

STATEMENT OF ESTIMATED QUANTITIES						
TAB	SHEET	ITEM NO.	ITEM DESCRIPTION	UNIT	NOTES	TOTAL ESTIMATED QUANTITY
		2021.501	MOBILIZATION	LUMP SUM		1
		2031.602	COMBINATION FIELD LABORATORY-OFFICE	EACH	(1)	1
		2051.501	MAINT & RESTORATION OF HAUL ROADS	LUMP SUM		1
B	9	2101.501	CLEARING	ACRE		1.0
B	9	2101.502	CLEARING	TREE		26
B	9	2101.506	GRUBBING	ACRE		1.0
B	9	2101.507	GRUBBING	TREE		26
N	139	2102.502	PAVEMENT MARKING REMOVAL	LIN FT		6200
H	13	2104.501	REMOVE PIPE CULVERTS	LIN FT		86
	17	2104.501	REMOVE WATER MAIN	LIN FT	(A)	645
G	11-12	2104.501	REMOVE SEWER PIPE (STORM)	LIN FT		1242
B	9	2104.501	REMOVE CURB	LIN FT		2892
B	9	2104.501	REMOVE CURB & GUTTER	LIN FT		1948
	17	2104.501	REMOVE WATER SERVICE PIPE	LIN FT	(A)	36
	17	2104.501	REMOVE FORCE MAIN	LIN FT	(A)	543
B	9	2104.503	REMOVE CONCRETE SIDEWALK	SQ FT		8838
B	9	2104.505	REMOVE PAVEMENT	SQ YD		16336
B	9	2104.505	REMOVE CONCRETE PAVEMENT	SQ YD		10
B	9, 17	2104.505	REMOVE BITUMINOUS PAVEMENT	SQ YD	(B)	7768
G	11-12	2104.507	REMOVE RIPRAP	CU YD		24
B	9	2104.507	REMOVE GROUTED RIPRAP	CU YD		110
G	11-12	2104.509	REMOVE PIPE APRON	EACH		9
B	9	2104.509	REMOVE STAIRS	EACH		1
	17	2104.509	REMOVE GATE VALVE	EACH	(A)	6
G	11-12	2104.509	REMOVE DRAINAGE STRUCTURE	EACH		13
M	117	2104.509	REMOVE SIGN TYPE C	EACH		61
M	117	2104.509	REMOVE SIGN TYPE D	EACH		5
B	9	2104.511	SAWING CONCRETE PAVEMENT (FULL DEPTH)	LIN FT		38
B	9	2104.513	SAWING BIT PAVEMENT (FULL DEPTH)	LIN FT		2459
C	9	2104.521	SALVAGE TEMP PRECAST CONCRETE BARRIER	LIN FT		309
C	9	2104.521	SALVAGE GUARDRAIL-PLATE BEAM	LIN FT		125
	17	2104.523	SALVAGE HYDRANT & VALVE	EACH	(A)	3
C	9	2104.523	SALVAGE ENERGY ABSORBING TERMINAL	EACH		1
M	117	2104.523	SALVAGE SIGN TYPE C	EACH		4
M	117	2104.523	SALVAGE SIGN TYPE SPECIAL	EACH		3
	45	2104.601	REMOVE DEBRIS CATCHER	LUMP SUM		1
		2104.601	HAUL SALVAGED MATERIAL	LUMP SUM	(2)	1
F	10	2105.604	GEOTEXTILE FABRIC SPECIAL	SQ YD		1554
G	11-12	2105.604	GEOTEXTILE FABRIC TYPE V	SQ YD		23

(P) DENOTES A PLAN QUANTITY ITEM

(1) WITH TYPE D SERVICE (BROADBAND)

(2) HAUL SALVAGED CONCRETE BARRIER, GUARDRAIL, AND TERMINAL TO THOMPSON HILL MAINTENANCE FACILITY IN DULUTH

Agreement #1027177

Exhibit A

DESIGNED BY:	WDJ	I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.  CERTIFIED BY: <u>Nicole Gulick</u> LIC NO: <b>45642</b> Licensed Professional Engineer PRINTED NAME: <b>NICOLE GULICK, P.E.</b> DATE: <b>11/30/2016</b>
DRAWN BY:	RJM	
CHECKED BY:	NMG	



MINNESOTA DEPARTMENT  
OF TRANSPORTATION  
TH 23 MISSION CREEK

STATE PROJ. NO. 6910-92 (TH 23)

ESTIMATED QUANTITIES

EST01

OF EST02

5 / 165

STATEMENT OF ESTIMATED QUANTITIES						
TAB	SHEET	ITEM NO.	ITEM DESCRIPTION	UNIT	NOTES	TOTAL ESTIMATED QUANTITY
J	14	2106.501	EXCAVATION - COMMON (P)	CU YD		28814
J	14	2106.522	SELECT GRANULAR EMBANKMENT (CV) (P)	CU YD		10979
J	14	2106.522	SELECT GRANULAR EMBANKMENT MOD 10% (CV) (P)	CU YD		870
J	14	2106.523	COMMON EMBANKMENT (CV) (P)	CU YD		10366
A	9	2112.604	SHOULDER PREPARATION	SQ YD		182
A	9	2118.607	AGGREGATE SURFACING (CV) CLASS 6	CU YD		258
A	9,17	2211.503	AGGREGATE BASE (CV) CLASS 6	CU YD	(C)	3396
B	9	2232.501	MILL BITUMINOUS SURFACE (3.0")	SQ YD		7376
A	9	2301.504	CONCRETE PAVEMENT 8.0"	SQ YD		39
A	9	2301.541	INTEGRANT CURB DESIGN B6	LIN FT		62
A	9	2331.603	JOINT ADHESIVE	LIN FT		14294
A	9	2357.606	BITUMINOUS MATERIAL FOR SHOULDER TACK	GALLON		426
	17	2360.501	TYPE SP 9.5 WEARING COURSE MIX (3,C)	TON	(A)	28
A	9	2360.503	TYPE SP 9.5 WEAR CRS MIX(3,C) 1.5" THICK (P)	SQ YD		8276
A	9	2360.503	TYPE SP 9.5 WEAR CRS MIX(4,C) 1.5" THICK (P)	SQ YD		18644
A	9	2360.503	TYPE SP 9.5 WEAR CRS MIX(4,C) 2.0" THICK (P)	SQ YD		20370
A	9	2360.503	TYPE SP 12.5 WEAR CRS MIX(4,C)1.5" THICK (P)	SQ YD		9322
D	9	2406.531	EXPANSION JOINTS, DESIGN E8H	LIN FT		104
D	9	2406.553	BRIDGE APPROACH PANELS	SQ YD		228
G	11-12	2451.514	FINE AGGREGATE BEDDING (CV)	CU YD		213
G	11-12	2501.511	12" RC PIPE APRON	EACH		2
G	11-12	2501.511	18" RC PIPE APRON	EACH		2
H	13	2501.515	24" RC PIPE APRON	EACH		2
H	13	2501.515	36" RC PIPE APRON	EACH		2
H	13	2501.515	24" RC PIPE CULVERT CLASS III	LIN FT		48
H	13	2501.515	36" RC PIPE CULVERT CLASS III	LIN FT		44
I	13	2502.501	4" PRECAST CONCRETE HEADWALL	EACH		3
I	13	2502.521	4" TP PIPE DRAIN	LIN FT		55
I	13	2502.541	4" PERF PE PIPE DRAIN	LIN FT		2204
G	11-12	2503.511	12" RC PIPE SEWER CLASS V	LIN FT		353
G	11-12	2503.511	18" RC PIPE SEWER CLASS V	LIN FT		108
	17	2503.602	CONNECT TO EXISTING FORCE MAIN	EACH	(A)	2
	17	2503.603	2" HDPE FORCEMAIN	LIN FT	(A)	5
	17	2503.603	1.5" HDPE FORCEMAIN	LIN FT	(A)	405
	17	2503.603	6" HDPE PIPE SEWER	LIN FT	(A)	70
	17	2503.604	3" INSULATION	SQ YD	(A)	8

- (A) 100% CITY OF DULUTH FUNDS  
SEE UTILITY AGREEMENT #1027177
- (B) 125 SQ YD TO BE PAID FOR WITH 100% CITY OF DULUTH FUNDS  
SEE UTILITY AGREEMENT #1027177
- (C) 42 CU YD TO BE PAID FOR WITH 100% CITY OF DULUTH FUNDS  
SEE UTILITY AGREEMENT #1027177

DISTRICT #:

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STATEMENT OF ESTIMATED QUANTITIES						
TAB	SHEET	ITEM NO.	ITEM DESCRIPTION	UNIT	NOTES	TOTAL ESTIMATED QUANTITY
	17	2504.602	CONNECT TO EXISTING WATER MAIN	EACH	(A)	6
	17	2504.602	CONNECT TO EXISTING WATER SERVICE	EACH	(A)	3
	17	2504.602	HYDRANT	EACH	(A)	3
	17	2504.602	INSTALL 1.25" BLOWOFF	EACH	(A)	2
K	15-16	2504.602	ADJUST GATE VALVE & BOX	EACH	(A)	9
	17	2504.602	0.75" CORPORATION STOP	EACH	(A)	3
	17	2504.602	0.75" SADDLE	EACH	(A)	3
	17	2504.602	6" GATE VALVE	EACH	(A)	4
	17	2504.602	8" GATE VALVE	EACH	(A)	2
	17	2504.603	3/4" TYPE K COPPER PIPE	LIN FT	(A)	17
	17	2504.603	6" WATERMAIN DUCTILE IRON CL 52	LIN FT	(A)	22
	17	2504.603	6" WATERMAIN HDPE	LIN FT	(A)	410
	17	2504.603	8" WATERMAIN HDPE	LIN FT	(A)	192
	17	2504.603	8" WATERMAIN HDPE (DIRECTIONAL DRILLED)	LIN FT	(A)	184
	17	2504.603	16" WATERMAIN HDPE	LIN FT	(A)	200
G	11-12	2506.501	CONST DRAINAGE STRUCTURE DESIGN F	LIN FT		16
G	11-12	2506.501	CONST DRAINAGE STRUCTURE DESIGN N	LIN FT		11
G	11-12	2506.602	ADJUST FRAME & RING CASTING	EACH		6
G	11-12	2506.602	CONNECT INTO EXSTING DRAINAGE STRUCTURE	EACH	(3)	1
F	10	2511.501	RANDOM RIPRAP CLASS III	CU YD		29
F	10	2511.511	GRANULAR FILTER	CU YD		313
F	10	2511.515	GEOTEXTILE FILTER TYPE IV	SQ YD		114
F	10	2511.607	RANDOM RIPRAP SPECIAL	CU YD		1672
A	9	2521.501	4" CONCRETE WALK	SQ FT		2815
A	9	2521.501	6" CONCRETE WALK	SQ FT		1285
A	9	2531.501	CONCRETE CURB & GUTTER DESIGN B624	LIN FT		1908
A	9	2531.502	CONCRETE CURB DESIGN B6	LIN FT		152
A	9	2531.507	6" CONCRETE DRIVEWAY PAVEMENT	SQ YD		79
A	9	2531.618	TRUNCATED DOMES	SQ FT		240
N	139	2533.507	PORTABLE PRECAST CONC BARRIER DES 8337	LIN FT		530
A	9	2540.602	RELOCATE MAIL BOX SUPPORT	EACH		6
E	11-12	2554.602	GUIDE POST TYPE SPECIAL	EACH		5
N	139	2554.615	IMPACT ATTENUATOR	ASSEMBLY		4
N	139	2563.601	TRAFFIC CONTROL	LUMP SUM		1
N	139	2563.602	RAISED PAVEMENT MARKER TEMPORARY	EACH		1928
N	139	2563.602	PORTABLE CONCRETE BARRIER DELINEATOR	EACH		18
M	117	2564.531	SIGN PANELS TYPE C	SQ FT		215
M	117	2564.531	SIGN PANELS TYPE D	SQ FT		117
M	117	2564.531	SIGN PANELS TYPE OVERLAY	SQ FT		2
M	117	2564.537	INSTALL SIGN TYPE C	EACH		4
M	117	2564.551	REFERENCE LOCATION SIGN	EACH		2
M	117	2564.552	OBJECT MARKER TYPE X4-4	EACH		2
M	117	2564.602	INSTALL SIGN TYPE SPECIAL	EACH		3

- (3) TO BE USED TO PLACE A NEW PIPE IN THE STRUCTURE OPENING LEFT BY REMOVING ANOTHER PIPE OF THE SAME SIZE
- (4) MUST BE OPTIONAL METHOD WITH COARSE FILTER AGGREGATE. SEE STANDARD PLAN 5-297.406
- (5) INTERIM PAVEMENT MARKING FOR TRAFFIC CONTROL

STATEMENT OF ESTIMATED QUANTITIES						
TAB	SHEET	ITEM NO.	ITEM DESCRIPTION	UNIT	NOTES	TOTAL ESTIMATED QUANTITY
F	10	2572.501	TEMPORARY FENCE	LIN FT		1750
F	10	2573.502	SILT FENCE, TYPE HI	LIN FT	(4)	436
F	10	2573.502	SILT FENCE, TYPE MS	LIN FT		3142
F	10	2573.530	STORM DRAIN INLET PROTECTION	EACH		13
F	10	2573.533	SEDIMENT CONTROL LOG TYPE WOOD FIBER	LIN FT		424
F	10	2573.560	CULVERT END CONTROLS	EACH		8
E,F	10	2574.508	FERTILIZER TYPE 1	POUND		2036
E	10	2574.508	FERTILIZER TYPE 3	POUND		1123
E	10	2574.508	FERTILIZER TYPE 4	POUND		114
E	10	2574.578	SOIL BED PREPARATION	ACRE		6.5
E	10	2575.501	SEEDING	ACRE		6.5
F	10	2575.502	SEED MIXTURE 21-111	POUND		1231
E	10	2575.502	SEED MIXTURE 25-151	POUND		360
E	10	2575.502	SEED MIXTURE 36-311	POUND		120
E,F	10	2575.511	MULCH MATERIAL TYPE 3	TON		28.00
F	10	2575.518	TEMPORARY POLY COVERING	SQ YD		4672
E,F	10	2575.519	DISK ANCHORING	ACRE		12.65
E	10	2575.523	EROSION CONTROL BLANKETS CATEGORY 3N	SQ YD		3872
F	10	2575.545	WEED SPRAYING	ACRE		7
F	10	2575.547	WEED SPRAY MIXTURE	GALLON		4
N	139	2581.501	REMOVABLE PREFORM PAVEMENT MARKING TAPE	LIN FT		27971
N	139	2581.603	REMOVABLE PREFORMED PLASTIC MASK (BLACK)	LIN FT		6570
L	117	2582.501	PAVT MSSG PREF THERMO GR IN	SQ FT		75
N	139	2582.502	4" SOLID LINE PAINT	LIN FT	(5)	9466
N	139	2582.502	4" DBLE SOLID LINE PAINT	LIN FT	(5)	4145
L	117	2582.502	4" SOLID LINE EPOXY GR IN (WR)	LIN FT		9172
L	117	2582.502	4" DOTTED LINE EPOXY GR IN (WR)	LIN FT		70
L	117	2582.502	4" DBLE SOLID LINE EPOXY GR IN (WR)	LIN FT		5055
L	117	2582.502	12" SOLID LINE PREF THERMO GR IN	LIN FT		70
L	117	2582.502	24" SOLID LINE PREF THERMO GR IN	LIN FT		118
L	117	2582.503	CROSSWALK PREF THERMO GR IN	SQ FT		972

Agreement #1027177

Exhibit A

(A) 100% CITY OF DULUTH FUNDS

SEE UTILITY AGREEMENT #1027177

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DRAWN BY:	RJM	
CHECKED BY:	NMG	

Kimley»Horn

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MINNESOTA DEPARTMENT

OF TRANSPORTATION

TH 23 MISSION CREEK

ESTIMATED QUANTITIES		EST02
STATE PROJ. NO. 6910-92 (TH 23)		OF EST02
		6 / 165

DISTRICT #:

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12/5/2016

UTILITIES							K	
Station	Location	Item In Place	Owner	Relocate	Adjust	Leave	Remarks	
BASED ON TH-23 ALIGNMENT								
104+71	100'LT	WVALV	1			x		
104+77	34'LT	WVALV	1		x		①	
105+90	61'RT	WVALV	1			x		
107+00	73'RT	HYD	1			x		
107+07	72'RT	WVALV	1			x		
107+06 - 108+63	72'RT - 86'RT	WAT	1			x	6" D.I. WATER	
107+21	125'RT	WVALV	1			x		
108+56	86'RT	WVALV	1			x		
108+63 - 113+75	86'RT - 82'RT	WAT	1			x	6" D.I. WATER	
109+42 - 113+94	211'LT - 158'LT	WAT	1			x		
109+74	116'RT	WVALV	1			x		
109+76	31'RT	WVALV	1		x		①	
113+75 - 113+75	82'RT - 46'RT	WAT	1			x		
113+75 - 114+03	82'RT - 81'RT	WAT	1			x	6" D.I. WATER	
113+75 - 117+92	46'RT - 48'RT	WAT	1			x	6" CAST IRON WATER	
117+92 - 118+45	46'RT - 48'RT	WAT	1	x			6" CAST IRON WATER ①	
113+83	45'RT	WVALV	1		x		①	
113+87	83'RT	WVALV	1		x		①	
113+93	20'RT	WVALV	1	x			①	
113+93 - 113+93	45'RT - 20'RT	WAT	1			x		
113+93 - 113+93	20'RT - 207'LT	WAT	1	x			TH_23 CL CROSSING 113+93 113_AVE CL CROSSING 0+98 ①	
113+93	207'LT	HYD	1	x			①	
113+93	207'LT	WVALV	1	x			①	
114+03 - 114+52	81'RT - 113'RT	WAT	1			x		
114+52	116'RT	WVALV	1			x		
114+53	32'RT	HYD	1	x			①	
114+53	32'RT	WVALV	1	x			①	
118+40	47'RT	WVALV	1	x			①	
118+45 - 118+69	48'RT - 101'RT	WAT	1	x			6" CAST IRON WATER, FOR BRIDGE REMOVAL ①	
118+69 - 119+57	101'RT - 99'RT	WAT	1	x			6" CAST IRON WATER ①	
119+38	102'RT	WVALV	1	x			①	
119+57 - 119+76	99'RT - 44'RT	WAT	1	x			6" CAST IRON WATER, FOR BRIDGE REMOVAL ①	
119+76 - 120+04	44'RT - 44'RT	WAT	1	x			6" CAST IRON WATER ①	
120+04 - 124+05	44'RT - 44'RT	WAT	1			x	6" CAST IRON WATER	
119+84	43'RT	WVALV	1	x			①	
123+66	38'RT	WVALV	1	x			①	
123+66	38'RT	HYD	1	x			①	
123+98	43'RT	WVALV	1		x		①	
124+02	581'RT - 896'LT	WAT	1			x	CL CROSSING 124+04, 8"DUCTILE WATER	
124+01	77'RT	WVALV	1		x		①	
124+02	90'RT	WVALV	1		x		①	
124+14	79'RT	WVALV	1		x		①	

Agreement #1027177

Exhibit A

UTILITIES							K	
Station	Location	Item In Place	Owner	Relocate	Adjust	Leave	Remarks	
BASED ON TH-23 ALIGNMENT								
139+60 - 145+22	215'LT - 77'LT	WAT	1			x		
144+40 - 144+44	78'LT - 140'LT	WAT	1			x		
145+22 - 147+30	77'LT - 35'LT	WAT	1			x		
147+30 - 147+80	35' LT - 36'LT	WAT	1			x		
105+63 - 107+76	103'LT - 189'RT	SAN	1			x	CL CROSSING 106+74 , 1.5" FORCED SEWER	
107+76 - 111+84	189'RT - 156'LT	SAN	1			x	2" FORCEMAIN SEWER	
111+84 - 114+02	156'LT - 231'RT	SAN	1	x			2" FORCEMAIN SEWER ①	
109+41 - 118+43	230'LT - 145'LT	SAN	1			x	2" FORCEMAIN SEWER	
114+01 - 114+03	111'RT - 320'RT	SAN	1			x	2" FORCEMAIN SEWER	
114+01 - 118+38	111'RT - 109'RT	SAN	1			x	CROSSES 133RD AVE. W. , DRIVEWAYS AT 115+70, AND 116+65	
118+38 - 118+43	109'RT- 145'LT	SAN	1			x	CL CROSSING 118+39, 2" FORCEMAIN, 5' FILL	
123+74 - 123+76	328'RT - 206'LT	SAN	1			x	CL CROSSING 123+75, 3" FORCEMAIN	
128+53 - 128+55	148'RT - 330'RT	SAN	1			x	2" FORCEMAIN	
100+02	27'LT	LP	2			x		
104+09	43'RT	LP	2			x		
105+38	38'LT	LP	2			x		
106+97	37'LT	LP	2	x				
109+17	87'RT	LP	2	x				
110+82	26'LT	LP	2	x				
113+97	87'RT	LP	2	x				
118+63	95'RT	LP	2	x				
127+35	23'LT	LP	2			x		
133+81	65'RT	LP	2	x				
135+78	32'LT	LP	2			x		
100+02	23'RT	PED						
108+43 - 108+82	143'RT - 100'RT	GAS	1			x	2" PE GAS	
108+80 - 114+65	90' RT - 87'RT	GAS	1			x	2" PE GAS	
111+32 - 111+43	89'RT - 135'RT	GAS	1			x	2" PE GAS	
113+41 - 113+50	89'RT - 122'RT	GAS	1			x	2" PE GAS	
114+59 - 114+61	90'RT - 347'RT	GAS	1			x	2" PE GAS	
114+59 - 118+51	90'RT - 90'RT	GAS	1			x	2" PE GAS	
116+23 - 116+27	89'RT - 145'RT	GAS	1			x	2" PE GAS	
118+29 - 118+35	31'LT - 89'RT	GAS	1			x	CL CROSSING 118+30, 2" PE GAS, 5 FT FILL	
118+50 - 118+51	154'RT - 90'RT	GAS	1			x	2" PE GAS	
118+29 - 119+75	31'LT - 30'LT	GAS	1	x			CL_STREAM CROSSING 507+98, 2" PE GAS ②	
119+75 - 124+13	30'LT - 31'LT	GAS	1			x	2" PE GAS	
124+11 - 124+12	378'RT - 252'LT	GAS	1	x			CL CROSSING 124+13,2" PE GAS ②	
124+12	32'LT	GAVALV	1		x		①	

ABBREVIATIONS		
WVALV	=	WATER VALVE
WAT	=	WATER
HYD	=	HYDRANT
SAN	=	SANITARY SEWER
LP	=	LIGHT POLE
PED	=	PEDESTAL
P-POLE	=	POWER POLE
OHP	=	OVERHEAD POWER
OHU	=	OVERHEAD UTILITY
T-BUR	=	TELEPHONE
GAS	=	GAS
GAVALV	=	GAS VALVE

OWNERSHIP
1. CITY OF DULUTH
2. MN POWER
3. CENTURYLINK
4. CHARTER COMMUNICATION

GENERAL NOTES:

THE SUBSURFACE UTILITY INFORMATION IN THIS PLAN IS UTILITY QUALITY LEVEL D. THIS UTILITY QUALITY LEVEL WAS DETERMINED ACCORDING TO THE GUIDELINES OF CI/ASCE 38-02, ENTITLED STANDARD GUIDELINES FOR THE COLLECTION AND DEPICTION OF EXISTING SUBSURFACE UTILITY DATA.

ALL OVERHEAD AND UNDERGROUND POWER IS DISTRIBUTION, UNLESS OTHERWISE NOTED

THE NECESSARY REARRANGEMENT OF UTILITIES SHALL BE DONE BY OTHERS UNLESS OTHERWISE NOTED.

- ① CITY OF DULUTH WORK INCLUDED IN THIS PLAN SET SHALL BE COMPLETED BY THE CONTRACTOR AS PART OF THE PROJECT. SEE UTILITY AGREEMENT # -----
- ② WORK TO BE COMPLETED BY OTHERS BEFORE CONSTRUCTION

DESIGNED BY:	WDJ	<div>I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.  CERTIFIED BY: <i>Nicole Gulick</i> LIC NO: 45642 Licensed Professional Engineer PRINTED NAME: NICOLE GULICK, P.E. DATE: 11/30/2016</div>
DRAWN BY:	RJM	
CHECKED BY:	NMG	

Kimley»Horn

2550 UNIVERSITY AVENUE WEST, SUITE 238N  
SAINT PAUL, MINNESOTA 55114  
Ph: 651-645-4197 www.kimley-horn.com

MINNESOTA DEPARTMENT  
OF TRANSPORTATION  
TH 23 MISSION CREEK

UTILITY TABULATION

STATE PROJ. NO. 6910-92 (TH 23)

DISTRICT #: 1  
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UTILITY REMOVALS							
STATION	LOCATION	2104					
		REMOVE WATER MAIN	REMOVE WATER SERVICE PIPE	REMOVE FORCE MAIN	REMOVE BITUMINOUS PAVEMENT	REMOVE GATE VALVE	SALVAGE HYDRANT & VALVE
		LIN FT	LIN FT	LIN FT	SQ YD	EACH	EACH
SP. 6910-92							
100% CITY OF DULUTH							
TH 23							
STA 109+40 TO STA 109+57	168' LT TO 220' LT						
STA 109+42 TO STA 109+89	204' LT TO 226' LT	57	36		125		
STA 109+89 TO STA 113+54	204' LT TO 163' LT						
STA 111+84 TO STA 114+70	156' LT TO 117' LT			288			
STA 113+54 TO STA 113+94	163' LT TO 33' RT	231					
STA 113+54	163' LT					1	
STA 113+94	138' LT					1	
STA 113+94	158' LT						1
STA 113+94	20' RT					1	
STA 114+55	31' RT						1
STA 114+55	31' RT	14					
STA 114+70 TO STA 118+01	117' LT TO 150' LT						
STA 117+80 TO STA 120+28	44' RT TO 101' RT	332					
STA 118+01 TO STA 118+38	150' LT TO 81' RT			255			
STA 118+40	47' RT					1	
STA 119+38	101' RT					1	
STA 119+84	44' RT					1	
STA 123+66	34' RT						1
STA 123+66	34' RT	11					
TOTALS:		645	36	543	125	6	3

NOTE: DELIVER ALL SALVAGED HYDRANT & VALVES TO CITY OF DULUTH AS DIRECTED BY THE ENGINEER.

PROPOSED SANITARY SEWER						
STATION	LOCATION	2503				2504
		CONNECT TO EXISTING FORCE MAIN	1.5" HDPE FORCEMAIN	2" HDPE FORCEMAIN	6" HDPE PIPE SEWER ①	3" POLYSTYRENE INSULATION
		EACH	LIN FT	LIN FT	LIN FT	SQ YD
SP. 6910-92						
100% CITY OF DULUTH						
TH 23						
STA 111+84	156' LT	1				
STA 111+84 TO STA 114+25	156' LT TO 88' RT		405			
STA 114+25	40' LT					8
STA 114+25	26' LT TO 44' RT				70	
STA 114+25	88' RT TO 94' RT			5		
STA 114+25	94' RT	1				
TOTALS:		2	405	5	70	8

① TO BE USED FOR A CASING PIPE

PROPOSED WATER MAIN																	
STATION	LOCATION	2211	2360	2504													
		AGGREGATE BASE (CV) CLASS 6	TYPE SP 9.5 WEARING COURSE MIX (3,C) (SPWEA340C)	CONNECT TO EXISTING WATER MAIN	CONNECT TO EXISTING WATER SERVICE	INSTALL 1.25" BLOWOFF	0.75" SADDLE	0.75" CORPORATION STOP	HYDRANT	6" GATE VALVE	8" GATE VALVE	6" WATERMAIN DUCTILE IRON CL 52	6" WATERMAIN HDPE	8" WATERMAIN HDPE	8" WATERMAIN HDPE (DIRECTIONAL DRILLED)	16" WATERMAIN HDPE ①	3/4" TYPE K COPPER PIPE
		CU YD	TON	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	LIN FT	LIN FT	LIN FT	LIN FT	LIN FT	LIN FT
SP. 6910-92																	
100% CITY OF DULUTH																	
TH 23																	
STA 109+38	226' LT								1	1			6				
STA 109+42 TO STA 109+79	226' LT	42	28		2		2	2					48				
STA 109+44	210' LT TO 226' LT				1		1	1									17
STA 109+79	226' LT TO 82' RT												356				
STA 109+79	43' LT TO 27' RT															70	
STA 109+79	82' RT									1							
STA 109+79	82' RT TO 87' RT											2					
STA 109+79	87' RT			2								4					
STA 114+54	42' RT			1					1	1		6					
STA 117+92	47' RT			1							1						
STA 117+90 TO STA 117+92	47' RT											2					
STA 117+92 TO STA 118+12	35' LT TO 47' RT													98			
STA 118+12	26' LT TO 39' RT															65	
STA 118+12	42' RT					1											
STA 118+12 TO STA 119+96	35' LT														184		
STA 119+96 TO STA 120+16	35' LT TO 44' RT													94			
STA 119+96	26' LT TO 39' RT															65	
STA 119+96	39' RT					1											
STA 120+16 TO STA 120+18	44' RT											2					
STA 120+18	44' RT			1							1						
STA 123+66	36' RT			1					1	1		6					
TOTALS:		42	28	6	3	2	3	3	3	4	2	22	410	192	184	200	17

NOTE: ALL NECESSARY FITTINGS, APPURTENANCES, CLEARING & GRUBBING, REMOVALS AND RESTORATION NECESSARY FOR INSTALLATION INCLUDED IN PAYMENT FOR WATERMAIN. RESTORATION INCLUDES BUT IS NOT LIMITED TO PLACEMENT OF TOPSOIL AND SEEDING. CONTRACTOR SHALL COORDINATE WITH CITY OF DULUTH REGARDING CONSTRUCTION METHODS, LIMITS AND IMPACTS.

① TO BE USED FOR A CASING PIPE

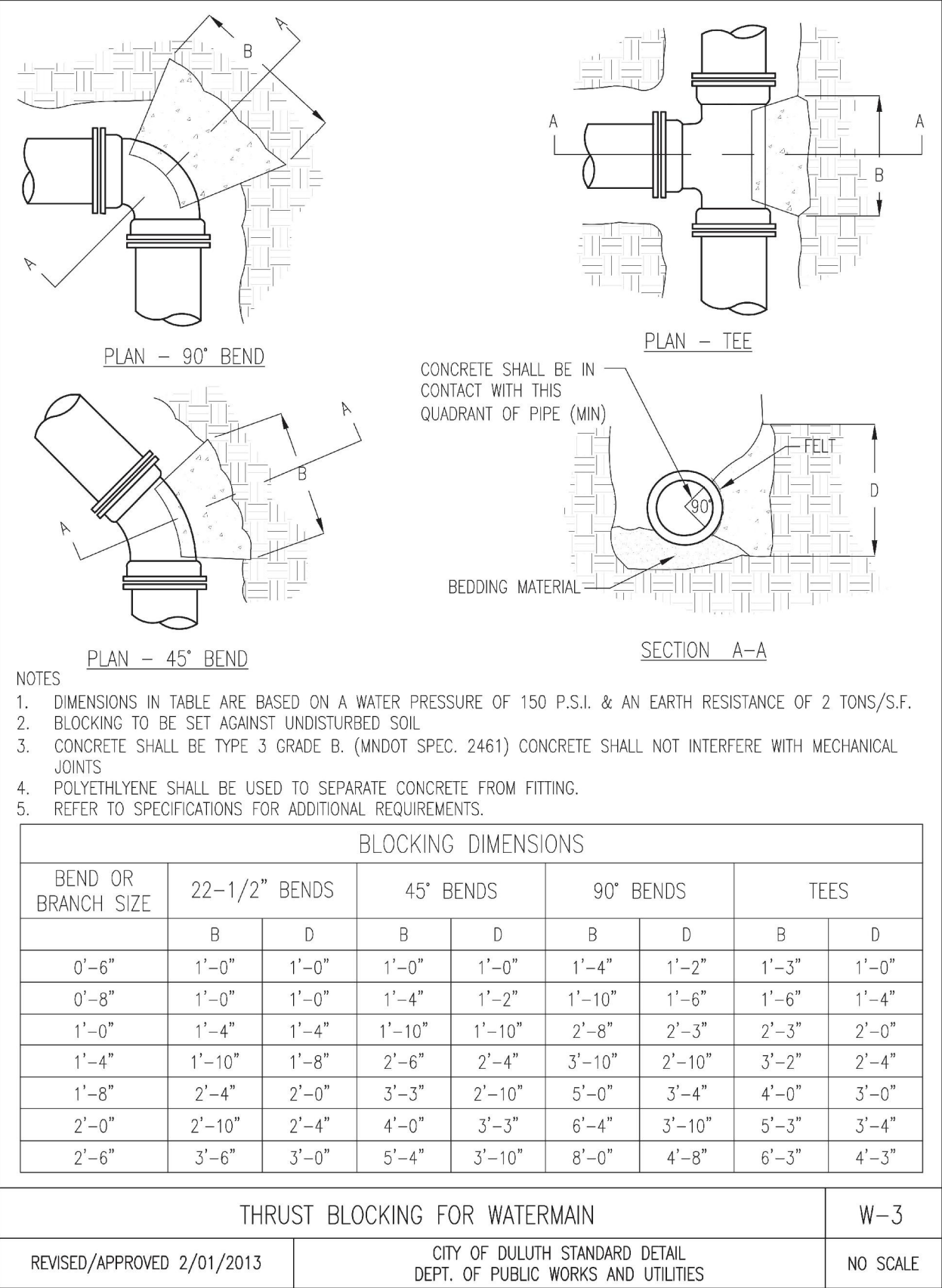
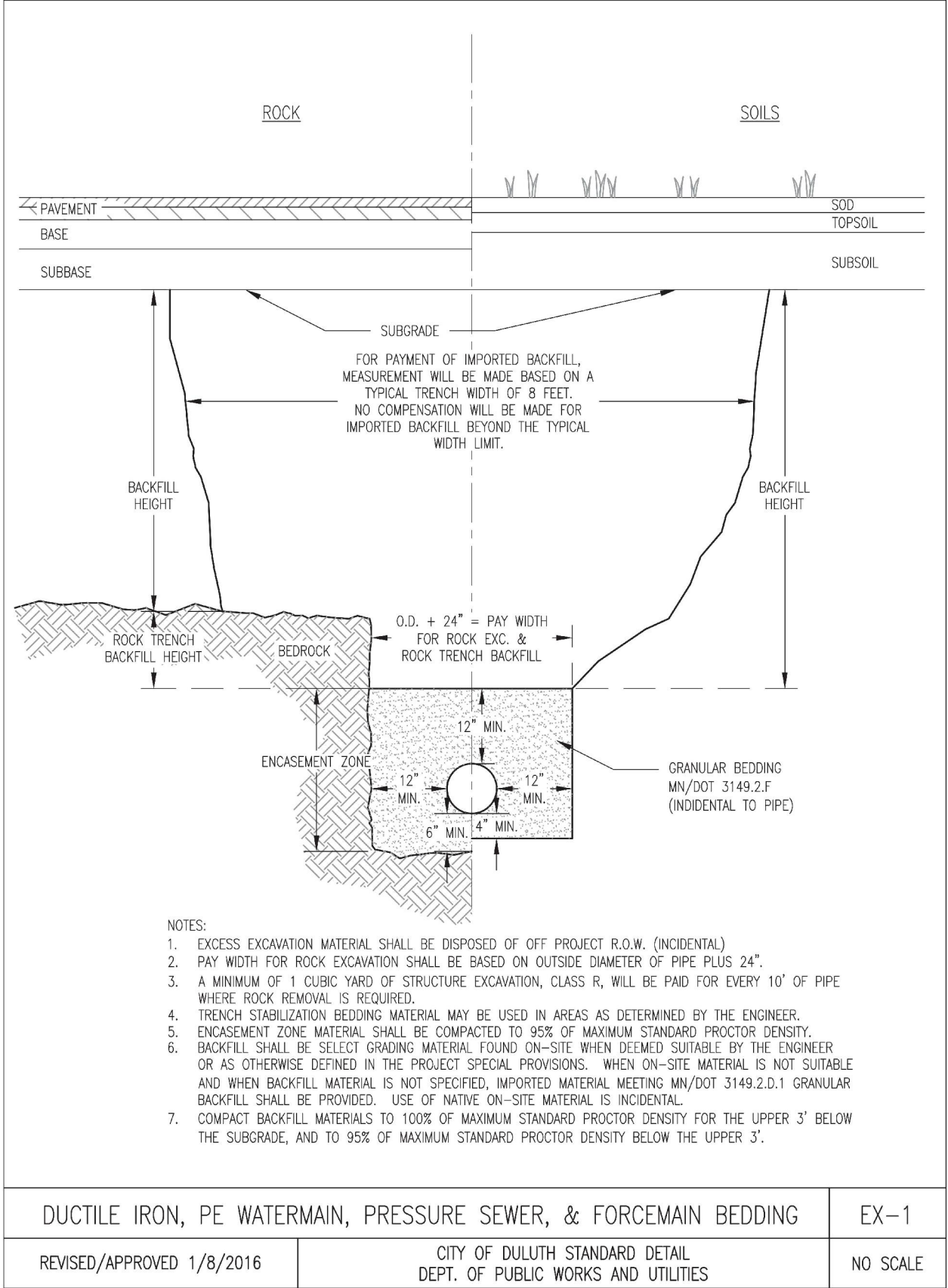
Agreement #1027177

Exhibit A

DESIGNED BY: SMJ	I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.	<div><div>Kimley»Horn</div><div>2000 UNIVERSITY AVENUE, SUITE 300, ST. PAUL, MN 55104</div><div>PHONE: 612-246-1287</div><div>WWW.KH-1001.COM</div></div> <div></div>	<div>MINNESOTA DEPARTMENT OF TRANSPORTATION</div> <div>TH 23 MISSION CREEK</div>	TH 23 UTILITY RELOCATIONS	TABULATIONS	C1
DRAWN BY: SMJ	CERTIFIED BY:  LIC NO: 41864			133RD AVE TO MISSION CREEK		
CHECKED BY: CBL	PRINTED NAME: CHADD B. LARSON, P.E. DATE: 12/14/16			STATE PROJ. NO. 6910—92 (TH 23)	CITY PROJ. NO. 1509	OF C13 17 / 165



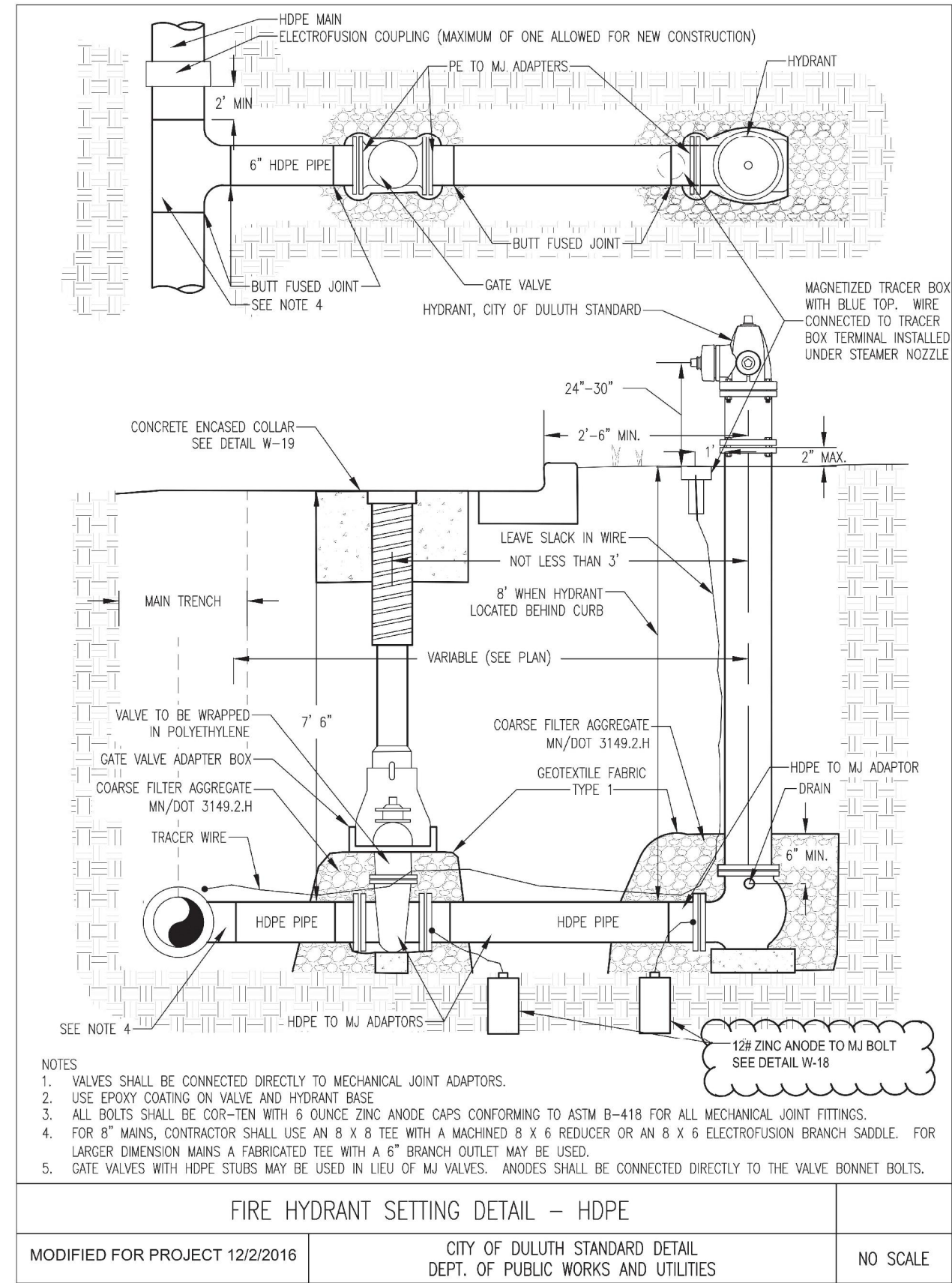
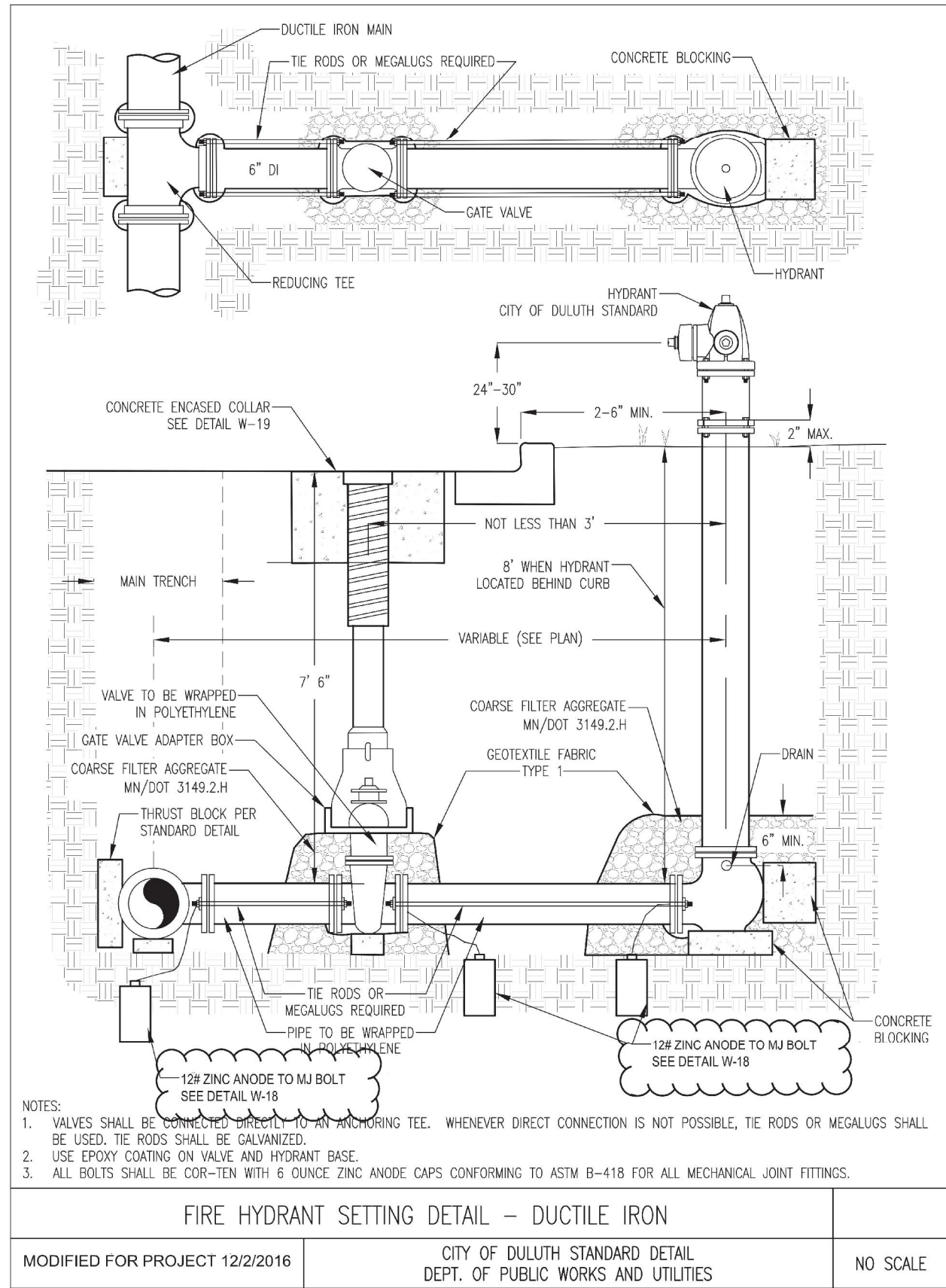
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DRAWN BY: SMJ	CERTIFIED BY: LIC NO: 41864								
CHECKED BY: CBL	PRINTED NAME: CHADD B. LARSON, P.E. DATE: 12/12/16								

DISTRICT #: 1  
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## Agreement #1027177 Exhibit A

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DRAWN BY:	SMJ	CERTIFIED BY: <i>Chadd B. Larson</i> LIC NO: 41864
CHECKED BY:	CBL	PRINTED NAME: CHADD B. LARSON, P.E. DATE: 12/12/16



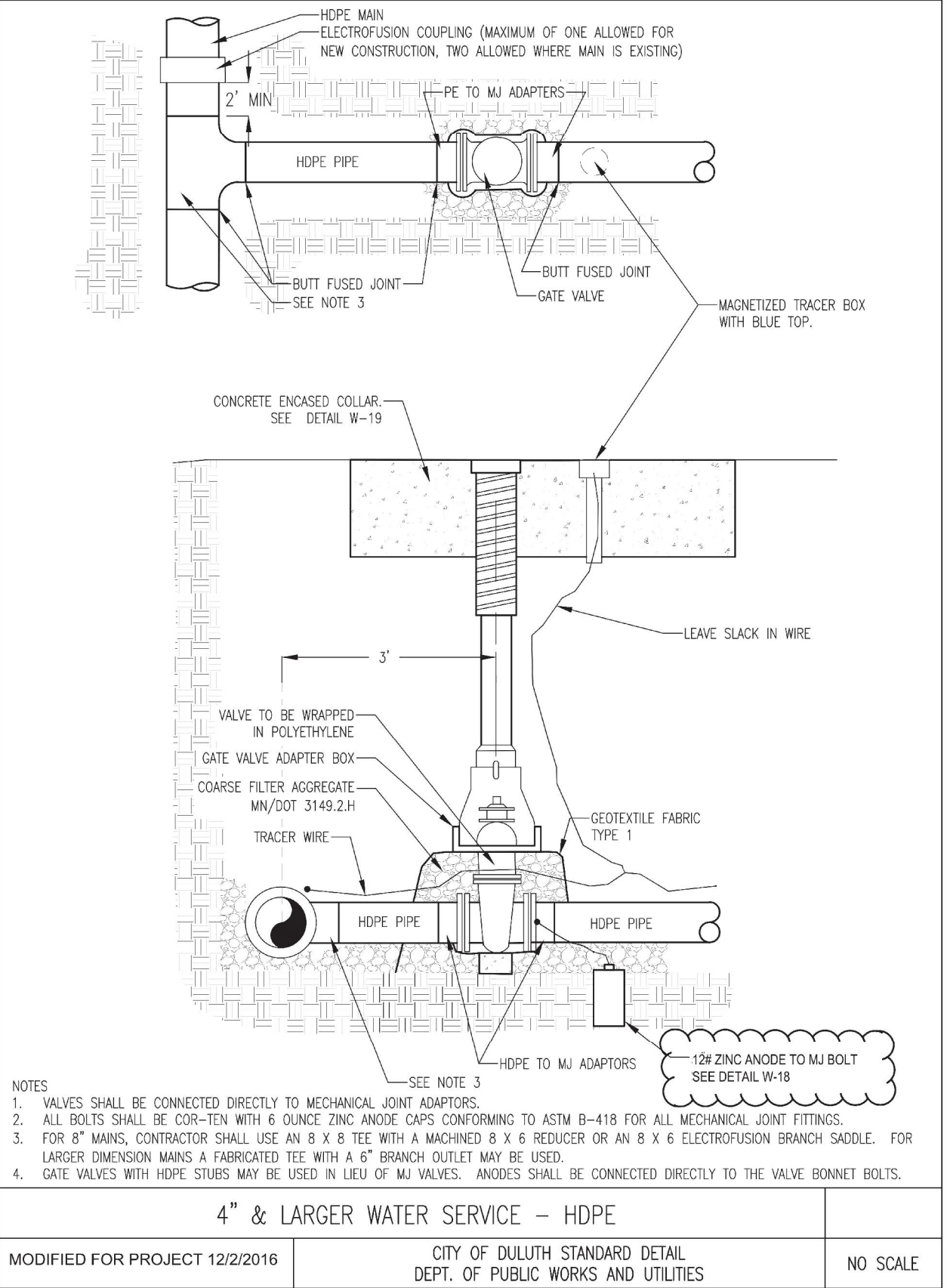
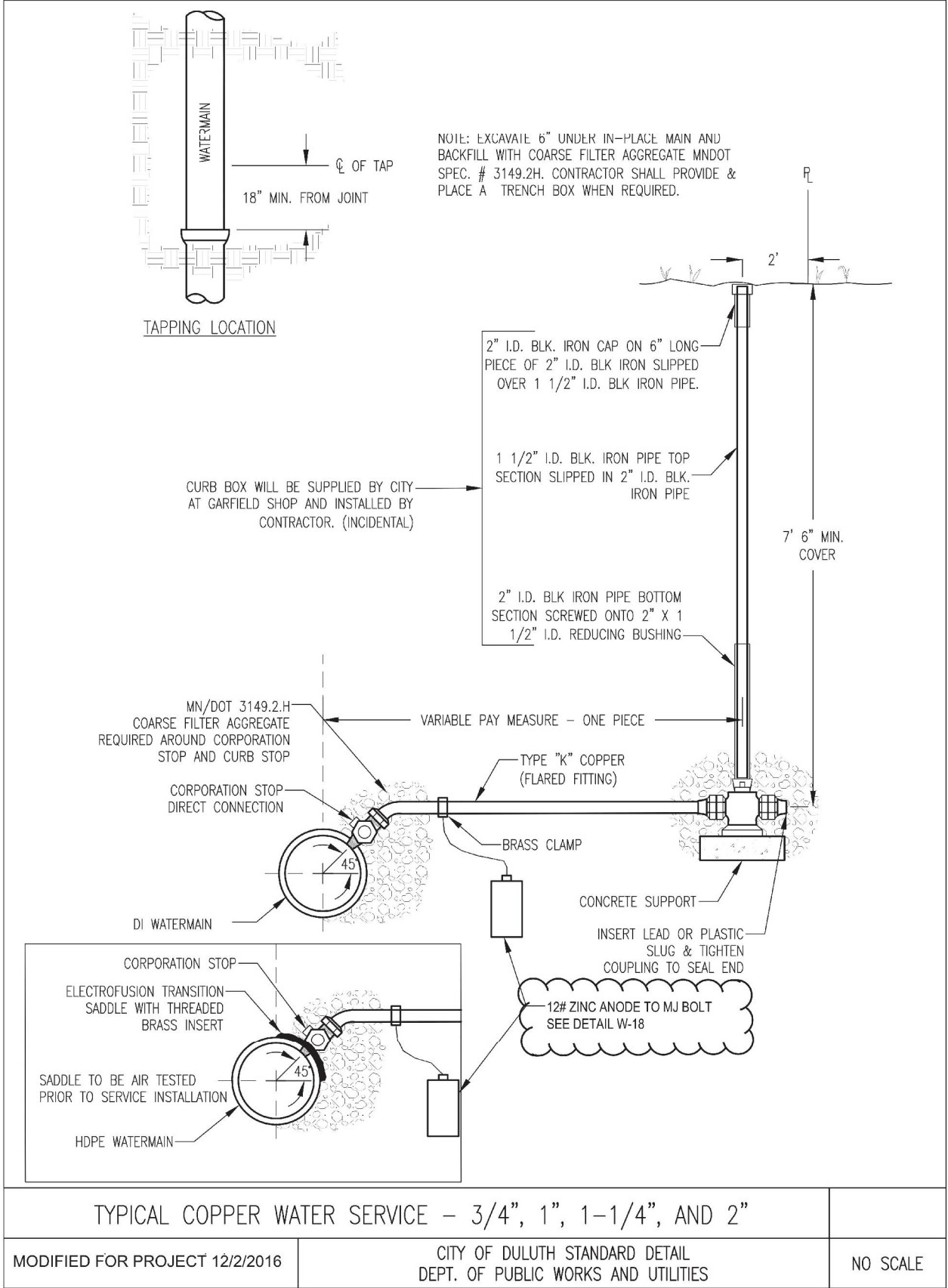
**MINNESOTA DEPARTMENT  
OF TRANSPORTATION  
TH 23 MISSION CREEK**

TH 23 UTILITY RELOCATIONS  
133RD AVE TO MISSION CREEK  
STATE PROJ. NO. 6910-92 (TH 23)

STANDARD DETAILS  
CITY PROJ. NO. 1509

C3  
OF C13  
19 / 165





- NOTES
1. VALVES SHALL BE CONNECTED DIRECTLY TO MECHANICAL JOINT ADAPTORS.
  2. ALL BOLTS SHALL BE COR-TEN WITH 6 OUNCE ZINC ANODE CAPS CONFORMING TO ASTM B-418 FOR ALL MECHANICAL JOINT FITTINGS.
  3. FOR 8" MAINS, CONTRACTOR SHALL USE AN 8 X 8 TEE WITH A MACHINED 8 X 6 REDUCER OR AN 8 X 6 ELECTROFUSION BRANCH SADDLE. FOR LARGER DIMENSION MAINS A FABRICATED TEE WITH A 6" BRANCH OUTLET MAY BE USED.
  4. GATE VALVES WITH HDPE STUBS MAY BE USED IN LIEU OF MJ VALVES. ANODES SHALL BE CONNECTED DIRECTLY TO THE VALVE BONNET BOLTS.

Agreement #1027177  
Exhibit A

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DRAWN BY:	SMJ	CERTIFIED BY: <i>Chad B. Larson</i> LIC NO: 41864
CHECKED BY:	CBL	PRINTED NAME: CHADD B. LARSON, P.E. DATE: 12/12/16

Kimley»Horn



MINNESOTA DEPARTMENT  
OF TRANSPORTATION  
TH 23 MISSION CREEK

TH 23 UTILITY RELOCATIONS  
133RD AVE TO MISSION CREEK

STATE PROJ. NO. 6910-92 (TH 23)

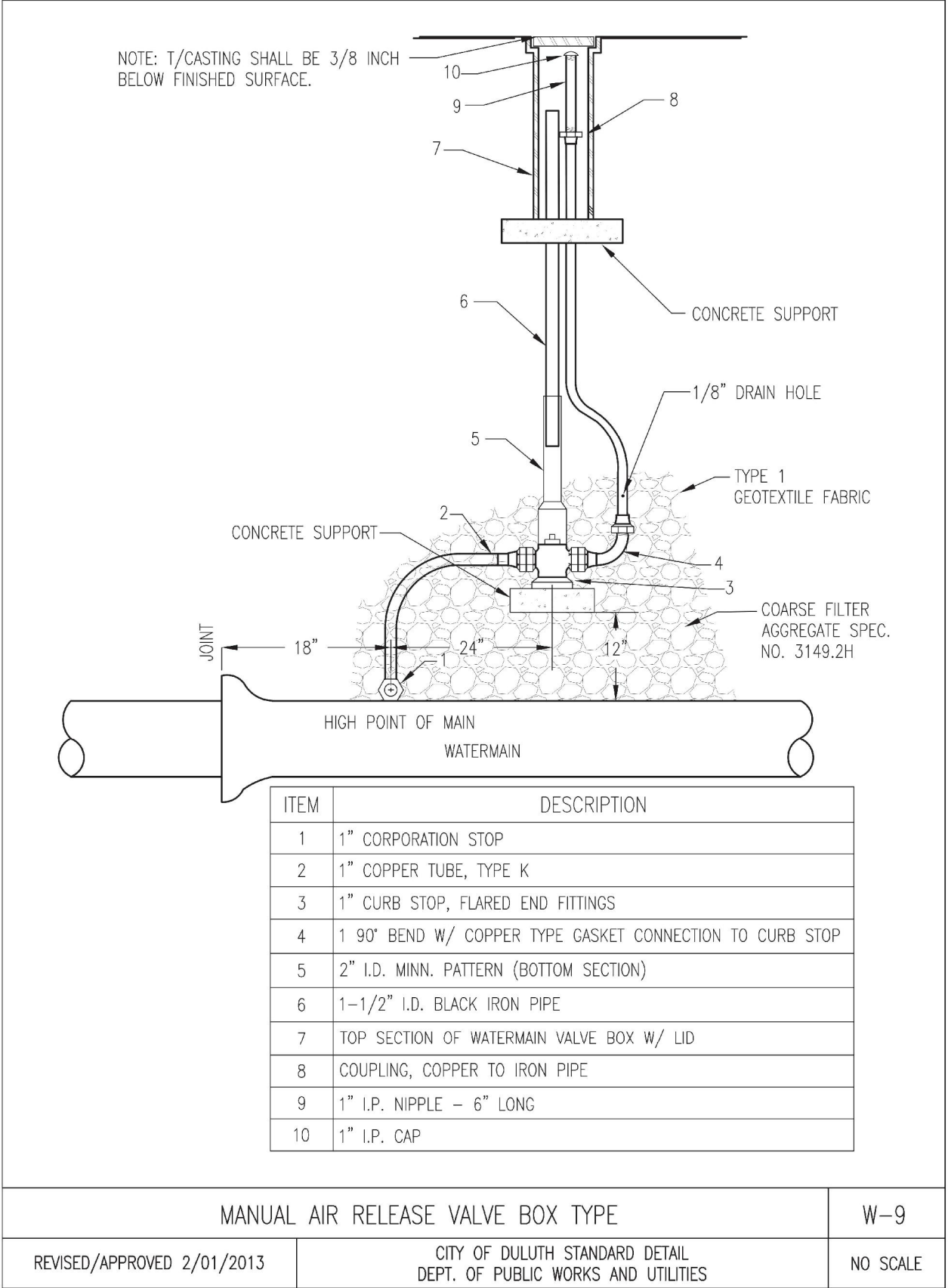
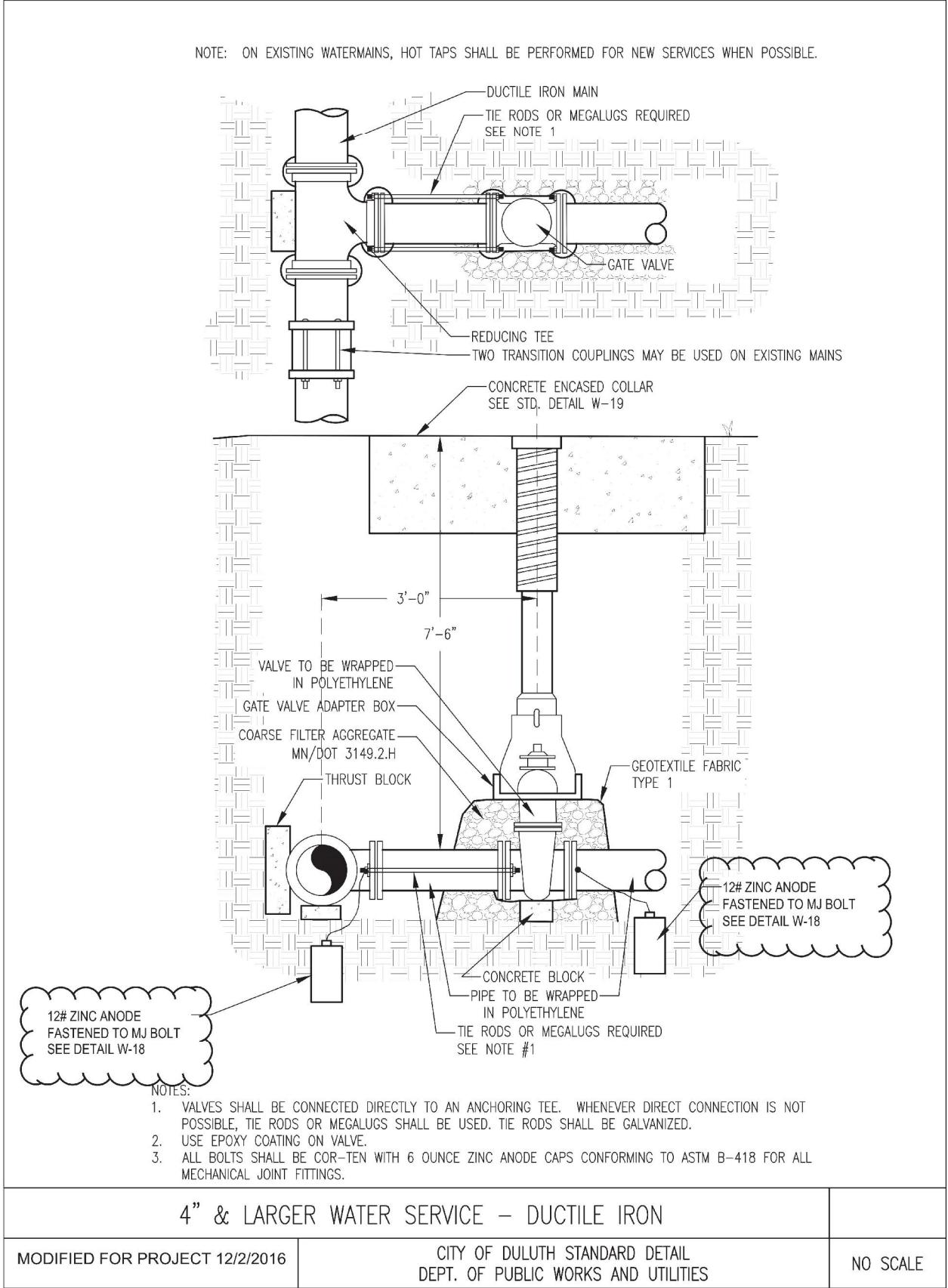
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CITY PROJ. NO. 1509



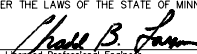
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OF C13

20 / 165

DISTRICT #: 1  
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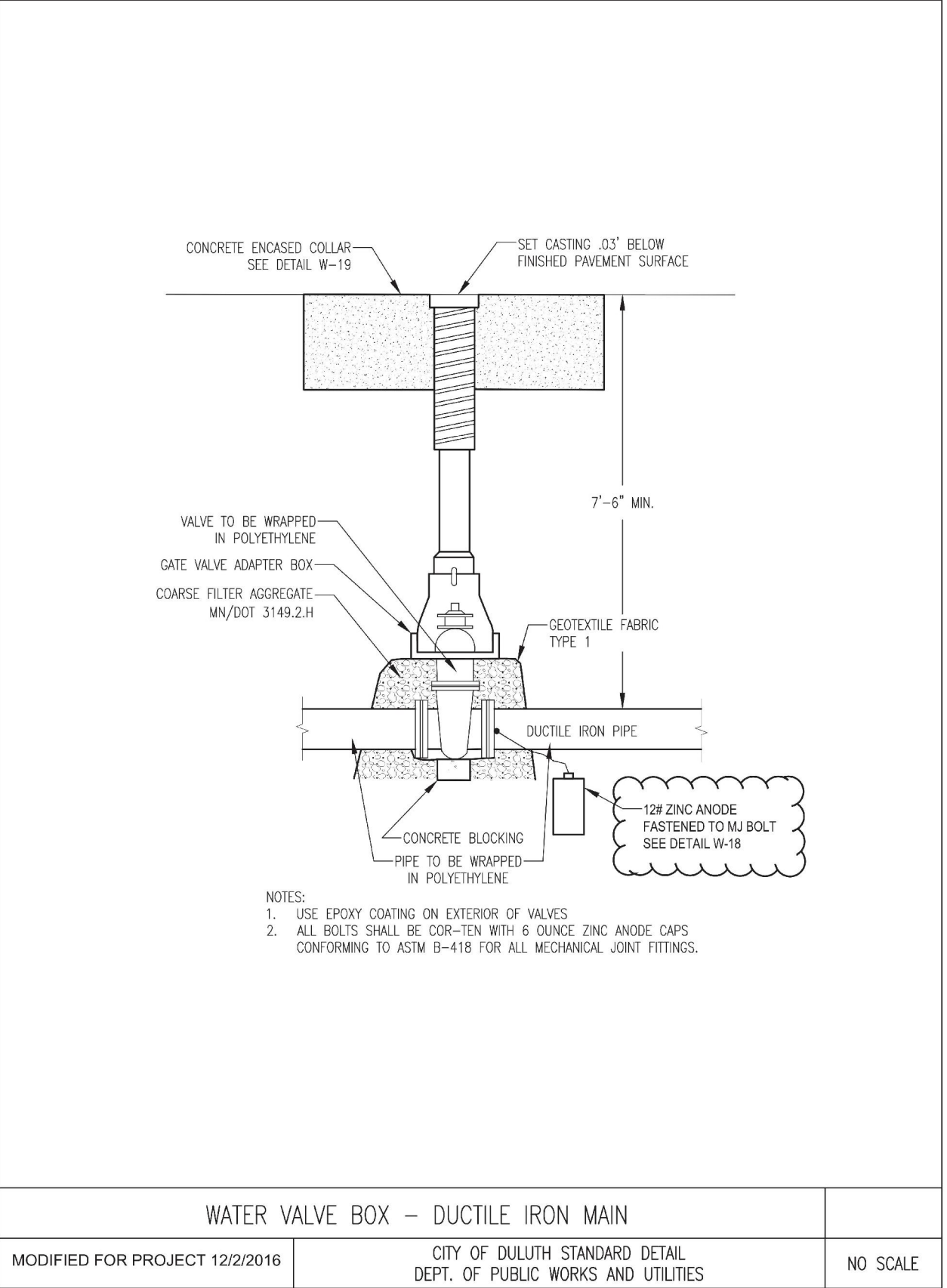
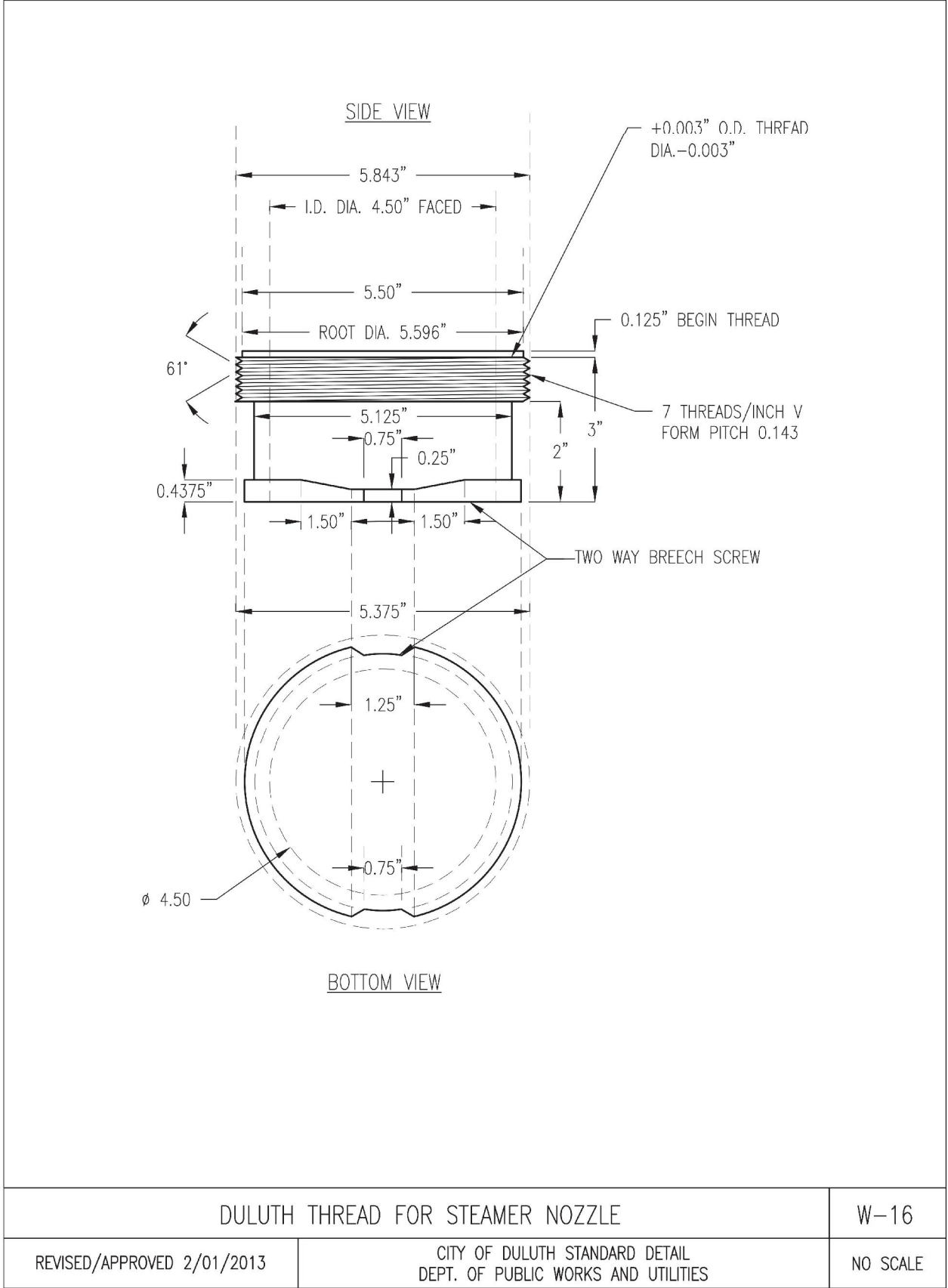


Agreement #1027177  
Exhibit A





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DRAWN BY: SMJ	CERTIFIED BY:  LIC NO: 41864							
CHECKED BY: CBL	PRINTED NAME: CHADD B. LARSON, P.E. DATE: 12/12/16							



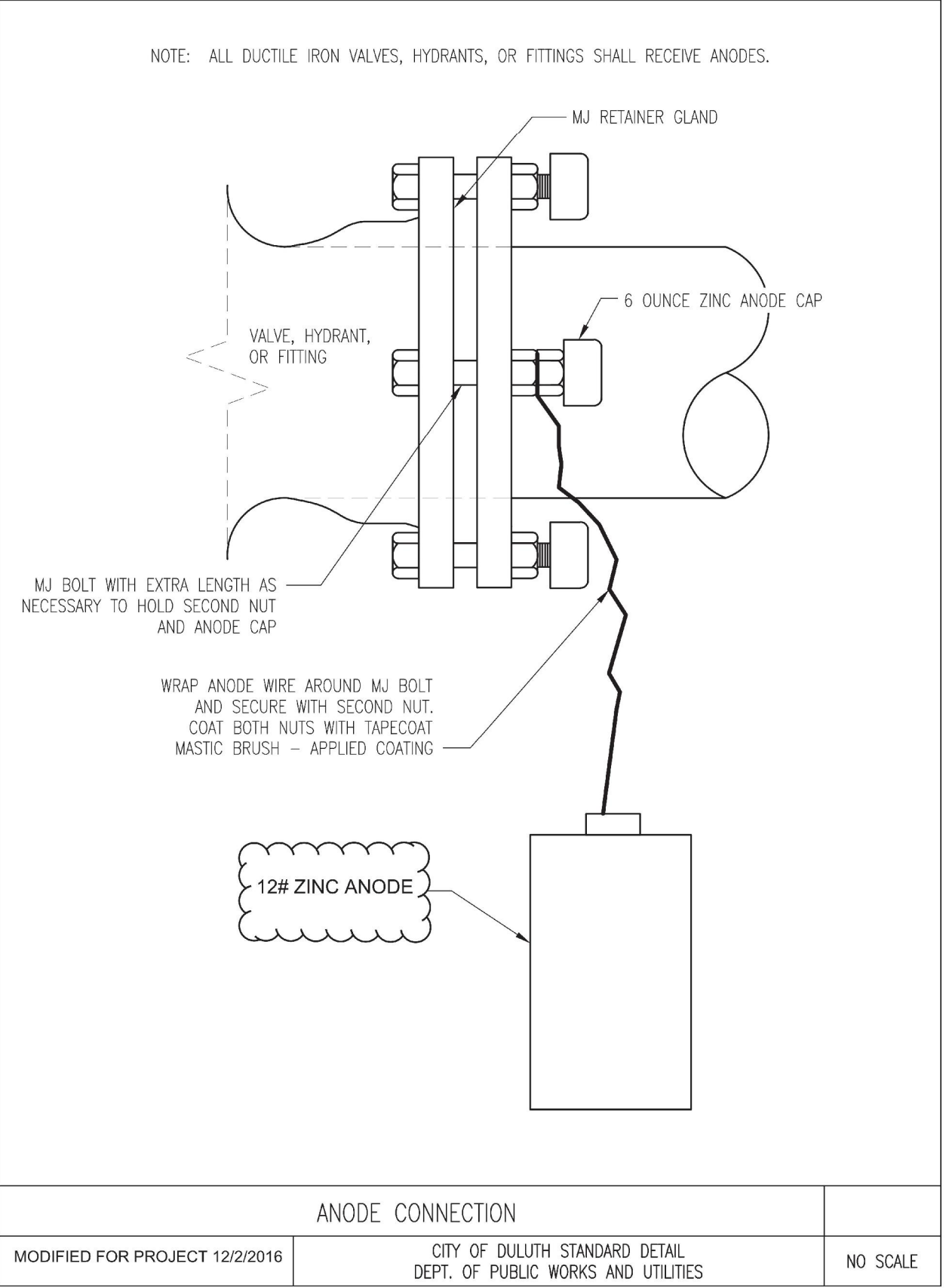
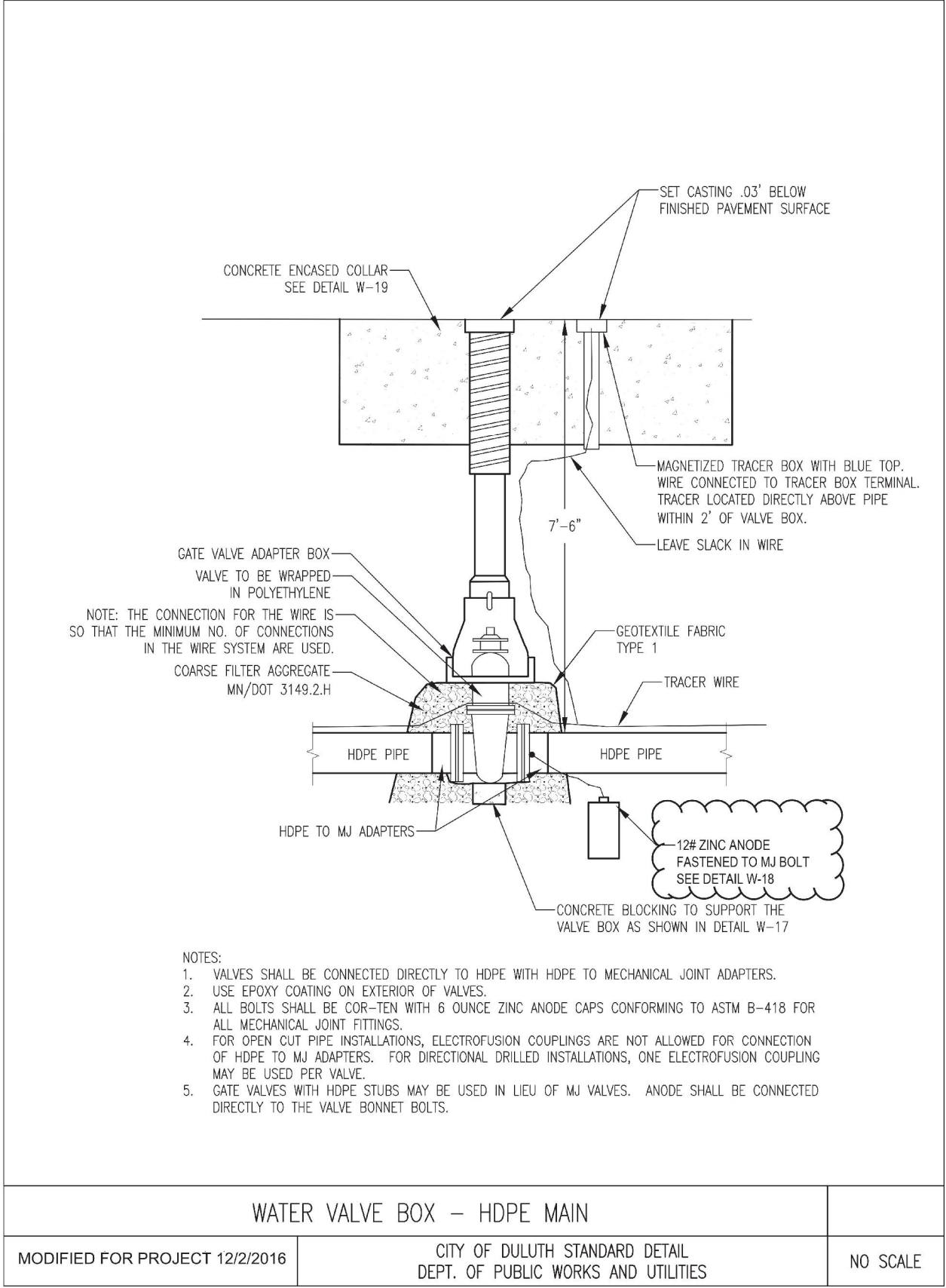
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**Agreement #1027177**  
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DRAWN BY: SMJ	CERTIFIED BY:  LIC NO: 41864				
CHECKED BY: CBL	PRINTED NAME: CHADD B. LARSON, P.E. DATE: 12/12/16				

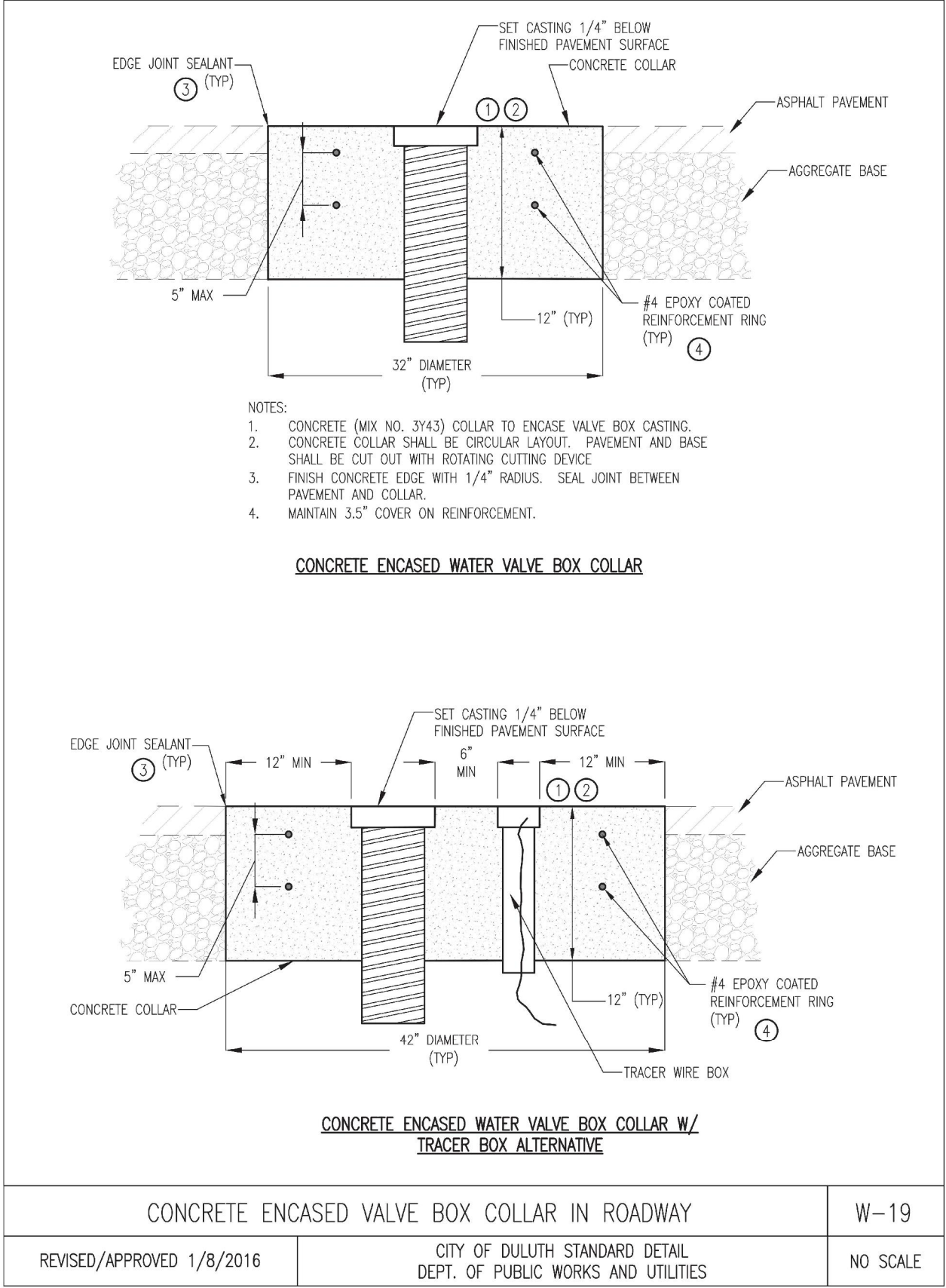
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DRAWN BY: SMJ	CERTIFIED BY:  LIC NO: 41864					
CHECKED BY: CBL	PRINTED NAME: CHADD B. LARSON, P.E. DATE: 12/12/16					

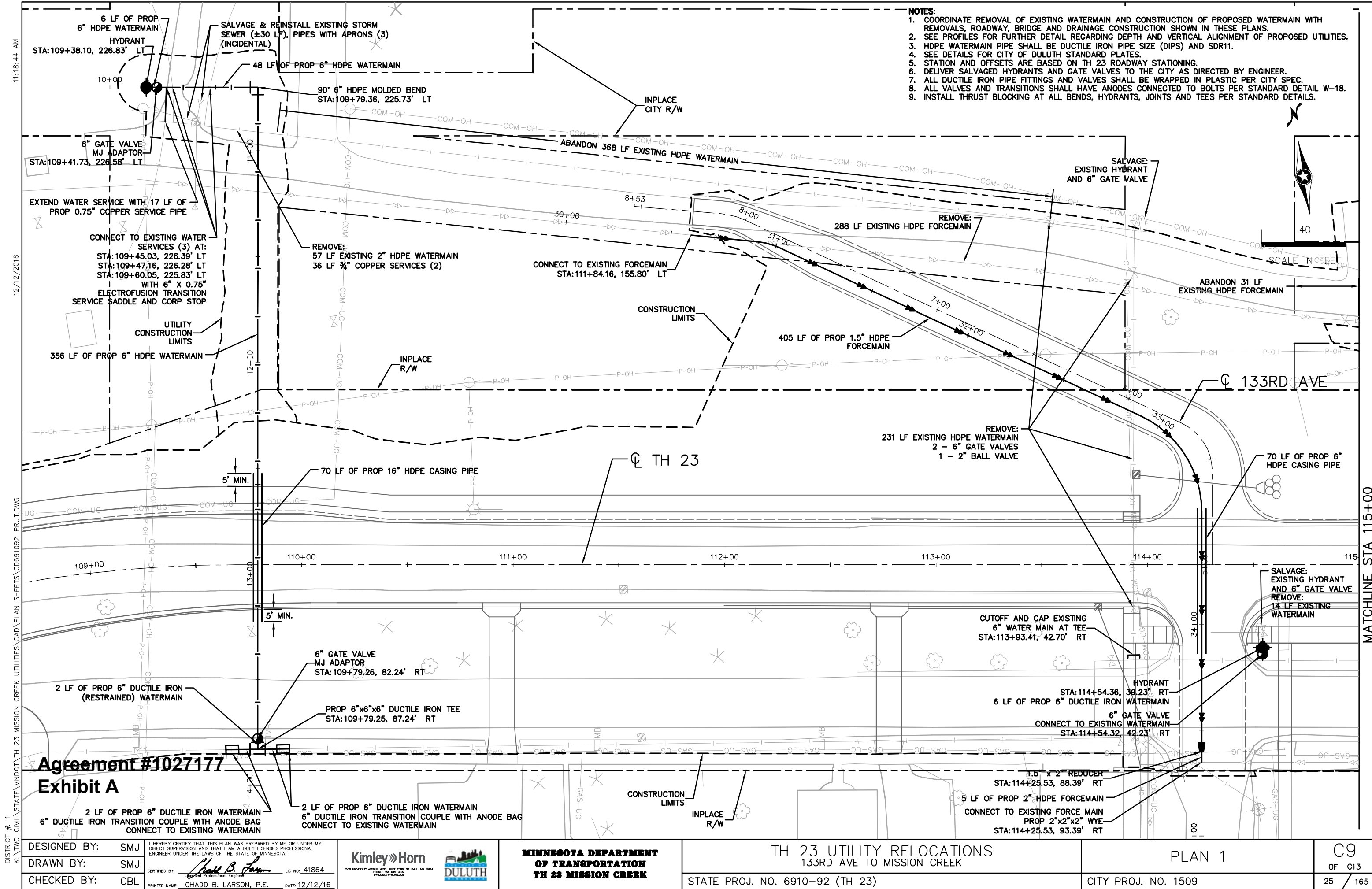
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DRAWN BY: SMJ	CERTIFIED BY:  LIC NO: 41864					
CHECKED BY: CBL	PRINTED NAME: CHADD B. LARSON, P.E. DATE: 12/12/16					





Agreement #1027177  
Exhibit A

DESIGNED BY:	SMJ	<div>1. I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.  CHADD B. LARSON, P.E. DATE: 12/12/16</div>
DRAWN BY:	SMJ	
CHECKED BY:	CBL	

**Kimley»Horn**  
2000 UNIVERSITY AVENUE, SUITE 100, ST. PAUL, MN 55114  
PHONE: (612) 444-1200  
WWW.KIMLEY-HORN.COM

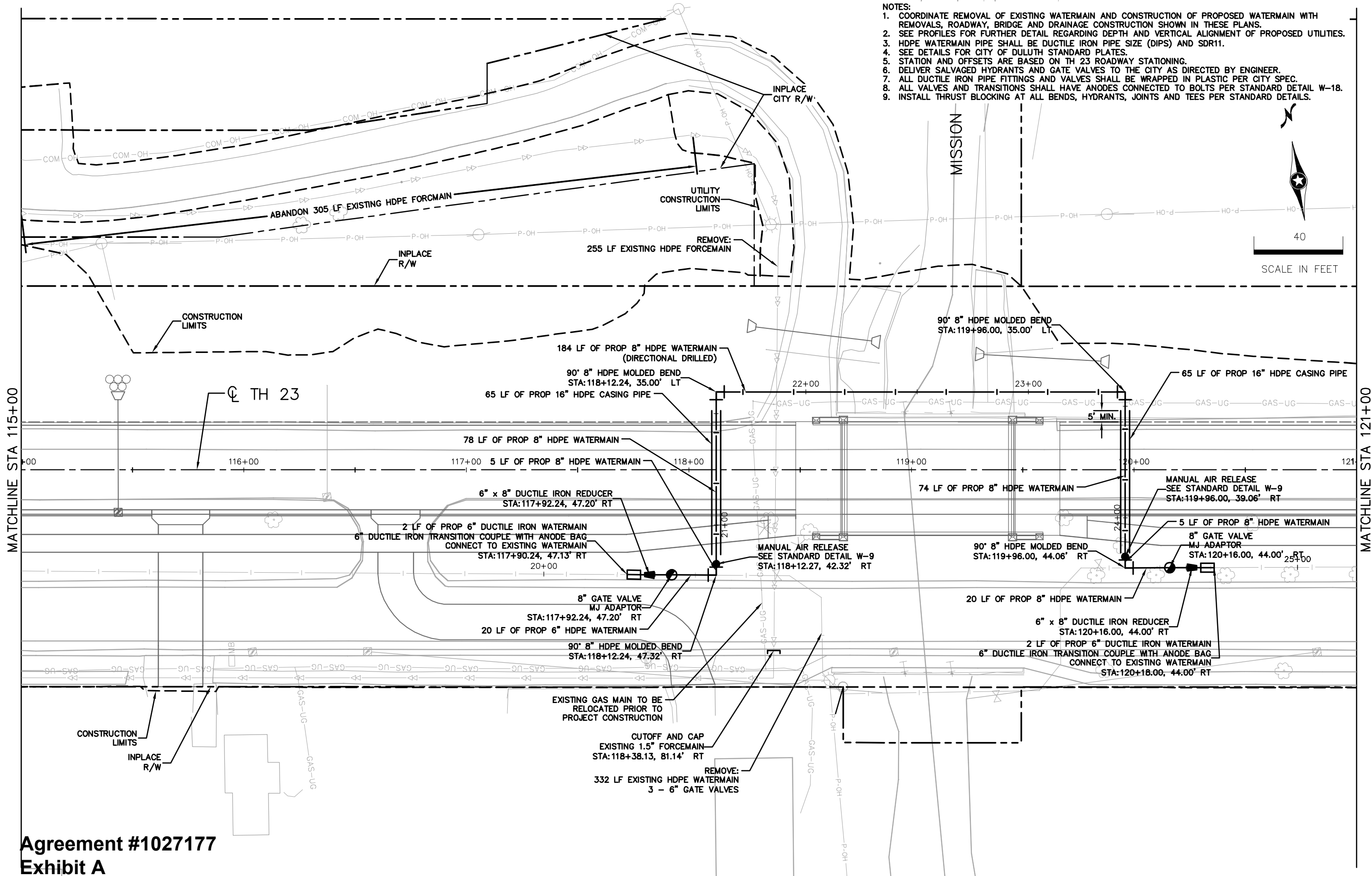
**DULUTH**

**MINNESOTA DEPARTMENT  
OF TRANSPORTATION  
TH 23 MISSION CREEK**

**TH 23 UTILITY RELOCATIONS  
133RD AVE TO MISSION CREEK**  
  
STATE PROJ. NO. 6910-92 (TH 23)

**PLAN 1**  
  
CITY PROJ. NO. 1509

**C9**  
OF C13  
25 / 165



## Agreement #1027177 Exhibit A

DESIGNED BY:	SMJ	I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
DRAWN BY:	SMJ	CERTIFIED BY: <i>Chadd B. Larson</i> LIC NO: 41864
CHECKED BY:	CBL	PRINTED NAME: CHADD B. LARSON, P.E. DATE: 12/12/16

**Kimley»Horn**  
2000 UNIVERSITY AVENUE, SUITE 1000, ST. PAUL, MN 55104  
PHONE: 612-442-1200  
WWW.KIMLEY-HORN.COM



**MINNESOTA DEPARTMENT  
OF TRANSPORTATION  
TH 23 MISSION CREEK**

**TH 23 UTILITY RELOCATIONS  
133RD AVE TO MISSION CREEK**

STATE PROJ. NO. 6910-92 (TH 23)

PLAN 2

CITY PROJ. NO. 1509

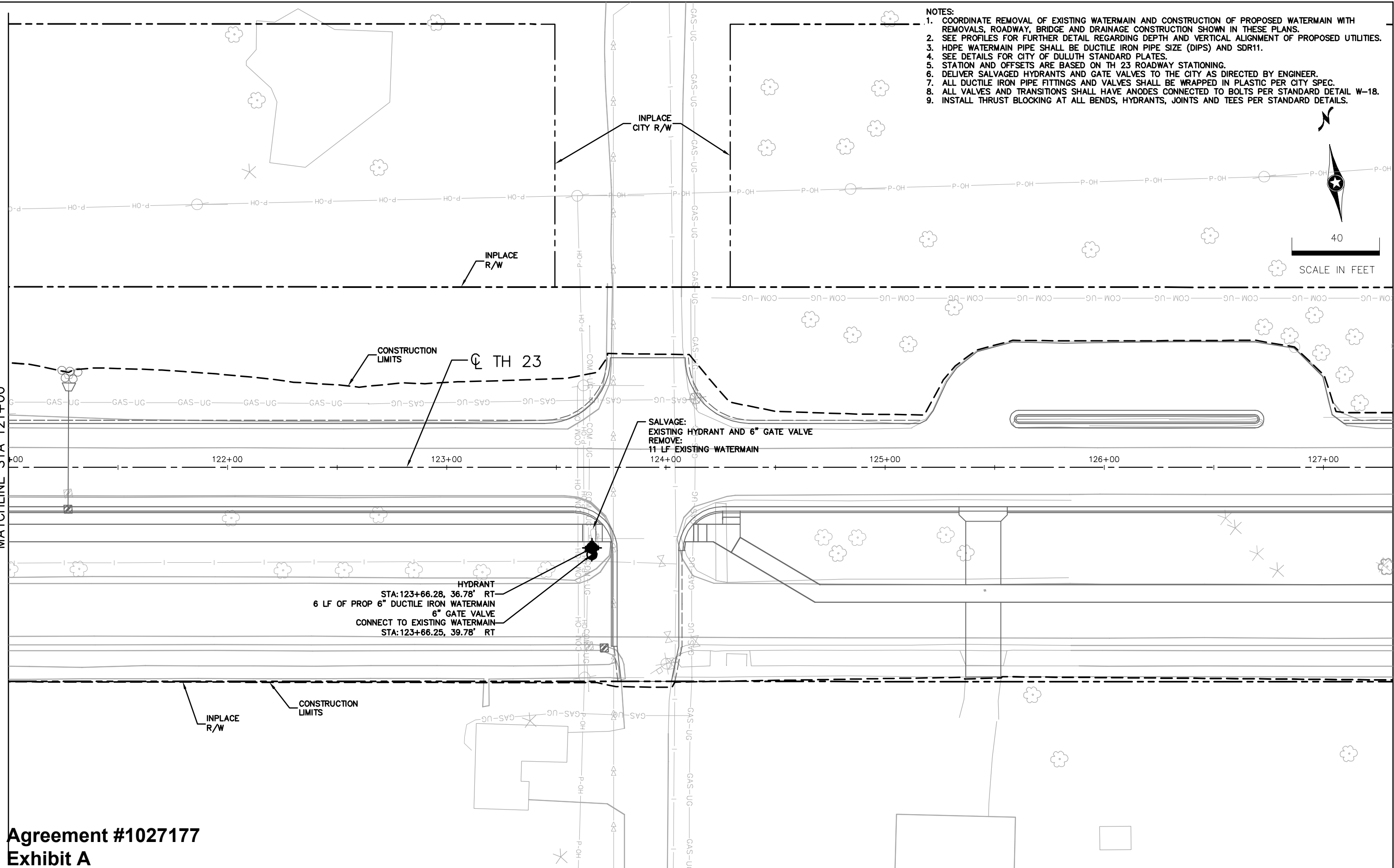
**C10**  
OF C13  
26 / 165

DISTRICT # 1  
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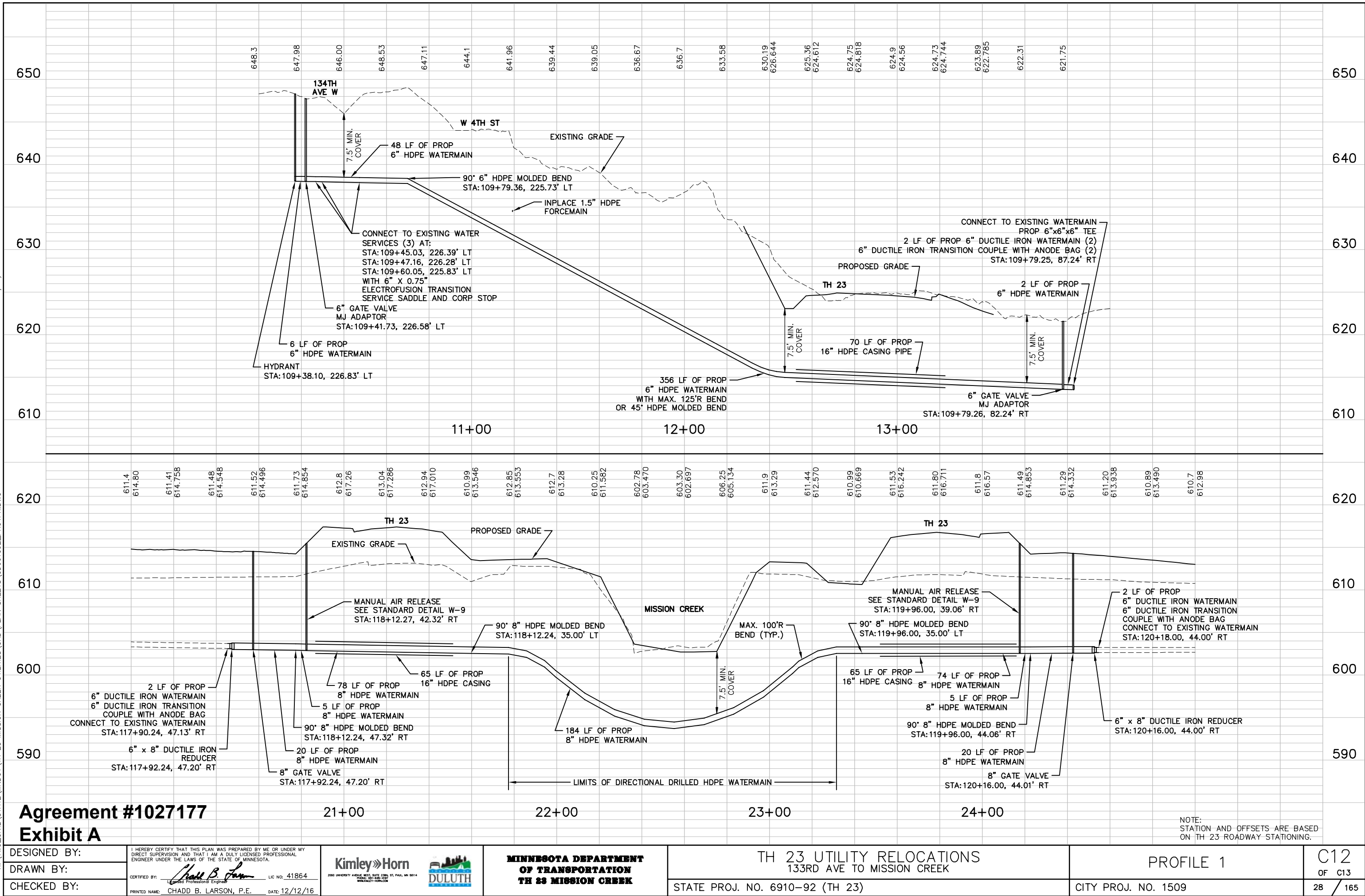
- NOTES:
1. COORDINATE REMOVAL OF EXISTING WATERMAIN AND CONSTRUCTION OF PROPOSED WATERMAIN WITH REMOVALS, ROADWAY, BRIDGE AND DRAINAGE CONSTRUCTION SHOWN IN THESE PLANS.
  2. SEE PROFILES FOR FURTHER DETAIL REGARDING DEPTH AND VERTICAL ALIGNMENT OF PROPOSED UTILITIES.
  3. HDPE WATERMAIN PIPE SHALL BE DUCTILE IRON PIPE SIZE (DIPS) AND SDR11.
  4. SEE DETAILS FOR CITY OF DULUTH STANDARD PLATES.
  5. STATION AND OFFSETS ARE BASED ON TH 23 ROADWAY STATIONING.
  6. DELIVER SALVAGED HYDRANTS AND GATE VALVES TO THE CITY AS DIRECTED BY ENGINEER.
  7. ALL DUCTILE IRON PIPE FITTINGS AND VALVES SHALL BE WRAPPED IN PLASTIC PER CITY SPEC.
  8. ALL VALVES AND TRANSITIONS SHALL HAVE ANODES CONNECTED TO BOLTS PER STANDARD DETAIL W-18.
  9. INSTALL THRUST BLOCKING AT ALL BENDS, HYDRANTS, JOINTS AND TEES PER STANDARD DETAILS.

## Agreement #1027177 Exhibit A

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DRAWN BY: SMJ	CERTIFIED BY:  LIC NO: 41864					
CHECKED BY: CBL	PRINTED NAME: CHADD B. LARSON, P.E. DATE: 12/12/16					



DISTRICT #: 1  
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DRAWN BY:	CERTIFIED BY: <i>Chadd B. Larson</i> LIC NO: 41864							
CHECKED BY:	PRINTED NAME: CHADD B. LARSON, P.E. DATE: 12/12/16							

DISTRICT #: 1  
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12/12/2016

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Agreement #1027177  
Exhibit A

DESIGNED BY:  
DRAWN BY:  
CHECKED BY:

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.  
CERTIFIED BY: *Chadd B. Larson* LIC NO: 41864  
PRINTED NAME: CHADD B. LARSON, P.E. DATE: 12/12/16

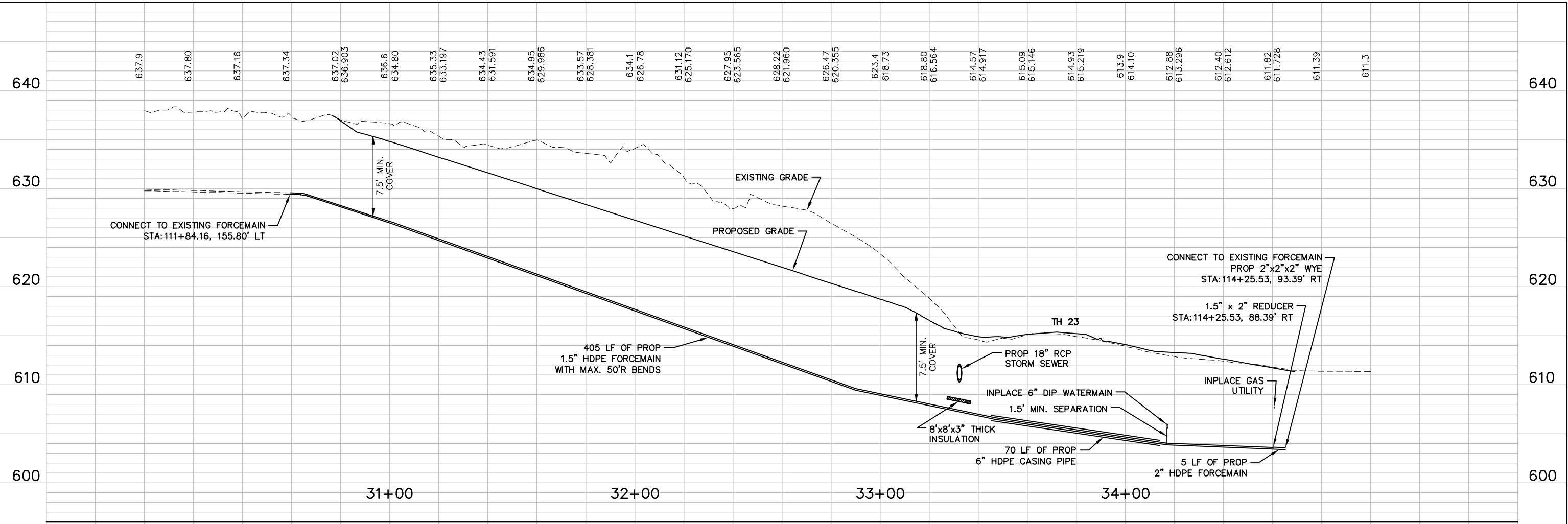


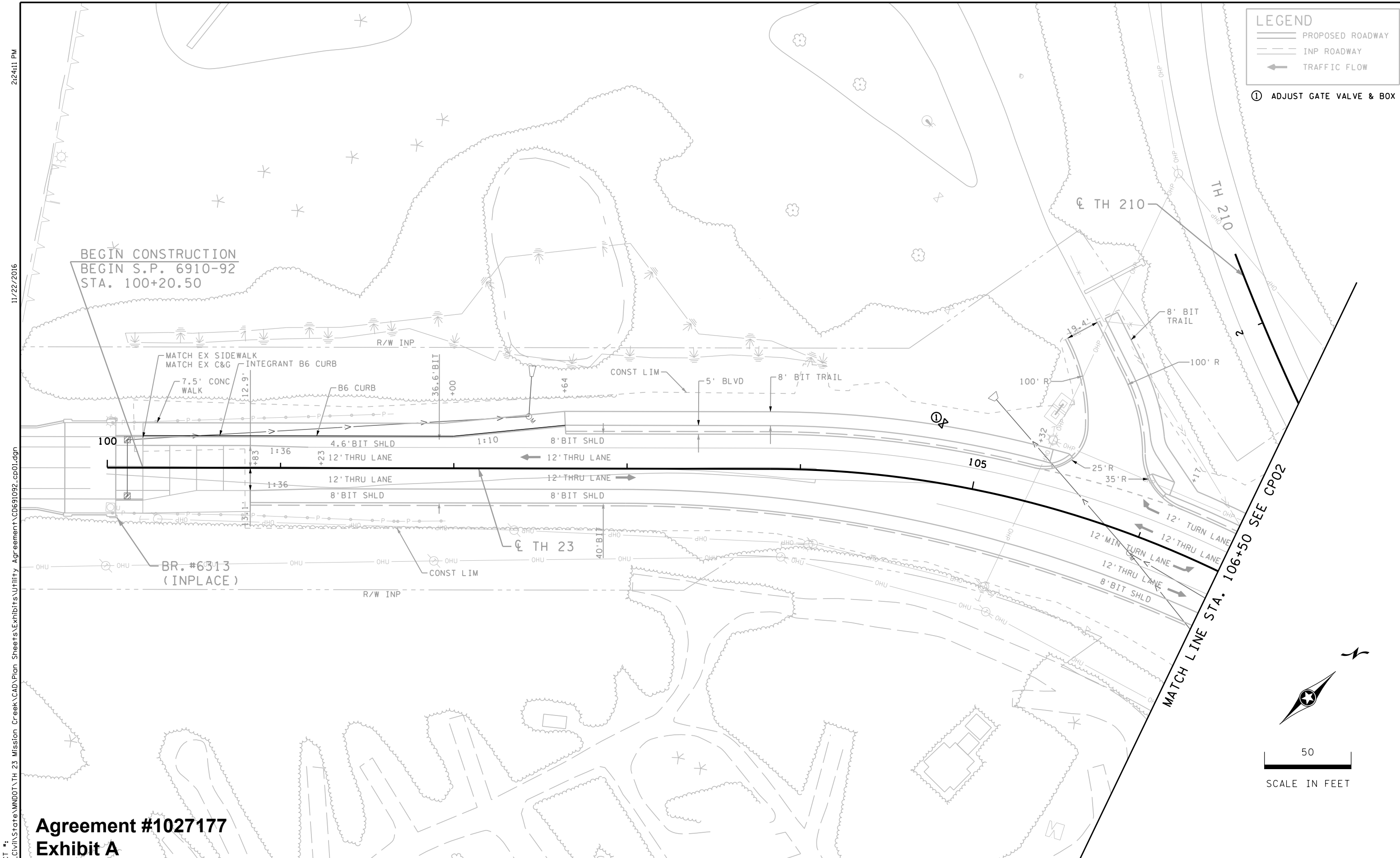
MINNESOTA DEPARTMENT  
OF TRANSPORTATION  
TH 23 MISSION CREEK

TH 23 UTILITY RELOCATIONS  
133RD AVE TO MISSION CREEK  
STATE PROJ. NO. 6910-92 (TH 23)

PROFILE 2  
CITY PROJ. NO. 1509

C13  
OF C13  
29 / 165





DISTRICT #: K:\TWC\Civil\State\MNDOT\TH 23 Mission Creek\CAD\Plan\_Sheets\Exhibits\Utility Agreement\CD691092\_cp01.dgn

Agreement #1027177  
Exhibit A

DESIGNED BY:	WDJ	I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
DRAWN BY:	RJM	
CHECKED BY:	NMG	

CERTIFIED BY: *Nicole Gulick* LIC NO: 45642  
PRINTED NAME: NICOLE GULICK, P.E. DATE: 10/28/2016

**Kimley»Horn**

2550 UNIVERSITY AVENUE WEST, SUITE 230N  
SAINT PAUL, MINNESOTA 55114  
PH: 651-645-4197 www.kimley-horn.com

MINNESOTA DEPARTMENT  
OF TRANSPORTATION  
TH 23 MISSION CREEK

CONSTRUCTION PLANS STA. 100+00 TO STA. 106+50	CP01 OF CP07
STATE PROJ. NO. 6910-92 (TH 23)	72 / 151





**LEGEND**

- PROPOSED ROADWAY
- INP ROADWAY
- TRAFFIC FLOW

① ADJUST GATE VALVE & BOX

**Agreement #1027177  
Exhibit A**

DESIGNED BY:	WDJ	<small>I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.</small>
DRAWN BY:	RJM	
CHECKED BY:	NMG	
PRINTED NAME: <b>NICOLE GULICK, P.E.</b>		DATE: <b>10/28/2016</b>

**Kimley»Horn**

2550 UNIVERSITY AVENUE WEST, SUITE 230N  
SAINT PAUL, MINNESOTA 55114  
PH: 651-645-4197 www.kimley-horn.com

MINNESOTA DEPARTMENT  
OF TRANSPORTATION  
TH 23 MISSION CREEK

STATE PROJ. NO. 6910-92 (TH 23)	CONSTRUCTION PLANS STA. 106+50 TO STA. 113+00	CP02 OF CP07
		73 / 151

DISTRICT #: K3 TWC CIVIL State\MNDOT\TH 23 Mission Creek\CAD\Plan Sheets\Exhibits\Utility Agreement\CD691092\_cp03.dgn 11/22/2016 2:22:04 PM

MATCH LINE STA. 113+00 SEE CP02

50  
SCALE IN FEET

MATCH LINE STA. 120+00 SEE CP04

## Agreement #1027177 Exhibit A

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DRAWN BY: RJM  
CHECKED BY: NMG

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.  
**Nicole Gulick**  
LIC NO. 45642  
PRINTED NAME: NICOLE GULICK, P.E. DATE: 10/28/2016



MINNESOTA DEPARTMENT  
OF TRANSPORTATION  
TH 23 MISSION CREEK

CONSTRUCTION PLANS  
STA. 113+00 TO STA. 120+00

STATE PROJ. NO. 6910-92 (TH 23)

CP03  
OF CP07  
74 / 151

**LEGEND**  
— PROPOSED ROADWAY  
--- INP ROADWAY  
← TRAFFIC FLOW

- ① ADJUST GATE VALVE & BOX  
④ BRIDGE APPROACH PANEL SEE STD PLANS  
⑤ SEE BRIDGE PLANS


DISTRICT #: K:\TWC\Civil\State\MNDOT\TH 23 Mission Creek\CAD\Plan Sheets\Exhibits\Utility Agreement\CD691092\_cp04.dgn 9:33:10 AM 12/1/2016

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DRAWN BY:	RJM	CERTIFIED BY:  LIC No: 45642
CHECKED BY:	NMG	PRINTED NAME: NICOLE GULICK, P.E. DATE: 10/28/2016

**Kimley»Horn**

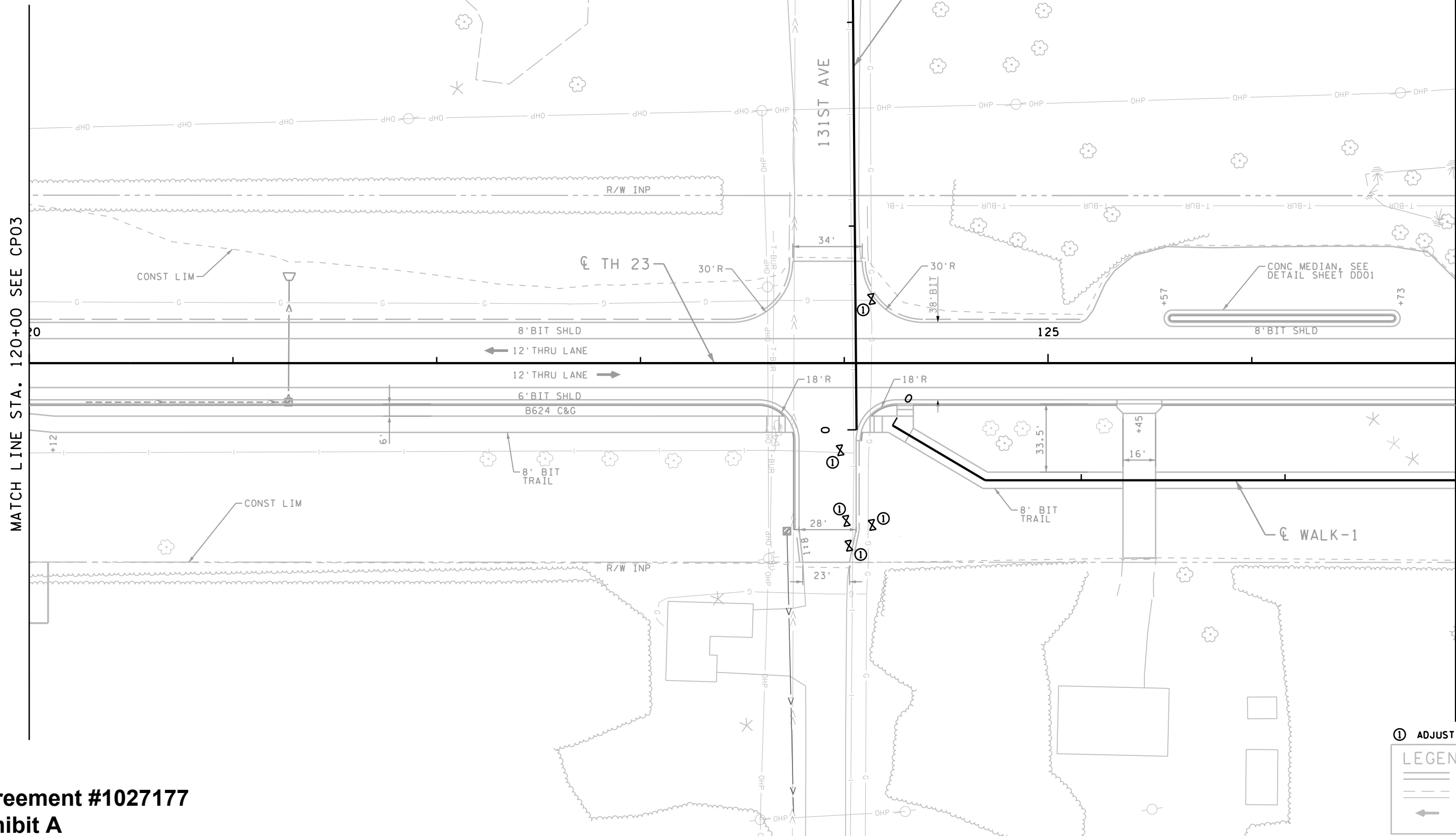
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MINNESOTA DEPARTMENT  
OF TRANSPORTATION  
TH 23 MISSION CREEK

CONSTRUCTION PLANS  
STA. 120+00 TO STA. 127+00  
STATE PROJ. NO. 6910-92 (TH 23)

CP04  
OF CP07  
75 / 151



① ADJUST GATE VALVE & BOX

**LEGEND**

- PROPOSED ROADWAY
- INP ROADWAY
- TRAFFIC FLOW

50

SCALE IN FEET

