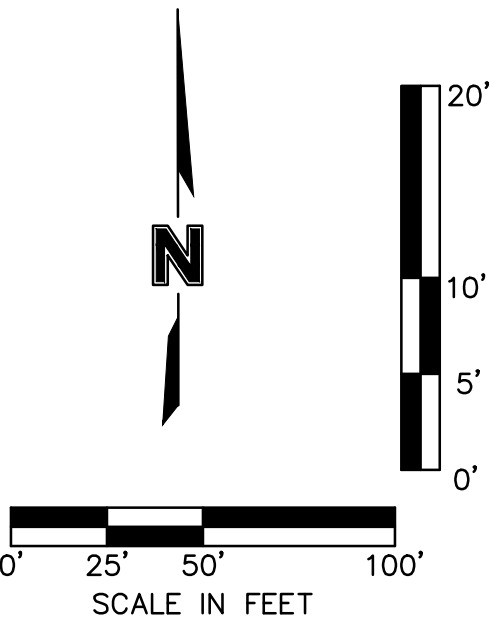
ASBUILT IS 1.14' W &
0.04' N OF PLAN
Sta.: ~~13+01.71~~ (Water Line 5)
Sta.: ~~13+28.37~~ (C)
S.W. ARBOR VALLEY DRIVE, 46.00' LT
N: ~~983046.25~~ N: 983046.2870
E: ~~2814430.00~~ E: 2814438.8420
Install 1-5" Fire Hydrant
1-6" Gate Valve
1-6" 90° Bend
1-8"x6" Tee

ASBUILT IS 0.16' S &
0.12' W OF PLAN
Sta.: ~~13+00.41~~ (Water Line 3)
=Sta.: ~~16+12.71~~ (Water Line 5)
=Sta.: ~~16+12.71~~ (C)
S.W. ARBORWOOD DRIVE, 28.00' RT
N: ~~983049.32~~ N: 983049.1728
E: ~~2814661.28~~ E: 2814661.1523
Connect to 8"x8" Tee Installed
with Water Line 3.



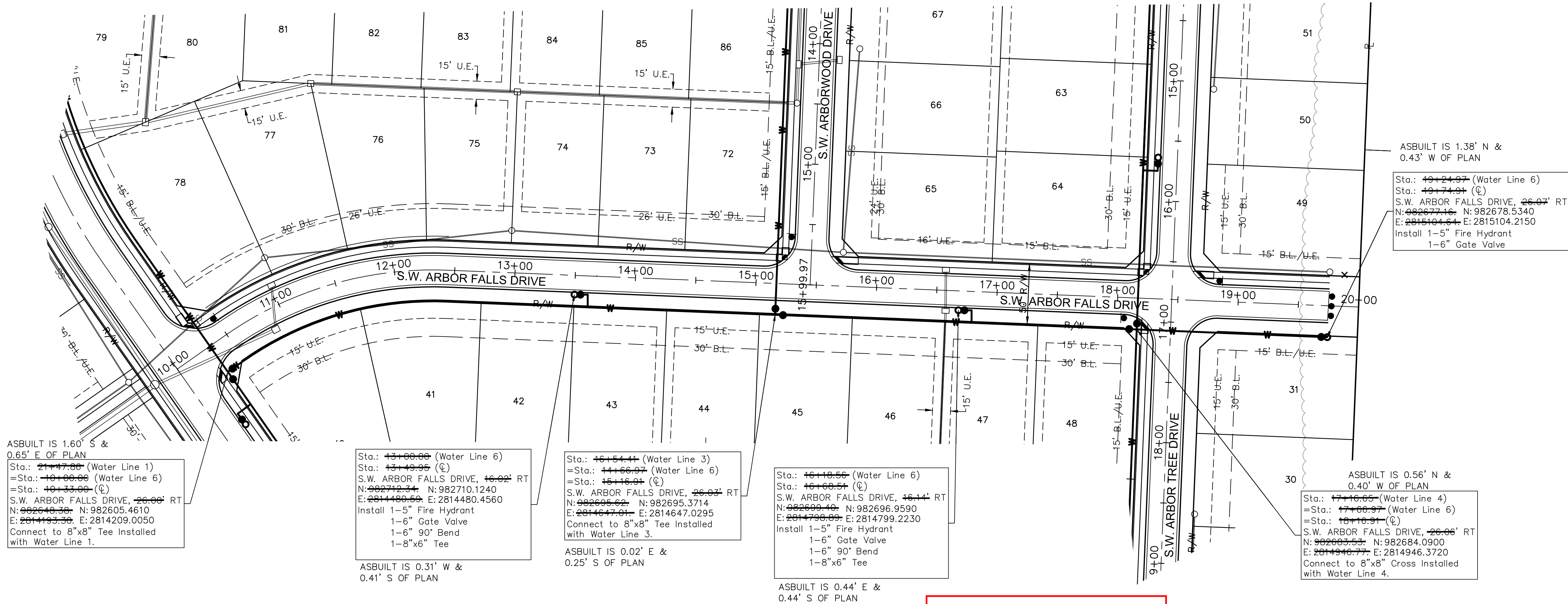
AS BUILT
DATE: 12/11/2018

Record Drawing



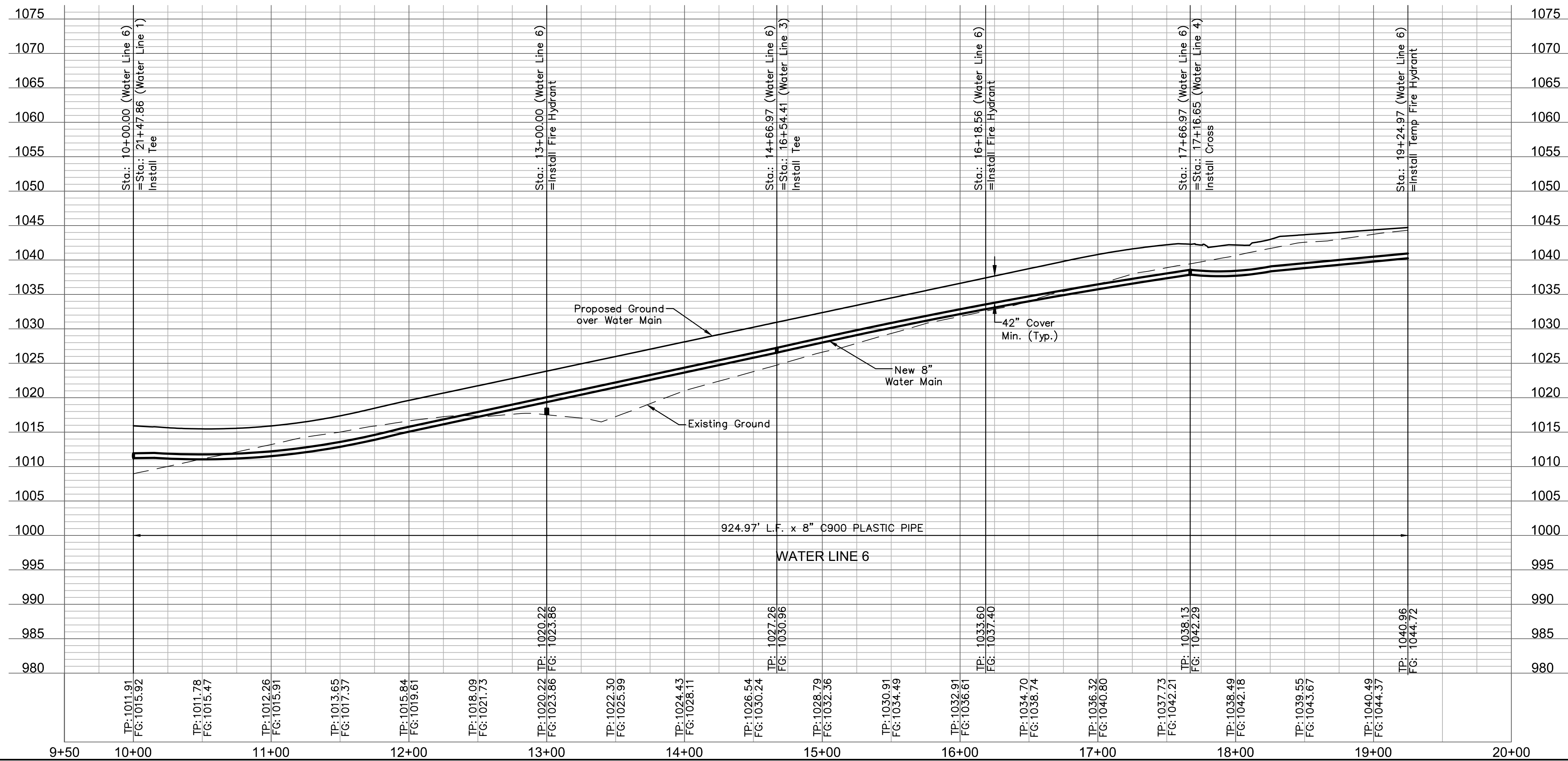
8 WATER MAIN PLAN & PROFILE		2018	
HAWTHORN RIDGE 1ST PLAT		LEE'S SUMMIT, MO	
drawn by: D.A.H.O.		checked by: M.G.D.	
designed by: P.M.D.		QA/QC by: K.S.J.	
project no.: 017-0188		date: 03.03.2017	
SHEET 8			



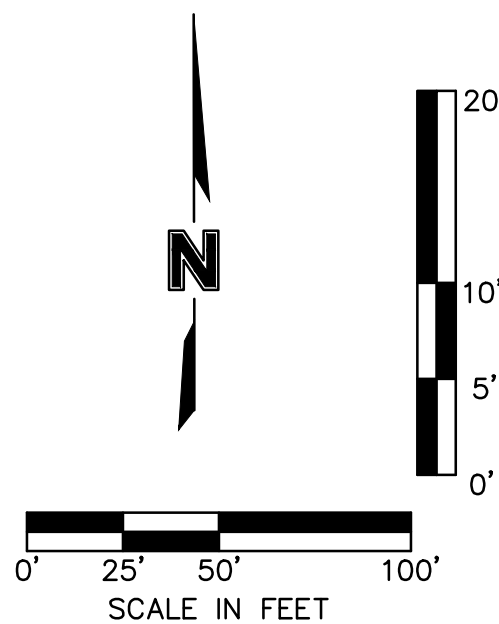


Record Drawing

NOTE: Contractor shall fill and compact to 95% standard density to a point 18" Minimum above the top of pipe prior to excavation for the pipe.



AS BUILT
DATE: 12/11/2018



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ASSOCIATES

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North Kansas City, MO 64116
TEL 816.897.4320
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www.olssonassociates.com

STATE OF MISSOURI
MELISSA G. DECONIA
Professional Engineer
NUMBER
031400882
03/14/2018

BY
MGD

REVISIONS

NO.	REV.	DATE	DESCRIPTION
1	04.19.2017	Grading note Added	
3	08.27.2018	Temp Fire Hydrant and main Revised	

9 WATER MAIN PLAN & PROFILE

HAWTHORN RIDGE
1ST PLAT

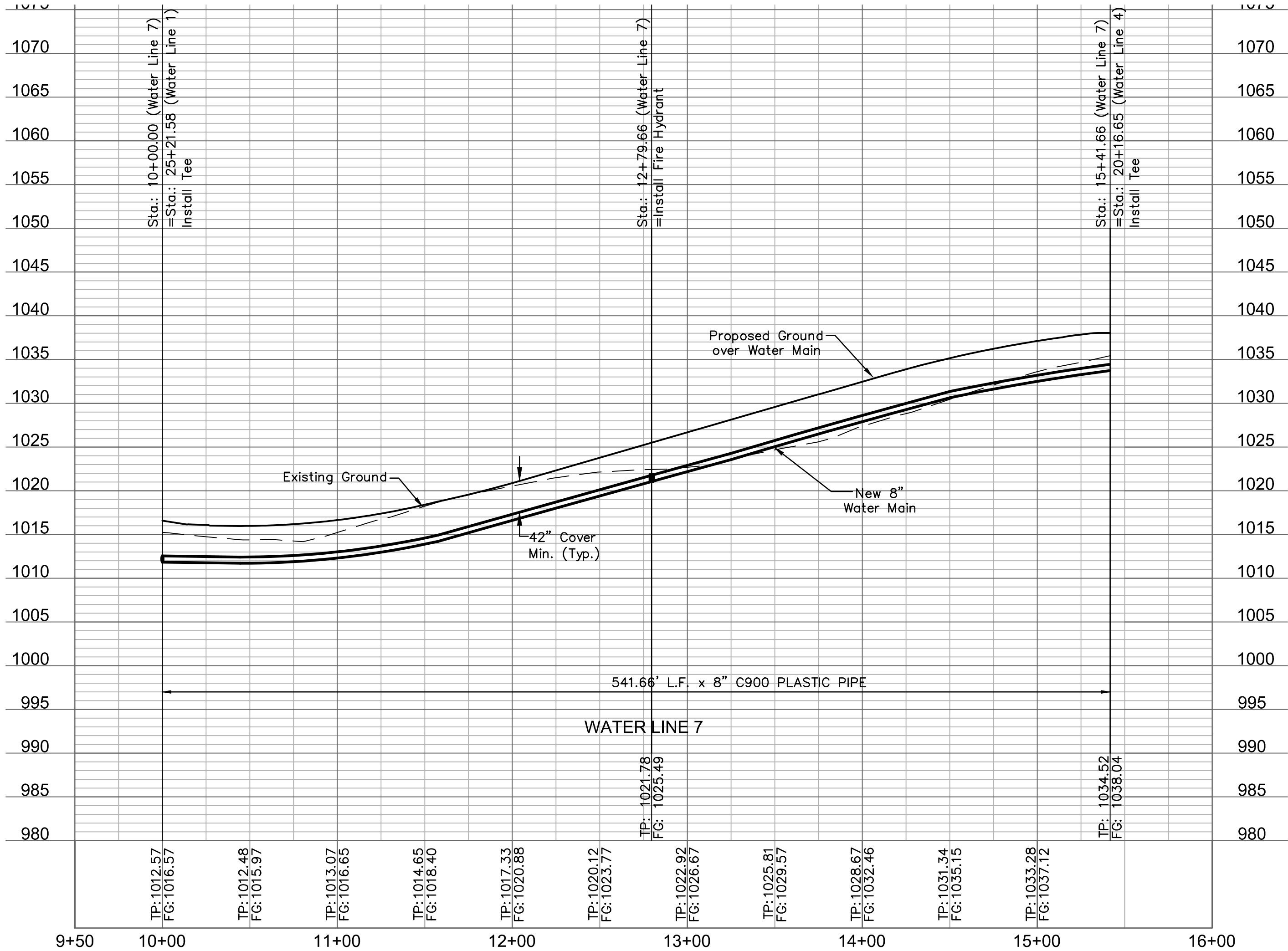
LEE'S SUMMIT, MO

drawn by: DAH.Q
checked by: M.G.D.
designed by: E.M.B.
project no.: 017-0188
date: 03.03.2017

SHEET
9

ASBUILT IS 0.55' N & 0.38' W OF PLAN
Sta.: 25+21.56 (Water Line 1)
=Sta.: 10+00.00 (Water Line 7)
=Sta.: 24+69.91 (E)
S.W. ARBORIDGE DRIVE, 22+00' LT
N: 982342.9347
E: 2814407.4918
Connect to 8"x8" Tee Installed with Water Line 1.

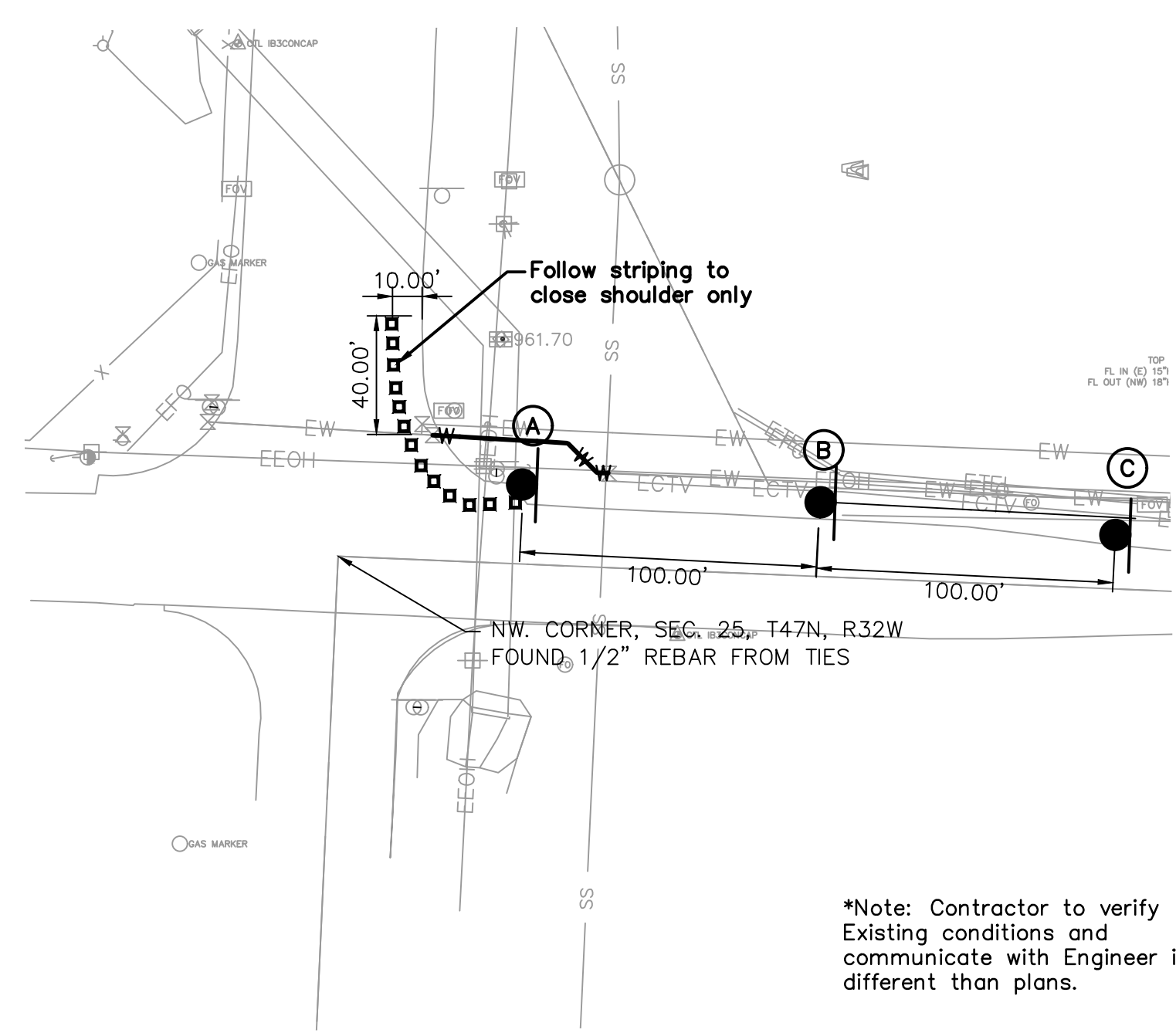
NOTE: Contractor shall fill and compact to 95% standard density to a point 18" Minimum above the top of pipe prior to excavation for the pipe.



Sta.: 12+79.66 (Water Line 7)
Sta.: 12+79.66 (E)
S.W. SUGAR TREE DRIVE, 12+00' RT
N: 982404.2890
E: 2814673.1960
Install 1-5" Fire Hydrant
1-6" Gate Valve
1-6" 90° Bend
1-8"x6" Tee

ASBUILT IS 0.10' W & 0.03' S OF PLAN

ASBUILT IS 0.23' E & 0.15' S OF PLAN
Sta.: 15+41.66 (Water Line 4)
=Sta.: 15+41.66 (Water Line 7)
=Sta.: 15+41.66 (E)
S.W. SUGAR TREE DRIVE, 15+00' RT
N: 982383.6249
E: 2814934.9243
Connect to 8"x8" Tee Installed with Water Line 4.



Record Drawing

Sta.: 10+00.00 (Water Line 8)
N: 982762.51
E: 2812661.60
=Begin Construction
After Testing & Chlorination
Remove Plug from Existing
12"x8" Cross and
Connect to 8" Water Main with
8" solid sleeves

Sta.: 10+63.49 (Water Line 8)
N: 982742.72
E: 2812626.01
=End Construction
After Testing and Chlorination
Remove Plug and
Connect to 8" Water main with
8" solid sleeves

Existing 12" Water Main

Shoulder repair as needed

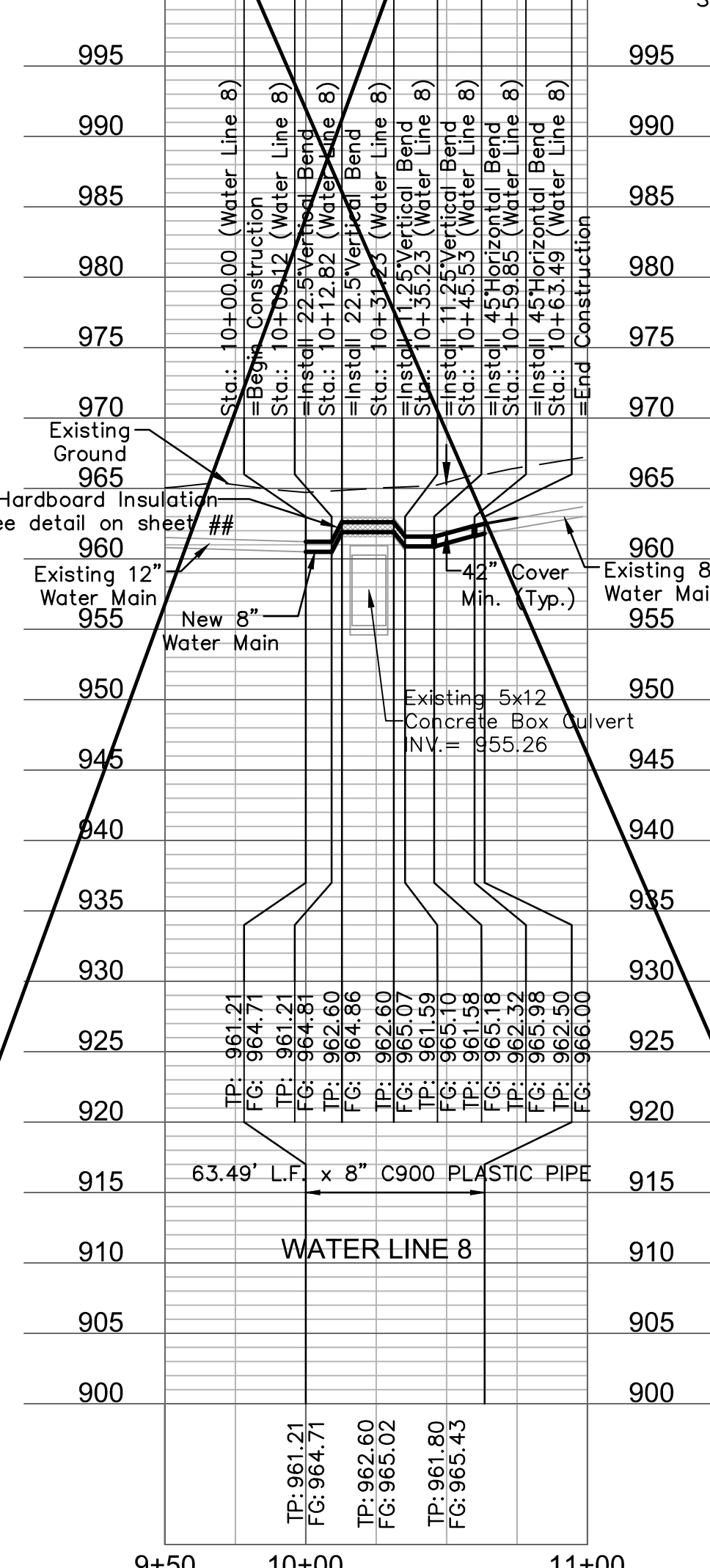
See detail for temporary traffic control plan

Existing 16" Water Main

Existing 8" Water Main

NW CORNER, SEC. 25, T47N, R32W
FOUND 1/2" REBAR FROM TIE

"NOT ASBUILT. WATER MAIN NOT CONSTRUCTED WITH PREVIOUS PHASE"



BY		REVISIONS DESCRIPTION	
NO.	REV.	DATE	DESCRIPTION
1	04.12.2017	Revised per city comments	
2	11.20.2017	Revised per city comments	

10 WATER MAIN PLAN & PROFILE

HAWTHORN RIDGE
1ST PLAT

LEE'S SUMMIT, MO

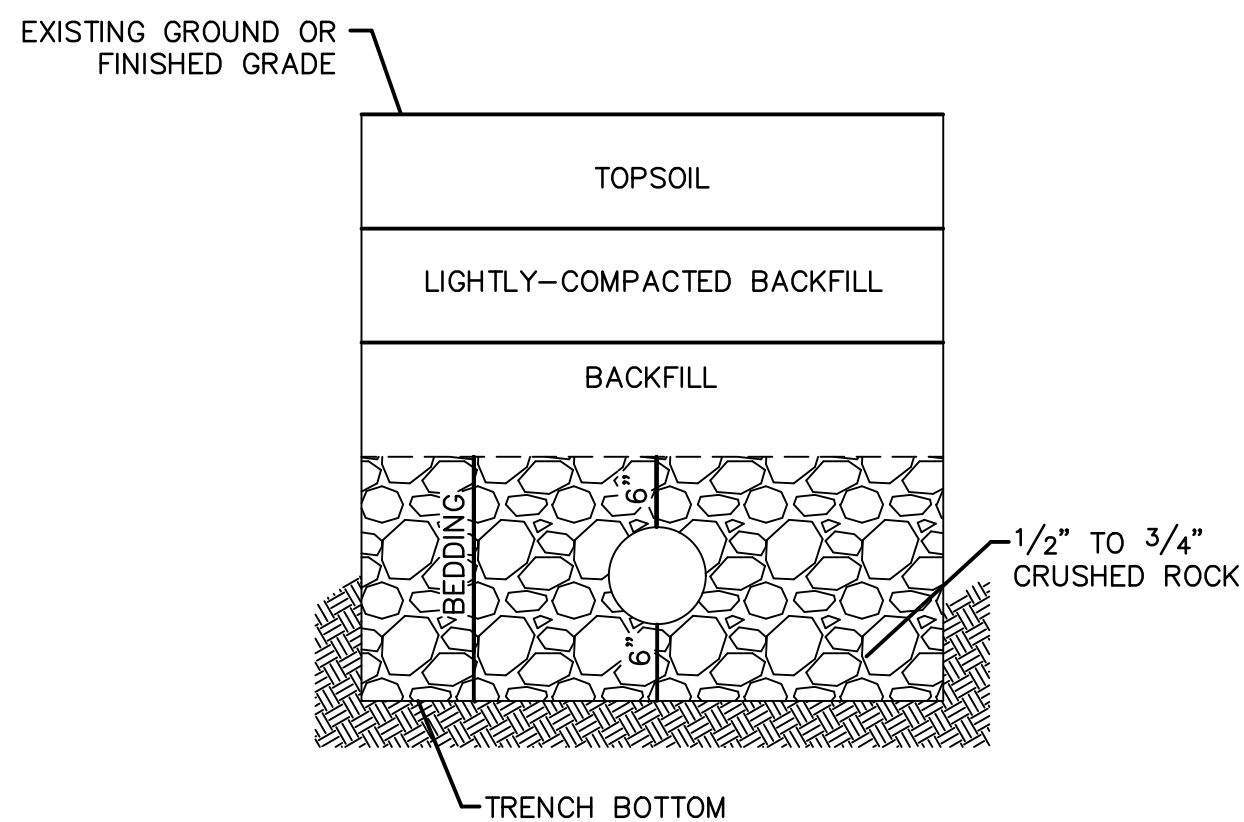
2018

drawn by: D.A.H.O.
checked by: M.G.D.
designed by: P.M.B.
QA/QC by: K.S.J.
project no.: 017-0188
date: 03.03.2017

SHEET
10

DWG: F:\2017\0001-0500\017-0188\40-Design\AutoCAD\Final Plans\ASBUILTS\ONCV\01_Water_Set\36.24\C_GEN01_017-0188.dwg
DATE: Feb 19, 2019 6:44pm
USER: dhernandez

NOT AS BUILT

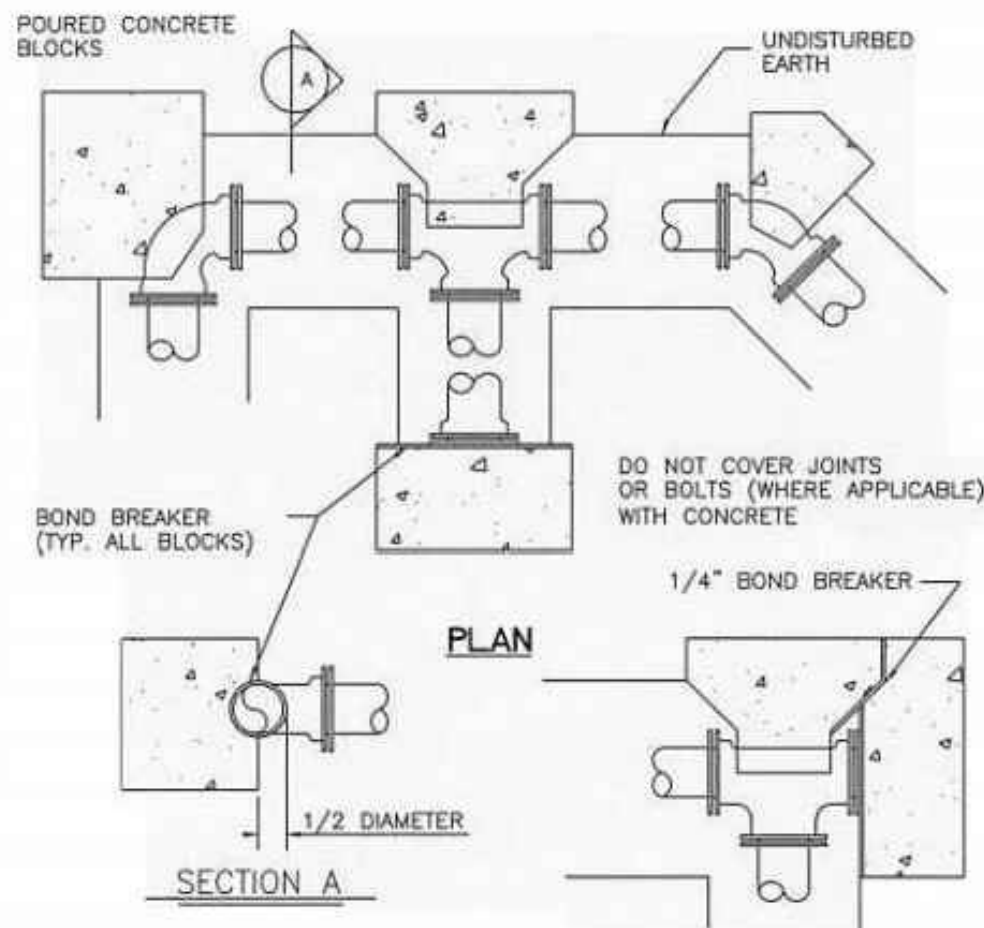


UNDERGROUND PIPE INSTALLATION FOR WATER LINES
N.T.S.

HORIZONTAL CONCRETE THRUST BLOCKING					
Working Pressure	150	psi			
Surge Allowance	100	psi			
Design Pressure	250	psi			
Soil Bearing Capacity	1500	psf			
Safety Factor	1.0				
Min. Bearing Area	4.0	sf			
Max. Bearing Area	50.0	sf			

Concrete Bearing Area (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	19.8	28.7	14.4	7.4	4.0
14	25.9	38.3	19.6	10.0	5.0
16	33.5	47.4	25.6	13.1	6.6
18	42.4	58.2	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

ALL BENDS WITHOUT RESTRAINED JOINTS SHALL HAVE CONCRETE THRUST BLOCKS INSTALLED FOR RESTRAINT. MEGA LUGS MAY BE USED ONLY IN CONJUNCTION WITH CONCRETE THRUST BLOCKING.

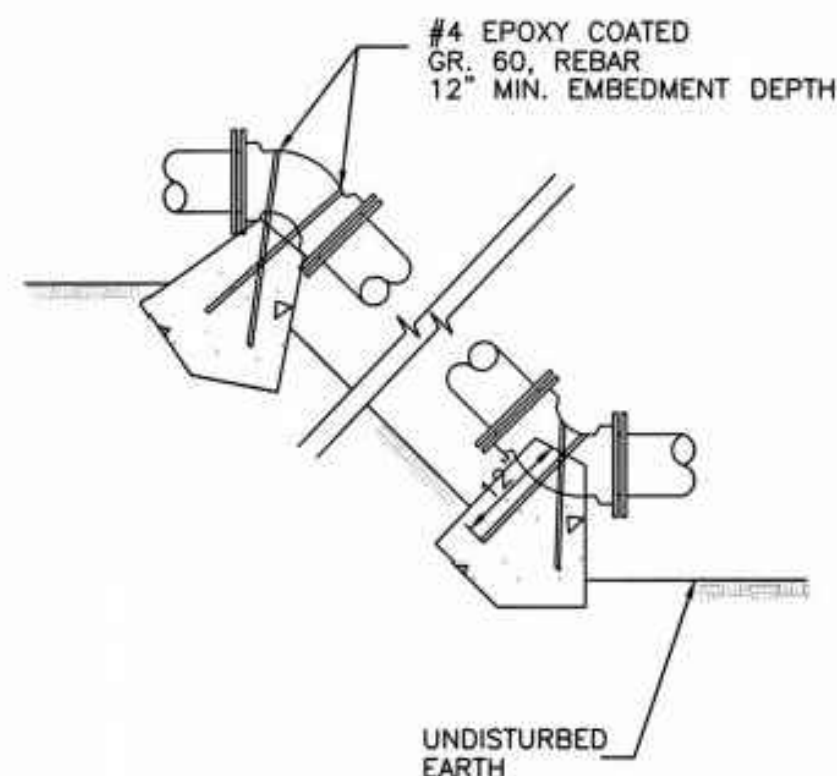


NO SCALE

VERTICAL (UPWARD) CONCRETE THRUST BLOCKING					
Working Pressure	150	psi			
Surge Allowance	100	psi			
Design Pressure	250	psi			
Conc. Unit Weight	140	pcf			
Safety Factor	1.0				
Min. Block Size	4.0	cf			
Max. Block Size	216.0	cf			

Concrete Volume (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

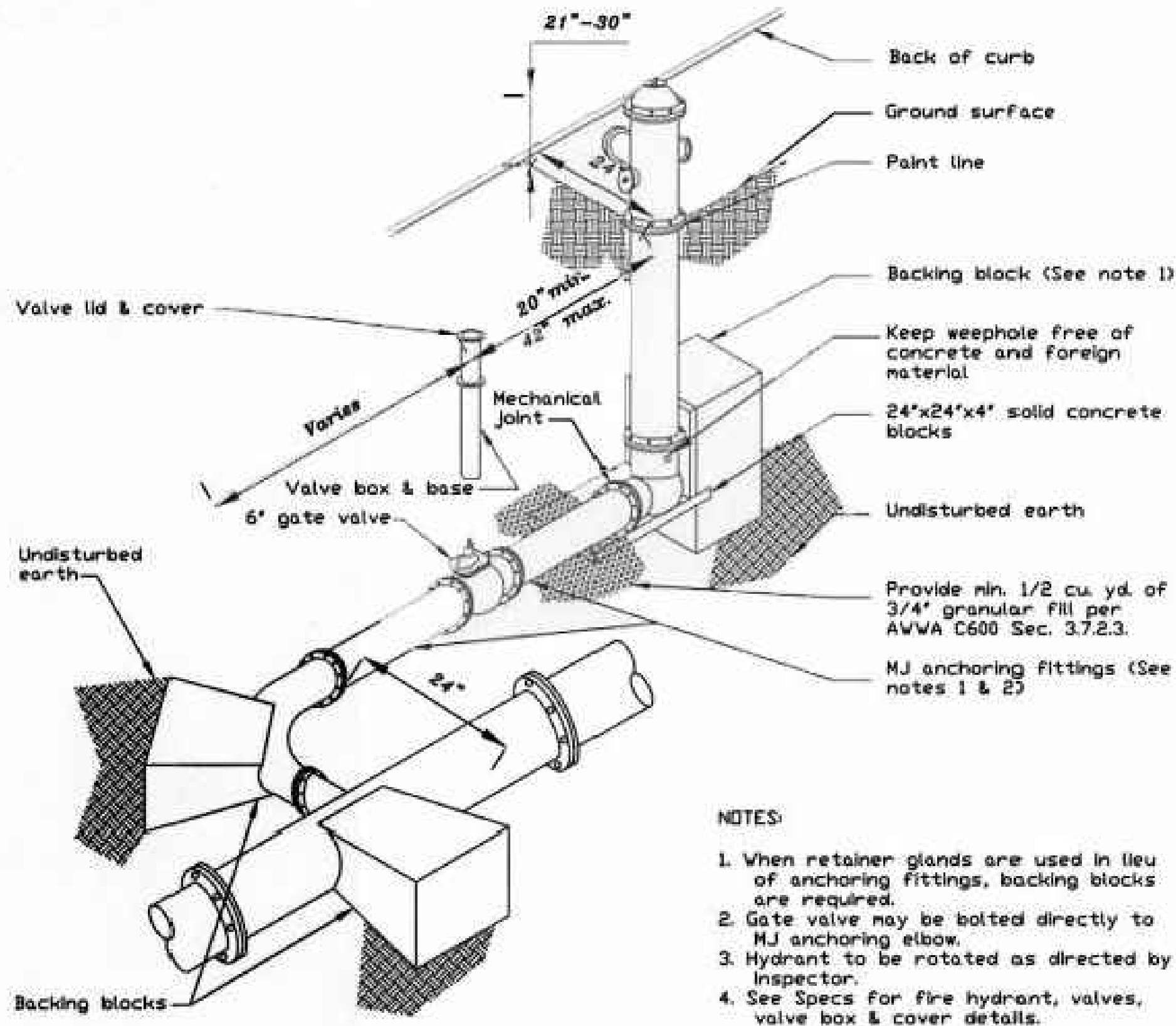
ALL BENDS WITHOUT RESTRAINED JOINTS SHALL HAVE CONCRETE THRUST BLOCKS INSTALLED FOR RESTRAINT. MEGA LUGS MAY BE USED ONLY IN CONJUNCTION WITH CONCRETE THRUST BLOCKING.



NO SCALE

THRUST BLOCK DETAILS

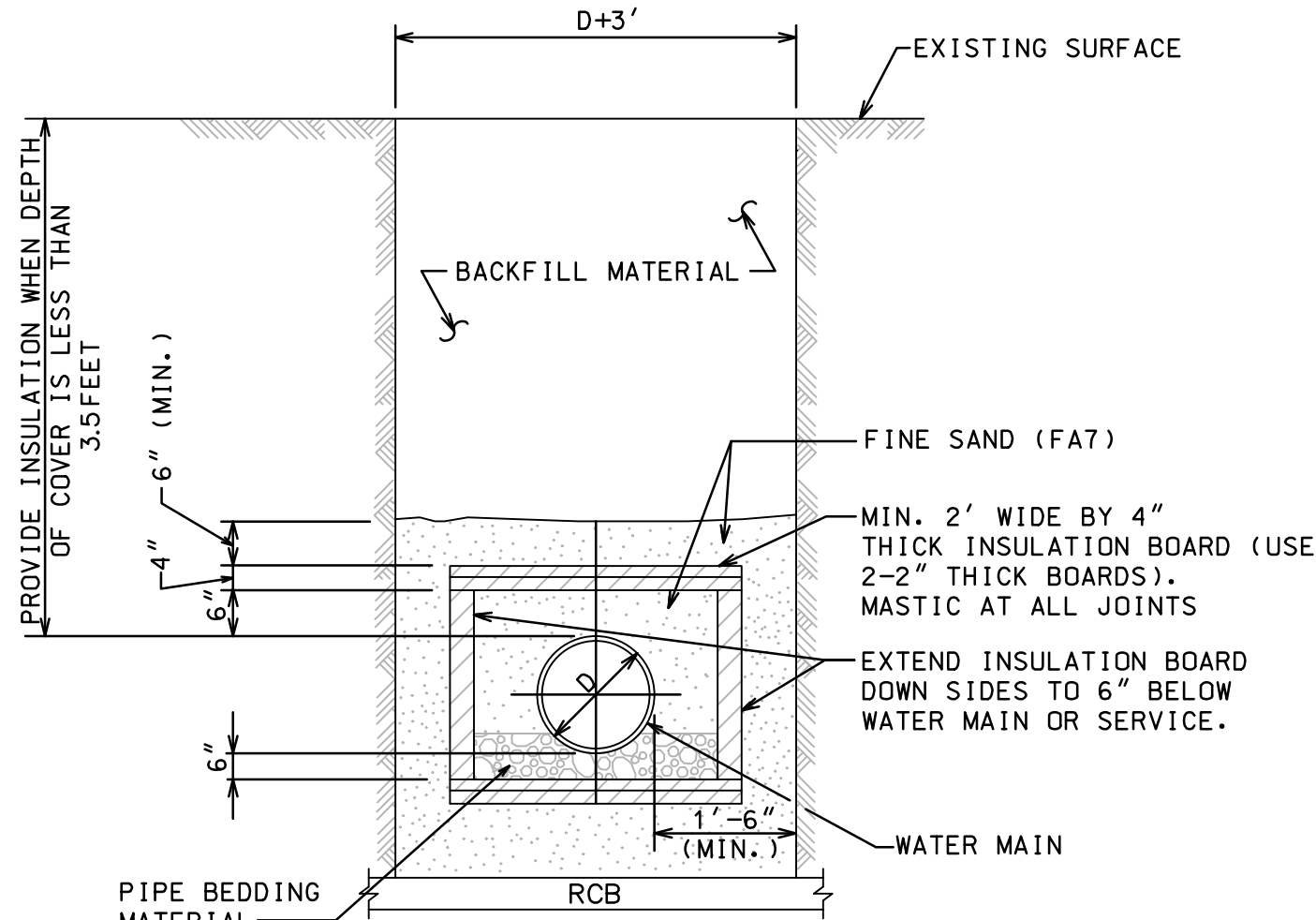
N.T.S.



Not to scale

FIRE HYDRANT DETAIL

N.T.S.

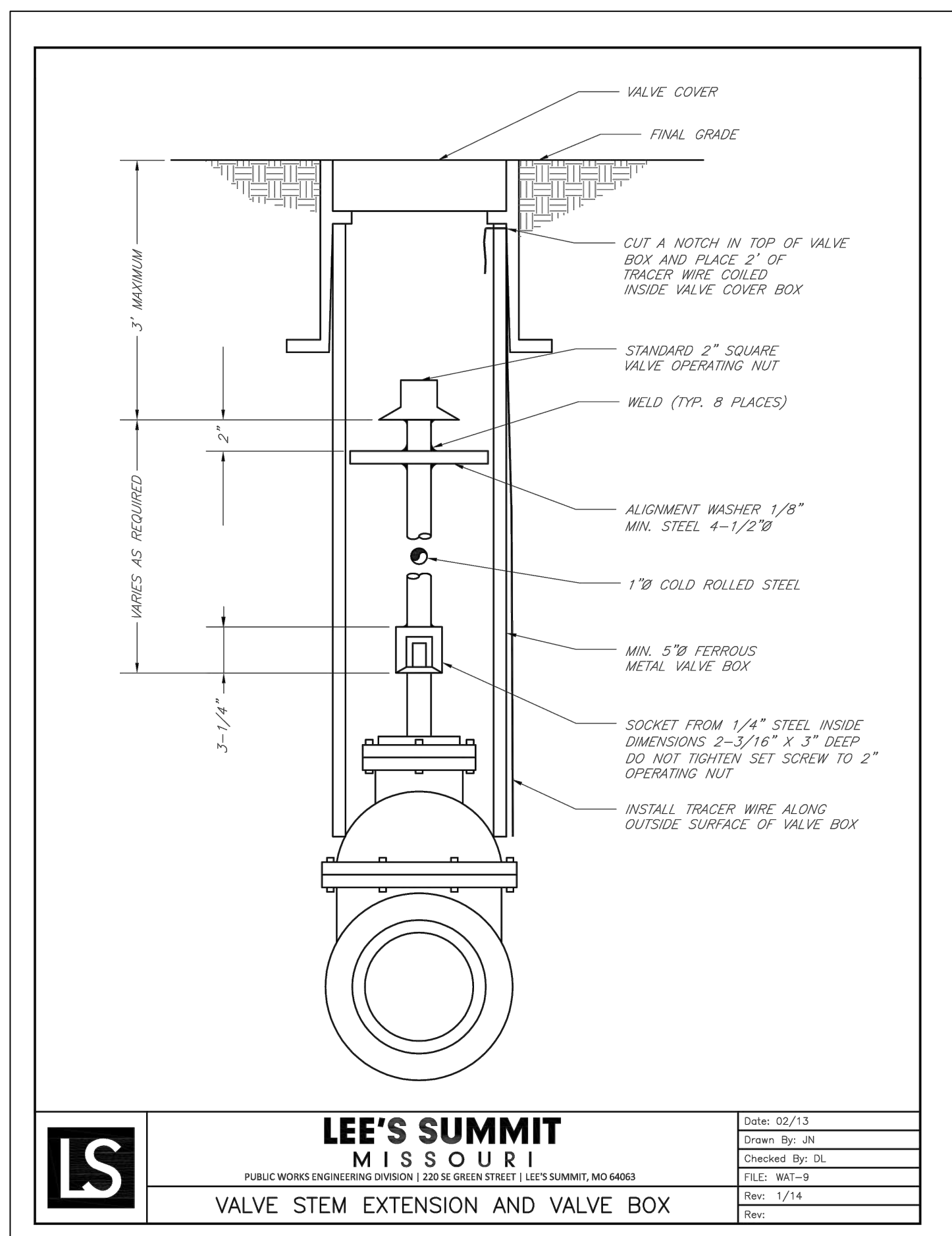


HARDBOARD INSULATION

N.T.S.

- NOTES:
- INSULATION BOARD TO BE CLOSED CELL, EXTRUDED POLYSTYRENE FOAM MEETING ASTM 578, TYPE VI, 40 PSI COMPRESSING STRENGTH (ASTM D1621) 0.1% MAX. WATER ABSORPTION (ASTM C272).
 - BACKFILL MATERIAL AROUND INSULATION MUST BE FINE SAND FREE FROM ROOTS, ORGANIC MATTER, OR OTHER INJURIOUS MATERIALS.
 - OVERLAP ALL INSULATION BOARD JOINTS.

Record Drawing



BY		REVISIONS DESCRIPTION		DATE	NO. REV.
MGD		Insulation detail added		11-20-2017	2

11 WATER DETAILS		2018	
HAWTHORN RIDGE 1ST PLAT		LEE'S SUMMIT, MO	
drawn by:	DAHQ	checked by:	M.G.D.
designed by:	E.M.D.	QA/QC by:	K.S.J.
project no.:	017-0188	date:	03.03.2017
SHEET		11	