

NORTHWESTERN WATER AND SEWER DISTRICT

McCOMB WATER LINE REPLACEMENT PHASE 2

WL-2815



2020



BOARD OF DIRECTORS

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J. DOUGLAS MILLER, P.E. - VICE CHAIRMAN
MELINDA KALE - SECRETARY

WILLIAM HIRZEL
JOHN A. CHENEY
TIM PHILLIPS

STEVE ARNOLD
BILL VERBOSKY
BROOKE HAHN



APPROVED BY:


JERRY R. GREINER

PRESIDENT

8/18/20
DATE


THOMAS E. STALTER, P.E.

DISTRICT ENGINEER

8/17/20
DATE


GARRET CHAMBERLAIN, P.E.

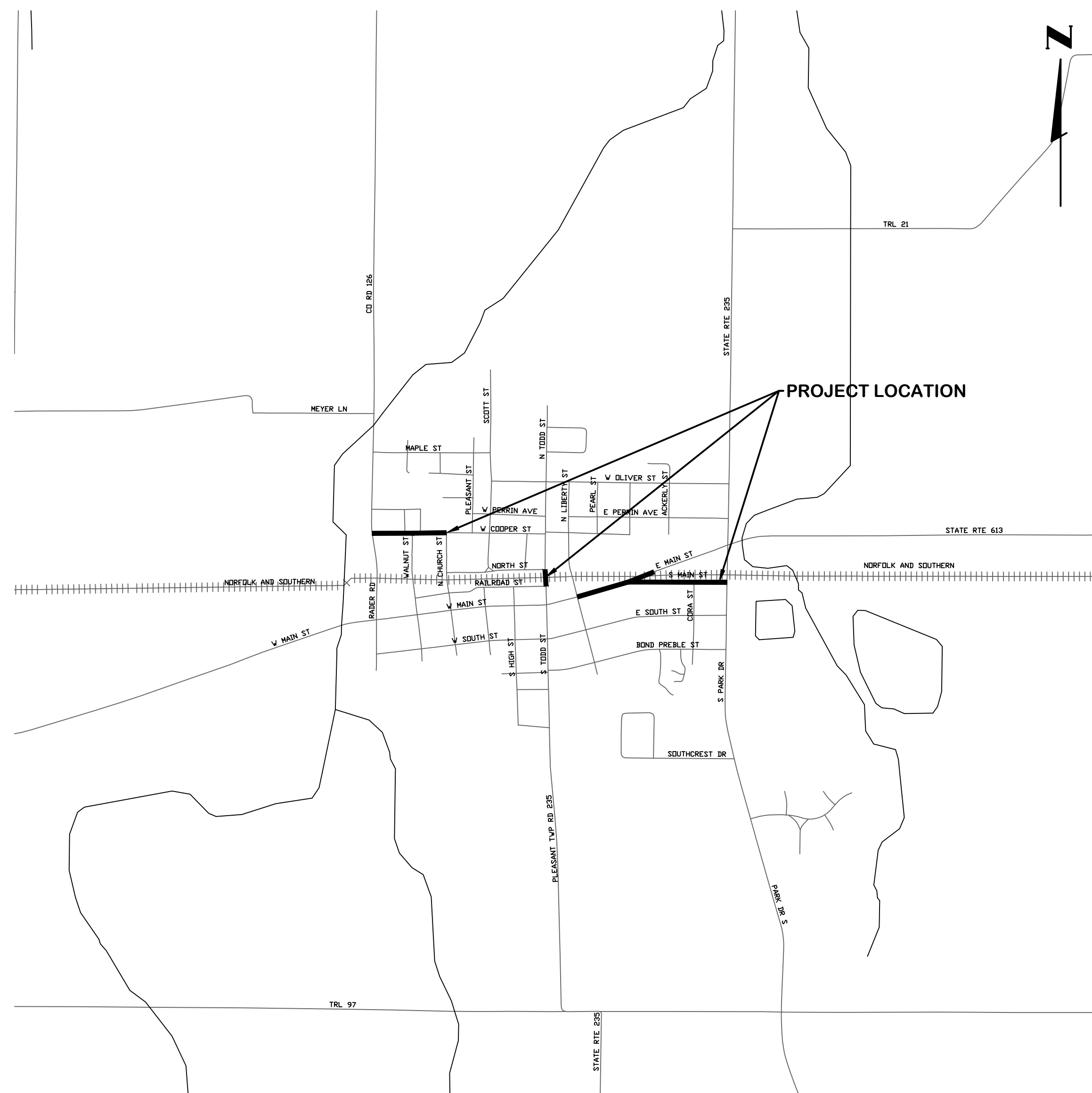
ASSISTANT ENGINEER

8/17/20
DATE


DAN WICKARD

SUPERINTENDENT

8/17/20
DATE

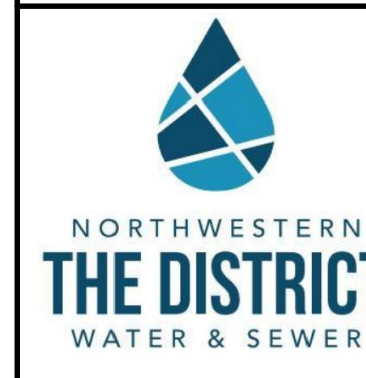
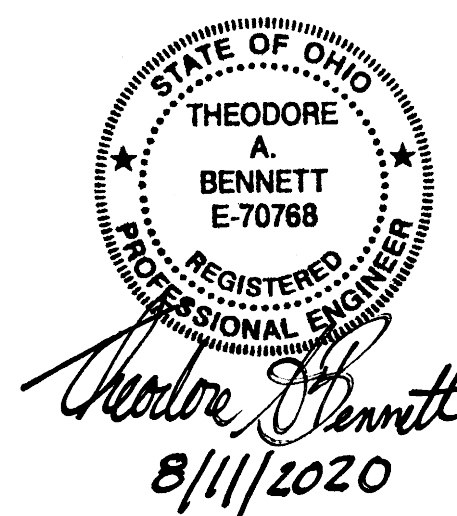


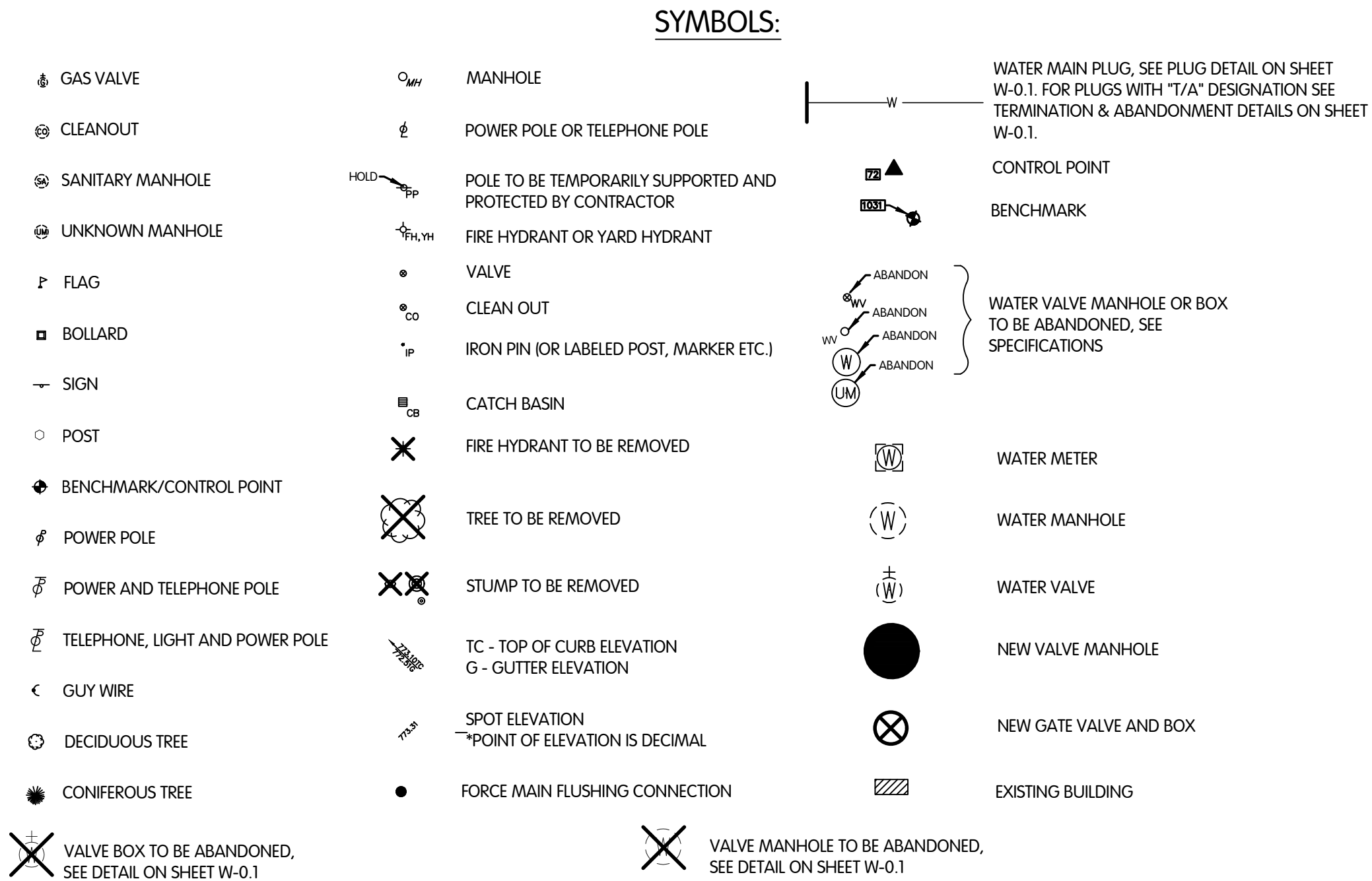
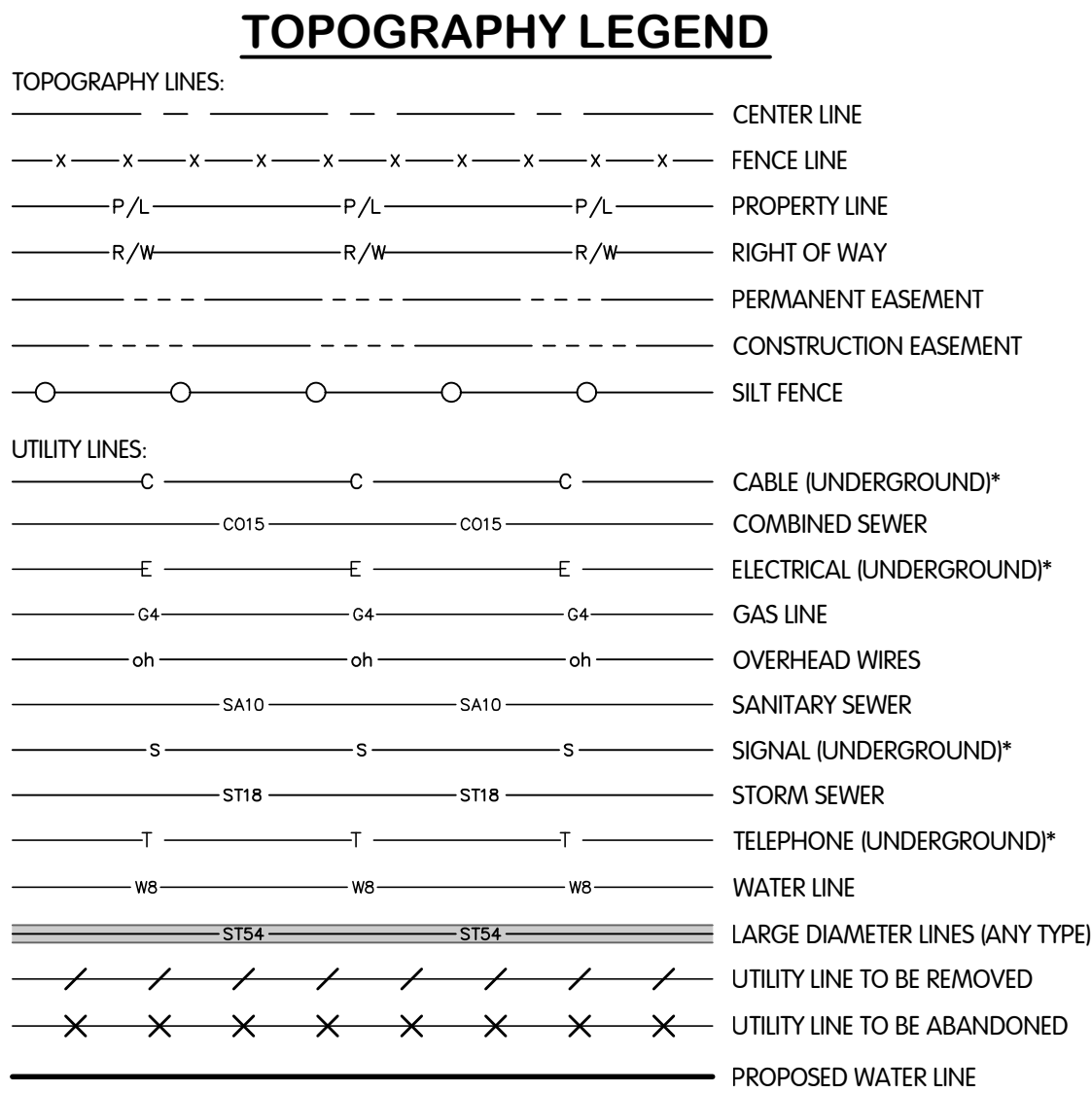
LOCATION MAP

0 500 1000 2000
SCALE IN FEET

ENGINEER:
JONES & HENRY ENGINEERS, LTD.
3103 EXECUTIVE PARKWAY
SUITE 300
TOLEDO, OHIO 43606

OWNER:
NORTHWESTERN WATER AND SEWER DISTRICT
12560 MIDDLETON PIKE
P.O. BOX 348
BOWLING GREEN, OHIO 43402





NOTE: ACCURACY OF EXISTING ELEVATIONS AND DIMENSIONS IS NOT GUARANTEED. FIELD VERIFY BEFORE CONSTRUCTION.

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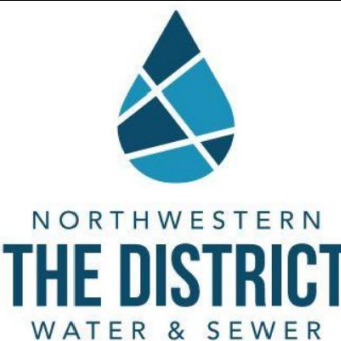
REVISIONS AFTER ISSUED FOR BID	
NO.	DATE
1	
2	
3	
4	

Jones & Henry
Engineers, Ltd.

Fluid thinking®.
www.JHeng.com

JOB NO.	796-7688.001	
SCALE	NONE	
THIS LINE SCALES IT WHEN PLOTTED TO NOTED SCALE		
DESIGNED BR	DRAWN BJD	CHECKED TAB
STATUS:	ISSUED FOR BID	
DATE:	AUGUST 2020	
SHEET NO.		
G-0.1		
1 OF 29		

ITEM No.	Plan Quantity	Contingency Quantity	Grand Total	Unit	Description	WL-1.1	WL-1.2	WL-4.1	WL-5.1	WL-5.2	WL-6.1	WL-6.2	WL-6.3	
1	1	0	1	LS	Mobilization and Demobilization	0	0	0	0	0	0	0	0	
2a	134	6	140	LF	6-inch Water Main, Type B	17	69	48	0	0	0	0	0	
2b	1505	15	1520	LF	8-inch Water Main, Type B	50	0	0	361	106	351	550	87	
2c	233	5	238	LF	8-inch Water Main, Type C	0	0	0	114	119	0	0	0	
2d	892	10	902	LF	10-inch Water Main, Type B	517	290	85	0	0	0	0	0	
2e	39	5	44	LF	10-inch Water Main, Type C	0	0	39	0	0	0	0	0	
2f	99	5	104	LF	8-inch PVC Water Main, in 16-inch Bored Casing	0	0	0	0	99	0	0	0	
2g	100	5	105	LF	10-inch PVC Water Main, in 20-inch Bored Casing	0	0	100	0	0	0	0	0	
2h	8	0	8	EA	Connections to Existing Water Mains 12-inch and Smaller (Without tapping)	2	2	3	0	1	0	0	0	
2i	14	1	15	EA	Existing Water Main Plugged	6	1	0	2	1	2	2	0	
2j	1	0	1	EA	Water Main Plug with Blowoff	0	1	0	0	0	0	0	0	
2k	11	1	12	EA	Water Main Termination and Abandonment	2	2	3	1	1	0	0	2	
2l	333	0	333	LF	Water Main Abandoned - Grout Filled	0	0	118	0	215	0	0	0	
3a	3	0	3	EA	6-inch Gate Valve and Box	0	2	1	0	0	0	0	0	
3b	6	0	6	EA	8-inch Gate Valve and Box	2	0	0	0	3	1	0	0	
3c	5	0	5	EA	10-inch Gate Valve and Box	1	1	3	0	0	0	0	0	
3d	1	0	1	EA	8-inch by 8-inch Tapping Sleeve, Valve and Box	0	0	0	1	0	0	0	0	
3e	1	0	1	EA	10-inch by 8-inch Tapping Sleeve, Valve and Box	0	0	0	0	0	0	0	1	
3f	1	0	1	EA	12-inch by 10-inch Tapping Sleeve, Valve and Box	1	0	0	0	0	0	0	0	
3g	17	1	18	EA	Valve Box Abandoned	3	1	3	3	2	4	0	1	
4a	7	0	7	EA	Fire Hydrant Assembly, Type A	2	0	1	1	2	1	0	0	
4b	1	0	1	EA	Fire Hydrant Assembly, Type A Excluding Watch Valve	0	0	1	0	0	0	0	0	
4c	2	0	2	EA	Fire Hydrant Assembly, Type B	0	0	0	0	0	0	1	1	
4d	8	0	8	EA	Fire Hydrant Assembly Removed	1	0	2	0	2	1	1	1	
5a	339	10	349	LF	Water Service, (Less than 2-inch diameter)	56	72	0	36	52	76	47	0	
5b	39	20	59	LF	Water Service, (2-inch diameter)	0	0	0	39	0	0	0	0	
5c	424	10	434	LF	Water Service Trenchless, (Less than 2-inch diameter)	0	0	65	208	151	0	0	0	
5d	0	25	25	LF	Water Service Trenchless, (2-inch diameter)	0	0	0	0	0	0	0	0	
5e	33	0	33	EA	Water Service Connection Reinstated, (Less than 2-inch diameter)	2	4	1	7	7	5	7	0	
5f	1	0	1	EA	Water Service Connection Reinstated, (2-inch diameter)	0	0	0	1	0	0	0	0	
5g	34	0	34	EA	Water Meter Pits (Without Meter)	2	4	1	8	7	5	7	0	
6a	1101	100	1201	SY	ODOT Item 202 Pavement and Base Removed	380	235	142	132	6	133	36	37	
6b	623	100	723	SY	ODOT Item 202 Driveway and Sidewalk Pavement Removed	4	19	32	152	105	71	225	15	
7a	486	10	496	SY	Flexible Pavement Trench Repair - Heavy Roadway	0	0	142	132	6	133	36	37	
7b	615	10	625	SY	Flexible Pavement Trench Repair - Residential Roadway	380	235	0	0	0	0	0	0	
7c	69	0	69	SY	Flexible Pavement Trench Repair - Driveway	0	5	0	14	26	0	24	0	
7d	1101	0	1101	SY	Temporary Pavement Repair	380	235	142	132	6	133	36	37	
7e	106	0	106	SY	ODOT Item 411 Stabilized Crushed Aggregate (Berm and Drive)	4	0	10	0	27	55	10	0	
7f	0	200	200	SY	3-inch ODOT Item 301 Asphalt Concrete Base Course	0	0	0	0	0	0	0	0	
8a	14	5	19	SY	6-inch ODOT Item 452 Non-Reinforced Concrete Pavement, Class MS (Approach)	0	0	0	14	0	0	0	0	
8b	3559	50	3609	SF	4-inch Concrete Sidewalk	0	21	202	969	416	142	1670	139	
8c	357	10	367	SF	6-inch Concrete Sidewalk and Curb Ramp with Detectable Warning Surface	0	106	0	152	57	0	42	0	
9a	20	5	25	LF	Curb Removed	0	0	0	20	0	0	0	0	
9b	20	5	25	LF	Concrete Curb	0	0	0	20	0	0	0	0	
10a	0	20	20	LF	Sewer Repair (Less than or equal to 10-inch diameter)	0	0	0	0	0	0	0	0	
10b	0	20	20	LF	Sewer Repair (12-inch diameter and larger)	0	0	0	0	0	0	0	0	
11	2	1	3	EA	Catch Basin Removed and Replaced	0	0	1	1	0	0	0	0	
12	1	0	1	LS	Audio-Video Recording of the Zone of Influence	0	0	0	0	0	0	0	0	
13	1	0	1	LS	Maintenance of Traffic	0	0	0	0	0	0	0	0	
14	1	0	1	LS	Storm Water Pollution Prevention	0	0	0	0	0	0	0	0	
15	1	0	1	LS	Clearing and Grubbing	0	0	0	0	0	0	0	0	
16	1	0	1	LS	Pavement Marking	0	0	0	0	0	0	0	0	

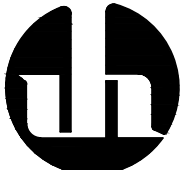


NORTHWESTERN
THE DISTRICT
WATER & SEWER

GENERAL SUMMARY

NORTHWESTERN WATER AND SEWER DISTRICT, OHIO
MCCOMB WATER LINE REPLACEMENT PHASE 2 (WL-2815)

Jones & Henry
Engineers, Ltd.



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JOB NO. 796-7688.001

SCALE NONE

THIS LINE SCALES IF WHEN PLOTTED TO NOTED SCALE

DESIGNED BR DRAWN BJD CHECKED TAB

STATUS ISSUED FOR BID

DATE AUGUST 2020

SHEET NO. G-0.2

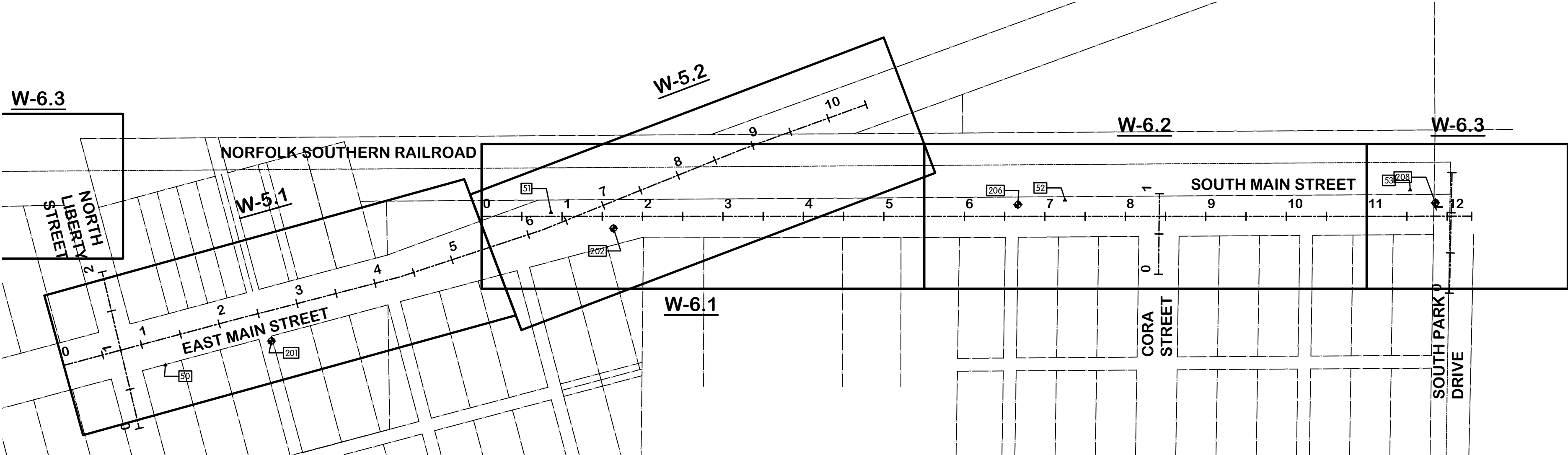
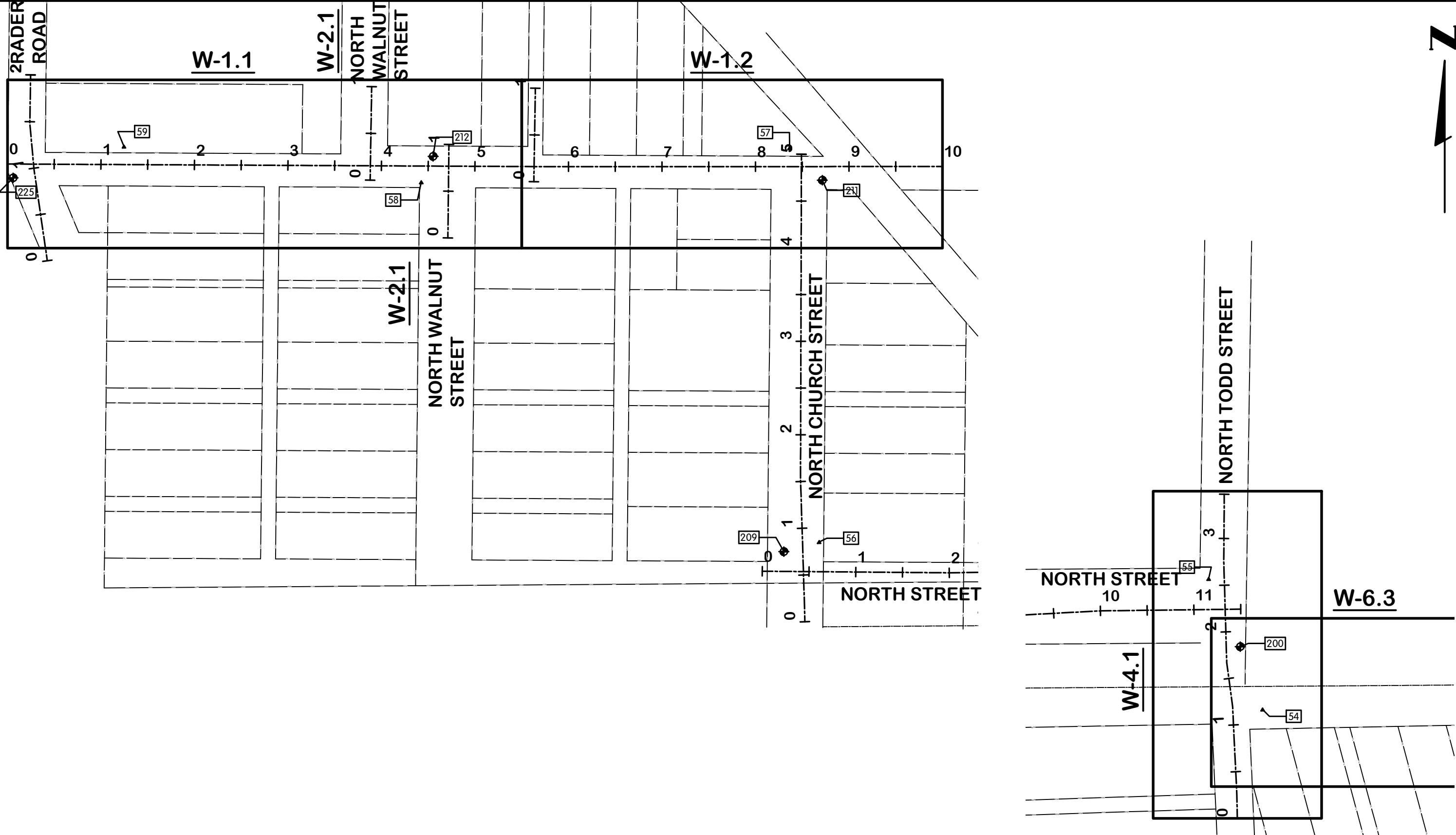
2 OF 29

TOL-7688001G3-SURVEY CONTROL I
8/10/2020 11:51 AM - BDRILL
8/20/2020 10:16 AM

EXISTING STRUCTURE DATA		
NAME	TYPE	DATA
2800-21-74696	SANITARY MANHOLE	CASTING EL. 766.62 8" E INV. EL. 758.64 8" W INV. EL. 758.05 8" N INV. EL. 757.87
2800-39-77854	SANITARY MANHOLE	CASTING EL. 768.16 8" S INV. EL. 756.44
10053	CATCH BASIN	CASTING EL. 765.19 4" W INV. EL. 762.99 15" E INV. EL. 762.89
10078	CATCH BASIN	CASTING EL. 765.28 12" W INV. EL. 762.98
10092	SANITARY MANHOLE	CASTING EL. 765.50 12" S INV. EL. 756.10 12" N INV. EL. 756.00
10095	STORM MANHOLE	CASTING EL. 765.55 24" S INV. EL. 759.15 15" W INV. EL. 762.65 12" E INV. EL. 762.65 24" N INV. EL. 758.95
10096	SANITARY MANHOLE	CASTING EL. 765.96 12" S INV. EL. 756.76 10" E INV. EL. 756.76 8" W INV. EL. 756.96 12" N INV. EL. 756.56
10221	SANITARY MANHOLE	CASTING EL. 761.49 12" S INV. EL. 753.89 12" N INV. EL. 753.69
10222	STORM MANHOLE	CASTING EL. 761.59 24" S INV. EL. 756.29 24" N INV. EL. 756.19
10227	CATCH BASIN	CASTING EL. 761.35 4" SW INV. EL. 760.10 4" SE INV. EL. 760.25
10256	CATCH BASIN	CASTING EL. 762.54 4" NE INV. EL. 761.64
10260	CATCH BASIN	CASTING EL. 763.13 4" S INV. EL. 760.33 6" E INV. EL. 761.13 6" W INV. EL. 759.83
10312	CATCH BASIN	CASTING EL. 768.78 6" S INV. EL. 765.68
10334	CATCH BASIN	CASTING EL. 768.68 6" N INV. EL. 766.28
10827	CATCH BASIN	CASTING EL. 768.06 6" W INV. EL. 765.66 10" NE INV. EL. 764.71
10827A	CATCH BASIN	CASTING EL. 767.83 4" W INV. EL. 765.50 6" SE INV. EL. 765.18
11003	CATCH BASIN	CASTING EL. 764.80 10" NE INV. EL. 762.95
11004	CATCH BASIN	CASTING EL. 765.14 8" NW INV. EL. 762.24 4" NE INV. EL. 763.14 4" SW INV. EL. 763.14 12" SE INV. EL. 760.49
11004A	CATCH BASIN	CASTING EL. 763.97
11083	CATCH BASIN	CASTING EL. 763.31 12" NE INV. EL. 760.46 6" SW INV. EL. 760.51 4" SE INV. EL. 760.76 8" N INV. EL. 760.21

EXISTING STRUCTURE DATA		
NAME	TYPE	DATA
11111	CATCH BASIN	CASTING EL. 763.42 4" N INV. EL. 761.62 6" NW INV. EL. 760.32
11133	CATCH BASIN	CASTING EL. 763.48 6" NE INV. EL. 760.08 4" N INV. EL. 761.68 4" W INV. EL. 761.98 6" NW INV. EL. 760.08
11154	CATCH BASIN	CASTING EL. 763.20 15" SW INV. EL. 756.90 6" S INV. EL. 757.90 15" W INV. EL. 756.95 15" E INV. EL. 756.95
11236	CATCH BASIN	CASTING EL. 764.41 12" N INV. EL. 761.41
11428	CATCH BASIN	CASTING EL. 759.37 15" W INV. EL. 754.77 15" E INV. EL. 754.67
11431	STORM MANHOLE	CASTING EL. 764.46 15" W INV. EL. 754.06 10" S INV. EL. 754.26 15" E INV. EL. 754.36 10" N INV. EL. 754.16
11432	CATCH BASIN	CASTING EL. 760.68 15" W INV. EL. 754.58 24" S INV. EL. 753.78 24" E INV. EL. 753.78
11725	STORM MANHOLE	CASTING EL. 760.21 12" SE INV. EL. 756.21 12" E INV. EL. 755.81 12" NW INV. EL. 756.41
11750	CATCH BASIN	CASTING EL. 759.71 6" E INV. EL. 758.40 12" NW INV. EL. 756.71
11764	SANITARY MANHOLE	CASTING EL. 759.54 8" S INV. EL. 753.24 6" NE INV. EL. 753.04 8" W INV. EL. 753.04
11765	STORM MANHOLE	CASTING EL. 759.69 12" NE INV. EL. 755.79 12" NE INV. EL. 753.79 15" SE INV. EL. 753.39 12" S INV. EL. 753.39 10" SW INV. EL. 755.49 18" NW INV. EL. 753.29
11781	CATCH BASIN	CASTING EL. 758.71 6" S INV. EL. 756.11
11803	CATCH BASIN	CASTING EL. 758.77 4" S INV. EL. 756.57 4" N INV. EL. 756.57
11844	CATCH BASIN	CASTING EL. 757.96 4" S INV. EL. 755.76 12" E INV. EL. 755.76
11844A	CATCH BASIN	CASTING EL. 757.91 4" NW INV. EL. 755.83 4" SE INV. EL. 755.83
11856	SANITARY MANHOLE	CASTING EL. 758.53 8" E INV. EL. 752.03 8" SW INV. EL. 752.03
11892	SANITARY MANHOLE	CASTING EL. 758.92 8" NE INV. EL. 752.02 8" S INV. EL. 751.92 8" W INV. EL. 752.02
11999	CATCH BASIN	CASTING EL. 758.18 6" W INV. EL. 755.68
12004	CATCH BASIN	CASTING EL. 757.94 6" N INV. EL. 756.04 6" E INV. EL. 755.68 8" S INV. EL. 755.94
12014	SANITARY MANHOLE	CASTING EL. 758.70 8" E INV. EL. 750.90 8" W INV. EL. 750.70 8" N INV. EL. 750.70

EXISTING STRUCTURE DATA		
NAME	TYPE	DATA
12034	CATCH BASIN	CASTING EL. 758.17 8" S INV. EL. 755.97
12042	CATCH BASIN	CASTING EL. 758.22
12123	CATCH BASIN	CASTING EL. 758.51
12124	SANITARY MANHOLE	CASTING EL. 758.78 8" S INV. EL. 751.18 8" E INV. EL. 751.18
12125	CATCH BASIN	CASTING EL. 758.04 6" NE INV. EL. 755.84
12161	CATCH BASIN	CASTING EL. 758.80 12" W INV. EL. 755.24 4" S INV. EL. 756.14 4" N INV. EL. 756.14 12" N INV. EL. 755.14
12162	STORM MANHOLE	CASTING EL. 759.32 12" S INV. EL. 755.12 12" S INV. EL. 753.12 12" N INV. EL. 751.22
12218	SANITARY MANHOLE	CASTING EL. 758.66 12" S INV. EL. 750.46 12" N INV. EL. 750.46
12257	CATCH BASIN	CASTING EL. 0.00 4" N INV. EL. 756.39 4" S INV. EL. 756.19 12" E INV. EL. 755.49
12606	SANITARY MANHOLE	CASTING EL. 763.21 15" W INV. EL. 757.21 15" E INV. EL. 757.06



CONTROL POINTS				
POINT #	RAW DESCRIPTION	ELEVATION	NORTHING	EASTING
50	SET MAG NAIL	769.39	527,651.30	1,612,967.55
51	SET CAPPED IRON REBAR	765.72	527,841.04	1,613,446.75
52	SET CAPPED IRON REBAR	764.23	527,856.22	1,614,085.50
53	SET CAPPED IRON REBAR	762.98	527,868.96	1,614,514.58
54	SET MAG NAIL	766.70	527,865.59	1,612,594.63
55	SET CAPPED IRON REBAR	762.29	528,005.29	1,612,537.02
56	SET CAPPED IRON REBAR	761.27	527,973.17	1,611,482.92
57	SET CAPPED IRON REBAR	758.59	528,394.35	1,611,451.21
58	SET CAPPED IRON REBAR	758.64	528,357.92	1,611,057.38
59	SET CAPPED IRON REBAR	758.72	528,396.01	1,610,739.40

SURVEY CONTROL
AND EXISTING STRUCTURE DATA

NORTHWESTERN WATER AND SEWER DISTRICT, OHIO
MCCOMB WATER LINE REPLACEMENT PHASE 2 (WL-2815)

BY
REVISIONS AFTER ISSUED FOR BID
NO.
1
2
3
4
5

Jones & Henry
Engineers, Ltd.

Fluid thinking®
www.JHeng.com

JOB NO. 796-7688.001

SCALE 1"=100'

THIS LINE SCALES IF WHEN
PLOTTED TO NOTED SCALE

DESIGNED BR DRAWN BJD CHECKED TAB

STATUS ISSUED FOR BID

DATE AUGUST 2020

SHEET NO.
G-0.3
3 OF 29

TOL-7688001G3-SURVEY CONTROL 2
8/10/2020 11:51 AM - BDRILL
8/20/2020 10:16 AM

Alignment: COOPER STREET
Description:

Tangent Data			
Description	PT Station	Northing	Easting
Start:	0+00.000	528377.374	1610614.738
End:	5+91.546	528374.477	1611206.277
Tangent Data			
Parameter	Value	Parameter	Value
Length:	591.546	Course:	S 89° 43' 09.6563" E

Tangent Data			
Description	PT Station	Northing	Easting
Start:	5+91.546	528374.477	1611206.277
End:	10+00.000	528374.69	1611614.731
Tangent Data			
Parameter	Value	Parameter	Value
Length:	408.454	Course:	N 89° 58' 12.2409" E

Alignment: CORA STREET
Description:

Tangent Data			
Description	PT Station	Northing	Easting
Start:	0+00.000	527763.656	1614201.791
End:	1+00.000	527863.649	1614202.988
Tangent Data			
Parameter	Value	Parameter	Value
Length:	100	Course:	N 00° 41' 08.0833" E

Alignment: EAST MAIN STREET
Description:

Tangent Data			
Description	PT Station	Northing	Easting
Start:	0+00.000	527650.34	1612841.065
End:	2+34.799	527710.982	1613067.897
Tangent Data			
Parameter	Value	Parameter	Value
Length:	234.799	Course:	N 75° 01' 56.6779" E

Tangent Data			
Description	PT Station	Northing	Easting
Start:	2+34.799	527710.982	1613067.897
End:	2+68.870	527719.29	1613100.94
Tangent Data			
Parameter	Value	Parameter	Value
Length:	34.071	Course:	N 75° 53' 11.5862" E

Tangent Data			
Description	PT Station	Northing	Easting
Start:	2+68.870	527719.29	1613100.94
End:	4+33.047	527760.609	1613259.833
Tangent Data			
Parameter	Value	Parameter	Value
Length:	164.178	Course:	N 75° 25' 24.6865" E

Tangent Data			
Description	PT Station	Northing	Easting
Start:	4+33.047	527760.609	1613259.833
End:	6+17.646	527818.34	1613435.172
Tangent Data			
Parameter	Value	Parameter	Value
Length:	184.599	Course:	N 71° 46' 32.6501" E

Tangent Data			
Description	PT Station	Northing	Easting
Start:	6+17.646	527818.34	1613435.172
End:	8+85.530	527918.602	1613683.585
Tangent Data			
Parameter	Value	Parameter	Value
Length:	267.884	Course:	N 68° 01' 13.1748" E

Tangent Data			
Description	PT Station	Northing	Easting
Start:	4+33.047	527760.609	1613259.833
End:	6+17.646	527818.34	1613435.172
Tangent Data			
Parameter	Value	Parameter	Value
Length:	184.599	Course:	N 71° 46' 32.6501" E

Tangent Data			
Description	PT Station	Northing	Easting
Start:	6+17.646	527818.34	1613435.172
End:	8+85.530	527918.602	1613683.585
Tangent Data			
Parameter	Value	Parameter	Value
Length:	267.884	Course:	N 68° 01' 13.1748" E

Tangent Data			
Description	PT Station	Northing	Easting
Start:	8+85.530	527918.602	1613683.585
End:	10+50.002	527974.539	1613838.253
Tangent Data			
Parameter	Value	Parameter	Value
Length:	164.472	Course:	N 70° 07' 02.3907" E

Tangent Data			
Description	PT Station	Northing	Easting
Start:	8+85.530	527918.602	1613683.585
End:	10+50.002	527974.539	1613838.253
Tangent Data			
Parameter	Value	Parameter	Value
Length:	164.472	Course:	N 70° 07' 02.3907" E

Alignment: NORTH CHURCH STREET
Description:

Tangent Data			
Description	PT Station	Northing	Easting
Start:	0+00.000	527887.853	1611467.691
End:	1+53.230	528041.01	1611462.964
Tangent Data			
Parameter	Value	Parameter	Value
Length:	153.23	Course:	N 01° 46' 04.0418" W

Tangent Data			
Description	PT Station	Northing	Easting
Start:	1+53.230	528041.01	1611462.964
End:	5+00.004	528387.782	1611463.896
Tangent Data			
Parameter	Value	Parameter	Value
Length:	346.773	Course:	N 00° 09' 14.2157" E

Tangent Data			
Description	PT Station	Northing	Easting
Start:	0+00.000	527571.959	1612934.91
End:	2+00.000	527766.575	1612888.814
Tangent Data			
Parameter	Value	Parameter	Value
Length:	200	Course:	N 13° 19' 30.8815" W

Tangent Data			
Description	PT Station	Northing	Easting
Start:	0+00.000	527571.959	1612934.91
End:	2+00.000	527766.575	1612888.814
Tangent Data			
Parameter	Value	Parameter	Value
Length:	200	Course:	N 13° 19' 30.8815" W

Alignment: NORTH STREET
Description:

Tangent Data			
Description	PT Station	Northing	Easting
Start:	0+00.000	527941.872	1611421.997
End:	1+99.220	527940.204	1611621.21
Tangent Data			
Parameter	Value	Parameter	Value
Length:	199.22	Course:	S 89° 31' 13.4205" E

Tangent Data			
Description	PT Station	Northing	Easting
Start:	1+99.220	527940.204	1611621.21
End:	4+94.549	527944.248	1611916.512
Tangent Data			
Parameter	Value	Parameter	Value
Length:	295.329	Course:	N 89° 12' 56.1288" E

Tangent Data			
Description	PT Station	Northing	Easting
Start:	4+94.549	527944.248	1611916.512
End:	9+99.684	527970.986	1612420.939
Tangent Data			
Parameter	Value	Parameter	Value
Length:	505.135	Course:	N 86° 57' 56.6640" E

Tangent Data			
Description	PT Station	Northing	Easting
Start:	9+99.684	527970.986	1612420.939
End:	11+49.996	527972.845	1612571.239
Tangent Data			
Parameter	Value	Parameter	Value
Length:	150.312	Course:	N 89° 17' 29.0885" E

Alignment: NORTH TODD STREET
Description:

Tangent Data			
Description	PT Station	Northing	Easting
Start:	0+00.000	527749.036	1612567.66
End:	0+25.000	527774.03	1612567.114
Tangent Data			
Parameter	Value	Parameter	Value
Length:	25	Course:	N 01° 15' 01.9568" W

Tangent Data			
Description	PT Station	Northing	Easting
Start:	0+25.000	527774.03	1612567.114
End:	1+19.681	527868.602	1612562.574
Tangent Data			
Parameter	Value	Parameter	Value
Length:	94.681	Course:	N 02° 44' 54.6762" W

Tangent Data			
Description	PT Station	Northing	Easting
Start:	1+19.681	527868.602	1612562.574
End:	1+67.180	527915.681	1612556.272
Tangent Data			
Parameter	Value	Parameter	Value
Length:	47.499	Course:	N 07° 37' 28.3264" W

Tangent Data			
Description	PT Station	Northing	Easting
Start:	1+67.180	527915.681	1612556.272
End:	2+74.961	528023.416	1612553.117
Tangent Data			
Parameter	Value	Parameter	Value
Length:	107.781	Course:	N 01° 40' 37.2682" W

Tangent Data			
Description	PT Station	Northing	Easting
Start:	2+74.961	528023.416	1612553.117
End:	3+47.358	528095.811	1612553.666
Tangent Data			
Parameter	Value	Parameter	Value
Length:	72.397	Course:	N 00° 26' 02.8472" E

Tangent Data			
Description	PT Station	Northing	Easting
Start:	1+67.180	527915.681	1612556.272
End:	2+74.961	528023.416	1612553.117
Tangent Data			
Parameter	Value	Parameter	Value
Length:	107.781	Course:	N 01° 40' 37.2682" W

Tangent Data			
Description	PT Station	Northing	Easting
Start:	2+74.961	528023.416	1612553.117
End:	3+47.358	528095.811	1612553.666
Tangent Data			
Parameter	Value	Parameter	Value
Length:	72.397	Course:	N 00° 26' 02.8472" E

Tangent Data			
Description	PT Station	Northing	Easting
Start:	0+00.000	528360.084	1611002.641
End:	1+00.000	528460.071	1611004.29
Tangent Data			
Parameter	Value	Parameter	Value
Length:	100	Course:	N 00° 56' 42.9490" E

Tangent Data			
Description	PT Station	Northing	Easting
Start:	0+00.000	528360.084	1611002.641
End:	1+00.000	528460.071	1611004.29
Tangent Data			
Parameter	Value	Parameter	Value
Length:	100	Course:	N 00° 56' 42.9490" E

Alignment: RADER ROAD
Description:

Tangent Data			
Description	PT Station	Northing	Easting
Start:	0+00.000	528273.91	1610657.362
End:	1+00.000	528372.874	1610643.007
Tangent Data			
Parameter	Value	Parameter	Value
Length:	100	Course:	N 08° 15' 11.4474" W

Tangent Data			
Description	PT Station	Northing	Easting
Start:	1+00.000	528372.874	1610643.007
End:	1+48.068	528420.744	1610638.65
Tangent Data			
Parameter	Value	Parameter	Value
Length:	48.068	Course:	N 05° 12' 03.1445" W

Tangent Data			
Description	PT Station	Northing	Easting
Start:	1+48.068	528420.744	1610638.65
End:	2+00.144	528472.813	1610639.508
Tangent Data			
Parameter	Value	Parameter	Value
Length:	52.075	Course:	N 00° 56' 38.9038" E

Alignment: SOUTH MAIN STREET
Description:

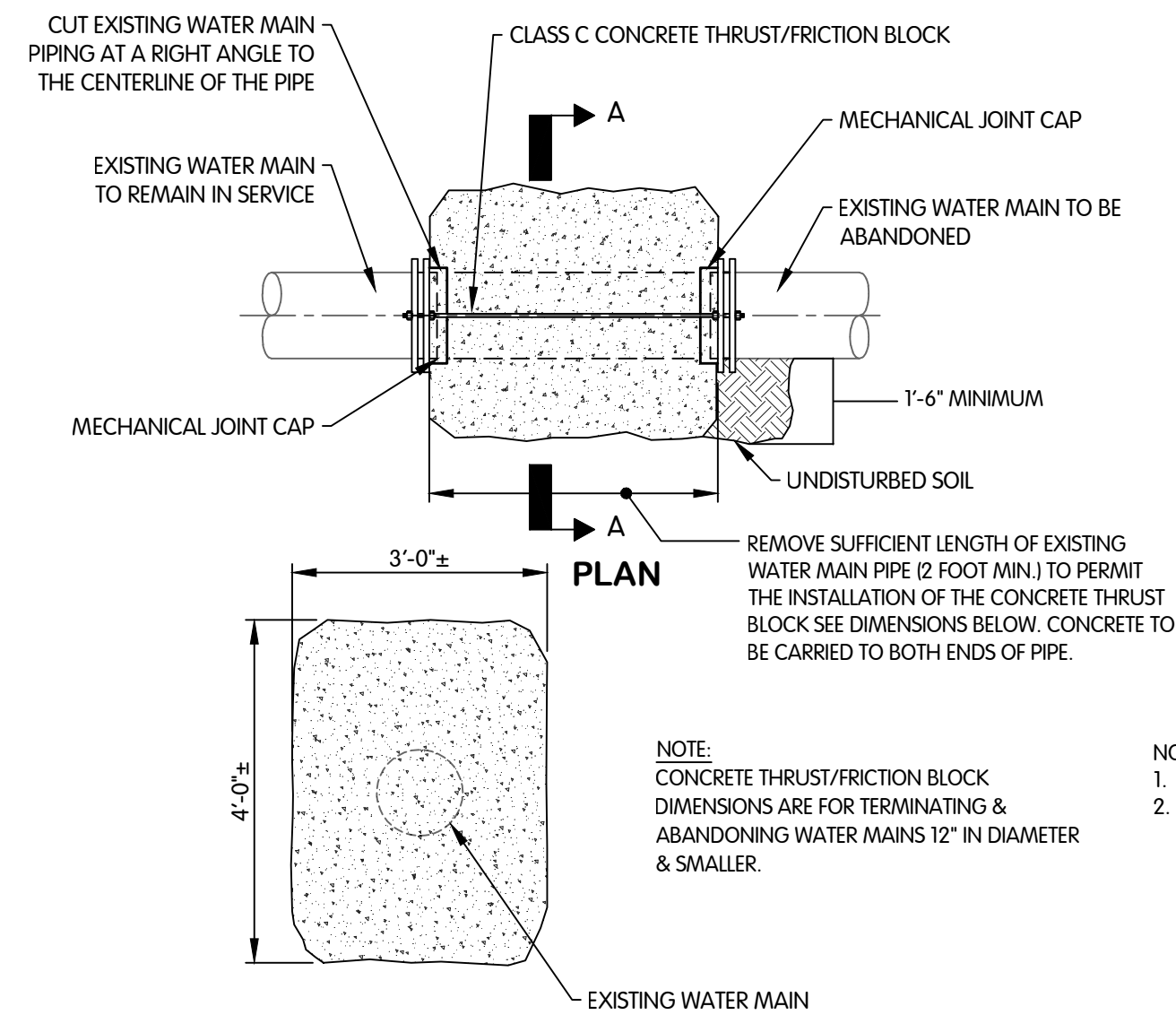
Tangent Data			
Description	PT Station	Northing	Easting
Start:	0+00.000	527835.574	1613360.464
End:	12+30.528	527835.67	1614590.992
Tangent Data			
Parameter	Value	Parameter	Value
Length:	1230.528	Course:	N 89° 59' 43.9174" E

Tangent Data			
Description	PT Station	Northing	Easting
Start:	0+00.000	527740.092	1614563.401
End:	1+50.000	527890.058	1614566.574
Tangent Data			
Parameter	Value	Parameter	Value
Length:	150	Course:	N 01° 12' 43.0751" E

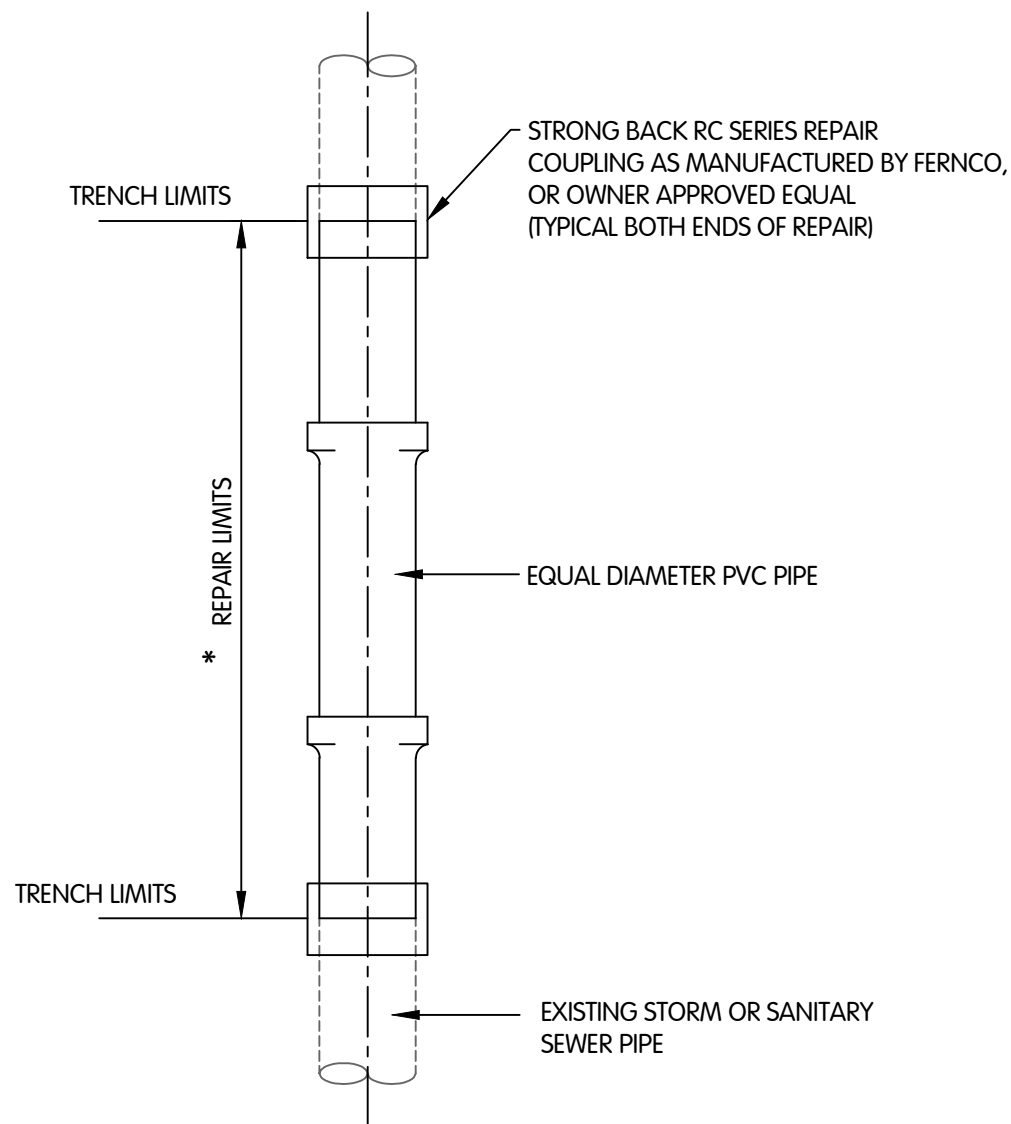
Tangent Data			
Description	PT Station	Northing	Easting
Start:	0+00.000	528298.301	1611085.792
End:	1+00.000	528398.295	1611086.928
Tangent Data			
Parameter	Value	Parameter	Value
Length:	100	Course:	N 00° 39' 03.6976" E

Description		PT Station	Northing	Easting
Start:		0+00.000	528298.301	1611085.792
End:		1+00.000	528398.295	1611086.928
Tangent Data				
Parameter	Value	Parameter	Value	

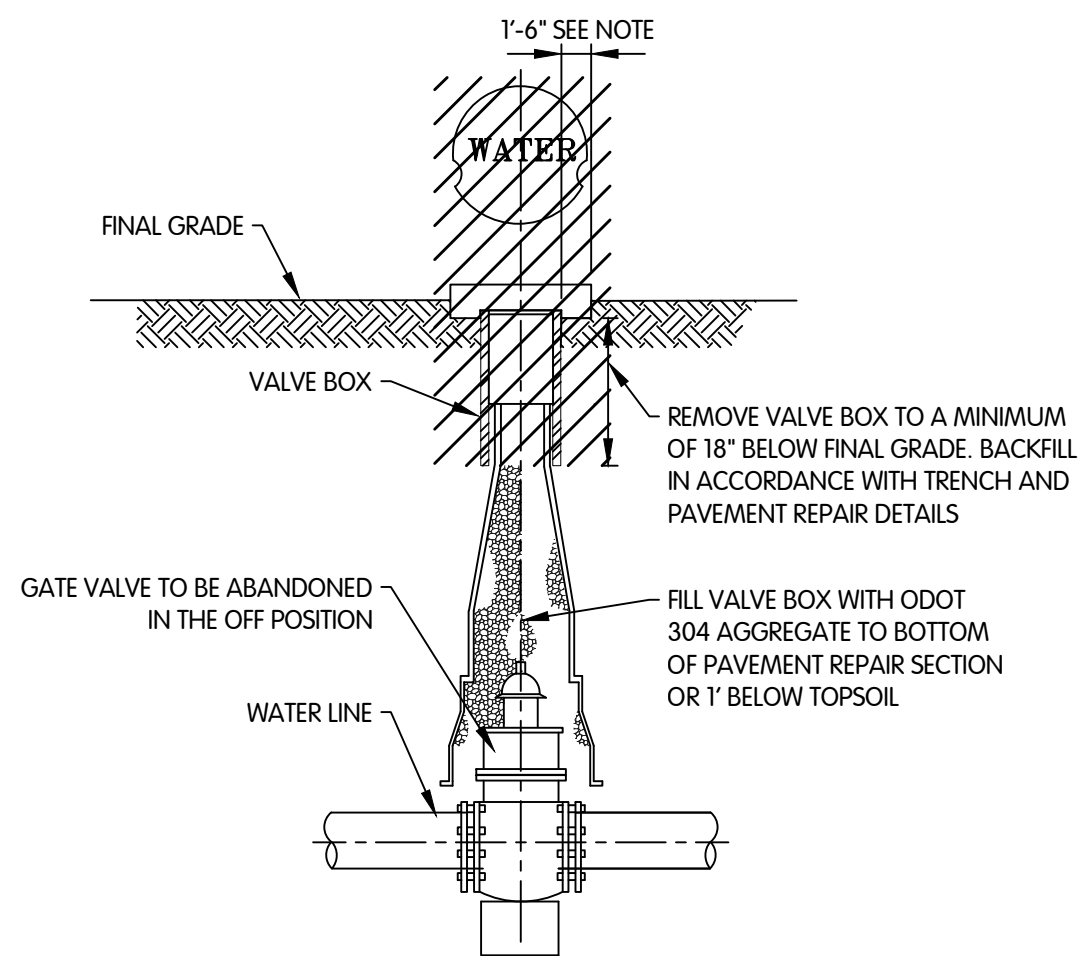
TOL-768800-W01-WATER LINE DETAILS
8/10/2020 11:56 AM - BPRILL
8/20/2020 10:16 AM



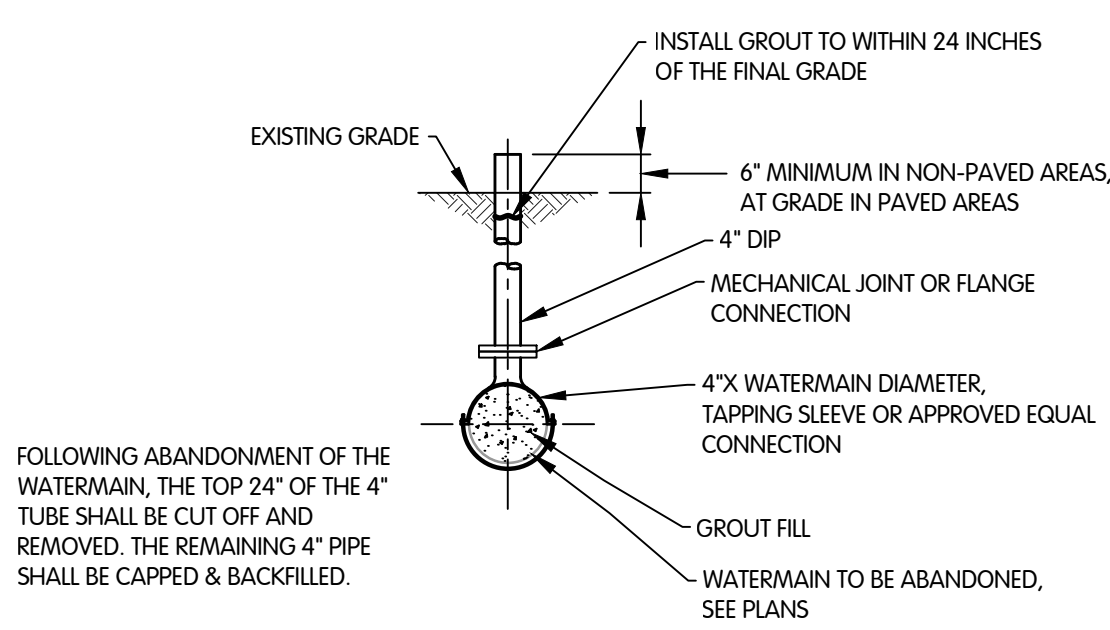
SECTION A-A
WATER MAIN TERMINATION & ABANDONMENT DETAIL
NTS



SEWER PIPE REPAIR DETAIL
NTS

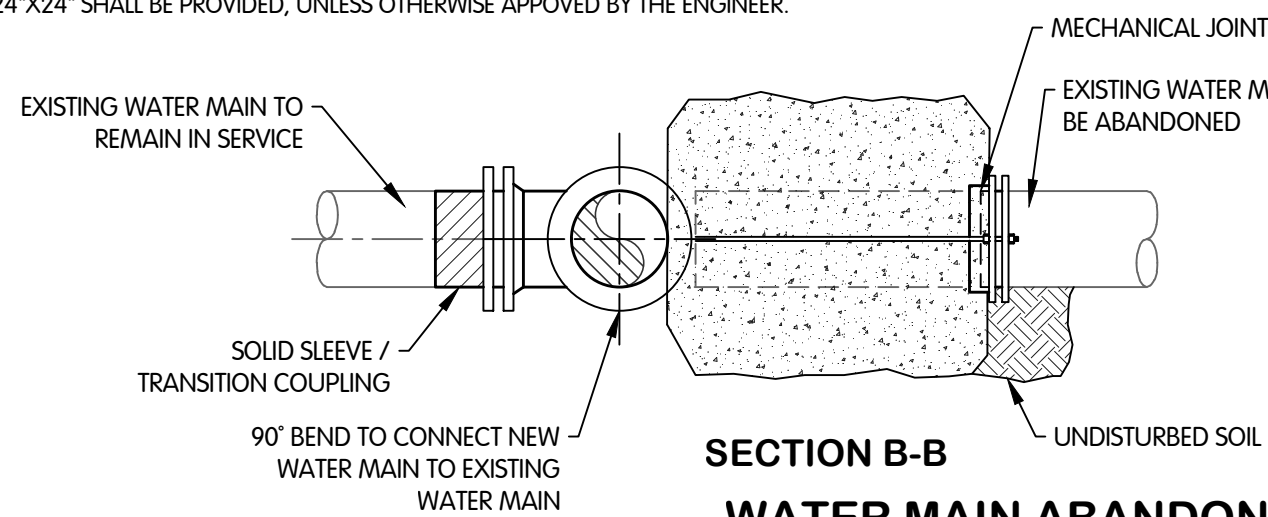


VALVE BOX ABANDONMENT DETAIL
NTS

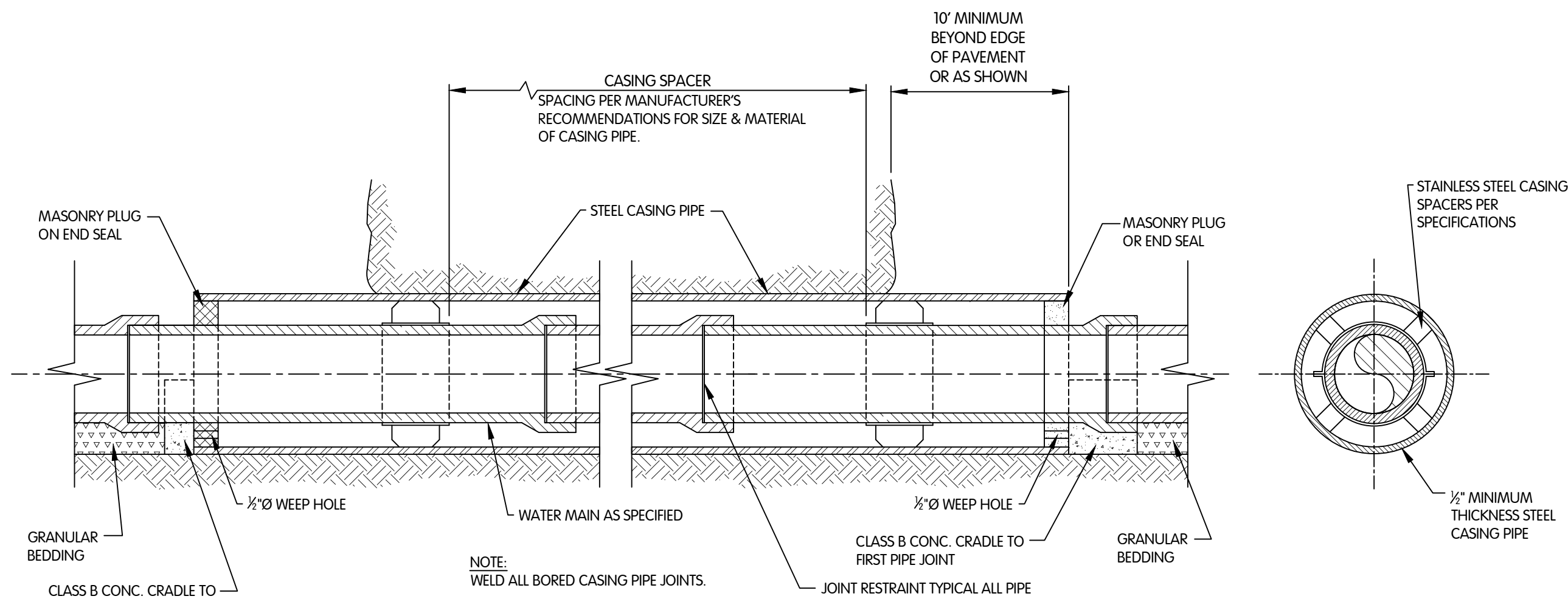


WATER LINE ABANDONMENT GROUT TUBE AND INSPECTION PORT DETAIL
NTS

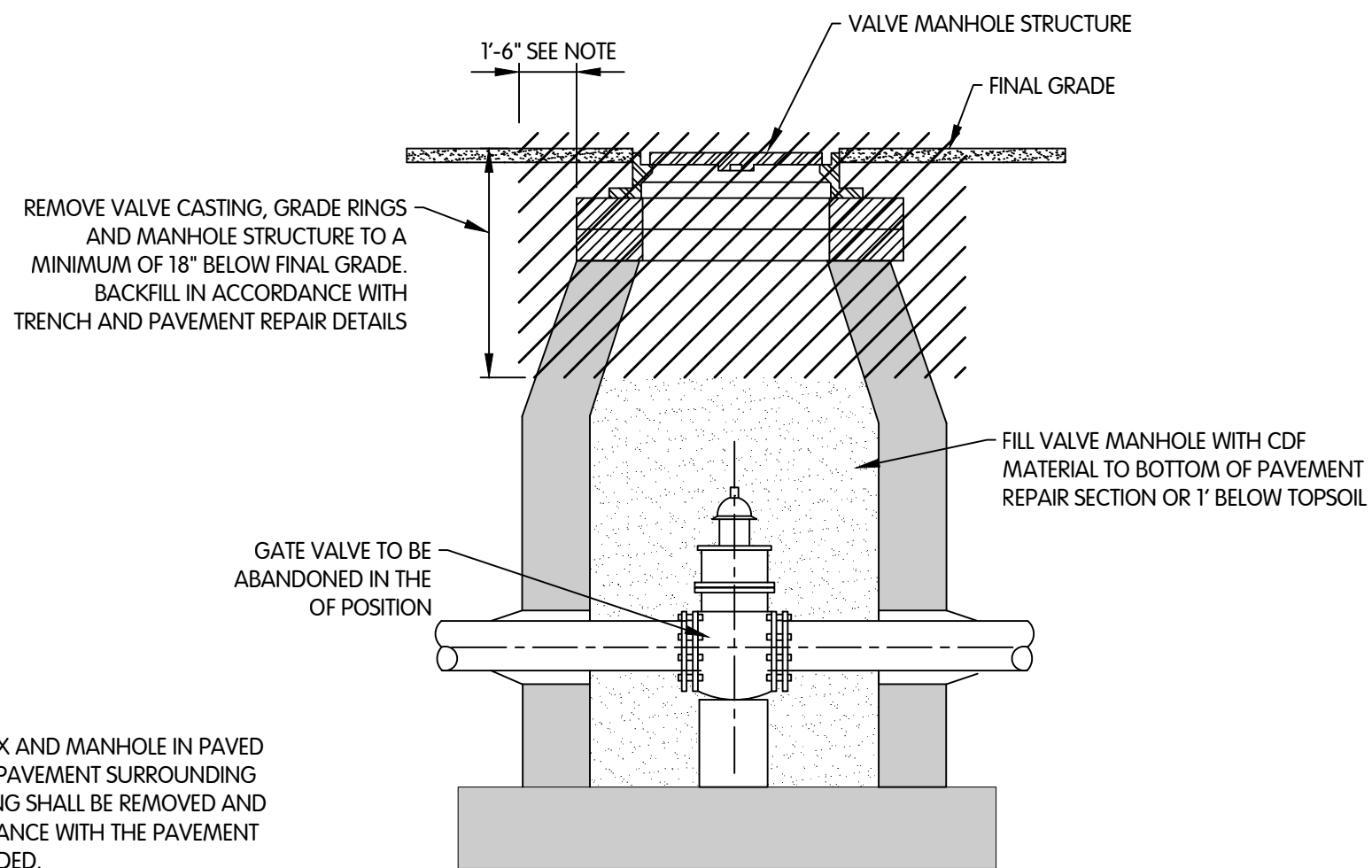
- NOTES:
1. GROUT TUBES SHALL BE LOCATED AS NECESSARY TO ENSURE THE WATERMAIN IS FILLED COMPLETELY.
 2. NECESSARY PAVEMENT REPAIRS FOR GROUT TUBES, VENTS OR INSPECTION PORTS LOCATED IN PAVED AREAS SHALL NOT BE MEASURED FOR PAYMENT. PAVEMENT REPAIRS SHALL BE MADE IN ACCORDANCE WITH TYPICAL SECTION. A MINIMUM REPAIR AREA OF 24"X24" SHALL BE PROVIDED, UNLESS OTHERWISE APPROVED BY THE ENGINEER.



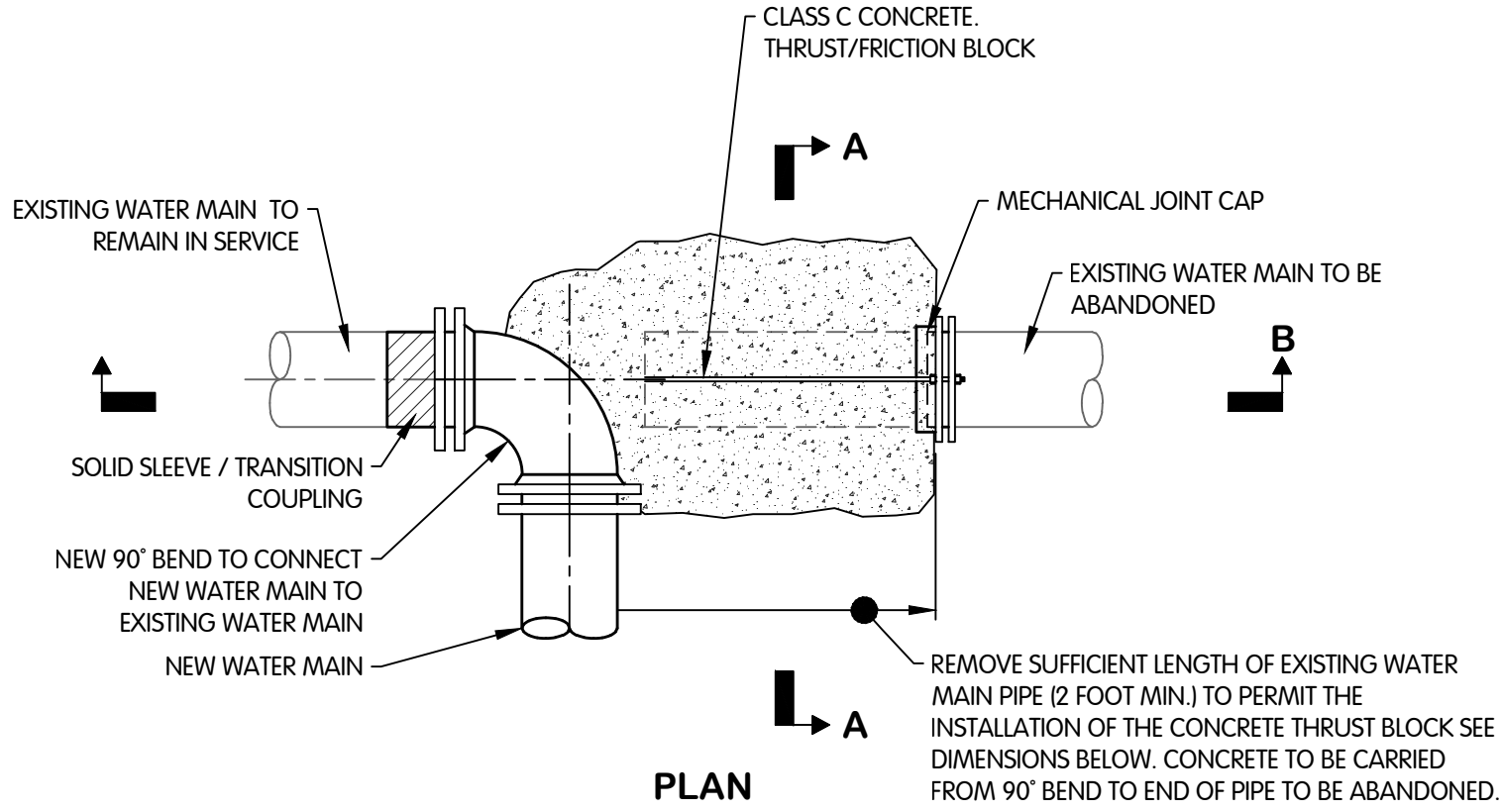
SECTION B-B
WATER MAIN ABANDONMENT & TERMINATION DETAIL (90° BEND ALTERNATIVE)
NTS



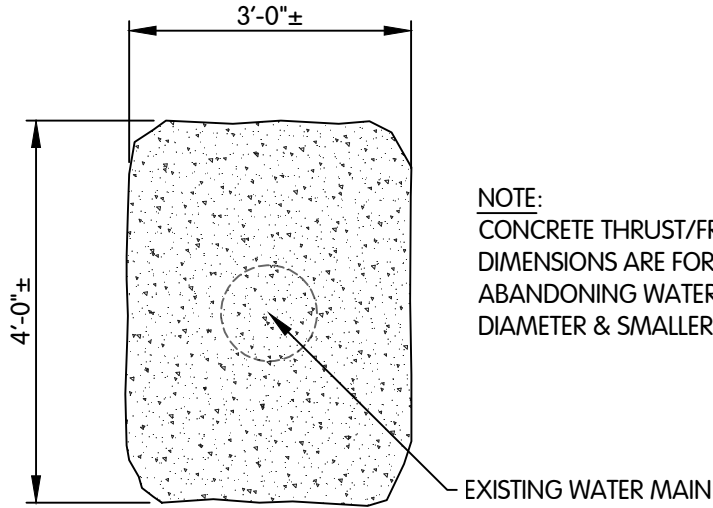
BORED STEEL CASING PIPE WITH CARRIER PIPE DETAIL
NTS



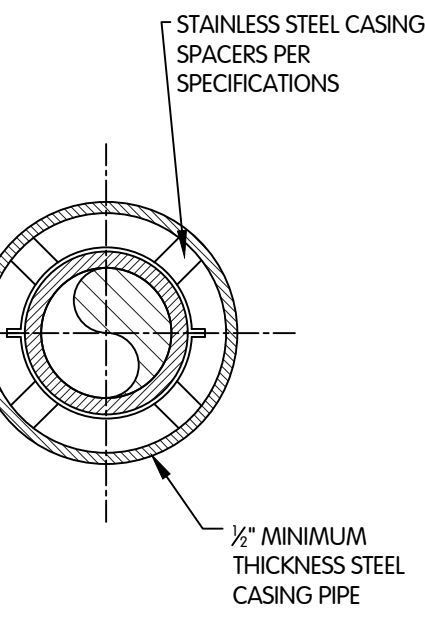
VALVE MANHOLE ABANDONMENT DETAIL
NTS



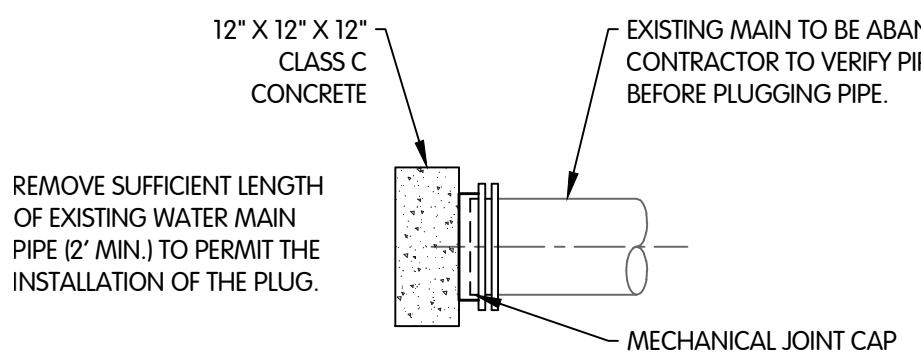
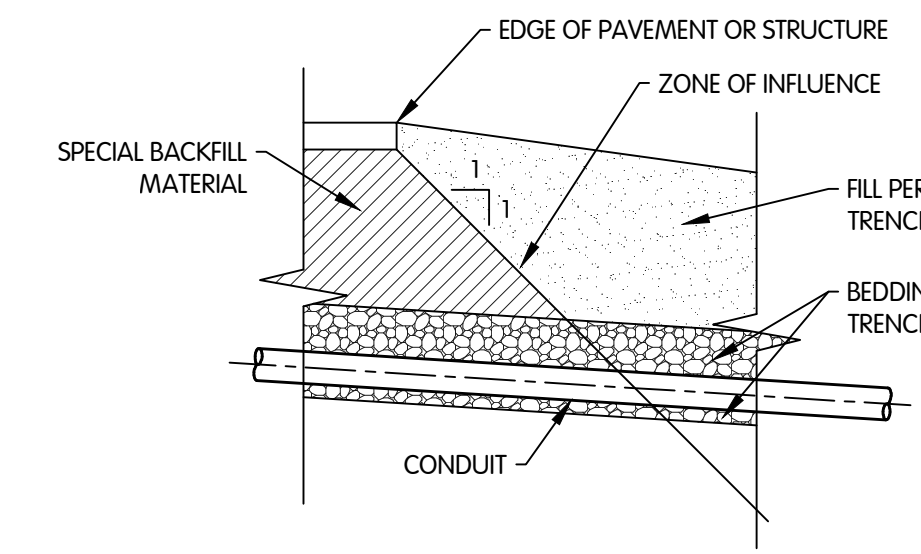
PLAN



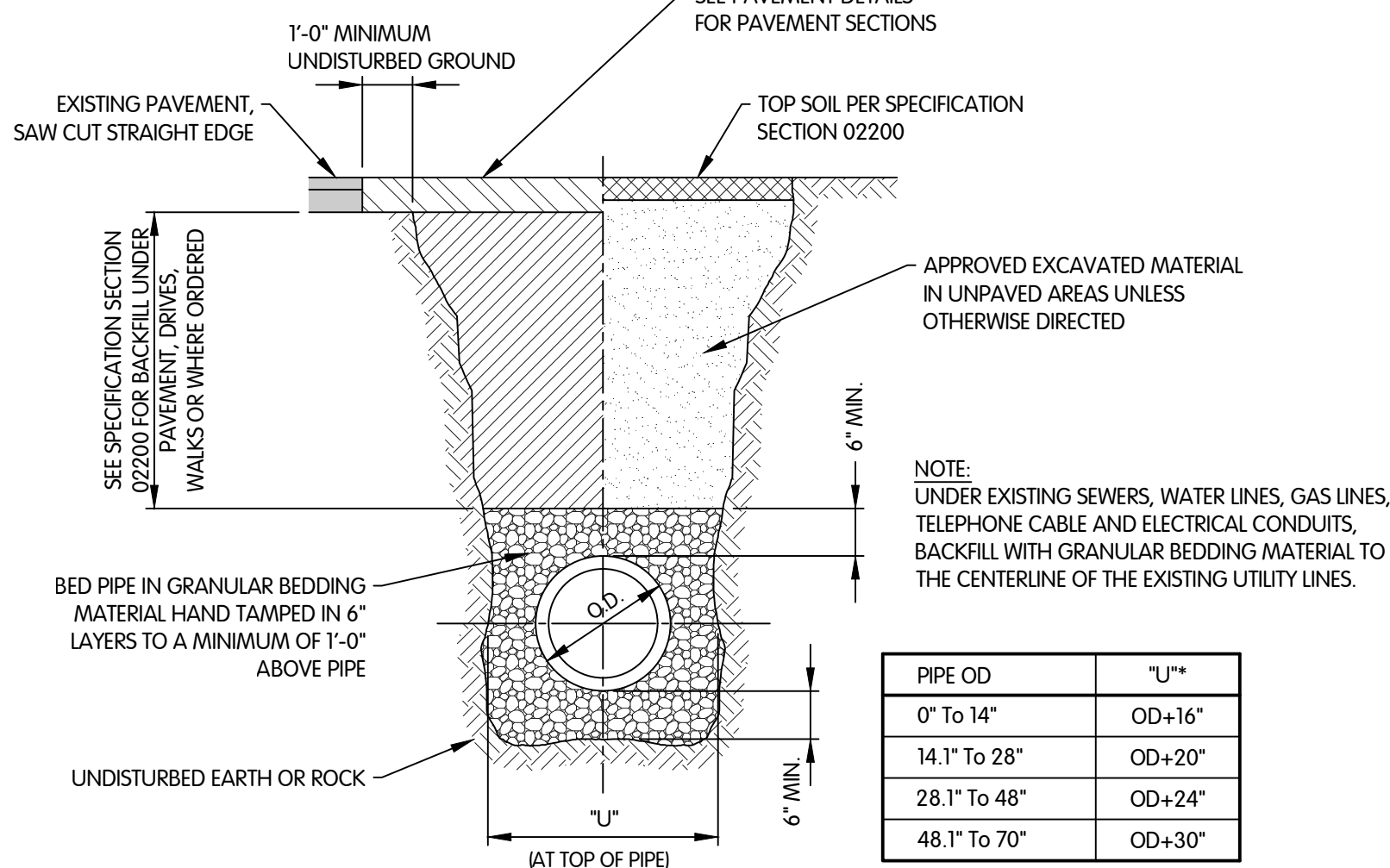
SECTION A-A



TRANSVERSE ZONE OF INFLUENCE
NTS



WATER MAIN PLUG DETAIL
NTS

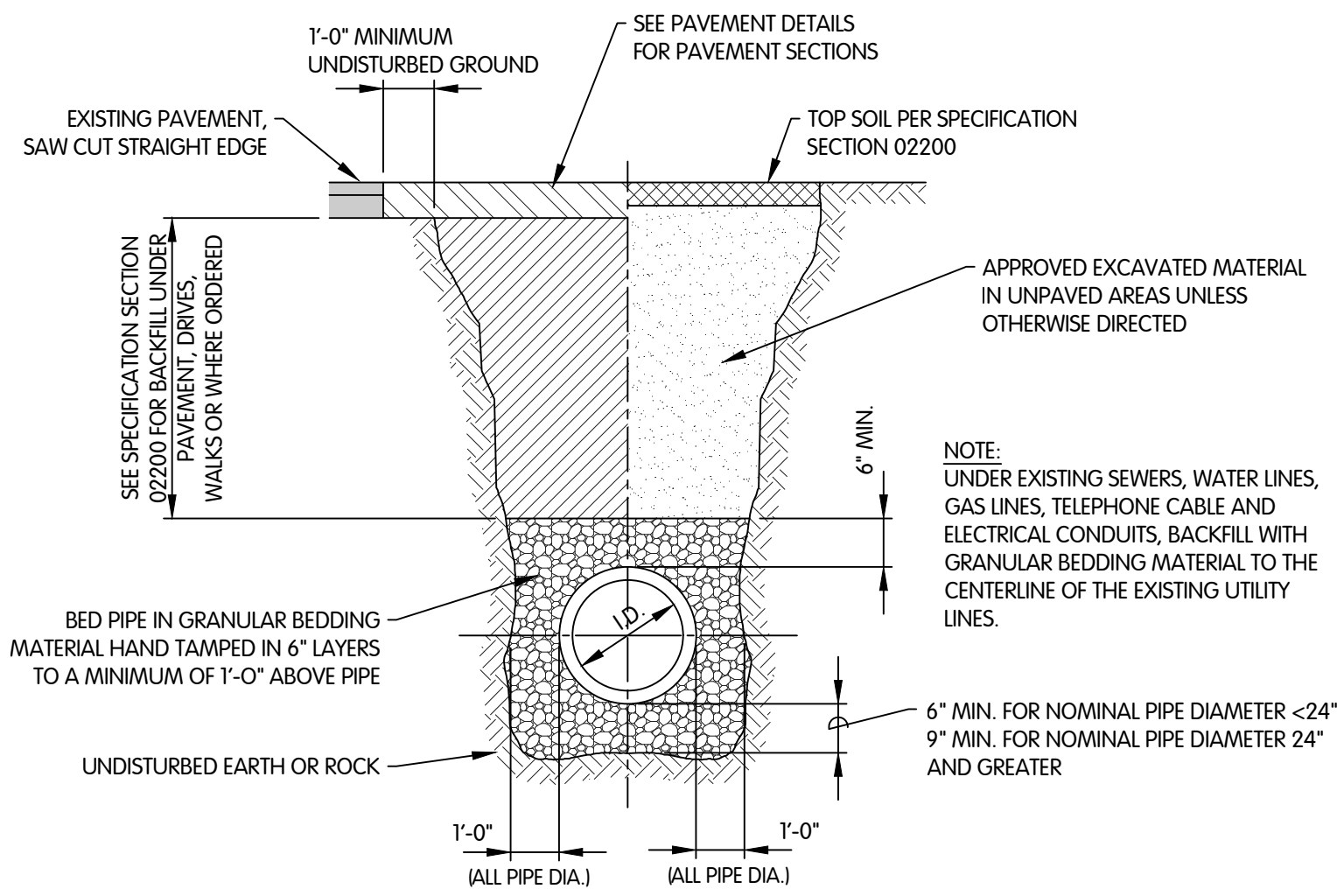


PIPE OD	"U"
0" To 14"	OD+16"
14.1" To 28"	OD+20"
28.1" To 48"	OD+24"
48.1" To 70"	OD+30"

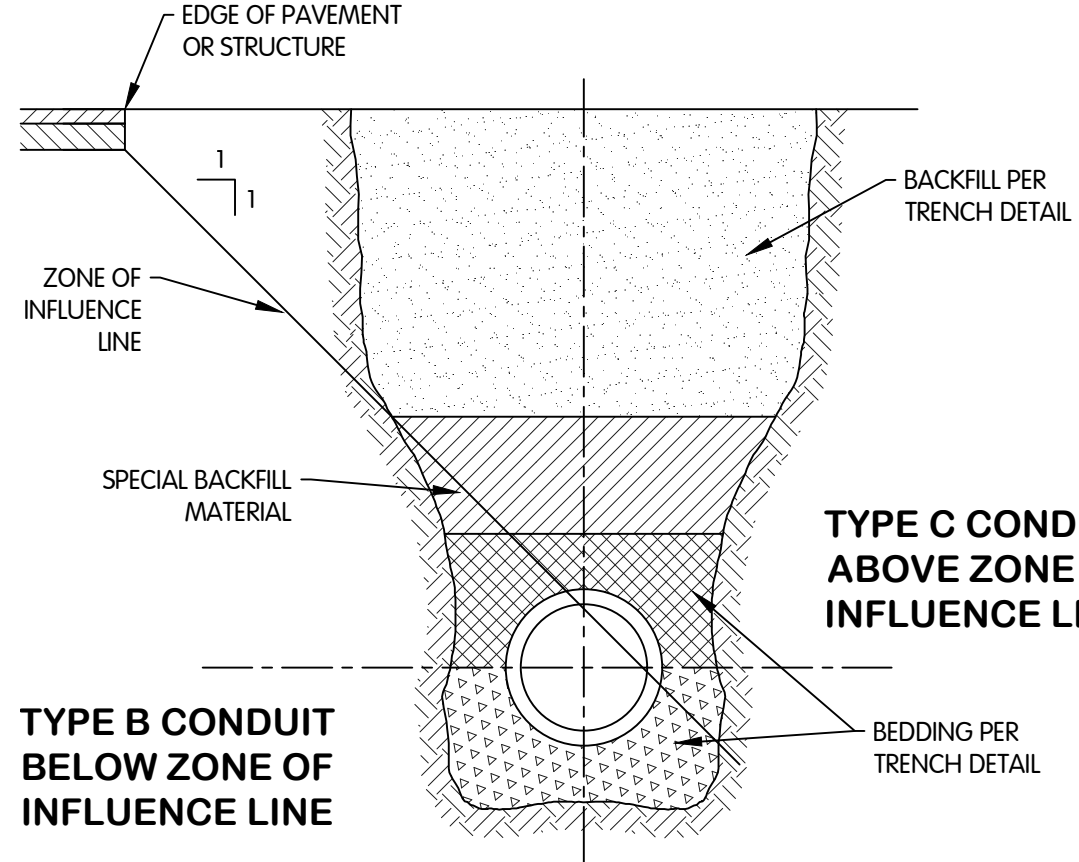
TRENCH SCHEDULE

* NOTE:
"U" IS THE MINIMUM WIDTH FOR FLEXIBLE PIPES IN ACCORDANCE WITH ASTM D-2321 AND D-2774.

TRENCH DETAIL FOR FLEXIBLE PIPE
NTS



TRENCH DETAIL FOR RIGID PIPE (DIP)
NTS



PARALLEL ZONE OF INFLUENCE DETAIL
NTS

TYPE B CONDUIT BELOW ZONE OF INFLUENCE LINE

NORTHWESTERN WATER & SEWER DISTRICT

WATER MAIN GENERAL NOTES AND SPECIFICATIONS

1.0 GENERAL

1.1 Technical Standards

- A. All material and construction shall meet the requirements of the American Water Works Association (AWWA), Ohio Department of Transportation (ODOT), The Ohio Environmental Protection Agency (OEPA), Recommended Standards for Water Works (10 States Standards) and American Society of Testing Materials (ASTM).

- B. References to the "District" in these specifications shall mean the Northwestern Water and Sewer District or its designated representative.

1.2 Drinking Water Facilities Separation

- A. A minimum of 10-foot horizontal and eighteen 18-inches of vertical clearance shall be maintained between sanitary sewers and public water mains. In the event that specified clearances cannot be maintained between the sanitary sewer and water main pipe, the sanitary sewer pipe shall be installed in accordance with the requirements of 10 States Standards.

- B. The District shall reserve the right to require the sanitary sewer to be constructed using pressure pipe in accordance 10 States Standards.

1.3 Minimum Cover

- A. Water mains shall be installed a minimum of 5-feet below final grade. The Contractor shall submit installations requiring less than 5-feet of cover or review by the District.

1.4 Erosion and Sedimentation Control

- A. All activities where disturbed soils are anticipated shall be maintained with proper erosion and sedimentation controls in accordance with the OEPA General Permit for Construction Activities and to the satisfaction of the Wood County Engineer or other local agency having jurisdiction over storm water drainage.

1.5 Coordination

- A. The Contractor shall schedule and attend a pre-construction meeting to be held prior to commencing any part of the work. The pre-construction meeting shall be scheduled to occur at minimum of one-week prior to the start of any part of the work.

- B. The Contractor shall notify the District a minimum of 72-hours prior to the commencement of any part of the work.

- C. The Contractor shall submit any proposed changes to the approved design plan in writing to the District for review.

- D. The Contractor shall promptly notify the District of any discrepancies between the requirements of these Specifications.

1.7 Inspections

- A. All work is subject to inspection and review of the District.

- B. No work shall be permitted without a designated representative of the District present.

1.8 Construction Limits

- A. The Contractor must at all times conduct his operations within the public right-of-way, easements, or work agreements as shown.

1.9 Existing Utilities

- A. The location of all utilities shown are as obtained from the owners of the utility. No guarantee of accuracy of these utilities is made. The Contractor shall be responsible for verifying the location of existing utilities and protecting the same during the execution of the work.

- B. Prior to commencing construction operations in an area which may involve underground utility facilities, the Contractor shall notify the District, and the Ohio Utilities Protection Service (OUPS) (1-800-362-2764).

1.10 Permits

- A. The District shall obtain environmental and roadway permits from: OEPA, ODOT, Townships and Wood County Engineer.

- B. The Contractor shall obtain all other required work permits prior to commencing any portion of the work.

1.11 Maintenance of Existing Flows

- A. The Contractor shall maintain flow in all pipelines encountered during the work. Sewage or other liquid must be handled by the Contractor either by connection into an existing sewer or by temporary pumping to a satisfactory outlet as approved by the District. Sanitary sewage and storm drainage shall not be drained to the same outlet.

- B. The Contractor shall submit all plans for pumping flow into alternate outlets for review by the District.

- C. Flow maintenance pumps and equipment shall be of sufficient capacity and design to handle the range of flow expected to occur. This District can provide guidance regarding the typical existing flow, however, the Contractor shall be responsible for the design and operation of pumping equipment provided to maintain of all existing flows including those in excess of the District's recommendations.

- D. The Contractor shall be prepared to perform the work on weekends and or evenings so as to minimize disruptions to the public.

1.12 Safety

- A. The provision of all safety measures shall be responsibility of the Contractor.

- B. Contractors performing work under these specifications shall conduct the work in accordance with all applicable local, State and Federal safety requirements.

2.0 WATER MAIN PIPE, FITTINGS, STRUCTURES AND MATERIALS

2.1 General

- A. Polyvinyl Chloride (PVC) pipe shall be used for water main pipe sizes 4-inches through 16-inches in diameter. Ductile Iron pipe shall be used for pipe larger than 16-inches in diameter and less than or equal to 24-inches in diameter. High Density Polyethylene pipe may be used for water main and for water mains and service pipe smaller than 10-inches in diameter. The District shall reserve the right to specify the pipe material for water main and services based upon the proposed service or installation method.

- B. Valves required on waterlines 12-inches in diameter and larger shall be placed in manholes.

- C. The opening direction for valves and hydrants shall be as specified.

- D. Bolts, nuts or other required hardware to be placed below grade shall be type 304 stainless steel or shall be coated with a baked ceramic filled fluorocarbon resin.

2.2 Polyvinyl Chloride Pipe

- A. PVC pipe for water mains 4-inches through 12-inches in diameter shall be a minimum of DR18 with ductile iron equivalent outside diameter in accordance with AWWA C900. Molecular Oriented Polyvinyl Chloride Pipe (PVC-O) pipe for water mains 4-inches through 12-inches in diameter shall be a minimum of PC235 with ductile iron equivalent outside diameter in accordance with AWWA C909.

- B. PVC pipe for water mains 14-inches through 16-inches in diameter shall be a minimum of DR18 in accordance with AWWA C900.

- C. Restrained or fused joint PVC pipe may be used for water mains installed by horizontal directional drilling.

- D. Pipe shall be of the integral wall-thickened bell end type incorporating elastomeric gaskets to affect the pressure seal.

- E. Pipe shall be designed for direct connection into ductile iron fittings using mechanical joints.

2.3 High Density Polyethylene (HDPE) Pipe

- A. HDPE pipe for water services less than 3-inches in diameter shall be DR9 copper tubing size in accordance with AWWA C901.

- B. HDPE pipe for water service pipe sizes 3-inches in diameter shall be DR11 iron pipe size in accordance with AWWA C901.

- C. HDPE pipe for water mains 4-inches to 10-inches in diameter shall be PE3408 material with minimum cell classification of 345464C for black and 345464E for color identification stripes, DR11, Class 160 pressure rating with ductile iron pipe equivalent outside diameter in accordance with AWWA C906.

- D. HDPE pipe materials to be used for water services and mains shall be blue or shall be marked with a blue identification stripe.

2.4 Ductile Iron Pipe

- A. Ductile iron pipe for water mains shall be Class 52, minimum in accordance with AWWA C151 with rubber gasketed joints in accordance with AWWA C111. The pipe shall have a cement mortar lining AWWA C104 and asphaltic coating in accordance with AWWA C151. Bronze wedges shall be used at all push-on joints (two per joint). The wedge shall be driven into the push-on joint to provide electrical conductivity between pipes.

2.5 Fire Hydrant Assemblies

- A. Fire hydrant assemblies shall include hydrants, watch valves, valve boxes and the required anchoring pipe and fittings.

- B. Fire hydrants shall be of the compression type, opening against and closing with the water pressure in the main, with a 6-inch mechanical joint base, two hose nozzles and one pumper nozzle as specified. Hydrants be provided in accordance with AWWA C502 and existing local fire department requirements.

- C. Fire hydrants shall be Mueller Super Centurion 250, American Darling B-84B, or Kennedy K-81D. With the prior approval of the District, post-type fire hydrants may be used. Post-hydrants shall be Eclipse Model #2 with 4-inch mechanical joint inlet.

- D. Fire hydrants assemblies shall be provided with a 6-inch gate valve and valve box.

- E. Hydrants shall be provided with a Storz fitting compatible with a 5-inch diameter coupled fire hoses as manufactured Harrington, Inc or approved equal. The Storz fitting shall be integral and factory mounted to the fire hydrant assembly. Add-on Storz compatible adapters are not acceptable.

- F. Hydrants shall be factory coated with weatherproofing paint prior to shipment and again following installation. The portion of hydrants below ground shall be painted with black paint and the portion above ground shall be Rust-Oleum, 3444 Safety Yellow Industrial Enamel or approved equal. Hydrants installed on private waterlines shall be painted red.

- G. The hydrant and watch valve shall be secured to the water main with anchoring couplings as shown or required. All anchoring pipe and fittings shall be of the plain end mechanical joint incorporating an integral follower gland and shall be as manufactured by Clow Corporation, American Cast Iron Pipe Company, US Pipe or approved equal.

- H. Hydrants shall be set plumb and to the grade of the surrounding area as approved by the District.

- I. Pumper nozzle shall be set toward the centerline of the street, highway, or right-of-way. Excavation for hydrants shall first be backfilled with No. 57 stone to a minimum depth of two feet. Remainder of excavation shall then be backfilled as specified for the trenches. Hydrants on main lines smaller than 6" in diameter shall not be equipped with a pumper nozzle.

- J. The hydrant base and watch valve shall rest on a 8" x 8" x 16" concrete block.

2.6 Gate Valves

- A. Gate valves shall be resilient seated, non-rising stem type, designed for a maximum working pressure of 200 psi, provided in accordance with AWWA C509.

- B. Gate valves shall be provided with a 2-inch operating nut.

- C. Gate valves shall be Mueller A-2362 or Kennedy C-509.

2.7 Double Check Valves

- A. A Double Check Valve in a manhole shall be installed on all Fireline connections.

2.8 Butterfly Valves

- A. Butterfly valves shall be used on all water mains 16-inches in diameter and larger.

- B. Butterfly valves shall be designed for a maximum working pressure of 150 psi and shall be provided in accordance with AWWA C504-Class 150B. Butterfly valves shall be provided with a 2-inch operating nut

- C. Butterfly valves shall be Mueller Lineseal III or Kennedy 4500.

2.9 Fittings and Joints

- A. Fitting shall be of ductile iron, mechanical joint type or push-on type incorporating rubber gaskets. Caps and plug fittings shall be provided with standard tapped connections. Fittings shall be class 250 minimum, provided in accordance with AWWA C111 and C150, asphaltic coated in accordance with AWWA C151 or fusion bonded epoxy coating in accordance with AWWA C116 and cement mortar lined in accordance with AWWA C104.

- B. Fittings for HDPE pipe including but not limited to, elbows, tees, branch saddles, adaptors and transitions shall be HDPE pipe. Fittings shall have the same or better cell classification as the pipe. Fittings shall provide a pressure rating equal to or greater than the HDPE pipe. Joint restraints shall be provided as specified.

- C. HDPE pipe shall be joined by heat fusion butt welds between plain ends of pipe. Where conditions are not conducive to allow or manufacturer does not recommend heat fusion butt welds, an electrofusion coupling shall be used.

- D. HDPE mechanical joint adaptor and backer ring (retainer gland) shall be used to connect HDPE pipe to PVC or Ductile Iron Pipe (DIP) materials. The mechanical joint adapter shall join to the HDPE pipe as specified and the DIP mechanical joint shall connect to the PVC or DIP end using a standard mechanical joint connection.

2.10 Joint Restraints

- A. Mechanical joint restraints shall be provided at all dead ends, bends, tees, valves and other locations as required or specified. Mechanical joint restraints shall be provided in accordance with AWWA C111 and C153. Mechanical joint restraints shall include a restraining mechanism that when actuated, impacts multiple wedging actions against the pipe, increasing its resistance to movement as internal pipe pressure increases. The restraining device shall be constructed of ductile iron with a minimum working pressure of 250 psi and a safety factor of 2:1.

- B. The dimensions of the joint restraint shall be such that it can be used with standard mechanical joint bell and tee-head bolts conforming to AWWA C111. Twist-off nuts shall be used to insure proper actuation of the restraining devices

2.11 Polyethylene Wrap

- A. Ductile iron pipe and fittings shall be wrapped in a minimum 8 mil thick polyethylene tube per AWWA C-105. Fittings shall be wrapped for a distance of 5-feet on each side of the fitting. Rips, tears, punctures or other damage to the polyethylene tube shall be repaired prior to placement of backfill.

2.12 Water Services

- A. Water services shall be Type K copper or HDPE as specified.

2.13 Manhole Structures

- A. All water manholes shall be precast concrete sections provided in accordance with ASTM C-478. Cast in place structures may be substituted for precast sections if approved in advance by the District. The minimum wall thickness shall be as shown on these Specifications with Grade 60 steel reinforcement. Concrete shall have a minimum compressive strength of 5000 psi.

- B. ADJUSTMENT RINGS: Precast concrete adjustment rings shall be provided with a maximum of 18-inches of total adjustment height between the bottom of the casting and the top of the manhole chimney section.

- C. CASTINGS: Standard cast iron manhole frame and covers shall be East Jordan Iron Works 1020A or Neenah 1772 with the District Logo cast on cover.

- D. RUBBER GASKET JOINTS: An o-ring type gasket shall be provided at all manhole joints in accordance with ASTM C-443.

- E. MANHOLE JOINT SEALANTS: Manhole joint sealants shall meet the Requirements of ASTM C-990, Federal Specification SS-S-210A or AASHTO M198B.

- F. MANHOLE STEPS: Manhole steps shall be constructed from polypropylene material, installed at the locations and spacing as specified, meeting the requirements of ODOT Item 711.31.

- G. MANHOLE IDENTIFICATION: The following shall be clearly stenciled or impressed on each manhole section: manhole number, casting date, the name or trademark of the manufacturer and location of plant.

- H. CONCRETE COLLARS: All manholes located in existing pavement areas shall be provided with a concrete collar unless otherwise approved. The specifications for the local jurisdiction in charge of roadway maintenance shall take precedence when determining the proper concrete collar detail.

2.14 Valve Boxes

- A. Valve boxes shall be 3 piece design, cast iron installed plumb and centered over the valve operator. Valve boxes located in pavement shall be installed so no loads are transmitted by the valve box onto the valve.

- B. Valves located more than 5-feet below grade shall be provided with valve extensions.

- C. Valve box castings shall be marked "Water."

2.15 Locating Wire / Identification Tape / Utility Markers

- A. A detectable locating tracer wire shall be installed directly over and on the center of non-metallic pressure pipes in open cut applications along the entire length to provide a reflective (inductive) path to determine pipe alignment and location after installation. The tracer wire shall be brought to the surface at a minimum of 500-foot intervals in a Copperhead Industries SnakePit Roadway tracer box. A 4-foot extra tracer wire extension shall be provided at each access point. The tracer wire shall be brought to the surface on the outside of all valve boxes and manholes. All wire connections shall be made with a Copperhead SnakeBit DryConn Direct Bury 3 way Lug or approved equal.

- B. For open cut trench applications, the tracer wire shall be #12 gauge wire with 30 mil polyethylene insulation coating.

- C. For horizontal directional drilling applications the tracer wire shall be Copperhead or Equal #12 gauge Extra High Strength (EHS) wire that has a minimum of an 1150 lbs break load. The tensile strength of the tracer wire shall be greater than the tensile strength of the pipe being installed by horizontal directional drilling methods.

- D. After installation tracer wire shall be tested for continuity. Tracer wire shall be considered acceptable when a continuous non-interrupted read is obtained for the entire length of the pipe line.

- E. An identification tape printed with the wording "WATER" shall be installed directly over the main approximately 30-inches below grade.

- F. Utility markers shall be provided over the pressure pipe at intervals not to exceed 1000-feet spacing and at all valves and fittings to properly show the alignment. Markers shall be Consonite CUM-375 or approved equal. The wording for the markers shall be submitted to the District for review.

2.16 Water Main Tapping Sleeves and Valves

- A. Tapping valves for new water main connections smaller than 12-inches in diameter shall be Mueller T-2360 or approved equal in accordance with AWWA C509. The tapping saddle and valve shall be designed for a maximum of 250 psi.

- B. Tapping valves for new water main connections larger than 12-inches in diameter shall be Mueller A-2361 or approved equal in accordance with AWWA C509.

- C. Tapping Sleeves for new water main connections 4"-12" in diameter shall be Ford FTSS style.

2.17 Service Tapping Saddles

- A. Tapping saddles shall be in accordance with the Water Main Service Connection Detail.

3.0 INSTALLATION OF WATER MAINS

3.1 Excavation

- A. Excavations shall be made to the outside dimensions and to the depths shown or as specified. Topsoil which is suitable for finish grading shall first be carefully removed, stored separately and replaced, after backfilling and rough grading are complete.

3.2 Pipe Bedding Material

- A. Pipe shall be laid on a properly shaped and firm bedding of the type specified meeting the requirements of ODOT Item 603.05. If directed by the District, the Contractor shall excavate unsuitable material below the bottom of the pipe bedding. Unsuitable material removed shall be replaced with granular material per ODOT Item 603.05.

- B. Pipe bedding material for water mains shall consist of a bed of granular stone with a thickness as specified below the bottom of the pipe to provide proper support and extending to a plane as specified above the crown of the pipe. Granular bedding material shall be No. 8 aggregate stone for PVC or HDPE water main pipes and sand or screenings for ductile iron water main pipes in accordance with ODOT Item 703.11 unless otherwise approved by the District.

3.3 Installation of Pipe

- A. Pipe and appurtenances shall be installed true to line, grade and locations shown on the design drawings with joints centered, spigots pushed home and properly supported. Care shall be used in the laying of pipe to ensure the pipe is properly supported for the entire length of the pipe barrel.

3.4 Manholes

- A. The Contractor shall note any damaged or defective manhole sections for review by the District. The District shall reserve the right to direct repairs to damaged or defective manhole sections or to require replacement. Repairs shall be in accordance with the requirements of ASTM C-478.

- B. Pipe connections shall be a minimum of 6-inches from any joints in the structure.

3.5 Connections to Existing Mains

- A. New mains shall be connected to existing mains or services, using fittings appropriate for the pipe materials being used and as approved by the District. The Contractor shall notify the District a minimum of 48-hours in advance of performing connections to existing mains. The Contractor shall be prepared to work weekends and or evenings so as to minimize disruptions to existing customers.

- B. The Contractor shall make new connections carefully to prevent contamination of the existing mains. All fittings, valves, and pipe shall be washed with clean water and then sterilized by washing with a chlorine solution having a residual chlorine strength or not less than 50 ppm.

- C. The Contractor shall by hydrostatically test the tapping saddle in accordance with the manufacturer's recommendations prior to the construction of the new water main connection.

3.6 Maintenance of Trenches and Backfill

- A. Backfill shall be to the limits shown on the drawings and according to the compaction requirements of this section. Backfill material shall be placed and compacted for the entire width, length and height of the trench or excavation.

- B. Trenches and excavations shall be backfilled immediately after the pipe placed and bedded. Pipe bedding and trench and excavation backfill material shall be placed in the presence of a representative of the District. Backfill shall not contain stones, rock, pieces of masonry, organic material, frozen earth, debris, earth with a high void content or other material considered unsatisfactory by the District.

- C. NON-STRUCTURES: Backfill not under structures or outside the pavement influence area shall be compacted in 12-inch layers to 90% of Standard Proctor or as directed by the District for the entire width, length, and vertical height of the trench.

- D. STRUCTURES: Backfill under structures or adjacent to pavement shall be ODOT Type 304 or 411 and compacted in 8-inch lifts to 95% of Standard Proctor. Structures include manholes, pump stations, grinder pumps, roads, drives, sidewalks, and any other miscellaneous items called out on the drawings.

- E. PAVEMENT INFLUENCE AREA: Excavations below a line extended from the edge of pavement (or back of curb) at a 45 degree angle downward from the surface shall be backfilled as specified for structures. Areas of the excavation above the 45 degree projection may be backfilled as listed for non-structures.

- F. Water may be used to attain the proper moisture content in achieving compaction requirements. Prior to the placement of soil over the granular material all free water shall be drained from the excavation.

- G. In areas where granular material is not acceptable for use as backfill, provide Controlled Density Fill (CDF) in accordance with ODOT Item 613, Low Strength Mortar Backfill. CFD shall not be placed around ductile iron pipe without polyethylene wrap.

3.7 Stockpiles

- A. Stockpiles of excavated material and all construction material shall be of limited size and shall be neatly maintained or removed from the project site so as not to block existing drainage or impede pedestrian or vehicular traffic.

- B. Excess excavated material stockpiled at the work site, and not be used for backfill or other restoration purposes, must be removed from the project area within 2 weeks of the initial disturbance.

- C. Stockpiles shall not permitted in Ohio Department of Transportation right-of-way.

4.0 HORIZONTAL DIRECTIONAL DRILLING

4.1 General

- A. Pipe to be installed by HDD shall use a surface launched steerable drill tool controlled from a mobile drilling frame that includes a field power unit, drilling fluid mixing system and mobile spoils extraction system.

- B. The Contractor shall be responsible for any settlement, heaving, drilling fluid contamination or other damage caused to surface or underground features as a result of the HDD operation. The Contractor shall closely monitor the volume of drilling fluid used, pulling forces and the pullback operation to avoid damage to adjacent facilities or pipe being installed.

4.2 Procedure

- A. PILOT HOLE: The pilot hole shall be drilled in accordance with the tolerance limits listed below. The Contractor shall clearly mark the alignment and depth of the pilot hole on the ground or with paint, lath or flags as the drilling head advances.

- B. REAMING: The drill hole shall be pre-reamed as necessary for the type of soil and ground conditions. The reaming diameter shall not exceed 1.5 times the diameter of the product pipe being installed.

- C. PIPE INSTALLATION: The pipe shall be pulled into place in one continuous operation and properly supported and protected to prevent damage during installation. The Contractor shall carefully monitor the pullback operation to ensure the allowable strength of the pipe is not exceeded. Pipe connections shall be made after pipe has had adequate time to adjust to environmental conditions such as temperature.

4.3 Drilling Fluid

- A. The Contractor shall utilize drilling fluid consisting of a bentonite, water and polymer solution to stabilize the hole, remove cuttings and lubricate the pipe. All drilling fluid mixtures shall meet the requirements of applicable environmental regulations. The pipe shall be cleaned of any drilling fluid that enters the pipe during the execution of the work.

- B. The Contractor shall provide measures to contain the drilling fluid to the work area to prevent damage to adjacent facilities.

4.4 Tolerances

- A. The pipe shall be installed to the specified tolerances as summarized below. Pipe installations that fall outside of these tolerances shall be re-drilled to achieve the required tolerances.

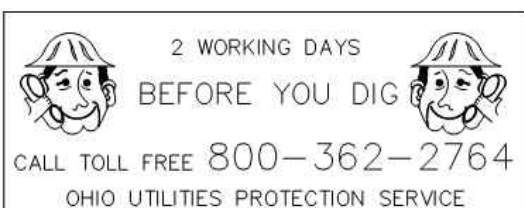
- B. The vertical elevation shall be within 0.50-feet of the plan elevation and the horizontal alignment shall be within 2-feet of the plan location unless otherwise specified.

- C. The pilot hole curve radius shall be no greater than 75% of the maximum bending radius of the pipe being installed.

- D. The pilot hole shall be no closer than 3-feet from any right-of-way or easement boundary.

- E. In the case that the pilot hole must be abandoned, the Contractor shall submit a plan for filling, grouting or securing the pilot for review by the District.

- F. QUALITY CONTROL: The Contractor shall locate the pilot hole every 25-feet and maintain accurate record of the horizontal and vertical location of the pilot hole. The Contractor shall maintain drilling logs recording the following information: date, times, soil conditions, depth of bury and horizontal location referenced to stationing, centerline, R/W or permanent easement line. The Contractor shall not hole excavate all existing utilities to be crossed by the proposed boring prior to commencing drilling operations. The District shall reserve the right to require more frequent pot holing or pilot hole excavation location checks.



NORTHWESTERN WATER & SEWER DISTRICT
12560 MIDDLETON PIKE, PO BOX 348
BOWLING GREEN, OH 43402
PHONE: (419) 354-9090 1-877-354-9090 TOLL FREE
AFTER HOURS EMERGENCY (419)-354-9001
www.nwwsd.org




WATER MAIN GENERAL NOTES AND SPECIFICATIONS

DRAWN BY:	CHECKED BY:
#	#
DATE	REVISION
BY	TB
DATE	DBL CHECK VALVE, TAPPING SLEEVE
BY	DATE
DATE	MUELLER GV #S & PVC PIPE #S


DESIGNED	DRAWN	CHECKED
BR	BJD	TAB

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NORTHWESTERN WATER & SEWER DISTRICT
WATER MAIN
GENERAL NOTES AND SPECIFICATIONS
NORTHWESTERN WATER AND SEWER DISTRICT, OHIO
MCCOMB WATER LINE REPLACEMENT PHASE 2 (WL-2816)

Jones & Henry
Engineers, Ltd.



Fluid thinking®
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JOB NO. 796-7688.001

SCALE NONE

THIS LINE SCALES IF WHEN PLOTTED TO NOTED SCALE

STATUS ISSUED FOR BID

DATE AUGUST 2020

SHEET NO. W-0.2

6 OF 29

NORTHWESTERN WATER & SEWER DISTRICT WATER MAIN GENERAL NOTES AND SPECIFICATIONS

5.0 WATER MAIN CONSTRUCTION BY FREE BORING

- A. The Contractor may choose to construct a portion of the water main by free bore methods. This method may be used with the approval of the District; however the Contractor shall be responsible for damage to existing facilities caused by free bore methods.
- B. The Contractor shall inspect the location of the proposed water main and the conditions under which the boring is to be made. Unless specifically called for on the plans, installation of an casing pipe is at the discretion of the Contractor. However, this will not relieve the Contractor of his responsibilities to protect existing facilities from damage and to fill any voids caused by free boring operations.

6.0 WATER MAIN TESTING REQUIREMENTS

- A. The Contractor shall furnish the necessary pumping equipment, pipe connections, taps, gauges, auxiliary water containers, bulkheads, plugs, and any other equipment required to perform pressure and leakage tests.
- B. The Contractor may allow a subcontractor to perform the testing of facilities installed under this specification, but all testing must be performed with a representative of the Contractor and District present. The District representative shall reserve the right to require and witness the calibration of any equipment to be used for the test.
- C. The District shall reserve the right to require additional testing of materials not specifically defined required to determine conformance with these specifications.

6.1 Water Main Disinfection:

- A. Water mains shall be disinfected in accordance with procedures outlined in AWWA C651. Disinfection may be accomplished by the tablet method, the continuous feed method or the slug method. In all cases, tests for chlorine content shall be performed in accordance with Standard Methods for Examination of Water and Wastewater. All filling operations must be conducted under the supervision of the District. The Contractor shall use special care to ensure the pressure in the new main does not rise above 20-psi during filling operations.

6.2 Water Main Pressure Testing

- A. Water mains shall be hydrostatically tested in accordance with procedures outlined in AWWA C600 and AWWA C605. Water mains shall be subjected to hydrostatic testing following disinfection and flushing of disinfection solution out of the water main. The Contractor shall remove all air from the section of water main to be tested. The new water main shall remain isolated from adjacent mains during the hydrostatic testing.
- B. Water mains shall be tested at 150-psi and fire lines shall be tested at 200-psi by pumping clean water containing 10 ppm chlorine from a cleaned and sterilized container through a 1-inch corporation stop installed on the water main.
- C. After 18-hours, the water main shall be maintained at the test pressure for 6-hours. At the end of the 6-hour period, the water shall be measured and the loss by leakage shall not exceed that as determined by the following formula:
$$L = (S \cdot D \cdot \sqrt{P}) / 148,800$$

Where:
L = Quantity of make water in gallons per hour
S = Length of pipe section being tested in feet
D = diameter of pipe, in
P = average test pressure in pounds per square inch (gauge)
- D. When hydrants are in the test section, the test shall be made against the closed hydrant. Pressure testing of each side of the intermediate valves shall be performed by shutting each valve and exhausting the pressure on one side and then applying the test pressure on the opposite side of the valve. This procedure shall be repeated for each intermediate valve.
- E. Upon completion of the leakage tests, the main shall be thoroughly flushed with potable water from the public supply until the water in the main has approximately the same chlorine content as water in the existing main.
- F. All visible leaks shall be repaired, regardless of the amount of leakage.

6.3 Bacteriological Testing

- A. Following the successful hydrostatic testing, bacteriological samples shall be collected from the water main by District for testing. Collection and testing of the samples shall be performed in accordance with Standard Methods for Examination of Water and Wastewater

6.4 Repairs

- A. Any section of water main failing to meet the testing requirements outlined in this section shall be remedied by presenting a plan for review by the District

7.0 SITE WORK

- A. All areas shall be returned to the grade and condition existing prior to the work within 30 days of disturbance of the area unless approved otherwise by the District. This shall include the repair or replacement of pavement surfaces.

7.1 Seeding, Mulching, and Topsoil

- A. All areas disturbed by construction and not paved with some other material shall be seeded, mulched, and fertilized according to ODOT Item 659.
- B. Weather Restrictions: All disturbed areas shall be permanently restored within 30 days of the initial disturbance between March 15 and October 15. Disturbed areas shall be temporarily seeded between October 16 and March 14 and permanently restored as soon as weather permits. Hydro-seeding or Broadcasting technique's may be used from March 15th to May 31st. From June 1st to October 15th, the Broadcasting technique shall be used.
- C. Topsoil: The topsoil depth shall be a minimum of 4-inches thickness and in no case shall the less than existing prior to the work. Topsoil areas shall be prepared in accordance with ODOT Item 653 or ODOT Item 652. Topsoil shall be raked free of rocks and clods prior to seeding. All topsoil shall be provided and tested per ODOT Item 659.
- D. Seed Mixtures: Prior to seeding, the District shall identify the required seed mixtures per ODOT Item 659. Lawns of quality superior to the lawn seed mixture specified by ODOT Item 659 shall be identified by the Contractor and the Contractor shall submit a seed mixture similar to the lawn to the District for review. Any additional compensation required to provide the superior seed mixtures shall be limited to the difference in material cost between the ODOT Item 659 lawn seed mixture and the approved lawn seed mixture. An invoice is required to approve the cost adjustment.
- E. Temporary seed mixtures shall be submitted for review by the District.
- F. Hydro-seeding Technique: Apply starter fertilizer per ODOT 659. The seeded slurry shall be applied with a hydraulic seeder at a rate of 3 pounds per 1,000 square feet in two intersecting directions. Hydro-mulch with a tackifier shall consist of 2/3 wood and 1/3 paper fibers and shall be applied to a minimum thickness of 1/8-inch.
- G. Broadcast Technique: Apply starter fertilizer per ODOT 659. Apply seed at a rate of 6 lbs per 1000 sq. ft. evenly in two intersecting direction's. Rake seed in lightly. Apply straw mulch evenly over all seeded areas and immediately apply a tackifier per ODOT 659.
- H. Maintenance: The Contractor shall repair and reseed any areas that settle after the permanent seeding is completed for the warranty time period specified. The Contractor shall perform any Repair Seeding and Mulching as specified under Item 659. The Contractor shall be responsible for reseeding areas as necessary at time intervals appropriate for the ground and weather conditions until a dense stand of grass is obtained. Seeded areas shall be maintained and watered by the Contractor in accordance with ODOT Item 659.

7.2 Trees and Bushes

- A. Trees and bushes shown on the plan be removed as part of the work, shall be removed and disposed of by the Contractor in accordance with ODOT Item 201.
- B. The District's permission shall be obtained prior to the removal of any tree or bush not marked for removal on the plan.
- C. Other trees, tree limbs and bushes located such that they made be damaged during the work, shall be properly trimmed and shaped. All exposed surfaces in excess of one inch diameter shall be immediately painted with an approved pruning compound.
- D. Trees and bushes, not approved for removal damaged by the Contractor shall be replaced by the Contractor.

8.0 PAVEMENTS, SIDEWALKS, DRIVEWAYS

8.1 General

- A. The Contractor shall obtain all permits and approvals required to perform the necessary pavement cuts prior to commencing work on the project.
- B. All pavement and sidewalk repairs shall be performed in accordance with the requirements of the ODOT Construction Materials Specifications and in accordance with the requirements of local agency having jurisdiction over the roadway.

8.2 Pavement Removal

- A. Pavement removal shall be performed in accordance with ODOT Item 202.
- B. All edges of existing pavement shall be saw-cut neatly and perpendicular to the surface.

8.3 Concrete Pavement Replacement

- A. Concrete pavement replacement shall be performed in accordance with ODOT Item 255 and 451.
- B. All concrete materials, reinforcing steel and required dowel placements shall be in accordance with ODOT standard plans or approved by the local agency having jurisdiction over the roadway.

8.4 Asphalt Pavement Replacement

- A. Asphalt pavement repairs shall be provided in accordance with the requirements of the local agency having jurisdiction over the roadway. At a minimum the pavement repair thicknesses shall match the existing cross section. The asphalt pavement repairs shall be as shown in these Specifications.
- B. All cold joints shall be sealed in accordance with ODOT Item 409.
- C. The repaired pavement shall match the elevation, profile grade, cross slope, width, shoulder, edge design and pavement striping of the pavement section prior to the work.

8.5 Temporary Pavement

- A. No asphalt concrete pavement shall be placed before May 1 or after October 31, unless otherwise approved by the District. Should pavement replacement not be completed within these dates the Contractor shall provide a temporary wearing course meeting the requirements of ODOT Item 446.
- B. The Contractor shall replace temporary pavements with permanent pavement as specified.

8.6 Sidewalks

- A. Existing concrete, slate or brick sidewalk to be removed as part of the work or are damaged during the execution of the work shall be replaced. Slate or brick material to be removed shall be salvaged for the property owner unless otherwise specified.
- B. New concrete sidewalks shall match the original sidewalk width, elevation and slope. All sidewalks shall be a minimum of 4-feet wide. Service walks leading from private properties shall be installed to match the original width, grades and slopes. New sidewalks shall be a minimum 4-inches thick, except at driveways where they shall be 6-inches or 8-inches thick and shall be laid to the established sidewalk grade and placed on 4-inches of compacted sand fill or ODOT Item 304.
- C. All concrete used for sidewalks shall be a 4000 psi air-entrained mix.
- D. The concrete shall be carefully spaded into place and struck even with the top of the forms after which it shall be wood floated to a level skid-resistant broom surface.
- E. Provide 1/2-inch mastic expansion joints at intervals of 25-feet and at junctions with other walls or structures. Sidewalks other than concrete or brick shall be classified as pavement and shall be replaced as previously specified for the appropriate type of pavement.

8.7 State Highway Roadway Crossings

- A. All crossings of State Highways shall be installed by boring methods unless otherwise approved by ODOT District 2.
- B. Where open cutting of State Highways is approved by ODOT District 2 within municipal corporate boundaries, the work shall be performed in accordance with the requirements of these Specifications.

9.0 MISCELLANEOUS STRUCTURES AND FACILITIES

9.1 Existing Structures and Facilities

- A. The Contractor shall remove and replace all existing facilities required and shown to complete the work as shown.

9.2 Existing Storm Sewers

- A. All existing storm sewers, subsurface drainage systems or field tiles damaged or interfered with during construction shall be replaced with new pipe matching the existing storm sewer and as directed by the entity having jurisdiction over the storm sewer. Removed pipe shall not be reused unless approved by the District and entity having jurisdiction over the storm sewer.
- B. The replaced pipe shall be installed with proper bedding and backfill and shall be installed to match the grade and size of the existing storm sewer.
- C. Fernco type adapters or approved equal shall be used at all joints connecting new storm sewer pipe to the existing storm sewer pipe.

10.0 MAINTENANCE OF TRAFFIC

- A. The Contractor shall maintain traffic per ODOT Item 614 and to the satisfaction of the entity having jurisdiction over the roadway.
- B. All work zone traffic control shall conform to the requirements of the Ohio Manual of Uniform Traffic Control Devices. The design and operation of the all work zone traffic control shall be the responsibility of the Contractor.
- C. All plans for road closures, lane restrictions or reductions shall be submitted a minimum of 2 weeks ahead of the expected work for review by the District and the local entity having jurisdiction over the roadway. It shall be the Contractor's responsibility to determine if more than 2 weeks are needed for the local entity's review.

11.0 SHOP DRAWINGS AND SUBMITTALS

- A. The Contractor shall submit 5 copies all shop drawings and submittals to the District showing all materials or equipment that are proposed or required for the work. Shop drawings and submittals shall be provided a minimum of 10 days prior to the commencement of construction.
- B. The Contractor shall provide a construction schedule indicating major project milestones. The Contractor shall update this schedule during the work to reflect changes in the project schedule.
- C. Shop drawings shall be drawn to scale and include all field measurements, calculations, certifications, material and equipment specifications as well as any other information necessary for the District's review.
- D. An approved shop drawing does not relieve the Contractor from providing a complete working system as described in the Contract Documents.
- E. Material or equipment installed without an approved shop drawing is done at the Contractor's sole risk and is subject to removal at no additional cost to the District, if the District determines the material or equipment is unacceptable or improperly installed.

11.1 Video Record of Existing Site Conditions

- A. The Contractor shall provide a digitally recorded video record showing the site conditions of the construction area to the District a minimum of 5 days prior to the commencement of any work on the site. The preconstruction video record shall be of sufficient detail to describe all existing site features and conditions including, but not limited to; roadway, sidewalk and driveway pavement, curbs, gutters, ditches, bridges, culverts, headwalls, landscaping, trees, signs, utility poles, mailboxes, street lights, catch basins, manholes, valve boxes, fire hydrants, fences and any other features that may be affected by the work. Buildings shall be located by street address.
- B. The Contractor shall utilize a professional video recording service specializing in the preparation of municipal project preconstruction video records. When filming from a wheeled vehicle, the distance from the lens to the surface shall not be less than 12 feet to insure adequate perspective.
- C. The contractor shall provide two (2) copies of the video record in DVD format to the District prior to the commencement of construction. All discs and cases provided to the District shall bear the following information: NAME OF PROJECT, DISTRICT PROJECT NO (SS-XX), NAME OF CONTRACTOR, NAME OF VIDEO RECORDING SERVICE, DATE OF RECORDING.
- D. The video record shall have a continuously, running time digital stamp, indicating the date, time (hh:mm:ss), direction of travel and stationing (xx+xx). The video record shall consist of a video track and an audio track. The audio track shall be recorded by the camera operator describing the features being recorded.
- E. Video recording of existing site conditions shall be performed in the presence of a representative of the District.

11.2 As-Built Plans

- A. The Contractor shall maintain as-built records of all construction work performed, carefully noting any changes in the design plans. These as-built plans shall be submitted to the District following the completion of the work.

NORTHWESTERN WATER & SEWER DISTRICT
12560 MIDDLETON PIKE, PO BOX 348
BOWLING GREEN, OH 43402
PHONE: (419) 354-9090 1-877-354-9090 TOLL FREE
AFTER HOURS EMERGENCY (419)-354-9001
www.nwswd.org



WATER MAIN GENERAL NOTES AND SPECIFICATIONS

CHECKED BY:

DRAWN BY:	REVISION	BY
#	DATE	DATE
1	05/20/13	TB
2	05/20/13	TB
3	05/20/13	TB
4	05/20/13	MD

REVISIONS AFTER ISSUED FOR BID

BY

NORTHWESTERN WATER & SEWER DISTRICT WATER MAIN GENERAL NOTES AND SPECIFICATION

NORTHWESTERN WATER AND SEWER DISTRICT, OHIO
MCCOMB WATER LINE REPLACEMENT PHASE 2 (WL-2816)

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Engineers, Ltd.



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JOB NO. 796-7688.001

SCALE NONE

THIS LINE SCALES IF WHEN
PLOTTED TO NOTED SCALE

DESIGNED	DRAWN	CHECKED
BR	BJD	TAB

STATUS: ISSUED FOR BID

DATE: AUGUST 2020

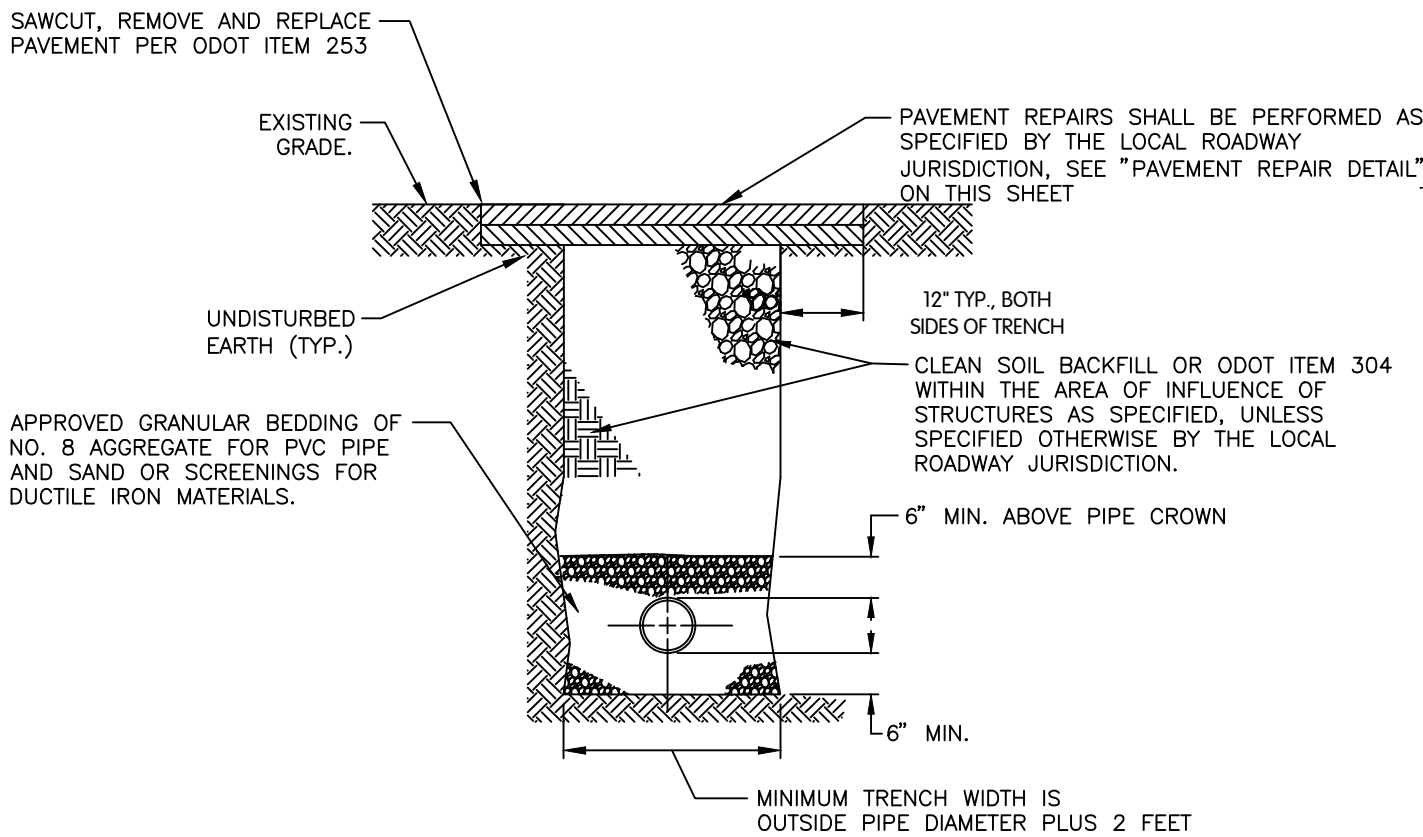
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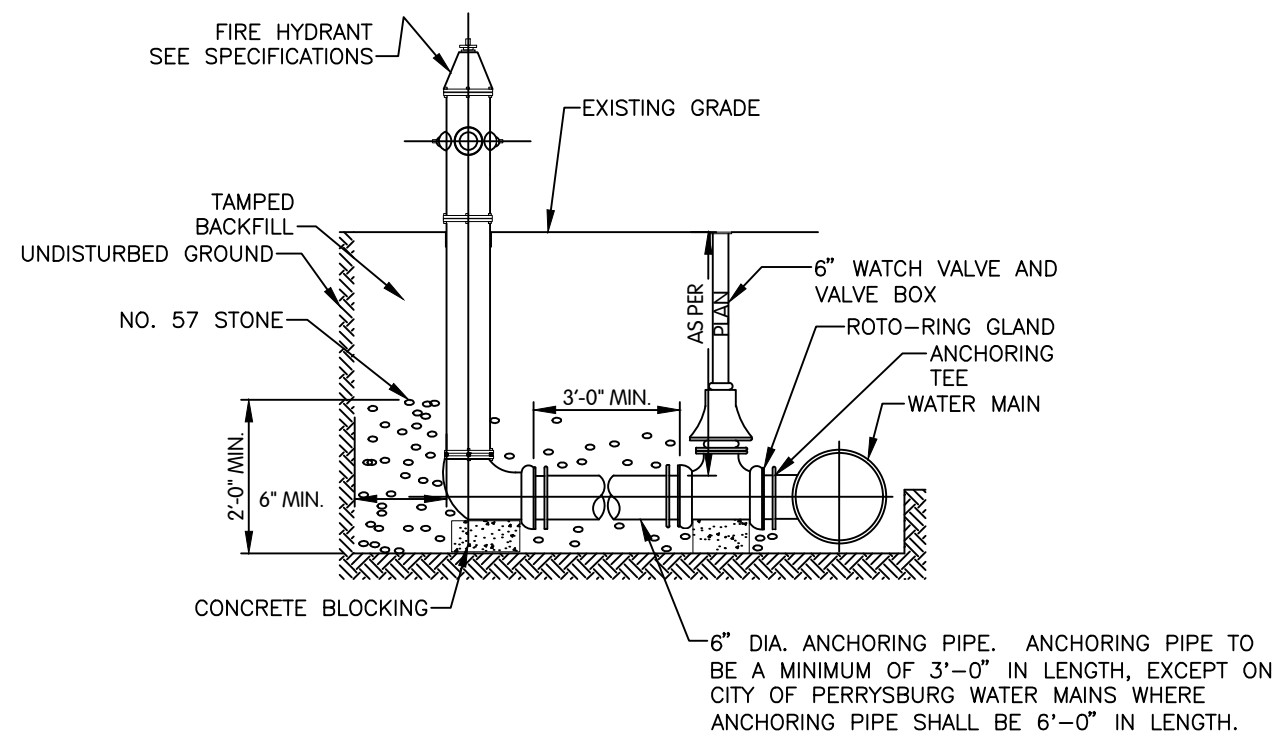
TOL-768800 WOI-WATER LINE DETAILS 3
8/10/2020 11:56 AM - BPRILL
8/20/2020 10:17 AM



TRENCH AND BEDDING DETAIL
NOT TO SCALE

STATE HIGHWAY TRENCH AND BEDDING NOTES
FOR WORK IN ODOT RIGHT OF WAY

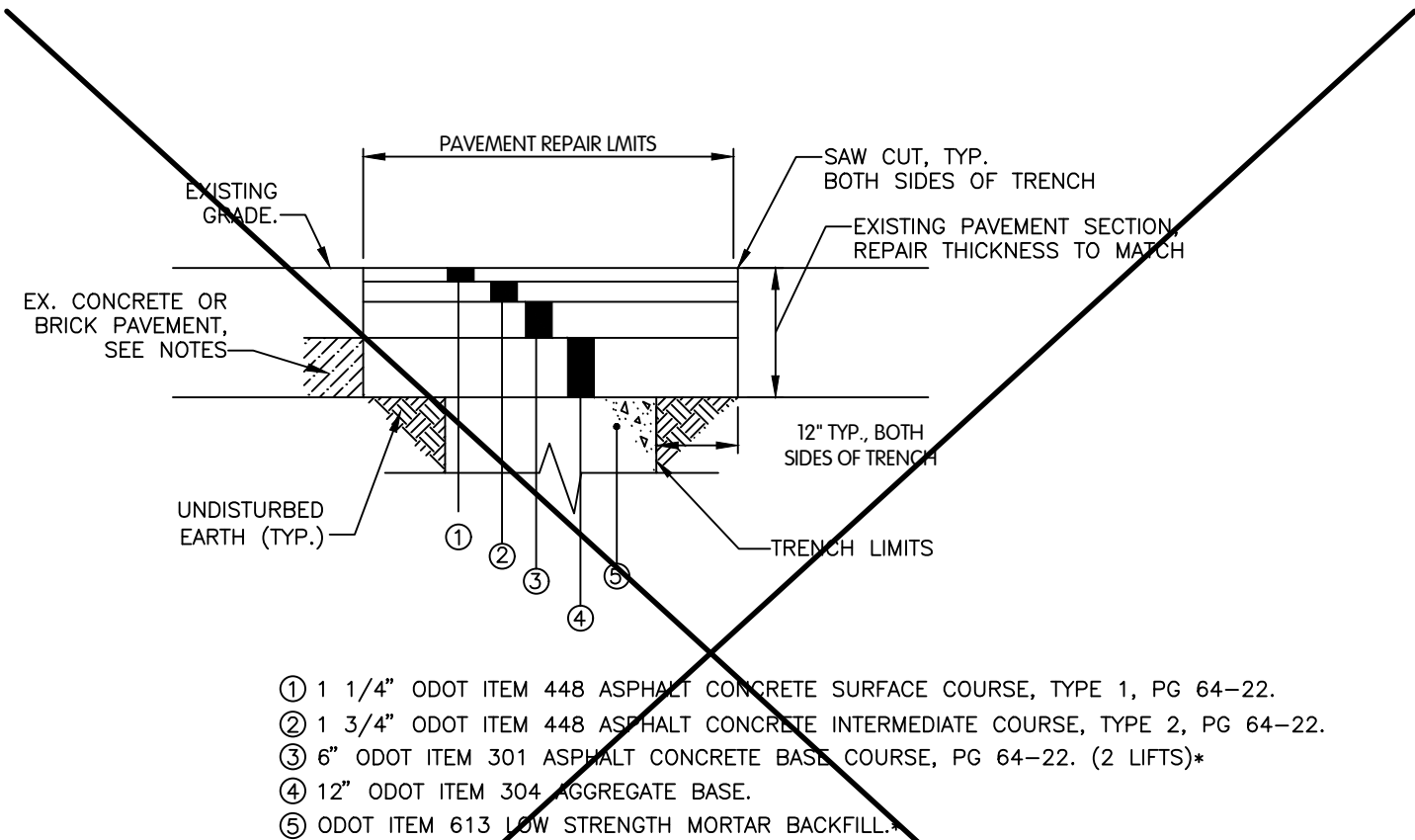
- BEDDING MATERIAL SHALL BE PROVIDED IN ACCORDANCE WITH ODOT 638.05 AND SHALL BE 6-INCHES IN THICKNESS BELOW THE INVERT OF THE PIPE.
- BEDDING MATERIAL SHALL BE EXTENDED TO A DEPTH OF 6-INCHES ABOVE THE CROWN OF THE PIPE.
- PAVEMENT REPAIRS SHALL BE PERFORMED IN ACCORDANCE WITH THE "PAVEMENT REPAIR DETAIL."



HYDRANT DETAIL PERPENDICULAR TO WATER MAIN
HYDRANT ASSEMBLY TYPE "A"
NOT TO SCALE

WL-#	FIRE DEPARTMENT	WATCH VALVE OPENING DIRECTION	STEAMER / PUMPER NOZZLE		HOSE NOZZLE		
			SIZE	SPEC	NO.	SIZE	THREAD SPEC
WL-100	LAKE TOWNSHIP	CLOCKWISE	5" DIA.	STORZ	2	2 1/2"	8 TPI
WL-100	NORTHWOOD	CLOCKWISE	5" DIA.	STORZ	2	2 1/2"	8 TPI
WL-100	PERRYSBURG TWP.	CLOCKWISE	5" DIA.	STORZ	2	2 1/2"	NST
WL-100	TROY TOWNSHIP	CLOCKWISE	5" DIA.	STORZ	2	2 1/2"	NST
WL-200	LAKE TOWNSHIP	CLOCKWISE	5" DIA.	STORZ	2	2 1/2"	8 TPI
WL-200	NORTHWOOD	CLOCKWISE	5" DIA.	STORZ	2	2 1/2"	8 TPI
WL-900	WEST MILGROVE	COUNTERCLOCKWISE	4 1/2" DIA.	STORZ	2	2 1/2"	8 TPI
WL-4000	NORTHWOOD	CLOCKWISE	5" DIA.	STORZ	2	2 1/2"	8 TPI
WL-5000	ROSSFORD	CLOCKWISE	5" DIA.	STORZ	2	2 1/2"	8 TPI
OTHER	ALL FIRE DEPARTMENTS	COUNTERCLOCKWISE	4 1/2" DIA.	STORZ	2	2 1/2"	NST

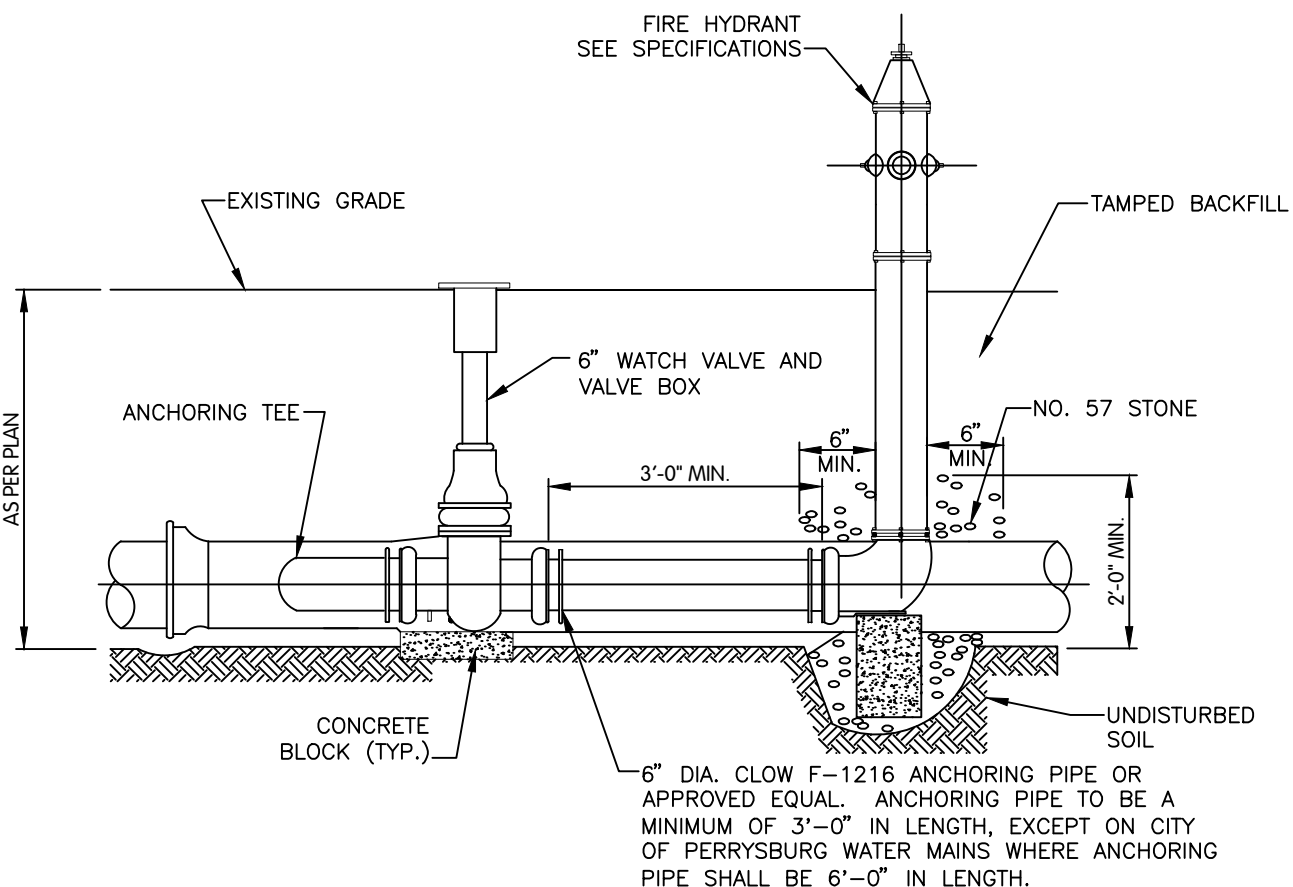
FIRE HYDRANT AND VALVE SCHEDULE
ALL FIRE HYDRANTS SHALL OPEN COUNTERCLOCKWISE



PAVEMENT REPAIR DETAIL
NOT TO SCALE

NOTES

- THE THICKNESS OF THE PAVEMENT REPAIR SECTION SHALL NOT BE LESS THAN THE EXISTING PAVEMENT SECTION INCLUDING AGGREGATE BASE MATERIAL.
 - CONCRETE OR BRICK BASE MATERIAL SHALL BE REPLACED WITH A MINIMUM OF 8-INCHES OF ODOT ITEM 452, NON-REINFORCED CONCRETE PAVEMENT. THE THICKNESS OF THE CONCRETE BASE REPAIR SHALL NOT BE LESS THAN THE EXISTING BASE MATERIAL. SEE ODOT BP-2.1 AND ODOT BP-2.2.
- * ODOT PAVEMENT ONLY



HYDRANT DETAIL PARALLEL TO WATER MAIN
HYDRANT ASSEMBLY TYPE "B"
NOT TO SCALE

FIRE HYDRANT NOTES:

- ALL NOZZLES SHALL CORRESPOND TO THE APPLICABLE EXISTING LOCAL FIRE APPARATUS.
- UPPER BARREL TO HAVE ONE (1) FIVE INCH (5-IN) STORZ FITTING BY HARRINGTON, INC. THE STORZ FITTING SHALL BE COMPATIBLE WITH FIVE INCH (5-IN) STORZ COUPLED FIRE HOSES. THE FITTING SHALL BE CONSTRUCTED OF AIRCRAFT QUALITY ALUMINUM WITH BRASS CONNECTION, BRASS SEALING FACE AND UNINTERRUPTED BRASS WATERWAY. THE ALUMINUM TO BE HARD COAT ANODIZED IN ACCORDANCE WITH ASE-AMS-A-8625F, TYPE 3, DARK GRAY, FOR CORROSION PROTECTION. THE STORZ FITTING SHALL BE AN INTEGRAL PART OF THE FIRE HYDRANT ASSEMBLY, RESISTANT TO TAMPERING OR REMOVAL BY UNAUTHORIZED PERSONNEL. ADD-ON STORZ COMPATIBLE ADAPTERS ARE NOT ACCEPTABLE.
- HYDRANT DRAINS SHALL NOT BE PLUGGED, A 10 CUBIC FOOT GRAVEL POCKET (#57 STONE) OR DRY WELL SHALL BE PROVIDED UNLESS THE NATURAL SOILS WILL PROVIDE ADEQUATE DRAINAGE IN ACCORDANCE WITH TEN STATES STANDARDS 8.4.4.
- NWSD FIRE HYDRANTS SHALL BE PAINTED SAFETY YELLOW IN ACCORDANCE WITH THE SPECIFICATIONS.
- PRIVATE FIRE HYDRANTS SHALL BE PAINTED RED IN ACCORDANCE WITH THE SPECIFICATIONS.
- FIRE HYDRANTS SHALL BE PLACED ON CONCRETE BLOCKING SUPPORTED BY UNDISTURBED EARTH.

NOTE: ALL DISTANCES SHOWN ARE MINIMUM DISTANCE RESTRAINED IN EACH DIRECTION FROM THE BEND.

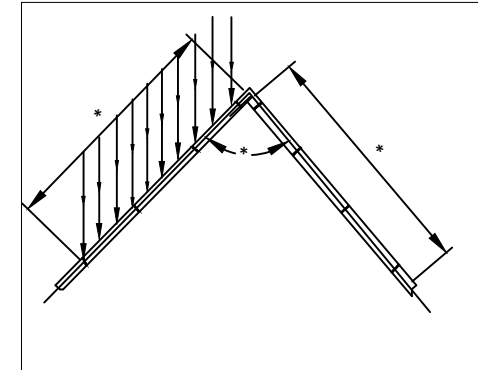


FIGURE 1. HORIZONTAL BEND

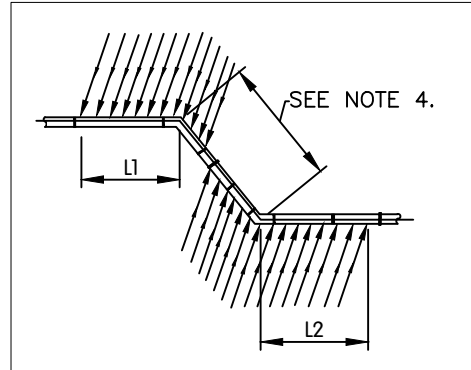


FIGURE 2. VERTICAL DOWN BEND AND OFFSET

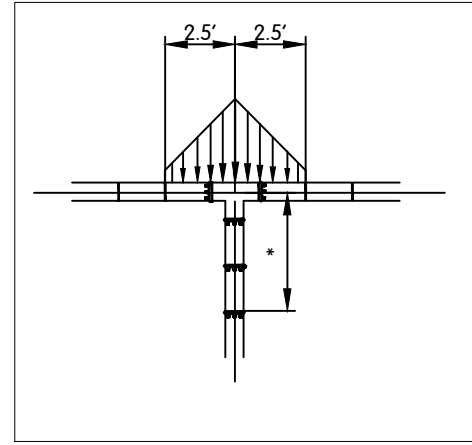


FIGURE 3. TEE

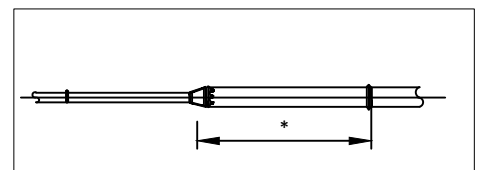


FIGURE 4. REDUCER

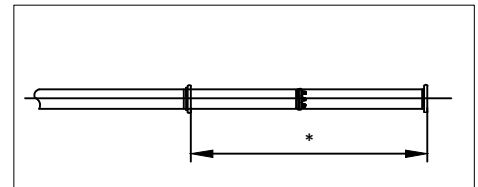


FIGURE 5. DEAD END

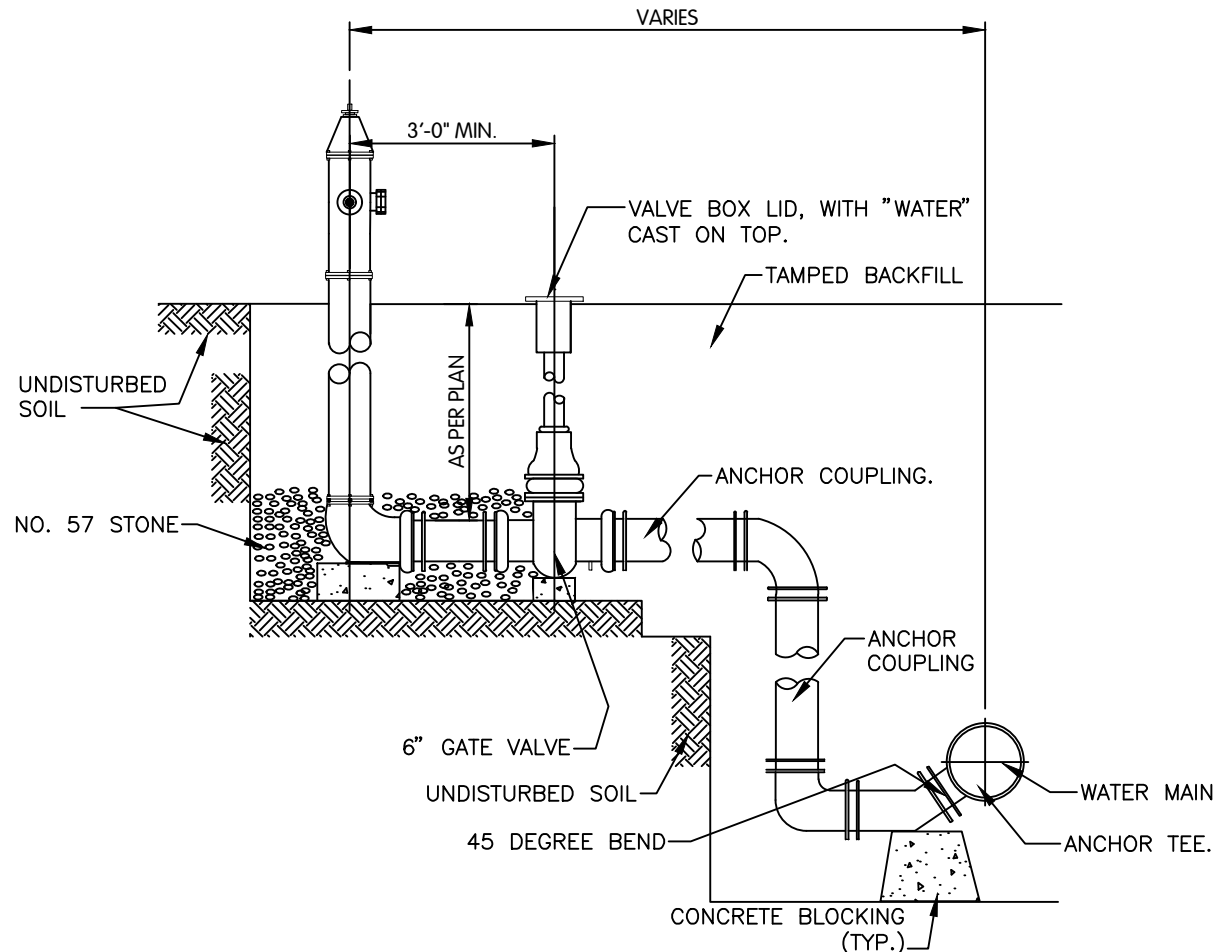
* DISTANCES TO BE AS PER MECHANICAL JOINT RESTRAINT TABLE.

FITTING TYPE	RESTRAINED LENGTH OF PIPE (FT) SEE NOTE 1						COMMENTS
	4"	6"	8"	10"	12"	16"	
HORIZONTAL							
11 1/4" BEND	2'	2'	2'	2'	4'	4'	
22 1/2" BEND	2'	4'	4'	4'	6'	6'	
45° BEND	4'	6'	8'	8'	10'	14'	
90° BEND	10	14'	16'	20'	24'	30'	
DEAD END / PLUG	26'	36'	46'	56'	68'	88'	
REDUCER							
MAIN X 4"	-	18'	34'	-	-	-	SEE NOTE 2.
MAIN X 6"	-	-	20'	36'	-	-	SEE NOTE 2.
MAIN X 8"	-	-	-	20'	36'	-	SEE NOTE 2.
MAIN X 10"	-	-	-	-	20'	52'	SEE NOTE 2.
MAIN X 12"	-	-	-	-	-	38'	SEE NOTE 2.
TEES							
MAIN X 4" TEE	14'	10'	4'	2'	2'	2'	SEE NOTE 3.
MAIN X 6" TEE	28'	26'	22'	18'	14'	8'	SEE NOTE 3.
MAIN X 8" TEE	42'	38'	36'	34'	30'	26'	SEE NOTE 3.
MAIN X 10" TEE	52'	50'	48'	46'	44'	40'	SEE NOTE 3.
MAIN X 12" TEE	64'	62'	60'	58'	56'	54'	SEE NOTE 3.
MAIN X 16" TEE	84'	84'	82'	80'	80'	76'	SEE NOTE 3.
VERTICAL BEND (L1)	16'	22'	28'	34'	40'	50'	45° ANGLE
VERTICAL BEND (L2)	4'	6'	8'	8'	8'	12'	45° ANGLE

JOINT RESTRAINT NOTES:

- RESTRAINED LENGTH BASED UPON TEST PRESSURE OF 150 PSI, SAFETY FACTOR OF 1.5 AND CLAY (CL) SOIL TYPE. OTHER SOIL TYPES MAY REQUIRE DIFFERENT RESTRAINED LENGTHS.
- RESTRAINED LENGTH FOR REDUCERS SHALL BE MEASURED ALONG LARGER DIAMETER PIPE.
- RESTRAINED LENGTH FOR TEES SHALL BE MEASURED ALONG BRANCH CONNECTION.
- ALL JOINTS BETWEEN UPPER AND LOWER PIPE LENGTH SHALL BE RESTRAINED FOR VERTICAL BENDS.

MECHANICAL JOINT RESTRAINTS



HYDRANT DETAIL PERPENDICULAR TO WATER
BLOW OFF HYDRANT ASSEMBLY
NOT TO SCALE

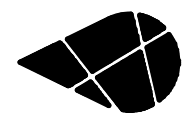
SIZE	MINIMUM TRENCH WIDTH
6"	2'-0"
8"	2'-1"
10"	2'-3"
12"	2'-5"
15"	2'-8"
18"	3'-0"
21"	3'-4"
24"	3'-8"
27"	3'-11"
30"	4'-4"
36"	5'-0"

TRENCH WIDTH SCHEDULE

NOTES:

- MINIMUM TRENCH WIDTH SHALL MEET MANUFACTURER'S REQUIREMENTS.
- MAXIMUM TRENCH WIDTH SHALL BE NO MORE THAN TWO (2)' FEET PLUS THE PIPE DIAMETER.
- WHERE APPLICABLE AND NOT OTHERWISE STATED IN THE SPECIFICATIONS, THE MINIMUM TRENCH WIDTH SHOWN ABOVE SHALL BE THE PAY WIDTH FOR TRENCHING IN ROCK.

NORTHWESTERN WATER & SEWER DISTRICT
12560 MIDDLETON PIKE, PO BOX 348
BOWLING GREEN, OH 43402
PHONE: (419) 354-9090 1-877-354-9090 TOLL FREE
AFTER HOURS EMERGENCY (419)-354-9001
www.nwswd.org



WATER MAIN DETAILS
TRENCH AND HYDRANT DETAILS

CHECKED BY:

#	DATE	BY	REVISION
1	08/07/20	TB	CONTENT REVISION
2	11/7/14	MD	FIRE HYDRANT & VALVE SCHEDULE
3	10/2/08	MD	TRENCH WIDTH SCHEDULE
4	04/0/0	MD	FIRE HYD VALVE SCHEDULE

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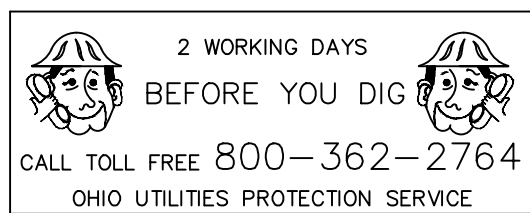
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NWSD 3 / 5

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DATE: AUGUST 2020

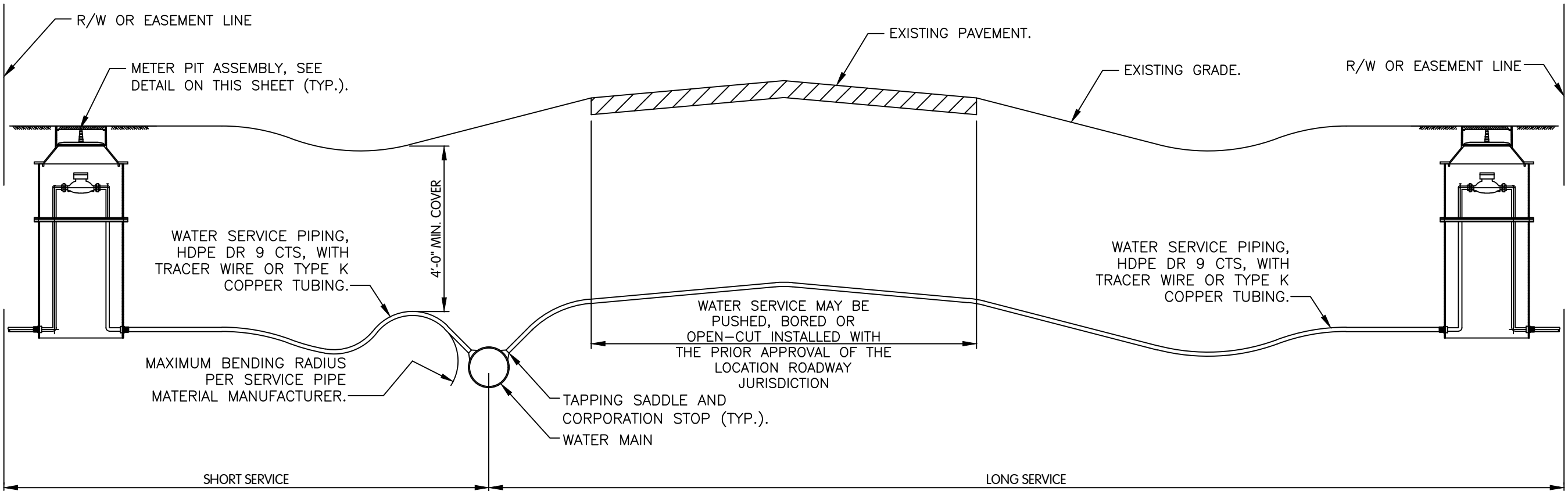
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W-0.4
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NORTHWESTERN WATER & SEWER DISTRICT
WATER MAIN
TRENCH AND HYDRANT DETAILS
NORTHWESTERN WATER AND SEWER DISTRICT, OHIO
MCCOMB WATER LINE REPLACEMENT PHASE 2 (WL-2816)

TOL-768800 WOI-WATER LINE DETAILS 5
8/10/2020 11:56 AM - BDRILL
8/20/2020 10:17 AM



TYPICAL WATER SERVICE DETAIL
NOT TO SCALE

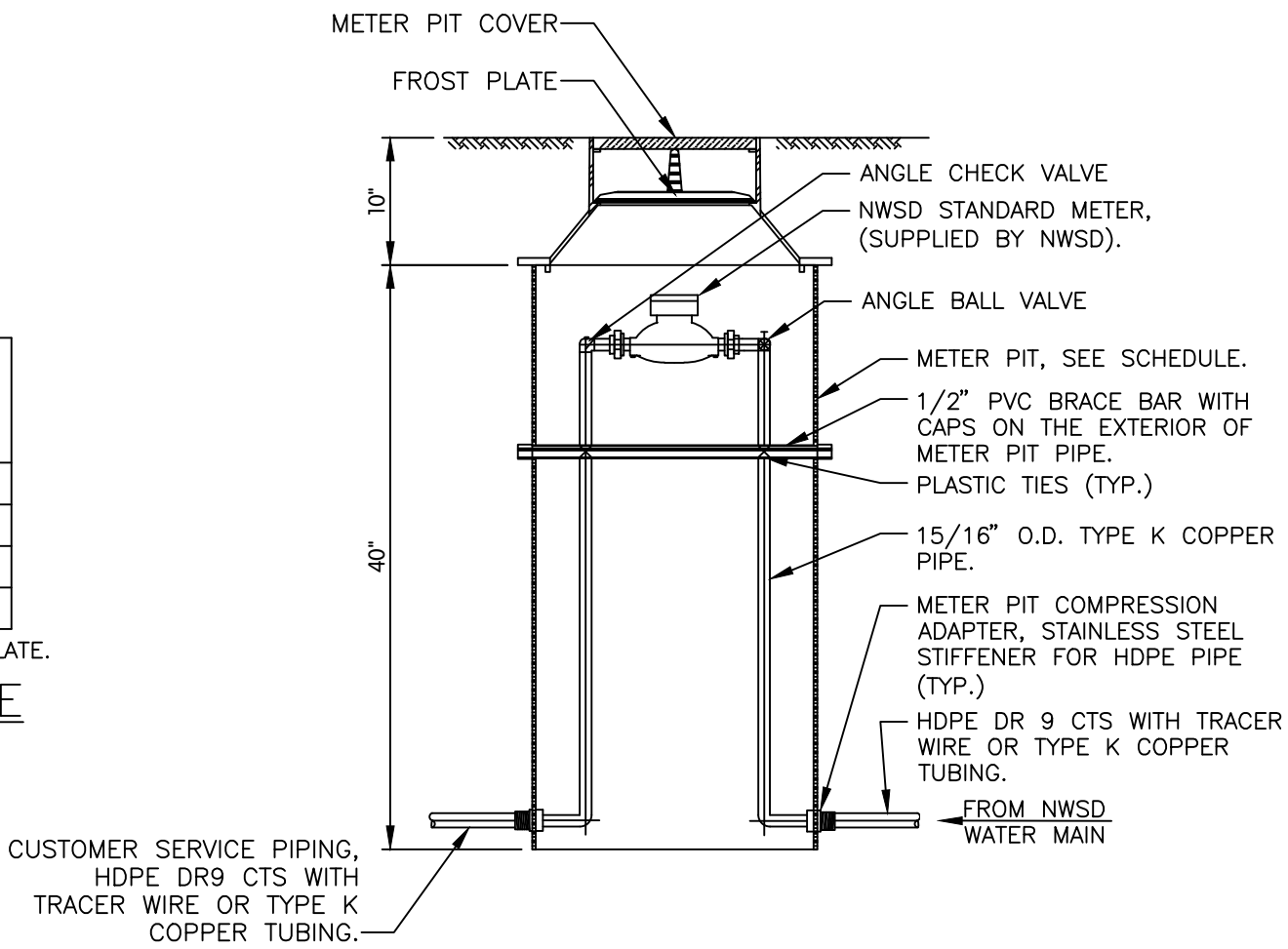
NOTES:

- WHERE METER PITS ARE NOT APPLICABLE, A FORD MODEL COMPRESSION STYLE CURB STOP WITH A CAST IRON CURB BOX SHALL BE INSTALLED.
- LEAD SOLDER AND FLUX THAT EXCEEDS 0.2 PERCENT LEAD CONTENT AND ANY PIPE OR PIPE FITTING THAT EXCEEDS A 0.25 PERCENT LEAD CONTENT SHALL NOT BE USED IN THE INSTALLATION OF THE PROPOSED FACILITIES.

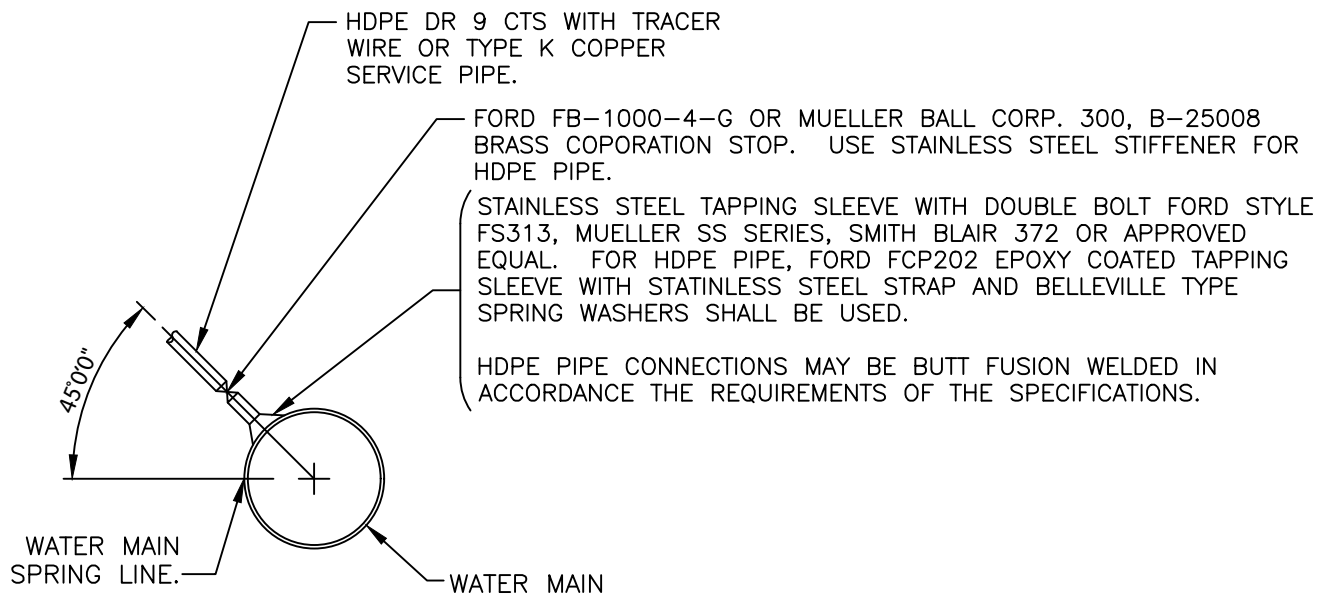
WATER SERVICE SIZE (IN.)	METER PIT ASSEMBLY PART NO.	LID PART NUMBER
3/4	FORD PDBHC-95469-001	W3T
1	FORD PDBHC-488-20-48-FP	W3T
1 1/2	FORD PMBB-688-36HB-48	MC-36-T
2	FORD PMBB-788-36HB-48	MC-36-T

ALL METER PIT COVERS SHALL BE PROVIDED WITH FROST PLATE.

METER PIT ASSEMBLY SCHEDULE



METER PIT ASSEMBLY
NOT TO SCALE



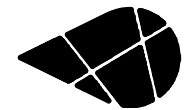
WATER MAIN SERVICE CONNECTION DETAIL
NOT TO SCALE

NOTES:

- REPAIR ANY DAMAGE TO EXISTING POLYWRAP FOR DUCTILE IRON WATER MAINS AS REQUIRED.
- SERVICE TRACER WIRE SHALL BE CONNECTED TO MAINLINE TRACER WIRE WITH COPPERHEAD SNAKEBITE DRYCONN 3-WAY DIRECT BURY LUG 3WB-01.

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WATER MAIN DETAILS
WATER SERVICE DETAILS



NORTHWESTERN WATER & SEWER DISTRICT
WATER MAIN
WATER SERVICE DETAIL

NORTHWESTERN WATER AND SEWER DISTRICT, OHIO
MCCOMB WATER LINE REPLACEMENT PHASE 2 (WL-2816)

DRAWN BY:	CHECKED BY:
# DATE BY REVISION	# DATE BY REVISION
1 6/22/24 TB CONTENT REVISION	1 6/22/24 MD PIT ASS'Y SCHED. SERV. DET. NOTE
2 9/17/24 MD	2 11/2/24 MD NOTE #2 TO TYP. WATER DETAIL
3 11/2/24 MD	

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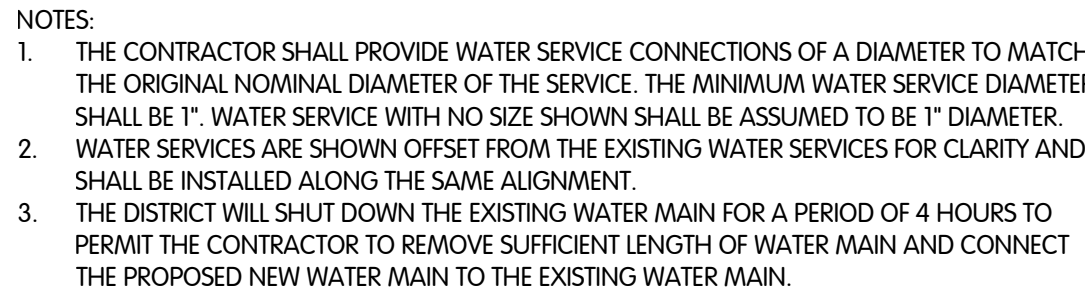
DATE: AUGUST 2020

SHEET NO.

W-0.6

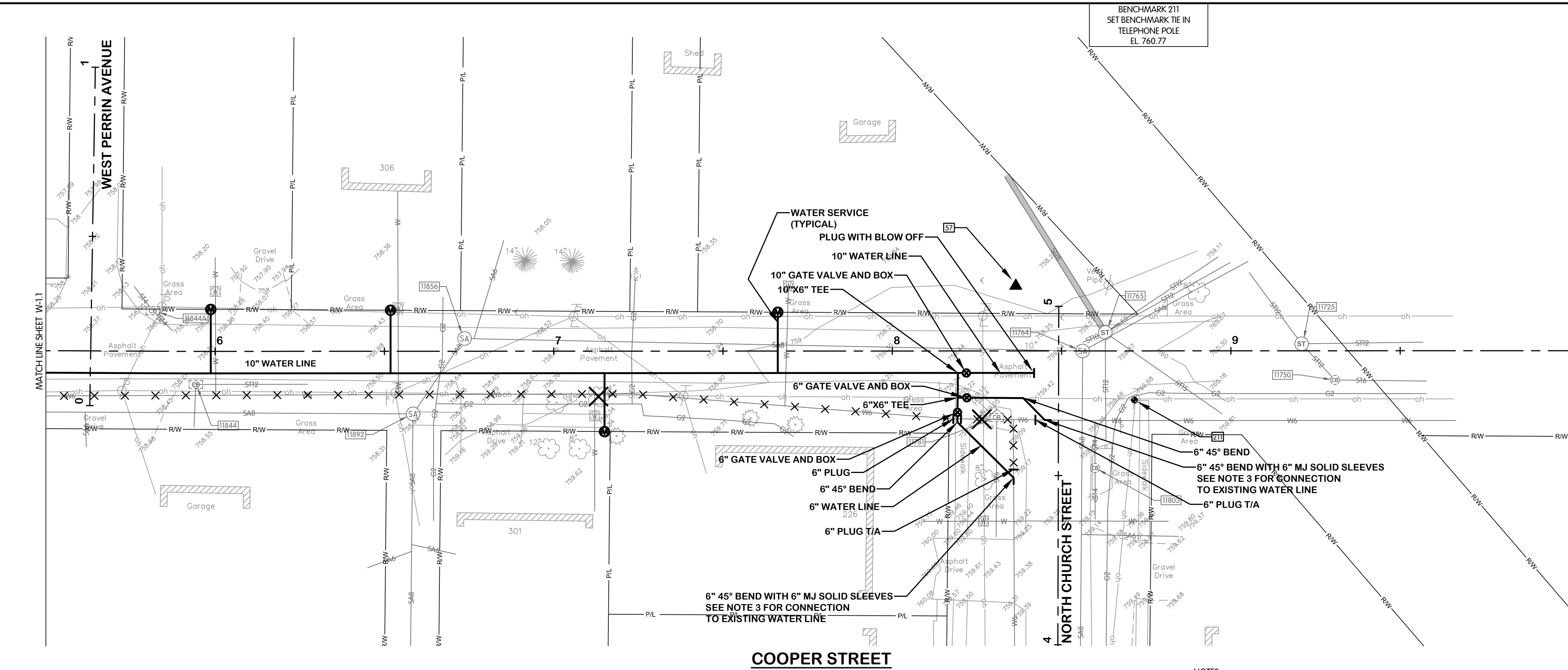
10 OF 29

BENCHMARK 212
SET BENCHMARK TIE IN LIGHT,
POWER AND TELEPHONE POLE
EL. 759.67



SHEET NO.
W-1.1

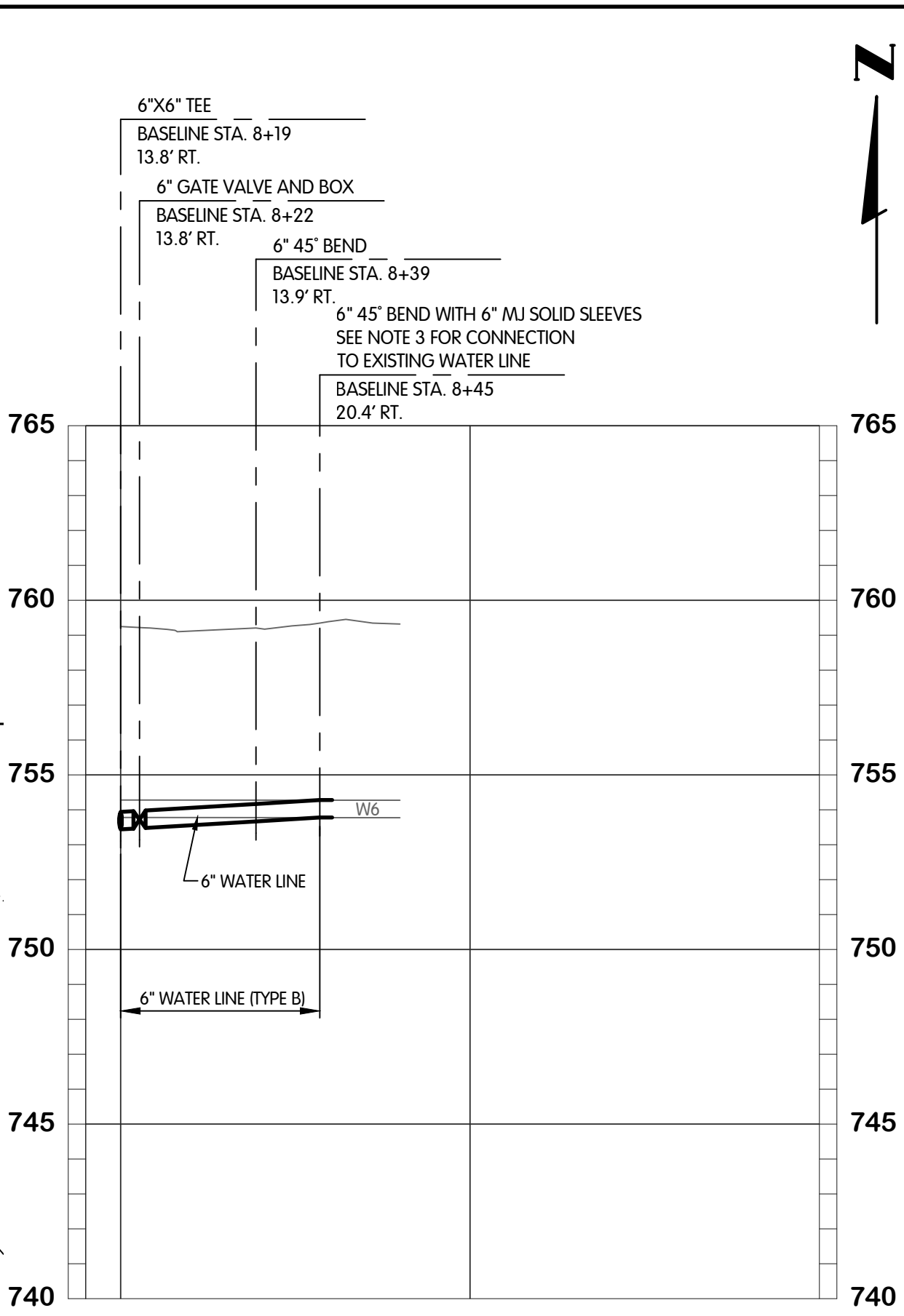
TOL-768800-WI-COOPER STREET STA. 5+50 TO 10+00
8/15/2020 3:27 PM - CLENDER
8/20/2020 10:18 AM



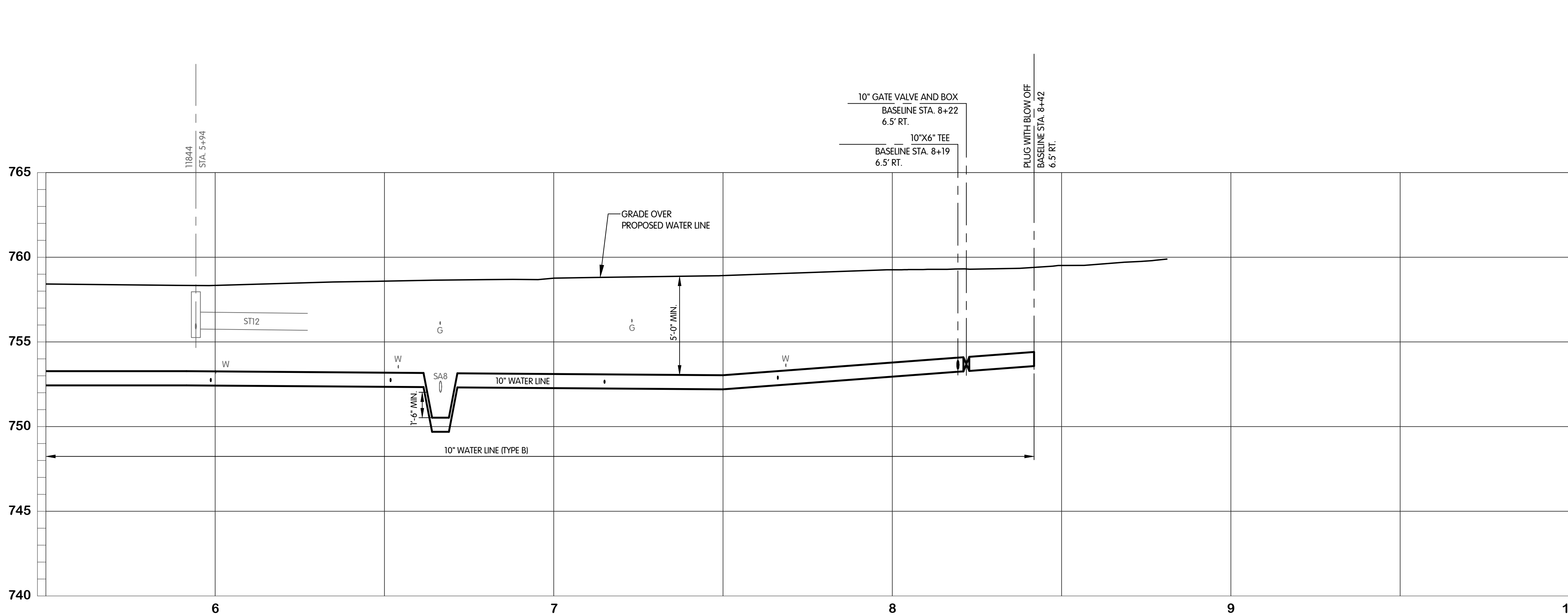
COOPER STREET

NOTES:

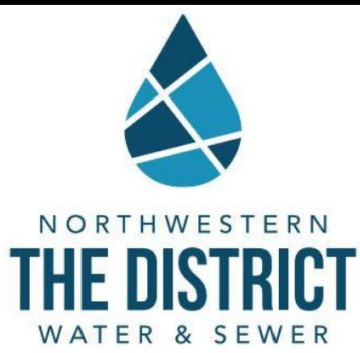
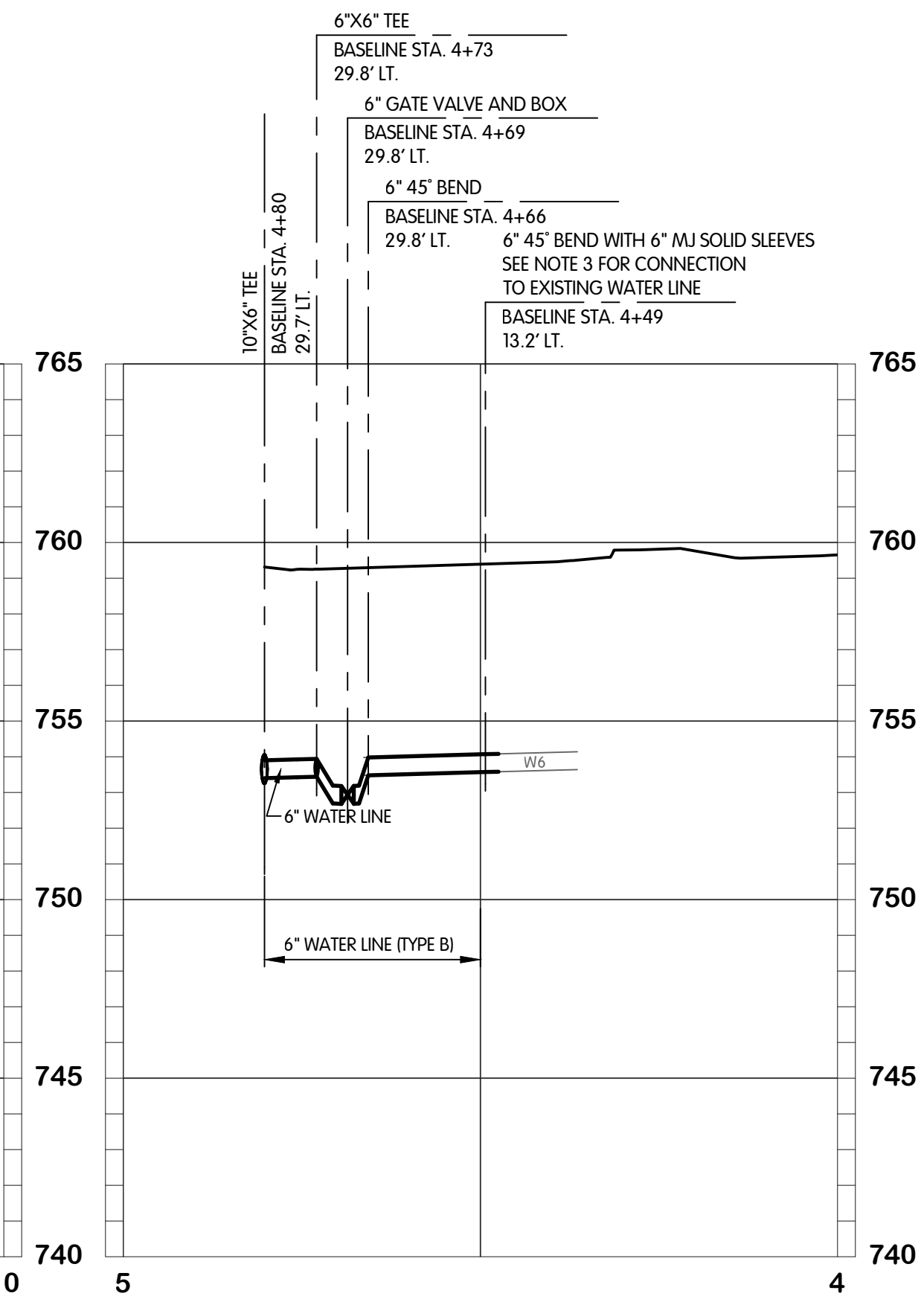
1. THE CONTRACTOR SHALL PROVIDE WATER SERVICE CONNECTIONS OF A DIAMETER TO MATCH THE ORIGINAL NOMINAL DIAMETER OF THE SERVICE. THE MINIMUM WATER SERVICE DIAMETER SHALL BE 1". WATER SERVICE WITH NO SIZE SHOWN SHALL BE ASSUMED TO BE 1" DIAMETER. WATER SERVICES ARE SHOWN OFFSET FROM THE EXISTING WATER SERVICES FOR CLARITY AND SHALL BE INSTALLED ALONG THE SAME ALIGNMENT.
2. THE DISTRICT WILL SHUT DOWN THE EXISTING WATER MAIN FOR A PERIOD OF 4 HOURS TO PERMIT THE CONTRACTOR TO REMOVE SUFFICIENT LENGTH OF WATER MAIN AND CONNECT THE PROPOSED NEW WATER MAIN TO THE EXISTING WATER MAIN.



COOPER STREET RECONNECT



NORTH CHURCH STREET



COOPER STREET
WATER
PLAN AND PROFILE
STA. 5+50 TO 10+00
NORTHWESTERN WATER AND SEWER DISTRICT, OHIO
MCCOMB WATER LINE REPLACEMENT PHASE 2 (WL-2815)

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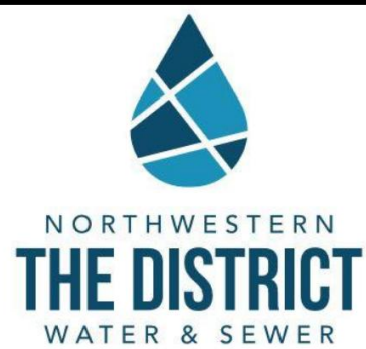
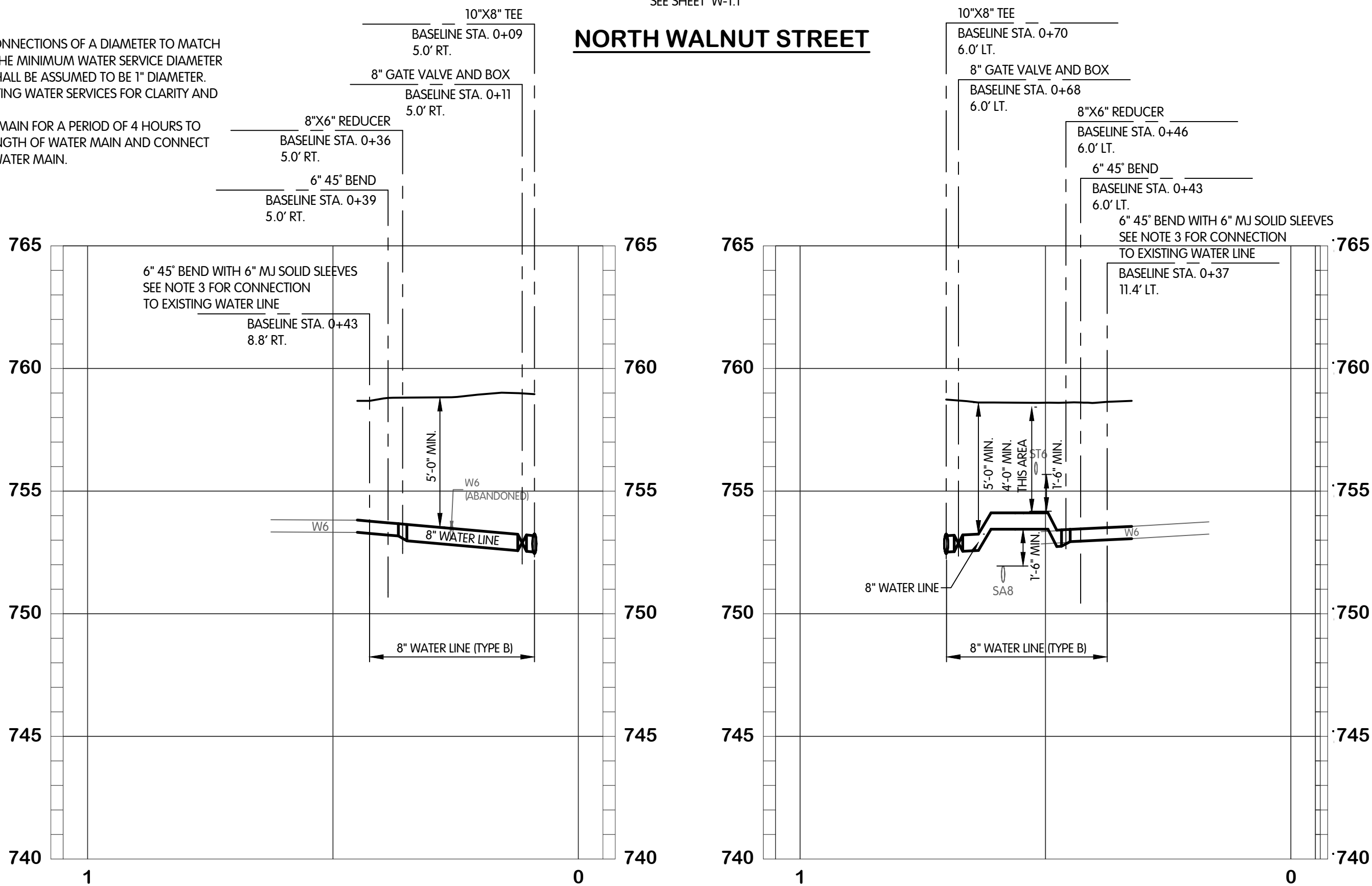
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W-1.2
12 OF 29

TOL-7688001-WALNUT STREET STA. 0+00 TO 1+00
8/15/2020 3:27 PM - CLENDER
8/20/2020 10:19 AM

- NOTES:
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WALNUT STREET
WATER
PLAN AND PROFILES
STA. 0+00 TO 1+00

NORTHWESTERN WATER AND SEWER DISTRICT, OHIO
MCCOMB WATER LINE REPLACEMENT PHASE 2 (WL-2815)

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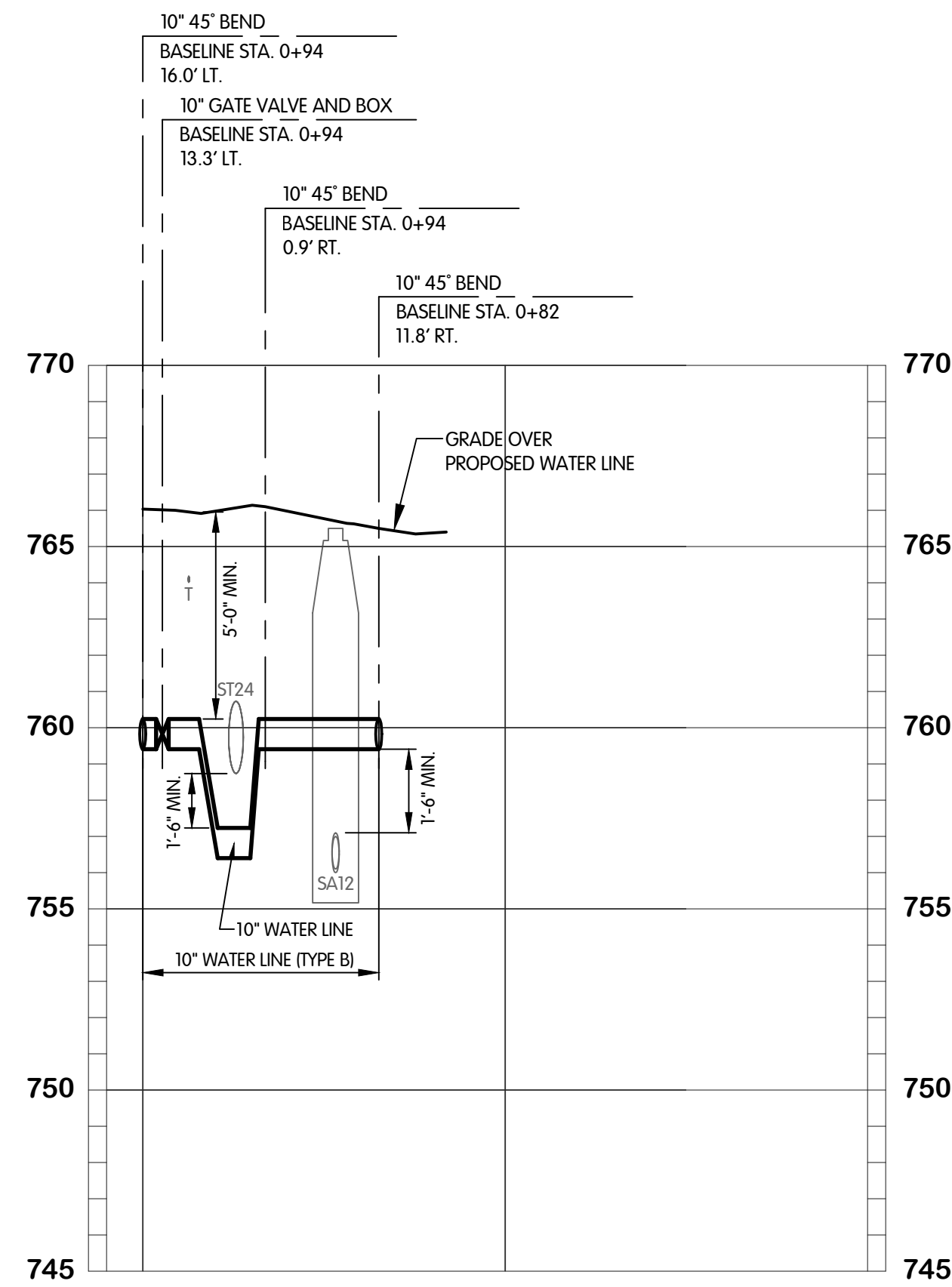
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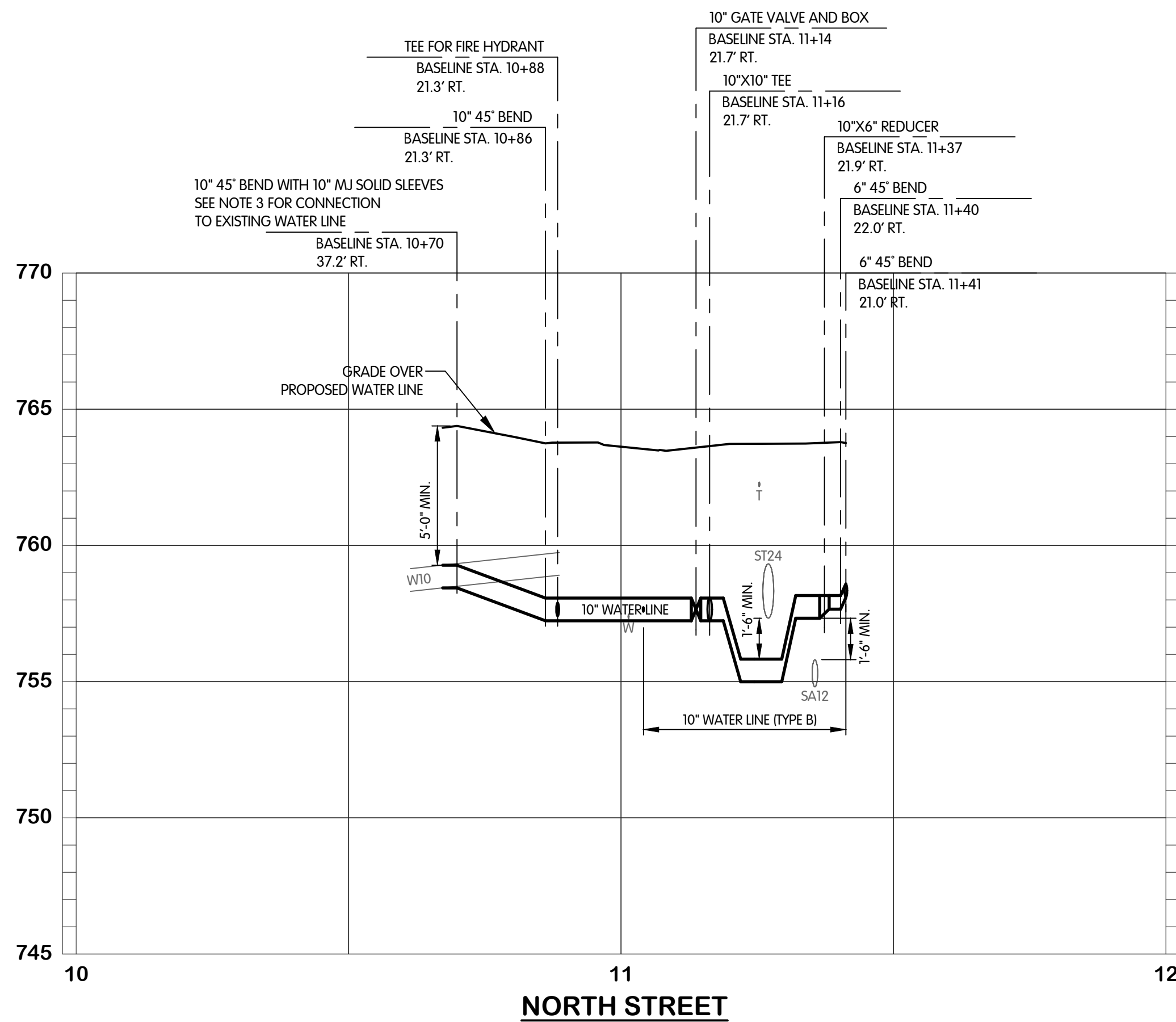
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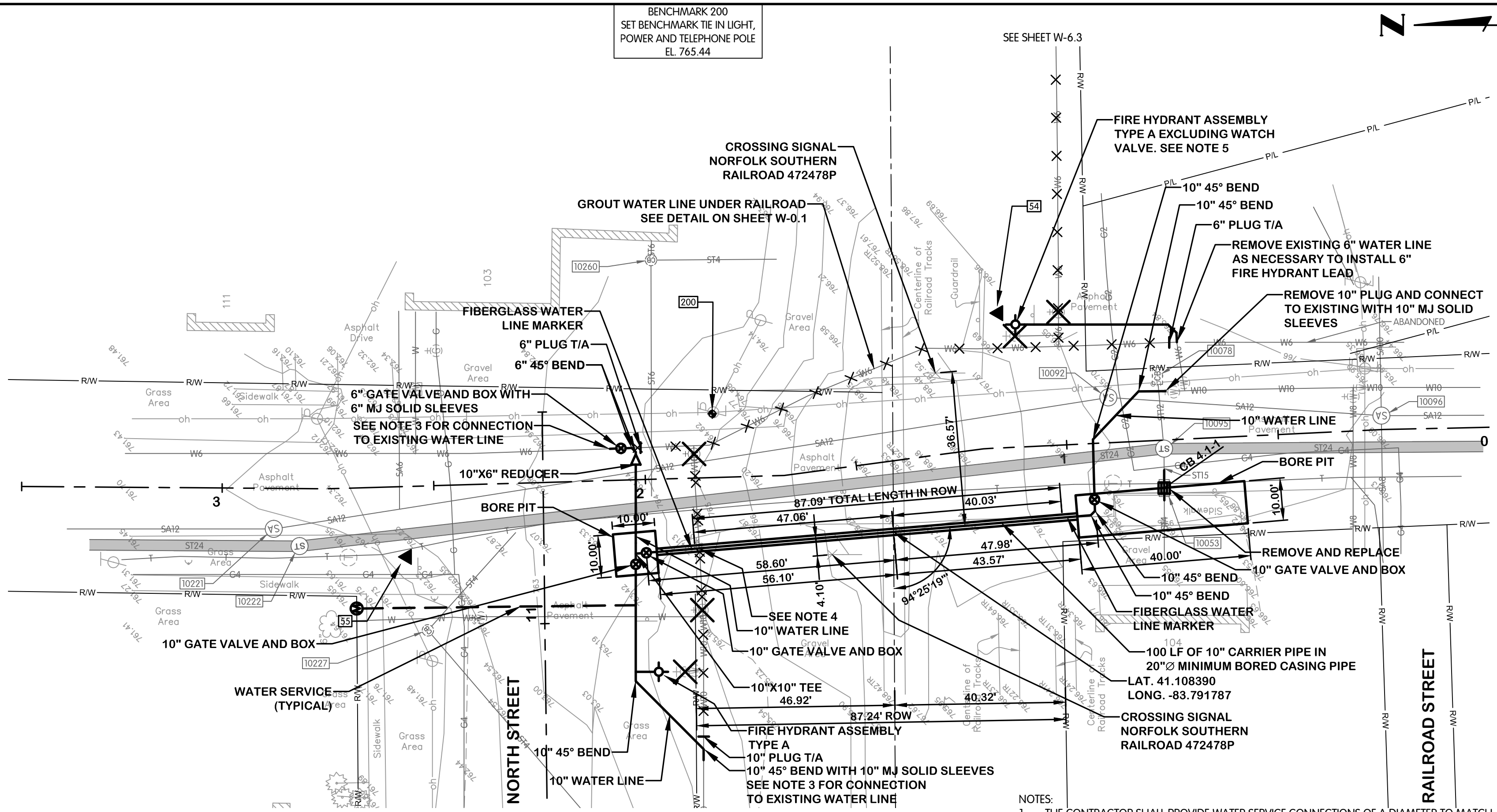
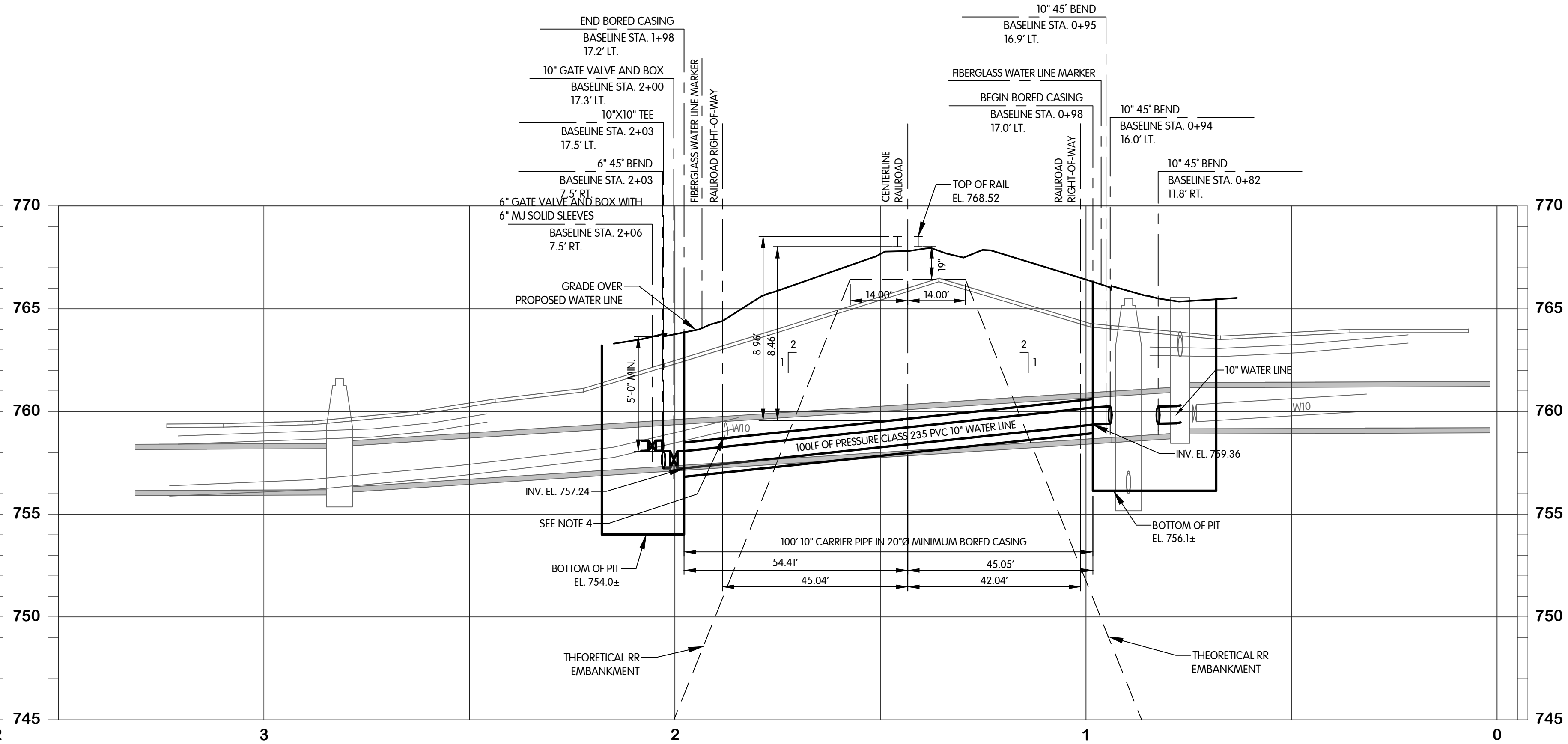
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W-2.1
13 OF 29



NORTH TODD STREET (CROSSOVER)



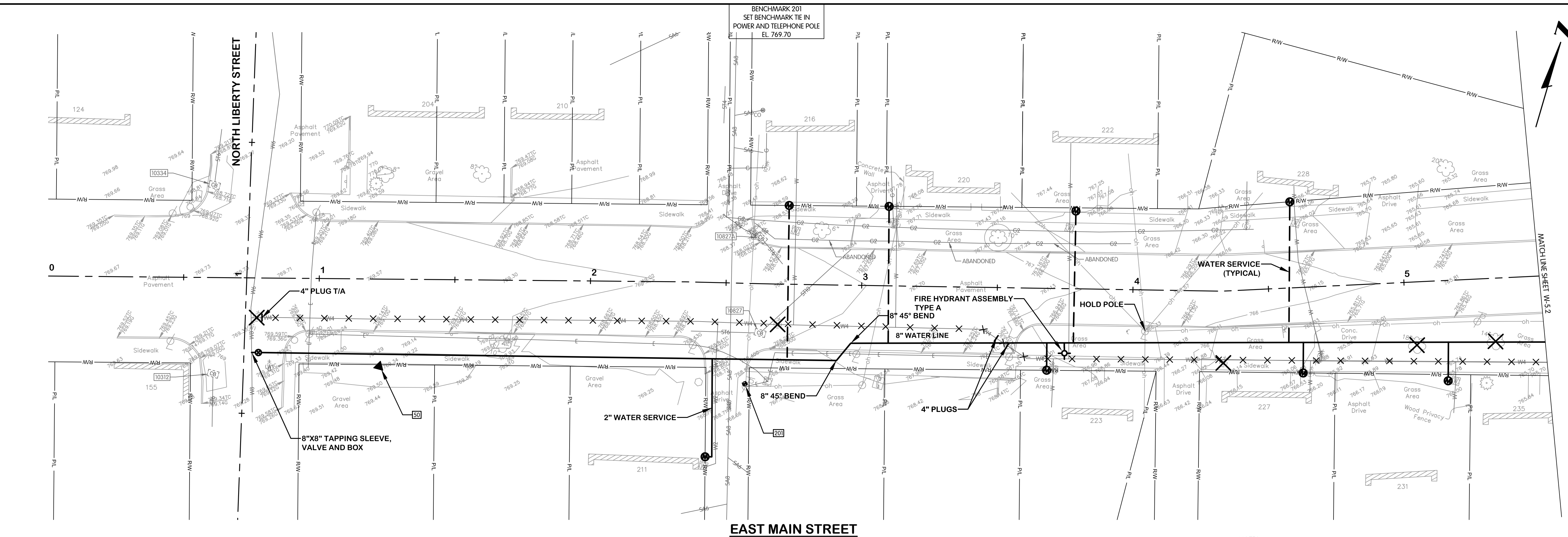
NORTH STREET



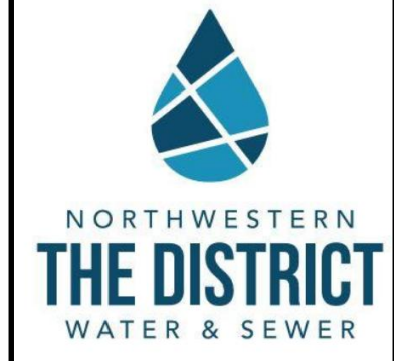
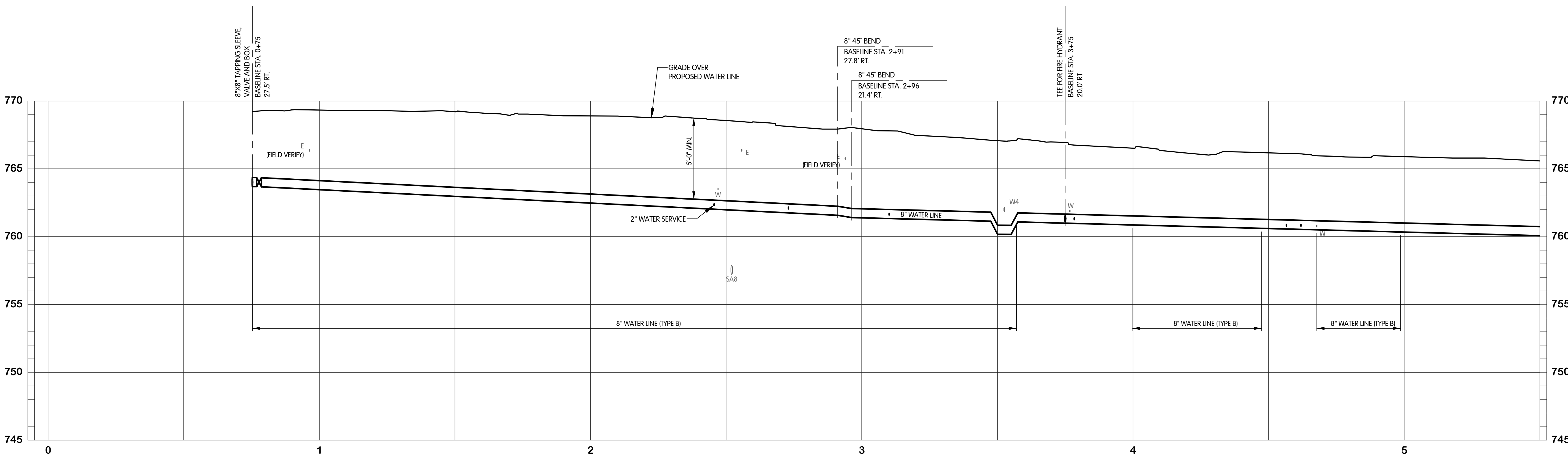
NORTH TODD STREET

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 3. THE DISTRICT WILL SHUT DOWN THE EXISTING WATER MAIN FOR A PERIOD OF 4 HOURS TO PERMIT THE CONTRACTOR TO REMOVE SUFFICIENT LENGTH OF WATER MAIN AND CONNECT THE PROPOSED NEW WATER MAIN TO THE EXISTING WATER MAIN.
 4. CONTRACTOR TO POT HOLE EXCAVATE THE EXISTING 10" WATER MAIN PRIOR TO CONSTRUCTING BORED CASING TO CONFIRM THE ELEVATION OF THE 10" WATER MAIN.
 5. CONTRACTOR TO USE THE EXISTING 8" VALVE AS A WATCH VALVE FOR HYDRANT.

TOL-768800-WI-EAST MAIN STREET STA. 0+00 TO 5+50
8/15/2020 3:27 PM - CLENDER
8/20/2020 10:19 AM



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 3. LOCATION OF BURIED ELECTRIC FOR LIGHT POLES IS APPROXIMATE. CONTRACTOR TO FIELD TO STARTING WORK.



EAST MAIN STREET
WATER
PLAN AND PROFILE
STA. 0+00 TO 5+50

NORTHWESTERN WATER AND SEWER DISTRICT, OHIO
MCCOMB WATER LINE REPLACEMENT PHASE 2 (WL-2815)

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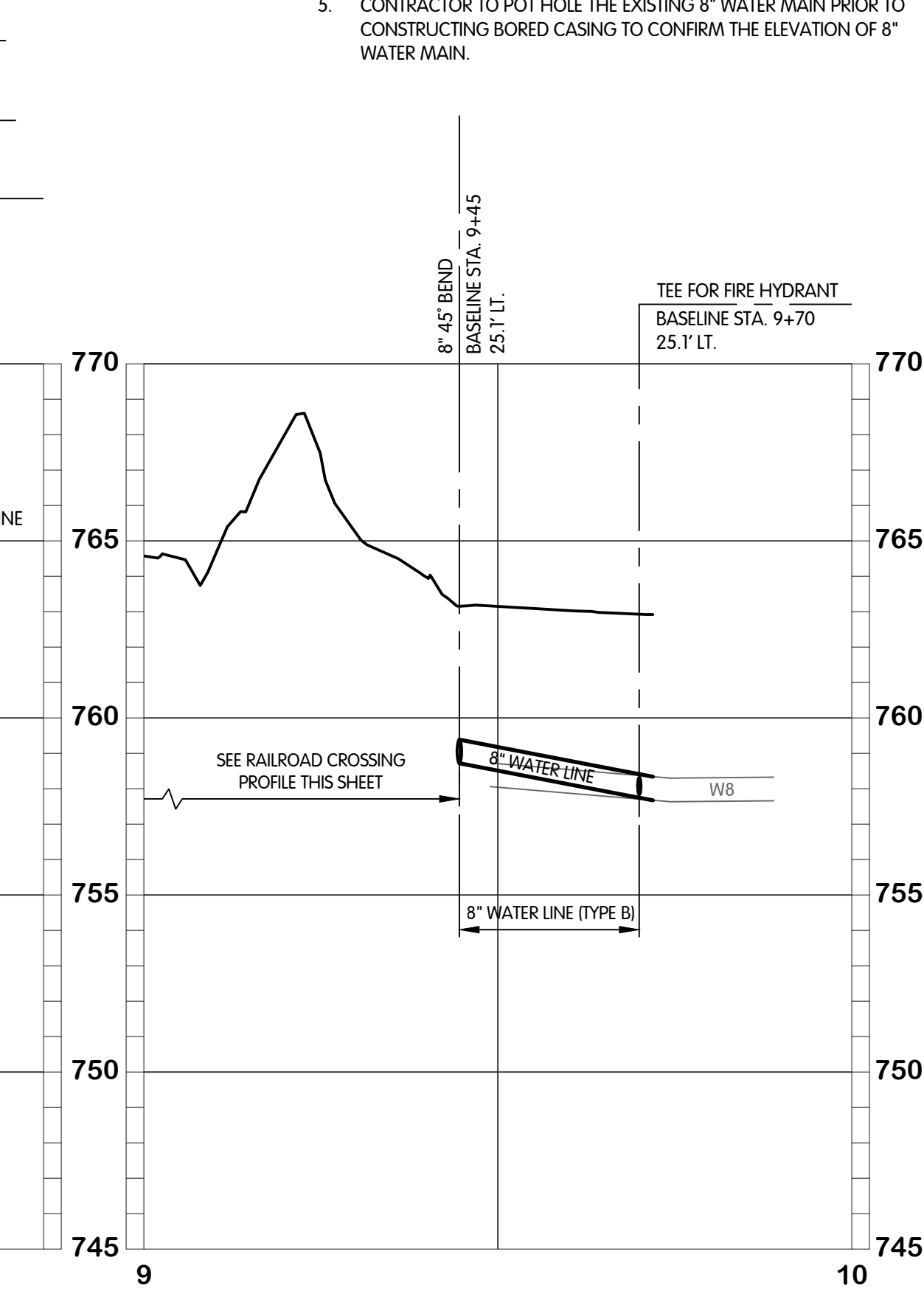
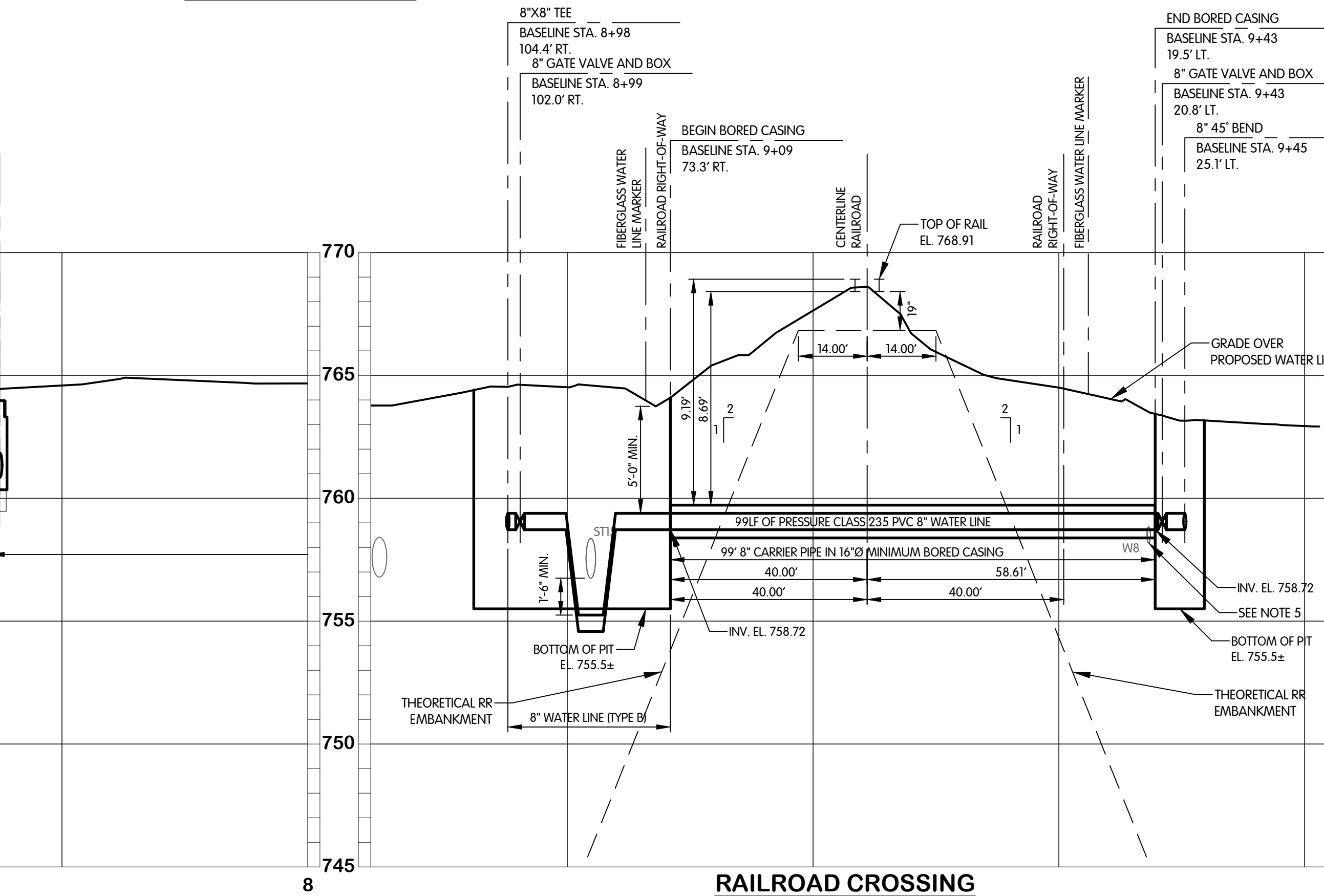
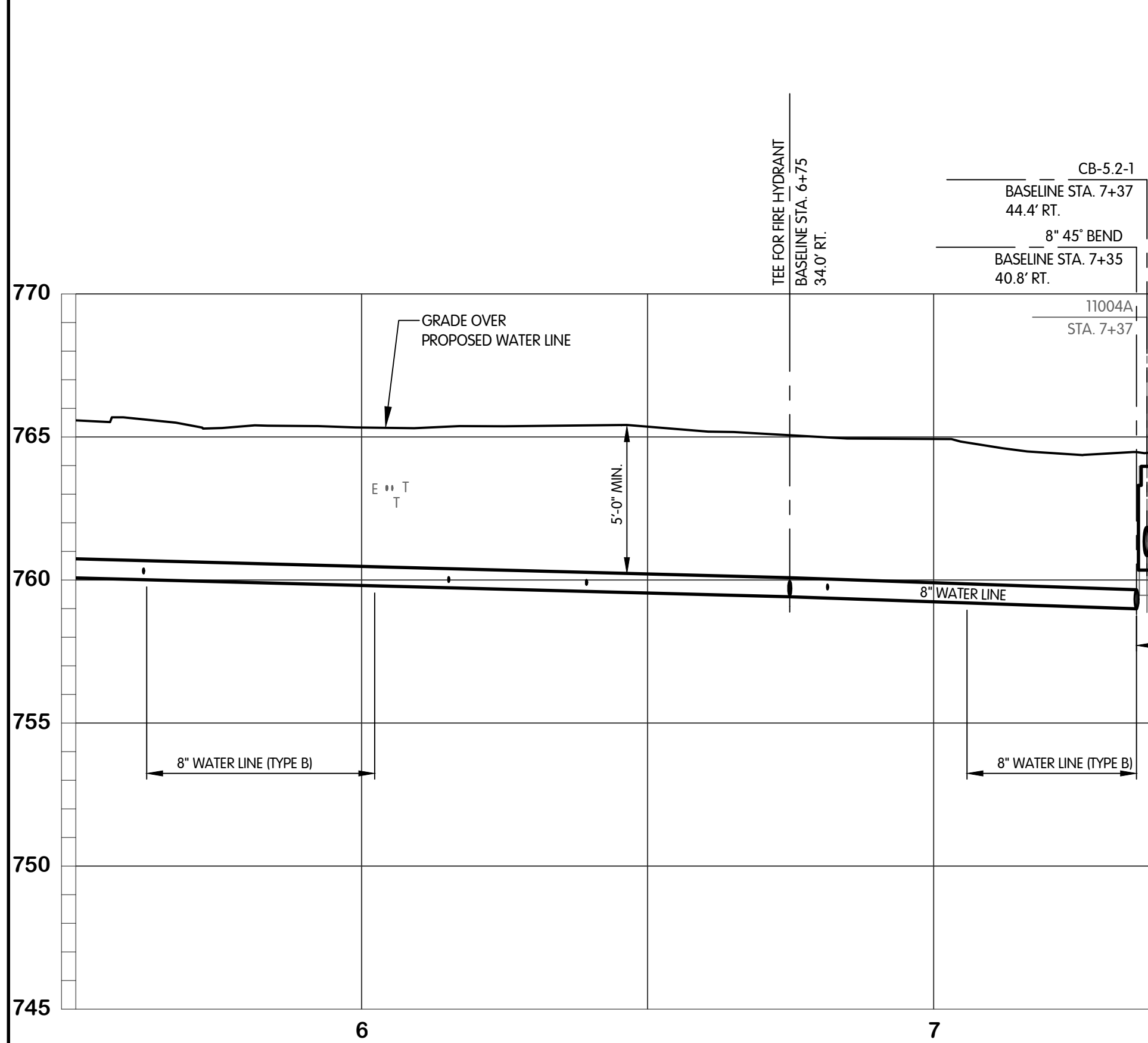
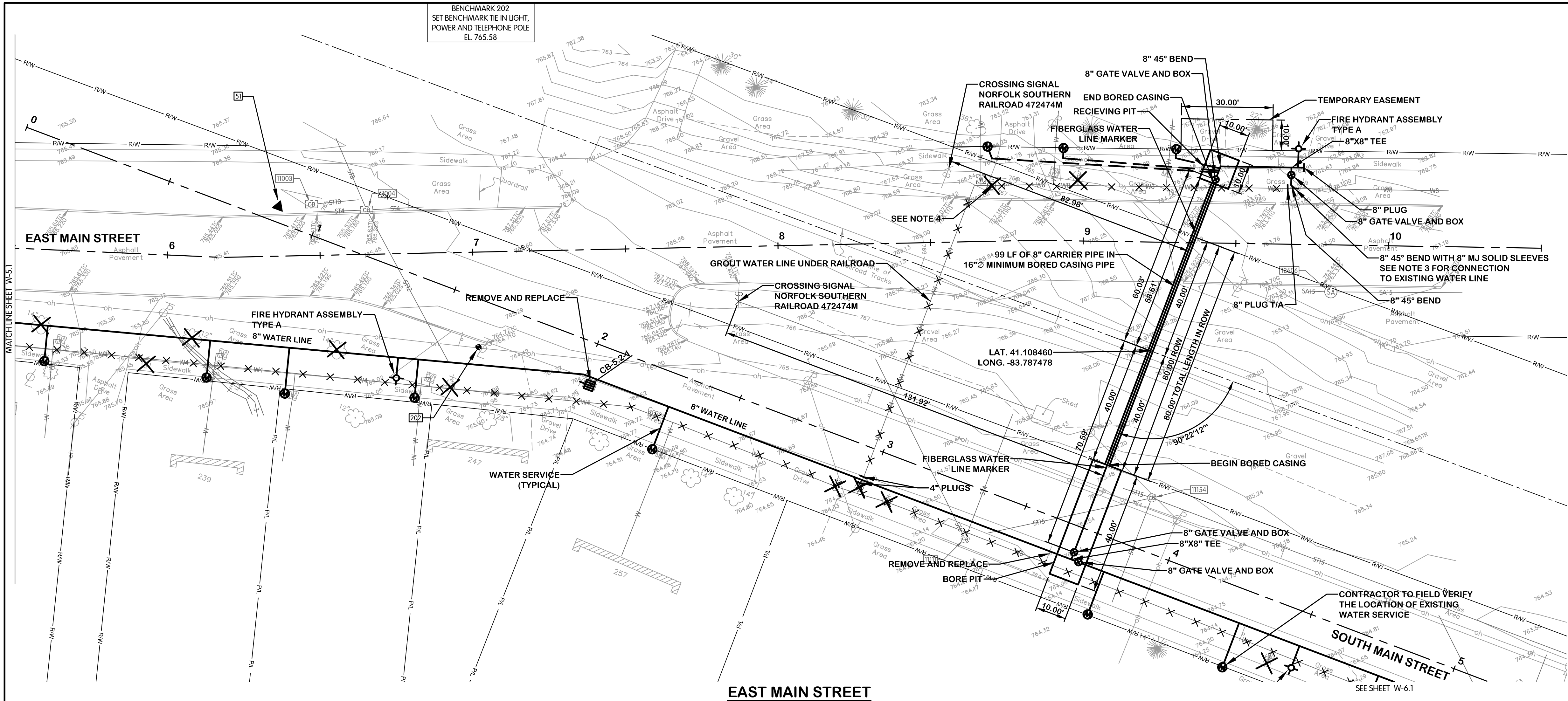
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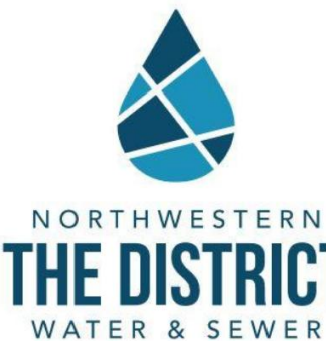
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8/20/2020 10:19 AM



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1. THE CONTRACTOR SHALL PROVIDE WATER SERVICE CONNECTIONS OF A DIAMETER TO MATCH THE ORIGINAL NOMINAL DIAMETER OF THE SERVICE. THE MINIMUM WATER SERVICE DIAMETER SHALL BE 1" DIAMETER. WATER SERVICE WITH NO SIZE SHOWN SHALL BE ASSUMED TO BE 1" DIAMETER.
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 3. THE DISTRICT WILL SHUT DOWN THE EXISTING WATER MAIN FOR A PERIOD OF 4 HOURS TO PERMIT THE CONTRACTOR TO REMOVE SUFFICIENT LENGTH OF WATER MAIN AND CONNECT THE PROPOSED NEW WATER MAIN TO THE EXISTING WATER MAIN.
 4. LOCATION OF THE VALVE IS AS OBTAINED FROM DISTRICT GIS AND IS APPROXIMATE.
 5. CONTRACTOR TO POT HOLE THE EXISTING 8" WATER MAIN PRIOR TO CONSTRUCTING BORED CASING TO CONFIRM THE ELEVATION OF 8" WATER MAIN.



**EAST MAIN STREET
WATER
PLAN AND PROFILE
STA. 5+50 TO 10+50**

**NORTHWESTERN WATER AND SEWER DISTRICT, OHIO
MCCOMB WATER LINE REPLACEMENT PHASE 2 (WL-2815)**

DESIGNED
BR

DRAWN
BJD

CHECKED
TAB

STATUS
ISSUED FOR BID

DATE
AUGUST 2020

SHEET NO.
W-5.2

17 OF 29

Jones & Henry
Engineers, Ltd.

Fluid thinking®
www.JHeng.com

JOB NO. 796-7688.001

SCALE 1"=20' HOR
1"=4' VERT.

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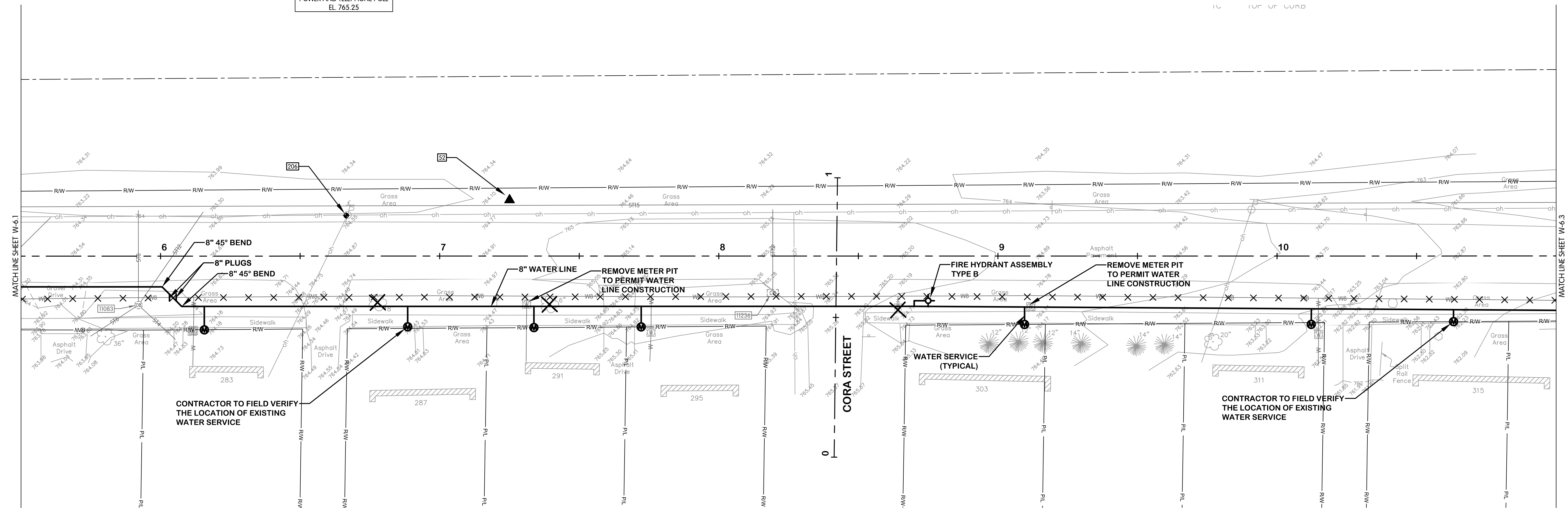
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DATE

REVISIONS AFTER ISSUED FOR BID

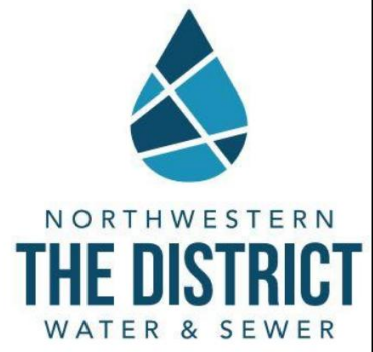
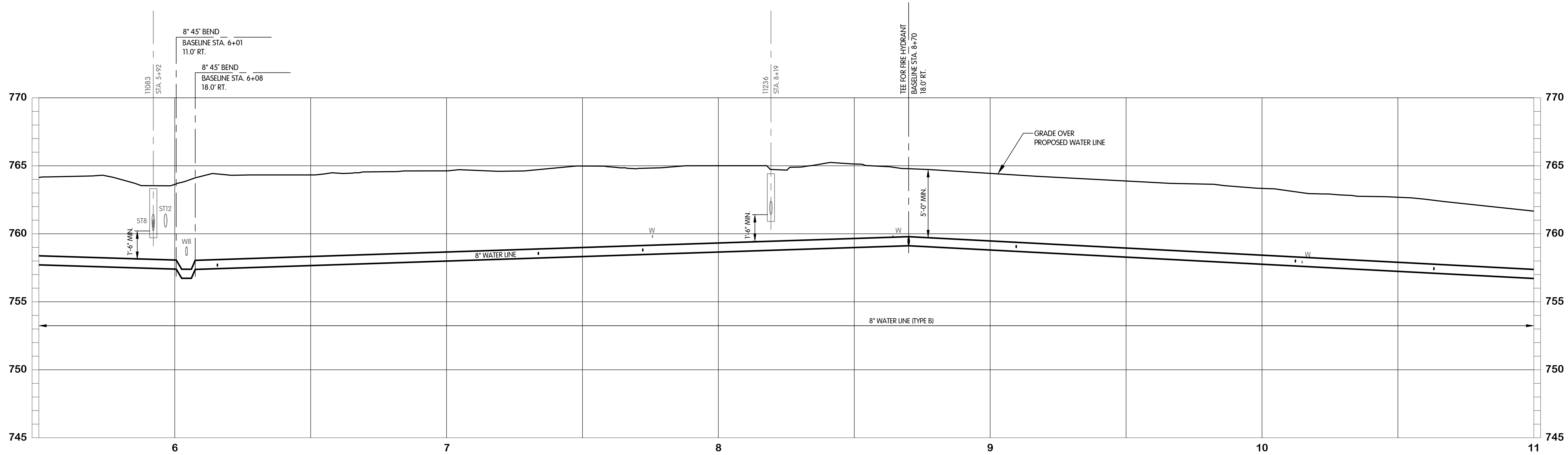
BY

BENCHMARK 206
SET BENCHMARK TIE IN LIGHT,
POWER AND TELEPHONE POLE
EL. 765.25



SOUTH MAIN STREET

- NOTES:
1. THE CONTRACTOR SHALL PROVIDE WATER SERVICE CONNECTIONS OF A DIAMETER TO MATCH THE ORIGINAL NOMINAL DIAMETER OF THE SERVICE. THE MINIMUM WATER SERVICE DIAMETER SHALL BE 1". WATER SERVICE WITH NO SIZE SHOWN SHALL BE ASSUMED TO BE 1" DIAMETER. WATER SERVICES ARE SHOWN OFFSET FROM THE EXISTING WATER SERVICES FOR CLARITY AND SHALL BE INSTALLED ALONG THE SAME ALIGNMENT.
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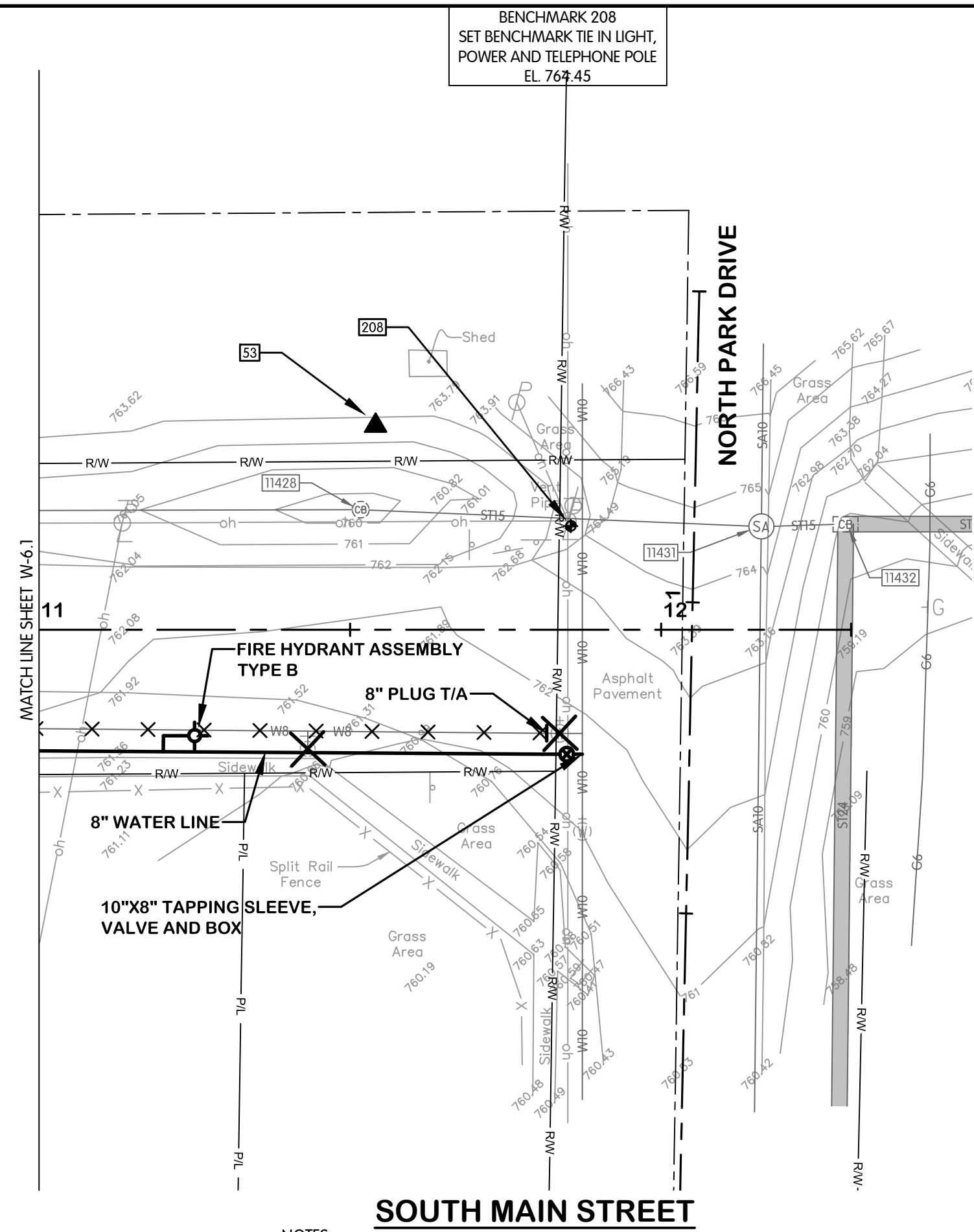
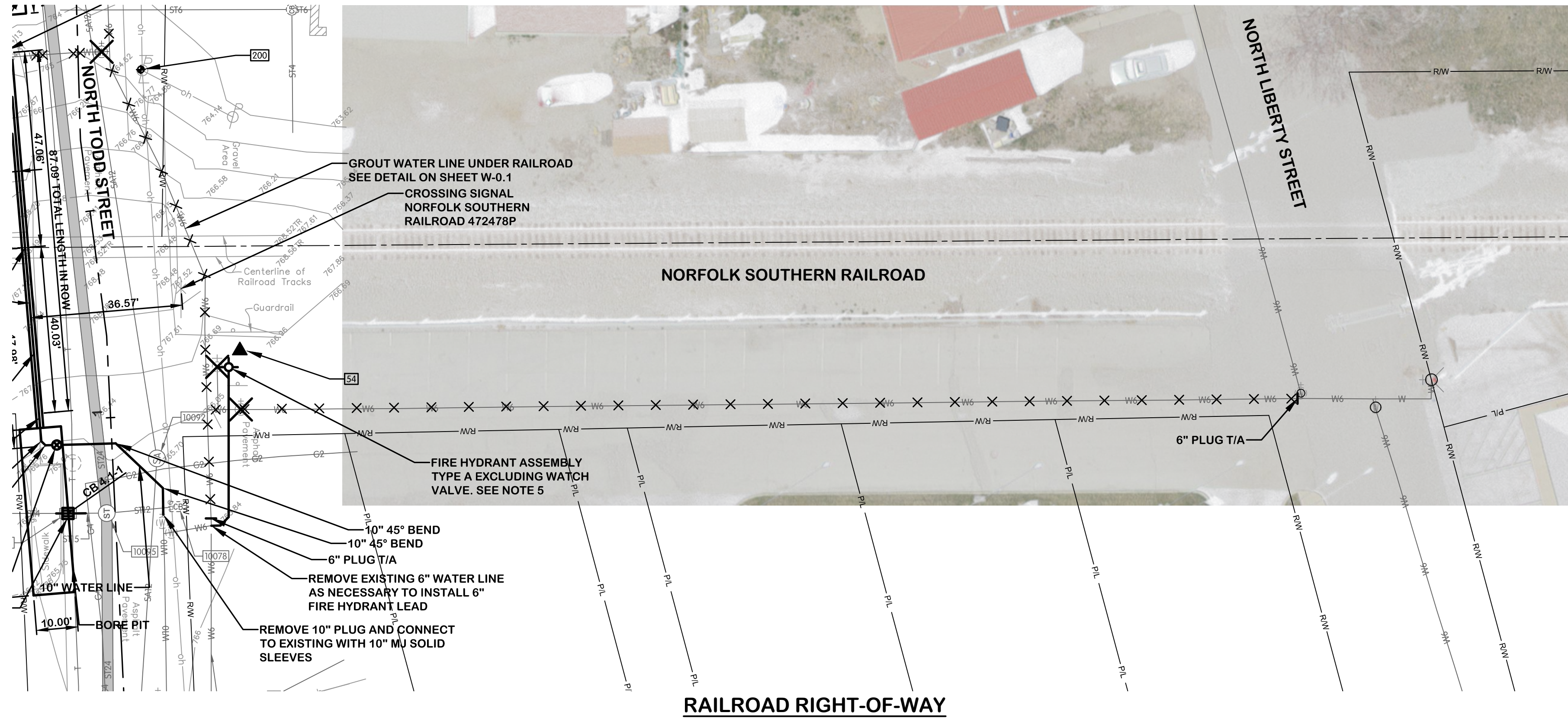


SOUTH MAIN STREET
WATER
PLAN AND PROFILE
STA. 5+50 TO 11+00
NORTHWESTERN WATER AND SEWER DISTRICT, OHIO
MCCOMB WATER LINE REPLACEMENT PHASE 2 (WL-2815)

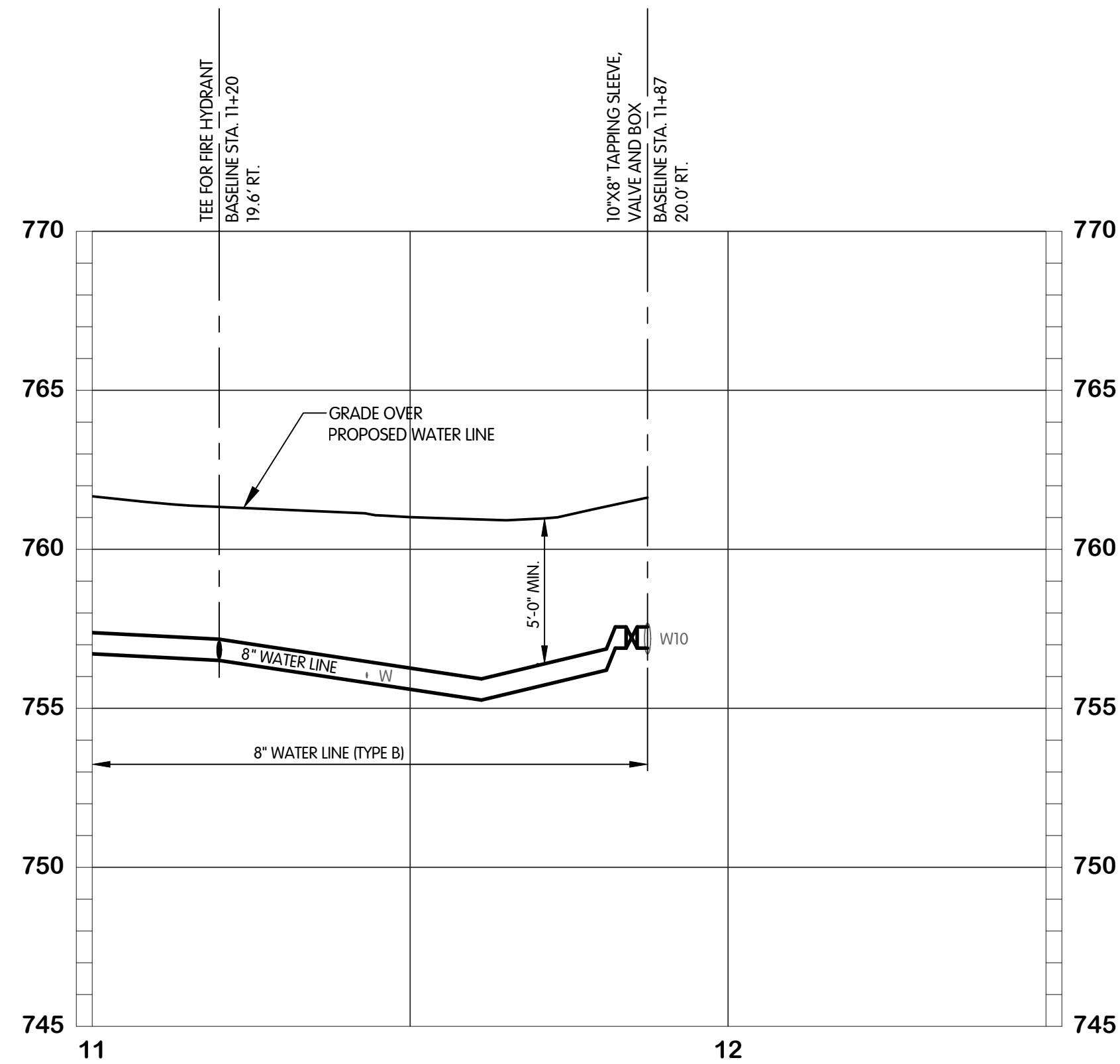
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SHEET NO.
W-6.2
19 OF 29

TOL-7688001-SOUTH MAIN STREET STA. 11+00 TO 12+50
8/15/2020 3:27 PM - CLENDER
8/20/2020 10:20 AM



- NOTES:
1. THE CONTRACTOR SHALL PROVIDE WATER SERVICE CONNECTIONS OF A DIAMETER TO MATCH THE ORIGINAL NOMINAL DIAMETER OF THE SERVICE. THE MINIMUM WATER SERVICE DIAMETER SHALL BE 1". WATER SERVICE WITH NO SIZE SHOWN SHALL BE ASSUMED TO BE 1" DIAMETER. WATER SERVICES ARE SHOWN OFFSET FROM THE EXISTING WATER SERVICES FOR CLARITY AND SHALL BE INSTALLED ALONG THE SAME ALIGNMENT.
 2. THE DISTRICT WILL SHUT DOWN THE EXISTING WATER MAIN FOR A PERIOD OF 4 HOURS TO PERMIT THE CONTRACTOR TO REMOVE SUFFICIENT LENGTH OF WATER MAIN AND CONNECT THE PROPOSED NEW WATER MAIN TO THE EXISTING WATER MAIN.



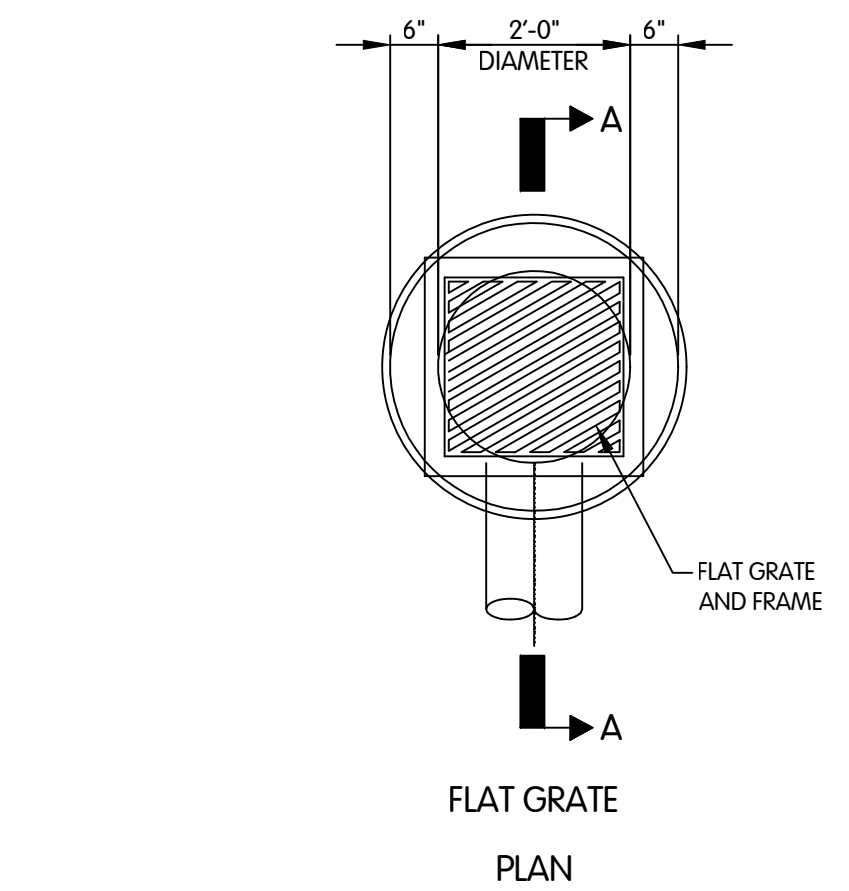
SOUTH MAIN STREET AND RAILROAD RIGHT-OF-WAY
WATER
PLAN AND PROFILE
STA. 11+00 TO 12+50
NORTHWESTERN WATER AND SEWER DISTRICT, OHIO
MCCOMB WATER LINE REPLACEMENT PHASE 2 (WL-2815)

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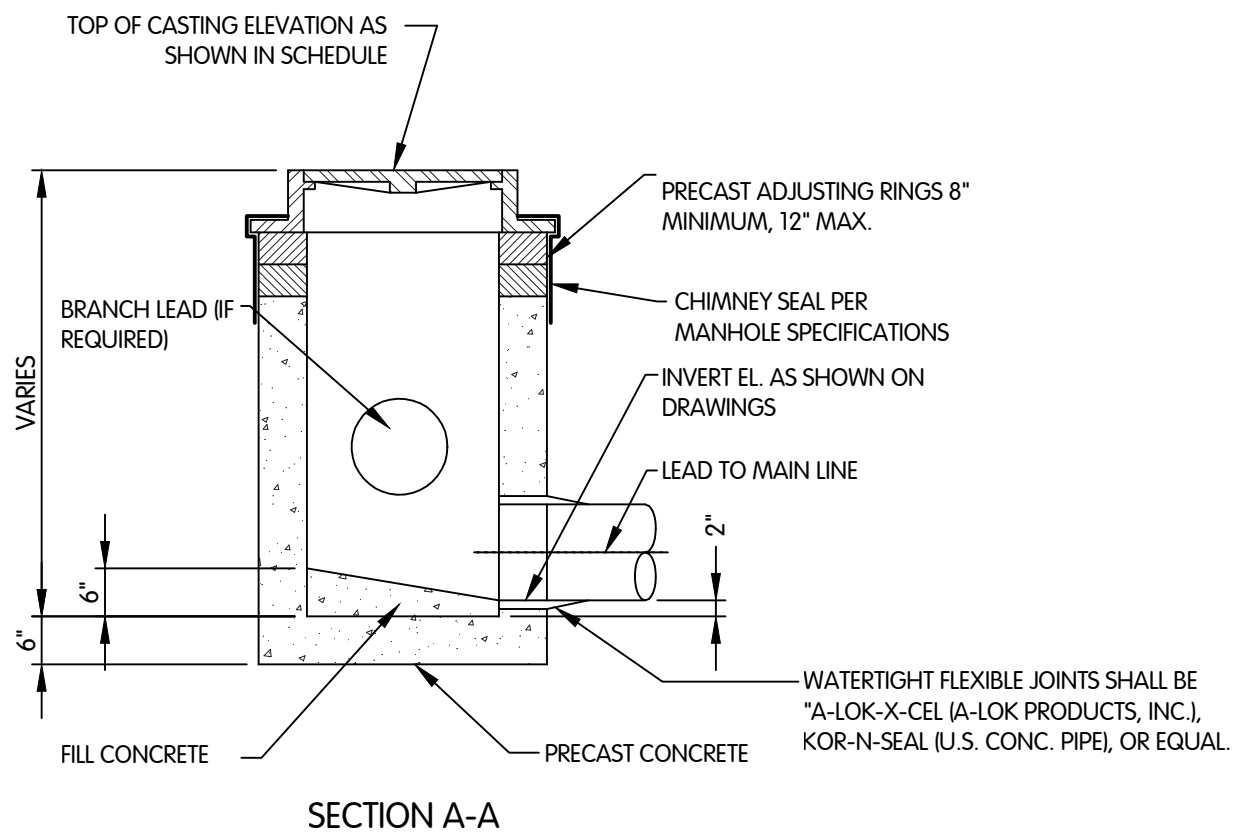
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1"=4' VERT.
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DATE AUGUST 2020
SHEET NO.
W-6.3
20 OF 29

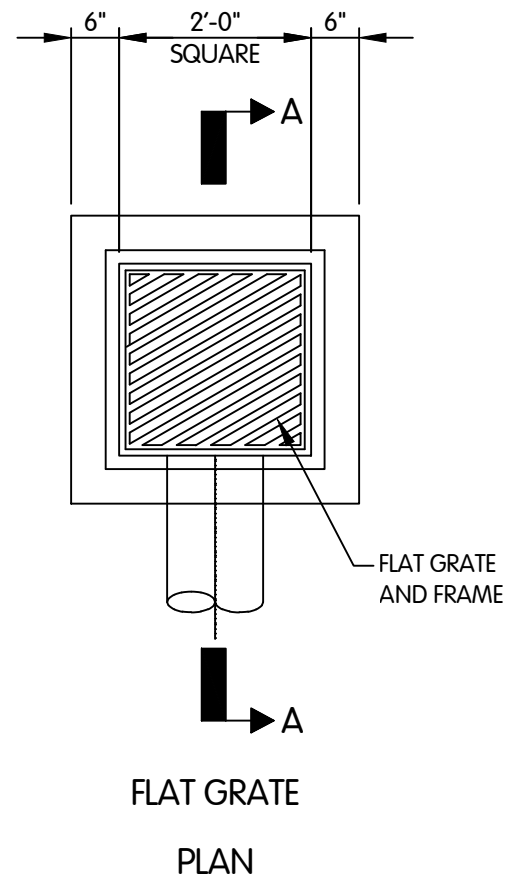
TOL-7668001SR01
8/20/2020 10:21 AM
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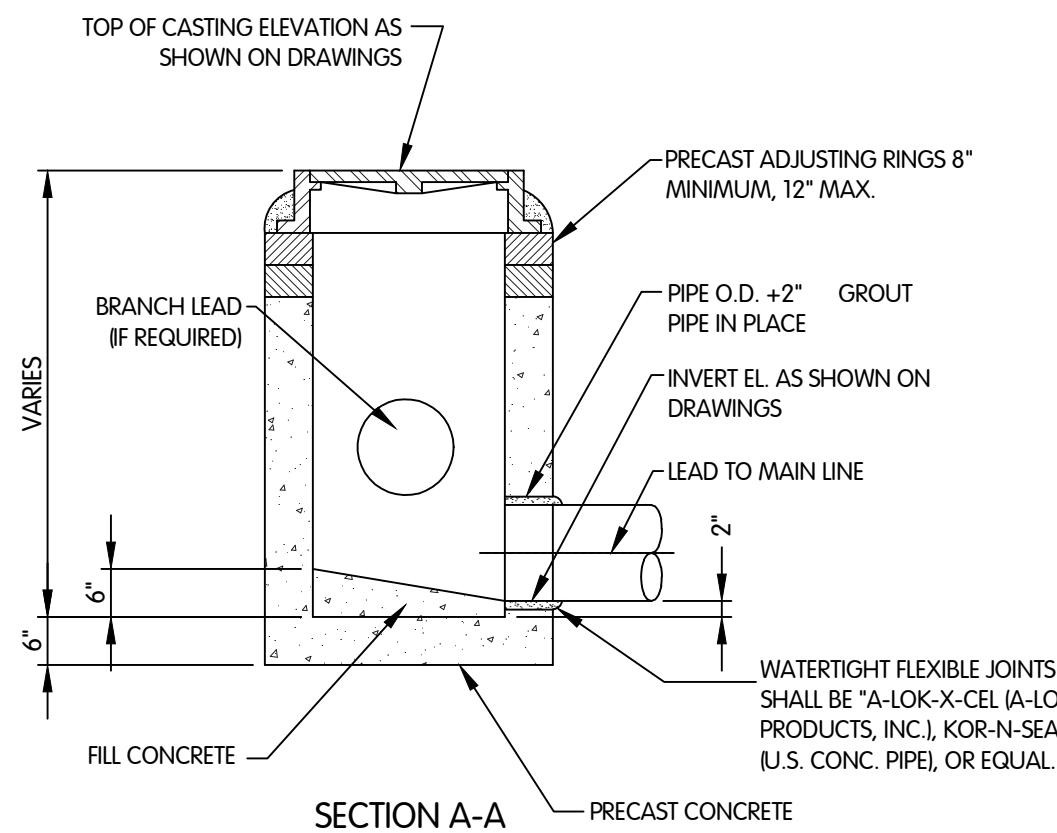
FLAT GRATE
PLAN



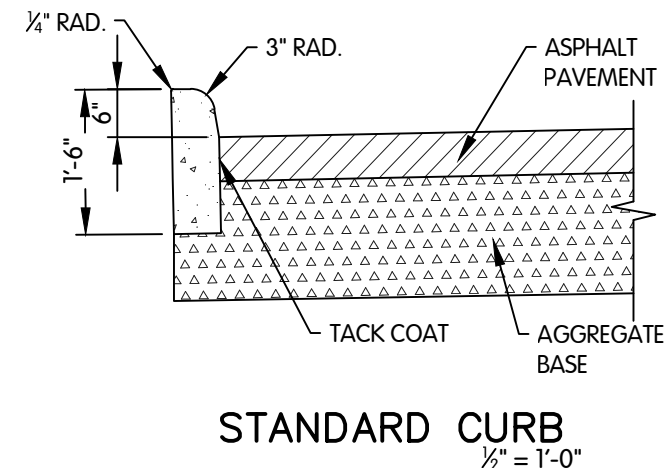
SECTION A-A



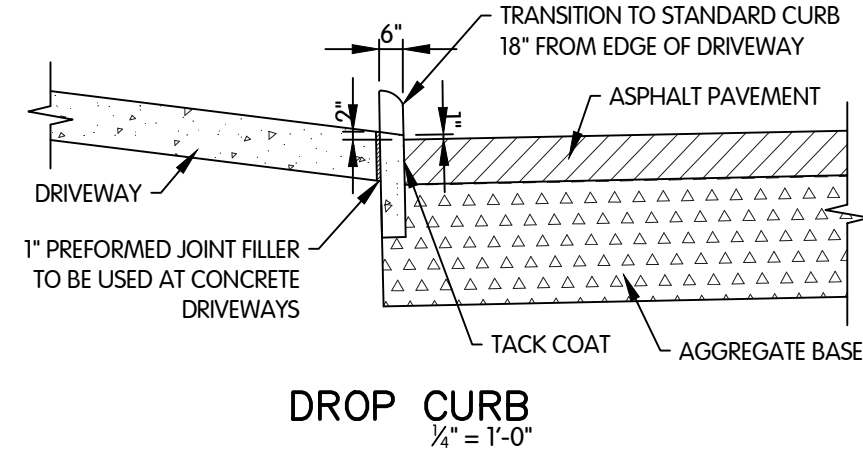
FLAT GRATE
PLAN



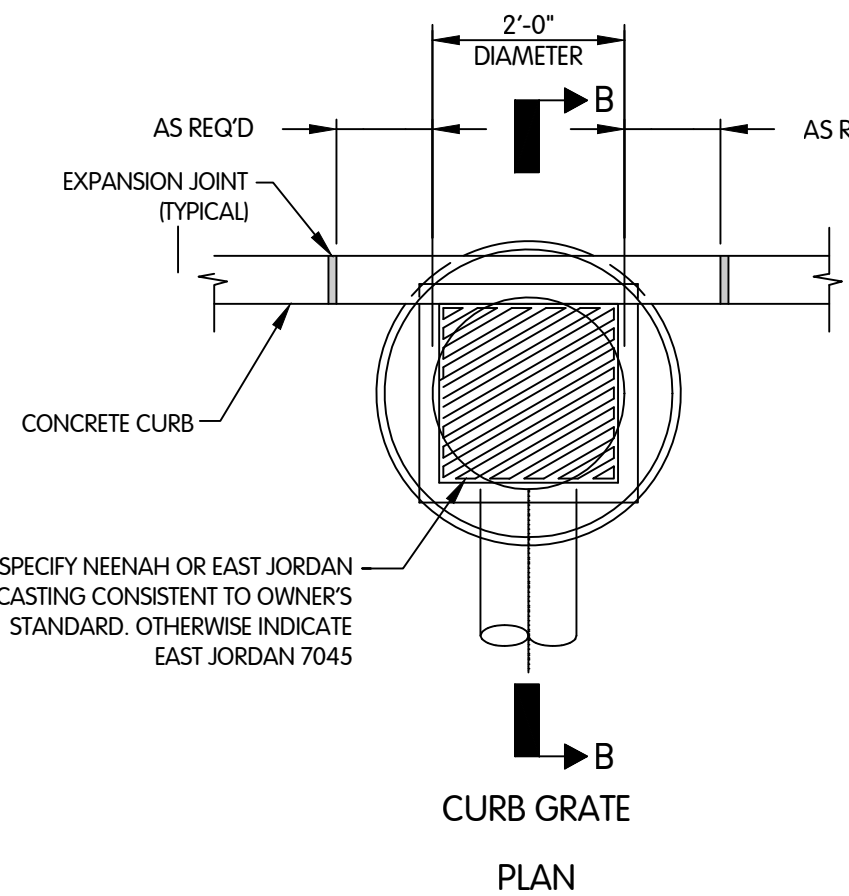
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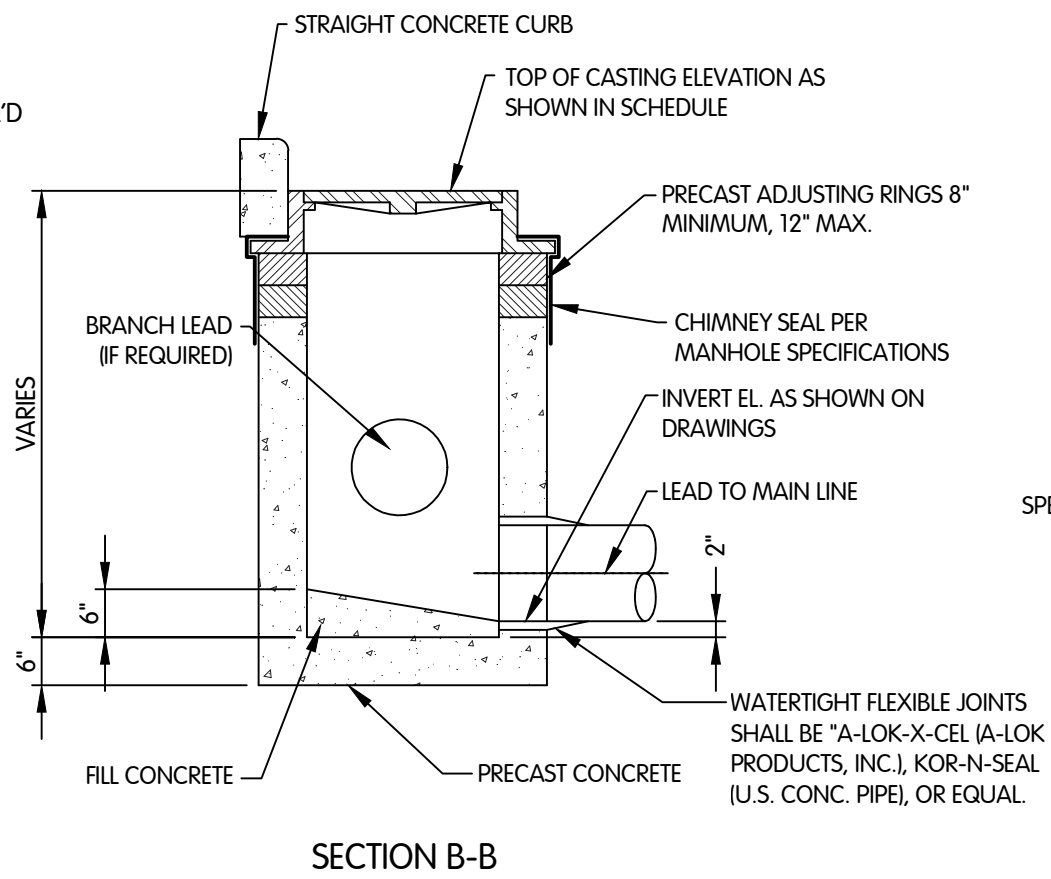
STANDARD CURB
1/2" = 1'-0"



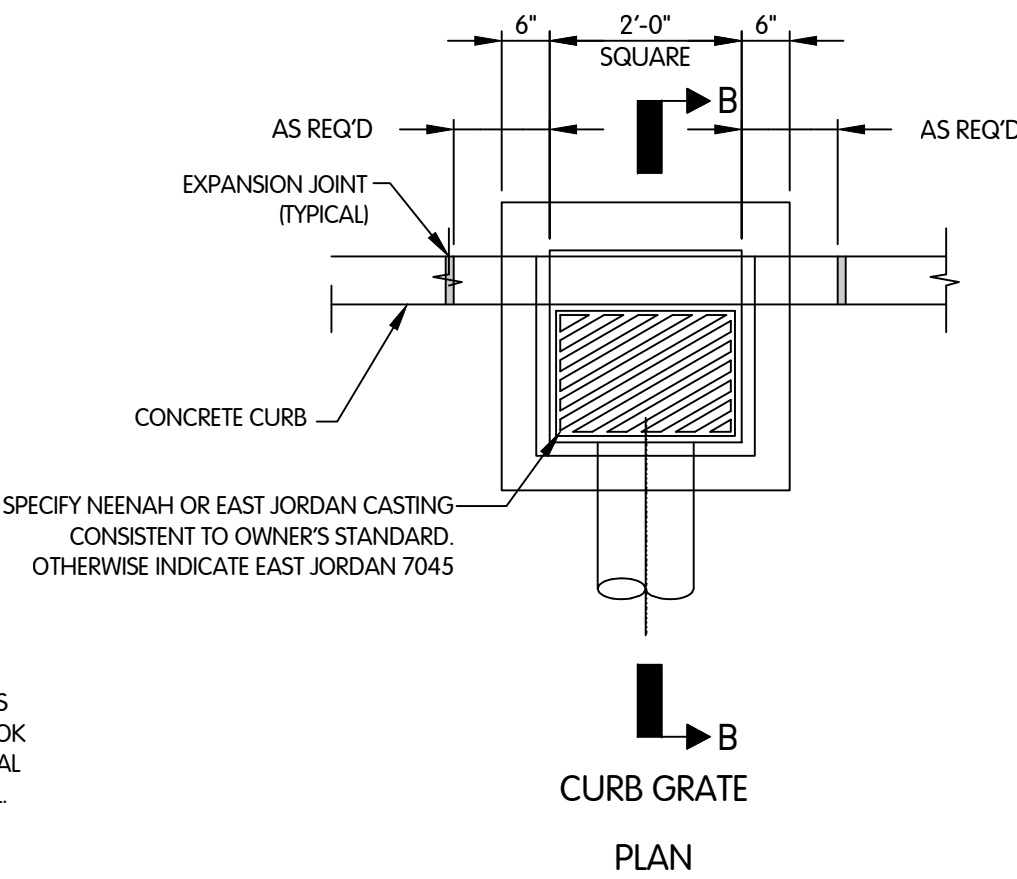
DROP CURB
1/2" = 1'-0"



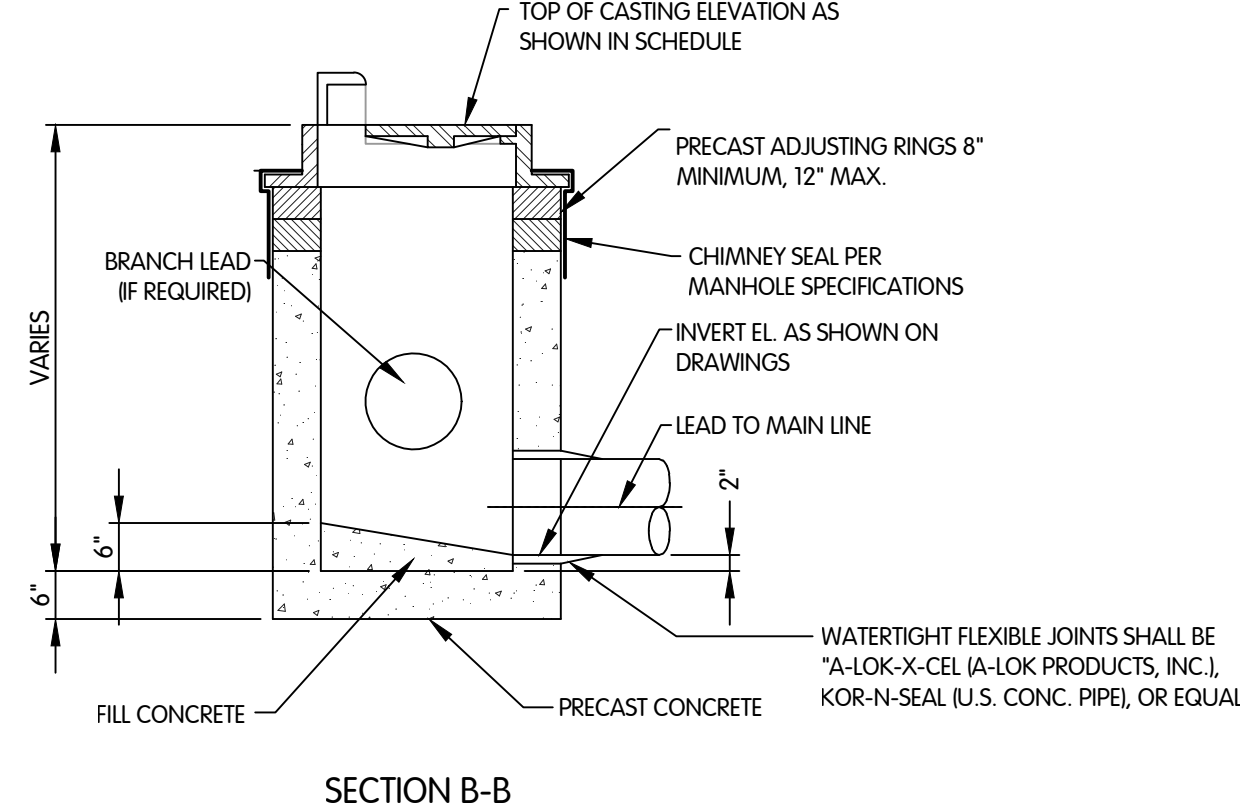
CURB GRATE
PLAN



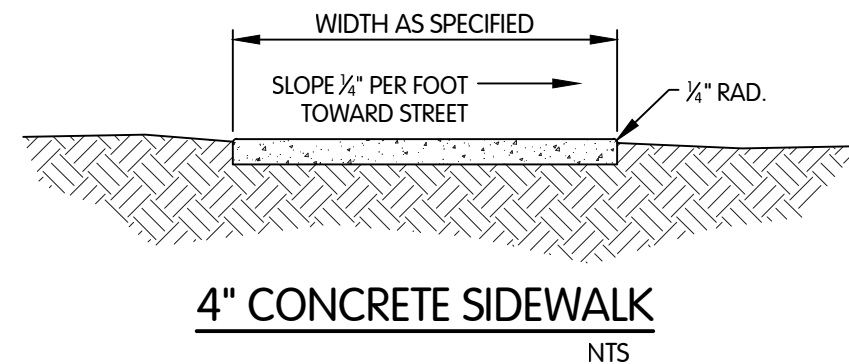
SECTION B-B



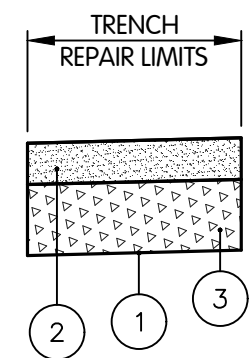
CURB GRATE
PLAN



SECTION B-B

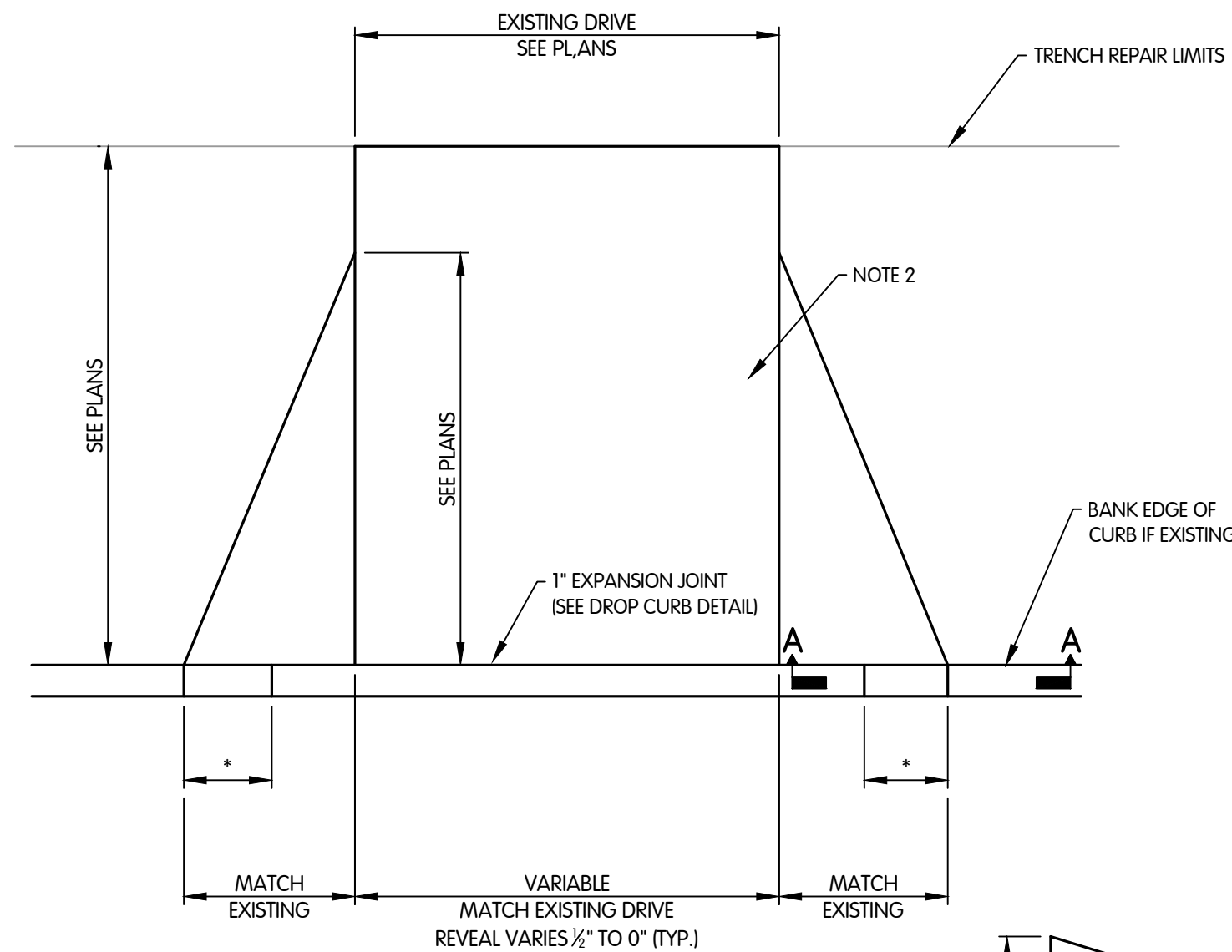


4" CONCRETE SIDEWALK
NTS



- 1 ITEM 204 - SUBGRADE COMPACTION
- 2 ITEM 411 - 6" COMPACTED AGGREGATE WEARING COURSE (BERM)
- 3 ITEM 304 - 6" AGGREGATE BASE

GRAVEL ROAD DRIVEWAY
AND BERM REPAIR SECTION
NTS



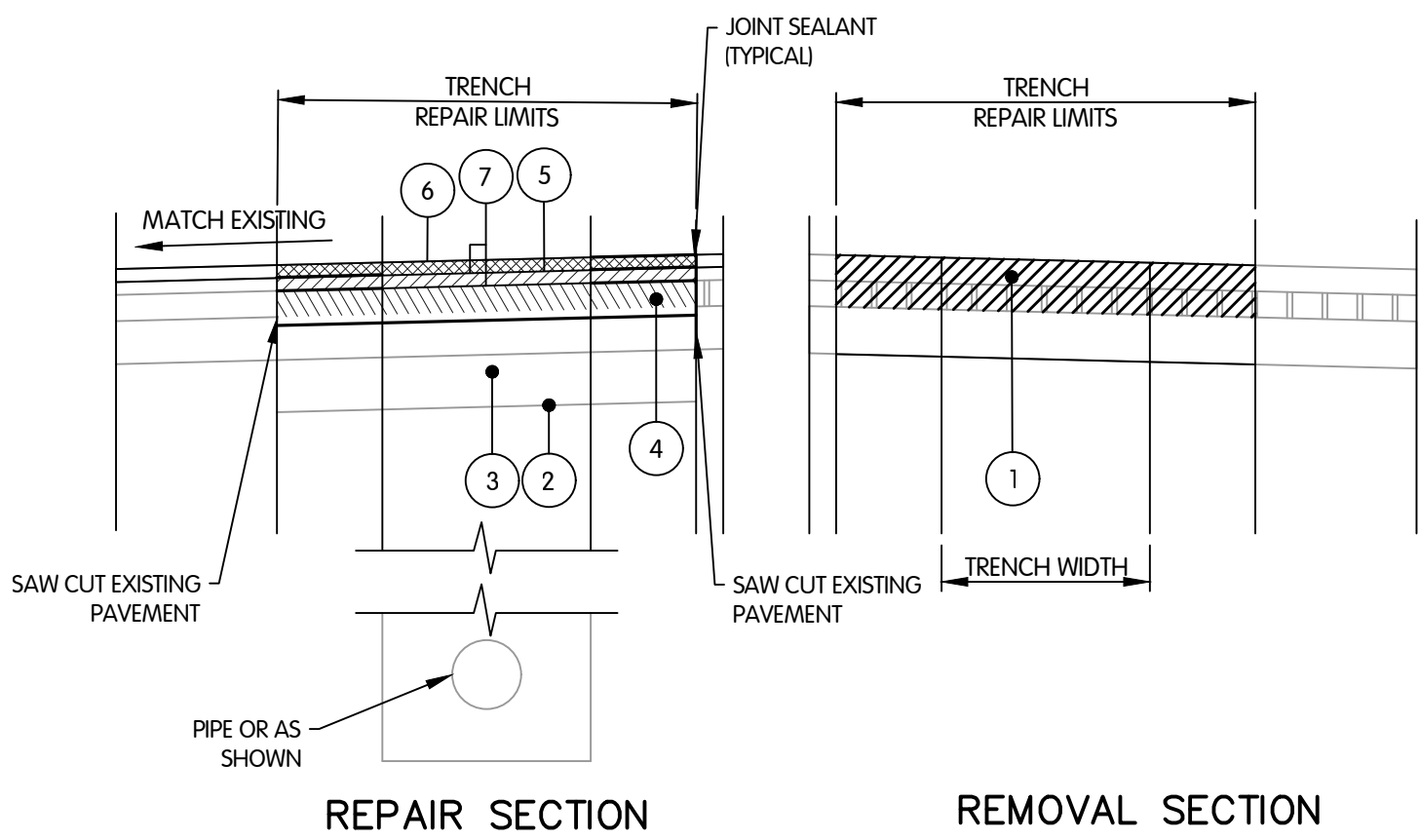
- * THE TRANSITION FROM STANDARD VERTICAL CURB SECTION TO DROP CURB SECTION IS TO BE WITHIN 18" OF DRIVEWAY. NO DROP IS REQUIRED WITH ROLL CURB.
- NOTES:
1. ALL DRIVES SHALL BE PLACED ON 6" ODOT ITEM 304.
 2. CONCRETE DRIVEWAY AND APPROACH SHALL BE 6" ODOT ITEM 452 AND ASPHALT DRIVEWAYS SHALL MATCH EXISTING THICKNESS WITH MINIMUM THICKNESS TO BE 1 1/2" ODOT ITEM 441 SURFACE COURSE TYPE 1 (448). 1 1/2" ODOT ITEM 441 INTERMEDIATE COURSE TYPE 2 (448).

DRIVEWAY APPROACH DETAIL
NTS

ROUND

SQUARE

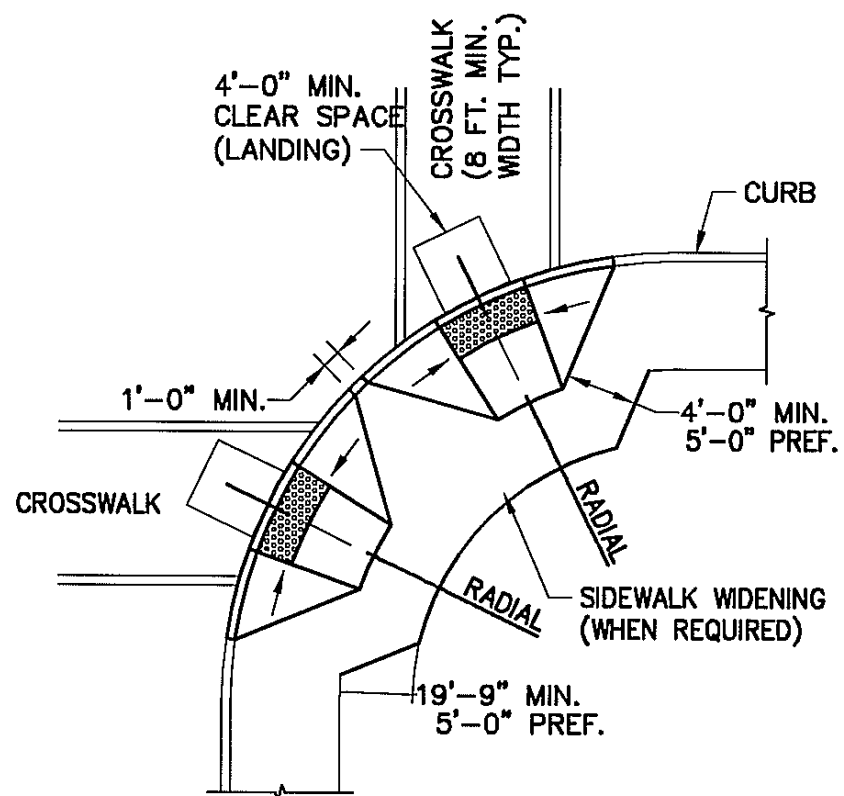
CATCH BASIN DETAILS
1/2" = 1'-0"



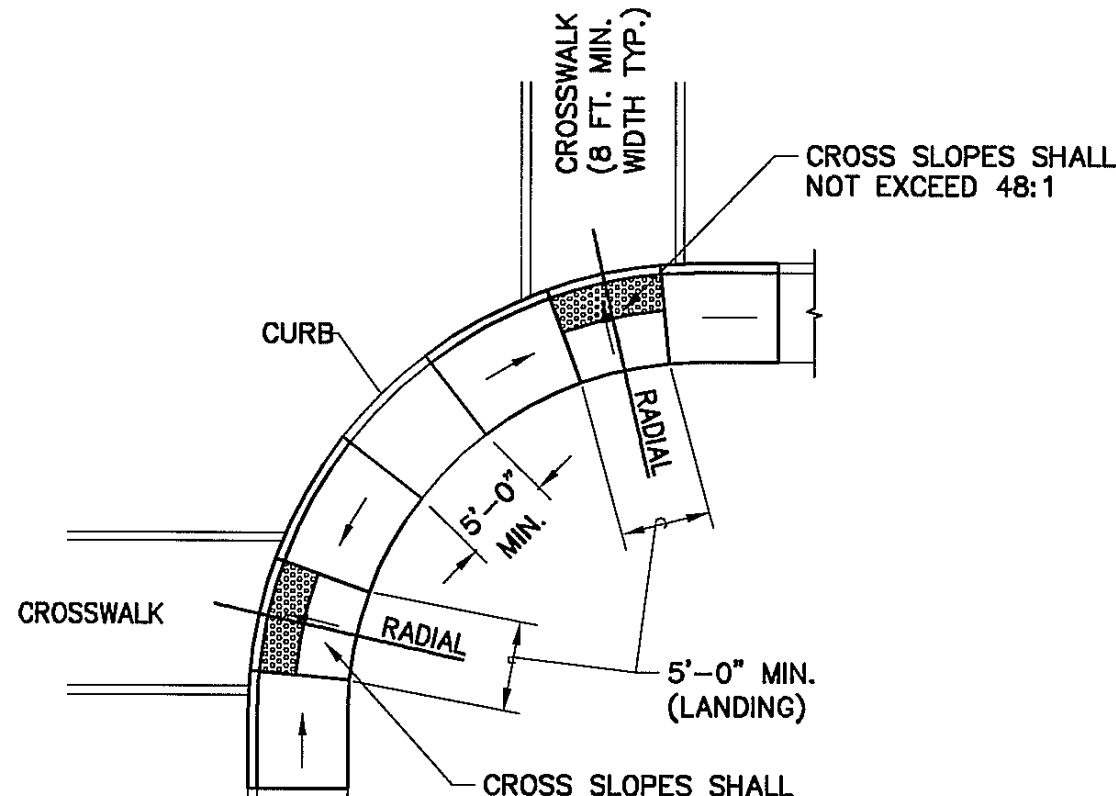
PAVEMENT TRENCH REPAIR TYPICAL SECTION (FLEXIBLE PAVEMENT)
NTS

- 1 ITEM 202 - PAVEMENT AND BASE REMOVED (12" MAX). ADDITIONAL PAVEMENT AND BASE REMOVAL DEPTH TO BE INCLUDED IN THE COST OF THE PIPE.
- 2 ITEM 204 - SUBGRADE COMPACTION
- 3 ITEM 304 - AGGREGATE BASE (12")
- 4 ITEM 301 ASPHALT CONCRETE BASE (3") * - FOR HEAVY ROADWAY (TODD STREET, EAST MAIN AND SOUTH MAIN STREET) NOT REQUIRED FOR RESIDENTIAL ROADWAY (COOPER STREET) UNLESS EXISTING ASPHALT IS GREATER THAN 3"
- 5 1 1/2" ITEM 441 ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE 2, (448)
- 6 1 1/2" ITEM 441 ASPHALT CONCRETE SURFACE COURSE, TYPE 1 (448). THIS LAYER TO BE INSTALLED FOLLOWING PAVEMENT PLANNING IN AREAS SCHEDULED
- 7 ITEM 407 TACK COAT - 0.050 GAL/SY. USE RUBBERIZED ASPHALT EMULSION IN ACCORDANCE WITH 703.12 BETWEEN ASPHALT AND CONCRETE SURFACES. (TRENCH AREAS ONLY)

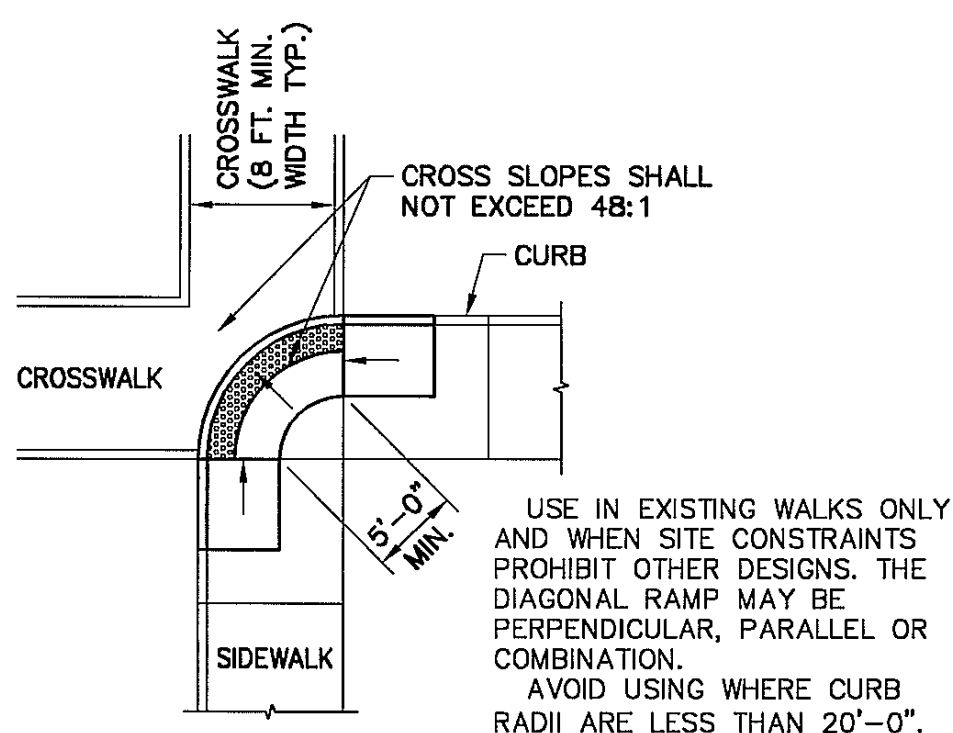
NOTE:
THE PAVEMENT SECTION SHALL BE DEFINED AS THE PAVEMENT AND AGGREGATE BASE THICKNESS SHOWN



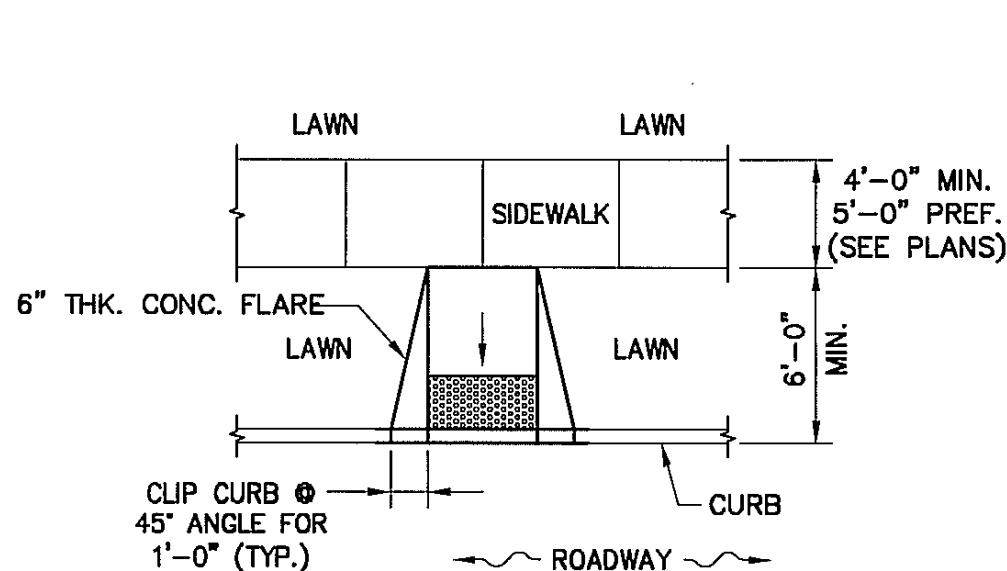
DESIGN "A" PERPENDICULAR RAMP
(SEE CURB RAMP DETAILS THIS SHEET FOR ADDITIONAL REQUIREMENTS)



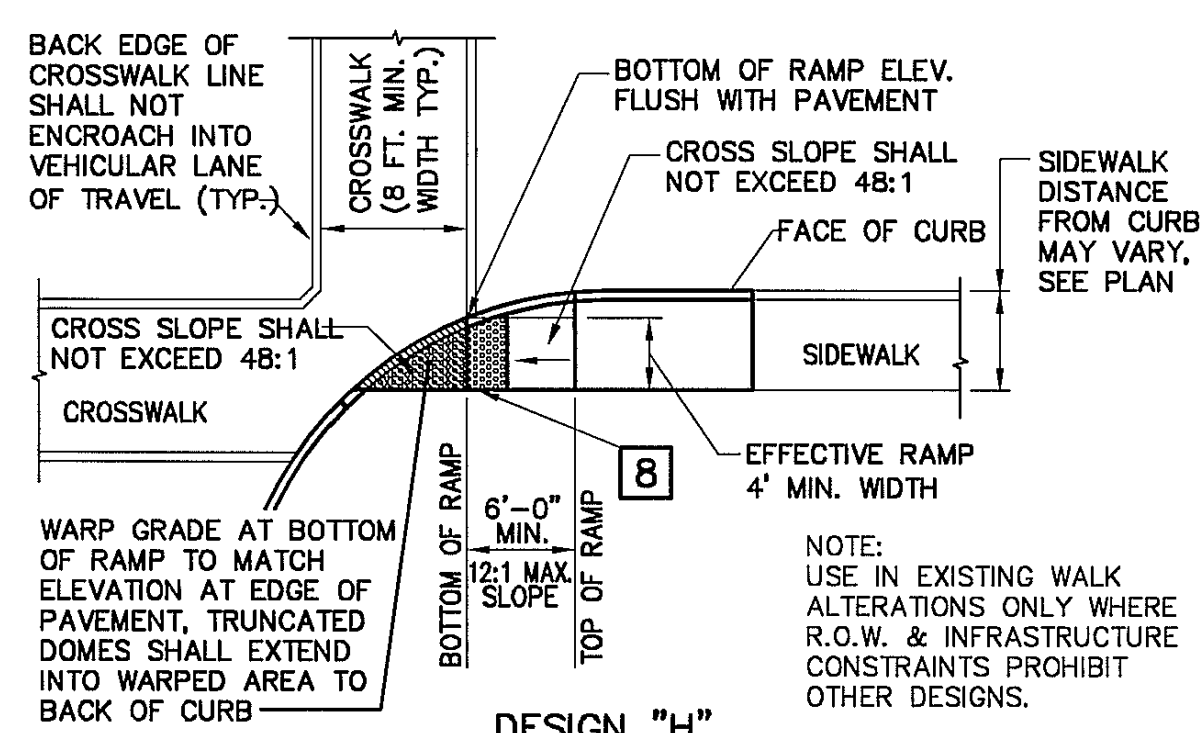
DESIGN "B" PARALLEL RAMP
(SEE CURB RAMP DETAILS THIS SHEET FOR ADDITIONAL REQUIREMENTS)



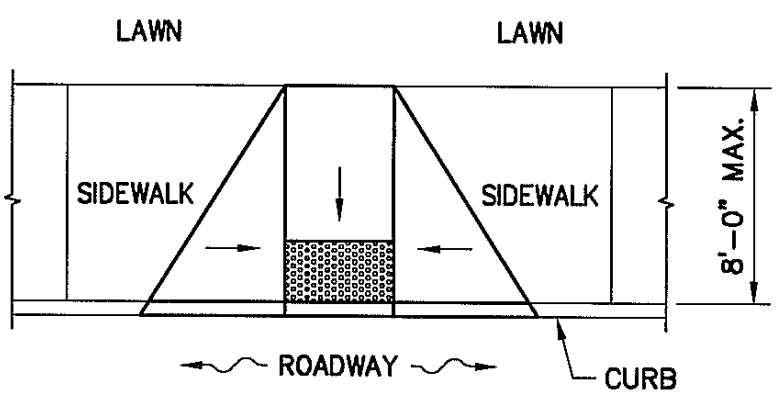
DESIGN "D" DIAGONAL RAMP
(SEE CURB RAMP DETAILS THIS SHEET FOR ADDITIONAL REQUIREMENTS)



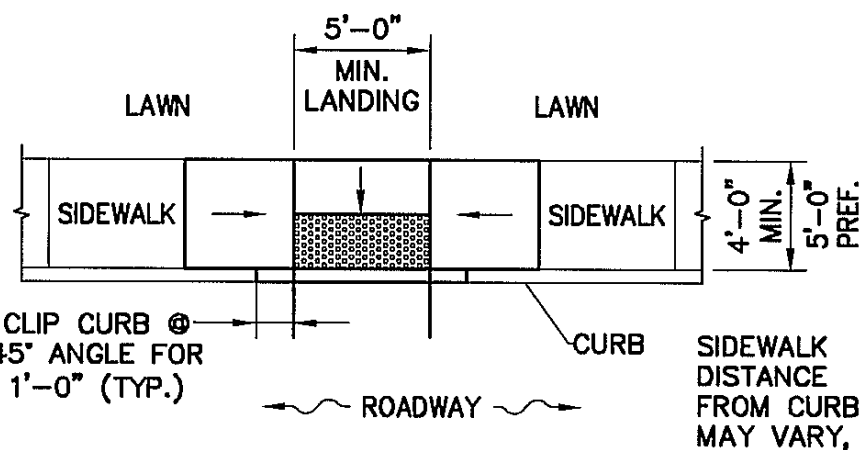
DESIGN "G" PERPENDICULAR RAMP W/O FLARES
(SEE CURB RAMP DETAILS THIS SHEET FOR ADDITIONAL REQUIREMENTS)



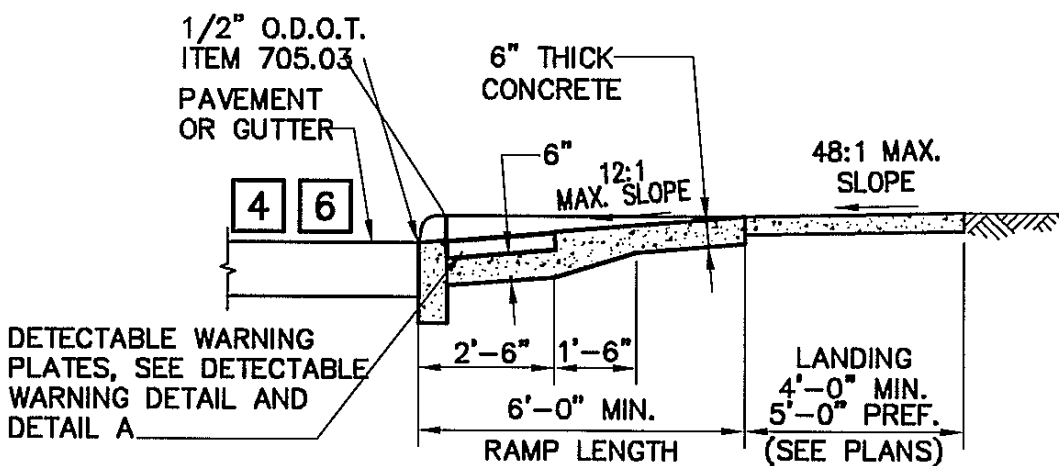
DESIGN "H" PARALLEL CURB RAMP ON RADIUS
(SEE CURB RAMP DETAILS THIS SHEET FOR ADDITIONAL REQUIREMENTS)



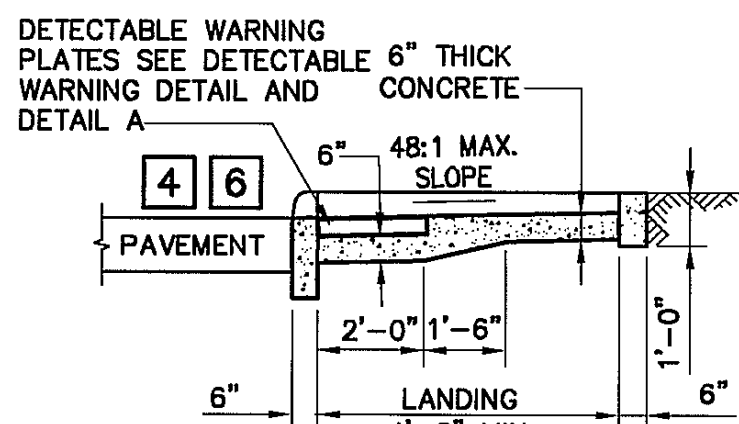
DESIGN "E" PERPENDICULAR RAMP
(SEE CURB RAMP DETAILS THIS SHEET FOR ADDITIONAL REQUIREMENTS)



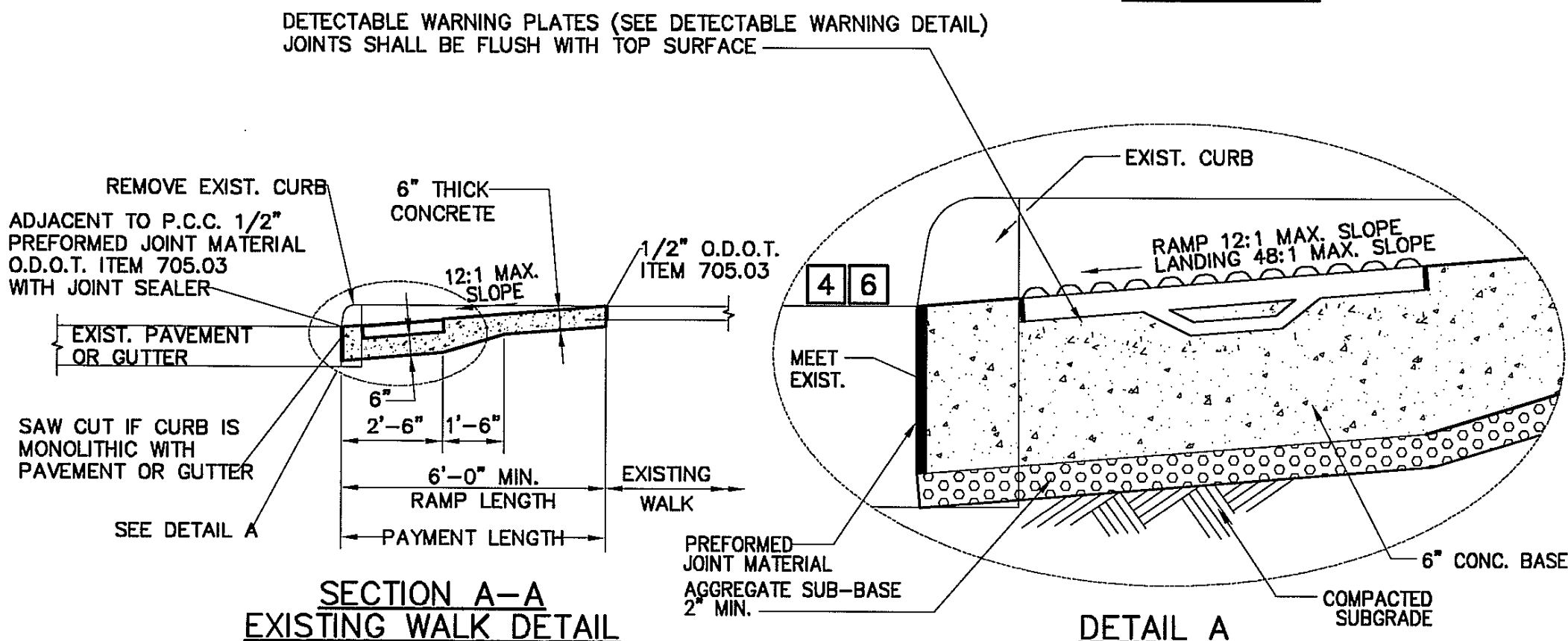
DESIGN "F" PARALLEL RAMP
(SEE CURB RAMP DETAILS THIS SHEET FOR ADDITIONAL REQUIREMENTS)



SECTION A-A NORMAL DETAIL



SECTION B-B



SECTION A-A EXISTING WALK DETAIL

DETAIL A

DETAIL NOTES

- MAY BE REDUCED TO 3'-4" IN EXISTING SIDEWALKS TO BETTER FIT THE WALK CONFIGURATION OR WHERE SITE CONDITIONS ARE RESTRICTED BY NARROW WALKS, POLE FOUNDATIONS, DRAINAGE INLETS, ETC. THE WIDTH MAY BE TAPERED.
- IF FLARED SIDES ARE USED IN AREAS OF CROSS TRAVEL, THE MINIMUM SLOPE SHALL BE 10:1 WITH A LANDING AND 12:1 WITHOUT A DEFINED LANDING.
- THE SLOPE OF THE RAMP TOWARD THE CURB IS REQUIRED TO BE 12:1 [0.0833] OR LESS, RELATIVE TO THE HORIZONTAL, UNLESS APPROVED IN WRITING BY THE ENGINEER/ARCHITECT.

THE MINIMUM LENGTH OF A PERPENDICULAR RAMP IS 6' FROM THE BACK OF A 6" CURB AND MAY BE INCREASED WHERE FEASIBLE TO OBTAIN A FLATTER RAMP SLOPE OR TO BETTER BLEND WITH THE WALK CONFIGURATION.
- THE GRADE BREAK BETWEEN THE COUNTER SLOPES OF GUTTER AND/OR ROAD SURFACES, WITHIN 24 INCHES OF THE CURB RAMP AND THE RUNNING GRADE OF THE CURB RAMP, SHALL NOT EXCEED THE ALGEBRAIC DIFFERENCE OF 11 PERCENT. IF TWO OR MORE PLANE CHANGES ARE PRESENT, THEY SHALL BE SEPARATED BY 24 INCHES.
- DIMENSIONS DERIVED FROM EQUATIONS ARE NOMINAL. CONSTRUCT RAMPS TO MEET REQUIRED SLOPES AND EXISTING CONDITIONS.
- GRADES FOR LANDING SHALL PROMOTE POSITIVE DRAINAGE, WITHIN MAXIMUM ALLOWABLE SLOPE. NO PONDING OF WATER WILL BE ACCEPTABLE.
- DETECTABLE WARNING PLATES SHALL CONSIST OF A SURFACE OF TRUNCATED DOMES ALIGNED ON A SQUARE GRID, IN THE PREDOMINANT DIRECTION OF TRAVEL, EXTENDING A DISTANCE OF 24" FROM THE BACK OF CURB AND SPANNING THE ENTIRE WIDTH OF THE RAMP OPENING.

DETECTABLE WARNING SURFACES SHALL BE "CAST IN PLACE DETECTABLE WARNING SYSTEMS" AS MANUFACTURED BY ADA SOLUTIONS, INC. OR ARMOR TILE. COLOR SHALL BE BRICK RED OR COLONIAL RED, AND INSTALLED PER THE MANUFACTURERS SPECIFICATIONS.

TRUNCATED DOMES SHALL HAVE A BASE DIAMETER OF 0.9", A TOP DIAMETER OF 0.56", A HEIGHT OF 0.2" AND CENTER TO CENTER SPACING OF 2.35".

PLATES SHALL BE LAID SUCH THAT JOINTS ARE LEVEL WITH ADJOINING JOINTS SO AS TO PROVIDE A SMOOTH TRANSITION FROM PLATE TO PLATE AND PLATE TO CONCRETE SURFACE. THE SURFACE OF ANY TWO ADJACENT UNITS SHOULD NOT DIFFER BY MORE THAN 1/8" IN HEIGHT. PLATES SHALL BE BOLTED TOGETHER IN REQUIRED LENGTH. FACE OF ALL PLATES SHALL BE CLEAN OF CEMENT AND PROTECTED SO AS TO AVOID DAMAGE DURING CONSTRUCTION.

DETECTABLE WARNING SURFACES SHALL CONTRAST VISUALLY WITH ADJACENT WALKING SURFACES EITHER LIGHT-ON-DARK, OR DARK-ON-LIGHT.
- WHERE PLATES ABUT LAWN, INSTALL RIGID PVC OR GALVANIZED STEEL EDGE RESTRAINT WITH MINIMUM 1 3/4" VERTICAL FACE, 1 1/4" TOE, AND 3 1/4" HEEL USING 10" X 3/8" LONG SPIKES AT 12" C-C.

SURFACE TEXTURE: TEXTURE SHALL BE OBTAINED BY COARSE BROOMING TRANSVERSE TO THE RAMP SLOPES AND SHALL BE ROUGHER THAN ADJACENT WALK. (DOES NOT APPLY TO TRUNCATED DOMES)

JOINTS: JOINTS SHALL BE PROVIDED IN THE CURB RAMP AS EXTENSIONS OF WALK JOINTS. A 1/2" O.D.O.T. ITEM 705.03 PREFORMED JOINT MATERIAL SHALL BE PROVIDED AROUND THE EDGE OF RAMPS BUILT IN EXISTING CONCRETE WALK. LINES SHOWN ON THIS DRAWING INDICATE THE RAMP EDGE AND SLOPE CHANGES AND ARE NOT NECESSARILY JOINT LINES.

SEE NOTE 3

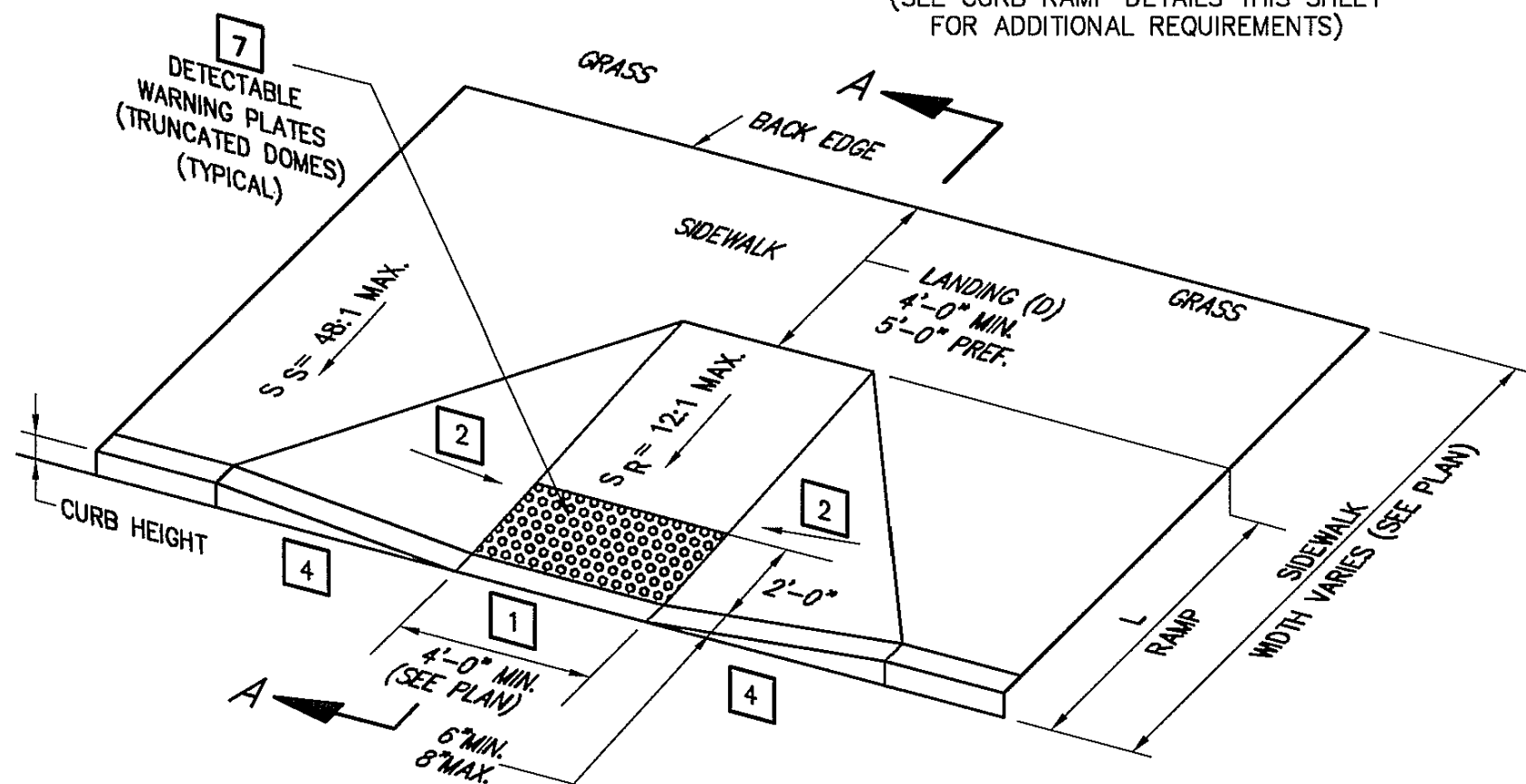
STREET SLOPE	RAMP LENGTH @ 1 INCH PER FOOT [0.0833]	
	L LOW SIDE*	L HIGH SIDE*
0.01	5'-5"	6'-10"
0.02	4'-10"	7'-11"
0.03	4'-5"	9'-5"
0.04	4'-1"	11'-8"
0.05	3'-9"	15'-2"

* - REFERENCE POINT FOR MEASURE IS FACE OF 6" HIGH CURB

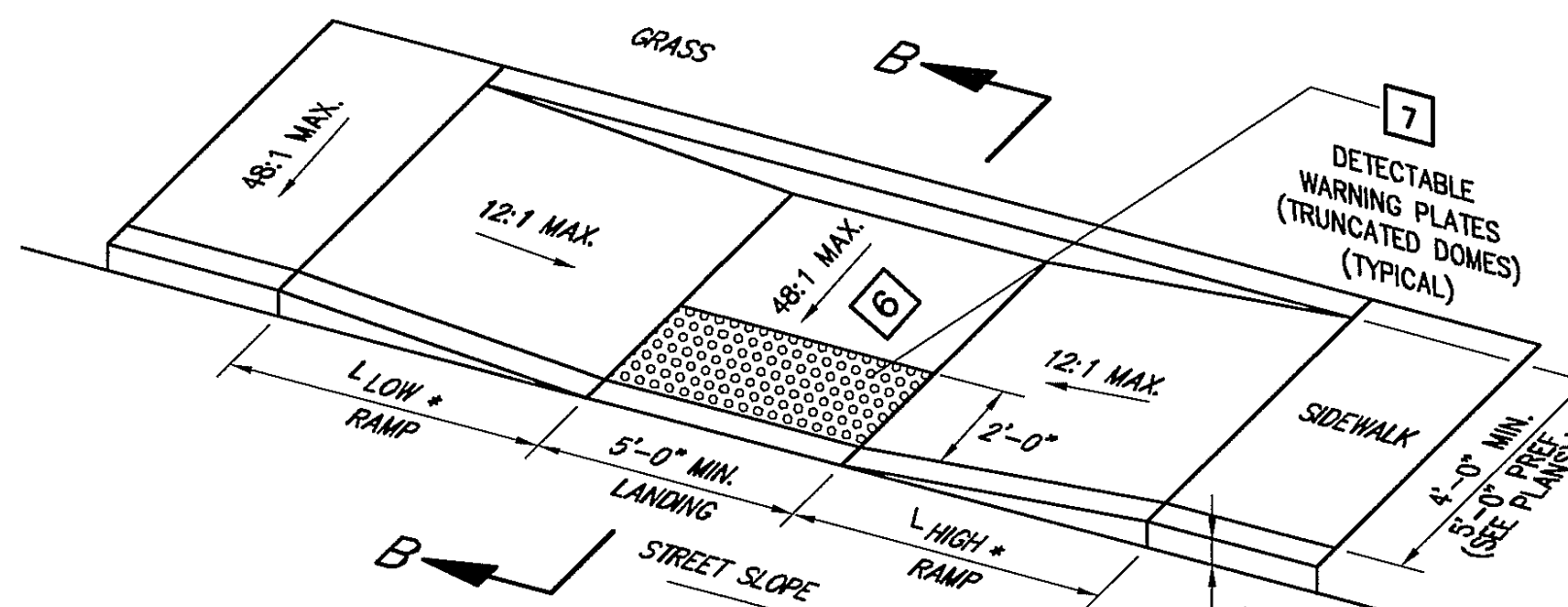
$$L = \frac{\text{CURB HT.}}{S_R = S_S} \quad 5$$

$$L_{\text{HIGH}} = \frac{\text{CURB HEIGHT}}{0.0833 - \text{STREET SLOPE}}$$

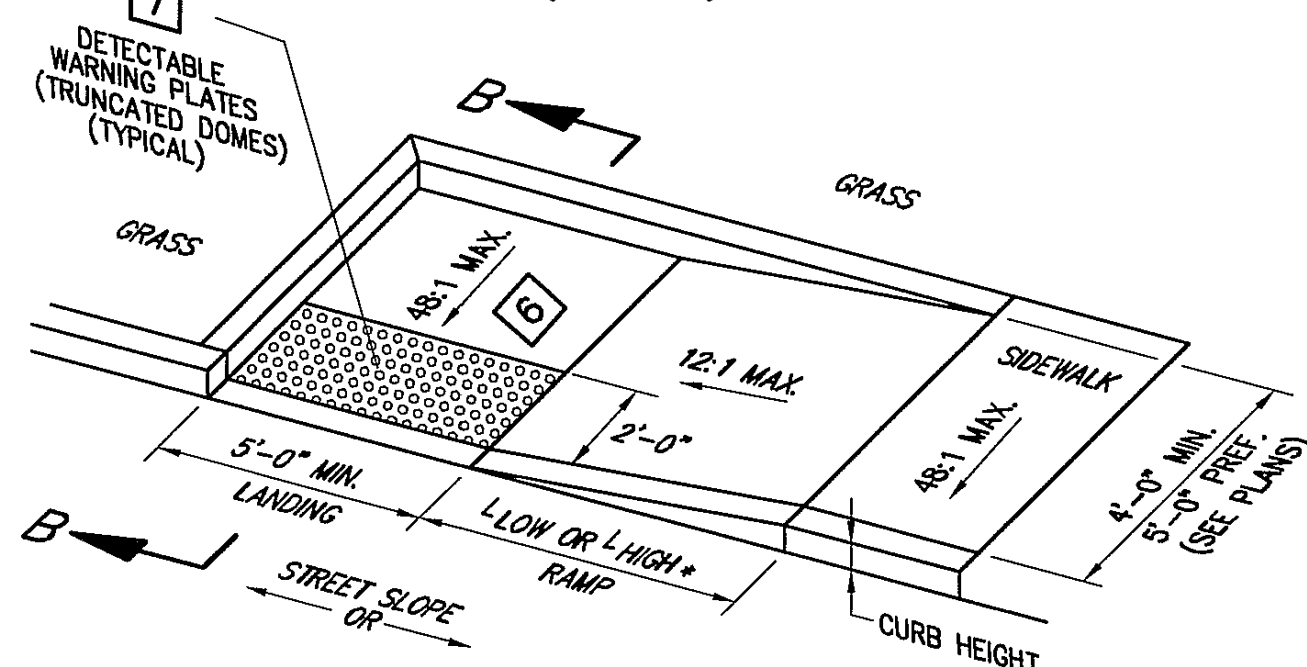
$$L_{\text{LOW}} = \frac{\text{CURB HT.}}{0.0833 + \text{STREET SLOPE}}$$



PERPENDICULAR CURB RAMP DETAIL

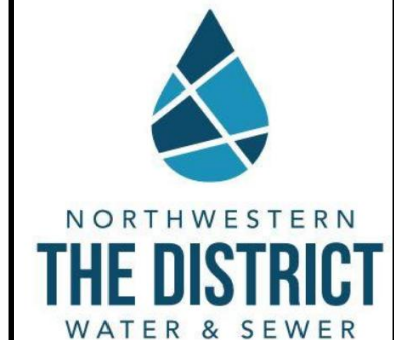
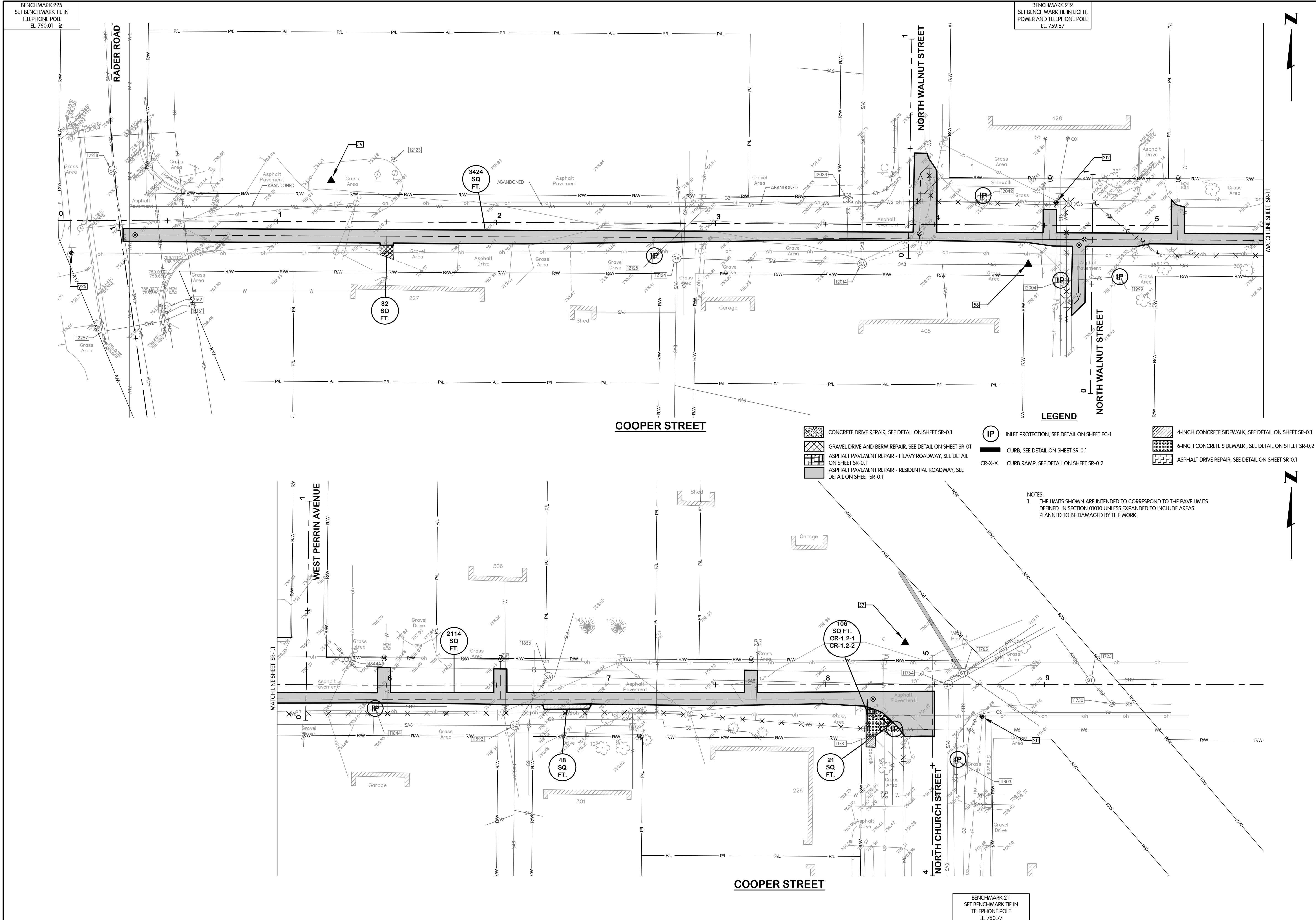


UNDIPPED, PARALLEL CURB RAMP DETAIL (DOUBLE)



PARALLEL CURB RAMP DETAIL (SINGLE)

TOL-768800SR-COOPER STREET STA. 0+00 TO 10+00
8/17/2020 11:45 AM - CLENDER
8/20/2020 10:25 AM



COOPER STREET
SURFACE RESTORATION
PLANS
STA. 0+00 TO 10+00

NORTHWESTERN WATER AND SEWER DISTRICT, OHIO
MCCOMB WATER LINE REPLACEMENT PHASE 2 (WL-2815)

Jones & Henry
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JOB NO. 796-7688.001

SCALE 1"=20'

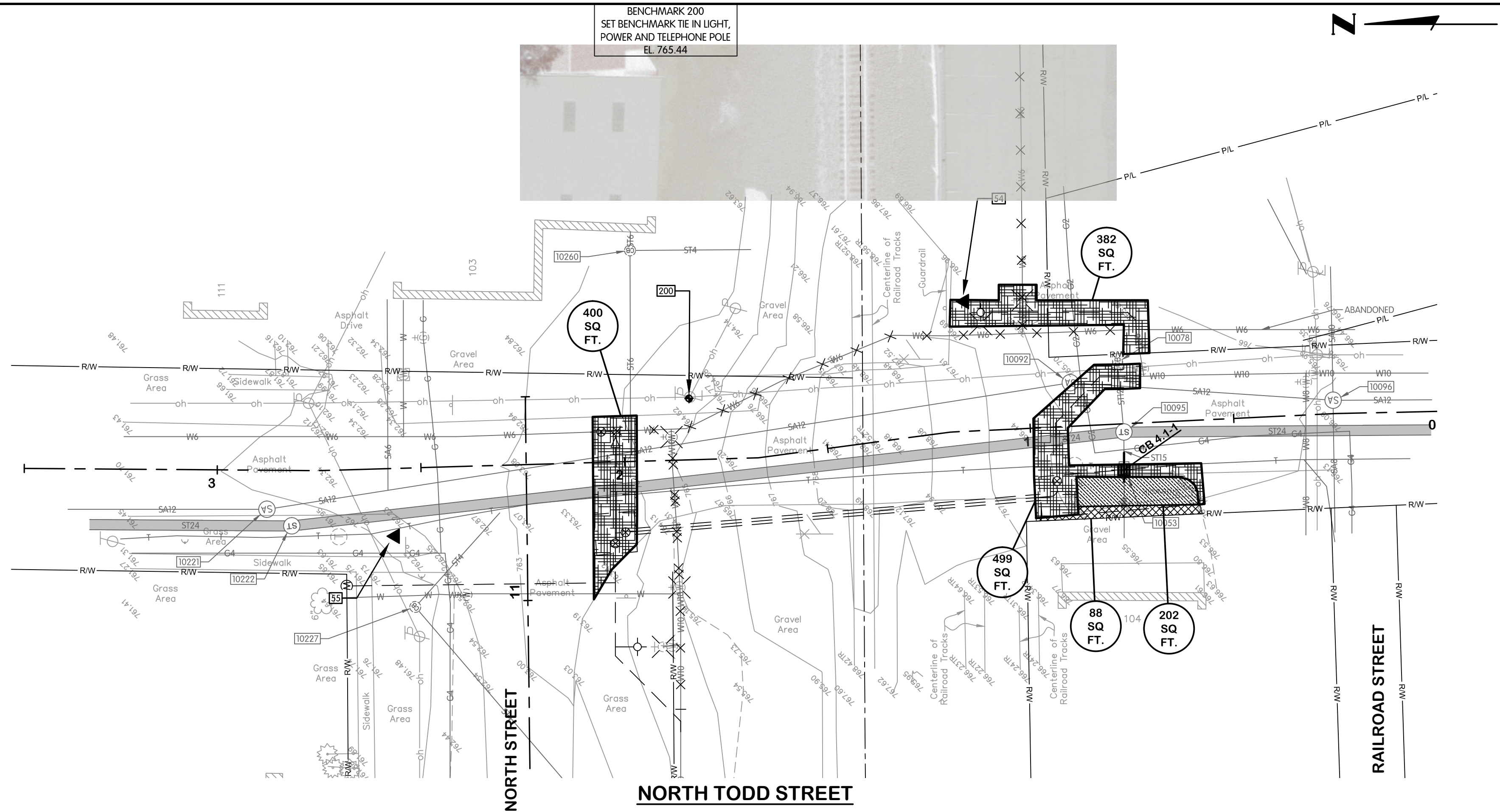
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BR	BJD	TAB

STATUS ISSUED FOR BID
DATE AUGUST 2020

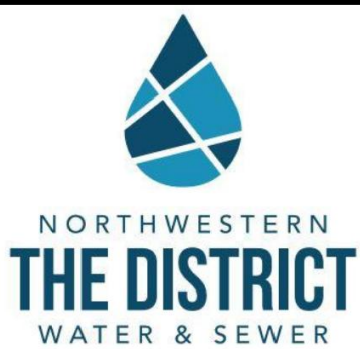
SHEET NO.
SR-1.1
23 OF 29

TOL-768800SR-NORTH TODD STREET STA. 0+00 TO 3+50
8/17/2020 11:45 AM - CLENDER
8/20/2020 10:25 AM



- LEGEND**
- | | | |
|---|--|--|
| CONCRETE DRIVE REPAIR, SEE DETAIL ON SHEET SR-0.1 | INLET PROTECTION, SEE DETAIL ON SHEET EC-1 | 4-INCH CONCRETE SIDEWALK, SEE DETAIL ON SHEET SR-0.1 |
| GRAVEL DRIVE AND BERM REPAIR, SEE DETAIL ON SHEET SR-01 | CURB, SEE DETAIL ON SHEET SR-0.1 | 6-INCH CONCRETE SIDEWALK, SEE DETAIL ON SHEET SR-0.2 |
| ASPHALT PAVEMENT REPAIR - HEAVY ROADWAY, SEE DETAIL ON SHEET SR-0.1 | CURB RAMP, SEE DETAIL ON SHEET SR-0.2 | ASPHALT DRIVE REPAIR, SEE DETAIL ON SHEET SR-0.1 |
| ASPHALT PAVEMENT REPAIR - RESIDENTIAL ROADWAY, SEE DETAIL ON SHEET SR-0.1 | | |

NOTES:
1. THE LIMITS SHOWN ARE INTENDED TO CORRESPOND TO THE PAVE LIMITS DEFINED IN SECTION 01010 UNLESS EXPANDED TO INCLUDE AREAS PLANNED TO BE DAMAGED BY THE WORK.

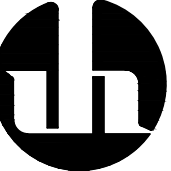


NORTH TODD STREET
SURFACE RESTORATION
PLAN

STA. 0+00 TO 3+50

NORTHWESTERN WATER AND SEWER DISTRICT, OHIO
MCCOMB WATER LINE REPLACEMENT PHASE 2 (WL-2815)

Jones & Henry
Engineers, Ltd.



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www.JHeng.com

JOB NO. 796-7688.001

SCALE 1"=20'

THIS LINE SCALES IF WHEN PLOTTED TO NOTED SCALE

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STATUS ISSUED FOR BID

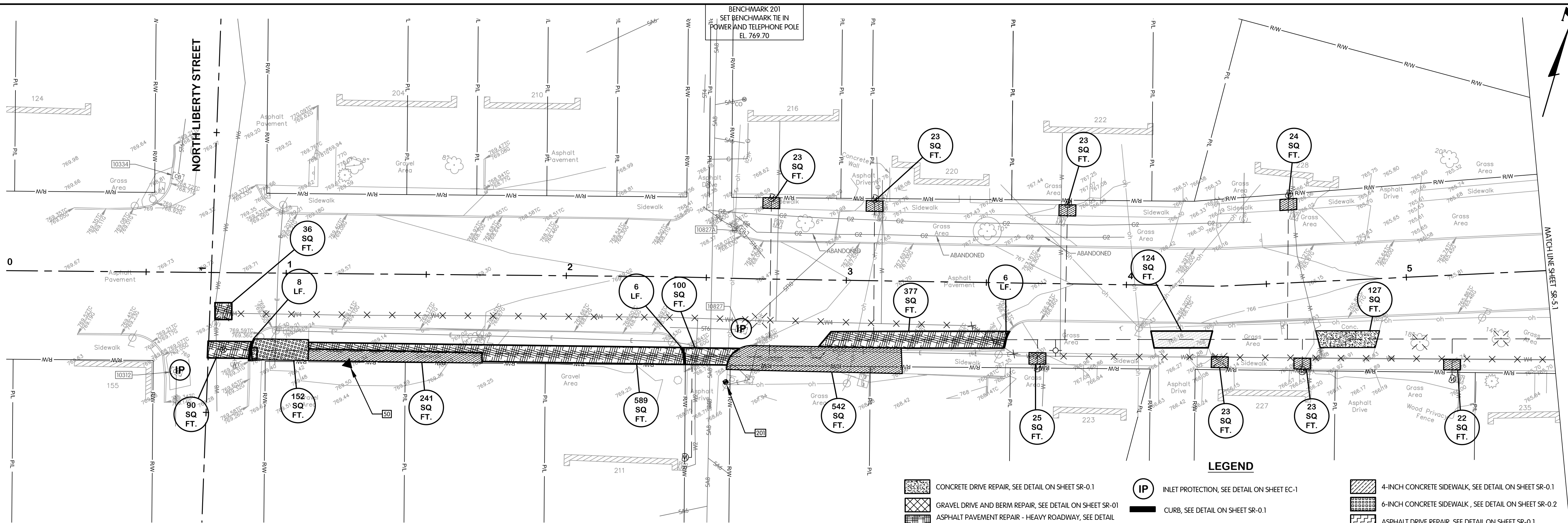
DATE AUGUST 2020

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SR-4.1

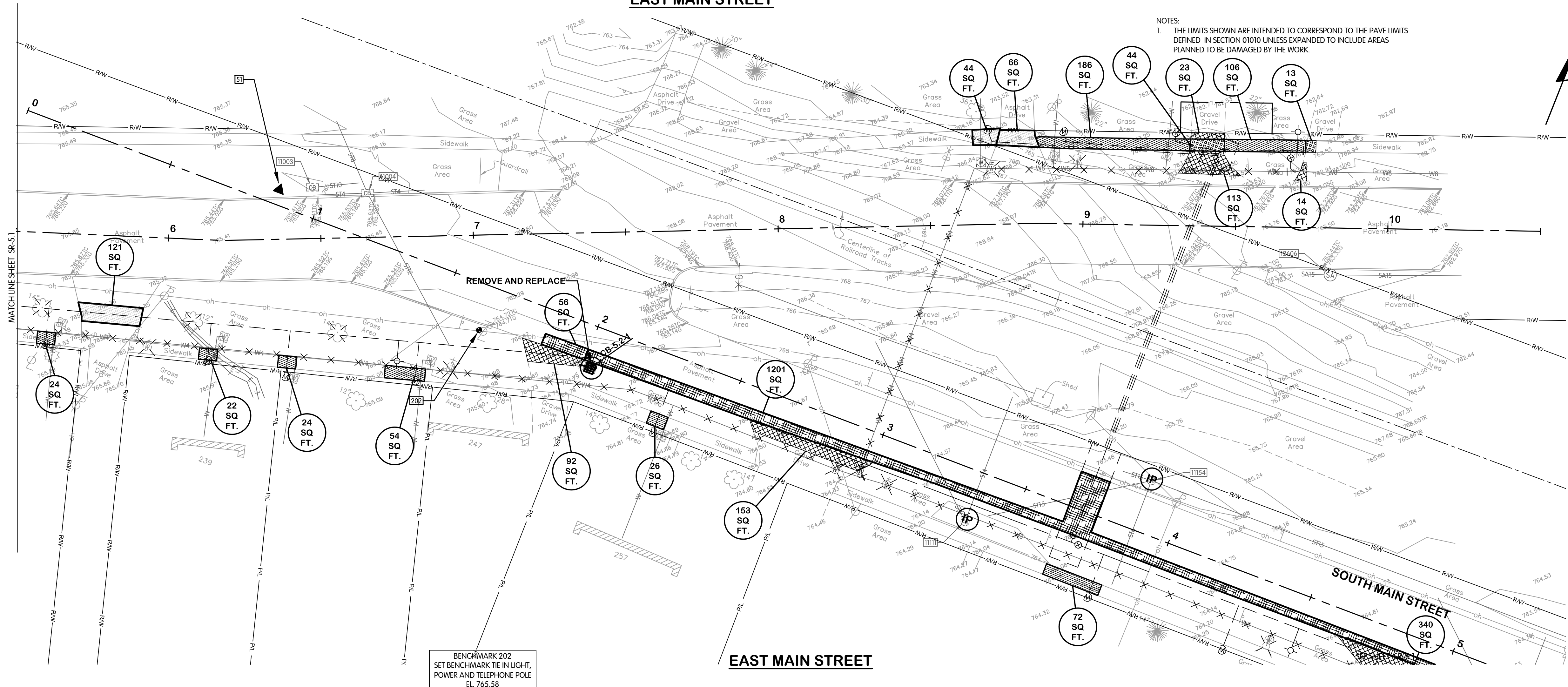
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8/20/2020 10:23 AM

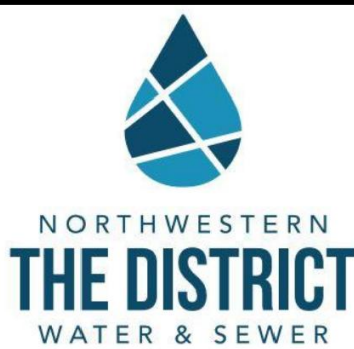


EAST MAIN STREET

- LEGEND**
- CONCRETE DRIVE REPAIR, SEE DETAIL ON SHEET SR-0.1
 - GRAVEL DRIVE AND BERM REPAIR, SEE DETAIL ON SHEET SR-0.1
 - ASPHALT PAVEMENT REPAIR - HEAVY ROADWAY, SEE DETAIL ON SHEET SR-0.1
 - ASPHALT PAVEMENT REPAIR - RESIDENTIAL ROADWAY, SEE DETAIL ON SHEET SR-0.1
 - INLET PROTECTION, SEE DETAIL ON SHEET EC-1
 - CURB, SEE DETAIL ON SHEET SR-0.1
 - CR-X-X CURB RAMP, SEE DETAIL ON SHEET SR-0.2
 - 4-INCH CONCRETE SIDEWALK, SEE DETAIL ON SHEET SR-0.1
 - 6-INCH CONCRETE SIDEWALK, SEE DETAIL ON SHEET SR-0.2
 - ASPHALT DRIVE REPAIR, SEE DETAIL ON SHEET SR-0.1



EAST MAIN STREET



EAST MAIN STREET SURFACE RESTORATION PLANS

STA. 0+00 TO 10+50
NORTHWESTERN WATER AND SEWER DISTRICT, OHIO
MCCOMB WATER LINE REPLACEMENT PHASE 2 (WL-2815)

Jones & Henry
Engineers, Ltd.



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JOB NO. 796-7688.001

SCALE 1"=20'

THIS LINE SCALES IF WHEN
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STATUS ISSUED FOR BID

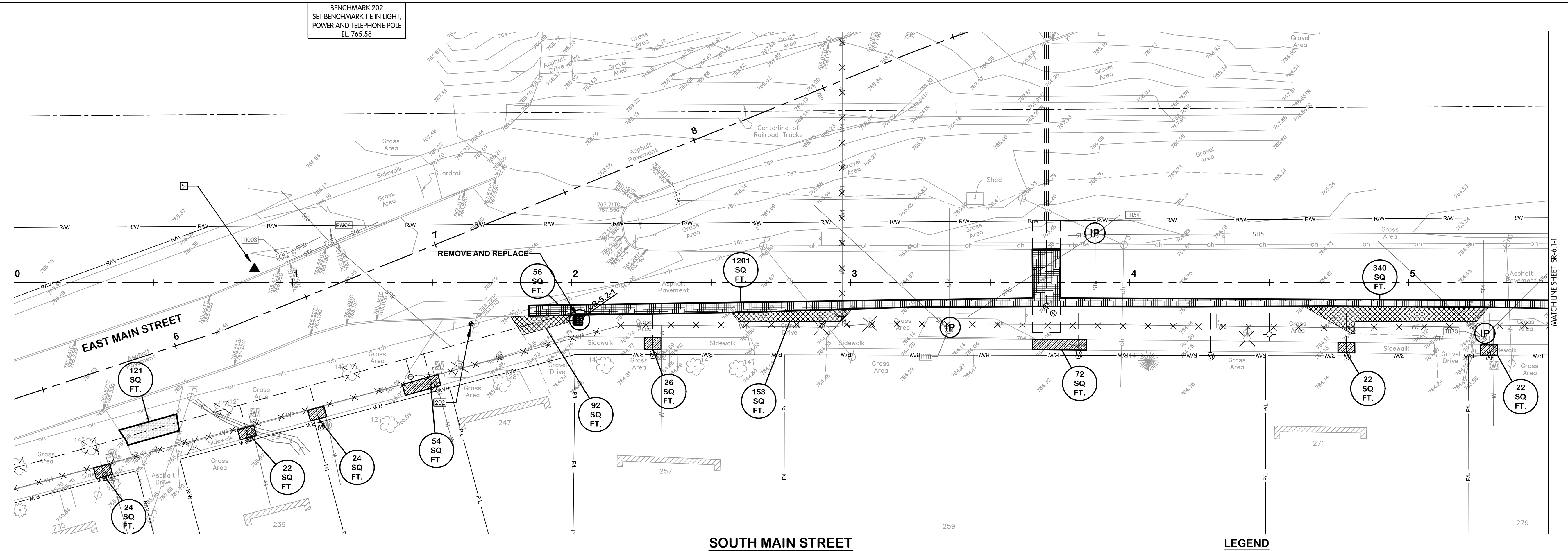
DATE AUGUST 2020

SHEET NO.

SR-5.1

25 OF 29

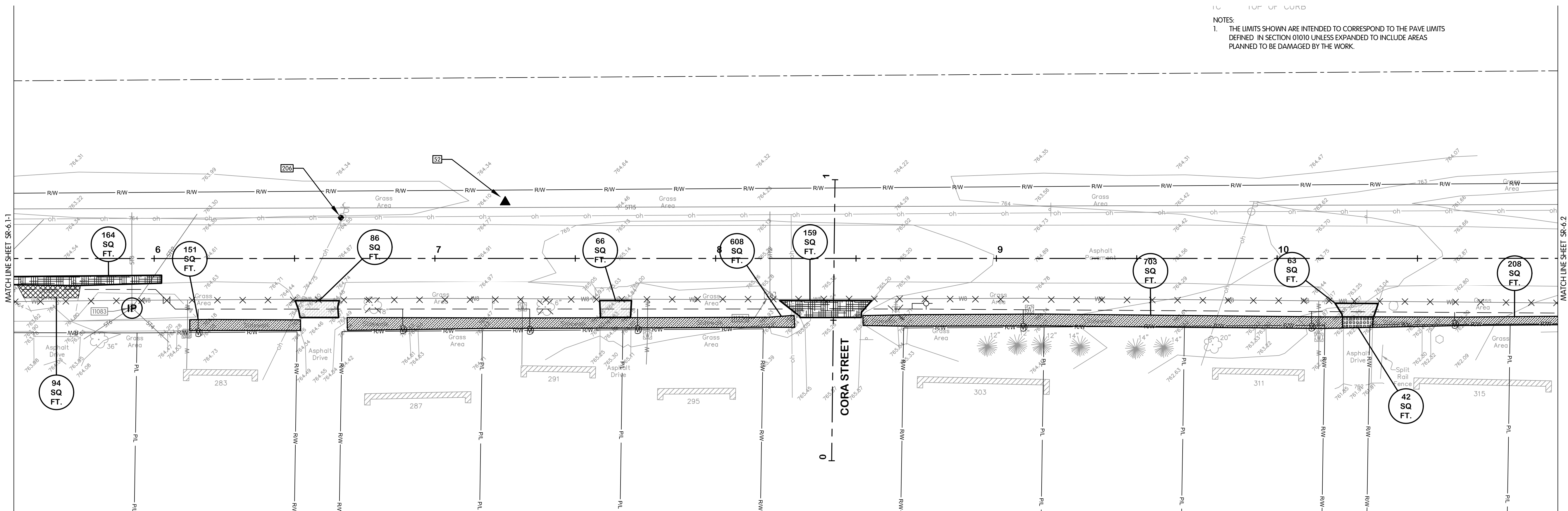
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8/17/2020 11:45 AM - CLENDER
8/20/2020 10:25 AM



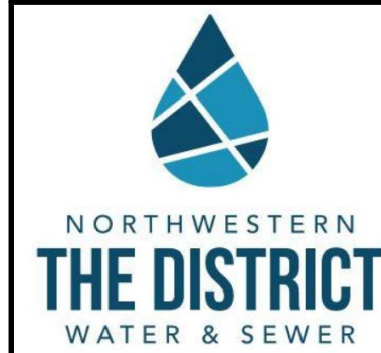
SOUTH MAIN STREET

- LEGEND**
- | | | | | | |
|--|---|--|--|--|--|
| | CONCRETE DRIVE REPAIR, SEE DETAIL ON SHEET SR-0.1 | | INLET PROTECTION, SEE DETAIL ON SHEET EC-1 | | 4-INCH CONCRETE SIDEWALK, SEE DETAIL ON SHEET SR-0.1 |
| | GRAVEL DRIVE AND BERM REPAIR, SEE DETAIL ON SHEET SR-0.1 | | CURB, SEE DETAIL ON SHEET SR-0.1 | | 6-INCH CONCRETE SIDEWALK, SEE DETAIL ON SHEET SR-0.2 |
| | ASPHALT PAVEMENT REPAIR - HEAVY ROADWAY, SEE DETAIL ON SHEET SR-0.1 | | CURB RAMP, SEE DETAIL ON SHEET SR-0.2 | | ASPHALT DRIVE REPAIR, SEE DETAIL ON SHEET SR-0.1 |
| | ASPHALT PAVEMENT REPAIR - RESIDENTIAL ROADWAY, SEE DETAIL ON SHEET SR-0.1 | | | | |

- NOTES:**
- THE LIMITS SHOWN ARE INTENDED TO CORRESPOND TO THE PAVE LIMITS DEFINED IN SECTION 01010 UNLESS EXPANDED TO INCLUDE AREAS PLANNED TO BE DAMAGED BY THE WORK.



SOUTH MAIN STREET

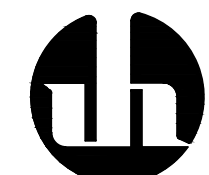


SOUTH MAIN STREET SURFACE RESTORATION PLANS

STA. 0+00 TO 1+00

NORTHWESTERN WATER AND SEWER DISTRICT, OHIO
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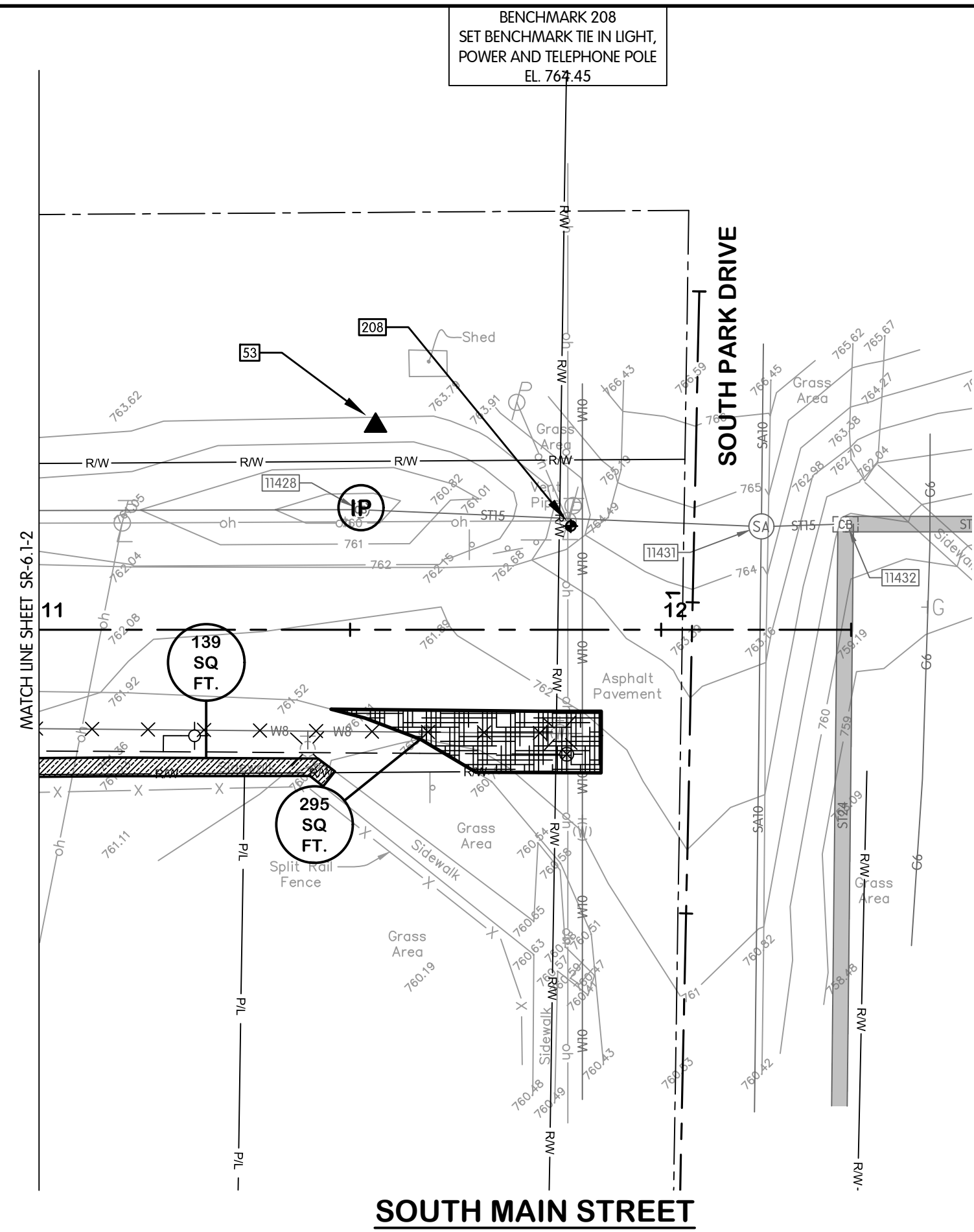
DATE AUGUST 2020

SHEET NO.

SR-6.1-1

26 OF 29

TOL-766800SR-SOUTH MAIN STREET STA. 11+00 TO 12+50
8/17/2020 11:45 AM - CLENDER
8/20/2020 10:25 AM



- CONCRETE DRIVE REPAIR, SEE DETAIL ON SHEET SR-0.1
- GRAVEL DRIVE AND BERM REPAIR, SEE DETAIL ON SHEET SR-01
- ASPHALT PAVEMENT REPAIR - HEAVY ROADWAY, SEE DETAIL ON SHEET SR-0.1
- ASPHALT PAVEMENT REPAIR - RESIDENTIAL ROADWAY, SEE DETAIL ON SHEET SR-0.1

- INLET PROTECTION, SEE DETAIL ON SHEET EC-1
- CURB, SEE DETAIL ON SHEET SR-0.1
- CR-X-X CURB RAMP, SEE DETAIL ON SHEET SR-0.2

- 4-INCH CONCRETE SIDEWALK, SEE DETAIL ON SHEET SR-0.1
- 6-INCH CONCRETE SIDEWALK, SEE DETAIL ON SHEET SR-0.2
- ASPHALT DRIVE REPAIR, SEE DETAIL ON SHEET SR-0.1

LEGEND

NOTES:
1. THE LIMITS SHOWN ARE INTENDED TO CORRESPOND TO THE PAVE LIMITS DEFINED IN SECTION 01010 UNLESS EXPANDED TO INCLUDE AREAS PLANNED TO BE DAMAGED BY THE WORK.

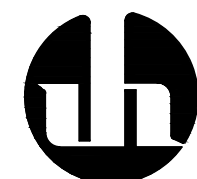


SOUTH MAIN STREET AND RAILROAD RIGHT-OF-WAY SURFACE RESTORATION PLAN

STA. 11+00 TO 12+50

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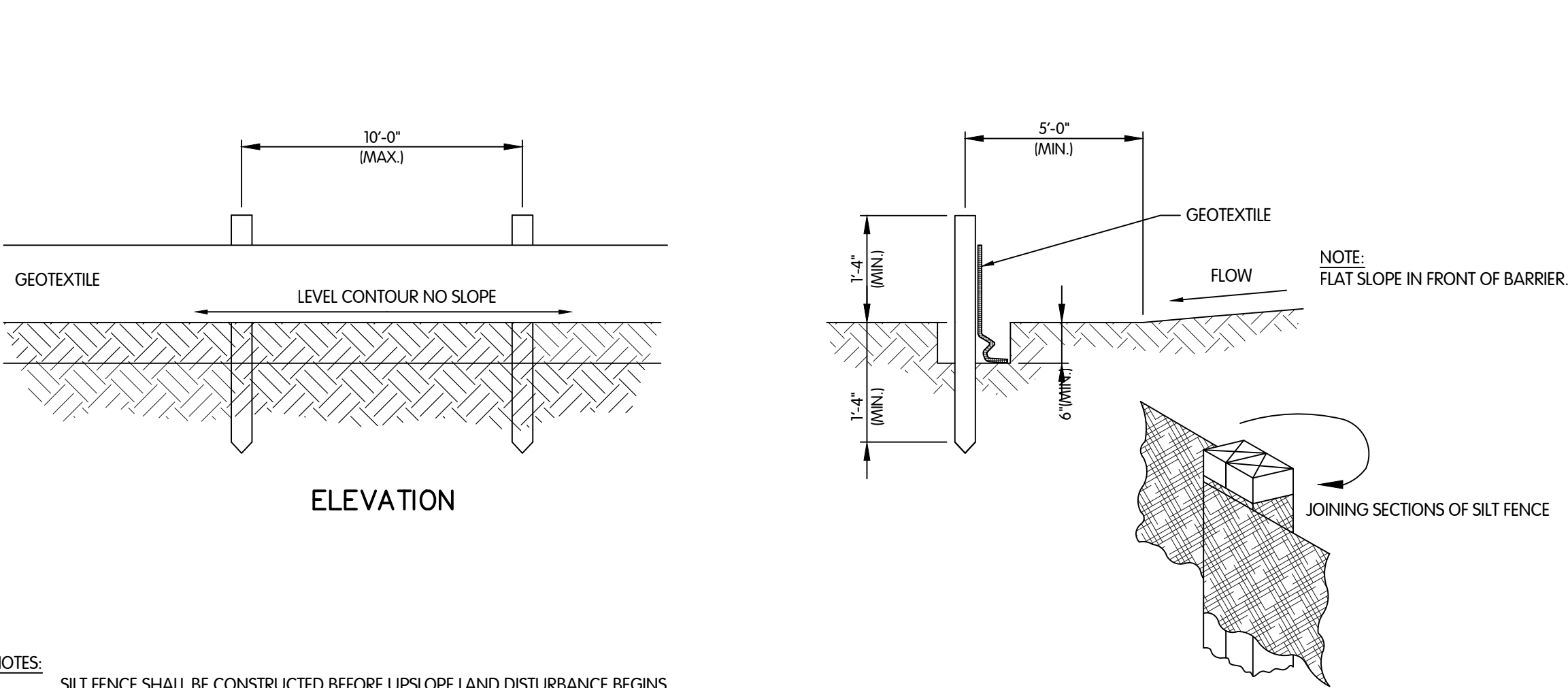
DATE: AUGUST 2020

SHEET NO.

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27 OF 29

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8/20/2020 10:24 AM
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NOTES:

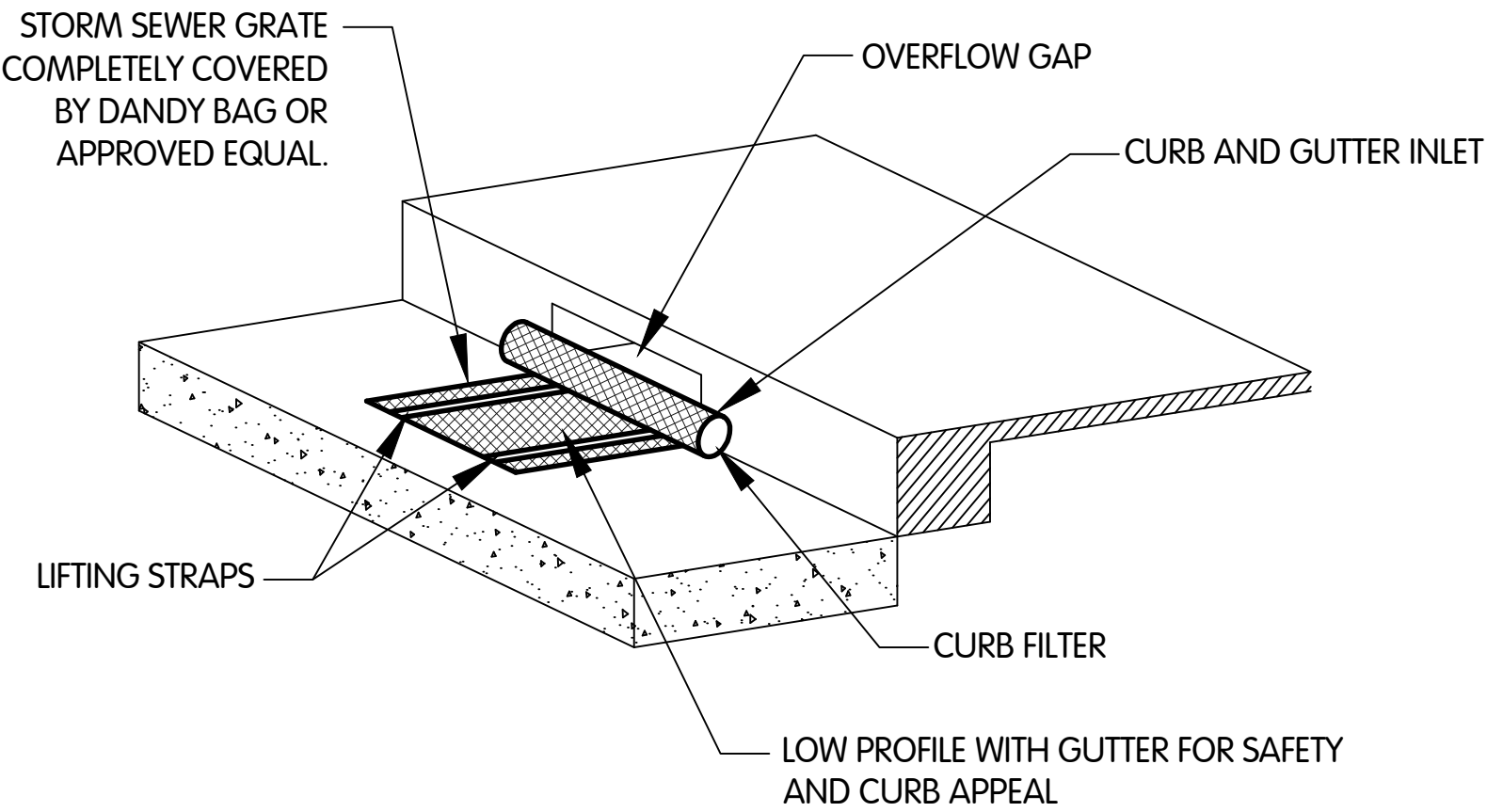
- SILT FENCE SHALL BE CONSTRUCTED BEFORE UPSLOPE LAND DISTURBANCE BEGINS.
- ALL SILT FENCE SHALL BE PLACED AS CLOSE TO THE CONTOUR AS POSSIBLE SO THAT WATER WILL NOT CONCENTRATE AT LOW POINTS IN THE FENCE AND SO THAT SMALL SWALES OR DEPRESSIONS WHICH MAY CARRY SMALL CONCENTRATED FLOWS TO THE SILT FENCE ARE DISSIPATED ALONG ITS LENGTH.
- TO PREVENT WATER PONDED BY THE SILT FENCE FROM FLOWING AROUND THE ENDS, EACH END SHALL BE CONSTRUCTED UPSLOPE SO THAT THE ENDS ARE AT A HIGHER ELEVATION.
- WHERE POSSIBLE, SILT FENCE SHALL BE PLACED ON THE FLATTEST AREA AVAILABLE.
- WHERE POSSIBLE, VEGETATION SHALL BE PRESERVED FOR 5 FT. (OR AS MUCH AS POSSIBLE) UPSLOPE FROM THE SILT FENCE. IF VEGETATION IS REMOVED, IT SHALL BE REESTABLISHED WITHIN 7 DAYS FROM THE INSTALLATION OF THE FENCE.
- SOIL STOCKPILES OR OTHER SOURCES OF SEDIMENT SHALL HAVE SILT FENCE PROTECTION.
- THE SILT FENCE SHALL BE PLACED IN A TRENCH CUT A MINIMUM OF 6" DEEP. THE TRENCH SHALL BE CUT WITH A TRENCHER, CABLE LAYING MACHINE, OR OTHER SUITABLE DEVICE WHICH WILL ENSURE AN ADEQUATELY UNIFORM TRENCH DEPTH.
- THE SILT FENCE SHALL BE PLACED WITH THE STAKES ON THE DOWN SLOPE SIDE OF THE GEOTEXTILE AND SO THAT 8" OF CLOTH ARE BELOW THE GROUND SURFACE. EXCESS MATERIAL SHALL LAY ON THE BOTTOM OF THE 6" DEEP TRENCH. THE TRENCH SHALL BE BACK FILLED AND COMPACTED.
- SEAMS BETWEEN SECTIONS OF SILT FENCE SHALL BE OVERLAPPED WITH THE END STAKES OF EACH SECTION WRAPPED TOGETHER BEFORE DRIVING INTO THE GROUND.
- MAINTENANCE-- SILT FENCE SHALL ALLOW RUNOFF TO PASS ONLY AS DIFFUSE FLOW THROUGH THE GEOTEXTILE. IF RUNOFF OVER TOPS THE SILT FENCE, FLOWS UNDER OR AROUND THE ENDS, OR IN ANY OTHER WAY BECOMES A CONCENTRATED FLOW, ONE OF THE FOLLOWING SHALL BE PERFORMED, AS APPROPRIATE:
 - THE LAYOUT OF THE SILT FENCE SHALL BE CHANGED.
 - ACCUMULATED SEDIMENT SHALL BE REMOVED.
 - OTHER PRACTICES SHALL BE INSTALLED.

CRITERIA FOR SILT FENCE MATERIALS:

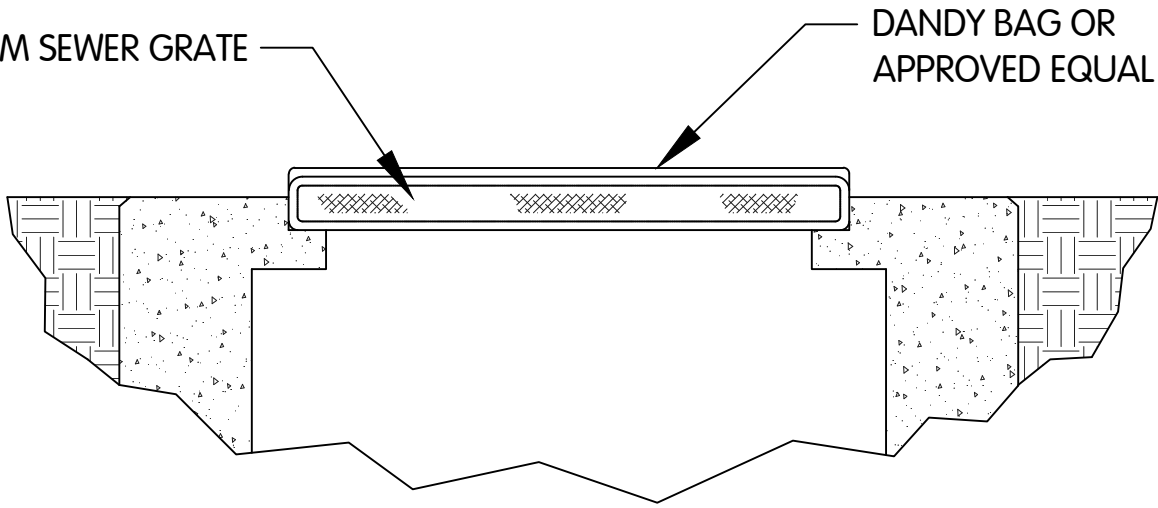
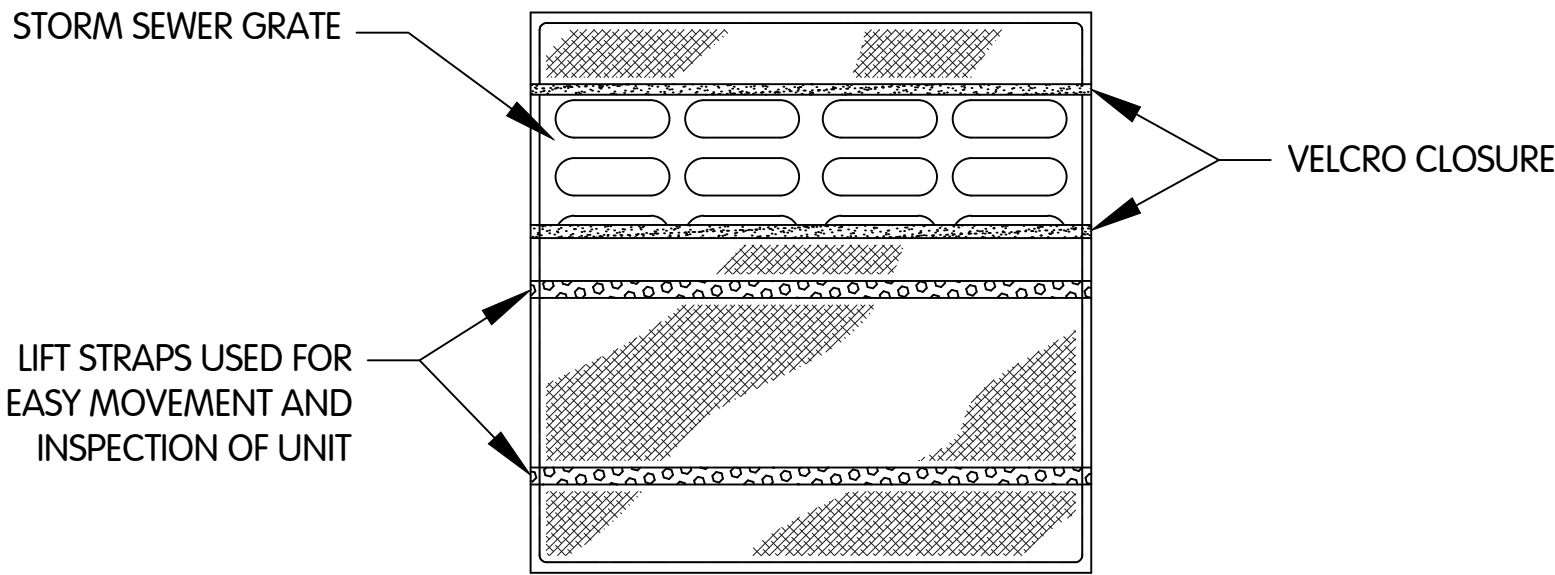
- FENCE POSTS - THE LENGTH SHALL BE A MINIMUM OF 32" LONG. WOOD POST WILL BE 2" X 2" HARDWOOD OF SOUND QUALITY. THE MAXIMUM SPACING BETWEEN POSTS SHALL BE 10 FT.
- SILT FENCE FABRIC (SEE CHART BELOW):

FABRIC PROPERTIES	VALUES	TEST METHOD
GRAB TENSILE STRENGTH	90 LB. MINIMUM	ASTM D 1682
MULLEN BURST STRENGTH	190 P.S.I. MINIMUM	ASTM D 3786
SLURRY FLOW RATE	0.3 GAL./MIN./FT. ² MAX.	
EQUIVALENT OPENING SIZE	40-80	US STD. SIEVE CW-02215
ULTRAVIOLET RADIATION STABILITY	90% MINIMUM	ASTM-G-26

SILT FENCE
NTS



INLET PROTECTION FOR DRAINS WITH HOOD



INLET PROTECTION FOR DRAINS
WITHOUT HOOD

NOTES:

- INLET PROTECTION SHALL BE CONSTRUCTED EITHER BEFORE UPSLOPE LAND DISTURBANCE BEGINS OR BEFORE THE STORM SEWER BECOMES ACTIVE IN THE CASE OF NEW CONSTRUCTION.
- ALL STORMWATER INLETS THAT RECEIVE DRAINAGE FROM AREAS DISTURBED BY THE WORK SHALL RECEIVE INLET PROTECTION.

EROSION CONTROL DETAILS

NORTHWESTERN WATER AND SEWER DISTRICT, OHIO
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STATUS: ISSUED FOR BID

DATE: AUGUST 2020

SHEET NO.

EC-1

28 OF 29

TOL-7688001EC02
8/20/2020 10:24 AM
8/20/2020 10:24 AM

ENVIRONMENTAL PROTECTION NOTES

EROSION AND SEDIMENTATION CONTROL

- CLEARING AND GRUBBING SHALL NOT COMMENCE UNTIL SUCH TIME THAT THE CONTRACTOR IS PREPARED TO START CONSTRUCTION.
- PROPERLY INSTALLED EROSION CONTROL BARRIERS (E.G., SILT FENCES, STRAW BALES, ETC.) SHOULD BE LOCATED ON SLOPES, ALONG STREAMS AND DRAINAGE WAYS, AROUND DRAINAGE STRUCTURES, AND ANYWHERE ELSE THAT EXPOSED SOIL COULD RUNOFF AND CREATE SEDIMENT PROBLEMS. ALL SEDIMENT CONTROL MEASURES SHOULD BE IN PLACE PRIOR TO THE INITIATION OF CONSTRUCTION COMPLETED.
- STAGING AREAS SHOULD NOT BE SITED IN LOCATIONS THAT REQUIRE EXCESSIVE CLEARING, OR THAT ARE CLOSE TO STREAM BANKS. IF THIS SITUATION IS UNAVOIDABLE, THEN THE LOCATION OF THE STAGING AREA WILL NEED TO BE APPROVED BY OHIO EPA, DIVISION OF ENVIRONMENTAL AND FINANCIAL ASSISTANCE.
- STOCKPILED TOPSOIL IS TO BE PROTECTED THROUGH THE USE OF SILT BARRIERS, TEMPORARY SEEDING, OR COVERING SUCH AS WITH ANCHORED STRAW MULCH.
- REMOVE ONLY THOSE TREES, SHRUBS, AND GRASSES THAT MUST BE REMOVED FOR CONSTRUCTION; PROTECT THE REST TO PRESERVE THEIR AESTHETIC, HABITAT, AND EROSION CONTROL VALUES.
- AS CONSTRUCTION IS COMPLETED, PERMANENTLY STABILIZE EACH DISTURBED AREA WITH PERENNIAL VEGETATION INSTALLED ACCORDING TO SOIL (NATURAL RESOURCE) CONSERVATION SERVICE (OR EQUIVALENT) STANDARDS AND SPECIFICATIONS.
- FINAL GRADING WILL BE CONSISTENT WITH PRE-CONSTRUCTION TOPOGRAPHY FOR DRAINAGE AND AESTHETIC REASONS.
- NO MORE THAN 200 FEET OF TRENCH SHALL BE OPEN AT ANY GIVEN TIME. TRENCH OPENING, LAYING OF PIPE AND BACKFILLING SHOULD OCCUR SO AS TO MINIMIZE THE AMOUNT OF DISTURBED AREA.
- UNPAVED AREAS WILL BE WET DOWN (AS NECESSARY) DURING CONSTRUCTION TO MINIMIZE DUST GENERATION.
- IF WORK IS SUSPENDED FOR ANY REASON, THE CONTRACTOR SHALL MAINTAIN THE SOIL EROSION AND SEDIMENTATION CONTROLS IN GOOD OPERATING CONDITION DURING THE SUSPENSION OF THE WORK. ALSO, WHEN SEASONAL CONDITIONS PERMIT AND THE SUSPENSION OF WORK IS EXPECTED TO EXCEED A PERIOD OF ONE MONTH, THE CONTRACTOR SHALL PLACE TOPSOIL, FINE GRADE, SEED, FERTILIZE, AND MULCH ALL DISTURBED AREAS LEFT EXPOSED WHEN WORK IS STOPPED, AS SPECIFIED HEREIN.
- WHEN WORKING ADJACENT TO A WATERWAY, THE CONTRACTOR SHALL MAINTAIN A BUFFER ZONE OF UNDISTURBED VEGETATION BETWEEN THE WORK AREA AND THE WATERWAY. IF A BUFFER ZONE OF VEGETATION CANNOT PREVENT SILTATION OF THE WATERWAY, SILT BARRIERS SHALL ALSO BE INSTALLED BY THE CONTRACTOR IN THESE AREAS TO PREVENT SEDIMENT LADEN RUNOFF FROM ENTERING THE WATERWAY.
- INSTALL THE ABOVE EROSION AND SEDIMENTATION CONTROL PRACTICES, AS APPROPRIATE, REFERRING TO SOIL (NATURAL RESOURCES) CONSERVATION SERVICE OR EQUIVALENT STANDARDS AND SPECIFICATIONS FOR PARTICULAR TECHNIQUES. THE PRACTICES ARE TO BE MAINTAINED IN EFFECTIVE WORKING CONDITION DURING CONSTRUCTION AND UNTIL ALL DISTURBED AREAS HAVE BEEN PERMANENTLY STABILIZED.
- CONTRACTOR SHALL REMOVE DAILY ALL MUD, SOIL AND DEBRIS THAT MAY BE TRACKED ONTO EXISTING STREETS, DRIVES, OR WALKS BY HIS EQUIPMENT OR THAT OF SUBCONTRACTORS OR SUPPLIERS.
- ALL MATERIALS TO BE DISPOSED OF OFF-SITE MUST BE DISPOSED OF IN AN ENVIRONMENTALLY SOUND MANNER IN ACCORDANCE WITH LOCAL, STATE AND FEDERAL REGULATIONS. NO EXCESS MATERIALS ARE TO BE DISPOSED OF IN ANY WETLAND, FLOODPLAIN, SURFACE WATER, OR OTHER ENVIRONMENTALLY SENSITIVE AREAS. EROSION CONTROL MEASURES AT THE DISPOSAL SITE MUST BE INSTALLED AND MAINTAINED UNTIL DISPOSAL IS COMPLETE AND THE DISPOSAL SITE IS PERMANENTLY STABILIZED. GIVING EXCAVATED SOIL AWAY TO LOCAL RESIDENTS DOES NOT RELIEVE THE CONTRACTOR OF THE ABOVE RESPONSIBILITY. THE LOCATION MUST BE SUBMITTED AND APPROVED BY OHIO EPA-DEFA (ERIC SCHULTZ 614-644-3713) PRIOR TO DISPOSAL.

TRAFFIC CONTROL

- AT LEAST ONE LANE OF TRAFFIC MUST BE MAINTAINED ALONG THE TRAVEL ROUTE TO THE CONSTRUCTION SITE.
- ACCESS MUST BE MAINTAINED FOR EMERGENCY VEHICLES AT ALL TIMES.
- ANY CONSTRUCTION EQUIPMENT OR EXCAVATIONS NEAR ROADS MUST BE MARKED WITH LIGHTS, REFLECTORS, OR OIL LANTERNS.
- THE CONTRACTOR SHALL PROVIDE, ERECT AND MAINTAIN ALL NECESSARY BARRICADES, WARNING SIGNS, DANGER SIGNALS, FLAG PERSONS, WATCHERS, AND ALL OTHER APPROPRIATE PRECAUTIONS NECESSARY TO THE PROTECTION OF THE WORK AND FOR SAFETY.
- PRIOR TO CLOSING OFF CLEAR ACCESS TO ANY PUBLIC ALLEY, STREET, ROAD, AVENUE, OR BOULEVARD, THE CONTRACTOR MUST HAVE CONSENT FROM LOCAL OFFICIALS AND THE ENGINEER.

AIR/NOISE CONTROL

- CONSTRUCTION ACTIVITIES WILL BE LIMITED TO DAYTIME HOURS.
- CONSTRUCTION EQUIPMENT WILL BE PROVIDED WITH INTAKE SILENCERS AND MUFFLERS, AS REQUIRED BY SAFETY STANDARDS.
- ALL CONSTRUCTION VEHICLES SHOULD BE EQUIPPED WITH PROPER EMISSIONS CONTROL EQUIPMENT.
- PERIODICALLY CHECK EQUIPMENT AND MACHINERY FOR PROPER TUNING TO MINIMIZE EXHAUST EMISSIONS AND NOISE.

TREES/VEGETATION PROTECTION

- TREE REMOVAL WILL BE LIMITED TO THAT NECESSARY FOR CONSTRUCTION AND WILL BE LIMITED FURTHER TO THE PERMANENT EASEMENT WHENEVER POSSIBLE. IF THE PROJECT IS LOCATED WITHIN THE RANGE OF THE FEDERALLY-ENDANGERED INDIANA BAT (MYOTIS SODALIST) AND TREES MUST BE CUT, THIS MUST OCCUR BETWEEN SEPTEMBER 30 AND APRIL 1. INDIANA BATS ARE HIGHLY-DEPENDENT UPON TREES INCLUDING DEAD AND DYING TREES OF SPECIES WITH EXFOLIATING BARK, CREVICES, OR CAVITIES IN UPLAND AREAS OR RIPARIAN CORRIDORS AND LIVING TREES WITH EXFOLIATING BARK, CAVITIES, OR HOLLOW AREAS FORMED FROM BROKEN BRANCHES OR TOPS. IF SUITABLE TREES MUST BE CUT DURING THE PROHIBITED TIME PERIOD, A NET SURVEY MUST BE CONDUCTED TO DETERMINE THE PRESENCE OR ABSENCE OF INDIANA BATS PRIOR TO CUTTING.
- TREES WHICH ARE NOT REMOVED WILL BE PROTECTED BY ENSURING THAT TREES TO BE REMOVED ARE FELLED SO AS NOT TO INJURE THE REMAINING TREES.
- SOIL AND OTHER MATERIAL WILL NOT BE STORED NEXT TO OR WITHIN THE DRIP-LINE OF TREES.
- PRESERVATION OF LANDSCAPING SHOULD TAKE PRECEDENCE OVER REMOVAL. IF REMOVAL OR DAMAGE IS UNAVOIDABLE, EXISTING VEGETATION SHOULD BE REPAIRED OR REPLACED "IN-KIND" UNLESS THE HOMEOWNER SPECIFIES OTHERWISE.
- IF TREES/SHRUBS CANNOT BE REPLACED IN THE SAME LOCATION DUE TO INSTALLATION OF THE SEWER SYSTEM, RELOCATION SHOULD BE CONSIDERED.
- THE CONTRACTOR SHALL REPAIR ALL INJURIES TO BARK, TRUNKS, LIMBS, AND ROOTS OF REMAINING VEGETATION BY PROPERLY DRESSING, CUTTING, BRACING AND PAINTING, USING ONLY APPROVED TREE SURGERY METHODS, TOOLS, AND MATERIALS. WHEN ROOTS ARE DAMAGED DURING EXCAVATION, THE ABOVE GROUND PORTION OF THE TREE WILL BE PRUNED TO COMPENSATE.
- SELECTIVE PRUNING OF TREE LIMBS PRIOR TO INITIATION OF CONSTRUCTION SHOULD ONLY BE USED WITHIN ESTABLISHED EASEMENTS WHERE REMOVAL IS NECESSARY FOR OPERATION OF EQUIPMENT.
- LIMIT THE USE OF RIP-RAP TO AREAS WHERE STREAM FLOW CONDITIONS PREEMPT VEGETATIVE STABILIZATION.

DEWATERING

- SILT FROM CONSTRUCTION OPERATIONS SHALL NOT BE PERMITTED TO ENTER THE STORM SEWER SYSTEM. WHEN CONSTRUCTION OCCURS NEAR STORM SEWER INLETS, EROSION CONTROL MEASURES SUCH AS INLET FILTERS AND HAY BALES SHALL BE USED TO PREVENT SILT FROM ENTERING THE STORM SEWERS. IF DEWATERING IS NECESSARY, FLOWS SHOULD BE FILTERED BEFORE ENTERING STORM DRAINS OR STREAMS.

STREAM CROSSINGS

- WHEN CLEARING VEGETATION PRIOR TO INITIATING STREAM CROSSING WORK, STREAMBANK TREES, SHRUBS, AND OTHER VEGETATION SHOULD BE LEFT IN PLACE TO HELP CONTROL EROSION; WHERE EQUIPMENT OPERATION REQUIRES TREE REMOVAL, STUMPS AND ROOTS ARE TO REMAIN IN PLACE TO HELP ANCHOR THE STREAMBANK.
- PRIOR TO THE ONSET OF ANY STREAM CROSSING, SILT BARRIERS SHALL BE PLACED ALONG THE BANKS WHERE VEGETATION REMOVAL HAS OCCURRED OR IS ANTICIPATED, EXPOSED SOIL EXISTS, AND/OR SPOILS OR OTHER FILL MATERIALS ARE PRESENT; SUCH MATERIALS SHOULD NOT BE STOCKPILED WITHIN 50 FEET OF THE STREAM.
- CONSTRUCTION WITHIN A STREAM WILL BE CONTINUED UNTIL COMPLETED. A STREAM CROSSING SHALL NOT BE INITIATED UNLESS THE CONTRACTOR IS PREPARED TO FINISH THE WORK IMMEDIATELY. ALSO, WORK MUST NOT BE INITIATED UNLESS TIME AND WEATHER CONSTRAINTS HAVE BEEN PROVIDED FOR. STREAM CROSSING WORK SHALL BE RESTRICTED TO PERIODS OF DRY WEATHER AND LOW-FLOW OR NO-FLOW CONDITIONS. STREAM BANK STABILIZATION SHOULD BE INITIATED IMMEDIATELY AFTER THE CROSSING IS COMPLETED. STREAM BANKS SHALL BE RESTORED TO THEIR ORIGINAL LINE AND GRADE AND STABILIZED WITH VEGETATIVE MATERIALS, SUCH AS EROSION CONTROL MATTING.

OPEN-CUT STREAM CROSSING CONDITIONS

- CONSTRUCTION WITHIN A STREAM WILL BE CONTINUED UNTIL COMPLETED. A STREAM CROSSING SHALL NOT BE INITIATED UNLESS THE CONTRACTOR IS PREPARED TO FINISH THE WORK IMMEDIATELY. ALSO, WORK MUST NOT BE INITIATED UNLESS TIME AND WEATHER CONSTRAINTS HAVE BEEN PROVIDED FOR. STREAM CROSSING WORK SHALL BE RESTRICTED TO PERIODS OF DRY WEATHER AND LOW-FLOW CONDITIONS.
- CONSTRUCT A COFFER DAM TO KEEP THE STREAM FROM CONTINUALLY FLOWING THROUGH THE DISTURBED AREA. STAGE CONSTRUCTION SUCH THAT THE COFFERDAM IS CONFINED TO ONE-HALF OF THE CHANNEL AND IS COMPLETED AND STABILIZED BEFORE MOVING TO THE OTHER SIDE OF THE CHANNEL.
- MATERIAL EXCAVATED FROM THE TRENCH SHALL BE PLACED AT LEAST 20 FT. FROM THE STREAM BANKS BEHIND ENTRENCHED SILT FENCE.
- THE ONLY FILL PERMITTED IN THE CHANNEL IS CLEAN AGGREGATE STONE OR ROCK. NO SOIL OR OTHER FINE ERODIBLE MATERIAL SHALL BE PLACED IN THE CHANNEL. THIS RESTRICTION INCLUDES ALL FILL OF TEMPORARY CROSSINGS, DIVERSIONS, AND TRENCH BACKFILL WHEN PLACED IN FLOWING WATER. IF THE STREAM FLOW IS DIVERTED AWAY FROM CONSTRUCTION ACTIVITY THE MATERIAL ORIGINALLY EXCAVATED FROM THE TRENCH MAY BE USED TO BACKFILL THE TRENCH.
- RESTORATION SHOULD INCLUDE THE RE-ESTABLISHMENT OF CHANNEL CONTOURS.

DIRECTIONAL BORE STREAM CROSSING CONDITIONS

- FRAC-OUT CONTINGENCY PLAN FOR HORIZONTAL DRILLING, AND ADHERENCE TO THE PLAN, IS REQUIRED.

ARCHAEOLOGICAL/HISTORICAL RESOURCES

- CONTRACTORS AND SUBCONTRACTORS ARE REQUIRED UNDER OHIO REVISED CODE SECTION 149.53 TO NOTIFY THE OHIO HISTORICAL SOCIETY AND THE OHIO HISTORIC SITE PRESERVATION BOARD OF ARCHAEOLOGICAL DISCOVERIES LOCATED IN THE PROJECT AREA, AND TO COOPERATE WITH THOSE ENTITIES IN ARCHAEOLOGICAL AND HISTORIC SURVEYS AND SALVAGE EFFORTS IF SUCH DISCOVERIES ARE UNCOVERED WITHIN THE PROJECT AREA.

CONTACT: OHIO HISTORIC PRESERVATION OFFICE
PHONE: 614-298-2000

PROHIBITED CONSTRUCTION ACTIVITIES

- DISPOSING OF EXCESS OR UNSUITABLE EXCAVATED MATERIAL IN WETLANDS OR FLOOD PLAINS EVEN WITH THE PERMISSION OF THE PROPERTY OWNER;
- LOCATING STOCKPILE STORAGE AREAS IN ENVIRONMENTALLY SENSITIVE AREAS;
- INDISCRIMINATE, ARBITRARY, OR CAPRICIOUS OPERATION OF EQUIPMENT IN ANY STREAMS OR STREAM CORRIDORS, ANY WETLANDS, ANY SURFACE WATERS, OR OUTSIDE THE EASEMENT LIMITS;
- PUMPING OF SEDIMENT-LADEN WATER FROM TRENCHES OR OTHER EXCAVATIONS DIRECTLY INTO ANY SURFACE WATERS, ANY STREAM CORRIDORS, ANY WETLANDS, OR STORM SEWERS; ALL SUCH WATER WILL BE PROPERLY FILTERED OR SETTLED TO REMOVE SILT PRIOR TO RELEASE;
- DISCHARGING POLLUTANTS SUCH AS CHEMICALS, FUELS, LUBRICANTS, BITUMINOUS MATERIALS, RAW SEWAGE AND OTHER HARMFUL WASTE INTO OR ALONGSIDE OF RIVERS, STREAMS, IMPOUNDMENTS, OR INTO NATURAL OR MAN-MADE CHANNELS LEADING THERETO;
- DISPOSING OF TREES, BRUSH AND OTHER DEBRIS IN ANY STREAM CORRIDOR, ANY WETLANDS, ANY SURFACE WATERS, OR AT UNSPECIFIED LOCATIONS;
- OPEN BURNING OF PROJECT DEBRIS WITHOUT A PERMIT;
- DISCHARGING INJURIOUS SILICA DUST CONCENTRATIONS INTO THE ATMOSPHERE RESULTING FROM BREAKING, CUTTING, CHIPPING, DRILLING, BUFFING, GRINDING, POLISHING, SHAPING OR SURFACING CLOSER THAN 200 FEET TO PLACES OF RESIDENCES OR COMMERCIAL, PROFESSIONAL, QUASI-PUBLIC OR PUBLIC PLACES OF HUMAN OCCUPATION;
- STORING CONSTRUCTION EQUIPMENT AND VEHICLES AND/OR STOCKPIILING CONSTRUCTION MATERIALS ON PROPERTY, PUBLIC OR PRIVATE, NOT PREVIOUSLY SPECIFIED ON THE PLANS BY THE ENGINEER FOR SUCH PURPOSES;
- RUNNING WELL POINT OR PUMP DISCHARGE LINES THROUGH PRIVATE PROPERTY OR PUBLIC PROPERTY AND RIGHTS-OF-WAY WITHOUT THE WRITTEN PERMISSION OF THE PROPERTY OWNER AND THE CONSENT OF THE ENGINEER.
- OPERATIONS ENTAILING THE USE OF VIBRATORY HAMMERS OR COMPACTORS OUTSIDE THE HOURS OF 8:00 AM AND 5:00 PM OR OUTSIDE THE HOURS ALLOWED FOR CONSTRUCTION BY LOCAL ORDINANCES OR REGULATIONS; AND
- CLOSING OFF CLEAR ACCESS TO ANY PUBLIC ALLEY, STREET, ROAD, AVENUE OR BOULEVARD WITHOUT THE PRIOR CONSENT OF MUNICIPAL OFFICIALS AND THE ENGINEER, AND CLOSING CLEAR ACCESS:
 - BY FIRE PROTECTION EQUIPMENT AND EMERGENCY VEHICLES;
 - BY THE PUBLIC TO ANY COMMERCIAL OR PROFESSIONAL PLACE OF BUSINESS, QUASI PUBLIC OR PUBLIC ESTABLISHMENT, OR PLACE OF RESIDENCE; OR
 - BY VEHICLES TO DRIVEWAYS WITHOUT THE PROVISION OF ALTERNATIVE MEANS OF BUILDING INGRESS AND EGRESS.

ENVIRONMENTAL CONDITIONS AND
GENERAL NOTES

NORTHWESTERN WATER AND SEWER DISTRICT, OHIO
MCCOMB WATER LINE REPLACEMENT PHASE 2 (WL-2816)

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