MINNESOTA DEPARTMENT OF TRANSPORTATION
ANOKA COUNTY

CONSTRUCTION PLAN FOR GRADING, ADA IMPROVEMENTS, SIGNALS, BITUMINOUS SURFACING, AND STORM SEWER

LOCATED ON CSAH 1 FROM 500' WEST OF MISSISSIPPI BLVD TO 800' EAST OF MISSISSIPPI BLVD

LOCATED ON MISSISSIPPI BLVD FROM 750' SOUTH OF CSAH 1 TO 400' NORTH OF CSAH 1

DESIGN DESIGNATION

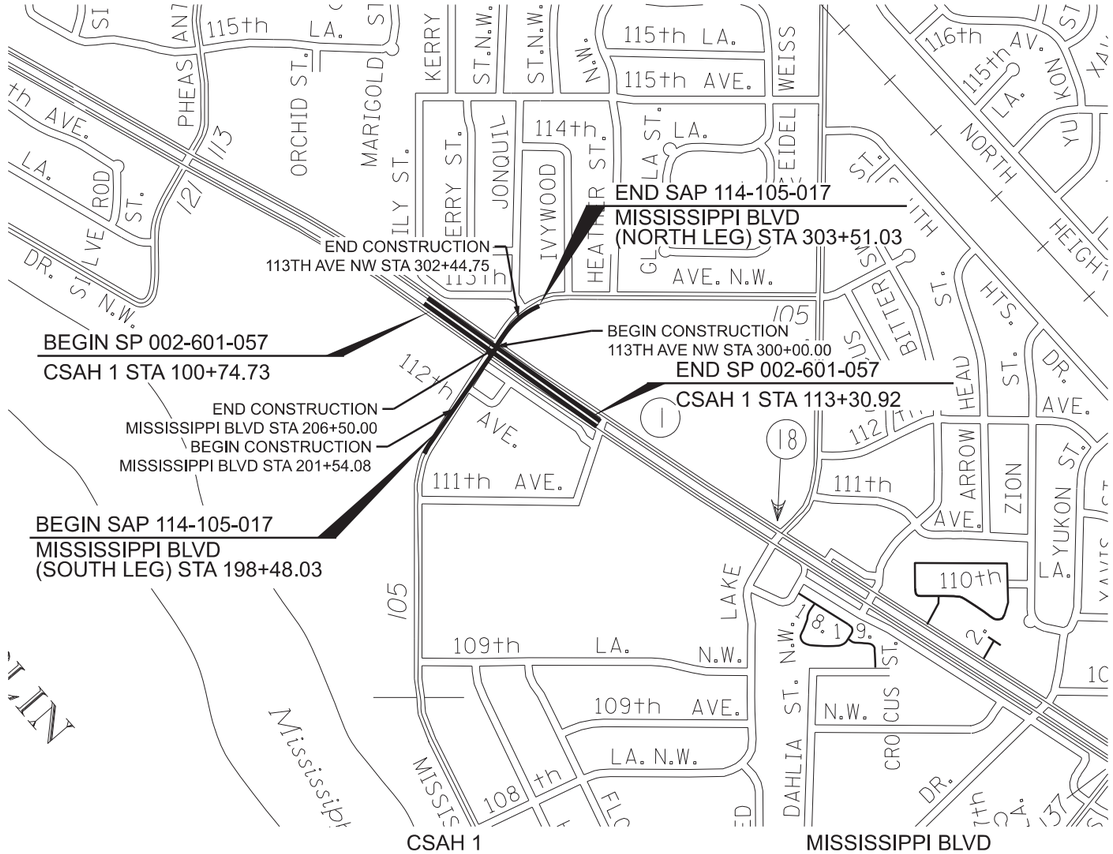
CSAH 1
SP 002-601-057

R VALUE	=	40
ADT (CURRENT YEAR) 2023	=	15,960
ADT (FUTURE YEAR) 2043	=	21,300
D (DIRECTIONAL DISTRIBUTION)	=	57%/43%
T (HEAVY COMMERCIAL)	=	4.1%
DESIGN ESALS (20 YR. BESALS)	=	3,308,000
DESIGN SPEED	=	50 MPH
BASED ON STOPPING SIGHT DISTANCE		
HEIGHT OF EYE	=	3.5 FT
HEIGHT OF OBJECT	=	2.0 FT
SHOULDER WIDTH	=	8-10 FT
FUNCTIONAL CLASS		MINOR ARTERIAL
NO. OF TRAFFIC LANES	=	4
NO. OF PARKING LANES	=	0
TON DESIGN	=	10

DESIGN DESIGNATION

MISSISSIPPI BLVD
(SOUTH LEG)
SAP 114-105-017

R VALUE	=	40
ADT (CURRENT YEAR) 2023	=	4,830
ADT (FUTURE YEAR) 2043	=	13,540
D (DIRECTIONAL DISTRIBUTION)	=	59%/41%
T (HEAVY COMMERCIAL)	=	5.0%
DESIGN ESALS (20 YR. BESALS)	=	1,422,000
DESIGN SPEED	=	30 MPH
BASED ON STOPPING SIGHT DISTANCE		
HEIGHT OF EYE	=	3.5 FT
HEIGHT OF OBJECT	=	2.0 FT
SHOULDER WIDTH	=	N/A
FUNCTIONAL CLASS		MAJOR COLLECTOR
NO. OF TRAFFIC LANES	=	2
NO. OF PARKING LANES	=	0
TON DESIGN	=	10



DESIGN DESIGNATION

MISSISSIPPI BLVD
(NORTH LEG)
SAP 114-105-017

R VALUE	=	40
ADT (CURRENT YEAR) 2023	=	2,650
ADT (FUTURE YEAR) 2043	=	2,890
D (DIRECTIONAL DISTRIBUTION)	=	50%
T (HEAVY COMMERCIAL)	=	54%/46%
DESIGN ESALS (20 YR. BESALS)	=	341,000
DESIGN SPEED	=	30 MPH
BASED ON STOPPING SIGHT DISTANCE		
HEIGHT OF EYE	=	3.5 FT
HEIGHT OF OBJECT	=	2.0 FT
SHOULDER WIDTH	=	N/A
FUNCTIONAL CLASS		MINOR COLLECTOR
NO. OF TRAFFIC LANES	=	2
NO. OF PARKING LANES	=	0
TON DESIGN	=	10

SCALES

PLAN	50'	
PROFILE	100' HORIZ.	10' VERT.
INDEX MAP	500'	
GENERAL LAYOUT	100'	

CSAH 1
SP 002-601-057

GROSS LENGTH	1256.19	FEET	0.238 MILES
BRIDGES-LENGTH		FEET	MILES
EXCEPTIONS-LENGTH		FEET	MILES
NET LENGTH	1256.19	FEET	0.238 MILES

MISSISSIPPI BLVD
SAP 114-105-107

GROSS LENGTH	1153.00	FEET	0.218 MILES
BRIDGES-LENGTH		FEET	MILES
EXCEPTIONS-LENGTH		FEET	MILES
NET LENGTH	1153.00	FEET	0.218 MILES

NOTE: LENGTH AND DECRIPTION ARE BASED ON THE CSAH 1 EB ALIGNMENT

BIKE PATH DESIGN DESIGNATION:

DESIGN SPEED (MPH) 20
BASED ON 4.5 FT HEIGHT OF EYE
0.0 FT HEIGHT OF OBJECT

PLAN REVISIONS		
DATE	SHEET NO.	APPROVER

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

STATION EQUATIONS

MISSISSIPPI BLVD

MISSISSIPPI BLVD (SOUTH LEG) STA 206+50.00
= MISSISSIPPI BLVD (NORTH LEG) STA 300+00.00 (8' RT)

for

FOR PLANS AND UTILITIES SYMBOLS SEE INPLACE TOPOGRAPHY & UTILITY PLAN

MINN. PROJ. NO. HSIP 0223(202)

GOVERNING SPECIFICATIONS

THE 2020 EDITION OF THE MINNESOTA DEPARTMENT OF TRANSPORTATION "STANDARD SPECIFICATIONS FOR CONSTRUCTION" AND THE "SUPPLEMENTAL SPECIFICATIONS" DATED SEPTEMBER 2022 SHALL GOVERN.

ALL TRAFFIC CONTROL DEVICES SHALL CONFORM TO THE LATEST EDITION OF THE MINNESOTA MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES. INCLUDING THE LATEST EDITION OF THE FIELD MANUAL FOR TEMPORARY TRAFFIC CONTROL ZONE LAYOUTS.

INDEX

THIS PLAN CONTAINS 108 SHEETS

ALL APPLICABLE FEDERAL, STATE, AND LOCAL LAWS AND ORDINANCES WILL BE COMPLIED WITHIN THE CONSTRUCTION OF THIS PROJECT.

wsb

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

PRINTED NAME: MICHAEL NELSON-OSTROWSKI, PE

LICENSE NUMBER: 56160

Michael Nelson-Ostrowski
2023.05.05 14:53:38-05'00'
612-618-3464
C=US, E=mnelson-ostrowski@wsbeng.com, O=WSB, OU=Engineering Consultant, CN=Michael Nelson-Ostrowski
I agree to the terms defined by the placement of my signature on this document

APPROVED: COON RAPIDS CITY ENGINEER — Mark C. Hansen — Digitally signed by Mark C. Hansen Date: 2023.05.08 14:07:34 -05'00'

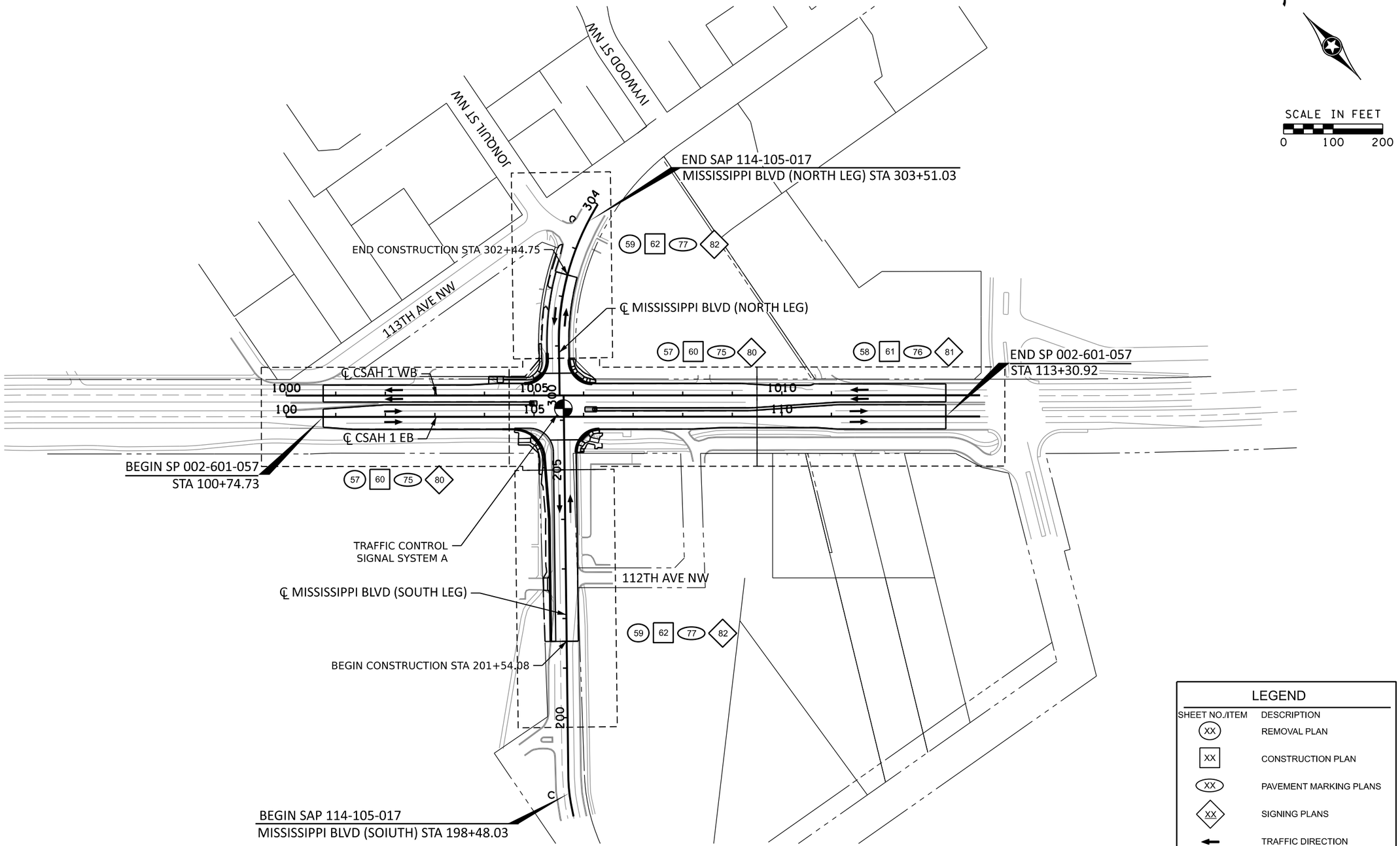
APPROVED: ANOKA COUNTY ENGINEER — Joseph MacPherson — Digitally signed by Joseph MacPherson Date: 2023.05.15 11:13:55 -05'00'

DISTRICT STATE AID ENGINEER: REVIEWED FOR COMPLIANCE WITH STATE & FEDERAL AID RULES / POLICIES — Dan Erickson — Digitally signed by Dan Erickson Date: 2023.05.17 16:40:45 -05'00'

STATE AID ENGINEER: APPROVED FOR STATE AND FEDERAL AID FUNDING — Dan Erickson — Digitally signed by Dan Erickson Date: 2023.05.17 16:41:09 -05'00'

Date Printed: 5/4/2023
WSB Filename: K:\1018837-000\Cad\Plan\018837-000_tsh.dgn

PLOTTED/REVISED: 5/5/2023



SCALE IN FEET
0 100 200

LEGEND

SHEET NO./ITEM	DESCRIPTION
XX	REMOVAL PLAN
XX	CONSTRUCTION PLAN
XX	PAVEMENT MARKING PLANS
XX	SIGNING PLANS
	TRAFFIC DIRECTION
	EXISTING RIGHT OF WAY
	EXISTING PERM EASEMENT

NO.	DATE	BY	CHK	REVISIONS

Design By: MAN-O
Plan By: BAC
Checked By: MAN-O
Approved By: MAN-O

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

MICHAEL NELSON-OSTROWSKI, PE

DATE 5/5/2023 LICENSE # 56160

wsb

ANOKA COUNTY

CSAH 1 Improvements
Anoka County, Minnesota

ANOKA COUNTY, MINNESOTA

GENERAL LAYOUT
SP 002-601-057, SAP 114-105-017

SHEET **2** OF **103** SHEETS

PATH & FILENAME: K:\01\8837-000\Cad\Plan\01\8837-000_g101.dgn

PLOTTED/REVISED: 5/4/2023

ESTIMATED QUANTITIES

TAB	SHEET	ITEM NUMBER	DESCRIPTION	NOTES	UNIT	PROJECT TOTAL	FEDERAL PARTICIPATING		NON-FEDERAL PARTICIPATING	
							ANOKA COUNTY SP 002-601-057	CITY OF COON RAPIDS SP 114-105-017	ANOKA COUNTY SAP 002-601-057	CITY OF COON RAPIDS SAP 114-105-017
						ESTIMATED QUANTITY	ESTIMATED QUANTITY	ESTIMATED QUANTITY	ESTIMATED QUANTITY	ESTIMATED QUANTITY
		2021.501	MOBILIZATION		LUMP SUM	1	0.37	0.19	0.22	0.22
A	6	2101.502	GRUBBING		EACH	3				3
F	38	2102.503	PAVEMENT MARKING REMOVAL		LIN FT	2856				2856
A	6	2104.502	REMOVE CATCH BASIN		EACH	1	1			
J	79	2104.502	REMOVE SIGN		EACH	30			21	9
		2104.502	REMOVE SIGNAL SYSTEM		EACH	1	1			
A	6	2104.502	REMOVE LIGHT FOUNDATION		EACH	3				3
A	6	2104.502	SALVAGE LIGHTING UNIT		EACH	3				3
J	79	2104.502	SALVAGE SIGN		EACH	1				1
A	6	2104.503	SAWING BITUMINOUS PAVEMENT (FULL DEPTH)		LIN FT	865	510			355
A	6	2104.503	REMOVE SEWER PIPE (STORM)		LIN FT	5	5			
A	6	2104.503	REMOVE CURB AND GUTTER		LIN FT	834	438			396
A	6	2104.504	REMOVE PAVEMENT		SQ YD	20	20			
A	6	2104.504	REMOVE CONCRETE DRIVEWAY PAVEMENT		SQ YD	43				43
A	6	2104.504	REMOVE BITUMINOUS DRIVEWAY PAVEMENT		SQ YD	24				24
A	6	2104.504	REMOVE BITUMINOUS PAVEMENT		SQ YD	273	110			163
A	6	2104.518	REMOVE BITUMINOUS WALK		SQ FT	605	605			
A	6	2104.518	REMOVE CONCRETE WALK		SQ FT	2295	2295			
E	8	2106.507	EXCAVATION - COMMON (P)		CU YD	798	235			563
		2106.507	EXCAVATION - SUBGRADE (P)		CU YD	95	95			
		2106.507	SELECT GRANULAR EMBANKMENT (CV) (P)		CU YD	95	95			
E	8	2106.507	COMMON EMBANKMENT (CV) (P)		CU YD	55	17			38
		2112.519	SUBGRADE PREPARATION 6"-12"		ROAD STA	4				4
B	6	2211.507	AGGREGATE BASE (CV) CLASS 5 (P)		CU YD	242	75		21	146
B	6	2231.509	BITUMINOUS PATCHING MIXTURE		TON	34	34			
A	6	2232.504	MILL BITUMINOUS SURFACE (1.5")		SQ YD	3063			464	2599
A	6	2232.504	MILL BITUMINOUS SURFACE (2.0")		SQ YD	12093			12093	
B	6	2357.506	BITUMINOUS MATERIAL FOR TACK COAT		GALLON	1391	7		1084	300
B	6	2360.509	TYPE SP 9.5 WEARING COURSE MIXTURE (3,C)		TON	89				89
B	6	2360.509	TYPE SP 12.5 NON WEARING COURSE MIXTURE (3,B)		TON	59				59
B	6	2360.509	TYPE SP 12.5 WEARING COURSE MIXTURE (3;C)		TON	369				369
B	6	2360.509	TYPE SP 12.5 NON WEARING COURSE MIXTURE (4,B)		TON	13	4		9	
B	6	2360.509	TYPE SP 12.5 WEARING COURSE MIXTURE (4,C)		TON	1487	8		1479	
		2502.503	4" PERF PE PIPE DRAIN		LIN FT	300	220			80
G	69	2503.503	15" RC PIPE SEWER DESIGN 3006 CLASS V		LIN FT	7	7			
G	69	2503.602	CONNECT TO EXISTING STORM SEWER		EACH	2	2			
A	6	2504.602	RELOCATE HYDRANT		EACH	1				1
A	6	2504.602	ADJUST GATE VALVE AND BOX		EACH	1				1

NOTES

(1) NO TREES SHALL BE GRUBBED WITHOUT THE ENGINEER'S APPROVAL. CLEARING TO BE DONE BY OTHERS.
(2) BITUMINOUS MATERIAL FOR TACK COAT IS REQUIRED.
(P) DENOTES PLANNED QUANTITY.

BASIS FOR QUANTITIES

UNIT WEIGHT OF BITUMINOUS MIX:
- 2360 MIX.....115 LBS/SY-IN

TACK COAT
- NEW SURFACES.....0.05 GAL/SY
- MILLED SURFACE.....0.085 GAL/SY

EROSION CONTROL & TURF ESTABLISHMENT
- FERTILIZER TYPE 3 (PERMANENT).....350 LBS/ACRE
- HYDRAULIC STABLIZIED FIBER MATRIX (PERMANENT).....3000 LBS/ACRE
- SEED MIXTURE 25-131 (PERMANENT).....220 LBS/ACRE
- RAPID STABILIZATION METHOD 3 (TEMPORARY).....6 MGAL/ACRE

PATH & FILENAME: K:\01\88337-000\Cad\Plan\01\88337-000_est.dgn

NO.	DATE	BY	CHK	REVISIONS

Design By: MAN-0
Plan By: BAC
Checked By: MAN-0
Approved By: MAN-0

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

MICHAEL NELSON-OSTROWSKI, PE

DATE 5/4/2023 LICENSE # 56160

wsb

ANOKA COUNTY

CSAH 1 Improvements
Anoka County, Minnesota

ANOKA COUNTY, MINNESOTA

ESTIMATED QUANTITIES
SP 002-601-057, SAP 114-105-017

SHEET 3 OF 103 SHEETS

ESTIMATED QUANTITIES

TAB	SHEET	ITEM NUMBER	DESCRIPTION	NOTES	UNIT	PROJECT TOTAL ESTIMATED QUANTITY	FEDERAL PARTICIPATING: ANOKA COUNTY SP 002-601-057 ESTIMATED QUANTITY	FEDERAL PARTICIPATING: CITY OF COON RAPIDS SP 114-105-017 ESTIMATED QUANTITY	NON-FEDERAL PARTICIPATING: ANOKA COUNTY SAP 002-601-057 ESTIMATED QUANTITY	NON-FEDERAL PARTICIPATING: CITY OF COON RAPIDS SAP 114-105-017 ESTIMATED QUANTITY
H	69	2506.502	CASTING ASSEMBLY		EACH	2	2			
H	69	2506.503	CONSTRUCT DRAINAGE STRUCTURE DESIGN H		LIN FT	3.8	3.8			
H	,	2506.503	CONSTRUCT DRAINAGE STRUCTURE DESIGN SD-60		LIN FT	4.2	4.2			
C	7	2521.518	4" CONCRETE WALK		SQ FT	936	936			
C	7	2521.518	6" CONCRETE WALK		SQ FT	1888	1888			
B	6	2521.518	3" BITUMINOUS WALK		SQ FT	347	347			
C	7	2521.602	DRILL AND GROUT REINF BAR (EPOXY COATED)		EACH	63	63			
C	7	2521.618	CONCRETE CURB RAMP WALK		SQ FT	215	215			
C	7	2531.503	CONCRETE CURB AND GUTTER DESIGN B412		LIN FT	21	21			
C	7	2531.503	CONCRETE CURB AND GUTTER DESIGN B418		LIN FT	336	168	168		
C	7	2531.503	CONCRETE CURB AND GUTTER DESIGN B618		LIN FT	406				406
C	7	2531.504	8" CONCRETE DRIVEWAY PAVEMENT		SQ YD	38				38
C	7	2531.618	TRUNCATED DOMES		SQ FT	156	156			
		2545.502	LIGHT FOUNDATION DESIGN E		EACH	3				3
A	6	2545.602	INSTALL LIGHTING UNIT		EACH	3				3
		2563.601	TRAFFIC CONTROL SUPERVISOR		LUMP SUM	1	0.37	0.19	0.22	0.22
		2563.601	TRAFFIC CONTROL		LUMP SUM	1	0.37	0.19	0.22	0.22
		2563.601	ALTERNATE PEDESTRIAN ROUTE		LUMP SUM	1	0.37	0.19	0.22	0.22
J	79	2564.502	INSTALL SIGN		EACH	1				1
J	79	2564.602	DELINEATOR / MARKER PANEL		EACH	2			2	
J	79	2564.618	SIGN		SQ FT	201			144	57
		2565.501	EMERGENCY VEHICLE PREEMPTION SYSTEM A		LUMP SUM	1		1		
		2565.501	TRAFFIC CONTROL INTERCONNECT		LUMP SUM	1	1			
		2565.516	TRAFFIC CONTROL SIGNAL SYSTEM A		SYSTEM	1	0.5	0.5		
		2565.616	VIDEO DETECTOR SYSTEM		SYSTEM	1			1	
		2565.616	TEMPORARY SIGNAL SYSTEM A		SYSTEM	1	1	1		
		2571.502	DECIDUOUS TREE 8' HT B&B		EACH	3				3
		2573.501	STABILIZED CONSTRUCTION EXIT		LUMP SUM	1	1			
D	7	2573.502	STORM DRAIN INLET PROTECTION		EACH	12	2		6	4
D	7	2573.503	SILT FENCE, TYPE MS		LIN FT	1030	468			562
D	7	2573.503	SEDIMENT CONTROL LOG TYPE WOOD FIBER		LIN FT	900	300			600
D	7	2574.508	FERTILIZER TYPE 3		POUND	62	24			38
D	7	2575.505	SEEDING		ACRE	0.3	0.1			0.2
D	7	2575.508	SEED MIXTURE 25-131		POUND	40	15			25
D	7	2575.508	HYDRAULIC STABILIZED FIBER MATRIX		POUND	520	199			321

NOTES

(3) TO BE USED AT THE DIRECTION OF THE ENGINEER.
(4) HIGH EARLY CONCRETE AT DRIVEWAY AND CSAH 1 MEDIAN.
(5) FOR TEMPORARY VIDEO VEHICLE DETECTION SYSTEM.

BASIS FOR QUANTITIES

UNIT WEIGHT OF BITUMINOUS MIX:
- 2360 MIX.....113 LBS/SY-IN

TACK COAT (INCIDENTAL)
- NEW SURFACES.....0.05 GAL/SY
- MILLED SURFACE.....0.085 GAL/SY

EROSION CONTROL & TURF ESTABLISHMENT
- FERTILIZER TYPE 3 (PERMANENT).....350 LBS/ACRE
- HYDRAULIC STABLIZIED FIBER MATRIX (PERMANENT).....3000 LBS/ACRE
- SEED MIXTURE 25-131 (PERMANENT).....220 LBS/ACRE
- RAPID STABILIZATION METHOD 3 (TEMPORARY).....6 MGAL/ACRE

NO.	DATE	BY	CHK	REVISIONS

Design By: MAN-O
Plan By: BAC
Checked By: MAN-O
Approved By: MAN-O

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

MICHAEL NELSON-OSTROWSKI, PE
DATE 5/4/2023 LICENSE # 56160

wsb

ANOKA COUNTY

CSAH 1 Improvements
Anoka County, Minnesota

ANOKA COUNTY, MINNESOTA

ESTIMATED QUANTITIES
SP 002-601-057, SAP 114-105-017

SHEET 4 OF 103 SHEETS

ESTIMATED QUANTITIES

TAB	SHEET	ITEM NUMBER	DESCRIPTION	NOTES	UNIT	PROJECT TOTAL ESTIMATED QUANTITY	FEDERAL PARTICIPATING: ANOKA COUNTY SP 002-601-057 ESTIMATED QUANTITY	FEDERAL PARTICIPATING: CITY OF COON RAPIDS SP 114-105-017 ESTIMATED QUANTITY	NON-FEDERAL PARTICIPATING: ANOKA COUNTY SAP 002-601-057 ESTIMATED QUANTITY	NON-FEDERAL PARTICIPATING: CITY OF COON RAPIDS SAP 114-105-017 ESTIMATED QUANTITY
D	7	2575.523	RAPID STABILIZATION METHOD 3		M GALLON	2.6	0.8			1.8
F	38	2582.503	4" SOLID LINE PAINT		LIN FT	562				562
F	38	2582.503	4" DOUBLE SOLID LINE PAINT		LIN FT	854				854
I	74	2582.503	4" SOLID LINE MULTI-COMPONENT		LIN FT	7927			6646	1281
I	74	2582.503	4" BROKEN LINE MULTI-COMPONENT		LIN FT	460			460	
I	74	2582.503	4" DOTTED LINE MULTI-COMPONENT		LIN FT	27			27	
I	74	2582.503	4" DOUBLE SOLID LINE MULTI-COMPONENT		LIN FT	806				806
I	74	2582.503	24" SOLID LINE PREFORM THERMOPLASTIC		LIN FT	183	183			
I	74	2582.518	PAVEMENT MESSAGE PREFORM THERMOPLASTIC		SQ FT	153				153
I	74	2582.518	CROSSWALK PREFORM THERMOPLASTIC		SQ FT	648	648			

NOTES

BASIS FOR QUANTITIES

UNIT WEIGHT OF BITUMINOUS MIX:
- 2360 MIX.....113 LBS/SY-IN

TACK COAT (INCIDENTAL)
- NEW SURFACES.....0.05 GAL/SY
- MILLED SURFACE.....0.085 GAL/SY

EROSION CONTROL & TURF ESTABLISHMENT
- FERTILIZER TYPE 3 (PERMANENT).....350 LBS/ACRE
- HYDRAULIC STABLIZIED FIBER MATRIX (PERMANENT).....3000 LBS/ACRE
- SEED MIXTURE 25-131 (PERMANENT).....220 LBS/ACRE
- RAPID STABILIZATION METHOD 3 (TEMPORARY).....6 MGAL/ACRE

NO.	DATE	BY	CHK	REVISIONS

Design By: MAN-O
Plan By: BAC
Checked By: MAN-O
Approved By: MAN-O

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MICHAEL NELSON-OSTROWSKI, PE

DATE 5/4/2023 LICENSE # 56160

wsb

ANOKA COUNTY

CSAH 1 Improvements
Anoka County, Minnesota

ANOKA COUNTY, MINNESOTA

ESTIMATED QUANTITIES
SP 002-601-057, SAP 114-105-017

SHEET **5** OF **103** SHEETS

PLOTTED/REVISED: 5/4/2023

REMOVALS TABULATION — A

LOCATION	GRUBBING	MILL		REMOVE									SALVAGE & INSTALL	RELOCATE HYDRANT	ADJUST GATE VALVE & BOX	SAWING BITUMINOUS PAVEMENT (FULL DEPTH) (1) (3)
		BITUMINOUS SURFACE (1.5")	BITUMINOUS SURFACE (2.0")	BITUMINOUS PAVEMENT (3)	PAVEMENT (1)	BITUMINOUS DRIVEWAY PAVEMENT	CONCRETE DRIVEWAY PAVEMENT	CURB & GUTTER	BITUMINOUS WALK	CONCRETE WALK (2)	LIGHT FOUNDATION	SEWER PIPE (STORM)	LIGHTING UNIT			
	EACH	SQ YD	SQ YD	SQ YD	SQ YD	SQ YD	SQ YD	LIN FT	SQ FT	SQ FT	EACH	LIN FT	EACH	EACH	EACH	LIN FT
FEDERAL PARTICIPATING																
SP 002-601-057 (ANOKA COUNTY)																
CSAH 1 (COON RAPIDS BOULEVARD)																
STA 104+50 TO STA 109+50				110	20			438	605	2295		5				510
SP 002-601-057 (ANOKA COUNTY) SUBTOTAL				110	20			438	605	2295		5				510
NON-FEDERAL PARTICIPATING																
COUNTY FUNDS																
CSAH 1 (COON RAPIDS BOULEVARD)																
STA 100+74.73 TO STA 104+50			3416													
STA 104+50 TO STA 109+50		464	5139													
STA 109+50 TO STA 113+30.92			3538													
ANOKA COUNTY SUBTOTAL		464	12093													
SAP 114-105-017 (CITY OF COON RAPIDS)																
MISSISSIPPI BLVD (SOUTH LEG)																
STA 201+54.08 TO STA 205+00	3	1768		163		24	43	396			3		3	1	1	355
MISSISSIPPI BLVD (NORTH LEG)																
STA 300+75 TO STA 302+44.75		831														
SAP 114-105-017 (CITY OF COON RAPIDS) SUBTOTAL	3	2599		163		24	43	396			3		3	1	1	355
TAB TOTAL	3	3063	12093	273	20	24	43	834	605	2295	3	5	3	1	1	865

NOTES:
(1) IN-PLACE PAVEMENT IS 5.75 INCHES OF BITUMINOUS OVER 7.5 INCHES OF CONCRETE ON CSAH 1.
(2) INCLUDES CONCRETE MEDIANS.
(3) IN-PLACE BITUMINOUS PAVEMENT IS 6.5 INCHES ON MISSISSIPPI BLVD AND 5.25 INCHES ON 113TH AVE NW

BITUMINOUS & AGGREGATE TABULATION — B

LOCATION	TYPE SP 9.5	TYPE SP 12.5				BITUMINOUS PATCHING MIXTURE (4)	BITUMINOUS MATERIAL FOR TACK COAT	3" BITUMINOUS WALK (5)	AGGREGATE BASE (CV) CLASS 5
	WEARING COURSE MIXTURE (3,C) (SPWEA340C)	WEARING COURSE MIXTURE (3,C) (SPWEB340C)	NON-WEAR COURSE MIXTURE (3,B) (SPNWB330B)	WEARING COURSE MIXTURE (4,C) (SPWEB440C)	NON-WEAR COURSE MIXTURE (4,B) (SPNWB430B)				
	TON	TON	TON	TON	TON	TON	GAL	SQ FT	CU YD
FEDERAL PARTICIPATING									
SP 002-601-057 (ANOKA COUNTY)									
CSAH 1 (COON RAPIDS BLVD)									
STA 104+50 TO STA 109+50				8	4	34	7	347	76
SP 002-601-057 (ANOKA COUNTY) SUBTOTAL				8	4	34	7	347	76
NON-FEDERAL PARTICIPATING									
COUNTY FUNDS									
CSAH 1 (COON RAPIDS BLVD)									
STA 100+74.73 TO STA 104+50				413			305		
STA 104+50 TO STA 109+50				638	9		463		21
STA 109+50 TO STA 113+30.92				428			316		
ANOKA COUNTY SUBTOTAL				1479	9		1084		21
SAP 114-105-017 (CITY OF COON RAPIDS)									
MISSISSIPPI BLVD (SOUTH LEG)									
STA 201+54.08 TO STA 205+00		369	59				212		137
MISSISSIPPI BLVD (NORTH LEG)									
STA 300+75 TO STA 302+44.75	89						88		9
SAP 114-105-017 (CITY OF COON RAPIDS) SUBTOTAL	89	369	59				300		146
TAB TOTAL	89	369	59	1487	13	34	1391	347	243

NOTES:
(4) FOR AREAS OF PAVING 2' IN WIDTH OR LESS. SEE TYPICALS - INSET C
(5) MIXTURE SPWEA230B

INDEX OF TABULATIONS

NO.	DATE	BY	CHK	REVISIONS

Design By: MAN-O
Plan By: BAC
Checked By: MAN-O
Approved By: MAN-O

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

MICHAEL NELSON-OSTROWSKI, PE

DATE 5/4/2023 LICENSE # 56160

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ANOKA COUNTY

CSAH 1 Improvements
Anoka County, Minnesota

ANOKA COUNTY, MINNESOTA

QUANTITY TABULATIONS
SP 002-601-057, SAP 114-105-017

SHEET 6 OF 103 SHEETS

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CONCRETE TABULATION — C

LOCATION	CONCRETE CURB & GUTTER			6" CONCRETE WALK	4" CONCRETE WALK (1)	CONCRETE CURB RAMP WALK	DRILL AND GROUT REINFORCEMENT BAR (EPOXY COATED)	TRUNCATED DOMES	8" CONCRETE DRIVEWAY PAVEMENT
	DESIGN B412	DESIGN B418	DESIGN B618						
	LIN FT	LIN FT	LIN FT	SQ FT	SQ FT	SQ FT	EACH	SQ FT	SQ YD
FEDERAL PARTICIPATING									
SP 002-601-057 (ANOKA COUNTY)									
CSAH 1 (COON RAPIDS BLVD)									
STA 104+50 TO STA 109+50	21	168		1888	936	215	63	156	
SP 002-601-057 (ANOKA COUNTY) SUBTOTAL	21	168		1888	936	215	63	156	
SP 114-105-017 (CITY OF COON RAPIDS)									
CSAH 1 (COON RAPIDS BLVD)									
STA 104+50 TO STA 109+50		168							
SP 114-105-017 (CITY OF COON RAPIDS) SUBTOTAL		168							
NON-FEDERAL PARTICIPATING									
SAP 114-105-017 (CITY OF COON RAPIDS)									
MISSISSIPPI BLVD (SOUTH LEG)									
STA 201+54.08 TO STA 205+00			391						38
MISSISSIPPI BLVD (NORTH LEG)									
STA 300+75 TO STA 302+44.75			15						
SAP 114-105-017 (CITY OF COON RAPIDS) SUBTOTAL			406						38
TAB TOTAL	21	336	406	1888	936	215	63	156	38

NOTES:
(1) INCLUDES CONCRETE MEDIAN

TURF ESTABLISHMENT & EROSION CONTROL TABULATION — D

LOCATION	SEEDING	SEED MIXTURE 25-131	FERTILIZER TYPE 3	HYDRAULIC STABILIZED FIBER MATRIX	RAPID STABILIZATION METHOD 3	SEDIMENT CONTROL LOG TYPE WOOD FIBER (2)	STORM DRAIN INLET PROTECTION	SILT FENCE, TYPE MS
	ACRE	POUND	POUND	POUND	MGAL	LIN FT	EACH	LIN FT
FEDERAL PARTICIPATING								
SP 002-601-057 (ANOKA COUNTY)								
CSAH 1 (COON RAPIDS BOULEVARD)								
STA 104+50 TO STA 109+50	0.1	15	24	199	0.8		2	468
SP 002-601-057 SUBTOTAL	0.1	15	24	199	0.8	300	2	468
NON-FEDERAL PARTICIPATING								
COUNTY FUNDS								
CSAH 1 (COON RAPIDS BOULEVARD)								
STA 100+74.73 TO STA 104+50							2	
STA 104+50 TO STA 109+50								
STA 109+50 TO STA 113+30.92							4	
ANOKA COUNTY SUBTOTAL							6	
SAP 114-105-017 (CITY OF COON RAPIDS)								
MISSISSIPPI BLVD (SOUTH LEG)								
STA 201+54.08 TO STA 205+00	0.1	15	23	197	0.8		4	336
MISSISSIPPI BLVD (NORTH LEG)								
STA 300+75 TO STA 302+44.75	0.1	10	15	124	1.0			226
SAP 114-105-017 (CITY OF COON RAPIDS) SUBTOTAL	0.2	25	38	321	1.8	600	4	562
TAB TOTAL	0.3	40	62	520	2.6	900	12	1030

NOTES
(2) USE AT THE DIRECTION OF THE ENGINEER.

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ANOKA COUNTY, MINNESOTA

QUANTITY TABULATIONS
SP 002-601-057, SAP 114-105-017

SHEET **7** OF **103** SHEETS

EARTH WORK TABULATION

E

	EXCAVATION		EMBANKMENT	
	COMMON (1)	SUBGRADE	COMMON (2)	SELECT
STA. - STA.	CU YD (EV)	CU YD (EV)	CU YD (CV)	CU YD (CV)
SAP 114-105-017 (MISSISSIPPI BLVD - SOUTH LEG)				
SW QUAD				
10+00 - 10+10	12		1	
10+10 - 10+20	14		1	
10+20 - 10+30	15		1	
10+30 - 10+40	17		1	
10+40 - 10+50	19		1	
10+50 - 10+60	21		1	
10+60 - 10+70	24		1	
10+70 - 10+80	25		1	
10+80 - 10+90	22		1	
10+90 - 11+00	16		1	
11+00 - 11+10	10		1	
11+10 - 11+20	9		1	
11+20 - 11+30	9		1	
11+30 - 11+40	10		1	
11+40 - 11+50	12		1	
11+50 - 11+60	12		1	
11+60 - 11+70	12		1	
11+70 - 11+80	12		1	
11+80 - 11+90	12		1	
11+90 - 12+00	12		1	
12+00 - 12+10	12		1	
12+10 - 12+20	12		1	
12+20 - 12+30	12		1	
12+30 - 12+40	12		1	
12+40 - 12+50	12		1	
12+50 - 12+60	12		1	
12+60 - 12+70	13		1	
12+70 - 12+80	13		1	
12+80 - 12+90	14		1	
12+90 - 13+00	14		1	
13+00 - 13+10	15		1	
13+10 - 13+20	15		2	
13+20 - 13+30	16		2	
13+30 - 13+40	16		1	
13+40 - 13+50	19		1	
13+50 - 13+60	20		1	
13+60 - 13+70	20			
13+70 - 13+80	21			
SAP 114-105-017 (CITY OF COON RAPIDS) SUBTOTAL	563		38	
SP 002-601-057 (CSAH 1)				
SW QUAD				
13+80 - 13+90	23	9		9
13+90 - 14+00	28	9		9
14+00 - 14+10	35	9		9
14+10 - 14+20	30	9		9
14+20 - 14+30	20	9	1	9
14+30 - 14+40	14	9	3	9
14+40 - 14+50	9	9	4	9
14+50 - 14+60	7	9	3	9
14+60 - 14+70	2	9	1	9
NE QUAD				
	22	4	1	4
NW QUAD				
	26	5	4	5
SE QUAD				
	19	5		5
SP 002-601-057 (ANOKA COUNTY) SUBTOTAL	235	95	17	95
TAB TOTAL	798	95	55	95

NOTES

(1) INCLUDES TOPSOIL STRIPING.
(2) INCLUDES COMMON TOPSOIL.

GENERAL NOTES

1. PLACING, HAULING AND DISPOSING OF EXCAVATED MATERIAL IS CONSIDERED INCIDENTAL.
2. ALL STOCKPILE AREAS SHALL BE APPROVED BY THE ENGINEER.
3. SOILS NOT USED ON THE PROJECT SHALL BECOME PROPERTY OF THE CONTRACTOR AND SHALL BE DISPOSED OF OUTSIDE OF THE RIGHT OF WAY. NO DIRECT COMPENSATION WILL BE PAID FOR THE PREPARATION OF AN ACCEPTABLE DISPOSAL PLAN OR FOR OFF-PROJECT DISPOSAL OF MATERIALS. DISPOSAL SITES SHALL BE LEFT IN A WELL GRADED CONDITION WITH ALL SOLID WASTES AND BOULDERS ADEQUATELY COVERED.
4. UNLESS DIRECTED OTHERWISE BY THE PROJECT ENGINEER, ANY MATERIAL THAT IS FOUND TO BE UNNECCESARY FOR THE CONSTRUCTION OF THE ROADWAY EMBANKMENT AND DISPOSAL OF SAME BECOMES NECESSARY, ON OR OFF THE PROJECT, THE DISPOSAL AND ALL RELATED ITEMS WILL BE CONSIDERED INCIDENTAL.

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ANOKA COUNTY

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ANOKA COUNTY, MINNESOTA

EARTHWORK TABULATION & SUMMARY
SP 002-601-057, SAP 114-105-017

SHEET **8** OF **103** SHEETS

PLOTTED/REVISED: 5/4/2023

CONSTRUCTION AND SOIL NOTES

1. TOP OF THE GRADING GRADE IS DEFINED AS THE BOTTOM OF THE CLASS 5 AGGREGATE BASE.
2. TEST ROLLING OF THE SUBGRADE WILL BE REQUIRED AS SPECIFIED BY 2111.2 (INCIDENTAL).
3. COMMON EMBANKMENT SHALL CONSIST OF ALL SOILS ENCOUNTERED WITH THE EXCEPTION OF DEBRIS, PEAT, MUCK, AND OTHER ORGANIC OR OTHER UNSTABLE MATERIAL.
4. WHERE CONNECTING TO IN-PLACE ROADWAYS AT THE TERMINI OF PROPOSED NEW CONSTRUCTION, CUT VERTICALLY TO THE BOTTOM OF THE IN-PLACE SURFACING, THEN AT A 1(V):20(H) TAPER TO THE BOTTOM OF THE RECOMMENDED SUBGRADE EXCAVATION.
5. THE INFORMATION SHOWN ON THESE DRAWINGS CONCERNING TYPE AND LOCATION OF PRIVATE UTILITIES IS NOT GUARANTEED TO BE ACCURATE OR ALL-INCLUSIVE. THE CONTRACTOR IS RESPONSIBLE FOR MAKING THEIR OWN DETERMINATIONS AS TO THE TYPE AND LOCATION OF PRIVATE UTILITIES AS MAY BE NECESSARY TO AVOID DAMAGE THERETO. CONTRACTOR WILL CALL GOPHER STATE ONE A MINIMUM OF 48 HOURS PRIOR TO EXCAVATION.
6. THE CONSTRUCTION LIMITS AS SHOWN IN THE PLANS REPRESENT THE POINT OF INTERSECTION BETWEEN THE REQUIRED FILL OR CUT SLOPE AND THE EXISTING GROUND LINE AS DEPICTED ON THE CROSS SECTIONS. THE CONSTRUCTION LIMITS DO NOT INCLUDE AREAS REQUIRED FOR SLOPE ROUNDING.
7. ANY DEBRIS WHICH MAY BE ENCOUNTERED DURING GRADING SHALL BE DISPOSED OF BY THE CONTRACTOR OFF THE PROJECT RIGHT OF WAY IN A SUITABLE DISPOSAL AREA AS APPROVED BY THE ENGINEER (INCIDENTAL).
8. OBTAIN COMPACTION OF THE GRADING PORTIONS OF CONSTRUCTION IN ACCORDANCE WITH THE "SPECIFIED DENSITY METHOD" REQUIREMENTS INDICATED IN 2106.
9. OBTAIN COMPACTION OF THE AGGREGATE PORTIONS OF CONSTRUCTION IN ACCORDANCE WITH THE "SPECIFIED DENSITY METHOD" REQUIREMENTS AS INDICATED IN 2211.
10. NO EXTRA PAYMENT WILL BE MADE FOR MOVING, PLACING, OR TEMPORARY STOCKPILING OF EXCAVATION, EMBANKMENT AND/OR BORROW MATERIAL.
11. UNLESS OTHERWISE SPECIFICALLY ALLOWED OR REQUIRED BY THE CONTRACT, BITUMINOUS AND CONCRETE ITEMS DISTURBED BY CONSTRUCTION SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND MAY BE RECYCLED OR DISPOSED OF OFF THE RIGHT OF WAY. BITUMINOUS MATERIAL CAN NOT BE USED AS EMBANKMENT.
12. MINIMUM 6" SLOPE DRESSING TO BE PLACED IN ALL DISTURBED AREAS OUTSIDE ROADWAY. PAID FOR AS COMMON EMBANKMENT (CV).
13. PROVIDE A UNIFORM TACK COAT AS DOCUMENTED IN THE MOST CURRENT SPEC. 2357 - BITUMINOUS TACK COAT REQUIREMENTS
14. PIPE SEWERS CONNECTING MANHOLES AND CATCH BASINS SHALL BE IN ACCORDANCE WITH SPEC. 2503. BEDDING AND BACKFILL SHALL CONSIST OF UNIFORM COMMON EMBANKMENT MATCHING ADJACENT SOILS UNLESS OTHERWISE DIRECTED BY THE ENGINEER.
15. TEMPORARY EROSION CONTROL - TEMPORARY EROSION CONTROL DEVICES AND THEIR SUGGESTED LOCATIONS HAVE BEEN SHOWN IN THE PLANS ALONG WITH PAY ITEMS FOR THEIR USE. THIS DOES NOT HOWEVER RELIEVE THE CONTRACTOR OF HIS RESPONSIBILITIES TO CONDUCT HIS CONSTRUCTION IN A MANNER THAT WILL CONTROL EROSION. RESPONSIBILITY FOR CONTROLLING EROSION AND MAINTENANCE OF EROSION CONTROL AS SET IN MNDOT SPECIFICATIONS 1717, 1803, 2101, 2106, 2573, 2575, AND IS AMENDED BY THE SPECIAL PROVISIONS.
16. ALL TRAFFIC CONTROL DEVICES SHALL CONFORM TO THE LATEST EDITION OF THE MINNESOTA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, INCLUDING THE LATEST FIELD MANUAL FOR TEMPORARY TRAFFIC CONTROL ZONE LAYOUTS.
17. ALL STRIPPED TOPSOIL SHALL BE PAID FOR AS "EXCAVATION - COMMON."
18. ALL TOPSOIL PROPOSED FOR USE, WHETHER AVAILABLE FROM THE SITE OR IMPORTED, SHALL MEET THE REQUIREMENTS OF SPEC. 3877.2. SEED, FERTILIZER, AND HYDRAULIC STABLIZED FIBER MATRIX SHALL BE PLACED OVER TOPSOIL IN ACCORDANCE WITH THE PROJECT PLANS.
19. IN PREPARATION FOR SEED, FERTILIZER AND HYDRAULIC STABLIZED FIBER MATRIX PLACEMENT, THE BEDDING SHALL BE FREE OF ALL STONES, DEBRIS, AND CLODS LARGER THAN TWO INCHES (2").
20. OBTAIN COMPACTION OF ALL BITUMINOUS PORTIONS OF CONSTRUCTION IN ACCORDANCE WITH THE REQUIREMENTS OF SPEC 2360 "MAXIMUM DENSITY METHOD".
21. BITUMINOUS MATERIAL MUST BE REMOVED FROM THE PROJECT AND CONNOT BE USED AS EMBANKMENT.
22. NO OVER-EXCAVATION WILL BE ALLOWED ON THIS PROJECT.
23. EXCESS GRANULAR MATERIAL MUST BE DEEMED EXCESS BY THE ENGINEER BEFORE REMOVED FROM THE PROJECT.

THE FOLLOWING STANDARD PLATES, APPROVED BY THE FEDERAL HIGHWAY ADMINISTRATION, SHALL APPLY ON THIS PROJECT

MNDOT STANDARD PLATES

PLATE NO.	DESCRIPTION
3000M	REINFORCED CONCRETE PIPE (6 SHEETS)
3006H	GASKET JOINT FOR R.C. PIPE (2 SHEETS)
4006L	MANHOLE OR CATCH BASIN PRECAST - DESIGNS G AND H
4011E	PRECAST CONCRETE BASE
4020J	MANHOLE OR CATCH BASIN (FOR USE WITH OR WITHOUT TRAFFIC LOADS) (2 SHEETS)
4024A	48" DIA. PRECAST SHALLOW DEPTH CATCH BASIN - DESIGN SD
4101D	RING CASTING FOR MANHOLE OR CATCH BASIN
4110F	COVER CASTING FOR MANHOLE (FOR USE IN ALL TRAFFIC AREAS) – CASTING NO. 715 AND 716
4132G	CATCH BASIN FRAME CASTING (FOR SQUARE GRATE) - CASTING NO. 805
4154B	CATCH BASIN GRATE CASTING - CASTING NO. 816
7038A	DETECTABLE WARNING SURFACE TRUNCATED DOMES
7100H	CONCRETE CURB AND GUTTER (DESIGN B AND DESIGN V)
7113A	CONCRETE APPROACH NOSE DETAIL
8000K	TEMPORARY CHANNELIZERS (3 SHEETS)

SEE TRAFFIC CONTROL SIGNAL SYSTEM PLANS ON PAGE 85 FOR MORE STANDARD PLATES

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ANOKA COUNTY

CSAH 1 Improvements
Anoka County, Minnesota

ANOKA COUNTY, MINNESOTA

SOIL & CONSTRUCTION NOTES
SP 002-601-057, SAP 114-105-017

SHEET **9** OF **103** SHEETS

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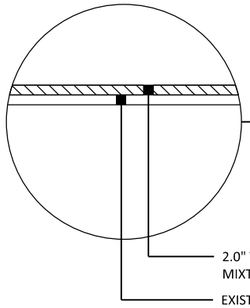
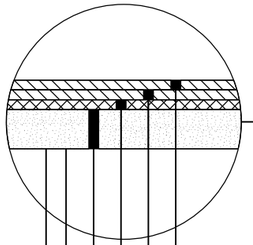
PLOTTED/REVISED: 5/4/2023



INSET A1

CSAH 1 OVERLAY

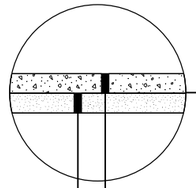
- 2.0" TYPE SP 12.5 WEARING COURSE MIXTURE (SPWEB440C) - SPEC 2360
- EXISTING SURFACING



INSET C

CSAH 1 RECONSTRUCTION
CSAH 1 QUADRANTS (1)

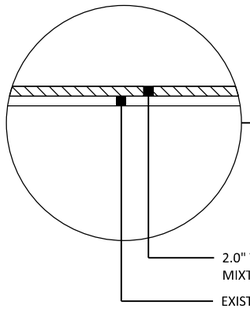
- 2.0" TYPE SP 12.5 WEARING COURSE MIXTURE (SPWEB440C) - SPEC 2360
- 2.0" TYPE SP 12.5 WEARING COURSE MIXTURE (SPWEB440C) - SPEC 2360
- 2.0" TYPE SP 12.5 NON WEARING COURSE MIXTURE (SPNWB430B) - SPEC 2360
- 8.0" AGGREGATE BASE (CV) CLASS 5 - SPEC 2211
- GRADING GRADE
- 12.0" EXCAVATION - SUBGRADE BACKFILL WITH - SPEC 2106
  12.0" SELECT GRANULAR EMBANKMENT (CV) - SPEC 2106



INSET F

CONCRETE WALK/MEDIAN

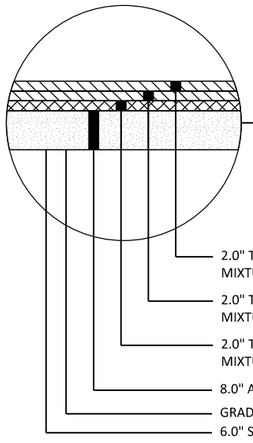
- 4.0" CONCRETE WALK
  (6.0" CONCRETE WALK AT ADA LANDINGS)
  (CONCRETE CURB RAMP WALK AT ADA RAMPS)
  (CONCRETE WALK THICKNESS TO MATCH DRIVEWAY PAVEMENT AT DRIVEWAYS)
- 4.0" AGGREGATE BASE (CV) CLASS 5



INSET A2

MISSISSIPPI BLVD (SOUTH LEG)
OVERLAY

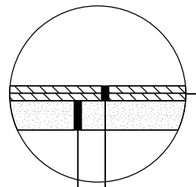
- 2.0" TYPE SP 12.5 WEARING COURSE MIXTURE (SPWEB340C) - SPEC 2360
- EXISTING SURFACING



INSET D

MISSISSIPPI BLVD (SOUTH LEG)
WIDENING

- 2.0" TYPE SP 12.5 WEARING COURSE MIXTURE (SPWEB340C) - SPEC 2360
- 2.0" TYPE SP 12.5 WEARING COURSE MIXTURE (SPWEB340C) - SPEC 2360
- 2.0" TYPE SP 12.5 NON-WEARING COURSE MIXTURE (SPNWB330B) - SPEC 2360
- 8.0" AGGREGATE BASE (CV) CLASS 5 - SPEC 2211
- GRADING GRADE
- 6.0" SUBGRADE PREPARATION - SPEC 2112

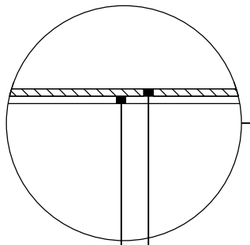


INSET G

3" BITUMINOUS WALK

- 3.0" TYPE SP 9.5 WEARING COURSE *** MIXTURE (SPWEA230B) - SPEC 2360
- 6.0" AGGREGATE BASE (CV) CLASS 5 - SPEC 2211

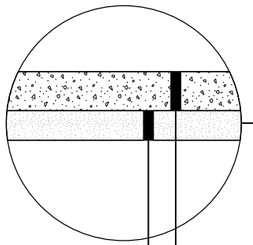
*** PAID FOR AS 3" BITUMINOUS WALK BY THE SQUARE FOOT
PAVE IN 2 LIFTS



INSET B

MISSISSIPPI BLVD (NORTH LEG)

- 1.5" TYPE SP 9.5 WEARING COURSE MIXTURE (SPWEA340C) - SPEC 2360
- EXISTING SURFACING



INSET E

CONCRETE DRIVEWAY PAVEMENT

- 8.0" CONCRETE DRIVEWAY PAVEMENT - SPEC 2351
  (NON-RIENFORCED CONCRETE)
- 6.0" AGGREGATE BASE (CV) CLASS 5 - SPEC 2211

NOTES:

(1) CARRY CSAH 1 PAVEMENT THROUGH INTERSECTION QUADRANTS. TRANSITION FROM CSAH 1 TO MISSISSIPPI BLVD PAVEMENT AT SW QUAD STA 13+72.00

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ANOKA COUNTY

CSAH 1 Improvements
Anoka County, Minnesota

ANOKA COUNTY, MINNESOTA
INSETS
TYPICAL SECTIONS
SP 002-601-057, SAP 114-105-017

SHEET 10 OF 103 SHEETS

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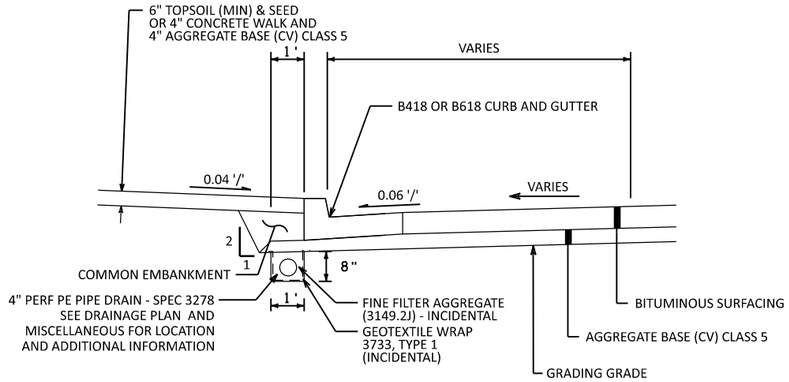
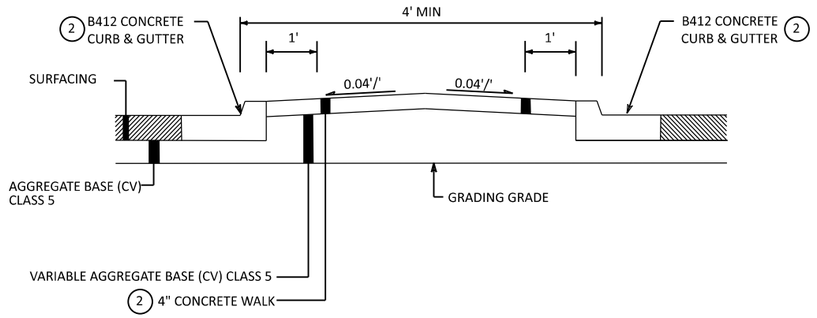


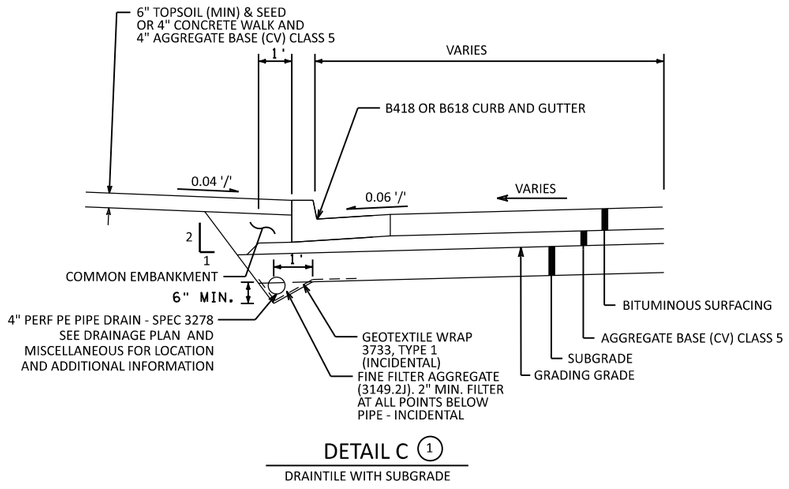
DETAIL A

DRAINTILE WITHOUT SUBGRADE



DETAIL B

PAVED MEDIAN



DETAIL C (1)

DRAINTILE WITH SUBGRADE

NOTES:

(1) APPLIES TO CSAH 1 QUANDRANTS WHERE DRAINTILE IS PROPOSED. SEE DRAINAGE PLAN FOR LOCATION OF DRAINTILE.

(2) HIGH EARLY CONCRETE.

NO.	DATE	BY	CHK	REVISIONS

Design By: MAN-O
Plan By: BAC
Checked By: MAN-O
Approved By: MAN-O

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

MICHAEL NELSON-OSTROWSKI, PE

DATE 5/4/2023 LICENSE # 56160

wsb

ANOKA COUNTY

CSAH 1 Improvements
Anoka County, Minnesota

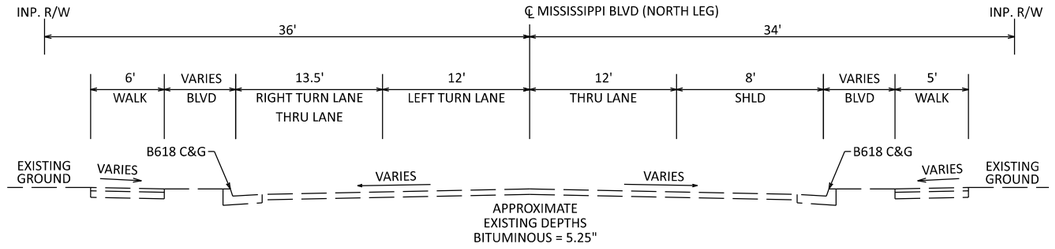
ANOKA COUNTY, MINNESOTA
DETAILS
TYPICAL SECTIONS
SP 002-601-057, SAP 114-105-017

SHEET **11** OF **103** SHEETS

PLOTTED/REVISED: 5/4/2023

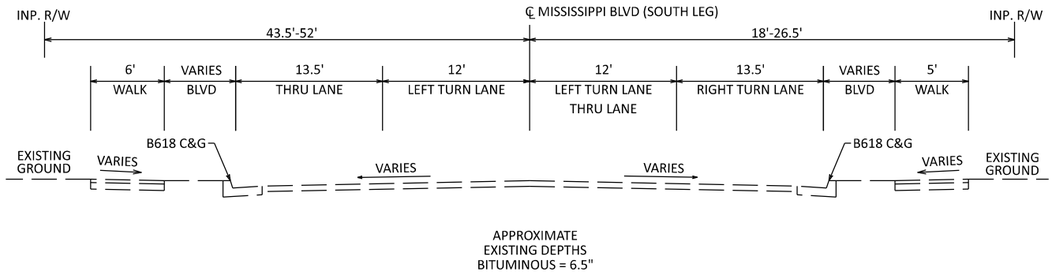
EXISTING - MISSISSIPPI BLVD (NORTH LEG)

STATION 300+00 TO 302+44.75



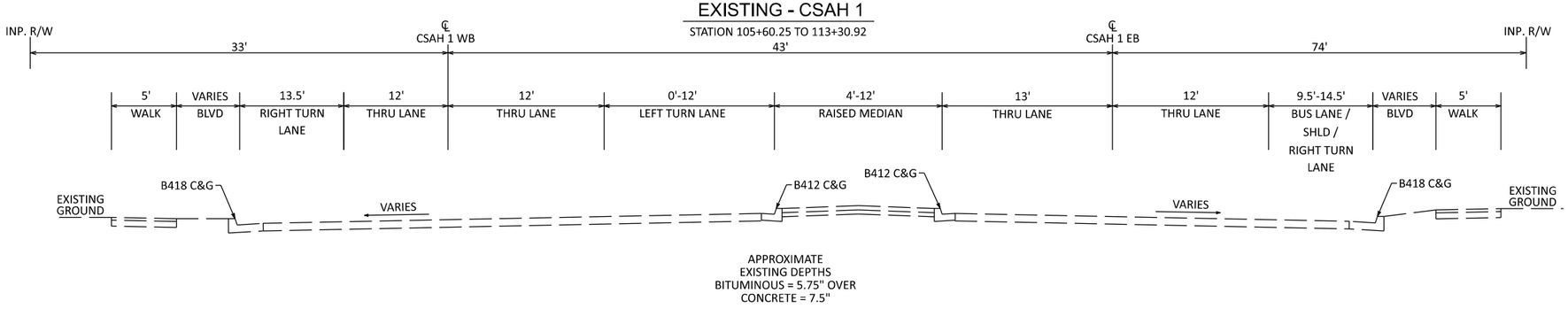
EXISTING - MISSISSIPPI BLVD (SOUTH LEG)

STATION 201+54.08 TO 205+8426



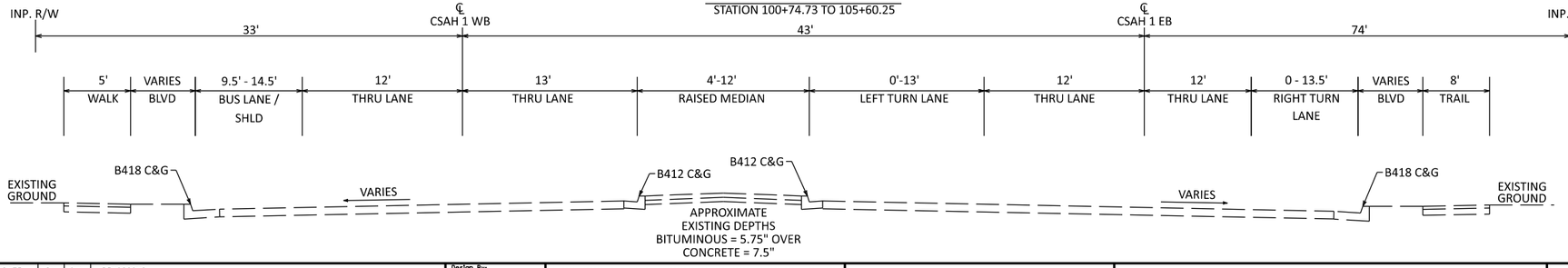
EXISTING - CSAH 1

STATION 105+60.25 TO 113+30.92



EXISTING - CSAH 1

STATION 100+74.73 TO 105+60.25



SPECIFIC NOTES

1. SEE SHEET 10 FOR INSETS.
2. SEE SHEET 11 FOR DETAILS.

GENERAL NOTES

- UNLESS OTHERWISE SPECIFIED, THE SUBGRADE CROSS SLOPE WILL BE THE SAME AS THE THRU LANE SLOPE. ALL CROSS SLOPES ARE SHOWN AS FT/FT.
- ALL EDGE DIMENSIONS ARE FACE TO FACE OF CURB OR TO THE EDGE OF THE BITUMINOUS PAVEMENT.
- BITUMINOUS TACK COAT MNDOT SPEC. 2357 SHALL BE APPLIED AT A UNIFORM RATE BETWEEN 0.05 GAL/SQ YARD BETWEEN NEW BITUMINOUS COURSES AND A RATE OF 0.085 GAL/SQ YARD ON MILLED SURFACES.

NO.	DATE	BY	CHK	REVISIONS

Design By: MAN-0
Plan By: BAC
Checked By: MAN-0
Approved By: MAN-0

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MICHAEL NELSON-OSTROWSKI, PE

DATE 5/4/2023 LICENSE # 56160

wsb

ANOKA COUNTY

CSAH 1 Improvements
Anoka County, Minnesota

ANOKA COUNTY, MINNESOTA
EXISTING TYPICALS
TYPICAL SECTIONS
SP 002-601-057, SAP 114-105-017

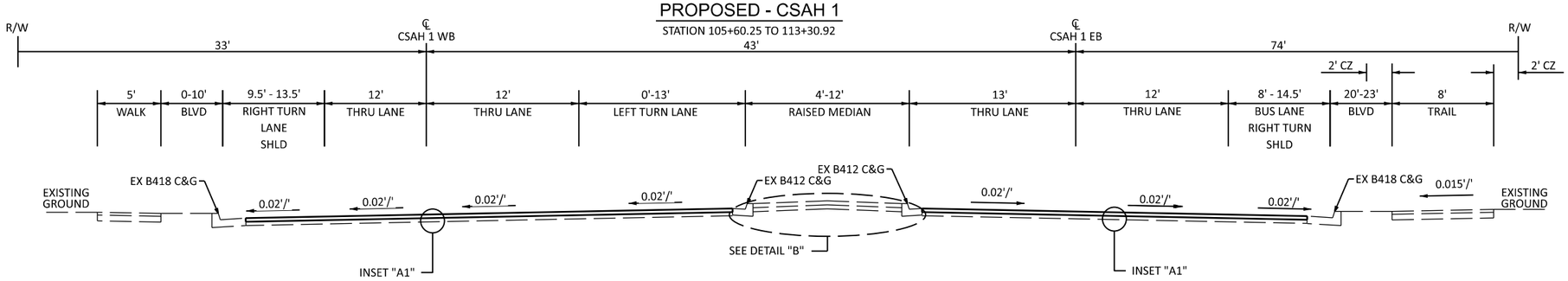
SHEET **12** OF **103** SHEETS

PATH & FILENAME: K:\01\8837-000\Cad\Plan\01\8837-000_ts01.dgn

PLOTTED/REVISED: 5/4/2023

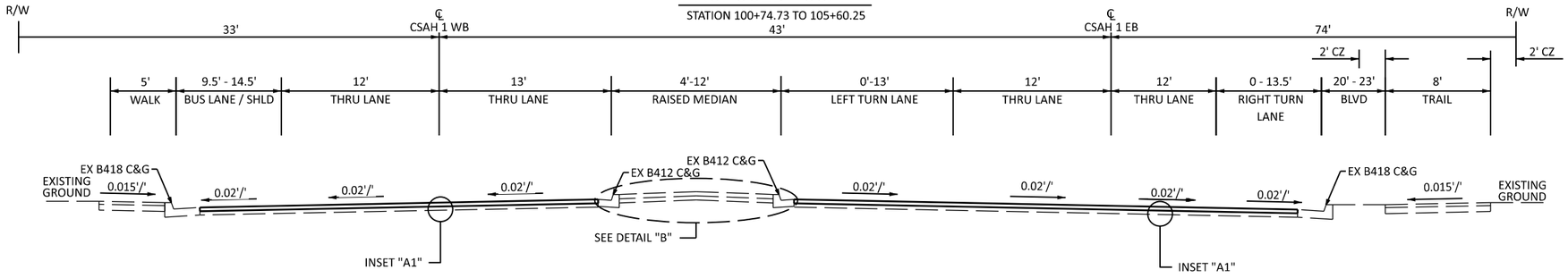
PROPOSED - CSAH 1

STATION 105+60.25 TO 113+30.92



PROPOSED - CSAH 1

STATION 100+74.73 TO 105+60.25



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NO.	DATE	BY	CHK	REVISIONS

Design By: MAN-O
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ANOKA COUNTY

CSAH 1 Improvements
Anoka County, Minnesota

ANOKA COUNTY, MINNESOTA
PROPOSED TYPICALS
TYPICAL SECTIONS
SP 002-601-057, SAP 114-105-017

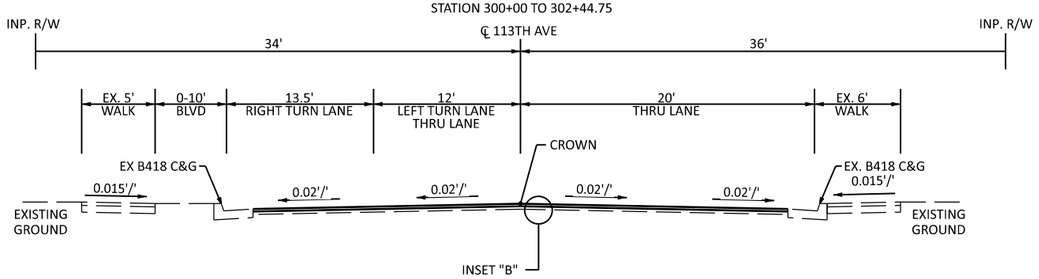
SHEET **13** OF **103** SHEETS

PATH & FILENAME: K:\0\8837-000\Cad\Plan\0\8837-000_ts01.dgn

PLOTTED/REVISED: 5/4/2023

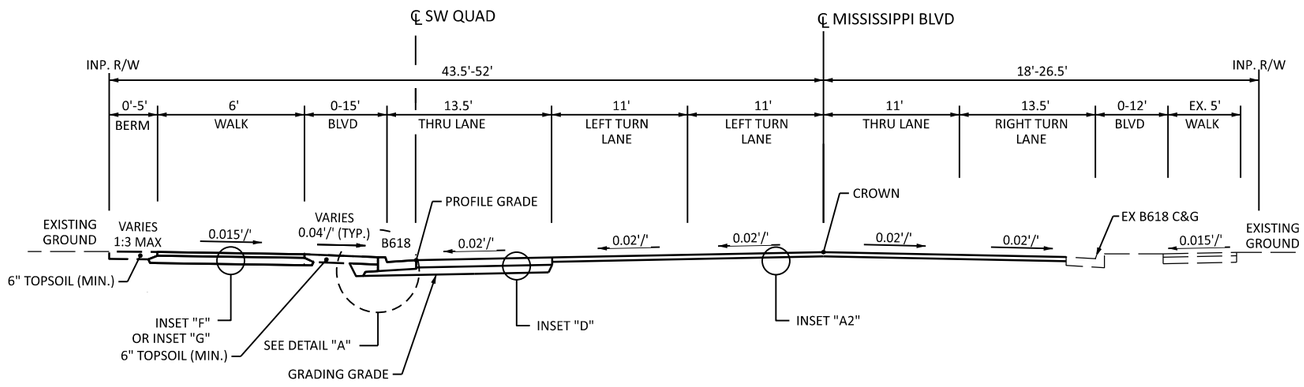
PROPOSED - MISSISSIPPI BLVD (NORTH LEG)

STATION 300+00 TO 302+44.75



PROPOSED - MISSISSIPPI BLVD (SOUTH LEG)

STATION 201+54.08 TO 206+50.00



SPECIFIC NOTES

1. SEE SHEET 10 FOR INSETS.
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ANOKA COUNTY

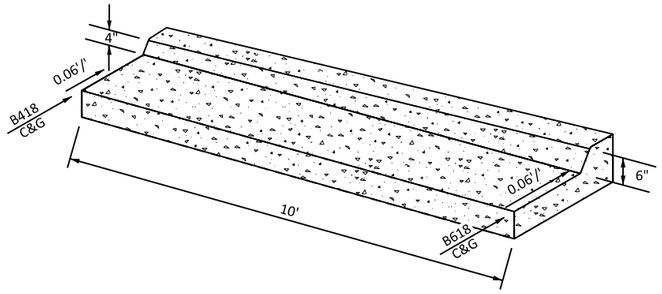
CSAH 1 Improvements
Anoka County, Minnesota

ANOKA COUNTY, MINNESOTA
PROPOSED TYPICALS
TYPICAL SECTIONS
SP 002-601-057, SAP 114-105-017

SHEET **14** OF **103** SHEETS

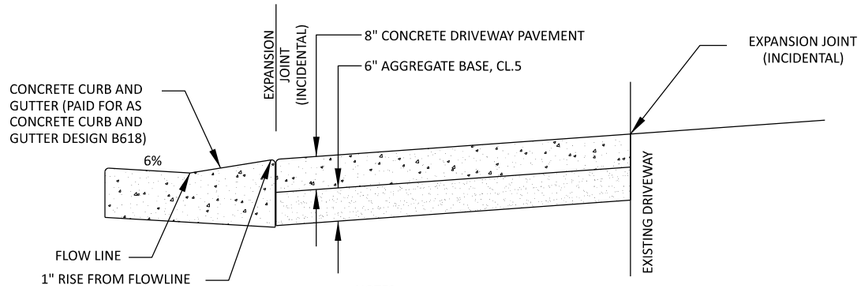
PATH & FILENAME: K:\01\8837-000\Cad\Plan\01\8837-000_ts01.dgn

PLOTTED/REVISED: 5/4/2023



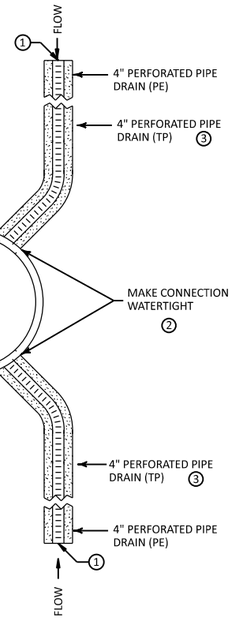
FOR OTHER DIMENSIONS SEE STANDARD PLATE NO. 7100
PAYMENT SHALL BE MADE AS B418 C&G BY THE LIN. FOOT

B418-B618 CONCRETE CURB & GUTTER TRANSITION TAPER



NOTES:
1. SAW JOINTS 2" DEEP @ 10' MAX SPACING WITHIN 12 HRS OF PLACEMENT. FILL JOINT WITH SEALANT
2. SEE TYPICAL SECTIONS FOR MORE INFORMATOIN ON DRIVEWAY PAVEMENT INSET.

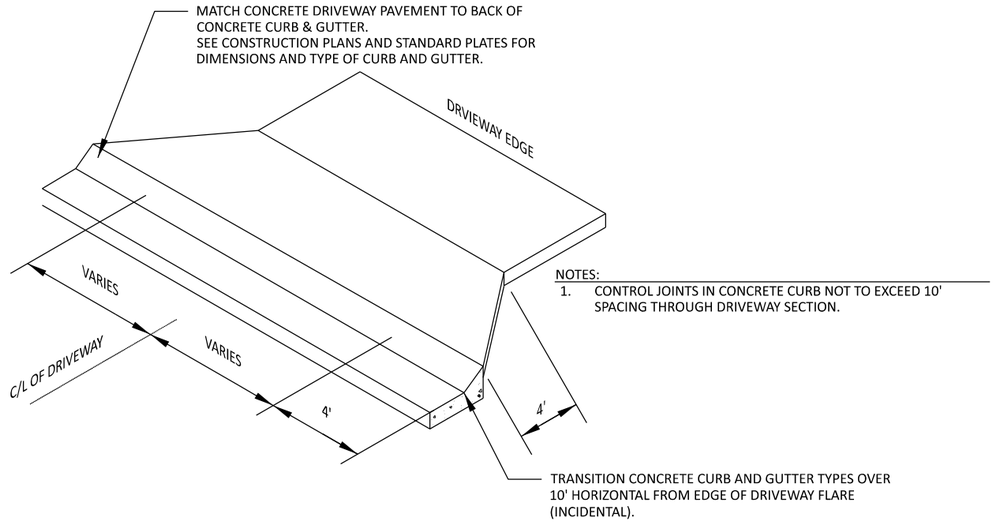
SECTION
CONCRETE DRIVEWAY



NOTES:
1. THE UPSTREAM ENDS OF THE PERFORATED TUBING SHALL BE CAPPED AS APPROVED BY THE PROJECT ENGINEER, AND CAPS SHALL BE INCIDENTAL.
2. DETAILS OF CONNECTION TO BE APPROVED BY THE ENGINEER. PAYMENT FOR CONNECTION SHALL BE INCIDENTAL. TWO CONNECTION POINTS SHOWN FOR LOW POINT STRUCTURES, FOR NON-LOW POINT ONLY ONE CONNECTION IS REQUIRED.
3. TP PIPE DRAIN TO BE USED WITHIN 15' FEET OF CONNECTION. ALL PIPE DRAIN TO BE PAID FOR AS 4" PERF PE PIPE DRAIN REGARDLESS OF TYPE.

TYPICAL PLAN VIEW AT DRAINAGE STRUCTURE

SUBSURFACE DRAINAGE DETAIL (4" PE PIPE DRAIN)
NO SCALE



NOTES:
1. CONTROL JOINTS IN CONCRETE CURB NOT TO EXCEED 10' SPACING THROUGH DRIVEWAY SECTION.

ISOMETRIC

MISSISSIPPI BLVD DRIVEWAY DETAIL
NO SCALE

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MICHAEL NELSON-OSTROWSKI, PE
DATE 5/4/2023 LICENSE # 56160

wsb

ANOKA COUNTY

CSAH 1 Improvements
Anoka County, Minnesota

ANOKA COUNTY, MINNESOTA

MISCELLANEOUS DETAILS
SP 002-601-057, SAP 114-105-017

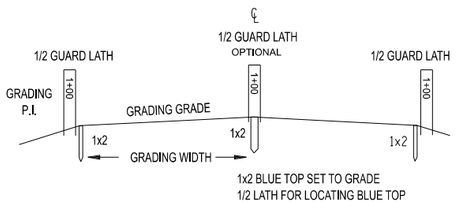
SHEET 15 OF 103 SHEETS

PATH & FILENAME: K:\01\8837-000\Cad\Plan\01\8837-000_mdl.dgn

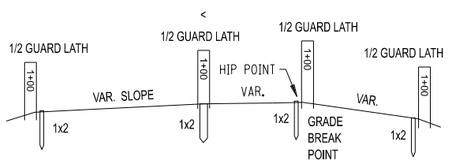
PLOTTED/REVISED: 5/4/2023

BLUE TOPS

NORMAL SECTION

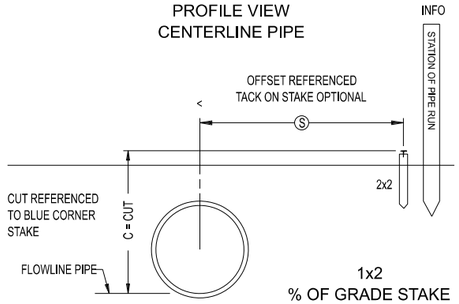


TRANSITION SECTION

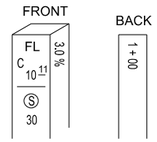


PIPE STAKING

PROFILE VIEW CENTERLINE PIPE

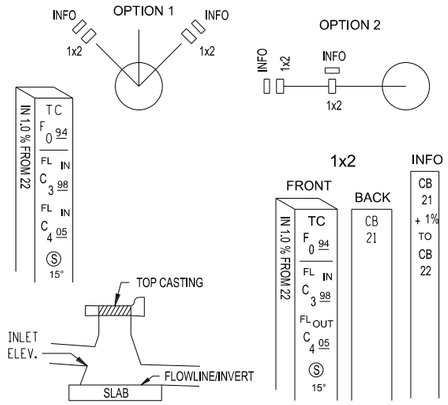


1x2 % OF GRADE STAKE



CATCH BASIN OR MANHOLE (CB/MH)

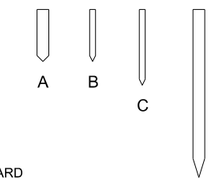
TOP VIEWS



FLOWLINE/INVERT + 0.7'

STANDARD STAKES

TYPES:
REFERENCE (REF)
INFORMATIONAL (INFO)
VISIBILITY (VIS)
GUARD (GUARD)



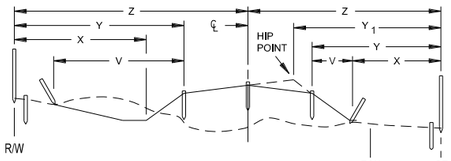
SIZES:
A = 2" X 2" X VAR. REF/INFO/GUARD
B = 1" X 2" X VAR. REF/INFO/GUARD
C = 1" X 2" X VAR. REF
D = LATH INFO/VIS/GUARD
1x2 OR LATH = INFO STAKES

ABBREVIATIONS

BBL = BARREL (PIPE)
B.C. = BACK CURB
C & G = CURB & GUTTER
C = CUT
CAP = CORR. ALUM. PIPE
CB = CATCH BASIN
< = CENTERLINE
CL & GR = CLEAR & GRUB
CMP = CORR. METAL PIPE
COR = CORNER
CR = CROWN
CSP = CORR. STEEL PIPE
℄ = DITCH CUT
D.E. = DRAINAGE EASEMENT
DI = DROP INLET
EB = EASTBOUND
E.M. = EDGE BITUMINOUS MAT
E.S. = EDGE CONCRETE SLAB
F = FILL
FF = FRONT FACE
FL = FLOW LINE
FL IN = FLOWLINE INLET
FL OUT = FLOWLINE OUTLET
GR = GRADE
GW = GRADING WIDTH
HH = HANDHOLE
HP = HIP POINT
LT = LEFT
MH = MANHOLE
NB = NORTHBOUND
Ⓢ = OFFSET
PAR = PARCEL
% = PERCENT GRADE
P.E. = PERM. EASEMENT
RAD = RADIUS POINT
RCP = REINF. CONC. PIPE
RP = REFERENCE POINT
RSC = REINF. SECT. CONC.
RT = RIGHT
R/W = RIGHT OF WAY
SB = SOUTHBOUND
SCP = SECT. CONC. PIPE
SH = SHOULDER
TC = TOP CASTING OR TOP CURB
T.E. = TEMP. EASEMENT
3 : 1 = SLOPE (EXAMPLE)
WB = WESTBOUND
WP = WORKING POINTS

SLOPE STAKES

SINGLE ROADWAY - EXAMPLE 'A'



STAKE 'A'

FULL LATH AND HUB-STATION
DIST. TO < WITH CUT/FILL TO < (Z)
DIST. TO SHLD. WITH CUT/FILL TO SHLD. (Y) (Y1)
DIST. TO TOE OF SLOPE, CUT/FILL FROM HUB (X)
OFFSET TO SAFTY SLOPE
OFFSET TO HIP POINT

STAKE 'B'

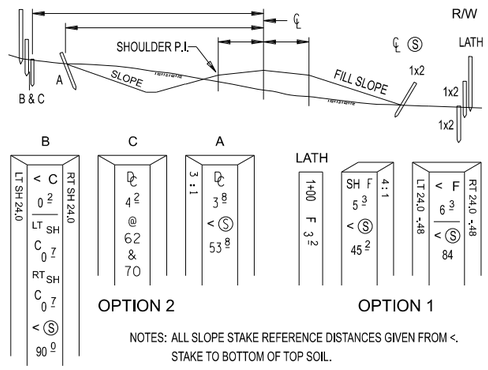
FULL LATH
DITCH CUT/SHLD. FILL
SLOPE RATED
DISTANCE TO INSLOPE TOE (V1) OR SHOULDER (AS APPLIES) (V)

NOTE:

BLUE TOPS REQUIRED ON < AND BOTH SHOULDERS AT MINIMUM
ALL CULVERTS TO BE STAKED
MINIMUM DATA TO BE PROVIDED
STAKE TO BOTTOM OF TOPSOIL

SLOPE STAKES

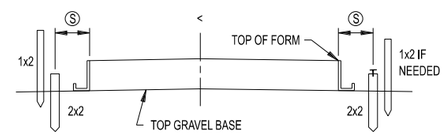
SINGLE ROADWAY - EXAMPLE 'B'



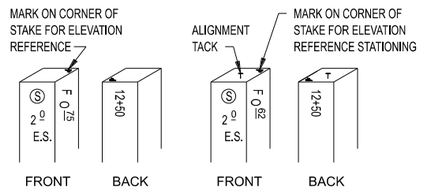
OPTION 2 OPTION 1

NOTES: ALL SLOPE STAKE REFERENCE DISTANCES GIVEN FROM <.
STAKE TO BOTTOM OF TOP SOIL.
KEY STAKES: BLUE TOP SET AT R/W BOUNDARY LT. & RT.
MAY BE EXCEPTIONS TO SETTING STAKE ON R/W.

CONCRETE PAVING STATIONARY FORM



OFFSET TO CONTRACTOR'S OPTION



NOTE INFORMATION ON STAKE IF NECESSARY

RECOMMENDED STAKING INTERVALS

FIGURE A

	SLOPE STAKES	SUB GRADE B.T.	CLASS MATERIAL B.T.	CONC PAVT	C & G	CL & GR LIMITS	MUCK EXC.	R/W	TEMP. EASE.
TANGENT	100	100	100	50	50	ALL CORNERS	100	ALL CORNERS	ALL CORNERS
HORIZ. CURVE									
0 - 3°	100	100	100	50	50	ALL CORNERS	100	ALL CORNERS	ALL CORNERS
OVER 3° -	100	50	50	25	25	ALL CORNERS	100	ALL CORNERS	ALL CORNERS
VERT. CURVE									
'M' 100' CHORD 0 - .25	100	100	100	50	50				
'M' OVER .25	100	50	50	25	25				
TRAN.		50	50						

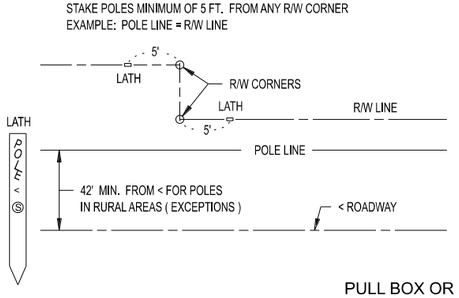
STAKING TOLERANCES (FEET)

	HORIZONTAL	VERTICAL
CONSTRUCTION LIMITS	± 1.5	
CLEARING & GRUBBING	2.0	
SLOPES STAKES	2.0	± 0.2
KEY STAKES	0.2	0.03
DRAINAGE STAKES	0.05	0.05
CURB & GUTTER	0.07	0.03
PAVING	0.05	0.03
ALIGNMENT	0.07	
UTILITY	0.10	0.05
STRUCTURAL	0.02	0.02
GUARD RAIL	0.5	
BUILDINGS	0.04	
O.H. SIGNS	0.05	0.05
MUCK EXCAVATION LIMITS	2.0	
R/W B-POINTS	0.10	
NOISE WALLS	1.0	0.5

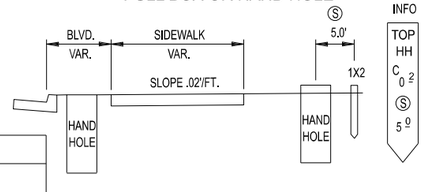
THE TOLERANCES ARE RELATIVE TO PROJECT DATUM

UTILITY (UTIL)

STAKE POLES MINIMUM OF 5 FT. FROM ANY R/W CORNER
EXAMPLE: POLE LINE = R/W LINE



PULL BOX OR HAND HOLE

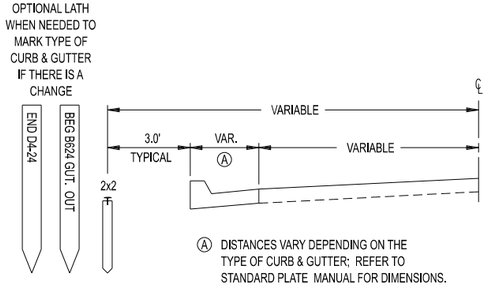


REVISION:

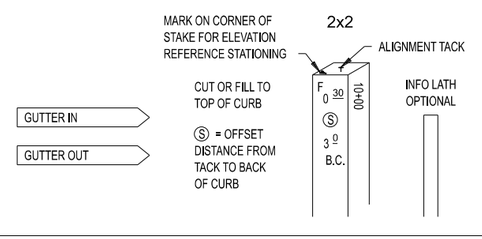
APPROVED: 8-6-2014
DIRECTOR, OFFICE OF LAND MANAGEMENT

CURB & GUTTER (CURB)

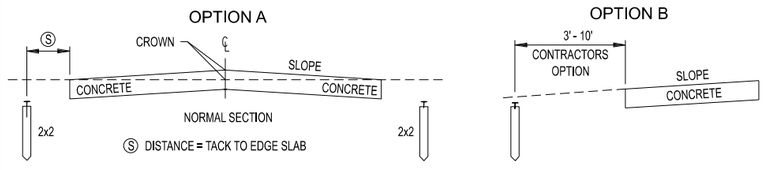
OPTIONAL LATH WHEN NEEDED TO MARK TYPE OF CURB & GUTTER IF THERE IS A CHANGE

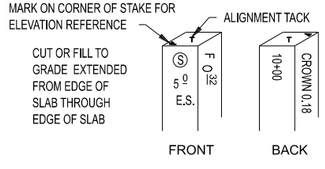


Ⓐ DISTANCES VARY DEPENDING ON THE TYPE OF CURB & GUTTER; REFER TO STANDARD PLATE MANUAL FOR DIMENSIONS.



CONCRETE PAVING - SLIP FORM





DISCLAIMER

THESE STAKING INFORMATION SHEETS ARE FOR INFORMATION PURPOSES ONLY. STAKING PROCEDURES VARY AND MAY BE SUBJECT TO CHANGE DURING CONSTRUCTION BY CIRCUMSTANCES AND/OR AGREEMENTS BETWEEN SURVEY CREW AND CONTRACTOR.

MINNESOTA DEPARTMENT OF TRANSPORTATION

STATE DESIGN ENGINEER

STANDARD PLAN 5-297.115 | 1 OF 2

APPROVED: 8-6-2014
REVISED:

STAKING INFORMATION SHEET

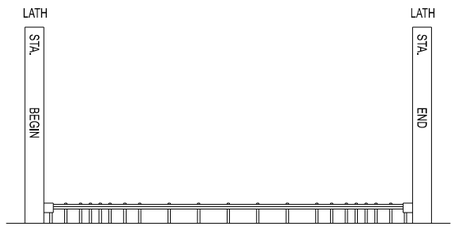
SP 002-601-057

SHEET NO. 16 OF 103 SHEETS

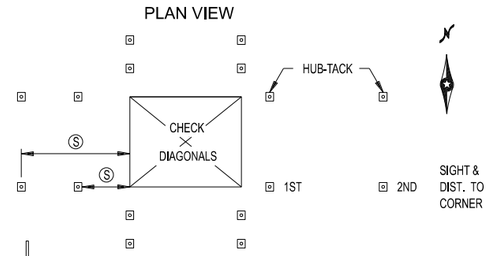
PATH & FILENAME: K:\0188837-000\Cadl\Plan\018837-000_SPN_100.dgn

PLOTTED/REVISED: 5/4/2023

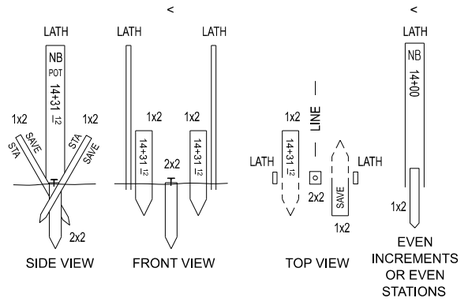
GUARDRAIL (GUARD)



BUILDING (BUILD) FOUNDATION / FOOTING



ALIGNMENT POINTS (ALIGN)



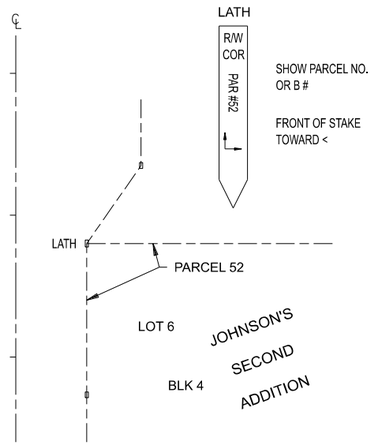
STAKE C = 2" X 2" HUB (LENGTH MAY VARY) SET AS TEMPORARY STAKE. MAY BE REPLACED BY MnDOT MARKER AFTER CONSTRUCTION IS COMPLETED.

SET AT GROUND LEVEL (TEMPORARY CONSTRUCTION STAKE).

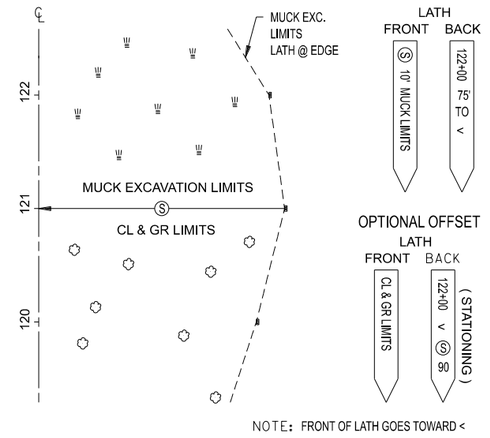
TACK SET AT ALIGNMENT POINTS.

STAKE A = GUARD STAKES SET AT ANGLE IN GROUND 6" EACH SIDE OF STAKE D, WITH STATIONING READ WHEN LOOKING UP STATION.

R/W & TEMP. EASEMENT (R/W)

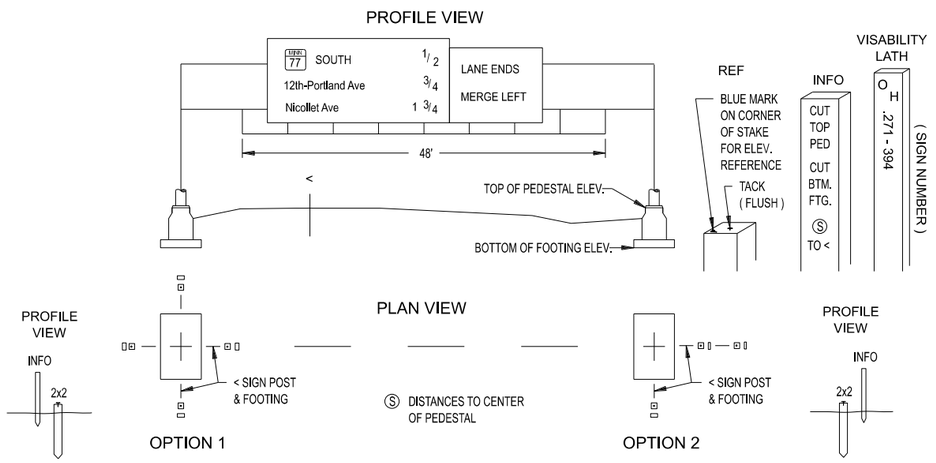


CLEAR & GRUBBING LIMITS (CLEAR) OR MUCK EXCAVATION LIMITS (MUCK)



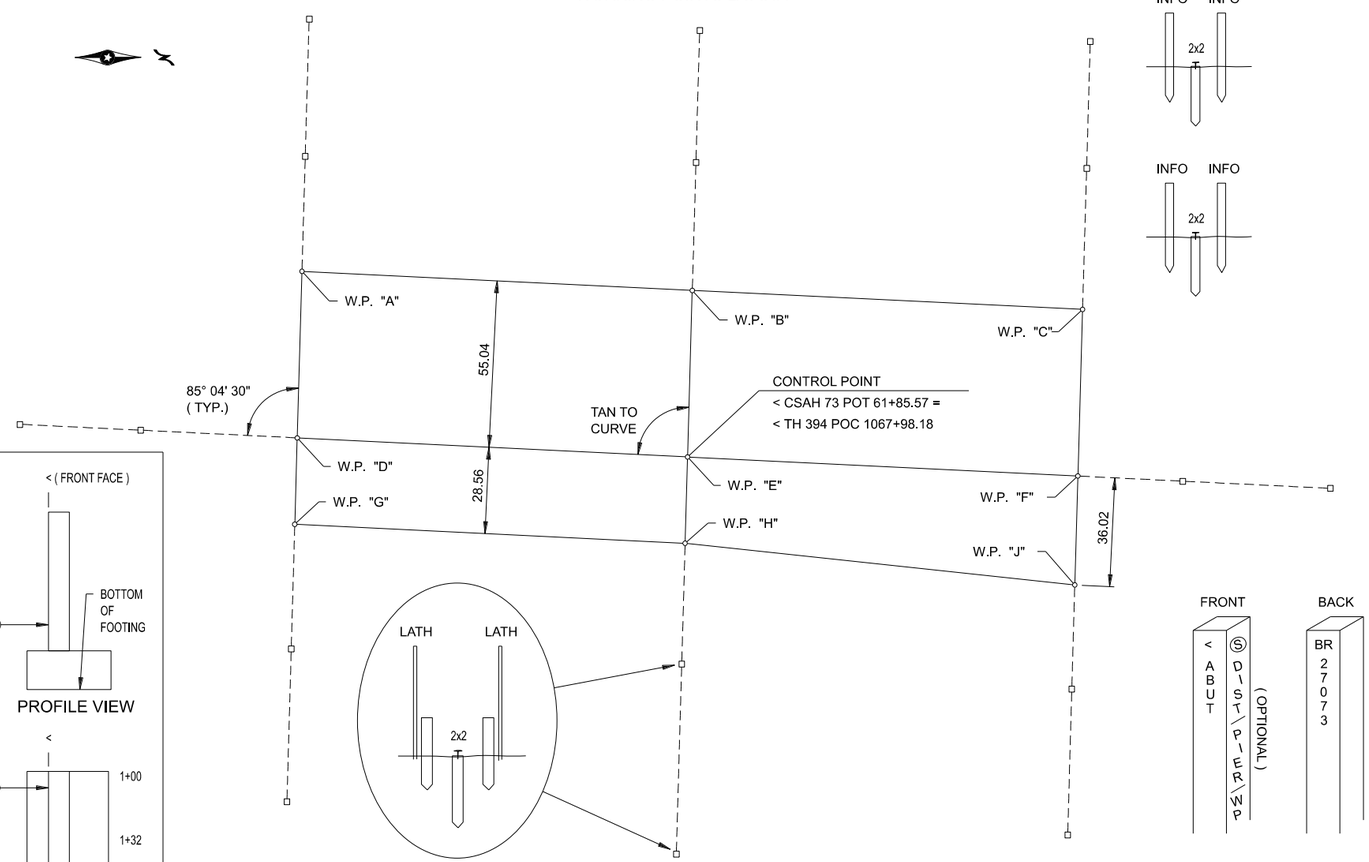
NOTE: FRONT OF LATH GOES TOWARD <

OVERHEAD SIGNS (SIGN)

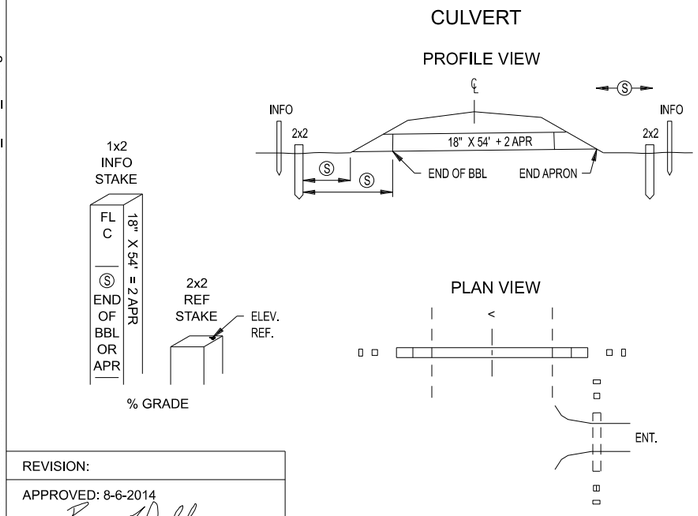


BRIDGESTAKING (BRIDGE)

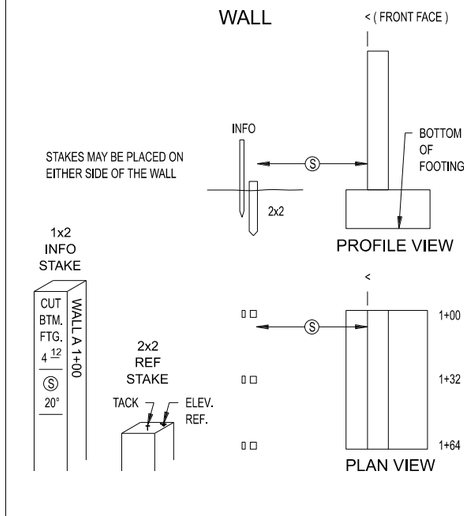
WORKING POINTS LAYOUT



CULVERT



WALL



REVISION:

APPROVED: 8-6-2014

DIRECTOR, OFFICE OF LAND MANAGEMENT

MINNESOTA DEPARTMENT OF TRANSPORTATION

STANDARD PLAN 5-297.115 | 2 OF 2

APPROVED: 8-6-2014
REVISED:

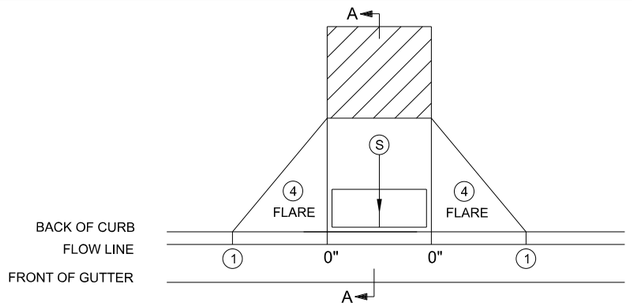
STATE DESIGN ENGINEER

STAKING INFORMATION SHEET

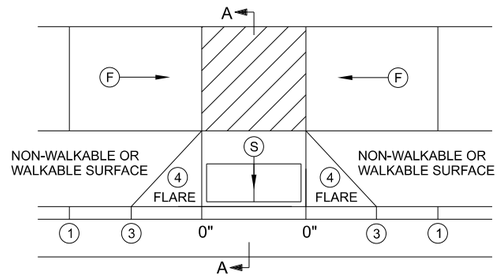
SP 002-601-057

SHEET NO. 17 OF 103 SHEETS

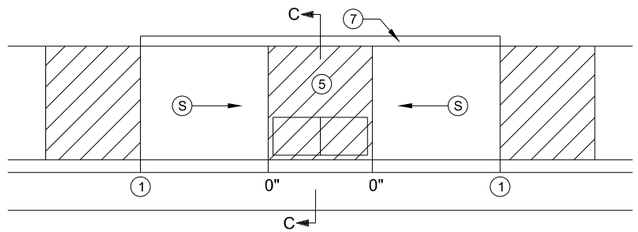
PATH & FILENAME: K:\018837-000\Cad\Plan\018837-000_SPN_100.dgn



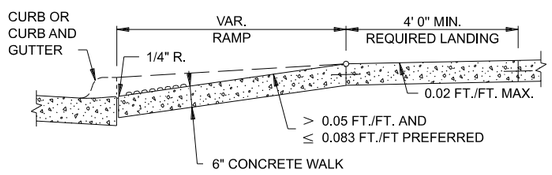
PERPENDICULAR



TIERED PERPENDICULAR

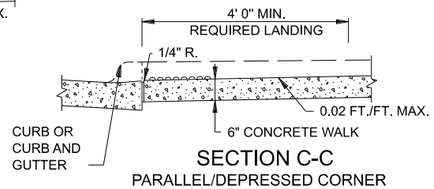


PARALLEL



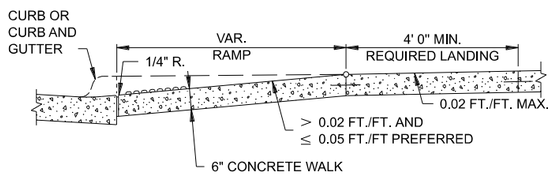
SECTION A-A

PERPENDICULAR/TIERED/DIAGONAL



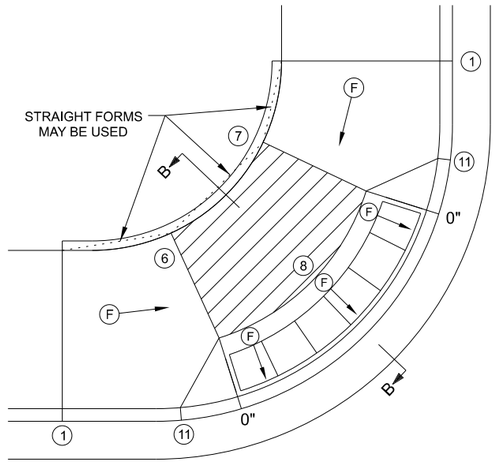
SECTION C-C

PARALLEL/DEPRESSED CORNER

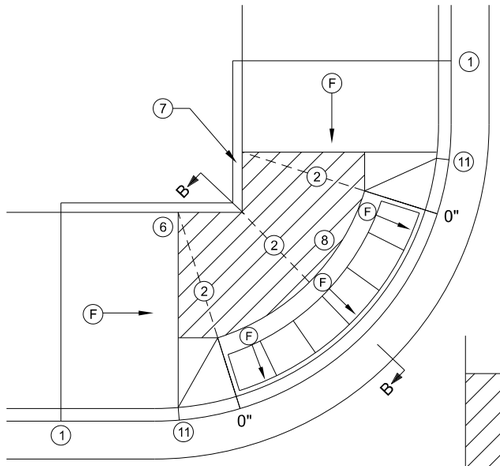


SECTION B-B

FAN

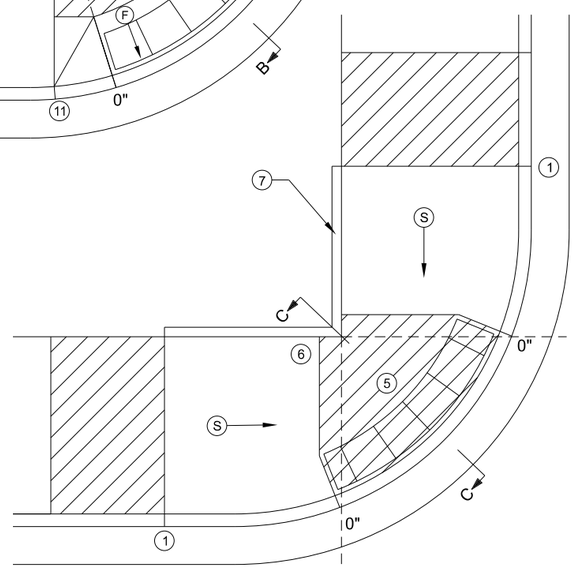


FAN (10)

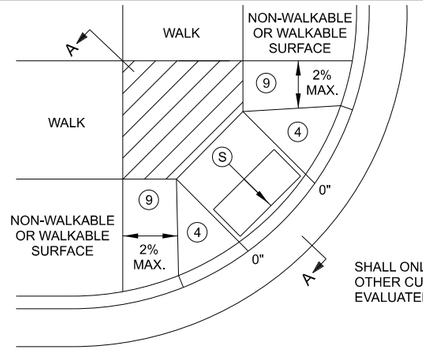


MODIFIED FAN (10)

USED WHEN RIGHT-OF-WAY
IS CONSTRAINED



DEPRESSED CORNER



DIAGONAL

SHALL ONLY BE USED AFTER ALL OTHER CURB RAMP TYPES HAVE BEEN EVALUATED AND DEEMED IMPRACTICAL

NOTES:

LANDINGS SHALL BE LOCATED ANYWHERE THE PEDESTRIAN ACCESS ROUTE (PAR) CHANGES DIRECTION, AT THE TOP OF RAMPS THAT HAVE RUNNING SLOPES GREATER THAN 5.0%, AND IF THE APPROACHING WALK IS INVERSE GRADE GREATER THAN 2%.

INITIAL CURB RAMP LANDINGS SHALL BE CONSTRUCTED WITHIN 15' FROM THE BACK OF CURB, WITH 6' FROM THE BACK OF CURB BEING THE PREFERRED DISTANCE, ONLY APPLICABLE WHEN THE INITIAL RAMP RUNNING SLOPE IS OVER 5.0%.

SECONDARY CURB RAMP LANDINGS ARE REQUIRED FOR EVERY 30" OF VERTICAL RISE WHEN THE LONGITUDINAL RUNNING SLOPE IS GREATER THAN 5.0%.

CONTRACTION JOINTS SHALL BE CONSTRUCTED ALONG ALL GRADE BREAKS WITHIN THE PAR, 1/4" DEEP VISUAL JOINTS SHALL BE USED AT THE TOPS OF CONCRETE FLARES ADJACENT TO WALKABLE SURFACES.

ALL GRADE BREAKS WITHIN THE PAR SHALL BE PERPENDICULAR TO THE PATH OF TRAVEL. THUS BOTH SIDES OF A SLOPED WALKING SURFACE MUST BE EQUAL LENGTH. (EXCEPT AS STATED IN (6) BELOW.

TO ENSURE RAMPS AND LANDINGS ARE PROPERLY CONSTRUCTED, ALL INITIAL LANDINGS AT A TOP OF A RAMPED SURFACE (RUNNING SLOPE GREATER THAN 2%) SHALL BE FORMED AND PLACED SEPARATELY IN AN INDEPENDENT CONCRETE POUR. FOLLOW SIDEWALK REINFORCEMENT DETAILS ON SHEET 6 OF 6 FOR ALL SEPARATELY POURED INITIAL LANDINGS.

WHEN SIDEWALK IS AT BACK OF CURB, TOP OF CURB SHALL MATCH PROPOSED ADJACENT WALK GRADE.

MAINTAIN POSITIVE BOULEVARD DRAINAGE TO TOP OF CURB.

ALL RAMP TYPES SHOULD HAVE A MINIMUM 3' LONG RAMP LENGTH.

4' MINIMUM WIDTH OF DETECTABLE WARNING IS REQUIRED FOR ALL RAMPS. DETECTABLE WARNINGS SHALL CONTINUOUSLY EXTEND FOR A MIN. OF 24" IN THE PATH OF TRAVEL. DETECTABLE WARNING TO COVER THE ENTIRE PAR WIDTH OF SHARED-USE PATHS AND THE ENTIRE PAR WIDTH OF THE WALK **WITH THE EXCEPTION OF 3" MAXIMUM ON EACH OUTSIDE EDGE WHICH ENSURES THE DETECTABLE WARNINGS ARE ENCASED IN CONCRETE WHEN ADJACENT TO TURF. WHEN ADJACENT TO CONCRETE FLARES 0" - 3" OFFSET IS ALLOWED.**

WHEN DESIGNING OR ORDERING RECTANGULAR DETECTABLE WARNING SURFACES SHOULD BE 6" LESS THAN THE INCOMING PAR. ARC LENGTH OF THE RADIAL DETECTABLE WARNINGS SHOULD NOT BE GREATER THAN 20 FEET.

RECTANGULAR DETECTABLE WARNINGS SHALL BE SETBACK 3" FROM THE BACK OF CURB. RADIAL DETECTABLE WARNINGS SHALL BE SETBACK 3" MINIMUM TO 6" MAXIMUM FROM THE BACK OF CURB.

(1) MATCH FULL HEIGHT CURB.

(2) 4' MINIMUM DEPTH LANDING REQUIRED ACROSS TOP OF RAMP.

(3) 3" HIGH CURB WHEN USING A 3' LONG RAMP, 4" HIGH CURB WHEN USING A 4' LONG RAMP.

(4) SEE SHEET 4 OF 6, TYPICAL SIDE TREATMENT OPTIONS, FOR DETAILS ON FLARES AND RETURNED CURBS.

(5) DETECTABLE WARNINGS MAY BE PART OF THE 4' X 4' MIN. LANDING AREA IF IT IS NOT FEASIBLE TO CONSTRUCT THE LANDING OUTSIDE OF THE DETECTABLE WARNING AREA.

(6) THE GRADE BREAK SHALL BE PERPENDICULAR TO THE BACK OF WALK. THIS WILL ENSURE THAT THE GRADE BREAK IS PERPENDICULAR TO THE DIRECTION OF TRAVEL. (TYPICAL FOR ALL)

(7) WHEN ADJACENT TO GRASS, GRADING SHALL ALWAYS BE USED WHEN FEASIBLE. V CURB, IF USED, SHALL BE PLACED OUTSIDE THE SIDEWALK LIMITS WHEN RIGHT OF WAY ALLOWS. WHEN ADJACENT TO PARKING LOTS, CONCRETE OR BITUMINOUS TAPERS LESS THAN 5% RUNNING SLOPE SHOULD BE USED OVER V CURB TO REDUCE TRIPPING HAZARDS AND FACILITATE SNOW & ICE REMOVAL.

(8) A 7' MIN TOP RADIUS GRADE BREAK IS REQUIRED TO BE CONSTRUCTIBLE.

(9) PAVE FULL WALK WIDTH.

(10) "S" SLOPES ON FANS SHALL ONLY BE USED WHEN ALL OTHER FEASIBLE OPTIONS HAVE BEEN EVALUATED AND DEEMED IMPRACTICAL.

(11) INTERMEDIATE CURB HEIGHTS TAPER SHALL RISE AT 8-10% TO A MINIMUM 3" CURB HEIGHT. REDUCE INTERMEDIATE CURB HEIGHT TO 2+ INCHES IF NECESSARY TO MATCH ADJACENT BOULEVARD OR SIDEWALK GRADES.

LEGEND

THESE LONGITUDINAL SLOPE RANGES SHALL BE THE STARTING POINT. IF SITE CONDITIONS WARRANT, LONGITUDINAL SLOPES UP TO 8.3% OR FLATTER ARE ALLOWED.

(S) INDICATES PEDESTRIAN RAMP - SLOPE SHALL BE BETWEEN 5.0% MINIMUM AND 8.3% MAXIMUM IN THE DIRECTION SHOWN AND THE CROSS SLOPE SHALL NOT EXCEED 2.0%.

(F) INDICATES PEDESTRIAN RAMP - SLOPE SHALL BE GREATER THAN 2.0% AND LESS THAN 5.0% IN THE DIRECTION SHOWN AND CROSS SLOPE SHALL NOT EXCEED 2.0%.

LANDING AREA - 4' X 4' MIN. (5' X 5' MIN. PREFERRED) DIMENSIONS AND MAX 2.0% SLOPE IN ALL DIRECTIONS. LANDING SHALL BE FULL WIDTH OF INCOMING PARS.

X" CURB HEIGHT

PLOTTED/REVISED: 5/4/2023

PATH & FILENAME: K:\018837-000\Cad\Plan\018837-000_SPN_200.dgn

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JEFFREY PERKINS
OPERATIONS DIVISION

MINNESOTA
DEPARTMENT OF TRANSPORTATION

STANDARD PLAN 5-297.250 | 1 OF 6

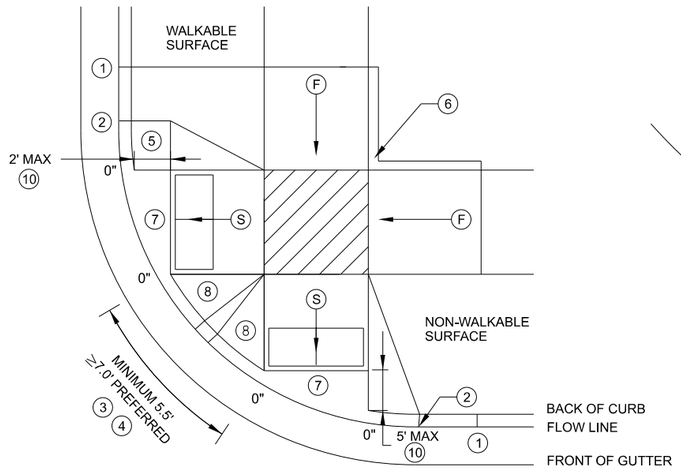
APPROVED: 11-04-2021
REVISED:

THOMAS STYRBICKI
STATE DESIGN ENGINEER

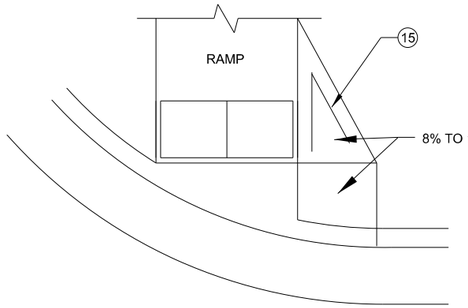
SP 002-601-057

PEDESTRIAN CURB RAMP DETAILS

SHEET NO. 18 OF 103 SHEETS

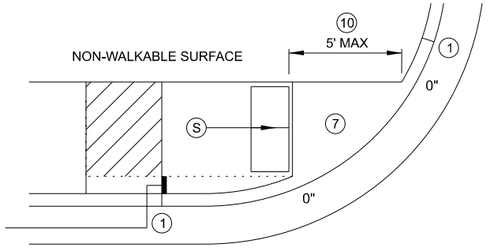


COMBINED DIRECTIONAL

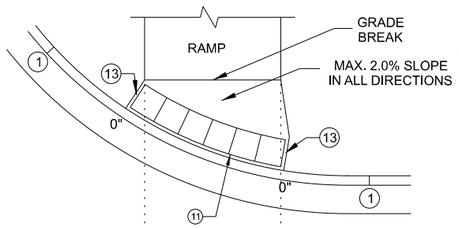


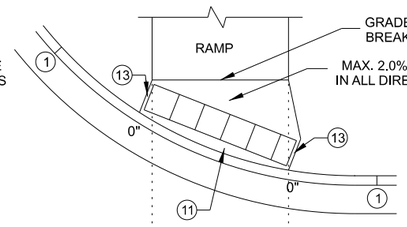
DIRECTIONAL RAMP WALKABLE FLARE

IF NON-CONCRETE BLVD. IS CONSTRUCTED AND IS LESS THAN 2' IN WIDTH AT TOP OF CURB TRANSITION, PAVE CONCRETE RAMP WIDTH TO ADJACENT BACK OF CURB.



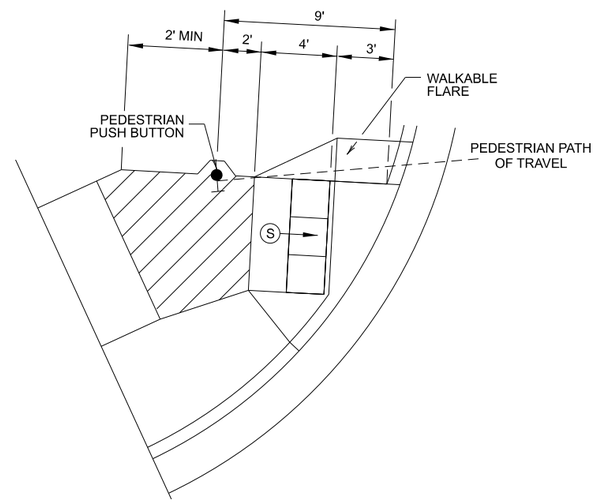
STANDARD ONE-WAY DIRECTIONAL (9)





DETECTABLE WARNING PLACEMENT WHEN SETBACK CRITERIA IS EXCEEDED (12)

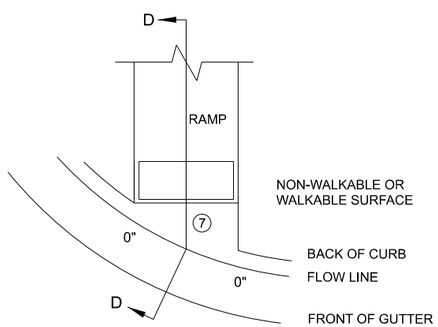
ONE-WAY DIRECTIONAL WITH DETECTABLE WARNING AT BACK OF CURB

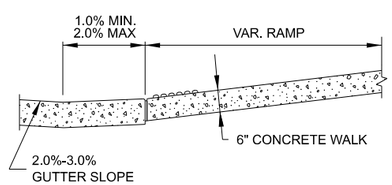


SEMI-DIRECTIONAL RAMP (3)(4)(9)

3' DOME SETBACK, 4' LONG RAMP AND PUSH BUTTON 9' FROM THE BACK OF CURB

PRIMARILY USED FOR APS APPLICATIONS WHERE THE PAR DOES NOT CONTINUE PAST THE PUSH BUTTON (DEAD-END SIDEWALK)





SECTION D-D

CURB FOR DIRECTIONAL RAMPS (14)

NOTES:

LANDINGS SHALL BE LOCATED ANYWHERE THE PEDESTRIAN ACCESS ROUTE (PAR) CHANGES DIRECTION, AT THE TOP OF RAMPS THAT HAVE RUNNING SLOPES GREATER THAN 5.0%, AND IF THE APPROACHING WALK IS INVERSE GRADE.

INITIAL CURB RAMP LANDINGS SHALL BE CONSTRUCTED WITHIN 15' FROM THE BACK OF CURB, WITH 6' FROM THE BACK OF CURB BEING THE PREFERRED DISTANCE, ONLY APPLICABLE WHEN THE INITIAL RAMP RUNNING SLOPE IS OVER 5.0%.

SECONDARY CURB RAMP LANDINGS ARE REQUIRED FOR EVERY 30" OF VERTICAL RISE WHEN THE LONGITUDINAL SLOPE IS GREATER THAN 5.0%.

CONTRACTION JOINTS SHALL BE CONSTRUCTED ALONG ALL GRADE BREAKS WITHIN THE PAR. 1/4" DEEP VISUAL JOINTS SHALL BE USED AT THE TOP GRADE BREAK OF CONCRETE FLARES ADJACENT TO WALKABLE SURFACES.

ALL GRADE BREAKS WITHIN THE PAR SHALL BE PERPENDICULAR TO THE PATH OF TRAVEL. THUS BOTH SIDES OF A SLOPED WALKING SURFACE MUST BE EQUAL LENGTH.

TO ENSURE INITIAL RAMPS AND INITIAL LANDINGS ARE PROPERLY CONSTRUCTED, LANDINGS SHALL BE CAST SEPARATELY. FOLLOW SIDEWALK REINFORCEMENT DETAILS ON SHEET 6 AND THE ADA SPECIAL PROVISION (PROSECUTION OF WORK).

TOP OF CURB SHALL MATCH PROPOSED ADJACENT WALK GRADE.

WHEN THE BOULEVARD IS 4' WIDE OR LESS, THE TOP OF CURB TAPER SHALL MATCH THE RAMP SLOPES TO REDUCE NEGATIVE BOULEVARD SLOPES FROM THE TOP BACK OF CURB TO THE PAR.

ALL RAMP TYPES SHOULD HAVE A MINIMUM 3' LONG RAMP LENGTH.

4' MINIMUM WIDTH OF DETECTABLE WARNING IS REQUIRED FOR ALL RAMPS. DETECTABLE WARNINGS SHALL CONTINUOUSLY EXTEND FOR A MIN. OF 24" IN THE PATH OF TRAVEL. DETECTABLE WARNING TO COVER THE ENTIRE PAR WIDTH OF SHARED-USE PATHS AND THE ENTIRE PAR WIDTH OF THE WALK. **WITH THE EXCEPTION OF 3" MAXIMUM ON EACH OUTSIDE EDGE WHICH ENSURES THE DETECTABLE WARNINGS ARE ENCASED IN CONCRETE WHEN ADJACENT TO TURF. WHEN ADJACENT TO CONCRETE FLARES 0" - 3" OFFSET IS ALLOWED.**

WHEN DESIGNING OR ORDERING RECTANGULAR DETECTABLE WARNING SURFACES SHOULD BE 6" LESS THAN THE INCOMING PAR. ARC LENGTH OF THE RADIAL DETECTABLE WARNINGS SHOULD NOT BE GREATER THAN 20 FEET.

RADIAL DETECTABLE WARNINGS SHALL BE SETBACK 3" MINIMUM TO 6" MAXIMUM FROM THE BACK OF CURB. SEE NOTES (10)& (11)FOR INFORMATION REGARDING RECTANGULAR DETECTABLE WARNING PLACEMENT.

(1) MATCH FULL CURB HEIGHT.

(2) 3" HIGH CURB WHEN USING A 3' LONG RAMP
4" HIGH CURB WHEN USING A 4' LONG RAMP.

(3) 3" MINIMUM CURB HEIGHT (5.5' MIN. DISTANCE REQUIRED BETWEEN DOMES)
4" PREFERRED (7' MIN. DISTANCE REQUIRED BETWEEN DOMES).

(4) THE "BUMP" IN BETWEEN THE RAMPS SHOULD NOT BE IN THE PATH OF TRAVEL FOR COMBINED DIRECTIONAL RAMPS. IF THIS OCCURS MODIFY THE RAMP LOCATION OR SWITCH RAMP TO A FAN/DEPRESSED CORNER.

(5) WHEN USING CONCRETE PAVED FLARES ON THE OUTSIDE OF DIRECTIONAL RAMPS, AND ADJACENT TO A WALKABLE SURFACE, DIRECTIONAL RAMP FLARES SHALL BE USED. SEE THE DETAIL ON THIS SHEET.

(6) GRADING SHALL ALWAYS BE USED WHEN FEASIBLE. V CURB, IF USED, SHALL BE PLACED OUTSIDE THE SIDEWALK LIMITS WHEN RIGHT OF WAY ALLOWS. WHEN ADJACENT TO PARKING LOTS, CONCRETE OR BITUMINOUS TAPERS SHOULD BE USED OVER V CURB TO REDUCE TRIPPING HAZARDS AND FACILITATE SNOW & ICE REMOVAL.

(7) MAX. 2.0% SLOPE IN ALL DIRECTIONS IN FRONT OF GRADE BREAK AND DRAIN TO FLOW LINE. SHALL BE CONSTRUCTED INTEGRAL WITH CURB AND GUTTER.

(8) 8% TO 10% WALKABLE FLARE.

(9) PLACE DOMES AT THE BACK OF CURB WHEN ALLOWABLE SETBACK CRITERIA IS EXCEEDED.

(10) FRONT EDGE OF DETECTABLE WARNING SHALL BE SET BACK 2' MAXIMUM WHEN ADJACENT TO WALKABLE SURFACE, AND 5' MAXIMUM WHEN ADJACENT TO NON-WALKABLE SURFACE WITH ONE CORNER SET 3" FROM BACK OF CURB. A WALKABLE SURFACE IS DEFINED AS A PAVED SURFACE ADJACENT TO A CURB RAMP WITHOUT RAISED OBSTACLES THAT COULD MISTAKENLY BE TRAVERSED BY A USER WHO IS VISUALLY IMPAIRED.

(11) RECTANGULAR DETECTABLE WARNINGS MAY BE SETBACK UP TO 9" FROM THE BACK OF CURB WITH CORNERS SET 3" FROM BACK OF CURB. IF 9" SETBACK IS EXCEEDED USE RADIAL DETECTABLE WARNINGS.

(12) FOR DIRECTIONAL RAMPS WITH THE DETECTABLE WARNINGS PLACED AT THE BACK OF CURB, THE DETECTABLE WARNINGS SHALL COVER THE ENTIRE WIDTH OF THE WALK/PATH. THIS ENSURES A DETECTABLE EDGE AND HELPS ELIMINATE THE CURB TAPER OBSTRUCTING THE PATH OF PEDESTRIAN TRAVEL.

(13) THE CONCRETE WALK SHALL BE FORMED AND CONSTRUCTED PERPENDICULAR TO THE BACK OF CURB. MAINTAIN 3" BETWEEN EDGE OF DOMES AND EDGE OF CONCRETE.

(14) TO BE USED FOR ALL DIRECTIONAL RAMPS, EXCEPT WHERE DOMES ARE PLACED ALONG THE BACK OF CURB.

(15) PLACE 2 NO. 4 BARS 4 INCHES FROM SIDE OF FORMS WITH A MINIMUM 2 INCHES OF CONCRETE COVER ALONG EACH SIDE OF FLARE (INCIDENTAL).

LEGEND

THESE LONGITUDINAL SLOPE RANGES SHALL BE THE STARTING POINT. IF SITE CONDITIONS WARRANT, LONGITUDINAL SLOPES UP TO 8.3% OR FLATTER ARE ALLOWED.

(S) INDICATES PEDESTRIAN RAMP - SLOPE SHALL BE BETWEEN 5.0% MINIMUM AND 8.3% MAXIMUM IN THE DIRECTION SHOWN AND THE CROSS SLOPE SHALL NOT EXCEED 2.0%.

(F) INDICATES PEDESTRIAN RAMP - SLOPE SHALL BE GREATER THAN 2.0% AND LESS THAN 5.0% IN THE DIRECTION SHOWN AND CROSS SLOPE SHALL NOT EXCEED 2.0%.

LANDING AREA - 4' X 4' MIN. (5' X 5' MIN. PREFERRED) DIMENSIONS AND MAX 2.0% SLOPE IN ALL DIRECTIONS. LANDING SHALL BE FULL WIDTH OF INCOMING PARS.

X" CURB HEIGHT

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JEFFREY PERKINS
OPERATIONS DIVISION

MINNESOTA DEPARTMENT OF TRANSPORTATION

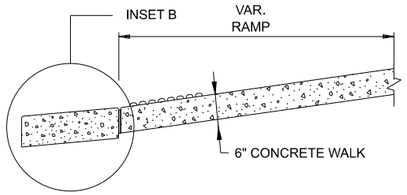
STANDARD PLAN 5-297.250 | 2 OF 6

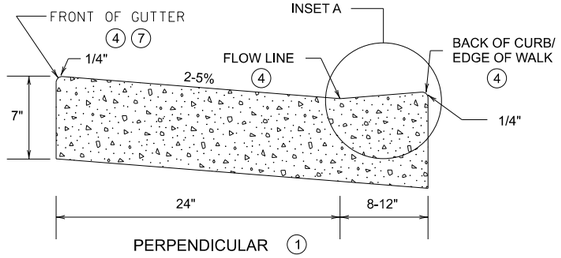
APPROVED: 11-04-2021
REVISED:

THOMAS STYRBICKI
STATE DESIGN ENGINEER

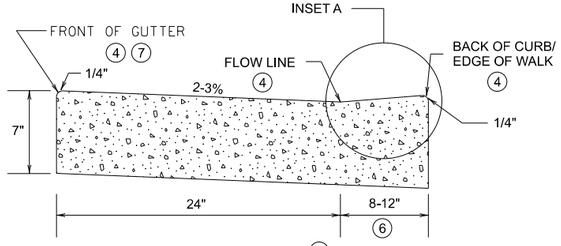
PEDESTRIAN CURB RAMP DETAILS

SP 002-601-057





PERPENDICULAR (1)



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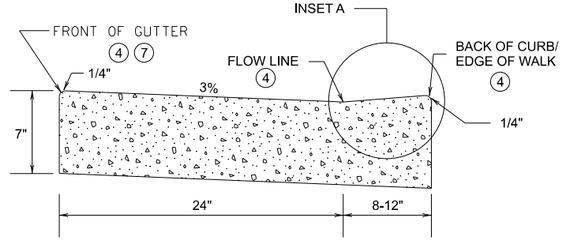
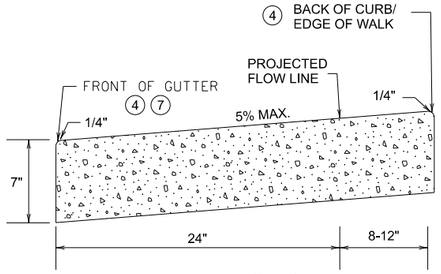


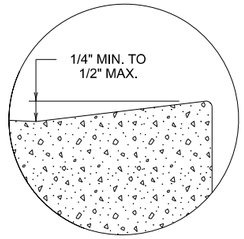
FOR CURB MACHINE PLACEMENT AROUND RADIUS (3)
(REGARDLESS OF RAMP TYPE)

PEDESTRIAN ACCESS ROUTE CURB & GUTTER DETAIL

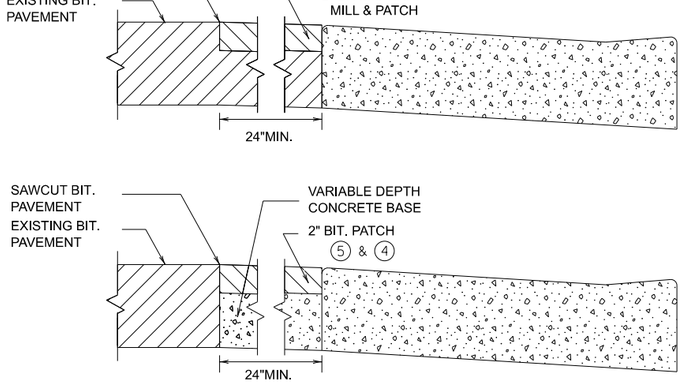


INSET B

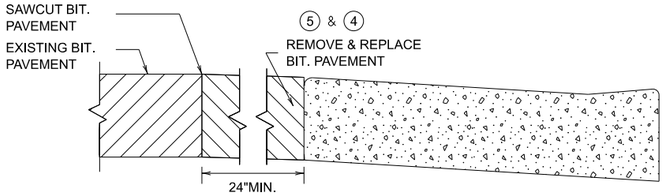
OUTFLOW GUTTER (8)

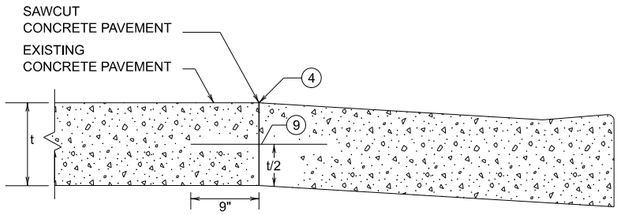


INSET A



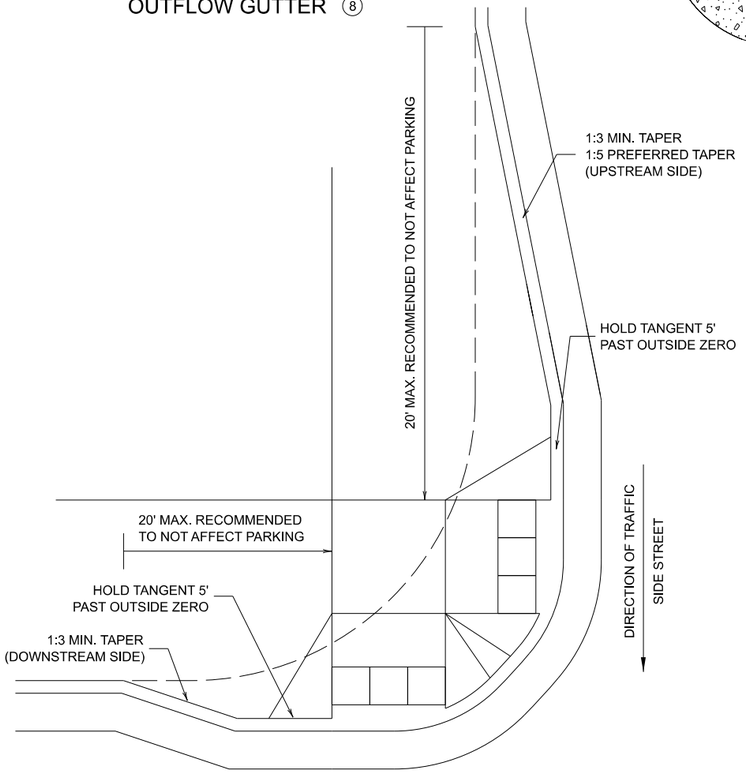
ONLY ALLOWED PER ENGINEER'S APPROVAL



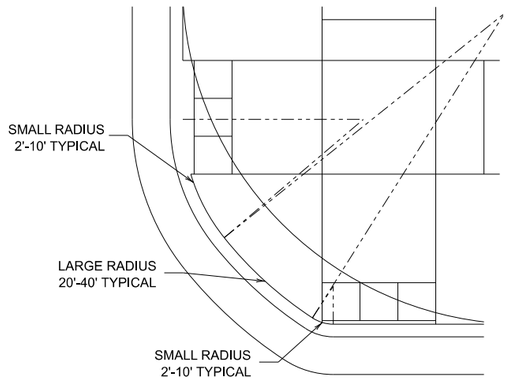


PAVEMENT TREATMENT OPTIONS IN FRONT OF CURB & GUTTER

FOR USE ON CURB RAMP RETROFITS



ADA CURB EXTENSION WITH COMPOUND RADIUS (BUMP OUT) (11)



COMBINED DIRECTIONAL (10)
(COMPOUND RADIUS)

NOTES:

POSITIVE FLOW LINE DRAINAGE SHALL BE MAINTAINED THROUGH THE PEDESTRIAN ACCESS ROUTE (PAR) AT A 2% MAXIMUM.

NO PONDING SHALL BE PRESENT IN THE PAR.

ANY VERTICAL LIP THAT OCCURS AT THE FLOW LINE SHALL NOT BE GREATER THAN 1/4 INCH.

(1) FOR USE AT CURB CUTS WHERE THE PEDESTRIAN'S PATH OF TRAVEL IS ASSUMED PERPENDICULAR TO THE GUTTER FLOW LINE. RAMP TYPES INCLUDE: PERPENDICULAR, TIERED PERPENDICULAR, PARALLEL, AND DIAGONAL RAMPS.

(2) FOR USE AT CURB RAMPS WHERE THE PEDESTRIAN'S PATH OF TRAVEL IS ASSUMED NON PERPENDICULAR TO THE GUTTER FLOW LINE. RAMP TYPES INCLUDE: FANS & DEPRESSED CORNERS.

(3) BEGIN GUTTER SLOPE TRANSITION 10' OUTSIDE OF ALL CURB RAMPS.

(4) THERE SHALL BE NO VERTICAL DISCONTINUITIES GREATER THAN 1/4".

(5) ELEVATION CHANGE TAKES PLACE FROM THE EXISTING TO NEW FRONT OF GUTTER. PATCH IS USED TO MATCH THE NEW GUTTER FACE INTO THE EXISTING ROADWAY.

(6) VARIABLE WIDTH FOR DIRECTIONAL CURB APPLICATIONS. SEE SHEET 2 FOR DIRECTIONAL CURB SLOPE REQUIREMENTS.

(7) TOP FRONT OF GUTTER SHALL BE CONSTRUCTED FLUSH WITH PROPOSED ADJACENT PAVEMENT ELEVATION. TOP 1.5" OF THE GUTTER FACE MUST BE A FORMED EDGE. PAR GUTTER SHALL NOT BE OVERLAID.

(8) SHOULD BE USED AT VERTICALLY CONSTRAINED AREAS WHEN AT A DRAINAGE HIGH POINT OR SUPER ELEVATED ROADWAY SEGMENTS.

(9) DRILL AND GROUT NO. 4 EPOXY-COATED 18" LONG TIE BARS AT 30" CENTER TO CENTER INTO EXISTING CONCRETE PAVEMENT 1' MINIMUM FROM ALL JOINTS.

(10) HELPS PROVIDE TWO SEPARATE RAMPS, REDUCES THE DOME SETBACK LENGTH AND MINIMIZES DIRECTIONAL CURB. THIS RADIUS DESIGN CLOSELY FOLLOWS THE TURNING VEHICLE PATH WHILE OPTIMIZING CURB RAMP LENGTH.

(11) CURB EXTENSIONS SHOULD BE USED IN VERTICALLY CONSTRAINED AREAS, USUALLY IN DOWNTOWN ROADWAY SEGMENTS WHERE ON-STREET PARKING IS AVAILABLE. CURB EXTENSIONS SHOULD BE CONSIDERED FOR APS INTERSECTIONS WHERE SPACE IS LIMITED.
PUSH BUTTONS MUST MEET APS CRITERIA AS DESCRIBED IN THE PUSH BUTTON LOCATION DETAIL SHEET.

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STANDARD PLAN 5-297.250 | 3 OF 6

APPROVED: 11-04-2021
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THOMAS STYRBICKI
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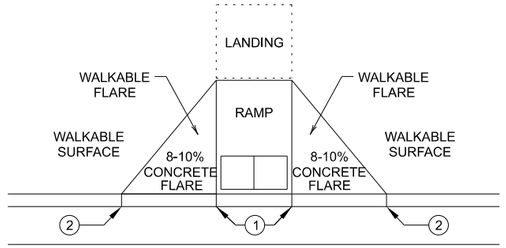
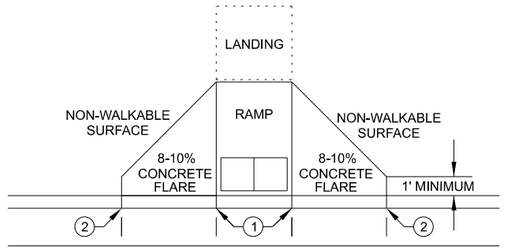
PEDESTRIAN CURB RAMP DETAILS

SP 002-601-057

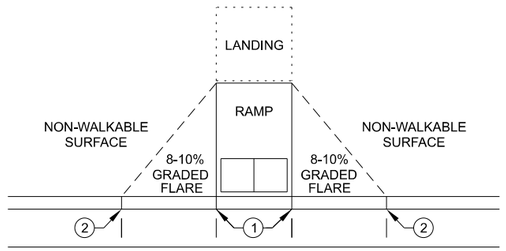
SHEET NO. 20 OF 103 SHEETS



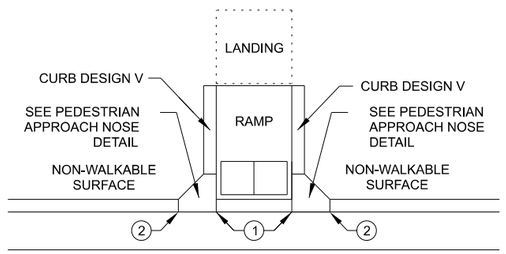
PAVED FLARES
ADJACENT TO WALKABLE SURFACE



PAVED FLARES
ADJACENT TO NON-WALKABLE SURFACE

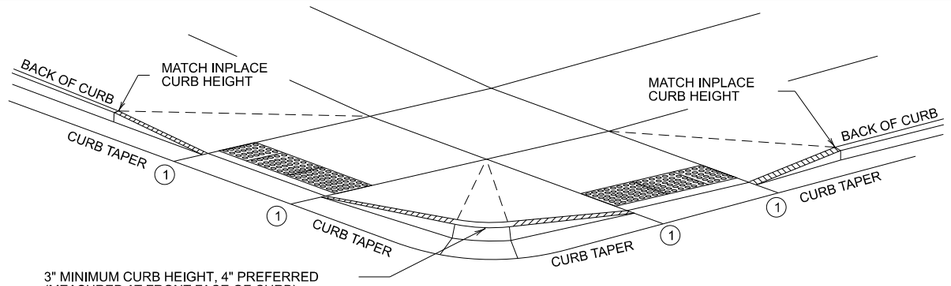


GRADED FLARES



RETURNED CURB (4)

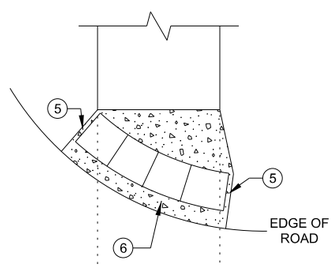
TYPICAL SIDE TREATMENT OPTIONS (3) (10)



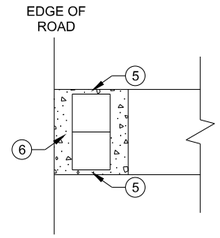
3" MINIMUM CURB HEIGHT, 4" PREFERRED
(MEASURED AT FRONT FACE OF CURB)

FOR A MIN. 6" LENGTH (MEASURED ALONG FLOW LINE)

DETECTABLE EDGE WITH CURB AND GUTTER (7)

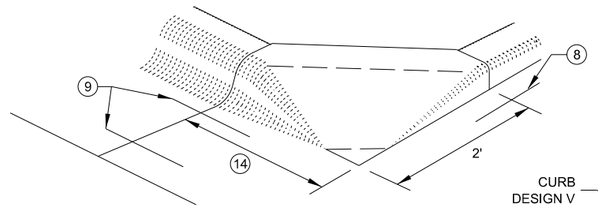


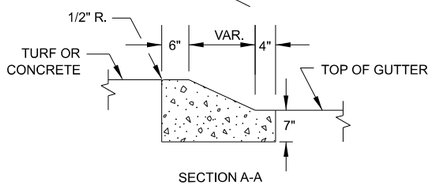
RADIAL DETECTABLE WARNING



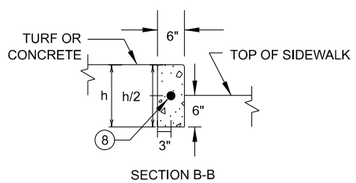
RECTANGULAR DETECTABLE WARNING

DETECTABLE EDGE WITHOUT CURB AND GUTTER

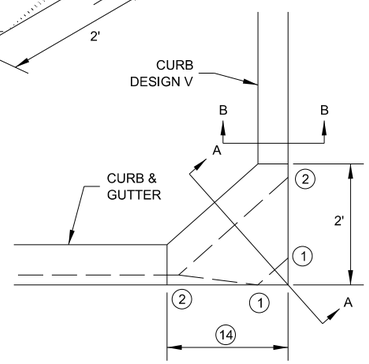




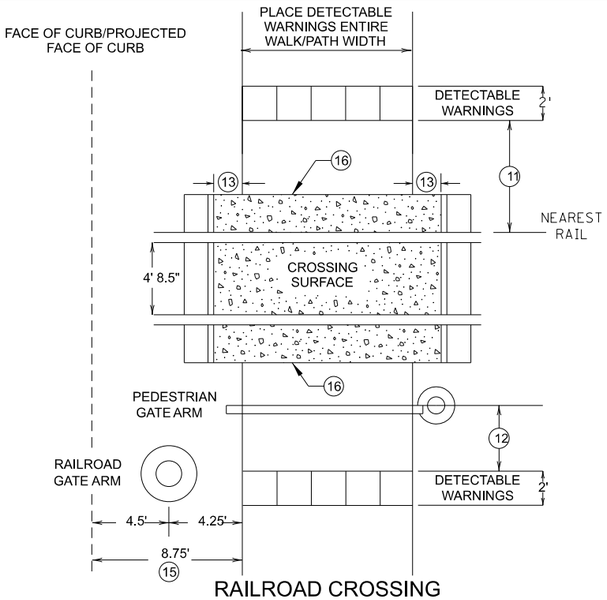
SECTION A-A



SECTION B-B



PEDESTRIAN APPROACH NOSE DETAIL
(FOR RETURNED CURB SIDE TREATMENT)



RAILROAD CROSSING PLAN VIEW

NOTES:

INTERMEDIATE CURB HEIGHTS TAPER SHALL RISE AT 8-10% TO A MINIMUM 3 INCH CURB HEIGHT. INCREASE CURB TAPER LENGTH AT LESS THAN 8% OR REDUCE INTERMEDIATE CURB HEIGHT TO 2+ INCHES IF NECESSARY TO MATCH ADJACENT BOULEVARD OR SIDEWALK GRADES.

SEE STANDARD PLATE 7038 AND THIS SHEET FOR ADDITIONAL DETAILS ON DETECTABLE WARNING.

A WALKABLE SURFACE IS DEFINED AS A PAVED SURFACE ADJACENT TO A CURB RAMP WITHOUT RAISED OBSTACLES THAT COULD MISTAKENLY BE TRAVERSED BY A USER WHO IS VISUALLY IMPAIRED.

CONCRETE FLARE LENGTHS ADJACENT TO NON-WALKABLE SURFACES SHOULD BE LESS THAN 8' LONG MEASURED ALONG THE RAMPS FROM THE BACK OF CURB.

(1) 0" CURB HEIGHT. SEE INSET A ON SHEET 3 OF 6.

(2) FULL CURB HEIGHT.

(3) SIDE TREATMENTS ARE APPLICABLE TO ALL RAMP TYPES AND SHOULD BE IMPLEMENTED AS NEEDED AS FIELD CONDITIONS DICTATE. THE ENGINEER SHALL DETERMINE THE RAMP SIDE TREATMENTS BASED ON MAINTENANCE OF BOTH ROADWAY AND SIDEWALK, ADJACENT PROPERTY CONSIDERATIONS, AND MITIGATING CONSTRUCTION IMPACTS.

(4) TYPICALLY USED FOR MEDIANS AND ISLANDS.

(5) WHEN NO CONCRETE FLARES ARE PROPOSED, THE CONCRETE WALK SHALL BE FORMED AND CONSTRUCTED PERPENDICULAR TO THE EDGE OF ROADWAY. MAINTAIN 3" MAX. BETWEEN EDGE OF DOMES AND EDGE OF CONCRETE.

(6) IF NO CURB AND GUTTER IS PLACED IN RURAL SECTIONS, DETECTABLE WARNINGS SHALL BE PLACED 1' FROM THE EDGE OF BITUMINOUS ROADWAY AND/OR BITUMINOUS SHARED-USE PATH TO PROVIDE VISUAL CONTRAST.

(7) ALL CONSTRUCTED CURBS MUST HAVE A CONTINUOUS DETECTABLE EDGE FOR THE VISUALLY IMPAIRED. THIS DETECTABLE EDGE REQUIRES DETECTABLE WARNINGS WHEREVER THERE IS ZERO-INCH HIGH CURB. CURB TAPERS ARE CONSIDERED A DETECTABLE EDGE WHEN THE TAPER STARTS WITHIN 3" OF THE EDGE OF THE DETECTABLE WARNINGS. AND UNIFORMLY RISES TO A 3-INCH MINIMUM CURB HEIGHT. ANY CURB NOT PART OF A CURB TAPER AND LESS THAN 3 INCHES IN HEIGHT IS NOT CONSIDERED A DETECTABLE EDGE AND THEREFORE IS NOT COMPLIANT WITH ACCESSIBILITY STANDARDS.

(8) DRILL AND GROUT 1 - NO. 4 12" LONG REINFORCEMENT BAR (EPOXY COATED) WITH 3" MIN. COVER. REINFORCEMENT BARS ARE NOT NEEDED IF THE APPROACH NOSE IS POURED INTEGRAL WITH THE V CURB.

(9) DRILL AND GROUT 2 - NO. 4 12" LONG REINFORCEMENT BARS (EPOXY COATED) WITH 3" MIN. COVER. REINFORCEMENT BARS ARE NOT NEEDED IF THE APPROACH NOSE IS POURED INTEGRAL WITH THE CURB AND GUTTER.

(10) SIDE TREATMENT EXAMPLES SHOWN ARE WHEN THE INITIAL LANDING IS APPROXIMATELY LEVEL WITH THE FULL HEIGHT CURB (I.E. 6' LONG RAMP FOR 6" HIGH CURB). WHEN THE INITIAL LANDING IS MORE THAN 1" BELOW FULL HEIGHT CURB REFER TO SHEETS 1 & 2 TO MODIFY THE CURB HEIGHT TAPERS AND MAINTAIN POSITIVE BOULEVARD DRAINAGE. CONSTRUCT THESE TAPERS AT 0"-3" AT 8-10%, THEN LESS THAN 5% FROM 3" CURB TO FULL CURB HEIGHT.

(11) NEAREST EDGE OF DETECTABLE WARNING SURFACES SHALL BE PLACED 12' MINIMUM TO 15' MAXIMUM FROM THE NEAREST RAIL. FOR SKEWED RAILWAYS IN NO INSTANCE SHALL THE DETECTABLE WARNING BE CLOSER THAN 12' MEASURED PERPENDICULAR TO THE NEAREST RAIL.

(12) WHEN PEDESTRIAN GATES ARE PROVIDED, DETECTABLE WARNING SURFACES SHALL BE PLACED ON THE SIDE OF THE GATES OPPOSITE THE RAIL, 2' FROM THE APPROACHING SIDE OF THE GATE ARM. THIS CRITERIA GOVERNS OVER NOTE (11).

(13) CROSSING SURFACE SHALL EXTEND 2' MINIMUM PAST THE OUTSIDE EDGE OF WALK OR SHARED-USE PATH.

(14) 3' FOR MEDIANS AND SPLITTER ISLANDS. NOSE CAN BE REDUCED TO 2' ON FREE RIGHT ISLANDS.

(15) SIDEWALK TO BE PLACED 8.75' MIN. FROM THE FACE OF CURB/PROJECTED FACE OF CURB. THIS ENSURES MIN. CLEARANCE BETWEEN THE SIDEWALK AND GATE ARM COUNTERWEIGHT SUPPORTS.

(16) CONSTRUCT WITH EXPANSION MATERIAL PER MNDOT SPECIFICATION 3702 TYPES A-E. EXPANSION MATERIAL SHALL MATCH FULL HEIGHT OF ADJACENT CONCRETE.

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STANDARD PLAN 5-297.250 | 4 OF 6

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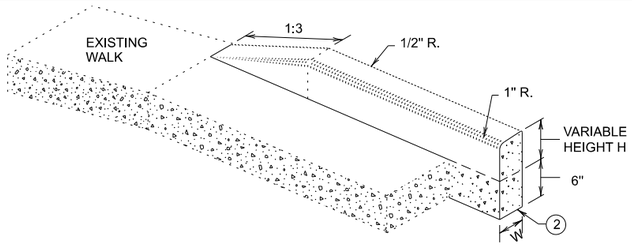
PEDESTRIAN CURB RAMP DETAILS

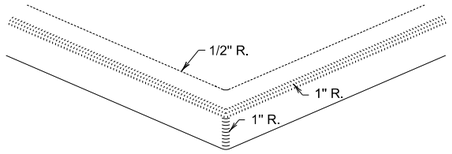
SP 002-601-057

SHEET NO. 21 OF 103 SHEETS



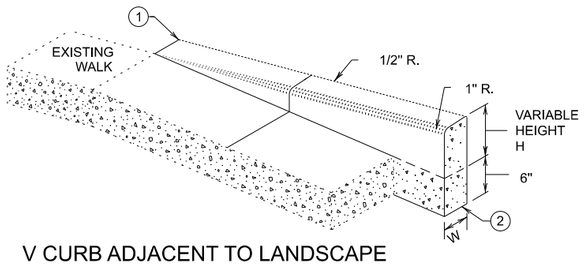
V CURB ADJACENT TO LANDSCAPE

CURB WITHIN SIDEWALK LIMITS



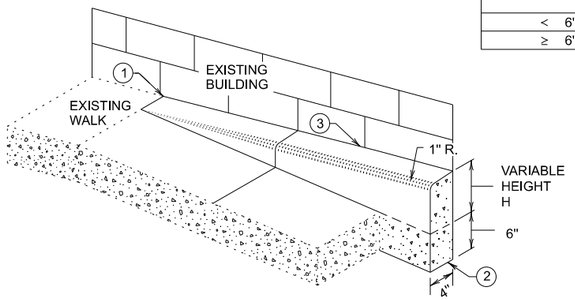
V CURB INTERSECTION

CONCRETE CURB DESIGN V	
CURB HEIGHT H	CURB WIDTH W
< 6"	4"
≥ 6"	6"

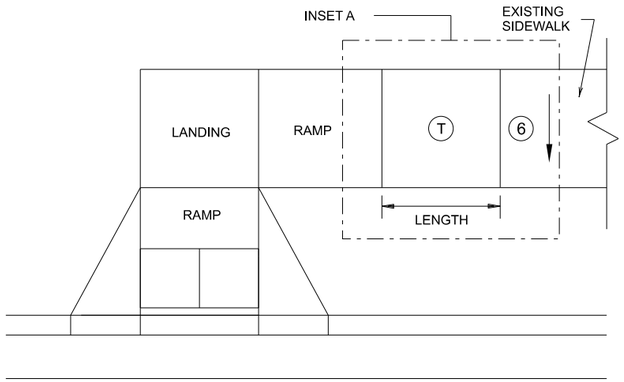


V CURB ADJACENT TO LANDSCAPE

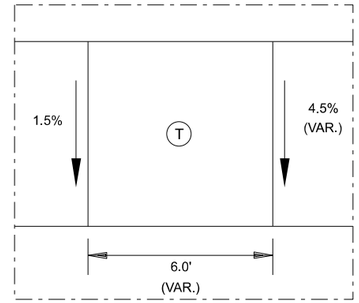
CURB OUTSIDE SIDEWALK LIMITS



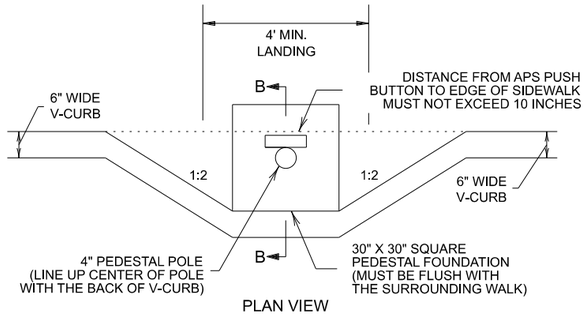
V CURB ADJACENT TO BUILDING
OR BARRIER



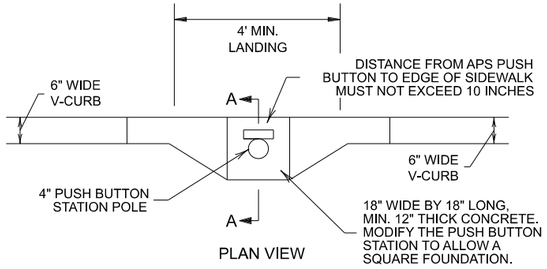
TRANSITION PANEL (4) (5)



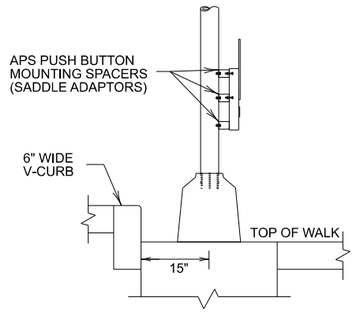
INSET A



PLAN VIEW

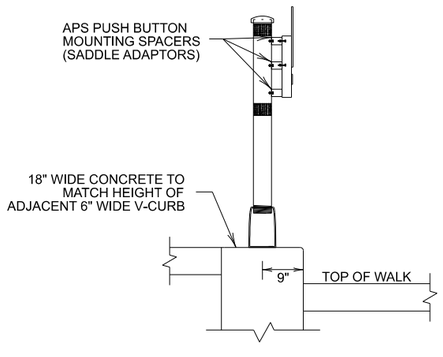


PLAN VIEW



SECTION B-B

SIGNAL PEDESTAL & PUSH BUTTON (V-CURB)



SECTION A-A

PUSH BUTTON STATION (V-CURB)

NOTES:

A WALKABLE FLARE IS AN 8-10% CONCRETE FLARE THAT IS REQUIRED WHEN THE FLARE IS ADJACENT TO A WALKABLE SURFACE, OR WHEN THE PEDESTRIAN PATH OF TRAVEL OF A PUSH BUTTON TRAVERSES THE FLARE.

ALL V CURB CONTRACTION JOINTS SHALL MATCH CONCRETE WALK JOINTS.

WHERE RIGHT-OF-WAY ALLOWS, USE OF V CURB SHOULD BE MINIMIZED. GRADING ADJACENT TURF OR SLOPING ADJACENT PAVEMENT IS PREFERRED.

V CURB SHALL BE PLACED OUTSIDE THE SIDEWALK LIMITS WHEN RIGHT OF WAY ALLOWS.

V CURB NEXT TO BUILDING SHALL BE A 4" WIDTH AND SHALL MATCH PREVIOUS TOP OF SIDEWALK ELEVATIONS.

(1) END TAPERS AT TRANSITION SECTION SHALL MATCH INPLACE SIDEWALK GRADES.

(2) ALL V CURB SHALL MATCH BOTTOM OF ADJACENT WALK.

(3) CONSTRUCT USING APPROVED EXPANSION MATERIAL PER MNDOT TYPE A-E EXPANSION. LEAVE A MINIMUM " TOP GAP AND SEAL WITH MNDOT APPROVED SILICONE PER MNDOT SPEC 3722.

(4) THE MAX. RATE OF CROSS SLOPE TRANSITIONING IS 1' LINEAR FOOT OF SIDEWALK PER HALF PERCENT CROSS SLOPE. WHEN PAR WIDTH IS GREATER THAN 6' OR THE RUNNING SLOPE IS GREATER THAN 5%, DOUBLE THE CALCULATED TRANSITION LENGTH.

(5) TRANSITION PANELS ARE TO ONLY BE USED AFTER THE RAMP, OR IF NEEDED, LANDING ARE AT THE FULL CURB HEIGHT (TYPICAL SECTION).

(6) EXISTING CROSS SLOPE GREATER THAN 2.0%.

LEGEND

THESE LONGITUDINAL SLOPE RANGES SHALL BE THE STARTING POINT. IF SITE CONDITIONS WARRANT, LONGITUDINAL SLOPES UP TO 8.3% OR FLATTER ARE ALLOWED.

(S) INDICATES PEDESTRIAN RAMP - SLOPE SHALL BE BETWEEN 5.0% MINIMUM AND 8.3% MAXIMUM IN THE DIRECTION SHOWN AND THE CROSS SLOPE SHALL NOT EXCEED 2.0%.

LANDING AREA - 4' X 4' MIN. (5' X 5' MIN. PREFERRED) DIMENSIONS AND MAX 2.0% SLOPE IN ALL DIRECTIONS. LANDING SHALL BE FULL WIDTH OF INCOMING PARS.

(T) TRANSITION PANEL(S) - TO BE USED FOR TRANSITIONING THE CROSS-SLOPE OF A RAMP TO THE EXISTING WALK CROSS-SLOPE. RATE OF TRANSITION SHOULD BE 0.5% PER 1 LINEAR FOOT OF WALK. SEE THIS SHEET FOR ADDITIONAL INFORMATION.

PLOTTED/REVISED: 5/4/2023

PATH & FILENAME: K:\018837-000\Cad\Plan\018837-000_SPN_200.dgn

REVISION:

APPROVED: 11-04-2021

JEFFREY PERKINS
OPERATIONS DIVISION

MINNESOTA DEPARTMENT OF TRANSPORTATION

STANDARD PLAN 5-297.250 | 5 OF 6

APPROVED: 11-04-2021
REVISED:

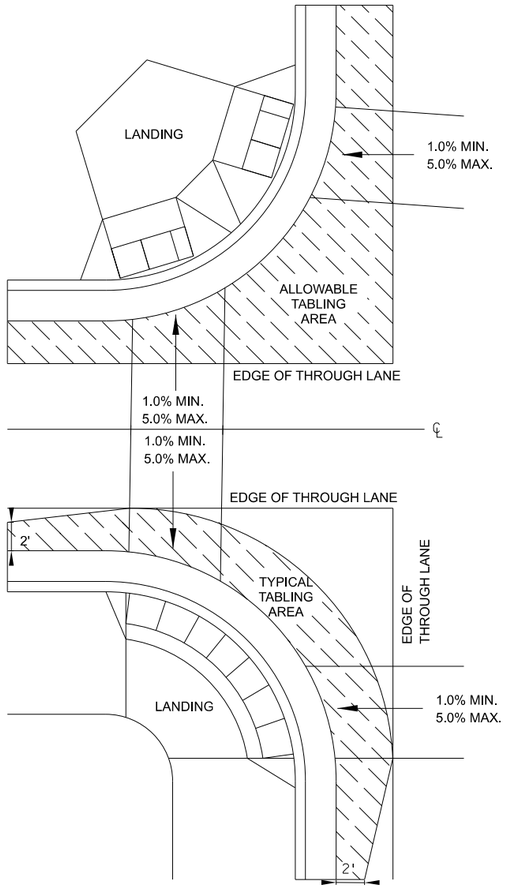
THOMAS STYRBICKI
STATE DESIGN ENGINEER

PEDESTRIAN CURB RAMP DETAILS

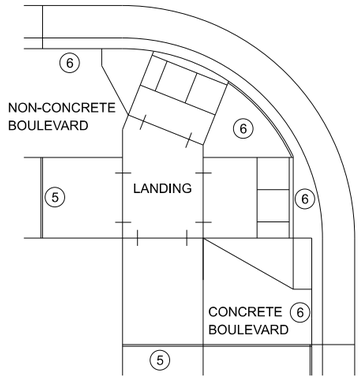
SP 002-601-057

SHEET NO. 22 OF 103 SHEETS

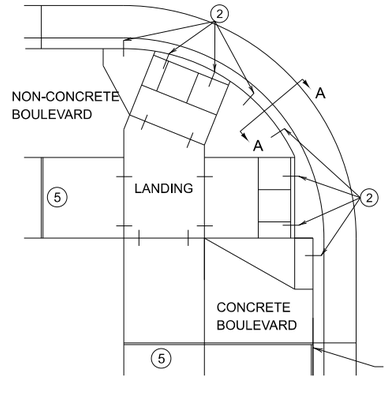
PLOTTED/REVISED: 5/4/2023



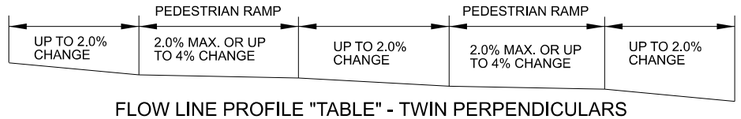
CURB LINE AND ROAD CROSSING ADJUSTMENTS



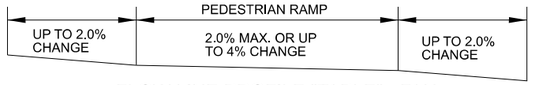
EXPANSION MATERIAL PLACEMENT
FOR CONCRETE ROADWAYS



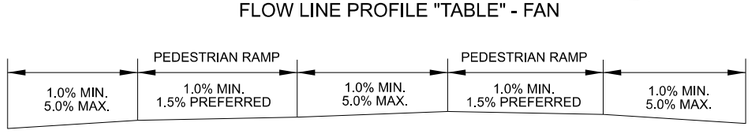
CURB LINE REINFORCEMENT (4)
PLACEMENT ON BITUMINOUS ROADWAYS



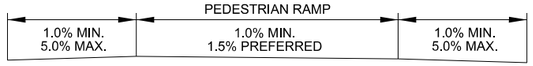
FLOW LINE PROFILE "TABLE" - TWIN PERPENDICULARS



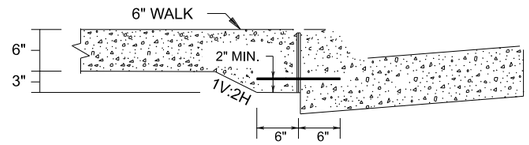
FLOW LINE PROFILE "TABLE" - FAN



FLOW LINE PROFILE RAISE - TWIN PERPENDICULARS

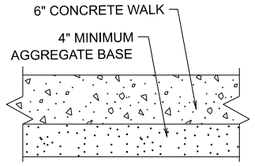


FLOW LINE PROFILE RAISE - FAN

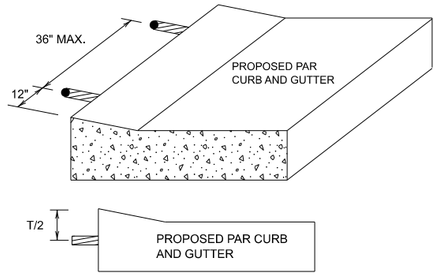


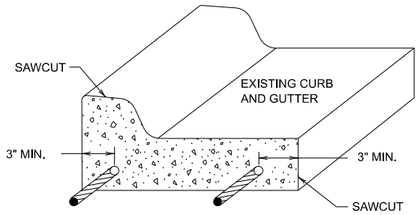
SECTION VIEW A-A

THICKENED SECTION
THROUGH CURB RAMP FLARES



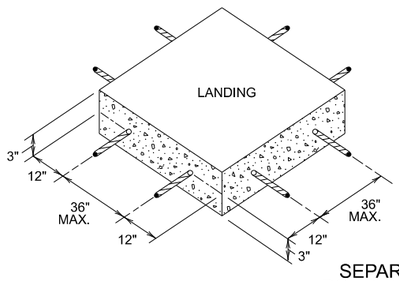
TYPICAL SIDEWALK SECTION
WITHIN INTERSECTION CORNER

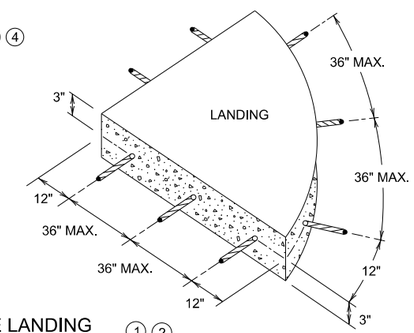




CURB AND GUTTER
REINFORCEMENT (3)

CURB RAMP REINFORCEMENT DETAILS (2)(4)





SEPARATE LANDING
POUR REINFORCEMENT (1)(2)

GENERAL NOTES:

"TABLING" OF CROSSWALKS MEANS MAINTAINING LESS THAN 2% CROSS SLOPE WITHIN A CROSSWALK, IS REQUIRED WHEN A ROADWAY IS IN A STOP OR YIELD CONDITION AND THE PROJECT SCOPE ALLOWS.

RECONSTRUCTION PROJECTS: ON FULL PAVEMENT REPLACEMENT PROJECTS "TABLING" OF ENTIRE CROSSWALK SHALL OCCUR WHEN FEASIBLE.

MILL & OVERLAY PROJECTS: "TABLING" OF FLOW LINES, IN FRONT OF THE PEDESTRIAN RAMP, IS REQUIRED WHEN THE EXISTING FLOW LINE IS GREATER THAN 2%. WARPING OF THE BITUMINOUS PAVEMENT CAN NOT EXTEND INTO THE THROUGH LANE. TABLE THE FLOW LINE TO 2% OR AS MUCH AS POSSIBLE WHILE ADHERING TO THE FOLLOWING CRITERIA;

1) 1.0% MIN. CROSS-SLOPE OF THE ROAD
2) 5.0% MAX. CROSS-SLOPE OF THE ROAD
3) "TABLE" FLOW LINE UP TO 4% CHANGE FROM EXISTING SLOPE IN FRONT OF PEDESTRIAN RAMP
4) UP TO 2% CHANGE IN FLOW LINE FROM EXISTING SLOPE BEYOND THE PEDESTRIAN CURB RAMP

STAND-ALONE ADA RETROFITS: FOLLOW MILL & OVERLAY CRITERIA ABOVE HOWEVER ALL PAVEMENT WARPING IS DONE WITH BITUMINOUS PATCHING ON BITUMINOUS ROADWAYS AND FULL-DEPTH APRON REPLACEMENT ON CONCRETE ROADWAYS.

RAISING OF CURB LINES SHOULD OCCUR IN VERTICALLY CONSTRAINED AREAS. RAISE THE CURB LINES ENOUGH TO ALLOW COMPLIANT RAMPS OR AS MUCH AS POSSIBLE WHILE ADHERING TO THE FOLLOWING CRITERIA;

1) 1.0% MIN. AND 5.0% MAXIMUM CROSS-SLOPE OF THE ROAD
2) 1.0% MIN. FLOW LINE (ON EITHER SIDE OF PEDESTRIAN RAMP) TO MAINTAIN POSITIVE DRAINAGE
3) 5.0% RECOMMENDED MAX. FLOW LINE
4) LONGITUDINAL THROUGH LANE ROADWAY TAPERS SHOULD BE 1" VERTICAL PER 15' HORIZONTAL

NOTES:

(1) TO ENSURE RAMPS AND LANDINGS ARE PROPERLY CONSTRUCTED, ALL INITIAL LANDINGS AT A TOP OF A RAMPED SURFACE (RUNNING SLOPE GREATER THAN 2%) SHALL BE FORMED AND PLACED SEPARATELY IN AN INDEPENDENT CONCRETE POUR. FOLLOW SIDEWALK REINFORCEMENT DETAILS ON THIS SHEET FOR ALL SEPARATELY POURED INITIAL LANDINGS.

(2) DRILL AND GROUT NO. 4 12" LONG REINFORCEMENT BARS (EPOXY COATED) AT 36" MAXIMUM CENTER TO CENTER MINIMUM 12" SPACING FROM CONSTRUCTION JOINTS. BARS TO BE ADJUSTED TO MATCH RAMP GRADE. BARS TO BE PAID BY EACH.

(3) DRILL AND GROUT 2 - NO. 4 X 12" LONG (6" EMBEDDED) REINFORCEMENT BARS (EPOXY COATED). REINFORCEMENT REQUIRED FOR ALL CONSTRUCTION JOINTS. BARS TO BE PAID BY EACH.

(4) THIS CURB LINE REINFORCEMENT DETAIL SHALL BE USED ON BITUMINOUS ROADWAYS. FOR CONCRETE ROADWAYS, SEE NOTE 6.

(5) CONSTRUCT WITH EXPANSION MATERIAL PER MNDOT SPECIFICATION 3702 TYPES A-E. EXPANSION MATERIAL SHALL MATCH FULL HEIGHT OF ADJACENT CONCRETE.

(6) USE AN APPROVED TYPE F (1/4 INCH THICK) SEPARATION MATERIAL. SEPARATION MATERIAL SHALL MATCH FULL HEIGHT DIMENSION OF ADJACENT CONCRETE.

REVISION:

APPROVED: 11-04-2021

JEFFREY PERKINS
OPERATIONS DIVISION

MINNESOTA
DEPARTMENT
OF
TRANSPORTATION

THOMAS STYRBICKI
STATE DESIGN ENGINEER

STANDARD PLAN 5-297.250 | 6 OF 6

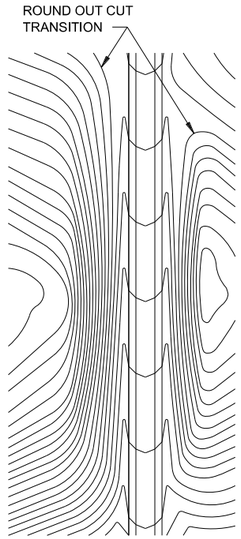
APPROVED: 11-04-2021
REVISED:

PEDESTRIAN CURB RAMP DETAILS

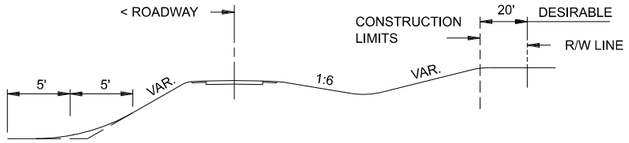
SP 002-601-057

PATH & FILENAME: K:\018837-000\Cadd\Plan\018837-000_SPN_200.dgn

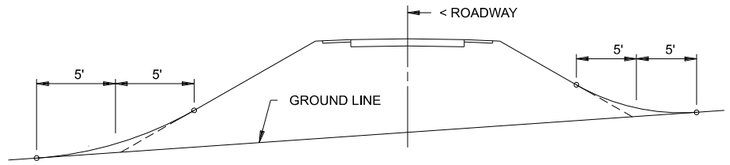
PLOTTED/REVISED: 5/4/2023



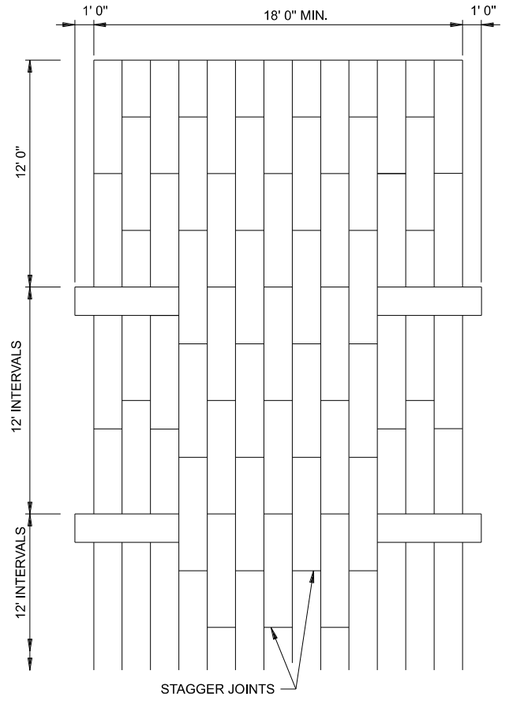
CONTOURING ROAD CUTS



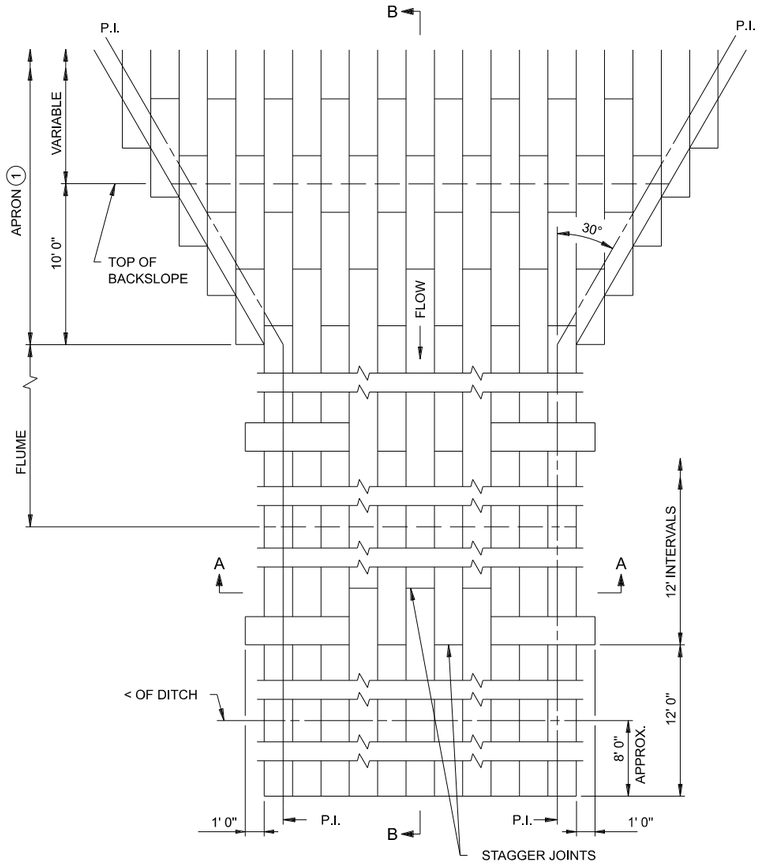
ROUNDING SHOULDERS AND BACKSLOPES



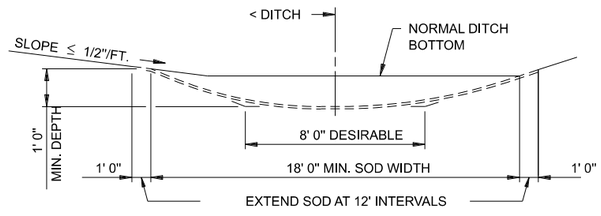
SHAPING FOR DRAINAGE ALONG THE TOE OF FILL SLOPES



PLAN VIEW

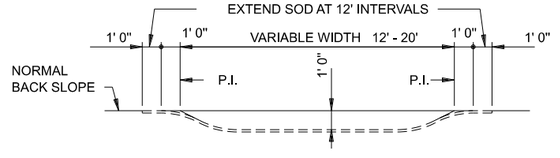


PLAN VIEW

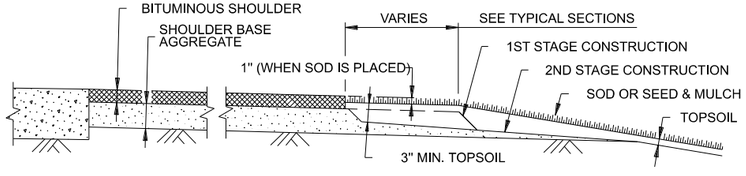


SODDED DITCH CROSS SECTION

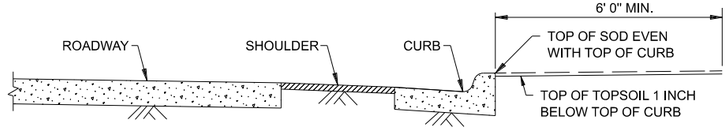
WHERE FRONT OR BACK SLOPE IS FLAT (LESS THAN 1/2"/FT.) ,
FIRST NOTCH DITCH AND THEN PROVIDE ROUNDING.



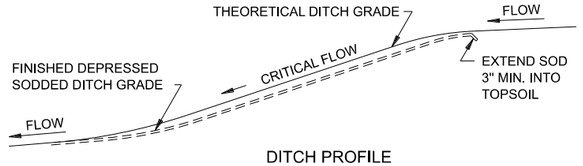
SECTION A-A



SHAPING AND TOPSOILING INSLOPES

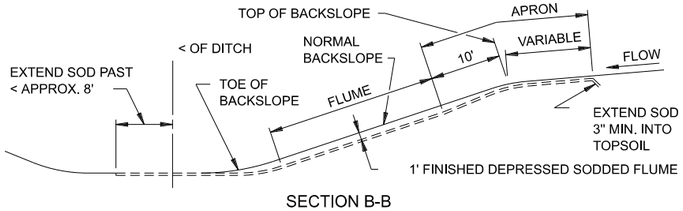


SHAPING ADJACENT TO CURBS WHEN SOD IS PLACED



DITCH PROFILE

SODDED DITCH DETAILS



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

STANDARD PLAN 5-297.404 | 1 OF 3

APPROVED: 2-28-2017
REVISED:

STATE DESIGN ENGINEER

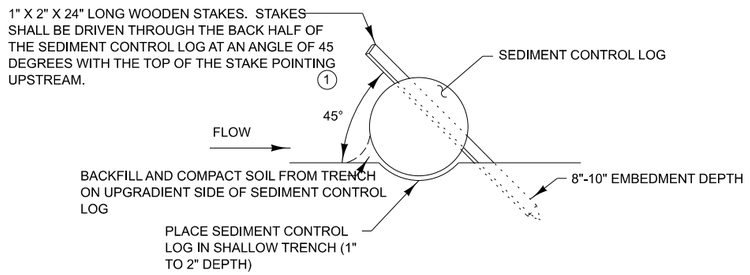
PERMANENT EROSION CONTROL

ALONG ROADWAYS, DITCHES AND FLUMES

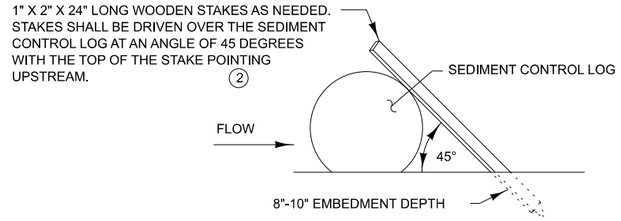
SP 002-601-057 | SHEET NO. 24 OF 103 SHEETS

PATH & FILENAME: K:\018837-000\Cad\Plan\018837-000_SPN_400.dgn

PLOTTED/REVISED: 5/4/2023

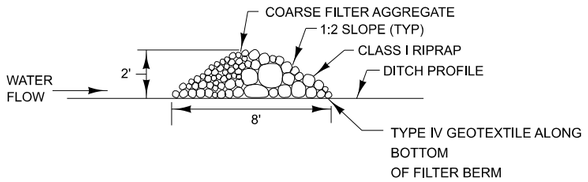


TYPES: STRAW, WOOD FIBER, OR COIR

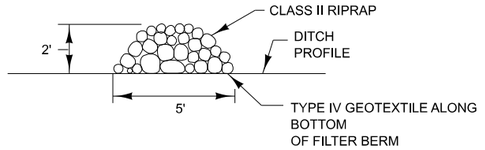


TYPES: WOOD CHIP, COMPOST, OR ROCK

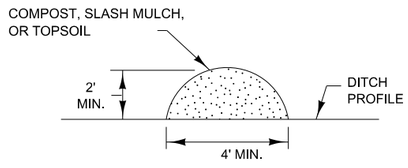
SEDIMENT CONTROL LOGS



TYPE 3 (ROCK WEEPER)

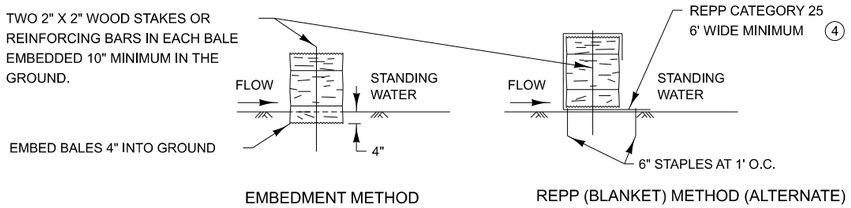


TYPE 5 (ROCK)



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

FILTER BERMS



EMBEDMENT METHOD

REPP (BLANKET) METHOD (ALTERNATE)

BALE BARRIERS (3)

NOTES:

REPP = ROLLED EROSION PREVENTION PRODUCT.

SEE SPECS. 2573, 3149, 3874, 3882, 3885, 3886, AND 3897.

(1) SPACE BETWEEN STAKES SHALL BE A MAXIMUM OF 1' FOR DITCH CHECKS OR 2' 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" MAXIMUM DEPTH). BALES SHALL CONSIST OF TYPE 1 MULCH OF APPROXIMATELY 14" X 18" X 36" LONG. BALES SHALL BE PLACED ON EDGE AND BUTTED TIGHT TO ADJACENT BALES.

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

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REVISION:

APPROVED: JANUARY 8, 2020

MARNI KARNOWSKI
CHIEF ENVIRONMENTAL OFFICER

MINNESOTA DEPARTMENT OF TRANSPORTATION

THOMAS STYRBICKI
STATE DESIGN ENGINEER

STANDARD PLAN 5-297.405 | 2 OF 8

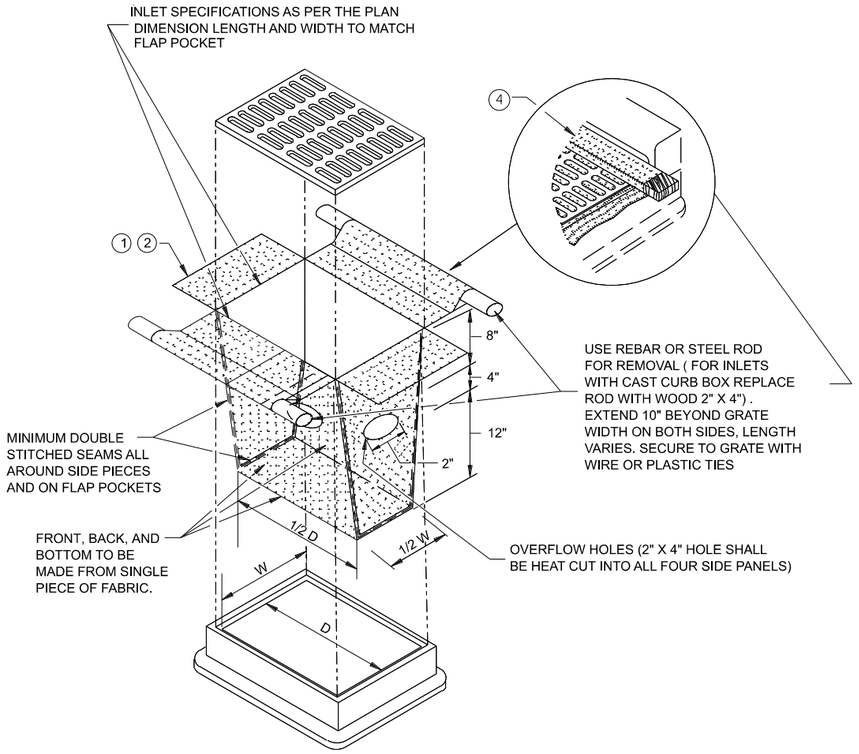
APPROVED: 1-8-2020
REVISED:

TEMPORARY SEDIMENT CONTROL

FILTER BERMS, SEDIMENT CONTROL LOGS, AND BALE BARRIERS

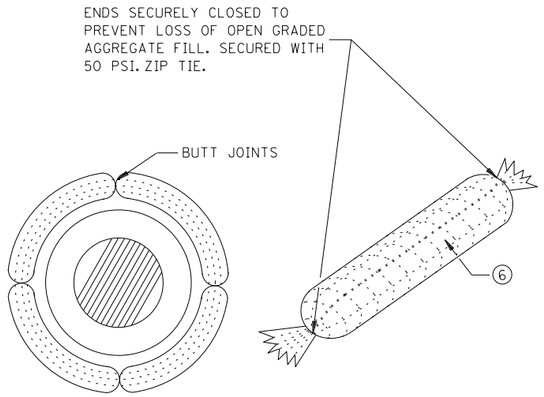
SP 002-601-057

PLOTTED/REVISED: 5/4/2023

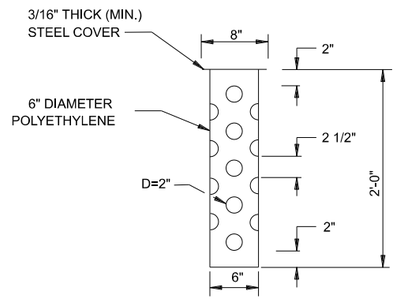


FILTER BAG INSERT ③

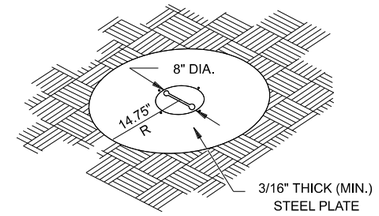
(CAN BE INSTALLED IN ANY INLET TYPE
WITH OR WITHOUT A CURB BOX)



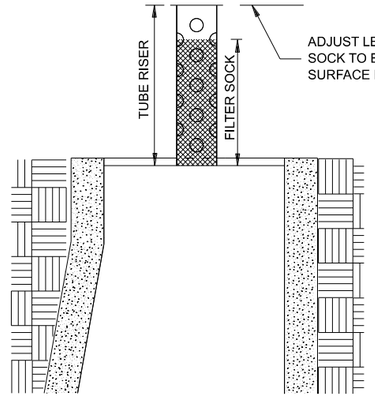
ROCK LOG/COMPOST LOG



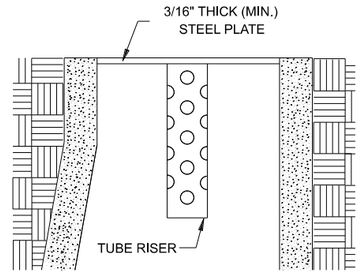
TUBE RISER



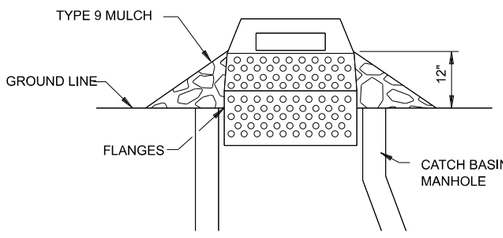
PERSPECTIVE VIEW



SECTION
(UP POSITION)

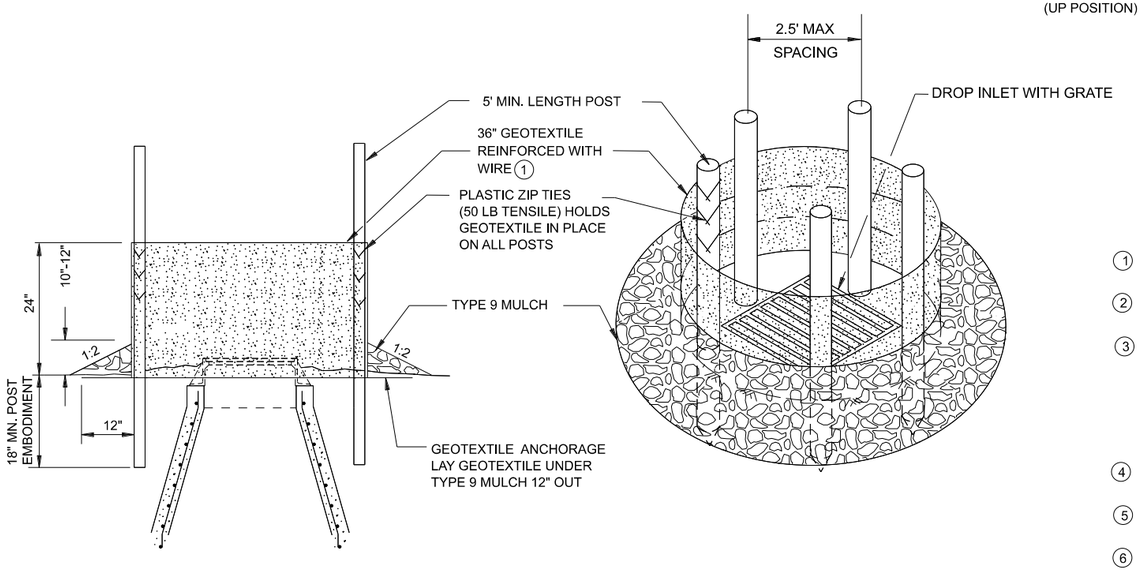


SECTION
(DOWN POSITION)



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

STANDARD PLAN 5-297.405 | 4 OF 8

APPROVED: 2-28-2017
REVISED:
STATE DESIGN ENGINEER

TEMPORARY SEDIMENT CONTROL

STORM DRAIN INLET PROTECTION

SP 002-601-057

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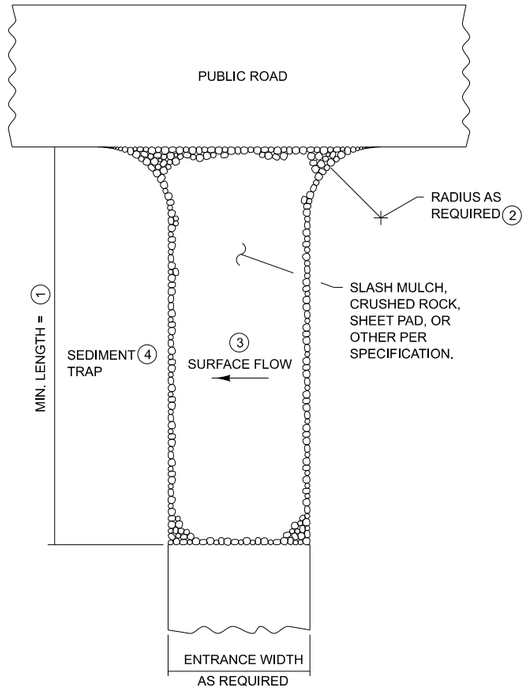
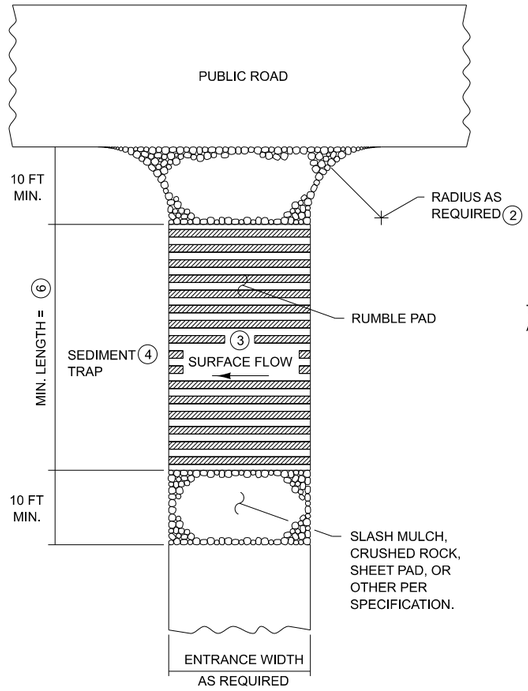
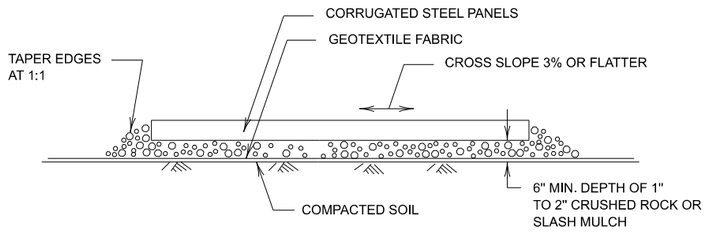
PLOTTED/REVISED: 5/4/2023



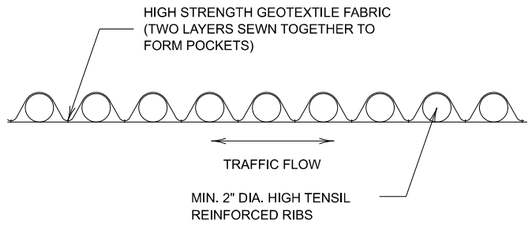
SLASH MULCH, CRUSHED ROCK, OR SHEET PAD CONSTRUCTION EXIT (5)(7)



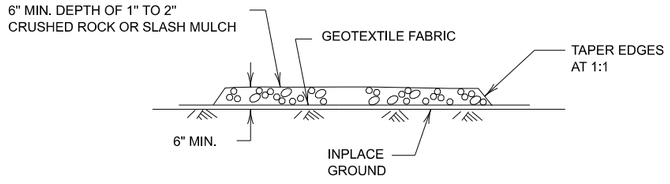
RUMBLE PAD CONSTRUCTION EXIT (5)(7)



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.

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MINNESOTA DEPARTMENT OF TRANSPORTATION

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REVISED:

STANDARD PLAN 5-297.405 | 5 OF 8

TEMPORARY SEDIMENT CONTROL

STABILIZED CONSTRUCTION EXIT

SP 002-601-057

PATH & FILENAME: K:\018837-000\Cad\Plan\018837-000_SPN_400.dgn

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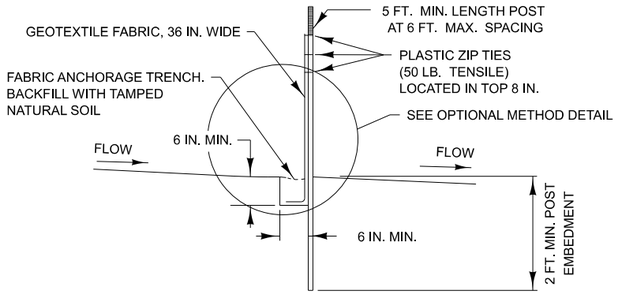
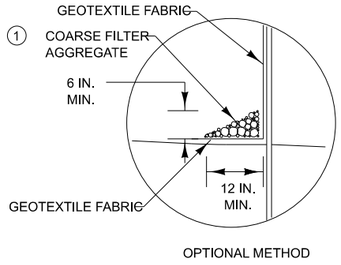
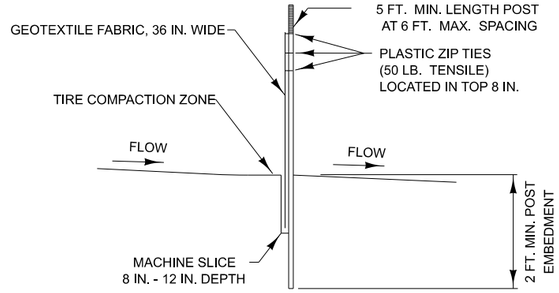
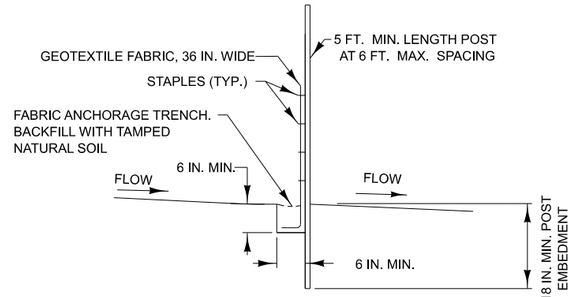




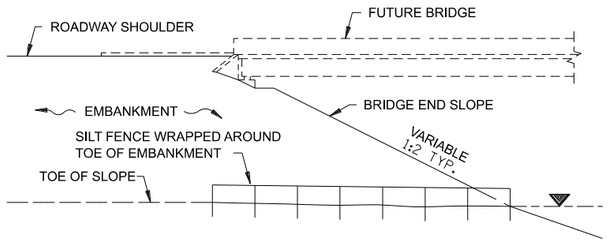
SILT FENCE TYPE HI (2)
(HAND INSTALLED)



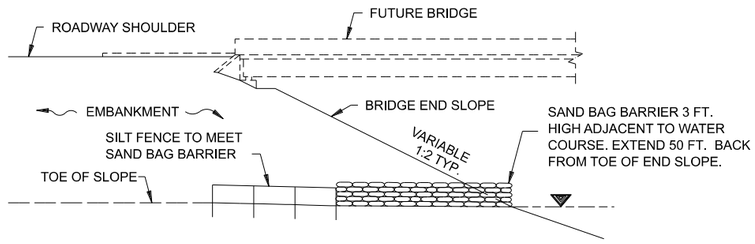
SILT FENCE TYPE MS (2)
(MACHINE SLICED)



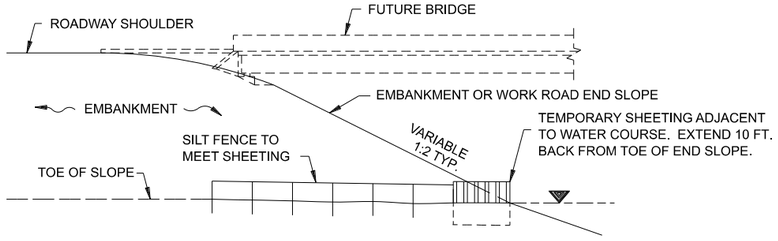
SILT FENCE TYPE PA (3)
(PREASSEMBLED)



SILT FENCE ONLY (4)

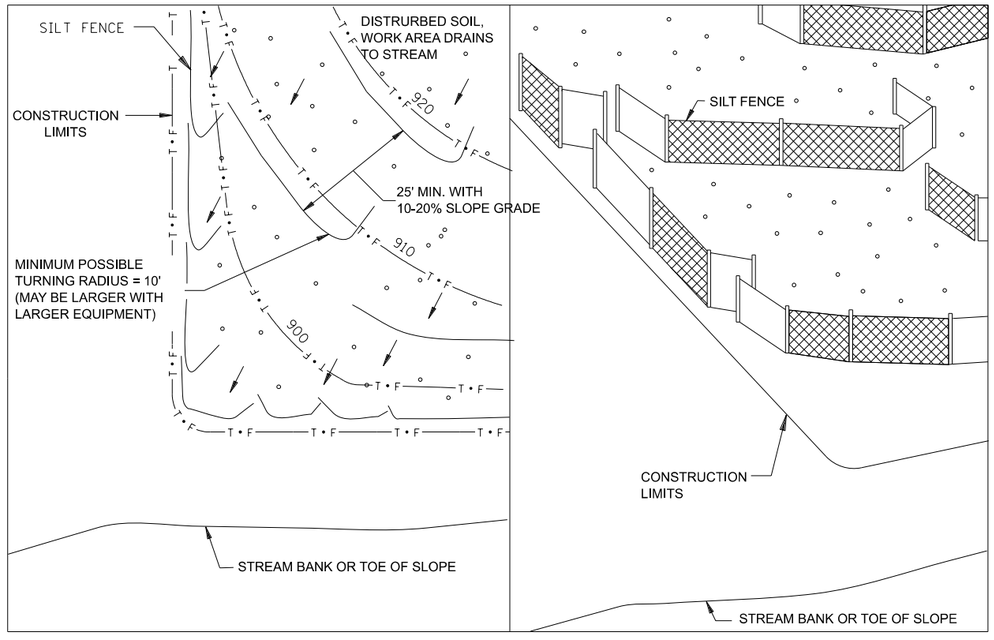


SILT FENCE WITH SAND BAGS (5)



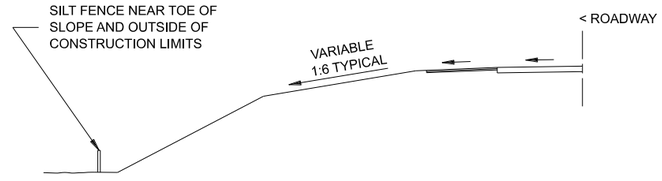
SILT FENCE WITH SHEETING (6)

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.

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CHIEF ENVIRONMENTAL OFFICER

MINNESOTA DEPARTMENT OF TRANSPORTATION

STANDARD PLAN 5-297.405 | 6 OF 8

APPROVED: 2-28-2017
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STATE DESIGN ENGINEER

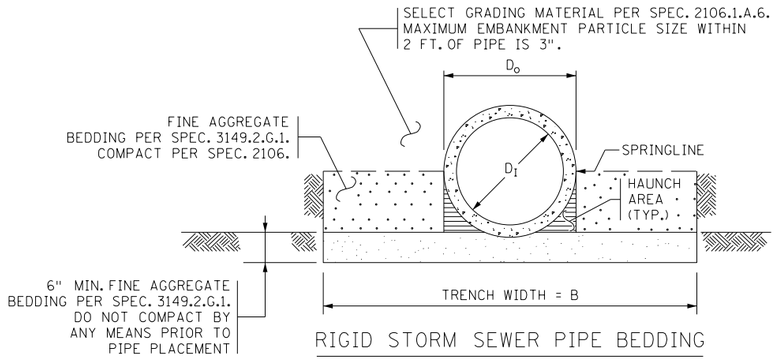
TEMPORARY SEDIMENT CONTROL

SILT FENCE

SP 002-601-057

SHEET NO. 28 OF 103 SHEETS

PLOTTED/REVISED: 5/4/2023

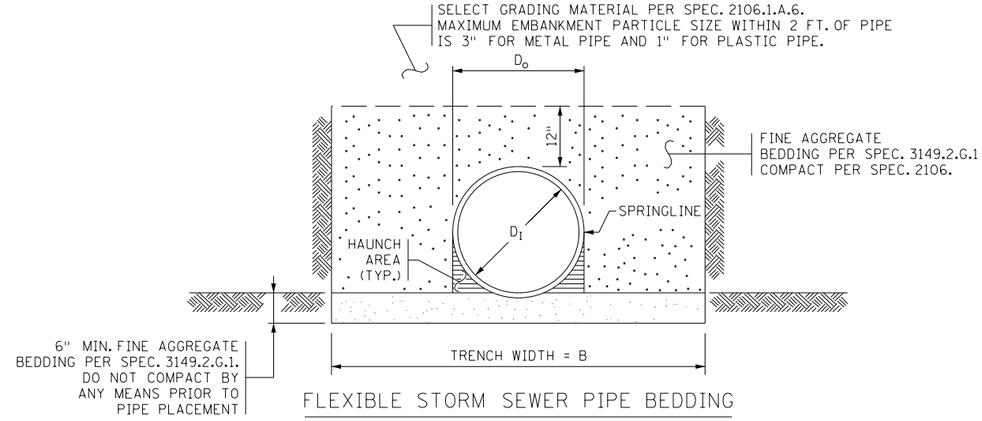


RIGID STORM SEWER PIPE BEDDING

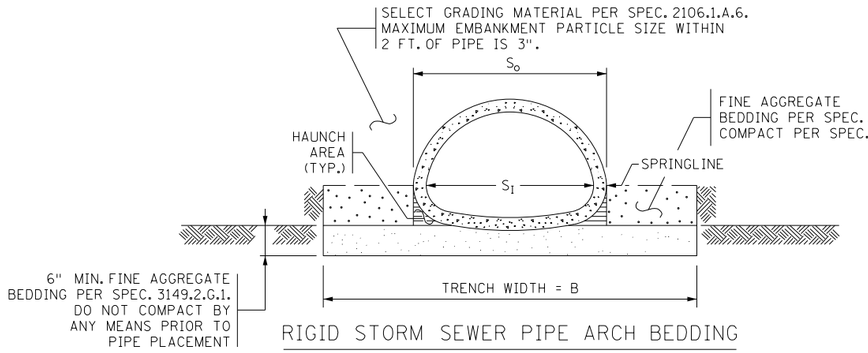
TRENCH BASE WIDTH ①②	
PIPE DIA. D_I OR S_I	TRENCH WIDTH B
< 42"	D_o + 24"
42" TO 54"	1.5 × D_o
> 54"	D_o + 36"

PLASTIC PIPE
WITH H > 10 FT. ①②

PIPE DIA.	TRENCH WIDTH (FEET)
12"	5'-2"
15"	5'-6"
18"	5'-9"
24"	6'-6"
30"	8'-0"
36"	9'-6"
42"	11'-0"
48"	12'-6"



FLEXIBLE STORM SEWER PIPE BEDDING



RIGID STORM SEWER PIPE ARCH BEDDING

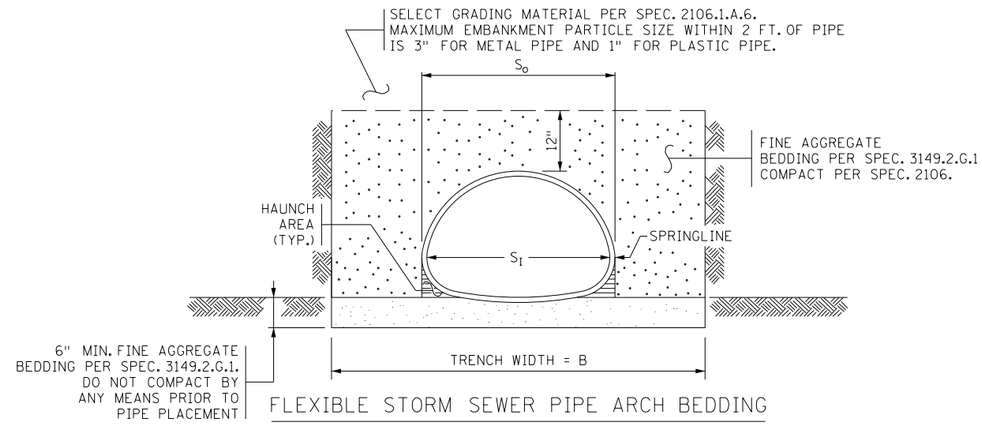
-LEGEND-

D_I = INSIDE DIAMETER OF ROUND PIPE (INCHES).
D_o = OUTSIDE DIAMETER OF ROUND PIPE (INCHES).
S_I = INSIDE SPAN OF PIPE-ARCH (INCHES).
S_o = OUTSIDE SPAN OF PIPE-ARCH (INCHES).
H = FILL COVER HEIGHT OVER PIPE (FEET).

= UNDISTURBED SOIL

= COMPACTED BEDDING

= LOOSE BEDDING, COMPACTED AFTER PIPE PLACEMENT



FLEXIBLE STORM SEWER PIPE ARCH BEDDING

CONSTRUCTION SEQUENCE

1. LOOSELY PLACE 6" OF FINE AGGREGATE BEDDING MATERIAL TO GRADE. DO NOT COMPACT PRIOR TO PIPE PLACEMENT.
2. FOR PIPES WITH BELL, REMOVE MATERIAL IN BELL AREA PRIOR TO PLACEMENT.
3. FURNISH AND INSTALL PIPE TO GRADE.
4. AFTER PLACEMENT OF THE PIPE, PLACE ADDITIONAL FINE AGGREGATE BEDDING AND COMPACT THE FULL LENGTH ON BOTH SIDES OF THE PIPE UNDERNEATH THE HAUNCH AREA BY FIRST SHOVEL SLICING (MANUALLY SHOVE THE BLADE END OF SHOVEL AT AN ANGLE DOWN THE ENTIRE LENGTH OF HAUNCH UNDER THE PIPE). THEN COMPACT THE HAUNCH AT AN ANGLE USING A POWERED MECHANICAL OR PNEUMATIC DEVICE (I.E. POLE TAMPER, JUMPING JACK, OR SIMILAR).
5. COMPACT THE REMAINING MATERIAL OUTSIDE THE HAUNCH AREA TO THE REQUIREMENTS OF SPEC. 2106 ENSURING THAT THE ENTIRE LENGTH OF PIPE IS SUPPORTED UNIFORMLY BY BEDDING.
6. PLACE AND COMPACT BACKFILL EVENLY AND SIMULTANEOUSLY IN 6" LIFTS ON EACH SIDE OF THE PIPE UP TO THE SPRINGLINE FOR RIGID PIPE AND 12" ABOVE THE TOP OF THE PIPE FOR FLEXIBLE PIPE WHEN COMPACTED.
7. COMPLETE REMAINING BACKFILL.

NOTES

EXCAVATE & CONSTRUCT ALL TRENCHES AND SLOPES PER OSHA REQUIREMENTS.

PIPE SIZE IS BASED ON THE NOMINAL INSIDE DIAMETER OR SPAN.

PROTECT ALL PIPE DURING CONSTRUCTION PER SPEC. 2503.

WHEN RIPRAP IS REQUIRED AT THE APRON END, SEE STANDARD PLATE OR PLAN FOR RIPRAP INSTALLATION AND QUANTITIES. FOR APRONS WITHOUT RIPRAP PLACE 6" MIN. FINE AGGREGATE BEDDING UNDER APRONS. USE A TRENCH WIDTH EQUAL TO THE PIPE TRENCH WIDTH.

FINE AGGREGATE BEDDING INCLUDING THE COST OF EXCAVATION, PLACEMENT AND COMPACTION IS INCLUDED IN THE CONTRACT UNIT PRICE OF THE RELEVANT STORM SEWER PAY ITEM.

EXCAVATION AND BACKFILL WITH SELECT GRADING MATERIAL ARE NOT TABULATED SEPARATELY BUT ARE INCLUDED IN THE CONTRACT UNIT PRICE OF THE RELEVANT STORM SEWER PAY ITEM.

RIGID PIPE INCLUDES CONCRETE. FLEXIBLE PIPE INCLUDES METAL, AND PLASTIC MATERIALS SUCH AS CORRUGATED POLYPROPYLENE (PP), CORRUGATED POLYETHYLENE (CP) AND POLYVINYL CHLORIDE (PVC).

① MODIFY TRENCH WIDTH & SLOPE AS NECESSARY TO COMPLY WITH OSHA REQUIREMENTS.

② USE PLASTIC PIPE TABLE FOR TRENCH WIDTHS WHEN FILL HEIGHT IS GREATER THAN 10 FT.

REVISION:

APPROVED: JANUARY 18, 2019
Kevin Western
STATE BRIDGE ENGINEER

MINNESOTA DEPARTMENT OF TRANSPORTATION

STANDARD PLAN 5-297.442 | **1 OF 1**

APPROVED: 01-18-2019
REVISED:

STATE DESIGN ENGINEER

STANDARD STORM SEWER BEDDING
FOR RIGID AND FLEXIBLE PIPE

SP 002-601-057

SHEET NO. 29 OF 103 SHEETS

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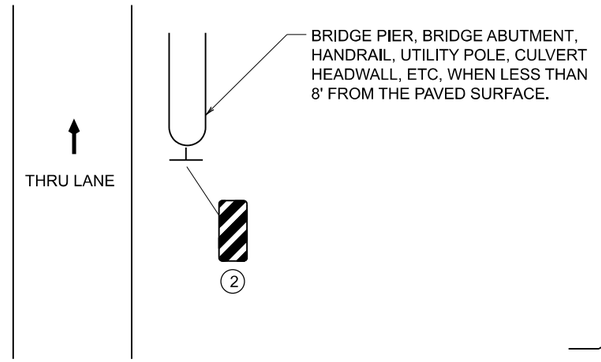
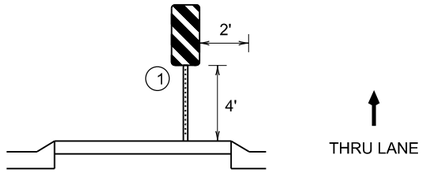
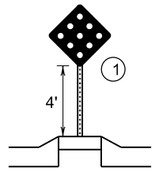


OBSTRUCTION
TYPE 3 OBJECT MARKER

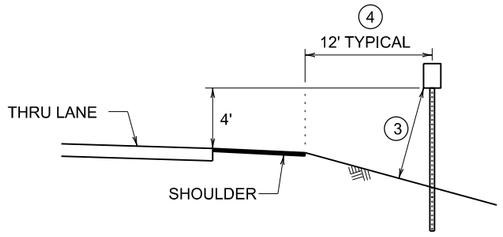


RAISED ISLAND
TYPE 3 OBJECT MARKER

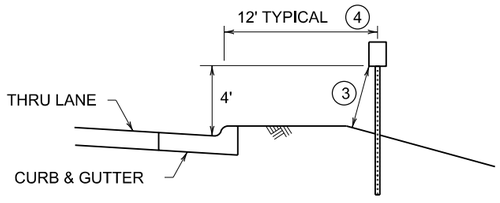


RAISED ISLAND
TYPE 1 OBJECT MARKER

MARKER TYPICAL PLACEMENT



LOCATIONS WITHOUT CURB



LOCATIONS WITH CURB

DELINEATOR TYPICAL PLACEMENT

NOTES:

FOR DELINEATOR OFFSETS AT RAMP GORES, SEE STANDARD PLAN 5-297.703.

(1) PLACE MARKER AS CLOSE TO THE BEGINNING OF MEDIAN AS POSSIBLE.

(2) PLACE THE EDGE OF THE OBJECT MARKER THAT IS CLOSEST TO THE ROAD USER IN LINE WITH THE CLOSEST EDGE OF THE OBSTRUCTION. ANGLE THE STRIPES DOWNWARD TOWARDS THE SIDE TRAFFIC IS TO PASS THE OBSTRUCTION.

(3) THE CRASHWORTHY HEIGHT FROM THE GROUND TO ANY PORTION OF THE SIGN PANEL IS AT LEAST 7' FOR BREAKAWAY STRUCTURES AND AT LEAST 4' FOR BENDABLE STRUCTURES. SEE SPECIFIC SQUARE TUBE BASE STRUCTURE PLAN FOR CRASH RESPONSE TYPE.

(4) ADJUST OFFSET TO MATCH OTHER SIGN OFFSETS ALONG ROADWAY CORRIDOR, BUT NOT MORE THAN 12' NOR LESS THAN 2'.

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APPROVED: 02-28-2022

BRIAN SORENSON
STATE TRAFFIC ENGINEER

MINNESOTA DEPARTMENT OF TRANSPORTATION

STANDARD PLAN 5-297.702 | 1 OF 1

APPROVED: 02-28-2022
REVISED:

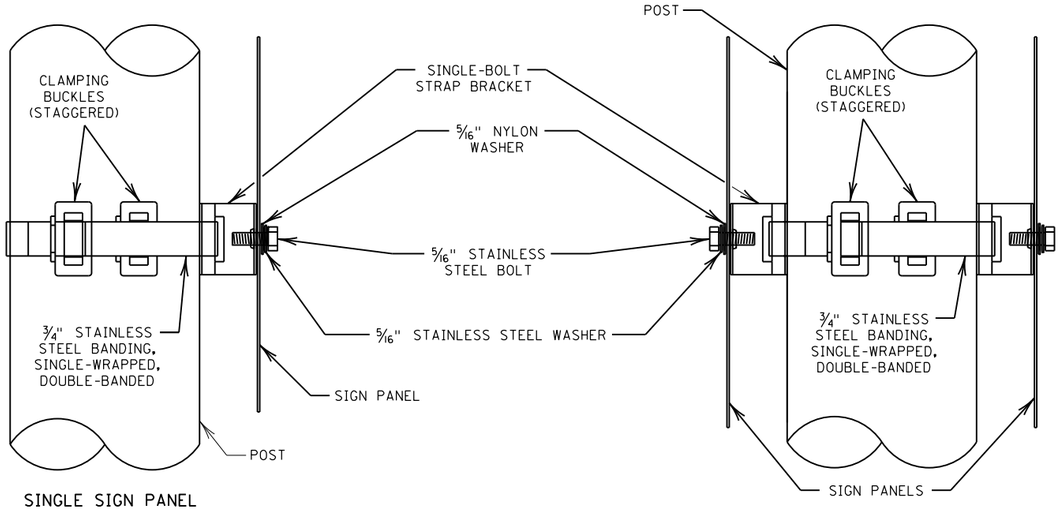
THOMAS STYRBICKI
STATE DESIGN ENGINEER

DELINEATOR AND MARKER PLACEMENT

SP 002-601-057

SHEET NO. 30 OF 103 SHEETS

PLOTTED/REVISED: 5/4/2023

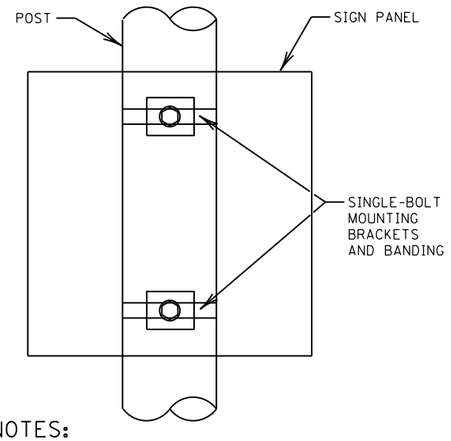


SINGLE SIGN PANEL

BACK TO BACK SIGN PANELS

NON-STIFFENER MOUNTING DETAILS

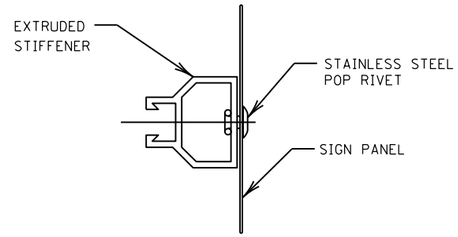
FOR SIGN PANELS UP TO 24" WIDE AND OVERHEAD SIGN IDENTIFICATION PLATES



NOTES:

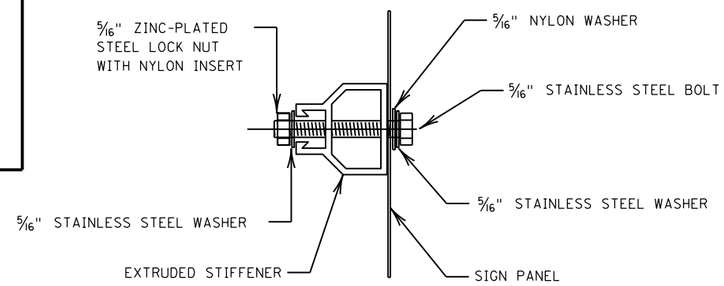
TENSION THE BANDING IN ACCORDANCE WITH THE MANUFACTURER'S INSTALLATION REQUIREMENTS.

DO NOT MOUNT SIGNS ON BREAKAWAY TRAFFIC SIGNALS AND LUMINAIRE SUPPORTS.



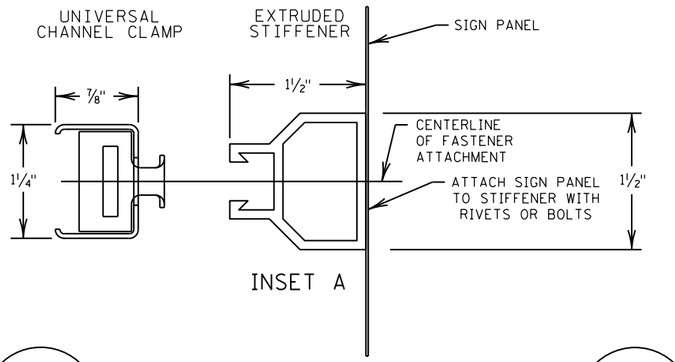
ATTACH 3/16" RIVETS AT 6" INTERVALS.
ATTACH END RIVETS 3" FROM SIGN EDGE.
USE 1/4" RIVETS FOR THE END RIVETS.

RIVET ATTACHMENT

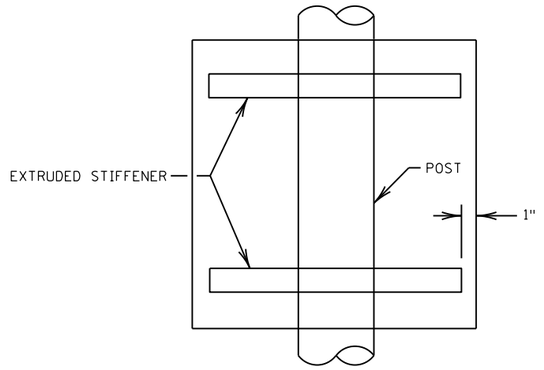


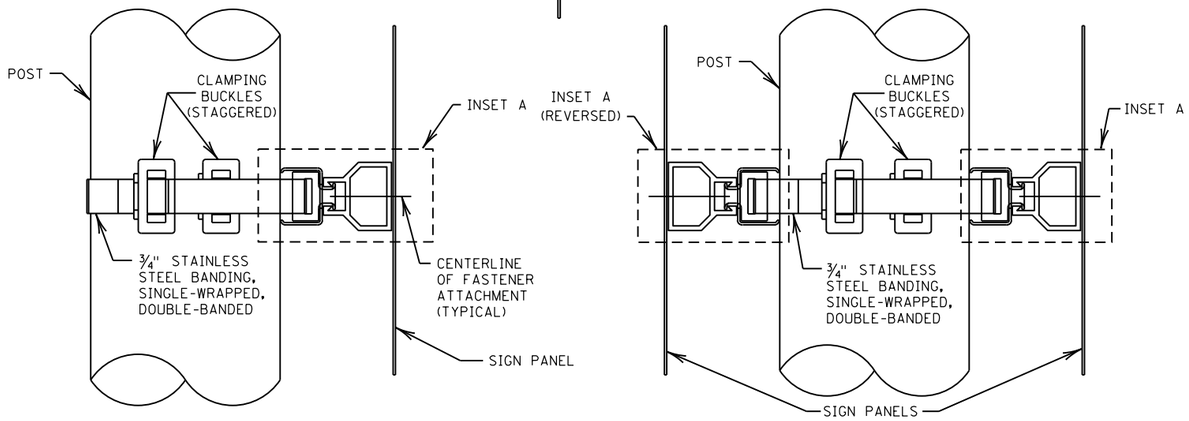
ATTACH AT STANDARD PUNCH CODE LOCATIONS

BOLT ATTACHMENT



INSET A





SINGLE SIGN PANEL

BACK-TO-BACK SIGN PANELS

STIFFENER MOUNTING DETAILS

FOR SIGN PANELS 30" WIDE AND LARGER

NUMBER OF EXTRUDED STIFFENERS REQUIRED

PANEL HEIGHT	PANEL WIDTH 2'	3'	4'	5'	6'
2'	2	2	2	2	3
3'	2	2	2	2	3
4'	2	2	2	2	3
5'	3	3	3	3	3
6'	3	3	3	4	4
7'	3	3	3	4	4

PROVIDE VERTICAL SPACING OF NO MORE THAN 36" BETWEEN STIFFENERS.

PROVIDE A VERTICAL DISTANCE OF NO MORE THAN 12" FROM PANEL EDGE TO STIFFENER.

NOTES:

SPACE STIFFENERS IN ACCORDANCE WITH THE PUNCH CODES SHOWN IN THE MnDOT STANDARD SIGNS AND MARKINGS MANUAL.

ATTACH STIFFENERS TO SIGN PANELS USING FASTENERS. PLACE STIFFENERS AT THE VERTICAL LOCATIONS OF THE MOUNTING HOLES FOR EACH SIGN.

FURNISH AND INSTALL HARDWARE COMPATIBLE WITH STIFFENER MOUNTING SYSTEMS.

FURNISH TWO TYPE 201 STAINLESS STEEL 3/4" WIDE BY 1/32" THICK STRAPS, EACH WITH CLAMPING BUCKLES AND INSTALL SEPARATELY WITH A SINGLE WRAP AROUND THE MAST ARM CHORD. PLACE THE SECOND BANDING STRAP OVER THE FIRST STRAP AND STAGGER THE CLAMPING BUCKLES SO THE BUCKLES ARE NOT DIRECTLY OVER ONE ANOTHER.

PATH & FILENAME: K:\1018837-000\Cad\Plan\1018837-000_SPN_700.dgn

REVISION:

APPROVED: OCTOBER 16, 2019

BRIAN SORENSON
STATE TRAFFIC ENGINEER

MINNESOTA DEPARTMENT OF TRANSPORTATION

PETER A. HARFF
STATE DESIGN ENGINEER

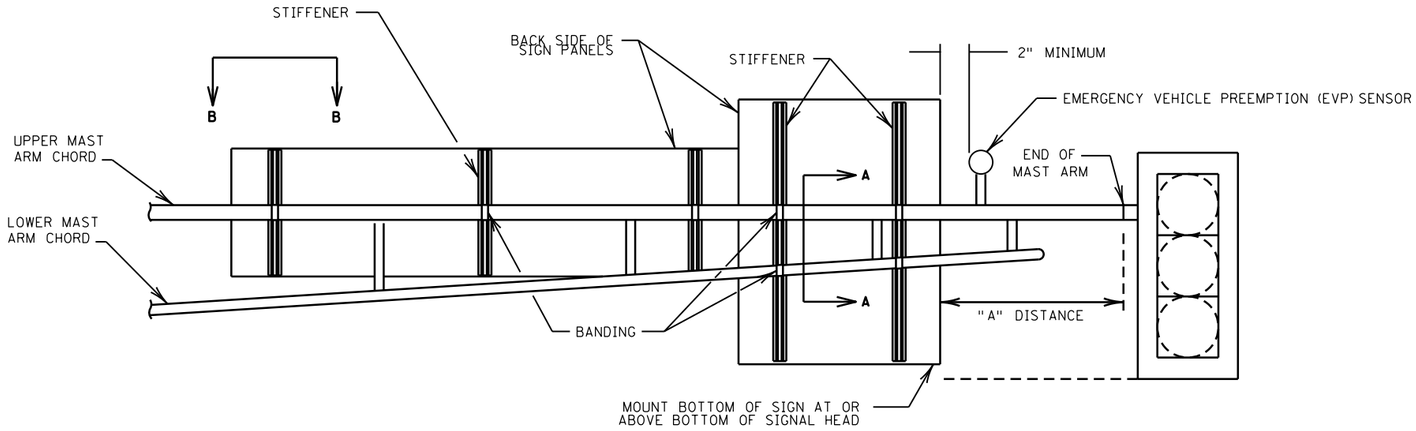
APPROVED: 10-16-2019
REVISED:

STANDARD PLAN 5-297.730 | 1 OF 1

SIGN MOUNTING SYSTEMS FOR ROUND SUPPORTS

SP 002-601-057

PLOTTED/REVISED: 5/4/2023



MAST ARM SIGN MOUNTING

NUMBER OF EXTRUDED STIFFENERS REQUIRED*														
		PANEL WIDTH												
		2'	3'	4'	5'	6'	7'	8'	9'	10'	11'	12'	13'	14'
PANEL HEIGHT	2'	2	2	2	3	3	3	4	4	4	5	5	5	5
	3'	2	2	2	3	3	3	4	4	5	5	5	5	5
	4'	2	2	2	3	3	3	4	4	5	5	5	5	6
	5'	2	2	2	3	4	4	5	5	5	5	5	5	6
	6'			2	3	4	4	5	5	5	5	5	5	6
	7'				4	4	5	5	5	5	5	5	5	6

* WHERE SIGN PANEL DIMENSIONS FALL BETWEEN 1' INCREMENTS, USE NEXT HIGHER WIDTH AND/OR HEIGHT DIMENSION.

NOTES:

FURNISH AND INSTALL AT LEAST ONE SPACER FOR EACH SIGN PANEL WHEN PANELS ARE ATTACHED TO THE LOWER MAST ARM CHORD.

AFFIX SIGNS TO UPPER AND LOWER MAST ARM CHORDS WHEN POSSIBLE.

POSITION BOTTOM OF SIGN PANEL AT LEAST 17' ABOVE ROADWAY.

MOUNT SIGN PANELS PLUMB AND SHIM WITH REQUIRED SPACERS AS SHOWN.

PROVIDE SPACING BETWEEN STIFFENERS OF NO MORE THAN 36".

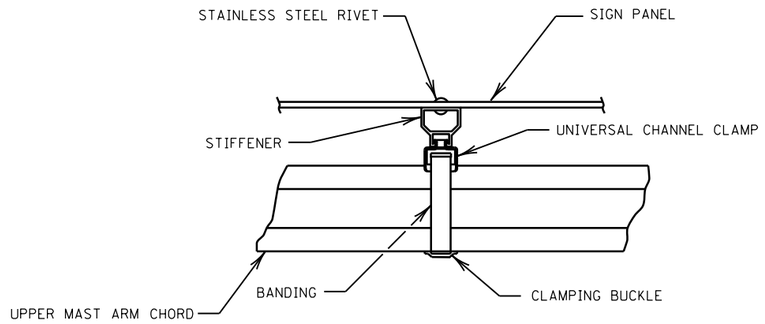
PROVIDE A HORIZONTAL DISTANCE OF NO MORE THAN 12" FROM PANEL EDGE TO STIFFENER.

PROVIDE A VERTICAL DISTANCE OF NO MORE THAN 1" FROM PANEL EDGE TO STIFFENER.

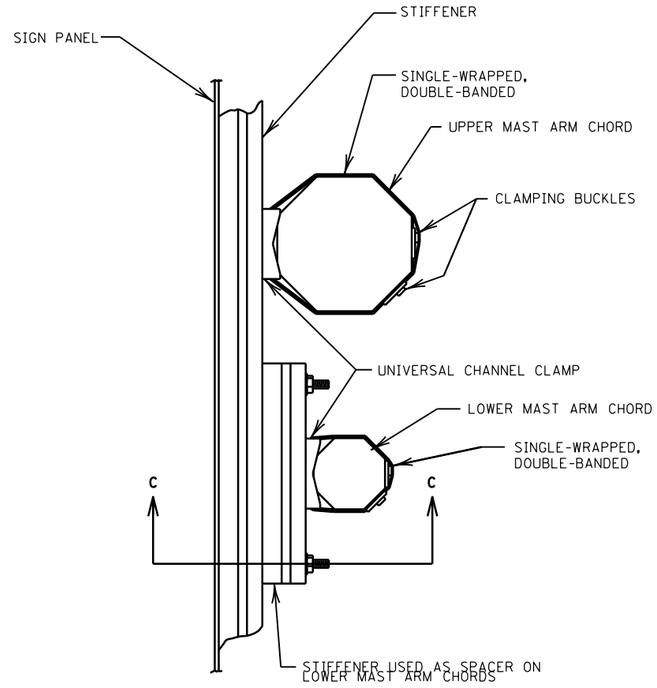
FURNISH AND INSTALL 1/4" STAINLESS STEEL RIVETS 3" FROM THE PANEL EDGE TO ATTACH THE STIFFENERS TO THE SIGN PANELS. FURNISH AND INSTALL 3/16" STAINLESS STEEL RIVETS AT 6" ON CENTER TO ATTACH THE REMAINDER OF THE STIFFENER TO THE SIGN PANEL.

FURNISH TWO TYPE 201 STAINLESS STEEL 3/4" WIDE BY 1/32" THICK STRAPS, EACH WITH CLAMPING BUCKLES AND INSTALL SEPARATELY WITH A SINGLE WRAP AROUND THE MAST ARM CHORD. PLACE THE SECOND BANDING STRAP OVER THE FIRST STRAP AND STAGGER THE CLAMPING BUCKLES SO THE BUCKLES ARE NOT DIRECTLY OVER ONE ANOTHER.

THE "A" DISTANCE IS SHOWN ON THE PLANS. IT IS THE DISTANCE FROM THE END OF THE MAST ARM TO THE EDGE OF EACH SIGN.

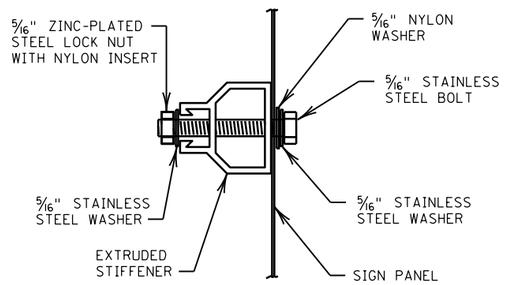


VIEW B-B



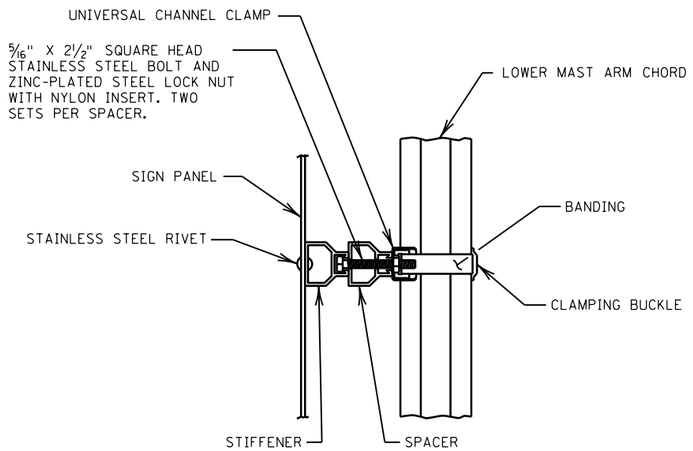
VIEW A-A ①

① SIGN PANELS TALLER THAN 36" MUST BE BANDED TO THE LOWER MAST ARM CHORD AT A MINIMUM OF ONE LOCATION. SIGN PANEL SHALL BE BANDED TO THE LOWER MAST ARM AT A LOCATION THAT WILL PROVIDE THE CLOSEST TO PLUMB ALIGNMENT FOR THE SIGN PANEL.



BOLT ATTACHMENT

ATTACH AT STANDARD PUNCH CODE LOCATIONS



VIEW C-C

REVISION: APRIL 17, 2020

APPROVED: OCTOBER 16, 2019

BRIAN SOBENSON
STATE TRAFFIC ENGINEER

MINNESOTA DEPARTMENT OF TRANSPORTATION

PETER A. HARFF
STATE DESIGN ENGINEER

STANDARD PLAN 5-297.731 | 1 OF 1

APPROVED: 10-16-2019
REVISED: 4-17-2020

SP 002-601-057

SIGN MOUNTING DETAILS FOR SIGNAL MAST ARMS

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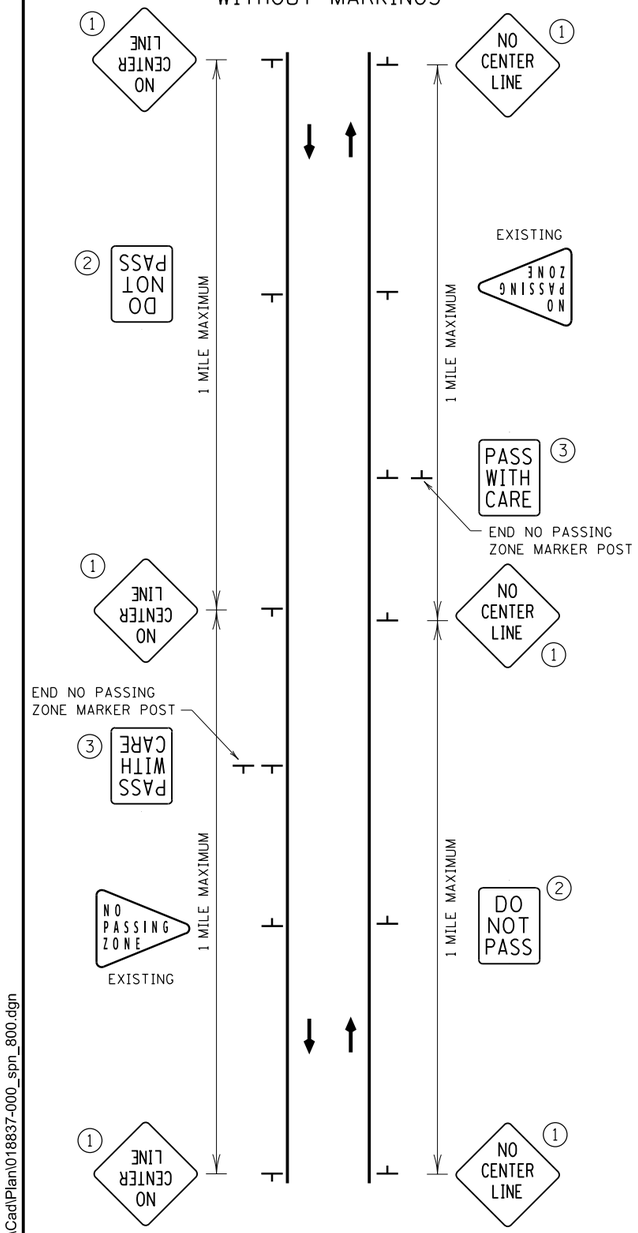
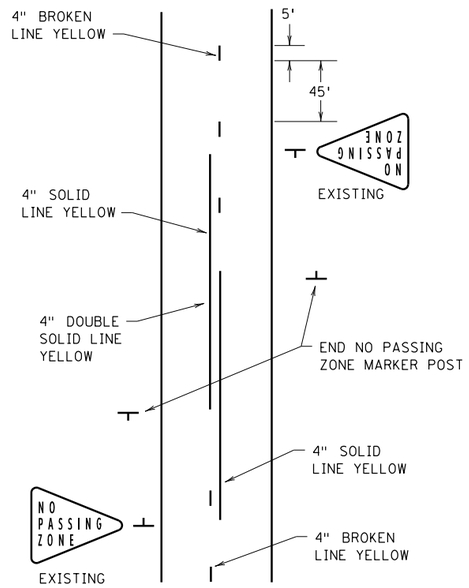
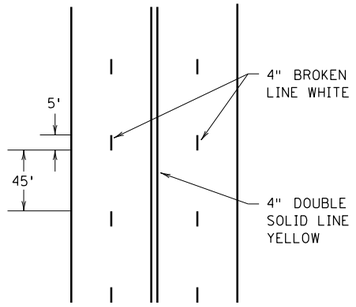
TWO-LANE, TWO-WAY LESS THAN 400 ADT WITHOUT MARKINGS



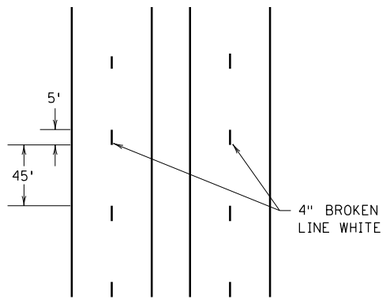
TWO-LANE, TWO-WAY



MULTI-LANE, UNDIVIDED



MULTI-LANE, DIVIDED



GENERAL NOTES:

SEE MnDOT SPEC. 2580 (INTERIM PAVEMENT MARKING).

DO NOT OPEN ANY ROADWAY SEGMENT TO TRAFFIC UNLESS THE FOLLOWING MARKINGS (INTERIM OR PERMANENT) ARE INPLACE: CENTERLINE MARKINGS (INCLUDING NO PASSING ZONES), FLUSH MEDIANS (EXCLUDING CROSSHATCHING), AND LANE LINE (INCLUDING TURN AND AUXILIARY LANE LINES). THIS REQUIREMENT IS WAIVED FOR TANGENT ROAD SEGMENTS LESS THAN 350' IN LENGTH AND CURVED ROAD SEGMENTS WITH DEGREES OF CURVE GREATER THAN 6 DEGREES FOR LESS THAN 50' IN LENGTH.

PLACE INTERIM BROKEN LINE PAVEMENT MARKINGS AT THE SAME CYCLE LENGTH AS FINAL PAVEMENT MARKINGS WITH A MINIMUM LENGTH OF 5 FEET; IF FINAL PAVEMENT MARKING PLAN IS NOT PROVIDED, THE CYCLE LENGTH SHALL BE 50'. PLACE INTERIM DOTTED LINE PAVEMENT MARKINGS AT THE SAME CYCLE LENGTH AND LINE LENGTH AS SHOWN IN THE PLAN; IF FINAL PAVEMENT MARKING PLAN IS NOT PROVIDED, THE CYCLE LENGTH SHALL BE 15' WITH A LINE LENGTH OF 3'.

FOR NO PASSING ZONE LOCATIONS, REFER TO THE SIGNING OR PAVEMENT MARKING PLAN; IF NEITHER IS PROVIDED, FOLLOW INPLACE NO PASSING ZONES.

WHEN PERMANENT PAVEMENT MARKINGS ARE TO BE MULTI-COMPONENT LIQUID AND PAINT IS USED FOR THE INTERIM MARKINGS, PLACE A 10 MIL THICK LAYER OF PAINT. REMOVAL OF THE 10 MIL LAYER OF PAINT IS NOT REQUIRED PRIOR TO PLACING THE MULTI-COMPONENT LIQUID. IF THE LAYER OF PAINT IS GREATER THAN 10 MIL, REMOVE THE PAINT PRIOR TO PLACING THE MULTI-COMPONENT LIQUID.

PLACE INTERIM MARKINGS ON THE FINAL PERMANENT PAVEMENT SURFACE SUCH THAT THEY WILL BE FULLY COVERED BY THE PERMANENT PAVEMENT MARKINGS.

INTERIM PAVEMENT MARKINGS SHOULD NOT BE LEFT INPLACE FOR MORE THAN 14 CALENDAR DAYS UNLESS THEY MEET THE REQUIREMENTS OF PERMANENT OR TEMPORARY MARKINGS.

USING SIGNING IN LIEU OF INTERIM PAVEMENT MARKINGS ON TWO-LANE, TWO-WAY ROADWAYS

ON ROADS WITH AN AVERAGE DAILY TRAFFIC (ADT) OF LESS THAN 400 VEHICLES, THE SIGNS AS SHOWN MAY BE USED IN LIEU OF PAVEMENT MARKINGS FOR UP TO 14 CALENDAR DAYS OR AS DIRECTED BY THE ENGINEER.

(1) PLACE A "NO CENTER LINE" SIGN (W8-12, BLACK ON ORANGE) FOR EACH DIRECTION OF TRAVEL. PLACE ADDITIONAL SIGNS AT MAJOR INTERSECTIONS OR ONE MILE INCREMENTS, WHICHEVER IS LESS.

(2) IF NOT ALREADY INPLACE, PLACE A "DO NOT PASS" SIGN (R4-1) OPPOSITE OF EACH INPLACE "NO PASSING ZONE" SIGN (W14-3).

(3) PLACE A "PASS WITH CARE" SIGN (R4-2) AT THE END OF EACH NO PASSING ZONE, ADJACENT TO THE END OF NO PASSING ZONE MARKER POST.

USING TEMPORARY RAISED PAVEMENT MARKERS (TRPMS) AS INTERIM PAVEMENT MARKING

WHEN USING TRPMS AS INTERIM PAVEMENT MARKINGS, FOLLOW THE REQUIREMENTS BELOW UNLESS OTHERWISE DIRECTED BY THE ENGINEER.

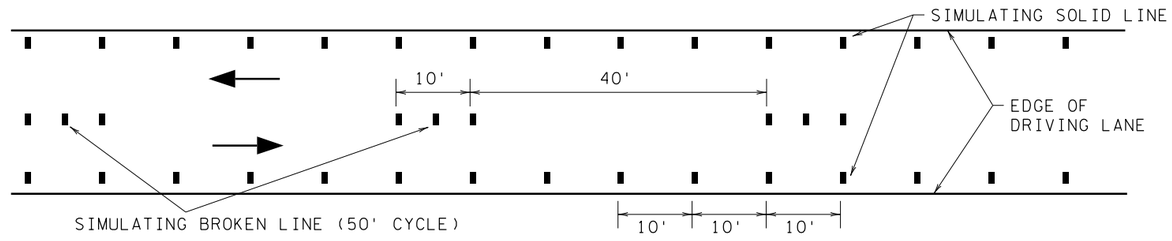
USE DOUBLE-SIDED TRPMS ON TWO-LANE, TWO-WAY ROADS.

BROKEN LINE: USE 3 TRPMS PER 10' BROKEN LINE, 5' SPACING WITH A 40' GAP.

SOLID LINE: USE CONTINUOUS TRPMS; 10' SPACING FOR TANGENTS AND CURVES UNDER 6 DEGREES; 5' SPACING FOR CURVES ≥6 DEGREES, GRADES >5 PERCENT, OR CONCRETE PAVEMENTS.

DOUBLE SOLID LINE: USE TWO CONTINUOUS TRPMS 4" APART, 10' SPACING ON TANGENTS AND CURVES UNDER 6 DEGREES; 5' SPACING FOR CURVES ≥6 DEGREES, GRADES >5 PERCENT, OR CONCRETE PAVEMENTS.

SIMULATING A SOLID LINE AND A BROKEN LINE (50' CYCLE) WITH TRPMS



REVISION:

APPROVED: OCTOBER 10, 2019

BRIAN SORENSON
STATE TRAFFIC ENGINEER

MINNESOTA DEPARTMENT OF TRANSPORTATION

STANDARD PLAN 5-297.801	1 OF 1
APPROVED: 10-10-2019	
REVISED:	

PETER A. HARFF
STATE DESIGN ENGINEER

INTERIM PAVEMENT MARKINGS AND SIGNING

SP 002-601-057

SHEET NO. 33 OF 103 SHEETS

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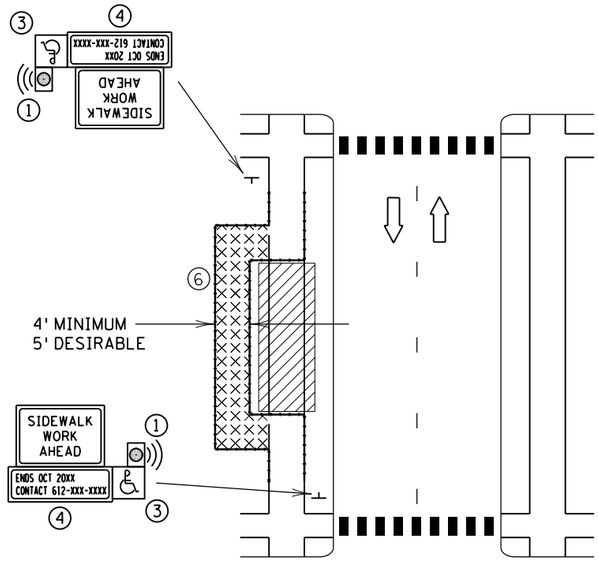
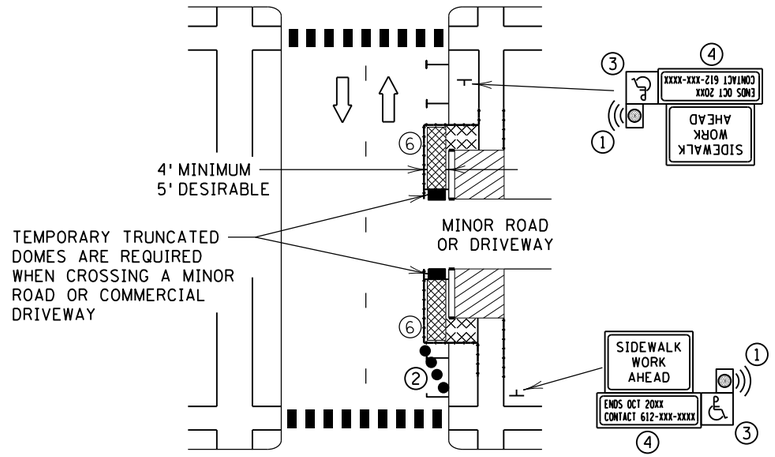
PLOTTED/REVISED: 5/4/2023



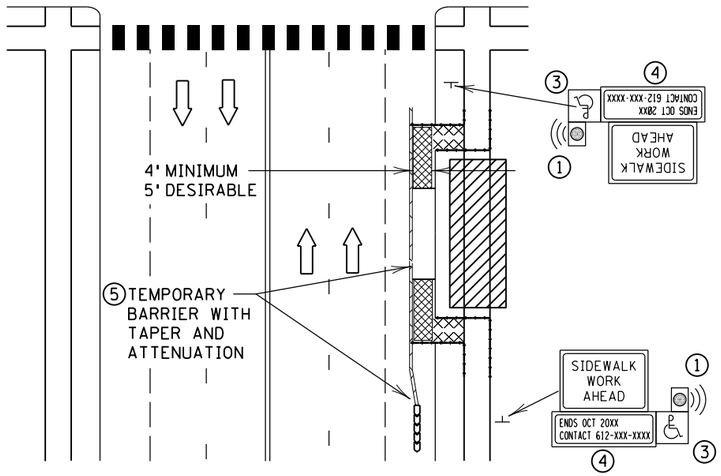
BYPASS TYPE A

BYPASS ON ADJACENT AVAILABLE RIGHT OF WAY



BYPASS TYPE B

SIDEWALK BYPASS USING PARKING OR SHOULDER ON LOW-SPEED ROADWAY



BYPASS TYPE C

SIDEWALK BYPASS USING SHOULDER OR PARKING LANE ON A MULTI-LANE OR HIGH-SPEED ROADWAY

NOTES:

WHEN CLOSING OR RELOCATING CROSSWALKS OR SIDEWALKS, PROVIDE DETECTABLE TEMPORARY FACILITIES AND INCLUDE ACCESSIBILITY FEATURES CONSISTENT WITH EXISTING PEDESTRIAN FACILITIES. THE ALTERNATE PEDESTRIAN ROUTE (APR) MUST REMAIN OPEN AT ALL TIMES.

TEMPORARY TRAFFIC CONTROL DEVICES FOR PEDESTRIANS ARE SHOWN. OTHER DEVICES MAY BE NECESSARY TO CONTROL VEHICULAR TRAFFIC. STAGE WORK AS NECESSARY TO PROVIDE AN APR AT ALL TIMES FOR ROADWAYS WITH NO AVAILABLE DETOURS. PROVIDE A SMOOTH, CONTINUOUS, HARD SURFACE THROUGH THE LENGTH OF THE APR.

PROVIDE A FIRM, STABLE, FREE-DRAINING, NON-SLIP, TEMPORARY WALKWAY SURFACE REGARDLESS OF WEATHER CONDITIONS. SUPPORT THE TEMPORARY WALKWAY SURFACE WITH A SOLID BASE TO COVER SHORT SEGMENTS OF ROUGH, SOFT, OR UNEVEN GROUND. THE TEMPORARY WALKWAY SURFACE WILL ALLOW NORMAL USAGE OF WHEELCHAIRS, WALKERS, STROLLERS, AND OTHER MOBILITY DEVICES. CONCRETE, BITUMINOUS, STEEL, RUBBER, WOOD (¾" OR THICKER), AND PLASTIC ARE ACCEPTABLE SURFACE MATERIALS FOR THE TEMPORARY WALKWAY SURFACE. GRAVEL, MILLINGS, AND OTHER UNEVEN SURFACES ARE NOT ACCEPTABLE SURFACE MATERIALS. IF NEEDED, PROVIDE SOIL STABILIZATION TO PREVENT EROSION AROUND TEMPORARY SURFACES. IF NEEDED, PROVIDE SOIL STABILIZATION TO PREVENT EROSION AROUND TEMPORARY SURFACES.

IF A 60" PEDESTRIAN WALKWAY WIDTH ISN'T PROVIDED FOR THE ROUTE, THEN A 60" BY 60" PASSING SPACE IS REQUIRED EVERY 200'. THE MINIMUM WIDTH OF THE WALKWAY IS 48".

COVER OR DEACTIVATE ANY PEDESTRIAN TRAFFIC SIGNALS CONTROLLING CLOSED CROSSWALKS.

POST-MOUNTED SIGNS LOCATED ADJACENT TO A SIDEWALK SHALL HAVE A 7' MINIMUM CLEARANCE FROM THE BOTTOM OF THE LOWEST SIGN TO THE SIDEWALK SURFACE. SHARED-USE PATH SHALL HAVE 8' MINIMUM CLEARANCE FROM THE BOTTOM OF THE LOWEST SIGN TO THE SHARED USE PATH SURFACE.

APR SHOULD BE KEPT FREE OF TRASH, SEDIMENT, AND DEBRIS.

ANY PORTABLE SIGN OR BARRICADE PLACED OR STORED IN A PEDESTRIAN WALKWAY THAT COULD POSE A HAZARD TO A VISUALLY-IMPAIRED PEDESTRIAN SHALL HAVE A DETECTABLE EDGE TO GUIDE THE PEDESTRIAN AROUND THE HAZARD. FOR ADDITIONAL GUIDANCE, SEE THE "DETECTABLE EDGE FOR SIGN ON PORTABLE STAND" DETAIL ON STADARD PLAN 5-297.813.

MINIMIZE DISRUPTION TO PEDESTRIANS TO THE MAXIMUM EXTENT FEASIBLE BY PROVIDING AN APR IN THE FOLLOWING ORDER OF PREFERENCE:

2. PROVIDE THE APR ON THE SAME SIDE OF THE ROADWAY AS THE DISRUPTED ROUTE UTILIZING BYPASSES.
3. WHERE NOT FEASIBLE TO PROVIDE A SAME-SIDE APR, PROVIDE AN APR DETOUR ON THE OTHER SIDE OF THE ROADWAY.

   WHERE NOT FEASIBLE TO PROVIDE AN APR ON EITHER SIDE OF THE ROADWAY, PROVIDE AN APR DETOUR WITH TRAILBLAZING SIGNS.

(1) CONSIDER PROVIDING AN APPROVED AUDIBLE MESSAGE DEVICE OR TACTILE MESSAGE FOR PEDESTRIANS WITH VISUAL DISABILITIES.

(2) RECOMMENDED TAPER WHEN THE CLOSED AREA WAS PREVIOUSLY USED AS AN INTERMITTENT TRAFFIC LANE OR BYPASS LANE IS 25'LONG USING FIVE EQUALLY-SPACED CHANNELIZING DEVICES.

(3) FOR FULLY-ACCESSIBLE WALKWAYS THROUGH WORKZONES, CONSIDER DISPLAYING THE INTERNATIONAL SYMBOL OF ACCESSIBILITY.

(4) INCLUDE INFORMATION SUCH AS THE DURATION OF THE WALKWAY RESTRICTIONS (BEGINNING AND/OR END DATES) AND A PROJECT CONTACT NUMBER FOR 24/7 QUESTIONS OR REPORTING HAZARDS ON SIGNS FOR TEMPORARY PEDESTRIAN DETOURS.

(5) SEE THE MOST CURRENT EDTION OF THE MNDOT TEMPORARY BARRIER GUIDANCE MANUAL FOR GUIDANCE ON PLACEMENT AND USAGE OF TEMPORARY BARRIER.

(6) PROVIDE SOIL STABILIZATION AROUND TEMPORARY SURFACES TO PREVENT EROSION, IF NEEDED.

LEGEND

- SIGN
- WORK AREA
- PEDESTRIAN CHANNELIZATION DEVICE
- TEMPORARY BARRIER
- DIRECTION OF TRAFFIC
- CHANNELIZER
- AUDIBLE MESSAGE DEVICE (AMD)
- TEMPORARY CURB RAMP WITH DETECTABLE EDGES
- TEMPORARY WALKWAY SURFACE

REVISION:

APPROVED: 03-18-2021

BRIAN SOBENSON
STATE TRAFFIC ENGINEER

MINNESOTA DEPARTMENT OF TRANSPORTATION

STANDARD PLAN 5-297.811	1 OF 2
APPROVED: 03-18-2021 REVISED:	ALTERNATE PEDESTRIAN ROUTE (APR) LAYOUTS

THOMAS STYRBICKI
STATE DESIGN ENGINEER

SP 002-601-057

SHEET NO. 34 OF 103 SHEETS

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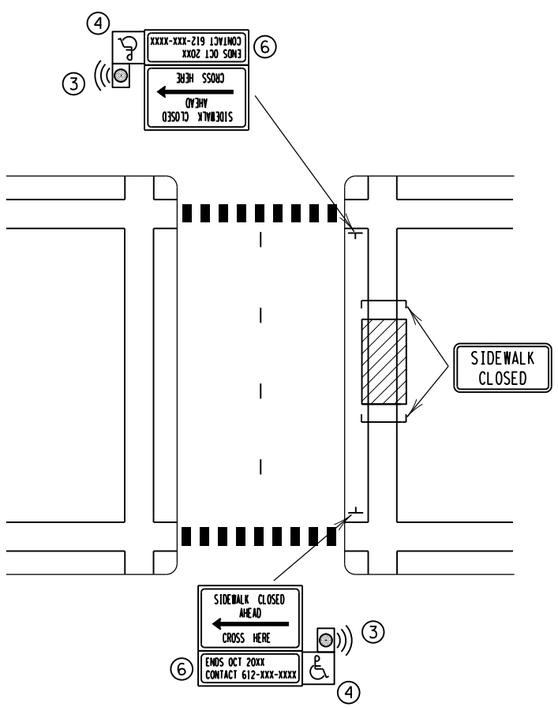
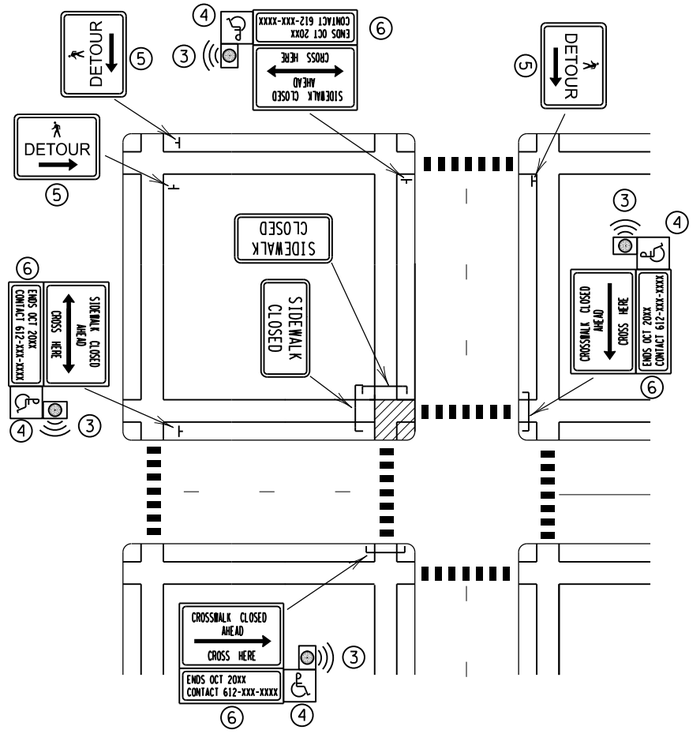
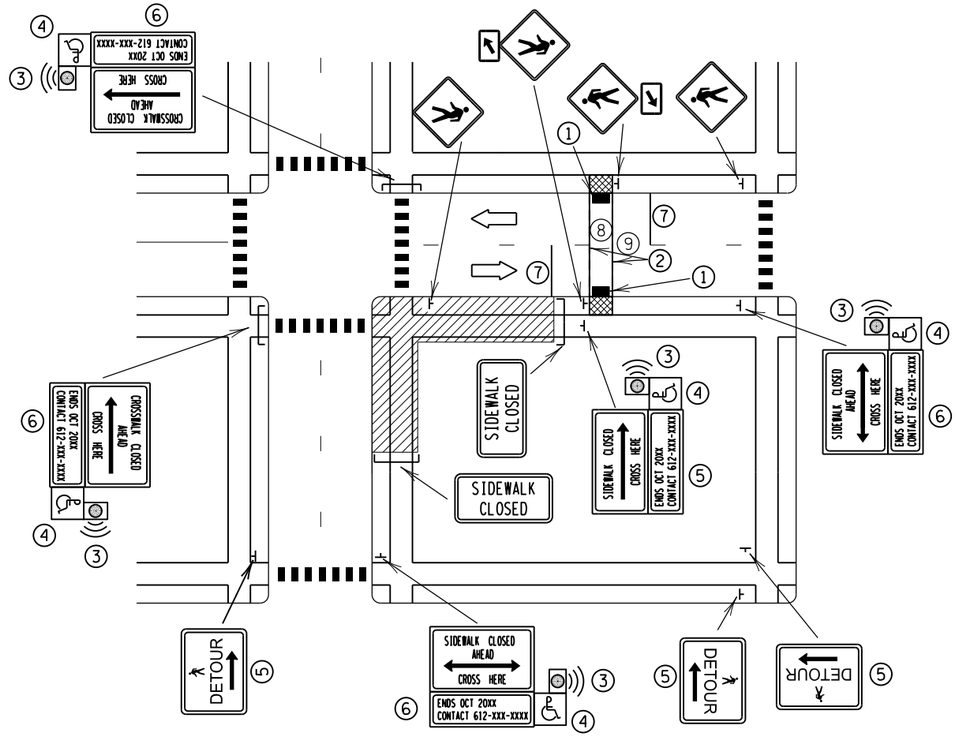
PLOTTED/REVISED: 5/4/2023



OTHER SIDE OF ROADWAY DETOUR
FOR MID-BLOCK CLOSURE



ONE QUADRANT CLOSED



OTHER SIDE OF STREET DETOUR OR DETOUR WITH TRAILBLAZING SIGNS
FOR CORNER SIDEWALK CLOSURE WITH OPTIONAL TEMPORARY CROSSWALK

WHEN CLOSING OR RELOCATING CROSSWALKS OR SIDEWALKS, PROVIDE DETECTABLE TEMPORARY FACILITIES AND INCLUDE ACCESSIBILITY FEATURES CONSISTENT WITH EXISTING PEDESTRIAN FACILITIES. THE MINIMUM TEMPORARY WALKWAY WIDTH SHOULD BE THE WIDTH OF THE EXISTING FACILITY. IF THE EXISTING FACILITY HAS A WIDTH GREATER THAN 60", THE WIDTH OF THE TEMPORARY FACILITY MAY BE 60". IF THE WIDTH OF THE DETOUR IS LESS THAN 60", A 60"-WIDE PASSING SPACE IS REQUIRED EVERY 200'.

TEMPORARY TRAFFIC CONTROL DEVICES FOR PEDESTRIANS ARE SHOWN. OTHER TRAILBLAZING SIGNS OR DEVICES MAY BE NEEDED FOR ADEQUATE ROUTING. STAGE WORK AS NECESSARY TO PROVIDE AN ALTERNATE PEDESTRIAN ROUTE (APR) AT ALL TIMES.

PROVIDE A SMOOTH, CONTINUOUS, HARD SURFACE THROUGH THE LENGTH OF THE APR. PROVIDE A FIRM, STABLE, FREE-DRAINING, NON-SLIP, TEMPORARY WALKWAY SURFACE REGARDLESS OF WEATHER CONDITIONS. SUPPORT THE TEMPORARY WALKWAY SURFACE WITH A SOLID BASE TO COVER SHORT SEGMENTS OF ROUGH, SOFT, OR UNEVEN GROUND. THE TEMPORARY WALKWAY SURFACE WILL ALLOW NORMAL USAGE OF WHEELCHAIRS, WALKERS, STROLLERS, AND OTHER MOBILITY DEVICES. CONCRETE, BITUMINOUS, STEEL, RUBBER, WOOD (3/4" OR THICKER), AND PLASTIC ARE ACCEPTABLE SURFACE MATERIALS FOR THE TEMPORARY WALKWAY SURFACE. GRAVEL, MILLINGS, OR OTHER UNEVEN SURFACES ARE NOT ACCEPTABLE SURFACE MATERIALS. IF NEEDED, PROVIDE SOIL STABILIZATION TO PREVENT EROSION AROUND TEMPORARY SURFACES.

COVER OR DEACTIVATE ANY PEDESTRIAN TRAFFIC SIGNALS CONTROLLING CLOSED CROSSWALKS.

APR SHOULD BE KEPT FREE OF TRASH, SEDIMENT, AND DEBRIS.

POST-MOUNTED SIGNS ADJACENT TO SIDEWALKS SHALL HAVE 7' MINIMUM CLEARANCE FROM THE BOTTOM OF THE LOWEST SIGN TO THE SIDEWALK SURFACE. SHARED-USE PATHS SHALL HAVE 8' MINIMUM CLEARANCE FROM THE BOTTOM OF THE LOWEST SIGN TO THE SHARED-USE PATH SURFACE.

ANY PORTABLE SIGN OR BARRICADE PLACED OR STORED IN A PEDESTRIAN WALKWAY THAT COULD BE A HAZARD TO A VISUALLY-IMPAIRED PEDESTRIAN SHALL HAVE A DETECTABLE EDGE TO GUIDE THE PEDESTRIAN AROUND THE HAZARD. FOR ADDITIONAL GUIDANCE SEE THE "TEMPORARY PEDESTRIAN ACCESS ROUTE (TPAR) DEVICES" STANDARD PLAN, "DETECTABLE EDGE FOR SIGN ON PORTABLE STAND" DETAIL.

MINIMIZE DISRUPTION TO PEDESTRIANS TO THE MAXIMUM EXTENT FEASIBLE BY PROVIDING AN APR IN THE FOLLOWING ORDER OF PREFERENCE:

1. PROVIDE THE APR ON THE SAME SIDE OF THE ROADWAY AS THE DISRUPTED ROUTE UTILIZING BYPASSES.
2. WHERE IT IS NOT FEASIBLE TO PROVIDE A SAME-SIDE APR, PROVIDE AN APR DETOUR ON THE OTHER SIDE OF THE ROADWAY.
3. WHERE IT IS NOT FEASIBLE TO PROVIDE AN APR ON EITHER SIDE OF THE ROADWAY, PROVIDE AN APR DETOUR WITH TRAILBLAZING SIGNS.

(1) TEMPORARY CURB RAMPS WITH DETECTABLE WARNINGS.

(2) TEMPORARY PAVEMENT MARKINGS FOR CROSSWALKS MAY USE CROSSWALK BLOCKS, TWO TRANSVERSE LINES OR TWO STRIPS OF 18" PREFORMED MARKING MATERIAL TO FORM 36" WIDE CROSSWALK BLOCKS.

(3) PROVIDE AN APPROVED AUDIBLE MESSAGE DEVICE OR TACTILE MESSAGE FOR PEDESTRIANS WITH VISUAL DISABILITIES.

(4) FOR FULLY ACCESSIBLE WALKWAYS THROUGH WORKZONES, CONSIDER DISPLAYING THE INTERNATIONAL SYMBOL OF ACCESSIBILITY.

(5) USE PEDESTRIAN DETOUR TRAILBLAZING SIGNS IF THE PEDESTRIAN DETOUR IS NOT LOCATED ACROSS THE ROADWAY FROM THE SIDEWALK CLOSURE.

(6) TYPICAL SIGN MESSAGE FOR AN ALTERNATE PEDESTRIAN ROUTE SHOULD INCLUDE INFORMATION SUCH AS THE DURATION OF THE WALKWAY RESTRICTIONS (BEGINNING AND/OR END DATES) AND A PROJECT CONTACT NUMBER FOR 24/7 QUESTIONS OR REPORTING HAZARDS. TYPICAL INFORMATION INCLUDED IN AN AUDIBLE MESSAGE CAN BE FOUND IN "TPAR - AUDIBLE MESSAGE CONTENT GUIDELINES" AVAILABLE ON THE MNDOT TRAFFIC ENGINEERING WEBSITE ON THE PEDESTRIAN ACCOMMODATIONS THROUGH WORK ZONES WEB PAGE. ADDITIONALLY, A SUMMARY OF THE MESSAGE CONTENT GUIDELINES CAN BE FOUND WITHIN THE PEDESTRIAN ACCOMMODATIONS THROUGH WORK ZONES DESIGN GUIDANCE DOCUMENT.

(7) LOCATE STOP BAR 20' TO 50' BEFORE THE CROSSWALK. RESTRICT PARKING BETWEEN THE STOP BAR AND THE CROSSWALK. ON TWO-WAY ROADWAYS, RESTRICT PARKING BOTH BEFORE AND AFTER THE CROSSWALK FOR BOTH DIRECTIONS.

(8) CONSIDER LIGHTING AT MID-BLOCK CROSSINGS IN ORDER TO ILLUMINATE PEDESTRIANS, IF NOT ALREADY LIT.

(9) CONSIDER THE ADDITION OF R1-6a SIGNS AS MOTORISTS ARE NOT EXPECTING MID-BLOCK CROSSING.

LEGEND

- SIGN
- DIRECTION OF TRAFFIC
- WORK AREA
- AUDIBLE MESSAGE DEVICE (AMD)
- SIDEWALK BARRICADE
- TEMPORARY CURB RAMP WITH DETECTABLE EDGES

R1-6a

REVISION:

APPROVED: 03-18-2021
BRIAN SORENSON
STATE TRAFFIC ENGINEER

MINNESOTA DEPARTMENT OF TRANSPORTATION

STANDARD PLAN 5-297.811 | **2 OF 2**

APPROVED: 03-18-2021
REVISED:
THOMAS STYRBICKI
STATE DESIGN ENGINEER

ALTERNATE PEDESTRIAN ROUTE (APR) LAYOUTS

SP 002-601-057

SHEET NO. 35 OF 103 SHEETS

PATH & FILENAME: K:\018837-000\Cad\Plan\018837-000_spn_800.dgn

PLOTTED/REVISED: 5/4/2023

NOTES;

TPAR SHOULD BE KEPT FREE OF TRASH, SEDIMENT, AND DEBRIS.

RAILINGS OR OTHER OBJECTS MAY PROTRUDE A MAXIMUM OF 4" INTO THE WALKWAY CLEAR SPACE WHEN LOCATED A MINIMUM OF 27" ABOVE THE WALKWAY SURFACE.

USE CRASHWORTHY TEMPORARY BARRIERS WHEN USED AS A PEDESTRIAN CHANNELIZERS.

PLACE SIDEWALK BARRICADES ACROSS THE ENTIRE WIDTH OF THE WALKWAYSURFACE, WHEN USED.

USE INTERLOCKING DEVICES TO CHANNELIZE PEDESTRIAN FLOW TO PREVENT GAPS THAT COULD ALLOW PEDESTRIANS TO STRAY FROM THE CHANNELIZED PATH.

① PROVIDE DETECTABLE EDGE TO ANY TRIPPING HAZARD IN THE WALKWAY. LOCATE BALLAST BEHIND THE DETECTABLE EDGE OR INTEGRAL TO THE DEVICE. ANY SUPPORT ON THE FRONT OF THE DEVICE SHOULD NOT EXTEND INTO THE 48" MINIMUM WALKWAY CLEAR SPACE. ANY SUPPORT THAT EXTENDS INTO THE WALKWAY SHALL NOT EXCEED ½" HEIGHT ABOVE THE WALKWAY SURFACE; IF GREATER THAN ¼", BEVEL AS SHOWN IN THE TRIP HAZARD DETAIL.

② PROVIDE CONTINUOUS DETECTABLE EDGES EXTENDING AT LEAST 6" ABOVE THE WALKWAY SURFACE. MARK DETECTABLE EDGES WITH A COLOR THAT CONTRASTS WITH THE WALKWAY SURFACE. PLACE THE DETECTABLE EDGE AROUND ANY PORTABLE SIGN STAND IN THE WALKWAY AREA WHERE THE SIGN POSES A HAZARD TO A VISUALLY-IMPAIRED PEDESTRIAN.

③ DEVICES AND DETECTABLE EDGES SHALL NOT BLOCK WATER DRAINAGE FROM THE WALKWAY. A GAP HEIGHT OR OPENING FROM THE WALKWAY SURFACE UP TO A MAXIMUM OF 2" IS ALLOWED FOR DRAINAGE PURPOSES.

④ USE HAND AND GUIDE RAILS WHEN REQUIRED. INSTALL TOP RAIL OR TOP SURFACE IN A VERTICAL PLANE PERPENDICULAR TO THE WALKWAY, ABOVE THE DETECTABLE EDGE. PROVIDE CONTINUOUS RAIL AT A HEIGHT OF 34" TO 38" ABOVE THE WALKWAY SURFACE. USE RAIL SUPPORTS THAT MINIMIZE CONTACT WITH PEDESTRIAN'S HANDS AND FINGERS. SEE "PUBLIC RIGHTS OF WAY ACCESSIBILITY GUIDELINES (PROWAG) 2005" FOR ADDITIONAL GUIDANCE ON USE OF HAND AND GUIDE RAILS.

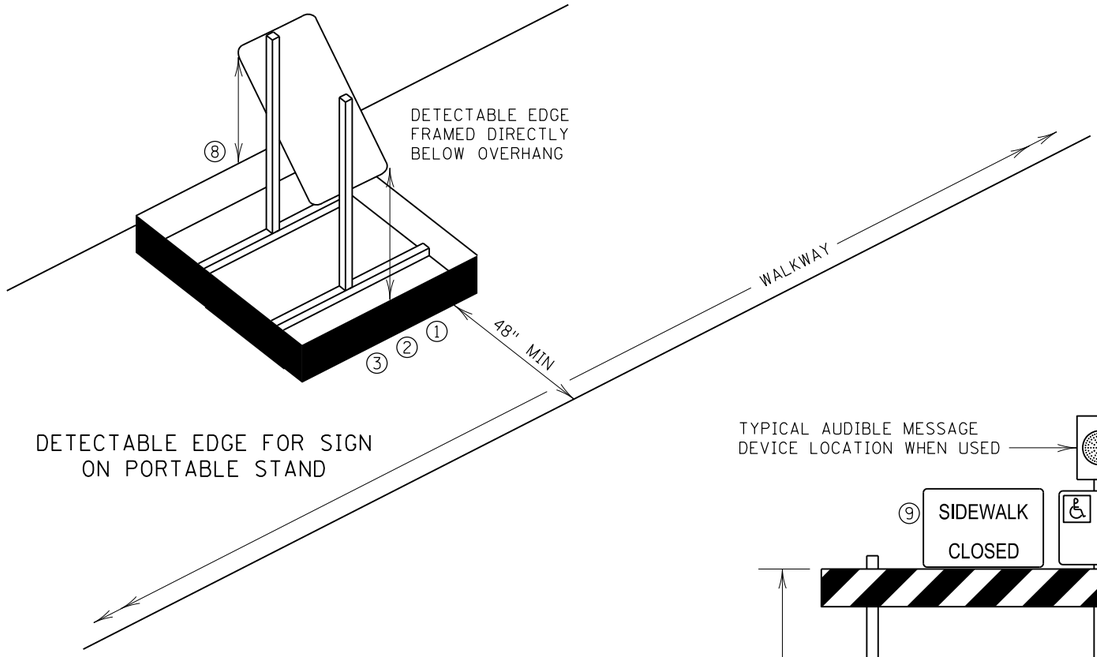
⑤ USE DEVICES FREE OF SHARP OR ROUGH EDGES, AND USE ROUNDED FASTENERS (BOLTS) TO PREVENT HARM TO A PEDESTRIAN'S HANDS, ARMS, AND CLOTHING.

⑥ REGARDLESS OF WEATHER CONDITIONS PROVIDE FIRM, STABLE, FREE-DRAINING, AND NON-SLIP TEMPORARY WALKWAY SURFACES. TEMPORARY WALKWAY SURFACES SHALL ALLOW NORMAL USAGE OF WHEELCHAIRS, WALKERS, STROLLERS, OR OTHER MOBILITY DEVICES. CONCRETE, BITUMINOUS, STEEL, RUBBER, WOOD (¾" OR THICKER), AND PLASTIC ARE ACCEPTABLE SURFACE MATERIALS FOR A TEMPORARY WALKWAY SURFACE. GRAVEL, MILLINGS, AND OTHER UNEVEN SURFACES ARE NOT ACCEPTABLE SURFACE MATERIALS.

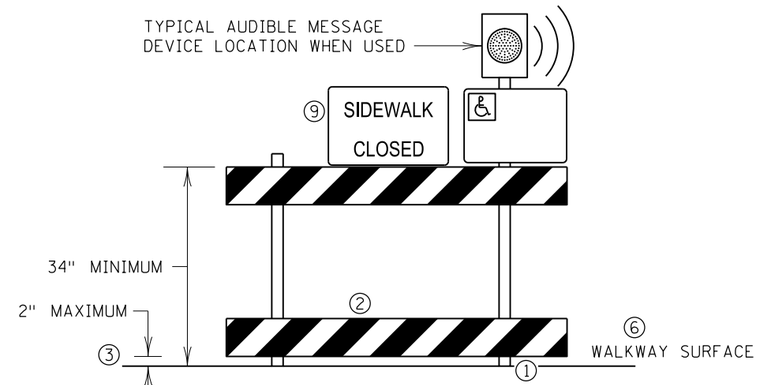
⑦ PROVIDE 32" HIGH OR GREATER LONGITUDINAL CHANNELIZING DEVICES FOR PEDESTRIANS.

⑧ AN EDGE OF THE FRAMING MAY BE REMOVED IF IT IS NOT NEEDED FOR PEDESTRIAN GUIDANCE. STABILITY OF THE DETECTABLE EDGE SHOULD BE MAINTAINED.

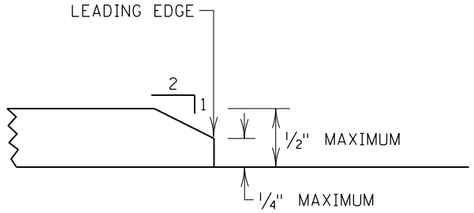
⑨ TYPICAL. SEE SIGNING PLAN FOR DETAILS.



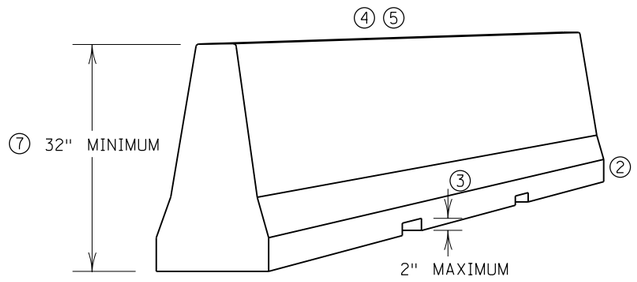
DETECTABLE EDGE FOR SIGN ON PORTABLE STAND



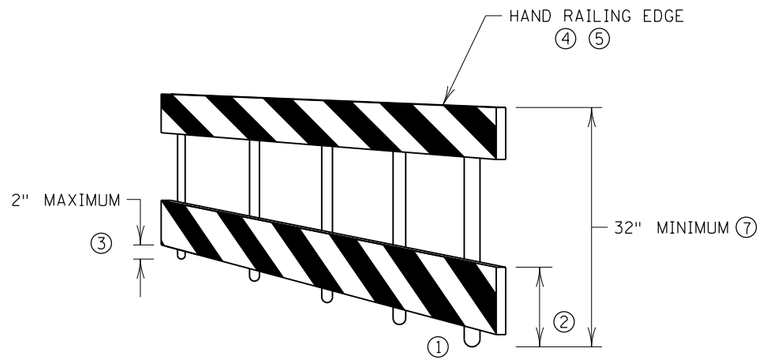
SIDEWALK BARRICADE



TRIP HAZARD



PEDESTRIAN CHANNELIZER DEVICE USING A PORTABLE CONCRETE BARRIER



PEDESTRIAN CHANNELIZER

REVISION:

APPROVED: 03-18-2021

BRIAN SORENSON
STATE TRAFFIC ENGINEER

MINNESOTA DEPARTMENT OF TRANSPORTATION

THOMAS STYRBICKI
STATE DESIGN ENGINEER

STANDARD PLAN 5-297.813 | 1 OF 2

APPROVED: 03-18-2021
REVISED:

TEMPORARY PEDESTRIAN ACCESS ROUTE (TPAR) DEVICES

CHANNELIZERS, SIDEWALK BARRICADES, AND PORTABLE STANDS

SP 002-601-057

SHEET NO. 36 OF 103 SHEETS

PATH & FILENAME: K:\018837-000\Cad\Plan\018837-000_spn_800.dgn

PLOTTED/REVISED: 5/4/2023

NOTES:

CONSTRUCT SLOPES AS INDICATED OR FLATTER, BUT NOT STEEPER.

TPAR SHOULD BE KEPT FREE OF TRASH, SEDIMENT, AND DEBRIS.

(1) CONSTRUCT CURB RAMPS AT LEAST 48" WIDE WITH A FIRM, STABLE, AND SLIP-RESISTANT SURFACE.

(2) PLACE PROTECTIVE EDGING WITH A 2" MINIMUM HEIGHT WHEN A CURB RAMP OR LANDING PLATFORM HAS A VERTICAL DROP OF 6" OR GREATER OR HAS A SIDE APRON SLOPE STEEPER THAN 1V:3H. CONSIDER PROTECTIVE EDGING WHEN CURB RAMPS OR LANDING PLATFORMS HAVE A VERTICAL DROP OF 3" OR MORE.

(3) PLACE DETECTABLE EDGING WITH 6" MINIMUM HEIGHT AND CONTRASTING COLOR ON ALL CURB RAMP LANDINGS WHERE THE WALKWAY CHANGES DIRECTION.

(4) CONSTRUCT CURB RAMPS AND LANDINGS WITH A 2% OR FLATTER CROSS SLOPE.

(5) PROVIDE A CLEAR SPACE OF AT LEAST 48" X 48" ABOVE AND BELOW THE CURB RAMP.

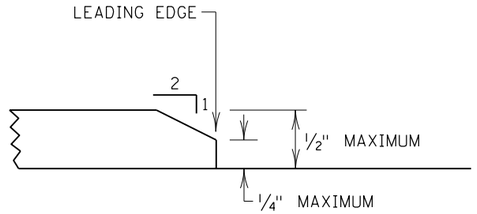
(6) MARK THE CURB RAMP WALKWAY EDGE WITH A 2" TO 4" WIDE MARKING OF CONTRASTING COLOR. THE MARKING IS OPTIONAL WHERE COLOR-CONTRASTING EDGING IS USED.

(7) DO NOT IMPEDE WATER FLOW IN THE GUTTER SYSTEM.

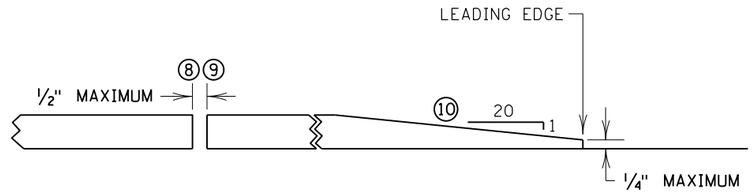
(8) NO LATERAL JOINTS OR GAPS BETWEEN SURFACES SHALL EXCEED 1/2" WIDTH.

(9) CHANGES BETWEEN SURFACE HEIGHTS SHALL NOT EXCEED 1/2". USE VERTICAL LATERAL EDGES UP TO 1/4" HIGH, AND BEVELED AT 1V:2H FOR LATERAL EDGES BETWEEN 1/4" AND 1/2" HEIGHT.

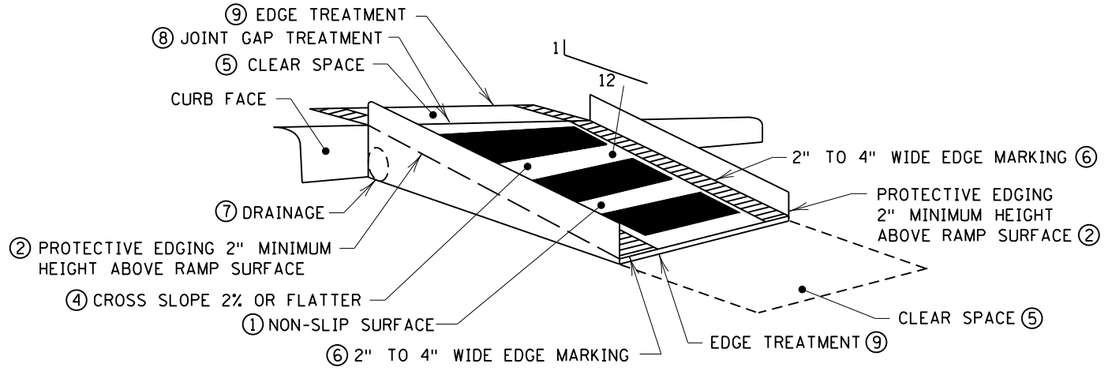
(10) BEVEL THE EDGE OF TEMPORARY WALKWAY SURFACES 1/2" OR THINNER AT 1V:2H. FOR THICKER WALKWAY SURFACE BEVEL EDGE 1V:20H OR FLATTER.



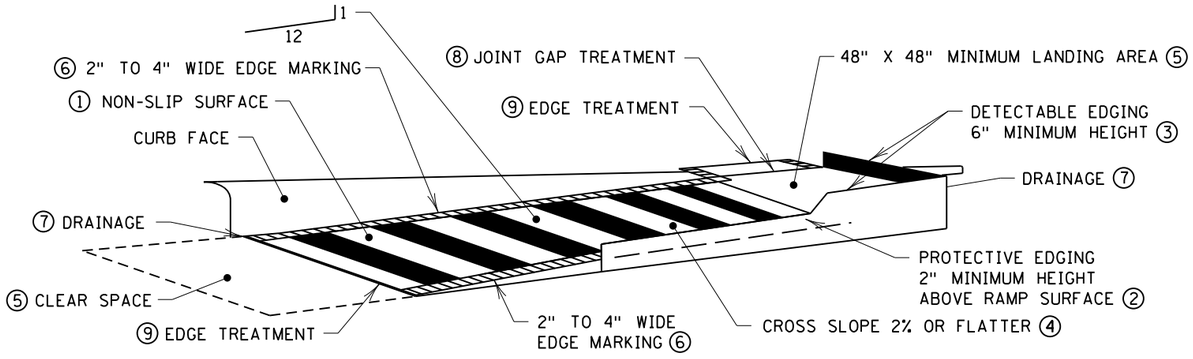
EDGE TREATMENT (9)



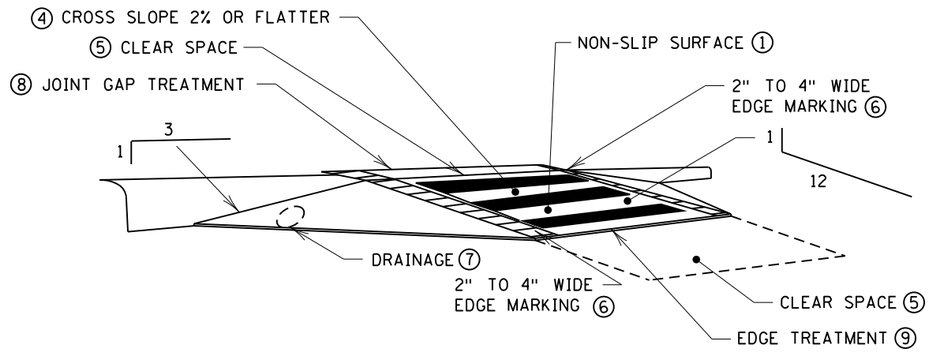
TEMPORARY WALKWAY SURFACE



TEMPORARY CURB RAMP PERPENDICULAR TO CURB
SHOWN WITH PROTECTIVE EDGE



TEMPORARY CURB RAMP
PARALLEL TO CURB



TEMPORARY CURB RAMP PERPENDICULAR TO CURB
SHOWN WITH SIDE APRON

PATH & FILENAME: K:\018837-000\Cad\Plan\018837-000_spn_800.dgn

REVISION:

APPROVED: 03-18-2021
BRIAN SOBENSON
STATE TRAFFIC ENGINEER

MINNESOTA DEPARTMENT OF TRANSPORTATION

STANDARD PLAN 5-297.813	2 OF 2
APPROVED: 03-18-2021 REVISED:	

THOMAS STYRBICKI
STATE DESIGN ENGINEER

TEMPORARY PEDESTRIAN ACCESS ROUTE (TPAR) DEVICES
TEMPORARY CURB RAMPS AND WALKWAY SURFACES

SP 002-601-057

PLOTTED/REVISED: 5/4/2023

NOTES & GUIDELINES

GENERAL INFORMATION:

1. ALL DISTANCES ARE APPROXIMATE.
2. ALL LONGITUDINAL DROPOFFS SHALL BE PROTECTED AS REQUIRED IN THE "MINNESOTA TEMPORARY TRAFFIC CONTROL FIELD MANUAL". DROPOFFS CLOSER THAN 8' SHALL BE SLOPED WITH A RECOVERABLE SLOPE AT THE END OF EACH DAY.
3. WORK WITHIN 8' OF TRAFFIC REQUIRES A LANE CLOSURE. LANE CLOSURES ARE NOT ALLOWED 6AM-9AM AND 3PM-6PM.

SIGNING:

1. ALL TEMPORARY SIGNS ARE REQUIRED TO BE CRASHWORTHY PER THE AASHTO MANUAL FOR ASSESSING SAFETY HARDWARE 2016 (MASH-2016). TEMPORARY SIGN STRUCTURES THAT ARE CRASHWORTHY UNDER THE NATIONAL COOPERATIVE HIGHWAY RESEARCH PROGRAM REPORT 350 (NCHRP-350) MAY BE USED PROVIDED THE DEVICES WERE ACQUIRED BY THE CONTRACTOR PRIOR TO DECEMBER 31ST, 2019. THE MINNESOTA TYPE "C" AND "D" BRACED LEG U-CHANNEL (KNEE BRACE) SIGN SUPPORT IS NOT ALLOWED.
2. **THE CONTRACTOR SHALL COORDINATE THE INSTALLATION OF THE FINAL SIGNS TO ASSURE THAT THE FINAL SIGNS ARE PLACED AS NEEDED, OR PROVIDE TEMPORARY SIGNING UNTIL THE FINAL SIGNING IS PLACED.**
3. WHEN MULTIPLE GROUND MOUNTED SIGN STRUCTURES ARE PLACED ADJACENT TO EACH OTHER THERE SHOULD BE NO MORE THAN 2 POSTS WITHIN 84'' OF EACH OTHER. WHEN THIS SPACING CAN NOT BE MAINTAINED, THEN SIGN STRUCTURES SHALL BE OFFSET, AND STAGGERED WITH A MINIMUM OF 4' BETWEEN SIGN STRUCTURES BOTH LATERALLY AND LONGITUDINALLY. EXAMPLE SHOWS DETOUR SIGNAGE, BUT THIS REQUIREMENT APPLIES TO ALL SIGNAGE.
4. WHEN A SIGN OR BARRICADE IS ORIENTED SUCH THAT VISIBILITY TO ROAD USERS INCLUDING BIKES AND PEDESTRIANS IS REDUCED ENOUGH TO CAUSE A HAZARD, DELINEATE THE SIGN/BARRICADE WITH APPROPRIATE DEVICES.
5. TEMPORARY SIGNS SHALL BE PLACED SUCH THAT OBSTACLES DO NOT BLOCK THEM FROM BEING VIEWED BY APPROACHING ROAD USERS. OBSTACLES MAY INCLUDE, BUT ARE NOT LIMITED TO, LIGHT POLES, TREES, SIGNS, AND BUILDINGS.
6. TEMPORARY SIGNS SHALL BE PLACED AND ORIENTED APPROXIMATELY AS SHOWN IN THE PLAN, AT RIGHT ANGLES TO DIRECTION OF AND FACING THE TRAFFIC THEY ARE INTENDED TO SERVE, UNLESS OTHERWISE SPECIFIED.
7. LONGITUDINAL DROPOFFS SHALL BE SIGNED AS SHOWN IN THE "MINNESOTA TEMPORARY TRAFFIC CONTROL FIELD MANUAL" PAGES (6K-aj) THRU (6K-al) UNLESS OTHERWISE SPECIFIED IN THESE PLANS.
8. AFTER REMOVAL OF SIGN AND/OR SIGN BASE, BACK FILL, COMPACT, AND LEVEL SOIL TO MATCH SURROUNDING SOIL.

PAVEMENT MARKING:

1. MASK OR REMOVE ANY CONFLICTING PAVEMENT MARKINGS AS SHOWN IN THE PLAN OR APPROVED BY THE ENGINEER.
2. ALL TEMPORARY PAVEMENT MARKINGS SHALL BE WET REFLECTIVE. ALL PAVEMENT MARKINGS IN TAPERS AND TRANSITIONS SHALL BE 6" IN WIDTH.
3. SEE 2582 IN THE SPECIAL PROVISIONS FOR PAVEMENT MARKING SPOTTING RESPONSIBILITIES.

SIGN TABULATION

"W" SERIES

SIGN	SIGN NO.	COLOR	SIZE (IN. X IN.) (WxH)	ASSEMBLY (IN. X IN.) (WxH)	NUMBER OF POST
ROAD WORK AHEAD	W20-1	BLACK ON ORANGE	36X36	36X36	1
TURN LANE CLOSED	W20-X5	BLACK ON ORANGE	36X36	36X36	1

BARRICADE MOUNTED SIGNS

SIGN	SIGN NO.	COLOR	SIZE (IN. X IN.) (WxH)
SIDEWALK CLOSED	R9-9	BLACK ON WHITE	24X12
SIDEWALK CLOSED AHEAD CROSS HERE	G20-2 R/L	BLACK ON WHITE	24X12

"R" SERIES

SIGN	SIGN NO.	COLOR	SIZE (IN. X IN.) (WxH)	ASSEMBLY (IN. X IN.) (WxH)	NUMBER OF POST
ONLY ONLY	R3-8ACD	BLACK ON WHITE	48X30	48X30	1
	R4-7c	BLACK ON WHITE	18X30	18X30	1

"M" SERIES

SIGN	SIGN NO.	COLOR	SIZE (IN. X IN.) (WxH)	ASSEMBLY (IN. X IN.) (WxH)	NUMBER OF POST
DETOUR	M4-9bM R/L/T	BLACK ON ORANGE	30X24	30X24	1

"G" SERIES

SIGN	SIGN NO.	COLOR	SIZE (IN. X IN.) (WxH)	ASSEMBLY (IN. X IN.) (WxH)	NUMBER OF POST
END ROAD WORK	G20-2	BLACK ON ORANGE	36X18	36X18	1

STRIPING KEY

CIRCLE-MULTI COMP — BOX-PREF TAPE

TRIANGLE-PAINT — OCTAGON-PREF THERMO

1ST DIGIT WIDTH	2ND DIGIT PATTERN	3RD DIGIT COLOR
4", 8", ETC.	S - SOLID B - BROKEN T - DOTTED D - DOUBLE SOLID K - DOUBLE BROKEN H - DOUBLE DOTTED	W - WHITE Y - YELLOW B - BLACK

EXAMPLE: 4SW = 4" SOLID LINE WHITE PREF THERMO

INDEX

TRAFFIC CONTROL

PAY ITEM TABULATION

TRAFFIC CONTROL TABULATION — F

ITEM DESCRIPTION	UNIT	STAGE 1	STAGE 2	STAGE 3	TOTAL QUANTITY
PAVEMENT MARKING REMOVAL	LIN FT	1200	1656		2856
4" SOLID LINE PAINT	LIN FT	395	167		562
4" SOLID DOUBLE LINE PAINT	LIN FT	433	421		854

NOTES:
UNLESS OTHERWISE NOTED ALL PAY ITEMS SHALL BE NON-FEDERAL PARTICIPATING (SAP 114-105-107 - CITY OF COON RAPIDS)

TRAFFIC CONTROL DEVICES & SYMBOLS LEGEND

SYMBOL	DESCRIPTION
	AREA CLOSED TO TRAFFIC / WORK AREA
⊢	TRAFFIC CONTROL SIGN
⌴	TYPE III BARRICADE =
○	DRUM-LIKE CHANNELIZER (TYPE B) =
	CONSTRUCT UNDER TRAFFIC / WORK AREA

STANDARD PLANS	
5-297.801	INTERIM PAVEMENT MARKINGS AND SIGNING
5-297.811	ALTERNATE PEDESTRIAN ROUTE (APR) LAYOUTS
5-297.813	TEMPORARY PEDESTRIAN ACCESS ROUTE (TPAR) DEVICES

SEE SHEET 16-37 FOR STANDARD PLAN SHEETS

NO.	DATE	BY	CHK	REVISIONS

Design By: MD
Plan By: MD
Checked By: MS
Approved By: MS

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

MICHAEL SHOMION, PE

DATE 5/4/2023 LICENSE # 50488

wsb

ANOKA COUNTY

CSAH 1 Improvements
Anoka County, Minnesota

ANOKA COUNTY, MINNESOTA
TITLE SHEET
CONSTRUCTION STAGING & TRAFFIC CONTROL PLAN
SP 002-601-057, SAP 114-105-017

SHEET 38 OF 103 SHEETS

PATH & FILENAME: K:\0\8837-000\Cad\Plan\0\8837-000_tfc.dgn

GENERAL NOTES;

1. GROUND MOUNTED SQUARE TUBE SIGN STRUCTURES PLACED WITHIN 50' OF THE RADIUS END OF AN INTERSECTION SHALL BE PLACED ON ONE 2" OR 2-1/2" POST.
2. FOR 2" SQUARE TUBE RISER POST IN SOIL, USE FIN BASE PLACED PER MANUFACTURER'S SPECIFICATIONS. USE A 2" X 2" PRE-PUNCHED, GALVANIZED STEEL, SQUARE TUBE RISER POST. PLACE 3/8" STAINLESS STEEL BOLT THROUGH THE 5TH HOLE DOWN FROM THE TOP OF THE BASE. RISER POST SHALL REST ON THE BOLT.
3. FOR 2-1/2" SQUARE TUBE RISER POST IN SOIL, USE SLIP BASE PLACED PER MANUFACTURER'S SPECIFICATIONS USING A 10 GAUGE , 2-1/2" X 2-1/2" PRE-PUNCHED, GALVANIZED STEEL, SQUARE TUBE RISER POST WITH A 10 GAUGE 2-3/16" X 2-3/16" PRE-PUNCHED, GALVANIZED STEEL, SQUARE TUBE INTERNAL INSERT.

SPECIFIC NOTES;

① IF ANY PART OF A SIGN OR SIGN ASSEMBLY EXTENDS MORE THAN 4" INTO THE PEDESTRIAN FACILITY, THE MINIMUM HEIGHT TO BOTTOM OF THE SIGN OR SIGN ASSEMBLY SHALL BE 7'.

② 6' - 12' FROM EDGE OF ROADWAY, MUST BE A MINIMUM OF 6' FROM EDGE OF PAVED SHOULDER (WHEN PRESENT).

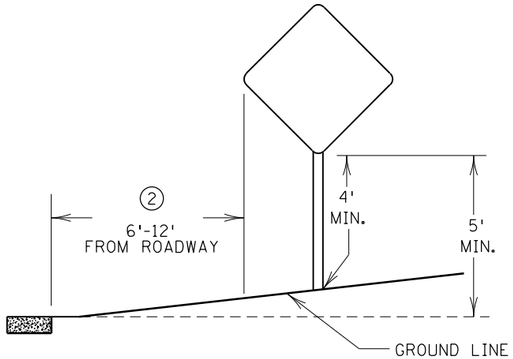
③ IF GROUND MOUNTED TEMPORARY SIGN OR SIGN ASSEMBLY IS PLACED ON 2-1/2" SQUARE TUBE RISER POST(S), THE MINIMUM CLEARANCE FROM THE GROUND LINE TO THE BOTTOM OF THE LOWEST SIGN ON THE ASSEMBLY SHALL BE 7', OR AS SHOWN IN DETAIL, WHICHEVER IS GREATER.

④ 5' MINIMUM IN RURAL. 7' MINIMUM IN BUSINESS, COMMERCIAL, OR RESIDENTIAL AREAS.

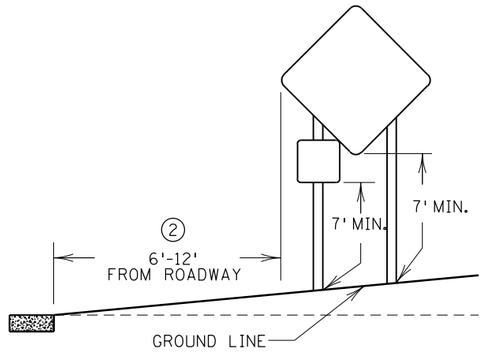
⑤ WHEN MULTIPLE GROUND MOUNTED SIGN STRUCTURES ARE PLACED ADJACENT TO EACH OTHER THERE SHOULD BE NO MORE THAN 2 POSTS WITHIN 84" OF EACH OTHER. WHEN THIS SPACING CAN NOT BE MAINTAINED, THEN SIGN STRUCTURES SHALL BE OFFSET, AND STAGGERED WITH A MINIMUM OF 4' BETWEEN SIGN STRUCTURES BOTH LATERALLY AND LONGITUDINALLY. EXAMPLE SHOWS DETOUR SIGNAGE, BUT THIS REQUIREMENT APPLIES TO ALL SIGNAGE.

⑥ INPLACE AND/OR OTHER CONSTRUCTION SIGNING.

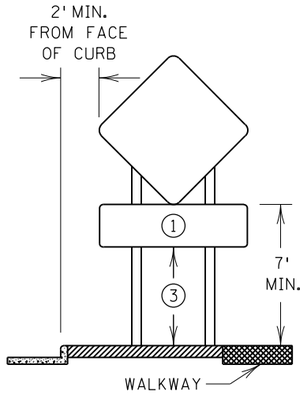
NOT TO SCALE



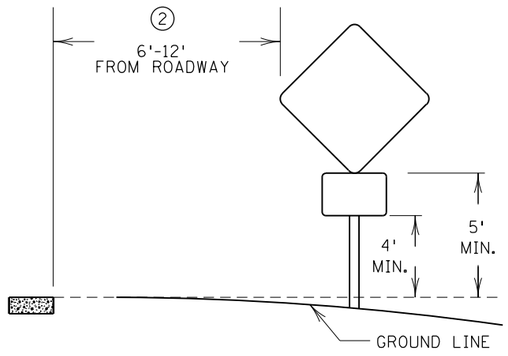
TYPICAL RURAL DESIGN
AND 2" RISER POST



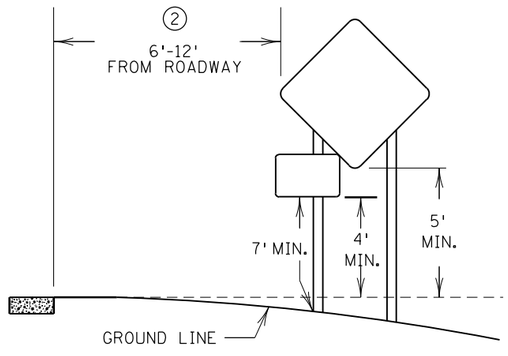
TYPICAL RURAL DESIGN WITH SUPPLEMENTAL
PLAQUE AND 2-1/2" RISER POST



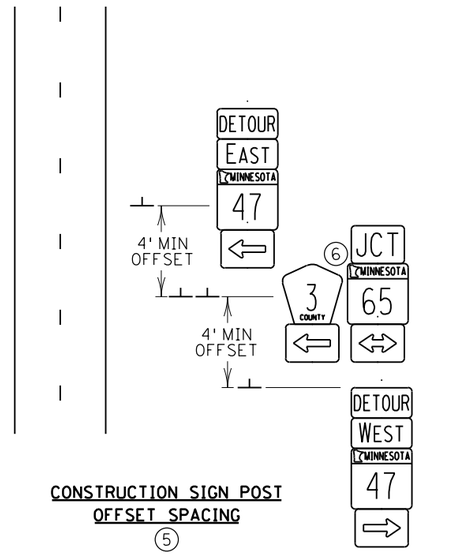
BUSINESS,COMMERCIAL,
OR RESIDENTIAL AREA



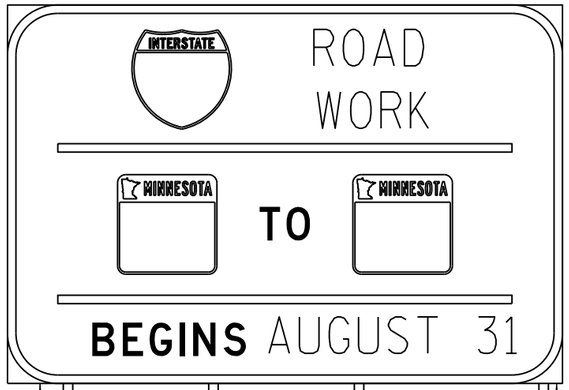
TYPICAL RURAL DESIGN WITH SUPPLEMENTAL
PLAQUE AND 2" RISER POST



TYPICAL RURAL DESIGN
2-1/2" RISER POST



CONSTRUCTION SIGN POST
OFFSET SPACING
⑤



TYPICAL G20-X2 DESIGN

PUBLISHED BY OTE 03/15/2021

MODIFIED BY

TEMPORARY SQUARE TUBE GROUND MOUNTED SIGN PLACEMENT

NO.	DATE	BY	CHK	REVISIONS

Design By: MD
Plan By: MD
Checked By: MS
Approved By: MS

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MICHAEL SHOMION, PE

DATE 5/4/2023 LICENSE # 50488

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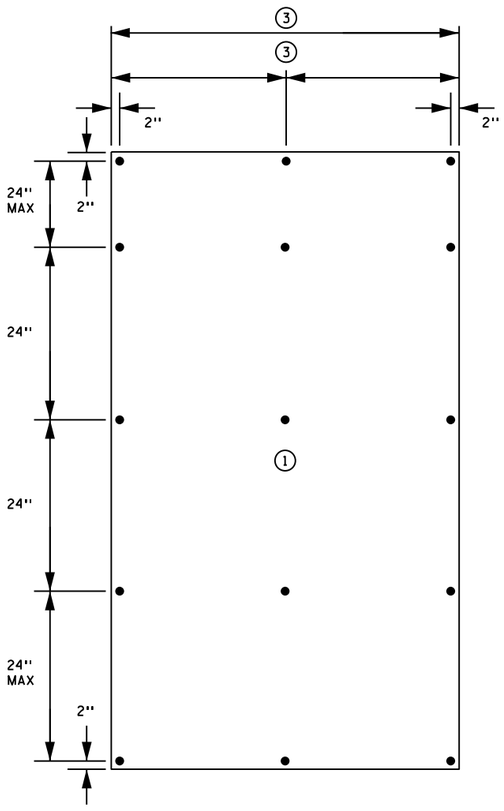
ANOKA COUNTY

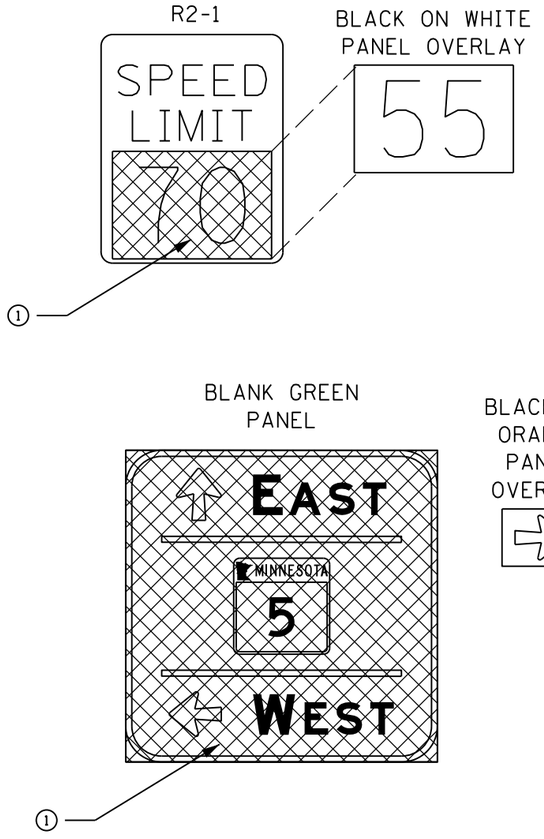
CSAH 1 Improvements
Anoka County, Minnesota

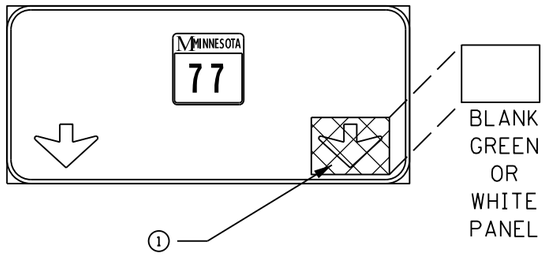
ANOKA COUNTY, MINNESOTA
TEMPORARY SQUARE TUBE GROUND MOUNTED SIGN PLACEMENT
CONSTRUCTION STAGING & TRAFFIC CONTROL PLAN
SP 002-601-057, SAP 114-105-017

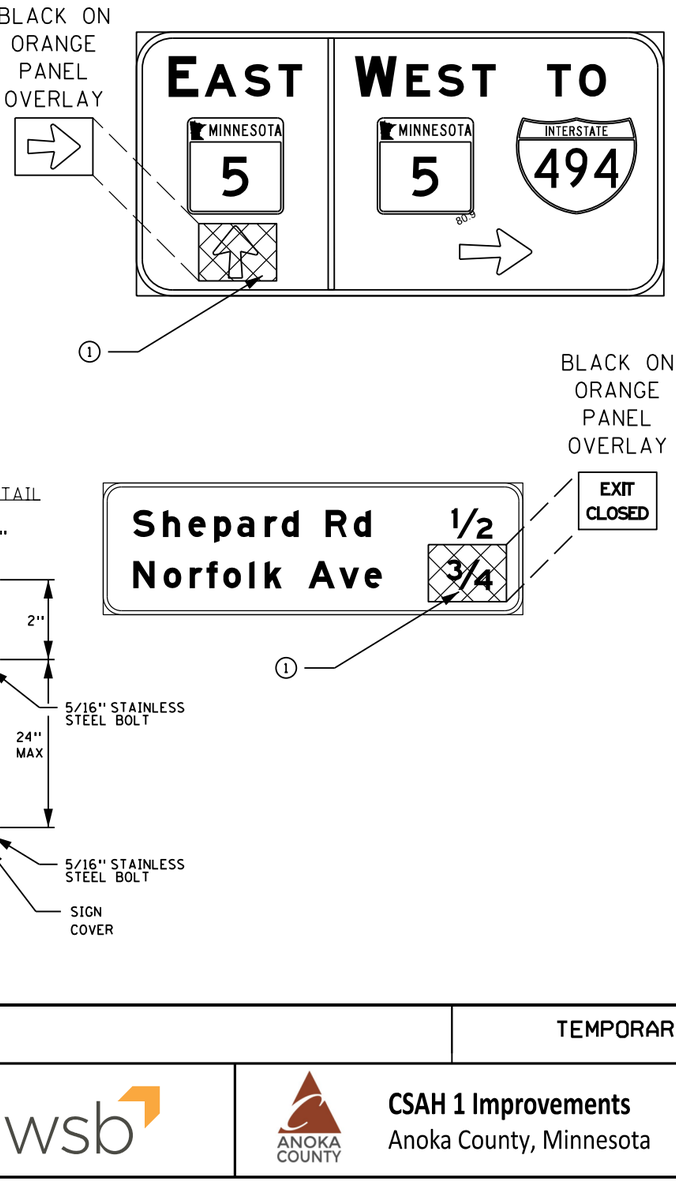
SHEET **39** OF **103** SHEETS

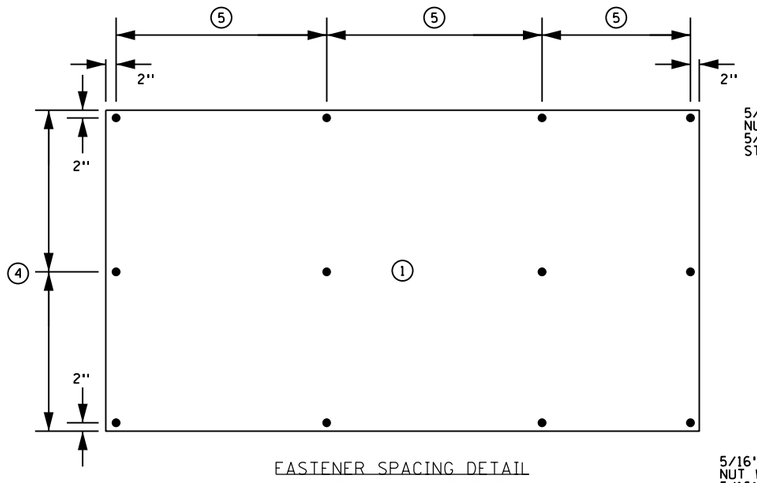
FASTENER SPACING DETAIL
HORIZONTAL PLACEMENT





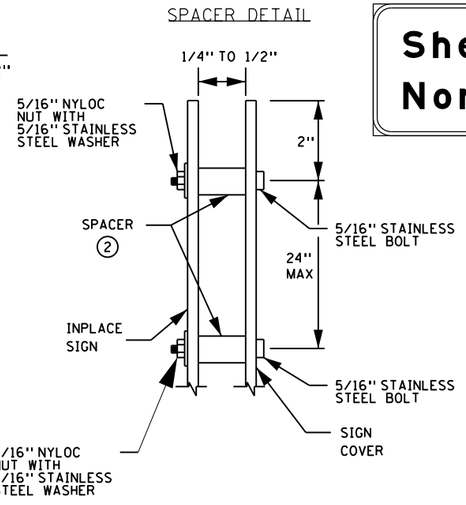






FASTENER SPACING DETAIL
VERTICAL PLACEMENT

SPACER DETAIL



GENERAL NOTES:

1. SIGN COVER PANELS ARE USED TO COVER AN ENTIRE INPLACE SIGN PANEL OR A PORTION THEREOF TO REMOVE OR MODIFY THE SIGN MESSAGE. THEY HAVE NO ADDITIONAL MESSAGE PRINTED ON THEM. SIGN COVER PANELS SHALL BE MADE OF A RIGID MATERIAL (SHEET ALUMINUM, PLYWOOD, CORRUGATED PLASTIC, OR OTHER MATERIAL AS APPROVED BY THE ENGINEER). SIGN COVER PANELS SHALL BE THE SAME COLOR AS THE BACKGROUND COLOR OF THE INPLACE SIGN PANEL AND SHALL COVER THE ENTIRE SIGN PANEL OR MESSAGE ELEMENT.
2. SIGN PANEL OVERLAYS ARE USED TO MODIFY THE MESSAGE OF AN INPLACE SIGN PANEL. THEY INCLUDE A SIGN MESSAGE. SIGN PANEL OVERLAYS SHALL BE MADE OF SHEET ALUMINUM WITH THE APPROPRIATE SHEETING MATERIAL AS SPECIFIED ON THE MNDOT SHEETING FOR RIGID PERMANENT SIGNS, DELINEATORS, AND MARKERS APL OR THE MNDOT SHEETING FOR RIGID TEMPORARY WORK ZONE SIGNS APL. SIGN PANEL OVERLAY MESSAGES SHALL BE BLACK ON FLUORESCENT ORANGE, EXCEPT ON REGULATORY SIGNS WHICH SHALL BE THE PROPER COLOR ON A WHITE BACKGROUND. THE MESSAGE SHALL FOLLOW THE REQUIREMENTS OF THE MNDOT STANDARD SIGNS AND MARKINGS MANUAL OR THE FHWA STANDARD HIGHWAY SIGNS MANUAL (AND SUPPLEMENTS). THE SIGN PANEL OVERLAY SHALL FULLY COVER THE MESSAGE ELEMENT(S) BEING MODIFIED.
3. MINIMIZE DAMAGE TO THE INPLACE SIGN PANEL. DO NOT APPLY TAPE TO THE INPLACE SIGN SHEETING.
4. SPACERS SHALL BE A MATERIAL THAT WILL NOT HARM THE INPLACE SIGN SHEETING FACE (SUCH AS PLASTIC OR RUBBER).
5. ATTACH SIGN COVER PANEL OR PANEL OVERLAY USING HARDWARE SHOWN IN THE SPACER DETAIL.
6. IF SHEET METAL SCREWS ARE USED TO PLACE CORRUGATED PLASTIC AS A SIGN COVER PANEL, PLACE FENDER WASHERS BETWEEN THE SCREW HEADS AND THE CORRUGATED PLASTIC.
7. REMOVE ALL COVERING MATERIAL, MOUNTING HARDWARE, AND FASTENERS WHEN SIGN COVER PANEL OR PANEL OVERLAY IS REMOVED.
8. NO HANDLE OR OTHER LIFTING DEVICE SHALL BE LEFT ATTACHED TO ANY SIGN COVER PANEL AFTER PLACEMENT.

SPECIFIC NOTES:

① THE SIGN COVER PANEL OR PANEL OVERLAY SHALL FULLY COVER THE MESSAGE BEING COVERED OR MODIFIED.
② PLACE SIGN COVER PANELS AND PANEL OVERLAYS WITH SPACERS THAT PROVIDE A SPACING OF 1/4 IN TO 1/2 IN BETWEEN THE COVER MATERIAL AND THE INPLACE SIGN. THE SPACERS SHALL HAVE AN OUTSIDE DIAMETER BETWEEN 3/8 IN TO 7/8 IN. EACH FASTENER REQUIRES A SPACER.
③ IF THE SIGN COVER PANEL OR PANEL OVERLAY IS GREATER THAN 48 IN WIDE, THE FASTENER SPACING SHALL BE NO GREATER THAN 24 IN. IF THE SIGN COVER PANEL OR PANEL OVERLAY IS LESS THAN 24 IN WIDE, DO NOT PLACE A CENTER FASTENER (UNLESS REQUIRED BY SPECIFIC NOTE ④).
④ VERTICAL SPACING FOR FASTENERS IS 50% OF THE SIGN COVER PANEL OR PANEL OVERLAY. IF THE SIGN COVER PANEL OR PANEL OVERLAY IS LESS THAN 24 IN HIGH, DO NOT PLACE A CENTER FASTENER (UNLESS REQUIRED PER SPECIFIC NOTE ⑤).
⑤ HORIZONTAL SPACING FOR FASTENERS SHALL NOT BE LESS THAN 15 IN NOR MORE THAN 24 IN.

ASSEMBLY STEPS

1. DRILL 11/32 IN HOLES ON THE SIGN COVER PANEL OR PANEL OVERLAY IN ACCORDANCE WITH THE FASTENER SPACING DETAILS.
2. ATTACH PLASTIC SPACERS TO SIGN COVER PANEL OR PANEL OVERLAY WITH DOUBLE FACED TAPE, CENTERED BEHIND EACH DRILLED HOLE.
3. POSITION THE COVER OR OVERLAY MATERIAL OVER THE SIGN OR MESSAGE TO BE MODIFIED.
4. DRILL ALL THE OUTSIDE HOLES THROUGH THE INPLACE SIGN PANEL AND ATTACH THE COVER OR OVERLAY MATERIAL WITH APPROPRIATE FASTENERS.
5. DRILL ALL THE INNER HOLES THROUGH THE INPLACE SIGN PANEL AND ATTACH WITH APPROPRIATE FASTENERS.

PUBLISHED BY OTE 01/22/2021 | MODIFIED BY

TEMPORARY SIGN COVERING AND MODIFICATION

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Design By: MD
Plan By: MD
Checked By: MS
Approved By: MS

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MICHAEL SHOMION, PE
DATE 5/4/2023 LICENSE # 50488

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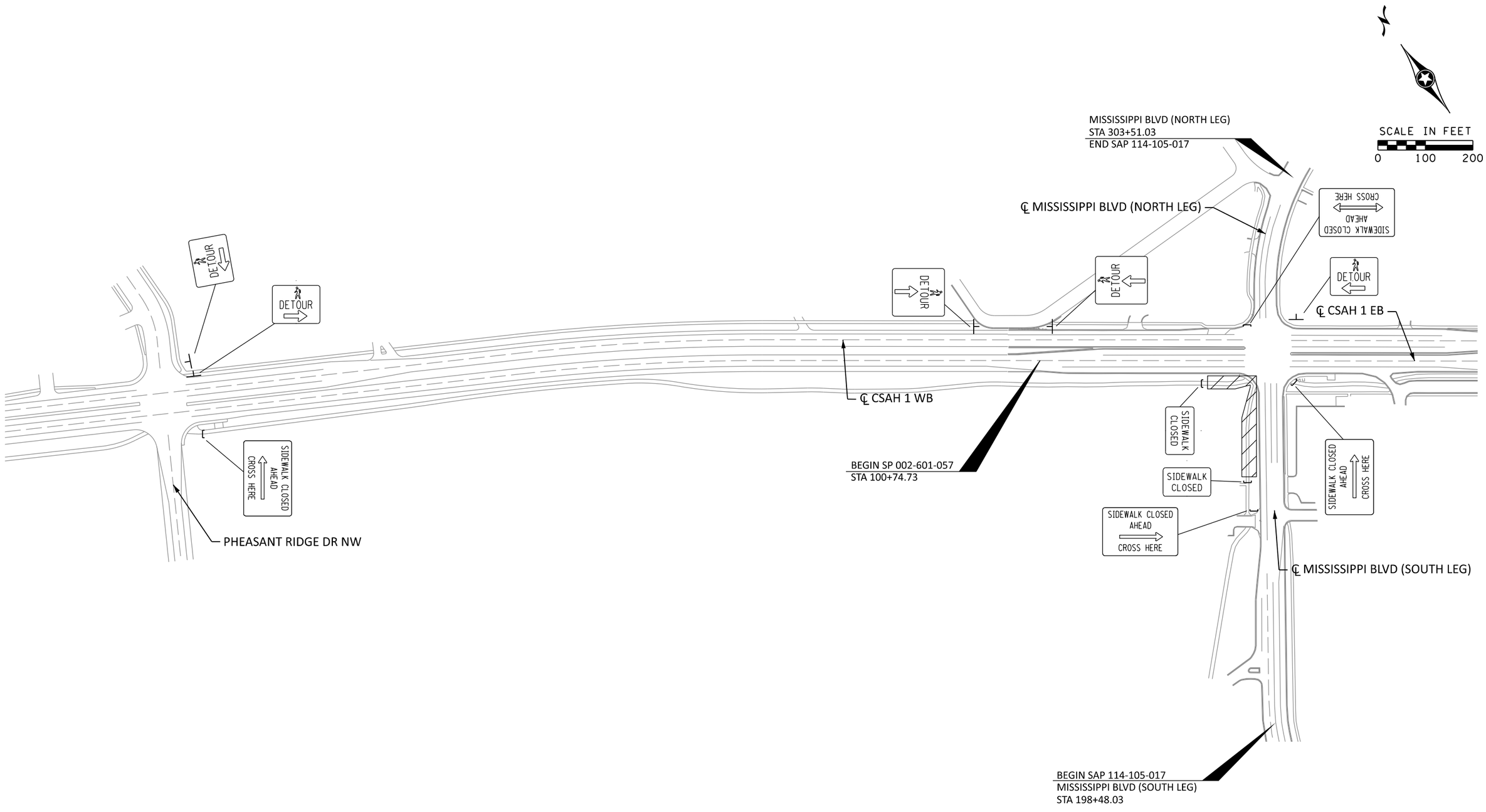
ANOKA COUNTY

CSAH 1 Improvements
Anoka County, Minnesota

ANOKA COUNTY, MINNESOTA
TEMPORARY SIGN COVERING AND MODIFICATION
CONSTRUCTION STAGING & TRAFFIC CONTROL PLAN
SP 002-601-057, SAP 114-105-017

SHEET **40** OF **103** SHEETS

PLOTTED/REVISED: 5/4/2023



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MICHAEL SHOMION, PE

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ANOKA COUNTY

CSAH 1 Improvements
Anoka County, Minnesota

ANOKA COUNTY, MINNESOTA
MRT TRAIL DETOUR STAGE 1
CONSTRUCTION STAGING & TRAFFIC CONTROL
SP 002-601-057, SAP 114-105-017

SHEET **41** OF **103** SHEETS

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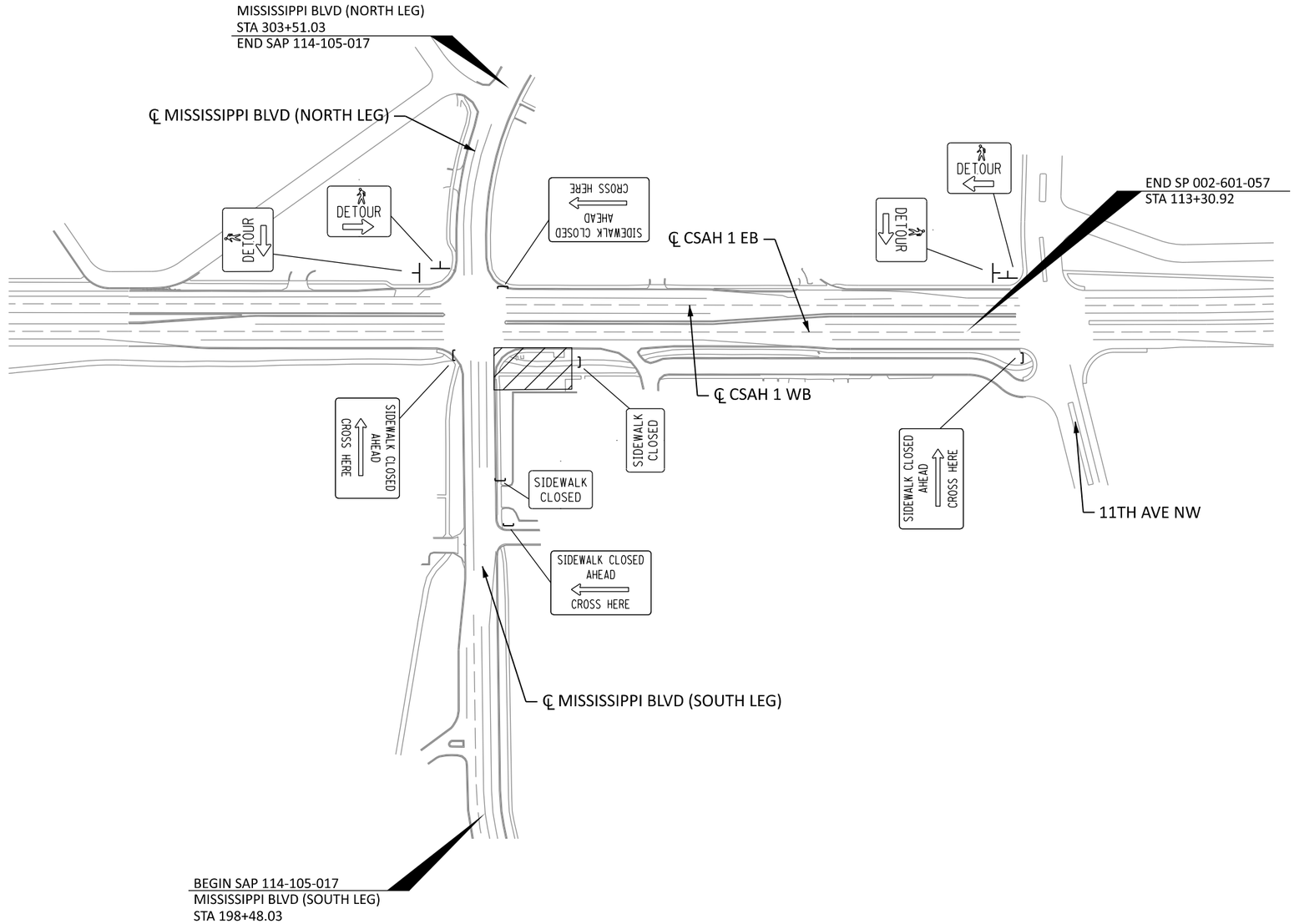

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NOTES
REFER TO STANDARD PLAN 5-297.811 FOR ALTERNATE PEDESTRIAN ACCESS ROUTE WHEN CONSTRUCTING CURB RAMPS AT THE NORTHWEST AND NORTHEAST QUADRANTS.

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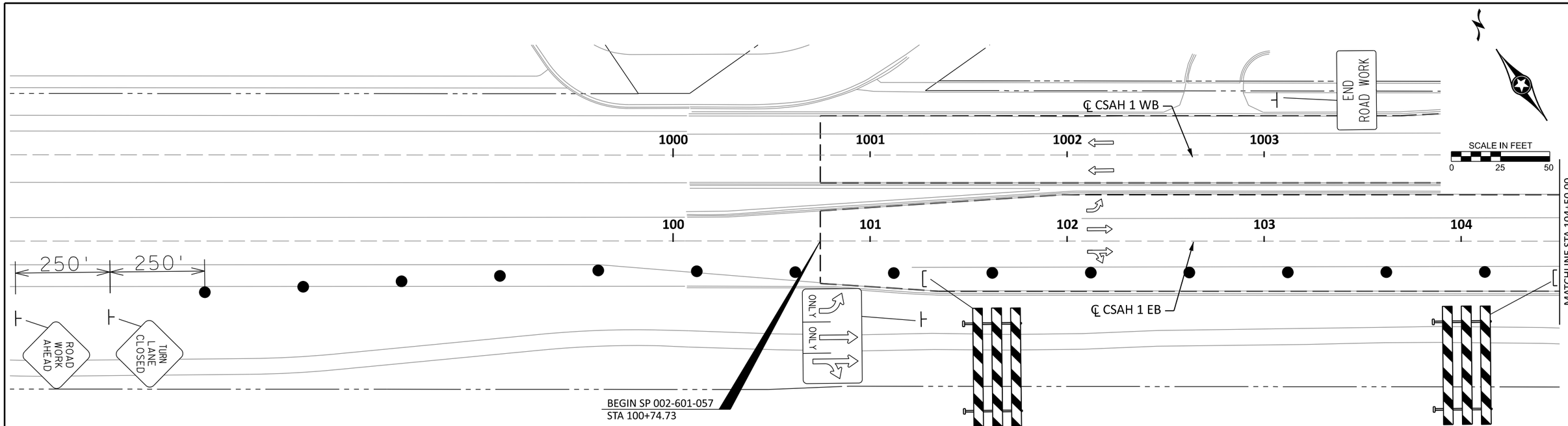
ANOKA COUNTY

CSAH 1 Improvements
Anoka County, Minnesota

ANOKA COUNTY, MINNESOTA
MRT TRAIL DETOUR STAGE 2
CONSTRUCTION STAGING & TRAFFIC CONTROL
SP 002-601-057, SAP 114-105-017

SHEET **42** OF **103** SHEETS

PLOTTED/REVISED: 5/4/2023



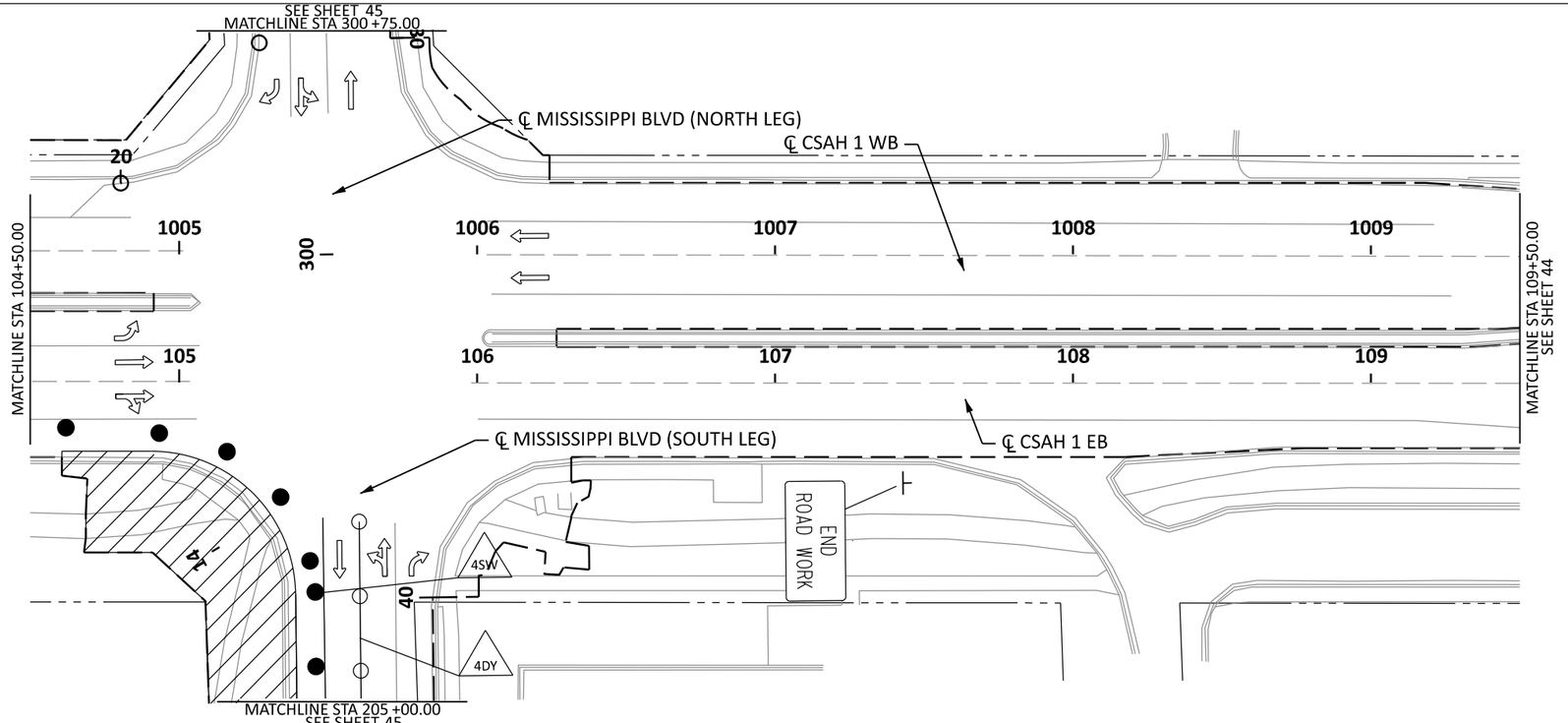
STAGE 1

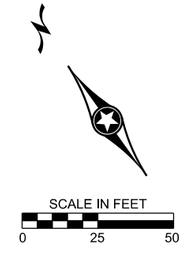
CONSTRUCTION:

- CONSTRUCT CURB, CURB RAMP, ROADWAY, AND ROADWAY WIDENING ALONG THE SOUTHWEST QUADRANT.
- CONSTRUCT TEMP SIGNAL PRIOR TO LANE CLOSURE.

TRAFFIC:

- CLOSE EASTBOUND RIGHT TURN-LANE.
- CLOSE DEDICATED NORTHBOUNDLEFT-TURN LANE AND SHIFT SOUTHBOUND THROUGH LANE INTO NORTH BOUND LEFT TURN LANE.
- ENSURE TEMPORARY TRAFFIC SIGNAL OPERATIONAL AT TIME OF TRAFFIC SHIFT AND CLOSURE.
- DETOUR ALL TRAIL USERS





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ANOKA COUNTY

CSAH 1 Improvements
Anoka County, Minnesota

ANOKA COUNTY, MINNESOTA
STAGE 1
CONSTRUCTION STAGING & TRAFFIC CONTROL PLAN
SP 002-601-057, SAP 114-105-017

SHEET 43 OF 103 SHEETS

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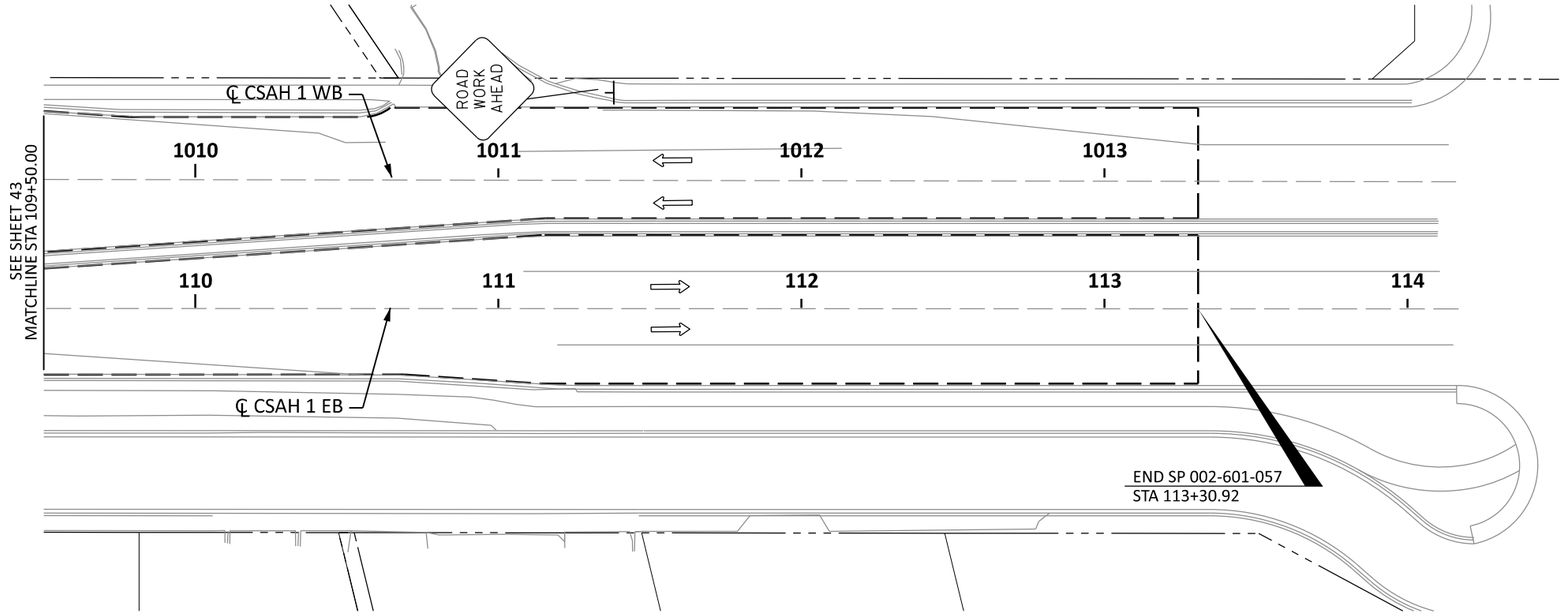

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ANOKA COUNTY

CSAH 1 Improvements
Anoka County, Minnesota

ANOKA COUNTY, MINNESOTA
STAGE 1
CONSTRUCTION STAGING & TRAFFIC CONTROL PLAN
SP 002-601-057, SAP 114-105-017

SHEET **44** OF **103** SHEETS

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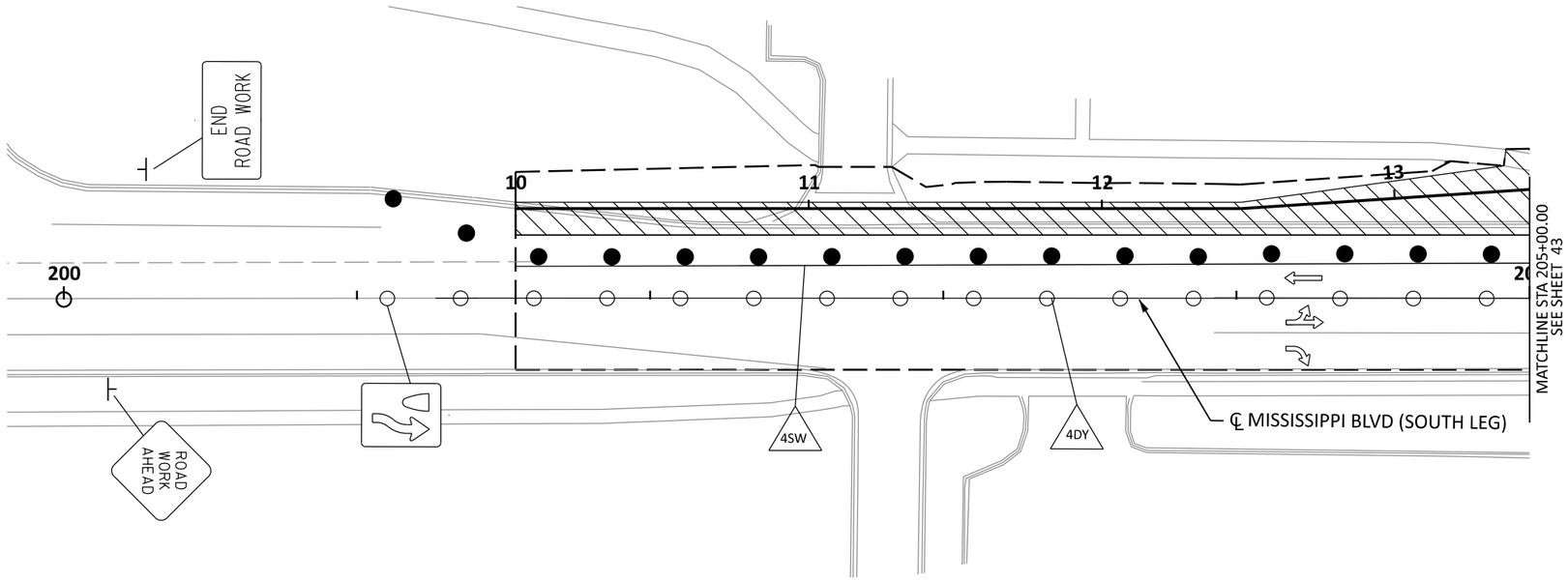

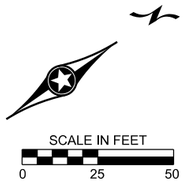

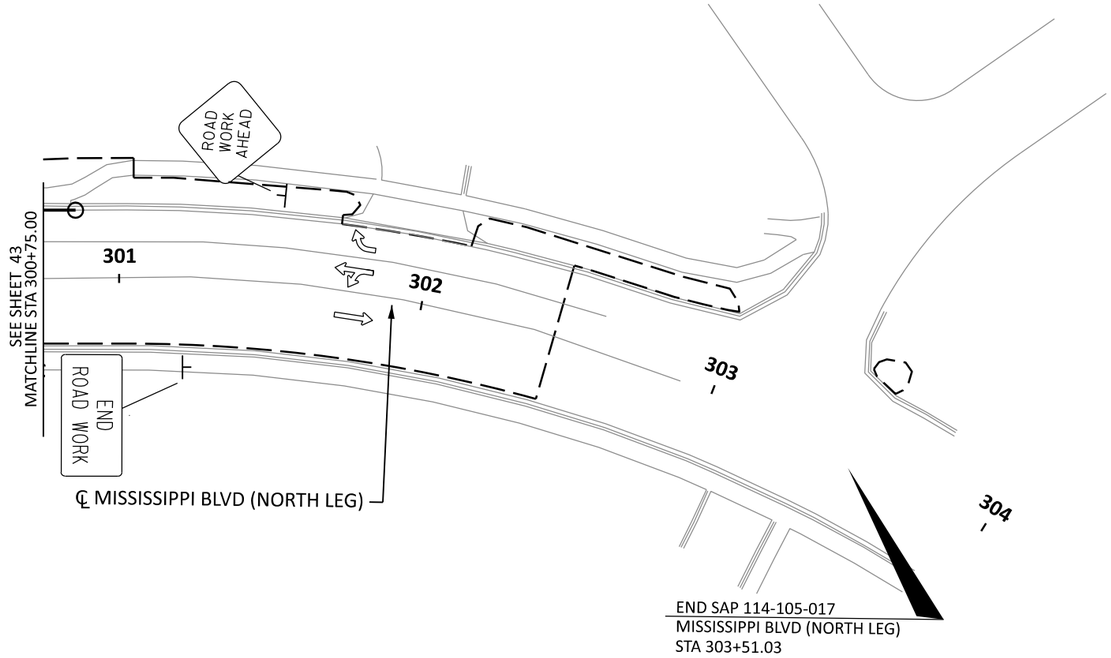

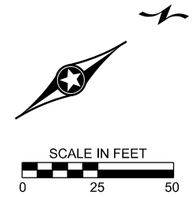

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ANOKA COUNTY

CSAH 1 Improvements
Anoka County, Minnesota

ANOKA COUNTY, MINNESOTA
STAGE 1
CONSTRUCTION STAGING & TRAFFIC CONTROL PLAN
SP 002-601-057, SAP 114-105-017

SHEET **45** OF **103** SHEETS

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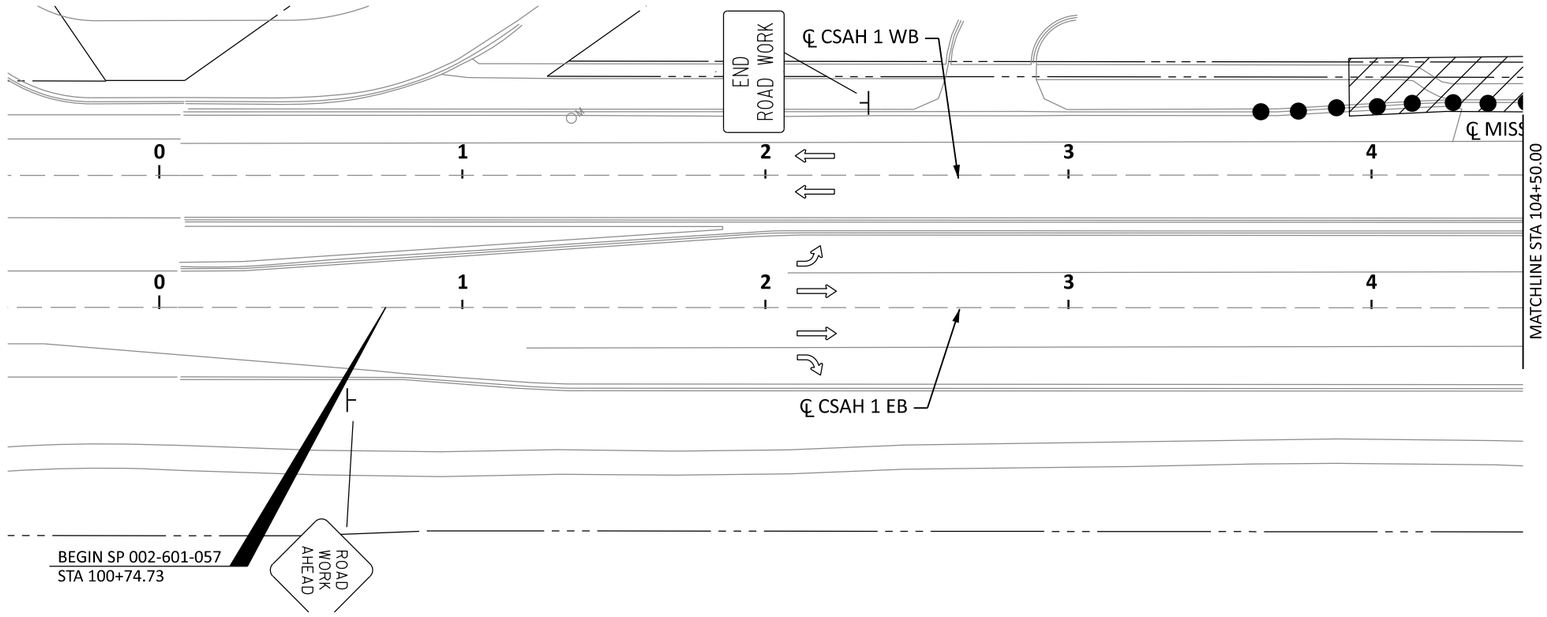


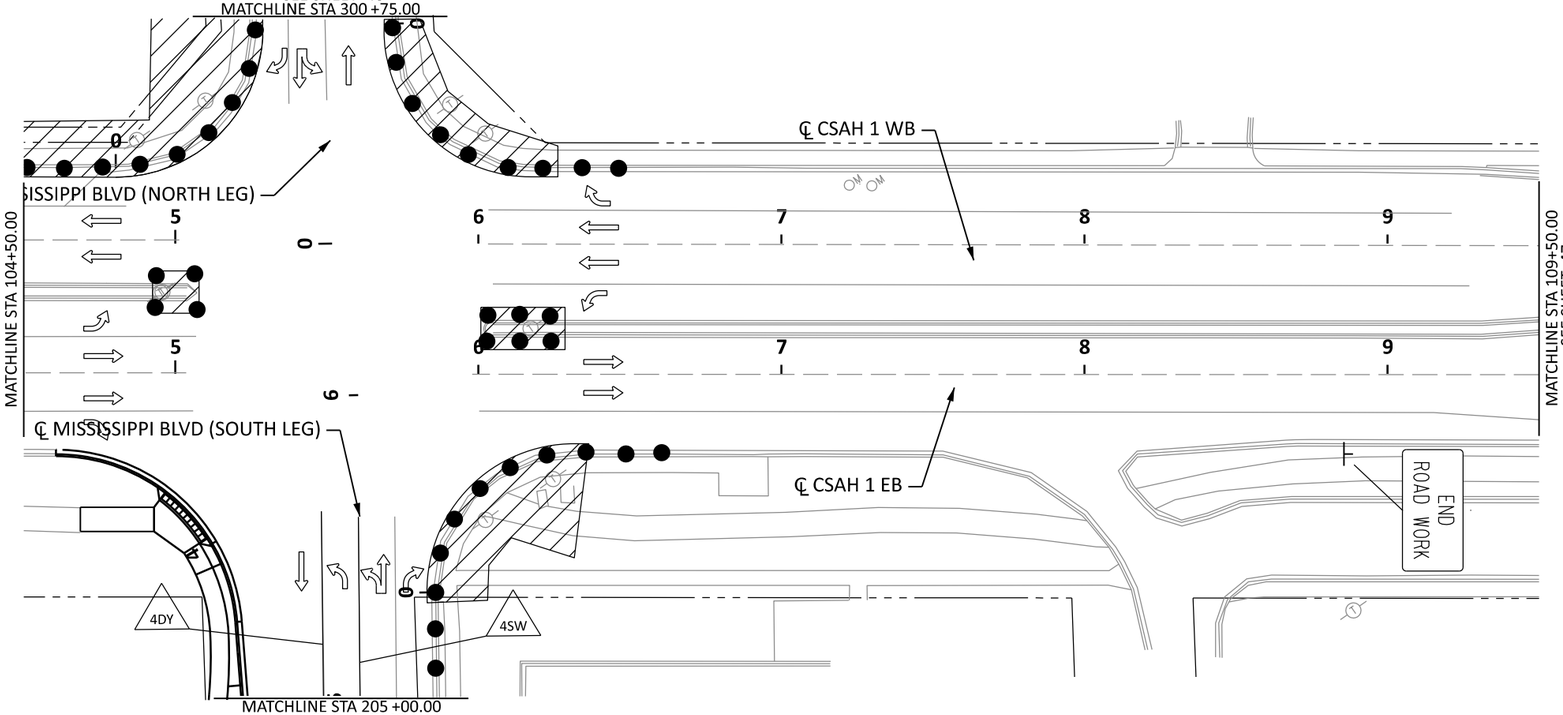
STAGE 2

CONSTRUCTION:

- CONSTRUCT SOUTHEAST, NORTHEAST, AND NORTHWEST CURB RAMPS ONE AT A TIME.
- CONSTRUCT MEDIAN NOSES ONE AT A TIME USING HIGH EARLY CONCRETE TO MINIMIZE DURATION OF TRAFFIC IMPACTS.
- CONSTRUCT PERMANENT TRAFFIC CONTROL SIGNAL.

TRAFFIC:

- USE SHORT-TERM, OFF-PEAK LANE CLOSURES DURING CONSTRUCTION OF MEDIANS AND CURB RAMPS.
- CONFIRM TEMP TRAFFIC CONTROL SIGNAL IS OPERATIONAL PRIOR TO TURNING OFF EXISTING TRAFFIC SIGNAL.
- SHORT TERM TRAFFIC CONTROL LAYOUTS FROM FROM THE FIELD MANUAL CAN ONLY BE USED FOR 3 CONSECUTIVE DAYS.



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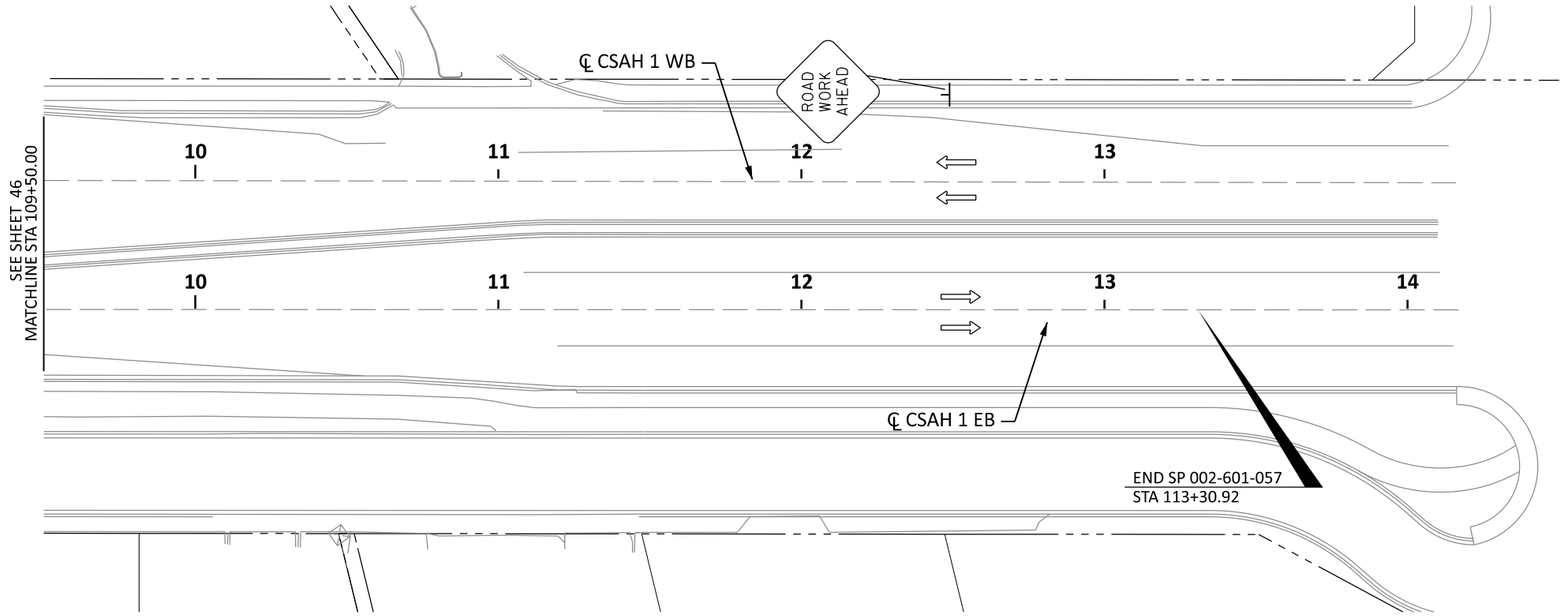
ANOKA COUNTY

CSAH 1 Improvements
Anoka County, Minnesota

ANOKA COUNTY, MINNESOTA
STAGE 2
CONSTRUCTION STAGING & TRAFFIC CONTROL PLAN
SP 002-601-057, SAP 114-105-017

SHEET **46** OF **103** SHEETS



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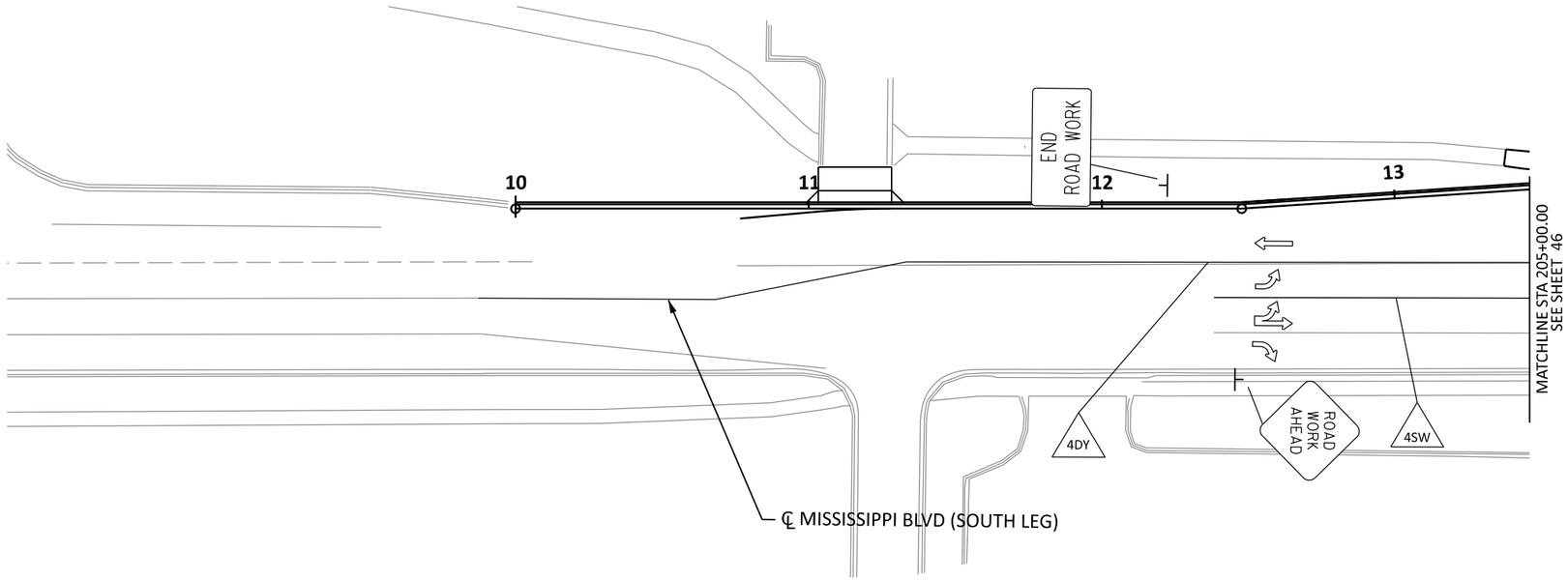
ANOKA COUNTY

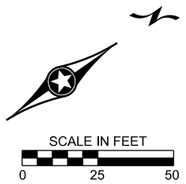
CSAH 1 Improvements
Anoka County, Minnesota

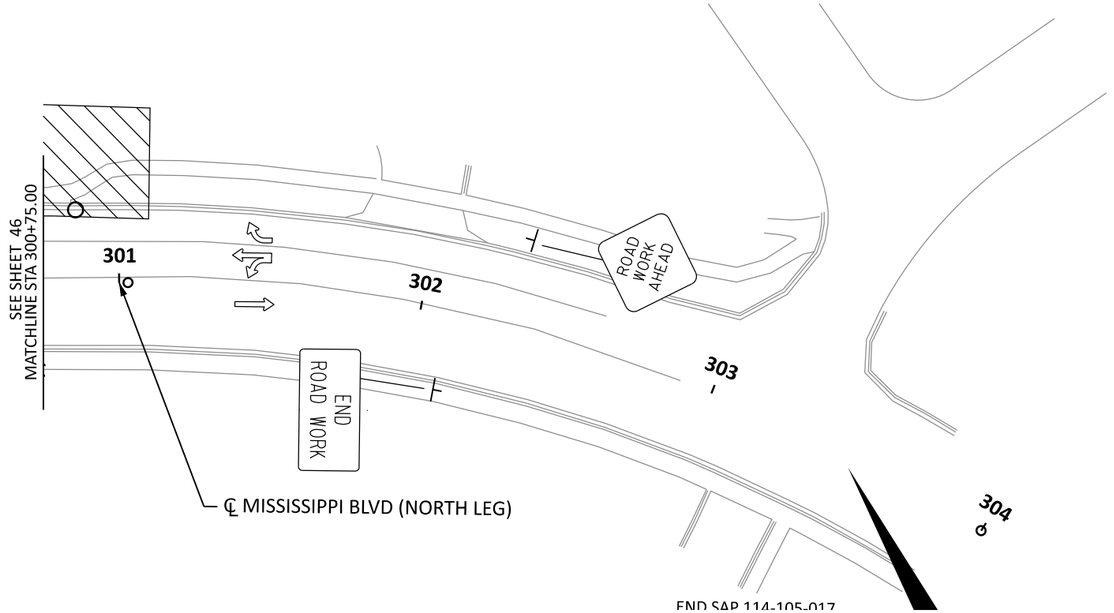
ANOKA COUNTY, MINNESOTA
STAGE 2
CONSTRUCTION STAGING & TRAFFIC CONTROL PLAN
SP 002-601-057, SAP 114-105-017

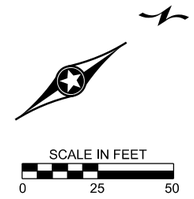
SHEET **47** OF **103** SHEETS

PLOTTED/REVISED: 5/4/2023









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ANOKA COUNTY

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Anoka County, Minnesota

ANOKA COUNTY, MINNESOTA
STAGE 2
CONSTRUCTION STAGING & TRAFFIC CONTROL PLAN
SP 002-601-057, SAP 114-105-017

SHEET 48 OF 103 SHEETS

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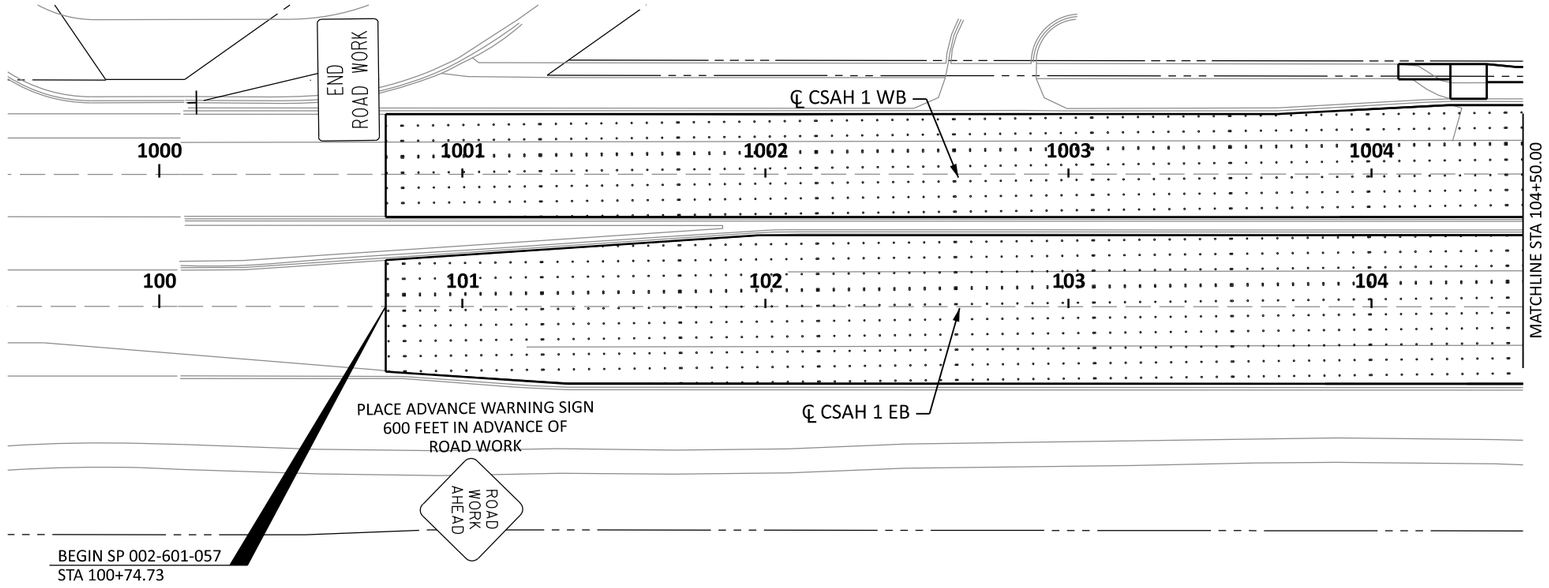
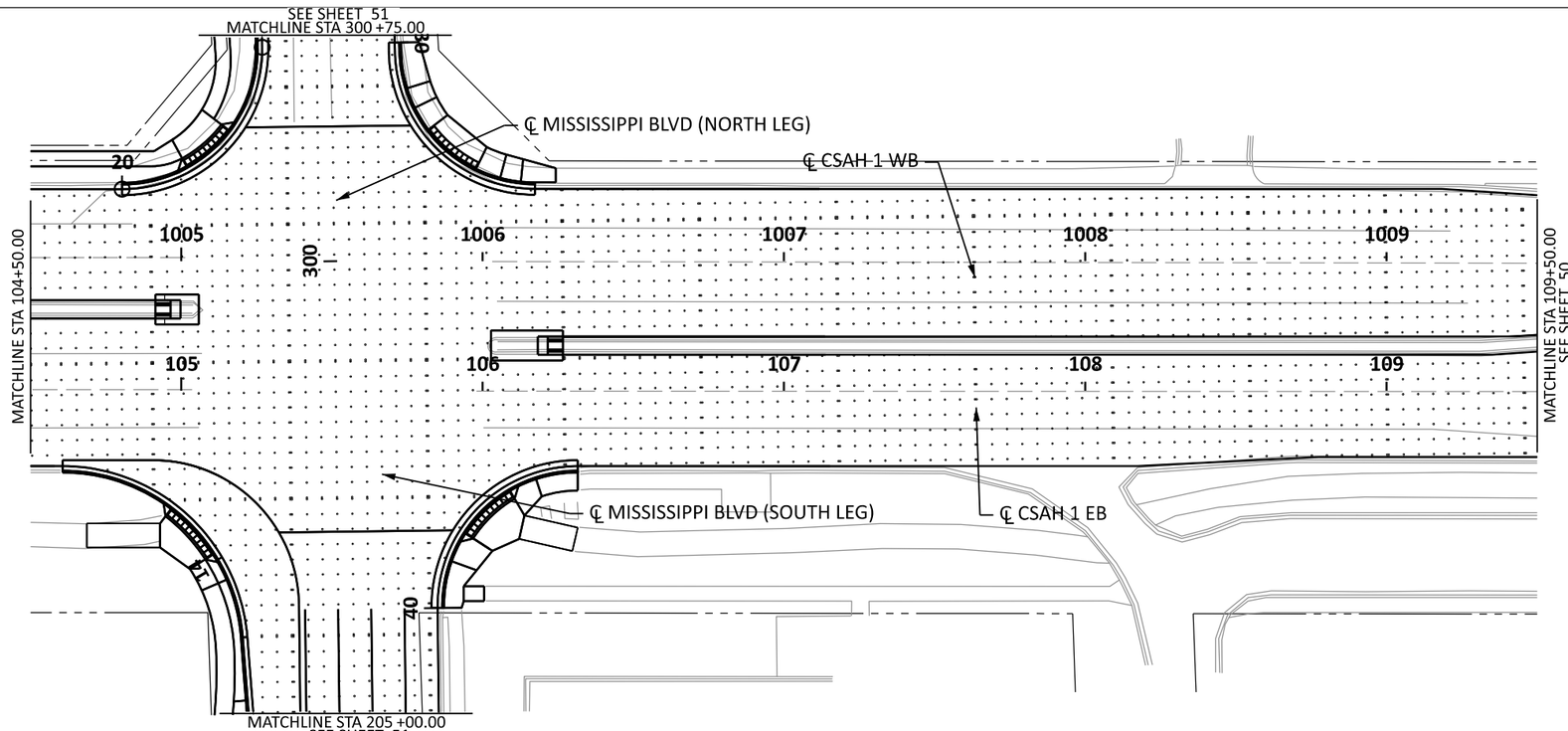


STAGE 3

CONSTRUCTION:
MILL AND OVERLAY PROJECT ROADWAY.

TRAFFIC:
PERFORM PAVING OPERATIONS USING SHORT TERM LANE CLOSURES DURING OFF PEAK HOURS.



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ANOKA COUNTY

CSAH 1 Improvements
Anoka County, Minnesota

ANOKA COUNTY, MINNESOTA
STAGE 3
CONSTRUCTION STAGING & TRAFFIC CONTROL PLAN
SP 002-601-057, SAP 114-105-017

SHEET **49** OF **103** SHEETS

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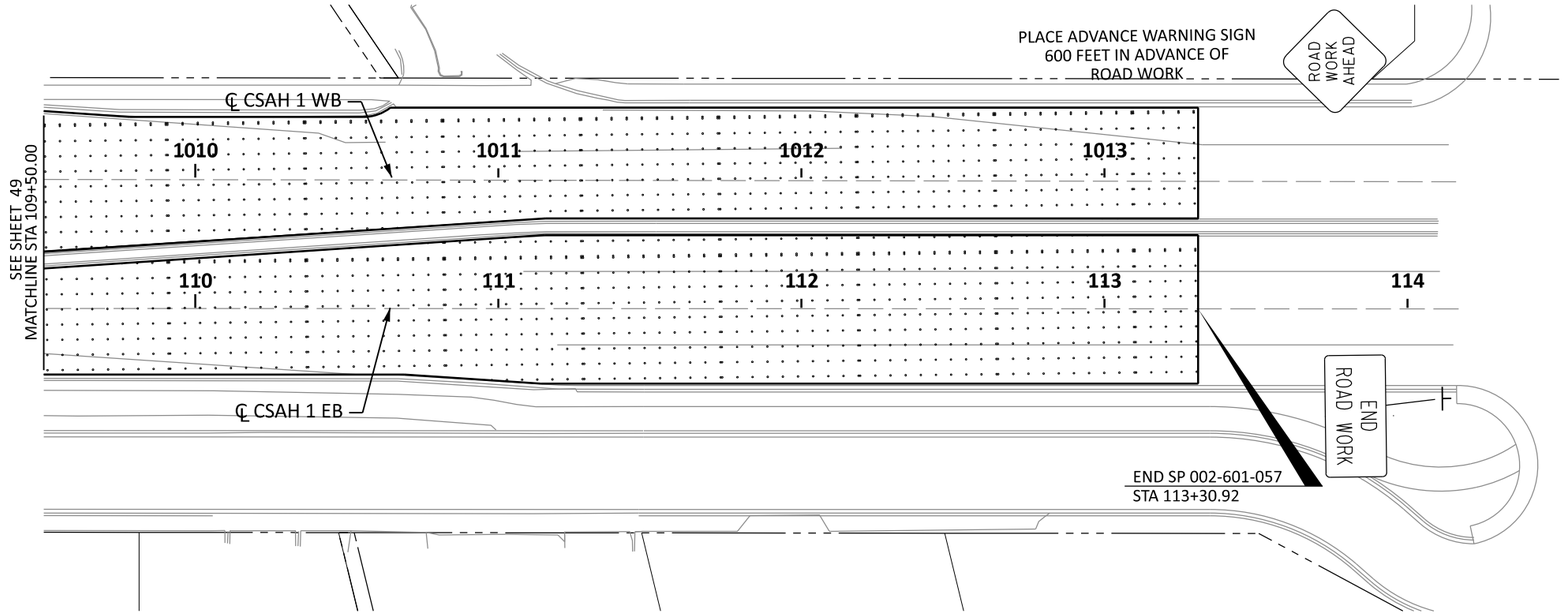
PLOTTED/REVISED: 5/4/2023



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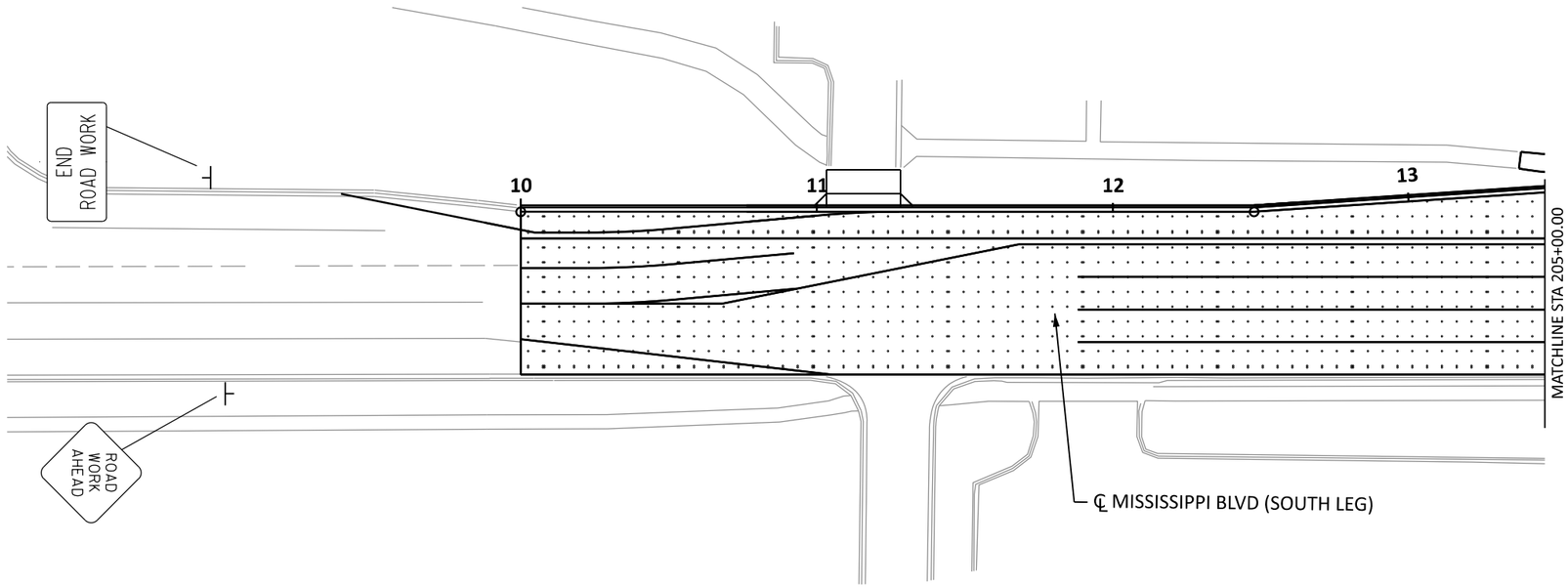
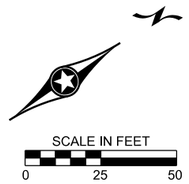
ANOKA COUNTY

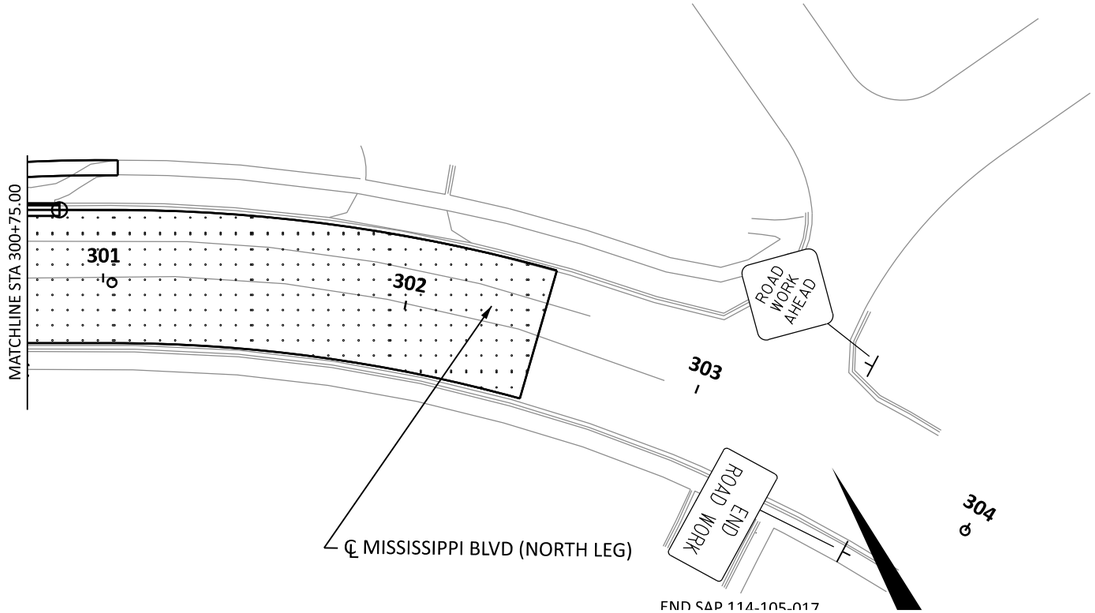
CSAH 1 Improvements
Anoka County, Minnesota

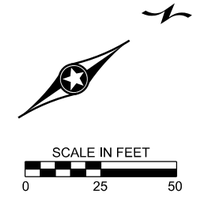
ANOKA COUNTY, MINNESOTA
STAGE 3
CONSTRUCTION STAGING & TRAFFIC CONTROL PLAN
SP 002-601-057, SAP 114-105-017

SHEET **50** OF **103** SHEETS









NO.	DATE	BY	CHK	REVISIONS

Design By: MD
Plan By: MD
Checked By: MS
Approved By: MS

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

MICHAEL SHOMION, PE

DATE 5/4/2023 LICENSE # 50488

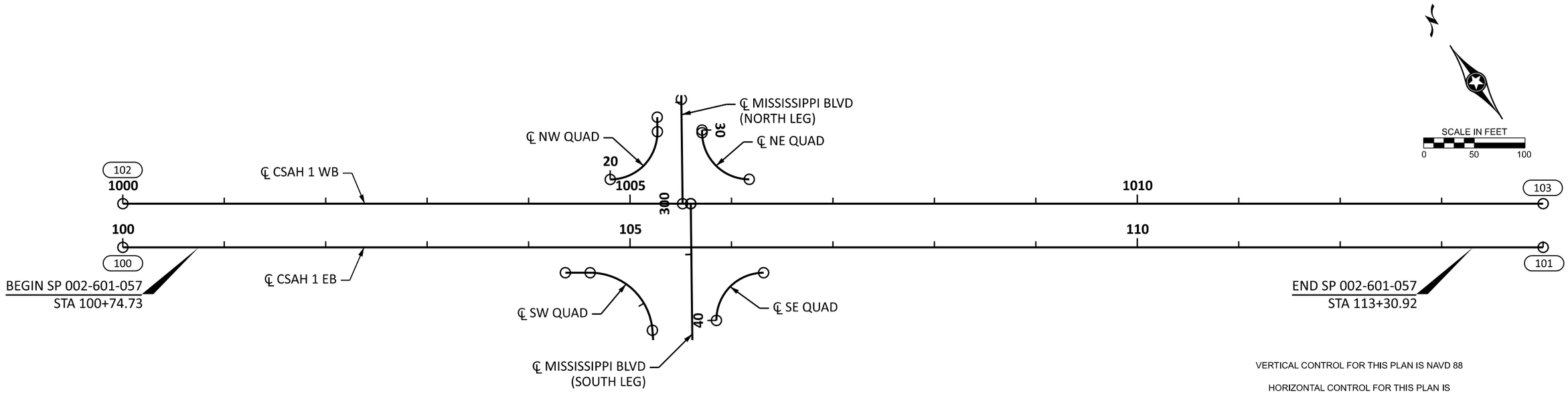
wsb

ANOKA COUNTY

CSAH 1 Improvements
Anoka County, Minnesota

ANOKA COUNTY, MINNESOTA
STAGE 3
CONSTRUCTION STAGING & TRAFFIC CONTROL PLAN
SP 002-601-057, SAP 114-105-017

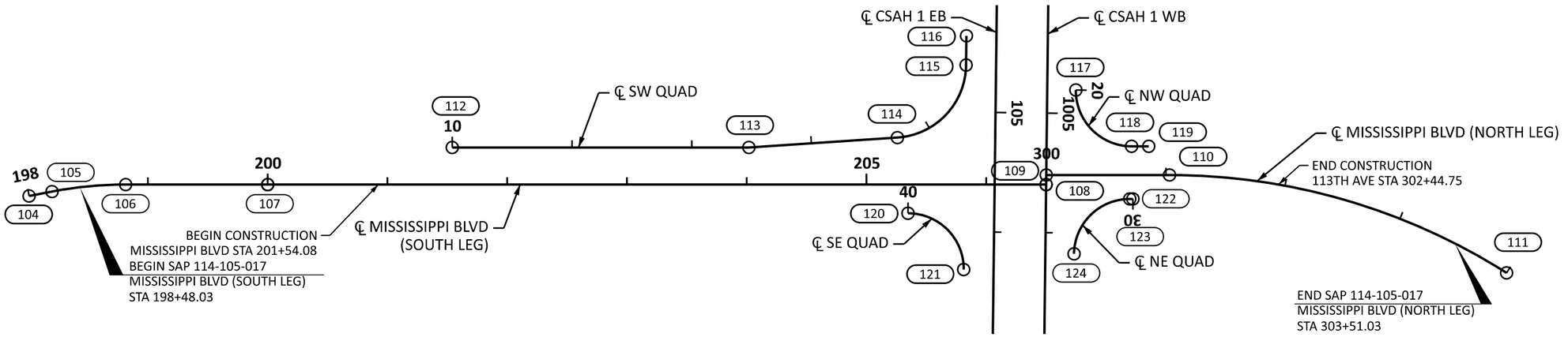
SHEET **51** OF **103** SHEETS



VERTICAL CONTROL FOR THIS PLAN IS NAVD 88

HORIZONTAL CONTROL FOR THIS PLAN IS
ANOKA COUNTY COORDINATE SYSYTEM,
NAD 83 (96 ADJUSTMENT)

LEGEND	
XXXX	POINT NUMBER (POINT DETAILS FOUND ON ALIGNMENT TABULATION SHEETS)
<XXXX>	INDICATES GEOPAK ALIGNMENT NAME



NO.	DATE	BY	CHK	REVISIONS

Design By: AJP
Plan By: CWK
Checked By: AJP
Approved By: AJP

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MICHAEL NELSON-OSTROWSKI, PE

DATE 5/4/2023 LICENSE # 56160

wsb

ANOKA COUNTY

CSAH 1 Improvements
Anoka County, Minnesota

ANOKA COUNTY, MINNESOTA

ALIGNMENT PLAN
SP 002-601-057, SAP 114-105-017

SHEET 52 OF 103 SHEETS

PLOTTED/REVISED: 5/4/2023

PATH & FILENAME: K:\01\8837-000\Cad\Plan\01\8837-000_al01.dgn

ALIGNMENT TABULATION

ELEMENT	POINT NUMBER	POINT TYPE	STATION	CIRCULAR CURVE DATA					COORDINATES		DIRECTION AZIMUTH
				DELTA	DEGREE	RADIUS	TANGENT	LENGTH	EASTING (X)	NORTHING (Y)	
				SPIRAL CURVE DATA							
				THETA	DEGREE	ST	LT	LS			
ALIGNMENT: CSAH1_EB											
TANGENT	100	POT	100+00.00 R1						478960.8759	151228.8425	
TANGENT	101	POT	114+00.00 R1						480100.7167	150415.9692	S54°30'20.071"E
ALIGNMENT: CSAH1_WB											
TANGENT	102	POT	1000+00.00 R1						478985.8427	151263.8518	
TANGENT	103	POT	1014+00.00 R1						480125.6835	150450.9786	S54°30'20.071"E
ALIGNMENT: MISSISSIPPI_BLVD (SOUTH LEG)											
TANGENT	104	POT	198+00.00 R1						478964.5429	150236.1402	
TANGENT	105	PC	198+19.52 R1						478972.4532	150253.9850	N23°54'24.973"E
ARC		PC	198+19.52 R1						478972.4532	150253.9850	N23°54'24.973"E
ARC		HPI	198+50.55 R1	10.909° RT	57.839°	325	31.03	61.88	478985.0300	150282.3568	PI
ARC		CC							479269.5698	150122.2780	
ARC	106	PT	198+81.40 R1						479002.7490	150307.8357	N34°48'58.572"E
TANGENT		PT	198+81.40 R1						479002.7490	150307.8357	
TANGENT	107	HPI	200+00.00 R1						479070.4628	150405.2042	N34°48'58.572"E
TANGENT		HPI	200+00.00 R1						479070.4628	150405.2042	
TANGENT	108	POT	206+50.00 R1						479441.5782	150938.8458	N34°48'58.572"E
ALIGNMENT: MISSISSIPPI_BLVD(NORTH LEG)											
TANGENT	109	POT	300+00.00 R1						479435.0644	150943.4911	
TANGENT	110	PC	301+02.91 R1						479493.8177	151027.9749	N34°48'58.572"E
ARC		PC	301+02.91 R1						479493.8177	151027.9749	N34°48'58.572"E
ARC		PI	302+55.55 R1	32.423° RT	10.913°	525	152.64	297.09	479580.9687	151153.2927	PI
ARC		CC							479924.836	150728.2278	
ARC	111	PT	304+00.00 R1						479721.7254	151212.3467	N67°14'22.805"E
ALIGNMENT: ALI-SW-QUAD											
TANGENT	112	POT	10+00.00 R1						479132.9834	150549.4007	
TANGENT	113	PI	12+47.71 R1						479274.4127	150752.7676	N34°48'58.572"E
TANGENT		PI	12+47.71 R1						479274.4127	150752.7676	
TANGENT	114	PC	13+71.97 R1						479338.4147	150859.2755	N31°00'07.903"E
ARC		PC	13+71.97 R1						479338.4147	150859.2755	N31°00'07.903"E
ARC		PI	14+28.83 R1	85.508° LT	93.164°	61.5	56.86	91.78	479367.7005	150908.011	PI
ARC		CC							479285.7001	150890.9524	
ARC	115	PT	14+63.75 R1						479321.4085	150941.024	N54°30'20.071"W
TANGENT		PT	14+63.75 R1						479321.4085	150941.024	
TANGENT	116	POT	14+88.23 R1						479301.4814	150955.2348	N54°30'20.071"W
ALIGNMENT: ALI_NW_QUAD											
ARC	117	PC	20+00.00 R1						479390.861	151004.372	S54°30'20"E
ARC		PI	20+47.05 R1	90°40'41" LT	44°15'13"	46.5	47.054	73.592	479429.17	150977.051	PI
ARC		CC							479417.86	151042.231	
ARC	118	PT	20+73.59 R1						479456.036	151015.682	N34°48'59"E
TANGENT		PT	20+73.59 R1						479456.036	151015.682	
TANGENT	119	POT	20+87.94 R1						479464.225	151027.457	N34°48'59"E
ALIGNMENT: ALI_SE_QUAD											
ARC	120	PC	40+00.00 R1						479395.4275	150830.4484	N34°48'58.572"E
ARC		PI	40+47.05 R1	90.678° RT	123.217°	46.5	47.05	73.59	479422.2926	150869.0788	PI
ARC		CC							479433.6034	150803.8993	
ARC	121	PT	40+73.59 R1						479460.6024	150841.7583	S54°30'20.071"E
ALIGNMENT: ALI_NE_QUAD											
TANGENT	122	POT	30+00.00 R1						479492.7861	150991.4619	
TANGENT	123	PC	30+02.62 R1						479491.2893	150989.3096	S34°48'58.572"W
ARC		PC	30+02.62 R1						479491.2893	150989.3096	S34°48'58.572"W
ARC		PI	30+48.57 R1	89.322° LT	123.217°	46.5	45.95	72.49	479465.0526	150951.5829	PI
ARC		CC							479529.4652	150962.7606	
ARC	124	PT	30+75.11 R1						479502.4662	150924.9016	S54°30'20.071"E

PLOTTED/REVISED: 5/4/2023

PATH & FILENAME: K:\01\88837-000\Cad\Plan\01l88837-000_al01.dgn

NO.	DATE	BY	CHK	REVISIONS

Design By: MAN-O
Plan By: BAC
Checked By: MAN-O
Approved By: MAN-O

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MICHAEL NELSON-OSTROWSKI, PE

DATE 5/4/2023 LICENSE # 56160

wsb

ANOKA COUNTY

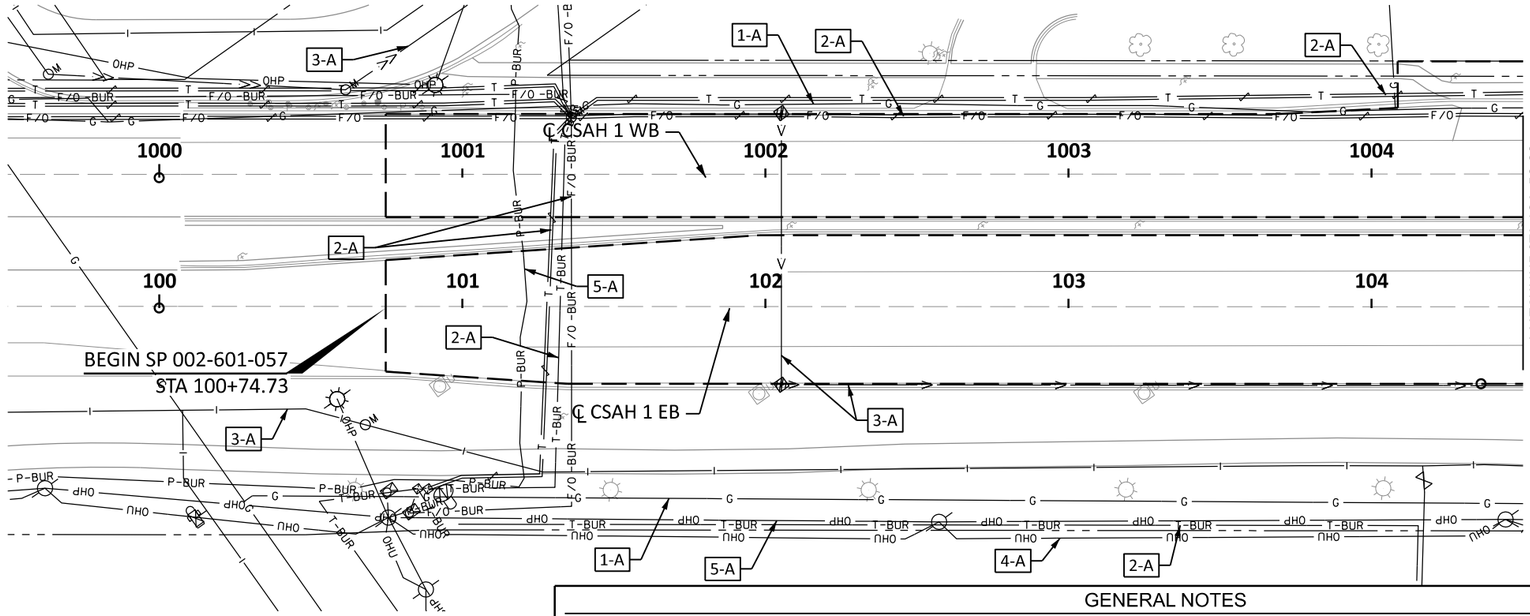
CSAH 1 Improvements
Anoka County, Minnesota

ANOKA COUNTY, MINNESOTA

ALIGNMENT TAB
SP 002-601-057, SAP 114-105-017

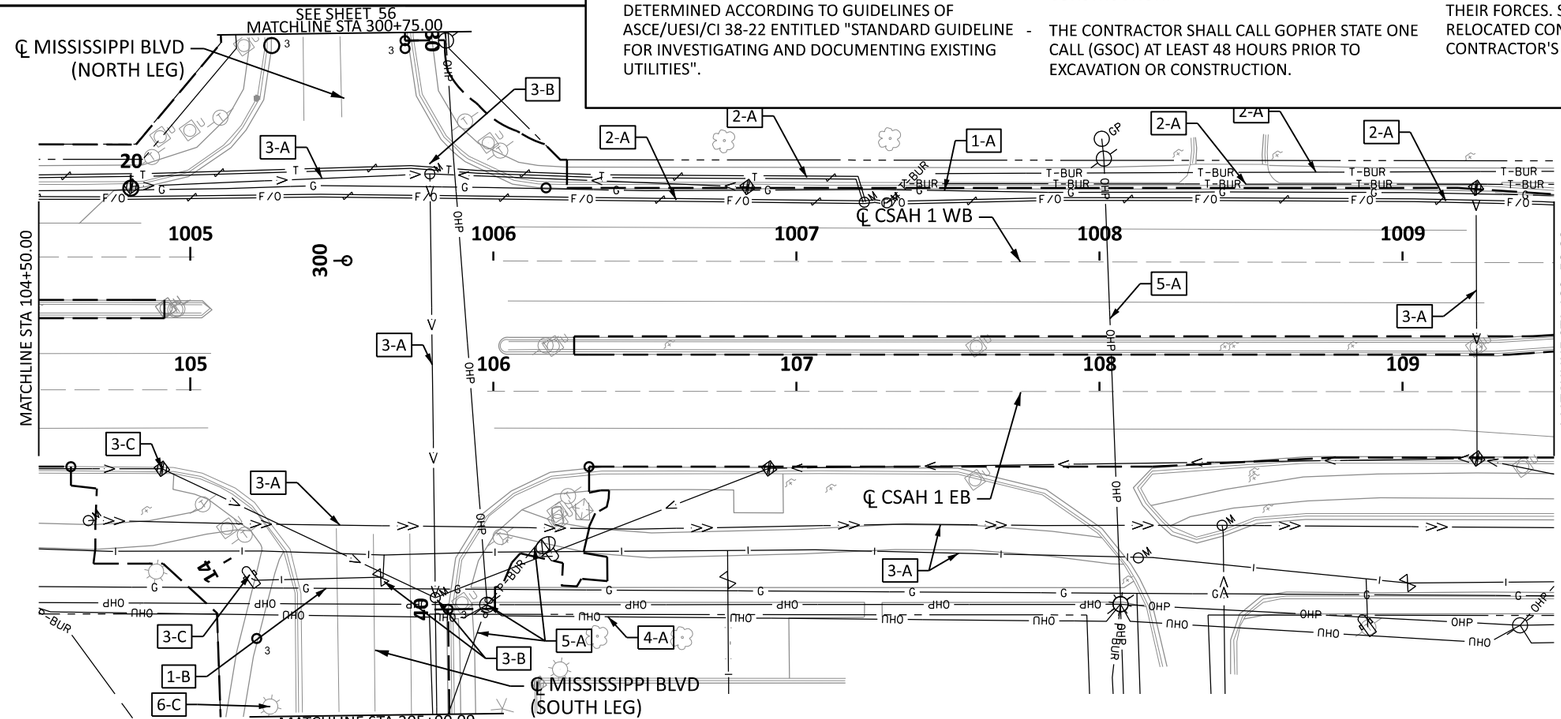
SHEET 53 OF 103 SHEETS

PLOTTED/REVISED: 5/4/2023



GENERAL NOTES

- THE SUBSURFACE UTILITY INFORMATION IN THIS PLAN IS QUALITY LEVEL D. THIS QUALITY LEVEL WAS DETERMINED ACCORDING TO GUIDELINES OF ASCE/UESI/CI 38-22 ENTITLED "STANDARD GUIDELINE FOR INVESTIGATING AND DOCUMENTING EXISTING UTILITIES".
- SOME UTILITIES MAY HAVE RELOCATED PRIOR TO CONSTRUCTION.
- THE CONTRACTOR SHALL CALL GOPHER STATE ONE CALL (GSOC) AT LEAST 48 HOURS PRIOR TO EXCAVATION OR CONSTRUCTION.
- THE CONTRACTOR SHALL COORDINATE THEIR WORK AND COOPERATE WITH THE UTILITY OWNERS AND THEIR FORCES. SOME UTILITIES MAY NEED TO BE RELOCATED CONCURRENTLY WITH THE CONTRACTOR'S WORK.



LEGEND

- FIBER DUCT BANK
- COPPER DUCT BANK
- BURIED TELEPHONE
- BURIED FIBER OPTIC
- BURIED CABLE TV
- BURIED POWER LINE
- BURIED GAS
- OVERHEAD COMMUNICATION LINE
- OVERHEAD POWER LINE
- WATERMAIN
- STORM SEWER
- SANITARY SEWER
- UTILITY PEDESTAL
- HANDHOLE
- MANHOLE
- POWER/UTILITY POLE
- VEGETATION
- VEGETATION
- INPLACE STRUCTURE
- CATCH BASIN
- WATER VALVE / HYDRANT
- CONSTRUCTION LIMITS
- INPLACE R/W
- INPLACE PERM ESMT

UTILITY NOTES

1-A UTILITY CONFLICT AREA OWNER - IMPACT
IMPACTS NOTES ON PLAN SHEETS
(A) LEAVE AS IS, (B) ADJUST, (C) RELOCATE, (D) REMOVE

OWNERSHIP:
(1) CENTERPOINT ENGERY, (2) LUMEN, (3) CITY OF COON RAPIDS, (4) COMCAST, (5) XCEL ENERGY, (6) ANOKA-RAMSEY COMMUNITY COLLEGE

THE OWNER AND IMPACT NOTES ARE BASED UPON THE BEST INFORMATION AVAILABLE AND MAY NOT REFLECT THE ACTUAL EFFECTS ON THE UTILITIES BY CONSTRUCTION. FINAL DETERMINATIONS WILL BE MADE IN THE FIELD DURING CONSTRUCTION.

SEE DRAINAGE PLAN FOR STORM SEWER INFORMATION, CONSTRUCTION PLAN FOR WATERMAIN, SANITARY SEWER, AND LIGHTING INFORMATION, AND TRAFFIC CONTROL SIGNAL SYSTEM PLAN FOR TRAFFIC SIGNAL INFORMATION.

NO.	DATE	BY	CHK	REVISIONS

Design By: MAN-O
Plan By: BAC
Checked By: MAN-O
Approved By: MAN-O

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MICHAEL NELSON-OSTROWSKI, PE
DATE 5/4/2023 LICENSE # 56160

wsb

ANOKA COUNTY

CSAH 1 Improvements
Anoka County, Minnesota

ANOKA COUNTY, MINNESOTA

INPLACE TOPOGRAPHY AND UTILITIES PLAN
SP 002-601-057, SAP 114-105-017

SHEET 54 OF 103 SHEETS

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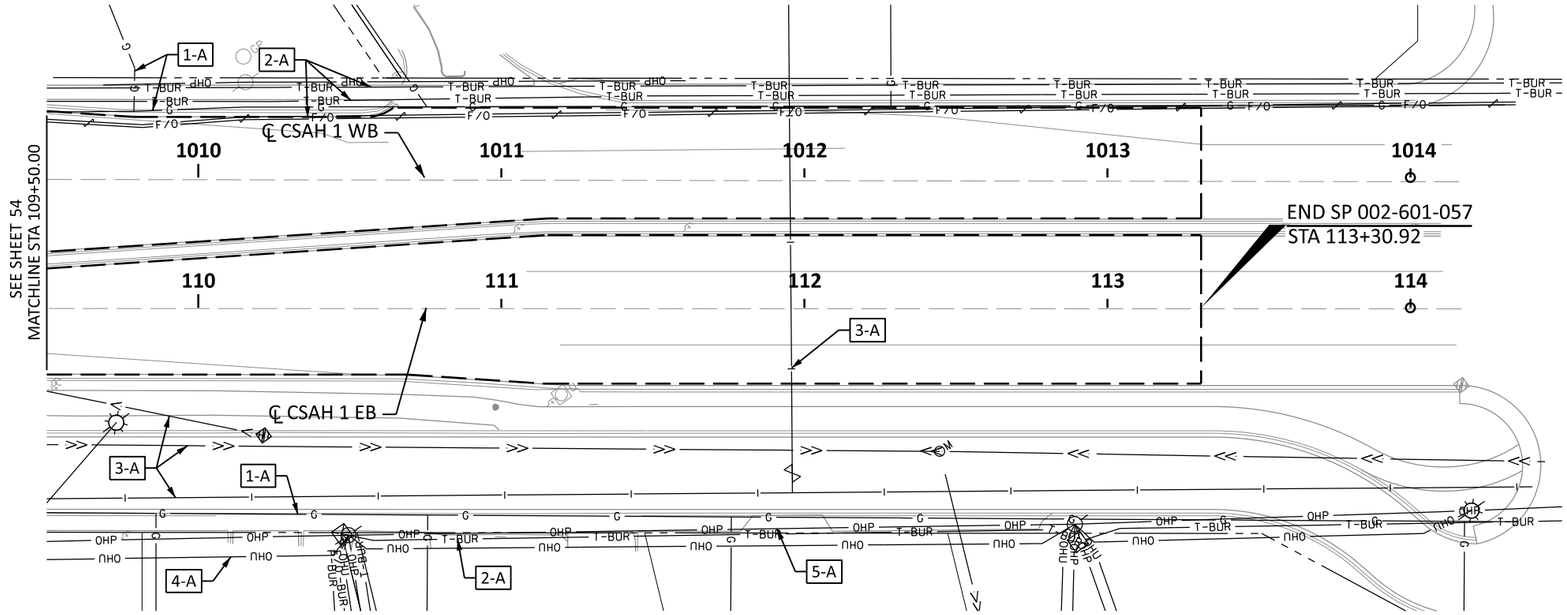
PLOTTED/REVISED: 5/4/2023



SCALE IN FEET
0 25 50

LEGEND

- FIBER DUCT BANK
- COPPER DUCT BANK
- BURIED TELEPHONE
- BURIED FIBER OPTIC
- BURIED CABLE TV
- BURIED POWER LINE
- BURIED GAS
- OVERHEAD COMMUNICATION LINE
- OVERHEAD POWER LINE
- WATERMAIN
- STORM SEWER
- SANITARY SEWER
- UTILITY PEDESTAL
- HANDHOLE
- MANHOLE
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- CONSTRUCTION LIMITS
- INPLACE R/W
- INPLACE PERM ESMT

GENERAL NOTES

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UTILITY NOTES

1-A UTILITY CONFLICT AREA OWNER - IMPACT
IMPACTS NOTES ON PLAN SHEETS
(A) LEAVE AS IS, (B) ADJUST, (C) RELOCATE, (D) REMOVE

OWNERSHIP:
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SEE DRAINAGE PLAN FOR STORM SEWER INFORMATION, CONSTRUCTION PLAN FOR WATERMAIN, SANITARY SEWER, AND LIGHTING INFORMATION, AND TRAFFIC CONTROL SIGNAL SYSTEM PLAN FOR TRAFFIC SIGNAL INFORMATION.

NO.	DATE	BY	CHK	REVISIONS

Design By: MAN-O
Plan By: BAC
Checked By: MAN-O
Approved By: MAN-O

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

MICHAEL NELSON-OSTROWSKI, PE

DATE 5/4/2023 LICENSE # 56160

wsb

ANOKA COUNTY

CSAH 1 Improvements
Anoka County, Minnesota

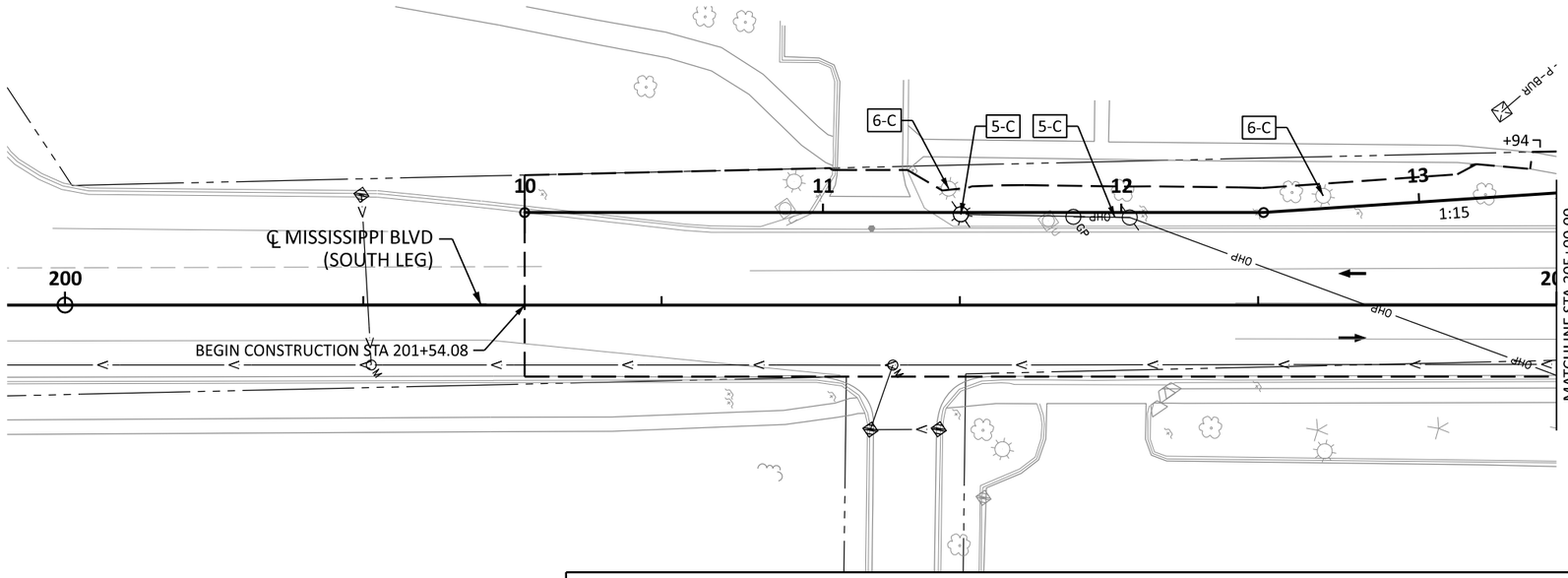
ANOKA COUNTY, MINNESOTA

INPLACE TOPOGRAPHY & UTILITIES PLAN
SP 002-601-057, SAP 114-105-017

SHEET 55 OF 103 SHEETS

PATH & FILENAME: K:\0188837-000\Cad\Plan\0188837-000_top01.dgn

PLOTTED/REVISED: 5/4/2023



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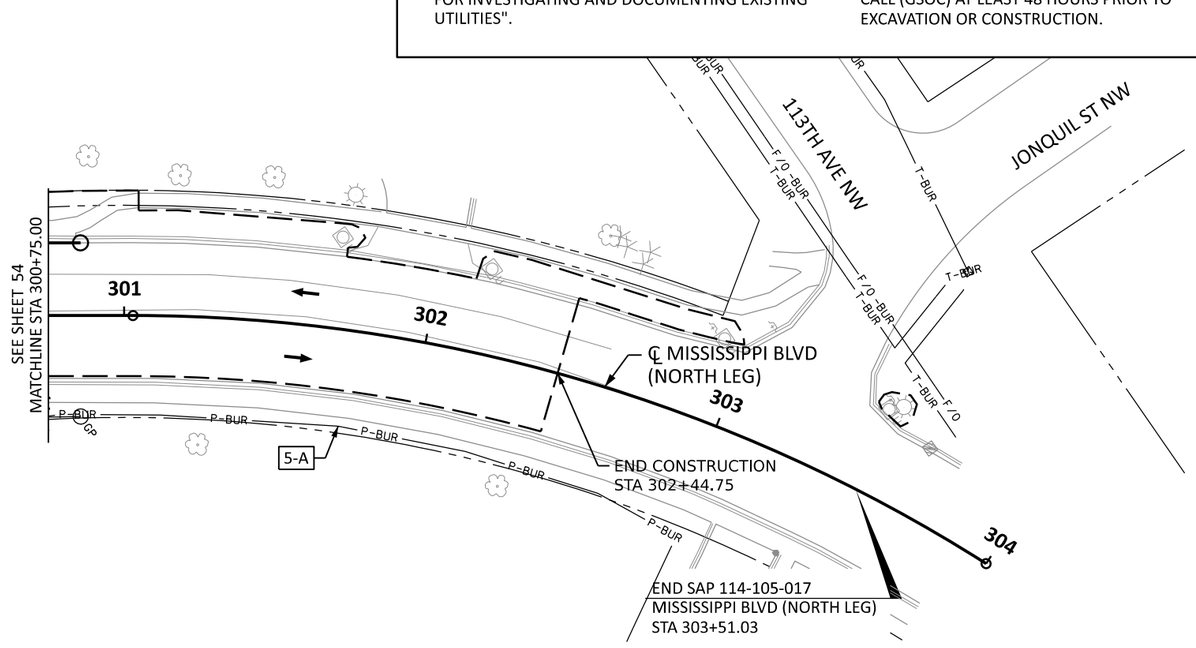

SCALE IN FEET
0 25 50

LEGEND

- F/O — FIBER DUCT BANK
- T — COPPER DUCT BANK
- T-BUR — BURIED TELEPHONE
- F/O-BUR — BURIED FIBER OPTIC
- TV-BUR — BURIED CABLE TV
- P-BUR — BURIED POWER LINE
- G — BURIED GAS
- OHU — OVERHEAD COMMUNICATION LINE
- OHP — OVERHEAD POWER LINE
- W — WATERMAIN
- ST — STORM SEWER
- SAN — SANITARY SEWER
- UTILITY PEDESTAL
- HH / U — HANDHOLE
- MANHOLE
- POWER/UTILITY POLE
- VEGETATION
- VEGETATION
- INPLACE STRUCTURE
- CATCH BASIN
- WATER VALVE / HYDRANT
- CONSTRUCTION LIMITS
- INPLACE R/W
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UTILITY NOTES

1-A UTILITY CONFLICT AREA OWNER - IMPACT
IMPACTS NOTES ON PLAN SHEETS
(A) LEAVE AS IS, (B) ADJUST, (C) RELOCATE, (D) REMOVE

OWNERSHIP:
(1) CENTERPOINT ENGERY, (2) LUMEN, (3) CITY OF COON RAPIDS, (4) COMCAST, (5) XCEL ENERGY, (6) ANOKA-RAMSEY COMMUNITY COLLEGE

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SCALE IN FEET
0 25 50

NO.	DATE	BY	CHK	REVISIONS

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MICHAEL NELSON-OSTROWSKI, PE
DATE 5/4/2023 LICENSE # 56160

wsb

ANOKA COUNTY

CSAH 1 Improvements
Anoka County, Minnesota

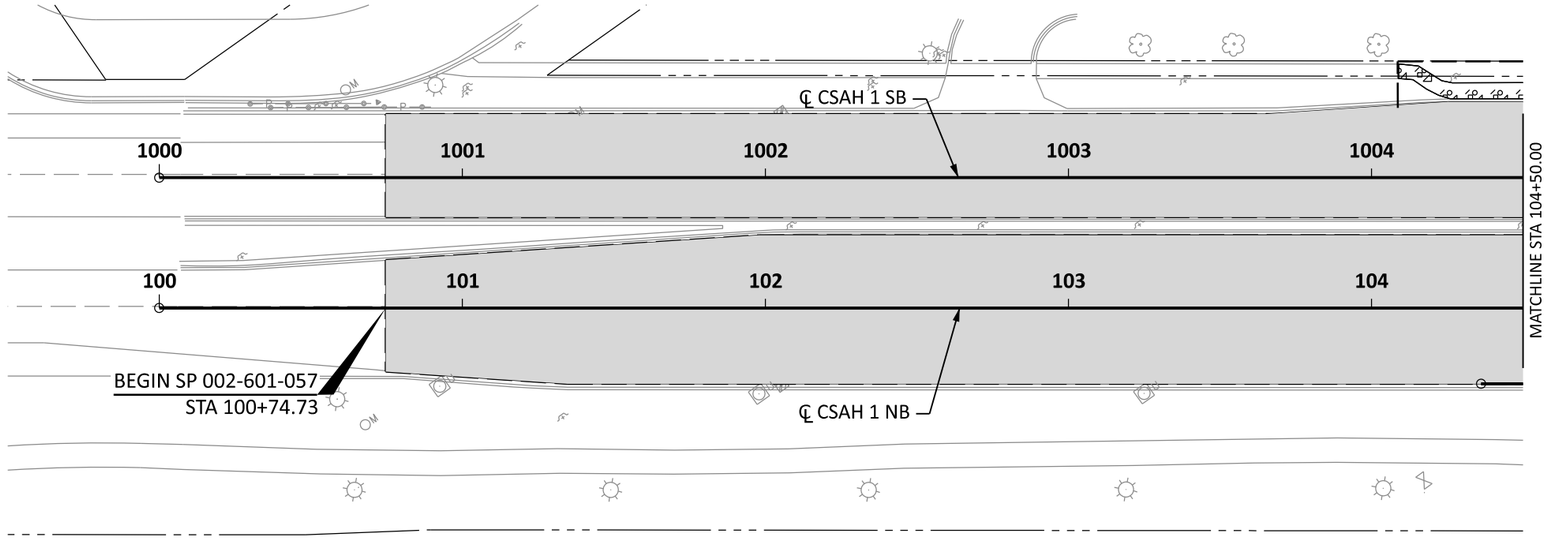
ANOKA COUNTY, MINNESOTA

INPLACE TOPOGRAPHY & UTILITIES PLAN
SP 002-601-057, SAP 114-105-017

SHEET 56 OF 103 SHEETS

PATH & FILENAME: K:\0188337-000\Cad\Plan\0188337-000_topo02.dgn

PLOTTED/REVISED: 5/4/2023

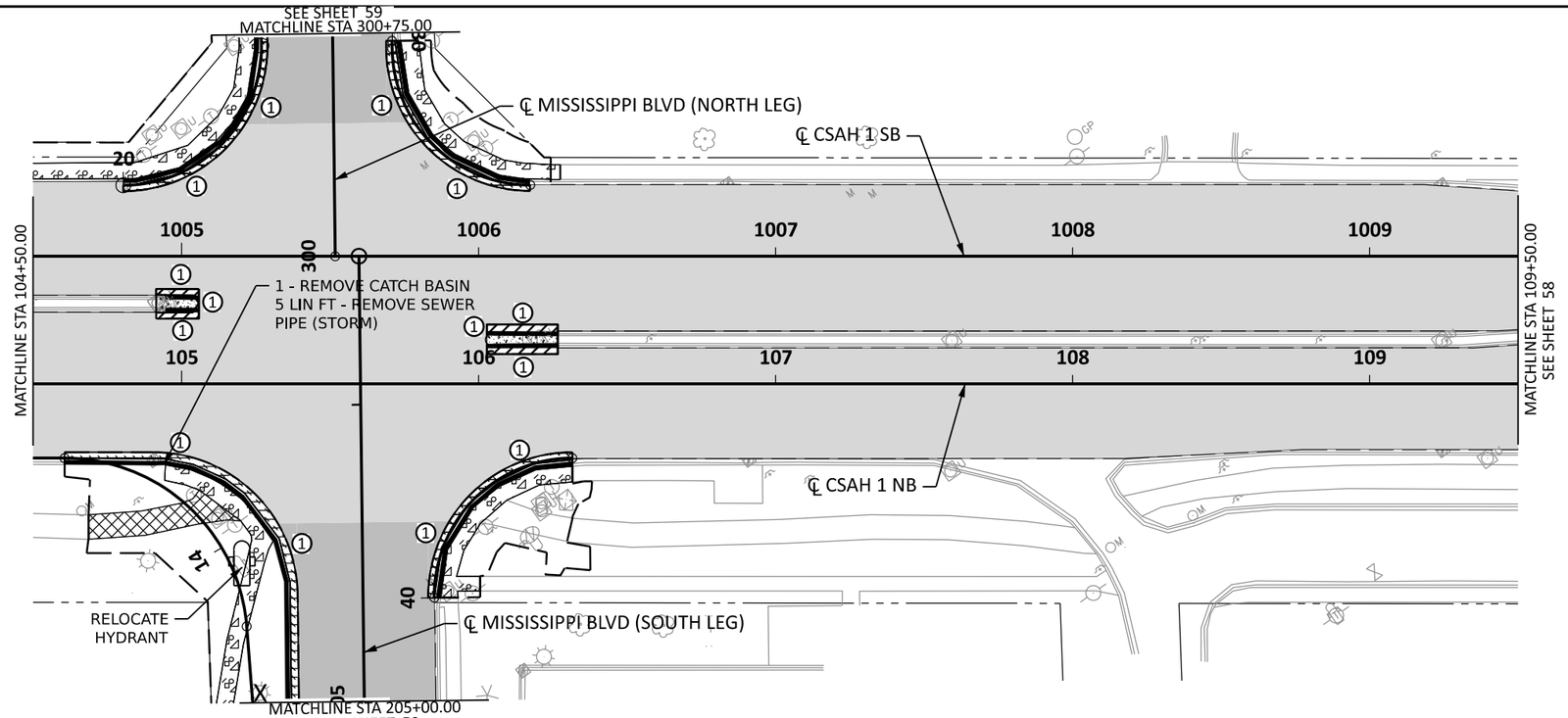


LEGEND

- MILL BITUMINOUS SURFACE (1.5")
- MILL BITUMINOUS SURFACE (2.0")
- REMOVE BITUMINOUS PAVEMENT
- REMOVE PAVEMENT
- REMOVE CONCRETE MEDIAN
- REMOVE CONCRETE WALK
- REMOVE BITUMINOUS WALK
- REMOVE CONCRETE DRIVEWAY PAVEMENT
- REMOVE BITUMINOUS DRIVEWAY PAVEMENT
- REMOVE CURB & GUTTER
- CLEARING (BY OTHERS) GRUBBING (EACH)
- REMOVE LIGHT FOUNDATION SALVAGE LIGHITNG UNIT
- (1) SAWCUT BITUMINOUS PAVEMENT (FULL DEPTH)
- CONSTRUCTION LIMITS
- INPLACE RIGHT OF WAY
- INPLACE PERMANENT EASEMENT

GENERAL NOTES

1. REMOVAL OF ALL AGGREGATE SURFACING REGARDLESS OF THICKNESS SHALL BE INCLUDED IN COMMON EXCAVATION.
2. ALL REMOVAL ITEMS SHALL BE DISPOSED OF OFF THE PROJECT SITE. (INCIDENTAL)
3. SAWCUTTING FOR CONCRETE CURB & GUTTER, CONCRETE WALK, AND BITUMINOUS WALK SHALL BE INCIDENTAL.
4. REMOVE CONCRETE MEDIAN PAID AS REMOVE CONCRETE WALK.
5. CLEARING OPERATIONS TO OCCUR PRIOR TO CONSTRUCTION BY OTHERS.



NO.	DATE	BY	CHK	REVISIONS

Design By: MAN-O
Plan By: BAC
Checked By: MAN-O
Approved By: MAN-O

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MICHAEL NELSON-OSTROWSKI, PE

DATE 5/4/2023 LICENSE # 56160

wsb

ANOKA COUNTY

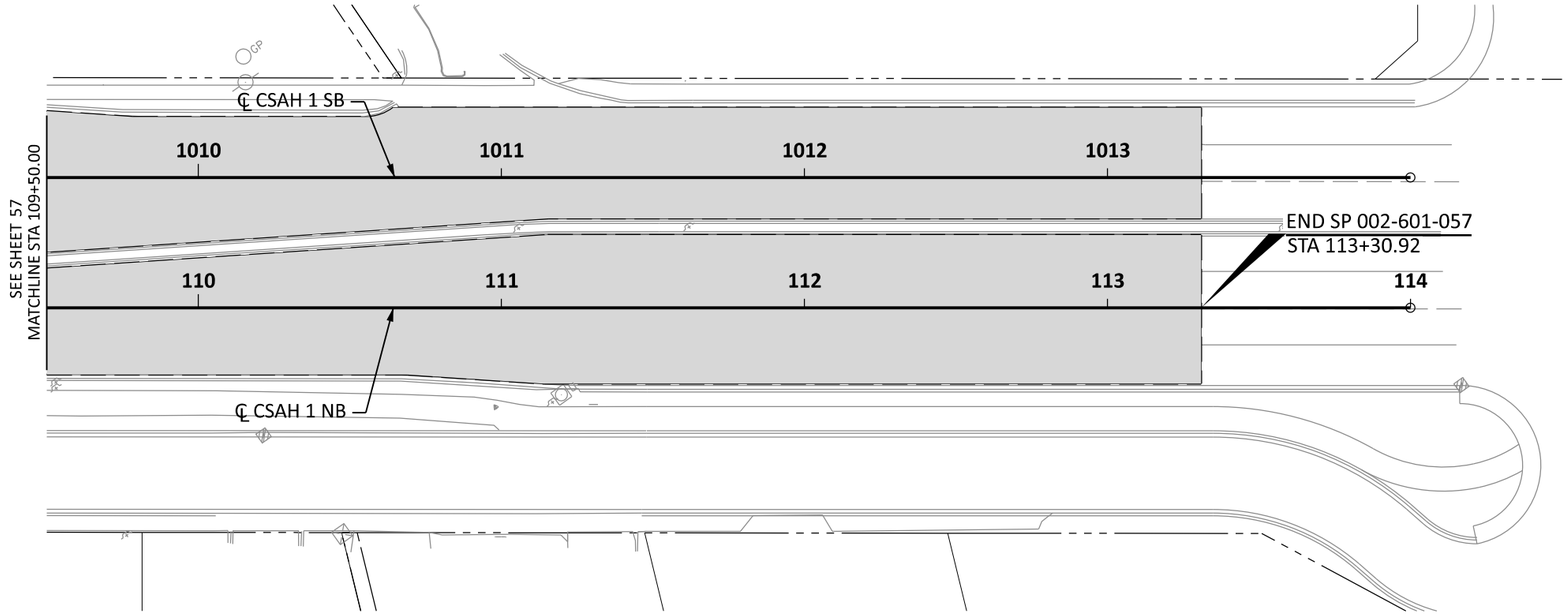
CSAH 1 Improvements
Anoka County, Minnesota

ANOKA COUNTY, MINNESOTA

REMOVAL PLAN
SP 002-601-057, SAP 114-105-017

SHEET 57 OF 103 SHEETS

PATH & FILENAME: K:\01\8837-000\Cad\Plan\01\8837-000_rem01.dgn



LEGEND

- MILL BITUMINOUS SURFACE (1.5")
- MILL BITUMINOUS SURFACE (2.0")
- REMOVE BITUMINOUS PAVEMENT
- REMOVE PAVEMENT
- REMOVE CONCRETE MEDIAN
- REMOVE CONCRETE WALK
- REMOVE BITUMINOUS WALK
- REMOVE CONCRETE DRIVEWAY PAVEMENT
- REMOVE BITUMINOUS DRIVEWAY PAVEMENT
- REMOVE CURB & GUTTER
- CLEARING (BY OTHERS)
  GRUBBING (EACH)
- REMOVE LIGHT FOUNDATION
  SALVAGE LIGHITNG UNIT
- ① SAWCUT BITUMINOUS PAVEMENT (FULL DEPTH)
- CONSTRUCTION LIMITS
- INPLACE RIGHT OF WAY
- INPLACE PERMANENT EASEMENT

GENERAL NOTES

1. REMOVAL OF ALL AGGREGATE SURFACING REGARDLESS OF THICKNESS SHALL BE INCLUDED IN COMMON EXCAVATION.
2. ALL REMOVAL ITEMS SHALL BE DISPOSED OF OFF THE PROJECT SITE. (INCIDENTAL)
3. SAWCUTTING FOR CONCRETE CURB & GUTTER, CONCRETE WALK, AND BITUMINOUS WALK SHALL BE INCIDENTAL.
4. REMOVE CONCRETE MEDIAN PAID AS REMOVE CONCRETE WALK.
5. CLEARING OPERATIONS TO OCCUR PRIOR TO CONSTRUCTION BY OTHERS.

NO.	DATE	BY	CHK	REVISIONS

Design By: MAN-O
Plan By: BAC
Checked By: MAN-O
Approved By: MAN-O

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

MICHAEL NELSON-OSTROWSKI, PE

DATE 5/4/2023 LICENSE # 56160

wsb

ANOKA COUNTY

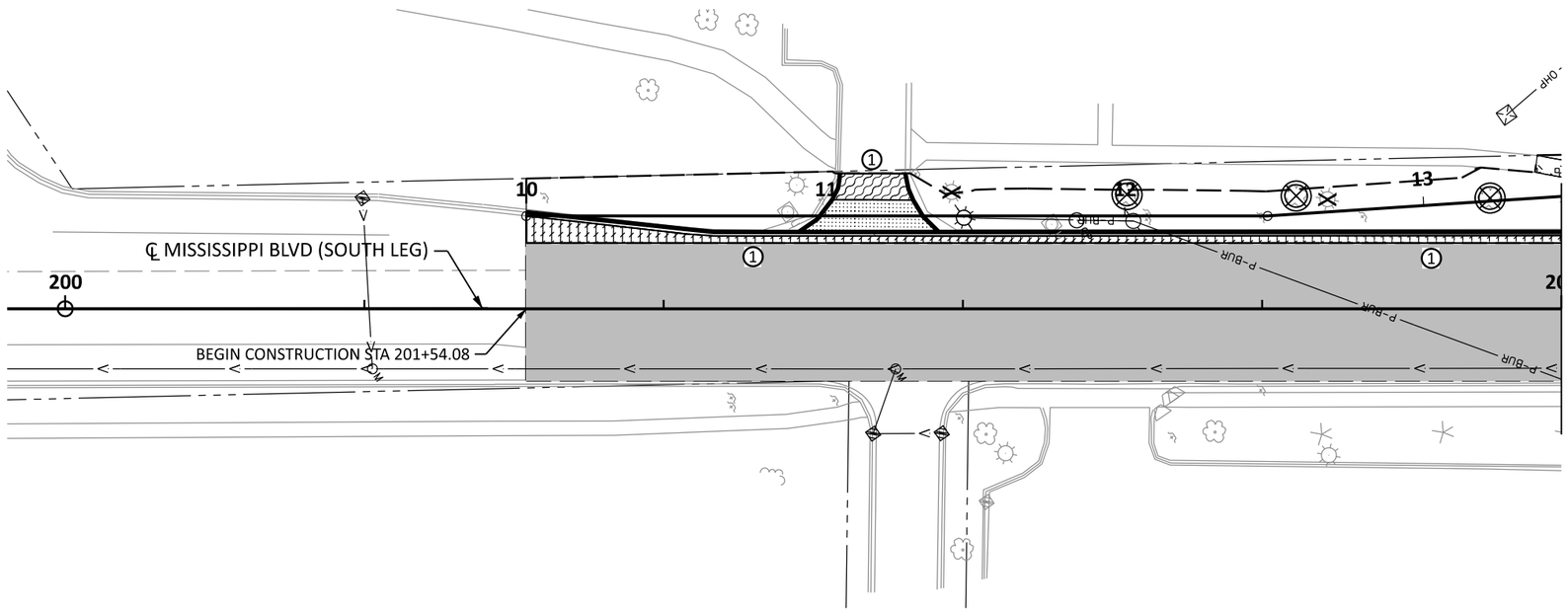
CSAH 1 Improvements
Anoka County, Minnesota

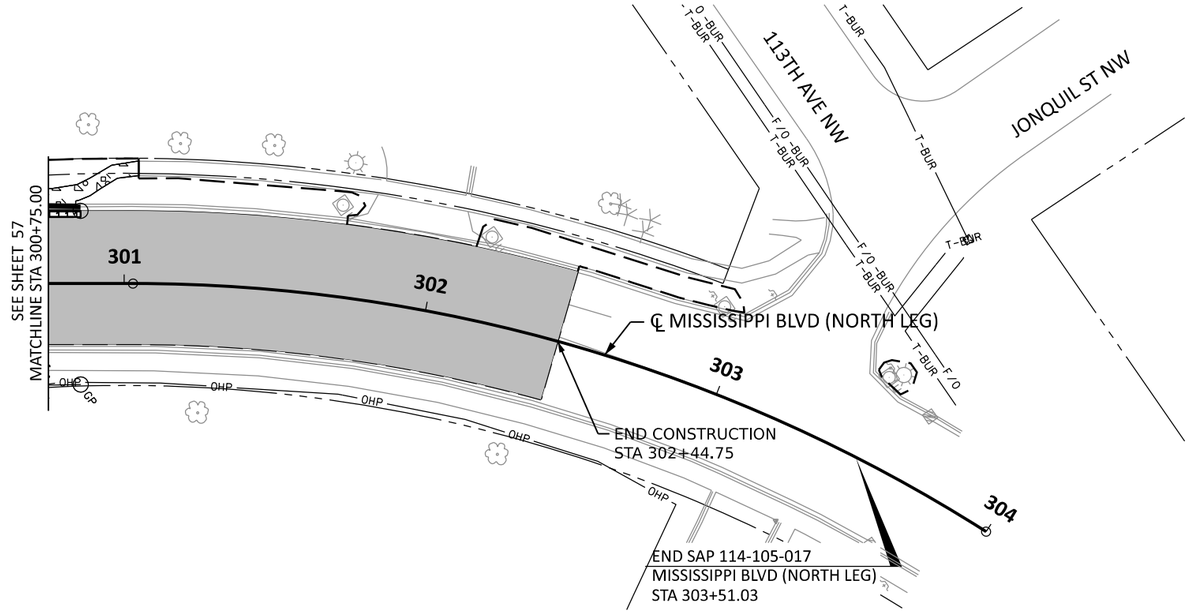
ANOKA COUNTY, MINNESOTA

REMOVAL PLAN
SP 002-601-057, SAP 114-105-017

SHEET **58** OF **103** SHEETS

PLOTTED/REVISED: 5/4/2023





SCALE IN FEET
0 25 50

LEGEND

- MILL BITUMINOUS SURFACE (1.5")
- MILL BITUMINOUS SURFACE (2.0")
- REMOVE BITUMINOUS PAVEMENT
- REMOVE PAVEMENT
- REMOVE CONCRETE MEDIAN
- REMOVE CONCRETE WALK
- REMOVE BITUMINOUS WALK
- REMOVE CONCRETE DRIVEWAY PAVEMENT
- REMOVE BITUMINOUS DRIVEWAY PAVEMENT
- REMOVE CURB & GUTTER
- CLEARING (BY OTHERS) GRUBBING (EACH)
- REMOVE LIGHT FOUNDATION SALVAGE LIGHITNG UNIT
- ① SAWCUT BITUMINOUS PAVEMENT (FULL DEPTH)
- CONSTRUCTION LIMITS
- INPLACE RIGHT OF WAY
- INPLACE PERMANENT EASEMENT

GENERAL NOTES

1. REMOVAL OF ALL AGGREGATE SURFACING REGARDLESS OF THICKNESS SHALL BE INCLUDED IN COMMON EXCAVATION.
2. ALL REMOVAL ITEMS SHALL BE DISPOSED OF OFF THE PROJECT SITE. (INCIDENTAL)
3. SAWCUTTING FOR CONCRETE CURB & GUTTER, CONCRETE WALK, AND BITUMINOUS WALK SHALL BE INCIDENTAL.
4. REMOVE CONCRETE MEDIAN PAID AS REMOVE CONCRETE WALK.
5. CLEARING OPERATIONS TO OCCUR PRIOR TO CONSTRUCTION BY OTHERS.

SCALE IN FEET
0 25 50

NO.	DATE	BY	CHK	REVISIONS

Design By: MAN-O
Plan By: BAC
Checked By: MAN-O
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MICHAEL NELSON-OSTROWSKI, PE

DATE 5/4/2023 LICENSE # 56160

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ANOKA COUNTY

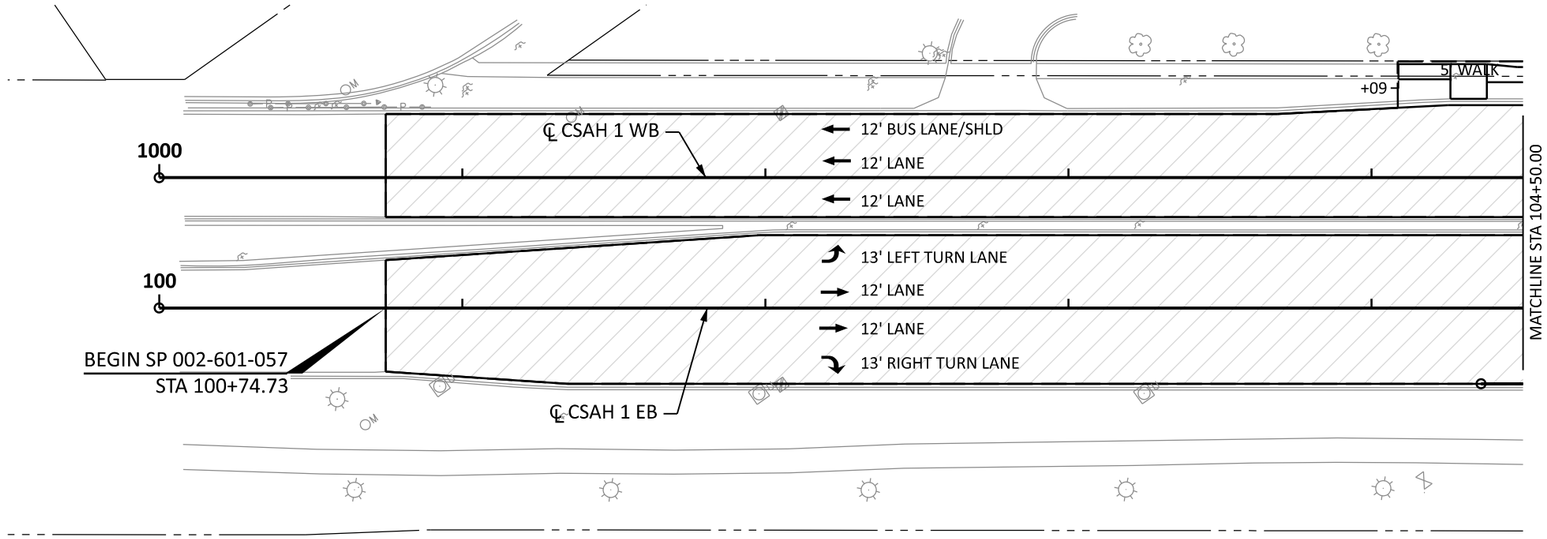
CSAH 1 Improvements
Anoka County, Minnesota

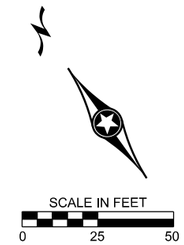
ANOKA COUNTY, MINNESOTA

REMOVAL PLAN
SP 002-601-057, SAP 114-105-017

SHEET 59 OF 103 SHEETS

PATH & FILENAME: K:\01\8837-000\Cad\Plan\01\8837-000_rem02.dgn



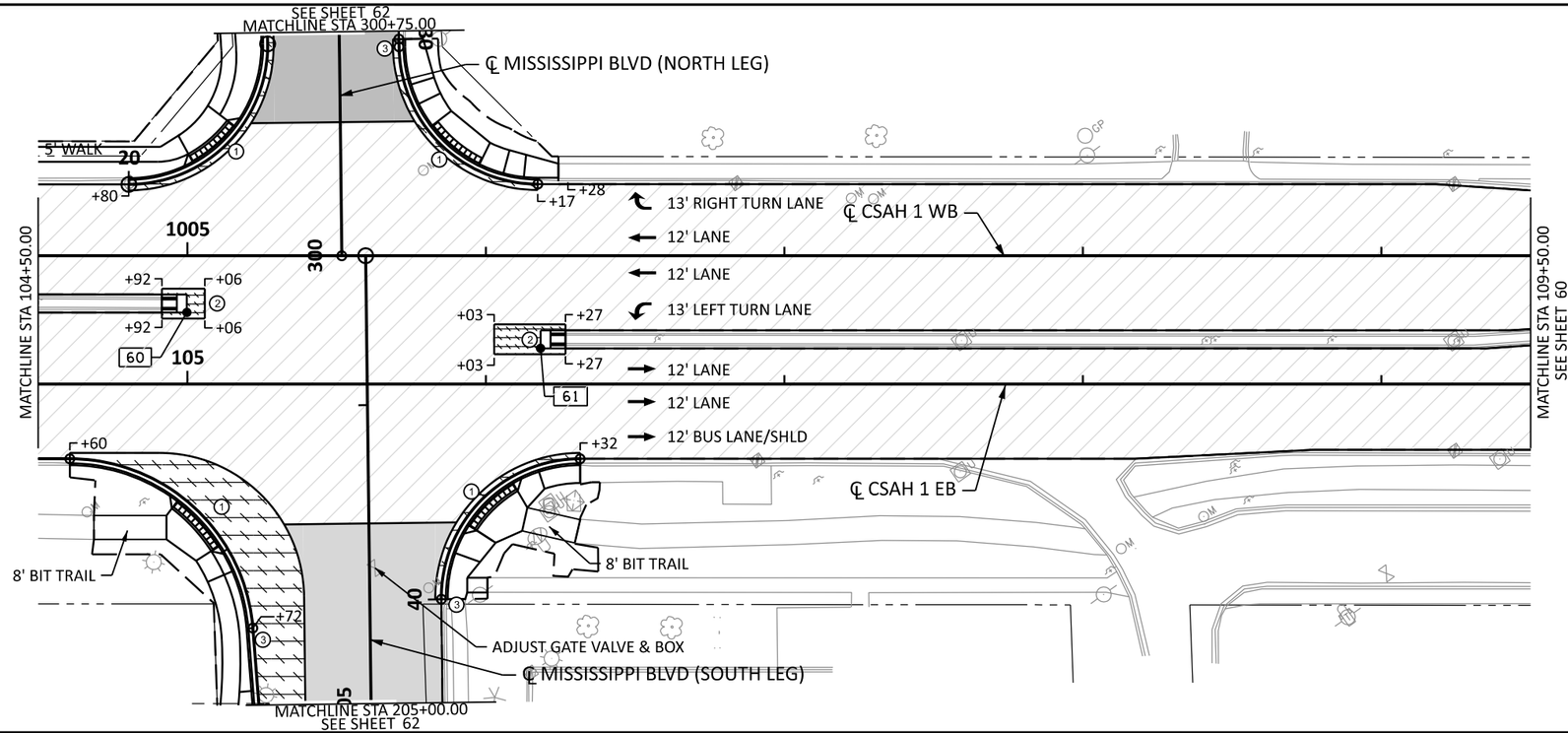


LEGEND

- 1.5" OVERLAY (MIX SPWEA340C)
- 2.0" OVERLAY (MIX SPWEB440C)
- 2.0" OVERLAY (MIX SPWEB340C)
- FULL DEPTH RECONSTRUCTION
- ① CONSTRUCT CONCRETE PEDESTRIAN CURB RAMP WITH TRUNCATED DOMES. SEE PEDESTRIAN RAMP DETAILS FOR MORE INFORMATION.
- ② CONSTRUCT CONCRETE MEDIAN NOSE PER STANDARD PLATE 7113.
- ③ 10' CURB TRANSITION SEE MISCELLANEOUS DETAILS
- TRAFFIC DIRECTION
- CONSTRUCTION LIMITS
- INPLACE R/W
- INPLACE PERM ESMT

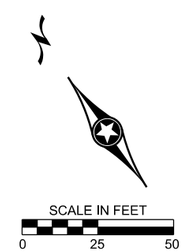
GENERAL NOTES

1. ALL DIMENSIONS ARE TO THE EDGE OF BITUMINOUS (PAVING WIDTHS) UNLESS OTHERWISE NOTED.
2. SEE MISCELLANEOUS DETAILS FOR MORE INFORMATION ON DRIVEWAYS.
3. ALL CONCRETE CURB & GUTTER SHALL BE B418 (OUTSIDE) OR B412 (MEDIAN) FOR CSAH 1 INCLUDING INTERSECTION QUADS.



CONTROL POINT

POINT NO.	X	Y
60	479381.7804	150958.1538
61	479471.2720	150879.5943



NO.	DATE	BY	CHK	REVISIONS

Design By: MAN-O
Plan By: BAC
Checked By: MAN-O
Approved By: MAN-O

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MICHAEL NELSON-OSTROWSKI, PE

DATE 5/4/2023 LICENSE # 56160

wsb

ANOKA COUNTY

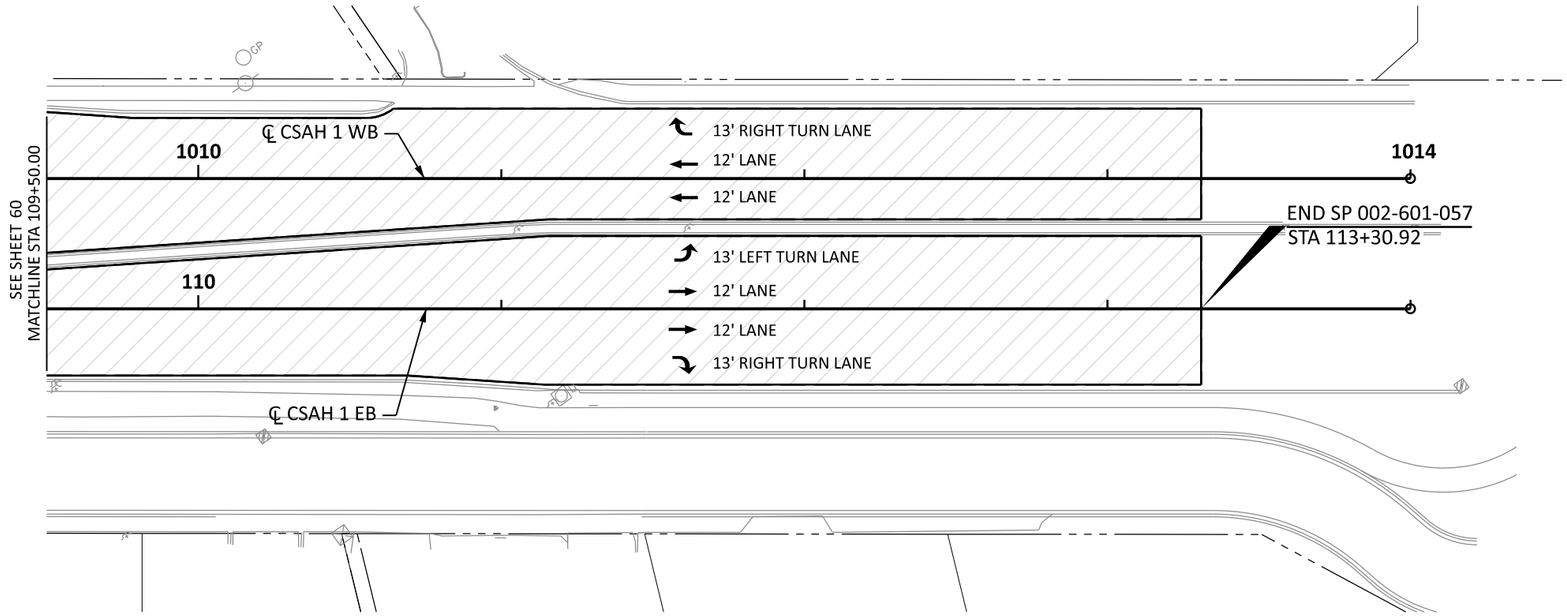
CSAH 1 Improvements
Anoka County, Minnesota

ANOKA COUNTY, MINNESOTA

CONSTRUCTION PLAN
SP 002-601-057, SAP 114-105-017

SHEET **60** OF **103** SHEETS

PLOTTED/REVISED: 5/4/2023



LEGEND

- 1.5" OVERLAY (MIX SPWEA340C)
- 2.0" OVERLAY (MIX SPWEB440C)
- 2.0" OVERLAY (MIX SPWEB340C)
- FULL DEPTH RECONSTRUCTION
- ① CONSTRUCT CONCRETE PEDESTRIAN CURB RAMP WITH TRUNCATED DOMES. SEE PEDESTRIAN RAMP DETAILS FOR MORE INFORMATION.
- ② CONSTRUCT CONCRETE MEDIAN NOSE PER STANDARD PLATE 7113.
- ③ 10' CURB TRANSITION SEE MISCELLANEOUS DETAILS
- TRAFFIC DIRECTION
- CONSTRUCTION LIMITS
- INPLACE R/W
- INPLACE PERM ESMT

GENERAL NOTES

1. ALL DIMENSIONS ARE TO THE EDGE OF BITUMINOUS (PAVING WIDTHS) UNLESS OTHERWISE NOTED.
2. SEE MISCELLANEOUS DETAILS FOR MORE INFORMATION ON DRIVEWAYS.
3. ALL CONCRETE CURB & GUTTER SHALL BE B418 (OUTSIDE) OR B412 (MEDIAN) FOR CSAH 1 INCLUDING INTERSECTION QUADS.

NO.	DATE	BY	CHK	REVISIONS

Design By: MAN-O
Plan By: BAC
Checked By: MAN-O
Approved By: MAN-O

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MICHAEL NELSON-OSTROWSKI, PE

DATE 5/4/2023 LICENSE # 56160

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ANOKA COUNTY

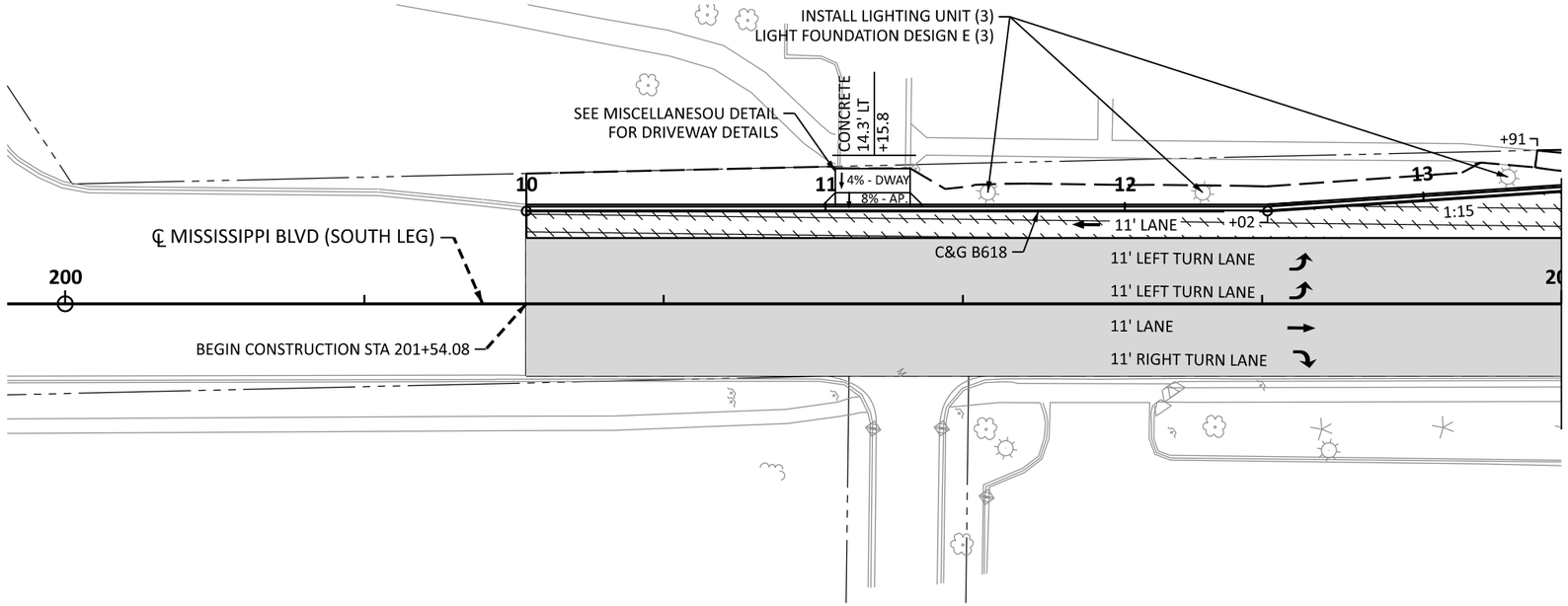
CSAH 1 Improvements
Anoka County, Minnesota

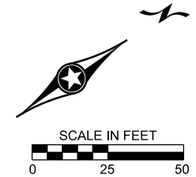
ANOKA COUNTY, MINNESOTA

CONSTRUCTION PLAN
SP 002-601-057, SAP 114-105-017

SHEET **61** OF **103** SHEETS

PATH & FILENAME: K:\0\8837-000\Cad\Plan\0\8837-000_cp01.dgn





LEGEND

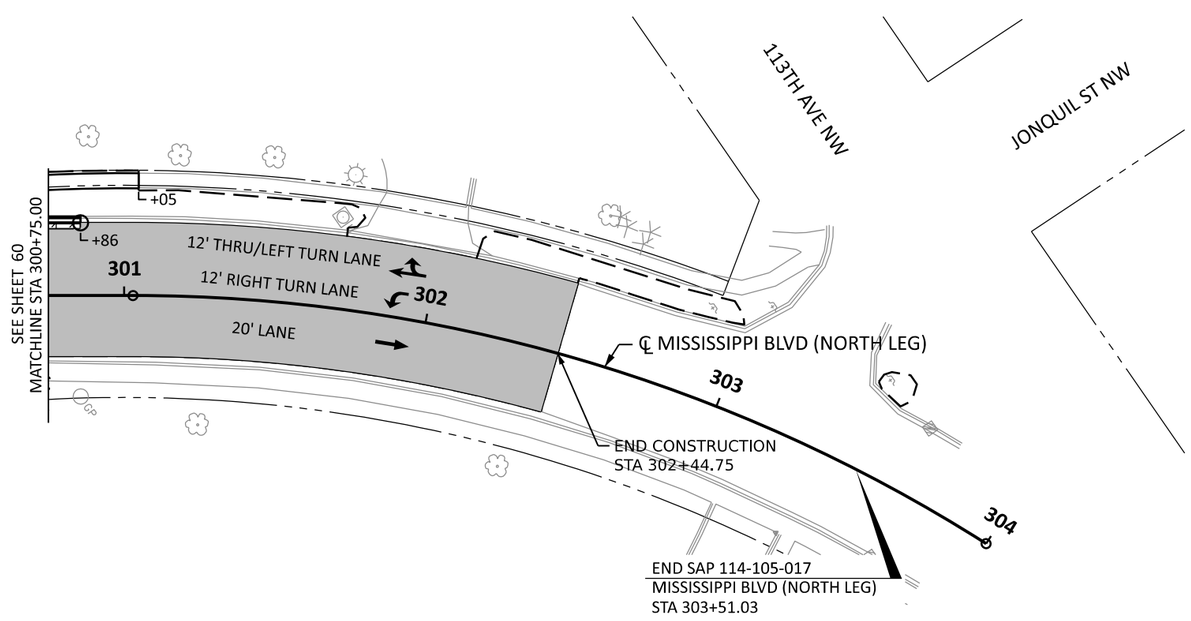
- 1.5" OVERLAY (MIX SPWEA340C)
- 2.0" OVERLAY (MIX SPWEB440C)
- 2.0" OVERLAY (MIX SPWEB340C)
- FULL DEPTH RECONSTRUCTION

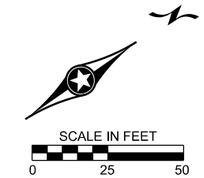
1. CONSTRUCT CONCRETE PEDESTRIAN CURB RAMP WITH TRUNCATED DOMES. SEE PEDESTRIAN RAMP DETAILS FOR MORE INFORMATION.
2. CONSTRUCT CONCRETE MEDIAN NOSE PER STANDARD PLATE 7113.
3. 10' CURB TRANSITION SEE MISCELLANEOUS DETAILS

- TRAFFIC DIRECTION
- CONSTRUCTION LIMITS
- INPLACE R/W
- INPLACE PERM ESMT

GENERAL NOTES

1. ALL DIMENSIONS ARE TO THE EDGE OF BITUMINOUS (PAVING WIDTHS) UNLESS OTHERWISE NOTED.
2. SEE MISCELLANEOUS DETAILS FOR MORE INFORMATION ON DRIVEWAYS.
3. ALL CONCRETE CURB & GUTTER SHALL BE B418 (OUTSIDE) OR B412 (MEDIAN) FOR CSAH 1 INCLUDING INTERSECTION QUADS.





NO.	DATE	BY	CHK	REVISIONS

Design By: MAN-O
Plan By: BAC
Checked By: MAN-O
Approved By: MAN-O

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MICHAEL NELSON-OSTROWSKI, PE

DATE 5/4/2023 LICENSE # 56160

wsb

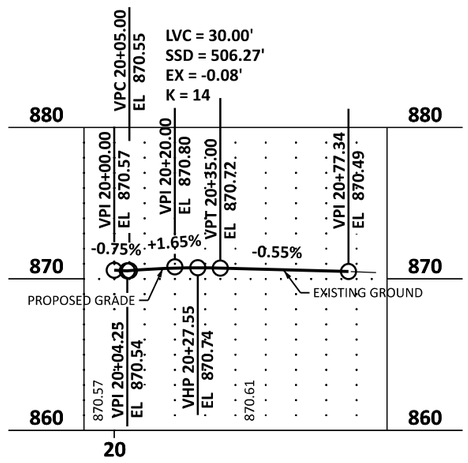
ANOKA COUNTY

CSAH 1 Improvements
Anoka County, Minnesota

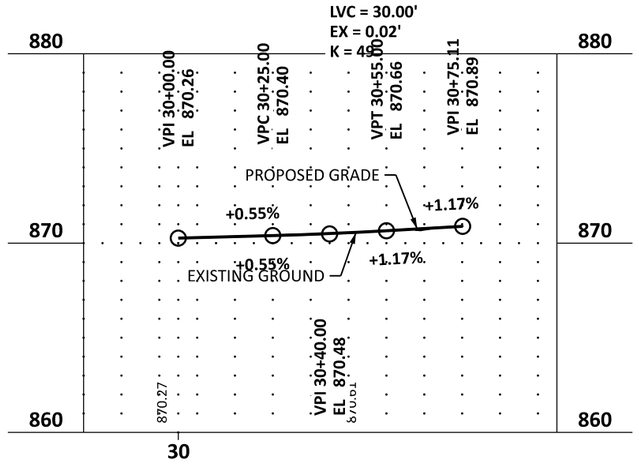
ANOKA COUNTY, MINNESOTA

CONSTRUCTION PLAN
SP 002-601-057, SAP 114-105-017

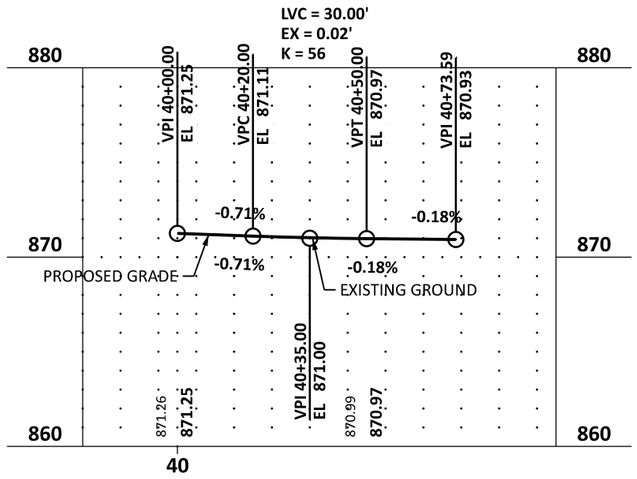
SHEET 62 OF 103 SHEETS



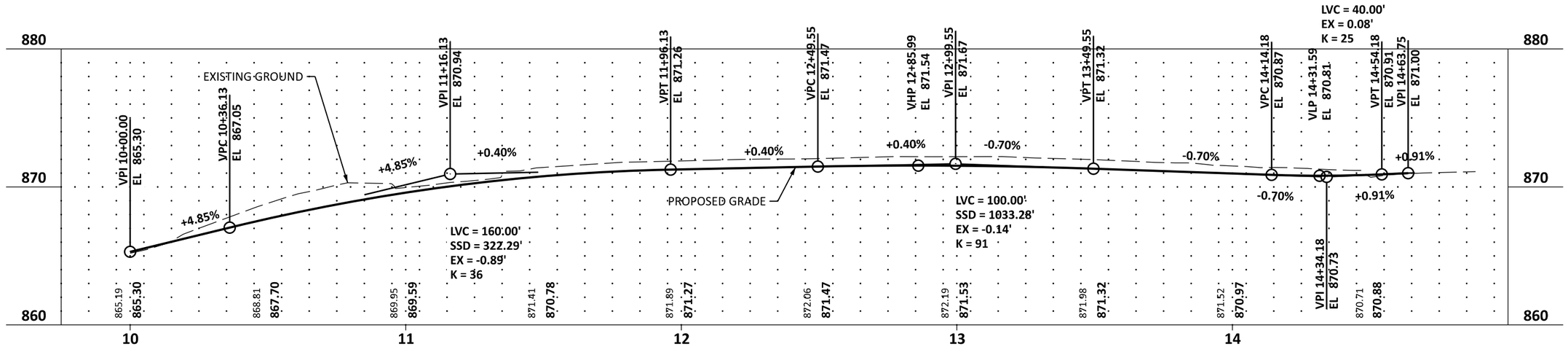
NW QUADRANT



NE QUADRANT



SE QUADRANT



SW QUADRANT

NO.	DATE	BY	CHK	REVISIONS

Design By: MAN-O
Plan By: BAC
Checked By: MAN-O
Approved By: MAN-O

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DATE 5/4/2023 LICENSE # 56160

wsb

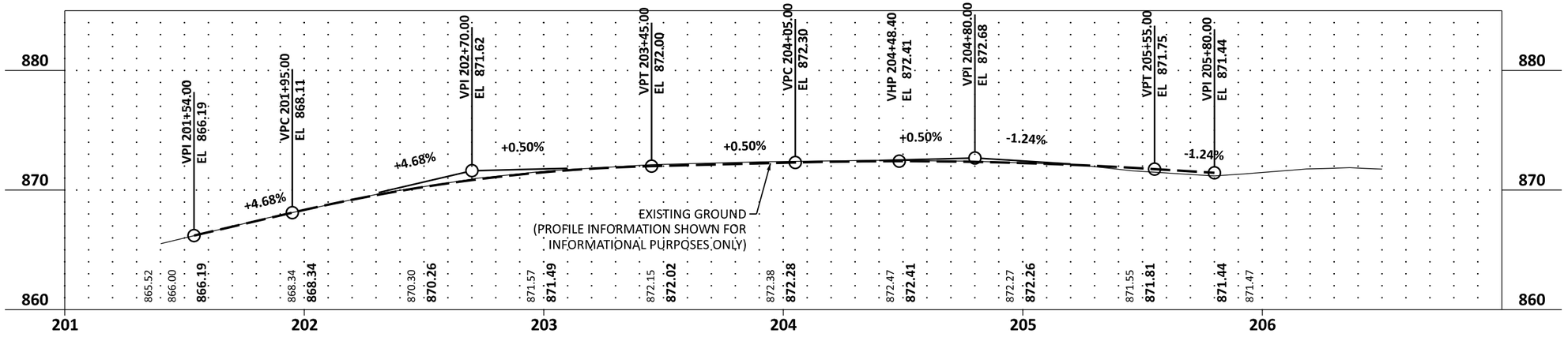
ANOKA COUNTY

CSAH 1 Improvements
Anoka County, Minnesota

ANOKA COUNTY, MINNESOTA

PROFILES
SP 002-601-057, SAP 114-105-017

SHEET 63 OF 103 SHEETS



LVC = 150.00'
SSD = 333.43'
EX = -0.78'
K = 36

LVC = 150.00'
SSD = 693.51'
EX = -0.33'
K = 86

MISSISSIPPI BLVD SOUTH LEG

NO.	DATE	BY	CHK	REVISIONS

Design By: MAN-O
Plan By: BAC
Checked By: MAN-O
Approved By: MAN-O

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MICHAEL NELSON-OSTROWSKI, PE

DATE 5/4/2023 LICENSE # 56160

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ANOKA COUNTY

CSAH 1 Improvements
Anoka County, Minnesota

ANOKA COUNTY, MINNESOTA

PROFILES
SP 002-601-057, SAP 114-105-017

SHEET 64 OF 103 SHEETS

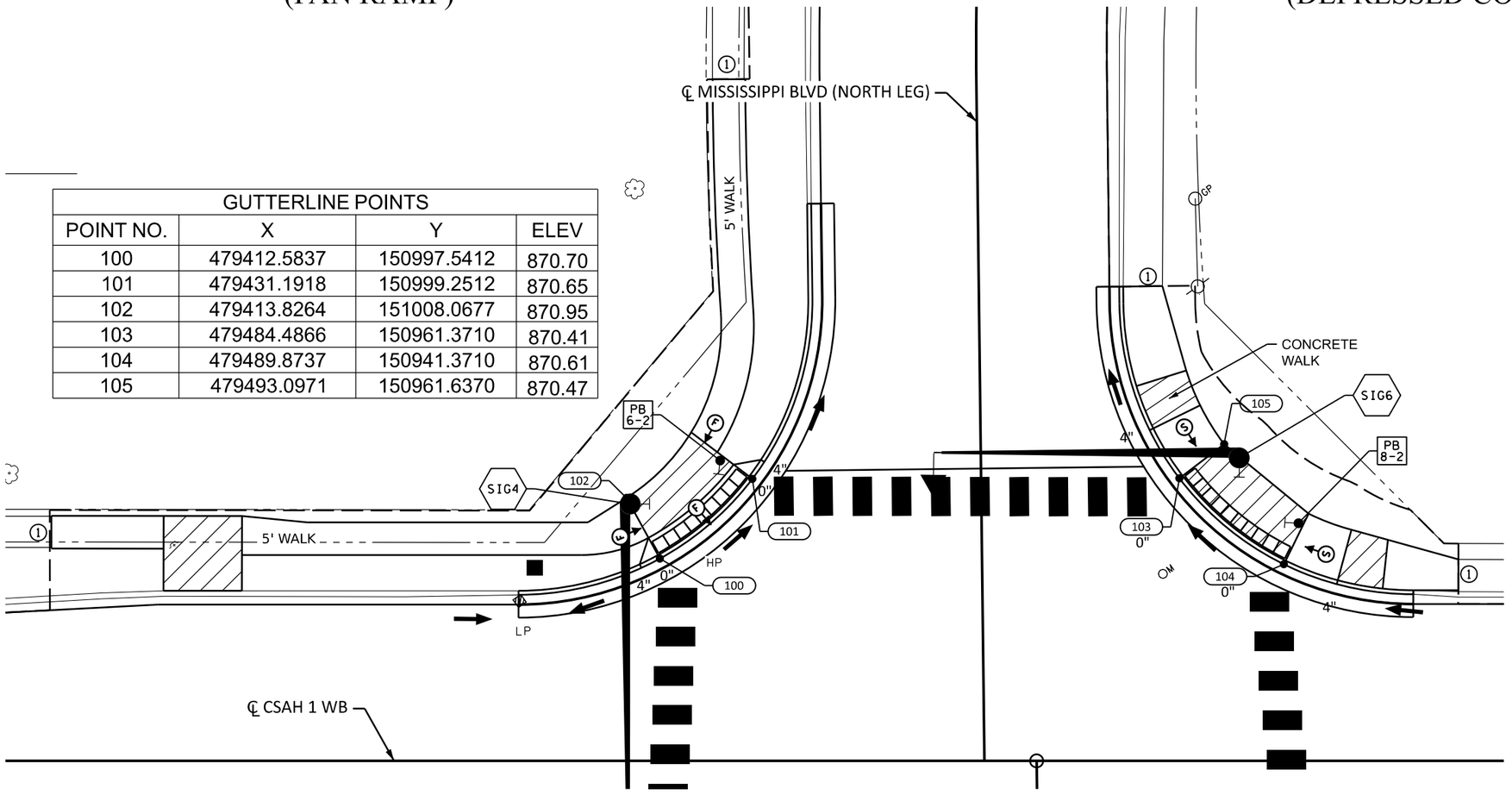
PLOTTED/REVISED: 5/5/2023

PATH & FILENAME: K:\01\88337-000\Cad\Plan\01l88337-000_ped01.dgn

NW QUADRANT (FAN RAMP)

NE QUADRANT (DEPRESSED CORNER)

SCALE IN FEET
0 10 20



GUTTERLINE POINTS			
POINT NO.	X	Y	ELEV
100	479412.5837	150997.5412	870.70
101	479431.1918	150999.2512	870.65
102	479413.8264	151008.0677	870.95
103	479484.4866	150961.3710	870.41
104	479489.8737	150941.3710	870.61
105	479493.0971	150961.6370	870.47

SIGNAL CONTROL POINTS			DISTANCE TO FRONT OF LANDING (FT)	DISTANCE TO BACK OF LANDING (FT)
POINT NO.	X	Y		
SIG4 (PB4-1)	479413.7426	151006.9802	6	1
PB6-2	479428.9015	151004.4573	2	6
SIG6 (PB6-1)	479493.7521	150958.5911	8.5	0
PB8-2	479495.3240	150945.1912	6	2

LEGEND

- XX — PED CONTROL POINTS (AT GUTTER FLOW LINE WHEN ON CURB LINE)
- XXX — PUSH BUTTON POINT
- XX — SIGNAL OR SIGNAL/PUSH BUTTON POINT
- TRUNCATED DOMES (SEE STANDARD PLATE 7038)
- CATCH BASIN
- X" — CURB HEIGHT
- CONSTRUCT CONCRETE CURB & GUTTER
- SIGNAL POLE
- PUSH BUTTON
- (S) — INDICATES PEDESTRIAN RAMP - SLOPE SHALL BE BETWEEN 5.0% MINIMUM AND 8.3% MAXIMUM IN THE DIRECTION SHOWN AND CROSS SLOPE SHALL NOT EXCEED 2.0%.
- (F) — INDICATES PEDESTRIAN RAMP - SLOPE SHALL BE GREATER THAN 2.0% AND LESS THAN 5.0% IN THE DIRECTION SHOWN AND CROSS SLOPE SHALL NOT EXCEED 2.0%.
- LANDING AREA - 4' X 4' MIN. DIMENSIONS AND MAX 2.0% SLOPE IN ALL DIRECTIONS.
- EXISTING R/W
- EXISTING PERM ESMT
- (1) — TIE INTO EXISTING CONCRETE SIDEWALK.
- (2) — TIE INTO EXISTING BITUMINOUS WALKWAY.
- HP — HIGH POINT
- LP — LOW POINT
- DRAINAGE FLOW ARROW

NOTES

1. SEE STANDARD PLANS 5-297.250 FOR PEDESTRIAN CURB RAMP DETAILS.

NO.	DATE	BY	CHK	REVISIONS

Design By: MAN-O
Plan By: BAC
Checked By: MAN-O
Approved By: MAN-O

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DATE 5/5/2023 LICENSE # 56160

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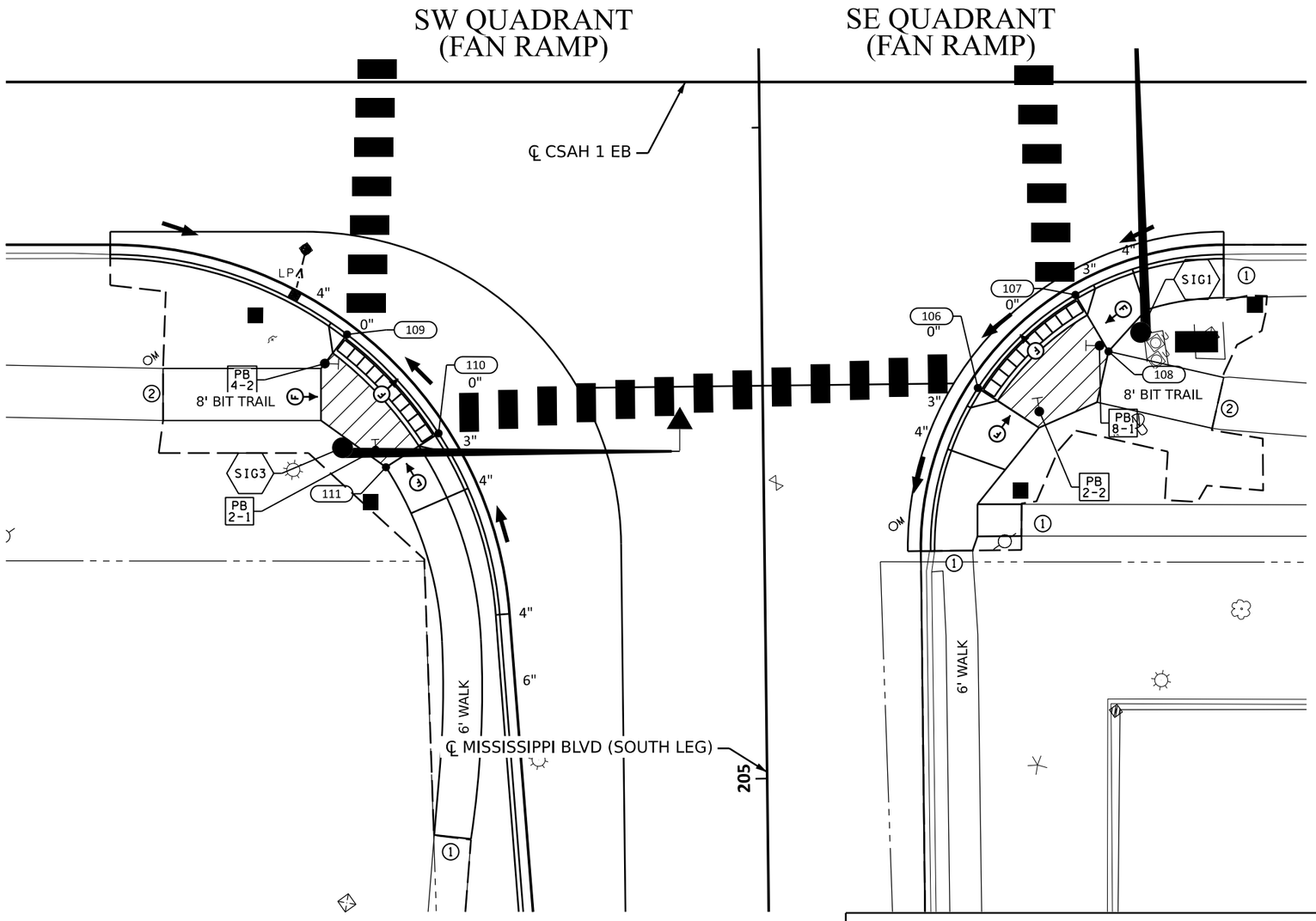
ANOKA COUNTY

CSAH 1 Improvements
Anoka County, Minnesota

ANOKA COUNTY, MINNESOTA

PED RAMP & INTERSECTION DETAILS
SP 002-601-057, SAP 114-105-017

SHEET 65 OF 103 SHEETS



SCALE IN FEET
0 10 20

GUTTERLINE POINTS			
POINT NO.	X	Y	ELEV
106	479417.0928	150845.7722	871.03
107	479437.5970	150848.7218	870.95
108	479436.7033	150838.6917	871.20
109	479343.0137	150908.7048	870.79
110	479345.6358	150888.1758	870.92
111	479336.0315	150888.6207	871.17

SIGNAL CONTROL POINTS			DISTANCE TO FRONT OF LANDING (FT)	DISTANCE TO BACK OF LANDING (FT)
POINT NO.	X	Y		
SIG1	479442.4122	150838.2047	-	-
PB2-2	479422.6896	150837.3116	6	2
PB8-1	479436.0854	150840.2077	5	1.5
SIG3	479332.3440	150894.9357	-	-
PB2-1	479336.3000	150891.7430	5.5	1.5
PB4-2	479337.6704	150907.0063	2	1

LEGEND

- (XX) PED CONTROL POINTS (AT GUTTER FLOW LINE WHEN ON CURB LINE)
- (XXX) PUSH BUTTON POINT
- (XX) SIGNAL OR SIGNAL/PUSH BUTTON POINT
- TRUNCATED DOMES (SEE STANDARD PLATE 7038)
- CATCH BASIN
- X" CURB HEIGHT
- CONSTRUCT CONCRETE CURB & GUTTER
- SIGNAL POLE
- PUSH BUTTON
- (S) INDICATES PEDESTRIAN RAMP - SLOPE SHALL BE BETWEEN 5.0% MINIMUM AND 8.3% MAXIMUM IN THE DIRECTION SHOWN AND CROSS SLOPE SHALL NOT EXCEED 2.0%.
- (F) INDICATES PEDESTRIAN RAMP - SLOPE SHALL BE GREATER THAN 2.0% AND LESS THAN 5.0% IN THE DIRECTION SHOWN AND CROSS SLOPE SHALL NOT EXCEED 2.0%.
- LANDING AREA - 4' X 4' MIN. DIMENSIONS AND MAX 2.0% SLOPE IN ALL DIRECTIONS.
- EXISTING R/W
- EXISTING PERM ESMT
- (1) TIE INTO EXISTING CONCRETE SIDEWALK.
- (2) TIE INTO EXISTING BITUMINOUS WALKWAY.
- HP HIGH POINT
- LP LOW POINT
- DRAINAGE FLOW ARROW

NOTES

1. SEE STANDARD PLANS 5-297.250 FOR PEDESTRIAN CURB RAMP DETAILS.

NO.	DATE	BY	CHK	REVISIONS

Design By: MAN-O
Plan By: BAC
Checked By: MAN-O
Approved By: MAN-O

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MICHAEL NELSON-OSTROWSKI, PE

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ANOKA COUNTY

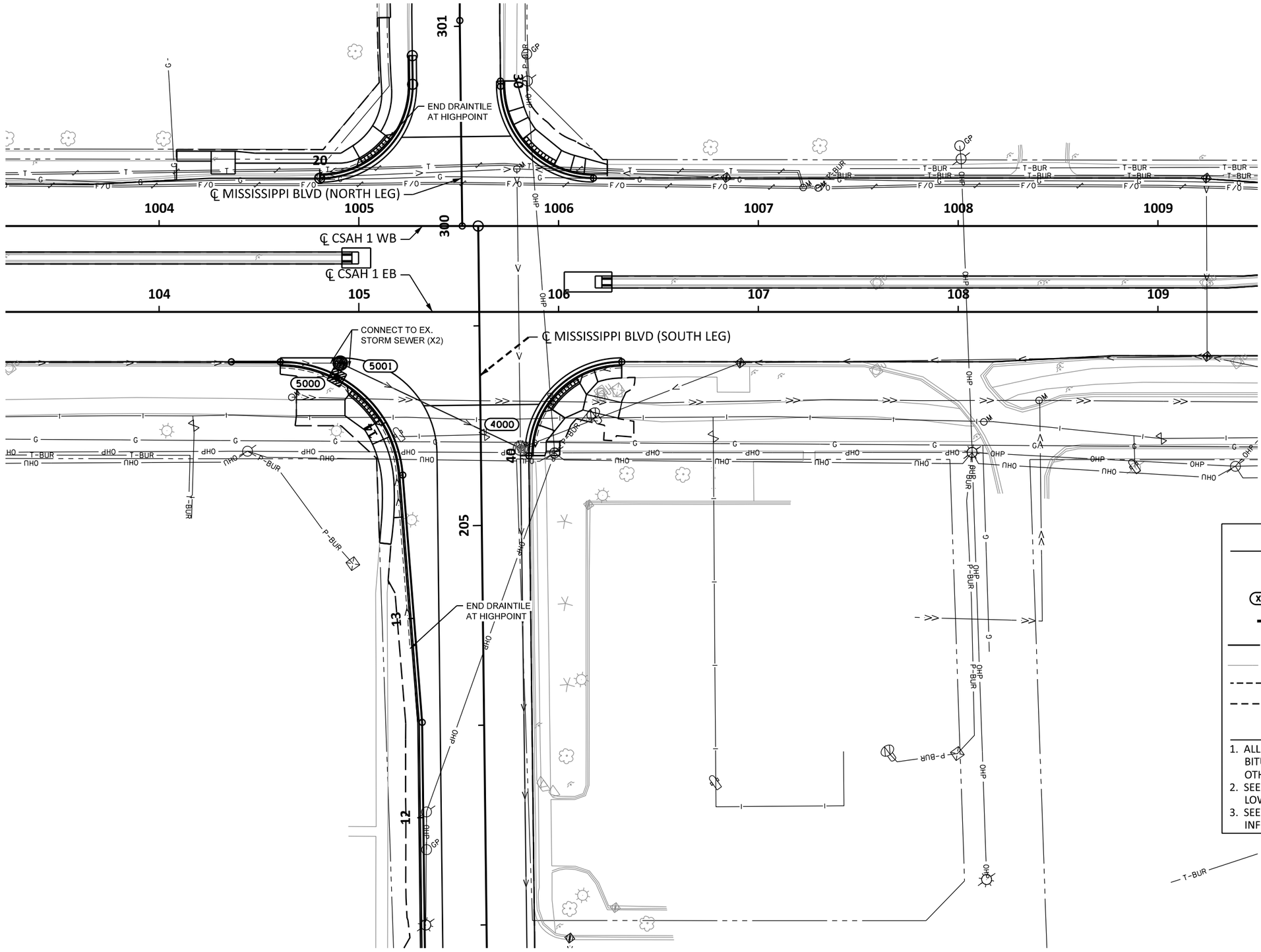
CSAH 1 Improvements
Anoka County, Minnesota

ANOKA COUNTY, MINNESOTA

PED RAMP & INTERSECTION DETAILS
SP 002-601-057, SAP 114-105-017

SHEET 66 OF 103 SHEETS

PLOTTED/REVISED: 5/4/2023



LEGEND

- CATCH BASIN
- MANHOLE
- XXXX STRUCTURE
- SURFACE FLOW DIRECTION
- STORM SEWER PIPE
- INPLACE STORM SEWER
- DRAINTILE
- CONSTRUCTION LIMITS

GENERAL NOTES

1. ALL DIMENSIONS ARE TO THE EDGE OF BITUMINOUS (PAVING WIDTHS) UNLESS OTHERWISE NOTED.
2. SEE ROADWAY PROFILE FOR ALL HIGH AND LOW POINTS.
3. SEE MISCELLANEOUS DETAIL FOR MORE INFORMATION ON DRAINTILE.

NO.	DATE	BY	CHK	REVISIONS

Design By: GT
Plan By: GT
Checked By: EE
Approved By: EE

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EARTH A. EVANS, PE

DATE 5/4/2023 LICENSE # 44235

wsb

ANOKA COUNTY

CSAH 1 Improvements
Anoka County, Minnesota

ANOKA COUNTY, MINNESOTA

DRAINAGE PLAN
SP 002-601-057, SAP 114-105-017

SHEET 67 OF 103 SHEETS

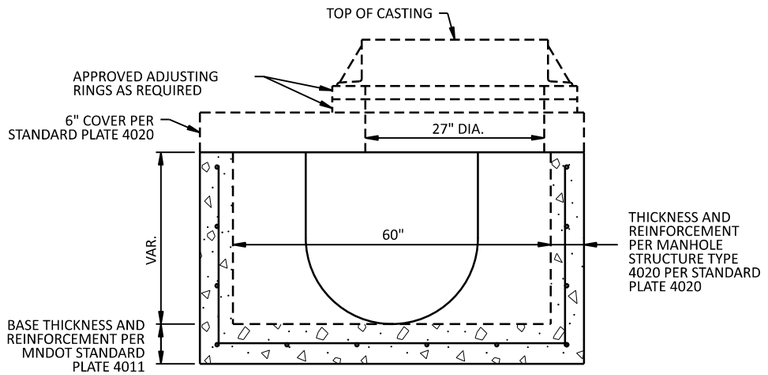
PATH & FILENAME: K:\0\8837-000\Cad\Plan\0\8837-000_dp0.dgn

PLOTTED/REVISED: 5/4/2023

DRAINAGE TABULATION

STRUCTURE NO.		STRUCTURE LOCATION			COORDINATES		DRAINAGE STRUCTURES			CONNECT TO EXISTING	TOP OF	OUTLET	INLET	15" RCP	REMARKS
							PAY HEIGHT		CASTING	STORM SEWER	CASTING	ELEV.	ELEV.		
FLOWS FROM	FLOWS TO	ALIGN.	STATION	OFFSET	X	Y	H	SD-60	ASSEMBLY		ELEV				
							LIN FT	LIN FT	TYPE	EACH				LIN FT	
5000	5001	CSAH1_EB	104+89.00	32.7 RT	479340.02	150918.29	3.8		B - 9		870.90	867.00	866.80	7	
5001	4000	CSAH1_EB	104+90.69	25.7 RT	479345.46	150923.01		4.2	A - 7D	2	870.50	866.45	865.83		
				TOTAL			3.8	4.2		2				7	

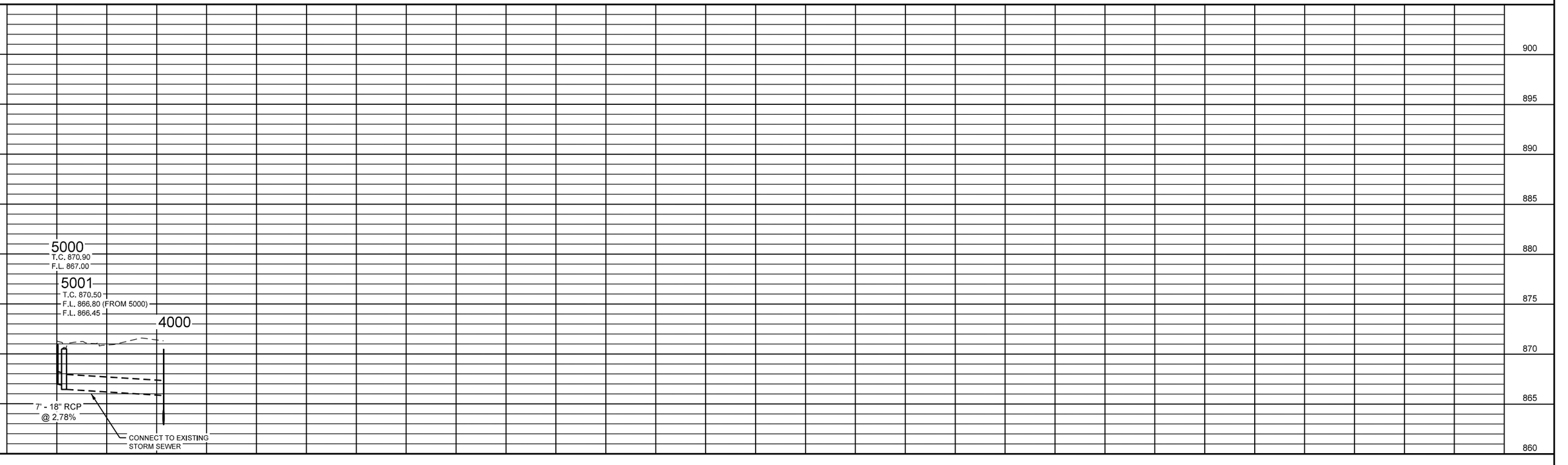
GENERAL NOTES:
- STATIONS, OFFSETS, AND ELEVATIONS ARE GIVEN TO CENTER OF FRAME FOR ALL STORM STRUCTURES (TOP OF CASTING ELEVATIONS).
- PAY HEIGHTS ARE FROM BOTTOM OF CASTING TO INVERT, PLUS 0.7'.
- RC PIPE IS DES 3006 GASKET JOINT PIPE.
- STEPS REQUIRED WHEN DEPTH FROM TOP OF CASTING TO STRUCTURE INVERT IS GREATER THAN 4.5'.
- FLOWLINE (F.L.), OUTLET, AND INLET ELEVATIONS ARE AT CENTER OF STRUCTURE.
- TIE ALL PIPE JOINTS FOR SEWER PIPE FOR APRONS TO FIRST STRUCTURE (INCIDENTAL)



NOTES: SEE MNDOT STANDARD PLATE 4024 FOR ADDITIONAL INFORMATION.

DRAINAGE STRUCTURE DESIGN SD-60

NO SCALE



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Design By: GT
Plan By: GT
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EARTH A. EVANS, PE

DATE 5/4/2023 LICENSE # 44235

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ANOKA COUNTY

CSAH 1 Improvements
Anoka County, Minnesota

ANOKA COUNTY, MINNESOTA

DRAINAGE PROFILE AND TABULATIONS

SP 002-601-057, SAP 114-105-017

SHEET **68** OF **103** SHEETS

PLOTTED/REVISED: 5/4/2023

STORM SEWER SUMMARY		G
ITEM	UNIT	TOTALS
15" RC PIPE SEWER DESIGN 3006 CLASS V	LIN FT	7
CONNECT TO EXISTING STORM SEWER	EACH	2

DRAINAGE STRUCTURE SUMMARY		H
ITEM	UNIT	TOTALS
CONST DRAINAGE STRUCTURE DESIGN H	LIN FT	3.8
CONST DRAINAGE STRUCTURE DESIGN SD-60	LIN FT	4.2
CASTING ASSEMBLY	EACH	2

CASTING ASSEMBLY SUMMARY						
ASSEMBLY	RING OR FRAME	COVER OR GRATE	CURB BOX	STANDARD PLATE NUMBER	USE	TOTALS
B - 9	805	816		4132 4154	CATCH BASIN	1
A - 7D	700-7	715		4101 4110	MANHOLE	1
					TOTAL	2

NOTES:
- UNLESS OTHERWISE NOTED ALL ITEMS SHALL BE FEDERAL ELIGIBLE SP 002-601-057 (ANOKA COUNTY).

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CSAH 1 Improvements
Anoka County, Minnesota

ANOKA COUNTY, MINNESOTA

DRAINAGE PROFILE AND TABULATIONS
SP 002-601-057, SAP 114-105-017

SHEET **69** OF **103** SHEETS

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PLOTTED/REVISED: 5/4/2023

TURF ESTABLISHMENT & EROSION CONTROL NOTES

1. SEDIMENT CONTROL MUST BE IN PLACE AND APPROVED BY ENGINEER BEFORE ANY PHASE OF CONSTRUCTION CAN BEGIN.
2. TEMPORARY STABILIZATION MEASURES SHALL BE EMPLOYED WITHIN 200' OF THE NORMAL WETTED PERIMETER OF ALL DISCHARGE POINTS WITHIN 24 HOURS. MULCH IS NOT AN APPROVED MEASURE.
3. IN THE EVENT THAT PERMANENT STABILIZATION CANNOT BE IMPLEMENTED WITHIN 7 DAYS AFTER CONSTRUCTION ACTIVITY IN THE DISTURBED AREA HAS CEASED, TEMPORARY STABILIZATION BMPS MUST BE SCHEDULED TO OCCUR WITHIN THAT 7 DAY TIME FRAME (EXCEPT WHERE CALLED OUT BY NOTE 2).
4. ALL STOCKPILES MUST HAVE DOWN GRADIENT PERIMETER SEDIMENT CONTROL IMPLEMENTED AND MAINTAINED AT ALL TIMES. STOCKPILES TO RECEIVE TEMPORARY STABILIZATION IF UNWORKED FOR 7 DAYS.
5. STOCKPILES MAY NOT BE PLACED WITHIN ANY DRAINAGE OR CURB LINE UNLESS PROPER BYPASS IS INSTALLED PRIOR TO STOCKPILE PLACEMENT.
6. STABILIZATION OF DISTURBED AREAS SHALL BE DONE BY PERMANENT TURF ESTABLISHMENT WHENEVER POSSIBLE.
7. IN THE EVENT THAT DEWATERING OPERATIONS NEED TO OCCUR, A DEWATERING PLAN MUST BE SUBMITTED AND APPROVED BY THE ENGINEER BEFORE ANY OPERATIONS TAKE PLACE. THE PLAN MUST BE DEVELOPED IN ACCORDANCE WITH THE SWPPP GUIDELINES.
8. A ROCK CONSTRUCTION ENTRANCE WILL BE PLACED AT ALL ENTRANCES THAT LEAD TO THE PROJECT SITE IN ACCORDANCE WITH THE STORMWATER POLLUTION PREVENTION PLAN AND THE APPROVED STANDARD DETAILS.
9. SLURRY FROM CONCRETE OPERATIONS MUST BE VACUUMED UP IMMEDIATELY. NO CONCRETE WASHOUT SHALL COME IN CONTACT WITH THE GROUND AND MUST BE PROPERLY DISPOSED OF.
10. ALL HAZARDOUS MATERIALS MUST BE KEPT UNDER COVER AND WITHIN PROPER CONTAINMENT WHEN NOT IN USE.
11. A SIGN MUST BE INSTALLED ADJACENT TO EACH CONCRETE WASHOUT FACILITY.
12. THE CONTRACTOR IS TO AMEND THE ESC SHEETS TO SHOW THE LOCATIONS OF PROPOSED STOCKPILE LOCATIONS, STAGING/EQUIPMENT PARKING AREAS, AND POTENTIAL /EQUIPMENT FUELING AREAS, ETC.
13. A NPDES PERMIT OR SWPPP IS NOT REQUIRED FOR THIS PROJECT BASED ON THE DISTURBED AREA, HOWEVER THE REQUIREMENTS WITHIN THE STANDARD LANGUAGE OF THE SWPPP SHALL BE REQUIRED OF THE CONTRACTOR.
14. ALL EXPOSED SOILS, NOT COVERED WITH PERMANENT STABILIZATION WITHIN 7 DAYS OF COMPLETION OF CONSTRUCTION ACTIVITY, SHALL BE COVERED WITH STABILIZATION METHOD 3.
15. ALL AREAS DISTURBED BY THE CONTRACTOR OUTSIDE THE CONSTRUCTION LIMITS SHALL BE RESTORED AT THE CONTRACTORS EXPENSE.
16. SILT FENCE SHALL FOLLOW, AS CLOSE AS POSSIBLE, TO A SINGLE CONTOUR. IF SEDIMENT DEPOSITS IN WATERS OF THE STATE, THE MATERIAL MUST BE REMOVED IN 7 DAYS.

LEGEND

- MS — SILT FENCE, TYPE MS
- STORM DRAIN INLET PROTECTION
- STABILIZED CONSTRUCTION EXIT
- SURFACE DRAINAGE DIRECTION
- PERMANENT:
  HYDRAULIC STABILIZED
  FIBER MATRIX
  (3000 LBS/ACRE)
  SEED MIXTURE 25-131
  (220 LBS/ACRE)
  FERTILIZER TYPE 3
  (350 LBS/ACRE)
- TEMPORARY:
  RAPID STABILIZATION
  METHOD 3

NO.	DATE	BY	CHK	REVISIONS

Design By: MAN-O
Plan By: BAC
Checked By: MAN-O
Approved By: MAN-O

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MICHAEL NELSON-OSTROWSKI, PE

DATE 5/4/2023 LICENSE # 56160

wsb

ANOKA COUNTY

CSAH 1 Improvements
Anoka County, Minnesota

ANOKA COUNTY, MINNESOTA

TURF ESTABLISHMENT & EROSION CONTROL
SP 002-601-057, SAP 114-105-017

SHEET **70** OF **103** SHEETS

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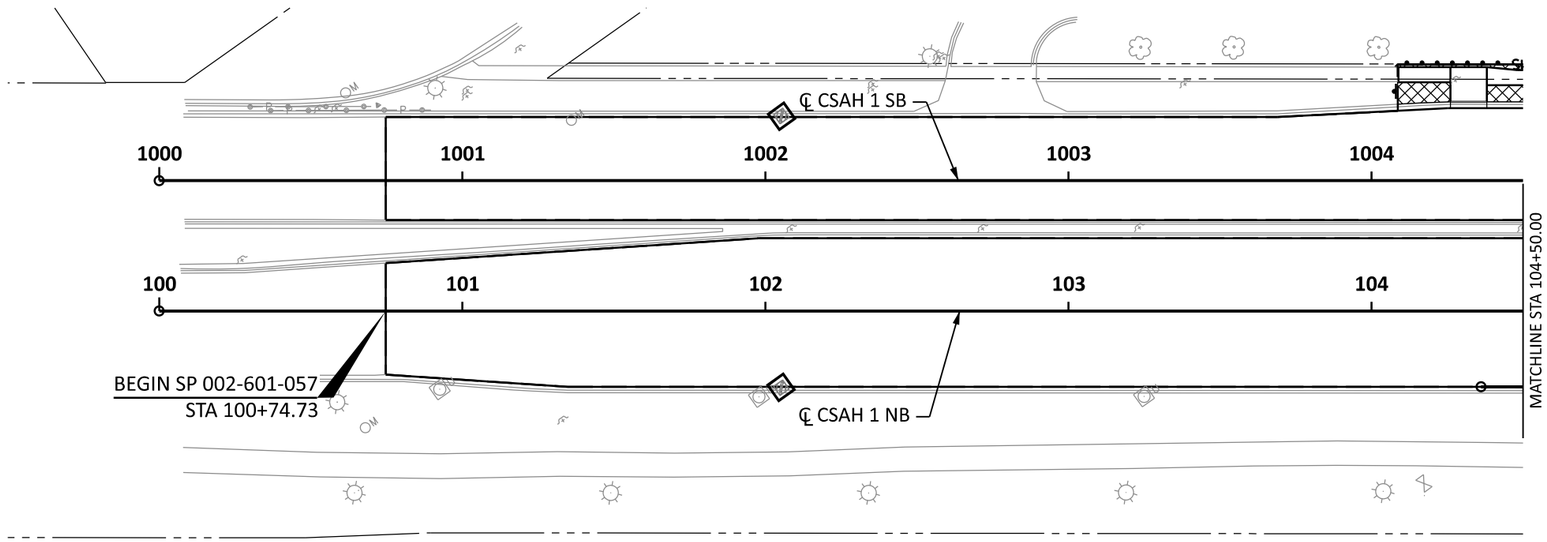

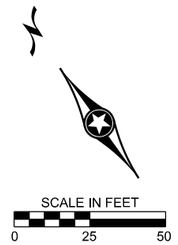

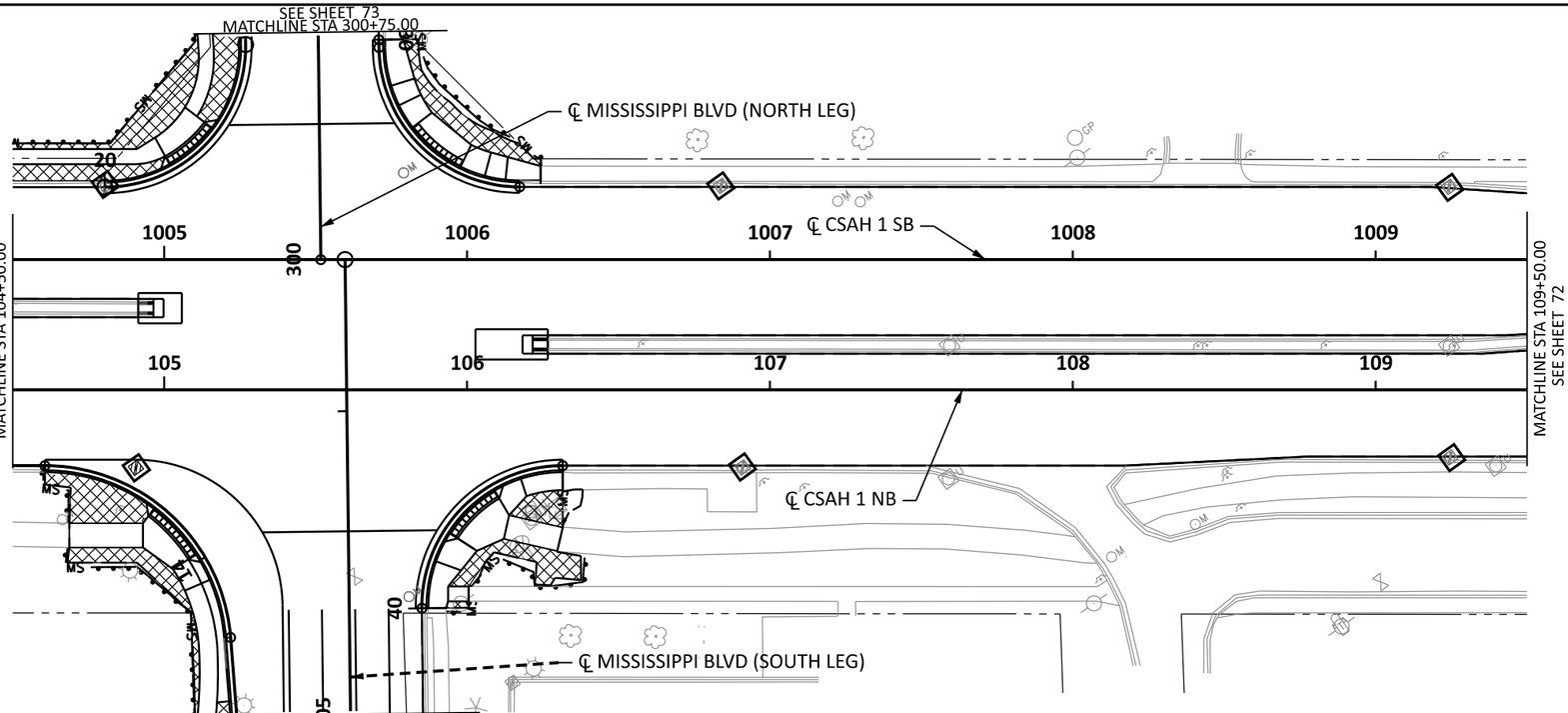

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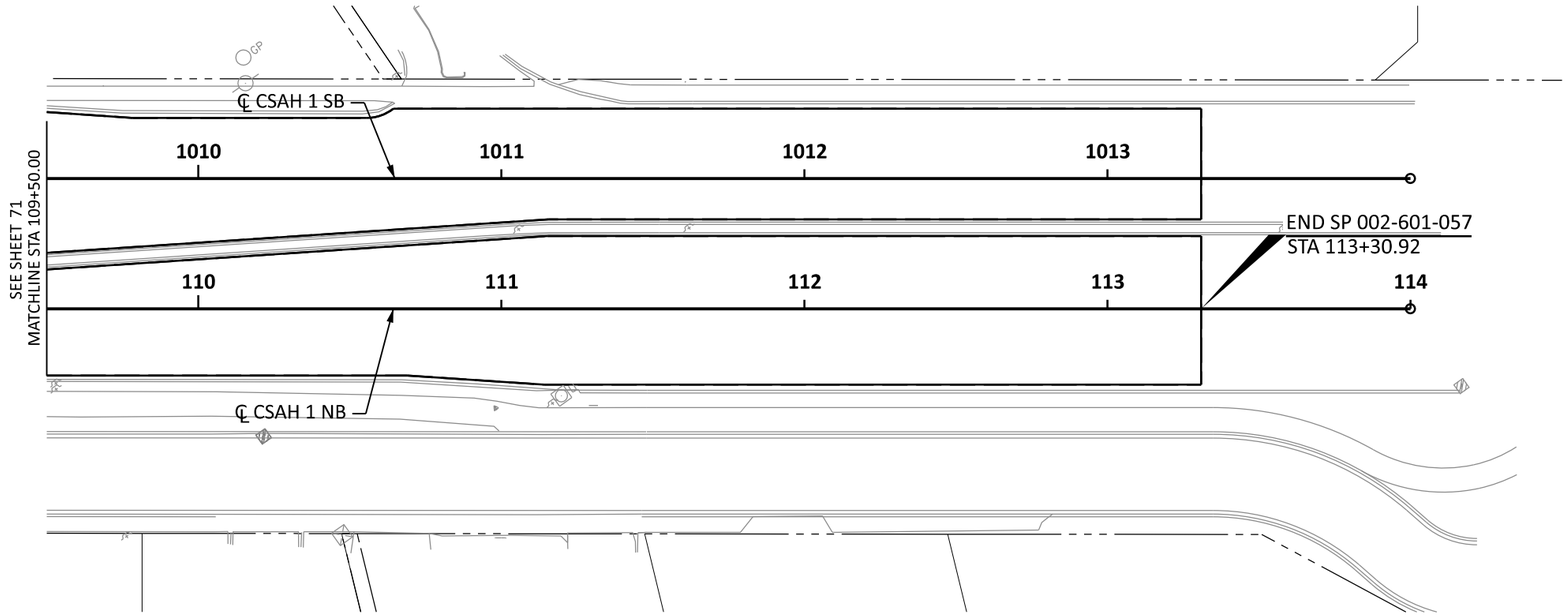
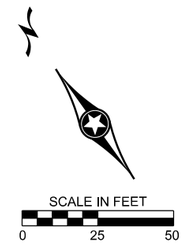
CSAH 1 Improvements
Anoka County, Minnesota

ANOKA COUNTY, MINNESOTA

TURF ESTABLISHMENT & EROSION CONTROL
SP 002-601-057, SAP 114-105-017

SHEET **71** OF **103** SHEETS





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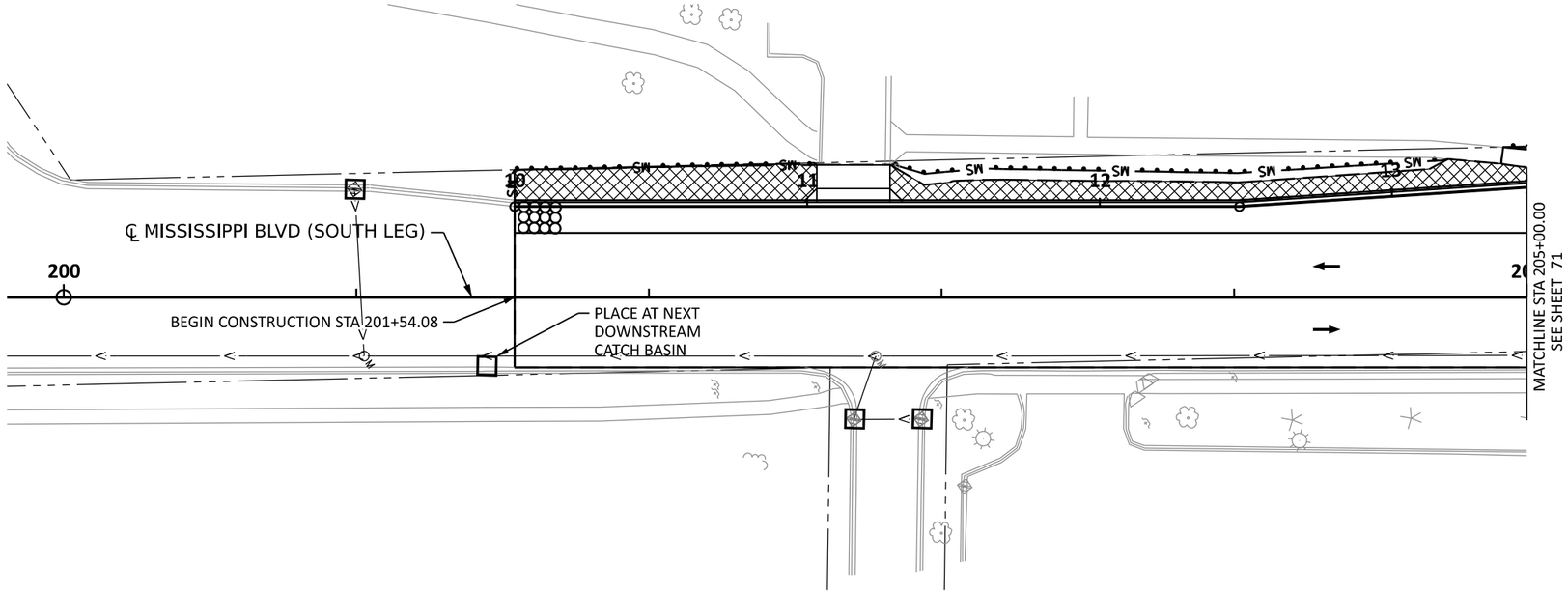
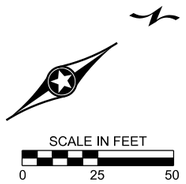
ANOKA COUNTY, MINNESOTA

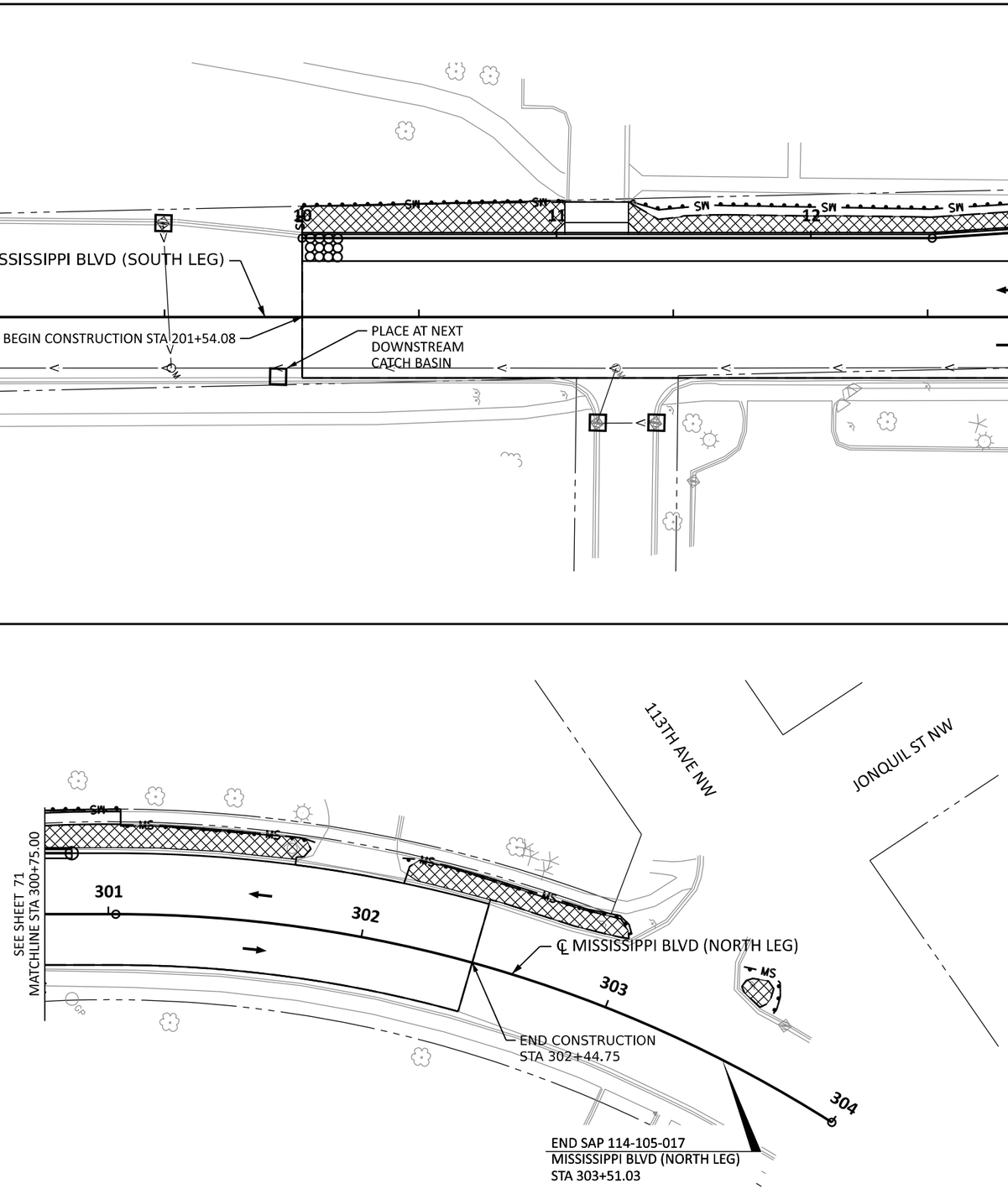
TURF ESTABLISHMENT & EROSION CONTROL
SP 002-601-057, SAP 114-105-017

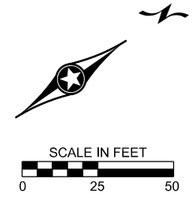
SHEET **72** OF **103** SHEETS

PLOTTED/REVISED: 5/4/2023









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ANOKA COUNTY

CSAH 1 Improvements
Anoka County, Minnesota

ANOKA COUNTY, MINNESOTA

TURF ESTABLISHMENT & EROSION CONTROL
SP 002-601-057, SAP 114-105-017

SHEET 73 OF 103 SHEETS

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PLOTTED/REVISED: 5/4/2023

PAVEMENT MARKING TABULATION

I

LOCATION	MULTI-COMPONENT					PREFORM THERMOPLASTIC					
	4" SOLID LINE		4" BROKEN LINE	4" DOTTED LINE (1)	4" DOUBLE SOLID LINE	24" SOLID LINE	PAVEMENT MESSAGE				CROSSWALK (2)
	WHITE	YELLOW	WHITE	WHITE	YELLOW	WHITE	LEFT ARROW	RIGHT ARROW	THRU/RIGHT	HOV	
	LIN FT	LIN FT	LIN FT	LIN FT	LIN FT	LIN FT	SQ FT	SQ FT	SQ FT	SQ FT	SQ FT
FEDERAL PARTICIPATING											
SP 002-601-057 (ANOKA COUNTY)											
CSAH 1 (COON RAPIDS BLVD)											
STA 104+50 TO STA 109+50						183					648
SP 002-601-057 (ANOKA COUNTY) SUBTOTAL						183					648
NON-FEDERAL PARTICIPATING											
COUNTY FUNDS											
CSAH 1 (COON RAPIDS BLVD)											
STA 100+74.73 TO STA 104+50	1319	752	152								
STA 104+50 TO STA 109+50	1813	790	154	27							
STA 109+50 TO STA 113+30.92	1210	762	154								
ANOKA COUNTY SUBTOTAL	6646		460	27							
SAP 114-105-017 (CITY OF COON RAPIDS)											
MISSISSIPPI BLVD (SOUTH LEG)											
STA 201+54.08 TO STA 205+00	828				566		31	31			
MISSISSIPPI BLVD (NORTH LEG)											
STA 300+75 TO STA 302+44.75	453				240		31		60		
SAP 114-105-017 (CITY OF COON RAPIDS) SUBTOTAL	1281				806		153				
TOTAL	7927		460	27	806	183	153				648

(1) 3' LINE, 12' GAP.
(2) 3' X 6' CROSSWALK BLOCKS.

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NO.	DATE	BY	CHK	REVISIONS

Design By: SS
Plan By: MAS
Checked By: SD
Approved By: SD

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SEAN DELMORE, PE

DATE 5/4/2023 LICENSE # 40945

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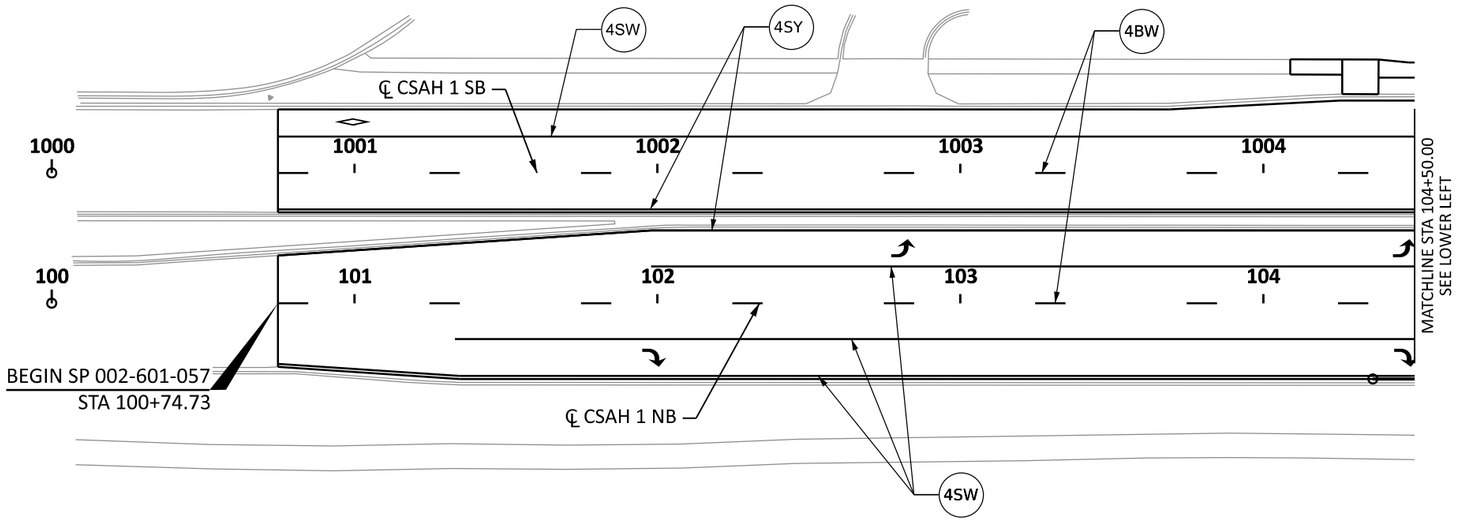
ANOKA COUNTY

CSAH 1 Improvements
Anoka County, Minnesota

ANOKA COUNTY, MINNESOTA
TABULATION
PAVEMENT MARKING PLAN
SP 002-601-057, SAP 114-105-017

SHEET **74** OF **103** SHEETS

PLOTTED/REVISED: 5/4/2023



LEGEND

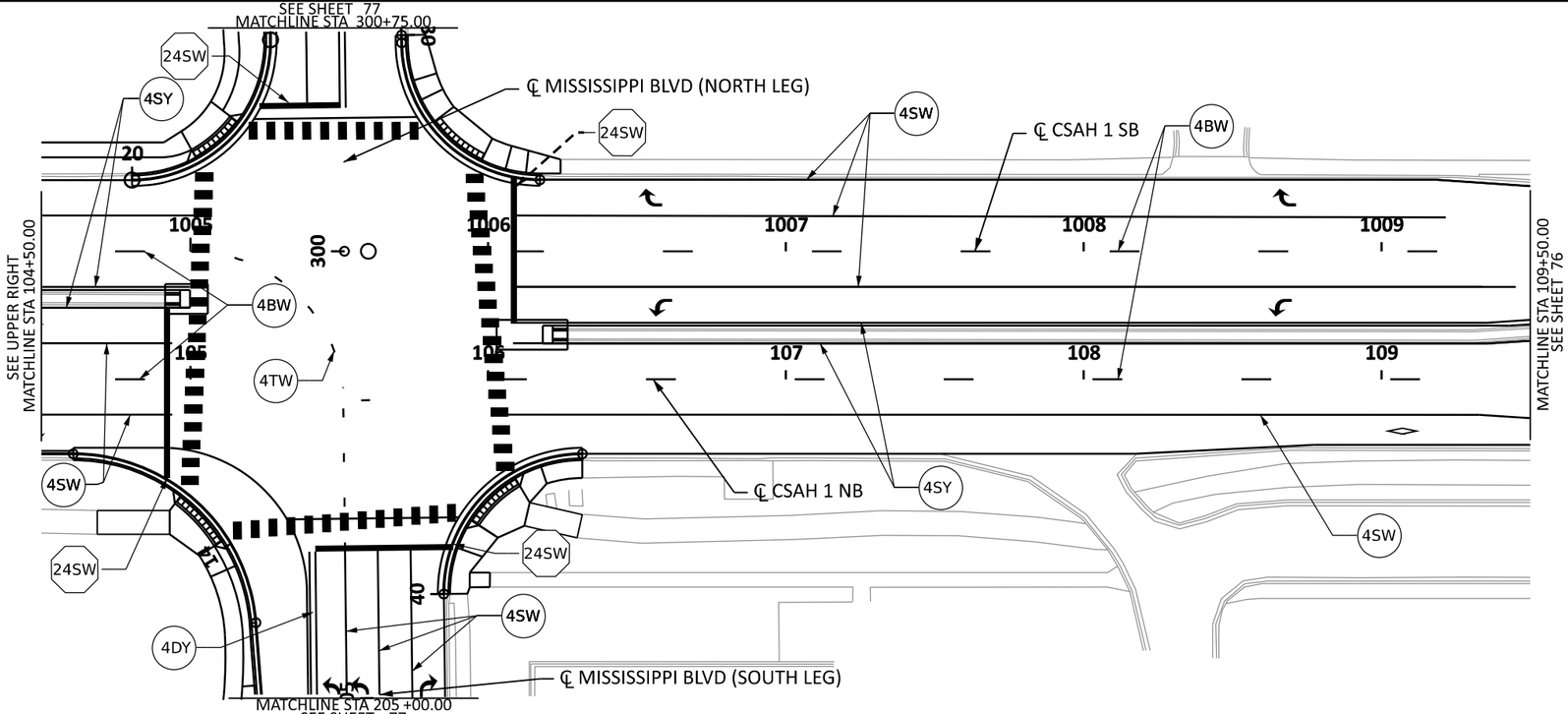
- ARROWS/ HOV - PREF THERMO
- CROSSWALK - PREF THERMO
- CIRCLE - MULTI-COMP
- OCTAGON - PREF THERMO

MULTI-COMP

1ST DIGIT WIDTH
4",8",ETC.

2ND DIGIT PATTERN
S = SOLID
B = BROKEN
D = DOUBLE
T = DOTTED

3RD DIGIT COLOR
W = WHITE
Y = YELLOW
B = BLACK



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ANOKA COUNTY

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Anoka County, Minnesota

ANOKA COUNTY, MINNESOTA

PAVEMENT MARKING PLAN
SP 002-601-057, SAP 114-105-017

SHEET 75 OF 103 SHEETS

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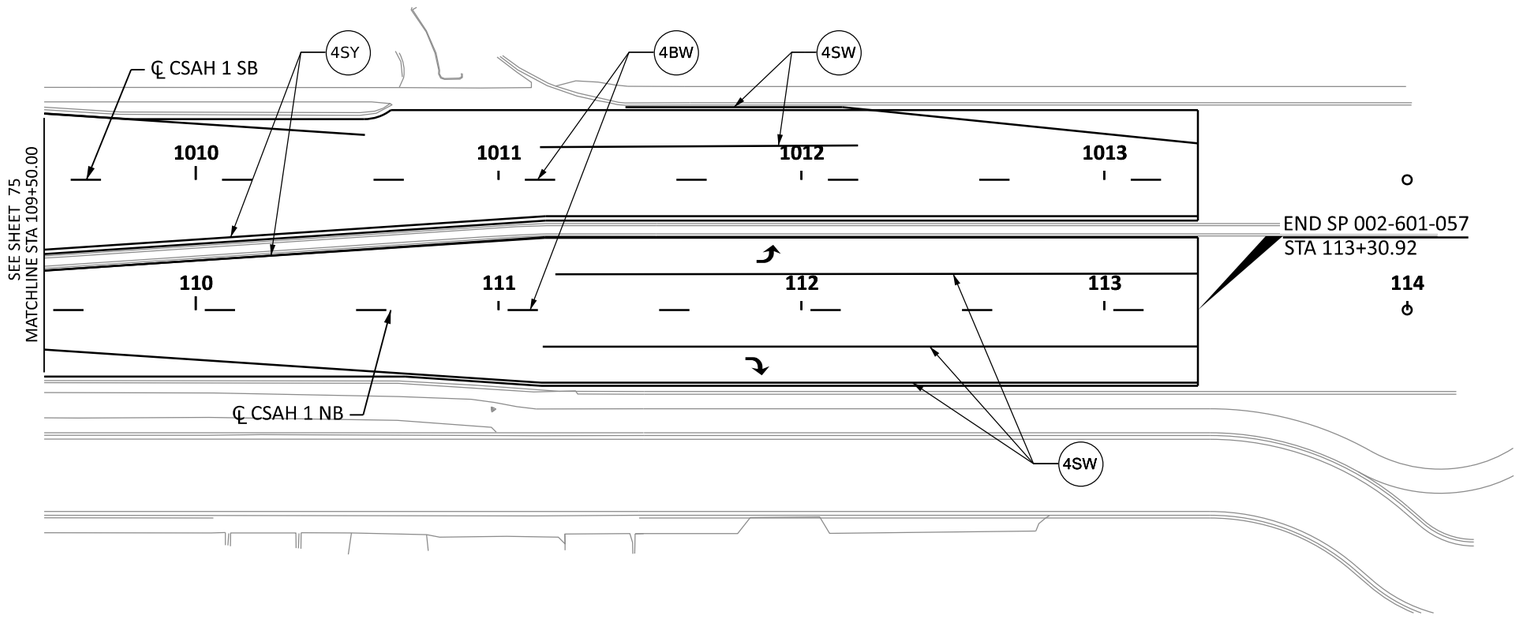

LEGEND

- ARROWS/ HOV - PREF THERMO
- CROSSWALK - PREF THERMO
- CIRCLE - MULTI-COMP
- OCTAGON - PREF THERMO

MULTI-COMP

1ST DIGIT
WIDTH
4",8",ETC.

2ND DIGIT
PATTERN
S = SOLID
B = BROKEN
D = DOUBLE
T = DOTTED

3RD DIGIT
COLOR
W = WHITE
Y = YELLOW
B = BLACK

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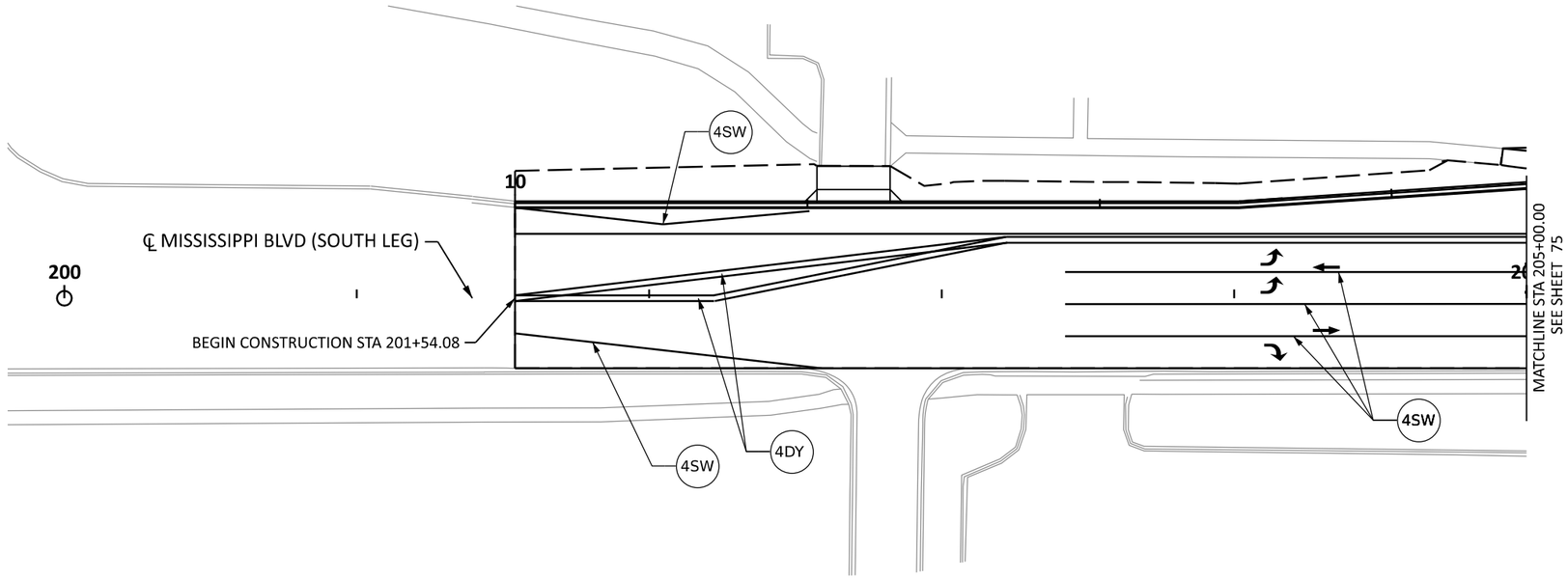
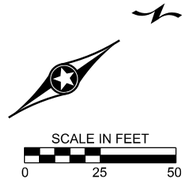
ANOKA COUNTY, MINNESOTA

PAVEMENT MARKING PLAN
SP 002-601-057, SAP 114-105-017

SHEET **76** OF **103** SHEETS

PLOTTED/REVISED: 5/4/2023





LEGEND

- ARROWS/ HOV - PREF THERMO
- CROSSWALK - PREF THERMO
- CIRCLE - MULTI-COMP
- OCTAGON - PREF THERMO

MULTI-COMP

1ST DIGIT
WIDTH
4",8",ETC.

2ND DIGIT
PATTERN
S = SOLID
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3RD DIGIT
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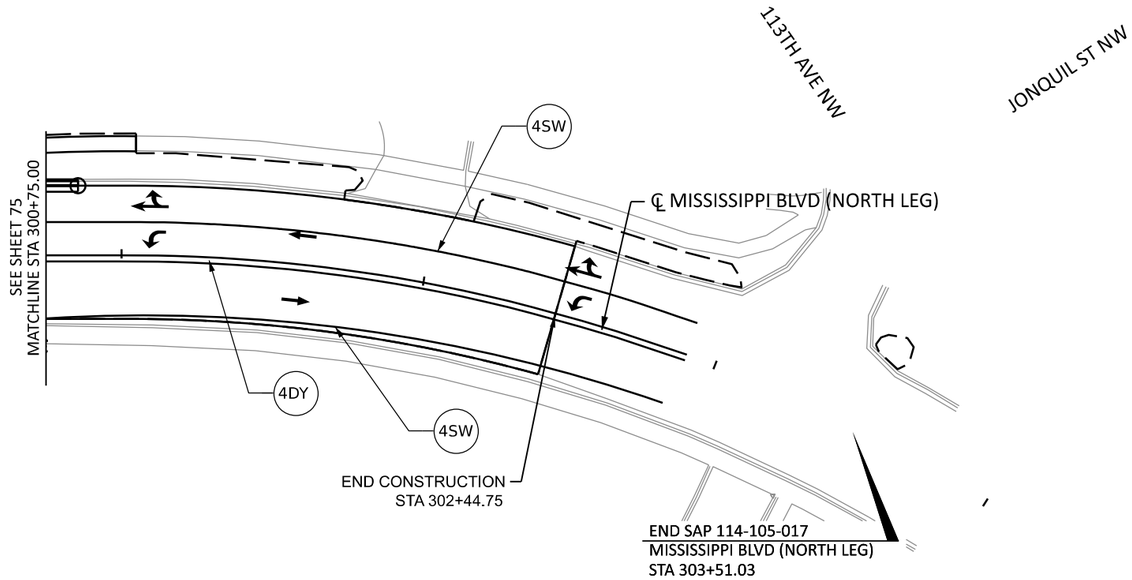

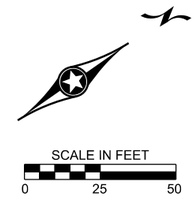

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ANOKA COUNTY

CSAH 1 Improvements
Anoka County, Minnesota

ANOKA COUNTY, MINNESOTA

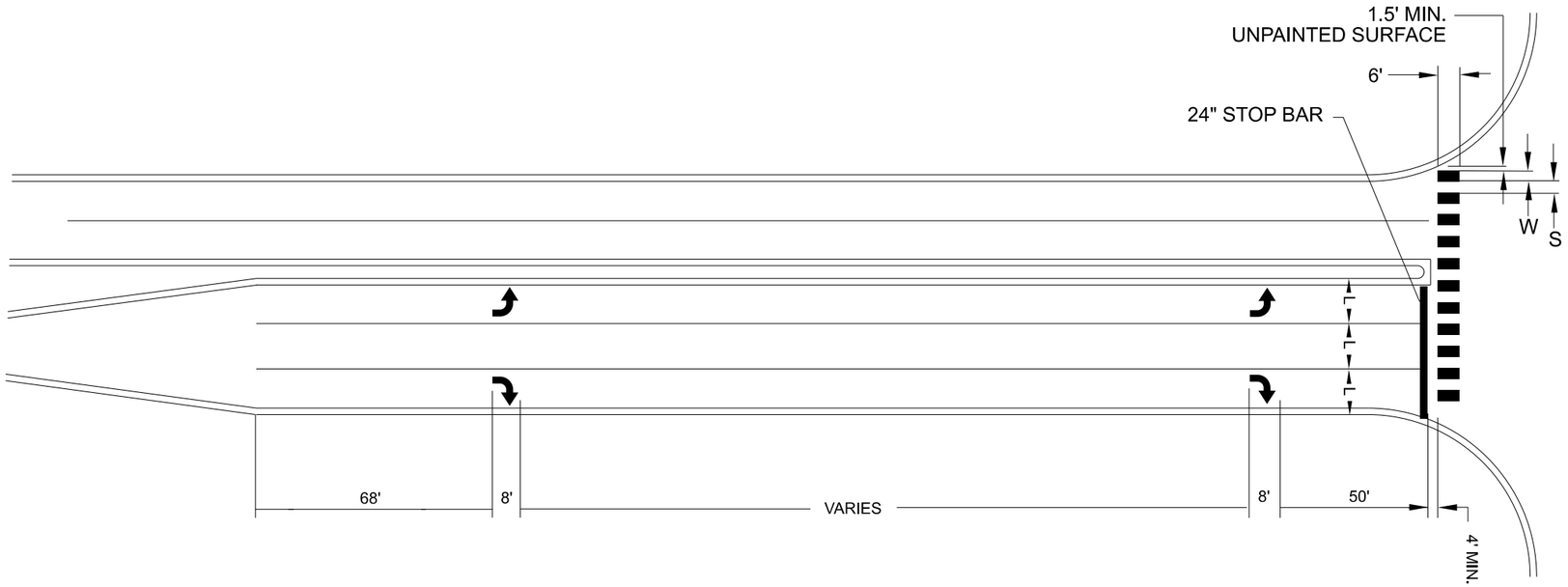
PAVEMENT MARKING PLAN
SP 002-601-057, SAP 114-105-017

SHEET 77 OF 103 SHEETS

PATH & FILENAME: K:\01\8837-000\Cad\Plan\01\8837-000_pm02.dgn

PLOTTED/REVISED: 5/4/2023

MARKINGS FOR PEDESTRIAN CROSSWALKS



(L)	(W)	(S)
WIDTH OF INSIDE LANE	WIDTH OF PAINTED AREAS	WIDTH OF SPACE
9'	2.0'	2.5'
10'	2.5'	2.5'
11'	2.5'	3.0'
12'	3.0'	3.0'
13'	3.0'	3.5'

NOTES: CROSSWALKS:

1.) PAINTED AREAS ARE TO BE CENTERED ON CENTER AND LANE LINES, EVEN IF INTERSECTION IS NOT ALIGNED.

2.) LOCATION OF ZEBRA CROSSWALKS AND STOP BARS, SIGNAL LOOPS AND PED RAMPS ARE APPROXIMATE. FINAL LOCATIONS ARE TO BE DETERMINED AND FIELD VERFIED DURING CONSTRUCTION BY THE FIELD ENGR.

3.) ZEBRA CROSSWALKS ARE TO BE PARALLEL TO THE DRIVING LANE OR LANES. EVEN IF THE STREET IS ON AN ANGLE TO THE INTERSECTION.

4.) A MIN. OF 1.5' (450mm) CLEAR DISTANCE MUST BE LEFT ADJACENT TO THE CURB. IF LAST PAINTED AREA FALLS INTO THIS AREA, IT MUST BE OMITTED.

5.) ON TWO LANE STREETS, USE SPACING SHOWN FOR AN 11' (3.3mm) INSIDE LANE.

NO.	DATE	BY	CHK	REVISIONS

Design By: SS
Plan By: MAS
Checked By: SD
Approved By: SD

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

SEAN DELMORE, PE

DATE 5/4/2023 LICENSE # 40945

wsb

ANOKA COUNTY

CSAH 1 Improvements
Anoka County, Minnesota

ANOKA COUNTY, MINNESOTA
DETAILS
PAVEMENT MARKING PLAN
SP 002-601-057, SAP 114-105-017

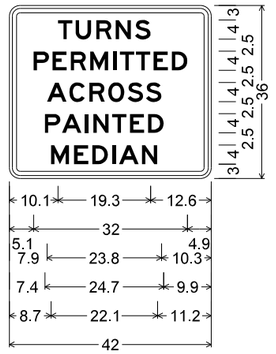
SHEET **78** OF **103** SHEETS

PATH & FILENAME: K:\01\8837-000\Cad\Plan\01\8837-000_pmdet.dgn

SIGN AND DELINEATOR / MARKER

J

SIGN NUMBER	PANEL CODE	PANEL LEGEND	PANEL SIZE (W x H) INCH	PANEL MOUNTING HEIGHT FEET	SUPPORT TYPE (1)	SUPPORT NUMBER OF POSTS	REMOVE SIGN [A] EACH	REMOVE SIGN [B] EACH	SIGN [A] SQ FT	SIGN [B] SQ FT	SALVAGE SIGN [B] EACH	INSTALL SIGN [B] EACH	DELINEATOR /MARKER PANEL [A] EACH
S-1	R4-X7	SHOULDER AUTHORIZED BUSES ONLY	42 x 48	7	U-SOIL	1	1		14.00				
S-2	R3-7L MOD	LEFT TURN LANE	30 x 30	7	U-CONC	1	1		6.25				
S-3	R2-1	SPEED LIMIT 50	30 x 36	7	U-SOIL	1	1		7.50				
S-4	R8-3	NO PARKING	24 x 24	7	U-SOIL	1	1		4.00				
S-5	R5-1	DO NOT ENTER	30 x 30	7	U-CONC	1	1		6.25				
S-6	R5-1	DO NOT ENTER	30 x 30	7	U-CONC	1	1		6.25				
S-7	R6-1R	ONE WAY RIGHT	54 x 18	7	U-CONC	1	1		6.75				
S-8	R3-7R MOD	RIGHT TURN LANE	30 x 30	7	U-SOIL	1	1		6.25				
S-9	R4-7	KEEP RIGHT	24 x 30	7	U-CONC	1	1		5.00				
	OM1-2	TYPE 1 OBJECT MARKER	18 x 18	4									1
S-10	R4-X7	SHOULDER AUTHORIZED BUSES ONLY	42 x 48	7	U-SOIL	1	1		14.00				
S-11	R4-7	KEEP RIGHT	24 x 30	7	U-CONC	1	1		5.00				
	OM1-2	TYPE 1 OBJECT MARKER	18 x 18	4									1
S-12	R5-1	DO NOT ENTER	30 x 30	7	U-CONC	1	1		6.25				
S-13	R3-7R MOD	RIGHT TURN LANE	30 x 30	7	U-SOIL	1	1		6.25				
S-14	R3-7L MOD	LEFT TURN LANE	30 x 30	7	U-CONC	1	1		6.25				
S-15	R2-1	SPEED LIMIT 45	30 x 36	7	U-SOIL	1	1		7.50				
S-16	R6-1R	ONE WAY RIGHT	54 x 18	7	U-CONC	1	1		6.75				
S-17	R3-7R MOD	RIGHT TURN LANE	30 x 30	7	U-SOIL	1	1		6.25				
S-18	R5-1	DO NOT ENTER	30 x 30	7	U-CONC	1	1		6.25				
S-19	D11-1	BIKE ROUTE	24 x 18	7	U-SOIL	1	1		3.00				
S-20	W14-X9	WATCH FOR BUSES ON SHOULDER	30 x 36	7	U-SOIL	1	1		7.50				
(2) S-21	D11-1	BIKE ROUTE	24 x 18	7	U-SOIL	1	1		3.00				
	M1-9M	MISSISSIPPI RIVER TRAIL	12 x 18						1.50				
	M1-9M	MISSISSIPPI RIVER TRAIL	12 x 18						1.50				
	M6-1R	ARROW RIGHT (GREEN)	12 x 9						0.75				
S-22	R8-3	NO PARKING	24 x 24	7	U-SOIL	1		1		4.00			
	M1-9M	MISSISSIPPI RIVER TRAIL	12 x 18							1.50			
S-23	R1-1	STOP	30 x 30	7	U-SOIL	1		1		6.25			
S-24	W11-2	PEDESTRIAN CROSSING	30 x 30	7	U-SOIL	1		1		6.25			
S-25		TURNS PERMITTED ACROSS PAINTED MEDIAN	42 x 36	7	U-SOIL	1		1		10.50			
S-26	R2-1	SPEED LIMIT 30	24 x 30	7	U-SOIL	1		1		5.00			
S-27		NO PARKING ON ANY COON RAPIDS STREET..	x	7	U-SOIL	1		1			1	1	
		WARNING CRIME WATCH	x										
S-28	M1-9M	MISSISSIPPI RIVER TRAIL	12 x 18	7	U-SOIL	1		1		1.50			
	M6-1L	ARROW LEFT (GREEN)	12 x 9							0.75			
S-29	R3-8ABCA	L-L-T-R	66 x 30	7	U-SOIL	1				13.75			
S-30	R3-8AELA	L-LT-R	x					1					
	R3-7L	LEFT LANE MUST TURN LEFT	x										
S-31	R3-8AD	L-TR	36 x 30	7	U-SOIL	1		1		7.50			
						SUBTOTAL	21	9	144	57	1	1	2
						TAB TOTAL	30		201		1	1	2



2.3" Radius, 0.9" Border, 0.6" Indent, Black on, White;
"TURNS", E 2K;
"PERMITTED", E 2K;
"ACROSS", E 2K;
"PAINTED", E 2K;
"MEDIAN", E 2K;

SPECIFIC NOTE(S):
(1) U-CHANNEL 3# PER FOOT BLACK POST.
(2) MOUNTED BACK TO BACK.
GENERAL NOTE(S):
FUNDING GROUPS = [A] NON-FEDERAL PARTICIPATING - COUNTY FUNDS, [B] NON-FEDERAL PARTICIPATING - SAP 114-105-017 (COON RAPIDS)

NO.	DATE	BY	CHK	REVISIONS

Design By: SS
Plan By: MAS
Checked By: SD
Approved By: SD

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SEAN DELMORE, PE

DATE 5/4/2023 LICENSE # 40945

wsb

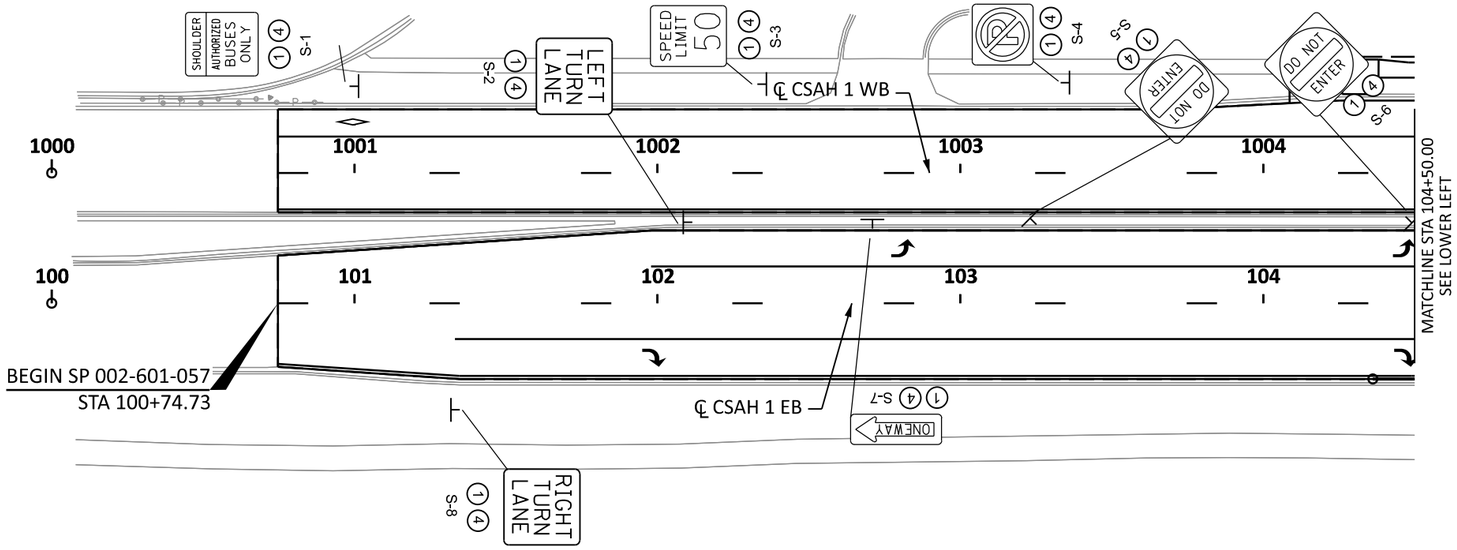
ANOKA COUNTY

CSAH 1 Improvements
Anoka County, Minnesota

ANOKA COUNTY, MINNESOTA
TABULATION
SIGNING PLAN
SP 002-601-057, SAP 114-105-017

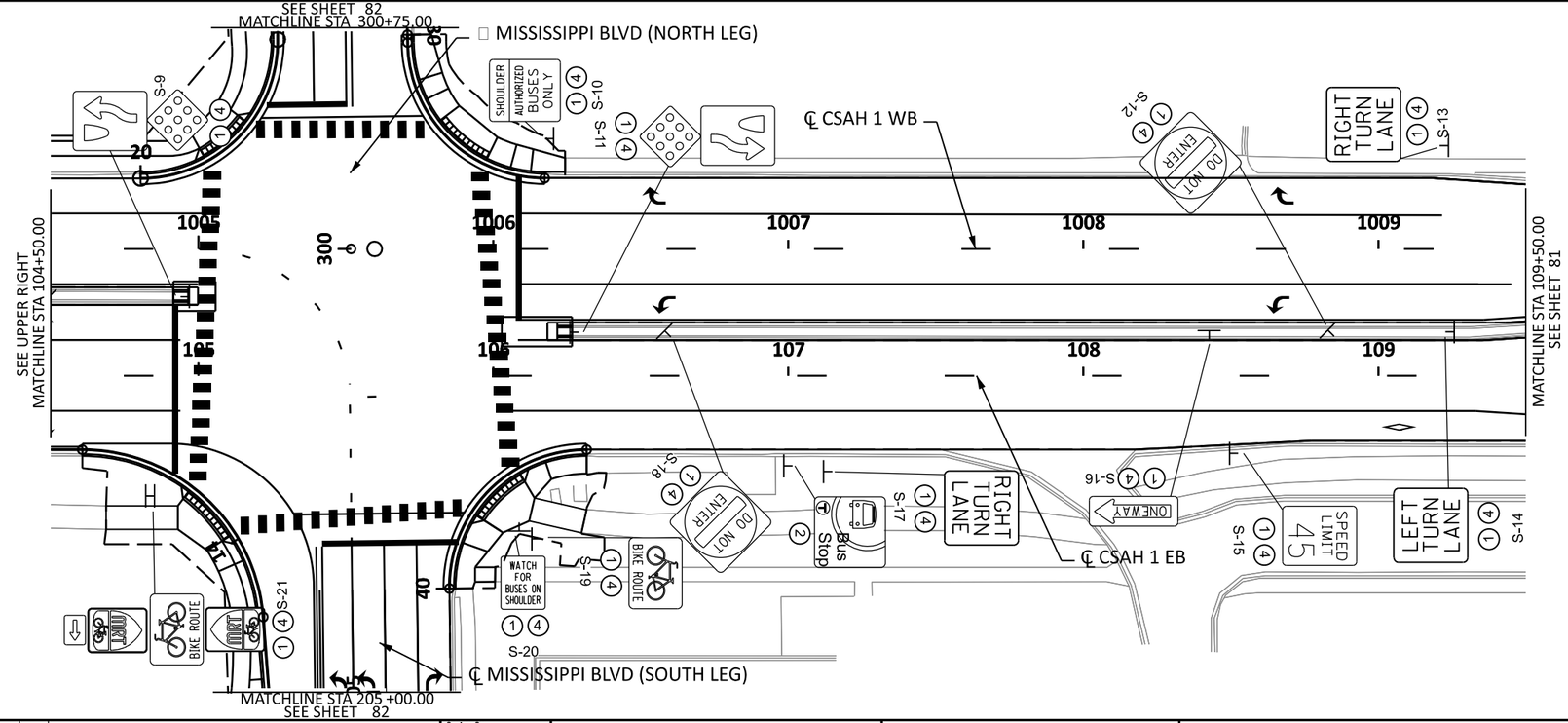
SHEET 79 OF 103 SHEETS

PLOTTED/REVISED: 5/4/2023



LEGEND

- ① FURNISH & INSTALL
- ② INPLACE (TO REMAIN)
- ④ REMOVE



NO.	DATE	BY	CHK	REVISIONS

Design By: MF
Plan By: MF
Checked By: ES
Approved By: SD

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ANOKA COUNTY

CSAH 1 Improvements
Anoka County, Minnesota

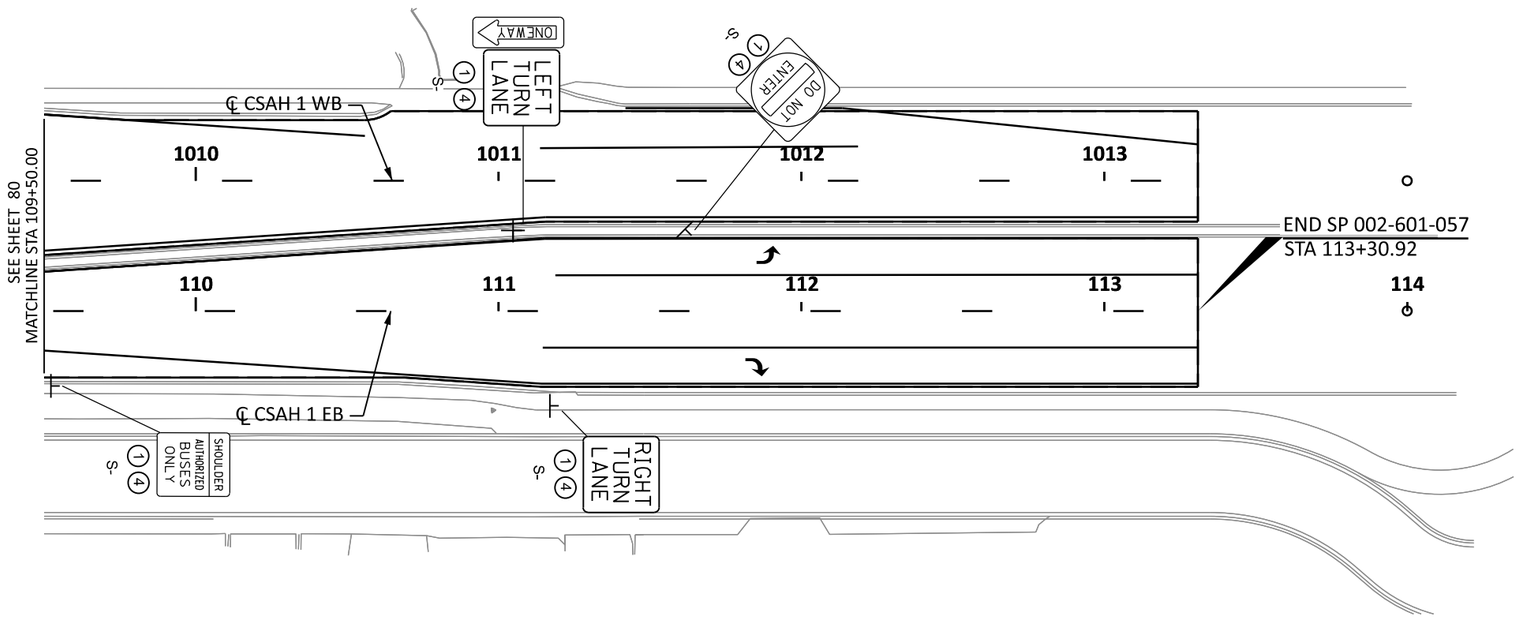
ANOKA COUNTY, MINNESOTA

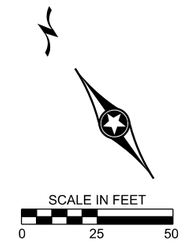
SIGNING PLAN
SP 002-601-057, SAP 114-105-017

SHEET 80 OF 103 SHEETS

PATH & FILENAME: K:\01\8837-000\Cad\Plan\01\8837-000_sgn01.dgn

PLOTTED/REVISED: 5/4/2023





LEGEND

① FURNISH & INSTALL

④ REMOVE

NO.	DATE	BY	CHK	REVISIONS

Design By: MF
Plan By: MF
Checked By: ES
Approved By: SD

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ANOKA COUNTY

CSAH 1 Improvements
Anoka County, Minnesota

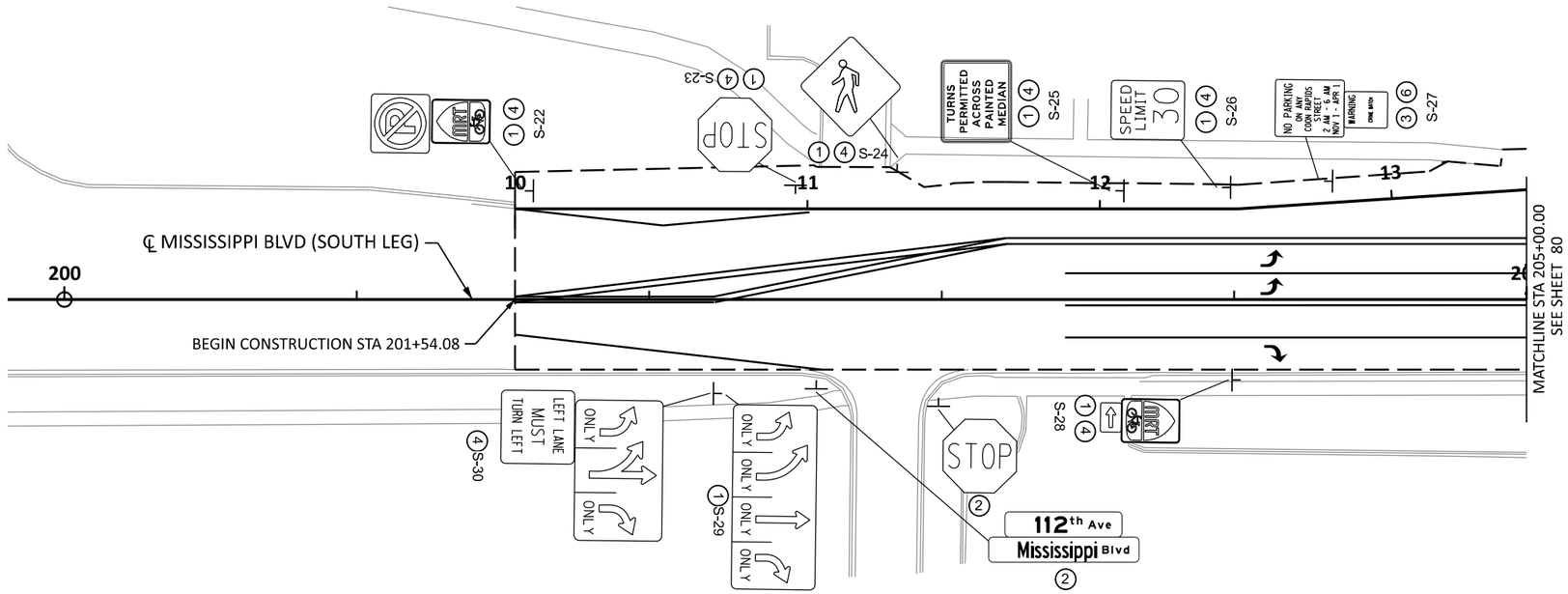
ANOKA COUNTY, MINNESOTA

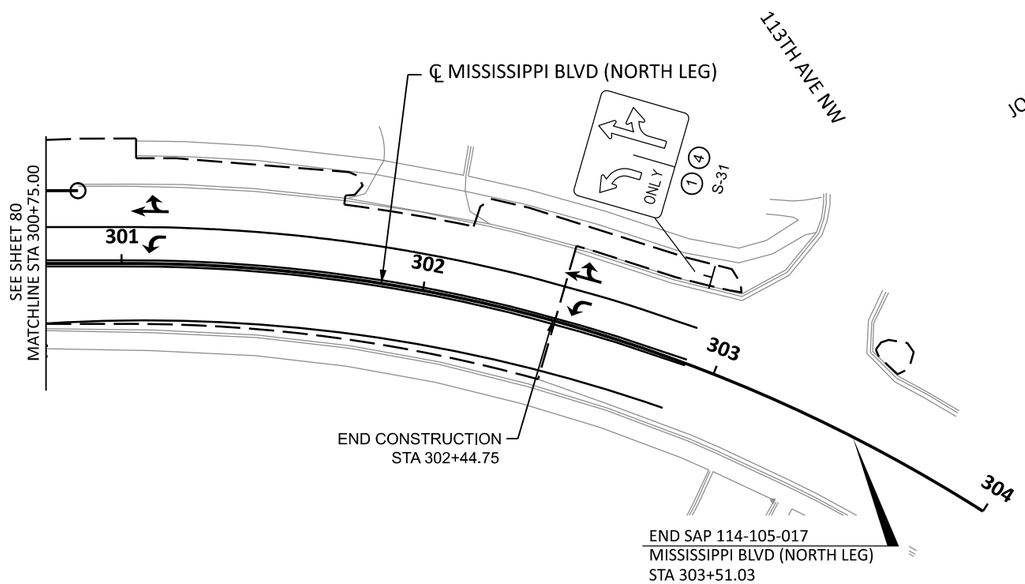
SIGNING PLAN
SP 002-601-057, SAP 114-105-017

SHEET **81** OF **103** SHEETS

PATH & FILENAME: K:\01\8837-000\Cad\Plan\01\8837-000_sgn01.dgn

PLOTTED/REVISED: 5/4/2023





SCALE IN FEET
0 25 50

LEGEND

①	FURNISH & INSTALL
②	INPLACE (TO REMAIN)
③	SALVAGE
④	REMOVE
⑥	INSTALL

SCALE IN FEET
0 25 50

NO.	DATE	BY	CHK	REVISIONS

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ANOKA COUNTY

CSAH 1 Improvements
Anoka County, Minnesota

ANOKA COUNTY, MINNESOTA

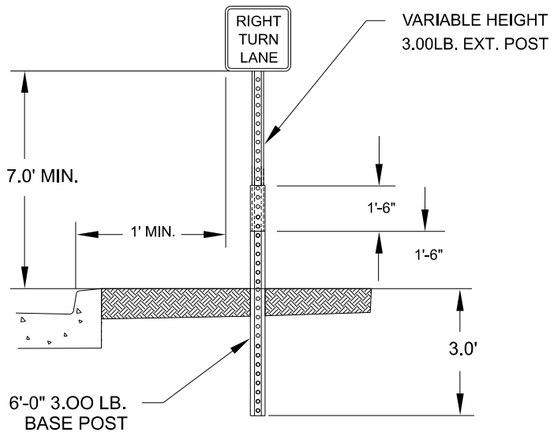
SIGNING PLAN
SP 002-601-057, SAP 114-105-017

SHEET 82 OF 103 SHEETS

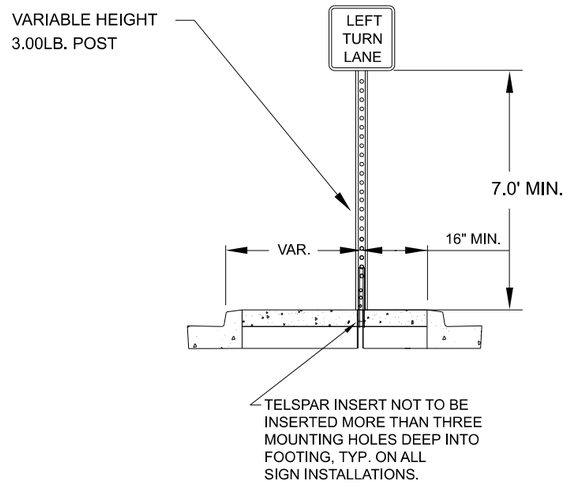
PATH & FILENAME: K:\01\8837-000\Cad\Plan\01\8837-000_sgn02.dgn

PLOTTED/REVISED: 5/4/2023

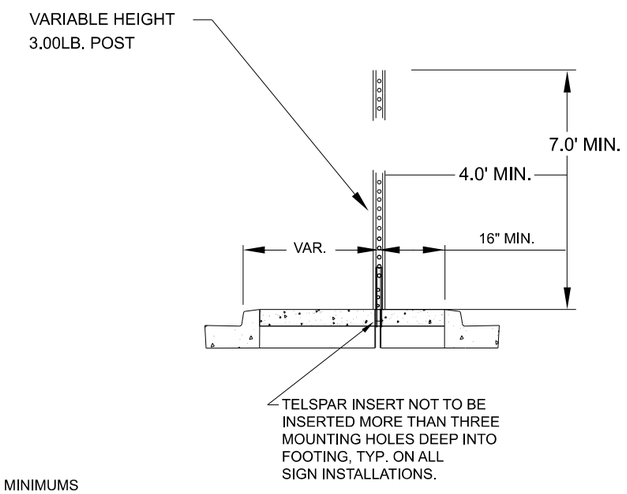
GROUND POST MOUNT SIGN
INSTALLATION TYPICAL



ISLAND MOUNT BREAK-AWAY SIGN
INSTALLATION TYPICAL



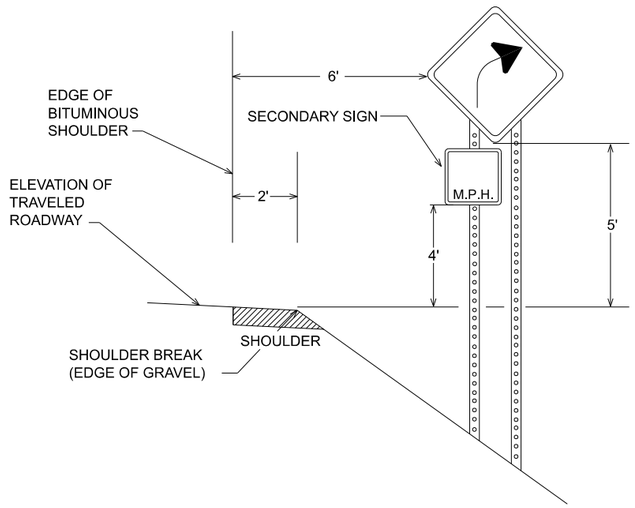
ISLAND MOUNT BREAK-AWAY SIGN
SIGN INSTALLATION TYPICAL
KEEP RIGHT/CLUSTER



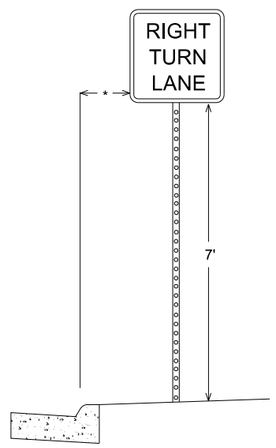
NOTES:

- ALL DIMENSIONS ARE MINIMUMS
- MAINTAIN A CLEAR DISTANCE OF 2' BETWEEN SIGNS AND BITUMINOUS TRAIL
- 7' SIGN CLEARANCE IF A CLEAR DISTANCE OF 2' BETWEEN SIGNS AND BITUMINOUS TRAIL CANNOT BE MAINTAINED

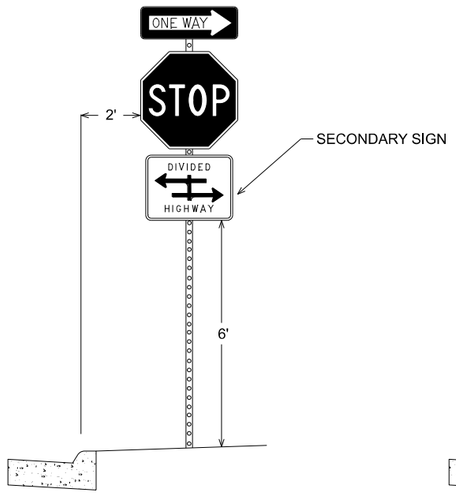
TYPICAL SIGN PLACEMENT
(RURAL)

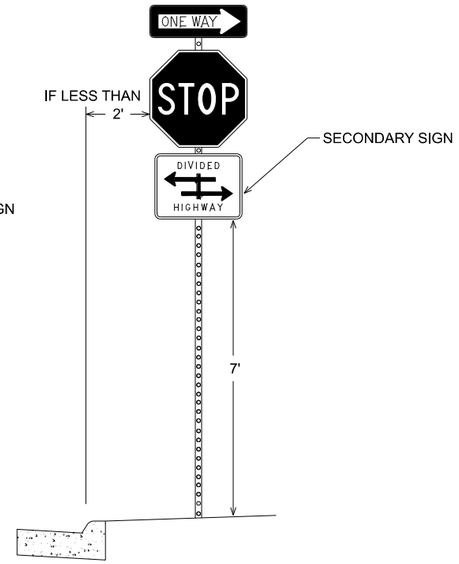


TYPICAL SIGN PLACEMENT
(URBAN)



* 2' - NARROW BOULEVARD (< 8' WIDE)
6' - WIDE BOULEVARD





NO.	DATE	BY	CHK	REVISIONS

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SEAN DELMORE, PE

DATE 5/4/2023 LICENSE # 40945

wsb

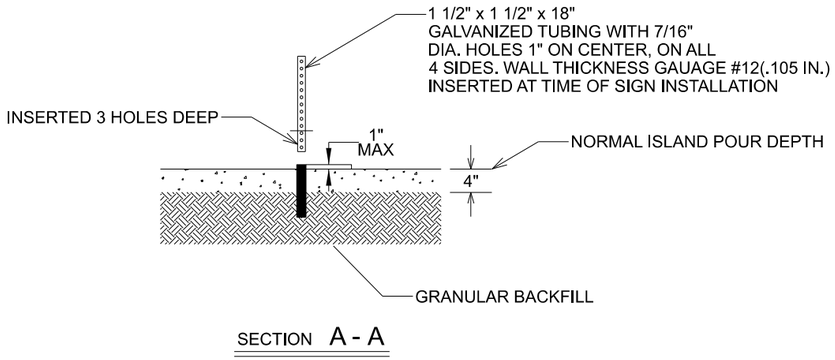
ANOKA COUNTY

CSAH 1 Improvements
Anoka County, Minnesota

ANOKA COUNTY, MINNESOTA
DETAILS
SIGNING PLAN
SP 002-601-057, SAP 114-105-017

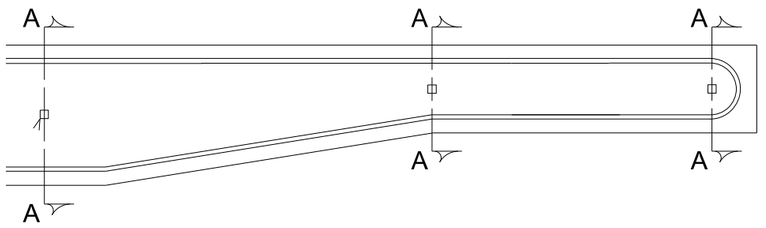
SHEET **83** OF **103** SHEETS

PATH & FILENAME: K:\01\8837-000\Cad\Plan\01\8837-000_sgndet.dgn



SECTION A - A

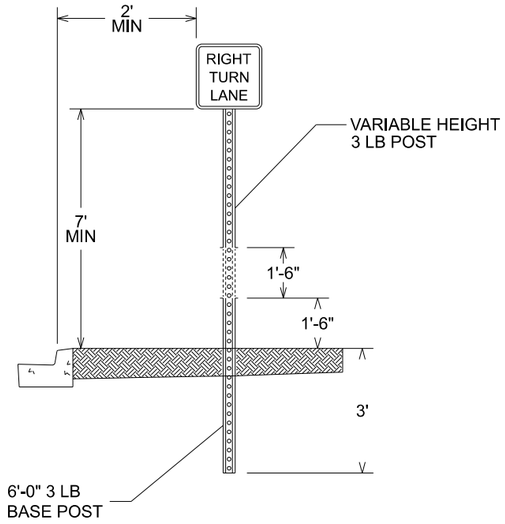
GROUND POST MOUNT SIGN
INSTALLATION TYPICAL

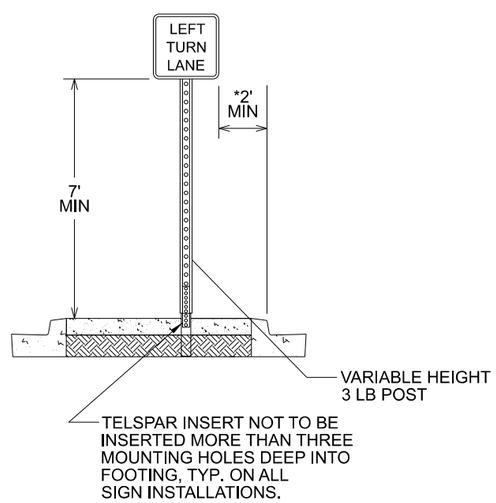


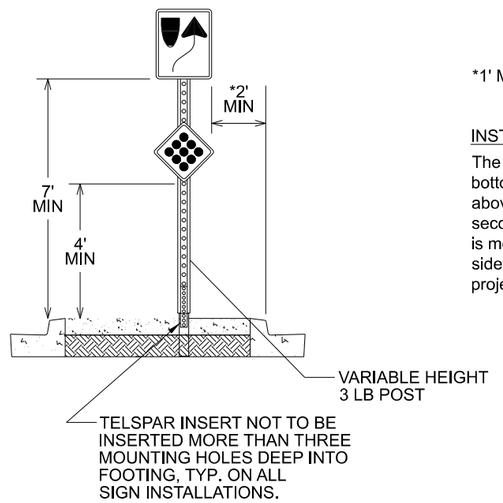
1 3/4" x 1 3/4" x 12" SOLID GALVANIZED SQUARE TUBING
SEE BELOW

ISLAND MOUNT BREAK-AWAY SIGN
INSTALLATION TYPICAL

ISLAND MOUNT BREAK-AWAY SIGN
SIGN INSTALLATION TYPICAL
KEEP RIGHT/CLUSTER







*1' MIN FOR NARROW URBAN LOCATIONS

INSTALLATION NEAR SIDEWALK (MN MUTCD)

The minimum height, measured vertically from the bottom of the sign to the sidewalk, of signs installed above sidewalks shall be 7 feet. If the bottom of a secondary sign that is mounted below another sign is mounted lower than 7 feet above a pedestrian sidewalk or pathway, the secondary sign shall not project more than 4 inches into the pedestrian facility.

NO.	DATE	BY	CHK	REVISIONS

Design By: MF
Plan By: MF
Checked By: ES
Approved By: SD

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SEAN DELMORE, PE

DATE 5/4/2023 LICENSE # 40945

wsb

ANOKA COUNTY

CSAH 1 Improvements
Anoka County, Minnesota

ANOKA COUNTY, MINNESOTA
DETAILS
SIGNING PLAN
SP 002-601-057, SAP 114-105-017

SHEET **84** OF **103** SHEETS

PLOTTED/REVISED: 5/5/2023

ABBREVIATIONS

AWF	ADVANCE WARNING FLASHER
C.D.	COUNT DOWN
D2-1 (e.g.)	DETECTOR (PHASE 2, NO. 1)
DEG	DEGREES
DWK	DON'T WALK
F&I	FURNISH AND INSTALL
FL	FLASH/FLASHING
FYA	FLASHING YELLOW ARROW
FYLA	FLASHING YELLOW LEFT ARROW
GLA	GREEN LEFT ARROW
GRN	GREEN INDICATION
GR. RD.	GROUND ROD
GRA	GREEN RIGHT ARROW
GTA	GREEN THRU ARROW
HH	HANDHOLE
IND	INDICATION
INP	INPLACE
INS. GR.	INSULATED GROUND
JB	JUNCTION BOX
LED	LIGHT EMITTING DIODE
LUM	LUMINAIRE
NEU	NEUTRAL
P1-1 (e.g.)	PEDESTRIAN HEAD (PHASE 1, NO. 1)
PB	PUSH BUTTON
PB2-1 (e.g.)	PUSH BUTTON (PHASE 2, NO. 1)
PED	PEDESTRIAN
RED	RED INDICATION
R&S	REMOVE AND SALVAGE
RLA	RED LEFT TURN ARROW
S&I	SALVAGE AND INSTALL
SPR	SPARE
STA	STATION
WLK	WALK INDICATION
YEL	YELLOW INDICATION
YLA	YELLOW LEFT ARROW
YRA	YELLOW RIGHT ARROW

SYMBOLS

- HANDHOLE
- EO.G CONNECTION
- EVP CONFIRMATORY LIGHT
- EVP DETECTOR
- EVP DETECTOR AND CONFIRMATORY LIGHT
- SPLICE
- FO — FIBER OPTIC SPLICE VAULT
- PV — PULL VAULT
- LUMINAIRE NO.
- SIGNAL BASE NO.
- SIGNAL HEAD NO./FLASHER HEAD NO.
- BM 4 — BARREL MOUNT BASE NO.
- WP 1 — WOOD POLE NO.
- TV — TELEVISION CAMERA (CCTV)
- V — VIDEO DETECTION

FOR PLANS AND UTILITIES SYMBOLS SEE TECHNICAL MANUAL

STANDARD PLANS - SIGNAL SYSTEMS

5-297.730	SIGN MOUNTING SYSTEMS FOR ROUND SUPPORTS
5-297.731	SIGN MOUNTING DETAILS FOR SIGNAL MAST ARMS

SEE SHEET 16- 37FOR STANDARD PLAN SHEETS

STANDARD PLATES - SIGNAL SYSTEMS

THE FOLLOWING STANDARD PLATES, APPROVED BY THE FEDERAL HIGHWAY ADMINISTRATION, SHALL APPLY ON THIS PROJECT

PLATE NO.		DESCRIPTION
► 8111	E	TRAFFIC SIGNAL BRACKETING (PEDESTAL MOUNTED)
► 8119	C	GROUND MOUNTED CABINET FOUNDATION
► 8121	H	TRANSFORMER BASE AND POLE BASE PLATE
► 8122	F	PEDESTAL AND PEDESTAL BASE
► 8123	G	POLE AND MAST ARM (2 SHEETS)
► 8126	L	POLE FOUNDATION (PA90 AND PA100)
► 8129	A	SHIM AND WASHER
► 8132	B	PREFORMED RIGID PVC CONDUIT LOOP DETECTOR

► STANDARD PLATES APPLICABLE TO THIS PROJECT

NO.	DATE	BY	CHK	REVISIONS

Design By: SS
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SEAN DELMORE, PE

DATE 5/5/2023 LICENSE # 40945

wsb

ANOKA COUNTY

CSAH 1 Improvements
Anoka County, Minnesota

ANOKA COUNTY, MINNESOTA
STANDARD PLATES & ABBREVIATIONS
TRAFFIC CONTROL SIGNAL SYSTEM
SP 002-601-057, SAP 114-105-017

SHEET 85 OF 103 SHEETS

PATH & FILENAME: K:\01\8837-000\Cad\Plan\01\8837-000_sl01.dgn

SIGN PANELS ON SIGNALS

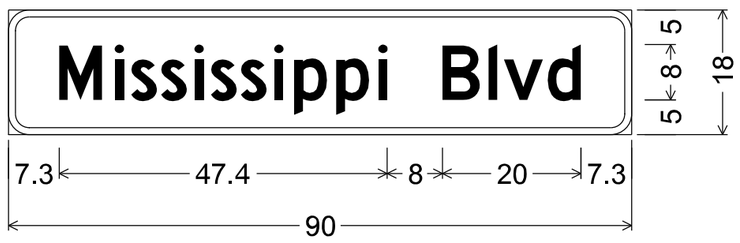
POLE NUMBER	"A" DISTANCE (FEET) OR POLE	PANEL				
		QTY	CODE NUMBER	LEGEND	SIZE (INCHES)	AREA (SQ FT)
1	30.5	1	D-1	MISSISSIPPI BLVD	90 x 18	11.25
1	0	1	R10-X12	LEFT TURN YIELD ON FLASHING YELLOW ARROW	36 x 42	10.50
3	28.5	1	D-2	COON RADIDS BLVD	102 x 18	12.75
3	0	1	R10-X12	LEFT TURN YIELD ON FLASHING YELLOW ARROW	36 x 42	10.50
3	POLE	1	R6-1L	ONE WAY LEFT	36 x 12	3.00
3	POLE	1	R6-1R	ONE WAY RIGHT	36 x 12	3.00
4	30.5	1	D-1	MISSISSIPPI BLVD	90 x 18	11.25
4	0	1	R10-X12	LEFT TURN YIELD ON FLASHING YELLOW ARROW	36 x 42	10.50
6	28.5	1	D-2	COON RADIDS BLVD	102 x 18	12.75
6	0	1	R10-X12	LEFT TURN YIELD ON FLASHING YELLOW ARROW	36 x 42	10.50
6	POLE	1	R6-1L	ONE WAY LEFT	36 x 12	3.00
6	POLE	1	R6-1R	ONE WAY RIGHT	36 x 12	3.00

GENERAL NOTES:

1. SEE THE CURRENT MnDOT STANDARD SIGNS AND MARKINGS MANUAL FOR STANDARD SIGN DESIGNS, ARROW DETAILS AND SPLICE PLATE DETAILS.
2. FOR NON STANDARD SIGN DESIGNS, LAYOUTS ARE INCLUDED. SIGN PANEL DIMENSIONS ARE IN INCHES.
3. SEE DETAIL SHEET FOR SIGN MOUNTING TO MAST ARM.
4. SEE DETAIL SHEET FOR SIGN MOUNTING TO ROUND POST.
5. MOUNTING HEIGHT OF POLE MOUNTED SIGN PANELS MUST BE 7 FOOT MINIMUM.
   MOUNTING HEIGHT IS MEASURED FROM BOTTOM OF SIGN PANEL TO SURFACE IMMEDIATELY BELOW THE SIGN PANEL.
6. "A" DISTANCE = DISTANCE FROM THE END OF THE MAST ARM TO THE EDGE OF EACH SIGN PANEL.
7. SEE INTERSECTION LAYOUT FOR SIGN PLACEMENT.

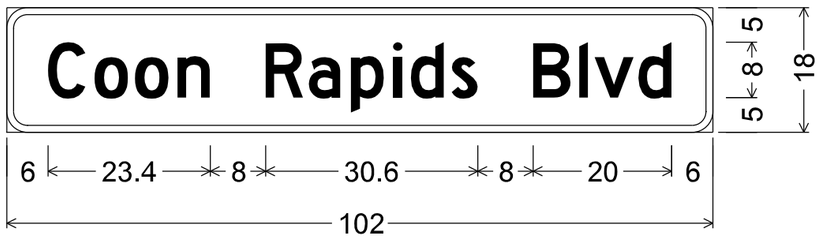
SIGN DETAILS

D-1



3.0" Radius, 1.0" Border, White on, Green;
"Mississippi Blvd", D 2K;

D-2



3.0" Radius, 1.0" Border, White on, Green;
"Coon Rapids Blvd", D 2K;

NO.	DATE	BY	CHK	REVISIONS

Design By: SS
Plan By: MAS
Checked By: SD
Approved By: SD

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SEAN DELMORE, PE

DATE 5/5/2023 LICENSE # 40945

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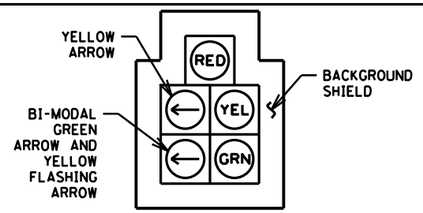
ANOKA COUNTY

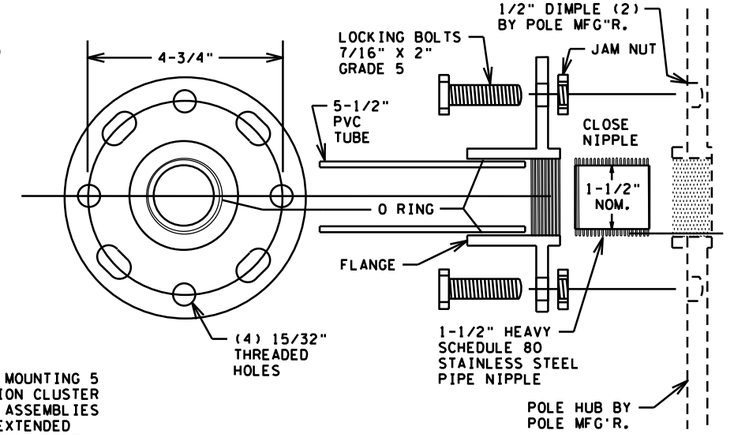
CSAH 1 Improvements
Anoka County, Minnesota

ANOKA COUNTY, MINNESOTA
MAST ARM SIGN DETAILS
TRAFFIC CONTROL SIGNAL SYSTEM
SP 002-601-057, SAP 114-105-017

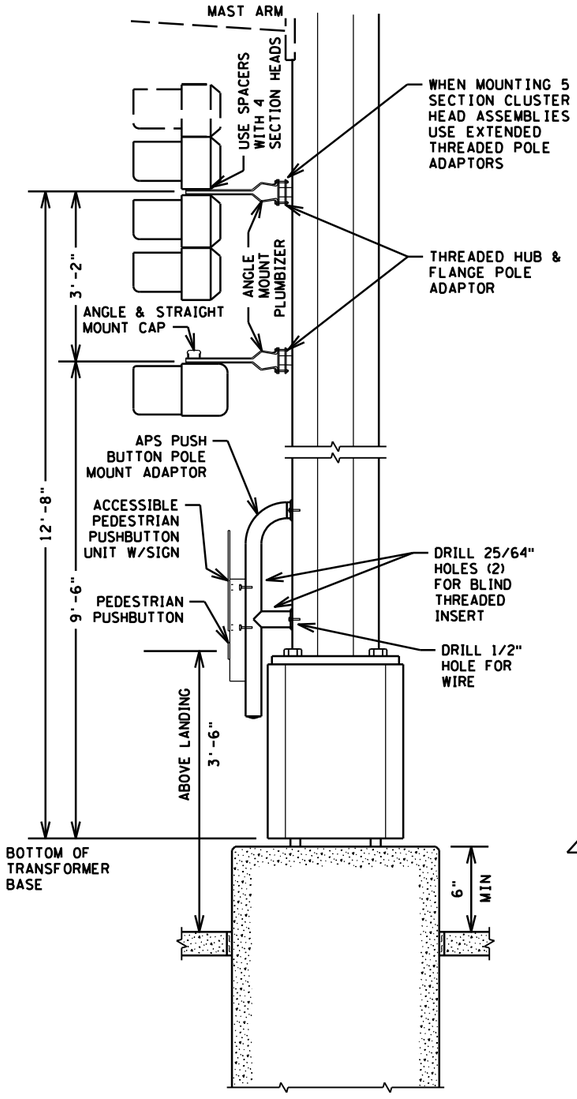
SHEET **86** OF **103** SHEETS



5 SECTION FYA CLUSTER HEAD DETAIL

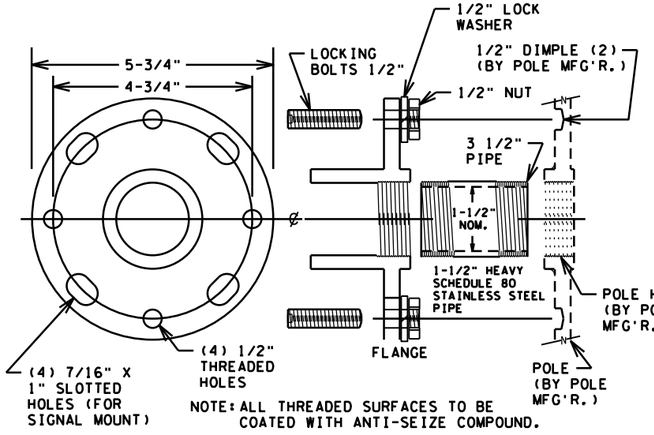


THREADED HUB AND FLANGE POLE ADAPTOR



TYPICAL SIGNAL POLE MOUNTING

NOT TO SCALE

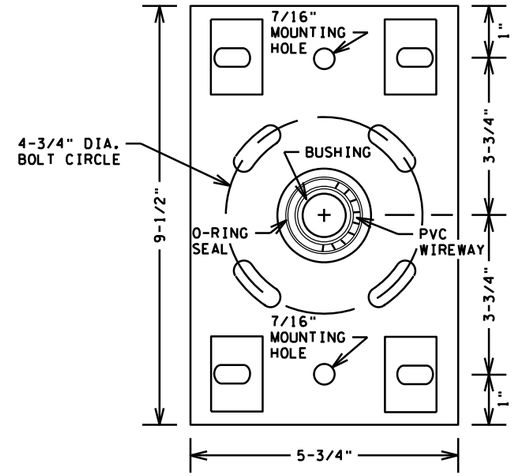


NOTE: ALL THREADED SURFACES TO BE COATED WITH ANTI-SEIZE COMPOUND.

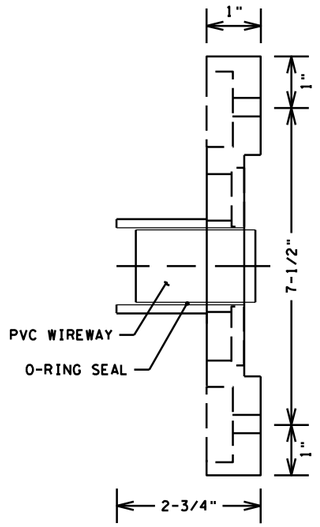
EXTENDED THREADED POLE ADAPTER

NOTES:

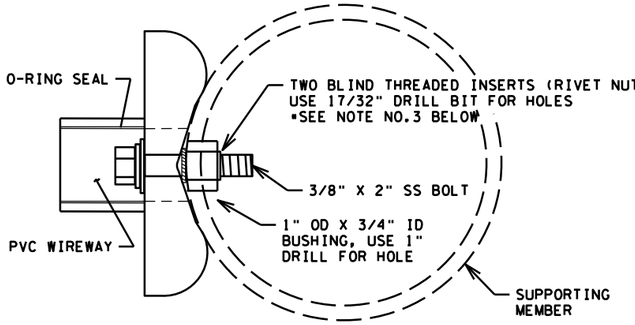
1. ALL THREADED SURFACES TO BE COATED WITH ANTI-SEIZE COMPOUND.
2. USE SIGNAL HEAD MOUNTED SPACERS FOR 4 SECTION POLY HEADS.
3. SEE STANDARD PLATE NUMBER 8123 FOR ADDITIONAL SIGNAL POLE DETAILS.
4. EXTENDED THREADED POLE ADAPTOR ONLY USED WITH 5 SECTION CLUSTER HEADS.



BOLT ON HUB & FLANGE



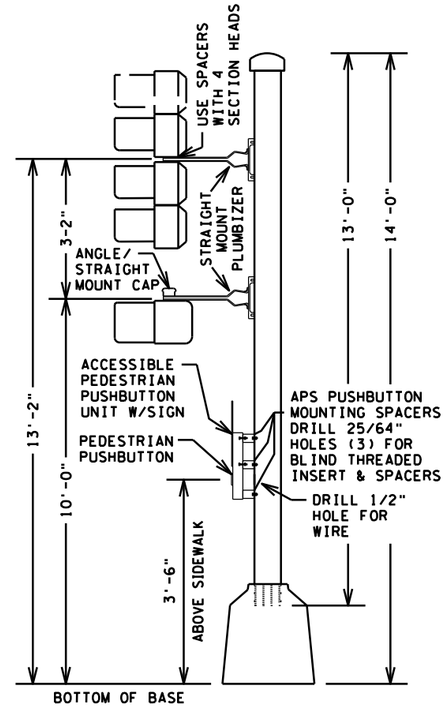
SIDE VIEW



TOP VIEW

NOTES:

1. ALL THREADED SURFACES TO BE COATED WITH ANTI-SEIZE COMPOUND.
2. USE SIGNAL HEAD MOUNTED SPACERS FOR 4 SECTION POLY HEADS.
3. BLIND THREADED INSERTS (RIVET NUT) MUST BE INSERTED USING MANUFACTURERS SPECIFIC INSERTION TOOL. NO OTHER METHOD IS ACCEPTABLE.
4. SEE STANDARD PLATE NUMBER 8122 FOR ADDITIONAL PEDESTAL POLE DETAILS.



TYPICAL PEDESTAL MOUNTING

NOT TO SCALE

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Design By: SS
Plan By: MAS
Checked By: SD
Approved By: SD

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SEAN DELMORE, PE

DATE 5/5/2023 LICENSE # 40945

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ANOKA COUNTY

CSAH 1 Improvements
Anoka County, Minnesota

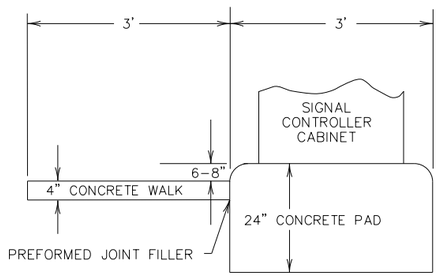
ANOKA COUNTY, MINNESOTA
POLE AND PEDESTAL POLE MOUNTING DETAIL
TRAFFIC CONTROL SIGNAL SYSTEM
SP 002-601-057, SAP 114-105-017

SHEET 87 OF 103 SHEETS

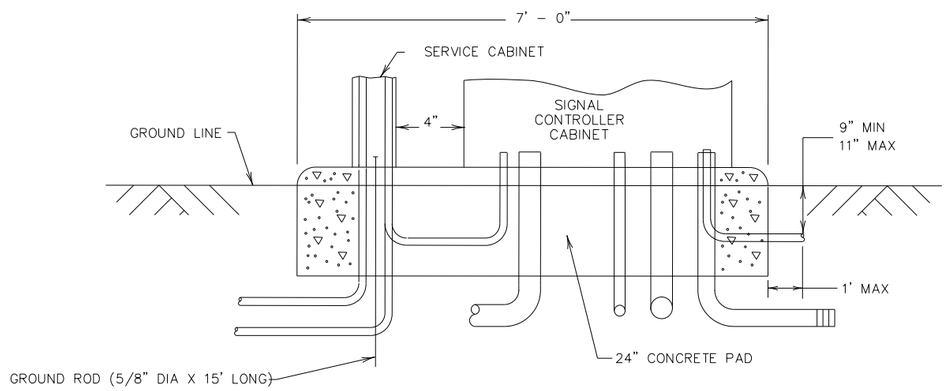
TYPICAL PAD WITH CONTROLLER CABINET AND SERVICE CABINET

SEE INTERSECTION LAYOUT FOR CABLE INFORMATION (NOT TO SCALE)

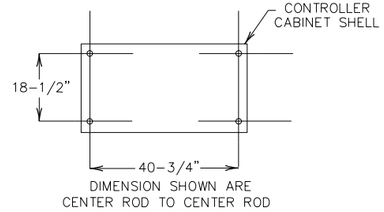
SIDE VIEW



FRONT VIEW



CONTROLLER CABINET TYPE "P" & "R" BOLT PATTERN

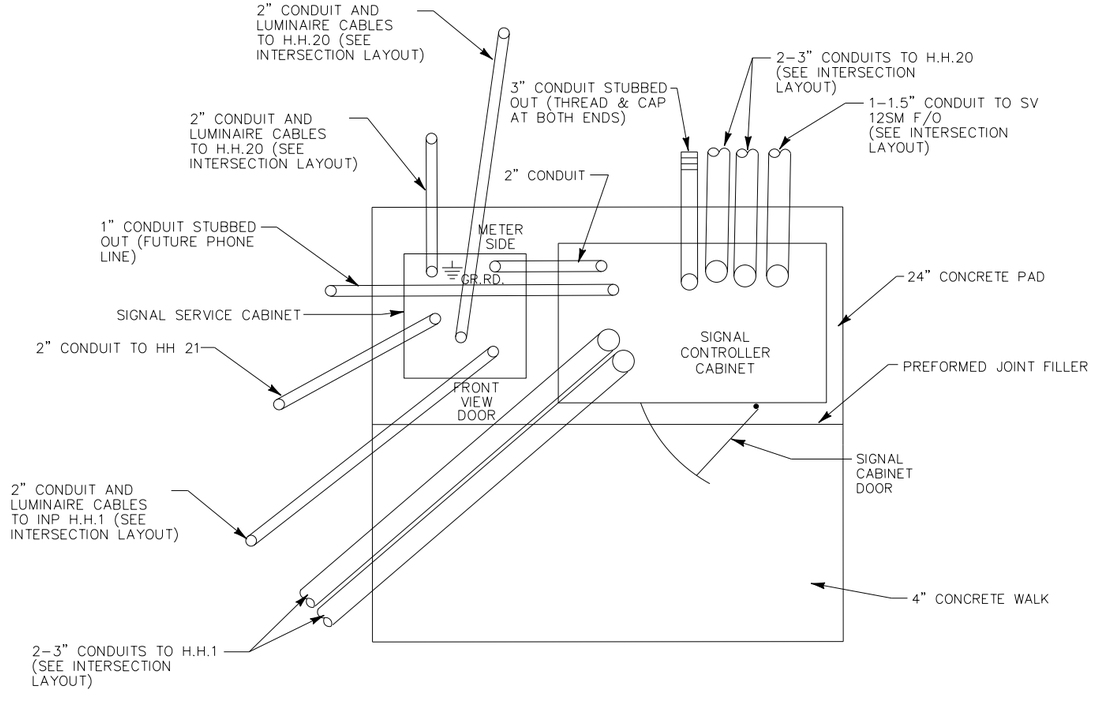


NOTES:

1. THE ANCHOR RODS, NUTS AND WASHERS FOR THE COUNTY FURNISHED CONTROLLER AND CABINET SHALL BE FURNISHED BY THE COUNTY AND INSTALLED BY THE CONTRACTOR.
2. THE UPPER PART OF THE NEW EQUIPMENT PAD SHALL BE BEVELLED OR CHAMFERED IN A NEAT MANNER AS DIRECTED BY THE ENGINEER.
3. THE TOP OF THE CONDUITS SHALL BE THREADED AND CAPPED AFTER INSTALLATION (UNTIL CABLES ARE INSTALLED).
4. CONDUIT SHALL PROJECT A MINIMUM OF 2" ABOVE CONCRETE AND SHALL BE LOCATED INSIDE OF THE CABINET WHERE DIRECTED BY THE ENGINEER, BUT SHALL NOT INTERFERE WITH THE CABINET FUNCTIONS (SUPPORTING MEMBERS, ETC.).
5. CONCRETE MIX 3F52 OR EQUAL SHALL BE USED FOR THE EQUIPMENT PAD AND SIDEWALK.
6. CONDUITS WITH BOTH ENDS TERMINATING WITHIN THE PAD SHALL NOT BE INSTALLED BELOW THE CONCRETE.
7. THE EXACT LOCATION OF CONDUITS WITHIN THE PAD SHALL BE DETERMINED BY THE ENGINEER IN THE FIELD.
8. ANCHOR RODS SHALL PROJECT A MINIMUM OF 3" ABOVE THE CONCRETE BUT SHALL NOT INTERFERE WITH THE CABINET FUNCTIONS (SUPPORTING MEMBERS, ETC.).
9. CONTRACTOR SHALL PROVIDE MINIMUM 4-INCH CLEARANCE BETWEEN CONTROLLER AND SERVICE CABINETS ON THE EQUIPMENT PAD FOUNDATION AS SHOWN.

PLAN VIEW

CSAH 1 AT
MISSISSIPPI BLVD



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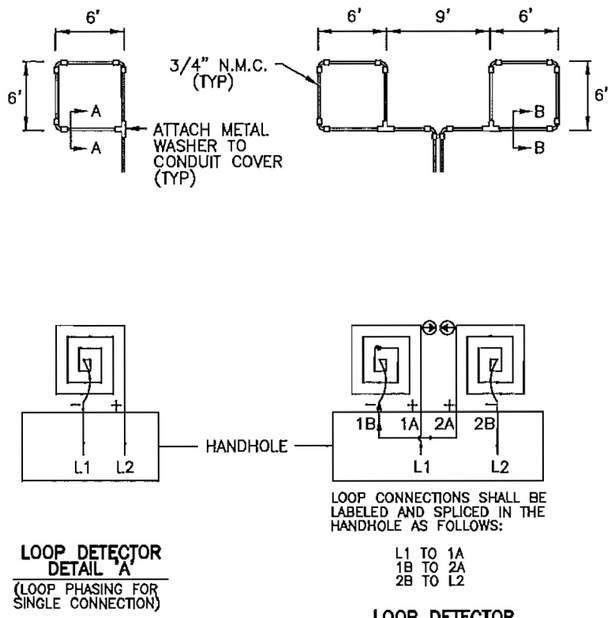
ANOKA COUNTY

CSAH 1 Improvements
Anoka County, Minnesota

ANOKA COUNTY, MINNESOTA
CABINET EQUIPTMENT PAD DETAIL
TRAFFIC CONTROL SIGNAL SYSTEM
SP 002-601-057, SAP 114-105-017

SHEET **88** OF **103** SHEETS

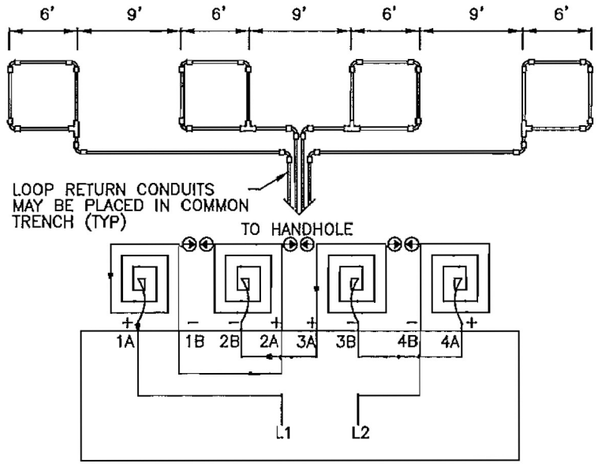


LOOP CONNECTIONS SHALL BE LABELED AND SPLICED IN THE HANDHOLE AS FOLLOWS:

L1 TO 1A
1B TO 2A
2B TO L2

LOOP DETECTOR DETAIL 'A'
(LOOP PHASING FOR SINGLE CONNECTION)

LOOP DETECTOR DETAIL 'B'
(LOOP PHASING FOR SERIES CONNECTION)

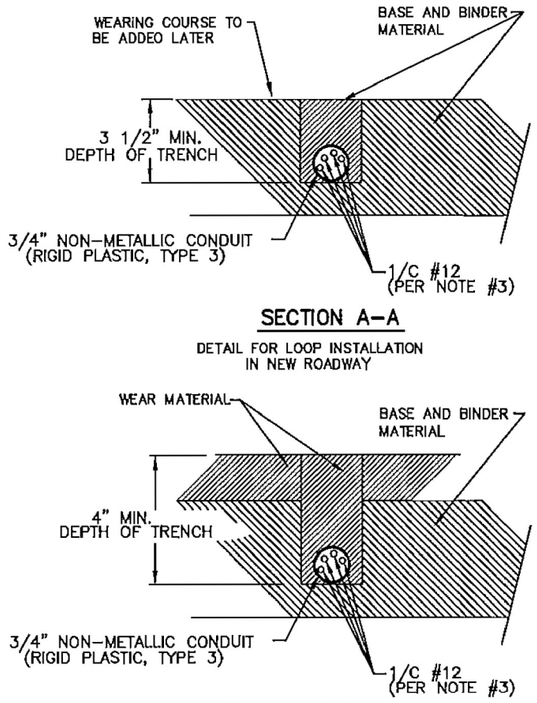


LOOP CONNECTIONS SHALL BE LABELED AND SPLICED IN THE HANDHOLE AS FOLLOWS:

L1 TO 1A
1B TO 2A
2B TO 3A
3B TO 4A
4B TO L2

SPLICE CONTROL CABLE TO L1 & L2 IN HANDHOLE. ALL CONDUCTORS SHALL BE TAGGED IN HANDHOLE (1A, 1B, ECT)

LOOP DETECTOR DETAIL 'C'
(LOOP PHASING FOR SERIES CONNECTION)

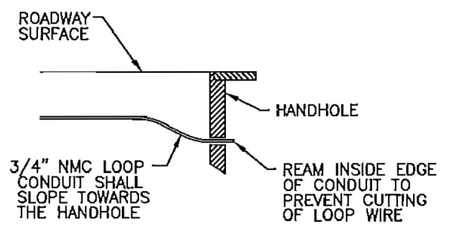


SECTION A-A

DETAIL FOR LOOP INSTALLATION IN NEW ROADWAY

SECTION B-B

DETAIL FOR LOOP INSTALLATION IN EXISTING ROADWAY



DRAINAGE DETAIL

LOOP DETECTOR WIRING

1) ALL CORNERS SHALL BE 90° CONDUIT BENDS.
2) CONNECT WIRES IN HANDHOLES USING SPLICE KIT METHOD DESCRIBED IN THE SPECIAL PROVISIONS.
3) LOOP DETECTOR WIRES SHALL BE #12 AWG CROSSED LINKED POLYETHYLENE (XLP). SEE SPECIAL PROVISIONS.
4) LOOP LEAD IN WIRES SHALL BE TWISTED A MIN. OF (5) TURNS PER FOOT THROUGH THE CONDUIT TO THE HANDHOLE.
5) NMC DESIGNATES NON-METALLIC CONDUIT (SPEC. 3803)
6) LOOPS 6' x 6' THRU 6' x 14' SHALL HAVE (4) TURNS.
7) LOOPS 6' x 15' AND LARGER SHALL HAVE (2) TURNS.

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SEAN DELMORE, PE
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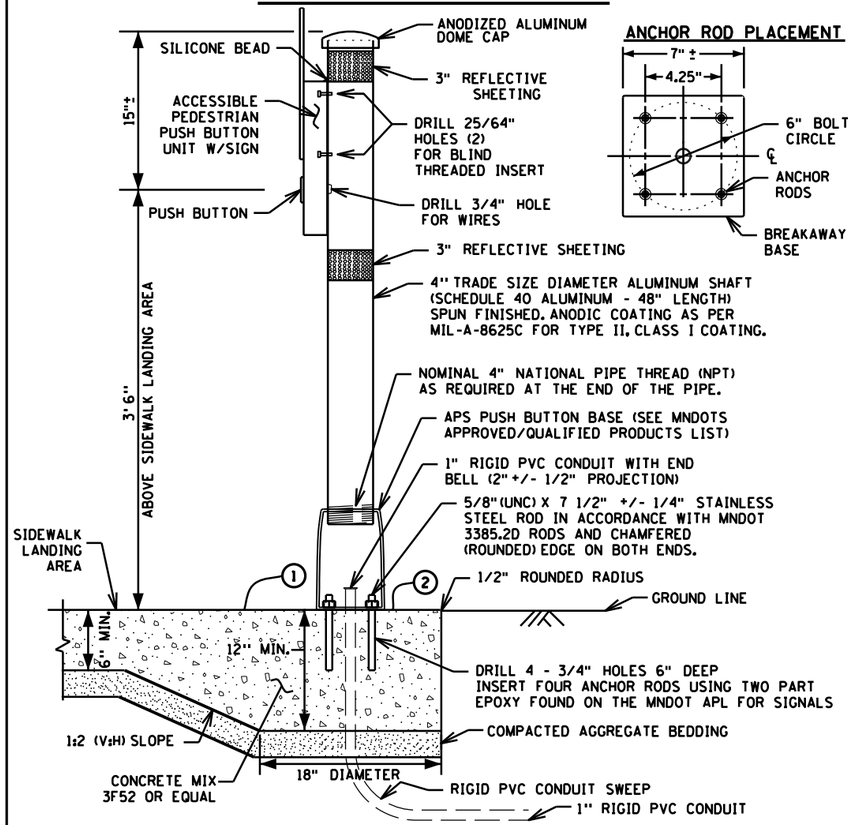
ANOKA COUNTY

CSAH 1 Improvements
Anoka County, Minnesota

ANOKA COUNTY, MINNESOTA
LOOP DETECTOR DETAIL
TRAFFIC CONTROL SIGNAL SYSTEM
SP 002-601-057, SAP 114-105-017

SHEET 89 OF 103 SHEETS

APS PUSH BUTTON STATION



ANCHOR ROD PLACEMENT

NOTES:

PLACEMENT AND ORIENTATION OF THE PUSH BUTTON STATION IS CRITICAL. MOUNT THE BUTTON SO THAT THE FACE IS PARALLEL WITH THE ASSOCIATED CROSSWALK. SCREW IN SHAFT TO A TIGHTENED POSITION BEFORE MOUNTING ACCESSIBLE PEDESTRIAN PUSH BUTTON UNIT TO THE SHAFT.

ORIENT ACCESS OPENING ON THE BREAKAWAY PEDESTAL DIRECTLY BELOW THE APS BUTTON.

PLUMB THE PUSH BUTTON STATION WITH LEVELING SHIMS IN ACCORDANCE WITH STANDARD PLATE 8129.

INSTALL BLIND THREADED INSERTS USING MANUFACTURER'S SPECIFIC INSERTION TOOL.

USE ZINC PLATED STEEL 1/4 - 20 UNC BLIND THREADED INSERTS SUITABLE FOR MOUNTING ON SURFACE WALL THICKNESS OF .337. APPROVED BLIND INSERTS ARE LISTED ON MNDOT'S APPROVED/QUALITY PRODUCTS LIST WEBSITE FOR TRAFFIC SIGNALS.

USE APS 1/4 - 20 STAINLESS STEEL MOUNTING BOLTS. APPLY BRUSH ON ANTI SEIZE COMPOUND TO BOLTS PRIOR TO ASSEMBLY.

APPLY A BEAD OF 100% SILICONE SEALANT ALONG THE TOP OF THE PUSH BUTTON UNIT WHERE IT COMES IN CONTACT WITH THE 4" SHAFT.

USE WHITE REFLECTIVE SHEETING AT INTERSECTION CORNERS AND YELLOW REFLECTIVE SHEETING IN CENTER MEDIANS. APPROVED TUBE DELINEATOR SHEETING IS LISTED ON MNDOT'S APPROVED/QUALIFIED PRODUCTS LIST WEBSITE FOR SIGNING.

AN 18" X 6" FIBER FORMING TUBE MAY BE USED FOR THE LOWER HALF OF THE FOUNDATION WHEN CONDITIONS DO NOT ALLOW FOR THE 18" X 6" HOLE TO STAND OPEN.

(1) THE PUSH BUTTON STATION FOUNDATION IS MONOLITHIC (POURED AT ONE TIME) WITH THE SIDEWALK. PROVIDE A 1:2 (V:H) SLOPE GRADE WHERE THE 6" MIN SIDEWALK DEPTH TRANSITIONS TO THE 12" MIN FOUNDATION DEPTH. MAINTAIN THE COMPACTED AGGREGATE BEDDING AND THICKNESS USED FOR THE SIDEWALK THROUGHOUT THE SLOPE AND FOUNDATION GRADING. PROVIDE 1:2 (V:H) SLOPE GRADING 360 DEGREES FOR THE TRANSITION FROM THE SIDEWALK TO THE FOUNDATION WHEN THE FOUNDATION IS NOT LOCATED NEAR EDGE OF SIDEWALK AND IS SURROUNDED BY CONCRETE WALK.

(2) ENSURE CONCRETE CONTROL JOINTS AND EDGE OF CONCRETE WALK ARE A MINIMUM 9" FROM THE CENTER OF THE PUSH BUTTON FOUNDATION.

TYPICAL APS PEDESTRIAN PUSH BUTTON LOCATION

THIS IS A GENERAL DETAIL INTENDED TO SHOW THE REQUIREMENTS OF APS PUSH BUTTON LOCATION. FOR PROJECT SPECIFIC INFORMATION REGARDING PEDESTRIAN RAMP LAYOUT AND PUSH BUTTON LOCATIONS, SEE THE PLAN.

SUPPLEMENTAL GUIDANCE FOR CONSTRUCTING COMPLIANT APS PUSH BUTTONS:

(1) THE FACE OF THE BUTTON SHALL BE PARALLEL WITH THE OUTSIDE EDGE OF CROSSWALK.

(2) A MINIMUM 4 FT X 4 FT LANDING AREA SHALL BE PROVIDED ADJACENT TO EACH BUTTON, WITH A 2 PERCENT MAXIMUM SLOPE IN ALL DIRECTIONS.

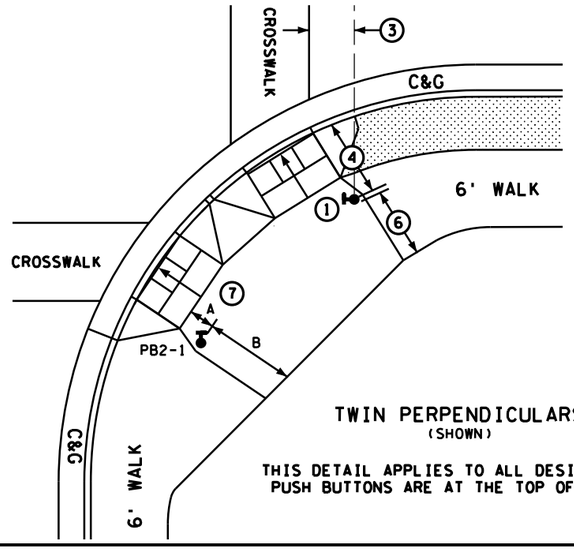
(3) BUTTONS SHALL BE WITHIN 5 FT OF THE OUTSIDE EDGE OF THE CROSSWALK.

(4) BUTTONS SHALL BE BETWEEN 1.5 FT AND 10 FT FROM THE BACK OF CURB OR EDGE OF ROADWAY, MEASURED IN THE DIRECTION OF TRAVEL. STANDALONE PUSH BUTTON STATIONS SHOULD BE 4' MINIMUM FROM THE BACK OF CURB TO AVOID KNOCKDOWNS.

(5) BUTTONS SHALL BE AT LEAST 10 FT APART.

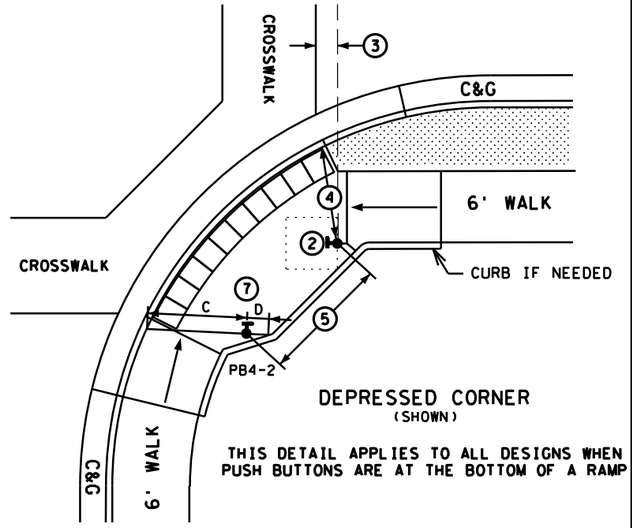
(6) PROVIDE A MAINTENANCE ACCESS ROUTE (MAR) WHEREVER POSSIBLE FOR SNOW REMOVAL PURPOSES. A MAR REQUIRES A 6 FT MINIMUM CLEAR DISTANCE BETWEEN A PUSH BUTTON AND ANY OBSTRUCTIONS, INCLUDING BUILDINGS, V-CURB, ELECTRICAL FOUNDATIONS, SIGNAL CABINETS, OR ANOTHER PUSH BUTTON.

(7) BUTTON SHOULD BE 2 FT MINIMUM FROM RAMP GRADE BREAK AND BACK OF WALK.



TWIN PERPENDICULARS
(SHOWN)

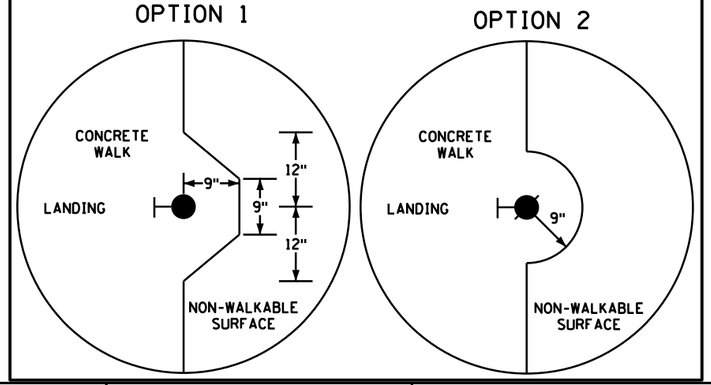
THIS DETAIL APPLIES TO ALL DESIGNS WHEN PUSH BUTTONS ARE AT THE TOP OF A RAMP



DEPRESSED CORNER
(SHOWN)

THIS DETAIL APPLIES TO ALL DESIGNS WHEN PUSH BUTTONS ARE AT THE BOTTOM OF A RAMP

CONTRACTOR MUST USE OPTION 1 OR 2 WHEN THE APS PUSH BUTTON IS SHOWN AT THE EDGE OF WALK. OPTION USED (OR SELECTED) MUST BE THE SAME THROUGHOUT THE ENTIRE PROJECT.



SIGNAL CONTROL POINTS			DISTANCE TO FRONT OF LANDING (FT)	DISTANCE TO BACK OF LANDING (FT)
SIGNAL NO.	X	Y		
PB2-1	-	-	A	B
PB4-2	-	-	C	D

A - DISTANCE MEASURED FROM THE PUSH BUTTON TO THE FRONT OF LANDING/TOP OF RAMP

B - CLEAR DISTANCE MEASURED FROM THE PUSH BUTTON TO THE BACK OF LANDING/EDGE OF WALK

C - CLEAR DISTANCE MEASURED FROM THE PUSH BUTTON TO THE OUTSIDE EDGE OF DOMES IN THE DIRECTION OF TRAVEL

D - CLEAR DISTANCE FROM THE PUSH BUTTON TO THE BACK OF LANDING MEASURED IN THE OPPOSITE DIRECTION OF TRAVEL

NO.	DATE	BY	CHK	REVISIONS

Design By: SS
Plan By: MAS
Checked By: SD
Approved By: SD

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SEAN DELMORE, PE

DATE 5/5/2023 LICENSE # 40945

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ANOKA COUNTY

CSAH 1 Improvements
Anoka County, Minnesota

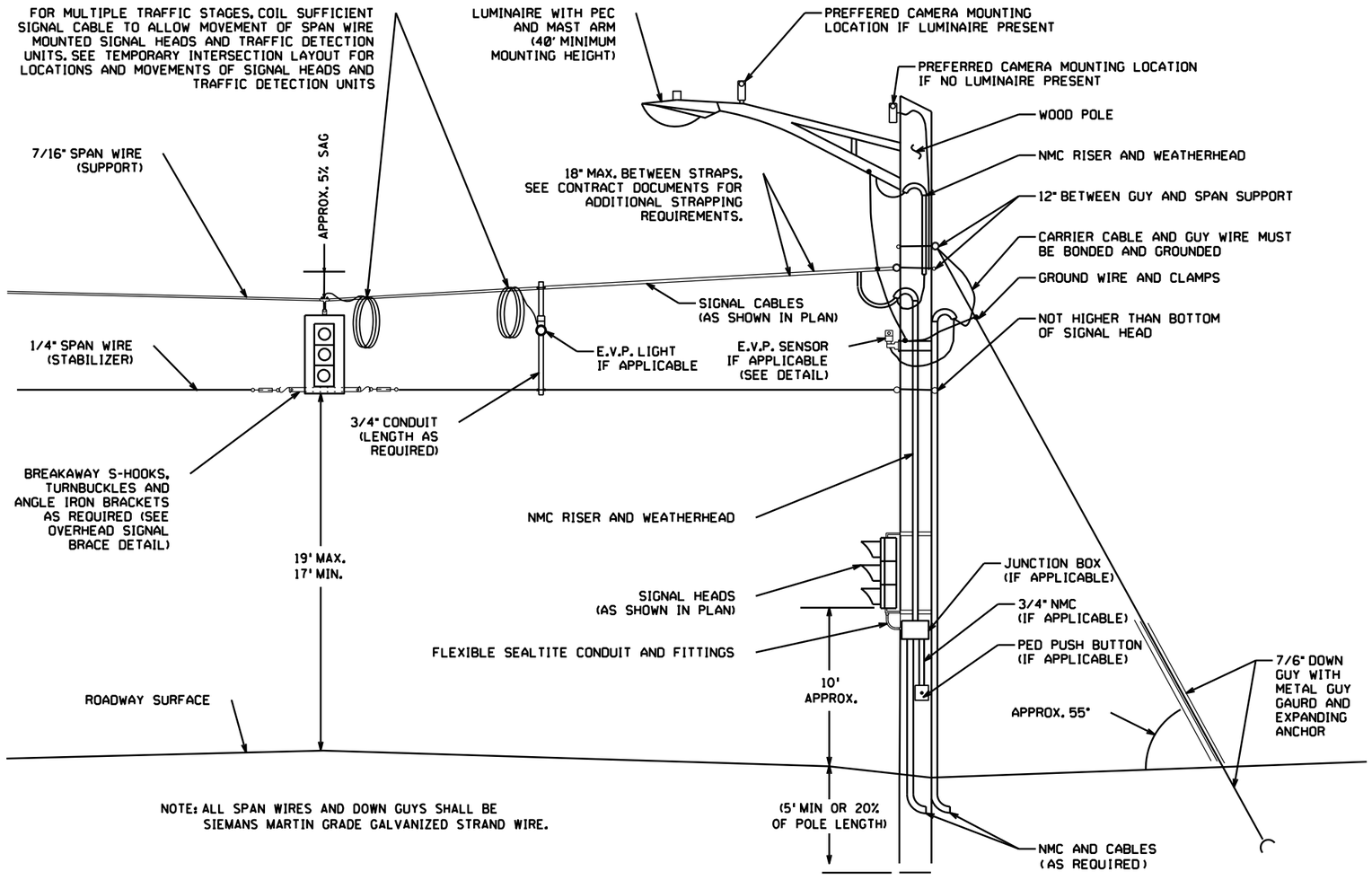
ANOKA COUNTY, MINNESOTA
APS PUSH BUTTON STATION DETAIL
TRAFFIC CONTROL SIGNAL SYSTEM
SP 002-601-057, SAP 114-105-017

SHEET 90 OF 103 SHEETS

PLOTTED/REVISED: 5/5/2023

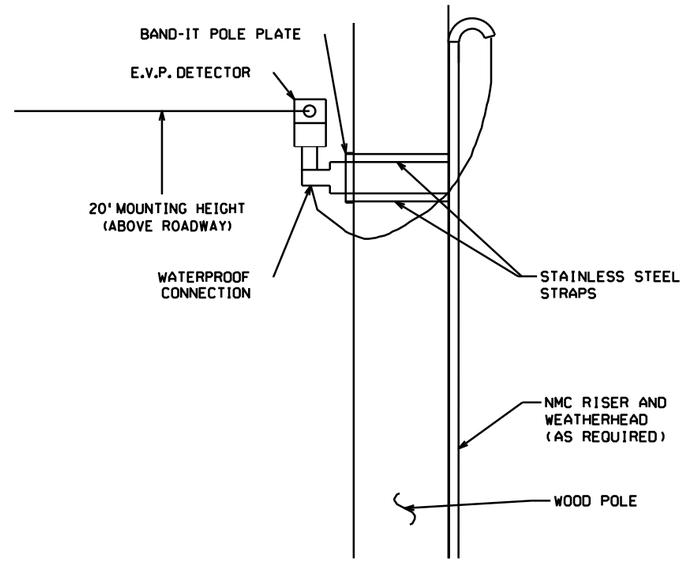
TYPICAL WOOD POLE AND SPAN WIRE MOUNTED TRAFFIC SIGNALS

(NOT TO SCALE)



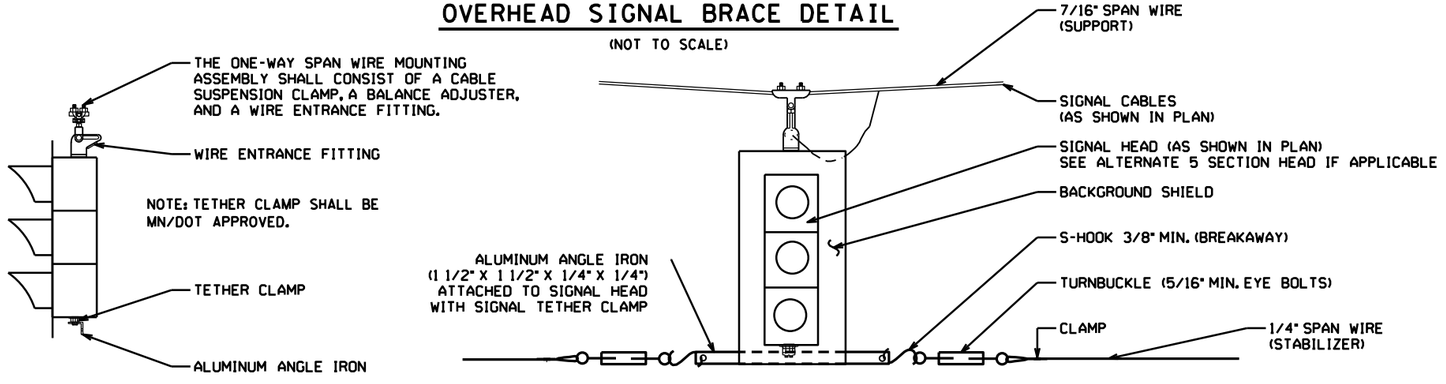
E.V.P. OR TRAFFIC DETECTOR WOOD POLE MOUNT

(NOT TO SCALE)



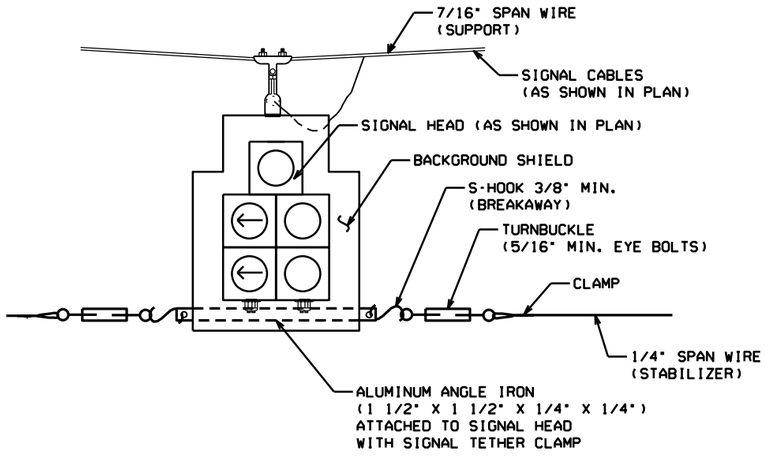
OVERHEAD SIGNAL BRACE DETAIL

(NOT TO SCALE)



5 SECTION HEAD OVERHEAD SIGNAL BRACE DETAIL

(NOT TO SCALE)



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ANOKA COUNTY

CSAH 1 Improvements
Anoka County, Minnesota

ANOKA COUNTY, MINNESOTA
WOOD POLE & SPAN WIRE DETAIL
TRAFFIC CONTROL SIGNAL SYSTEM
SP 002-601-057, SAP 114-105-017

SHEET 91 OF 103 SHEETS

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CONDUCTOR COLOR CODE

FROM		TO DEVICE
SIGNAL SERVICE	1/C 6 EGC	AS SHOWN ON PLAN
SOP	3-1/C 2 R, WH, BLK	SIGNAL SERVICE
SIGNAL SERVICE	3-1/C 6 BLK, WH, G	SIGNAL CABINET
SIGNAL CABINET	(6SM) CABLE	SIGNAL CABINET

SIGNAL CABINET TO DEVICE

6PR 19			AS SHOWN ON PLAN
COAXIAL CABLE			AS SHOWN ON PLAN
4/C 18 CABLE	R, BLK, WH, G		AS SHOWN ON PLAN
2/C 14 CABLE	BLK, WH OR CLR		AS SHOWN ON PLAN
3/C 20 CABLE	R OR O, WH OR YEL, BLK OR BL		AS SHOWN ON PLAN
CAT 5			AS SHOWN ON PLAN

SIGNAL CABINET TO DEVICE

6/C 14 CABLE	R	RED/RLA	4 AND 5 SECTION SIGNAL HEADS
	O	YEL/YLA	
	BL	GRN/GLA	
	WH	NEU	
	BLK/R	YLA/FYA	
	BLK	GLA	
4/C 14 CABLE	R	RED/DWK	3 SECTION HEAD PED HEADS
	BLK/R	YEL/WLK	
	BLK	GRN/SPR	
	WH	NEU	
4/C 14 CABLE	R	RED	5 SECTION (CLUSTER HEADS ONLY)
	BLK/R	YEL	
	BLK	GRN	
	WH	NEU	
4/C 14 CABLE	R	FYA	
	BLK/R	YLA	
	BLK	GLA	
	WH	NEU	
3/C 14 CABLE	BLK	EVP LIGHT/AWF	
	G	LUMINAIRE	
	WH	VIDEO CAMERA ENFORCEMENT LIGHT	

NOTES:
ARRANGE AND TERMINATE CONDUCTORS AND CABLES AS SHOWN WITHOUT SPLICE.
NUMBER ONLY MEANS AWG CONDUCTOR SIZE (e.g. 14=14AWG)
1/C MEANS AN INDIVIDUAL CONDUCTOR NOT PART OF A CABLE ASSEMBLY

CABLE LABELING ABBREVIATIONS

ABBREVIATION	LABEL REFERENCE DSISCRIPTION & EXAMPLE	COMPONENT
X-Y	INDICATION NUMBER 2-1	SIGNAL HEAD
X-Y	LOOP NUMBER D2-1	DETECTOR
X-Y	PUSH BUTTON NUMBER PB2-1	PUSH BUTTON
X-Y	PED INDICATION NUMBER P2-1	PED INDICATION
X-Y	LUMINAIRE NUMBER L1	LUMINAIRE
X-Y	EVP PHASE NUMBER EVP 2+5	EVP DETECTOR
X-Y	EVP LIGHT PHASE NUMBER EVPL 2+5	EVP CON. LIGHT
X-Y	VIDEO DETECTION PHASE V2-1	VIDEO DETECTION
X-Y	RADAR DETECTION PHASE RD2-1	RADAR DETECTION
SS	SIGNAL SERVICE	SERVICE WIRE
CC	CABINET COMMS	COMMS CABLE
FO	FIBER OPTIC	FIBER CABLE
SPARE Y	SPARE WIRE TO POLE NUMB. SPARE1	SPARE WIRE
ELYZ *	ENFORC. LIGHT POLE & DIRECTION	ENFORCEMENT LIGHT
PTZ1	PTZ CAMERA POLE NUMBER PTZ1	PTZ CAMERA
IC	INTERCONNECT CABLE	INTERCONNECT
EGC	EQUIPMENT GROUNDING CONDUCTOR	GROUND

X = SIGNAL SYSTEM PHASE NUMBER; REFER TO THE PLAN
Y = SIGNAL SYSTEM ASSIGNED COMPONENT NUMBER; REFER TO THE PLAN
Z * = DIRECTION
FURNISH AND INSTALL LABELS ON CABLES WITH ABBREVIATIONS SHOWN ON THIS TABLE AND IN ACCORDANCE WITH THE WIRING DIAGRAM.

WIRE COLOR CODE KEY

R	Red
O	Orange
BL	Blue
WH	White
BLK	Black
BRN	Brown
CL	Clear
G	Green
R/BLK	Red with Black Stripe
O/BLK	Orange with Black Stripe
BL/BLK	Blue with Black Stripe
WH/BLK	White with Black Stripe
WH/R	White with Red Stripe
BLK/WH	Black with White Stripe
BLK/R	Black with Red Stripe

CONDUCTOR AND CABLE SPECIFICATION CHART

NUMBER OF CONDUCTORS & AWG SIZE	TYPE	Specification Number
1/C 2	INDIVIDUAL SERVICE CONDUCTORS	3815.2B.1
1/C 6	FEEDER AND BRANCH CONDUCTORS	3815.2B.1
1/C 6 INS.GR.	Grounding Conductors	3815.2B.5
2/C 14	Loop Detector Lead-In Cable	3815.2C.4
3/C 14	Signal Control Cable	3815.2C.3
4/C 14	Signal Control Cable	3815.2C.3
6/C 14	Signal Control Cable	3815.2C.3
12/C 14	Signal Control Cable	3815.2C.3
6PR 19	Telephone Cables Outdoor	3815.2C.6.b
3/C 20	EVP Detector Cable	3815.2C.5

NO.	DATE	BY	CHK	REVISIONS

Design By: SS
Plan By: MAS
Checked By: SD
Approved By: SD

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SEAN DELMORE, PE
DATE 5/5/2023 LICENSE # 40945

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ANOKA COUNTY

CSAH 1 Improvements
Anoka County, Minnesota

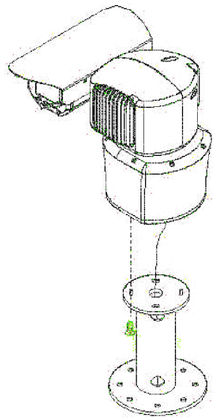
ANOKA COUNTY, MINNESOTA
COLOR CODE DETAIL
TRAFFIC CONTROL SIGNAL SYSTEM
SP 002-601-057, SAP 114-105-017

SHEET **92** OF **103** SHEETS

PLOTTED/REVISED: 5/5/2023

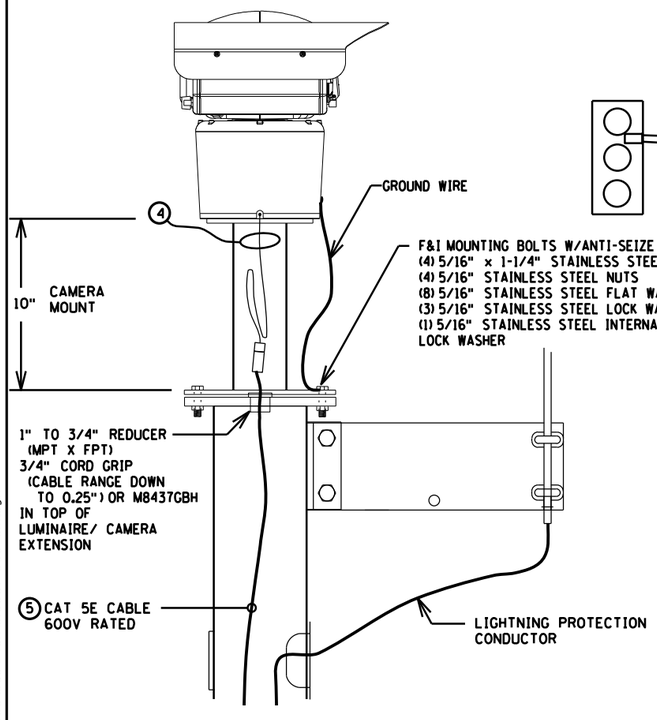
ISOMETRIC VIEW- CAMERA & MOUNT

(CONTRACTOR FURNISHED)

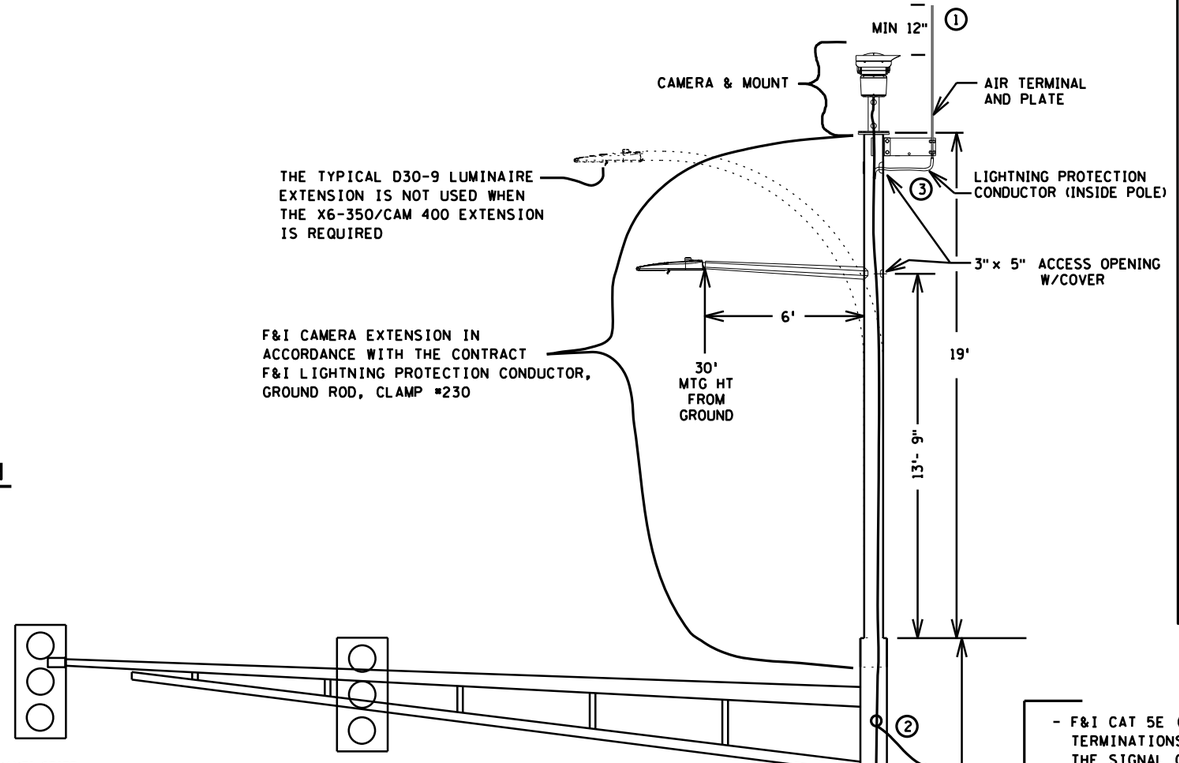


CAMERA & MOUNT AT TOP OF EXTENSION

IP CAMERA



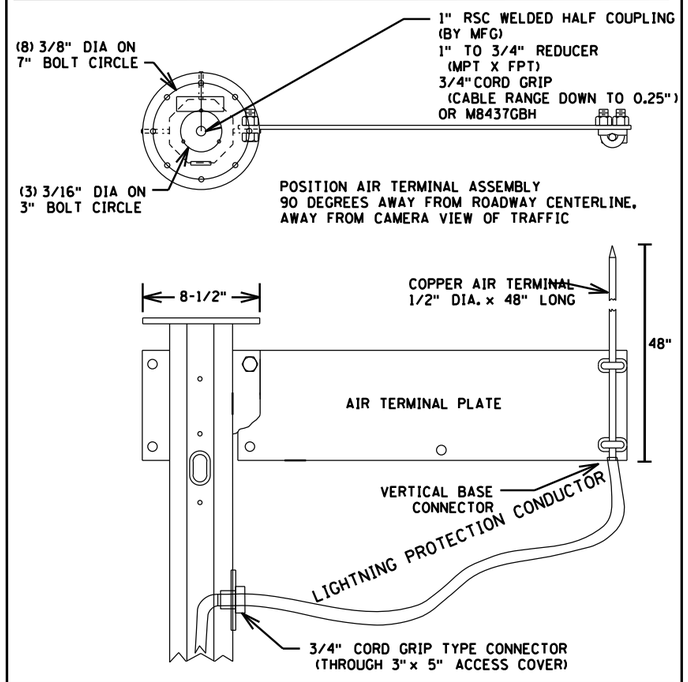
X6-350/CAM 400



NOTES:

1. F & I AN NRTL LISTED BRASS, TINNED BRASS OR BRONZE HEX STRAIGHT VERTICAL BASE CONNECTOR INTENDED FOR "LESS ADAPTER" TYPE AIR TERMINALS. AIR TERMINAL THREADS INTO THE TOP OF THE CONDUCTOR AND BOLTS OR SET SCREWS HOLD THE LIGHTNING PROTECTION CONDUCTOR IN PLACE.
2. F AND I 7/16 INCH DIA. LIGHTING PROTECTION CONDUCTOR MEETING THE FOLLOWING: 32 STRANDS OF 17 AWG COPPER WIRE, BRAIDED SMOOTH TWIST, 65,500 CIRCULAR MILS, NET WEIGHT 215 LBS PER 1000 FEET. CONNECT THE LIGHTNING PROTECTION CONDUCTOR WITHOUT SPLICES FROM THE AIR TERMINAL TO THE 5/8 INCH DIA. GROUND IN THE HAND HOLE AS SHOWN.
3. CUT A 3/4 INCH DIA. HOLE IN THE ACCESS COVER CLOSEST TO THE CAMERA. F & I A 3/4 INCH CORD GRIP TYPE FITTING INTO THE HOLE TO TRANSITION THE LIGHTNING PROTECTION CONDUCTOR INSIDE THE POLE.
4. USE THE 20 INCH CABLE PIGTAIL SUPPLIED WITH THE CAMERA TO TERMINATE A RJ45 PLUG AS SHOWN ON THE IP CAMERA CONNECTOR STANDARD PLAN.
5. F&I ETHERNET CABLE IN ACCORDANCE WITH 3815.2C.6.d (CAT 5E), BETWEEN THE SIGNAL CONTROL CABINET AND THE TOP OF THE POLE. TERMINATE THE END OF THE CABLE WITH UNSHIELDED RJ-45 (T-568B) CONNECTORS.

EXTENSION TOP & LIGHTNING PROTECTION DETAIL



- F&I CAT 5E (600V RATED) (WITH THE PROPER TERMINATIONS) FROM THE TOP OF THE POLE TO THE SIGNAL CABINET. (NOT TO EXCEED 250' LENGTH)
- F&I LIGHTNING PROTECTION CONDUCTOR FROM AIR TERMINAL TO THE GROUND ROD IN HANDHOLE

REQUIRED CABLE TERMINATION:
COM CABLE- CAT 5E SHIELDED -RJ-45 (T-568B)

PROPOSED SIGNAL CONTROL CABINET (CONTRACTOR FURNISHED OR INPLACE)

CONTRACTOR FURNISHED:
CAMERA POWER OVER ETHERNET (POE) INJECTOR
PATCH CORDS
ACHD FURNISHED:
SIGNAL CONTROLLER
MMU
ETHERNET SWITCH

F/I CAT 5E (TO CAMERA AT THE TOP OF THE POLE)

HANDHOLE (SEE LAYOUT)
EXOTHERMIC WELD
GROUND ROD
LIGHTNING PROTECTION CONDUCTOR
CONDUITS (SEE LAYOUT)
HANDHOLE
CONDUIT W/6-SM F/O
CORE DRILL FOR CONDUIT WHERE REQUIRED

NO.	DATE	BY	CHK	REVISIONS

Design By: SS
Plan By: MAS
Checked By: SD
Approved By: SD

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ANOKA COUNTY

CSAH 1 Improvements
Anoka County, Minnesota

ANOKA COUNTY, MINNESOTA
IP CAMERA DETAIL
TRAFFIC CONTROL SIGNAL SYSTEM
SP 002-601-057, SAP 114-105-017

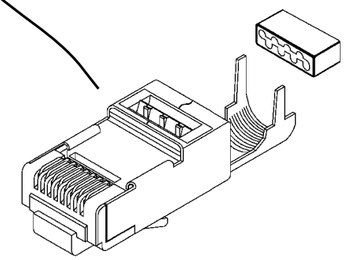
SHEET 93 OF 103 SHEETS

PATH & FILENAME: K:\01\8837-000\Cad\Plan\01j8837-000_sill.dgn

PLOTTED/REVISED: 5/5/2023

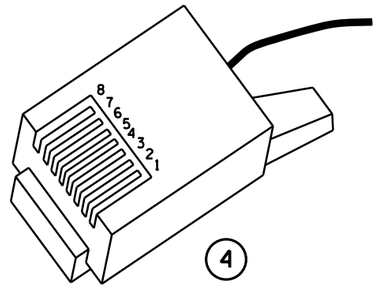
(2) CAT 5E (600V RATED) CABLE TERMINATION

F&I RJ45 CABLE TERMINATION - FOR HIGH SPEED APPLICATION.
CAT 6 UNSHIELDED MODULAR PLUG, RJ45 (8 CONDUCTOR), GOLD PLATED CONTACTS, ACCEPTS CABLES WITH DIAMETERS UP TO 0.310 INCHES.
MEETS CATERGORY 6 ANSI/EIA 568-C.2

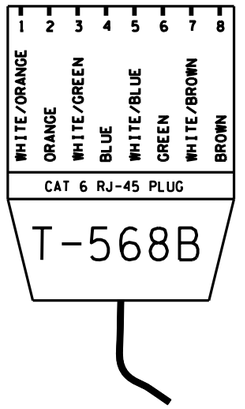


(3) CAT 5E (600V RATED)

F&I ETHERNET CABLE CAT 5E IN ACCORDANCE WITH 3815.2C.6d."ETHERNET CABLE (OUTSIDE PLANT)"
L-COM PART NO. TFDL5089 MEETS THE REQUIREMENTS.
QUABBIN PART NO. 5089 MEETS THE REQUIREMENTS.

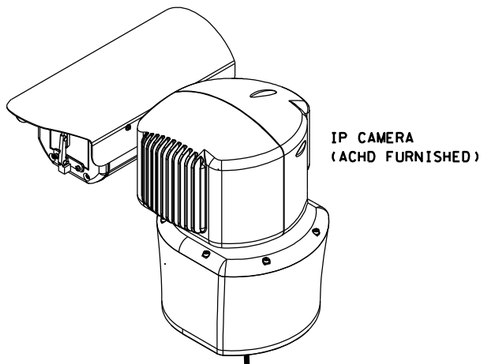


(4)

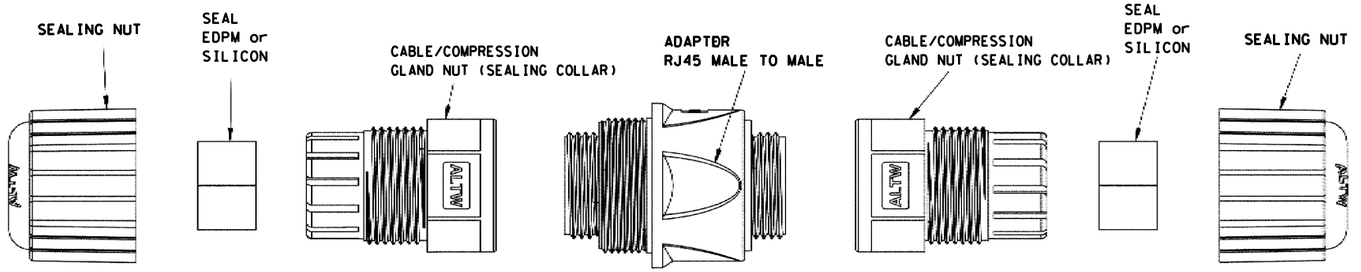


(1) WATERPROOF SHIELDED RJ-45 (MALE TO MALE) INLINE COUPLER/ADAPTER

IP67
COPPER ALLOY CONTACT MATERIAL
GOLD CONTACT PLATING
NYLON HOUSING
AMPHENOL PART NO. RDP-00BFFA-SLM7001 &
VPI PART NO. CAT5E-WTP-FF MEETS REQUIREMENTS



IP CAMERA
(ACHD FURNISHED)



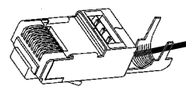
FACTORY INSTALLED 20" PIGTAIL
WITH CONNECTOR (RJ-45 PLUG)

ETHERNET CABLE 4/PR

RJ-45 PLUG (T-568B)
(SUPPLIED WITH CAMERA)

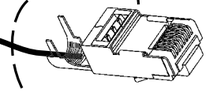
(1)

(2)



(3)
INSTALL BETWEEN THE SIGNAL CONTROL CABINET AND THE TOP OF THE SIGNAL POLE. TERMINATE THE ENDS OF THE CABLE WITH RJ-45 (T-568B) CONNECTORS. INSTALL FIELD TERMINATIONS/CONNECTORS AS RECOMMENDED BY THE MANUFACTURER, AND USE THE SPECIFIED INSTALLATION TOOL(S).

(4) F&I SHIELDED RJ45 CABLE TERMINATION (CONNECTOR)



CONNECTOR LOCATED IN THE SIGNAL CABINET

CONNECTORS LOCATED AT THE TOP OF THE SIGNAL POLE (IN CAMERA MOUNT)

NO.	DATE	BY	CHK	REVISIONS

Design By: SS
Plan By: MAS
Checked By: SD
Approved By: SD

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SEAN DELMORE, PE
DATE 5/5/2023 LICENSE # 40945

wsb

ANOKA COUNTY

CSAH 1 Improvements
Anoka County, Minnesota

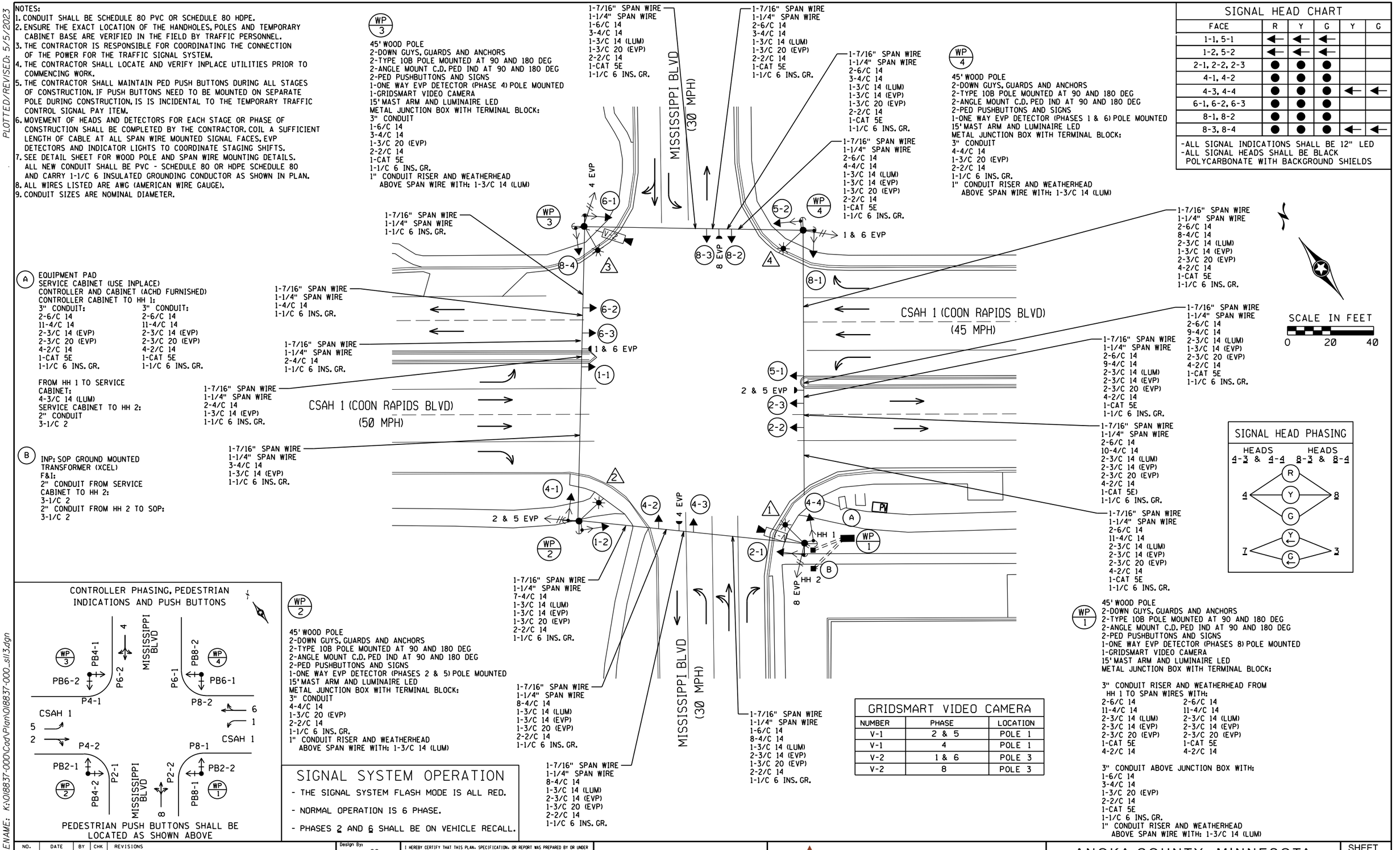
ANOKA COUNTY, MINNESOTA
COLOR CODE DETAIL
TRAFFIC CONTROL SIGNAL SYSTEM
SP 002-601-057, SAP 114-105-017

SHEET 94 OF 103 SHEETS

PATH & FILENAME: K:\01\8837-000\Cad\Plan\01\8837-000_sil2.dgn

PLOTTED/REVISED: 5/5/2023

NOTES:
1. CONDUIT SHALL BE SCHEDULE 80 PVC OR SCHEDULE 80 HDPE.
2. ENSURE THE EXACT LOCATION OF THE HANDHOLES, POLES AND TEMPORARY CABINET BASE ARE VERIFIED IN THE FIELD BY TRAFFIC PERSONNEL.
3. THE CONTRACTOR IS RESPONSIBLE FOR COORDINATING THE CONNECTION OF THE POWER FOR THE TRAFFIC SIGNAL SYSTEM.
4. THE CONTRACTOR SHALL LOCATE AND VERIFY INPLACE UTILITIES PRIOR TO COMMENCING WORK.
5. THE CONTRACTOR SHALL MAINTAIN PED PUSH BUTTONS DURING ALL STAGES OF CONSTRUCTION. IF PUSH BUTTONS NEED TO BE MOUNTED ON SEPARATE POLE DURING CONSTRUCTION, IS IS INCIDENTAL TO THE TEMPORARY TRAFFIC CONTROL SIGNAL PAY ITEM.
6. MOVEMENT OF HEADS AND DETECTORS FOR EACH STAGE OR PHASE OF CONSTRUCTION SHALL BE COMPLETED BY THE CONTRACTOR. COIL A SUFFICIENT LENGTH OF CABLE AT ALL SPAN WIRE MOUNTED SIGNAL FACES, EVP DETECTORS AND INDICATOR LIGHTS TO COORDINATE STAGING SHIFTS.
7. SEE DETAIL SHEET FOR WOOD POLE AND SPAN WIRE MOUNTING DETAILS. ALL NEW CONDUIT SHALL BE PVC - SCHEDULE 80 OR HDPE SCHEDULE 80 AND CARRY 1-1/C 6 INSULATED GROUNDING CONDUCTOR AS SHOWN IN PLAN.
8. ALL WIRES LISTED ARE AWG (AMERICAN WIRE GAUGE).
9. CONDUIT SIZES ARE NOMINAL DIAMETER.



SIGNAL HEAD CHART

FACE	R	Y	G	Y	G
1-1, 5-1	←	←	←		
1-2, 5-2	←	←	←		
2-1, 2-2, 2-3	●	●	●		
4-1, 4-2	●	●	●		
4-3, 4-4	●	●	●	←	←
6-1, 6-2, 6-3	●	●	●		
8-1, 8-2	●	●	●		
8-3, 8-4	●	●	●	←	←

-ALL SIGNAL INDICATIONS SHALL BE 12" LED
-ALL SIGNAL HEADS SHALL BE BLACK POLYCARBONATE WITH BACKGROUND SHIELDS

SIGNAL HEAD PHASING

CONTROLLER PHASING, PEDESTRIAN INDICATIONS AND PUSH BUTTONS

PEDESTRIAN PUSH BUTTONS SHALL BE LOCATED AS SHOWN ABOVE

SIGNAL SYSTEM OPERATION

- THE SIGNAL SYSTEM FLASH MODE IS ALL RED.
- NORMAL OPERATION IS 6 PHASE.
- PHASES 2 AND 6 SHALL BE ON VEHICLE RECALL.

GRIDSMART VIDEO CAMERA

NUMBER	PHASE	LOCATION
V-1	2 & 5	POLE 1
V-1	4	POLE 1
V-2	1 & 6	POLE 3
V-2	8	POLE 3

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ANOKA COUNTY

CSAH 1 Improvements
Anoka County, Minnesota

ANOKA COUNTY, MINNESOTA
CSAH 1 & MISSISSIPPI BLVD - TEMPORARY INTERSECTION LAYOUT
TRAFFIC CONTROL SIGNAL SYSTEM
SP 002-601-057, SAP 114-105-017

SHEET 95 OF 103 SHEETS

PATH & FILENAME: K:\01\8837-000\Cad\Plan\01\8837-000_sl13.dgn

PLOTTED/REVISED: 5/5/2023

CONTROLLER CABINET

28 — RED, YEL, GRN, NEU, YLA, GLA — 8-4
29 — RED, YEL, GRN, NEU — 6-1
30 — DWK, WLK, SPR, NEU — P4-1
31 — DWK, WLK, SPR, NEU — P6-2
32 — PB4-1
33 — PB6-2
34 — 4 EVP DETECTOR
35 — VIDEO DET 360 V-2 — CAT-5E
36 — RED, YEL, GRN, NEU — 8-2
37 — 8 EVP LIGHT EQ.G, NEU
38 — RED, YEL, GRN, NEU, YLA, GLA — 8-3
39 — RED, YEL, GRN, NEU — 8-1
40 — RLA, YLA, GLA, NEU — 5-2
41 — DWK, WLK, SPR, NEU — P6-1
42 — DWK, WLK, SPR, NEU — P8-2
43 — PB6-1
44 — PB8-2
45 — 1 & 6 EVP DETECTOR
46 — RLA, YLA, GLA, NEU — 5-1
47 — 2 & 5 EVP LIGHT EQ.G, NEU
48 — RED, YEL, GRN, NEU — 2-2
81 — INS. GR.

4-4 — RED, YEL, GRN, NEU, YLA, GLA — 7
2-1 — RED, YEL, GRN, NEU — 8
P8-1 — DWK, WLK, SPR, NEU — 9
P2-2 — DWK, WLK, SPR, NEU — 10
PB8-1 — 11
PB2-2 — 12
8 EVP DETECTOR — 13
VIDEO DET 360 V-1 — CAT-5E — 14
4-3 — RED, YEL, GRN, NEU, YLA, GLA — 15
4 EVP LIGHT EQ.G, NEU — 16
4-2 — RED, YEL, GRN, NEU — 17
4-1 — RED, YEL, GRN, NEU — 18
1-2 — RLA, YLA, GLA, NEU — 19
P2-1 — DWK, WLK, SPR, NEU — 20
P4-2 — DWK, WLK, SPR, NEU — 21
PB2-1 — 22
PB4-2 — 23
2 & 5 EVP DETECTOR — 24
1-1 — RLA, YLA, GLA, NEU — 25
1 & 6 EVP LIGHT EQ.G, NEU — 26
6-2 — RED, YEL, GRN, NEU — 27
INS. GR. — 80
SIGNAL SERVICE — INS. GR. — 2

CONDUCTOR COLOR CODE (14 GAUGE)

TO SIGNAL CABINET			TO DEVICE		
1/C#6 G		R, O, BL, WH, BLK/R, BLK	6/C#14 CABLE	R, O, BL, WH, BLK/R, BLK	RED, YEL, GRN, NEU, YLTA, GLTA — 4 & 5 SECTION SIGNAL INDICATION
6PR#19		R, BLK/R, BLK, WH	4/C#14 CABLE	BLK/R, BLK, WH	RED/DWK, YEL/WLK, GRN/SPR, NEU — 3 SECTION & PED INDICATION
COXIAL CABLE		BLK, G, WH	3/C#14 CABLE	BLK, G, WH	EVP LIGHT LUM/FLASHER
(6SM) CABLE		BLK, WH, G	2/C#14 CABLE	BLK, WH OR CLR	PED PUSH BUTTON (If Required)
3-1/C#2	R, WH, BLK	INPUT POWER			
3-1/C#6	BLK, WH, G	SIGNAL SERVICE			
12/C#14	R, O, BL, WH, R/BLK, O/BLK, BL/BLK, WH/BLK, BLK, BLK/WH, BLK/R, WH/R				

BASE OF POLE OR PEDESTAL

NOTE:
ALL POLE CONNECTIONS SHALL BE ARRANGED AS SPECIFIED ABOVE.

SERVICE CABINET

LUMINAIRE 4 — 6
LUMINAIRE 3 — 5
LUMINAIRE 2 — 4
LUMINAIRE 1 — 3
2 — 3-1/C#6 — SIGNAL SERVICE — INS. GR.
INPUT POWER — 3-1/C#2 — 1
GR.RD. GR.RD.

7-27, 80
28-48, 81
3-6
2

HH 1
HH 2
S.O.P.
GR.RD.

J.B. 1 — WP 1
3, 4, 7-27, 80
5, 6, 28-48, 81
4, 15-27, 80
4, 16-27, 80
4, 17-28, 80
4, 18-27, 80
J.B. 2 — WP 2

LUMINAIRE 1 — 3 TO LUM
LUMINAIRE 2 — 4 TO LUM

2-2 — 48
2 & 5 EVP LIGHT — 47
5-1 — 46
5, 6, 28-46, 81
5, 6, 28-45, 81
5, 6, 28-47, 81
5, 6, 28-48, 81

WP 4 — J.B. 4
LUMINAIRE 4 — 6 TO LUM
LUMINAIRE 3 — 5 TO LUM
5, 28-38, 81
5, 28-37, 81
5, 28-36, 81
5, 28-35, 81
WP 3 — J.B. 3

8-1 — 39
P6-1 — 41
P8-2 — 42
1 & 6 EVP DETECTOR — TO EVP HUB — 45
6-2 — 40
PB6-1 — 43 — TO PB
PB8-2 — 44 — TO PB
8-3 — 38
8 EVP LIGHT — 37
8-2 — 36
8-4 — 28
P4-1 — 30
P6-2 — 31
4 EVP DETECTOR — TO EVP HUB — 34
6-1 — 29
PB4-1 — 32 — TO PB
PB6-2 — 33 — TO PB
VIDEO DET 360 V-2 — CAT-5E — 35
INS. GR. — 81 — GR.RD.

4-4 — 7
P8-1 — 9
P2-2 — 10
8 EVP DETECTOR — TO EVP HUB — 13
2-1 — 8
PB8-1 — 11 — TO PB
PB2-2 — 12 — TO PB
VIDEO DET 360 V-1 — CAT-5E — 14
4-3 — 15
4 EVP LIGHT — 16
4-2 — 17
4-1 — 18
P2-1 — 20
P4-2 — 21
2 & 5 EVP DETECTOR — TO EVP HUB — 24
1-2 — 19
PB2-1 — 22 — TO PB
PB4-2 — 23 — TO PB
1-1 — 25
1 & 6 EVP LIGHT — 26
6-2 — 27
INS. GR. — 80 — GR.RD.

NO.	DATE	BY	CHK	REVISIONS

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wsb

ANOKA COUNTY

CSAH 1 Improvements
Anoka County, Minnesota

ANOKA COUNTY, MINNESOTA
CSAH 1 & MISSISSIPPI BLVD - TEMPORARY WIRING DIAGRAM
TRAFFIC CONTROL SIGNAL SYSTEM
SP 002-601-057, SAP 114-105-017

SHEET 96 OF 103 SHEETS

PATH & FILENAME: K:\0\8837-000\Cad\Plan\0\8837-000_sl14.dgn

PLOTTED/REVISED: 5/5/2023

NOTES:
1. SEE SPECIAL PROVISIONS FOR ACHD FURNISHED MATERIALS.
2. REFER TO SHEETS FOR INPLACE SIGNAL COMPONENTS.
3. ENSURE THE EXACT LOCATION OF THE HANDHOLES, POLES, LOOP DETECTORS AND EQUIPMENT PAD ARE VERIFIED IN THE FIELD BY ACHD OFFICE PERSONNEL.
4. THE CONTRACTOR IS RESPONSIBLE FOR COORDINATING THE CONNECTION OF THE POWER FOR THE TRAFFIC SIGNAL SYSTEM.
5. FOR SIGN PANELS ON SIGNAL SEE DETAIL SHEET. ALL SIGN PANELS REQUIRED ARE INCLUDED IN PAYMENT FOR THE TRAFFIC CONTROL SIGNAL SYSTEM PAY ITEM.
6. FOR PAVEMENT MARKINGS SEE PAVEMENT MARKINGS SHEETS (NOT INCLUDED IN TRAFFIC CONTROL SIGNAL PAY ITEM).
7. FOR CONSTRUCTION OF PEDESTRIAN CURB RAMPS, CONCRETE WALK AND MEDIAN WORK SEE DETAIL SHEET. (NOT INCLUDED IN TRAFFIC CONTROL SYSTEM PAY ITEM).
8. THIS PLAN SPECIFIES CONDUIT SIZES, TYPES, AND GENERAL LOCATIONS. THE EXACT LOCATIONS WILL BE DETERMINED IN THE FIELD. CONDUITS UNDER THE ROADWAYS REQUIRE BORING.
9. USE PVC OR HDPE FOR ALL NEW CONDUIT.
10. CONDUIT SIZES ARE NOMINAL DIAMETER.
11. ALL WIRES LISTED ARE AWG (AMERICAN WIRE GAUGE).
12. ITEMS DENOTED WITH AN * ARE INCLUDED IN PAYMENT FOR THE EVP SYSTEM PAY ITEM.
13. ITEMS DENOTED WITH AN ** ARE INCLUDED IN PAYMENT FOR THE INTERCONNECT PAY ITEM.

(A) EQUIPMENT PAD (SEE DETAIL SHEET)
SERVICE CABINET (SSB) BATTERY BACKUP SYSTEM (BATTERIES INCLUDED)
CONTROLLER AND CABINET (ACHD FURNISHED)

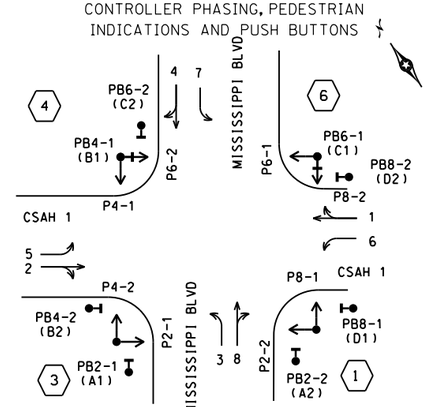
3" CONDUIT TO HH 1:	3" CONDUIT TO HH 20:
2-6/C 14	2-6/C 14
4-4/C 14	5-4/C 14
4-2/C 14 (SHLD)	*1-3/C 14 (EVP)
*1-3/C 14 (EVP)	*1-3/C 20 (EVP)
*2-3/C 20 (EVP)	1-CAT 5E
11-2/C 12	1-1/C 6 INS. GR.
1-1/C 6 INS. GR.	

3" CONDUIT TO HH 1:	3" CONDUIT TO HH 20:
2-6/C 14	3-6/C 14
5-4/C 14	4-4/C 14
2-2/C 14 (SHLD)	2-2/C 14 (SHLD)
*1-3/C 14 (EVP)	*1-3/C 14 (EVP)
*2-3/C 20 (EVP)	*1-3/C 20 (EVP)
4-2/C 12	4-2/C 12
1-1/C 6 INS. GR.	1-1/C 6 INS. GR.

GROUND WIRE AND GROUND ROD - MIN 8' OUT FROM PAD
1-3" CONDUIT STUBBED OUT (CAPPED BOTH ENDS)
CABINET TO SERVICE CABINET:
2" CONDUIT
3-1/C 6
SERVICE CABINET TO INP HH 1:
2" CONDUIT
2-3/C 14 (LUM)
SERVICE CABINET TO HH 20:
2" CONDUIT
2-3/C 14 (LUM)
SERVICE CABINET TO EXTERNAL GR. RD.
1" CONDUIT
1-1/C 6 INS. GR. (SEE EQUIPMENT PAD DETAIL)

(B) INP SOP (XCEL)
GROUND MOUNTED
TRANSFORMER

CONTROLLER PHASING, PEDESTRIAN INDICATIONS AND PUSH BUTTONS



PEDESTRIAN PUSH BUTTONS SHALL BE LOCATED AS SHOWN ABOVE

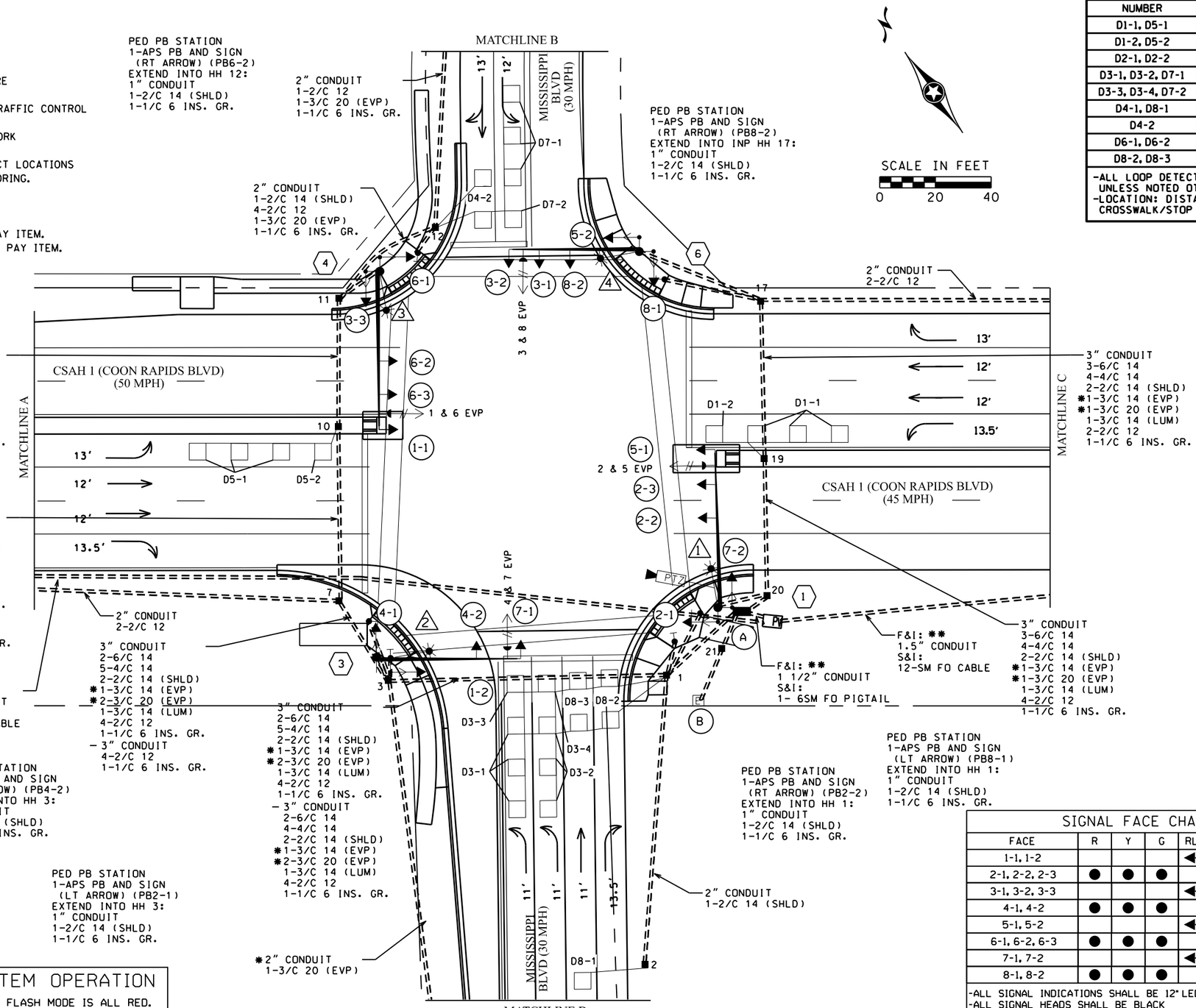
SIGNAL SYSTEM OPERATION

- THE SIGNAL SYSTEM FLASH MODE IS ALL RED.
- NORMAL OPERATION IS 8 PHASE, WITH PHASES 1, 3, 5 AND 7 BEING FYA BY TIME OF DAY.
- PHASES 2 & 6 SHALL BE ON VEHICLE RECALL.

LOOP DETECTOR CHART

NUMBER	SIZE (FT)	LOCATION
D1-1, D5-1	3-6x6	20, 35 & 50
D1-2, D5-2	6x6	5
D2-1, D2-2	6x6	400
D3-1, D3-2, D7-1	3-6x6	20, 35 & 50
D3-3, D3-4, D7-2	6x6	5
D4-1, D8-1	6x6	120
D4-2	2-6x6	5 & 20
D6-1, D6-2	6x6	300
D8-2, D8-3	2-6x6	5 & 20

-ALL LOOP DETECTORS SHALL BE PVC UNLESS NOTED OTHERWISE
-LOCATION: DISTANCE FROM CROSSWALK/STOP BAR IN FEET



SIGNAL FACE CHART

FACE	R	Y	G	RLA	YLA	FYA	GLA
1-1, 1-2				←	←	←	←
2-1, 2-2, 2-3	●	●	●				
3-1, 3-2, 3-3				←	←	←	←
4-1, 4-2	●	●	●				
5-1, 5-2				←	←	←	←
6-1, 6-2, 6-3	●	●	●				
7-1, 7-2				←	←	←	←
8-1, 8-2	●	●	●				

-ALL SIGNAL INDICATIONS SHALL BE 12" LED
-ALL SIGNAL HEADS SHALL BE BLACK POLYCARBONATE WITH BACKGROUND SHIELDS
-INCLUDE YELLOW REFLECTIVE TAPE ON THE ENTIRE PERIMETER OF THE BACKGROUND SHIELDS
-FYA DENOTES FLASHING YELLOW ARROW

NO.	DATE	BY	CHK	REVISIONS

Design By: SS
Plan By: MAS
Checked By: SD
Approved By: SD

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
SEAN DELMORE, PE
DATE 5/5/2023 LICENSE # 40945

wsb

ANOKA COUNTY

CSAH 1 Improvements
Anoka County, Minnesota

ANOKA COUNTY, MINNESOTA
CSAH 1 & MISSISSIPPI BLVD - INTERSECTION LAYOUT
TRAFFIC CONTROL SIGNAL SYSTEM
SP 002-601-057, SAP 114-105-017

SHEET 97 OF 103 SHEETS

PATH & FILENAME: K:\01\8837-000\Cad\Plan\01\8837-000_sl15.dgn

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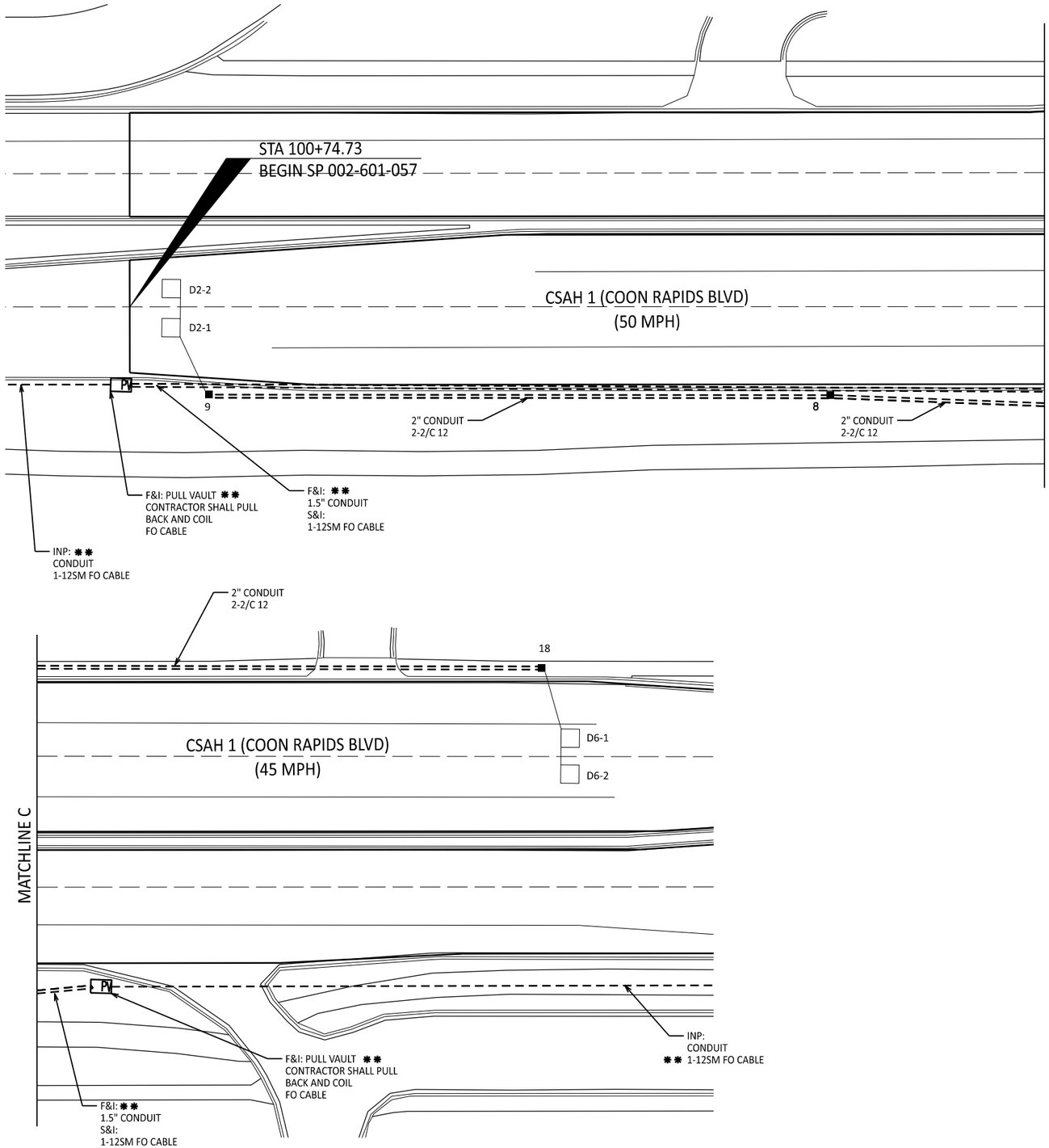

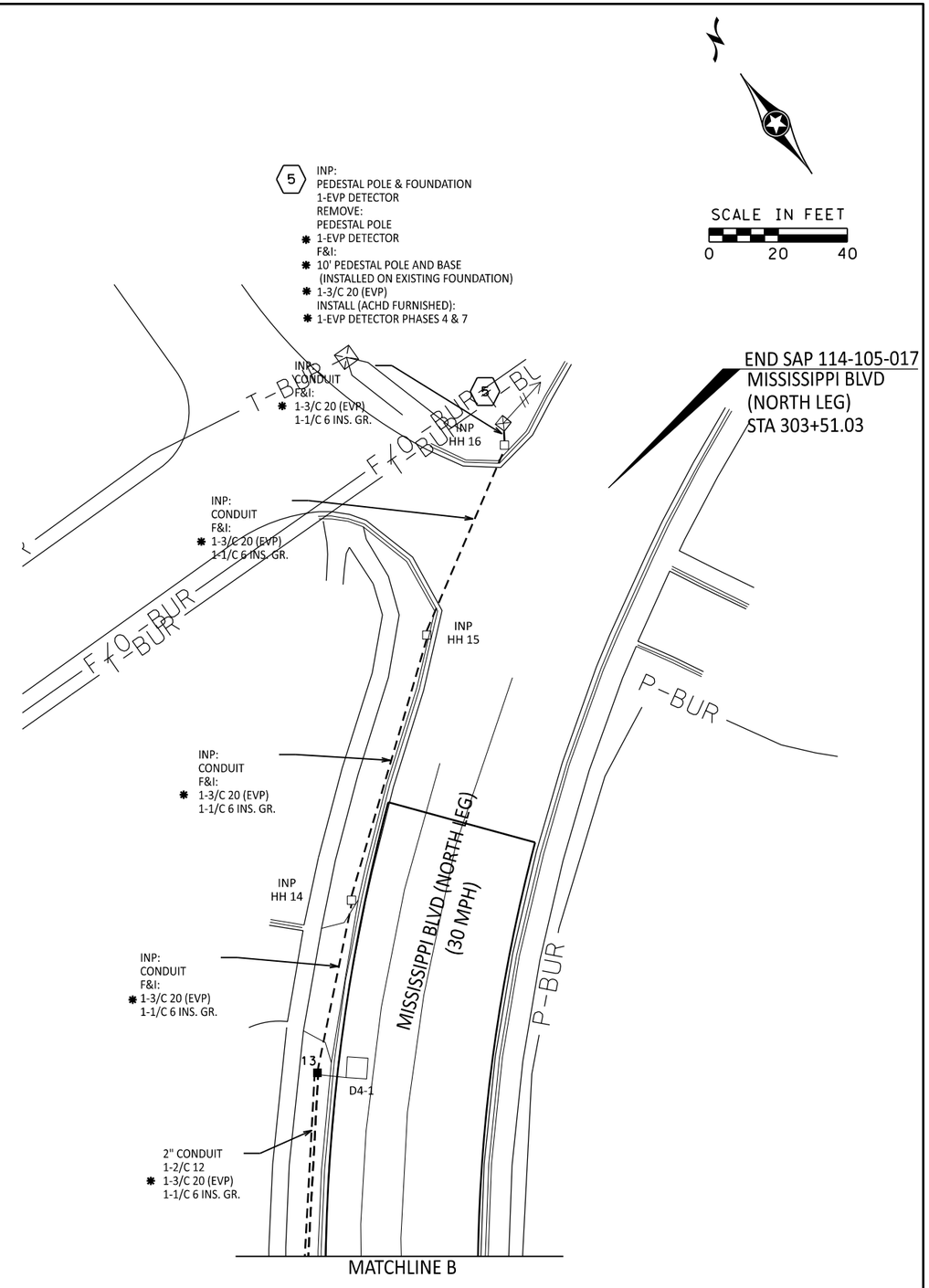

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SEAN DELMORE, PE

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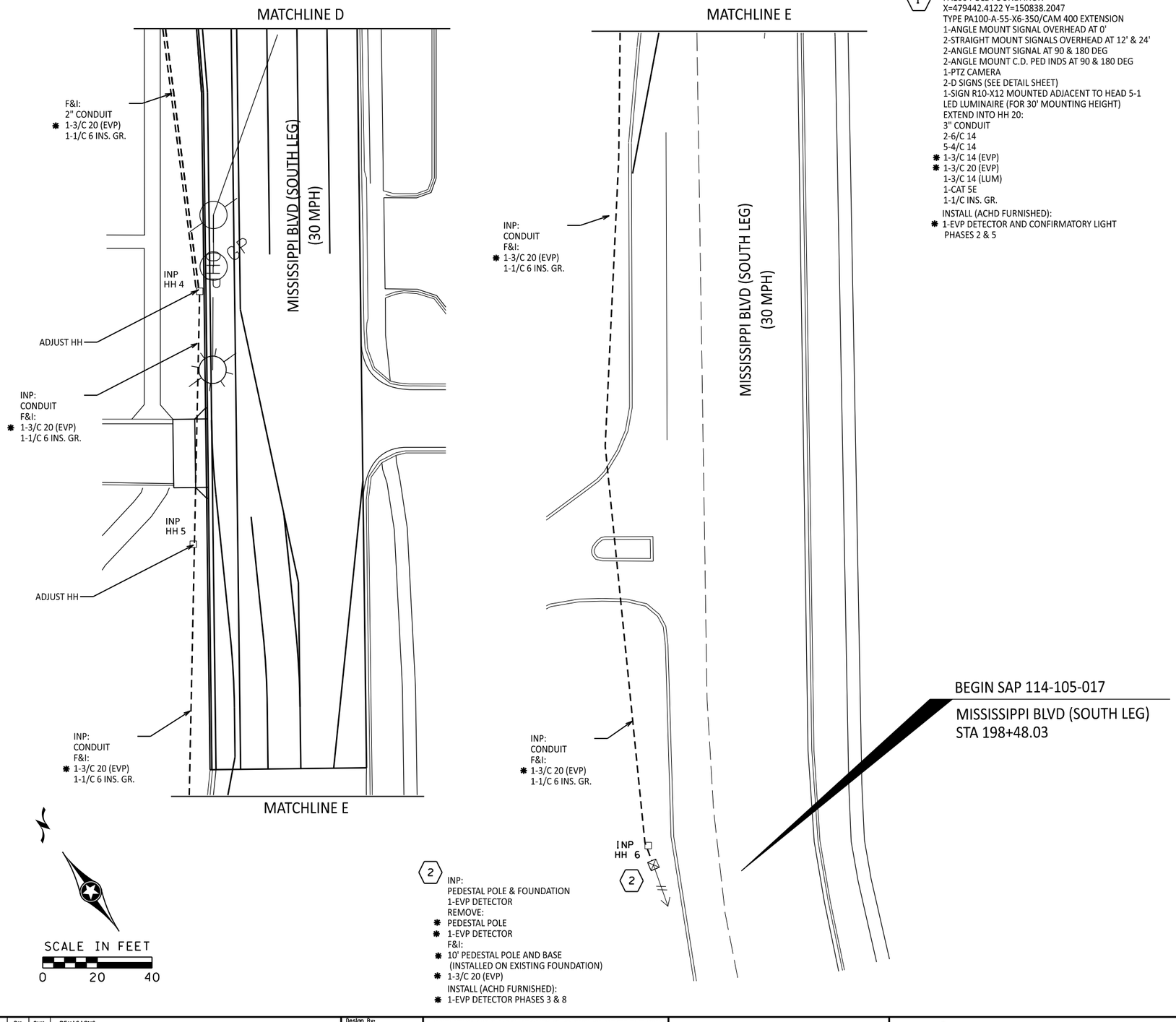
ANOKA COUNTY

CSAH 1 Improvements
Anoka County, Minnesota

ANOKA COUNTY, MINNESOTA
CSAH 1 & MISSISSIPPI BLVD - MATCHLINES
TRAFFIC CONTROL SIGNAL SYSTEM
SP 002-601-057, SAP 114-105-017

SHEET **98** OF **103** SHEETS



2 INP:
PEDESTAL POLE & FOUNDATION
1-EVP DETECTOR
REMOVE:
✱ PEDESTAL POLE
✱ 1-EVP DETECTOR
F&I:
✱ 10' PEDESTAL POLE AND BASE
(INSTALLED ON EXISTING FOUNDATION)
✱ 1-3/C 20 (EVP)
INSTALL (ACHD FURNISHED):
✱ 1-EVP DETECTOR PHASES 3 & 8

1 PA100 POLE FOUNDATION
X=479442.4122 Y=150838.2047
TYPE PA100-A-55-X6-350/CAM 400 EXTENSION
1-ANGLE MOUNT SIGNAL OVERHEAD AT 0'
2-STRAIGHT MOUNT SIGNALS OVERHEAD AT 12' & 24'
2-ANGLE MOUNT SIGNAL AT 90 & 180 DEG
2-ANGLE MOUNT C.D. PED INDS AT 90 & 180 DEG
1-PTZ CAMERA
2-D SIGNS (SEE DETAIL SHEET)
1-SIGN R10-X12 MOUNTED ADJACENT TO HEAD 5-1
LED LUMINAIRE (FOR 30' MOUNTING HEIGHT)
EXTEND INTO HH 20:
3" CONDUIT
2-6/C 14
5-4/C 14
✱ 1-3/C 14 (EVP)
✱ 1-3/C 20 (EVP)
1-3/C 14 (LUM)
1-CAT 5E
1-1/C INS. GR.
INSTALL (ACHD FURNISHED):
✱ 1-EVP DETECTOR AND CONFIRMATORY LIGHT
PHASES 2 & 5

3 PA100 POLE FOUNDATION
X=479332.3440 Y=150894.9357
TYPE PA100-A-50-D30-9 (DAVIT AT 350 DEG)
1-ANGLE MOUNT SIGNAL OVERHEAD AT 0'
1-STRAIGHT MOUNT SIGNAL OVERHEAD AT 16'
2-ANGLE MOUNT SIGNAL AT 90 & 180 DEG
2-ANGLE MOUNT C.D. PED INDS AT 90 & 180 DEG
1-D SIGN (SEE DETAIL SHEET)
1-SIGN R10-X12 MOUNTED ADJACENT TO HEAD 7-1
1-SIGN R6-1L, R6-1R (54 X 18) POLE MOUNTED
LED LUMINAIRE (FOR 30' MOUNTING HEIGHT)
EXTEND INTO HH 3:
3" CONDUIT
2-6/C 14
4-4/C 14
✱ 1-3/C 14 (EVP)
✱ 1-3/C 20 (EVP)
1-3/C 14 (LUM)
1-1/C INS. GR.
INSTALL (ACHD FURNISHED):
✱ 1-EVP DETECTOR AND CONFIRMATORY LIGHT
PHASES 4 & 7

4 PA100 POLE FOUNDATION
X=479413.7426 Y=151006.9802
TYPE PA100-A-55-D30-9 (DAVIT AT 350 DEG)
1-ANGLE MOUNT SIGNAL OVERHEAD AT 0'
2-STRAIGHT MOUNT SIGNALS OVERHEAD AT 12' & 24'
2-ANGLE MOUNT SIGNAL AT 90 & 180 DEG
2-ANGLE MOUNT C.D. PED INDS AT 90 & 180 DEG
1-APS PB AND SIGN (LT ARROW)(PB4-1)
1-APS PB POLE MOUNT ADAPTOR
2-D SIGNS (SEE DETAIL SHEET)
1-SIGN R10-X12 MOUNTED ADJACENT TO HEAD 1-1
LED LUMINAIRE (FOR 30' MOUNTING HEIGHT)
EXTEND INTO HH 11:
3" CONDUIT
2-6/C 14
5-4/C 14
✱ 1-3/C 14 (EVP)
✱ 1-3/C 20 (EVP)
1-3/C 14 (LUM)
1-2/C 14 (SHLD)
1-1/C INS. GR.
INSTALL (ACHD FURNISHED):
✱ 1-EVP DETECTOR AND CONFIRMATORY LIGHT
PHASES 1 & 6

6 PA100 POLE FOUNDATION
X=479493.7521 Y=150958.5911
TYPE PA100-A-45-D30-9 (DAVIT AT 350 DEG)
1-ANGLE MOUNT SIGNAL OVERHEAD AT 0'
2-STRAIGHT MOUNT SIGNALS OVERHEAD AT 11' & 22'
2-ANGLE MOUNT SIGNAL AT 90 & 180 DEG
2-ANGLE MOUNT C.D. PED INDS AT 90 & 180 DEG
1-APS PB AND SIGN (LT ARROW) (PB6-1)
1-APS PB POLE MOUNT ADAPTOR
1-D SIGN (SEE DETAIL SHEET)
1-SIGN R10-X12 MOUNTED ADJACENT TO HEAD 3-2
1-SIGN R6-1L, R6-1R (54 X 18) POLE MOUNTED
LED LUMINAIRE (FOR 30' MOUNTING HEIGHT)
EXTEND INTO HH 17:
3" CONDUIT
3-6/C 14
4-4/C 14
✱ 1-3/C 14 (EVP)
✱ 1-3/C 20 (EVP)
1-3/C 14 (LUM)
1-2/C 14 (SHLD)
1-1/C INS. GR.
INSTALL (ACHD FURNISHED):
✱ 1-EVP DETECTOR AND CONFIRMATORY LIGHT
PHASES 3 & 8

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ANOKA COUNTY, MINNESOTA
CSAH 1 & MISSISSIPPI BLVD - MATCHLINES
TRAFFIC CONTROL SIGNAL SYSTEM
SP 002-601-057, SAP 114-105-017

SHEET **99** OF **103** SHEETS

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CABINET CONTROLLER

16 — D1-1
17 — D1-2
18 — RLA, YLA, GLA, NEU, FYA, SPR — 3-1
19 — RLA, YLA, GLA, NEU, FYA, SPR — 3-2
20 — RLA, YLA, GLA, NEU, FYA, SPR — 5-2
21 — RED, YEL, GRN, NEU — 8-1
22 — RED, YEL, GRN, NEU — 8-2
23 — DWK, WLK, SPR, NEU — P6-1
24 — DWK, WLK, SPR, NEU — P8-2
25 — PB6-1
* 26 — EVP LIGHT 3 & 8 — EQ.G, NEU
* 27 — 3 & 8 EVP DETECTOR
28 — PB8-2
29 — D6-1
30 — D6-2
80 — INS. GR.

5-1 — RLA, YLA, GLA, NEU, FYA, SPR — 7
7-2 — RLA, YLA, GLA, NEU, FYA, SPR — 8
2-3 — RED, YEL, GRN, NEU — 9
2-2 — RED, YEL, GRN, NEU — 10
2-1 — RED, YEL, GRN, NEU — 11
P8-1 — DWK, WLK, SPR, NEU — 12
P2-2 — DWK, WLK, SPR, NEU — 13
EVP LIGHT 2 & 5 — EQ.G, NEU — * 14
2 & 5 EVP DETECTOR — * 15
PTZ CAMERA COM CABLE — 90

INTERCONNECT TO PHEASANT RIDGE CABINET — 102 — 102 — PV 1 — 102 — INTERCONNECT TO ** PHEASANT RIDGE SIGNAL SYSTEM
INTERCONNECT TO 111TH AVE CABINET — 103 — 103 — PV 2 — 103 — INTERCONNECT TO ** 111TH AVE SIGNAL SYSTEM

SIGNAL SERVICE — 3-1/C#6 INS. GR. — 2

---

(1) LED LUMINAIRE
3 — TO LUM (1)
5-1 — 7 — 7-2 — 8
2-3 — 9 — 2-2 — 10
2-1 — 11 — P8-1 — 12
P2-2 — 13 — * 14 — 2 & 5 EVP LIGHT
2 & 5 EVP DETECTOR — * 15 — 90 — PTZ CAMERA COM CABLE
80 — INS. GR.
3, 7-15, 80, 90

7-15, 80, 90
16-30, 80

HH 20 — 80 — GR.RD.

6, 16-30, 80
3,6

HH 19 — 16 — D1-1; 17 — D1-2

6, 18-30, 80

HH 17 — 80 — GR.RD.

28, 80
29,30

80 — INS. GR.
28 — PED PB STA PB8-2 — TO PB

HH 18 — 29 — D6-1; 30 — D6-2

4,5 → TO HH 1

HH 21 — 1 — 1 — SOP

---

(6) LED LUMINAIRE
3-1 — 6 — TO LUM (4)
18 — 3-2 — 19
5-2 — 20 — 8-1 — 21
8-2 — 22 — P6-1 — 23
P8-2 — 24 — PB6-1 — 25 — TO PB
3 & 8 EVP LIGHT — * 26 — * 27 — 3 & 8 EVP DETECTOR
80 — INS. GR.
6, 18-27, 80

SERVICE CABINET

LUMINAIRE (4) TO LUM — 6
LUMINAIRE (3) TO LUM — 5
LUMINAIRE (2) TO LUM — 4
LUMINAIRE (1) TO LUM — 3
2 — 3-1/C#6 INS. GR. — SIGNAL SERVICE
INPUT POWER — 3-1/C#2 — 1
CABINET COMMS — 90
GR.RD.

NOTES:
1. SIGNAL SYSTEM INCLUDES BATTERY- BACKUP SERVICE CABINET (BATTERIES NOT INCLUDED).
2. FOR CONDUCTOR COLOR CODE SEE TRAFFIC SIGNAL COLOR CODE DETAIL.
3. ITEMS DENOTED WITH AN * ARE INCLUDED IN PAYMENT FOR THE EVP SYSTEM PAY ITEM.
4. SPLICES ONLY ALLOWED IN LOOP DETECTOR CIRCUITS.
5. FOR EACH "SPARE" WIRE, COIL ENOUGH WIRE TO REACH THE END OF THE MAST ARM IN THE HANDHOLE NEAREST EACH POLE.
6. LEAVE ONE LOOP OF SLACK FOR EACH CABLE IN THE POLE BASE.
7. ITEMS DENOTED WITH AN ** ARE INCLUDED IN PAYMENT FOR THE INTERCONNECT PAY ITEM.

NO.	DATE	BY	CHK	REVISIONS
	.			

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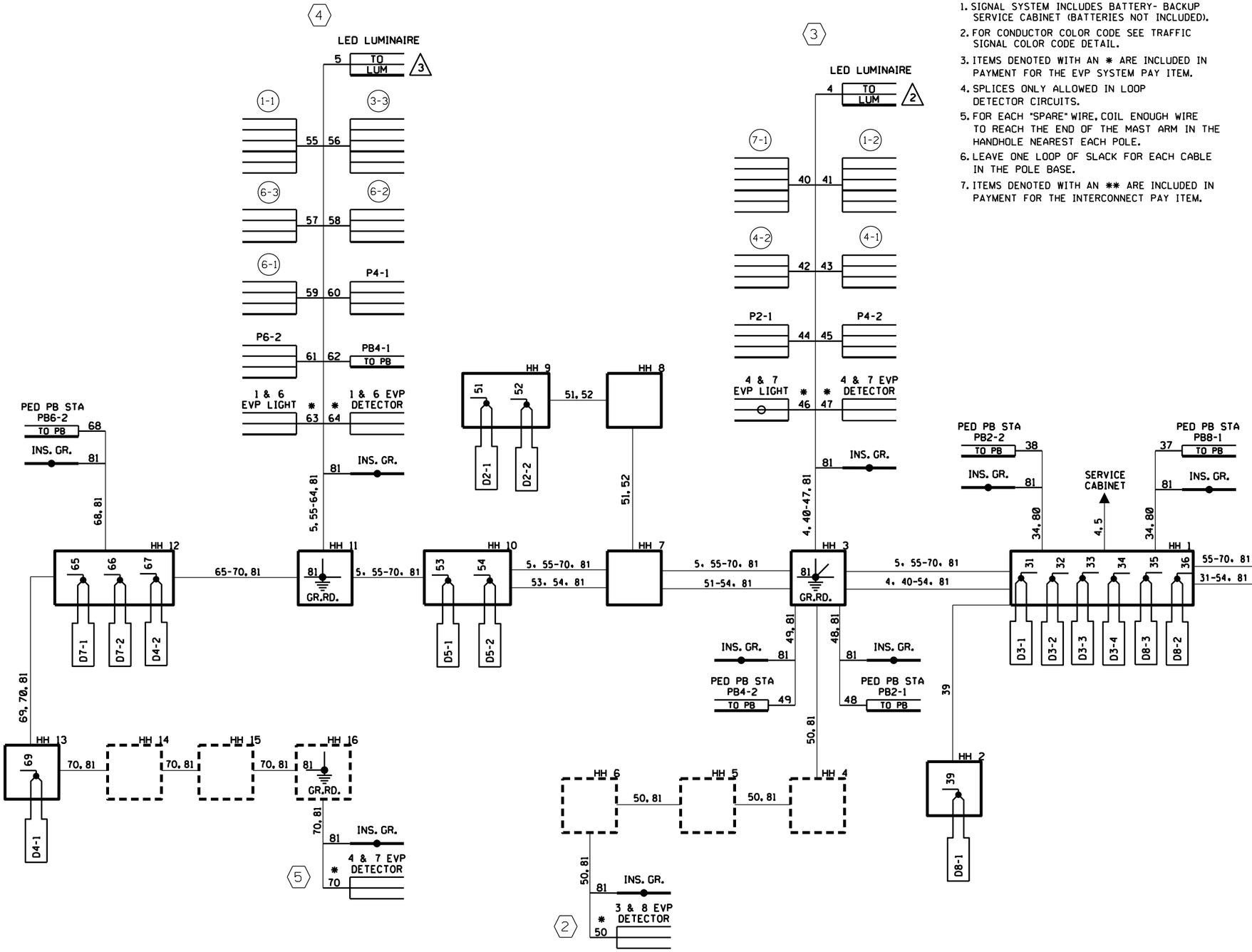
CSAH 1 & MISSISSIPPI BLVD - WIRING DIAGRAM
TRAFFIC CONTROL SIGNAL SYSTEM
SP 002-601-057, SAP 114-105-017

SHEET 100 OF 103 SHEETS



NOTES:
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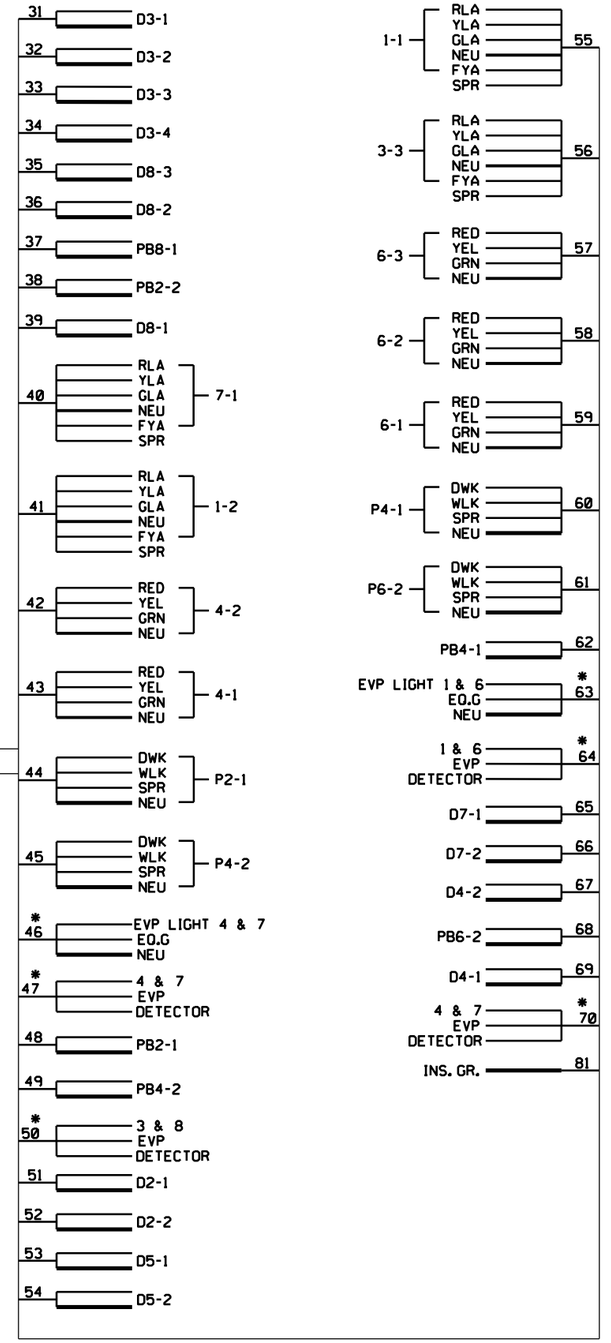
2. FOR CONDUCTOR COLOR CODE SEE TRAFFIC SIGNAL COLOR CODE DETAIL.
3. ITEMS DENOTED WITH AN * ARE INCLUDED IN PAYMENT FOR THE EVP SYSTEM PAY ITEM.
4. SPLICES ONLY ALLOWED IN LOOP DETECTOR CIRCUITS.
5. FOR EACH "SPARE" WIRE, COIL ENOUGH WIRE TO REACH THE END OF THE MAST ARM IN THE HANDHOLE NEAREST EACH POLE.
6. LEAVE ONE LOOP OF SLACK FOR EACH CABLE IN THE POLE BASE.
7. ITEMS DENOTED WITH AN ** ARE INCLUDED IN PAYMENT FOR THE INTERCONNECT PAY ITEM.

CABINET CONTROLLER



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CSAH 1 & MISSISSIPPI BLVD - WIRING DIAGRAM
TRAFFIC CONTROL SIGNAL SYSTEM
SP 002-601-057, SAP 114-105-017

SHEET 101 OF 103 SHEETS

PLOTTED/REVISED: 5/5/2023

LOOP DETECTOR REPLACEMENT NOTES:

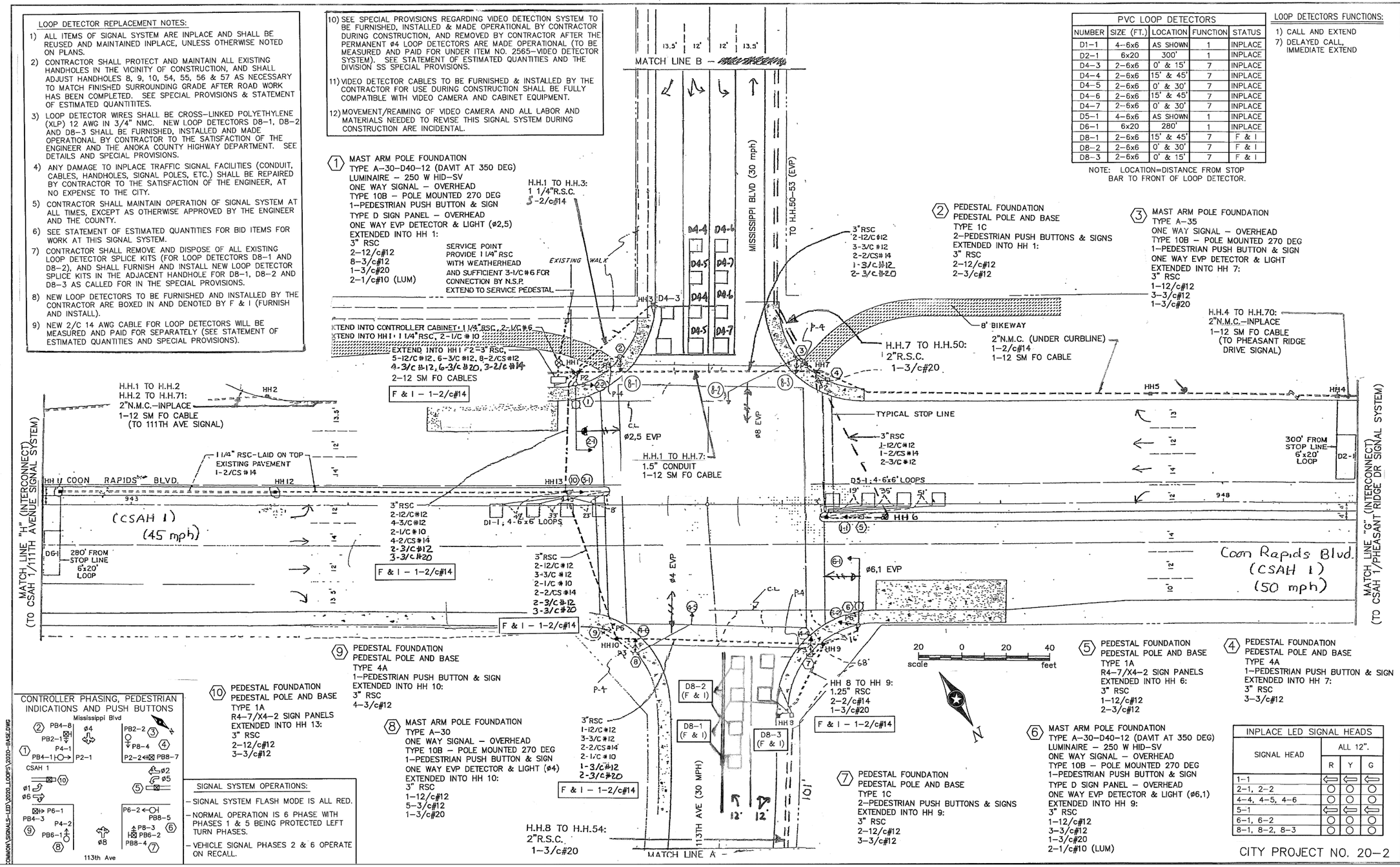
1) ALL ITEMS OF SIGNAL SYSTEM ARE INPLACE AND SHALL BE REUSED AND MAINTAINED INPLACE, UNLESS OTHERWISE NOTED ON PLANS.
2) CONTRACTOR SHALL PROTECT AND MAINTAIN ALL EXISTING HANDHOLES IN THE VICINITY OF CONSTRUCTION, AND SHALL ADJUST HANDHOLES 8, 9, 10, 54, 55, 56 & 57 AS NECESSARY TO MATCH FINISHED SURROUNDING GRADE AFTER ROAD WORK HAS BEEN COMPLETED. SEE SPECIAL PROVISIONS & STATEMENT OF ESTIMATED QUANTITITES.
3) LOOP DETECTOR WIRES SHALL BE CROSS-LINKED POLYETHYLENE (XLP) 12 AWG IN 3/4" NMC. NEW LOOP DETECTORS D8-1, D8-2 AND D8-3 SHALL BE FURNISHED, INSTALLED AND MADE OPERATIONAL BY CONTRACTOR TO THE SATISFACTION OF THE ENGINEER AND THE ANOKA COUNTY HIGHWAY DEPARTMENT. SEE DETAILS AND SPECIAL PROVISIONS.
4) ANY DAMAGE TO INPLACE TRAFFIC SIGNAL FACILITIES (CONDUIT, CABLES, HANDHOLES, SIGNAL POLES, ETC.) SHALL BE REPAIRED BY CONTRACTOR TO THE SATISFACTION OF THE ENGINEER, AT NO EXPENSE TO THE CITY.
5) CONTRACTOR SHALL MAINTAIN OPERATION OF SIGNAL SYSTEM AT ALL TIMES, EXCEPT AS OTHERWISE APPROVED BY THE ENGINEER AND THE COUNTY.
6) SEE STATEMENT OF ESTIMATED QUANTITIES FOR BID ITEMS FOR WORK AT THIS SIGNAL SYSTEM.
7) CONTRACTOR SHALL REMOVE AND DISPOSE OF ALL EXISTING LOOP DETECTOR SPLICE KITS (FOR LOOP DETECTORS D8-1 AND D8-2), AND SHALL FURNISH AND INSTALL NEW LOOP DETECTOR SPLICE KITS IN THE ADJACENT HANDHOLE FOR D8-1, D8-2 AND D8-3 AS CALLED FOR IN THE SPECIAL PROVISIONS.
8) NEW LOOP DETECTORS TO BE FURNISHED AND INSTALLED BY THE CONTRACTOR ARE BOXED IN AND DENOTED BY F & I (FURNISH AND INSTALL).
9) NEW 2/C 14 AWG CABLE FOR LOOP DETECTORS WILL BE MEASURED AND PAID FOR SEPARATELY (SEE STATEMENT OF ESTIMATED QUANTITIES AND SPECIAL PROVISIONS).

10) SEE SPECIAL PROVISIONS REGARDING VIDEO DETECTION SYSTEM TO BE FURNISHED, INSTALLED & MADE OPERATIONAL BY CONTRACTOR DURING CONSTRUCTION, AND REMOVED BY CONTRACTOR AFTER THE PERMANENT ø4 LOOP DETECTORS ARE MADE OPERATIONAL (TO BE MEASURED AND PAID FOR UNDER ITEM NO. 2565-VIDEO DETECTOR SYSTEM). SEE STATEMENT OF ESTIMATED QUANTITIES AND THE DIVISION SS SPECIAL PROVISIONS.
11) VIDEO DETECTOR CABLES TO BE FURNISHED & INSTALLED BY THE CONTRACTOR FOR USE DURING CONSTRUCTION SHALL BE FULLY COMPATIBLE WITH VIDEO CAMERA AND CABINET EQUIPMENT.
12) MOVEMENT/REAIMING OF VIDEO CAMERA AND ALL LABOR AND MATERIALS NEEDED TO REVISE THIS SIGNAL SYSTEM DURING CONSTRUCTION ARE INCIDENTAL.

PVC LOOP DETECTORS				
NUMBER	SIZE (FT.)	LOCATION	FUNCTION	STATUS
D1-1	4-6x6	AS SHOWN	1	INPLACE
D2-1	6x20	300'	1	INPLACE
D4-3	2-6x6	0' & 15'	7	INPLACE
D4-4	2-6x6	15' & 45'	7	INPLACE
D4-5	2-6x6	0' & 30'	7	INPLACE
D4-6	2-6x6	15' & 45'	7	INPLACE
D4-7	2-6x6	0' & 30'	7	INPLACE
D5-1	4-6x6	AS SHOWN	1	INPLACE
D6-1	6x20	280'	1	INPLACE
D8-1	2-6x6	15' & 45'	7	F & I
D8-2	2-6x6	0' & 30'	7	F & I
D8-3	2-6x6	0' & 15'	7	F & I

NOTE: LOCATION=DISTANCE FROM STOP BAR TO FRONT OF LOOP DETECTOR.

LOOP DETECTORS FUNCTIONS:
1) CALL AND EXTEND
7) DELAYED CALL, IMMEDIATE EXTEND



① MAST ARM POLE FOUNDATION
TYPE A-30-D40-12 (DAVIT AT 350 DEG)
LUMINAIRE - 250 W HID-SV
ONE WAY SIGNAL - OVERHEAD
TYPE 10B - POLE MOUNTED 270 DEG
1-PEDESTRIAN PUSH BUTTON & SIGN
TYPE D SIGN PANEL - OVERHEAD
ONE WAY EVP DETECTOR & LIGHT (ø2,5)
EXTENDED INTO HH 1:
3" RSC
2-12/c#12
8-3/c#12
1-3/c#20
2-1/c#10 (LUM)

② PEDESTAL FOUNDATION
PEDESTAL POLE AND BASE
TYPE 1C
2-PEDESTRIAN PUSH BUTTONS & SIGNS
EXTENDED INTO HH 1:
3" RSC
2-12/c#12
2-3/c#12

③ MAST ARM POLE FOUNDATION
TYPE A-35
ONE WAY SIGNAL - OVERHEAD
TYPE 10B - POLE MOUNTED 270 DEG
1-PEDESTRIAN PUSH BUTTON & SIGN
ONE WAY EVP DETECTOR & LIGHT
EXTENDED INTO HH 7:
3" RSC
1-12/c#12
3-3/c#12
1-3/c#20

④ PEDESTAL FOUNDATION
PEDESTAL POLE AND BASE
TYPE 4A
1-PEDESTRIAN PUSH BUTTON & SIGN
EXTENDED INTO HH 7:
3" RSC
3-3/c#12

⑤ PEDESTAL FOUNDATION
PEDESTAL POLE AND BASE
TYPE 1A
R4-7/X4-2 SIGN PANELS
EXTENDED INTO HH 6:
3" RSC
1-12/c#12
2-3/c#12

⑥ MAST ARM POLE FOUNDATION
TYPE A-30-D40-12 (DAVIT AT 350 DEG)
LUMINAIRE - 250 W HID-SV
ONE WAY SIGNAL - OVERHEAD
TYPE 10B - POLE MOUNTED 270 DEG
1-PEDESTRIAN PUSH BUTTON & SIGN
TYPE D SIGN PANEL - OVERHEAD
ONE WAY EVP DETECTOR & LIGHT (ø6,1)
EXTENDED INTO HH 9:
3" RSC
1-12/c#12
3-3/c#12
1-3/c#20
2-1/c#10 (LUM)

⑦ PEDESTAL FOUNDATION
PEDESTAL POLE AND BASE
TYPE 1C
2-PEDESTRIAN PUSH BUTTONS & SIGNS
EXTENDED INTO HH 9:
3" RSC
2-12/c#12
3-3/c#12

⑧ MAST ARM POLE FOUNDATION
TYPE A-30
ONE WAY SIGNAL - OVERHEAD
TYPE 10B - POLE MOUNTED 270 DEG
1-PEDESTRIAN PUSH BUTTON & SIGN
ONE WAY EVP DETECTOR & LIGHT (ø4)
EXTENDED INTO HH 10:
3" RSC
1-12/c#12
5-3/c#12
1-3/c#20

⑨ PEDESTAL FOUNDATION
PEDESTAL POLE AND BASE
TYPE 4A
1-PEDESTRIAN PUSH BUTTON & SIGN
EXTENDED INTO HH 10:
3" RSC
4-3/c#12

⑩ PEDESTAL FOUNDATION
PEDESTAL POLE AND BASE
TYPE 1A
R4-7/X4-2 SIGN PANELS
EXTENDED INTO HH 13:
3" RSC
2-12/c#12
3-3/c#12

CONTROLLER PHASING, PEDESTRIAN INDICATIONS AND PUSH BUTTONS

SIGNAL SYSTEM OPERATIONS:
- SIGNAL SYSTEM FLASH MODE IS ALL RED.
- NORMAL OPERATION IS 6 PHASE WITH PHASES 1 & 5 BEING PROTECTED LEFT TURN PHASES.
- VEHICLE SIGNAL PHASES 2 & 6 OPERATE ON RECALL.

INPLACE LED SIGNAL HEADS			
SIGNAL HEAD	ALL 12".		
	R	Y	G
1-1	⇦	⇦	⇦
2-1, 2-2	○	○	○
4-4, 4-5, 4-6	○	○	○
5-1	⇦	⇦	⇦
6-1, 6-2	○	○	○
8-1, 8-2, 8-3	○	○	○

CITY PROJECT NO. 20-2

FOR INFORMATION ONLY

NO.	DATE	BY	CHK	REVISIONS

Design By: SS
Plan By: MAS
Checked By: SD
Approved By: SD

wsb

ANOKA COUNTY

CSAH 1 Improvements
Anoka County, Minnesota

ANOKA COUNTY, MINNESOTA
FOR INFORMATION ONLY
TRAFFIC CONTROL SIGNAL SYSTEM
SP 002-601-057, SAP 114-105-017

SHEET **102** OF **103** SHEETS

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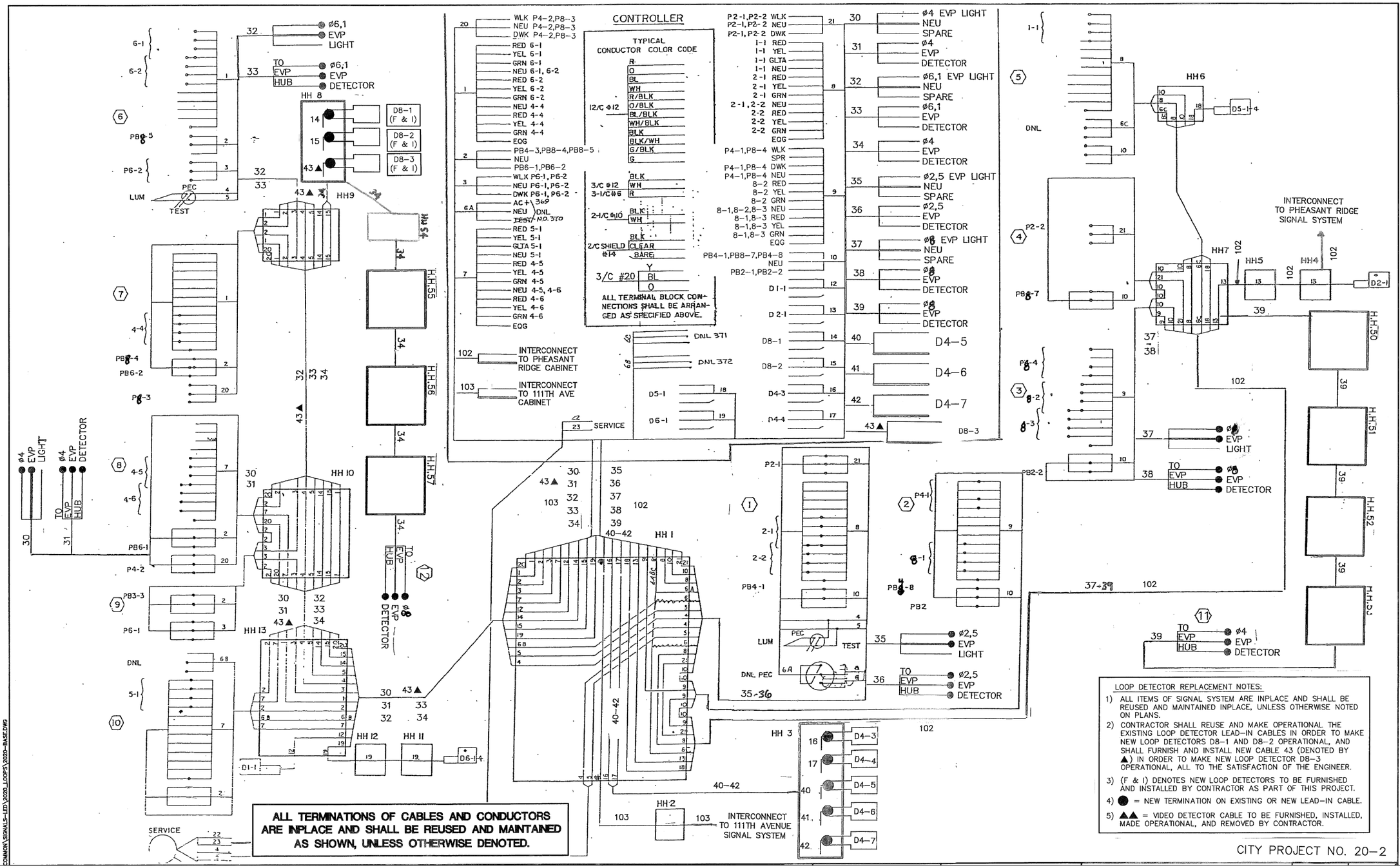

LOOP DETECTOR REPLACEMENT NOTES:

1) ALL ITEMS OF SIGNAL SYSTEM ARE INPLACE AND SHALL BE REUSED AND MAINTAINED INPLACE, UNLESS OTHERWISE NOTED ON PLANS.
2) CONTRACTOR SHALL REUSE AND MAKE OPERATIONAL THE EXISTING LOOP DETECTOR LEAD-IN CABLES IN ORDER TO MAKE NEW LOOP DETECTORS D8-1 AND D8-2 OPERATIONAL, AND SHALL FURNISH AND INSTALL NEW CABLE 43 (DENOTED BY ▲) IN ORDER TO MAKE NEW LOOP DETECTOR D8-3 OPERATIONAL, ALL TO THE SATISFACTION OF THE ENGINEER.
3) (F & I) DENOTES NEW LOOP DETECTORS TO BE FURNISHED AND INSTALLED BY CONTRACTOR AS PART OF THIS PROJECT.
4) ● = NEW TERMINATION ON EXISTING OR NEW LEAD-IN CABLE.
5) ▲▲ = VIDEO DETECTOR CABLE TO BE FURNISHED, INSTALLED, MADE OPERATIONAL, AND REMOVED BY CONTRACTOR.

CITY PROJECT NO. 20-2

FOR INFORMATION ONLY

NO.	DATE	BY	CHK	REVISIONS

Design By: SS
Plan By: MAS
Checked By: SD
Approved By: SD

wsb

ANOKA COUNTY

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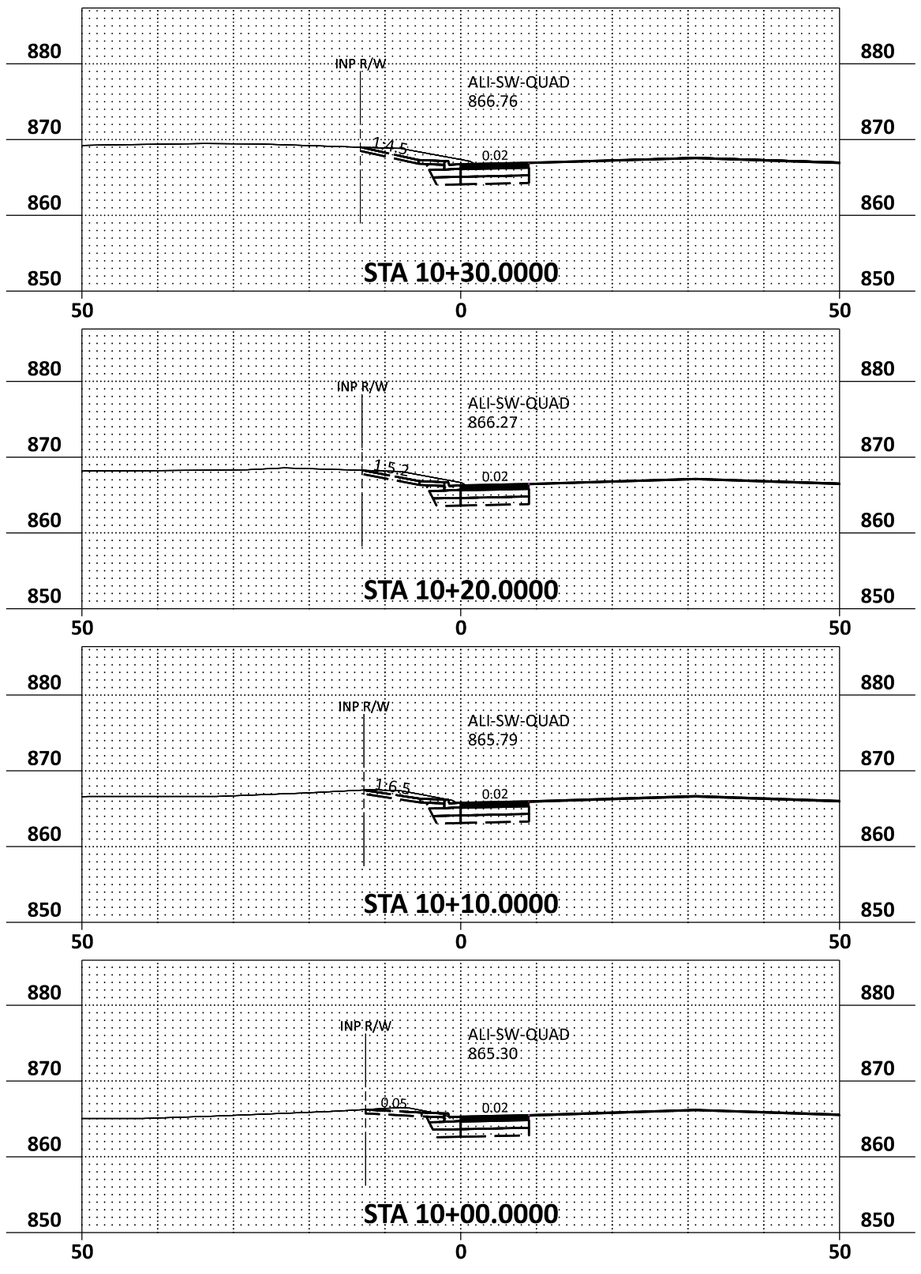
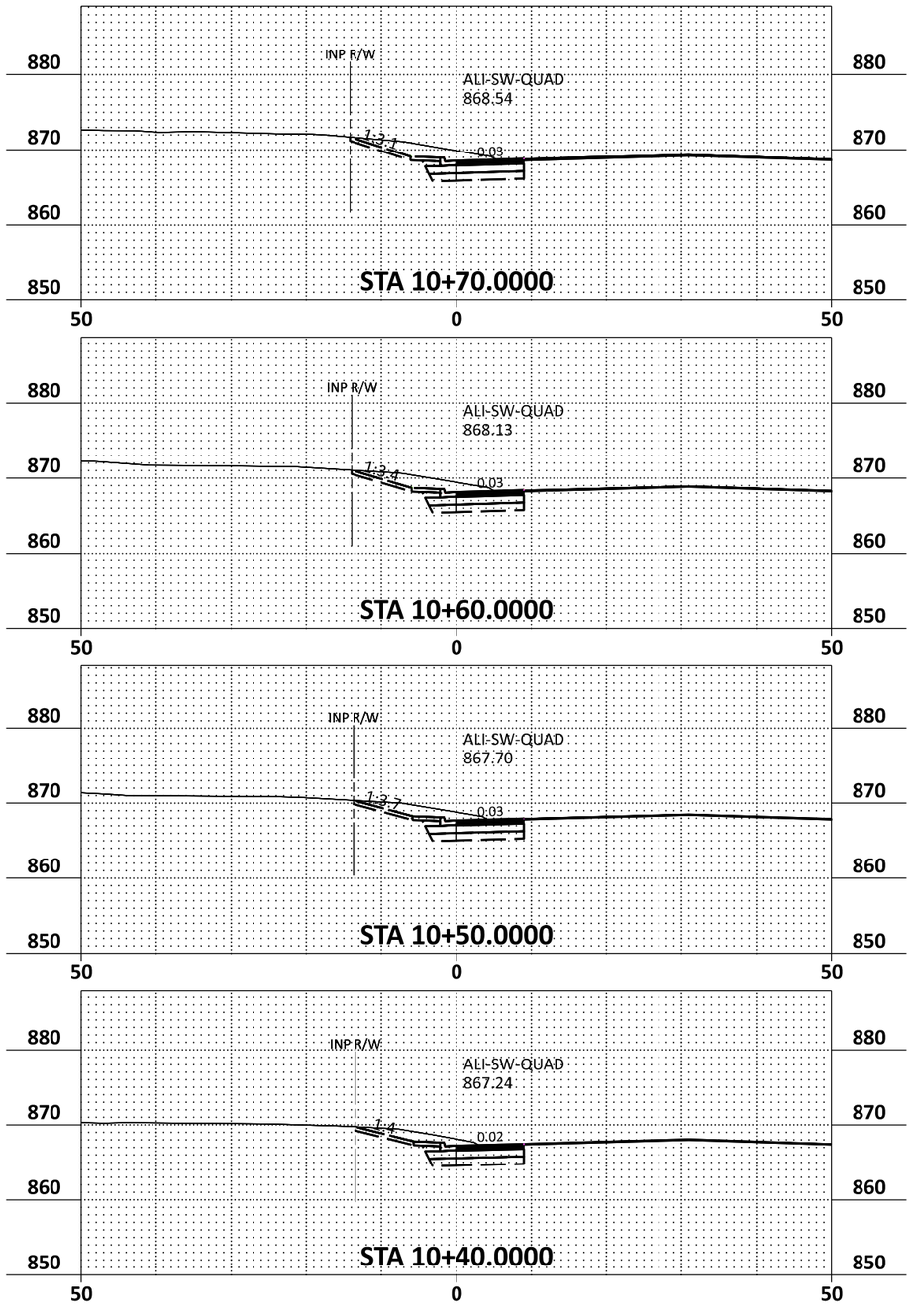
Anoka County, Minnesota

ANOKA COUNTY, MINNESOTA
FOR INFORMATION ONLY
TRAFFIC CONTROL SIGNAL SYSTEM
SP 002-601-057, SAP 114-105-017

SHEET **103** OF **103** SHEETS

PLOTTED/REVISED: 5/4/2023





NO.	DATE	BY	CHK	REVISIONS

Design By: MAN-O
Plan By: BAC
Checked By: MAN-O
Approved By: MAN-O

wsb

ANOKA COUNTY

CSAH 1 Improvements
Anoka County, Minnesota

ANOKA COUNTY, MINNESOTA

CROSS SECTIONS
SP 002-601-057, SAP 114-105-017

SHEET **X1** OF **X5** SHEETS

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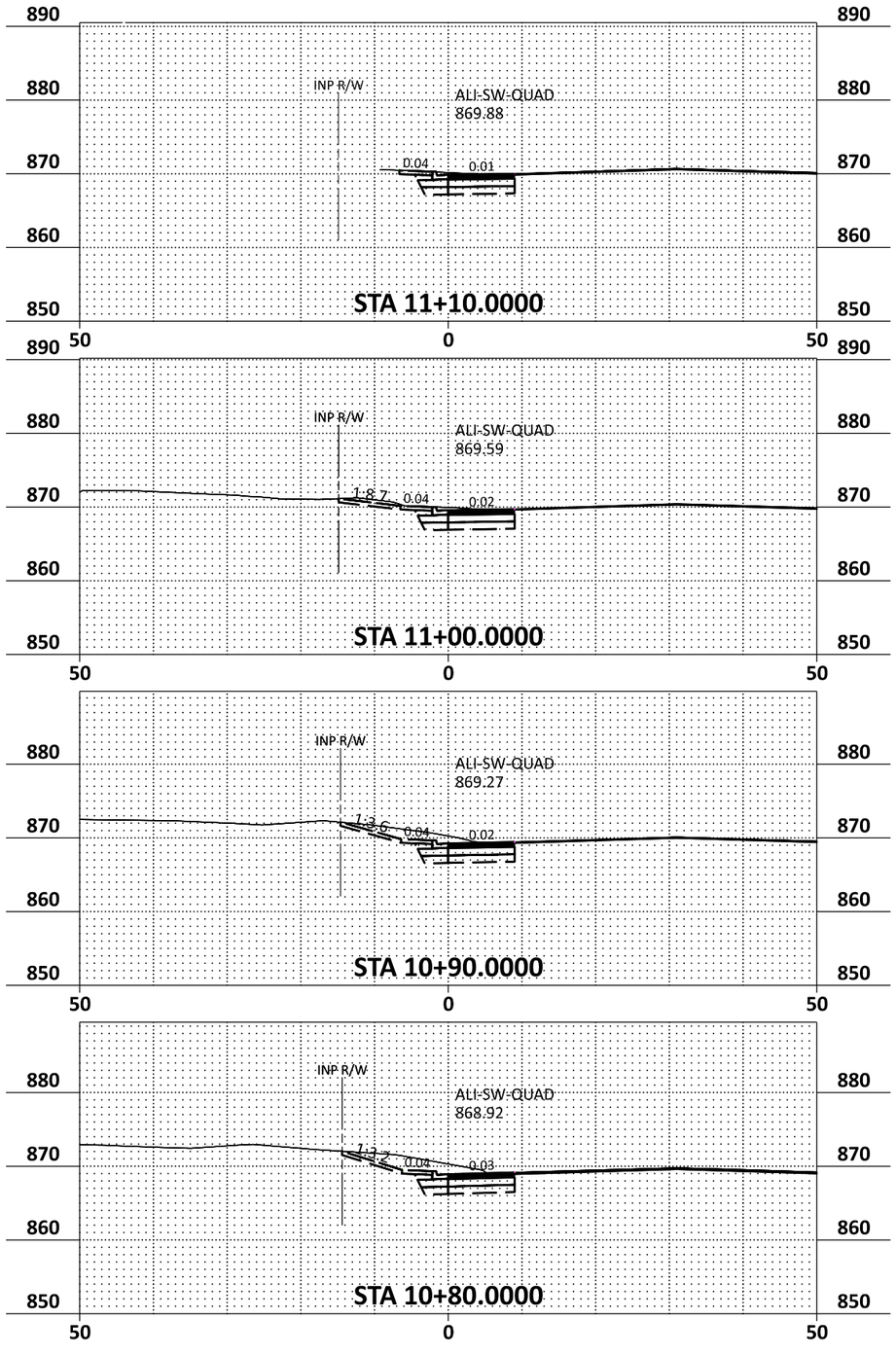
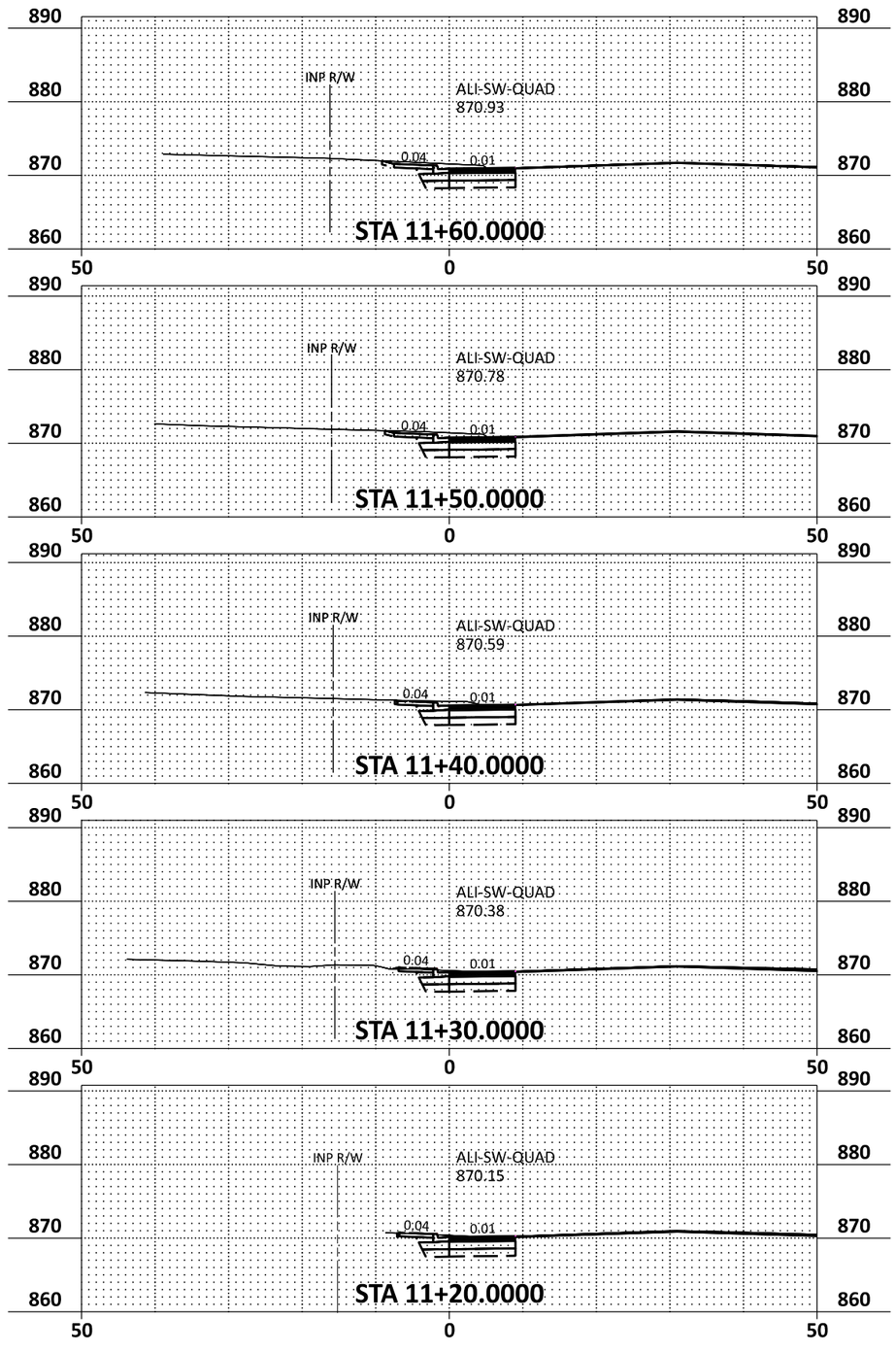
PLOTTED/REVISED: 5/4/2023





NO.	DATE	BY	CHK	REVISIONS

Design By: MAN-O
Plan By: BAC
Checked By: MAN-O
Approved By: MAN-O

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ANOKA COUNTY

CSAH 1 Improvements
Anoka County, Minnesota

ANOKA COUNTY, MINNESOTA

CROSS SECTIONS
SP 002-601-057, SAP 114-105-017

SHEET **X2** OF **X5** SHEETS

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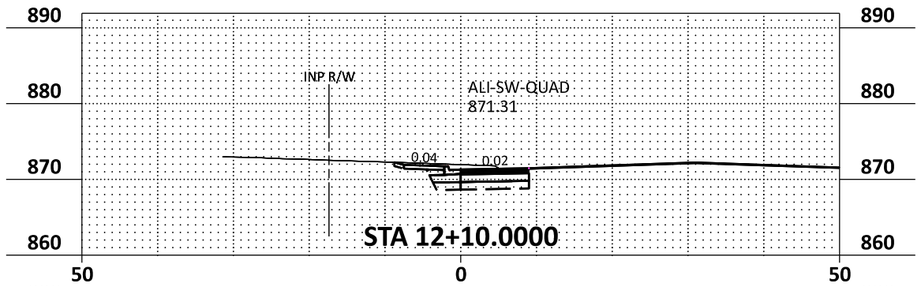
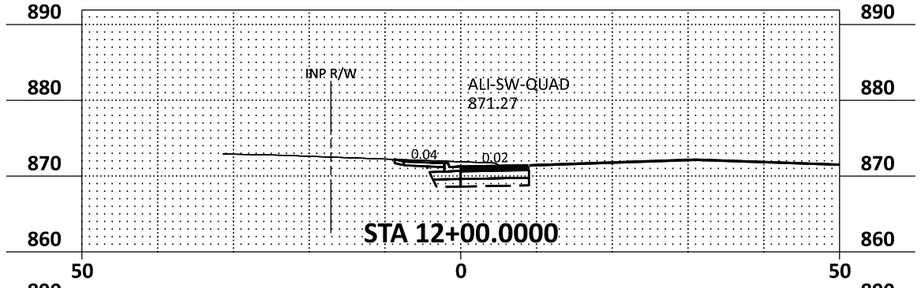
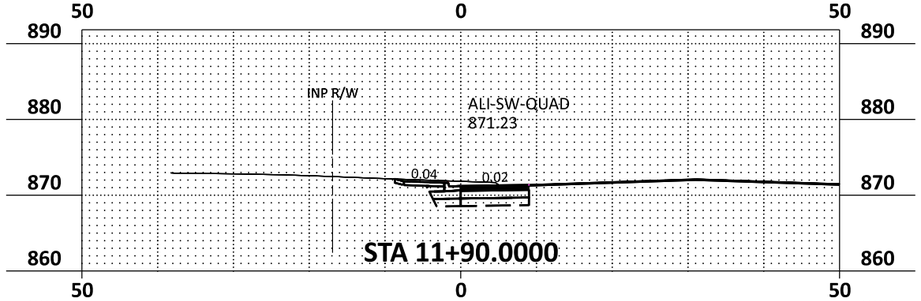
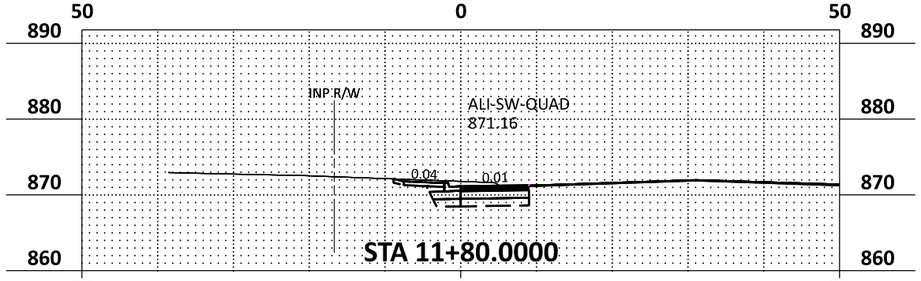
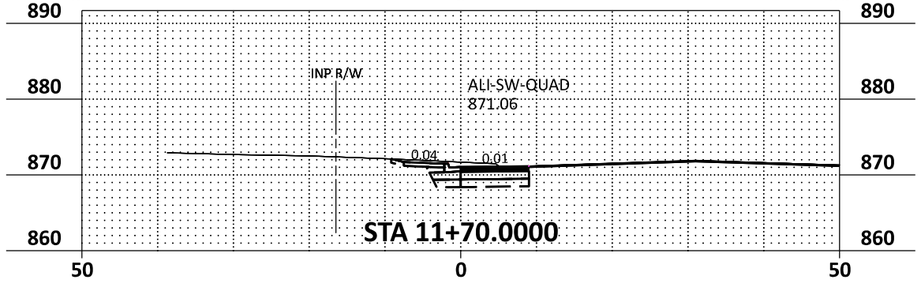
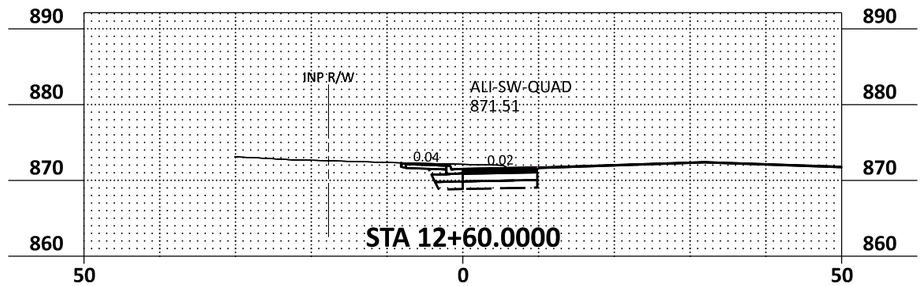


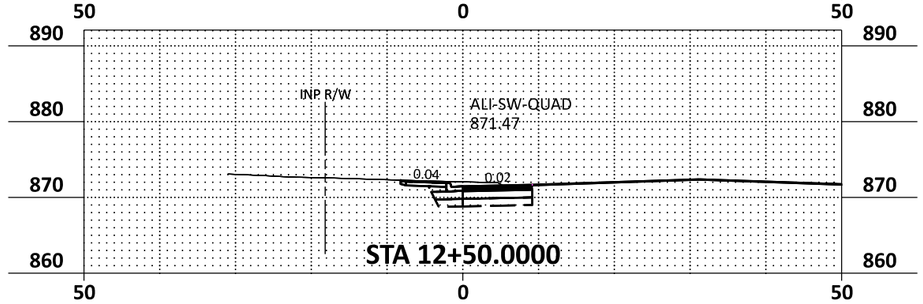


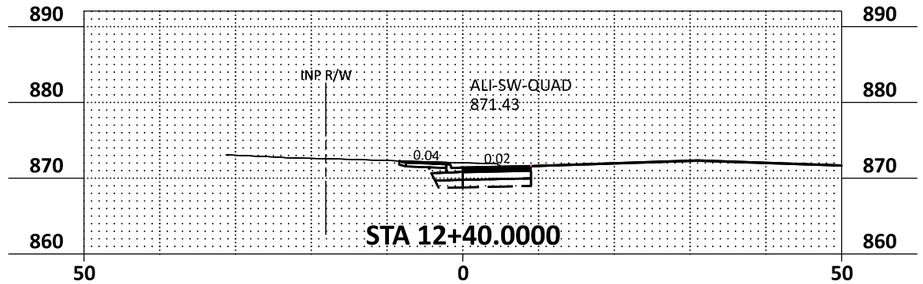


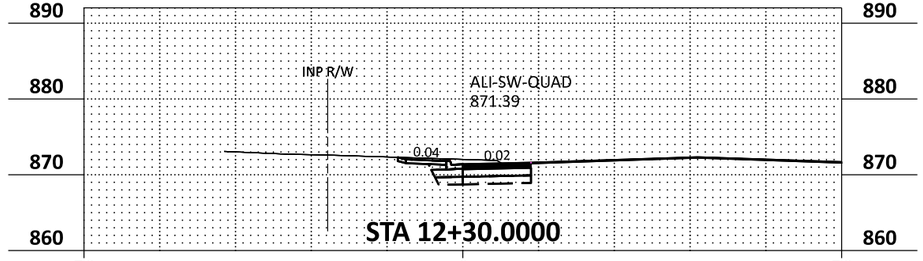


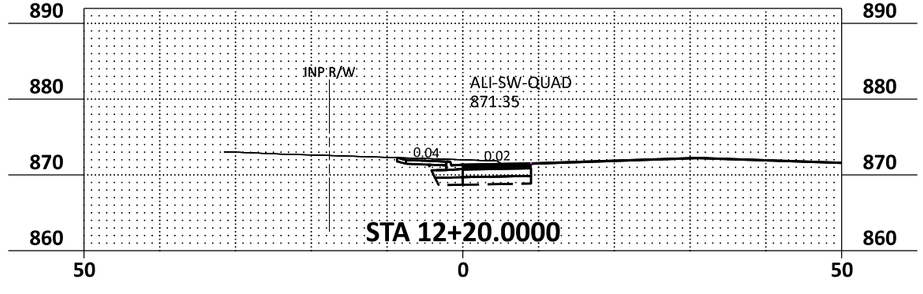












NO.	DATE	BY	CHK	REVISIONS

Design By: MAN-O
Plan By: BAC
Checked By: MAN-O
Approved By: MAN-O

wsb

ANOKA COUNTY

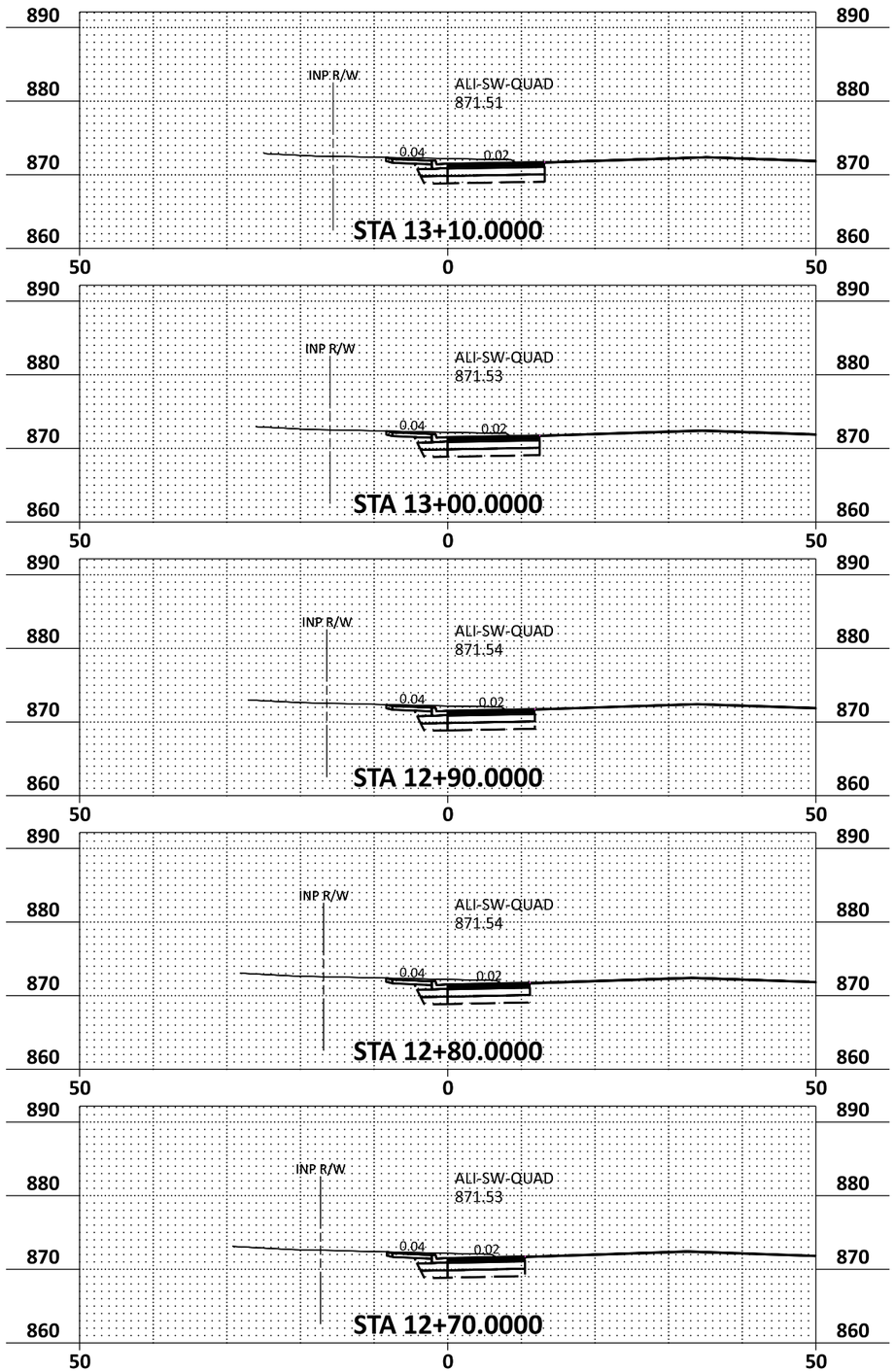
CSAH 1 Improvements
Anoka County, Minnesota

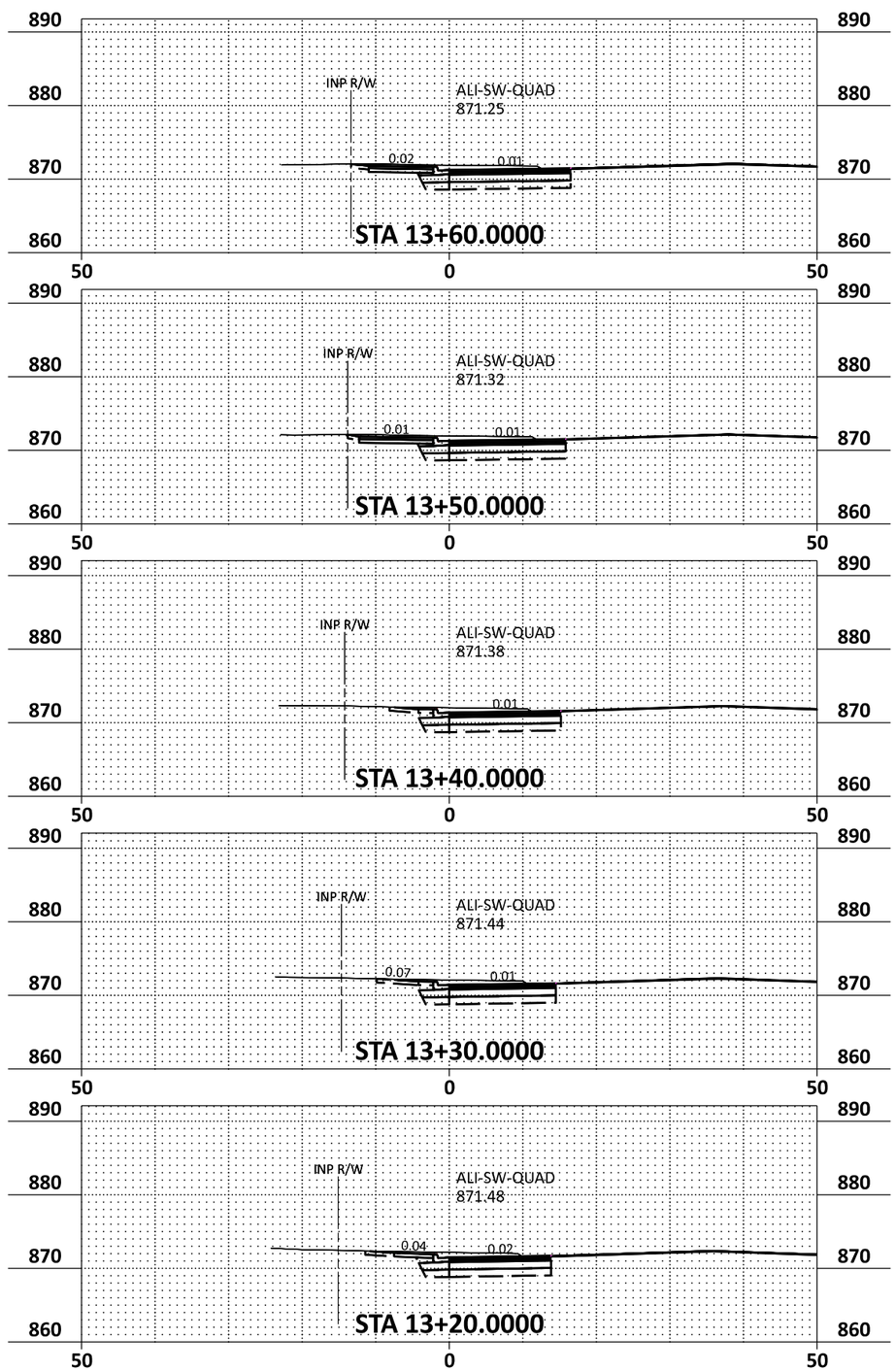
ANOKA COUNTY, MINNESOTA

CROSS SECTIONS
SP 002-601-057, SAP 114-105-017

SHEET **X3** OF **X5** SHEETS

PLOTTED/REVISED: 5/4/2023





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Design By: MAN-O
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Checked By: MAN-O
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ANOKA COUNTY

CSAH 1 Improvements
Anoka County, Minnesota

ANOKA COUNTY, MINNESOTA

CROSS SECTIONS
SP 002-601-057, SAP 114-105-017

SHEET **X4** OF **X5** SHEETS

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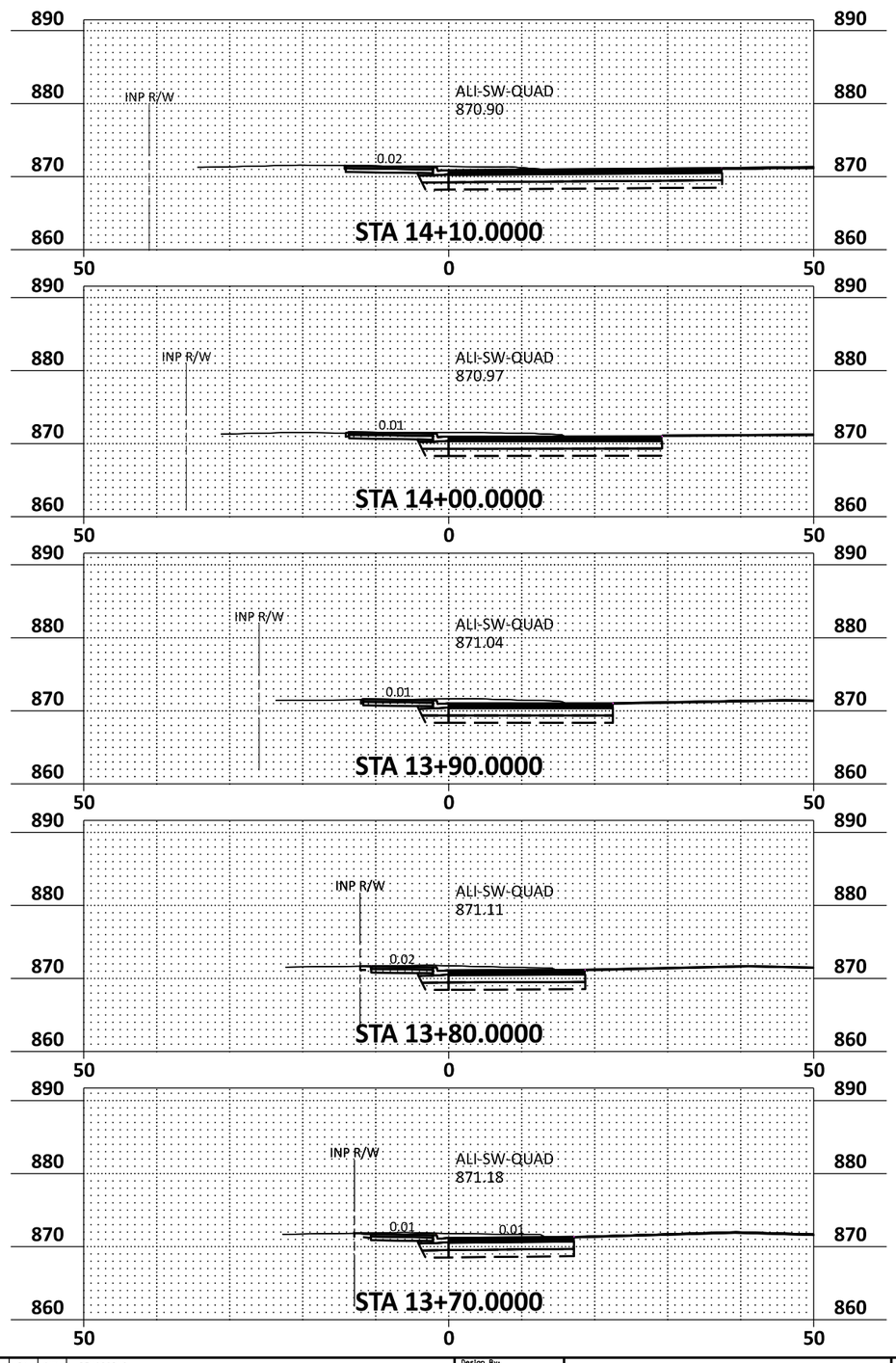

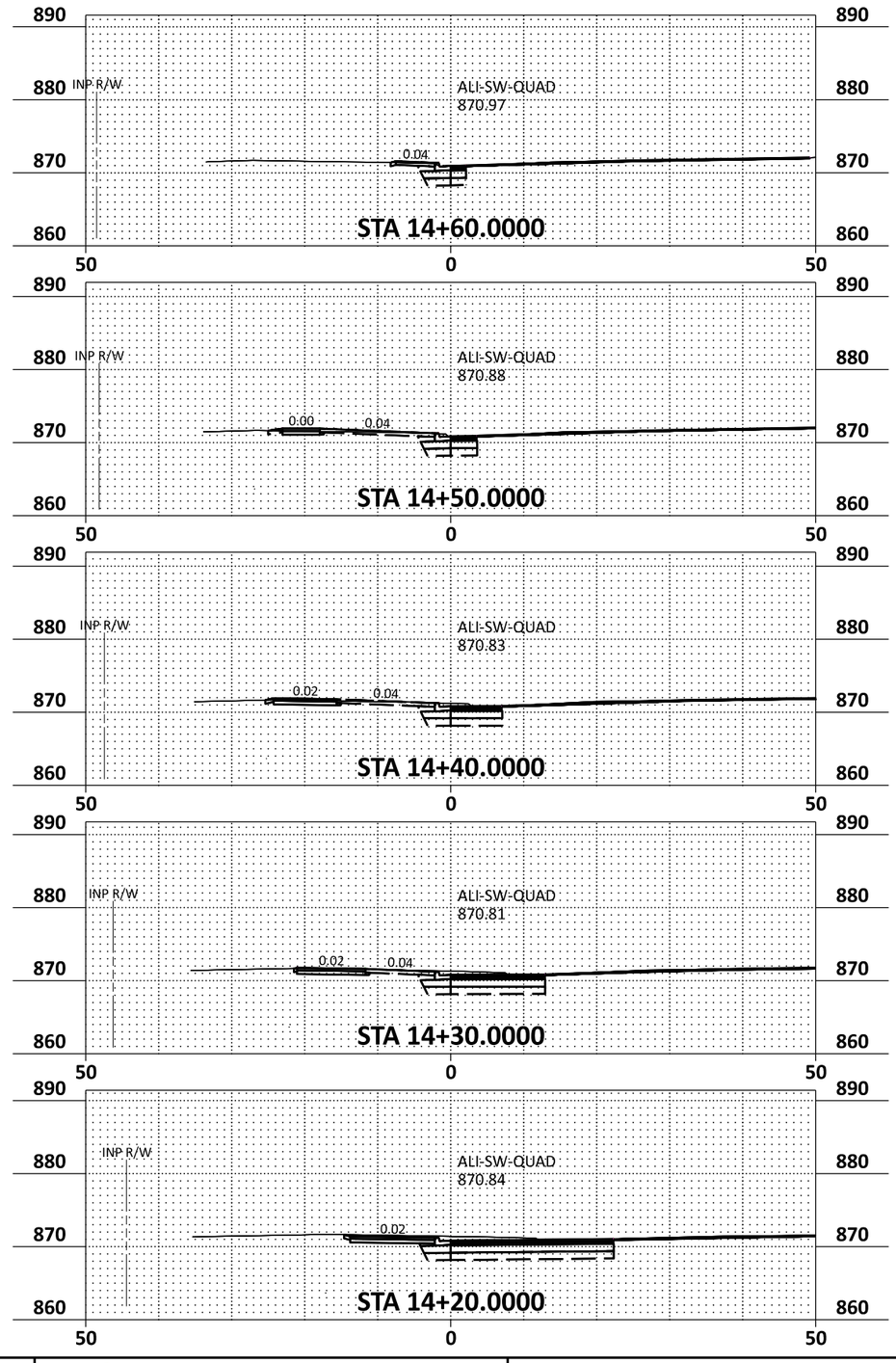

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Design By: MAN-O
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Checked By: MAN-O
Approved By: MAN-O

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ANOKA COUNTY

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Anoka County, Minnesota

ANOKA COUNTY, MINNESOTA

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SHEET **X5** OF **X5** SHEETS