MINNESOTA DEPARTMENT OF TRANSPORTATION
RAMSEY COUNTY
OLD HIGHWAY 8 EXTENSION
STATE AID PROJECT NO. 062-593-006

LOCATED ON: OLD HIGHWAY 8 FROM COUNTY ROAD H TO 1865 FT SOUTH OF CSAH 3 (GEOGRAPHIC DESCRIPTION)

CONSTRUCTION PLAN FOR GRADING, AGGREGATE BASE, BITUMINOUS AND CONCRETE SURFACING, UTILITY IMPROVEMENTS

LEGEND

- EXISTING GATE VALVE
- EXISTING HYDRANT
- EXISTING CURB BOX
- EXISTING WATERMAIN MANHOLE
- EXISTING SANITARY MANHOLE
- EXISTING STORM MANHOLE
- EXISTING CATCH BASIN
- EXISTING GAS VALVE
- EXISTING CABLE TV BOX
- EXISTING TELEPHONE BOX
- EXISTING POWER POLE
- EXISTING ELECTRICAL MANHOLE
- EXISTING ELECTRICAL TRANSFORMER
- EXISTING LIGHT POLE
- EXISTING WATERMAIN
- EXISTING SANITARY SEWER
- EXISTING STORM SEWER
- EXISTING GAS MAIN
- EXISTING CABLE TV
- EXISTING UNDERGROUND TELEPHONE LINE
- EXISTING UNDERGROUND POWER
- EXISTING OVERHEAD POWER
- EXISTING TGRS PIPING
- EXISTING TGRS COMMUNICATION LINE
- EXISTING CURB AND GUTTER
- EXISTING FENCE
- EXISTING RIGHT-OF-WAY
- EXISTING EASEMENT
- EXISTING MAILBOX
- EXISTING SOIL BORING
- EXISTING STREET SIGN
- EXISTING TREE
- EXISTING TREE LINE
- EXISTING CONTOUR
- PROPOSED CONTOUR
- PROPOSED GATE VALVE
- PROPOSED HYDRANT
- PROPOSED MANHOLE (STORM/SANITARY)
- PROPOSED CATCH BASIN
- PROPOSED WATERMAIN
- PROPOSED SANITARY SEWER
- PROPOSED STORM SEWER
- PROPOSED CURB AND GUTTER
- PROPOSED TEMPORARY EASEMENT

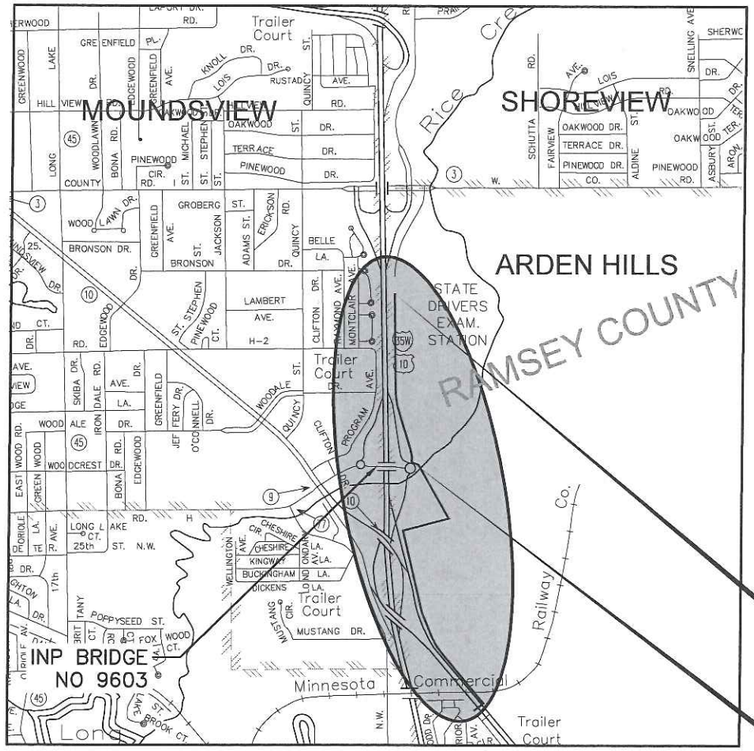
NOTE:
THE SUBSURFACE UTILITY INFORMATION IN THIS PLAN IS UTILITY QUALITY LEVEL D. THIS QUALITY LEVEL WAS DETERMINED ACCORDING TO THE GUIDELINES OF CI/ASCE 38-2, ENTITLED "STANDARD GUIDELINES FOR THE COLLECTION AND DEPICTION OF EXISTING SUBSURFACE UTILITY DATA".

THE EXACT LOCATION OF UNDERGROUND UTILITIES SHOWN IN THIS PLAN SET ARE UNKNOWN. THE CONTRACTOR SHALL CONTACT GOPHER STATE ONE PRIOR TO STARTING ANY EXCAVATION.

GOPHER STATE ONE CALL SYSTEM.....1-800-252-1166

OLD HIGHWAY 8
STATE AID PROJ. NO. 062-593-006

GROSS LENGTH	2737.17 FEET	0.518	MILES (OLD HIGHWAY 8)
BRIDGE LENGTH	0.00 FEET	0.000	MILES (OLD HIGHWAY 8)
NET LENGTH	2737.17 FEET	0.518	MILES (OLD HIGHWAY 8)



OLD HIGHWAY 8
END S.A.P. 062-593-006
STA. 31+88.94

OLD HIGHWAY 8
BEGIN S.A.P. 062-593-006
STA. 4+51.77

DESIGN DESIGNATION: OLD HIGHWAY 8 (S.A.P. 062-593-006)
STA. 4+51.77 TO 31+88.94

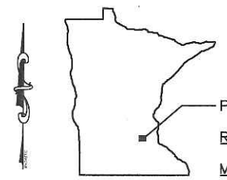
Functional Classification: LOCAL
No. of Traffic Lanes = 2 No. of Parking Lanes = 0
ADT (Current Year) 2017 = 4998 Design Speed 40 mph
ADT (Future Year) 2037 = 7446 Based on STOPPING Sight Distance
DHV (Design Hr. Vol.) = 785 Height of eye 3.5' Height of Object 2.0'
D (Directional Distr.) = 50 % Design Speed not achieved at: RAB APPROACHES
T (Heavy Commercial) = 3.57 % STA. N.A. TO STA. N.A. MPH N.A.
R-Value 50 20 YR BESALS 541,000 Design Load 10 ton
K-Value XXX 35 YR CESALS XXX

DESIGN DESIGNATION: TRAIL (S.A.P. 062-593-006)

Functional Classification: TRAIL
Designed Speed 20 mph Based on Stopping Sight Distance
Height of eye 4.5' Height of Object 2.0'
Speed not achieved at: N.A.

PLAN SET SCALES

LOCATION MAP 0 750 1250 2500 SCALE IN FEET
ALIGNMENT 0 25 50 100 SCALE IN FEET
PLAN 0 15 30 60 SCALE IN FEET
PROFILE 0 5 10 20 SCALE IN FEET
CROSS-SECTIONS 0 5 10 20 SCALE IN FEET



PROJECT LOCATION
RAMSEY COUNTY
METRO DISTRICT

I HEREBY CERTIFY THAT THE FINAL FIELD REVISIONS, IF ANY, OF THIS PLAN WERE MADE BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

ENGINEER _____

DATE _____ REG. NO. _____

PLAN REVISONS

DATE	SHEET NO.	APPROVED BY

STATE AID PROJ. NO. 062-593-006

GOVERNING SPECIFICATIONS

THE 2016 EDITION OF THE MINNESOTA DEPARTMENT OF TRANSPORTATION "STANDARD SPECIFICATIONS FOR CONSTRUCTION" SHALL GOVERN. ALL TRAFFIC CONTROL SIGNING AND DEVICES SHALL CONFORM TO THE MMUTCD, INCLUDING THE FIELD MANUAL FOR TEMPORARY TRAFFIC CONTROL ZONE LAYOUTS.

SHEET INDEX

THIS PLAN SET CONTAINS 115 SHEETS

Kimley»Horn
2550 UNIVERSITY AVENUE WEST, SUITE 238N, ST. PAUL, MN 55114
PHONE: 651-645-4197
WWW.KIMLEY-HORN.COM

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

DATE 4/20/17 LIC. NO. 41864

ENGINEER Chadd B. Larson
CHADD B. LARSON

APPROVED Susan J Polka 4/20/2017
CITY OF ARDEN HILLS ENGINEER

APPROVED _____ 4/21/2017
RAMSEY COUNTY ENGINEER

for Julie Driscoll 4/28/2017
DISTRICT STATE AID ENGINEER: REVIEWED FOR COMPLIANCE WITH STATE AID RULES/POLICY

Dan Gibson 4/28/2017
APPROVED FOR STATE AID FUNDING: STATE AID ENGINEER

SHEET NO. 1 OF 115 SHEETS

K:\TWC_Civil\County\RAMSEY\TCAAP Thumb Rd\CAD\Plan Sheets\Construction Plans\South\TCAAP_THUMB_STH_CVR01.dwg April 20, 2017 - 8:34am

STATEMENT OF ESTIMATED QUANTITIES

NOTE	TAB	ITEM NO.	ITEM NO.	ITEM DESCRIPTION	UNIT	TOTAL QUANTITY	S.A.P. 062-593-006 OLD HIGHWAY 8		NON-PARTICIPATING ARDEN HILLS
							ROADWAY	STORM SEWER	CITY UTILITIES
						ESTIMATED QUANTITY	ESTIMATED QUANTITY	ESTIMATED QUANTITY	ESTIMATED QUANTITY
			2011.601	AS BUILT	LUMP SUM	1	0.50	0.25	0.25
			2021.501	MOBILIZATION	LUMP SUM	1	0.70	0.15	0.15
	A	5	2101.502	CLEARING	TREE	53	53		
	A	5	2101.507	GRUBBING	TREE	53	53		
			2104.501	REMOVE WATER MAIN	LIN FT	200			200
			2104.501	REMOVE CHAIN LINK FENCE	LIN FT	475	475		
	B	5	2104.509	REMOVE POST	EACH	4			4
			2104.513	SAWING BIT PAVEMENT (FULL DEPTH)	LIN FT	100	100		
			2105.601	DEWATERING	LUMP SUM	1			1
			2105.601	DEWATERING SPECIAL	LUMP SUM	1			1
1	E	4	2106.501	EXCAVATION - COMMON (P)	CU YD	31793	31793		
6			2106.507	EXCAVATION - SUBGRADE	CU YD	2500	2500		
6			2106.522	SELECT GRANULAR EMBANKMENT (CV)	CU YD	2500	2500		
2	E	4	2106.523	COMMON EMBANKMENT (CV) (P)	CU YD	7097	7097		
			2123.610	STREET SWEEPER (WITH PICKUP BROOM)	HOUR	30	30		
3			2130.501	WATER	M GALLON	25	25		
	C	5	2211.503	AGGREGATE BASE (CV) CLASS 6 (P)	CU YD	2800	2800		
			2357.502	BITUMINOUS MATERIAL FOR TACK COAT	GALLON	1300	1300		
	D	5	2360.501	TYPE SP 12.5 WEARING COURSE MIX (2,B)	TON	750	750		
	D	5	2360.501	TYPE SP 12.5 WEARING COURSE MIX (3,F)	TON	2500	2500		
	D	5	2360.502	TYPE SP 12.5 NON WEAR COURSE MIX (3,B)	TON	1875	1875		
	H	91	2501.515	18" RC PIPE APRON	EACH	1		1	
	H	91	2501.525	28" SPAN RC PIPE-ARCH APRON	EACH	1		1	
	H	91	2501.602	TRASH GUARD FOR 18" PIPE APRON	EACH	1		1	
	H	91	2501.602	TRASH GUARD FOR 28" SPAN PIPE APRON	EACH	1		1	
			2502.521	6" PVC PIPE DRAIN	LIN FT	170		170	
			2502.541	6" PERF PVC PIPE DRAIN	LIN FT	250		250	
			2502.602	6" PVC PIPE DRAIN CLEANOUT	EACH	4		4	
	H	91	2503.521	28" SPAN RC PIPE-ARCH SEWER CL IIA	LIN FT	407		407	
	H	91	2503.541	15" RC PIPE SEWER DES 3006 CL V	LIN FT	972		972	
	H	91	2503.541	18" RC PIPE SEWER DES 3006 CL III	LIN FT	1064		1064	
			2503.602	CONNECT INTO EXISTING DRAINAGE STRUCTURE	EACH	1		1	
	F	81	2503.602	CONNECT TO EXISTING SANITARY SEWER	EACH	1			1
	F	81	2503.603	8" PVC PIPE SEWER	LIN FT	2287			2287
	F	81	2503.603	4" PVC FORCE MAIN	LIN FT	449			449
	G	82	2504.602	CONNECT TO EXISTING WATER MAIN	EACH	5			5
	G	82	2504.602	HYDRANT	EACH	8			8
	G	82	2504.602	6" GATE VALVE & BOX	EACH	9			9
	G	82	2504.602	8" GATE VALVE & BOX	EACH	3			3
	G	82	2504.602	12" GATE VALVE & BOX	EACH	26			26
			2504.603	12" WATERMAIN DUCTILE IRON CL 52	LIN FT	520			520
			2504.603	6" PVC WATERMAIN	LIN FT	225			225
			2504.603	8" PVC WATERMAIN	LIN FT	101			101
			2504.603	12" PVC WATERMAIN	LIN FT	8052			8052
	G	82	2504.603	24" STEEL CASING PIPE (JACKED)	LIN FT	180			180
	G	82	2504.608	DUCTILE IRON FITTINGS	POUND	7000			7000

NOTES:

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1. INCLUDES TOPSOIL STRIPPING, SEE EARTHWORK TABULATION SHEET 4
2. INCLUDES TOPSOIL, SEE EARTHWORK TABULATION SHEET 4
3. TO BE USED AT THE DISCRETION OF THE ENGINEER FOR DUST CONTROL ON THE PROJECT SITE.
4. 2'X3' BOX CATCH BASIN. SEE SPECIAL PROVISIONS AND SHEET 7 FOR DETAILS.
5. SANITARY SEWER MANHOLE. SEE SPECIAL PROVISIONS AND SHEET 7 FOR DETAILS.
6. 2500 CU YD OF EXCAVATION – SUBGRADE AND SELECT GRANULAR EMBANKMENT (CV) PROVIDED FOR SUBGRADE CORRECTIONS AS DIRECTED BY THE ENGINEER.
7. EMPTY CONDUIT RUN AND HANDHOLES FOR FUTURE CITY OF ARDEN HILLS UTILITY. SEE UTILITY PLANS FOR LOCATION. CONTRACTOR SHALL COORDINATE HANDHOLE TYPE AND LOCATIONS WITH CITY OF ARDEN HILLS.

BASIS OF QUANTITIES

ITEM NO.	DESCRIPTION	BASIS
2360	TYPE SP 12.5 WEARING COURSE MIX	113 LBS/SQ YD–INCH
2360	TYPE SP 12.5 NON WEAR COURSE MIX	113 LBS/SQ YD–INCH
2574	FERTILIZER TYPE 3	350 LBS/ACRE

* BASIS OF QUANTITY IS FOR THE COMPACTED VOLUME CONDITION (CV).
** SEE TURF ESTABLISHMENT PLANS FOR PLACEMENT RATES

K:\TWC_Civil\County\RAMSEY\TCAAP Thumb Rd\CAD\Plan Sheets\Construction Plans\South\TCAAP_THUMB_STH_CSN01.dwg May 18, 2017 – 4:15pm

No.	Date	Revisions	App.
1	05/18/17	ADDENDUM NO. 2	CBL

DRAWING NAME: TCAAP_THUMB_STH_CSN01.dwg
DESIGNED BY: RJG
DRAWN BY: RJG
CHECKED BY: CBL
DATE: 4/20/17
PROJECT NO. 160553004

Kimley»Horn
2550 UNIVERSITY AVENUE WEST, SUITE 238N, ST. PAUL, MN 55114
PHONE: 651–645–4197
WWW.KIMLEY–HORN.COM

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

CHADD B. LARSON
DATE: 4/20/17 MN LIC. NO. 41864

RAMSEY COUNTY
OLD HIGHWAY 8 EXTENSION
CONSTRUCTION PROJECT

STATEMENT OF ESTIMATED QUANTITIES

COUNTY PROJECT
S.A.P. 062–593–006
S.A.P.
S.P.

STATEMENT OF ESTIMATED QUANTITIES

NOTE	TAB	ITEM NO.	ITEM NO.	ITEM DESCRIPTION	UNIT	TOTAL QUANTITY ESTIMATED QUANTITY	S.A.P. 062-593-006 OLD HIGHWAY 8 ROADWAY ESTIMATED QUANTITY	S.A.P. 062-593-006 OLD HIGHWAY 8 STORM SEWER ESTIMATED QUANTITY	NON-PARTICIPATING ARDEN HILLS CITY UTILITIES ESTIMATED QUANTITY
			2011.601	AS BUILT	LUMP SUM	1	0.50	0.25	0.25
			2021.501	MOBILIZATION	LUMP SUM	1	0.70	0.15	0.15
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			2105.601	DEWATERING	LUMP SUM	1			1
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	D	5	2360.501	TYPE SP 12.5 WEARING COURSE MIX (3,F)	TON	2500	2500		
	D	5	2360.502	TYPE SP 12.5 NON WEAR COURSE MIX (3,B)	TON	1875	1875		
	H	91	2501.515	18" RC PIPE APRON	EACH	1		1	
	H	91	2501.525	28" SPAN RC PIPE-ARCH APRON	EACH	1		1	
	H	91	2501.602	TRASH GUARD FOR 18" PIPE APRON	EACH	1		1	
	H	91	2501.602	TRASH GUARD FOR 28" SPAN PIPE APRON	EACH	1		1	
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			2503.602	CONNECT INTO EXISTING DRAINAGE STRUCTURE	EACH	1		1	
	F	81	2503.602	CONNECT TO EXISTING SANITARY SEWER	EACH	1			1
	F	81	2503.603	8" PVC PIPE SEWER	LIN FT	2287			2287
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	G	82	2504.602	6" GATE VALVE & BOX	EACH	9			9
	G	82	2504.602	8" GATE VALVE & BOX	EACH	3			3
	G	82	2504.602	12" GATE VALVE & BOX	EACH	26			26
			2504.603	12" WATERMAIN DUCTILE IRON CL 52	LIN FT	520			520
			2504.603	6" PVC WATERMAIN	LIN FT	225			225
			2504.603	8" PVC WATERMAIN	LIN FT	101			101
			2504.603	12" PVC WATERMAIN	LIN FT	8052			8052
	G	82	2504.603	24" STEEL CASING PIPE (JACKED)	LIN FT	180			180
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NOTES:

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4. 2'X3' BOX CATCH BASIN. SEE SPECIAL PROVISIONS AND SHEET 7 FOR DETAILS.
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BASIS OF QUANTITIES

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2360	TYPE SP 12.5 WEARING COURSE MIX	113 LBS/SQ YD-INCH
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No.	Date	Revisions	App.

DRAWING NAME: TCAAP_THUMB_STH_CSN01.dwg
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CHADD B. LARSON
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RAMSEY COUNTY
OLD HIGHWAY 8 EXTENSION
CONSTRUCTION PROJECT

STATEMENT OF ESTIMATED QUANTITIES

COUNTY PROJECT
S.A.P. 062-593-006
S.A.P.
S.P.

SHEET NO. 2
115

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STATEMENT OF ESTIMATED QUANTITIES

NOTE	TAB	ITEM NO.	ITEM NO.	ITEM DESCRIPTION	UNIT	TOTAL QUANTITY	S.A.P. 062-593-006 OLD HIGHWAY 8		NON-PARTICIPATING ARDEN HILLS
							ROADWAY	STORM SEWER	CITY UTILITIES
						ESTIMATED QUANTITY	ESTIMATED QUANTITY	ESTIMATED QUANTITY	ESTIMATED QUANTITY
4	H	91	2506.501	CONST DRAINAGE STRUCTURE DESIGN SPEC 1	LIN FT	30.1		30.1	
	H	91	2506.501	CONST DRAINAGE STRUCTURE DES 48-4020	LIN FT	43.7		43.7	
	H	91	2506.501	CONST DRAINAGE STRUCTURE DES 60-4020	LIN FT	11.1		11.1	
	H	91	2506.501	CONST DRAINAGE STRUCTURE DES 72-4020	LIN FT	7.8		7.8	
	I	91	2506.516	CASTING ASSEMBLY	EACH	20		20	
5	F	81	2506.602	CONST DRAINAGE STRUCTURE DESIGN SPEC 2	EACH	9			9
	H	91	2511.501	RANDOM RIPRAP CLASS II	CU YD	12		12	
	H	91	2511.515	GEOTEXTILE FILTER TYPE IV	SQ YD	53		53	
			2521.501	4" CONCRETE WALK	SQ FT	5300	5300		
			2521.501	6" CONCRETE WALK	SQ FT	50	50		
			2531.501	CONCRETE CURB AND GUTTER DESIGN B624	LIN FT	6500	6500		
7			2545.523	3" NON-METALLIC CONDUIT	LIN FT	2800			2800
7			2545.553	HANDHOLE	EACH	7			7
			2557.501	WIRE FENCE DESIGN 60-9322	LIN FT	452	452		
			2557.522	METAL BRACE ASSEMBLY	EACH	1	1		
			2557.527	ELECTRICAL GROUND	EACH	1	1		
	K	94	2564.531	SIGN PANELS TYPE C	SQ FT	59.0	59.0		
	L	94	2564.552	OBJECT MARKER TYPE X4-2	EACH	1	1		
			2573.502	SILT FENCE, TYPE MS	LIN FT	9100	3400		5700
			2573.530	STORM DRAIN INLET PROTECTION	EACH	20	20		
			2573.533	SEDIMENT CONTROL LOG TYPE WOOD FIBER	LIN FT	1000	1000		
			2573.535	STABILIZED CONSTRUCTION EXIT	LUMP SUM	1	0.5		0.5
			2573.550	EROSION CONTROL SUPERVISOR	LUMP SUM	1	0.5		0.5
			2574.508	FERTILIZER TYPE 3	POUND	1740	840		900
			2574.508	FERTILIZER TYPE 4	POUND	100	50		50
			2575.501	SEEDING	ACRE	5.3	2.4		2.9
			2575.502	SEED MIXTURE 25-121	POUND	324	147		177
			2575.502	SEED MIXTURE 33-261	POUND	15	15		
			2575.502	SEED MIXTURE 34-171	POUND	3			3
			2575.511	MULCH MATERIAL TYPE 1	TON	9.9	4.8		5.1
			2575.519	DISK ANCHORING	ACRE	5.0	2.4		2.6
			2575.523	EROSION CONTROL BLANKET CATEGORY 3N	SQ YD	3600	1800		1800
			2575.571	RAPID STABILIZATION METHOD 3	SQ YD	15	7		8
	J	93	2582.502	4" SOLID LINE EPOXY GROUND IN (WR)	LIN FT	6160	6160		
	J	93	2582.502	4" DOUBLE SOLID LINE EPOXY GROUND IN (WR)	LIN FT	9320	9320		

NOTES:

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5. SANITARY SEWER MANHOLE. SEE SPECIAL PROVISIONS AND SHEET 7 FOR DETAILS.
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BASIS OF QUANTITIES

ITEM NO.	DESCRIPTION	BASIS
2360	TYPE SP 12.5 WEARING COURSE MIX	113 LBS/SQ YD–INCH
2360	TYPE SP 12.5 NON WEAR COURSE MIX	113 LBS/SQ YD–INCH
2574	FERTILIZER TYPE 3	350 LBS/ACRE

* BASIS OF QUANTITY IS FOR THE COMPACTED VOLUME CONDITION (CV).
** SEE TURF ESTABLISHMENT PLANS FOR PLACEMENT RATES

No.	Date	Revisions	App.

DRAWING NAME: TCAAP_THUMB_STH_CSN01.dwg
DESIGNED BY: RJG
DRAWN BY: RJG
CHECKED BY: CBL
DATE: 4/20/17
PROJECT NO. 160553004

Kimley»Horn
2550 UNIVERSITY AVENUE WEST, SUITE 238N, ST. PAUL, MN 55114
PHONE: 651-645-4197
WWW.KIMLEY-HORN.COM

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

CHADD B. LARSON
DATE: 4/20/17 MN LIC. NO. 41864

RAMSEY COUNTY
OLD HIGHWAY 8 EXTENSION
CONSTRUCTION PROJECT

OLD HIGHWAY 8

COUNTY PROJECT
S.A.P. 062-593-006
S.A.P.
S.P.

SHEET NO. 3
115

K:\TWC_Civil\County\RAMSEY\TCAAP Thumb Rd\CAD\Plan Sheets\Construction Plans\South\TCAAP_THUMB_STH_CSN01.dwg April 28, 2017 - 9:39am

NB OLD HWY 8
TOTAL VOLUME TABLE

Station	Fill Area	Cut Area	Incremental Fill Vol	Incremental Cut Vol	Cumulative Fill Vol	Cumulative Cut Vol
4+50.00	0.00	0.00	0.00	0.00	0.00	0.00
5+00.00	618.74	0.39	565.32	0.41	565.32	0.41
5+50.00	470.02	0.00	986.71	0.41	1552.03	0.82
5+92.91	371.83	0.00	649.17	0.00	2201.21	0.82
6+00.00	325.57	0.00	88.48	0.00	2289.69	0.82
6+50.00	181.54	0.00	446.72	0.00	2736.41	0.82
7+00.00	121.78	0.00	265.52	0.00	3001.93	0.82
7+33.44	86.94	0.00	124.46	0.00	3126.40	0.82
7+50.00	75.87	0.00	49.94	0.00	3176.33	0.82
8+00.00	59.62	0.02	125.45	0.02	3301.78	0.85
8+50.00	79.26	0.00	128.59	0.02	3430.37	0.87
8+60.73	70.28	0.00	29.72	0.00	3460.09	0.87
9+00.00	55.77	0.00	87.60	0.00	3547.69	0.87
9+50.00	42.92	0.16	87.20	0.16	3634.89	1.03
9+84.16	35.83	0.81	47.48	0.66	3682.37	1.68
10+00.00	37.76	0.43	20.55	0.39	3702.92	2.07
10+50.00	32.88	1.16	61.91	1.52	3764.83	3.59
11+00.00	36.91	2.42	60.67	3.46	3825.50	7.05
11+07.59	35.46	3.84	9.51	0.93	3835.02	7.97
11+50.00	24.67	13.86	47.22	13.90	3882.24	21.87
12+00.00	5.17	38.27	27.62	48.27	3909.86	70.15
12+50.00	2.29	51.83	6.90	83.43	3916.76	153.58
13+00.00	1.12	58.52	3.15	102.18	3919.91	255.76
13+50.00	7.08	43.35	7.59	94.32	3927.51	350.08
14+00.00	17.19	43.84	22.47	80.73	3949.98	430.81
14+50.00	21.50	38.79	35.83	76.51	3985.80	507.32
15+00.00	21.86	34.50	40.15	67.86	4025.96	575.18
15+50.00	5.02	42.37	24.89	71.17	4050.85	646.35
16+00.00	6.77	34.61	10.92	71.27	4061.77	717.62
16+50.00	13.05	22.57	18.36	52.94	4080.13	770.57
16+76.58	11.24	23.24	11.96	22.55	4092.09	793.12
17+00.00	9.21	23.37	8.87	20.21	4100.96	813.34
17+50.00	5.48	34.00	13.46	53.23	4114.41	866.57
17+98.11	0.72	67.81	5.47	90.75	4119.88	957.32
18+00.00	0.71	68.86	0.05	4.78	4119.93	962.10

NB OLD HWY 8
TOTAL VOLUME TABLE

Station	Fill Area	Cut Area	Incremental Fill Vol	Incremental Cut Vol	Cumulative Fill Vol	Cumulative Cut Vol
18+50.00	0.64	81.78	1.24	139.41	4121.18	1101.51
19+00.00	0.65	91.69	1.19	160.39	4122.37	1261.90
19+19.64	0.62	101.93	0.46	70.41	4122.83	1332.31
19+50.00	0.62	116.62	0.70	122.89	4123.53	1455.20
20+00.00	0.67	147.65	1.20	244.69	4124.72	1699.90
20+50.00	0.67	117.86	1.24	245.85	4125.96	1945.74
21+00.00	0.67	83.79	1.24	186.72	4127.20	2132.46
21+50.00	1.93	46.21	2.40	120.37	4129.60	2252.83
22+00.00	15.66	26.28	16.29	67.11	4145.89	2319.94
22+50.00	26.34	6.07	38.90	29.95	4184.78	2349.89
23+00.00	28.32	6.12	50.61	11.28	4235.40	2361.17
23+32.11	36.46	0.77	38.52	4.10	4273.92	2365.27
23+33.16	36.98	0.65	1.42	0.03	4275.34	2365.30
23+34.20	37.54	0.55	1.44	0.02	4276.78	2365.32
23+50.00	48.79	0.00	25.25	0.16	4302.04	2365.48
24+00.00	84.67	0.00	123.57	0.00	4425.61	2365.48
24+50.00	113.25	0.00	183.26	0.00	4608.87	2365.48
25+00.00	85.70	0.00	184.22	0.00	4793.09	2365.48
25+50.00	6.78	31.03	85.63	28.73	4878.72	2394.21
26+00.00	0.56	158.31	6.79	175.31	4885.51	2569.53
26+50.00	0.59	289.30	1.06	414.46	4886.57	2983.98
27+00.00	0.49	518.39	1.00	747.86	4887.57	3731.84
27+50.00	0.50	726.44	0.92	1152.62	4888.48	4884.46
28+00.00	0.48	941.12	0.90	1544.04	4889.39	6428.50
28+50.00	0.26	1161.13	0.68	1946.52	4890.07	8375.02
29+00.00	0.24	1341.57	0.46	2317.31	4890.52	10692.33
29+50.00	0.20	1473.25	0.40	2606.31	4890.93	13298.64
30+00.00	0.18	1529.16	0.35	2780.01	4891.28	16078.64
30+50.00	0.20	1419.00	0.35	2729.78	4891.63	18808.42
31+00.00	0.27	1010.67	0.43	2249.70	4892.06	21058.12
31+50.00	0.67	567.89	0.87	1461.63	4892.93	22519.75
31+89.24	0.00	0.00	0.48	412.63	4893.41	22932.38
32+00.00	0.00	0.00	0.00	0.00	4893.41	22932.38

NB OLD HWY 8 TRAIL CONNECTION
TOTAL VOLUME TABLE

Station	Fill Area	Cut Area	Incremental Fill Vol	Incremental Cut Vol	Cumulative Fill Vol	Cumulative Cut Vol
1+41.13	0.00	0.00	0.00	0.00	0.00	0.00
1+50.00	4.12	0.00	0.68	0.00	0.68	0.00
2+00.00	23.81	0.00	25.86	0.00	26.53	0.00
2+16.35	38.37	0.00	18.82	0.00	45.35	0.00
2+43.21	41.11	0.00	38.25	0.00	83.61	0.00
2+50.00	43.39	0.00	10.22	0.00	93.82	0.00
2+70.08	50.70	0.00	33.67	0.00	127.49	0.00
2+94.88	60.84	0.00	51.22	0.00	178.72	0.00
3+00.00	62.92	0.00	11.41	0.00	190.13	0.00
3+27.24	72.86	0.00	66.59	0.00	256.72	0.00
3+42.77	56.76	0.00	36.00	0.00	292.72	0.00

EARTHWORK SUMMARY

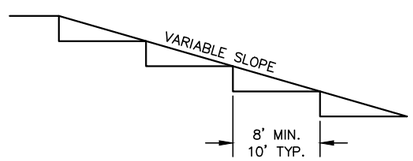
EARTHWORK SUMMARY		E
COMMON EXCAVATION		
OLD HWY 8	22,933	CU. YDS
NB OLD HWY 8 TRAIL CONNECTION	0	CU. YDS
SUB TOTAL COMMON EXCAVATION (EV)	22,933	CU. YDS
TOPSOIL STRIPPING		
OLD HWY 8 AND TRAIL CONNECTION	8,860	CU. YDS
TOTAL TOPSOIL STRIPPING	8,860	CU. YDS
TOTAL COMMON EXCAVATION (EV)	31,793	CU. YDS
EMBANKMENTS		
OLD HWY 8	4,894	CU. YDS
NB OLD HWY 8 TRAIL CONNECTION	293	CU. YDS
SUB TOTAL COMMON EMBANKMENT (CV)	5,187	CU. YDS
TOPSOIL REQUIRED		
OLD HWY 8	1,910	CU. YDS
TOTAL TOPSOIL REQUIRED (CV)	1,910	CU. YDS
TOTAL COMMON EMBANKMENT (CV)	7,097	CU. YDS

NOTE:
1) 6" TOPSOIL TO BE PLACED WITHIN CONSTRUCTION LIMITS WHERE SEEDING IS TO TAKE PLACE.
2) EMBANKMENT QUANTITIES ASSUME 0% SHRINKAGE FACTOR.
3) TOPSOIL STRIPPING ASSUMES A DEPTH OF 12".

1. UNLESS PROVIDED FOR AS A PAY ITEM, ALL REMOVAL OF BITUMINOUS CURB, ROCK, OR CONCRETE RUBBLE WILL BE CONSIDERED INCIDENTAL. THE DISPOSAL OF REMOVED BITUMINOUS, CONCRETE CURB, CONCRETE PIPE, CONCRETE WALK, CONCRETE RUBBLE, ROCK, METAL PIPE, AND TREES IS THE RESPONSIBILITY OF THE CONTRACTOR. DISPOSAL SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF 2104.3C3.
2. ALL GRANULAR MATERIAL FOUND ON-SITE SHALL BE PLACED ONLY AS DIRECTED BY THE PROJECT ENGINEER.
3. ONLY SUITABLE MATERIAL AS APPROVED BY THE ENGINEER SHALL BE USED FOR ROADBED CONSTRUCTION WITHIN THE 1:1.5 SLOPES AS SHOWN ON THE TYPICAL GRADING SECTIONS AND THE CROSS SECTIONS. WHERE THE PROPOSED ALIGNMENT EXTENDS OFF THE EXISTING ROADWAY ALL TOPSOIL SHALL BE REMOVED FROM WITHIN THE 1:1.5 SLOPES.
4. UNSUITABLE MATERIAL FOR ROADBED CONSTRUCTION SHALL BE USED OUTSIDE THE 1:1.5 INSLOPE AS SHOWN ON THE TYPICAL GRADING SECTIONS AND THE CROSS SECTIONS.
5. ALL SHAPING AROUND CULVERT ENDS AND STORM SEWER INLETS & OUTLETS, AS DIRECTED BY THE ENGINEER, WILL BE CONSIDERED INCIDENTAL.
6. NO WORK, INCLUDING THE STOCKPILING OF TOPSOIL, SHALL EXTEND BEYOND THE RIGHT-OF-WAY, TEMPORARY EASMENT, OR THE DRAINAGE & UTILITY EASEMENT UNLESS THE CONTRACTOR HAS PROVIDED THE COUNTY WITH A COPY OF THE OWNER WRITTEN PERMISSION FOR SUCH WORK.

DETAIL NO. 1
BENCH CONSTRUCTION

(TO BE USED ON ALL FILL SLOPES STEEPER THAN 1V:4H)
SEE MnDOT SPEC. 2105.3B FOR MORE INFORMATION.



No.	Date	Revisions	App.

DRAWING NAME	
TCAAP_THUMB_STH_XSEC.dwg	
DESIGNED BY:	RJG
DRAWN BY:	RJG
CHECKED BY:	CBL
DATE:	4/20/17
PROJECT NO.	160553004

Kimley»Horn
2550 UNIVERSITY AVENUE WEST, SUITE 238N, ST, PAUL, MN 55114
PHONE: 651-645-4197
WWW.KIMLEY-HORN.COM

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CHADD B. LARSON
DATE: 4/20/17 MN LIC. NO. 41864

RAMSEY COUNTY
OLD HIGHWAY 8 EXTENSION
CONSTRUCTION PROJECT

OLD HIGHWAY 8 AND
TRAIL CONNECTION
EARTHWORK TABULATION

COUNTY PROJECT		SHEET NO.
S.A.P.	062-593-006	4
S.A.P.		115
S.P.		

CLEARING & GRUBBING A

STATION	OFFSET	CLEARING	GRUBBING
		2101	2101
		TREE	TREE
NB OLD HWY 8			
13+96.93	33.37 RT	1	1
16+84.14	26.90 LT	1	1
16+96.42	26.76 LT	1	1
17+20.77	23.29 LT	1	1
17+53.34	18.10 RT	1	1
17+82.23	20.74 LT	1	1
18+20.82	23.17 LT	1	1
18+25.65	27.83 LT	1	1
18+35.70	28.63 LT	1	1
18+47.48	27.34 LT	1	1
18+99.73	15.12 LT	1	1
19+25.09	27.58 LT	1	1
19+38.35	18.55 LT	1	1
19+48.19	28.70 LT	1	1
19+59.68	14.51 LT	1	1
19+69.78	26.64 LT	1	1
20+07.68	16.38 LT	1	1
20+29.64	18.48 LT	1	1
20+40.51	16.14 LT	1	1
20+54.02	11.23 LT	1	1
21+00.48	16.37 LT	1	1
21+18.80	13.60 LT	1	1
21+72.26	27.03 LT	1	1
21+88.74	26.99 LT	1	1
22+17.83	11.74 LT	1	1
23+59.57	8.62 LT	1	1
24+12.00	20.75 LT	1	1
24+84.12	18.75 LT	1	1
24+97.71	27.42 LT	1	1
25+54.34	21.16 LT	1	1
25+71.97	18.18 LT	1	1
25+97.74	30.80 LT	1	1
26+02.14	10.49 LT	1	1
26+04.75	20.88 LT	1	1
26+11.21	27.62 LT	1	1
27+33.74	29.45 LT	1	1
27+57.75	31.91 LT	1	1
27+67.63	31.57 LT	1	1
27+90.10	32.61 LT	1	1
27+91.20	22.79 LT	1	1
28+36.30	31.98 LT	1	1
29+17.17	19.85 LT	1	1
29+28.90	21.00 LT	1	1
29+58.64	31.86 LT	1	1
30+56.40	19.00 LT	1	1
30+79.73	33.12 LT	1	1
30+84.73	24.85 LT	1	1
31+08.14	4.85 LT	1	1
31+17.12	53.61 RT	1	1
31+32.47	24.24 RT	1	1
31+51.78	21.72 LT	1	1
31+54.95	28.34 LT	1	1
PROJECT TOTALS		**52**	**52**

REMOVE POST B

STATION	OFFSET	REMOVE POST
		2104
		EACH
PWATR HWY 10		
2+63.41	7.97 LT	1
2+79.65	3.76 RT	1
3+40.77	1.71 RT	1
3+41.49	9.89 RT	1
PROJECT TOTALS		**4**

AGGREGATE BASE C

ALIGNMENT	STATION RANGE	NOTES	AGGREGATE BASE CLASS 6
			2211
			CU YD
NB OLD HWY 8	STA. 4+49 TO STA. 8+57	CONCRETE MEDIAN BASE	100
NB OLD HWY 8	STA. 4+49 TO STA. 31+89	CURB & GUTTER/BITUMINOUS ROADWAY BASE	2,175
NB OLD HWY 8	STA. 5+40 TO STA. 31+89	BITUMINOUS TRAIL BASE	525
PROJECT TOTALS			**2,800**

BITUMINOUS PAVEMENT D

ALIGNMENT	STATION RANGE	NOTES	TYPE SP 12.5 WEARING COURSE MIX (SPWEB230B)	TYPE SP 12.5 WEARING COURSE MIX (SPWEB340F)	TYPE SP 12.5 NON WEAR COURSE MIX (SPNWB330B)
			2360	2360	2360
			TON	TON	TON
NB OLD HWY 8	STA. 4+49 TO STA. 31+89	BITUMINOUS ROADWAY		2,500	1,875
NB OLD HWY 8	STA. 5+40 TO STA. 31+89	BITUMINOUS TRAIL	750		
PROJECT TOTALS			**750**	**2,500**	**1,875**

K:\TWC_Civil\County\RAMSEY\TCAAP Thumb Rd\CAD\Plan Sheets\Construction Plans\South\TCAAP_THUMB_STH_CSN01.dwg April 25, 2017 - 10:07pm

No.	Date	Revisions	App.

DRAWING NAME TCAAP_THUMB_STH_CSN01.dwg

DESIGNED BY:	RJG
DRAWN BY:	RJG
CHECKED BY:	CBL
DATE:	4/20/17
PROJECT NO.	160553004

Kimley»Horn
2550 UNIVERSITY AVENUE WEST, SUITE 238N, ST, PAUL, MN 55114
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CHADD B. LARSON
DATE: 4/20/17 MN LIC. NO. 41864

RAMSEY COUNTY
OLD HIGHWAY 8 EXTENSION CONSTRUCTION PROJECT

OLD HIGHWAY 8
INFILTRATION POND GRADING

COUNTY PROJECT	
S.A.P.	062-593-006
S.A.P.	
S.P.	

CONSTRUCTION NOTES:

1. SUITABLE GRADING MATERIAL ON THIS PROJECT SHALL CONSIST OF ALL SOILS ENCOUNTERED WITH THE EXCEPTION OF TOPSOIL, DEBRIS, ORGANIC MATERIAL, MUCK AND OTHER UNSTABLE MATERIAL.
2. SUITABLE GRADING MATERIAL FROM ALL PORTIONS OF THE PROJECT SHALL BE USED IN FILL AREAS, AS REQUIRED, THROUGHOUT THE PROJECT.
3. UNDERGROUND UTILITIES EXIST WITHIN THE PROJECT AREA. THE CONTRACTOR SHALL HAVE ALL UNDERGROUND UTILITIES LOCATED PRIOR TO THE START OF CONSTRUCTION AND COORDINATE THE WORK SCHEDULE WITH UTILITY COMPANY CREWS PERFORMING RELOCATION WORK.
4. NO DISPOSAL SITE IS PROVIDED. ALL EXCESS MATERIAL SHALL BECOME THE PROPERTY OF THE CONTRACTOR FOR DISPOSAL. THE CONTRACTOR SHALL DISPOSE OF MATERIAL UNSUITABLE FOR USE IN THE CONSTRUCTION FOLLOWING ALL RULES AND REGULATIONS.
5. CONCRETE PIPE TIES SHALL BE FURNISHED AND INSTALLED PER MNDOT SPEC. 2501 AND 2503. CONCRETE PIPE TIES SHALL BE INCIDENTAL.
6. GRADING: WHERE A PROPOSED ROADWAY BEGINS AT OR TERMINATES AT AN EXISTING ROADWAY, PROVIDE A VERTICAL NOTCH TO THE BOTTOM OF THE AGGREGATE OR BITUMINOUS BASE AND A 1:20 TAPER.
7. PROVIDE 1:20 TAPERS BETWEEN LONGITUDINAL CHANGES IN SUBCUT DEPTHS.
8. A NUCLEAR GAUGE SHALL NOT BE USED TO DETERMINE DENSITY OR MOISTURE CONTENT FOR QUALITY ASSURANCE OR VERIFICATION TESTING FOR ANY MATERIAL MEETING MNDOT SPEC. 2105, 2106, 2112, 2211, 2215, 2118, 2221, 2331, 2451, 2502, OR 2511. USE OF A NUCLEAR GAUGE FOR QUALITY CONTROL TESTING IS ALLOWED ACCORDING TO THE GRADING & BASE MANUAL.
9. PROVIDE A UNIFORM TACK COAT BETWEEN ALL BITUMINOUS LAYERS AND PRIOR TO PLACING ANY BITUMINOUS MIXTURES ON EXISTING PAVEMENT IN ACCORDANCE WITH SPECIFICATION 2357.
10. STRIP AND REUSE AS SLOPE DRESSING ALL TOPSOIL AND EXISTING SLOPE DRESSING WHERE PRESENT IN AREAS TO BE DISTURBED BY CONSTRUCTION. ALL SLOPE DRESSING SHALL MEET THE REQUIREMENTS OF "TOPSOIL BORROW" (SPEC. 3877).
11. DURING CONSTRUCTION, TRAFFIC SHOULD BE NO CLOSER THAN AN IMAGINARY 2:1 LINE DRAWN FROM THE BOTTOM OF ANY SUBCUT TO THE TRAVELED SURFACE.
12. COMPACTION OF GRADING AND AGGREGATE ITEMS SHALL BE BY THE "SPECIFIED DENSITY METHOD" AS DESCRIBED IN MNDOT SPEC. 2105.3F1.
13. PROVIDE FOR A SAWCUT WHERE PLACING NEW PAVEMENT NEXT TO INPLACE PAVEMENT, SAWCUT SHALL BE INCIDENTAL. PROVIDE A SLURRY MANAGEMENT PLAN FOR ALL SAWCUTS, SEE SWPPP NARRATIVE.
14. PLACE A MINIMUM OF 6" TOPSOIL OR SLOPE DRESSING ON ALL AREAS DISTURBED BY CONSTRUCTION AND SCHEDULED FOR PERMANENT TURF ESTABLISHMENT UNLESS SPECIFIED OTHERWISE.

THE FOLLOWING STANDARD PLATES, APPROVED BY FHWA, SHALL APPLY ON THIS PROJECT

MN/DOT STANDARD PLATES

PLATE NO.	DESCRIPTION
3000L	REINFORCED CONCRETE PIPE (5 SHEETS)
3006G	GASKET JOINT FOR R.C. PIPE (2 SHEETS)
3100G	CONCRETE APRON FOR REINFORCED CONCRETE PIPE
3133D	RIPRAP AT RCP OUTLETS
3145G	CONCRETE PIPE OR PRECAST CULVERT TIES
4010H	CONCRETE SHORT CONE & ADJUSTING RINGS (SECTIONAL CONCRETE)
4020J	MANHOLE OR CATCH BASIN (FOR USE WITH OR WITHOUT TRAFFIC LOADS) (2 SHEETS)
4026A	CONCRETE ENCASED CONCRETE ADJUSTING RINGS
4101D	RING CASTING FOR MANHOLE OR CATCH BASIN
4110F	COVER CASTING FOR MANHOLE (FOR USE IN ALL TRAFFIC AREAS) – CASTING NO. 715 AND 716
4125D	CATCH BASIN FRAME CASTING (FOR SQUARE GRATE) – CASTING NO. 806
4134A	CURB BOX CASTING FOR CATCH BASIN – CASTING NO. 825
4154B	CATCH BASIN GRATE CASTING – CASTING NO. 816
4180J	MANHOLE OR CATCH BASIN STEP
7100H	CONCRETE CURB AND GUTTER (DESIGN B AND DESIGN V)
7111J	INSTALLATION OF CATCH BASIN CASTINGS (CONCRETE CURB AND GUTTER)
7113A	CONCRETE APPROACH NOSE DETAIL
9102E	TURF ESTABLISHMENT AREAS (AT PIPE CULVERT ENDS)
9322K	CHAIN LINK FENCE (2 SHEETS)

ARDEN HILLS STANDARD PLATES

PLATE NO.	DESCRIPTION
3401	PACER HYDRANT DETAIL
3402	HYDRANT RESTRAINT DETAIL
3404	WATERMAIN CROSSING
3405	CLASS C PIPE BEDDING
3406	CLASS B PIPE BEDDING
3407	PIPE INSULATION DETAIL
3408	VALVE TRACER WIRE DETAIL
4000	STANDARD MANHOLE
4001	SLAB TOP MANHOLE
4002	INSIDE DROP MANHOLE (TWO FEET OR LESS)

UTILITIES

THE FOLLOWING LIST SHOWS THE UTILITY COMPANIES INVOLVED IN THE PROJECT

CITY OF ARDEN HILLS
CITY OF SHOREVIEW
RAMSEY COUNTY
MINNESOTA DEPARTMENT OF TRANSPORTATION
SAINT PAUL REGIONAL WATER SERVICES
AT&T CORPORATION
ARVIG COMMUNICATIONS SYSTEMS
CENTURYLINK
COMCAST CABLE COMMUNICATIONS
CENTURYLINK
XCEL ENERGY
ZAYO GROUP

EROSION & SEDIMENT CONTROL CONTACTS

MINNESOTA POLLUTION CONTROL AGENCY CONSTRUCTION STORMWATER PERMIT PROGRAM 520 LAFAYETTE ROAD NORTH ST. PAUL, MN 55155–4194	RAMSEY COUNTY PUBLIC WORKS E&S CONTROL COORDINATOR 1425 PAUL KIRKWOLD DRIVE ARDEN HILLS, MN 55112–3933
RICE CREEK WATERSHED DISTRICT 4325 PHEASANT RIDGE DRIVE NE, #116 BLAINE, MN 55449–4539	

CITY OF ARDEN HILLS UTILITY CONTACT

SUE POLKA, P.E.
651–792–7846
SPOLKA@CITYOFARDENHILLS.ORG

No.	Date	Revisions	App.

DRAWING NAME	
TCAAP_THUMB_STH_CSN01.dwg	
DESIGNED BY:	RJG
DRAWN BY:	RJG
CHECKED BY:	CBL
DATE:	4/20/17
PROJECT NO.	160553004

Kimley»Horn
2550 UNIVERSITY AVENUE WEST, SUITE 238N, ST, PAUL, MN 55114
PHONE: 651–645–4197
WWW.KIMLEY–HORN.COM

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

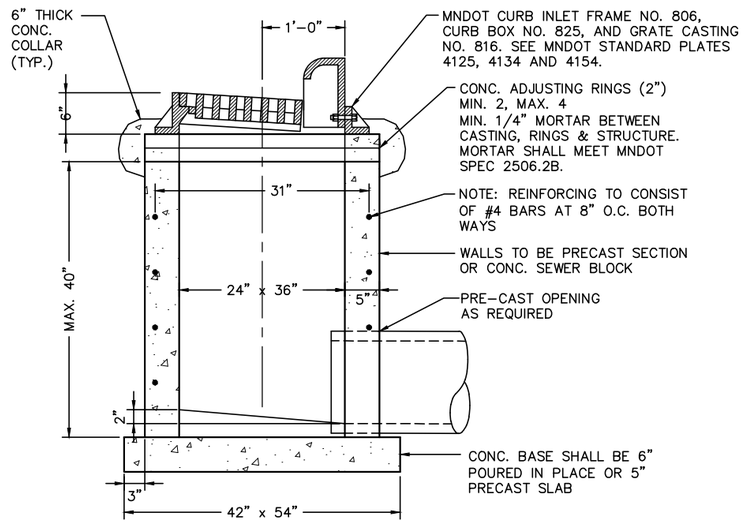
CHADD B. LARSON
DATE: 4/20/17 MN LIC. NO. 41864

RAMSEY COUNTY
OLD HIGHWAY 8 EXTENSION
CONSTRUCTION PROJECT

CONSTRUCTION NOTES, STANDARD PLATES AND UTILITY CONTACTS

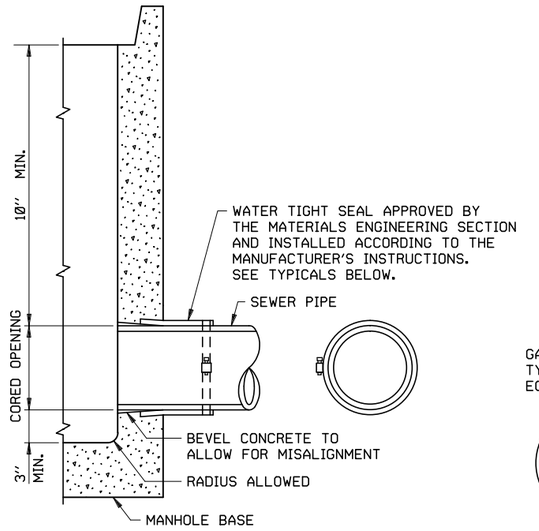
COUNTY PROJECT	
S.A.P.	062–593–006
S.A.P.	
S.P.	

SHEET NO. 6 / 115

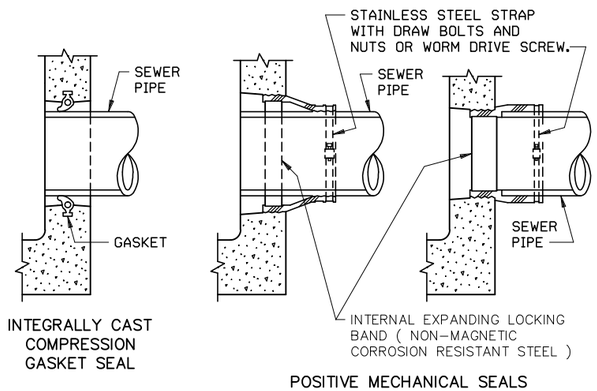


CONSTRUCT DRAINAGE STRUCTURE DESIGN SPECIAL 1
RECTANGULAR CATCH BASIN (2' X 3')

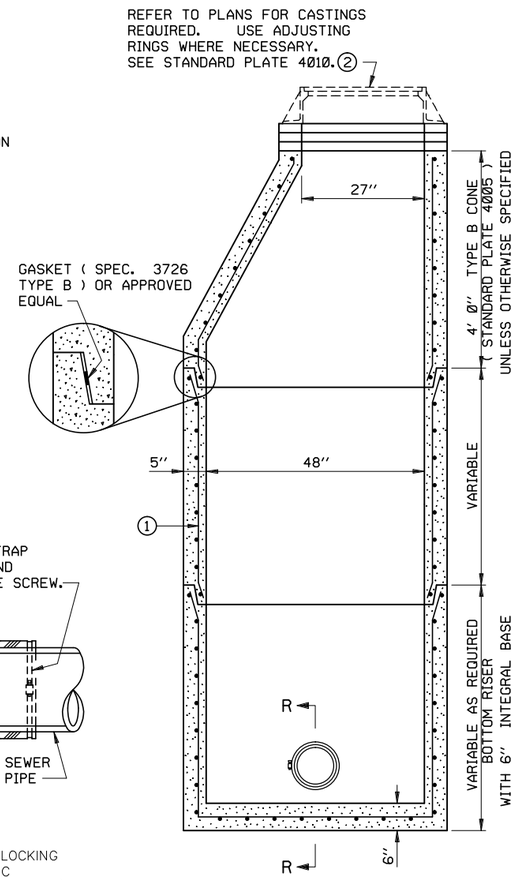
NOTES:
1. RECTANGULAR CATCH BASIN (2'x3') SHALL BE PAID FOR PER BID ITEM 2506.501, "CONST DRAINAGE STRUCTURE DESIGN SPEC 1".
2. SEE DRAINAGE TABULATIONS FOR ADDITIONAL DRAINAGE INFORMATION AND QUANTITIES.
3. SEE SPECIFICATIONS FOR ADDITIONAL INFORMATION.



SECTION R-R



WATER TIGHT SEALS



SECTION THRU TYPICAL MANHOLE

SLEEVE NOTES:
SHIM OR ADAPTER FOR " NON-STANDARD" PIPE ALLOWABLE.

FLEXIBLE SLEEVE SHALL BE NEOPRENE MATERIAL MEETING THE REQUIREMENTS OF ASTM C-443 OR THE FOLLOWING ELASTOMER EPDM:

TENSILE STRENGTH	1200 P.S.I. MIN.	(DIE C, ASTM D 412)
ELONGATION AT RUPTURE	350% MIN.	(DIE C, ASTM D 412)
COMPRESSION SET	25% MAX.	(22 HRS. AT 70° C, ASTM D 395, METHOD B)
DUROMETER	50 ± 5	(ASTM D 2240)

FLEXIBLE SLEEVE DIMENSIONS SHALL CONFORM TO PRODUCERS STANDARDS.

MANHOLE NOTES:
REFER TO PLANS FOR STEP REQUIREMENTS.

(1) REINFORCING SHALL BE A MINIMUM OF A SINGLE LINE WIRE FABRIC HAVING AN AREA OF NOT LESS THAN 0.12 SQ. IN. PER FT. OF HEIGHT.

(2) CASTING AND PRECAST RINGS ALTERNATE (WHEN REQUIRED) SHALL BE SET ON A FULL MORTAR BED.

CONSTRUCT DRAINAGE STRUCTURE DESIGN SPECIAL 2
SANITARY SEWER MANHOLE

NOTES:
1. SANITARY SEWER MANHOLE SHALL BE PAID FOR PER BID ITEM 2506.602, "CONST DRAINAGE STRUCTURE DESIGN SPEC 2".
2. SEE TABULATIONS FOR ADDITIONAL INFORMATION AND QUANTITIES. STRUCTURE HEIGHTS ARE PROVIDED FOR INFORMATION ONLY. STRUCTURES SHALL BE PAID FOR BY THE EACH.
3. SEE SPECIFICATIONS FOR ADDITIONAL INFORMATION.

No.	Date	Revisions	App.

DRAWING NAME	TCAAP_THUMB_STH_DT02.dwg
DESIGNED BY:	RJG
DRAWN BY:	RJG
CHECKED BY:	CBL
DATE:	4/20/17
PROJECT NO.	160553004

Kimley»Horn
2550 UNIVERSITY AVENUE WEST, SUITE 238N, ST, PAUL, MN 55114
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CHADD B. LARSON

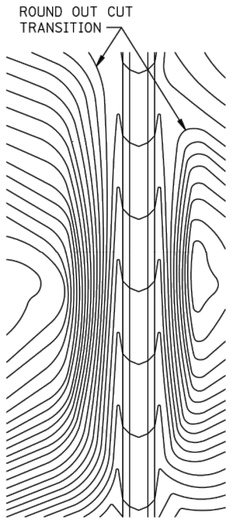
DATE: 4/20/17 MN LIC. NO. 41864

RAMSEY COUNTY
OLD HIGHWAY 8 EXTENSION
CONSTRUCTION PROJECT

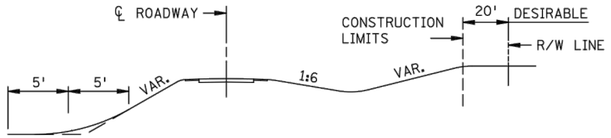
CONSTRUCTION DETAILS

COUNTY PROJECT	
S.A.P.	062-593-006
S.A.P.	
S.P.	

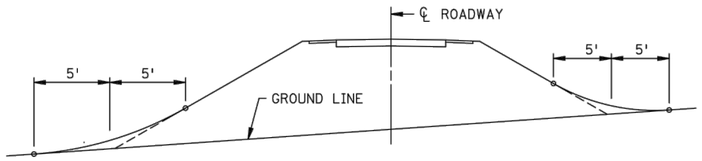
SHEET NO. 7 / 115



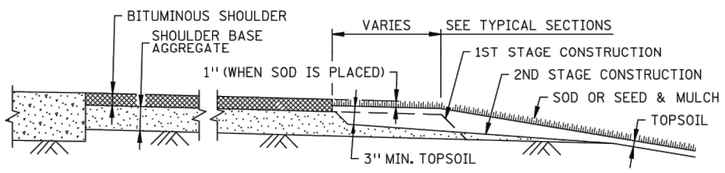
CONTOURING ROAD CUTS



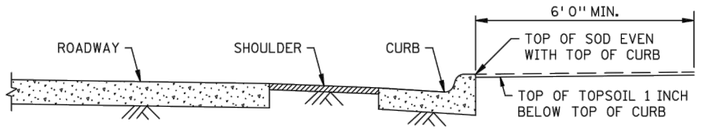
ROUNDING SHOULDERS AND BACKSLOPES



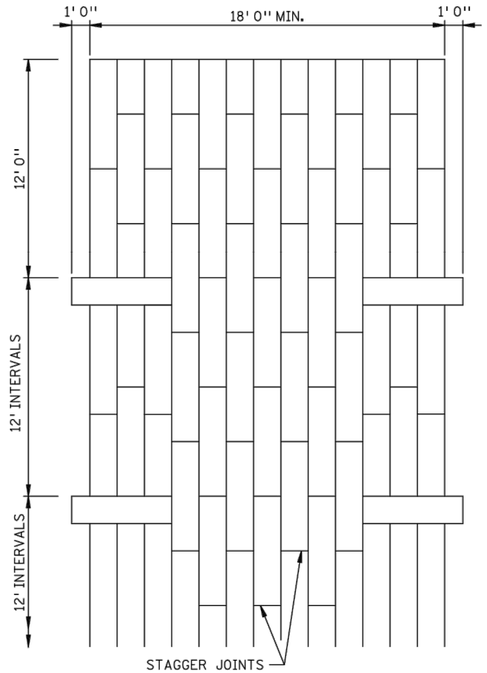
SHAPING FOR DRAINAGE ALONG THE TOE OF FILL SLOPES



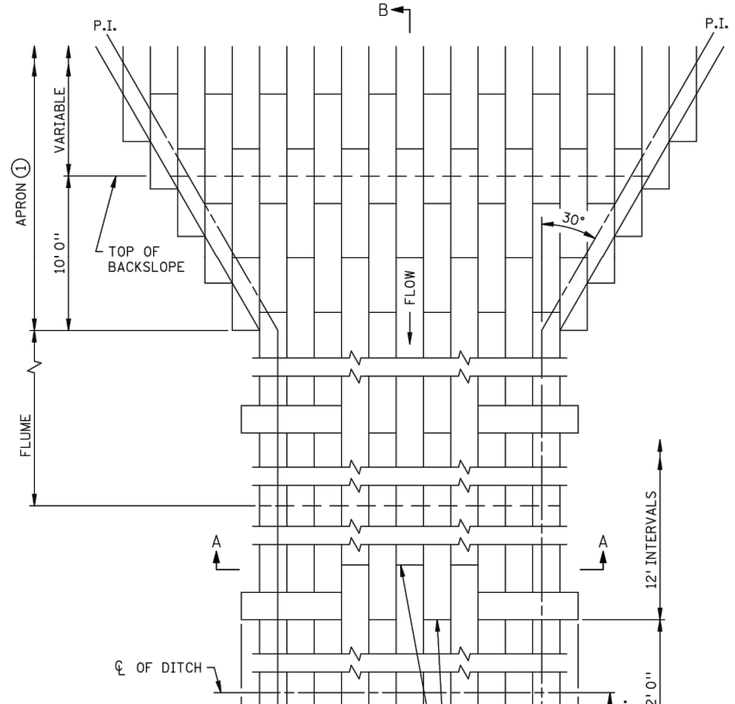
SHAPING AND TOPSOILING INSLOPES



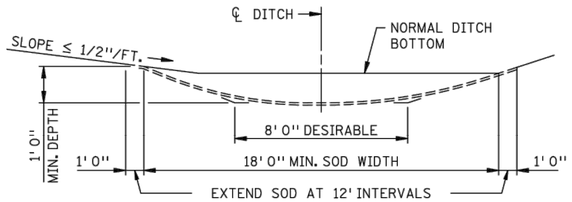
SHAPING ADJACENT TO CURBS WHEN SOD IS PLACED



PLAN VIEW

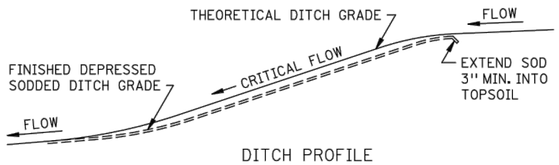


PLAN VIEW



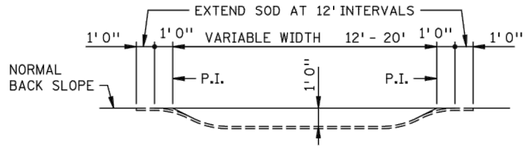
SODDED DITCH CROSS SECTION

WHERE FRONT OR BACK SLOPE IS FLAT (LESS THAN 1/2"/FT.), FIRST NOTCH DITCH AND THEN PROVIDE ROUNDING.

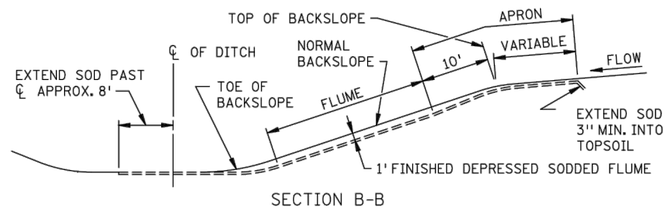


DITCH PROFILE

SODDED DITCH DETAILS



SECTION A-A



SECTION B-B

SODDED FLUME DETAILS

NOTES:
SEE SPEC. 2575.3 FOR ADDITIONAL INFORMATION.
① CONSTRUCT TAPER AS DIRECTED BY THE ENGINEER.

REVISION:

APPROVED: 2-28-2017
CHIEF ENVIRONMENTAL OFFICER

MINNESOTA DEPARTMENT OF TRANSPORTATION

STATE DESIGN ENGINEER

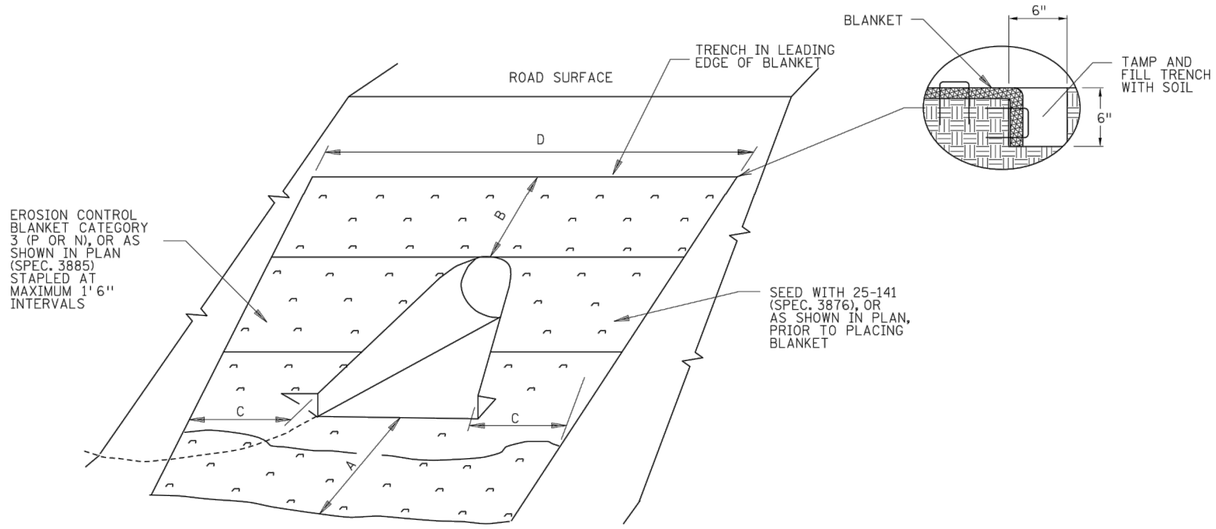
REVISED:

APPROVED: 2-28-2017

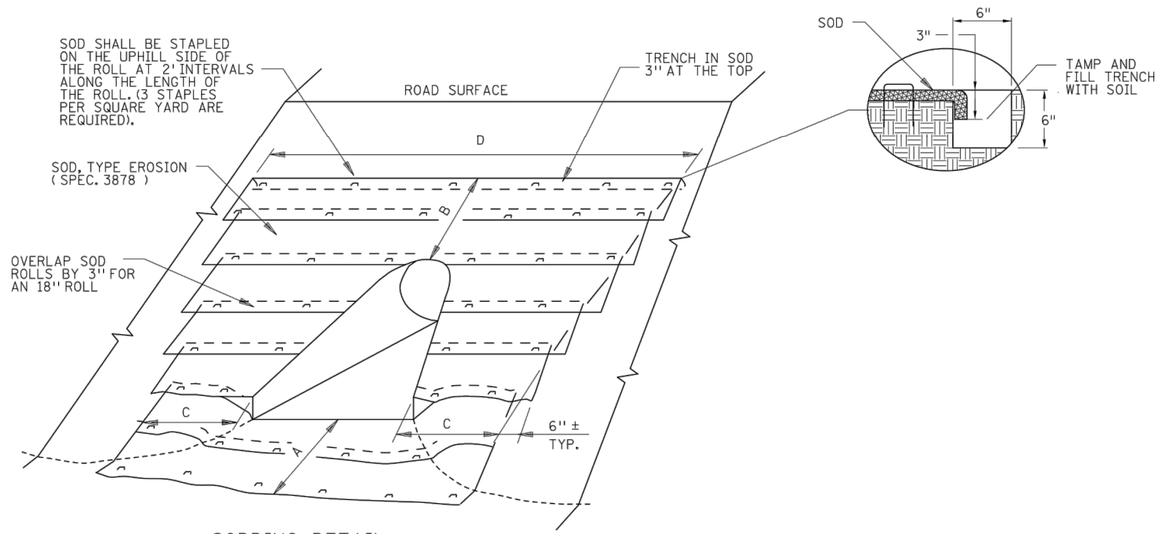
PERMANENT EROSION CONTROL
ALONG ROADWAYS, DITCHES AND FLUMES

STANDARD PLAN 5-297.404 | 1 OF 3

S.A.P. 062-593-006 | SHEET NO 8 OF 115 SHEETS



EROSION CONTROL BLANKET & SEED DETAIL



SODDING DETAIL

CULVERT INLET APRON (1)

CULVERT DIAMETER (2)	SOD OR EROSION CONTROL BLANKET (SQ. YDS.)						"A"	"B"	"C"	"D"
	CIRCULAR AND ARCH PIPE METAL APRON (PLATE 3123, PLATE 3122)	CIRCULAR AND ARCH PIPE CONCRETE APRON (PLATE 3100, PLATE 3110)	CIRCULAR AND ARCH PIPE METAL SAFETY APRON 1:4 SLOPE (PLATE 3148)	CIRCULAR AND ARCH PIPE METAL SAFETY APRON 1:6 SLOPE (PLATE 3148)	CIRCULAR CORRUGATED METAL PIPE SAFETY APRON 1:6 SLOPE (PLATE 3128)	CIRCULAR CORRUGATED METAL PIPE SAFETY APRON 1:4 SLOPE (PLATE 3128)				
15"	9	9	8	8	N/A	N/A	3'	1.5'	3'	13'
18"	13	12	12	14	16	N/A	3'	3'	3'	16'
21"	14	14	14	16	18	14	3'	3'	3'	17'
24"	16	15	16	19	21	17	3'	3'	3'	18'
27"	N/A	20	N/A	N/A	N/A	N/A	3'	4.5'	3'	20'
30"	23	22	25	30	32	N/A	3'	4.5'	3'	22'
36"	34	34	39	48	51	37	4.5'	4.5'	4.5'	27'
42"	43	40	51	64	N/A	N/A	4.5'	6'	4.5'	30'
48"	54	50	66	82	N/A	N/A	4.5'	7.5'	4.5'	34'
54"	65	58	81	102	N/A	N/A	4.5'	9'	4.5'	37'
60"	69	59	91	115	N/A	N/A	4.5'	9'	4.5'	39'
66"	69	63	N/A	N/A	N/A	N/A	4.5'	9'	4.5'	39'
72"	78	72	99	122	N/A	N/A	4.5'	10.5'	4.5'	41'

CULVERT OUTLET APRON (1)

CULVERT DIAMETER (2)	SOD OR EROSION CONTROL BLANKET (SQ. YDS.)						"A"	"B"	"C"	"D"
	CIRCULAR AND ARCH PIPE METAL APRON (PLATE 3123, PLATE 3122)	CIRCULAR AND ARCH PIPE CONCRETE APRON (PLATE 3100, PLATE 3110)	CIRCULAR AND ARCH PIPE METAL SAFETY APRON 1:4 SLOPE (PLATE 3148)	CIRCULAR AND ARCH PIPE METAL SAFETY APRON 1:6 SLOPE (PLATE 3148)	CIRCULAR CORRUGATED METAL PIPE SAFETY APRON 1:6 SLOPE (PLATE 3128)	CIRCULAR CORRUGATED METAL PIPE SAFETY APRON 1:4 SLOPE (PLATE 3128)				
15"	10	10	9	10	N/A	N/A	4.5'	1.5'	3'	13'
18"	13	13	12	14	15	N/A	6'	1.5'	3'	14'
21"	16	14	16	18	19	15	6'	1.5'	3'	15'
24"	18	18	18	21	22	18	7.5'	1.5'	3'	16'
27"	N/A	19	N/A	N/A	N/A	N/A	7.5'	1.5'	3'	17'
30"	23	23	24	28	29	N/A	9'	1.5'	3'	18'
36"	36	35	38	47	48	37	10.5'	1.5'	4.5'	23'
42"	43	40	47	58	N/A	N/A	12'	1.5'	4.5'	25'
48"	50	46	57	70	N/A	N/A	13.5'	1.5'	4.5'	27'
54"	57	50	67	84	N/A	N/A	15'	1.5'	4.5'	29'
60"	74	63	90	113	N/A	N/A	16.5'	1.5'	6'	33'
66"	75	67	N/A	N/A	N/A	N/A	16.5'	1.5'	6'	33'
72"	77	70	92	114	N/A	N/A	16.5'	1.5'	6'	34'

NOTES:

AREA SHOWN IN SQUARE YARDS IS FOR ONE CULVERT END.

QUANTITIES ARE CALCULATED TO INCLUDE SOD REQUIRED TO PROVIDE A 3" OVERLAP ON ALL 18" WIDE ROLLS. THIS ALLOWS FOR SHRINKAGE OF THE SOD.

FOR PIPE ARCHES USE EQUIVALENT PIPE DIAMETER TO APPROXIMATE AREA.

FOR CORRUGATED POLYETHYLENE PIPE METAL APRON (PLATE 3129), USE THE METAL APRON COLUMN (PLATE 3123).

AREAS AND DIMENSIONS ARE APPROXIMATE AND ARE BASED ON APRON SIDE SLOPES OF NO STEEPER THAN 1:2, UNLESS INDICATED AS FOR SAFETY APRONS.

CARE SHOULD BE TAKEN IN SELECTING SOD TO STABILIZE THE APRON. RIP-RAP SHOULD BE USED FOR FLOW VELOCITIES GREATER THAN 6 FPS.

(1) ADDITIONAL QUANTITIES MAY BE SHOWN IN THE PLAN OR REQUIRED BY THE ENGINEER.

(2) FOR ARCH PIPE USE CLOSEST CIRCULAR PIPE DIAMETER AND APRON SLOPE. (DIAMETERS LARGER THAN 72" REQUIRE SPECIAL DESIGNS.)

REVISION:

APPROVED: 2-28-2017

CHIEF ENVIRONMENTAL OFFICER

MINNESOTA DEPARTMENT OF TRANSPORTATION

STATE DESIGN ENGINEER

REVISED:

APPROVED: 2-28-2017

PERMANENT EROSION CONTROL

TURF ESTABLISHMENT DETAIL AT CULVERT ENDS

STANDARD PLAN 5-297.404 | 2 OF 3

S.A.P. 062-593-006 | SHEET NO 9 OF 115 SHEETS

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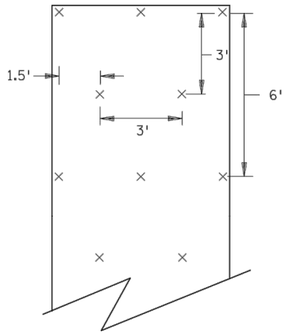
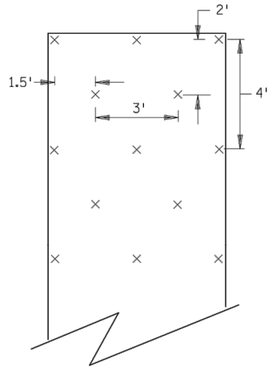
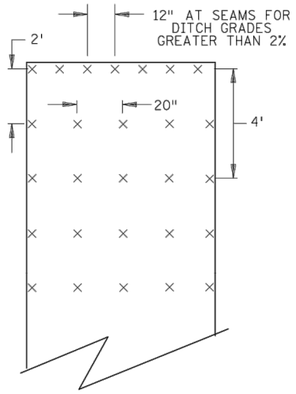


SLOPES FLATTER THAN 1:2
(120 STAPLES PER 100 SQ YD)

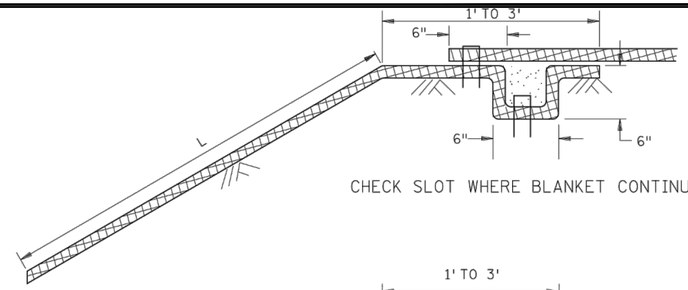


SLOPES 1:2 TO 1:1
(170 STAPLES PER 100 SQ YD)

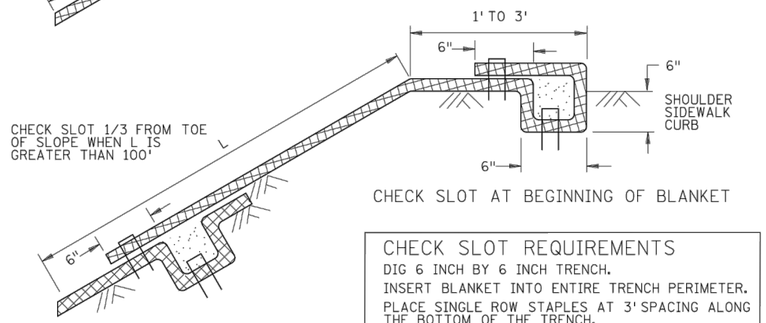
BLANKET STAPLE PATTERN



CHANNEL AND DITCH APPLICATIONS
(350 STAPLES PER 100 SQ YD)



CHECK SLOT WHERE BLANKET CONTINUES



CHECK SLOT AT BEGINNING OF BLANKET

CHECK SLOT REQUIREMENTS

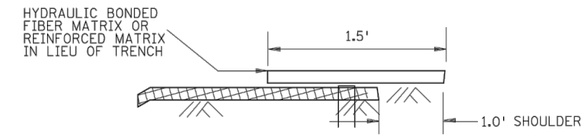
DIG 6 INCH BY 6 INCH TRENCH.

INSERT BLANKET INTO ENTIRE TRENCH PERIMETER.

PLACE SINGLE ROW STAPLES AT 3' SPACING ALONG THE BOTTOM OF THE TRENCH.

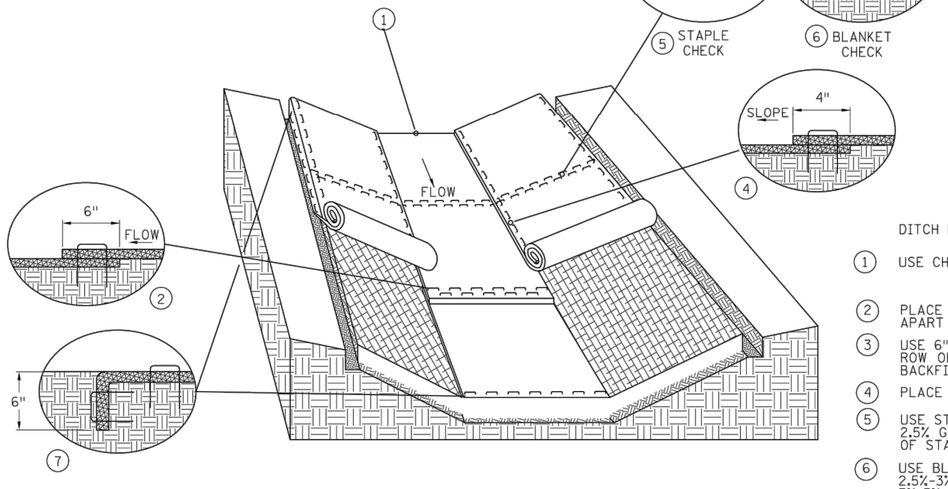
BACKFILL TRENCH WITH SOIL AND TAMP.

PLACE SINGLE ROW STAPLES AT 3' SPACING ON OVERLAP.

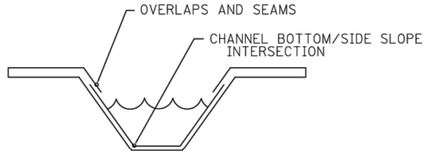


CHECK SLOT ALTERNATIVE
PLACE SINGLE ROW STAPLES AT 12" SPACING

CHECK SLOT DETAILS



DITCH BLANKET STAPLE DETAIL



DITCH BLANKET CRITICAL POINTS (7)

DITCH BLANKET STAPLE DETAIL NOTES

(1) USE CHECK SLOT DETAIL (NO ALTERNATES).

(2) PLACE DOUBLE ROW OF STAPLES STAGGERED 4" APART AND 4" ON CENTER.

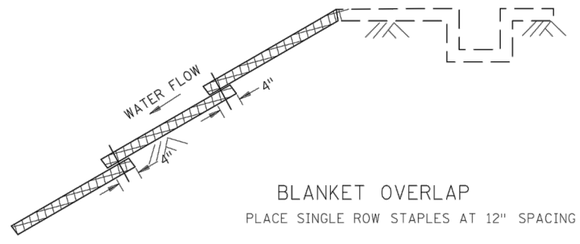
(3) USE 6" X 6" TRENCH TO PLACE BLANKET. PLACE SINGLE ROW OF STAPLES ON TOP AND TRENCH SIDES AT 12" SPACING. BACKFILL TRENCH WITH SOIL AND TAMP.

(4) PLACE SINGLE ROW OF STAPLES AT 12" SPACING.

(5) USE STAPLE CHECK FOR CHANNEL SLOPES LESS THAN 2.5% GRADE AT 100 FOOT INTERVALS. PLACE DOUBLE ROW OF STAPLES STAGGERED 4" APART AND AT 4" SPACING.

(6) USE BLANKET CHECKS FOR THE FOLLOWING SLOPES:
2.5%-3% 100 FT INTERVALS
3%-5% 50 FT INTERVALS
5%-7% 25 FT INTERVALS

(7) CRITICAL POINTS SHALL BE SECURED WITH PROPER STAPLE PATTERNS.



BLANKET OVERLAP
PLACE SINGLE ROW STAPLES AT 12" SPACING

GENERAL BLANKET INSTALLATION REQUIREMENTS

PREPARE SOIL AS PER SPECIFICATION 2574.

LAY PARALLEL OR PERPENDICULAR TO THE DIRECTION OF WATER FLOW.

OVERLAP ADJACENT STRIP EDGES A MINIMUM OF 4 INCHES.

OVERLAP BLANKET 6" (MIN.) AT EACH END. OVERLAP BOTTOM END OF UPPER BLANKET OVER TOP END OF LOWER BLANKET. STAPLE ALONG OVERLAP EVERY 1.5'.

THE UPPERMOST BLANKET OF ALL SLOPE APPLICATIONS MUST START IN A CHECK SLOT. IF SLOPE LENGTH (L) IS 100' OR GREATER, INSERT BLANKET INTO A CHECK SLOT 1/3 FROM THE BOTTOM OF THE SLOPE.

REVISION:

APPROVED: 2-28-2017
CHIEF ENVIRONMENTAL OFFICER

MINNESOTA DEPARTMENT OF TRANSPORTATION

STATE DESIGN ENGINEER

REVISED:

APPROVED: 2-28-2017

PERMANENT EROSION CONTROL
BLANKET STAPLE PATTERN FOR SLOPES

STANDARD PLAN 5-297.404 | 3 OF 3

S.A.P. 062-593-006 SHEET NO 10 OF 115 SHEETS

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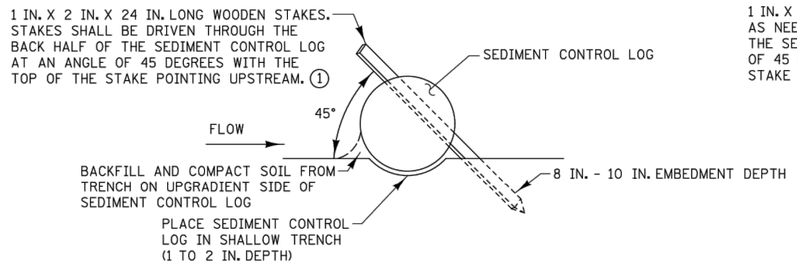
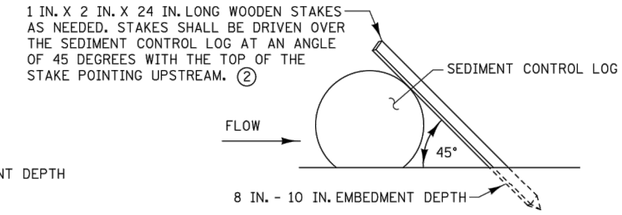
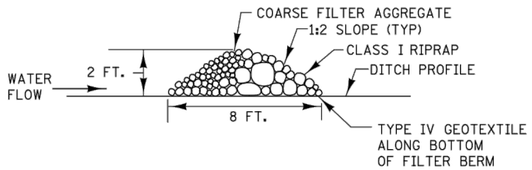


TYPES: STRAW, WOOD FIBER, OR COIR

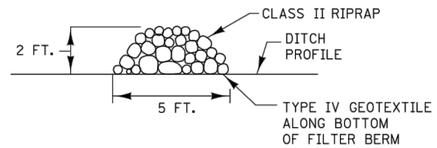


TYPES: WOOD CHIP, COMPOST, OR ROCK

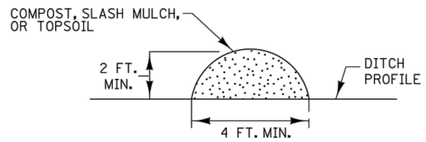
SEDIMENT CONTROL LOGS



TYPE 3 (ROCK WEEPER)

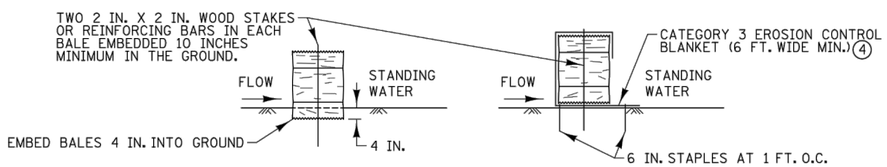


TYPE 5 (ROCK)



TYPE 1 (COMPOST), TYPE 2 (SLASH MULCH), OR TYPE 4 (TOPSOIL)

FILTER BERMS



EMBEDMENT METHOD

BLANKET METHOD (ALTERNATE)

BALE BARRIERS (3)

NOTES:

SEE SPECS. 2573, 3149, 3874, 3882, 3886, & 3897.

(1) SPACE BETWEEN STAKES SHALL BE A MAXIMUM OF 1 FOOT FOR DITCH CHECKS OR 2 FEET FOR OTHER APPLICATIONS.

(2) PLACE STAKES AS NEEDED TO PREVENT MOVEMENT OF SEDIMENT CONTROL LOGS PLACED ON SLOPES OR AS NEEDED DUE TO OTHER FACTORS. STAKES SHALL BE INCIDENTAL.

(3) TO BE USED FOR CRITICAL PERIMETER CONTROL AREAS WHERE STANDING WATER OCCURS (6 INCH MAX. DEPTH). BALES SHALL CONSIST OF TYPE 1 MULCH OF APPROXIMATELY 14 IN. X 18 IN. X 36 IN. LONG. BALES SHALL BE PLACED ON EDGE AND BUTTED TIGHT TO ADJACENT BALES.

(4) INSTEAD OF TRENCHING, PLACE BALE ON THE BLANKET AND WRAP BLANKET AROUND THE BALE. PLACE STAKE THROUGH BALE AND BLANKET.

REVISION:

APPROVED: 2-28-2017

CHIEF ENVIRONMENTAL OFFICER

MINNESOTA DEPARTMENT OF TRANSPORTATION

STATE DESIGN ENGINEER

REVISED:

APPROVED: 2-28-2017

TEMPORARY SEDIMENT CONTROL
FILTER BERMS, SEDIMENT CONTROL LOGS, AND BALE BARRIERS

STANDARD PLAN 5-297.405 | 2 OF 8

S.A.P. 062-593-006 | SHEET NO 11 OF 115 SHEETS

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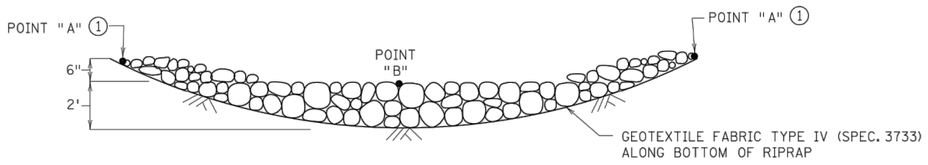
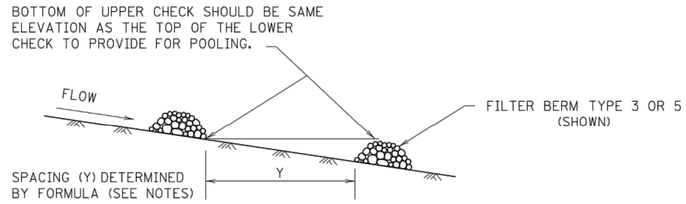


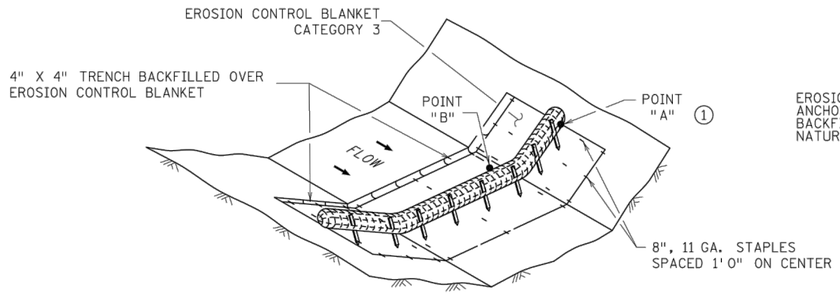
ROCK DITCH CHECKS
FILTER BERMS TYPE 3 (ROCK WEEPER) OR FILTER TYPE 5 (ROCK) ②③

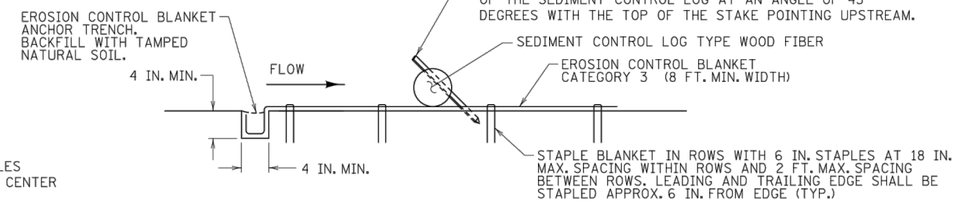
(FOR USE ON ROUGH GRADED AREAS)



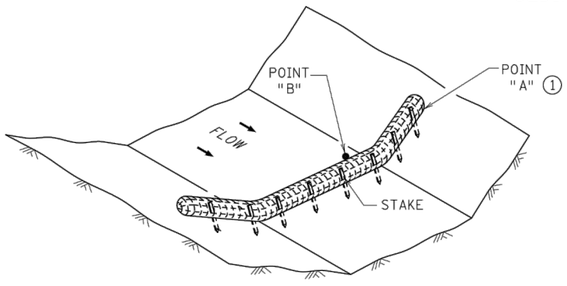
DITCH CHECK SPACING

(FOR ALL FILTER BERM TYPES)





SEDIMENT CONTROL LOG TYPE BLANKET SYSTEM ④



SEDIMENT CONTROL LOG TYPE WOOD FIBER, OR TYPE COMPOST ⑤

(FOR USE ON ROUGH GRADED AREAS)

NOTES:

SEE SPECS. 2573, 3601, 3733, 3885, 3886 & 3889.

FOR DITCH CHECKS, PLACE SEDIMENT CONTROL LOG PERPENDICULAR TO FLOW AND IN A CRESCENT SHAPE WITH THE ENDS FACING UPSTREAM.

APPROXIMATE SPACING BETWEEN EACH DITCH CHECK SHOULD BE DETERMINED FROM THE FOLLOWING SPACING FORMULA:

$$\text{APPROXIMATE SPACING OF DITCH CHECKS (FT.)} = Y = \frac{\text{DITCH CHECK HEIGHT (FT)}}{\text{\% CHANNEL SLOPE}} \times 100$$

① POINT "A" MUST BE A MINIMUM OF 6 INCHES HIGHER THAN POINT "B" TO ENSURE THAT WATER FLOWS OVER THE DIKE AND NOT AROUND THE ENDS.

② PERMANENT ROCK DITCH CHECKS PLACED WITHIN THE CLEAR ZONE ARE TO BE 18" OR LESS IN HEIGHT. A 1:6 APPROACH AND DEPARTURE SLOPE SHALL BE PROVIDED.

③ DITCH GRADE 3% - 5%, MAX. FLOW VELOCITY 12 FT./SEC..

④ DITCH GRADE 1.5% - 3%, MAX. FLOW VELOCITY 4.5 FT./SEC..

⑤ DITCH GRADE 1.5% - 3%, MAX. FLOW VELOCITY 1.5 FT./SEC..

REVISION:

APPROVED: 2-28-2017

CHIEF ENVIRONMENTAL OFFICER

MINNESOTA DEPARTMENT OF TRANSPORTATION

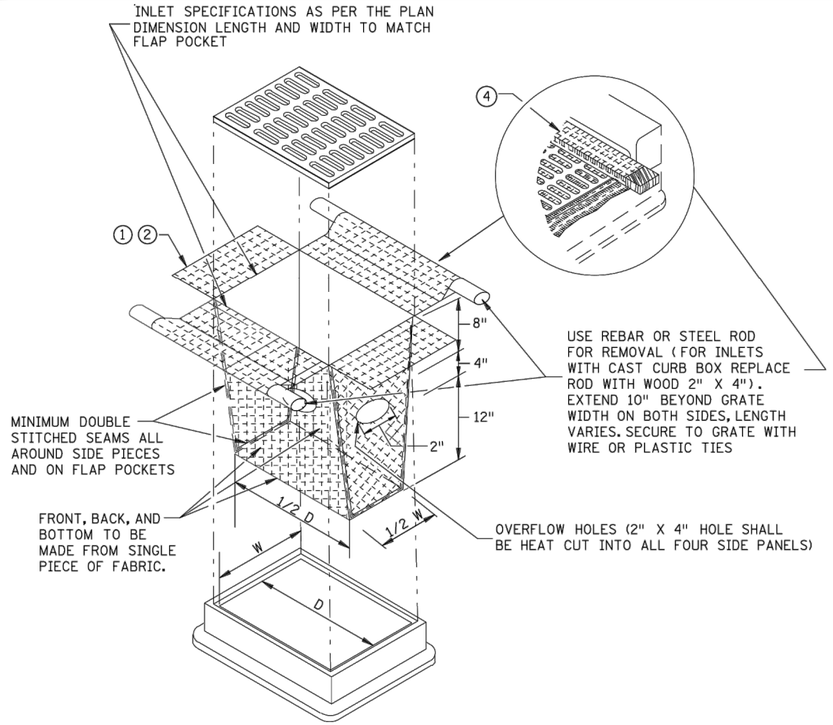
STATE DESIGN ENGINEER

REVISED:

APPROVED: 2-28-2017

TEMPORARY SEDIMENT CONTROL
DITCH CHECK

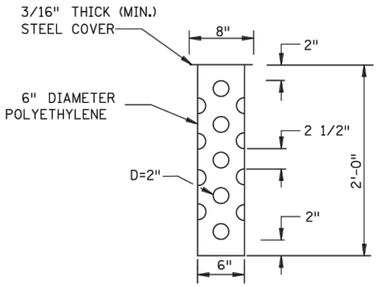
STANDARD PLAN 5-297.405 | 3 OF 8



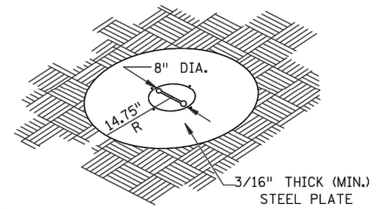
FILTER BAG INSERT ③

(CAN BE INSTALLED IN ANY INLET TYPE
WITH OR WITHOUT A CURB BOX)

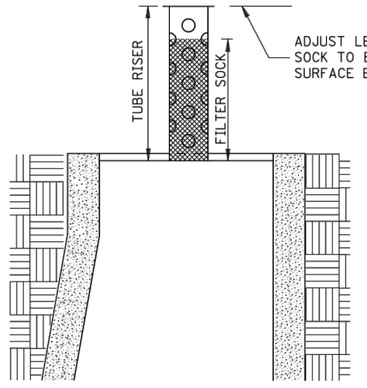
ROCK LOG/COMPOST LOG



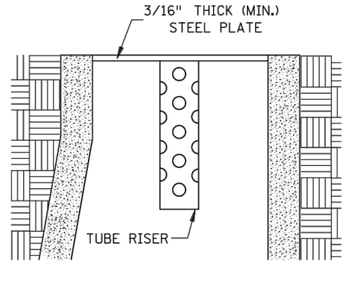
TUBE RISER



PERSPECTIVE VIEW



SECTION
(UP POSITION)



SECTION
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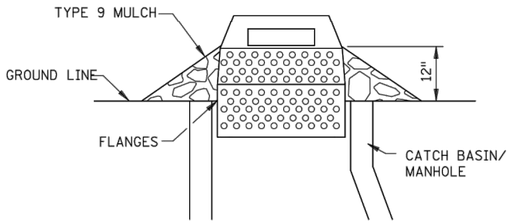
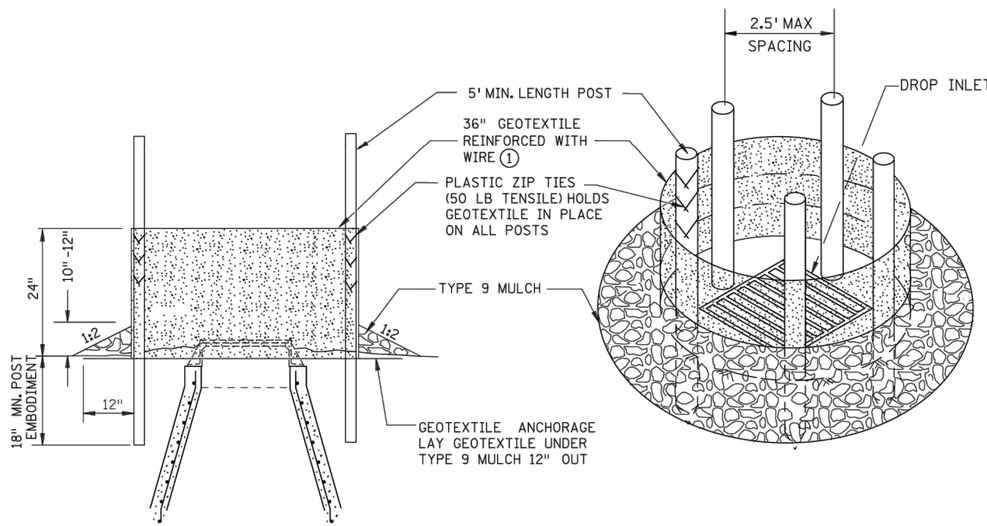


SEDIMENT CONTROL INLET HAT

NOTE:
THE SEDIMENT CONTROL BARRIER SHALL BE A METAL OR PLASTIC/POLYETHYLENE RISER SIZED TO FIT INSIDE THE CATCH BASIN/MANHOLE; HAVE PERFORATIONS TO ALLOW FOR WATER INFILTRATION; HAVE AN OVERFLOW OPENING, FLANGES AND A LID/COVER.



SILT FENCE RING AND ROCK FILTER BERM

USE WHERE INLET DRAINS IN AN AREA WITH SLOPES AT 1:3 or LESS

POP-UP HEAD

NOTES:
SEE SPECS. 2573, 3137, & 3886.

DEVICES MUST BE ADJUSTED ACCORDINGLY AS TO NOT CAUSE FLOODING ON ROADWAY THAT WOULD IMPEED TRAFFIC FLOW.

1. ALL GEOTEXTILE USED FOR INLET PROTECTION SHALL BE MONOFILAMENT IN BOTH DIRECTIONS, MEETING SPEC. 3886.
2. FINISHED SIZE, INCLUDING POCKETS WHERE REQUIRED SHALL EXTEND A MINIMUM OF 10 INCHES AROUND THE PERIMETER TO FACILITATE MAINTENANCE OR REMOVAL.
3. INSTALLATION NOTES:
   DO NOT PLACE FILTER BAG INSERT IN INLETS SHALLOWER THAN 30 INCHES, MEASURED FROM THE BOTTOM OF THE INLET TO THE TOP OF THE GRATE. THE PLACED BAG SHALL HAVE A MINIMUM SIDE CLEARANCE OF 3 INCHES BETWEEN THE INLET WALLS AND THE BAG, MEASURED AT THE BOTTOM OF THE OVERFLOW HOLES. WHERE NECESSARY THE CONTRACTOR SHALL CLINCH THE BAG, USING PLASTIC ZIP TIES, TO ACHIEVE THE 3 INCH SIDE CLEARANCE.
4. FLAP POCKETS SHALL BE LARGE ENOUGH TO ACCEPT WOOD 2 INCH X 4 INCH OR USE A ROCK SOCK OR SAND BAGS IN PLACE OF THE FLAP POCKETS.
5. SOCK HEIGHT MUST NOT BE SO HIGH AS TO SLOW DOWN WATER FILTRATION TO CAUSE FLOODING OF THE ROADWAY.
6. GEOTEXTILE SOCK BETWEEN 4-10 FEET LONG AND 4-6 INCH DIAMETER. SEAM TO BE JOINED BY TWO ROWS OF STITCHING WITH A PLASTIC MESH BACKING OR PROVIDE A HEAT BONDED SEAM (OR APPROVED EQUIVALENT). FILL ROCK LOG WITH OPEN GRADED AGGREGATE CONSISTING OF SOUND DURABLE PARTICLES OF COARSE AGGREGATE CONFORMING TO SPEC. 3137 TABLE 3137-1; CA-3 GRADATION.

REVISION:

APPROVED: 2-28-2017

CHIEF ENVIRONMENTAL OFFICER

MINNESOTA DEPARTMENT OF TRANSPORTATION

STATE DESIGN ENGINEER

REVISED:

APPROVED: 2-28-2017

TEMPORARY SEDIMENT CONTROL
STORM DRAIN INLET PROTECTION

STANDARD PLAN 5-297.405 | 4 OF 8

S.A.P. 062-593-006 SHEET NO 13 OF 115 SHEETS

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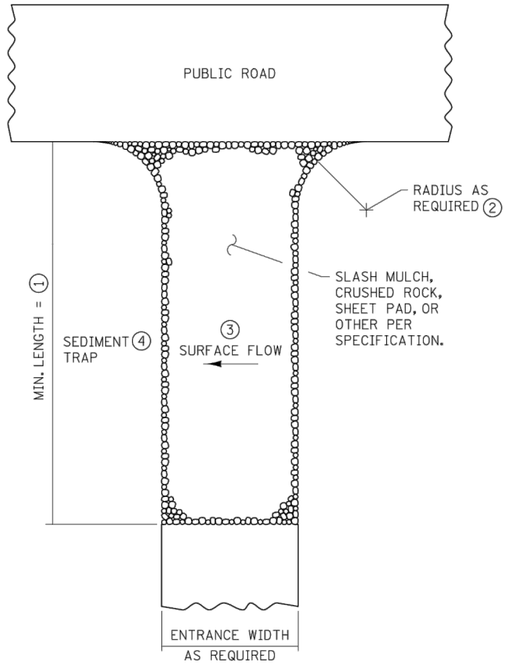
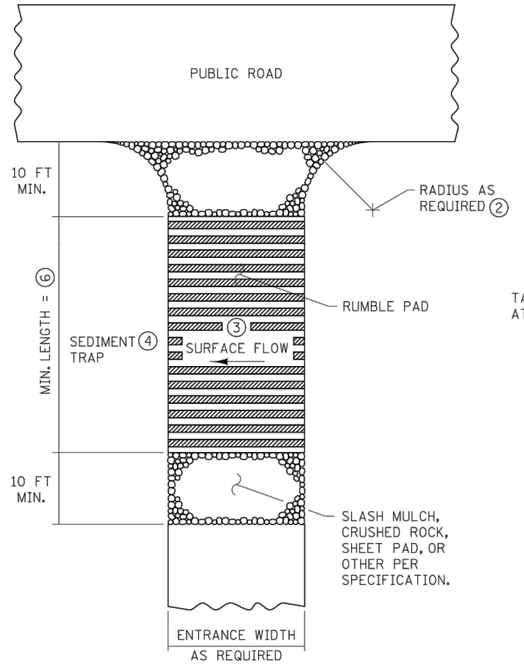
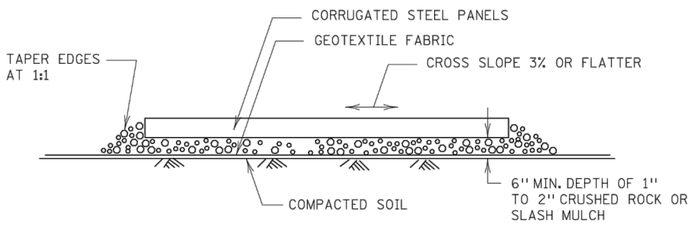


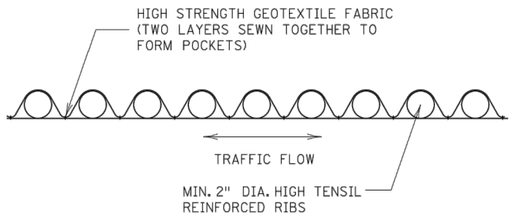
SLASH MULCH, CRUSHED ROCK, OR SHEET PAD CONSTRUCTION EXIT ⑤⑦



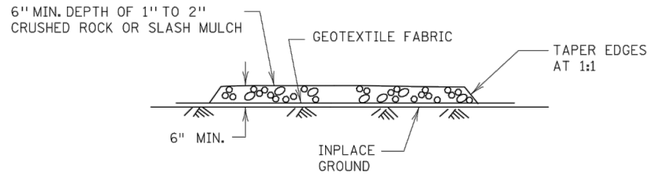
RUMBLE PAD CONSTRUCTION EXIT ⑤⑦



RUMBLE PAD



SHEET PAD



SLASH MULCH OR CRUSHED ROCK

NOTES:

SEE SPECS. 2573 & 3882.

(1) MINIMUM LENGTH SHALL BE THE GREATER OF 50 FEET OR A LENGTH SUFFICIENT TO ALLOW A MINIMUM OF 5 TIRE ROTATIONS ON THE PROVIDED PAD. MINIMUM LENGTH SHALL BE CALCULATED USING THE LARGEST TIRE WHICH WILL BE USED IN TYPICAL OPERATIONS.

(2) PROVIDE RADIUS OR WIDEN PAD SUFFICIENTLY TO PREVENT VEHICLE TIRES FROM TRACKING OFF OF PAD WHEN LEAVING SITE.

(3) IF RUNOFF FROM DISTURBED AREAS FLOWS TOWARD CONSTRUCTION EXITS, PREVENT RUNOFF FROM DRAINING DIRECTLY TO PUBLIC ROAD OVER CONSTRUCTION EXIT BY CROWNING THE EXIT OR SLOPING TO ONE SIDE. IF SURFACE GRADING IS INSUFFICIENT, PROVIDE OTHER MEANS OF INTERCEPTING RUNOFF.

(4) IF RUNOFF FROM CONSTRUCTION EXITS WILL DRAIN OFF OF PROJECT SITE, PROVIDE SEDIMENT TRAP WITH STABILIZED OVERFLOW.

(5) IF A TIRE WASH OFF IS REQUIRED THE CONSTRUCTION EXITS SHALL BE GRADED TO DRAIN THE WASH WATER TO A SEDIMENT TRAP.

(6) MINIMUM LENGTH OF RUMBLE PAD SHALL BE 20 FEET, OR AS REQUIRED TO REMOVE SEDIMENT FROM TIRES. IF SIGNIFICANT SEDIMENT IS TRACKED FROM THE SITE, THE RUMBLE PAD SHALL BE LENGTHENED OR THE DESIGN MODIFIED TO PROVIDE ADDITIONAL VIBRATION. WASH-OFF LENGTH SHALL BE AS REQUIRED TO EFFECTIVELY REMOVE CONSTRUCTION SEDIMENT FROM VEHICLE TIRES.

(7) MAINTENANCE OF CONSTRUCTION EXITS SHALL OCCUR WHEN THE EFFECTIVENESS OF SEDIMENT REMOVAL HAS BEEN REDUCED. MAINTENANCE SHALL CONSIST OF REMOVING SEDIMENT AND CLEANING THE MATERIALS OR PLACING ADDITIONAL MATERIAL (SLASH MULCH OR CRUSHED ROCK) OVER SEDIMENT FILLED MATERIAL TO RESTORE EFFECTIVENESS.

REVISION:

APPROVED: 2-28-2017

CHIEF ENVIRONMENTAL OFFICER

MINNESOTA DEPARTMENT OF TRANSPORTATION

STATE DESIGN ENGINEER

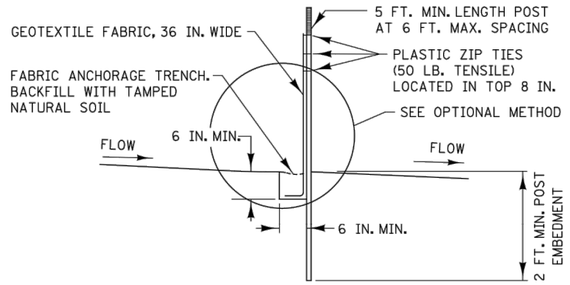
REVISED:

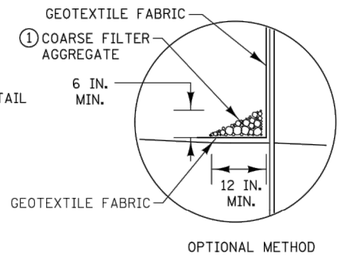
APPROVED: 2-28-2017

TEMPORARY SEDIMENT CONTROL

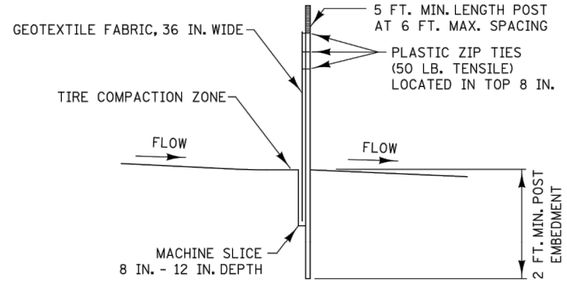
STABILIZED CONSTRUCTION EXIT

STANDARD PLAN 5-297.405 | 5 OF 8

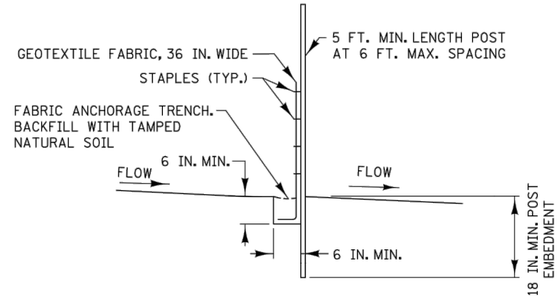




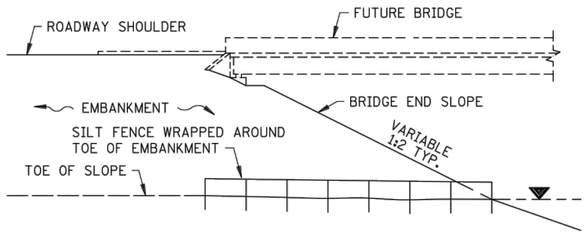
SILT FENCE TYPE HI ②
(HAND INSTALLED)



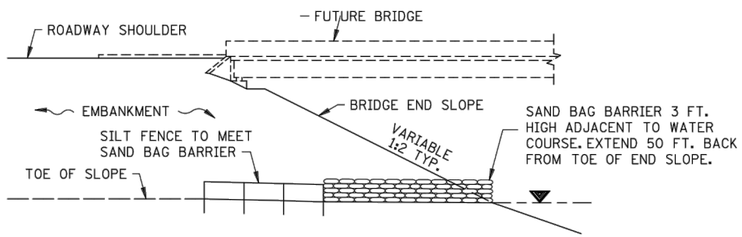
SILT FENCE TYPE MS ②
(MACHINE SLICED)



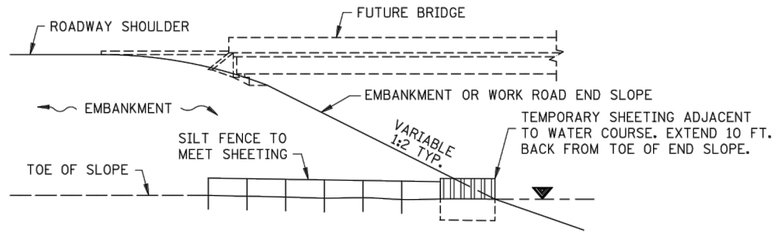
SILT FENCE TYPE PA ③
(PREASSEMBLED)



SILT FENCE ONLY ④

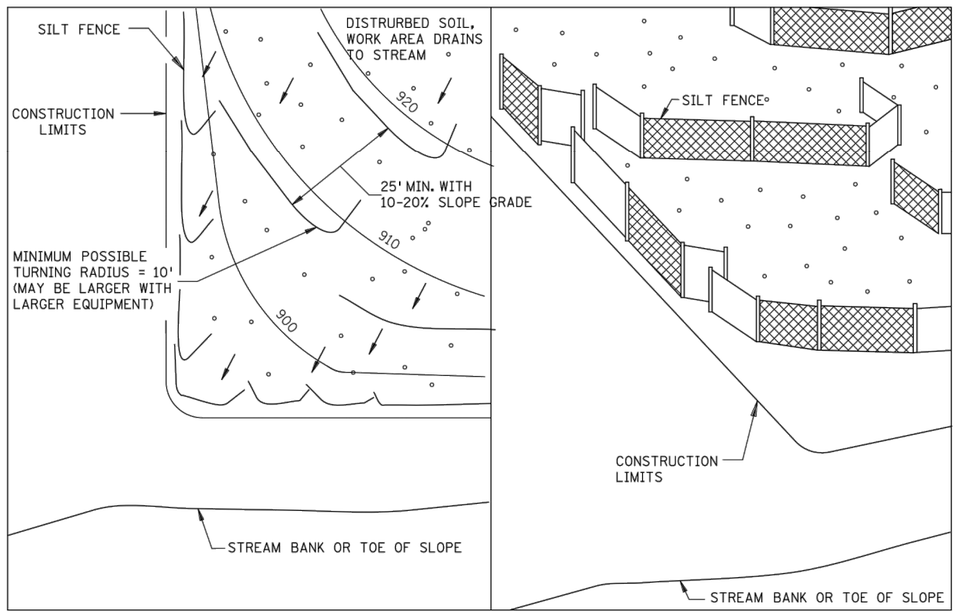


SILT FENCE WITH SAND BAGS ⑤



SILT FENCE WITH SHEETING ⑥

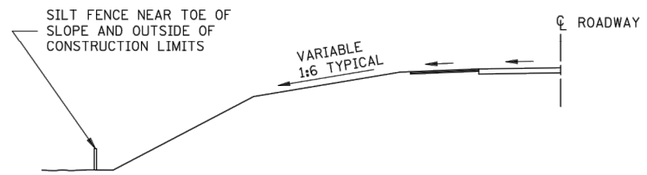
INSTALLATION AT BRIDGE EMBANKMENT ADJACENT TO WATER



PLAN VIEW

PERSPECTIVE VIEW

J-HOOK INSTALLATION



LOCATION AT TOE OF ROADWAY EMBANKMENT

NOTES:

SEE SPECS. 2573, 3149 & 3886.

① COARSE FILTER AGGREGATE (SPEC. 3149) SHALL BE INCIDENTAL.

② TO PROTECT AREAS FROM SHEET FLOW. MAXIMUM CONTRIBUTING AREA: 1 ACRE.

③ TO PROTECT AREAS FROM SHEET FLOW. MAXIMUM CONTRIBUTING AREA: 0.25 ACRE.

④ WATER COURSE FLOW VELOCITY: STANDING. CONTRIBUTING SLOPE AREA: 1./2 ACRE.

⑤ WATER COURSE FLOW VELOCITY: 1 TO 7 FT./SEC. CONTRIBUTING SLOPE AREA: 1. ACRE.

⑥ WATER COURSE FLOW VELOCITY: 8 TO 15 FT./SEC. CONTRIBUTING SLOPE AREA: 3 ACRES.

REVISION:

APPROVED: 2-28-2017

CHIEF ENVIRONMENTAL OFFICER

MINNESOTA DEPARTMENT OF TRANSPORTATION

STATE DESIGN ENGINEER

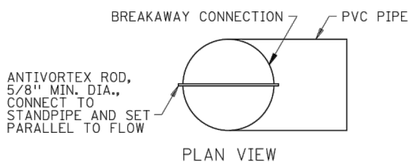
REVISED:

APPROVED: 2-28-2017

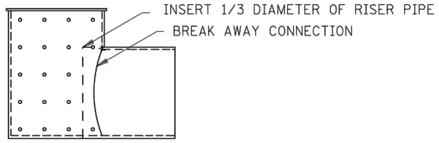
TEMPORARY SEDIMENT CONTROL
SILT FENCE

STANDARD PLAN 5-297.405 | 6 OF 8

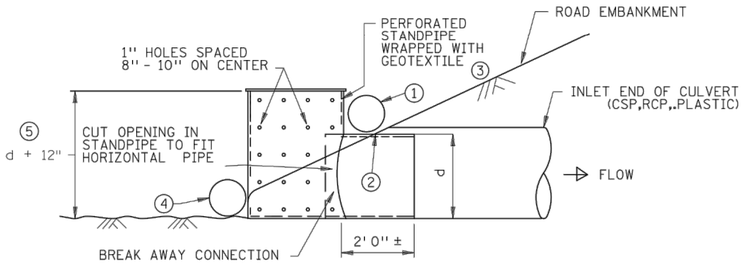
S.A.P. 062-593-006 | SHEET NO 15 OF 115 SHEETS



PLAN VIEW



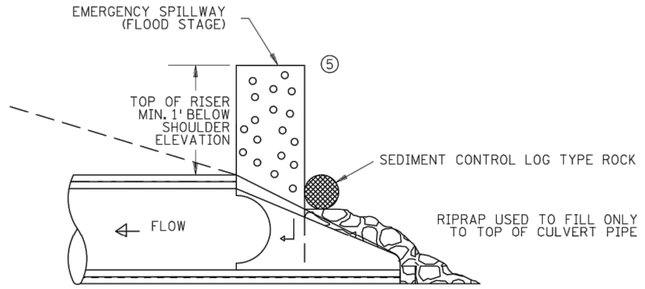
CULVERT STANDPIPE



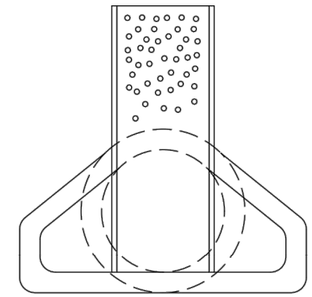
ELEVATION VIEW OF CULVERT INSTALLATION

CULVERT STANDPIPE INSERT (D-RISER)

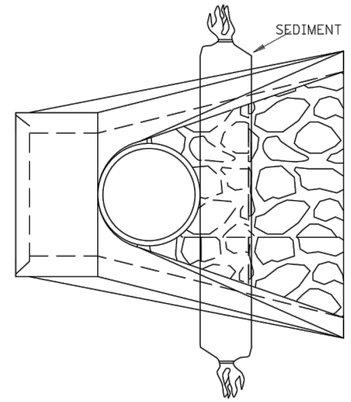
d= CULVERT SIZE: 12" - 36"



LONGITUDINAL SECTION



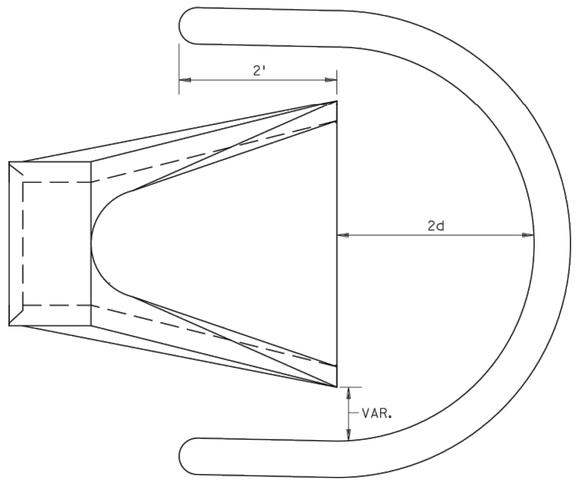
END VIEW



TOP VIEW

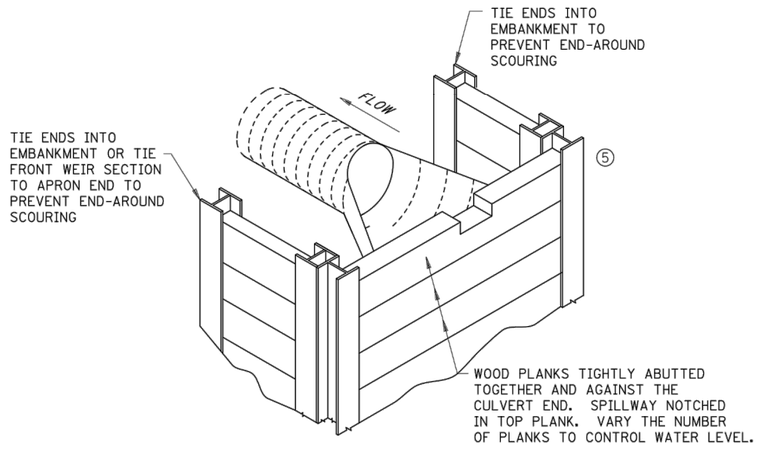
NOTE: SEDIMENT CONTROL LOG TYPE ROCK MAY BE WRAPPED AROUND RISER

CULVERT STANDPIPE INSERT (D-RISER)



SEDIMENT CONTROL LOG WEIR
(COMPOST, WOOD CHIP, OR ROCK)

d = CULVERT SIZE: 12"-36"



WOOD PLANK WEIR

NOTES:

SEE SPECS. 2573, 3891 & 3893.

FOR USE WHEN TEMPORARY PONDING IS NEEDED IN DITCH SECTIONS FOR SEDIMENT CONTROL.

MANUFACTURED ALTERNATIVES LISTED ON MnDOT'S APPROVED PRODUCTS LIST MAY BE SUBSTITUTED AT NO ADDITIONAL COST.

1. ROCK LOG OR SANDBAG TO HOLD STANDPIPE AND ACT AS A SEAL BETWEEN RISER PIPE AND CULVERT.
2. PLACE CULVERT APRON AND SLIDE TEMPORARY STANDPIPE INTO CSP OR RCP CULVERT.
3. ALL GEOTEXTILE USED FOR CULVERT PROTECTION SHALL BE MONOFILAMENT IN BOTH DIRECTIONS, MEETING SPEC. 3886 FOR MACHINE SLICED.
4. ROCK LOG OR RIP RAP TO HOLD STANDPIPE AND ACT AS A FILTER BETWEEN RISER PIPE AND CULVERT.
5. HEIGHT OVERFLOW NOT TO CAUSE FLOODING OF ROAD OR ADJACENT PROPERTIES.

REVISION:

APPROVED: 2-28-2017

CHIEF ENVIRONMENTAL OFFICER

MINNESOTA DEPARTMENT OF TRANSPORTATION

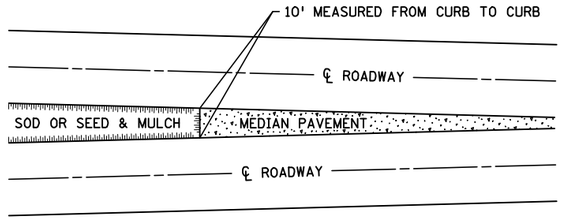
STATE DESIGN ENGINEER

REVISED:

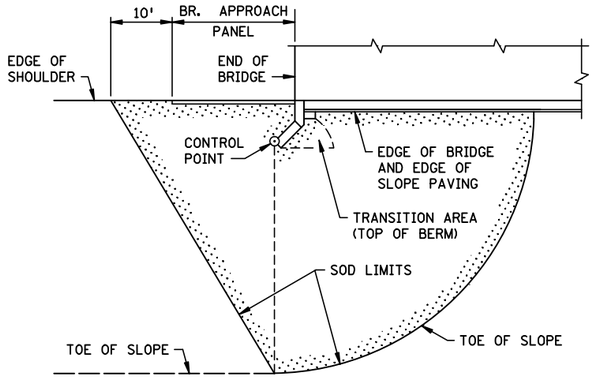
APPROVED: 2-28-2017

TEMPORARY SEDIMENT CONTROL
CULVERT END CONTROLS

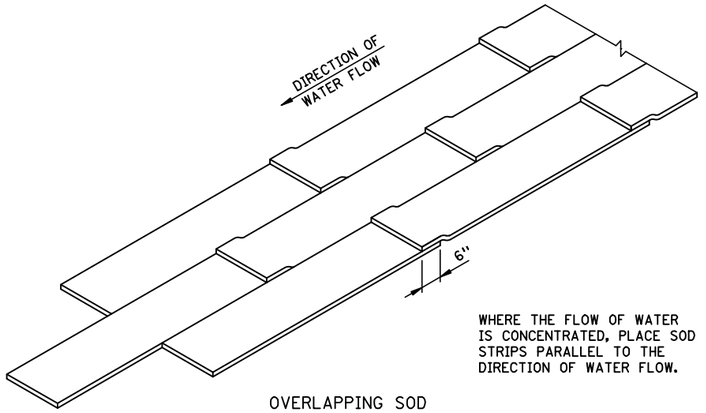
STANDARD PLAN 5-297.405 | 8 OF 8



SODDING LIMITS AT GORE AREA

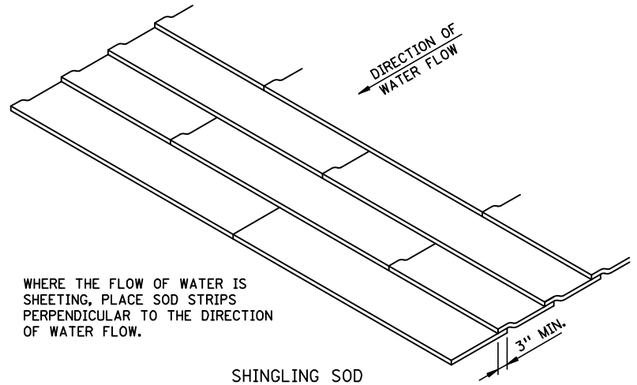


PLAN



WHERE THE FLOW OF WATER IS CONCENTRATED, PLACE SOD STRIPS PARALLEL TO THE DIRECTION OF WATER FLOW.

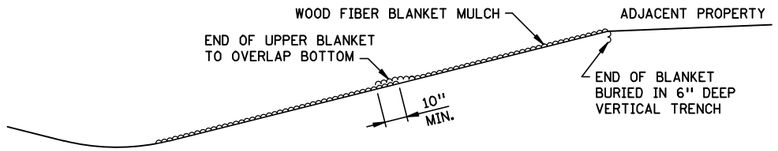
OVERLAPPING SOD



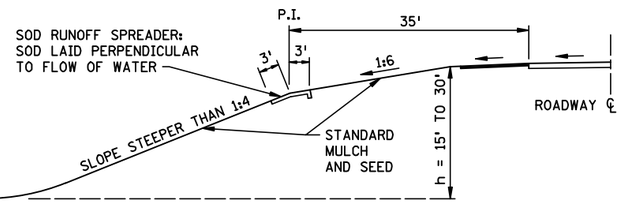
WHERE THE FLOW OF WATER IS SHEETING, PLACE SOD STRIPS PERPENDICULAR TO THE DIRECTION OF WATER FLOW.

SHINGLING SOD

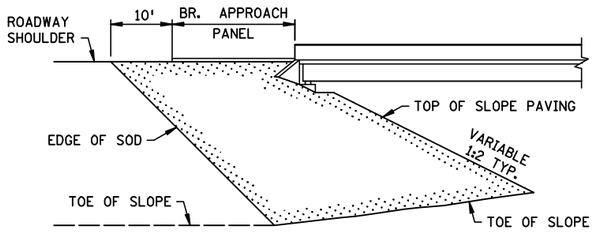
SPECIAL SOD PLACEMENT TECHNIQUES



WOOD FIBER BLANKET INSTALLATION ON A CUT SLOPE

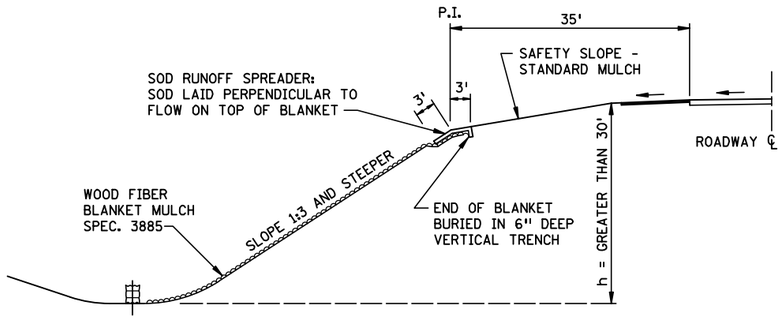


BROKEN-BACK SAFETY FILL SLOPE

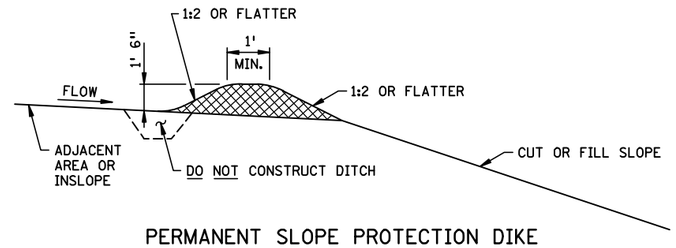


ELEVATION

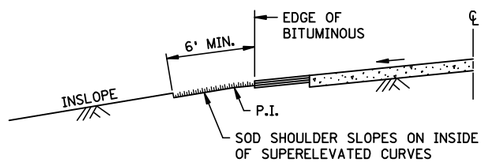
SODDING LIMITS AT BRIDGE APPROACH FILLS



WOOD FIBER BLANKET INSTALLATION ON AN INSLOPE
(WHEN REQUIRED)



PERMANENT SLOPE PROTECTION DIKE



SODDING INSLOPES OF SUPERELEVATED CURVES

REVISION:

APPROVED: 8-6-2014

CHIEF ENVIRONMENTAL OFFICER

REVISED:

APPROVED: 8-6-2014

STATE DESIGN ENGINEER

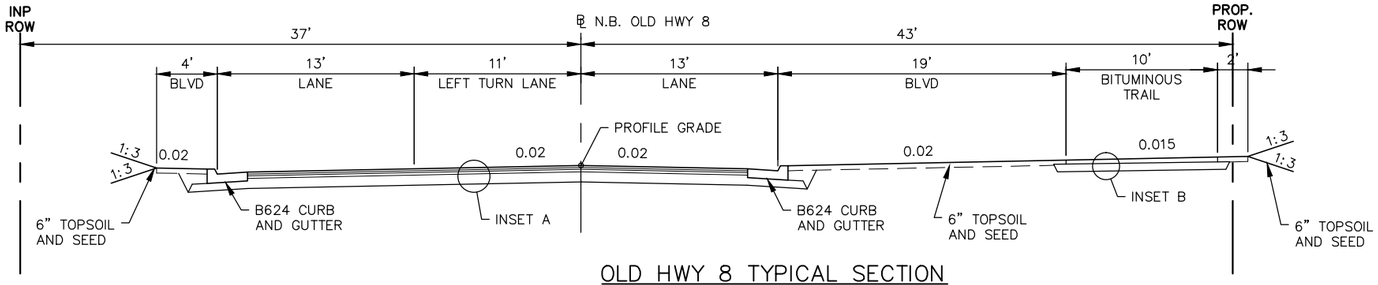
PERMANENT SEDIMENT CONTROL

ALONG ROADWAYS AND AT GORE AREAS & BRIDGE APPROACH FILLS

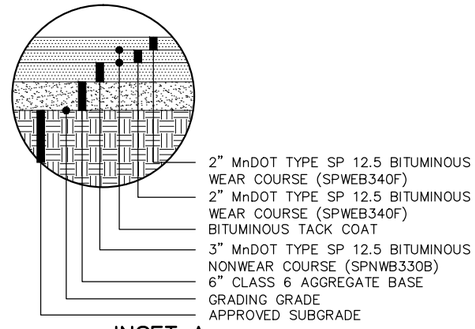
STANDARD PLAN 5-297.406 | 1 OF 1

S.A.P. 062–593–006 | SHEET NO 17 OF 115 SHEETS

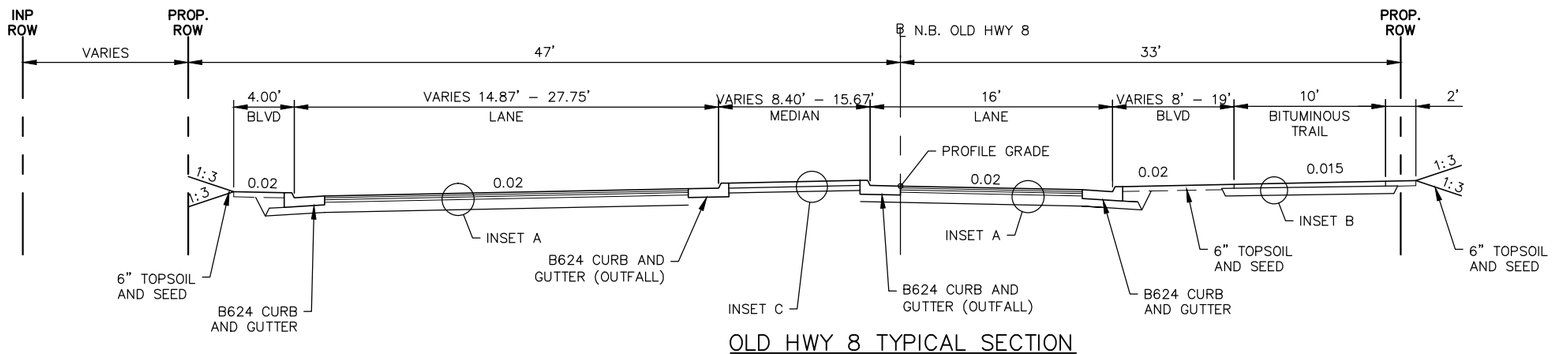
K:\TWC_Civil\County\RAMSEY\TCAAP Thumb Rd\CAD\Plan Sheets\Construction Plans\South\TCAAP_THUMB_STH_DT01.dwg April 25, 2017 – 10:08pm



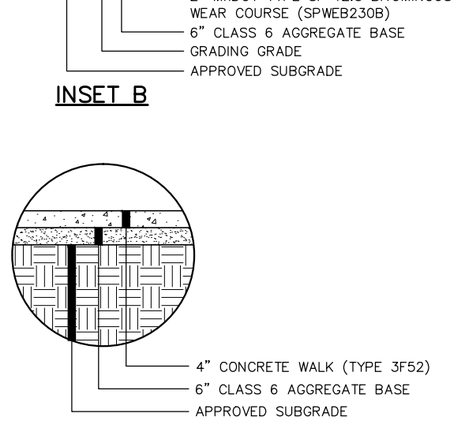
OLD HWY 8 TYPICAL SECTION
STA. 8+62.35 TO STA. 31+88.94



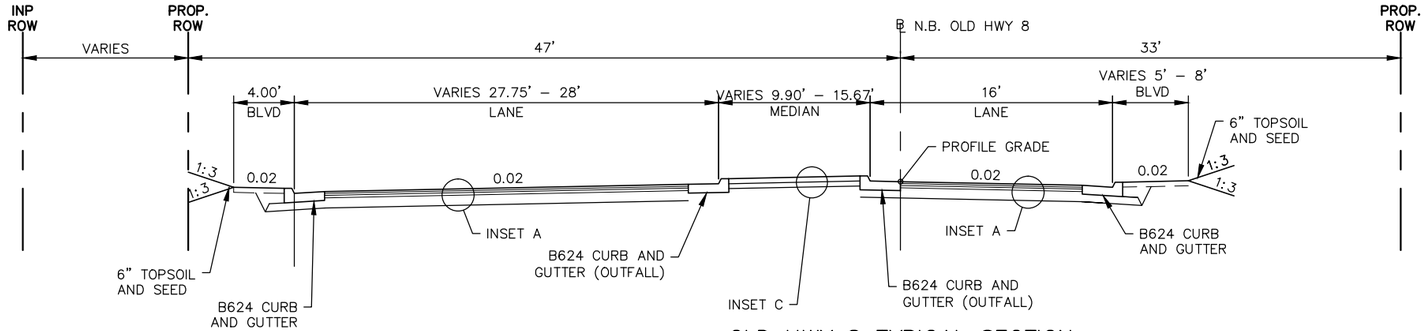
INSET A



OLD HWY 8 TYPICAL SECTION
STA. 6+68.00 TO STA. 8+62.35

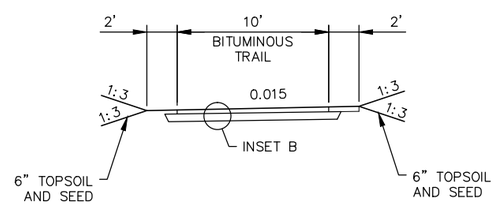


INSET B



OLD HWY 8 TYPICAL SECTION
STA. 4+51.77 TO STA. 6+68.00

INSET C



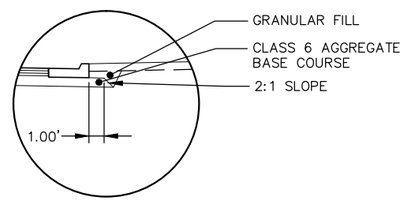
BITUMINOUS TRAIL TYPICAL SECTION
STA. 1+45.89 TO STA. 3+61.21

GENERAL NOTES:
NORMAL CROSS SLOPES ARE SHOWN (FT/FT) – FOR SUPERELEVATION TRANSITIONS SEE CONSTRUCTION PLAN

UNLESS OTHERWISE SPECIFIED, THE GRADING GRADE CROSS SLOPES SHALL BE THE SAME AS THE FINISHED SURFACE

SEE CROSS SECTIONS FOR VARIATIONS

TACK COAT TO BE APPLIED BETWEEN BITUMINOUS PAVEMENT LIFTS (INCIDENTAL)



CURB INSET DETAIL

No.	Date	Revisions	App.

DRAWING NAME	TCAAP_THUMB_STH_TYP.dwg
DESIGNED BY:	RJG
DRAWN BY:	RJG
CHECKED BY:	CBL
DATE:	4/20/17
PROJECT NO.	160553004

Kimley»Horn
2550 UNIVERSITY AVENUE WEST, SUITE 238N, ST, PAUL, MN 55114
PHONE: 651-645-4197
WWW.KIMLEY-HORN.COM

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

CHADD B. LARSON
DATE: 4/20/17 MN LIC. NO. 41864

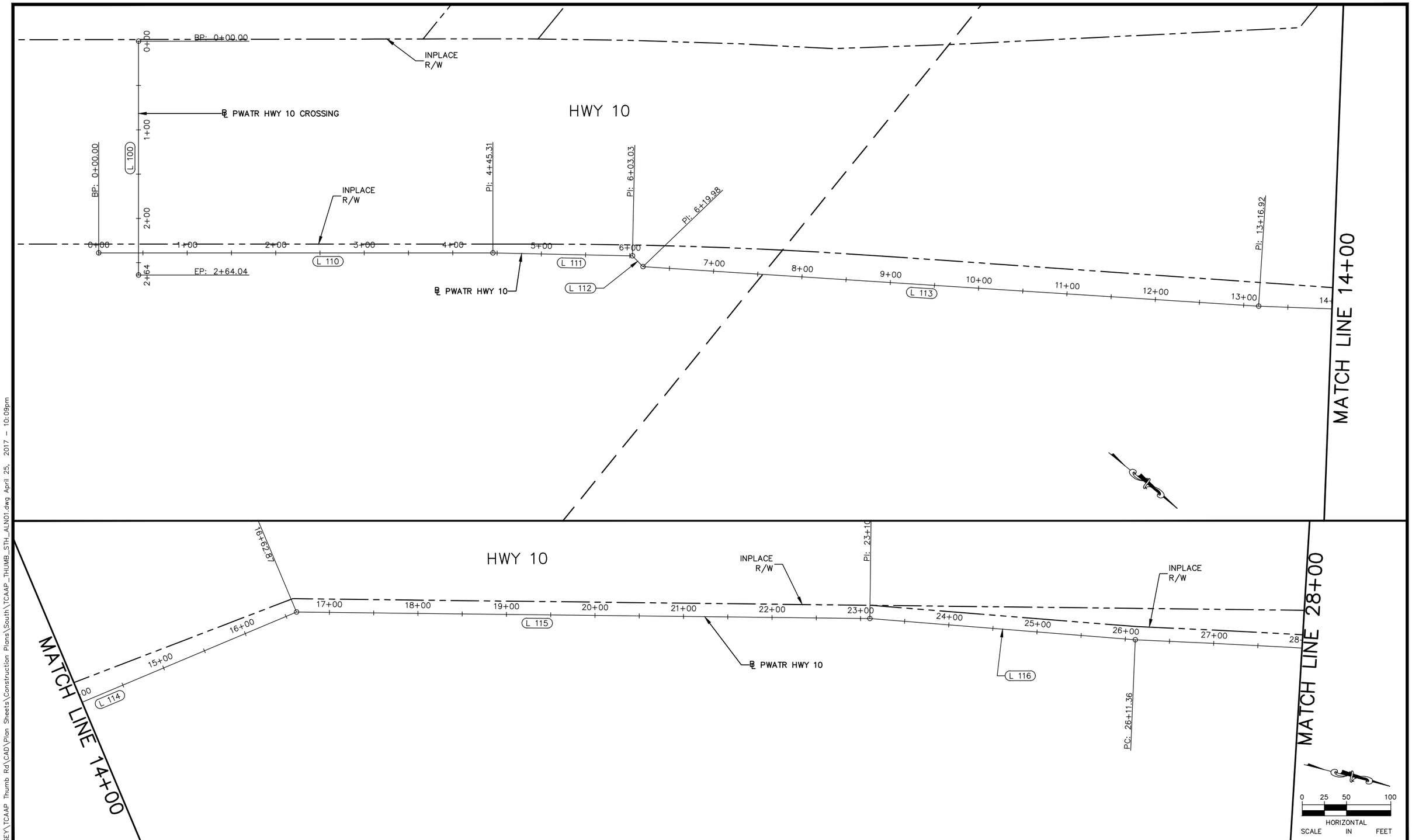
RAMSEY COUNTY
OLD HIGHWAY 8 EXTENSION CONSTRUCTION PROJECT

TYPICAL SECTIONS

COUNTY PROJECT	
S.A.P.	062-593-006
S.A.P.	
S.P.	

SHEET NO. 18 / 115

K:\TWC_Civil\County\RAMSEY\TCAAP Thumb Rd\CAD\Plan Sheets\Construction Plans\South\TCAAP_THUMB_STH_TYP.dwg April 25, 2017 - 10:08pm



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No.	Date	Revisions	App.

DRAWING NAME	TCAAP_THUMB_STH_ALN01.dwg
DESIGNED BY:	RJG
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CHECKED BY:	CBL
DATE:	4/20/17
PROJECT NO.	160553004

Kimley»Horn
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CHADD B. LARSON

DATE: 4/20/17 MN LIC. NO. 41864

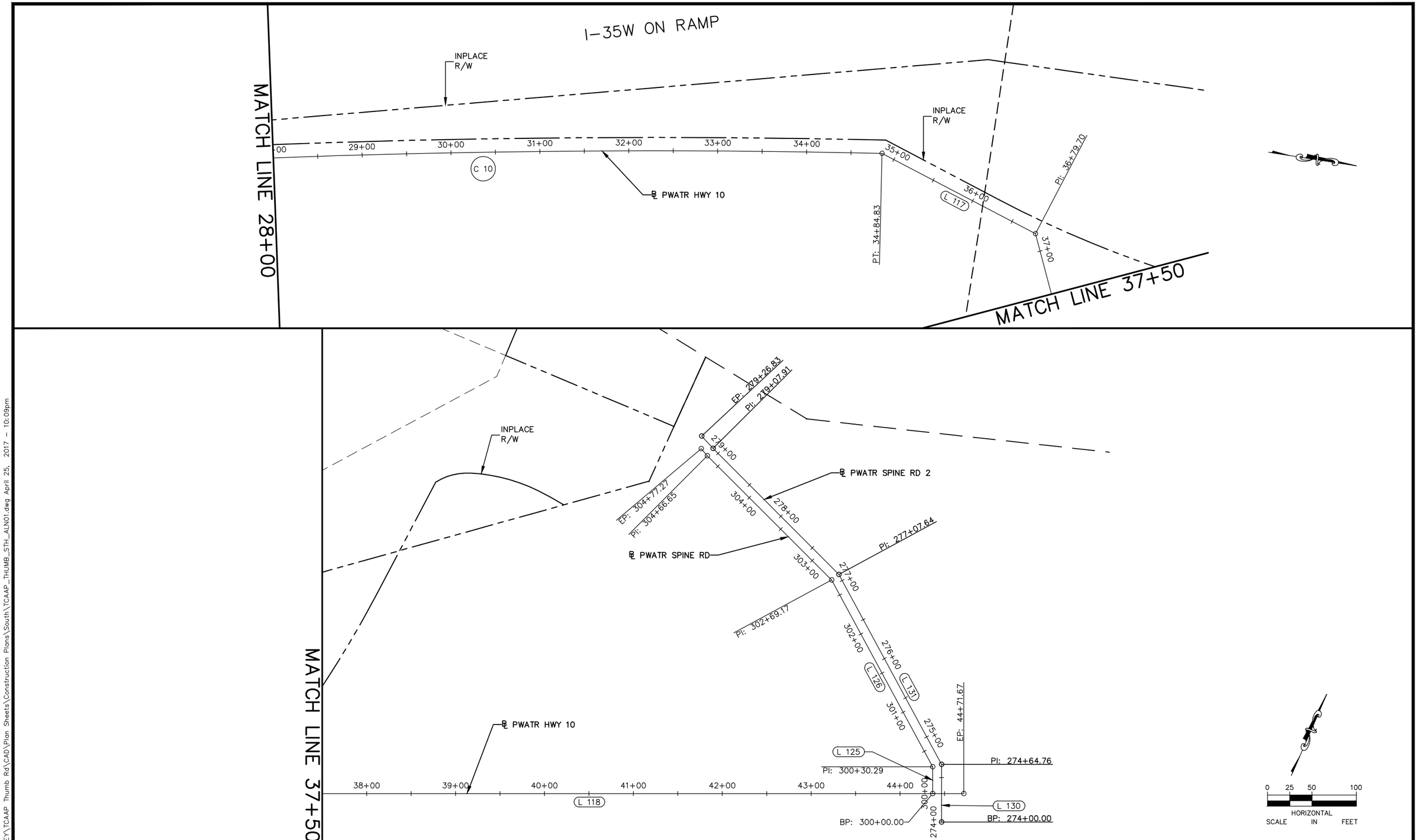
RAMSEY COUNTY

OLD HIGHWAY 8 EXTENSION CONSTRUCTION PROJECT

HIGHWAY 10 WATERMAIN ALIGNMENT PLAN
STA. 0+00 TO STA. 28+00

COUNTY PROJECT	
S.A.P.	062-593-006
S.A.P.	
S.P.	

SHEET NO. 19 / 115



No.	Date	Revisions	App.

DRAWING NAME	TCAAP_THUMB_STH_ALN01.dwg
DESIGNED BY:	RJG
DRAWN BY:	RJG
CHECKED BY:	CBL
DATE:	4/20/17
PROJECT NO.	160553004

Kimley»Horn
2550 UNIVERSITY AVENUE WEST, SUITE 238N, ST, PAUL, MN 55114
PHONE: 651-645-4197
WWW.KIMLEY-HORN.COM

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CHADD B. LARSON

DATE: 4/20/17 MN LIC. NO. 41864

RAMSEY COUNTY

OLD HIGHWAY 8 EXTENSION CONSTRUCTION PROJECT

HIGHWAY 10 WATERMAIN ALIGNMENT PLAN
STA. 28+00 TO STA. 45+00

COUNTY PROJECT	
S.A.P.	062-593-006
S.A.P.	
S.P.	

SHEET NO. 20 / 115

CO RD H

PC: 1+00.00

℄ OLD HWY 8 LIP CURB LT

℄ OLD HWY 8 MEDIAN LIP CURB LT

I-35W ON RAMP

EP: 5+26.61

INPLACE R/W

PROP. R/W

L 165 BP: 0+91.52

L 167

L 162

PI: 4+98.23

PI: 4+73.51

EP: 5+07.77

PT: 11+07.59

L 166

PT: 3+28.86

PT: 2+83.03

BP: 0+00.00

PI: 0+12.58

C 35

C 30

PC: 0+99.42

L 160

BP: 0+90.42

BP: 4+30.90

4+31

0+00

2+80

2+00

6+00

5+00

L 150

BEGIN CONSTRUCTION
SAP NO 062-593-006
STA. 4+51.77

PI: 0+61.07

L 136

L 141

PC: 4+52.38

L 135

1+00

℄ PWATR THUMB RD FUTR

L 137

1+80

2+00

L 140

PT: 1+41.13

PC: 2+94.85

PRC: 3+59.60

PC: 2+16.35

PT: 2+70.08

EP: 1+80.50

C 25

C 16

C 15

℄ NB OLD HWY 8 TRAIL CONNECTION

1+00

BP: 1+00.00

C 17

C 18

PT: 4+02.29

PT: 7+33.44

L 142

PC: 8+60.73

PC: 5+89.50

C 19

EP: 7+87.16

7+87

C 26

L 161

L 151

8+00

5+00

4+00

7+00

6+00

10+00

11+00

12+00

13+00

14+00

15+00

16+00

17+00

L 152

℄ NB OLD HWY 8

PROP. R/W

PROP. R/W

PC: 16+76.58

MATCH LINE 17+50

I-35W

℄ NB OLD HWY 8

INPLACE R/W

18+00

19+00

20+00

21+00

22+00

23+00

24+00

25+00

26+00

27+00

28+00

29+00

30+00

31+00

32+00

C 27

L 153

L 154

PT: 19+19.64

PC: 23+32.11

PT: 23+34.20

C 28

PROP. R/W

END
SAP NO 062-593-006
STA. 31+88.94

MATCH LINE 17+50

0 25 50 100

HORIZONTAL SCALE IN FEET

No.	Date	Revisions	App.

DRAWING NAME	TCAAP_THUMB_STH_ALN01.dwg
DESIGNED BY:	RJG
DRAWN BY:	RJG
CHECKED BY:	CBL
DATE:	4/20/17
PROJECT NO.	160553004

Kimley»Horn
2550 UNIVERSITY AVENUE WEST, SUITE 238N, ST, PAUL, MN 55114
PHONE: 651-645-4197
WWW.KIMLEY-HORN.COM

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CHADD B. LARSON

DATE: 4/20/17 MN LIC. NO. 41864

RAMSEY COUNTY

OLD HIGHWAY 8 EXTENSION
CONSTRUCTION PROJECT

OLD HIGHWAY 8
ALIGNMENT PLAN
STA. 3+50 TO STA. 31+88.94

COUNTY PROJECT	
S.A.P.	062-593-006
S.A.P.	
S.P.	

SHEET NO. 21

K:\TWC_Civil\County\RAMSEY\TCAAP Thumb Rd\CAD\Plan Sheets\Construction Plans\South\TCAAP_THUMB_STH_ALN01.dwg April 25, 2017 - 10:09pm

ALIGNMENT DATA
PWATR HWY 10 CROSSING

SEGMENT NUMBER	BEGINNING STATION	ENDING STATION	PI STATION	NOTES	DELTA	DEGREE	RADIUS (FT)	TANGENT (FT)	LENGTH (FT)	BEGINNING COORDINATES NORTHING	BEGINNING COORDINATES EASTING	ENDING COORDINATES NORTHING	ENDING COORDINATES EASTING	AZIMUTH
L 100	0+00.00	2+64.04							264.04	206985.23	551779.03	207151.98	551983.75	50°50'13"

ALIGNMENT DATA
PWATR HWY 10

SEGMENT NUMBER	BEGINNING STATION	ENDING STATION	PI STATION	NOTES	DELTA	DEGREE	RADIUS (FT)	TANGENT (FT)	LENGTH (FT)	BEGINNING COORDINATES NORTHING	BEGINNING COORDINATES EASTING	ENDING COORDINATES NORTHING	ENDING COORDINATES EASTING	AZIMUTH
L 110	0+00.00	4+45.31							445.31	207101.30	551992.79	207446.57	551711.56	320°50'13"
L 111	4+45.31	6+03.03							157.72	207446.57	551711.56	207570.91	551614.53	322°01'54"
L 112	6+03.03	6+19.98							16.95	207570.91	551614.53	207587.73	551616.60	7°01'54"
L 113	6+19.98	13+16.92							696.93	207587.73	551616.60	208155.14	551211.92	324°30'10"
L 114	13+16.92	16+62.87							345.96	208155.14	551211.92	208431.37	551003.64	322°59'01"
L 115	16+62.87	23+10.61							647.74	208431.37	551003.64	209061.11	550851.99	346°27'35"
L 116	23+10.61	26+11.36							300.75	209061.11	550851.99	209357.62	550801.68	350°22'18"
C 10	26+11.36	34+84.83	30+48.31		4°24'07"	0°30'14.27"	11369.00	436.95	873.47	209357.62	550801.68	210218.55	550655.48	348°09'40" 352°33'47"
L 117	34+84.83	36+79.70							194.86	210218.55	550655.48	210402.90	550718.63	18°54'30"
L 118	36+79.70	44+71.67							791.97	210402.90	550718.63	210719.18	551444.70	66°27'43"

ALIGNMENT DATA
PWATR SPINE RD

SEGMENT NUMBER	BEGINNING STATION	ENDING STATION	PI STATION	NOTES	DELTA	DEGREE	RADIUS (FT)	TANGENT (FT)	LENGTH (FT)	BEGINNING COORDINATES NORTHING	BEGINNING COORDINATES EASTING	ENDING COORDINATES NORTHING	ENDING COORDINATES EASTING	AZIMUTH
L 125	300+00.00	300+30.29							30.29	210705.21	551412.61	210732.97	551400.52	336°27'43"
L 126	300+30.29	302+69.17							238.88	210732.97	551400.52	210880.20	551212.39	308°02'47"

ALIGNMENT DATA
PWATR SPINE RD 2

SEGMENT NUMBER	BEGINNING STATION	ENDING STATION	PI STATION	NOTES	DELTA	DEGREE	RADIUS (FT)	TANGENT (FT)	LENGTH (FT)	BEGINNING COORDINATES NORTHING	BEGINNING COORDINATES EASTING	ENDING COORDINATES NORTHING	ENDING COORDINATES EASTING	AZIMUTH
L 130	274+00.00	274+64.76							64.76	210679.92	551434.54	210739.29	551408.68	336°27'43"
L 131	274+64.76	277+07.64							242.88	210739.29	551408.68	210888.97	551217.41	308°02'47"

No.	Date	Revisions	App.

DRAWING NAME: TCAAP_THUMB_STH_ALN01.dwg

DESIGNED BY:	RJG
DRAWN BY:	RJG
CHECKED BY:	CBL
DATE:	4/20/17
PROJECT NO.	160553004

Kimley»Horn
2550 UNIVERSITY AVENUE WEST, SUITE 238N, ST, PAUL, MN 55114
PHONE: 651-645-4197
WWW.KIMLEY-HORN.COM

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CHADD B. LARSON
DATE: 4/20/17 MN LIC. NO. 41864

RAMSEY COUNTY
OLD HIGHWAY 8 EXTENSION
CONSTRUCTION PROJECT

ALIGNMENT
TABULATION

COUNTY PROJECT	
S.A.P.	062-593-006
S.A.P.	
S.P.	

SHEET NO. 22

ALIGNMENT DATA
PWATR THUMB RD FUTR

SEGMENT NUMBER	BEGINNING STATION	ENDING STATION	PI STATION	NOTES	DELTA	DEGREE	RADIUS (FT)	TANGENT (FT)	LENGTH (FT)	BEGINNING COORDINATES NORTHING	BEGINNING COORDINATES EASTING	ENDING COORDINATES NORTHING	ENDING COORDINATES EASTING	AZIMUTH
L 135	0+00.00	0+12.58							12.58	211217.06	550878.89	211229.35	550881.63	12°34'15"
L 136	0+12.58	0+61.07							48.49	211229.35	550881.63	211250.86	550925.08	63°39'57"
L 137	0+61.07	1+80.50							119.42	211250.86	550925.08	211364.00	550963.31	18°39'57"

ALIGNMENT DATA
NB OLD HWY 8 TRAIL CONNECTION

SEGMENT NUMBER	BEGINNING STATION	ENDING STATION	PI STATION	NOTES	DELTA	DEGREE	RADIUS (FT)	TANGENT (FT)	LENGTH (FT)	BEGINNING COORDINATES NORTHING	BEGINNING COORDINATES EASTING	ENDING COORDINATES NORTHING	ENDING COORDINATES EASTING	AZIMUTH
C 15	1+00.00	1+41.13	1+20.83		22°26'42"	54°34'02.67"	105.00	20.83	41.13	211308.43	551086.12	211306.09	551045.32	255°29'25" 277°56'07"
L 140	1+41.13	2+16.35							75.21	211306.09	551045.32	211316.47	550970.82	277°56'07"
C 16	2+16.35	2+70.08	2+43.76		27°57'20"	52°01'35.59"	110.13	27.41	53.73	211316.47	550970.82	211336.33	550921.47	277°56'37" 305°53'58"
L 141	2+70.08	2+94.88							24.80	211336.33	550921.47	211351.12	550901.56	306°35'18"
C 17	2+94.88	3+59.60	3+27.69		23°10'44"	35°48'35.50"	160.00	32.81	64.73	211351.12	550901.56	211399.02	550858.69	306°35'18" 329°46'02"
C 18	3+59.60	4+02.29	3+80.98		8°22'26"	19°37'07.85"	292.04	21.38	42.68	211399.02	550858.69	211434.58	550835.15	330°40'37" 322°18'12"
L 142	4+02.29	5+89.50							187.22	211434.58	550835.15	211584.52	550723.03	323°12'47"
C 19	5+89.50	7+87.16	6+90.74		30°31'28"	15°26'36.98"	371.00	101.23	197.65	211584.52	550723.03	211766.22	550651.37	323°12'47" 353°44'16"

ALIGNMENT DATA
NB OLD HWY 8

SEGMENT NUMBER	BEGINNING STATION	ENDING STATION	PI STATION	NOTES	DELTA	DEGREE	RADIUS (FT)	TANGENT (FT)	LENGTH (FT)	BEGINNING COORDINATES NORTHING	BEGINNING COORDINATES EASTING	ENDING COORDINATES NORTHING	ENDING COORDINATES EASTING	AZIMUTH
L 150	4+30.90	4+52.38							21.48	211161.80	550885.60	211183.21	550887.31	4°33'46"
C 25	4+52.38	7+33.44	6+00.88		45°44'56"	16°16'37.96"	352.00	148.51	281.06	211183.21	550887.31	211443.01	550801.33	4°33'46" 318°48'51"
L 151	7+33.44	8+60.73							127.30	211443.01	550801.33	211538.81	550717.50	318°48'51"
C 26	8+60.73	11+07.59	9+88.13		34°55'24"	14°08'49.58"	405.00	127.40	246.86	211538.81	550717.50	211761.32	550619.71	318°48'51" 353°44'15"
L 152	11+07.59	16+76.58							568.99	211761.32	550619.71	212326.92	550557.65	353°44'15"
C 27	16+76.58	19+19.64	17+98.21		5°33'57"	2°17'24.00"	2502.00	121.62	243.05	212326.92	550557.65	212569.43	550542.90	353°44'15" 359°18'12"
L 153	19+19.64	23+32.11							412.48	212569.43	550542.90	212981.87	550537.89	359°18'12"
C 28	23+32.11	23+34.20	23+33.16		0°07'10"	5°42'44.79"	1003.00	1.05	2.09	212981.87	550537.89	212983.96	550537.86	359°18'12" 359°25'22"
L 154	23+34.20	36+95.76							1361.56	212983.96	550537.86	214345.45	550524.15	359°25'22"

No.	Date	Revisions	App.

DRAWING NAME	
TCAAP_THUMB_STH_ALN01.dwg	
DESIGNED BY:	RJG
DRAWN BY:	RJG
CHECKED BY:	CBL
DATE:	4/20/17
PROJECT NO.	160553004

Kimley»Horn
2550 UNIVERSITY AVENUE WEST, SUITE 238N, ST, PAUL, MN 55114
PHONE: 651-645-4197
WWW.KIMLEY-HORN.COM

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

CHADD B. LARSON
DATE: 4/20/17 MN LIC. NO. 41864

RAMSEY COUNTY
OLD HIGHWAY 8 EXTENSION
CONSTRUCTION PROJECT

ALIGNMENT
TABULATION

COUNTY PROJECT	
S.A.P.	062-593-006
S.A.P.	
S.P.	

SHEET NO. 23

ALIGNMENT DATA
OLD HWY 8 MEDIAN LIP CURB LT

SEGMENT NUMBER	BEGINNING STATION	ENDING STATION	PI STATION	NOTES	DELTA	DEGREE	RADIUS (FT)	TANGENT (FT)	LENGTH (FT)	BEGINNING COORDINATES NORTHING	BEGINNING COORDINATES EASTING	ENDING COORDINATES NORTHING	ENDING COORDINATES EASTING	AZIMUTH
L 160	0+90.42	0+99.42							8.99	211173.17	550872.18	211182.14	550872.78	3°51'51"
C 30	0+99.42	3+28.86	2+19.22		40°41'58"	17°44'18.23"	323.00	119.80	229.44	211182.14	550872.78	211397.44	550808.64	3°45'36" 323°03'38"
L 161	3+28.86	4+98.23							169.38	211397.44	550808.64	211532.82	550706.85	323°03'38"
L 162	4+98.23	5+26.61							28.37	211532.82	550706.85	211555.50	550689.80	323°03'38"

ALIGNMENT DATA
OLD HWY 8 LIP CURB LT

SEGMENT NUMBER	BEGINNING STATION	ENDING STATION	PI STATION	NOTES	DELTA	DEGREE	RADIUS (FT)	TANGENT (FT)	LENGTH (FT)	BEGINNING COORDINATES NORTHING	BEGINNING COORDINATES EASTING	ENDING COORDINATES NORTHING	ENDING COORDINATES EASTING	AZIMUTH
L 165	0+91.52	1+00.00							8.48	211177.09	550848.76	211185.54	550849.56	5°27'53"
C 35	1+00.00	2+83.03	1+95.02		37°59'44"	20°45'33.63"	276.00	95.02	183.03	211185.54	550849.56	211359.98	550806.43	5°06'29" 327°06'45"
L 166	2+83.03	4+73.51							190.48	211359.98	550806.43	211519.93	550703.00	327°06'45"
L 167	4+73.51	5+07.77							34.26	211519.93	550703.00	211547.21	550682.28	322°46'42"

No.	Date	Revisions	App.

DRAWING NAME	TCAAP_THUMB_STH_ALN01.dwg
DESIGNED BY:	RJG
DRAWN BY:	RJG
CHECKED BY:	CBL
DATE:	4/20/17
PROJECT NO.	160553004

Kimley»Horn
2550 UNIVERSITY AVENUE WEST, SUITE 238N, ST, PAUL, MN 55114
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CHADD B. LARSON
DATE: 4/20/17 MN LIC. NO. 41864

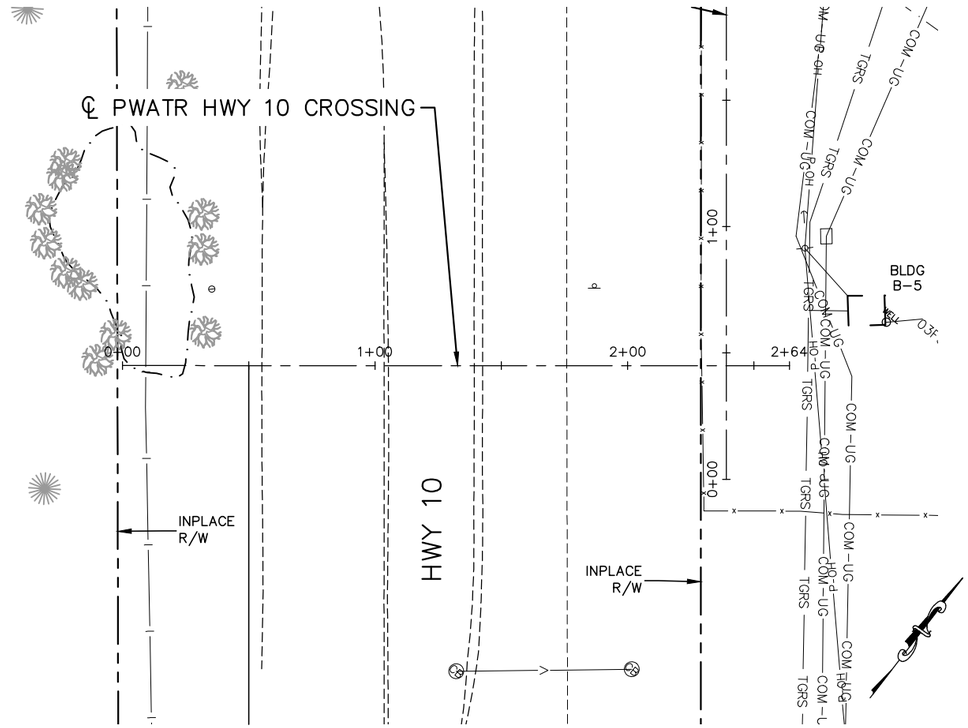
RAMSEY COUNTY
OLD HIGHWAY 8 EXTENSION
CONSTRUCTION PROJECT

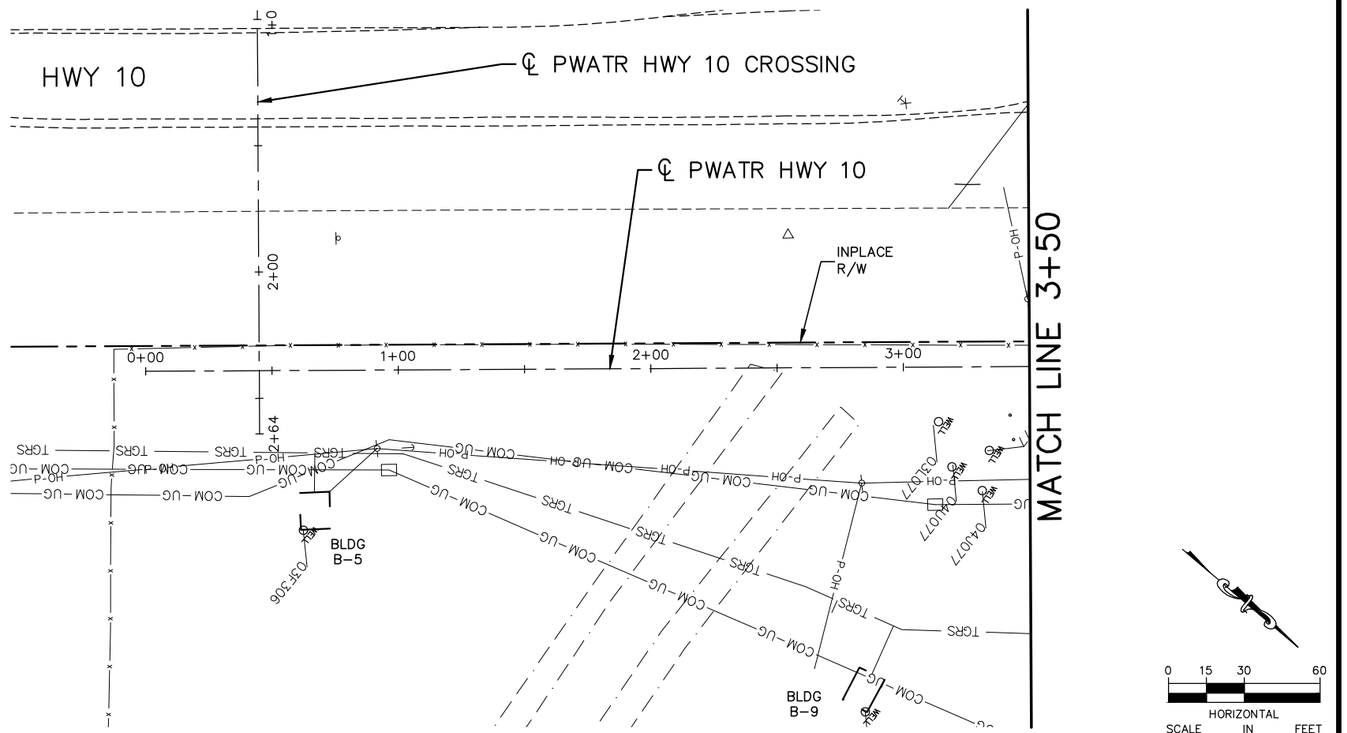
NB OLD HIGHWAY 8
ALIGNMENT TABULATION

COUNTY PROJECT	
S.A.P.	062-593-006
S.A.P.	
S.P.	

SHEET NO. 24 / 115

K:\TWC_Civil\County\RAMSEY\TCAAP Thumb Rd\CAD\Plan Sheets\Construction Plans\South\TCAAP_THUMB_STH_ALN01.dwg April 25, 2017 - 10:09pm





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DRAWING NAME	
TCAAP_THUMB_STH_EXC02	
DESIGNED BY:	RJG
DRAWN BY:	RJG
CHECKED BY:	CBL
DATE:	4/20/17
PROJECT NO.	160553004

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CHADD B. LARSON

DATE: 4/20/17 MN LIC. NO. 41864

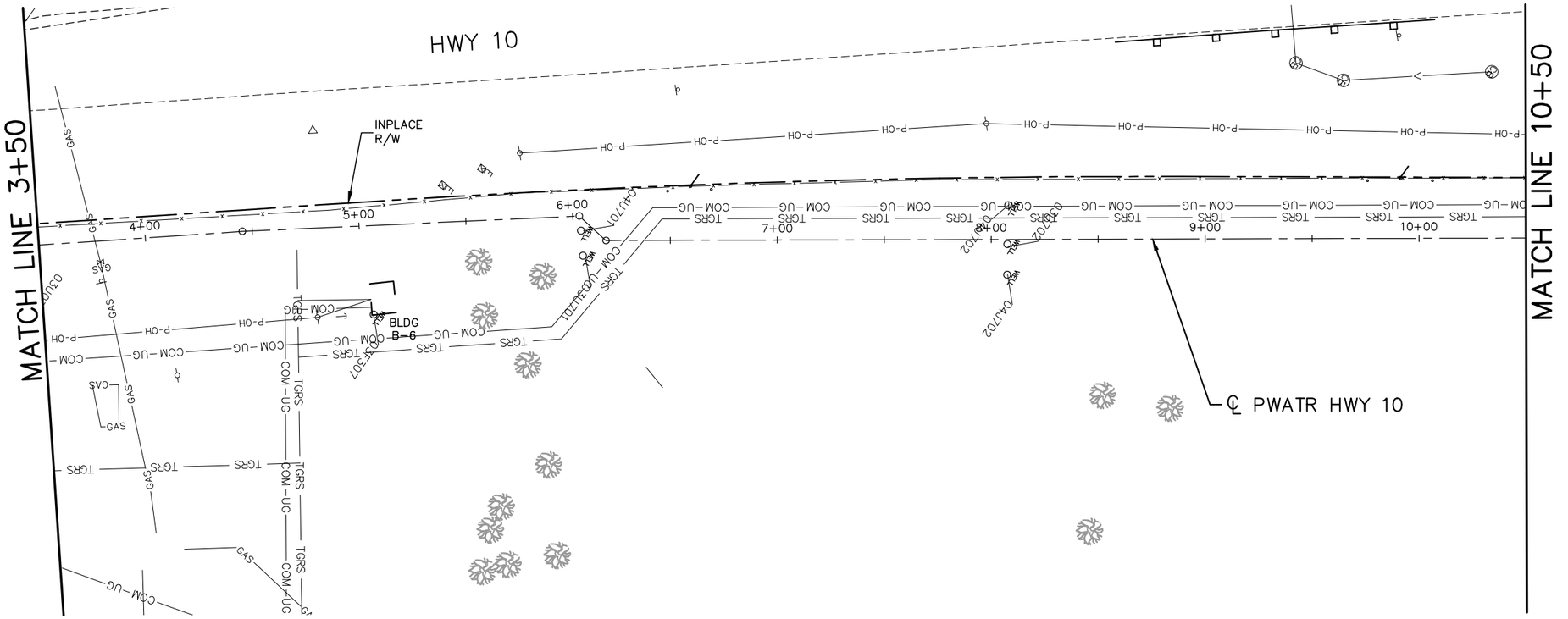
RAMSEY COUNTY

OLD HIGHWAY 8 EXTENSION CONSTRUCTION PROJECT

HIGHWAY 10 WATERMAIN
INPLACE CONDITIONS PLAN
STA. 0+00 TO STA. 3+50

COUNTY PROJECT	
S.A.P.	062-593-006
S.A.P.	
S.P.	

SHEET NO. 25 / 115



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HORIZONTAL SCALE IN FEET

No.	Date	Revisions	App.

DRAWING NAME	
TCAAP_THUMB_STH_EXC02	
DESIGNED BY:	RJG
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DATE:	4/20/17
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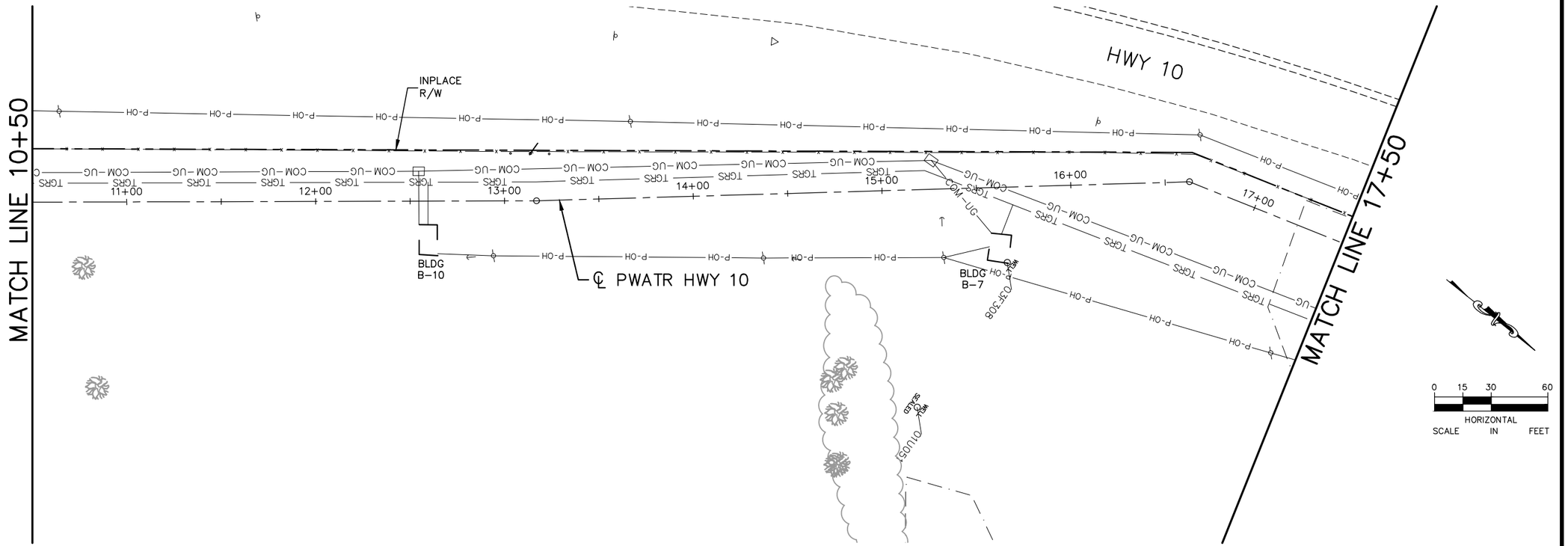
DATE: 4/20/17 MN LIC. NO. 41864

RAMSEY COUNTY
OLD HIGHWAY 8 EXTENSION CONSTRUCTION PROJECT
HIGHWAY 10 WATERMAIN
INPLACE CONDITIONS PLAN
STA. 3+50 TO STA. 10+50

COUNTY PROJECT	
S.A.P.	062-593-006
S.A.P.	
S.P.	

SHEET NO. 26 / 115



No.	Date	Revisions	App.

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TCAAP_THUMB_STH_EXC02	
DESIGNED BY:	RJG
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DATE:	4/20/17
PROJECT NO.	160553004

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CHADD B. LARSON

DATE: 4/20/17 MN LIC. NO. 41864

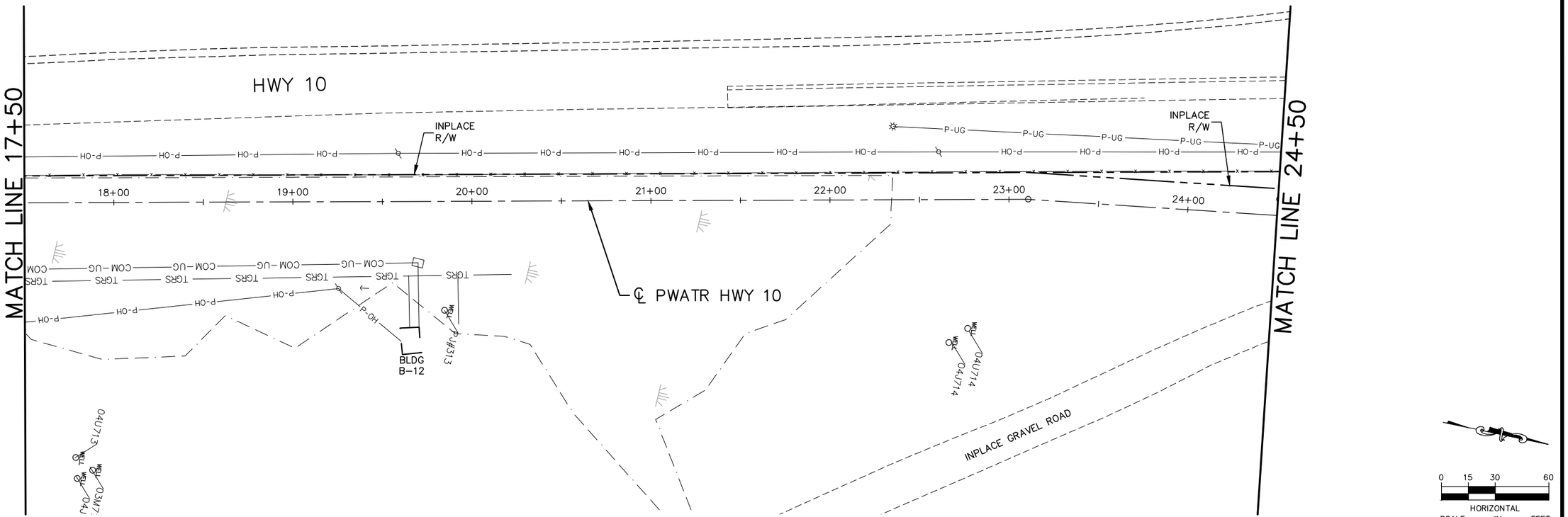
RAMSEY COUNTY

OLD HIGHWAY 8 EXTENSION
CONSTRUCTION PROJECT

HIGHWAY 10 WATERMAIN
INPLACE CONDITIONS PLAN
STA. 10+50 TO STA. 17+50

COUNTY PROJECT	
S.A.P.	062-593-006
S.A.P.	
S.P.	

SHEET NO. 27 / 115



No.	Date	Revisions	App.

DRAWING NAME	TCAAP_THUMB_STH_EXC02
DESIGNED BY:	RJG
DRAWN BY:	RJG
CHECKED BY:	CBL
DATE:	4/20/17
PROJECT NO.	160553004

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CHADD B. LARSON

DATE: 4/20/17 MN LIC. NO. 41864

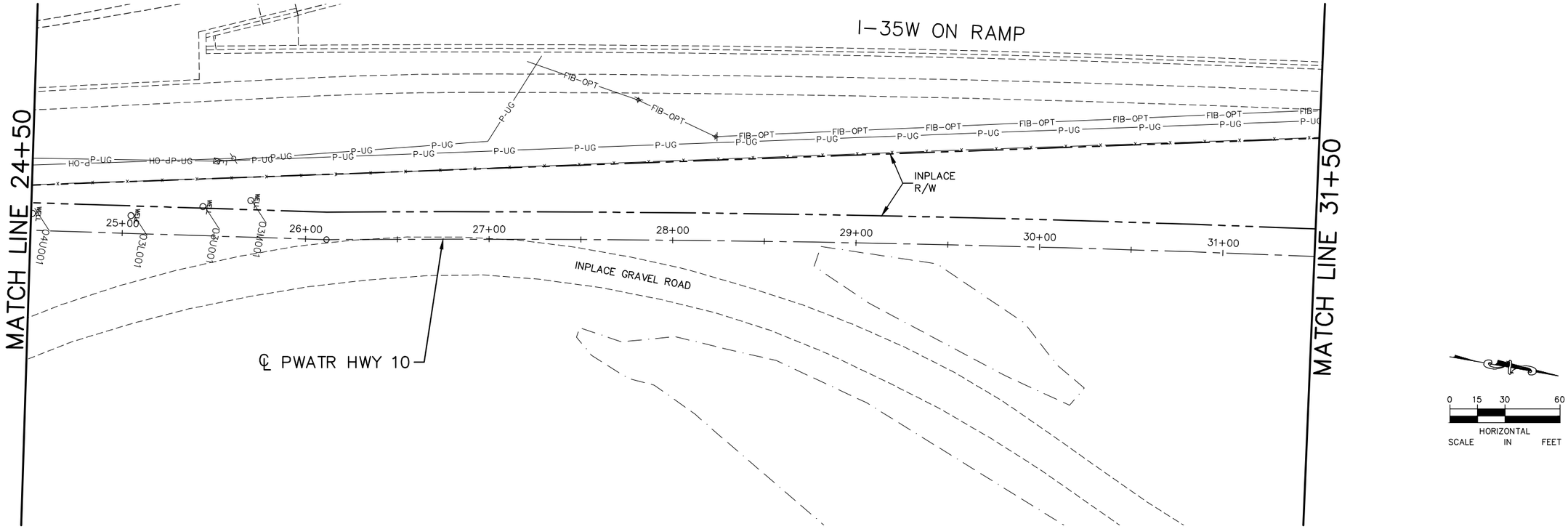
RAMSEY COUNTY

OLD HIGHWAY 8 EXTENSION CONSTRUCTION PROJECT

HIGHWAY 10 WATERMAIN
INPLACE CONDITIONS PLAN
STA. 17+50 TO STA. 24+50

COUNTY PROJECT	
S.A.P.	062-593-006
S.A.P.	
S.P.	

SHEET NO. 28 / 115



No.	Date	Revisions	App.

DRAWING NAME TCAAP_THUMB_STH_EXC02	
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PROJECT NO.	160553004

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CHADD B. LARSON

DATE: 4/20/17 MN LIC. NO. 41864

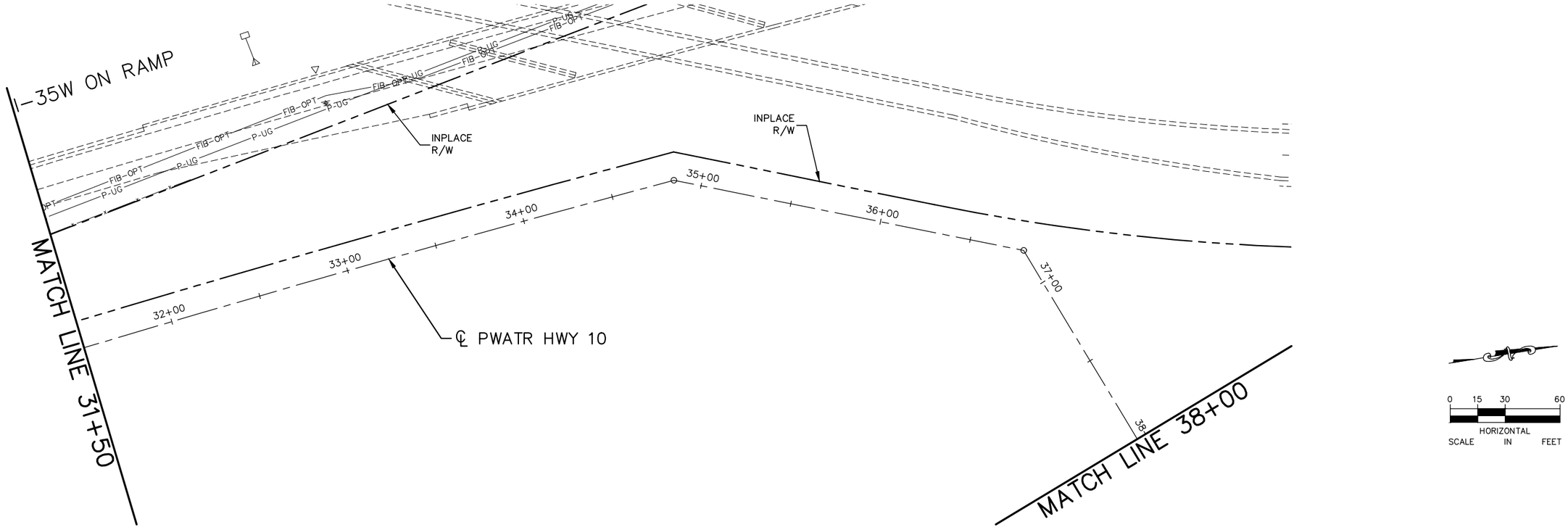
RAMSEY COUNTY

OLD HIGHWAY 8 EXTENSION CONSTRUCTION PROJECT

HIGHWAY 10 WATERMAIN
INPLACE CONDITIONS PLAN
STA. 24+50 TO STA. 31+50

COUNTY PROJECT	
S.A.P.	062-593-006
S.A.P.	
S.P.	

SHEET NO. 29 / 115



No.	Date	Revisions	App.

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DRAWN BY:	RJG
CHECKED BY:	CBL
DATE:	4/20/17
PROJECT NO.	160553004

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CHADD B. LARSON

DATE: 4/20/17 MN LIC. NO. 41864

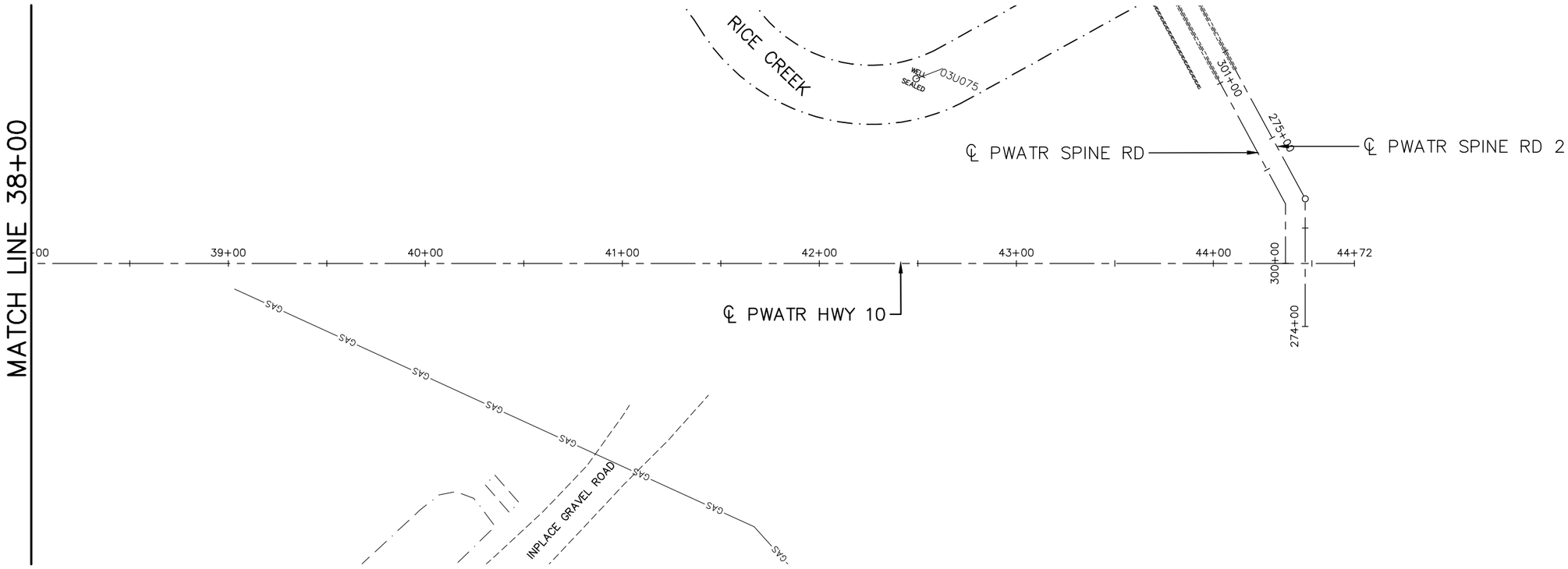
RAMSEY COUNTY

OLD HIGHWAY 8 EXTENSION CONSTRUCTION PROJECT

HIGHWAY 10 WATERMAIN
INPLACE CONDITIONS PLAN
STA. 31+50 TO STA. 38+00

COUNTY PROJECT	
S.A.P.	062-593-006
S.A.P.	
S.P.	

SHEET NO. 30 / 115



No.	Date	Revisions	App.

DRAWING NAME TCAAP_THUMB_STH_EXC02	
DESIGNED BY:	RJG
DRAWN BY:	RJG
CHECKED BY:	CBL
DATE:	4/20/17
PROJECT NO.	160553004

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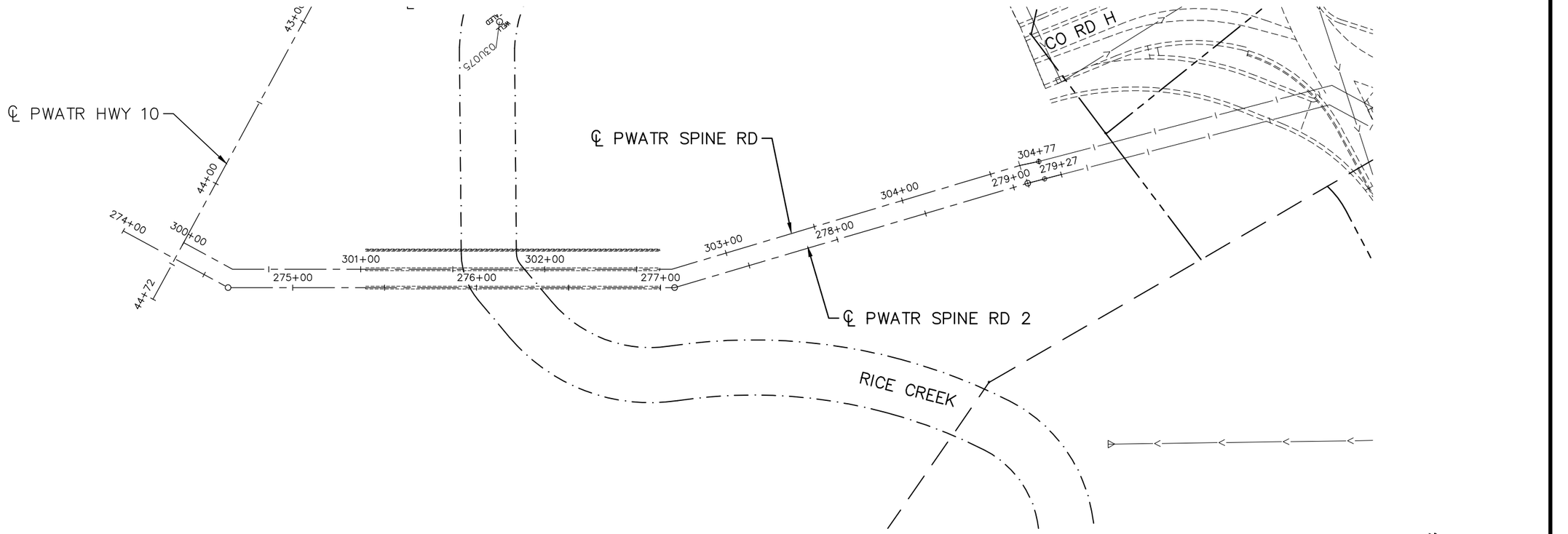
RAMSEY COUNTY

OLD HIGHWAY 8 EXTENSION
CONSTRUCTION PROJECT

HIGHWAY 10 WATERMAIN
INPLACE CONDITIONS PLAN
STA. 38+00 TO STA. 45+00

COUNTY PROJECT	
S.A.P.	062-593-006
S.A.P.	
S.P.	

SHEET NO. 31 / 115



No.	Date	Revisions	App.

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CHADD B. LARSON

DATE: 4/20/17 MN LIC. NO. 41864

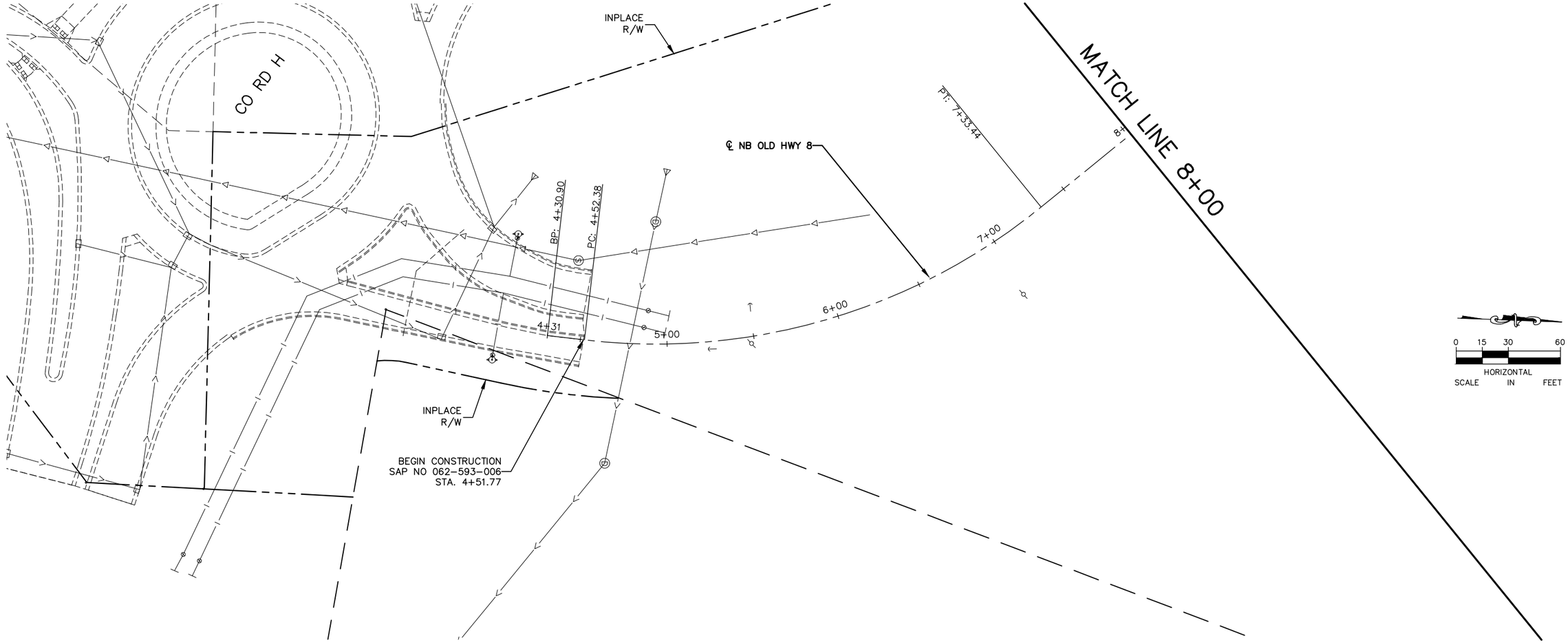
RAMSEY COUNTY

OLD HIGHWAY 8 EXTENSION
CONSTRUCTION PROJECT

RICE CREEK WATERMAIN
INPLACE CONDITIONS PLAN
STA. 300+00 TO STA. 305+25

COUNTY PROJECT	
S.A.P.	062-593-006
S.A.P.	
S.P.	

SHEET NO. 32 / 115



No.	Date	Revisions	App.

DRAWING NAME TCAAP_THUMB_STH_EXC01	
DESIGNED BY:	RJG
DRAWN BY:	RJG
CHECKED BY:	CBL
DATE:	4/20/17
PROJECT NO.	160553004

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CHADD B. LARSON

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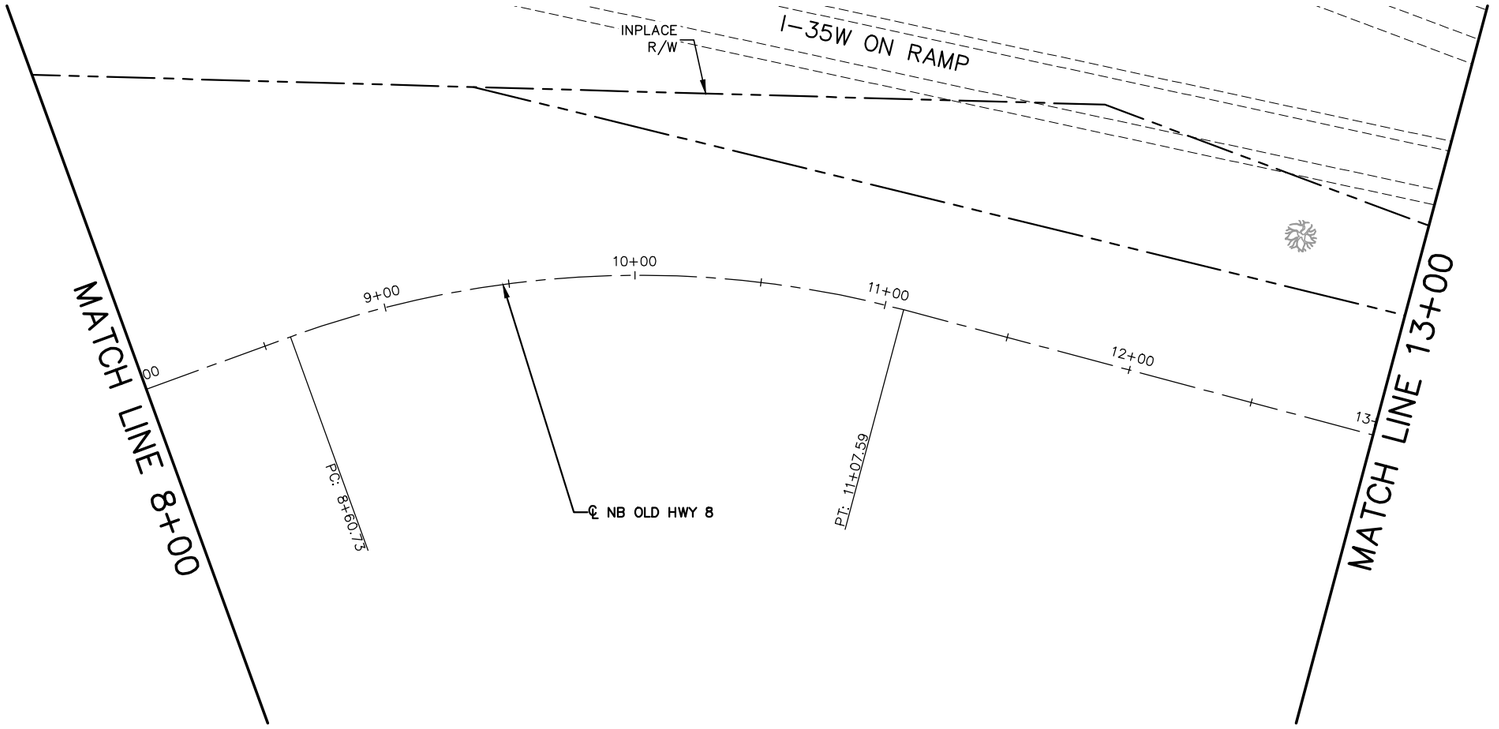
RAMSEY COUNTY

OLD HIGHWAY 8 EXTENSION
CONSTRUCTION PROJECT

OLD HIGHWAY 8
INPLACE CONDITIONS PLAN
STA. 4+51.77 TO STA. 8+00

COUNTY PROJECT	
S.A.P.	062–593–006
S.A.P.	
S.P.	

SHEET NO. 33 / 115



No.	Date	Revisions	App.

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DESIGNED BY:	RJG
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CHADD B. LARSON

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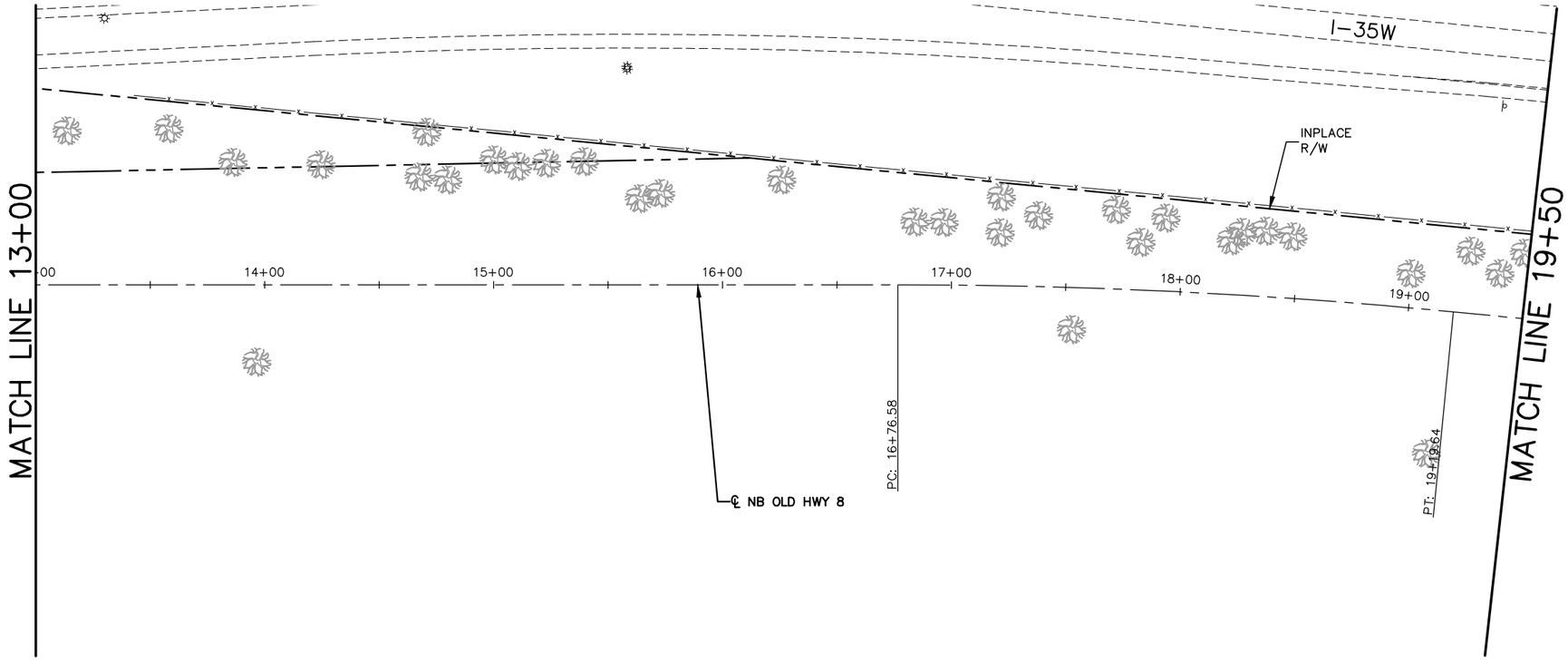
RAMSEY COUNTY

OLD HIGHWAY 8 EXTENSION
CONSTRUCTION PROJECT

OLD HIGHWAY 8
INPLACE CONDITIONS PLAN
STA. 8+00 TO STA. 13+00

COUNTY PROJECT	
S.A.P.	062-593-006
S.A.P.	
S.P.	

SHEET NO. 34 / 115



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HORIZONTAL
SCALE IN FEET

No.	Date	Revisions	App.

DRAWING NAME	TCAAP_THUMB_STH_EXC01
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CHECKED BY:	CBL
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PROJECT NO.	160553004

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CHADD B. LARSON

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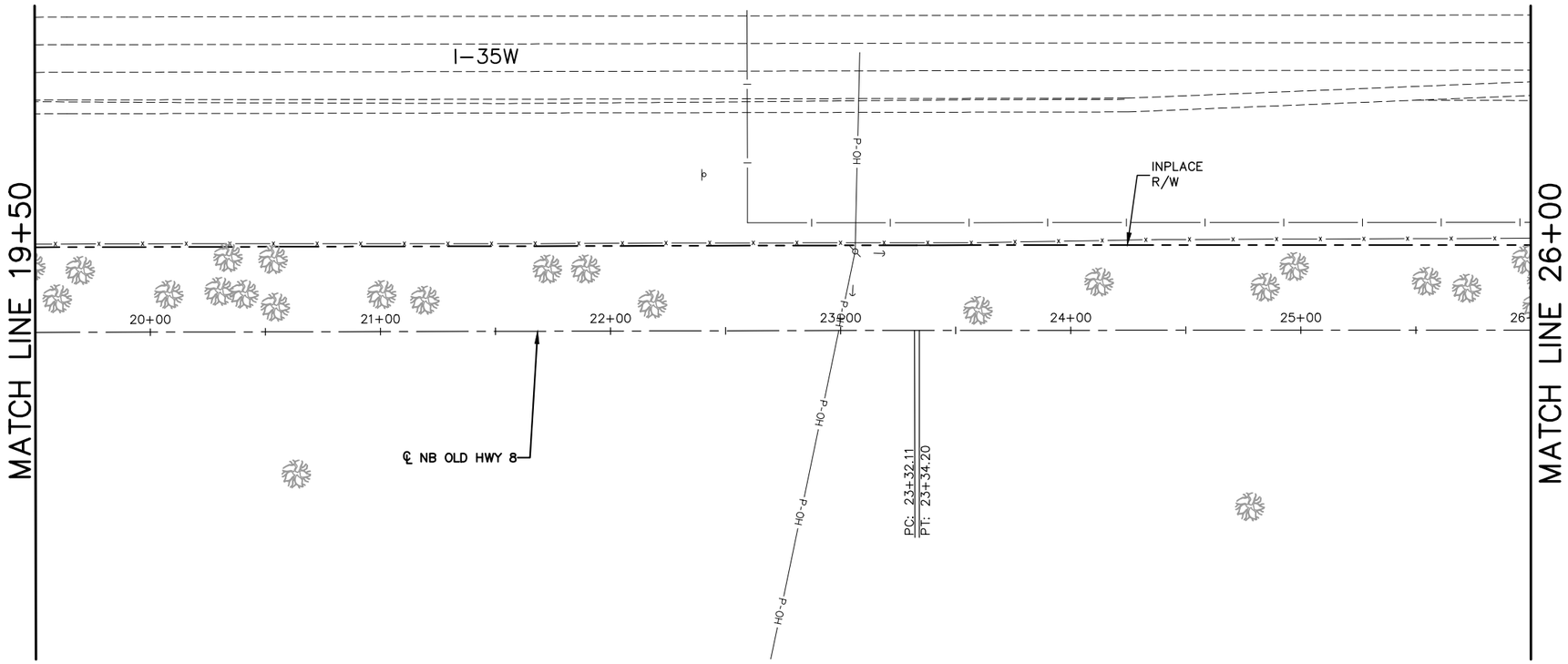
RAMSEY COUNTY

OLD HIGHWAY 8 EXTENSION
CONSTRUCTION PROJECT

OLD HIGHWAY 8
INPLACE CONDITIONS PLAN
STA. 13+00 TO STA. 19+50

COUNTY PROJECT	
S.A.P.	062-593-006
S.A.P.	
S.P.	

SHEET NO. 35 / 115



0 15 30 60

HORIZONTAL SCALE IN FEET

No.	Date	Revisions	App.

DRAWING NAME TCAAP_THUMB_STH_EXC01	
DESIGNED BY:	RJG
DRAWN BY:	RJG
CHECKED BY:	CBL
DATE:	4/20/17
PROJECT NO.	160553004

Kimley»Horn

2550 UNIVERSITY AVENUE WEST, SUITE 238N, ST, PAUL, MN 55114
PHONE: 651–645–4197
WWW.KIMLEY–HORN.COM

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

CHADD B. LARSON

DATE: 4/20/17 MN LIC. NO. 41864

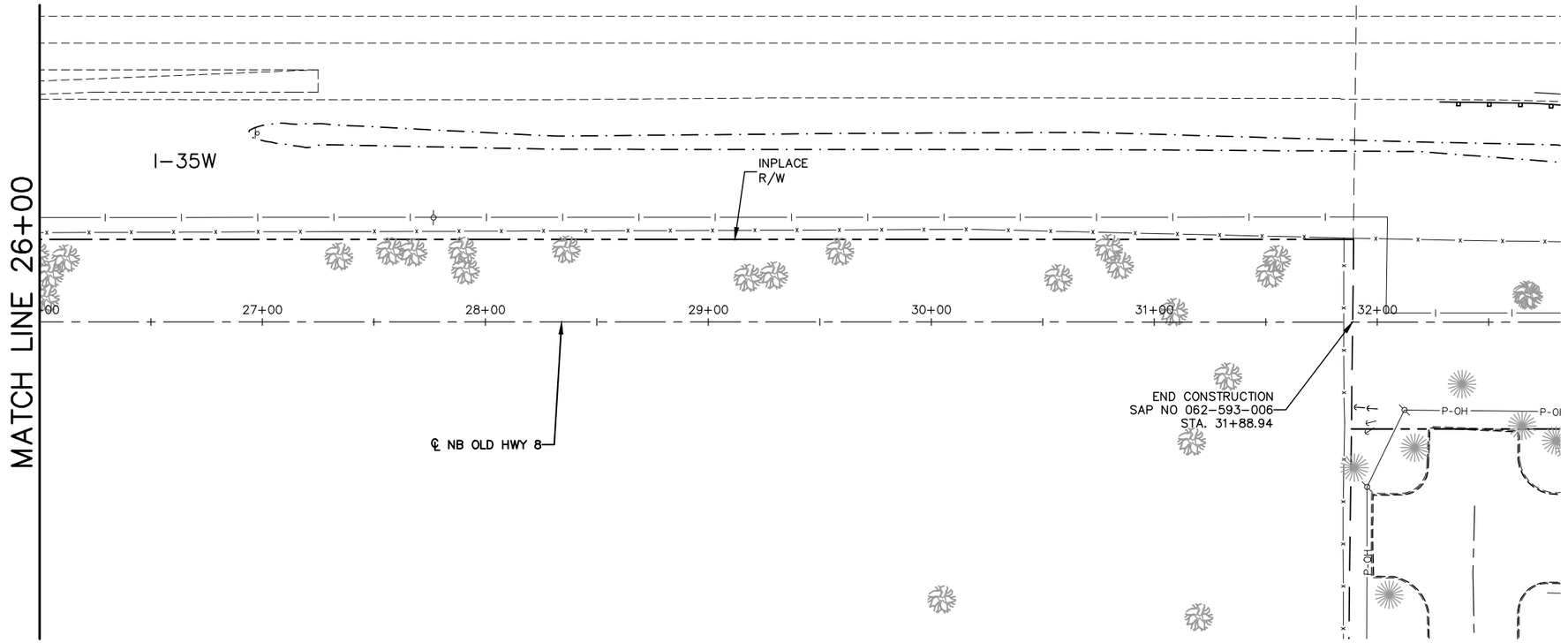
RAMSEY COUNTY

OLD HIGHWAY 8 EXTENSION
CONSTRUCTION PROJECT

OLD HIGHWAY 8
INPLACE CONDITIONS PLAN
STA. 19+50 TO STA. 26+00

COUNTY PROJECT	
S.A.P.	062–593–006
S.A.P.	
S.P.	

SHEET NO. 36 / 115



0 15 30 60

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CHADD B. LARSON

DATE: 4/20/17 MN LIC. NO. 41864

RAMSEY COUNTY

OLD HIGHWAY 8 EXTENSION
CONSTRUCTION PROJECT

OLD HIGHWAY 8
INPLACE CONDITIONS PLAN
STA. 26+00 TO STA. 31+88.94

COUNTY PROJECT	
S.A.P.	062–593–006
S.A.P.	
S.P.	

SHEET NO. 37 / 115

STORM WATER POLLUTION PREVENTION PLAN (SWPPP) NARRATIVE

PROJECT DESCRIPTION/LOCATION

S.A.P. NO. 062-593-006 IS LOCATED FROM COUNTY ROAD H TO OLD HIGHWAY 8 CITY OF ARDEN HILLS IN RAMSEY COUNTY.

THE PLANNED SCOPE OF THE PROJECT INCLUDES:

CONSTRUCTION OF BITUMINOUS AND CONCRETE PAVEMENT, GRADING, CURB AND GUTTER, STORM SEWER IMPROVEMENTS, WATER MAIN IMPROVEMENTS, AND GRADING.

THE TOTAL SITE AREA IS 8.57 ACRES, WHICH INCLUDES AN INCREASE OF 3.27 ACRES OF IMPERVIOUS AREA.

SPECIAL AND IMPAIRED WATERS

THERE ARE SPECIAL AND/OR IMPAIRED WATERS LOCATED WITHIN ONE MILE OF THE PROJECT LIMITS AND THAT RECEIVE RUNOFF FROM THE PROJECT SITE. DUE TO THE PROXIMITY OF THESE SPECIAL AND IMPAIRED WATERS THE BMPS DESCRIBED IN APPENDIX A OF THE NPDES PERMIT WILL APPLY TO ALL AREAS OF THE SITE. STABILIZATION OF ALL EXPOSED SOIL AREAS MUST BE INITIATED IMMEDIATELY TO LIMIT SOIL EROSION BUT IN NO CASE COMPLETED LATER THAN SEVEN (7) DAYS AFTER THE CONSTRUCTION ACTIVITY IN THAT PORTION OF THE SITE HAS TEMPORARILY OR PERMANENTLY CEASED.

THE PROJECT'S ULTIMATE RECEIVING WATER IS RICE CREEK LOCATED EAST OF THE PROJECT SITE. RICE CREEK IS AN IMPAIRED WATER ACCORDING TO THE MINNESOTA 303 (d) LIST WITHIN RAMSEY COUNTY.

THERE ARE NO KNOWN OR PROPOSED DISCHARGES TO CALCAREOUS FENS ON THIS PROJECT.

SWPPP TRAINING

THE PROJECT SWPPP WAS PREPARED BY PERSONNEL THAT ARE CERTIFIED IN THE DESIGN OF CONSTRUCTION SWPPPS. THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING A CERTIFIED EROSION CONTROL SUPERVISOR THAT IS RESPONSIBLE FOR OVERSEEING THE IMPLEMENTATION OF THE SWPPP. THE CONTRACTOR MUST PROVIDE PROOF OF CERTIFICATION AT THE PRECONSTRUCTION MEETING AND WILL NOT BE ALLOWED TO COMMENCE WORK UNTIL PROOF OF CERTIFICATION HAS BEEN PROVIDED TO THE PROJECT ENGINEER.

EROSION CONTROL SUPERVISOR

IN ACCORDANCE WITH SPEC. 2573.3.A1, THE CONTRACTOR WILL PROVIDE A CERTIFIED EROSION CONTROL SUPERVISOR IN GOOD STANDING WHO IS KNOWLEDGEABLE AND EXPERIENCED IN THE APPLICATION OF EROSION PREVENTION AND SEDIMENT CONTROL BEST MANAGEMENT PRACTICES.

THE EROSION CONTROL SUPERVISOR WILL WORK WITH THE PROJECT ENGINEER TO OVERSEE THE IMPLEMENTATION OF THE SWPPP AND THE INSTALLATION, INSPECTION, AND MAINTENANCE OF THE EROSION PREVENTION AND SEDIMENT CONTROL BMPS BEFORE, DURING, AND AFTER CONSTRUCTION UNTIL THE NOTICE OF TERMINATION (NOT) HAS BEEN FILED WITH THE MPCA.

THE EROSION CONTROL SUPERVISOR IS RESPONSIBLE FOR COMPLYING WITH ALL THE INSPECTION AND MAINTENANCE REQUIREMENTS STATED IN THE NPDES PERMIT PART IV.F. INSPECTIONS OF THE ENTIRE CONSTRUCTION SITE WILL OCCUR A MINIMUM OF ONCE EVERY SEVEN DAYS DURING ACTIVE CONSTRUCTION AND WITHIN 24 HOURS AFTER A RAINFALL EVENT GREATER THAN 0.5 INCHES IN 24 HOURS. THE EROSION CONTROL SUPERVISOR WILL THOROUGHLY INSPECT ALL EROSION PREVENTION AND SEDIMENT CONTROL BMPS TO ENSURE INTEGRITY AND EFFECTIVENESS OF EACH BMP. ALL INSPECTIONS AND MAINTENANCE CONDUCTED DURING CONSTRUCTION MUST BE RECORDED IN WRITING AND THESE RECORDS MUST BE RETAINED WITH THE SWPPP. INSPECTION REPORTS MUST BE SUBMITTED TO THE PROJECT ENGINEER IN A FORMAT THAT MEETS OR EXCEEDS THE PROJECT ENGINEERS EXPECTATIONS. RECORDS OF EACH INSPECTION AND MAINTENANCE ACTIVITY SHALL INCLUDE:

A. DATE AND TIME OF INSPECTIONS,
B. NAME OF PERSONS CONDUCTING INSPECTIONS,
C. FINDINGS OF INSPECTIONS, INCLUDING RECOMMENDATIONS FOR CORRECTIVE ACTIONS,
D. CORRECTIVE ACTIONS TAKEN INCLUDING DATES, TIMES, AND PARTY COMPLETING MAINTENANCE ACTIVITIES,
E. DATE AND AMOUNT OF ALL RAINFALL EVENTS GREATER THAN 0.5 INCH IN 24 HOURS,
F. DOCUMENTS AND CHANGES MADE TO THE SWPPP.

SOIL TYPES

THE PROJECT AREA CONSISTS OF MAINLY (50.8%) URBAN LAND-ZIMMERMAN COMPLEX WITH SLOPES RANGING FROM 1 TO 8 PERCENT. OTHER MAJOR SOIL TYPES IN THE PROJECT AREA INCLUDE ALGANSEE LOAMY SAND (24.0%) AND ZIMMERMAN FINE SAND (11.5%) WITH 1 TO 6 PERCENT SLOPES. THE REMAINING SOIL (13.7%) IS MADE UP OF SEVERAL SIMILAR SOIL TYPES. ALL SOILS IN THE PROJECT AREA HAVE A HYDRAULIC SOIL GROUP RATING OF A OR A/D ACCORDING TO THE NATURAL RESOURCES CONSERVATION SERVICE NATIONAL COOPERATIVE SOIL SURVEY.

MODIFICATIONS TO EXISTING CONDITIONS/DRAINAGE PATTERNS

THE PROJECT AREA CONSISTS OF THE URBAN SECTION OF CSAH 3 AND RICE CREEK PARKWAY AND THE RURAL SECTION OF OLD HIGHWAY 8. CURB AND GUTTER IS BEING ADDED TO THE RURAL SECTION OF OLD HIGHWAY 8, WHICH REQUIRES THE RECONSTRUCTION AND CONSTRUCTION OF NEW CULVERTS AND STORM SEWER. CURB AND GUTTER ACCOMPANIED BY STORM SEWER REPLACES SOME OF THE EXISTING DITCH SECTIONS WHILE MAINTAINING THE EXISTING DISCHARGE LOCATIONS. THE SMALL EXISTING RETENTION BASIN BETWEEN THE EXIT RAMP AND OLD HIGHWAY 8 WILL BE RELOCATED AND EXPANDED TO ACCOMMODATE THE DESIGN RUNOFF RATES. RUNOFF FROM CSAH 3 AND RICE CREEK PARKWAY WILL CONTINUE TO BE COLLECTED AND TREATED IN THE CLOSEST POND BEFORE DISCHARGING OUT OF THE POND OUTLETS INTO THE ULTIMATE OUTFALL OF RICE CREEK.

SEQUENCE OF MAJOR CONSTRUCTION ACTIVITIES:

1. INSTALL INLET PROTECTION ON ALL EXISTING INLETS.
2. INSTALL ALL OTHER TEMPORARY EROSION AND SEDIMENT CONTROLS SUCH AS SILT FENCE, BIOROLLS, RIP RAP ETC.
3. CLEAR AND GRUB THE SITE. REMOVE PAVEMENT AND CURB.
4. EXCAVATE PONDS
5. INSTALL UNDERGROUND UTILITY IMPROVEMENTS.
6. COMPLETE SITE GRADING AND CONSTRUCT CURB AND GUTTER AND PAVEMENT.
7. CLEAN ANY DEPOSITED SEDIMENT FROM EXCAVATED PONDS.
8. COMPLETE FINAL STABILIZATION.
9. REMOVE ALL TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES.

TEMPORARY SEDIMENT CONTROL IS INCLUDED IN SHEETS 41 - 53 OF THE OLD HIGHWAY 8 PLANS.

EROSION PREVENTION AND SEDIMENT CONTROL QUANTITIES TAB:

2511.501 - RANDOM RIPRAP CLASS II:	12	CU YD
2511.515 - GEOTEXTILE FILTER TYPE IV:	53	SQ YD
2573.502 - SILT FENCE, TYPE MS:	9100	LIN FT
2573.530 - STORM DRAIN INLET PROTECTION:	20	EACH
2573.533 - SEDIMENT CONTROL LOG TYPE WOOD FIBER	1000	LIN FT
2573.535 - STABILIZED CONSTRUCTION EXIT:	1	LUMP SUM
2573.550 - EROSION CONTROL SUPERVISOR:	1	LUMP SUM
2574.508 - FERTILIZER TYPE 3:	1740	POUND
2574.508 - FERTILIZER TYPE 4:	100	POUND
2575.501 - SEEDING:	5.3	ACRE
2575.502 - SEED MIXTURE 25-121:	324	POUND
2575.502 - SEED MIXTURE 33-261:	15	POUND
2575.502 - SEED MIXTURE 34-171:	3	POUND
2575.511 - MULCH MATERIAL TYPE 1:	9.9	TON
2575.519 - DISK ANCHORING:	5.0	ACRE
2575.523 - EROSION CONTROL BLANKET CATEGORY 3N:	3600	SQ YD
2575.571 - RAPID STABILIZATION METHOD 3:	15	MGAL

TOTAL DISTURBED AREA: 8.57 ACRES
TOTAL EXISTING IMPERVIOUS SURFACE AREA: 0 ACRES
TOTAL PROPOSED IMPERVIOUS SURFACE AREA: 3.27 ACRES
NET CHANGE IN IMPERVIOUS SURFACE AREA: 3.27 ACRE INCREASE
TOTAL RECONSTRUCTED IMPERVIOUS AREA: 0 ACRES

MPCA CONTACT INFORMATION:

MINNESOTA POLLUTION CONTROL AGENCY
CONSTRUCTION STORMWATER PERMIT PROGRAM
520 LAFAYETTE ROAD NORTH
ST. PAUL, MN 55155-4194
(651) 296-6300
(800) 657-3864

GENERAL SWPPP NOTES FOR CONSTRUCTION ACTIVITY

1. THE GENERAL CONTRACTOR IS RESPONSIBLE TO COMPLY WITH ALL ASPECTS OF THE NPDES CONSTRUCTION STORMWATER PERMIT AT ALL TIMES UNTIL THE NOTICE OF TERMINATION (NOT) HAS BEEN FILED WITH THE MPCA. THE CONTRACTOR WILL DEVELOP A CHAIN OF COMMAND WITH ALL OPERATORS ON THE SITE TO ENSURE THAT THE SWPPP WILL BE IMPLEMENTED AND STAY IN EFFECT UNTIL THE CONSTRUCTION PROJECT IS COMPLETE, THE ENTIRE SITE HAS UNDERGONE FINAL STABILIZATION, AND A NOTICE OF TERMINATION (NOT) HAS BEEN SUBMITTED TO THE MPCA.

2. THE CONTRACTOR WILL PREPARE A WRITTEN, NOT ORAL, WEEKLY SCHEDULE OF PROPOSED EROSION CONTROL ACTIVITIES FOR THE PROJECT ENGINEERS APPROVAL AS PER MN/DOT SPEC. 1717.2C.

3. THE CONTRACTOR WILL PREPARE AND SUBMIT A SITE PLAN FOR THE ENGINEERS APPROVAL AS PER MN/DOT SPEC. 1717.2D FOR CONCRETE MANAGEMENT, WORK IN ENVIRONMENTALLY SENSITIVE AREAS, AREAS IDENTIFIED IN THE PLANS AS "SITE PLAN REQUIREMENT AREA." ANY WORK THAT WILL REQUIRE DEWATERING, THE STAGING OF INLET PROTECTION DEVICES OVER THE LIFE OF THE CONTRACT AND AS REQUESTED BY THE ENGINEER, ALL SITE PLANS MUST BE SUBMITTED TO THE ENGINEER IN WRITING. THE CONTRACTOR SHALL ALLOW A MINIMUM OF 7 DAYS FOR REVIEW AND APPROVE SITE PLAN SUBMITTALS. THE CONTRACTOR WILL NOT BE ALLOWED TO COMMENCE WORK FOR WHICH A SITE PLAN IS REQUIRED UNTIL APPROVAL HAS BEEN GRANTED BY THE ENGINEER. THE CONTRACTOR WILL NOT BE GIVEN ANY EXTRA TIME IN THE CONTRACT DUE TO THE UNTIMELY SUBMITTAL OF A SITE PLAN. THE CONTRACTOR SHALL SUBMIT A CONTRACTOR'S EROSION / SEDIMENT CONTROL SITE PLAN TO THE ENGINEER A MINIMUM OF 24 HOURS PRIOR TO THE FIRST PRE-CONSTRUCTION MEETING. THE CONTRACTOR'S EROSION / SEDIMENT CONTROL SITE PLAN SHALL INCLUDE:
   A. THE NAME OF THE CONTRACTOR'S DESIGNATED EROSION CONTROL SUPERVISOR WITH 24-HOUR CONTACT INFORMATION. (I.E. PHONE NUMBER, EMAIL, ETC.)
   B. NAME AND CONTACT INFORMATION FOR THE INDIVIDUAL(S) RESPONSIBLE FOR PERFORMING AND MAINTAINING THE SITE INSPECTION LOGS ON A WEEKLY BASIS (OR WITHIN 24 HOURS OF 0.5 INCHES OF A RAIN IN A 24 HOUR PERIOD).
   C. NAME AND CONTACT INFORMATION OF THE INDIVIDUAL(S) RESPONSIBLE FOR TEMPORARY AND PERMANENT STABILIZATION.
   D. NAME AND CONTACT INFORMATION OF THE INDIVIDUAL(S) WHO WILL BE RESPONSIBLE FOR EMERGENCY REPAIRS AND REPLACEMENTS.
   E. LOCATION WHERE THE SWPPP DOCUMENT AND NPDES PERMIT WILL BE KEPT ON-SITE. THE DOCUMENT SHOULD BE ACCESSIBLE AT ALL TIMES AND AVAILABLE IN THE TIME OF ESSENCE.
   F. WHERE AND HOW CONCRETE WASHOUT WILL OCCUR AND BE IN COMPLIANCE OF THE MINNESOTA POLLUTION CONTROL AGENCY'S (MPCA) MEMORANDUM "CONCRETE WASHOUT GUIDANCE".
   G. LOCATION OF STOCKPILES OF NATIVE SOILS AND/OR BORROW MATERIALS AND INDICATE HOW STOCKPILES WILL BE KEPT IN COMPLIANCE WITH NPDES AND MPCA REQUIREMENTS.
   H. LOCATION OF ANY TEMPORARY SEDIMENT BASINS AND TRAPS.

4. THE CONTRACTOR WILL COMPLY WITH THE REQUIREMENTS REGARDING POLLUTION PREVENTION MANAGEMENT DURING CONSTRUCTION, WHICH WILL INCLUDE, BUT NOT LIMITED TO PROVIDING:
   A. CONCRETE WASHOUT AREAS FOR USE BY ALL SUBCONTRACTORS AND MN/DOT PERSONNEL. LOCATION OF WASHOUT AREAS MUST IDENTIFIED BY SIGNAGE AND MUST BE AT LEAST 200' FROM SITE PLAN REQUIREMENT AREAS OR ENVIRONMENTALLY SENSITIVE AREAS, AND UTILIZE A LEAK-PROOF CONTAINMENT FACILITY OR IMPERMEABLE LINER THAT PREVENTS RUNOFF ONTO ADJACENT SOILS. AN ENGINEERED COLLECTION SYSTEM CAN ALSO BE USED IF IT IS APPROVED BY THE PROJECT ENGINEER.
   B. SOLID WASTE COLLECTION AND REMOVAL
   C. SECONDARY CONTAINMENT
   D. SECURED HAZARDOUS WASTE STORAGE CONTAINERS
   E. CHEMICAL SPILL KITS
   F. PORTABLE RESTROOM FACILITIES THAT ARE ANCHORED TO PREVENT TIPPING AND PLACED OVER 25 FEET AWAY FROM INLETS AND DISCHARGE POINTS.

No.	Date	Revisions	App.

DRAWING NAME TCAAP_THUMB_STH_SWPPP01	
DESIGNED BY:	RJG
DRAWN BY:	RJG
CHECKED BY:	CBL
DATE:	4/20/17
PROJECT NO.	160553004

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CHADD B. LARSON
DATE: 4/20/17 MN LIC. NO. 41864

RAMSEY COUNTY
OLD HIGHWAY 8 EXTENSION
CONSTRUCTION PROJECT

STORM WATER POLLUTION PREVENTION PLAN NARRATIVE

COUNTY PROJECT	
S.A.P.	062-593-006
S.A.P.	
S.P.	

STORM WATER POLLUTION PREVENTION PLAN (SWPPP) NARRATIVE (CON'T)

5. CHEMICALS MUST BE KEPT IN A SECURE STORAGE AREA WHEN NOT IN USE. CHEMICAL STORAGE CONTAINERS MUST HAVE SECONDARY CONTAINMENT WHEN BEING USED OR STORED ON THE PROJECT SITE. CHEMICAL SPILLS OF ANY KIND (OIL, FUEL, FERTILIZER, ETC.) MUST BE CLEANED UP AND REMOVED FROM THE SITE IMMEDIATELY. THE CONTRACTOR MUST HAVE A SPILL KIT ON SITE AT ALL TIMES. THE FOLLOWING GOOD HOUSEKEEPING SPILL PREVENTION PRACTICES WILL BE FOLLOWED ONSITE DURING THE CONSTRUCTION PROJECT:
   - A. AN EFFORT WILL BE MADE TO STORE ONLY ENOUGH PRODUCTS REQUIRED TO DO THE JOB.
   - B. ALL MATERIALS STORED ONSITE WILL BE STORED IN A NEAT, ORDERLY MANNER IN THEIR APPROPRIATE CONTAINERS AND, IF POSSIBLE, UNDER A ROOF OR OTHER ENCLOSURE WITH SECONDARY CONTAINMENT.
   - C. PRODUCTS WILL BE KEPT IN THEIR ORIGINAL CONTAINERS WITH THE ORIGINAL MANUFACTURER'S LABEL.
   - D. SUBSTANCES WILL NOT BE MIXED WITH ONE ANOTHER UNLESS RECOMMENDED BY THE MANUFACTURER.
   - E. WHENEVER POSSIBLE, ALL OF A PRODUCT WILL BE USED UP BEFORE DISPOSING OF THE CONTAINER.
   - F. MANUFACTURERS' RECOMMENDATIONS FOR PROPER USE AND DISPOSAL WILL BE FOLLOWED.
   - G. THE CONTRACTOR'S SITE SUPERINTENDENT WILL INSPECT DAILY TO ENSURE PROPER USE AND DISPOSAL OF MATERIALS ONSITE.

   THE FOLLOWING PRACTICES WILL BE USED TO REDUCE THE RISKS ASSOCIATED WITH HAZARDOUS MATERIALS:
   - A. PRODUCTS WILL BE KEPT IN THEIR ORIGINAL CONTAINERS UNLESS CANNOT BE RESEALED.
   - B. ORIGINAL LABELS AND MATERIAL SAFETY DATA SHEETS WILL BE RETAINED ON SITE AND ACCESSIBLE AT ALL TIMES; THEY CONTAIN IMPORTANT PRODUCT AND SAFETY INFORMATION.
   - C. IF SURPLUS PRODUCT MUST BE DISPOSED OF, MANUFACTURERS' OR LOCAL AND STATE RECOMMENDED METHODS FOR PROPER DISPOSAL WILL BE FOLLOWED.

   IN ADDITION TO THE GOOD HOUSEKEEPING AND MATERIAL MANAGEMENT PRACTICES DISCUSSED IN THE PREVIOUS SECTIONS OF THIS PLAN, THE FOLLOWING PRACTICES WILL BE FOLLOWED FOR SPILL PREVENTION AND CLEANUP:
   - A. MANUFACTURERS' RECOMMENDED METHODS FOR SPILL CLEANUP WILL BE CLEARLY POSTED AND SITE PERSONNEL WILL BE MADE AWARE OF THE PROCEDURES AND THE LOCATION OF THE INFORMATION AND CLEANUP SUPPLIES.
   - B. MATERIALS AND EQUIPMENT NECESSARY FOR SPILL CLEANUP WILL BE KEPT IN A MATERIAL STORAGE AREA LOCATED ONSITE. EQUIPMENT AND MATERIALS WILL INCLUDE BUT NOT BE LIMITED TO BROOMS, DUST PANS, MOPS, RAGS, GLOVES, GOGGLES, CAT LITTER, SAND, SAWDUST, AND PLASTIC AND METAL TRASH CONTAINERS SPECIFICALLY FOR THIS PURPOSE.
   - C. ALL SPILLS WILL BE CLEANED UP IMMEDIATELY AFTER DISCOVERY.
   - D. THE SPILL AREA WILL BE KEPT WELL VENTILATED AND PERSONNEL WILL WEAR APPROPRIATE PROTECTIVE CLOTHING TO PREVENT INJURY FROM CONTACT WITH A HAZARDOUS SUBSTANCE.
   - E. SPILLS OF TOXIC OR HAZARDOUS MATERIAL WILL BE REPORTED TO THE APPROPRIATE STATE OR LOCAL GOVERNMENT AGENCY, REGARDLESS OF THE SIZE. IN ADDITION TO REPORTING TO LOCAL AUTHORITIES, REPORT SPILLS TO THE MINNESOTA POLLUTION CONTROL AGENCY (STATE DUTY OFFICER: 800-422-0798 OR 651-297-8610). ANY SPILLS ABOVE THE REPORTABLE QUANTITIES LIMITS IN THE CODE OF FEDERAL REGULATIONS (CFR), TITLE 40, PART 302 SHALL BE REPORTED TO THE EPA NATIONAL RESPONSE CENTER (800-424-8802). THE REPORT WILL INCLUDE MEASURES TO PREVENT SPILLS FROM REOCCURRING AND INFORMATION REGARDING HOW TO REMEDIATE SPILLS IF A SIMILAR OCCURRENCE HAPPENS. A DESCRIPTION OF THE SPILL, WHAT CAUSED IT, AND THE CLEANUP MEASURES WILL ALSO BE INCLUDED.
   - F. THE CONTRACTOR'S EROSION CONTROL SUPERVISOR SHALL BE THE SPILL PREVENTION AND CLEANUP COORDINATOR.
   - G. SPILLS WILL BE STUDIED TO UNDERSTAND WHY THEY OCCURRED AND PREVENTIVE METHODS WILL BE CREATED TO ENSURE SIMILAR SPILLS TO DO NOT OCCUR IN THE FUTURE.

6. ALL ONSITE VEHICLES WILL BE MONITORED FOR LEAKS AND RECEIVE REGULAR PREVENTIVE MAINTENANCE TO REDUCE THE CHANCE OF LEAKAGE. PETROLEUM PRODUCTS WILL BE STORED IN TIGHTLY SEALED CONTAINERS WHICH ARE CLEARLY LABELED. ANY ASPHALT BASED MATERIALS USED ONSITE WILL BE APPLIED AND STORED ACCORDING TO THE MANUFACTURER'S RECOMMENDATIONS. ANY SPILLS PETROLEUM PRODUCTS OF 5 GALLONS OR MORE SHALL BE REPORTED TO THE MINNESOTA POLLUTION CONTROL AGENCY AT 651-297-8610.

7. WHENEVER POSSIBLE, VEHICLE REFUELING AND MAINTENANCE SHOULD NOT BE PERFORMED ON THE CONSTRUCTION SITE. HOWEVER, ANY VEHICLE REFUELING OR MAINTENANCE THAT MUST TAKE PLACE ON THE CONSTRUCTION SITE MUST HAVE PROPER SPILL PREVENTION CONTROLS IN PLACE PRIOR TO COMMENCING WORK.

8. THE CONTRACTOR IS RESPONSIBLE FOR CREATING AND FOLLOWING A WRITTEN DISPOSAL PLAN FOR ALL WASTE MATERIALS INCLUDING HAZARDOUS AND SANITARY WASTE. THE PLAN WILL INCLUDE HOW THE MATERIAL WILL BE DISPOSED OF AND THE LOCATION OF THE DISPOSAL SITE. SUBMIT TO THE ENGINEER.

9. ALL PAINT AND CLEANING SOLVENT CONTAINERS WILL BE TIGHTLY SEALED AND STORED WHEN NOT REQUIRED FOR USE. EXCESS PAINT AND SOLUTIONS WILL NOT BE DISCHARGED TO THE STORM SEWER SYSTEM BUT WILL BE PROPERLY DISPOSED OF ACCORDING TO MANUFACTURERS' INSTRUCTIONS OR STATE AND LOCAL REGULATIONS.

10. CONCRETE, CONCRETE TOOLS, AND CONCRETE TRUCKS ALL MUST WASH OUT IN A DESIGNATED AREA. THE DESIGNATED AREA MUST BE CLEARLY IDENTIFIED ON THE SITE AND COMMUNICATED TO ALL PERSONNEL INVOLVED WITH CAST-IN-PLACE CONCRETE AS THE WASHOUT AREA. THIS DESIGNATED AREA MUST MEET THE MPCA REGULATIONS OF A DEFINED CONCRETE WASHOUT AREA. THE FOLLOWING THREE OPTIONS ARE CONSIDERED AN APPROVED METHOD:
    - A. KEEPING ALL CONCRETE WASHOUT SELF-CONTAINED AND RETURNED TO AN INDUSTRIAL SITE TO BE DISPOSED OF IN A MPCA APPROVED MANNER.
    - B. PROVIDING A PREFABRICATED CONCRETE WASHOUT CONTAINER THAT ALL CONCRETE WASHOUT CAN BE COLLECTED IN. THESE CONTAINERS SHOULD BE MAINTAINED ON A REGULAR BASIS.
    - C. CREATING A SELF-INSTALLED WASHOUT FACILITY WITH AN IMPERMEABLE LINER. AN ENGINEERED CLAY LINER WILL BE CONSIDERED AN IMPERMEABLE LINER.

    FOR ADDITIONAL INFORMATION ON CONCRETE WASHOUT REGULATIONS, PLEASE SEE THE MPCA'S MEMORANDUM "CONCRETE WASHOUT GUIDANCE".

11. BURNING OF ANY MATERIAL IS NOT ALLOWED WITHIN PROJECT BOUNDARY.

12. THE EROSION PREVENTION AND SEDIMENT CONTROL BMPS SHALL BE INSTALLED AS NECESSARY TO MINIMIZE EROSION FROM DISTURBED SURFACES AND CAPTURE SEDIMENT ONSITE. ALL EROSION CONTROL MEASURES SHALL BE IN PLACE PRIOR TO ANY REMOVAL WORK AND/OR GROUND DISTURBING ACTIVITIES COMMENCE AND SHALL BE MAINTAINED UNTIL THE POTENTIAL FOR EROSION HAS BEEN ELIMINATED. THE FOLLOWING CONTROL MEASURES WILL BE COORDINATED WITH CONSTRUCTION ACTIVITIES:
    - A. THE STABILIZED CONSTRUCTION ENTRANCE/EXIT SHALL BE THE FIRST PROJECT ITEM INSTALLED
    - B. SILT FENCE SHALL BE CONSTRUCTED PRIOR TO ANY SOIL DISTURBANCE AND SHALL REMAIN IN PLACE UNTIL PERMANENT STABILIZATION HAS TAKEN PLACE;
    - C. STORM SEWER INLET PROTECTION DEVICES AND STORM SEWER OUTFALL STABILIZATION SHALL BE INSTALLED PRIOR TO ANY SOIL DISTURBANCE AND SHALL REMAIN IN PLACE UNTIL PERMANENT STABILIZATION HAS TAKEN PLACE.
    - D. CLEARING, GRADING AND PAVEMENT REMOVAL WILL NOT OCCUR IN AN AREA UNTIL IT IS NECESSARY FOR CONSTRUCTION TO PROCEED;
    - E. EROSION AND SEDIMENT CONTROL DEVICES WILL BE SATISFACTORILY MAINTAINED UNTIL THE CONSTRUCTION IS COMPLETED AND THE POTENTIAL FOR EROSION HAS PASSED.

13 SEDIMENT CONTROL DEVICES MUST BE ESTABLISHED ON ALL DOWN GRADIENT PERIMETERS BEFORE ANY UP GRADIENT LAND DISTURBING ACTIVITIES BEGIN. SEDIMENT CONTROL DEVICES INCLUDE, BUT ARE NOT LIMITED TO:
    - A. PERIMETER CONTROL SHALL BE LOCATED ON THE CONTOUR TO CAPTURE OVERLAND. LOW-VELOCITY SHEET FLOWS DOWN GRADIENT OF ALL EXPOSED SOILS AND PRIOR TO DISCHARGING TO SURFACE WATERS WITH THE BMP J-HOOKED AT A MAXIMUM OF 100 FOOT INTERVALS AND SHALL CONTAIN NO MORE THAN ¼ ACRE OF DRAINAGE AREA.
    - B. SEDIMENT DAMAGE FROM STOCKPILES WILL BE MINIMIZED BY PLACING A ROW OF SILT FENCE A MINIMUM 5 FEET FROM THE TOE. IF THERE IS NOT ADEQUATE PROJECT AREA TO PLACE THE SILT FENCE MORE THAN 5 FEET FROM THE TOE OF THE SLOPE THE CONTRACTOR MAY SUBMIT AN ALTERNATIVE FOR APPROVAL BY THE PROJECT ENGINEER.

14. STORM SEWER INLETS WILL BE PROTECTED AT ALL TIMES WITH THE APPROPRIATE INLET PROTECTION FOR EACH SPECIFIC PHASE OF CONSTRUCTION. INLET PROTECTION DEVICES MAY NEED TO BE PLACED MULTIPLE TIMES IN THE SAME LOCATION OVER THE LIFE OF THE CONTRACT. INLET PROTECTION DEVICES WILL BE PAID FOR ONCE PER INLET REGARDLESS OF THE NUMBER OF TIMES THE BMP IS PLACED. ALL STORM SEWER INLET PROTECTION DEVICES WILL BE KEPT IN GOOD FUNCTIONAL CONDITION AT ALL TIMES. IF THE PROJECT ENGINEER DEEMS AN INLET PROTECTION DEVICE TO BE NONFUNCTIONAL, IN POOR CONDITION, INEFFECTIVE OR NOT APPROPRIATE FOR THE CURRENT CONSTRUCTION ACTIVITIES IT WILL BE REPLACED WITH A SUITABLE ALTERNATIVE AT NO COST TO THE COUNTY. FAILURE TO PERFORM WILL RESULT IN DEDUCT.

15. THE CONTRACTOR WILL PLACE CONSTRUCTION EXITS, AS NECESSARY, TO PREVENT TRACKING OF SEDIMENT ONTO PAVED SURFACES AND IN COMPLIANCE WITH PART IV OF THE NPDES PERMIT. CONSTRUCTION EXITS WILL BE SUFFICIENTLY SIZED AND MAINTAINED TO PREVENT TRACK OUT. TYPE 5 MULCH (SLASH MULCH) OR AN APPROVED ENGINEERED PRODUCT WILL BE ALLOWED FOR CONSTRUCTION EXITS IN LIEU OF CRUSHED ROCK. ALL LABOR AND MATERIALS REQUIRED TO CONSTRUCT AND MAINTAIN A CONSTRUCTION EXIT SHALL BE PAID FOR AND INCIDENTAL TO BID ITEM 2573.535 (STABILIZED CONSTRUCTION EXIT).

16. THE CONTRACTOR MUST USE METHODS AND OPERATION PROCEDURES THAT PREVENT DISCHARGE OR PLACEMENT OF BITUMINOUS GRINDINGS, CUTTINGS, MILLINGS, AND OTHER BITUMINOUS WASTES FROM AREAS OF EXISTING OR FUTURE VEGETATED SOILS, AND ALL WATER CONVEYANCE SYSTEMS, INCLUDING INLETS.

17. THE CONTRACTOR MUST USE METHODS AND OPERATIONAL PROCEDURES THAT PREVENT CONCRETE DUST, PARTICLES, SAW CUT SLURRY, PLANING WASTE AND OTHER CONCRETE WASTES FROM LEAVING RAMSEY COUNTY RIGHT-OF-WAY. DEPOSITING IN EXISTING OR FUTURE VEGETATED AREAS OR ENTERING STORMWATER CONVEYANCE SYSTEM INCLUDING INLETS AND CURB FLOW LINES.

18. DITCHES AND EXPOSED SOILS MUST BE KEPT IN AN EVEN ROUGH GRADED CONDITION IN ORDER TO BE ABLE TO APPLY EROSION CONTROL MULCHES AND BLANKETS.

19. ALL EXPOSED SOIL AREAS MUST BE TEMPORARILY OR PERMANENTLY STABILIZED NO MORE THAN 7 DAYS AFTER CONSTRUCTION ACTIVITY ON THAT PORTION OF THE SITE HAS TEMPORARILY OR PERMANENTLY CEASED. IN MANY INSTANCES, THIS WILL REQUIRE STABILIZATION TO OCCUR MORE THAN ONCE DURING ROUGH GRADING. RAPID STABILIZATION METHOD 3 WILL BE USED TO PROVIDE TEMPORARY COVER IN THESE AREAS AS APPROPRIATE.

20. THE NORMAL WETTED PERIMETER OF ANY TEMPORARY OR PERMANENT DRAINAGE DITCH THAT DRAINS WATER FROM THE CONSTRUCTION SITE, OR DIVERTS WATER AROUND THE CONSTRUCTION SITE, MUST BE STABILIZED WITHIN 200 LINEAL FEET (100 LINEAL FEET IF WITHIN 1 MILE OF AND DRAINS TO A SPECIAL OR IMPAIRED WATER) FROM THE PROPERTY EDGE OR POINT OF DISCHARGE TO ANY SURFACE WATER. STABILIZATION MUST OCCUR WITHIN 24 HOURS OF CONNECTION TO A SURFACE WATER, EXISTING GUTTER, STORM SEWER INLET, DRAINAGE DITCH OR OTHER STORMWATER CONVEYANCE SYSTEM ACCORDING TO SPEC 1717.2A2. RAPID STABILIZATION METHOD 4 WILL BE USED TO STABILIZE THESE AREAS. THE REMAINDER OF THE DITCH MUST BE STABILIZED WITHIN 7 DAYS OF CONNECTING TO THE SURFACE WATER. PERMANENT EROSION CONTROL BLANKET OR RAPID STABILIZATION METHOD 4 WILL BE USED TO STABILIZE THESE AREAS. DISC ANCHORED MULCH AND HYDRAULIC SOIL STABILIZERS ARE NOT ALLOWED TO BE USED FOR PERMANENT DITCH STABILIZATION.

21. OUTLETS INTO SURFACE WATERS SHALL BE STABILIZED WITH ENERGY DISSIPATION WITHIN 24 HOURS OF BEING CONSTRUCTED.

22. ALL EXPOSED SOIL AREAS WILL BE STABILIZED PRIOR TO THE ONSET OF WINTER, ANY WORK STILL BEING PERFORMED WILL BE SNOW MULCHED, SEEDED, OR BLANKETED WITHIN THE TIME FRAMES IN THE NPDES PERMIT.

23. THE CONTRACTOR SHALL COMPLY WITH THE FOLLOWING INSPECTION AND MAINTENANCE REQUIREMENTS:
    - A. SILT FENCE MUST BE REPAIRED, REPLACED OR SUPPLEMENTED WHEN IT BECOMES NON-FUNCTIONAL OR SEDIMENT REACHES 1/3 THE HEIGHT OF THE SILT FENCE. REPAIRS MUST BE MADE WITHIN 24 HOURS OF DISCOVERY.
    - B. INLET PROTECTION DEVICES SHOULD BE REPAIRED WHEN THEY BECOME NON-FUNCTIONAL OR SEDIMENT REACHES 1/3 THE HEIGHT AND/OR DEPTH OF THE DEVICE.
    - C. TEMPORARY SEDIMENT BASIN MUST HAVE THE SEDIMENT REMOVED ONCE THE SEDIMENT HAS REACHED ½ THE STORAGE VOLUME WITHIN 72 HOURS OF DISCOVERY.
    - D. TRACKED SEDIMENT MUST BE REMOVED WITHIN 24 HOURS OF DISCOVERY OF TRACKING ONTO PAVED SURFACES.
    - E. ALL OTHER NON-FUNCTIONAL BMPS MUST BE REPAIRED, REPLACED, OR SUPPLEMENTED WITHIN 24 HOURS OF DISCOVERY.
    - F. CONTRACTOR IS RESPONSIBLE FOR MAINTAINING ALL BMPS UNTIL WORK HAS BEEN COMPLETED, SITE HAS GONE UNDER FINAL STABILIZATION, AND THE NOTICE OF TERMINATION HAS BEEN SUBMITT4D TO THE MPCA IN ACCORDANCE WITH PART 11.B.5 OF THE CONSTRUCTION GENERAL PERMIT.

24. IF SEDIMENT DEPOSITS IN A WATER OF THE STATE, THE MATERIAL MUST BE REMOVED WITHIN 7 DAYS.

25. PAVEMENT SURFACES SHALL BE SWEPT WITHIN 24 HOURS OF DISCOVERY OF SEDIMENT OR TRACKING ONTO PAVEMENT THAT DRAINS TO CURB, INLETS, DITCHES OR PONDS. PAVEMENT SHALL BE LIGHTLY WETTED PRIOR TO SWEEPING OR AS DIRECTED BY THE ENGINEER.

26. TEMPORARY DEWATERING ACTIVITIES MAY BE REQUIRED FOR THE ROADWAY CONSTRUCTION AND UTILITY WORK. THEREFORE IT IS POSSIBLE THAT A PERMIT FOR THE TEMPORARY APPROPRIATION OF WATERS OF THE STATE, NON-IRRIGATION FROM MNDNR WILL BE REQUIRED FOR THIS PROJECT. THE CONTRACTOR WILL BE RESPONSIBLE FOR OBTAINING THIS PERMIT. ALL TEMPORARY DEWATERING SHALL BE DISCHARGED TO AN APPROVED LOCATION FOR TREATMENT PRIOR TO DISCHARGE TO THE RECEIVING WATER. THE CONTRACTOR IS REQUIRED TO SUBMIT SITE PLANS TO THE ENGINEER FOR APPROVAL PRIOR TO COMMENCING WORK ACCORDING TO SPEC 1717.2D. ALL TEMPORARY DEWATERING ACTIVITIES SHALL BE CONSIDERED INCIDENTAL TO BID ITEM 2105.501 (COMMON EXCAVATION).

27. BASIN DRAINING ACTIVITIES OF TURBID OR SEDIMENT LADEN WATER WILL BE DISCHARGED TO TEMPORARY SEDIMENT BASINS WHENEVER POSSIBLE. IN THE EVENT THAT IT IS NOT POSSIBLE TO DISCHARGE THE SEDIMENT LADEN WATER TO A TEMPORARY SEDIMENT BASIN, THE WATER MUST BE TREATED SO THAT IT DOES NOT CAUSE A NUISANCE CONDITION IN THE RECEIVING WATERS OR TO THE DOWNSTREAM LANDOWNERS. TEMPORARY SEDIMENTATION BASINS SHALL DISCHARGE WATER THROUGH A SURFACE SKIMMER.

28. IT IS THE DESIGNER'S INTENT THAT THE CONTRACTOR BUILD PONDS AND INSTALL EROSION CONTROL BEFORE PUTTING THEM IN ACTIVE SERVICE TO THE MAXIMUM EXTENT PRACTICAL. ALL PONDS FOR THE PROJECT WILL BE SUBJECT TO THE SITE PLAN REQUIREMENT AREA EROSION CONTROL SCHEDULE AS PER 1717.

29. THE CONTRACTOR MAY NOT DRIVE ANY EQUIPMENT ON FINISHED POND BOTTOMS OR POND CORNERS. IF DISTURBED, POND BOTTOM AND POND CORNERS MUST BE RESTORED TO PRE-EXISTING CONDITIONS WITHIN 24 HOURS. ANY RUTS OR DAMAGED TURF THAT COULD CREATE SEDIMENT DISCHARGE TO POND BOTTOMS MUST BE REPAIRED WITHIN 24 HOURS.

30. ANY SUBSURFACE DRAINAGE TILES DAMAGED DURING CONSTRUCTION SHALL BE REPAIRED, REPLACED OR REROUTED AND CONNECTED TO THE EXISTING TILE OR DRAINAGE SYSTEM TO ENSURE THAT EXISTING UPLAND DRAINAGE IS PERPETUATED. THIS SHOULD BE DONE TO THE APPROVAL AND SATISFACTION OF THE ENGINEER.

31. TILLING FOR BEDS OR TREE HOLES MUST BE PLANTED AND MULCHED WITH WOODCHIP WITHIN 7 DAYS OR STRAW MULCHED UNTIL PLANTING OPERATIONS CAN BE COMPLETED.

32. ANY POND CORNERS OPENED DUE TO TILLING FOR SHRUB BEDS OR TREE HOLES MUST BE PLANTED AND MULCHED WITH WOODCHIP WITHIN 24 HOURS OR STRAW MULCHED UNTIL PLANTING OPERATIONS CAN BE COMPLETED.

33. ALL PERMANENT STORMWATER BASINS USED AS TEMPORARY SEDIMENT TRAPS WILL BE CLEANED OUT TO THE DESIGN CAPACITY AFTER ALL UPGRADIENT LAND DISTURBING ACTIVITY IS COMPLETED.

No.	Date	Revisions	App.

DRAWING NAME TCAAP_THUMB_STH_SWPPP01	
DESIGNED BY:	RJG
DRAWN BY:	RJG
CHECKED BY:	CBL
DATE:	4/20/17
PROJECT NO.	160553004

Kimley»Horn
2550 UNIVERSITY AVENUE WEST, SUITE 238N, ST, PAUL, MN 55114
PHONE: 651-645-4197
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I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

CHADD B. LARSON

DATE: 4/20/17 MN LIC. NO. 41864

RAMSEY COUNTY
OLD HIGHWAY 8 EXTENSION
CONSTRUCTION PROJECT

STORM WATER POLLUTION PREVENTION PLAN NARRATIVE

COUNTY PROJECT	
S.A.P.	062-593-006
S.A.P.	
S.P.	

STORM WATER POLLUTION PREVENTION PLAN (SWPPP) NARRATIVE (CON'T)

SWPPP AMENDMENTS

DESCRIPTION	DATE	COMPLETED BY
1.		
2.		
3.		
4.		
5.		

WATER RESOURCES NOTES

THESE NOTES ALONG WITH THE STORMWATER POLLUTION PREVENTION PLAN (SWPPP) NARRATIVE ARE INTENDED TO GIVE INFORMATION ON CRITICAL DRAINAGE FEATURES, NATURAL RESOURCES AND CONTRACTOR OPERATIONS THAT MAY IMPACT DRAINAGE AND NATURAL RESOURCES.

1. THE SIZE AND ELEVATION OF STORM SEWER PIPES, INLETS PERMEABLE DITCH BLOCKS AND OVERFLOW DEVICES HAVE BEEN SPECIFICALLY DESIGNED TO CONFORM TO MN/DOT DESIGN STANDARDS, MINNESOTA POLLUTION CONTROL AGENCY (MPCA), AND WATERSHED DISTRICT PERMIT REQUIREMENTS. THE DESIGN COMPUTATIONS ARE ON FILE WITH MN/DOT METRO WATER RESOURCES. CHANGING THE DIRECTION OF FLOW FROM WHAT IS SHOWN ON THE PLANS MAY CAUSE PROBLEMS OFF THE PROJECT AND COULD MEAN THE PROJECT IS OUT OF COMPLIANCE WITH APPROVED DRAINAGE PERMITS. ANY CHANGES TO THE SIZE, ELEVATION OR DIRECTION OF FLOW OF THE DRAINAGE SYSTEM MUST BE APPROVED BY THE WATER RESOURCES DESIGNER.

2. THE FOLLOWING PERMITS APPLY TO THIS PROJECT:
   A. NPDES - THE PERMIT APPLICATION FORM HAS BEEN COMPLETED APPROVED BY MNDOT. THE CONTRACTOR IS RESPONSIBLE FOR COMPLETING THE REST OF THE FORM AND SUBMITTING TO THE MPCA PRIOR TO COMMENCING WORK ON SITE.

3. WITHIN AREAS WHERE BIO-INFILTRATION TRENCHES, PERMEABLE DITCH BLOCKS, FILTRATION BASINS, INFILTRATION BASINS AND DRY PONDS ARE CONSTRUCTED, ONLY TRACKED VEHICLES MAY BE USED. WHEELED VEHICLES ARE PROHIBITED FROM THESE AREAS IN ORDER TO LIMIT THE COMPACTION OF THE EXISTING AND INSTALLED ENGINEERED SOILS. EXTRA CARE SHOULD BE TAKEN TO AVOID DISCHARGE OF CONSTRUCTION SEDIMENT TO THESE DRAINAGE FEATURES. IN THE EVENT THAT SEDIMENT IS DISCHARGED ONTO THE EXISTING SOILS PRECEDING PLACEMENT OF ENGINEERED SOILS OR ONTO THE SURFACE OF ENGINEERED SOILS, THE DAMAGED AREAS WILL BE REPLACED WITH ENGINEERED SOILS. IF THESE AREAS BECOME COMPACTED, THE CONTRACTOR WILL SUBSOIL THE BASIN, INSTALL ADDITIONAL ENGINEERED SOILS, OR USE OTHER METHODS RECOMMENDED BY THE ENGINEER AT NO COST TO MNDOT. THE CONTRACTOR WILL THEN VERIFY USING A DOUBLE RING INFILTROMETER THAT THE BASIN WILL FUNCTION AS DESIGNED.

4. ALL DISTURBED GREEN SPACES SHALL BE SUBSOILED IN ACCORDANCE WITH SPECIFICATION 2105.3.H. ALL SUBSOILING SHALL BE CONSIDERED INCIDENTAL TO THE PROJECT.

No.	Date	Revisions	App.

DRAWING NAME: TCAAP_THUMB_STH_SWPPP01

DESIGNED BY:	RJG
DRAWN BY:	RJG
CHECKED BY:	CBL
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PROJECT NO.	160553004

Kimley»Horn
2550 UNIVERSITY AVENUE WEST, SUITE 238N, ST, PAUL, MN 55114
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CHADD B. LARSON

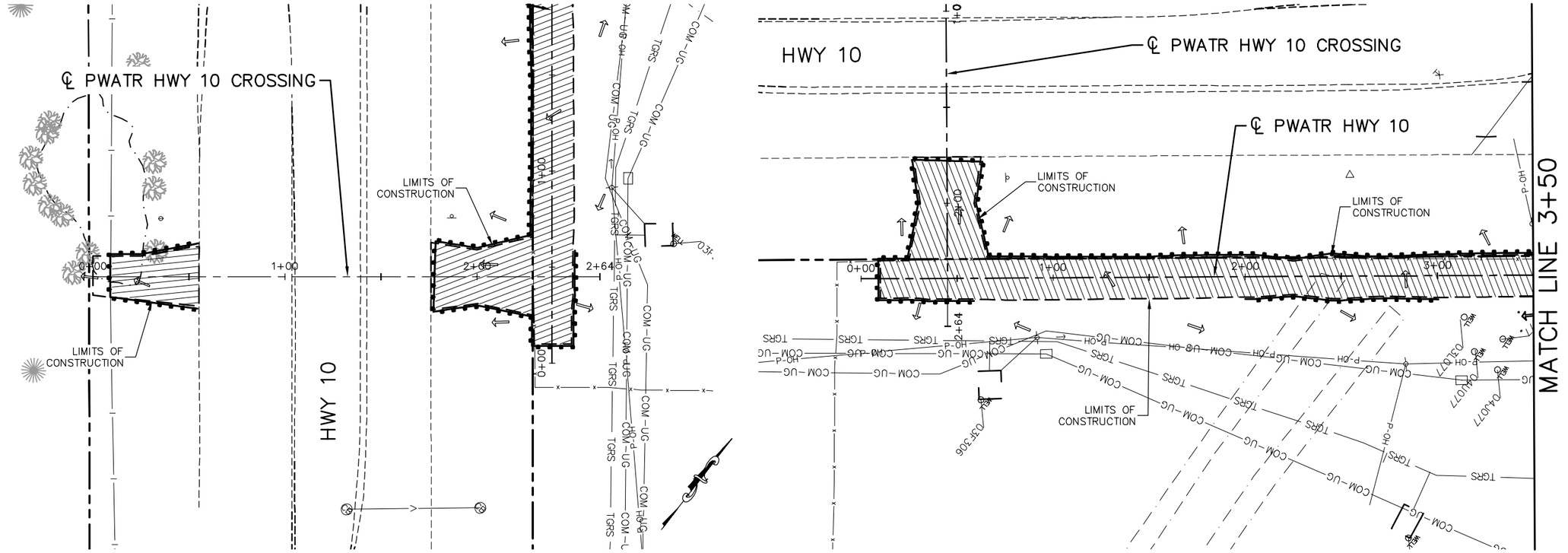
DATE: 4/20/17 MN LIC. NO. 41864

RAMSEY COUNTY
OLD HIGHWAY 8 EXTENSION
CONSTRUCTION PROJECT

STORM WATER POLLUTION
PREVENTION PLAN
WATER RESOURCE NOTES

COUNTY PROJECT	
S.A.P.	062-593-006
S.A.P.	
S.P.	

SHEET NO. 40 / 115



0 15 30 60
HORIZONTAL SCALE IN FEET

LEGEND

HYDROSEED
SEED MIX – MnDOT NO. 25–121 @ 61 LBS/ACRE
FERTILIZER – MnDOT TYPE 3 – 22–5–10 @ 350 LBS/ACRE
HARROWED, CULTIVATED OR RAKED FOLLOWING SEEDING
MUCLH – MnDOT TYPE 1 @ 2 TONS/ACRE, DISC ANCHORING

HYDROSEED
SEED MIX – MnDOT NO. 33–261 @ 35 LBS/ACRE
FERTILIZER – MnDOT TYPE 4 – 18–1–18 @ 120 LBS/ACRE
HARROWED OR RAKED AND THEN CULTIVATED
EROSION CONTROL BLANKET – MnDOT CAT. 3 WITH ALL NATURAL NETTING AND STITCHING

HYDROSEED
SEED MIX – MnDOT NO. 34–171 @ 6 LBS/ACRE
FERTILIZER – MnDOT TYPE 4 – 18–1–18 @ 120 LBS/ACRE
HARROWED OR RAKED AND THEN CULTIVATED
EROSION CONTROL BLANKET – MnDOT CAT. 3 WITH ALL NATURAL NETTING AND STITCHING

SEDIMENT CONTROL LOG TYPE WOOD FIBER

SILT FENCE

STORM DRAIN INLET PROTECTION

DRAINAGE FLOW ARROWS

RANDOM RIPRAP, SEE STORM SEWER TABULATION FOR TYPE

TEMPORARY EROSION CONTROL NOTES:

1. ALL STREETS IN AND ADJACENT TO THE PROJECT SHALL REMAIN CLEAN AND PASSABLE AT ALL TIMES. ALL SEDIMENT AND DEBRIS SHALL BE REMOVED WITHIN 24 HOURS, OR AS OFTEN TO ENSURE PUBLIC SAFETY.
2. INLET PROTECTION WILL BE PROVIDED AT ALL CATCH BASINS (EXISTING AND PROPOSED) WITHIN THE PROJECT AREA PER THE STANDARD DETAILS.
3. ALL AREAS TEMPORARILY DISTURBED WILL BE MULCHED WITHIN THE FOLLOWING TIME FRAME UNLESS OTHERWISE NOTED. WITHIN 7 DAYS ON ALL 1:3 SIDE SLOPES
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5. THE CONTRACTOR SHALL PROVIDE APPROPRIATE EROSION AND SEDIMENT CONTROL DEVICES FOR STOCKPILES.
6. SILT FENCE SHALL FOLLOW, AS CLOSE AS POSSIBLE, TO A SINGLE CONTOUR LINE.
7. PIPE OUTLETS NEED TEMPORARY OR PERMANENT ENERGY DISSIPATION.
8. WHEN SEDIMENT DEPOSITS IN A WATER OF THE STATE THE MATERIAL MUST BE REMOVED WITHIN 7 DAYS.
9. CONTRACTOR SHALL MAINTAIN VEGETATED BUFFERS WHERE POSSIBLE AS A FORM OF REDUNDANT PERIMETER CONTROL.
10. CONTRACTOR SHALL RECEIVE THE APPROVAL OF THE FIELD ENGINEER PRIOR TO REMOVING EROSION CONTROL MEASURES AT OUTFALLS. INTERMITTENT REMOVAL OF CAPTURED SEDIMENT AND DEBRIS IN OUTFALLS TO THE SATISFACTION OF THE FIELD ENGINEER MAY BE DEEMED NECESSARY AND IS INCIDENTAL.

No.	Date	Revisions	App.

DRAWING NAME	TCAAP_THUMB_STH_TURF02
DESIGNED BY:	RJG
DRAWN BY:	RJG
CHECKED BY:	CBL
DATE:	4/20/17
PROJECT NO.	160553004

Kimley»Horn
2550 UNIVERSITY AVENUE WEST, SUITE 238N, ST. PAUL, MN 55114
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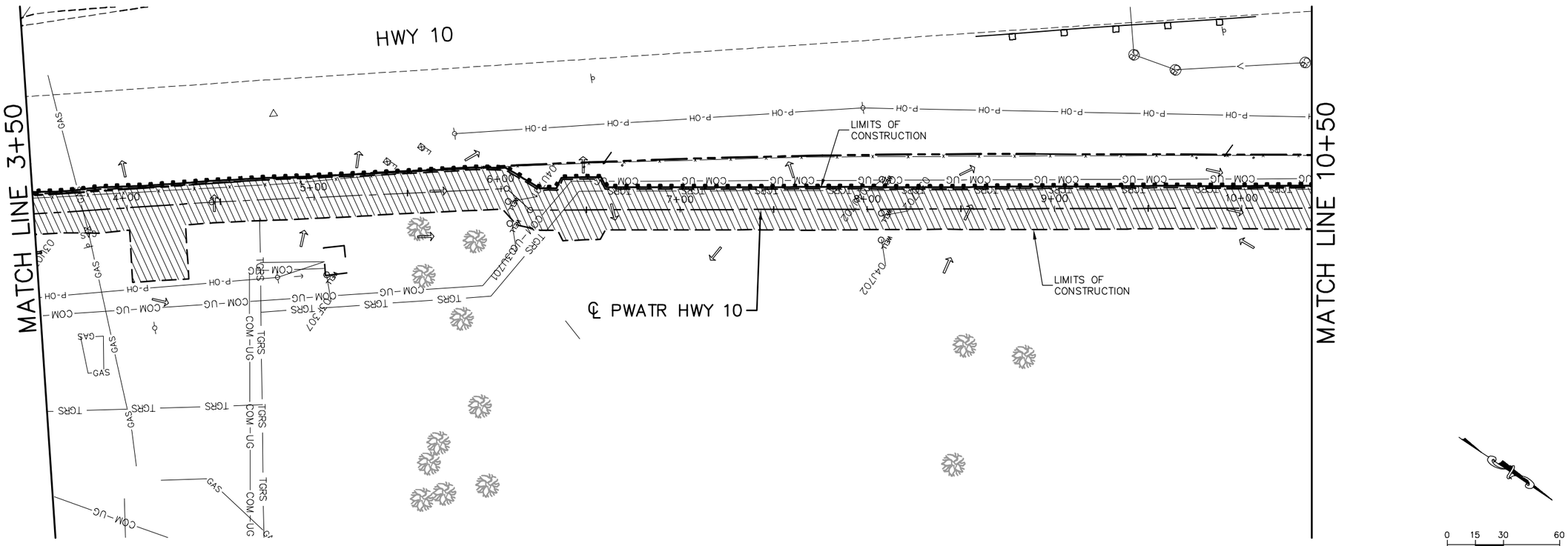
CHADD B. LARSON
DATE: 4/20/17 MN LIC. NO. 41864

RAMSEY COUNTY
OLD HIGHWAY 8 EXTENSION CONSTRUCTION PROJECT
HIGHWAY 10 WATERMAIN
EROSION CONTROL AND TURF ESTABLISHMENT PLAN
STA. 0+00 TO STA. 3+50

COUNTY PROJECT	
S.A.P.	062–593–006
S.A.P.	
S.P.	

SHEET NO. 41 / 115



LEGEND

HYDROSEED
SEED MIX – MnDOT NO. 25–121 @ 61 LBS/ACRE
FERTILIZER – MnDOT TYPE 3 – 22–5–10 @ 350 LBS/ACRE
HARROWED, CULTIVATED OR RAKED FOLLOWING SEEDING
MUCLH – MnDOT TYPE 1 @ 2 TONS/ACRE, DISC ANCHORING

HYDROSEED
SEED MIX – MnDOT NO. 33–261 @ 35 LBS/ACRE
FERTILIZER – MnDOT TYPE 4 – 18–1–18 @ 120 LBS/ACRE
HARROWED OR RAKED AND THEN CULTIVATED
EROSION CONTROL BLANKET – MnDOT CAT. 3 WITH ALL NATURAL NETTING AND STITCHING

HYDROSEED
SEED MIX – MnDOT NO. 34–171 @ 6 LBS/ACRE
FERTILIZER – MnDOT TYPE 4 – 18–1–18 @ 120 LBS/ACRE
HARROWED OR RAKED AND THEN CULTIVATED
EROSION CONTROL BLANKET – MnDOT CAT. 3 WITH ALL NATURAL NETTING AND STITCHING

SEDIMENT CONTROL LOG
TYPE WOOD FIBER

SILT FENCE

STORM DRAIN
INLET PROTECTION

DRAINAGE FLOW
ARROWS

RANDOM RIPRAP, SEE STORM
SEWER TABULATION FOR TYPE

TEMPORARY EROSION CONTROL NOTES:

1. ALL STREETS IN AND ADJACENT TO THE PROJECT SHALL REMAIN CLEAN AND PASSABLE AT ALL TIMES. ALL SEDIMENT AND DEBRIS SHALL BE REMOVED WITHIN 24 HOURS, OR AS OFTEN TO ENSURE PUBLIC SAFETY.
2. INLET PROTECTION WILL BE PROVIDED AT ALL CATCH BASINS (EXISTING AND PROPOSED) WITHIN THE PROJECT AREA PER THE STANDARD DETAILS.
3. ALL AREAS TEMPORARILY DISTURBED WILL BE MULCHED WITHIN THE FOLLOWING TIME FRAME UNLESS OTHERWISE NOTED. WITHIN 7 DAYS ON ALL 1:3 SIDE SLOPES
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5. THE CONTRACTOR SHALL PROVIDE APPROPRIATE EROSION AND SEDIMENT CONTROL DEVICES FOR STOCKPILES.
6. SILT FENCE SHALL FOLLOW, AS CLOSE AS POSSIBLE, TO A SINGLE CONTOUR LINE.
7. PIPE OUTLETS NEED TEMPORARY OR PERMANENT ENERGY DISSIPATION.
8. WHEN SEDIMENT DEPOSITS IN A WATER OF THE STATE THE MATERIAL MUST BE REMOVED WITHIN 7 DAYS.
9. CONTRACTOR SHALL MAINTAIN VEGETATED BUFFERS WHERE POSSIBLE AS A FORM OF REDUNDANT PERIMETER CONTROL.
10. CONTRACTOR SHALL RECEIVE THE APPROVAL OF THE FIELD ENGINEER PRIOR TO REMOVING EROSION CONTROL MEASURES AT OUTFALLS. INTERMITTENT REMOVAL OF CAPTURED SEDIMENT AND DEBRIS IN OUTFALLS TO THE SATISFACTION OF THE FIELD ENGINEER MAY BE DEEMED NECESSARY AND IS INCIDENTAL.

No.	Date	Revisions	App.

DRAWING NAME	TCAAP_THUMB_STH_TURF02
DESIGNED BY:	RJG
DRAWN BY:	RJG
CHECKED BY:	CBL
DATE:	4/20/17
PROJECT NO.	160553004

Kimley»Horn
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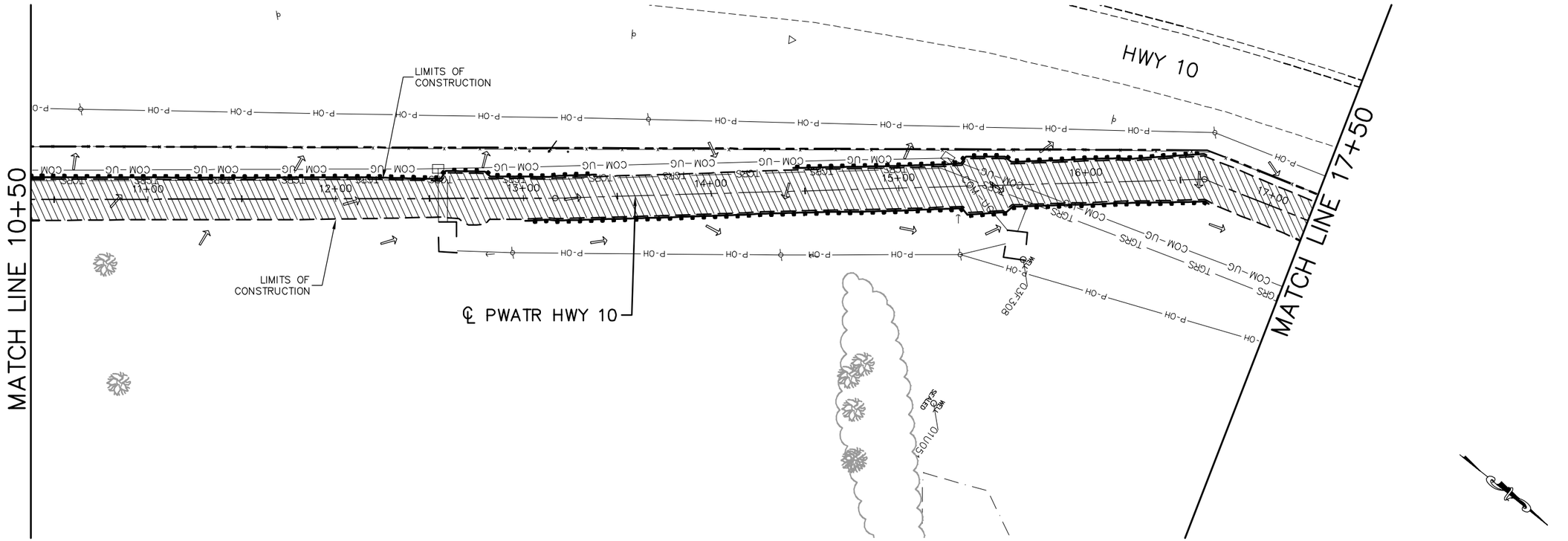
CHADD B. LARSON
DATE: 4/20/17 MN LIC. NO. 41864

RAMSEY COUNTY
OLD HIGHWAY 8 EXTENSION CONSTRUCTION PROJECT
HIGHWAY 10 WATERMAIN
EROSION CONTROL AND TURF ESTABLISHMENT PLAN
STA. 3+50 TO STA. 10+50

COUNTY PROJECT	
S.A.P.	062–593–006
S.A.P.	
S.P.	

SHEET NO. 42 / 115



LEGEND

HYDROSEED
SEED MIX – MnDOT NO. 25–121 @ 61 LBS/ACRE
FERTILIZER – MnDOT TYPE 3 – 22–5–10 @ 350 LBS/ACRE
HARROWED, CULTIVATED OR RAKED FOLLOWING SEEDING
MUCLH – MnDOT TYPE 1 @ 2 TONS/ACRE, DISC ANCHORING

HYDROSEED
SEED MIX – MnDOT NO. 33–261 @ 35 LBS/ACRE
FERTILIZER – MnDOT TYPE 4 – 18–1–18 @ 120 LBS/ACRE
HARROWED OR RAKED AND THEN CULTIVATED
EROSION CONTROL BLANKET – MnDOT CAT. 3 WITH ALL NATURAL NETTING AND STITCHING

HYDROSEED
SEED MIX – MnDOT NO. 34–171 @ 6 LBS/ACRE
FERTILIZER – MnDOT TYPE 4 – 18–1–18 @ 120 LBS/ACRE
HARROWED OR RAKED AND THEN CULTIVATED
EROSION CONTROL BLANKET – MnDOT CAT. 3 WITH ALL NATURAL NETTING AND STITCHING

SEDIMENT CONTROL LOG TYPE WOOD FIBER

SILT FENCE

STORM DRAIN INLET PROTECTION

DRAINAGE FLOW ARROWS

RANDOM RIPRAP, SEE STORM SEWER TABULATION FOR TYPE

TEMPORARY EROSION CONTROL NOTES:

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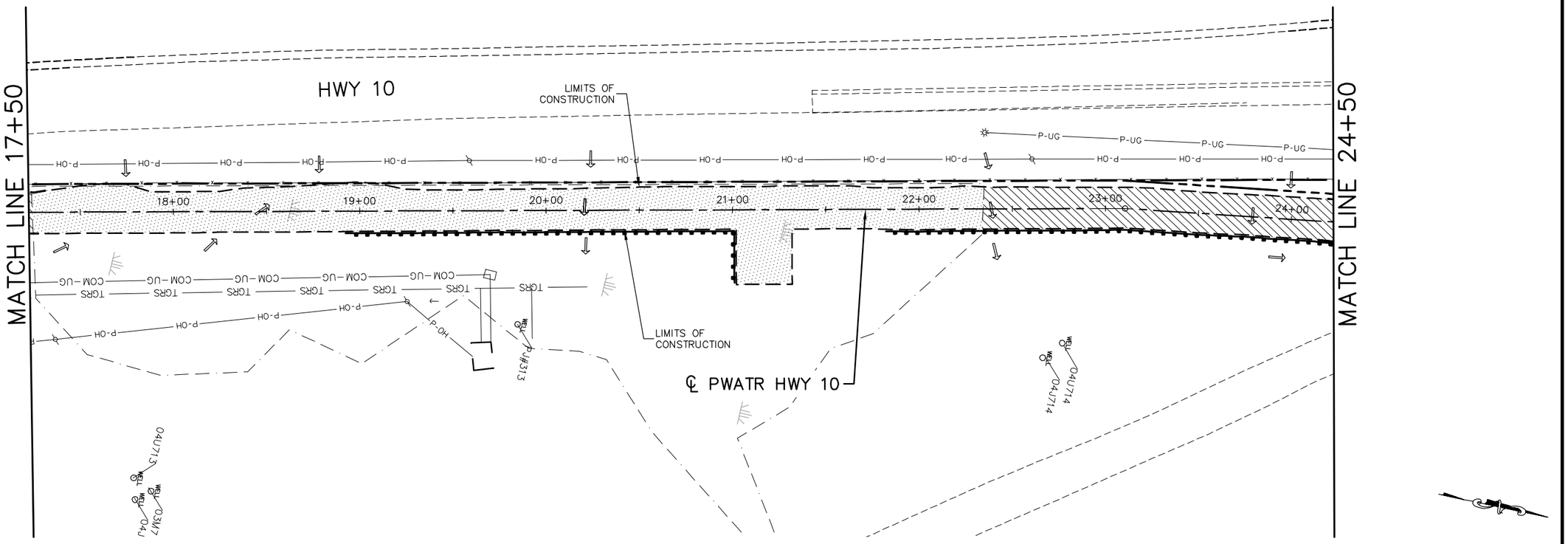
RAMSEY COUNTY
OLD HIGHWAY 8 EXTENSION CONSTRUCTION PROJECT
HIGHWAY 10 WATERMAIN
EROSION CONTROL AND TURF ESTABLISHMENT PLAN
STA. 10+50 TO STA. 17+50

COUNTY PROJECT	
S.A.P.	062–593–006
S.A.P.	
S.P.	

SHEET NO. 43 / 115



LEGEND

HYDROSEED
SEED MIX – MnDOT NO. 25–121 @ 61 LBS/ACRE
FERTILIZER – MnDOT TYPE 3 – 22–5–10 @ 350 LBS/ACRE
HARROWED, CULTIVATED OR RAKED FOLLOWING SEEDING
MUCLH – MnDOT TYPE 1 @ 2 TONS/ACRE, DISC ANCHORING

HYDROSEED
SEED MIX – MnDOT NO. 33–261 @ 35 LBS/ACRE
FERTILIZER – MnDOT TYPE 4 – 18–1–18 @ 120 LBS/ACRE
HARROWED OR RAKED AND THEN CULTIVATED
EROSION CONTROL BLANKET – MnDOT CAT. 3 WITH ALL NATURAL NETTING AND STITCHING

HYDROSEED
SEED MIX – MnDOT NO. 34–171 @ 6 LBS/ACRE
FERTILIZER – MnDOT TYPE 4 – 18–1–18 @ 120 LBS/ACRE
HARROWED OR RAKED AND THEN CULTIVATED
EROSION CONTROL BLANKET – MnDOT CAT. 3 WITH ALL NATURAL NETTING AND STITCHING

SEDIMENT CONTROL LOG
TYPE WOOD FIBER

SILT FENCE

STORM DRAIN
INLET PROTECTION

DRAINAGE FLOW
ARROWS

RANDOM RIPRAP, SEE STORM
SEWER TABULATION FOR TYPE

TEMPORARY EROSION CONTROL NOTES:

1. ALL STREETS IN AND ADJACENT TO THE PROJECT SHALL REMAIN CLEAN AND PASSABLE AT ALL TIMES. ALL SEDIMENT AND DEBRIS SHALL BE REMOVED WITHIN 24 HOURS, OR AS OFTEN TO ENSURE PUBLIC SAFETY.
2. INLET PROTECTION WILL BE PROVIDED AT ALL CATCH BASINS (EXISTING AND PROPOSED) WITHIN THE PROJECT AREA PER THE STANDARD DETAILS.
3. ALL AREAS TEMPORARILY DISTURBED WILL BE MULCHED WITHIN THE FOLLOWING TIME FRAME UNLESS OTHERWISE NOTED.
   WITHIN 7 DAYS ON ALL 1:3 SIDE SLOPES
4. DITCHES ARE TO BE STABILIZED WITHIN 24 HOURS, INCLUDING GUTTER LINES TO CATCH BASINS, POND SIDE SLOPES AND ERODIBLE STOCKPILES. DITCHES AND OTHER AREAS DRAINING TO WATERS OF THE STATE SHALL ALSO BE STABILIZED WITHIN 24 HOURS.
5. THE CONTRACTOR SHALL PROVIDE APPROPRIATE EROSION AND SEDIMENT CONTROL DEVICES FOR STOCKPILES.
6. SILT FENCE SHALL FOLLOW, AS CLOSE AS POSSIBLE, TO A SINGLE CONTOUR LINE.
7. PIPE OUTLETS NEED TEMPORARY OR PERMANENT ENERGY DISSIPATION.
8. WHEN SEDIMENT DEPOSITS IN A WATER OF THE STATE THE MATERIAL MUST BE REMOVED WITHIN 7 DAYS.
9. CONTRACTOR SHALL MAINTAIN VEGETATED BUFFERS WHERE POSSIBLE AS A FORM OF REDUNDANT PERIMETER CONTROL.
10. CONTRACTOR SHALL RECEIVE THE APPROVAL OF THE FIELD ENGINEER PRIOR TO REMOVING EROSION CONTROL MEASURES AT OUTFALLS. INTERMITTENT REMOVAL OF CAPTURED SEDIMENT AND DEBRIS IN OUTFALLS TO THE SATISFACTION OF THE FIELD ENGINEER MAY BE DEEMED NECESSARY AND IS INCIDENTAL.

No.	Date	Revisions	App.

DRAWING NAME	TCAAP_THUMB_STH_TURF02
DESIGNED BY:	RJG
DRAWN BY:	RJG
CHECKED BY:	CBL
DATE:	4/20/17
PROJECT NO.	160553004

Kimley»Horn
2550 UNIVERSITY AVENUE WEST, SUITE 238N, ST. PAUL, MN 55114
PHONE: 651–645–4197
WWW.KIMLEY–HORN.COM

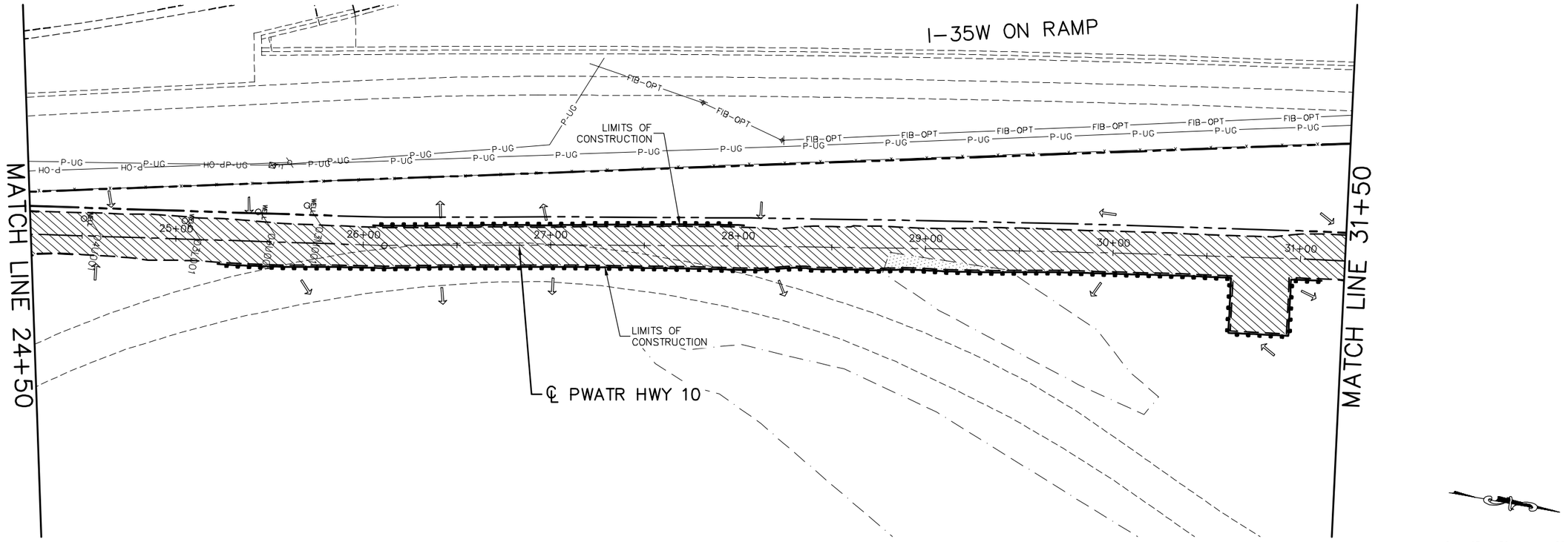
I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

CHADD B. LARSON
DATE: 4/20/17 MN LIC. NO. 41864

RAMSEY COUNTY
OLD HIGHWAY 8 EXTENSION
CONSTRUCTION PROJECT
HIGHWAY 10 WATERMAIN
EROSION CONTROL AND
TURF ESTABLISHMENT PLAN
STA. 17+50 TO STA. 24+50

COUNTY PROJECT	
S.A.P.	062–593–006
S.A.P.	
S.P.	

SHEET NO. 44 / 115



LEGEND

HYDROSEED
SEED MIX – MnDOT NO. 25–121 @ 61 LBS/ACRE
FERTILIZER – MnDOT TYPE 3 – 22–5–10 @ 350 LBS/ACRE
HARROWED, CULTIVATED OR RAKED FOLLOWING SEEDING
MUCLH – MnDOT TYPE 1 @ 2 TONS/ACRE, DISC ANCHORING

HYDROSEED
SEED MIX – MnDOT NO. 33–261 @ 35 LBS/ACRE
FERTILIZER – MnDOT TYPE 4 – 18–1–18 @ 120 LBS/ACRE
HARROWED OR RAKED AND THEN CULTIVATED
EROSION CONTROL BLANKET – MnDOT CAT. 3 WITH ALL NATURAL NETTING AND STITCHING

HYDROSEED
SEED MIX – MnDOT NO. 34–171 @ 6 LBS/ACRE
FERTILIZER – MnDOT TYPE 4 – 18–1–18 @ 120 LBS/ACRE
HARROWED OR RAKED AND THEN CULTIVATED
EROSION CONTROL BLANKET – MnDOT CAT. 3 WITH ALL NATURAL NETTING AND STITCHING

SEDIMENT CONTROL LOG TYPE WOOD FIBER

SILT FENCE

STORM DRAIN INLET PROTECTION

DRAINAGE FLOW ARROWS

RANDOM RIPRAP, SEE STORM SEWER TABULATION FOR TYPE

TEMPORARY EROSION CONTROL NOTES:

1. ALL STREETS IN AND ADJACENT TO THE PROJECT SHALL REMAIN CLEAN AND PASSABLE AT ALL TIMES. ALL SEDIMENT AND DEBRIS SHALL BE REMOVED WITHIN 24 HOURS, OR AS OFTEN TO ENSURE PUBLIC SAFETY.
2. INLET PROTECTION WILL BE PROVIDED AT ALL CATCH BASINS (EXISTING AND PROPOSED) WITHIN THE PROJECT AREA PER THE STANDARD DETAILS.
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10. CONTRACTOR SHALL RECEIVE THE APPROVAL OF THE FIELD ENGINEER PRIOR TO REMOVING EROSION CONTROL MEASURES AT OUTFALLS. INTERMITTENT REMOVAL OF CAPTURED SEDIMENT AND DEBRIS IN OUTFALLS TO THE SATISFACTION OF THE FIELD ENGINEER MAY BE DEEMED NECESSARY AND IS INCIDENTAL.

No.	Date	Revisions	App.

DRAWING NAME	TCAAP_THUMB_STH_TURF02
DESIGNED BY:	RJG
DRAWN BY:	RJG
CHECKED BY:	CBL
DATE:	4/20/17
PROJECT NO.	160553004

Kimley»Horn
2550 UNIVERSITY AVENUE WEST, SUITE 238N, ST, PAUL, MN 55114
PHONE: 651–645–4197
WWW.KIMLEY–HORN.COM

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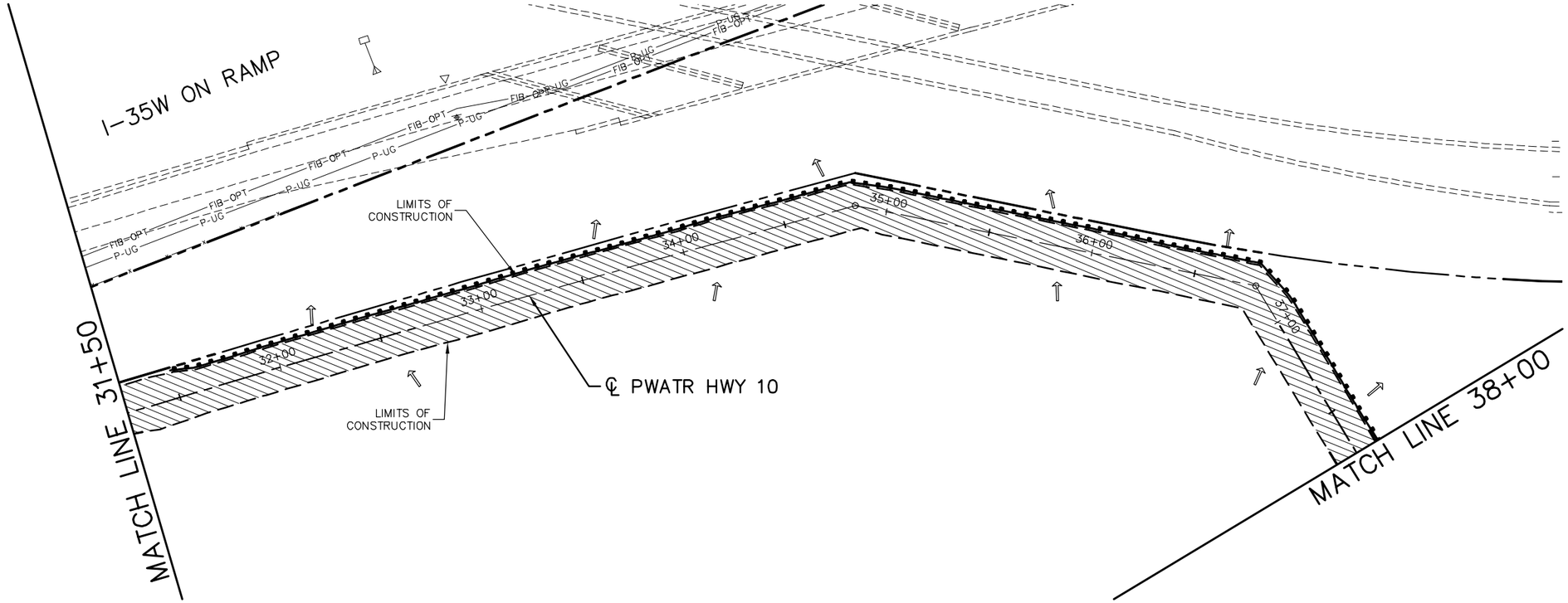
CHADD B. LARSON
DATE: 4/20/17 MN LIC. NO. 41864

RAMSEY COUNTY
OLD HIGHWAY 8 EXTENSION
CONSTRUCTION PROJECT
HIGHWAY 10 WATERMAIN
EROSION CONTROL AND
TURF ESTABLISHMENT PLAN
STA. 24+50 TO STA. 31+50

COUNTY PROJECT	
S.A.P.	062–593–006
S.A.P.	
S.P.	

SHEET NO. 45 / 115



0 15 30 60

HORIZONTAL SCALE IN FEET

LEGEND

HYDROSEED
SEED MIX – MnDOT NO. 25–121 @ 61 LBS/ACRE
FERTILIZER – MnDOT TYPE 3 – 22–5–10 @ 350 LBS/ACRE
HARROWED, CULTIVATED OR RAKED FOLLOWING SEEDING
MUCLH – MnDOT TYPE 1 @ 2 TONS/ACRE, DISC ANCHORING

HYDROSEED
SEED MIX – MnDOT NO. 33–261 @ 35 LBS/ACRE
FERTILIZER – MnDOT TYPE 4 – 18–1–18 @ 120 LBS/ACRE
HARROWED OR RAKED AND THEN CULTIVATED
EROSION CONTROL BLANKET – MnDOT CAT. 3 WITH ALL NATURAL NETTING AND STITCHING

HYDROSEED
SEED MIX – MnDOT NO. 34–171 @ 6 LBS/ACRE
FERTILIZER – MnDOT TYPE 4 – 18–1–18 @ 120 LBS/ACRE
HARROWED OR RAKED AND THEN CULTIVATED
EROSION CONTROL BLANKET – MnDOT CAT. 3 WITH ALL NATURAL NETTING AND STITCHING

SEDIMENT CONTROL LOG
TYPE WOOD FIBER

SILT FENCE

STORM DRAIN
INLET PROTECTION

DRAINAGE FLOW
ARROWS

RANDOM RIPRAP, SEE STORM SEWER TABULATION FOR TYPE

TEMPORARY EROSION CONTROL NOTES:

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No.	Date	Revisions	App.

DRAWING NAME	
TCAAP_THUMB_STH_TURF02	
DESIGNED BY:	RJG
DRAWN BY:	RJG
CHECKED BY:	CBL
DATE:	4/20/17
PROJECT NO.	160553004

Kimley»Horn
2550 UNIVERSITY AVENUE WEST, SUITE 238N, ST. PAUL, MN 55114
PHONE: 651–645–4197
WWW.KIMLEY–HORN.COM

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CHADD B. LARSON

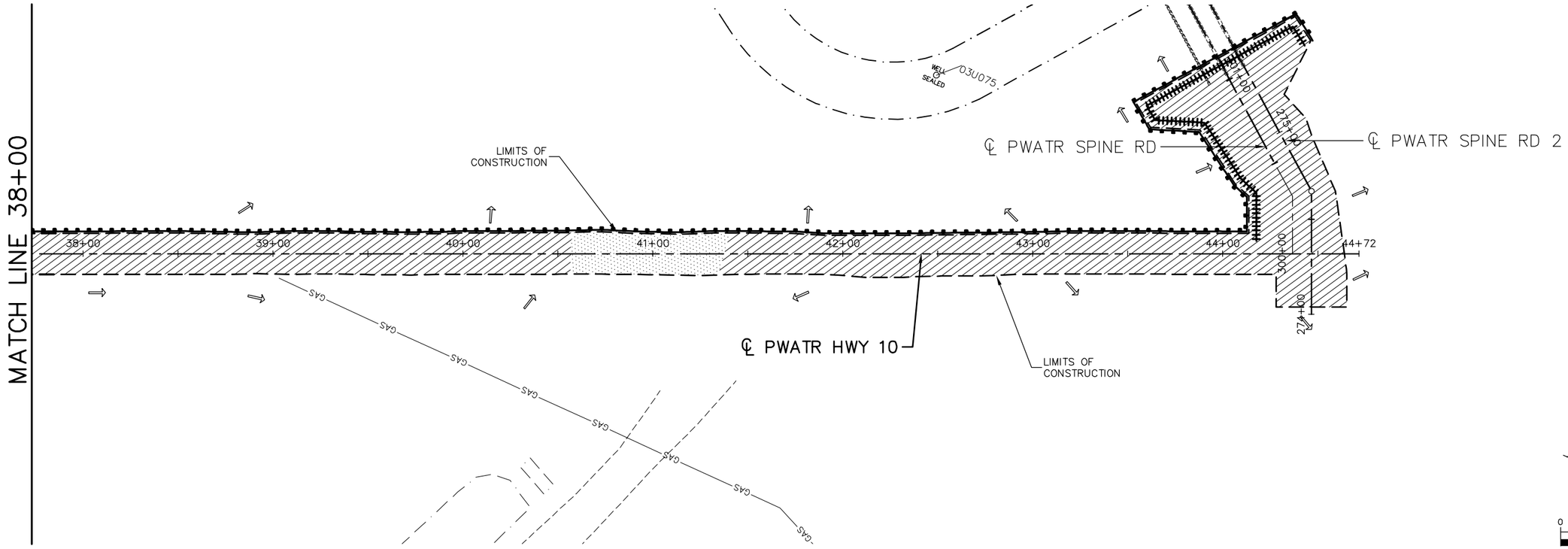
DATE: 4/20/17 MN LIC. NO. 41864

RAMSEY COUNTY

OLD HIGHWAY 8 EXTENSION
CONSTRUCTION PROJECT
HIGHWAY 10 WATERMAIN
EROSION CONTROL AND
TURF ESTABLISHMENT PLAN
STA. 31+50 TO STA. 38+00

COUNTY PROJECT	
S.A.P.	062–593–006
S.A.P.	
S.P.	

SHEET NO. 46 / 115



LEGEND

HYDROSEED
SEED MIX – MnDOT NO. 25–121 @ 61 LBS/ACRE
FERTILIZER – MnDOT TYPE 3 – 22–5–10 @ 350 LBS/ACRE
HARROWED, CULTIVATED OR RAKED FOLLOWING SEEDING
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SEED MIX – MnDOT NO. 33–261 @ 35 LBS/ACRE
FERTILIZER – MnDOT TYPE 4 – 18–1–18 @ 120 LBS/ACRE
HARROWED OR RAKED AND THEN CULTIVATED
EROSION CONTROL BLANKET – MnDOT CAT. 3 WITH ALL NATURAL NETTING AND STITCHING

HYDROSEED
SEED MIX – MnDOT NO. 34–171 @ 6 LBS/ACRE
FERTILIZER – MnDOT TYPE 4 – 18–1–18 @ 120 LBS/ACRE
HARROWED OR RAKED AND THEN CULTIVATED
EROSION CONTROL BLANKET – MnDOT CAT. 3 WITH ALL NATURAL NETTING AND STITCHING

SEDIMENT CONTROL LOG TYPE WOOD FIBER

SILT FENCE

STORM DRAIN INLET PROTECTION

DRAINAGE FLOW ARROWS

RANDOM RIPRAP, SEE STORM SEWER TABULATION FOR TYPE

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No.	Date	Revisions	App.

DRAWING NAME	TCAAP_THUMB_STH_TURF02
DESIGNED BY:	RJG
DRAWN BY:	RJG
CHECKED BY:	CBL
DATE:	4/20/17
PROJECT NO.	160553004

Kimley»Horn
2550 UNIVERSITY AVENUE WEST, SUITE 238N, ST, PAUL, MN 55114
PHONE: 651–645–4197
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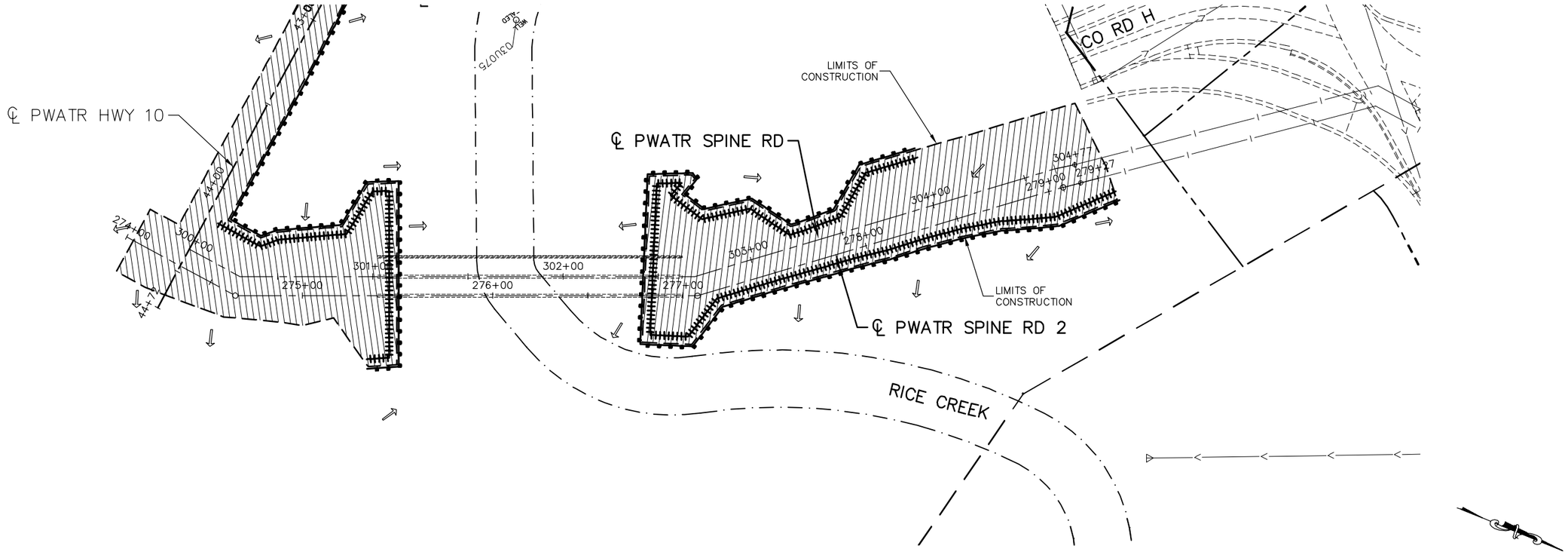
CHADD B. LARSON
DATE: 4/20/17 MN LIC. NO. 41864

RAMSEY COUNTY
OLD HIGHWAY 8 EXTENSION
CONSTRUCTION PROJECT
HIGHWAY 10 WATERMAIN
EROSION CONTROL AND
TURF ESTABLISHMENT PLAN
STA. 38+00 TO STA. 45+00

COUNTY PROJECT	
S.A.P.	062–593–006
S.A.P.	
S.P.	

SHEET NO. 47 / 115



LEGEND

HYDROSEED
SEED MIX – MnDOT NO. 25–121 @ 61 LBS/ACRE
FERTILIZER – MnDOT TYPE 3 – 22–5–10 @ 350 LBS/ACRE
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MUCLH – MnDOT TYPE 1 @ 2 TONS/ACRE, DISC ANCHORING

HYDROSEED
SEED MIX – MnDOT NO. 33–261 @ 35 LBS/ACRE
FERTILIZER – MnDOT TYPE 4 – 18–1–18 @ 120 LBS/ACRE
HARROWED OR RAKED AND THEN CULTIVATED
EROSION CONTROL BLANKET – MnDOT CAT. 3 WITH ALL NATURAL NETTING AND STITCHING

HYDROSEED
SEED MIX – MnDOT NO. 34–171 @ 6 LBS/ACRE
FERTILIZER – MnDOT TYPE 4 – 18–1–18 @ 120 LBS/ACRE
HARROWED OR RAKED AND THEN CULTIVATED
EROSION CONTROL BLANKET – MnDOT CAT. 3 WITH ALL NATURAL NETTING AND STITCHING

SEDIMENT CONTROL LOG TYPE WOOD FIBER

SILT FENCE

STORM DRAIN INLET PROTECTION

DRAINAGE FLOW ARROWS

RANDOM RIPRAP, SEE STORM SEWER TABULATION FOR TYPE

TEMPORARY EROSION CONTROL NOTES:

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No.	Date	Revisions	App.

DRAWING NAME	TCAAP_THUMB_STH_TURF02
DESIGNED BY:	RJG
DRAWN BY:	RJG
CHECKED BY:	CBL
DATE:	4/20/17
PROJECT NO.	160553004

Kimley»Horn
2550 UNIVERSITY AVENUE WEST, SUITE 238N, ST. PAUL, MN 55114
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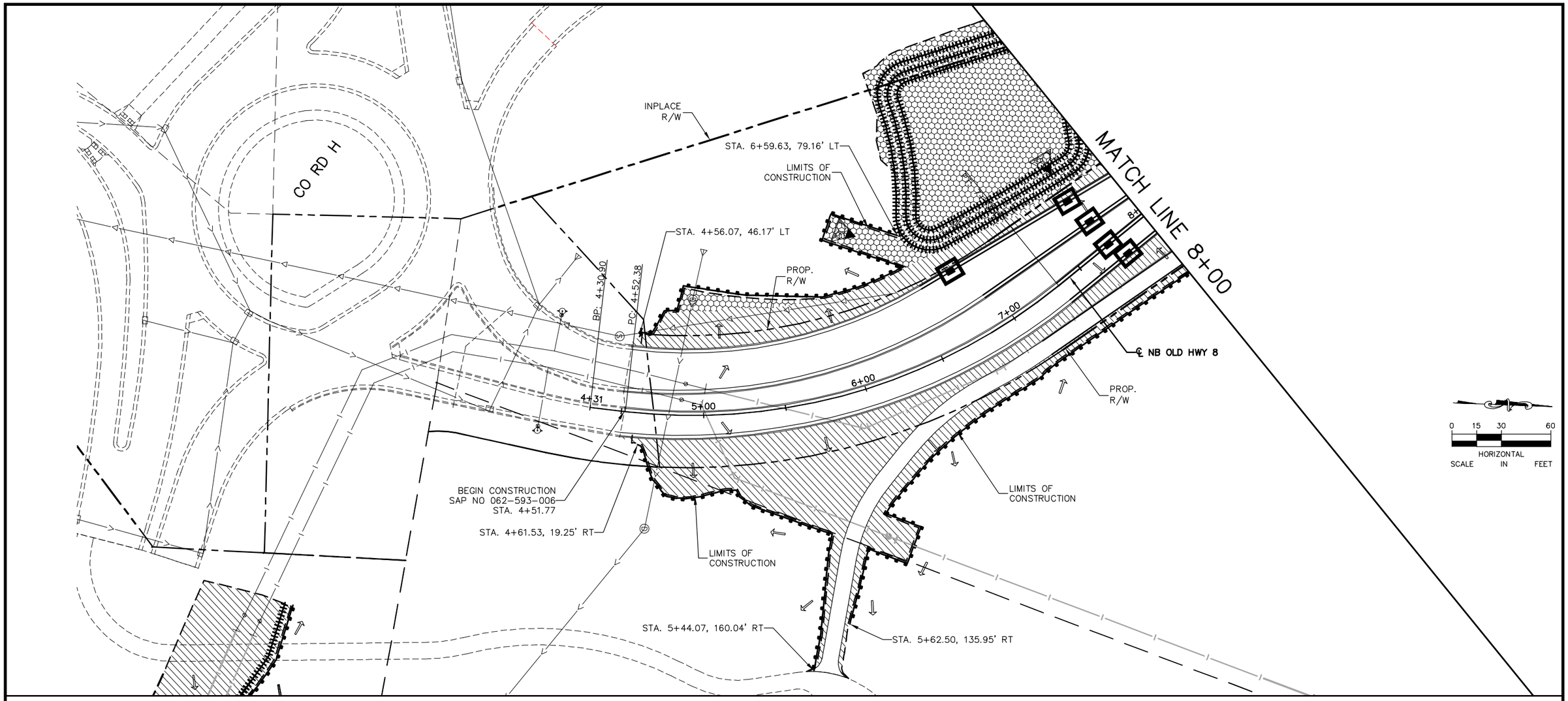
CHADD B. LARSON
DATE: 4/20/17 MN LIC. NO. 41864

RAMSEY COUNTY
OLD HIGHWAY 8 EXTENSION
CONSTRUCTION PROJECT
RICE CREEK WATERMAIN
EROSION CONTROL AND
TURF ESTABLISHMENT PLAN
STA. 300+00 TO STA. 305+25

COUNTY PROJECT	
S.A.P.	062–593–006
S.A.P.	
S.P.	

SHEET NO. 48 / 115



LEGEND

HYDROSEED
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EROSION CONTROL BLANKET – MnDOT CAT. 3 WITH ALL NATURAL NETTING AND STITCHING

HYDROSEED
SEED MIX – MnDOT NO. 34–171 @ 6 LBS/ACRE
FERTILIZER – MnDOT TYPE 4 – 18–1–18 @ 120 LBS/ACRE
HARROWED OR RAKED AND THEN CULTIVATED
EROSION CONTROL BLANKET – MnDOT CAT. 3 WITH ALL NATURAL NETTING AND STITCHING

SEDIMENT CONTROL LOG TYPE WOOD FIBER

SILT FENCE

STORM DRAIN INLET PROTECTION

DRAINAGE FLOW ARROWS

RANDOM RIPRAP, SEE STORM SEWER TABULATION FOR TYPE

TEMPORARY EROSION CONTROL NOTES:

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No.	Date	Revisions	App.

DRAWING NAME TCAAP_THUMB_STH_TURF01	
DESIGNED BY:	RJG
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DATE:	4/20/17
PROJECT NO.	160553004

Kimley»Horn
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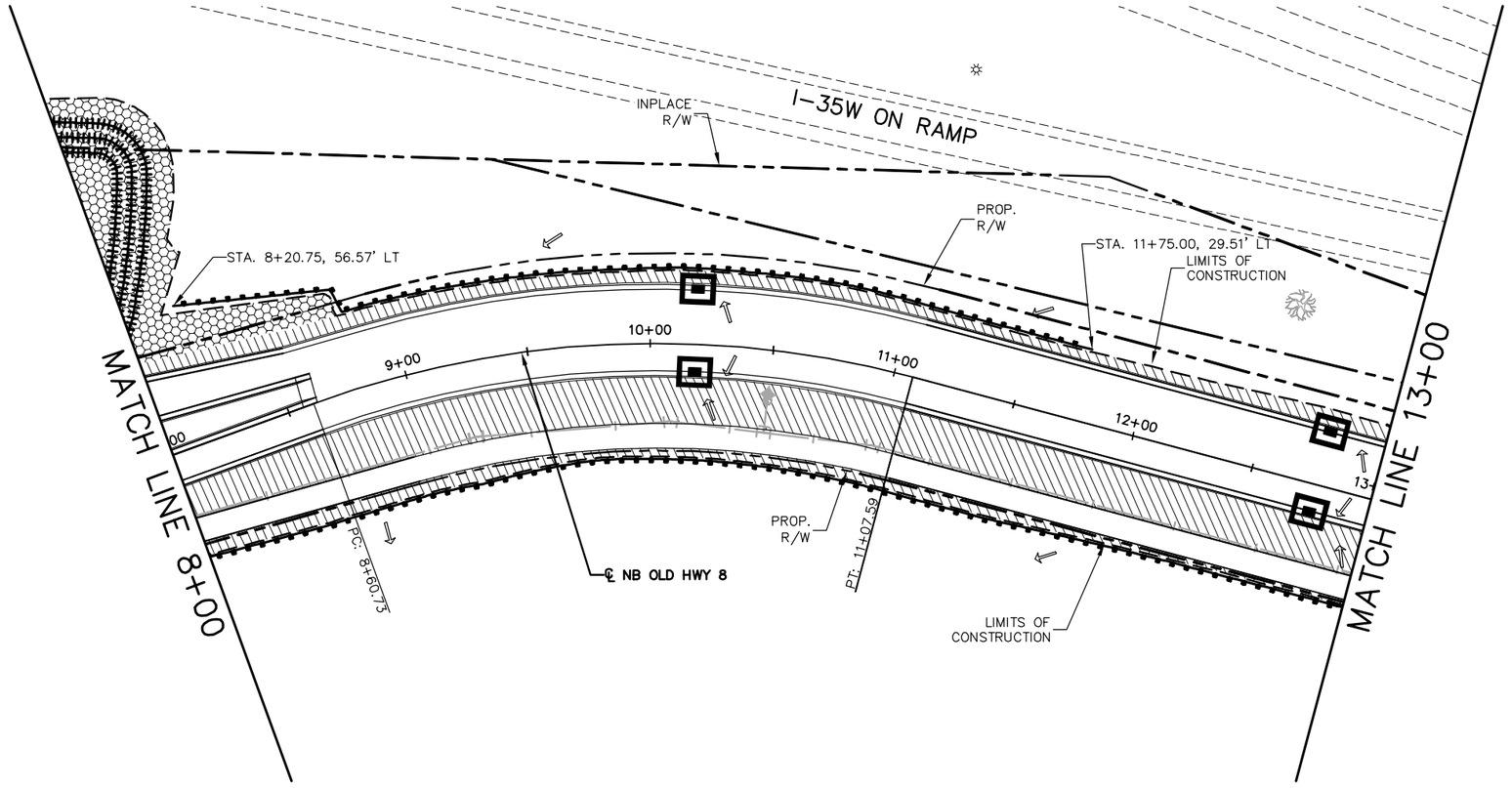
Chadd B. Larson
CHADD B. LARSON
DATE: 4/20/17 MN LIC. NO. 41864

RAMSEY COUNTY
OLD HIGHWAY 8 EXTENSION CONSTRUCTION PROJECT
OLD HIGHWAY 8
EROSION CONTROL AND TURF ESTABLISHMENT PLAN
STA. 4+51.77 TO STA. 8+00

COUNTY PROJECT	
S.A.P.	062-593-006
S.A.P.	
S.P.	

SHEET NO. 49 / 115



0 15 30 60
HORIZONTAL SCALE IN FEET

LEGEND

HYDROSEED
SEED MIX – MnDOT NO. 25–121 @ 61 LBS/ACRE
FERTILIZER – MnDOT TYPE 3 – 22–5–10 @ 350 LBS/ACRE
HARROWED, CULTIVATED OR RAKED FOLLOWING SEEDING
MUCLH – MnDOT TYPE 1 @ 2 TONS/ACRE, DISC ANCHORING

HYDROSEED
SEED MIX – MnDOT NO. 33–261 @ 35 LBS/ACRE
FERTILIZER – MnDOT TYPE 4 – 18–1–18 @ 120 LBS/ACRE
HARROWED OR RAKED AND THEN CULTIVATED
EROSION CONTROL BLANKET – MnDOT CAT. 3 WITH ALL NATURAL NETTING AND STITCHING

HYDROSEED
SEED MIX – MnDOT NO. 34–171 @ 6 LBS/ACRE
FERTILIZER – MnDOT TYPE 4 – 18–1–18 @ 120 LBS/ACRE
HARROWED OR RAKED AND THEN CULTIVATED
EROSION CONTROL BLANKET – MnDOT CAT. 3 WITH ALL NATURAL NETTING AND STITCHING

SEDIMENT CONTROL LOG TYPE WOOD FIBER

SILT FENCE

STORM DRAIN INLET PROTECTION

DRAINAGE FLOW ARROWS

RANDOM RIPRAP, SEE STORM SEWER TABULATION FOR TYPE

TEMPORARY EROSION CONTROL NOTES:

1. ALL STREETS IN AND ADJACENT TO THE PROJECT SHALL REMAIN CLEAN AND PASSABLE AT ALL TIMES. ALL SEDIMENT AND DEBRIS SHALL BE REMOVED WITHIN 24 HOURS, OR AS OFTEN TO ENSURE PUBLIC SAFETY.
2. INLET PROTECTION WILL BE PROVIDED AT ALL CATCH BASINS (EXISTING AND PROPOSED) WITHIN THE PROJECT AREA PER THE STANDARD DETAILS.
3. ALL AREAS TEMPORARILY DISTURBED WILL BE MULCHED WITHIN THE FOLLOWING TIME FRAME UNLESS OTHERWISE NOTED. WITHIN 7 DAYS ON ALL 1:3 SIDE SLOPES
4. DITCHES ARE TO BE STABILIZED WITHIN 24 HOURS, INCLUDING GUTTER LINES TO CATCH BASINS, POND SIDE SLOPES AND ERODIBLE STOCKPILES. DITCHES AND OTHER AREAS DRAINING TO WATERS OF THE STATE SHALL ALSO BE STABILIZED WITHIN 24 HOURS.
5. THE CONTRACTOR SHALL PROVIDE APPROPRIATE EROSION AND SEDIMENT CONTROL DEVICES FOR STOCKPILES.
6. SILT FENCE SHALL FOLLOW, AS CLOSE AS POSSIBLE, TO A SINGLE CONTOUR LINE.
7. PIPE OUTLETS NEED TEMPORARY OR PERMANENT ENERGY DISSIPATION.
8. WHEN SEDIMENT DEPOSITS IN A WATER OF THE STATE THE MATERIAL MUST BE REMOVED WITHIN 7 DAYS.
9. CONTRACTOR SHALL MAINTAIN VEGETATED BUFFERS WHERE POSSIBLE AS A FORM OF REDUNDANT PERIMETER CONTROL.
10. CONTRACTOR SHALL RECEIVE THE APPROVAL OF THE FIELD ENGINEER PRIOR TO REMOVING EROSION CONTROL MEASURES AT OUTFALLS. INTERMITTENT REMOVAL OF CAPTURED SEDIMENT AND DEBRIS IN OUTFALLS TO THE SATISFACTION OF THE FIELD ENGINEER MAY BE DEEMED NECESSARY AND IS INCIDENTAL.

No.	Date	Revisions	App.

DRAWING NAME TCAAP_THUMB_STH_TURF01	
DESIGNED BY:	RJG
DRAWN BY:	RJG
CHECKED BY:	CBL
DATE:	4/20/17
PROJECT NO.	160553004

Kimley»Horn
2550 UNIVERSITY AVENUE WEST, SUITE 238N, ST, PAUL, MN 55114
PHONE: 651–645–4197
WWW.KIMLEY–HORN.COM

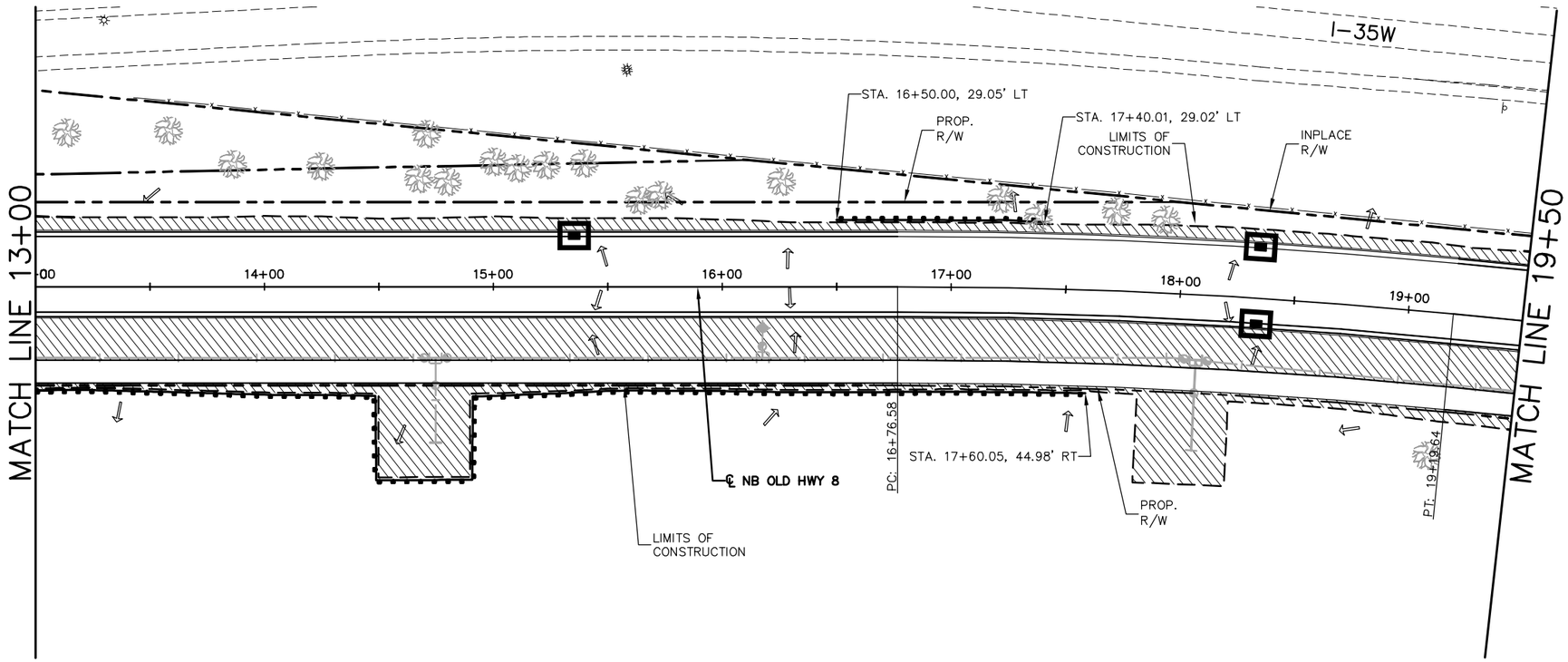
I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

CHADD B. LARSON
DATE: 4/20/17 MN LIC. NO. 41864

RAMSEY COUNTY
OLD HIGHWAY 8 EXTENSION CONSTRUCTION PROJECT
OLD HIGHWAY 8
EROSION CONTROL AND TURF ESTABLISHMENT PLAN
STA. 8+00 TO STA. 13+00

COUNTY PROJECT	
S.A.P.	062–593–006
S.A.P.	
S.P.	

SHEET NO. 50 / 115



0 15 30 60
HORIZONTAL SCALE IN FEET

LEGEND

HYDROSEED
SEED MIX – MnDOT NO. 25–121 @ 61 LBS/ACRE
FERTILIZER – MnDOT TYPE 3 – 22–5–10 @ 350 LBS/ACRE
HARROWED, CULTIVATED OR RAKED FOLLOWING SEEDING
MUCLH – MnDOT TYPE 1 @ 2 TONS/ACRE, DISC ANCHORING

HYDROSEED
SEED MIX – MnDOT NO. 33–261 @ 35 LBS/ACRE
FERTILIZER – MnDOT TYPE 4 – 18–1–18 @ 120 LBS/ACRE
HARROWED OR RAKED AND THEN CULTIVATED
EROSION CONTROL BLANKET – MnDOT CAT. 3 WITH ALL NATURAL NETTING AND STITCHING

HYDROSEED
SEED MIX – MnDOT NO. 34–171 @ 6 LBS/ACRE
FERTILIZER – MnDOT TYPE 4 – 18–1–18 @ 120 LBS/ACRE
HARROWED OR RAKED AND THEN CULTIVATED
EROSION CONTROL BLANKET – MnDOT CAT. 3 WITH ALL NATURAL NETTING AND STITCHING

SEDIMENT CONTROL LOG TYPE WOOD FIBER

SILT FENCE

STORM DRAIN INLET PROTECTION

DRAINAGE FLOW ARROWS

RANDOM RIPRAP, SEE STORM SEWER TABULATION FOR TYPE

TEMPORARY EROSION CONTROL NOTES:

1. ALL STREETS IN AND ADJACENT TO THE PROJECT SHALL REMAIN CLEAN AND PASSABLE AT ALL TIMES. ALL SEDIMENT AND DEBRIS SHALL BE REMOVED WITHIN 24 HOURS, OR AS OFTEN TO ENSURE PUBLIC SAFETY.
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No.	Date	Revisions	App.

DRAWING NAME TCAAP_THUMB_STH_TURF01	
DESIGNED BY:	RJG
DRAWN BY:	RJG
CHECKED BY:	CBL
DATE:	4/20/17
PROJECT NO.	160553004

Kimley»Horn
2550 UNIVERSITY AVENUE WEST, SUITE 238N, ST. PAUL, MN 55114
PHONE: 651–645–4197
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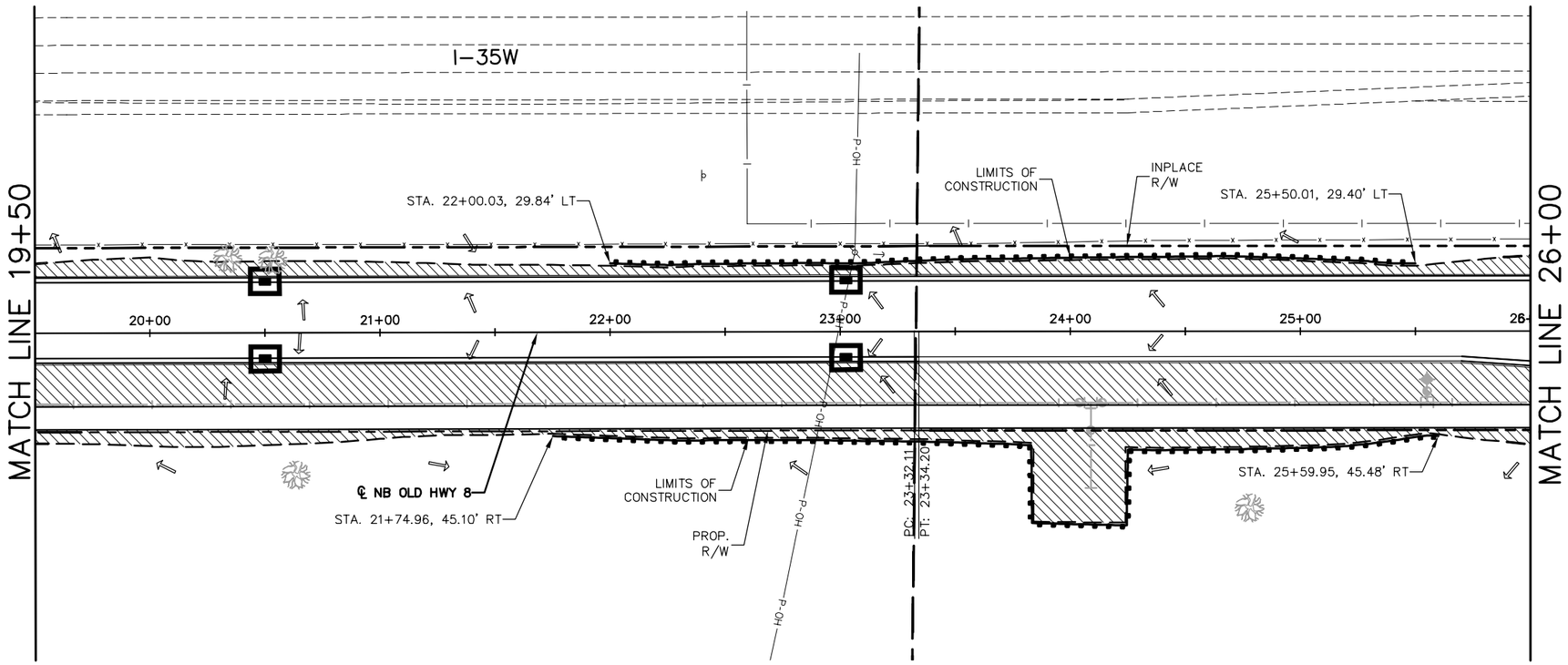
CHADD B. LARSON
DATE: 4/20/17 MN LIC. NO. 41864

RAMSEY COUNTY
OLD HIGHWAY 8 EXTENSION CONSTRUCTION PROJECT
OLD HIGHWAY 8
EROSION CONTROL AND TURF ESTABLISHMENT PLAN
STA. 13+00 TO STA. 19+50

COUNTY PROJECT	
S.A.P.	062–593–006
S.A.P.	
S.P.	

SHEET NO. 51 / 115



0 15 30 60

HORIZONTAL SCALE IN FEET

LEGEND

HYDROSEED
SEED MIX – MnDOT NO. 25–121 @ 61 LBS/ACRE
FERTILIZER – MnDOT TYPE 3 – 22–5–10 @ 350 LBS/ACRE
HARROWED, CULTIVATED OR RAKED FOLLOWING SEEDING
MUCLH – MnDOT TYPE 1 @ 2 TONS/ACRE, DISC ANCHORING

HYDROSEED
SEED MIX – MnDOT NO. 33–261 @ 35 LBS/ACRE
FERTILIZER – MnDOT TYPE 4 – 18–1–18 @ 120 LBS/ACRE
HARROWED OR RAKED AND THEN CULTIVATED
EROSION CONTROL BLANKET – MnDOT CAT. 3 WITH ALL NATURAL NETTING AND STITCHING

HYDROSEED
SEED MIX – MnDOT NO. 34–171 @ 6 LBS/ACRE
FERTILIZER – MnDOT TYPE 4 – 18–1–18 @ 120 LBS/ACRE
HARROWED OR RAKED AND THEN CULTIVATED
EROSION CONTROL BLANKET – MnDOT CAT. 3 WITH ALL NATURAL NETTING AND STITCHING

SEDIMENT CONTROL LOG TYPE WOOD FIBER

SILT FENCE

STORM DRAIN INLET PROTECTION

DRAINAGE FLOW ARROWS

RANDOM RIPRAP, SEE STORM SEWER TABULATION FOR TYPE

TEMPORARY EROSION CONTROL NOTES:

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No.	Date	Revisions	App.

DRAWING NAME	
TCAAP_THUMB_STH_TURF01	
DESIGNED BY:	RJG
DRAWN BY:	RJG
CHECKED BY:	CBL
DATE:	4/20/17
PROJECT NO.	160553004

Kimley»Horn
2550 UNIVERSITY AVENUE WEST, SUITE 238N, ST. PAUL, MN 55114
PHONE: 651–645–4197
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CHADD B. LARSON

DATE: 4/20/17 MN LIC. NO. 41864

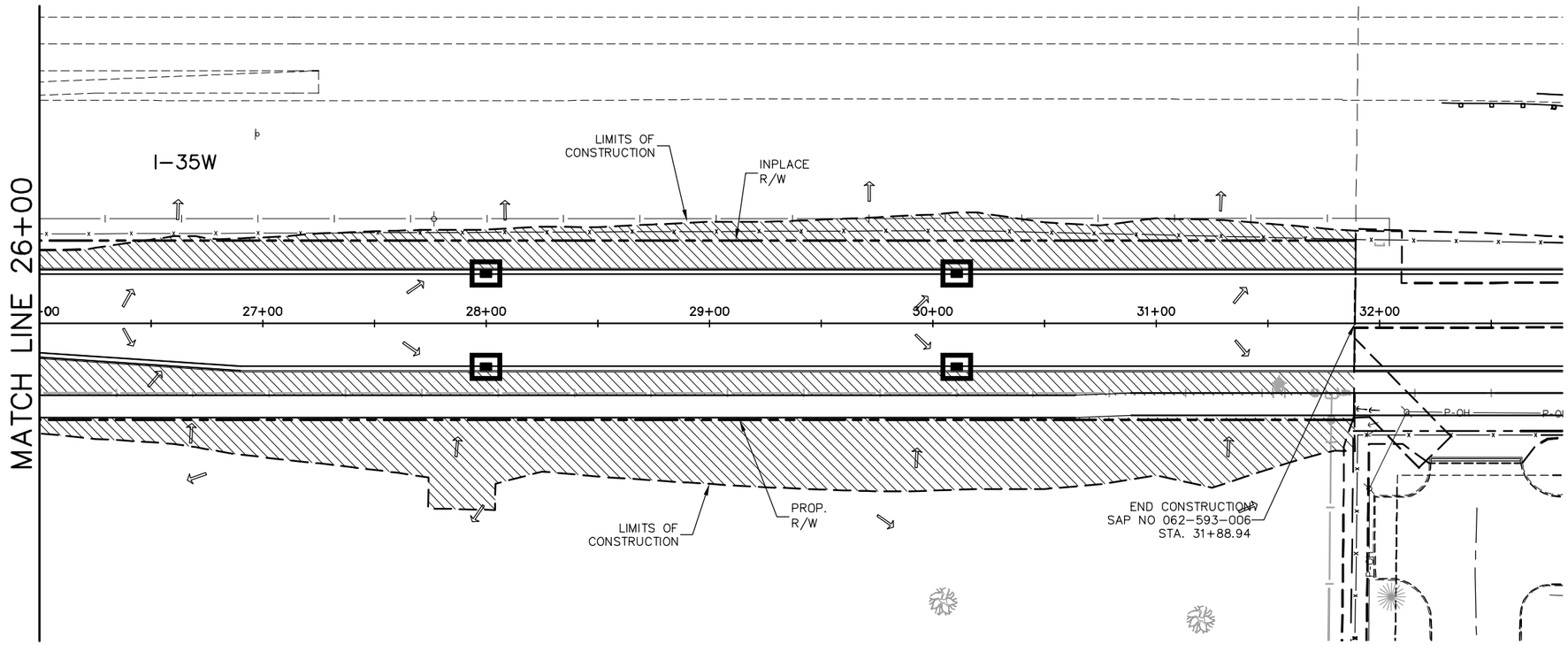
RAMSEY COUNTY

OLD HIGHWAY 8 EXTENSION CONSTRUCTION PROJECT

OLD HIGHWAY 8
EROSION CONTROL AND TURF ESTABLISHMENT PLAN
STA. 19+50 TO STA. 26+00

COUNTY PROJECT	
S.A.P.	062–593–006
S.A.P.	
S.P.	

SHEET NO. 52 / 115



0 ## ## ##

HORIZONTAL SCALE IN FEET

LEGEND

HYDROSEED
SEED MIX – MnDOT NO. 25–121 @ 61 LBS/ACRE
FERTILIZER – MnDOT TYPE 3 – 22–5–10 @ 350 LBS/ACRE
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SEED MIX – MnDOT NO. 33–261 @ 35 LBS/ACRE
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EROSION CONTROL BLANKET – MnDOT CAT. 3 WITH ALL NATURAL NETTING AND STITCHING

SEDIMENT CONTROL LOG TYPE WOOD FIBER

SILT FENCE

STORM DRAIN INLET PROTECTION

DRAINAGE FLOW ARROWS

RANDOM RIPRAP, SEE STORM SEWER TABULATION FOR TYPE

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No.	Date	Revisions	App.

DRAWING NAME	TCAAP_THUMB_STH_TURF01
DESIGNED BY:	RJG
DRAWN BY:	RJG
CHECKED BY:	CBL
DATE:	4/20/17
PROJECT NO.	160553004

Kimley»Horn
2550 UNIVERSITY AVENUE WEST, SUITE 238N, ST. PAUL, MN 55114
PHONE: 651–645–4197
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CHADD B. LARSON

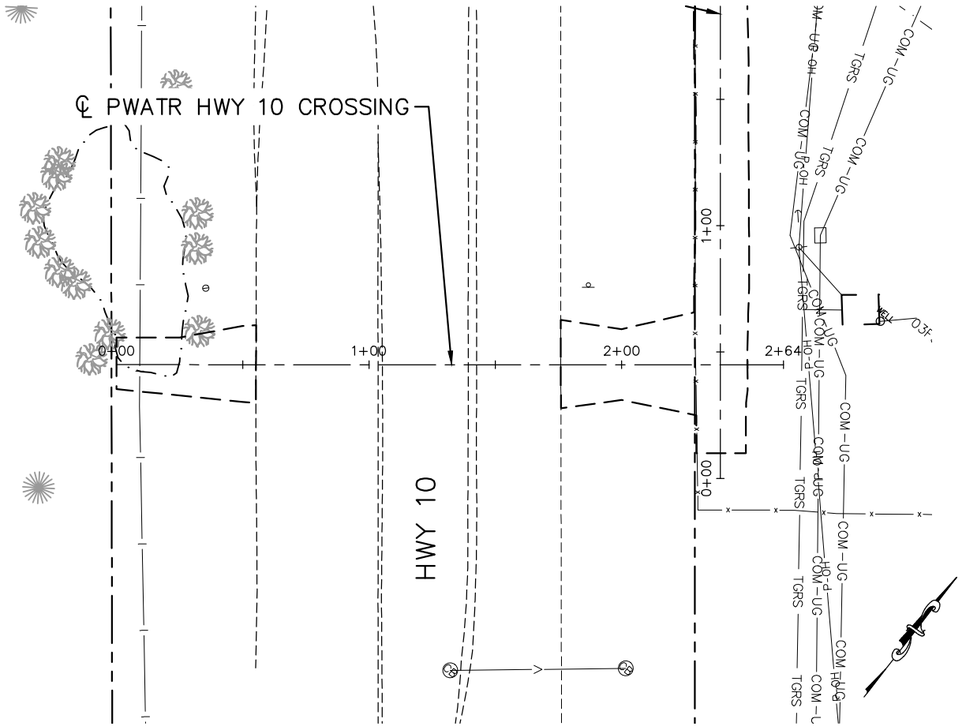
DATE: 4/20/17 MN LIC. NO. 41864

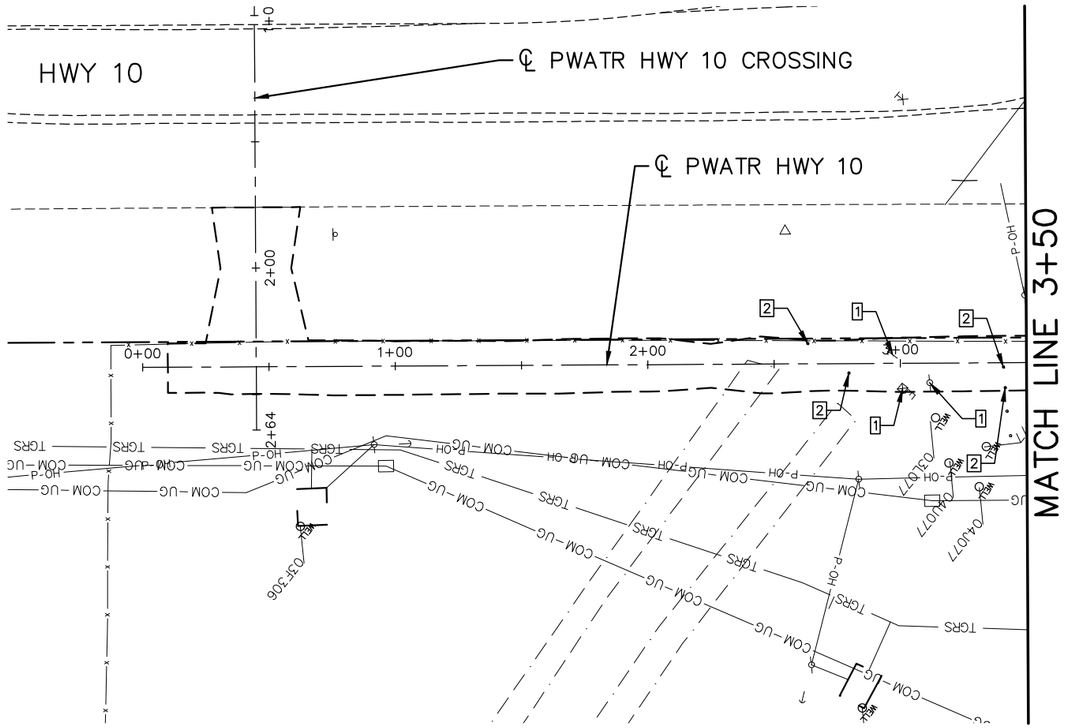
RAMSEY COUNTY

OLD HIGHWAY 8 EXTENSION CONSTRUCTION PROJECT
OLD HIGHWAY 8
EROSION CONTROL AND TURF ESTABLISHMENT PLAN
STA. 26+00 TO STA. 31+88.94

COUNTY PROJECT	
S.A.P.	062–593–006
S.A.P.	
S.P.	

SHEET NO. 53 / 115





0 15 30 60
HORIZONTAL SCALE IN FEET

LEGEND

×	REMOVE TREE (CLEAR AND GRUB)
— — — — —	LIMITS OF CONSTRUCTION
· x·x·x·x·x·x·x·x ·	REMOVE UTILITY LINE

GENERAL REMOVAL NOTES

1) CONTRACTOR SHALL CALL GOPHER STATE ONE CALL AT 651–454–0002. ALL UTILITIES MUST BE LOCATED PRIOR TO THE START OF CONSTRUCTION.
2) ALL EXISTING ROADWAY & STREET SIGNS WITHIN THE CONSTRUCTION LIMITS SHALL BE REMOVED BY THE CONTRACTOR.
3) CONTRACTOR SHALL PROTECT ALL EXISTING UTILITY STRUCTURES THAT ARE NOT BEING REMOVED OR RELOCATED.
4) TRENCH BOXES OR OTHER TRENCH STABILIZATION METHODS MAY BE REQUIRED DURING CONSTRUCTION TO MINIMIZE REMOVAL LIMITS.
5) CONTRACTOR TO VERIFY REMOVAL LIMITS WITH ENGINEER PRIOR TO SAWCUTTING, INCLUDING TREE REMOVALS.

UTILITY NOTES:

1. THE SUBSURFACE UTILITY INFORMATION IN THIS PLAN IS UTILITY QUALITY LEVEL D. THIS QUALITY LEVEL WAS DETERMINED ACCORDING TO THE GUIDELINES OF CI/ASCE 38–2, ENTITLED "STANDARD GUIDELINES FOR THE COLLECTION AND DEPICTION OF INPLACE SUBSURFACE UTILITY DATA".

NOTES LEGEND

[1] PRIVATE UTILITY TO BE REMOVED/RELOCATED BY OTHERS

[2] REMOVE FENCE POST

No.	Date	Revisions	App.

DRAWING NAME TCAAP_THUMB_STH_REM02	
DESIGNED BY:	RJG
DRAWN BY:	RJG
CHECKED BY:	CBL
DATE:	4/20/17
PROJECT NO.	160553004

Kimley»Horn
2550 UNIVERSITY AVENUE WEST, SUITE 238N, ST, PAUL, MN 55114
PHONE: 651–645–4197
WWW.KIMLEY–HORN.COM

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CHADD B. LARSON

DATE: 4/20/17 MN LIC. NO. 41864

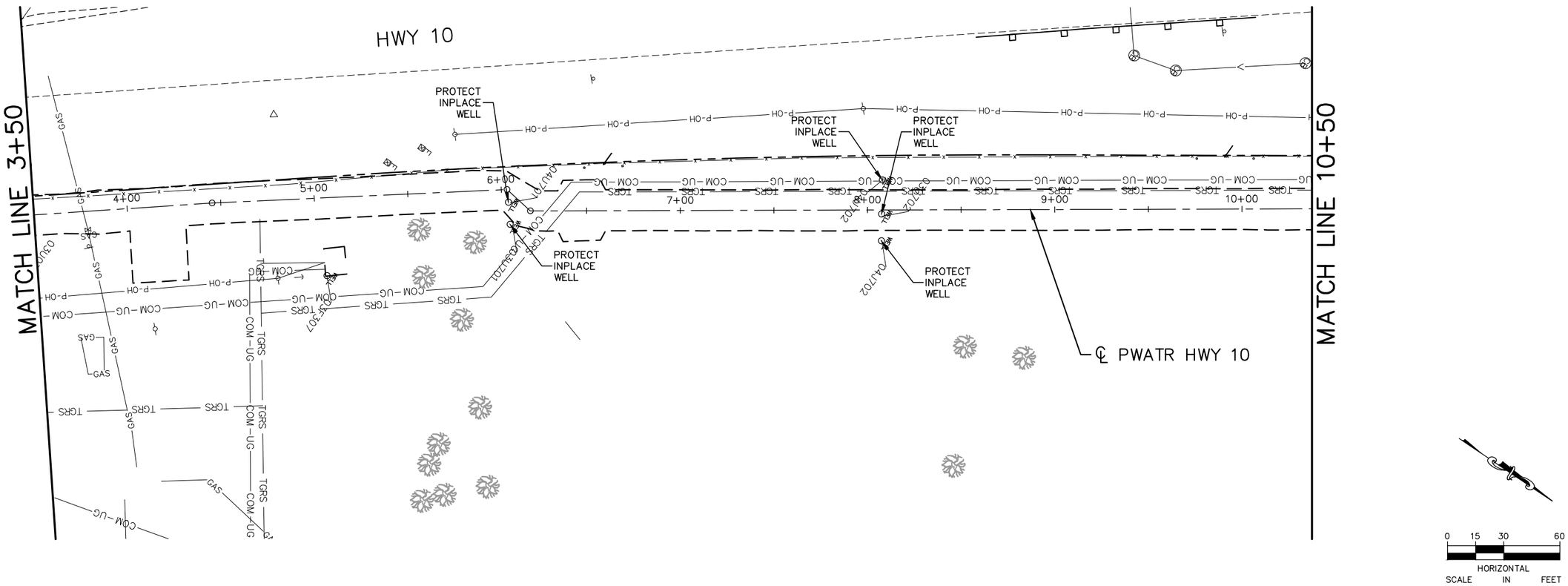
RAMSEY COUNTY

OLD HIGHWAY 8 EXTENSION CONSTRUCTION PROJECT

HIGHWAY 10 WATERMAIN REMOVAL PLAN
STA. 0+00 TO STA. 3+50

COUNTY PROJECT	
S.A.P.	062–593–006
S.A.P.	
S.P.	

SHEET NO. 54 / 115



0 15 30 60

HORIZONTAL SCALE IN FEET

LEGEND

- REMOVE TREE (CLEAR AND GRUB)
- LIMITS OF CONSTRUCTION
- REMOVE UTILITY LINE

GENERAL REMOVAL NOTES

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No.	Date	Revisions	App.

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TCAAP_THUMB_STH_REM02	
DESIGNED BY:	RJG
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CHADD B. LARSON

DATE: 4/20/17 MN LIC. NO. 41864

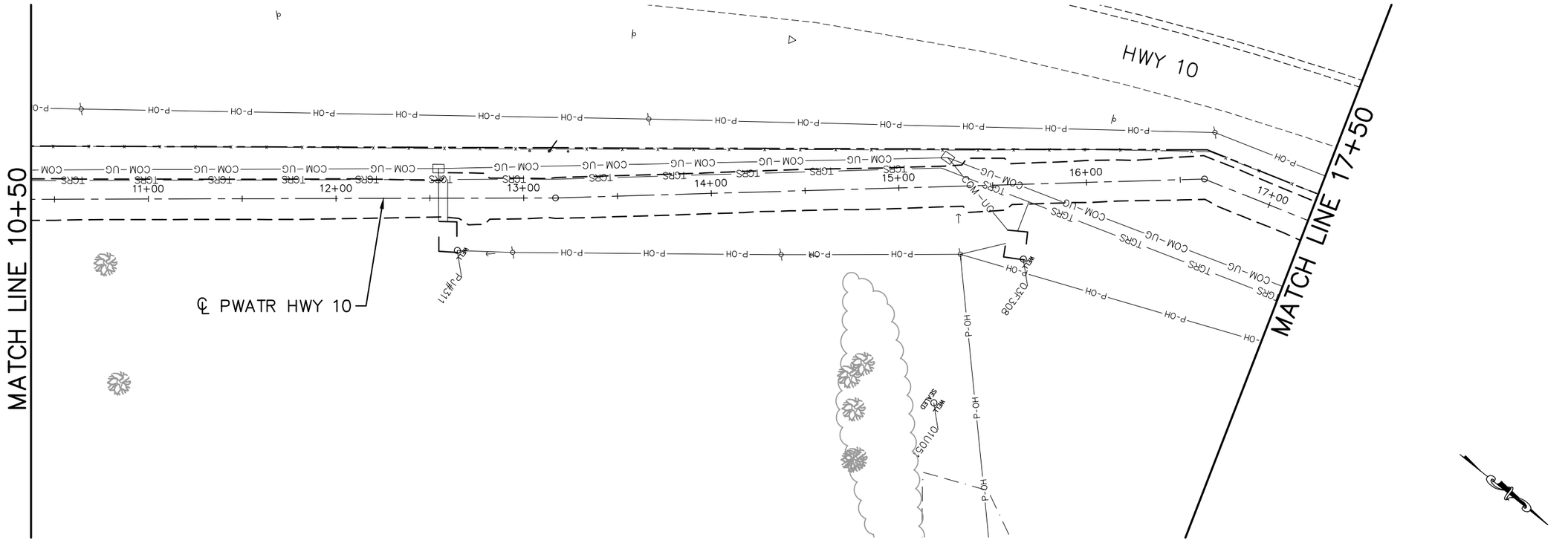
RAMSEY COUNTY

OLD HIGHWAY 8 EXTENSION CONSTRUCTION PROJECT

HIGHWAY 10 WATERMAIN REMOVAL PLAN
STA. 3+50 TO STA. 10+50

COUNTY PROJECT	
S.A.P.	062-593-006
S.A.P.	
S.P.	

SHEET NO. 55 / 115



LEGEND

- REMOVE TREE (CLEAR AND GRUB)
- LIMITS OF CONSTRUCTION
- REMOVE UTILITY LINE

GENERAL REMOVAL NOTES

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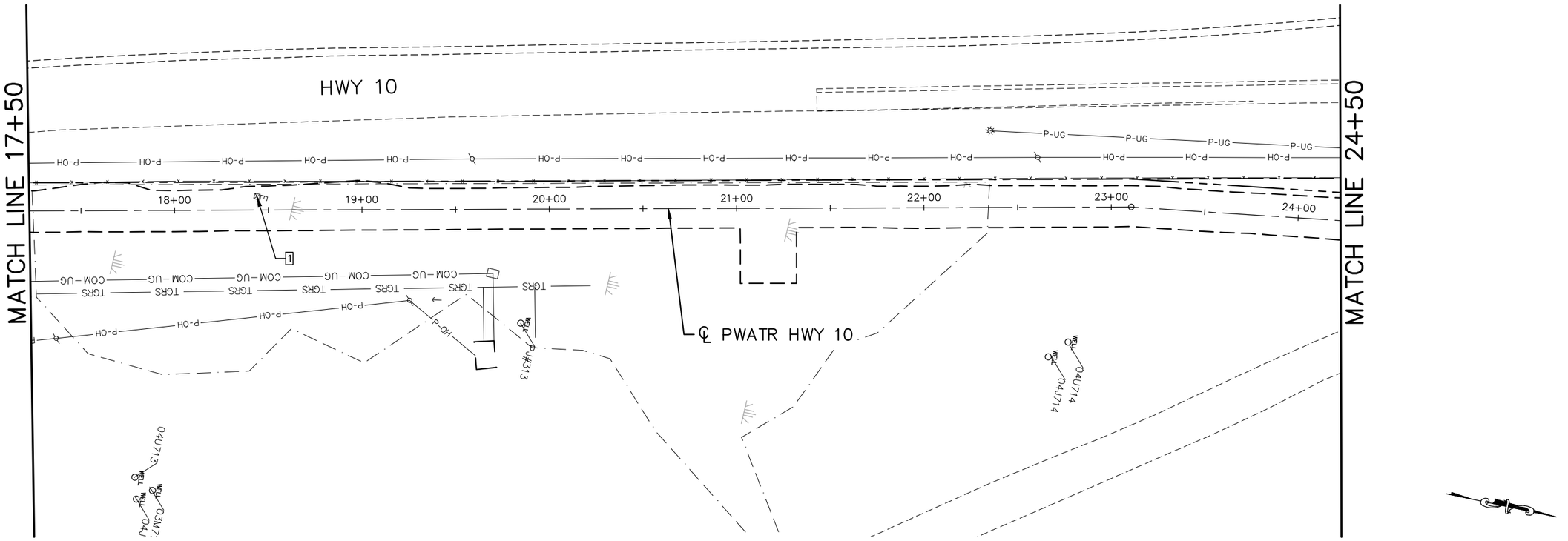
COUNTY PROJECT	
S.A.P.	062-593-006
S.A.P.	
S.P.	

SHEET NO. 56 / 115



LEGEND

- REMOVE TREE (CLEAR AND GRUB)
- LIMITS OF CONSTRUCTION
- REMOVE UTILITY LINE

GENERAL REMOVAL NOTES

1) CONTRACTOR SHALL CALL GOPHER STATE ONE CALL AT 651-454-0002. ALL UTILITIES MUST BE LOCATED PRIOR TO THE START OF CONSTRUCTION.
2) ALL EXISTING ROADWAY & STREET SIGNS WITHIN THE CONSTRUCTION LIMITS SHALL BE REMOVED BY THE CONTRACTOR.
3) CONTRACTOR SHALL PROTECT ALL EXISTING UTILITY STRUCTURES THAT ARE NOT BEING REMOVED OR RELOCATED.
4) TRENCH BOXES OR OTHER TRENCH STABILIZATION METHODS MAY BE REQUIRED DURING CONSTRUCTION TO MINIMIZE REMOVAL LIMITS.
5) CONTRACTOR TO VERIFY REMOVAL LIMITS WITH ENGINEER PRIOR TO SAWCUTTING, INCLUDING TREE REMOVALS.

UTILITY NOTES:

1. THE SUBSURFACE UTILITY INFORMATION IN THIS PLAN IS UTILITY QUALITY LEVEL D. THIS QUALITY LEVEL WAS DETERMINED ACCORDING TO THE GUIDELINES OF CI/ASCE 38-2, ENTITLED "STANDARD GUIDELINES FOR THE COLLECTION AND DEPICTION OF INPLACE SUBSURFACE UTILITY DATA".

NOTES LEGEND

[1] PRIVATE UTILITY TO BE REMOVED/RELOCATED BY OTHERS

[2] REMOVE FENCE POST

No.	Date	Revisions	App.

DRAWING NAME	TCAAP_THUMB_STH_REM02
DESIGNED BY:	RJG
DRAWN BY:	RJG
CHECKED BY:	CBL
DATE:	4/20/17
PROJECT NO.	160553004

Kimley»Horn
2550 UNIVERSITY AVENUE WEST, SUITE 238N, ST, PAUL, MN 55114
PHONE: 651-645-4197
WWW.KIMLEY-HORN.COM

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

CHADD B. LARSON

DATE: 4/20/17 MN LIC. NO. 41864

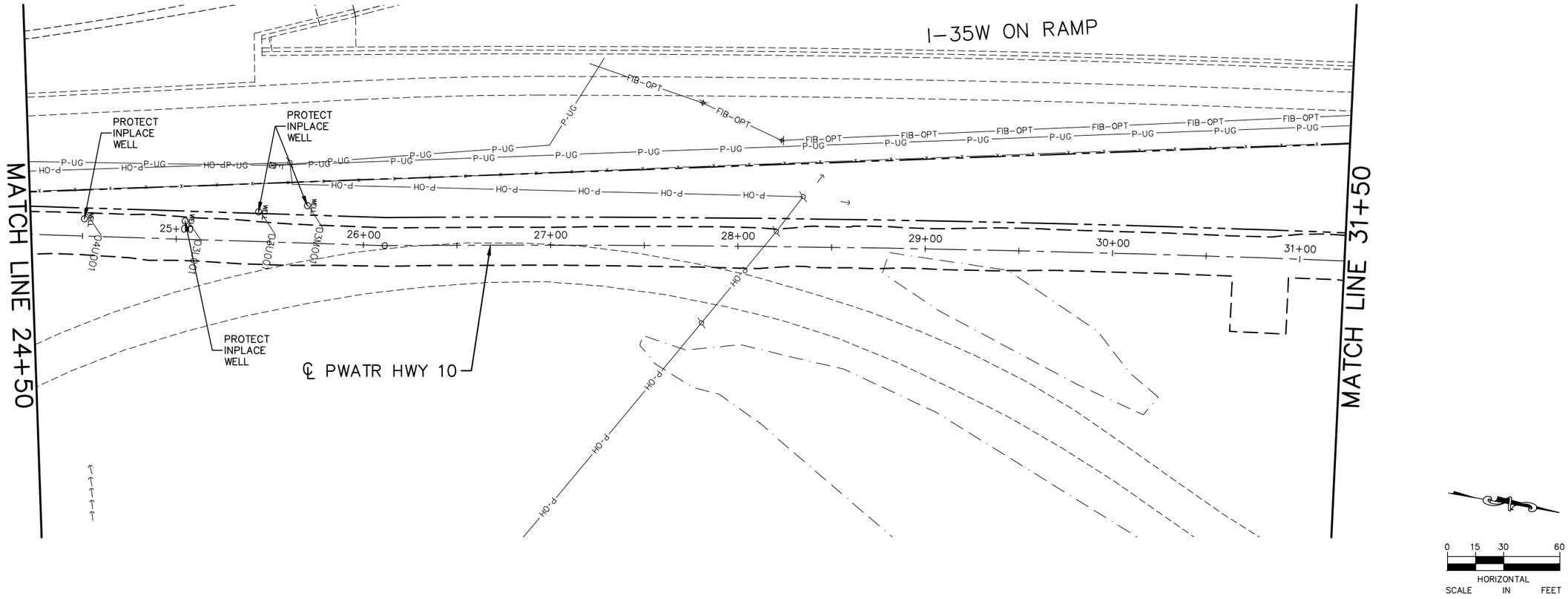
RAMSEY COUNTY

OLD HIGHWAY 8 EXTENSION CONSTRUCTION PROJECT

HIGHWAY 10 WATERMAIN REMOVAL PLAN
STA. 17+50 TO STA. 24+50

COUNTY PROJECT	
S.A.P.	062-593-006
S.A.P.	
S.P.	

SHEET NO. 57 / 115



LEGEND

- REMOVE TREE (CLEAR AND GRUB)
- LIMITS OF CONSTRUCTION
- REMOVE UTILITY LINE

GENERAL REMOVAL NOTES

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DESIGNED BY:	RJG
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CHADD B. LARSON

DATE: 4/20/17 MN LIC. NO. 41864

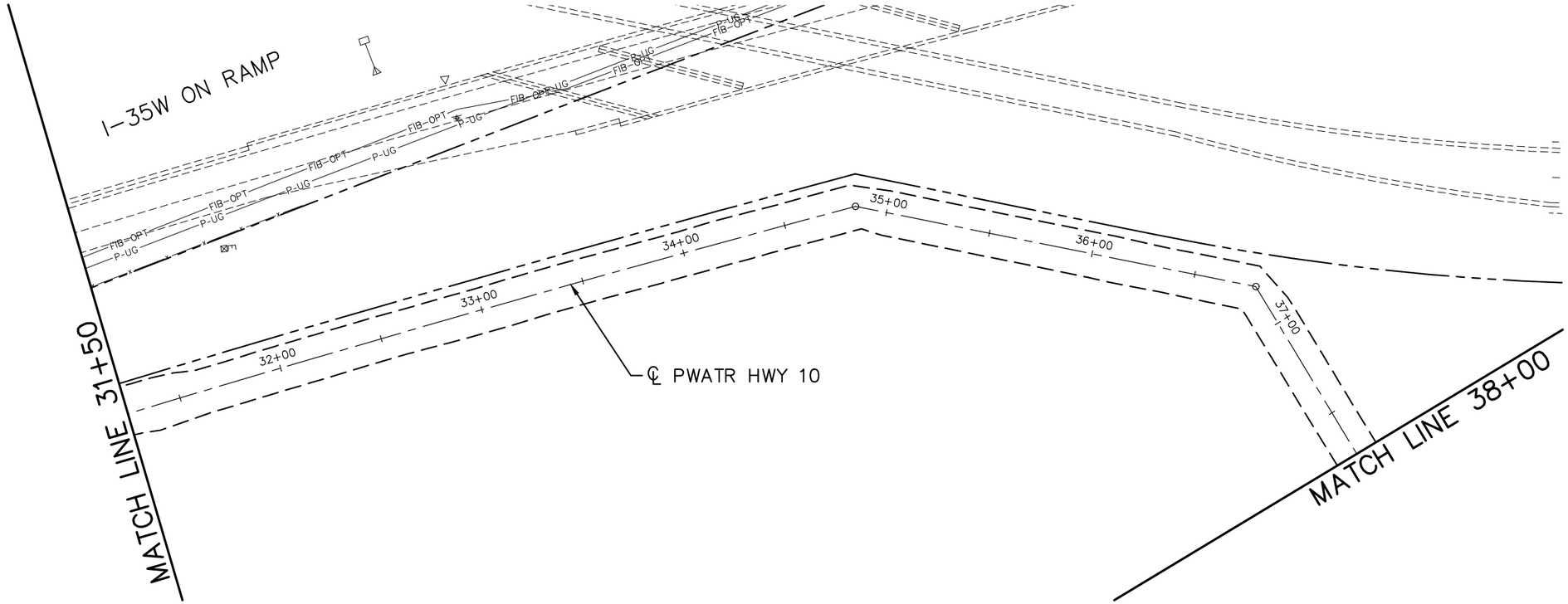
RAMSEY COUNTY

OLD HIGHWAY 8 EXTENSION CONSTRUCTION PROJECT

HIGHWAY 10 WATERMAIN REMOVAL PLAN
STA. 24+50 TO STA. 31+50

COUNTY PROJECT	
S.A.P.	062-593-006
S.A.P.	
S.P.	

SHEET NO. 58 / 115



0 15 30 60

HORIZONTAL SCALE IN FEET

LEGEND

- REMOVE TREE (CLEAR AND GRUB)
- LIMITS OF CONSTRUCTION
- REMOVE UTILITY LINE

GENERAL REMOVAL NOTES

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CHADD B. LARSON

DATE: 4/20/17 MN LIC. NO. 41864

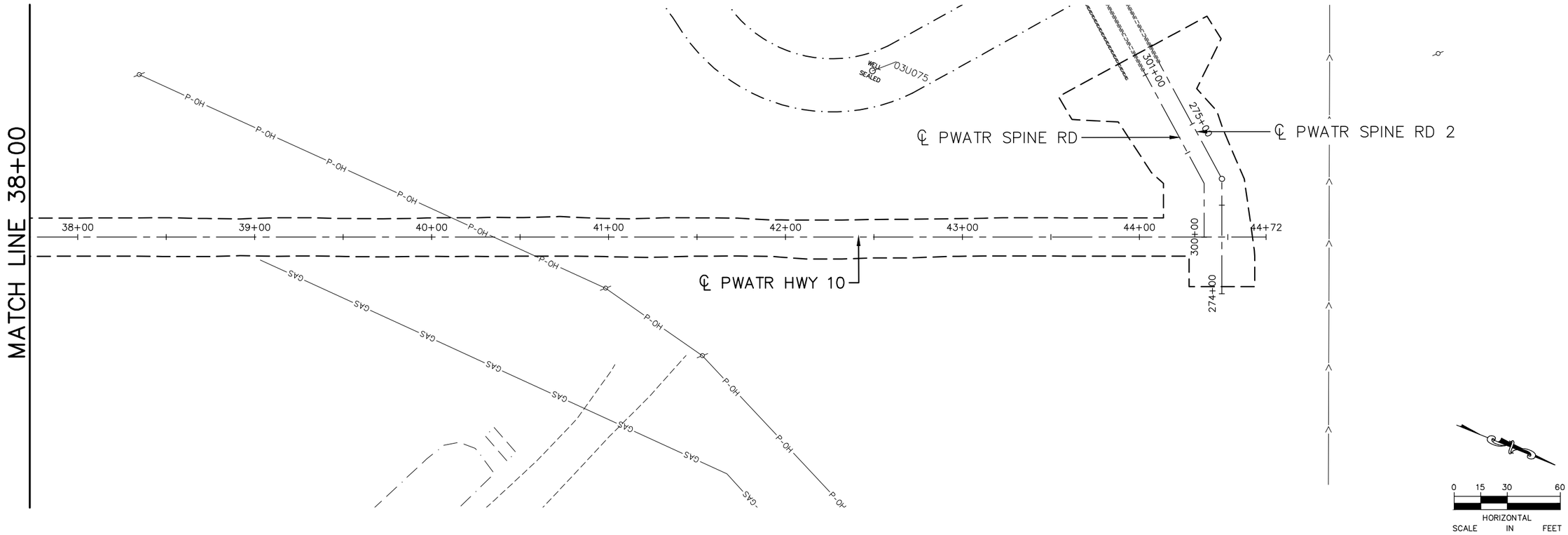
RAMSEY COUNTY

OLD HIGHWAY 8 EXTENSION CONSTRUCTION PROJECT

HIGHWAY 10 WATERMAIN REMOVAL PLAN
STA. 31+50 TO STA. 38+00

COUNTY PROJECT	
S.A.P.	062-593-006
S.A.P.	
S.P.	

SHEET NO. 59 / 115



LEGEND

×	REMOVE TREE (CLEAR AND GRUB)
— — — — —	LIMITS OF CONSTRUCTION
· x·x·x·x·x·x·x·x ·	REMOVE UTILITY LINE

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CHADD B. LARSON

DATE: 4/20/17 MN LIC. NO. 41864

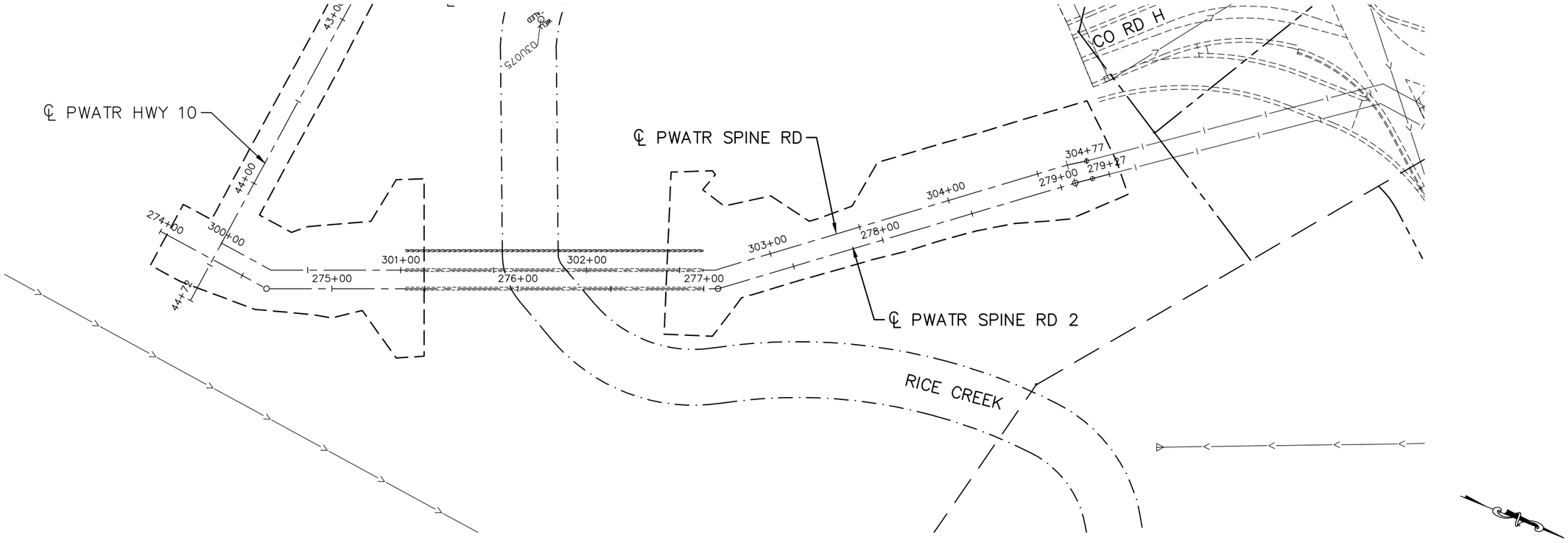
RAMSEY COUNTY

OLD HIGHWAY 8 EXTENSION CONSTRUCTION PROJECT

HIGHWAY 10 WATERMAIN REMOVAL PLAN
STA. 38+00 TO STA. 45+00

COUNTY PROJECT	
S.A.P.	062–593–006
S.A.P.	
S.P.	

SHEET NO. 60 / 115



LEGEND

- REMOVE TREE (CLEAR AND GRUB)
- LIMITS OF CONSTRUCTION
- REMOVE UTILITY LINE

GENERAL REMOVAL NOTES

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DESIGNED BY:	RJG
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DATE:	4/20/17
PROJECT NO.	160553004

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CHADD B. LARSON

DATE: 4/20/17 MN LIC. NO. 41864

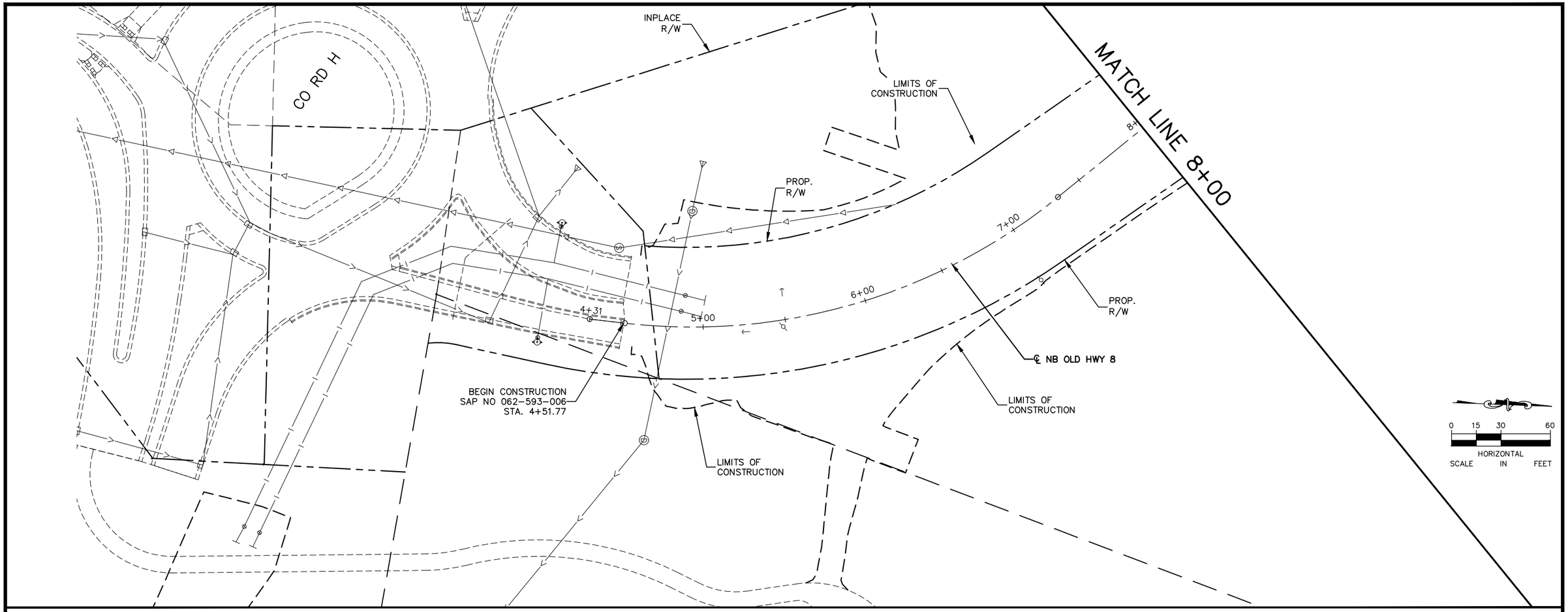
RAMSEY COUNTY

OLD HIGHWAY 8 EXTENSION CONSTRUCTION PROJECT

RICE CREEK WATERMAIN REMOVAL PLAN
STA. 300+00 TO STA. 305+25

COUNTY PROJECT	
S.A.P.	062-593-006
S.A.P.	
S.P.	

SHEET NO. 61 / 115



LEGEND

- REMOVE TREE (CLEAR AND GRUB)
- LIMITS OF CONSTRUCTION
- REMOVE UTILITY LINE

GENERAL REMOVAL NOTES

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NOTES LEGEND

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[2] REMOVE FENCE POST

No.	Date	Revisions	App.

DRAWING NAME TCAAP_THUMB_STH_REM01	
DESIGNED BY:	RJG
DRAWN BY:	RJG
CHECKED BY:	CBL
DATE:	4/20/17
PROJECT NO.	160553004

Kimley»Horn
2550 UNIVERSITY AVENUE WEST, SUITE 238N, ST, PAUL, MN 55114
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CHADD B. LARSON

DATE: 4/20/17 MN LIC. NO. 41864

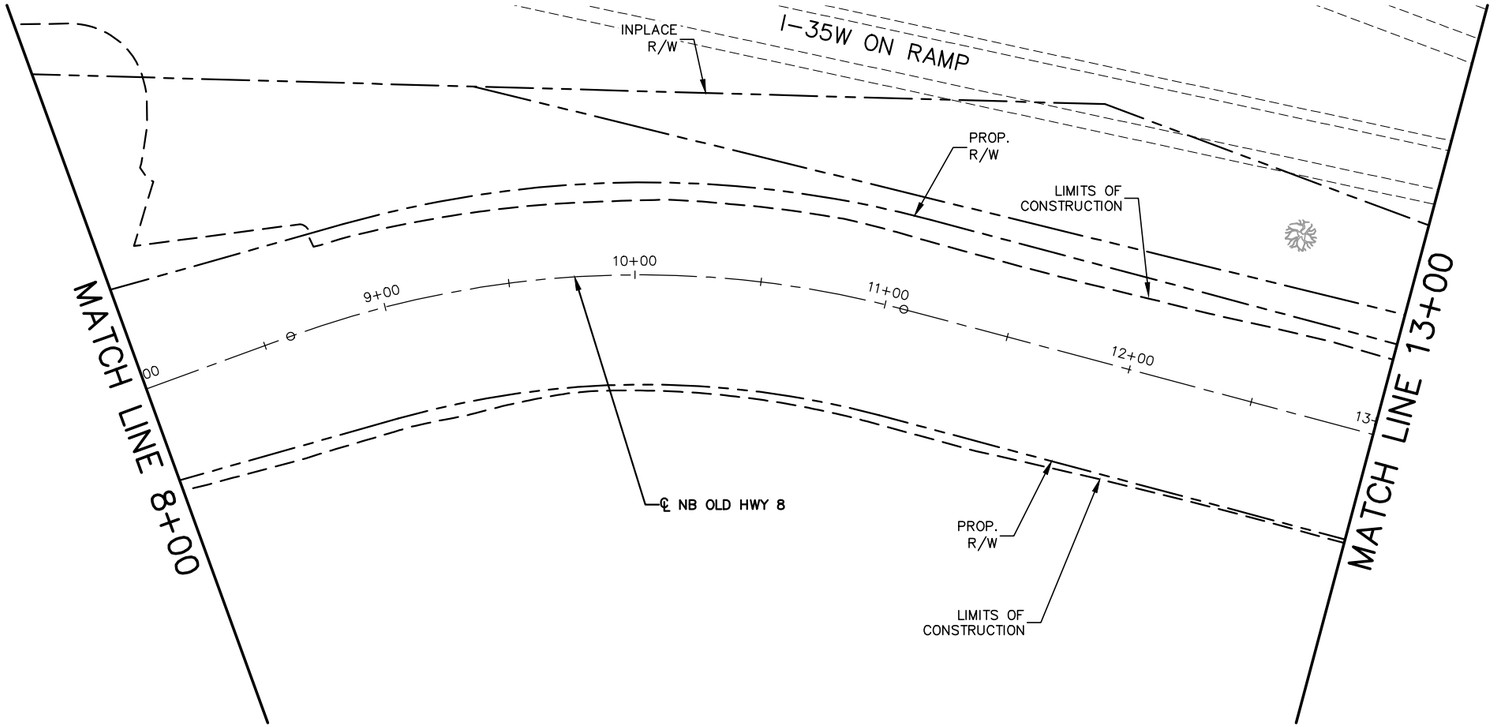
RAMSEY COUNTY

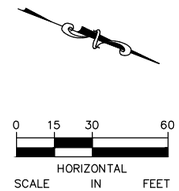
OLD HIGHWAY 8 EXTENSION CONSTRUCTION PROJECT

OLD HIGHWAY 8
REMOVAL PLAN
STA. 4+51.77 TO STA. 8+00

COUNTY PROJECT	
S.A.P.	062-593-006
S.A.P.	
S.P.	

SHEET NO. 62 / 115





LEGEND

- REMOVE TREE (CLEAR AND GRUB)
- LIMITS OF CONSTRUCTION
- REMOVE UTILITY LINE

GENERAL REMOVAL NOTES

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NOTES LEGEND

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[2] REMOVE FENCE POST

No.	Date	Revisions	App.

DRAWING NAME	
TCAAP_THUMB_STH_REM01	
DESIGNED BY:	RJG
DRAWN BY:	RJG
CHECKED BY:	CBL
DATE:	4/20/17
PROJECT NO.	160553004

Kimley»Horn
2550 UNIVERSITY AVENUE WEST, SUITE 238N, ST, PAUL, MN 55114
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CHADD B. LARSON

DATE: 4/20/17 MN LIC. NO. 41864

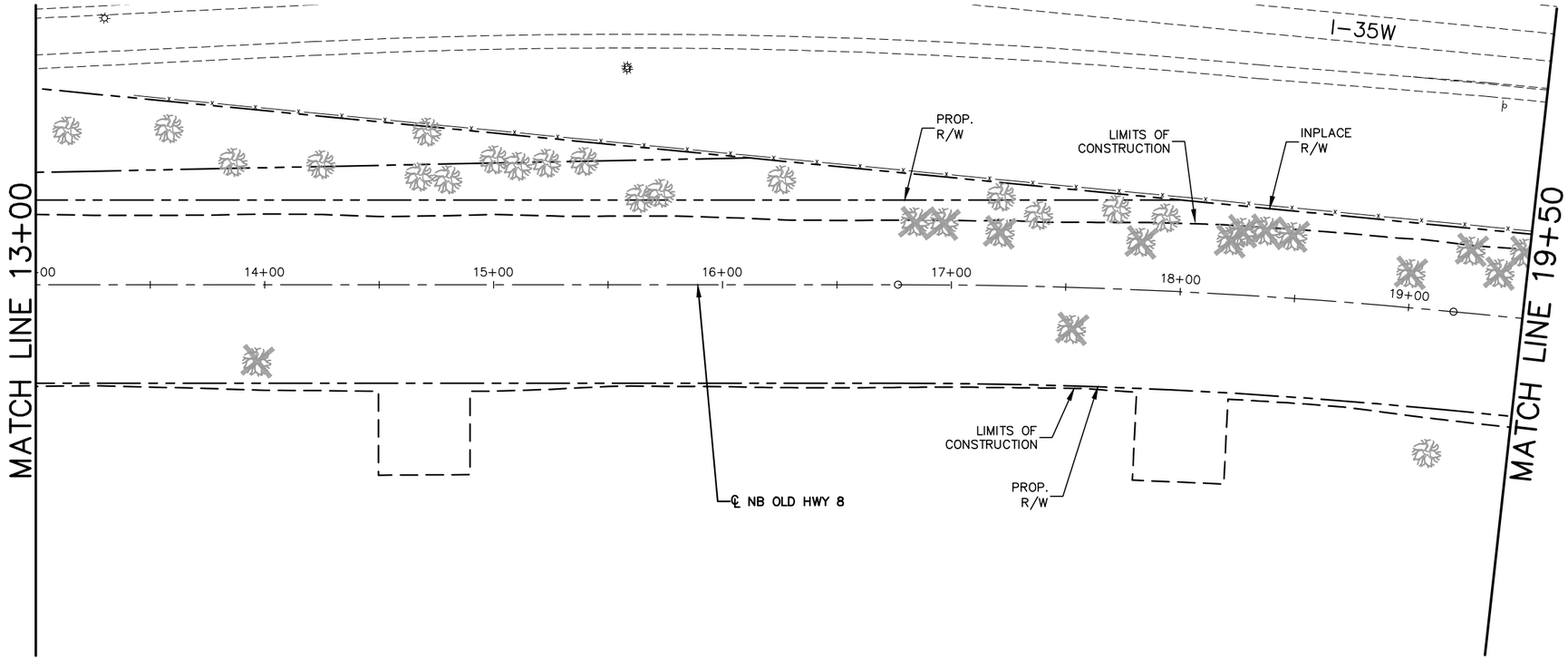
RAMSEY COUNTY

OLD HIGHWAY 8 EXTENSION CONSTRUCTION PROJECT

OLD HIGHWAY 8
REMOVAL PLAN
STA. 8+00 TO STA. 13+00

COUNTY PROJECT	
S.A.P.	062-593-006
S.A.P.	
S.P.	

SHEET NO. 63 / 115



0 15 30 60
HORIZONTAL SCALE IN FEET

LEGEND

- REMOVE TREE (CLEAR AND GRUB)
- LIMITS OF CONSTRUCTION
- REMOVE UTILITY LINE

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DESIGNED BY:	RJG
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CHADD B. LARSON
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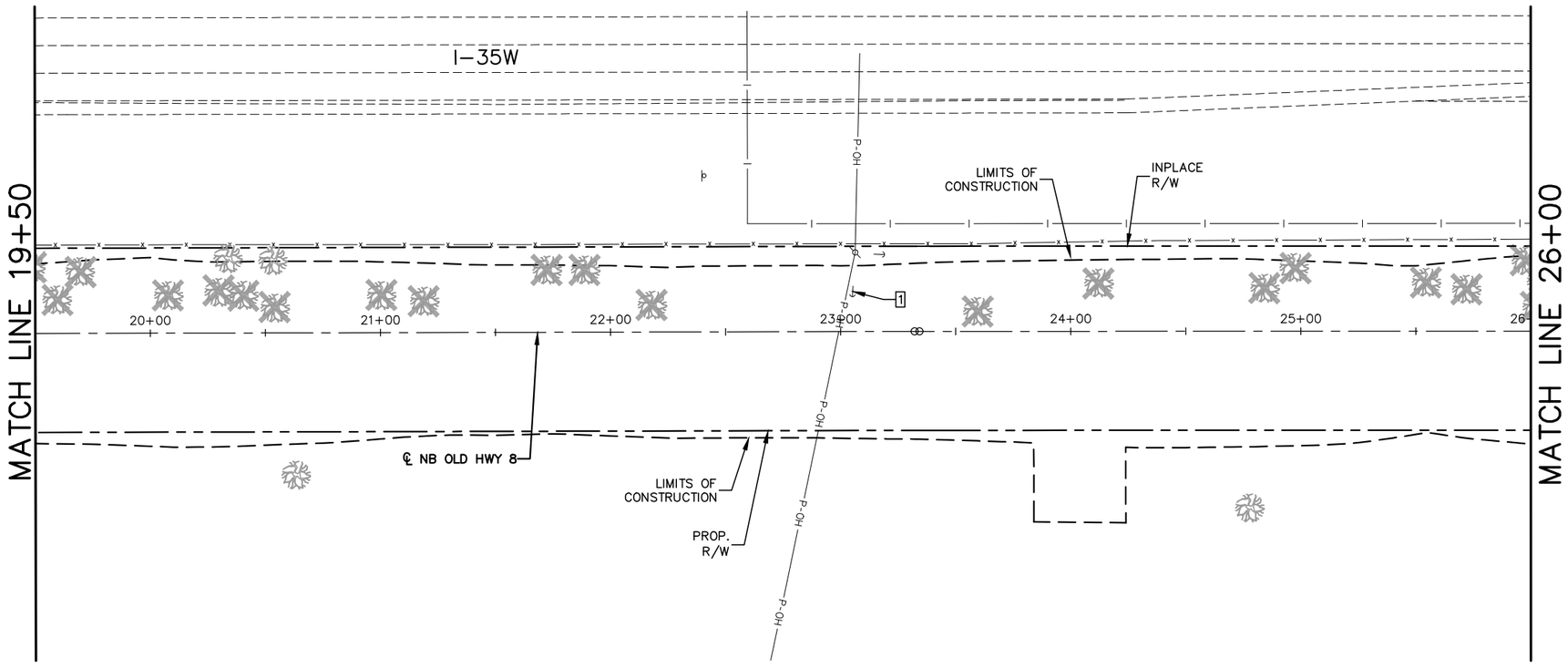
RAMSEY COUNTY
OLD HIGHWAY 8 EXTENSION CONSTRUCTION PROJECT
OLD HIGHWAY 8
REMOVAL PLAN
STA. 13+00 TO STA. 19+50

COUNTY PROJECT	
S.A.P.	062-593-006
S.A.P.	
S.P.	

SHEET NO. 64 / 115



0 15 30 60
HORIZONTAL SCALE IN FEET

LEGEND

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- LIMITS OF CONSTRUCTION
- REMOVE UTILITY LINE

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CHADD B. LARSON

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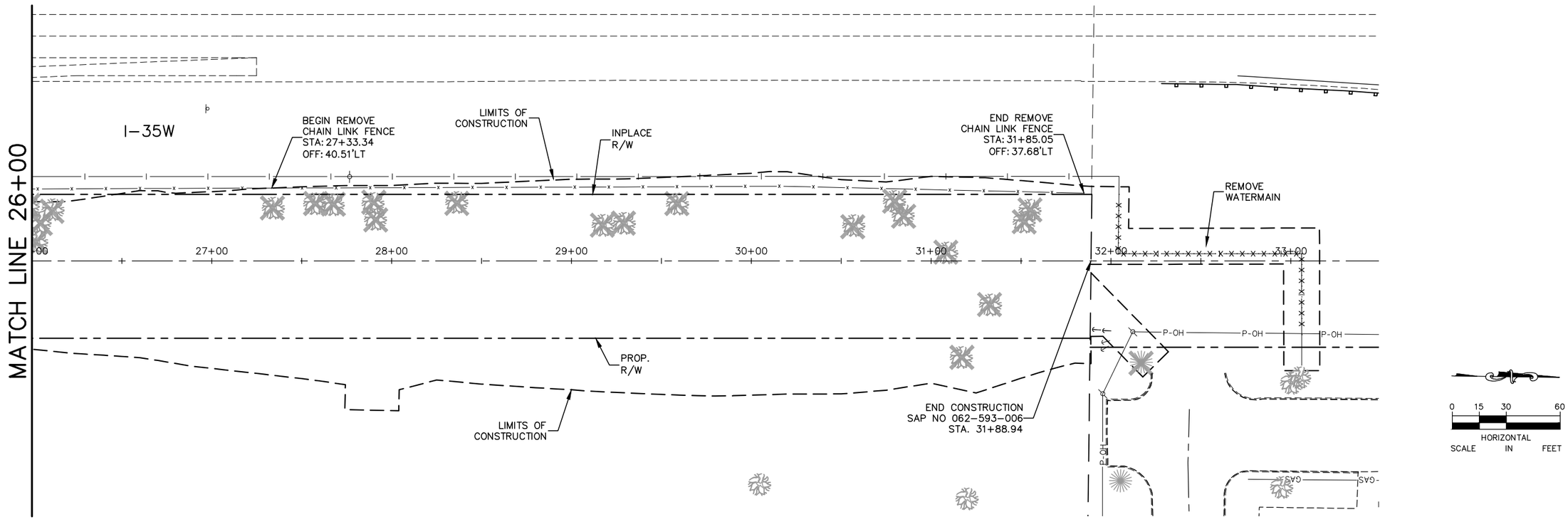
RAMSEY COUNTY

OLD HIGHWAY 8 EXTENSION CONSTRUCTION PROJECT

OLD HIGHWAY 8
REMOVAL PLAN
STA. 19+50 TO STA. 26+00

COUNTY PROJECT	
S.A.P.	062-593-006
S.A.P.	
S.P.	

SHEET NO. 65 / 115



LEGEND

- REMOVE TREE (CLEAR AND GRUB)
- LIMITS OF CONSTRUCTION
- REMOVE UTILITY LINE

GENERAL REMOVAL NOTES

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1. THE SUBSURFACE UTILITY INFORMATION IN THIS PLAN IS UTILITY QUALITY LEVEL D. THIS QUALITY LEVEL WAS DETERMINED ACCORDING TO THE GUIDELINES OF CI/ASCE 38-2, ENTITLED "STANDARD GUIDELINES FOR THE COLLECTION AND DEPICTION OF INPLACE SUBSURFACE UTILITY DATA".

NOTES LEGEND

[1] PRIVATE UTILITY TO BE REMOVED/RELOCATED BY OTHERS

[2] REMOVE FENCE POST

No.	Date	Revisions	App.

DRAWING NAME	
TCAAP_THUMB_STH_REM01	
DESIGNED BY:	RJG
DRAWN BY:	RJG
CHECKED BY:	CBL
DATE:	4/20/17
PROJECT NO.	160553004

Kimley»Horn
2550 UNIVERSITY AVENUE WEST, SUITE 238N, ST, PAUL, MN 55114
PHONE: 651-645-4197
WWW.KIMLEY-HORN.COM

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

CHADD B. LARSON

DATE: 4/20/17 MN LIC. NO. 41864

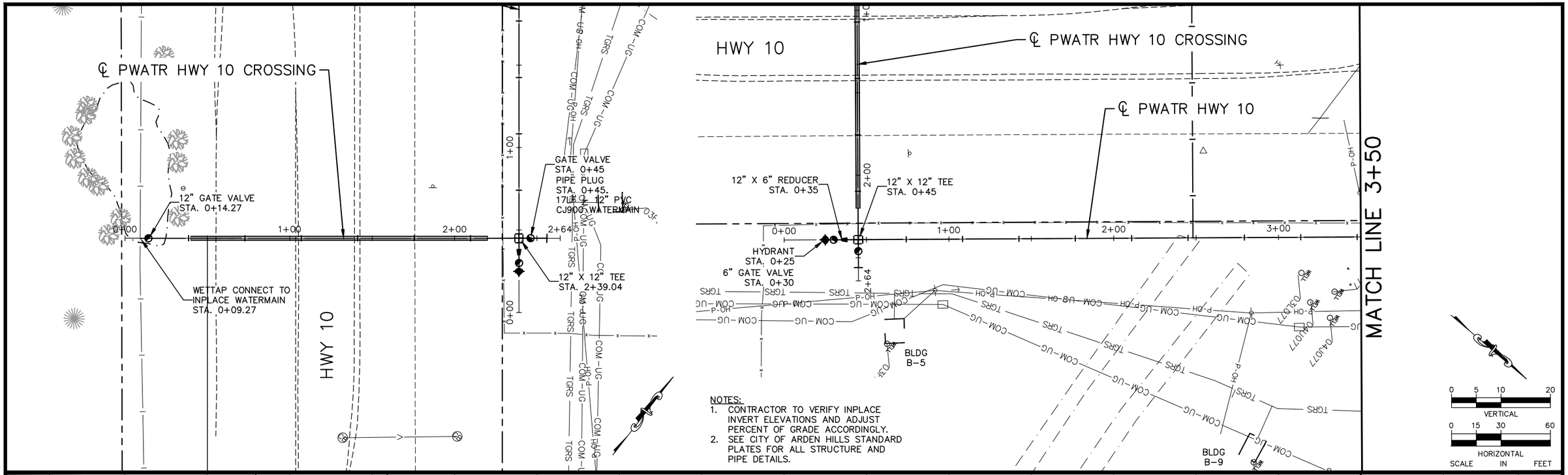
RAMSEY COUNTY

OLD HIGHWAY 8 EXTENSION CONSTRUCTION PROJECT

OLD HIGHWAY 8
REMOVAL PLAN
STA. 26+00 TO STA. 31+88.94

COUNTY PROJECT	
S.A.P.	062-593-006
S.A.P.	
S.P.	

SHEET NO. 66 / 115



No.	Date	Revisions	App.

DRAWING NAME	TCAAP_THUMB_STH_UTIL02
DESIGNED BY:	RJG
DRAWN BY:	RJG
CHECKED BY:	CBL
DATE:	4/20/17
PROJECT NO.	160553004

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CHADD B. LARSON

DATE: 4/20/17 MN LIC. NO. 41864

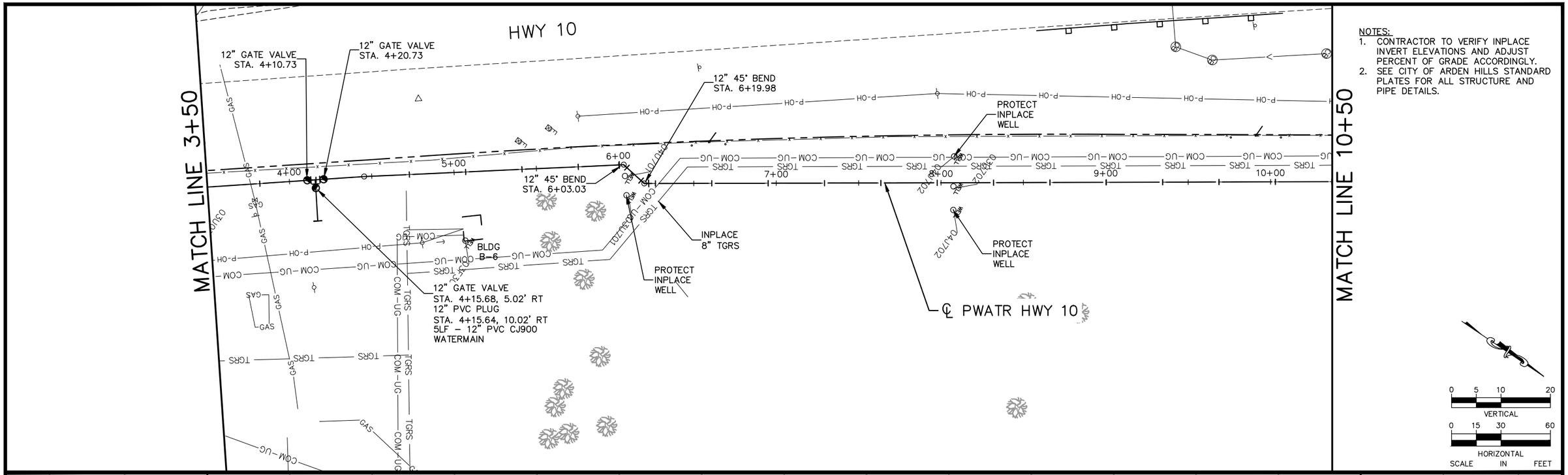
RAMSEY COUNTY

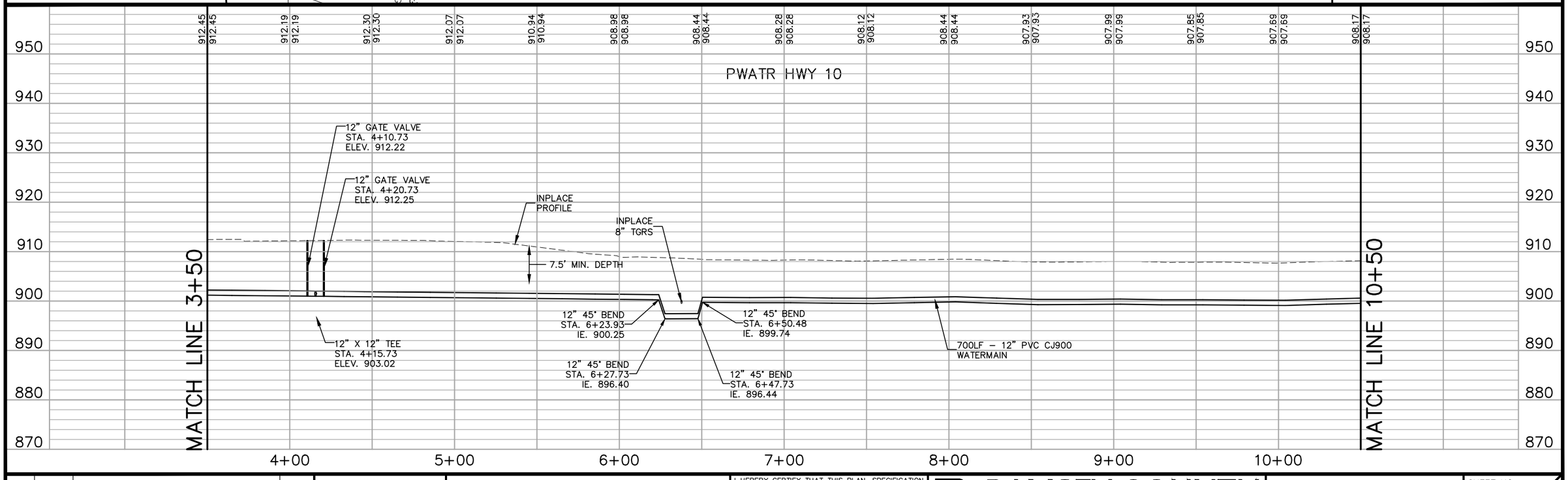
OLD HIGHWAY 8 EXTENSION CONSTRUCTION PROJECT

HIGHWAY 10 WATERMAIN
WATERMAIN PLAN AND PROFILE
STA. 0+00 TO STA. 3+50

COUNTY PROJECT	
S.A.P.	062-593-006
S.A.P.	
S.P.	

SHEET NO. 67 / 115





No.	Date	Revisions	App.

DRAWING NAME	TCAAP_THUMB_STH_UTIL02
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CHADD B. LARSON

DATE: 4/20/17 MN LIC. NO. 41864

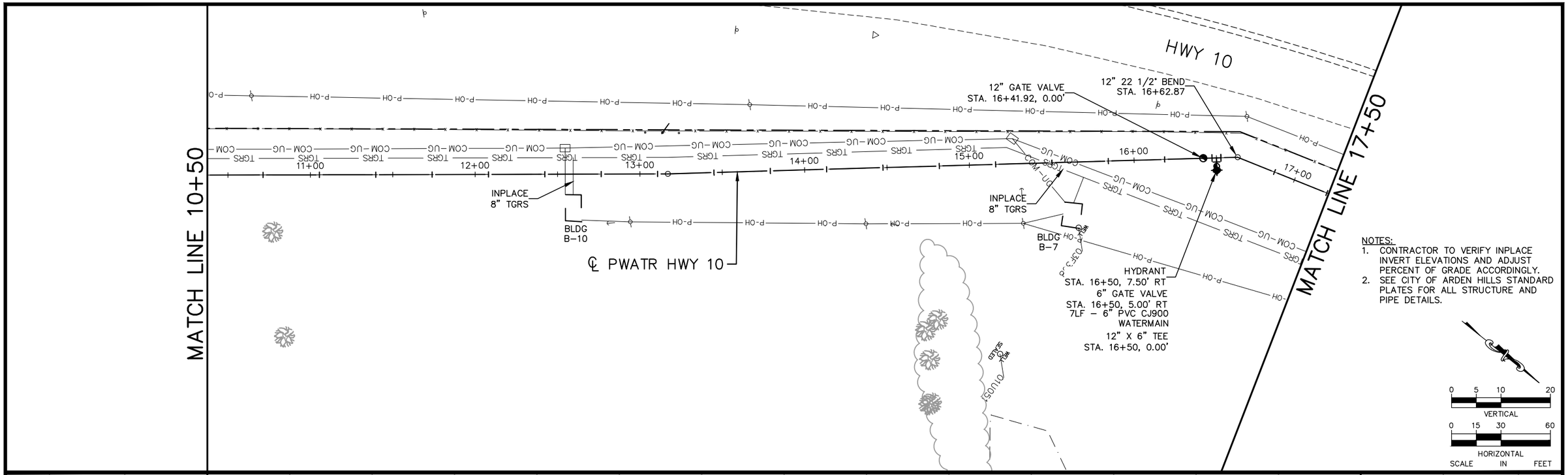
RAMSEY COUNTY

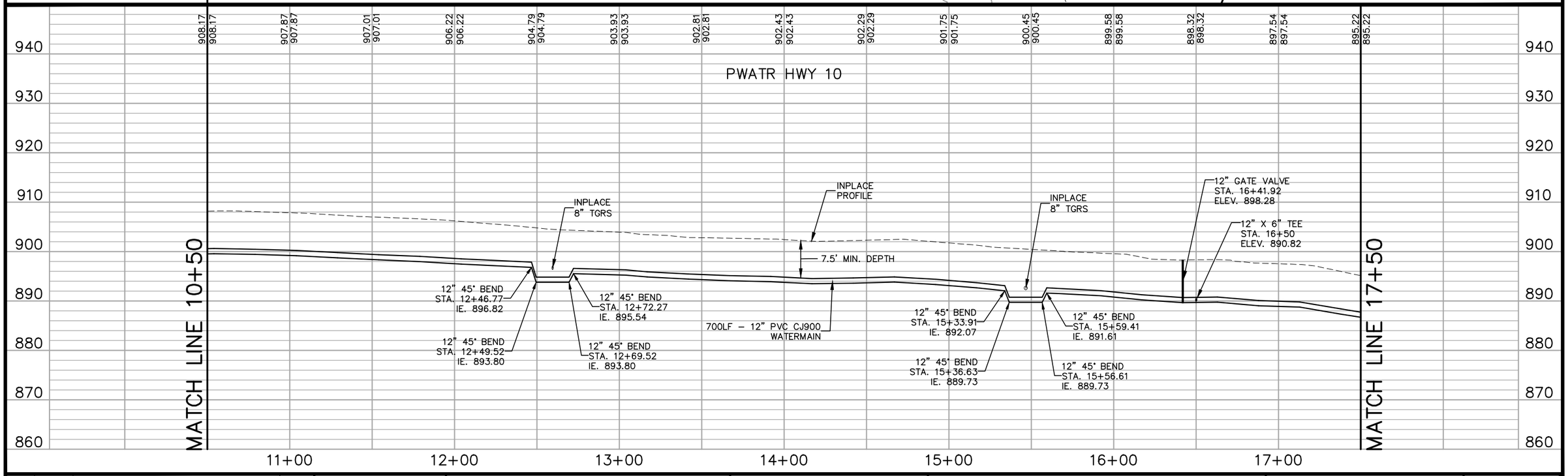
OLD HIGHWAY 8 EXTENSION
CONSTRUCTION PROJECT

HIGHWAY 10 WATERMAIN
WATERMAIN PLAN AND PROFILE
STA. 3+50 TO STA. 10+50

COUNTY PROJECT	
S.A.P.	062-593-006
S.A.P.	
S.P.	

SHEET NO. 68 / 115





No.	Date	Revisions	App.

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CHADD B. LARSON

DATE: 4/20/17 MN LIC. NO. 41864

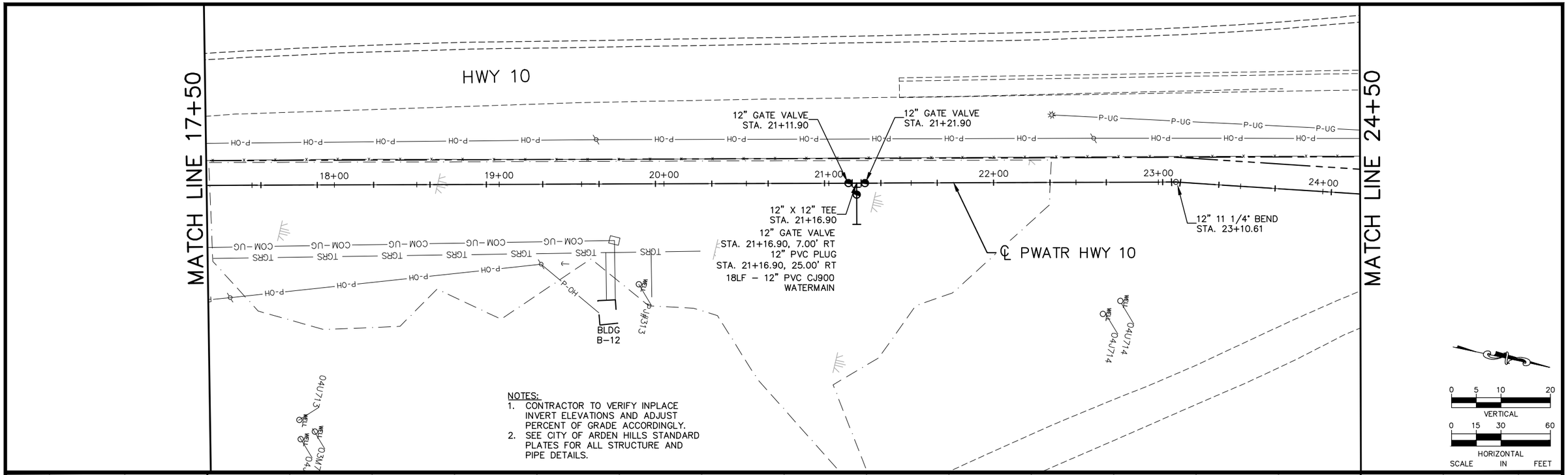
RAMSEY COUNTY

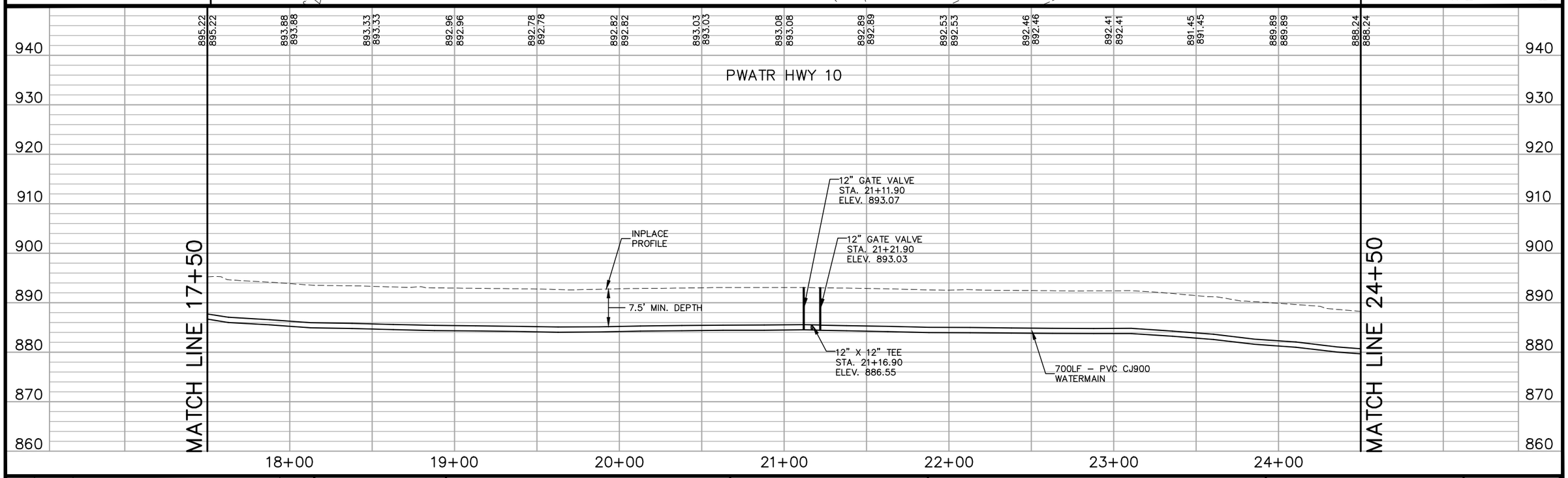
OLD HIGHWAY 8 EXTENSION CONSTRUCTION PROJECT

HIGHWAY 10 WATERMAIN
WATERMAIN PLAN AND PROFILE
STA. 10+50 TO STA. 17+50

COUNTY PROJECT	
S.A.P.	062-593-006
S.A.P.	
S.P.	

SHEET NO. 69 / 115





No.	Date	Revisions	App.

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CHADD B. LARSON

DATE: 4/20/17 MN LIC. NO. 41864

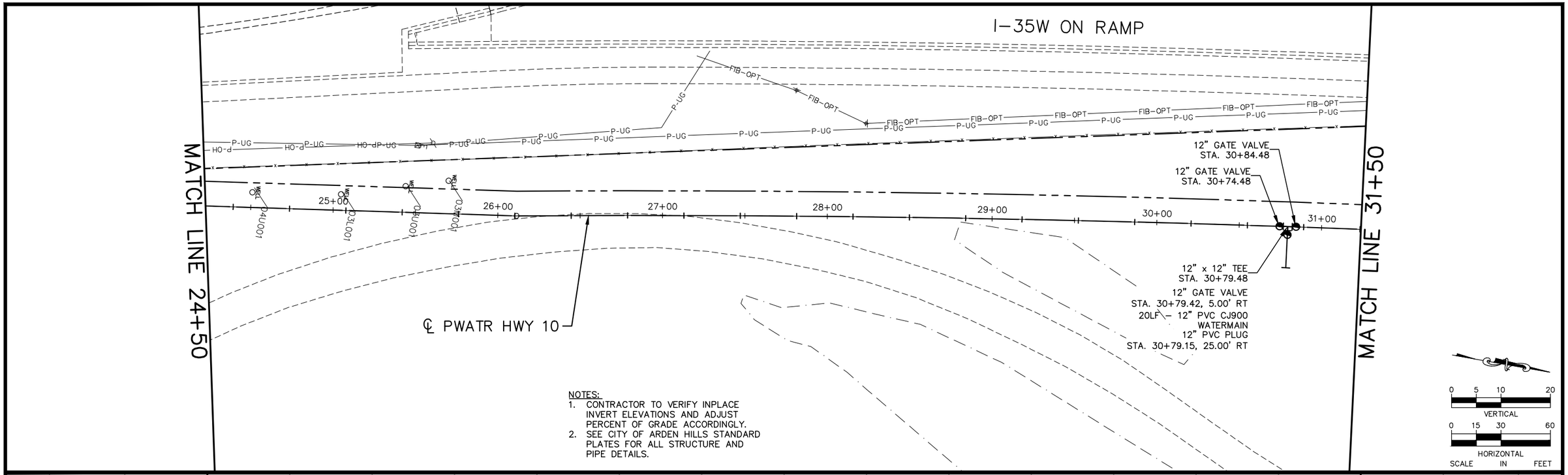
RAMSEY COUNTY

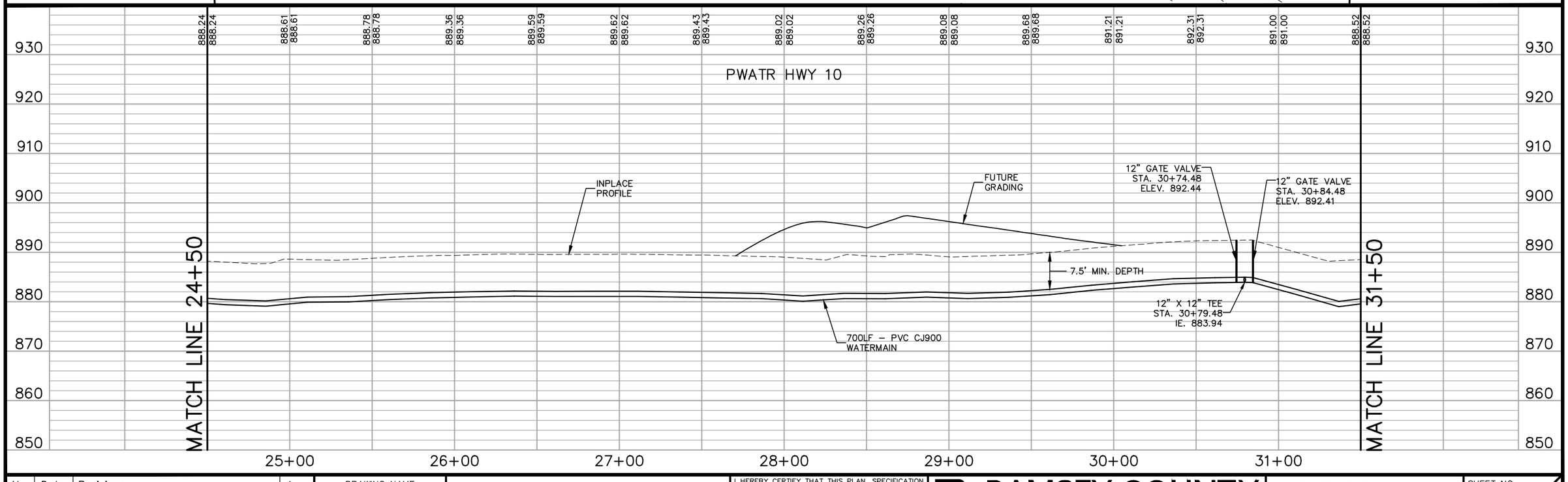
OLD HIGHWAY 8 EXTENSION CONSTRUCTION PROJECT

HIGHWAY 10 WATERMAIN
WATERMAIN PLAN AND PROFILE
STA. 17+50 TO STA. 24+50

COUNTY PROJECT	
S.A.P.	062-593-006
S.A.P.	
S.P.	

SHEET NO. 70 / 115





No.	Date	Revisions	App.

DRAWING NAME	TCAAP_THUMB_STH_UTIL02
DESIGNED BY:	RJG
DRAWN BY:	RJG
CHECKED BY:	CBL
DATE:	4/20/17
PROJECT NO.	160553004

Kimley»Horn
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CHADD B. LARSON

DATE: 4/20/17 MN LIC. NO. 41864

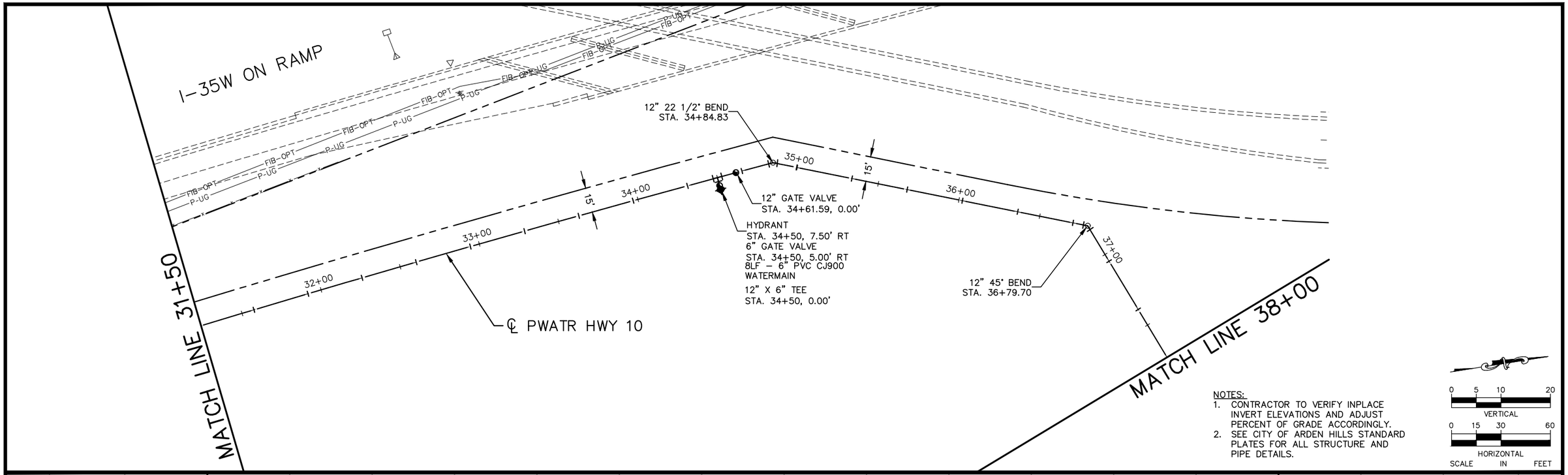
RAMSEY COUNTY

OLD HIGHWAY 8 EXTENSION CONSTRUCTION PROJECT

HIGHWAY 10 WATERMAIN
WATERMAIN PLAN AND PROFILE
STA. 24+50 TO STA. 31+50

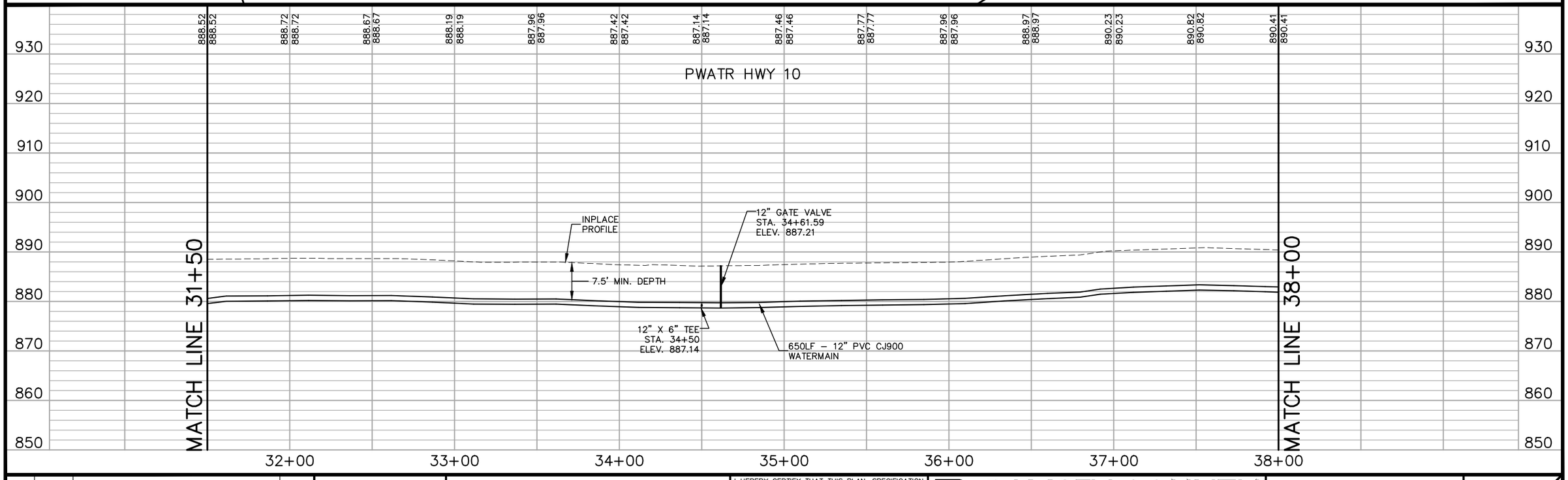
COUNTY PROJECT	
S.A.P.	062-593-006
S.A.P.	
S.P.	

SHEET NO. 71 / 115



NOTES:
1. CONTRACTOR TO VERIFY INPLACE INVERT ELEVATIONS AND ADJUST PERCENT OF GRADE ACCORDINGLY.
2. SEE CITY OF ARDEN HILLS STANDARD PLATES FOR ALL STRUCTURE AND PIPE DETAILS.

0 5 10 20
VERTICAL
0 15 30 60
HORIZONTAL
SCALE IN FEET



No.	Date	Revisions	App.

DRAWING NAME	TCAAP_THUMB_STH_UTIL02
DESIGNED BY:	RJG
DRAWN BY:	RJG
CHECKED BY:	CBL
DATE:	4/20/17
PROJECT NO.	160553004

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CHADD B. LARSON
DATE: 4/20/17 MN LIC. NO. 41864

RAMSEY COUNTY

OLD HIGHWAY 8 EXTENSION CONSTRUCTION PROJECT

HIGHWAY 10 WATERMAIN
WATERMAIN PLAN AND PROFILE
STA. 31+50 TO STA. 38+00

COUNTY PROJECT	
S.A.P.	062-593-006
S.A.P.	
S.P.	

SHEET NO. 72 / 115

MATCH LINE 38+00

WELL SEALED 03U075

301+00

275+00

℄ PWATR SPINE RD

℄ PWATR SPINE RD 2

12" X 12" TEE
STA. 44+46.67

38+00 39+00 40+00 41+00 42+00 43+00 44+00 44+72

300+00

℄ PWATR HWY 10

274+00

12" GATE VALVE
STA. 44+31.67

12" GATE VALVE
STA. 44+41.67

GAS

NOTES:
1. CONTRACTOR TO VERIFY INPLACE INVERT ELEVATIONS AND ADJUST PERCENT OF GRADE ACCORDINGLY.
2. SEE CITY OF ARDEN HILLS STANDARD PLATES FOR ALL STRUCTURE AND PIPE DETAILS.

0 5 10 20
VERTICAL
0 15 30 60
HORIZONTAL
SCALE IN FEET

890.41 890.41 | 889.67 889.67 | 887.99 887.99 | 886.30 886.30 | 885.76 885.76 | 885.03 885.03 | 884.53 884.53 | 885.53 885.53 | 885.77 885.77 | 885.48 885.48 | 886.19 886.19 | 886.13 886.13 | 886.13 886.13 | 886.04 886.04

930 920 910 900 890 880 870 860 850

PWATR HWY 10

MATCH LINE 38+00

INPLACE PROFILE

7.5' MIN. DEPTH

647LF – 12" PVC CJ900 WATERMAIN

12" GATE VALVE
STA. 44+41.67
ELEV. 894.61

FUTURE GRADING

12" GATE VALVE
STA. 44+31.67
ELEV. 894.44

12" X 12" TEE
STA. 44+36.67
IE. 877.53

12" X 12" TEE
STA. 44+46.67
IE. 877.53

38+00 39+00 40+00 41+00 42+00 43+00 44+00 45+00

No.	Date	Revisions	App.

DRAWING NAME	TCAAP_THUMB_STH_UTIL02
DESIGNED BY:	RJG
DRAWN BY:	RJG
CHECKED BY:	CBL
DATE:	4/20/17
PROJECT NO.	160553004

Kimley»Horn
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CHADD B. LARSON
DATE: 4/20/17 MN LIC. NO. 41864

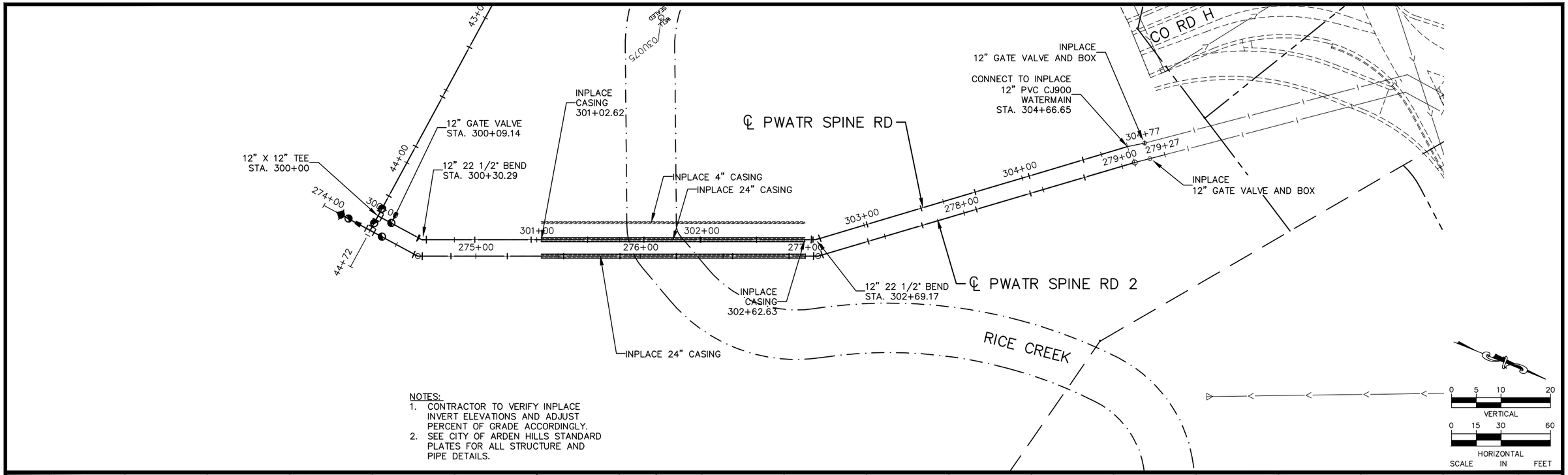
RAMSEY COUNTY

OLD HIGHWAY 8 EXTENSION CONSTRUCTION PROJECT

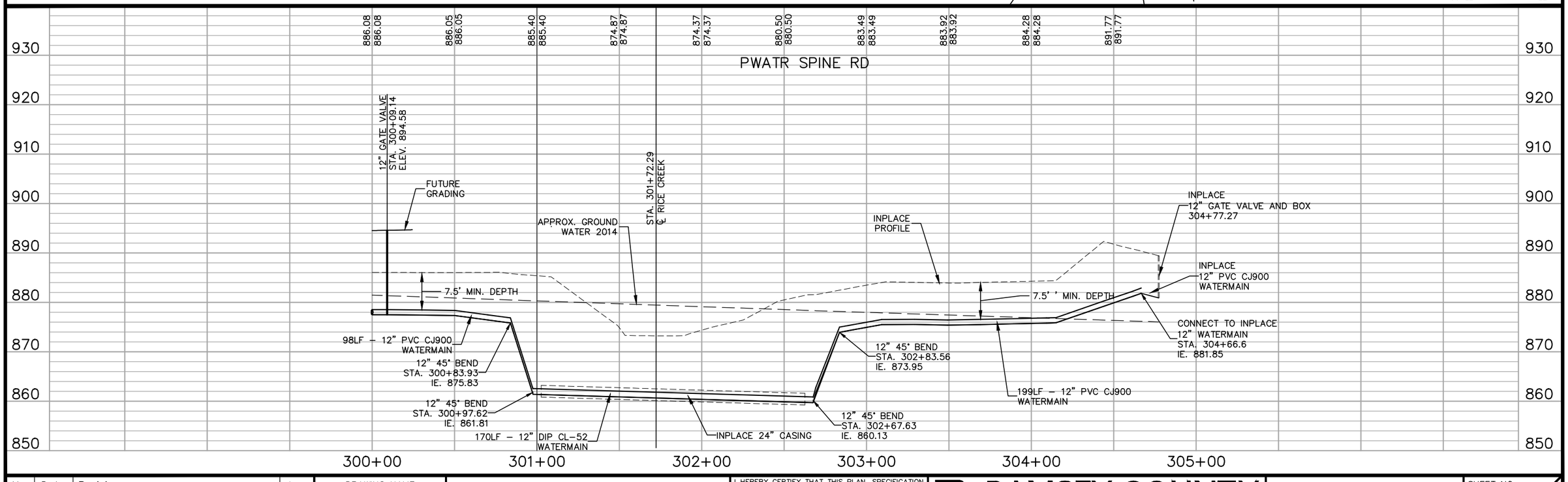
HIGHWAY 10 WATERMAIN
WATERMAIN PLAN AND PROFILE
STA. 38+00 TO STA. 45+00

COUNTY PROJECT	
S.A.P.	062-593-006
S.A.P.	
S.P.	

SHEET NO. 73 / 115



NOTES:
1. CONTRACTOR TO VERIFY INPLACE INVERT ELEVATIONS AND ADJUST PERCENT OF GRADE ACCORDINGLY.
2. SEE CITY OF ARDEN HILLS STANDARD PLATES FOR ALL STRUCTURE AND PIPE DETAILS.



No.	Date	Revisions	App.

DRAWING NAME: TCAAP_THUMB_STH_UTIL02

DESIGNED BY:	RJG
DRAWN BY:	RJG
CHECKED BY:	CBL
DATE:	4/20/17
PROJECT NO.	160553004

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CHADD B. LARSON
DATE: 4/20/17 MN LIC. NO. 41864

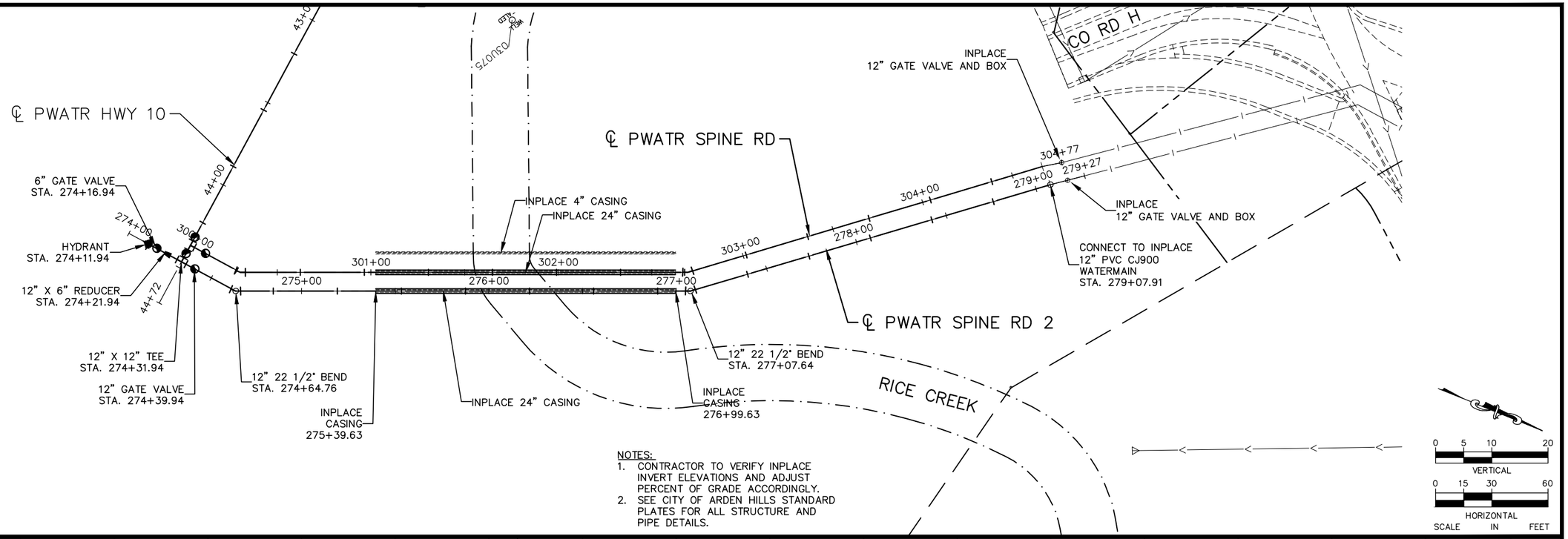
RAMSEY COUNTY

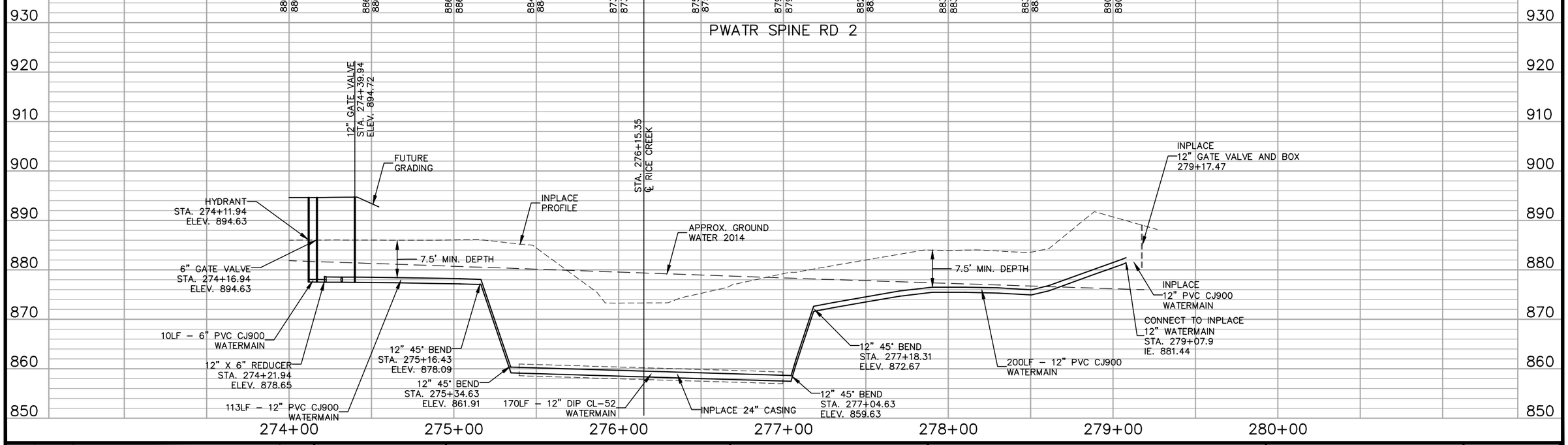
OLD HIGHWAY 8 EXTENSION
CONSTRUCTION PROJECT

RICE CREEK WATERMAIN
WATERMAIN PLAN AND PROFILE
STA. 300+00 TO STA. 305+25

COUNTY PROJECT	
S.A.P.	062-593-006
S.A.P.	
S.P.	

SHEET NO. 74 / 115





No.	Date	Revisions	App.

DRAWING NAME	TCAAP_THUMB_STH_UTIL02
DESIGNED BY:	RJG
DRAWN BY:	RJG
CHECKED BY:	CBL
DATE:	4/20/17
PROJECT NO.	160553004

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CHADD B. LARSON

DATE: 4/20/17 MN LIC. NO. 41864

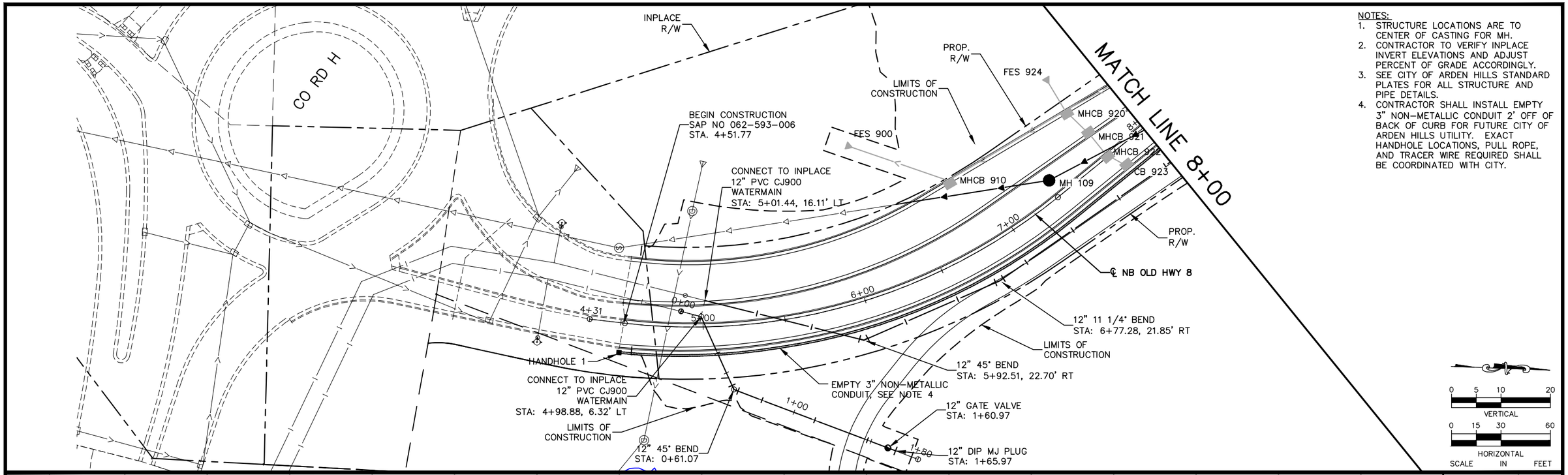
RAMSEY COUNTY

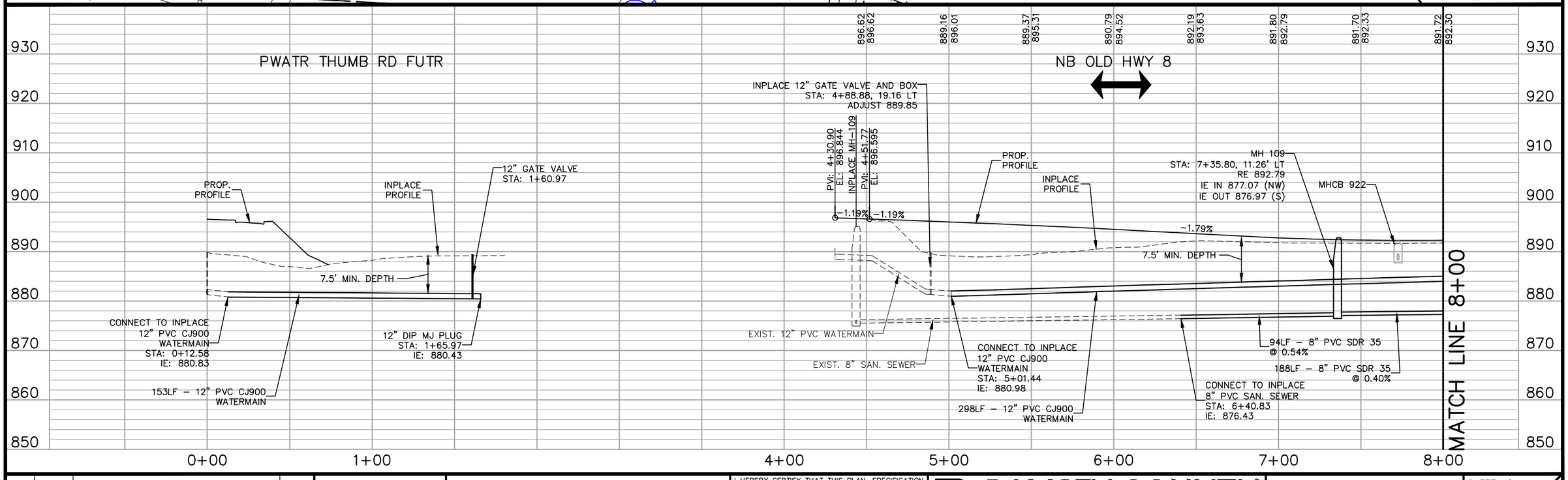
OLD HIGHWAY 8 EXTENSION CONSTRUCTION PROJECT

RICE CREEK WATERMAIN
WATERMAIN PLAN AND PROFILE
STA. 274+00 TO STA. 279+60.67

COUNTY PROJECT	
S.A.P.	062–593–006
S.A.P.	
S.P.	

SHEET NO. 75 / 115





No.	Date	Revisions	App.

DRAWING NAME	TCAAP_THUMB_STH_UTIL01
DESIGNED BY:	RJG
DRAWN BY:	RJG
CHECKED BY:	CBL
DATE:	4/20/17
PROJECT NO.	160553004

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CHADD B. LARSON

DATE: 4/20/17 MN LIC. NO. 41864

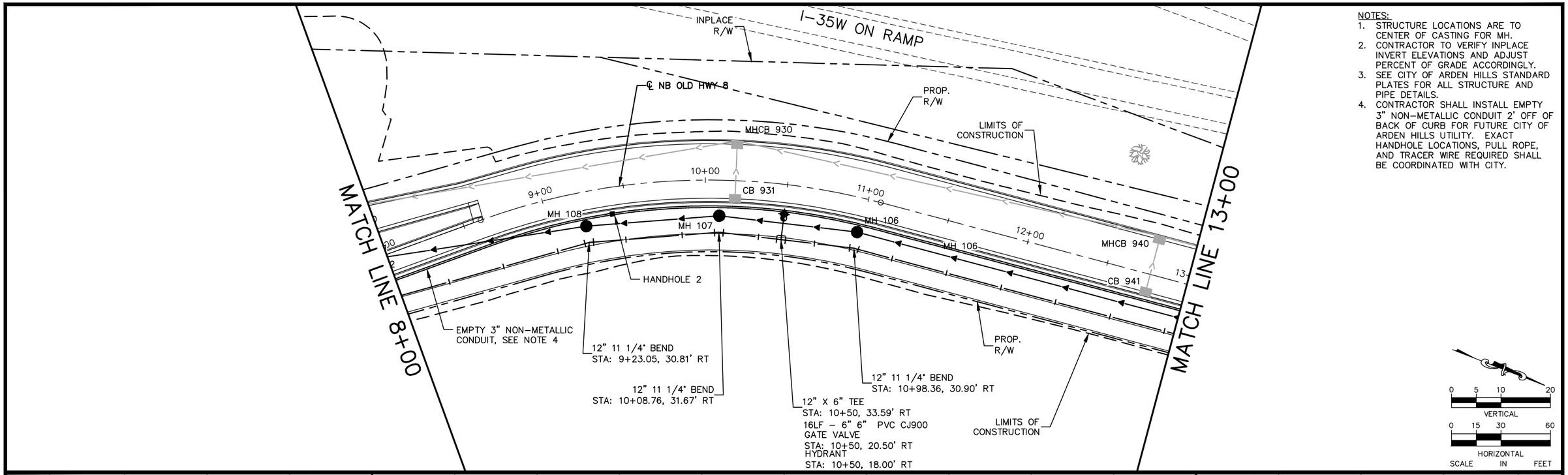
RAMSEY COUNTY

OLD HIGHWAY 8 EXTENSION CONSTRUCTION PROJECT

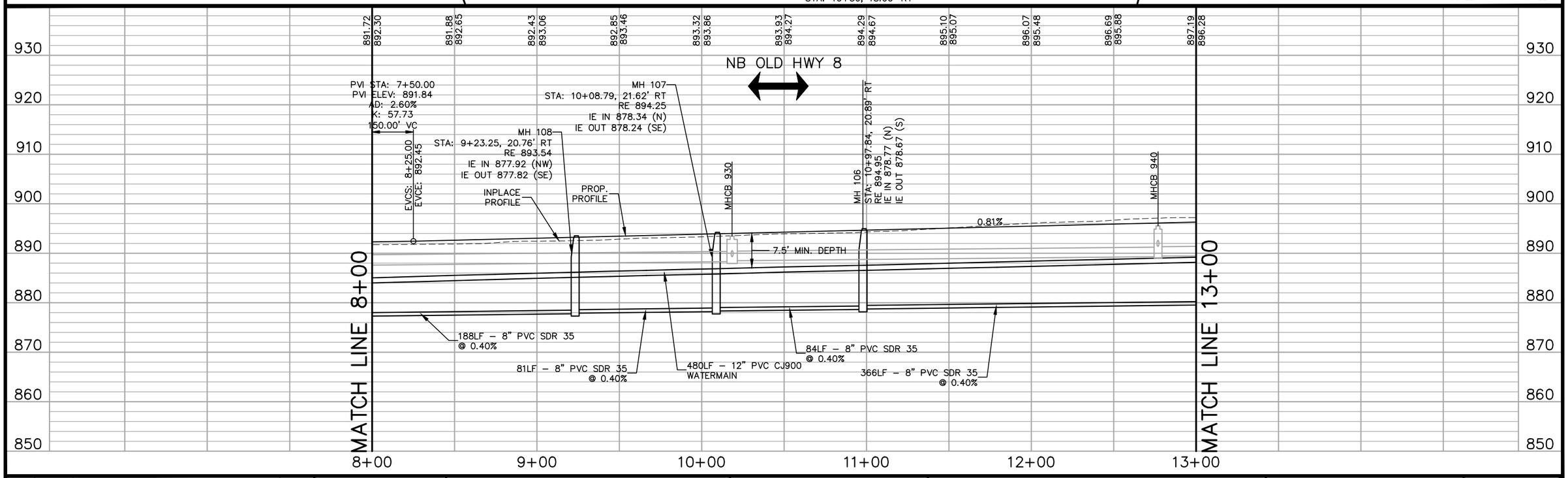
OLD HIGHWAY 8
SANITARY SEWER AND WATERMAIN
STA. 4+51.77 TO STA. 8+00

COUNTY PROJECT	
S.A.P.	062-593-006
S.A.P.	
S.P.	

SHEET NO. 76 / 115



NOTES:
1. STRUCTURE LOCATIONS ARE TO CENTER OF CASTING FOR MH.
2. CONTRACTOR TO VERIFY INPLACE INVERT ELEVATIONS AND ADJUST PERCENT OF GRADE ACCORDINGLY.
3. SEE CITY OF ARDEN HILLS STANDARD PLATES FOR ALL STRUCTURE AND PIPE DETAILS.
4. CONTRACTOR SHALL INSTALL EMPTY 3" NON-METALLIC CONDUIT 2' OFF OF BACK OF CURB FOR FUTURE CITY OF ARDEN HILLS UTILITY. EXACT HANDHOLE LOCATIONS, PULL ROPE, AND TRACER WIRE REQUIRED SHALL BE COORDINATED WITH CITY.



No.	Date	Revisions	App.
1	05/18/17	ADDENDUM NO. 2	CBL

DRAWING NAME	TCAAP_THUMB_STH_UTIL01
DESIGNED BY:	RJG
DRAWN BY:	RJG
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CHADD B. LARSON
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RAMSEY COUNTY

OLD HIGHWAY 8 EXTENSION CONSTRUCTION PROJECT

OLD HIGHWAY 8
SANITARY SEWER AND WATERMAIN
STA. 8+00 TO STA. 13+00

COUNTY PROJECT	
S.A.P.	062-593-006
S.A.P.	
S.P.	

SHEET NO. 77 / 115

NOTES:
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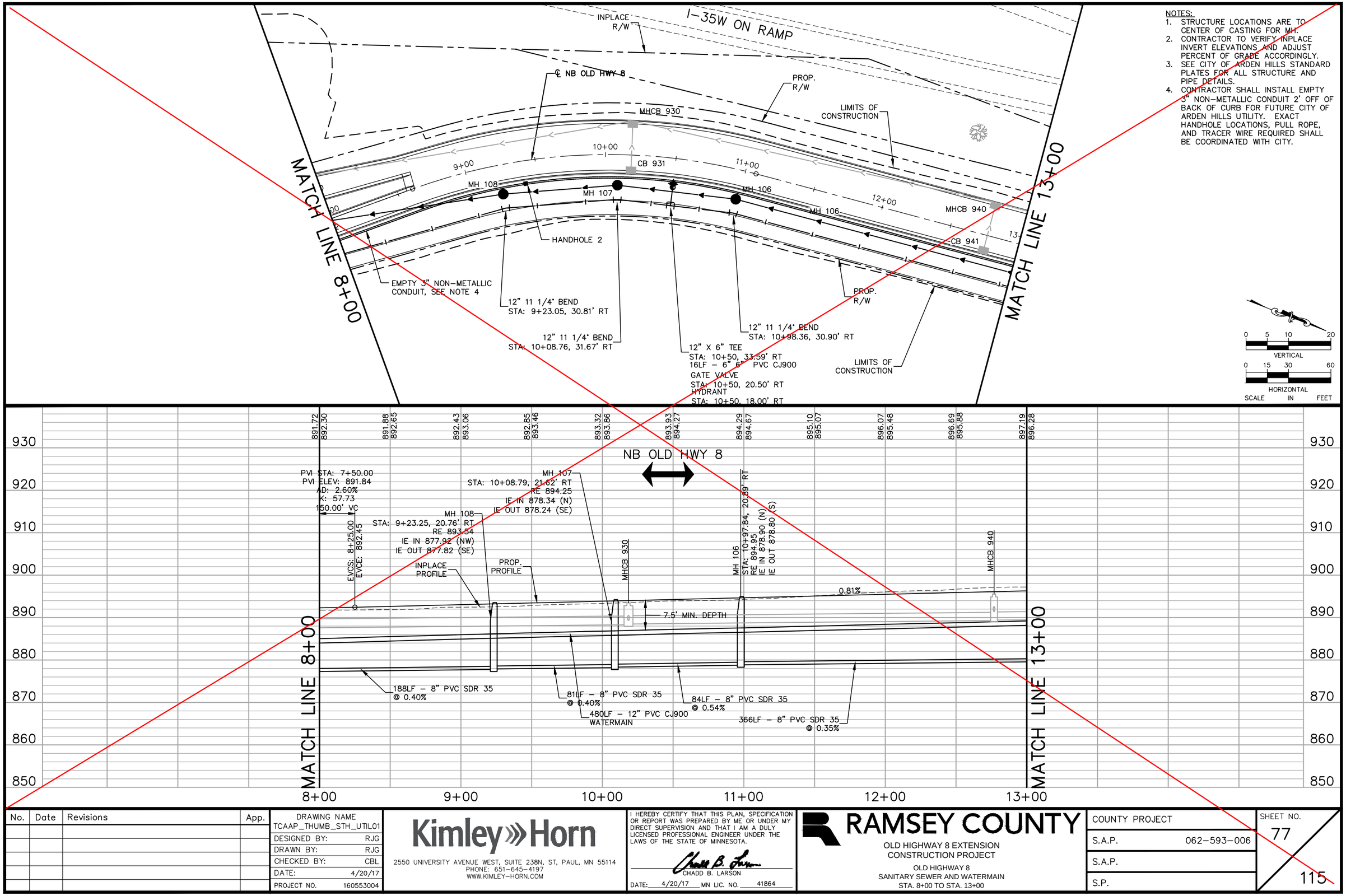
4. CONTRACTOR SHALL INSTALL EMPTY 3" NON-METALLIC CONDUIT 2' OFF OF BACK OF CURB FOR FUTURE CITY OF ARDEN HILLS UTILITY. EXACT HANDHOLE LOCATIONS, PULL ROPE, AND TRACER WIRE REQUIRED SHALL BE COORDINATED WITH CITY.



No.	Date	Revisions	App.

DRAWING NAME	TCAAP_THUMB_STH_UTIL01
DESIGNED BY:	RJG
DRAWN BY:	RJG
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CHADD B. LARSON
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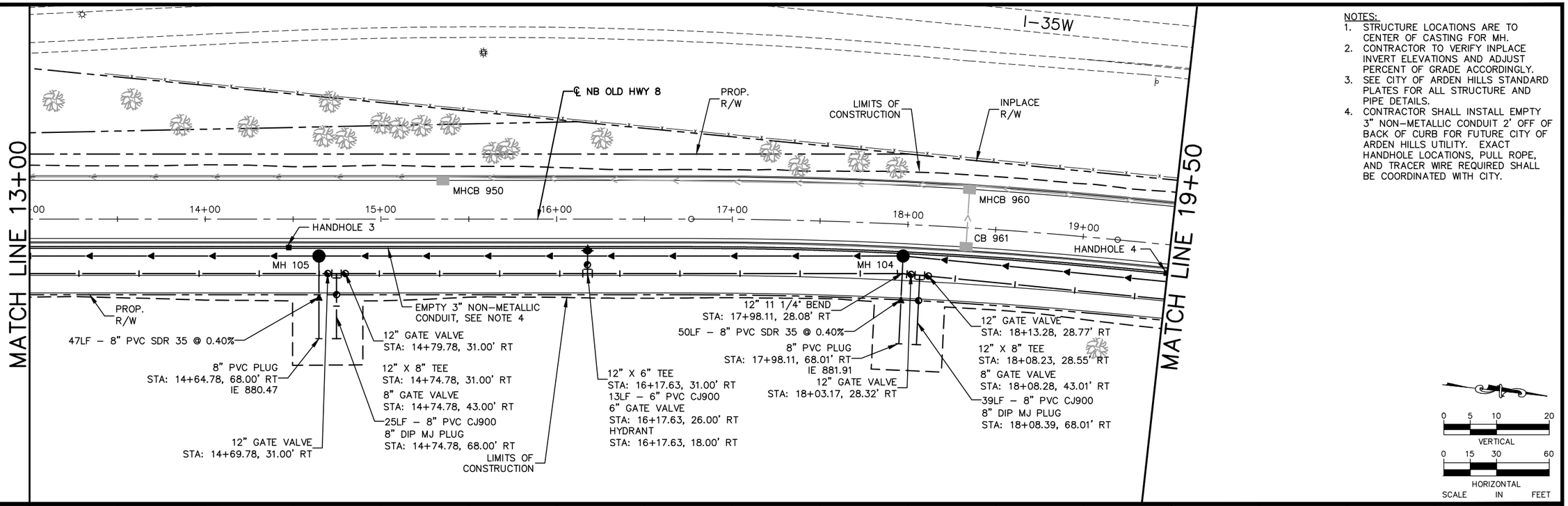
RAMSEY COUNTY

OLD HIGHWAY 8 EXTENSION CONSTRUCTION PROJECT

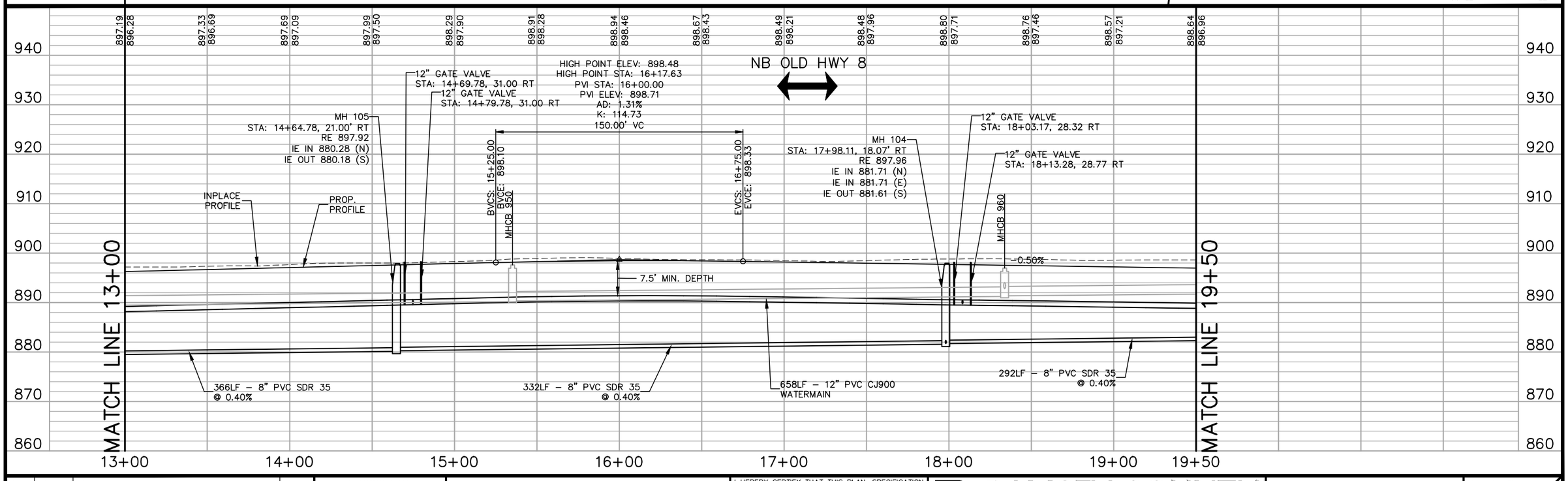
OLD HIGHWAY 8
SANITARY SEWER AND WATERMAIN
STA. 8+00 TO STA. 13+00

COUNTY PROJECT	
S.A.P.	062-593-006
S.A.P.	
S.P.	

SHEET NO. 77 / 115



NOTES:
1. STRUCTURE LOCATIONS ARE TO CENTER OF CASTING FOR MH.
2. CONTRACTOR TO VERIFY INPLACE INVERT ELEVATIONS AND ADJUST PERCENT OF GRADE ACCORDINGLY.
3. SEE CITY OF ARDEN HILLS STANDARD PLATES FOR ALL STRUCTURE AND PIPE DETAILS.
4. CONTRACTOR SHALL INSTALL EMPTY 3" NON-METALLIC CONDUIT 2' OFF OF BACK OF CURB FOR FUTURE CITY OF ARDEN HILLS UTILITY. EXACT HANDHOLE LOCATIONS, PULL ROPE, AND TRACER WIRE REQUIRED SHALL BE COORDINATED WITH CITY.



No.	Date	Revisions	App.
1	05/18/17	ADDENDUM NO. 2	CBL

DRAWING NAME	
TCAAP_THUMB_STH_UTIL01	
DESIGNED BY:	RJG
DRAWN BY:	RJG
CHECKED BY:	CBL
DATE:	4/20/17
PROJECT NO.	160553004

Kimley»Horn
2550 UNIVERSITY AVENUE WEST, SUITE 238N, ST, PAUL, MN 55114
PHONE: 651-645-4197
WWW.KIMLEY-HORN.COM

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

CHADD B. LARSON

DATE: 4/20/17 MN LIC. NO. 41864

RAMSEY COUNTY

OLD HIGHWAY 8 EXTENSION CONSTRUCTION PROJECT

OLD HIGHWAY 8
SANITARY SEWER AND WATERMAIN
STA. 13+00 TO STA. 19+50

COUNTY PROJECT	
S.A.P.	062-593-006
S.A.P.	
S.P.	

SHEET NO. 78 / 115

NOTES:
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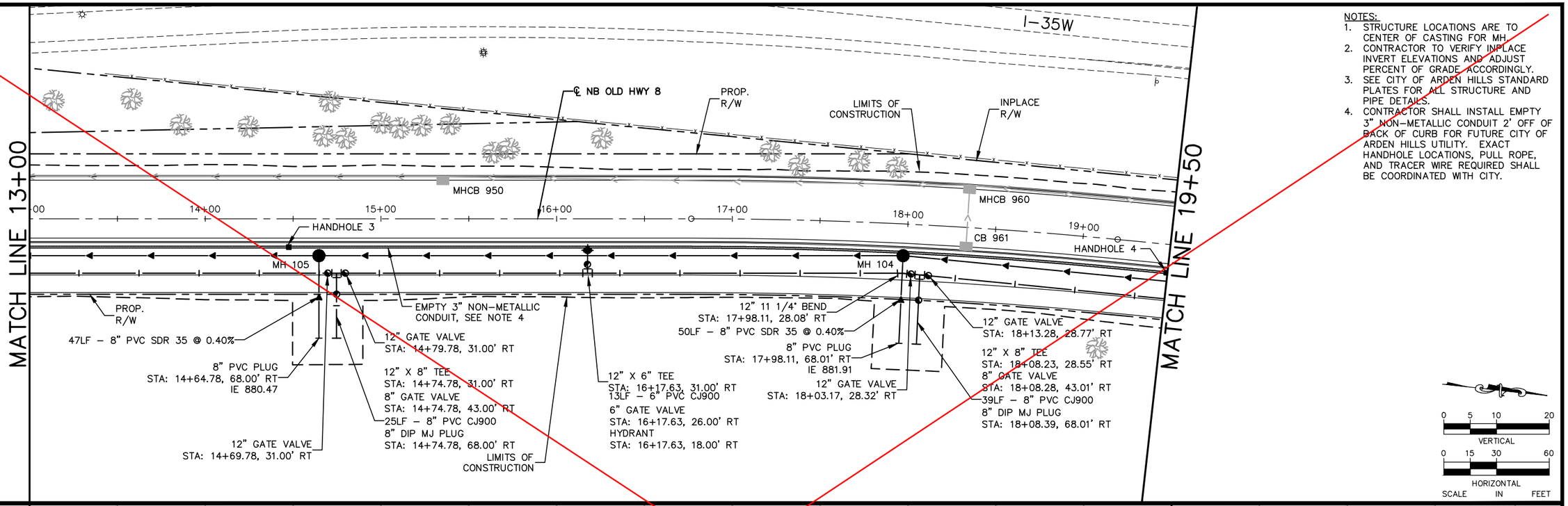

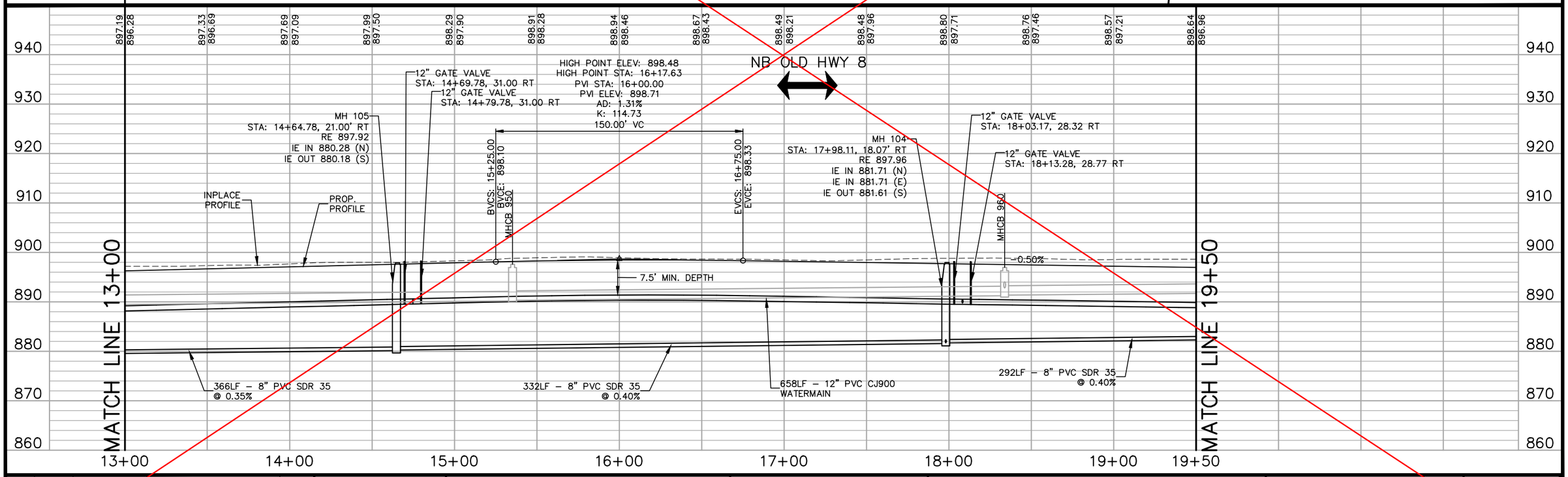

No.	Date	Revisions	App.

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CHADD B. LARSON

DATE: 4/20/17 MN LIC. NO. 41864

RAMSEY COUNTY

OLD HIGHWAY 8 EXTENSION CONSTRUCTION PROJECT

OLD HIGHWAY 8
SANITARY SEWER AND WATERMAIN
STA. 13+00 TO STA. 19+50

COUNTY PROJECT	
S.A.P.	062-593-006
S.A.P.	
S.P.	

SHEET NO. 78 / 115

NOTES:
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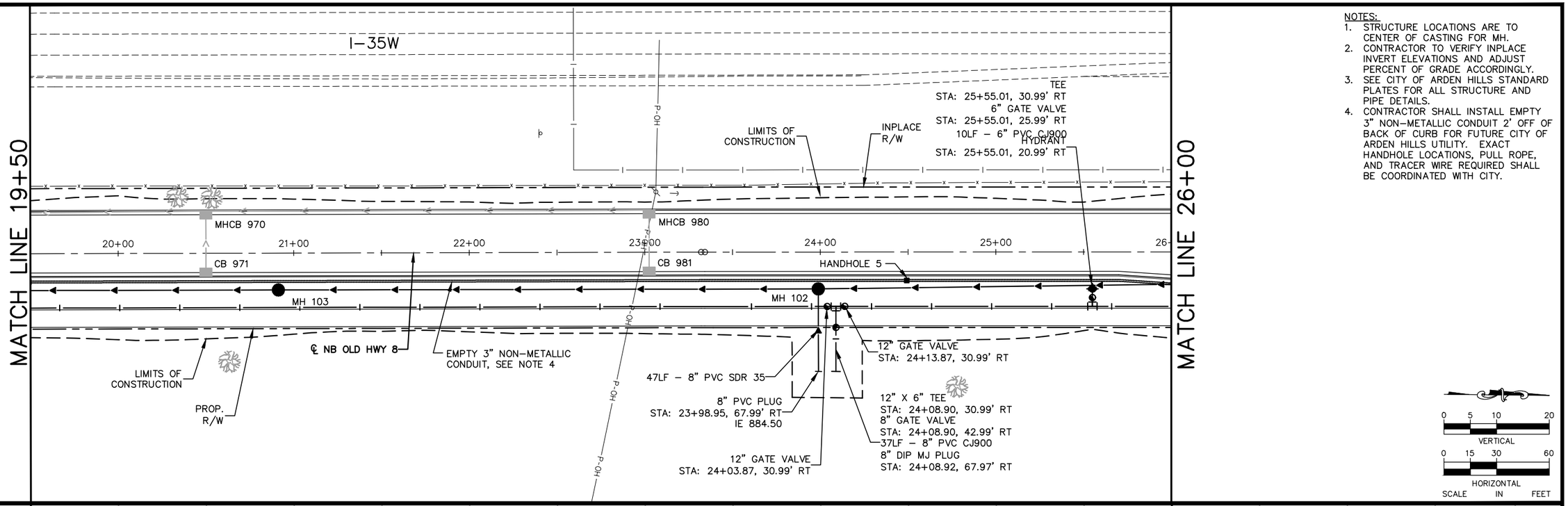

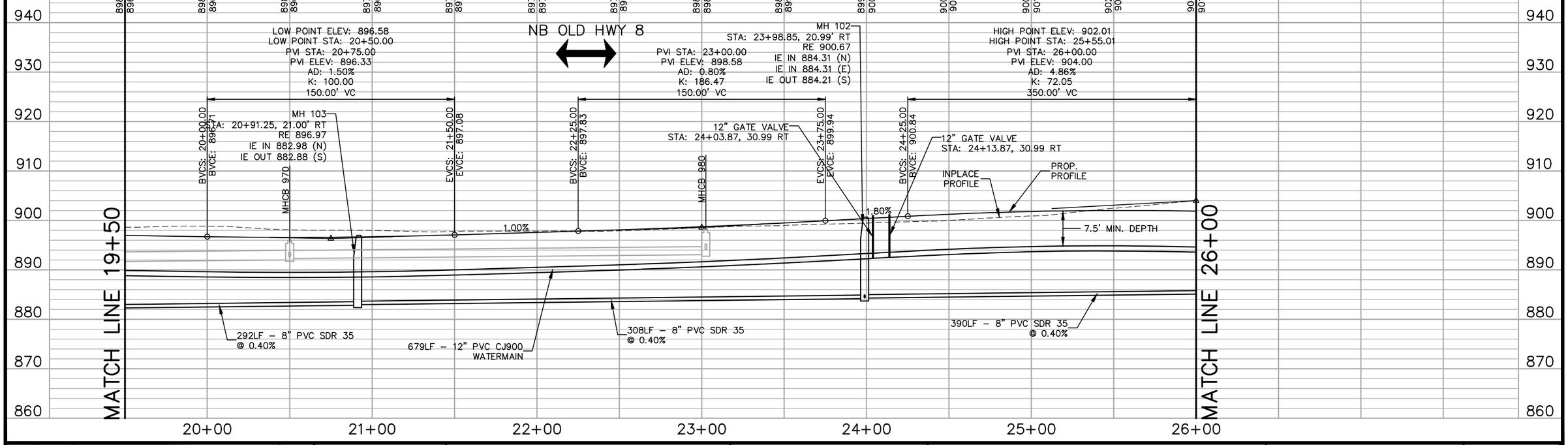

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CHADD B. LARSON
DATE: 4/20/17 MN LIC. NO. 41864

RAMSEY COUNTY

OLD HIGHWAY 8 EXTENSION CONSTRUCTION PROJECT

OLD HIGHWAY 8
SANITARY SEWER AND WATERMAIN
STA. 19+50 TO STA. 26+00

COUNTY PROJECT	
S.A.P.	062-593-006
S.A.P.	
S.P.	

SHEET NO. 79 / 115

MATCH LINE 26+00

I-35W

LIMITS OF CONSTRUCTION

INPLACE R/W

HYDRANT
STA: 31+55, 26.67' RT

4LF – 6" PVC CJ900
6" GATE VALVE
STA: 31+55, 29.17' RT
TEE
STA: 31+55, 31.00' RT

4" 45° BEND
STA: 31+82.78, 14.65' RT

END CONSTRUCTION
SAP NO 062–593–006
STA. 31+88.94

6" GATE VALVE
STA: 33+01.03, 31.00' RT

NOTES:
1. STRUCTURE LOCATIONS ARE TO CENTER OF CASTING FOR MH.
2. CONTRACTOR TO VERIFY INPLACE INVERT ELEVATIONS AND ADJUST PERCENT OF GRADE ACCORDINGLY.
3. SEE CITY OF ARDEN HILLS STANDARD PLATES FOR ALL STRUCTURE AND PIPE DETAILS.
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MHCB 200
MHCB 190
MHCB 180
MH 101
CB 201
CB 191
HANDHOLE 7
CB 181
HANDHOLE 6

0 5 10 20
VERTICAL
0 15 30 60
HORIZONTAL
SCALE IN FEET

52LF – 8" PVC SDR 35

8" PVC PLUG
STA: 27+89.34, 67.99' RT
IE 886.18

EMPTY 3" NON–METALLIC CONDUIT, SEE NOTE 4

PROP. R/W

LIMITS OF CONSTRUCTION

12" GATE VALVE
STA: 31+71.07, 31.00' RT
12" X 12" TEE
STA: 31+78.56, 31.00' RT
12" GATE VALVE
STA: 31+78.41, 43.00' RT
22LF – 12" PVC CJ900
12" PVC PLUG
STA: 31+78.29, 53.01' RT

12" X 6" REDUCER
STA: 31+86.56, 31.00' RT

PLUG
STA: 32+21.29, 53.91' RT
IE 880.04

6" 90° BEND
STA: 33+06.03, 31.00' RT
27LF – 6" PVC CJ900
6" DIP MJ PLUG
STA: 33+06.09, 58.13' RT

P-OH GAS HO-P

NB OLD HWY 8

PVI STA: 26+00.00
PVI ELEV: 904.00
AD: 4.86%
K: 72.05
350.00' VC

MH 101
(SEE OLD HIGHWAY 8 AND CSAH 3 RECONSTRUCTIN PROJECT)
STA: 27+89.27, 16.00' RT
RE 897.90
IE IN 885.97 (N)
IE IN 885.97 (E)
IE OUT 885.87 (S)

PVI STA: 29+50.00
PVI ELEV: 893.31
AD: 1.22%
K: 122.51
150.00' VC

LOW POINT ELEV: 889.07
LOW POINT STA: 32+38.51
PVI STA: 32+00.00
PVI ELEV: 888.74
AD: 2.42%
K: 62.06
150.00' VC

EVCS: 27+75.00
EVCE: 898.65
BVCS: 28+75.00
BVCE: 895.60
EVCS: 30+25.00
EVCE: 891.94
BVCS: 31+25.00
BVCE: 890.11
EVCS: 32+75.00
EVCE: 889.18

INPLACE PROFILE
PROP. PROFILE

MHCB 200
MHCB 190
MHCB 180

7.5' MIN. DEPTH
-3.05%
-1.83%
0.59%
7.5' MIN. DEPTH

390LF – 8" PVC SDR 35
@ 0.40%

587LF – 12" PVC CJ900
WATERMAIN

449LF – 4" PVC SDR 35
SAN. SEWER FORCEMAIN

12" X 12" CROSS
STA: 31+78.02
IE: 881.30

12" X 6" REDUCER
STA: 31+86.56, 31.00' RT
IE 881.43

12" GATE VALVE
STA: 31+71.07, 31.00' RT
IE 881.01

4" PVC PLUG
STA: 32+21.29
IE: 880.02

6" GATE VALVE
STA: 33+01.03, 31.00' RT
IE 881.49

119LF – 6" PVC CJ900
WATERMAIN

940 930 920 910 900 890 880 870 860

26+00 27+00 28+00 29+00 30+00 31+00 32+00 33+00

No.	Date	Revisions	App.

DRAWING NAME	TCAAP_THUMB_STH_UTIL01
DESIGNED BY:	RJG
DRAWN BY:	RJG
CHECKED BY:	CBL
DATE:	4/20/17
PROJECT NO.	160553004

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CHADD B. LARSON
DATE: 4/20/17 MN LIC. NO. 41864

RAMSEY COUNTY

OLD HIGHWAY 8 EXTENSION CONSTRUCTION PROJECT

OLD HIGHWAY 8
SANITARY SEWER AND WATERMAIN
STA. 26+00 TO STA. 31+88.94

COUNTY PROJECT	
S.A.P.	062–593–006
S.A.P.	
S.P.	

SHEET NO. 80 / 115

OLD HIGHWAY 8 (S.A.P. 062-593-006) SANITARY SEWER TABULATION

F

FLOWS FROM		STRUCTURE LOCATION				TOP OF CASTING ELEV	STEPS REQ'D	OUTLET ELEV.	SPECIAL 2	DRAINS TO			4" PVC FORCE MAIN	8" PVC PIPE SEWER	CONNECT TO EXISTING SANITARY SEWER	REMARKS
STR. NO.	TYPE	ALIGNMENT	STATION	OFFSET						STR. NO.	% GRADE	INLET ELEV.				
				LT.	RT.				LIN FT				LIN FT	LIN FT		
PLUG		NB OLD HWY 8	32+21.29		53.91	881.39	NO	880.04		45 BEND	-0.89%	880.53	55			
45 BEND		NB OLD HWY 8	31+82.78		14.65	881.70	NO	880.53		101	-1.38%	885.97	394			
STUB		NB OLD HWY 8	27+89.34		67.99	886.90	NO	886.18		101	0.40%	885.97		52		
101	MH	NB OLD HWY 8	27+89.27		16.00	897.90	YES	885.87	12.1	102	0.40%	884.31		391		
STUB		NB OLD HWY 8	23+98.95		67.99	885.19	NO	884.50		102	0.40%	884.31		47		
102	MH	NB OLD HWY 8	23+98.85		20.99	900.67	YES	884.21	16.5	103	0.40%	882.98		308		
103	MH	NB OLD HWY 8	20+91.25		21.00	896.97	YES	882.88	14.1	104	0.40%	881.71		293		
STUB		NB OLD HWY 8	17+98.11		68.01	882.64	NO	881.91		104	0.40%	881.71				
104	MH	NB OLD HWY 8	17+98.11		18.07	897.96	YES	881.61	16.4	105	0.40%	880.28		333		
STUB		NB OLD HWY 8	14+64.78		68.00	882.16	NO	880.47		105	0.40%	880.28		47		
105	MH	NB OLD HWY 8	14+64.78		21.00	897.92	YES	880.18	17.8	106	0.40%	878.77		367		
106	MH	NB OLD HWY 8	10+97.84		20.89	894.95	YES	878.67	16.3	107	0.40%	878.34		85		
107	MH	NB OLD HWY 8	10+08.79		21.62	894.25	YES	878.24	16.1	108	0.40%	877.92		81		
108	MH	NB OLD HWY 8	9+23.25		20.76	893.54	YES	877.82	15.8	109	0.40%	877.07		188		
109	MH	NB OLD HWY 8	7+35.80	11.26		892.79	YES	876.97	15.9	EXIST.	0.54%	876.46		95	1	
EXIST.	EXIST.	NB OLD HWY 8	6+40.83	48.10		877.19	NO									
PROJECT TOTAL									**141**				**449**	**2287**	**1**	

GENERAL NOTES:

1. STATION AND OFFSETS ARE TO CENTER OF STRUCTURE OF MANHOLES, CENTER OF BEND OR END OF STUB
2. STRUCTURE HEIGHTS ARE PROVIDED FOR INFORMATION ONLY. DRAINAGE STRUCTURE DESIGN SPECIAL 2 SHALL BE PAID FOR BY THE EACH. SEE DETAILS AND SPECIFICATIONS.
3. LENGTH OF PIPE ARE TO CENTER OF STRUCTURE,
4. STRUCTURES OVER 4.0' IN HEIGHT REQUIRE STEPS.
5. STRUCTURE AND PIPE DATA ARE SHOWN FOR INFORMATION PURPOSES. DATA IS TO BE USED FOR STRUCTURE MANUFACTURING AND SHOP DRAWINGS.
6. SEE CONSTRUCTION STAGING PLAN TO COORDINATE SANITARY SEWER INSTALLATION AND REMOVALS.
7. CASTINGS FOR DRAINAGE STRUCTURE DESIGN SPECIAL 2 ARE INCIDENTAL. SEE SPECIFICATIONS FOR CASTING INFORMATION.

K:\TWC_Civil\County\RAMSEY\TCAAP Thumb Rd\CAD\Plan Sheets\Construction Plans\South\TCAAP_THUMB_STH_STRM.dwg May 18, 2017 - 3:24pm

No.	Date	Revisions	App.
1	05/18/17	ADDENDUM NO. 2	CBL

DRAWING NAME	
TCAAP_THUMB_STH_STRM.dwg	
DESIGNED BY:	RJG
DRAWN BY:	RJG
CHECKED BY:	CBL
DATE:	4/20/17
PROJECT NO.	160553004

Kimley»Horn
2550 UNIVERSITY AVENUE WEST, SUITE 238N, ST, PAUL, MN 55114
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CHADD B. LARSON

DATE: 4/20/17 MN LIC. NO. 41864

RAMSEY COUNTY
OLD HIGHWAY 8 EXTENSION
CONSTRUCTION PROJECT

OLD HIGHWAY 8
INFILTRATION POND GRADING

COUNTY PROJECT	
S.A.P.	062-593-006
S.A.P.	
S.P.	

SHEET NO. 81

OLD HIGHWAY 8 (S.A.P. 062-593-006) SANITARY SEWER TABULATION

F

FLOWS FROM		STRUCTURE LOCATION				TOP OF CASTING ELEV	STEPS REQ'D	OUTLET ELEV.	SPECIAL 2	DRAINS TO			4" PVC FORCE MAIN	8" PVC PIPE SEWER	CONNECT TO EXISTING SANITARY SEWER	REMARKS
STR. NO.	TYPE	ALIGNMENT	STATION	OFFSET						STR. NO.	% GRADE	INLET ELEV.				
				LT.	RT.				LIN FT				LIN FT	LIN FT		
PLUG		NB OLD HWY 8	32+21.29		53.91	881.39	NO	880.04		45 BEND	-0.89%	880.53	55			
45 BEND		NB OLD HWY 8	31+82.78		14.65	881.70	NO	880.53		101	-1.38%	885.97	394			
STUB		NB OLD HWY 8	27+89.34		67.99	886.90	NO	886.18		101	0.40%	885.97		52		
101	MH	NB OLD HWY 8	27+89.27		16.00	897.90	YES	885.87	12.1	102	0.40%	884.31		391		
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103	MH	NB OLD HWY 8	20+91.25		21.00	896.97	YES	882.88	14.1	104	0.40%	881.71		293		
STUB		NB OLD HWY 8	17+98.11		68.01	882.64	NO	881.91		104	0.40%	881.71				
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STUB		NB OLD HWY 8	14+64.78		68.00	882.16	NO	880.47		105	0.40%	880.28		47		
105	MH	NB OLD HWY 8	14+64.78		21.00	897.92	YES	880.18	17.8	106	0.35%	878.90		367		
106	MH	NB OLD HWY 8	10+97.84		20.89	894.95	YES	878.80	16.2	107	0.54%	878.34		85		
107	MH	NB OLD HWY 8	10+08.79		21.62	894.25	YES	878.24	16.1	108	0.40%	877.92		81		
108	MH	NB OLD HWY 8	9+23.25		20.76	893.54	YES	877.82	15.8	109	0.40%	877.07		188		
109	MH	NB OLD HWY 8	7+35.80	11.26		892.79	YES	876.97	15.9	EXIST.	0.54%	876.46		95	1	
EXIST.	EXIST.	NB OLD HWY 8	6+40.83	48.10		877.19	NO									
PROJECT TOTAL									**141**				**449**	**2287**	**1**	

GENERAL NOTES:

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K:\TWC_Civil\County\RAMSEY\TCAAP Thumb Rd\CAD\Plan Sheets\Construction Plans\South\TCAAP_THUMB_STH_STRM.dwg April 25, 2017 - 10:21pm

No.	Date	Revisions	App.

DRAWING NAME: TCAAP_THUMB_STH_STRM.dwg

DESIGNED BY:	RJG
DRAWN BY:	RJG
CHECKED BY:	CBL
DATE:	4/20/17
PROJECT NO.	160553004

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CHADD B. LARSON

DATE: 4/20/17 MN LIC. NO. 41864

RAMSEY COUNTY
OLD HIGHWAY 8 EXTENSION
CONSTRUCTION PROJECT

OLD HIGHWAY 8
INFILTRATION POND GRADING

COUNTY PROJECT
S.A.P. 062-593-006
S.A.P.
S.P.

SHEET NO. 81
115

OLD HIGHWAY 8 (S.A.P. 062-593-006) WATERMAIN TABULATION

G

TYPE	STRUCTURE LOCATION				TYPE	STRUCTURE LOCATION				TYPE	STRUCTURE LOCATION			
STR. NO.	ALIGNMENT	STATION	OFFSET		STR. NO.	ALIGNMENT	STATION	OFFSET		STR. NO.	ALIGNMENT	STATION	OFFSET	
			LT.	RT.				LT.	RT.				LT.	RT.
CONNECT TO EXISTING	PWATR HWY 10 CROSSING	0+09.27			12" GATE VALVE	PWATR HWY 10	30+74.48			12" 11 1/4° BEND	NB OLD HWY 8	6+77.28		21.85
12" GATE VALVE	PWATR HWY 10 CROSSING	0+14.27			12" X 12" TEE	PWATR HWY 10	30+79.48			12" 11 1/4° BEND	NB OLD HWY 8	9+23.05		30.81
BEGIN 24" CASING	PWATR HWY 10 CROSSING	0+40.00			12" GATE VALVE	PWATR HWY 10	30+79.42		5.00	12" 11 1/4° BEND	NB OLD HWY 8	10+08.76		31.67
END 24" CASING	PWATR HWY 10 CROSSING	2+20.00			12" PLUG	PWATR HWY 10	30+79.15		25.00	12" X 6" TEE	NB OLD HWY 8	10+50.00		33.59
12" 22 1/2° BEND	PWATR HWY 10 CROSSING	2+25.00			12" GATE VALVE	PWATR HWY 10	30+84.48			6" GATE VALVE	NB OLD HWY 8	10+50.00		20.50
12" X 12" CROSS	PWATR HWY 10 CROSSING	2+39.04			12" X 6" TEE	PWATR HWY 10	34+50.00			HYDRANT	NB OLD HWY 8	10+50.00		18.00
12" GATE VALVE	PWATR HWY 10 CROSSING	2+46.04			6" GATE VALVE	PWATR HWY 10	34+50.00		5.00	12" 11 1/4° BEND	NB OLD HWY 8	10+98.36		30.90
12" PLUG	PWATR HWY 10 CROSSING	2+56.04			HYDRANT	PWATR HWY 10	34+50.00		7.50	12" GATE VALVE	NB OLD HWY 8	14+69.78		31.00
HYDRANT	PWATR HWY 10	0+25.00			12" GATE VALVE	PWATR HWY 10	34+61.59			12" X 8" TEE	NB OLD HWY 8	14+74.78		31.00
6" GATE VALVE	PWATR HWY 10	0+30.00			12" 22 1/2° BEND	PWATR HWY 10	34+84.83			8" GATE VALVE	NB OLD HWY 8	14+74.78		43.00
12" X 6" REDUCER	PWATR HWY 10	0+35.00			12" 45° BEND	PWATR HWY 10	36+79.70			8" PLUG	NB OLD HWY 8	14+74.78		68.00
12" GATE VALVE	PWATR HWY 10	4+10.73			12" GATE VALVE	PWATR HWY 10	44+31.67			12" GATE VALVE	NB OLD HWY 8	14+79.78		31.00
12" X 12" TEE	PWATR HWY 10	4+15.73			12" X 12" TEE	PWATR HWY 10	44+36.67			12" X 6" TEE	NB OLD HWY 8	16+17.63		31.00
12" GATE VALVE	PWATR HWY 10	4+15.68		5.02	12" GATE VALVE	PWATR HWY 10	44+41.67			6" GATE VALVE	NB OLD HWY 8	16+17.63		26.00
12" PLUG	PWATR HWY 10	4+15.64		10.02	12" X 12" TEE	PWATR HWY 10	44+46.67			HYDRANT	NB OLD HWY 8	16+17.63		18.00
12" GATE VALVE	PWATR HWY 10	4+20.73			12" GATE VALVE	PWATR SPINE RD	300+09.14			12" 11 1/4° BEND	NB OLD HWY 8	17+98.11		28.08
12" 45° BEND	PWATR HWY 10	6+03.03			12" 22 1/2° BEND	PWATR SPINE RD	300+30.29			12" GATE VALVE	NB OLD HWY 8	18+03.17		28.32
12" 45° BEND	PWATR HWY 10	6+19.98			12" 45° BEND	PWATR SPINE RD	300+83.93			12" X 8" TEE	NB OLD HWY 8	18+08.23		28.55
12" 45° BEND	PWATR HWY 10	6+23.93			12" 45° BEND	PWATR SPINE RD	300+97.62			8" GATE VALVE	NB OLD HWY 8	18+08.28		43.01
12" 45° BEND	PWATR HWY 10	6+27.73			12" 45° BEND	PWATR SPINE RD	302+67.63			8" PLUG	NB OLD HWY 8	18+08.39		68.01
12" 45° BEND	PWATR HWY 10	6+47.73			12" 22 1/2° BEND	PWATR SPINE RD	302+69.17			12" GATE VALVE	NB OLD HWY 8	18+13.28		28.77
12" 45° BEND	PWATR HWY 10	6+50.48			12" 45° BEND	PWATR SPINE RD	302+83.56			12" GATE VALVE	NB OLD HWY 8	24+03.87		30.99
12" 45° BEND	PWATR HWY 10	12+46.77			CONNECT TO EXISTING	PWATR SPINE RD	304+66.60			12" X 8" TEE	NB OLD HWY 8	24+08.90		30.99
12" 45° BEND	PWATR HWY 10	12+49.52			HYDRANT	PWATR SPINE RD 2	274+11.94			8" GATE VALVE	NB OLD HWY 8	24+08.90		42.99
12" 45° BEND	PWATR HWY 10	12+69.52			6" GATE VALVE	PWATR SPINE RD 2	274+16.94			8" PLUG	NB OLD HWY 8	24+08.90		67.97
12" 45° BEND	PWATR HWY 10	12+72.27			12" X 6" REDUCER	PWATR SPINE RD 2	274+21.94			12" GATE VALVE	NB OLD HWY 8	24+13.87		30.99
12" 45° BEND	PWATR HWY 10	15+33.91			12" GATE VALVE	PWATR SPINE RD 2	274+39.94			12" X 6" TEE	NB OLD HWY 8	25+55.01		30.99
12" 45° BEND	PWATR HWY 10	15+36.63			12" 22 1/2° BEND	PWATR SPINE RD 2	274+64.76			6" GATE VALVE	NB OLD HWY 8	25+55.01		25.99
12" 45° BEND	PWATR HWY 10	15+56.61			12" 45° BEND	PWATR SPINE RD 2	275+16.43			HYDRANT	NB OLD HWY 8	25+55.01		20.99
12" 45° BEND	PWATR HWY 10	15+59.41			12" 45° BEND	PWATR SPINE RD 2	275+34.63			12" X 6" TEE	NB OLD HWY 8	31+55.00		31.00
12" GATE VALVE	PWATR HWY 10	16+41.92			12" 45° BEND	PWATR SPINE RD 2	277+04.63			6" GATE VALVE	NB OLD HWY 8	31+55.00		29.17
12" X 6" TEE	PWATR HWY 10	16+50.00			12" 22 1/2° BEND	PWATR SPINE RD 2	277+07.64			HYDRANT	NB OLD HWY 8	31+55.00		26.67
6" GATE VALVE	PWATR HWY 10	16+50.00		5.00	12" 45° BEND	PWATR SPINE RD 2	277+18.31			12" GATE VALVE	NB OLD HWY 8	31+71.07		31.00
HYDRANT	PWATR HWY 10	16+50.00		7.50	CONNECT TO EXISTING	PWATR SPINE RD 2	279+07.90			12" X 12" TEE	NB OLD HWY 8	31+78.56		31.00
12" 22 1/2° BEND	PWATR HWY 10	16+62.87			CONNECT TO EXISTING	PWATR THUMB RD FUTR	0+12.58			12" GATE VALVE	NB OLD HWY 8	31+78.41		43.00
12" GATE VALVE	PWATR HWY 10	21+11.90			12" 45° BEND	PWATR THUMB RD FUTR	0+12.58			12" PLUG	NB OLD HWY 8	31+78.29		53.01
12" X 12" TEE	PWATR HWY 10	21+16.90			12" 45° BEND	PWATR THUMB RD FUTR	0+61.07			12" X 6" REDUCER	NB OLD HWY 8	31+86.56		31.00
12" GATE VALVE	PWATR HWY 10	21+16.90		7.00	12" GATE VALVE	PWATR THUMB RD FUTR	1+60.97			6" GATE VALVE	NB OLD HWY 8	33+01.03		31.00
12" PLUG	PWATR HWY 10	21+16.90		25.00	12" PLUG	PWATR THUMB RD FUTR	1+65.97			6" 90° BEND	NB OLD HWY 8	33+06.03		31.00
12" GATE VALVE	PWATR HWY 10	21+21.90			CONNECT TO EXISTING	NB OLD HWY 8	5+01.44	16.11		6" PLUG	NB OLD HWY 8	33+06.09		58.13
12" 11 1/4° BEND	PWATR HWY 10	23+10.61			12" 45° BEND	NB OLD HWY 8	5+92.51		22.70					

GENERAL NOTES:

1. STATION AND OFFSETS ARE TO CENTER OF VALVE, CENTER OF HYDRANT, CENTER OF BEND OR END OF STUB.
2. SEE CONSTRUCTION STAGING PLAN TO COORDINATE WATERMAIN INSTALLATION.
3. SEE SPECIFICATIONS FOR FURTHER WATERMAIN INFORMATION.

No.	Date	Revisions	App.

DRAWING NAME: TCAAP_THUMB_STH_STRM.dwg

DESIGNED BY:	RJG
DRAWN BY:	RJG
CHECKED BY:	CBL
DATE:	4/20/17
PROJECT NO.	160553004

Kimley»Horn
2550 UNIVERSITY AVENUE WEST, SUITE 238N, ST, PAUL, MN 55114
PHONE: 651-645-4197
WWW.KIMLEY-HORN.COM

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

CHADD B. LARSON

DATE: 4/20/17 MN LIC. NO. 41864

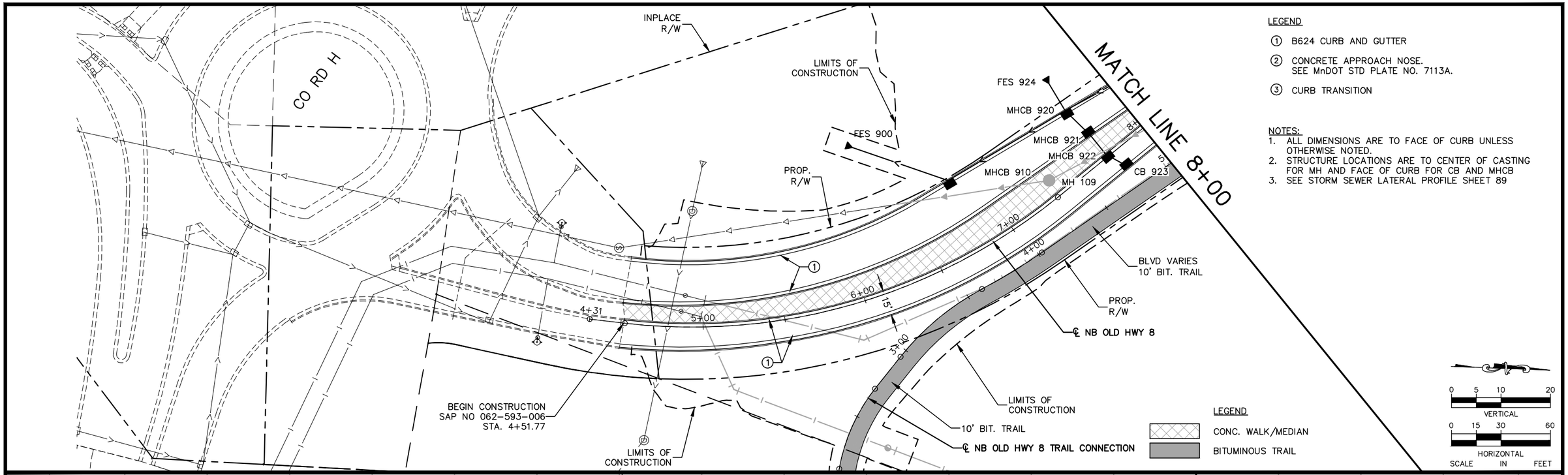
RAMSEY COUNTY
OLD HIGHWAY 8 EXTENSION
CONSTRUCTION PROJECT

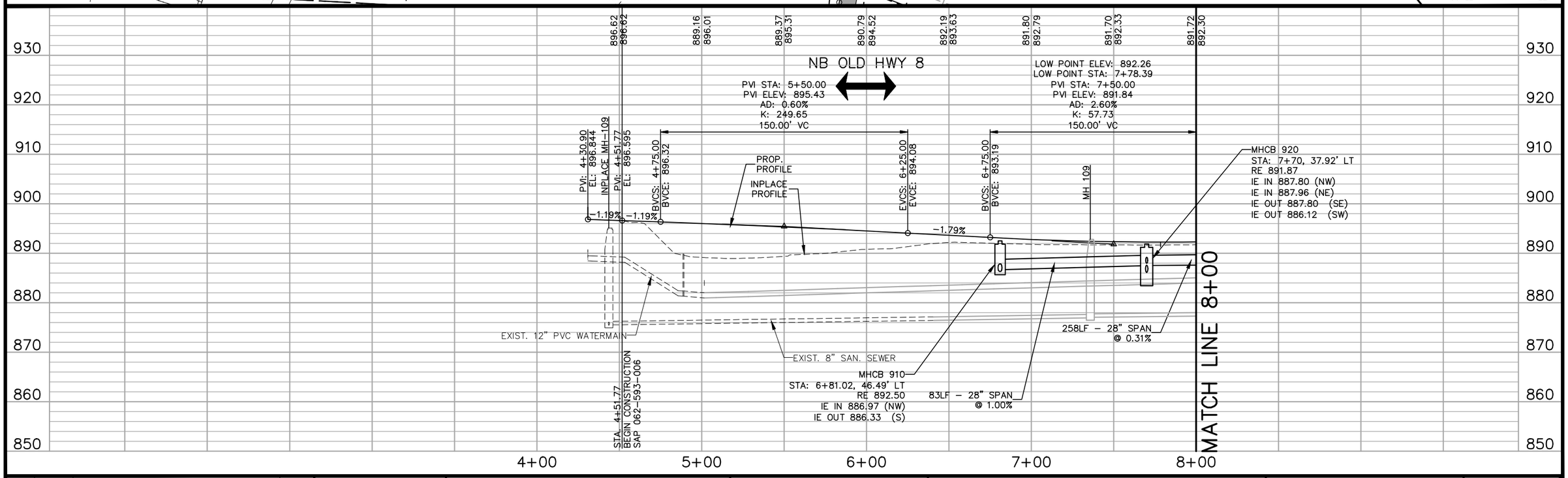
OLD HIGHWAY 8
INFILTRATION POND GRADING

COUNTY PROJECT	
S.A.P.	062-593-006
S.A.P.	
S.P.	

SHEET NO. 82 / 115

K:\TWC_Civil\County\RAMSEY\TCAAP Thumb Rd\CAD\Plan Sheets\Construction Plans\South\TCAAP_THUMB_STH_STRM.dwg April 25, 2017 - 10:21pm





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DATE: 4/20/17 MN LIC. NO. 41864

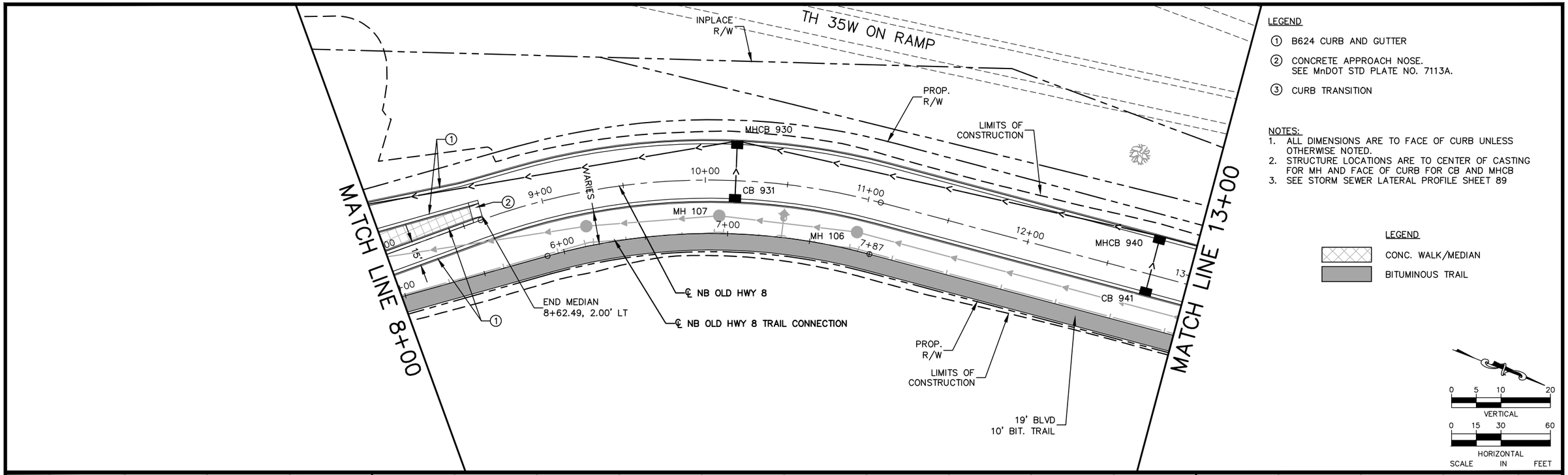
RAMSEY COUNTY

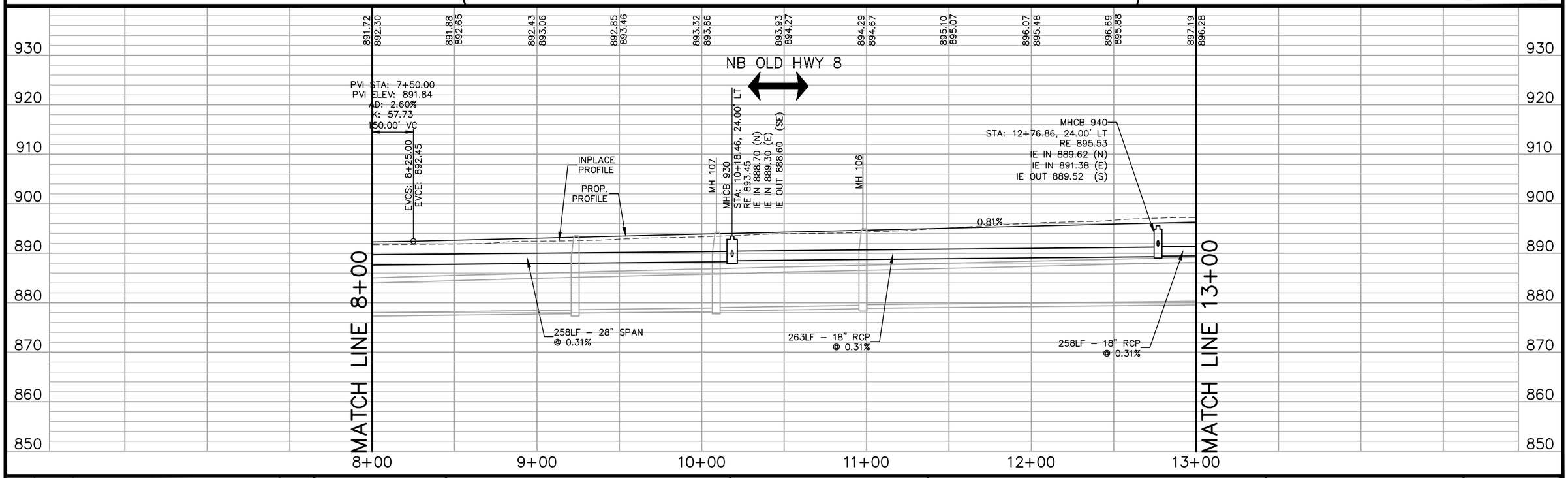
OLD HIGHWAY 8 EXTENSION CONSTRUCTION PROJECT

OLD HIGHWAY 8
CONSTRUCTION AND DRAINAGE
STA. 4+51.77 TO STA. 8+00

COUNTY PROJECT	
S.A.P.	062-593-006
S.A.P.	
S.P.	

SHEET NO. 83 / 115





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CHADD B. LARSON

DATE: 4/20/17 MN LIC. NO. 41864

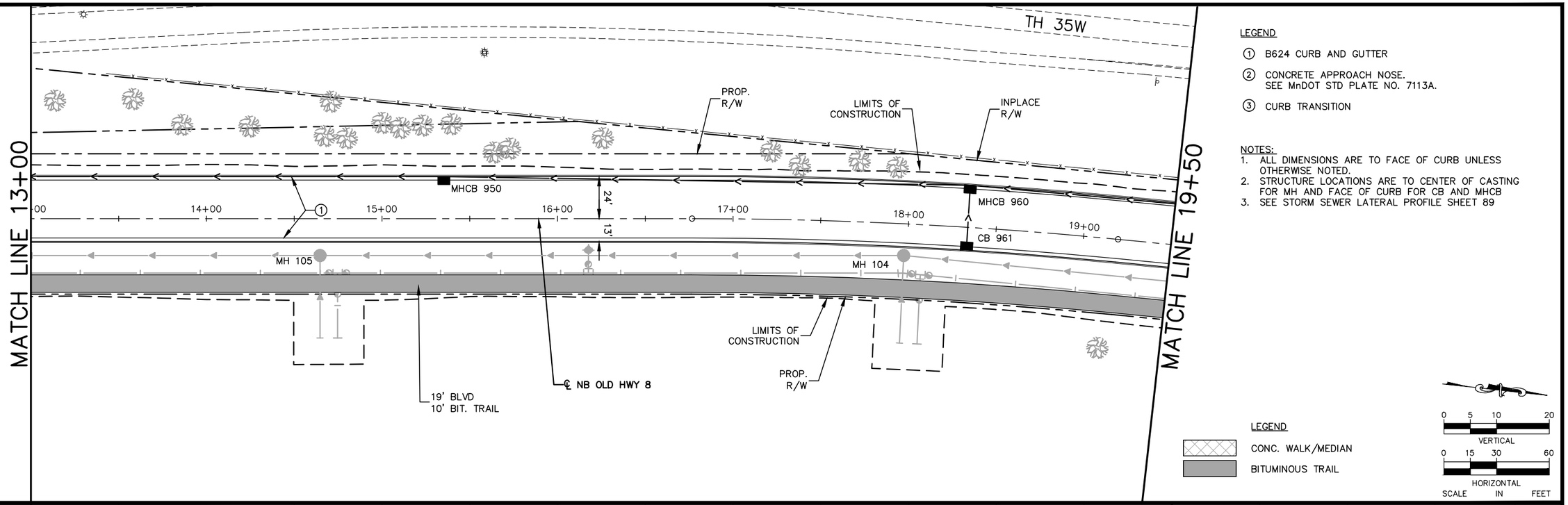
RAMSEY COUNTY

OLD HIGHWAY 8 EXTENSION CONSTRUCTION PROJECT

OLD HIGHWAY 8
CONSTRUCTION AND DRAINAGE
STA. 8+00 TO STA. 13+00

COUNTY PROJECT	
S.A.P.	062-593-006
S.A.P.	
S.P.	

SHEET NO. 84 / 115



LEGEND

① B624 CURB AND GUTTER

② CONCRETE APPROACH NOSE. SEE MnDOT STD PLATE NO. 7113A.

③ CURB TRANSITION

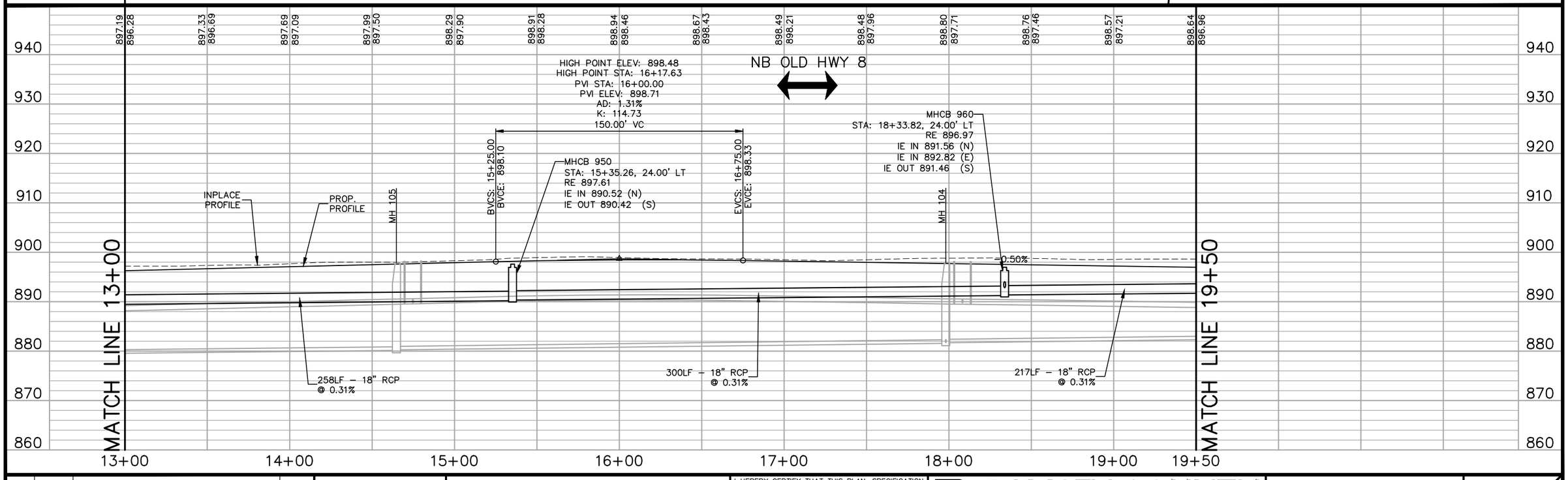
NOTES:
1. ALL DIMENSIONS ARE TO FACE OF CURB UNLESS OTHERWISE NOTED.
2. STRUCTURE LOCATIONS ARE TO CENTER OF CASTING FOR MH AND FACE OF CURB FOR CB AND MHCB
3. SEE STORM SEWER LATERAL PROFILE SHEET 89

LEGEND

CONC. WALK/MEDIAN

BITUMINOUS TRAIL

0 5 10 20
VERTICAL
0 15 30 60
HORIZONTAL
SCALE IN FEET



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CHADD B. LARSON

DATE: 4/20/17 MN LIC. NO. 41864

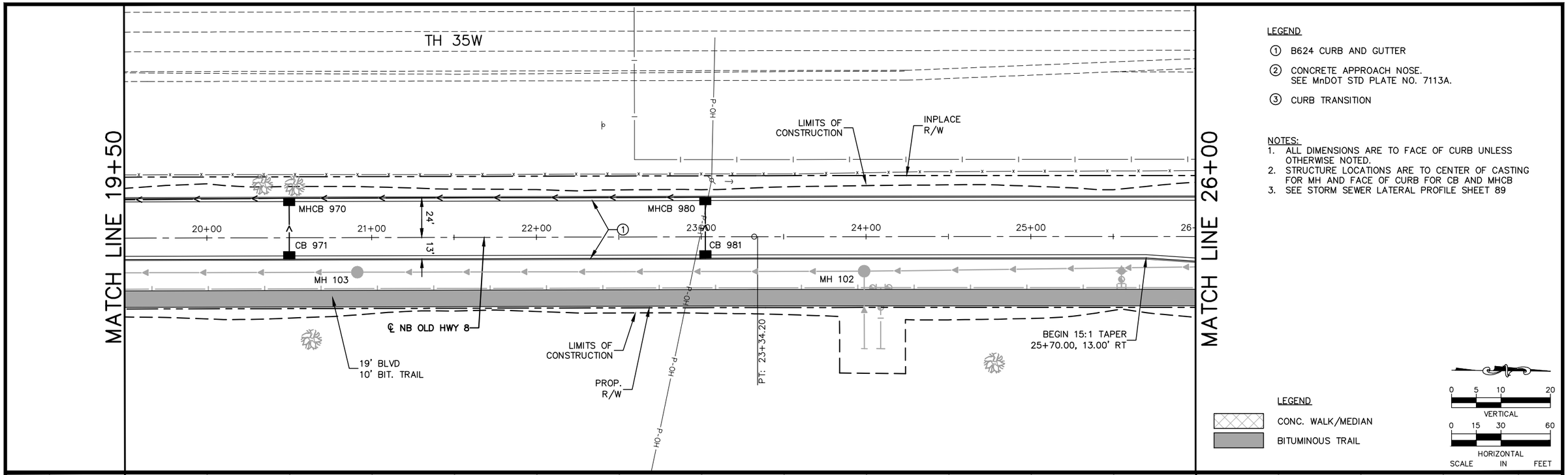
RAMSEY COUNTY

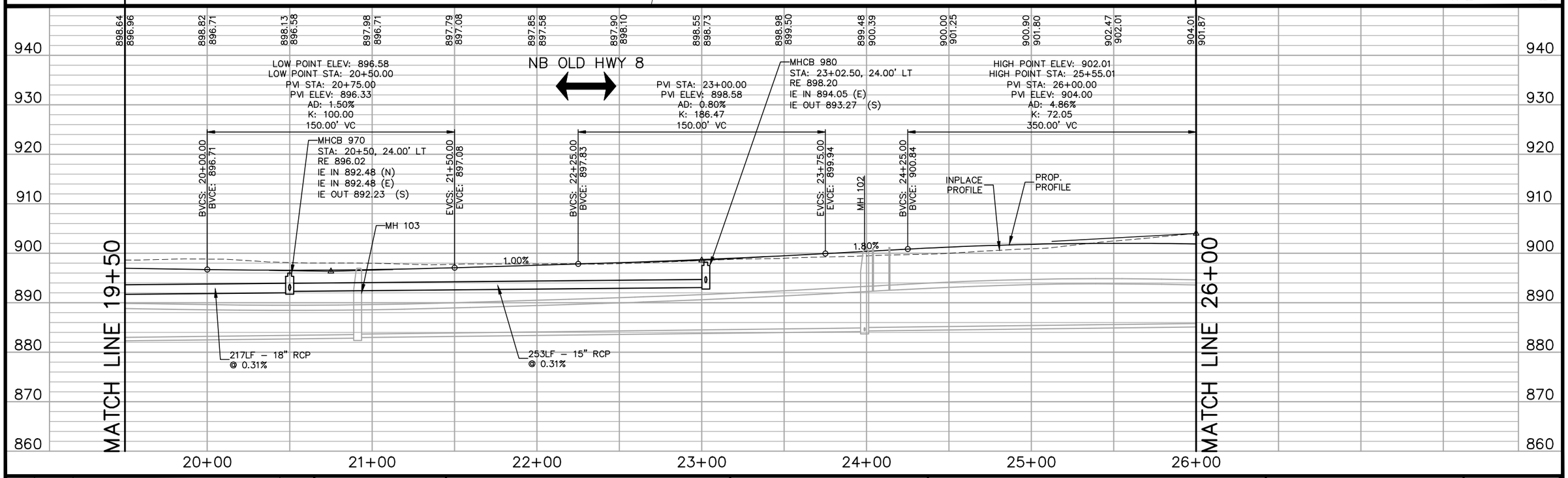
OLD HIGHWAY 8 EXTENSION CONSTRUCTION PROJECT

OLD HIGHWAY 8
CONSTRUCTION AND DRAINAGE
STA. 13+00 TO STA. 19+50

COUNTY PROJECT	
S.A.P.	062-593-006
S.A.P.	
S.P.	

SHEET NO. 85 / 115





No.	Date	Revisions	App.

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DRAWN BY:	RJG
CHECKED BY:	CBL
DATE:	4/20/17
PROJECT NO.	160553004

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CHADD B. LARSON

DATE: 4/20/17 MN LIC. NO. 41864

RAMSEY COUNTY

OLD HIGHWAY 8 EXTENSION CONSTRUCTION PROJECT

OLD HIGHWAY 8
CONSTRUCTION AND DRAINAGE
STA. 19+50 TO STA. 26+00

COUNTY PROJECT	
S.A.P.	062-593-006
S.A.P.	
S.P.	

SHEET NO. 86 / 115

MATCH LINE 26+00

TH 35W

LIMITS OF CONSTRUCTION

INPLACE R/W

MHCB 200

MHCB 190

MHCB 180

24'

21'

① 29+00

CB 201

MH 101

CB 191

CB 181

10'

P-OH

P-OH

P-OH

PROP. R/W

END 15:1 TAPER
26+90.00, 21.00' RT

BEGIN BIT. TRAIL TAPER
30+63.58, 32.00' RT

END BIT. TRAIL TAPER
30+88.58, 31.00' RT

END CONSTRUCTION
SAP NO 062-593-006
STA. 31+88.94

LIMITS OF CONSTRUCTION

11' BLVD
10' BIT. TRAIL

LEGEND

① B624 CURB AND GUTTER

② CONCRETE APPROACH NOSE.
SEE MnDOT STD PLATE NO. 7113A.

③ CURB TRANSITION

NOTES:
1. ALL DIMENSIONS ARE TO FACE OF CURB UNLESS OTHERWISE NOTED.
2. STRUCTURE LOCATIONS ARE TO CENTER OF CASTING FOR MH AND FACE OF CURB FOR CB AND MHCB
3. SEE STORM SEWER LATERAL PROFILE SHEET 89

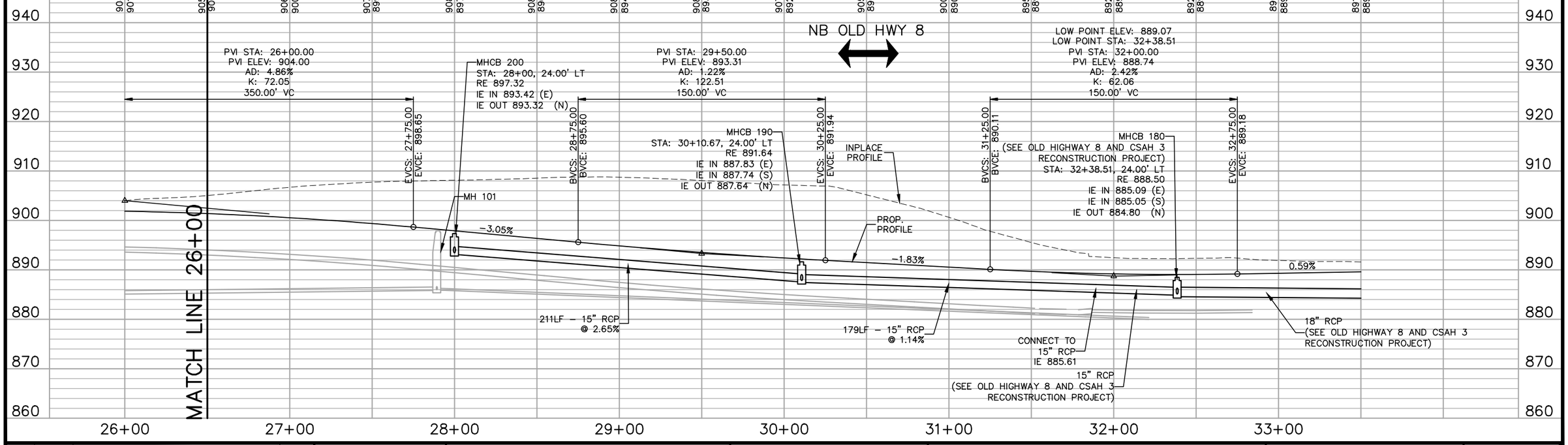
LEGEND

CONC. WALK/MEDIAN

BITUMINOUS TRAIL

0 5 10 20
VERTICAL

0 15 30 60
HORIZONTAL
SCALE IN FEET



No.	Date	Revisions	App.

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PROJECT NO.	160553004

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CHADD B. LARSON

DATE: 4/20/17 MN LIC. NO. 41864

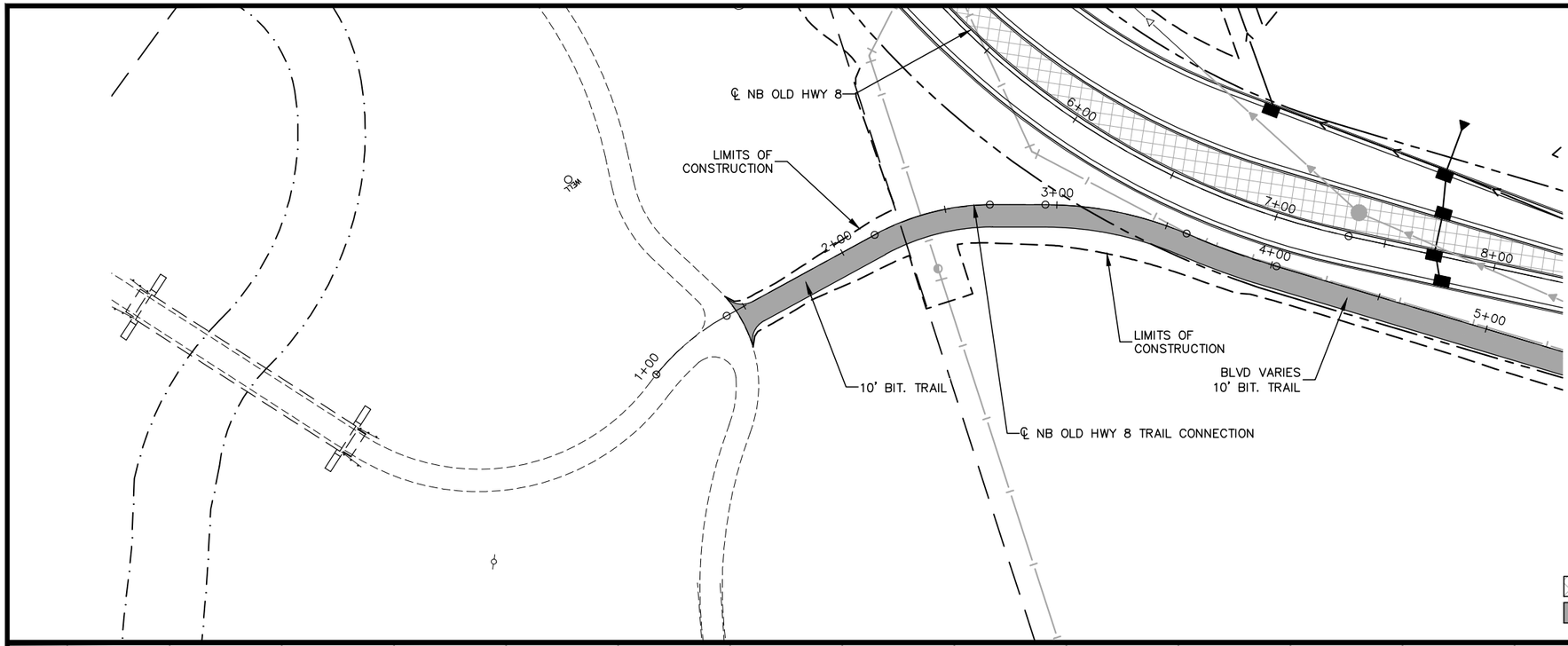
RAMSEY COUNTY

OLD HIGHWAY 8 EXTENSION CONSTRUCTION PROJECT

OLD HIGHWAY 8
CONSTRUCTION AND DRAINAGE
STA. 26+00 TO STA. 31+88.94

COUNTY PROJECT	
S.A.P.	062-593-006
S.A.P.	
S.P.	

SHEET NO. 87 / 115



LEGEND

① B624 CURB AND GUTTER

② CONCRETE APPROACH NOSE. SEE MnDOT STD PLATE NO. 7113A.

③ CURB TRANSITION

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3. SEE STORM SEWER LATERAL PROFILE SHEET 89

LEGEND

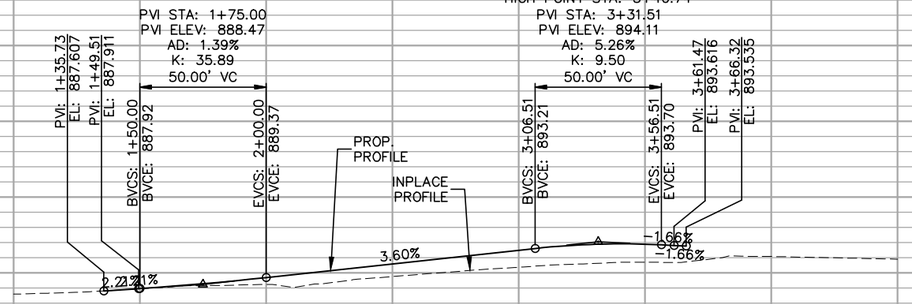
CONC. WALK/MEDIAN

BITUMINOUS TRAIL

0 5 10 20
VERTICAL
0 15 30 60
HORIZONTAL
SCALE IN FEET

887.19 887.92 887.92 888.47 889.37 889.51 891.18 890.73 892.98 891.40 893.78 892.16 891.81

NB OLD HWY 8 TRAIL CONNECTION



930 920 910 900 890 880 870 860 850

1+00 2+00 3+00 4+00

No.	Date	Revisions	App.

DRAWING NAME TCAAP_THUMB_STH_PPF01

DESIGNED BY:	RJG
DRAWN BY:	RJG
CHECKED BY:	CBL
DATE:	4/20/17
PROJECT NO.	160553004

Kimley»Horn
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CHADD B. LARSON

DATE: 4/20/17 MN LIC. NO. 41864

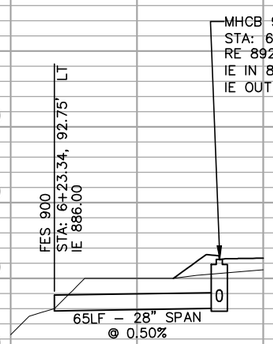
RAMSEY COUNTY

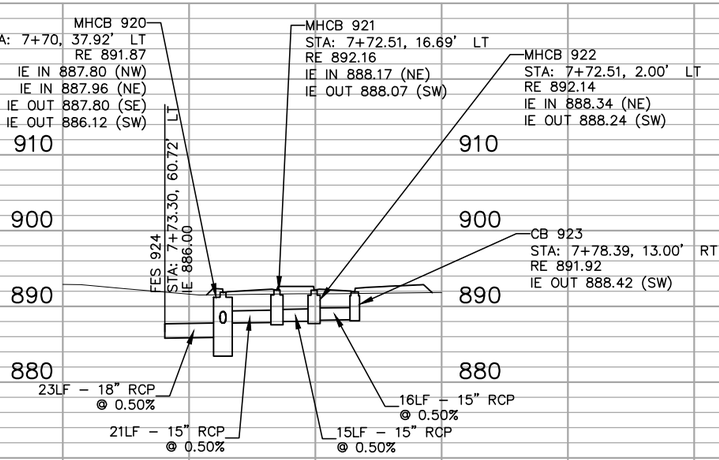
OLD HIGHWAY 8 EXTENSION CONSTRUCTION PROJECT

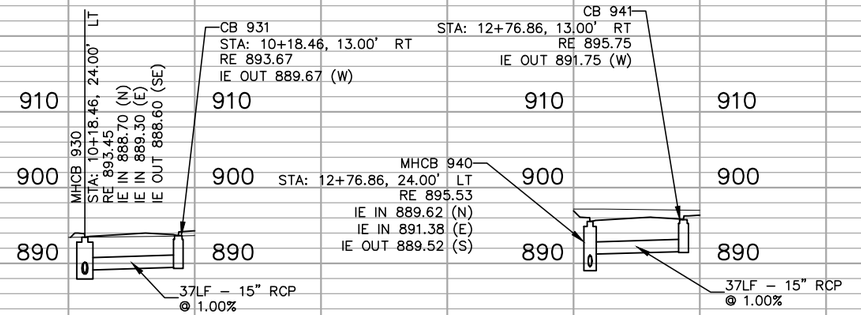
OLD HWY 8 TRAIL CONNECTION PLAN AND PROFILE STA. 1+00 TO STA. 4+50

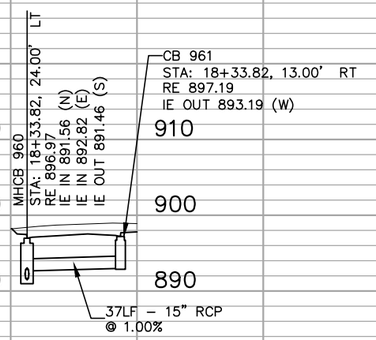
COUNTY PROJECT	
S.A.P.	062-593-006
S.A.P.	
S.P.	

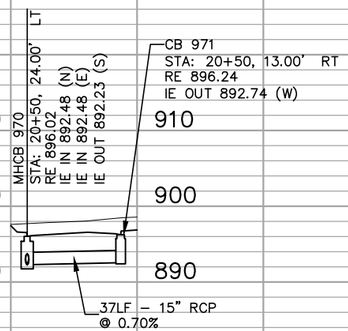
SHEET NO. 88 / 115

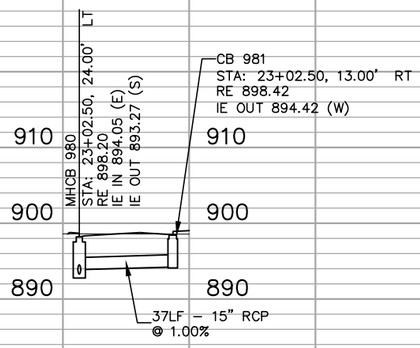


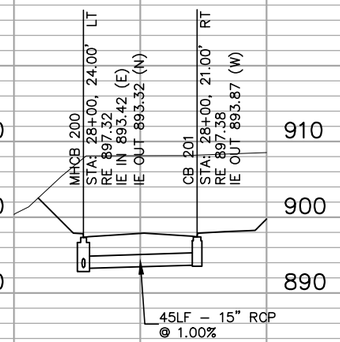


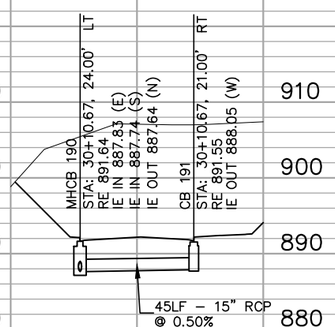












No.	Date	Revisions	App.

DRAWING NAME	
TCAAP_THUMB_STH_STRM.dwg	
DESIGNED BY:	RJG
DRAWN BY:	RJG
CHECKED BY:	CBL
DATE:	4/20/17
PROJECT NO.	160553004

Kimley»Horn
2550 UNIVERSITY AVENUE WEST, SUITE 238N, ST, PAUL, MN 55114
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CHADD B. LARSON

DATE: 4/20/17 MN LIC. NO. 41864

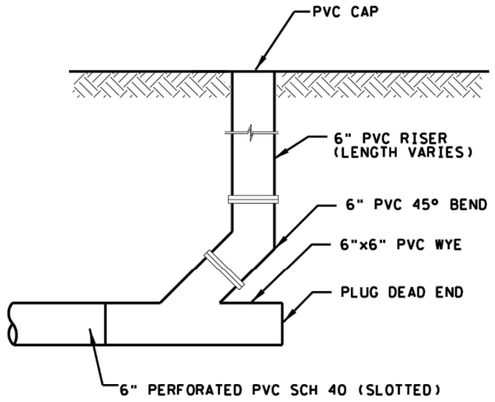
RAMSEY COUNTY
OLD HIGHWAY 8 EXTENSION
CONSTRUCTION PROJECT

STORM SEWER
LATERALS

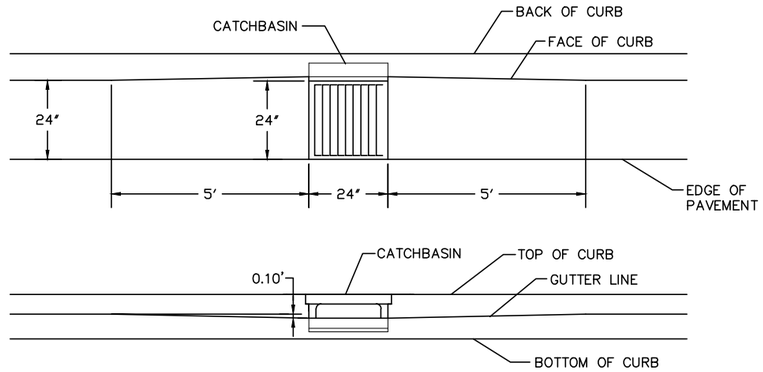
COUNTY PROJECT	
S.A.P.	062-593-006
S.A.P.	
S.P.	

SHEET NO. 89 / 115

K:\TWC_Civil\County\RAMSEY\TCAAP Thumb Rd\CAD\Plan Sheets\Construction Plans\South\TCAAP_THUMB_STH_STRM.dwg April 25, 2017 - 10:24pm

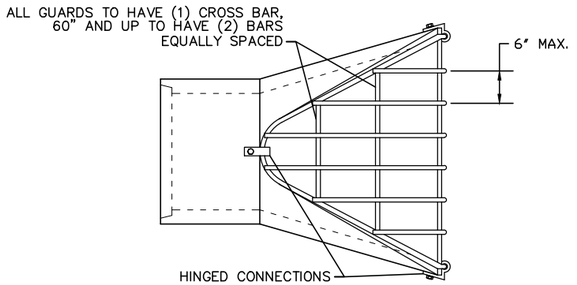


PVC PIPE DRAIN CLEANOUT

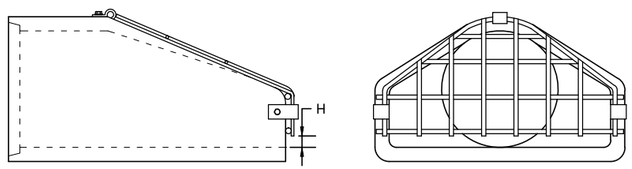


DEPRESSED FLOW-LINE AT CATCHBASIN

NOTE:
1. RIM ELEVATION IN DRAINAGE TABULATION DOES NOT INCORPORATE 0.10' DEPRESSION.
2. IF LONGITUDAL SLOPE IS BETWEEN 1.75% AND 2.25% LENGTH OF DOWNSTREAM TRANSITION SHALL BE SHORTENED TO 3 FT.



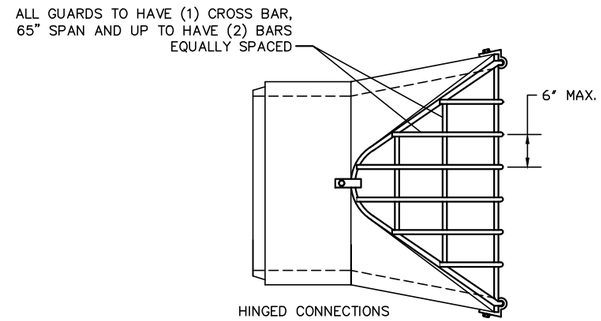
ROUND	
PIPE SIZE	H
12"	2 1/2"
15"	3"
18"-24"	4"
27"-36"	5"
42"-54"	6"
60"-72"	7"
78"-90"	8"



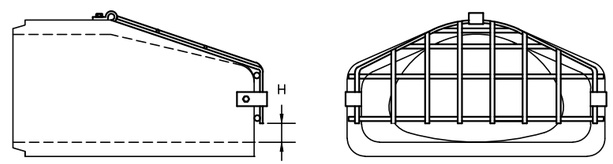
BAR SIZES							
STANDARD DESIGN				HEAVY DESIGN			
PIPE SIZE	HOLE DIA. REQ'D	BOLT DIA.	BAR SIZE	PIPE SIZE	HOLE DIA. REQ'D	BOLT DIA.	BAR SIZE
12"-24"	3/4"	5/8"	5/8"	12"-18"	3/4"	5/8"	3/4"
27"-48"	7/8"	3/4"	3/4"	21"-42"	7/8"	3/4"	1"
54"-90"	1 1/8"	1"	1"	48"-90"	1 1/8"	1"	1 1/4"
BOLT LENGTH = PIPE WALL THICKNESS + 2 1/2"							

NOTE:
1) MOUNTING HOLES SHALL BE DRILLED IN APRON AT TIME OF INSTALLATION.
2) THE SIZE OF EACH TRASH GUARD WILL VARY TO FIT APRON.
3) AFTER FABRICATION, TRASH GUARD SHALL BE HOT DIP GALVANIZED IN ACCORDANCE WITH MnDOT SPEC. 3392.

TRASH GUARD FOR END SECTION



ARCH	
PIPE SIZE	H
22"-29"	4"
36"-44"	5"
51"-65"	6"
73"-88"	7"



BAR SIZES							
STANDARD DESIGN				HEAVY DESIGN			
PIPE SIZE	HOLE DIA. REQ'D	BOLT DIA.	BAR SIZE	PIPE SIZE	HOLE DIA. REQ'D	BOLT DIA.	BAR SIZE
22"-29"	3/4"	5/8"	5/8"	22"	3/4"	5/8"	3/4"
36"-59"	7/8"	3/4"	3/4"	29"-51"	7/8"	3/4"	1"
65"-88"	1 1/8"	1"	1"	59"-88"	1 1/8"	1"	1 1/4"
BOLT LENGTH = PIPE WALL THICKNESS + 2 1/2"							

NOTE:
ALL PARTS SHALL BE HOT DIP GALVANIZED PER ASTM A153.

TRASH GUARDS FOR ARCH PIPE FLARED END SECTIONS

No.	Date	Revisions	App.

DRAWING NAME	
TCAAP_THUMB_STH_STRM.dwg	
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PROJECT NO.	160553004

Kimley»Horn
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CHADD B. LARSON

DATE: 4/20/17 MN LIC. NO. 41864

RAMSEY COUNTY
OLD HIGHWAY 8 EXTENSION CONSTRUCTION PROJECT

STORM SEWER DETAILS

COUNTY PROJECT	
S.A.P.	062-593-006
S.A.P.	
S.P.	

SHEET NO. 90 / 115

K:\TWC_Civil\County\RAMSEY\TCAAP Thumb Rd\CAD\Plan Sheets\Construction Plans\South\TCAAP_THUMB_STH_STRM.dwg April 25, 2017 - 10:24pm

OLD HIGHWAY 8 (S.A.P. 062-593-006) STORM SEWER TABULATION

H

FLOWS FROM		STRUCTURE LOCATION				TOP OF CASTING ELEV	CASTING ASSEMBLY	STEPS REQ'D	OUTLET ELEV.	SPECIAL 1	48-4020	60-4020	72-4020	DRAINS TO			15" RCP CL V	18" RCP CL III	28" SPAN RC CL IIA	APRON	APRON TYPE	RANDOM RIP RAP CL II	GEOTEXTILE FILTER TYPE IV	REMARKS
STR. NO.	TYPE	ALIGNMENT	STATION	OFFSET										STR. NO.	% GRADE	INLET ELEV.								
				LT.	RT.					LIN FT	LIN FT	LIN FT	LIN FT				LIN FT	LIN FT	LIN FT	EACH		CU YD	SQ YD	
190	MHCB	NB OLD HWY 8	30+10.67	24.00		891.64	B-17	NO	887.64		4.0			STUB	1.14%	885.61	179							
191	CB	NB OLD HWY 8	30+10.67		21.00	891.55	B-17	NO	888.05	3.5				190	0.50%	887.83	45							
200	MHCB	NB OLD HWY 8	28+00.00	24.00		897.32	B-17	NO	893.32		4.0			190	2.65%	887.74	211							
201	CB	NB OLD HWY 8	28+00.00		21.00	897.38	B-17	NO	893.87	3.6				200	1.00%	893.42	45							
900	FES	NB OLD HWY 8	6+23.34	92.75		886.00		NO												1	28" SPAN RC	7	30	
910	MHCB	NB OLD HWY 8	6+81.02	46.49		892.50	B-17	YES	886.33			6.2		900	0.50%	886.00			66					
920	MHCB	NB OLD HWY 8	7+70.00	37.92		891.87	B-17	NO	887.80				7.8	910	1.00%	886.97			83					2' SUMP
920	MHCB	NB OLD HWY 8	7+70.00	37.92		891.87	B-17	NO	886.12					924	0.50%	886.00		24						
921	MHCB	NB OLD HWY 8	7+72.51	16.69		892.16	B-17	YES	888.07		4.1			920	0.50%	887.96	22							
922	MHCB	NB OLD HWY 8	7+72.51	2.00		892.14	B-17	NO	888.24		3.9			921	0.50%	888.17	15							
923	CB	NB OLD HWY 8	7+78.39		13.00	891.92	B-17	NO	888.42	3.5				922	0.50%	888.34	17							
924	FES	NB OLD HWY 8	7+73.30	60.72		886.00		NO												1	18" RC	5	23	
930	MHCB	NB OLD HWY 8	10+18.46	24.00		893.45	B-17	YES	888.60			4.9		920	0.31%	887.80			258					
931	CB	NB OLD HWY 8	10+18.46		13.00	893.67	B-17	NO	889.67	4.0				930	1.00%	889.30	37							
940	MHCB	NB OLD HWY 8	12+76.86	24.00		895.53	B-17	YES	889.52		6.1			930	0.31%	888.70		264						
941	CB	NB OLD HWY 8	12+76.86		13.00	895.75	B-17	NO	891.75	4.0				940	1.00%	891.38	37							
950	MHCB	NB OLD HWY 8	15+35.26	24.00		897.61	B-17	YES	890.42		7.2			940	0.31%	889.62		259						
960	MHCB	NB OLD HWY 8	18+33.82	24.00		896.97	B-17	YES	891.46		5.6			950	0.31%	890.52		300						
961	CB	NB OLD HWY 8	18+33.82		13.00	897.19	B-17	NO	893.19	4.0				960	1.00%	892.82	37							
970	MHCB	NB OLD HWY 8	20+50.00	24.00		896.02	B-17	NO	892.23		3.8			960	0.31%	891.56		217						
971	CB	NB OLD HWY 8	20+50.00		13.00	896.24	B-17	NO	892.74	3.5				970	0.70%	892.48	37							
980	MHCB	NB OLD HWY 8	23+02.50	24.00		898.20	B-17	YES	893.27		5.0			970	0.31%	892.48	253							
981	CB	NB OLD HWY 8	23+02.50		13.00	898.42	B-17	NO	894.42	4.0				980	1.00%	894.05	37							
	STUB	NB OLD HWY 8	31+89.23	24.00		887.13																		
PROJECT TOTAL							20			30.1	43.7	11.1	7.8				972	1064	407	2		12	53	

GENERAL NOTES:

1. STATION AND OFFSETS ARE TO FACE OF CURB FOR CATCH BASIN DRAINAGE STRUCTURES, CENTER OF STRUCTURE OF MANHOLES, OR END OF RCP APRONS.
2. PAY HEIGHTS ARE FROM RIM OR CASTING ELEVATION TO INVERT.
3. LENGTH OF PIPE ARE TO CENTER OF STRUCTURE OR END OF APRON.
4. DRAINAGE STRUCTURES OVER 4.0' IN HEIGHT REQUIRE STEPS.
5. ALL CONCRETE PIPE IS DESIGN 3006 GASKET JOINT.
6. DRAINAGE STRUCTURE AND PIPE DATA ARE SHOWN FOR INFORMATION PURPOSES. DATA IS TO BE USED FOR STRUCTURE MANUFACTURING AND SHOP DRAWINGS.
7. SEE CONSTRUCTION STAGING PLAN TO COORDINATE STORM SEWER INSTALLATION AND REMOVALS.
8. ALL RCP APRONS SHALL HAVE APPROPRIATELY SIZED TRASH GUARDS. SEE MISCELLANEOUS STORM DETAILS. TRASH GUARDS ARE INCIDENTAL TO THE RCP APRON PAY ITEM.
9. TIE ALL PIPE JOINTS FROM APRON TO MANHOLE OR FROM APRON TO APRON, PIPE TIES SHALL BE INCIDENTAL.
10. SEE DRAINAGE PLAN, SWPPP, AND STAGING PLAN FOR STORM SEWER CONSTRUCTION SEQUENCE.
11. GRANULAR FILTER MATERIAL AND GEOTEXTILE MATERIAL FOR RCP APRON OUTLETS AS REQUIRED BY MNDOT STANDARD PLATE 3133D ARE INCIDENTAL TO THE RCP APRON PAY ITEM.

OLD HIGHWAY 8 (S.A.P. 062-593-006) CASTING TABULATION

I

ASSEMBLY	RING OR FRAME	COVER OR GRATE	CURB BOX	STANDARD PLATE NUMBER	USE	TOTAL
B-17	806	816	825	4125 4134 4154	CATCH BASIN/MANHOLE CATCH BASIN	20

CASTING NOTES:

1. CASTING TOTAL IS FOR INFORMATIONAL PURPOSES ONLY. SEE PROJECT QUANTITIES FOR CASTINGS BEING PAID FOR BY "EACH".

No.	Date	Revisions	App.

DRAWING NAME: TCAAP_THUMB_STH_STRM.dwg

DESIGNED BY:	RJG
DRAWN BY:	RJG
CHECKED BY:	CBL
DATE:	4/20/17
PROJECT NO.	160553004

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CHADD B. LARSON

DATE: 4/20/17 MN LIC. NO. 41864

RAMSEY COUNTY
OLD HIGHWAY 8 EXTENSION
CONSTRUCTION PROJECT

STORM SEWER TABULATION

COUNTY PROJECT	
S.A.P.	062-593-006
S.A.P.	
S.P.	

SHEET NO. 91 / 115

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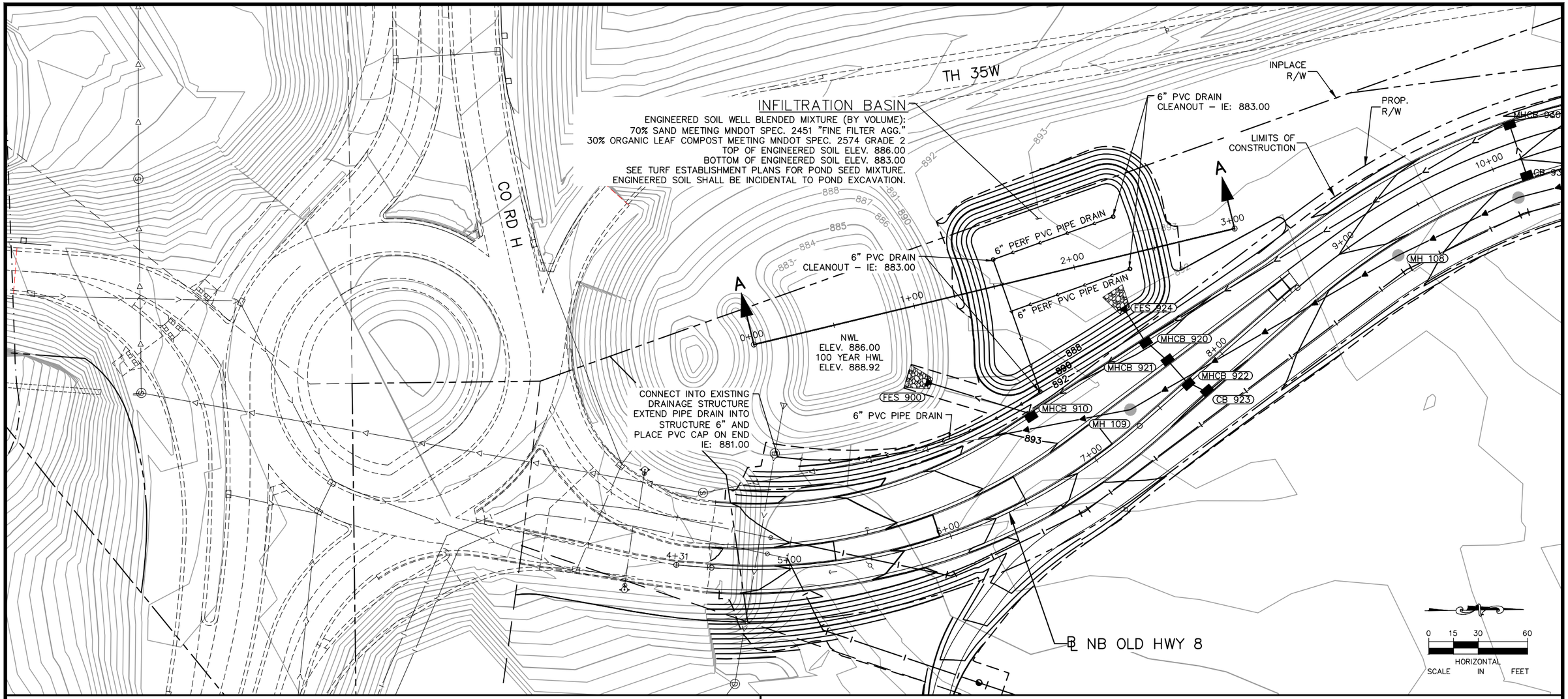


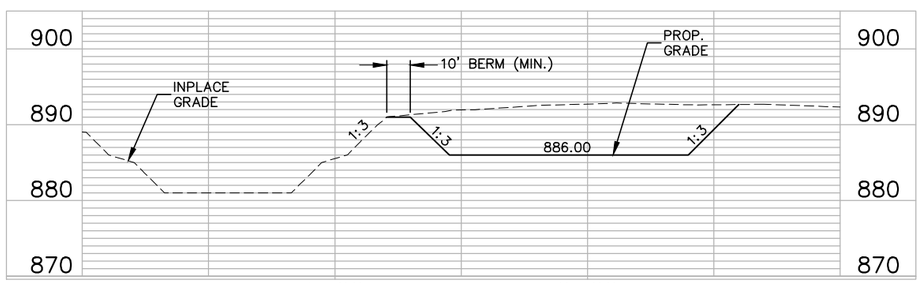
NOTES:

1) EXCAVATE INFILTRATION AREA TO AN ELEVATION OF 886.00 FEET FOR USE AS A TEMPORARY SEDIMENT BASIN DURING CONSTRUCTION. ONCE CONSTRUCTION WITHIN THE CONTRIBUTING DRAINAGE AREA HAS BEEN COMPLETED AND FULLY STABILIZED, THE BASIN CAN BE EXCAVATED FOR PLACEMENT OF ENGINEERED SOIL.

2) DISTURBED INFILTRATION BASIN AREAS SHALL BE RIPPED TO A DEPTH OF 24 INCHES THEN TILLED TO A MINIMUM DEPTH OF 8 INCHES PRIOR TO SEEDING (INCIDENTAL). DO NOT PLACE TOP SOIL WITHIN FILTRATION BASIN BOTTOM.

3) CONTRACTOR SHALL REMOVE ANY ACCUMULATED SEDIMENTS WITHIN THE INFILTRATION AREAS AS A RESULT OF CONSTRUCTION ACTIVITY.

4) CONTRACTOR SHALL SUBMIT A SITE PLAN IN ACCORDANCE WITH MNDOT SPEC. 2117 FOR ALL EXISTING AND PROPOSED PONDS. ALL BASINS ARE CRITICAL AREAS WHICH MUST BE PROTECTED FROM EROSION AND SEDIMENTATION DURING CONSTRUCTION.



SECTION A–A

No.	Date	Revisions	App.

DRAWING NAME	
TCAAP_THUMB_STH_POND01	
DESIGNED BY:	RJG
DRAWN BY:	RJG
CHECKED BY:	CBL
DATE:	4/20/17
PROJECT NO.	160553004

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CHADD B. LARSON

DATE: 4/20/17 MN LIC. NO. 41864

RAMSEY COUNTY
OLD HIGHWAY 8 EXTENSION CONSTRUCTION PROJECT

OLD HIGHWAY 8
INFILTRATION POND GRADING

COUNTY PROJECT	
S.A.P.	062-593-006
S.A.P.	
S.P.	

SHEET NO. 92 / 115

PERMANENT PAVEMENT MARKING PLAN

NOTES & GUIDELINES

GENERAL INFORMATION:

THE ENGINEER'S INVOLVEMENT IN THE APPLICATION OF THE MATERIAL SHALL BE LIMITED TO FIELD CONSULTATION AND INSPECTION. THE CONTRACTOR WILL PLACE NECESSARY "SPOTTING" AT APPROPRIATE POINTS TO PROVIDE HORIZONTAL CONTROL FOR STRIPING AND TO DETERMINE NECESSARY STARTING AND CUTOFF POINTS. LONGITUDINAL JOINTS, PAVEMENT EDGES AND EXISTING MARKINGS MAY SERVE AS HORIZONTAL CONTROL WHEN SO DIRECTED.

EDGE LINES AND LANE LINES ARE TO BE BROKEN ONLY AT INTERSECTIONS WITH PUBLIC ROADS AND AT PRIVATE ENTRANCES IF THEY ARE CONTROLLED BY A AGENCY PLACED YIELD SIGN, STOP SIGN OR TRAFFIC SIGNAL. THE BREAK POINT IS TO BE AT THE START OF THE RADIUS FOR THE INTERSECTION OR AT MARKED STOP LINES OR CROSSWALKS.

A TOLERANCE OF 1/4 INCH UNDER OR 1/4 INCH OVER THE SPECIFIED WIDTH WILL BE ALLOWED FOR STRIPING PROVIDED THE VARIATION IS GRADUAL AND DOES NOT DETRACT FROM THE GENERAL APPEARANCE. BROKEN LINE SEGMENTS MAY VARY UP TO 3 INCHES FROM THE SPECIFIED LENGTHS PROVIDED THE OVER AND UNDER VARIATIONS ARE REASONABLY COMPENSATORY. ALIGNMENT DEVIATIONS FROM THE CONTROL GUIDE SHALL NOT EXCEED 1 INCH. MATERIAL SHALL NOT BE APPLIED OVER LONGITUDINAL JOINTS. ESTABLISHMENT OF APPLICATION TOLERANCES SHALL NOT RELIEVE THE CONTRACTOR OF THEIR RESPONSIBILITY TO COMPLY AS CLOSELY AS PRACTICABLE WITH THE PLANNED DIMENSIONS.

JUST PRIOR TO THE PLACEMENT OF PAVEMENT MARKINGS THE ROAD SURFACE SHALL BE CLEANED AND FREE OF CONTAMINATION AS RECOMMENDED BY THE MATERIAL MANUFACTURER AND ACCEPTABLE TO THE ENGINEER. PORTLAND CEMENT CONCRETE SURFACES SHALL BE SANDBLAST CLEANED TO REMOVE ANY SURFACE TREATMENTS AND/OR LAITANCE.

APPLY ALL PAVEMENT MARKINGS AS RECOMMENDED BY THE MATERIAL MANUFACTURER.

PERMANENT PAVEMENT MARKINGS SHALL NOT BE PLACED OVER TEMPORARY TAPE MARKINGS.

THE FILLING OF TANKS, POURING OF MATERIALS OR CLEANING OF EQUIPMENT SHALL NOT BE PERFORMED ON UNPROTECTED PAVEMENT SURFACES UNLESS ADEQUATE PROVISIONS ARE MADE TO PREVENT SPILLAGE OF MATERIAL.

REFER TO SPECIAL PROVISIONS OR SPEC BOOK FOR GROUND IN/RECESSED PAVEMENT MARKING APPLICATION REQUIREMENTS.

EPOXY:

THE ROAD SURFACE SHALL BE CLEANED AT THE DIRECTION OF THE ENGINEER JUST PRIOR TO APPLICATION. PAVEMENT CLEANING SHALL CONSIST OF AT LEAST BRUSHING WITH A ROTARY BROOM (NON-METALLIC) OR AS RECOMMENDED BY THE MATERIAL MANUFACTURER AND ACCEPTABLE TO THE ENGINEER. NEW PORTLAND CEMENT CONCRETE SURFACES SHALL BE SANDBLAST CLEANED TO REMOVE ANY SURFACE TREATMENTS AND/OR LAITANCE.

THE EPOXY MARKING APPLICATION SHALL IMMEDIATELY FOLLOW THE PAVEMENT CLEANING. GLASS BEADS SHALL BE APPLIED IMMEDIATELY AFTER APPLICATION OF THE EPOXY RESIN LINE.

APPLY EPOXY MARKINGS WITH A MINIMUM THICKNESS OF 20 MILS. GLASS BEADS SHALL BE APPLIED AT A RATE OF AT LEAST 25 LB/GAL. THE "NO-TRACKING" CONDITION SHALL BE DETERMINED ON AN APPLICATION OF SPECIFIED THICKNESS TO THE PAVEMENT AND COVERED WITH GLASS BEADS AT THE RATE OF AT LEAST 25 LB/GAL.

PAVEMENT MARKINGS SHALL ONLY BE APPLIED IN SEASONAL WEATHER WHEN AIR AND PAVEMENT SURFACE TEMPERATURES AT 40°F OR HIGHER AND SHALL NOT BE APPLIED WHEN THE WIND OR OTHER CONDITIONS CAUSE A FILM OF DUST TO BE DEPOSITED ON THE PAVEMENT SURFACE AFTER CLEANING AND BEFORE THE MARKING MATERIAL CAN BE APPLIED.

PERMANENT PAVEMENT MARKING PLAN INDEX

SYMBOLS & MATERIALS LEGEND

CROSSWALK BLOCK

PAVEMENT MESSAGE (LEFT ARROW)

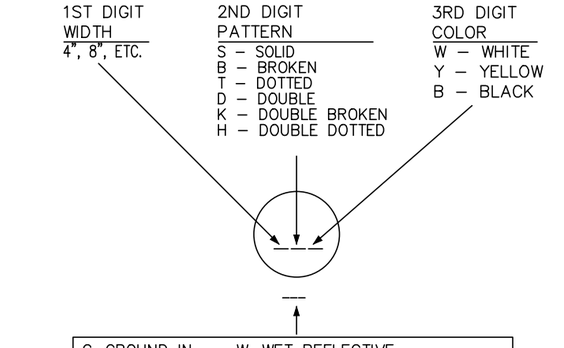
STRIPING KEY

CIRCLE–EPOXY

SQUARE–PREF TAPE

TRIANGLE–PAINT

OCTAGON–PREF THERMO



PAVEMENT MARKING TABULATION		J	
DESCRIPTION	UNIT	QUANTITY	
4" SOLID LINE EPOXY GR IN (WR)	LIN FT	6,270	①
4" DOUBLE SOLID LINE EPOXY GR IN (WR)	LIN FT	4,660	②

GENERAL NOTES:

1. LENGTHS ARE APPROXIMATE AND DO NOT INCLUDE GAPS.

SPECIFIC NOTES:

① 810 LIN FT YELLOW, 5,460 LIN FT WHITE.

② YELLOW

No.	Date	Revisions	App.

DRAWING NAME TCAAP_THUMB_STH_DT03	
DESIGNED BY:	RJG
DRAWN BY:	RJG
CHECKED BY:	CBL
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Brandon J. Bourdon

BRANDON J. BOURDON, PE

DATE: 4/20/17 MN LIC. NO. 43709

RAMSEY COUNTY

OLD HIGHWAY 8 EXTENSION CONSTRUCTION PROJECT

SIGNING AND PAVEMENT MARKING TITLE SHEET

COUNTY PROJECT	
S.A.P.	062-593-006
S.A.P.	
S.P.	

SHEET NO. 93

SIGN PANELS TYPE C — K

	SIGN NO	QTY	POSTS: NO & TYPE	POSTS: KNEE BRACES QTY	POSTS: LENGTH FEET	MTG HT (1) FEET	PANEL: SIZE INCH			PANEL: AREA SQ FT	PANEL: TOTAL AREA SQ FT	CODE NO	PANEL LEGEND	
	C-1	2	1-ST		13.5	7	24	x	30	5.00	10.00	R2-1	SPEED LIMIT 30	(2)
(3)	C-2	11	1-ST		13	7	24	x	24	4.00	44.00	R8-3	NO PARKING	(2)
	C-3	1	1-ST		13.5	7	24	x	30	5.00	5.00	R4-7	KEEP RIGHT	(2)
	TOTAL 59.00													

SPECIFIC NOTES:
1. MOUNTING HEIGHT IS MINIMUM (WITH +6 INCH TOLERANCE). SEE SHEET 98 FOR TYPICAL MOUNTING.
2. MOUNT ON SQUARE TUBE PER RAMSEY COUNTY DETAIL.
3. ADDITIONAL QUANTITY INCLUDED IF SPEED STUDY RESULTS REQUIRE SIGN PANEL MODIFICATIONS.

GENERAL NOTES:
1. POST LENGTHS ARE APPROXIMATE AND INCLUDE EMBEDMENT, BUT DO NOT INCLUDE ADDITIONAL LENGTH FOR SPLICE.
2. SEE SHEET 98 FOR STRUCTURAL DETAILS.
3. SEE STANDARD SIGNS MANUAL FOR PUNCHING CODE AND DETAILED DRAWINGS OF TYPE C SIGN PANELS.
4. SEE SHEET 98 FOR PLACEMENT DETAILS.

OBJECT MARKER — L

	CODE NO	SIZE INCH	COLOR	QUANTITY EACH
(1)(2)	X4-2	18 x 18	YELLOW ON BLACK	1
			TOTAL	1

SPECIFIC NOTES:
(1) MOUNT ON SQUARE TUBE PER RAMSEY COUNTY DETAIL.
(2) MOUNT BELOW SIGN C-3.

GENERAL NOTES:
1. SEE MNDOT STANDARD SIGNS AND MARKINGS MANUAL FOR MARKER DETAIL.

No.	Date	Revisions	App.

DRAWING NAME: TCAAP_THUMB_STH_SS TAB01
DESIGNED BY: RJG
DRAWN BY: RJG
CHECKED BY: CBL
DATE: 4/20/17
PROJECT NO. 160553004

Kimley»Horn
2550 UNIVERSITY AVENUE WEST, SUITE 238N, ST, PAUL, MN 55114
PHONE: 651-645-4197
WWW.KIMLEY-HORN.COM

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

Brandon J. Bourdon
BRANDON J. BOURDON, PE
DATE: 4/20/17 MN LIC. NO. 43709

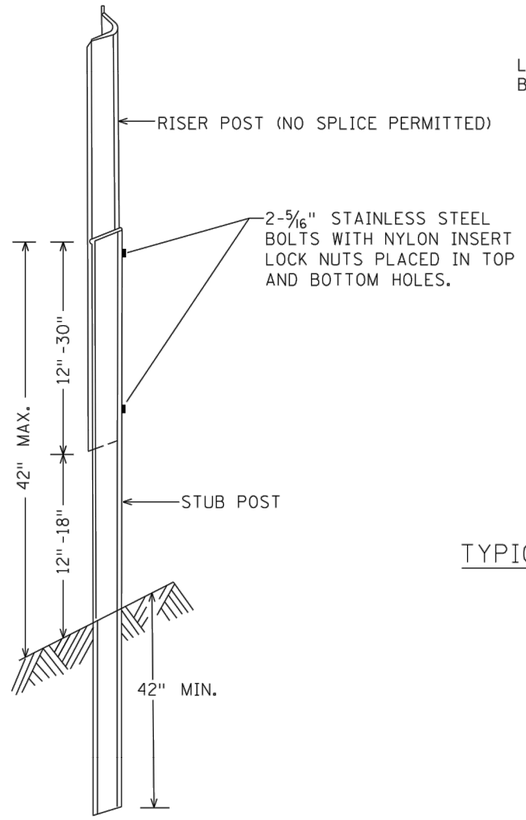
RAMSEY COUNTY
OLD HIGHWAY 8 EXTENSION
CONSTRUCTION PROJECT

SIGNING TABULATION

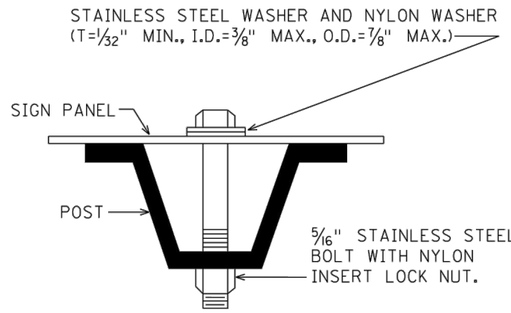
COUNTY PROJECT
S.A.P. 062-593-006
S.A.P.
S.P.

SHEET NO. 94 / 115

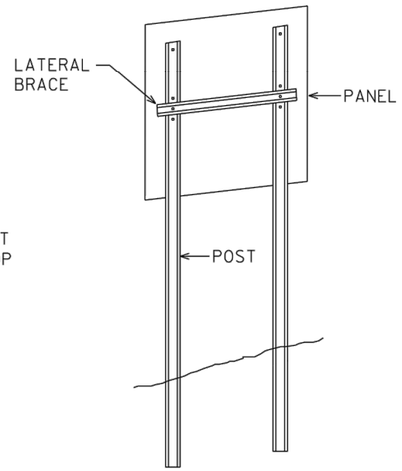
TYPE C & D POST



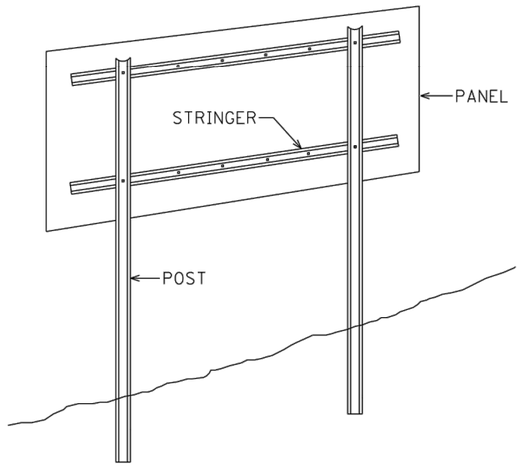
U POST BREAKAWAY SPLICE



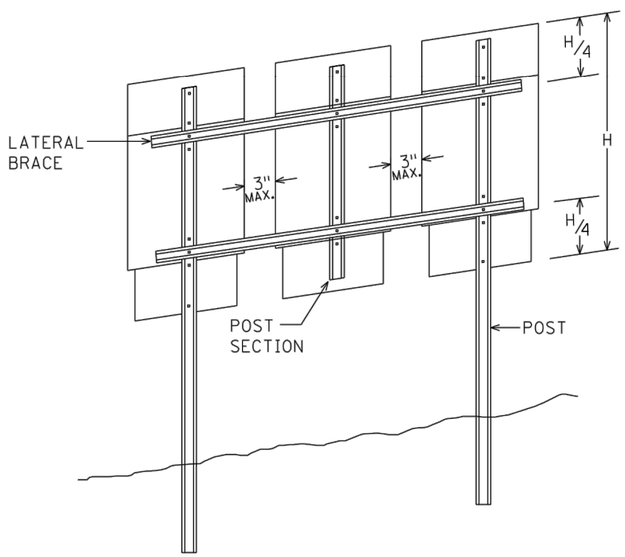
U POST MOUNTING
TYPE C SIGNS



TYPICAL TYPE C INSTALLATION



TYPICAL TYPE D INSTALLATION



MODIFIED TYPE C INSTALLATION

NOTES:

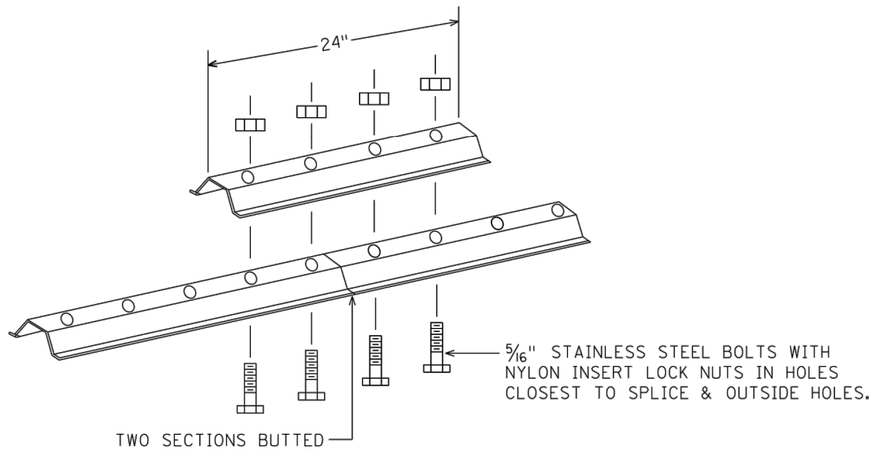
1. USE 3 LB/FT STUB POSTS. SHALL CONFORM TO MNDOT 3401.
2. USE 2.5 LB/FT RISER POSTS, STRINGERS, KNEE BRACES AND LATERAL BRACES. ALL SHALL CONFORM TO MNDOT 3401.
3. SEE SIGN DATA SHEETS FOR NUMBER OF POSTS, KNEE BRACES, POST LENGTHS AND SPACINGS, AS DETERMINED FROM TEM CHARTS 6.3 AND 6.4.
4. IF MORE THAN TWO POSTS ARE NEEDED, THE MINIMUM SPACING SHALL BE 45" BETWEEN POSTS.
5. TYPE D SIGN PANELS SHALL BE BOLTED TO STRINGERS AT 24" MAXIMUM INTERVALS IN ACCORDANCE WITH THE TYPE D STRINGER AND PANEL-JOINT DETAIL (SEE MNDOT STANDARD SIGNS AND MARKINGS MANUAL).
6. MOUNTING (PUNCH CODE) FOR TYPE C SIGN PANELS SHALL BE AS INDICATED IN THE MNDOT STANDARD SIGNS AND MARKINGS MANUAL UNLESS OTHERWISE SPECIFIED.
7. ALL RISER (VERTICAL) U POSTS SHALL BE SPLICED. DRIVEN STUB POSTS SHALL BE AT LEAST 7' LONG.
8. USE STAINLESS STEEL 5/16" BOLTS, WASHERS AND NYLON INSERT LOCK NUTS AS SHOWN FOR ALL GROUND MOUNTED AND OVERHEAD MOUNTED SIGNS.
9. STAINLESS STEEL WASHER WITH SAME DIMENSIONS SHALL BE PROVIDED BETWEEN ALL NYLON WASHERS AND BOLT HEADS.
10. BRACING STUBS SHALL BE NO MORE THAN 4" ABOVE GROUND AND EMBEDDED AT LEAST 42".
11. A-FRAME BRACKET SHALL BE STEEL CONFORMING TO MNDOT 3306 AND GALVANIZED IN ACCORDANCE WITH MNDOT 3394.
12. COLLARS SHALL BE USED TO SHIM OVERLAYS AND LEGEND COMPONENTS AWAY FROM PANEL WHERE INTERFERENCE WITH BOLT HEADS IS ENCOUNTERED. MNDOT 3352.2A6.
13. 2 POST TYPE C SIGNS SHALL BE REINFORCED WITH AT LEAST ONE LATERAL BRACE. INSTALLATIONS WHERE THE TOTAL PANEL HEIGHT IS 60" OR MORE SHALL HAVE TWO LATERAL BRACES LOCATED APPROXIMATELY AT THE QUARTER POINTS.
14. WHERE 2 SINGLE POST TYPE C SIGNS ARE INSTALLED SIDE BY SIDE, THEY SHALL BE REINFORCED LATERALLY BY AT LEAST 2 BRACES, BOLTED AT EACH POST AND LOCATED APPROXIMATELY AT THE QUARTER POINTS.
15. WHERE 3 OR MORE TYPE C SIGNS ARE INSTALLED SIDE BY SIDE, THEY SHALL BE REINFORCED LATERALLY BY AT LEAST 2 BRACES, BOLTED AT EACH POST AND POST SECTION AND LOCATED APPROXIMATELY AT THE QUARTER POINTS AS SHOWN IN MODIFIED TYPE C INSTALLATION.

TYPE C & D SIGN
STRUCTURAL DETAILS

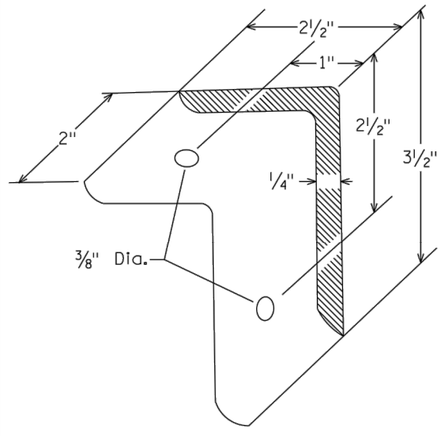
Sheet 1 of 3

REVISED: 1-25-2016

STATE PROJ. NO.	SHEET NO. OF SHEETS
S.A.P. 062-593-006	SHEET NO 95 OF 115 SHEETS

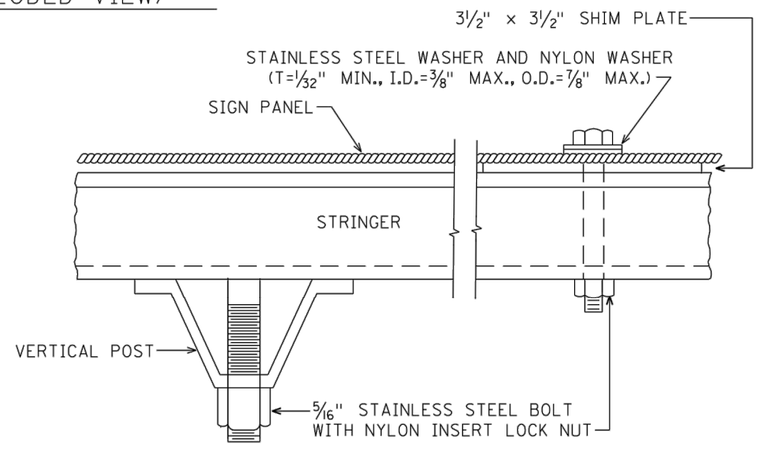


LATERAL BRACE OR STRINGER SPLICE DETAIL (EXPLODED VIEW)

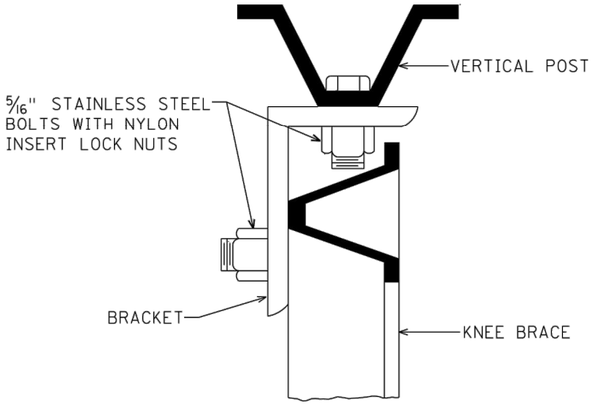


A-FRAME BRACKET

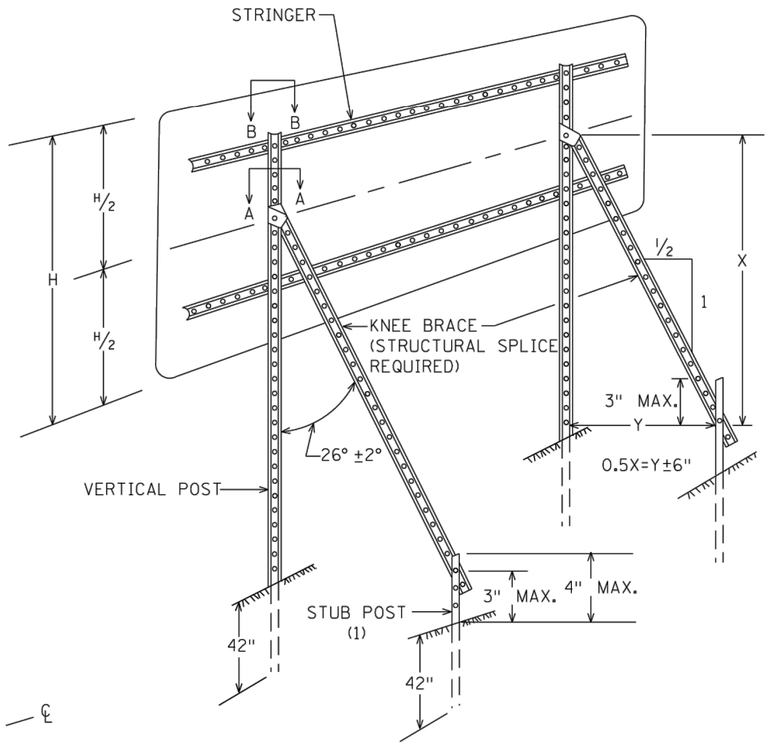
(STEEL MNDOT 3306 GALVANIZED PER MNDOT 3394)



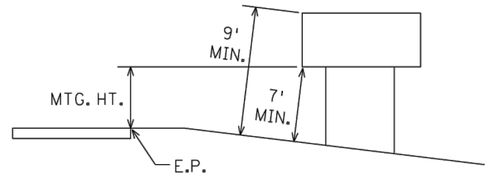
SECTION B-B



SECTION A-A

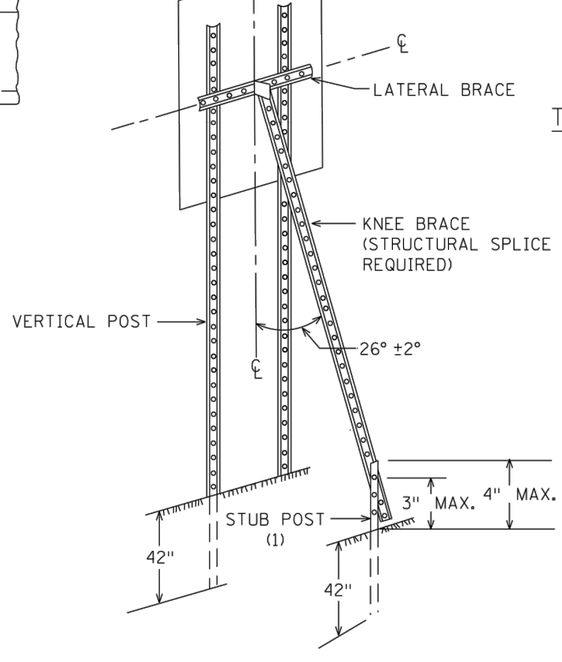


TYPICAL "A-FRAME" INSTALLATION TYPE "D" SIGNS

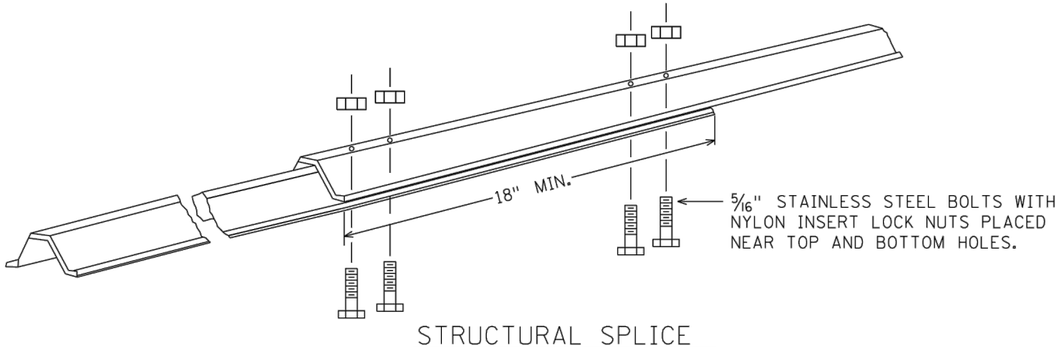


TYPICAL MOUNTING

(1) OFFSET STUB POST 1' TOWARD ROADWAY RELATIVE TO VERTICAL POST. ATTACH STUB POST AND KNEE BRACE BACK TO BACK.



TYPICAL "A-FRAME" INSTALLATION TYPE "C" SIGNS



STRUCTURAL SPLICE

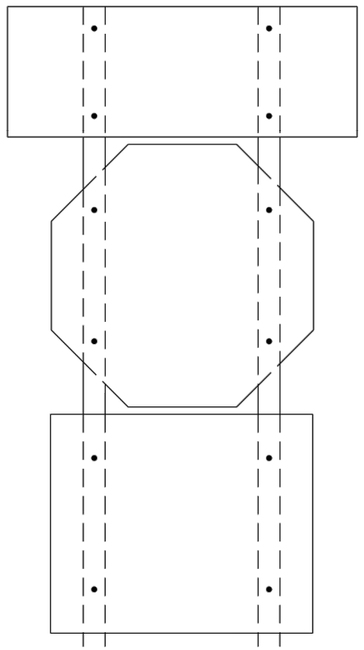
(USE WHEN IT IS NECESSARY TO FABRICATE THE CORRECT LENGTH OF POST FROM TWO PIECES)

TYPE C & D SIGN STRUCTURAL DETAILS

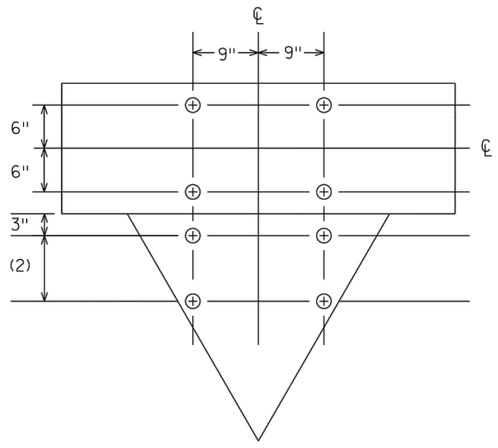
Sheet 2 of 3

REVISED: 12-4-2013

STATE PROJ. NO.	SHEET NO.	OF	SHEETS
S.A.P. 062-593-006	SHEET NO 96 OF 115 SHEETS		

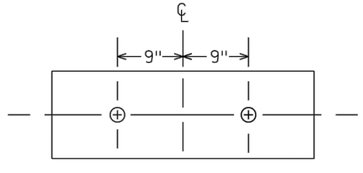


R6-1, R1-1 & (R6-3 OR R6-3a)
MOUNTING

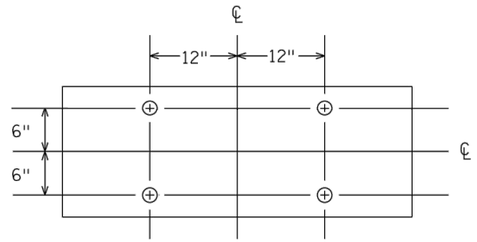


PUNCHING FOR R6-1 (54"x18") AND
R1-2 (36"x36"x36" OR 48"x48"x48")

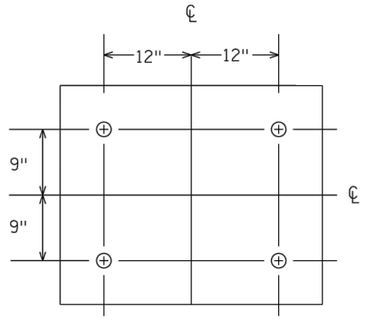
(2) 9" FOR 36"x36"x36"
18" FOR 48"x48"x48"



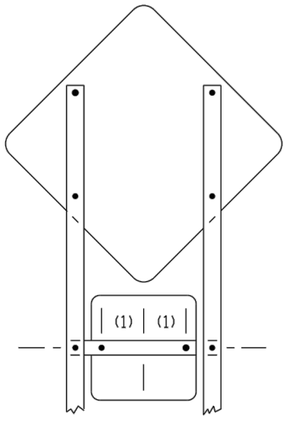
PUNCHING FOR R6-1 (36"x12")



PUNCHING FOR R6-1 (54"x18")

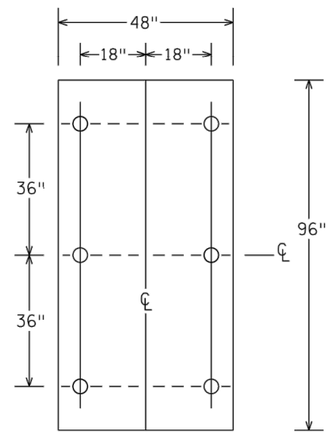


PUNCHING FOR R6-3 OR R6-3a (36"x30")

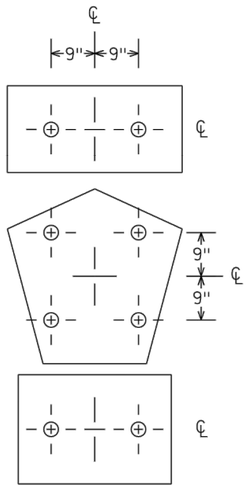


WARNING SIGN [30"x30 OR 48"X48"] AND
WARNING PLAQUE [18"x18" OR 30"x30"]
PUNCHING AND MOUNTING

(1) 6" FOR WARNING PLAQUE (18"x18")
12" FOR WARNING PLAQUE (30"x30")



PUNCHING FOR R2-4b
SPEED LIMIT



(M3-1A, M3-2A, M3-3A OR M3-4A)[36"x18"] AND
M1-6 [36"x36"] AND
(M5-1A, M5-2A, M6-1A, M6-2A, M6-3A M6-4A, M6-5A OR M6-6A)[30"x24"]
PUNCHING

TYPE C & D SIGN
STRUCTURAL DETAILS

Sheet 3 of 3

REVISED: 2-13-2015

STATE PROJ. NO.	SHEET NO. OF SHEETS
S.A.P. 062-593-006	SHEET NO 97 OF 115 SHEETS

GENERAL REQUIREMENTS

1. ALL SIGN POSTS SHALL BE 2" X 2" GALVANIZED STEEL TUBING, 12 GAUGE WITH 7/16" HOLES SPACED 1" APART ON ALL SIDES (TELSPAR)

2. MOUNTING (PUNCHING CODE) FOR TYPE "C" SIGN PANELS SHALL BE AS INDICATED IN THE STANDARD SIGNS MANUAL UNLESS OTHERWISE SPECIFIED. PLATED STEEL NYLON INSERT LOCK NUTS AS SHOWN.

3. USE STAINLESS STEEL 5/16" BOLTS AND WASHERS WITH PLATED STEEL NYLON INSERT LOCK NUTS FOR SIGN MOUNTING

4. STAINLESS STEEL WASHER WITH THE SAME DIMENSIONS SHALL BE PROVIDED BETWEEN ALL NYLON WASHERS AND BOLT HEADS.

5. ALL TRAFFIC CONTROL DEVICES SHALL CONFORM TO TO THE MINNESOTA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, INCLUDING "FIELD MANUAL FOR TEMPORARY TRAFFIC CONTROL ZONE LAYOUTS – FEBRUARY 2011 OR NEWER.

6. ALL TRAFFIC CONTROL DEVICES SHALL HAVE DIAMOND GRADE (DG3) RETROREFLECTIVE SHEETING.

CONCRETE INSTALLATION

1. ALL SIGNS INSTALLED IN CONCRETE SURFACES SHALL CONSIST OF A BREAK AWAY UNIT
   - 1.1. UNIT SHALL ALLOW FOR 360° INDEXING FOR PROPER SIGN ORIENTATION AFTER INSTALLATION
   - 1.2. UNIT SHALL HAVE A STUB HEIGHT LESS THAN 4" AFTER BREAK AWAY.
   - 1.3. UNIT SHALL UTILIZE A SHEER BOLT AS IT'S MEANS OF BREAKING AWAY
   - 1.4. UNIT SHALL UTILIZE A LOCKING WEDGE OR SHIM TO ELIMINATE ALL TOLERANCE BETWEEN MOUNTING UNIT AND POST
     - 1.4.1. LOCKING WEDGE SHALL BE TAPPED INTO PLACE UNTIL SNUG. AVOID FORCING WEDGE INTO PLACE TO ELIMINATE POSSIBLE DAMAGE TO THE TOP COUPLING
   - 1.5. BREAK AWAY BASE SHALL BE SECURED TO AN ANCHOR POST WITH A MINIMUM LENGTH OF 36" BY A CORNER BOLT AND NUT OR EQUIVALENT.
   - 1.6. UNIT SHALL BE ON THE MnDOT PRE APPROVED PRODUCTS LIST

2. UNIT SHALL BE INSTALLED TO MANUFACTURERS SPECIFICATIONS

3. IF CORING IS REQUIRED FOR SIGN PLACEMENT, THE CORING AND CONCRETE SHALL BE INCIDENTAL.

4. UNIT PLACEMENT MAY DEPEND ON SIZE OF SIGN, SEE "DETAIL B" FOR PLACEMENT.

5. A 1¾" X 1¾" GALVANIZED STEEL TUBING, 12 GAUGE WITH 7/16" HOLES SPACED 1" APART ON ALL SIDES (TELSPAR), 3' IN LENGTH SHALL BE SUPPLIED AND INSERTED INTO THE SIGN POST FOR ADDED STABILITY. SEE "DETAIL A"

6. A SLIP BASE UNIT MAY BE SUBSTITUTED UPON ENGINEERS APPROVAL. CONTRACTOR SHALL SUPPLY PRODUCT SPECIFICATIONS AND INFORMATION TO THE ENGINEER FOR REVIEW PRIOR TO APPROVAL.

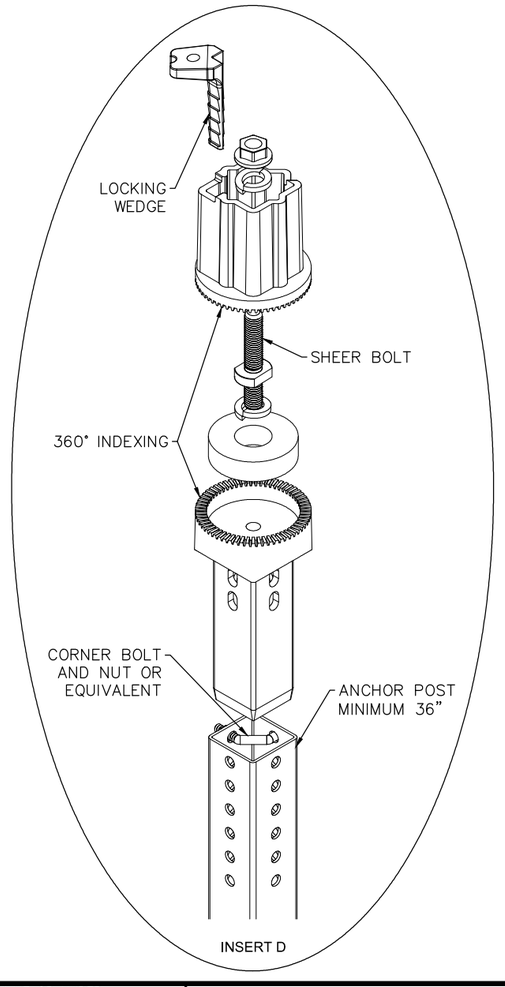
GROUND INSTALLATION

1. ALL SIGNS INSTALLED IN GROUND SHALL CONSIST OF A BREAK AWAY UNIT
   - 1.1. UNIT SHALL BE STEM BASE MOUNT ATTACHED TO A SOIL ANCHOR THAT IS 4' IN DEPTH AND INCORPORATES A SOIL SPADE DRIVEN WITHIN 1" TO 2" ABOVE GRADE. SEE "DETAIL C"
   - 1.2. UNIT SHALL HAVE A STUB HEIGHT LESS THAN 4" AFTER BREAK AWAY.

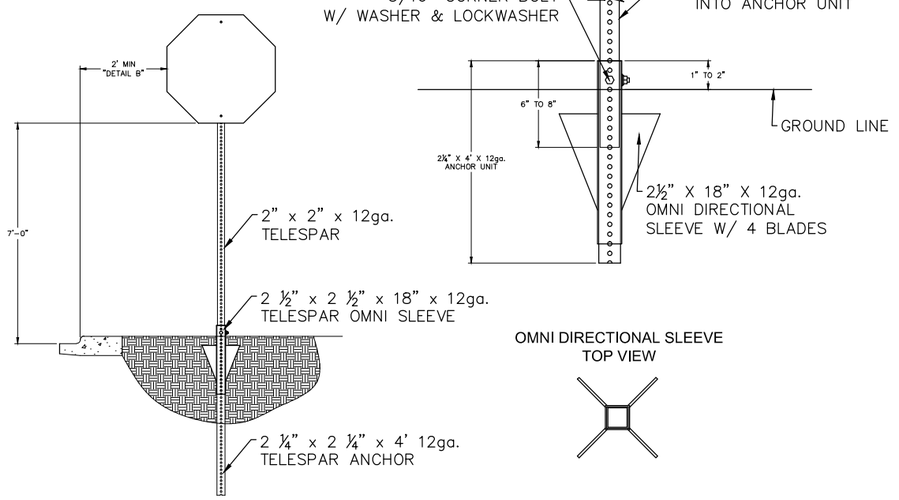
2. UNIT SHALL BE INSTALLED TO MANUFACTURERS SPECIFICATIONS

3. UNIT PLACEMENT MAY DEPEND ON SIZE OF SIGN, SEE "DETAIL B" FOR PLACEMENT.

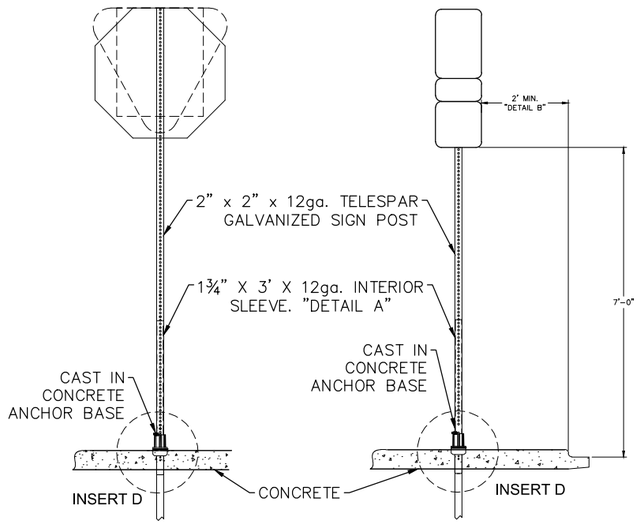
4. A SLIP BASE UNIT MAY BE SUBSTITUTED UPON ENGINEERS APPROVAL. CONTRACTOR SHALL SUPPLY PRODUCT SPECIFICATIONS AND INFORMATION TO THE ENGINEER FOR REVIEW PRIOR TO APPROVAL.



"DETAIL C"



OMNI DIRECTIONAL SLEEVE TOP VIEW



NO.	REV–DATE	BY:	DESCRIPTION

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

SIGNED: _____

REG NO: _____ DATE: _____

USE ON ALL JOBS

COUNTY PROJ.

RAMSEY COUNTY

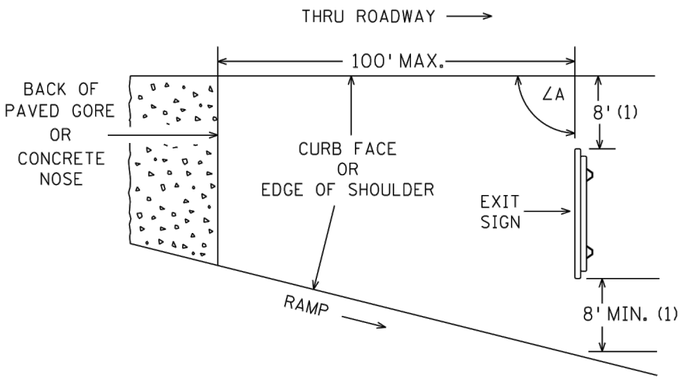
SIGNING DETAIL

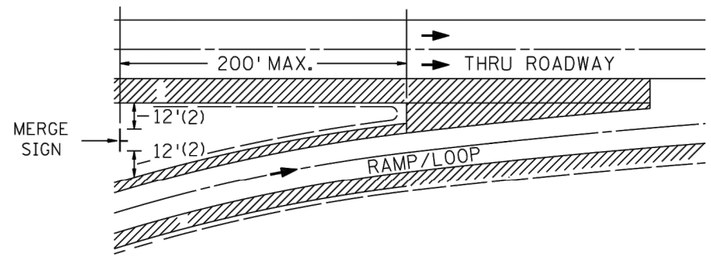
SHEET OF SHEETS

S.A.P. 062–593–006

SHEET NO 98 OF 115 SHEETS

GORE PLACEMENT



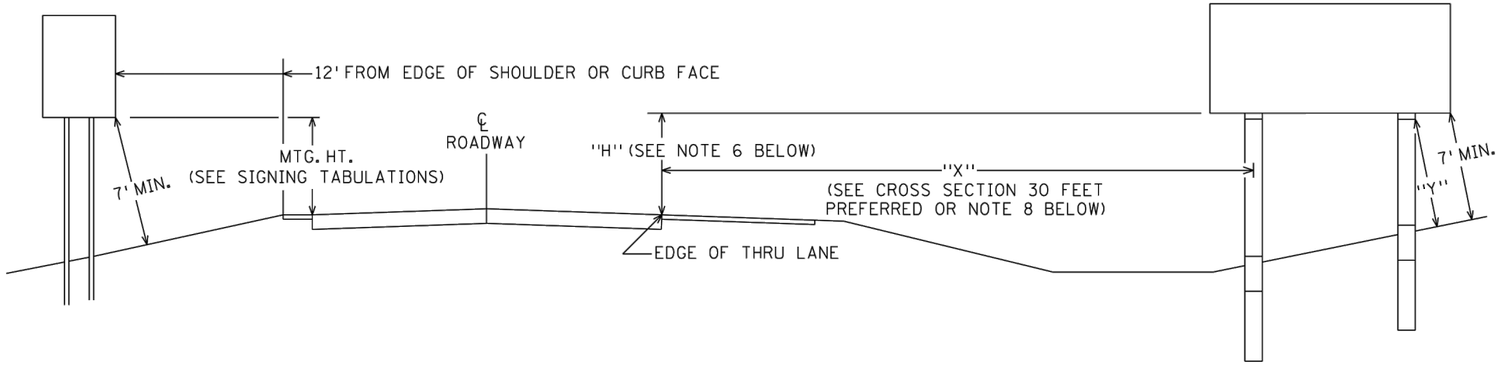


SPECIFIC NOTES:

(1) EXIT SIGNS
IF THESE OFFSETS CANNOT BE ATTAINED WITHIN 100 FEET OF THE PAVED GORE, A 4 FOOT OFFSET IS ACCEPTABLE. IF THE 4 FOOT OFFSETS CANNOT BE ATTAINED WITHIN 100 FEET OF THE PAVED GORE, CONTACT THE PROJECT ENGINEER.

(2) MERGE SIGNS
IF THESE OFFSETS CANNOT BE ATTAINED WITHIN 200 FEET OF THE PAVED GORE, A 4 FOOT OFFSET IS ACCEPTABLE. IF THE 4 FOOT OFFSETS CANNOT BE ATTAINED WITHIN 200 FEET OF THE PAVED GORE, CONTACT THE PROJECT ENGINEER.

ROADSIDE PLACEMENT



ROUTE MARKER, REGULATORY & WARNING SIGNS - TYPE C
GUIDE SIGNS - TYPE D

GUIDE SIGN - TYPE A

NOTES:

1. ALL TYPE C AND D MOUNTING HEIGHTS ARE MEASURED VERTICALLY FROM THE BOTTOM OF THE SIGN TO THE ELEVATION OF THE NEAR EDGE OF PAVEMENT IN RURAL AREAS OR TO THE TOP OF THE CURB OR IN THE ABSCENCE OF CURB, TO THE NEAR EDGE OF THE TRAVELED WAY.
2. SIGN FACES SHALL BE VERTICAL.
3. OVERHEAD SIGNS SHALL BE POSITIONED AT RIGHT ANGLES TO THE THRU ROADWAY UNLESS OTHERWISE NOTED.
4. TO AVOID SPECULAR GLARE, ∠A SHALL BE APPROXIMATELY 93° FOR SIGNS LOCATED LESS THAN 30' FROM THE EDGE OF THRU LANE AND APPROXIMATELY 92° FOR SIGNS LOCATED 30' OR MORE FROM EDGE OF THRU LANE. THIS APPLIES TO SIGNS TYPE A, C, & D AND INCLUDES SIGNS IN THE GORE.
5. "Y" IS THE PERPENDICULAR DISTANCE FROM THE GROUND LINE TO THE FRICTION FUSE ON THE POST. THIS DISTANCE SHALL BE AT LEAST 7'.
6. WHERE "X" IS LESS THAN 30', "H" SHALL BE 7'. WHERE "X" IS 30' OR GREATER, MINIMUM AND PREFERRED "H" IS 5'.
7. LATERAL CLEARANCES GIVEN APPLY TO RIGHT AND OR LEFT SIDE INSTALLATION.
8. WHEN A TYPE A SIGN IS INSTALLED DIRECTLY BEHIND TRAFFIC BARRIER, THE LEFT EDGE OF THE SIGN PANEL SHALL BE LOCATED A MINIMUM OF 8 FEET BEHIND THE FACE OF THE TRAFFIC BARRIER.

REVISED: 7-23-15

SIGN PLACEMENT

No.	Date	Revisions	App.

DRAWING NAME TCAAP_THUMB_STH_DT03	
DESIGNED BY:	RJG
DRAWN BY:	RJG
CHECKED BY:	CBL
DATE:	4/20/17
PROJECT NO.	160553004

Kimley»Horn
2550 UNIVERSITY AVENUE WEST, SUITE 238N, ST, PAUL, MN 55114
PHONE: 651-645-4197
WWW.KIMLEY-HORN.COM

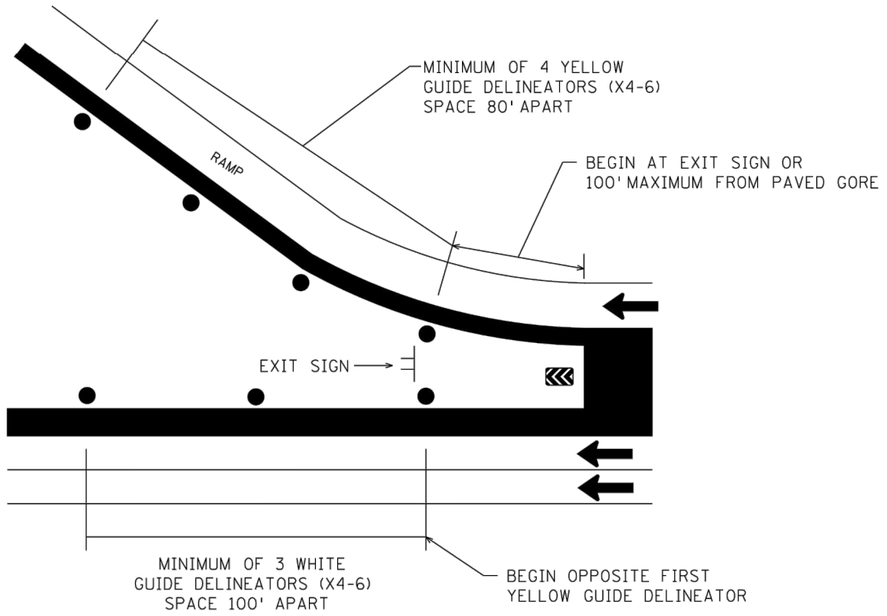
I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

Brandon J. Bourdon
BRANDON J. BOURDON
DATE: 4/20/17 MN LIC. NO. 43709

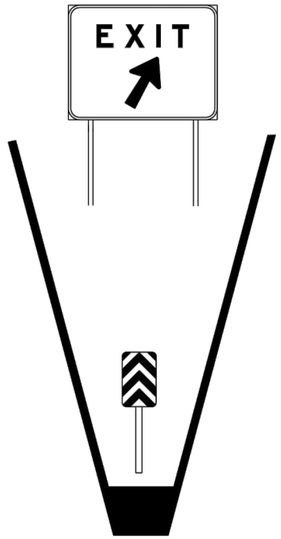
RAMSEY COUNTY
OLD HIGHWAY 8 EXTENSION CONSTRUCTION PROJECT
SIGNING AND PAVEMENT MARKING DETAILS

COUNTY PROJECT	
S.A.P.	062-593-006
S.A.P.	
S.P.	

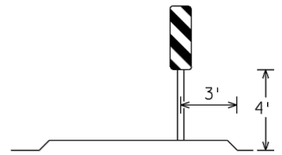
SHEET NO. 99 / 115



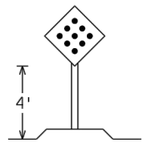
PLAN A
RAMP DELINEATION



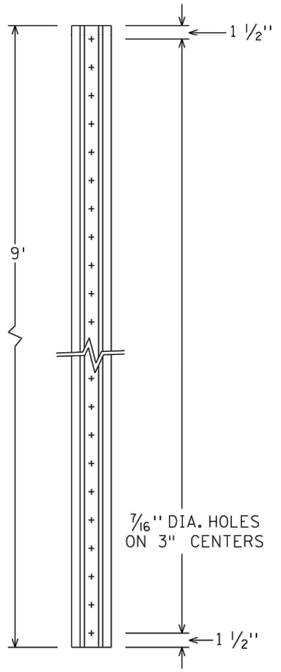
TYPE 3 OBJECT MARKER
12" X 24" (X4-4C)



RAISED ISLAND
TYPE 3 OBJECT MARKER
(X4-4)

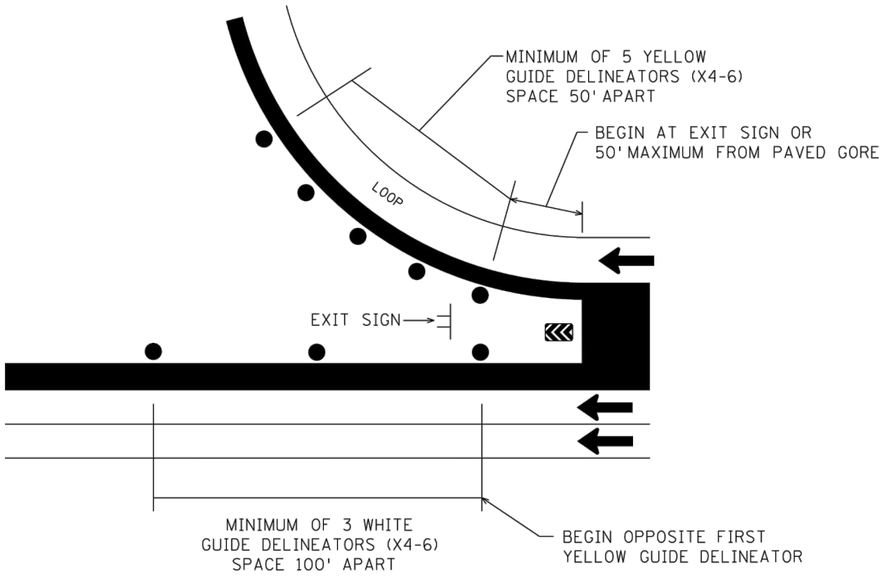


RAISED ISLAND
TYPE 2 OBJECT MARKER
(X4-2)

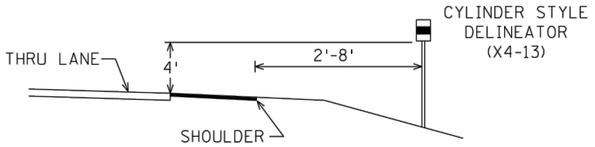


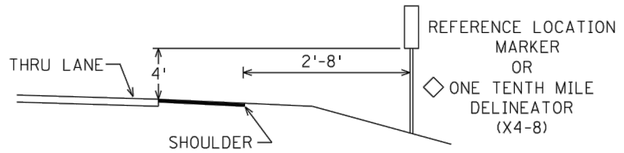
MNDOT 3401
NORMAL WEIGHT= 2 LB./FT.

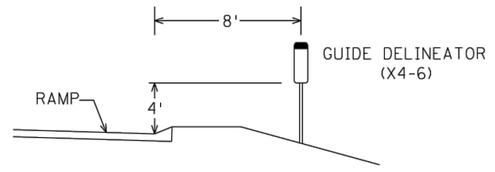
DELINEATOR POST



PLAN B
LOOP DELINEATION







TYPICAL PLACEMENT

DELINEATORS AND MARKERS

REVISED: 10-2-2013

No.	Date	Revisions	App.

DRAWING NAME TCAAP_THUMB_STH_DT03	
DESIGNED BY:	RJG
DRAWN BY:	RJG
CHECKED BY:	CBL
DATE:	4/20/17
PROJECT NO.	160553004

Kimley»Horn
2550 UNIVERSITY AVENUE WEST, SUITE 238N, ST, PAUL, MN 55114
PHONE: 651-645-4197
WWW.KIMLEY-HORN.COM

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

Brandon J. Bourdon
BRANDON J. BOURDON
DATE: 4/20/17 MN LIC. NO. 43709

RAMSEY COUNTY
OLD HIGHWAY 8 EXTENSION
CONSTRUCTION PROJECT

SIGNING AND PAVEMENT MARKING
DETAILS

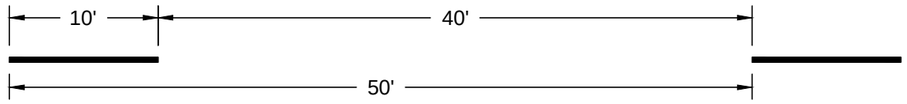
COUNTY PROJECT	
S.A.P.	062-593-006
S.A.P.	
S.P.	

SHEET NO. 100 / 115

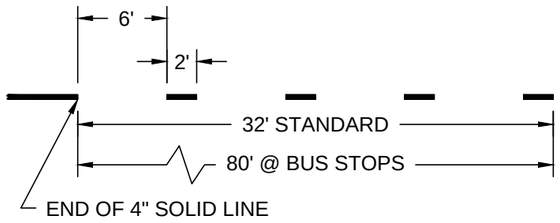
SKIP CYCLES

4" SKIP CYCLES

CENTERLINE AND CENTER TURN LANE
10' SKIP WITH 40' SPACE (50' OVERALL CYCLE)

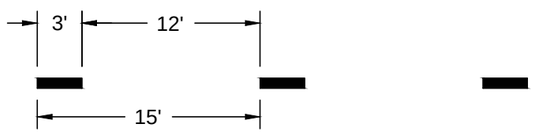


BIKE LANES APPROACHING INTERSECTIONS AND BUS STOPS
6' SPACE AND 2' SKIP (8' OVERALL CYCLE)
32' STANDARD LENGTH WHEN APPROACHING INTERSECTION
80' WHEN BUS STOP PRESENT

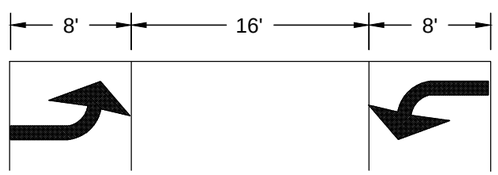


8" SKIP CYCLE

LANE ENDS
3 SPACE AND 12' SKIP (15' OVERALL CYCLE)

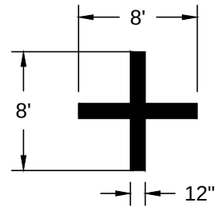


TYPICAL CENTER LEFT TURN ARROWS

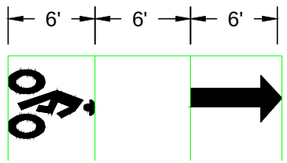


SURVEY MARKER

16' OF 12" SOLID WHITE

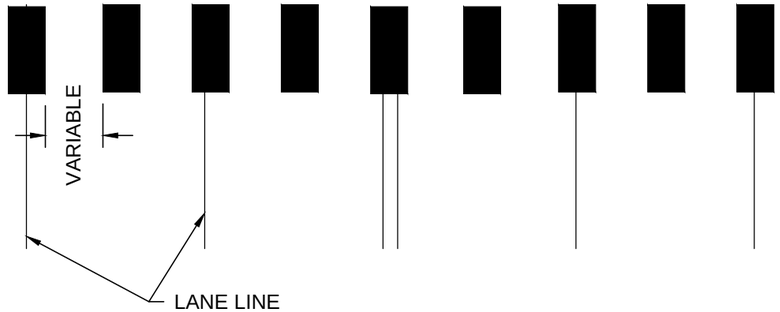


BIKE SYMBOLS



CROSSWALK BLOCKS

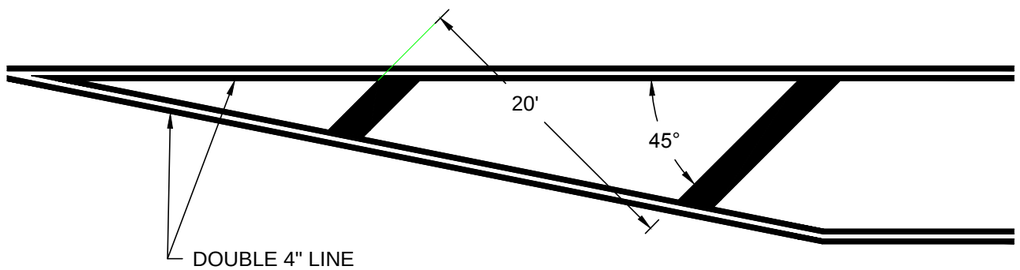
CROSSWALK BLOCKS SHALL BE CENTERED ON AND IN BETWEEN LAN LINES



CROSSWALK BLOCKS ARE 2.5' WIDE
6' LONG AT CONTROLLED INTERSECTIONS
8' LONG AT MID BLOCK CROSSINGS
8' LONG AT UN-CONTROLLED INTERSECTIONS

PAINTED MEDIAN

24" SOLID LINE AT 45° ANGLE
SPACE 20' FROM FRONT EDGE OF LINES



NO.	REV–DATE	BY:	DESCRIPTION

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

SIGNED: _____

REG NO: _____ DATE: _____

USE ON ALL JOBS

COUNTY PROJ.

RAMSEY COUNTY

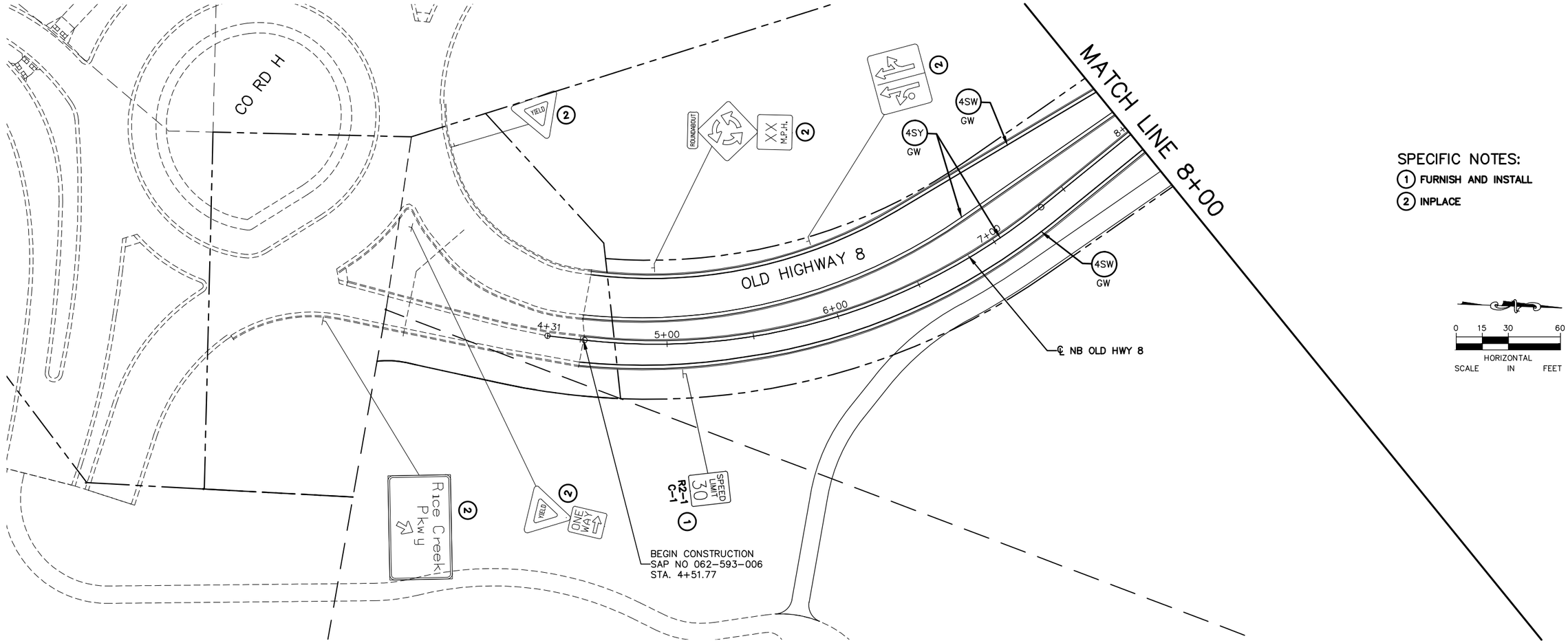
STRIPING DETAIL

SHEET OF SHEETS

S.A.P. 062–593–006

SHEET NO 101 OF 115 SHEETS

K:\TWC_Civil\County\RAMSEY\TCAAP Thumb Rd\CAD\Plan Sheets\Construction Plans\South\TCAAP_THUMB_STH_DT03.dwg April 25, 2017 – 10:25pm



SPECIFIC NOTES:

(1) FURNISH AND INSTALL

(2) INPLACE

0 15 30 60

HORIZONTAL SCALE IN FEET

No.	Date	Revisions	App.

DRAWING NAME	
TCAAP_THUMB_STH_TRAF01	
DESIGNED BY:	RJG
DRAWN BY:	RJG
CHECKED BY:	CBL
DATE:	4/20/17
PROJECT NO.	160553004

Kimley»Horn
2550 UNIVERSITY AVENUE WEST, SUITE 238N, ST, PAUL, MN 55114
PHONE: 651-645-4197
WWW.KIMLEY-HORN.COM

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Brandon J. Bourdon

BRANDON J. BOURDON

DATE: 4/20/17 MN LIC. NO. 43709

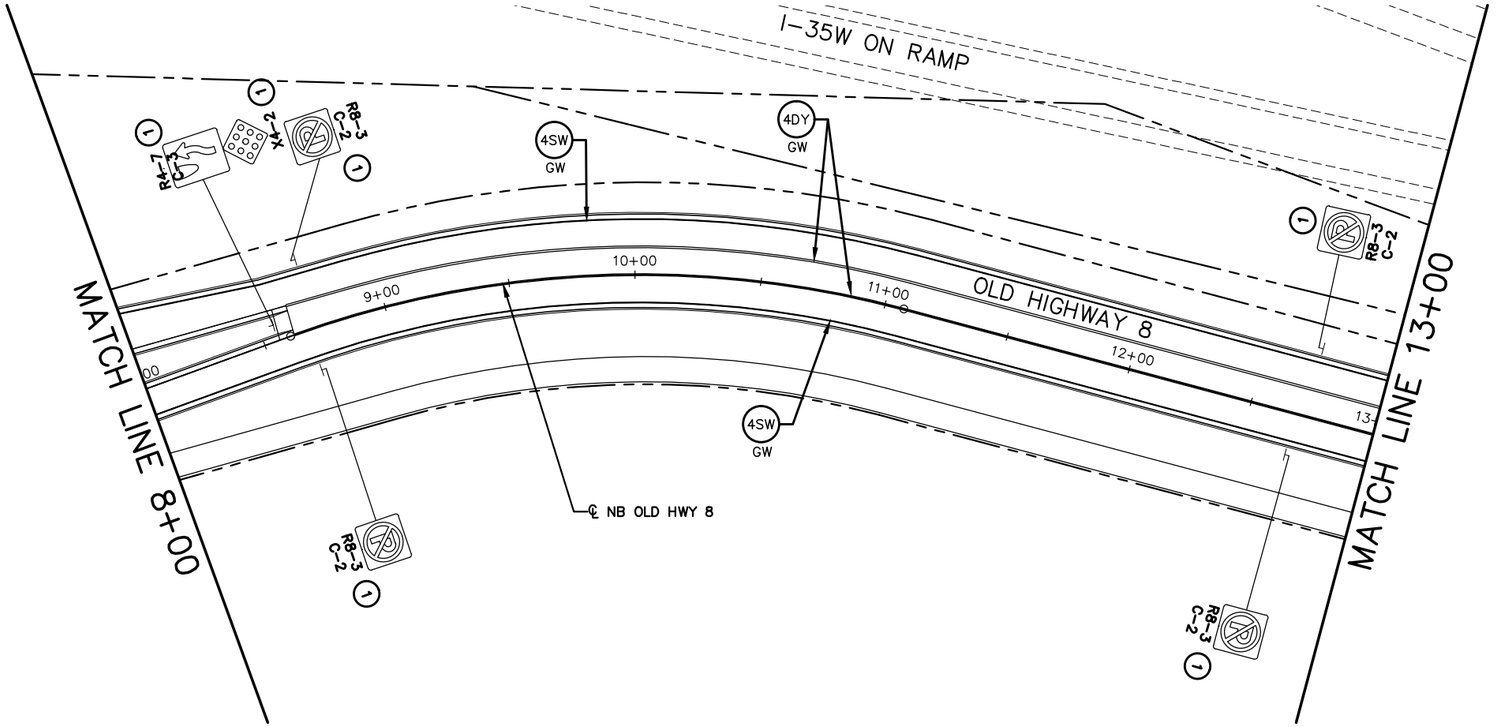
RAMSEY COUNTY

OLD HIGHWAY 8 EXTENSION CONSTRUCTION PROJECT

OLD HIGHWAY 8
SIGNING AND STRIPING PLAN
STA. 4+51.77 TO STA. 8+00

COUNTY PROJECT	
S.A.P.	062-593-006
S.A.P.	
S.P.	

SHEET NO. 102 / 115



0 15 30 60

HORIZONTAL SCALE IN FEET

SPECIFIC NOTES:

(1) FURNISH AND INSTALL

(2) INPLACE

No.	Date	Revisions	App.

DRAWING NAME	TCAAP_THUMB_STH_TRAF01
DESIGNED BY:	RJG
DRAWN BY:	RJG
CHECKED BY:	CBL
DATE:	4/20/17
PROJECT NO.	160553004

Kimley»Horn
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Brandon J. Bourdon

BRANDON J. BOURDON

DATE: 4/20/17 MN LIC. NO. 43709

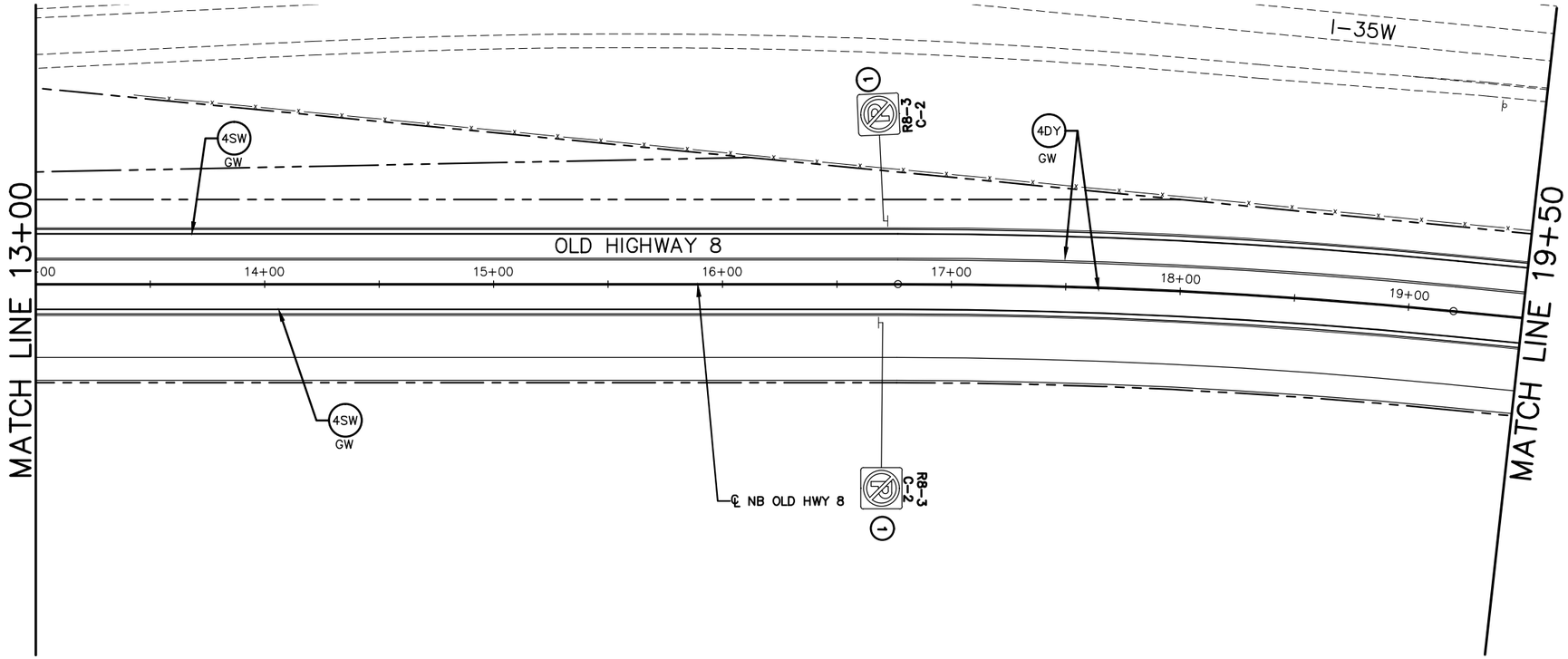
RAMSEY COUNTY

OLD HIGHWAY 8 EXTENSION CONSTRUCTION PROJECT

OLD HIGHWAY 8
SIGNING AND STRIPING PLAN
STA. 8+00 TO STA. 13+00

COUNTY PROJECT	
S.A.P.	062-593-006
S.A.P.	
S.P.	

SHEET NO. 103 / 115



0 15 30 60
HORIZONTAL
SCALE IN FEET

SPECIFIC NOTES:
(1) FURNISH AND INSTALL
(2) INPLACE

No.	Date	Revisions	App.

DRAWING NAME	
TCAAP_THUMB_STH_TRAF01	
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DATE:	4/20/17
PROJECT NO.	160553004

Kimley»Horn
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Brandon J. Bourdon
BRANDON J. BOURDON
DATE: 4/20/17 MN LIC. NO. 43709

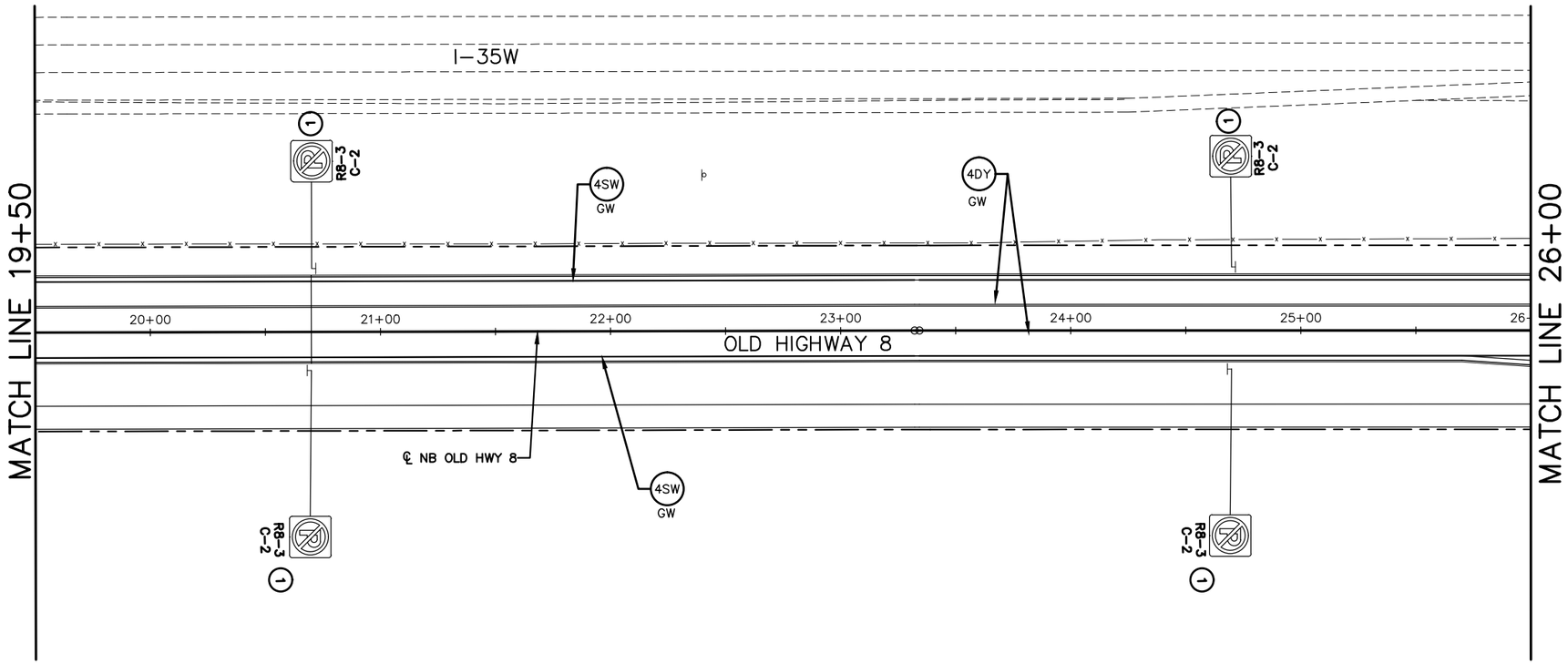
RAMSEY COUNTY

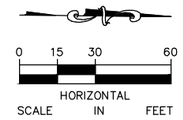
OLD HIGHWAY 8 EXTENSION
CONSTRUCTION PROJECT

OLD HIGHWAY 8
SIGNING AND STRIPING PLAN
STA. 13+00 TO STA. 19+50

COUNTY PROJECT	
S.A.P.	062-593-006
S.A.P.	
S.P.	

SHEET NO. 104 / 115





SPECIFIC NOTES:

(1) FURNISH AND INSTALL

(2) INPLACE

No.	Date	Revisions	App.

DRAWING NAME	TCAAP_THUMB_STH_TRAF01
DESIGNED BY:	RJG
DRAWN BY:	RJG
CHECKED BY:	CBL
DATE:	4/20/17
PROJECT NO.	160553004

Kimley»Horn
2550 UNIVERSITY AVENUE WEST, SUITE 238N, ST, PAUL, MN 55114
PHONE: 651-645-4197
WWW.KIMLEY-HORN.COM

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Brandon J. Bourdon

BRANDON J. BOURDON

DATE: 4/20/17 MN LIC. NO. 43709

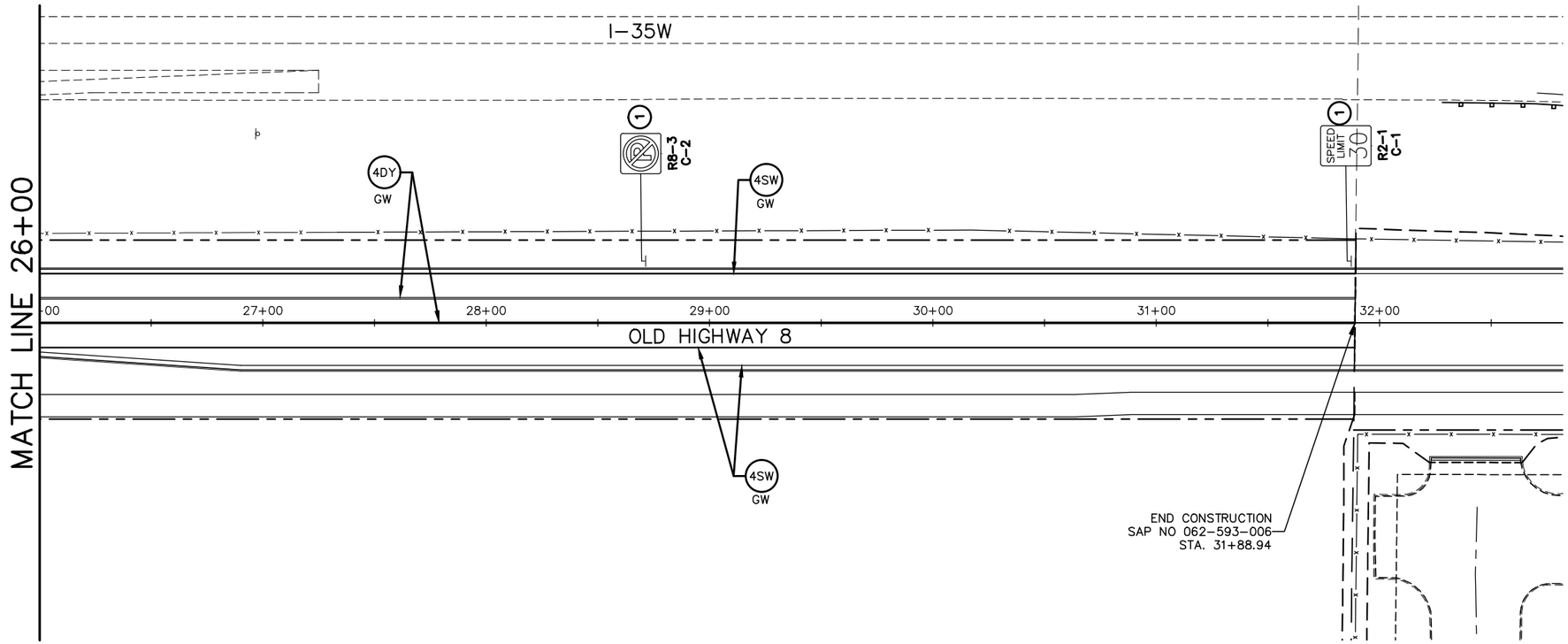
RAMSEY COUNTY

OLD HIGHWAY 8 EXTENSION
CONSTRUCTION PROJECT

OLD HIGHWAY 8
SIGNING AND STRIPING PLAN
STA. 19+50 TO STA. 26+00

COUNTY PROJECT	
S.A.P.	062-593-006
S.A.P.	
S.P.	

SHEET NO. 105 / 115



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HORIZONTAL SCALE IN FEET

SPECIFIC NOTES:

(1) FURNISH AND INSTALL

(2) INPLACE

No.	Date	Revisions	App.

DRAWING NAME	TCAAP_THUMB_STH_TRAF01
DESIGNED BY:	RJG
DRAWN BY:	RJG
CHECKED BY:	CBL
DATE:	4/20/17
PROJECT NO.	160553004

Kimley»Horn
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PHONE: 651-645-4197
WWW.KIMLEY-HORN.COM

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Brandon J. Bourdon

BRANDON J. BOURDON

DATE: 4/20/17 MN LIC. NO. 43709

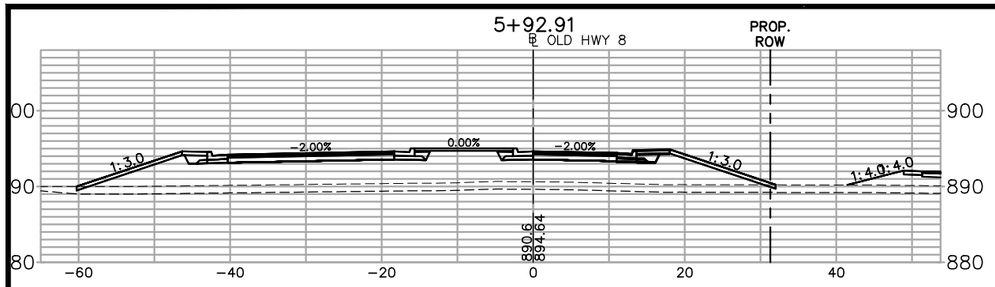
RAMSEY COUNTY

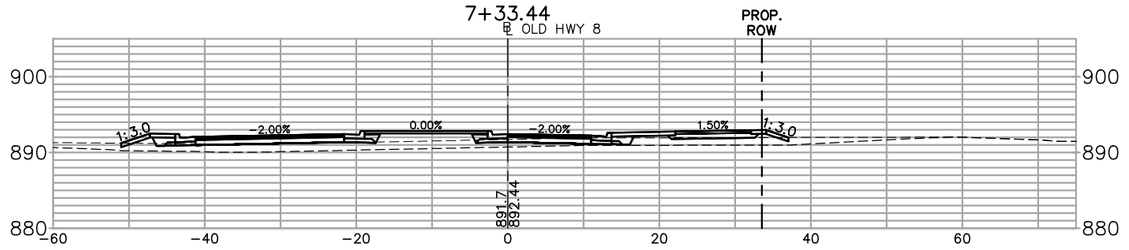
OLD HIGHWAY 8 EXTENSION CONSTRUCTION PROJECT

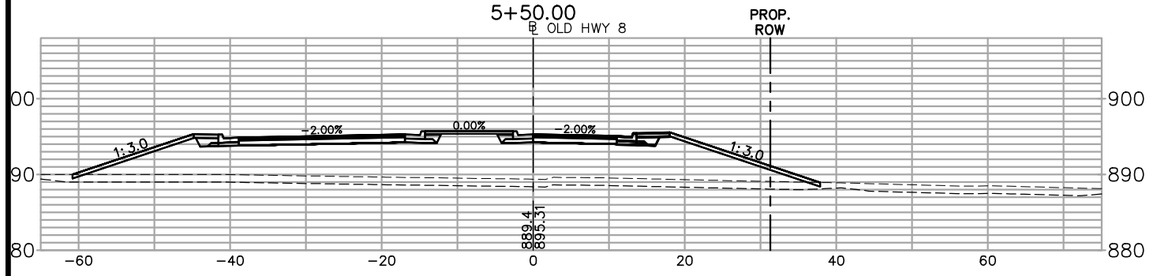
OLD HIGHWAY 8
SIGNING AND STRIPING PLAN
STA. 26+00 TO STA. 31+88.94

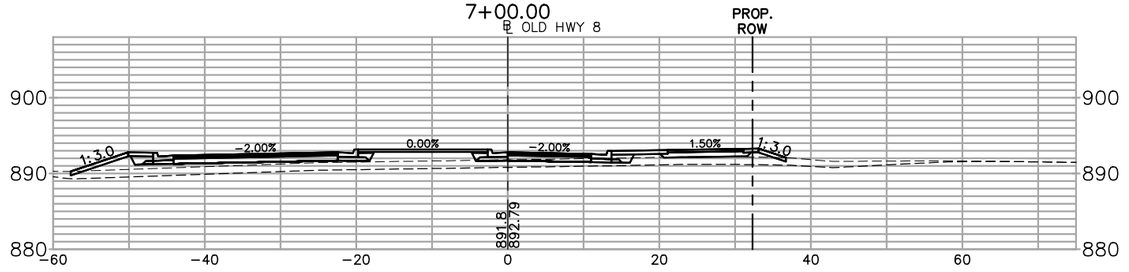
COUNTY PROJECT	
S.A.P.	062-593-006
S.A.P.	
S.P.	

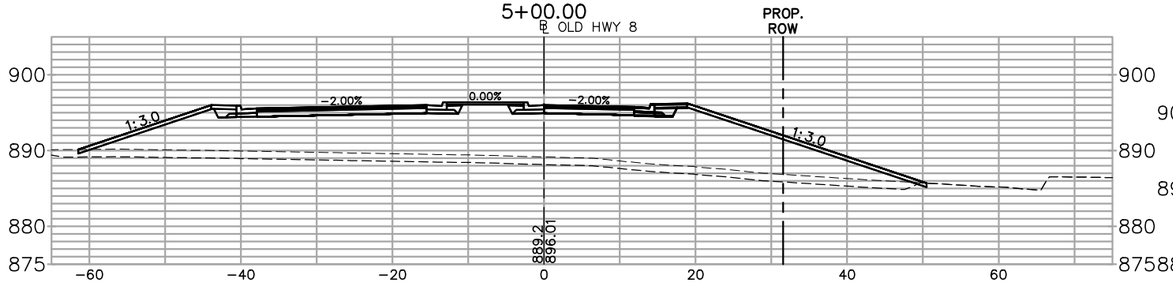
SHEET NO. 106 / 115

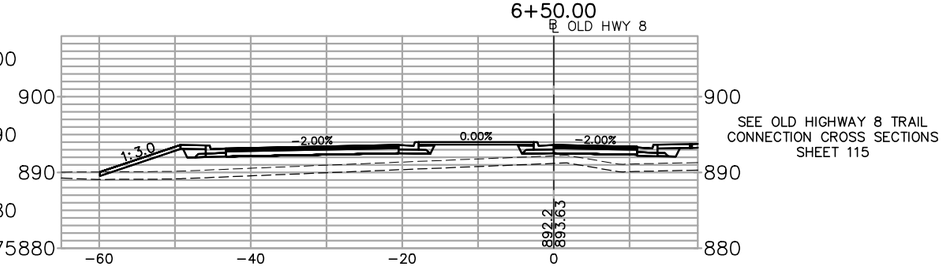




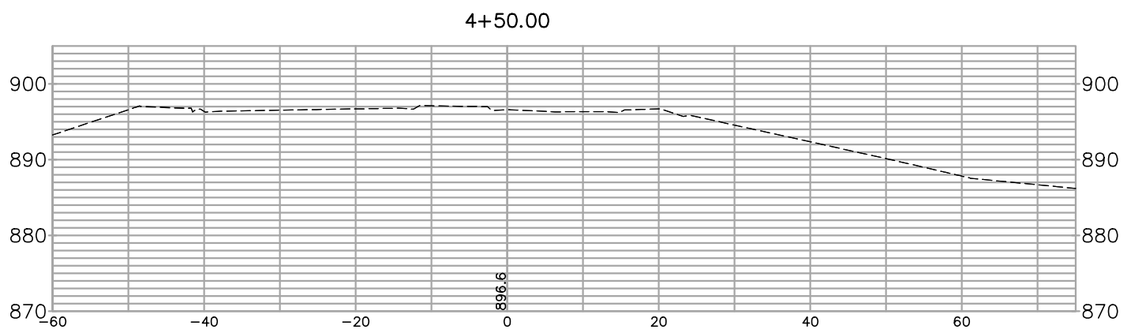


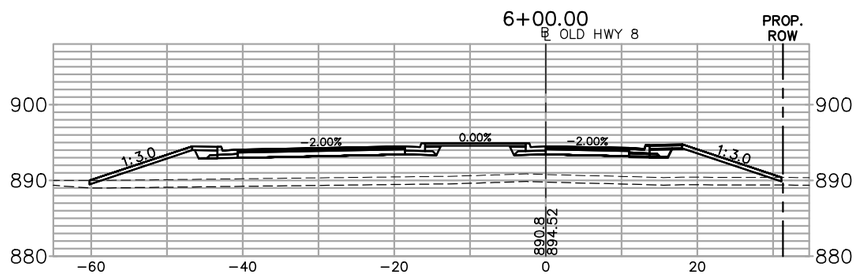


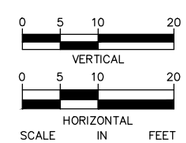




SEE OLD HIGHWAY 8 TRAIL CONNECTION CROSS SECTIONS SHEET 115







No.	Date	Revisions	App.

DRAWING NAME	TCAAP_THUMB_STH_XSEC.dwg
DESIGNED BY:	RJG
DRAWN BY:	RJG
CHECKED BY:	CBL
DATE:	4/20/17
PROJECT NO.	160553004

Kimley»Horn
2550 UNIVERSITY AVENUE WEST, SUITE 238N, ST, PAUL, MN 55114
PHONE: 651-645-4197
WWW.KIMLEY-HORN.COM

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CHADD B. LARSON

DATE: 4/20/17 MN LIC. NO. 41864

RAMSEY COUNTY

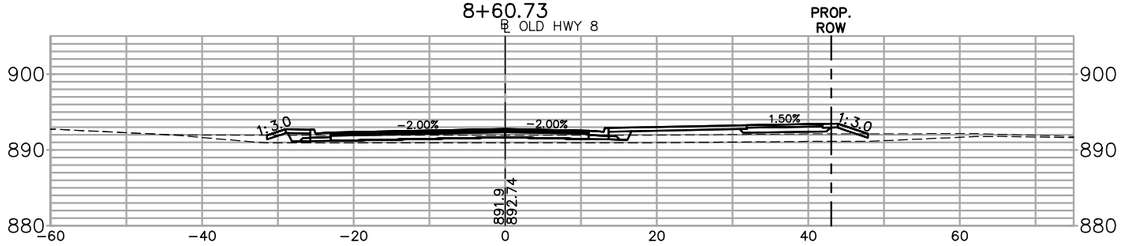
OLD HIGHWAY 8 EXTENSION
CONSTRUCTION PROJECT

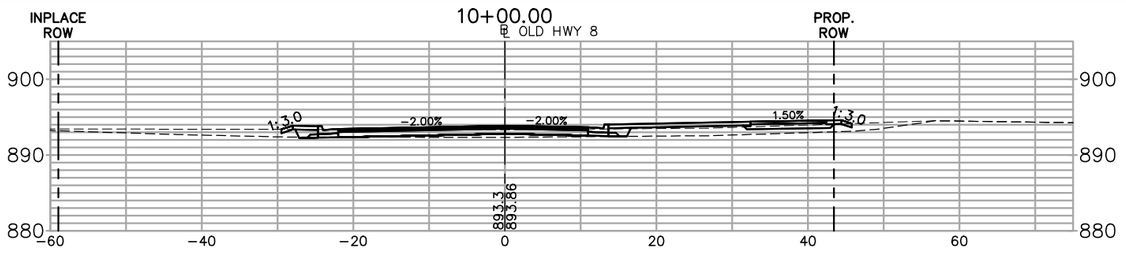
OLD HIGHWAY 8
CROSS SECTION
STA. 4+50 TO STA. 7+40.90

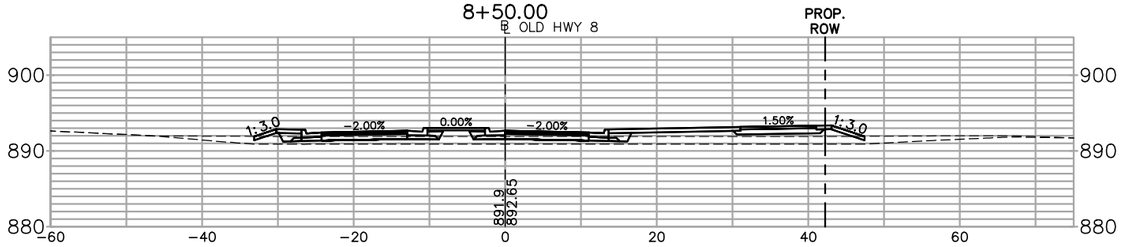
COUNTY PROJECT	
S.A.P.	062-593-006
S.A.P.	
S.P.	

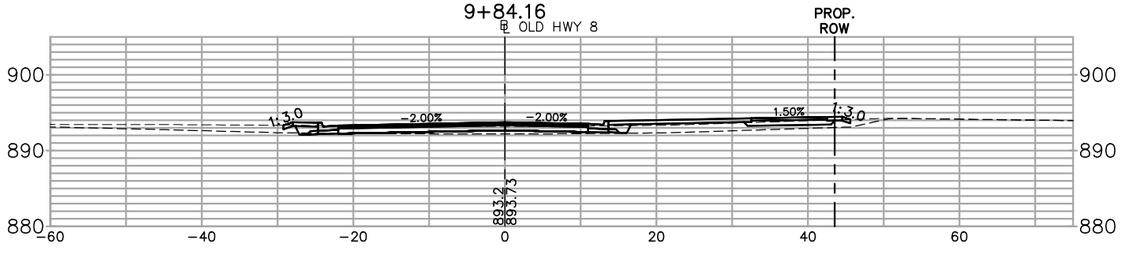
SHEET NO. 107 / 115

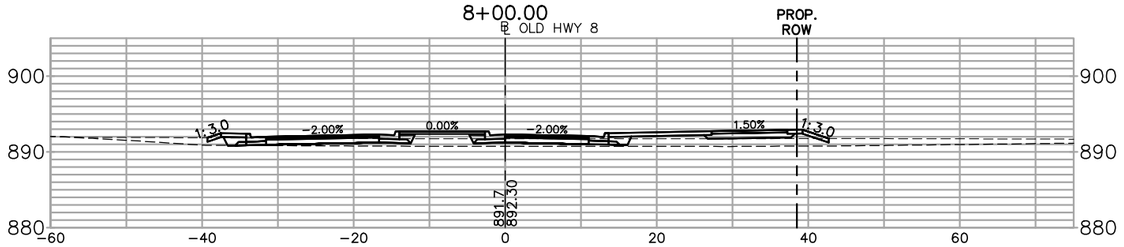
K:\TWC_Civil\County\RAMSEY\TCAAP Thumb Rd\CAD\Plan Sheets\Construction Plans\South\TCAAP_THUMB_STH_XSEC.dwg April 25, 2017 - 10:26pm

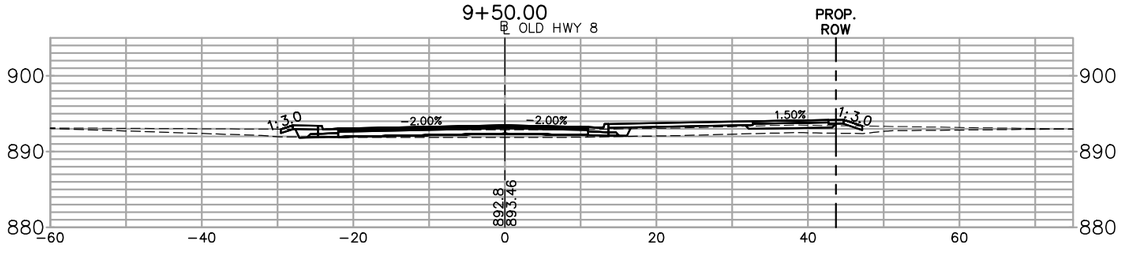


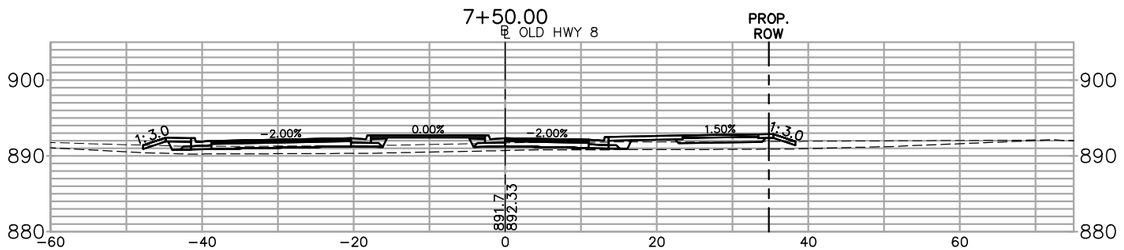


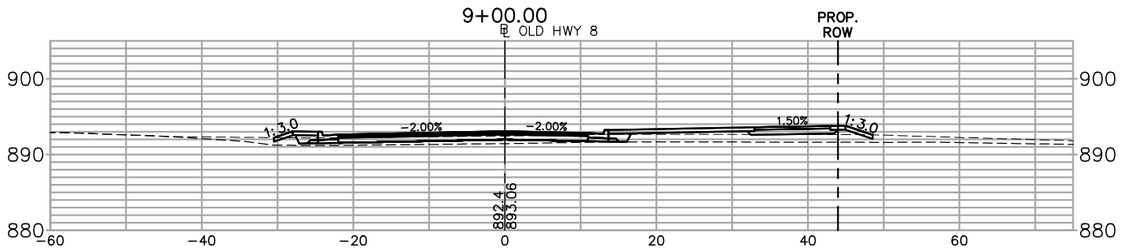


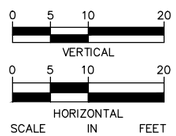












K:\TWC_Civil\County\RAMSEY\TCAAP Thumb Rd\CAD\Plan Sheets\Construction Plans\South\TCAAP_THUMB_STH_XSEC.dwg April 25, 2017 - 10:26pm

No.	Date	Revisions	App.

DRAWING NAME	TCAAP_THUMB_STH_XSEC.dwg
DESIGNED BY:	RJG
DRAWN BY:	RJG
CHECKED BY:	CBL
DATE:	4/20/17
PROJECT NO.	160553004

Kimley»Horn
2550 UNIVERSITY AVENUE WEST, SUITE 238N, ST, PAUL, MN 55114
PHONE: 651-645-4197
WWW.KIMLEY-HORN.COM

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

CHADD B. LARSON

DATE: 4/20/17 MN LIC. NO. 41864

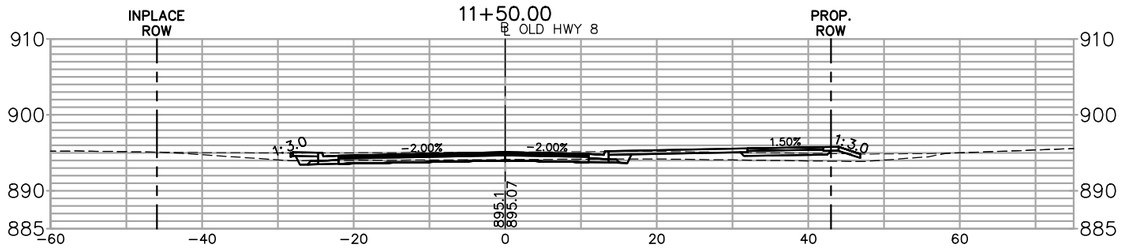
RAMSEY COUNTY

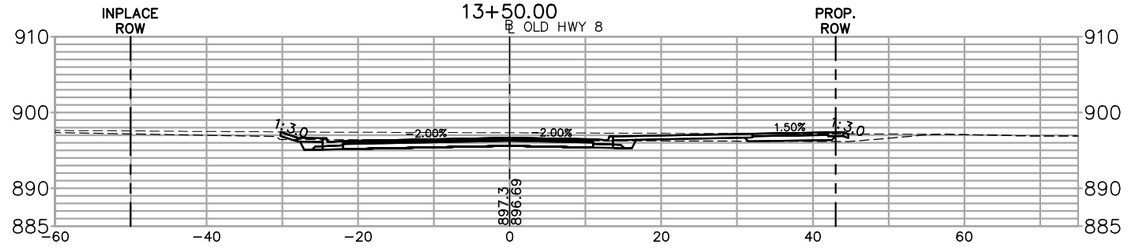
OLD HIGHWAY 8 EXTENSION
CONSTRUCTION PROJECT

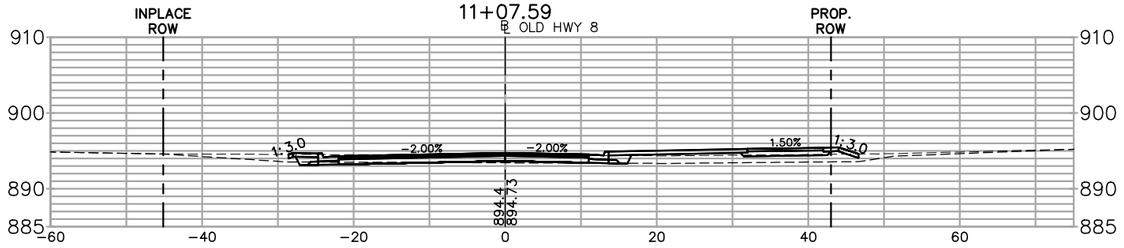
OLD HIGHWAY 8
CROSS SECTION
STA. 7+50 TO STA. 10+00

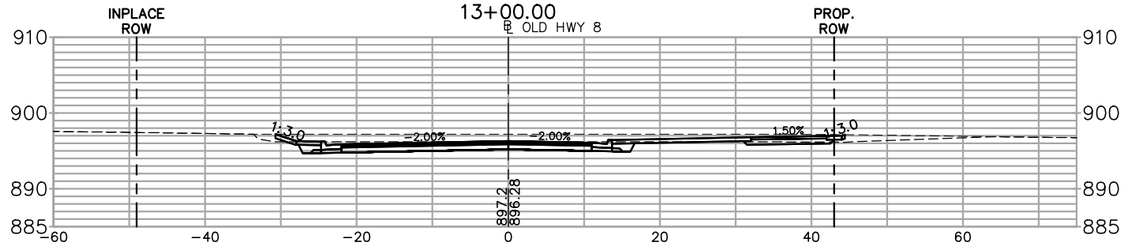
COUNTY PROJECT	
S.A.P.	062-593-006
S.A.P.	
S.P.	

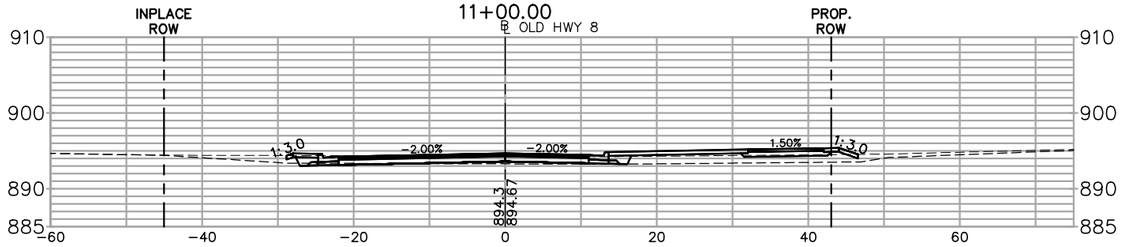
SHEET NO. 108 / 115

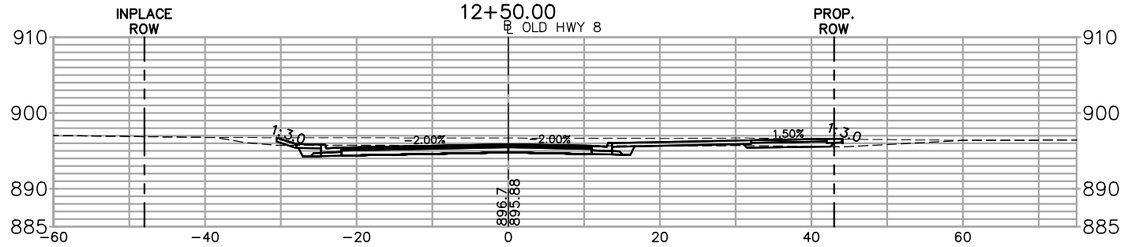


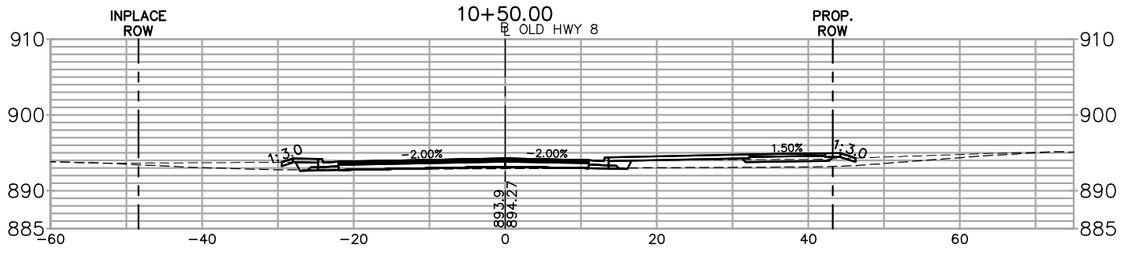


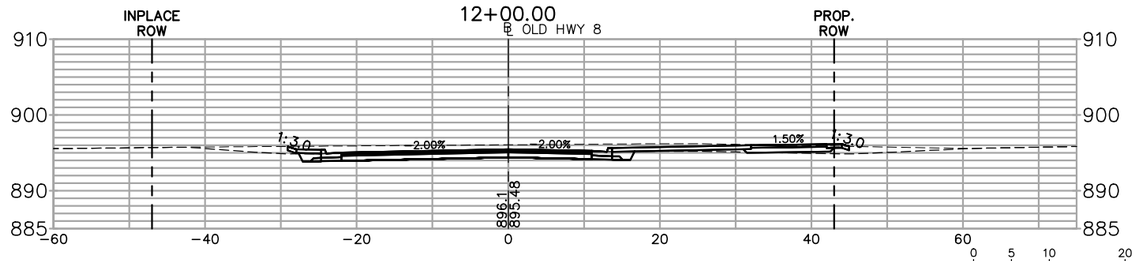


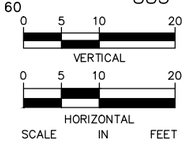












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No.	Date	Revisions	App.

DRAWING NAME	TCAAP_THUMB_STH_XSEC.dwg
DESIGNED BY:	RJG
DRAWN BY:	RJG
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DATE:	4/20/17
PROJECT NO.	160553004

Kimley»Horn
2550 UNIVERSITY AVENUE WEST, SUITE 238N, ST, PAUL, MN 55114
PHONE: 651-645-4197
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CHADD B. LARSON

DATE: 4/20/17 MN LIC. NO. 41864

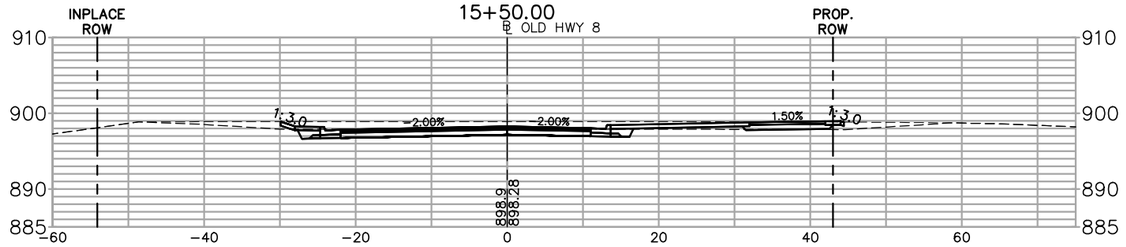
RAMSEY COUNTY

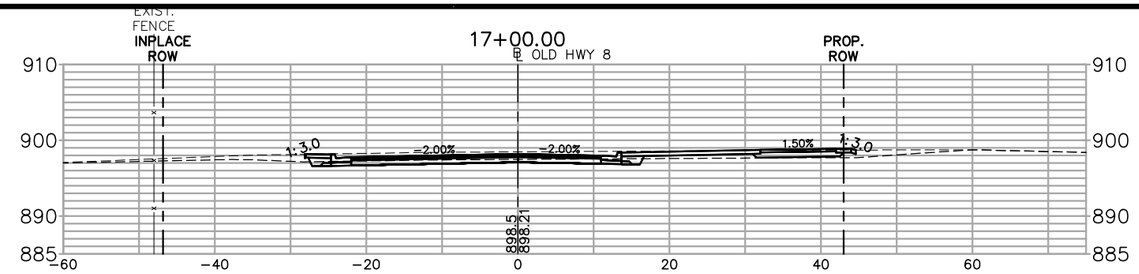
OLD HIGHWAY 8 EXTENSION
CONSTRUCTION PROJECT

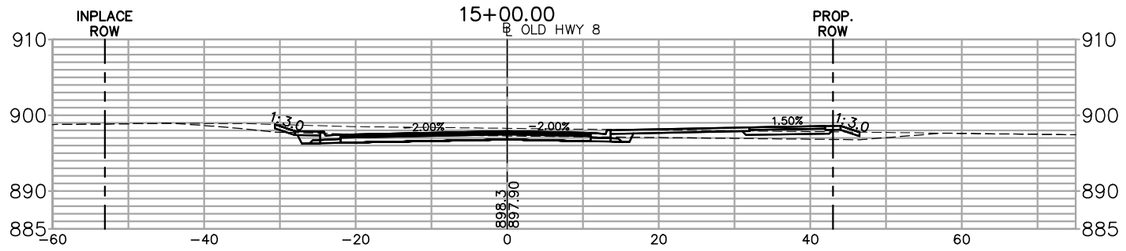
OLD HIGHWAY 8
CROSS SECTION
STA. 10+50 TO STA. 13+50

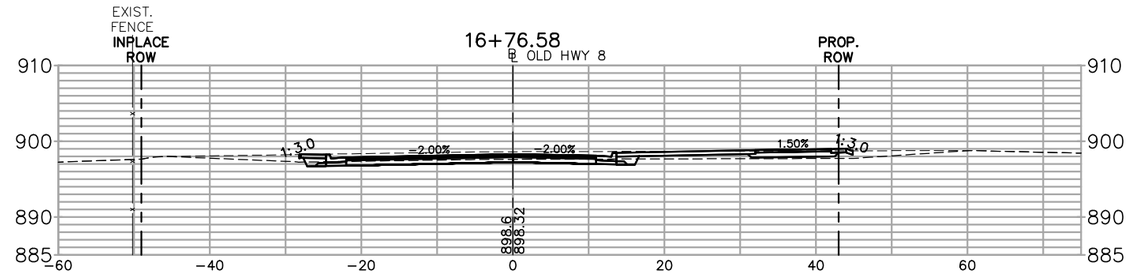
COUNTY PROJECT	
S.A.P.	062-593-006
S.A.P.	
S.P.	

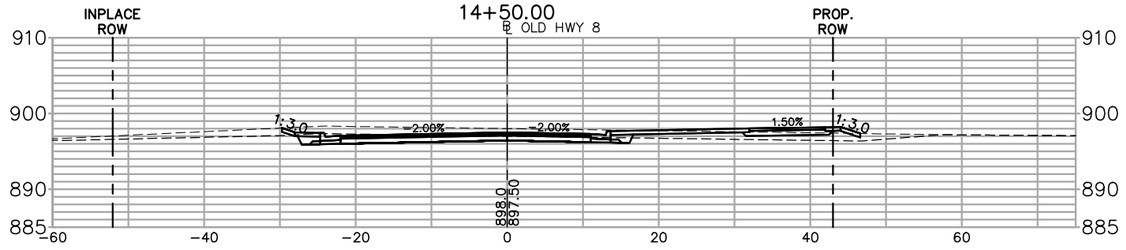
SHEET NO. 109 / 115

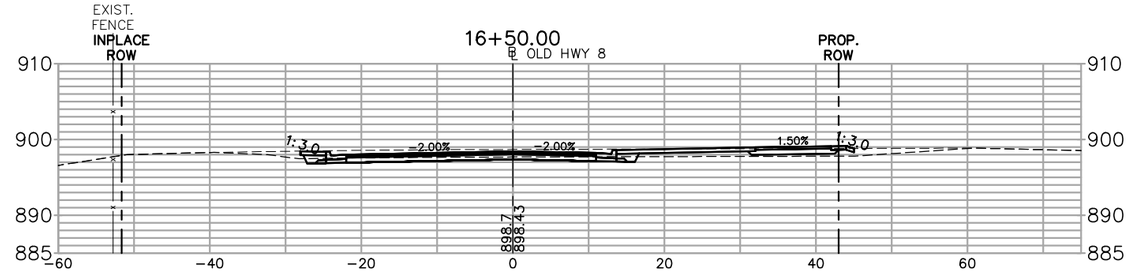


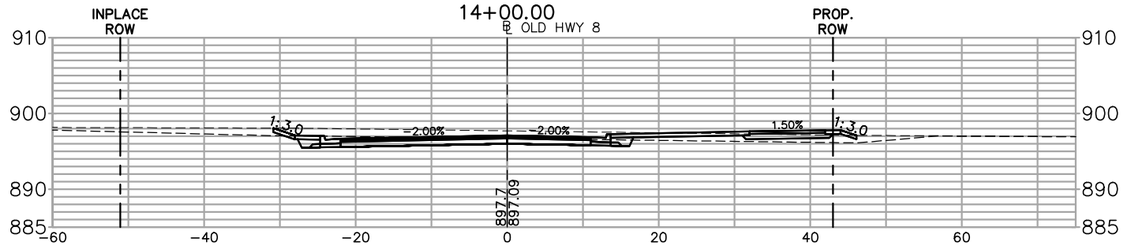


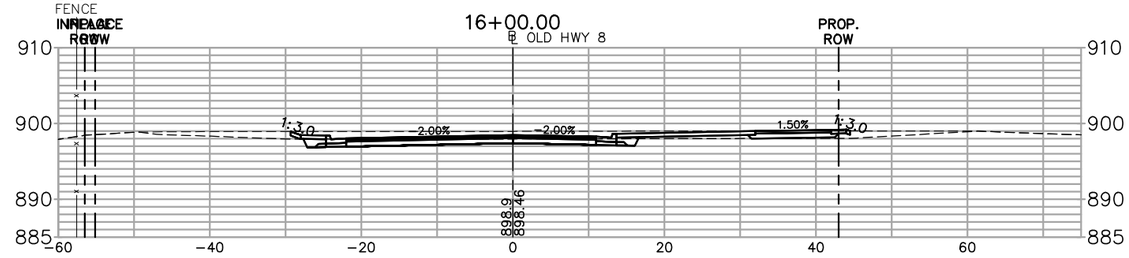


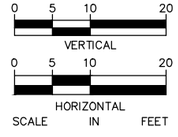












K:\TWC_Civil\County\RAMSEY\TCAAP Thumb Rd\CAD\Plan Sheets\Construction Plans\South\TCAAP_THUMB_STH_XSEC.dwg April 25, 2017 - 10:27pm

No.	Date	Revisions	App.

DRAWING NAME	TCAAP_THUMB_STH_XSEC.dwg
DESIGNED BY:	RJG
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CHECKED BY:	CBL
DATE:	4/20/17
PROJECT NO.	160553004

Kimley»Horn
2550 UNIVERSITY AVENUE WEST, SUITE 238N, ST, PAUL, MN 55114
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CHADD B. LARSON

DATE: 4/20/17 MN LIC. NO. 41864

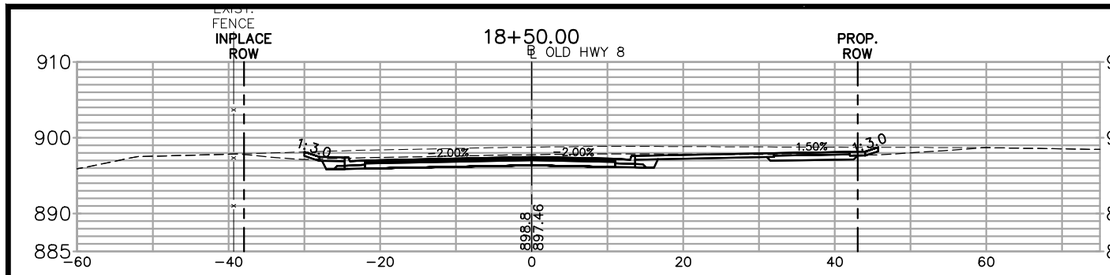
RAMSEY COUNTY

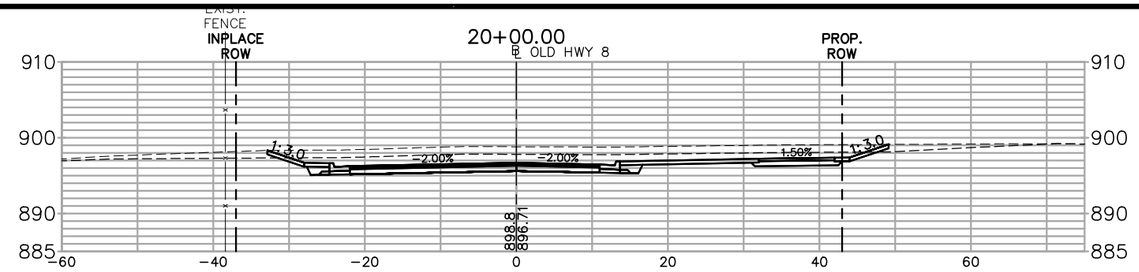
OLD HIGHWAY 8 EXTENSION
CONSTRUCTION PROJECT

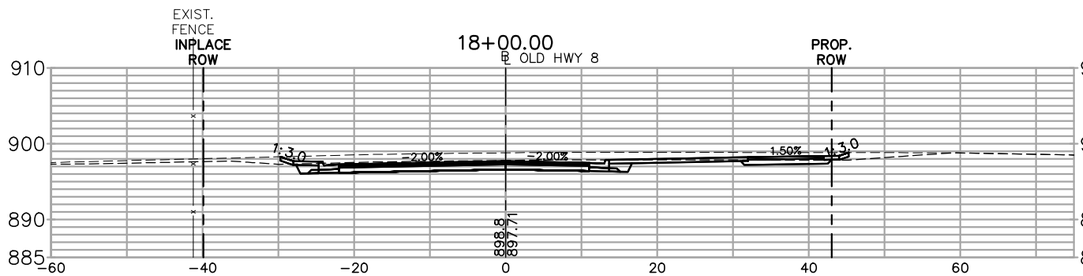
OLD HIGHWAY 8
CROSS SECTION
STA. 14+00 TO STA. 17+00

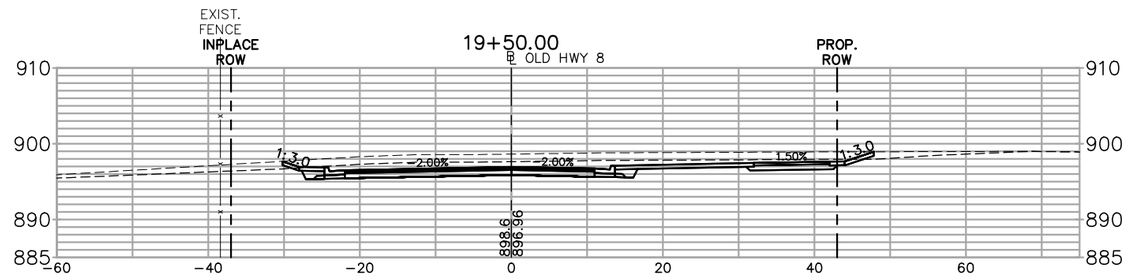
COUNTY PROJECT	
S.A.P.	062-593-006
S.A.P.	
S.P.	

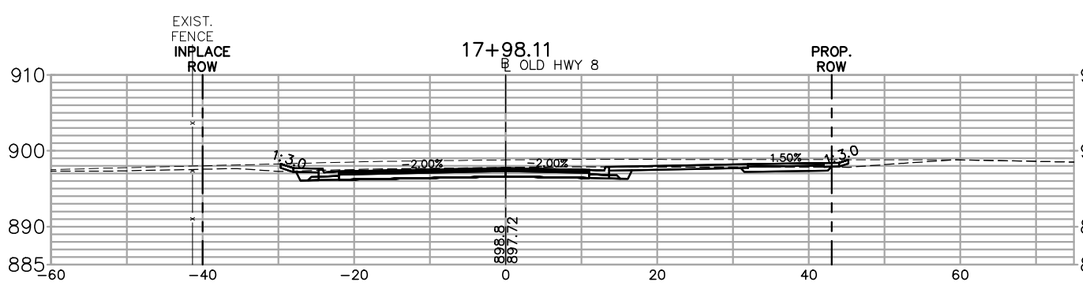
SHEET NO. 110 / 115

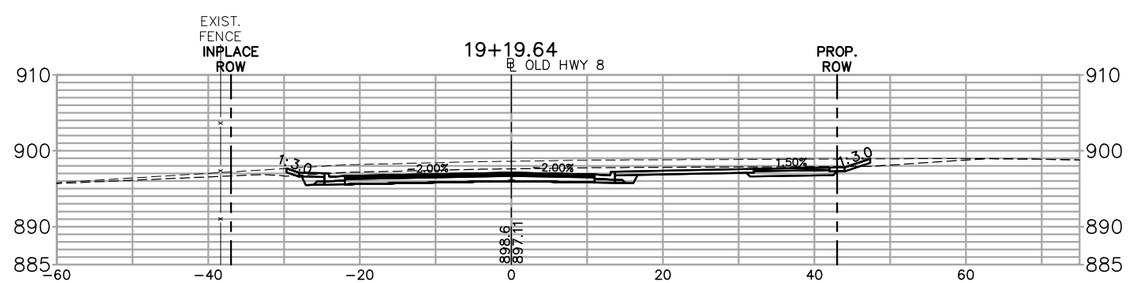


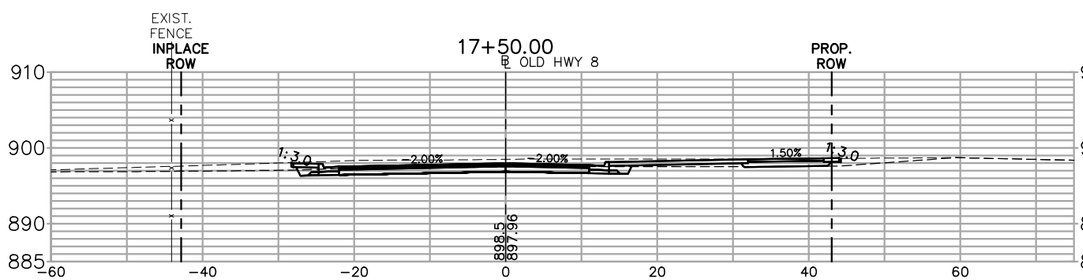


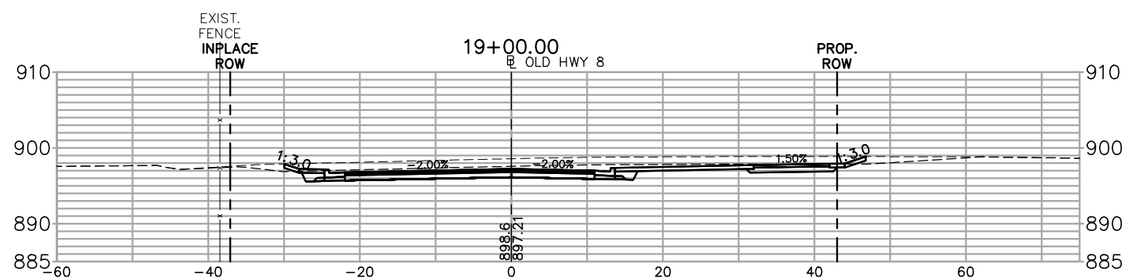


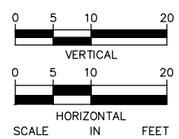












K:\TWC_Civil\County\RAMSEY\TCAAP Thumb Rd\CAD\Plan Sheets\Construction Plans\South\TCAAP_THUMB_STH_XSEC.dwg April 25, 2017 - 10:27pm

No.	Date	Revisions	App.

DRAWING NAME	TCAAP_THUMB_STH_XSEC.dwg
DESIGNED BY:	RJG
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PROJECT NO.	160553004

Kimley»Horn
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CHADD B. LARSON

DATE: 4/20/17 MN LIC. NO. 41864

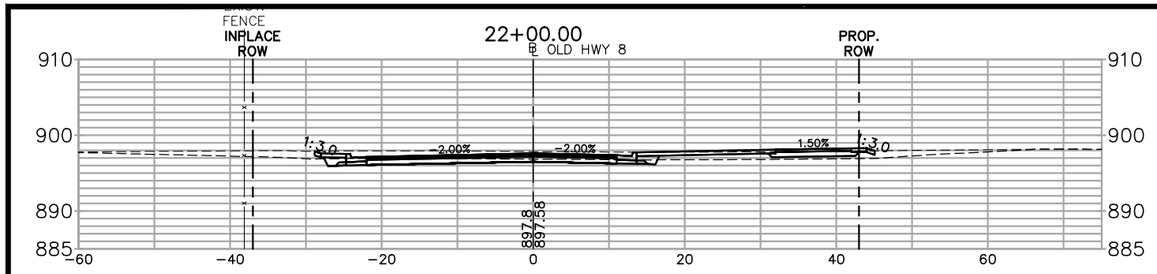
RAMSEY COUNTY

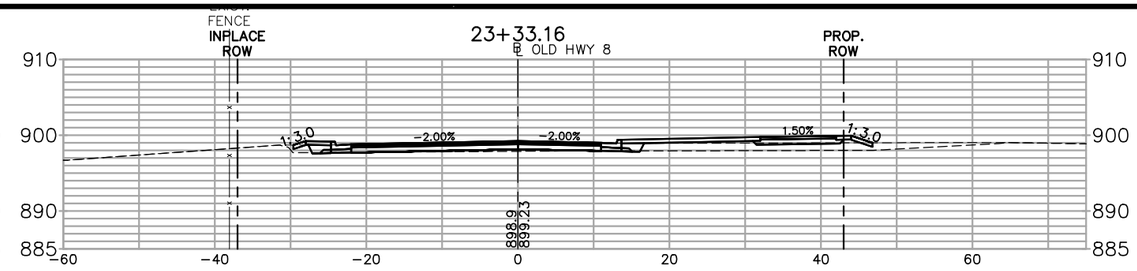
OLD HIGHWAY 8 EXTENSION
CONSTRUCTION PROJECT

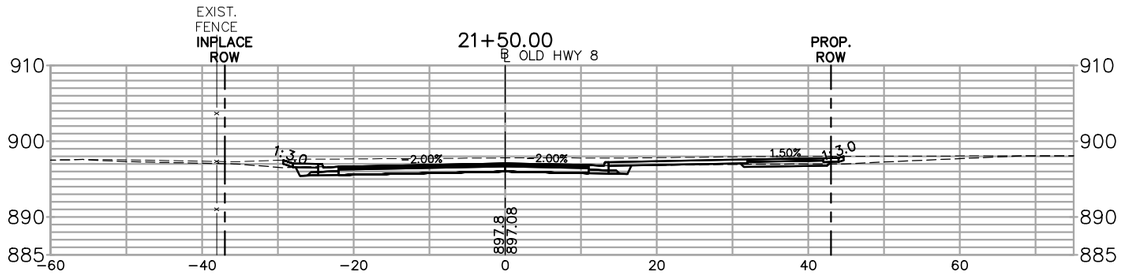
OLD HIGHWAY 8
CROSS SECTION
STA. 17+50 TO STA. 20+00

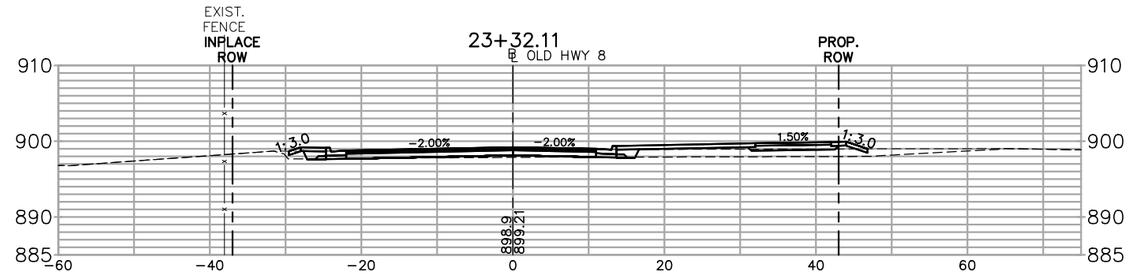
COUNTY PROJECT	
S.A.P.	062-593-006
S.A.P.	
S.P.	

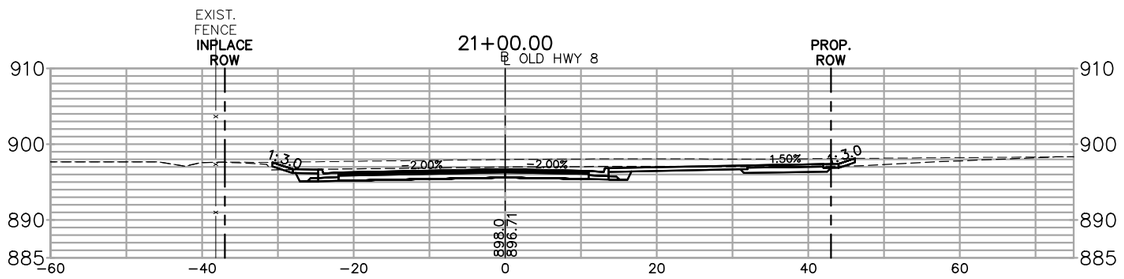
SHEET NO. 111 / 115

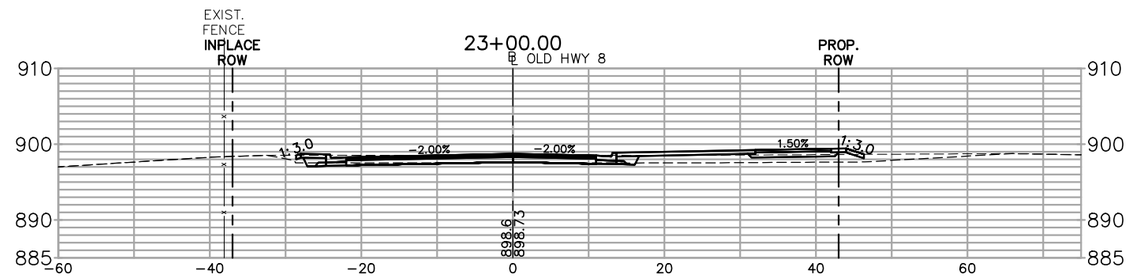


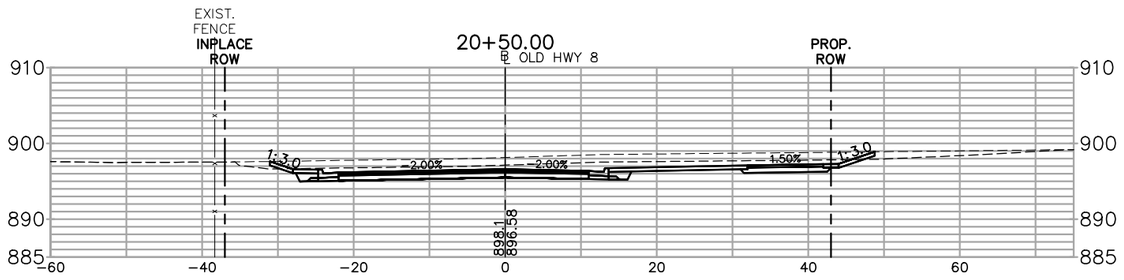


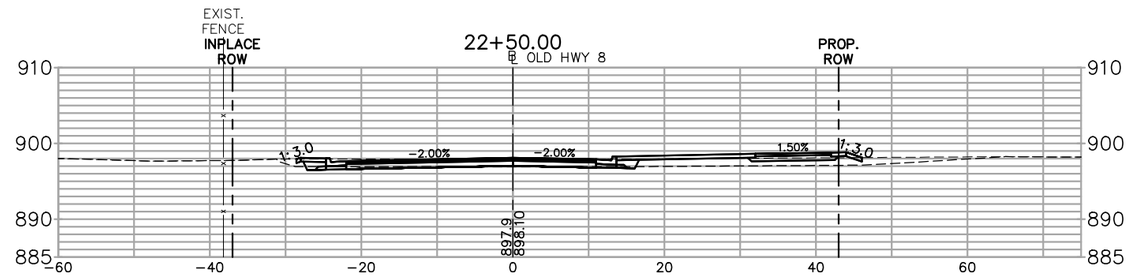


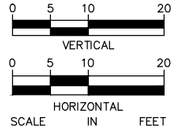












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DESIGNED BY:	RJG
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CHADD B. LARSON

DATE: 4/20/17 MN LIC. NO. 41864

RAMSEY COUNTY

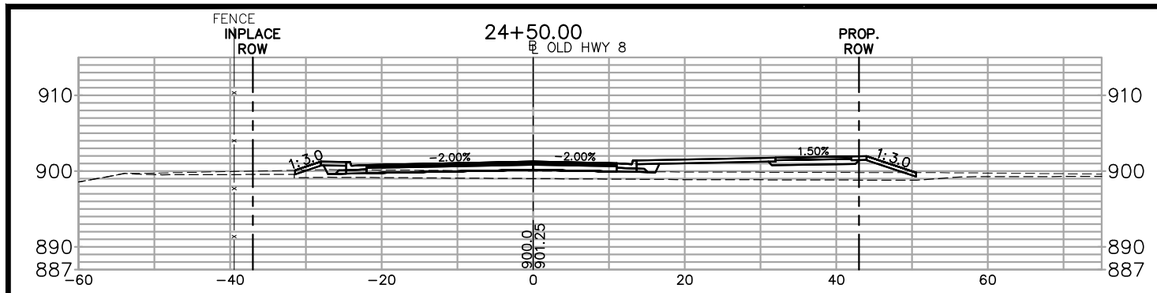
OLD HIGHWAY 8 EXTENSION
CONSTRUCTION PROJECT

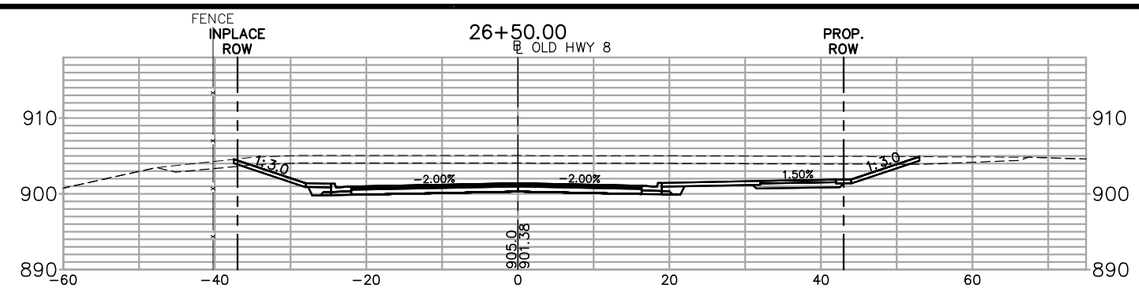
OLD HIGHWAY 8
CROSS SECTION
STA. 20+50 TO STA. 23+33.16

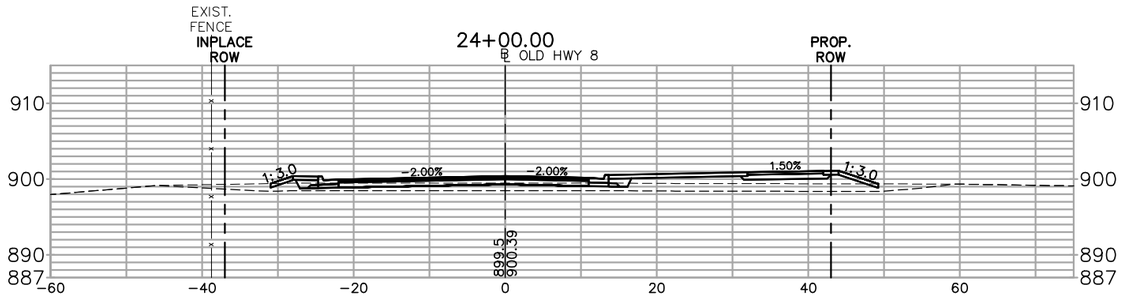
COUNTY PROJECT	
S.A.P.	062-593-006
S.A.P.	
S.P.	

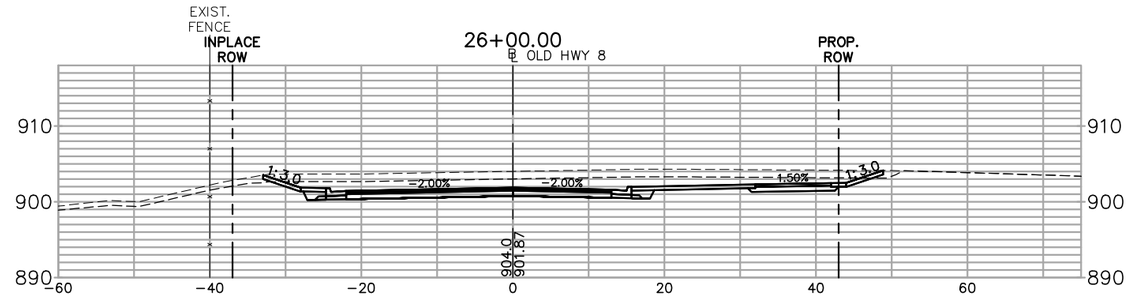
SHEET NO. 112 / 115

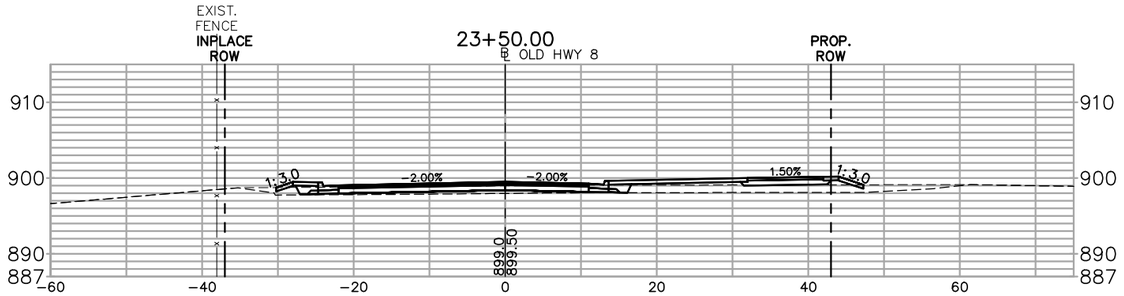
K:\TWC_Civil\County\RAMSEY\TCAAP Thumb Rd\CAD\Plan Sheets\Construction Plans\South\TCAAP_THUMB_STH_XSEC.dwg April 25, 2017 - 10:27pm

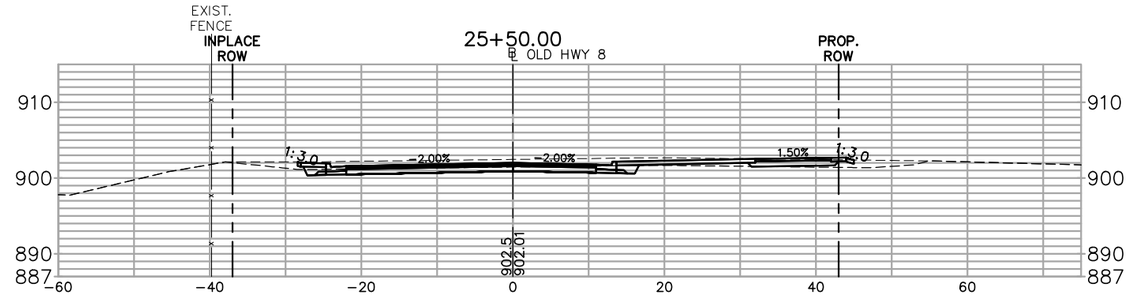


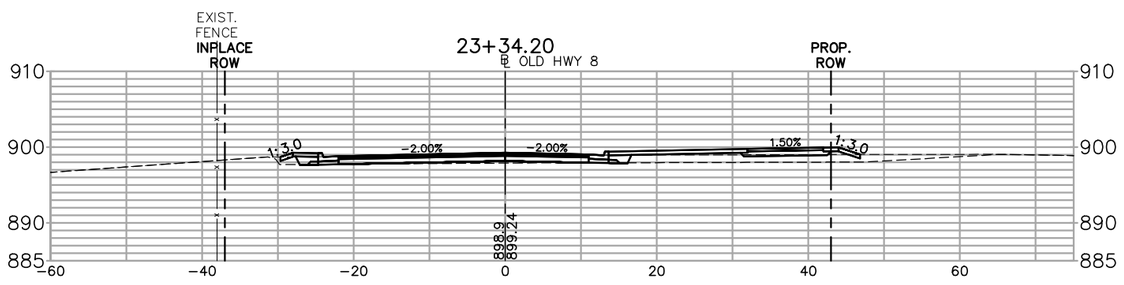


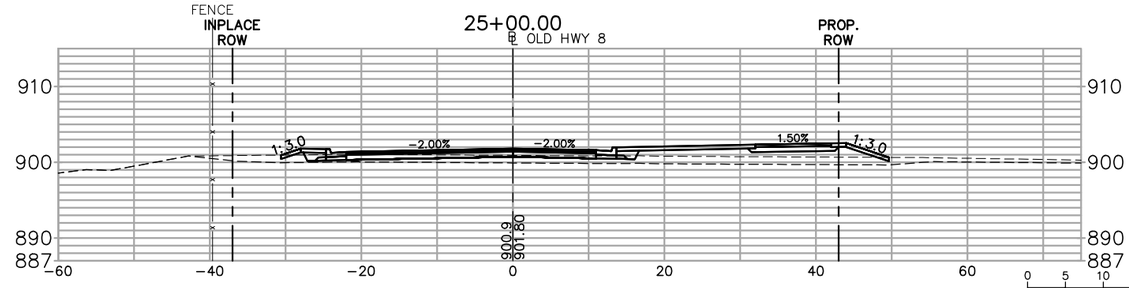


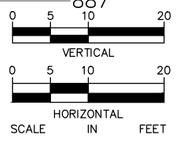












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No.	Date	Revisions	App.

DRAWING NAME	TCAAP_THUMB_STH_XSEC.dwg
DESIGNED BY:	RJG
DRAWN BY:	RJG
CHECKED BY:	CBL
DATE:	4/20/17
PROJECT NO.	160553004

Kimley»Horn
2550 UNIVERSITY AVENUE WEST, SUITE 238N, ST, PAUL, MN 55114
PHONE: 651-645-4197
WWW.KIMLEY-HORN.COM

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

CHADD B. LARSON

DATE: 4/20/17 MN LIC. NO. 41864

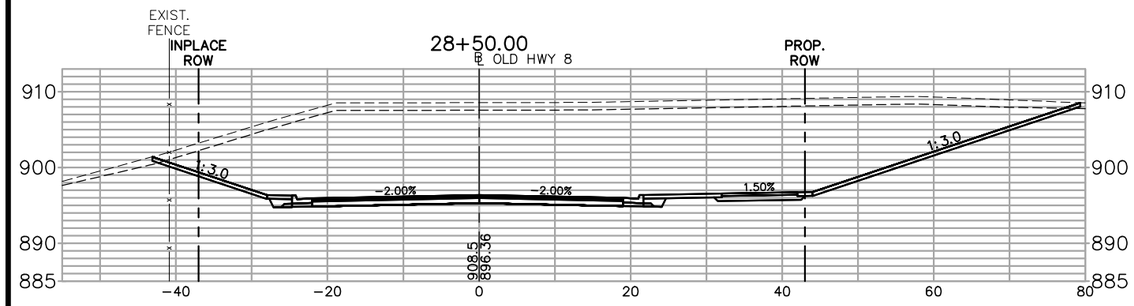
RAMSEY COUNTY

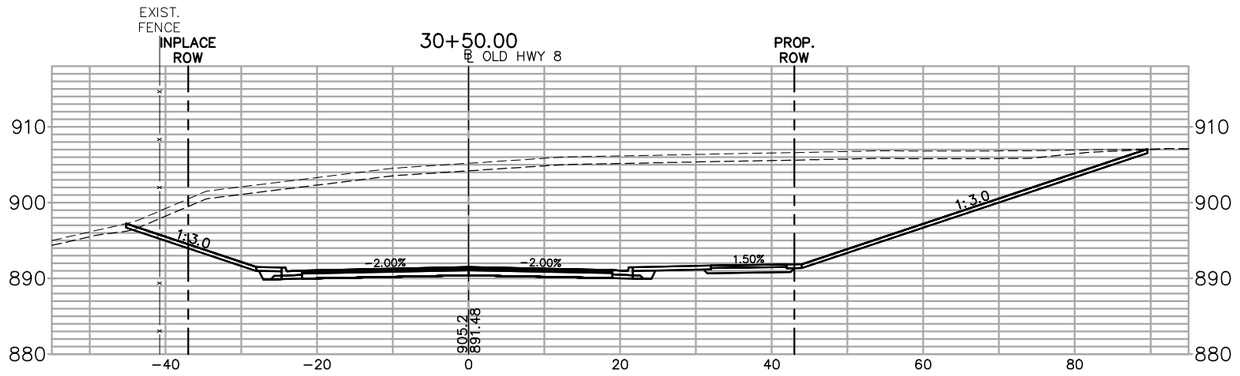
OLD HIGHWAY 8 EXTENSION
CONSTRUCTION PROJECT

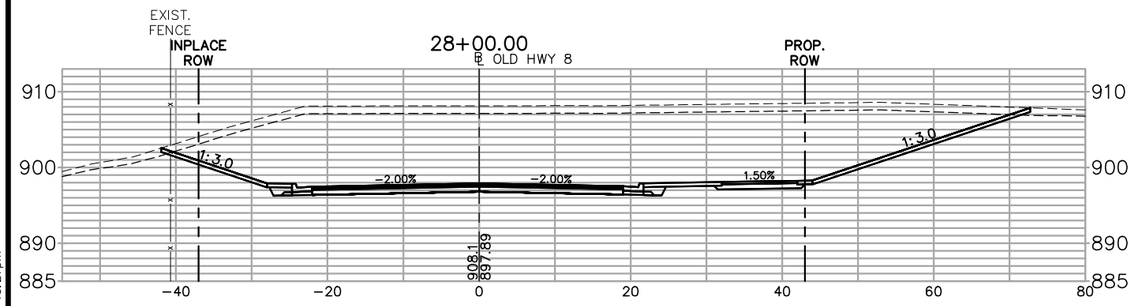
OLD HIGHWAY 8
CROSS SECTION
STA. 23+34.20 TO STA. 26+50

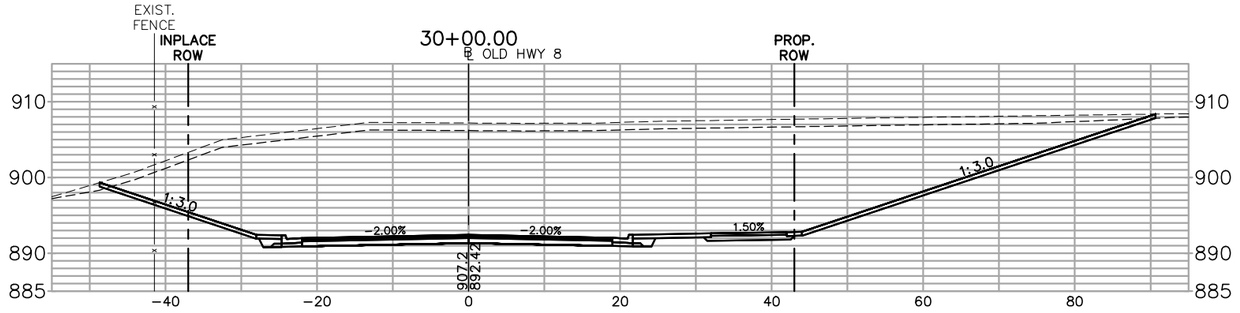
COUNTY PROJECT	
S.A.P.	062-593-006
S.A.P.	
S.P.	

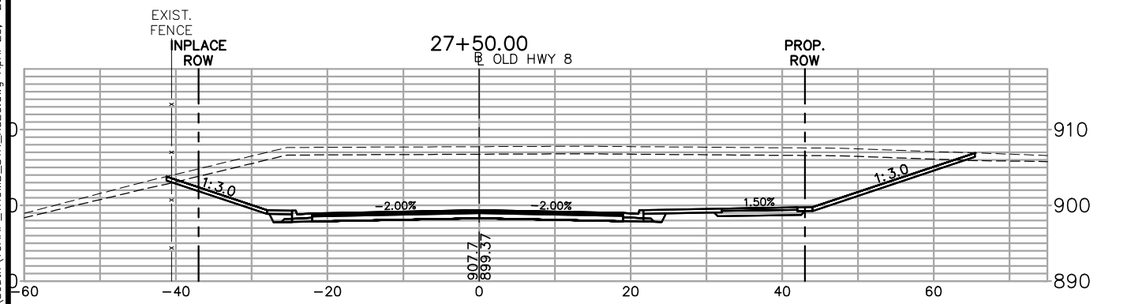
SHEET NO. 113 / 115

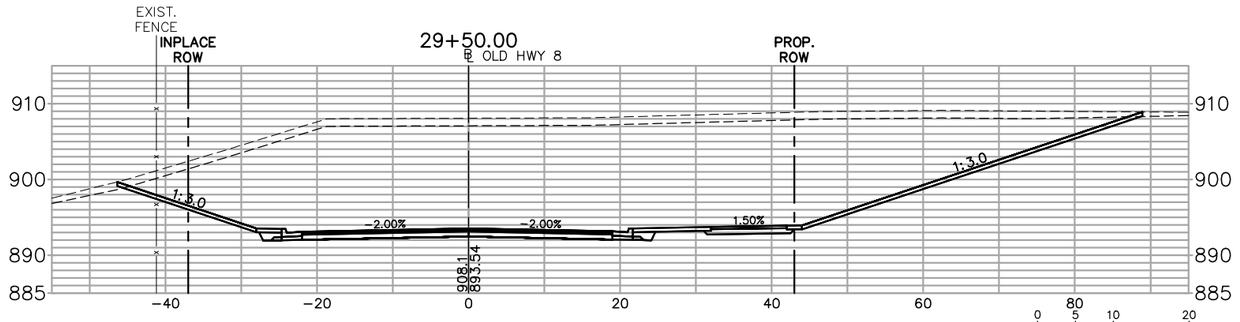


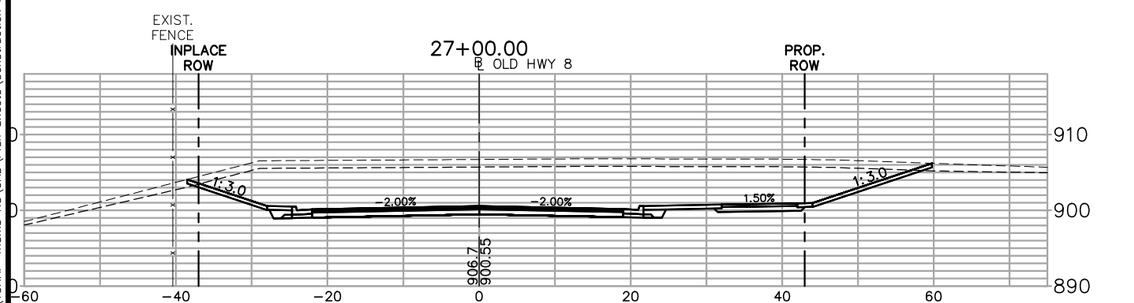


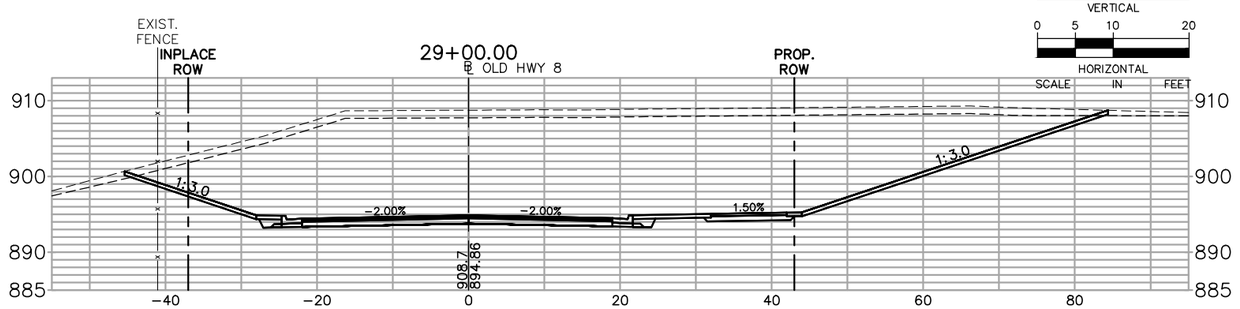












No.	Date	Revisions	App.

DRAWING NAME	TCAAP_THUMB_STH_XSEC.dwg
DESIGNED BY:	RJG
DRAWN BY:	RJG
CHECKED BY:	CBL
DATE:	4/20/17
PROJECT NO.	160553004

Kimley»Horn
2550 UNIVERSITY AVENUE WEST, SUITE 238N, ST, PAUL, MN 55114
PHONE: 651-645-4197
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CHADD B. LARSON

DATE: 4/20/17 MN LIC. NO. 41864

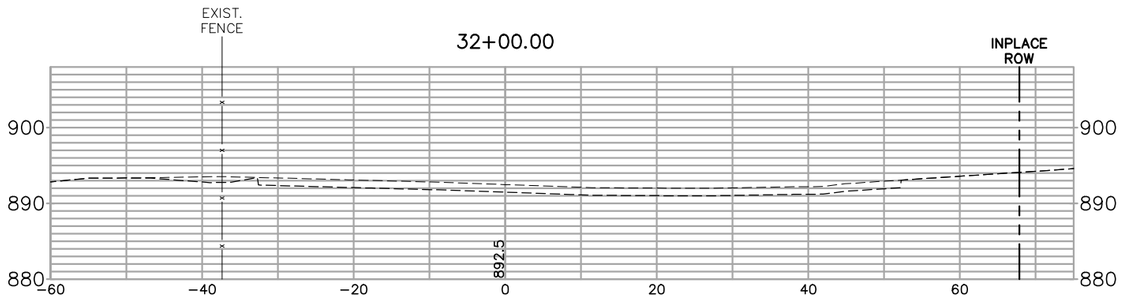
RAMSEY COUNTY

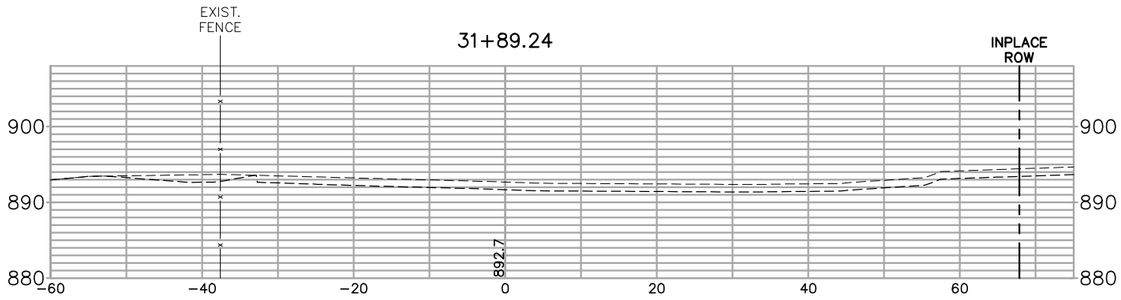
OLD HIGHWAY 8 EXTENSION
CONSTRUCTION PROJECT

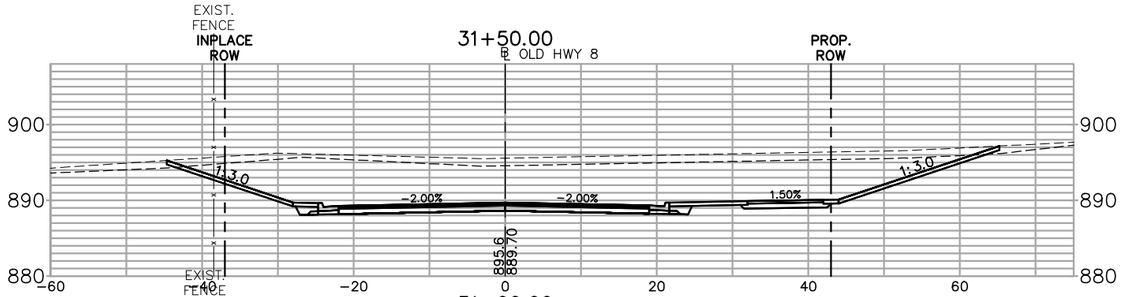
OLD HIGHWAY 8
CROSS SECTION
STA. 27+00 TO STA. 30+50

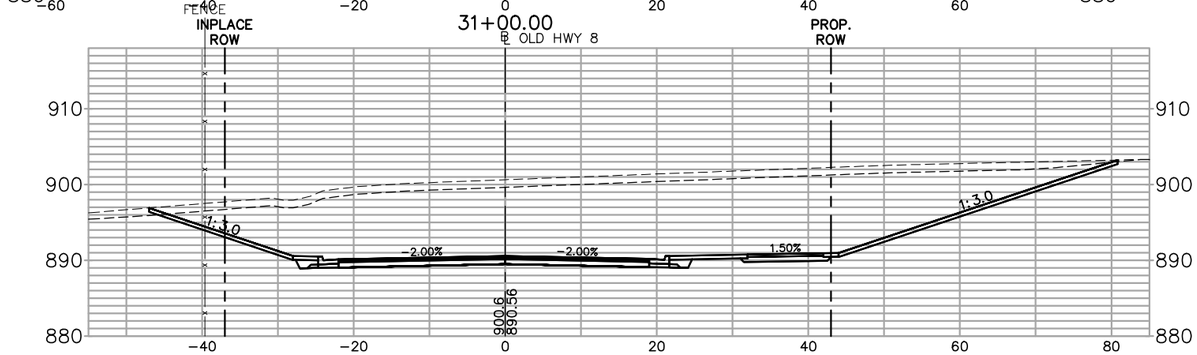
COUNTY PROJECT	
S.A.P.	062-593-006
S.A.P.	
S.P.	

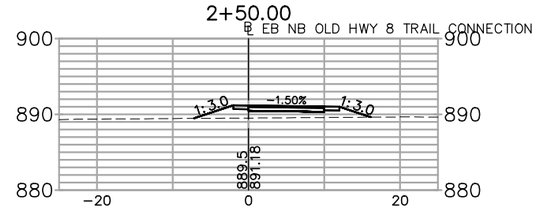
SHEET NO. 114 / 115

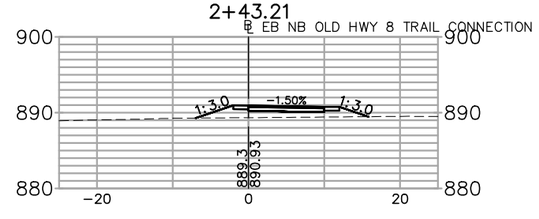


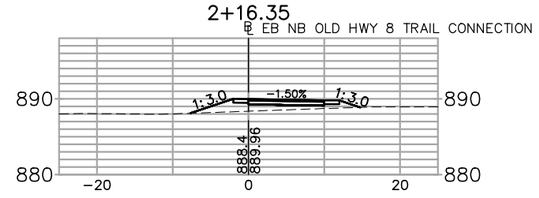


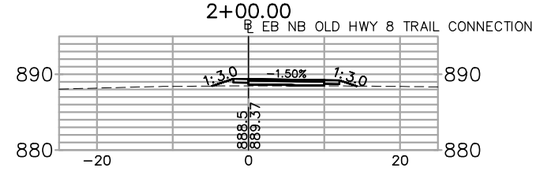


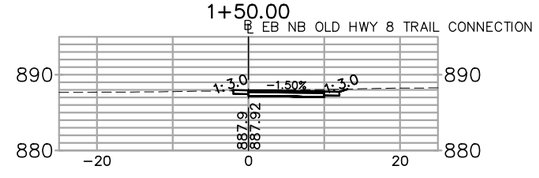


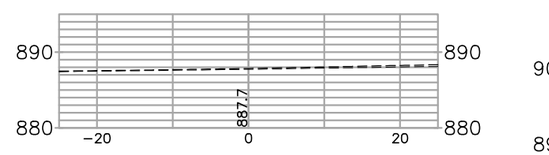


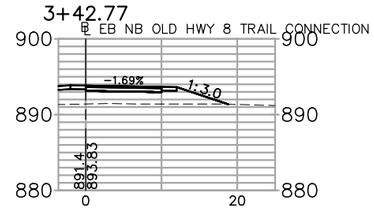


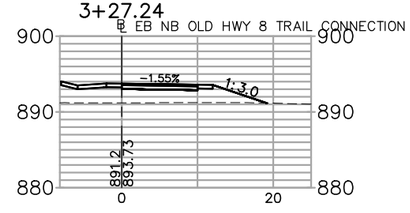


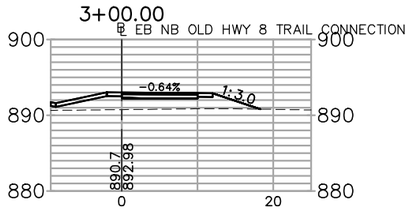


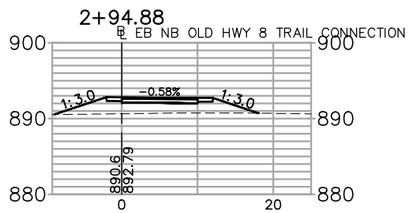


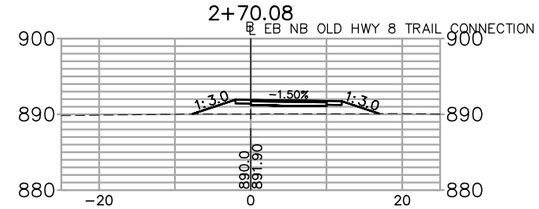


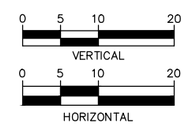












K:\TWC_Civil\County\RAMSEY\TCAAP Thumb Rd\CAD\Plan Sheets\Construction Plans\South\TCAAP_THUMB_STH_XSEC.dwg April 25, 2017 - 10:27pm

No.	Date	Revisions	App.

DRAWING NAME	TCAAP_THUMB_STH_XSEC.dwg
DESIGNED BY:	RJG
DRAWN BY:	RJG
CHECKED BY:	CBL
DATE:	4/20/17
PROJECT NO.	160553004

Kimley»Horn
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CHADD B. LARSON

DATE: 4/20/17 MN LIC. NO. 41864

RAMSEY COUNTY

OLD HIGHWAY 8 EXTENSION
CONSTRUCTION PROJECT

OLD HIGHWAY 8
CROSS SECTION
STA. 31+00 TO STA. 32+00

COUNTY PROJECT	
S.A.P.	062-593-006
S.A.P.	
S.P.	

SHEET NO. 115 / 115

COUNTY ROAD H

OLD HIGHWAY 8

I-35W OFF RAMP

RICE CREEK

RICE CREEK
10-YR WSL = 874.8

EXISTING
WATERMAIN
CASING

01URC1S

01URC1D

01URC2S

01URC2D

OLD HIGHWAY 8
PROPOSED
WATERMAIN

DEWATERING
PIPE TO
SAN. MH

DEWATERING
SPECIAL

CONSTRUCTION
LIMITS OF
PROPOSED
WATERMAIN

SITE K
PLUME

BUILDING 102
PLUME

01U048 01U065 01U601 01U603 01U604 01U607 01U608 01U610 01U611 01U612 01U613 01U616 01U617 01U618 01U619 01U620 01U621 01U622 01U623 01U628C 01U628B 01U627D 01U627B 01U627C 01U627A 01U628A 01U628D 01U628E 01U628F 01U624A 01U624B 01U624C 01U624D 01U625A 01U625B 01U625C 01U625D 03U621 03U075 03U076 01U583 01L583 01U584 01L584 01U585 01L585 01U586 01L586 01U587 01L587 01U588 01L588 01U589 01L589 01U590 01L590

Kimley»Horn
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RAMSEY COUNTY

NORTH
0 30 60
SCALE IN FEET

OLD HIGHWAY 8 EXTENSION
BUILDING 102 PLUME
DEWATERING SPECIAL

K:\TMC_Civil\County\RAMSEY\TCAAP Thumb Rd\CAD\Plan Sheets\Exhibits\TCAAP_ThumbRdHg 102 Plume Pwatr Exhibit.dwg May 11, 2017 1:44 PM