

# MINNESOTA DEPARTMENT OF TRANSPORTATION

## ANOKA COUNTY

CONSTRUCTION PLAN FOR \_\_\_\_\_ MILL BITUMINOUS, BITUMINOUS SURFACING, CURB & GUTTER, AND SEWER REPAIRS \_\_\_\_\_

LOCATED ON CSAH 1 BETWEEN RICE CREEK WAY AND RICKARD RD

CSAH 1

GROSS LENGTH	<u>6151.00</u> FEET	<u>1.165</u> MILES
EXCEPTIONS-LENGTH	<u>0.00</u> FEET	<u>0.000</u> MILES
NET LENGTH	<u>6151.00</u> FEET	<u>1.165</u> MILES

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 WITH THE "MINNESOTA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" (MNMUTCD), AND PART VI, "FIELD MANUAL FOR TEMPORARY TRAFFIC CONTROL ZONE LAYOUTS."

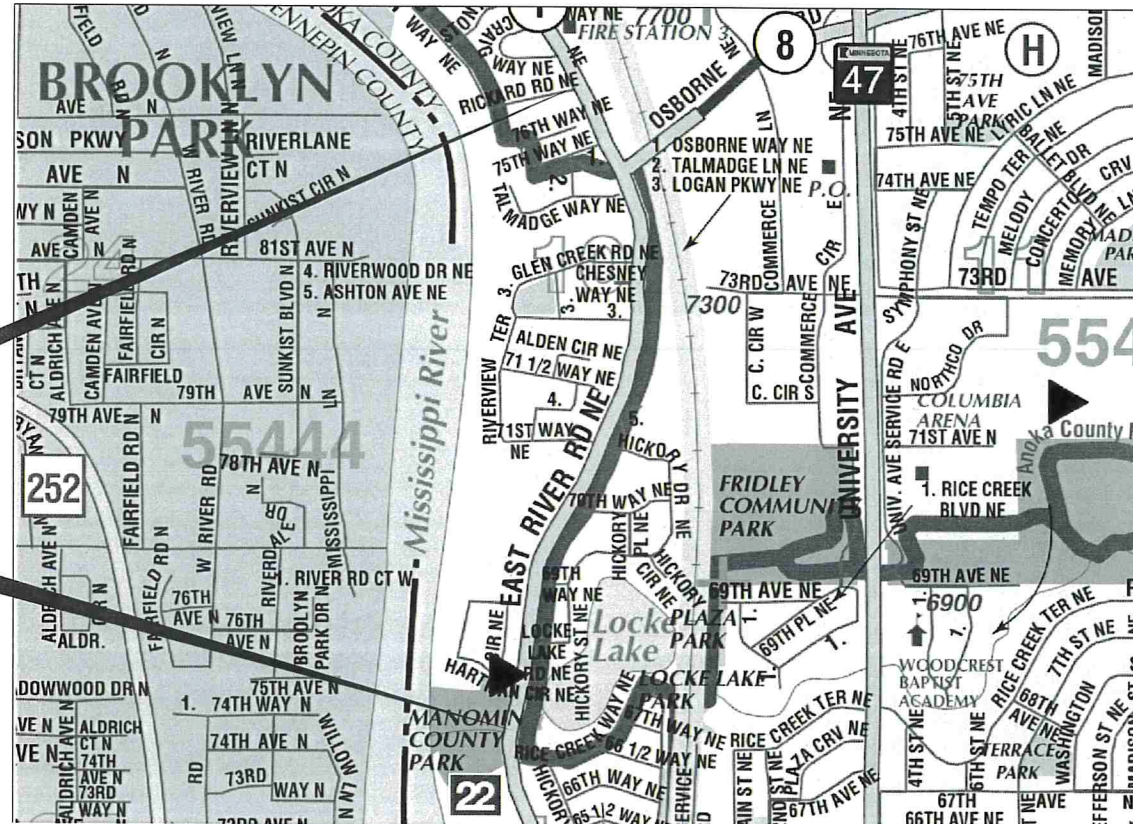
THIS PLAN CONTAINS 36 SHEETS

**INDEX**

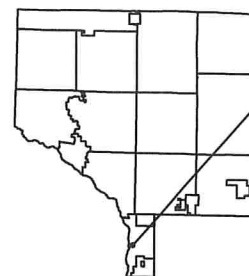
SHEET NO.	DESCRIPTION
1	TITLE SHEET
2	STATEMENT OF ESTIMATED QUANTITIES
3-5	TABULATIONS
6	TYPICAL SECTIONS
7-9	DETAILS
10-15	PEDESTRIAN CURB RAMP DETAILS
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20-22	CONSTRUCTION PLAN
23-26	EXISTING SIGNAL PLANS
27	PERMANENT PAVEMENT MARKING PLAN DETAILS
28-30	TEMPORARY SIGNING & PERMANENT SIGNING & STRIPING
31	TEMPORARY & PERMANENT SIGNING QUANTITIES
32-36	SIGNING AND STRIPING DETAILS

END SAP 002-601-060  
CSAH 1 LNB, STA: 77+81.00  
CSAH 1 LSB, STA: 177+78.00

BEGIN SAP 002-601-060  
CSAH 1 LNB, STA: 15+90.00  
CSAH 1 LSB, STA: 116+27.00



### PROJECT LOCATION



CITY OF FRIDLEY  
ANOKA COUNTY  
MN/DOT TRANSPORTATION DISTRICT - METRO  
SECTION 10, 15  
TOWNSHIP 30 NORTH  
RANGE 24 WEST

Approved 4-8-22  
ANOKA COUNTY ENGINEER

Approved April 20, 2022  
CITY OF FRIDLEY ENGINEER

For \_\_\_\_\_ DATE 4/21/22

DISTRICT STATE AID ENGINEER: REVIEWED FOR COMPLIANCE WITH STATE AID RULES/POLICY

For \_\_\_\_\_ DATE 4/21/22

STATE AID ENGINEER:  
APPROVED FOR STATE AID FUNDING

**DESIGN DESIGNATION (CSAH 1)**

ESAL 20	<u>1,081,580</u>	FUNCTIONAL CLASSIFICATION	<u>A-Minor Expander</u>
R VALUE	<u>70</u>	NO. OF TRAFFIC LANES	<u>4</u> NO. OF PARKING LANES <u>0</u>
ADT (2018)	<u>13,079</u>	DESIGN SPEED	<u>50</u> MPH
PROJ. ADT (2041)	<u>13,079</u>	STOPPING SIGHT DISTANCE BASED ON:	
PROJ. HCADT (2041)	<u>13,079</u>	HEIGHT OF EYE	<u>3.5'</u> HEIGHT OF OBJECT <u>2.0'</u>
SOIL FACTOR	<u>N/A</u>	DESIGN SPEED NOT ACHIEVED AT:	
<u>10</u> TON DESIGN		STA. _____ TO STA. _____	MPH _____

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: AARON P. ANDERSON

SIGNATURE:

DATE: 03-04-2022 LICENSE NO. 58657

DRAWN BY KPR DATE 03/04/2022

DESIGN BY KPR DATE 03/04/2022

CHECKED BY APA DATE 03/04/2022



**ANOKA COUNTY  
HIGHWAY DEPT.**

STATE AID PROJECT 002-601-060

TITLE SHEET

Sheet 1 of 36 Sheets

**STATEMENT OF ESTIMATED QUANTITIES**

Tab	Notes	Item Number	Code	ITEM DESCRIPTION	Unit	TOTAL PROJECT QUANTITIES ESTIMATED
		2021.501	00010	MOBILIZATION	LUMP SUM	1
A		2104.502	00820	REMOVE CASTING	EACH	39
A		2104.502	00910	REMOVE DRAINAGE STRUCTURE	EACH	8
	3	2104.502	01240	REMOVE SIGN TYPE C	EACH	23
	1	2104.503	00195	SAWING CONCRETE PAVEMENT (FULL DEPTH)	LIN FT	825
	1	2104.503	00205	SAWING BITUMINOUS PAVEMENT (FULL DEPTH)	LIN FT	4782
	1	2104.503	00315	REMOVE CURB AND GUTTER	LIN FT	2243
	4	2104.504	00090	REMOVE CONCRETE PAVEMENT	SQ YD	612
	1	2104.504	00120	REMOVE BITUMINOUS PAVEMENT	SQ YD	716
	1	2104.518	00100	REMOVE BITUMINOUS WALK	SQ FT	1024
	1	2104.518	00140	REMOVE CONCRETE WALK	SQ FT	839
	1	2104.518	00220	REMOVE CONCRETE MEDIAN	SQ FT	4318
		2104.518	00300	REMOVE BRICK MEDIAN	SQ FT	3386
		2105.607	00015	COMMON EXCAVATION	CU YD	59
	2,5	2211.509	00070	AGGREGATE BASE CLASS 5	TON	346
	6	2232.504	00080	MILL BITUMINOUS SURFACE (2.5")	SQ YD	51397
	7	2232.604	00470	MILL BITUMINOUS PAVEMENT (SPECIAL)	SQ YD	1497
		2357.506	00010	BITUMINOUS MATERIAL FOR TACK COAT	GALLON	2645
	4,8	2360.509	20100	TYPE SP 12.5 BITUMINOUS MIXTURE FOR PATCHING	TON	509
C	9	2360.509	24600	TYPE SP 12.5 WEARING COURSE MIXTURE (4:F)	TON	215
		2360.509	24600	TYPE SP 12.5 WEARING COURSE MIXTURE (4:F)	TON	7388
	10	2504.602	00033	ADJUST GATE VALVE	EACH	17
		2504.602	90030	VALVE BOX EXTENSION	EACH	9
B	12	2506.502	06000	CASTING ASSEMBLY	EACH	74
A	11	2506.503	00070	CONSTRUCT DRAINAGE STRUCTURE DESIGN G	LIN FT	3.5
A	11	2506.503	00080	CONSTRUCT DRAINAGE STRUCTURE DESIGN H	LIN FT	5.0
A	11	2506.503	02420	CONSTRUCT DRAINAGE STRUCTURE DESIGN 48-4020	LIN FT	14.4
A	11	2506.503	08000	RECONSTRUCT DRAINAGE STRUCTURE	LIN FT	4.9
A	13	2506.602	06040	GROUT CATCH BASIN OR MANHOLE	EACH	46
	15	2521.518	00040	4" CONCRETE WALK	SQ FT	4473
		2521.602	00030	DRILL AND GROUT REINF BAR (EPOXY COATED)	EACH	140
		2521.618	00400	CONCRETE CURB RAMP WALK	SQ FT	1863
		2531.503	02311	CONCRETE CURB AND GUTTER DESIGN B612 (MODIFIED)	LIN FT	845
		2531.503	02315	CONCRETE CURB AND GUTTER DESIGN B618	LIN FT	1258
		2531.602	00110	CONCRETE MEDIAN NOSE-SPECIAL	EACH	11
		2531.618	00010	TRUNCATED DOMES	SQ FT	316
	14	2550.602	10000	LOOP DETECTOR DESIGN NMC	EACH	32
		2563.601	00001	TRAFFIC CONTROL SUPERVISOR	LUMP SUM	1
	16,17	2563.601	00010	TRAFFIC CONTROL	LUMP SUM	1
	18	2563.613	01100	PORTABLE CHANGEABLE MESSAGE SIGN	UNIT DAY	20
		2564.518	00130	SIGN PANELS TYPE C	SQ FT	178.25
		2565.602	00037	ADJUST HANDHOLE	EACH	6
		2565.602	00305	APS RELOCATE PUSH BUTTON	EACH	2
		2565.616	00106	REVISE SIGNAL SYSTEM F	SYSTEM	1
		2565.616	00107	REVISE SIGNAL SYSTEM G	SYSTEM	1
	19	2573.502	00110	STORM DRAIN INLET PROTECTION	EACH	90
		2574.507	00100	COMMON TOPSOIL BORROW	CU YD	67
	20	2575.508	40003	HYDRAULIC REINFORCED FIBER MATRIX	POUND	163
	21	2582.503	10204	4" BROKEN LINE PAINT	LIN FT	2480
	22	2582.503	30104	4" SOLID LINE MULTI-COMPONENT	LIN FT	30317
	22	2582.503	30204	4" BROKEN LINE MULTI-COMPONENT	LIN FT	2520
	23	2582.518	04000	PAVEMENT MESSAGE PREFORM THERMOPLASTIC	SQ FT	248
	23	2582.518	08000	CROSSWALK PREFORM THERMOPLASTIC	SQ FT	1638
	23	2582.603	79000	PAVEMENT MARKING SPECIAL	LIN FT	225

**CONSTRUCTION NOTES**

1	REFERENCE DETAILS (PAGE 7) FOR REMOVAL DETAILS
2	EXCAVATION AND DISPOSAL OF EXISTING GRADING MATERIAL IS INCIDENTAL TO AGGREGATE BASE CLASS 5.
3	ITEM USED FOR SIGNS IN MEDIAN AND/OR PEDESTRIAN RAMP REPLACEMENT AREAS.
4	TO BE USED FOR REMOVAL OF BUS PADS.
5	ITEM TO BE USED AS BASE FOR NEW CONCRETE WALK AND CURB PATCHES.
6	DETAIL MILLING AROUND MANHOLES, CATCH BASINS, GATE VALVES, AND ALONG CURB LINE IS INCIDENTAL TO THIS ITEM.
7	TO BE USED FOR MILLING STREET APPROACHES AND/OR DETAIL MILLING AREAS AS IDENTIFIED IN THE PLAN.
8	ITEM INCLUDES BITUMINOUS PATCHING AROUND NEW CURB, STORM STRUCTURE REPAIRS, POTHOLES, AND BUS PADS.
9	STREET APPROACHES SHALL BE PAVED AFTER MAINLINE, AND BEFORE FINAL STRIPING. SEE PAGE 5 FOR TABULATION.
10	GATE VALVES TO BE ADJUSTED ONLY AS NECESSARY AS DETERMINED BY THE ENGINEER.
11	PAY HEIGHT IS MEASURED FROM INVERT OF OUTLET PIPE TO TOP OF PRECAST CONCRETE STRUCTURE PLUS AN ALLOWANCE OF 0.70 FEET FOR THE DEPTH OF THE CONCRETE BASE, REGARDLESS OF ITS ACTUAL THICKNESS. CONCRETE ADJUSTMENT RINGS AND INFI-SHIELD ARE INCIDENTAL. CONNECTIONS TO EXISTING STORM SEWER ARE INCIDENTAL.
12	ITEM INCLUDES FULL REPLACEMENT OF CASTING ADJUSTMENT RINGS. SEE STORM TABULATIONS FOR RING HEIGHTS. CASTINGS IN ROADWAY SHALL BE INSTALLED BETWEEN BASE AND WEAR LIFT PAVING
13	ITEM INCLUDES GROUTING OF INVERTS, DOGHOUSES, RINGS, STRUCTURES AND CASTINGS AS DIRECTED BY PLAN AND ENGINEER. SEE DRAINAGE TAB, PAGES 3-5
14	FULL LOOP REPLACEMENT REQUIRED. CONTRACTOR SHALL CONTACT ANOKA COUNTY TO DETERMINE PLACEMENT. SIGNAL PLANS ARE INCLUDED AT THE END OF THIS PLAN.
15	ITEM USED FOR CONCRETE MEDIAN.
16	CONTRACTOR SHALL FURNISH, INSTALL, AND MAINTAIN TEMPORARY SIGNAGE WHENEVER EXISTING SIGNAGE IS REMOVED. TEMPORARY SIGNAGE SHALL BE INCIDENTAL TO TRAFFIC CONTROL.
17	ALL TRAFFIC CONTROL DEVICES SHALL CONFORM TO, AND BE INSTALLED IN ACCORDANCE WITH, THE MOST CURRENT REVISION OF THE "MINNESOTA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES". "DO NOT PASS, PASS WITH CARE, NO CENTER STRIPE, AND STOP HERE ON RED SIGNS SHALL BE INPLACE WHENEVER PERMANENT PAVEMENT MARKINGS ARE NOT PRESENT.
18	2 MESSAGE BOARDS, ONE ON THE EACH END OF PROJECT, SHALL BE INSTALLED 10 DAYS PRIOR TO ANY CONSTRUCTION; REFERENCE STRIPING PLAN FOR DETAILS.
19	ALL DRAINAGE STRUCTURES AFFECTED BY THIS PROJECT MUST HAVE INLET PROTECTION.
20	TYPE 3 FERTILIZER AND TYPE 25-121 SEED ARE INCIDENTAL TO THIS ITEM. SEE "BASIS OF PLANNED QUANTITIES" FOR APPLICATION RATES.
21	ITEM TO BE USED AS TEMPORARY CENTERLINE STRIPING ON MILLED SURFACE, INSTALLED THE SAME DAY AS MILLING OPERATION.
22	FINAL STRIPING SHALL BE INSTALLED WITHIN 72 HOURS OF COMPLETION OF MAINLINE WEAR COURSE PAVING. CANNOT BE INSTALLED SOONER THAN 48 HOURS.
23	INCLUDES ALL THERMOPLASTIC STOP BARS, GORE AREA HATCHING, CROSSWALKS, LANE DESIGNATION ARROWS, AND PAVEMENT MESSAGES.

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

**MNDOT STANDARD PLATES**

PLATE NO.	DESCRIPTION
3007F	SHEAR REINFORCEMENT FOR PRECAST DRAINAGE STRUCTURES
4002F	MANHOLE OR CATCH BASIN (MASONRY, FIELD CONSTRUCTION) - DESIGN C
4006L	MANHOLE OR CATCH BASIN PRECAST - DESIGNS G AND H
4011E	PRECAST CONCRETE BASE
4020J	MANHOLE OR CATCH BASIN (FOR USE WITH OR WITHOUT TRAFFIC LOADS) (2 SHEETS)
4024A	48" DIA. PRECAST SHALLOW DEPTH CATCH BASIN - DESIGN SD
4026A	CONCRETE ENCASED CONCRETE ADJUSTING RINGS
4101D	RING CASTING FOR MANHOLE OR CATCH BASIN
4108F	ADJUSTING RINGS FOR CATCH BASINS AND MANHOLES
4110F	COVER CASTING FOR MANHOLE (FOR USE IN ALL TRAFFIC AREAS) - CASTING NO. 715
4180J	MANHOLE OR CATCH BASIN STEP
7038A	DETECTABLE WARNING SURFACE TRUNCATED DOMES
7100H	CONCRETE CURB AND GUTTER (DESIGN B AND DESIGN V)
7111J	INSTALLATION OF CATCH BASIN CASTINGS (CONCRETE CURB AND GUTTER)
7113A	CONCRETE APPROACH NOSE DETAIL
8000K	TEMPORARY CHANNELIZERS (3 SHEETS)
8132B	PREFORMED RIGID PVC CONDUIT LOOP DETECTOR - LAYOUT DETAILS, LAYOUT NOTES, TYPICAL INSTALLATION (3 SHEETS)

**BASIS OF PLANNED QUANTITIES**

2357	BITUMINOUS MATERIAL FOR TACK COAT	0.05 GAL / SQ YD
2211	AGGREGATE BASE CLASS 5	1.8 TONS / CU YD
2360	ALL BITUMINOUS PAVEMENT	115 LBS / SQ YD / IN THICKNESS
2575	SEED MIXTURE 25-121	61 LBS / ACRE
2574	FERTILIZER TYPE 3	350 LBS./ ACRE
2575	HYDRAULIC REINFORCED FIBER MATRIX	3900 LBS./ ACRE

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PRINT NAME: AARON P. ANDERSON

SIGNATURE: 

DATE: 03-04-2022 LICENSE NO. 58657

DRAWN BY: KPR DATE 05/06/2022

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**ANOKA COUNTY  
HIGHWAY DEPT.**


STATE AID PROJECT 002-601-060

STATEMENT OF ESTIMATED QUANTITIES

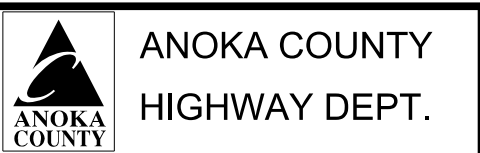
Sheet 2 of 36 Sheets

STORM DRAINAGE TAB										A
NUMBER	TYPE	ACTION	NEW CASTING TYPE	FURNISH AND INSTALL CASTING ASSEMBLY	RING HEIGHT (INCIDENTAL)	REMOVE STRUCTURE	GROUT CATCH BASIN OR MANHOLE	CONSTRUCT DRAINAGE STRUCTURE DESIGN H	CONNECT TO EXISTING STORM SEWER (INCIDENTAL)	NOTES
				EACH	LIN FT	EACH	EACH	LIN FT	EACH	
100	CB	NONE								GOOD CONDITION
101	CB	RE-RING	R-3030	1	1.0					RE-RING
102	CB	RE-RING	R-3030	1	1.2					RE-RING
103	CB	RE-RING	R-3030	1	0.7					RE-RING
104	CB	NONE								GOOD CONDITION
105	CB	GROUT					1			GROUT RINGS / DOGHOUSE
106	CB	RE-RING	R-3030	1	1.0					RE-RING
107	CB	RE-RING	R-3030	1	1.3					RE-RING
108	CB	RE-RING	R-3030	1	1.2					RE-RING
109	CB	GROUT					1			GROUT RINGS
110	CB	RE-RING	R-3030	1	1.0					RE-RING
111	CB	RE-RING	R-3030	1	0.6					RE-RING
112	CB	RE-RING / GROUT	R-3030	1	0.4					RE-RING / ENTIRE BLOCK STRUCTURE
113	CB	GROUT					1			GROUT RINGS
114	CB	GROUT					1			GROUT RINGS
115	CB	RE-RING	R-3030	1	1.0					RE-RING
116	CB	NONE								GOOD CONDITION
117	CB	RE-RING / GROUT	R-3030	1	0.8					RE-RING / GROUT DOGHOUSE
118	CB	RE-RING	R-3030	1	0.2					RE-RING
119	CB	RE-RING	R-3030	1	1.1					RE-RING
120	CB	NONE								GOOD CONDITION
121	CB	RE-RING	R-3030	1	0.3					RE-RING
122	CB	GROUT					1			GROUT RINGS
123	CB	GROUT					1			GROUT RINGS
124	CB	RE-RING	R-3030	1	1.6					RE-RING
125	CB	RE-RING	R-3030	1	1.0					RE-RING
126	CB	GROUT					1			GROUT RINGS
127	CB	RE-RING / GROUT	R-3030	1	0.8					RE-RING / GROUT DOGHOUSE
128	CB	GROUT					1			GROUT RINGS
129	CB	GROUT					1			GROUT RINGS / DOGHOUSE
130	CB	RE-RING	R-3030	1	0.6					RE-RING
131	CB	GROUT					1			GROUT RINGS
132	CB	GROUT					1			GROUT RINGS
133	CB	RE-RING	R-3030	1	1.0					RE-RING
134	CB	GROUT					1			GROUT RINGS
135	CB	RE-RING	R-3030	1	0.6					RE-RING
136	CB	GROUT					1			GROUT RINGS
137	CB	GROUT					1			GROUT RINGS
138	CB	GROUT					1			GROUT RINGS
139	CB	GROUT					1			GROUT RINGS / DOGHOUSE
140	CB	RE-RING	R-3030	1	0.7					RE-RING
141	CB	RE-RING	R-3030	1	0.7					RE-RING
142	CB	GROUT					1			GROUT RINGS
143	CB	GROUT					1			GROUT RINGS
144	CB	RE-RING	R-3030	1	1.8					RE-RING
145	CB	GROUT					1			GROUT RINGS
146	CB	GROUT					1			GROUT DOGHOUSE
147	CB	GROUT					1			GROUT RINGS
148	CB	RE-RING	R-3030	1	0.4					RE-RING
149	CB	GROUT					1			GROUT RINGS
150	CB	NONE								GOOD CONDITION
151	CB	RE-RING	R-3030	1	1.0					RE-RING
152	CB	RECONSTRUCT	R-3030	1	0.7	1		2.3	1	H STRUCTURE
153	CB	GROUT					1			GROUT RINGS
154	CB	GROUT					1			GROUT RINGS
155	CB	GROUT					1			GROUT RINGS
156	CB	RECONSTRUCT	R-3030	1	1.3	1		2.7	1	H STRUCTURE
157	CB	RE-RING	R-3030	1	1.0					RE-RING
158	CB	GROUT					1			GROUT RINGS / DOGHOUSE
159	CB	NONE								GOOD CONDITION
160	CB	RE-RING	R-3030	1	0.9					RE-RING
161	CB	GROUT					1			GROUT RINGS
<b>TOTALS</b>				<b>29</b>	<b>25.9</b>	<b>2</b>	<b>27</b>	<b>5.0</b>	<b>2</b>	

NO	DATE	BY	CKD	APPR	REVISION	04/21/2022	7:31:44 AM
NAME: P:\22-01-00\CSAH_01_(RICE CREEKWAY-RICKARD)\Base\Proposed\TABULATIONS.dgn							

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.  
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STATE AID PROJECT 002-601-060

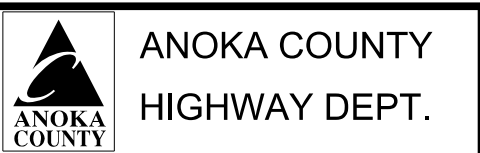
TABULATIONS  
 Sheet 3 of 36 Sheets

STORM DRAINAGE TAB													A
NUMBER	TYPE	ACTION	NEW CASTING TYPE	FURNISH AND INSTALL CASTING ASSEMBLY	REMOVE CASTING	RING HEIGHT (INCIDENTAL)	REMOVE STRUCTURE	GROUT CATCH BASIN OR MANHOLE	CONSTRUCT DRAINAGE STRUCTURE DESIGN G	CONSTRUCT DRAINAGE STRUCTURE DESIGN 48"	CONSTRUCT DRAINAGE STRUCTURE	CONNECT TO EXISTING STORM SEWER (INCIDENTAL)	NOTES
				EACH	EACH	LIN FT	EACH	EACH	LIN FT	LIN FT	LIN FT	EACH	
162	CB	RE-RING	R-3030	1		0.5							RE-RING
163	CB	NONE											GOOD CONDITION
164	CB	GROUT						1					GROUT RINGS
165	CB	RE-RING	R-3030	1		0.8							RE-RING
166	CB	GROUT						1					GROUT RINGS
167	CB	NONE											GOOD CONDITION
168	CB	GROUT						1					GROUT RINGS
169	CB	GROUT						1					GROUT RINGS
170	CB	GROUT						1					GROUT RINGS / DOGHOUSE
171	CB	NONE											GOOD CONDITION
172	CB	GROUT						1					GROUT RINGS
173	CB	RE-RING	R-3030	1		1.3							RE-RING
174	CB	GROUT						1					GROUT RINGS
175	CB	GROUT						1					GROUT RINGS
176	CB	RECONSTRUCT	R-3030	1		0.5	1				4.9	2	BLOCK STRUCTURE
177	CB	GROUT						1					GROUT RINGS
178	CB	GROUT						1					GROUT RINGS
179	CB	GROUT						1					GROUT RINGS
180	CB	GROUT						1					GROUT RINGS
181	CB	GROUT						1					DOGHOUSE
182	CB	GROUT						1					GROUT RINGS
183	CB	GROUT						1					GROUT RINGS
184	CB	RE-RING	R-3030	1		1.1							RE-RING
185	CB	RE-RING	R-3030	1		1.0							RE-RING
186	CB	NONE											GOOD CONDITION
187	CB	GROUT						1					GROUT RINGS
201A	MN	RE-RING / GROUT	A-7D	1	1	2.3							RE-RING / GROUT DOGHOUSE / INFI-SHIELD
202	MH	RECONSTRUCT	A-7D	1	1	1.1	1			3.2		2	Build HT includes bottom slab 0.7' / INFI-SHIELD
203	MH	RE-RING	A-7D	1	1	1.7							RE-RING / INFI-SHIELD
204	MH	RECONSTRUCT	A-7D	1	1	0.5	1		3.5			2	Build HT includes bottom slab 0.7' / INFI-SHIELD
205	MH	RE-RING	A-7D	1	1	1.0							RE-RING / INFI-SHIELD
205A	MH	RE-RING	A-7D	1	1	0.5							RE-RING / INFI-SHIELD
206	MH	RECONSTRUCT	A-7D	1	1	0.7	1			3.9		4	Build HT includes bottom slab 0.7' / INFI-SHIELD
207	MH	RECONSTRUCT	A-7D	1	1	0.6	1			3.6		4	Build HT includes bottom slab 0.7' / INFI-SHIELD
209	MH	RE-RING	A-7D	1	1	1.2							RE-RING / INFI-SHIELD
210	MH	NONE											GOOD CONDITION
210A	MH	RE-RING	A-7D	1	1	1.0							RE-RING / INFI-SHIELD
211	MH	GROUT						1					GROUT RINGS
212	MH	RE-RING	A-7D	1	1	1.0							RE-RING / INFI-SHIELD
213	MH	RE-RING	A-7D	1	1	1.7							RE-RING / INFI-SHIELD
214	MH	RE-RING	A-7D	1	1	0.8							RE-RING / INFI-SHIELD
215	MH	RECONSTRUCT	A-7D	1	1	1.5	1			3.7		4	Build HT includes bottom slab 0.7' / INFI-SHIELD
<b>TOTALS</b>				<b>20</b>	<b>14</b>	<b>20.8</b>	<b>6</b>	<b>17</b>	<b>3.5</b>	<b>14.4</b>	<b>4.9</b>	<b>18</b>	

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 SIGNATURE:   
 DATE: 03-04-2022 LICENSE NO. 58657

DRAWN BY: KPR DATE: 04/21/2022  
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 CHECKED BY: APA DATE: 04/21/2022



STATE AID PROJECT 002-601-060

TABULATIONS  
 Sheet 4 of 36 Sheets


SANITARY SEWER TAB								A
NUMBER	TYPE	ACTION	NEW CASTING TYPE	FURNISH AND INSTALL CASTING ASSEMBLY	REMOVE CASTING	RING HEIGHT (INCIDENTAL)	GROUT CATCH BASIN OR MANHOLE	NOTES
				EACH	EACH	LIN FT	EACH	
300	MH	RE-RING	R-1733	1	1	0.0		RE-RING / INFI-SHIELD
300A	MH	RE-RING	R-1733	1	1	0.5		RE-RING / INFI-SHIELD
301A	MH	RE-RING	R-1733	1	1	0.2		RE-RING / INFI-SHIELD
302	MH	RE-RING	A-7D	1	1	0.8		RE-RING / INFI-SHIELD
303	MH	RE-RING	A-7D	1	1	1.6		RE-RING / INFI-SHIELD
304	MH	RE-RING	A-7D	1	1	0.5		RE-RING / INFI-SHIELD
306	MH	RE-RING	A-7D	1	1	0.2		RE-RING / INFI-SHIELD
308	MH	RE-RING	A-7D	1	1	0.2		RE-RING / INFI-SHIELD
307	MH	RE-RING	A-7D	1	1	0.8		RE-RING / INFI-SHIELD
308A	MH	RE-RING	A-7D	1	1	0.6		RE-RING / INFI-SHIELD
309	MH	RE-RING	A-7D	1	1	0.8		RE-RING / INFI-SHIELD
311	MH	RE-RING	A-7D	1	1	0.6		RE-RING / INFI-SHIELD
312	MH	RE-RING	A-7D	1	1	0.5		RE-RING / INFI-SHIELD
312A	MH	RE-RING	A-7D	1	1	1.0		RE-RING / INFI-SHIELD
313	MH	RE-RING	A-7D	1	1	1.5		RE-RING / INFI-SHIELD
314	MH	RE-RING	A-7D	1	1	0.9		RE-RING / INFI-SHIELD
315	MH	RE-RING	A-7D	1	1	1.5		RE-RING / INFI-SHIELD
316	MH	GROUT					1	GROUT RINGS
318	MH	RE-RING	A-7D	1	1	0.0		RE-RING / INFI-SHIELD
319	MH	RE-RING	A-7D	1	1	0.3		RE-RING / INFI-SHIELD
320	MH	RE-RING	A-7D	1	1	0.2		RE-RING / INFI-SHIELD
321	MH	GROUT					1	GROUT RINGS
322	MH	NONE						NONE
323	MH	RE-RING	A-7D	1	1	0.2		RE-RING / INFI-SHIELD
324	MH	RE-RING	A-7D	1	1	0.7		RE-RING / INFI-SHIELD
325	MH	RE-RING	A-7D	1	1	1.7		RE-RING / INFI-SHIELD
326	MH	RE-RING	A-7D	1	1	0.4		RE-RING / INFI-SHIELD
327	MH	RE-RING	A-7D	1	1	0.6		RE-RING / INFI-SHIELD
<b>TOTALS</b>				<b>25</b>	<b>25</b>	<b>16.2</b>	<b>2</b>	

BITUMINOUS STREET SUMMARY		C
LOCATION	BITUMINOUS	NOTES
	2360 TYPE SP 12.5 WEAR (4,C)	
	TON	
Hartman Cir	23	[1]
Locke Lake RD	22	[1]
69th Way	21	[1]
70th Way	27	[1]
71th Way	26	[1]
Hickory Dr	22	[1]
Logan Pkwy	20	[1]
W Chesney Way	6	[1]
Glen Creek RD	15	[1]
Osborn Way	19	[1]
Rickard RD	13	[1]
<b>PROJECT TOTAL</b>	<b>215</b>	

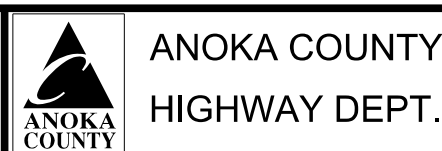
**BITUMINOUS SUMMARY NOTES:**  
 [1] QUANTITY ESTIMATED FOR 1 LIFTS

CASTING ASSEMBLIES SUMMARY						B
ASSEMBLY	RING OR FRAME CASTING	COVER OR GRATE CASTING	CURB BOX	DESCRIPTION	NOTES	QUANTITY
A-7D	700-7	715		301-CP LID WITH RUBBER GASKET ON BOTTOM	CASTING COVER STAMPED "STORM SEWER" (NEENAH R-1733 WITH LID 301-CP)	14
A-7D	700-7	715		301-CP LID WITH RUBBER GASKET ON BOTTOM	CASTING COVER STAMPED "SANITARY SEWER" (NEENAH R-1733 WITH LID 301-CP)	25
A	NEENAH R-3030	L	YES	NEENAH R-3030-L		35
ALL CASTING HEIGHTS ARE TO BE VERIFIED IN THE FIELD						
ALL MANHOLE COVERS SHOULD BE LABELED AS STORM OR SANITARY						
NEW MANHOLE CASTINGS TO BE INSTALLED FLUSH WITH THE MILLED ASPHALT SURFACE.						
ALL MANHOLES TO BE WRAPPED WITH INFI-SHIELD. THIS WORK IS INCIDENTAL TO THE CASTING ASSEMBLY.						
ADJUSTING RINGS TO BE INSTALLED AND GLUED DURING THE PAVING OPERATION.						
ADJUSTING RINGS TO BE RECESSED 1/4" FROM TOP OF FINISHED MAT						

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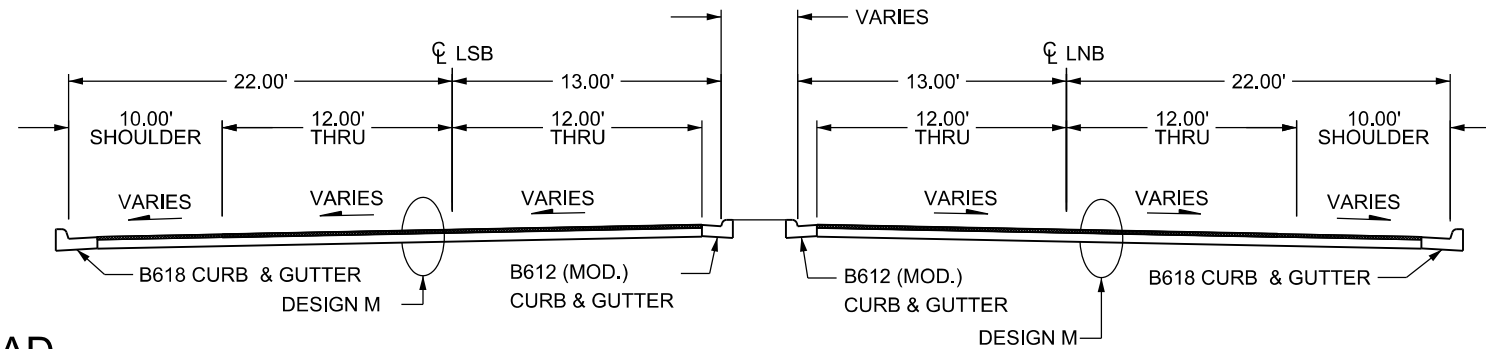


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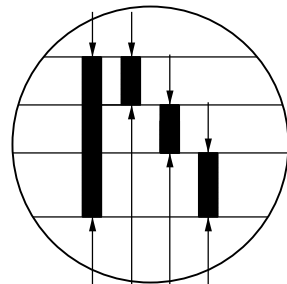
TABULATIONS  
 Sheet 5 of 36 Sheets

### EAST RIVER ROAD(CSAH 1)

TYPICAL MAINLINE  
 LNB 15+90.00 - 77+81.00 (TURN LANES EXEMPT)  
 LSB 116+27.00 - 177+78.00 (TURN LANES EXEMPT)

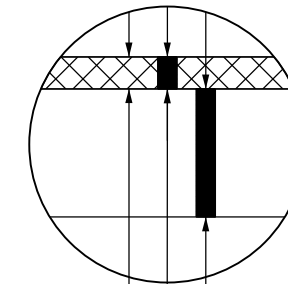


**BUS PAD  
 BITUMINOUS PATCH SECTION**



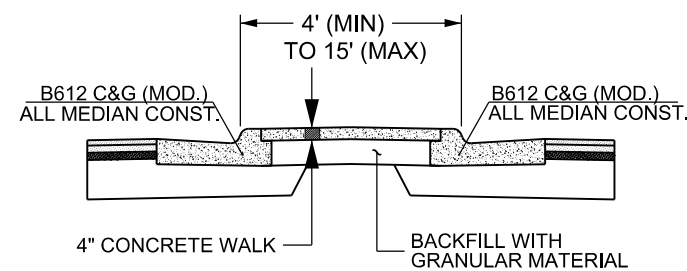
8.0" REMOVE CONCRETE PAVEMENT  
 2.5" BITUMINOUS WEAR(SPWEB440F)  
 2.5" TYPE SP 12.5 BITUMINOUS MIXTURE (PATCH)  
 3.0" TYPE SP 12.5 BITUMINOUS MIXTURE (PATCH)

**DESIGN M  
 MILL SECTION**



2.5" MILL BITUMINOUS  
 2.5" BITUMINOUS WEAR(SPWEB440F)  
 REMAINING BITUMINOUS

**CENTER MEDIAN  
 DETAIL**



### EAST RIVER ROAD (CSAH 1)

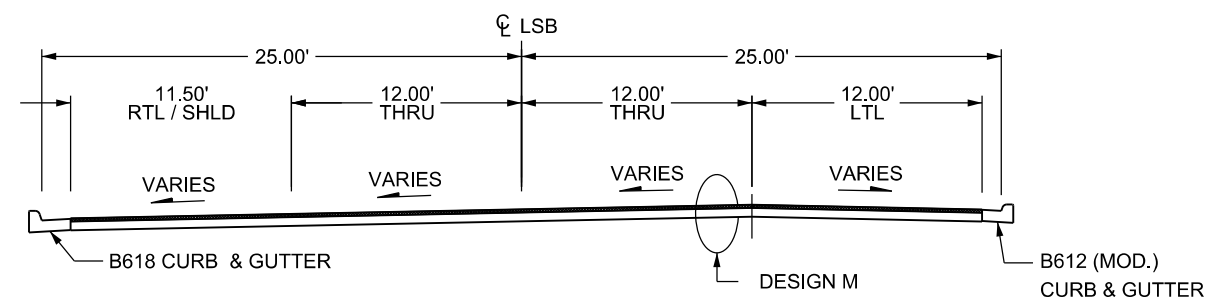
TYPICAL LSB TURN LANES

**RIGHT TURN LANE**

120+00.00 - 122+85.00  
 143+30.00 - 146+15.00  
 155+00.00 - 162+00.00  
 169+50.00 - 172+40.00

**LEFT TURN LANE**

123+80.00 - 126+25.00  
 129+25.00 - 133+00.00  
 143+50.00 - 146+10.00  
 169+50.00 - 172+50.00



### EAST RIVER ROAD (CSAH 1)

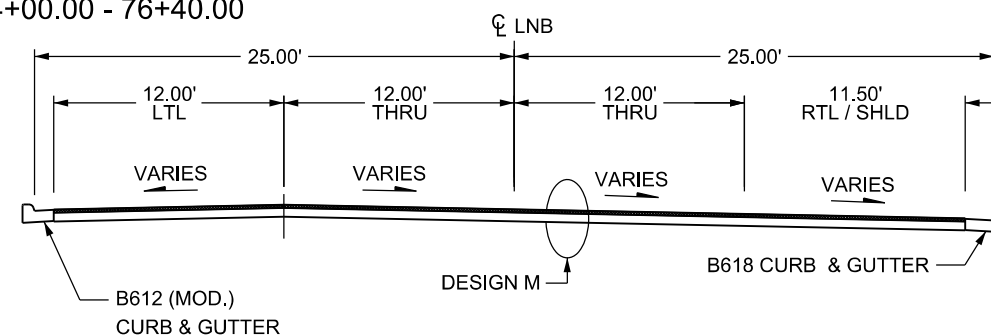
TYPICAL LNB TURN LANES

**LEFT TURN LANE**

17+20.00 - 19+15.00  
 27+40.00 - 28+10.00  
 38+50.00 - 42+10.00  
 51+20.00 - 55+15.00  
 65+10.00 - 68+50.00  
 74+00.00 - 76+40.00

**RIGHT TURN LANE**

21+40.00 - 22+90.00  
 25+10.00 - 28+40.00  
 33+20.00 - 35+90.00  
 39+15.00 - 42+25.00  
 65+50.00 - 68+20.00



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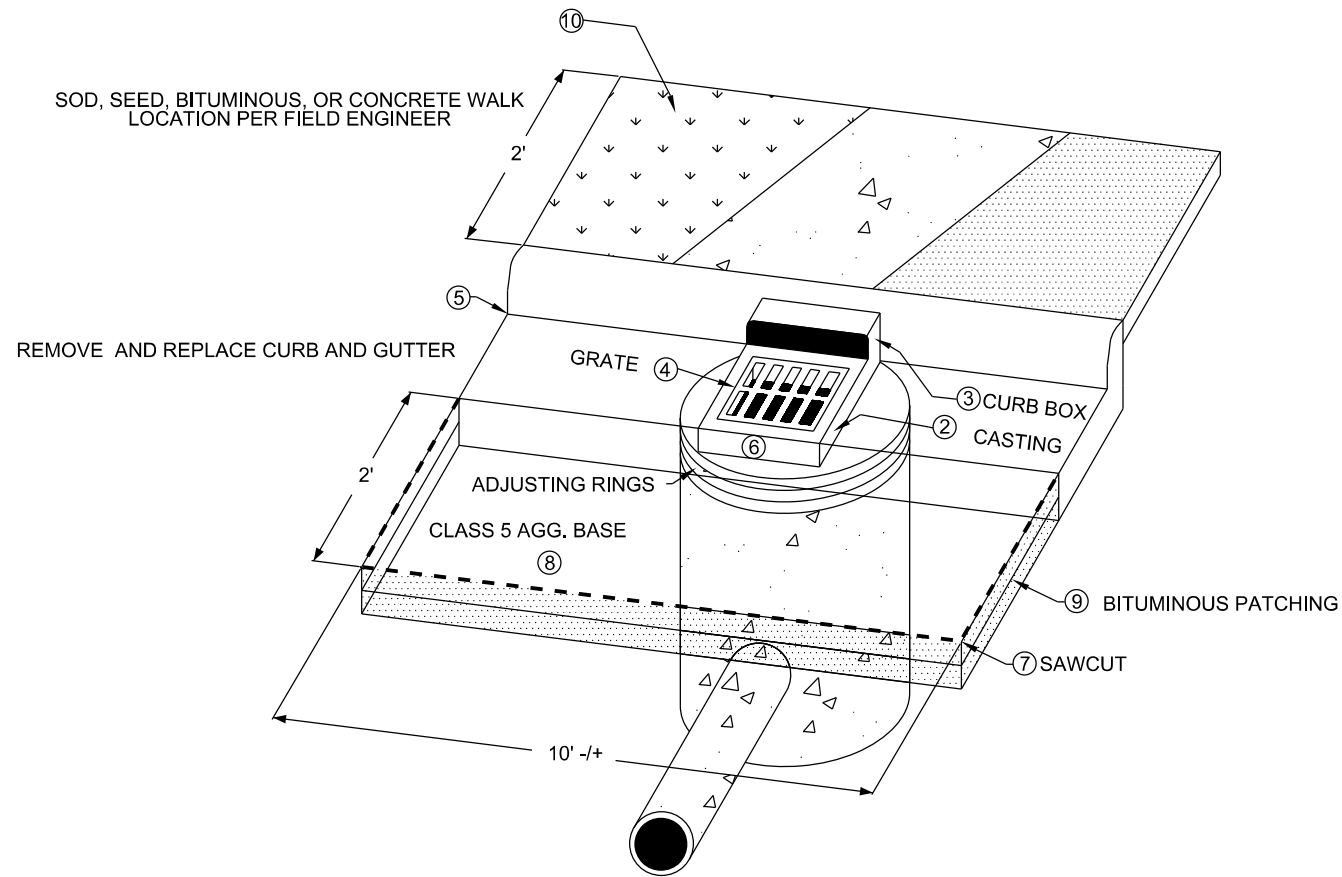
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 HIGHWAY DEPT.**

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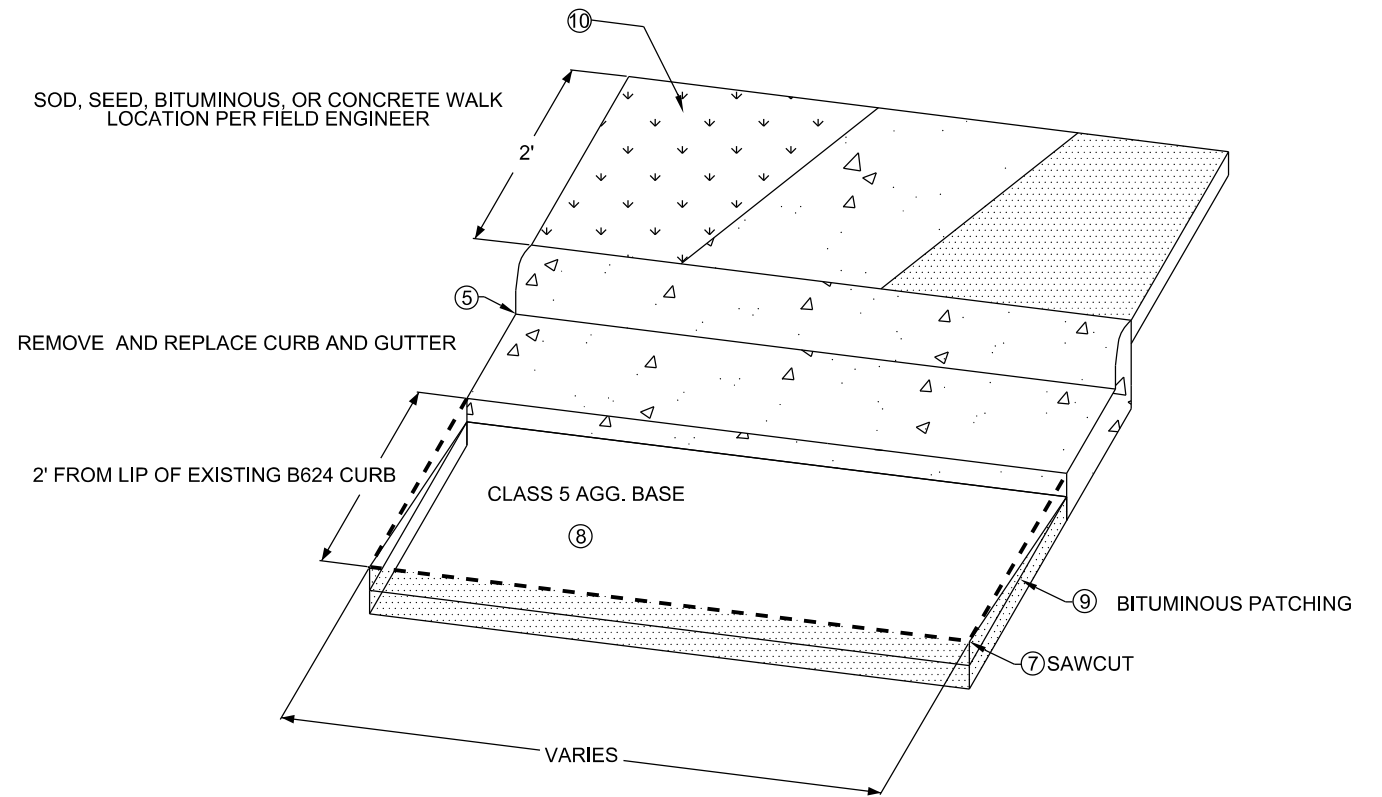
### CATCH BASIN DETAIL

SEE STRUCTURE TAB FOR LOCATION  
(PAGES 3-4)



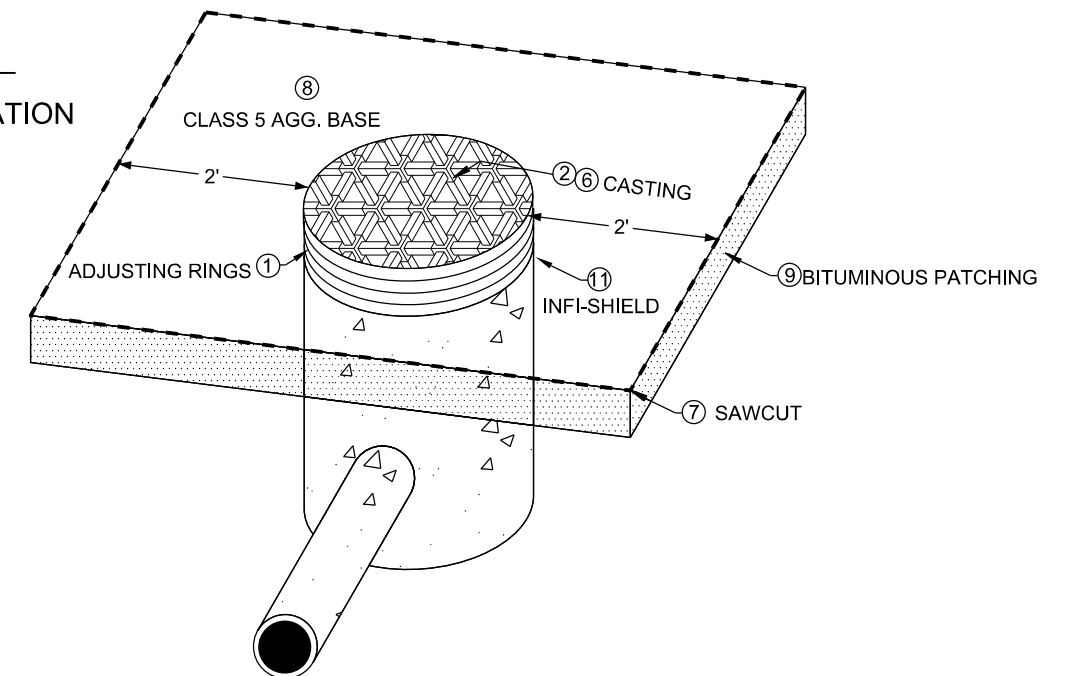
### NEW CURB DETAIL

SEE PLAN FOR LOCATION



### MANHOLE DETAIL

SEE STRUCTURE TAB FOR LOCATION  
(PAGE 3)




### NOTES

FOR TRAFFIC CONTROL AT CATCH BASIN AND MANHOLE REPAIRS REFER TO THE MINNESOTA MANUAL ON TEMPORARY TRAFFIC CONTROL LAYOUTS FIELD MANUAL.

- ① CONCRETE ENCASED CONCRETE ADJUSTING RINGS STANDARD PLATE 4026A
- ② RING AND FRAME CASTING; REFERENCE CASTING ASSEMBLIES SUMMARY CHART FOR CASTING TYPE
- ③ CURB BOX MATCHES CASTING REFERENCE CHART FOR CASTING TYPE
- ④ GRATE CASTING; REFERENCE CASTING ASSEMBLIES SUMMARY CHART FOR CASTING TYPE
- ⑤ CONCRETE CURB AND GUTTER DESIGN B STANDARD PLATE 7100H, FORM CURB TO FIT CASTING
- ⑥ INSTALLATION OF CATCH BASIN OR MANHOLE CASTINGS; REFERENCE STANDARD PLATE PER TYPE OF CASTING
- ⑦ SAWCUT BITUMINOUS PAVEMENT / CONCRETE CURB FULL DEPTH.
- ⑧ ADD AND COMPACT AGGREGATE BASE CLASS 5 AROUND REPAIRED STRUCTURE. ITEM INCIDENTAL TO ENTIRE STRUCTURE REPAIR
- ⑨ REMOVE VARIABLE DEPTH BITUMINOUS, PATCH WITH 2, 3" LIFTS OF BITUMINOUS, TOP LIFT SHOULD TAPER TO BOTTOM LIFT AT CURB.
- ⑩ REPLACE DISTURBED AREA BEHIND CATCH BASIN WITH EITHER SOD (RESIDENTIAL AREAS), EROSION CONTROL BLANKET, BITUMINOUS, OR CONCRETE
- ⑪ WRAP STORM SEWER MANHOLE AND SANITARY SEWER MANHOLE CONCRETE ADJUSTING RINGS & CASTINGS WITH INFI-SHIELD SEAL WRAP OR APPROVED EQUIVALENT. INSTALL PER MANUFACTURER'S RECOMMENDATIONS. INFI-SHIELD WRAP INCIDENTAL TO ADJUSTMENT.

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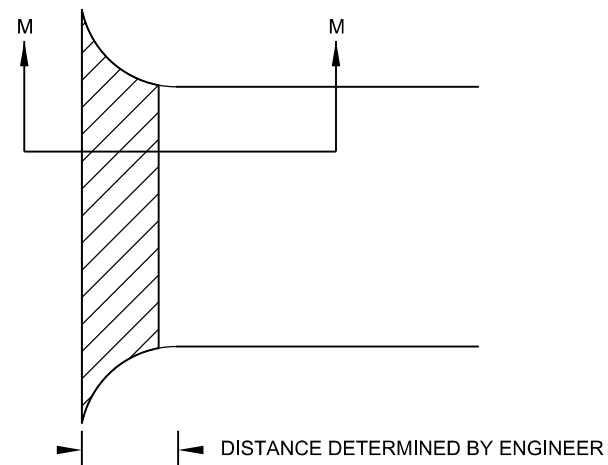
DETAILS

Sheet 7 of 36 Sheets

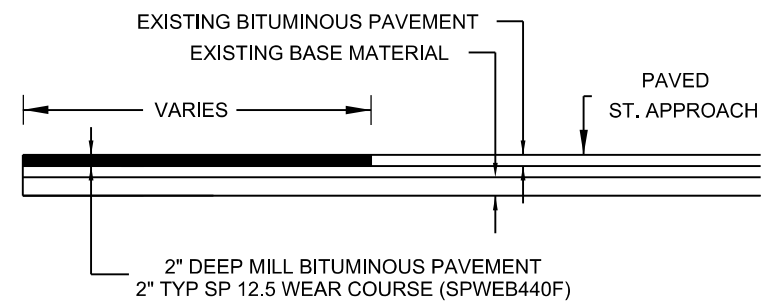
# STREET APPROACH DETAIL (MILL & OVERLAY)

## BITUMINOUS STREET

PLAN VIEW



SECTION M - M




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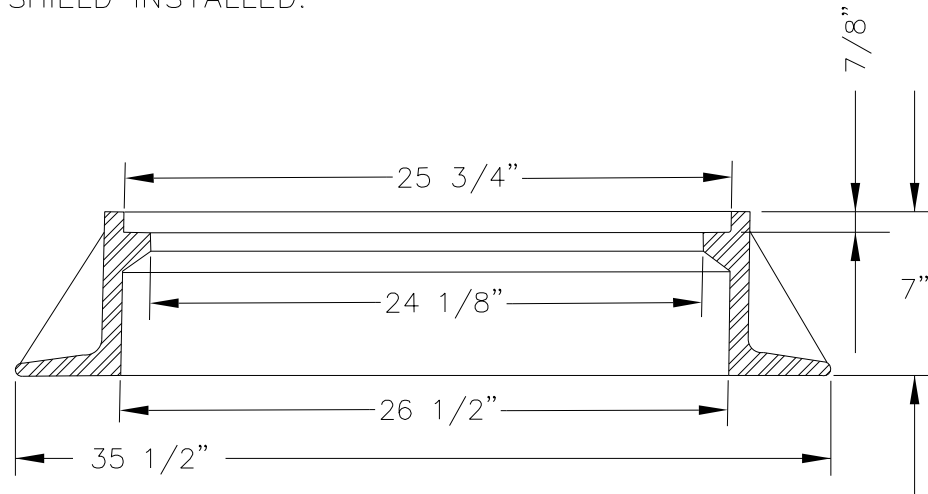
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DETAILS

Sheet 8 of 36 Sheets



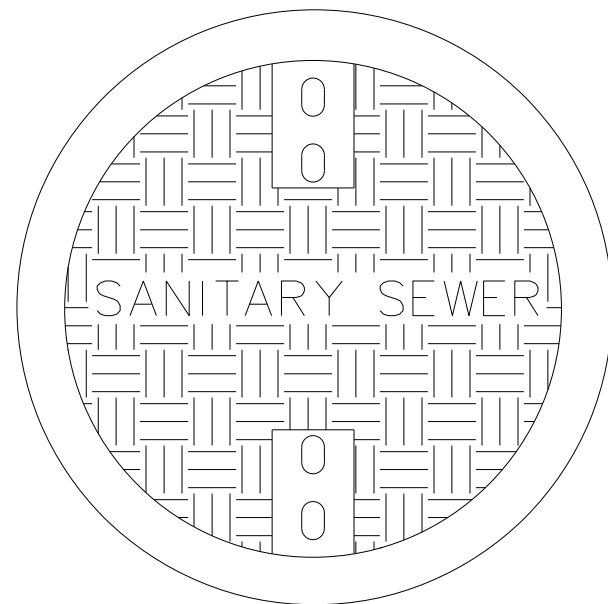
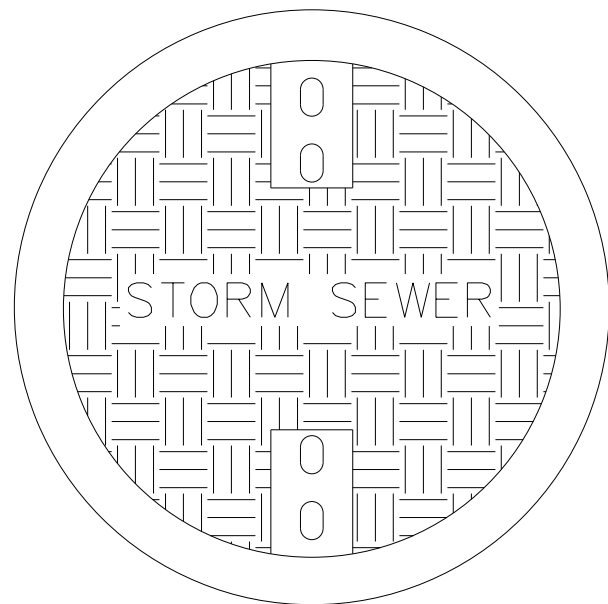
CASTING – NEENAH FOUNDRY NO. R-1733 SERIES MANHOLE FRAME OR APPROVED EQUAL. CASTING & RINGS TO HAVE INFI-SHIELD INSTALLED.



COVER – ESS BROTHER 301-CP LID. OR EQUAL WITH RUBBER GASKET ON THE BOTTOM OF THE LID.

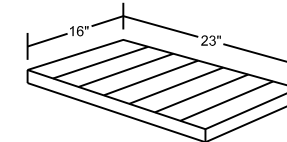
NEENAH R1733-5044

NEENAH R1733-5044

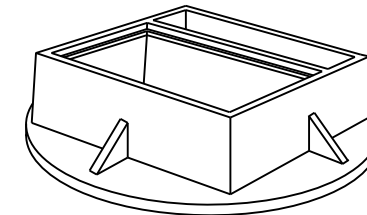


NOTE: ALL LIDS MUST HAVE RUBBER GASKET ON THE BOTTOM OF THE LID.

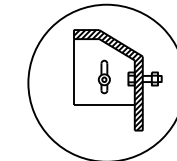
FRAME RING AND CASTING TYPE A  
TO BE USED FOR MEDIAN AND SHOULDER CATCH BASINS



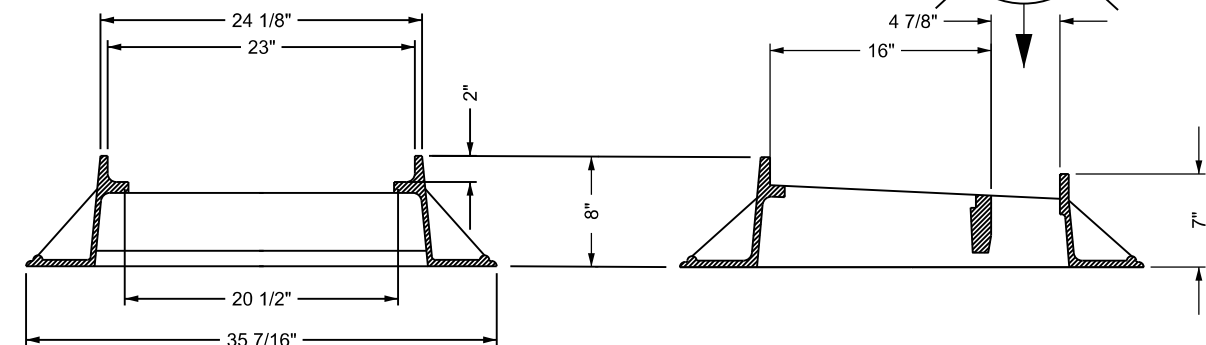
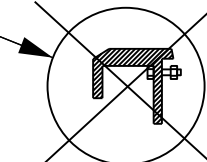
GRATE AREA 23" X 16" X 2"  
MUST BE DIRECTIONAL AND BIKE SAFE  
SIMILAR TO MNDOT STD PLATE 4152C  
OR MNDOT STD PLATE 4154B




FOR CASTING TYPE A  
USE AVAILABLE  
BOLT ON CURB BOX



FOR CASTING TYPE B  
USE AVAILABLE  
BOLT ON CURB PLATE



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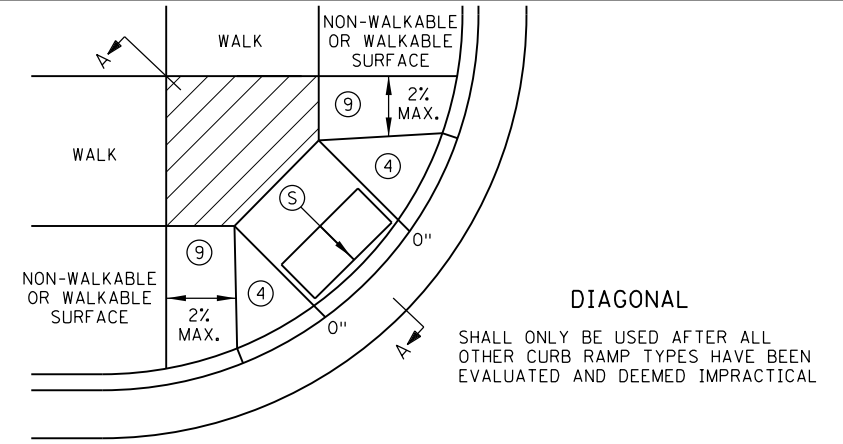
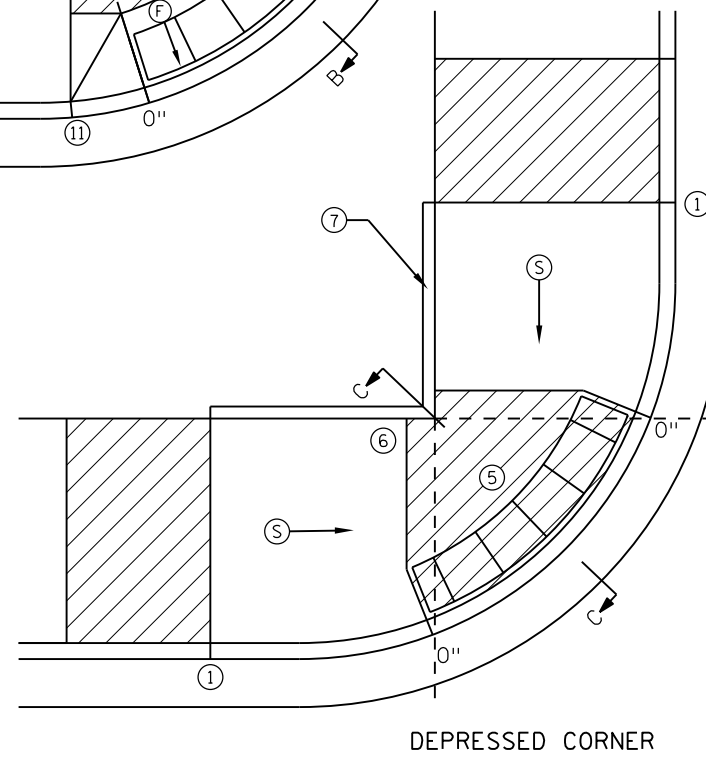
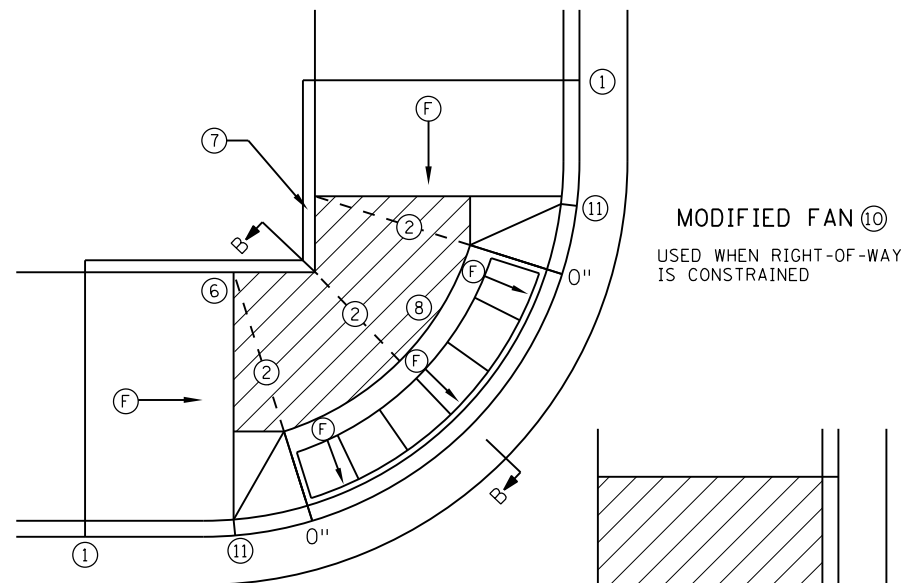
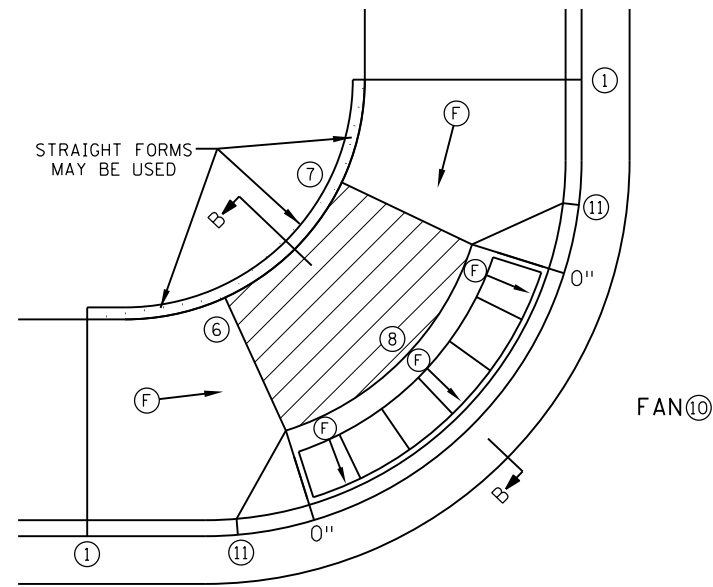
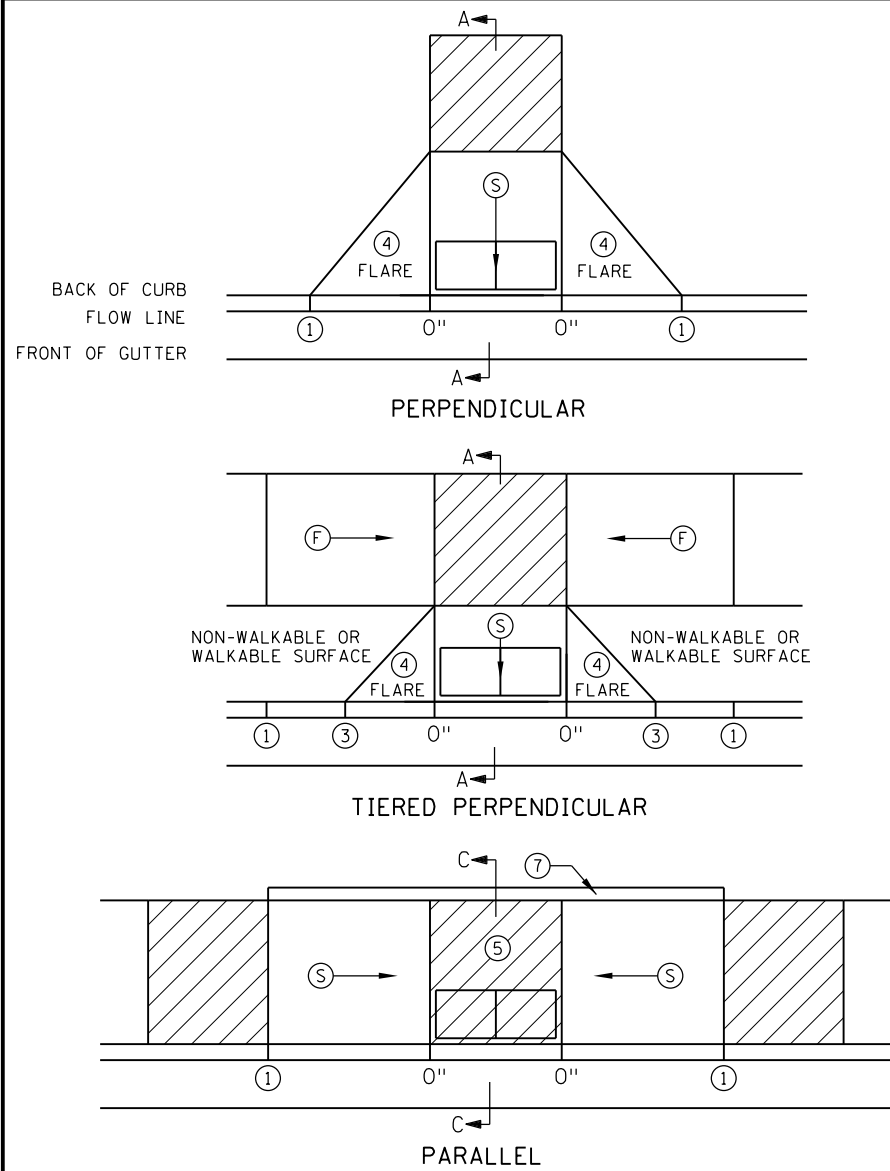
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 ANOKA COUNTY  
HIGHWAY DEPT.

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DETAILS  
Sheet 9 of 36 Sheets

DISTRICT #: PLOTTED/REVISED: 04/21/2022  
 PLOT NAME: \$\$\$\PLOT\NAME\$\$\$  
 PATH & FILENAME: P:\122-01-00\CSAH\01\IRICE CREEKWAY-RICKARD\BASE\Proposed\PED RAMP DETAILS.dgn



**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.

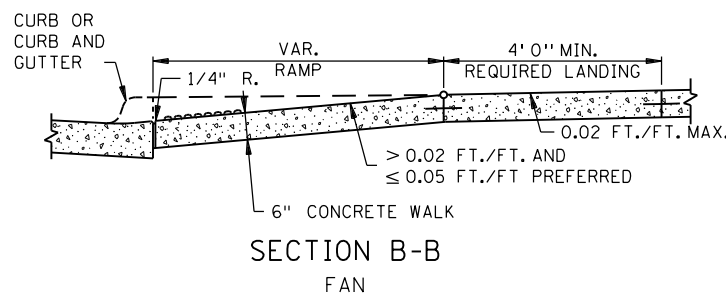
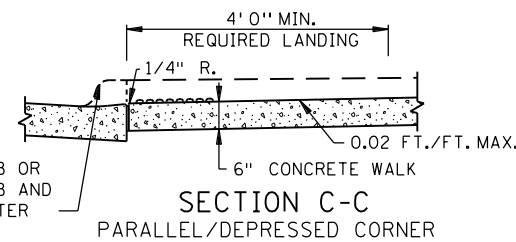
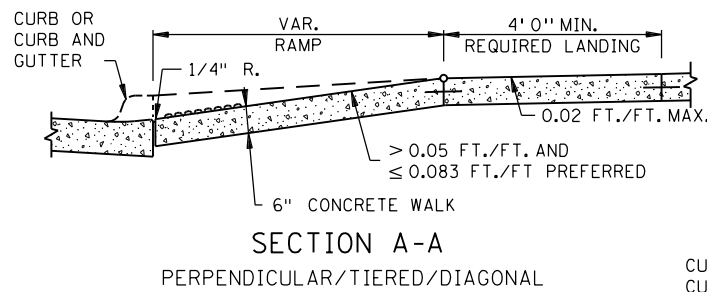
4' MINIMUM WIDTH OF DETECTABLE WARNING IS REQUIRED FOR ALL RAMPS. DETECTABLE WARNINGS SHALL CONTINUOUSLY EXTEND FOR A MIN. OF 24" IN THE PATH OF TRAVEL. DETECTABLE WARNING TO COVER THE ENTIRE PAR WIDTH OF SHARED-USE PATHS AND THE ENTIRE PAR WIDTH OF THE WALK WITH THE EXCEPTION OF 3" MAXIMUM ON EACH OUTSIDE 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	
	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%.
	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



REVISION:

APPROVED: 11-04-2021

*Jeff J. Perkins*  
JEFFREY PERKINS  
OPERATIONS DIVISION

**m** MINNESOTA  
DEPARTMENT OF TRANSPORTATION

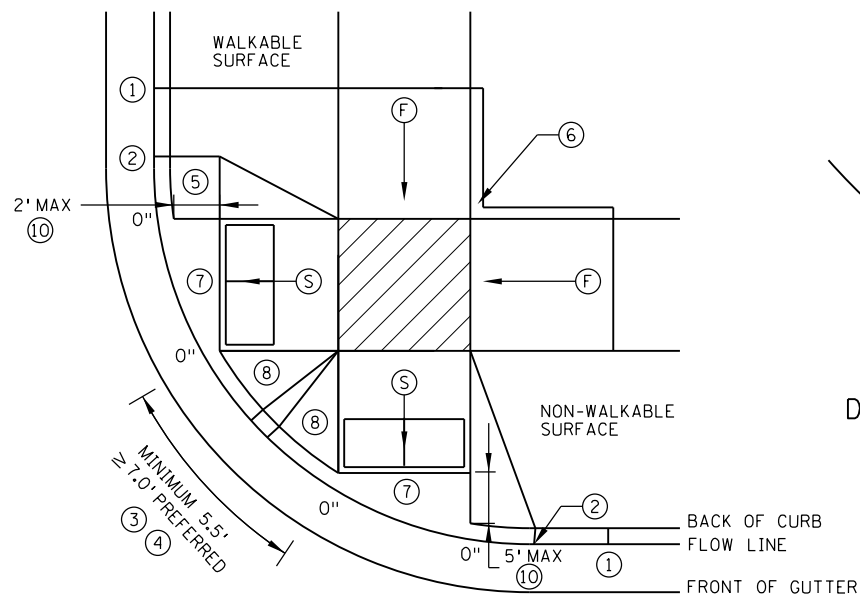
STANDARD PLAN 5-297.250 1 OF 6

APPROVED: 11-04-2021  
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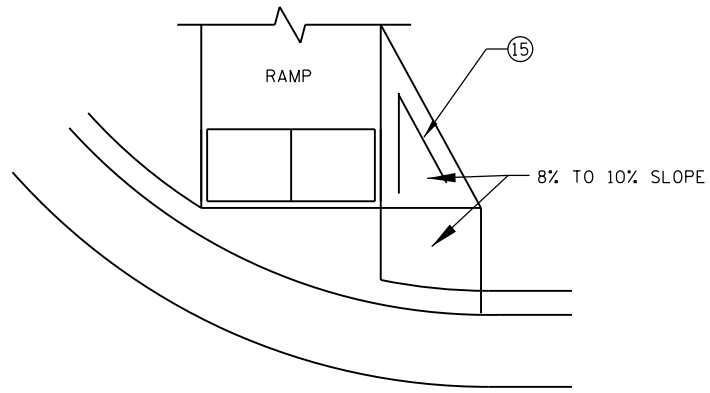
*Tom Styrbicki*  
THOMAS STYRBICKI  
STATE DESIGN ENGINEER

**PEDESTRIAN CURB RAMP DETAILS**

DISTRICT #: PLOTTED/REVISED: 04/21/2022  
 PLOT NAME: \$\$\$@PLOT\$NAME\$\$\$  
 PATH & FILENAME: P:\22-01-00\CSAH-01\IRICE CREEKWAY-RICKARD\Bases\Proposed\PED RAMP DETAILS.dgn

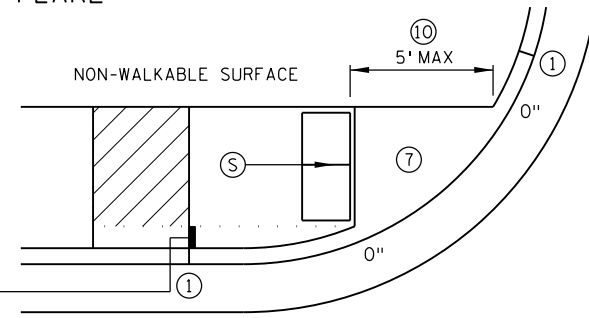


COMBINED DIRECTIONAL

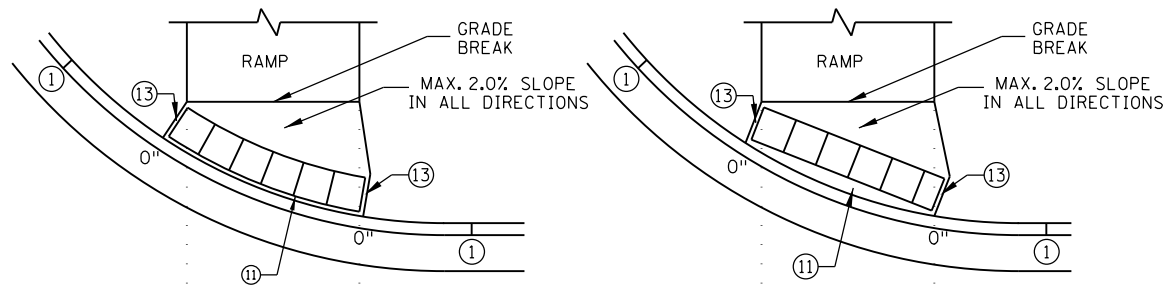


DIRECTIONAL RAMP WALKABLE FLARE

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.

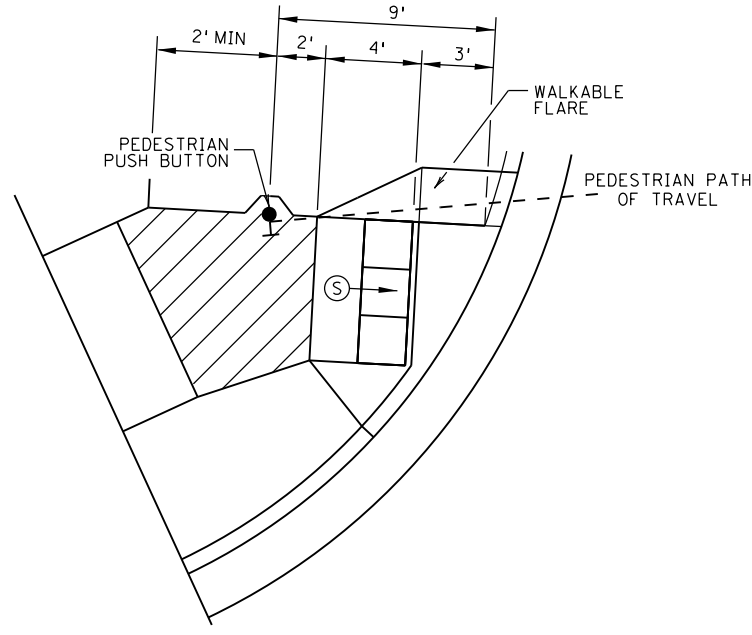


STANDARD ONE-WAY DIRECTIONAL ⑩



DETECTABLE WARNING PLACEMENT WHEN SETBACK CRITERIA IS EXCEEDED ⑫

ONE-WAY DIRECTIONAL WITH DETECTABLE WARNING AT BACK OF CURB



SEMI-DIRECTIONAL RAMP ③④⑨

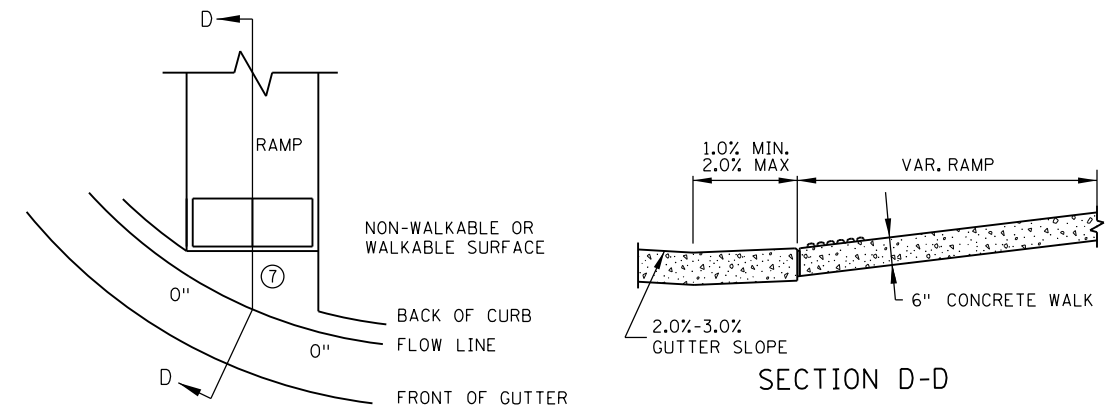
3' DOME SETBACK, 4' LONG RAMP AND PUSH BUTTON 9' FROM THE BACK OF CURB  
 PRIMARILY USED FOR APS APPLICATIONS WHERE THE PAR DOES NOT CONTINUE PAST THE PUSH BUTTON (DEAD-END SIDEWALK)

**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%.
[Hatched Box]	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



SECTION D-D

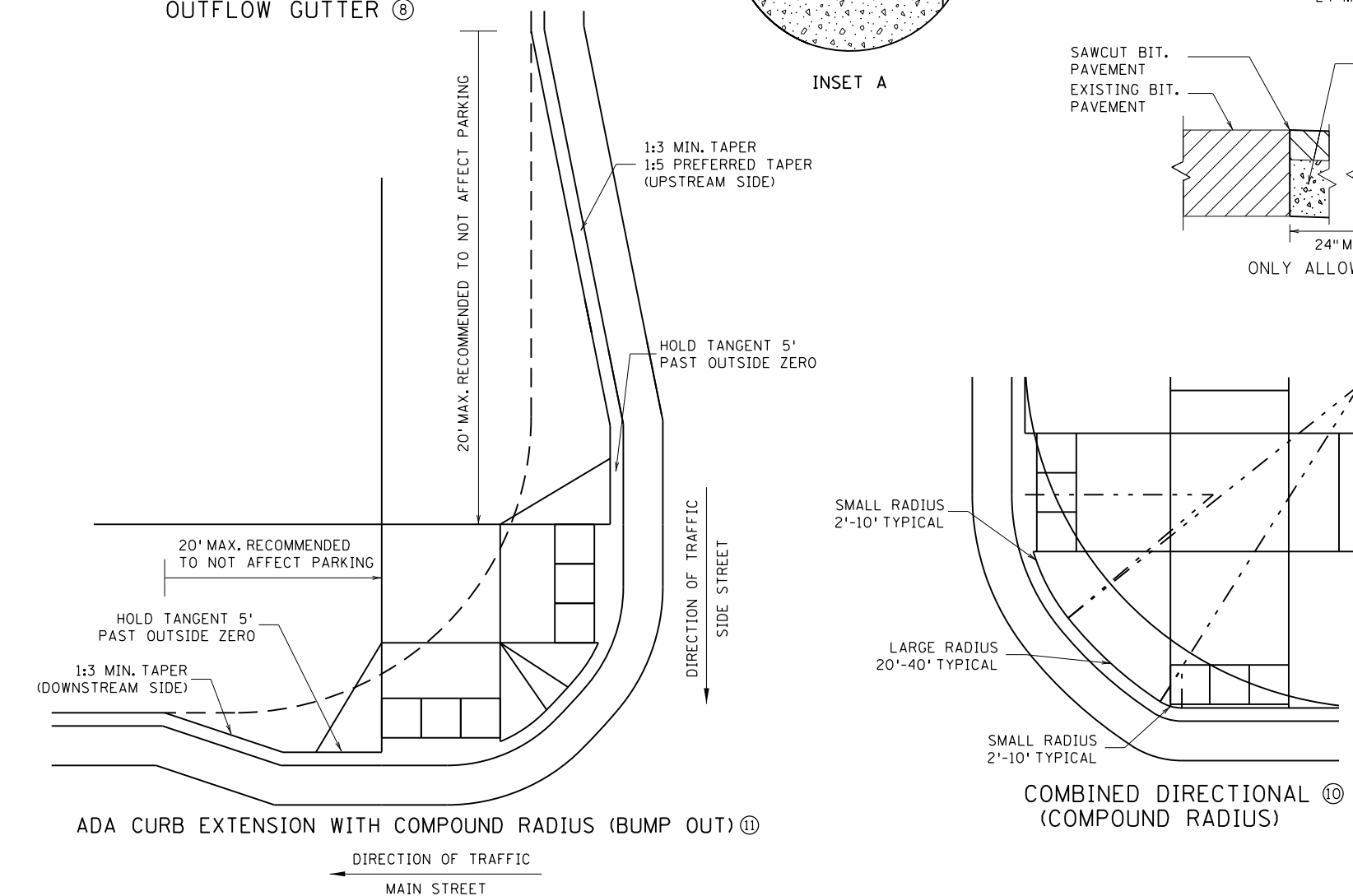
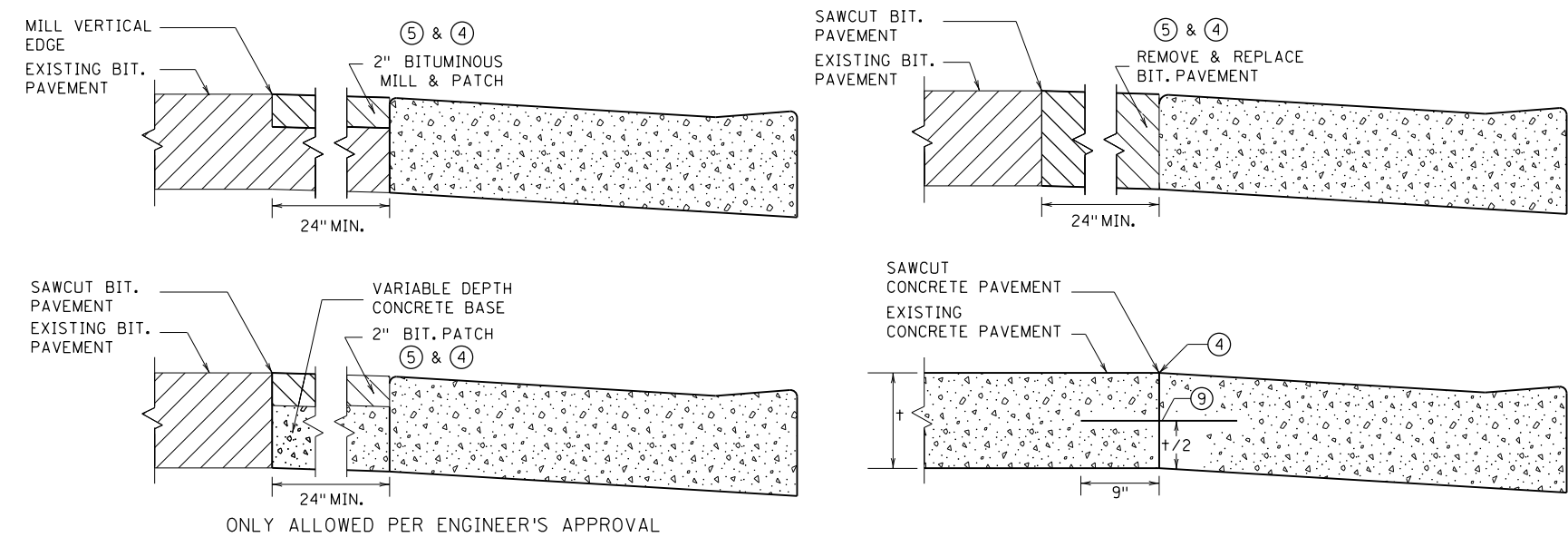
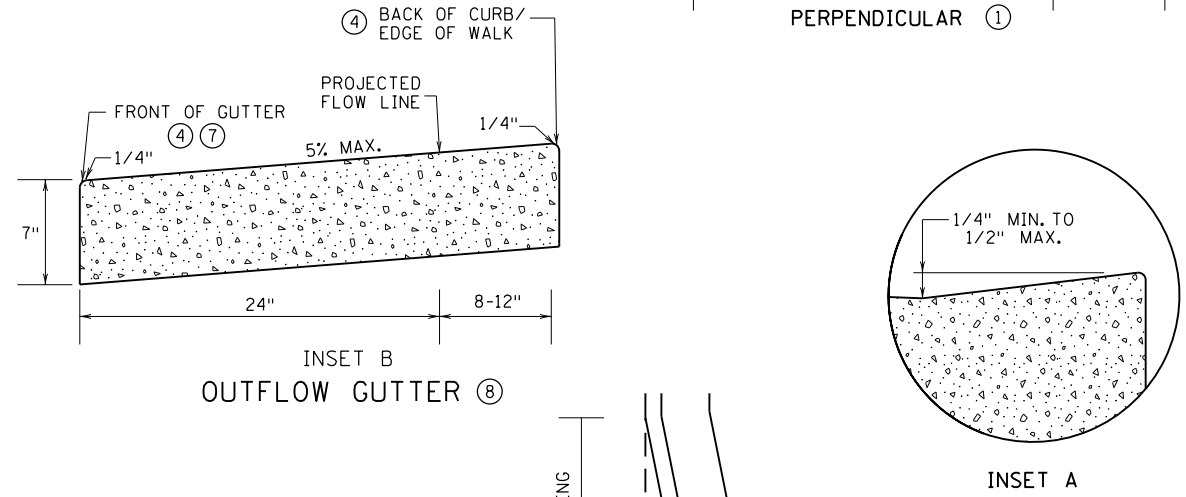
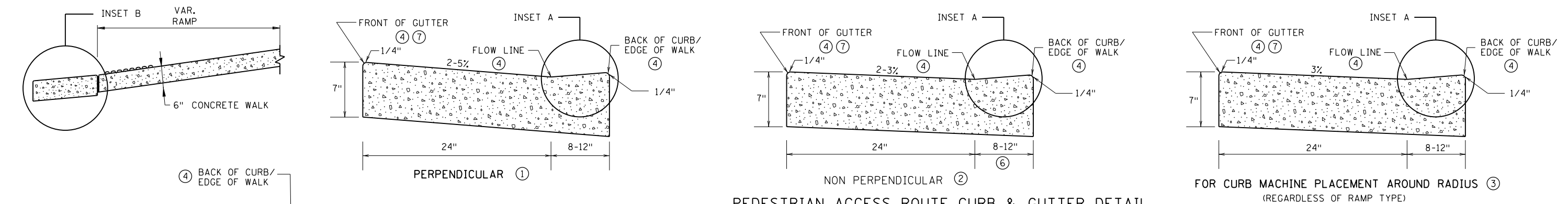
CURB FOR DIRECTIONAL RAMPS ⑭

REVISION:  
 APPROVED: 11-04-2021  
 Jeff J. Perkins  
 OPERATIONS DIVISION

**m** MINNESOTA DEPARTMENT OF TRANSPORTATION  
 STANDARD PLAN 5-297.250 2 OF 6  
 APPROVED: 11-04-2021  
 REVISOR:  
 THOMAS STYRBICKI  
 STATE DESIGN ENGINEER

**PEDESTRIAN CURB RAMP DETAILS**

DISTRICT #: PLOTTED/REVISED: 04/21/2022  
 PLOT NAME: \$\$\$\PLOT\NAME\$\$\$  
 PATH & FILENAME: P:\22-01-00\CSAH-01\RICE CREEKWAY-RICKARD\Bases\Proposed\PED RAMP DETAILS.dgn



**PAVEMENT TREATMENT OPTIONS IN FRONT OF CURB & GUTTER**  
FOR USE ON CURB RAMP RETROFITS

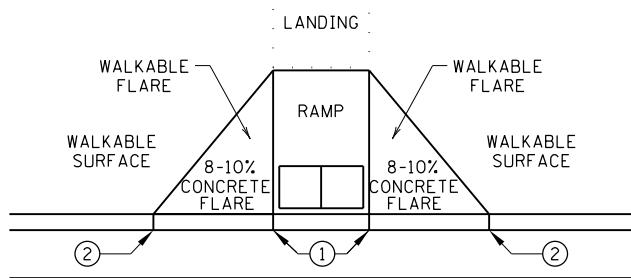
- NOTES:**
- POSITIVE FLOW LINE DRAINAGE SHALL BE MAINTAINED THROUGH THE PEDESTRIAN ACCESS ROUTE (PAR) AT A 2% MAXIMUM. NO PONDING SHALL BE PRESENT IN THE PAR.
  - ANY VERTICAL LIP THAT OCCURS AT THE FLOW LINE SHALL NOT BE GREATER THAN 1/4 INCH.
  - ① FOR USE AT CURB CUTS WHERE THE PEDESTRIAN'S PATH 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.

REVISION:  
 APPROVED: 11-04-2021  
 Jeff J. Perkins  
 OPERATIONS DIVISION

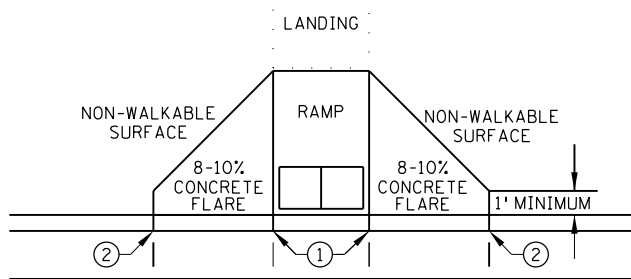
**m** MINNESOTA DEPARTMENT OF TRANSPORTATION  
 STANDARD PLAN 5-297.250 3 OF 6  
 APPROVED: 11-04-2021  
 REVISOR:  
 THOMAS STYRBICKI  
 STATE DESIGN ENGINEER

**PEDESTRIAN CURB RAMP DETAILS**  
 STATE AID PROJECT 002-601-060 SHEET NO.12 OF 36 SHEETS

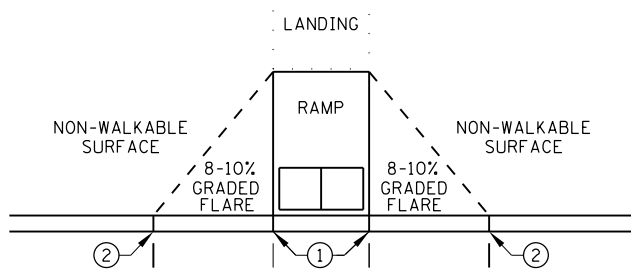
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 PLOTTED/REVISED: 04/21/2022



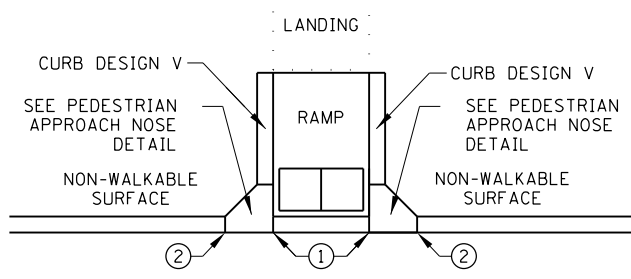
PAVED FLARES  
ADJACENT TO WALKABLE SURFACE



PAVED FLARES  
ADJACENT TO NON-WALKABLE SURFACE

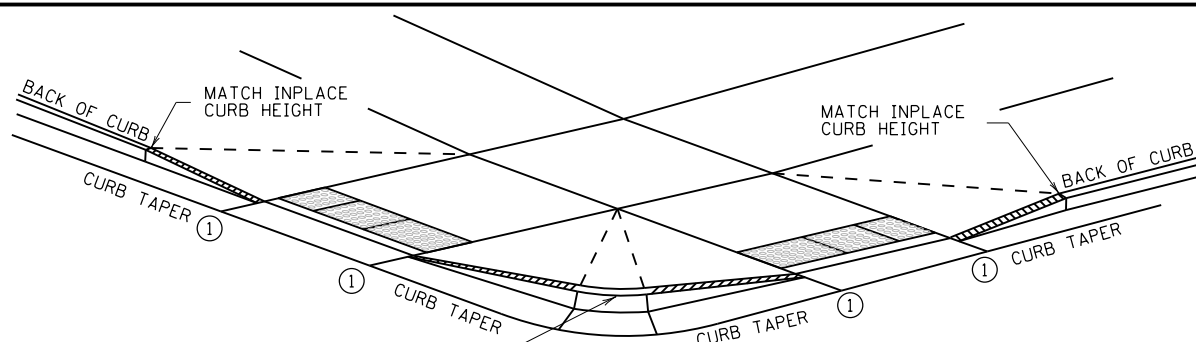


GRADED FLARES



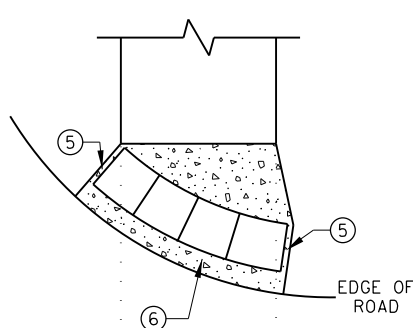
RETURNED CURB ④

TYPICAL SIDE TREATMENT OPTIONS ③ ⑩

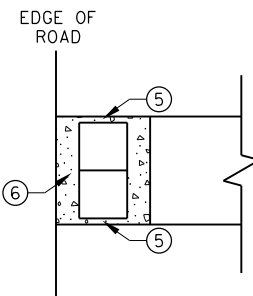


3" MINIMUM CURB HEIGHT, 4" PREFERRED  
(MEASURED AT FRONT FACE OF CURB)  
FOR A MIN. 6" LENGTH (MEASURED ALONG FLOW LINE)

DETECTABLE EDGE WITH CURB AND GUTTER ⑦

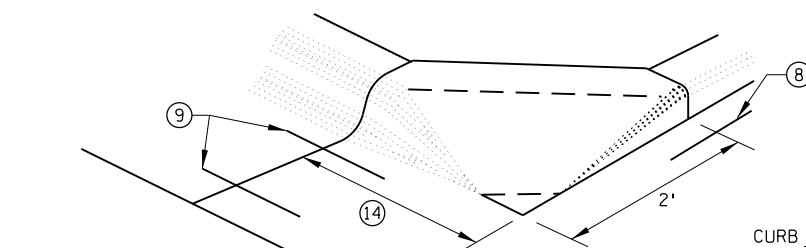


RADIAL DETECTABLE WARNING

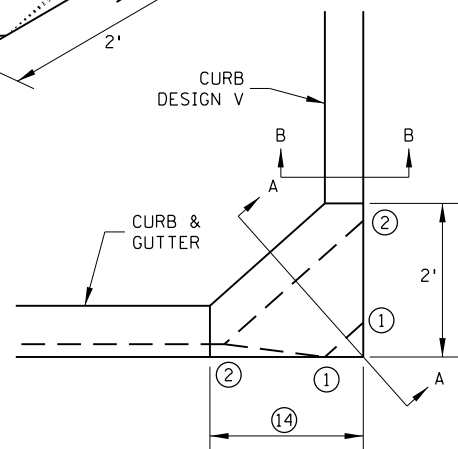


RECTANGULAR DETECTABLE WARNING

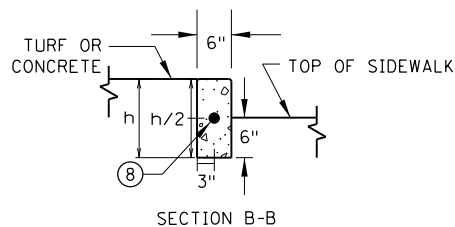
DETECTABLE EDGE WITHOUT CURB AND GUTTER



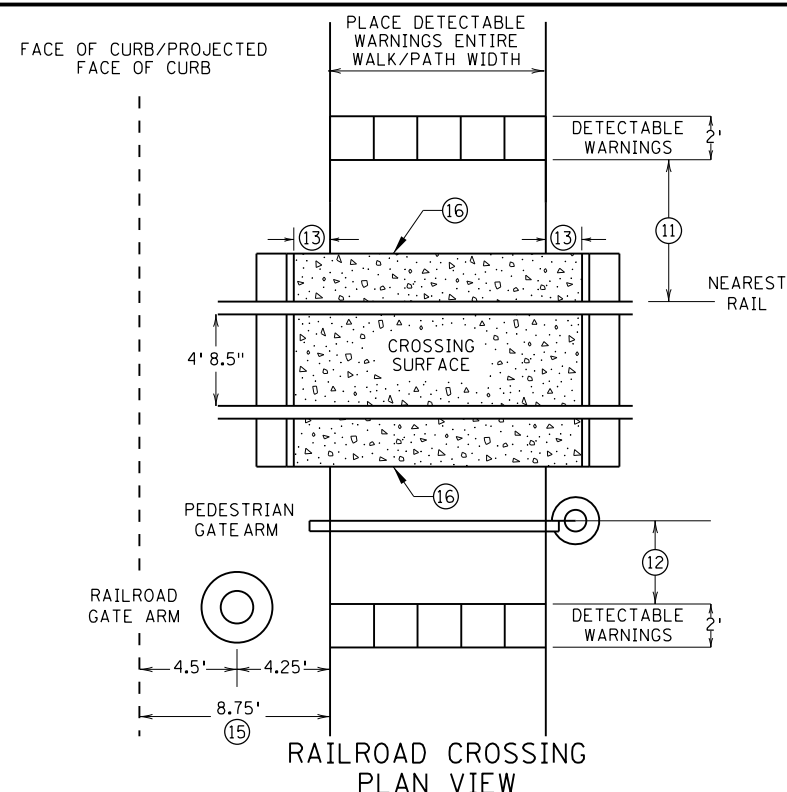
SECTION A-A



PEDESTRIAN APPROACH NOSE DETAIL  
(FOR RETURNED CURB SIDE TREATMENT)



SECTION B-B



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.

REVISION:  
APPROVED: 11-04-2021  
Jeffrey J. Perkins  
OPERATIONS DIVISION

**m**  
MINNESOTA  
DEPARTMENT  
OF  
TRANSPORTATION

STANDARD PLAN 5-297.250

4 OF 6

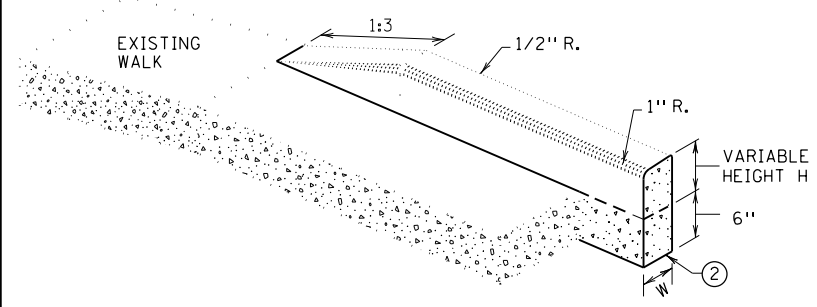
PEDESTRIAN CURB RAMP DETAILS

APPROVED: 11-04-2021  
REVISOR:

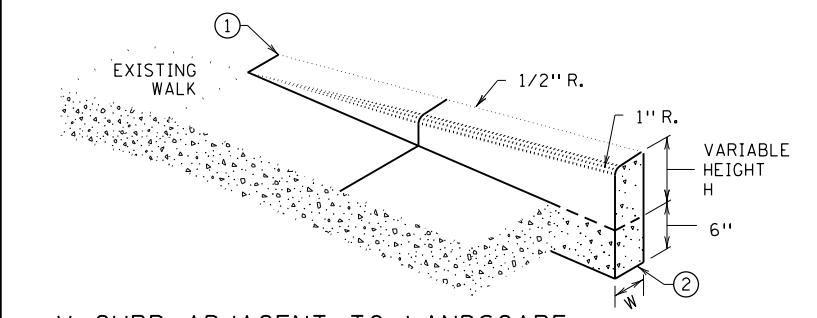
STATE AID PROJECT 002-601-060

SHEET NO.13 OF 36 SHEETS

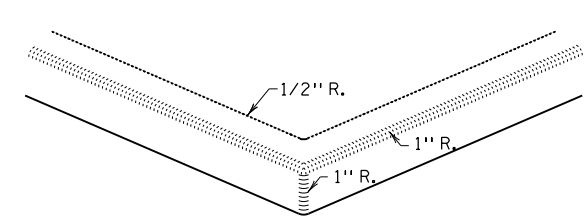
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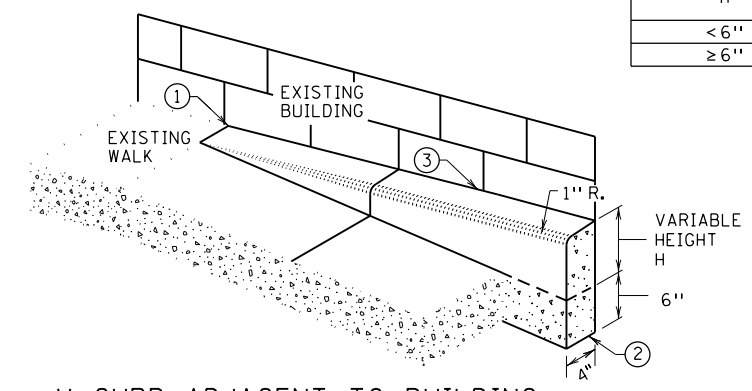
V CURB ADJACENT TO LANDSCAPE  
CURB WITHIN SIDEWALK LIMITS



V CURB ADJACENT TO LANDSCAPE  
CURB OUTSIDE SIDEWALK LIMITS

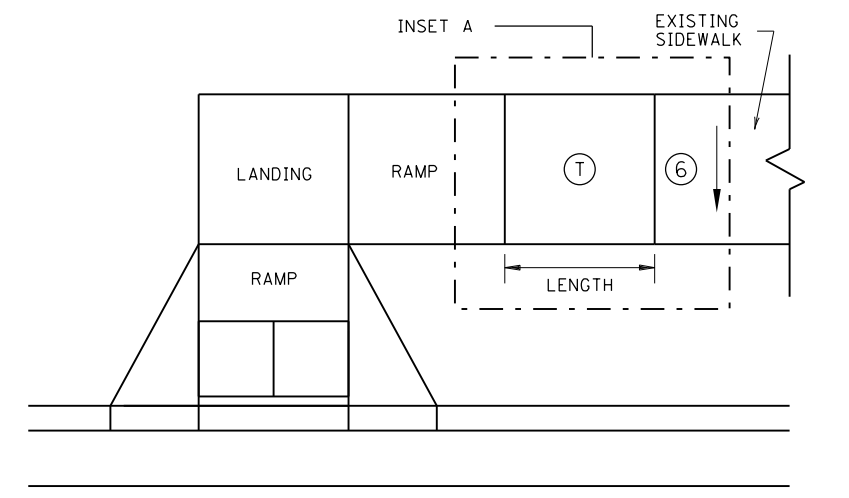


V CURB INTERSECTION



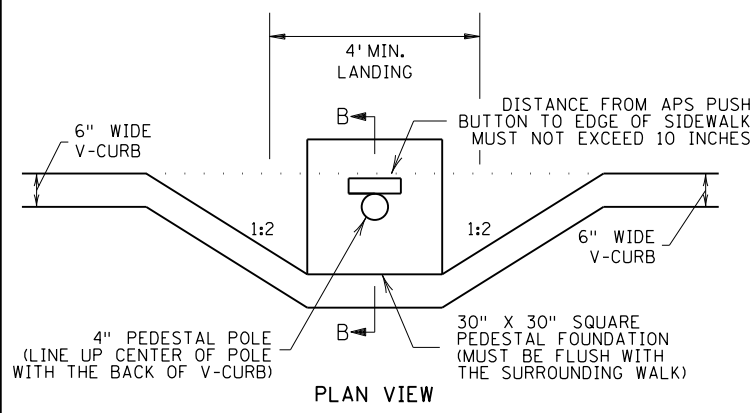
V CURB ADJACENT TO BUILDING  
OR BARRIER

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

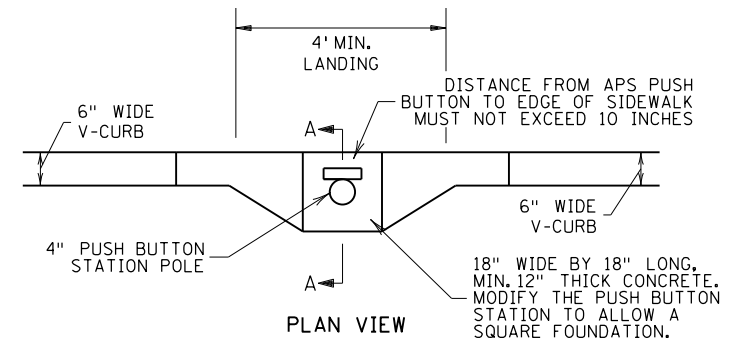


TRANSITION PANEL ④ ⑤

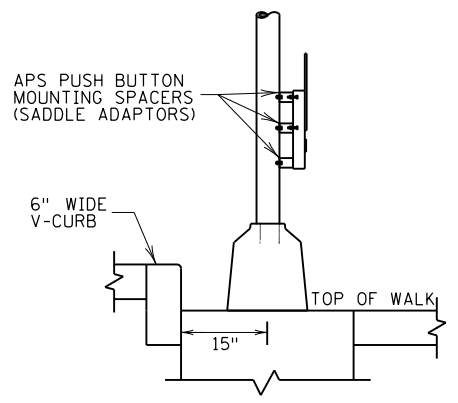
INSET A



PLAN VIEW

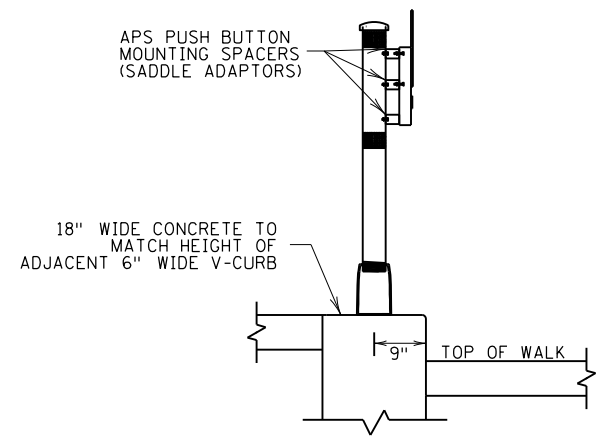


PLAN VIEW



SECTION B-B

SIGNAL PEDESTAL & PUSH BUTTON (V-CURB)



SECTION A-A

PUSH BUTTON STATION (V-CURB)

**NOTES:**

- A WALKABLE FLARE IS AN 8-10% CONCRETE FLARE THAT IS REQUIRED WHEN THE FLARE IS ADJACENT TO A WALKABLE SURFACE, OR WHEN THE PEDESTRIAN PATH OF TRAVEL OF A PUSH BUTTON TRAVERSES THE FLARE.
- ALL V CURB CONTRACTION JOINTS SHALL MATCH CONCRETE WALK JOINTS.
- WHERE RIGHT-OF-WAY ALLOWS, USE OF V CURB SHOULD BE MINIMIZED. GRADING ADJACENT TURF OR SLOPING ADJACENT PAVEMENT IS PREFERRED.
- V CURB SHALL BE PLACED OUTSIDE THE SIDEWALK LIMITS WHEN RIGHT OF WAY ALLOWS.
- V CURB NEXT TO BUILDING SHALL BE A 4" WIDTH AND SHALL MATCH PREVIOUS TOP OF SIDEWALK ELEVATIONS.
- ① END TAPERS AT TRANSITION SECTION SHALL MATCH INPLACE SIDEWALK GRADES.
- ② ALL V CURB SHALL MATCH BOTTOM OF ADJACENT WALK.
- ③ CONSTRUCT USING APPROVED EXPANSION MATERIAL PER MNDOT TYPE A-E EXPANSION. LEAVE A MINIMUM 1/2" 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.

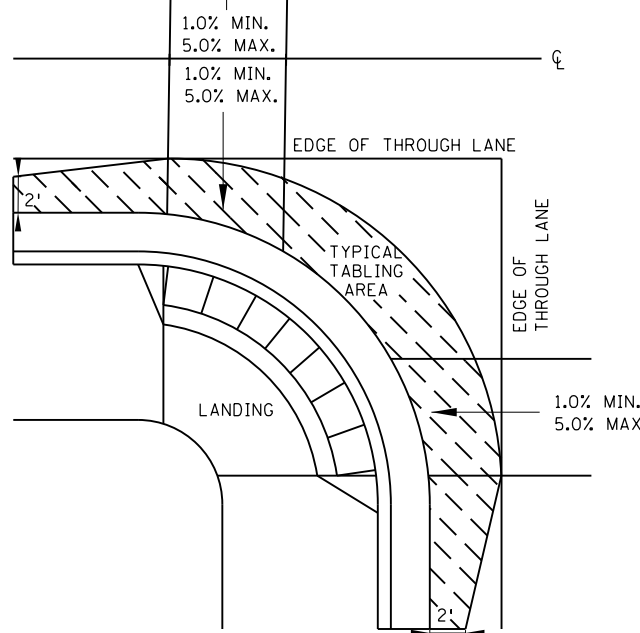
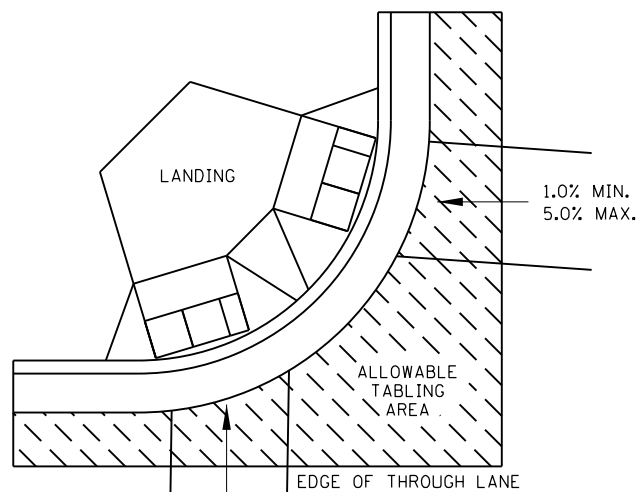
REVISION:  
 APPROVED: 11-04-2021  
 Jeff J. Perkins  
 OPERATIONS DIVISION

**m** MINNESOTA DEPARTMENT OF TRANSPORTATION  
 STANDARD PLAN 5-297.250 5 OF 6  
 APPROVED: 11-04-2021  
 REVISOR:  
 THOMAS STYRBICKI  
 STATE DESIGN ENGINEER

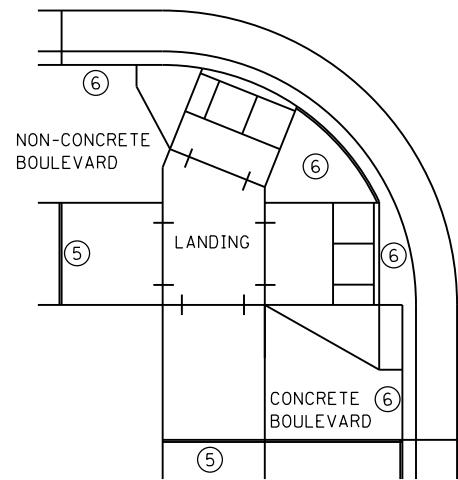
**PEDESTRIAN CURB RAMP DETAILS**

DISTRICT #: PLOT NAME: \$\$\$@PLOT\$NAME\$\$\$ PATH & FILENAME: P:\122-01-00\CSAH-01\TRICE CREEKWAY-RICKARD\Bases\Proposed\PED RAMP DETAILS.dgn

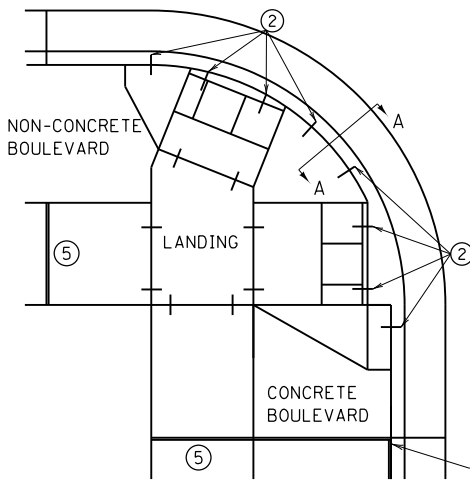
PLOTTED/REVISED: 04/21/2022



CURB LINE AND ROAD CROSSING ADJUSTMENTS



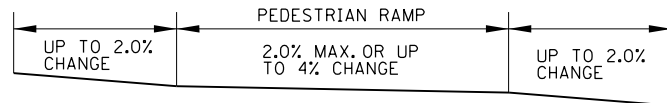
EXPANSION MATERIAL PLACEMENT FOR CONCRETE ROADWAYS



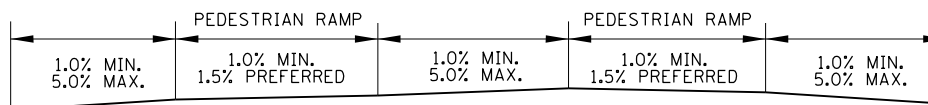
CURB LINE REINFORCEMENT PLACEMENT ON BITUMINOUS ROADWAYS



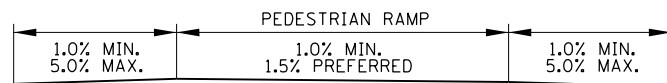
FLOW LINE PROFILE "TABLE" - TWIN PERPENDICULARS



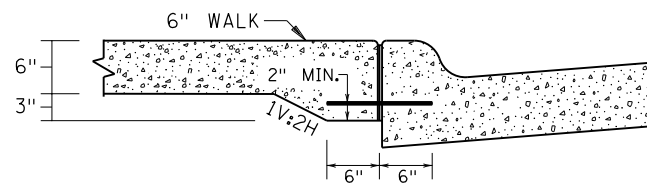
FLOW LINE PROFILE "TABLE" - FAN



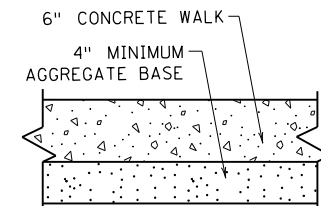
FLOW LINE PROFILE RAISE - TWIN PERPENDICULARS



FLOW LINE PROFILE RAISE - FAN

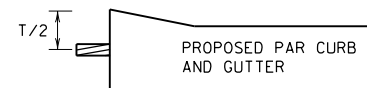
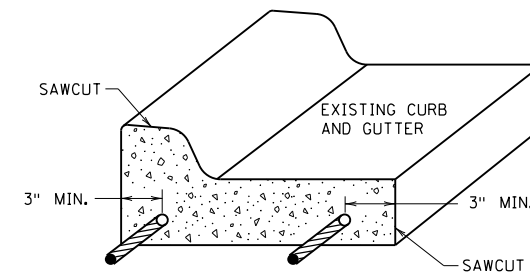
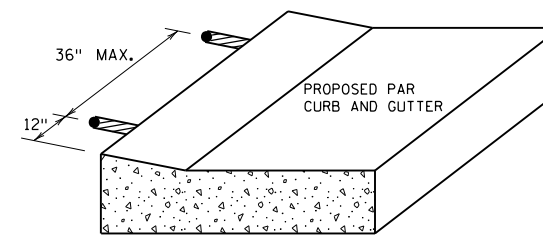


SECTION VIEW A-A THICKENED SECTION THROUGH CURB RAMP FLARES



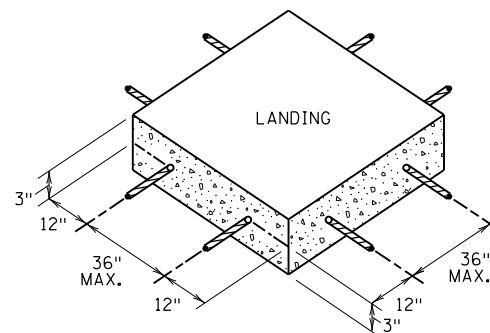
TYPICAL SIDEWALK SECTION WITHIN INTERSECTION CORNER

END SILL CURB AT TOP OF CURB RAMP AND DRIVEWAY FLARES.

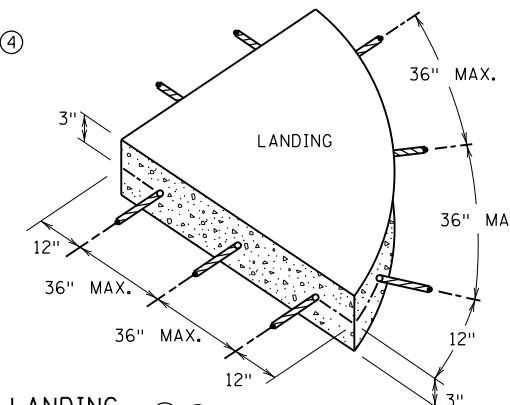


CURB RAMP REINFORCEMENT DETAILS

CURB AND GUTTER REINFORCEMENT



SEPARATE LANDING POUR REINFORCEMENT



GENERAL NOTES:

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

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

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

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

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

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

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

NOTES:

- 1) TO ENSURE RAMPS AND LANDINGS ARE PROPERLY CONSTRUCTED, ALL INITIAL LANDINGS AT A TOP OF A RAMPED SURFACE (RUNNING SLOPE GREATER THAN 2%) SHALL BE FORMED AND PLACED SEPARATELY IN AN INDEPENDENT CONCRETE POUR. FOLLOW SIDEWALK REINFORCEMENT DETAILS ON THIS SHEET FOR ALL SEPARATELY POURED INITIAL LANDINGS.
- 2) DRILL AND GROUT NO. 4 12" LONG REINFORCEMENT BARS (EPOXY COATED) AT 36" MAXIMUM CENTER TO CENTER MINIMUM 12" SPACING FROM CONSTRUCTION JOINTS. BARS TO BE ADJUSTED TO MATCH RAMP GRADE. BARS TO BE PAID BY EACH.
- 3) DRILL AND GROUT 2 - NO. 4 X 12" LONG (6" EMBEDDED) REINFORCEMENT BARS (EPOXY COATED). REINFORCEMENT REQUIRED FOR ALL CONSTRUCTION JOINTS. BARS TO BE PAID BY EACH.
- 4) THIS CURB LINE REINFORCEMENT DETAIL SHALL BE USED ON BITUMINOUS ROADWAYS. FOR CONCRETE ROADWAYS, SEE NOTE 6.
- 5) CONSTRUCT WITH EXPANSION MATERIAL PER MNDOT SPECIFICATION 3702 TYPES A-E. EXPANSION MATERIAL SHALL MATCH FULL HEIGHT OF ADJACENT CONCRETE.
- 6) USE AN APPROVED TYPE F (1/4 INCH THICK) SEPARATION MATERIAL. SEPARATION MATERIAL SHALL MATCH FULL HEIGHT DIMENSION OF ADJACENT CONCRETE.

REVISION:

APPROVED: 11-04-2021

*Jeff J. Perkins*  
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**m**  
MINNESOTA  
DEPARTMENT OF TRANSPORTATION

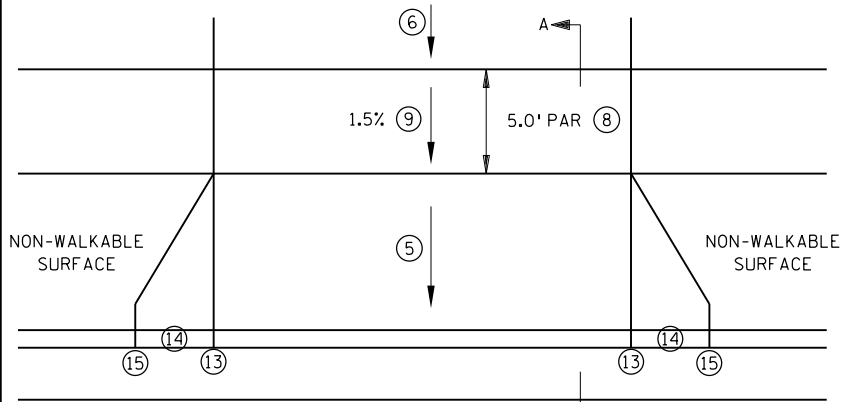
STANDARD PLAN 5-297.250 6 OF 6

APPROVED: 11-04-2021  
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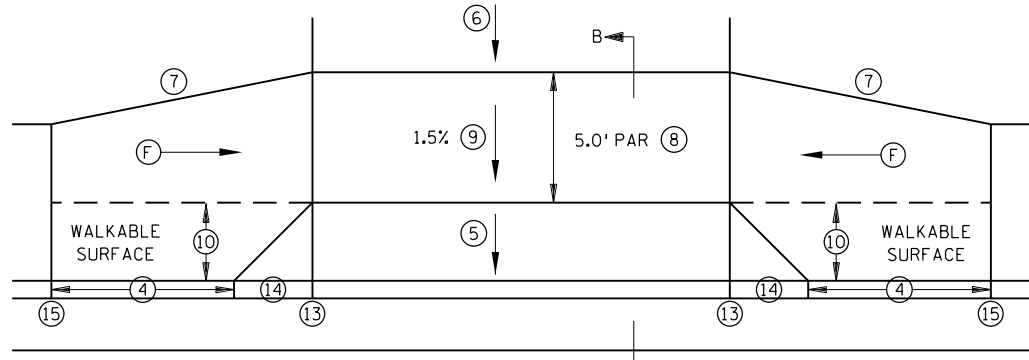
*Tom Styrbicki*  
THOMAS STYRBICKI  
STATE DESIGN ENGINEER

PEDESTRIAN CURB RAMP DETAILS

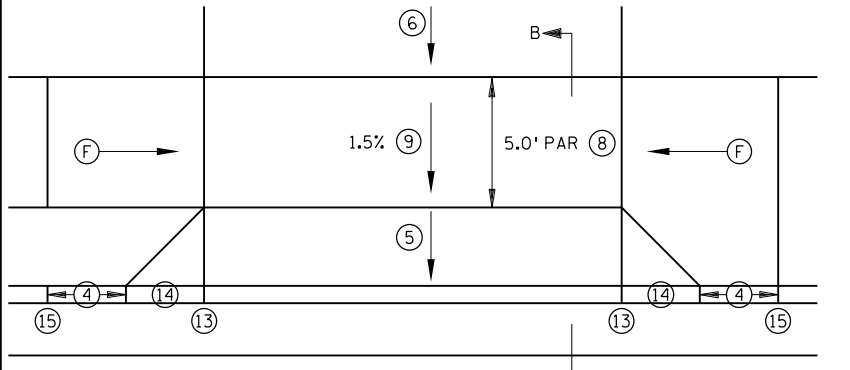
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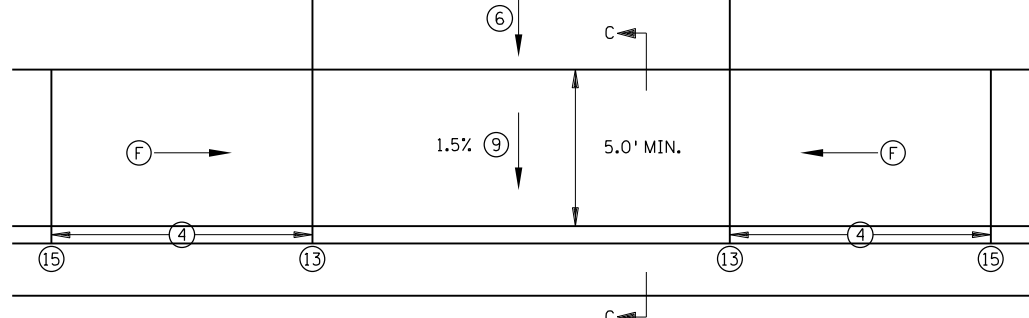
PERPENDICULAR DRIVEWAY ①



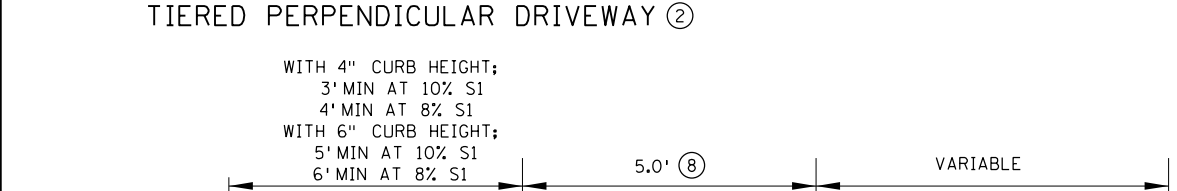
TIERED PERPENDICULAR OFFSET DRIVEWAY ②



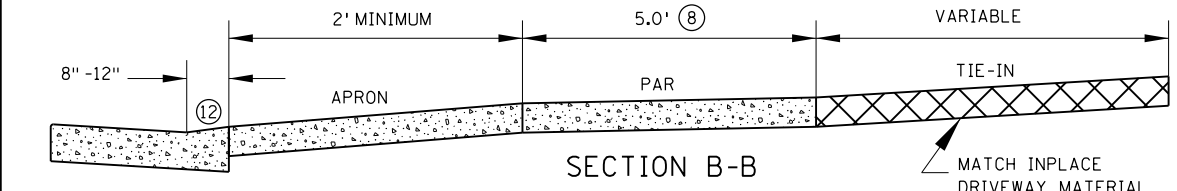
TIERED PERPENDICULAR DRIVEWAY ③



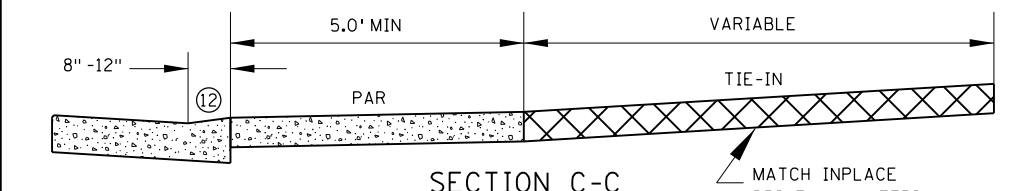
PARALLEL DRIVEWAY ④



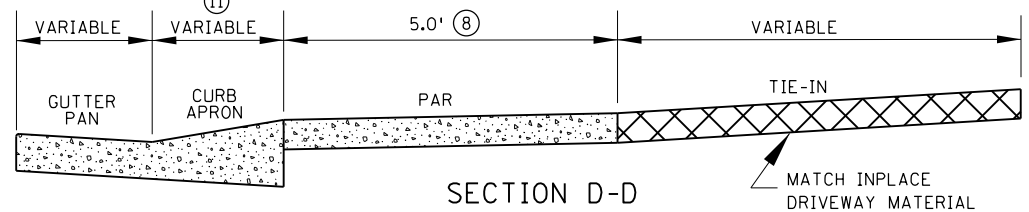
SECTION A-A



SECTION B-B



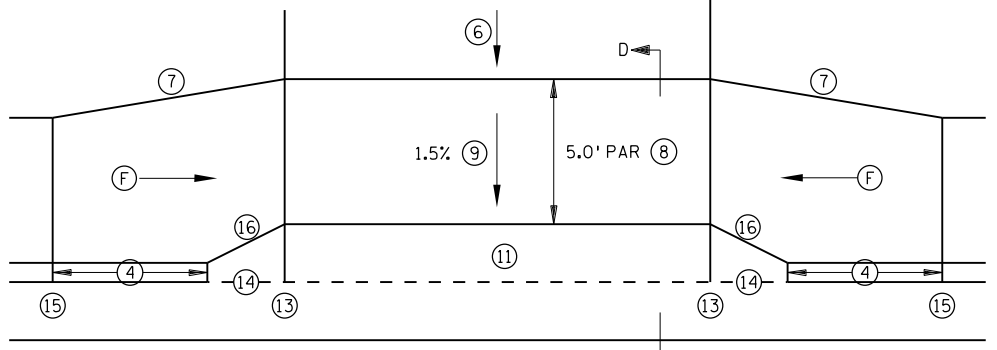
SECTION C-C



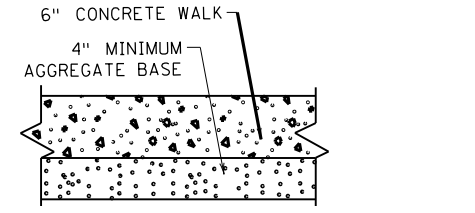
SECTION D-D

**LEGEND**

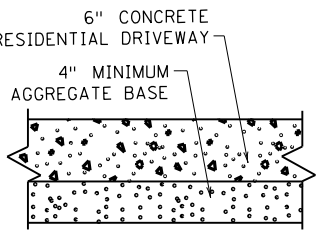
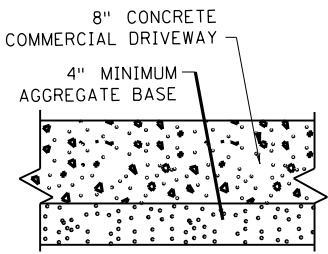
(F) INDICATES DRIVEWAY RAMP - SLOPE SHALL BE GREATER THAN 2.0% AND LESS THAN 5.0% IN THE DIRECTION SHOWN AND CROSS SLOPE SHALL NOT EXCEED 2.0%



INTEGRAL DRIVEWAY APRON



TYPICAL SIDEWALK SECTION ⑰



TYPICAL DRIVEWAY SECTIONS

- NOTES:**
- ALL SIDEWALK AND BOULEVARD WIDTHS SHALL BE MEASURED 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%. RAMP 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.
- 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.
  - 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.
  - 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.
  - TOP OF CURB SHALL MATCH PROPOSED ADJACENT WALK GRADE.
  - 8% STANDARD, 10% MAX. FOR COMMERCIAL AND 12% MAX. FOR RESIDENTIAL. SEE GENERAL NOTES ON SHEET 2 FOR MORE INFORMATION.
  - 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.
  - 1:3 MIN. 1:5 PREFERRED FOR DRIVEWAY RETROFIT PROJECTS. 1:10 PREFERRED FOR SIDEWALK REPLACEMENT PROJECTS.
  - 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.
  - THE PEDESTRIAN ACCESS ROUTE, MAY NOT EXCEED 0.02 FT./FT. AS CONSTRUCTED.
  - SIDEWALK OFFSET TO BE LESS THAN OR EQUAL TO HALF THE APPROACHING SIDEWALK WIDTH.
  - INTEGRAL DRIVEWAY APRON TO BE POURED MONOLITHICALLY/INTEGRAL WITH THE CURB AND GUTTER. SEE SHEET 2 FOR MORE INFORMATION.
  - SEE SHEET 2 FOR CURB TYPE INFORMATION.
  - 0" CURB IS AT FLOW LINE. SEE DRIVEWAY TABLE FOR BACK OF CURB HEIGHTS.
  - 3' LONG AT 8-10% PREFERRED FOR INITIAL CURB TAPER. REDUCE CURB TAPER SLOPE IF NECESSARY TO MATCH ADJACENT SIDEWALK GRADES.
  - MATCH FULL CURB HEIGHT.
  - 1:2 TAPER RATE ON INTEGRAL DRIVEWAY APRONS.
  - SEE SHEET 4 FOR WHEN 6" WALK IS REQUIRED.

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APPROVED: 11-04-2021

*Jeff J. Perkins*  
JEFF PERKINS  
OPERATIONS DIVISION

**m** MINNESOTA DEPARTMENT OF TRANSPORTATION

STANDARD PLAN 5-297.254 1 OF 4

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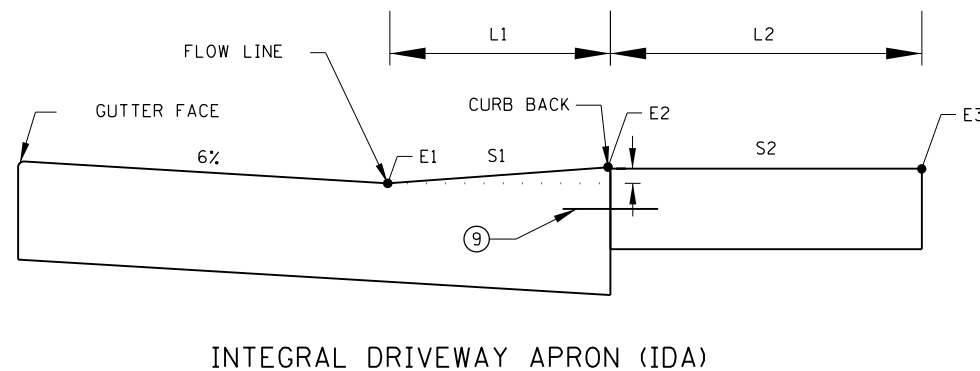
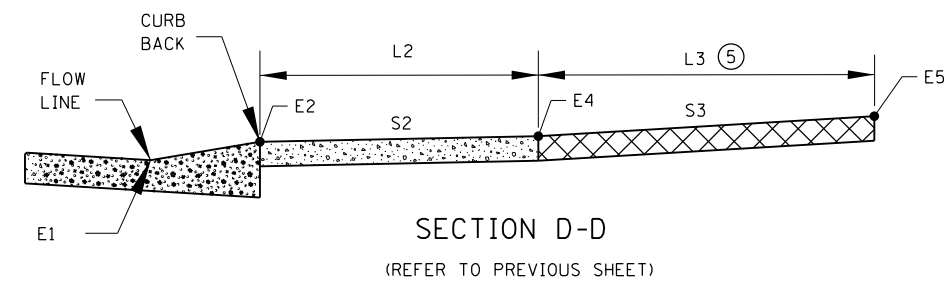
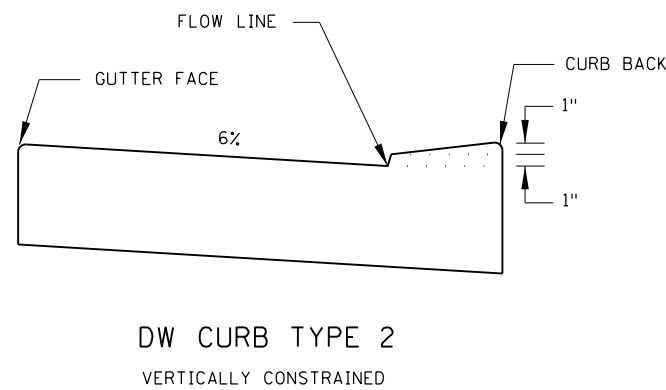
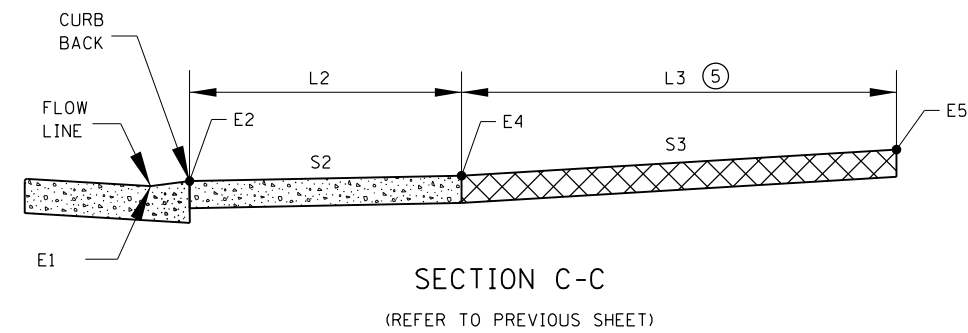
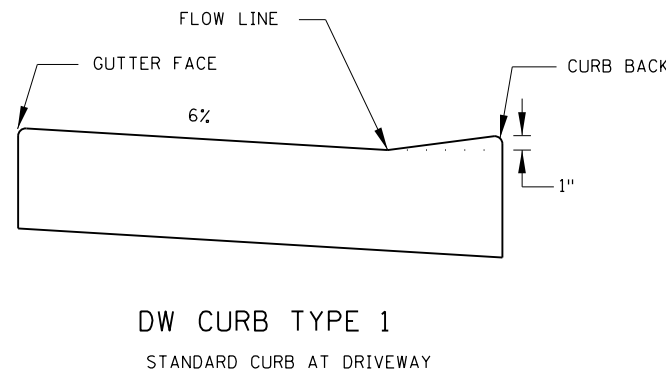
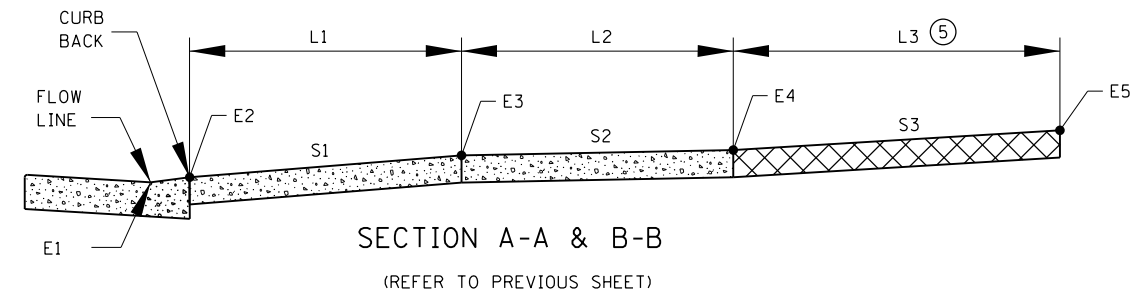
*Tom Styrbicki*  
THOMAS STYRBICKI  
STATE DESIGN ENGINEER

**DRIVEWAY AND SIDEWALK DETAILS**



DISTRICT #: PLOTTED/REVISED: 04/21/2022  
 PLOT NAME: \$\$\$PLOTNAME\$\$\$  
 PATH & FILENAME: P:\22-01-00\CSAH-01\RICE CREEKWAY-RICKARD\Bases\Proposed\PED RAMP DETAILS.dgn

DRIVEWAY TABLE ①																
STATION	SIDE	DRIVEWAY TYPE ②	CURB TYPE ③	E1	E2	L1	S1	E3	L2	S2 ④	E4	L3 ⑤	S3	EXISTING ⑥	E5	COMMENTS
						FT	%		FT	%		FT	%			



**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	E2	S1 ⑧
	FT		%
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

REVISION:

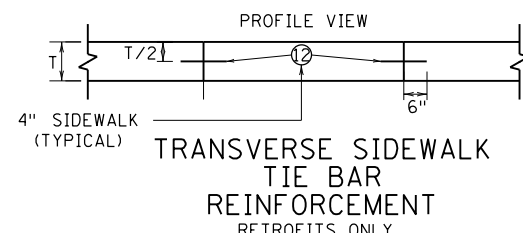
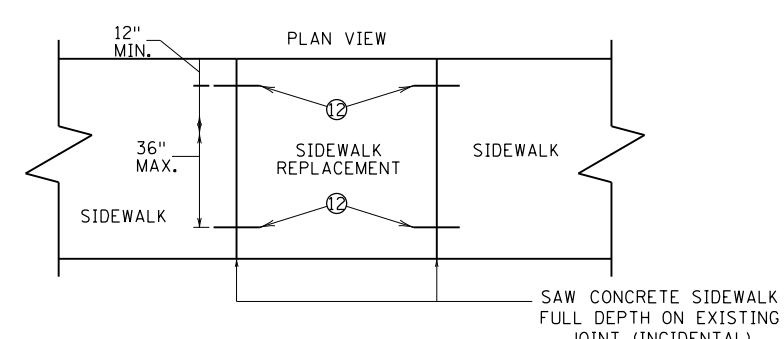
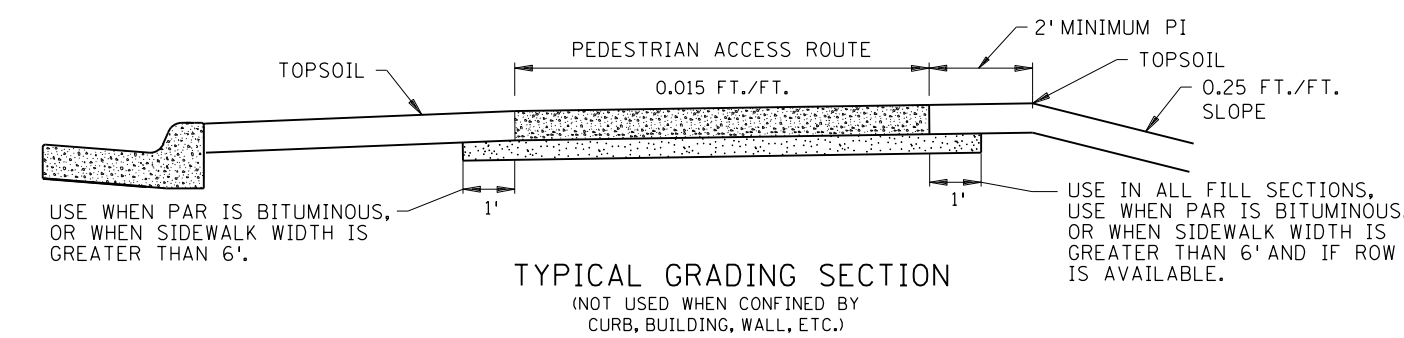
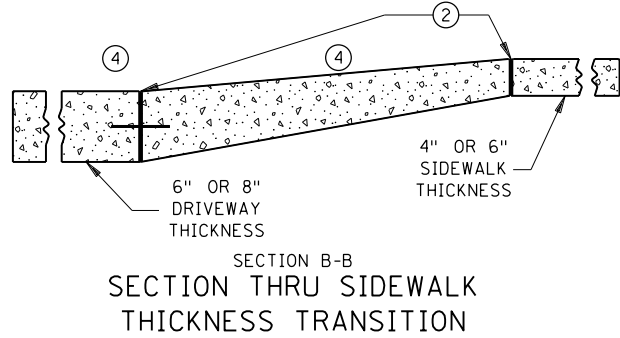
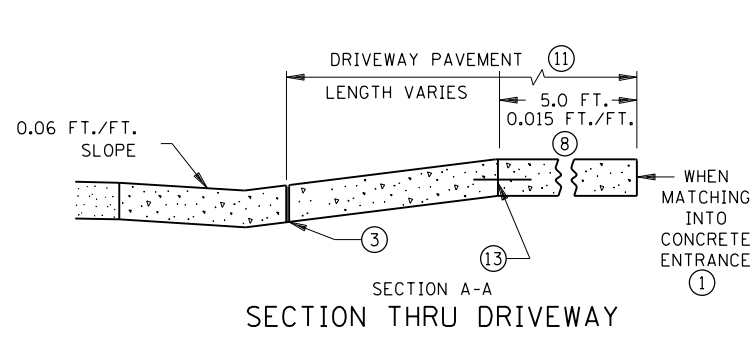
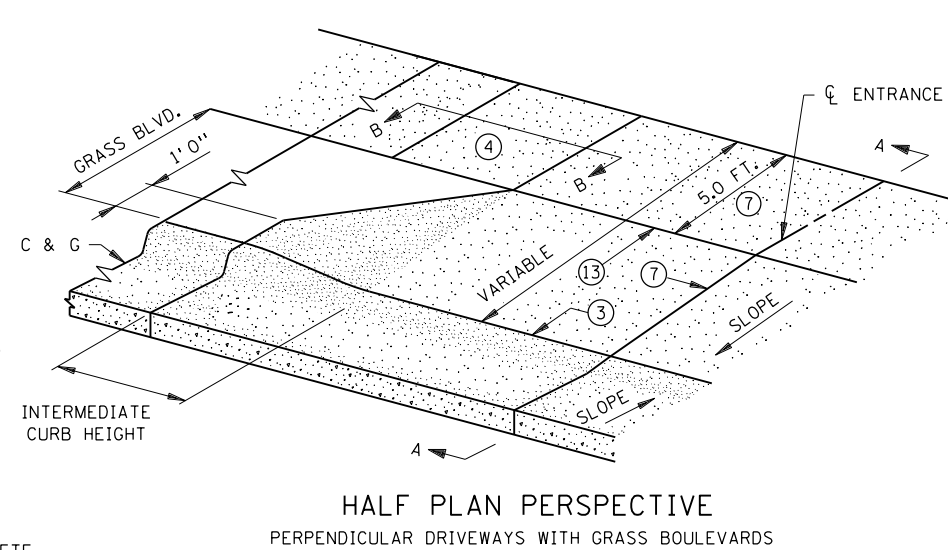
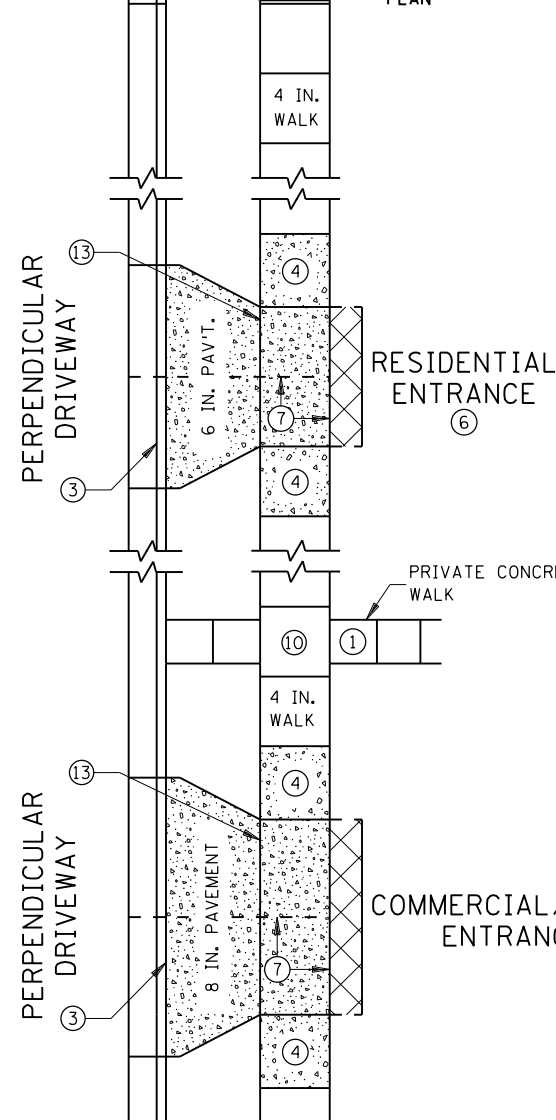
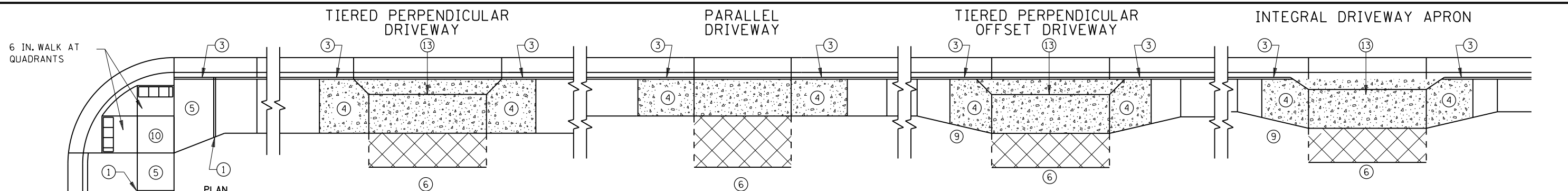
APPROVED: 11-04-2021

*Jeff J. Pel*  
JEFFREY PERKINS  
OPERATIONS DIVISION

	STANDARD PLAN 5-297.254	2 OF 4
		APPROVED: 11-04-2021
DEPARTMENT OF TRANSPORTATION	THOMAS STYRBICKI STATE DESIGN ENGINEER	REVISED:

**DRIVEWAY AND SIDEWALK DETAILS**

DISTRICT #: PLOTTED/REVISED: 04/21/2022  
 PLOT NAME: \$\$\$PLOTNAME\$\$\$  
 PATH & FILENAME: P:\22-01-00\CSAH-01-RTICE CREEKWAY-RICKARD\Bases\Proposed PED RAMP DETAILS.dgn



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.

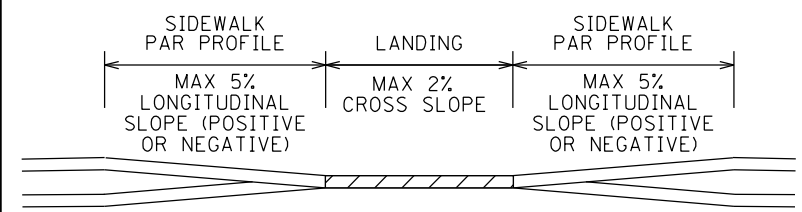
REVISION: 12-23-2021

APPROVED: 11-04-2021

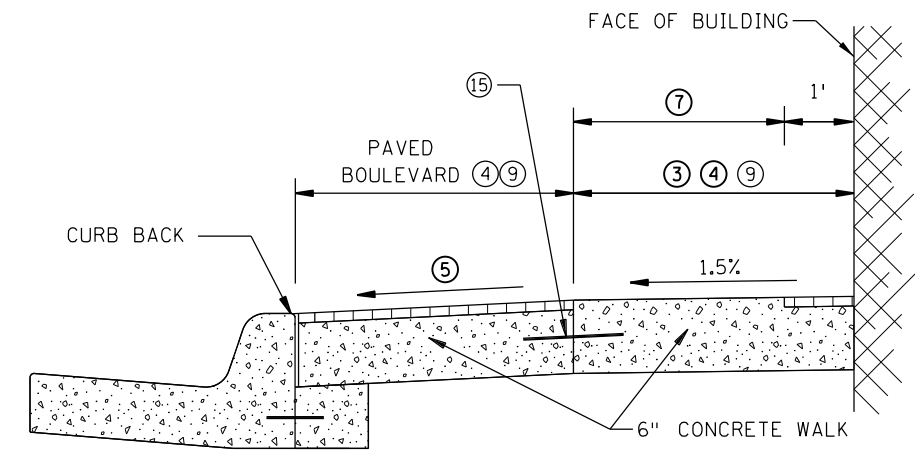
*Jeff J. Pel*  
JEFFREY PERKINS  
OPERATIONS DIVISION

	STANDARD PLAN 5-297.254	3 OF 4	<b>DRIVEWAY AND SIDEWALK DETAILS</b>
		APPROVED: 11-04-2021 REVISED: 12-23-2021	

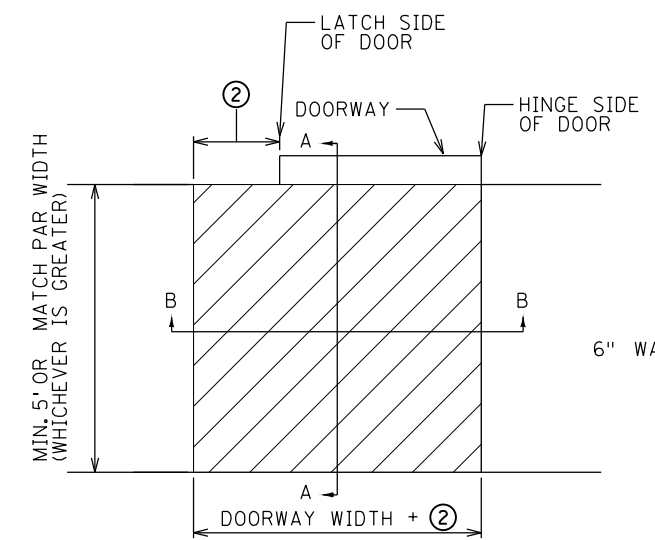
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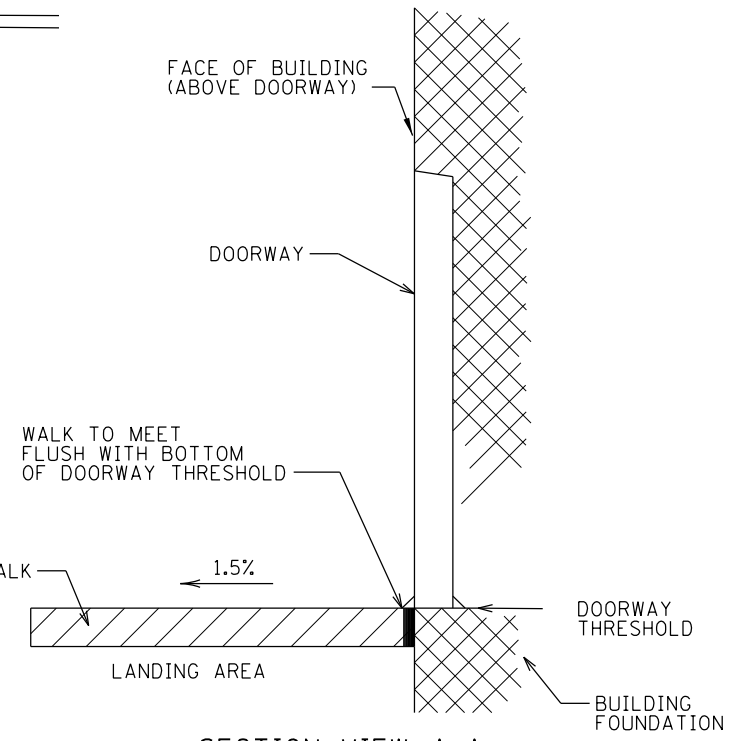
SECTION VIEW B-B



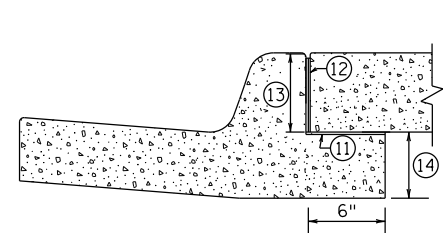
DOWNTOWN SIDEWALK TYPICAL SECTION



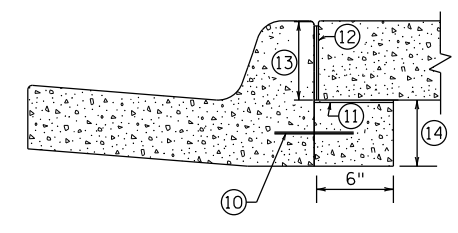
PLAN VIEW DOORWAY



SECTION VIEW A-A



SLIP FORM SILL

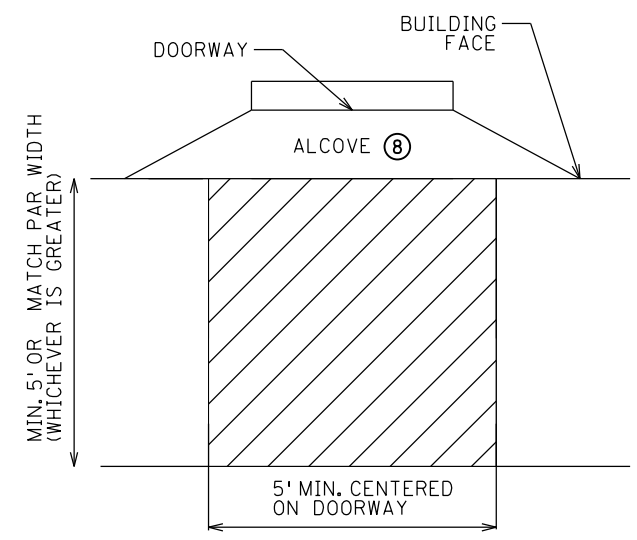


FIXED FORM SILL

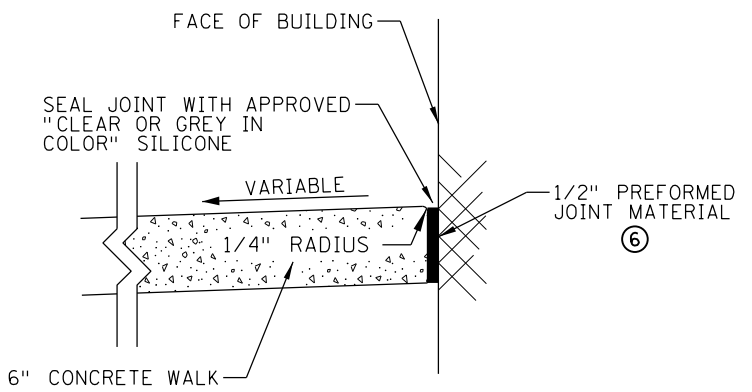
SILL CURB SHOULD BE USED AT ALL LOCATIONS WHEN CONCRETE WALK IS AT BACK OF CURB, INCLUDING PAVED BOULEVARD.  
 SILL CURB SHALL NOT BE USED IN CURB RAMP AND DRIVEWAY AREAS, INCLUDING CONCRETE FLARES.  
 SILL CURB WITH 4" WALK CAN USE FIXED OR SLIP FORM OPTIONS.

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 1/2" 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. CONCRETE PANEL SIZE SHOULD NOT EXCEED 1 1/2 : 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 (1/4 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.



PLAN VIEW DOORWAY WITH ALCOVE  
SIDEWALK LANDING REQUIREMENTS ①

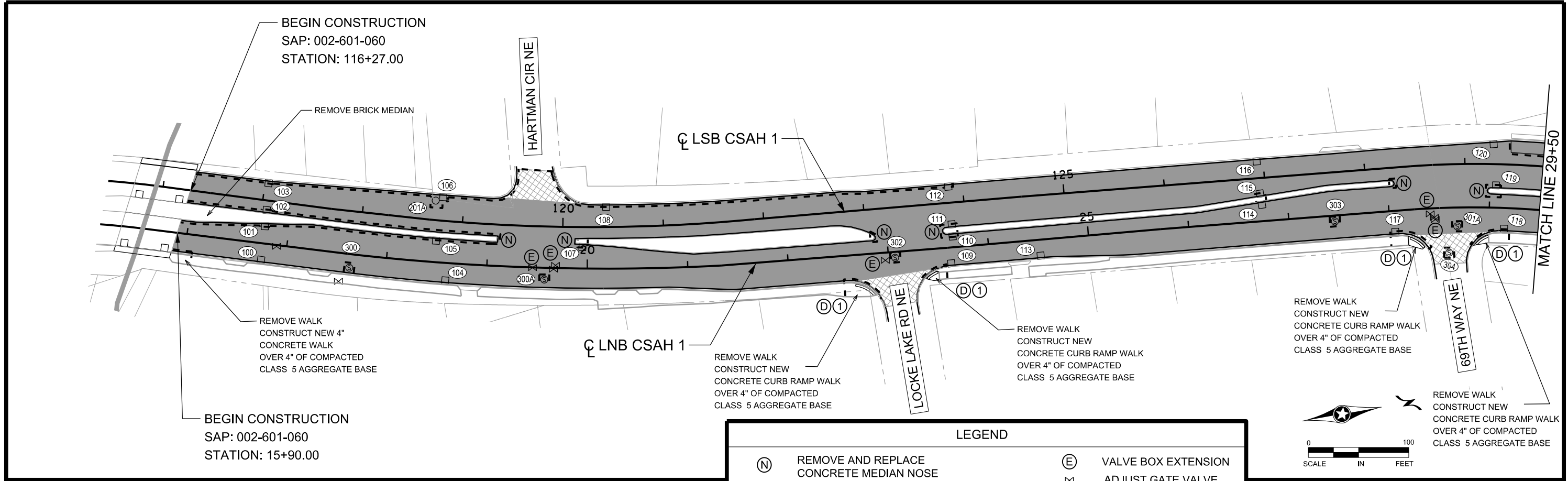


BUILDING JOINT SEAL (INCIDENTAL)

REVISION:  
 APPROVED: 11-04-2021  
  
 JEFFREY PERKINS  
 OPERATIONS DIVISION

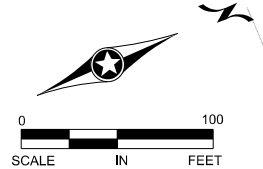
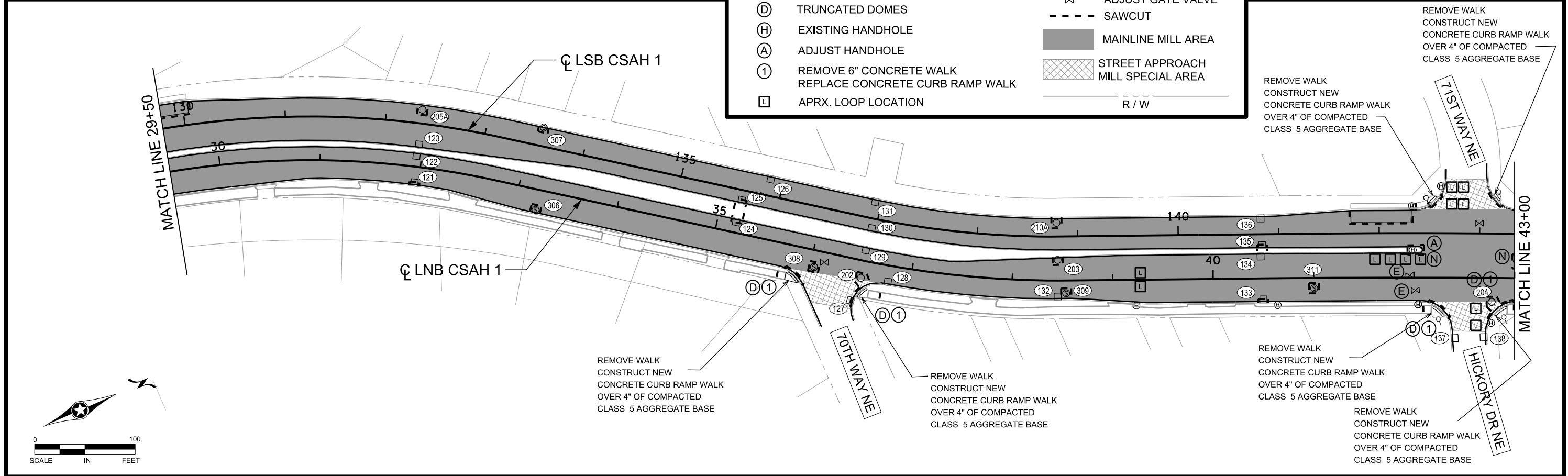
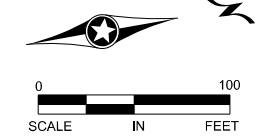
STANDARD PLAN 5-297.254 4 OF 4  
  
 THOMAS STYRBICKI  
 STATE DESIGN ENGINEER  
 APPROVED: 11-04-2021  
 REVISED:

DRIVEWAY AND SIDEWALK DETAILS  
 STATE AID PROJECT 002-601-060 SHEET NO.19 OF 36 SHEETS



**LEGEND**

(N)	REMOVE AND REPLACE CONCRETE MEDIUM NOSE	(E)	VALVE BOX EXTENSION
(D)	TRUNCATED DOMES	(X)	ADJUST GATE VALVE
(H)	EXISTING HANDHOLE	---	SAWCUT
(A)	ADJUST HANDHOLE	■	MAINLINE MILL AREA
(1)	REMOVE 6" CONCRETE WALK REPLACE CONCRETE CURB RAMP WALK	▨	STREET APPROACH MILL SPECIAL AREA
(L)	APRX. LOOP LOCATION	---	R / W



NO	DATE	BY	CKD	APPR	REVISION	DATE	TIME
	04/21/2022					04/21/2022	7:32:03 AM

NAME: P:\22-01-00\CSAH\_01\_(RICE CREEKWAY-RICKARD)\Base\Proposed\CP1.dgn

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: AARON P. ANDERSON

SIGNATURE: *[Signature]*

DATE: 03-04-2022 LICENSE NO. 58657

DRAWN BY: KPR DATE: 04/21/2022

DESIGN BY: KPR DATE: 04/21/2022

CHECKED BY: APA DATE: 04/21/2022

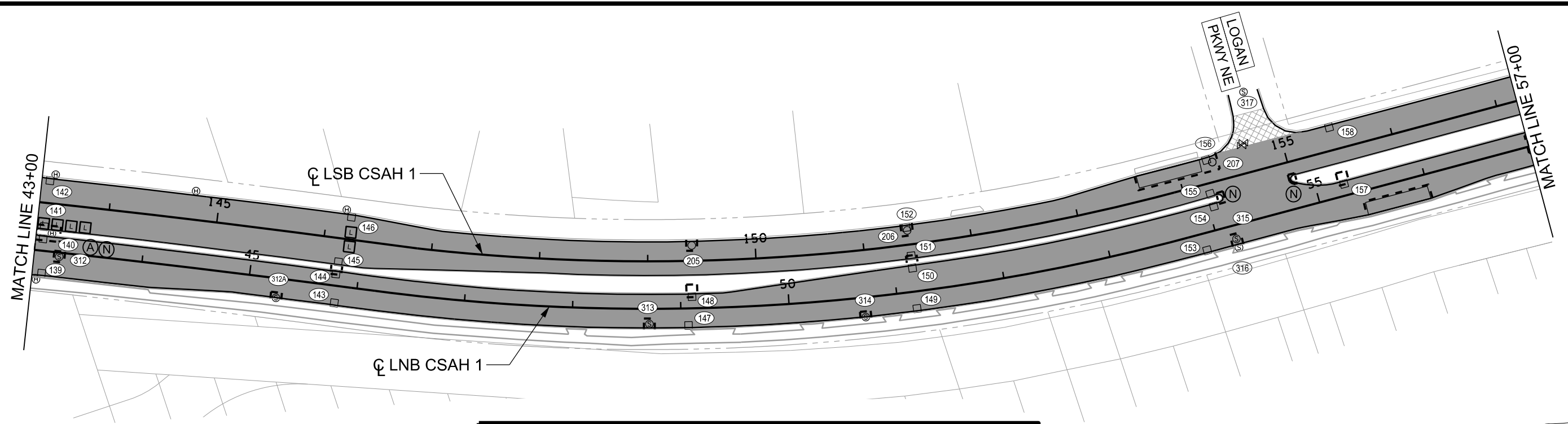
**ANOKA COUNTY  
HIGHWAY DEPT.**

STATE AID PROJECT 002-601-060

**CONSTRUCTION PLAN**

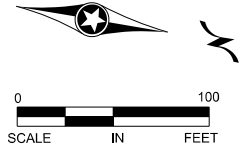
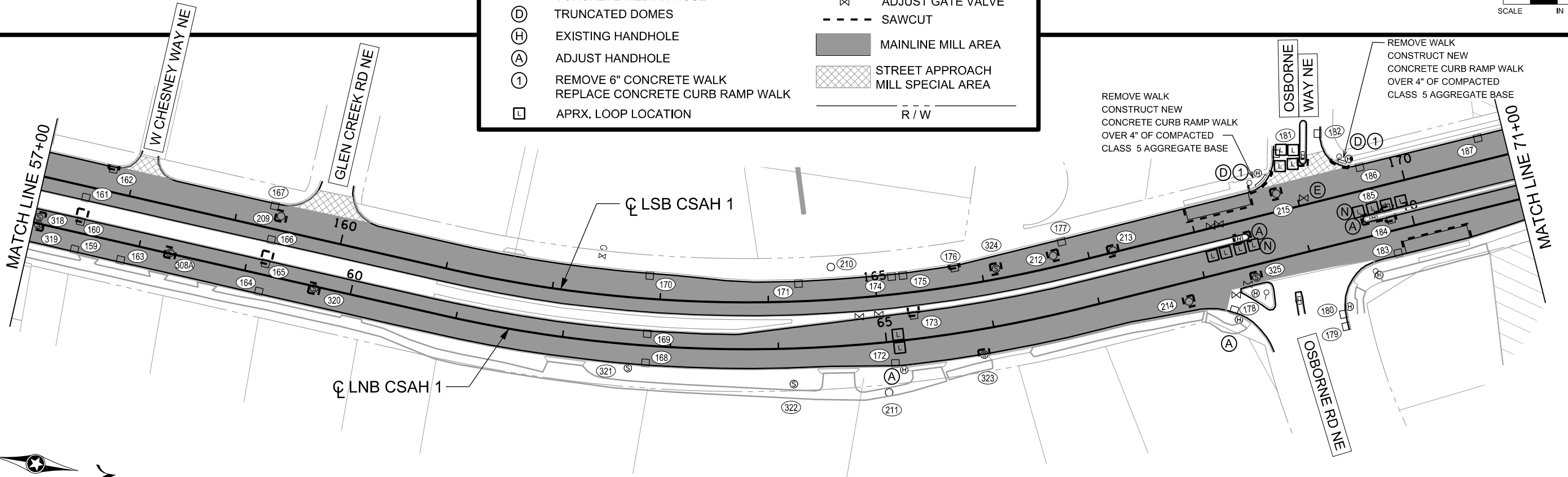
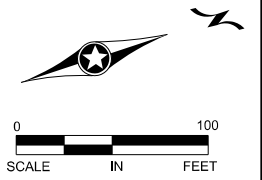
STA 15+90 LNB TO 43+00 LNB  
STA 116+27 LSB TO 143+35 LSB

Sheet 20 of 36 Sheets



**LEGEND**

(N)	REMOVE AND REPLACE CONCRETE MEDIAN NOSE	(E)	VALVE BOX EXTENSION
(D)	TRUNCATED DOMES	⊗	ADJUST GATE VALVE
(H)	EXISTING HANDHOLE	---	SAWCUT
(A)	ADJUST HANDHOLE	■	MAINLINE MILL AREA
(1)	REMOVE 6" CONCRETE WALK REPLACE CONCRETE CURB RAMP WALK	▨	STREET APPROACH MILL SPECIAL AREA
□	APRX. LOOP LOCATION	---	R / W



NO	DATE	BY	CKD	APPR	REVISION	04/21/2022	7:32:04 AM
NAME: P:\22-01-00\CSAH_01_(RICE CREEKWAY-RICKARD)\Base\Proposed\CP2.dgn							

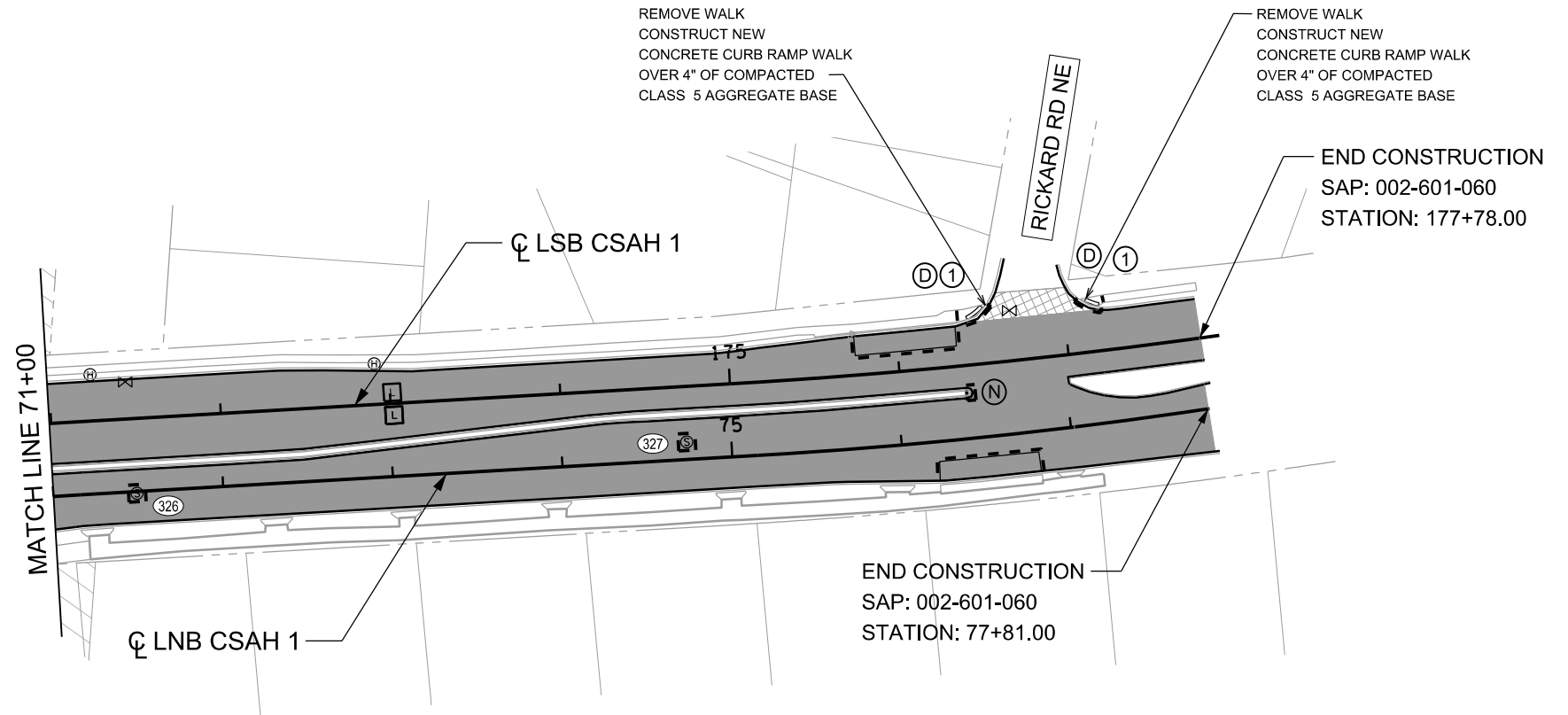
I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.  
 PRINT NAME: AARON P. ANDERSON  
 SIGNATURE: *[Signature]*  
 DATE: 03-04-2022 LICENSE NO. 58657

DRAWN BY: KPR DATE: 04/21/2022  
 DESIGN BY: KPR DATE: 04/21/2022  
 CHECKED BY: APA DATE: 04/21/2022

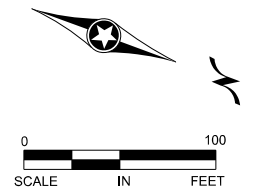
**ANOKA COUNTY  
HIGHWAY DEPT.**

STATE AID PROJECT 002-601-060

**CONSTRUCTION PLAN**  
 STA 43+00 LNB TO 71+00 LNB  
 STA 143+35 LSB TO 171+00 LSB  
 Sheet 21 of 36 Sheets



LEGEND	
(N)	REMOVE AND REPLACE CONCRETE MEDIAN NOSE
(D)	TRUNCATED DOMES
(H)	EXISTING HANDHOLE
(A)	ADJUST HANDHOLE
(1)	REMOVE 6" CONCRETE WALK REPLACE CONCRETE CURB RAMP WALK
(L)	APRX. LOOP LOCATION
(E)	VALVE BOX EXTENSION
⊗	ADJUST GATE VALVE
---	SAWCUT
■	MAINLINE MILL AREA
▨	STREET APPROACH MILL SPECIAL AREA
---	R / W



NO	DATE	BY	CKD	APPR	REVISION	DATE	TIME
	04/21/2022						7:32:05 AM

NAME: P:\22-01-00\CSAH\_01\_(RICE CREEKWAY-RICKARD)\Base\Proposed\CP3.dgn

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: AARON P. ANDERSON

SIGNATURE:

DATE: 03-04-2022 LICENSE NO. 58657

DRAWN BY KPR DATE 04/21/2022

DESIGN BY KPR DATE 04/21/2022

CHECKED BY APA DATE 04/21/2022

**ANOKA COUNTY  
HIGHWAY DEPT.**

STATE AID PROJECT 002-601-060

**CONSTRUCTION PLAN**  
 STA 71+00 LNB TO 77+81 LNB  
 STA 171+00 LSB TO 177+78 LSB

Sheet 22 of 36 Sheets

**\* LOOP DETECTORS**

NUMBER	SIZE	FUNCTION	LOCATION
D1-1	2-6' X 6'	1	5'
D1-2	2-6' X 6'	1	AS SHOWN
D2-1	6' X 6'	1	300'
D2-2	6' X 6'	1	300'
D4-1	6' X 6'	-3/8	120'
D4-2	6' X 6'	7	5'
D4-3	6' X 6'	1	5'
D5-1	2-6' X 6'	1	5'
D5-2	2-6' X 6'	1	AS SHOWN
D6-1	6' X 6'	1	300'
D6-2	6' X 6'	1	300'
D8-1	6' X 6'	3/8	120'
D8-2	6' X 6'	7	5'

\* NOTE - ALL DETECTORS IN NMC CONDUIT

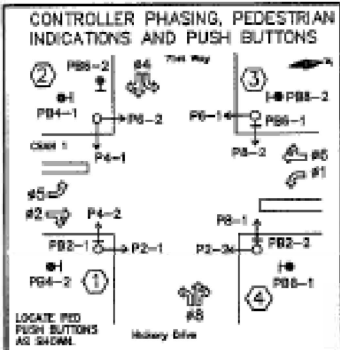
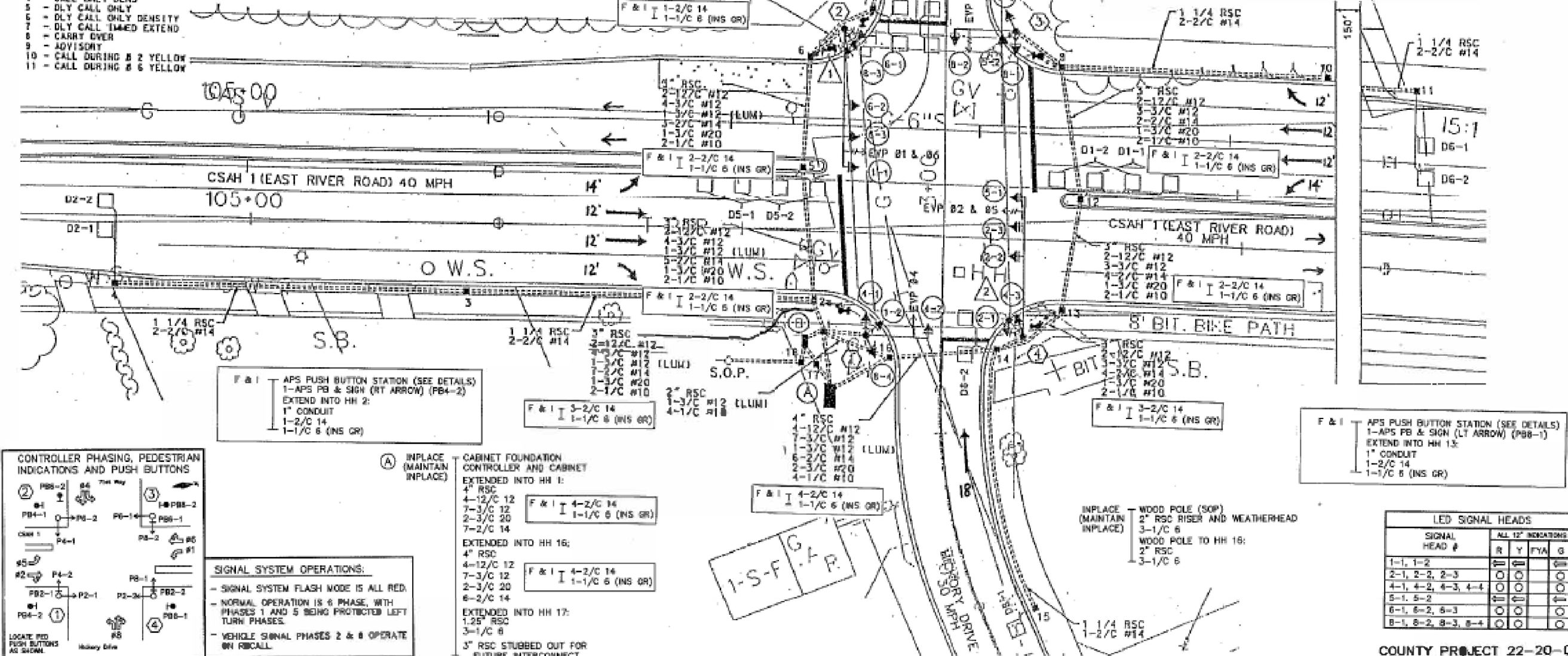
- FUNCTIONS:**
- 1 - CALL AND EXTEND
  - 2 - CALL ONLY
  - 3 - EXTEND ONLY
  - 4 - CALL ONLY DENS
  - 5 - DLY CALL ONLY
  - 6 - DLY CALL ONLY DENSITY
  - 7 - DLY CALL IMMED EXTEND
  - 8 - CARRY OVER
  - 9 - ADVISORY
  - 10 - CALL DURING B & 2 YELLOW
  - 11 - CALL DURING B & 6 YELLOW
- LOCATION-DISTANCE FROM STOP LINE TO DETECTOR**

F & I APS PUSH BUTTON STATION (SEE DETAILS)  
1-APS PB & SIGN (LT ARROW) (PB4-1)  
EXTEND INTO HH 6:  
1" CONDUIT  
1-2/C 14  
1-1/C 6 (INS GR)

F & I APS PUSH BUTTON STATION (SEE DETAILS)  
1-APS PB & SIGN (RT ARROW) (PB6-2)  
EXTEND INTO HH 7:  
1" CONDUIT  
1-2/C 14  
1-1/C 6 (INS GR)

F & I APS PUSH BUTTON STATION (SEE DETAILS)  
1-APS PB & SIGN (RT ARROW) (PB8-2)  
EXTEND INTO HH 9:  
1" CONDUIT  
1-2/C 14  
1-1/C 6 (INS GR)

(B) INPLACE CABINET FOUNDATION  
(MAINTAIN INPLACE) SIGNAL SERVICE CABINET  
EXTENDED INTO HH 18:  
2" RSC  
3-1/C 6  
EXTENDED INTO HH 17:  
1.25" RSC  
3-1/C 6  
EXTENDED INTO HH 1:  
2" RSC  
2-3/C 12 (LUM)  
8-1/C 10 (SIGNS)



(A) INPLACE CABINET FOUNDATION  
(MAINTAIN INPLACE) CONTROLLER AND CABINET  
EXTENDED INTO HH 1:  
4" RSC  
4-12/C 12  
7-3/C 12  
2-3/C 20  
7-2/C 14  
EXTENDED INTO HH 16:  
4" RSC  
4-12/C 12  
7-3/C 12  
2-3/C 20  
8-2/C 14  
EXTENDED INTO HH 17:  
1.25" RSC  
3-1/C 6  
3" RSC STUBBED OUT FOR FUTURE INTERCONNECT

F & I 4-2/C 14  
1-1/C 6 (INS GR)

F & I 4-2/C 14  
1-1/C 6 (INS GR)

**LED SIGNAL HEADS**

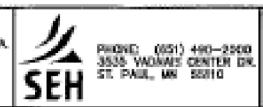
SIGNAL HEAD #	ALL 12" INDICATIONS			
	R	Y	FYA	G
1-1, 1-2	○	○	○	○
2-1, 2-2, 2-3	○	○	○	○
4-1, 4-2, 4-3, 4-4	○	○	○	○
5-1, 5-2	○	○	○	○
6-1, 6-2, 6-3	○	○	○	○
8-1, 8-2, 8-3, 8-4	○	○	○	○

DRAWN BY: JMC  
DESIGNER: JMC  
CHECKED BY: JMC

DESIGN TEAM	NO.	BY	DATE

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

Date: May 9, 2022  
Name: John W. Gray, PE  
Lic. No.: 22457



**ANOKA COUNTY**  
CITY OF FRIELEY

REVISE SIGNAL SYSTEM "F"  
INTERSECTION LAYOUT  
CSAH 1 (EAST RIVER ROAD)  
AT 781ST WAY / HICKORY DRIVE

FILE NO. ANOKA 122928  
SIGNAL SHEET 23 OF 35  
**63K**  
**94**

NO.	DATE	BY	CKD	APPR	REVISION	
	05/17/2022					9:05:58 AM

NAME: P:\22-01-00CSAH\_01\_(RICE CREEKWAY-RICKARD)\Base\Proposed\SIGNAL PLANS.dgn

DRAWN BY: KPR DATE: 05/17/2022  
DESIGN BY: KPR DATE: 05/17/2022  
CHECKED BY: APA DATE: 05/17/2022

**ANOKA COUNTY**  
HIGHWAY DEPT.

STATE AID PROJECT 002-601-060

EXISTING SIGNAL PLANS  
Sheet 23 of 36 Sheets

REVISE SIGNAL SYSTEM F NOTES:

- 1) ALL ITEMS OF THIS SIGNAL SYSTEM ARE INPLACE AND SHALL BE REUSED AND MAINTAINED INPLACE, UNLESS BOXED IN AND NOTED OTHERWISE ON PLANS.
- 2) ALL HANDHOLES ARE INPLACE AND SHALL BE REUSED AND MAINTAINED INPLACE, EXCEPT AS FOLLOWS:
  - ADJUST HANDHOLES 2, 5, 9, 12, 13, AND 14 TO FINISHED SURROUNDING SIDEWALK, MEDIAN, OR BOULEVARD GRADE AFTER ALL WORK IS COMPLETED.
  - REMOVE INPLACE CONCRETE FRAME AND COVER (HH 2, 5, 6, 12, 13, AND 14) AND FURNISH AND INSTALL NEW PWC METAL FRAME AND COVER ON EACH OF THESE HANDHOLES AFTER CONCRETE HANDHOLE BODY HAS BEEN ADJUSTED, SO THAT NEW COVER IS INSTALLED TO BE FLUSH WITH FINISHED SURROUNDING GRADE.
  - ALL HANDHOLE ADJUSTMENT WORK (INCLUDING FRAME & COVER REMOVAL AND REPLACEMENT) IS INCLUDED AS PART OF THE PAY ITEM FOR ITEM NO. 2565 (REVISE SIGNAL SYSTEM F). SEE DETAILS AND SPECIAL PROVISIONS FOR FURTHER INFORMATION.
- 3) LOCATION OF NEW PUSH BUTTON STATIONS SHALL BE DETERMINED IN THE FIELD BY THE ENGINEER.
- 4) ALL CABLES AND CONDUCTORS, CONDUIT, HANDHOLES, AND LOOP DETECTORS ARE INPLACE AND SHALL BE REUSED AND MAINTAINED INPLACE, EXCEPT WHERE BOXED IN AND DENOTED OTHERWISE.
- 5) LOOP DETECTOR WIRES SHALL BE CROSS-LINKED POLYETHYLENE (XLP) 12 AWG IN 3/4" NMC. LOOP DETECTORS IMPACTED BY EITHER CURB RAMP WORK OR MILL/OVERLAY WORK SHALL BE FURNISHED, INSTALLED & MADE OPERATIONAL BY CONTRACTOR TO SATISFACTION OF ENGINEER. SEE DETAILS & SPECIAL PROVISIONS.
- 6) CONTRACTOR SHALL REMOVE AND DISPOSE OF ALL EXISTING LOOP DETECTOR SPLICE KITS (FOR ANY LOOP DETECTOR BEING REPLACED AS PART OF THIS PROJECT) AND SHALL FURNISH AND INSTALL NEW LOOP DETECTOR SPLICE KITS IN THE ADJACENT HANDHOLE FOR THESE LOOP DETECTORS AS CALLED FOR IN THE SPECIAL PROVISIONS.
- 7) A SEPARATE PAY ITEM HAS BEEN ADDED (2565 - RIGID PWC LOOP DETECTOR 8' x 6') FOR REPLACEMENT OF LOOP DETECTORS. SHOULD THESE LOOP DETECTORS BE REQUIRED TO BE REPLACED BY THE CONTRACTOR EITHER DUE TO MILL/OVERLAY OR CURB RAMP/CURB AND GUTTER WORK THAT CAUSES THE EXISTING LOOP DETECTOR TO BE DAMAGED. THE CONTRACTOR SHALL MAKE EVERY EFFORT TO PROTECT AND MAINTAIN THE EXISTING LOOP DETECTORS (INCLUDING LEAD-IN CONDUITS FROM HANDHOLE TO IN-PAVEMENT LOOP DETECTOR CONDUIT) AND SHALL NOTIFY THE ENGINEER IF THEY ANTICIPATE THAT A LOOP DETECTOR WILL BE DAMAGED DUE TO THEIR WORK. COUNTY WILL PROVIDE INITIAL LOCATION OF THESE LOOP DETECTORS FOR CONTRACTOR TO BE ABLE TO PLAN FOR WORKING AROUND THESE LOOP DETECTORS. SEE SPECIAL PROVISIONS.
- 8) CONTRACTOR SHALL MAINTAIN A SIGNAL SYSTEM IN OPERATION AT THIS INTERSECTION AT ALL TIMES, UNLESS OTHERWISE APPROVED BY THE ENGINEER FOR THE SIGNAL SYSTEM TO BE PLACED INTO ALL-RED FLASH DURING NON-PEAK TRAFFIC PERIODS (FOR WORK THAT REQUIRES THE SIGNAL SYSTEM TO BE OUT OF OPERATION OR TO ACCOMMODATE ROAD WORK AT THE INTERSECTION).
- 9) ANY DAMAGE TO INPLACE TRAFFIC SIGNAL FACILITIES (CONDUIT, CABLES, HANDHOLES, SIGNAL POLES, ETC.), DUE TO TRAFFIC SIGNAL OR ROAD WORK, SHALL BE REPAIRED BY CONTRACTOR TO SATISFACTION OF THE ENGINEER, AT NO EXPENSE TO THE COUNTY.
- 10) F & I = NEW, FURNISH AND INSTALL  
S & I = INPLACE, SALVAGE AND INSTALL
- 11) CONTRACTOR SHALL MAINTAIN AND REUSE EXISTING PEDESTRIAN SIGNAL HOUSINGS AND VISORS. SHALL REMOVE INPLACE LED HAND/WALKING PERSON INDICATIONS, AND SHALL FURNISH AND INSTALL NEW COUNTDOWN TIMER LED "HAND/WALKING PERSON" INDICATIONS IN THEIR PLACE FOR ALL B PED SIGNALS (INCIDENTAL TO REVISE SIGNAL SYSTEM F PAY ITEM).

① INPLACE (MAINTAIN INPLACE) PA90 POLE FOUNDATION  
 TYPE PA90-A-25  
 ONE WAY SIGNAL-OVERHEAD  
 2-TYPE 10B-POLE MOUNTED 0/270 DEG  
 TYPE 10A-POLE MOUNTED 90 DEG  
 INTERNALLY ILLUMINATED SIGN AND JCT BOX-OVERHEAD  
 ONE WAY EVP DETECTOR & LIGHT-OVERHEAD (#4)  
 EXTENDED INTO HH 1:  
 3" RSC  
 2-12/C 12  
 3-3/C 12  
 1-3/C 20  
 2-1/C 10 (SIGN)

INPLACE (SALVAGE) 2-LED PED INDICATIONS (LEAVE HOUSING/VISOR INPLACE)  
 2-PEDESTRIAN PUSH BUTTONS AT 0/270 DEG  
 INPLACE (REMOVE) 2-R10-4b STICKER SIGNS AT 0/270 DEG  
 F & I 2-LED COUNTDOWN TIMER PED INDICATIONS (P2-1, P4-2)  
 1-APS PBL SIGN (LT ARROW) AND APS MAST ARM POLE ADAPTOR AT 270 DEG (PB2-1)  
 PLUG HOLES ON MAST ARM POLE WHERE PUSH BUTTONS USED TO BE (AT 0/270 DEG)  
 1-2/C 14

② INPLACE (MAINTAIN INPLACE) PA100 POLE FOUNDATION  
 TYPE PA100-A-35-D40-9 (DAMT AT 350 DEG)  
 LUMINAIRE-250 W HPS  
 3-ONE WAY SIGNALS-OVERHEAD (0', 12', 24')  
 2-TYPE 10B-POLE MOUNTED 0/270 DEG  
 INTERNALLY ILLUMINATED SIGN AND JCT BOX-OVERHEAD  
 ONE WAY EVP DETECTOR & LIGHT-OVERHEAD (#6,1)  
 EXTENDED INTO HH 5:  
 3" RSC  
 2-12/C 12  
 4-3/C 12  
 1-3/C 20  
 1-3/C 12 (LUM)  
 2-1/C 10 (SIGN)

INPLACE (SALVAGE) 2-LED PED INDICATIONS (LEAVE HOUSING/VISOR INPLACE)  
 2-PEDESTRIAN PUSH BUTTONS AT 0/270 DEG  
 INPLACE (REMOVE) 2-R10-4b STICKER SIGNS AT 0/270 DEG  
 F & I 2-LED COUNTDOWN TIMER PED INDICATIONS (P4-1, P6-2)  
 PLUG HOLES ON MAST ARM POLE WHERE PUSH BUTTONS USED TO BE (AT 0/270 DEG)

③ INPLACE (MAINTAIN INPLACE) PA90 POLE FOUNDATION  
 TYPE PA90-A-25  
 ONE WAY SIGNAL-OVERHEAD  
 2-TYPE 10B-POLE MOUNTED 0/270 DEG  
 TYPE 10A-POLE MOUNTED 180 DEG  
 INTERNALLY ILLUMINATED SIGN AND JCT BOX-OVERHEAD  
 TWO WAY EVP DETECTOR & LIGHT-OVERHEAD (#4,5)  
 EXTENDED INTO HH 9:  
 3" RSC  
 2-12/C 12  
 3-3/C 12  
 1-3/C 20  
 2-1/C 10 (LUM)

INPLACE (SALVAGE) 2-LED PED INDICATIONS (LEAVE HOUSING/VISOR INPLACE)  
 2-PEDESTRIAN PUSH BUTTONS AT 0/270 DEG  
 INPLACE (REMOVE) 2-R10-4b STICKER SIGNS AT 0/270 DEG  
 F & I 2-LED COUNTDOWN TIMER PED INDICATIONS (P6-1, P8-2)  
 1-APS PBL SIGN (LT ARROW) AND APS MAST ARM POLE ADAPTOR AT 270 DEG (PB8-1)  
 PLUG HOLES ON MAST ARM POLE WHERE PUSH BUTTONS USED TO BE (AT 0/270 DEG)  
 1-2/C 14

④ INPLACE (MAINTAIN INPLACE) PA100 POLE FOUNDATION  
 TYPE PA100-A-55-D40-8 (DAMT AT 350 DEG)  
 LUMINAIRE-250 W HPS  
 3-ONE WAY SIGNALS-OVERHEAD (0', 12', 24')  
 2-TYPE 10B-POLE MOUNTED 0/270 DEG  
 INTERNALLY ILLUMINATED SIGN AND JCT BOX-OVERHEAD  
 ONE WAY EVP DETECTOR & LIGHT-OVERHEAD (#2,5)  
 EXTENDED INTO HH 14:  
 3" RSC  
 2-12/C 12  
 4-3/C 12  
 1-3/C 20  
 1-3/C 12 (LUM)  
 2-1/C 10 (SIGN)

INPLACE (SALVAGE) 2-LED PED INDICATIONS (LEAVE HOUSING/VISOR INPLACE)  
 2-PEDESTRIAN PUSH BUTTONS AT 0/270 DEG  
 INPLACE (REMOVE) 2-R10-4b STICKER SIGNS AT 0/270 DEG  
 F & I 2-LED COUNTDOWN TIMER PED INDICATIONS (P2-2, P8-1)  
 1-APS PBL SIGN (RT ARROW) AND APS MAST ARM POLE ADAPTOR AT 0 DEG (PB2-2)  
 PLUG HOLES ON MAST ARM POLE WHERE PUSH BUTTONS USED TO BE (AT 0/270 DEG)  
 1-2/C 14

COUNTY PROJECT 22-20-01

DRAWN BY: JMS			
DESIGNED BY: JMS			
CHECKED BY: JMS			

DESIGN TEAM	NO.	BY	DATE	REVISIONS

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A FULLY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.  
 Date: 5/17/2022 Name: John M. Gray, PE Lic. No.: 22457



**ANOKA COUNTY**  
**CITY OF FRIELEY**

**REVISE SIGNAL SYSTEM F**  
**SIGNAL SYSTEM NOTES**  
 CBM# 1 (BART PETER ROAD)  
 AT 7TH WAY / HICORY DRIVE

FILE NO. ANOKA 122928  
 SIGNAL SHEET 24 OF 35  
**63L**  
**94**

NO.	DATE	BY	CHKD	APPR	REVISION	

NAME: P:\22-01-00CSAH\_01\_(RICE CREEKWAY-RICKARD)\Base\Proposed\SIGNAL PLANS.dgn

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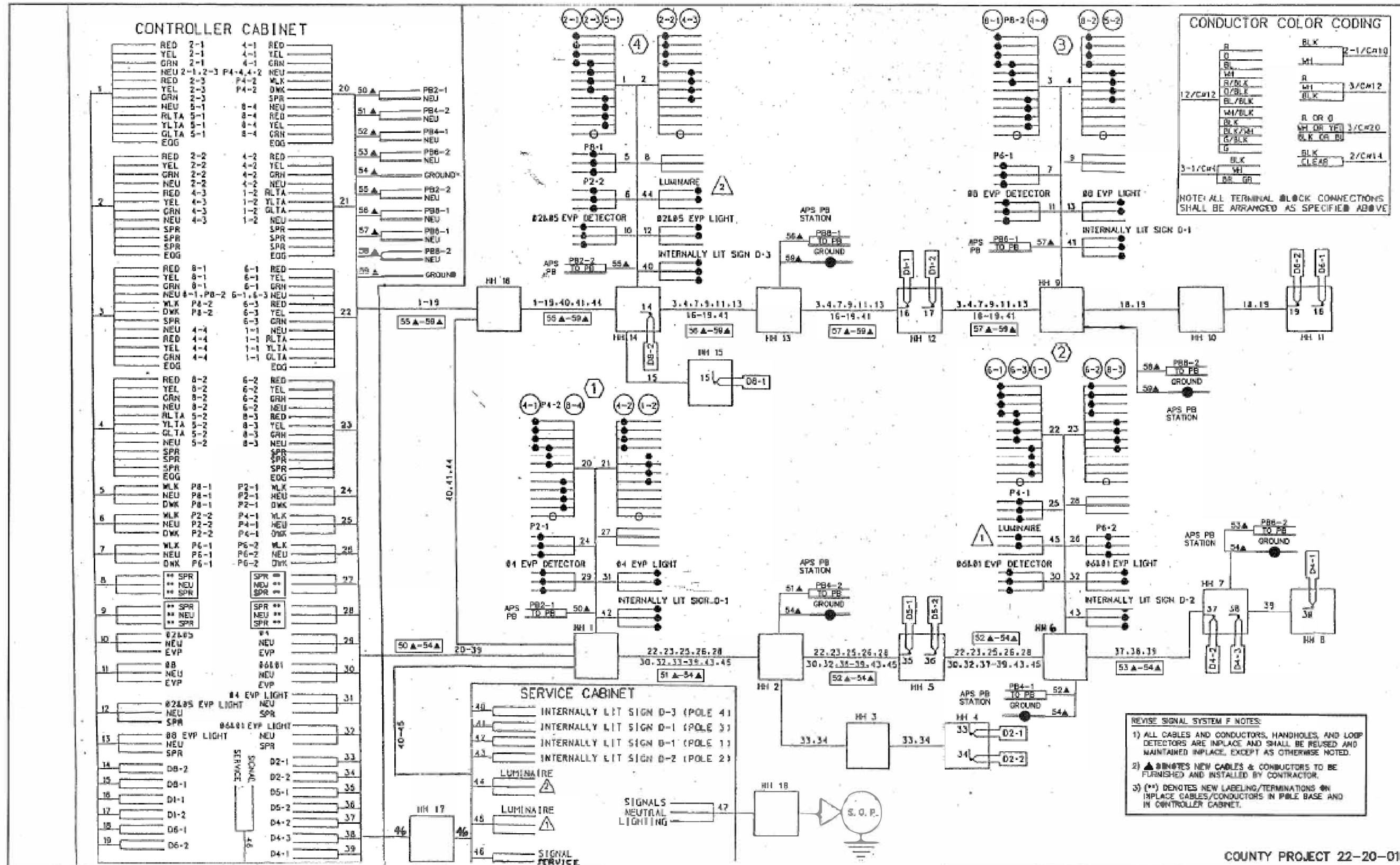
DRAWN BY: KPR DATE: 05/17/2022  
 DESIGN BY: KPR DATE: 05/17/2022  
 CHECKED BY: APA DATE: 05/17/2022

**ANOKA COUNTY**  
**HIGHWAY DEPT.**

STATE AID PROJECT 002-601-060

EXISTING SIGNAL PLANS  
 Sheet 24 of 36 Sheets





DRAWN BY: JMO DESIGNER: JMO CHECKED BY: JMO DESIGN TEAM: _____ NO. BY DATE REVISIONS: _____	I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A FULLY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.  Name: John H. Gray, P.E. Lic. No.: 22457	 PHONE: (612) 490-2000 3035 VINHAKS CENTER DR. ST. PAUL, MN 55110	<b>ANOKA COUNTY</b> <b>CITY OF FRIDLEY</b>	<b>REVISE SIGNAL SYSTEM 'F'</b> <b>FIELD WIRING DIAGRAM</b> CSAM 1 (EAST RIVER ROAD) AT 78TH WAY / HICKORY DRIVE	FILE NO. <b>63M</b> ANOKA 122928 SIGNAL SHEET <b>94</b> 25 OF 35
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NO. DATE BY CKD APPR REVISION NAME: P:\22-01-00CSAH_01 (RICE CREEKWAY-RICKARD)\Base\Proposed\SIGNAL PLANS.dgn	DRAWN BY: KPR DATE: 05/17/2022 DESIGN BY: KPR DATE: 05/17/2022 CHECKED BY: APA DATE: 05/17/2022	 <b>ANOKA COUNTY</b> <b>HIGHWAY DEPT.</b>	STATE AID PROJECT 002-601-060 EXISTING SIGNAL PLANS Sheet 24A of 36 Sheets
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LOOP DETECTORS			
NUMBER	SIZE	FUNCTION	DISTANCE
D1-1	MULTIPLE	1	—
D2-1	2'-0" x 8"	1	330'
D4-1	0' x 15"	9, 0	150'
D4-2	2'-0" x 8"	1	—
D4-3	2'-0" x 8"	7, —	—
D5-1	MULTIPLE	1	—
D6-1	2'-0" x 8"	1, —	330'
D6-2	0' x 15"	1, 8	200'
D6-3	0' x 8"	9, 0	300'
D6-4	4'-0" x 8"	1	—
D6-5	2'-0" x 8"	7	—

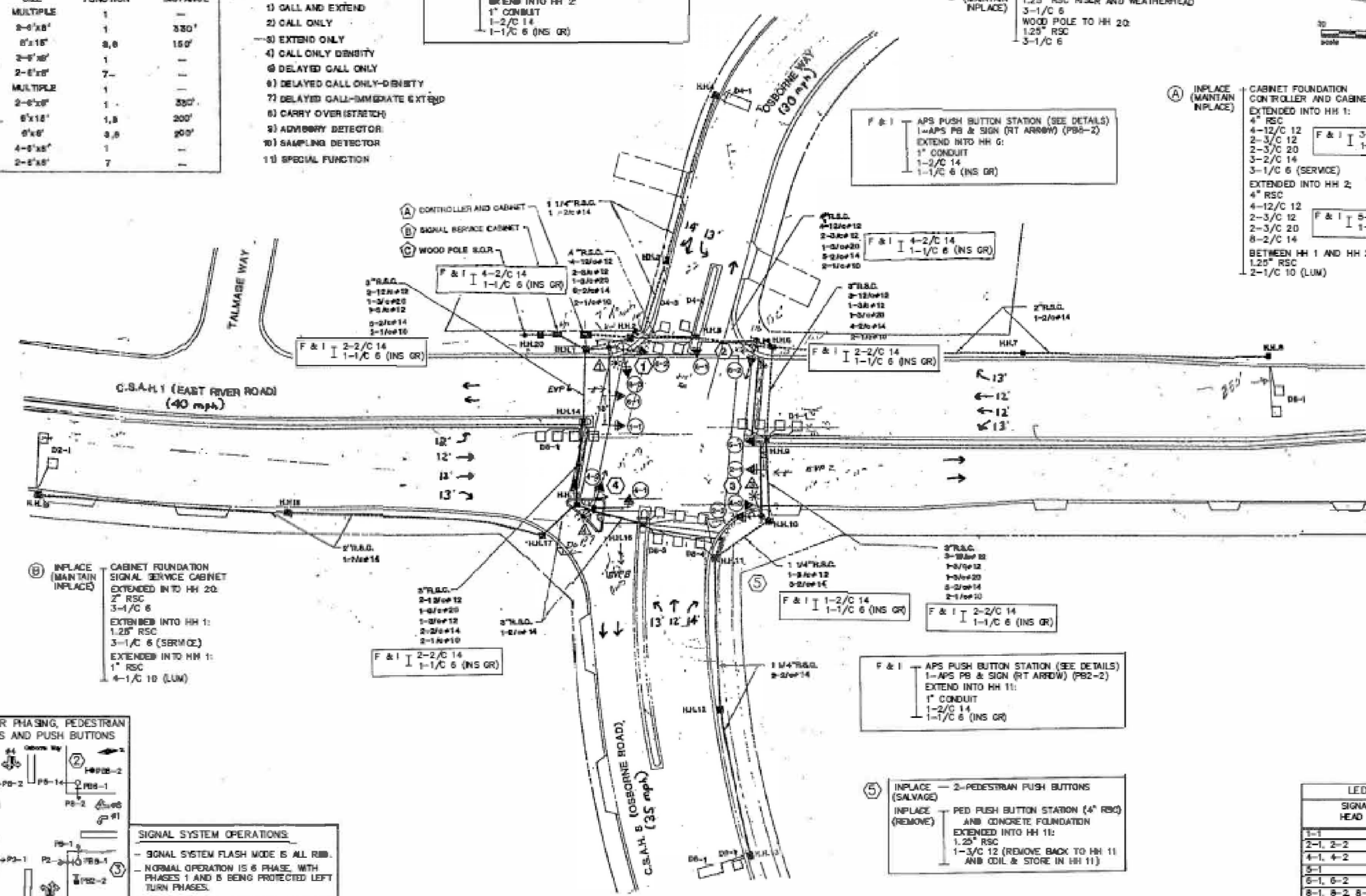
- FUNCTIONS:**
- 1) CALL AND EXTEND
  - 2) CALL ONLY
  - 3) EXTEND ONLY
  - 4) CALL ONLY DENSITY
  - 5) DELAYED CALL ONLY
  - 6) DELAYED CALL ONLY-DENSITY
  - 7) DELAYED CALL-IMMEDIATE EXTEND
  - 8) CARRY OVER (STRETCH)
  - 9) ADVISORY DETECTOR
  - 10) SAMPLING DETECTOR
  - 11) SPECIAL FUNCTION

**F & I**  
 APS PUSH BUTTON STATION (SEE DETAILS)  
 1-APS PB & SIGN (RT ARROW) (PBB-2)  
 BK/EXTD INTO HH 2:  
 1" CONDUIT  
 1-2/C 14  
 1-1/C 6 (INS GR)

**(C)** INPLACE (MAINTAIN INPLACE)  
 WOOD POLE (SOP)  
 1.25" RSC RISER AND WEATHERHEAD  
 3-1/C 6  
 WOOD POLE TO HH 20:  
 1.25" RSC  
 3-1/C 6



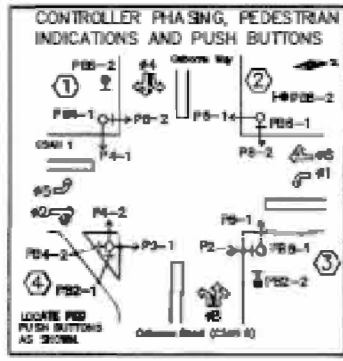
**(A)** INPLACE (MAINTAIN INPLACE)  
 CABINET FOUNDATION  
 CONTROLLER AND CABINET  
 EXTENDED INTO HH 1:  
 4" RSC  
 4-12/C 12  
 2-3/C 12  
 2-3/C 20  
 3-2/C 14  
 3-1/C 6 (SERVICE)  
 EXTENDED INTO HH 2:  
 4" RSC  
 4-12/C 12  
 2-3/C 12  
 2-3/C 20  
 6-2/C 14  
 BETWEEN HH 1 AND HH 2:  
 1.25" RSC  
 2-1/C 10 (LUM)



**(B)** INPLACE (MAINTAIN INPLACE)  
 CABINET FOUNDATION  
 SIGNAL SERVICE CABINET  
 EXTENDED INTO HH 20:  
 2" RSC  
 3-1/C 6  
 EXTENDED INTO HH 1:  
 1.25" RSC  
 3-1/C 6 (SERVICE)  
 EXTENDED INTO HH 1:  
 1" RSC  
 4-1/C 10 (LUM)

**F & I**  
 APS PUSH BUTTON STATION (SEE DETAILS)  
 1-APS PB & SIGN (RT ARROW) (PBB-2)  
 EXTEND INTO HH 11:  
 1" CONDUIT  
 1-2/C 14  
 1-1/C 6 (INS GR)

**(5)** INPLACE — 2—PEDESTRIAN PUSH BUTTONS (SALVAGE)  
 INPLACE — PED PUSH BUTTON STATION (4" RSC) AND CONCRETE FOUNDATION  
 EXTENDED INTO HH 11:  
 1.25" RSC  
 1-3/C 12 (REMOVE BACK TO HH 11 AND ODL & STORE IN HH 11)



**SIGNAL SYSTEM OPERATIONS.**

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

LED SIGNAL HEADS				
SIGNAL HEAD #	ALL 12" INDICATORS			
	R	Y	FYA	G
1-1	○	○	○	○
2-1, 2-2	○	○	○	○
4-1, 4-2	○	○	○	○
5-1	○	○	○	○
6-1, 6-2	○	○	○	○
8-1, 8-2, 8-3	○	○	○	○

COUNTY PROJECT 22-20-01

DRAWN BY: JMG  
 DESIGNER: JMG  
 CHECKED BY: JMG

NO.	BY	DATE	REVISIONS

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.  
 Date: May 5, 2022 Name: John M Gray, PE Lic. No. 22452



ANOKA COUNTY  
 CITY OF FRIDLEY

REVERSE SIGNAL SYSTEM "G"  
 INTERSECTION LAYOUT  
 CSAH 1 (EAST RIVER ROAD)  
 AT CSAH 5 (OSBORNE RD) / OSBORNE WAY

FILE NO. ANOKA 122028  
 SIGNAL SHEET 26 OF 35  
 63N  
 94

NO.	DATE	BY	CKD	APPR	REVISION	

NAME: P:\22-01-00CSAH\_01 (RICE CREEKWAY-RICKARD)\Base\Proposed\SIGNAL PLANS.dgn

NO.	DATE	BY	CKD	APPR	REVISION	

DRAWN BY: KPR DATE 05/17/2022  
 DESIGN BY: KPR DATE 05/17/2022  
 CHECKED BY: APA DATE 05/17/2022

ANOKA COUNTY  
 HIGHWAY DEPT.

STATE AID PROJECT 002-601-060

EXISTING SIGNAL PLANS  
 Sheet 25 of 36 Sheets

REVISE SIGNAL SYSTEM G NOTES:

- 1) ALL ITEMS OF THIS SIGNAL SYSTEM ARE INPLACE AND SHALL BE REUSED AND MAINTAINED INPLACE, UNLESS BOXED IN AND NOTED OTHERWISE ON PLANS.
- 2) ALL HANDHOLES ARE INPLACE AND SHALL BE REUSED AND MAINTAINED INPLACE, EXCEPT AS FOLLOWS:
  - ADJUST HANDHOLES 2, 8, AND 10 TO FINISHED SURROUNDING SIDEWALK, MEDIAN, OR BOULEVARD GRADE AFTER ALL WORK IS COMPLETED (HH 10 HAS METAL FRAME/COVER-REUSE).
  - REMOVE INPLACE CONCRETE FRAME AND COVER (HH 2, 6) AND FURNISH AND INSTALL NEW PVC METAL FRAME AND COVER ON EACH OF THESE HANDHOLES AFTER CONCRETE HANDHOLE BODY HAS BEEN ADJUSTED, SO THAT NEW COVER IS INSTALLED TO BE FLUSH WITH FINISHED SURROUNDING GRADE.
  - ALL HANDHOLE ADJUSTMENT WORK (INCLUDING FRAME & COVER REMOVAL AND REPLACEMENT) IS INCLUDED AS PART OF THE PAY ITEM FOR ITEM NO. 2565 (REVISE SIGNAL SYSTEM G). SEE DETAILS AND SPECIAL PROVISIONS FOR FURTHER INFORMATION.
- 3) LOCATION OF NEW PUSH BUTTON STATIONS SHALL BE DETERMINED IN THE FIELD BY THE ENGINEER.
- 4) ALL CABLES AND CONDUCTORS, CONDUIT, HANDHOLES, AND LOOP DETECTORS ARE INPLACE AND SHALL BE REUSED AND MAINTAINED INPLACE, EXCEPT WHERE BOXED IN AND DENOTED OTHERWISE.
- 5) LOOP DETECTOR WIRES SHALL BE CROSS-LINKED POLYETHYLENE (XLP) 12 AWG IN 3/4" NMC. LOOP DETECTORS IMPACTED BY EITHER CURB RAMP WORK OR MILL/OVERLAY WORK SHALL BE FURNISHED, INSTALLED & MADE OPERATIONAL BY CONTRACTOR TO SATISFACTION OF ENGINEER. SEE DETAILS & SPECIAL PROVISIONS.
- 6) CONTRACTOR SHALL REMOVE AND DISPOSE OF ALL EXISTING LOOP DETECTOR SPLICE KITS (FOR ANY LOOP DETECTOR BEING REPLACED AS PART OF THIS PROJECT) AND SHALL FURNISH AND INSTALL NEW LOOP DETECTOR SPLICE KITS IN THE ADJACENT HANDHOLE FOR THESE LOOP DETECTORS AS CALLED FOR IN THE SPECIAL PROVISIONS.
- 7) A SEPARATE PAY ITEM HAS BEEN ADDED (2565 - RIGID PVC LOOP DETECTOR 6" x 6") FOR REPLACEMENT OF LOOP DETECTORS. SHOULD THESE LOOP DETECTORS BE REQUIRED TO BE REPLACED BY THE CONTRACTOR EITHER DUE TO MILL/OVERLAY OR CURB RAMP/CURB AND CUTTER WORK THAT CAUSES THE EXISTING LOOP DETECTOR TO BE DAMAGED. THE CONTRACTOR SHALL MAKE EVERY EFFORT TO PROTECT AND MAINTAIN THE EXISTING LOOP DETECTORS (INCLUDING LEAD-IN CONDUITS FROM HANDHOLE TO IN-PAVEMENT LOOP DETECTOR CONDUIT) AND SHALL NOTIFY THE ENGINEER IF THEY ANTICIPATE THAT A LOOP DETECTOR WILL BE DAMAGED DUE TO THEIR WORK. COUNTY WILL PROVIDE INITIAL LOCATION OF THESE LOOP DETECTORS FOR CONTRACTOR TO BE ABLE TO PLAN FOR WORKING AROUND THESE LOOP DETECTORS. SEE SPECIAL PROVISIONS.
- 8) CONTRACTOR SHALL MAINTAIN A SIGNAL SYSTEM IN OPERATION AT THIS INTERSECTION AT ALL TIMES, UNLESS OTHERWISE APPROVED BY THE ENGINEER FOR THE SIGNAL SYSTEM TO BE PLACED INTO ALL-RED FLASH DURING NON-PEAK TRAFFIC PERIODS (FOR WORK THAT REQUIRES THE SIGNAL SYSTEM TO BE OUT OF OPERATION OR TO ACCOMMODATE ROAD WORK AT THE INTERSECTION).
- 9) ANY DAMAGE TO INPLACE TRAFFIC SIGNAL FACILITIES (CONDUIT, CABLES, HANDHOLES, SIGNAL POLES, ETC.), DUE TO TRAFFIC SIGNAL OR ROAD WORK, SHALL BE REPAIRED BY CONTRACTOR TO SATISFACTION OF THE ENGINEER, AT NO EXPENSE TO THE COUNTY.
- 10) F & I = NEW, FURNISH AND INSTALL.  
S & I = INPLACE, SALVAGE AND INSTALL.
- 11) CONTRACTOR SHALL MAINTAIN AND REUSE EXISTING PEDESTRIAN SIGNAL HOUSINGS AND VISORS, SHALL REMOVE INPLACE LED HAND/WALKING PERSON INDICATIONS, AND SHALL FURNISH AND INSTALL NEW COUNTDOWN TIMER LED "HAND/WALKING PERSON" INDICATIONS IN THEIR PLACE FOR ALL 8 PED SIGNALS (INCIDENTAL TO REVISE SIGNAL SYSTEM G PAY ITEM).

① INPLACE (MAINTAIN INPLACE) A100 POLE FOUNDATION  
TYPE A100-A-45-D40-9 (DAVIT AT 350 DEG)  
LUMINAIRE-250 W HPS  
2-ONE WAY SIGNALS-OVERHEAD (0', 12')  
MID-MAST ARM MOUNT AT 24' (CAPPED)  
TYPE 20C-POLE MOUNTED 270 DEG  
"NO LEFT TURN ON RED ARROW" SIGN-OVERHEAD  
TYPE D SIGN PANEL-OVERHEAD  
ONE WAY EVP DETECTOR & LIGHT-OVERHEAD (#6,1)  
EXTENDED INTO HH 1:  
3" RSC  
4-12/C 12  
1-3/C 12  
1-3/C 20  
4-1/C 10 (LUM)

INPLACE (SALVAGE) 2-LED PED INDICATIONS (LEAVE HOUSING/VISOR INPLACE)  
2-PEDESTRIAN PUSH BUTTONS AT 0/270 DEG  
INPLACE (REMOVE) 2-R10-4b METAL SIGNS AT 0/270 DEG  
F & I 2-LED COUNTDOWN TIMER PED INDICATIONS (P4-1, P6-2)  
1-APS PB, SIGN (LT ARROW) AND APS MAST ARM POLE ADAPTOR AT 270 DEG (PB4-1)  
PLUG HOLES ON MAST ARM POLE WHERE PUSH BUTTONS USED TO BE (AT 0/270 DEG)  
1-2/C 14

③ INPLACE (MAINTAIN INPLACE) A100 POLE FOUNDATION  
TYPE A100-A-45-D40-9 (DAVIT AT 350 DEG)  
LUMINAIRE-250 W HPS  
2-ONE WAY SIGNALS-OVERHEAD (0', 18')  
TYPE 20C-POLE MOUNTED 270 DEG  
"NO LEFT TURN ON RED ARROW" SIGN-OVERHEAD  
TYPE D SIGN PANEL-OVERHEAD  
ONE WAY EVP DETECTOR & LIGHT-OVERHEAD (#2,5)  
EXTENDED INTO HH 10:  
3" RSC  
3-12/C 12  
1-3/C 20  
2-1/C 10 (LUM)

INPLACE (SALVAGE) 2-LED PED INDICATIONS (LEAVE HOUSING/VISOR INPLACE)  
F & I 2-LED COUNTDOWN TIMER PED INDICATIONS (P2-2, P8-1)  
1-APS PB, SIGN (LT ARROW) AND APS MAST ARM POLE ADAPTOR AT 270 DEG (PB8-1)  
1-2/C 14

② INPLACE (MAINTAIN INPLACE) A100 POLE FOUNDATION  
TYPE A100-A-35  
ONE WAY SIGNAL-OVERHEAD  
TYPE 10C-POLE MOUNTED 270 DEG  
R10-12 SIGN PANEL-ADJACENT TO 8-1  
TYPE D SIGN PANEL-OVERHEAD  
TWO WAY EVP LIGHT-OVERHEAD (#4,8)  
EXTENDED INTO HH 6:  
3" RSC  
3-12/C 12  
1-3/C 12  
1-3/C 20

INPLACE (SALVAGE) 2-LED PED INDICATIONS (LEAVE HOUSING/VISOR INPLACE)  
2-PEDESTRIAN PUSH BUTTONS AT 0/270 DEG  
INPLACE (REMOVE) 2-R10-4b METAL SIGNS AT 0/270 DEG  
F & I 2-LED COUNTDOWN TIMER PED INDICATIONS (P6-1, P8-2)  
1-APS PB, SIGN (LT ARROW) AND APS MAST ARM POLE ADAPTOR AT 270 DEG (PB6-1)  
PLUG HOLES ON MAST ARM POLE WHERE PUSH BUTTONS USED TO BE (AT 0/270 DEG)  
1-2/C 14

④ INPLACE (MAINTAIN INPLACE) P80 POLE FOUNDATION  
TYPE P80-A-20-D40-9 (DAVIT AT 225 DEG)  
LUMINAIRE-250 W HPS  
ONE WAY SIGNAL-OVERHEAD  
TYPE 30A-POLE MOUNTED 180 DEG  
TYPE 10S-POLE MOUNTED 270 DEG  
R10-12 SIGN PANEL-ADJACENT TO 4-1  
TYPE D SIGN PANEL-OVERHEAD  
TWO WAY EVP DETECTOR & LIGHT-OVERHEAD (#4,8)  
EXTENDED INTO HH 15:  
3" RSC  
2-12/C 12  
1-3/C 12  
1-3/C 20  
2-1/C 10 (LUM)

INPLACE (SALVAGE) 2-LED PED INDICATIONS (LEAVE HOUSING/VISOR INPLACE)  
2-PEDESTRIAN PUSH BUTTONS AT 90/180 DEG  
INPLACE (REMOVE) 2-R10-4b METAL SIGNS AT 90/180 DEG  
F & I 2-LED COUNTDOWN TIMER PED INDICATIONS (P2-1, P4-2)  
1-APS PB, SIGN (RT ARROW) AND APS MAST ARM POLE ADAPTOR AT 90 DEG (PB2-1)  
1-APS PB, SIGN (LT ARROW) AND APS MAST ARM POLE ADAPTOR AT 180 DEG (PB4-2)  
2-2/C 14

COUNTY PROJECT 22-20-01

DRAWN BY:	JMG			
DESIGNER:	JMG			
CHECKED BY:	JMG			
DESIGN TEAM	NO.	BY	DATE	REVISIONS


I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A FULLY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.  
Date: July 8, 2022 Name: John M. Gray, PE Lic. No.: 22427



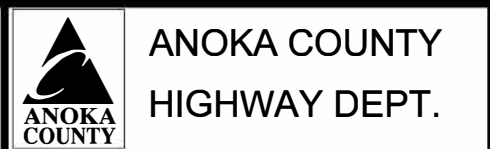
ANOKA COUNTY  
CITY OF FRIDLEY

REVISE SIGNAL SYSTEM 'G'  
SIGNAL SYSTEM NOTES  
CRASH 1 (DUST BUSTER ROAD)  
AT CRASH 8 (OSBORNE RD) / OSBORNE WAY

FILE NO.  
ANOKA 122928  
SIGNAL SHEET  
27 OF 36  
63P  
94

NO	DATE	BY	CKD	APPR	REVISION	05/17/2022	9:06:18 AM
NAME: P:\22-01-00CSAH_01\ (RICE CREEKWAY-RICKARD)\Base\Proposed\SIGNAL PLANS.dgn							


DRAWN BY: KPR DATE: 05/17/2022  
DESIGN BY: KPR DATE: 05/17/2022  
CHECKED BY: APA DATE: 05/17/2022



STATE AID PROJECT 002-601-060

EXISTING SIGNAL PLANS  
Sheet 26 of 36 Sheets



**PERMANENT PAVEMENT MARKING PLAN  
NOTES AND GUIDELINES**

**GENERAL INFORMATION:**

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

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

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

**MULTI COMPONENT (MULTI COMP):**

THE ROAD SURFACE SHALL BE CLEANED AT THE DIRECTION OF THE ENGINEER JUST PRIOR TO APPLICATION. PAVEMENT CLEANING SHALL CONSIST OF AT LEAST BRUSHING WITH A ROTARY BROOM (NON-METALLIC) OR AS RECOMMENDED BY THE MATERIAL MANUFACTURER AND ACCEPTABLE TO THE ENGINEER. NEW PORTLAND CEMENT CONCRETE SURFACES SHALL BE SANDBLAST CLEANED TO REMOVE ANY SURFACE TREATMENT AND/OR LAITANCE ON LOW SPEED (SPEED LIMIT 35 MPH OR LESS) URBAN PORTLAND CEMENT CONCRETE ROADWAYS. SANDBLAST CLEANING SHALL BE USED FOR ALL MULTI COMP PAVEMENT MARKINGS.

THE MULTI COMP MARKING APPLICATION SHALL IMMEDIATELY FOLLOW THE PAVEMENT CLEANING. GLASS BEADS SHALL BE APPLIED IMMEDIATELY AFTER APPLICATION OF THE MULTI COMP LINE TO PROVIDE AN IMMEDIATE NO-TRACK SYSTEM.

A MULTI COMP LINE SHALL BE APPLIED WITH A MINIMUM THICKNESS OF 20 MILS (WET) AND 4" WIDE. GLASS BEADS SHALL BE APPLIED AT A MINIMUM RATE OF 25LBS POUNDS PER GALLON RATE SUFFICIENT TO ACHIEVE AN ACCEPTABLE NO-TRACK SYSTEM.

OPERATIONS SHALL BE CONDUCTED ONLY WHEN THE ROAD PAVEMENT SURFACE TEMPERATURES ARE 50 DEGREES FAHRENHEIT OR GREATER.

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

**PREFORMED THERMOPLASTIC:**

THE PREFORMED THERMOPLASTIC MARKINGS SHALL BE APPLIED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS ON CLEAN AND DRY SURFACES. SEE SPECIAL PROVISIONS FOR PREFORMED THERMOPLASTIC MARKING SPECIFICATIONS.

**PAINT:**

AT THE TIME OF APPLYING THE MARKING MATERIAL, THE APPLICATION AREA SHALL BE FREE OF CONTAMINATION. THE CONTRACTOR SHALL CLEAN THE ROADWAY SURFACE PRIOR TO THE LINE APPLICATION IN A MANNER AND TO THE EXTENT REQUIRED BY THE ENGINEER.

GLASS BEADS SHALL BE APPLIED IMMEDIATELY AFTER APPLICATION OF THE PAINT LINE.

EXCEPT WHEN USED AS A TEMPORARY MARKING, PAVEMENT MARKINGS SHALL ONLY BE APPLIED IN SEASONABLE WEATHER WHEN AIR TEMPERATURE IS 50 DEGREES FARHENHEIT OR HIGHER AND SHALL NOT BE APPLIED WHEN THE WIND OR OTHER CONDITIONS CAUSE A FILD OR DUST TO BE DEPOSITED ON THE PAVEMENT SURFACE AFTER CLEANING AND BEFORE THE MARKING MATERIAL CAN BE APPLIED.

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.

PAVEMENT MARKING TABULATION		
ITEM	UNIT	TOTAL QUANTITY
4" SOLID LINE WHITE - MULTI COMP	LIN FT	17717
1 4" BROKEN LINE WHITE - MULTI COMP	LIN FT	2520
4" SOLID LINE YELLOW - MULTI COMP	LIN FT	12600
24" SOLID LINE WHITE - PREFORMED THERMOPLASTIC (PMS)*	LIN FT	225
3'X6' ZEBRA CROSSWALK - PREFORMED THERMOPLASTIC	SQ FT	1638
PAVEMENT MESSAGE (LEFT ARROW) - PREFORMED THERMOPLASTIC	SQ FT	124
PAVEMENT MESSAGE (RIGHT ARROW) - PREFORMED THERMOPLASTIC	SQ FT	124

1 10' SKIP, 40' GAP  
\* PAVEMENT MARKING SPECIAL

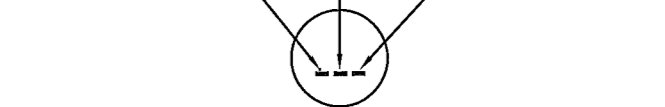
**SYMBOLS & MATERIALS LEGEND**

- CROSSWALK BLOCK WHITE - POLY PREFORM
- ↩ PAVEMENT MESSAGE (LEFT ARROW) POLY PREFORM

**STRIPING KEY**

- CIRCLE - MULTI COMP
- △ TRIANGLE - PAINT
- SQUARE - POLY PREFORM THERMOPLASTIC
- ⬠ PENTAGON - REMOVABLE PREFORMED PLASTIC MARKING

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



EXAMPLE: (4SW) = SOLID LINE WHITE - MULTI COMP

- — BROKEN LINE - 50' CYCLE (10' LINE, 40' GAP)
- - - - DOTTED LINE - 15' CYCLE (3' LINE, 12' GAP) UNLESS SHOWN OTHERWISE IN THE PLAN

NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\22-01-00\CSAH\_01\_(Rice Creek Way-Rickard)\Base\Traffic\Perm Pvmt Mrkg Guide Notes 2021.dwg

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: SEAN R. THIEL DATE: 2/9/22  
SIGNATURE: *Sean R. Thiel* LICENSE NO. 45129

DRAWN BY TMV DATE 01/24/22  
DESIGN BY DATE  
CHECKED BY SRT DATE 02/04/22



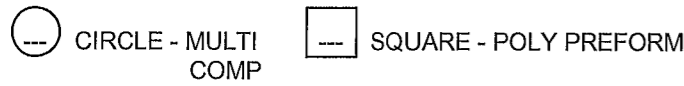
**ANOKA COUNTY  
HIGHWAY DEPT.**

SAP 002-601-060

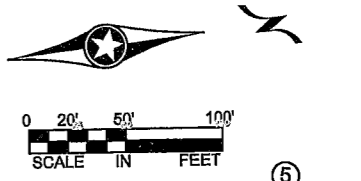
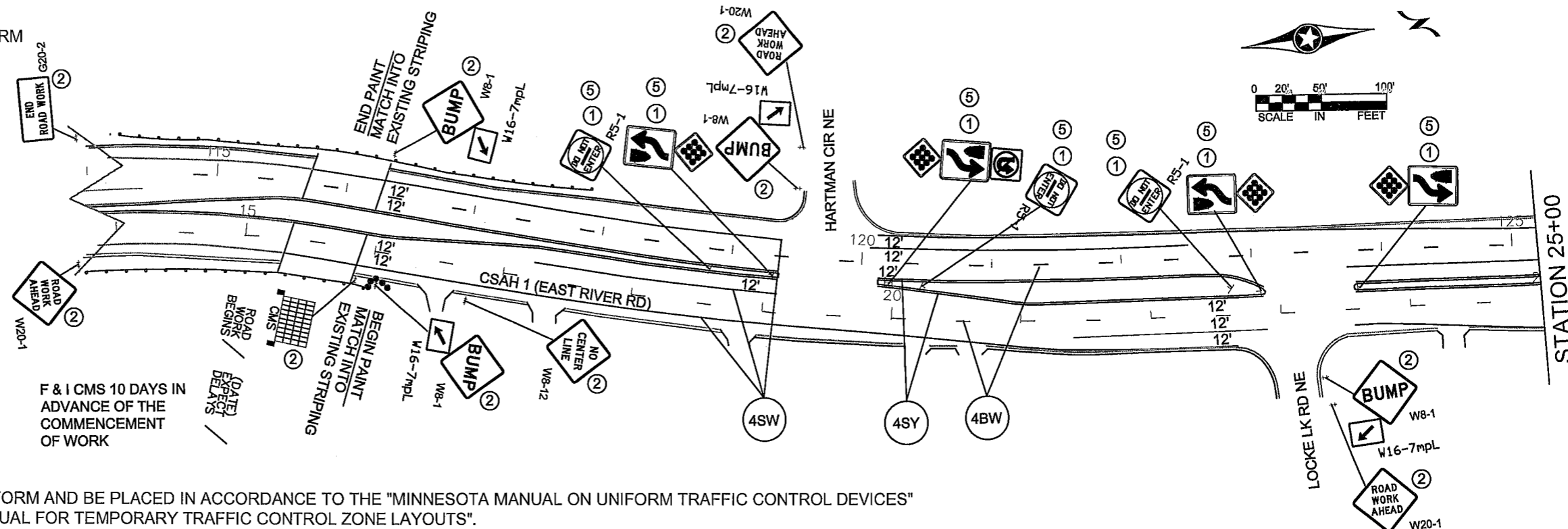
PERMANENT PAVEMENT  
MARKING PLAN DETAILS

SHEET 27 OF 36 SHEETS

STRIPING KEY

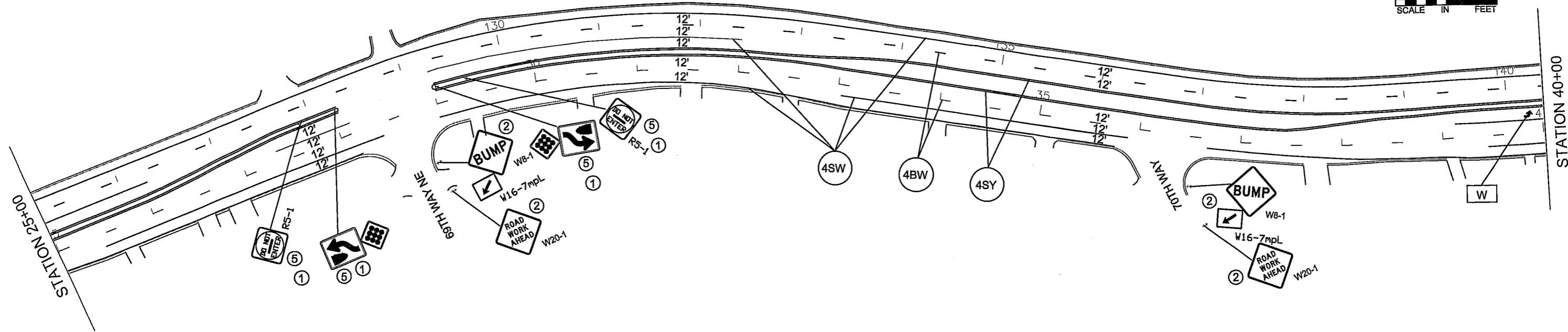
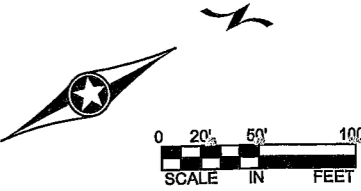


- SIGN NOTES:  
 ① INSTALL SIGN  
 ② TEMPORARY TRAFFIC CONTROL SIGN  
 ⑤ REMOVE SIGN



NOTES:

- ALL TRAFFIC CONTROL DEVICES SHALL CONFORM AND BE PLACED IN ACCORDANCE TO THE "MINNESOTA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" (MN MUTCD), INCLUDING PART VI, "FIELD MANUAL FOR TEMPORARY TRAFFIC CONTROL ZONE LAYOUTS".
- CONTRACTOR SHALL COMPLY WITH THE LONGITUDINAL DROP-OFF GUIDELINES AS PER THE FIELD MANUAL.
- LOCATIONS OF PAVEMENT MARKINGS ARE APPROXIMATE. EXACT LOCATIONS WILL BE DETERMINED IN THE FIELD BY THE ENGINEER.
- CONTRACTOR SHALL SUPPLY AND PLACE THE PORTABLE CHANGEABLE MESSAGE SIGN (CMS) A MINIMUM TEN DAYS PRIOR TO ACTUAL COMMENCEMENT OF ROAD WORK, TO A LOCATION AS SPECIFIED BY THE ENGINEER. SIGNS TO BE REMOVED WHEN ROAD WORK BEGINS. PAYMENT SHALL BE MADE AS PER ITEM 2563.613 PORTABLE CHANGEABLE MESSAGE SIGN BY THE UNIT/DAY.
- CONTRACTOR SHALL SUPPLY AND ERECT THE TEMPORARY TRAFFIC CONTROL SIGNS AS SHOWN ON THIS DRAWING AND DETAILED IN THE SPECIAL PROVISIONS FROM THE TIME WORK COMMENCES ON THIS ROADWAY UNTIL THIS ROADWAY IS PERMANENTLY STRIPED. ALL NECESSARY TEMPORARY TRAFFIC CONTROL SIGNS SHALL BE PAID FOR AS PART OF TRAFFIC CONTROL LUMP SUM.
- ALL EXISTING SIGNING SHALL REMAIN IN PLACE DURING CONSTRUCTION. THE SIGNS TO BE REMOVED FOR MEDIAN NOSE WORK, SHALL BE INSTALLED ON TEMPORARY SUPPORTS UNTIL THE PERMANENT INSTALLATION CAN BE MADE. THIS WILL BE CONSIDERED AS INCIDENTAL TO INSTALL SIGN TYPE C.
- ACCESS SHALL BE MAINTAINED TO ALL STREETS AND DRIVEWAYS IN CONSTRUCTION AREA.
- ALL PERMANENT STRIPING AND PAVEMENT MESSAGES SHALL BE PLACED WITHIN 72 HOURS OF MAINLINE PAVING.
- ANY REQUIRED PERMANENT SIGNING SHALL BE INSTALLED THE SAME DAY AS PERMANENT STRIPING.



NO	DATE	BY	CKD	APPR	REVISION
NAME: P:122-01-00(CSAH_01 (Rice Creekway-Rickard))Basel/Traffic/Temp Sign & Perm Striping.dwg					

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.

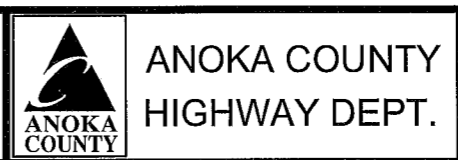
PRINT NAME: SEAN R. THIEL DATE: 2/9/22

SIGNATURE: *Sean R. Thiel* LICENSE NO. 45129

DRAWN BY: TMV DATE: 01/24/22

DESIGN BY: DATE:

CHECKED BY: SRT DATE: 02/04/22

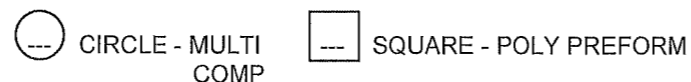


SAP 002-601-060

TEMPORARY SIGNING & PERMANENT SIGNING & STRIPING

SHEET 28 OF 36 SHEETS

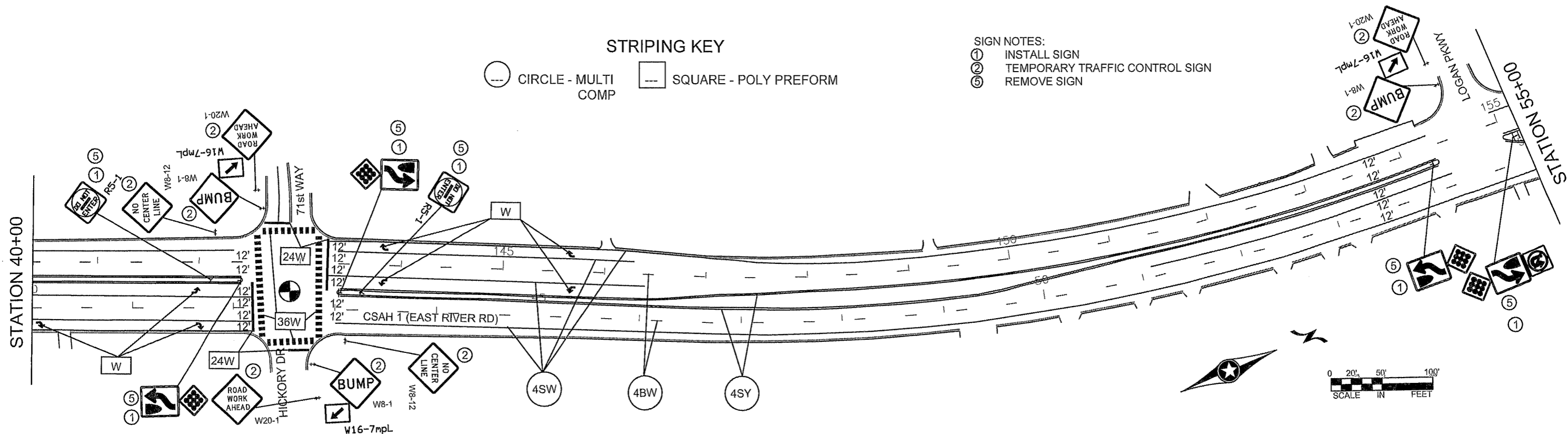
STRIPING KEY



SIGN NOTES:

- ① INSTALL SIGN
- ② TEMPORARY TRAFFIC CONTROL SIGN
- ⑤ REMOVE SIGN

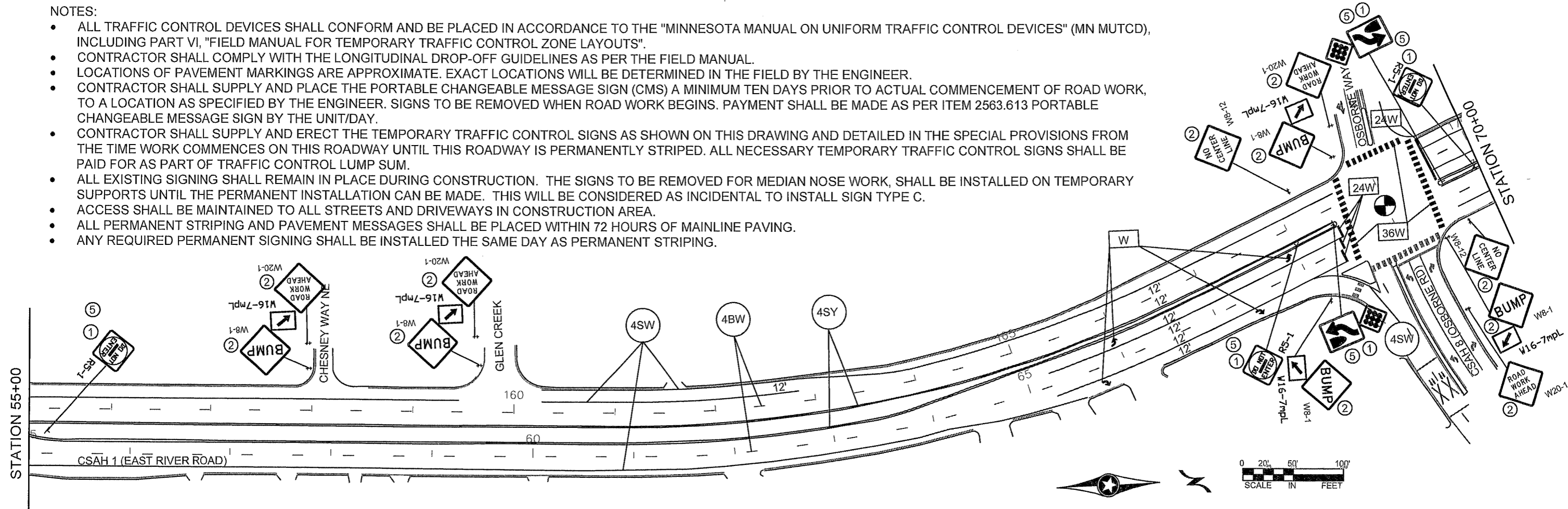
STATION 40+00



NOTES:

- ALL TRAFFIC CONTROL DEVICES SHALL CONFORM AND BE PLACED IN ACCORDANCE TO THE "MINNESOTA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" (MN MUTCD), INCLUDING PART VI, "FIELD MANUAL FOR TEMPORARY TRAFFIC CONTROL ZONE LAYOUTS".
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- CONTRACTOR SHALL SUPPLY AND ERECT THE TEMPORARY TRAFFIC CONTROL SIGNS AS SHOWN ON THIS DRAWING AND DETAILED IN THE SPECIAL PROVISIONS FROM THE TIME WORK COMMENCES ON THIS ROADWAY UNTIL THIS ROADWAY IS PERMANENTLY STRIPED. ALL NECESSARY TEMPORARY TRAFFIC CONTROL SIGNS SHALL BE PAID FOR AS PART OF TRAFFIC CONTROL LUMP SUM.
- ALL EXISTING SIGNING SHALL REMAIN IN PLACE DURING CONSTRUCTION. THE SIGNS TO BE REMOVED FOR MEDIAN NOSE WORK, SHALL BE INSTALLED ON TEMPORARY SUPPORTS UNTIL THE PERMANENT INSTALLATION CAN BE MADE. THIS WILL BE CONSIDERED AS INCIDENTAL TO INSTALL SIGN TYPE C.
- ACCESS SHALL BE MAINTAINED TO ALL STREETS AND DRIVEWAYS IN CONSTRUCTION AREA.
- ALL PERMANENT STRIPING AND PAVEMENT MESSAGES SHALL BE PLACED WITHIN 72 HOURS OF MAINLINE PAVING.
- ANY REQUIRED PERMANENT SIGNING SHALL BE INSTALLED THE SAME DAY AS PERMANENT STRIPING.

STATION 55+00



NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\22-01-00\CSAH\_01\_(Rice Creekway-Rickard)\Base\Traffic\Temp Sign & Perm Striping.dwg

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: SEAN R. THIEL DATE: 2/9/22  
 SIGNATURE: *Sean R. Thiel* LICENSE NO. 45129

DRAWN BY: TMV DATE: 01/24/22  
 DESIGN BY: \_\_\_\_\_ DATE: \_\_\_\_\_  
 CHECKED BY: SRT DATE: 02/04/22

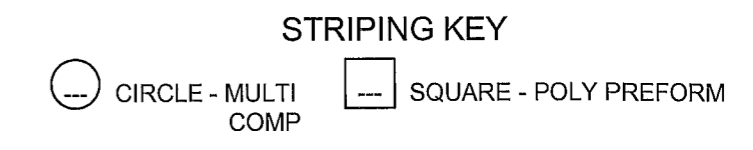
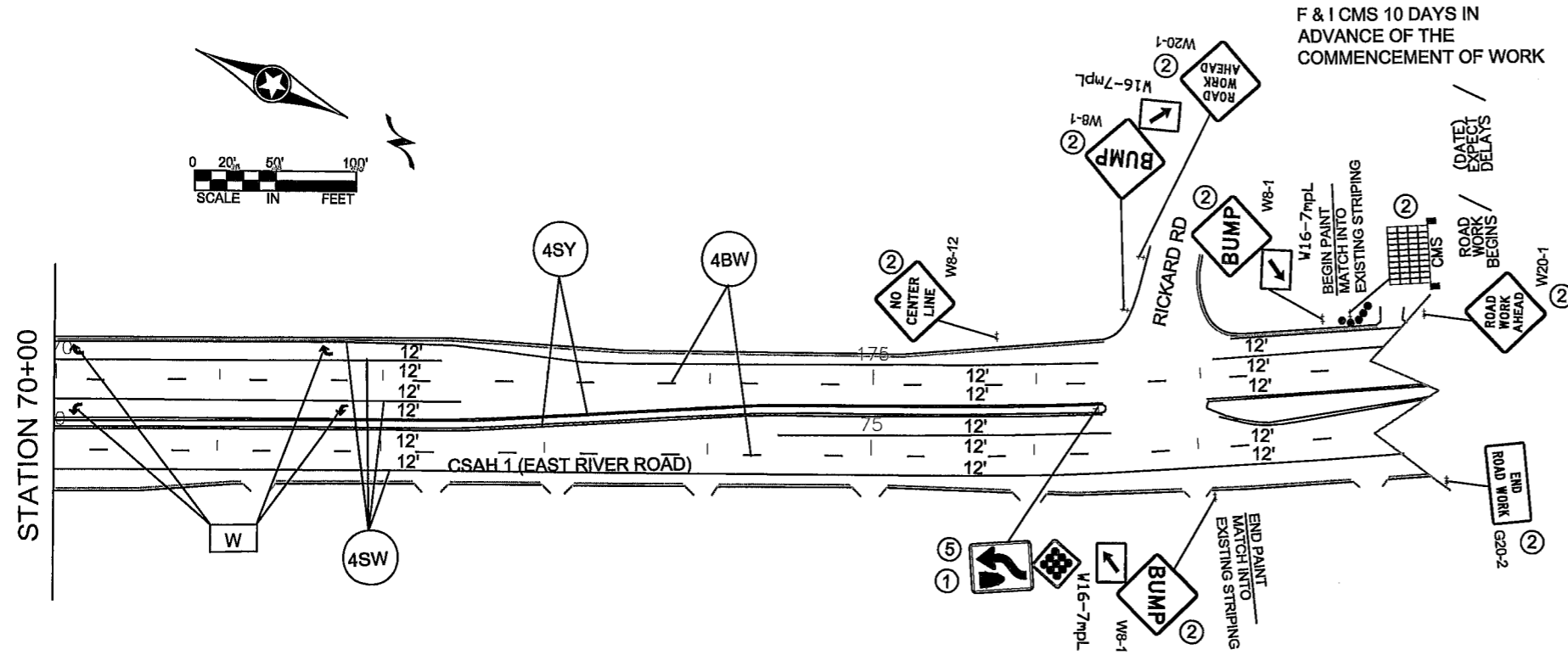


ANOKA COUNTY  
 HIGHWAY DEPT.

SAP 002-601-060

TEMPORARY SIGNING &  
 PERMANENT SIGNING &  
 STRIPING

SHEET 29 OF 36 SHEETS



**SIGN NOTES:**

① INSTALL SIGN  
 ② TEMPORARY TRAFFIC CONTROL SIGN  
 ⑤ REMOVE SIGN

**NOTES:**

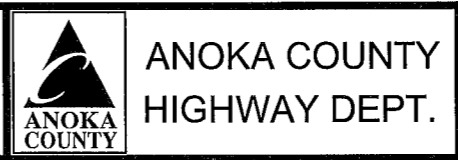
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NO	DATE	BY	CKD	APPR	REVISION
NAME: P:\22-01-00\CSAH_01_(Rice Creekway-Rickard)\Base\Traffic\Temp Sign & Perm Striping.dwg					

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: SEAN R. THIEL DATE: 2/9/22  
 SIGNATURE: *Sean R. Thiel* LICENSE NO. 45129

DRAWN BY: TMV DATE: 01/24/22  
 DESIGN BY: DATE: \_\_\_\_\_  
 CHECKED BY: SRT DATE: 02/04/22



SAP 002-601-060

TEMPORARY SIGNING & PERMANENT SIGNING & STRIPING  
 SHEET 30 OF 36 SHEETS



EXISTING SIGN TAB				
STATION	ADDRESS/ DESCRIPTION (NOTES)	REMOVE SIGN TYPE C	SIGN NUMBER	SIGN LEGEND
		EACH		
18+60	MEDIAN	1	R5-1	DO NOT ENTER
19+10	MEDIAN	1	R4-7	KEEP RIGHT
			OM1-1	9-BUTTON
20+00	MEDIAN	1	R3-4	NO U TURN
			R4-7	KEEP RIGHT
			OM1-1	9-BUTTON
20+20	MEDIAN	1	R5-1	DO NOT ENTER
22+60	MEDIAN	1	R5-1	DO NOT ENTER
22+90	MEDIAN	1	R4-7	KEEP RIGHT
			OM1-1	9-BUTTON
23+60	MEDIAN	1	R4-7	KEEP RIGHT
			OM1-1	9-BUTTON
27+70	MEDIAN	1	R5-1	DO NOT ENTER
28+00	MEDIAN	1	R4-7	KEEP RIGHT
			OM1-1	9-BUTTON
29+00	MEDIAN	1	R4-7	KEEP RIGHT
			OM1-1	9-BUTTON
29+30	MEDIAN	1	R5-1	DO NOT ENTER
41+80	MEDIAN	1	R5-1	DO NOT ENTER
42+10	MEDIAN	1	R4-7	KEEP RIGHT
			OM1-1	9-BUTTON
43+05	MEDIAN	1	R4-7	KEEP RIGHT
			OM1-1	9-BUTTON
43+30	MEDIAN	1	R5-1	DO NOT ENTER
54+10	MEDIAN	1	R4-7	KEEP RIGHT
			OM1-1	9-BUTTON
55+00	MEDIAN	1	R3-4	NO U TURN
			R4-7	KEEP RIGHT
			OM1-1	9-BUTTON
55+15	MEDIAN	1	R5-1	DO NOT ENTER
68+00	MEDIAN	1	R5-1	DO NOT ENTER
68+50	MEDIAN	1	R4-7	KEEP RIGHT
			OM1-1	9-BUTTON
69+60	MEDIAN	1	R4-7	KEEP RIGHT
			OM1-1	9-BUTTON
70+00	MEDIAN	1	R5-1	DO NOT ENTER
76+45	MEDIAN	1	R4-7	KEEP RIGHT
			OM1-1	9-BUTTON
TOTAL		23		

TEMPORARY TRAFFIC CONTROL SIGNS			
M.U.T.C.D. CODE	SIZE	INSERT	QUANTITY
W8-12	48" x 48"		6
R4-1	24" x 30"		0
			0
R4-2	24" x 30"		0
G20-2	36" x 18"		2
W8-1	48" x 48"		17
W16-7P	30" x 18"		17
W3-4	48" x 48"		AS NEEDED
W8-1	48" x 48"		AS NEEDED
W8-8	48" x 48"		AS NEEDED

TEMPORARY TRAFFIC CONTROL SIGNS			
M.U.T.C.D. CODE	SIZE	INSERT	QUANTITY
W8-9	48" x 48"		AS NEEDED
W8-11	48" x 48"		AS NEEDED
W8-23	48" x 48"		AS NEEDED
W20-1	48" x 48"		AS NEEDED (ESTIMATED 14)
W20-4	48" x 48"		AS NEEDED
W20-7	48" x 48"		AS NEEDED (ESTIMATED 2)
			AS NEEDED (ESTIMATED 10)
			2 AT 10 DAYS EA

CMS sign to be placed a minimum of ten days prior to actual commencement of road work. Signs to be removed when road work begins.

F & I SIGN PANELS							
M.U.T.C.D. CODE	SIZE	INSERT	QUANTITY	PANEL AREA	TOTAL AREA	MOUNTING POST PER INSTALLATION	MOUNTING HEIGHT To pavement edge
				SQ. FT.	SQ. FT.		
R3-4	24" x 24"		2	4.00	8.00	1	7.0'
R4-7	24" x 30"		14	5.00	70.00		
OM1-1	18" x 18"		14	2.25	31.50		
R5-1	30" x 30"		11	6.25	68.75	1	7.0'
PROJECT TOTAL SQ FT				178.25			

CHANGEABLE MESSAGE BOARD - MESSAGE SEQUENCE LAYOUT

	R	O	A	D	
	W	O	R	K	
	B	E	G	I	N
	S				

<	D	A	T	E	>
	E	X	P	E	C
	D	E	L	A	Y
	S				

CMS SIGN TO BE PLACED A MINIMUM OF TEN DAYS PRIOR TO ACTUAL COMMENCEMENT OF ROAD WORK. SIGNS TO BE REMOVED WHEN ROAD WORK BEGINS.

NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\121-01\CSAH\_01\_(Rice Creekway-Rickard)\Base\Traffic\Temp Sign & Perm Striping.dwg

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: SEAN R. THIEL DATE: 2/9/22  
SIGNATURE: *Sean R. Thiel* LICENSE NO. 45129

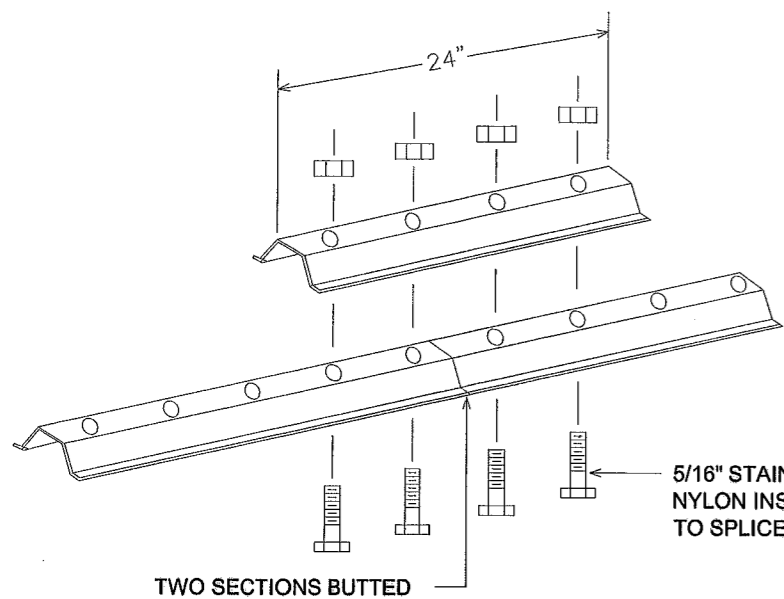
DRAWN BY: TMV DATE: 01/24/22  
DESIGN BY: DATE: \_\_\_\_\_  
CHECKED BY: SRT DATE: 02/04/22



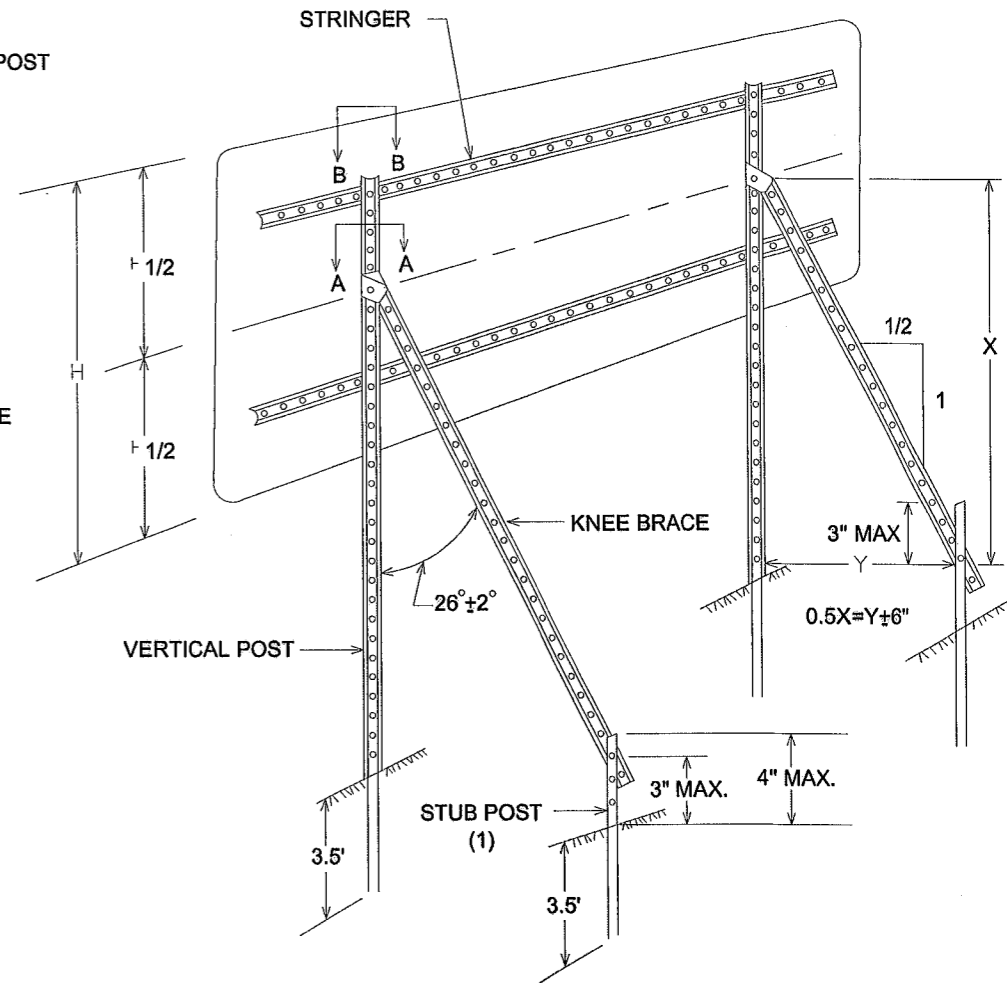
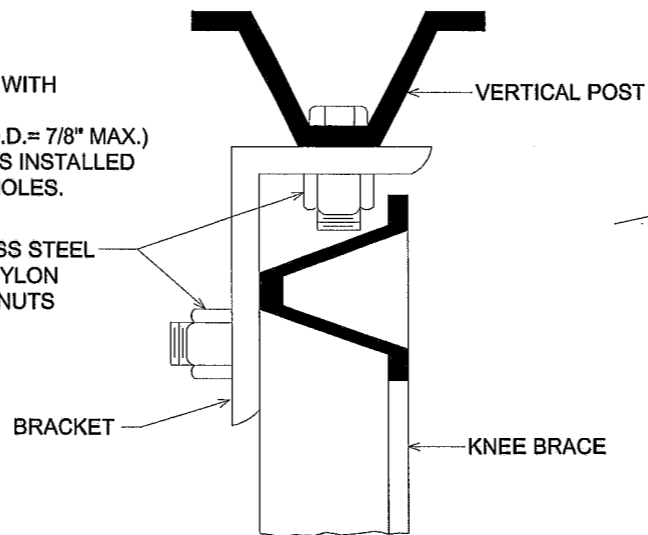
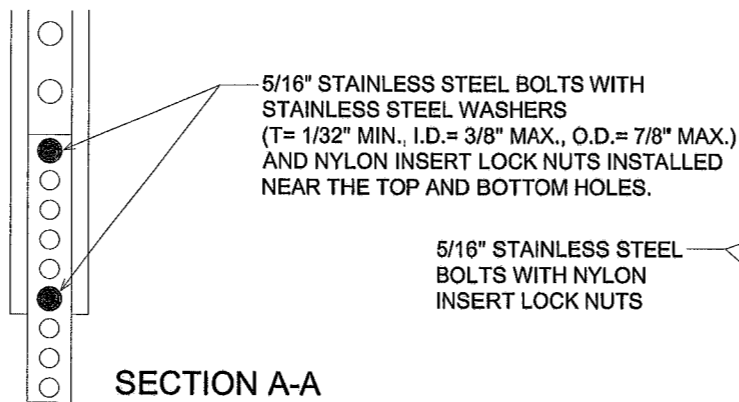
ANOKA COUNTY  
HIGHWAY DEPT.

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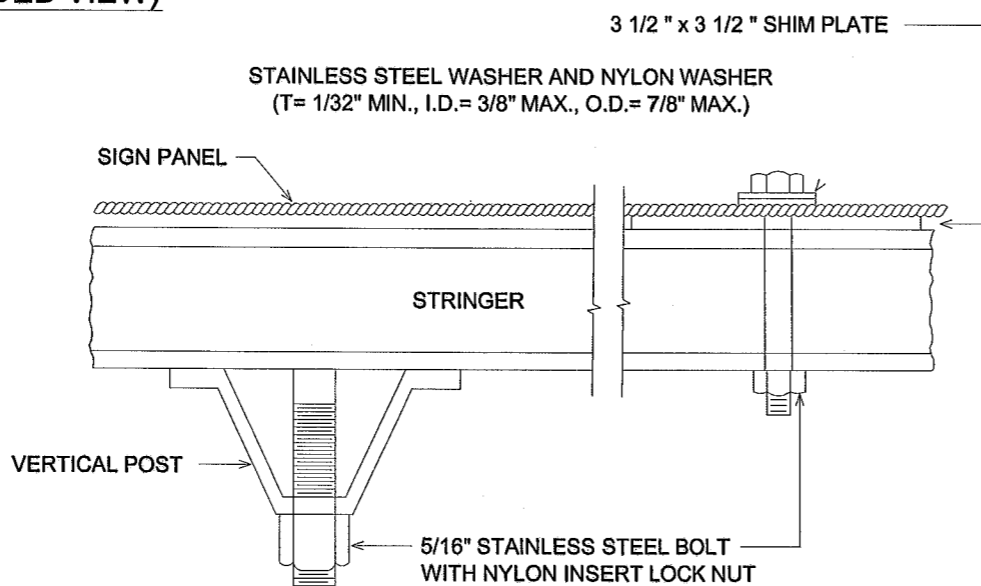
TEMPORARY & PERMANENT SIGNING QUANTITIES  
SHEET 31 OF 36 SHEETS



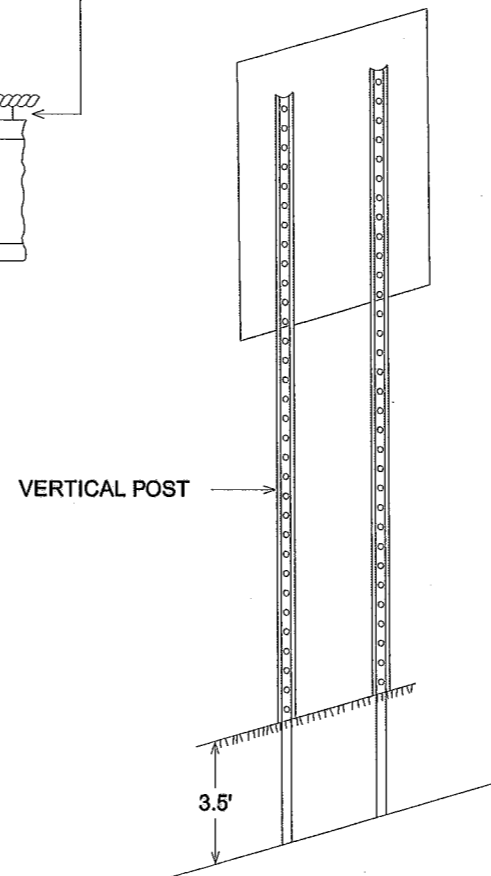
**LATERAL BRACE OR STRINGER SPLICE DETAIL (EXPLODED VIEW)**



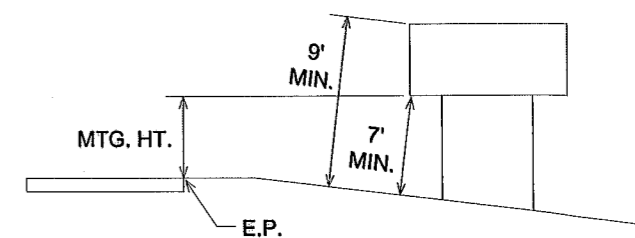
**TYPICAL "A-FRAME" INSTALLATION TYPE "D" SIGNS**



**SECTION B-B**



**TYPICAL INSTALLATION 36" AND LARGER TYPE "C" SIGNS**



**TYPICAL MOUNTING**

(1) OFFSET STUB POST 1' TOWARD ROADWAY RELATIVE TO VERTICAL POST.

**TYPE C & D SIGN STRUCTURAL DETAILS**

NO	DATE	BY	CKD	APPR	REVISION
NAME: P:\22-01-00\CSAH_01_(Rice Creekway-Rickard)\Base\Traffic\Sign&Stripe_Details 2019.dwg					

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DRAWN BY TMV DATE 01/24/22

DESIGN BY DATE

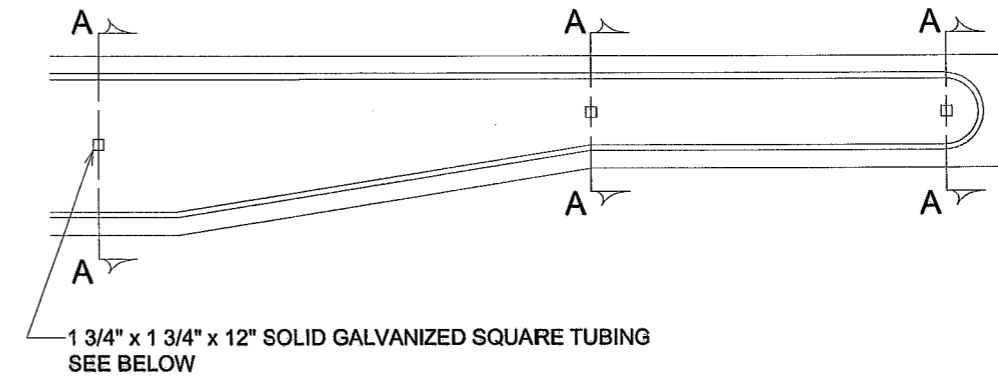
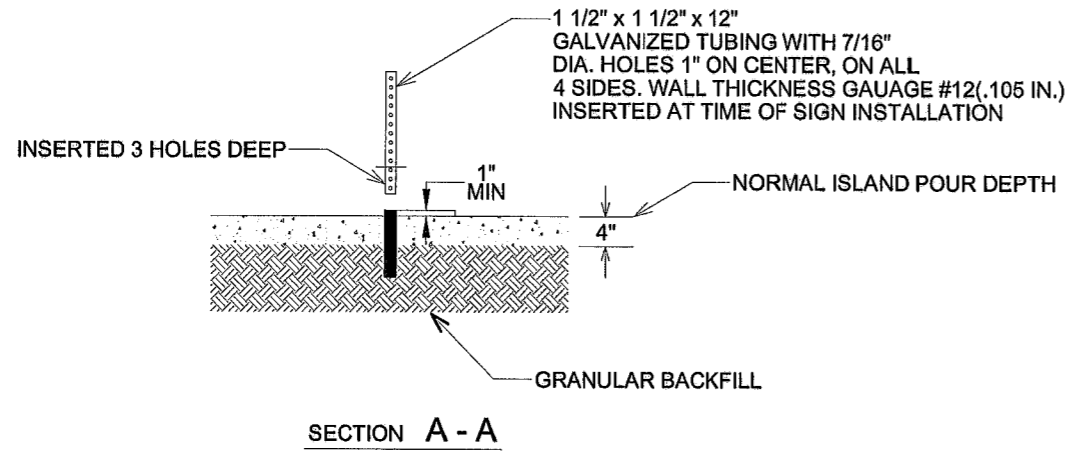
CHECKED BY SRT DATE 02/04/22



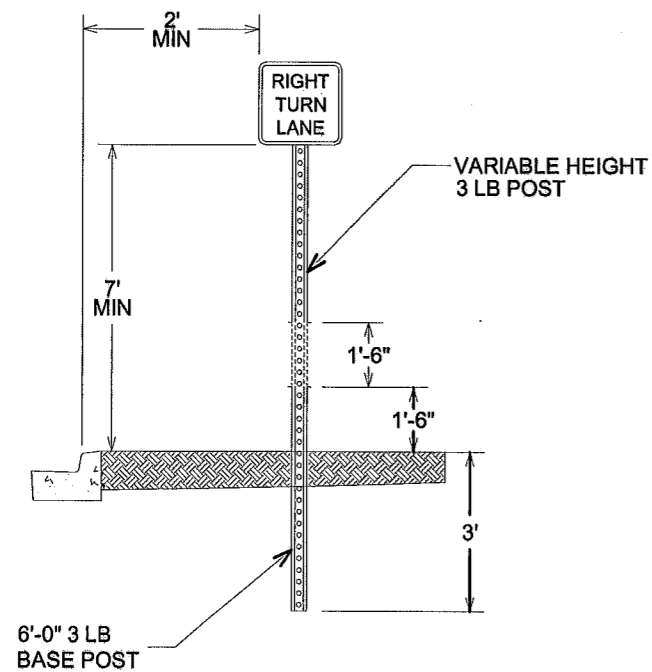
**ANOKA COUNTY HIGHWAY DEPT.**

SAP 002-601-060

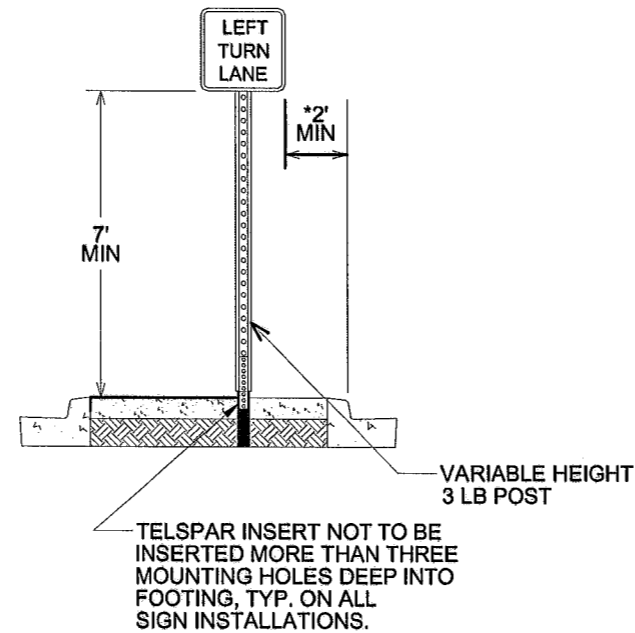
**SIGNING & STRIPING DETAILS**



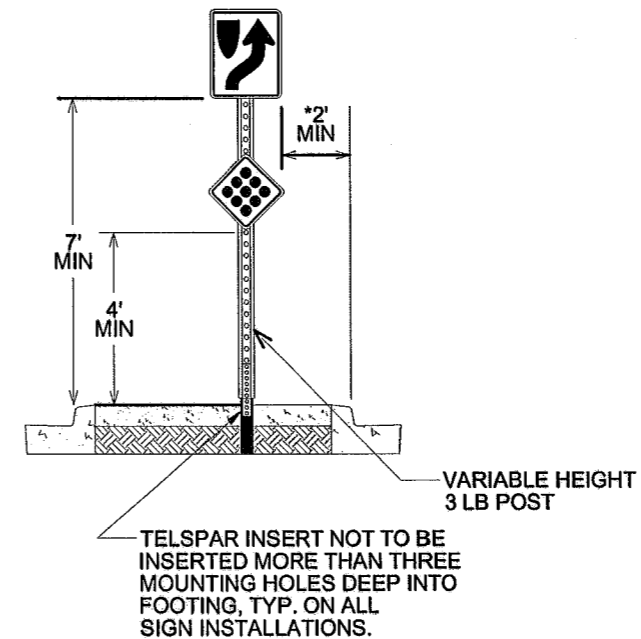
GROUND POST MOUNT SIGN INSTALLATION TYPICAL



ISLAND MOUNT BREAK-AWAY SIGN INSTALLATION TYPICAL



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



\*1' MIN FOR NARROW URBAN LOCATIONS

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

NO	DATE	BY	CKD	APPR	REVISION
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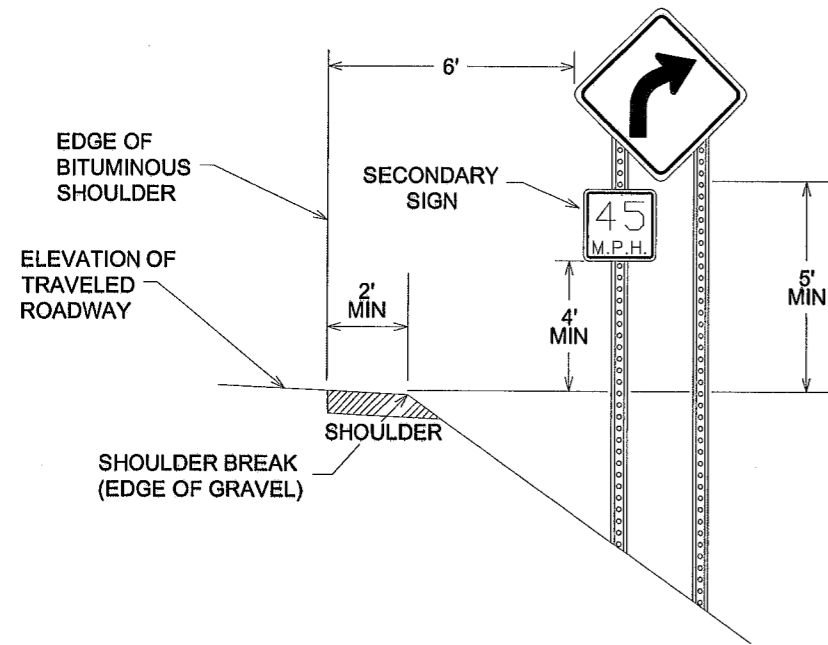


ANOKA COUNTY  
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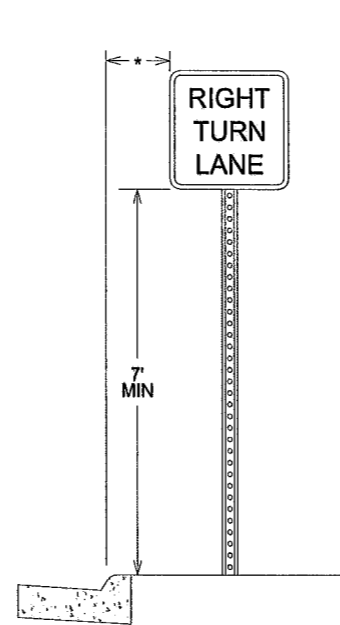
SAP 002-601-060

SIGNING & STRIPING  
 DETAILS

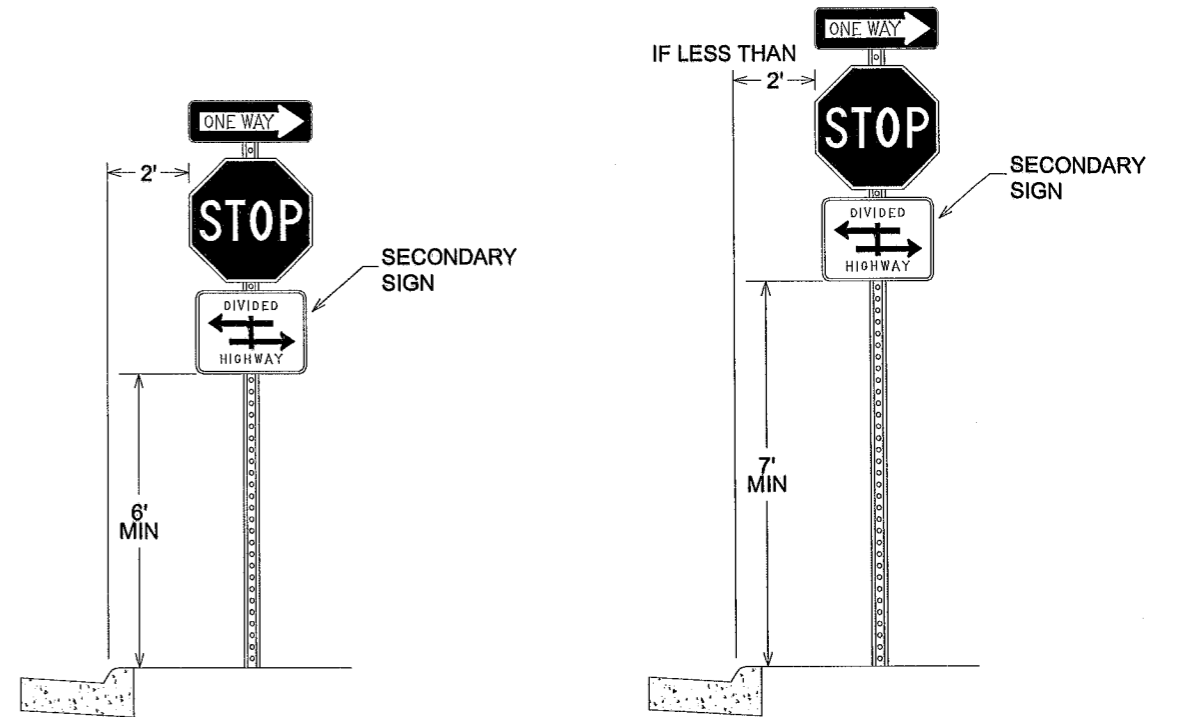
TYPICAL SIGN PLACEMENT  
(RURAL)



TYPICAL SIGN PLACEMENT  
(URBAN)



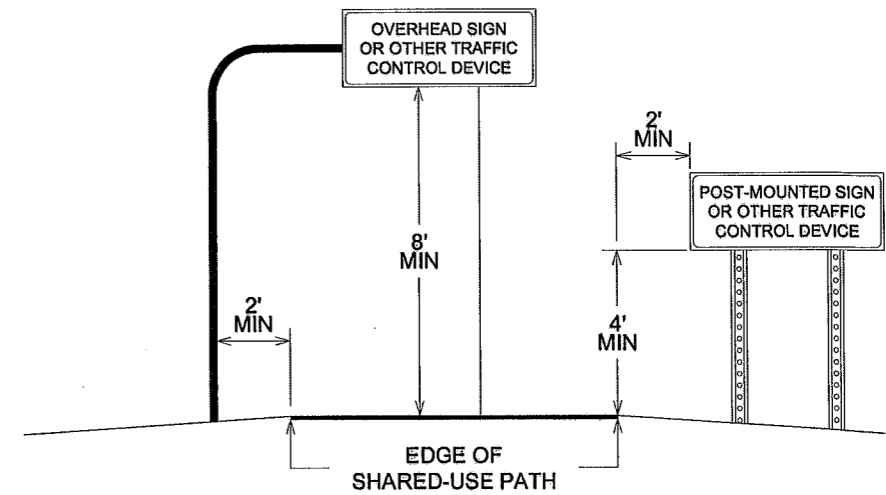
\*2' - NARROW BOULEVARD (≤ 8' WIDE)  
6' - WIDE BOULEVARD



NOTES:

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

TYPICAL SIGN PLACEMENT  
SHARED-USE PATH



NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\22-01-00\CSAH\_01\_(Rice Creekway-Rickard)\Base\Traffic\Sign&Stripe\_Details 2019.dwg

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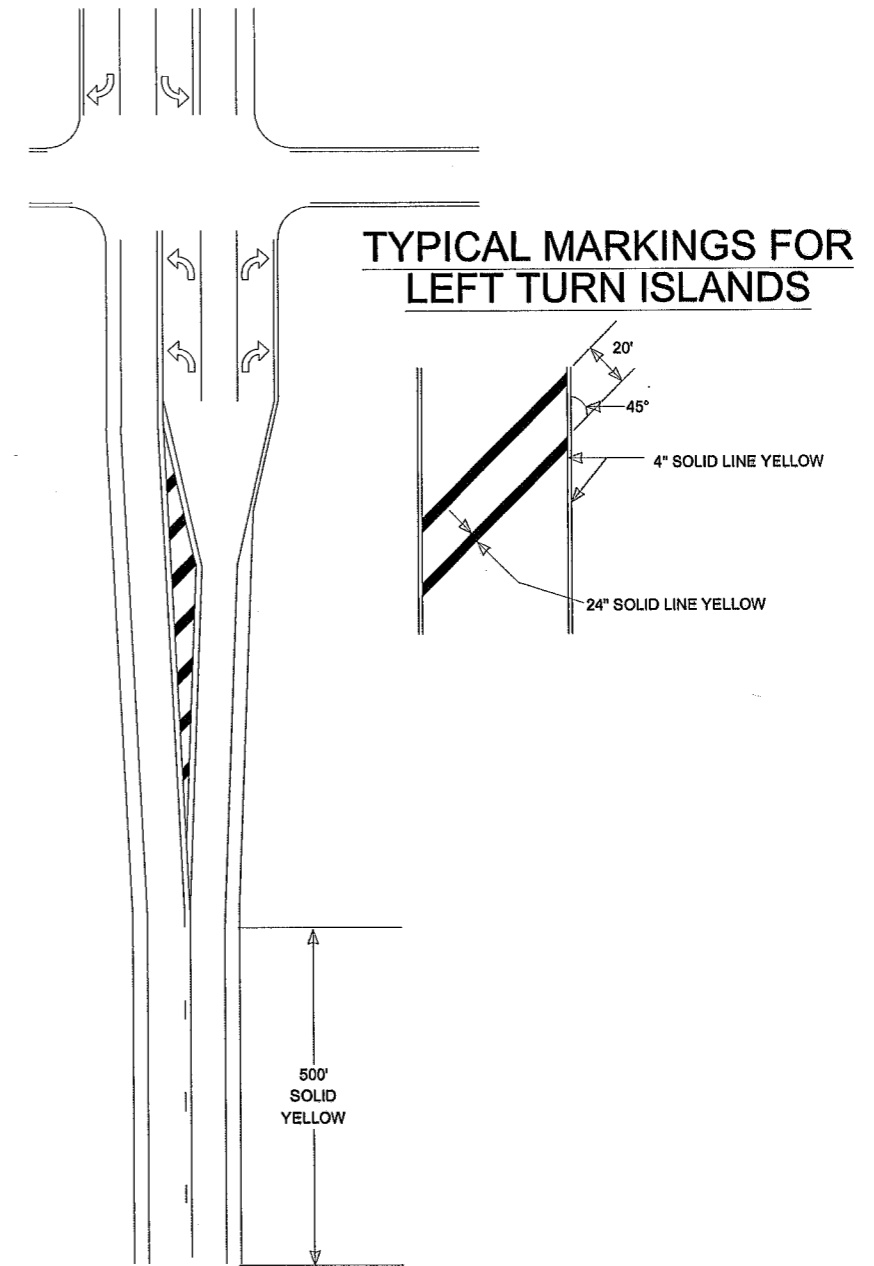
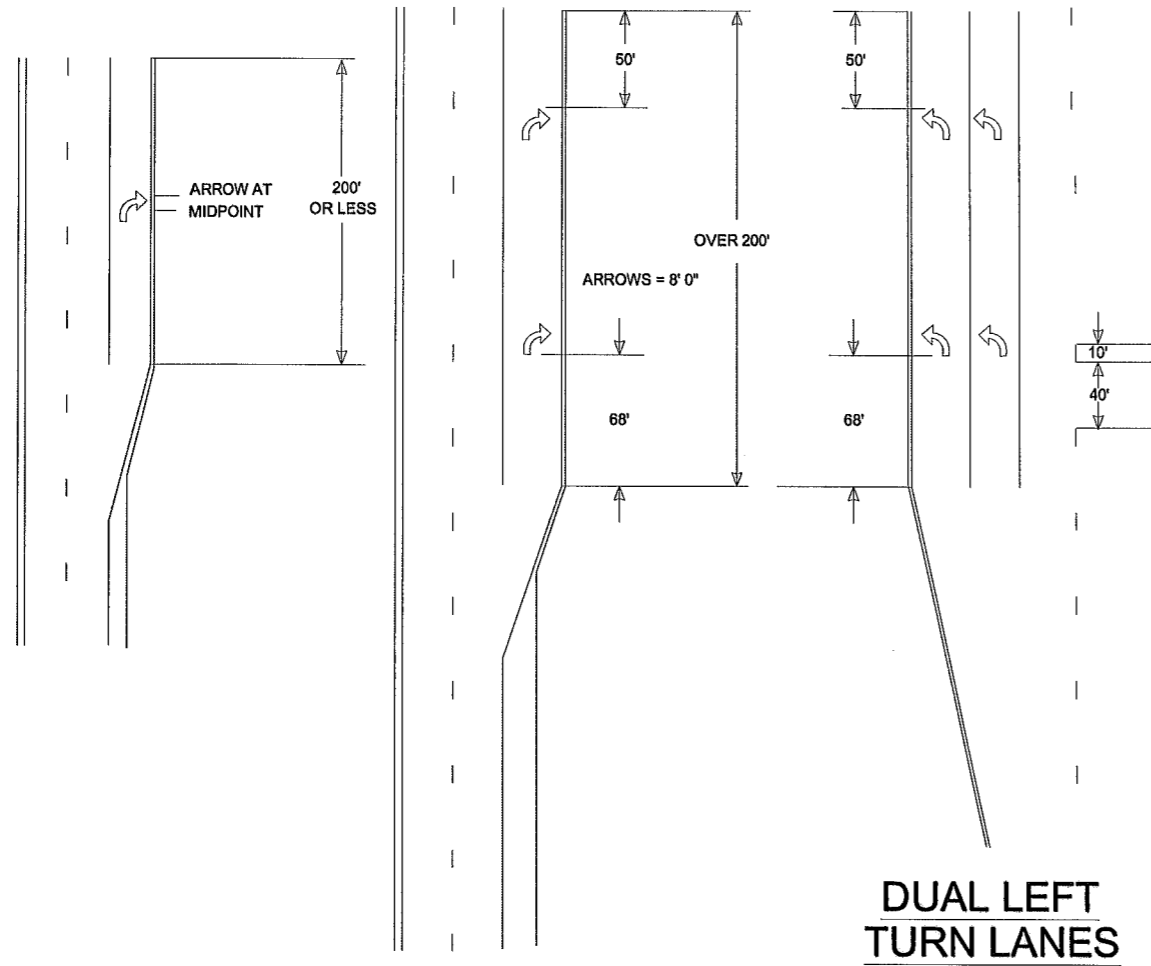
ANOKA COUNTY  
HIGHWAY DEPT.

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SIGNING & STRIPING  
DETAILS

SHEET 34 OF 36 SHEETS

**TYPICAL MESSAGE PLACEMENT  
FOR TURN LANES**



NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\22-01-00\CSAH\_01 (Rice Creekway-Rickard)\Base\Traffic\Sign&Stripe\_Details 2019.dwg

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DESIGN BY: DATE:

CHECKED BY: SRT DATE: 02/04/22



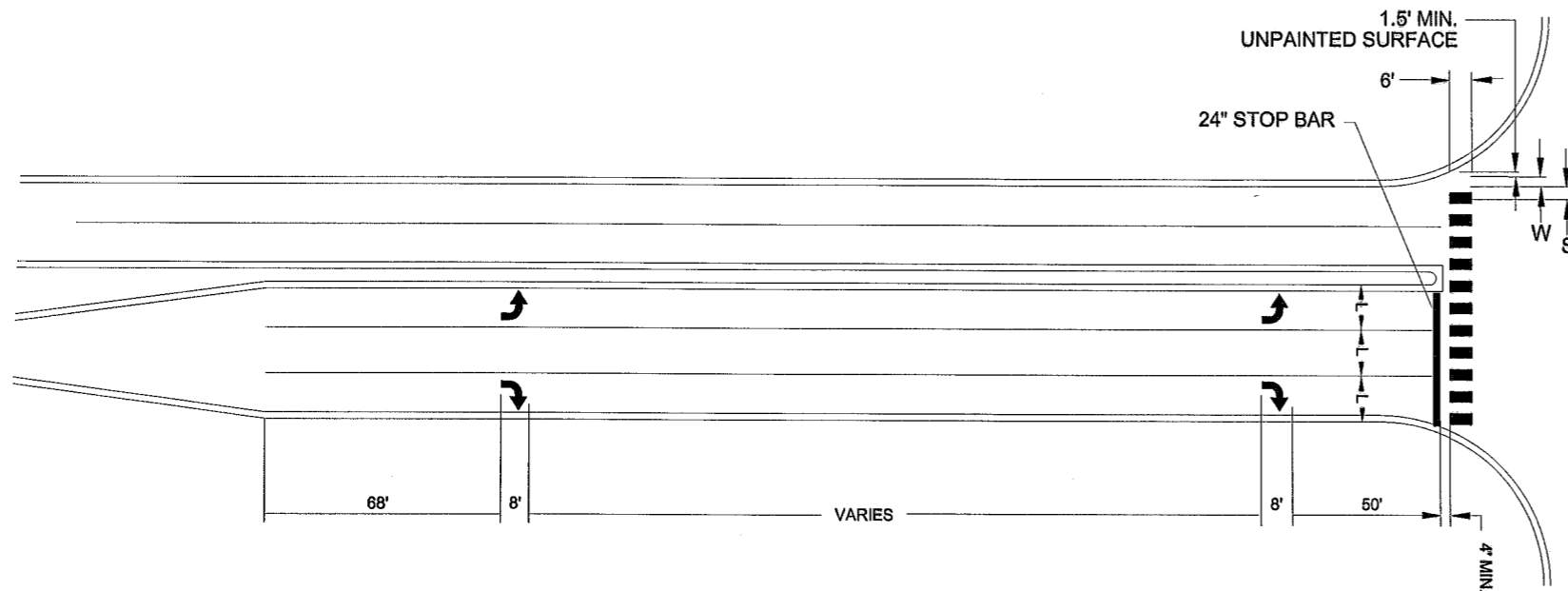
**ANOKA COUNTY  
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**SIGNING & STRIPING  
DETAILS**

SHEET 35 OF 36 SHEETS

# MARKINGS FOR PEDESTRIAN CROSSWALKS



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

### NOTES: CROSSWALKS:

- 1.) PAINTED AREAS ARE TO BE CENTERED ON CENTER AND LANE LINES, EVEN IF INTERSECTION IS NOT ALIGNED.
- 2.) LOCATION OF ZEBRA CROSSWALKS AND STOP BARS, SIGNAL LOOPS AND PED RAMPS ARE APPROXIMATE. FINAL LOCATIONS ARE TO BE DETERMINED AND FIELD VERIFIED DURING CONSTRUCTION BY THE FIELD ENGR.
- 3.) ZEBRA CROSSWALKS ARE TO BE PARALLEL TO THE DRIVING LANE OR LANES. EVEN IF THE STREET IS ON AN ANGLE TO THE INTERSECTION.
- 4.) A MIN. OF 1.5' (450mm) CLEAR DISTANCE MUST BE LEFT ADJACENT TO THE CURB. IF LAST PAINTED AREA FALLS INTO THIS AREA, IT MUST BE OMITTED.
- 5.) ON TWO LANE STREETS, USE SPACING SHOWN FOR AN 11' (3.3mm) INSIDE LANE.

NO	DATE	BY	CKD	APPR	REVISION
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CHECKED BY: SRT DATE: 02/04/22



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SAP 002-601-060

SIGNING & STRIPING  
DETAILS

SHEET 36 OF 36 SHEETS