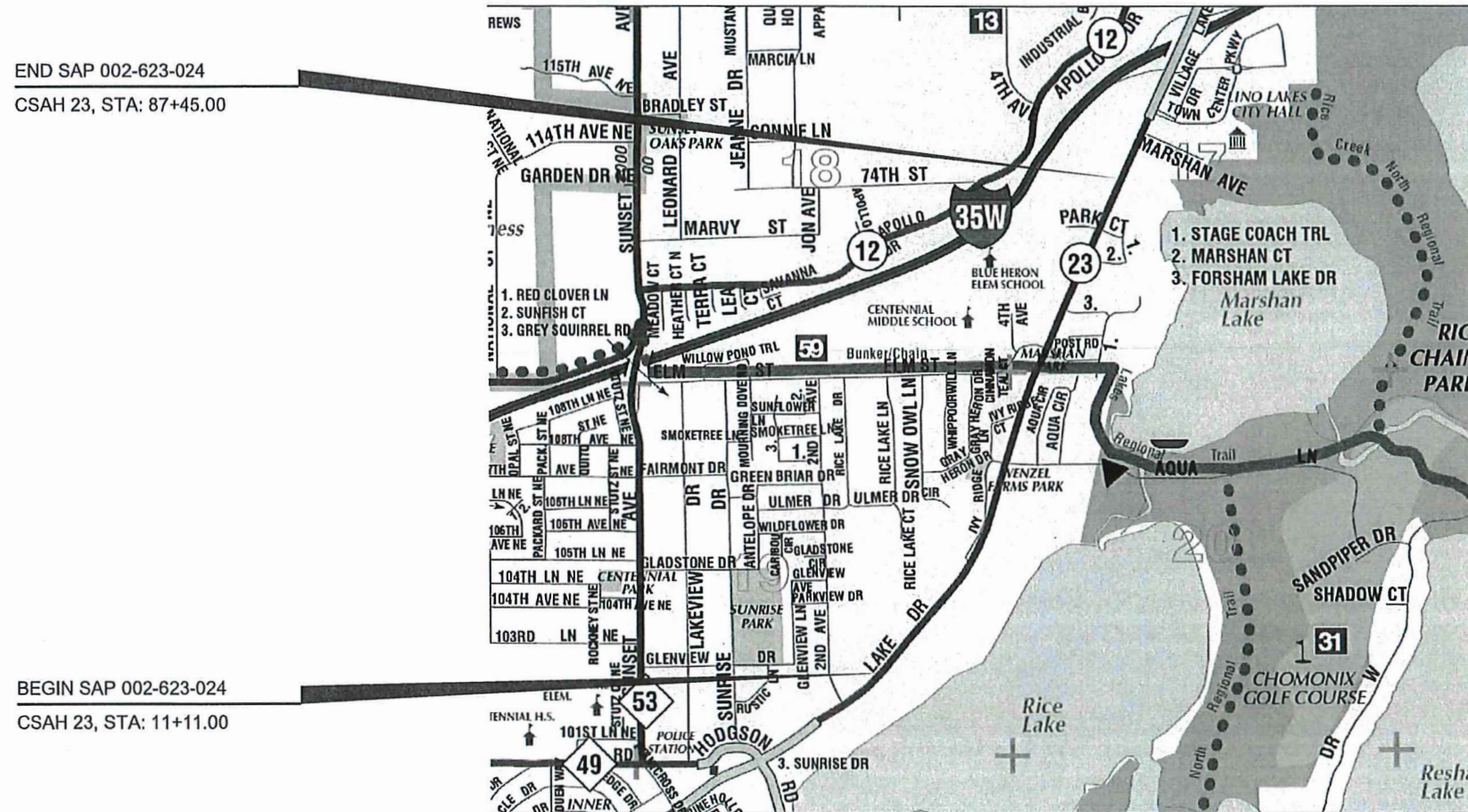


# MINNESOTA DEPARTMENT OF TRANSPORTATION ANOKA COUNTY

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

LOCATED ON CSAH 23 BETWEEN 800' NE OF 2ND AVE AND 720' N OF PARK CT

	<u>CSAH 23</u>	
GROSS LENGTH	7634.00 FEET	1.446 MILES
EXCEPTIONS-LENGTH	0.00 FEET	0.000 MILES
NET LENGTH	7634.00 FEET	1.446 MILES



END SAP 002-623-024  
CSAH 23, STA: 87+45.00

BEGIN SAP 002-623-024  
CSAH 23, STA: 11+11.00

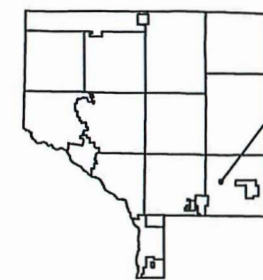
GOVERNING SPECIFICATIONS  
THE 2020 EDITION OF THE MINNESOTA DEPARTMENT OF TRANSPORTATION "STANDARD SPECIFICATIONS FOR CONSTRUCTION" SHALL GOVERN. ALL TRAFFIC CONTROL DEVICES SHALL CONFORM AND BE INSTALLED IN ACCORDANCE WITH THE "MINNESOTA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" (MNMUTCD), AND PART VI, "FIELD MANUAL FOR TEMPORARY TRAFFIC CONTROL ZONE LAYOUTS."

THIS PLAN CONTAINS 27 SHEETS

### INDEX

SHEET NO.	DESCRIPTION
1	TITLE SHEET
2	STATEMENT OF ESTIMATED QUANTITIES
3-7	TYPICAL SECTIONS
8-9	DETAILS
10-12	CONSTRUCTION PLAN
13-18	PEDESTRIAN CURB RAMP DETAILS
19-20	EXISTING SIGNAL PLANS
21	PERMANENT MARKING TABULATION
22-25	TEMPORARY SIGNING PERMANENT STRIPING
26-27	SIGNING AND STRIPING DETAILS

## PROJECT LOCATION



CITY OF LINO LAKES  
ANOKA COUNTY  
MN/DOT TRANSPORTATION DISTRICT - METRO  
SECTION 17, 19, 20  
TOWNSHIP 31 NORTH  
RANGE 22 WEST

*Julie Driesel* For \_\_\_\_\_ DATE 4/13/2022  
DISTRICT STATE AID ENGINEER: REVIEWED FOR COMPLIANCE WITH STATE AID RULES/POLICY

*Julie Driesel* For \_\_\_\_\_ DATE 4/13/2022  
STATE AID ENGINEER:  
APPROVED FOR STATE AID FUNDING

Approved *David Driesel* 4/12/22, 20  
CITY OF LINO LAKES ENGINEER

Approved *[Signature]* 4-8-22, 20  
ANOKA COUNTY ENGINEER

#### DESIGN DESIGNATION ( CSAH 23 )

ESAL 20	1,201,453	FUNCTIONAL CLASSIFICATION	A-MINOR RELIEVER
R VALUE	50	NO. OF TRAFFIC LANES	2
ADT (2022)	10170	NO. OF PARKING LANES	0
PROJ. ADT (2042)	10170	DESIGN SPEED	55 MPH
PROJ. HCA DT (2042)	600	STOPPING SIGHT DISTANCE BASED ON:	
SOIL FACTOR	N/A	HEIGHT OF EYE	3.5'
		HEIGHT OF OBJECT	2.0'
		DESIGN SPEED NOT ACHIEVED AT:	
		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: *[Signature]*

DATE: 3-3-2022 LICENSE NO. 58657

DRAWN BY APA DATE 1/28/2022

DESIGN BY APA DATE 1/28/2022

CHECKED BY CO DATE 2/16/2022



**ANOKA COUNTY  
HIGHWAY DEPT.**

STATE AID PROJECT 002-623-024

TITLE SHEET

Sheet 1 of 27 Sheets

### STATEMENT OF ESTIMATED QUANTITIES

Notes	Item Number	ITEM DESCRIPTION	Unit	TOTAL PROJECT QUANTITIES ESTIMATED
	2021.501	MOBILIZATION	LUMP SUM	1
1	2104.503	SAWING BITUMINOUS PAVEMENT (FULL DEPTH)	LIN FT	1305
1,2	2104.504	REMOVE BITUMINOUS DRIVEWAY PAVEMENT	SQ YD	873
1	2104.504	REMOVE BITUMINOUS PAVEMENT	SQ YD	235
3	2211.509	AGGREGATE BASE CLASS 5	TON	177
4	2221.509	SHOULDER BASE AGGREGATE CLASS 5	TON	332
5	2232.504	MILL BITUMINOUS SURFACE (1.0")	SQ YD	36837
5	2232.504	MILL BITUMINOUS SURFACE (1.5")	SQ YD	4692
6	2232.604	MILL BITUMINOUS PAVEMENT (SPECIAL)	SQ YD	1007
	2357.506	BITUMINOUS MATERIAL FOR TACK COAT	GALLON	2127
8	2360.509	TYPE SP 9.5 BITUMINOUS MIXTURE FOR PATCHING	TON	79
7	2360.509	TYPE SP 9.5 WEARING COURSE MIXTURE (3;B)	TON	105
9	2360.509	TYPE SP 9.5 WEARING COURSE MIXTURE (4;C)	TON	121
	2360.509	TYPE SP 9.5 WEARING COURSE MIXTURE (4;C)	TON	6759
	2521.518	6" CONCRETE WALK	SQ FT	348
	2531.503	CONCRETE CURB AND GUTTER DESIGN B418	LIN FT	626
	2531.618	TRUNCATED DOMES	SQ FT	84
10	2540.602	MAIL BOX SUPPORT	EACH	21
11	2550.602	LOOP DETECTOR DESIGN NMC	EACH	1
	2563.601	TRAFFIC CONTROL SUPERVISOR	LUMP SUM	1
12	2563.601	TRAFFIC CONTROL	LUMP SUM	1
13	2563.613	PORTABLE CHANGEABLE MESSAGE SIGN	UNIT DAY	20
	2565.602	APS RELOCATE PUSH BUTTON	EACH	3
14	2573.502	STORM DRAIN INLET PROTECTION	EACH	2
	2574.507	COMMON TOPSOIL BORROW	CU YD	80
15	2575.508	HYDRAULIC REINFORCED FIBER MATRIX	POUND	390
16	2581.503	REMOVABLE PREFORMED PAVEMENT MARKING TAPE	LIN FT	305
18	2582.503	4" BROKEN LINE PAINT	LIN FT	1530
17	2582.503	4" SOLID LINE MULTI-COMPONENT	LIN FT	20460
17	2582.503	4" BROKEN LINE MULTI-COMPONENT	LIN FT	610
17	2582.503	8" DOTTED LINE MULTI-COMPONENT	LIN FT	175
17	2582.503	4" DOUBLE SOLID LINE MULTI-COMPONENT	LIN FT	6680
17	2582.518	PAVEMENT MESSAGE PREFORM THERMOPLASTIC	SQ FT	218
17	2582.518	CROSSWALK PREFORM THERMOPLASTIC	SQ FT	378
17	2582.603	PAVEMENT MARKING SPECIAL	LIN FT	478

### CONSTRUCTION NOTES

1	REFERENCE DETAILS (PAGE 8-9) FOR REMOVAL DETAILS
2	ITEM FOR BITUMINOUS DRIVEWAYS AND STREET APPROACHES. CONTRACTOR IS RESPONSIBLE FOR CONTACTING PROPERTY OWNER 48 HOURS BEFORE STARTING OPERATION.
3	GRAVEL BASE FOR BITUMINOUS DRIVEWAYS, AND CURB PATCHES.
4	ITEM INCLUDES 7 TONS FOR EACH GRAVEL ENTRANCE AND GRAVEL STREET APPROACH.
5	DETAIL MILLING AROUND MANHOLES, CATCH BASINS, GATE VALVES, AND ALONG CURB LINE IS INCIDENTAL TO THIS ITEM.
6	TO BE USED FOR MILLING STREET APPROACHES AND/OR DETAIL MILLING AREAS AS IDENTIFIED IN THE PLAN. DETAIL MILLING AROUND MANHOLES, CATCH BASINS, GATE VALVES, AND ALONG CURB LINE IS INCIDENTAL TO THIS ITEM.
7	ITEM FOR BITUMINOUS DRIVEWAYS. DRIVEWAYS SHALL BE PAVED AFTER MAINLINE AND BEFORE FINAL STRIPING.
8	ITEM INCLUDES BITUMINOUS PATCHING AROUND NEW CURB, STORM STRUCTURE REPAIRS, AND ANY POTHOLES.
9	ITEM FOR STREET APPROACHES. STREET APPROACHES SHALL BE PAVED AFTER MAINLINE, AND BEFORE FINAL STRIPING. SEE BITUMINOUS STREET SUMMARY TAB.
10	MAILBOXES ARE TO BE INSTALLED AT THE EXISTING MAILBOX LOCATION OR AS DIRECTED BY THE LOCAL POSTAL AUTHORITY, CONTRACTOR IS RESPONSIBLE FOR CONTACTING POST MASTER AUTHORITY. MAILBOX REMOVAL AND ALL MATERIALS ARE INCIDENTAL TO INSTALLATION.
11	LOOP REPLACEMENT REQUIRED ONLY IF DAMAGED DURING CONSTRUCTION OPERATIONS. EXISTING SIGNAL PLANS ARE INCLUDED AT THE END OF THIS PLAN.
12	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.
13	2 MESSAGE BOARDS, ONE ON THE EACH END OF PROJECT, SHALL BE INSTALLED 10 DAYS PRIOR TO ANY CONSTRUCTION; REFERENCE STRIPING PLAN FOR DETAILS.
14	ALL DRAINAGE STRUCTURES AFFECTED BY THIS PROJECT MUST HAVE INLET PROTECTION.
15	TYPE 3 FERTILIZER AND TYPE 25-121 SEED ARE INCIDENTAL TO THIS ITEM. SEE "BASIS OF PLANNED QUANTITIES" FOR APPLICATION RATES.
16	CENTERLINE AND LANE DESIGNATION SKIPS TO BE APPLIED AS SOON AS POSSIBLE ON MILLED SURFACE AND EACH NEW LIFT OF PAVEMENT; SKIPS MUST BE INPLACE BEFORE THE CONTRACTOR LEAVES FOR THE DAY. CONTRACTOR IS TO REMOVE PRIOR TO FINAL STRIPING.
17	FINAL STRIPING SHALL BE INSTALLED WITHIN 72 HOURS OF COMPLETION OF MAINLINE WEAR COURSE PAVING. CANNOT BE INSTALLED SOONER THAN 48 HOURS.
18	ITEM TO BE USED AS TEMPORARY CENTERLINE STRIPING ON MILLED SURFACE, INSTALLED THE SAME DAY AS MILLING OPERATION.

### 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
2581	REMOVABLE PREFORM PAVEMENT MARKING TAPE	2' AT 50' INTERVALS
2575	SEED MIXTURE 25-121	61 LBS./ ACRE
2574	FERTILIZER TYPE 3	350 LBS./ ACRE
2575	HYDRAULIC REINFORCED FIBER MATRIX	3900 LBS./ ACRE

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

#### MNDOT STANDARD PLATES

PLATE NO.	DESCRIPTION
7038A	DETECTABLE WARNING SURFACE TRUNCATED DOMES
7100H	CONCRETE CURB AND GUTTER (DESIGN B AND DESIGN V)
8000K	TEMPORARY CHANNELIZERS (3 SHEETS)
9350B	MAILBOX SUPPORT - SWING-AWAY TYPE

### BITUMINOUS STREET SUMMARY

LOCATION	BITUMINOUS	NOTES
	2360 TYPE SP 9.5 WEAR (4,C)	
	TON	
IVY RIDGE LN	8	[1]
IVY RIDGE LN	14	[1]
AQUA LN	25	[1]
ELM ST	28	[1]
FORSHAM	14	[1]
PARK CT (EAST)	10	[1]
PARK CT (WEST)	11	[1]
<b>PROJECT TOTAL</b>	<b>110</b>	

#### BITUMINOUS SUMMARY NOTES:

[1] QUANTITY ESTIMATED FOR 1 LIFTS

NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\22-01-00\CSAH 23\_(N of 2nd to N of Park Ct)\Base\Proposed\SEQ.dgn

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PRINT NAME: AARON P. ANDERSON

SIGNATURE:

DATE: 3-3-2022 LICENSE NO. 58657

DRAWN BY APA DATE 1/28/2022

DESIGN BY APA DATE 1/28/2022

CHECKED BY CO DATE 2/16/2022



**ANOKA COUNTY  
HIGHWAY DEPT.**

STATE AID PROJECT 002-623-024

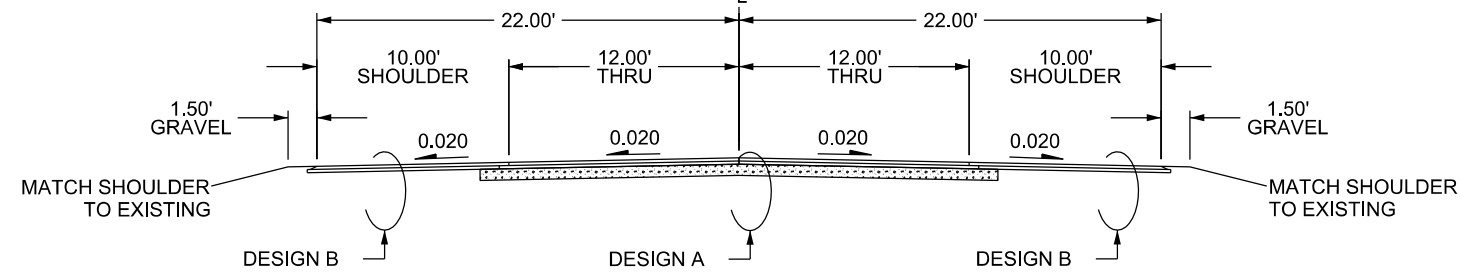
STATEMENT OF ESTIMATED QUANTITIES

Sheet 2 of 27 Sheets



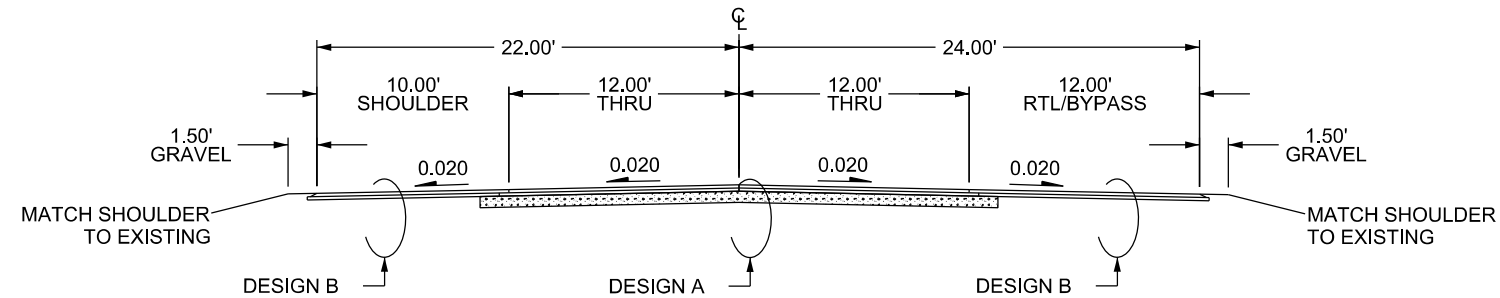
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34+94.00 - 39+31.00  
49+37.00 - 53+63.00



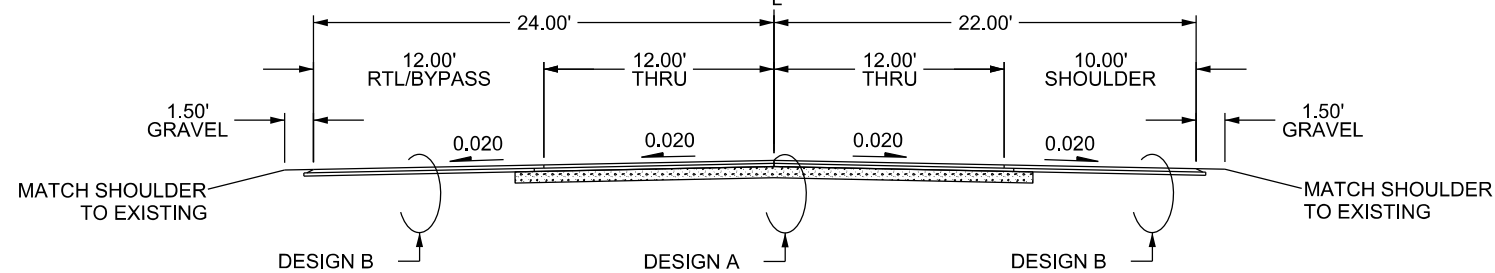
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### CSAH 23 - Lake Drive (PROPOSED) SECTION

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44+42.00 - 49+37.00  
67+46.00 - 68+46.00



NO	DATE	BY	CKD	APPR	REVISION	03/03/2022	2:31:05 PM
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STATE AID PROJECT 002-623-024

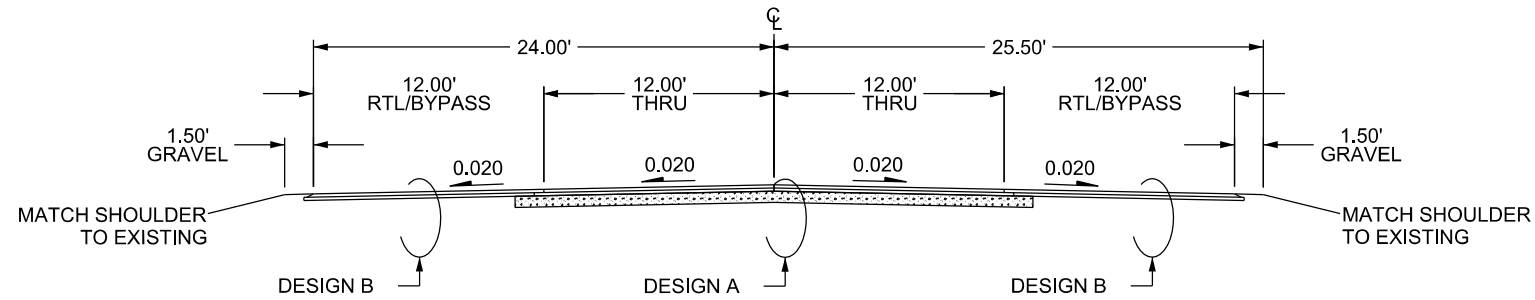
TYPICAL SECTIONS  
Sheet 3 of 27 Sheets

### CSAH 23 - Lake Drive

(PROPOSED) SECTION

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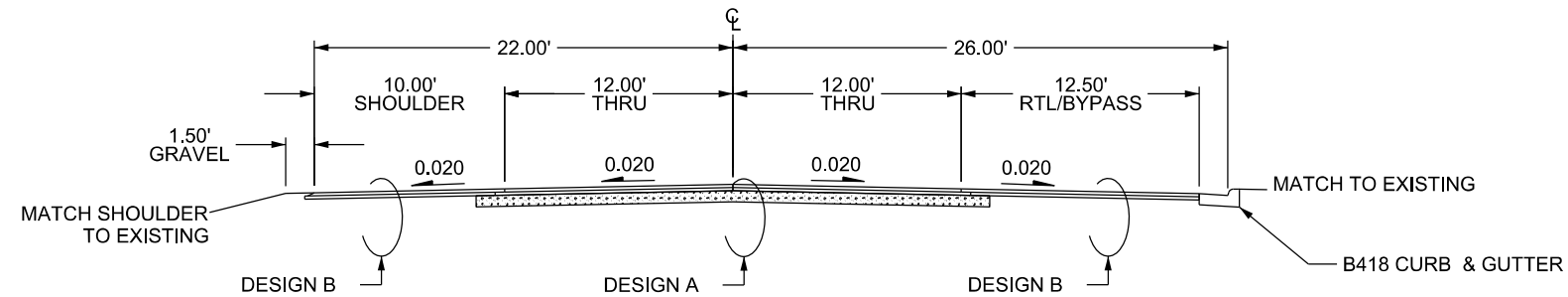
63+70.00 - 67+46.00



### CSAH 23 - Lake Drive

(PROPOSED) SECTION

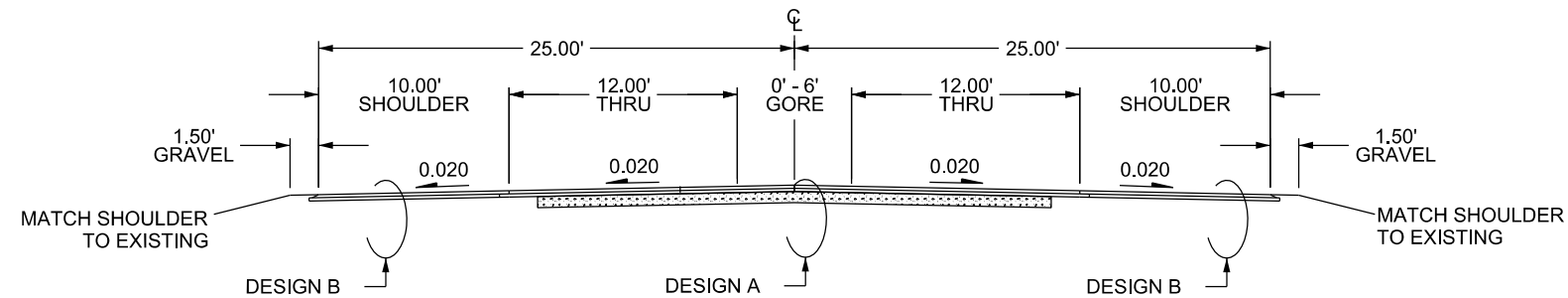
39+31.00 - 44+42.00



### CSAH 23 - Lake Drive

(PROPOSED) SECTION


53+63.00 - 55+86.00



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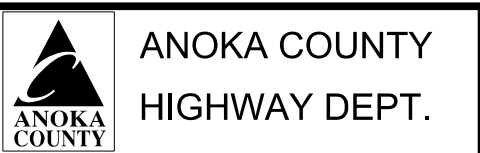
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DATE: 3-3-2022 LICENSE NO. 58657

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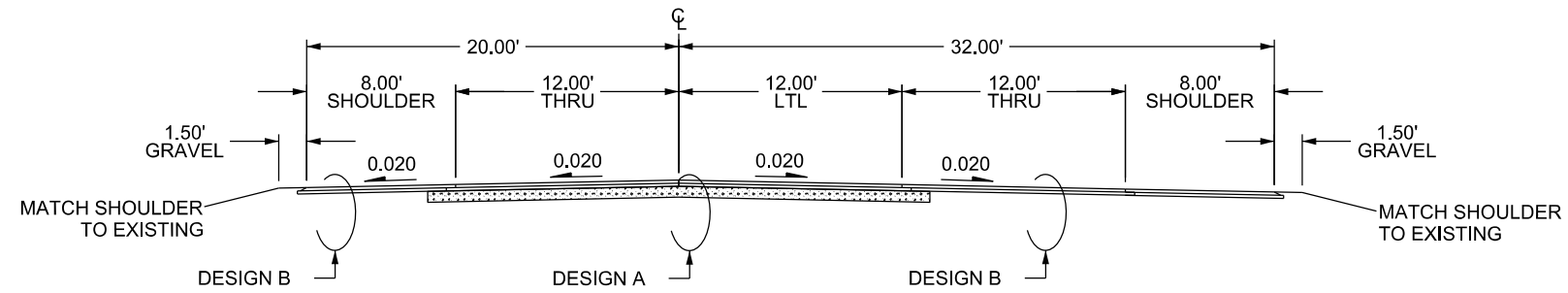
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TYPICAL SECTIONS

Sheet 4 of 27 Sheets

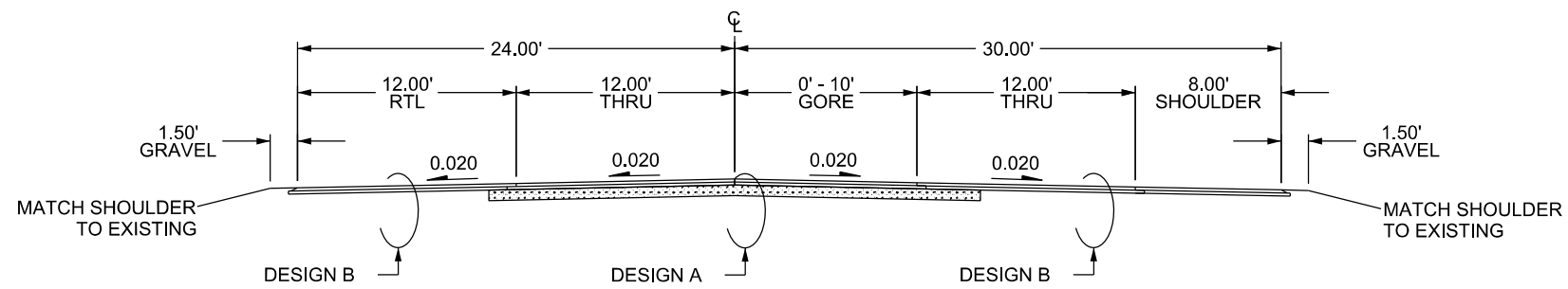
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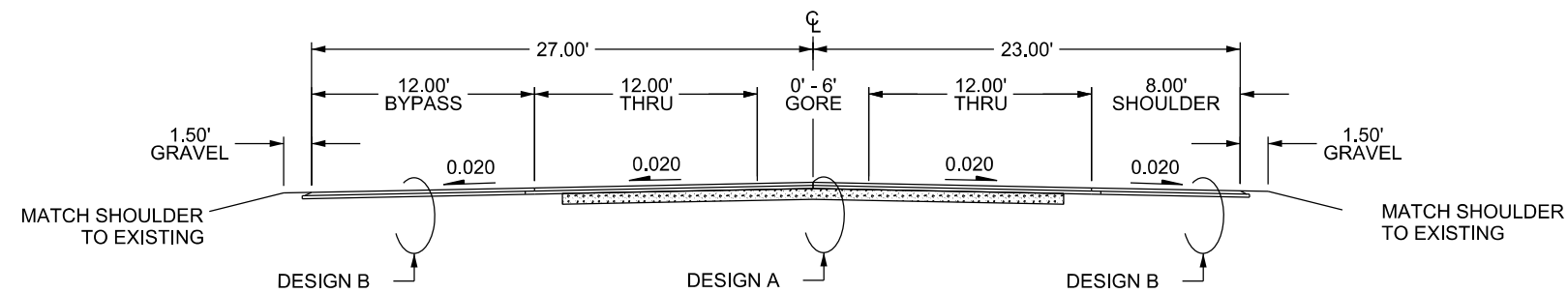
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### CSAH 23 - Lake Drive (PROPOSED) SECTION

68+46.00 - 71+31.00



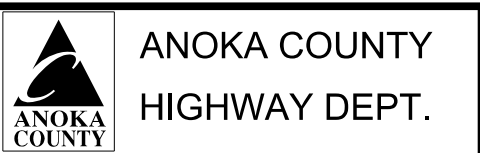
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CHECKED BY: CO DATE: 2/16/2022

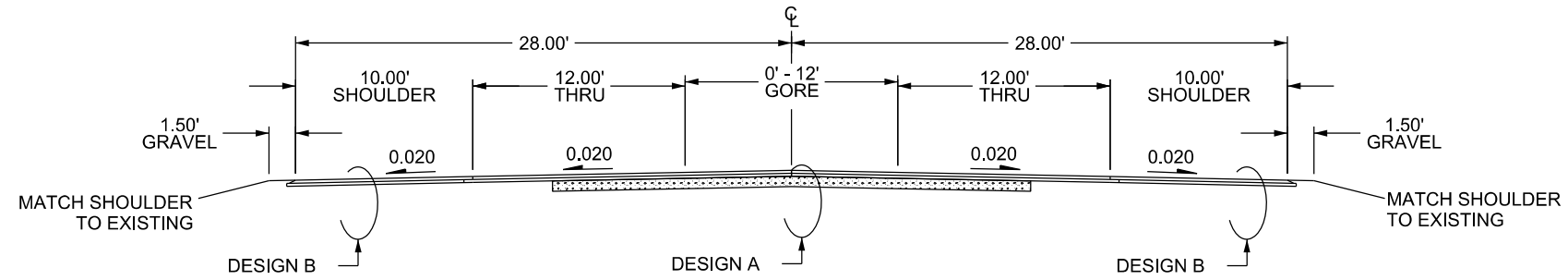


STATE AID PROJECT 002-623-024

TYPICAL SECTIONS  
Sheet 5 of 27 Sheets

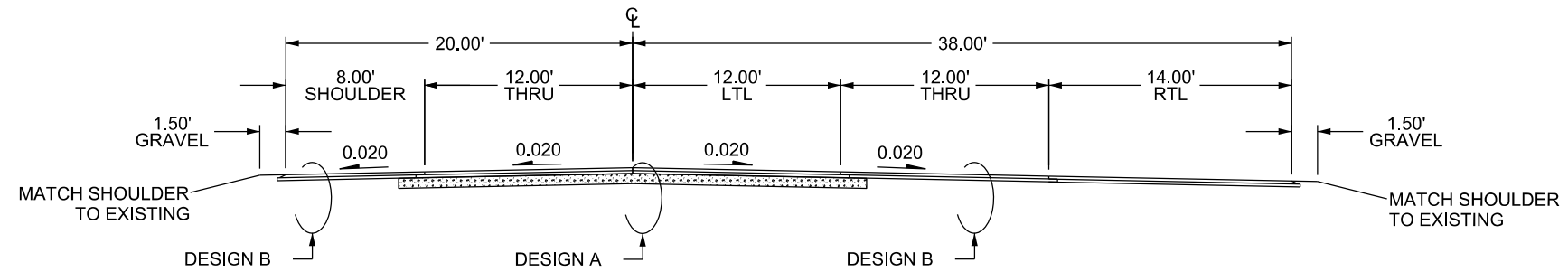
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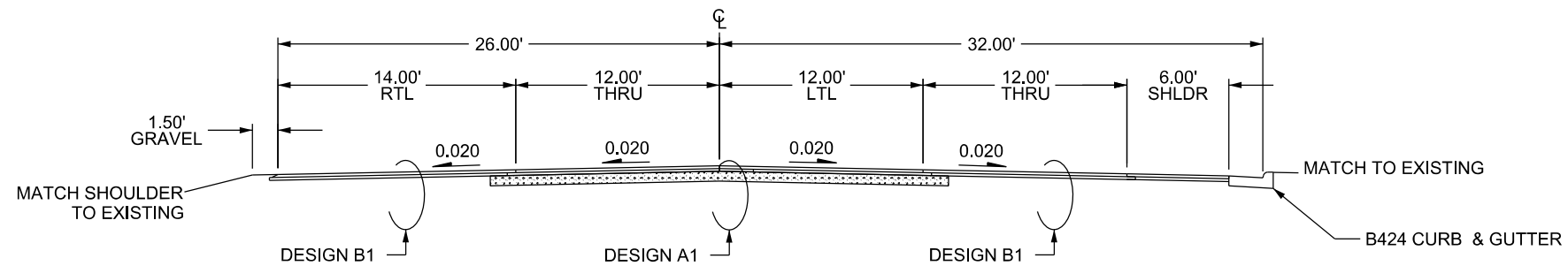
### CSAH 23 - Lake Drive (PROPOSED) SECTION

74+83.00 - 79+66.00



### CSAH 23 - Lake Drive (PROPOSED) SECTION

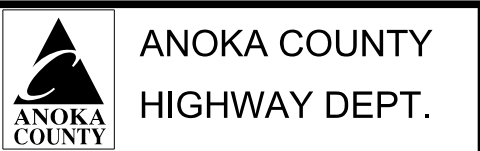
79+66.00 - 82+93.00



NO	DATE	BY	CKD	APPR	REVISION	03/03/2022	2:31:06 PM
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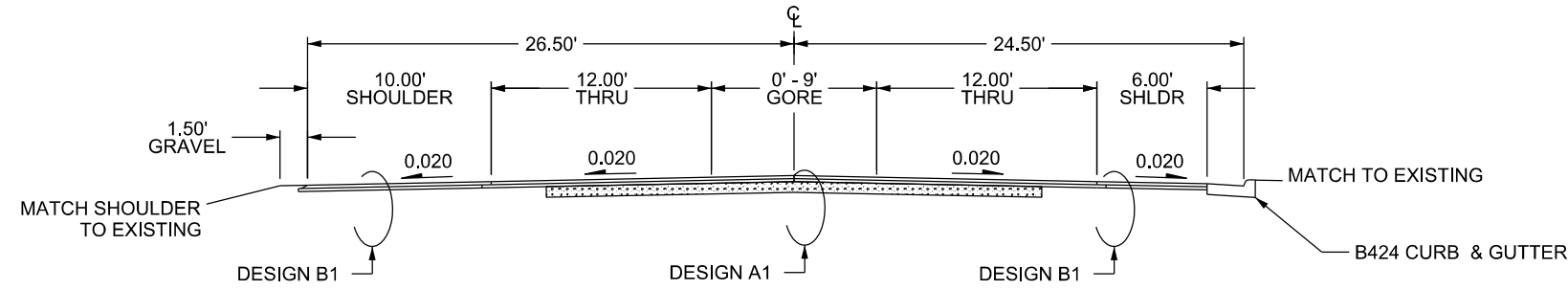
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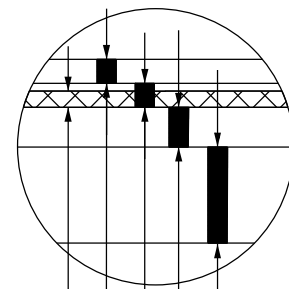
STATE AID PROJECT 002-623-024

TYPICAL SECTIONS  
 Sheet 6 of 27 Sheets

**CSAH 23 - Lake Drive**  
**(PROPOSED) SECTION**  
 82+93.00 - 87+45.00

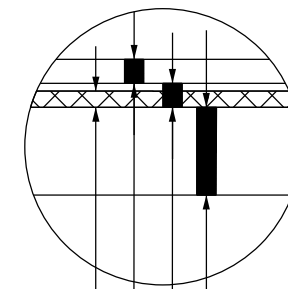


**DESIGN A**  
**1.0" MILL SECTION**



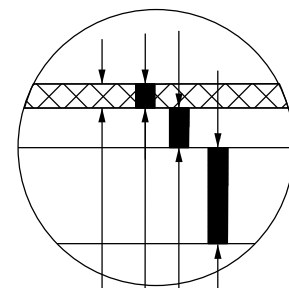
1.0" MILL BITUMINOUS  
 1.5" BITUMINOUS WEAR(SPWEA440C)  
 1.5" BITUMINOUS WEAR(SPWEA440C)  
 REMAINING BITUMINOUS  
 INPLACE CONCRETE PAVEMENT

**DESIGN B**  
**1.0" MILL SECTION**



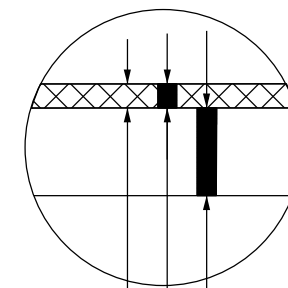
1.0" MILL BITUMINOUS  
 1.5" BITUMINOUS WEAR(SPWEA440C)  
 1.5" BITUMINOUS WEAR(SPWEA440C)  
 REMAINING BITUMINOUS

**DESIGN A1**  
**1.5" MILL SECTION**



1.5" MILL BITUMINOUS  
 1.5" BITUMINOUS WEAR(SPWEA440C)  
 REMAINING BITUMINOUS  
 INPLACE CONCRETE PAVEMENT

**DESIGN B1**  
**1.5" MILL SECTION**



1.5" MILL BITUMINOUS  
 1.5" BITUMINOUS WEAR(SPWEA440C)  
 REMAINING BITUMINOUS

NO	DATE	BY	CKD	APPR	REVISION	03/03/2022	2:31:06 PM
NAME: P:\22-01-00\CSAH 23_(N of 2nd to N of Park Ct)\Base\Proposed\TYPICALS.dgn							

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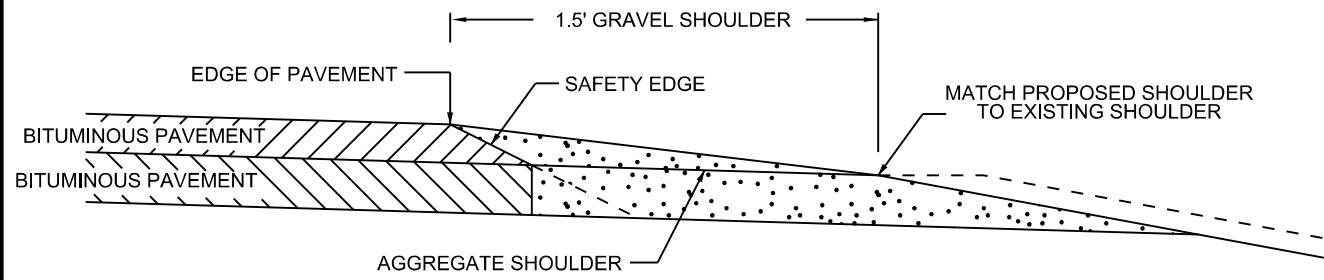
**ANOKA COUNTY**  
**HIGHWAY DEPT.**

STATE AID PROJECT 002-623-024

TYPICAL SECTIONS  
 Sheet 7 of 27 Sheets

### SHOULDER DETAIL

BITUMINOUS SAFETY EDGE  
GRAVEL SHOULDER



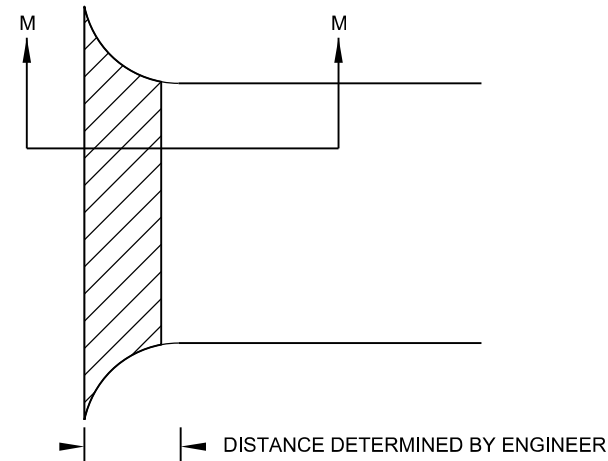
SAFETY EDGE TO BE USED IN ALL NON-CURB AREAS ON SHOULDER.

OPTIONAL DESIGN EXTENDS SAFETY EDGE DEEPER THAN 6" AND WIDER THAN 10.5". SEE SPECIAL PROVISIONS .

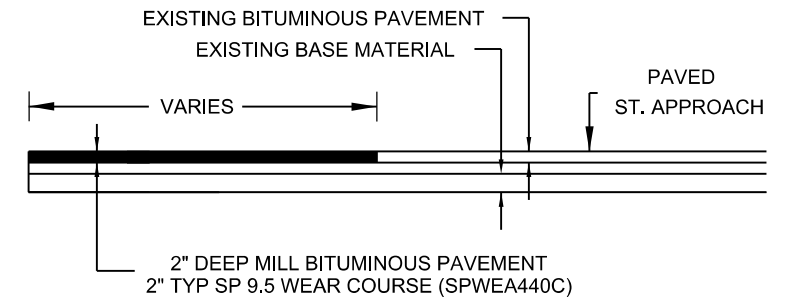
### STREET APPROACH DETAIL (MILL & OVERLAY)

BITUMINOUS STREET

PLAN VIEW

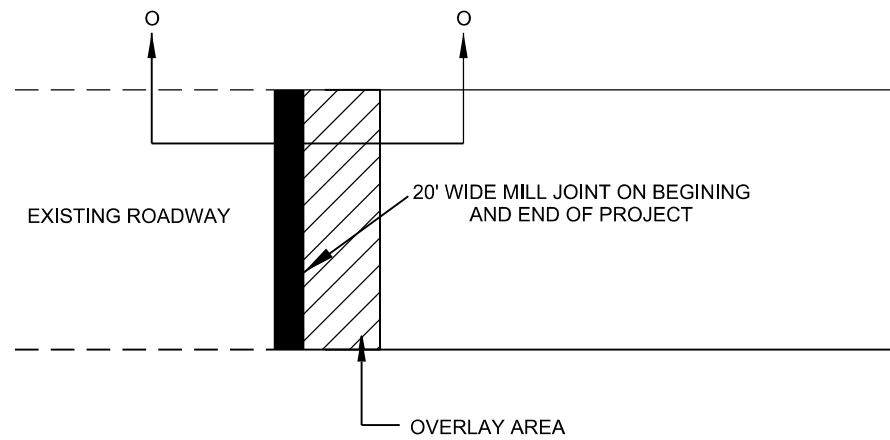


SECTION M - M

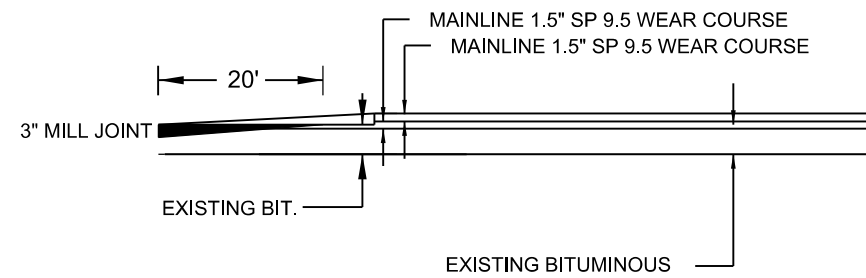


### MAINLINE JOINT DETAIL

PLAN VIEW



SECTION O - O



NO	DATE	BY	CKD	APPR	REVISION	
					03/03/2022	2:31:08 PM

NAME: P:\22-01-00\CSAH 23\_(N of 2nd to N of Park Ct)\Base\Proposed\DETAILS.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: 3-3-2022 LICENSE NO. 58657

DRAWN BY: APA DATE: 1/28/2022  
 DESIGN BY: APA DATE: 1/28/2022  
 CHECKED BY: CO DATE: 2/16/2022



ANOKA COUNTY  
HIGHWAY DEPT.

STATE AID PROJECT 002-623-024

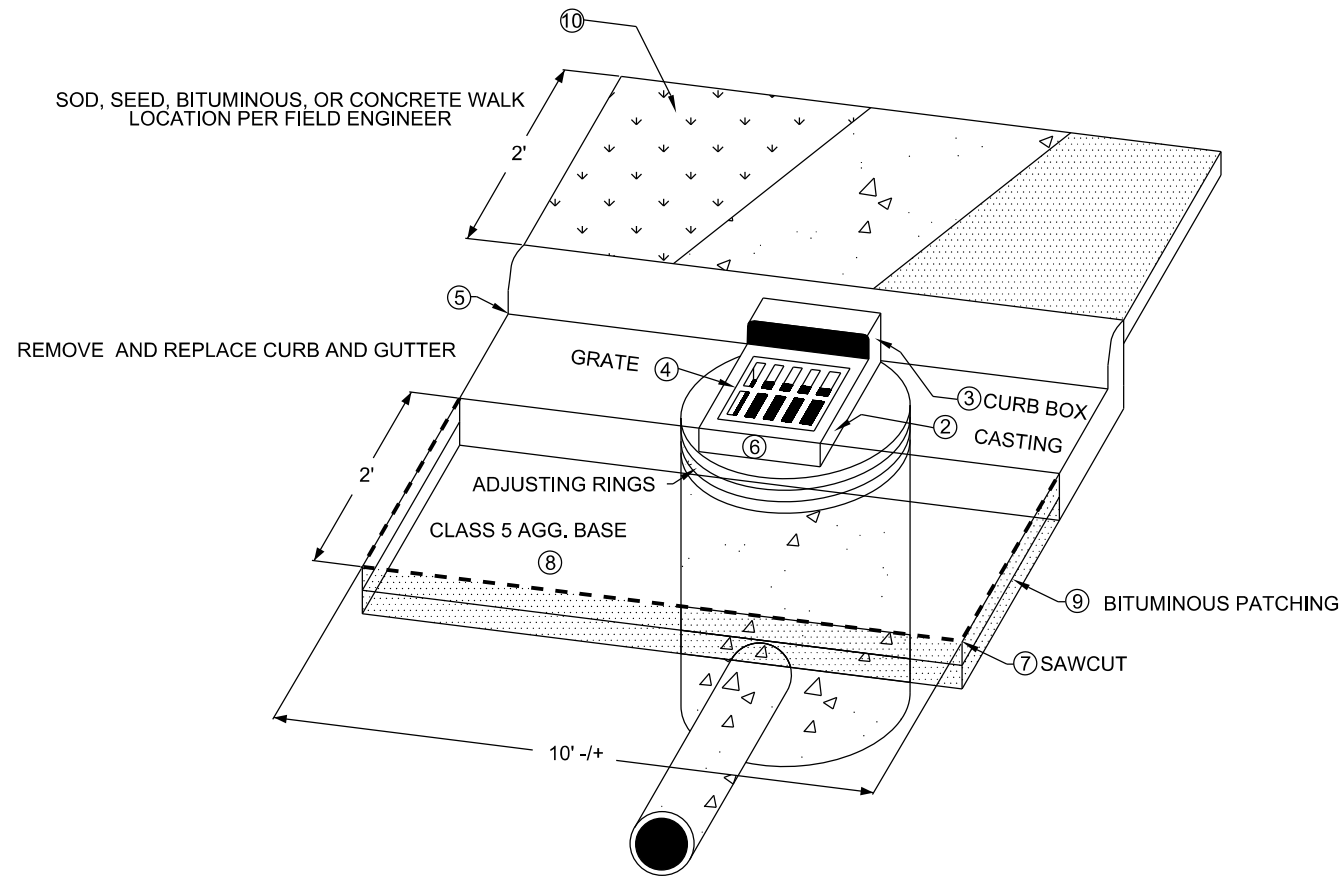
DETAILS  
Sheet 8 of 27 Sheets



### CATCH BASIN DETAIL

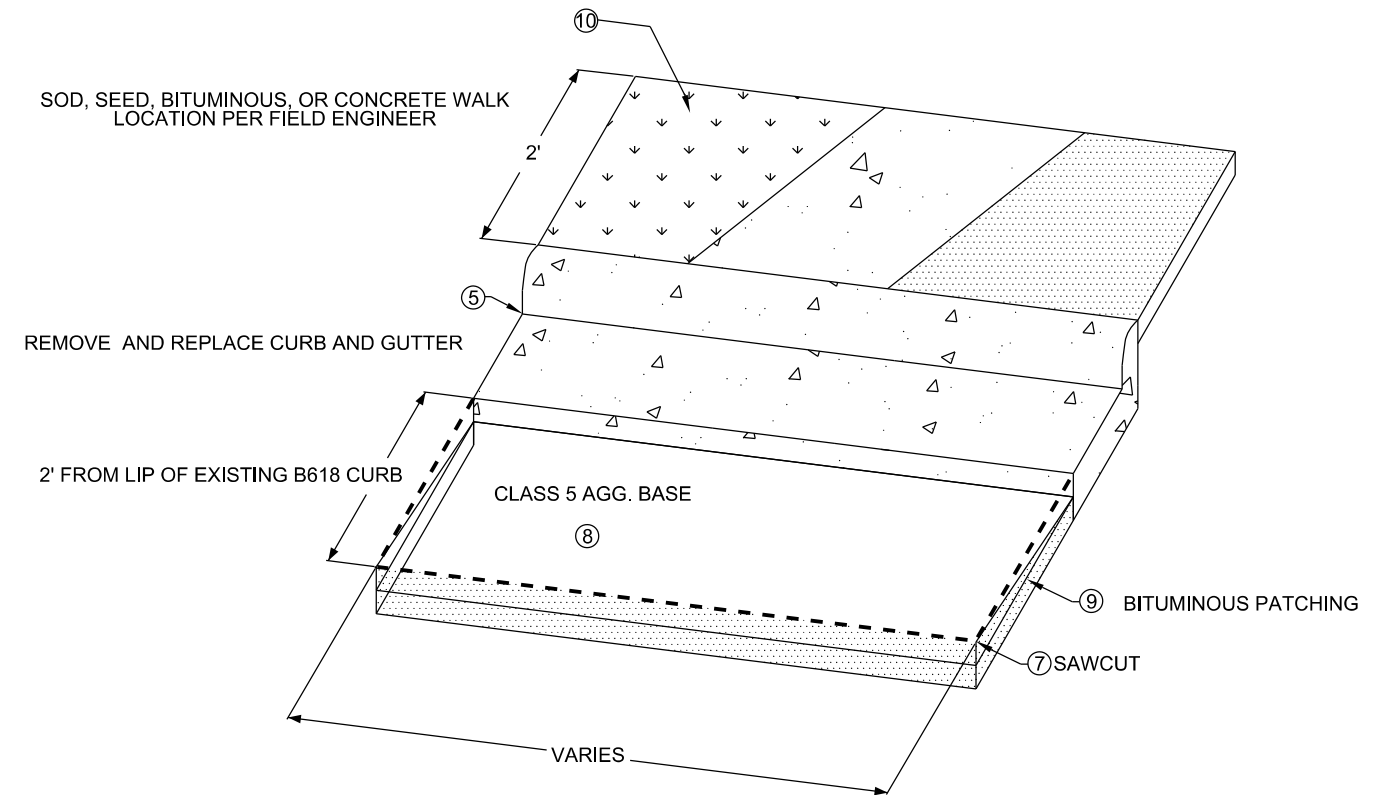
SEE STRUCTURE TAB FOR LOCATION

(PAGE 3)



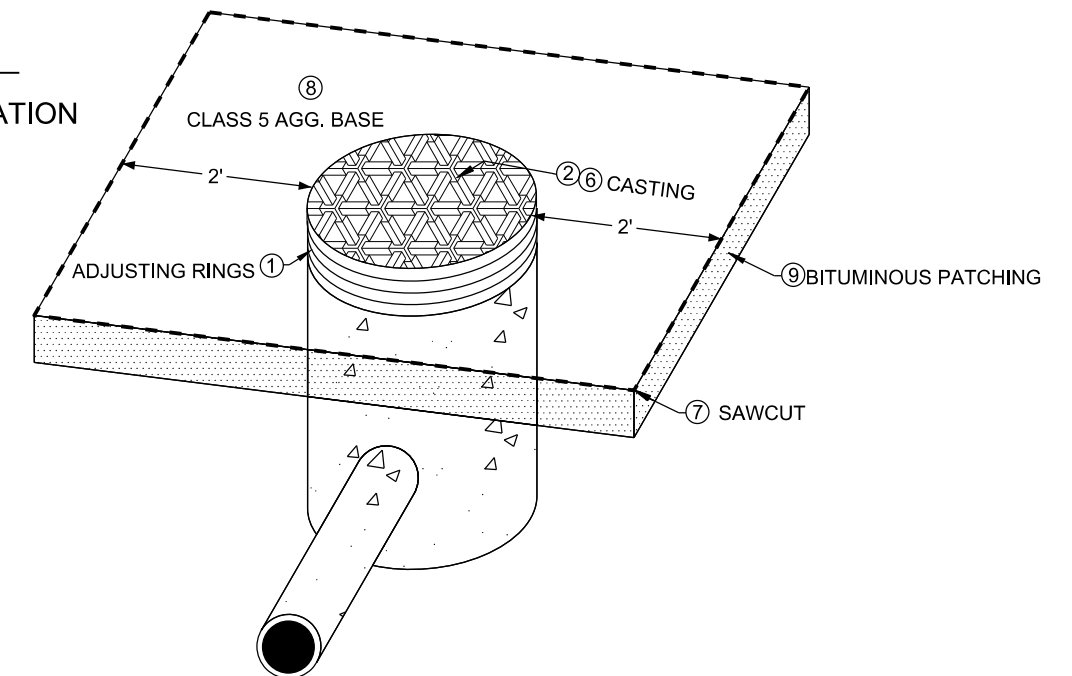
### NEW CURB DETAIL

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 7 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

NO	DATE	BY	CKD	APPR	REVISION	03/03/2022	2:31:08 PM
NAME: P:\22-01-00\CSAH 23_(N of 2nd to N of Park Ct)\Base\Proposed\DETAILS.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

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DATE: 3-3-2022 LICENSE NO. 58657

DRAWN BY APA DATE 1/28/2022

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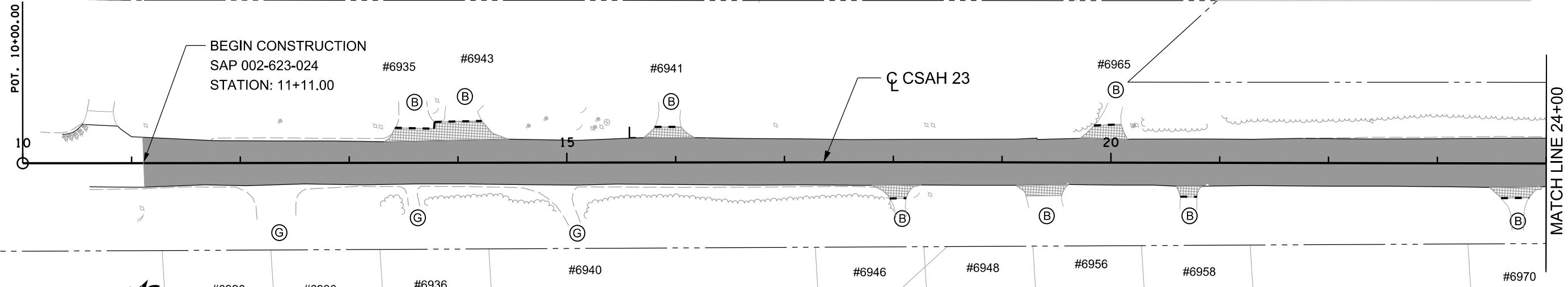
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ANOKA COUNTY  
HIGHWAY DEPT.

STATE AID PROJECT 002-623-024

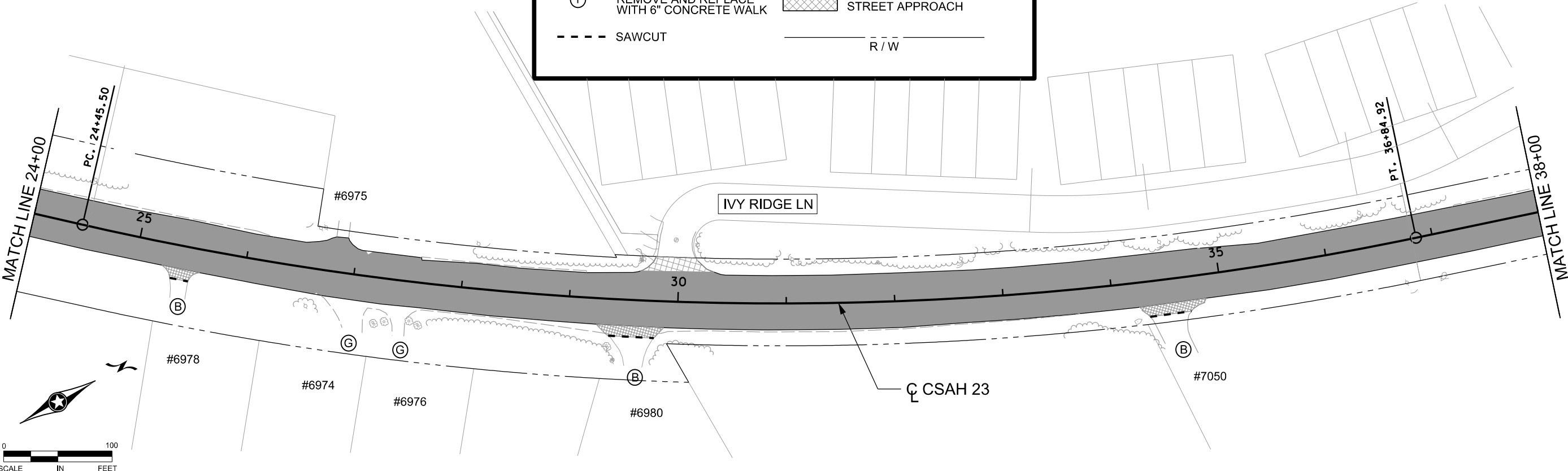
DETAILS

Sheet 9 of 27 Sheets



**LEGEND**

(B)	BITUMINOUS	[Solid Gray Box]	1" MAINLINE MILL AREA
(G)	GRAVEL	[Diagonal Hatched Box]	1.5" MAINLINE MILL AREA
(D)	TRUNCATED DOMES	[Cross-hatched Box]	REMOVE & REPLACE BITUMINOUS DRIVEWAY
(1)	REMOVE AND REPLACE WITH 6" CONCRETE WALK	[Grid-hatched Box]	MILL BITUMINOUS STREET APPROACH
- - -	SAWCUT	- - -	R / W



NO	DATE	BY	CKD	APPR	REVISION		
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NAME: P:\22-01-00\CSAH 23\_(N of 2nd to N of Park Ct)\Base\Proposed\CP 1.dgn

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DRAWN BY APA DATE 1/28/2022

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CHECKED BY CO DATE 2/16/2022

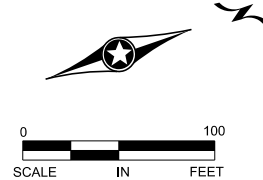
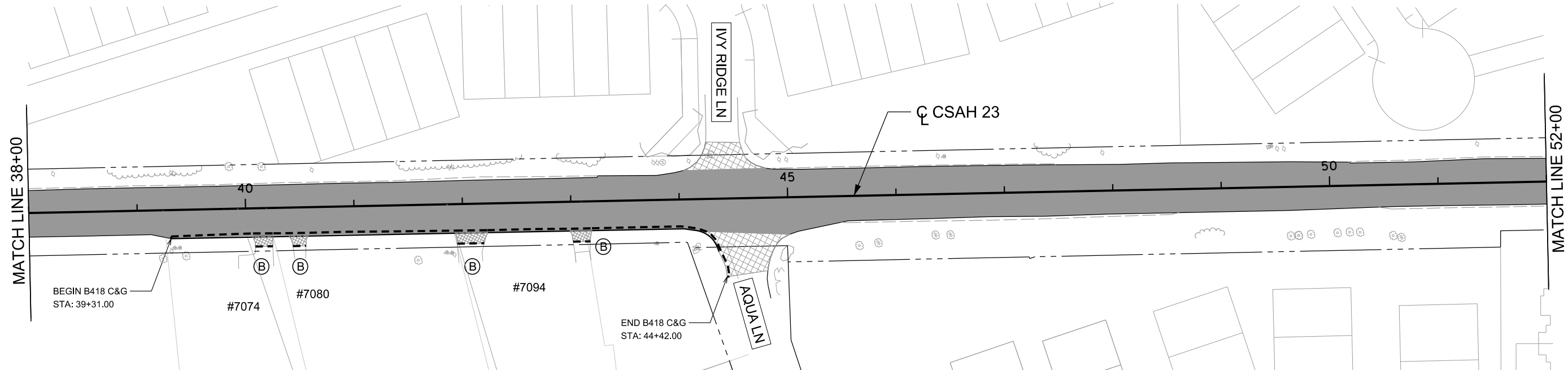
**ANOKA COUNTY**  
**HIGHWAY DEPT.**

STATE AID PROJECT 002-623-024

**CONSTRUCTION PLAN**

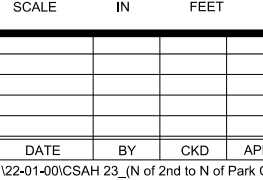
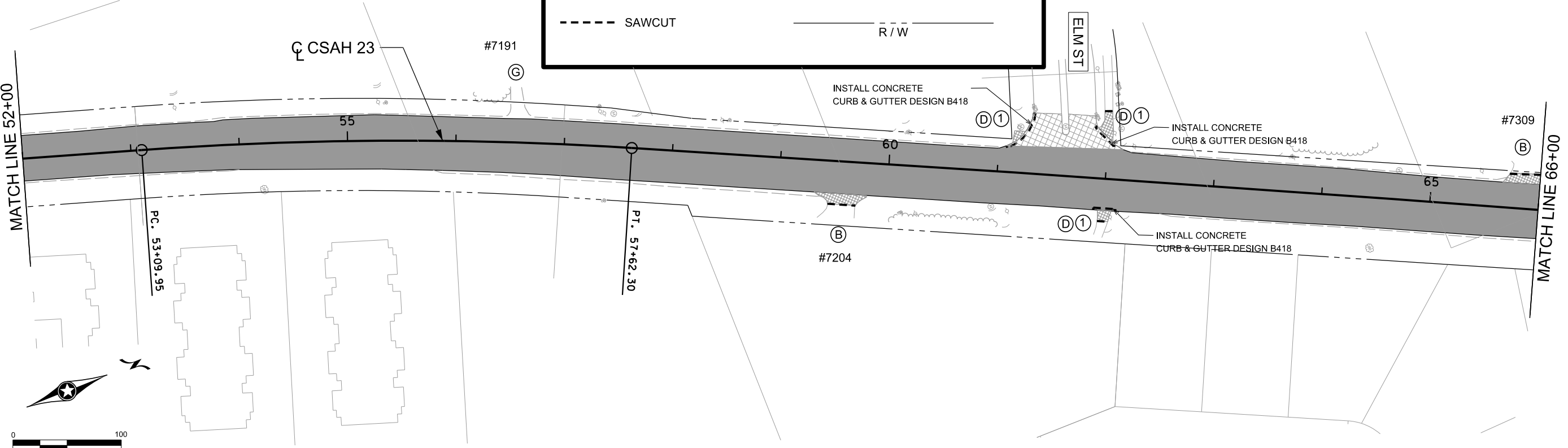
STA 11+11 TO 38+00

Sheet 10 of 27 Sheets



**LEGEND**

(B)	BITUMINOUS	[Solid Grey Box]	1" MAINLINE MILL AREA
(G)	GRAVEL	[Diagonal Hatched Box]	1.5" MAINLINE MILL AREA
(D)	TRUNCATED DOMES	[Cross-hatched Box]	REMOVE & REPLACE BITUMINOUS DRIVEWAY
(1)	REMOVE AND REPLACE WITH 6" CONCRETE WALK	[Grid-hatched Box]	MILL BITUMINOUS STREET APPROACH
- - -	SAWCUT	- - -	R / W



NO	DATE	BY	CKD	APPR	REVISION		
	03/03/2022					2:42:46 PM	

NAME: P:\22-01-00\CSAH 23\_(N of 2nd to N of Park Ct)\Base\Proposed\CP 2.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: 3-3-2022 LICENSE NO. 58657

DRAWN BY APA DATE 1/28/2022

DESIGN BY APA DATE 1/28/2022

CHECKED BY CO DATE 2/16/2022



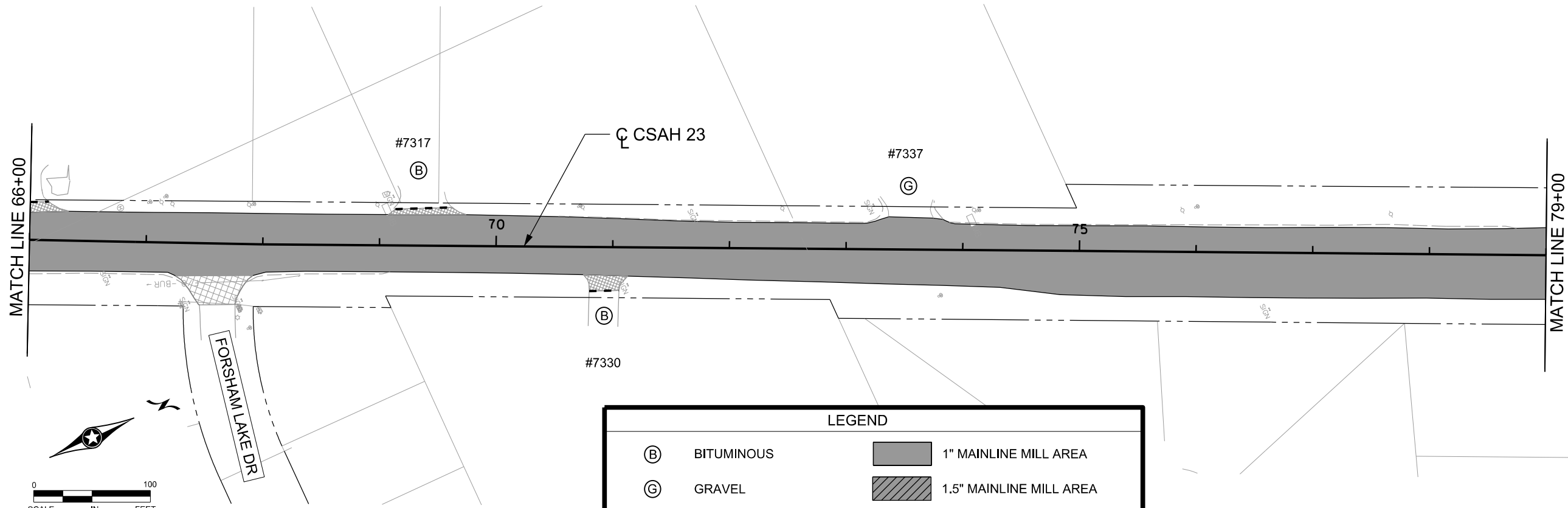
**ANOKA COUNTY  
HIGHWAY DEPT.**

STATE AID PROJECT 002-623-024

**CONSTRUCTION PLAN**

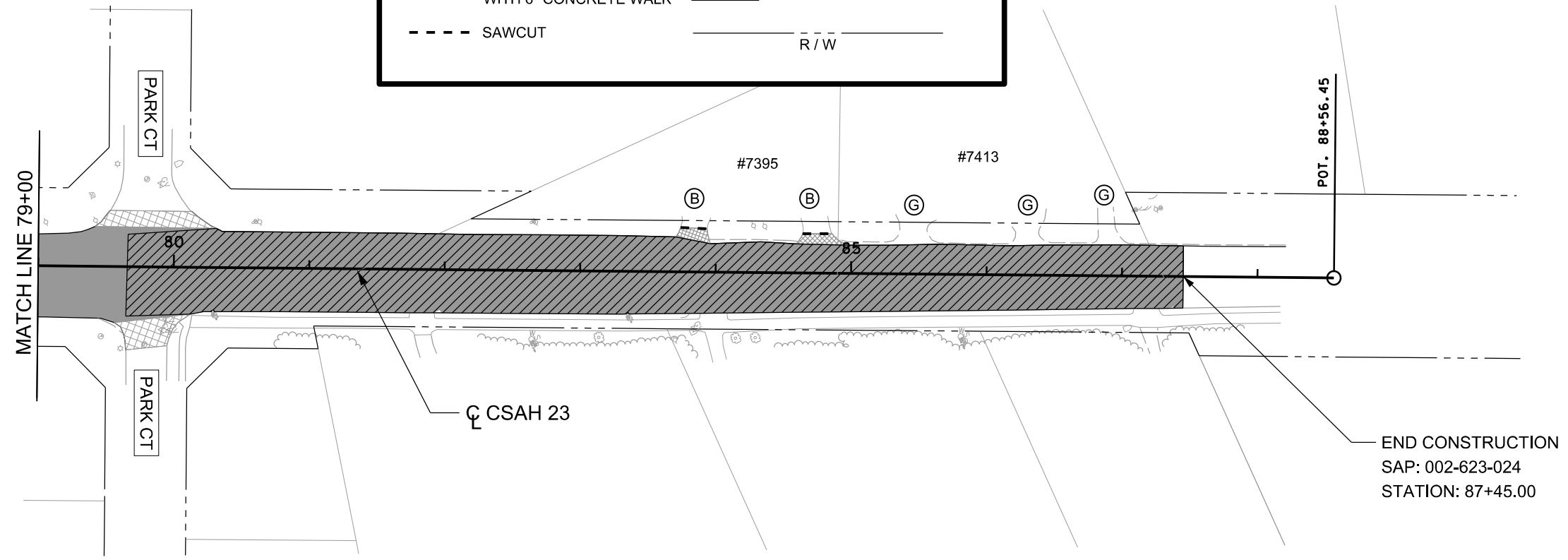
STA 38+00 TO 66+00

Sheet 11 of 27 Sheets



**LEGEND**

(B)	BITUMINOUS		1" MAINLINE MILL AREA
(G)	GRAVEL		1.5" MAINLINE MILL AREA
(D)	TRUNCATED DOMES		REMOVE & REPLACE BITUMINOUS DRIVEWAY
(1)	REMOVE AND REPLACE WITH 6" CONCRETE WALK		MILL BITUMINOUS STREET APPROACH
- - -	SAWCUT		
		— — —	R/W



END CONSTRUCTION  
SAP: 002-623-024  
STATION: 87+45.00

NO	DATE	BY	CKD	APPR	REVISION		
						03/03/2022	2:31:10 PM

NAME: P:\22-01-00\CSAH 23 (N of 2nd to N of Park Ct)\Base\Proposed\CP 3.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: 3-3-2022 LICENSE NO. 58657

DRAWN BY APA DATE 1/28/2022

DESIGN BY APA DATE 1/28/2022

CHECKED BY CO DATE 2/16/2022

**ANOKA COUNTY  
HIGHWAY DEPT.**

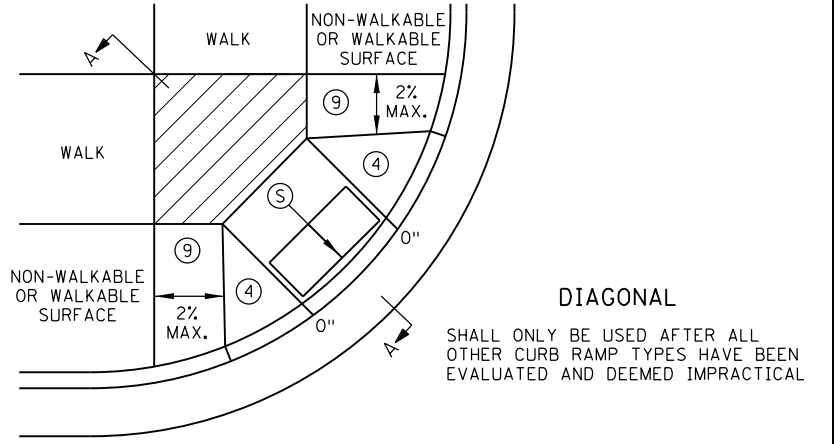
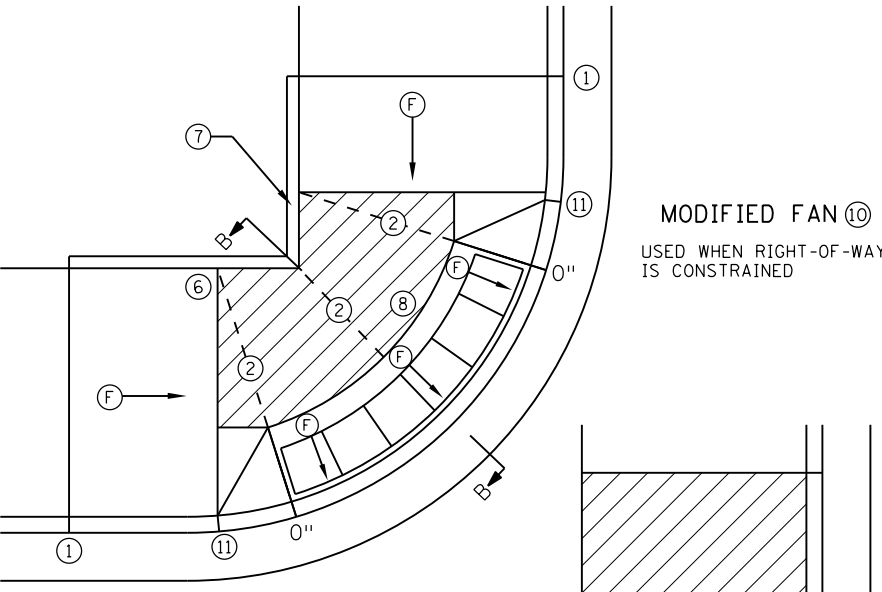
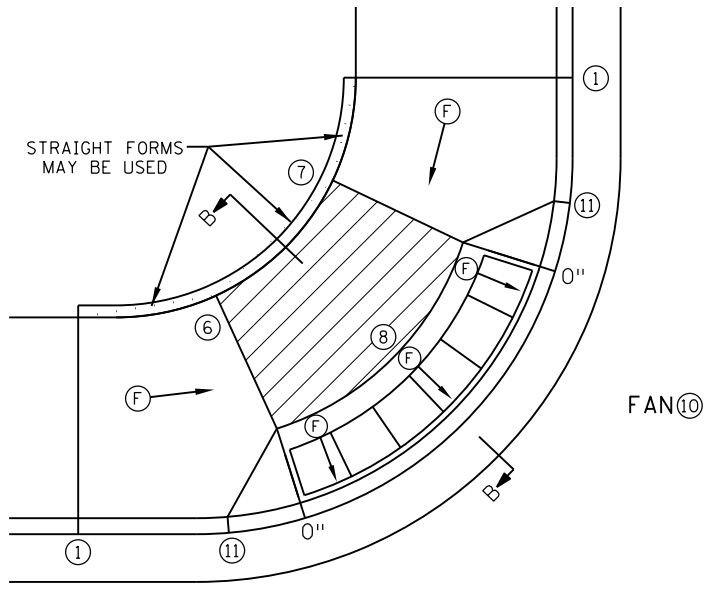
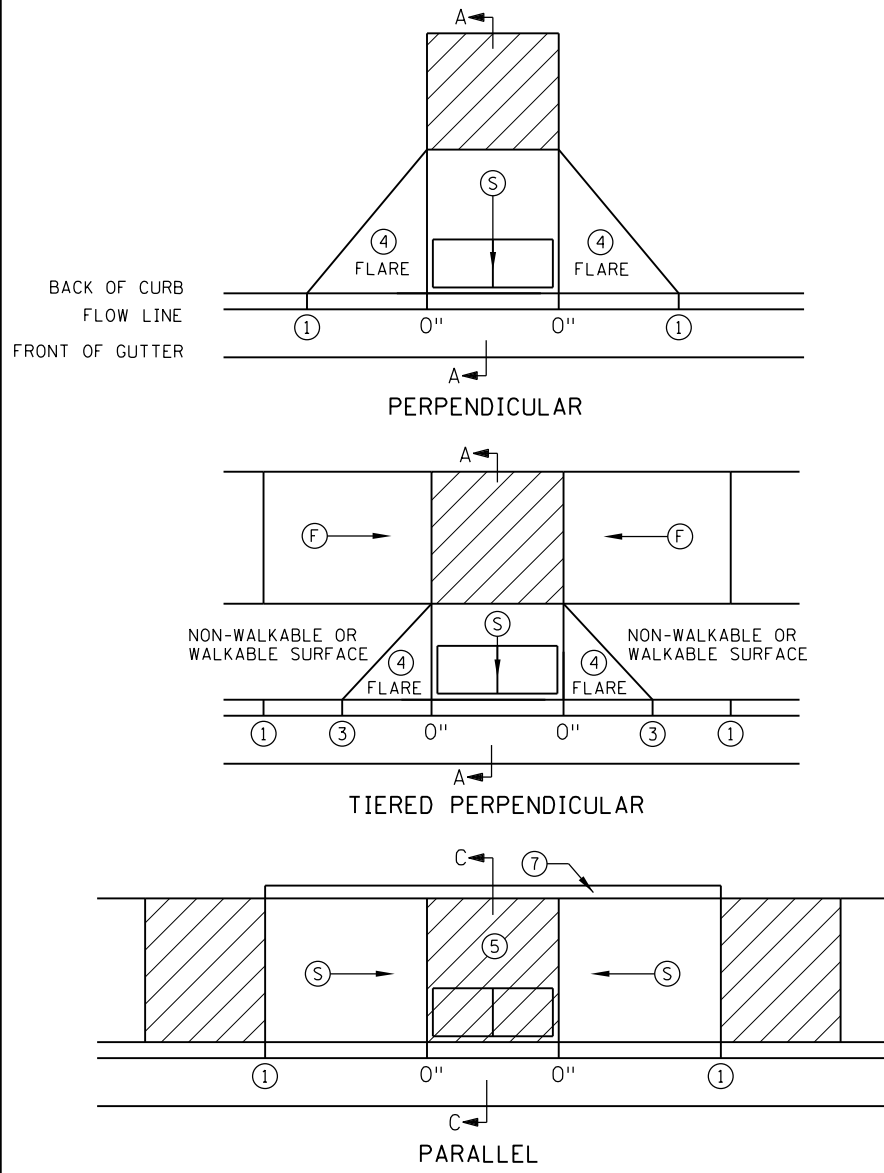
STATE AID PROJECT 002-623-024

**CONSTRUCTION PLAN**

STA 66+00 TO 87+45

Sheet 12 of 27 Sheets

DISTRICT #: PLOT NAME: \$\$\$\PLOT\NAME\$\$\$ PATH & FILENAME: P:\22-01-00\CSAH 23.N of 2nd to N of Park Ct\Bases\Proposed\Ped Ramp Details.dgn PLOTTED/REVISED: 03/03/2022

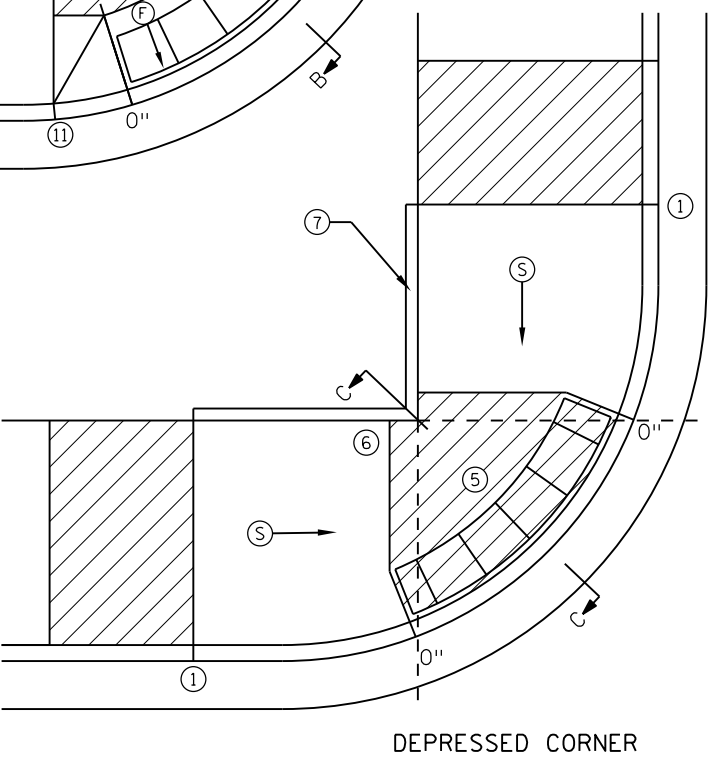
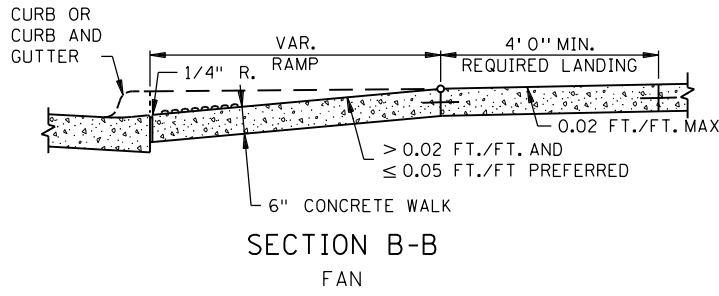
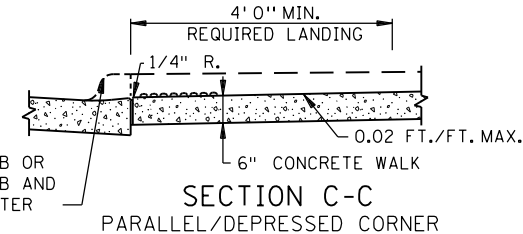
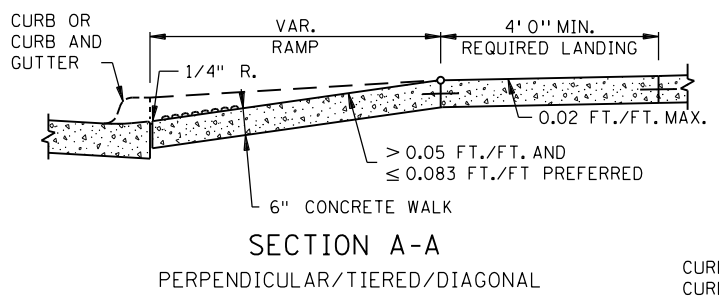


**NOTES:**

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

*Jeffrey Perkins*  
JEFFREY PERKINS  
OPERATIONS DIVISION

**MINNESOTA**  
DEPARTMENT OF TRANSPORTATION

**STANDARD PLAN 5-297.250** 1 OF 6

APPROVED: 11-04-2021  
REVISED:

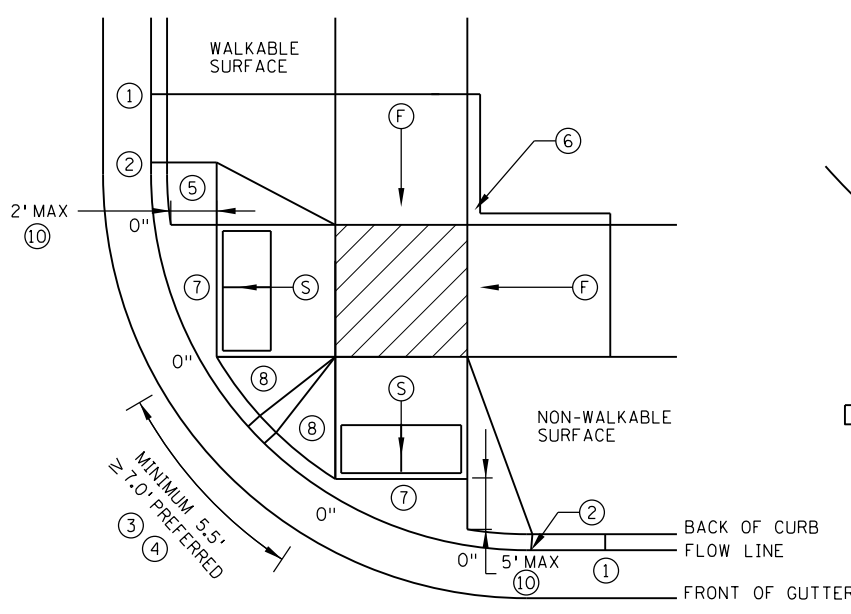
*Thomas Styrbicki*  
THOMAS STYRBICKI  
STATE DESIGN ENGINEER

**PEDESTRIAN CURB RAMP DETAILS**

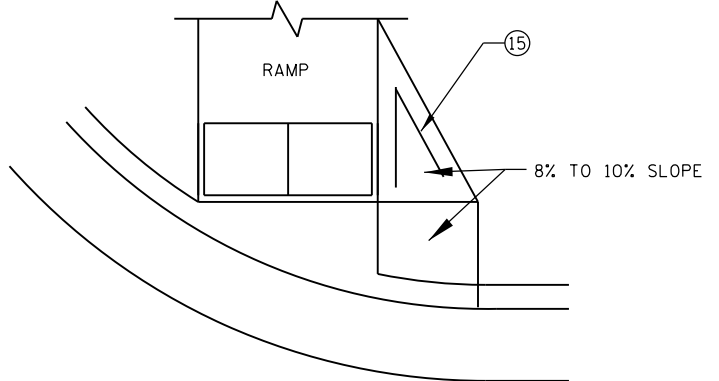
STATE PROJ. NO. 002-623-024

SHEET NO. 13 OF 27 SHEETS

DISTRICT #: PLOTTED/REVISED: 03/03/2022  
 PLOT NAME: \$\$\$PLOT1\$NAME\$\$\$  
 PATH & FILENAME: P:\22-01-00\CSAH 23.N of 2nd to N of Park Ct\Bases\Proposed\Ped Ramp Details.dgn

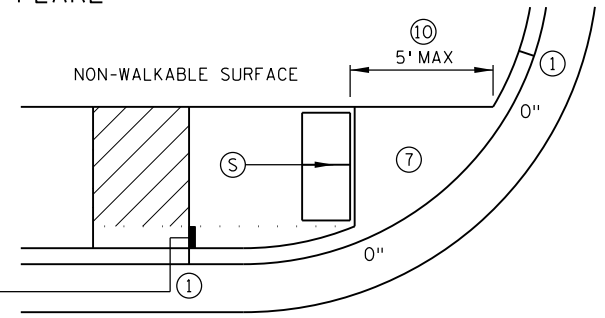


COMBINED DIRECTIONAL

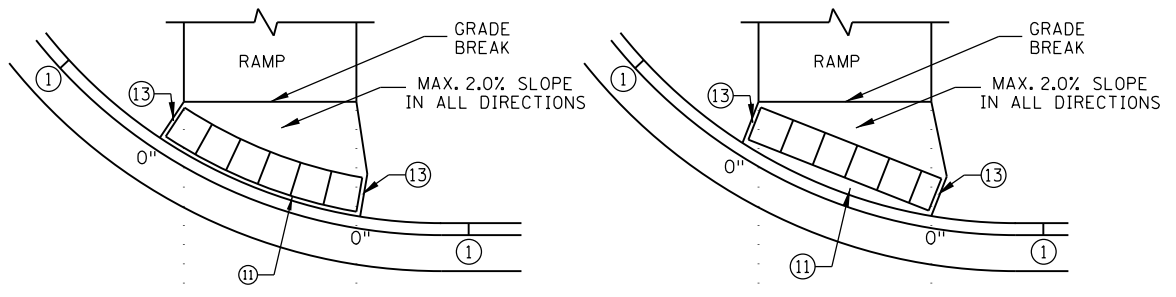


DIRECTIONAL RAMP WALKABLE FLARE

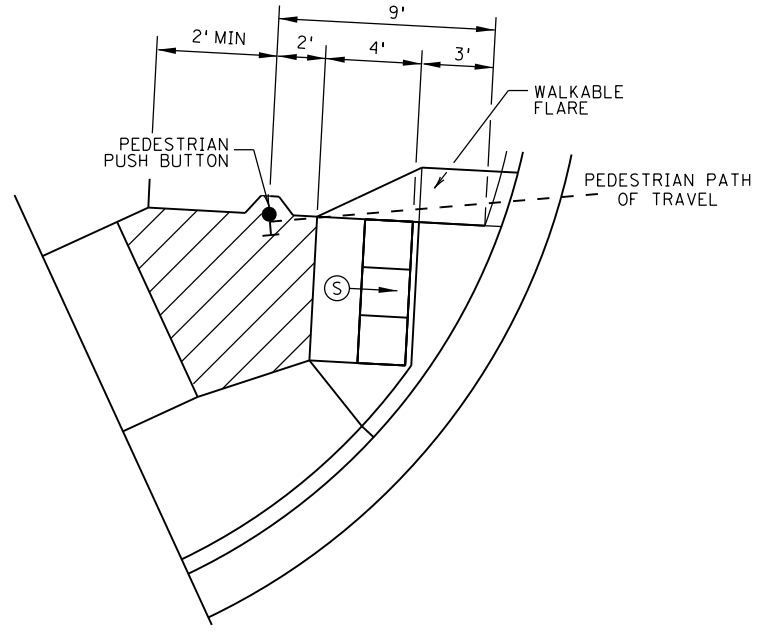
IF NON-CONCRETE BLVD. IS CONSTRUCTED AND IS LESS THAN 2' IN WIDTH AT TOP OF CURB TRANSITION, PAVE CONCRETE RAMP WIDTH TO ADJACENT BACK OF CURB.



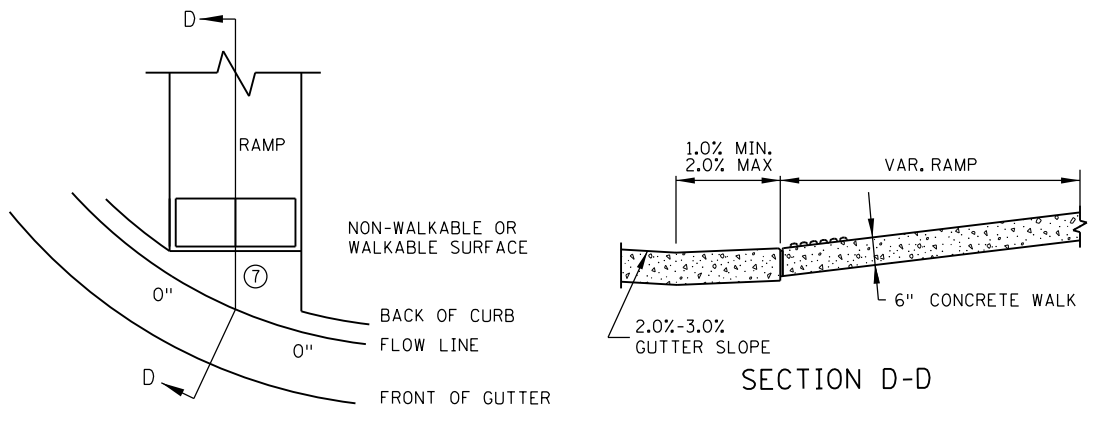
STANDARD ONE-WAY DIRECTIONAL ⑩



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



CURB FOR DIRECTIONAL RAMPS ⑭

**NOTES:**

- LANDINGS SHALL BE LOCATED ANYWHERE THE PEDESTRIAN ACCESS ROUTE (PAR) CHANGES DIRECTION, AT THE TOP OF RAMPS THAT HAVE RUNNING SLOPES GREATER THAN 5.0%, AND IF THE APPROACHING WALK IS INVERSE GRADE.
- INITIAL CURB RAMP LANDINGS SHALL BE CONSTRUCTED WITHIN 15' FROM THE BACK OF CURB, WITH 6' FROM THE BACK OF CURB BEING THE PREFERRED DISTANCE, ONLY APPLICABLE WHEN THE INITIAL RAMP RUNNING SLOPE IS OVER 5.0%.
- SECONDARY CURB RAMP LANDINGS ARE REQUIRED FOR EVERY 30" OF VERTICAL RISE WHEN THE LONGITUDINAL SLOPE IS GREATER THAN 5.0%.
- CONTRACTION JOINTS SHALL BE CONSTRUCTED ALONG ALL GRADE BREAKS WITHIN THE PAR. 1/4" DEEP VISUAL JOINTS SHALL BE USED AT THE TOP GRADE BREAK OF CONCRETE FLARES ADJACENT TO WALKABLE SURFACES.
- ALL GRADE BREAKS WITHIN THE PAR SHALL BE PERPENDICULAR TO THE PATH OF TRAVEL. THUS BOTH SIDES OF A SLOPED WALKING SURFACE MUST BE EQUAL LENGTH.
- TO ENSURE INITIAL RAMPS AND INITIAL LANDINGS ARE PROPERLY CONSTRUCTED, LANDINGS SHALL BE CAST SEPARATELY, FOLLOW SIDEWALK REINFORCEMENT DETAILS ON SHEET 6 AND THE ADA SPECIAL PROVISION (PROSECUTION OF WORK).
- TOP OF CURB SHALL MATCH PROPOSED ADJACENT WALK GRADE.
- WHEN THE BOULEVARD IS 4' WIDE OR LESS, THE TOP OF CURB TAPER SHALL MATCH THE RAMP SLOPES TO REDUCE NEGATIVE BOULEVARD SLOPES FROM THE TOP BACK OF CURB TO THE PAR.
- ALL RAMP TYPES SHOULD HAVE A MINIMUM 3' LONG RAMP LENGTH.
- 4' MINIMUM WIDTH OF DETECTABLE WARNING IS REQUIRED FOR ALL RAMPS. DETECTABLE WARNINGS SHALL CONTINUOUSLY EXTEND FOR A MIN. OF 24" IN THE PATH OF TRAVEL. DETECTABLE WARNING TO COVER THE ENTIRE PAR WIDTH OF SHARED-USE PATHS AND THE ENTIRE PAR WIDTH OF THE WALK WITH THE EXCEPTION OF 3" MAXIMUM ON EACH OUTSIDE EDGE WHICH ENSURES THE DETECTABLE WARNINGS ARE ENCASED IN CONCRETE WHEN ADJACENT TO TURF. WHEN ADJACENT TO CONCRETE FLARES 0" - 3" OFFSET IS ALLOWED.
- WHEN DESIGNING OR ORDERING RECTANGULAR DETECTABLE WARNING SURFACES SHOULD BE 6" LESS THAN THE INCOMING PAR. ARC LENGTH OF THE RADIAL DETECTABLE WARNINGS SHOULD NOT BE GREATER THAN 20 FEET.
- RADIAL DETECTABLE WARNINGS SHALL BE SETBACK 3" MINIMUM TO 6" MAXIMUM FROM THE BACK OF CURB. SEE NOTES ⑩ & ⑪ FOR INFORMATION REGARDING RECTANGULAR DETECTABLE WARNING PLACEMENT.
- ① MATCH FULL CURB HEIGHT.
- ② 3" HIGH CURB WHEN USING A 3' LONG RAMP  
4" HIGH CURB WHEN USING A 4' LONG RAMP.
- ③ 3" MINIMUM CURB HEIGHT (5.5' MIN. DISTANCE REQUIRED BETWEEN DOMES)  
4" PREFERRED (7' MIN. DISTANCE REQUIRED BETWEEN DOMES).
- ④ THE "BUMP" IN BETWEEN THE RAMPS SHOULD NOT BE IN THE PATH OF TRAVEL FOR COMBINED DIRECTIONAL RAMPS. IF THIS OCCURS MODIFY THE RAMP LOCATION OR SWITCH RAMP TO A FAN/DEPRESSED CORNER.
- ⑤ WHEN USING CONCRETE PAVED FLARES ON THE OUTSIDE OF DIRECTIONAL RAMPS, AND ADJACENT TO A WALKABLE SURFACE, DIRECTIONAL RAMP FLARES SHALL BE USED. SEE THE DETAIL ON THIS SHEET.
- ⑥ GRADING SHALL ALWAYS BE USED WHEN FEASIBLE. V CURB, IF USED, SHALL BE PLACED OUTSIDE THE SIDEWALK LIMITS WHEN RIGHT OF WAY ALLOWS. WHEN ADJACENT TO PARKING LOTS, CONCRETE OR BITUMINOUS TAPERS SHOULD BE USED OVER V CURB TO REDUCE TRIPPING HAZARDS AND FACILITATE SNOW & ICE REMOVAL.
- ⑦ MAX. 2.0% SLOPE IN ALL DIRECTIONS IN FRONT OF GRADE BREAK AND DRAIN TO FLOW LINE. SHALL BE CONSTRUCTED INTEGRAL WITH CURB AND GUTTER.
- ⑧ 8% TO 10% WALKABLE FLARE.
- ⑨ PLACE DOMES AT THE BACK OF CURB WHEN ALLOWABLE SETBACK CRITERIA IS EXCEEDED.
- ⑩ FRONT EDGE OF DETECTABLE WARNING SHALL BE SET BACK 2' MAXIMUM WHEN ADJACENT TO WALKABLE SURFACE, AND 5' MAXIMUM WHEN ADJACENT TO NON-WALKABLE SURFACE WITH ONE CORNER SET 3" FROM BACK OF CURB. A WALKABLE SURFACE IS DEFINED AS A PAVED SURFACE ADJACENT TO A CURB RAMP WITHOUT RAISED OBSTACLES THAT COULD MISTAKENLY BE TRAVERSED BY A USER WHO IS VISUALLY IMPAIRED.
- ⑪ RECTANGULAR DETECTABLE WARNINGS MAY BE SETBACK UP TO 9" FROM THE BACK OF CURB WITH CORNERS SET 3" FROM BACK OF CURB. IF 9" SETBACK IS EXCEEDED USE RADIAL DETECTABLE WARNINGS.
- ⑫ FOR DIRECTIONAL RAMPS WITH THE DETECTABLE WARNINGS PLACED AT THE BACK OF CURB, THE DETECTABLE WARNINGS SHALL COVER THE ENTIRE WIDTH OF THE WALK/PATH. THIS ENSURES A DETECTABLE EDGE AND HELPS ELIMINATE THE CURB TAPER OBSTRUCTING THE PATH OF PEDESTRIAN TRAVEL.
- ⑬ THE CONCRETE WALK SHALL BE FORMED AND CONSTRUCTED PERPENDICULAR TO THE BACK OF CURB. MAINTAIN 3" BETWEEN EDGE OF DOMES AND EDGE OF CONCRETE.
- ⑭ TO BE USED FOR ALL DIRECTIONAL RAMPS, EXCEPT WHERE DOMES ARE PLACED ALONG THE BACK OF CURB.
- ⑮ PLACE 2 NO. 4 BARS 4 INCHES FROM SIDE OF FORMS WITH A MINIMUM 2 INCHES OF CONCRETE COVER ALONG EACH SIDE OF FLARE (INCIDENTAL).

LEGEND	
THESE LONGITUDINAL SLOPE RANGES SHALL BE THE STARTING POINT. IF SITE CONDITIONS WARRANT, LONGITUDINAL SLOPES UP TO 8.3% OR FLATTER ARE ALLOWED.	
S	INDICATES PEDESTRIAN RAMP - SLOPE SHALL BE BETWEEN 5.0% MINIMUM AND 8.3% MAXIMUM IN THE DIRECTION SHOWN AND THE CROSS SLOPE SHALL NOT EXCEED 2.0%.
F	INDICATES PEDESTRIAN RAMP - SLOPE SHALL BE GREATER THAN 2.0% AND LESS THAN 5.0% IN THE DIRECTION SHOWN AND CROSS SLOPE SHALL NOT EXCEED 2.0%.
[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

REVISION:

APPROVED: 11-04-2021

*Jeff J. Perkins*  
JEFF PERKINS  
OPERATIONS DIVISION

**m**  
MINNESOTA  
DEPARTMENT OF TRANSPORTATION

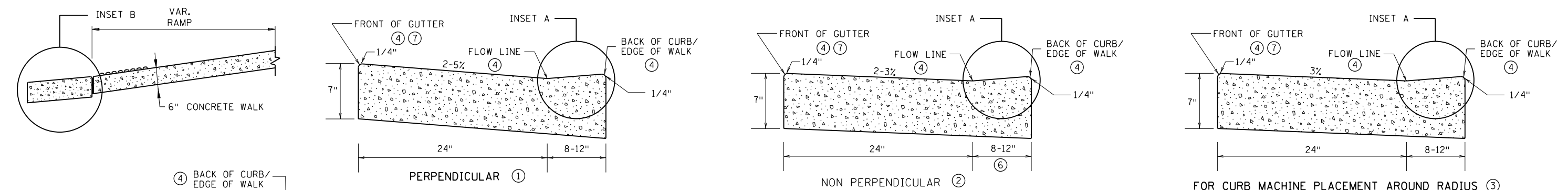
STANDARD PLAN 5-297.250    2 OF 6

*Tom Styrbicki*  
THOMAS STYRBICKI  
STATE DESIGN ENGINEER

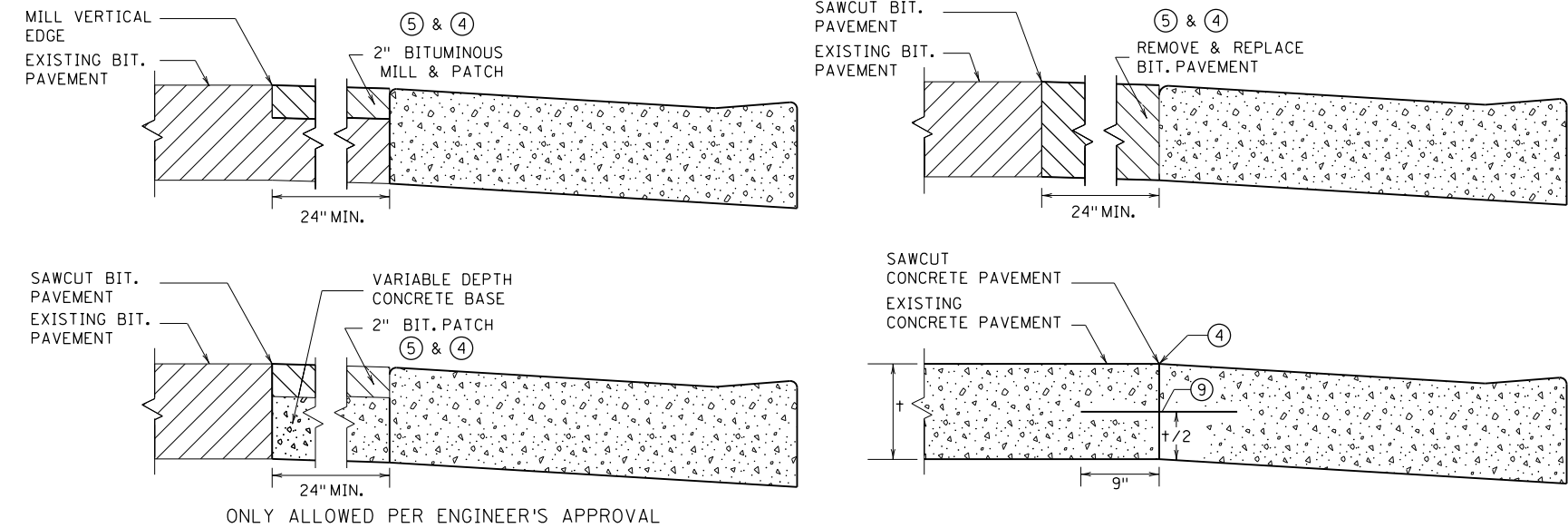
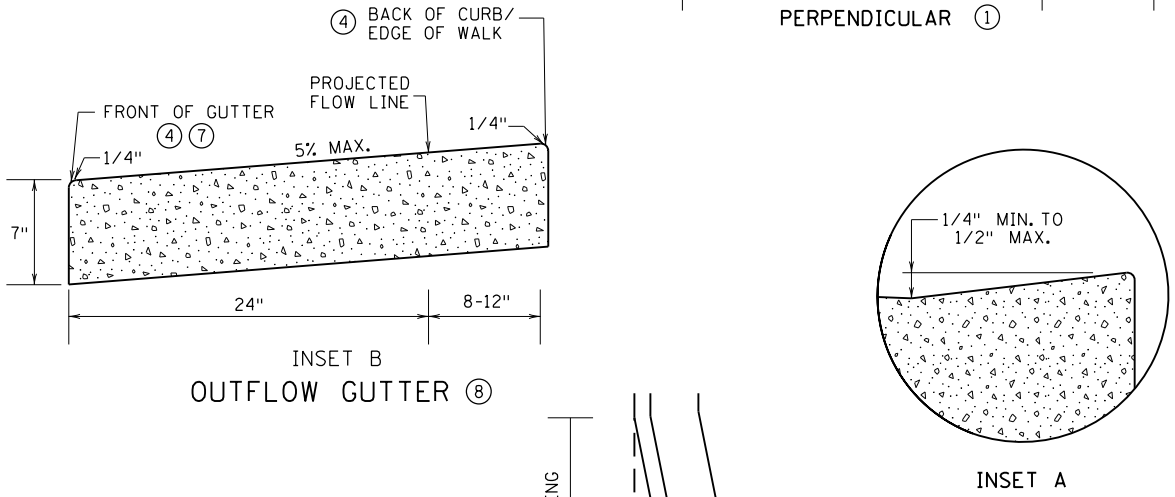
APPROVED: 11-04-2021  
REVISED:



DISTRICT #: PLOTTED/REVISED: 03/03/2022  
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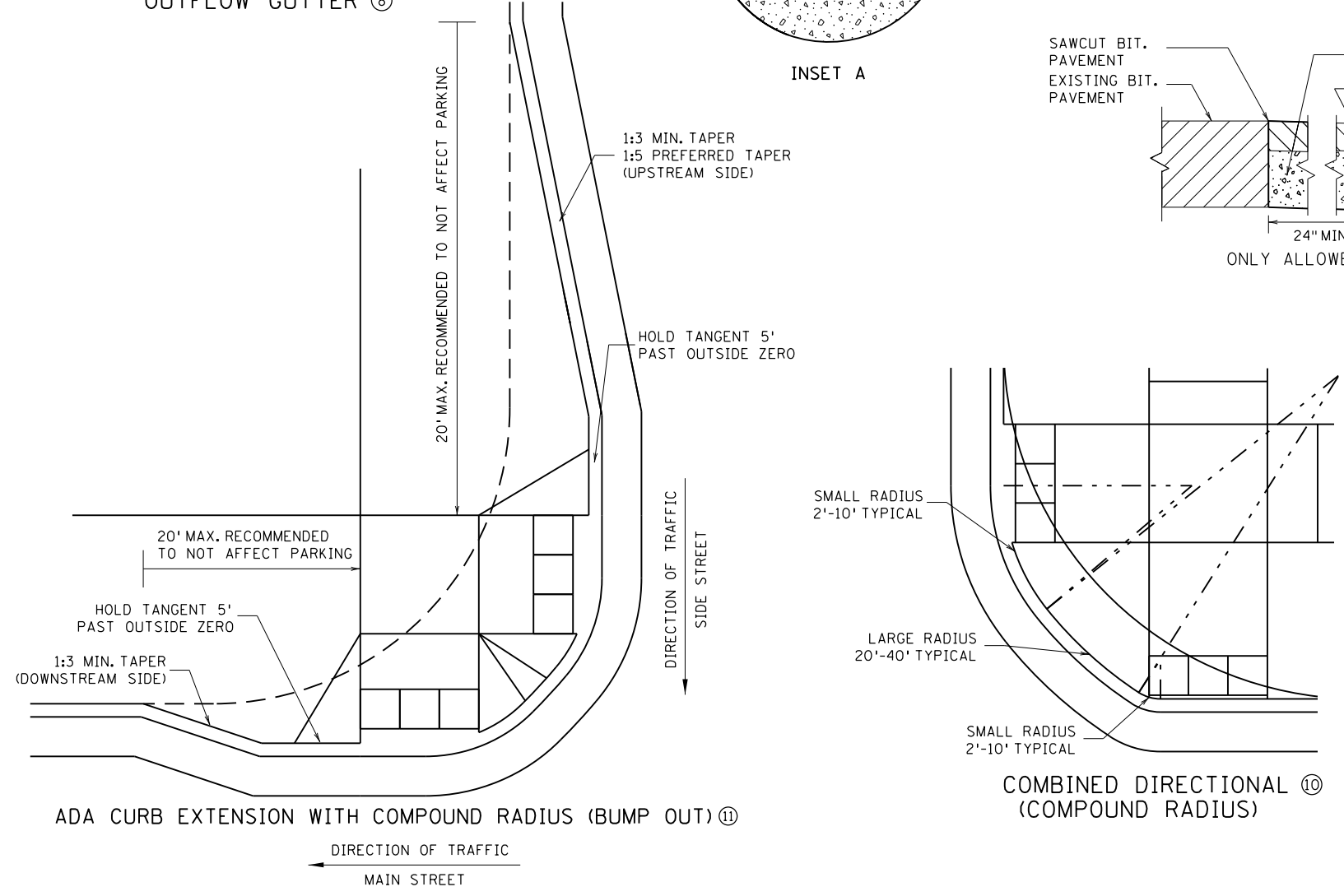


PEDESTRIAN ACCESS ROUTE CURB & GUTTER DETAIL



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.

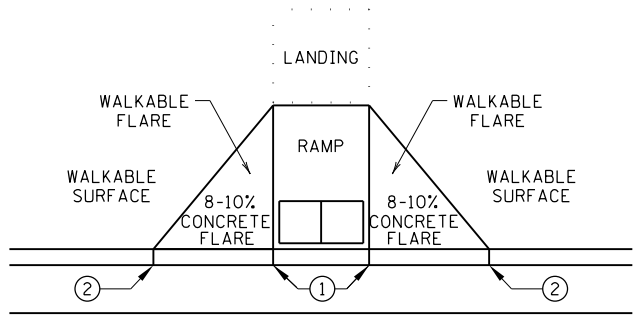


REVISION:  
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 JEFFREY PERKINS  
 OPERATIONS DIVISION

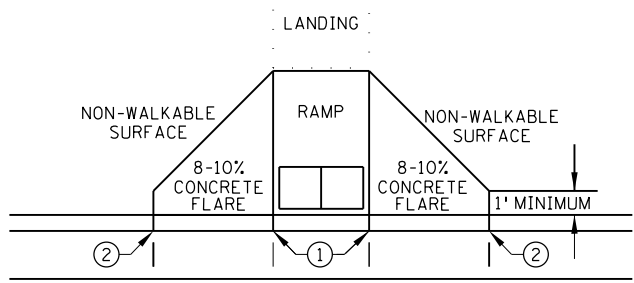
STANDARD PLAN 5-297.250 3 OF 6  
  
 THOMAS STYRBICKI  
 STATE DESIGN ENGINEER  
 APPROVED: 11-04-2021  
 REVISED:

PEDESTRIAN CURB RAMP DETAILS

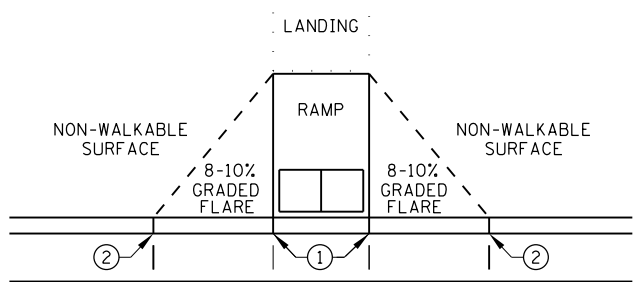
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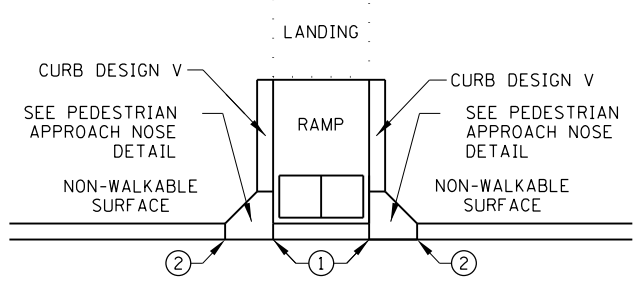
PAVED FLARES ADJACENT TO WALKABLE SURFACE



PAVED FLARES ADJACENT TO NON-WALKABLE SURFACE

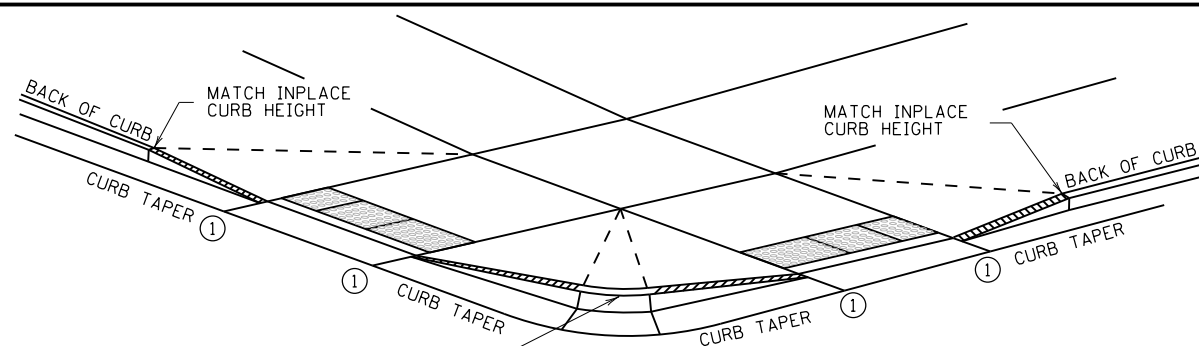


GRADED FLARES



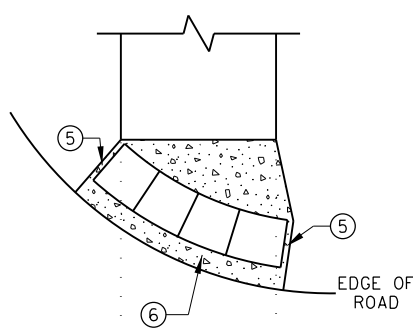
RETURNED CURB ④

TYPICAL SIDE TREATMENT OPTIONS ③ ⑩

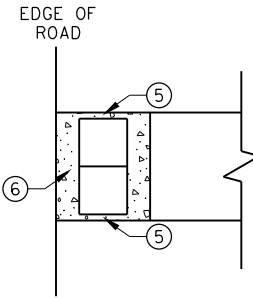


3" MINIMUM CURB HEIGHT, 4" PREFERRED (MEASURED AT FRONT FACE OF CURB) FOR A MIN. 6" LENGTH (MEASURED ALONG FLOW LINE)

DETECTABLE EDGE WITH CURB AND GUTTER ⑦

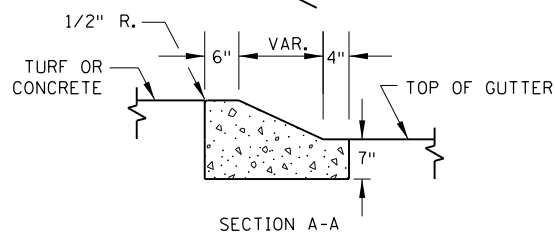
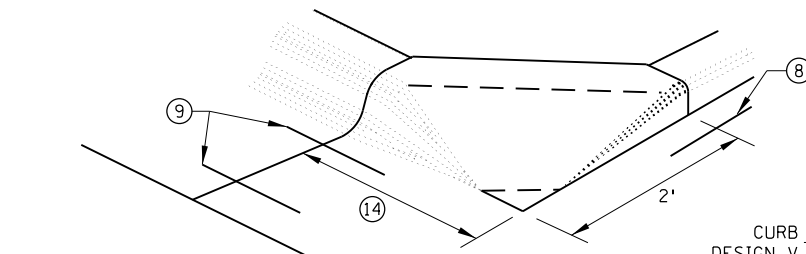


RADIAL DETECTABLE WARNING

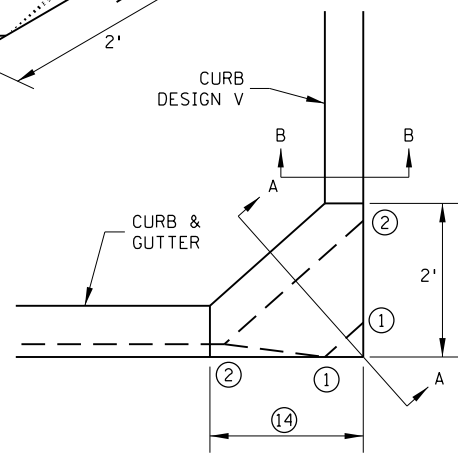


RECTANGULAR DETECTABLE WARNING

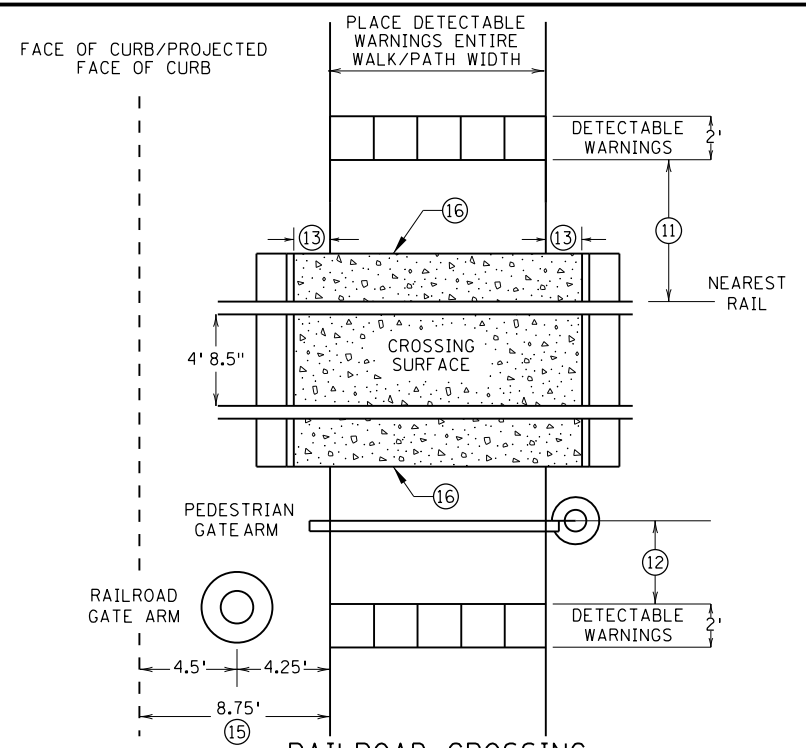
DETECTABLE EDGE WITHOUT CURB AND GUTTER



SECTION A-A



PEDESTRIAN APPROACH NOSE DETAIL (FOR RETURNED CURB SIDE TREATMENT)



RAILROAD CROSSING PLAN VIEW

NOTES:

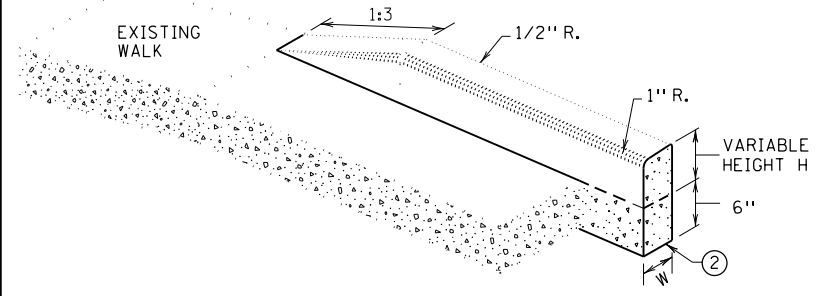
- INTERMEDIATE CURB HEIGHTS TAPER SHALL RISE AT 8-10% TO A MINIMUM 3 INCH CURB HEIGHT. INCREASE CURB TAPER LENGTH AT LESS THAN 8% OR REDUCE INTERMEDIATE CURB HEIGHT TO 2+ INCHES IF NECESSARY TO MATCH ADJACENT BOULEVARD OR SIDEWALK GRADES.
- SEE STANDARD PLATE 7038 AND THIS SHEET FOR ADDITIONAL DETAILS 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  
 Jeff J. Pel  
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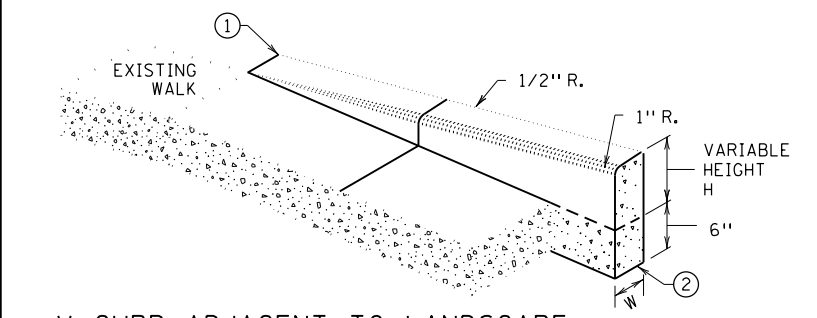
MINNESOTA DEPARTMENT OF TRANSPORTATION  
 STANDARD PLAN 5-297.250 4 OF 6  
 APPROVED: 11-04-2021  
 REVISOR:  
 THOMAS STYRBICKI  
 STATE DESIGN ENGINEER

PEDESTRIAN CURB RAMP DETAILS

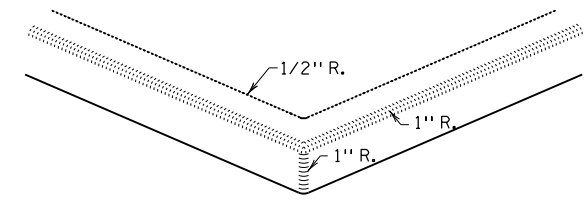
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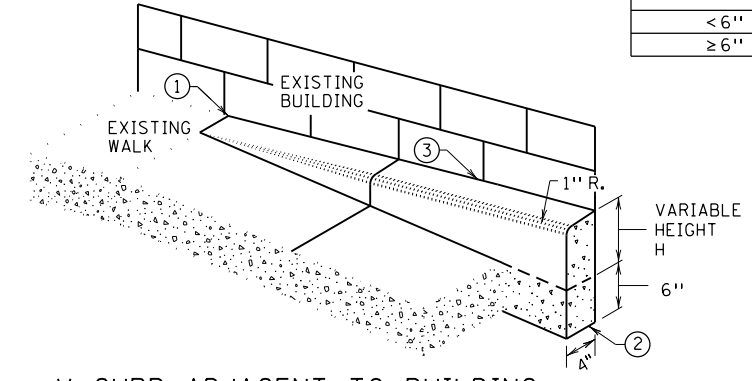
V CURB ADJACENT TO LANDSCAPE  
CURB WITHIN SIDEWALK LIMITS



V CURB ADJACENT TO LANDSCAPE  
CURB OUTSIDE SIDEWALK LIMITS

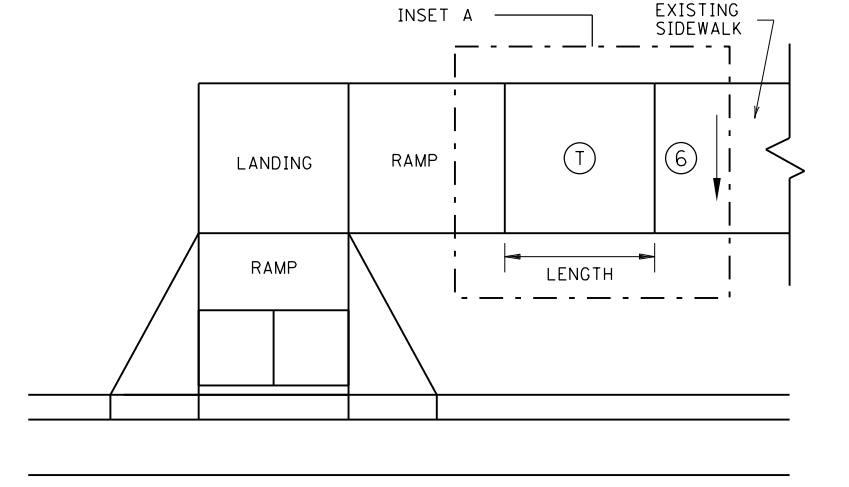


V CURB INTERSECTION

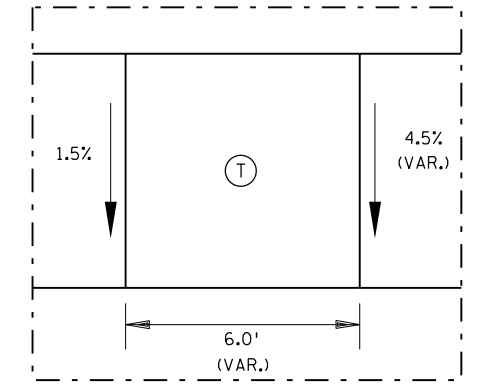


V CURB ADJACENT TO BUILDING  
OR BARRIER

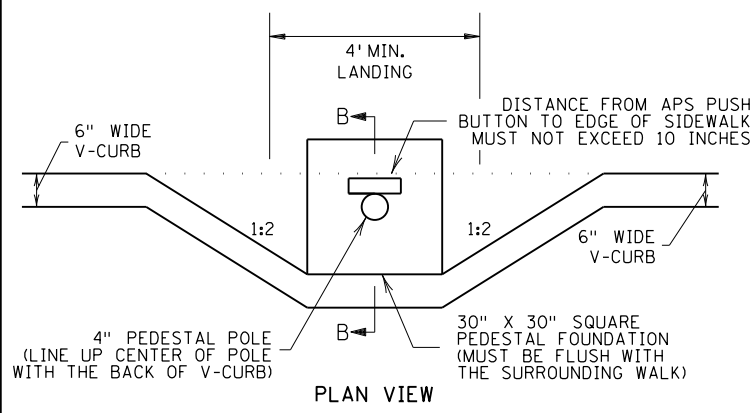
CONCRETE CURB DESIGN V	
CURB HEIGHT H	CURB WIDTH W
< 6"	4"
≥ 6"	6"



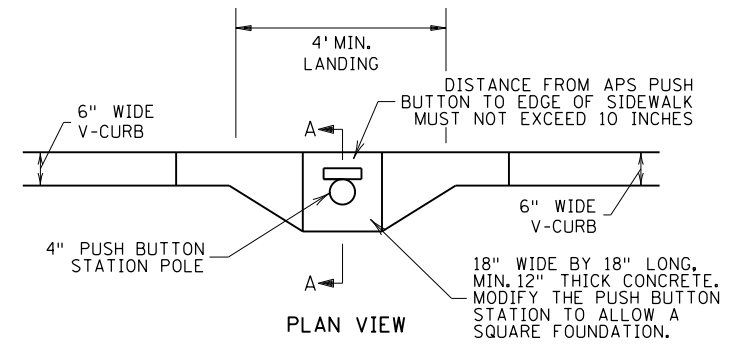
TRANSITION PANEL ④ ⑤



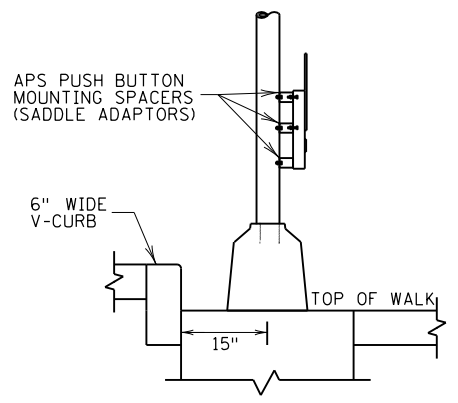
INSET A



PLAN VIEW

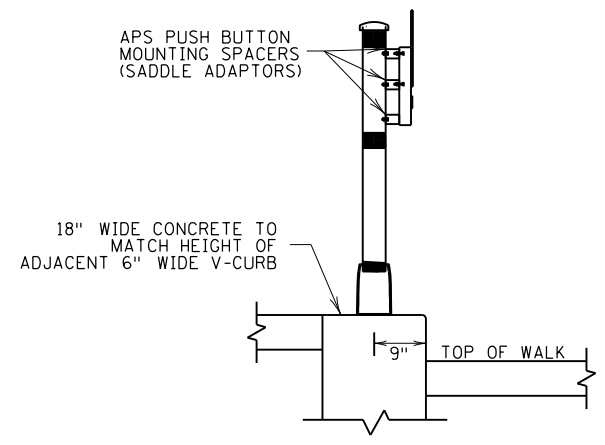


PLAN VIEW



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.
- ⑤ 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.
  - ① 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  
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**MINNESOTA**  
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 STANDARD PLAN 5-297.250 5 OF 6  
 APPROVED: 11-04-2021  
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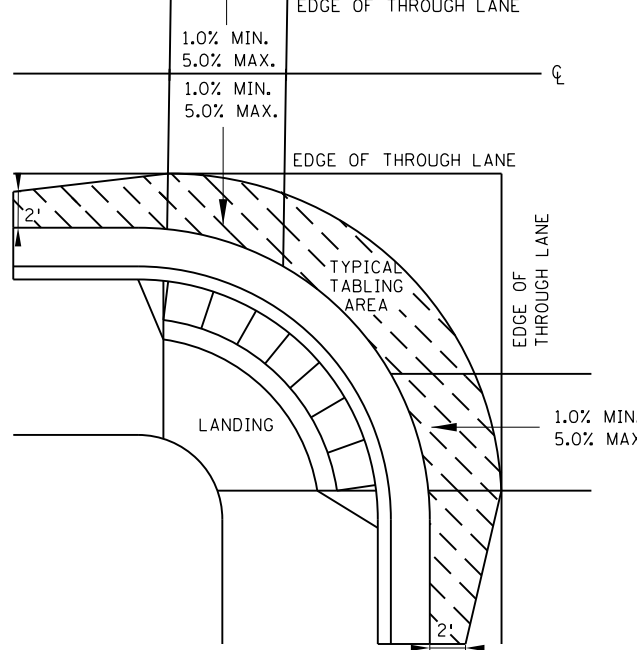
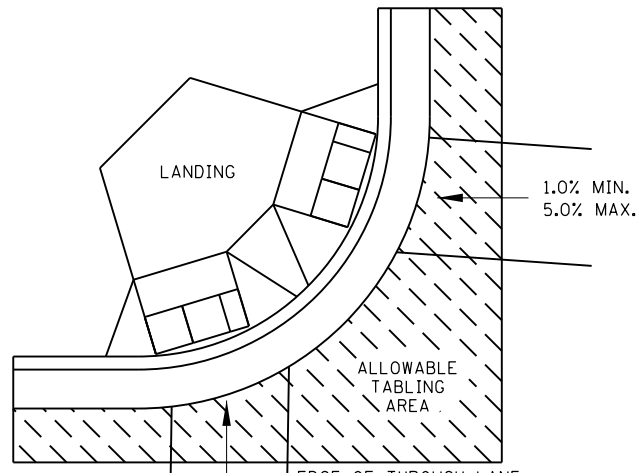
**PEDESTRIAN CURB RAMP DETAILS**

STATE PROJ. NO. 002-623-024

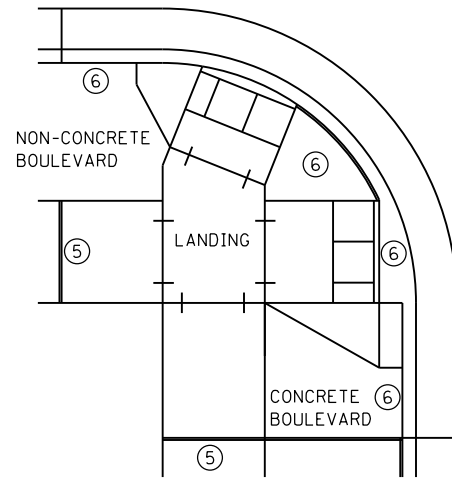
SHEET NO. 17 OF 27 SHEETS

DISTRICT #: PLOT NAME: \$\$\$@PLOT\$NAME\$\$\$ PATH & FILENAME: P:\22-01-00\CSAH 23\N of 2nd to N of Park Ct\Bases\Proposed\Ped Ramp Details.dgn

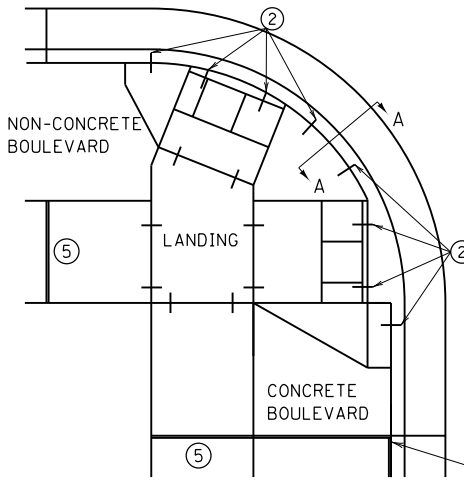
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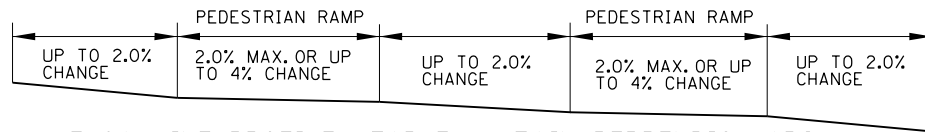
CURB LINE AND ROAD CROSSING ADJUSTMENTS



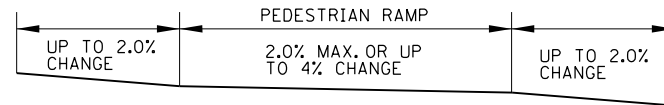
EXPANSION MATERIAL PLACEMENT FOR CONCRETE ROADWAYS



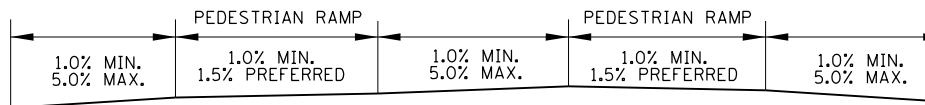
CURB LINE REINFORCEMENT PLACEMENT ON BITUMINOUS ROADWAYS



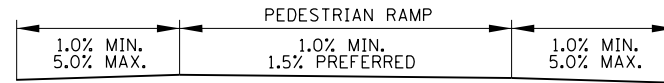
FLOW LINE PROFILE "TABLE" - TWIN PERPENDICULARS



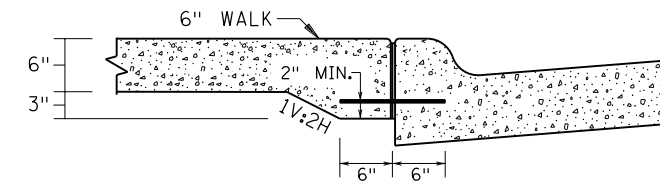
FLOW LINE PROFILE "TABLE" - FAN



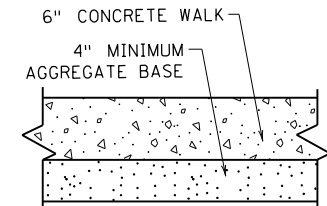
FLOW LINE PROFILE RAISE - TWIN PERPENDICULARS



FLOW LINE PROFILE RAISE - FAN

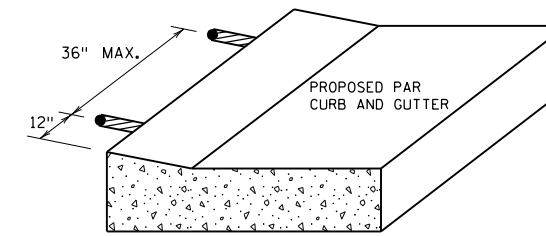


SECTION VIEW A-A THICKENED SECTION THROUGH CURB RAMP FLARES

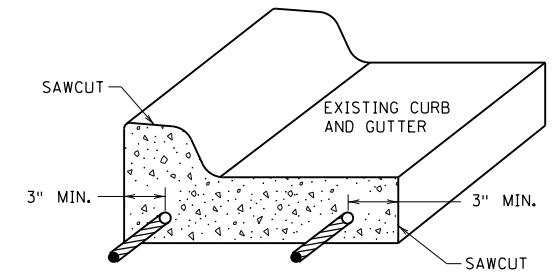


TYPICAL SIDEWALK SECTION WITHIN INTERSECTION CORNER

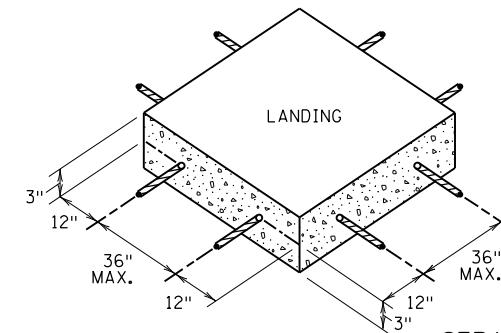
END SILL CURB AT TOP OF CURB RAMP AND DRIVEWAY FLARES.



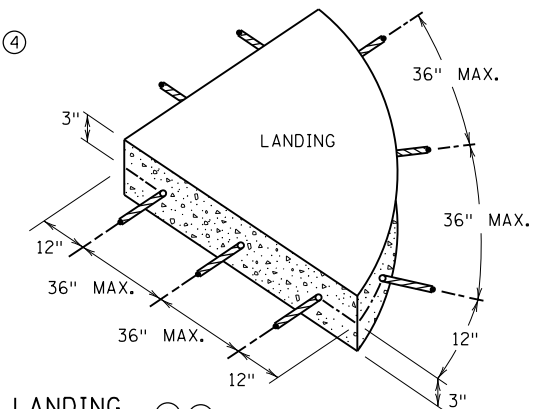
CURB RAMP REINFORCEMENT DETAILS



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. Pel*  
JEFF PERKINS  
OPERATIONS DIVISION

**m**  
MINNESOTA  
DEPARTMENT OF TRANSPORTATION

STANDARD PLAN 5-297.250 6 OF 6

APPROVED: 11-04-2021  
REVISED:

*Tom Styrbicki*  
THOMAS STYRBICKI  
STATE DESIGN ENGINEER

PEDESTRIAN CURB RAMP DETAILS

STATE PROJ. NO. 002-623-024

SHEET NO. 18 OF 27 SHEETS

LOOP DETECTORS			
NUMBER	SIZE	FUNCTION	LOCATION ①
D2-1	6' X 6'	1	475'
D4-1	2 - 6' X 6'	3, 8	100'
D4-2	2 - 6' X 6'	7	AS SHOWN
D4-3	2 - 6' X 6'	1	AS SHOWN
D5-1	2 - 6' X 6'	1	5' & 35'
D5-2	2 - 6' X 6'	1	20' & 50'
D6-1	6' X 6'	1	475'

① LOCATION IS MEASURED FROM CENTER OF STOP BAR TO LEADING EDGE OF LOOP.

**FUNCTIONS:**

- 1-CALL AND EXTEND
- 7-ONLY CALL IMMEDIATE EXTEND
- 3-EXTEND ONLY
- 8-CARRY OVER CALL AND EXTEND

• LOOP DETECTORS TO BE N.M.C. (SEE DETAIL PAGE 2) REMAINING LOOP DETECTORS TO BE SAW CUT IN BITUMINOUS (SEE SPECIAL PROVISIONS).

- ④ INSTALL 45' WOOD POLE  
 2-DOWN GUYS, GUARDS AND ANCHORS  
 1-TYPE 10C WOOD POLE MOUNTED AT 0°  
 2-PEDESTRIAN PUSH BUTTONS AND SIGNS LUMINAIRE AND MAST ARM (250 W HPS) WITH PEG METAL JUNCTION BOX  
 3" RSC RISER BELOW JUNCTION BOX TO HH 10  
 3-5/C #12  
 7-3/C #12  
 1-3/C #20  
 1-3/C #14 (LUM)  
 3-2/C #14  
 3" RSC RISER AND WEATHER HEAD ABOVE JUNCTION BOX  
 2-5/C #12  
 3-3/C #12  
 1-3/C #20  
 1-3/C #12 (LUM)  
 3-2/C #14  
 1 1/2" RISER ABOVE SPAN WIRE  
 1-3/C #12 (LUM)

- ⑤ PEDESTAL FOUNDATION  
 10" PEDESTAL POLE AND BASE  
 TWO WAY EVP DETECTOR PHASE #4 (DOUBLE TURRET - SINGLE CHANNEL) EXTEND TO HH 8  
 1-3/C #28

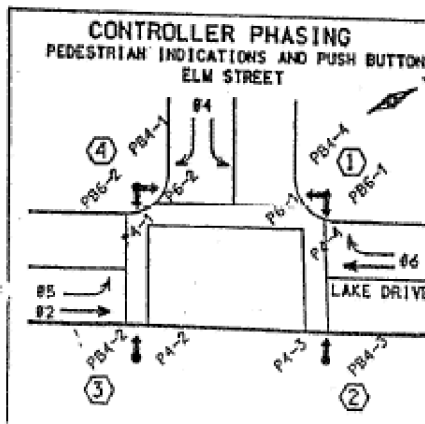
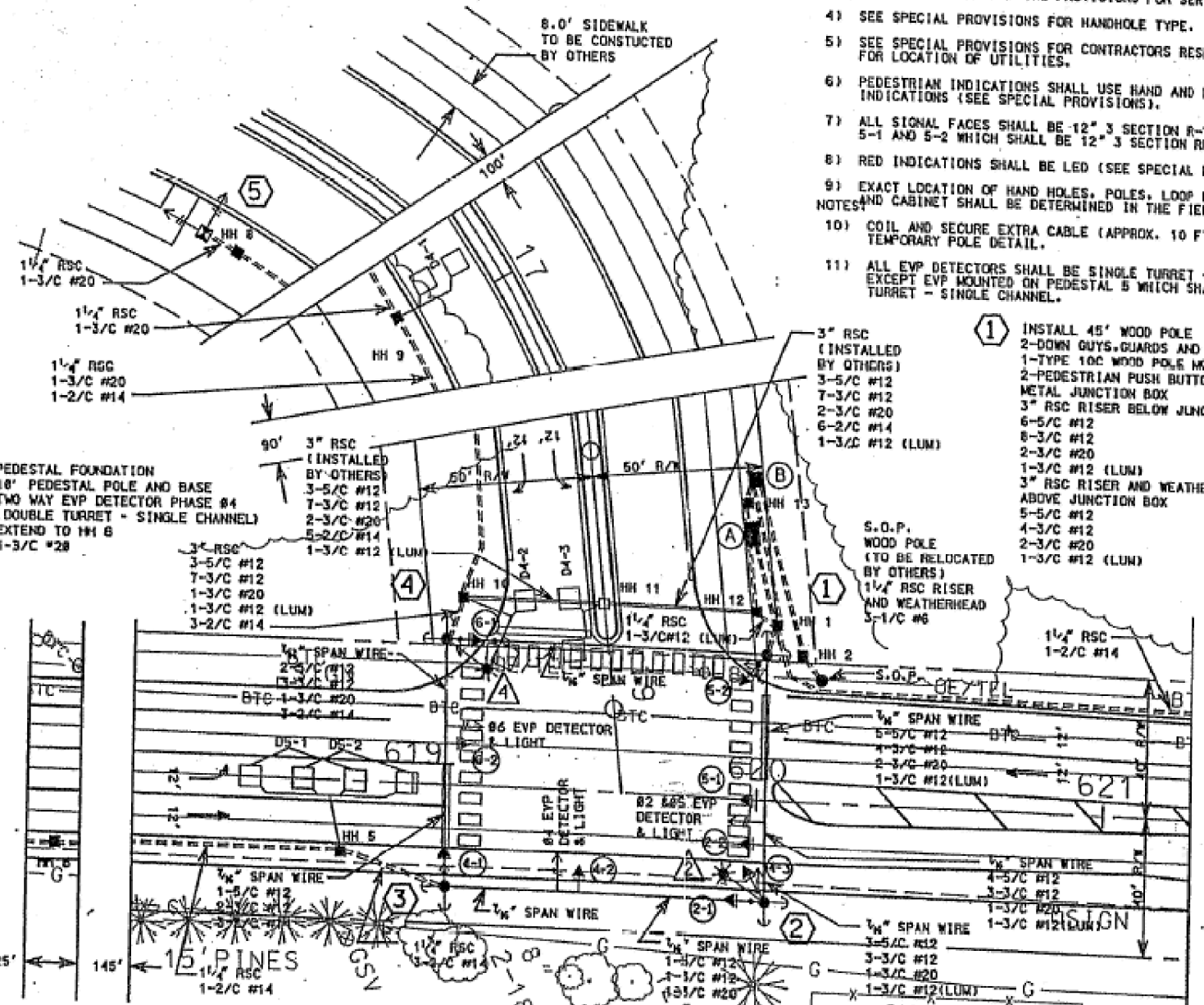
- ⑥ (INSTALLED BY OTHERS)  
 3-5/C #12  
 7-3/C #12  
 2-3/C #20  
 5-2/C #14  
 1-3/C #12 (LUM)

- 1) SEE SPECIAL PROVISIONS FOR COUNTY FURNISHED MATERIALS.
- 2) EACH SIGNAL FACE SHALL HAVE A BACKGROUND SHIELD.
- 3) SEE DETAILS AND SPECIAL PROVISIONS FOR SERVICE CABINET.
- 4) SEE SPECIAL PROVISIONS FOR HANDHOLE TYPE.
- 5) SEE SPECIAL PROVISIONS FOR CONTRACTORS RESPONSIBILITY FOR LOCATION OF UTILITIES.
- 6) PEDESTRIAN INDICATIONS SHALL USE HAND AND PERSON WALKING INDICATIONS (SEE SPECIAL PROVISIONS).
- 7) ALL SIGNAL FACES SHALL BE 12" 3 SECTION R-Y-G, EXCEPT FACES 5-1 AND 5-2 WHICH SHALL BE 12" 3 SECTION RLTA-YLTA-GLTA.
- 8) RED INDICATIONS SHALL BE LED (SEE SPECIAL PROVISIONS).
- 9) EXACT LOCATION OF HAND HOLES, POLES, LOOP DETECTORS, PUSH BUTTONS AND CABINET SHALL BE DETERMINED IN THE FIELD BY THE ENGINEER.
- 10) COIL AND SECURE EXTRA CABLE (APPROX. 10 FT.) AS SHOWN IN TEMPORARY POLE DETAIL.
- 11) ALL EVP DETECTORS SHALL BE SINGLE TURRET - SINGLE CHANNEL EXCEPT EVP MOUNTED ON PEDESTAL 5 WHICH SHALL BE DOUBLE TURRET - SINGLE CHANNEL.

- ① CONTROLLER CABINET  
 CONTROLLER CABINET TO HH 12  
 3" RSC  
 3-5/C #12  
 7-3/C #12  
 2-3/C #20  
 6-2/C #14  
 CONTROLLER TO HH 1  
 3" RSC  
 6-5/C #12  
 8-3/C #12  
 2-3/C #20  
 1-2/C #14  
 CONTROLLER TO HH 13  
 2" RSC  
 3-1/C #6  
 1-1/C #6 BR GR
- ② SERVICE CABINET  
 SERVICE CABINET TO SOP (VIA HH 2)  
 1 1/2" RSC  
 3-1/C #6  
 SERVICE CABINET TO HH 13  
 2" RSC  
 3-1/C #6  
 1-1/2" MC BR GR  
 SERVICE CABINET TO HH 1  
 1 1/2" RSC  
 2-3/C #12 (LUM)

- ③ INSTALL 45' WOOD POLE  
 2-DOWN GUYS, GUARDS AND ANCHORS  
 1-TYPE 10B WOOD POLE MOUNTED AT 270°  
 1-PEDESTRIAN PUSH BUTTON AND SIGN METAL JUNCTION BOX  
 1 1/2" RSC RISER BELOW JUNCTION BOX  
 3-2/C #14  
 2" RSC RISER AND WEATHER HEAD ABOVE JUNCTION BOX  
 2-5/C #12  
 3-3/C #12  
 1-3/C #20  
 1-3/C #12 (LUM)  
 1 1/2" RISER ABOVE SPAN WIRE  
 1-3/C #12 (LUM)

- ④ (INSTALLED BY OTHERS)  
 3-5/C #12  
 7-3/C #12  
 2-3/C #20  
 6-2/C #14  
 1-3/C #12 (LUM)
- ⑤ S.O.P. WOOD POLE (TO BE RELOCATED BY OTHERS)  
 1 1/2" RSC RISER AND WEATHERHEAD  
 3-1/C #6

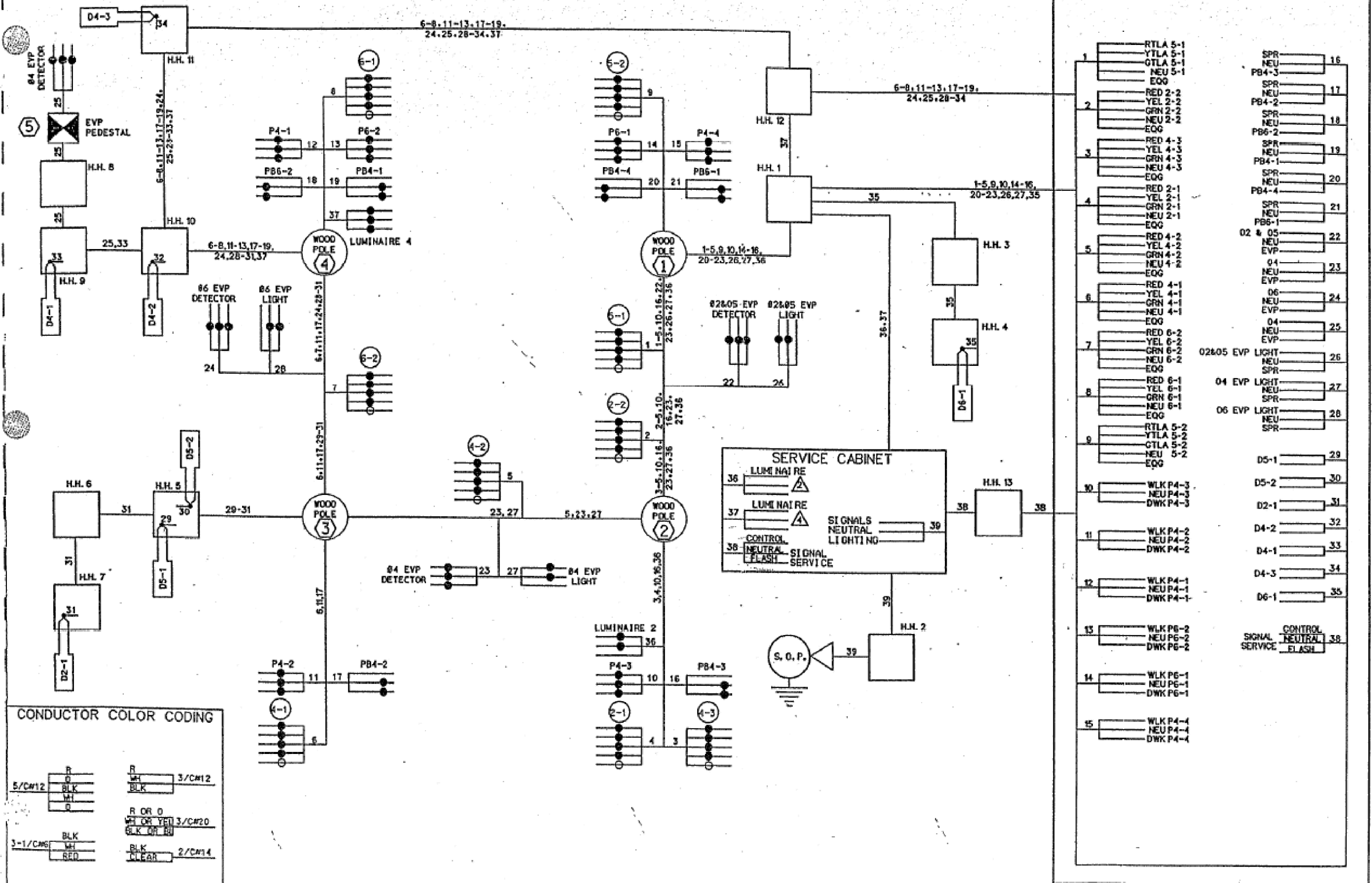


**SIGNAL SYSTEM OPERATION**  
 -THE SIGNAL SYSTEM FLASH MODE IS ALL RED.  
 -NORMAL OPERATION IS 4 PHASE, WITH PHASE 5 BEING A PROTECTED LEFT TURN PHASE.

SIGNAL FACE	ALL INDICATIONS SHALL BE 12"					
	R LED	Y	G	RLTA LED	YLTA	GLTA
2-1 AND 2-2	●	●	●			
4-1, 4-2 AND 4-3	●	●	●			
5-1 AND 5-2	●	●	●	←	←	←
6-1 AND 6-2	●	●	●			

NO.	DATE	BY	DESCRIPTION
1	1/28/2022	APA	ISSUED FOR PERMIT
2	2/16/2022	CO	CHECKED

CSM  
 Schelen & Meyer Associates, Inc.  
 Engineers - Architects - Planners - Surveyors  
 500 Park Place East, Suite 1000, Minneapolis, MN 55415-1000  
 Phone: 612-338-8775



NO.	DATE	BY	REVISION

LINO LAKES  
COUNTY, MINNESOTA  
ANOKA

CSM  
Schellen & Mayeron & Associates, Inc.  
Engineers & Surveyors  
200 Park Ave  
St. Paul, MN 55102  
612-996-8775

NO	DATE	BY	CKD	APPR	REVISION	TIME

NAME: P:\22-01-00\CSAH 23\_(N of 2nd to N of Park Ct)\Base\Proposed\SIGNAL PLAN.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: \_\_\_\_\_  
SIGNATURE: \_\_\_\_\_  
DATE: \_\_\_\_\_ LICENSE NO. \_\_\_\_\_

DRAWN BY: APA DATE: 1/28/2022  
DESIGN BY: APA DATE: 1/28/2022  
CHECKED BY: CO DATE: 2/16/2022

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

STATE AID PROJECT 002-623-024

EXISTING SIGNAL PLANS  
Sheet 20 of 27 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	19408
1 8" DOTTED LINE WHITE - MULTI COMP	LIN FT	175
2 4" BROKEN LINE YELLOW - MULTI COMP	LIN FT	610
4" SOLID LINE YELLOW - MULTI COMP	LIN FT	1052
4" SOLID DOUBLE LINE YELLOW - MULTI COMP	LIN FT	6680
24" SOLID LINE WHITE - PREFORMED THERMOPLASTIC (PMS)*	LIN FT	30
24" SOLID LINE YELLOW - PREFORMED THERMOPLASTIC (PMS)*	LIN FT	448
3'X6' ZEBRA CROSSWALK - PREFORMED THERMOPLASTIC	SQ FT	378
PAVEMENT MESSAGE (LEFT ARROW) - PREFORMED THERMOPLASTIC	SQ FT	109
PAVEMENT MESSAGE (RIGHT ARROW) - PREFORMED THERMOPLASTIC	SQ FT	109

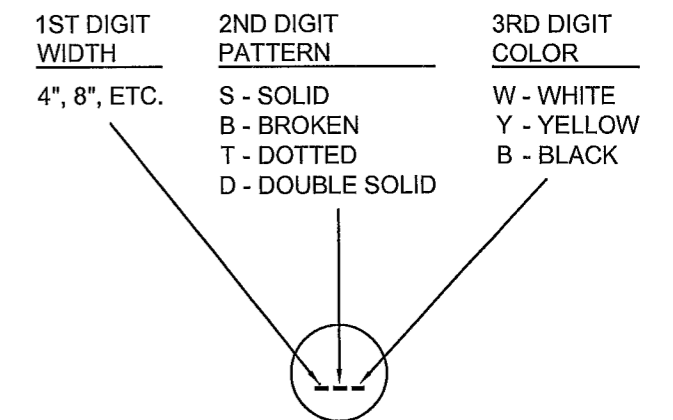
- 1 3' STRIPE, 12' GAP
- 2 10' STRIPE, 40' GAP
- \* PAVEMENT MARKING SPECIAL

**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



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\_23\_(N of 2nd to N of Park Ct)\Base\Traffic\Perm Pvrnt 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: 1/20/23  
SIGNATURE: *Sean R. Thiel* LICENSE NO. 45129

DRAWN BY: TMV DATE: 10/20/21  
DESIGN BY: \_\_\_\_\_ DATE: \_\_\_\_\_  
CHECKED BY: SRT DATE: 12/01/21

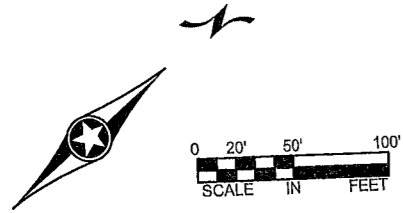


**ANOKA COUNTY  
HIGHWAY DEPT.**

SAP 002-623-024

PERMANENT MARKING  
TABULATION

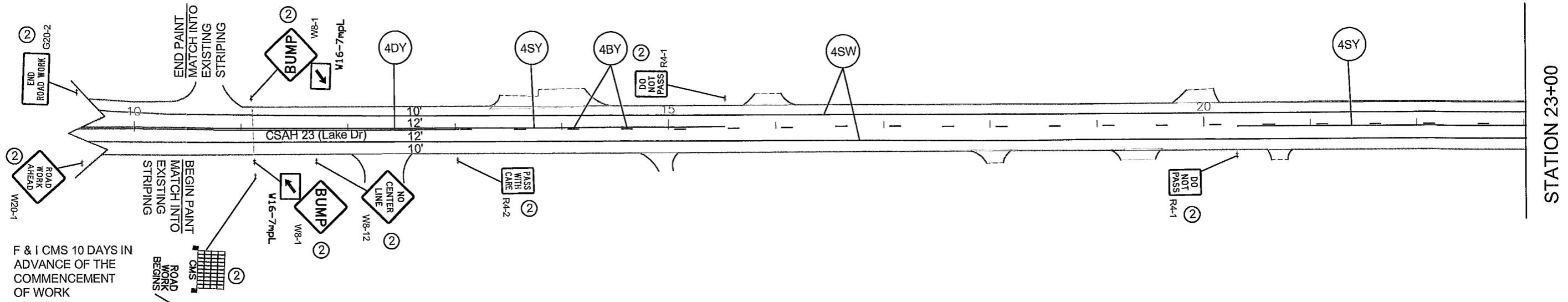
SHEET 21 OF 27 SHEETS



SIGN NOTES:  
 ② TEMPORARY TRAFFIC CONTROL SIGN

STRIPING KEY

○ CIRCLE - MULTI COMP  
 □ SQUARE - POLY PREFORM



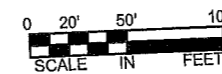
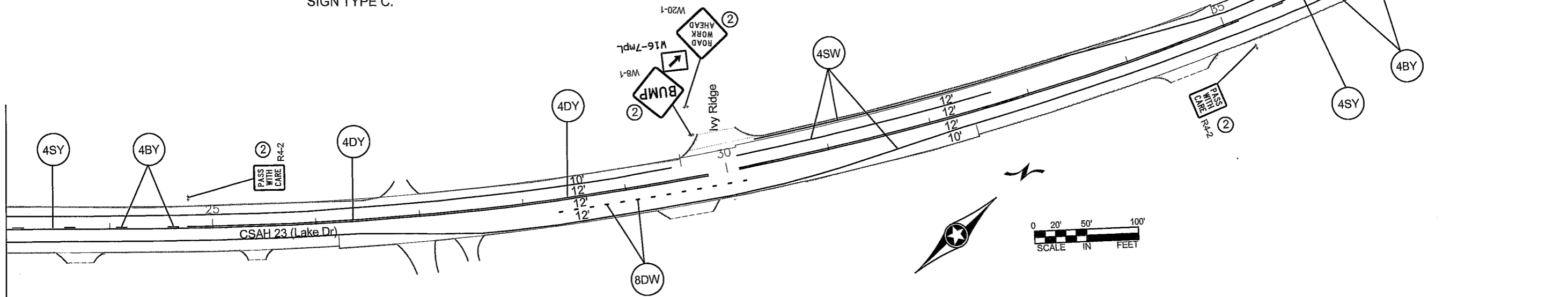
F & I CMS 10 DAYS IN ADVANCE OF THE COMMENCEMENT OF WORK

(DATE) EXPECT DELAYS

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.
- 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.
- ALL EXISTING SIGNING SHALL REMAIN IN PLACE DURING CONSTRUCTION. ANY SALVAGED AND REINSTALLED SIGNS SHALL BE INSTALLED ON TEMPORARY SUPPORTS UNTIL THE PERMANENT INSTALLATION CAN BE MADE. THIS WILL BE CONSIDERED AS INCIDENTAL TO INSTALL SIGN TYPE C.

STATION 23+00



NO	DATE	BY	CKD	APPR	REVISION

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 PRINT NAME: SEAN R. THIEL DATE: 1/20/22  
 SIGNATURE: *Sean R. Thiel* LICENSE NO. 45129

DRAWN BY: TMV DATE: 10/19/21  
 DESIGN BY: DATE:   
 CHECKED BY: SRT DATE: 12/01/21

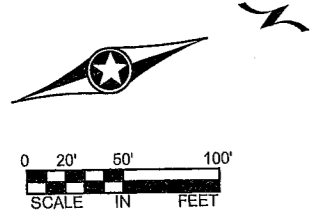


ANOKA COUNTY  
 HIGHWAY DEPT.

SAP 002-623-024

TEMPORARY SIGNING  
 PERMANENT STRIPING

SHEET 22 OF 27 SHEETS



STATION 38+00

STATION 53+00

SIGN NOTES:  
 ② TEMPORARY TRAFFIC CONTROL SIGN

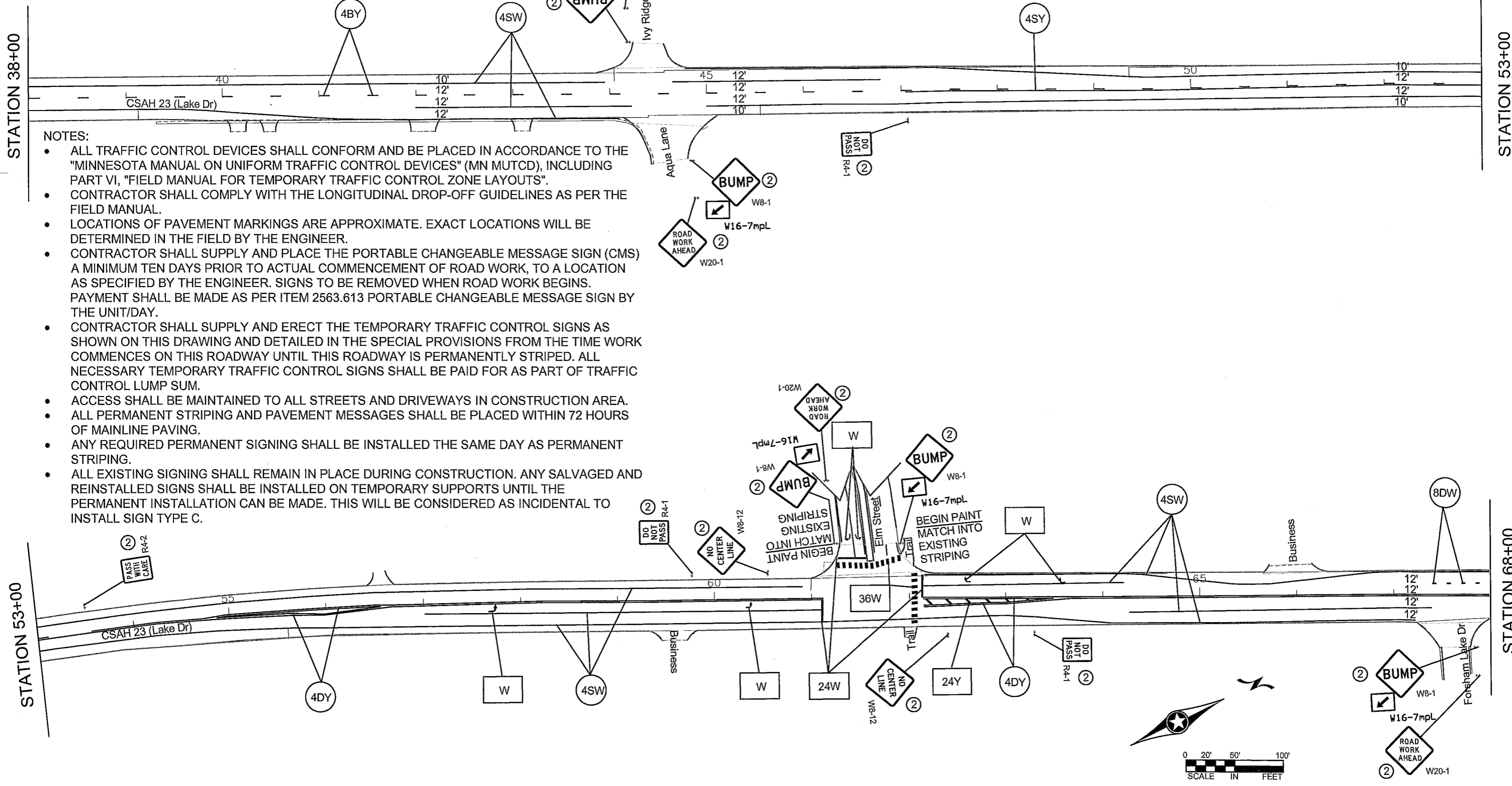
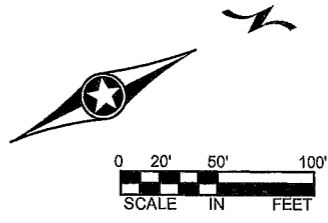
STRIPING KEY  
 ○ CIRCLE - MULTI COMP  
 □ SQUARE - POLY PREFORM

NOTES:

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STATION 53+00

STATION 68+00



NO	DATE	BY	CKD	APPR	REVISION
NAME: P:\22-01-00\CSAH_23 (N of 2nd to N of Park Ct)\Base\Traffic\Temp Sign & Perm Stripe.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: 1/20/22  
 SIGNATURE: *Sean R. Thiel* LICENSE NO. 45129

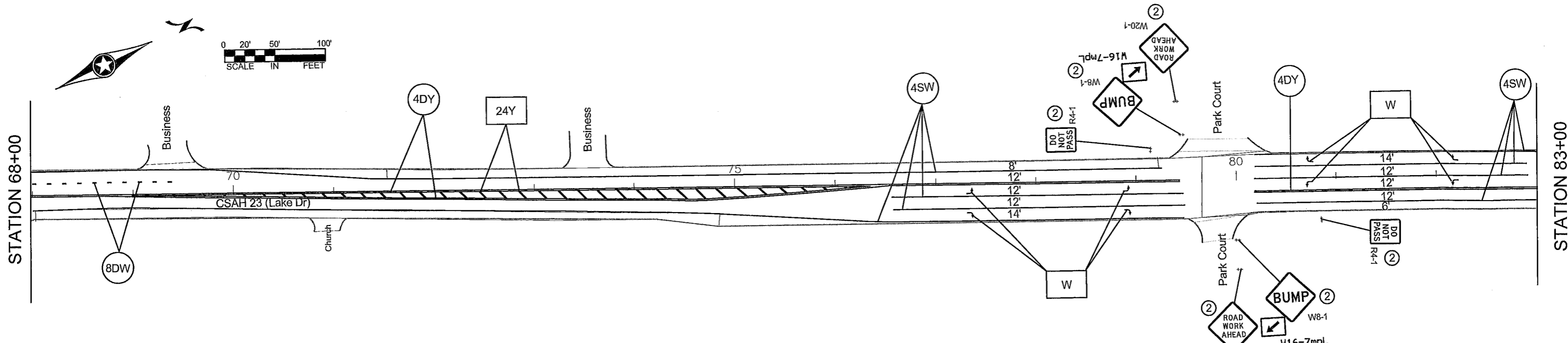
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ANOKA COUNTY  
 HIGHWAY DEPT.

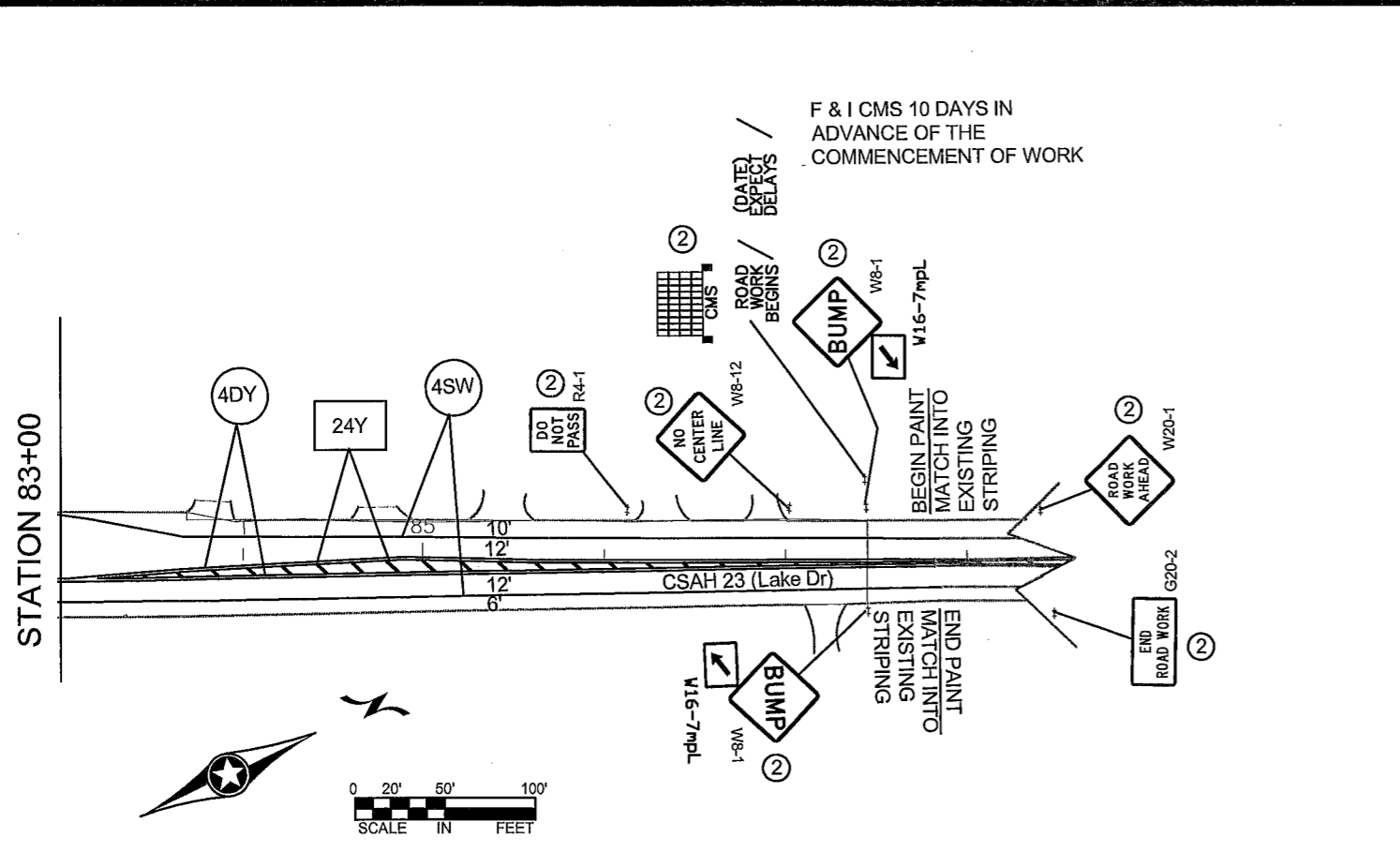
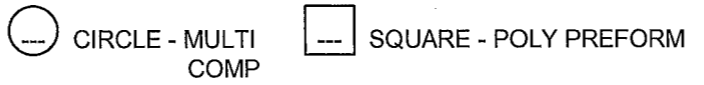
SAP 002-623-024

TEMPORARY SIGNING  
 PERMANENT STRIPING  
 SHEET 23 OF 27 SHEETS



SIGN NOTES:  
 ② TEMPORARY TRAFFIC CONTROL SIGN

STRIPING KEY



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.
- 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.
- ALL EXISTING SIGNING SHALL REMAIN IN PLACE DURING CONSTRUCTION. ANY SALVAGED AND REINSTALLED SIGNS SHALL BE INSTALLED ON TEMPORARY SUPPORTS UNTIL THE PERMANENT INSTALLATION CAN BE MADE. THIS WILL BE CONSIDERED AS INCIDENTAL TO INSTALL SIGN TYPE C.

NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\22-01-00\CSAH\_23\_(N of 2nd to N of Park Ct)\Base\Traffic\Temp Sign & Perm Stripe.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: 1/20/22  
 SIGNATURE: *Sean R. Thiel* LICENSE NO. 45129




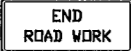





DRAWN BY: TMV DATE: 10/19/21  
 DESIGN BY: \_\_\_\_\_ DATE: \_\_\_\_\_  
 CHECKED BY: SRT DATE: 12/01/21









ANOKA COUNTY  
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SAP 002-623-024

TEMPORARY SIGNING  
PERMANENT STRIPING

SHEET 24 OF 27 SHEETS

TEMPORARY TRAFFIC CONTROL SIGNS			
M.U.T.C.D. CODE	SIZE	INSERT	QUANTITY
W8-12	48" x 48"		4
R4-1	24" x 30"		9
R4-2	24" x 30"		4
G20-2	36" x 18"		2
W8-1	48" x 48"		12
W16-7P	30" x 18"		12
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 9)
W20-4	48" x 48"		AS NEEDED
W20-7	48" x 48"		AS NEEDED
REFLECTORIZED REBOUNDABLE DRUM			AS NEEDED (ESTIMATED 10)
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.			2 AT 10 DAYS EA

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	T
		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:\22-01-00\CSAH\_23\_(N of 2nd to N of Park Ct)\BaselTraffic\Temp Sign & Perm Strips.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: 1/20/22

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

DRAWN BY: TMV DATE: 10/19/21

DESIGN BY: DATE:

CHECKED BY: SRT DATE: 12/01/21

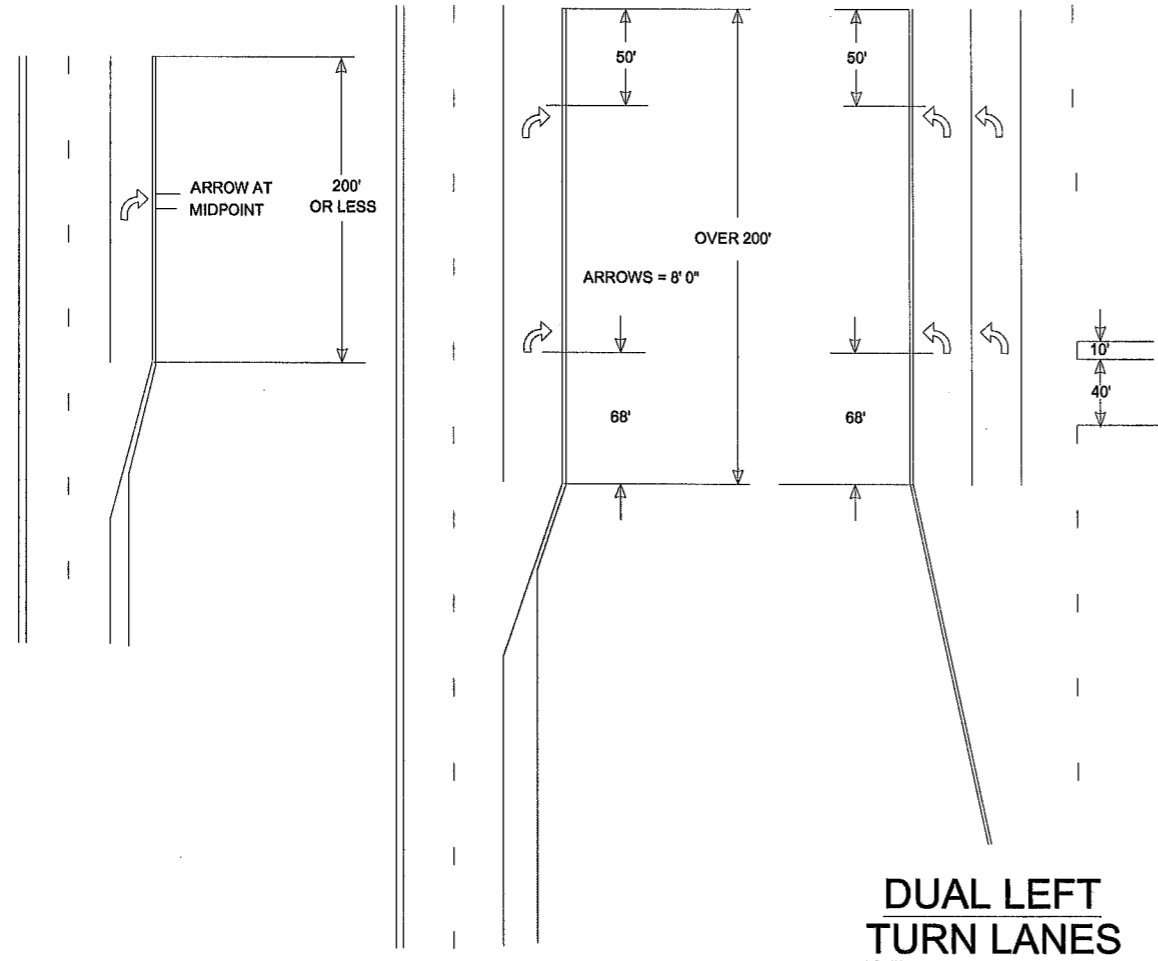


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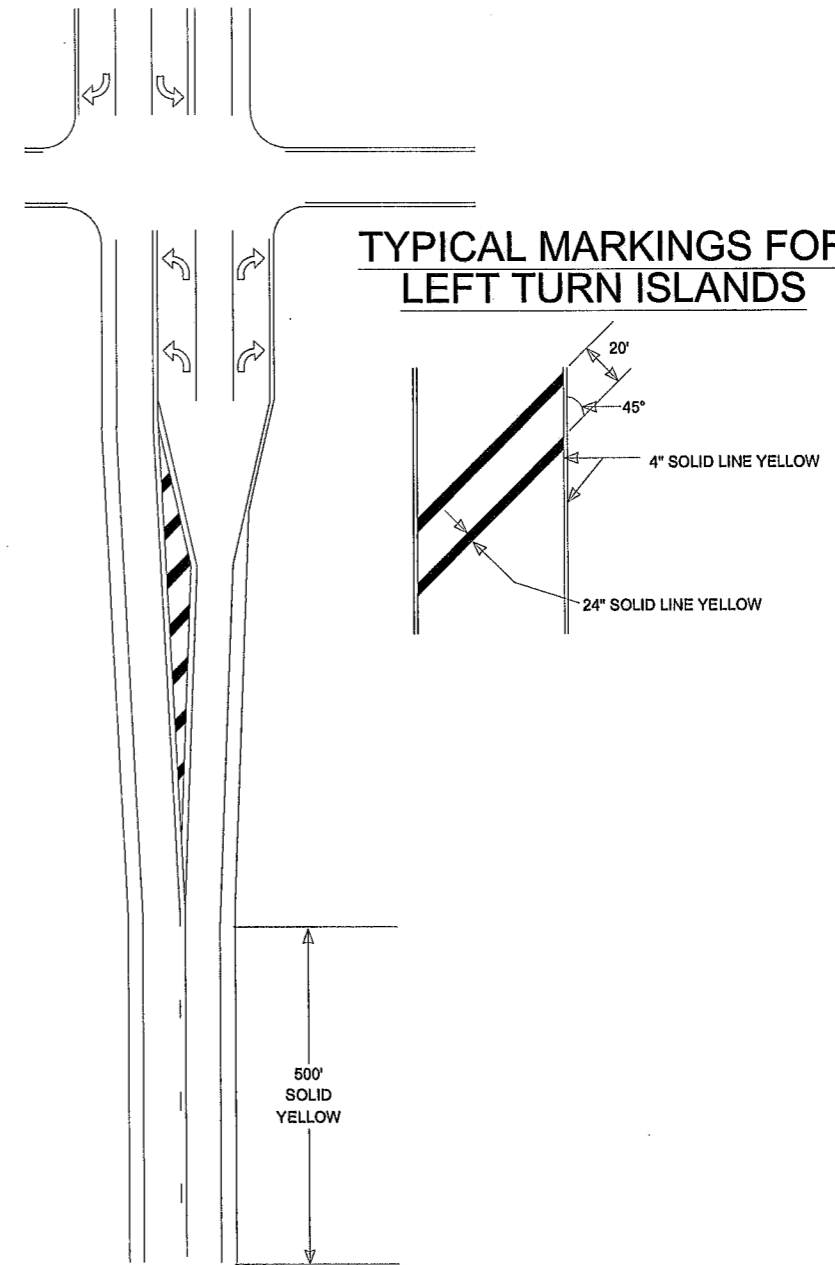
SAP 002-623-024

TEMPORARY SIGNING  
PERMANENT STRIPING

**TYPICAL MESSAGE PLACEMENT  
FOR TURN LANES**



**TYPICAL MARKINGS FOR  
LEFT TURN ISLANDS**



NO	DATE	BY	CKD	APPR	REVISION
NAME: P:\22-01-00\CSAH_23_(N of 2nd to N of Park Ct)\Base\Traffic\SS Details Sheets\Sign&Stripe_Details 2019.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: 1/20/22

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

DRAWN BY \_\_\_TMV\_\_\_ DATE 10/20/21

DESIGN BY \_\_\_ DATE \_\_\_

CHECKED BY \_\_\_SRT\_\_\_ DATE 12/01/21



**ANOKA COUNTY  
HIGHWAY DEPT.**

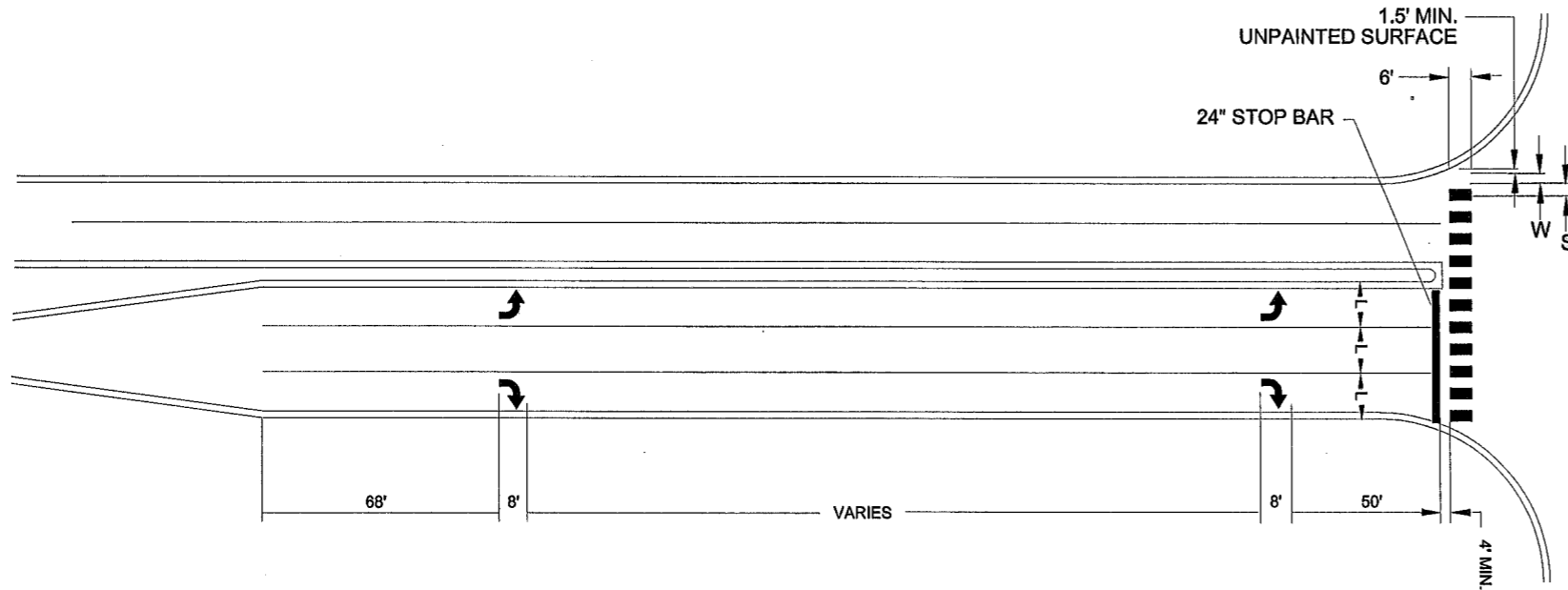
SAP 002-623-024

**SIGNING & STRIPING  
DETAILS**

SHEET 26 OF 27 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	CHKD	APPR	REVISION
NAME: P:\22-01-00\CSAH_23_(N of 2nd to N of Park Ct)\Base\Traffic\SS Details Sheets\Sign&Stripe_Details 2019.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: 1/20/22  
 SIGNATURE: *Sean R. Thiel* LICENSE NO. 45129

DRAWN BY: TMV DATE: 10/20/21  
 DESIGN BY: DATE: \_\_\_\_\_  
 CHECKED BY: SRT DATE: 12/01/21



ANOKA COUNTY  
HIGHWAY DEPT.

SAP 002-623-024

SIGNING & STRIPING  
DETAILS  
SHEET 27 OF 27 SHEETS