PLAN SYMBOLS

PROPOSED RIGHT OF WAY
EXISTING RIGHT OF WAY
PERMANENT EASEMENT
TEMPORARY EASEMENT
CONTROL OF ACCESS LINE
PROPERTY LINE

CORPORATE OR CITY LIMITS
RETAINING WALL
RAILROAD
RAILROAD RIGHT-OF-WAY LINE
RIVER OR CREEK (NAME)
DRY RUN
DRAINAGE DITCH (SIZE)
DRAIN TILE
CULVERT
DROP INLET (DI)
GUARD RAIL (P)
BARBED WIRE FENCE (X)
WOVEN WIRE FENCE (XW)
CHAIN LINK FENCE (XC)
WOODEN FENCE
STONE WALL OR FENCE
HEDGE
RAILROAD CROSSING SIGNAL
RR CROSSING SIGNAL WITH GATE
ELECTRIC WARNING SIGN
MEANDER CORNER

SPRINGS
AREA OF ENVIRONMETAL SENSITIVITY

TIMBER
ORCHARD
BRUSH
NURSERY (TIMBER)

TREE - LEAF BEARING
TREE - EVERGREEN
VALVE
VENT
CATCH BASIN
FIRE HYDRANT
BUILDING (One Story Frame) (1-S-F)
F-FRAME C-CONCRETE
S-STONE T-TILE
B-BRICK ST-STUCCO

IRON PIPE OR ROD (ROD)
MONUMENT (STONE, CONCRETE, OR METAL)
WOODEN HUB

GRAVEL PIT (G)
SAND PIT (S)
BORROW PIT (B)
ROCK QUARRY (Q)

UTILITY SYMBOLS

POWER POLE
TELEPHONE/TELEGRAPH POLE (T)
ANCHOR
STEEL TOWER
UTILITY PEDESTAL
LIGHT POLE
GAS MAIN (G)
WATER MAIN (W)
CONDUIT
CABLE IN CONDUIT (TV)
BURIED TV CABLE (TV-BUR)
BURIED RAILROAD WIRES (RR-BUR)
BURIED FIBER OPTIC (F/O -BUR)
BURIED COMM. CABLE
BURIED TELEPHONE CABLE (T-BUR)
BURIED ELECTRIC CABLE (P-BUR)
OVERHEAD UTILITY LINE (OHU)
OVERHEAD POWER LINE (OHP)
SEWER, (SANITARY)
SEWER, (STORM)
MANHOLE (OM)
HANDHOLE (OU)

PLAN REVISIONS		
DATE	SHEET NO.	APPROVER

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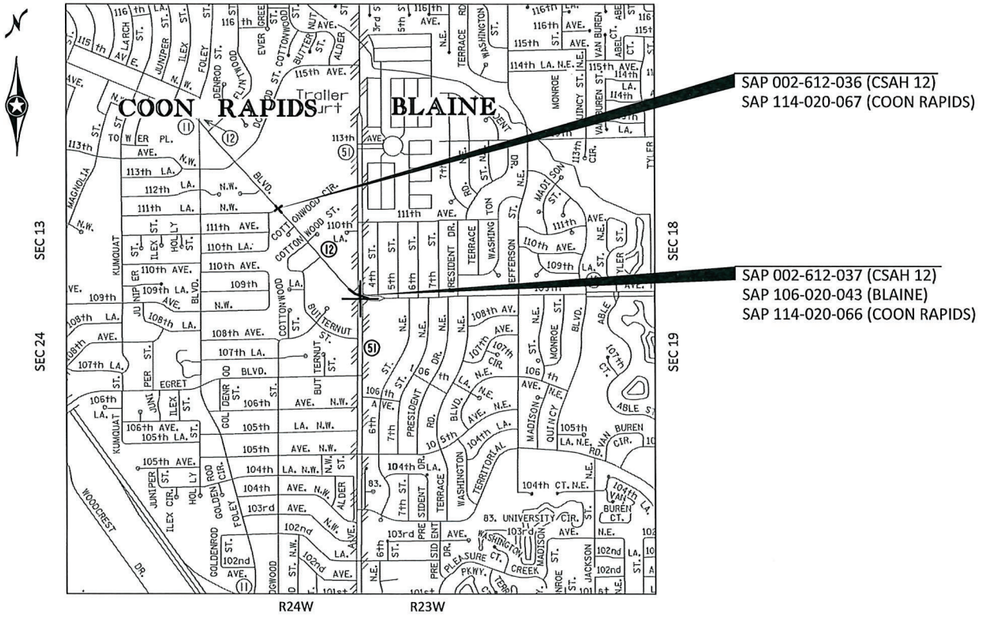
MINNESOTA DEPARTMENT OF TRANSPORTATION
ANOKA COUNTY TRANSPORTATION DIVISION

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

LOCATED ON CSAH 12 FROM 50' WEST OF CSAH 51 TO 200' EAST OF TH 51
LOCATED ON CSAH 12 FROM 50' WEST OF 111TH LN N TO 50' EAST OF 111TH LN N

SEC 18 TWP 31N R 23W
SEC 13 TWP 31N R 24W

SAP 002-612-036, 002-612-037, 106-020-043, 114-020-066, & 114-020-067
CSAH 12
GROSS LENGTH XXX.XX FEET 0.XXX MILES
BRIDGES-LENGTH FEET MILES
EXCEPTIONS-LENGTH FEET MILES
NET LENGTH XXX.XX FEET 0.XXX MILES
ANOKA COUNTY SAP 002-612-036, SAP 002-612-037
CITY OF BLAINE SAP 106-020-043
CITY OF COON RAPIDS SAP 114-020-066, 114-020-067
CITY OF BLAINE PROJECT 25-10
CITY OF COON RAPIDS PROJECT 25-6



DESIGN DESIGNATION FOR: CSAH 51

ADT (CURRENT YEAR) 2025	19,058
ADT (FUTURE YEAR) 2045	23,254
FUNCTIONAL CLASS	MINOR ARTERIAL
NO. OF TRAFFIC LANES	4
NO. OF PARKING LANES	0
SHOULDER WIDTH	8
DESIGN SPEED (MPH)	35

BASED ON STOPPING SIGHT DISTANCE
3.5 FT HEIGHT OF EYE
2.0 FT HEIGHT OF OBJECT

DESIGN DESIGNATION FOR: CSAH 12

ADT (CURRENT YEAR) 2025	7,083
ADT (FUTURE YEAR) 2045	8,642
FUNCTIONAL CLASS	MINOR ARTERIAL
NO. OF TRAFFIC LANES	2
NO. OF PARKING LANES	0
SHOULDER WIDTH	9.5
DESIGN SPEED (MPH)	45

BASED ON STOPPING SIGHT DISTANCE
3.5 FT HEIGHT OF EYE
2.0 FT HEIGHT OF OBJECT

SCALES

INDEX MAP	2500'
PLAN	50'
GENERAL LAYOUT	200'

PROJECT LOCATION
COUNTY : ANOKA
CITY : BLAINE
CITY : COON RAPIDS

STATE AID PROJ. NO. 106-020-043
STATE AID PROJ. NO. 114-020-066
STATE AID PROJ. NO. 144-020-067
STATE AID PROJ. NO. 002-612-036
STATE AID PROJ. NO. 002-612-037

GOVERNING SPECIFICATIONS

THE 2020 EDITION OF THE MINNESOTA DEPARTMENT OF TRANSPORTATION "STANDARD SPECIFICATIONS FOR CONSTRUCTION" SHALL GOVERN. ALL TRAFFIC CONTROL DEVICES SHALL CONFORM AND BE INSTALLED IN ACCORDANCE TO THE LATEST "MINNESOTA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" (MN MUTCD) INCLUDING THE LATEST "FIELD MANUAL FOR TEMPORARY TRAFFIC CONTROL ZONE LAYOUTS".

THE PLAN INDICATES THE GENERAL LOCATION OF KNOWN UTILITIES ON THE PROJECT. ALL UTILITY LOCATIONS ARE APPROXIMATE. PRIOR TO CONSTRUCTION THE CONTRACTOR SHALL VERIFY ALL UNDERGROUND UTILITY LOCATIONS AND ELEVATIONS WITH THE UTILITY COMPANIES.

THE SUBSURFACE UTILITY INFORMATION IN THIS PLAN IS UTILITY QUALITY D. THIS QUALITY LEVEL WAS DETERMINED ACCORDING TO THE GUIDELINES OF CI/ASCE 38-22, ENTITLED "STANDARD GUIDELINES FOR INVESTIGATING AND DOCUMENTING EXISTING UTILITIES."

INDEX

THIS PLAN CONTAINS 98 SHEETS

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

PRINT NAME: MICHAEL P. MCCURDY LIC. NO. 45902
DATE: 02/14/2025 SIGNATURE: Michael P. McCurdy

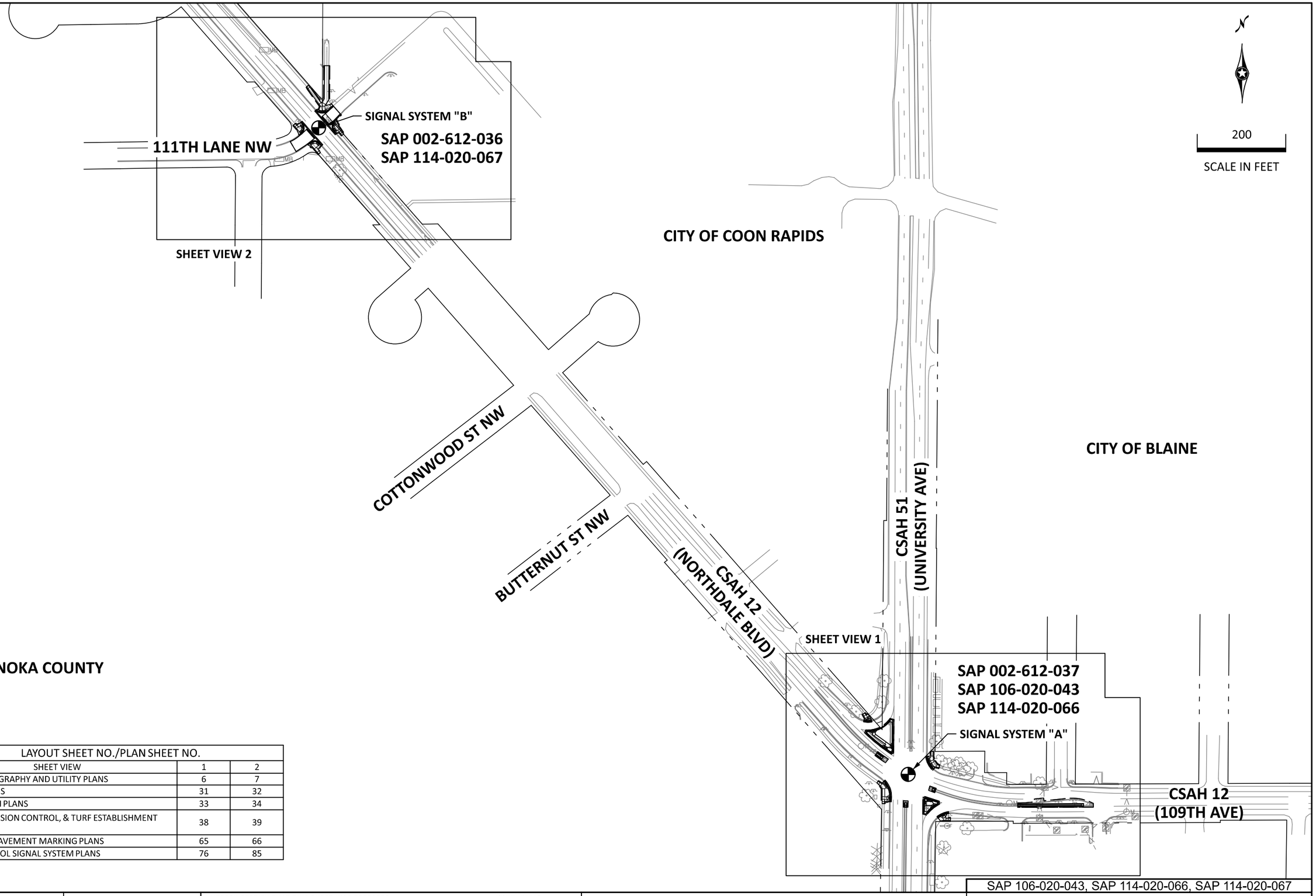
APPROVED ANOKA COUNTY ENGINEER — Joseph MacPherson — Digitally signed by Joseph MacPherson Date: 2025.02.14 14:18:17 -06'00'

APPROVED BLAINE CITY ENGINEER — Daniel Hahnenberger 2.19.25

APPROVED COON RAPIDS CITY ENGINEER — Mark Hansen — Digitally signed by Mark Hansen Date: 2025.02.18 13:14:28 -06'00'

REVIEWED FOR COMPLIANCE WITH STATE AID RULES/POLICY DISTRICT STATE AID ENGINEER — Dan Erickson — Digitally signed by Dan Erickson Date: 2025.02.19 21:46:40 -06'00'

APPROVED FOR STATE AID FUNDING for STATE AID ENGINEER — Dan Erickson — Digitally signed by Dan Erickson Date: 2025.02.19 21:47:07 -06'00'



ANOKA COUNTY

LAYOUT SHEET NO./PLAN SHEET NO.		
SHEET VIEW	1	2
EXISTING TOPOGRAPHY AND UTILITY PLANS	6	7
REMOVAL PLANS	31	32
CONSTRUCTION PLANS	33	34
DRAINAGE, EROSION CONTROL, & TURF ESTABLISHMENT PLANS	38	39
SIGNING AND PAVEMENT MARKING PLANS	65	66
TRAFFIC CONTROL SIGNAL SYSTEM PLANS	76	85

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NO	DATE	DWN	CKD	REVISIONS

ALLIANT

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

PRINT NAME: JOSEPH REZAC
SIGNATURE: Joseph Rezac
DATE 02/14/2025 LICENSE # 55948

GENERAL LAYOUT

SAP 106-020-043, SAP 114-020-066, SAP 114-020-067
SAP 002-612-037, SAP 002-612-036 (CSAH 12)
SHEET NO. 2 OF 98 SHEETS

STATEMENT OF ESTIMATED QUANTITIES

TAB	SHEET NO	ITEM NO	DESCRIPTION	UNITS	TOTAL ESTIMATED QUANTITY	ANOKA CO SAP 002-612-037 QUANTITY	BLAINE SAP 106-020-043 QUANTITY	COON RAPIDS SAP 114-020-066 QUANTITY	ANOKA CO SAP 002-612-036 QUANTITY	COON RAPIDS SAP 114-020-067 QUANTITY
		2021.501	MOBILIZATION	LUMP SUM	1	0.57	0.01	0.01	0.25	0.16
PM	59	2102.518	PAVEMENT MARKING REMOVAL	SQ FT	1296	1044			252	
A	5	2104.502	REMOVE CATCH BASIN	EACH	1	1				
A	5	2104.502	REMOVE CASTING	EACH	1				1	
D	5	2104.502	REMOVE VALVE BOX	EACH	1					1
ST-A	60	2104.502	REMOVE DELINEATOR / MARKER	EACH	1	1				
ST-A	60	2104.502	REMOVE SIGN	EACH	11	11				
SS	67	2104.502	REMOVE SIGNAL SYSTEM A	EACH	1	1				
SS	67	2104.502	REMOVE SIGNAL SYSTEM B	EACH	1				0.5	0.5
D	5	2104.502	REMOVE HANDHOLE	EACH	1				1	
A	5	2104.503	REMOVE CURB & GUTTER	LIN FT	1001	830			171	
A	5	2104.504	REMOVE PAVEMENT	SQ YD	692	358			334	
A	5	2104.518	REMOVE BITUMINOUS WALK	SQ FT	1145				1145	
A	5	2104.518	REMOVE CONCRETE WALK	SQ FT	5246	4309			937	
B	5	2211.507	AGGREGATE BASE (CV) CLASS 5	CU YD	281	173			108	
B	5	2360.509	TYPE SP 12.5 WEARING COURSE MIX (4,C)	TON	170	122			48	
D	5	2504.602	VALVE BOX	EACH	1					1
E	40	2506.502	CASTING ASSEMBLY	EACH	2	1			1	
D	5	2506.502	ADJUST FRAME & RING CASTING	EACH	1		1			
E	40	2506.503	CONST DRAINAGE STRUCTURE DES 72-4020	LIN FT	5	5				
B	5	2521.518	4" CONCRETE WALK	SQ FT	2919	2631			288	
B	5	2521.518	6" CONCRETE WALK	SQ FT	1335	707			628	
B	5	2521.518	3" BITUMINOUS WALK	SQ FT	873				873	
B	5	2521.602	DRILL & GROUT REINF BAR (EPOXY COATED)	EACH	296	177			119	
B	5	2521.618	CONCRETE CURB RAMP WALK	SQ FT	2192	1306			886	
B	5	2531.503	CONCRETE CURB & GUTTER DESIGN B612	LIN FT	589	589				
B	5	2531.503	CONCRETE CURB & GUTTER DESIGN B618	LIN FT	71	24			47	
B	5	2531.603	CONCRETE SILL	LIN FT	23	6			17	
B	5	2531.603	CONCRETE CURB & GUTTER	LIN FT	313	190			123	
B	5	2531.604	6" CONCRETE VALLEY GUTTER	SQ YD	52				52	
B	5	2531.618	TRUNCATED DOMES	SQ FT	266	162			104	
TC	44	2563.601	TRAFFIC CONTROL SUPERVISOR	LUMP SUM	1	0.57	0.01	0.01	0.25	0.16
TC	44	2563.601	TRAFFIC CONTROL	LUMP SUM	1	0.57	0.01	0.01	0.25	0.16
TC	44	2563.601	ALTERNATE PEDESTRIAN ROUTE	LUMP SUM	1	0.57	0.01	0.01	0.25	0.16
TC	44	2563.613	PORTABLE CHANGEABLE MESSAGE SIGN	UNIT DAY	60	40			20	
ST-A	60	2564.602	DELINEATOR / MARKER PANEL	EACH	4	4				
ST-A	60	2564.618	SIGN	SQ FT	107	87			20	
ST-A	60	2564.618	SIGN PANEL	SQ FT	12	12				
SS	67	2565.501	EMERGENCY VEHICLE PREEMPTION SYSTEM A	LUMP SUM	1		0.5	0.5		
SS	67	2565.501	EMERGENCY VEHICLE PREEMPTION SYSTEM B	LUMP SUM	1					1
SS	67	2565.501	TRAFFIC CONTROL INTERCONNECT	LUMP SUM	1	1				
SS	67	2565.516	TRAFFIC CONTROL SIGNAL SYSTEM A	SYSTEM	1	1				
SS	67	2565.516	TRAFFIC CONTROL SIGNAL SYSTEM B	SYSTEM	1				0.5	0.5
SS	67	2565.616	TEMPORARY SIGNAL SYSTEM A	SYSTEM	1	1				
C	5	2573.502	STORM DRAIN INLET PROTECTION	EACH	12	12				
C	5	2575.602	SITE RESTORATION	EACH	8	4			4	
PM-D	60	2582.503	4" SOLID LINE PAINT	LIN FT	650	650				
PM-D	60	2582.503	12" SOLID LINE PAINT	LIN FT	780	610			170	
PM-D	60	2582.503	24" SOLID LINE PREF THERMO GR IN	LIN FT	24				24	
PM-D	60	2582.518	CROSSWALK PREF THERMO GR IN	SQ FT	180				180	
PM	59	2582.602	MOBILE RETROREFLECTOMETER MEASUREMENTS	EACH	24				24	

SOIL AND CONSTRUCTION NOTES

1. TOP OF THE GRADING GRADE IS DEFINED AS THE BOTTOM OF THE CLASS 5 AGGREGATE BASE.
2. COMMON EMBANKMENT SHALL CONSIST OF ALL SOILS ENCOUNTERED WITH THE EXCEPTION OF DEBRIS, PEAT, MUCK, AND OTHER ORGANIC OR OTHER UNSTABLE MATERIAL.
3. WHERE CONNECTING TO IN-PLACE PAVEMENT 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.
4. 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.
5. 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. ON THE CONSTRUCTION LIMITS DO NOT INCLUDE AREAS REQUIRED FOR SLOPE ROUNDING.
6. ANY DEBRIS WHICH MAY BE ENCOUNTERED DURING GRADING SHALL BE DISPOSED OF BY THE CONSTRUCTOR OFF THE PROJECT RIGHT OF WAY IN A SUITABLE DISPOSAL AREA AS APPROVED BY THE ENGINEER (INCIDENTAL).
7. OBTAIN COMPACTION OF THE GRADING PORTIONS OF CONSTRUCTION IN ACCORDANCE WITH THE "SPECIFIED DENSITY METHOD" REQUIREMENTS INDICATED IN 2106.
8. OBTAIN COMPACTION OF THE AGGREGATE PORTIONS OF CONSTRUCTION IN ACCORDANCE WITH THE "SPECIFIED DENSITY METHOD" REQUIREMENTS AS INDICATED IN 2211.
9. NO EXTRA PAYMENT WILL BE MADE FOR MOVING, PLACING, OR TEMPORARY STOCKPILING OF EXCAVATION, EMBANKMENT AND/OR BORROW MATERIAL.
10. 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 CANNOT BE USED AS EMBANKMENT.
11. MINIMUM 4" SLOPE DRESSING TO BE PLACED IN ALL DISTURBED AREAS OUTSIDE ROADWAY. PAID FOR AS SITE RESTORATION.
12. PROVIDE A UNIFORM TACK COAT AS DOCUMENTED IN THE MOST CURRENT SPEC. 2357 - BITUMINOUS TACK COAT REQUIREMENTS.
13. PIPE SEWERS CONNECTING MANHOLES AND CATCH BASINS SHALL BE IN ACCORDANCE WITH SPEC. 2503 UNLESS OTHERWISE NOTED.
14. 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 AS EROSION. RESPONSIBILITY FOR CONTROLLING EROSION AND MAINTENANCE OF EROSION CONTROL AS SET IN MNDOT SPECIFICATIONS 1717, 1803, 2101, 2016, 2573, 2575, AND IS AMENDED BY THE SPECIAL PROVISIONS.
15. 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.
16. ALL STRIPPED TOPSOIL SHALL BE PAID FOR AS SITE RESTORATION.
17. ALL TOPSOIL PROPOSED FOR USE, WHETHER AVAILABLE FROM THE SITE OR IMPORTED, SHALL MEET THE REQUIREMENTS OF SPEC. 3877.2. SEED FERTILIZER, AND HYDRAULIC STABILIZED FIBER MATRIX OR BLANKET SHALL BE PLACED OVER TOPSOIL IN ACCORDANCE WITH THE PROJECT PLANS.
18. IN PREPARATION FOR SEED, FERTILIZER AND HYDRAULIC STABILIZED FIBER MATRIX PLACEMENT, THE BEDDING SHALL BE FREE OF ALL STONES, DEBRIS, AND CLODS LARGER THAN TWO INCHES (2").
19. OBTAIN COMPACTION OF ALL BITUMINOUS PORTIONS OF CONSTRUCTION IN ACCORDANCE WITH THE REQUIRMENT OF SPEC. 2360 "MAXIMUM DENSITY METHOD."
20. NO OVER-EXCAVATION WILL BE ALLOWED ON THIS PROJECT.

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

STANDARD PLATES

PLATE NO.	DESCRIPTION
4010I	CONCRETE ADJUSTING RINGS
4020J	MANHOLE OR CATCH BASIN (FOR USE WITH OR WITHOUT TRAFFIC LOADS) (2 SHEETS)
4026B	CONCRETE ENCASED CONCRETE ADJUSTING RINGS
7038A	DETECTABLE WARNING SURFACE TRUNCATED DOMES
7100H	CONCRETE CURB AND GUTTER (DESIGN B AND DESIGN V)
7113A	CONCRETE APPROACH NOSE DETAIL
8127E	LIGHT FOUNDATION - DESIGN E PRECAST/CAST-IN-PLACE (40 FT. POLE OR LESS) (2 SHEETS)
8129A	SHIM AND WASHER (TRAFFIC CONTROL SIGNALS AND ROADWAY LIGHTING)

REMOVAL TABULATION — A

SITE NUMBER	REMOVE CATCH BASIN	REMOVE CASTING	REMOVE CURB & GUTTER (2)	REMOVE BITUMINOUS WALK (2)	REMOVE CONCRETE WALK (2)	REMOVE PAVEMENT (1) (2)	NOTES
	EACH	EACH	LIN FT	SQ FT	SQ FT	SQ YD	
SAP 002-612-037							
CSAH 51							
SITE 1			18		130	5	
SITE 2			170		1301	141	
SITE 3			54		69	17	
SITE 4			34		337	8	
SITE 5			27		35	9	
SITE 6			86		328	54	
SITE 7			27		172	7	
SITE 8			25		28	9	
SITE 9			50		558	12	
SITE 10	1		339		1351	96	
SAP 002-612-037 TOTAL	1		830		4309	358	
SAP 002-612-036							
111TH AVE							
SITE 11			46	1145	433	74	
SITE 12		1	53		161	74	
SITE 13			37		177	93	
SITE 14			35		166	93	
SAP 002-612-036 TOTAL		1	171	1145	937	334	
TOTALS	**1**	**1**	**1001**	**1145**	**5246**	**692**	

UTILITIES TABULATION — D

SITE NUMBER	REMOVE VALVE BOX	REMOVE HANDHOLE	VALVE BOX	ADJUST FRAME & RING CASTING	NOTES
	EACH	EACH	EACH	EACH	
SAP 002-612-037					
CSAH 51					
SITE 1					
SITE 2					
SITE 3					
SITE 4					
SITE 5					
SITE 6					
SITE 7					
SITE 8					
SITE 9					
SITE 10				1	
SAP 002-612-037 TOTAL				1	
SAP 002-612-036					
111TH AVE					
SITE 11	1	1	1		
SITE 12					
SITE 13					
SITE 14					
SAP 002-612-036 TOTAL	1	1	1		
TOTALS	**1**	**1**	**1**	**1**	

SPECIFIC NOTES:
(1) EXISTING PAVEMENT IS ASSUMED TO BE 6". NO ADDITIONAL PAYMENT FOR VARIATIONS IN THICKNESS.
(2) SAWCUTTING IS INCIDENTAL.

SURFACING TABULATION — B

SITE NUMBER	AGGREGATE BASE (CV) CLASS 5 (3)	TYPE SP 12.5 WEARING COURSE MIX (4,C) SPWEB440C (4)	CONCRETE CURB RAMP WALK	4" CONCRETE WALK	6" CONCRETE WALK	3" BITUMINOUS WALK (8)	DRILL & GROUT REINF BAR (EPOXY COATED) (5)					CONCRETE CURB & GUTTER (6)	CONCRETE CURB & GUTTER DESIGN B612 (6)	CONCRETE CURB & GUTTER DESIGN B618 (6)	CONCRETE SILL (7)	6" CONCRETE VALLEY GUTTER (7)	TRUNCATED DOMES			NOTES
							SIDEWALK		QUADRANT								TANGENT	RADIAL		
							LONGITUDINAL	TRANSVERSE	BACK OF CURB	LANDING	END OF CURB TIE IN									
	CU YD	TON	SQ FT	SQ FT	SQ FT	SQ FT	EACH	EACH	EACH	EACH	EACH	LIN FT	LIN FT	LIN FT	LIN FT	SQ YD	SQ FT	SQ FT	RADIUS	
SAP 002-612-037																				
CSAH 51																				
SITE 1	4	1	112		54			4	6	9	4	17					15			
SITE 2	53	18	271	1656	77				16	13		45	168				37			
SITE 3	6	7		52									34							
SITE 4	11	3	273		161			4	11	19	4	33					30			
SITE 5	3	4		33									16							
SITE 6	18	9	252		290				16	10		43	53				33			
SITE 7	6	2	108		125			2	6	8	4	16		11	6		16			
SITE 8	3	3		45									20							
SITE 9	17	4	290	435				4	13	20	4	36		13			31			
SITE 10	52	71		410									298							
SAP 002-612-037 TOTAL	173	122	1306	2631	707				177			190	589	24	6		162			
SAP 002-612-036																				
111TH AVE																				
SITE 11	43	10	201	288	241	873	6	5	9	14	4	26		19	17	14		32	21	
SITE 12	20	10	237		126			2	12	9	4	36		17		14	24			
SITE 13	23	14	232		154			2	12	9	4	30		7		12	24			
SITE 14	22	14	216		107			2	12	9	4	31		4		12	24			
SAP 002-612-036 TOTAL	108	48	886	288	628	873			119			123		47	17	52		104		
TOTALS	**281**	**170**	**2192**	**2919**	**1335**	**873**			**296**			**313**	**589**	**71**	**23**	**52**		**266**		

SPECIFIC NOTES:
(3) AGGREGATE BASE DEPTH IS ASSUMED TO BE 6".
(4) MATCH EXISTING PAVEMENT THICKNESS. PAVEMENT THICKNESS IS ASSUMED TO BE 6" AT CSAH 12 AND CSAH 51. PAVEMENT THICKNESS IS ASSUMED TO BE 3" AT 111TH LANE NW.
(5) SEE STANDARD PLAN 5-297.250 AND STANDARD PLAN 5-297.254.
(6) MATCH EXISTING GUTTER THICKNESS.
(7) SEE DESIGN DETAILS.
(8) MATCH EXISTING BITUMINOUS TRAIL THICKNESS. BITUMINOUS TRAIL THICKNESS IS ASSUMED TO BE 3".

EROSION CONTROL & TURF ESTABLISHMENT TABULATION — C

SITE NUMBER	STORM DRAIN INLET PROTECTION (9)	SITE RESTORATION (10)	NOTES
	EACH	EACH	
SAP 002-612-037			
CSAH 51			
SITE 1		1	
SITE 2			
SITE 3			
SITE 4		1	
SITE 5			
SITE 6			
SITE 7	7	1	
SITE 8			
SITE 9		1	
SITE 10	5		
SAP 002-612-037 TOTAL	12	4	
SAP 002-612-036			
111TH AVE			
SITE 11		1	
SITE 12		1	
SITE 13		1	
SITE 14		1	
SAP 002-612-036 TOTAL		4	
TOTALS	12	8	

SPECIFIC NOTES:
(9) INCLUDES ALL REQUIRED MAINTENANCE AND REPLACEMENT FOR THE DURATION OF THE PROJECT.
(10) SITE RESTORATION QUANTIFIED AS 1 PER SITE; INCLUDES ALL TEMPORARY AND FINAL TURF RESTORATION AS SHOWN IN PLANS AND SPECIAL PROVISIONS.
SEED DISTURBED AREAS WITH SOUTHERN BOULEVARD SEED MIX AT 160 LB/AC. FERTZILIZER TYPE 3 (22-5-10) AT 200 LB/AC. STABILIZE WITH HYDRAULIC EROSION CONTROL PRODUCT BONDED FIBER MATRIX OR ROLLED EROSION PREVENTION PRODUCT CATEGORY 20 (NATURAL NET).
COMMON TOPSOIL BORROW (4" MINIMUM) AND EXCAVATION GRADING IS INCIDENTAL.

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2/14/2025
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NO	DATE	DWN	CKD	REVISIONS

ALLIANT

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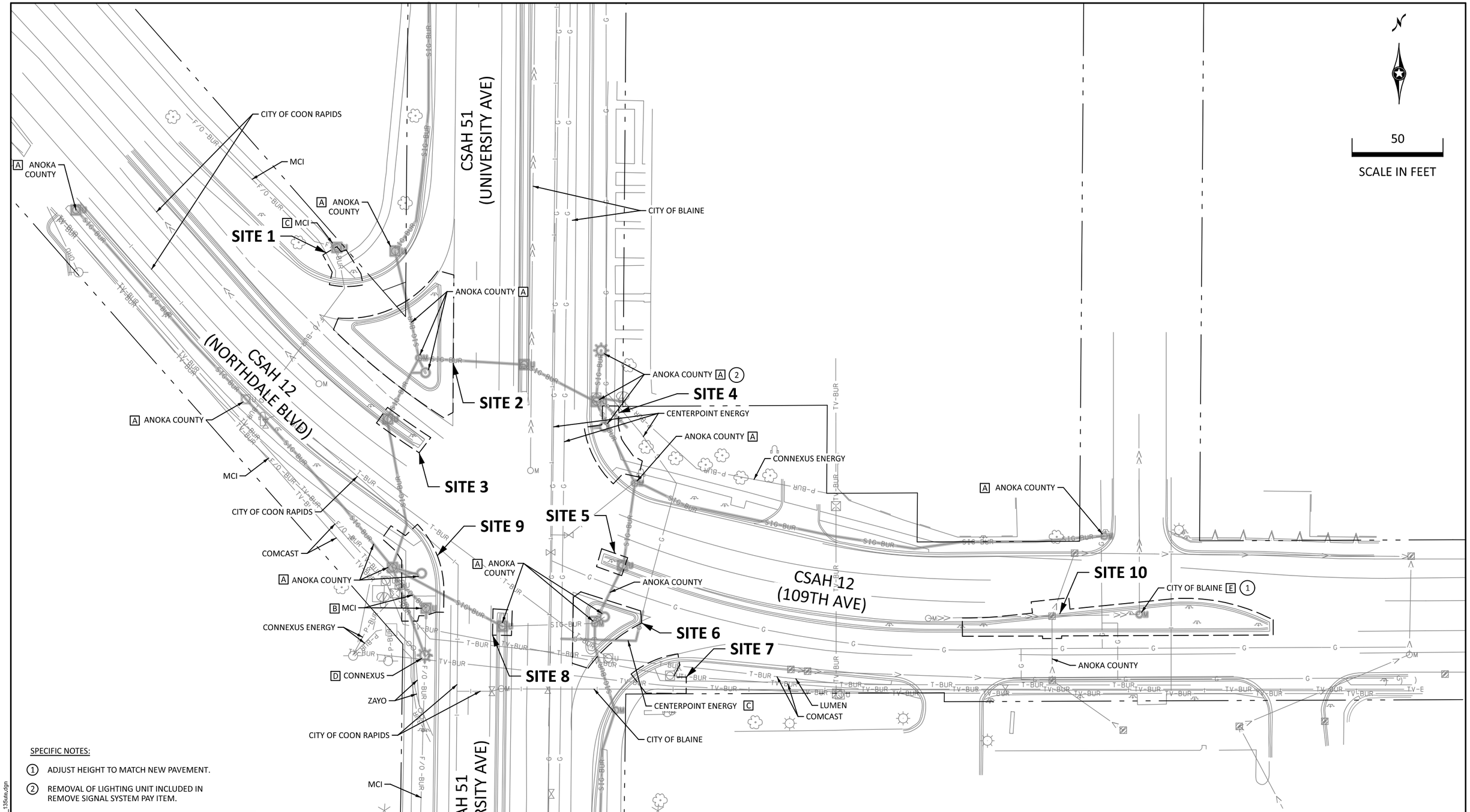
PRINT NAME: JOSEPH REZAC
SIGNATURE: Joseph Rezac
DATE 02/14/2025 LICENSE # 55948

TABULATIONS

SAP 106-020-043, SAP 114-020-066, SAP 114-020-067
SAP 002-612-037, SAP 002-612-036 (CSAH 12)
SHEET NO. 5 OF 98 SHEETS



SPECIFIC NOTES:

(1) ADJUST HEIGHT TO MATCH NEW PAVEMENT.

(2) REMOVAL OF LIGHTING UNIT INCLUDED IN REMOVE SIGNAL SYSTEM PAY ITEM.

LEGEND	
— — — —	INPLACE R/W
— — — —	CONSTRUCTION LIMITS
A	REMOVE BY CONTRACTOR
B	RELOCATE
C	ADJUST - BURY DEPTH
D	REMOVE LUMINAIRE DAVIT BY CONTRACTOR
E	ADJUST FRAME AND RING CASTING

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EXISTING TOPOGRAPHY AND UTILITY PLANS

SAP 106-020-043, SAP 114-020-066, SAP 114-020-067
SAP 002-612-037, SAP 002-612-036 (CSAH 12)
SHEET NO. 6 OF 98 SHEETS

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2/14/2025
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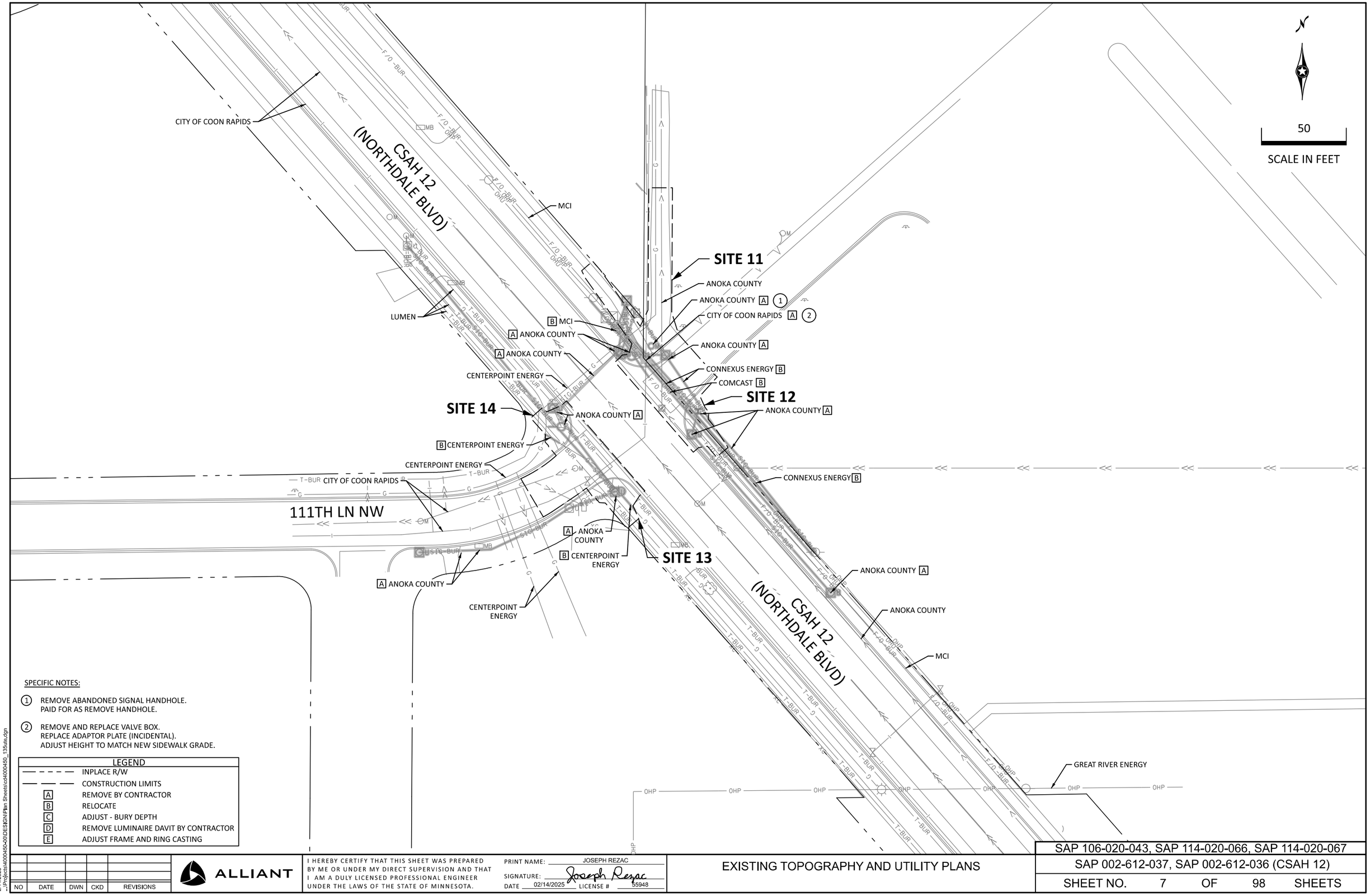

SPECIFIC NOTES:

1. REMOVE ABANDONED SIGNAL HANDHOLE. PAID FOR AS REMOVE HANDHOLE.
2. REMOVE AND REPLACE VALVE BOX. REPLACE ADAPTOR PLATE (INCIDENTAL). ADJUST HEIGHT TO MATCH NEW SIDEWALK GRADE.

LEGEND	
— — —	INPLACE R/W
— — —	CONSTRUCTION LIMITS
A	REMOVE BY CONTRACTOR
B	RELOCATE
C	ADJUST - BURY DEPTH
D	REMOVE LUMINAIRE DAVIT BY CONTRACTOR
E	ADJUST FRAME AND RING CASTING

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DATE 02/14/2025 LICENSE # 55948

EXISTING TOPOGRAPHY AND UTILITY PLANS

SAP 106-020-043, SAP 114-020-066, SAP 114-020-067
SAP 002-612-037, SAP 002-612-036 (CSAH 12)
SHEET NO. 7 OF 98 SHEETS

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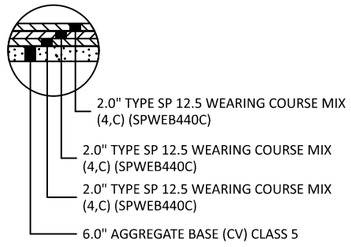
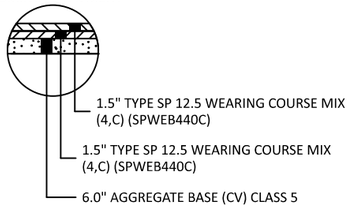
INSET A
PAVEMENT PATCH



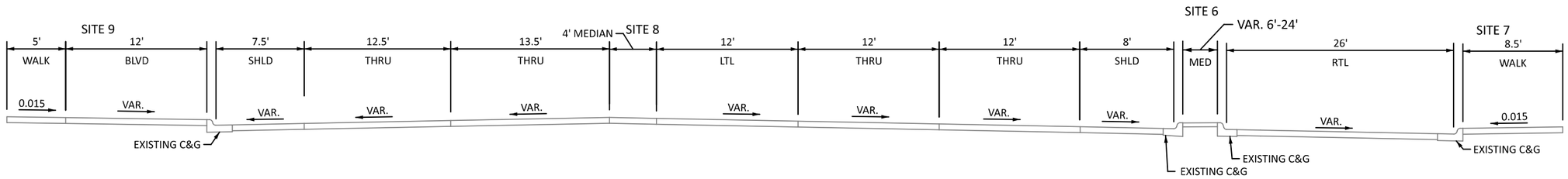
INSET B
WALK & MEDIAN

INSET C
BITUMINOUS TRAIL

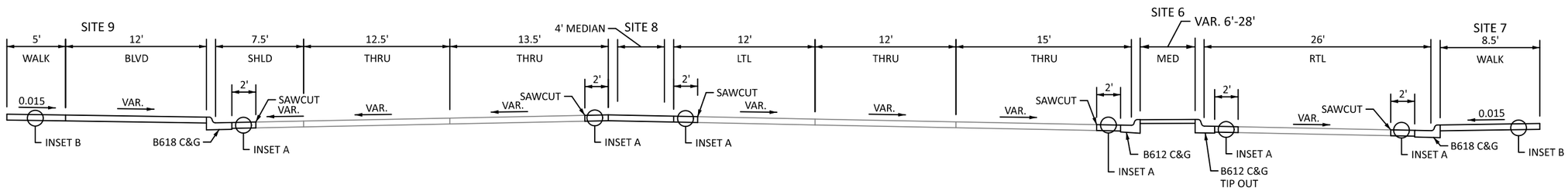
INSET D
111TH LANE NW / SCHOOL ENTRANCE
BITUMINOUS PAVMENT



INPLACE CSAH 51 (UNIVERSITY AVE) SOUTH



CSAH 51 (UNIVERSITY AVE) SOUTH



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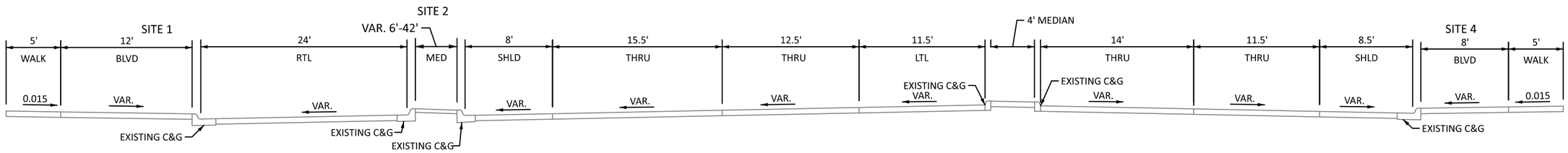
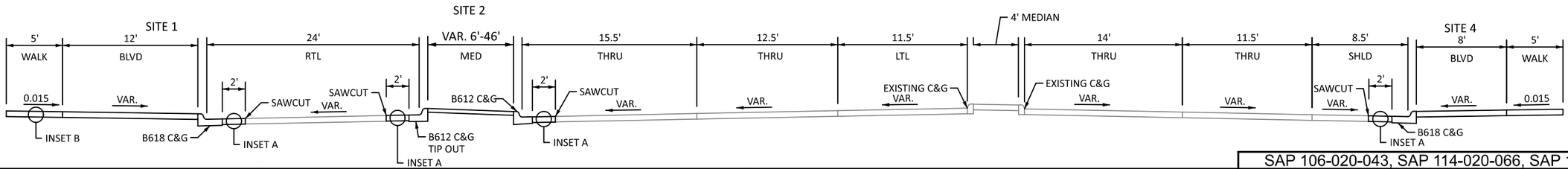


CSAH 51 (UNIVERSITY AVE) NORTH



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DATE 02/14/2025 LICENSE # 55948

TYPICAL SECTIONS

SAP 106-020-043, SAP 114-020-066, SAP 114-020-067
SAP 002-612-037, SAP 002-612-036 (CSAH 12)
SHEET NO. 8 OF 98 SHEETS

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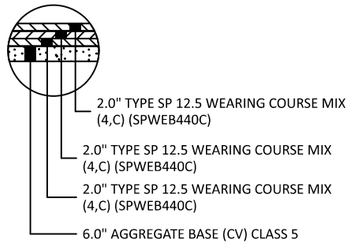
INSET A

PAVEMENT PATCH

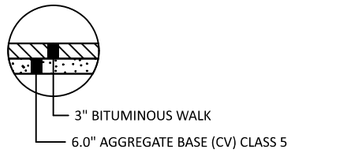


INSET B

WALK & MEDIAN

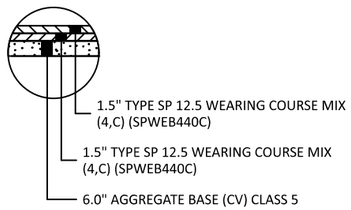
INSET C

BITUMINOUS TRAIL

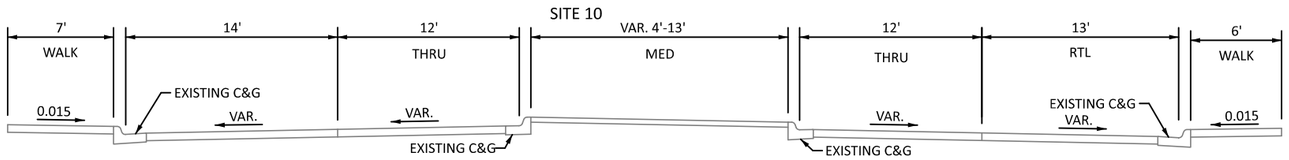


INSET D

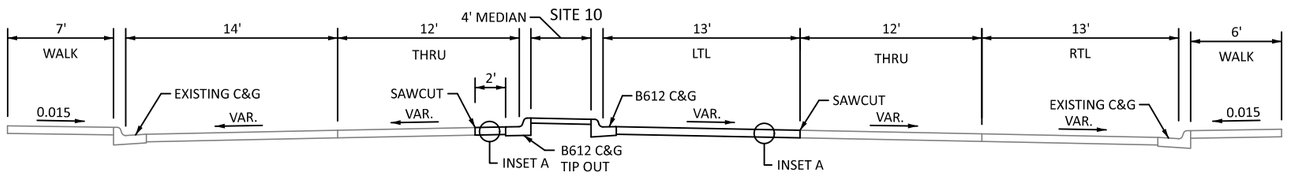
111TH LANE NW / SCHOOL ENTRANCE BITUMINOUS PAVMENT



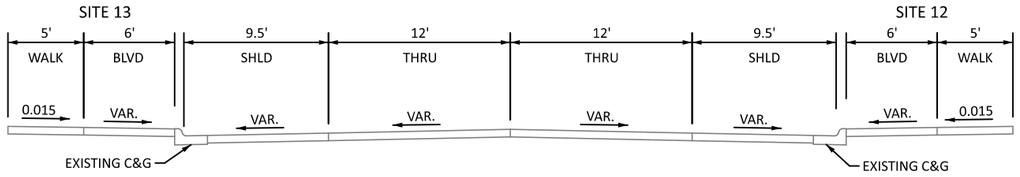
INPLACE CSAH 12 (109TH AVE)



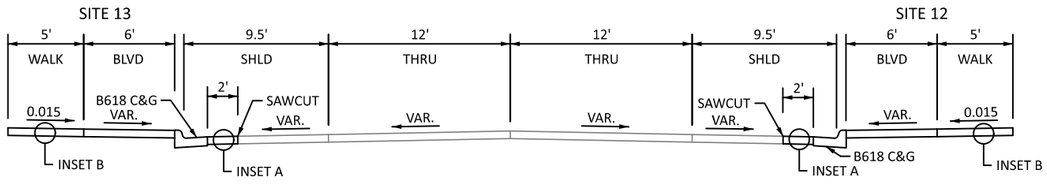
PROPOSED CSAH 12 (109TH AVE)



INPLACE CSAH 12 (NORTHDALE BLVD)



PROPOSED CSAH 12 (NORTHDALE BLVD)



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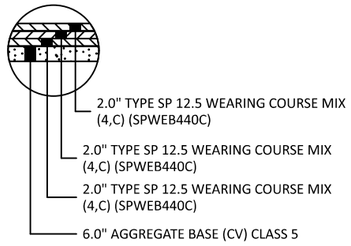
TYPICAL SECTIONS

SAP 106-020-043, SAP 114-020-066, SAP 114-020-067
SAP 002-612-037, SAP 002-612-036 (CSAH 12)
SHEET NO. 9 OF 98 SHEETS

INSET A

PAVEMENT PATCH

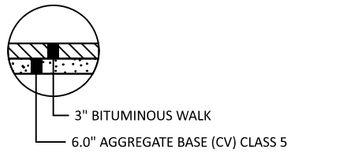


INSET B

WALK & MEDIAN

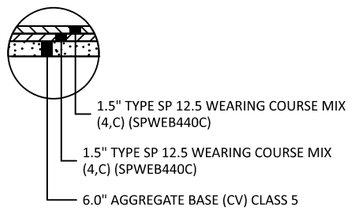
INSET C

BITUMINOUS TRAIL



INSET D

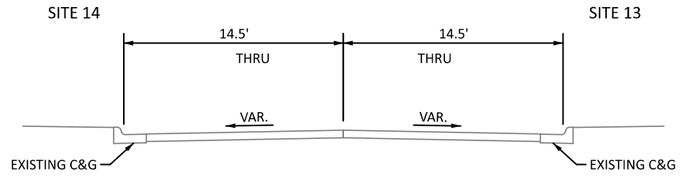
111TH LANE NW / SCHOOL ENTRANCE BITUMINOUS PAVMENT



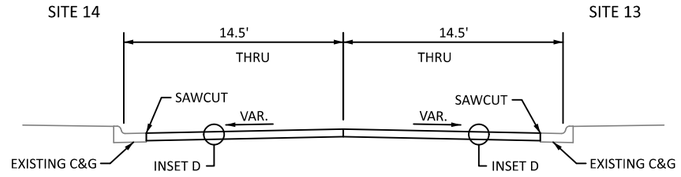
SPECIFIC NOTES:

1. MATCH EXISTING PAVEMENT THICKNESS.
2. SEE DESIGN DETAILS.

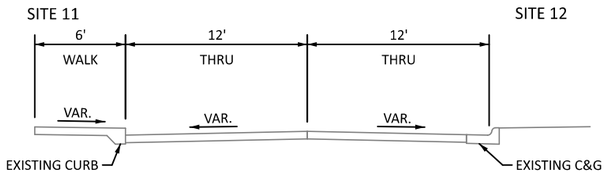
INPLACE 111TH LANE NW



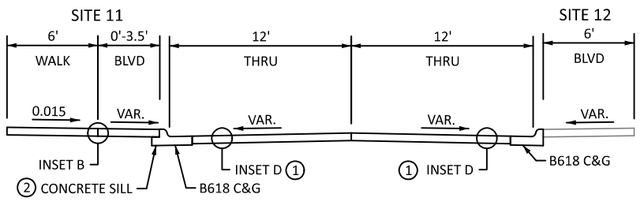
PROPOSED 111TH LANE NW



INPLACE SCHOOL ENTRANCE



PROPOSED SCHOOL ENTRANCE



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DATE 02/14/2025 LICENSE # 55948

TYPICAL SECTIONS

SAP 106-020-043, SAP 114-020-066, SAP 114-020-067

SAP 002-612-037, SAP 002-612-036 (CSAH 12)

SHEET NO. 10 OF 98 SHEETS

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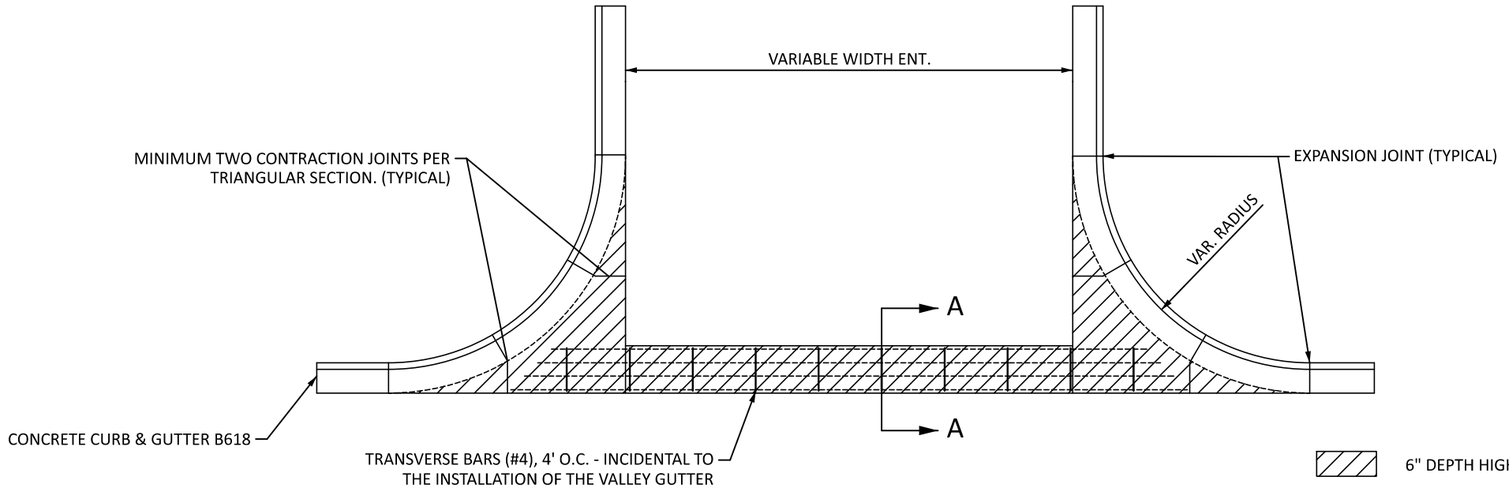
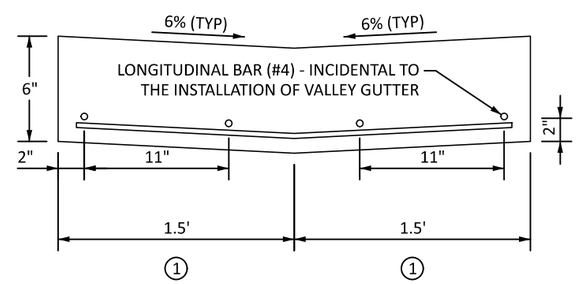
CROSS GUTTER DETAIL

PAID FOR AS 6" CONCRETE VALLEY GUTTER



SECTION A-A

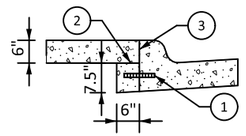


6" DEPTH HIGH-EARLY STRENGTH CONCRETE.

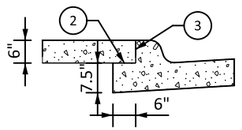
(1) MATCH GUTTER WIDTH.

DETAIL A

OPTION 1



DETAIL A



CONCRETE SILL DETAIL NOTES

CONTRACTOR MAY ELECT TO USE OPTION 1 FOR THE CONCRETE SILL AT NO ADDITIONAL COST TO THE DEPARTMENT.

SILL CURB SHALL NOT BE USED IN CURB RAMPS, INCLUDING CONCRETE FLARES.

(1) DRILL AND GROUT NO. 4 x 8" LONG TIE BARS (EPOXY COATED). 36" MAXIMUM SPACING BETWEEN BARS WITH 2" MINIMUM CONCRETE COVER PLACED 1' MINIMUM FROM ADJACENT CONSTRUCTION JOINTS. TIE BARS SHALL BE EMBEDDED 4" WITH 2" MINIMUM CONCRETE COVER AND ARE INCIDENTAL.

(2) FURNISH AND INSTALL THE FULL WIDTH OF THE TOP OF THE SILL A MINIMUM 2ML THICK POLYTHENE SHEETING (INCIDENTAL).

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

NO	DATE	DWN	CKD	REVISIONS

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DESIGN DETAILS

SAP 106-020-043, SAP 114-020-066, SAP 114-020-067
SAP 002-612-037, SAP 002-612-036 (CSAH 12)
SHEET NO. 11 OF 98 SHEETS

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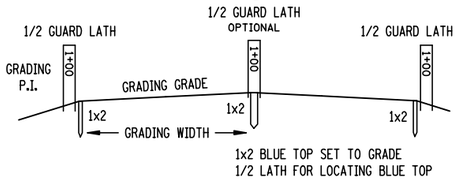
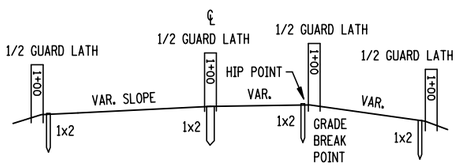
BLUE TOPS

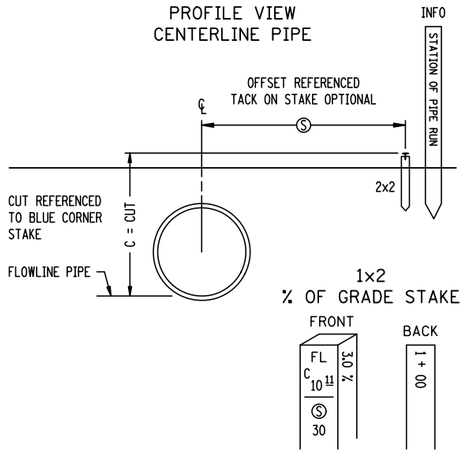
NORMAL SECTION



TRANSITION SECTION

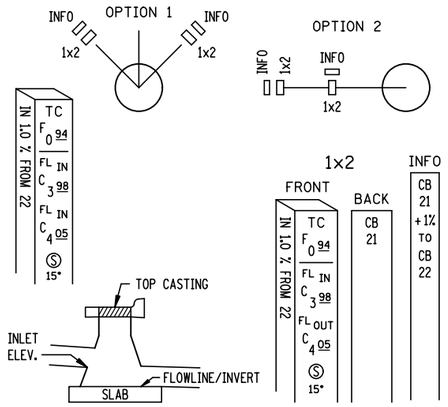


PIPE STAKING



CATCH BASIN OR MANHOLE (CB/MH)

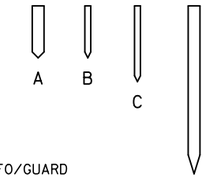
TOP VIEWS



FLOWLINE/INVERT + 0.7'

STANDARD STAKES

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



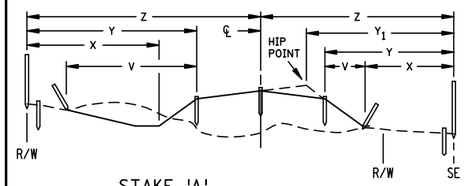
SIZES:
A = 2" X 2" X VAR. REF/INFO/GUARD
B = 1" X 2" X VAR. REF/INFO/GUARD
C = 1" X 2" X VAR. REF
D = LATH INFO/VIS/GUARD
1x2 OR LATH = INFO STAKES

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

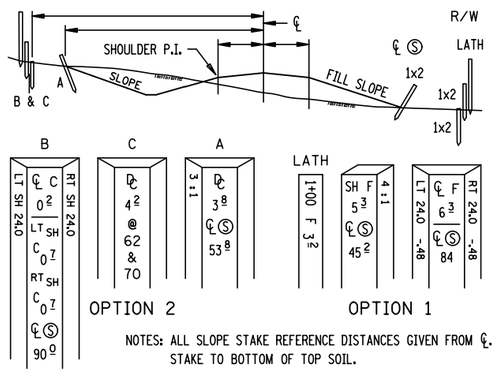
STAKE 'B'

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'

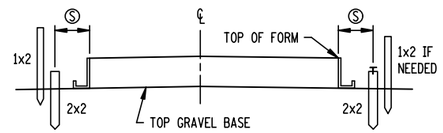


OPTION 2 OPTION 1

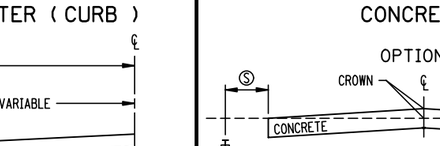
NOTES: ALL SLOPE STAKE REFERENCE DISTANCES GIVEN FROM ℄. STAKE TO BOTTOM OF TOP SOIL.

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						

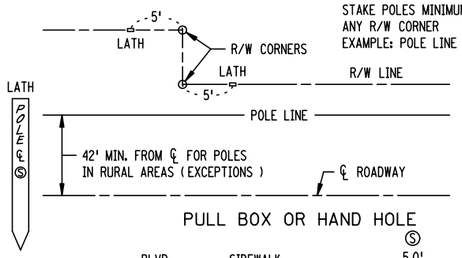
STAKING TOLERANCES (FEET)

	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

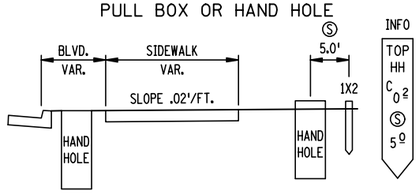
THE TOLERANCES ARE RELATIVE TO PROJECT DATUM

UTILITY (UTIL)

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

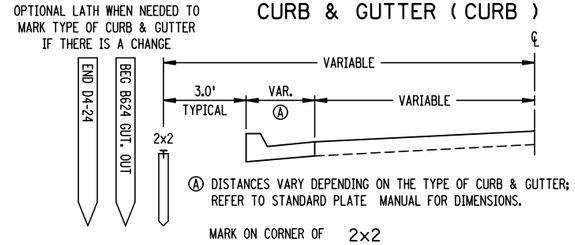


PULL BOX OR HAND HOLE

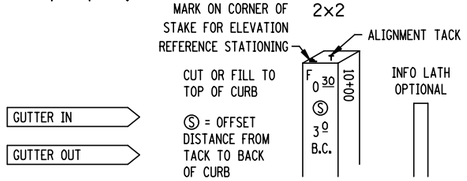


CURB & GUTTER (CURB)

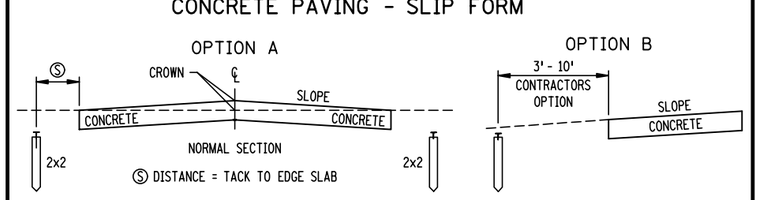
OPTIONAL LATH WHEN NEEDED TO MARK TYPE OF CURB & GUTTER IF THERE IS A CHANGE

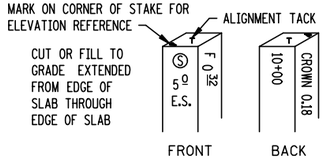


Ⓐ DISTANCES VARY DEPENDING ON THE TYPE OF CURB & GUTTER; REFER TO STANDARD PLATE MANUAL FOR DIMENSIONS.



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.

LEAD EXPERT OFFICE	BRYAN DODDS DIRECTOR OFFICE OF LAND MANAGEMENT	STAKING INFORMATION SHEET	APPROVED: 08-06-2014 REVISED:

CHRISTOPHER ROY
STATE DESIGN ENGINEER

STANDARD PLAN 5-297.115

1 OF 2

STANDARD PLANS

SAP 106-020-043, SAP 114-020-066, SAP 114-020-067
SAP 002-612-037, SAP 002-612-036 (CSAH 12)
SHEET NO. 12 OF 98 SHEETS

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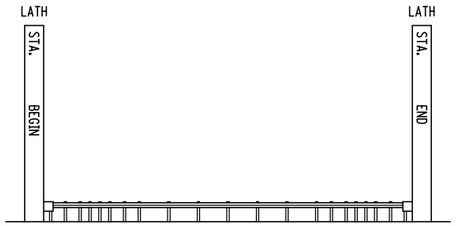
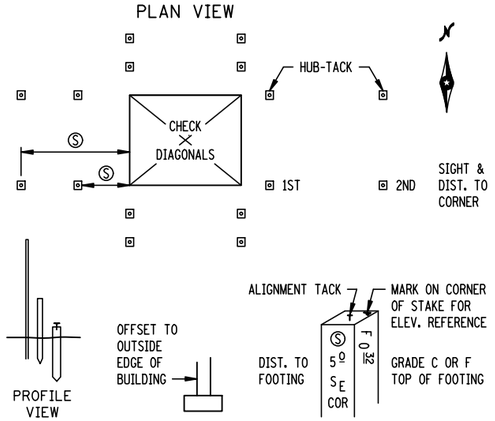
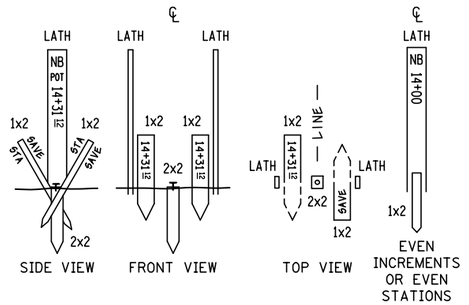
GUARDRAIL (GUARD)



BUILDING (BUILD) FOUNDATION / FOOTING



ALIGNMENT POINTS (ALIGN)



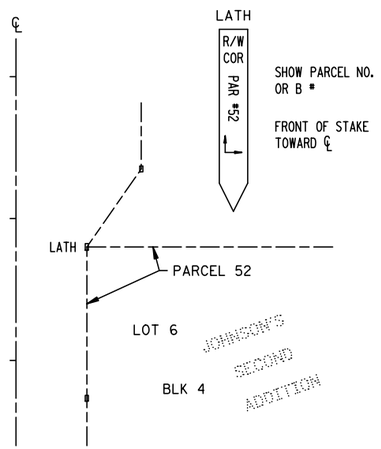
STAKE C = 2"X 2" HUB (LENGTH MAY VARY) SET AS TEMPORARY STAKE. MAY BE REPLACED BY MnDOT MARKER AFTER CONSTRUCTION IS COMPLETED.

SET AT GROUND LEVEL (TEMPORARY CONSTRUCTION STAKE).

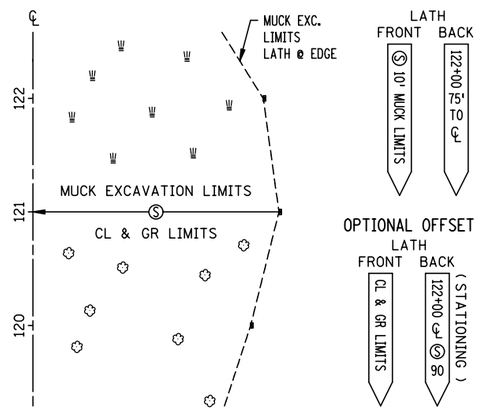
TACK SET AT ALIGNMENT POINTS.

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)

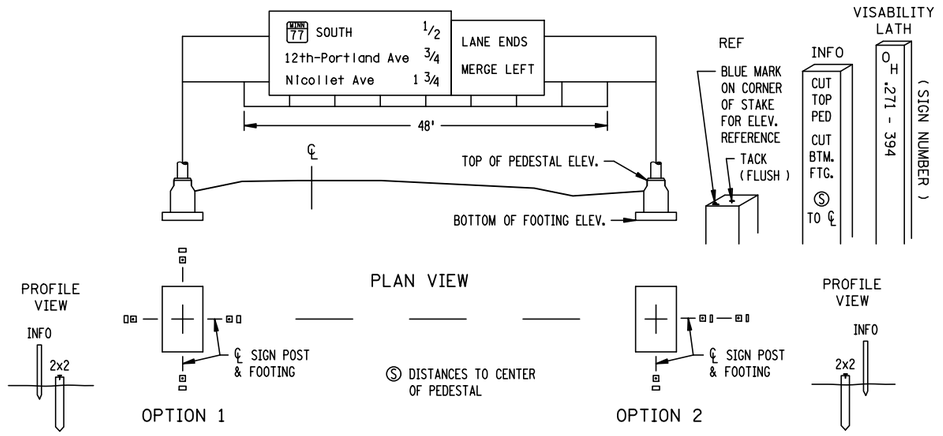


CLEAR & GRUBBING LIMITS (CLEAR) OR MUCK EXCAVATION LIMITS (MUCK)

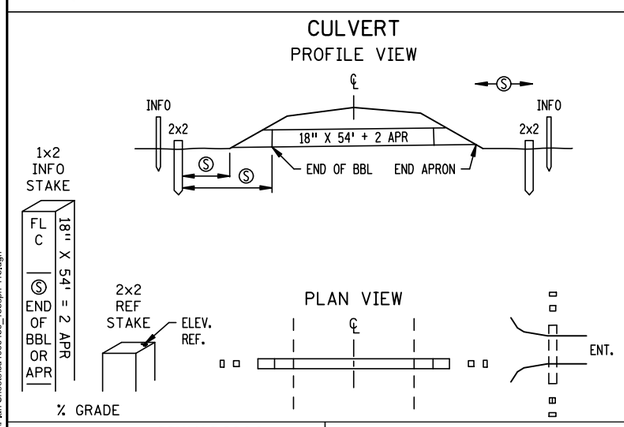


NOTE: FRONT OF LATH GOES TOWARD ℄

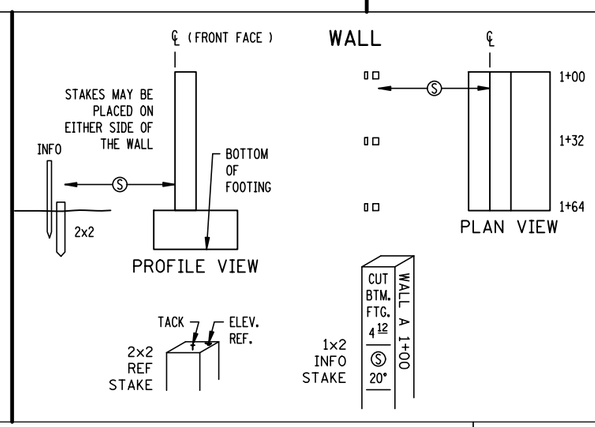
OVERHEAD SIGNS (SIGN)



CULVERT

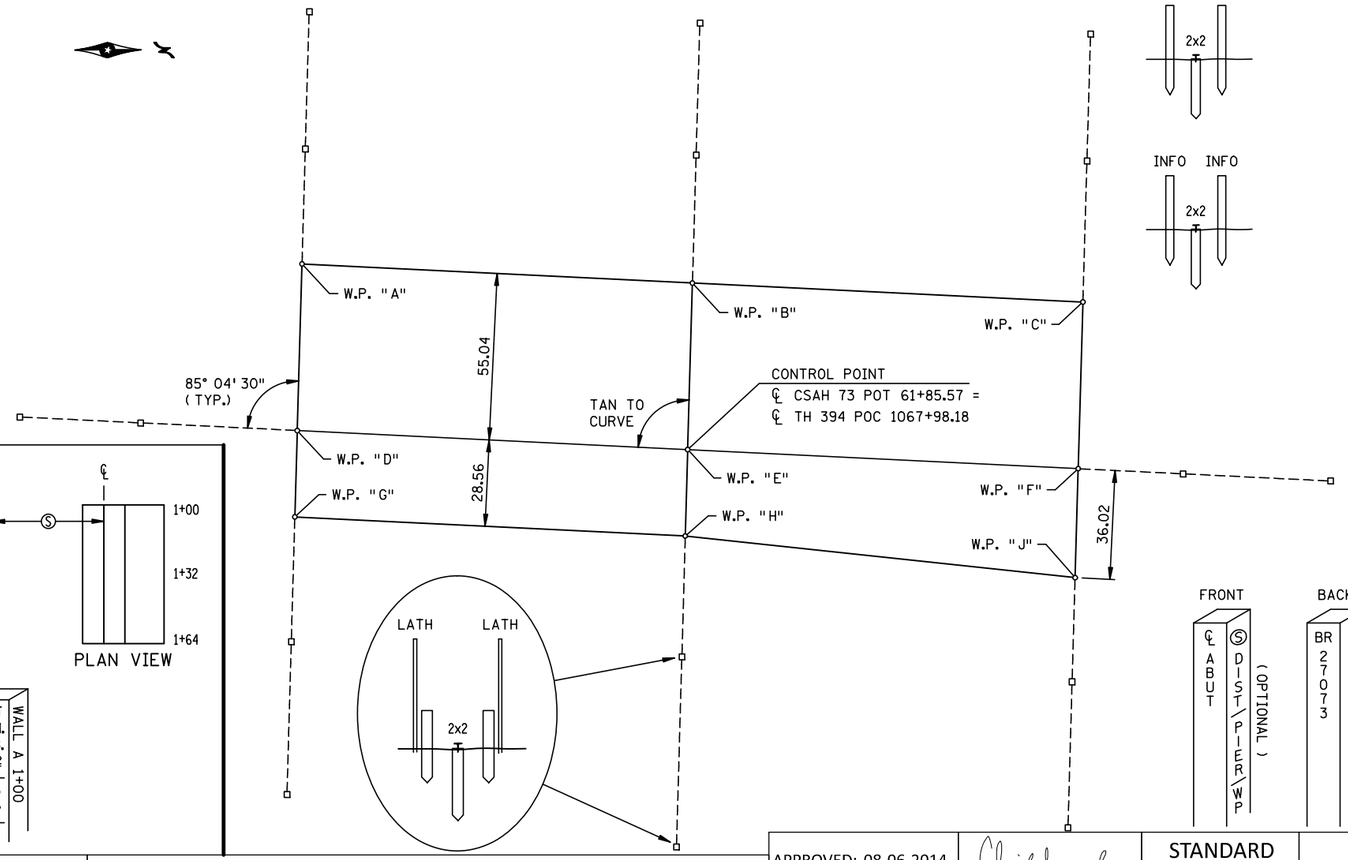


WALL



BRIDGESTAKING (BRIDGE)

WORKING POINTS LAYOUT



LEAD EXPERT OFFICE	BRYAN DODDS DIRECTOR OFFICE OF LAND MANAGEMENT	STAKING INFORMATION SHEET	APPROVED: 08-06-2014 REVISED: CHRISTOPHER ROY STATE DESIGN ENGINEER STANDARD PLAN 5-297.115 2 OF 2

STANDARD PLANS

SAP 106-020-043, SAP 114-020-066, SAP 114-020-067

SAP 002-612-037, SAP 002-612-036 (CSAH 12)

SHEET NO. 13 OF 98 SHEETS

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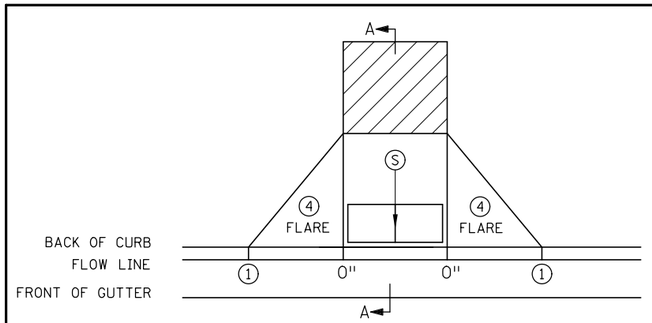
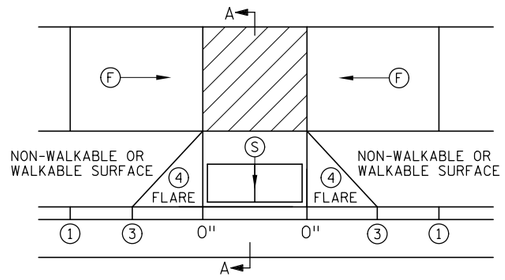
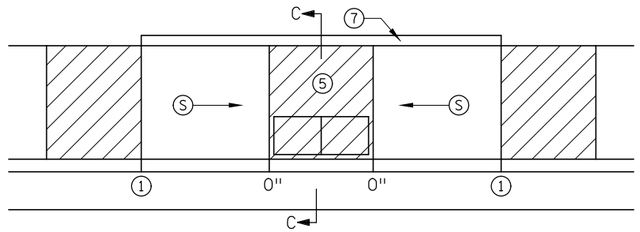


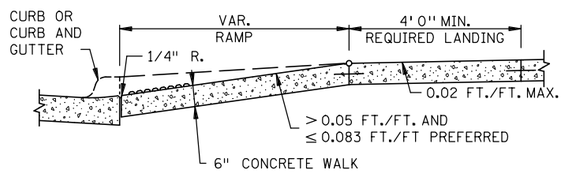
PERPENDICULAR



TIERED PERPENDICULAR

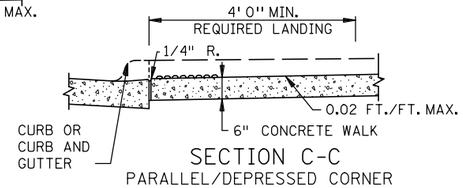


PARALLEL



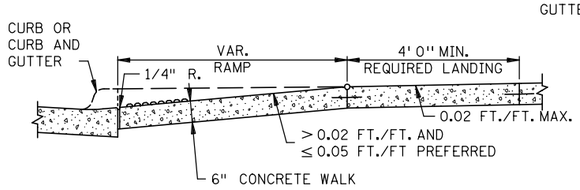
SECTION A-A

PERPENDICULAR/TIERED/DIAGONAL



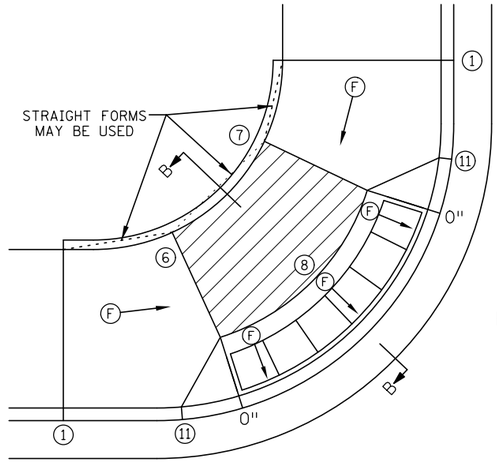
SECTION C-C

PARALLEL/DEPRESSED CORNER

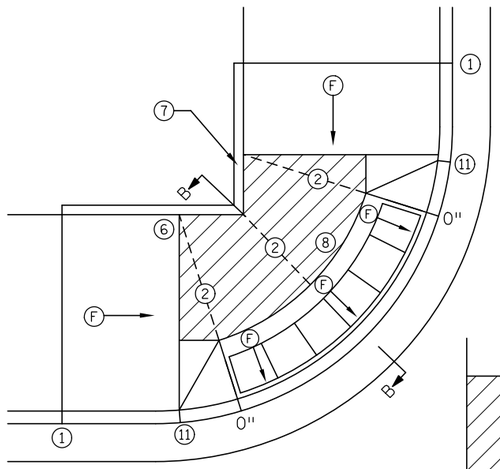


SECTION B-B

FAN

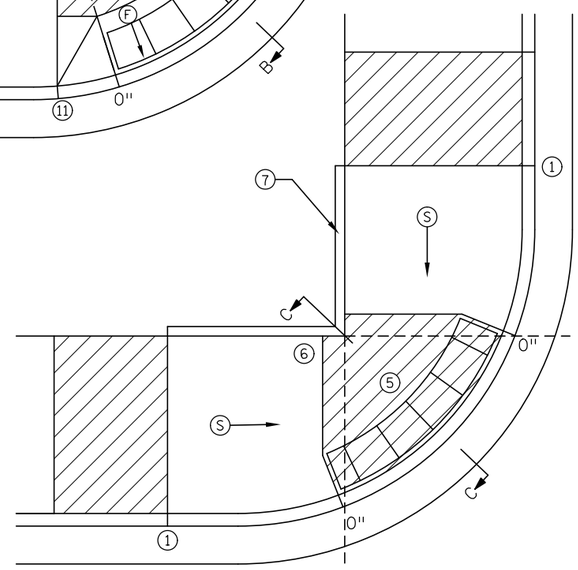


FAN ⑩

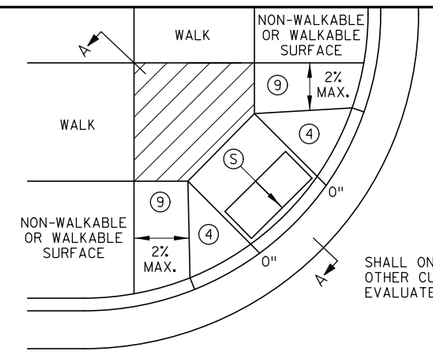


MODIFIED FAN ⑩

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

LEAD EXPERT OFFICE	JEFFREY PERKINS OPERATIONS DIVISION	PEDESTRIAN CURB RAMP DETAILS	APPROVED: 11-04-2021 REVISED:	THOMAS STYRBICKI STATE DESIGN ENGINEER STANDARD PLAN 5-297.250	1 OF 6

SAP 106-020-043, SAP 114-020-066, SAP 114-020-067

SAP 002-612-037, SAP 002-612-036 (CSAH 12)

STANDARD PLANS

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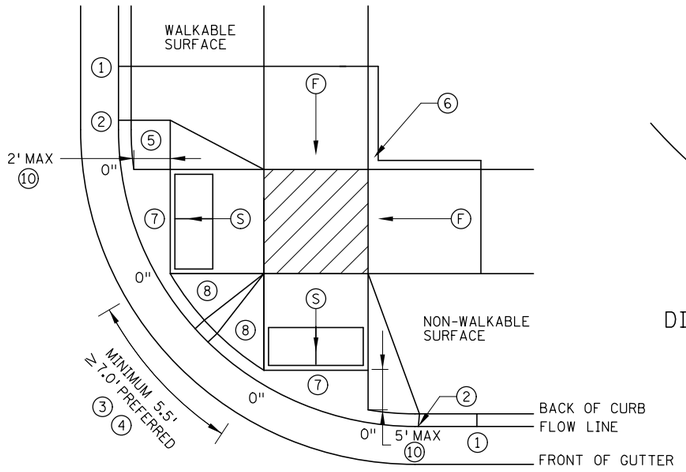
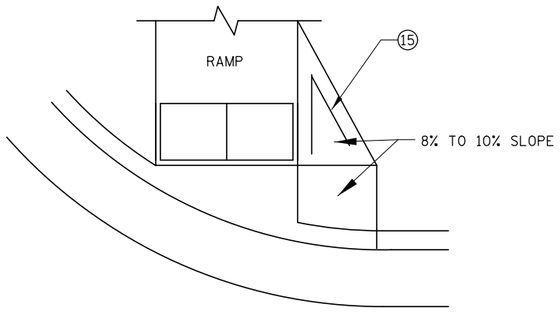
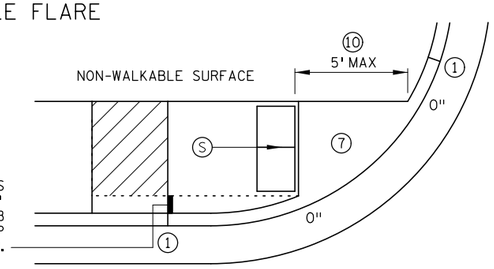


COMBINED DIRECTIONAL

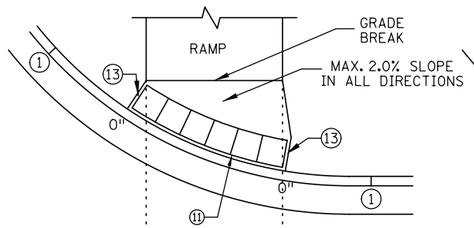


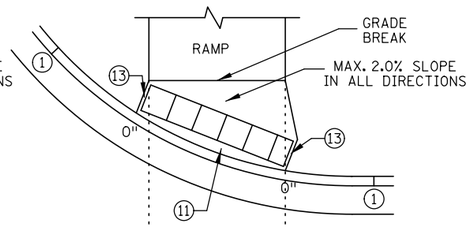
DIRECTIONAL RAMP WALKABLE FLARE

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.



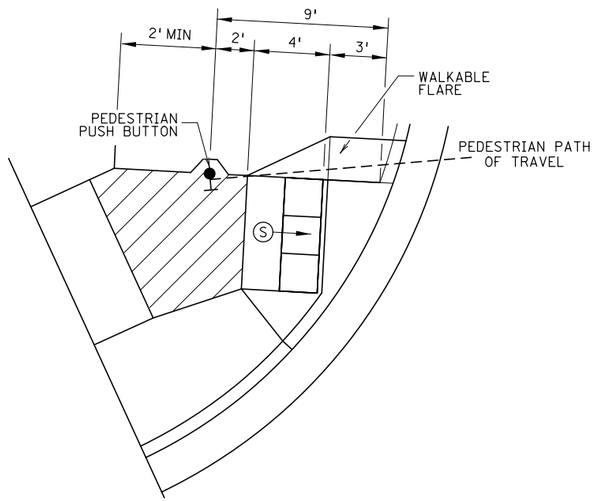
STANDARD ONE-WAY DIRECTIONAL ⑨





DETECTABLE WARNING PLACEMENT WHEN SETBACK CRITERIA IS EXCEEDED ⑫

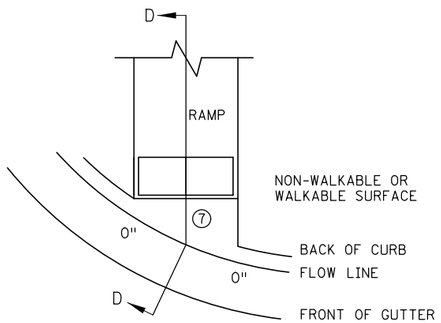
ONE-WAY DIRECTIONAL WITH DETECTABLE WARNING AT BACK OF CURB

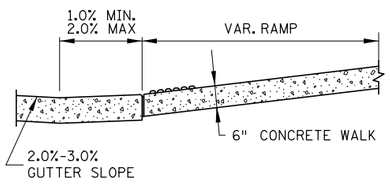


SEMI-DIRECTIONAL RAMP ③④⑨

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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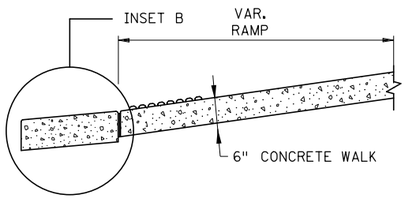
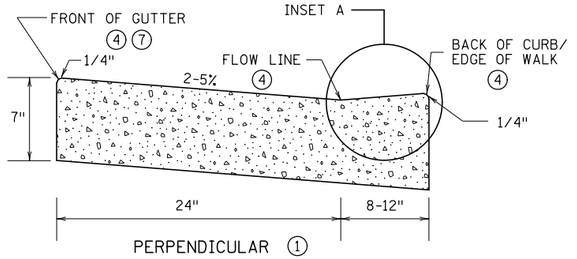
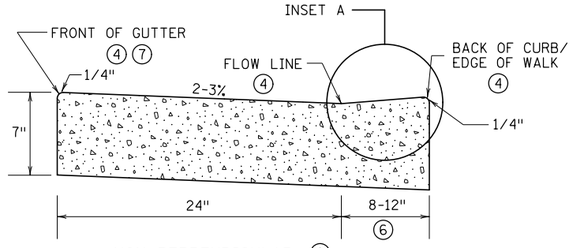
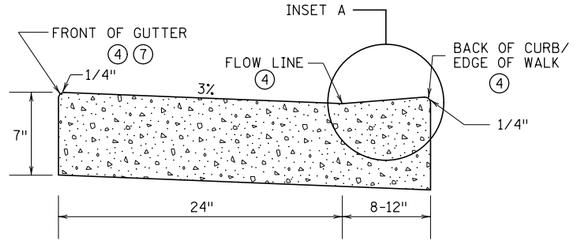




PERPENDICULAR ①

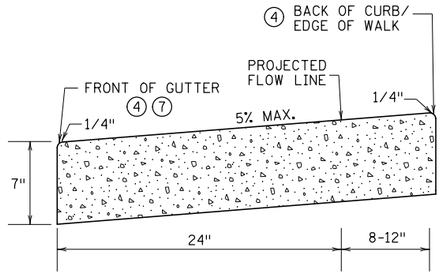


NON PERPENDICULAR ②

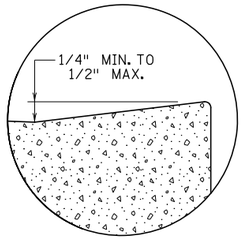


FOR CURB MACHINE PLACEMENT AROUND RADIUS ③
(REGARDLESS OF RAMP TYPE)

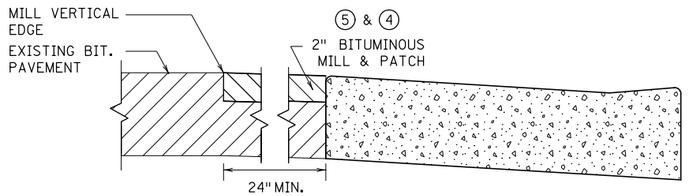
PEDESTRIAN ACCESS ROUTE CURB & GUTTER DETAIL

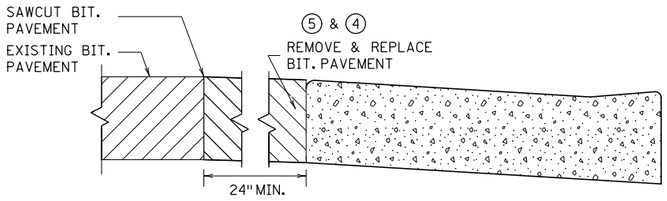


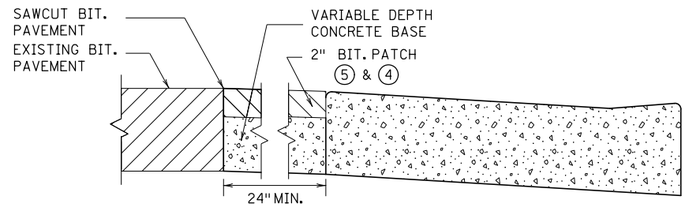
INSET B
OUTFLOW GUTTER ⑧



INSET A







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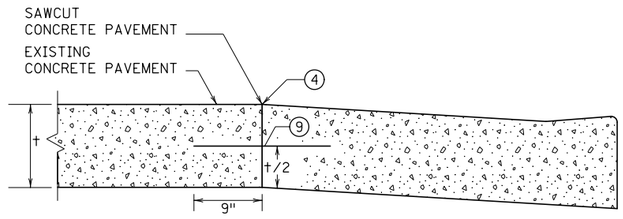
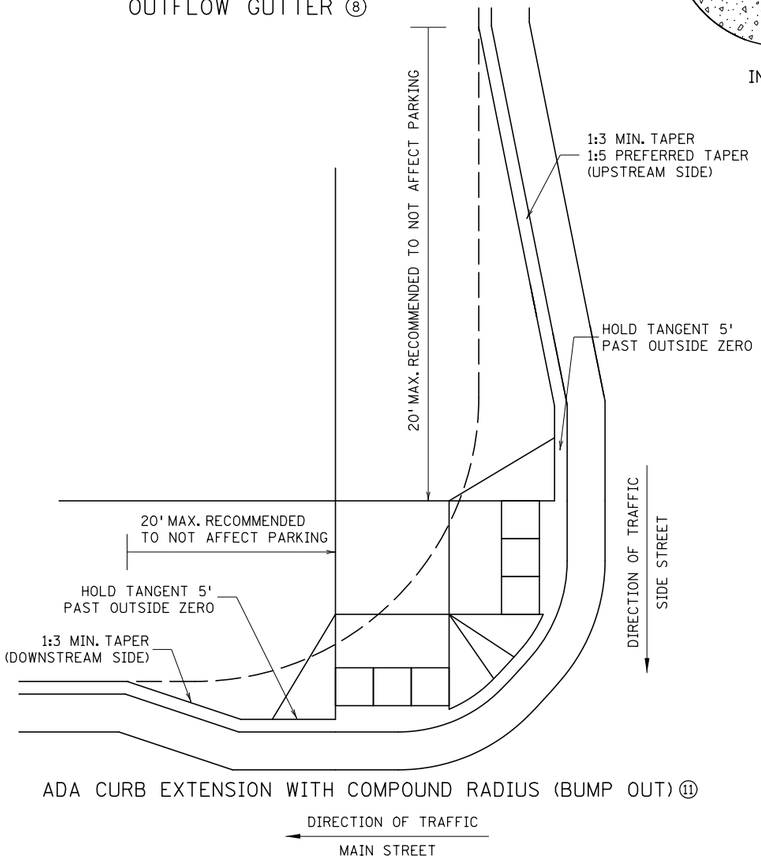
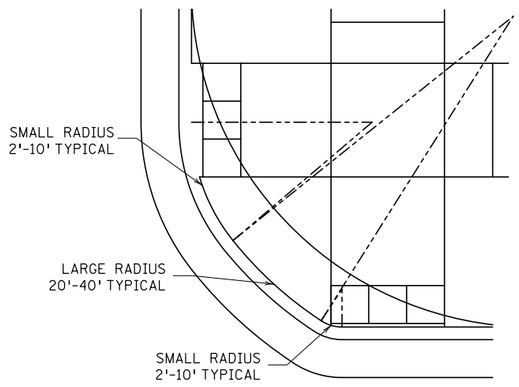


PAVEMENT TREATMENT OPTIONS IN FRONT OF CURB & GUTTER

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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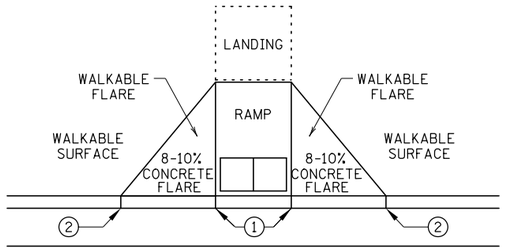
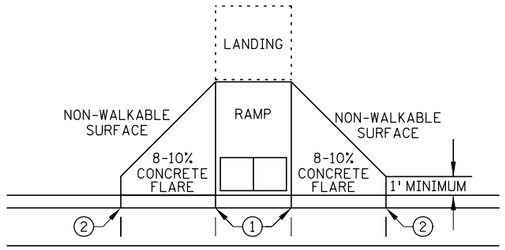
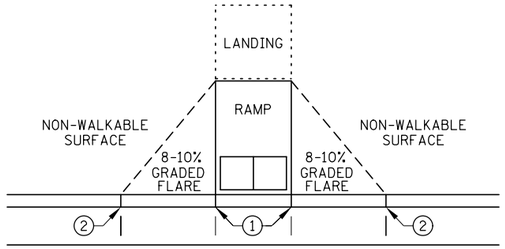


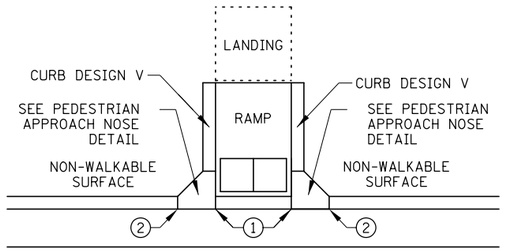
PAVED FLARES
ADJACENT TO WALKABLE SURFACE



PAVED FLARES
ADJACENT TO NON-WALKABLE SURFACE

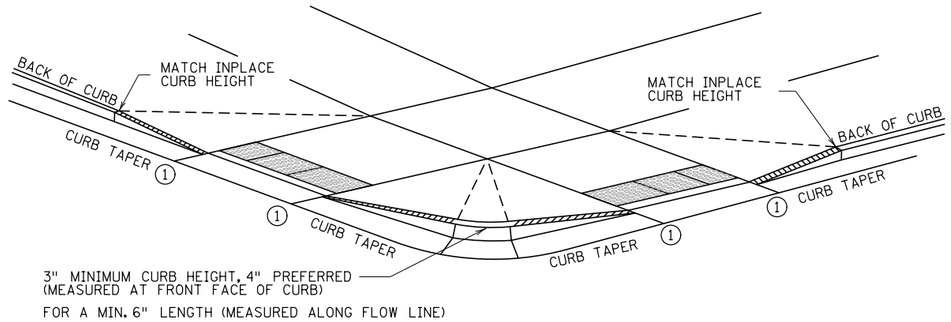


GRADED FLARES

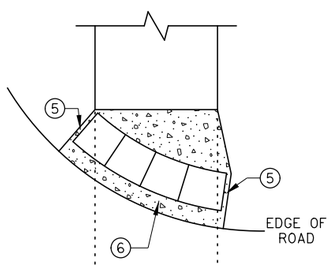


RETURNED CURB ④

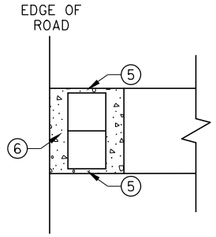
TYPICAL SIDE TREATMENT OPTIONS ③ ⑩



DETECTABLE EDGE WITH ⑦
CURB AND GUTTER

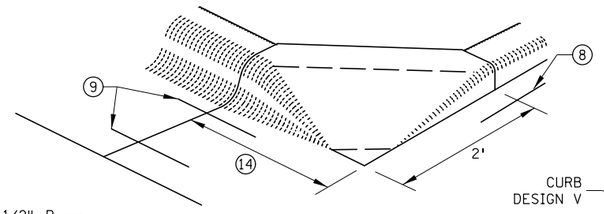


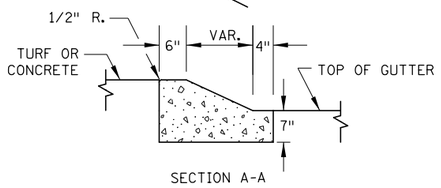
RADIAL DETECTABLE WARNING



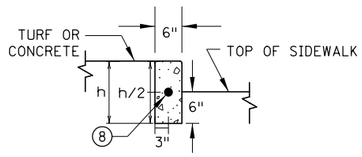
RECTANGULAR DETECTABLE WARNING

DETECTABLE EDGE WITHOUT CURB AND GUTTER





SECTION A-A



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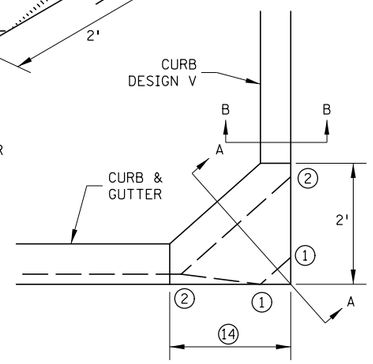
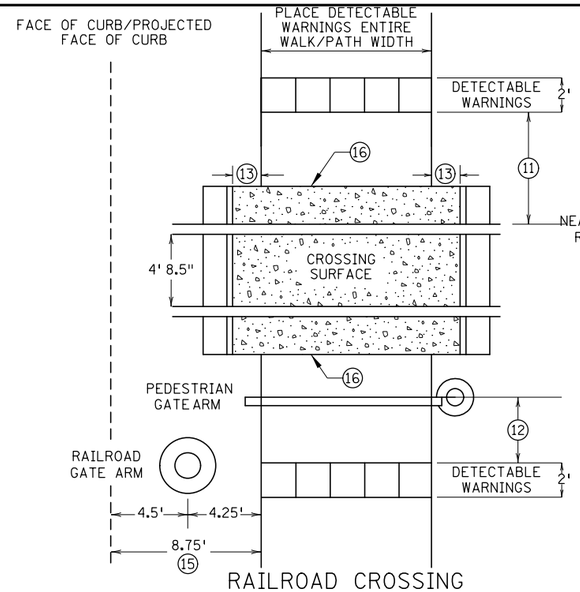


PEDESTRIAN APPROACH
NOSE DETAIL
(FOR RETURNED CURB
SIDE TREATMENT)



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 PLANS

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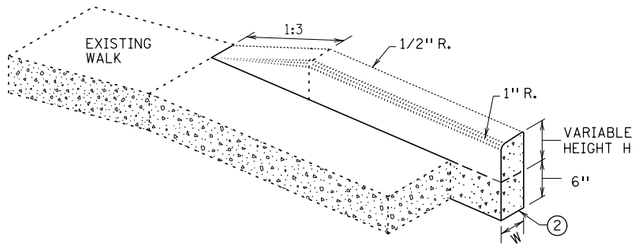
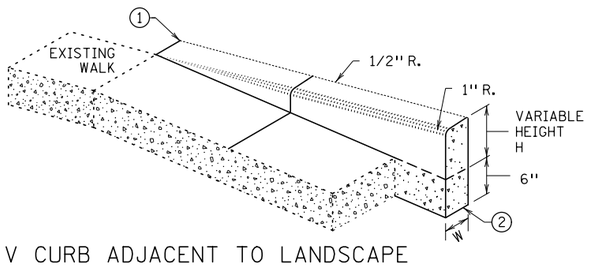


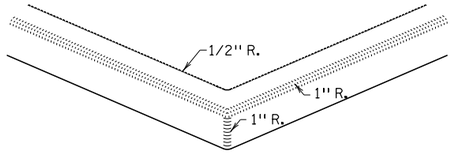
V CURB ADJACENT TO LANDSCAPE

CURB WITHIN SIDEWALK LIMITS



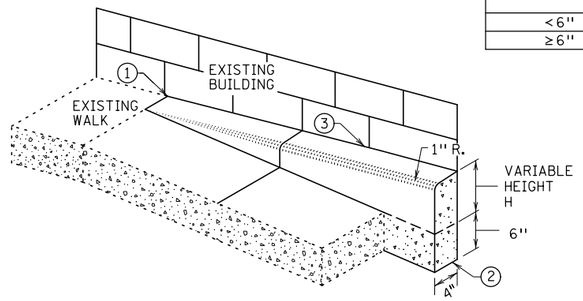
V CURB ADJACENT TO LANDSCAPE

CURB OUTSIDE SIDEWALK LIMITS

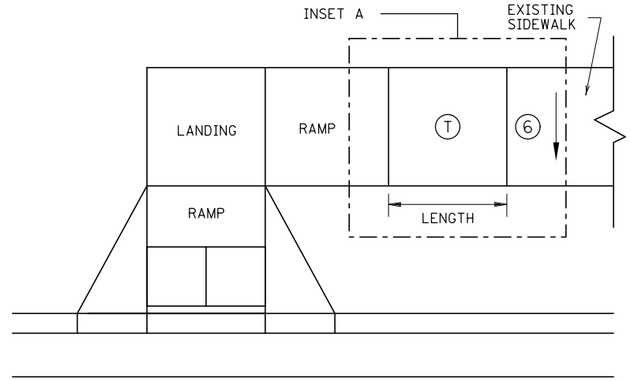


V CURB INTERSECTION

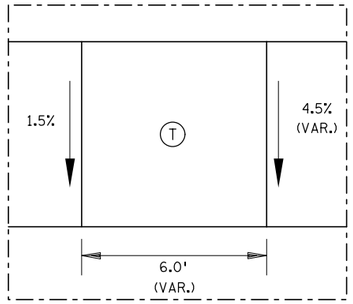
CONCRETE CURB DESIGN V	
CURB HEIGHT H	CURB WIDTH W
< 6"	4"
≥ 6"	6"



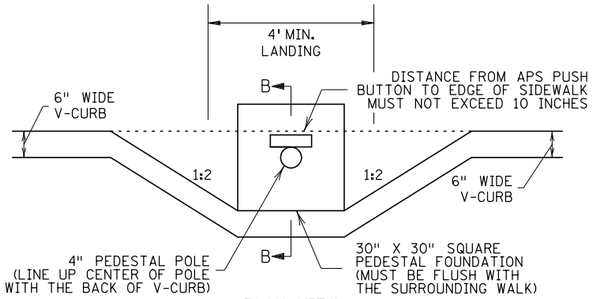
V CURB ADJACENT TO BUILDING OR BARRIER



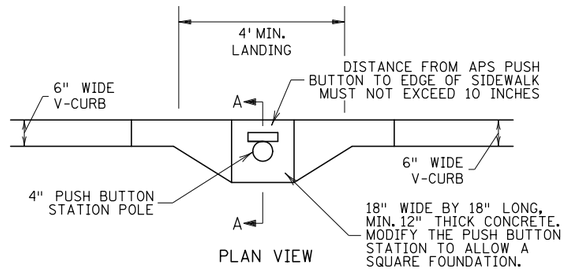
TRANSITION PANEL ④⑤



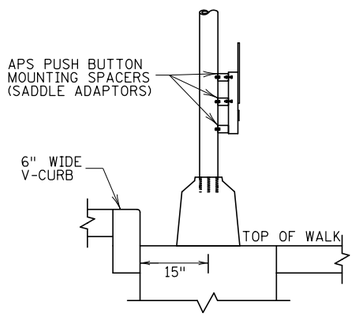
INSET A



PLAN VIEW

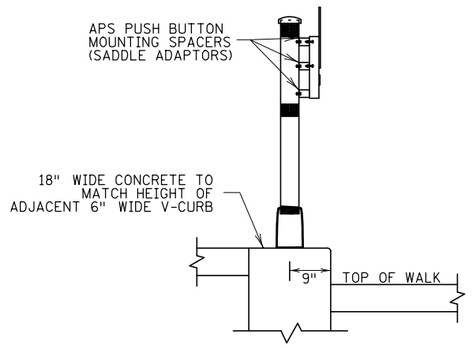


PLAN VIEW



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 ½" 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.

Ⓢ 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.

Ⓣ 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.

LEAD EXPERT OFFICE	JEFFREY PERKINS OPERATIONS DIVISION	PEDESTRIAN CURB RAMP DETAILS	APPROVED: 11-04-2021 REVISED:	THOMAS STYRBICKI STATE DESIGN ENGINEER STANDARD PLAN 5-297.250	5 OF 6
				SAP 106-020-043, SAP 114-020-066, SAP 114-020-067	
		STANDARD PLANS		SAP 002-612-037, SAP 002-612-036 (CSAH 12)	
				SHEET NO. 18 OF 98 SHEETS	

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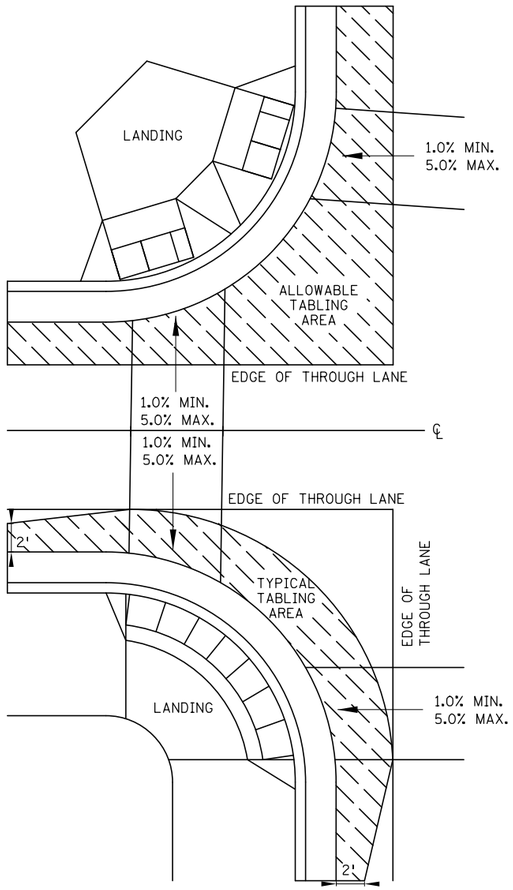
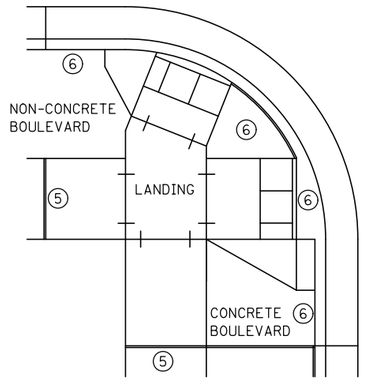
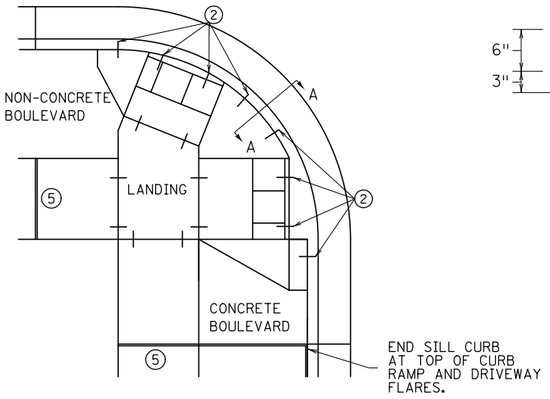


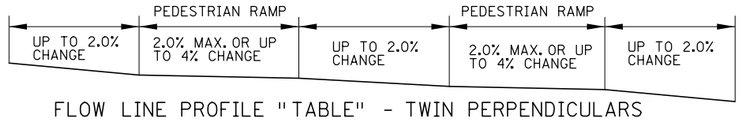
CURB LINE AND ROAD CROSSING ADJUSTMENTS



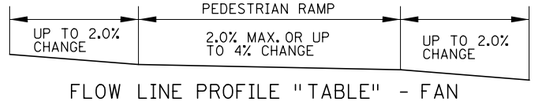
EXPANSION MATERIAL PLACEMENT
FOR CONCRETE ROADWAYS



CURB LINE REINFORCEMENT ④
PLACEMENT ON BITUMINOUS ROADWAYS



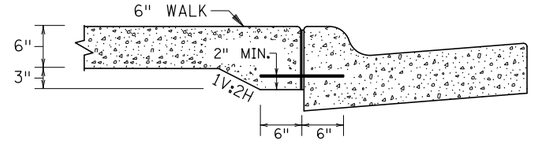
FLOW LINE PROFILE "TABLE" - TWIN PERPENDICULARS



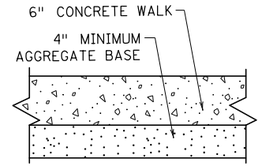
FLOW LINE PROFILE "TABLE" - FAN

FLOW LINE PROFILE RAISE - TWIN PERPENDICULARS

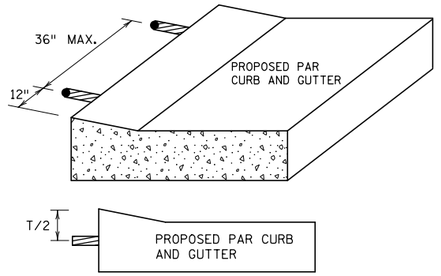
FLOW LINE PROFILE RAISE - FAN

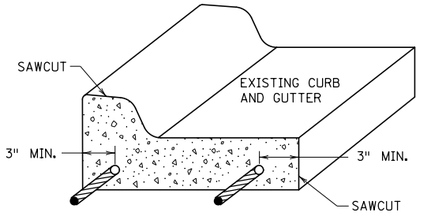


SECTION VIEW A-A
THICKENED SECTION
THROUGH CURB RAMP FLARES



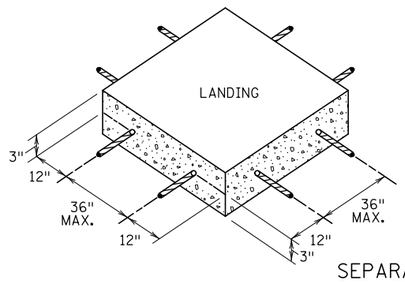
TYPICAL SIDEWALK SECTION
WITHIN INTERSECTION CORNER

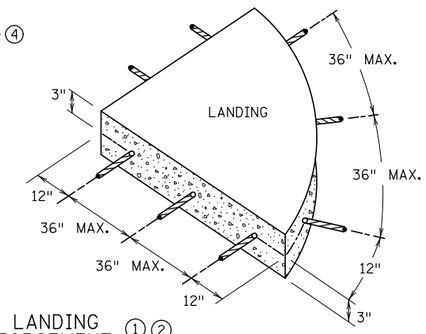




CURB AND GUTTER
REINFORCEMENT ③

CURB RAMP REINFORCEMENT DETAILS ②④





SEPARATE LANDING
POUR REINFORCEMENT ①②

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.

LEAD EXPERT OFFICE	JEFFREY PERKINS OPERATIONS DIVISION	PEDESTRIAN CURB RAMP DETAILS	APPROVED: 11-04-2021 REVISED:	THOMAS STYRBICKI STATE DESIGN ENGINEER
			STANDARD PLAN 5-297.250	6 OF 6

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STANDARD PLANS

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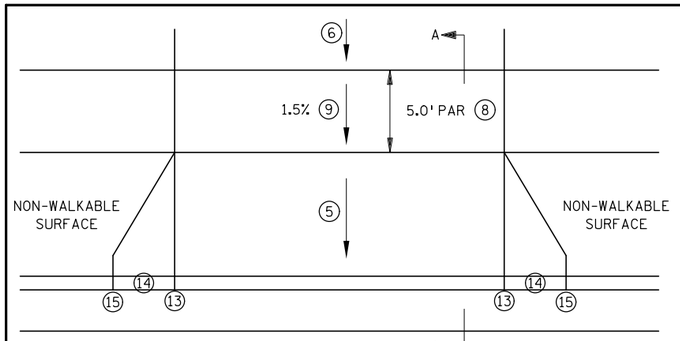
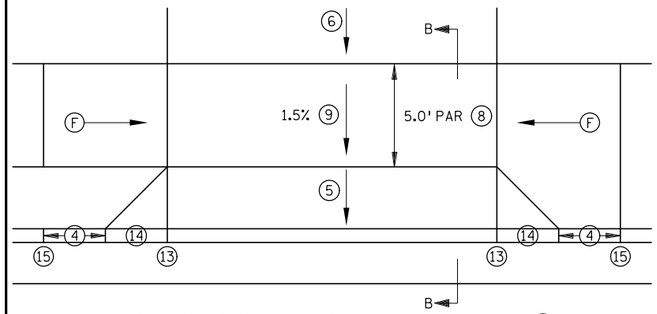
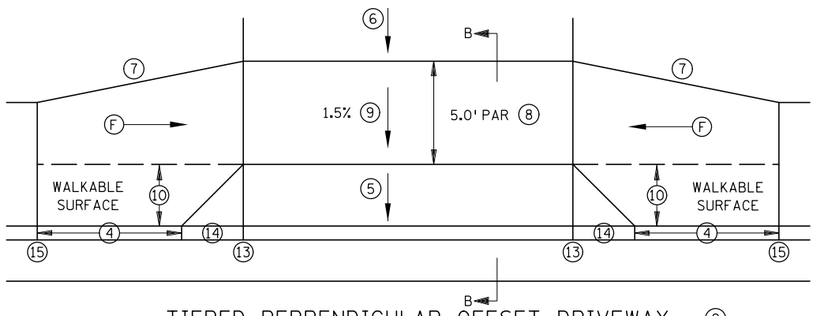


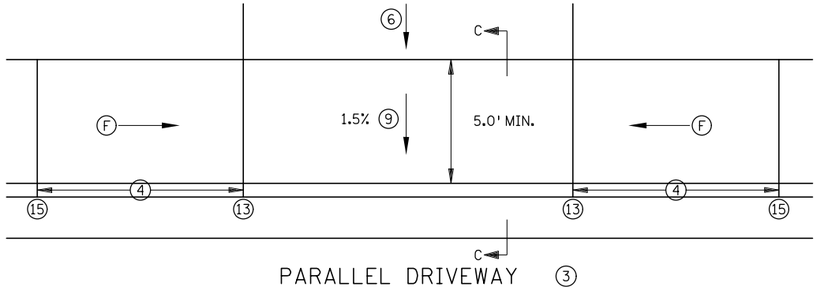
PERPENDICULAR DRIVEWAY (1)



TIERED PERPENDICULAR DRIVEWAY (2)



TIERED PERPENDICULAR OFFSET DRIVEWAY (2)



PARALLEL DRIVEWAY (3)

LEGEND

(F) ↓	INDICATES DRIVEWAY 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%

NOTES:

ALL SIDEWALK AND BOULEVARD WIDTHS SHALL BE MEASURE FROM BACK OF CURB.

IN URBAN ROADWAY SECTIONS, 6" CURB HEIGHT SHOULD BE USED WHEN 6' OR GREATER BOULEVARD WIDTH IS PROPOSED. WHEN BOULEVARD IS LESS THAN 6' WIDE, 4" CURB HEIGHT SHOULD BE USED.

MAINTAIN EXISTING DRAINAGE PATTERNS FLOWING TO PUBLIC RIGHT OF WAY.

ACQUIRE ADEQUATE L3 TO ALLOW FOR A CONTINUOUS PAR PROFILE (UNIFORM TYPICAL SIDEWALK SECTION) THROUGH THE DRIVEWAY APRON.

IN NO CASE SHALL SIDEWALK PROFILES EXCEED 5.0%, EXCEPT SIDEWALK PROFILES CAN MATCH ROADWAY GRADE IF ROADWAY GRADE IS GREATER THAN 5.0%. RAMPS FOR DRIVEWAYS ARE REQUIRED TO FOLLOW THE ABOVE SIDEWALK CRITERIA.

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

DRIVEWAY TYPES FROM MOST PREFERRED TO LEAST PREFERRED ARE AS FOLLOWS: PERPENDICULAR, TIERED PERPENDICULAR, TIERED PERPENDICULAR OFFSET & PARALLEL.

(1) PERPENDICULAR DRIVEWAYS ARE THE STANDARD AND STARTING POINT FOR ALL DRIVEWAY DESIGN AND CONSTRUCTION. SHOULD BE USED TO ACHIEVE CONTINUOUS PAR PROFILE THROUGH THE DRIVEWAY. OBTAINING A PERPENDICULAR DRIVEWAY DESIGN BECOMES MORE CRITICAL WITH STEEP ROADWAY PROFILES.

(2) TO BE USED WHEN PERPENDICULAR DRIVEWAY DESIGN CANNOT BE ACHIEVED, THE DRIVEWAY PAR IS BELOW ROADWAY CURB HEIGHT. THIS DRIVEWAY TYPE CAN BE USED FOR BOTH PAVED (AS SHOWN) AND GRASS BOULEVARDS.

(3) TO BE USED WHEN PERPENDICULAR AND TIERED PERPENDICULAR DRIVEWAY DESIGN CANNOT BE ACHIEVED. CAN BE USED FOR STEEP NEGATIVE SLOPED DRIVEWAYS. DW CURB TYPE 2 SHOULD BE USED TO RAISE PAR ABOVE GUTTER AND REDUCE "ROLLER COASTER" EFFECT. 4" HIGH ROADWAY CURB SHOULD BE USED TO REDUCE "ROLLER COASTER" EFFECT ESPECIALLY WHEN MULTIPLE DRIVEWAYS ARE PRESENT.

(4) TOP OF CURB SHALL MATCH PROPOSED ADJACENT WALK GRADE.

(5) 8% STANDARD, 10% MAX. FOR COMMERCIAL AND 12% MAX. FOR RESIDENTIAL. SEE GENERAL NOTES ON SHEET 2 FOR MORE INFORMATION.

(6) S3 8% MAXIMUM, IF THE SLOPE IS EXCEEDED OR CONTINUED FOR MORE THAN 5', ANALYZE VEHICLE TEMPLATES FOR VERTICAL CLEARANCE. IF EXISTING DRIVEWAY IS NEGATIVELY DRAINING, S3 CAN BECOME SLIGHTLY MORE NEGATIVE TO ACHIEVE PERPENDICULAR DRIVEWAY DESIGN IF THE VERTICAL CLEARANCE IS ACHIEVED IN VEHICLE TEMPLATES.

(7) 1:3 MIN. 1:5 PREFERRED FOR DRIVEWAY RETROFIT PROJECTS. 1:10 PREFERRED FOR SIDEWALK REPLACEMENT PROJECTS.

(8) 5.0' MIN. PAR WIDTH IS THE STANDARD THROUGH DRIVEWAYS. IF FEASIBLE WIDEN DRIVEWAY PAR WIDTH TO MATCH APPROACHING SIDEWALK PAR WIDTHS. IN VERTICALLY CONSTRAINED AREAS PAR WIDTHS CAN INCREMENTALLY BE REDUCED TO 4.5' OR 4' MIN AFTER ALL OTHER OPTIONS HAVE BEEN APPLIED.

(9) THE PEDESTRIAN ACCESS ROUTE, MAY NOT EXCEED 0.02 FT./FT. AS CONSTRUCTED.

(10) SIDEWALK OFFSET TO BE LESS THAN OR EQUAL TO HALF THE APPROACHING SIDEWALK WIDTH.

(11) INTEGRAL DRIVEWAY APRON TO BE POURED MONOLITHICALLY/INTEGRAL WITH THE CURB AND GUTTER. SEE SHEET 2 FOR MORE INFORMATION.

(12) SEE SHEET 2 FOR CURB TYPE INFORMATION.

(13) 0" CURB IS AT FLOW LINE. SEE DRIVEWAY TABLE FOR BACK OF CURB HEIGHTS.

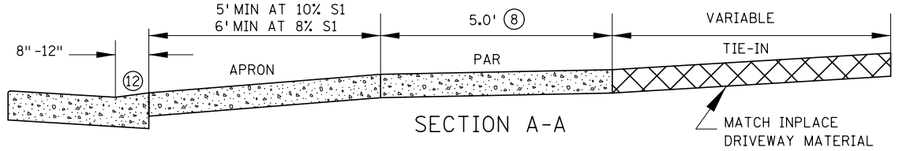
(14) 3' LONG AT 8-10% PREFERRED FOR INITIAL CURB TAPER. REDUCE CURB TAPER SLOPE IF NECESSARY TO MATCH ADJACENT SIDEWALK GRADES.

(15) MATCH FULL CURB HEIGHT.

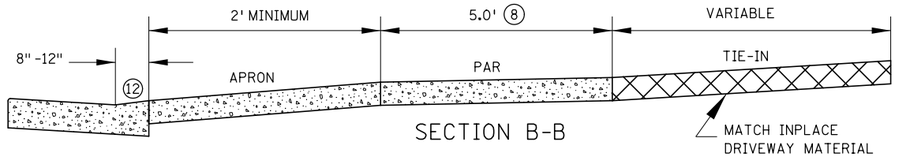
(16) 1:2 TAPER RATE ON INTEGRAL DRIVEWAY APRONS.

(17) SEE SHEET 4 FOR WHEN 6" WALK IS REQUIRED.

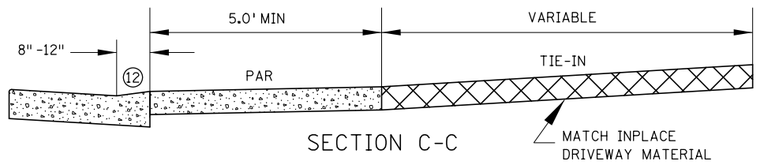
WITH 4" CURB HEIGHT;
3' MIN AT 10% S1
4' MIN AT 8% S1
WITH 6" CURB HEIGHT;
5' MIN AT 10% S1
6' MIN AT 8% S1



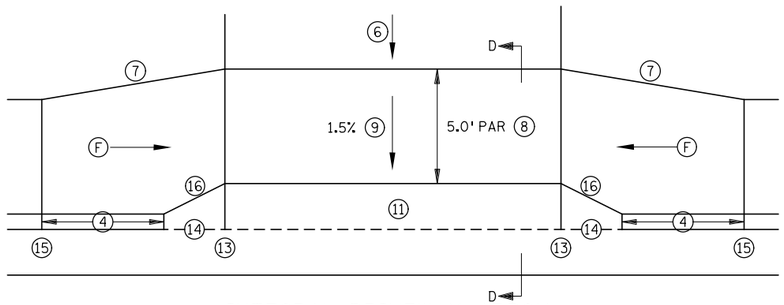
SECTION A-A



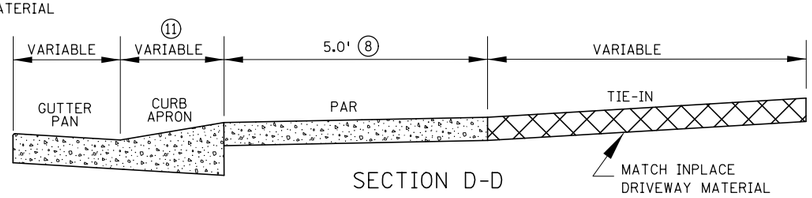
SECTION B-B



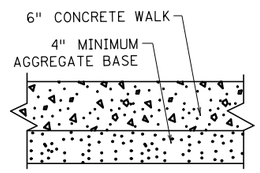
SECTION C-C



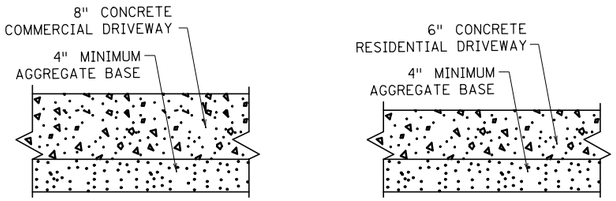
INTEGRAL DRIVEWAY APRON



SECTION D-D



TYPICAL SIDEWALK SECTION (17)



TYPICAL DRIVEWAY SECTIONS

LEAD EXPERT OFFICE	JEFFREY PERKINS OPERATIONS DIVISION	DRIVEWAY AND SIDEWALK DETAILS	APPROVED: 11-04-2021 REVISED:	THOMAS STYRBICKI STATE DESIGN ENGINEER STANDARD PLAN 5-297.254 — 1 OF 4

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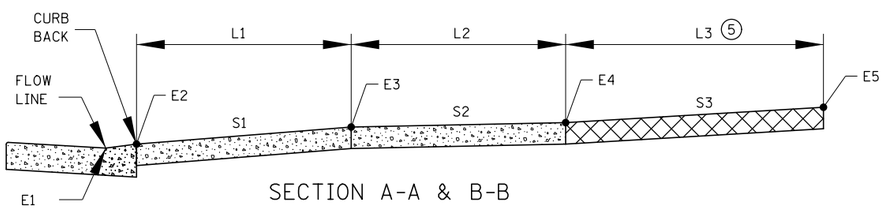
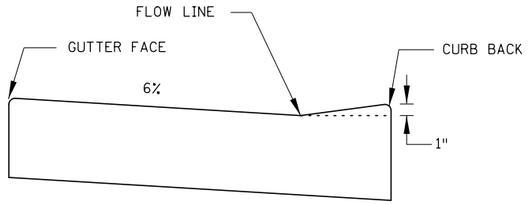
DRIVEWAY TABLE (1)

STATION	SIDE	DRIVEWAY TYPE (2)	CURB TYPE (3)	E1	E2	L1 FT	S1 %	E3	L2 FT	S2 (4) %	E4	L3 (5) FT	S3 %	EXISTING (6) %	E5	COMMENTS



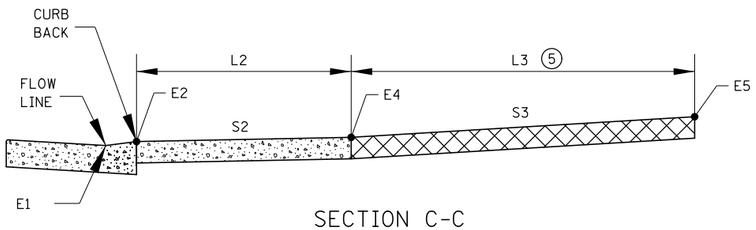
SECTION A-A & B-B

(REFER TO PREVIOUS SHEET)



DW CURB TYPE 1

STANDARD CURB AT DRIVEWAY



SECTION C-C

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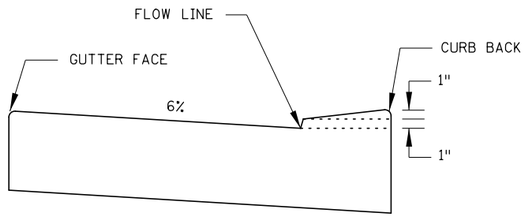
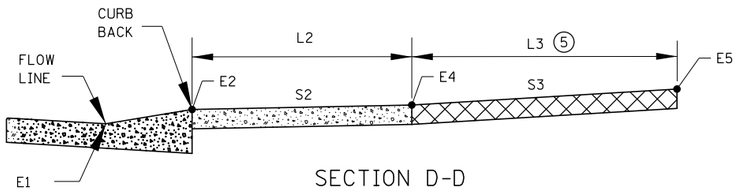


DW CURB TYPE 2

VERTICALLY CONSTRAINED



SECTION D-D

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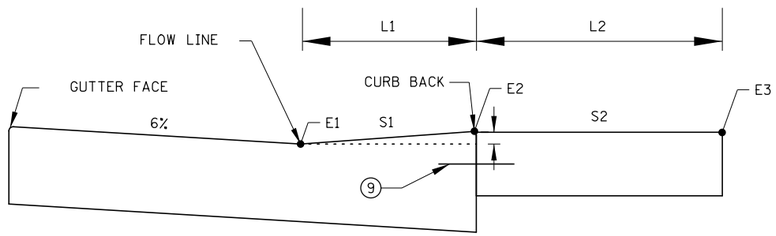

INTEGRAL DRIVEWAY APRON (IDA)

NOTES:

ALL SIDEWALK AND BOULEVARD WIDTHS SHALL BE MEASURED FROM BACK OF CURB.

DW CURB TYPE 1 SHALL BE USED WHEN THE DRIVEWAY ACTS AS A PEDESTRIAN RAMP. THE MAX. APRON SLOPE MUST ADHERE TO ADA CRITERIA AS WELL. DW CURB TYPE 1 SHOULD BE USED IF THERE IS ON STREET PARKING.

WHERE ROADWAY DRAINAGE IS A CONCERN (NEGATIVE SLOPED APRON) DW CURB TYPE 2 CAN BE USED TO HELP KEEP THE WATER ON PUBLIC RIGHT OF WAY.

S1 8% STANDARD, 10% MAX. COMMERCIAL AND 12% MAX. RESIDENTIAL. IF EXISTING GRADES ARE STEEPER DO NOT MAKE GRADES APPRECIABLY WORSE BY USING BEST PRACTICES SUCH AS DRIVEWAY CURB HEIGHTS, EXTENDING L3 AND/OR STEEPEN S3.

S3 8% MAXIMUM, IF THIS SLOPE IS EXCEEDED OR CONTINUED FOR MORE THAN 5', ANALYZE VEHICLE TEMPLATES FOR VERTICAL CLEARANCE. SEE FACILITY DESIGN GUIDE, CHAPTER 6, FOR GEOMETRIC DESIGNS OF DRIVEWAYS.

(1) EXAMPLE SHOWN TO BE INCLUDED IN PLAN FOR EACH DRIVEWAY THAT HAS PAR THROUGH IT.

(2) REFERS TO THE FOLLOWING TYPES; PERPENDICULAR DRIVEWAY, TIERED PERPENDICULAR OFFSET DRIVEWAY, TIERED PERPENDICULAR DRIVEWAY, PARALLEL DRIVEWAY, AND INTEGRAL DRIVEWAY APRON.

(3) DW CURB TYPE 1 IS THE STANDARD AND SHALL BE THE STARTING POINT FOR ALL PERPENDICULAR AND TIERED DRIVEWAYS. DW CURB TYPE 2 SHALL ONLY BE USED AFTER UTILIZING BEST PRACTICES SUCH AS MAXIMIZING S1, S3, AND L3.

(4) SHOULD BE DESIGNED AT 1.5%.

(5) ACQUIRE ADEQUATE L3 TO ALLOW FOR CONTINUOUS PAR PROFILE (UNIFORM SIDEWALK SECTION) THROUGH THE DRIVEWAY APRON.

(6) PROVIDE INPLACE TIE-IN SLOPE INFORMATION AT BACK OF PROPOSED WALK (S3 AREA).

(7) INFORMATION TO BE INCORPORATED INTO DRIVEWAY TABLE WHEN INTEGRAL DRIVEWAY APRON IS USED. OTHER CURB HEIGHTS & CURB APRON LENGTHS CAN BE USED.

(8) L1 & S1 FOR INTEGRAL DRIVEWAY APRON IS TO FLOWLINE. 12.5% IS MAXIMUM PREFERRED SLOPE.

(9) TIE ADJACENT SECTIONS. CONCRETE DRIVEWAY APRON AND CONCRETE DRIVEWAY SIDEWALK SHALL BE CONSTRUCTED SEPARATELY IN AN INDEPENDENT CONCRETE POUR. DRILL AND GROUT OR CAST IN-PLACE THROUGH HOLES IN THE FORMS NO. 4 X 12" LONG TIE BARS (EPOXY COATED). 36" MAXIMUM SPACING WITH 2" MINIMUM CONCRETE COVER PLACED 1' MINIMUM FROM ADJACENT CONSTRUCTION JOINT.

TYPICAL INTEGRAL DRIVEWAY APRON (7)

CURB TYPE	L1 FT	E2	S1 (8) %
IDA 216	1.33	+0.16	12.5
IDA 220	1.67	+0.16	10
IDA 324	2	+0.24	12.5
IDA 432	2.67	+0.33	12.5

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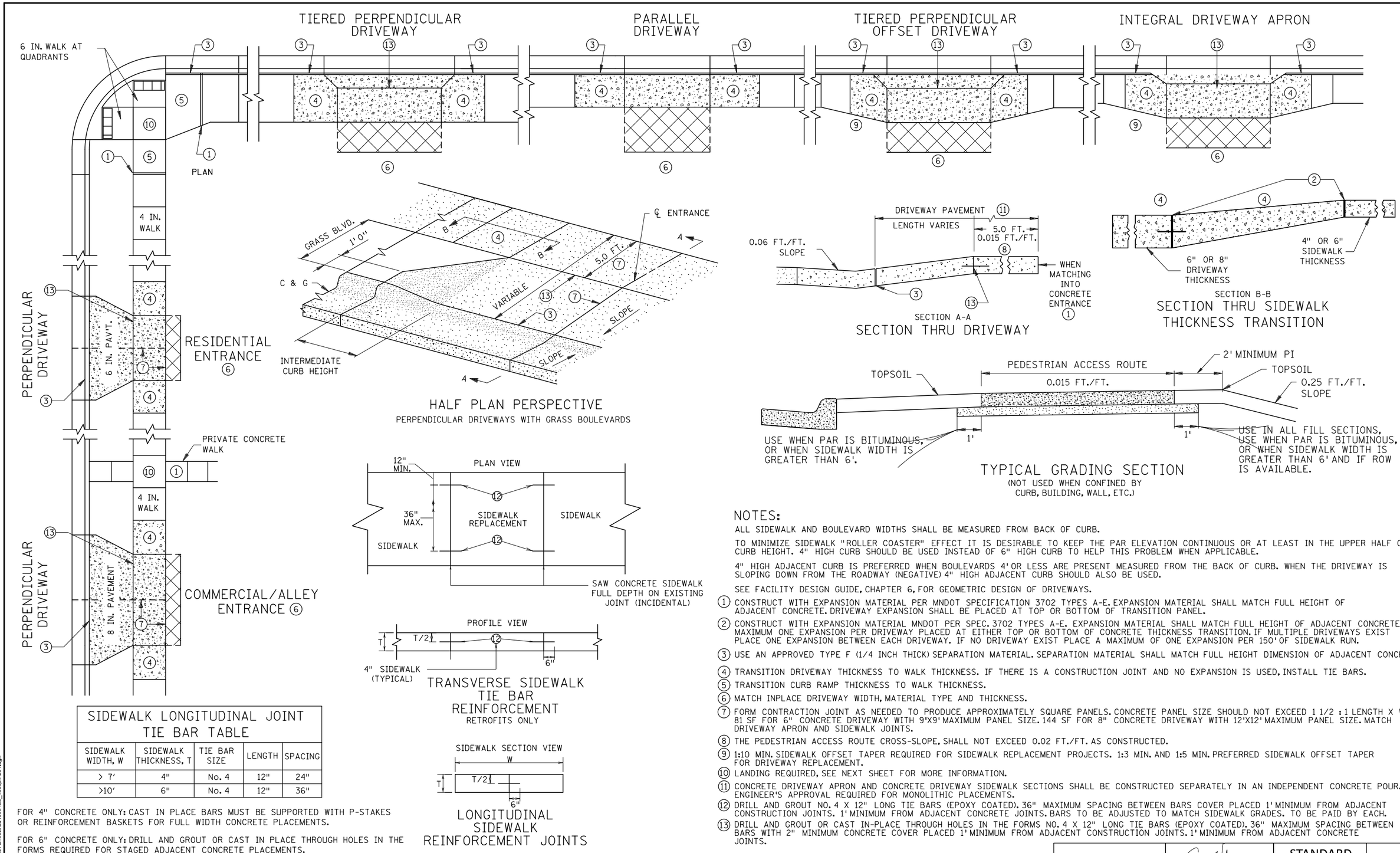
LEAD EXPERT OFFICE: JEFFREY PERKINS, OPERATIONS DIVISION		DRIVEWAY AND SIDEWALK DETAILS	APPROVED: 11-04-2021 REVISED:	THOMAS STYRBICKI, STATE DESIGN ENGINEER STANDARD PLAN 5-297.254 2 OF 4
				SAP 106-020-043, SAP 114-020-066, SAP 114-020-067
		STANDARD PLANS		SAP 002-612-037, SAP 002-612-036 (CSAH 12)
				SHEET NO. 21 OF 98 SHEETS



SIDEWALK LONGITUDINAL JOINT TIE BAR TABLE

SIDEWALK WIDTH, W	SIDEWALK THICKNESS, T	TIE BAR SIZE	LENGTH	SPACING
> 7'	4"	No. 4	12"	24"
>10'	6"	No. 4	12"	36"

FOR 4" CONCRETE ONLY: CAST IN PLACE BARS MUST BE SUPPORTED WITH P-STAKES OR REINFORCEMENT BASKETS FOR FULL WIDTH CONCRETE PLACEMENTS.

FOR 6" CONCRETE ONLY: DRILL AND GROUT OR CAST IN PLACE THROUGH HOLES IN THE FORMS REQUIRED FOR STAGED ADJACENT CONCRETE PLACEMENTS.

NOTES:

ALL SIDEWALK AND BOULEVARD WIDTHS SHALL BE MEASURED FROM BACK OF CURB.

TO MINIMIZE SIDEWALK "ROLLER COASTER" EFFECT IT IS DESIRABLE TO KEEP THE PAR ELEVATION CONTINUOUS OR AT LEAST IN THE UPPER HALF OF CURB HEIGHT. 4" HIGH CURB SHOULD BE USED INSTEAD OF 6" HIGH CURB TO HELP THIS PROBLEM WHEN APPLICABLE.

4" HIGH ADJACENT CURB IS PREFERRED WHEN BOULEVARDS 4' OR LESS ARE PRESENT MEASURED FROM THE BACK OF CURB. WHEN THE DRIVEWAY IS SLOPING DOWN FROM THE ROADWAY (NEGATIVE) 4" HIGH ADJACENT CURB SHOULD ALSO BE USED.

SEE FACILITY DESIGN GUIDE, CHAPTER 6, FOR GEOMETRIC DESIGN OF DRIVEWAYS.

(1) CONSTRUCT WITH EXPANSION MATERIAL PER MNDOT SPECIFICATION 3702 TYPES A-E. EXPANSION MATERIAL SHALL MATCH FULL HEIGHT OF ADJACENT CONCRETE. DRIVEWAY EXPANSION SHALL BE PLACED AT TOP OR BOTTOM OF TRANSITION PANEL.

(2) CONSTRUCT WITH EXPANSION MATERIAL MNDOT PER SPEC. 3702 TYPES A-E. EXPANSION MATERIAL SHALL MATCH FULL HEIGHT OF ADJACENT CONCRETE. MAXIMUM ONE EXPANSION PER DRIVEWAY PLACED AT EITHER TOP OR BOTTOM OF CONCRETE THICKNESS TRANSITION. IF MULTIPLE DRIVEWAYS EXIST PLACE ONE EXPANSION BETWEEN EACH DRIVEWAY. IF NO DRIVEWAY EXIST PLACE A MAXIMUM OF ONE EXPANSION PER 150' OF SIDEWALK RUN.

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

(4) TRANSITION DRIVEWAY THICKNESS TO WALK THICKNESS. IF THERE IS A CONSTRUCTION JOINT AND NO EXPANSION IS USED, INSTALL TIE BARS.

(5) TRANSITION CURB RAMP THICKNESS TO WALK THICKNESS.

(6) MATCH INPLACE DRIVEWAY WIDTH, MATERIAL TYPE AND THICKNESS.

(7) FORM CONTRACTION JOINT AS NEEDED TO PRODUCE APPROXIMATELY SQUARE PANELS. CONCRETE PANEL SIZE SHOULD NOT EXCEED 1 1/2 : 1 LENGTH X WIDTH. 81 SF FOR 6" CONCRETE DRIVEWAY WITH 9'X9' MAXIMUM PANEL SIZE. 144 SF FOR 8" CONCRETE DRIVEWAY WITH 12'X12' MAXIMUM PANEL SIZE. MATCH DRIVEWAY APRON AND SIDEWALK JOINTS.

(8) THE PEDESTRIAN ACCESS ROUTE CROSS-SLOPE, SHALL NOT EXCEED 0.02 FT./FT. AS CONSTRUCTED.

(9) 1:10 MIN. SIDEWALK OFFSET TAPER REQUIRED FOR SIDEWALK REPLACEMENT PROJECTS. 1:3 MIN. AND 1:5 MIN. PREFERRED SIDEWALK OFFSET TAPER FOR DRIVEWAY REPLACEMENT.

(10) LANDING REQUIRED, SEE NEXT SHEET FOR MORE INFORMATION.

(11) CONCRETE DRIVEWAY APRON AND CONCRETE DRIVEWAY SIDEWALK SECTIONS SHALL BE CONSTRUCTED SEPARATELY IN AN INDEPENDENT CONCRETE POUR. ENGINEER'S APPROVAL REQUIRED FOR MONOLITHIC PLACEMENTS.

(12) DRILL AND GROUT NO. 4 X 12" LONG TIE BARS (EPOXY COATED). 36" MAXIMUM SPACING BETWEEN BARS COVER PLACED 1' MINIMUM FROM ADJACENT CONSTRUCTION JOINTS. 1' MINIMUM FROM ADJACENT CONCRETE JOINTS. BARS TO BE ADJUSTED TO MATCH SIDEWALK GRADES. TO BE PAID BY EACH.

(13) DRILL AND GROUT OR CAST IN-PLACE THROUGH HOLES IN THE FORMS NO. 4 X 12" LONG TIE BARS (EPOXY COATED). 36" MAXIMUM SPACING BETWEEN BARS WITH 2" MINIMUM CONCRETE COVER PLACED 1' MINIMUM FROM ADJACENT CONSTRUCTION JOINTS. 1' MINIMUM FROM ADJACENT CONCRETE JOINTS.

LEAD EXPERT OFFICE	JEFFREY PERKINS OPERATIONS DIVISION	DRIVEWAY AND SIDEWALK DETAILS	APPROVED: 11-04-2021 REVISED: 12-23-2021	THOMAS STYRBICKI STATE DESIGN ENGINEER	STANDARD PLAN 5-297.254	3 OF 4

SAP 106-020-043, SAP 114-020-066, SAP 114-020-067

STANDARD PLANS

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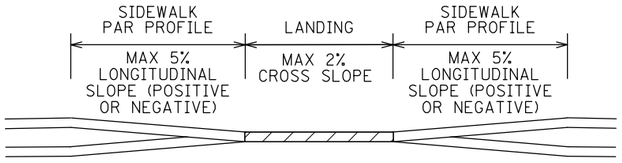
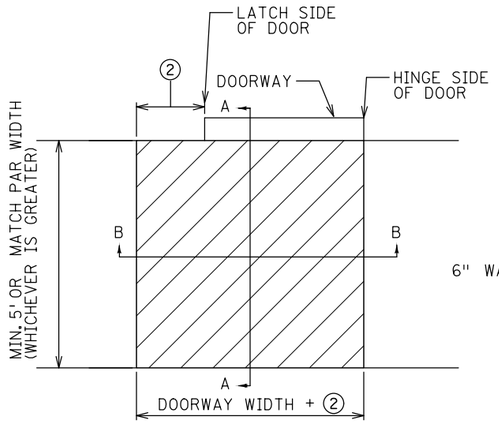
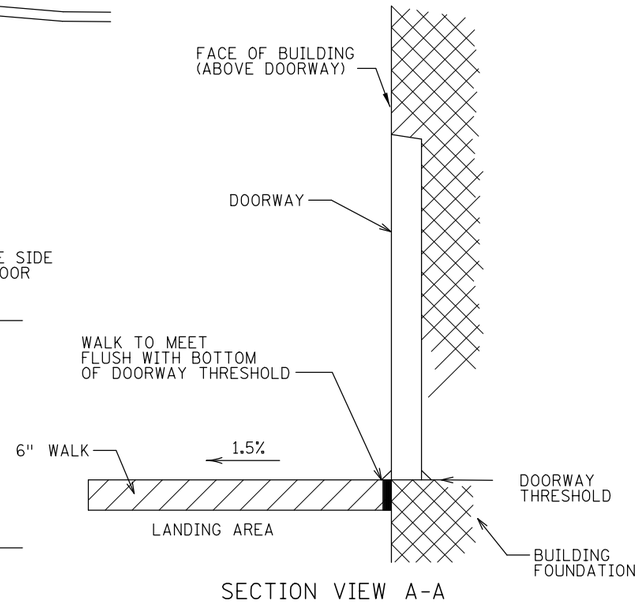


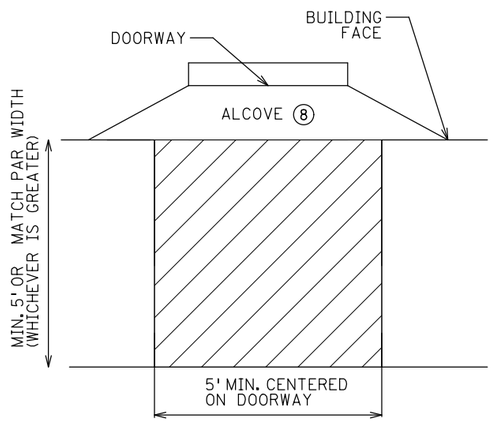
SECTION VIEW B-B



PLAN VIEW DOORWAY

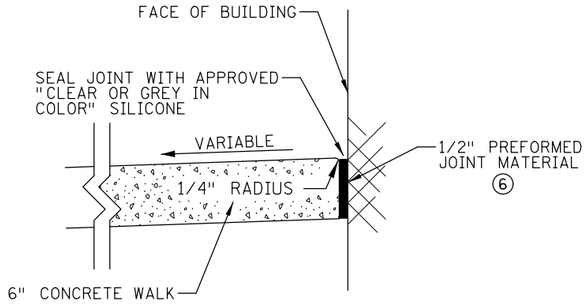


SECTION VIEW A-A

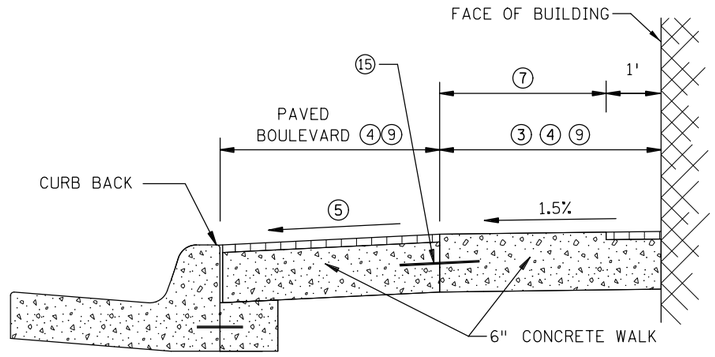


PLAN VIEW DOORWAY WITH ALCOVE

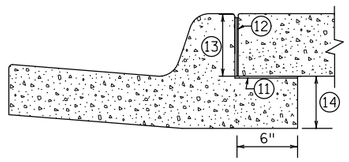
SIDEWALK LANDING REQUIREMENTS ①



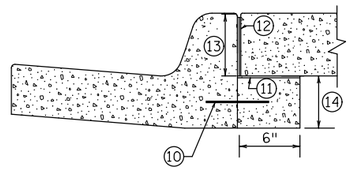
BUILDING JOINT SEAL (INCIDENTAL)



DOWNTOWN SIDEWALK TYPICAL SECTION



SLIP FORM SILL



FIXED FORM SILL

SILL CURB SHOULD BE USED AT ALL LOCATIONS WHEN CONCRETE WALK IS AT BACK OF CURB, INCLUDING PAVED BOULEVARD.

SILL CURB SHALL NOT BE USED IN CURB RAMP AND DRIVEWAY AREAS, INCLUDING CONCRETE FLARES.

SILL CURB WITH 4" WALK CAN USE FIXED OR SLIP FORM OPTIONS.

NOTES:

6" WALK IS REQUIRED:
1) IN ALL SIDEWALK LOCATIONS WHERE VARIABLE SLOPED CONCRETE BOULEVARDS ARE PAVED, SUCH AS COMMERCIAL (STORE FRONT, DOWNTOWN) AREAS.
2) ANYTIME DRILL AND REINFORCEMENT IS USED TO TIE LONGITUDINAL JOINTS TOGETHER.
3) TO ELIMINATE LONGITUDINAL JOINT WHEN INCREASING PANEL SIZE OVER 36SF.
4) AT LOCATIONS WHERE MAINTENANCE EQUIPMENT WILL SUBJECT CONCRETE TO HEAVY LOADS.

ALL SIDEWALK AND BOULEVARD WIDTHS SHALL BE MEASURED FROM BACK OF CURB.

FIELD ADJUST SIDEWALK PROFILES TO MEET ALL DOORWAY THRESHOLDS.

SIDEWALK MUST MAINTAIN POSITIVE DRAINAGE AWAY FROM THE BUILDING TO THE ROADWAY.

SEE SPECIAL PROVISIONS FOR SILICONE SPECIFICATIONS.

(1) LANDING CRITERIA IS REQUIRED FOR ALL DOORS, STEPS, AND PRIVATE WALKS. FEASIBILITY DECREASES WITH NARROWER BOULEVARDS AND STEEPER SIDEWALK PROFILES.
(2) 18" MIN. WHEN DOOR SWINGS OUTWARD FROM BUILDING. 12" MIN WHEN DOOR SWINGS INWARD FROM BUILDING.
(3) 6' MIN. PAR REQUIRED WHEN ADJACENT TO BUILDINGS.
(4) 2/3 PAR TO 1/3 BOULEVARD SHOULD BE USED WHEN FEASIBLE. HOLD UNIFORM BOULEVARD WIDTH. 4' PREFERRED MINIMUM BOULEVARD.
(5) 1%-5% FOR THE MAJORITY OF THE BLOCK, WITH EXCEPTIONS UP TO 8% IN CONSTRAINED AREAS.
(6) CONSTRUCT USING APPROVED EXPANSION MATERIAL PER MNDOT TYPE A-E EXPANSION. LEAVE A MINIMUM ½" TOP GAP AND SEAL WITH MNDOT APPROVED SILICONE PER MNDOT SPEC 3722.
(7) TO MINIMIZE VIBRATION AND ROLLING RESISTANCE, AREA SHALL BE FREE OF PAVERS, STAMPED CONCRETE, AND/OR EXCESSIVE JOINTING.
(8) 2% MAX. PER BUILDING CODE. IF GREATER THAN 2%, FLATTEN AS FEASIBLE.
(9) FORM CONTRACTION JOINTS AS NEEDED TO PRODUCE APPROXIMATELY SQUARE PANEL SIZE. CONRETE PANEL SIZE SHOULD NOT EXCEED 1½ :1 LENGTH X WIDTH.
(10) DRILL AND GROUT NO. 4 X 8" LONG TIE BARS (EPOXY COATED). 36" MAXIMUM SPACING BETWEEN BARS WITH 2" MINIMUM CONCRETE COVER PLACED 1' MINIMUM FROM ADJACENT CONSTRUCTION JOINTS. 1' MINIMUM FROM ADJACENT CONCRETE JOINTS. TIE BARS SHALL BE EMBEDDED 4" WITH 2" MINIMUM CONCRETE COVER AND ARE INCIDENTAL TO SILL PLACEMENT.
(11) FURNISH AND INSTALL THE FULL WIDTH OF THE TOP OF SILL A MINIMUM 2ML THICK POLYTHENE SHEETING.
(12) USE AN APPROVED TYPE F (¼ INCH THICK) SEPARATION MATERIAL. SEPARATION MATERIAL SHALL MATCH FULL HEIGHT DIMENSION OF ADJACENT CONCRETE.
(13) DIMENSION TO BE SAME AS SIDEWALK THICKNESS, 4" MIN.
(14) 6" WALK: 5" MIN. FOR B424; 7" MIN. FOR B624
4" WALK: 7" MIN. FOR B424; 9" MIN. FOR B624
(15) DRILL AND GROUT NO. 4 X 12" LONG TIE BARS (EPOXY COATED). 36" MAXIMUM SPACING BETWEEN BARS WITH 2" MINIMUM CONCRETE COVER PLACED 1' MINIMUM FROM ADJACENT CONCRETE JOINTS.

LEAD EXPERT OFFICE	JEFFREY PERKINS OPERATIONS DIVISION	DRIVEWAY AND SIDEWALK DETAILS	APPROVED: 11-04-2021 REVISED:	THOMAS STYRBICKI STATE DESIGN ENGINEER STANDARD PLAN 5-297.254	4 OF 4

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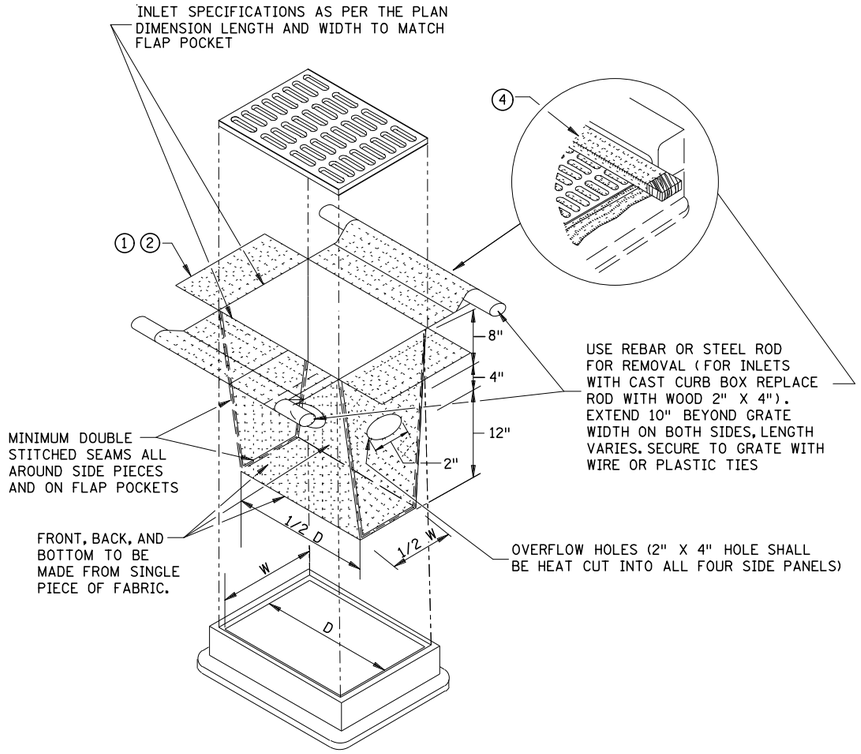
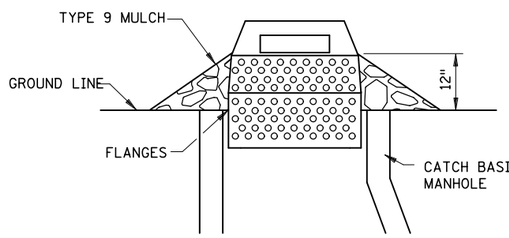


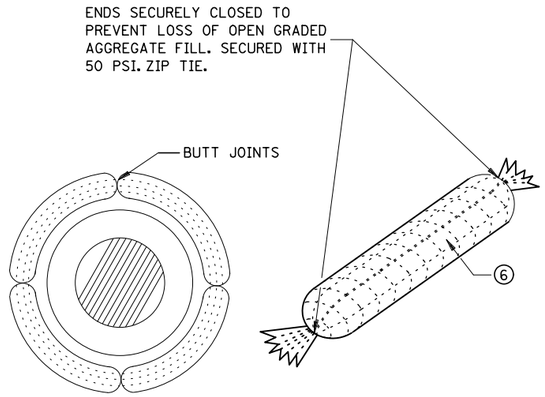
FILTER BAG INSERT ③

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

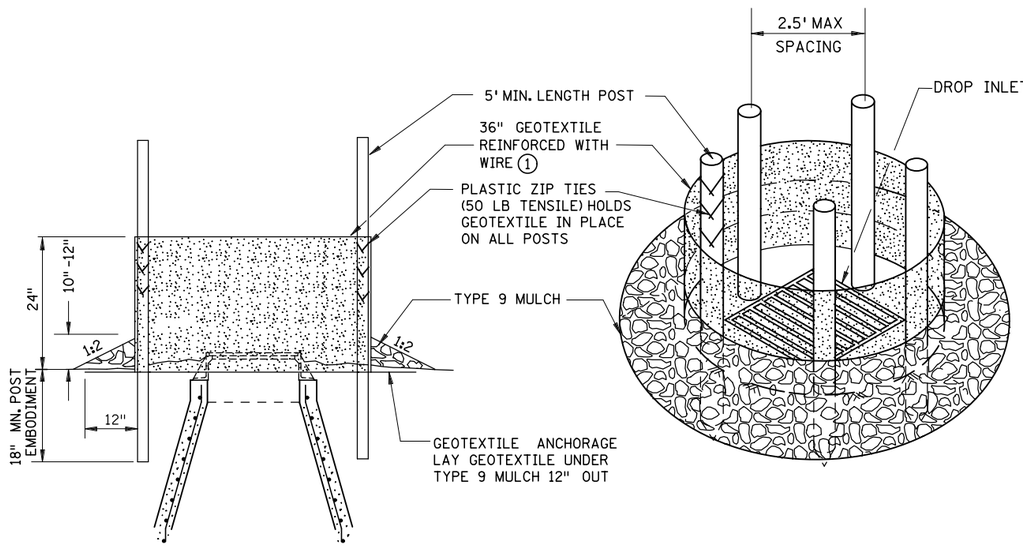


SEDIMENT CONTROL INLET HAT

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.

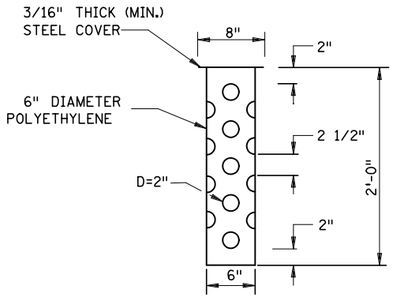


ROCK LOG/COMPOST LOG

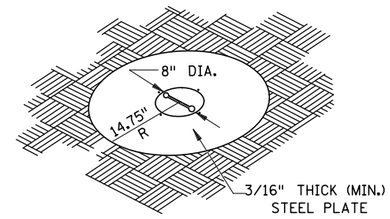


SILT FENCE RING AND ROCK FILTER BERM

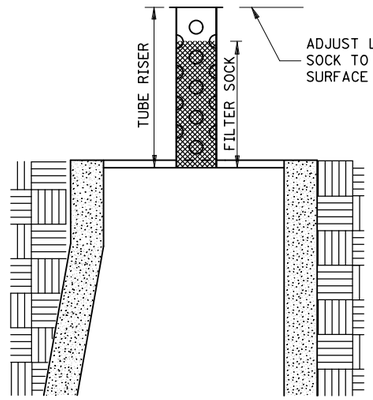
USE WHERE INLET DRAINS IN AN AREA WITH SLOPES AT 1:3 or LESS



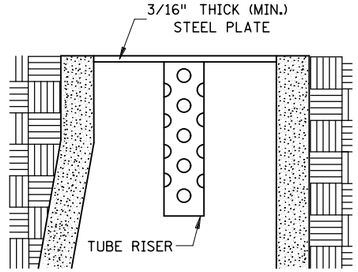
TUBE RISER



PERSPECTIVE VIEW



SECTION
(UP POSITION)



SECTION
(DOWN POSITION)

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.

LEAD EXPERT OFFICE	LYNN CLARKOWSKI CHIEF ENVIRONMENTAL OFFICER OFFICE OF ENVIRNOMENTAL STEWARDSHIP	TEMPORARY SEDIMENT CONTROL STORM DRAIN INLET PROTECTION	APPROVED: 02-28-2017 REVISED:	THOMAS STYRBICKI STATE DESIGN ENGINEER	STANDARD PLAN 5-297.405	4 OF 8

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SAP 002-612-037, SAP 002-612-036 (CSAH 12)

STANDARD PLANS

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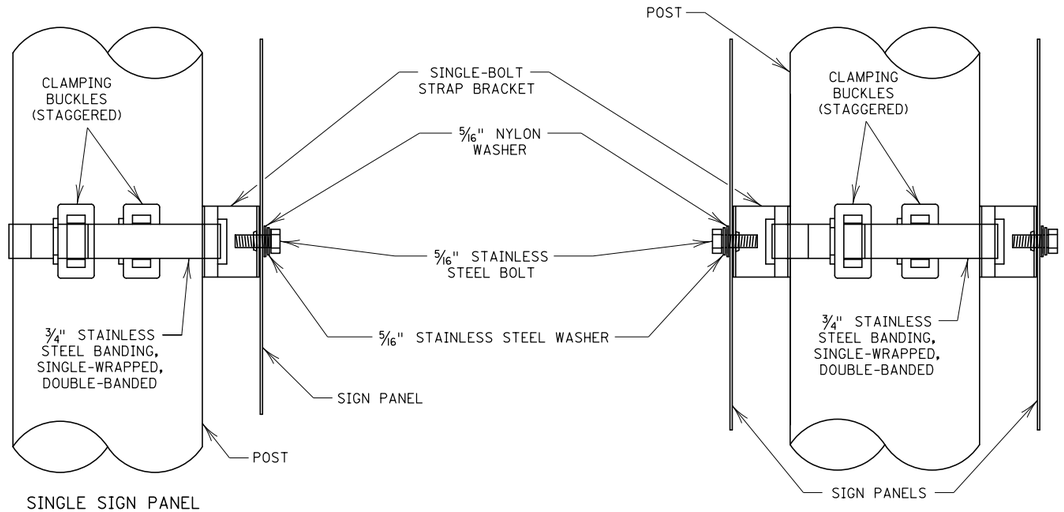
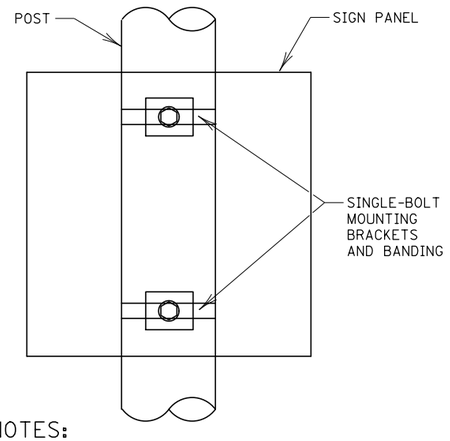


SINGLE SIGN PANEL

BACK TO BACK SIGN PANELS

NON-STIFFENER MOUNTING DETAILS

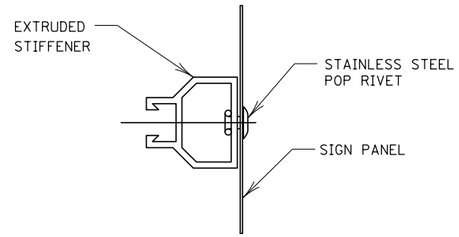
FOR SIGN PANELS UP TO 24" WIDE AND OVERHEAD SIGN IDENTIFICATION PLATES



NOTES:

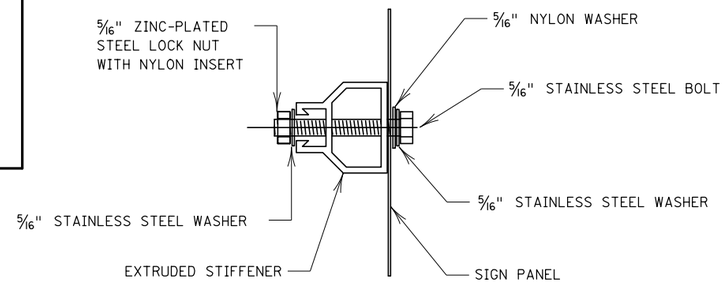
TENSION THE BANDING IN ACCORDANCE WITH THE MANUFACTURER'S INSTALLATION REQUIREMENTS.

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



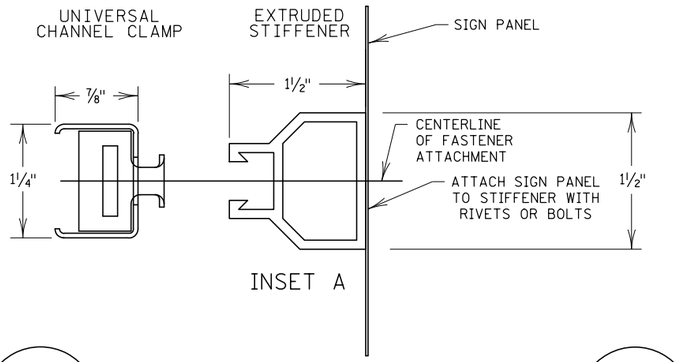
ATTACH 3/16" RIVETS AT 6" INTERVALS.
ATTACH END RIVETS 3" FROM SIGN EDGE.
USE 1/4" RIVETS FOR THE END RIVETS.

RIVET ATTACHMENT

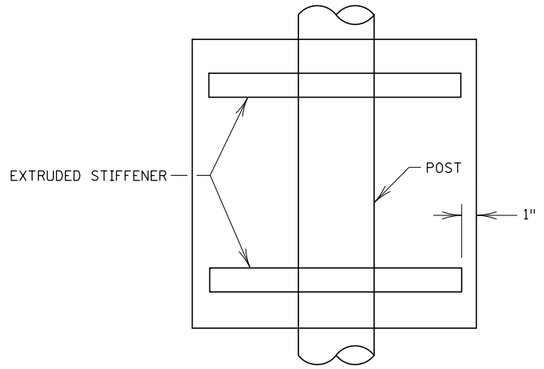


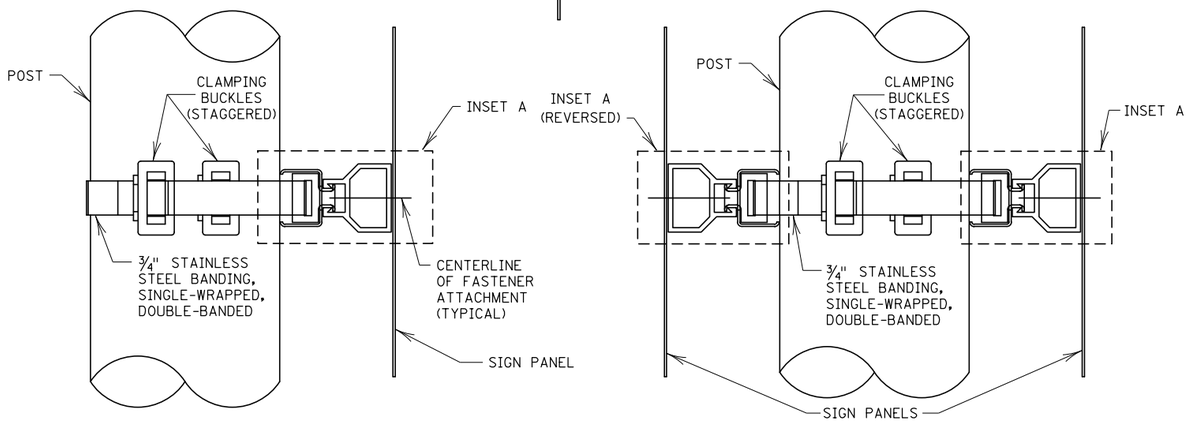
ATTACH AT STANDARD PUNCH CODE LOCATIONS

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

LEAD EXPERT OFFICE	BRIAN SORENSON STATE TRAFFIC ENGINEER OFFICE OF TRAFFIC ENGINEERING	SIGN MOUNTING SYSTEMS FOR ROUND SUPPORTS	APPROVED: 10-16-2019 REVISED:	Peter A Harff PETER A. HARFF STATE DESIGN ENGINEER	STANDARD PLAN 5-297.730	1 OF 1

SAP 106-020-043, SAP 114-020-066, SAP 114-020-067

STANDARD PLANS

SAP 002-612-037, SAP 002-612-036 (CSAH 12)

SHEET NO. 25 OF 98 SHEETS

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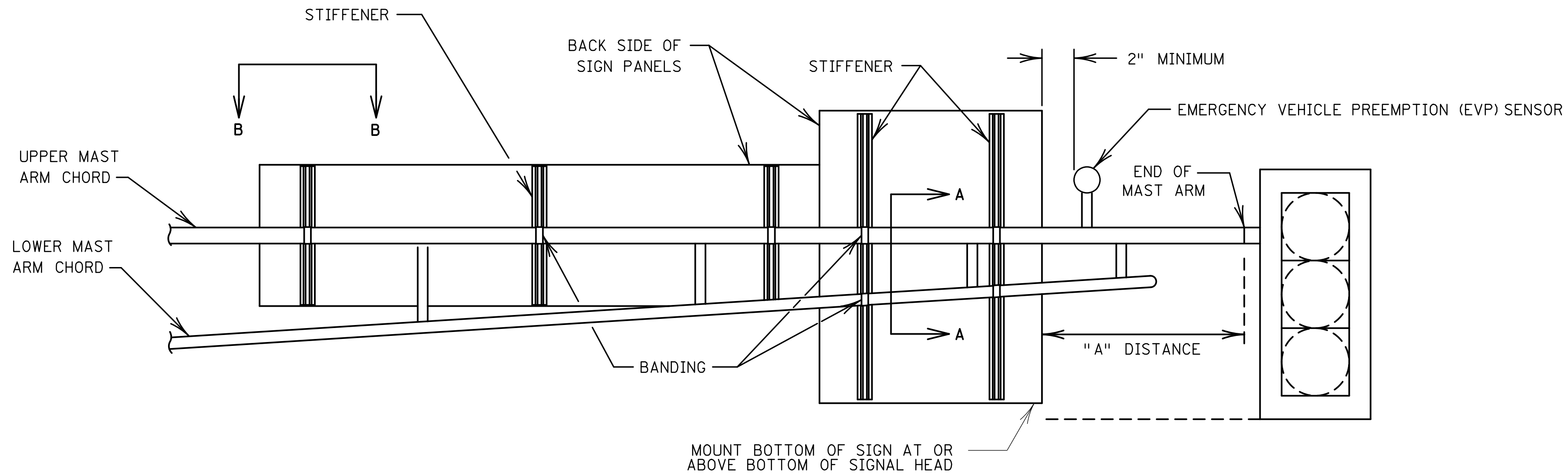
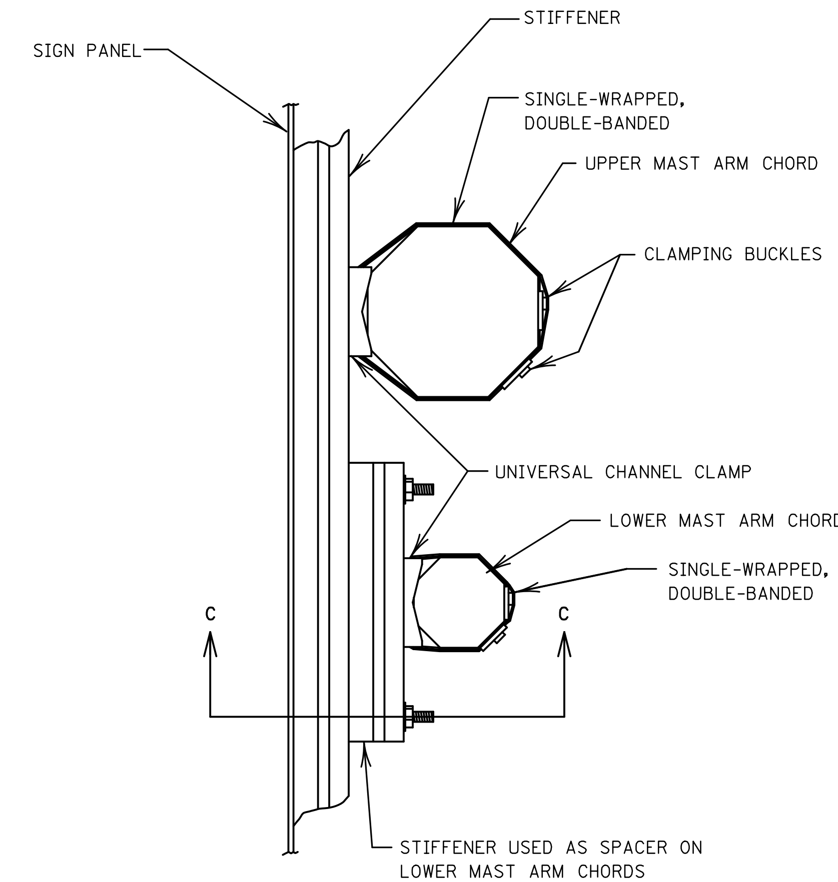
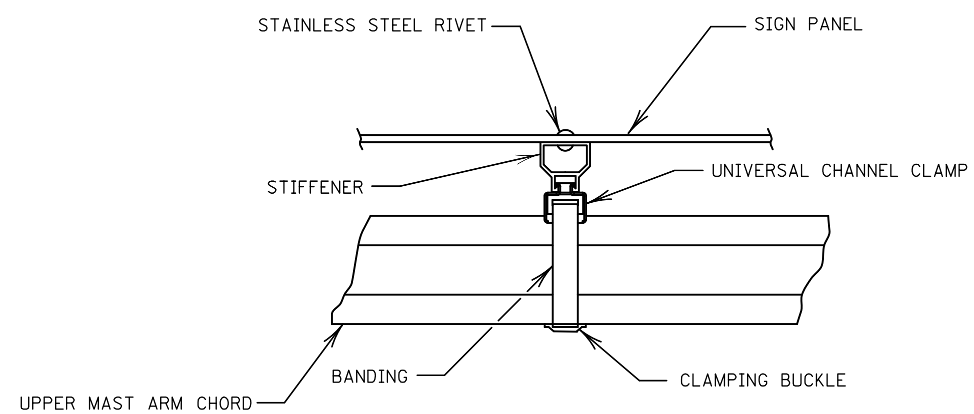


MAST ARM SIGN MOUNTING



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.



VIEW B-B

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".

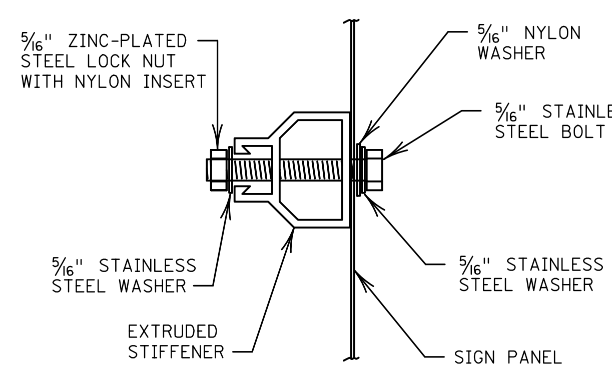
PROVIDE A HORIZONTAL DISTANCE OF NO MORE THAN 12" FROM PANEL EDGE TO STIFFENER.

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.

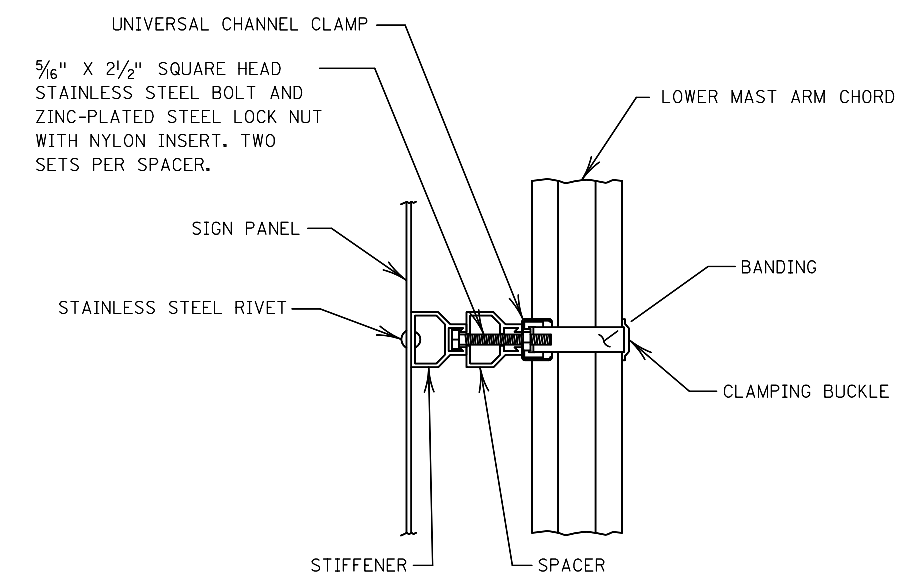
FURNISH TWO TYPE 201 STAINLESS STEEL 3/4" WIDE BY 1/32" THICK STRAPS, EACH WITH CLAMPING BUCKLES AND INSTALL SEPARATELY WITH A SINGLE WRAP AROUND THE MAST ARM CHORD. PLACE THE SECOND BANDING STRAP OVER THE FIRST STRAP AND STAGGER THE CLAMPING BUCKLES SO THE BUCKLES ARE NOT DIRECTLY OVER ONE ANOTHER.

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.



BOLT ATTACHMENT

ATTACH AT STANDARD PUNCH CODE LOCATIONS



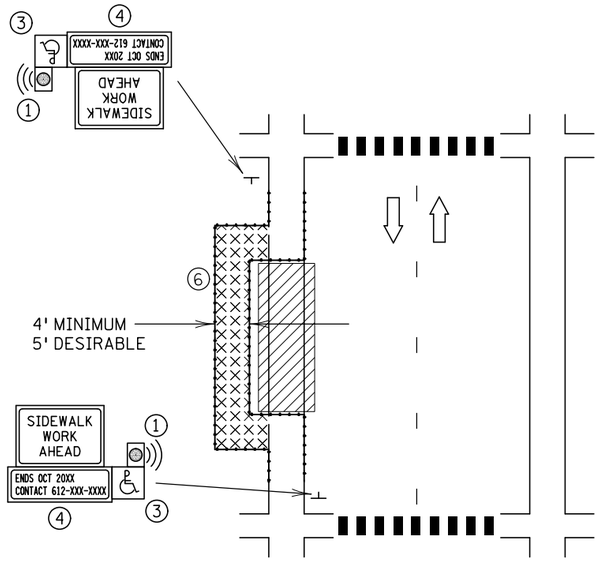
VIEW C-C

LEAD EXPERT OFFICE	BRIAN SORENSON STATE TRAFFIC ENGINEER OFFICE OF TRAFFIC ENGINEERING	SIGN MOUNTING DETAILS FOR SIGNAL MAST ARMS	APPROVED: 10-16-2019 REVISED: 04-17-2020	Peter A. Harff PETER A. HARFF STATE DESIGN ENGINEER	STANDARD PLAN 5-297.731	1 OF 1

STANDARD PLANS

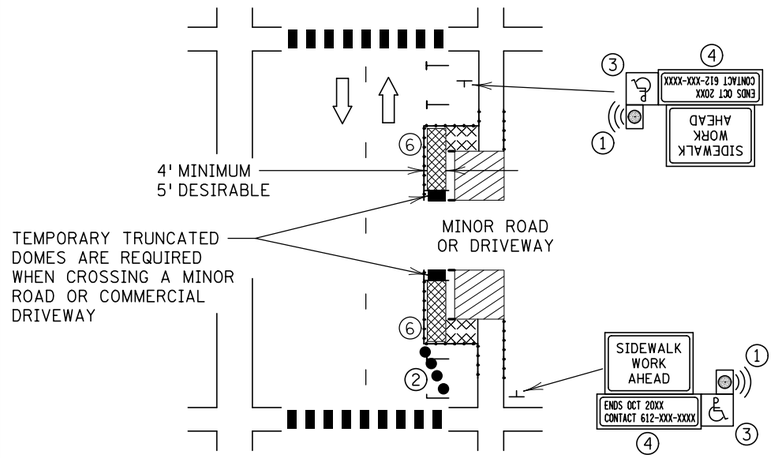
SAP 106-020-043, SAP 114-020-066, SAP 114-020-067

SAP 002-612-037, SAP 002-612-036 (CSAH 12)



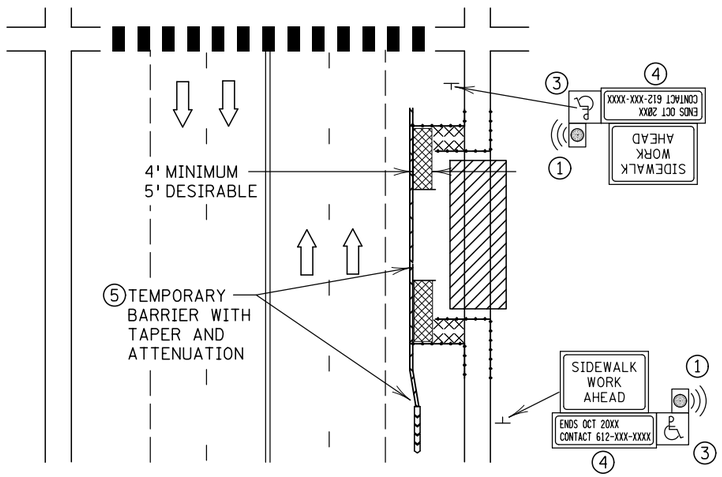
BYPASS TYPE A

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

LEAD EXPERT OFFICE	BRIAN SORENSON STATE TRAFFIC ENGINEER OFFICE OF TRAFFIC ENGINEERING	ALTERNATE PEDESTRIAN ROUTE (APR) LAYOUTS	APPROVED: 03-18-2021 REVISED:	THOMAS STYRBICKI STATE DESIGN ENGINEER STANDARD PLAN 5-297.811	1 OF 2

SAP 106-020-043, SAP 114-020-066, SAP 114-020-067

STANDARD PLANS

SAP 002-612-037, SAP 002-612-036 (CSAH 12)

SHEET NO. 27 OF 98 SHEETS

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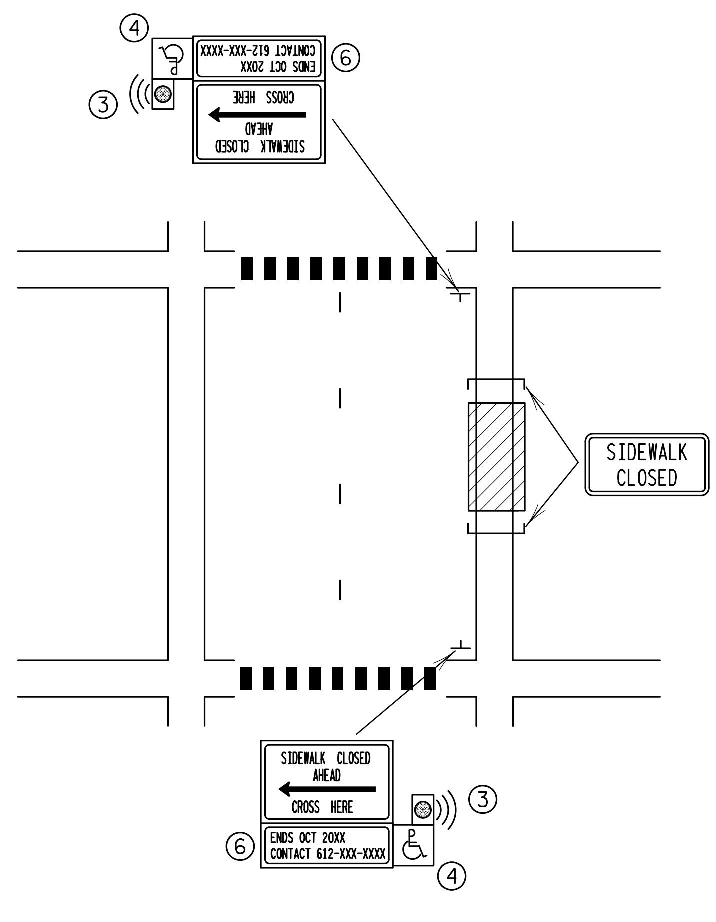
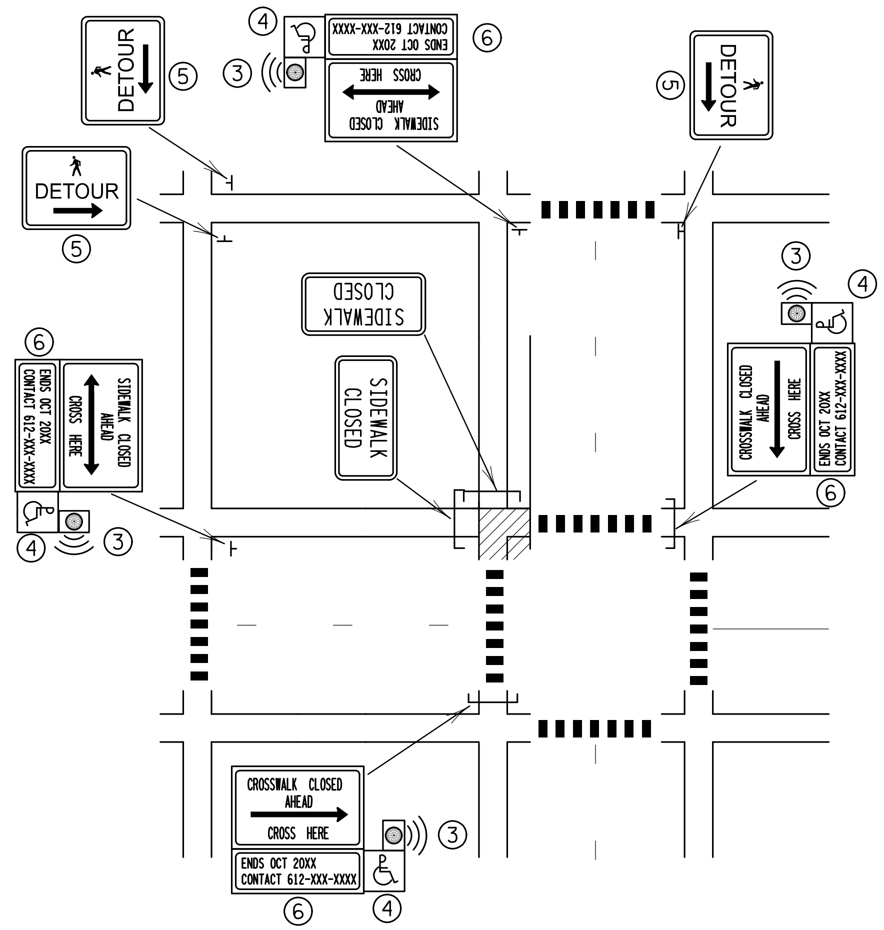
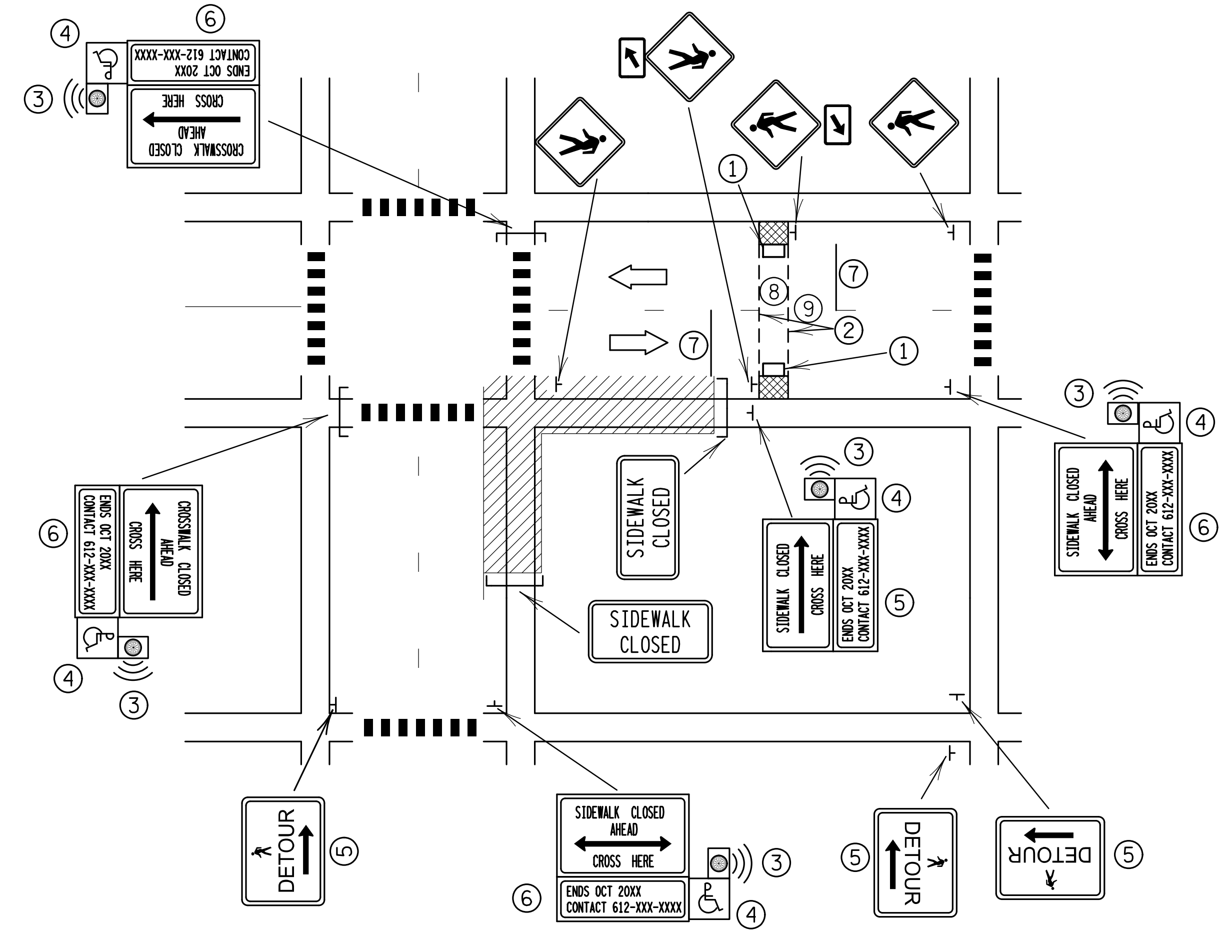


OTHER SIDE OF ROADWAY DETOUR
FOR MID-BLOCK CLOSURE



ONE QUADRANT CLOSED



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

NOTES:

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.

R1-6a

LEGEND

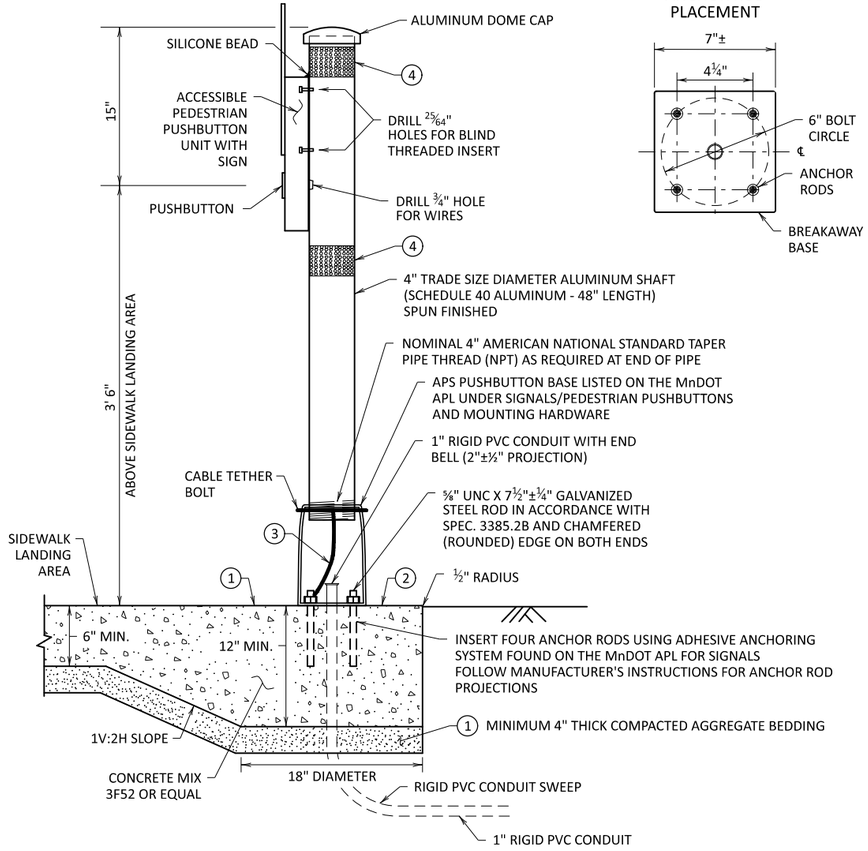
⊥	SIGN	⇨	DIRECTION OF TRAFFIC
▨	WORK AREA	◙)))	AUDIBLE MESSAGE DEVICE (AMD)
]	SIDEWALK BARRICADE	▩	TEMPORARY CURB RAMP WITH DETECTABLE EDGES

LEAD EXPERT OFFICE	BRIAN SORENSON STATE TRAFFIC ENGINEER OFFICE OF TRAFFIC ENGINEERING	ALTERNATE PEDESTRIAN ROUTE (APR) LAYOUTS	APPROVED: 03-18-2021 REVISED:	THOMAS STYRBICKI STATE DESIGN ENGINEER	STANDARD PLAN 5-297.811	2 OF 2

STANDARD PLANS

SAP 106-020-043, SAP 114-020-066, SAP 114-020-067
SAP 002-612-037, SAP 002-612-036 (CSAH 12)

APS PUSHBUTTON STATION



ANCHOR ROD PLACEMENT

NOTES:

MOUNT THE BUTTON SO THAT THE FACE IS PARALLEL WITH THE ASSOCIATED CROSSWALK. SCREW IN SHAFT TO A TIGHTENED POSITION BEFORE MOUNTING ACCESSIBLE PEDESTRIAN PUSHBUTTON UNIT TO THE SHAFT.

ORIENT THE BASE ACCESS OPENING DIRECTLY BELOW THE APS BUTTON.

PLUMB AND LEVEL APS PUSHBUTTON STATIONS, AND TIGHTEN ANCHOR RODS IN ACCORDANCE WITH CONTRACT DOCUMENTS.

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

USE APS ¼"-20 STAINLESS STEEL MOUNTING BOLTS. APPLY BRUSH-ON ANTI-SEIZE COMPOUND TO BOLTS BEFORE ASSEMBLY.

APPLY A BEAD OF 100% SILICONE SEALANT ALONG THE TOP OF THE PUSHBUTTON UNIT WHERE IT CONTACTS THE 4" SHAFT.

(1) THE PUSHBUTTON STATION FOUNDATION IS MONOLITHIC (POURED AT ONE TIME) WITH THE SIDEWALK. PROVIDE A 1V:2H SLOPE GRADE WHERE THE 6" MINIMUM SIDEWALK DEPTH TRANSITIONS TO THE 12" MINIMUM FOUNDATION DEPTH. MAINTAIN THE COMPACTED AGGREGATE BEDDING AND THICKNESS USED FOR THE SIDEWALK THROUGHOUT THE SLOPE AND FOUNDATION GRADING. PROVIDE 1V:2H 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 OF 9" FROM THE CENTER OF THE PUSHBUTTON FOUNDATION.

(3) FURNISH AND INSTALL THE MANUFACTURER-PROVIDED CABLE TETHER ASSEMBLY IN ACCORDANCE WITH THE MANUFACTURER'S INSTALLATION INSTRUCTIONS.

(4) FURNISH AND INSTALL 3" WIDE TUBULAR DELINEATOR/MARKER SHEETING FROM MnDOT'S APL FOR SIGNING/SHEETING MATERIALS THAT MATCHES THE COLOR OF THE NEAREST EDGE LINE.

APS PEDESTRIAN PUSHBUTTON LOCATION

NOTES:

(5) POSITION THE FACE OF THE PUSHBUTTON PARALLEL WITH THE OUTSIDE EDGE OF THE CROSSWALK.

(6) CONSTRUCT A MINIMUM 4'x4' LANDING AREA ADJACENT TO EACH PUSHBUTTON, WITH A 2% MAXIMUM SLOPE IN ALL DIRECTIONS.

(7) POSITION PUSHBUTTONS WITHIN 5' OF THE OUTSIDE EDGE OF THE CROSSWALK. DISTANCE IS MEASURED PERPENDICULARLY FROM EXTENSION OF CROSSWALK.

(8) POSITION PUSHBUTTONS BETWEEN 1.5' AND 10' FROM THE BACK OF CURB OR EDGE OF ROADWAY, MEASURED IN THE DIRECTION OF TRAVEL. STANDALONE PUSHBUTTON STATIONS SHOULD BE 4' MINIMUM FROM THE BACK OF CURB TO AVOID KNOCKDOWNS.

(9) POSITION PUSHBUTTONS AT LEAST 10' APART (PUSHBUTTON FACE TO PUSHBUTTON FACE).

(10) PROVIDE A MAINTENANCE ACCESS ROUTE (MAR) WHEREVER POSSIBLE FOR SNOW REMOVAL PURPOSES. A MAR REQUIRES A 6' MINIMUM CLEAR DISTANCE FOR SIDEWALKS (10' FOR SHARED-USE PATHS) BETWEEN A PUSHBUTTON AND ANY OBSTRUCTIONS, INCLUDING BUILDINGS, V-CURB, ELECTRICAL FOUNDATIONS, SIGNAL CABINETS, OR ANOTHER PUSHBUTTON.

(11) POSITION PUSHBUTTON 2' MINIMUM FROM CURB RAMP GRADE BREAK AND BACK OF SIDEWALK.

(12) CONSTRUCT AN 8%-10% WALKABLE CONCRETE FLARE WHEN THE PUSHBUTTON IS OFFSET FROM THE EDGE OF THE CROSSWALK SO USERS DEPARTING FROM THE PUSHBUTTON WILL TRAVERSE A CONCRETE SURFACE.

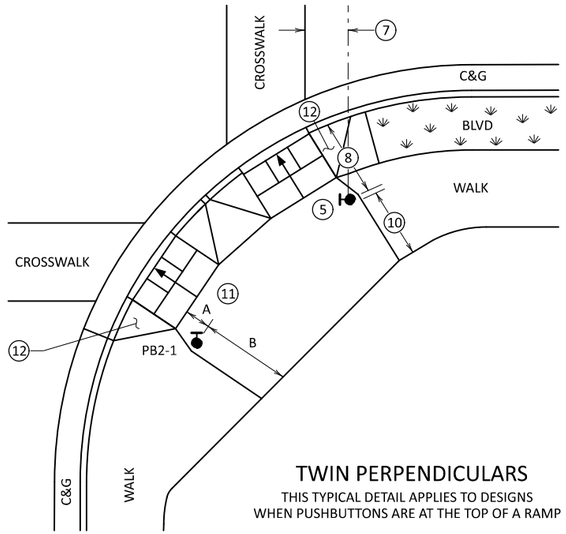
SAMPLE TABLE				
SIGNAL CONTROL POINTS			DISTANCE TO FRONT OF LANDING (FT)	DISTANCE TO BACK OF LANDING (FT)
SIGNAL NO.	X	Y		
PB2-1	-	-	A	B
PB4-2	-	-	C	D

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

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

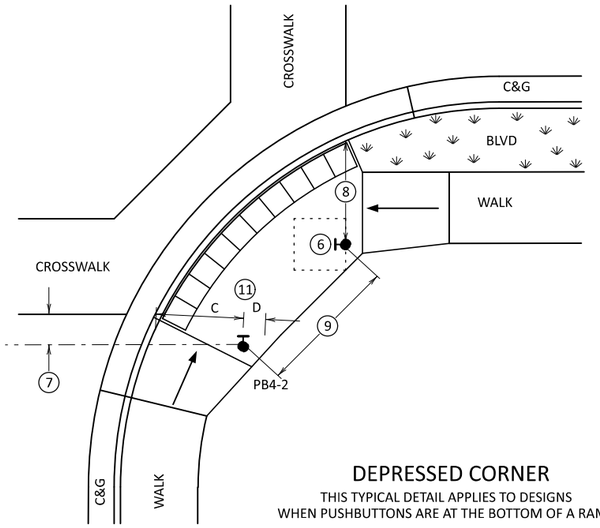
C - DISTANCE MEASURED FROM THE PUSHBUTTON TO THE OUTSIDE EDGE OF DOMES IN THE DIRECTION OF TRAVEL

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



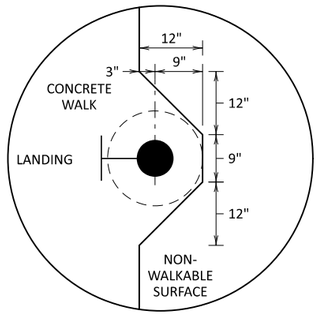
TWIN PERPENDICULARS

THIS TYPICAL DETAIL APPLIES TO DESIGNS WHEN PUSHBUTTONS ARE AT THE TOP OF A RAMP

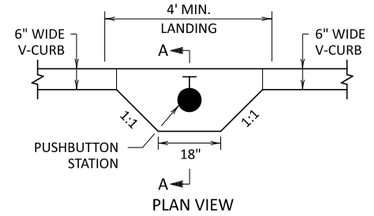


DEPRESSED CORNER

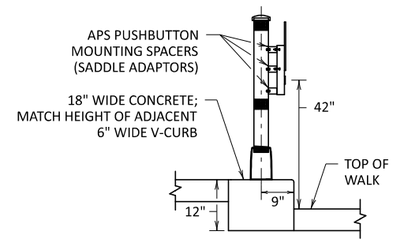
THIS TYPICAL DETAIL APPLIES TO DESIGNS WHEN PUSHBUTTONS ARE AT THE BOTTOM OF A RAMP



PUSHBUTTON STATION FOUNDATION FORMING



PLAN VIEW



SECTION A-A

INTEGRAL PUSHBUTTON STATION WITH V-CURB

APPROVED: 02-21-2024 REVISED:	THOMAS STYRBICKI STATE DESIGN ENGINEER	STANDARD PLAN 5-297.885	1 OF 2

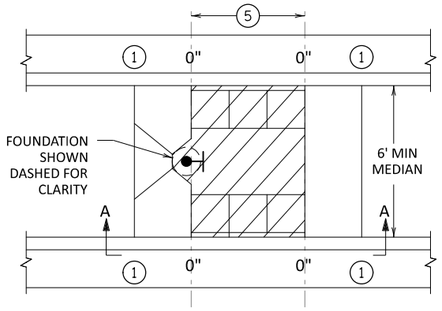
LEAD EXPERT OFFICE	JEFF PERKINS ASSISTANT DIVISION DIRECTOR OPERATIONS DIVISION	ACCESSIBLE PEDESTRIAN SIGNAL (APS) PUSHBUTTON STATION AND LOCATION

STANDARD PLANS

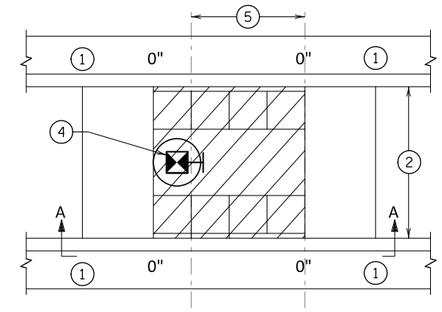
SAP 106-020-043, SAP 114-020-066, SAP 114-020-067

SAP 002-612-037, SAP 002-612-036 (CSAH 12)

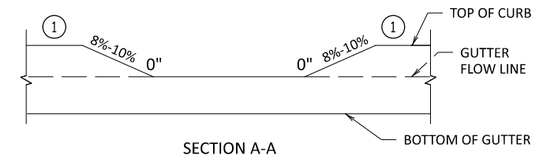
SHEET NO. 29 OF 98 SHEETS



PEDESTRIAN PUSHBUTTON STATION DETAIL



SIGNAL PEDESTAL DETAIL

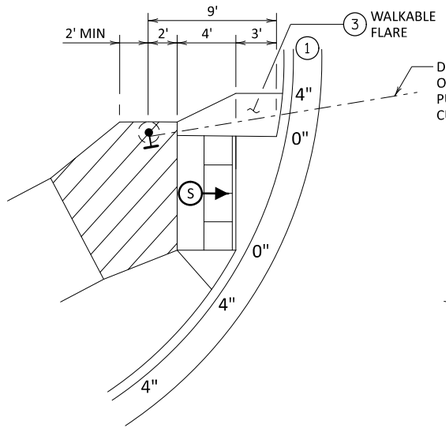


SECTION A-A

MEDIAN FLARE THROUGH

IF NEEDED DUE TO DIFFERENCE OF FLOW LINE ELEVATIONS, THE LOW SIDE OF THE REFUGE MAY BE RAMPED IF THE MEDIAN WIDTH IS SUFFICIENT TO PROVIDE BOTH A RAMP AND A LANDING ADJACENT TO THE PUSHBUTTON.

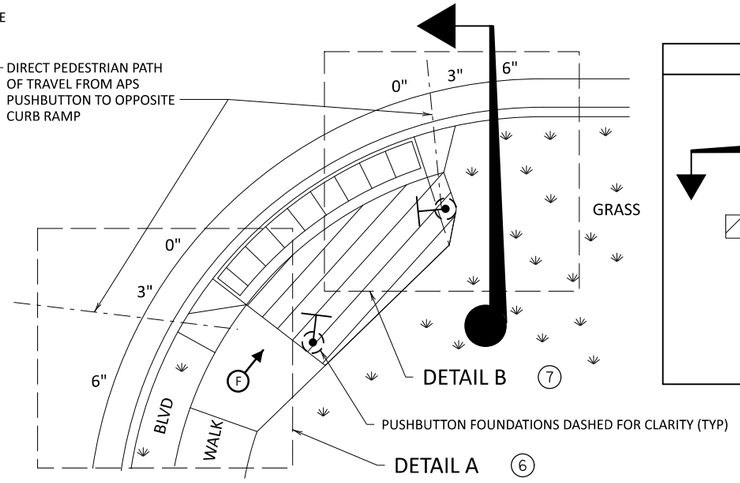
IF 6' MEDIAN IS ACHIEVED FROM FACE OF CURB TO FACE OF CURB, CONSTRUCT THE FLARE THROUGH INTEGRAL TO THE CURB. 6' MINIMUM DISTANCE IS REQUIRED TO CONSTRUCT REFUGE WITH 2' MINIMUM DETECTABLE WARNING SURFACE SEPARATION.



SEMI-DIRECTIONAL RAMP

3' DOME SETBACK, 4' LONG RAMP, AND PUSHBUTTON 9' FROM THE BACK OF CURB (SHOWN).

USED FOR APS APPLICATIONS WHERE THE PAR DOES NOT CONTINUE PAST THE PUSHBUTTON.



PUSHBUTTON LANDING AND EXTENDED WALKABLE FLARE REQUIREMENTS

FAN RAMP SHOWN IN DETAIL, APPLIES TO ALL RAMPS WITH PUSHBUTTONS

ADA LEGEND

	PEDESTRIAN PUSHBUTTON STATION WITH FOUNDATION
	SIGNAL PEDESTAL WITH FOUNDATION
	PROPOSED SIGNAL POLE
X"	CURB HEIGHT
	LANDING AREA - 4'x4' MIN. DIMENSIONS AND MAX 2.0% SLOPE IN ALL DIRECTIONS
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%

(7) DETAIL B TABLE

POINT	DESCRIPTION	PUSHBUTTON STATION	SIGNAL PEDESTAL	SIGNAL POLE
U	LANDING EXTENSION	12"	12"	18"
V	PUSHBUTTON OFFSET FROM FRONT OF LANDING (MIN)	24"	30"	30"
W	OFFSET (PARALLEL TO ROADWAY) FROM PROJECTED EDGE OF RAMP TO CENTER OF FOUNDATION	3"	6" (10)	18" (10)

(6) USE AS THE PEDESTRIAN FACILITY APPROACHES FROM THE SAME SIDE AS THE PUSHBUTTON.

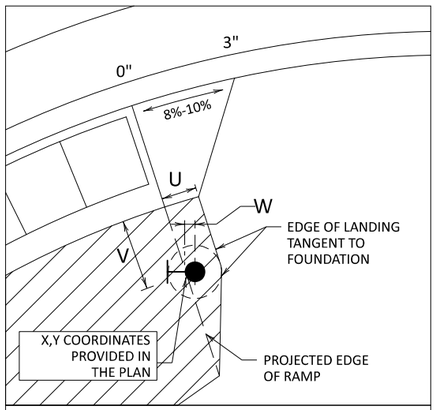
(7) USE WHEN PEDESTRIAN FACILITIES DO NOT CONTINUE PAST THE PUSHBUTTON.

(8) WHEN SIGNAL PEDESTALS (INCLUDING RRFBS) AND SIGNAL POLES ARE USED FOR PUSHBUTTON LOCATIONS, PLACE WITHIN THE PEDESTRIAN RAMP LANDING AREA AS SHOWN.

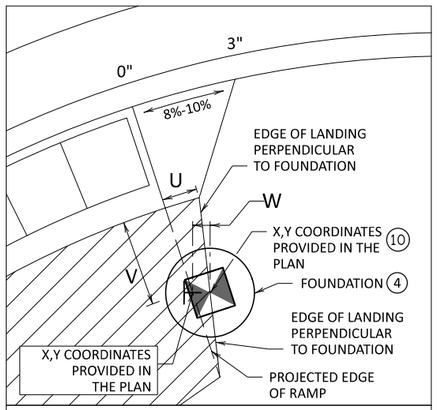
(9) EVALUATE EXISTING SIGNAL MAST ARM POLES FOR PLACING PUSHBUTTONS. FOR NEW SIGNAL MAST ARM POLES, CONSTRUCT OUTSIDE OF PEDESTRIAN RAMP LIMITS DUE TO IMPRECISE CONSTRUCTION PRACTICES, FIELD UNCERTAINTIES, AND COMPETING REQUIREMENTS OF ADA PUSHBUTTON AND TRAFFIC SIGNAL MAST ARM POLE LOCATIONS. EXCEPTIONS ARE CONGESTED URBAN AREAS AND RURAL ROADWAY INTERSECTIONS.

(10) X, Y COORDINATES GIVEN IN DESIGN ARE AT ALL FACE-OF-PUSHBUTTON LOCATIONS. PROVIDE ADDITIONAL X, Y COORDINATES FOR CENTER OF FOUNDATION AT NEW SIGNAL POLES AND PEDESTALS THAT CONTAIN PUSHBUTTONS. SEE OFFSET WIDTH, "W", IN THE TABLE FOR THE OFFSET OF THE PUSHBUTTON FACE TO THE CENTER OF THE SIGNAL COMPONENT.

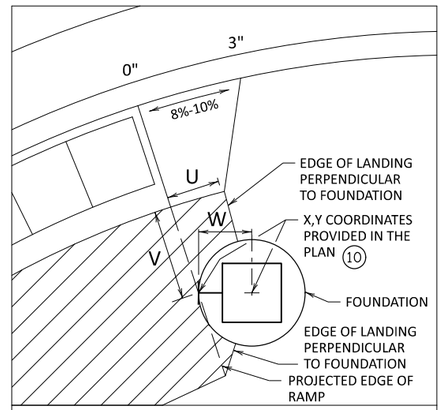
DETAIL A: EXTENDED FLARE



DETAIL B1: PUSHBUTTON STATION



(8) DETAIL B2: SIGNAL PEDESTAL



(8) (9) DETAIL B3: SIGNAL POLE

NOTES:

(1) CONSTRUCT FULL CURB HEIGHT.

(2) 7' MINIMUM DISTANCE (BACK OF CURB TO BACK OF CURB) IS REQUIRED TO ACCOMMODATE 2.5' DIAMETER PEDESTAL FOUNDATION, 2' DETECTABLE WARNING WIDTH, AND 3" DETECTABLE WARNING SETBACK.

(3) CONSTRUCT AN 8%-10% WALKABLE CONCRETE FLARE WHEN THE PUSHBUTTON IS OFFSET FROM THE EDGE OF THE CROSSWALK SO USERS DEPARTING FROM THE PUSHBUTTON WILL TRAVERSE ON A CONCRETE SURFACE.

(4) CONSTRUCT FOUNDATION FLUSH WITH ADJACENT LANDING (WITHIN ¼"). SEE STANDARD PLATE 8112.

(5) PEDESTRIAN ACCESS ROUTE/MAINTENANCE ACCESS ROUTE.

LEAD EXPERT OFFICE	JEFF PERKINS ASSISTANT DIVISION DIRECTOR OPERATIONS DIVISION	ACCESSIBLE PEDESTRIAN SIGNAL (APS) PUSHBUTTON STATION AND LOCATION	APPROVED: 02-21-2024 REVISED:	THOMAS STYRBICKI STATE DESIGN ENGINEER

STANDARD PLAN 5-297.885	2 OF 2

SAP 106-020-043, SAP 114-020-066, SAP 114-020-067

STANDARD PLANS

SAP 002-612-037, SAP 002-612-036 (CSAH 12)

SHEET NO. 30 OF 98 SHEETS

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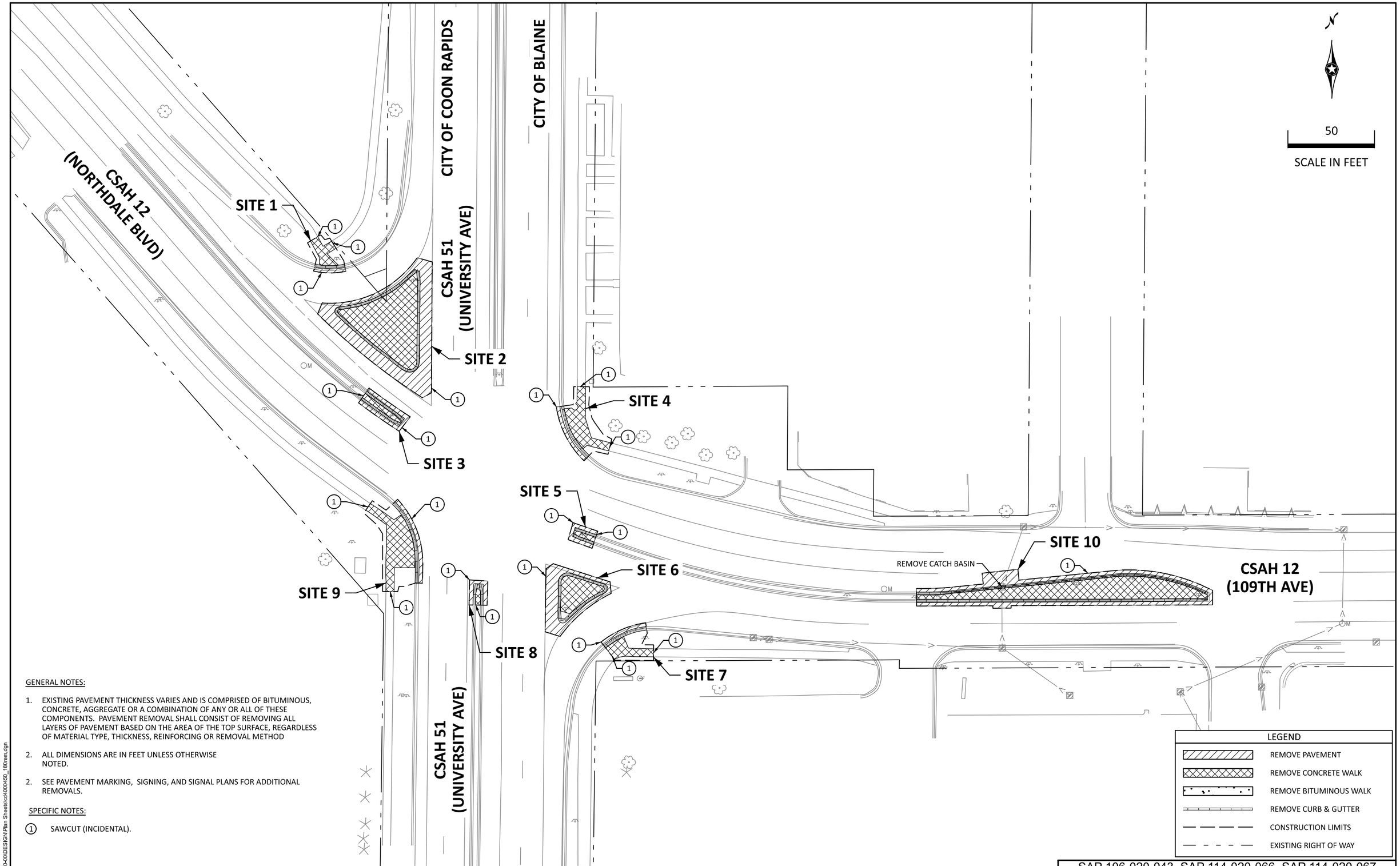

GENERAL NOTES:

1. EXISTING PAVEMENT THICKNESS VARIES AND IS COMPRISED OF BITUMINOUS, CONCRETE, AGGREGATE OR A COMBINATION OF ANY OR ALL OF THESE COMPONENTS. PAVEMENT REMOVAL SHALL CONSIST OF REMOVING ALL LAYERS OF PAVEMENT BASED ON THE AREA OF THE TOP SURFACE, REGARDLESS OF MATERIAL TYPE, THICKNESS, REINFORCING OR REMOVAL METHOD
2. ALL DIMENSIONS ARE IN FEET UNLESS OTHERWISE NOTED.
2. SEE PAVEMENT MARKING, SIGNING, AND SIGNAL PLANS FOR ADDITIONAL REMOVALS.

SPECIFIC NOTES:

(1) SAWCUT (INCIDENTAL).

NO	DATE	DWN	CKD	REVISIONS

ALLIANT

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

PRINT NAME: JOSEPH REZAC
SIGNATURE: Joseph Rezac
DATE 02/14/2025 LICENSE # 55948

REMOVAL PLANS

SAP 106-020-043, SAP 114-020-066, SAP 114-020-067
SAP 002-612-037, SAP 002-612-036 (CSAH 12)
SHEET NO. 31 OF 98 SHEETS

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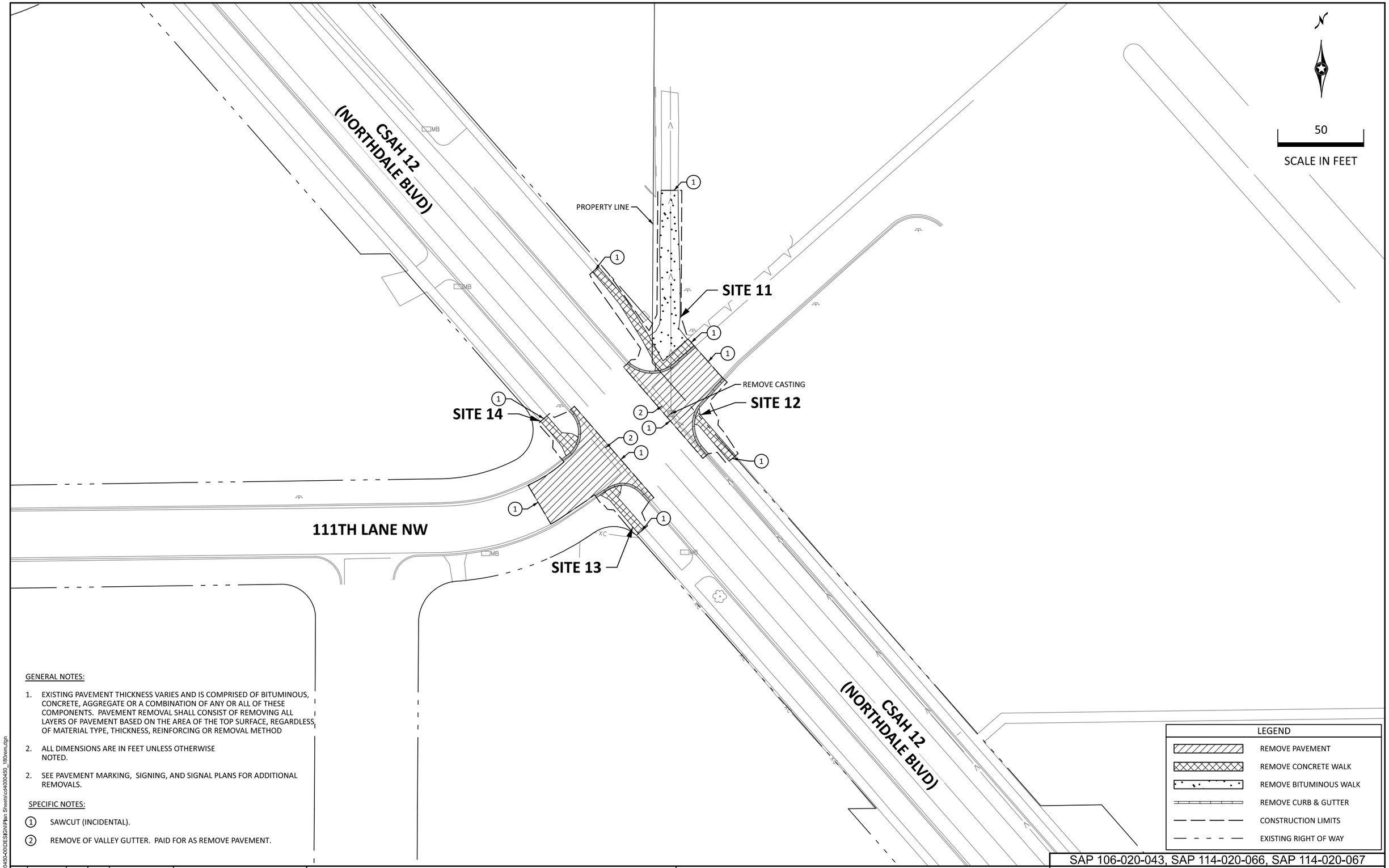

GENERAL NOTES:

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2. ALL DIMENSIONS ARE IN FEET UNLESS OTHERWISE NOTED.
2. SEE PAVEMENT MARKING, SIGNING, AND SIGNAL PLANS FOR ADDITIONAL REMOVALS.

SPECIFIC NOTES:

(1) SAWCUT (INCIDENTAL).

(2) REMOVE OF VALLEY GUTTER. PAID FOR AS REMOVE PAVEMENT.

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NO	DATE	DWN	CKD	REVISIONS

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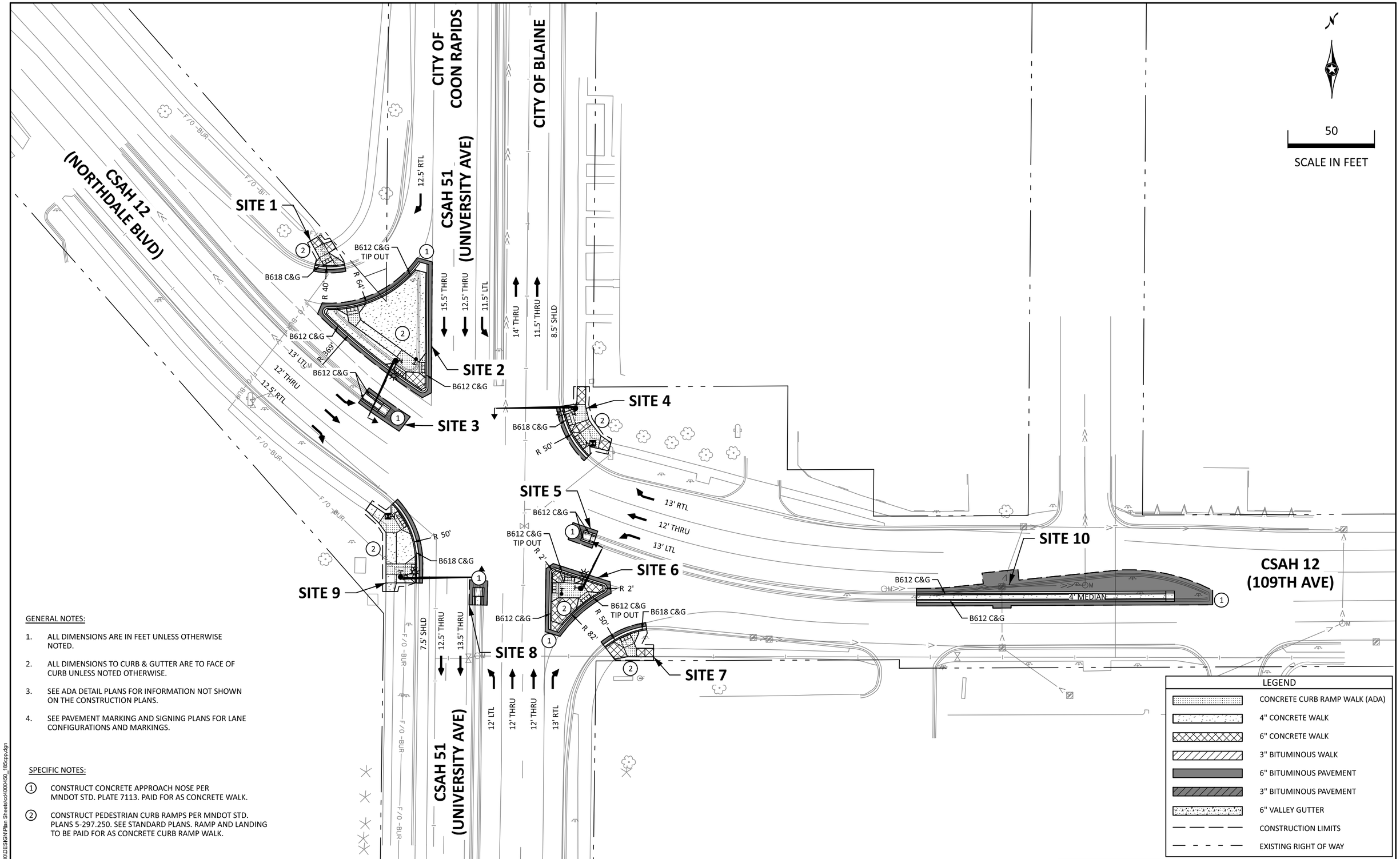
PRINT NAME: JOSEPH REZAC
SIGNATURE: Joseph Rezac
DATE 02/14/2025 LICENSE # 55948

REMOVAL PLANS

SAP 106-020-043, SAP 114-020-066, SAP 114-020-067
SAP 002-612-037, SAP 002-612-036 (CSAH 12)
SHEET NO. 32 OF 98 SHEETS



GENERAL NOTES:

1. ALL DIMENSIONS ARE IN FEET UNLESS OTHERWISE NOTED.
2. ALL DIMENSIONS TO CURB & GUTTER ARE TO FACE OF CURB UNLESS NOTED OTHERWISE.
3. SEE ADA DETAIL PLANS FOR INFORMATION NOT SHOWN ON THE CONSTRUCTION PLANS.
4. SEE PAVEMENT MARKING AND SIGNING PLANS FOR LANE CONFIGURATIONS AND MARKINGS.

SPECIFIC NOTES:

(1) CONSTRUCT CONCRETE APPROACH NOSE PER MNDOT STD. PLATE 7113. PAID FOR AS CONCRETE WALK.

(2) CONSTRUCT PEDESTRIAN CURB RAMPS PER MNDOT STD. PLANS 5-297.250. SEE STANDARD PLANS. RAMP AND LANDING TO BE PAID FOR AS CONCRETE CURB RAMP WALK.

LEGEND

- CONCRETE CURB RAMP WALK (ADA)
- 4" CONCRETE WALK
- 6" CONCRETE WALK
- 3" BITUMINOUS WALK
- 6" BITUMINOUS PAVEMENT
- 3" BITUMINOUS PAVEMENT
- 6" VALLEY GUTTER
- CONSTRUCTION LIMITS
- EXISTING RIGHT OF WAY

NO	DATE	DWN	CKD	REVISIONS

ALLIANT

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

PRINT NAME: JOSEPH REZAC
SIGNATURE: Joseph Rezac
DATE 02/14/2025 LICENSE # 55948

CONSTRUCTION PLANS

SAP 106-020-043, SAP 114-020-066, SAP 114-020-067
SAP 002-612-037, SAP 002-612-036 (CSAH 12)
SHEET NO. 33 OF 98 SHEETS

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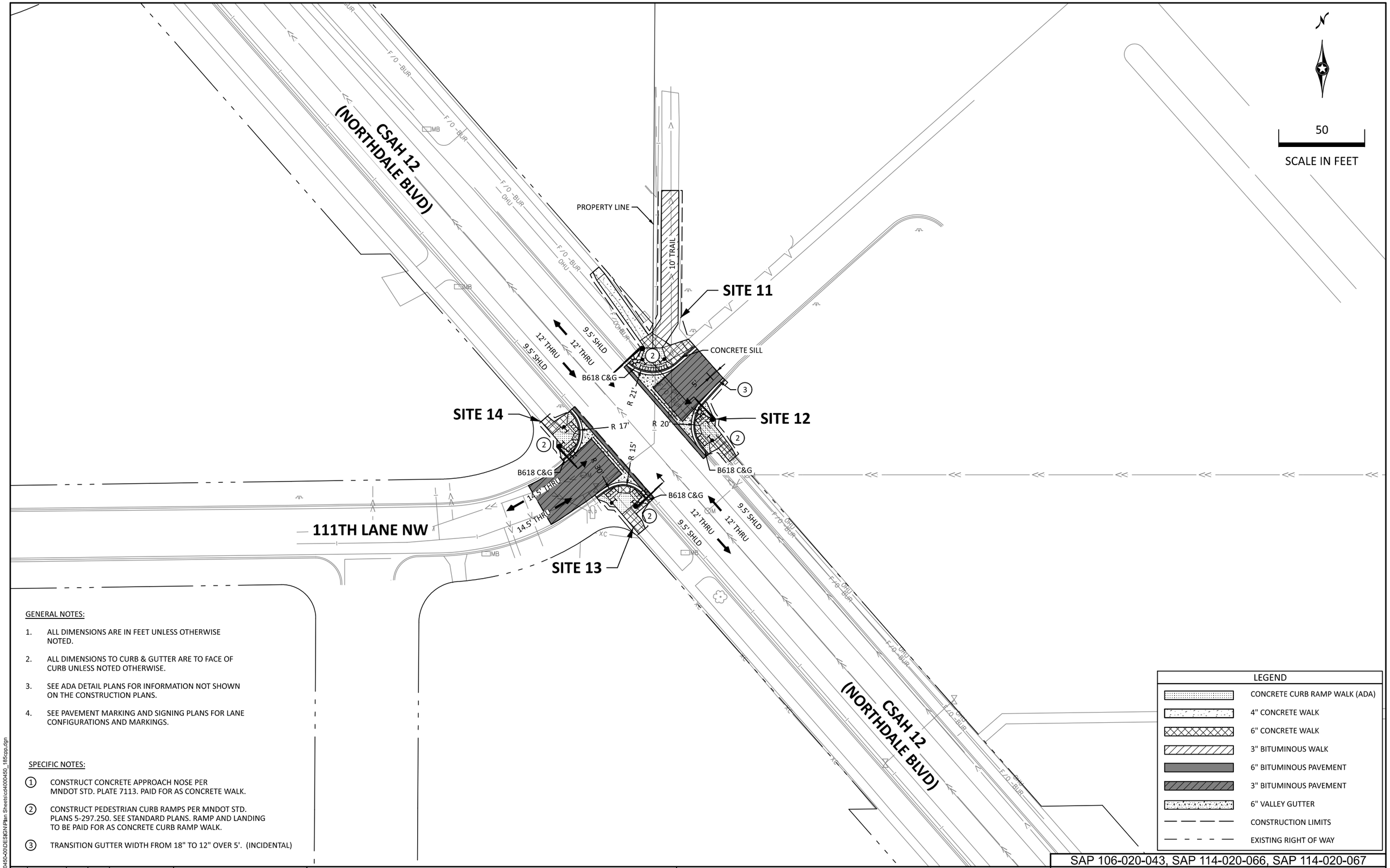

GENERAL NOTES:

1. ALL DIMENSIONS ARE IN FEET UNLESS OTHERWISE NOTED.
2. ALL DIMENSIONS TO CURB & GUTTER ARE TO FACE OF CURB UNLESS NOTED OTHERWISE.
3. SEE ADA DETAIL PLANS FOR INFORMATION NOT SHOWN ON THE CONSTRUCTION PLANS.
4. SEE PAVEMENT MARKING AND SIGNING PLANS FOR LANE CONFIGURATIONS AND MARKINGS.

SPECIFIC NOTES:

(1) CONSTRUCT CONCRETE APPROACH NOSE PER MNDOT STD. PLATE 7113. PAID FOR AS CONCRETE WALK.

(2) CONSTRUCT PEDESTRIAN CURB RAMPS PER MNDOT STD. PLANS 5-297.250. SEE STANDARD PLANS. RAMP AND LANDING TO BE PAID FOR AS CONCRETE CURB RAMP WALK.

(3) TRANSITION GUTTER WIDTH FROM 18" TO 12" OVER 5'. (INCIDENTAL)

LEGEND

- CONCRETE CURB RAMP WALK (ADA)
- 4" CONCRETE WALK
- 6" CONCRETE WALK
- 3" BITUMINOUS WALK
- 6" BITUMINOUS PAVEMENT
- 3" BITUMINOUS PAVEMENT
- 6" VALLEY GUTTER
- CONSTRUCTION LIMITS
- EXISTING RIGHT OF WAY

NO	DATE	DWN	CKD	REVISIONS

ALLIANT

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PRINT NAME: JOSEPH REZAC
SIGNATURE: Joseph Rezac
DATE 02/14/2025 LICENSE # 55948

CONSTRUCTION PLANS

SAP 106-020-043, SAP 114-020-066, SAP 114-020-067
SAP 002-612-037, SAP 002-612-036 (CSAH 12)
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NORTHDALE BLVD (CSAH 12) AND UNIVERSITY AVE (CSAH 51)

POINT NO.	DESCRIPTION	X	Y	ELEVATION
	SITE 1			
P2010	POC - 0" CURB HEIGHT	500015.24	148586.62	909.77
P2011	POC - 0" CURB HEIGHT	500007.97	148586.67	909.86
P2012	TOP OF RAMP	500005.66	148591.73	910.23
P2013	POINT ON CURB	500020.19	148587.34	MATCH EXISTING
P2014	POINT ON CURB	500003.04	148587.47	MATCH EXISTING
	SITE 2			
P2020	POC - 0" CURB HEIGHT	500020.99	148563.12	910.68
P2021	POC - 0" CURB HEIGHT	500028.48	148559.85	910.59
P2022	TOP OF RAMP	500027.55	148564.42	910.90
P2023	POC - 0" CURB HEIGHT	500047.39	148526.67	910.95
P2024	POC - 0" CURB HEIGHT	500053.14	148522.53	911.00
P2025	TOP OF RAMP	500055.54	148525.93	911.26
P2026	POC - 0" CURB HEIGHT	500067.32	148525.18	910.93
P2027	POC - 0" CURB HEIGHT	500067.36	148531.43	910.84
P2028	TOP OF RAMP	500063.19	148531.46	911.11
	SITE 3			
P2030	POINT ON CURB	500032.48	148514.08	MATCH EXISTING
P2031	POINT ON CURB	500046.28	148504.16	MATCH EXISTING
	SITE 4			
P2040	POC - 0" CURB HEIGHT	500146.87	148501.11	910.99
P2041	POC - 0" CURB HEIGHT	500149.09	148494.31	911.03
P2042	TOP OF RAMP	500153.51	148495.80	911.33
P2043	POC - 0" CURB HEIGHT	500157.38	148480.67	911.16
P2044	POC - 0" CURB HEIGHT	500152.26	148487.87	911.21
P2045	TOP OF RAMP	500156.10	148490.53	911.42
P2046	POINT ON CURB	500146.57	148506.13	MATCH EXISTING
P2047	POINT ON CURB	500160.83	148477.02	MATCH EXISTING

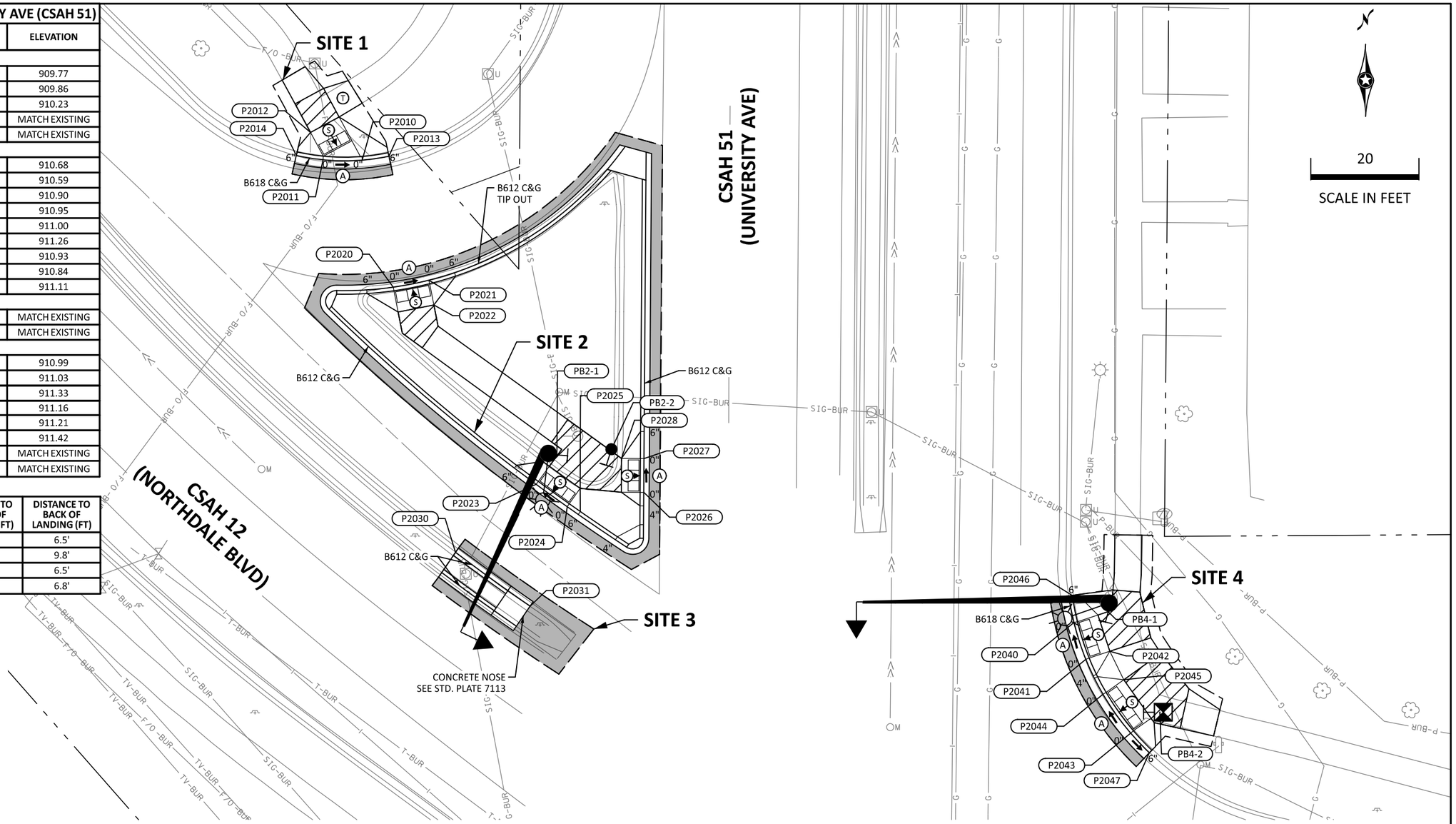
SIGNAL CONTROL POINTS			DISTANCE TO FRONT OF LANDING (FT)	DISTANCE TO BACK OF LANDING (FT)
SIGNAL NO.	X	Y		
PB2-1	500051.23	148532.11	2.5'	6.5'
PB2-2	500061.20	148532.89	2.0'	9.8'
PB4-1	500153.23	148503.13	2.0'	6.5'
PB4-2	500162.78	148484.58	2.0'	6.8'

GENERAL NOTES:

OFFSETS, ELEVATIONS AND RADIUS LENGTHS ARE TO FLOWLINE OF GUTTER, WHERE APPLICABLE, AND DO NOT ACCOUNT FOR DRAINAGE STRUCTURE SUMPS.

SEE CONSTRUCTION PLAN SHEETS FOR CURB & GUTTER TYPES, LANE AND WALK DIMENSIONS.

SEE DRAINAGE PLANS, AND SUPERELEVATION PLANS FOR ADDITIONAL INFORMATION.



LEGEND

PXXXX	CONTROL POINTS AT GUTTER FLOW LINE		LANDING AREA - 4' X 4' MIN DIMENSIONS AND MAX 2.0% SLOPE IN ALL DIRECTIONS		INPLACE SIGNAL POLE
	CONSTRUCT CONCRETE C&G	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%		PROPOSED SIGNAL POLE
	TRUNCATED DOMES (SEE STD. PLATE 7038)	F	INDICATES PEDESTRIAN RAMP - SLOPE SHALL BE BETWEEN 2.0% MINIMUM AND 5.0% MAXIMUM IN THE DIRECTION SHOWN AND CROSS SLOPE SHALL NOT EXCEED 2.0%		LIGHTING UNIT
	PAVEMENT REPLACEMENT	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 LINEAR FOOT OF WALK.		PED PUSH BUTTON STATION
	VALLEY GUTTER				PED PUSH BUTTON
X"	CURB HEIGHT				INPLACE PED PUSH BUTTON STATION
A	2-5% GUTTER INSLOPE				PROPOSED SIGNAL PEDESTAL POLE
B	2-3% GUTTER INSLOPE				
	DIRECTION OF CURBLINE FLOW				
	PROPOSED CATCH BASIN				
	PROPOSED MANHOLE (STORM)				

NO	DATE	DWN	CKD	REVISIONS

ALLIANT

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

PRINT NAME: JOSEPH REZAC
SIGNATURE: Joseph Rezac
DATE 02/14/2025 LICENSE # 55948

ADA PLANS

SAP 106-020-043, SAP 114-020-066, SAP 114-020-067
SAP 002-612-037, SAP 002-612-036 (CSAH 12)
SHEET NO. 35 OF 98 SHEETS

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NORTHDALE BLVD (CSAH 12) AND UNIVERSITY AVE (CSAH 51)				
POINT NO.	DESCRIPTION	X	Y	ELEVATION
SITE 5				
P2050	POINT ON CURB	500158.14	148433.50	MATCH EXISTING
P2051	POINT ON CURB	500165.33	148431.03	MATCH EXISTING
SITE 6				
P2060	POC - 0" CURB HEIGHT	500147.27	148409.80	912.54
P2061	POC - 0" CURB HEIGHT	500153.33	148407.86	912.48
P2062	TOP OF RAMP	500152.91	148403.73	912.73
P2063	POC - 0" CURB HEIGHT	500163.06	148395.08	912.52
P2064	POC - 0" CURB HEIGHT	500158.24	148391.59	912.60
P2065	TOP OF RAMP	500155.37	148395.27	912.89
P2066	POC - 0" CURB HEIGHT	500139.34	148404.10	912.60
P2067	POC - 0" CURB HEIGHT	500139.25	148398.10	912.67
P2068	TOP OF RAMP	500143.42	148398.04	912.93
SITE 7				
P2070	POC - 0" CURB HEIGHT	500184.80	148375.14	911.90
P2071	POC - 0" CURB HEIGHT	500178.75	148372.53	912.02
P2072	TOP OF RAMP	500181.44	148366.43	912.49
P2073	POINT ON CURB	500194.50	148377.54	MATCH EXISTING
P2074	POINT ON CURB	500170.38	148367.13	MATCH EXISTING
SITE 8				
P2080	POINT ON CURB	500099.41	148391.15	MATCH EXISTING
P2081	POINT ON CURB	500099.70	148401.14	MATCH EXISTING
SITE 9				
P2090	POC - 0" CURB HEIGHT	500061.67	148408.88	912.52
P2091	POC - 0" CURB HEIGHT	500061.76	148414.88	912.47
P2092	TOP OF RAMP	500055.09	148414.98	912.91
P2093	POC - 0" CURB HEIGHT	500051.49	148445.94	912.10
P2094	POC - 0" CURB HEIGHT	500056.90	148437.09	912.20
P2095	TOP OF RAMP	500052.88	148434.72	912.50
P2096	POINT ON CURB	500061.60	148403.89	MATCH EXISTING
P2097	POINT ON CURB	500048.17	148449.85	MATCH EXISTING
SITE 10				
P2100	POINT ON CURB	500350.36	148397.62	MATCH EXISTING
P2101	POINT ON CURB	500499.30	148399.22	MATCH EXISTING

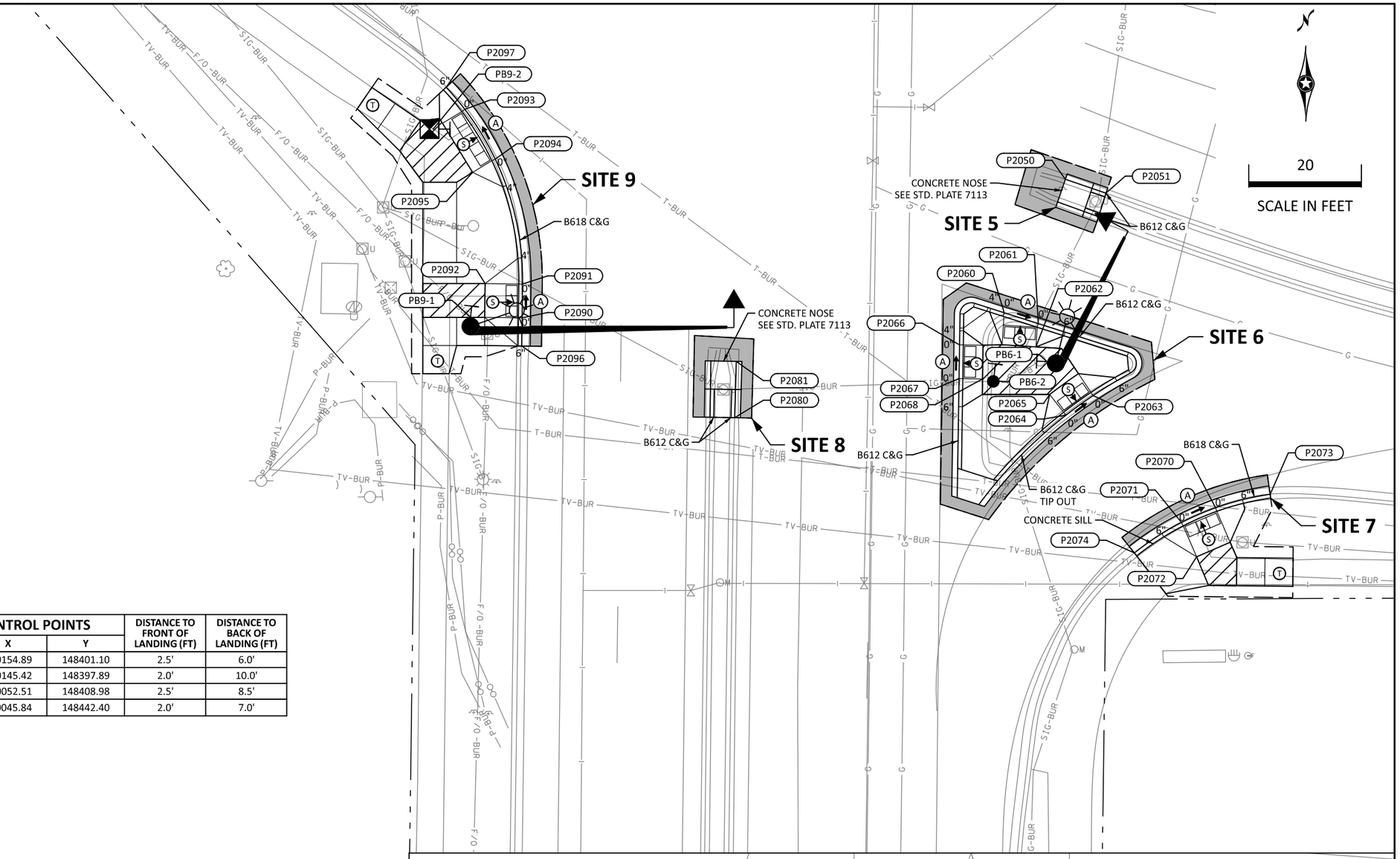
GENERAL NOTES:

OFFSETS, ELEVATIONS AND RADIUS LENGTHS ARE TO FLOWLINE OF GUTTER, WHERE APPLICABLE, AND DO NOT ACCOUNT FOR DRAINAGE STRUCTURE SUMPS.

SEE CONSTRUCTION PLAN SHEETS FOR CURB & GUTTER TYPES, LANE AND WALK DIMENSIONS.

SEE DRAINAGE PLANS, AND SUPERELEVATION PLANS FOR ADDITIONAL INFORMATION.

SIGNAL CONTROL POINTS			DISTANCE TO FRONT OF LANDING (FT)	DISTANCE TO BACK OF LANDING (FT)
SIGNAL NO.	X	Y		
PB6-1	500154.89	148401.10	2.5'	6.0'
PB6-2	500145.42	148397.89	2.0'	10.0'
PB9-1	500052.51	148408.98	2.5'	8.5'
PB9-2	500045.84	148442.40	2.0'	7.0'



LEGEND

PXXXX	CONTROL POINTS AT GUTTER FLOW LINE		LANDING AREA - 4' X 4' MIN DIMENSIONS AND MAX 2.0% SLOPE IN ALL DIRECTIONS
	CONSTRUCT CONCRETE C&G	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%
	TRUNCATED DOMES (SEE STD. PLATE 7038)	F	INDICATES PEDESTRIAN RAMP - SLOPE SHALL BE BETWEEN 2.0% MINIMUM AND 5.0% MAXIMUM IN THE DIRECTION SHOWN AND CROSS SLOPE SHALL NOT EXCEED 2.0%
	PAVEMENT REPLACEMENT	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 LINEAR FOOT OF WALK.
	VALLEY GUTTER		INPLACE SIGNAL POLE
X"	CURB HEIGHT		PROPOSED SIGNAL POLE
A	2-5% GUTTER INSLOPE		LIGHTING UNIT
B	2-3% GUTTER INSLOPE		PED PUSH BUTTON STATION
	DIRECTION OF CURBLINE FLOW		PED PUSH BUTTON
	PROPOSED CATCH BASIN		INPLACE PED PUSH BUTTON STATION
	PROPOSED MANHOLE (STORM)		PROPOSED SIGNAL PEDESTAL POLE

NO	DATE	DWN	CKD	REVISIONS

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ADA PLANS

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SAP 002-612-037, SAP 002-612-036 (CSAH 12)
SHEET NO. 36 OF 98 SHEETS

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NORTHDALE BLVD (CSAH 12) AND UNIVERSITY AVE (CSAH 51)

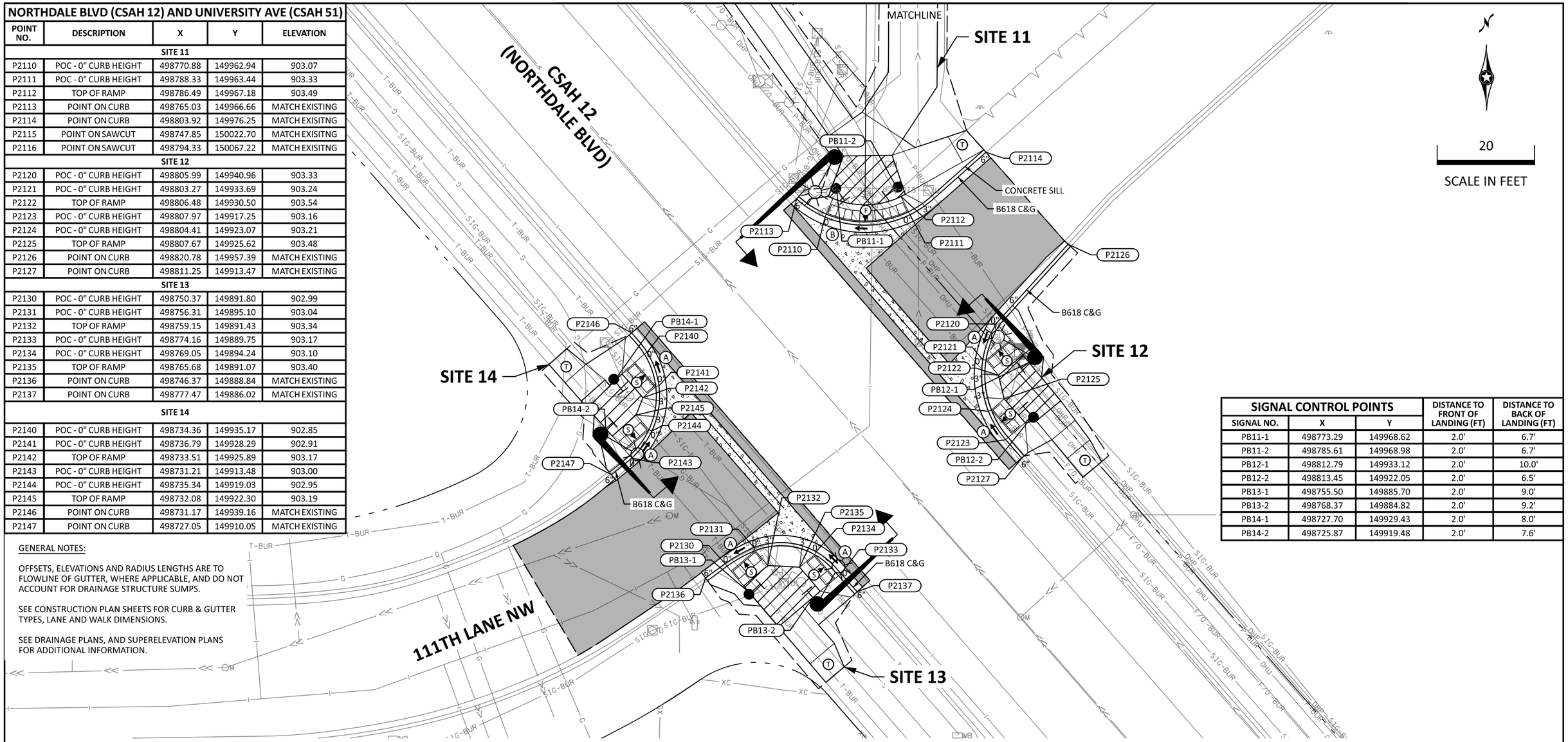
POINT NO.	DESCRIPTION	X	Y	ELEVATION
	SITE 11			
P2110	POC - 0" CURB HEIGHT	498770.88	149962.94	903.07
P2111	POC - 0" CURB HEIGHT	498788.33	149963.44	903.33
P2112	TOP OF RAMP	498786.49	149967.18	903.49
P2113	POINT ON CURB	498765.03	149966.66	MATCH EXISTING
P2114	POINT ON CURB	498803.92	149976.25	MATCH EXISITNG
P2115	POINT ON SAWCUT	498747.85	150022.70	MATCH EXISITNG
P2116	POINT ON SAWCUT	498794.33	150067.22	MATCH EXISITNG
	SITE 12			
P2120	POC - 0" CURB HEIGHT	498805.99	149940.96	903.33
P2121	POC - 0" CURB HEIGHT	498803.27	149933.69	903.24
P2122	TOP OF RAMP	498806.48	149930.50	903.54
P2123	POC - 0" CURB HEIGHT	498807.97	149917.25	903.16
P2124	POC - 0" CURB HEIGHT	498804.41	149923.07	903.21
P2125	TOP OF RAMP	498807.67	149925.62	903.48
P2126	POINT ON CURB	498820.78	149957.39	MATCH EXISTING
P2127	POINT ON CURB	498811.25	149913.47	MATCH EXISTING
	SITE 13			
P2130	POC - 0" CURB HEIGHT	498750.37	149891.80	902.99
P2131	POC - 0" CURB HEIGHT	498756.31	149895.10	903.04
P2132	TOP OF RAMP	498759.15	149891.43	903.34
P2133	POC - 0" CURB HEIGHT	498774.16	149889.75	903.17
P2134	POC - 0" CURB HEIGHT	498769.05	149894.24	903.10
P2135	TOP OF RAMP	498765.68	149891.07	903.40
P2136	POINT ON CURB	498746.37	149888.84	MATCH EXISTING
P2137	POINT ON CURB	498777.47	149886.02	MATCH EXISTING
	SITE 14			
P2140	POC - 0" CURB HEIGHT	498734.36	149935.17	902.85
P2141	POC - 0" CURB HEIGHT	498736.79	149928.29	902.91
P2142	TOP OF RAMP	498733.51	149925.89	903.17
P2143	POC - 0" CURB HEIGHT	498731.21	149913.48	903.00
P2144	POC - 0" CURB HEIGHT	498735.34	149919.03	902.95
P2145	TOP OF RAMP	498732.08	149922.30	903.19
P2146	POINT ON CURB	498731.17	149939.16	MATCH EXISTING
P2147	POINT ON CURB	498727.05	149910.05	MATCH EXISTING

GENERAL NOTES:

OFFSETS, ELEVATIONS AND RADIUS LENGTHS ARE TO FLOWLINE OF GUTTER, WHERE APPLICABLE, AND DO NOT ACCOUNT FOR DRAINAGE STRUCTURE SUMPS.

SEE CONSTRUCTION PLAN SHEETS FOR CURB & GUTTER TYPES, LANE AND WALK DIMENSIONS.

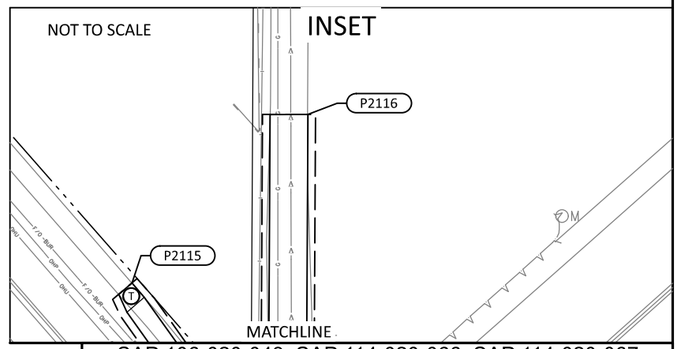
SEE DRAINAGE PLANS, AND SUPERELEVATION PLANS FOR ADDITIONAL INFORMATION.



SIGNAL CONTROL POINTS			DISTANCE TO FRONT OF LANDING (FT)	DISTANCE TO BACK OF LANDING (FT)
SIGNAL NO.	X	Y		
PB11-1	498773.29	149968.62	2.0'	6.7'
PB11-2	498785.61	149968.98	2.0'	6.7'
PB12-1	498812.79	149933.12	2.0'	10.0'
PB12-2	498813.45	149922.05	2.0'	6.5'
PB13-1	498755.50	149885.70	2.0'	9.0'
PB13-2	498768.37	149884.82	2.0'	9.2'
PB14-1	498727.70	149929.43	2.0'	8.0'
PB14-2	498725.87	149919.48	2.0'	7.6'

LEGEND

- PXXXX — CONTROL POINTS AT GUTTER FLOW LINE
- CONSTRUCT CONCRETE C&G
- TRUNCATED DOMES (SEE STD. PLATE 7038)
- PAVEMENT REPLACEMENT
- VALLEY GUTTER
- X" — CURB HEIGHT
- (A) — 2-5% GUTTER INSLOPE
- (B) — 2-3% GUTTER INSLOPE
- DIRECTION OF CURBLINE FLOW
- PROPOSED CATCH BASIN
- PROPOSED MANHOLE (STORM)
- LANDING AREA - 4' X 4' MIN DIMENSIONS AND MAX 2.0% SLOPE IN ALL DIRECTIONS
- (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 BETWEEN 2.0% MINIMUM AND 5.0% MAXIMUM IN THE DIRECTION SHOWN AND CROSS SLOPE SHALL NOT EXCEED 2.0%
- (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 LINEAR FOOT OF WALK.
- INPLACE SIGNAL POLE
- PROPOSED SIGNAL POLE
- LIGHTING UNIT
- PED PUSH BUTTON STATION
- PED PUSH BUTTON
- INPLACE PED PUSH BUTTON STATION
- PROPOSED SIGNAL PEDESTAL POLE



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SAP 002-612-037, SAP 002-612-036 (CSAH 12)
SHEET NO. 37 OF 98 SHEETS

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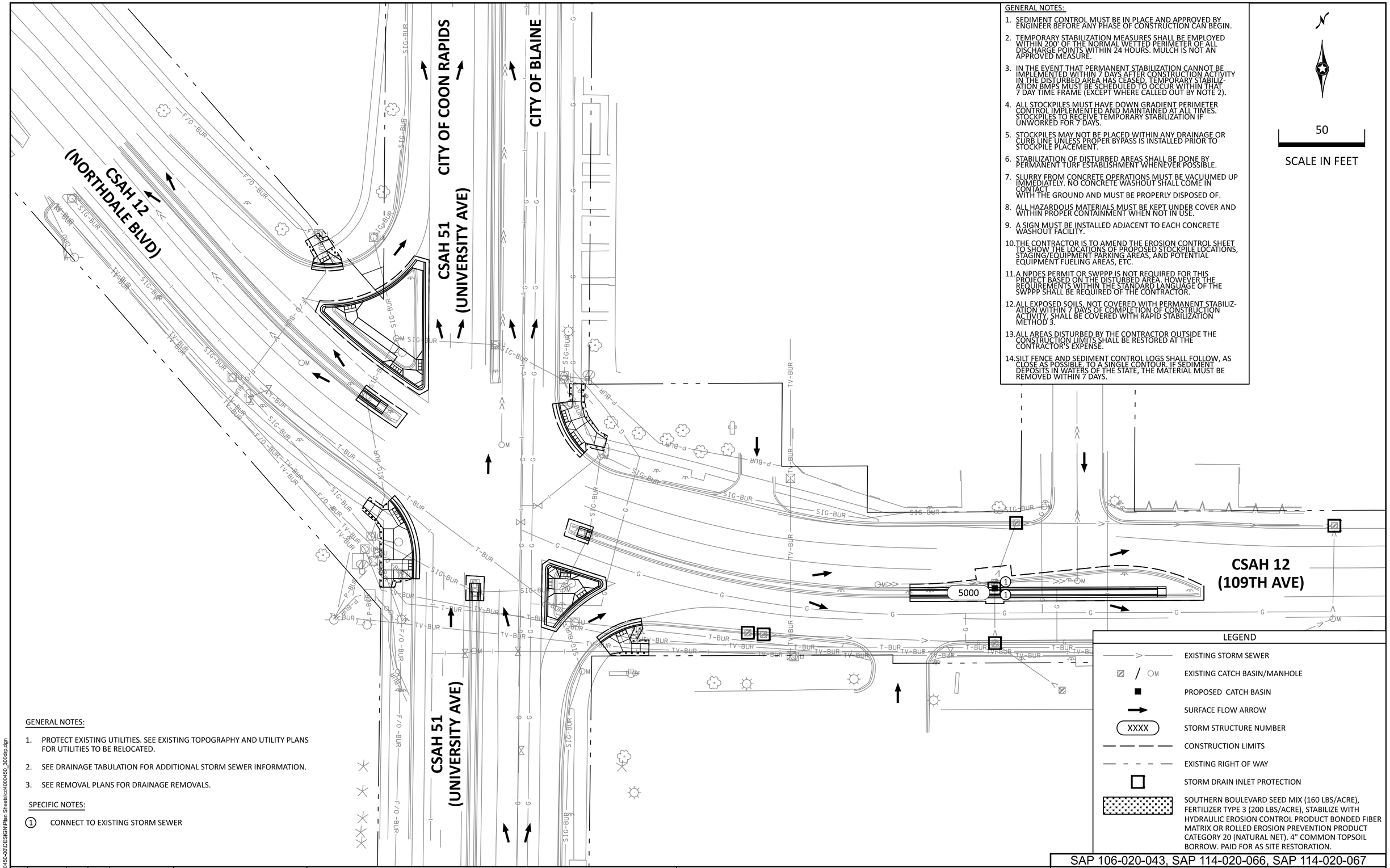

GENERAL NOTES:

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 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. 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.
8. ALL HAZARDOUS MATERIALS MUST BE KEPT UNDER COVER AND WITHIN PROPER CONTAINMENT WHEN NOT IN USE.
9. A SIGN MUST BE INSTALLED ADJACENT TO EACH CONCRETE WASHOUT FACILITY.
10. THE CONTRACTOR IS TO AMEND THE EROSION CONTROL SHEET TO SHOW THE LOCATIONS OF PROPOSED STOCKPILE LOCATIONS, STAGING/EQUIPMENT PARKING AREAS, AND POTENTIAL EQUIPMENT FUELING AREAS, ETC.
11. 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.
12. ALL EXPOSED SOILS, NOT COVERED WITH PERMANENT STABILIZATION WITHIN 7 DAYS OF COMPLETION OF CONSTRUCTION ACTIVITY, SHALL BE COVERED WITH RAPID STABILIZATION METHOD 3.
13. ALL AREAS DISTURBED BY THE CONTRACTOR OUTSIDE THE CONSTRUCTION LIMITS SHALL BE RESTORED AT THE CONTRACTOR'S EXPENSE.
14. SILT FENCE AND SEDIMENT CONTROL LOGS SHALL FOLLOW, AS CLOSE AS POSSIBLE, TO A SINGLE CONTOUR. IF SEDIMENT DEPOSITS IN WATERS OF THE STATE, THE MATERIAL MUST BE REMOVED WITHIN 7 DAYS.

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SCALE IN FEET

GENERAL NOTES:

1. PROTECT EXISTING UTILITIES. SEE EXISTING TOPOGRAPHY AND UTILITY PLANS FOR UTILITIES TO BE RELOCATED.
2. SEE DRAINAGE TABULATION FOR ADDITIONAL STORM SEWER INFORMATION.
3. SEE REMOVAL PLANS FOR DRAINAGE REMOVALS.

SPECIFIC NOTES:

(1) CONNECT TO EXISTING STORM SEWER

LEGEND

- EXISTING STORM SEWER
- EXISTING CATCH BASIN/MANHOLE
- PROPOSED CATCH BASIN
- SURFACE FLOW ARROW
- XXXX — STORM STRUCTURE NUMBER
- CONSTRUCTION LIMITS
- EXISTING RIGHT OF WAY
- STORM DRAIN INLET PROTECTION
- SOUTHERN BOULEVARD SEED MIX (160 LBS/ACRE), FERTILIZER TYPE 3 (200 LBS/ACRE), STABILIZE WITH HYDRAULIC EROSION CONTROL PRODUCT BONDED FIBER MATRIX OR ROLLED EROSION PREVENTION PRODUCT CATEGORY 20 (NATURAL NET). 4" COMMON TOPSOIL BORROW. PAID FOR AS SITE RESTORATION.

NO	DATE	DWN	CKD	REVISIONS

ALLIANT

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

PRINT NAME: CONNOR FORTUNE
SIGNATURE:
DATE 02/14/2025 LICENSE # 58698

DRAINAGE, EROSION CONTROL, & TURF ESTABLISHMENT PLANS

SAP 106-020-043, SAP 114-020-066, SAP 114-020-067
SAP 002-612-037, SAP 002-612-036 (CSAH 12)
SHEET NO. 38 OF 98 SHEETS

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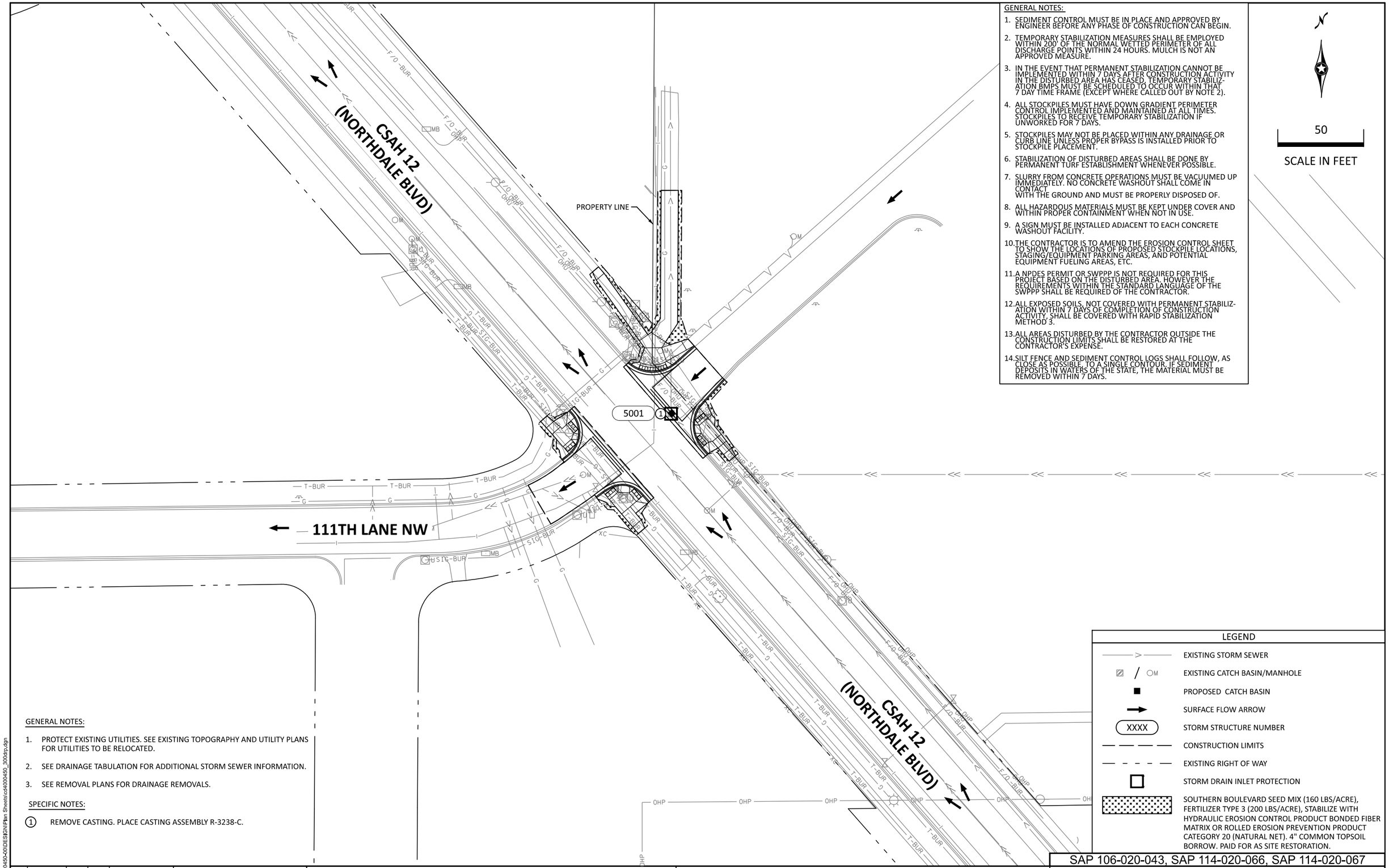

GENERAL NOTES:

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 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. 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.
8. ALL HAZARDOUS MATERIALS MUST BE KEPT UNDER COVER AND WITHIN PROPER CONTAINMENT WHEN NOT IN USE.
9. A SIGN MUST BE INSTALLED ADJACENT TO EACH CONCRETE WASHOUT FACILITY.
10. THE CONTRACTOR IS TO AMEND THE EROSION CONTROL SHEET TO SHOW THE LOCATIONS OF PROPOSED STOCKPILE LOCATIONS, STAGING/EQUIPMENT PARKING AREAS, AND POTENTIAL EQUIPMENT FUELING AREAS, ETC.
11. 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.
12. ALL EXPOSED SOILS, NOT COVERED WITH PERMANENT STABILIZATION WITHIN 7 DAYS OF COMPLETION OF CONSTRUCTION ACTIVITY, SHALL BE COVERED WITH RAPID STABILIZATION METHOD 3.
13. ALL AREAS DISTURBED BY THE CONTRACTOR OUTSIDE THE CONSTRUCTION LIMITS SHALL BE RESTORED AT THE CONTRACTOR'S EXPENSE.
14. SILT FENCE AND SEDIMENT CONTROL LOGS SHALL FOLLOW, AS CLOSE AS POSSIBLE, TO A SINGLE CONTOUR. IF SEDIMENT DEPOSITS IN WATERS OF THE STATE, THE MATERIAL MUST BE REMOVED WITHIN 7 DAYS.

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SCALE IN FEET

GENERAL NOTES:

1. PROTECT EXISTING UTILITIES. SEE EXISTING TOPOGRAPHY AND UTILITY PLANS FOR UTILITIES TO BE RELOCATED.
2. SEE DRAINAGE TABULATION FOR ADDITIONAL STORM SEWER INFORMATION.
3. SEE REMOVAL PLANS FOR DRAINAGE REMOVALS.

SPECIFIC NOTES:

(1) REMOVE CASTING. PLACE CASTING ASSEMBLY R-3238-C.

LEGEND

- EXISTING STORM SEWER
- EXISTING CATCH BASIN/MANHOLE
- PROPOSED CATCH BASIN
- SURFACE FLOW ARROW
- XXXX — STORM STRUCTURE NUMBER
- CONSTRUCTION LIMITS
- EXISTING RIGHT OF WAY
- STORM DRAIN INLET PROTECTION
- SOUTHERN BOULEVARD SEED MIX (160 LBS/ACRE), FERTILIZER TYPE 3 (200 LBS/ACRE), STABILIZE WITH HYDRAULIC EROSION CONTROL PRODUCT BONDED FIBER MATRIX OR ROLLED EROSION PREVENTION PRODUCT CATEGORY 20 (NATURAL NET). 4" COMMON TOPSOIL BORROW. PAID FOR AS SITE RESTORATION.

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DRAINAGE, EROSION CONTROL, & TURF ESTABLISHMENT PLANS

SAP 106-020-043, SAP 114-020-066, SAP 114-020-067
SAP 002-612-037, SAP 002-612-036 (CSAH 12)
SHEET NO. 39 OF 98 SHEETS

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DRAINAGE TABULATION

E

STRUCTURE LOCATION (A)				NEW STRUCTURE CONSTRUCTION					
	COORDINATES					PAY HEIGHT DESIGN			
STRUCT. OR APRON POINT NO.	X	Y	TOP OF CAST. ELEV.	CASTING ASSEMBLY (B)		72-4020	STEPS REQ'D (C)	CONNECT TO EX. STORM SEWER	NOTES
				TYPE	EACH	LIN FT		EACH	
SAP 002-612-037									
CSAH 51									
5000	500399.68	148398.32	909.41	R-3030-L	1			2	
	500399.68	148400.12				4.2	YES		
SAP 002-612-037 TOTAL					**1**	**5**		**2**	
SAP 002-612-036									
111TH AVE									
5001	498790.43	149937.44	902.93	R-3238-C	1				
SAP 002-612-036 TOTAL					**1**				
TOTALS					**2**	**5**		**2**	

NOTES:

(A) COORDINATES AND TOP OF CASTING ELEVATIONS FOR EACH POINT NUMBER ARE GIVEN AT THE CENTER OF CRATE OR COVER CASTING. ADDITIONAL COORDINATES ARE GIVE AT THE CENTER OF STRUCTURE.

(B) SEE CASTING ASSEMBLY SUMMARY.

(C) STRUCTURES WITH A PAY HEIGHT GREATER THAN 3.5' MUST INCLUDE MANHOLE STEPS 16" ON CENTER, SEE STANDARD PLATE 4180.

CASTING ASSEMBLY SUMMARY

ASSEMBLY	RING OR FRAME CASTING	COVER OR GRATE CASTING	CURB BOX	REMARKS
R-3030-L	NEENAH R-3030	L	YES	
R-3238-C	NEENAH R-3238	C	NO	

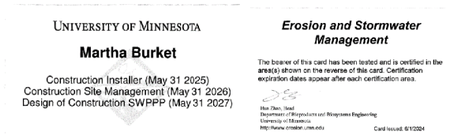
STORM WATER POLLUTION PREVENTION PLAN (SWPPP) NARRATIVE

PROJECT DESCRIPTION/LOCATION

SAP 002-612-036 AND SAP 002-612-037 ARE LOCATED ON CSAH 12 AT 111TH LANE NW AND CSAH 51 IN THE CITIES OF BLAINE AND COON RAPIDS IN ANOKA COUNTY. THE PLANNED SCOPE OF THE PROJECT INCLUDES: GRADING, BITUMINOUS AND CONCRETE SURFACING, ADA IMPROVEMENTS, STORM SEWER, AND SIGNALS. NO PERMANENT STORMWATER TREATMENT SYSTEM IS PROPOSED.

SWPPP PERSONNEL AND TRAINING

THIS SWPPP WAS PREPARED BY MARTHA BURKET CERTIFIED IN THE DESIGN OF CONSTRUCTION SWPPPS. CERTIFICATION WAS THROUGH AN UMN ONLINE COURSE (OPENING 9/5/2023) WITH REBECCA FORMAN AS THE INSTRUCTOR.


UNIVERSITY OF MINNESOTA

Martha Burket

Construction Installer (May 31 2025)
Construction Site Management (May 31 2026)
Design of Construction SWPPP (May 31 2027)

Erosion and Stormwater Management

The bearer of this card has been tested and is certified in the area(s) shown on the reverse of this card. Certification expiration dates appear after each certification area.

Hua Zhao, Head
Department of Bioproducts and Biosystems Engineering
University of Minnesota
http://www.bioeng.umn.edu

Card Issued: 6/1/2024

THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING AN EROSION CONTROL SUPERVISOR WITH VALID CERTIFICATION THAT IS RESPONSIBLE FOR OVERSEEING THE IMPLEMENTATION OF THE SWPPP. THE CONTRACTOR MUST PROVIDE PROOF OF CERTIFICATION AT THE PRECONSTRUCTION MEETING AND WILL NOT BE ALLOWED TO COMMENCE WORK UNTIL PROOF OF CERTIFICATION HAS BEEN PROVIDED TO THE PROJECT ENGINEER.

PROVIDE AT LEAST ONE CERTIFIED INSTALLER FOR EACH CONTRACTOR OR SUBCONTRACTOR THAT PLACES EROSION CONTROL MEASURES. WORK WILL NOT BE ALLOWED TO COMMENCE UNTIL PROOF OF CERTIFICATION HAS BEEN PROVIDED TO THE PROJECT ENGINEER.

CHAIN OF RESPONSIBILITY

THE CONTRACTOR IS RESPONSIBLE FOR COMPLYING WITH THE STORMWATER POLLUTION PREVENTION PLAN. THE CONSTRUCTION PROJECT ENGINEER WILL ENSURE THAT THE CONTRACTOR'S EROSION AND SEDIMENT CONTROL SUPERVISOR FULFILLS THEIR DUTIES.

LAND FEATURE CHANGES

TOTAL DISTURBED AREA	0.38 ACRES
WITHIN THE DISTURBED AREA: TOTAL EXISTING IMPERVIOUS SURFACE AREA	0.33 ACRES
WITHIN THE DISTURBED AREA: TOTAL PROPOSED IMPERVIOUS SURFACE AREA	0.35 ACRES
TOTAL PROPOSED NET CHANGE IN IMPERVIOUS SURFACE AREA	0.02 ACRES

LOCATION OF SWPPP ELEMENTS

THE REQUIRED SWPPP ELEMENTS ARE LOCATED IN SEVERAL PLACES WITHIN THE PLAN SET AS WELL AS IN THE SPECIAL PROVISIONS AND MNDOT SPEC BOOK (2020 EDITION). THE NOTES AND TABLE BELOW ARE A QUICK REFERENCE FOR THE CONTRACTOR AND PROJECT ENGINEER TO USE IN THE FIELD. THERE MAY BE ADDITIONAL SWPPP ELEMENTS INCLUDED ON THE PROJECT THAT ARE NOT LISTED ON THIS SHEET.

SWPPP SHEET DESCRIPTIONS	LOCATION
TEMPORARY AND PERMANENT EROSION CONTROL MEASURES	SHEETS NO. 38-39
DIRECTION OF FLOW	SHEETS NO. 38-39
FINAL STABILIZATION	SHEETS NO. 38-39
SOILS AND CONSTRUCTION NOTES	SHEETS NO. 4
DRAINAGE STRUCTURES	SHEETS NO. 38-39
DRAINAGE TABULATION	SHEETS NO. 40
EROSION AND SEDIMENT CONTROL STANDARD PLANS	SHEETS NO. 24
EROSION CONTROL AND TURF ESTABLISHMENT TABULATION	SHEETS NO. 5
RECEIVING WATERS SITE MAP	SHEETS NO. 43

STORMWATER CALCULATIONS AND ADDITIONAL HYDRAULIC DESIGN INFORMATION ARE AVAILABLE UPON REQUEST.

SOIL TYPES

SOIL TYPES TYPICALLY FOUND ON THIS PROJECT ARE FINE SAND.

ENVIRONMENTAL REVIEW

THERE ARE NO STORMWATER MITIGATION MEASURES REQUIRED AS A RESULT OF AN ENVIRONMENTAL, ARCHAEOLOGICAL OR AGENCY REVIEW. ALL MITIGATION MEASURES HAVE BEEN ADDRESSED IN THIS PLAN SET OR THE SPECIAL PROVISIONS.

THIS PROJECT IS LOCATED IN A WELL HEAD PROTECTION AREA.

THIS PROJECT IS LOCATED IN A DRINKING WATER SUPPLY MANAGEMENT AREA (DWSMA).

THIS PROJECT IS NOT LOCATED IN MAPPED REGIONS PRONE TO SURFACE KARST FEATURE DEVELOPMENT.

THIS PROJECT IS LOCATED IN AN EMERGENCY RESPONSE AREA (ERA) PER DEPARTMENT OF HEALTH.

SPECIAL AND IMPAIRED WATERS THAT ARE LOCATED WITHIN ONE MILE (AERIAL RADIUS) OF THE PROJECT LIMITS AND RECEIVE RUNOFF FROM THE PROJECT SITE.

WATERBODY NAME	IMPAIRMENT(S) OR SPECIAL STATUS
SAND CREEK	ESCHERICHIA COLI (E. COLI); FISH BIOASSESSMENTS

THE IMPAIRED WATERS (LISTED IN THE TABLE ABOVE) ARE EACH IMPAIRED WITH AT LEAST ONE CONSTRUCTION-RELATED IMPAIRMENT.

AREAS OF ENVIRONMENTAL SENSITIVITY (AES)

WETLANDS AND EXISTING STORMWATER FACILITIES WITHIN AND NEAR THE PROJECT BOUNDARY ARE SHOWN ON THE RECEIVING WATERS SITE MAP.

WORK IN WATER RESTRICTIONS

NO WORK IS PROPOSED WITHIN THE OHWL OF DNR PUBLIC WATERS OR WITHIN 200 FEET OF DNR PUBLIC WATERS. DNR WORK EXCLUSION DATES DO NOT APPLY.

PROJECT CONTACTS

PROJECT ORGANIZATION CONTACTS	NAME	PHONE
CONTRACTOR'S EROSION AND SEDIMENT CONTROL SUPERVISOR		
CONTRACTOR'S EROSION AND SEDIMENT CONTROL INSTALLER		
PROJECT MANAGER	AARON ANDERSON	763-324-3199
CONSTRUCTION ENGINEER	CHRIS OSTERHUS	763-324-3189
MINNESOTA POLLUTION CONTROL AGENCY	MATT HOSKINS	651-757-2864
COON CREEK WATERSHED DISTRICT	KAILEE HASBROOK	763-392-8549
MPCA DUTY OFFICER 24 HR EMERGENCY NOTIFICATION	651-649-5451 OR 1(800)-422-0798	

WATER RELATED PERMITS

AGENCY	TYPE OF PERMIT
MINNESOTA POLLUTION CONTROL AGENCY (MPCA)	NONE
WATERSHED DISTRICT	NONE
DEPARTMENT OF NATURAL RESOURCES (DNR)	NONE
ARMY CORPS OF ENGINEERS	NONE

REVIEW ALL PERMITS FOR ANY SPECIAL CONDITIONS THAT WILL EFFECT CONSTRUCTION OF THE PROJECT.

TEMPORARY DEWATERING ACTIVITIES MAY BE REQUIRED FOR ROADWAY CONSTRUCTION AND UTILITY WORK. THEREFORE IT IS POSSIBLE THAT A PERMIT FOR THE TEMPORARY APPROPRIATION OF WATERS OF THE STATE, NON-IRRIGATION FROM MNDNR WILL BE REQUIRED FOR THIS PROJECT. THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING THIS PERMIT PRIOR TO COMMENCING DEWATERING ACTIVITIES. ALL TEMPORARY DEWATERING SHALL BE DISCHARGED TO AN APPROVED LOCATION FOR TREATMENT PRIOR TO DISCHARGE TO THE RECEIVING WATER. SUBMIT A SITE MANAGEMENT PLAN TO THE ENGINEER FOR APPROVAL PRIOR TO COMMENCING WORK.

LONG TERM MAINTENANCE AND OPERATION

NO PERMANENT STORMWATER TREATMENT SYSTEM IS PROPOSED. ANOKA COUNTY WILL BE RESPONSIBLE FOR THE LONG-TERM OPERATION AND MAINTENANCE OF STORM SEWER AND STRUCTURES.

SITE INSPECTION AND MAINTENANCE

INSPECT THE ENTIRE CONSTRUCTION SITE A MINIMUM OF ONCE EVERY SEVEN DAYS DURING ACTIVE CONSTRUCTION AND WITHIN 24 HOURS AFTER A RAINFALL EVENT GREATER THAN 0.5 INCHES IN 24 HOURS. INSPECT ALL TEMPORARY AND PERMANENT WATER QUALITY MANAGEMENT, EROSION PREVENTION AND SEDIMENT CONTROL BMPS UNTIL THE SITE HAS UNDERGONE FINAL STABILIZATION AND VEGETATION HAS REACHED 70% OF EXPECTED GROWTH. REMOVE TEMPORARY EROSION AND SEDIMENT CONTROL BMPS AFTER VEGETATION HAS REACHED 70% OF EXPECTED GROWTH. INSPECT SURFACE WATER INCLUDING DRAINAGE DITCHES FOR SIGNS OF EROSION AND SEDIMENT DEPOSITION. INSPECT CONSTRUCTION SITE VEHICLE EXIT LOCATIONS FOR EVIDENCE OF TRACKING ONTO PAVED SURFACES. INSPECT SURROUNDING PROPERTIES FOR EVIDENCE OF OFF SITE SEDIMENT ACCUMULATION. INSPECT INFILTRATION AREAS FOR SIGNS OF SEDIMENT DEPOSITION AND COMPACTION (TO ENSURE THAT EQUIPMENT IS NOT BEING DRIVEN ACROSS THE AREA).

RECORD ALL INSPECTIONS AND MAINTENANCE ACTIVITIES IN WRITING WITHIN 24 HOURS. SUBMIT INSPECTION REPORTS IN A FORMAT THAT IS ACCEPTABLE TO THE PROJECT ENGINEER. INCLUDE THE FOLLOWING IN THE RECORDS OF EACH INSPECTION AND MAINTENANCE ACTIVITY:

A. DATE AND TIME OF INSPECTIONS
B. NAME OF PERSONS CONDUCTING INSPECTIONS
C. FINDINGS OF INSPECTIONS, INCLUDING RECOMMENDATIONS FOR CORRECTIVE ACTIONS
D. CORRECTIVE ACTIONS TAKEN, INCLUDING DATES, TIMES, AND PARTY COMPLETING MAINTENANCE ACTIVITIES
E. DATE AND AMOUNT OF ALL RAINFALL EVENTS GREATER THAN 0.5 INCH IN 24 HOURS
F. IF DISCHARGE OBSERVED, PHOTOGRAPHS AND DESCRIPTION OF DISCHARGE
G. DOCUMENTS AND CHANGES MADE TO SWPPP
H. PHOTOGRAPHS OF DEWATERING ACTIVITIES AND DOCUMENTATION OF NUISANCE CONDITIONS

REPLACE, REPAIR OR SUPPLEMENT ALL NONFUNCTIONAL BMPS BY THE END OF THE NEXT BUSINESS DAY FOLLOWING DISCOVERY UNLESS LISTED DIFFERENTLY BELOW:

A. REPAIR, REPLACE, OR SUPPLEMENT PERIMETER CONTROL DEVICES WHEN IT BECOMES NONFUNCTIONAL OR SEDIMENT REACHES 1/2 THE HEIGHT OF THE DEVICE. COMPLETE REPAIRS BY THE END OF THE NEXT BUSINESS DAY FOLLOWING DISCOVERY.
B. REPAIR OR REPLACE INLET PROTECTION DEVICES WHEN THEY BECOME NONFUNCTIONAL OR SEDIMENT REACHES 1/2 THE HEIGHT AND/OR DEPTH OF THE DEVICE.
C. DRAIN AND REMOVE SEDIMENT FROM TEMPORARY AND PERMANENT SEDIMENT BASINS ONCE THE SEDIMENT HAS REACHED 1/2 THE STORAGE VOLUME. COMPLETE WORK WITHIN 72 HOURS OF DISCOVERY.
D. REMOVE ALL DELTAS AND SEDIMENT DEPOSITED IN SURFACE WATERS INCLUDING DRAINAGE WAYS, CATCH BASINS, AND OTHER DRAINAGE SYSTEMS. RESTABILIZE ANY AREAS THAT ARE DISTURBED BY SEDIMENT REMOVAL OPERATIONS. SEDIMENT REMOVAL AND STABILIZATION MUST BE COMPLETED WITHIN 7 DAYS OF DISCOVERY. PREPARE AND SUBMIT A SITE MANAGEMENT PLAN FOR WORKING IN SURFACE WATERS. CONTACT ALL APPROPRIATE AUTHORITIES PRIOR TO WORKING IN SURFACE WATERS.
E. REMOVE TRACKED SEDIMENT FROM PAVED SURFACES BOTH ON AND OFF SITE WITHIN 24 HOURS OF DISCOVERY. STREET SWEEPING MAY HAVE TO OCCUR MORE OFTEN TO MINIMIZE OFF SITE IMPACTS. LIGHTLY WET THE PAVEMENT PRIOR TO SWEEPING.
F. MAINTAIN ALL BMPS UNTIL WORK HAS BEEN COMPLETED, SITE HAS UNDERGONE FINAL STABILIZATION, AND THE NOTICE OF TERMINATION (NOT) HAS BEEN SUBMITTED TO THE MPCA.

NO	DATE	DWN	CKD	REVISIONS

ALLIANT

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

PRINT NAME: JOSEPH REZAC
SIGNATURE: Joseph Rezac
DATE 02/14/2025 LICENSE # 55948

SWPPP PLANS AND WATER RESOURCES NOTES

SAP 106-020-043, SAP 114-020-066, SAP 114-020-067
SAP 002-612-037, SAP 002-612-036 (CSAH 12)
SHEET NO. 41 OF 98 SHEETS

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STORMWATER POLLUTION PREVENTION PLAN (SWPPP) NARRATIVE (CONTINUED)

STABILIZATION TIME FRAMES

AREA	TIME FRAME	NOTES
LAST 200 LINEAL FEET OF DRAINAGE DITCH OR SWALE	WITHIN 24 HOURS OF CONNECTION TO SURFACE WATER OR PROPERTY EDGE	1, 2, 3
REMAINING PORTIONS OF DRAINAGE DITCH OR SWALE	7 DAYS	1, 3
PIPE AND CULVERT OUTLETS	24 HOURS	
EXPOSED SOILS AND STOCKPILES	7 DAYS	1

1. INITIATE STABILIZATION IMMEDIATELY WHEN CONSTRUCTION HAS TEMPORARILY OR PERMANENTLY CEASED ON ANY PORTION OF THE SITE. COMPLETE STABILIZATION WITHIN THE TIME FRAME LISTED. IN MANY INSTANCES THIS WILL REQUIRE STABILIZATION TO OCCUR MORE THAN ONCE DURING THE COURSE OF THE PROJECT. TEMPORARY SOIL STOCKPILES WITHOUT SIGNIFICANT CLAY OR SILT AND STOCKPILED AND CONSTRUCTED ROAD BASE ARE EXEMPT FROM THE STABILIZATION REQUIREMENT.

2. STABILIZE WETTED PERIMETER OF DITCH (I.E. WHERE THE DITCH GETS WET).

3. APPLICATION OF MULCH, HYDROMULCH, TACKIFIER AND POLYACRYLAMIDE ARE NOT ACCEPTABLE STABILIZATION METHODS IN THESE AREAS.

4. STABILIZE ALL AREAS OF THE SITE PRIOR TO THE ONSET OF WINTER. ANY WORK STILL BEING PERFORMED WILL BE SNOW MULCHED, SEEDED, AND BLANKETED WITHIN THE TIME FRAMES SPECIFIED IN THE TABLE ABOVE.

5. TOPSOIL BERMS MUST BE STABILIZED WITHIN 24 HOURS IN ORDER TO BE CONSIDERED PERIMETER CONTROL BMPS. USE RAPID STABILIZATION.

6. KEEP DITCHES AND EXPOSED SOILS IN AN EVEN ROUGH GRADED CONDITION IN ORDER TO BE ABLE TO APPLY EROSION CONTROL MULCHES, HYDROMULCHES AND BLANKETS.

GENERAL SWPPP NOTES FOR CONSTRUCTION ACTIVITY

1. AMEND THE SWPPP AND DOCUMENT ANY AND ALL CHANGES TO THE SWPPP AND ASSOCIATED PLAN SHEETS WITHIN 7 DAYS. STORE THE SWPPP AND ALL AMENDMENTS ON SITE AT ALL TIMES.

2. PREPARE AND SUBMIT A SITE MANAGEMENT PLAN FOR THE ENGINEER'S ACCEPTANCE FOR CONCRETE MANAGEMENT, CONCRETE SLURRY APPLICATION AREAS, WORK IN AND NEAR AREAS OF ENVIRONMENTAL SENSITIVITY, AREAS IDENTIFIED IN THE PLANS AS "SITE MANAGEMENT PLAN AREA", ANY WORK THAT WILL REQUIRE DEWATERING, AND AS REQUESTED BY THE ENGINEER. SUBMIT ALL SITE MANAGEMENT PLANS TO THE ENGINEER IN WRITING. ALLOW A MINIMUM OF 7 DAYS FOR ENGINEER TO REVIEW AND ACCEPT SITE MANAGEMENT PLAN SUBMITTALS. WORK WILL NOT BE ALLOWED TO COMMENCE IF A SITE MANAGEMENT PLAN IS REQUIRED UNTIL ACCEPTANCE HAS BEEN GRANTED BY THE ENGINEER. THERE WILL BE NO EXTRA TIME ADDED TO THE CONTRACT DUE TO THE UNTIMELY SUBMITTAL.

3. IT IS THE DESIGNER'S INTENT THAT THE CONTRACTOR BUILD PONDS AND INSTALL EROSION CONTROL BMPS BEFORE PUTTING THEM INTO ACTIVE SERVICE TO THE MAXIMUM EXTENT PRACTICABLE.

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

5. DO NOT DISTURB AREAS OUTSIDE OF THE CONSTRUCTION LIMITS. DELINEATE AREAS NOT TO BE DISTURBED PRIOR TO STARTING GROUND DISTURBING ACTIVITIES. IF IT BECOMES NECESSARY TO DISTURB AREAS OUTSIDE OF THE CONSTRUCTION LIMITS OBTAIN WRITTEN PERMISSION FROM THE PROJECT ENGINEER PRIOR TO PROCEEDING. PRESERVE ALL NATURAL BUFFERS SHOWN ON THE PLANS.

6. ROUTE STORMWATER AROUND UNSTABILIZED AREAS OF THE SITE WHENEVER FEASIBLE. PROVIDE EROSION CONTROL AND VELOCITY DISSIPATION DEVICES AS NEEDED TO KEEP CHANNELS FROM ERODING AND TO PREVENT NUISANCE CONDITIONS AT THE OUTLET.

7. DIRECT DISCHARGES FROM BMPS TO VEGETATED AREAS WHENEVER FEASIBLE. PROVIDE VELOCITY DISSIPATION DEVICES AS NEEDED TO PREVENT EROSION.

8. THE EROSION PREVENTION AND SEDIMENT CONTROL BMPS SHALL BE PLACED AS NECESSARY TO MINIMIZE EROSION FROM DISTURBED SURFACES AND TO CAPTURE SEDIMENT ON SITE. ALL EROSION CONTROL MEASURES SHALL BE IN PLACE PRIOR TO COMMENCEMENT OF ANY REMOVAL WORK AND/OR GROUND DISTURBING ACTIVITIES COMMENCE. SILT FENCE SHOULD FOLLOW, AS CLOSE AS POSSIBLE, TO A SINGLE CONTOUR LINE.

9. ESTABLISH SEDIMENT CONTROL DEVICES ON ALL DOWN GRADIENT PERIMETERS AND UPGRADIENT OF ANY BUFFER ZONES BEFORE ANY UP GRADIENT LAND DISTURBING ACTIVITIES BEGIN. MAINTAIN SEDIMENT CONTROL DEVICES UNTIL CONSTRUCTION IS COMPLETE AND THE SITE IS STABILIZED.

10. LOCATE PERIMETER CONTROL ON THE CONTOUR TO CAPTURE OVERLAND, LOW- VELOCITY SHEET FLOWS DOWN GRADIENT OF ALL EXPOSED SOILS AND PRIOR TO DISCHARGING TO SURFACE WATERS. PLACE J-HOOKS AT A MAXIMUM OF 100 FOOT INTERVALS.

11. PROVIDE PERIMETER CONTROL AROUND ALL STOCKPILES. PLACE BMP A MINIMUM 5 FEET FROM THE TOE OF SLOPE WHERE FEASIBLE. DO NOT PLACE STOCKPILES IN NATURAL BUFFER AREAS, SURFACE WATERS OR STORMWATER CONVEYANCES.

12. FLOATING SILT CURTAIN IS ALLOWED AS PERIMETER CONTROL FOR IN WATER WORK ONLY. INSTALL THE FLOATING SILT CURTAIN AS CLOSE TO SHORE AS POSSIBLE. PLACE PERIMETER CONTROL BMP ON LAND IMMEDIATELY AFTER THE IN WATER WORK IS COMPLETED.

13. DITCH CHECKS WILL BE PLACED AS INDICATED ON THE PLANS DURING ALL PHASES OF CONSTRUCTION.

14. PROTECT STORM SEWER INLETS AT ALL TIMES WITH THE APPROPRIATE INLET PROTECTION FOR EACH SPECIFIC PHASE OF CONSTRUCTION. PROVIDE INLET PROTECTION DEVICES WITH EMERGENCY OVERFLOW CAPABILITIES. SILT FENCE PLACED IN THE INLET GRATE IS NOT AN ACCEPTABLE INLET PROTECTION BMP FOR GRADING OPERATIONS. SILT FENCE PLACED IN THE GRATE IS ONLY ALLOWED FOR SHORT INTERVALS DURING MILLING OR PAVING OPERATIONS. INLET PROTECTION DEVICES MAY NEED TO BE PLACED MULTIPLE TIMES IN THE SAME LOCATION OVER THE LIFE OF THE CONTRACT. INLET PROTECTION DEVICES WILL BE PAID FOR ONCE PER INLET REGARDLESS OF THE NUMBER OF TIMES THE BMP IS PLACED. KEEP ALL STORM SEWER INLET PROTECTION DEVICES IN GOOD FUNCTIONAL CONDITION AT ALL TIMES. REPLACE INLET PROTECTION DEVICE WITH A SUITABLE ALTERNATIVE IF THE PROJECT ENGINEER DEEMS AN INLET PROTECTION DEVICE TO BE NONFUNCTIONAL, IN POOR CONDITION, INEFFECTIVE, OR NOT APPROPRIATE FOR THE CURRENT CONSTRUCTION ACTIVITIES. THERE WILL BE NO COST TO ANOKA COUNTY FOR REPLACEMENT OF INLET PROTECTION DEVICES.

15. PLACE CONSTRUCTION EXITS, AS NECESSARY, TO PREVENT TRACKING OF SEDIMENT ONTO PAVED SURFACES BOTH ON AND OFF THE PROJECT SITE. PROVIDE CONSTRUCTION EXITS OF SUFFICIENT SIZE TO PREVENT TRACK OUT. MAINTAIN CONSTRUCTION EXITS WHEN EVIDENCE OF TRACKING IS DISCOVERED. REGULAR STREET SWEEPING IS NOT AN ACCEPTABLE ALTERNATIVE TO PROPER CONSTRUCTION EXIT INSTALLATION AND MAINTENANCE.

16. DISCHARGE TURBID OR SEDIMENT LADEN WATER TO TEMPORARY SEDIMENT BASINS WHENEVER FEASIBLE. IN THE EVENT THAT IT IS NOT FEASIBLE TO DISCHARGE THE SEDIMENT LADEN WATER TO A TEMPORARY SEDIMENT BASIN, THE WATER MUST BE TREATED SO THAT IT DOES NOT CAUSE A NUISANCE CONDITION IN THE RECEIVING WATERS OR TO DOWNSTREAM LANDOWNERS. CLEAN OUT ALL PERMANENT STORMWATER BASINS REGARDLESS OF WHETHER USED AS TEMPORARY SEDIMENT BASINS OR TEMPORARY SEDIMENT TRAPS TO THE DESIGN CAPACITY AFTER ALL UPGRADIENT LAND DISTURBING ACTIVITY IS COMPLETED.

17. PROVIDE SCOUR PROTECTION AT ANY OUTFALL OF DEWATERING ACTIVITIES.

18. PROVIDE STABILIZATION IN ANY TRENCHES CUT FOR DEWATERING OR SITE DRAINING PURPOSES.

19. REMOVE SEDIMENT FROM STORMWATER SYSTEM AT END OF PROJECT.

20. PRESERVE A 50 FOOT NATURAL BUFFER OR (IF BUFFER IS INFEASIBLE) PROVIDE REDUNDANT SEDIMENT CONTROLS WHEN A SURFACE WATER IS LOCATED WITHIN 50 FEET OF LAND DISTURBANCE AND STORMWATER FLOWS TO THE SURUFACE WATER.

21. PERMITTEES MUST INSPECT AND PHOTOGRAPH DEWATERING DISCHARGES AT THE BEGINNING AND AT LEAST ONCE EVERY 24 HOURS DURING OPERATION. IF NUISANCE CONDITIONS RESULT FROM DISCHARGE, PERMITTEES MUST CEASE DEWATERING.

POLLUTION PREVENTION

1. PROVIDE A SPILL KIT AT EACH WORK LOCATION ON THE SITE.

2. STORE ALL BUILDING MATERIALS THAT HAVE THE POTENTIAL TO LEACH POLLUTANTS, PESTICIDES, HERBICIDES, INSECTICIDES, FERTILIZERS, TREATMENT CHEMICALS, AND LANDSCAPE MATERIALS UNDER COVER AND WITH SECONDARY CONTAINMENT.

3. PROVIDE A SECURE STORAGE AREA WITH RESTRICTED ACCESS FOR ALL HAZARDOUS MATERIALS AND TOXIC WASTE. RETURN ALL HAZARDOUS MATERIALS AND TOXIC WASTE TO THE DESIGNATED STORAGE AREA AT THE END OF THE BUSINESS DAY UNLESS INFEASIBLE. STORE ALL HAZARDOUS MATERIALS AND TOXIC WASTE (INCLUDING BUT NOT LIMITED TO OIL, DIESEL FUEL, GASOLINE, HYDRAULIC FLUIDS, PAINT, PETROLEUM BASED PRODUCTS, WOOD PRESERVATIVES, ADDITIVES, CURING COMPOUNDS, AND ACIDS) IN SEALED CONTAINERS WITH SECONDARY CONTAINMENT. CLEAN UP SPILLS IMMEDIATELY.

4. STORE, COLLECT AND DISPOSE OF ALL SOLID WASTE.

5. POSITION ALL PORTABLE TOILETS SO THAT THEY ARE SECURE AND CANNOT BE TIPPED OR KNOCKED OVER. PROPERLY DISPOSE OF ALL SANITARY WASTE.

6. FUEL AND MAINTAIN VEHICLES IN A DESIGNATED CONTAINED AREA WHENEVER FEASIBLE. USE DRIP PANS OR ABSORBENT MATERIALS TO PREVENT SPILLS OR LEAKED CHEMICALS FROM DISCHARGING TO SURFACE WATER OR STORMWATER CONVEYANCES. PROVIDE A SPILL KIT AT EACH LOCATION THAT VEHICLES AND EQUIPMENT ARE FUELED OR MAINTAINED AT.

7. LIMIT VEHICLE AND EQUIPMENT WASHING TO A DEFINED AREA OF THE SITE. CONTAIN RUNOFF FROM THE WASHING AREA TO A TEMPORARY SEDIMENT BASIN OR OTHER EFFECTIVE CONTROL. PROPERLY DISPOSE OF ALL WASTE GENERATED BY VEHICLE AND EQUIPMENT WASHING. ENGINE DEGREASING IS NOT ALLOWED ON THE SITE.

8. PROVIDE EFFECTIVE CONTAINMENT FOR ALL LIQUID AND SOLID WASTES GENERATED BY WASHOUT OF CONCRETE, STUCCO, PAINT, FORM RELEASE OILS, CURING COMPOUNDS AND OTHER CONSTRUCTION MATERIALS. LIQUID AND SOLID WASHOUT WASTES MUST NOT CONTACT THE GROUND. DESIGN THE CONTAINMENT SO THAT IT DOES NOT RESULT IN RUNOFF FROM THE WASHOUT OPERATIONS OR CONTAINMENT AREA.

9. CREATE AND FOLLOW A WRITTEN DISPOSAL PLAN FOR ALL WASTE MATERIALS. INCLUDE IN THE PLAN HOW THE MATERIAL WILL BE DISPOSED OF AND THE LOCATION OF THE DISPOSAL SITE. SUBMIT PLAN TO THE ENGINEER.

10. USE METHODS AND OPERATIONAL PROCEDURES THAT PREVENT DISCHARGE OR PLACEMENT OF BITUMINOUS GRINDINGS, CUTTINGS, MILLINGS, AND OTHER BITUMINOUS WASTES FROM AREAS OF EXISTING OR FUTURE VEGETATED SOILS AND FROM ALL WATER CONVEYANCE SYSTEMS, INCLUDING INLETS, DITCHES AND CURB FLOW LINES.

11. USE METHODS AND OPERATIONAL PROCEDURES THAT PREVENT CONCRETE DUST, PARTICLES, CONCRETE WASH OUT, AND OTHER CONCRETE WASTES FROM LEAVING ANOKA COUNTY RIGHT OF WAY, DEPOSITING IN EXISTING OR FUTURE VEGETATED AREAS, AND FROM ENTERING STORMWATER CONVEYANCE SYSTEMS, INCLUDING INLETS, DITCHES AND CURB FLOW LINES. USE METHODS AND OPERATIONAL PROCEDURES THAT PREVENT SAW CUT SLURRY AND PLANING WASTE FROM LEAVING ANOKA COUNTY RIGHT OF WAY AND FROM ENTERING STORMWATER CONVEYANCE SYSTEMS INCLUDING DITCHES AND CULVERTS.

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NO	DATE	DWN	CKD	REVISIONS

ALLIANT

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

PRINT NAME: JOSEPH REZAC
SIGNATURE: Joseph Rezac
DATE 02/14/2025 LICENSE # 55948

SWPPP PLANS AND WATER RESOURCES NOTES

SAP 106-020-043, SAP 114-020-066, SAP 114-020-067
SAP 002-612-037, SAP 002-612-036 (CSAH 12)
SHEET NO. 42 OF 98 SHEETS

STORMWATER POLLUTION PREVENTION PLAN (SWPPP) NARRATIVE (CONTINUED)

WATER RESOURCE NOTES

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

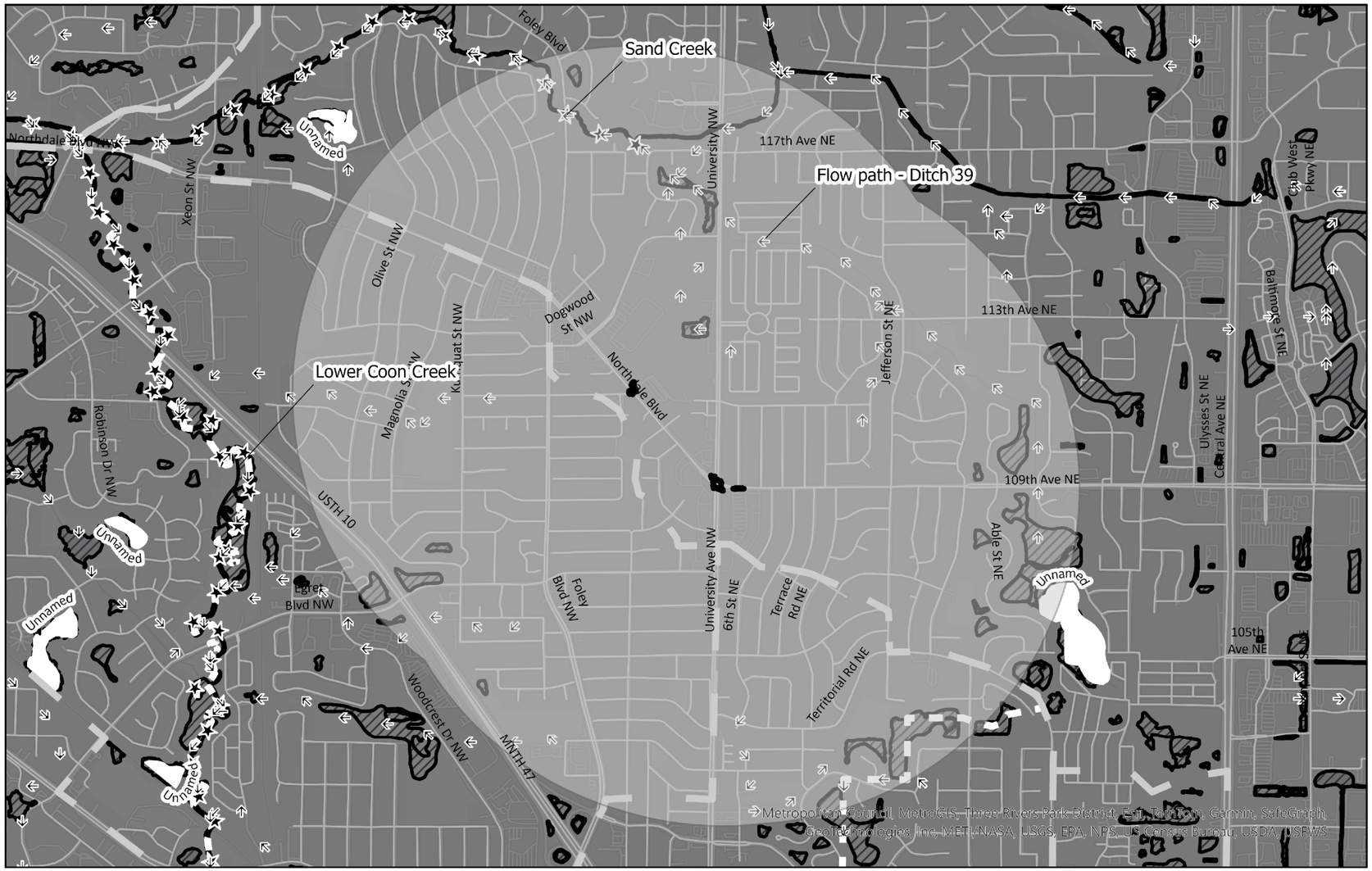
1. THE SIZE AND ELEVATION OF CULVERTS, STORM SEWER PIPES, CATCH BASINS, PONDS, INFILTRATION/FILTRATION BASINS, PERMEABLE AND IMPERMEABLE DITCH BLOCKS AND OVERFLOW DEVICES HAVE BEEN SPECIFICALLY DESIGNED TO ALL APPLICABLE DESIGN STANDARDS. CHANGING THESE ITEMS OR THE DIRECTION OF FLOW FROM WHAT IS SHOWN ON THE PLANS MAY CAUSE PROBLEMS OFF THE PROJECT . ANY CHANGES TO THE SIZE, ELEVATION OR DIRECTION OF FLOW OF THE DRAINAGE SYSTEM MUST BE APPROVED BY THE PROJECT ENGINEER.

2. SUBSOIL ALL DISTURBED GREEN SPACES EXCEPT AS LISTED IN 2574.3 A.5.

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

4. PERFORM POST INSTALLATION MANDREL TESTING OF ALL PLASTIC PIPE.

RECEIVING WATERS SITE MAP



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Receiving Waters Site Map

0 0.5 1 Miles

Legend

- Impaired Streams
- DNR Catchment Flow Network
- DNR Level 7 Minor Watersheds
- National Wetland Inventory
- DNR Public Waters Basins
- DNR Public Waters Watercourses
- Project Area
- 1 mile project buffer

Note: Project is within or very near the following Coon Creek Watershed District (CCWD) delineated subwatersheds: Ditch 39 (Subwatershed 39) and Lower Coon Creek (Subwatershed 5). The DNR Level 7 Minor Watershed boundaries shown in this map provide a rough approximation of the CCWD subwatershed boundaries.

NO	DATE	DWN	CKD	REVISIONS

ALLIANT

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

PRINT NAME: JOSEPH REZAC
SIGNATURE: Joseph Rezac
DATE 02/14/2025 LICENSE # 55948

SWPPP PLANS AND WATER RESOURCES NOTES

SAP 106-020-043, SAP 114-020-066, SAP 114-020-067
SAP 002-612-037, SAP 002-612-036 (CSAH 12)
SHEET NO. 43 OF 98 SHEETS

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NOTES & GUIDELINES

GENERAL INFORMATION:

1. ALL DISTANCES ARE APPROXIMATE.

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.
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.

CONSTRUCTION INFORMATION SIGNING:

1. THE CONTRACTOR SHALL USE CONSTRUCTION INFORMATION SIGNING AS SHOWN IN THE PLAN WHICH ARE TO BE USED AS FOLLOWS:

   CONSTRUCTION INFORMATION SIGNING NOT VISIBLE TO THE MOTORING PUBLIC ONCE WORK BEGINS WILL BE MOVED BY THE CONTRACTOR TO A SITE IN ADVANCE OF THE WORK ZONE OR CLOSURE AS DIRECTED BY THE PLAN OR PROJECT ENGINEER.

   PLACE THE G20-X1 ADVANCE CLOSURE NOTICE SIGN(S) 14 DAYS PRIOR TO THE PLANNED CLOSURE DATE.

   PLACE PORTABLE CHANGEABLE MESSAGE SIGNS (PCMS) ON CSAH 12 AND CSAH 51 APPROACHES 10 DAYS PRIOR TO PLANNED ROAD CONSTRUCTION DATE. PAID FOR AS PART OF PORTABLE CHANGEABLE MESSAGE SIGN PAY ITEM.

STRIPING KEY

PAVEMENT MESSAGE
(THRU-RIGHT ARROW)
- PAINT

PAVEMENT MESSAGE
(LEFT OR THRU ARROW)
- PAINT

INPLACE PAVEMENT MESSAGE
(LEFT, THRU, OR RIGHT ARROW)

TRAFFIC CONTROL DEVICES & SYMBOLS LEGEND

SYMBOL	DESCRIPTION
	AREA CLOSED TO TRAFFIC / WORK AREA
	COMPLETED CONSTRUCTION
├	TRAFFIC CONTROL SIGN
└┘	TYPE III BARRICADE =
●	DRUM-LIKE CHANNELIZER (TYPE B) =
Ⓕ	TYPE A FLASHING WARNING LIGHT

INDEX

STANDARD PLANS

5-297.811	ALTERNATE PEDESTRIAN ROUTE (APR) LAYOUTS

TEMPORARY TRAFFIC CONTROL TABULATION TC

DESCRIPTION	UNIT	TOTAL QUANTITY
TRAFFIC CONTROL SUPERVISOR	LUMP SUM	1
TRAFFIC CONTROL	LUMP SUM	1
ALTERNATE PEDESTRIAN ROUTE	LUMP SUM	1
PORTABLE CHANGEABLE MESSAGE SIGN	UNIT DAY	60

NO	DATE	DWN	CKD	REVISIONS

ALLIANT

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

PRINT NAME: MICHAEL P. MCCURDY
SIGNATURE: Michael P. McCurdy
DATE 02/14/2025 LICENSE # 45902

TRAFFIC CONTROL PLANS
TITLE SHEET, INDEX, LEGEND, & TABULATION

SAP 106-020-043, SAP 114-020-066, SAP 114-020-067
SAP 002-612-037, SAP 002-612-036 (CSAH 12)
SHEET NO. 44 OF 98 SHEETS

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2/14/2025
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TRAFFIC CONTROL SIGN TABULATION

"R" SERIES

SIGN	SIGN NO.	COLOR	SIZE (W x H)	ASSEMBLY (W x H)	NUMBER OF POSTS	POST SPACING (INCHES)
NO TURNS	R3-3	BLACK AND RED ON WHITE	36" x 36"	36" x 36"	1 (1)	
ONLY ONLY ONLY	R3-8ACA	BLACK ON WHITE	54" x 30"	54" x 30"	1 (1)	
ONLY	R3-8AD	BLACK ON WHITE	36" x 30"	36" x 30"	1 (1)	
DO NOT ENTER	R5-1	RED ON WHITE	36" x 36"	36" x 36"	1 (1)	

"W" SERIES

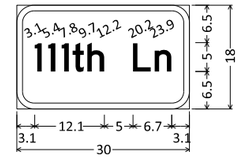
SIGN	SIGN NO.	COLOR	SIZE (W x H)	ASSEMBLY (W x H)	NUMBER OF POSTS	POST SPACING (INCHES)
ROAD WORK AHEAD	W20-1	BLACK ON ORANGE	36" x 36"	36" x 36"	1 (1)	
111th Ln DETOUR AHEAD	WZ-1 W20-2	BLACK ON ORANGE BLACK ON ORANGE	30" x 18" 36" x 36"	48" x 36"	1	
ROAD CLOSED AHEAD XX FEET	W20-3 W16-2P	BLACK ON ORANGE BLACK ON ORANGE	36" x 36" 30" x 24"	36" x 60"	1	
111th Ln ROAD CLOSED AHEAD	WZ-1 W20-3	BLACK ON ORANGE BLACK ON ORANGE	30" x 18" 36" x 36"	48" x 36"	1	
RIGHT LANE CLOSED TURN LANE CLOSED	W20-X5	BLACK ON ORANGE	36" x 36"	36" x 36"	1 (1)	
RIGHT SHOULDER CLOSED	W21-5aR	BLACK ON ORANGE	36" x 36"	36" x 36"	1 (1)	
	W24-1R	BLACK ON ORANGE	36" x 36"	36" x 36"	1 (1)	

"M" SERIES

SIGN	SIGN NO.	COLOR	SIZE (W x H)	ASSEMBLY (W x H)	NUMBER OF POSTS	POST SPACING (INCHES)
111th Ln END DETOUR	WZ-1 M4-8a	BLACK ON ORANGE BLACK ON ORANGE	30" x 18" 24" x 18"	30" x 36"	1 (1)	
111th Ln DETOUR DETOUR DETOUR DETOUR DETOUR	WZ-1 M4-9M (L, R, AL90, AR90, T)	BLACK ON ORANGE BLACK ON ORANGE	30" x 18" 30" x 24"	30" x 42"	1 (1)	

"G" SERIES

SIGN	SIGN NO.	COLOR	SIZE (W x H)	ASSEMBLY (W x H)	NUMBER OF POSTS	POST SPACING (INCHES)
ROAD CLOSED BEGINNING MONTH DY	G20-X1	BLACK ON ORANGE	72" x 60"	72" x 60"	2	42



WZ-1;
3.0" Radius, 1.0" Border, Black on Orange;
"111th Ln", D 2K;

ALL DIMENSIONS ARE IN INCHES.

BARRICADE MOUNTED SIGNS

SIGN	SIGN NO.	COLOR	SIZE (W x H)
NO TURNS	R3-3	BLACK AND RED ON WHITE	36" x 36"
LEFT LANE MUST TURN LEFT	R3-7L	BLACK ON WHITE	36" x 36"
ONLY	R3-8AD	BLACK ON WHITE	36" x 30"
ROAD CLOSED LANE CLOSED	R11-2M	BLACK ON WHITE	48" x 30"
ROAD CLOSED TO THRU TRAFFIC	R11-4	BLACK ON WHITE	60" x 30"
	W1-6	BLACK ON ORANGE	48" x 24"

DEVICES

SIGN	SIGN NO.	COLOR	SIZE (W x H)
	TYPE III (LT)	WHITE ON ORANGE	6' MIN
	TYPE III (RT)	WHITE ON ORANGE	6' MIN
(F)	WARNING LIGHT TYPE A FLASH	AMBER	

GENERAL NOTES:

A. SIGN STRUCTURE TABULATIONS INDICATE SQUARE TUBE GROUND MOUNTED SIGN STRUCTURES THAT ARE MASH-16 COMPLIANT.

B. USE PRODUCTS FROM THE BASES FOR SQUARE TUBE SIGN STRUCTURES APPROVED/QUALIFIED PRODUCTS LIST FOR THE INDICATED SQUARE TUBE RISER POST SIZE. PLACE PER THE MANUFACTURER'S SPECIFICATIONS.

C. ALUMINUM STRINGERS SHALL BE USED FOR SIGNS 36 INCHES AND WIDER. SEE MANUFACTURER'S SPECIFICATIONS FOR SQUARE TUBE MOUNTING DETAILS. STRINGERS ON SINGLE POST ASSEMBLIES ARE REQUIRED TO BE AT LEAST 9 INCHES IN FROM THE EDGE OFTHE SIGN.

D. UNLESS OTHERWISE INDICATED, USE 2-1/2 INCH RISER POSTS FOR GROUND MOUNTED SIGN STRUCTURES.

SPECIFIC NOTES:

(1) MAY USE 2" SQUARE TUBE POST WITH FIN BASE.

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NO	DATE	DWN	CKD	REVISIONS

ALLIANT

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

PRINT NAME: MICHAEL P. MCCURDY
SIGNATURE: Michael P. McCurdy
DATE 02/14/2025 LICENSE # 45902

TRAFFIC CONTROL PLANS
TRAFFIC CONTROL TABULATION

SAP 106-020-043, SAP 114-020-066, SAP 114-020-067
SAP 002-612-037, SAP 002-612-036 (CSAH 12)
SHEET NO. 45 OF 98 SHEETS

STAGING NARRATIVE

CSAH 12 & CSAH 51:

STAGE 1:
CONSTRUCTION:
- CONSTRUCT NE/SW QUADRANT ADA IMPROVEMENTS.
- CONSTRUCT NW/SE QUADRANT PORKCHOP ADA IMPROVEMENTS.
- CONSTRUCT PROPOSED SIGNAL SYSTEM.

TRAFFIC:
- CLOSE CSAH 12 EB/WB RIGHT TURN LANE. MAINTAIN RIGHT TURN MOVEMENT IN THRU LANE.
- CLOSE CSAH 51 NB/SB RIGHT THRU LANE. MAINTAIN THRU MOVEMENT IN LEFT THRU LANE.
- IMPLEMENT TEMPORARY SIGNAL SYSTEM BEFORE DEACTIVATING INPLACE SIGNAL SYSTEM.

STAGE 2:
CONSTRUCTION:
- CONSTRUCT NW/SE QUADRANT OUTSIDE ADA IMPROVEMENTS.
- CONSTRUCT CSAH 12/CSAH 51 INSIDE MEDIAN NOSES.
- CONSTRUCT CSAH 12 EAST LEG MEDIAN.

TRAFFIC:
- CLOSE CSAH 12 EB/WB LEFT TURN LANE. MAINTAIN LEFT TURN MOVEMENT IN THRU LANE.
- CLOSE CSAH 15 NB/SB LEFT TURN LANE. MAINTAIN LEFT TURN MOVEMENT IN LEFT THRU THRU LANE.
- TEMPORARY SIGNAL SYSTEM REMAINS ACTIVE.

CSAH 12 & 111TH LANE NW:

CONSTRUCTION:
- CONSTRUCT BITUMINOUS PAVEMENT.
- CONSTRUCT ADA IMPROVEMENTS.
- CONSTRUCT PROPOSED SIGNAL SYSTEM.

TRAFFIC:
- MAINTAIN CSAH 12 THRU MOVEMENTS.
- CLOSE CSAH 12 OUTSIDE SHOULDERS.
- CLOSE 111TH LANE NW BETWEEN DOGWOOD ST NW AND CSAH 12.
- CLOSE 111TH LANE NW BETWEEN CSAH 12 AND EISENHOWER ELEMENTARY SCHOOL PARKING LOT.

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NO	DATE	DWN	CKD	REVISIONS

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PRINT NAME: MICHAEL P. MCCURDY
SIGNATURE: Michael P. McCurdy
DATE 02/14/2025 LICENSE # 45902

TRAFFIC CONTROL PLANS
STAGING NARRATIVE

SAP 106-020-043, SAP 114-020-066, SAP 114-020-067
SAP 002-612-037, SAP 002-612-036 (CSAH 12)
SHEET NO. 46 OF 98 SHEETS

50

SCALE IN FEET

CSAH 51
(UNIVERSITY AVE)

100' TAPER

DRUMS AT
25' SPACING

MATCHLINE A

ROAD WORK AHEAD

325'

RIGHT LANE CLOSED

LT ONLY

LT ONLY

LT ONLY

DRUMS AT
25' SPACING

DRUMS AT
25' SPACING

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2/14/2025
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PRINT NAME: MICHAEL P. MCCURDY
SIGNATURE: Michael P. McCurdy
DATE 02/14/2025 LICENSE # 45902

TRAFFIC CONTROL PLANS
CSAH 12 & CSAH 51 - STAGE 1

SAP 106-020-043, SAP 114-020-066, SAP 114-020-067
SAP 002-612-037, SAP 002-612-036 (CSAH 12)
SHEET NO. 47 OF 98 SHEETS

MATCHLINE B

MATCHLINE D

CSAH 12
(NORTHDALE BLVD)

DRUMS AT
25' SPACING

100' TAPER

DRUMS AT
25' SPACING

LANE
CLOSED

DRUMS AT
25' SPACING

MASK INPLACE
THRU ARROW

DRUMS AT
25' SPACING

TEMPORARY SIGNAL
SYSTEM INPLACE

DRUMS AT
25' SPACING

LANE
CLOSED

CSAH 51
(UNIVERSITY AVE)

DRUMS AT
25' SPACING

MATCHLINE A

COVER

ONLY

ONLY

DRUMS AT
25' SPACING

4TH ST NE

325'

325'

TURN
LANE
CLOSED

ROAD
WORK
AHEAD

CSAH 12
(109TH AVE)

GENERAL NOTES:

A. CONTRACTOR SHALL FOLLOW DROP-OFF GUIDELINES PER THE 2018 MINNESOTA TEMPORARY TRAFFIC CONTROL FIELD MANUAL FIGURE 6K-7.

B. CONTRACTOR SHALL CONSTRUCT ONE QUADRANT AT A TIME WHILE MAINTAINING ONE NORTH/SOUTH AND EAST/WEST PEDESTRIAN CROSSING AT ALL TIMES. SEE MNDOT STANDARD PLAN 5-297.811 FOR ALTERNATE PEDESTRIAN ROUTE DEVICES.

N

50

SCALE IN FEET

NO	DATE	DWN	CKD	REVISIONS

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PRINT NAME: MICHAEL P. MCCURDY
SIGNATURE: Michael P. McCurdy
DATE 02/14/2025 LICENSE # 45902

TRAFFIC CONTROL PLANS
CSAH 12 & CSAH 51 - STAGE 1

SAP 106-020-043, SAP 114-020-066, SAP 114-020-067
SAP 002-612-037, SAP 002-612-036 (CSAH 12)
SHEET NO. 48 OF 98 SHEETS

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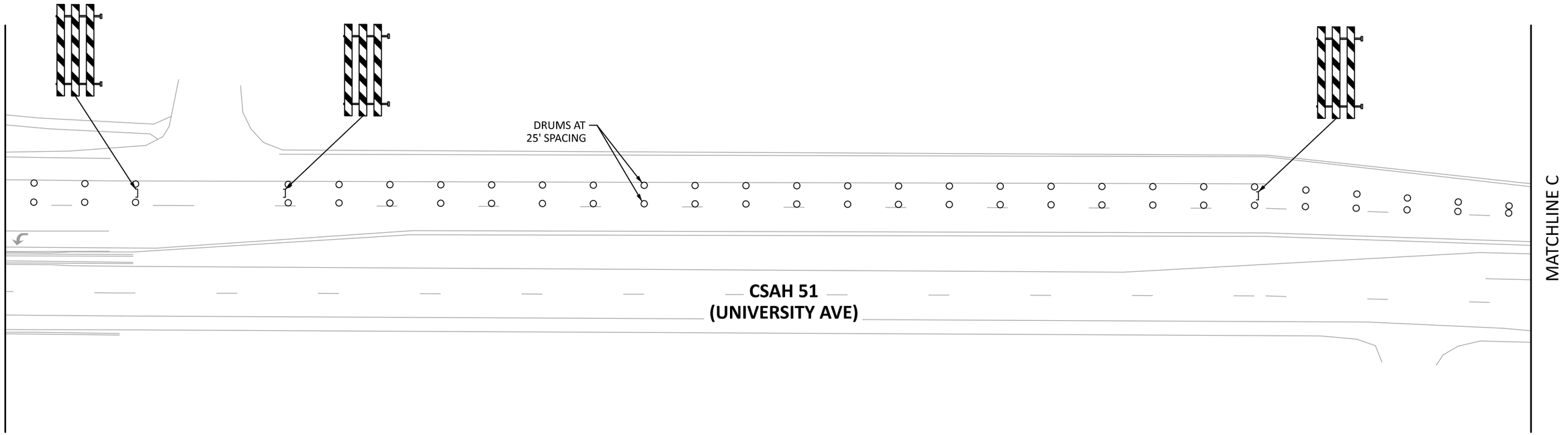
SCALE IN FEET



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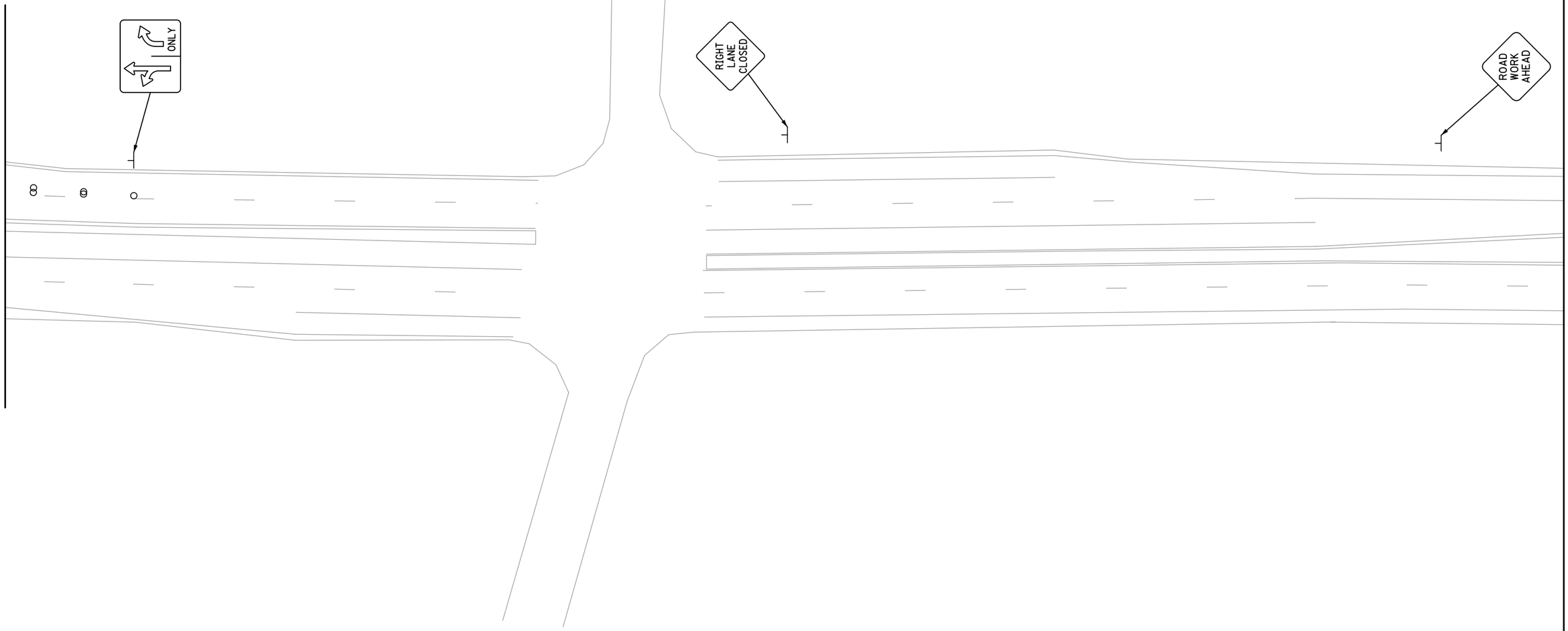
PRINT NAME: MICHAEL P. MCCURDY
SIGNATURE: Michael P. McCurdy
DATE 02/14/2025 LICENSE # 45902

TRAFFIC CONTROL PLANS

CSAH 12 & CSAH 51 - STAGE 1

SAP 106-020-043, SAP 114-020-066, SAP 114-020-067
SAP 002-612-037, SAP 002-612-036 (CSAH 12)
SHEET NO. 49 OF 98 SHEETS



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SCALE IN FEET

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PRINT NAME: MICHAEL P. MCCURDY

SIGNATURE: Michael P. McCurdy

DATE 02/14/2025 LICENSE # 45902

TRAFFIC CONTROL PLANS

CSAH 12 & CSAH 51 - STAGE 1

SAP 106-020-043, SAP 114-020-066, SAP 114-020-067

SAP 002-612-037, SAP 002-612-036 (CSAH 12)

SHEET NO. 50 OF 98 SHEETS

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50

SCALE IN FEET

CSAH 12
(NORTHDALE BLVD)

MATCHLINE D

ROAD WORK AHEAD

325'

TURN LANE CLOSED

DRUMS AT 25' SPACING

COVER

MASK INPLACE THRU ARROW

ONLY

ONLY

ONLY

NO	DATE	DWN	CKD	REVISIONS

ALLIANT

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PRINT NAME: MICHAEL P. MCCURDY

SIGNATURE: Michael P. McCurdy

DATE 02/14/2025 LICENSE # 45902

TRAFFIC CONTROL PLANS

CSAH 12 & CSAH 51 - STAGE 1

SAP 106-020-043, SAP 114-020-066, SAP 114-020-067

SAP 002-612-037, SAP 002-612-036 (CSAH 12)

SHEET NO. 51 OF 98 SHEETS

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2/14/2025
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SCALE IN FEET

CSAH 51
(UNIVERSITY AVE)

100' TAPER

DRUMS AT
25' SPACING

MATCHLINE A

DRUMS AT
25' SPACING

ROAD WORK AHEAD

325'

TURN LANE CLOSED

ONLY
ONLY
ONLY

COVER

LEFT LANE MUST TURN LEFT

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2/14/2025
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NO	DATE	DWN	CKD	REVISIONS

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PRINT NAME: MICHAEL P. MCCURDY
SIGNATURE: Michael P. McCurdy
DATE 02/14/2025 LICENSE # 45902

TRAFFIC CONTROL PLANS
CSAH 12 & CSAH 51 - STAGE 2

SAP 106-020-043, SAP 114-020-066, SAP 114-020-067
SAP 002-612-037, SAP 002-612-036 (CSAH 12)
SHEET NO. 52 OF 98 SHEETS

MATCHLINE B

MATCHLINE D

CSAH 12
(NORTHDALE BLVD)

DRUMS AT
25' SPACING

100' TAPER

DRUMS AT
25' SPACING

LANE
CLOSED

LEFT LANE
MUST
TURN LEFT

DRUMS AT
25' SPACING

MASK INPLACE
THRU ARROW

MASK INPLACE
RIGHT ARROW

MASK INPLACE
RIGHT ARROW

DRUMS AT
25' SPACING

TEMPORARY SIGNAL
SYSTEM INPLACE

LANE
CLOSED

DRUMS AT
25' SPACING

CSAH 51
(UNIVERSITY AVE)

DRUMS AT
25' SPACING

LEFT LANE
MUST
TURN LEFT

DRUMS AT
25' SPACING

MATCHLINE A

GENERAL NOTES:

A. CONTRACTOR SHALL FOLLOW DROP-OFF GUIDELINES PER THE 2018 MINNESOTA TEMPORARY TRAFFIC CONTROL FIELD MANUAL FIGURE 6K-7.

B. CONTRACTOR SHALL CONSTRUCT ONE QUADRANT AT A TIME WHILE MAINTAINING ONE NORTH/SOUTH AND EAST/WEST PEDESTRIAN CROSSING AT ALL TIMES. SEE MNDOT STANDARD PLAN 5-297.811 FOR ALTERNATE PEDESTRIAN ROUTE DEVICES.

C. CONTRACTOR SHALL SHIFT SPAN WIRE TEMPORARY SIGNAL HEADS TO ALIGN WITH THE NEW LANE CONFIGURATION DURING THIS STAGE. THIS WORK WILL BE INCLUDED IN PAYMENT FOR TEMPORARY SIGNAL SYSTEM A.

N

50

SCALE IN FEET

COVER

ROAD
WORK
AHEAD

ONLY

4TH ST NE

COVER

ONLY

CSAH 12
(109TH AVE)

DRUMS AT
25' SPACING

DO NOT
ENTER

MATCHLINE E

NO	DATE	DWN	CKD	REVISIONS

ALLIANT

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

PRINT NAME: MICHAEL P. MCCURDY
SIGNATURE: Michael P. McCurdy
DATE 02/14/2025 LICENSE # 45902

TRAFFIC CONTROL PLANS
CSAH 12 & CSAH 51 - STAGE 2

SAP 106-020-043, SAP 114-020-066, SAP 114-020-067
SAP 002-612-037, SAP 002-612-036 (CSAH 12)
SHEET NO. 53 OF 98 SHEETS

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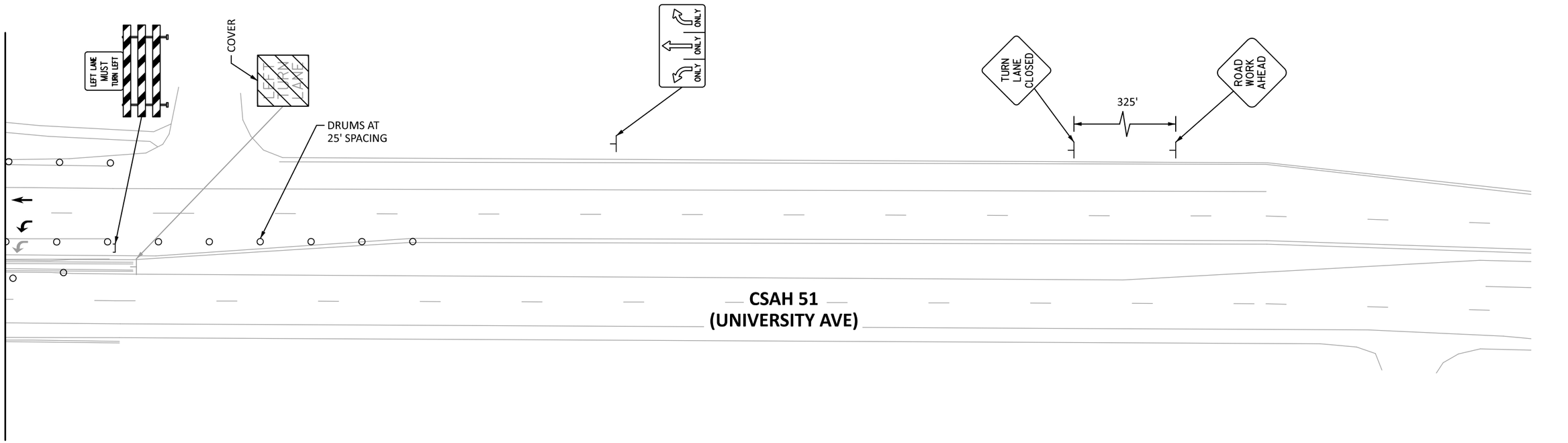

NO	DATE	DWN	CKD	REVISIONS

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PRINT NAME: MICHAEL P. MCCURDY
SIGNATURE: Michael P. McCurdy
DATE 02/14/2025 LICENSE # 45902

TRAFFIC CONTROL PLANS
CSAH 12 & CSAH 51 - STAGE 2

SAP 106-020-043, SAP 114-020-066, SAP 114-020-067
SAP 002-612-037, SAP 002-612-036 (CSAH 12)
SHEET NO. 54 OF 98 SHEETS

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SCALE IN FEET

CSAH 12
(NORTHDALE BLVD)

MATCHLINE D

ROAD WORK AHEAD

325'

TURN LANE CLOSED

DRUMS AT 25' SPACING

ONLY

ONLY

ONLY

MASK INPLACE THRU ARROW

MASK INPLACE RIGHT ARROW

COVER

NO	DATE	DWN	CKD	REVISIONS

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TRAFFIC CONTROL PLANS
CSAH 12 & CSAH 51 - STAGE 2

SAP 106-020-043, SAP 114-020-066, SAP 114-020-067
SAP 002-612-037, SAP 002-612-036 (CSAH 12)
SHEET NO. 55 OF 98 SHEETS

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2/14/2025
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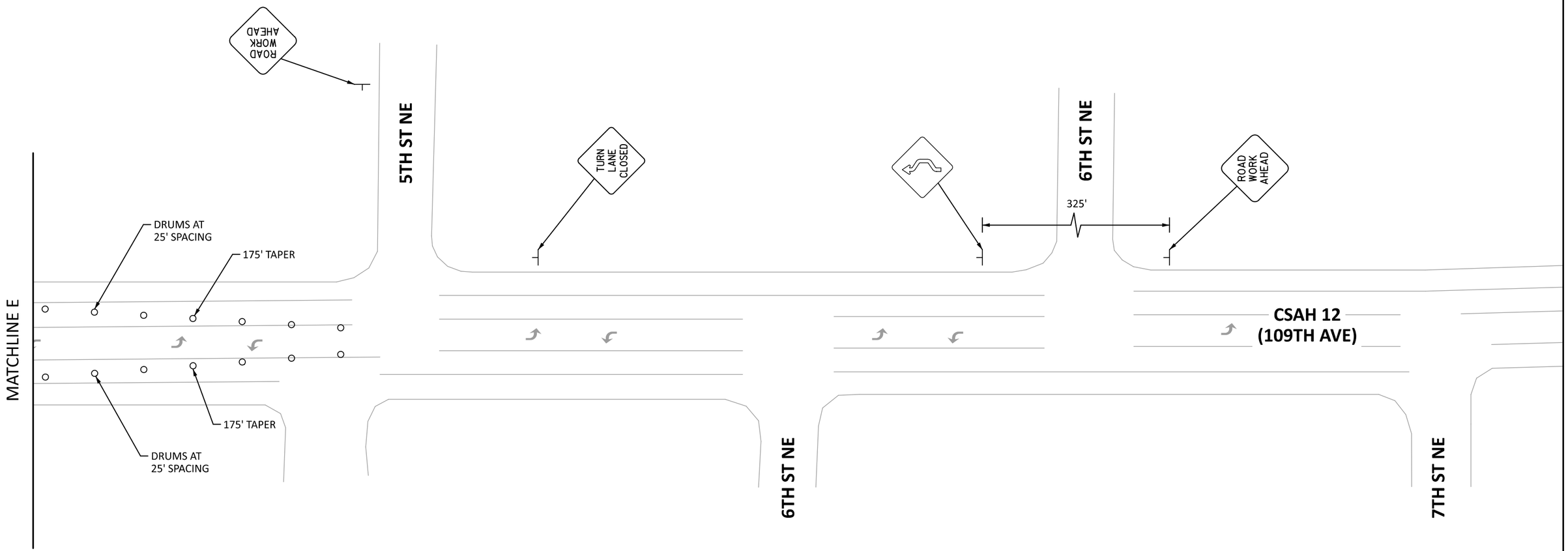
SCALE IN FEET



NO	DATE	DWN	CKD	REVISIONS

ALLIANT

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

PRINT NAME: MICHAEL P. MCCURDY

SIGNATURE: Michael P. McCurdy

DATE 02/14/2025 LICENSE # 45902

TRAFFIC CONTROL PLANS

CSAH 12 & CSAH 51 - STAGE 2

SAP 106-020-043, SAP 114-020-066, SAP 114-020-067

SAP 002-612-037, SAP 002-612-036 (CSAH 12)

SHEET NO. 56 OF 98 SHEETS

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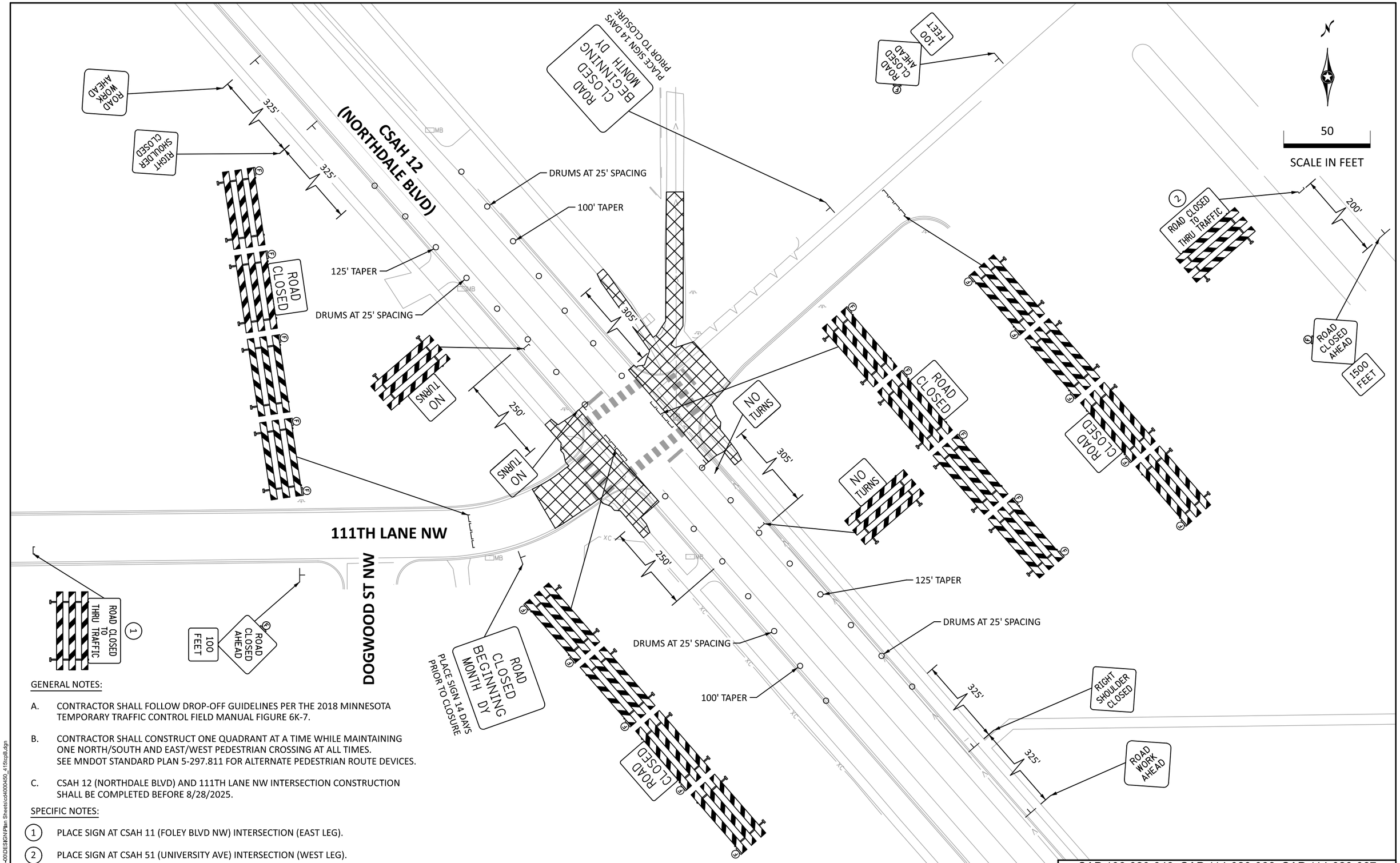

GENERAL NOTES:

A. CONTRACTOR SHALL FOLLOW DROP-OFF GUIDELINES PER THE 2018 MINNESOTA TEMPORARY TRAFFIC CONTROL FIELD MANUAL FIGURE 6K-7.

B. CONTRACTOR SHALL CONSTRUCT ONE QUADRANT AT A TIME WHILE MAINTAINING ONE NORTH/SOUTH AND EAST/WEST PEDESTRIAN CROSSING AT ALL TIMES. SEE MNDOT STANDARD PLAN 5-297.811 FOR ALTERNATE PEDESTRIAN ROUTE DEVICES.

C. CSAH 12 (NORTHDALE BLVD) AND 111TH LANE NW INTERSECTION CONSTRUCTION SHALL BE COMPLETED BEFORE 8/28/2025.

SPECIFIC NOTES:

(1) PLACE SIGN AT CSAH 11 (FOLEY BLVD NW) INTERSECTION (EAST LEG).

(2) PLACE SIGN AT CSAH 51 (UNIVERSITY AVE) INTERSECTION (WEST LEG).

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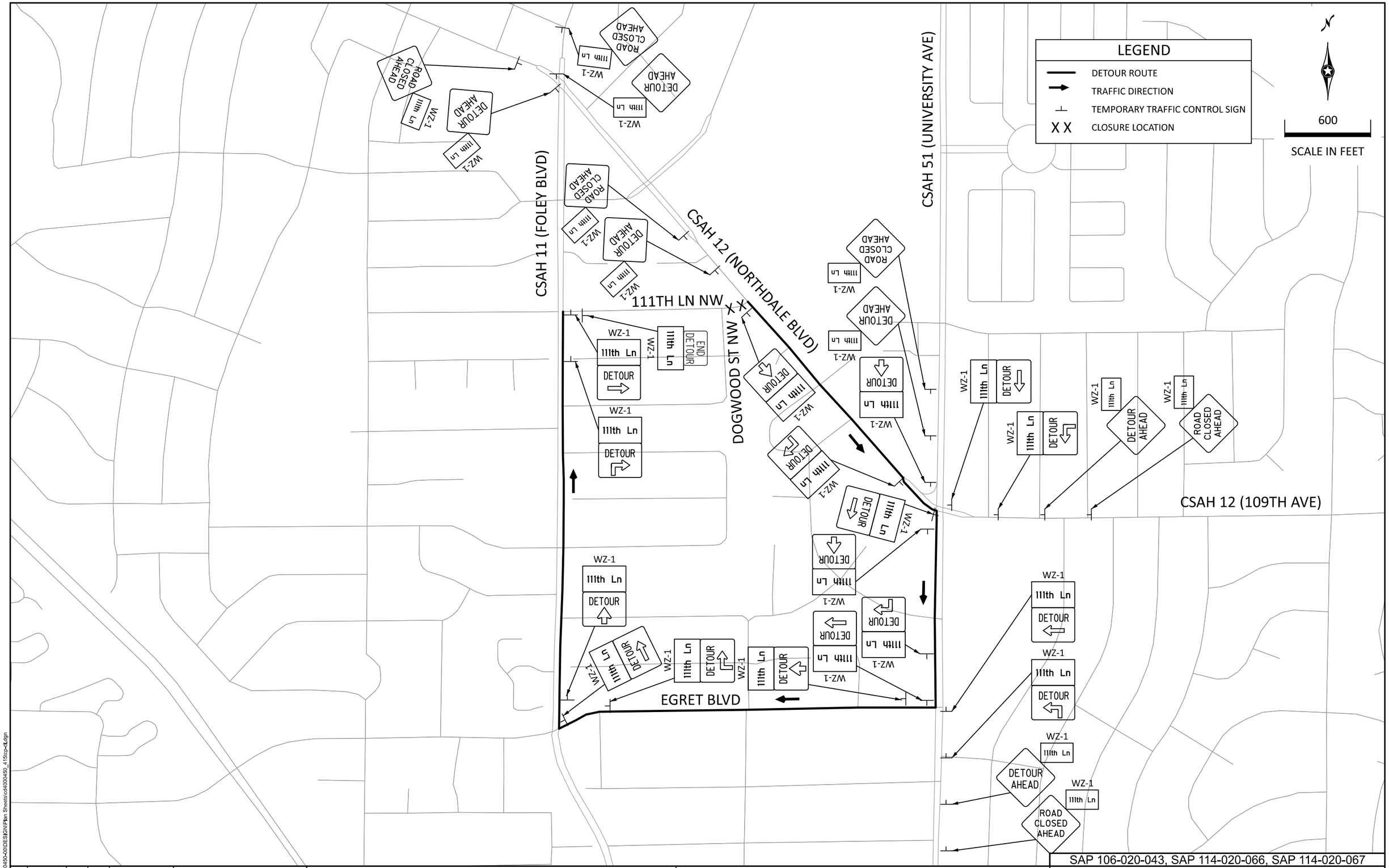
TRAFFIC CONTROL PLANS
CSAH 12 & 111TH LANE NW

SAP 106-020-043, SAP 114-020-066, SAP 114-020-067
SAP 002-612-037, SAP 002-612-036 (CSAH 12)
SHEET NO. 57 OF 98 SHEETS



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TRAFFIC CONTROL PLANS
DETOUR LAYOUT

SAP 106-020-043, SAP 114-020-066, SAP 114-020-067
SAP 002-612-037, SAP 002-612-036 (CSAH 12)
SHEET NO. 58 OF 98 SHEETS

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PAVEMENT MARKING AND SIGNING PLAN

GENERAL INFORMATION:

1. SEE 2582 IN THE SPECIAL PROVISIONS FOR PAVEMENT MARKING SPOTTING RESPONSIBILITIES.
2. EDGE LINES AND LANE LINES ARE TO BE BROKEN ONLY AT INTERSECTIONS WITH PUBLIC ROADS, AND AT PRIVATE ENTRANCES IF THEY ARE CONTROLLED BY AN AGENCY PLACED YIELD SIGN, STOP SIGN OR TRAFFIC SIGNAL. THE BREAK POINT IS TO BE AT THE START OF THE MAINLINE RADIUS.
3. DO NOT APPLY THE PAVEMENT MARKINGS WHEN WEATHER AND OTHER CONDITIONS CAUSE A FILM OF DUST OR DEBRIS TO BE DEPOSITED ON THE PAVEMENT SURFACE AFTER CLEANING AND BEFORE THE MARKING MATERIAL IS APPLIED.
4. THE FILLING OF TANKS, POURING OF MATERIALS OR CLEANING OF EQUIPMENT SHALL NOT BE PERFORMED ON UNPROTECTED PAVEMENT SURFACES UNLESS ADEQUATE PROVISIONS ARE MADE TO PREVENT SPILLAGE OF MATERIAL.

PERMANENT PAVEMENT MARKING TABULATION				PM
TAB	SHEET NO	ITEM	UNIT	TOTAL MARKINGS QUANTITY
		PAVEMENT MARKING REMOVAL	SQ FT	1296
		MOBILE RETROREFLECTOMETER MEASUREMENTS	EACH	24
PM-D	60	4" SOLID LINE PAINT	LIN FT	650
PM-D	60	12" SOLID LINE PAINT	LIN FT	780
PM-D	60	24" SOLID LINE PREFORM THERMO GROUND IN	LIN FT	24
PM-D	60	CROSSWALK PREFORM THERMOPLASTIC GROUND IN	SQ FT	180

GENERAL INFORMATION:

1. MOUNTING HEIGHT IS MINIMUM (WITH A + 6 INCH TOLERANCE).
2. SEE CURRENT MNDOT STANDARD SIGNS AND MARKINGS MANUAL FOR STANDARD SIGN DESIGNS, SPLICE PLATES, STRINGERS AND PUNCHING CODES.
3. SEE PANEL LAYOUTS FOR SIGNS WITH THE CODES "DESIGN".
4. SEE DETAILS FOR SIGN STRUCTURE INSTALLATION AND PLACEMENT.
5. STANDARD SIGN PANELS ARE LISTED IN THE TABULATIONS WITH TWO DIMENSIONS THAT MAY NOT BE THEIR ACTUAL WIDTH OR HEIGHT, BUT INSTEAD ARE LENGTHS OF THEIR SIDES OR DIAMETER. SEE THE MNDOT STANDARD SIGNS AND MARKING MANUAL FOR ACTUAL DIMENSIONS OF THESE PANELS BASED UPON THE CORRESPONDING DIMENSIONS FROM THE TABULATIONS.
6. SIGNS AND DELINEATOR/MARKER TABULATIONS DISPLAY SIGN PANEL AND SUPPORT INFORMATION FOR NEW SIGNS. SIGNS BEING REMOVED OR SALVAGED MAY NOT INCLUDE PANEL OR SUPPORT INFORMATION IN THE TABULATION.
7. INSTALL SIGNS AFTER FINAL GRADING IS COMPLETE.

PERMANENT SIGNING SUMMARY					ST
TAB	SHEET NO	ITEM NO	ITEM	UNIT	TOTAL SIGNING QUANTITIES
ST-A	60	2104	REMOVE DELINEATOR / MARKER	EACH	1
ST-A	60	2104	REMOVE SIGN	EACH	13
ST-A	60	2564	DELINEATOR/MARKER PANEL	EACH	4
ST-A	60	2564	SIGN	SQ FT	107
ST-A	60	2565	SIGN PANEL	SQ FT	12

STANDARD PLANS	
NUMBER	DESCRIPTION
5-297.730	SIGN MOUNTING SYSTEMS FOR ROUND SUPPORTS
5-297.731	SIGN MOUNTING DETAILS FOR SIGNAL MAST ARMS

INDEX

SYMBOLS & MATERIALS LEGEND

— — - BROKEN LINE-40' CYCLE (10' LINE, 30' GAP)

- - - - - - - DOTTED LINE-8' CYCLE (2' LINE, 6' GAP), UNLESS SHOWN OTHERWISE IN THE PLAN

STRIPING KEY

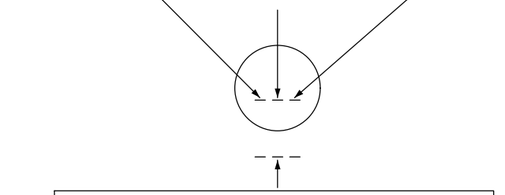
TRIANGLE-PAINT

OCTAGON-PREF THERMO

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

2ND DIGIT PATTERN
S - SOLID
B - BROKEN
T - DOTTED
D - DOUBLE SOLID
K - DOUBLE BROKEN
H - DOUBLE DOTTED

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



G=GROUND IN W=WET REFLECTIVE
C=CONTRAST E=ENHANCED SKID RESISTANCE

EXAMPLE: 4SW / GCW = 4" SOLID LINE WHITE PREF THERMO GROUND IN, CONTRAST, WET REFLECTIVE

ABBREVIATIONS

U-SOIL	U-CHANNEL IN SOIL
S-CONC	SHEAR BOLT
TEMPORARY	PORTABLE BASE ON SOIL OR CONCRETE

SIGNING LEGEND

SIGN

SIGN BACK TO BACK

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SIGNING AND PAVEMENT MARKING PLANS

SAP 106-020-043, SAP 114-020-066, SAP 114-020-067
SAP 002-612-037, SAP 002-612-036 (CSAH 12)
SHEET NO. 59 OF 98 SHEETS

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SIGN AND DELINEATOR / MARKER — ST-A

	SIGN NUMBER	PANEL CODE	LEGEND	SIZE (W x H)	MOUNTING HEIGHT	SUPPORT TYPE	RISER POST SIZE	NUMBER OF POSTS	REMOVE SIGN	SIGN	SIGN PANEL	REMOVE DELINEATOR / MARKER	DELINEATOR / MARKER PANEL
				INCH	FEET		INCHES		EACH	SQ FT	SQ FT	EACH	EACH
	SAP 002-612-037												
	S-1	R4-7	KEEP RIGHT	24 x 30	7	SQ-CONC	2	1	1	5.00			
		OM1-2	TYPE 1 OBJECT MARKER	18 x 18									1
	S-2	R4-7	KEEP RIGHT	24 x 30	7	SQ-CONC	2	1	1	5.00			
		OM1-2	TYPE 1 OBJECT MARKER	18 x 18									1
	S-3	W12-1	DOUBLE ARROW	30 x 30	7	SQ-CONC	2	1	1	6.25			
	S-4	R6-1R	ONE WAY RIGHT	36 x 12	7	SQ-CONC	2	1	1	3.00			
(1)	S-5	R5-1	DO NOT ENTER	30 x 30	7	SQ-CONC	2	1	1	6.25			
		R5-1	DO NOT ENTER	30 x 30							6.25		
		R3-4	NO U-TURN	24 x 24						4.00			
(1)	S-6	R4-7	KEEP RIGHT	24 x 30	7	SQ-CONC	2	1	1		5.00		
		OM1-2	TYPE 1 OBJECT MARKER	18 x 18									1
	S-7	OM3-L	TYPE 3 OBJECT MARKER LEFT	INPLACE								1	
	S-8	R6-1R	ONE WAY RIGHT	36 x 12	7	SQ-CONC	2	1	1	3.00			
	S-9	R3-7L	LEFT LANE MUST TURN LEFT	30 x 30	7	SQ-CONC	2	1	1	6.25			
	S-10	R3-7R	RIGHT LANE MUST TURN RIGHT	30 x 30	7	SQ-SOIL	2	1	1	6.25			
	S-11	W12-1	DOUBLE ARROW	30 x 30	7	SQ-CONC	2	1	1	6.25			
	S-12	R1-2	YIELD	36 x 36 x 36	7	SQ-SOIL	2	1	1	3.90			
	S-13	R10-6R	STOP HERE ON RED RIGHT	24 x 30	7	TEMPORARY	-	-		5.00			
	S-14	R10-6R	STOP HERE ON RED RIGHT	24 x 30	7	TEMPORARY	-	-		5.00			
	S-15	R10-6R	STOP HERE ON RED RIGHT	24 x 30	7	TEMPORARY	-	-		5.00			
	S-16	R10-6R	STOP HERE ON RED RIGHT	24 x 30	7	TEMPORARY	-	-		5.00			
	S-16.1	R4-7	KEEP RIGHT	24 x 30	7	SQ-CONC	2	1	1	5.00			
		OM1-2	TYPE 1 OBJECT MARKER	18 x 18									1
	S-16.2	R5-1	DO NOT ENTER	30 x 30	7	SQ-CONC	2	1	1	6.25			
						SAP 002-612-037 TOTAL			**13**	**87**	**12**	**1**	**4**
	SP 002-612-036												
	S-17	R10-6R	STOP HERE ON RED RIGHT	24 x 30	7	TEMPORARY	-	-		5.00			
	S-18	R10-6R	STOP HERE ON RED RIGHT	24 x 30	7	TEMPORARY	-	-		5.00			
	S-19	R10-6R	STOP HERE ON RED RIGHT	24 x 30	7	TEMPORARY	-	-		5.00			
	S-20	R10-6R	STOP HERE ON RED RIGHT	24 x 30	7	TEMPORARY	-	-		5.00			
						SP 002-612-036 TOTAL				**20**			
						PROJECT TOTAL			**13**	**107**	**12**	**1**	**4**

SPECIFIC NOTE(S):

1. MOUNT BACK TO BACK.
2. STOP HERE ON RED SIGNS ARE TEMPORARY INSTALLATIONS THAT WILL BE REMOVED BY OTHERS ONCE THE CSAH 12 MILL AND OVERLAY PROJECT IS COMPLETE.

PAVEMENT MARKING LINEAR MARKINGS — PM-D

ITEM	UNIT	WHITE QTY CSAH 12 SAP 002-612-036	WHITE QTY CSAH 12 SAP 002-612-037	PROJECT TOTAL QTY
4" SOLID LINE PAINT	LIN FT		650	650
12" SOLID LINE PAINT	LIN FT	170	610	780
24" SOLID LINE PREFORM THERMO GROUND IN	LIN FT	24		24
CROSSWALK PREFORM THERMOPLASTIC GROUND IN	SQ FT	180		180

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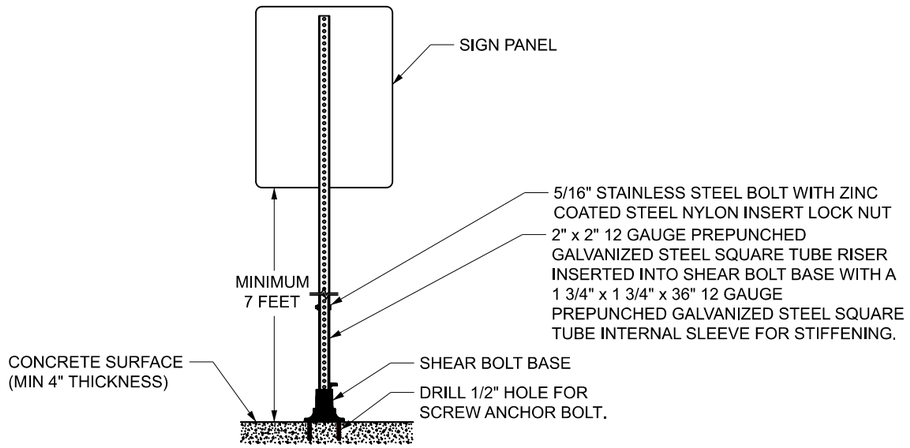
SAP 106-020-043, SAP 114-020-066, SAP 114-020-067
SAP 002-612-037, SAP 002-612-036 (CSAH 12)
SHEET NO. 60 OF 98 SHEETS

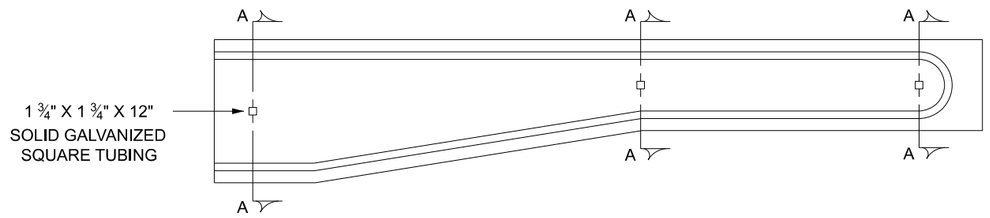
SIGN INSTALLATION TYPICALS

SHEAR BOLT BASE MOUNTED TO CONCRETE SURFACE

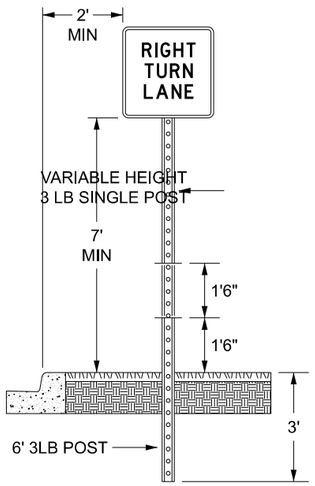


RISER POSTS TO BE MOUNTED CLOSE TO PLUMB. UP TO A MAXIMUM OF 1/2" OF SHIM WASHERS MAY BE USED BETWEEN SHEAR BOLT BASE AND CONCRETE FOR LEVELING. IF MORE THAN 1/2" OF SHIMS ARE REQUIRED, THEN CORE THROUGH THE CONCRETE.

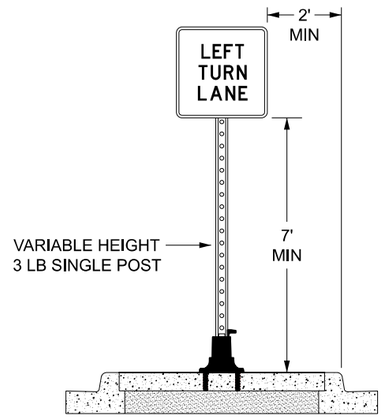
SECTION A-A



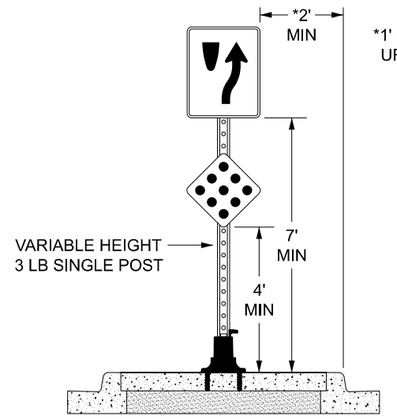
GROUND POST MOUNT SIGN INSTALLATION TYPICAL



ISLAND MOUNT BREAK-AWAY SIGN INSTALLATION TYPICAL



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



*1' MIN FOR NARROW URBAN LOCATIONS

INSTALLATION NEAR SHARED-USE PATHWAY (MN MUTCD):

- THE MINIMUM HEIGHT MEASURED VERTICALLY FROM THE SHARED-USE PATHWAY TO THE BOTTOM OF THE SIGN SHALL BE 7 FEET. IF A SECONDARY SIGN IS MOUNTED BELOW THE PRIMARY SIGN AND IS MOUNTED LESS THAN 7 FEET, IT SHALL NOT PROJECT MORE THAN 4 INCHES INTO THE SHARED-USE PATHWAY.

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SAP 002-612-037, SAP 002-612-036 (CSAH 12)
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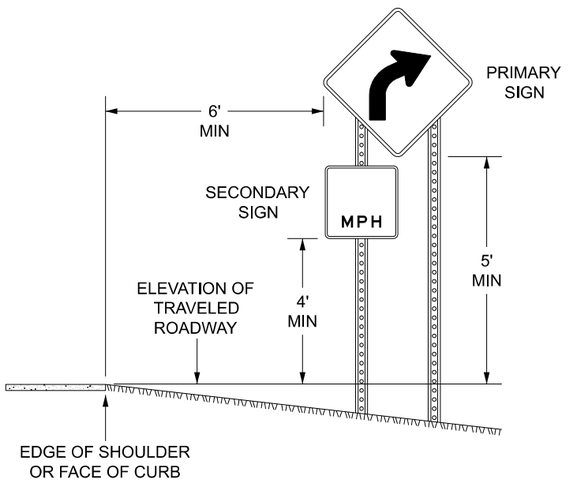
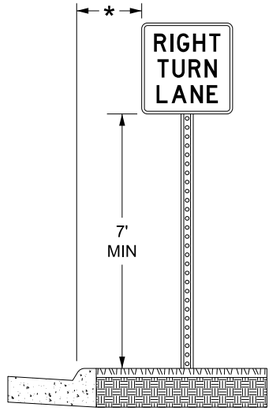
SIGN PLACEMENT TYPICALS

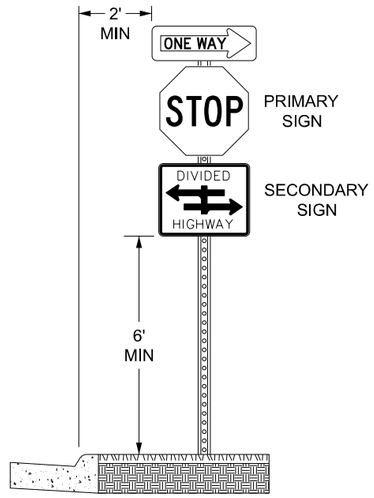
RURAL

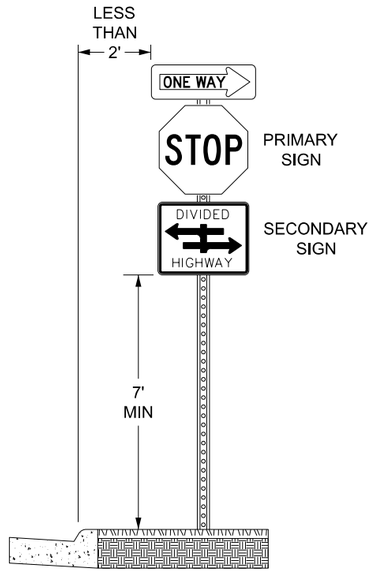


URBAN

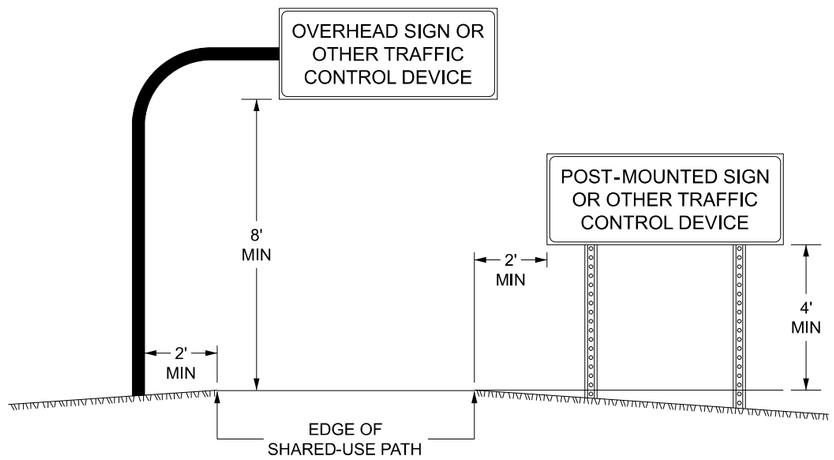


* 2' - NARROW BOULEVARD (≤ 8' WIDE)
  6' - WIDE BOULEVARD





SHARED-USE PATH



NOTES:

- ALL DIMENSIONS ARE MINIMUMS.
- MAINTAIN A DISTANCE OF 2' BETWEEN TRAFFIC CONTROL DEVICE AND SHARED-USE PATH.
- 7' SIGN CLEARANCE IF 2' DISTANCE BETWEEN SIGN AND SHARED-USE PATH CANNOT BE MAINTAINED.

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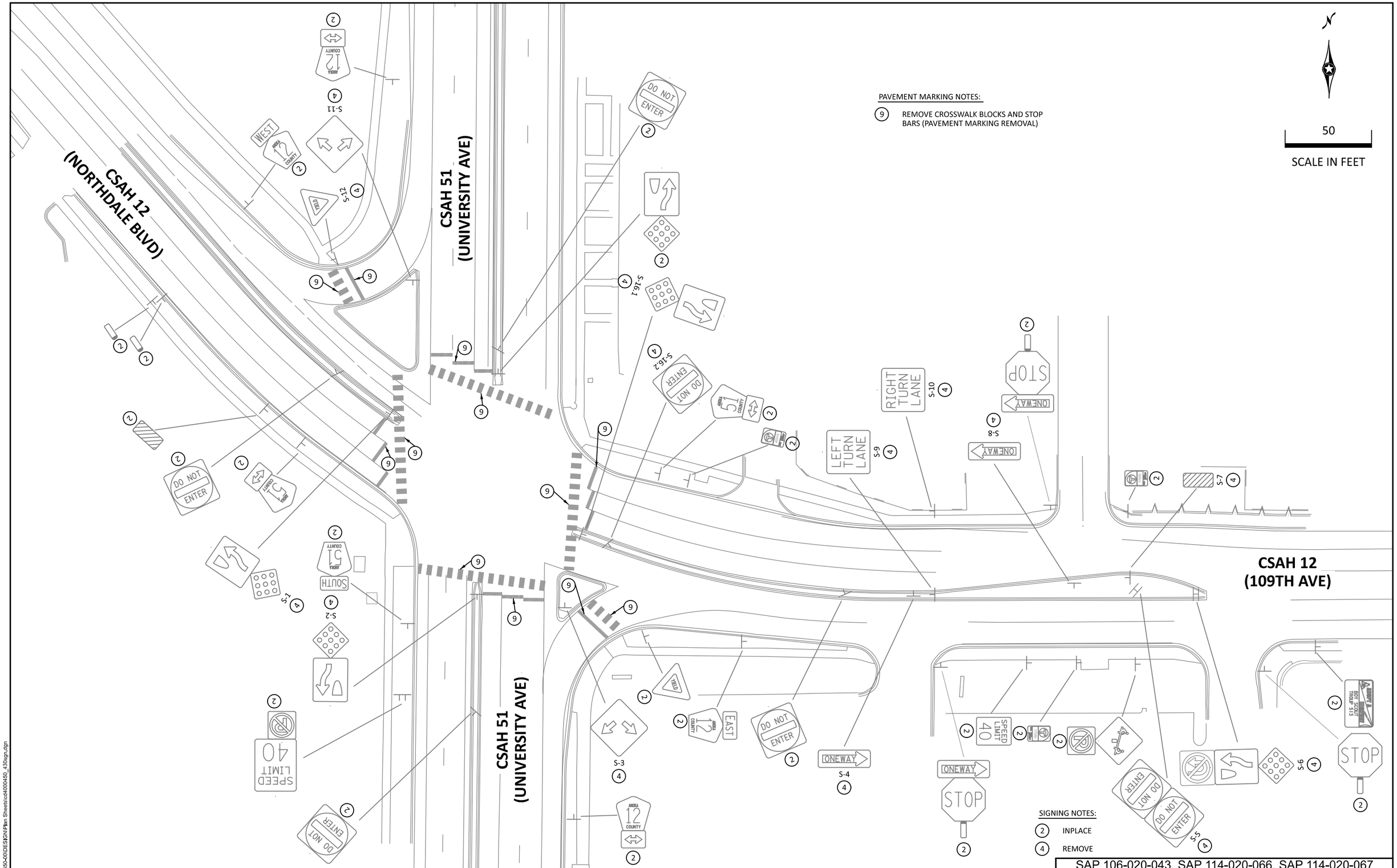
SAP 106-020-043, SAP 114-020-066, SAP 114-020-067
SAP 002-612-037, SAP 002-612-036 (CSAH 12)
SHEET NO. 62 OF 98 SHEETS



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EXISTING LAYOUT

SAP 106-020-043, SAP 114-020-066, SAP 114-020-067
SAP 002-612-037, SAP 002-612-036 (CSAH 12)
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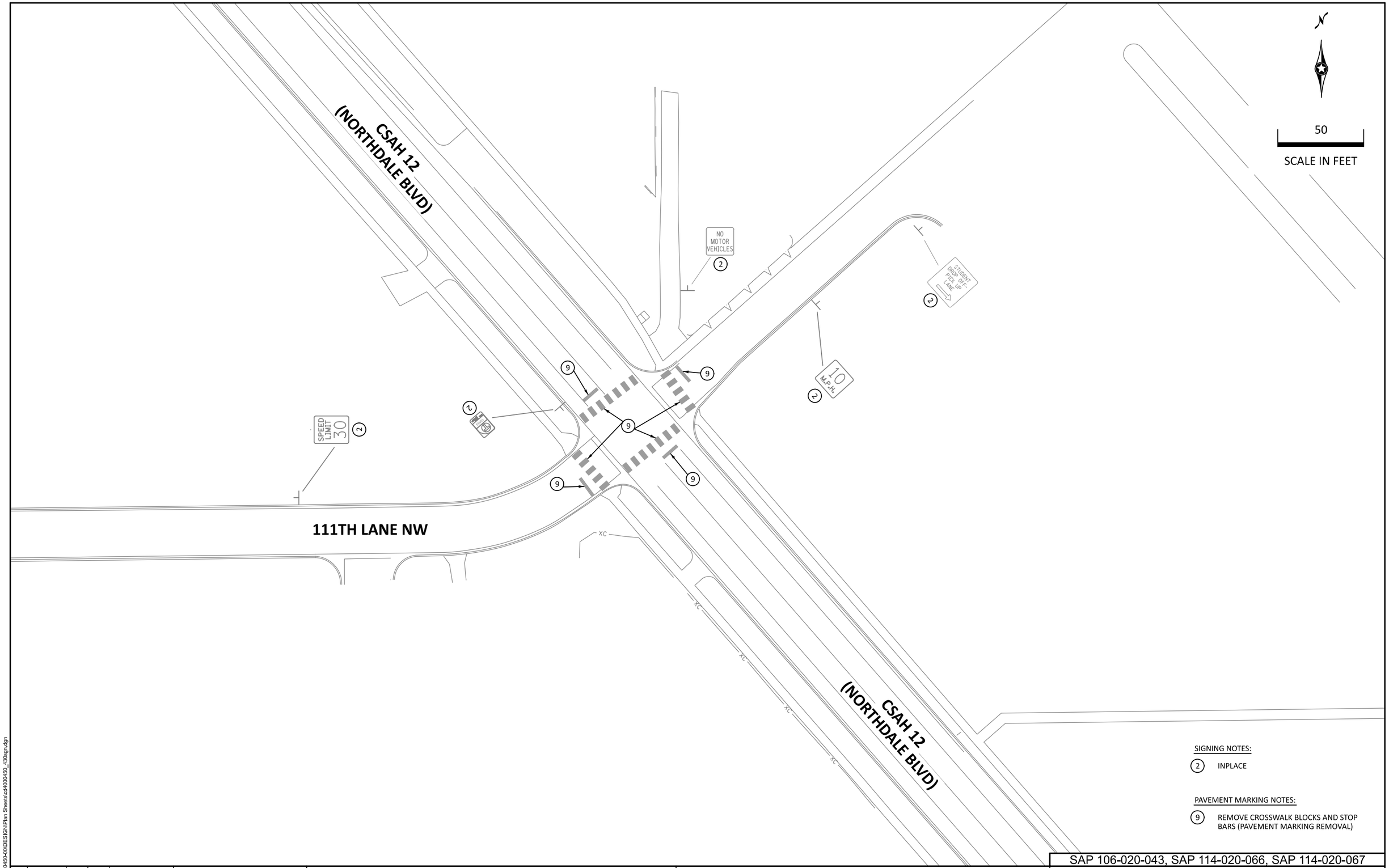

SIGNING NOTES:

(2) INPLACE

PAVEMENT MARKING NOTES:

(9) REMOVE CROSSWALK BLOCKS AND STOP BARS (PAVEMENT MARKING REMOVAL)

NO	DATE	DWN	CKD	REVISIONS

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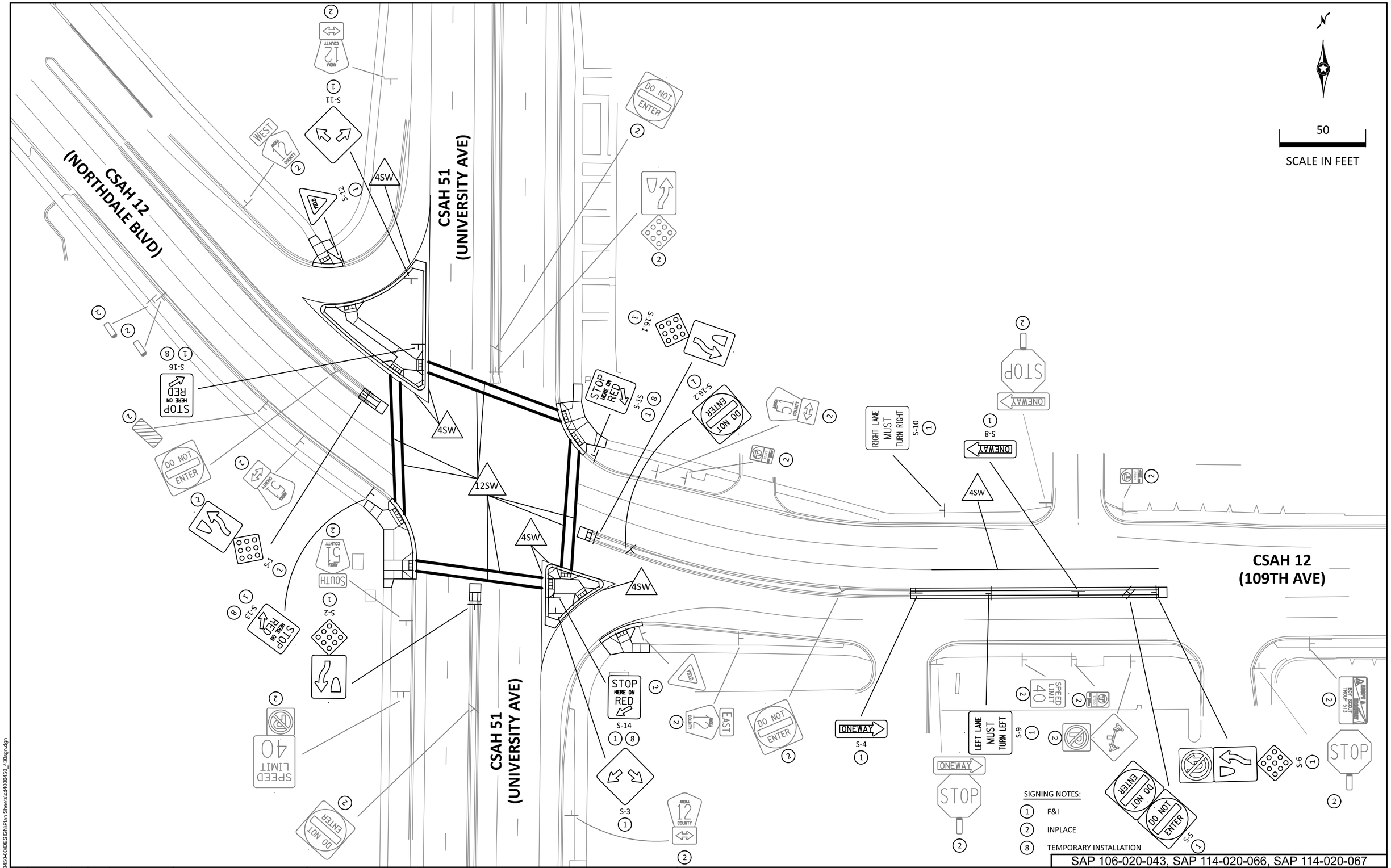

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SIGNING AND PAVEMENT MARKING PLANS

PROPOSED LAYOUT

SAP 106-020-043, SAP 114-020-066, SAP 114-020-067
SAP 002-612-037, SAP 002-612-036 (CSAH 12)
SHEET NO. 65 OF 98 SHEETS

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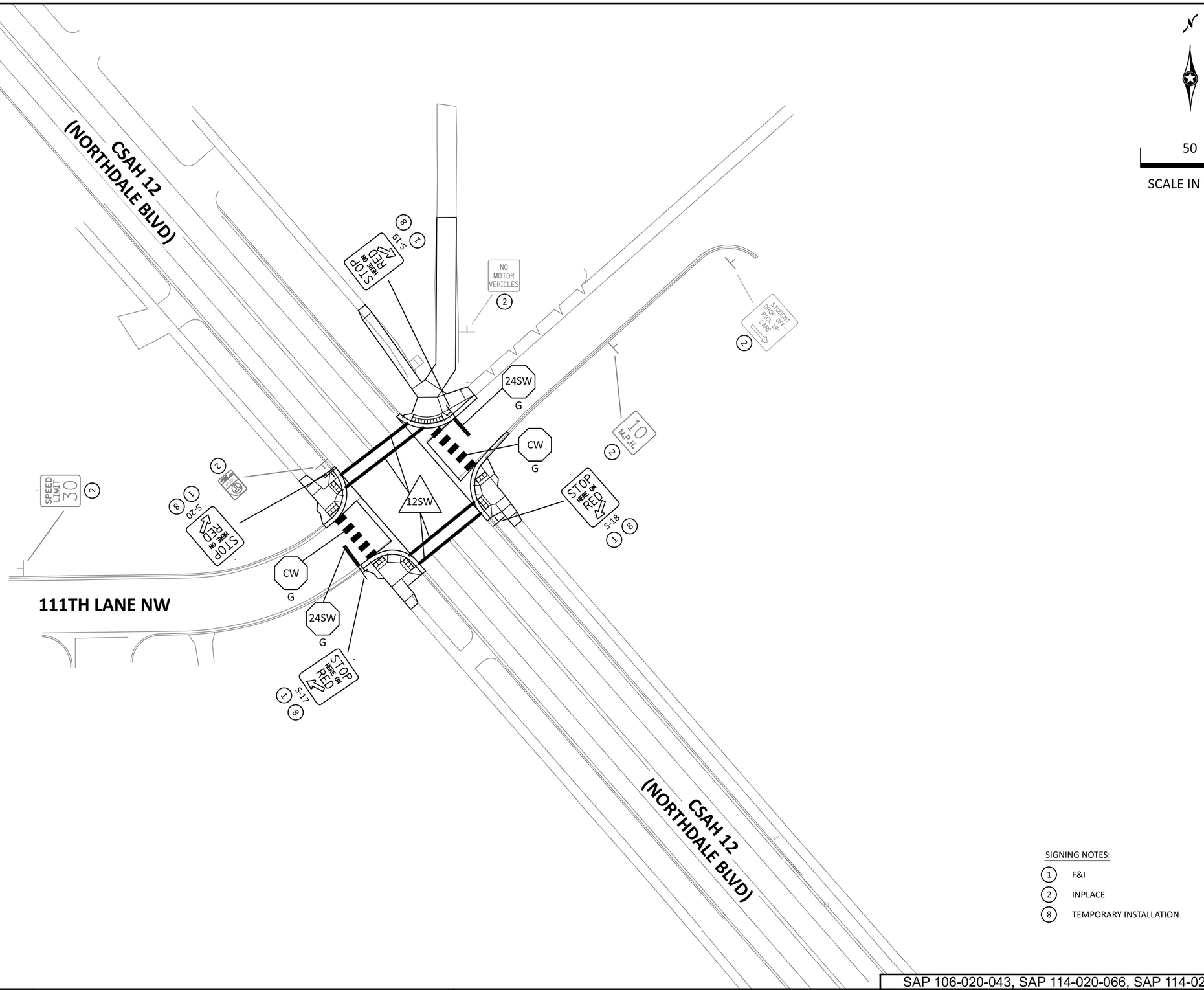

SIGNING NOTES:

1. F&I
2. INPLACE
8. TEMPORARY INSTALLATION

NO	DATE	DWN	CKD	REVISIONS

ALLIANT

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PRINT NAME: MICHAEL P. MCCURDY
SIGNATURE: Michael P. McCurdy
DATE 02/14/2025 LICENSE # 45902

SIGNING AND PAVEMENT MARKING PLANS

PROPOSED LAYOUT

SAP 106-020-043, SAP 114-020-066, SAP 114-020-067
SAP 002-612-037, SAP 002-612-036 (CSAH 12)
SHEET NO. 66 OF 98 SHEETS

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2/14/2025
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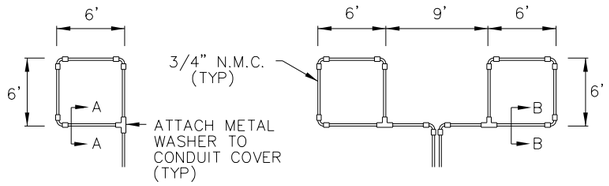
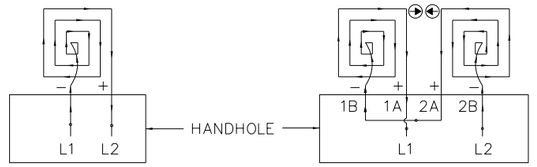


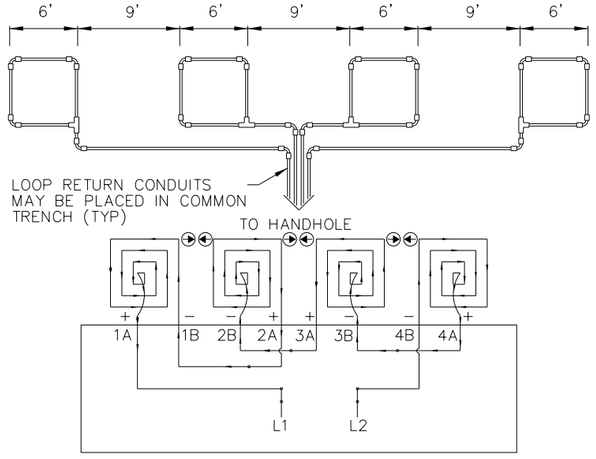


LOOP DETECTOR DETAIL 'A'
(LOOP PHASING FOR SINGLE CONNECTION)

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

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

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

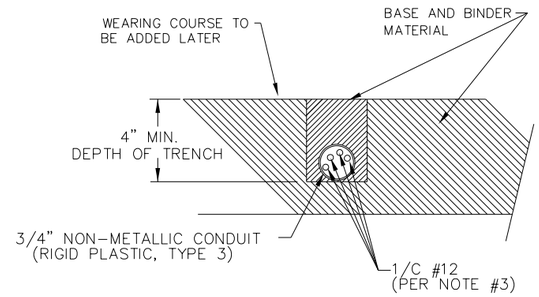


LOOP CONNECTIONS SHALL BE LABELED AND SPLICED IN THE HANDHOLE AS FOLLOWS:

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

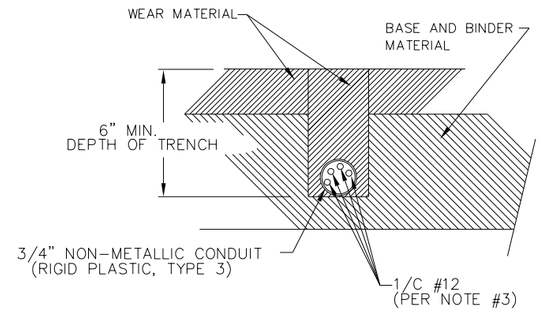
SPLICE CONTROL CABLE TO L1 & L2 IN HANDHOLE. ALL CONDUCTORS SHALL BE TAGGED IN HANDHOLE (1A, 1B, ECT)

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



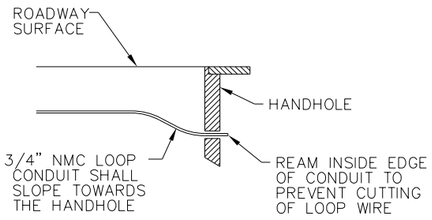
SECTION A-A

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.

LEGEND OF SYMBOLS

CONTROLLER AND SERVICE EQUIP. NO's — (A)
SIGNAL BASE NO. — (1)
SIGNAL FACE NO. — (1-1)
LUMINAIRE NO. — 1
CONTROLLER AND CABINET
CONTROLLER AND CABINET – IN PLACE
HANDHOLE
HANDHOLE – IN PLACE
RIGID STEEL CONDUIT (RSC)
RIGID STEEL CONDUIT (RSC) – IN PLACE
SIGNAL FACE WITH BACKGROUND SHIELD
SIGNAL FACE W/O BACKGROUND SHIELD
SIGNAL FACE – IN PLACE
PEDESTRIAN INDICATORS
PEDESTRIAN INDICATORS – IN PLACE
PEDESTRIAN PUSH BUTTONS ON PEDESTAL OR POLE
PEDESTRIAN PUSH BUTTON STATION
TRAFFIC SIGNAL PEDESTAL
TRAFFIC SIGNAL PEDESTAL – INPLACE
TRAFFIC SIGNAL POLE AND MAST ARM
TRAFFIC SIGNAL POLE AND MAST ARM – IN PLACE
STREET LIGHT POLE AND LUMINAIRE
STREET LIGHT POLE AND LUMINAIRE – IN PLACE
MAST ARM AND LUMINAIRE
MAST ARM AND LUMINAIRE – INPLACE
WOOD POLE
WOOD POLE – IN PLACE
SOURCE OF POWER
RAILROAD SIGNAL – IN PLACE
RIGHT OF WAY LINE — 3
CENTERLINE
EDGE OF ROADWAY
SHOULDERLINE
CURB LINE
STOP BAR
EMERGENCY VEHICLE PREEMPTION DETECTOR

ABBREVIATIONS

3-1(EG)	SIGNAL HEAD PHASE "3" – NO "1"
BR. GR.	BARE GROUND
CH. SW.	CHECK SWITCH
CLR	CLEAR
D2-1(EG)	DETECTOR PHASE "2" – NO. "1"
DWK	DON'T WALK
EQG	EQUIPMENT GROUND
EVP	EMERGENCY VEHICLE PRE-EMPTION
F&I	FURNISH AND INSTALL
FL	FLASH/FLASHING
G	GREEN
GLTA	GREEN LEFT TURN ARROW
GRN	GREEN
GR. R	GROUND ROD
GRTA	GREEN RIGHT TURN ARROW
GTHA	GREEN THRU ARROW
HH	HANDHOLE
HPS	HIGH PRESSURE SODIUM
JB	JUNCTION BOX
LUM	LUMINAIRE
NEU	NEUTRAL
NMC	NONMETALLIC CONDUIT
P2-1(EG)	PED INDICATION PHASE "2" – NO. "1"
PB	PUSH BUTTON
PB2-1(EG)	PUSH BUTTON PHASE "2" – NO. "1"
PEC	PHOTOELECTRIC CELL
PED	PEDESTRIAN
R	RED
R&S	REMOVE AND SALVAGE
RLTA	RED LEFT TURN ARROW
RRTA	RED RIGHT TURN ARROW
RSC	RIGID STEEL CONDUIT
SOP	SOURCE OF POWER
SPR	SPARE
ST. LHT	STREET LIGHT
STA	STATION
SW	SWITCH
SWD	SWITCHED
S&R	SALVAGE AND REINSTALL
TDW	TELEPHONE DROP WIRE
WLK	WALK
YEL	YELLOW
YLTA	YELLOW LEFT TURN ARROW
YRTA	YELLOW RIGHT TURN ARROW
YTHA	YELLOW THRU ARROW

SIGNAL SYSTEM & INTERCONNECT TABULATION — SS

DESCRIPTION	UNIT	TOTAL QUANTITY
REMOVE SIGNAL SYSTEM A	EACH	1
REMOVE SIGNAL SYSTEM B	EACH	1
EMERGENCY VEHICLE PREEMPTION SYSTEM A	LUMP SUM	1
EMERGENCY VEHICLE PREEMPTION SYSTEM B	LUMP SUM	1
TRAFFIC CONTROL INTERCONNECT	LUMP SUM	1
TRAFIC CONTROL SIGNAL SYSTEM A	SYS	1
TRAFIC CONTROL SIGNAL SYSTEM B	SYS	1
TEMPORARY SIGNAL SYSTEM A	SYS	1

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TRAFFIC CONTROL SIGNAL SYSTEM PLANS

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SAP 002-612-037, SAP 002-612-036 (CSAH 12)
SHEET NO. 67 OF 98 SHEETS

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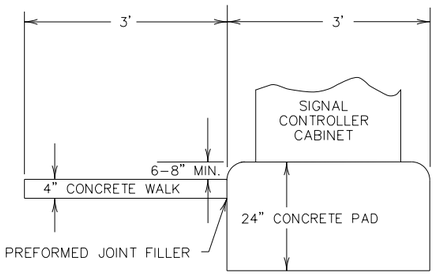
TYPICAL PAD WITH CONTROLLER CABINET AND SERVICE CABINET

SEE INTERSECTION LAYOUT FOR CABLE INFORMATION (NOT TO SCALE)

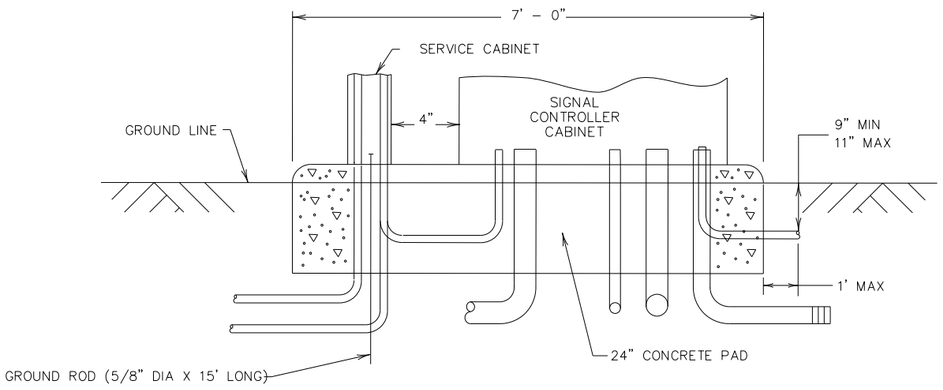
NOTES:

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.

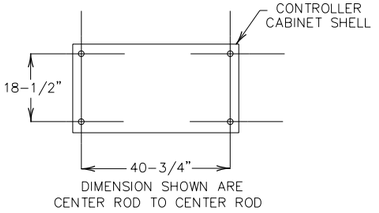
SIDE VIEW



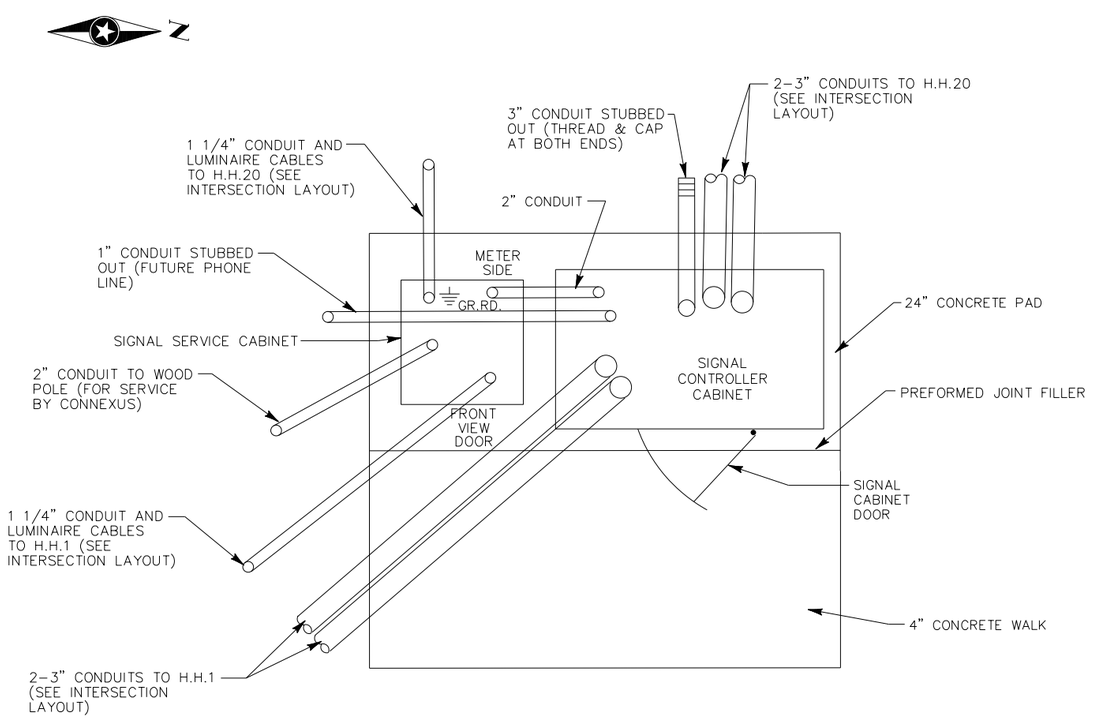
FRONT VIEW



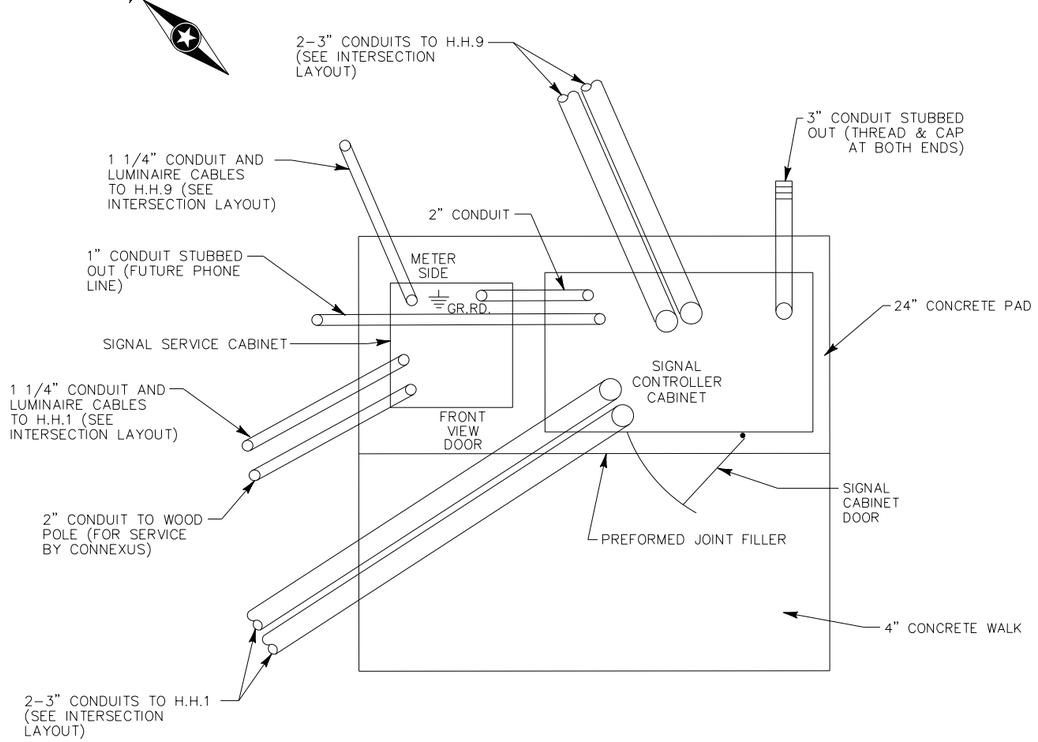
CONTROLLER CABINET TYPE "P" & "R" BOLT PATTERN



PLAN VIEW
SIGNAL SYSTEM "A"



PLAN VIEW
SIGNAL SYSTEM "B"



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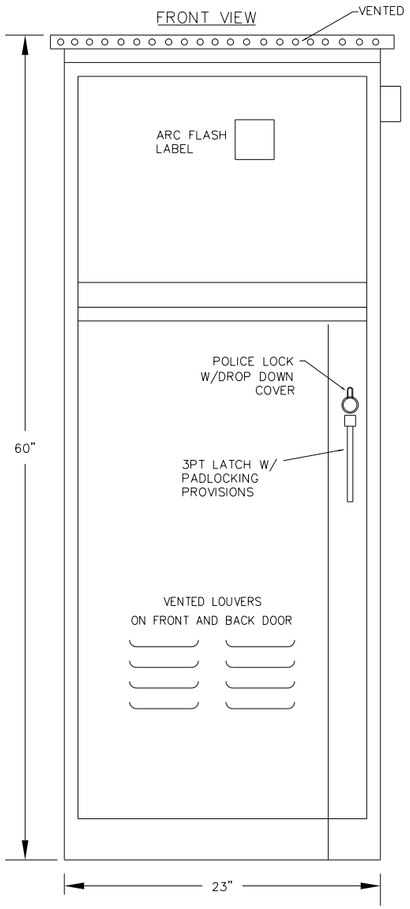
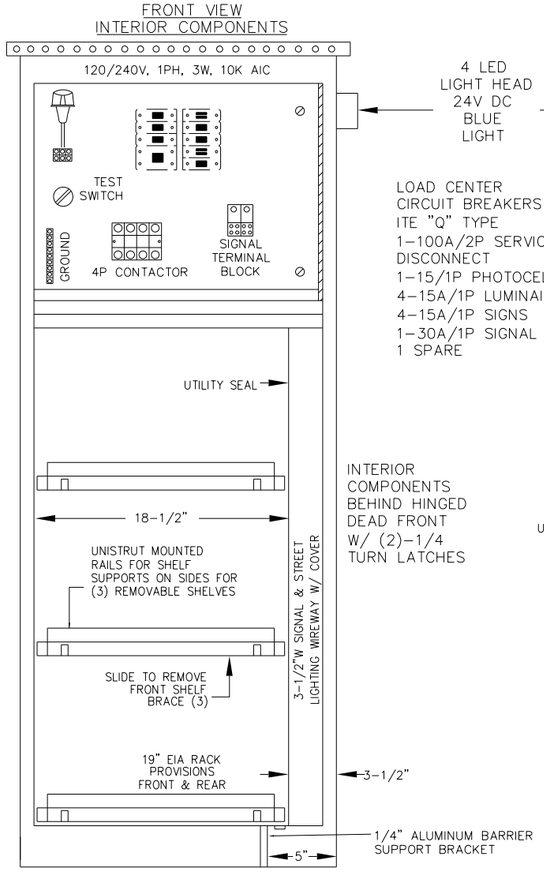
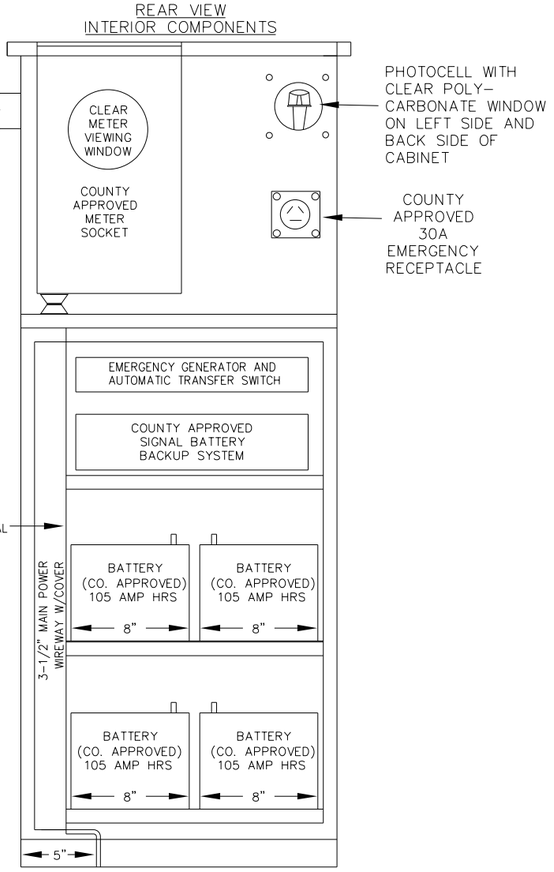
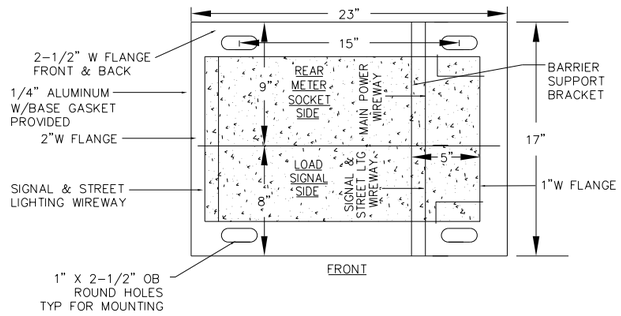




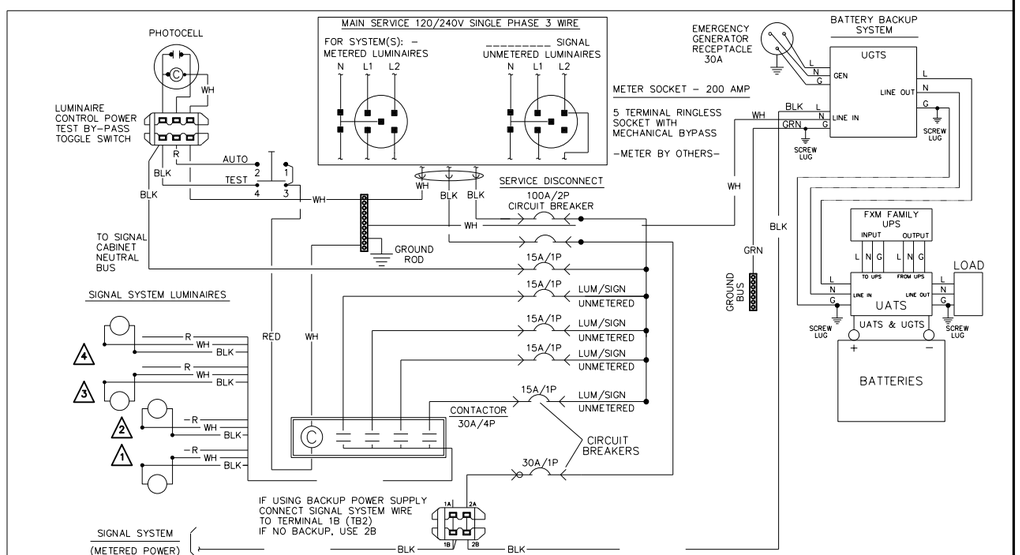




CABINET CONSTRUCTION

-NEMA 3R
-1/8" ALUMINUM 5052-H32
-ANODIZED 30 MINUTE CLEAR
-NEOPRENE GASKETED DOORS
-NON-CORRODING HARDWARE
-ETL LISTED IN ACCORDANCE W/UL508A

SEE SPECIAL PROVISIONS AND STATEMENT OF ESTIMATED QUANTITIES REGARDING SEPARATE PAY ITEM FOR FURNISHING & INSTALLING NEW BATTERY BACK-UP SIGNAL SERVICE CABINET.



FEED POINT WIRING DIAGRAM

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SHEET NO. 69 OF 98 SHEETS

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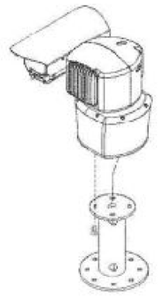
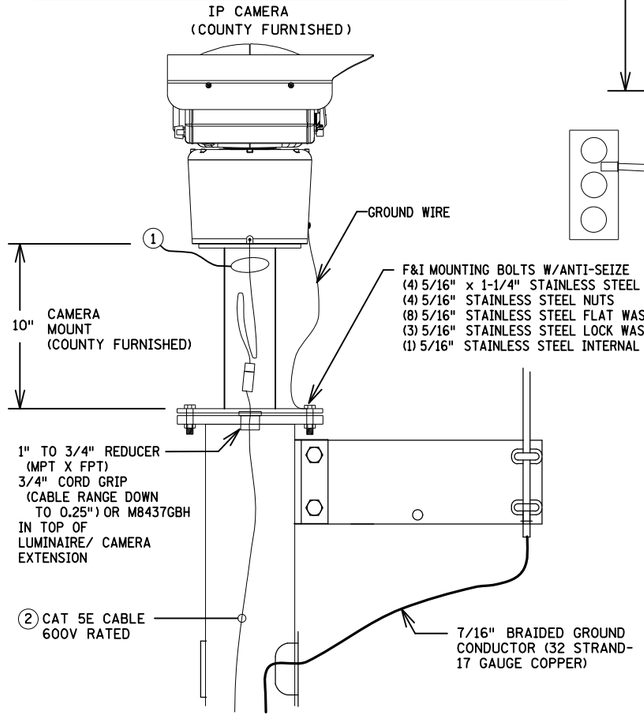
ISOMETRIC VIEW- CAMERA & MOUNT

(COUNTY FURNISHED)



CAMERA & MOUNT AT TOP OF EXTENSION

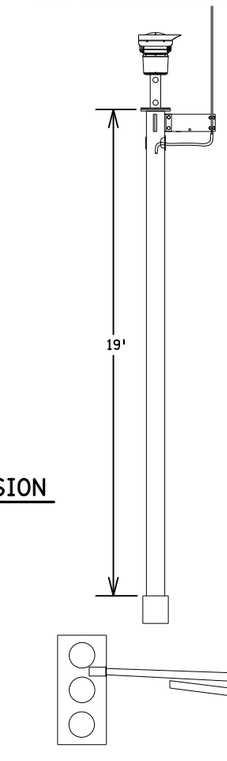


1 THE CAMERA IS SUPPLIED WITH 20" CABLE PIGTAIL. IT IS TERMINATED WITH A RJ45 PLUG AS INDICATED ON THE IP CAMERA CONNECTOR DETAIL SHEET.

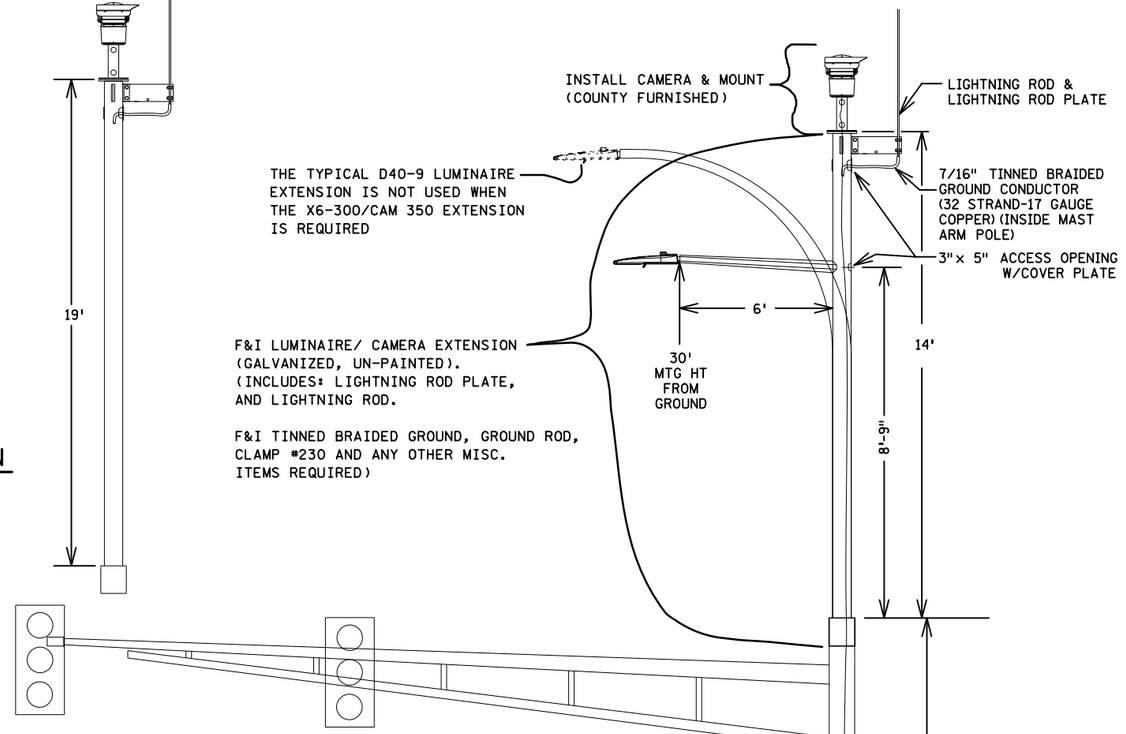
2 F&I ETHERNET CABLE IN ACCORDANCE WITH 3815.2C.6.d (CAT 5E -300V RATED), BETWEEN THE SIGNAL CONTROL CABINET AND THE TOP OF THE POLE. TERMINATE THE END OF THE CABLE WITH UNSHIELDED RJ-45 (T-568B) CONNECTORS. ALL FIELD TERMINATIONS/CONNECTORS SHALL BE INSTALLED AS RECOMMENDED BY THE MANUFACTURER USING THE SPECIFIED INSTALLATION TOOL(S).

X-350 CAMERA EXTENSION

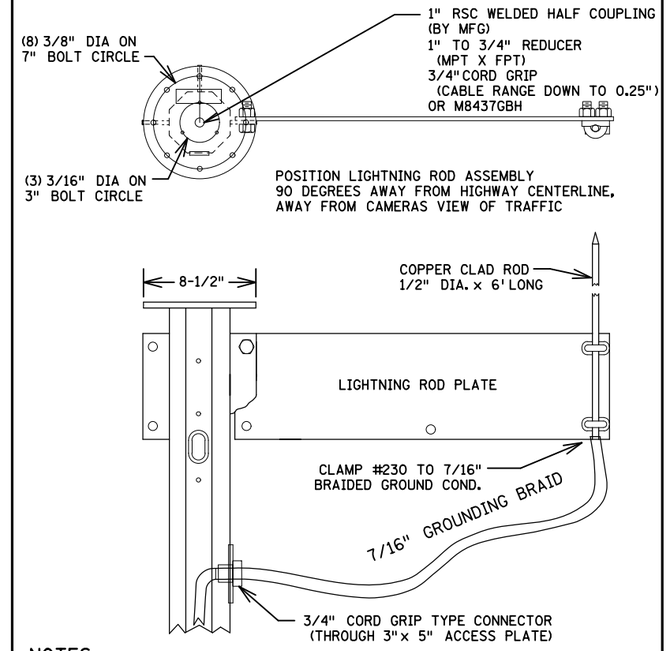
(USED WHEN A LUMINAIRE IS NOT REQUIRED)



X6-300/CAM 350 EXTENSION



EXTENSION TOP & LIGHTNING PROTECTION DETAIL



NOTES:

1) FURNISH & INSTALL 7/16" TINNED BRAIDED GROUND CONDUCTOR INSIDE MAST ARM POLE AND THROUGH INPLACE CONDUIT TO CLOSEST HANDHOLE (SEE LAYOUT).
2) CONTRACTOR SHALL CLAMP #230 7/16" BRAIDED GROUND WIRE TO GROUND ROD IN HANDHOLE.
3) NO SPLICES ALLOWED IN 7/16" TINNED BRAIDED GROUND WIRE.
4) CONTRACTOR SHALL CUT A 3/4 INCH KNOCK OUT HOLE IN THE INSPECTION PLATE NEAR THE CAMERA AND PLACE A 3/4 INCH CORD GRIP TYPE FITTING TO RUN THE 7/16 INCH TINNED BRAIDED GROUND CONDUCTOR INTO THE POLE.

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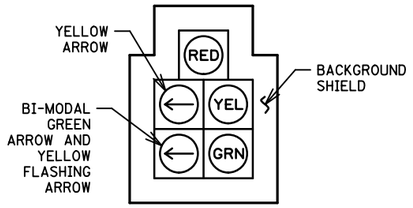
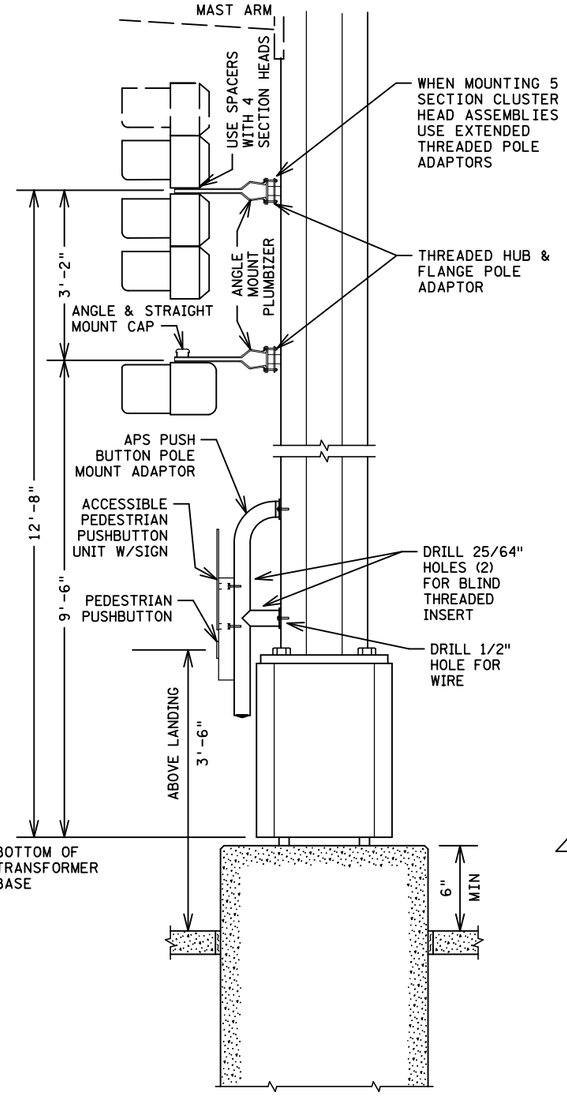
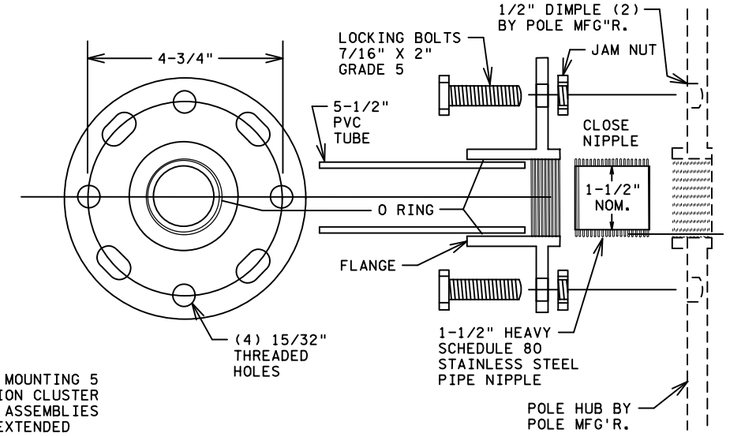


5 SECTION FYA CLUSTER HEAD DETAIL

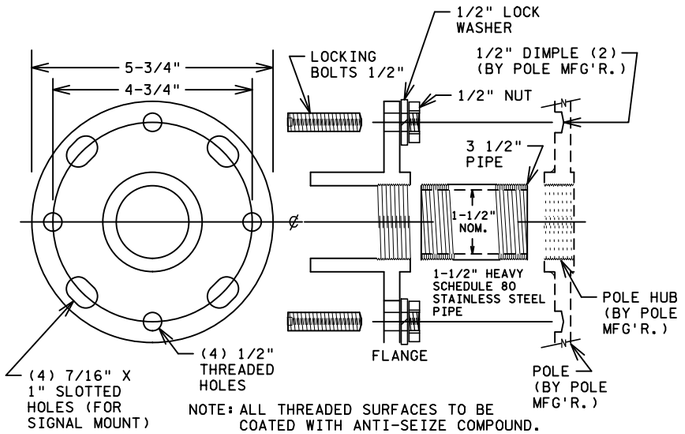


TYPICAL SIGNAL POLE MOUNTING

NOT TO SCALE



THREADED HUB AND FLANGE POLE ADAPTOR

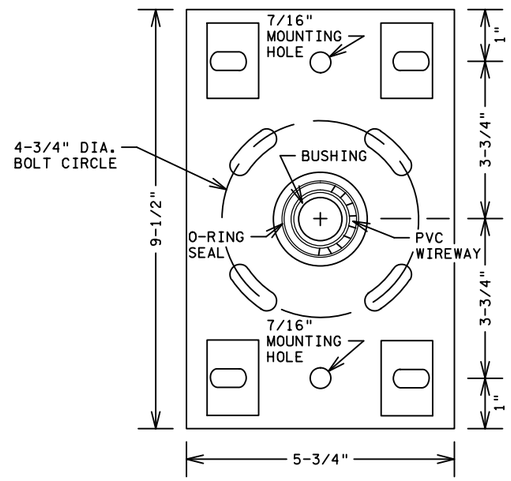


NOTE: ALL THREADED SURFACES TO BE COATED WITH ANTI-SEIZE COMPOUND.

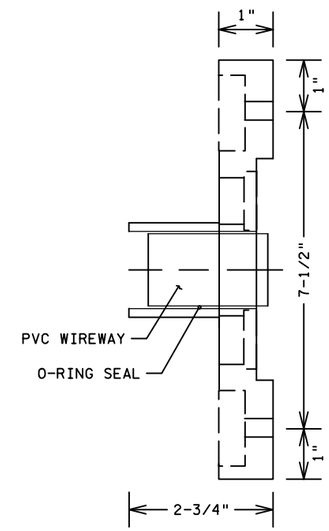
EXTENDED THREADED POLE ADAPTER

NOTES:

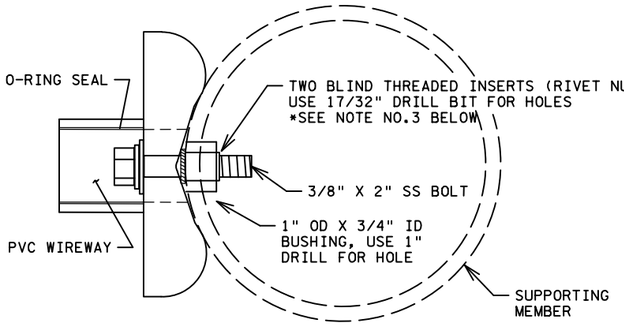
1. ALL THREADED SURFACES TO BE COATED WITH ANTI-SEIZE COMPOUND.
2. USE SIGNAL HEAD MOUNTED SPACERS FOR 4 SECTION POLY HEADS.
3. SEE STANDARD PLATE NUMBER 8123 FOR ADDITIONAL SIGNAL POLE DETAILS.
4. EXTENDED THREADED POLE ADAPTOR ONLY USED WITH 5 SECTION CLUSTER HEADS.



BOLT ON HUB & FLANGE



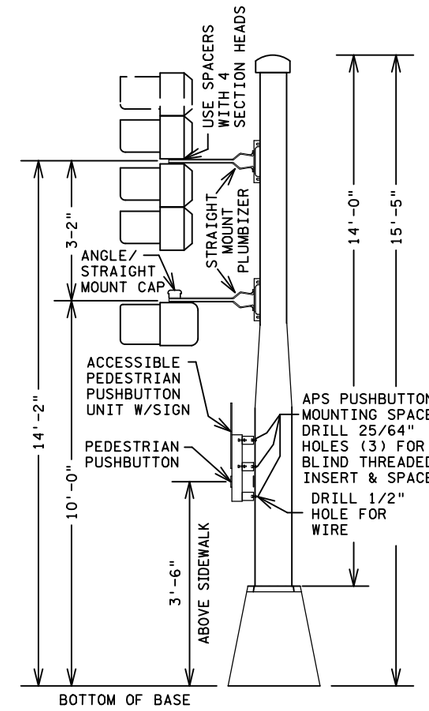
SIDE VIEW



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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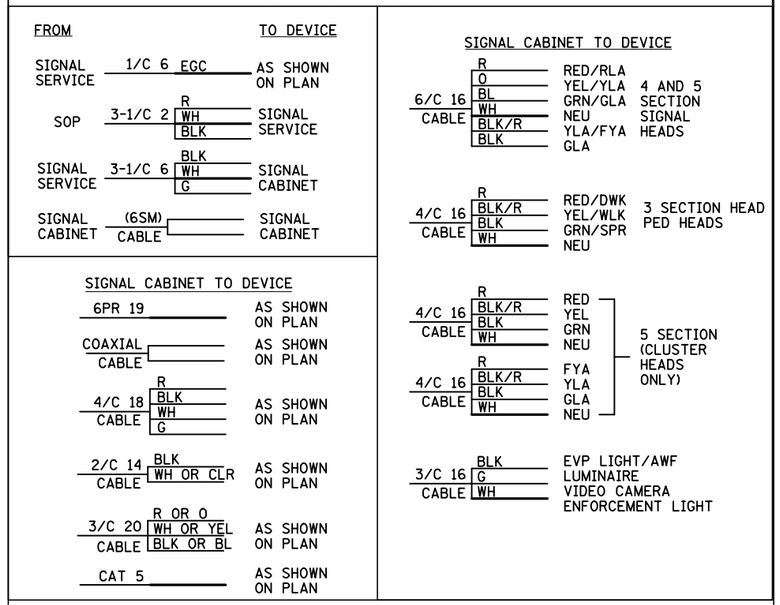
CONDUCTOR COLOR CODE



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

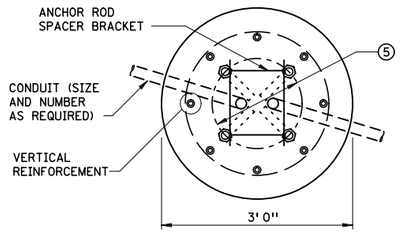
X = SIGNAL SYSTEM PHASE NUMBER; REFER TO THE PLAN
Y = SIGNAL SYSTEM ASSIGNED COMPONENT NUMBER; REFER TO THE PLAN
Z * = DIRECTION
FURNISH AND INSTALL LABELS ON CABLES WITH ABBREVIATIONS SHOWN ON THIS TABLE AND IN ACCORDANCE WITH THE WIRING DIAGRAM.

WIRE COLOR CODE KEY

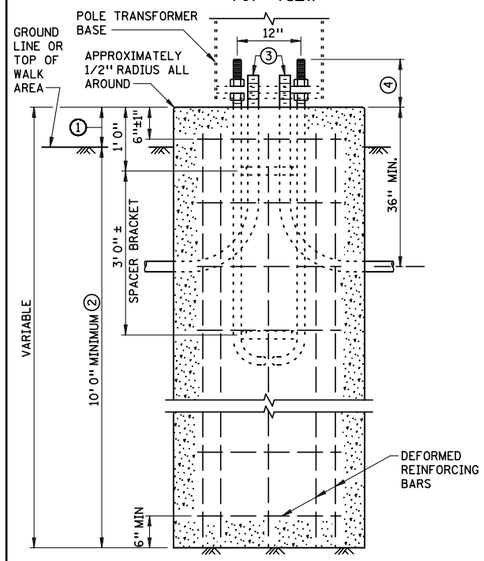
R	Red
O	Orange
BL	Blue
WH	White
BLK	Black
BRN	Brown
CL	Clear
G	Green
R/BLK	Red with Black Stripe
O/BLK	Orange with Black Stripe
BL/BLK	Blue with Black Stripe
WH/BLK	White with Black Stripe
WH/R	White with Red Stripe
BLK/WH	Black with White Stripe
BLK/R	Black with Red Stripe

CONDUCTOR AND CABLE SPECIFICATION CHART

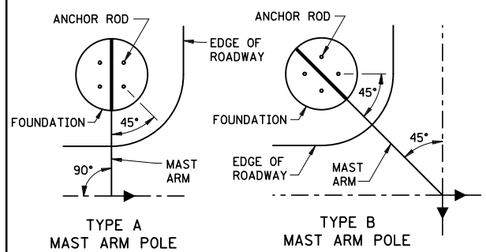
NUMBER OF CONDUCTORS & AWG SIZE	TYPE	Specification Number
1/C 2	INDIVIDUAL SERVICE CONDUCTORS	3815.2B.1
1/C 6	FEEDER AND BRANCH CONDUCTORS	3815.2B.1
1/C 6 INS.GR.	Grounding Conductors	3815.2B.5
2/C 14	Loop Detector Lead-In Cable	3815.2C.4
3/C 16	Signal Control Cable	SPEC. PROV.
4/C 16	Signal Control Cable	SPEC. PROV.
6/C 16	Signal Control Cable	SPEC. PROV.
4PR 24	ETHERNET CABLE	3815.2C.6.d
6PR 19	Telephone Cables Outdoor	3815.2C.6.b
3/C 20	EVP Detector Cable	3815.2C.5



TOP VIEW



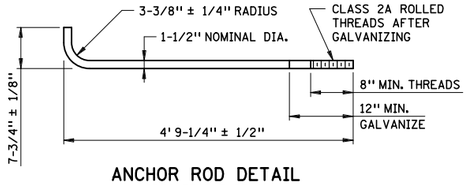
VERTICAL SECTION



TYPE A MAST ARM POLE

TYPE B MAST ARM POLE

ANCHOR ROD PLACEMENT
(WHEN USED WITH MAST ARM POLE)



ANCHOR ROD DETAIL
(SPEC. 3385 TYPE C)

NOTES:

REINFORCING BARS SHALL BE GRADE 60 AND MEET THE REQUIREMENTS OF ASTM A 706 (WELDABLE REBARS) AND ARE IDENTIFIED BY A DISTINGUISHING MARK OF "W" ROLLED ONTO THE SURFACE OF ONE SIDE OF THE BAR. WELDING SHALL BE PER ANSI/AWS D1.4. USE 8-NO. 7 BARS FOR VERTICAL REINFORCEMENT, SPACED ON A 27" DIA. CIRCLE. HORZONTAL (CIRCULAR) BARS TO BE NO. 4 SPACED AT 1' 0" MAXIMUM VERTICAL SPACING. SECURELY TIE OR WELD (OR COMBINATION) ALL REINFORCEMENT TOGETHER.

ANCHOR RODS SHALL BE GALVANIZED IN ACCORDANCE WITH SPEC. 3392 AND SHALL BE 1-1/2" NOMINAL DIA. AND CUT LENGTH OF 60" BEFORE BENDING. (SEE ANCHOR ROD DETAIL). ANCHOR ROD CAGES SHALL BE DESIGNED WITHOUT WELDING ONTO THE ANCHOR RODS.

ALL BACKFILLING AROUND THE FOUNDATION MUST BE IN ACCORDANCE WITH 2451.

ALL EXCAVATIONS MUST BE PROPERLY COMPACTED IN ACCORDANCE WITH 2451.

CONCRETE MIX 3G52.

PREFORMED JOINT FILLER SHALL BE USED BETWEEN FOUNDATION AND SIDEWALK OR CONCRETE AREAS.

A FIBER FORMING TUBE SHALL BE USED IN FORMING THE FOUNDATION, OR AS APPROVED BY THE ENGINEER.

OPEN ENDS OF ALL CONDUIT INTO FOUNDATION SHALL BE POSITIONED INSIDE THE ANCHOR ROD BOLT CIRCLE, AND CAPPED UNTIL CABLES ARE INSTALLED.

MAST ARM POLE STANDARDS SHALL NOT BE INSTALLED ON FOUNDATIONS UNTIL AT LEAST SEVEN DAYS OF CURING PERIOD HAVE ELAPSED.

ANTI-SEIZE COMPOUND THAT MEETS MIL-PRF-907E SPEC. SHALL BE APPLIED WITH A BRUSH TO ALL THREADS.

(1) THE ELEVATION OF THE TOP OF THE FOUNDATION SHALL ASSURE THAT THE VERTICAL CLEARANCE FROM THE BOTTOM OF ALL SIGNAL HEADS (INCLUDING BACKGROUND SHIELDS) TO THE PAVEMENT IS NOT LESS THAN 17 FT. NOR GREATER THAN 19 FT. THE TOP OF THE FOUNDATION MUST BE A MINIMUM OF 6" ABOVE THE GROUND LINE OR TOP OF SIDEWALK.

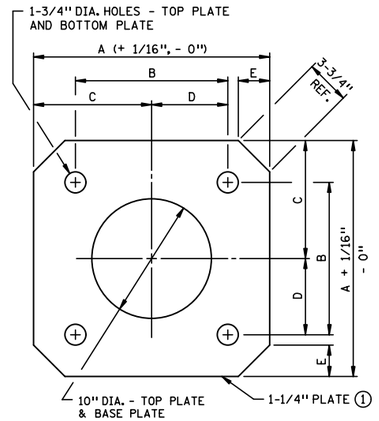
(2) DEPTH OF FOUNDATION MAY VARY IN PLANS OR SPECIAL PROVISIONS. DEPTH OF FOUNDATION MAY BE REDUCED 2 FEET WHEN PLACED IN SIDEWALK OR CONCRETE RAISED MEDIAN. FOUNDATION DEPTHS ARE BASED ON A SOIL FRICTION OF 30° AND A SOIL WEIGHT OF 120 LB/CF AND NO GROUNDWATER WITHIN THE GROUND SURFACE TO A DEPTH OF TWO TIMES THE WIDTH OR DIAMETER OF BOTTOM OF POLE FOUNDATION. A SOIL BORING OR CONE PENETRATION TEST (CPT) SOUNDING IS RECOMMENDED WHERE IN-SITU STRATIGRAPHY IS UNKNOWN OR QUESTIONABLE. ANY VARIATION IN THE DEPTH OF THE FOUNDATION REQUIRES AN APPROVAL BY THE DISTRICT SOILS ENGINEER.

(3) CONDUIT PER SPEC. 3801 OR 3803, SIZE AND NUMBER AS REQUIRED IN PLANS OR SPECIAL PROVISIONS, 4" MINIMUM AND 6" MAXIMUM PROJECTION ABOVE FOUNDATION, AND CAPPED UNTIL WIRING IS PLACED.

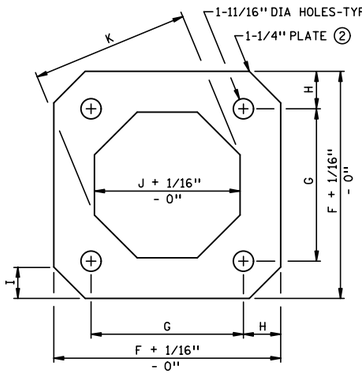
(4) 6" ANCHOR ROD PROJECTION (THREADED). SOME POLES (SUCH AS ROTATABLE T-BASE) MAY REQUIRE GREATER PROJECTION.

(5) FOUR ANCHOR RODS EQUALLY SPACED ON 16.97" DIA. BOLT CIRCLE (12" C. TO C.). EACH ANCHORAGE ROD SHALL HAVE TWO (2) HEAVY HEX LEVELING NUTS, AS PER ASTM A563 GRADE DH.

APPROVED JULY 15, 2015 STATE DESIGN ENGINEER	STATE OF MINNESOTA DEPARTMENT OF TRANSPORTATION POLE FOUNDATION (PA85)	SPECIFICATION REFERENCE 2565	STANDARD PLATE NO. 8120Q

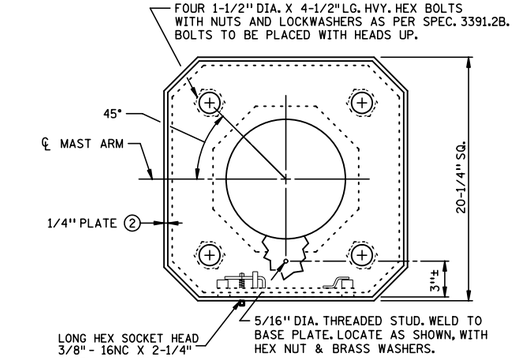


TOP & BASE PLATE DETAIL

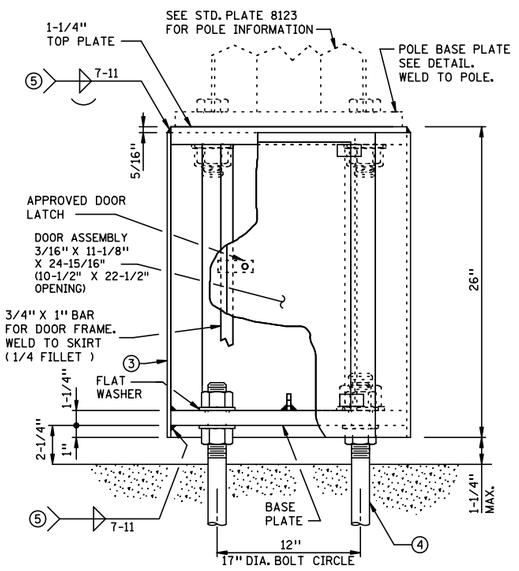


POLE BASE PLATE DETAIL

DIMENSION	TOP PLATE (1)	BASE PLATE (1)	POLE BASE PLATE (2)
A	19-3/4"	19-3/4"	
B	12-3/4"	12"	
C	9-7/8"	9-7/8"	
D	6-3/8"	6"	
E	2-5/8"	2-5/8"	
F			19"
G			12-3/4"
H			3-1/8"
I			2-5/8"
J			12-3/16"
K			13-3/16"



PLAN



ELEVATION

NOTES:

ANTI-SEIZE COMPOUND THAT MEETS MIL-PRF-907E SPEC. SHALL BE APPLIED WITH A BRUSH TO ALL THREADS.

FOR SUBSTITUTION OF MATERIALS, SEE SPEC. 1605.

(1) STRUCTURAL STEEL AS PER SPEC. 3306.

(2) STRUCTURAL STEEL AS PER SPEC. 3309.

(3) GALVANIZE TRANSFORMER BASE AS PER SPEC. 3394 AFTER FABRICATION. GALVANIZE ALL HARDWARE AS PER SPEC. 3392, EXCEPT STAINLESS STEEL AND BRASS.

(4) SEE STANDARD PLATE 8120 FOR POLE FOUNDATION DETAILS.

(5) FABRICATE STRUCTURAL METALS PER SPEC. 2471.

APPROVED APRIL 5, 2013 STATE DESIGN ENGINEER	STATE OF MINNESOTA DEPARTMENT OF TRANSPORTATION TRANSFORMER BASE AND POLE BASE PLATE (PA85)	SPECIFICATION REFERENCE 2565	STANDARD PLATE NO. 8121H 1 OF 2

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2/14/2025
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NO	DATE	DWN	CKD	REVISIONS

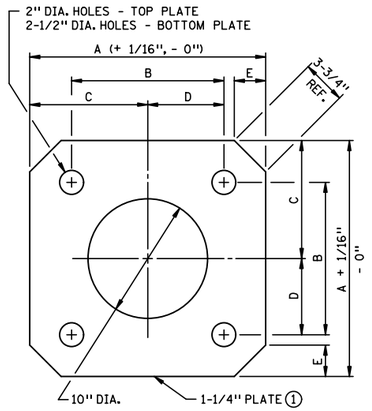
ALLIANT

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

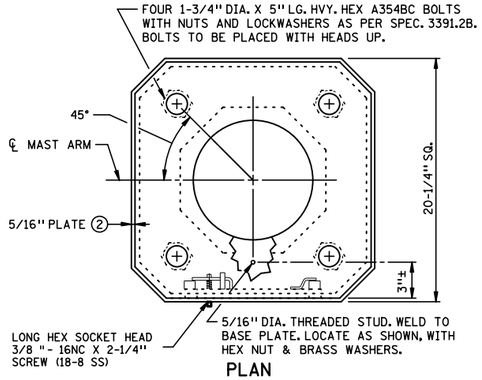
PRINT NAME: MICHAEL P. MCCURDY
SIGNATURE: Michael P. McCurdy
DATE 02/14/2025 LICENSE # 45902

TRAFFIC CONTROL SIGNAL SYSTEM PLANS

SAP 106-020-043, SAP 114-020-066, SAP 114-020-067
SAP 002-612-037, SAP 002-612-036 (CSAH 12)
SHEET NO. 73 OF 98 SHEETS



TOP & BASE PLATE DETAIL



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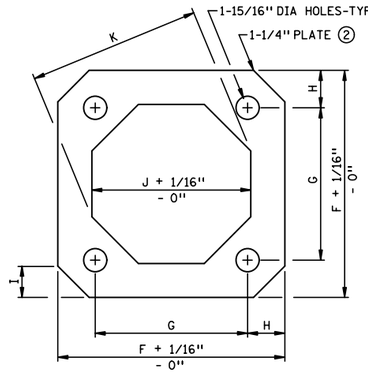
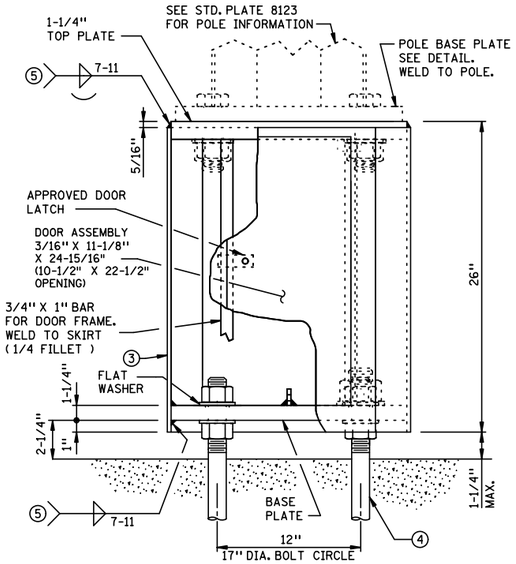


POLE BASE PLATE DETAIL



ELEVATION

DIMENSION	TOP (1) PLATE	BASE (1) PLATE	POLE (2) BASE PLATE
A	19-3/4"	19-3/4"	
B	12-3/4"	12"	
C	9-7/8"	9-7/8"	
D	6-3/8"	6"	
E	2-5/8"	2-5/8"	
F			19"
G			12-3/4"
H			3-1/8"
I			2-5/8"
J			13-3/16"
K			14-5/16"

NOTES:

ANTI-SEIZE COMPOUND THAT MEETS MIL-PRF-907E SPEC. SHALL BE APPLIED WITH A BRUSH TO ALL THREADS.

FOR SUBSTITUTION OF MATERIALS, SEE SPEC. 1605.

(1) STRUCTURAL STEEL AS PER SPEC. 3306.

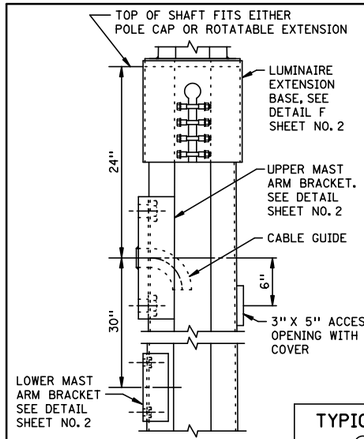
(2) STRUCTURAL STEEL AS PER SPEC. 3309.

(3) GALVANIZE TRANSFORMER BASE AS PER SPEC. 3394 AFTER FABRICATION. GALVANIZE ALL HARDWARE AS PER SPEC. 3392, EXCEPT STAINLESS STEEL AND BRASS.

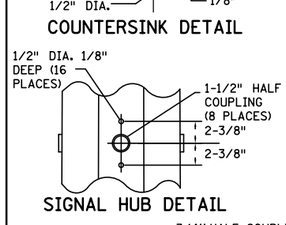
(4) SEE STANDARD PLATE 8126 FOR POLE FOUNDATION DETAILS.

(5) FABRICATE STRUCTURAL METALS PER SPEC. 2471.

APPROVED APRIL 5, 2013 STATE DESIGN ENGINEER	STATE OF MINNESOTA DEPARTMENT OF TRANSPORTATION TRANSFORMER BASE AND POLE BASE PLATE (PA90 AND PA100)	SPECIFICATION REFERENCE 2565	STANDARD PLATE NO. 8121H 2 OF 2

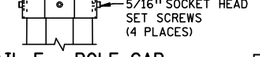


ENLARGED DETAIL A



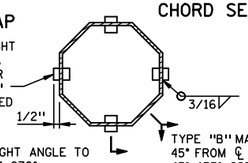
COUNTERSINK DETAIL

SIGNAL HUB DETAIL

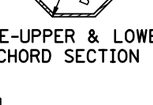


DETAIL E - POLE CAP

SIGNAL HUB COUPLINGS AT RIGHT ANGLE TO THE ℄ OF ROADWAY. PLUGS SHALL BE PROVIDED FOR ALL COUPLINGS FOUR (4) 1-1/2" DIA. COUPLINGS, INSIDE THREADED



SECTION D-D



POLE-UPPER & LOWER CHORD SECTION

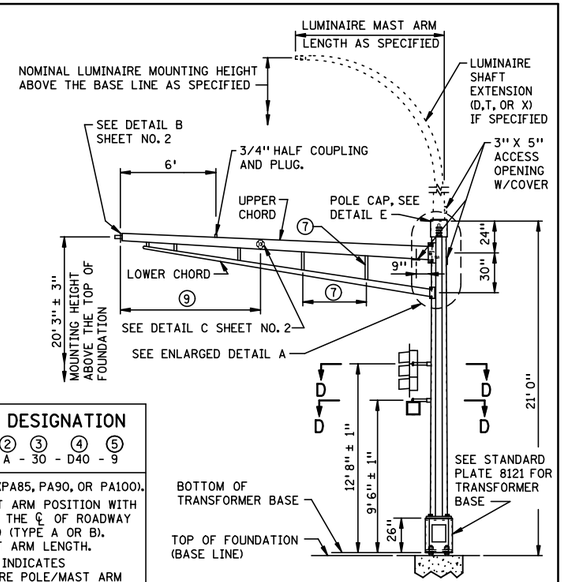
POLE MOUNTED SIGNAL HUB (2)

TYPICAL DESIGNATION

(1) (2) (3) (4) (5)

TYPE PA90 - A - 30 - D40 - 9

(1) POLE TYPE (PA85, PA90, OR PA100).
(2) SIGNAL MAST ARM POSITION WITH RESPECT TO THE ℄ OF ROADWAY SECTION D-D (TYPE A OR B).
(3) SIGNAL MAST ARM LENGTH.
(4) THE LETTER INDICATES THE LUMINAIRE POLE/MAST ARM TYPE (D=DAVIT, T=TRUSS, X=STRAIGHT). THE NUMBER INDICATES THE NOMINAL LUMINAIRE MOUNTING HEIGHT FROM THE BASELINE.
(5) LUMINAIRE MAST ARM LENGTH.



POLE AND MAST ARM

POLE TYPE	MAST ARM LENGTH (8)	VERTICAL POLE (6) LARGE END	VERTICAL POLE (6) SMALL END	VERTICAL POLE (6) WALL THICK	UPPER CHORD (6) LARGE END	UPPER CHORD (6) SMALL END	UPPER CHORD (6) WALL THICK	LOWER CHORD (6) LARGE END	LOWER CHORD (6) SMALL END	LOWER CHORD (6) WALL THICK
PA85	15'-30'	13.0"	11.8"	0.179"	9.6"	4.0"	0.120"	5.6"	2.8"	0.120"
PA90	30'-40'	14.0"	11.8"	0.250"	10.9"	5.0"	0.179"	5.6"	2.8"	0.120"
PA100	40'-55'	14.0"	11.8"	0.312"	11.6"	5.0"	0.250"	5.6"	2.8"	0.120"

TAPERED OCTAGONAL MAST ARM TRUSS AND POLE DIMENSIONS

NOTES:

MATERIAL: HIGH STRENGTH LOW ALLOY STEEL SPEC. 3310 50,000 PSI MINIMUM YIELD.

GALVANIZED STRUCTURAL STEEL AS PER SPEC. 3394 AFTER FABRICATION. GALVANIZE ALL HARDWARE AS PER SPEC. 3392. PROVIDE VENT HOLES FOR GALVANIZING.

VERTICAL POST AND MAST ARM ELEMENTS SHALL BE OCTAGONAL TUBE, FABRICATED BY LONGITUDINAL SEAM WELDING WITH 60% PENETRATION.

EACH MAST ARM POLE STANDARD CONSTRUCTED IN ACCORDANCE WITH THIS SPECIFICATION SHALL BE IDENTIFIED BY THE MARKING "PA85, PA90 OR PA100" IMPRINTED INTO THE VERTICAL POST SHAFT APPROXIMATELY 6 FEET ABOVE THE BOTTOM OF THE TRANSFORMER BASE ON THE ZERO-DEGREE FACE WITH RESPECT TO THE TRAFFIC SIGNAL TRUSS-TYPE MAST ARM. THE IMPRINTED "PA85, PA90 OR PA100" SHALL BE CLEARLY LEGIBLE AFTER GALVANIZATION.

THE BASE LINE OR TOP OF FOUNDATION IS ESTABLISHED AT TOP OF THE FINISHED PAVEMENT BENEATH THE OUTER END OF THE MAST ARM.

SEE SPEC. 1605 FOR SUBSTITUTION OF MATERIALS.

SEE SPEC. 2471 FOR FABRICATION REQUIREMENTS.

THE MOUNTING HEIGHTS OF LUMINAIRES ARE MEASURED FROM THE BASELINE, WHICH PROVIDE MOUNTING HEIGHTS OF 30' TO 50'.

(6) DIMENSION MEASURED OUTSIDE POINT TO OUTSIDE POINT THROUGH OCTAGON CENTER. ADJUST POLE WITH LEVELING NUTS SO THAT THE POLE IS VERTICAL.

(7) VERTICAL BRACES SHALL BE SPACED AT 5' INTERVALS. MINIMUM SECTION FOR VERTICAL BRACE SHALL BE 1" SCHEDULE 40 PIPE WITH ALLOWABLE STRESS OF 42000 PSI. PIPE ENDS SHALL BE FLATTENED TO A MAXIMUM THICKNESS OF 1" PERPENDICULAR TO THE MAST ARM AXIS.

(8) ALL ARMS SHALL BE SUPPLIED IN FIVE-FOOT INCREMENTS OF LENGTH.

(9) ONE MID-MAST ARM MOUNT SHALL BE PLACED AT 11' FROM THE END FOR 30', 35' AND 40' LENGTH MAST ARMS. TWO MID MAST ARM MOUNTS SHALL BE PLACED AT 11' AND 23' FROM THE END FOR 45', 50' AND 55' LENGTH MAST ARMS. ALL MID-MAST ARMS SHALL BE CAPPED AND GALVANIZED. KEEP UNUSED MID-MAST ARM MOUNTS CAPPED AND GALVANIZED.

APPROVED DECEMBER 20, 2011 STATE DESIGN ENGINEER	STATE OF MINNESOTA DEPARTMENT OF TRANSPORTATION POLE AND MAST ARM LUMINAIRES AND TRAFFIC LIGHTS ASSEMBLY (FOR ALL POLE TYPES)	SPECIFICATION REFERENCE 2565	STANDARD PLATE NO. 8123G 1 OF 2

NO	DATE	DWN	CKD	REVISIONS

ALLIANT

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

PRINT NAME: MICHAEL P. MCCURDY
SIGNATURE: Michael P. McCurdy
DATE 02/14/2025 LICENSE # 45902

TRAFFIC CONTROL SIGNAL SYSTEM PLANS

SAP 106-020-043, SAP 114-020-066, SAP 114-020-067
SAP 002-612-037, SAP 002-612-036 (CSAH 12)
SHEET NO. 74 OF 98 SHEETS

11:00:26 AM
2/14/2025
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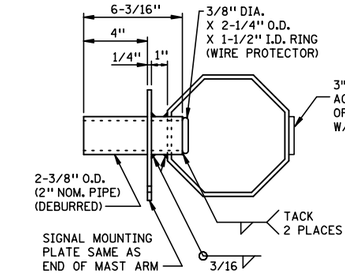
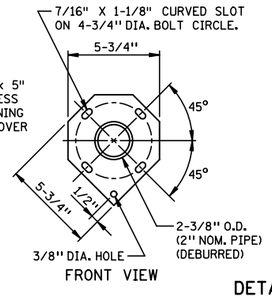
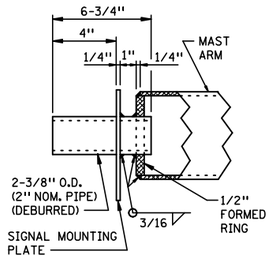


DETAIL C
MID MAST ARM

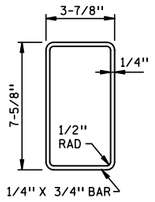


FRONT VIEW

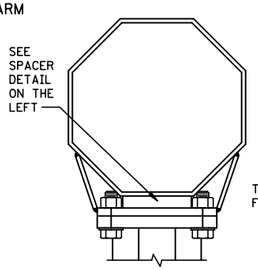


SIDE VIEW

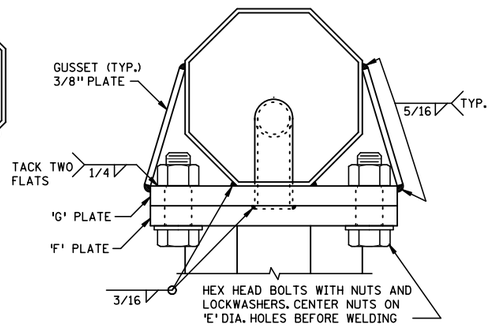
DETAIL B
SIGNAL MOUNTING PLATE



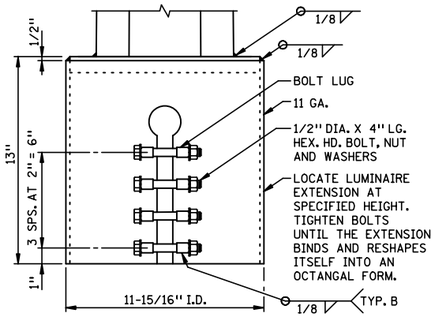
SPACER



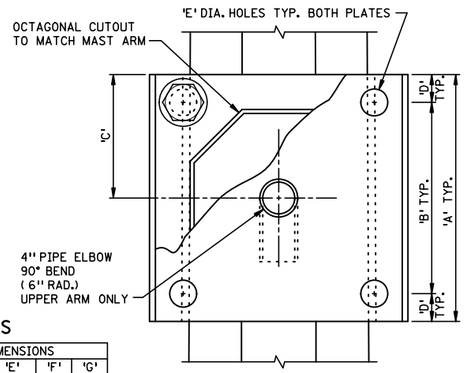
LOWER BRACKET
WITH SPACER



TOP VIEW



DETAIL F
LUMINAIRE EXTENSION BASE



ELEVATION

UPPER & LOWER
MAST ARM BRACKET

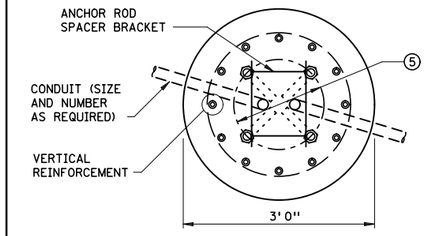
ARM AND POLE MOUNTING BRACKETS

ARM MEMBER	FOUR HEX HEAD BOLTS & NUTS EACH BRACKET	TABULATED BRACKET DIMENSIONS						
		'A'	'B'	'C'	'D'	'E'	'F'	'G'
UPPER	1-1/2"-6UNC X 4-1/2" LG.	15.50"	12.00"	7.75"	1.75"	1.688"	1.25"	1.25"
LOWER	3/4"-10UNC X 2-1/4" LG. (1)	(V) 8.50" (H) 7.75"	6.25" 5.75"	4.25" 3.87"	1.125" 1.0"	0.875" 0.875"	3/4" 3/4"	1/2" 1/2"

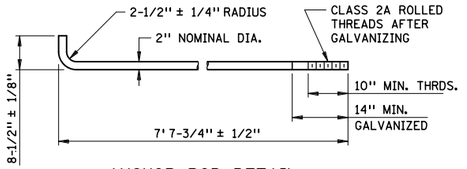
NOTES:

(1) THE (V) DIMENSIONS ARE MEASURED VERTICALLY AND THE (H) DIMENSIONS ARE MEASURED HORIZONTALLY, WHILE UNSPECIFIED ARE MEASURED BOTH VERTICALLY AND HORIZONTALLY.

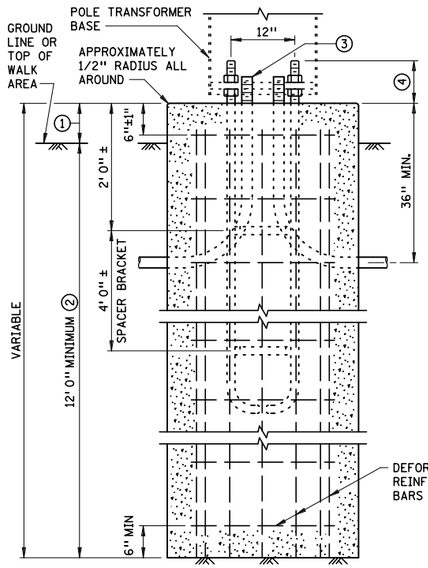
APPROVED DECEMBER 20, 2011	STATE OF MINNESOTA DEPARTMENT OF TRANSPORTATION	SPECIFICATION REFERENCE	STANDARD PLATE NO.
STATE DESIGN ENGINEER	POLE AND MAST ARM (DETAILS)	2565	8123G 2 OF 2



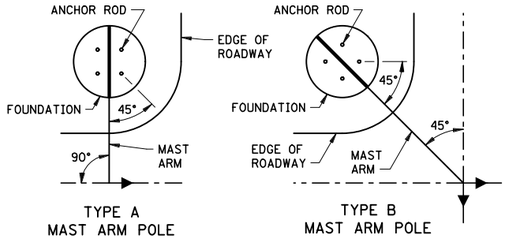
TOP VIEW



ANCHOR ROD DETAIL
(SPEC. 3385 TYPE C)



VERTICAL SECTION



ANCHOR ROD PLACEMENT
(WHEN USED WITH MAST ARM POLE)

NOTES:

REINFORCING BARS SHALL BE GRADE 60 AND MEET THE REQUIREMENTS OF ASTM A 706 (WELDABLE REBARS) AND ARE IDENTIFIED BY A DISTINGUISHING MARK OF "W" ROLLED ONTO THE SURFACE OF ONE SIDE OF THE BAR. WELDING SHALL BE PER ANSI/AWS D1.4. USE 12-NO. 7 BARS FOR VERTICAL REINFORCEMENT, SPACED ON A 28" DIA. CIRCLE. HORIZONTAL (CIRCULAR) BARS TO BE NO. 4 SPACED AT 1'-0" MAXIMUM VERTICAL SPACING. SECURELY TIE OR WELD (OR COMBINATION) ALL REINFORCEMENT TOGETHER.

ANCHOR RODS SHALL BE GALVANIZED IN ACCORDANCE WITH SPEC. 3392 AND SHALL BE 2" NOM. DIA. AND CUT LENGTH OF 96" BEFORE BENDING. (SEE ANCHOR ROD DETAIL). ANCHOR ROD CAGES SHALL BE DESIGNED WITHOUT WELDING.

ANTI-SIEZE COMPOUND THAT MEETS MIL-PRF-907E SPEC. SHALL BE APPLIED WITH A BRUSH TO ALL THREADS.

ALL BACKFILLING AROUND THE FOUNDATION MUST BE IN ACCORDANCE WITH 2451.

ALL EXCAVATION MUST BE PROPERLY COMPACTED IN ACCORDANCE WITH 2451.

CONCRETE MIX SHALL BE 3G52.

PREFORMED JOINT FILLER SHALL BE USED BETWEEN FOUNDATION AND SIDEWALK OR CONCRETE AREAS.

FIBER FORMING TUBE SHALL BE USED IN FORMING THE FOUNDATION, OR AS APPROVED BY THE ENGINEER.

OPEN ENDS OF ALL CONDUIT INTO FOUNDATION SHALL BE THREADED, POSITIONED INSIDE THE ANCHOR ROD BOLT CIRCLE, AND CAPPED UNTIL CABLES ARE PLACED.

MAST ARM POLE STANDARDS SHALL NOT BE PLACED ON FOUNDATIONS UNTIL AT LEAST SEVEN DAYS OF CURING PERIOD HAVE ELAPSED.

(1) THE ELEVATION OF THE TOP OF THE FOUNDATION SHALL ASSURE THAT THE VERTICAL CLEARANCE FROM THE BOTTOM OF ALL SIGNAL HEADS (INCLUDING BACKGROUND SHIELDS) TO THE PAVEMENT IS NOT LESS THAN 17 FEET NOR GREATER THAN 19 FEET. THE TOP OF THE FOUNDATION MUST BE A MINIMUM OF 6" ABOVE THE GROUND LINE OR TOP OF SIDEWALK.

(2) DEPTH OF FOUNDATION MAY VARY IN PLANS OR SPECIAL PROVISIONS. DEPTH OF FOUNDATION MAY BE REDUCED 2 FEET WHEN PLACED IN SIDEWALK OR CONCRETE RAISED MEDIAN. FOUNDATION DEPTHS ARE BASED ON A SOIL FRICTION ANGLE OF 30° AND A SOIL WEIGHT OF 120 LB/CF AND NO GROUNDWATER WITHIN THE GROUND SURFACE TO A DEPTH OF TWO TIMES THE WIDTH OR DIAMETER OF BOTTOM OF POLE FOUNDATION. A SOIL BORING OR CONE PENETRATION TEST (CPT) SOUNDING IS RECOMMENDED WHERE IN-SITU STRATIGRAPHY IS UNKNOWN OR QUESTIONABLE. ANY VARIATION IN THE DEPTH OF THE FOUNDATION REQUIRES AN APPROVAL BY THE SOILS ENGINEER.

(3) CONDUIT PER SPEC. 3801 OR 3803. SIZE AND NUMBER AS REQUIRED IN PLANS OR SPECIAL PROVISIONS. 4" MINIMUM AND 6" MAXIMUM PROJECTION ABOVE FOUNDATION, AND CAPPED UNTIL WIRING IS PLACED.

(4) 8" ANCHOR ROD PROJECTION (THREADED). SOME POLES (SUCH AS ROTATABLE T-BASE) REQUIRE GREATER PROJECTION.

(5) FOUR ANCHOR RODS EQUALLY SPACED ON 16.97" DIA. BOLT CIRCLE (12" C. TO C.). EACH ANCHORAGE ROD SHALL HAVE TWO (2) HEAVY HEX LEVELING NUTS, PER ASTM A563 GRADE DH.

APPROVED JULY 15, 2015	STATE OF MINNESOTA DEPARTMENT OF TRANSPORTATION	SPECIFICATION REFERENCE	STANDARD PLATE NO.
STATE DESIGN ENGINEER	POLE FOUNDATION (PA90 AND PA100)	2565	8126L

NO	DATE	DWN	CKD	REVISIONS

ALLIANT

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

PRINT NAME: MICHAEL P. MCCURDY
SIGNATURE: Michael P. McCurdy
DATE 02/14/2025 LICENSE # 45902

TRAFFIC CONTROL SIGNAL SYSTEM PLANS

SAP 106-020-043, SAP 114-020-066, SAP 114-020-067
SAP 002-612-037, SAP 002-612-036 (CSAH 12)
SHEET NO. 75 OF 98 SHEETS

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SIGNAL HEAD CHART

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

-ALL SIGNAL INDICATIONS SHALL BE 12" LED
-ALL SIGNAL HEADS SHALL BE BLACK POLYCARBONATE WITH BACKGROUND SHIELDS AND SHALL HAVE 2" YELLOW REFLECTIVE BORDERS ON ALL SIDES OF BACKGROUND SHIELD
-FYA DENOTES FLASHING YELLOW ARROW

40

SCALE IN FEET

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, D6-1, D6-2	6x6	375
D2-3, D2-4, D6-3, D6-4	6x6	20
D2-5, D2-6, D6-5, D6-6	6x6	5
D3-1, D7-1	3-6x6	20,35,50
D3-2, D7-2	6x6	5
D4-1, D8-1	6x6	275
D4-2, D4-3, D8-2, D8-3	6x6	20
D4-4, D4-5, D8-4, D8-5	6x6	5

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

MATCH LINE B

CSAH 12 (NORTHDALE BLVD) (35 MPH)

2" CONDUIT 1-2/C 14

3" CONDUIT 3-4/C 16 5-2/C 14 1-1/C 6 INS. GR.

3" CONDUIT 3-4/C 16 1-2/C 14 1-1/C 6 INS. GR.

INPLACE: 2" CONDUIT 1-FO CABLE (12SM)

**F&I: PULL VAULT

**F&I: 1.5" CONDUIT PULL 1-FO CABLE (12SM) BACK AND REINSTALL

PED PB STATION
1-APS PB AND SIGN (RT ARROW) (PB8-2)
EXTEND INTO HH 15:
1" CONDUIT
1-2/C 14
1-1/C 6 INS. GR.

3" CONDUIT 3-4/C 16 7-2/C 14 1-1/C 6 INS. GR.

2" CONDUIT 2-2/C 14

3" CONDUIT 3-6/C 16 4-4/C 16 * 1-3/C 16 * 1-3/C 20 1-2/C 14 1-3/C 16 (LUM) 1-1/C 6 INS. GR.

*8+3 EVP

MATCH LINE A

CSAH 51 (UNIVERSITY AVE) (40 MPH)

6+1 EVP *

*2+5 EVP

4+7 EVP *

PTZ

*8+3 EVP

CSAH 12 (109TH AVE NE) (35 MPH)

MATCH LINE C

CSAH 51 (UNIVERSITY AVE) (40 MPH)

2-3" CONDUITS 3-6/C 16 7-4/C 16 * 1-3/C 16 * 1-3/C 20 15-2/C 14 1-3/C 16 (LUM) 1-1/C 6 INS. GR.

INPLACE: 2" CONDUIT 1-FO CABLE (6SM)

2-3" CONDUITS 3-6/C 16 7-4/C 16 * 1-3/C 16 * 1-3/C 20 17-2/C 14 1-3/C 16 (LUM) 1-1/C 6 INS. GR.

2" CONDUIT 2-2/C 14

**F&I: 1.5" CONDUIT PULL 1-FO CABLE (6SM) BACK AND REINSTALL

**F&I: PULL VAULT

**F&I: 1.5" CONDUIT 1-FO CABLE (12SM)

2-3" CONDUITS 6-6/C 16 8-4/C 16 * 2-3/C 16 * 2-3/C 20 11-2/C 14 1-COM CABLE (CAT5E) (PTZ) 2-3/C 16 (LUM) 1-1/C 6 INS. GR.

**F&I: 1.5" CONDUIT 1-FO CABLE (12SM)

2" CONDUIT 1-2/C 14

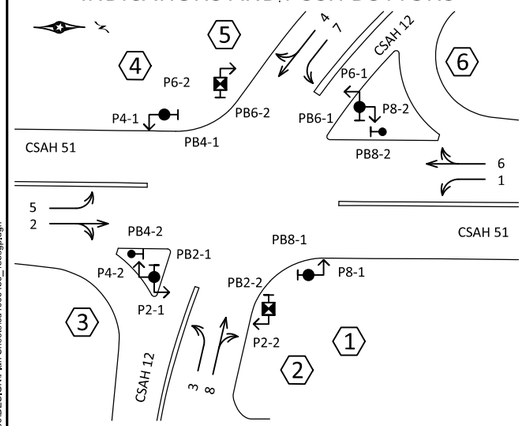
3" CONDUIT 3-6/C 16 4-4/C 16 * 1-3/C 16 * 1-3/C 20 3-2/C 14 1-3/C 16 (LUM) 1-1/C 6 INS. GR.

2-3" CONDUITS 6-6/C 16 8-4/C 16 * 2-3/C 16 * 3-3/C 20 9-2/C 14 1-COM CABLE (CAT5E) (PTZ) 2-3/C 16 (LUM) 1-1/C 6 INS. GR.

PED PB STATION
1-APS PB AND SIGN (RT ARROW) (PB4-2)
EXTEND INTO HH 5:
1" CONDUIT
1-2/C 14
1-1/C 6 INS. GR.

MATCH LINE D

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 PHASE(S) 1, 3, 5 & 7 BEING FLASHING YELLOW ARROWS BY TIME OF DAY.
- PHASES 2 AND 6 SHALL BE ON VEHICLE RECALL.

NOTES:

1. SEE THE SPECIAL PROVISIONS FOR COUNTY FURNISHED MATERIALS.
2. THE EXACT LOCATION OF THE HANDHOLES, LOOP DETECTORS, UNDERGROUND CONDUIT, AND THE EQUIPMENT PAD ARE DETERMINED IN THE FIELD. VERIFY THE LOCATIONS OF ALL SIGNAL COMPONENTS WITH ANOKA COUNTY PERSONNEL. CONDUITS UNDER ROADWAYS WILL REQUIRE BORING.
3. ALL SIGNAL MOUNTED SIGNS ARE INCLUDED IN PAYMENT WITH THE LUMP SUM SIGNAL SYSTEM B PAY ITEM. SEE SIGNING DETAIL SHEET FOR SIGNAL MOUNTED SIGNS.
4. PAVEMENT MARKINGS ARE INCLUDED AS PART OF THE STRIPING PLAN.
5. CONSTRUCTION OF PEDESTRIAN CURB RAMPS, CONCRETE WALK AND MEDIAN WORK ARE INCLUDED WITH THE ADA PLAN AND ARE PAID FOR SEPARATELY.
6. USE PVC OR HDPE FOR NEW CONDUIT. CONDUIT SIZES ARE NOMINAL DIAMETER.
7. ITEMS DENOTED WITH AN * ARE INCLUDED IN PAYMENT FOR THE EVP SYSTEM PAY ITEM.
8. SEE TRAFFIC CONTROL INTERCONNECT PLAN FOR INTERCONNECTION TO ADJACENT SIGNAL SYSTEMS.
9. REMOVAL OF THE EXISTING SIGNAL IS INCLUDED IN PAYMENT FOR THE REMOVE SIGNAL SYSTEM B PAY ITEM. REFER TO THE "EXISTING SIGNAL PLAN" SHEETS FOR INPLACE SIGNAL STSTEM COMPONENTS.
10. ITEMS DENOTED WITH ** ARE INCLUDED IN THE PAYMENT FOR THE TRAFFIC CONTROL INTERCONNECT PAY ITEM.
11. STOP BARS ARE SHOWN FOR REFERENCE ONLY AND WILL BE INSTALLED WITH FUTURE PROJECT. OFFSET LOOP DETECTORS FROM FUTURE STOP BAR LOCATIONS.

NO	DATE	DWN	CKD	REVISIONS

ALLIANT

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

PRINT NAME: MICHAEL P. MCCURDY
SIGNATURE: Michael P. McCurdy
DATE 02/14/2025 LICENSE # 45902

TRAFFIC CONTROL SIGNAL SYSTEM PLANS
SIGNAL SYSTEM "A"

SAP 106-020-043, SAP 114-020-066, SAP 114-020-067
SAP 002-612-037, SAP 002-612-036 (CSAH 12)
SHEET NO. 76 OF 98 SHEETS

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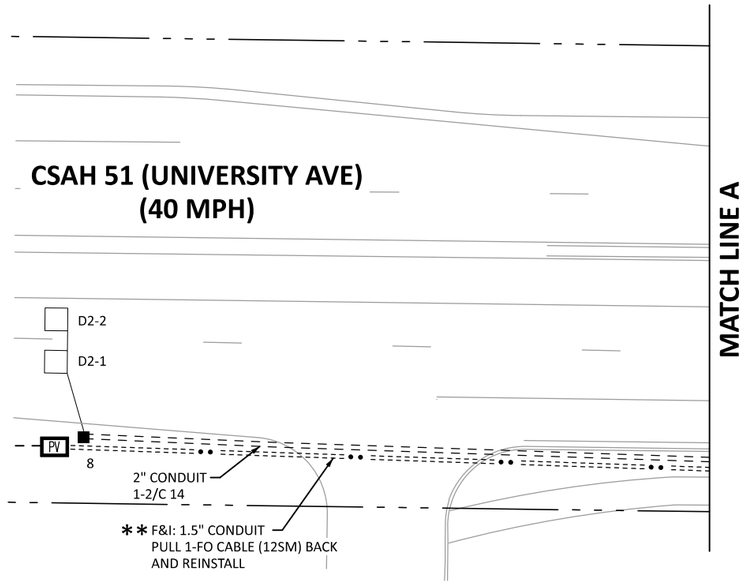

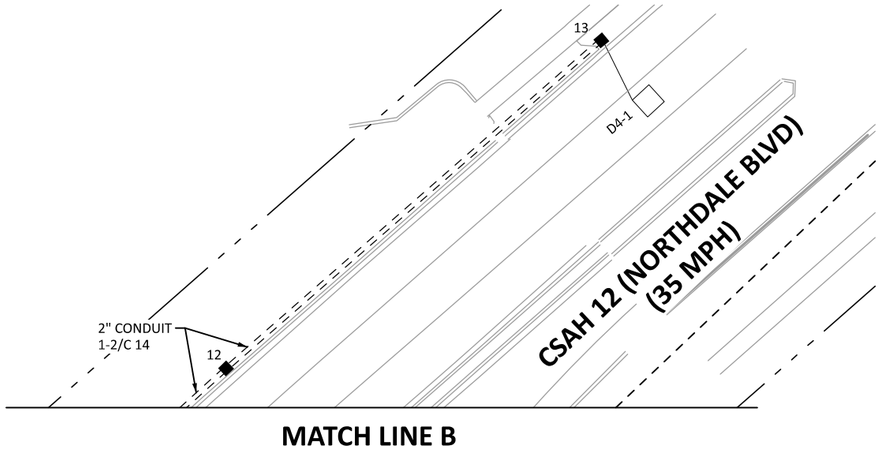

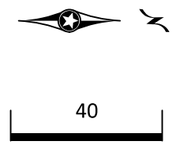

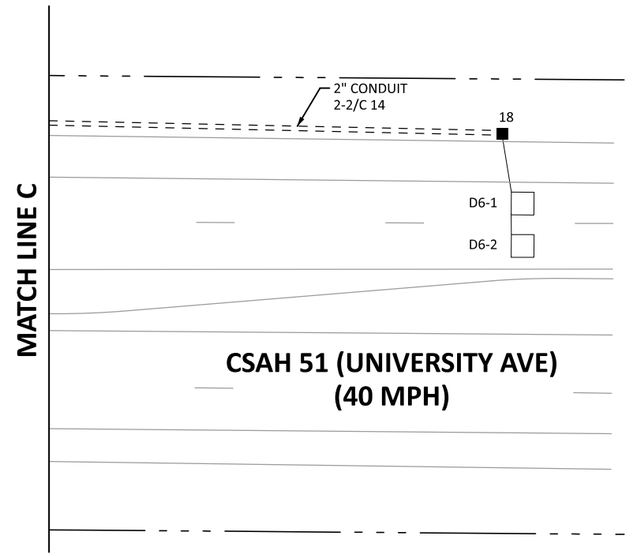

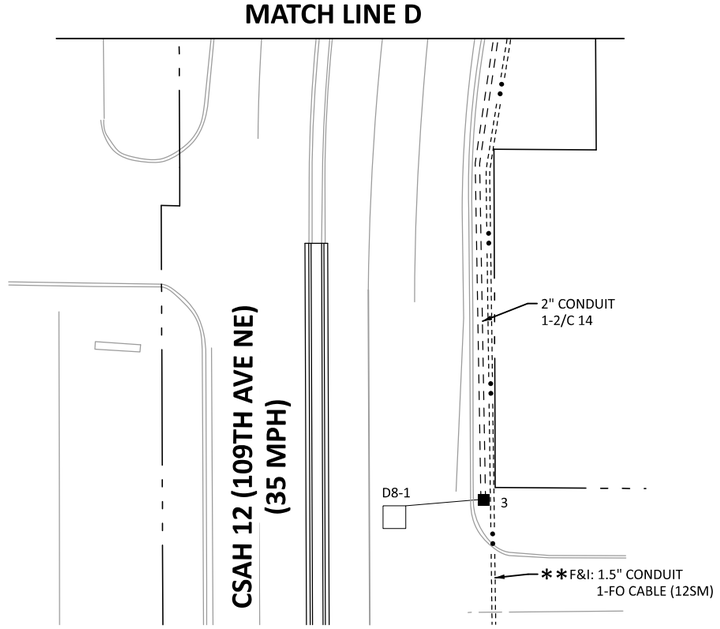

NOTES:

1. ITEMS DENOTED WITH ** ARE INCLUDED IN THE PAYMENT FOR THE TRAFFIC CONTROL INTERCONNECT PAY ITEM.

NO	DATE	DWN	CKD	REVISIONS

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TRAFFIC CONTROL SIGNAL SYSTEM PLANS
SIGNAL SYSTEM "A"

SAP 106-020-043, SAP 114-020-066, SAP 114-020-067
SAP 002-612-037, SAP 002-612-036 (CSAH 12)
SHEET NO. 77 OF 98 SHEETS

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(1) X=500153.4056 Y=148504.7210
PA100 POLE FOUNDATION
TYPE PA100-A-45-D30-9
1-LUMINAIRE-LED (FOR 30' MOUNTING HEIGHT)
1-ANGLE MOUNT SIGNAL OVERHEAD AT 0' (5-1)
2-STRAIGHT MOUNT SIGNALS OVERHEAD AT 12' AND 24' (2-3, 2-2)
2-ANGLE MOUNT SIGNALS AT 90 AND 180 DEG (7-2, 2-1)
1-ANGLE MOUNT C. D. PED HEAD AT 90 DEG (P8-1)
* 1-ONE WAY EVP DETECTOR AND CONFIRMATORY LIGHT (PHASES 2+5)
1-APS PB AND SIGN (LT ARROW) (PB8-1) AND POLE MOUNTING ADAPTOR
1-R10-X12 SIGN
1-GUIDE SIGN (D-2) (SEE SIGN DETAILS)
1-R6-1L (36"X12") MOUNTED AT 0°
1-R6-1R (36"X12") MOUNTED AT 180°
3" CONDUIT INTO HH 20:
3-6/C 16
4-4/C 16
* 1-3/C 16
* 1-3/C 20
1-2/C 14
1-3/C 16 (LUM)
1-1/C 6 INS. GR.

(2) X=500163.4016 Y=148484.5380
PEDESTAL FOUNDATION
14' PEDESTAL POLE PLUS BASE
1-ANGLE MOUNT SIGNAL AT 180 DEG (8-1)
1-ANGLE MOUNT C.D. PED HEAD AT 180 DEG (P2-2)
1-APS PB AND SIGN (RT ARROW) (PB2-2) AND
APS PB MOUNDING SPACERS
3" CONDUIT INTO HH 1:
3-4/C 16
1-2/C 14
1-1/C 6 INS. GR.

(3) X=500156.4521 Y=148400.7737
PA85 POLE FOUNDATION MODIFIED (12' DEPTH)
TYPE PA85-B-25-X6-300/CAM 350 (MOUNTED AT 350 DEG)
(INCLUDES LIGHTNING ROD, 7/16" GROUND BRAID AND GROUND ROD)
1-LUMINAIRE-LED (FOR 30' MOUNTING HEIGHT)
1-PTZ VIDEO CAMERA (COUNTY PROVIDED)
1-ANGLE MOUNT SIGNAL OVERHEAD AT 0' (7-1)
1-STRAIGHT MOUNT SIGNAL OVERHEAD AT 14' (4-3)
2-ANGLE MOUNT SIGNALS AT 90 AND 180 DEG (1-2, 4-2)
2-ANGLE MOUNT C. D. PED HEADS AT 90 AND 180 DEG (P2-1, P4-2)
* 1-ONE WAY EVP DETECTOR AND CONFIRMATORY LIGHT (PHASES 4+7)
* 1-ONE WAY EVP DETECTOR (PHASES 8+3)
1-APS PB AND SIGN (LT ARROW) (PB2-1) AND POLE MOUNTING ADAPTOR
1-R10-X12 SIGN
1-GUIDE SIGN (D-1) (SEE SIGN DETAILS)
1-R6-1L (36"X12") MOUNTED AT 0°
1-R6-1R (36"X12") MOUNTED AT 180°
3" CONDUIT INTO HH 5:
3-6/C 16
4-4/C 16
* 1-3/C 16
* 2-3/C 20
1-2/C 14
1-3/C 16 (LUM)
1-COM CABLE (CAT5E) (PTZ)
1-7/16" GROUNDING BRAID (LIGHTNING ROD TO GROUND ROD)
1-1/C 6 INS. GR.

(4) X=500052.5050 Y=148407.3769
PA100 POLE FOUNDATION
TYPE PA100-A-45-D30-9
1-LUMINAIRE-LED (FOR 30' MOUNTING HEIGHT)
1-ANGLE MOUNT SIGNAL OVERHEAD AT 0' (1-1)
2-STRAIGHT MOUNT SIGNALS OVERHEAD AT 12' AND 24' (6-3, 6-2)
2-ANGLE MOUNT SIGNALS AT 90 AND 180 DEG (3-2, 6-1)
2-ANGLE MOUNT C. D. PED HEADS AT 90 AND 180 DEG (P4-1, P6-2)
* 1-ONE WAY EVP DETECTOR AND CONFIRMATORY LIGHT (PHASES 6+1)
1-APS PB AND SIGN (LT ARROW) (PB4-1) AND POLE MOUNTING ADAPTOR
1-R10-X12 SIGN
1-GUIDE SIGN (D-3) (SEE SIGN DETAILS)
1-R6-1L (36"X12") MOUNTED AT 0°
1-R6-1R (36"X12") MOUNTED AT 180°
3" CONDUIT INTO HH 10:
3-6/C 16
4-4/C 16
* 1-3/C 16
* 1-3/C 20
1-2/C 14
1-3/C 16 (LUM)
1-1/C 6 INS. GR.

(5) X=500045.2228 Y=148442.4119
PEDESTAL FOUNDATION
14' PEDESTAL POLE PLUS BASE
1-ANGLE MOUNT SIGNAL AT 180 DEG (4-1)
1-ANGLE MOUNT C.D. PED HEAD AT 180 DEG (P6-2)
1-APS PB AND SIGN (RT ARROW) (PB6-2) AND
APS PB MOUNDING SPACERS
3" CONDUIT INTO HH 11:
3-4/C 16
1-2/C 14
1-1/C 6 INS. GR.

(6) X=500049.6577 Y=148532.3900
PA90 POLE FOUNDATION MODIFIED
TYPE PA90-B-35-D30-9
1-LUMINAIRE-LED (FOR 30' MOUNTING HEIGHT)
1-ANGLE MOUNT SIGNAL OVERHEAD AT 0' (3-1)
1-STRAIGHT MOUNT SIGNAL OVERHEAD AT 18' (8-3)
2-ANGLE MOUNT SIGNALS AT 90 AND 180 DEG (5-2, 8-2)
2-ANGLE MOUNT C. D. PED HEADS AT 90 AND 180 DEG (P6-1, P8-2)
* 1-ONE WAY EVP DETECTOR AND CONFIRMATORY LIGHT (PHASES 8+3)
1-APS PB AND SIGN (LT ARROW) (PB6-1) AND POLE MOUNTING ADAPTOR
1-R10-X12 SIGN
1-GUIDE SIGN (D-1) (SEE SIGN DETAILS)
1-R6-1L (36"X12") MOUNTED AT 0°
1-R6-1R (36"X12") MOUNTED AT 180°
3" CONDUIT INTO HH 15:
3-6/C 16
4-4/C 16
* 1-3/C 16
* 1-3/C 20
1-2/C 14
1-3/C 16 (LUM)
1-1/C 6 INS. GR.

(A) EQUIPMENT PAD (SEE DETAIL SHEET)
SERVICE CABINET WITH BATTERY BACKUP (SEE DETAIL SHEET)
CONTROLLER AND CABINET (COUNTY PROVIDED)

3" CONDUIT TO HH 1:	3" CONDUIT TO HH 1:
3-6/C 16	3-6/C 16
5-4/C 16	5-4/C 16
* 1-3/C 16	* 1-3/C 16
* 1-3/C 20	* 1-3/C 20
9-2/C 14	9-2/C 14
1-COM CABLE (CAT5E) (PTZ)	1-1/C 6 INS. GR.
1-1/C 6 INS. GR.	
3" CONDUIT TO HH 20:	3" CONDUIT TO HH 20:
3-6/C 16	3-6/C 16
5-4/C 16	6-4/C 16
* 1-3/C 16	* 1-3/C 16
* 1-3/C 20	* 1-3/C 20
9-2/C 14	9-2/C 14
1-1/C 6 INS. GR.	1-1/C 6 INS. GR.

GROUND WIRE AND GROUND ROD - MIN 8' STUBBED OUT FROM PAD
2-2" AND 1-3" CONDUIT STUBBED OUT (CAPPED BOTH ENDS)
1.5"CONDUIT TO TMS VAULT:
1-FO CABLE (12SM)
CONTROLLER CABINET TO SERVICE CABINET:
2" CONDUIT
3-1/C 6
CONTROLLER CABINET TO SERVICE CABINET (COMMS):
2" CONDUIT
1-6PR 19
SERVICE CABINET TO GROUND MOUNTED TRANSFORMER:
2" CONDUIT
3-1/C 2

SERVICE CABINET TO HH 1:
2" CONDUIT
2-3/C 16 (LUM)
SERVICE CABINET TO HH 20:
2" CONDUIT
2-3/C 16 (LUM)
SERVICE CABINET TO EXTERNAL GR. RD.:
1" CONDUIT
1-1/C 6 INS. GR.
(SEE EQUIPMENT PAD LAYOUT)

(B) SOP TRANSFORMER (CONNEXUS)
INPLACE CONDUIT AND CABLE TO SERVICE CABINET
(COORDINATE NEW HOOK-UP)

NOTES:

1. ITEMS DENOTED WITH AN * ARE INCLUDED IN PAYMENT FOR THE EVP SYSTEM PAY ITEM.
2. ITEMS DENOTED WITH ** ARE INCLUDED IN THE PAYMENT FOR THE TRAFFIC CONTROL INTERCONNECT PAY ITEM.

NO	DATE	DWN	CKD	REVISIONS

ALLIANT

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

PRINT NAME: MICHAEL P. MCCURDY
SIGNATURE: Michael P. McCurdy
DATE 02/14/2025 LICENSE # 45902

TRAFFIC CONTROL SIGNAL SYSTEM PLANS
SIGNAL SYSTEM "A"

SAP 106-020-043, SAP 114-020-066, SAP 114-020-067
SAP 002-612-037, SAP 002-612-036 (CSAH 12)
SHEET NO. 78 OF 98 SHEETS

11:00:29 AM
2/14/2025
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CONTROLLER CABINET

PTZ CAMERA — 91
D5-2 — 49
D5-1 — 48
D2-2 — 47
D2-1 — 46
D2-6 — 45
D2-5 — 44
D2-4 — 43
D2-3 — 42
D8-2 — 41
D3-2 — 40
D3-1 — 39
D8-1 — 38
D8-5 — 37
D8-4 — 36
D8-3 — 35
PB4-1 — 34
PB4-2 — 33
PB2-1 — 32
PB2-2 — 31
6+1 EVP DETECTOR — * 30
EVP LIGHT 6+1 EQ.G NEU — * 29
P4-1 (DWK WLK SPR NEU) — 28
6-3 (RED YEL GRN NEU) — 27
6-2 (RED YEL GRN NEU) — 26
SPARE (SPR SPR SPR NEU SPR SPR) — 25
6-1 (RED YEL GRN NEU) — 24

8-1 (RED YEL GRN NEU) — 8
SPARE (SPR SPR SPR NEU) — 9
P2-2 (DWK WLK SPR NEU) — 10
INS. GR. — 11
1-2 (RLA YLA GLA NEU FYA SPR) — 12
7-1 (RLA YLA GLA NEU FYA SPR) — 13
4-2 (RED YEL GRN NEU) — 14
SPARE (SPR SPR SPR NEU SPR SPR) — 15
4-3 (RED YEL GRN NEU) — 16
P2-1 (DWK WLK SPR NEU) — 17
P4-2 (DWK WLK SPR NEU) — 18
EVP LIGHT 4+7 EQ.G NEU — * 19
4+7 EVP DETECTOR — * 20
8+3 EVP DETECTOR — * 21
1-1 (RLA YLA GLA NEU FYA SPR) — 22
3-2 (RLA YLA GLA NEU FYA SPR) — 23

SIGNAL SERVICE — 3-1/C 6 — 2
CABINET COMMS — 7
FIBER OPTIC CABLE (12SM) — ** 100

NOTES:

1. SPLICES ONLY ALLOWED IN LOOP DETECTOR CIRCUITS.
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. ITEMS DENOTED WITH AN ** ARE INCLUDED IN PAYMENT FOR THE TRAFFIC CONTROL INTERCONNECTION PAY ITEM.
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. SIGNAL SYSTEM INCLUDES BATTERY BACKUP SERVICE CABINET WITH BATTERIES.

② — HH 1

8-1 — 8
5 SPARE — 9
P2-2 — 10
PB2-2 — 31
INS. GR. — 11
GR.RD. — 11
D8-2, D8-3, D8-4, D8-5 — 41, 35, 36, 37

8-30,91
31-49
4,11-30, 32-34,39-49,91

HH 4

39, 40 — D3-1, D3-2
4,11-30,32-34,41-49,91

HH 5

GR.RD. — 11
D2-3, D2-4, D2-5, D2-6 — 42, 43, 44, 45
4,11,22-30,34,48,49

HH 9

D5-1, D5-2 — 48, 49
4,11,22-30,34

HH 10

GR.RD. — 11

46,47

HH 6 — HH 7 — HH 8

46,47 — 46,47
D2-1, D2-2 — 46, 47

38

HH 3 — HH 2

38 — 38
D8-1 — 38

3,4

③

1-2 — 12 — 7-1 — 13
4-2 — 14 — 5 SPARE — 15
4-3 — 16 — P2-1 — 17
PB2-1 — 32 — P4-2 — 18
4+7 EVP LIGHT — * 19
LUMINAIRE — 2 — 3
4+7 EVP DETECTOR — * 20 — 20 HUB
8+3 EVP DETECTOR — * 21 — 20 HUB
PED PB STA PB4-2 — 33
INS. GR. — 11
PTZ CAMERA CAT5E — 91
INS. GR. — 11

④

1-1 — 22 — 3-2 — 23
6-1 — 24 — 5 SPARE — 25
6-2 — 26 — 6-3 — 27
P4-1 — 28 — PB4-1 — 34
6+1 EVP LIGHT — * 29
6+1 EVP DETECTOR — * 30 — TO EVP HUB
LUMINAIRE — 3 — 4
INS. GR. — 11

SERVICE CABINET

LUMINAIRE — 3 — 2
LUMINAIRE — 1 — 5
LUMINAIRE — 4 — 3
LUMINAIRE — 4 — 6

5,6 → TO HH 20

2 — 3-1/C 6 — SIGNAL SERVICE — 2
7 — 1-6PR 19 — CABINET COMMS — 7
INPUT POWER — 3-1/C 2 — 1 — 1 → S.O.P.

1-1/C 6 INS. GR.
GR.RD. — GR.RD.

TO 111TH AVE. N.E. SIGNAL SYSTEM (6SM)
TO EGRET BLVD. SIGNAL SYSTEM (12SM)
TO 111TH LN. N.W. SIGNAL SYSTEM (12SM)
PV — ** 100 — ** 100 — ** 100 — TO JEFFERSON ST. SIGNAL SYSTEM 1-FO CABLE (12SM)

NO	DATE	DWN	CKD	REVISIONS

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PRINT NAME: MICHAEL P. MCCURDY
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TRAFFIC CONTROL SIGNAL SYSTEM PLANS

SIGNAL SYSTEM "A"

SAP 106-020-043, SAP 114-020-066, SAP 114-020-067
SAP 002-612-037, SAP 002-612-036 (CSAH 12)
SHEET NO. 79 OF 98 SHEETS

11:00:31 AM
2/14/2025
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NOTES:

1. SPLICES ONLY ALLOWED IN LOOP DETECTOR CIRCUITS.
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.
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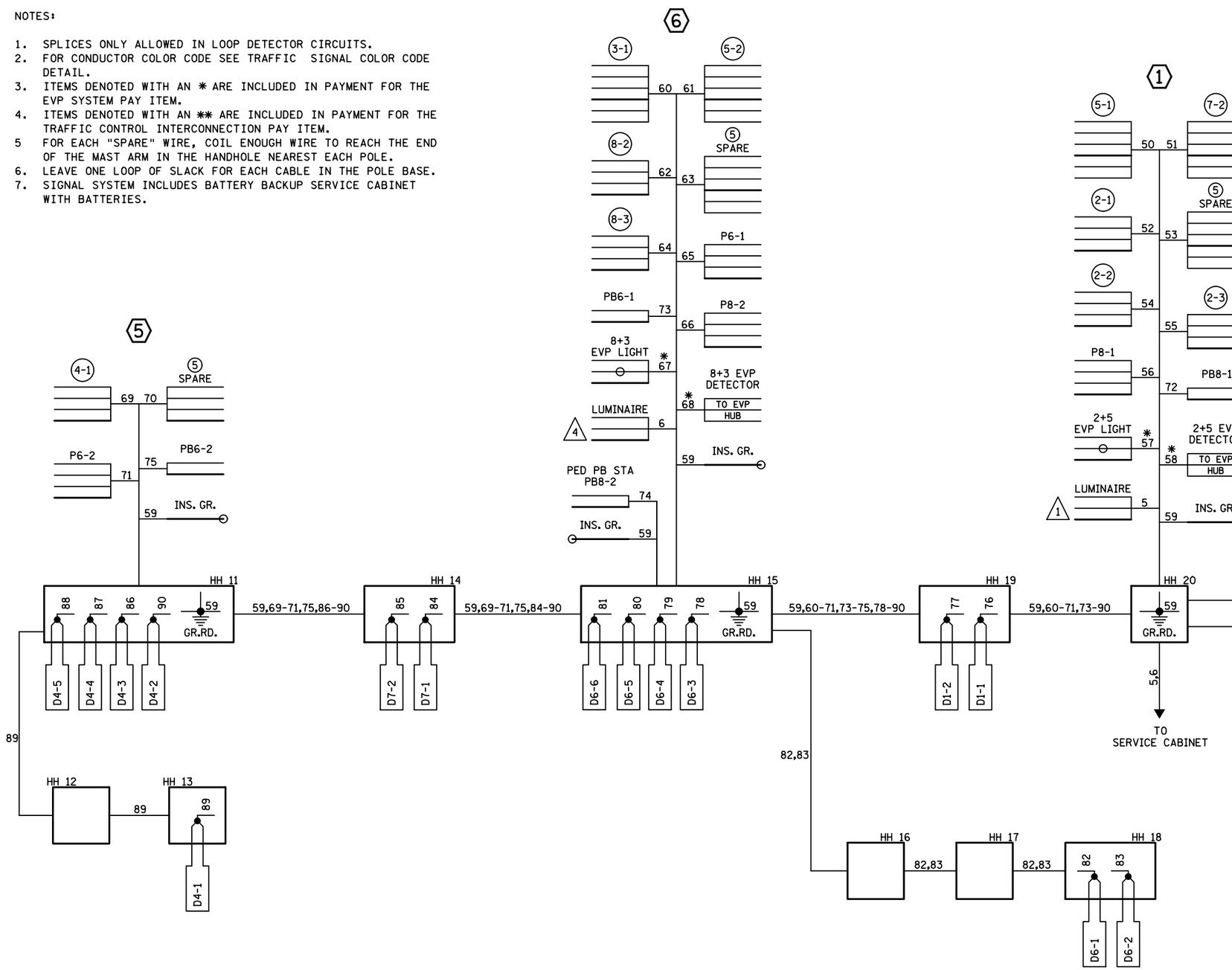
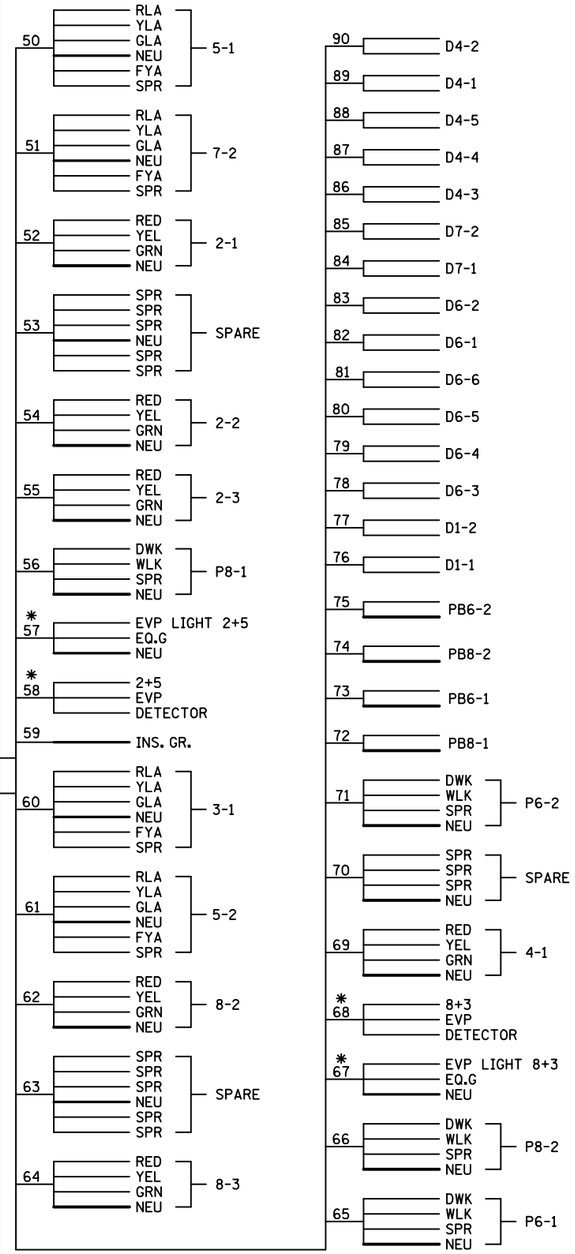
6. LEAVE ONE LOOP OF SLACK FOR EACH CABLE IN THE POLE BASE.
7. SIGNAL SYSTEM INCLUDES BATTERY BACKUP SERVICE CABINET WITH BATTERIES.



CONTROLLER CABINET



SAP 106-020-043, SAP 114-020-066, SAP 114-020-067

SAP 002-612-037, SAP 002-612-036 (CSAH 12)

SHEET NO. 80 OF 98 SHEETS

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SIGNATURE: Michael P. McCurdy
DATE 02/14/2025 LICENSE # 45902

TRAFFIC CONTROL SIGNAL SYSTEM PLANS

SIGNAL SYSTEM "A"

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2/14/2025
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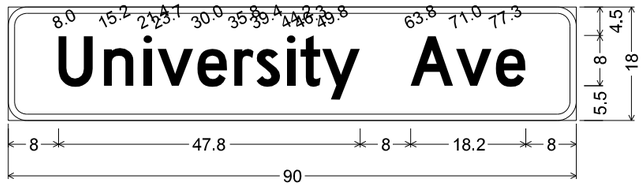
SIGN PANEL DETAILS

SIGN PANELS ON SIGNALS

POLE NUMBER	"A" DISTANCE (FEET) OR POLE	PANEL QTY	PANEL CODE NUMBER	PANEL LEGEND	PANEL SIZE (INCHES)	PANEL AREA (SQ FT)
1	25	1	D-2	LT ARW NORTHDALE BLVD/109TH AVE RT ARW	114 x 42	33.25
1	0	1	R10-X12	LEFT TURN YIELD ON FLASHING YELLOW ARROW	36 x 42	10.50
3	15	1	D-1	UNIVERSITY AVE	90 x 18	11.25
3	0	1	R10-X12	LEFT TURN YIELD ON FLASHING YELLOW ARROW	36 x 42	10.50
4	25	1	D-3	NORTHDALE AVE RT ARW/LT ARW 109TH AVE	114 x 42	33.25
4	0	1	R10-X12	LEFT TURN YIELD ON FLASHING YELLOW ARROW	36 x 42	10.50
6	19	1	D-1	UNIVERSITY AVE	90 x 18	11.25
6	0	1	R10-X12	LEFT TURN YIELD ON FLASHING YELLOW ARROW	36 x 42	10.50

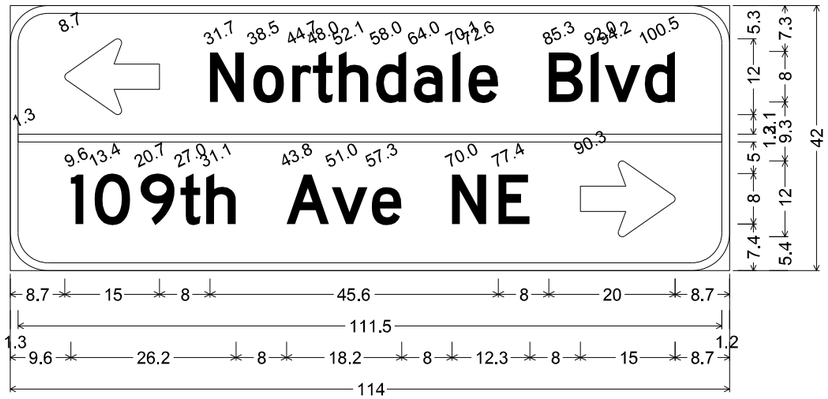
GENERAL NOTE(S):
1. SEE THE CURRENT MnDOT STANDARD SIGNS AND MARKINGS MANUAL FOR STANDARD SIGN DESIGNS, ARROW DETAILS AND SPLICE PLATE DETAILS.
2. FOR NON STANDARD SIGN DESIGNS, LAYOUTS ARE INCLUDED. SIGN PANEL DIMENSIONS ARE IN INCHES.
3. SEE STANDARD PLAN 5-297.731 FOR SIGN MOUNTING TO MAST ARM.
4. SEE STANDARD PLAN 5-297.730 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.

D-1



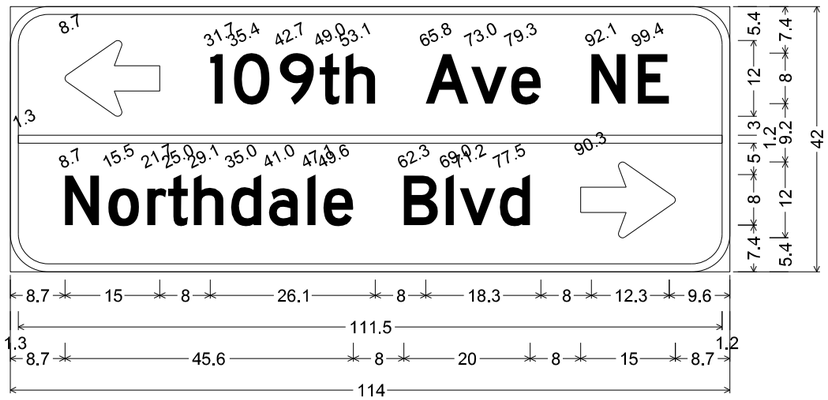
UNIVERSITY AVE;
3.0" Radius, 1.0" Border, White on Green;
"University Ave", D 2K;

D-2



LT ARROW NORTHDALE BLVD NW 109TH AVE NE RT ARROW;
6.0" Radius, 1.3" Border, White on Green;
Arrow Custom - 15.0" 180°; "Northdale Blvd", D 2K; "109th Ave NE", D 2K;
Arrow Custom - 15.0" 0°;

D-3



LT ARROW 109TH AVE NE NORTHDALE BLVD NW RT ARROW;
6.0" Radius, 1.3" Border, White on Green;
Arrow Custom - 15.0" 180°; "109th Ave NE", D 2K; "Northdale Blvd", D 2K;
Arrow Custom - 15.0" 0°;

NO	DATE	DWN	CKD	REVISIONS

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DATE 02/14/2025 LICENSE # 45902

TRAFFIC CONTROL SIGNAL SYSTEM PLANS
SIGNAL SYSTEM "A"

SAP 106-020-043, SAP 114-020-066, SAP 114-020-067
SAP 002-612-037, SAP 002-612-036 (CSAH 12)
SHEET NO. 81 OF 98 SHEETS

11:09:32 AM
2/14/2025
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NMC LOOP DETECTORS					
OLD NUMBER	NEW NUMBER	SIZE (FT.)	LOCATION	FUNCTION	STATUS
D5-1	D1-1	4-6x6	AS SHOWN	1	INPLACE
D6-2	D2-1	6x6	330'	1	INPLACE
D6-1	D2-2	6x6	330'	1	INPLACE
D6-4	D2-3	6x6	5'	2	INPLACE
D6-3	D2-4	6x6	5'	2	INPLACE
D7-1	D3-1	4-6x6	AS SHOWN	1	INPLACE
D8-1	D4-1	2-6x6	260'	3,8	INPLACE
D8-3	D4-2	2-6x6	AS SHOWN	1	INPLACE
D8-2	D4-3	2-6x6	AS SHOWN	7	INPLACE
D1-1	D5-1	4-6x6	AS SHOWN	1	INPLACE
D2-1	D6-1	6x6	230'	1	F & I
D2-2	D6-2	6x6	230'	1	F & I
D2-3	D8-3	6x6	5'	2	INPLACE
D2-4	D8-4	6x6	5'	2	INPLACE
D3-1	D7-1	4-6x6	AS SHOWN	1	INPLACE
D4-1	D8-1	2-6x6	260'	3,8	INPLACE
D4-3	D8-2	2-6x6	AS SHOWN	1	INPLACE
D4-2	D8-3	2-6x6	AS SHOWN	7	INPLACE

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

INSTALL VIDEO DETECTORS (FURNISHED BY COUNTY)				
CAMERA NO.	INTERSECTION APPROACH FACING	SIGNAL POLE (CAMERA) LOCATION	CAMERA MOUNTED AT	MOUNTING HEIGHT
V2/5-1	SB CSAH 51	MAST ARM 3	ON MAST ARM	25'

NOTE: MOUNTING HEIGHT = APPROXIMATE HEIGHT ABOVE ADJACENT GROUND LINE.

LOOP DETECTORS FUNCTIONS:
1) CALL AND EXTEND
2) CALL ONLY
3) EXTEND ONLY
7) DELAYED CALL, IMMEDIATE EXTEND
8) CARRY OVER (STRETCH)

(6) INPLACE (MAINTAIN INPLACE) — CONCRETE FOUNDATION; TYPE D40-9 LUMINAIRE POLE EXTENDED INTO H.H.18: 1 1/4"R.S.C.; 2-1/c#10 (LUM)

INPLACE — LUMINAIRE-250 W HPS W/PEC (REMOVE)
F & I — LUMINAIRE-SHOEBOX LED

INPLACE — CONTROLLER AND CABINET (SALVAGE)
INSTALL — CONTROLLER AND CABINET (FURNISHED BY COUNTY); VIDEO DETECTOR CABINET EQUIPMENT (INTERFACE PANEL, MONITOR, ETC.) (FURNISHED BY COUNTY)
F & I — RELABEL/RETERMINATE ALL CABLES AND CONDUCTORS IN NEW CONTROLLER CABINET

(A) INPLACE (MAINTAIN INPLACE) — CABINET FOUNDATION
EXTENDED INTO H.H.1: METERED SIGNAL SERVICE; 1 1/4"R.S.C.; 3-1/c#8
EXTENDED INTO H.H.2: 2-3"R.S.C.; 4-12/c#12; 5-3/c#12; 2-3/c#20; 7-2/c#14
INPLACE (MAINTAIN INPLACE) — EXTENDED INTO H.H.9: 2-3"R.S.C.; 6-12/c#12; 4-3/c#12; 4-3/c#20; 11-2/c#14

F & I — 1-4/c#14; 1-2/c#14; (**) 1-6 SM FIBER-OPTIC CABLE
F & I — 1-3/c#14 (VIDEO); 3-2/c#14

H.H.6 TO H.H.7: 1 1/4"R.S.C.-INPLACE (REMOVE) ("A"); 2-2/c#14-INPLACE (REMOVE BACK TO H.H.6 AND CONNECT TO NEW LOOP DETECTORS)

ALL VEHICLE AND PEDESTRIAN SIGNAL FACES, PEDESTRIAN PUSH BUTTONS, LOOP DETECTORS, EVP DETECTORS AND CONFIRMATORY LIGHTS SHALL BE RELABELED AND RETERMINATED IN EACH POLE BASE, HANDHOLE, AND IN NEW CONTROLLER CABINET AS SHOWN.

MATCH LINE "B" — SEE NEXT SHEET

CSAH 12 (NORTHDALE BLVD) (35 mph)

H.H.18 TO H.H.19: 1 1/4"R.S.C.-INPLACE; 1-2/c#14-INPLACE
H.H.19 TO H.H.20: 1 1/4"R.S.C.-INPLACE; 1-2/c#14-INPLACE
H.H.4 TO H.H.8: 3"R.S.C.-INPLACE; 2-2/c#14-INPLACE
H.H.4 TO H.H.5: 3"R.S.C.-INPLACE; 2-2/c#14-INPLACE
H.H.5 TO H.H.6: 1 1/4"R.S.C.-INPLACE; 2-2/c#14-INPLACE
H.H.17 TO H.H.18: 3"R.S.C.-INPLACE; 3-12/c#12-INPLACE; 2-3/c#12-INPLACE; 2-3/c#20-INPLACE; 2-2/c#14-INPLACE; 2-1/c#10 (LUM)-INPLACE
F & I — 1-3/c#14 (VIDEO); 1-2/c#14
H.H.13 TO H.H.17: 3"R.S.C.-INPLACE; 3-12/c#12-INPLACE; 2-3/c#12-INPLACE; 2-3/c#20-INPLACE; 3-2/c#14-INPLACE; 2-1/c#10 (LUM)-INPLACE
F & I — 1-3/c#14 (VIDEO); 1-2/c#14
H.H.14 TO H.H.15: 2"R.S.C.-INPLACE; 2-2/c#14-INPLACE
H.H.13 TO H.H.14: 3"R.S.C.-INPLACE; 2-2/c#14-INPLACE
H.H.12 TO H.H.13: 2-3"R.S.C.-INPLACE; 6-12/c#12-INPLACE; 4-3/c#12-INPLACE; 4-3/c#20-INPLACE; 7-2/c#14-INPLACE; 2-1/c#10 (LUM)-INPLACE
F & I — 1-3/c#14 (VIDEO); 2-2/c#14
H.H.9 TO H.H.12: 2-3"R.S.C.-INPLACE; 6-12/c#12-INPLACE; 4-3/c#12-INPLACE; 4-3/c#20-INPLACE; 8-2/c#14-INPLACE; 2-1/c#10 (LUM)-INPLACE
F & I — 1-3/c#14 (VIDEO); 2-2/c#14
H.H.9 TO H.H.10: 1 1/4"R.S.C.-INPLACE; 1-2/c#14-INPLACE
H.H.3 TO H.H.4: 3"R.S.C.-INPLACE; 2-12/c#12-INPLACE; 3-3/c#12-INPLACE; 1-3/c#20-INPLACE; 5-2/c#14-INPLACE; 2-1/c#10 (LUM)-INPLACE
F & I — 1-2/c#14
H.H.2 TO H.H.3: 3"R.S.C.-INPLACE; 2-12/c#12-INPLACE; 3-3/c#12-INPLACE; 1-3/c#20-INPLACE; 7-2/c#14-INPLACE; 2-1/c#10 (LUM)-INPLACE
F & I — 1-2/c#14
INPLACE (MAINTAIN INPLACE) — H.H.1 TO H.H.2: 1 1/4"R.S.C.; 4-1/c#10 (LUM)
H.H.2 TO H.H.9: 1 1/4"R.S.C.; 2-1/c#10 (LUM)
H.H.2 TO H.H.10 ("B"): (**) 2" CONDUIT; (**) 1-6 SM FIBER-OPTIC CABLE (TO 11TH AVENUE SIGNAL SYSTEM)

(5) INPLACE (MAINTAIN INPLACE) — CONCRETE FOUNDATION; TYPE D40-9 LUMINAIRE POLE EXTENDED INTO H.H.1: 1 1/4"R.S.C.; 4-1/c#10 (LUM)

INPLACE — LUMINAIRE-250 W HPS W/PEC (REMOVE)
F & I — LUMINAIRE-SHOEBOX LED

CONTRACTOR SHALL FURNISH, INSTALL, COIL AND STORE 25' OF 1-2/c#14 IN HANDHOLES 4, 9, 13, AND 18 AS SHOWN ON FIELD WIRING DIAGRAM (FOR FUTURE PUSH BUTTON INSTALLATIONS BY OTHERS).

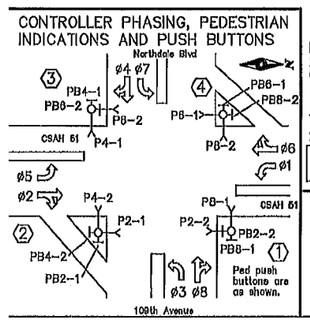
B INPLACE (MAINTAIN INPLACE) — CABINET FOUNDATION; SIGNAL SERVICE CABINET EXTENDED INTO H.H.1: METERED SIGNAL SERVICE; 1 1/4"R.S.C.; 3-1/c#8; UNMETERED STREET LIGHT SERVICE; 1 1/4"R.S.C.; 4-1/c#10 (LUM); 2"R.S.C. STUBBED OUT (FOR SERVICE CABLES BY OTHERS)

SEE NEXT SHEET FOR GENERAL NOTES AND DETAILED POLE NOTES

S.P. 002-651-007
S.P. 106-020-031
S.P. 114-020-046

CSAH 51 (UNIVERSITY AVE) (40 mph)
CSAH 12 (109TH AVE NE) (35 mph)
MATCH LINE "A" — SEE NEXT SHEET
MATCH LINE "C" — SEE NEXT SHEET
MATCH LINE — STA. NB 25+00
V2/5-1 (DURING CSAH 51 CONSTRUCTION ONLY)
ø6,1 EVP; ø6,3 EVP; ø2,5 EVP; ø4,7 EVP; ø3,7 EVP; ø3,3 EVP
F & I D6-1; F & I D6-2

CONTROLLER PHASING, PEDESTRIAN INDICATIONS AND PUSH BUTTONS



SIGNAL SYSTEM OPERATIONS:
- SIGNAL SYSTEM FLASH MODE IS ALL RED.
- NORMAL OPERATION IS 8 PHASE, WITH PHASES 1, 3, 5, AND 7 BEING PROTECTED LEFT TURN PHASES.
- VEHICLE SIGNAL PHASES 2 & 6 OPERATE ON RECALL.

FYA = FLASHING YELLOW ARROW.
(1) = OPTICALLY PROGRAMMED SIGNAL.

INPLACE LED SIGNAL FACES
ALL SIGNAL INDICATIONS ARE 12".

	OLD FACE #	NEW FACE #	R	Y	FYA	G
	5-1	1-1	⇦			⇦
(1)	6-2	1-2	⇦	⇦		
	6-2	2-1	o	o		o
	6-1	2-2	o	o		o
	7-1	3-1	⇦	⇦		⇦
	7-2	3-2	⇦	⇦		⇦
	8-1	4-1	o	o		o
	8-3	4-2	o	o		o
	8-2	4-3	o	o		o
	1-1	5-1	⇦	⇦		⇦
(1)	1-2	5-2	⇦	⇦		⇦
(1)	2-2	6-1	o	o		o
	2-1	6-2	o	o		o
	3-1	7-1	⇦	⇦		⇦
	3-2	7-2	⇦	⇦		⇦
(1)	4-1	8-1	o	o		o
	4-3	8-2	o	o		o
	4-2	8-3	o	o		o

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NO	DATE	DWN	CKD	REVISIONS

ALLIANT

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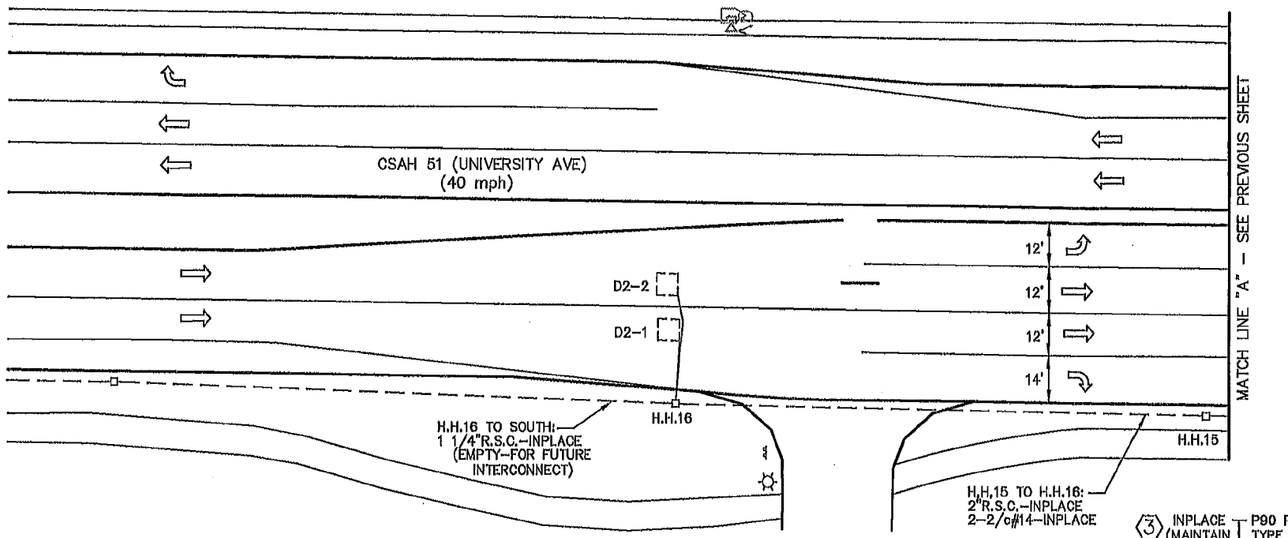
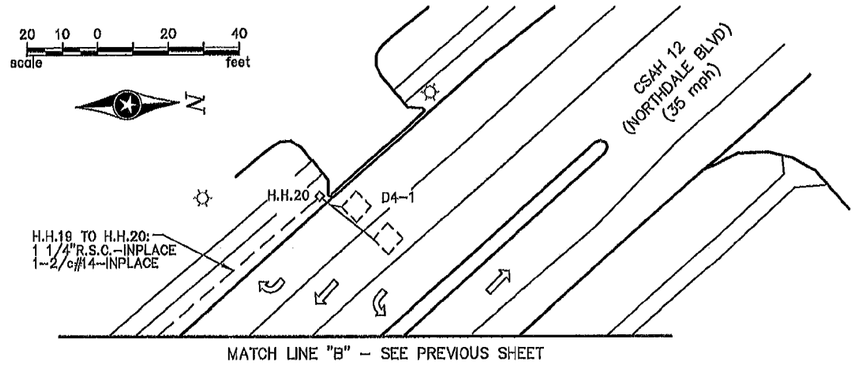
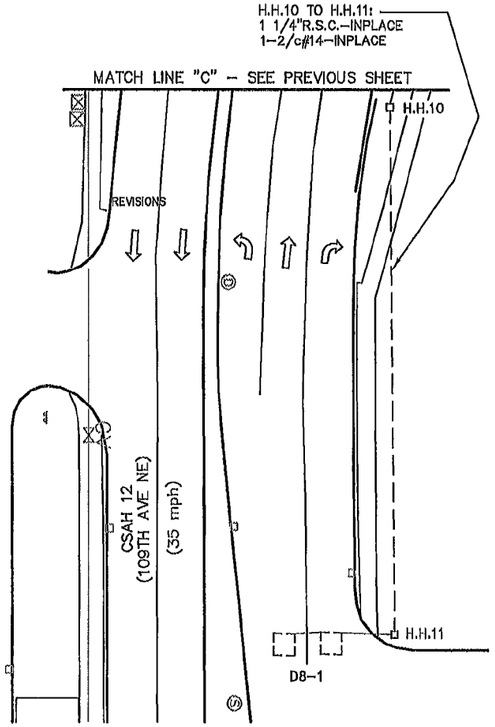
PRINT NAME: MICHAEL P. MCCURDY
SIGNATURE: Michael P. McCurdy
DATE 02/14/2025 LICENSE # 45902

TRAFFIC CONTROL SIGNAL SYSTEM PLANS
SIGNAL SYSTEM "A" AS-BUILTS

SAP 106-020-043, SAP 114-020-066, SAP 114-020-067
SAP 002-612-037, SAP 002-612-036 (CSAH 12)
SHEET NO. 82 OF 98 SHEETS







① INPLACE (MAINTAIN INPLACE)
- P90 POLE FOUNDATION
- TYPE P90-A-40
- 2-ONE WAY SIGNALS-OVERHEAD (0' & 12' FROM END OF MAST ARM)
- TYPE 10A-POLE MOUNTED 90 DEG
- TYPE 10C-POLE MOUNTED 270 DEG
- 2-PEDESTRIAN PUSH BUTTONS & SIGNS (R10-4b)
- TYPE D SIGN PANEL-OVERHEAD
- 2-R6-1 SIGN PANELS-POLE MOUNTED 0 DEG/180 DEG
- ONE WAY EVP DETECTOR & CONFIRMATORY LIGHT (ø2,5)
- EXTENDED INTO H.H.2:
- 3"R.S.C.
- 2-12/c#12
- 2-3/c#12
- 1-3/c#20

INPLACE (REMOVE)
- "LEFT TURN SIGNAL" SIGN-OVERHEAD

F & I
- 1-4/c#14 (COIL AND STORE IN POLE BASE)
- RELABEL/RETERMINATE ALL CABLES AND CONDUCTORS IN MAST ARM POLE BASE

② INPLACE (MAINTAIN INPLACE)
- P90 POLE FOUNDATION
- TYPE P90-A-25-D40-9 (DAVIT AT 350 DEG)
- LUMINAIRE CHECK SWITCH AT 180 DEG
- 2-ONE WAY SIGNALS-OVERHEAD (0' & 12' FROM END OF MAST ARM)
- 1-ONE WAY SIGNAL-OVERHEAD AT 12' (FACING WB TRAFFIC)
- 2-TYPE 10B-POLE MOUNTED 0 DEG & 270 DEG
- 1-PEDESTRIAN PUSH BUTTON & SIGN (R10-4b) AT 180 DEG
- TYPE D SIGN PANEL-OVERHEAD
- ONE WAY EVP DETECTOR & CONFIRMATORY LIGHT (ø4,7)
- ONE WAY EVP DETECTOR-POLE MOUNTED 90 DEG (ø8,3)
- EXTENDED INTO H.H.13:
- 3"R.S.C.
- 3-12/c#12
- 2-3/c#12
- 2-3/c#20
- 4-1/c#10 (LUM)

INPLACE (REMOVE)
- LUMINAIRE-250 W HPS W/PEC
- 1-PEDESTRIAN INSTRUCTION "STICKER" SIGN AT 270 DEG
- "LEFT TURN SIGNAL" SIGN-OVERHEAD

INPLACE (S & I)
- 1-PEDESTRIAN PUSH BUTTON (RELOCATE FROM 270 DEG TO 90 DEG SIDE OF MAST ARM POLE) (PB2-1) (PLUG HOLES AT 270 DEG)

F & I
- LUMINAIRE-SHOEBOX LED
- RELABEL/RETERMINATE ALL CABLES AND CONDUCTORS IN MAST ARM POLE BASE

③ INPLACE (MAINTAIN INPLACE)
- P90 POLE FOUNDATION
- TYPE P90-A-40
- 2-ONE WAY SIGNALS-OVERHEAD (0' & 12' FROM END OF MAST ARM)
- TYPE 10B-POLE MOUNTED 0 DEG
- TYPE 20B-POLE MOUNTED 270 DEG
- 2-PEDESTRIAN PUSH BUTTONS & SIGNS (R10-4b)
- TYPE D SIGN PANEL-OVERHEAD
- 2-R6-1 SIGN PANELS-POLE MOUNTED 0 DEG/180 DEG
- ONE WAY EVP DETECTOR & CONFIRMATORY LIGHT (ø6,1)
- ONE WAY EVP DETECTOR-POLE MOUNTED 180 DEG (ø4,7)
- EXTENDED INTO H.H.18:
- 3"R.S.C.
- 3-12/c#12
- 2-3/c#12
- 2-3/c#20

INPLACE (REMOVE)
- 2-PEDESTRIAN INSTRUCTION "STICKER" SIGNS AT 0 DEG AND 90 DEG
- "LEFT TURN SIGNAL" SIGN-OVERHEAD

INPLACE (S & I)
- 2-PEDESTRIAN PUSH BUTTONS (RELOCATE FROM 0/90 DEG TO 180/270 DEG SIDES OF MAST ARM POLE (PB6-2, PB4-1) (PLUG HOLES AT 0/90 DEG)

INSTALL
- VIDEO CAMERA-MAST ARM MOUNTED (FACING SB TRAFFIC) (V2/5-1) (FURNISHED BY COUNTY)

F & I
- 5-FOOT EXTENSION & MOUNTING HARDWARE FOR COUNTY FURNISHED VIDEO CAMERA (FOR MOUNTING ON TRAFFIC SIGNAL MAST ARM)
- 1-3/c#14 (VIDEO)
- RELABEL/RETERMINATE ALL CABLES AND CONDUCTORS IN MAST ARM POLE BASE

④ INPLACE (MAINTAIN INPLACE)
- P90 POLE FOUNDATION
- TYPE P90-A-35-D40-9 (DAVIT AT 350 DEG)
- 2-ONE WAY SIGNALS-OVERHEAD (0' & 12' FROM END OF MAST ARM)
- 2-TYPE 10B-POLE MOUNTED 0 DEG & 270 DEG
- 2-PEDESTRIAN PUSH BUTTONS & SIGNS (R10-4b)
- TYPE D SIGN PANEL-OVERHEAD
- ONE WAY EVP DETECTOR & CONFIRMATORY LIGHT (ø8,3)
- EXTENDED INTO H.H.4:
- 3"R.S.C.
- 2-12/c#12
- 3-3/c#12
- 1-3/c#20
- 2-1/c#10 (LUM)

INPLACE (REMOVE)
- LUMINAIRE-250 W HPS W/PEC
- 2-PEDESTRIAN INSTRUCTION "STICKER" SIGNS AT 0 DEG & 270 DEG

INPLACE (S & I)
- 2-PEDESTRIAN PUSH BUTTONS (RELOCATE FROM 0/270 DEG TO 90/180 DEG SIDES OF MAST ARM POLE (PB2-1, PB8-2) (PLUG HOLES AT 0/270 DEG)

F & I
- LUMINAIRE-SHOEBOX LED
- RELABEL/RETERMINATE ALL CABLES AND CONDUCTORS IN MAST ARM POLE BASE

NOTES:
1) LOCATION OF NEW LOOP DETECTORS SHALL BE DETERMINED IN THE FIELD BY THE ENGINEER.
2) SEE SPECIAL PROVISIONS FOR COUNTY FURNISHED MATERIALS.
3) ALL HANDHOLES ARE CONCRETE HANDHOLES WITH TYPE C COVERS, EXCEPT THAT HANDHOLE 11 IS PVC HANDHOLE WITH METAL FRAME AND COVER. CONTRACTOR SHALL REUSE AND MAINTAIN ALL INPLACE HANDHOLES, AND SHALL ADJUST HANDHOLES 1, 2, 4, 5, 6, 9, 13, 14, AND 18 TO FINISHED SURROUNDING GRADE AFTER ALL ROAD/SIDEWALK WORK IS COMPLETED (INCIDENTAL TO "REVISE SIGNAL SYSTEM "A").
4) CONTRACTOR SHALL RELOCATE PEDESTRIAN PUSH BUTTONS ON POLES 2, 3, AND 4 TO BE ADJACENT TO NEW PEDESTRIAN CURB RAMP LOCATIONS (REMOVE STICKER SIGNS).
5) ALL VEHICLE SIGNAL FACES ARE LED AND ARE INPLACE (REUSE AND MAINTAIN INPLACE).
6) ALL PEDESTRIAN INDICATIONS (COUNTDOWN TIMER "HAND/WALKING PERSON INDICATIONS) ARE LED AND ARE INPLACE (REUSE AND MAINTAIN INPLACE).
7) NEW LOOP DETECTOR WIRES FOR D6-1 / D6-2 SHALL BE CROSS-LINKED POLYETHYLENE (XLP) IN 3/4" N.M.C.
8) ALL VEHICLE AND PEDESTRIAN SIGNAL FACES, PEDESTRIAN PUSH BUTTONS, LOOP DETECTORS, EVP DETECTORS AND CONFIRMATORY LIGHTS SHALL BE RELABELED AND RETERMINATED IN EACH POLE BASE, HANDHOLE, AND IN NEW CONTROLLER CABINET AS SHOWN.
9) (**) DENOTES ITEMS TO BE FURNISHED AND INSTALLED BY THE CONTRACTOR UNDER ITEM NO. 2565 (TRAFFIC CONTROL INTERCONNECTION). SEE STATEMENT OF ESTIMATED QUANTITIES AND SPECIAL PROVISIONS.
10) INPLACE ITEMS TO BE REUSED INPLACE AS PART OF REVISE SIGNAL SYSTEM "A" SHALL BE PROTECTED AND MAINTAINED INPLACE. SEE SPECIAL PROVISIONS.
11) CONTRACTOR SHALL MAINTAIN OPERATION OF A SIGNAL SYSTEM AT THIS INTERSECTION AT ALL TIMES, EXCEPT AS NOTED IN SPECIAL PROVISIONS FOR WHEN CONTROLLER AND CABINET IS REPLACED AS PART OF "REVISE SIGNAL SYSTEM "A" WORK.
12) F & I = MATERIALS TO BE FURNISHED AND INSTALLED BY THE CONTRACTOR AS PART OF REVISE SIGNAL SYSTEM "A".
S & I = MATERIALS TO BE SALVAGED AND INSTALLED BY THE CONTRACTOR AS PART OF REVISE SIGNAL SYSTEM "A".
13) CONTRACTOR SHALL INSTALL VIDEO DETECTION FOR OPERATION DURING RECONSTRUCTION OF CSAH 51 WHERE ADVANCE LOOP DETECTORS ARE UNAVAILABLE, AND SHALL REMOVE AND SALVAGE ALL RELATED ITEMS FROM SIGNAL SYSTEM UPON COMPLETION OF ALL REVISE SIGNAL SYSTEM "A" WORK. SEE SPECIAL PROVISIONS.

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TRAFFIC CONTROL SIGNAL SYSTEM PLANS
SIGNAL SYSTEM "A" AS-BUILTS

SAP 106-020-043, SAP 114-020-066, SAP 114-020-067
SAP 002-612-037, SAP 002-612-036 (CSAH 12)
SHEET NO. 83 OF 98 SHEETS

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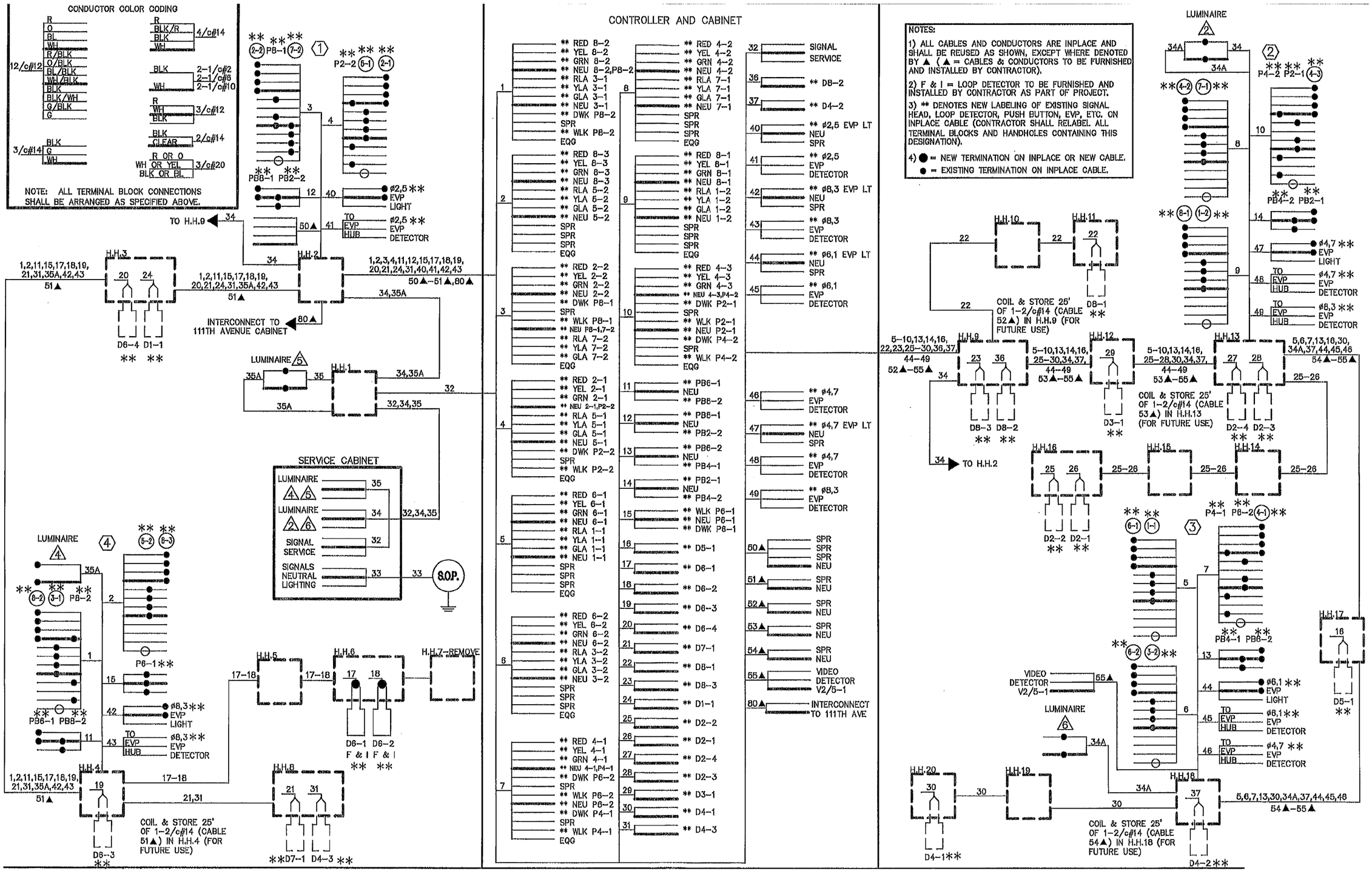

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SAP 002-612-037, SAP 002-612-036 (CSAH 12)
SHEET NO. 84 OF 98 SHEETS

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SIGNAL HEAD CHART

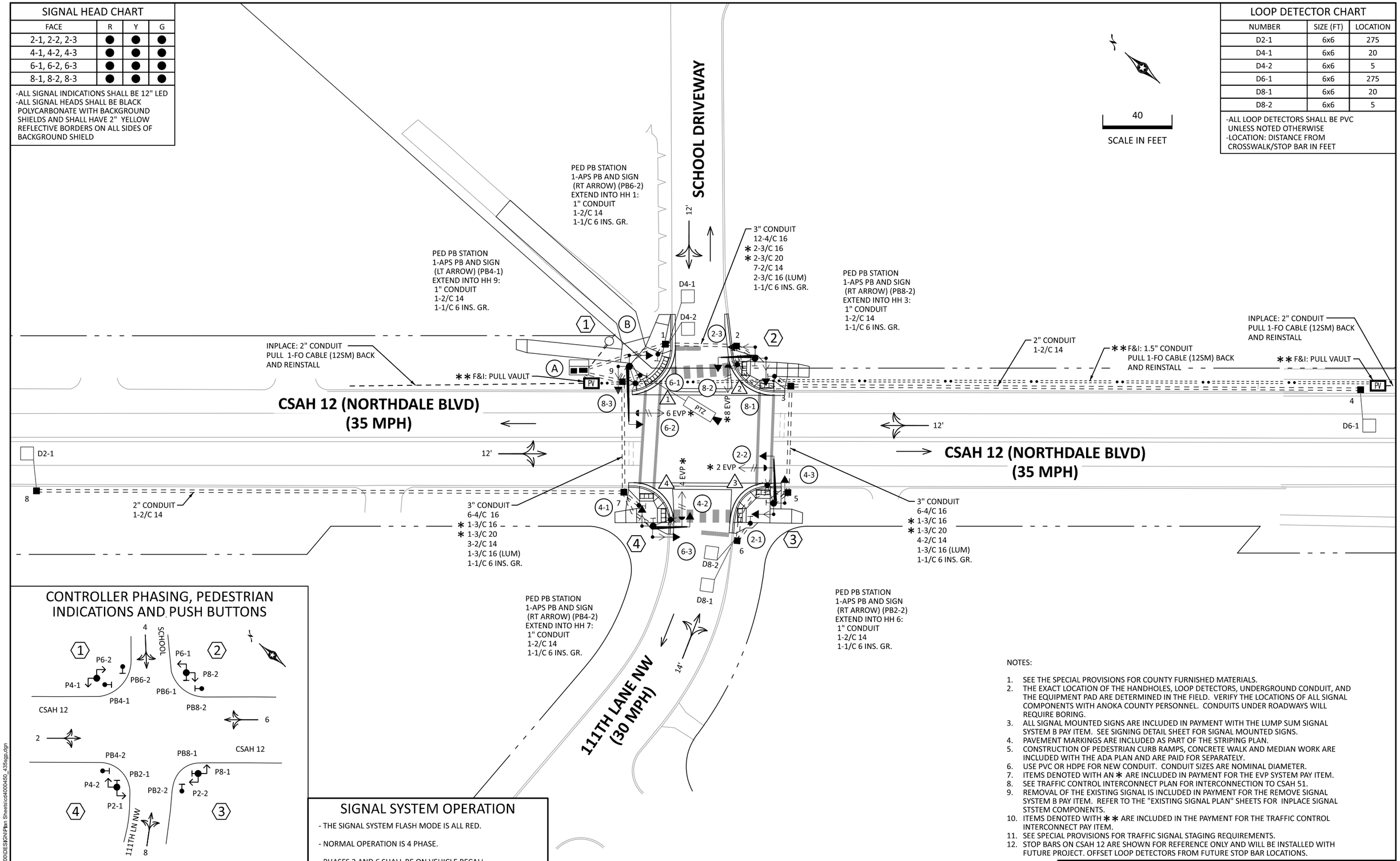
FACE	R	Y	G
2-1, 2-2, 2-3	●	●	●
4-1, 4-2, 4-3	●	●	●
6-1, 6-2, 6-3	●	●	●
8-1, 8-2, 8-3	●	●	●

-ALL SIGNAL INDICATIONS SHALL BE 12" LED
-ALL SIGNAL HEADS SHALL BE BLACK POLYCARBONATE WITH BACKGROUND SHIELDS AND SHALL HAVE 2" YELLOW REFLECTIVE BORDERS ON ALL SIDES OF BACKGROUND SHIELD

LOOP DETECTOR CHART

NUMBER	SIZE (FT)	LOCATION
D2-1	6x6	275
D4-1	6x6	20
D4-2	6x6	5
D6-1	6x6	275
D8-1	6x6	20
D8-2	6x6	5

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



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 4 PHASE.
- PHASES 2 AND 6 SHALL BE ON VEHICLE RECALL.

NOTES:

1. SEE THE SPECIAL PROVISIONS FOR COUNTY FURNISHED MATERIALS.
2. THE EXACT LOCATION OF THE HANDHOLES, LOOP DETECTORS, UNDERGROUND CONDUIT, AND THE EQUIPMENT PAD ARE DETERMINED IN THE FIELD. VERIFY THE LOCATIONS OF ALL SIGNAL COMPONENTS WITH ANOKA COUNTY PERSONNEL. CONDUITS UNDER ROADWAYS WILL REQUIRE BORING.
3. ALL SIGNAL MOUNTED SIGNS ARE INCLUDED IN PAYMENT WITH THE LUMP SUM SIGNAL SYSTEM B PAY ITEM. SEE SIGNING DETAIL SHEET FOR SIGNAL MOUNTED SIGNS.
4. PAVEMENT MARKINGS ARE INCLUDED AS PART OF THE STRIPING PLAN.
5. CONSTRUCTION OF PEDESTRIAN CURB RAMPS, CONCRETE WALK AND MEDIAN WORK ARE INCLUDED WITH THE ADA PLAN AND ARE PAID FOR SEPARATELY.
6. USE PVC OR HDPE FOR NEW CONDUIT. CONDUIT SIZES ARE NOMINAL DIAMETER.
7. ITEMS DENOTED WITH AN ∗ ARE INCLUDED IN PAYMENT FOR THE EVP SYSTEM PAY ITEM.
8. SEE TRAFFIC CONTROL INTERCONNECT PLAN FOR INTERCONNECTION TO CSAH 51.
9. REMOVAL OF THE EXISTING SIGNAL IS INCLUDED IN PAYMENT FOR THE REMOVE SIGNAL SYSTEM B PAY ITEM. REFER TO THE "EXISTING SIGNAL PLAN" SHEETS FOR INPLACE SIGNAL STSTEM COMPONENTS.
10. ITEMS DENOTED WITH ∗∗ ARE INCLUDED IN THE PAYMENT FOR THE TRAFFIC CONTROL INTERCONNECT PAY ITEM.
11. SEE SPECIAL PROVISIONS FOR TRAFFIC SIGNAL STAGING REQUIREMENTS.
12. STOP BARS ON CSAH 12 ARE SHOWN FOR REFERENCE ONLY AND WILL BE INSTALLED WITH FUTURE PROJECT. OFFSET LOOP DETECTORS FROM FUTURE STOP BAR LOCATIONS.

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TRAFFIC CONTROL SIGNAL SYSTEM PLANS
SIGNAL SYSTEM "B"

SAP 106-020-043, SAP 114-020-066, SAP 114-020-067
SAP 002-612-037, SAP 002-612-036 (CSAH 12)
SHEET NO. 85 OF 98 SHEETS

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(1) X=498772.8694 Y=149975.2617
PA85 POLE FOUNDATION MODIFIED (12' DEPTH)
TYPE PA85-A-25-X6-300/CAM 350 (MOUNTED AT 350 DEG)
(INCLUDES LIGHTNING ROD, 7/16" GROUND BRAID AND GROUND ROD)
1-LUMINAIRE-LED (FOR 30' MOUNTING HEIGHT)
1-PTZ VIDEO CAMERA (COUNTY PROVIDED)
1-ANGLE MOUNT SIGNAL OVERHEAD AT 0' (6-2)
2-ANGLE MOUNT SIGNALS AT 90 AND 180 DEG (8-3) (6-1)
2-ANGLE MOUNT C. D. PED HEADS AT 90 AND 180 DEG (P4-1, P6-2)
✻ 1-ONE WAY EVP DETECTOR AND CONFIRMATORY LIGHT (PHASE 6)
1-GUIDE SIGN (D-2 (SEE SIGN DETAILS)
3" CONDUIT INTO HH 9:
6-4/C 16
✻ 1-3/C 16
✻ 1-3/C 20
1-3/C 16(LUM)
1-COM CABLE (CAT5E) (PTZ)
1-7/16" GROUNDING BRAID (LIGHTNING ROD TO GROUND ROD)
1-1/C 6 INS. GR.

(2) X=498814.0095 Y=149934.1569
PA85 POLE FOUNDATION
TYPE PA85-A-15-D30-9
1-LUMINAIRE-LED (FOR 30' MOUNTING HEIGHT)
1-ANGLE MOUNT SIGNAL OVERHEAD AT 0' (8-2)
2-ANGLE MOUNT SIGNALS AT 90 AND 180 DEG (2-3) (8-1)
2-ANGLE MOUNT C. D. PED HEADS AT 90 AND 180 DEG (P6-1, P8-2)
✻ 1-ONE WAY EVP DETECTOR AND CONFIRMATORY LIGHT (PHASE 8)
1-APS PB AND SIGN (LT ARROW) (PB6-1) AND POLE MOUNTING ADAPTOR
1-GUIDE SIGN (D-1) (SEE SIGN DETAILS)
3" CONDUIT INTO HH 2:
6-4/C 16
✻ 1-3/C 16
✻ 1-3/C 20
1-2/C 14
1-3/C 16 (LUM)
1-1/C 6 INS. GR.

(3) X=498769.3061 Y=149883.5239
PA85 POLE FOUNDATION
TYPE PA85-A-20-D30-9
1-LUMINAIRE-LED (FOR 30' MOUNTING HEIGHT)
1-ANGLE MOUNT SIGNAL OVERHEAD AT 0' (2-2)
2-ANGLE MOUNT SIGNALS AT 90 AND 180 DEG (4-3) (2-1)
2-ANGLE MOUNT C. D. PED HEADS AT 90 AND 180 DEG (P8-1, P2-2)
✻ 1-ONE WAY EVP DETECTOR AND CONFIRMATORY LIGHT (PHASE 2)
1-APS PB AND SIGN (LT ARROW) (PB8-1) AND POLE MOUNTING ADAPTOR
1-GUIDE SIGN (D-2) (SEE SIGN DETAILS)
3" CONDUIT INTO HH 5:
6-4/C 16
✻ 1-3/C 16
✻ 1-3/C 20
1-2/C 14
1-3/C 16 (LUM)
1-1/C 6 INS. GR.

(4) X=498724.6611 Y=149918.4351
PA85 POLE FOUNDATION
TYPE PA85-A-15-D30-9
1-LUMINAIRE-LED (FOR 30' MOUNTING HEIGHT)
1-ANGLE MOUNT SIGNAL OVERHEAD AT 0' (4-2)
2-ANGLE MOUNT SIGNALS AT 90 AND 180 DEG (6-3) (4-1)
2-ANGLE MOUNT C. D. PED HEADS AT 90 AND 180 DEG (P2-1, P4-2)
✻ 1-ONE WAY EVP DETECTOR AND CONFIRMATORY LIGHT (PHASE 4)
1-APS PB AND SIGN (LT ARROW) (PB2-1) AND POLE MOUNTING ADAPTOR
1-GUIDE SIGN (D-1) (SEE SIGN DETAILS)
3" CONDUIT INTO HH 7:
6-4/C 16
✻ 1-3/C 16
✻ 1-3/C 20
1-2/C 14
1-3/C 16 (LUM)
1-1/C 6 INS. GR.

(A) EQUIPMENT PAD (SEE DETAIL SHEET)
SERVICE CABINET WITH BATTERY BACKUP (SEE DETAIL SHEET)
CONTROLLER AND CABINET (COUNTY PROVIDED)

3" CONDUIT TO HH 1:	3" CONDUIT TO HH 1:
6-4/C 16	6-4/C 16
✻ 1-3/C 16	✻ 1-3/C 16
✻ 1-3/C 20	✻ 1-3/C 20
5-2/C 14	5-2/C 14
1-1/C 6 INS. GR.	1-1/C 6 INS. GR.
3" CONDUIT TO HH 9:	3" CONDUIT TO HH 9:
6-4/C 16	6-4/C 16
✻ 1-3/C 16	✻ 1-3/C 16
✻ 1-3/C 20	✻ 1-3/C 20
2-2/C 14	2-2/C 14
1-COM CABLE (CAT5E) (PTZ)	1-1/C 6 INS. GR.
1-1/C 6 INS. GR.	

GROUND WIRE AND GROUND ROD - MIN 8' STUBBED OUT FROM PAD
2-2" AND 1-3" CONDUIT STUBBED OUT (CAPPED BOTH ENDS)
1.5"CONDUIT TO TMS VAULT:
1-FO CABLE (12SM)
CONTROLLER CABINET TO SERVICE CABINET:
2" CONDUIT
3-1/C 6
CONTROLLER CABINET TO SERVICE CABINET (COMMS):
2" CONDUIT
1-6PR 19
SERVICE CABINET TO POLE MOUNTED TRANSFORMER:
2" CONDUIT
3-1/C 2

SERVICE CABINET TO HH 1:
2" CONDUIT
2-3/C 16 (LUM)
SERVICE CABINET TO HH 9:
2" CONDUIT
2-3/C 16 (LUM)
SERVICE CABINET TO EXTERNAL GR. RD.:
1" CONDUIT
1-1/C 6 INS. GR.
(SEE EQUIPMENT PAD LAYOUT)

(B) SOP TRANSFORMER (CONNEXUS)
INPLACE CONDUIT AND CABLE TO SERVICE CABINET
(COORDINAT NEW HOOK-UP)

NOTES:

1. ITEMS DENOTED WITH AN ✻ ARE INCLUDED IN PAYMENT FOR THE EVP SYSTEM PAY ITEM.
2. ITEMS DENOTED WITH ✻✻ ARE INCLUDED IN THE PAYMENT FOR THE TRAFFIC CONTROL INTERCONNECT PAY ITEM.

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SIGNAL SYSTEM "B

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SAP 002-612-037, SAP 002-612-036 (CSAH 12)
SHEET NO. 86 OF 98 SHEETS

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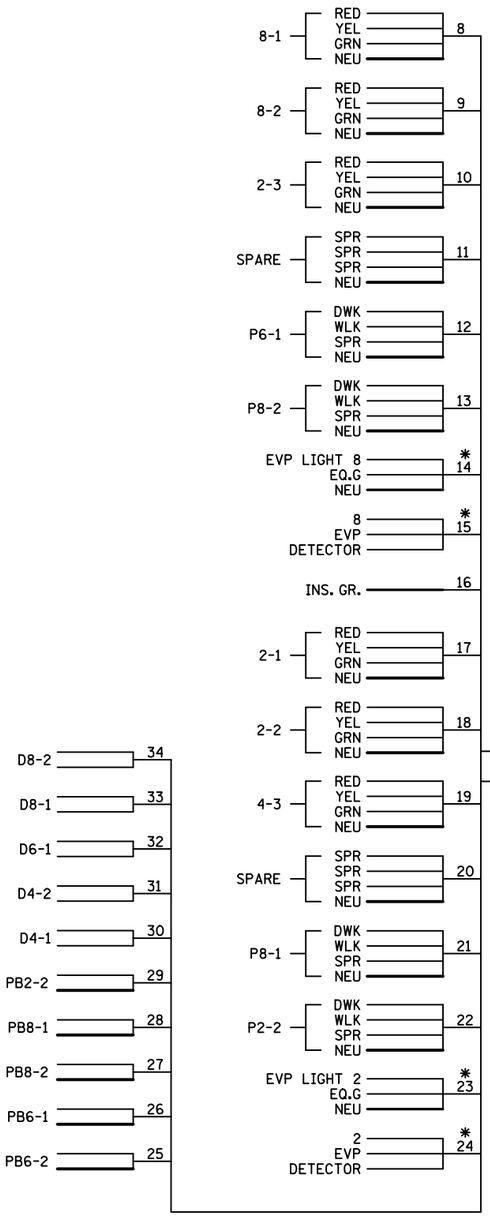
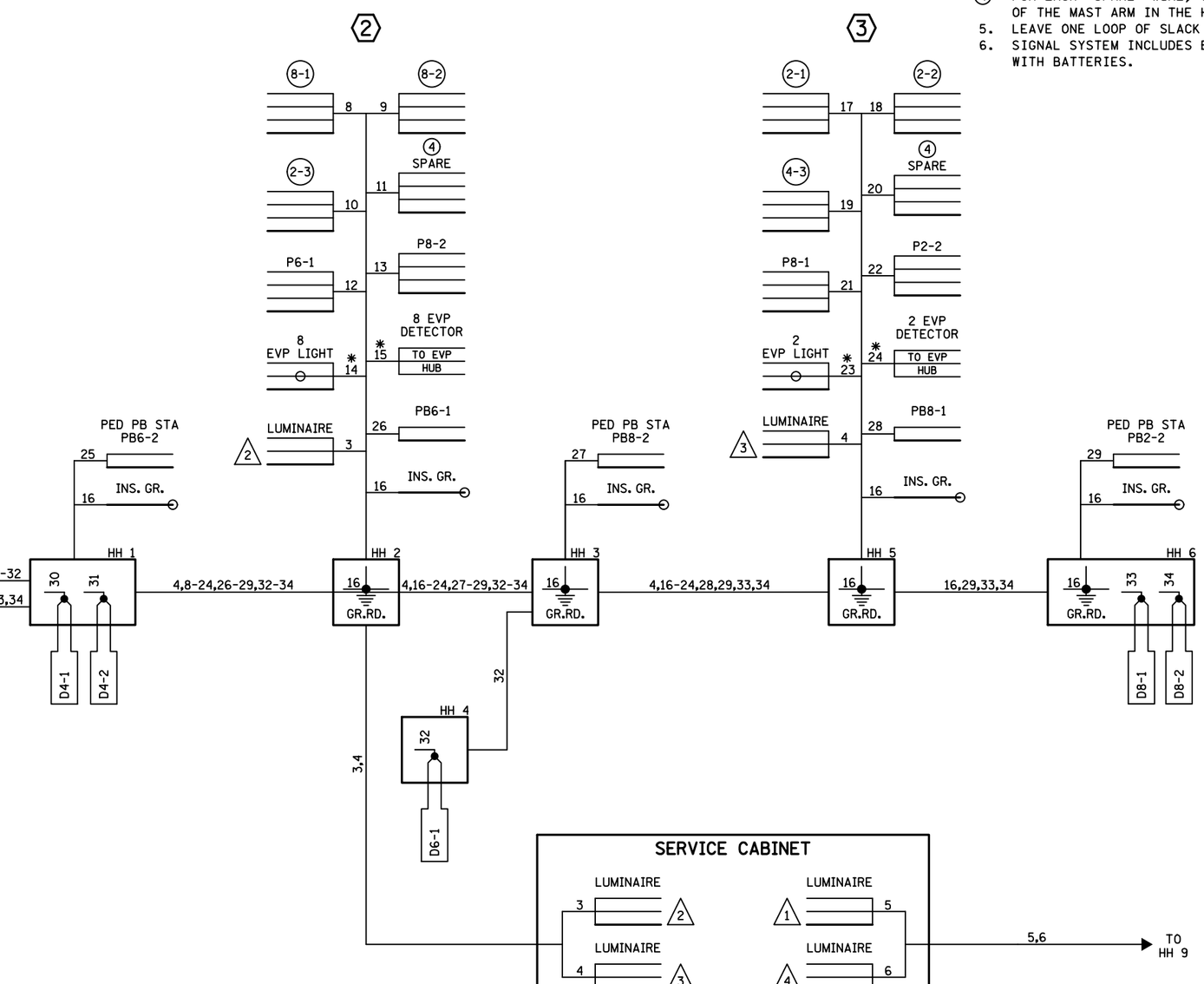
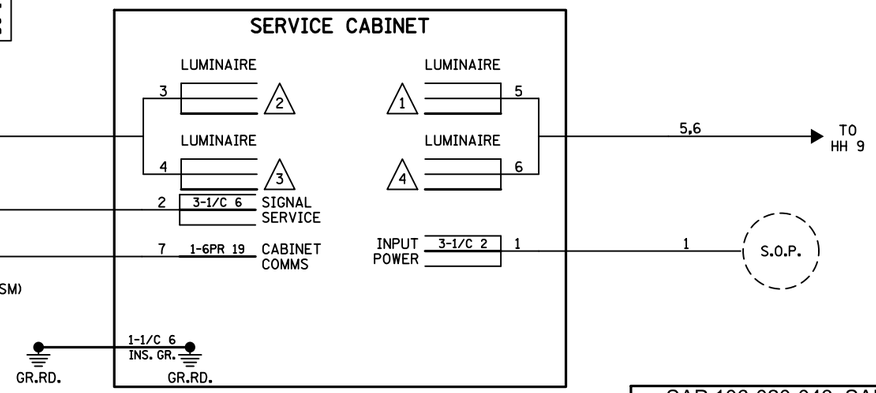
CONTROLLER CABINET







NOTES:

1. SPLICES ONLY ALLOWED IN LOOP DETECTOR CIRCUITS.
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. FOR EACH "SPARE" WIRE, COIL ENOUGH WIRE TO REACH THE END OF THE MAST ARM IN THE HANDHOLE NEAREST EACH POLE.
5. LEAVE ONE LOOP OF SLACK FOR EACH CABLE IN THE POLE BASE.
6. SIGNAL SYSTEM INCLUDES BATTERY BACKUP SERVICE CABINET WITH BATTERIES.

SIGNAL SERVICE 3-1/C 6 — 2 — 2

CABINET COMMS — 7 — 7

TO UNIVERSITY AVE. SIGNAL SYSTEM (12SM)

TO FOLEY BLVD. SIGNAL SYSTEM (12SM)

FIBER OPTIC CABLE (12SM) — 100 — 100 — PV — 100

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SIGNAL SYSTEM "B"

SAP 106-020-043, SAP 114-020-066, SAP 114-020-067
SAP 002-612-037, SAP 002-612-036 (CSAH 12)
SHEET NO. 87 OF 98 SHEETS

11:00:39 AM
2/14/2025
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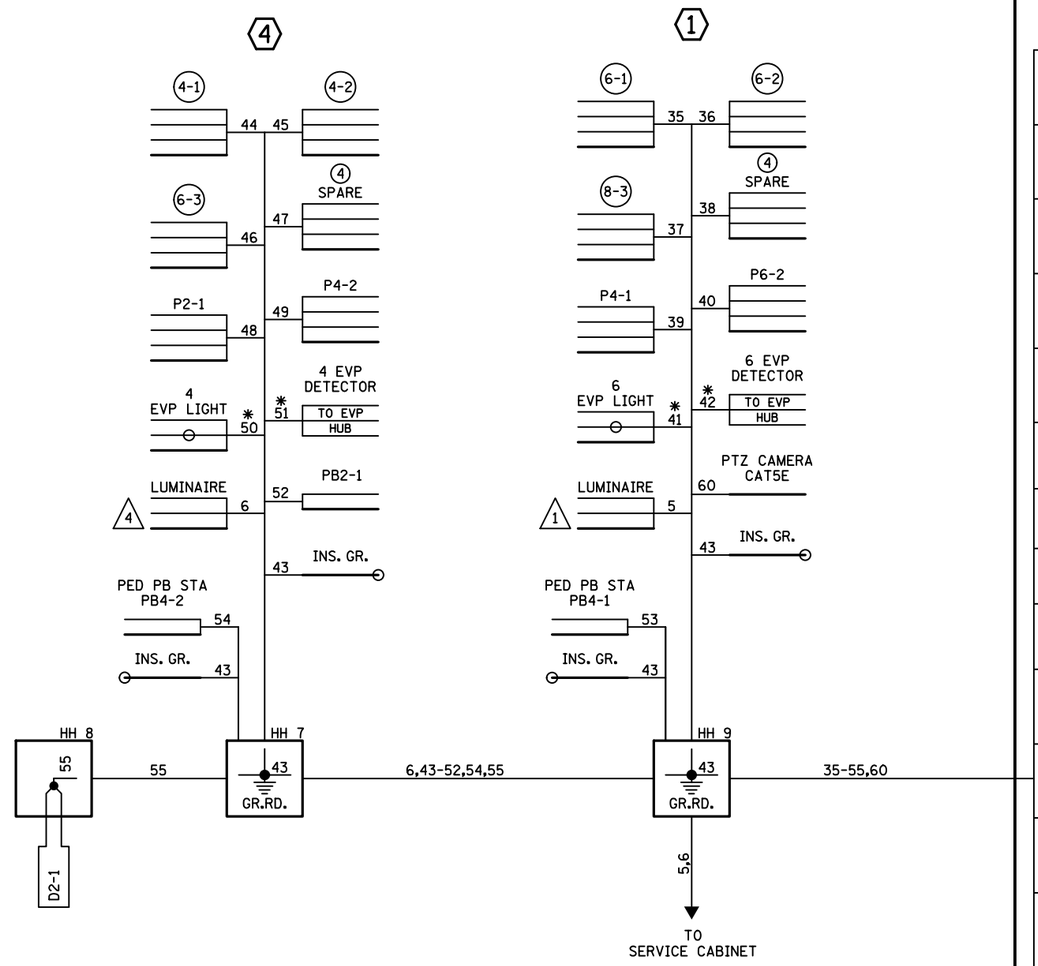
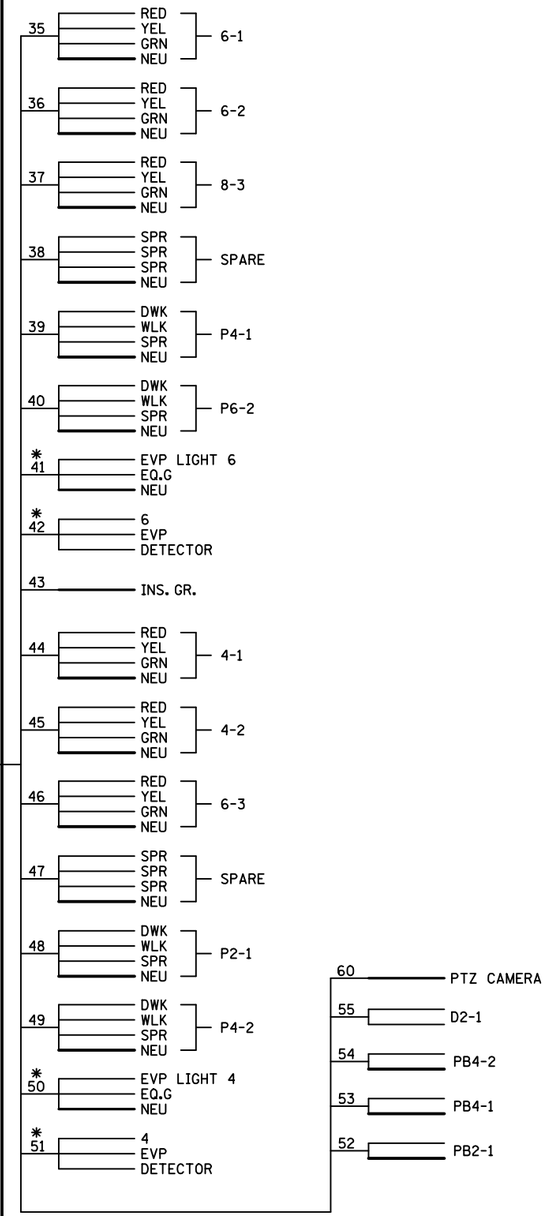
NOTES:

1. SPLICES ONLY ALLOWED IN LOOP DETECTOR CIRCUITS.
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. FOR EACH "SPARE" WIRE, COIL ENOUGH WIRE TO REACH THE END OF THE MAST ARM IN THE HANDHOLE NEAREST EACH POLE.
5. LEAVE ONE LOOP OF SLACK FOR EACH CABLE IN THE POLE BASE.
6. SIGNAL SYSTEM INCLUDES BATTERY BACKUP SERVICE CABINET WITH BATTERIES.



CONTROLLER CABINET



NO	DATE	DWN	CKD	REVISIONS

ALLIANT

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

PRINT NAME: MICHAEL P. MCCURDY
SIGNATURE: Michael P. McCurdy
DATE 02/14/2025 LICENSE # 45902

TRAFFIC CONTROL SIGNAL SYSTEM PLANS
SIGNAL SYSTEM "B"

SAP 106-020-043, SAP 114-020-066, SAP 114-020-067
SAP 002-612-037, SAP 002-612-036 (CSAH 12)
SHEET NO. 88 OF 98 SHEETS

11:00:39 AM
2/14/2025
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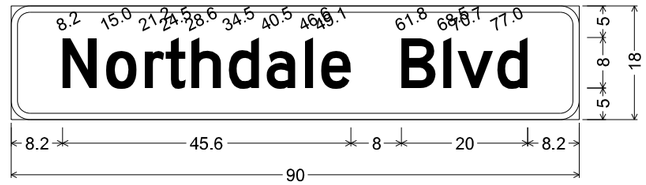
SIGN PANEL DETAILS

SIGN PANELS ON SIGNALS						
POLE NUMBER	"A" DISTANCE (FEET) OR POLE	PANEL				
		QTY	CODE NUMBER	LEGEND	SIZE (INCHES)	AREA (SQ FT)
1	7	1	D-2	111TH LN NW	72 x 18	9.00
2	7	1	D-1	NORTHDALE BLVD	90 x 18	11.25
3	7	1	D-2	111TH LN NW	72 x 18	9.00
4	7	1	D-1	NORTHDALE BLVD	90 x 18	11.25

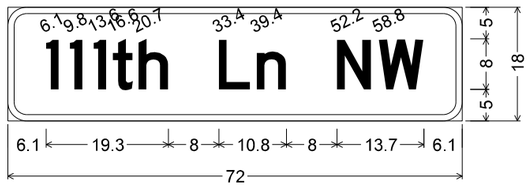
GENERAL NOTE(S):
1. SEE THE CURRENT MnDOT STANDARD SIGNS AND MARKINGS MANUAL FOR STANDARD SIGN DESIGNS, ARROW DETAILS AND SPLICE PLATE DETAILS.
2. FOR NON STANDARD SIGN DESIGNS, LAYOUTS ARE INCLUDED. SIGN PANEL DIMENSIONS ARE IN INCHES.
3. SEE STANDARD PLAN 5-297.731 FOR SIGN MOUNTING TO MAST ARM.
4. SEE STANDARD PLAN 5-297.730 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.

D-1



NORTHDALE BLVD NW;
3.0" Radius, 1.0" Border, White on Green;
"Northdale Blvd", D 2K;

D-2



111TH LN NW;
3.0" Radius, 1.0" Border, White on Green;
"111th Ln NW", D 2K;

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2/14/2025
...\Projects\94000450-00\DESIGN\Plan Sheets\cs94000450_435sgn.dgn

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PRINT NAME: MICHAEL P. MCCURDY
SIGNATURE: Michael P. McCurdy
DATE 02/14/2025 LICENSE # 45902

TRAFFIC CONTROL SIGNAL SYSTEM PLANS
SIGNAL SYSTEM "B"

SAP 106-020-043, SAP 114-020-066, SAP 114-020-067
SAP 002-612-037, SAP 002-612-036 (CSAH 12)
SHEET NO. 89 OF 98 SHEETS

INPLACE NMC LOOP DETECTORS			
NUMBER	SIZE (FT.)	LOCATION	FUNCTION
D2-1	6x6	260'	1
D4-1	6x6	80'	3
D4-2	6x20	0'	7
D4-3	6x6	110'	3
D4-4	2-6x20	0'	7
D6-1	6x6	260'	1

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

FUNCTIONS:
1 = CALL AND EXTEND
3 = EXTEND ONLY
7 = DELAYED CALL, IMMEDIATE EXTEND
8 = CARRY OVER (STRETCH)

INTERCONNECT NOTES:

1) IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO UTILIZE THE "ONE CALL EXCAVATION NOTICE SYSTEM" (TELEPHONE NUMBER 651-454-0002) AS REQUIRED BY MINNESOTA STATUTE 216D.
2) (*) DENOTES ITEMS TO BE FURNISHED AND INSTALLED BY THE CONTRACTOR UNDER ITEM NO. 2565 (TRAFFIC CONTROL INTERCONNECT "D"). SEE STATEMENT OF ESTIMATED QUANTITIES AND SPECIAL PROVISIONS.
3) ALL ITEMS OF THIS SIGNAL SYSTEM ARE INPLACE AND SHALL BE REUSED, PROTECTED AND MAINTAINED INPLACE, EXCEPT WHERE BOXED IN AND DENOTED BY (*) AND BY F & I (ITEMS TO BE FURNISHED & INSTALLED BY CONTRACTOR).
4) NEW HANDHOLES REQUIRED TO BE FURNISHED & INSTALLED BY THE CONTRACTOR AS PART OF PROJECT SHALL BE PRE-CAST POLYMER CONCRETE STRUCTURES (QUAZITE). SEE DETAILS/SPECIAL PROVISIONS.
5) SEE SPECIAL PROVISIONS FOR INFORMATION REGARDING LABOR AND MATERIALS TO BE FURNISHED AND INSTALLED BY THE CONTRACTOR IN EACH INPLACE TRAFFIC SIGNAL CONTROLLER CABINET AS PART OF THE "TRAFFIC CONTROL INTERCONNECT "D" PAY ITEM.

30 0 30 60
scale feet

N

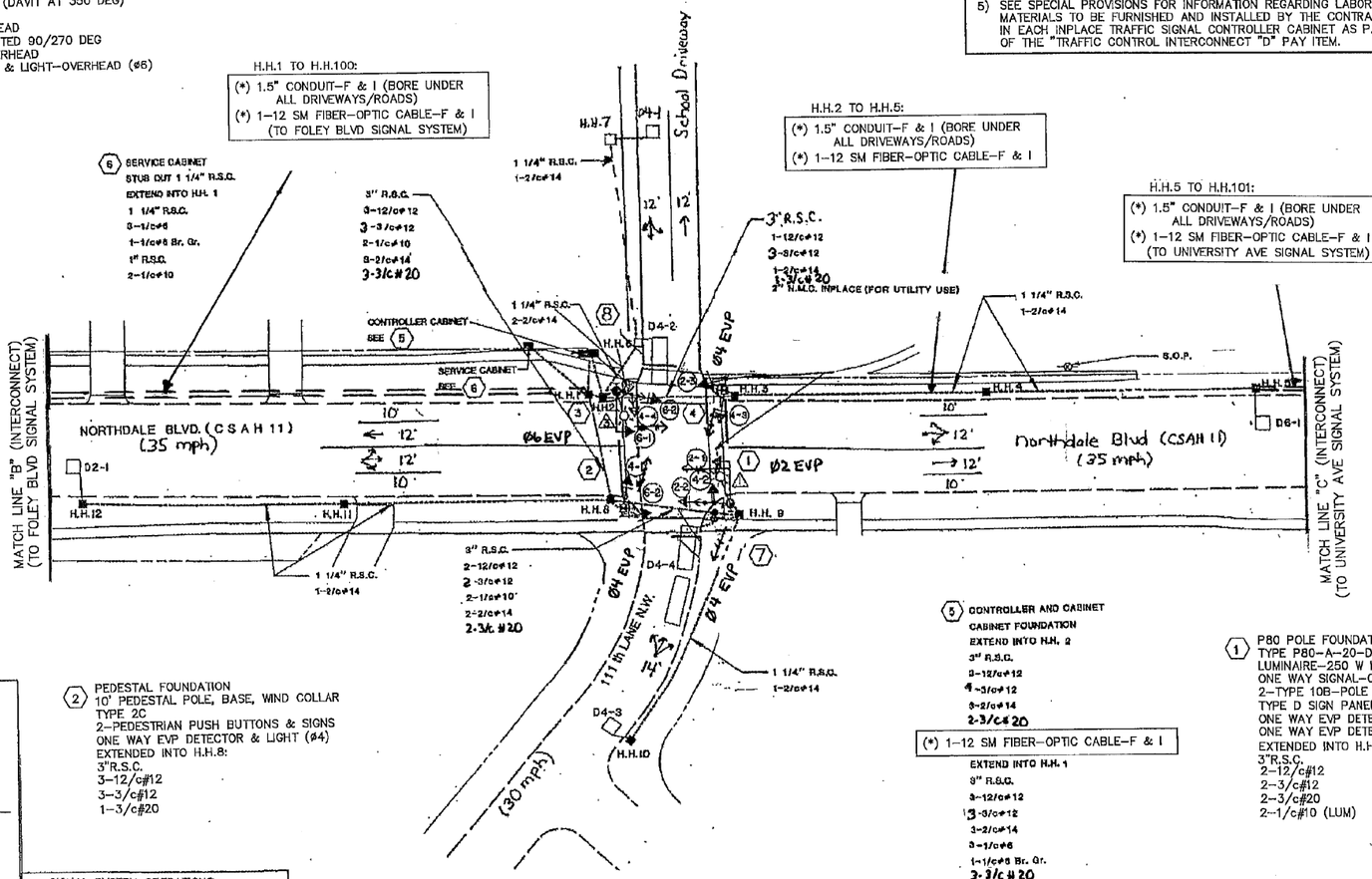
(3) P80 POLE FOUNDATION
TYPE P80-A-20-D30-6 (DAVIT AT 350 DEG)
LUMINAIRE-250 W HPS
ONE WAY SIGNAL-OVERHEAD
2-TYPE 10B-POLE MOUNTED 90/270 DEG
TYPE D SIGN PANEL-OVERHEAD
ONE WAY EVP DETECTOR & LIGHT-OVERHEAD (ø6)
EXTENDED INTO H.H.2:
3"R.S.C.
2-12/c#12
1-3/c#12
1-3/c#20
4-1/c#10 (LUM)

(4) PEDESTAL FOUNDATION
10' PEDESTAL POLE, BASE, WND COLLAR
TYPE 2C
2-PEDESTRIAN PUSH BUTTONS & SIGNS
ONE WAY EVP DETECTOR & LIGHT (ø4)
EXTENDED INTO H.H.3:
3"R.S.C.
2-12/c#12
3-3/c#12
1-3/c#20

H.H.1 TO H.H.100:
(*) 1.5" CONDUIT-F & I (BORE UNDER ALL DRIVEWAYS/ROADS)
(*) 1-12 SM FIBER-OPTIC CABLE-F & I (TO FOLEY BLVD SIGNAL SYSTEM)

H.H.2 TO H.H.5:
(*) 1.5" CONDUIT-F & I (BORE UNDER ALL DRIVEWAYS/ROADS)
(*) 1-12 SM FIBER-OPTIC CABLE-F & I

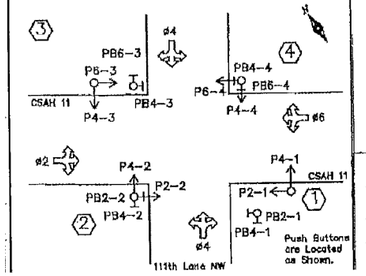
H.H.5 TO H.H.101:
(*) 1.5" CONDUIT-F & I (BORE UNDER ALL DRIVEWAYS/ROADS)
(*) 1-12 SM FIBER-OPTIC CABLE-F & I (TO UNIVERSITY AVE SIGNAL SYSTEM)



(5) CONTROLLER AND CABINET
CABINET FOUNDATION
EXTEND INTO H.H. 2
3" R.S.C.
3-12/c#12
4-3/c#12
3-2/c#14
2-3/c#20
(*) 1-12 SM FIBER-OPTIC CABLE-F & I
EXTEND INTO H.H. 1
3" R.S.C.
3-12/c#12
3-3/c#12
3-2/c#14
3-1/c#6
1-1/c#6 Br. Gr.
3-3/c#20
(*) 1-12 SM FIBER-OPTIC CABLE-F & I
BETWEEN H.H. 1 AND H.H. 2
2" R.S.C.
4-1/c#10

(1) P80 POLE FOUNDATION
TYPE P80-A-20-D40-9 (DAVIT AT 350 DEG)
LUMINAIRE-250 W HPS
ONE WAY SIGNAL-OVERHEAD
2-TYPE 10B-POLE MOUNTED 90/270 DEG
TYPE D SIGN PANEL-OVERHEAD
ONE WAY EVP DETECTOR & LIGHT-OVERHEAD (ø2)
ONE WAY EVP DETECTOR AT 180 DEG (ø4)
EXTENDED INTO H.H.9:
3"R.S.C.
2-12/c#12
2-3/c#12
2-3/c#20
2-1/c#10 (LUM)

CONTROLLER PHASING, PEDESTRIAN INDICATIONS AND PUSH BUTTONS



(2) PEDESTAL FOUNDATION
10' PEDESTAL POLE, BASE, WIND COLLAR
TYPE 2C
2-PEDESTRIAN PUSH BUTTONS & SIGNS
ONE WAY EVP DETECTOR & LIGHT (ø4)
EXTENDED INTO H.H.8:
3"R.S.C.
3-12/c#12
3-3/c#12
1-3/c#20

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

(7)(8) PEDESTRIAN PUSH BUTTON STATION (4"R.S.C)
2-PEDESTRIAN PUSH BUTTONS & SIGNS
EXTENDED INTO H.H.2 AND H.H.9:
1 1/4"R.S.C.
1-3/c#12 (POLE 7)
2-3/c#12 (POLE 8)

LED SIGNAL FACES			
SIGNAL FACE	ALL 12".		
	R	Y	G
2-1, 2-2, 2-3	●	●	●
4-1, 4-2	●	●	●
4-3, 4-4	●	●	●
6-1, 6-2, 6-3	●	●	●

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2/14/2025
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NO	DATE	DWN	CKD	REVISIONS

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PRINT NAME: MICHAEL P. MCCURDY
SIGNATURE: Michael P. McCurdy
DATE 02/14/2025 LICENSE # 45902

TRAFFIC CONTROL SIGNAL SYSTEM PLANS
SIGNAL SYSTEM "B" AS-BUILTS

SAP 106-020-043, SAP 114-020-066, SAP 114-020-067
SAP 002-612-037, SAP 002-612-036 (CSAH 12)
SHEET NO. 90 OF 98 SHEETS

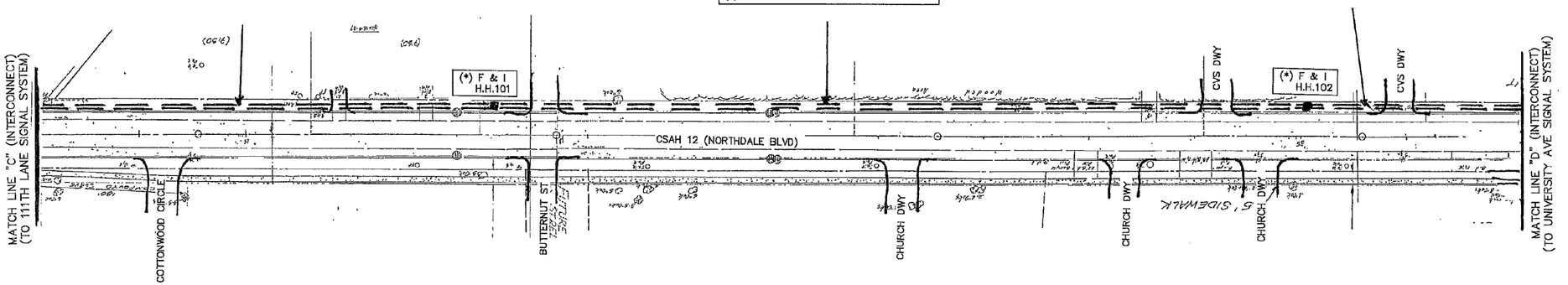
50 25 0 50 100
scale feet

N

H.H.101 TO H.H.5:
(*) 1.5" CONDUIT--F & I (BORE UNDER ALL DRIVEWAYS/ROADS)
(*) 1--12 SM FIBER--OPTIC CABLE--F & I (TO 111TH LANE SIGNAL SYSTEM)

H.H.101 TO H.H.102:
(*) 1.5" CONDUIT--F & I (BORE UNDER ALL DRIVEWAYS/ROADS)
(*) 1--12 SM FIBER--OPTIC CABLE--F & I

H.H.102 TO H.H.5:
(*) 1.5" CONDUIT--F & I (BORE UNDER ALL DRIVEWAYS/ROADS)
(*) 1--12 SM FIBER--OPTIC CABLE--F & I (TO UNIVERSITY AVE SIGNAL SYSTEM)



INTERCONNECT NOTES:

1) IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO UTILIZE THE "ONE CALL EXCAVATION NOTICE SYSTEM" (TELEPHONE NUMBER 651--454--0002) AS REQUIRED BY MINNESOTA STATUTE 216D.
2) (*) DENOTES ITEMS TO BE FURNISHED AND INSTALLED BY THE CONTRACTOR UNDER ITEM NO. 2565 (TRAFFIC CONTROL INTERCONNECT "D"). SEE STATEMENT OF ESTIMATED QUANTITIES AND SPECIAL PROVISIONS.
3) NEW HANDHOLES 101--102 REQUIRED TO BE FURNISHED & INSTALLED BY CONTRACTOR AS PART OF PROJECT SHALL BE PRE--CAST POLYMER CONCRETE STRUCTURES (QUAZITE). SEE DETAILS/SPECIAL PROVISIONS.

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TRAFFIC CONTROL SIGNAL SYSTEM PLANS
SIGNAL SYSTEM "B" AS-BUILTS

SAP 106-020-043, SAP 114-020-066, SAP 114-020-067
SAP 002-612-037, SAP 002-612-036 (CSAH 12)
SHEET NO. 91 OF 98 SHEETS

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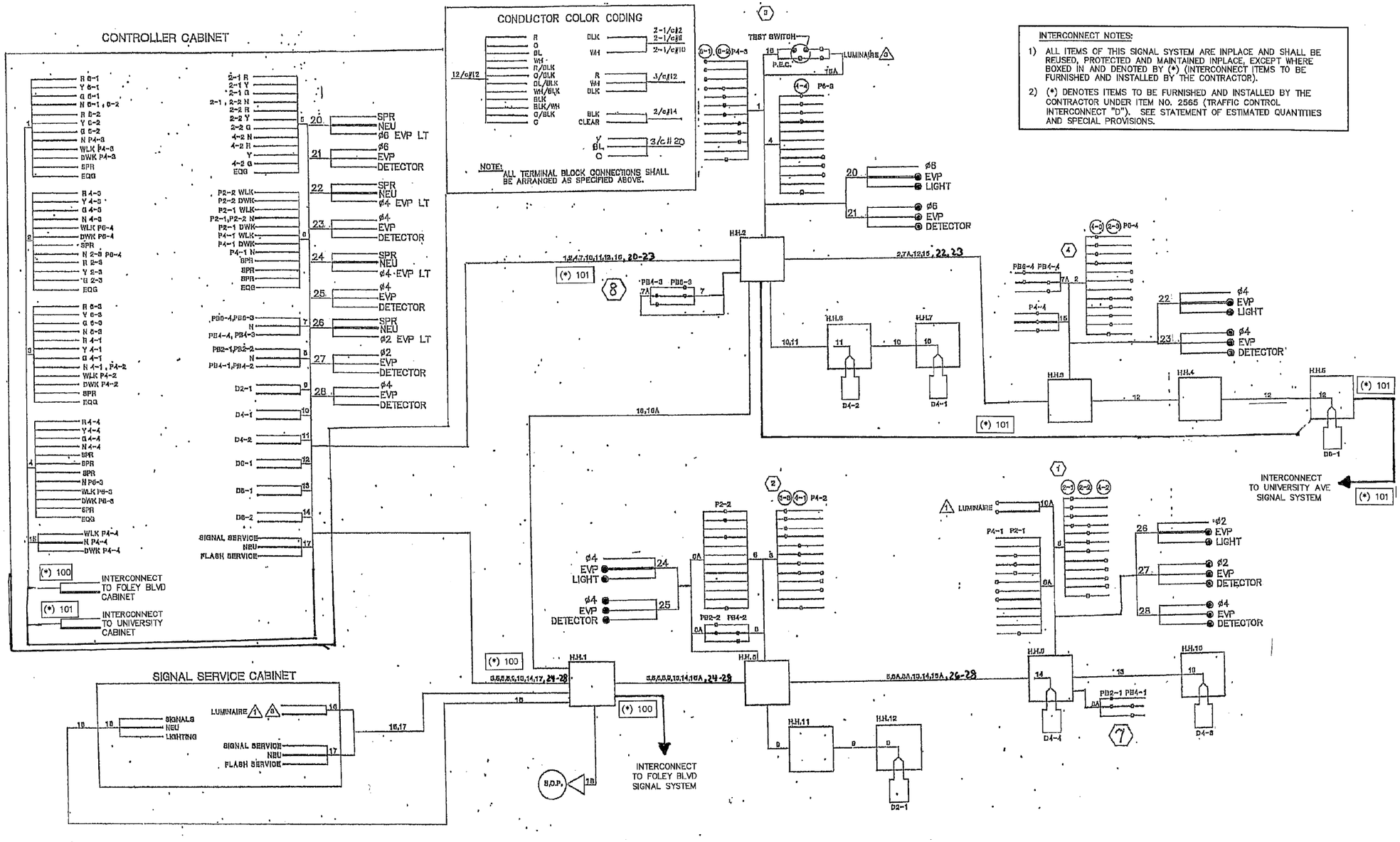

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TRAFFIC CONTROL SIGNAL SYSTEM PLANS
SIGNAL SYSTEM "B" AS-BUILTS

SAP 106-020-043, SAP 114-020-066, SAP 114-020-067
SAP 002-612-037, SAP 002-612-036 (CSAH 12)
SHEET NO. 92 OF 98 SHEETS

11:00:42 AM
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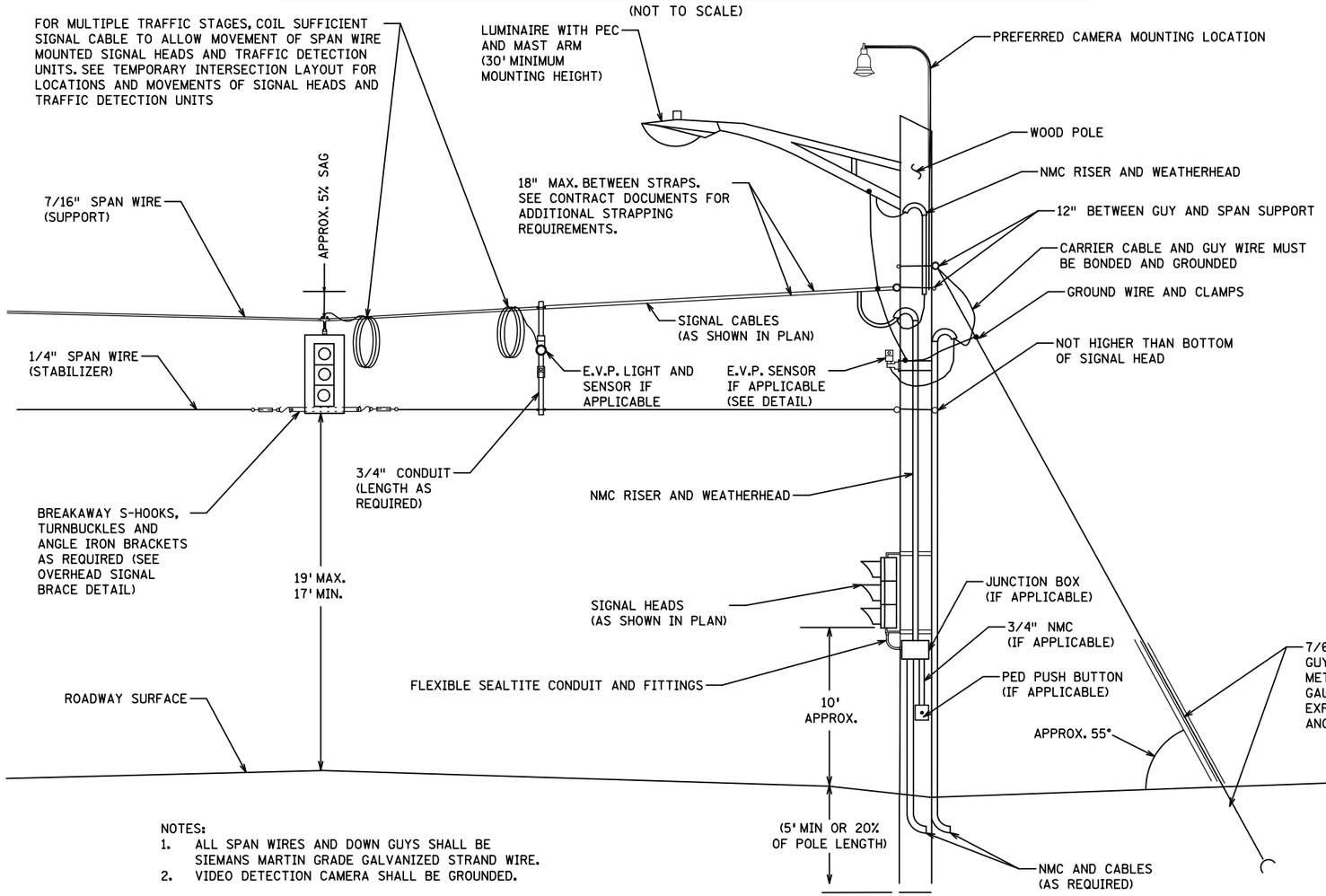
TYPICAL WOOD POLE AND SPAN WIRE MOUNTED TRAFFIC SIGNALS

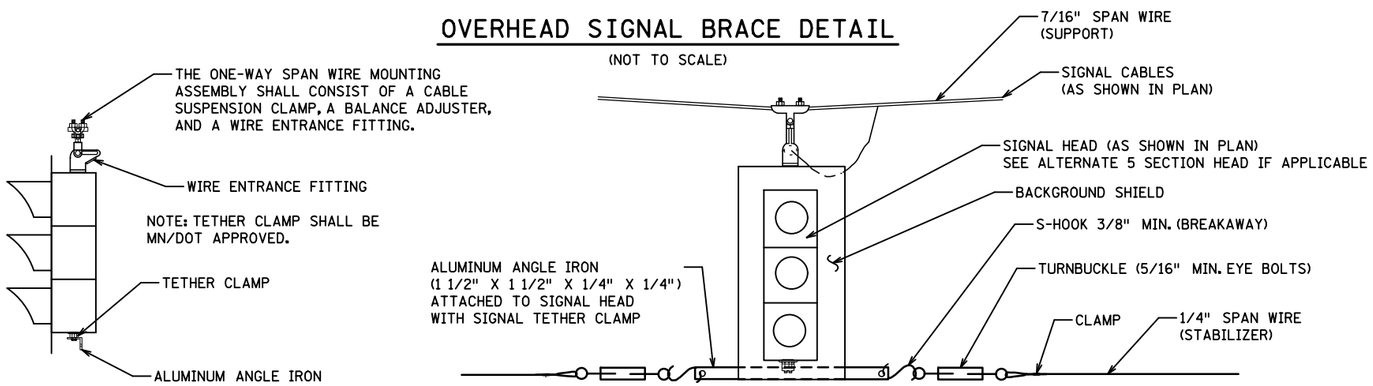
(NOT TO SCALE)



NOTES:
1. ALL SPAN WIRES AND DOWN GUYS SHALL BE SIEMANS MARTIN GRADE GALVANIZED STRAND WIRE.
2. VIDEO DETECTION CAMERA SHALL BE GROUNDED.

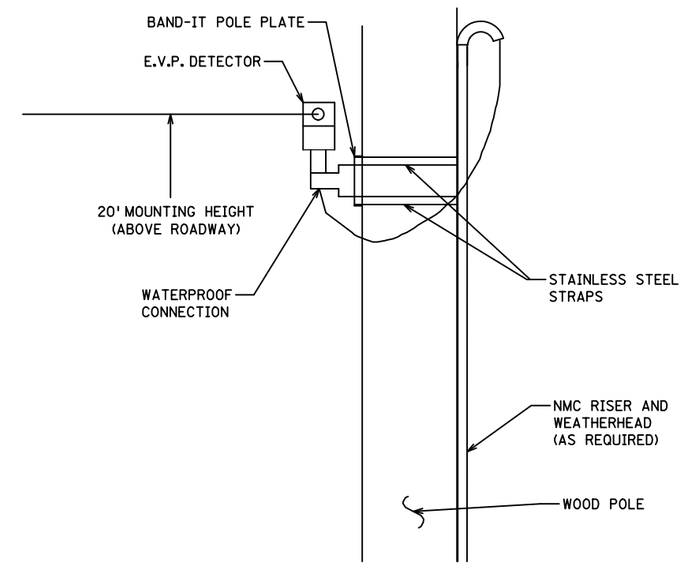
OVERHEAD SIGNAL BRACE DETAIL

(NOT TO SCALE)



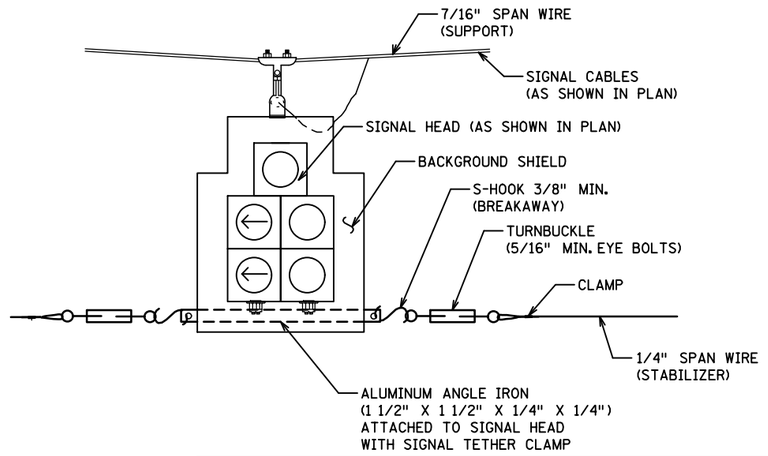
E.V.P. OR TRAFFIC DETECTOR WOOD POLE MOUNT

(NOT TO SCALE)



5 SECTION HEAD OVERHEAD SIGNAL BRACE DETAIL

(NOT TO SCALE)



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DATE 02/14/2025 LICENSE # 45902

TRAFFIC CONTROL SIGNAL SYSTEM PLANS
WOOD POLE SPAN WIRE DETAIL

SAP 106-020-043, SAP 114-020-066, SAP 114-020-067
SAP 002-612-037, SAP 002-612-036 (CSAH 12)
SHEET NO. 93 OF 98 SHEETS

11:00:43 AM
2/14/2025
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SIGNAL HEAD CHART

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

-ALL SIGNAL INDICATIONS SHALL BE 12" LED
-ALL SIGNAL HEADS SHALL BE BLACK POLYCARBONATE WITH BACKGROUND SHIELDS AND SHALL HAVE 2" YELLOW REFLECTIVE BORDERS ON ALL SIDES OF BACKGROUND SHIELD

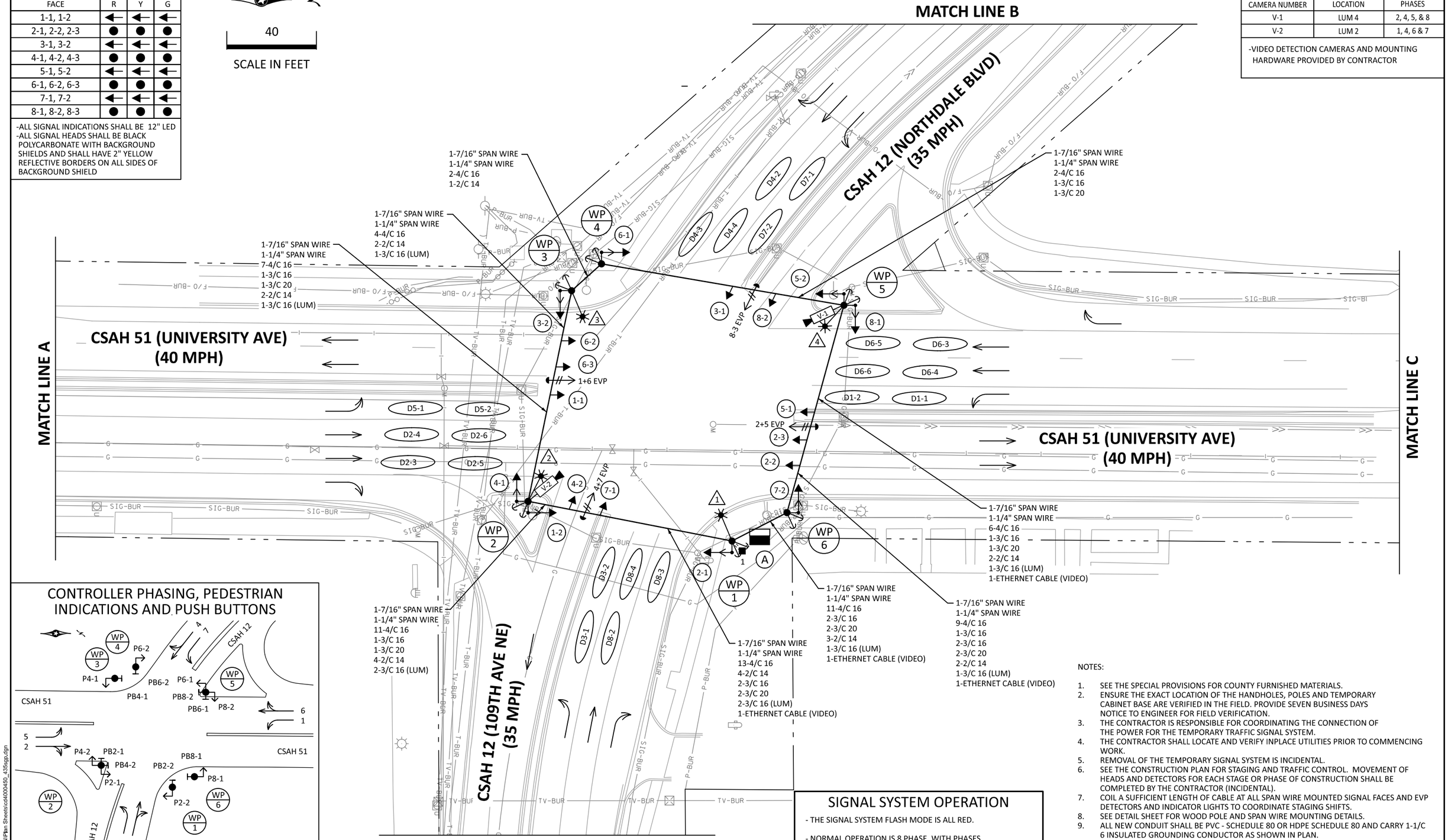
40

SCALE IN FEET

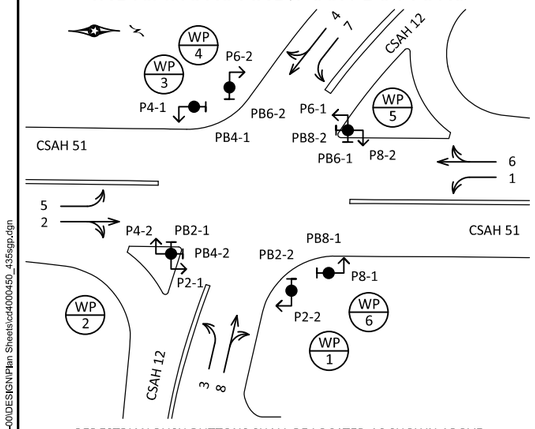
VIDEO DETECTOR CHART

CAMERA NUMBER	LOCATION	PHASES
V-1	LUM 4	2, 4, 5, & 8
V-2	LUM 2	1, 4, 6 & 7

-VIDEO DETECTION CAMERAS AND MOUNTING HARDWARE PROVIDED BY CONTRACTOR



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 & 7 BEING PROTECTED LEFT TURN PHASES.

- PHASES 2 AND 6 SHALL BE ON VEHICLE RECALL.

NOTES:

1. SEE THE SPECIAL PROVISIONS FOR COUNTY FURNISHED MATERIALS.
2. ENSURE THE EXACT LOCATION OF THE HANDHOLES, POLES AND TEMPORARY CABINET BASE ARE VERIFIED IN THE FIELD. PROVIDE SEVEN BUSINESS DAYS NOTICE TO ENGINEER FOR FIELD VERIFICATION.
3. THE CONTRACTOR IS RESPONSIBLE FOR COORDINATING THE CONNECTION OF THE POWER FOR THE TEMPORARY TRAFFIC SIGNAL SYSTEM.
4. THE CONTRACTOR SHALL LOCATE AND VERIFY INPLACE UTILITIES PRIOR TO COMMENCING WORK.
5. REMOVAL OF THE TEMPORARY SIGNAL SYSTEM IS INCIDENTAL.
6. SEE THE CONSTRUCTION PLAN FOR STAGING AND TRAFFIC CONTROL. MOVEMENT OF HEADS AND DETECTORS FOR EACH STAGE OR PHASE OF CONSTRUCTION SHALL BE COMPLETED BY THE CONTRACTOR (INCIDENTAL).
7. COIL A SUFFICIENT LENGTH OF CABLE AT ALL SPAN WIRE MOUNTED SIGNAL FACES AND EVP DETECTORS AND INDICATOR LIGHTS TO COORDINATE STAGING SHIFTS.
8. SEE DETAIL SHEET FOR WOOD POLE AND SPAN WIRE MOUNTING DETAILS.
9. 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.
10. ALL WIRES LISTED ARE AWG (AMERICAN WIRE GAUGE).
11. CONDUIT SIZES ARE NOMINAL DIAMETER.

NO	DATE	DWN	CKD	REVISIONS

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PRINT NAME: MICHAEL P. MCCURDY
SIGNATURE: Michael P. McCurdy
DATE 02/14/2025 LICENSE # 45902

TRAFFIC CONTROL SIGNAL SYSTEM PLANS
TEMPORARY SIGNAL SYSTEM "A"

SAP 106-020-043, SAP 114-020-066, SAP 114-020-067
SAP 002-612-037, SAP 002-612-036 (CSAH 12)
SHEET NO. 94 OF 98 SHEETS

11:00:45 AM
2/14/2025
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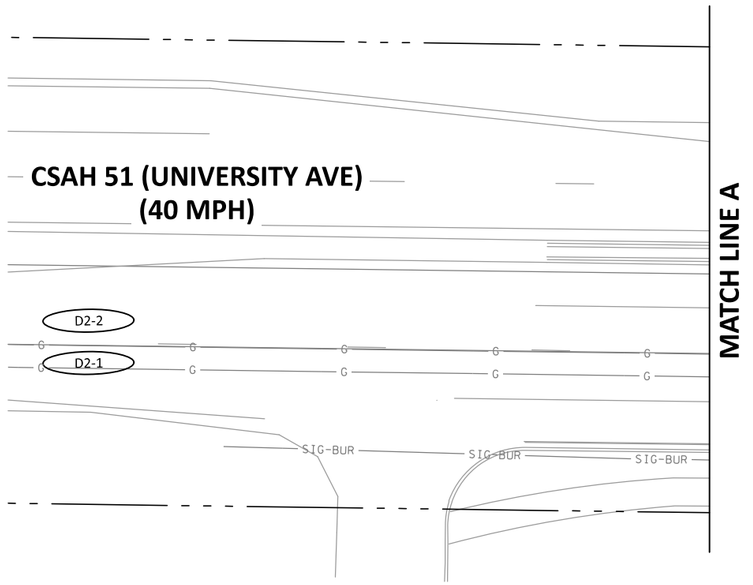

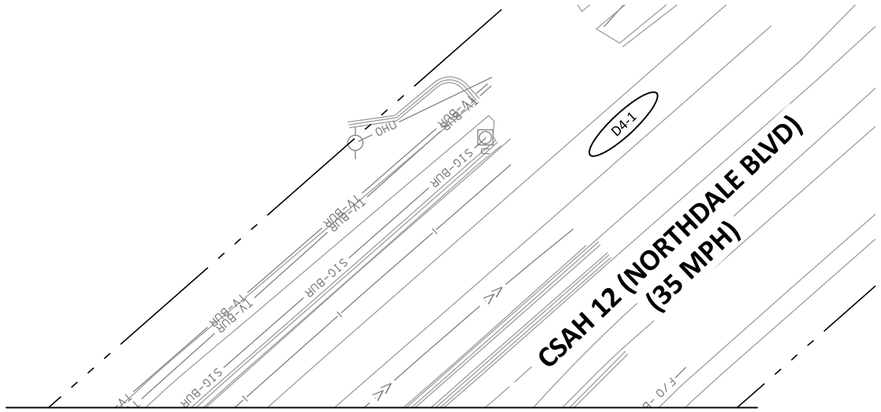

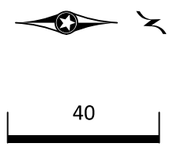

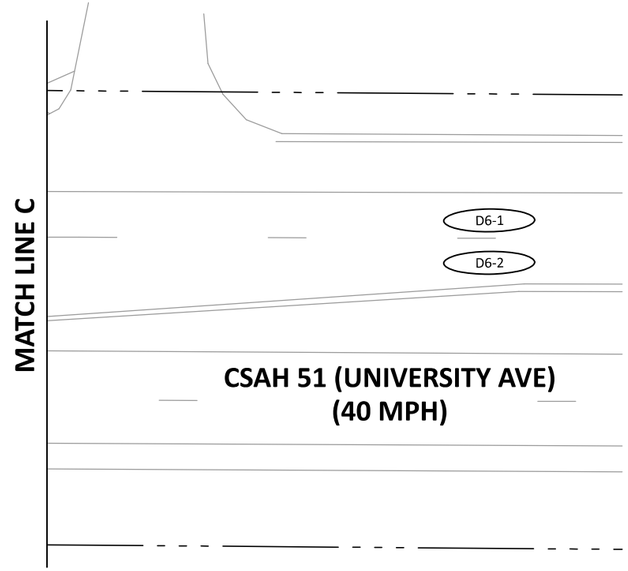

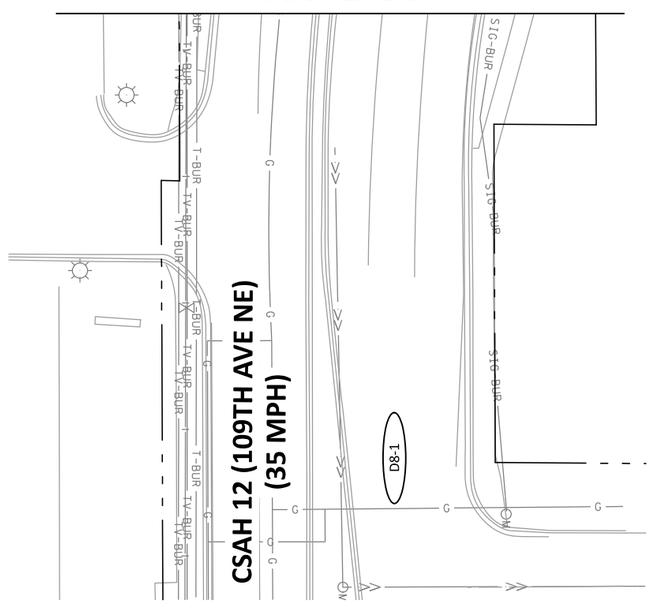

NO	DATE	DWN	CKD	REVISIONS

ALLIANT

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

PRINT NAME: MICHAEL P. MCCURDY
SIGNATURE: Michael P. McCurdy
DATE 02/14/2025 LICENSE # 45902

TRAFFIC CONTROL SIGNAL SYSTEM PLANS
TEMPORARY SIGNAL SYSTEM "A"

SAP 106-020-043, SAP 114-020-066, SAP 114-020-067
SAP 002-612-037, SAP 002-612-036 (CSAH 12)
SHEET NO. 95 OF 98 SHEETS

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2/14/2025
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WP 1

45' WOOD POLE W/ LUMINAIRE DAVIT
2-DOWN GUYS, GUARDS AND ANCHORS
1-TYPE 10B WOOD POLE MOUNTED AT 180 DEG
1-PEDESTRIAN PUSH BUTTON AND SIGN
LUMINAIRE - LED (FOR 30' MOUNTING HEIGHT)
METAL JUNCTION BOX WITH TERMINAL BLOCK

2" CONDUIT FROM HH 1 TO JUNCTION BOX WITH:
2-4/C 16
1-2/C 14

3" CONDUIT RISER AND WEATHERHEAD FROM HH 1 TO SPAN WIRE WITH:
13-4/C 16
2-3/C 16
2-3/C 20
4-2/C 14
2-3/C 16 (LUM)
1-ETHERNET CABLE (VIDEO)

1" CONDUIT RISER AND WEATHERHEAD ABOVE SPAN WIRE WITH:
1-3/C 16 (LUM)

WP 2

45' WOOD POLE W/ LUMINAIRE DAVIT
2-DOWN GUYS, GUARDS AND ANCHORS
2-TYPE 10B WOOD POLE MOUNTED AT 90 AND 180 DEG
2-PEDESTRIAN PUSH BUTTONS AND SIGNS
1-GRIDSMART VIDEO DETECTION UNIT POLE MOUNTED
LUMINAIRE - LED (FOR 30' MOUNTING HEIGHT)
METAL JUNCTION BOX WITH TERMINAL BLOCK

3" CONDUIT ABOVE JUNCTION BOX TO SPAN WIRES WITH:
4-4/C 16
2-2/C 14

1" CONDUIT RISER AND WEATHERHEAD ABOVE SPAN WIRE WITH:
1-3/C 16 (LUM)
1-ETHERNET CABLE (VIDEO)

WP 3

45' WOOD POLE W/ LUMINAIRE DAVIT
2-DOWN GUYS, GUARDS AND ANCHORS
1-TYPE 10B WOOD POLE MOUNTED AT 90 DEG
1-PEDESTRIAN PUSH BUTTON AND SIGN
LUMINAIRE - LED (FOR 30' MOUNTING HEIGHT)
METAL JUNCTION BOX WITH TERMINAL BLOCK

3" CONDUIT ABOVE JUNCTION BOX TO SPAN WIRES WITH:
2-4/C 16
1-2/C 14

1" CONDUIT RISER AND WEATHERHEAD ABOVE SPAN WIRE WITH:
1-3/C 16 (LUM)

WP 4

45' WOOD POLE W/ LUMINAIRE DAVIT
2-DOWN GUYS, GUARDS AND ANCHORS
1-TYPE 10B WOOD POLE MOUNTED AT 180 DEG
1-PEDESTRIAN PUSH BUTTON AND SIGN
METAL JUNCTION BOX WITH TERMINAL BLOCK

3" CONDUIT ABOVE JUNCTION BOX TO SPAN WIRES WITH:
2-4/C 16
1-2/C 14

WP 5

45' WOOD POLE W/ LUMINAIRE DAVIT
2-DOWN GUYS, GUARDS AND ANCHORS
2-TYPE 10B WOOD POLE MOUNTED AT 90 AND 180 DEG
2-PEDESTRIAN PUSH BUTTONS AND SIGNS
1-GRIDSMART VIDEO DETECTION UNIT POLE MOUNTED
METAL JUNCTION BOX WITH TERMINAL BLOCK

3" CONDUIT ABOVE JUNCTION BOX TO SPAN WIRES WITH:
4-4/C 16
2-2/C 14

1" CONDUIT RISER AND WEATHERHEAD ABOVE SPAN WIRE WITH:
1-3/C 16 (LUM)
1-ETHERNET CABLE (VIDEO)

WP 6

45' WOOD POLE W/ LUMINAIRE DAVIT
2-DOWN GUYS, GUARDS AND ANCHORS
1-TYPE 10B WOOD POLE MOUNTED AT 90 DEG
1-PEDESTRIAN PUSH BUTTON AND SIGN
METAL JUNCTION BOX WITH TERMINAL BLOCK

3" CONDUIT ABOVE JUNCTION BOX TO SPAN WIRES WITH:
2-4/C 16
1-2/C 14

A

F&I: TEMPORARY SIGNAL CABINET BASE
INSTALL: TEMPORARY CABINET AND CONTROLLER (COUNTY PROVIDED)
F&I: CONTROLLER CABINET TO HH 1:

3" CONDUIT	3" CONDUIT
13-4/C 16	13-4/C 16
2-3/C 16	2-3/C 16
2-3/C 20	2-3/C 20
4-2/C 14	4-2/C 14
1-ETHERNET CABLE (VIDEO)	1-ETHERNET CABLE (VIDEO)

B

INPLACE: SIGNAL SERVICE CABINET
2" CONDUIT TO SOP TRANSFORMER
3-1/C 2
F&I: 2" CONDUIT TO CONTROLLER CABINET:
3-1/C 6
2" CONDUIT TO HH 1:
4-3/C 16 (LUM)

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2/14/2025
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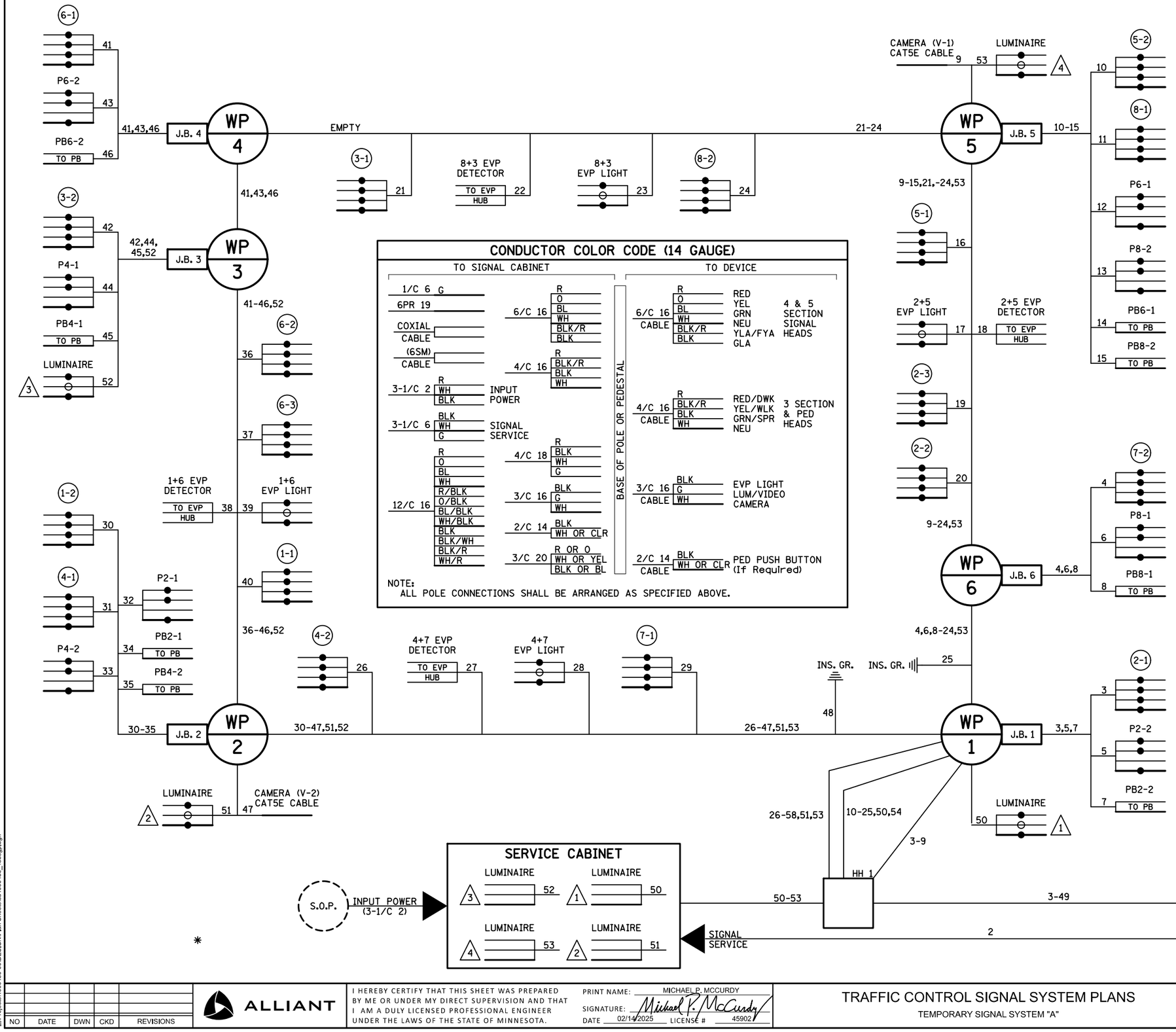
PRINT NAME: MICHAEL P. MCCURDY
SIGNATURE: Michael P. McCurdy
DATE 02/14/2025 LICENSE # 45902

TRAFFIC CONTROL SIGNAL SYSTEM PLANS
TEMPORARY SIGNAL SYSTEM "A"

SAP 106-020-043, SAP 114-020-066, SAP 114-020-067
SAP 002-612-037, SAP 002-612-036 (CSAH 12)
SHEET NO. 96 OF 98 SHEETS



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TRAFFIC CONTROL SIGNAL SYSTEM PLANS
TEMPORARY SIGNAL SYSTEM "A"

SAP 106-020-043, SAP 114-020-066, SAP 114-020-067
SAP 002-612-037, SAP 002-612-036 (CSAH 12)
SHEET NO. 97 OF 98 SHEETS

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2/14/2025
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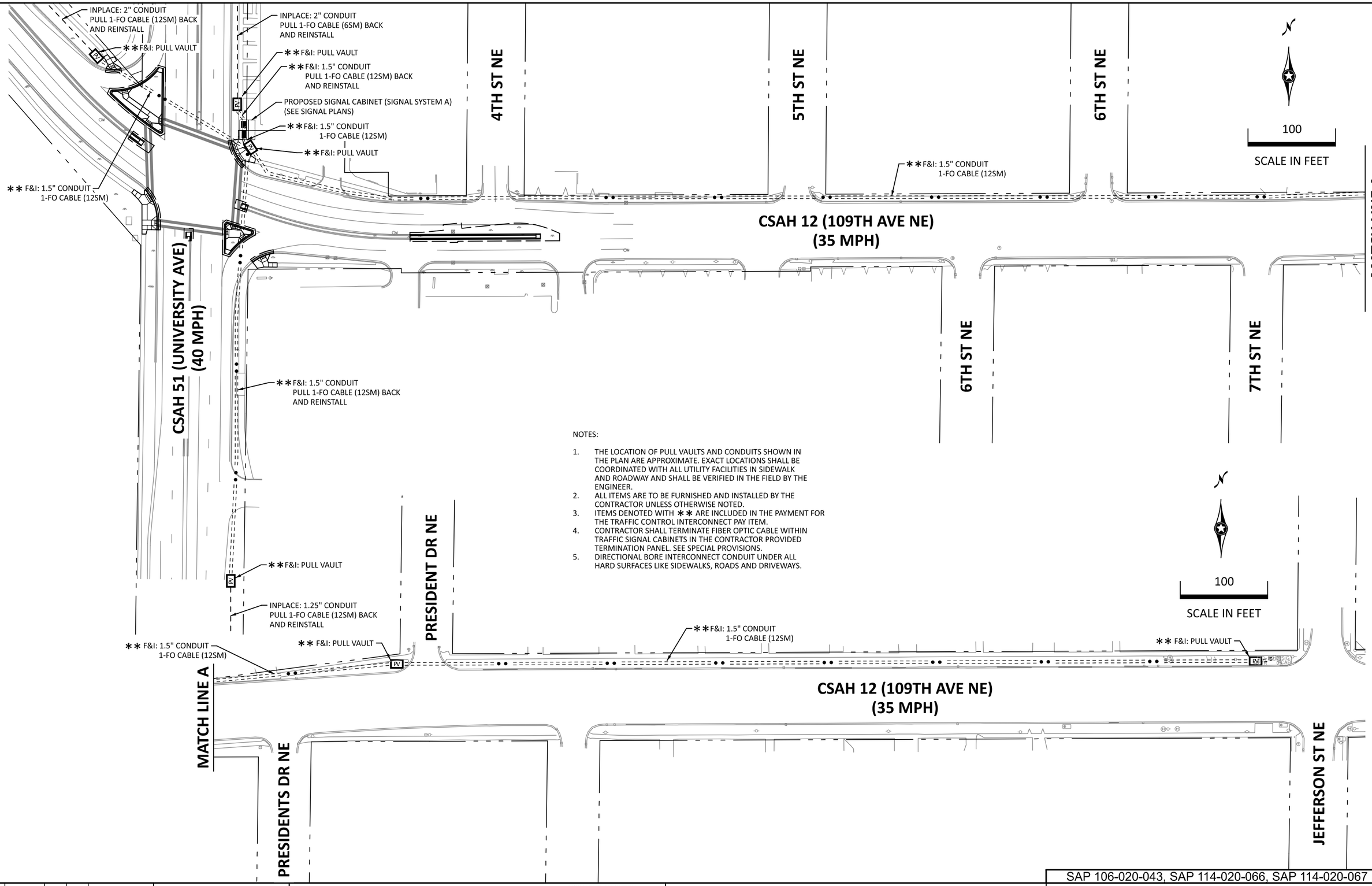

NOTES:

1. THE LOCATION OF PULL VAULTS AND CONDUITS SHOWN IN THE PLAN ARE APPROXIMATE. EXACT LOCATIONS SHALL BE COORDINATED WITH ALL UTILITY FACILITIES IN SIDEWALK AND ROADWAY AND SHALL BE VERIFIED IN THE FIELD BY THE ENGINEER.
2. ALL ITEMS ARE TO BE FURNISHED AND INSTALLED BY THE CONTRACTOR UNLESS OTHERWISE NOTED.
3. ITEMS DENOTED WITH ** ARE INCLUDED IN THE PAYMENT FOR THE TRAFFIC CONTROL INTERCONNECT PAY ITEM.
4. CONTRACTOR SHALL TERMINATE FIBER OPTIC CABLE WITHIN TRAFFIC SIGNAL CABINETS IN THE CONTRACTOR PROVIDED TERMINATION PANEL. SEE SPECIAL PROVISIONS.
5. DIRECTIONAL BORE INTERCONNECT CONDUIT UNDER ALL HARD SURFACES LIKE SIDEWALKS, ROADS AND DRIVEWAYS.

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DATE 02/14/2025 LICENSE # 45902

TRAFFIC CONTROL SIGNAL SYSTEM PLANS
INTERCONNECT PLAN

SAP 106-020-043, SAP 114-020-066, SAP 114-020-067
SAP 002-612-037, SAP 002-612-036 (CSAH 12)
SHEET NO. 98 OF 98 SHEETS

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