

MINNESOTA DEPARTMENT OF TRANSPORTATION ANOKA COUNTY

CONSTRUCTION PLAN FOR MILL BITUMINOUS, BITUMINOUS SURFACING AND BITUMINOUS RECLAMATION

LOCATED ON CR 60 BETWEEN TH 65 AND EAST LAKE NETTA DR

	<u>CR #60</u>	
GROSS LENGTH	12,050.00 FEET	2.28 MILES
EXCEPTIONS-LENGTH	0.00 FEET	0.000 MILES
NET LENGTH	12,050.00 FEET	2.28 MILES

GOVERNING SPECIFICATIONS

THE 2018 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."

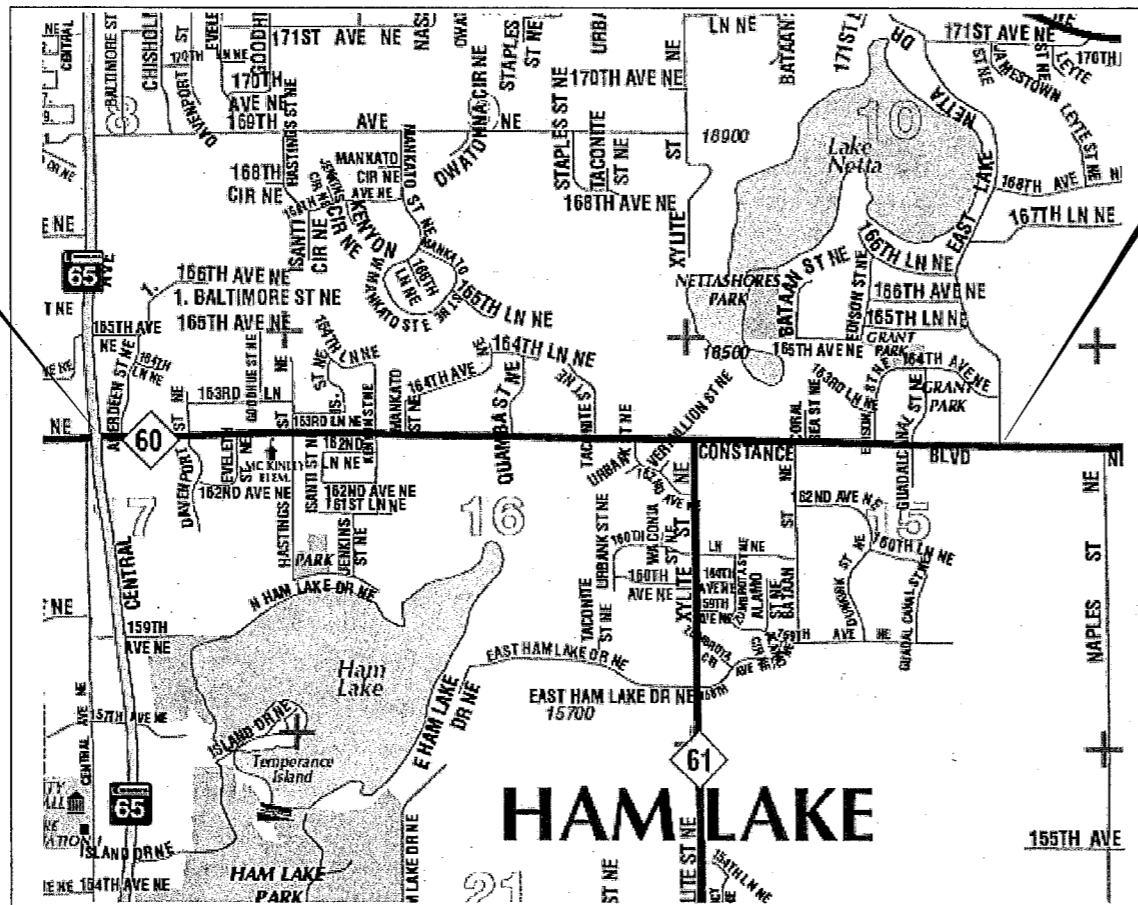
THIS PLAN CONTAINS 39 SHEETS

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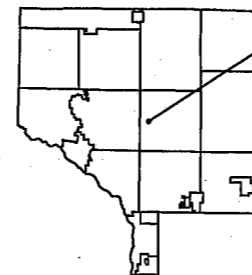
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2	STATEMENT OF ESTIMATED QUANTITIES
3 - 7	TYPICAL SECTIONS
8 - 10	DETAILS
11 - 15	CONSTRUCTION PLAN
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22 - 32	SIGNING AND STRIPING PLANS
33 - 39	EXISTING SIGNAL PLANS

BEGIN CP 20-11-60
CR 60, STA: 10+62.00

END CP 20-11-60
CR 60, STA: 131+12.00



PROJECT LOCATION



DESIGN DESIGNATION (CSAH 60)		FUNCTIONAL CLASSIFICATION	
ESAL 20	405,730	MAJOR COLLECTOR	
R VALUE	70	NO. OF TRAFFIC LANES	2
ADT (2020)	3816	NO. OF PARKING LANES	0
PROJ. ADT (2040)	3816	DESIGN SPEED	55 MPH
PROJ. HCADT (2040)	225	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	

CITY OF HAM LAKE
ANOKA COUNTY
MN/DOT TRANSPORTATION DISTRICT - METRO
SECTION 15, 16, 17
TOWNSHIP 32 NORTH
RANGE 23 WEST

Approved 3-17-20
ANOKA COUNTY ENGINEER

NO	DATE	BY	CKD	APPR	REVISION	TIME
	03/17/2020					11:35:04 AM

NAME: P:\20-01-00\CR_60_(TH65-E_Lk_Netta)\Base\Proposed\Proposed.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: GERALD J. AUGER JR.
SIGNATURE:
DATE: 03-17-2020 LICENSE NO. 28511

DRAWN BY: DLD DATE: 2-11-20
DESIGN BY: APA DATE: 2-11-20
CHECKED BY: CO DATE: 2-11-20

**ANOKA COUNTY
HIGHWAY DEPT.**

COUNTY PROJECT 20-11-60

TITLE SHEET
Sheet 1 of 39 Sheets

STATEMENT OF ESTIMATED QUANTITIES

NOTES	ITEM NUMBER	ITEM DESCRIPTION	UNIT	TOTAL PROJECT QUANTITIES ESTIMATED
	2021.501	MOBILIZATION	LUMP SUM	1
	2104.502	REMOVE CASTING	EACH	5
	2104.502	REMOVE SIGN TYPE C	EACH	2
1	2104.503	SAWING CONCRETE PAVEMENT (FULL DEPTH)	LIN FT	28
1	2104.503	SAWING BIT PAVEMENT (FULL DEPTH)	LIN FT	1188
1	2104.504	REMOVE CONCRETE DRIVEWAY PAVEMENT	SQ YD	55
1,8	2104.504	REMOVE BITUMINOUS DRIVEWAY PAVEMENT	SQ YD	1337
2	2123.510	MOTOR GRADER	HOUR	12
	2130.523	WATER	M GALLON	388
9	2104.504	REMOVE BITUMINOUS PAVEMENT	SQ YD	2397
3	2211.509	AGGREGATE BASE CLASS 5	TON	376
	2215.504	STABILIZED FULL DEPTH RECLAMATION	SQ YD	55361
5	2215.507	HAUL FULL DEPTH RECLAMATION (LV)	CU YD	95
4	2221.509	SHOULDER BASE AGGREGATE CLASS 5	TON	443
6	2232.504	MILL BITUMINOUS SURFACE (2.0")	SQ YD	1473
7	2232.604	MILL BITUMINOUS PAVEMENT (SPECIAL)	SQ YD	340
	2357.506	BITUMINOUS MATERIAL FOR TACK COAT	GALLON	2952
1,8	2360.509	TYPE SP 9.5 WEARING COURSE MIX (3;B)	TON	158
9	2360.509	TYPE SP 12.5 WEARING COURSE MIX (4;C)	TON	283
	2360.509	TYPE SP 12.5 WEARING COURSE MIX (4;C)	TON	12733
10	2506.502	CASTING ASSEMBLY	EACH	5
	2521.518	6" CONCRETE WALK	SQ FT	300
1	2531.503	CONCRETE CURB & GUTTER DESIGN B418	LIN FT	2730
1	2531.504	6" CONCRETE DRIVEWAY PAVEMENT	SQ YD	55
	2531.618	TRUNCATED DOMES	SQ FT	32
11	2540.602	MAIL BOX SUPPORT	EACH	52
12	2563.601	TRAFFIC CONTROL	LUMP SUM	1
13	2563.613	PORTABLE CHANGEABLE MESSAGE SIGN	UNIT DAY	20
	2564.618	SIGN TYPE C	SQ FT	25.00
14	2573.502	STORM DRAIN INLET PROTECTION	EACH	5
15	2574.507	COMMON TOPSOIL BORROW	CU YD	303
16	2575.504	EROSION CONTROL BLANKETS CATEGORY 0	SQ YD	1213
17	2581.503	REMOVABLE PREFORM PAVEMENT MARKING TAPE	LIN FT	482
18	2582.503	4" SOLID LINE MULTI COMP	LIN FT	28620
18	2582.503	4" BROKEN LINE MULTI COMP	LIN FT	1234
18	2582.503	8" DOTTED LINE MULTI COMP	LIN FT	108
18	2582.503	4" DBLE SOLID LINE MULTI COMP	LIN FT	6090
	2582.518	CROSSWALK PREF THERMO	SQ FT	144
	2582.603	PAVEMENT MARKING SPECIAL	LIN FT	32

CONSTRUCTION NOTES

1	CONTRACTOR IS RESPONSIBLE FOR CONTACTING PROPERTY OWNER 48 HOURS BEFORE STARTING OPERATION.
2	ITEM USED TO MOVE EXCESS RECLAIM MATERIAL AT THE RECLAIM AREA LIMITS TO CREATE A SMOOTH TRANSITION BETWEEN THE PROPOSED AND EXISTING PAVEMENT
3	GRAVEL BASE FOR CONCRETE AND BITUMINOUS STREET APPROACHES, DRIVEWAYS AND BASE FOR NEW CONCRETE WALK
4	ITEM INCLUDES 7 TONS FOR EACH GRAVEL ENTRANCE AND GRAVEL STREET APPROACH.
5	MATERIAL SHALL BE HAULED AND USED FOR PROFILECORRECTION AREAS. ITEM INCLUDES PLACEMENT, SHAPING, COMPACTION, AND MAINTENANCEOF MATERIAL. EXCESS MATERIAL SHALL BECOME THE PROPERTY OF THE CONTRACTOR
6	ITEM INCLUDES 2" DEEP MILL AT BEGINNING AND END OF PROJECT, ALL PAVED ST APPROACHES, AND DRIVEWAYS; SEE DETAILS FOR DIMENSIONS
7	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.
8	ITEM FOR BITUMINOUS DRIVEWAYS, DRIVEWAYS SHALL BE PAVED AFTER MAINLINE AND BEFORE FINAL STRIPING.
9	ITEM FOR STREET APPROACHES. STREET APPRACHES SHALL BE PAVED AFTER MAINLINE, AND BEFORE FINAL STRIPING
10	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
11	MAILBOXES ARE TO BE INSTALLED AT THE EXISTING MAILBOX LOCATION OR AS DIRECTED BY THE LOCAL POSTAL AUTHORITY, CONTRACTOR IS RESPONSIBLE FOR CONTACTING. MAILBOX REMOVAL AND ALL MATERIALS ARE INCIDENTAL TO INSTALLATION.
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	ITEM USED AT ENGINEER'S DISCRETION FOR RESTORATION OF DISTURBED AREAS ALONG DRIVEWAYS, AND STREET APPROACHES.
16	TYPE 3 FERTILIZER AND TYPE 25-121 SEED ARE INCIDENTAL TO THIS ITEM. SEE "BASIS OF PLANNED QUANTITIES" FOR APPLICATION RATES.
17	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.
18	FINAL STRIPING SHALL BE INSTALLED WITHIN 72 HOURS OF COMPLETION OF MAINLINE WEAR COURSE PAVING.

MNDOT STANDARD PLATES

PLATE NO.	DESCRIPTION
4020J	MANHOLE OR CATCH BASIN (FOR USE WITH OR WITHOUT TRAFFIC LOADS) (2 SHEETS)
4026A	CONCRETE ENCASED CONCRETE ADJUSTING RINGS
4101D	RING CASTING FOR MANHOLE OR CATCH BASIN
4129G	CATCH BASIN FRAME CASTING (FOR SQUARE GRATE) - CASTING NO. 802A
7100H	CONCRETE CURB AND GUTTER (DESIGN B AND DESIGN V)
8000J	CHANNELIZERS
9350A	MAILBOX SUPPORT (SWING-AWAY TYPE)

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

NO	DATE	BY	CKD	APPR	REVISION	
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HIGHWAY DEPT.**

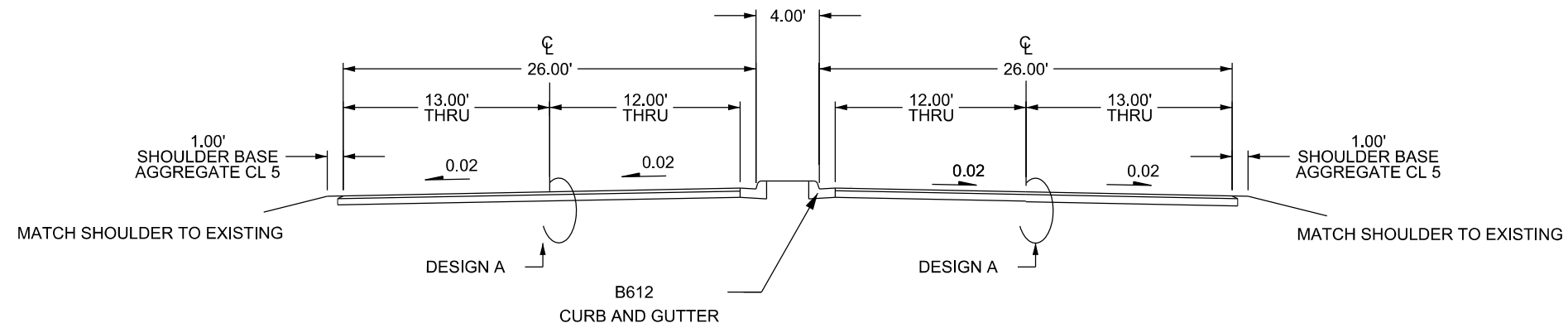
COUNTY PROJECT 20-11-60

STATEMENT OF ESTIMATED QUANTITIES

Sheet 2 of 39 Sheets

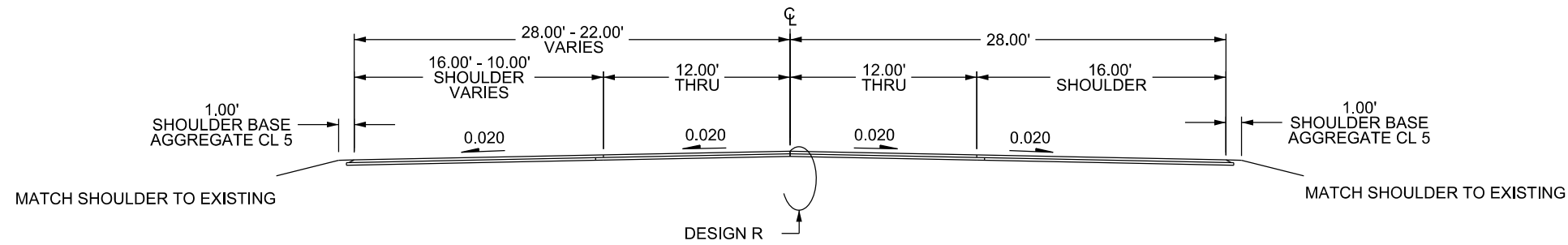
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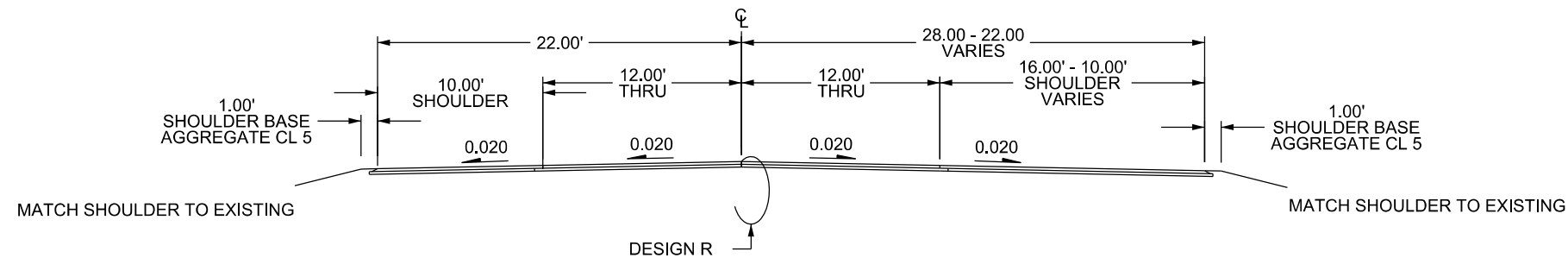
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13+05.00 - 14+50.00



CR 60 - Constance Boulevard (PROPOSED) SECTION

14+50.00 - 17+69.00

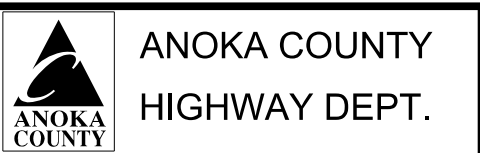


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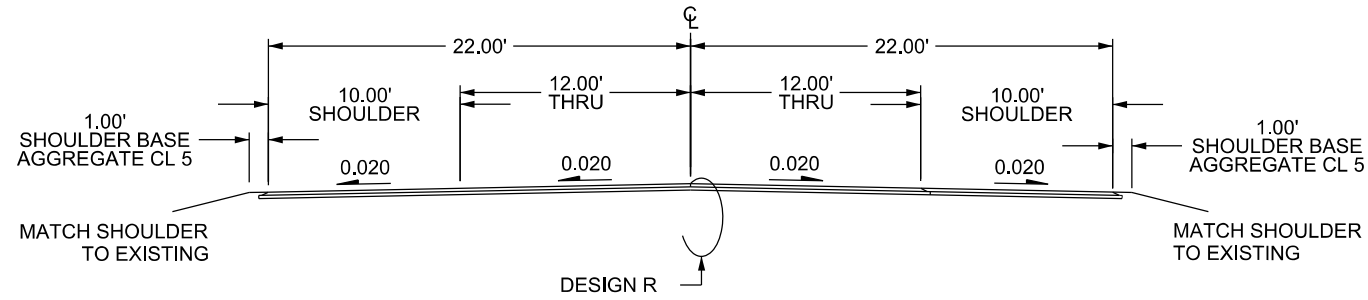
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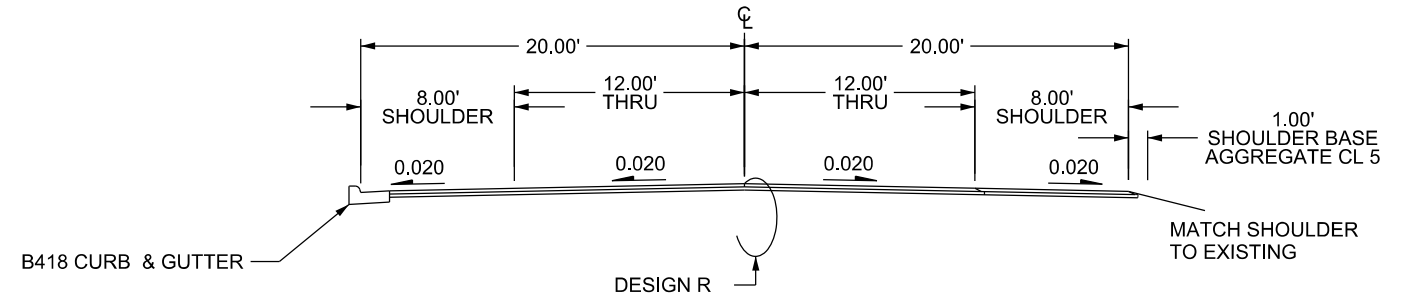
COUNTY PROJECT 20-11-60

TYPICAL SECTIONS
 Sheet 3 of 39 Sheets

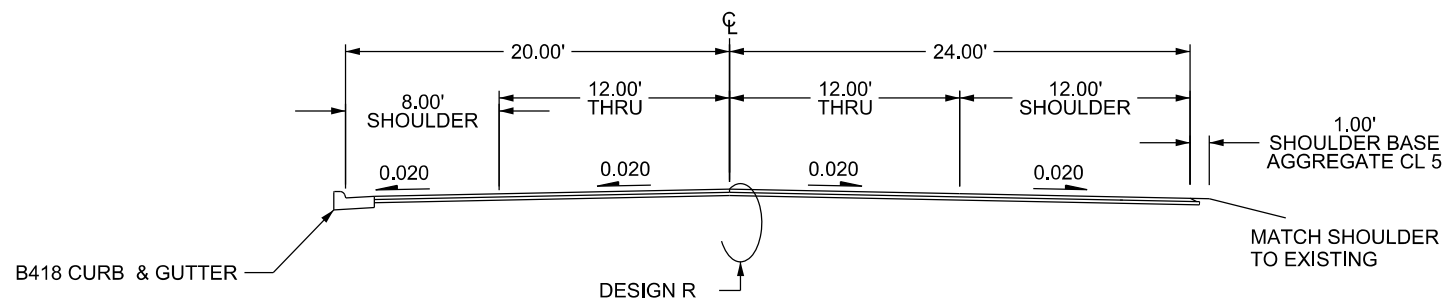
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 (PROPOSED) SECTION
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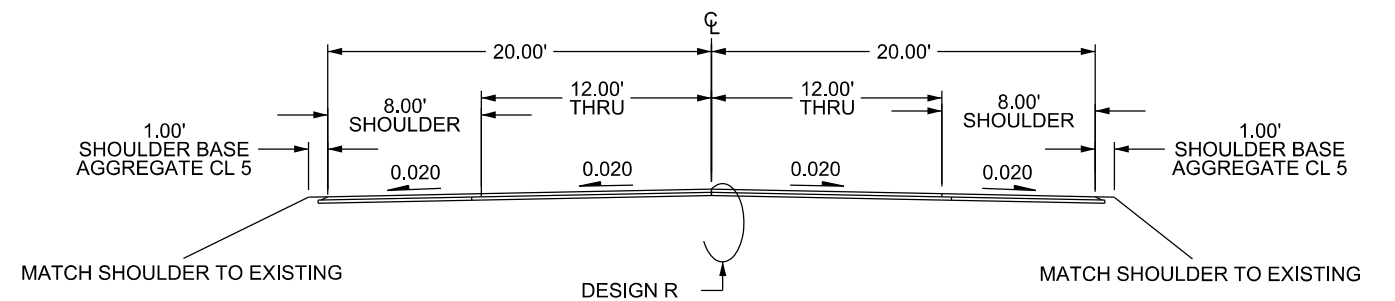
CR 60 - Constance Boulevard
 (PROPOSED) SECTION
 22+61.00 - 30+36.00
 65+31.00 - 67+84.00
 92+24.00 - 93+90.00



CR 60 - Constance Boulevard
 (PROPOSED) SECTION
 30+36.00 - 36+15.00



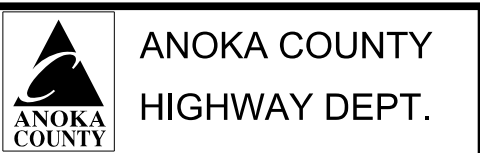
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 (PROPOSED) SECTION
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 60+50.00 - 65+31.00 / 67+84.00 - 72+86.00
 77+78.00 - 83+48.00 / 93+90.00 - 124+58.00



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COUNTY PROJECT 20-11-60

TYPICAL SECTIONS
 Sheet 4 of 39 Sheets

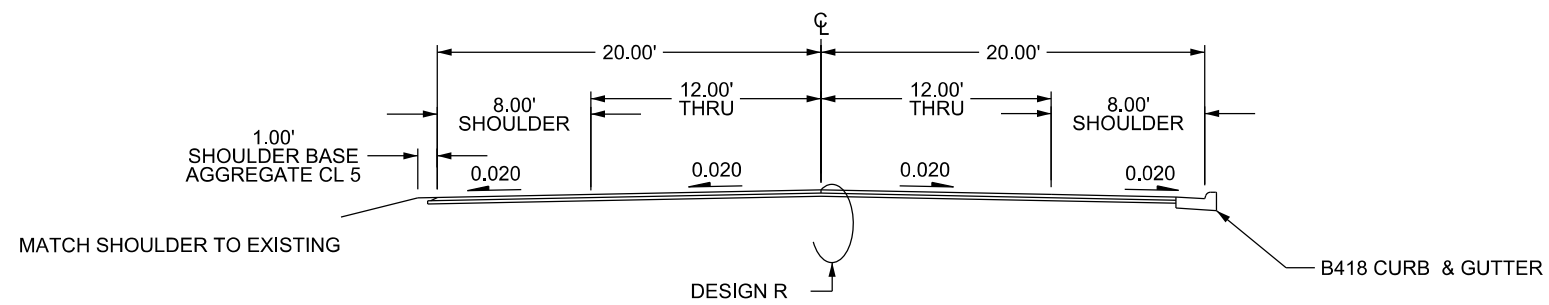
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(PROPOSED) SECTION

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72+86.00 - 76+10.00

77+00.00 - 77+78.00

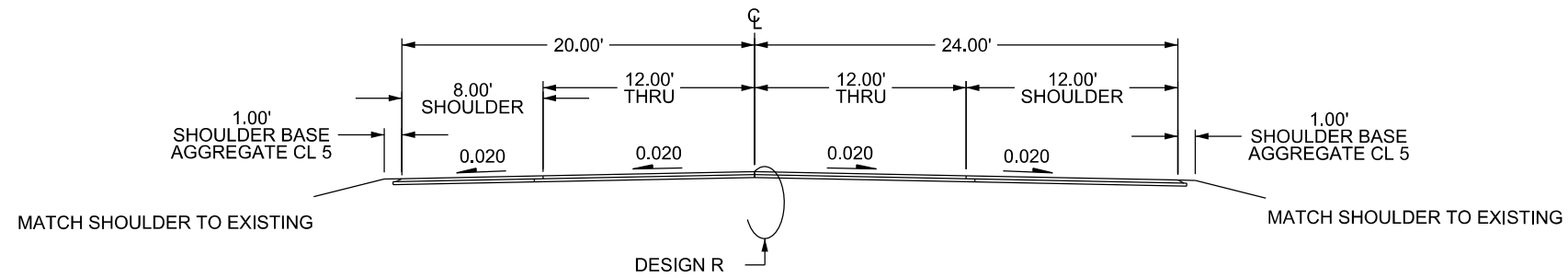


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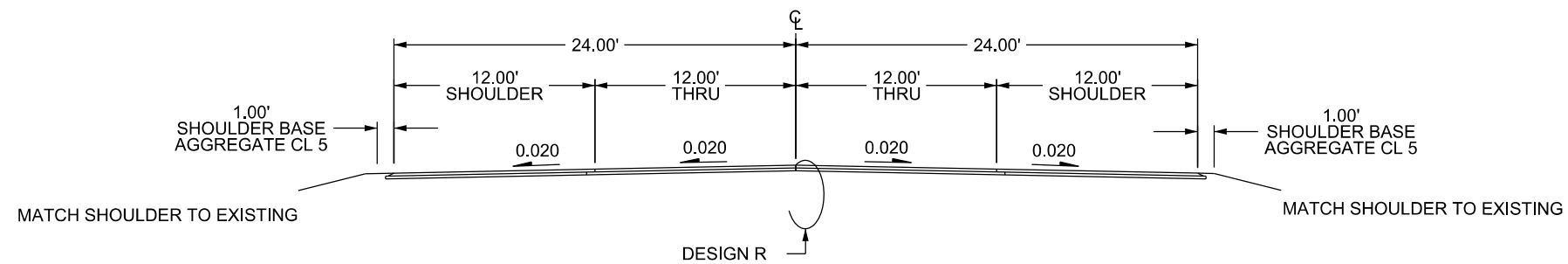
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(PROPOSED) SECTION


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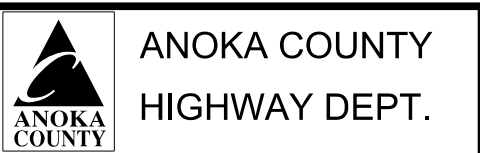
129+24.00 - 131+12.00



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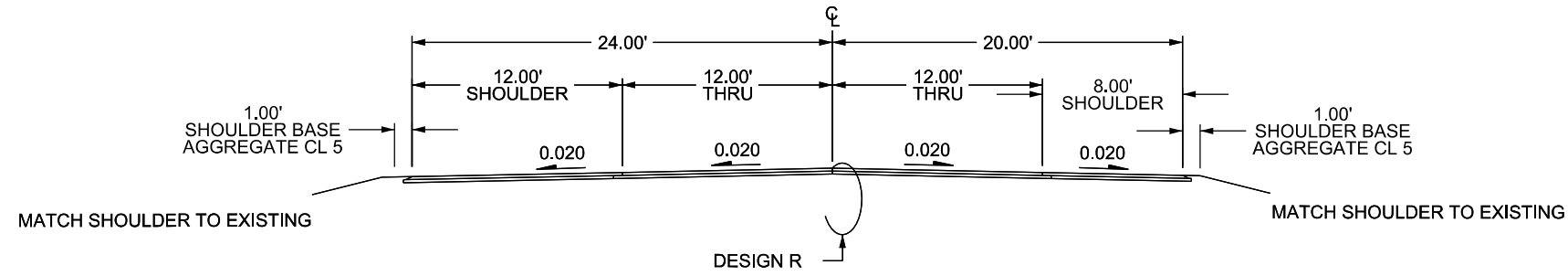
TYPICAL SECTIONS
 Sheet 5 of 39 Sheets

CR 60 - Constance Boulevard

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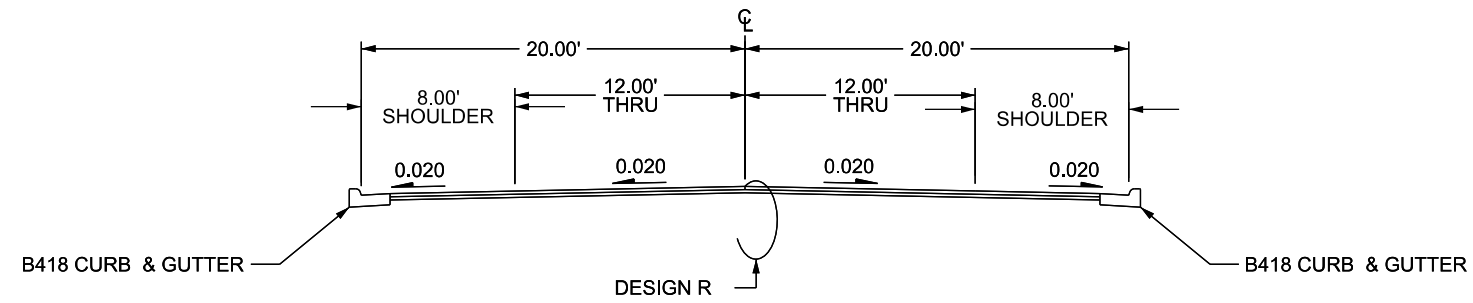
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CR 60 - Constance Boulevard

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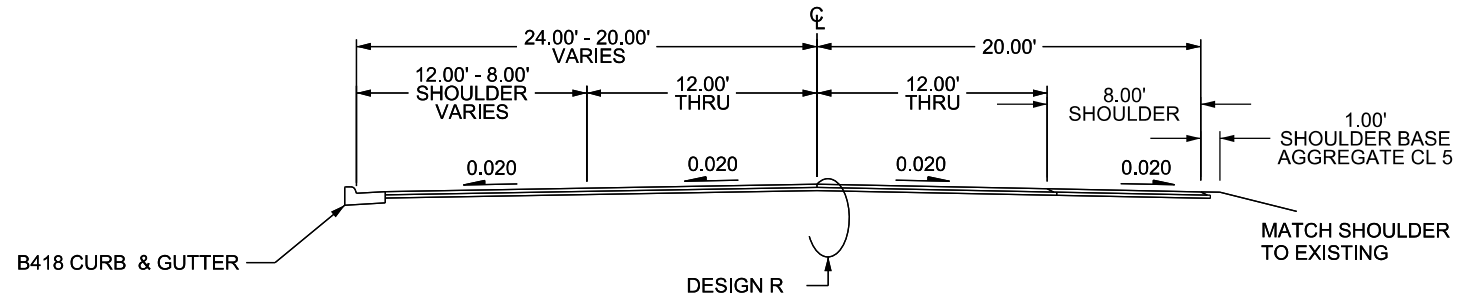
76+10.00 - 77+00.00




CR 60 - Constance Boulevard

(PROPOSED) SECTION

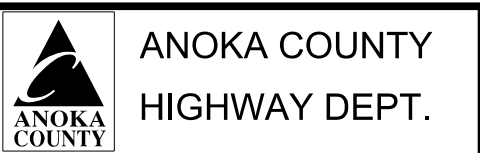
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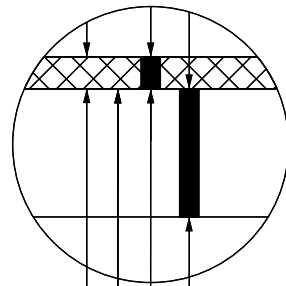
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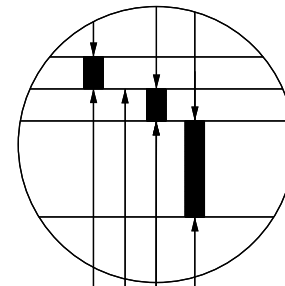
TYPICAL SECTIONS
 Sheet 6 of 39 Sheets

DESIGN A
MILL SECTION



2.0" MILL BITUMINOUS
BIT MATERIAL FOR TACK MNDOT SPEC 2357
2.0" BITUMINOUS WEAR(SPWEB440C)
REMAINING BITUMINOUS

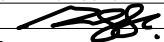
DESIGN R
RECLAIM SECTION



2.0" BITUMINOUS WEAR(SPWEB440C)
BIT MATERIAL FOR TACK MNDOT SPEC 2357
2.0" BITUMINOUS WEAR(SPWEB440C)
RECLAIMED BITUMINOUS

NO	DATE	BY	CKD	APPR	REVISION	
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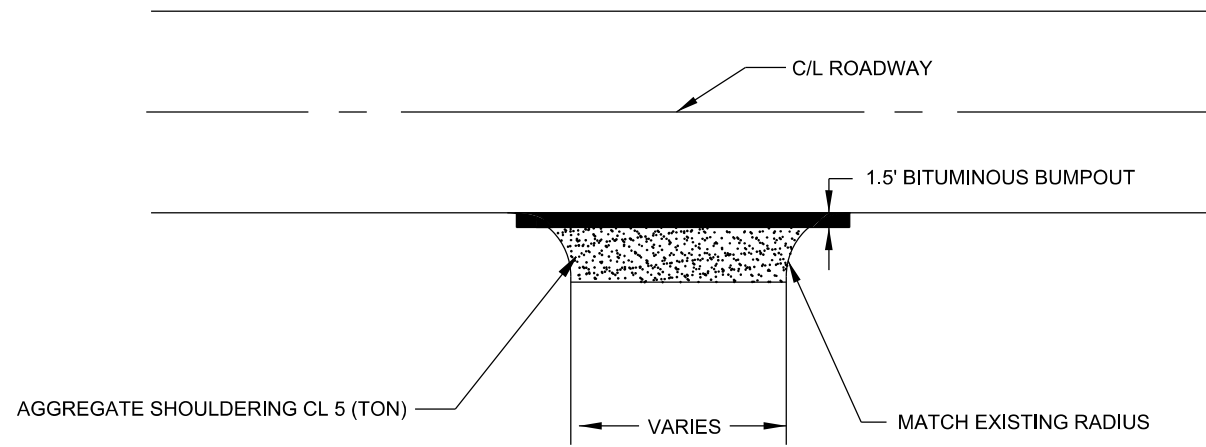
ANOKA COUNTY
HIGHWAY DEPT.

COUNTY PROJECT 20-11-60

TYPICAL SECTIONS
Sheet 7 of 39 Sheets

DRIVEWAY DETAIL

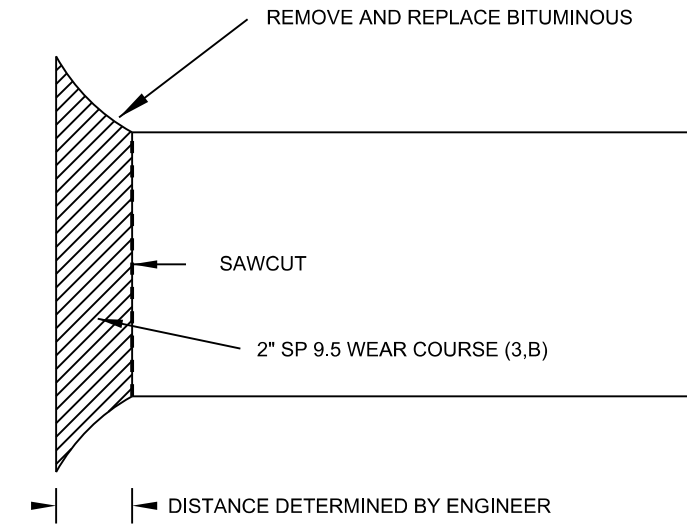
GRAVEL / FIELD ENTRANCE



RECLAIM AREA - DRIVEWAY DETAIL

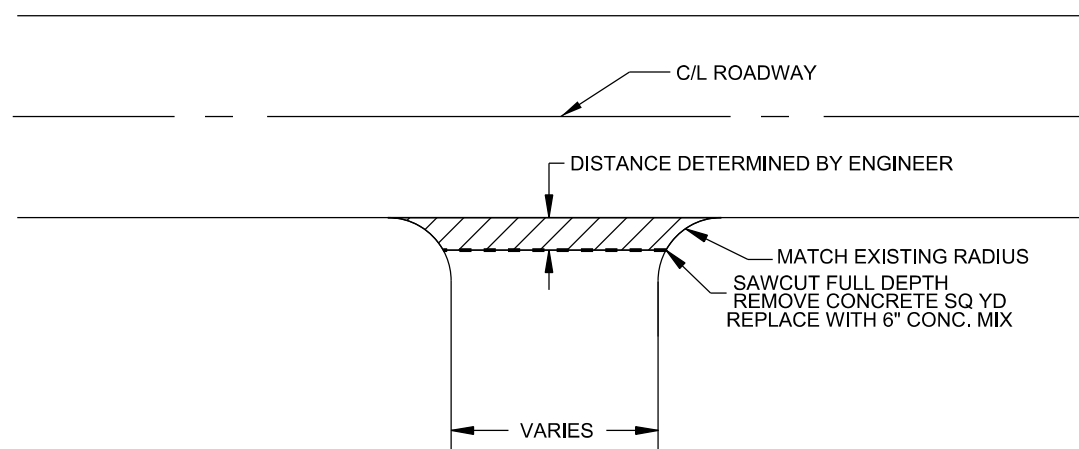
BITUMINOUS

PLAN VIEW



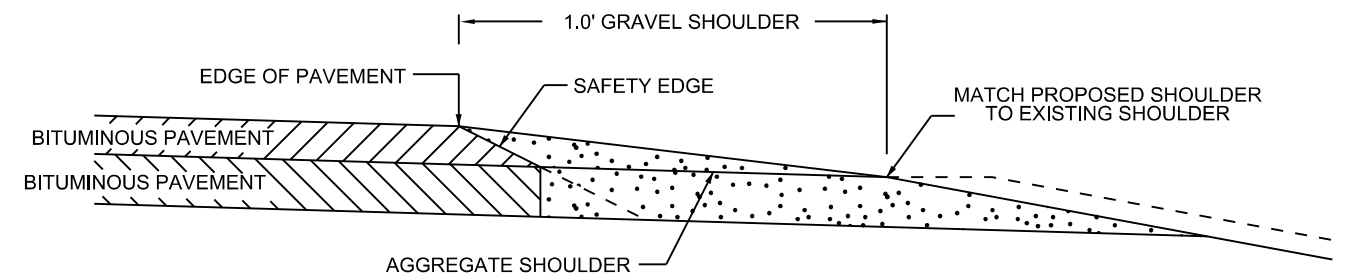
DRIVEWAY DETAIL

CONCRETE DRIVEWAY



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 .

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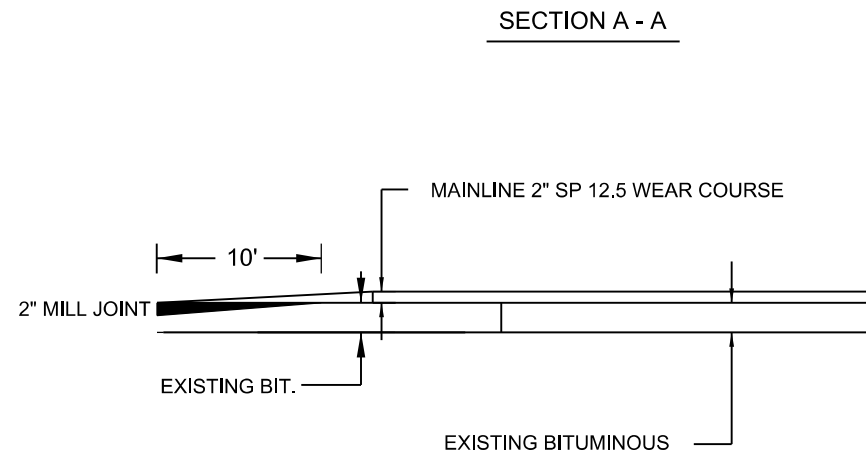
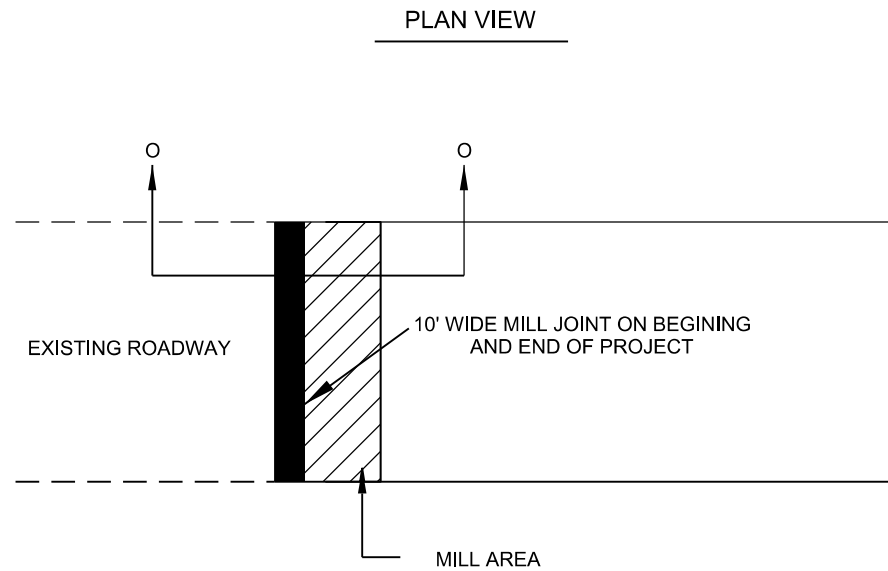
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COUNTY PROJECT 20-11-60

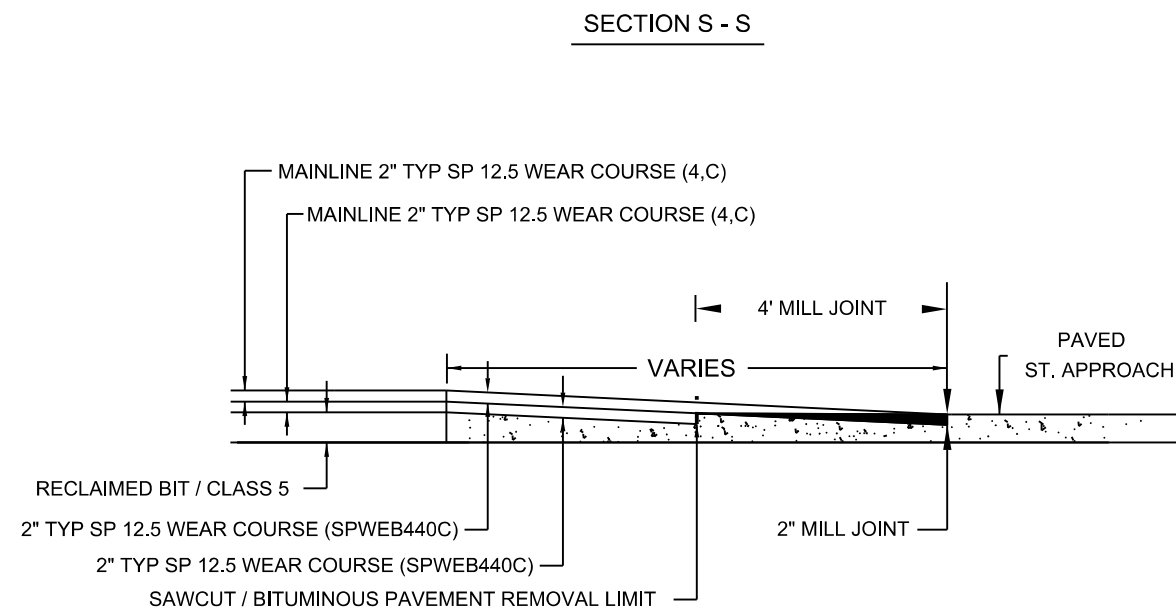
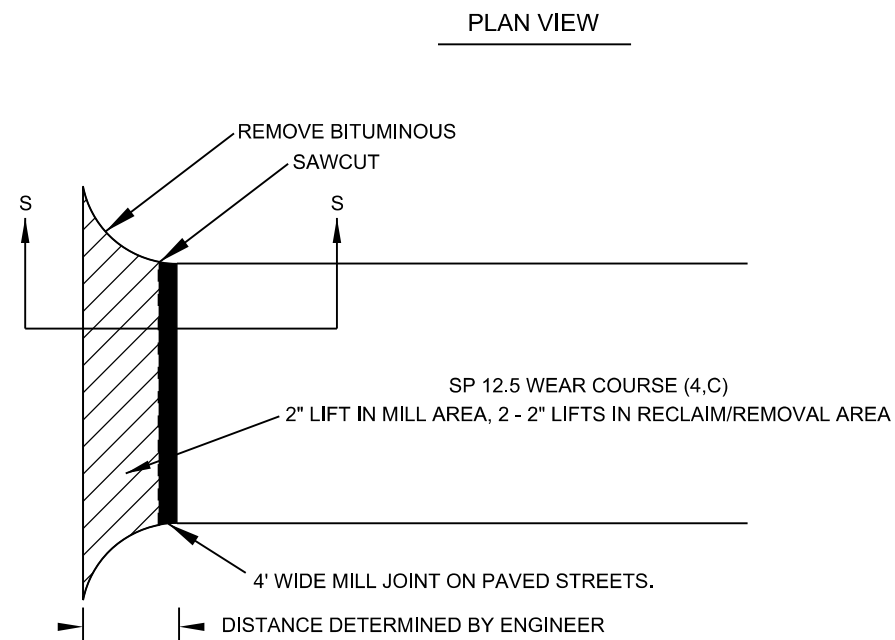
DETAILS
 Sheet 8 of 39 Sheets

MAINLINE JOINT DETAIL (MILL)



STREET APPROACH DETAIL (RECLAIM)

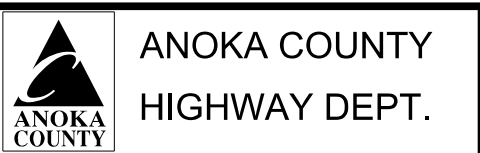
BITUMINOUS STREET



NO	DATE	BY	CKD	APPR	REVISION	03/17/2020	11:35:16 AM
NAME: P:\20-01-00\CR_60_(TH65-E_Lk_Netta)\Base\Proposed\Proposed.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: GERALD J. AUGER, JR.
 SIGNATURE: *[Signature]*
 DATE: 03-17-2020 LICENSE NO. 26511

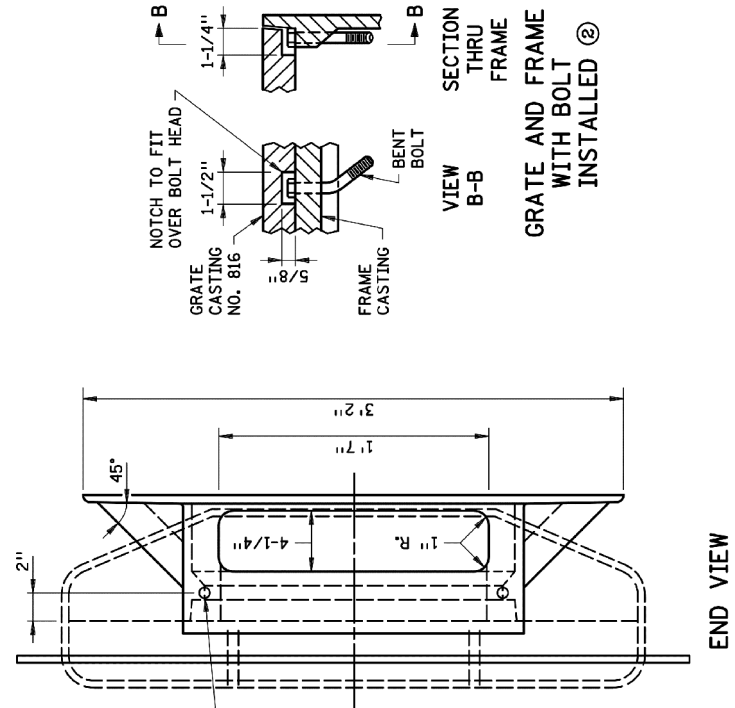
DRAWN BY DLD DATE 2-11-20
 DESIGN BY APA DATE 2-11-20
 CHECKED BY CO DATE 2-11-20



COUNTY PROJECT 20-11-60

DETAILS
 Sheet 9 of 39 Sheets

TYPE A



CASTINGS USED FOR ASSEMBLY
 GRATE NO. 816 (MNDOT STD PLATE 4154B)
 CURB BOX ① NO. 823A (MNDOT STD PLATE 4160) OR

NOTES:
 USE 1/4" FILLETS IN ALL CORNERS. SEE MNDOT STANDARD PLATE 7111 FOR INSTALLATION REQUIREMENTS. APPLIES TO DESIGN B OR V CURB AND GUTTER.
 ① AT LOCATIONS INDICATED IN TOP VIEW, PROVIDE 9/16" DIA. HOLES WHEN GRATE NO. 816 (MNDOT STD PLATE 4154) IS USED WITH THIS FRAME. FIELD PLACE 1/2" DIA. X 4" LONG GALV BOLT IN UP STREAM SIDE AND BENT UNDERSIDE TO PREVENT REMOVAL. THIS WILL PREVENT GRATE NO. 816 (MNDOT STD PLATE 4154) FROM BEING PLACED IN WRONG AND NOT BEING BICYCLE SAFE

STORM DRAINAGE TAB										
NUMBER	TYPE	ACTION	NEW CASTING	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	NOTES
				EACH	LIN FT	EACH	EACH	LIN FT	EACH	
101	CB	OK	A	1	0.2					
102	CB	RE-RING	A	1	0.2					
103	CB	RE-RING	A	1	0.2					
104	CB	RE-RING	A	1	0.2					
105	CB	RE-RING	A	1	0.2					
TOTALS:				5	1.0	0	0	0	0	

CASTING ASSEMBLIES SUMMARY						
ASSEMBLY	RING OR FRAME CASTING	COVER OR GRATE CASTING	CURB BOX	DESCRIPTION	NOTES	QUANTITY
TYPE A	24" SQUARE			SEE DETAILS - SHEET 10		5
ALL CASTING HEIGHTS ARE TO BE VERIFIED IN THE FIELD						

NOTE: THE CONTRATOR SHALL TAPER THE GUTTER OF CONCRETE CURB AND GUTTER FROM THE GUTTER OF THE ADJACENT CURB LINE TO THE GUTTER OF THE CASTING OVER A DISTANCE OF 3' (ON EACH SIDE OF THE CASTING). THIS WORK SHALL BE INCIDENTAL TO THE CONCRETE CURB & GUTTER PAY ITEMS.

NO	DATE	BY	CKD	APPR	REVISION	
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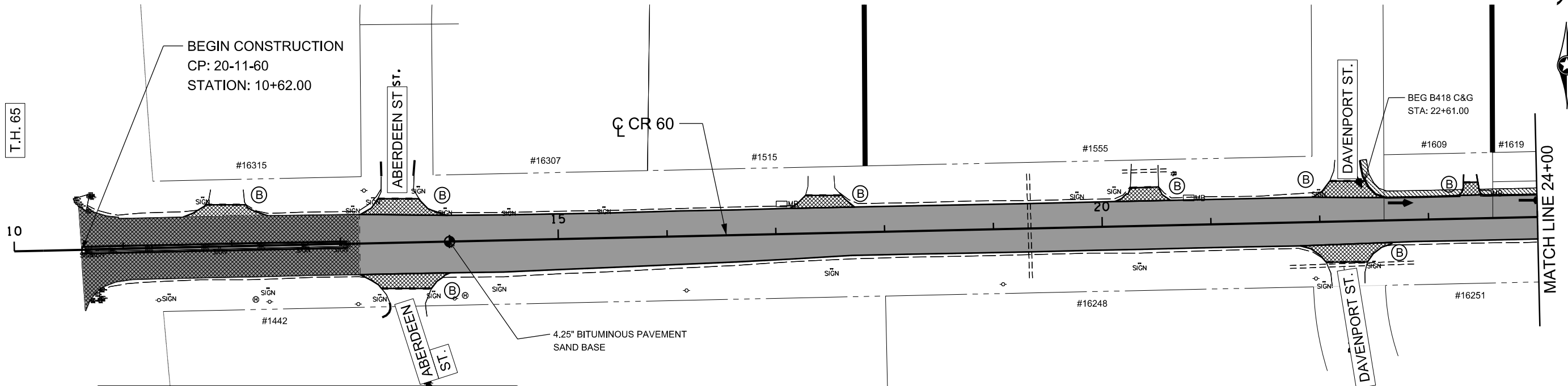
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I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
 PRINT NAME: GERALD J. AUGER JR.
 SIGNATURE:
 DATE: 03-17-2020 LICENSE NO. 26511

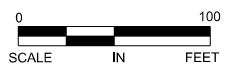
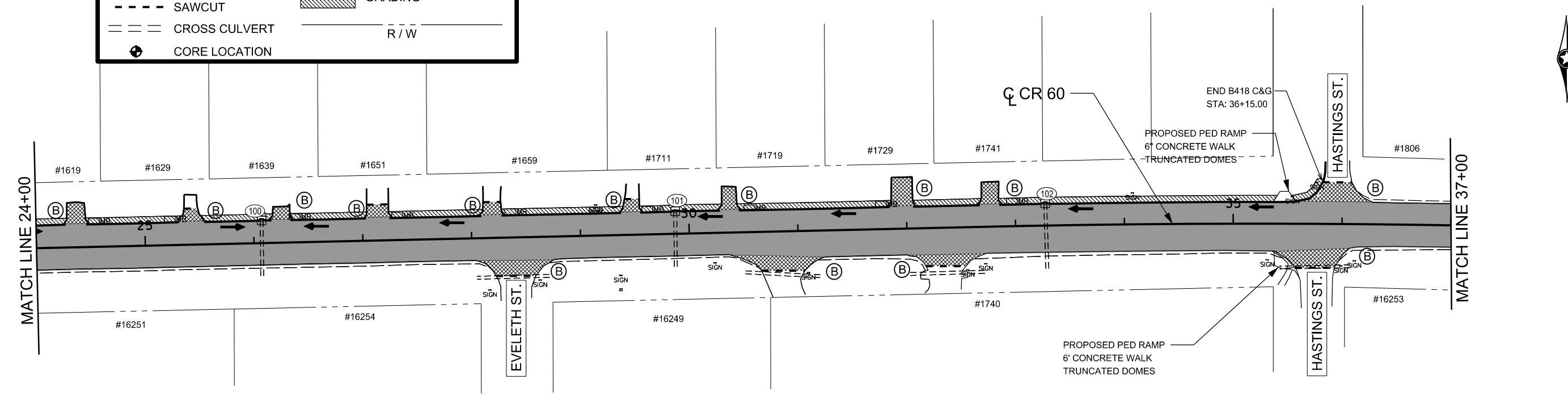
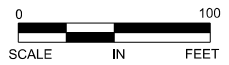
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 DESIGN BY: APA DATE: 2-11-20
 CHECKED BY: CO DATE: 2-11-20

ANOKA COUNTY HIGHWAY DEPT.

COUNTY PROJECT: 20-11-60



LEGEND			
(B)	BITUMINOUS	[Solid Grey]	MAINLINE (RECLAIM)
(C)	CONCRETE	[Cross-hatch]	REMOVE AND REPLACE PAVEMENT
(G)	GRAVEL	[Diagonal Hatch]	MAINLINE (MILL)
(100)	CATCH BASIN	[Stippled]	GRADING
→	FLOW DIRECTION	---	R / W
---	SAWCUT		
---	CROSS CULVERT		
⊙	CORE LOCATION		



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NAME: P:\20-01-00\CR_60_(TH65-E_Lk_Netta)\Base\Proposed\Proposed.dgn

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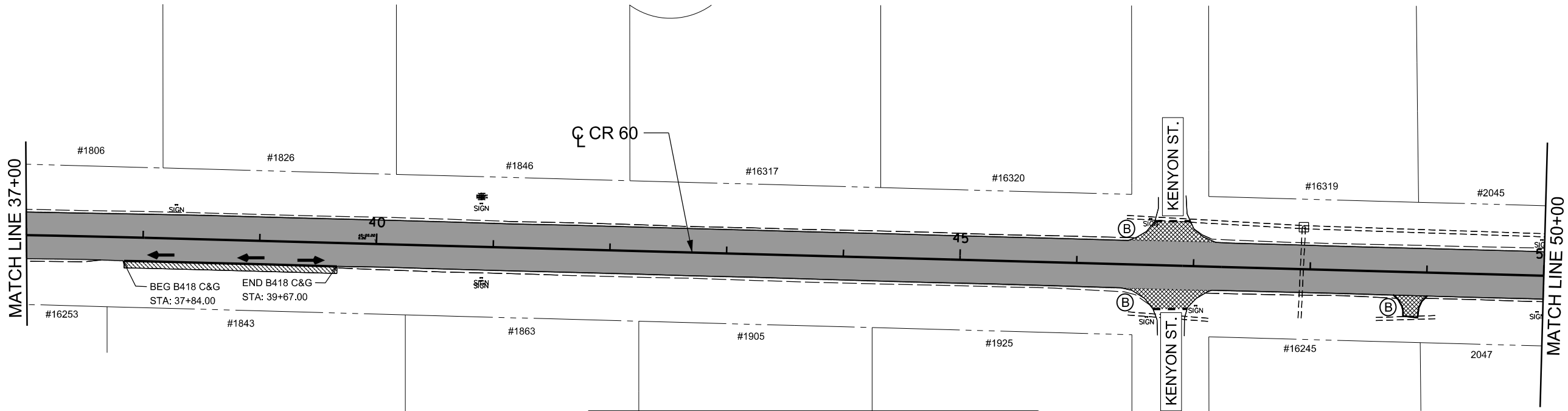
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CHECKED BY: CO DATE: 2-11-20

ANOKA COUNTY
HIGHWAY DEPT.

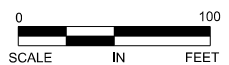
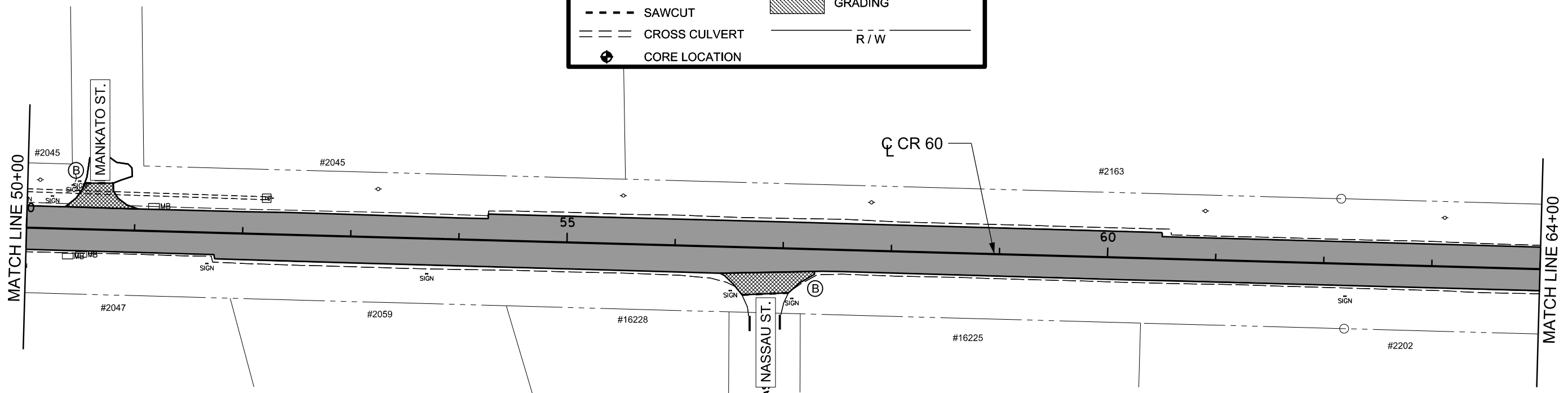
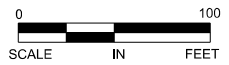
COUNTY PROJECT 20-11-60

CONSTRUCTION PLAN
STA 10+62 TO 37+00
Sheet 11 of 39 Sheets



LEGEND

(B)	BITUMINOUS	[Solid Grey]	MAINLINE (RECLAIM)
(C)	CONCRETE	[Cross-hatch]	REMOVE AND REPLACE PAVEMENT
(G)	GRAVEL	[Diagonal Hatch]	MAINLINE (MILL)
(100)	CATCH BASIN	[Stippled]	GRADING
→	FLOW DIRECTION	[Dashed Line]	R / W
---	SAWCUT	[Double Dashed Line]	
---	CROSS CULVERT	[Circle]	
●	CORE LOCATION		



NO	DATE	BY	CKD	APPR	REVISION	03/17/2020	11:35:24 AM
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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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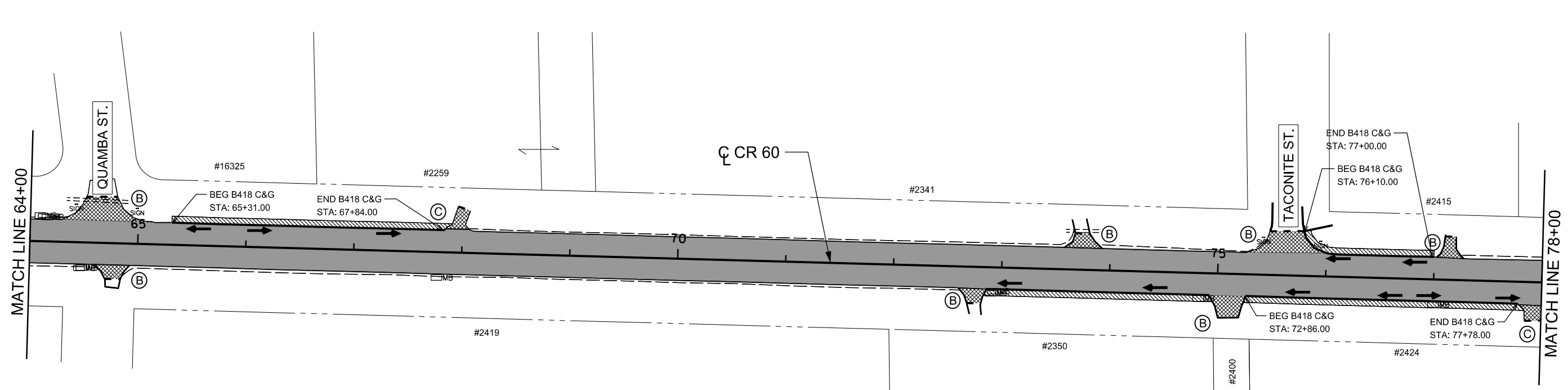
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**ANOKA COUNTY
HIGHWAY DEPT.**

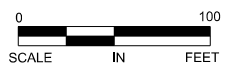
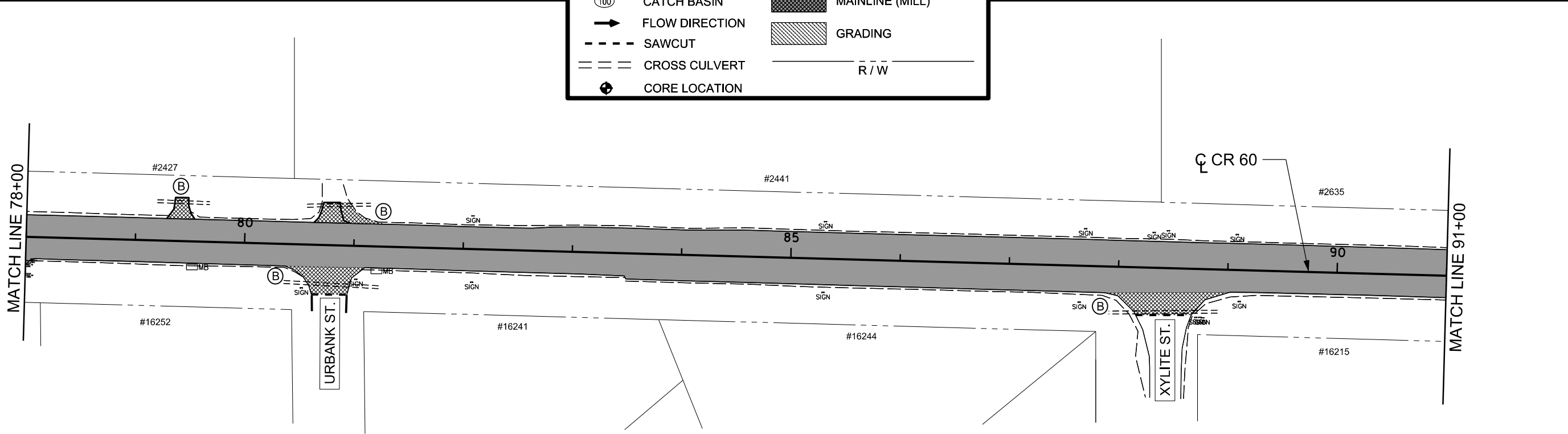
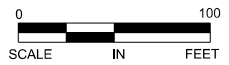
COUNTY PROJECT 20-11-60

CONSTRUCTION PLAN
 STA 37+00 TO 64+00
 Sheet 12 of 39 Sheets



LEGEND

(B)	BITUMINOUS	[Solid Grey Box]	MAINLINE (RECLAIM)
(C)	CONCRETE	[Cross-hatched Box]	REMOVE AND REPLACE PAVEMENT
(G)	GRAVEL	[Diagonal Hatched Box]	MAINLINE (MILL)
(100)	CATCH BASIN	[Dotted Box]	GRADING
→	FLOW DIRECTION	---	R / W
---	SAWCUT		
	CROSS CULVERT		
●	CORE LOCATION		



NO	DATE	BY	CKD	APPR	REVISION	03/17/2020	11:35:25 AM
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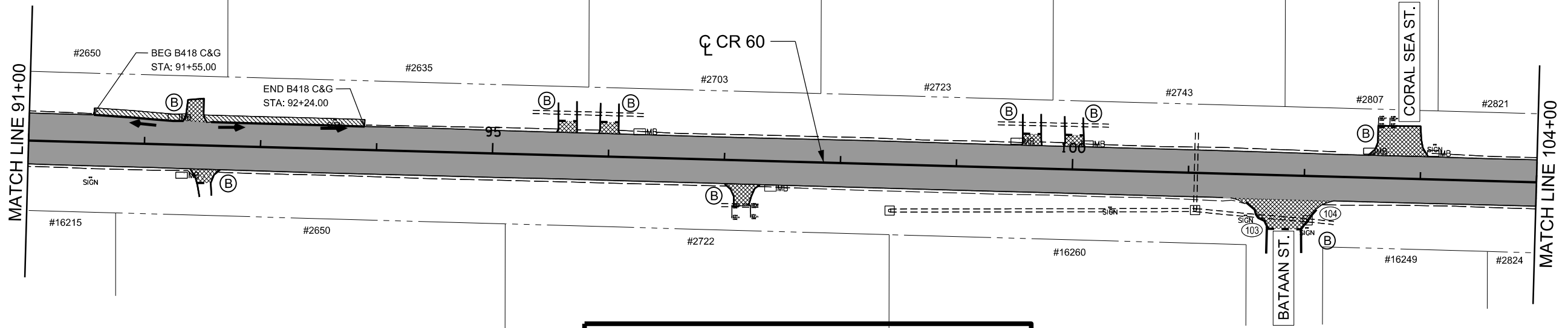
I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
 PRINT NAME: GERALD J. AUGER JR.
 SIGNATURE: *[Signature]*
 DATE: 03-17-2020 LICENSE NO. 26511

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**ANOKA COUNTY
HIGHWAY DEPT.**

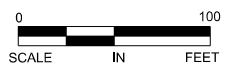
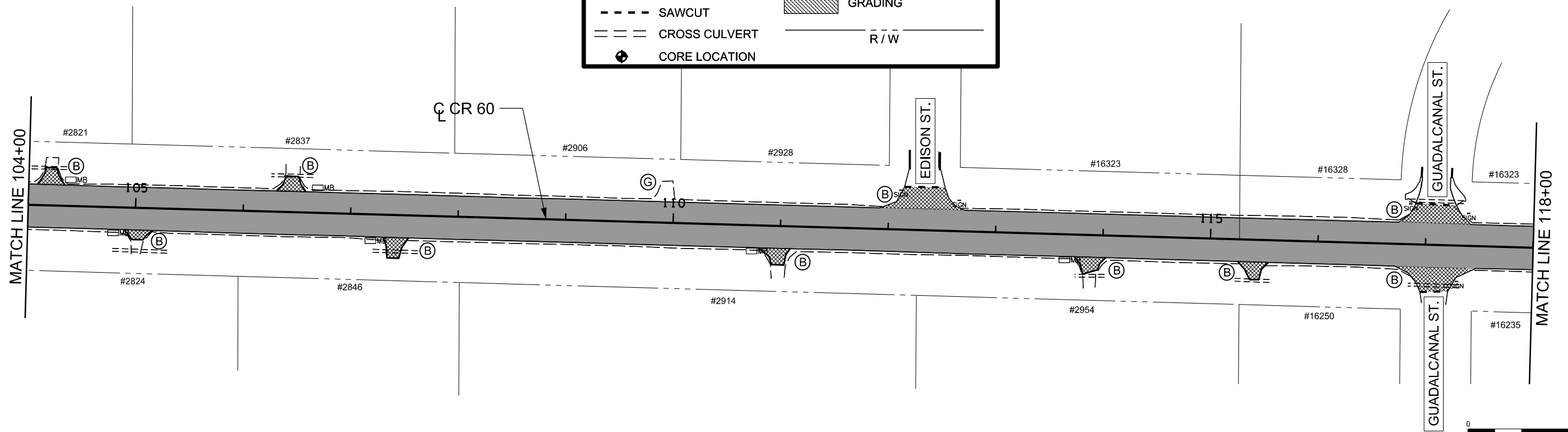
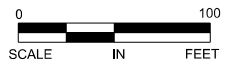
COUNTY PROJECT 20-11-60

CONSTRUCTION PLAN
 STA 64+00 TO 91+00
 Sheet 13 of 39 Sheets



LEGEND

(B)	BITUMINOUS	[Hatched Box]	MAINLINE (RECLAIM)
(C)	CONCRETE	[Cross-hatched Box]	REMOVE AND REPLACE PAVEMENT
(G)	GRAVEL	[Diagonal Hatched Box]	MAINLINE (MILL)
(100)	CATCH BASIN	[Diagonal Hatched Box]	GRADING
→	FLOW DIRECTION	[Dashed Line]	R / W
- - -	SAWCUT		
[Double Line]	CROSS CULVERT		
●	CORE LOCATION		



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	03/17/2020					11:35:25 AM

NAME: P:\20-01-00\CR_60_(TH65-E_Lk_Netta)\Base\Proposed\Proposed.dgn

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PRINT NAME: GERALD J. AUGER JR.

SIGNATURE: *[Signature]*

DATE: 03-17-2020 LICENSE NO. 26511

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DESIGN BY: APA DATE: 2-11-20

CHECKED BY: CO DATE: 2-11-20

**ANOKA COUNTY
HIGHWAY DEPT.**

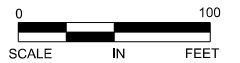
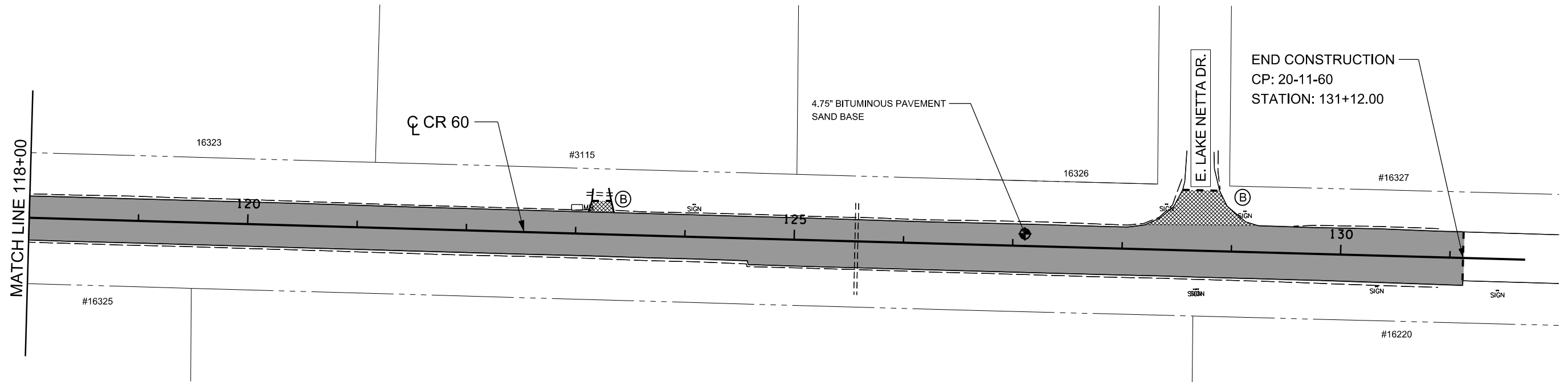
COUNTY PROJECT 20-11-60

CONSTRUCTION PLAN
STA 91+00 TO 118+00
Sheet 14 of 39 Sheets



LEGEND

(B)	BITUMINOUS		MAINLINE (RECLAIM)
(C)	CONCRETE		REMOVE AND REPLACE PAVEMENT
(G)	GRAVEL		MAINLINE (MILL)
(100)	CATCH BASIN		GRADING
	FLOW DIRECTION		
	SAWCUT		
	CROSS CULVERT		
	CORE LOCATION		
			R / W



NO	DATE	BY	CKD	APPR	REVISION	03/17/2020	11:35:26 AM
NAME: P:\20-01-00\CR_60_(TH65-E_Lk_Netta)\Base\Proposed\Proposed.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: GERALD J. AUGER JR.
 SIGNATURE:
 DATE: 03-17-2020 LICENSE NO. 26511

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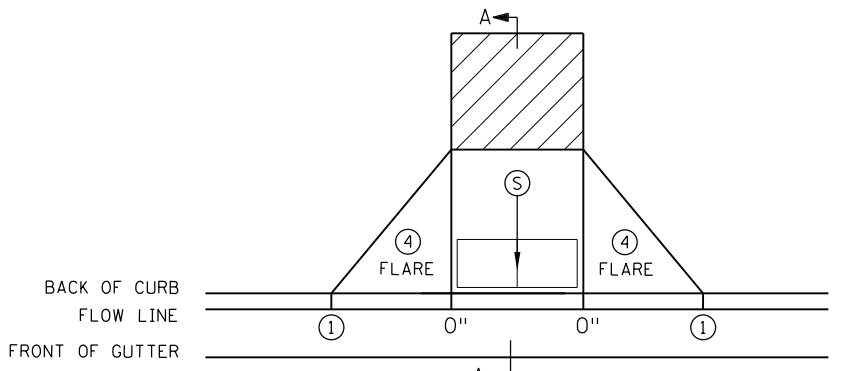
ANOKA COUNTY HIGHWAY DEPT.

COUNTY PROJECT 20-11-60

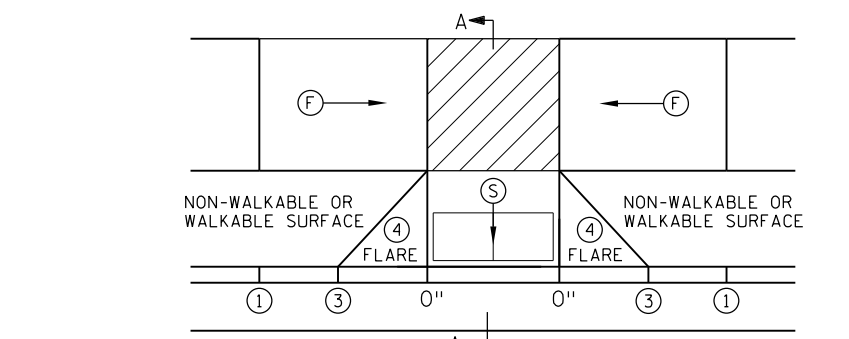
CONSTRUCTION PLAN
 STA 118+00 TO 131+12
 Sheet 15 of 39 Sheets

PLOTTED/REVISED:
03/17/2020

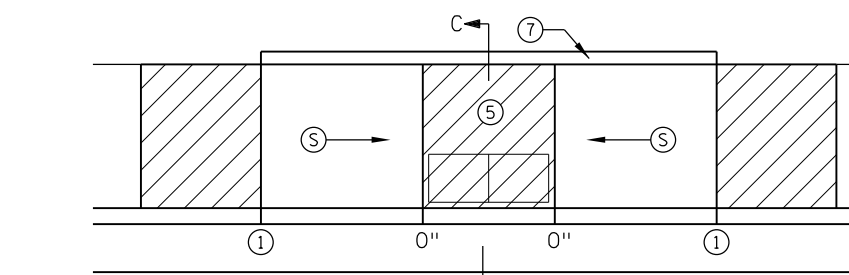
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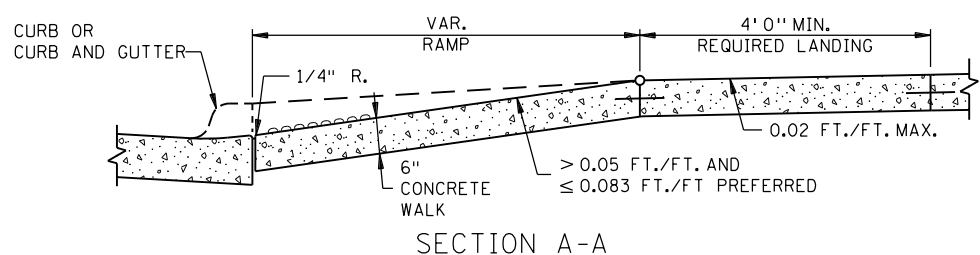
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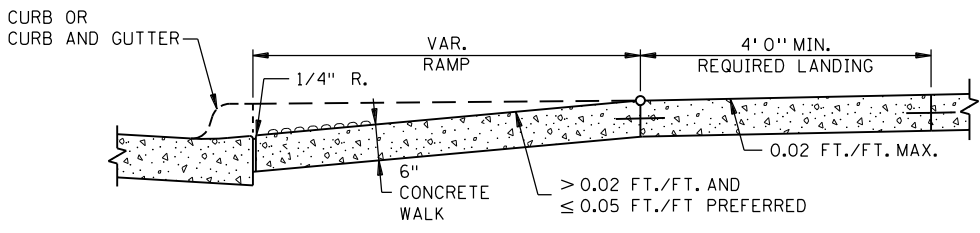
TIERED PERPENDICULAR



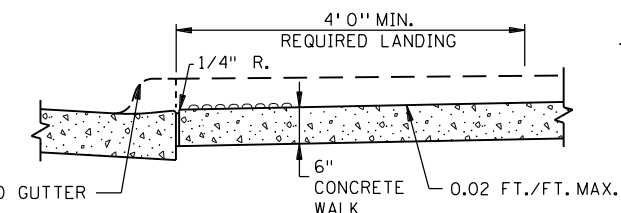
PARALLEL



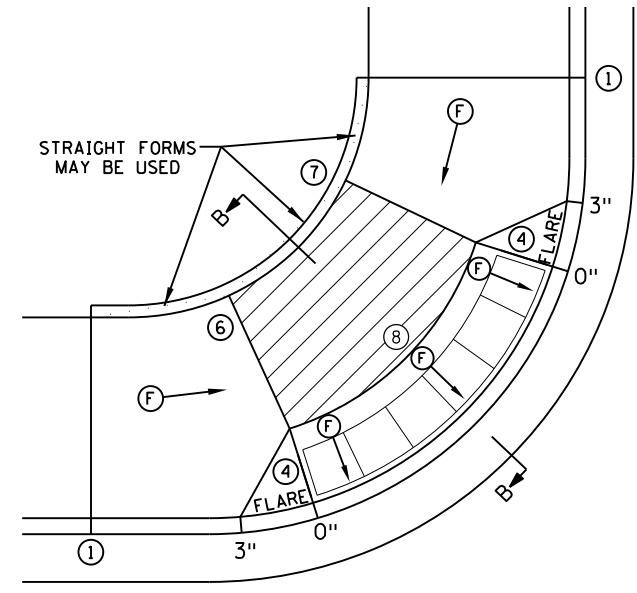
SECTION A-A
PERPENDICULAR/TIERED/DIAGONAL



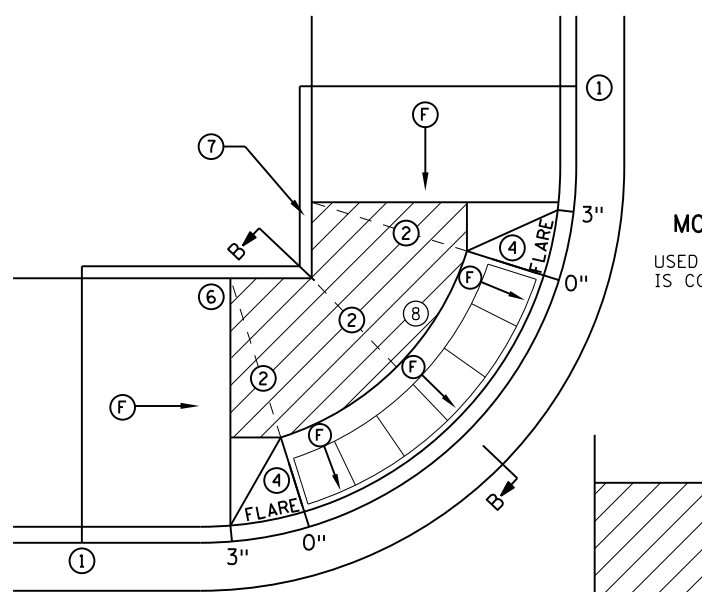
SECTION B-B
FAN



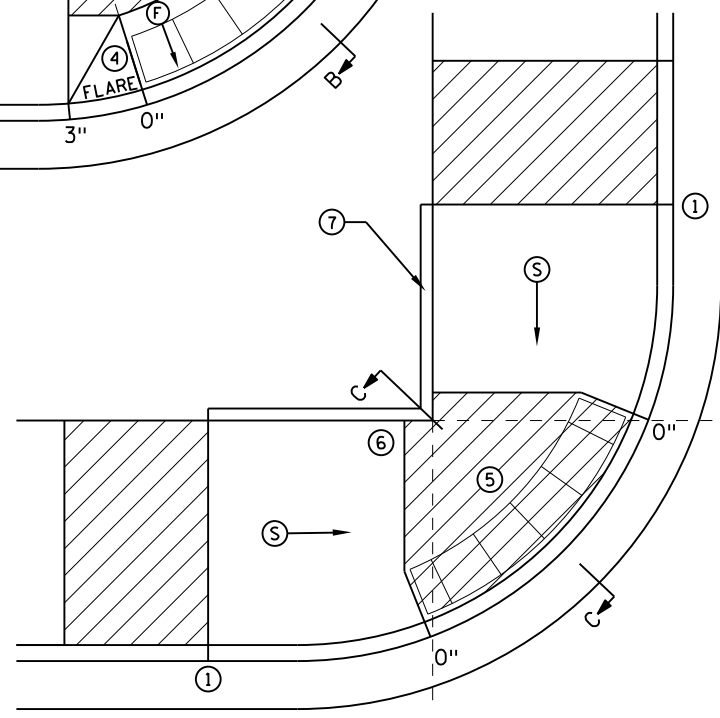
SECTION C-C
PARALLEL/DEPRESSED CORNER



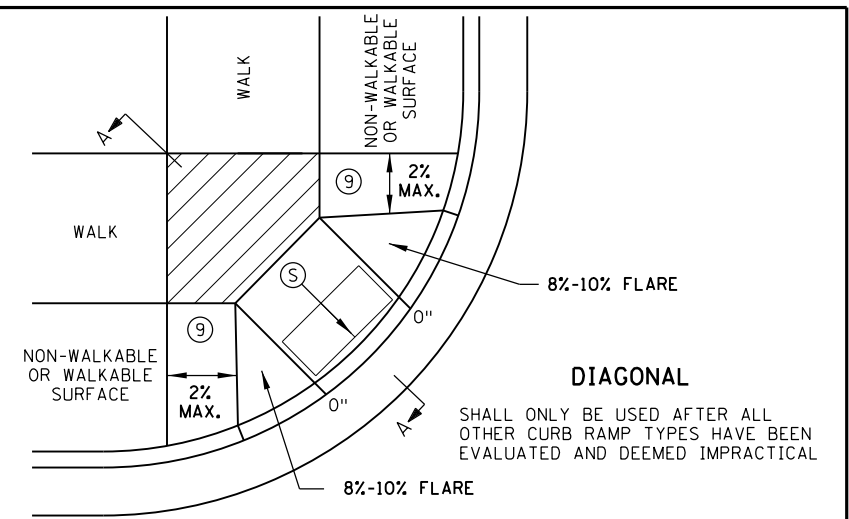
FAN



MODIFIED FAN
USED WHEN RIGHT-OF-WAY IS CONSTRAINED



DEPRESSED CORNER



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

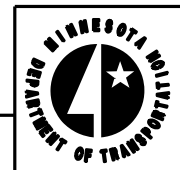
NOTES:

- LANDINGS SHALL BE LOCATED ANYWHERE THE PEDESTRIAN ACCESS ROUTE (PAR) CHANGES DIRECTION, AT THE TOP OF RAMPS THAT HAVE RUNNING SLOPES GREATER THAN 5.0%, AND IF THE APPROACHING WALK IS INVERSE GRADE GREATER THAN 2%.
- INITIAL CURB RAMP LANDINGS SHALL BE CONSTRUCTED WITHIN 15' FROM THE BACK OF CURB, WITH 6' FROM THE BACK OF CURB BEING THE PREFERRED DISTANCE, ONLY APPLICABLE WHEN THE INITIAL RAMP RUNNING SLOPE IS OVER 5.0%.
- SECONDARY CURB RAMP LANDINGS ARE REQUIRED FOR EVERY 30' OF VERTICAL RISE WHEN THE LONGITUDINAL RUNNING SLOPE IS GREATER THAN 5.0%.
- CONTRACTION JOINTS SHALL BE CONSTRUCTED ALONG ALL GRADE BREAKS WITHIN THE PAR. 1/4" DEEP VISUAL JOINTS SHALL BE USED AT THE TOPS OF CONCRETE FLARES ADJACENT TO WALKABLE SURFACES.
- ALL GRADE BREAKS WITHIN THE PAR SHALL BE PERPENDICULAR TO THE PATH OF TRAVEL, THUS BOTH SIDES OF A SLOPED WALKING SURFACE MUST BE EQUAL LENGTH. (EXCEPT AS STATED IN 6 BELOW.)
- TO ENSURE INITIAL RAMPS AND INITIAL LANDINGS ARE PROPERLY CONSTRUCTED, LANDINGS SHALL BE CAST SEPARATELY, FOLLOW SIDEWALK REINFORCEMENT DETAILS ON SHEET 6 AND THE ADA SPECIAL PROVISIONS - PROSECUTION OF WORK (ADA).
- 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 ENTIRE WIDTH OF SHARED-USE PATHS AND THE ENTIRE PAR WIDTH OF THE WALK. DETECTABLE WARNING SHOULD BE 6" LESS THAN THE PAR/TRAIL WIDTH. ARC LENGTH OF 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, WHEN INITIAL LANDING IS AT FULL CURB HEIGHT.
- 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 SHOULD BE USED OVER V CURB TO REDUCE TRIPPING HAZARDS AND FACILITATE SNOW & ICE REMOVAL.
- 8 A 7' MIN TOP RADIUS GRADE BREAK 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.

LEGEND	
(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: JANUARY 23, 2017
Am Sobr
OPERATIONS ENGINEER

CP 20-11-60



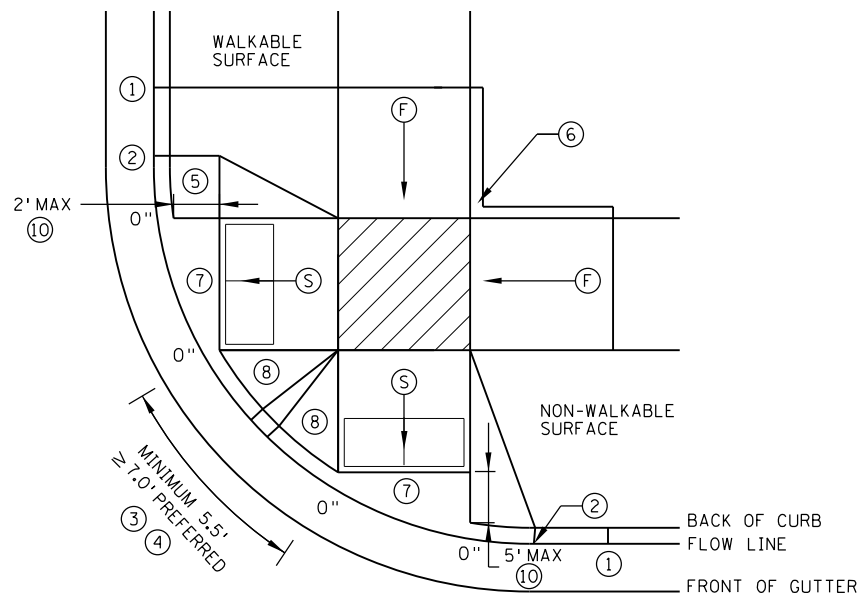
Tom S...
STATE DESIGN ENGINEER

REVISED:
APPROVED:
1-23-2017

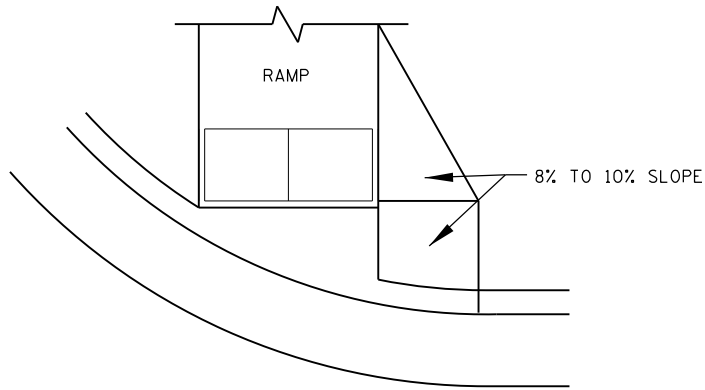
PEDESTRIAN CURB RAMP DETAILS (1 OF 6)
STANDARD PLAN 5-297.250 16 OF 39

PLOTTED/REVISED:
0.3/11/2020

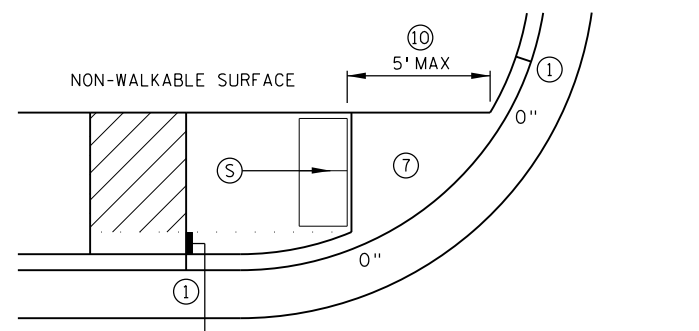
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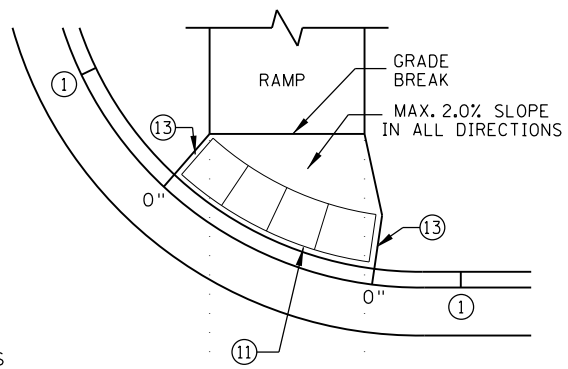
COMBINED DIRECTIONAL ⑨



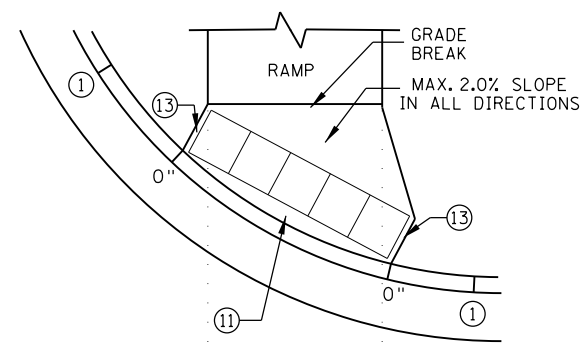
DIRECTIONAL RAMP WALKABLE FLARE



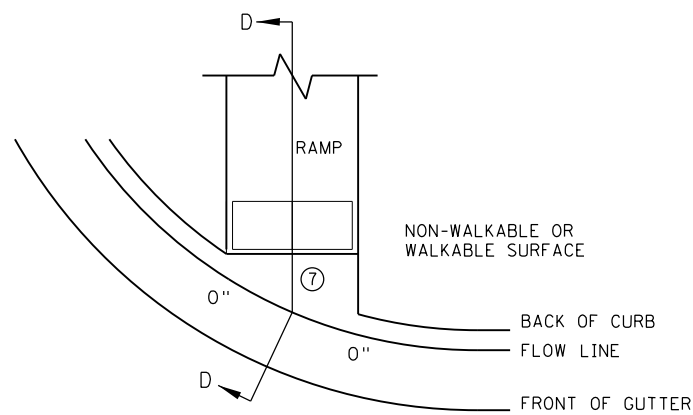
STANDARD ONE-WAY DIRECTIONAL ⑨



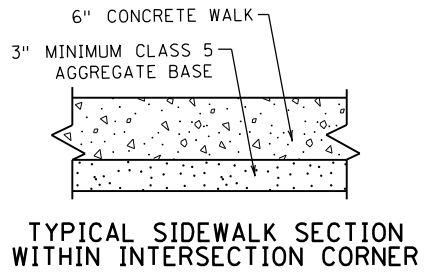
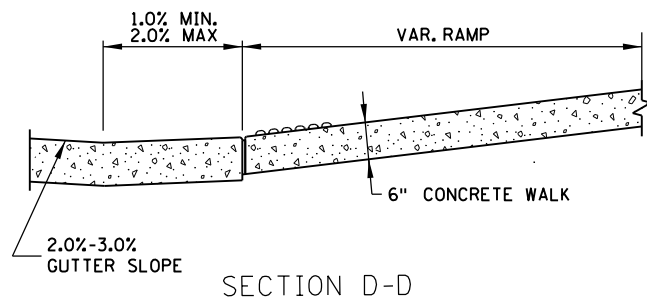
ONE-WAY DIRECTIONAL WITH DETECTABLE WARNING AT BACK OF CURB



DETECTABLE WARNING PLACEMENT WHEN SETBACK CRITERIA IS EXCEEDED ⑫



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 ENTIRE WIDTH OF SHARED-USE PATH AND THE ENTIRE PAR WIDTH OF THE WALK. DETECTABLE WARNING SHOULD BE 6" LESS THAN THE PAR/PATH WIDTH. ARC LENGTH OF 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 SHOULD 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.

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 PAR.
X"	CURB HEIGHT

REVISION:
APPROVED: JANUARY 23, 2017
Ann Sabo
OPERATIONS ENGINEER

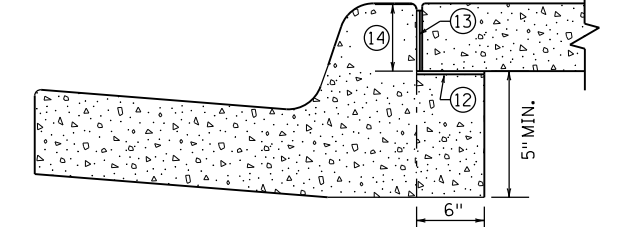
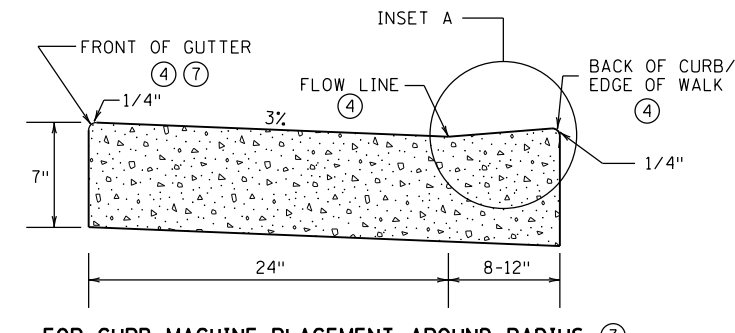
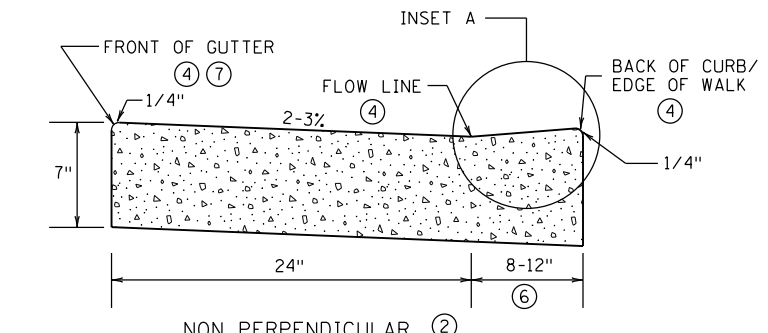
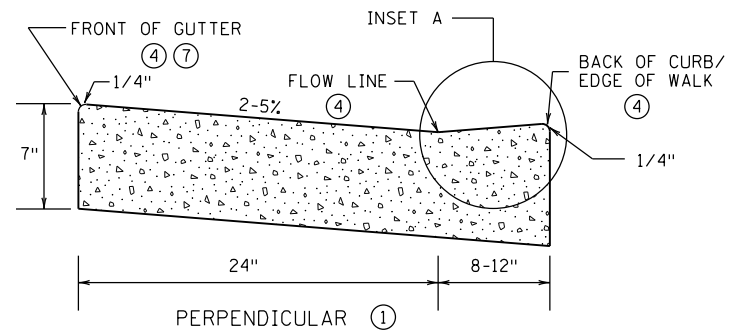
CP 20-11-60



REVISOR:
Tom S...
APPROVED:
1-23-2017
STATE DESIGN ENGINEER

PLOTTED/REVISED:
03/17/2020

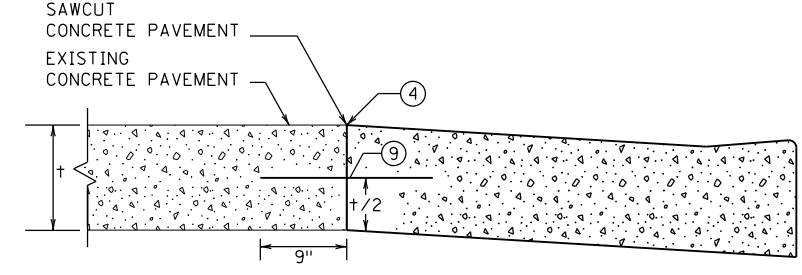
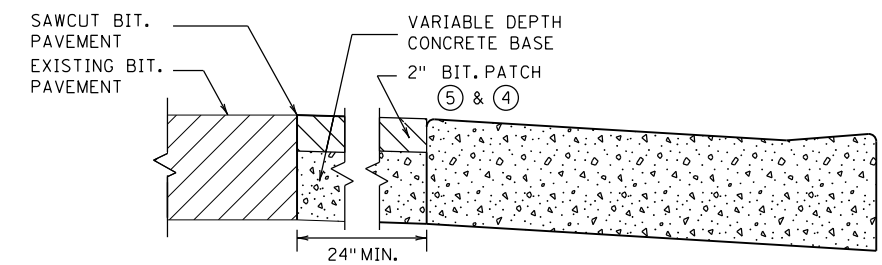
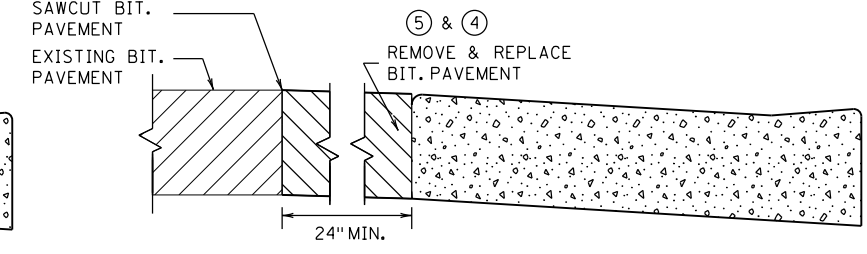
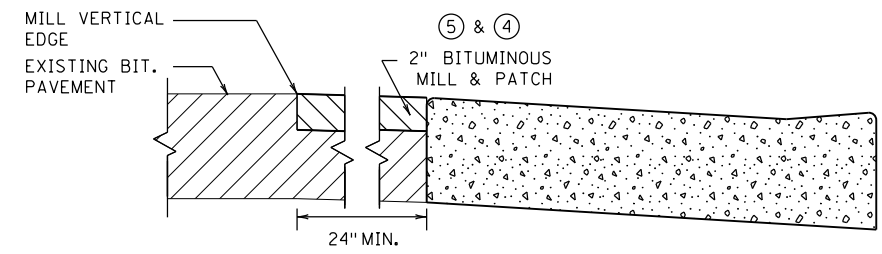
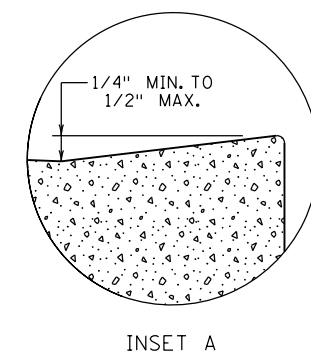
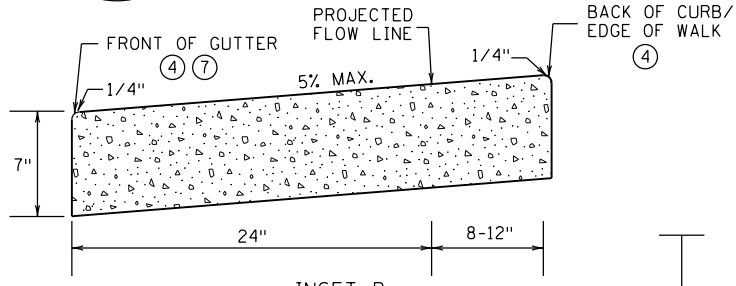
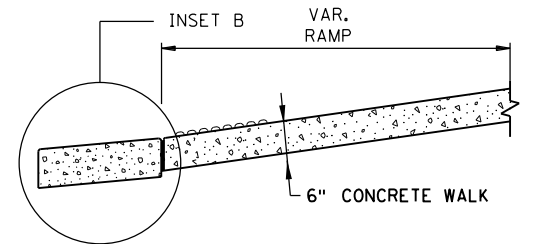
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OPTIONAL SILL CURB WHEN SIDEWALK IS AT BACK OF CURB

CONCRETE SILL TO BE USED ONLY WHEN SPECIFIED IN THE PLAN.

PEDESTRIAN ACCESS ROUTE CURB & GUTTER DETAIL



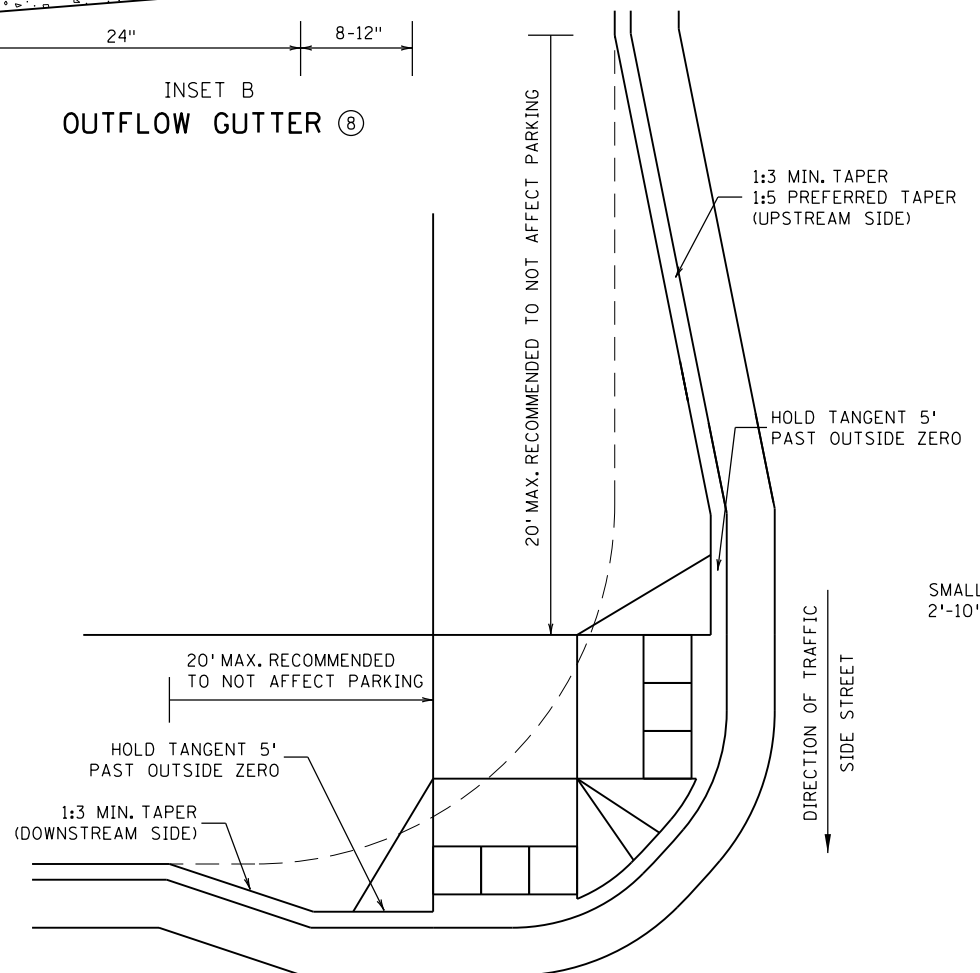
ONLY ALLOWED PER ENGINEER'S APPROVAL

PAVEMENT TREATMENT OPTIONS IN FRONT OF CURB & GUTTER

FOR USE ON CURB RAMP RETROFITS

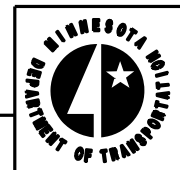
NOTES:

- 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 RAMP.
- ② FOR USE AT CURB RAMP 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 RAMP.
- 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.
- ⑫ PLACE BOND BREAKER BETWEEN WALK AND TOP OF SILL.
- ⑬ 1/2" PREFORMED JOINT FILLER PER MNDOT SPEC. 3702.
- ⑭ DIMENSION TO BE SAME AS SIDEWALK THICKNESS, 4" MIN.



COMBINED DIRECTIONAL (COMPOUND RADIUS)

CP 20-11-60



Tom Johnson
STATE DESIGN ENGINEER

REVISED:
APPROVED:
1-23-2017

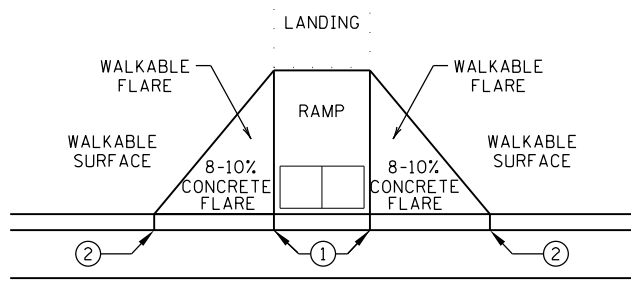
PEDESTRIAN CURB RAMP DETAILS (3 OF 6)

STANDARD PLAN 5-297.250

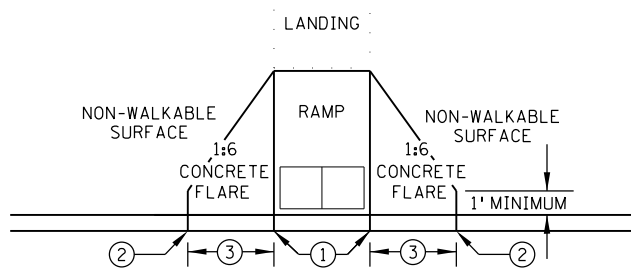
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REVISION:
APPROVED: JANUARY 23, 2017
Am Sobr
OPERATIONS ENGINEER

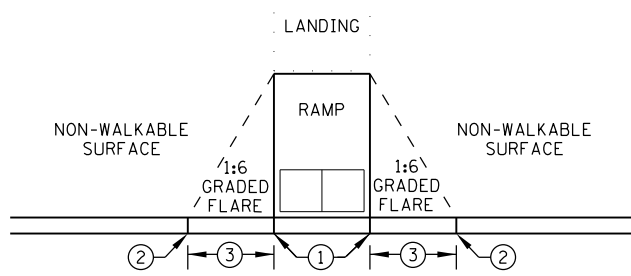
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03/17/2020



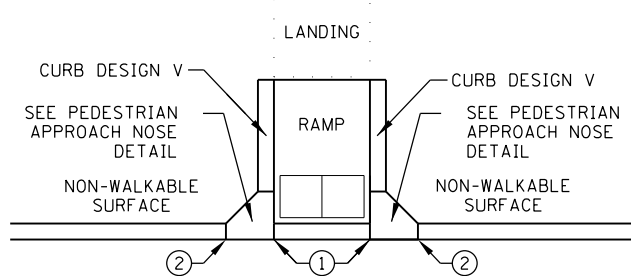
PAVED FLARES
ADJACENT TO WALKABLE SURFACE



PAVED FLARES
ADJACENT TO NON-WALKABLE SURFACE

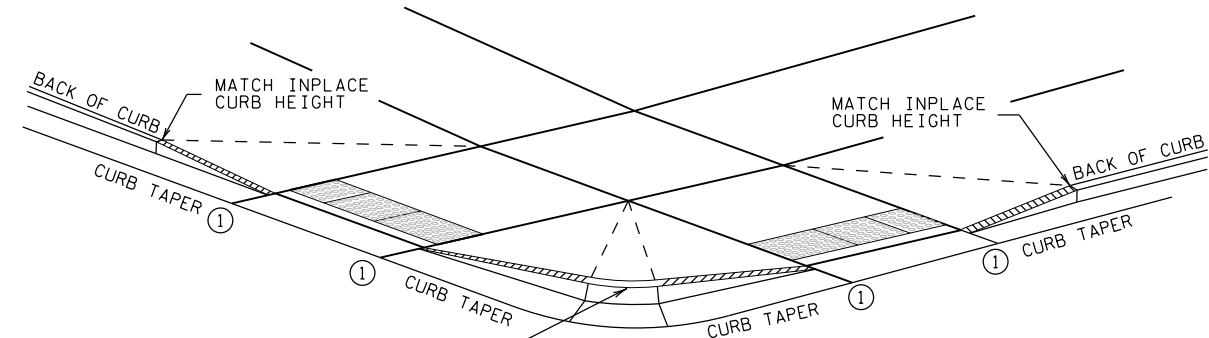


GRADED FLARES



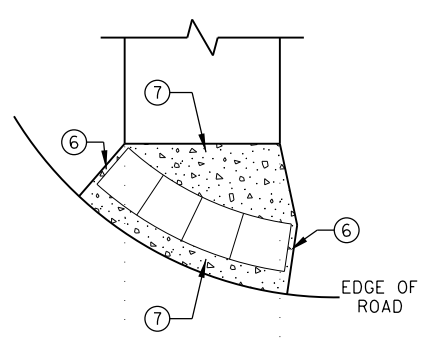
RETURNED CURB ⑤

TYPICAL SIDE TREATMENT OPTIONS ④ ⑪

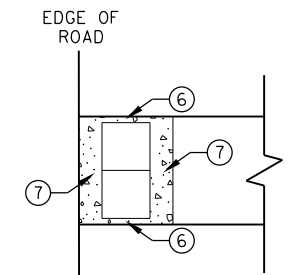


3" MINIMUM CURB HEIGHT, 4" PREFERRED
(MEASURED AT FRONT FACE OF CURB)
FOR A MIN. 6" LENGTH (MEASURED ALONG FLOW LINE)

DETECTABLE EDGE WITH ⑧
CURB AND GUTTER

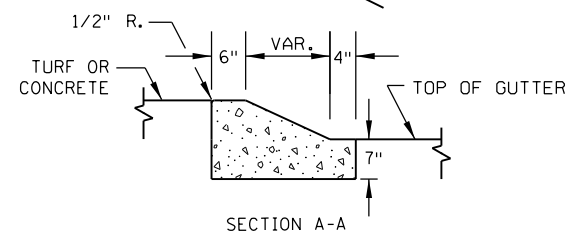
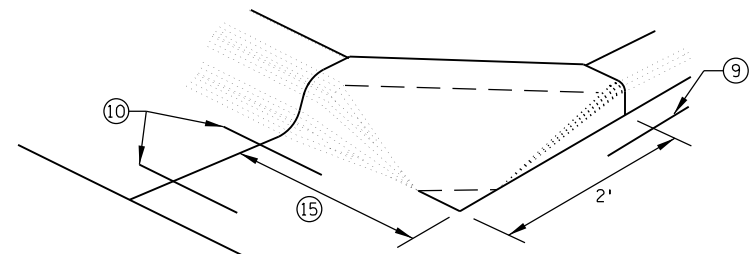


RADIAL DETECTABLE WARNING

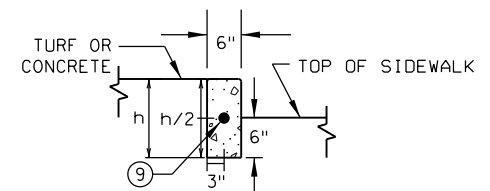


RECTANGULAR DETECTABLE WARNING

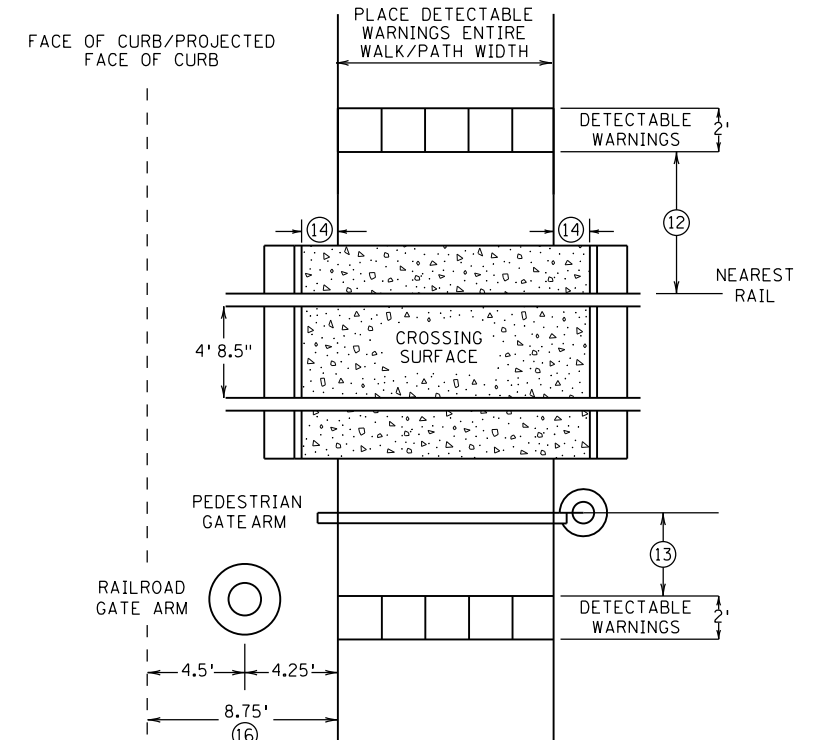
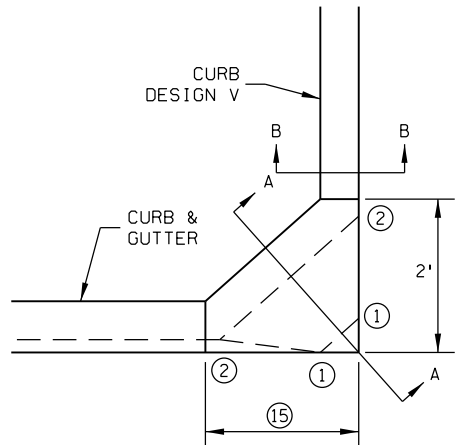
DETECTABLE EDGE WITHOUT CURB AND GUTTER



SECTION A-A



SECTION B-B



RAILROAD CROSSING
PLAN VIEW

NOTES:

- 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.
- ② FULL CURB HEIGHT.
- ③ 2' FOR 4" HIGH CURB AND 3' FOR 6" HIGH CURB.
- ④ 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.
- ⑤ TYPICALLY USED FOR MEDIANS AND ISLANDS.
- ⑥ 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.
- ⑦ 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.
- ⑧ 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.
- ⑨ 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.
- ⑩ 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.
- ⑪ 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.
- ⑫ 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.
- ⑬ 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 ⑫.
- ⑭ CROSSING SURFACE SHALL EXTEND 2' MINIMUM PAST THE OUTSIDE EDGE OF WALK OR SHARED-USE PATH.
- ⑮ 3' FOR MEDIANS AND SPLITTER ISLANDS. NOSE CAN BE REDUCED TO 2' ON FREE RIGHT ISLANDS.
- ⑯ 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.

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PEDESTRIAN APPROACH
NOSE DETAIL
(FOR RETURNED CURB
SIDE TREATMENT)



Tom S...
STATE DESIGN ENGINEER

REVISED:
APPROVED:
1-23-2017

PEDESTRIAN CURB RAMP DETAILS (4 OF 6)

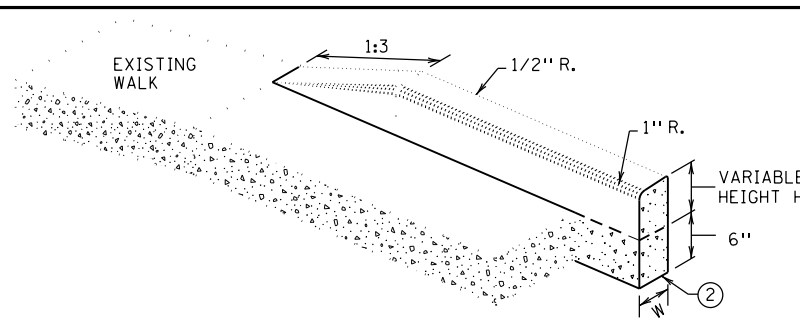
STANDARD PLAN 5-297.250 19 OF 39

REVISION:
APPROVED: JANUARY 23, 2017
Am Sobr...
OPERATIONS ENGINEER

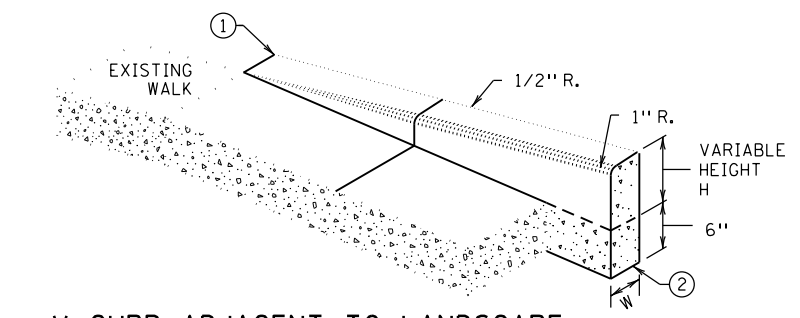
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PLOTTED/REVISED:
03/17/2020

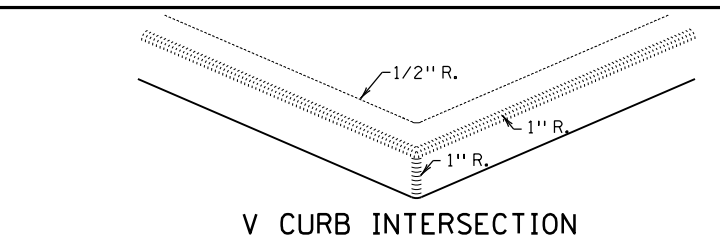
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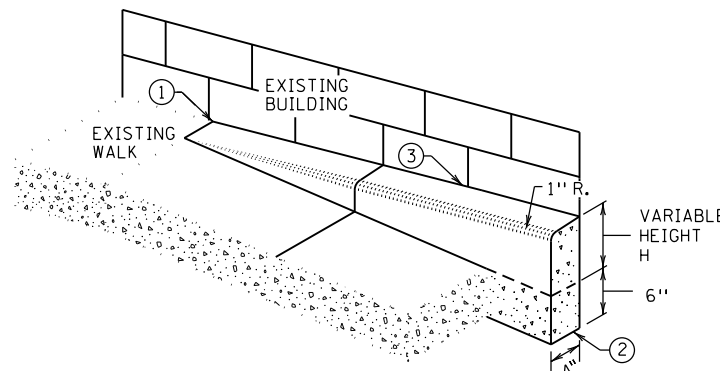
V CURB ADJACENT TO LANDSCAPE
CURB WITHIN SIDEWALK LIMITS



V CURB ADJACENT TO LANDSCAPE
CURB OUTSIDE SIDEWALK LIMITS

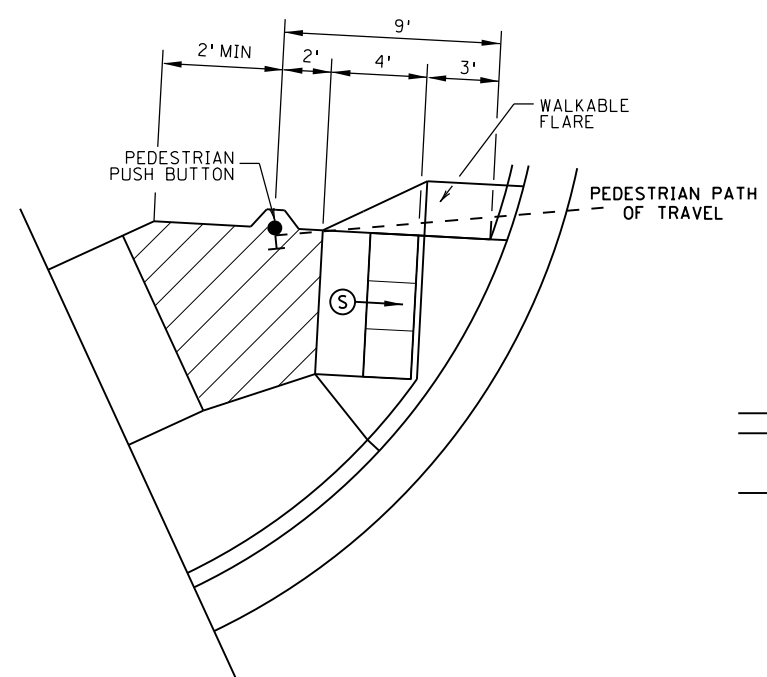


V CURB INTERSECTION



V CURB ADJACENT TO BUILDING
OR BARRIER

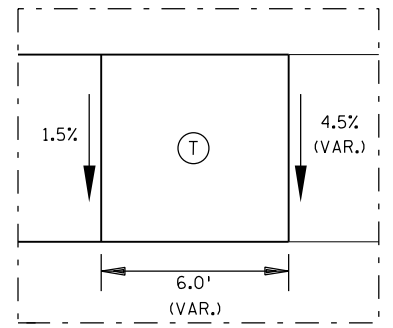
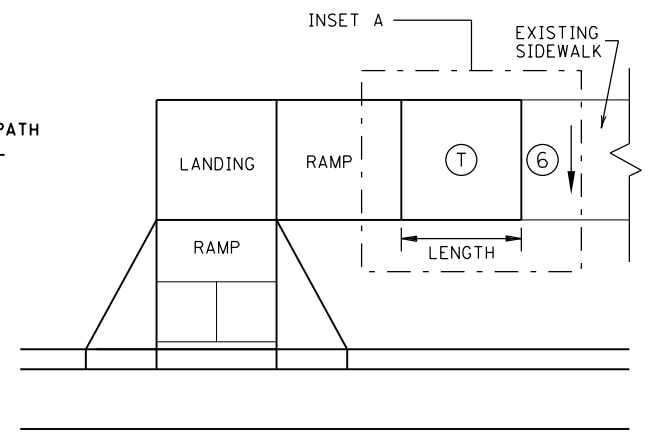
CONCRETE CURB DESIGN V	
CURB HEIGHT H	CURB WIDTH W
< 6"	4"
≥ 6"	6"



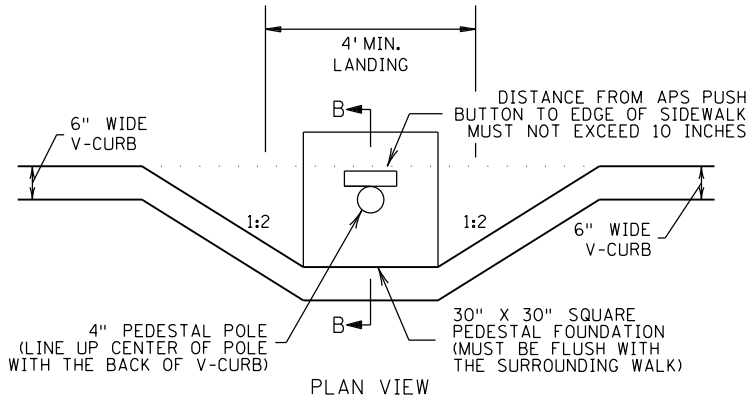
SEMI-DIRECTIONAL RAMP (3,4,9)

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

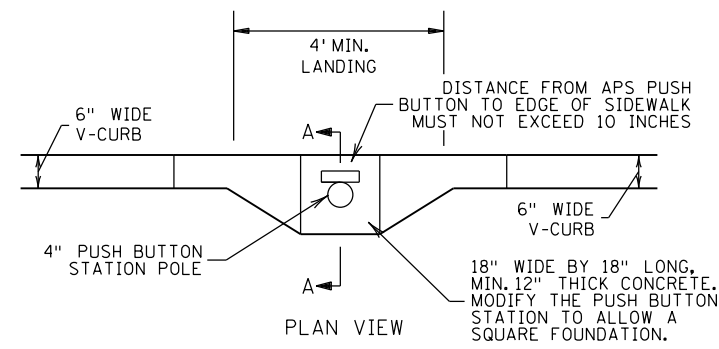
PRIMARYLY USED FOR APS APPLICATIONS
WHERE THE PAR DOES NOT CONTINUE PAST
THE PUSH BUTTON (DEAD-END SIDEWALK)



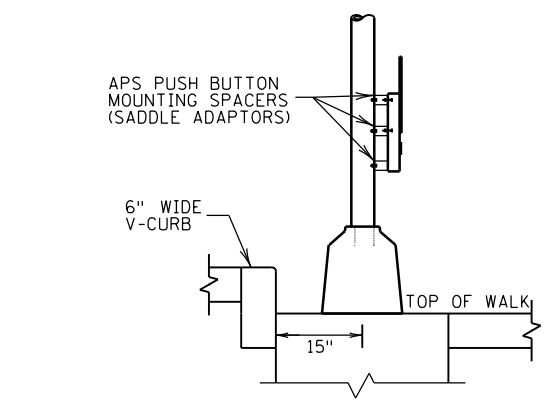
TRANSITION PANEL (4,5)



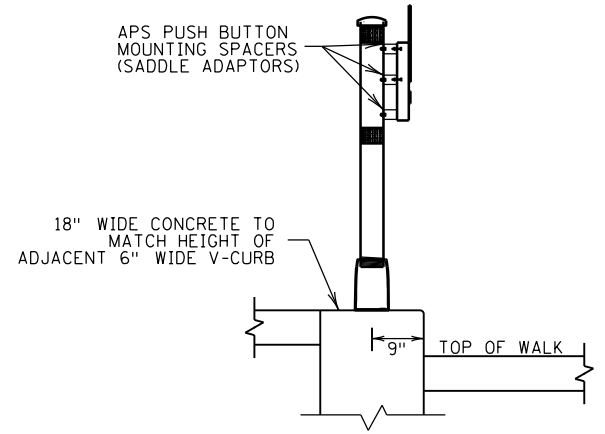
PLAN VIEW



PLAN VIEW



SECTION B-B



SECTION A-A

SIGNAL PEDESTAL & PUSH BUTTON (V-CURB)

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 EDGE BETWEEN NEW V CURB AND INPLACE STRUCTURE SHALL BE SEALED AND BOND BREAKER SHALL BE USED BETWEEN EXISTING STRUCTURE AND PLACED V-CURB.
- 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%.

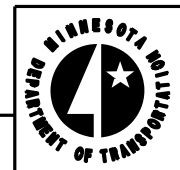
LEGEND

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%.
- ④ 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 PAR.
- 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: JANUARY 23, 2017
Am Sobr
OPERATIONS ENGINEER

CP 20-11-60



REVISOR:
Tom Sh
STATE DESIGN ENGINEER

APPROVED:
1-23-2017

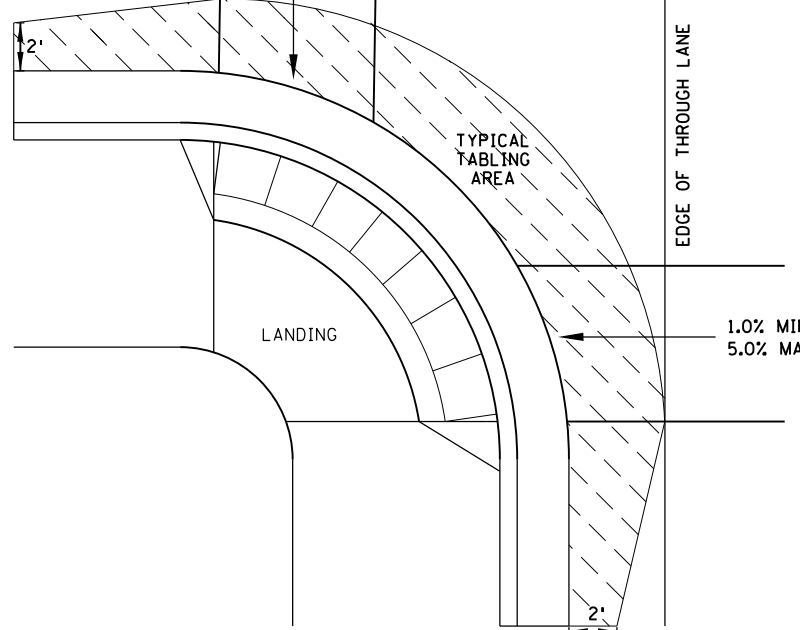
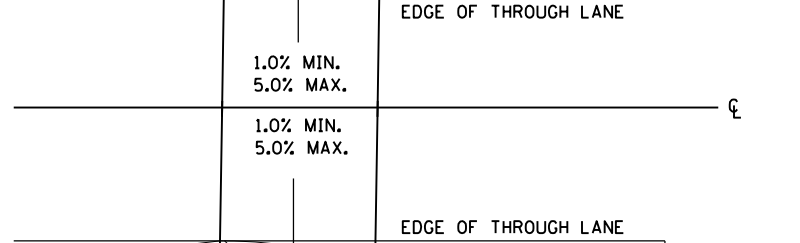
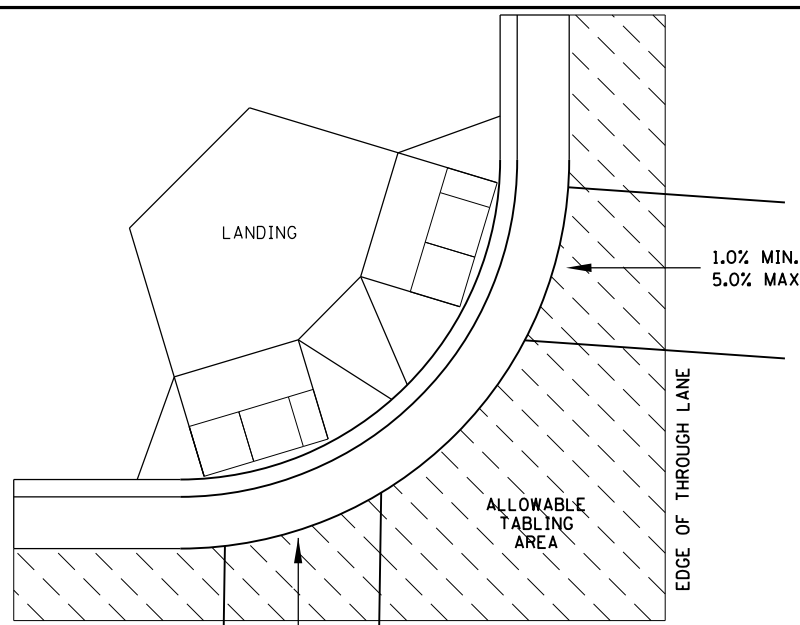
PEDESTRIAN CURB RAMP DETAILS (5 OF 6)

STANDARD PLAN 5-297.250 20 OF 39

PLOTTED/REVISED:
03/17/2020

DISTRICT #: APAnders
USER NAME: APAnders
PATH & FILENAME: P:\20-01-00-CR-60-1TH65-E_Lk_Netra\Bases\Proposed\Proposed.dgn

FILE NAME: Proposed.dgn



CURB LINE AND ROAD CROSSING ADJUSTMENTS

"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:

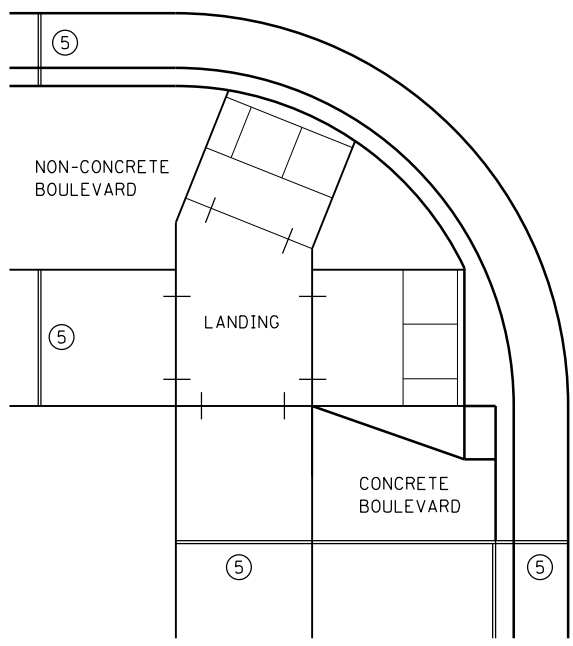
- 1) 1.0% MIN. CROSS-SLOPE OF THE ROAD
- 2) 5.0% MAX. CROSS-SLOPE OF THE ROAD
- 3) "TABLE" FLOW LINE UP TO 4% CHANGE FROM EXISTING SLOPE IN FRONT OF PEDESTRIAN RAMP
- 4) UP TO 2% CHANGE IN FLOW LINE FROM EXISTING SLOPE BEYOND THE PEDESTRIAN CURB RAMP

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.

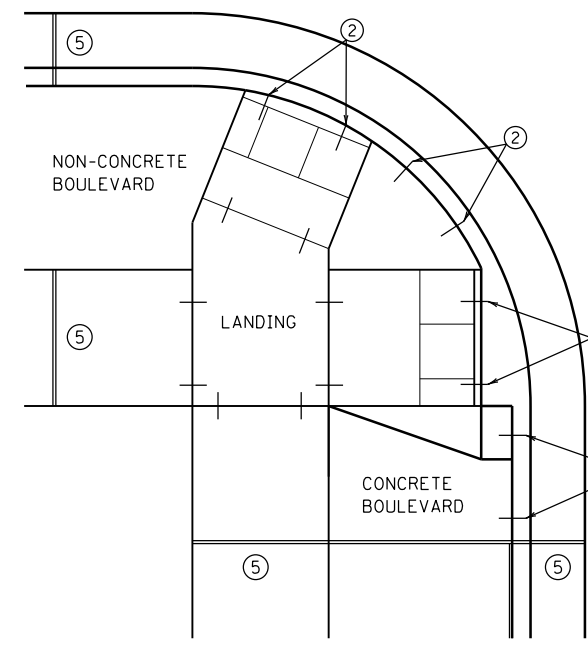
RAISING OF CURB LINES SHOULD OCCUR IN VERTICALLY CONSTRAINED AREAS. RAISE THE CURB LINES ENOUGH TO ALLOW COMPLIANT RAMPS OR AS MUCH AS POSSIBLE WHILE ADHERING TO THE FOLLOWING CRITERIA:

- 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

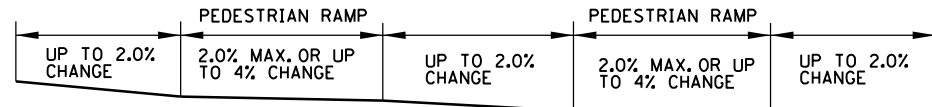
REVISION:
APPROVED: JANUARY 23, 2017
Ann Sobr
OPERATIONS ENGINEER



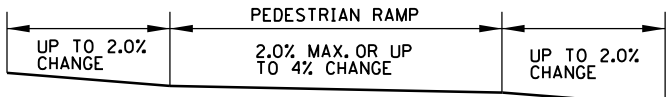
EXPANSION MATERIAL PLACEMENT FOR CONCRETE AND BITUMINOUS ROADWAYS



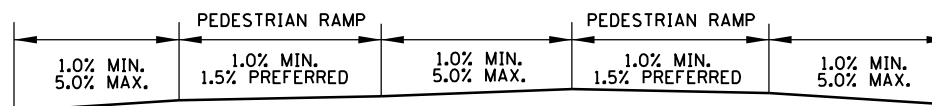
OPTIONAL CURB LINE REINFORCEMENT PLACEMENT ON BITUMINOUS ROADWAYS



FLOW LINE PROFILE "TABLE" - TWIN PERPENDICULARS



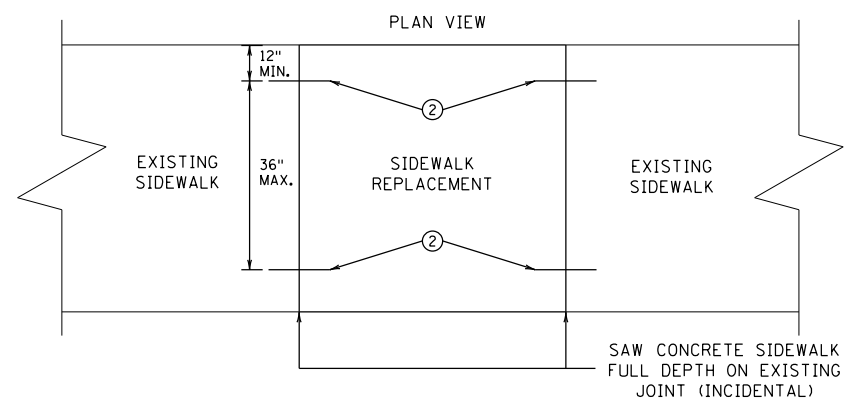
FLOW LINE PROFILE "TABLE" - FAN



FLOW LINE PROFILE RAISE - TWIN PERPENDICULARS

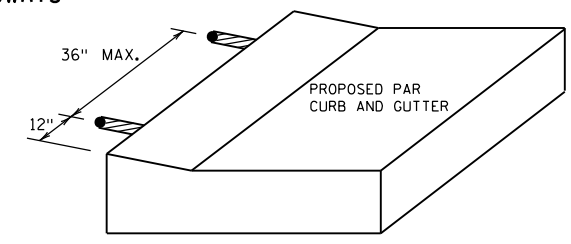


FLOW LINE PROFILE RAISE - FAN

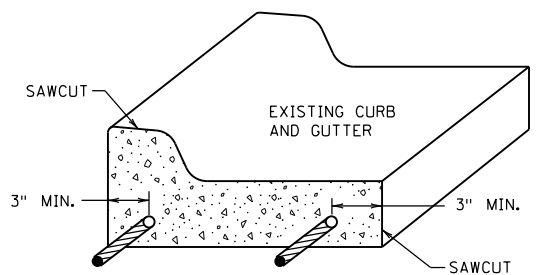


OPTIONAL SIDEWALK REINFORCEMENT

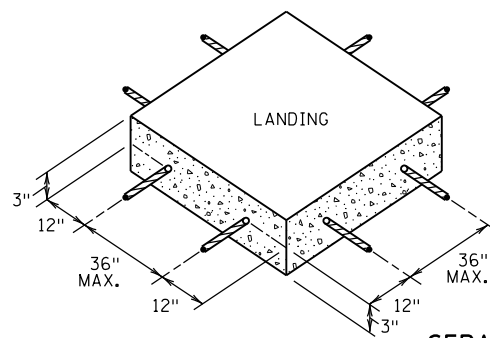
SIDEWALK REINFORCEMENT TO BE USED ONLY WHEN SPECIFIED IN THE PLAN.



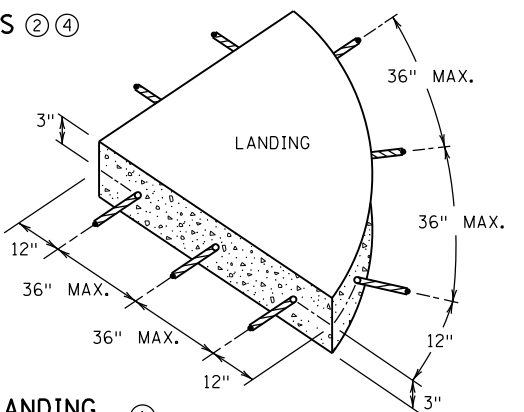
OPTIONAL CURB LINE REINFORCEMENT DETAILS



CURB AND GUTTER REINFORCEMENT



SEPARATE LANDING POUR REINFORCEMENT



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 AT 36" MAXIMUM CENTER TO CENTER (EPOXY COATED). BARS TO BE ADJUSTED TO MATCH RAMP GRADE.
- ③ DRILL AND GROUT 2 - NO. 4 X 12" LONG REINFORCEMENT BARS (EPOXY COATED). REINFORCEMENT REQUIRED FOR ALL CONSTRUCTION JOINTS WITHIN RADIUS.
- ④ THIS OPTIONAL CURB LINE REINFORCEMENT DETAIL SHOULD ONLY BE USED ON BITUMINOUS ROADWAYS WHEN SPECIFIED IN THE PLAN.
- ⑤ 1/2 IN. PREFORMED JOINT FILLER MATERIAL PER MNDOT SPEC. 3702.



Tom S...
STATE DESIGN ENGINEER

REVISED:
APPROVED:
1-23-2017

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 BEANS SHALL BE APPLIED IMMEDIATELY AFTER APPLICATION OF THE MULTI COMP RESIN LINE TO PROVIDE AN IMMEDIATE NO-TRACK SYSTEM.

A MULTI COMP RESIN 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.

PERFORMED THERMOPLASTIC:

THE PERFORMED THERMOPLASTIC MARKINGS SHALL BE APPLIED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS ON CLEAN AND DRY SURFACES. SEE SPECIAL PROVISIONS FOR PERFORMED 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	26270
2 8" DOTTED LINE WHITE - MULTI COMP	LIN FT	108
4" SOLID LINE YELLOW - MULTI COMP	LIN FT	2350
4" SOLID DOUBLE LINE YELLOW - MULTI COMP	LIN FT	6090
1 4" BROKEN LINE YELLOW - MULTI COMP	LIN FT	1234
24" SOLID LINE WHITE - THERMOPLASTIC (*PMS)	LIN FT	32
3'x6' ZEBRA CROSSWALK - PREFORMED THERMOPLASTIC	SQ FT	144

1 10' STRIPE, 40' GAP

2 3' STRIPE, 12' GAP

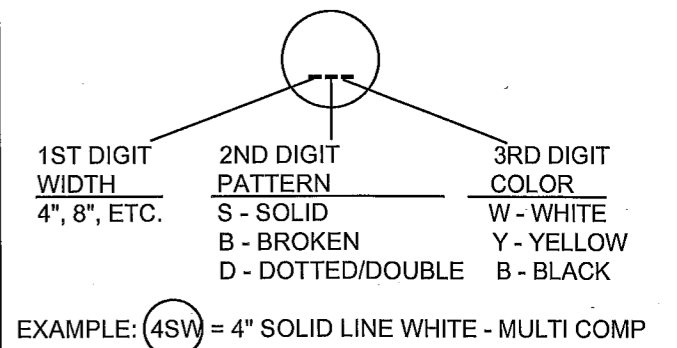
* PAVEMENT MARKING SPECIAL

SYMBOLS & MATERIALS LEGEND

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

STRIPING KEY

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



NO	DATE	BY	CHKD	APPR	REVISION

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: JOSEPH J. MACPHERSON, P.E.

SIGNATURE: *[Signature]*

DATE: 7.17.05 REG. NO. 48732

DRAWN BY: TMV DATE: 12/19/19

DESIGN BY: DATE:

CHECKED BY: TRH DATE: 02/10/20



ANOKA COUNTY
HIGHWAY DEPT.

CP 20-11-60

PERMANENT MARKING
TABULATION

Sheet 22 of 39 Sheets

SIGN NOTES:
 ① FURNISH & INSTALL SIGN
 ② TEMPORARY TRAFFIC CONTROL SIGN
 ⑤ REMOVE SIGN

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

STATION 37+00

STATION 52+00



4DY

4SY

4BY

4SW

DO NOT PASS R4-1

NO CENTER STRIPE

ROAD WORK AHEAD W20-1

Kenyon St

ROAD WORK AHEAD W20-1

Mankato St

PASS WITH CARE R4-2

ROAD WORK AHEAD W20-1

Kenyon St

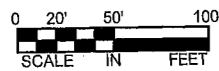
DO NOT PASS R4-1

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 INSTALL 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 52+00

STATION 67+00



4DY

4SW

8DW

BYPASS LANE R4-XB

DO NOT PASS R4-1

NO CENTER STRIPE

ROAD WORK AHEAD W20-1

Quamba St

CR 60 (Constance Blvd)

Nassau St NE

ROAD WORK AHEAD W20-1

PASS WITH CARE R4-2

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: JOSEPH J. MACPHERSON, P.E.
 SIGNATURE: *[Signature]*
 DATE: 3-17-20 LICENSE NO. 46732

DRAWN BY: TMV DATE: 12/2020
 DESIGN BY: DATE:
 CHECKED BY: TRH DATE: 02/10/20



ANOKA COUNTY
 HIGHWAY DEPT.

CP 20-11-60

TEMPORARY SIGNING
 PERMANENT SIGNING
 AND STRIPING

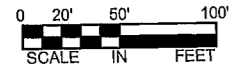
NO	DATE	BY	CKD	APPR	REVISION

- SIGN NOTES:
- ① FURNISH & INSTALL SIGN
 - ② TEMPORARY TRAFFIC CONTROL SIGN
 - ③ REMOVE SIGN

STRIPING KEY

- CIRCLE - MULTI COMP
- SQUARE - POLY PREFORM

STATION 67+00



4SW

4BY



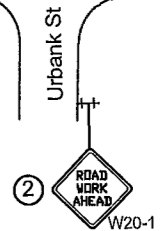
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CR 60 (Constance Blvd)

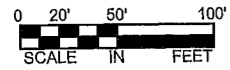
STATION 82+00

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.
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STATION 82+00

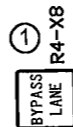


4SW



4DY

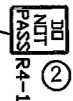
8DW



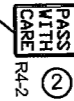
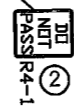
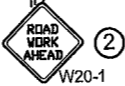
4SY

4BY

CR 60 (Constance Blvd)



CR 61 (Xylite St)



STATION 97+00

3 OF 6

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: JOSEPH J. MACPHERSON, P.E.
 SIGNATURE: [Signature]
 DATE: 2-17-20 LICENSE NO. 46732

DRAWN BY: TMV DATE: 12/2020
 DESIGN BY: DATE:
 CHECKED BY: TRH DATE: 02/10/20



ANOKA COUNTY
 HIGHWAY DEPT.

CP 20-11-60

TEMPORARY SIGNING
 PERMANENT SIGNING
 AND STRIPING

Sheet 25 of 39 Sheets

NO	DATE	BY	CKD	APPR	REVISION

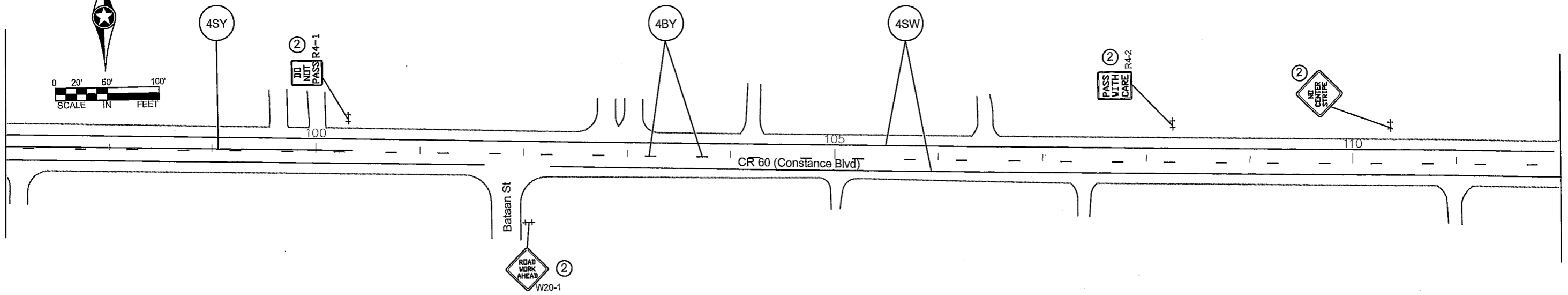
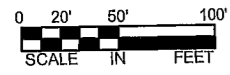
NAME: P:20-01-001CR 60BaseTrafficSigning & Striping

STATION 97+00

STATION 112+00

SIGN NOTES:
 ① FURNISH & INSTALL SIGN
 ② TEMPORARY TRAFFIC CONTROL SIGN
 ⑤ REMOVE SIGN

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

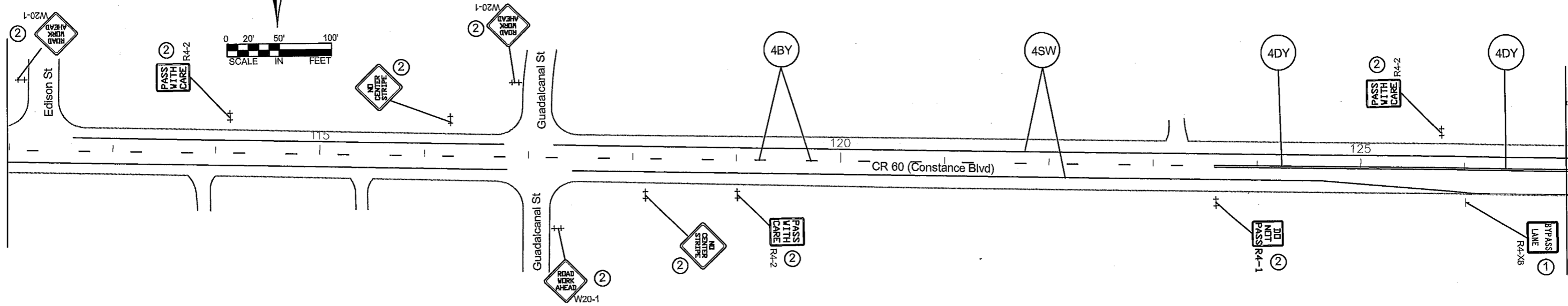
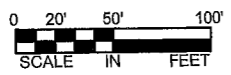


NOTES:

- 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 INSTALL 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 112+00

STATION 127+00



4 OF 6

NO	DATE	BY	CHKD	APPR	REVISION

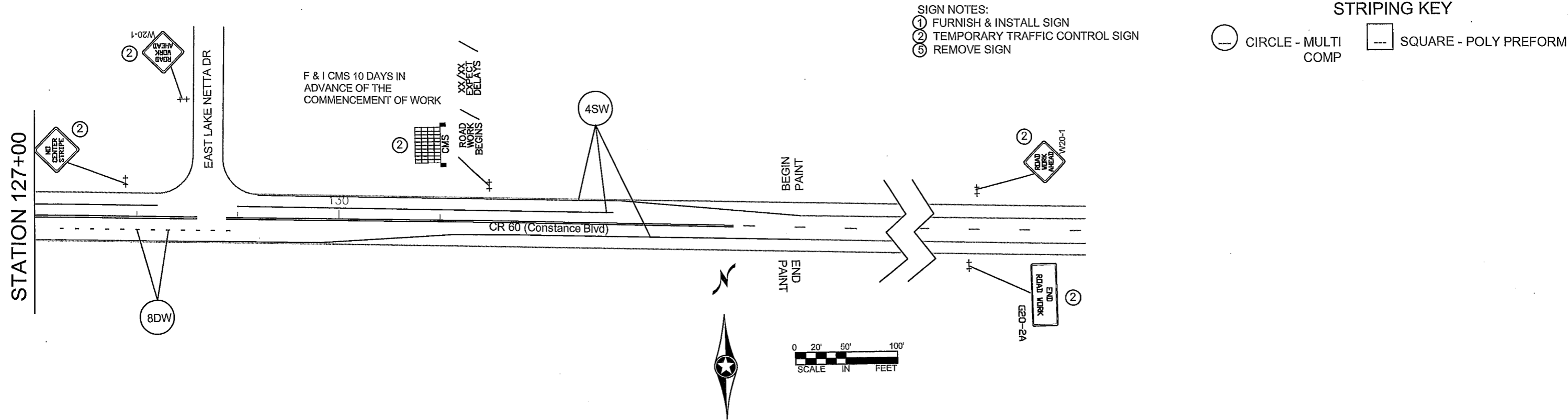
I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
 PRINT NAME: JOSEPH J. MACPHERSON, P.E.
 SIGNATURE: *[Signature]*
 DATE: 3-17-20 LICENSE NO. 46732

DRAWN BY: TMV DATE: 12/2020
 DESIGN BY: DATE:
 CHECKED BY: TRH DATE: 02/10/20

ANOKA COUNTY
HIGHWAY DEPT.

CP 20-11-60

TEMPORARY SIGNING
 PERMANENT SIGNING
 AND STRIPING
 Sheet 26 of 39 Sheets



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 INSTALL 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:\20-01-00\CR 60\Base\Traffic\Signing & Striping

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: JOSEPH J. MACPHERSON, P.E.
 SIGNATURE: *[Signature]*
 DATE: 3-17-20 LICENSE NO. 48732

DRAWN BY: TMV DATE: 12/2020
 DESIGN BY: DATE:
 CHECKED BY: TRH DATE: 02/10/20



ANOKA COUNTY
HIGHWAY DEPT.

CP 20-11-60

TEMPORARY TRAFFIC CONTROL SIGNS						
M.U.T.C.D. CODE	SIZE	PANEL AREA	INSERT	QUANTITY		MOUNTING HEIGHT To pavement edge FT.
		FT. ²		No.	POST	
W8-12	48" x 48"	16.00		11	2	7.0'
R4-1	24" x 30"	5.00		9	1	7.0'
R4-2	24" x 30"	5.00		8	1	7.0'
G20-2A	48" x 24"	8.00		2	2	7.0'
W8-1A	48" x 48"	16.00		AS NEEDED		
W8-1A	48" x 48"	16.00		AS NEEDED		
W8-8	48" x 48"	16.00		AS NEEDED		
W8-9	48" x 48"	16.00		AS NEEDED		
	48" x 48"	16.00		AS NEEDED		
W8-11	48" x 48"	16.00		AS NEEDED		
M1-6	24" x 24"	4.00		2		
W20-1	48" x 48"	16.00		AS NEEDED (ESTIMATED 23)		
REFLECTORIZED REBOUNDBLE DRUM				AS NEEDED (ESTIMATED 10)		
CMS sign to be installed 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		

REMOVE SIGN PANELS TYPE C				
STATION	ADDRESS/ DESCRIPTION (NOTES)	REMOVE SIGN TYPE C	SIGN NUMBER	SIGN LEGEND
		EACH		
12+30	RT	1	W9--1	RT LN ENDS
14+30	RT	1	W4-2L	MERG LFT SYMBOL
TOTAL		2		

F & I SIGN PANELS TYPE C							
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-X1	30" x 30"		1	6.25	6.25	1	7.0'
R4-X8	30" x 30"		3	6.25	18.75	1	7.0'
TOTAL TYPE C SIGN SQ FT					25.00		
PROJECT TOTAL SQ FT					25.00		

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 installed 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

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: JOSEPH J. MACPHERSON, P.E.
 SIGNATURE:
 DATE: 3-17-20 LICENSE NO. 46732

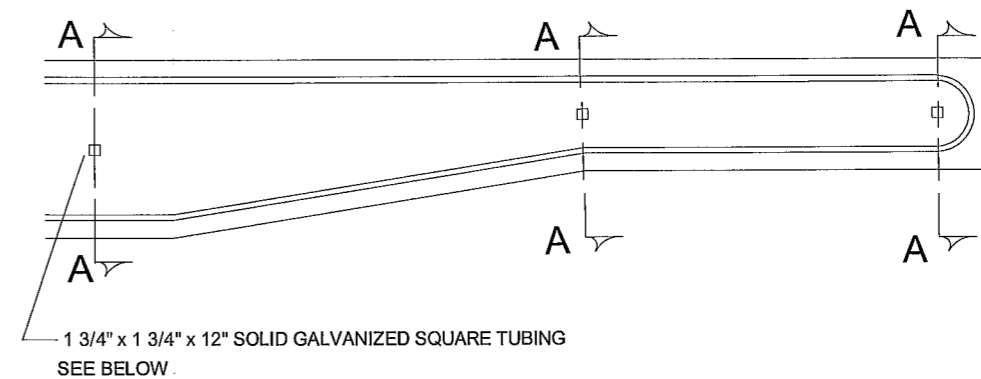
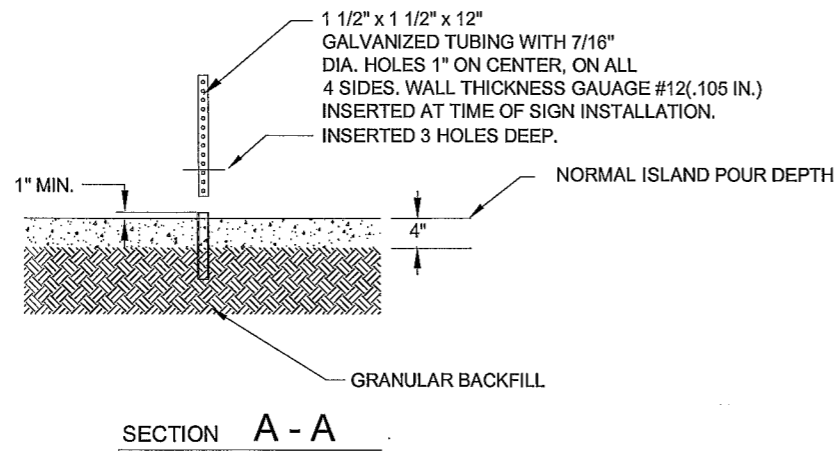
DRAWN BY: TMV DATE: 12/2020
 DESIGN BY: DATE:
 CHECKED BY: TRH DATE: 02/10/20



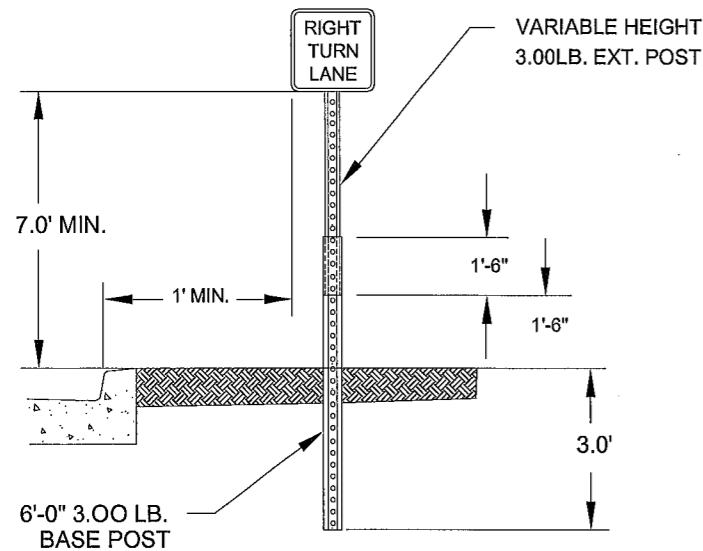
ANOKA COUNTY
 HIGHWAY DEPT.

CP 20-11-60

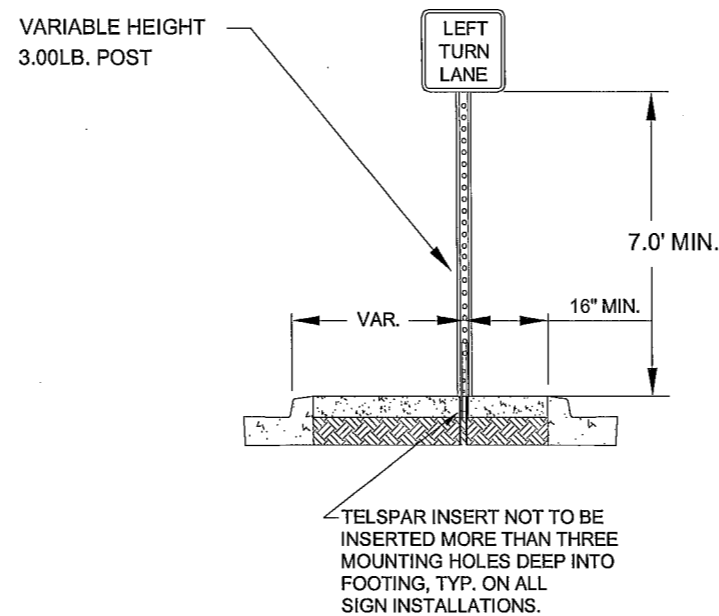
TEMPORARY SIGNING
 PERMANENT SIGNING
 QUANTITIES



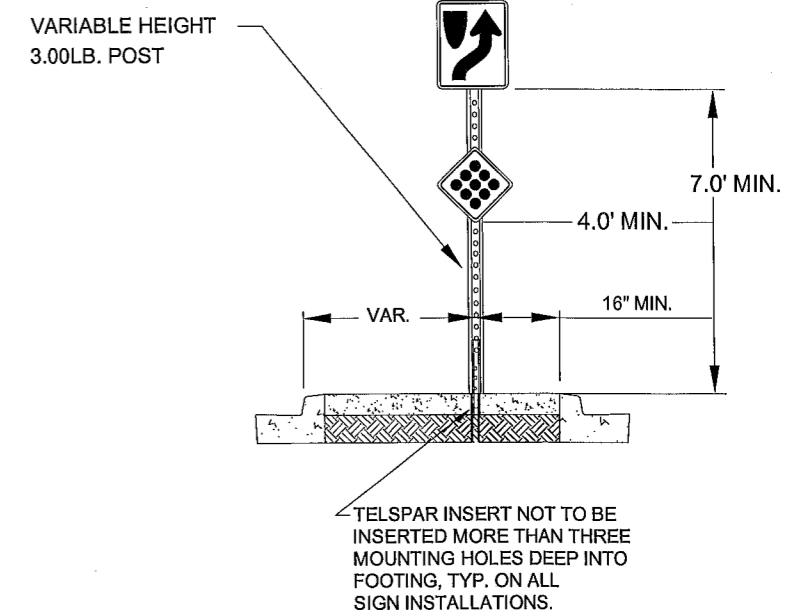
GROUND POST MOUNT SIGN
INSTALLATION TYPICAL



ISLAND MOUNT BREAK-AWAY SIGN
INSTALLATION TYPICAL



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



NO	DATE	BY	CKD	APPR	REVISION

NAME: P:120-01-001TrafficBaseSigningDetail

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: JOSEPH J. MACPHERSON, P.E.

SIGNATURE: *[Signature]*

DATE: 3-17-20 LICENSE NO. 46732

DRAWN BY: TMV DATE: 12/20/19

DESIGN BY: DATE:

CHECKED BY: TRH DATE: 02/10/20



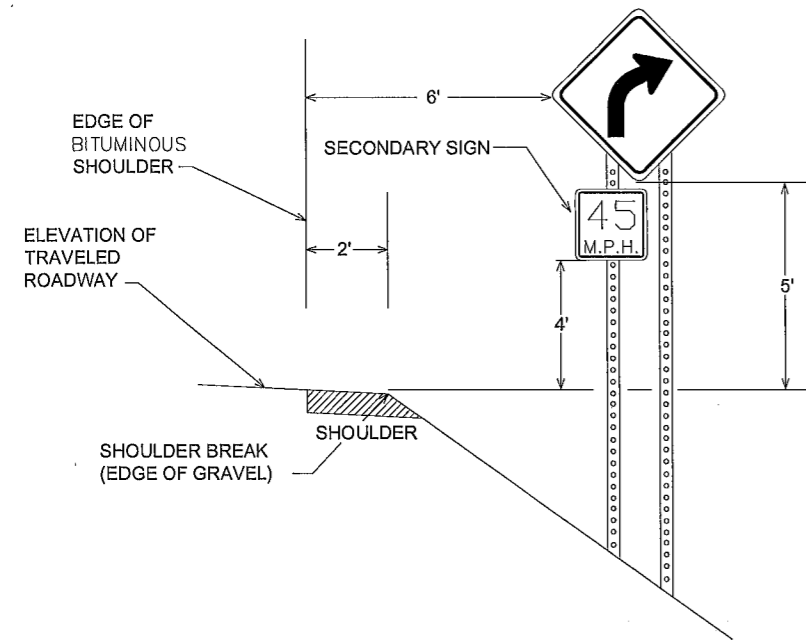
ANOKA COUNTY
HIGHWAY DEPT.

CP 20-11-60

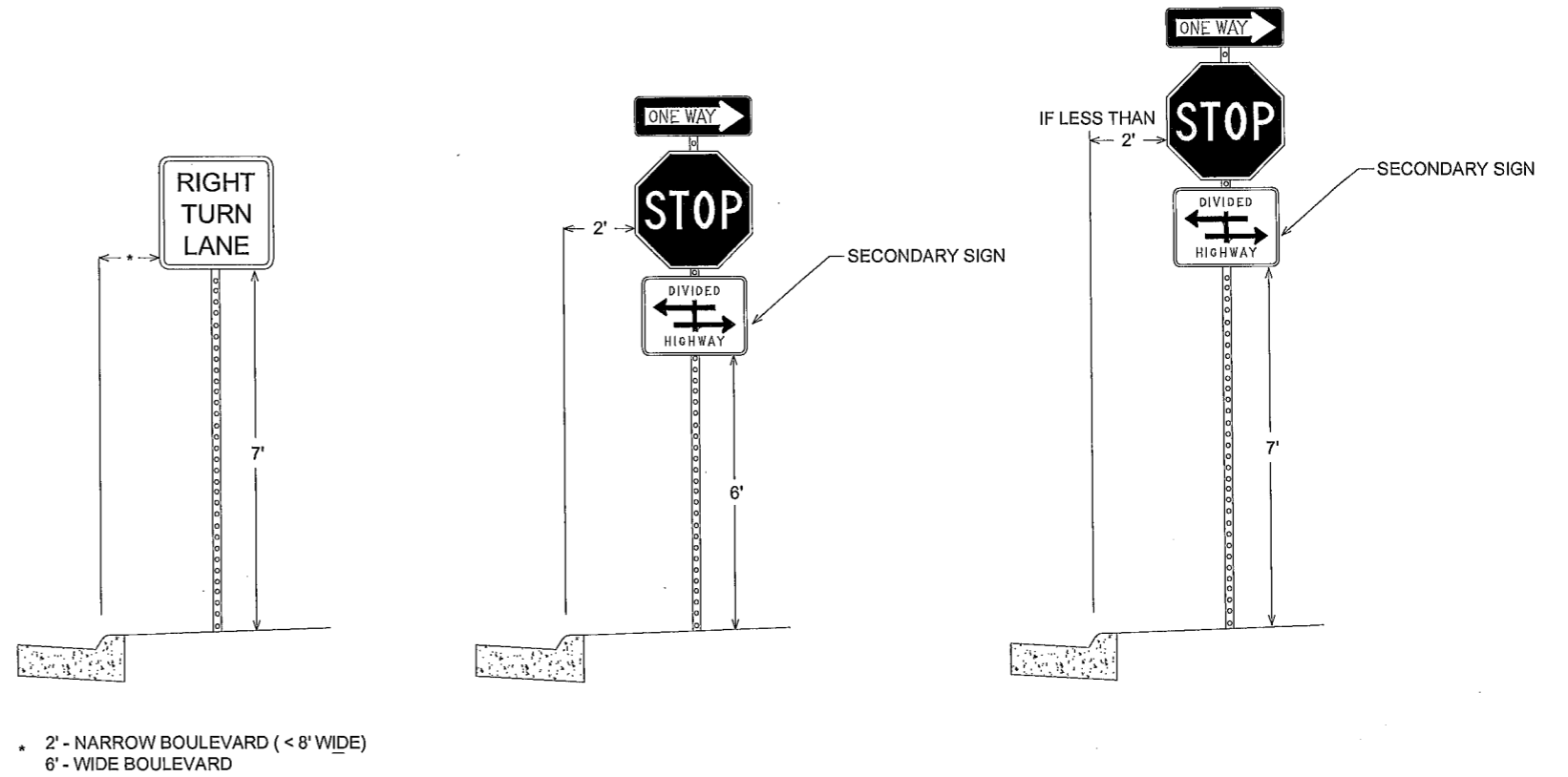
SIGNING & STRIPING
DETAILS

Sheet 29 of 39 Sheets

TYPICAL SIGN PLACEMENT
(RURAL)

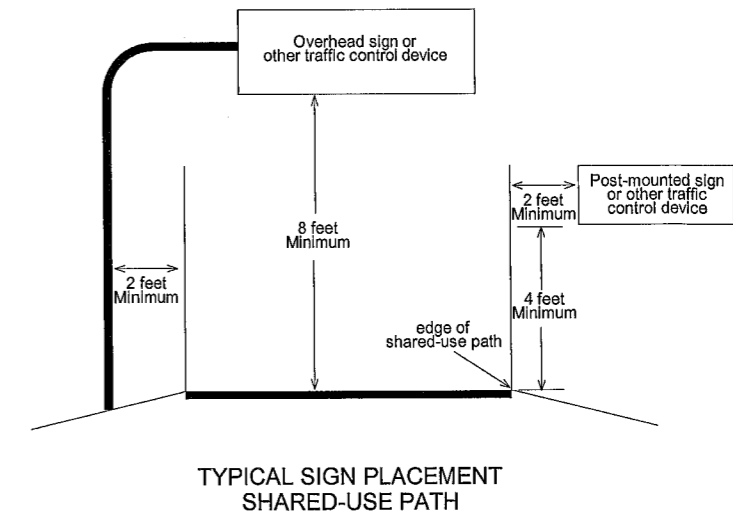


TYPICAL SIGN PLACEMENT
(URBAN)



NOTES:

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



TYPICAL SIGN PLACEMENT
SHARED-USE PATH

NO	DATE	BY	CKD	APPR	REVISION

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: JOSEPH J. MACPHERSON, P.E.
 SIGNATURE: *[Signature]*
 DATE: 3-12-20 LICENSE NO. 46732

DRAWN BY: IMV DATE: 12/20/19
 DESIGN BY: DATE:
 CHECKED BY: TRH DATE: 02/10/20

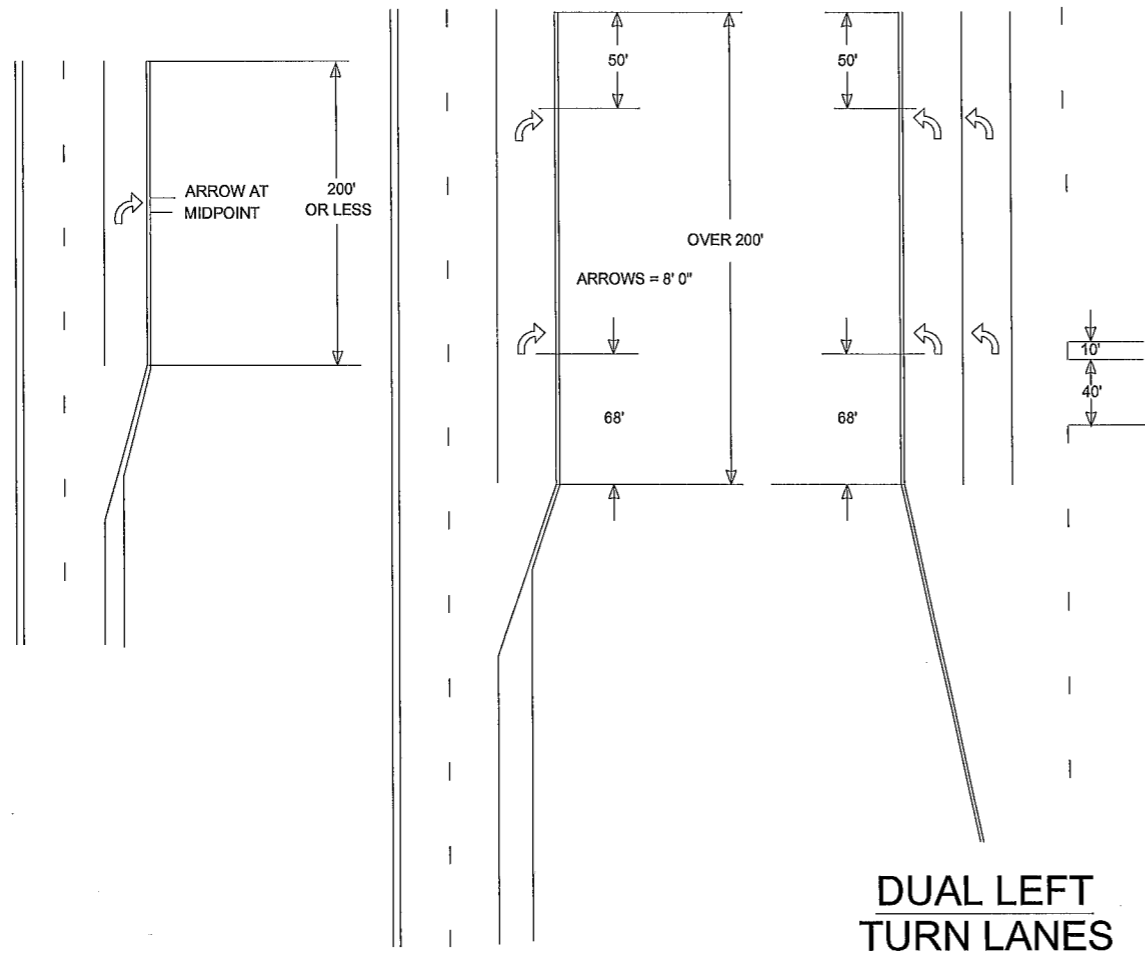


ANOKA COUNTY
HIGHWAY DEPT.

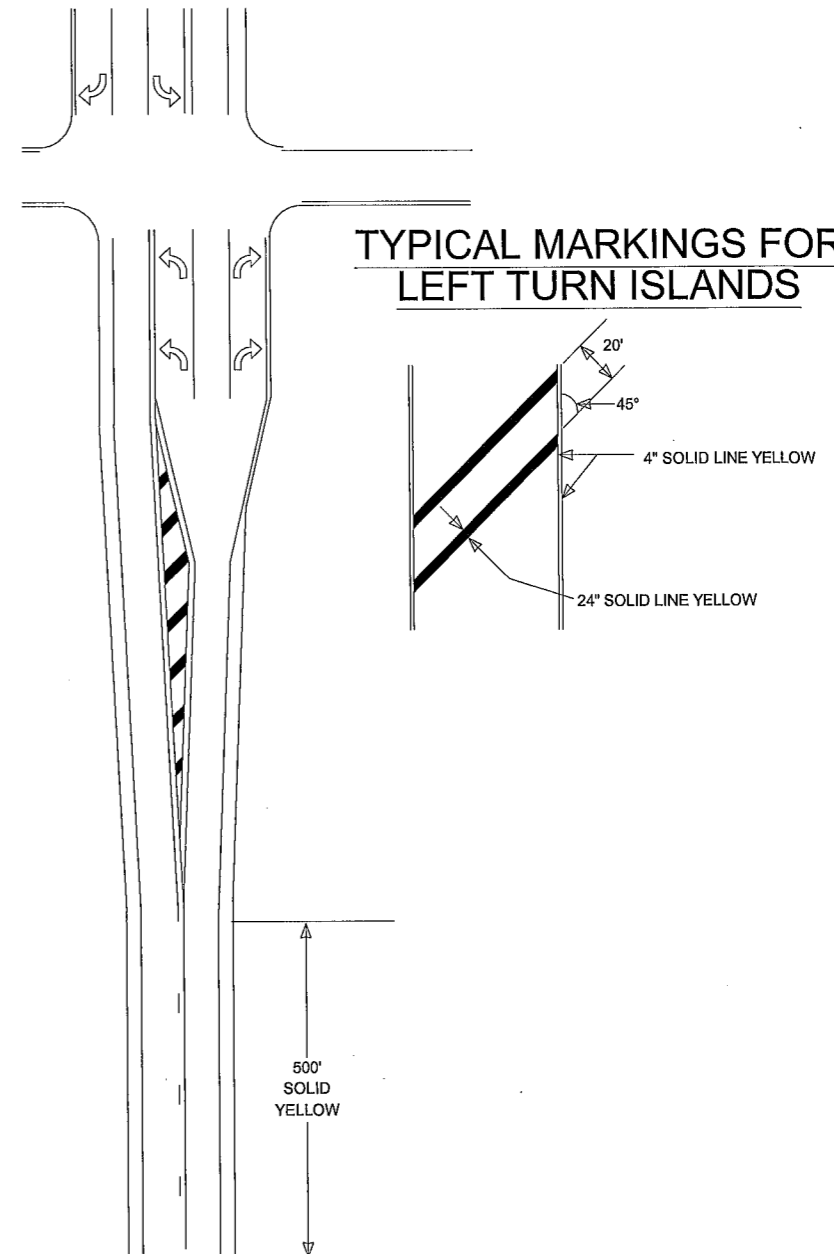
CP 20-11-60

SIGNING & STRIPING
DETAILS
Sheet 30 of 39 Sheets

**TYPICAL MESSAGE PLACEMENT
FOR TURN LANES**



**TYPICAL MARKINGS FOR
LEFT TURN ISLANDS**



NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\20-01-001\Traffic\Base\Signing Detail

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: JOSEPH J. MACPHERSON, P.E.

SIGNATURE: *[Signature]*

DATE: 7.17.20 LICENSE NO. 46732

DRAWN BY: TMV DATE: 12/29/19

DESIGN BY: DATE:

CHECKED BY: TRH DATE: 02/10/20

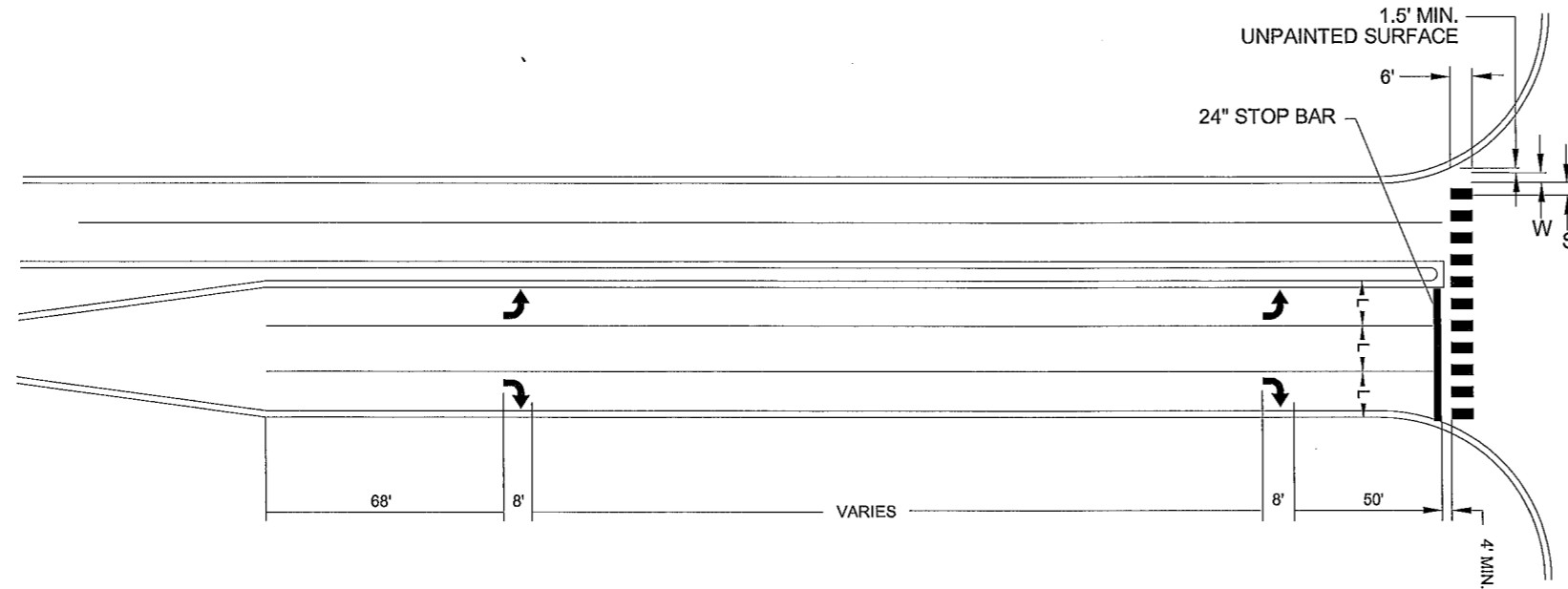
**ANOKA COUNTY
HIGHWAY DEPT.**

CP 20-11-60

**SIGNING & STRIPING
DETAILS**

Sheet 31 of 39 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

NAME: P:120-01-001TrafficBaseSignDetail

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: JOSEPH J. MACPHERSON, P.E.

SIGNATURE: *[Signature]*

DATE: 12-17-19 LICENSE NO. 46732

DRAWN BY: TMV DATE: 12/20/19

DESIGN BY: DATE:

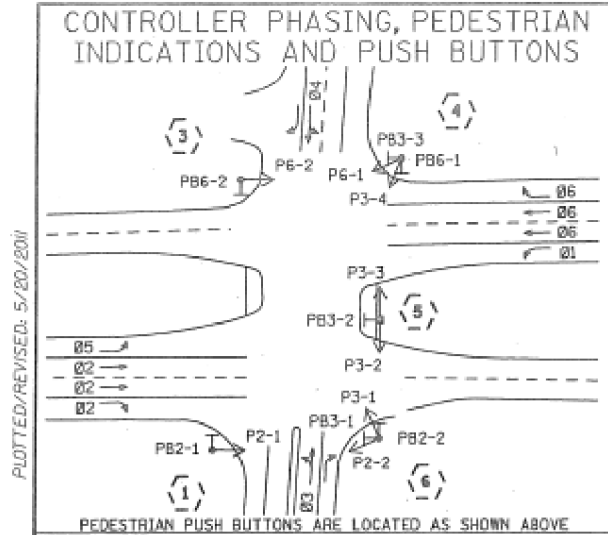
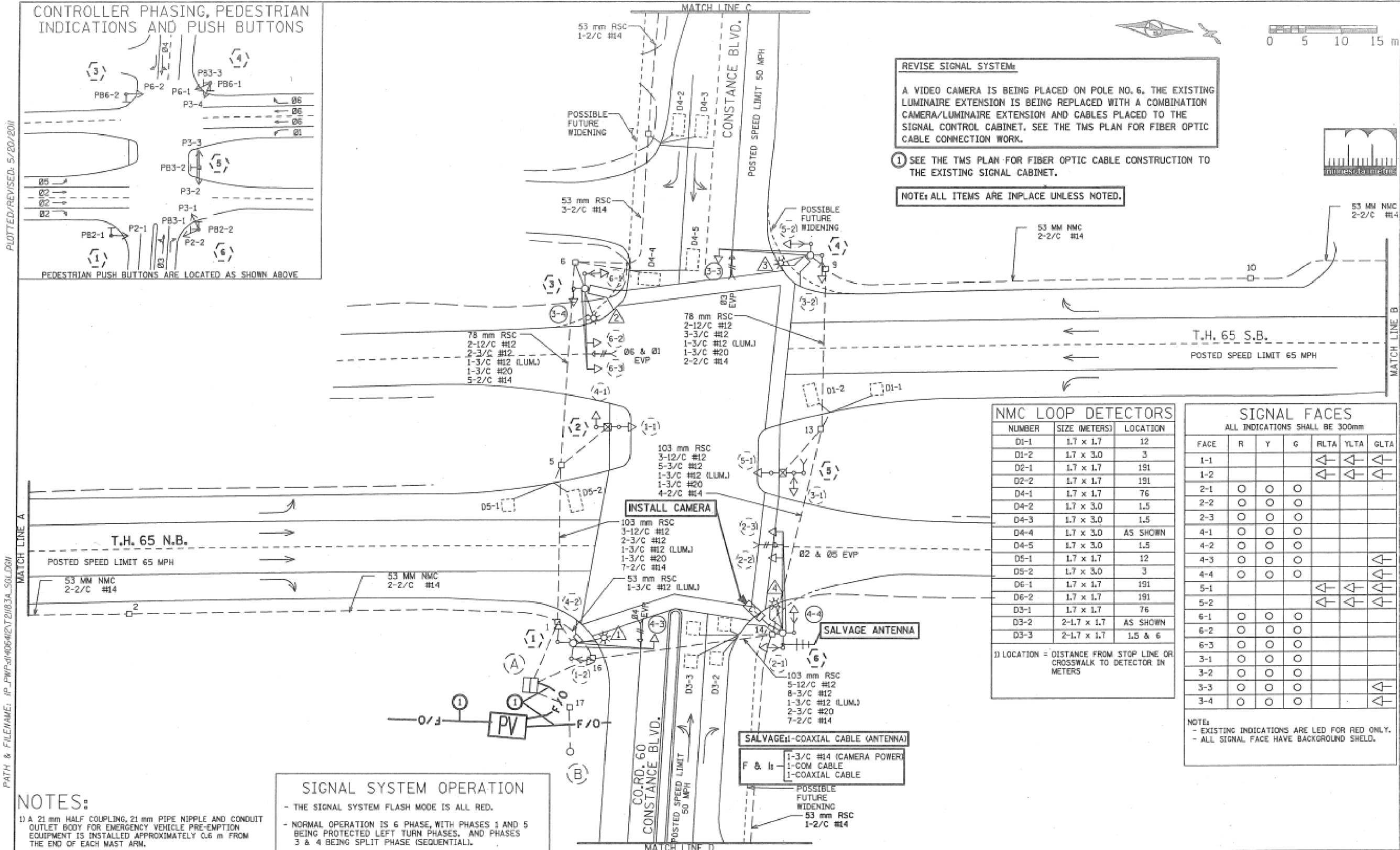
CHECKED BY: TRH DATE: 02/10/20



ANOKA COUNTY
HIGHWAY DEPT.

CP 20-11-60

SIGNING & STRIPING
DETAILS



REVISE SIGNAL SYSTEM:
 A VIDEO CAMERA IS BEING PLACED ON POLE NO. 6. THE EXISTING LUMINAIRE EXTENSION IS BEING REPLACED WITH A COMBINATION CAMERA/LUMINAIRE EXTENSION AND CABLES PLACED TO THE SIGNAL CONTROL CABINET. SEE THE TMS PLAN FOR FIBER OPTIC CABLE CONNECTION WORK.
 ① SEE THE TMS PLAN FOR FIBER OPTIC CABLE CONSTRUCTION TO THE EXISTING SIGNAL CABINET.
NOTE: ALL ITEMS ARE IN PLACE UNLESS NOTED.

NMC LOOP DETECTORS		
NUMBER	SIZE (METERS)	LOCATION
D1-1	1.7 x 1.7	12
D1-2	1.7 x 3.0	3
D2-1	1.7 x 1.7	191
D2-2	1.7 x 1.7	191
D4-1	1.7 x 1.7	76
D4-2	1.7 x 3.0	1.5
D4-3	1.7 x 3.0	1.5
D4-4	1.7 x 3.0	AS SHOWN
D4-5	1.7 x 3.0	1.5
D5-1	1.7 x 1.7	12
D5-2	1.7 x 3.0	3
D6-1	1.7 x 1.7	191
D6-2	1.7 x 1.7	191
D3-1	1.7 x 1.7	76
D3-2	2-1.7 x 1.7	AS SHOWN
D3-3	2-1.7 x 1.7	1.5 & 6

SIGNAL FACES						
ALL INDICATIONS SHALL BE 300mm						
FACE	R	Y	G	RLTA	YLTA	GLTA
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	○	○	○			
3-1	○	○	○			
3-2	○	○	○			
3-3	○	○	○			
3-4	○	○	○			

NOTE:
 - EXISTING INDICATIONS ARE LED FOR RED ONLY.
 - ALL SIGNAL FACE HAVE BACKGROUND SHIELD.

SIGNAL SYSTEM OPERATION
 - THE SIGNAL SYSTEM FLASH MODE IS ALL RED.
 - NORMAL OPERATION IS 6 PHASE, WITH PHASES 1 AND 5 BEING PROTECTED LEFT TURN PHASES, AND PHASES 3 & 4 BEING SPLIT PHASE (SEQUENTIAL).

NOTES:
 1) A 21 mm HALF COUPLING, 21 mm PIPE NIPPLE AND CONDUIT OUTLET BODY FOR EMERGENCY VEHICLE PRE-EMPTION EQUIPMENT IS INSTALLED APPROXIMATELY 0.6 m FROM THE END OF EACH MAST ARM.

BY	DATE	REVISIONS	SYSTEM ID: 21183	T.E.	S.A.P. NO.	DRAWN BY: BAM	CKD BY: CDB	DATE: 05-23-11
			METER ADDRESS: 16299 HIGHWAY 65		CERTIFIED BY: <i>Michael P. Salvaty</i>			LIC. NO. 19863 DATE: 05-23-11
			MASTER ID:	T.E.	STATE PROJ. NO. 0207-94 (T.H.65) SHEET NO. SS68 OF SS88 SHEETS			

DRAWN BY: APA DATE: 03/17/2020
 DESIGN BY: APA DATE: 03/17/2020
 CHECKED BY: CO DATE: 03/17/2020



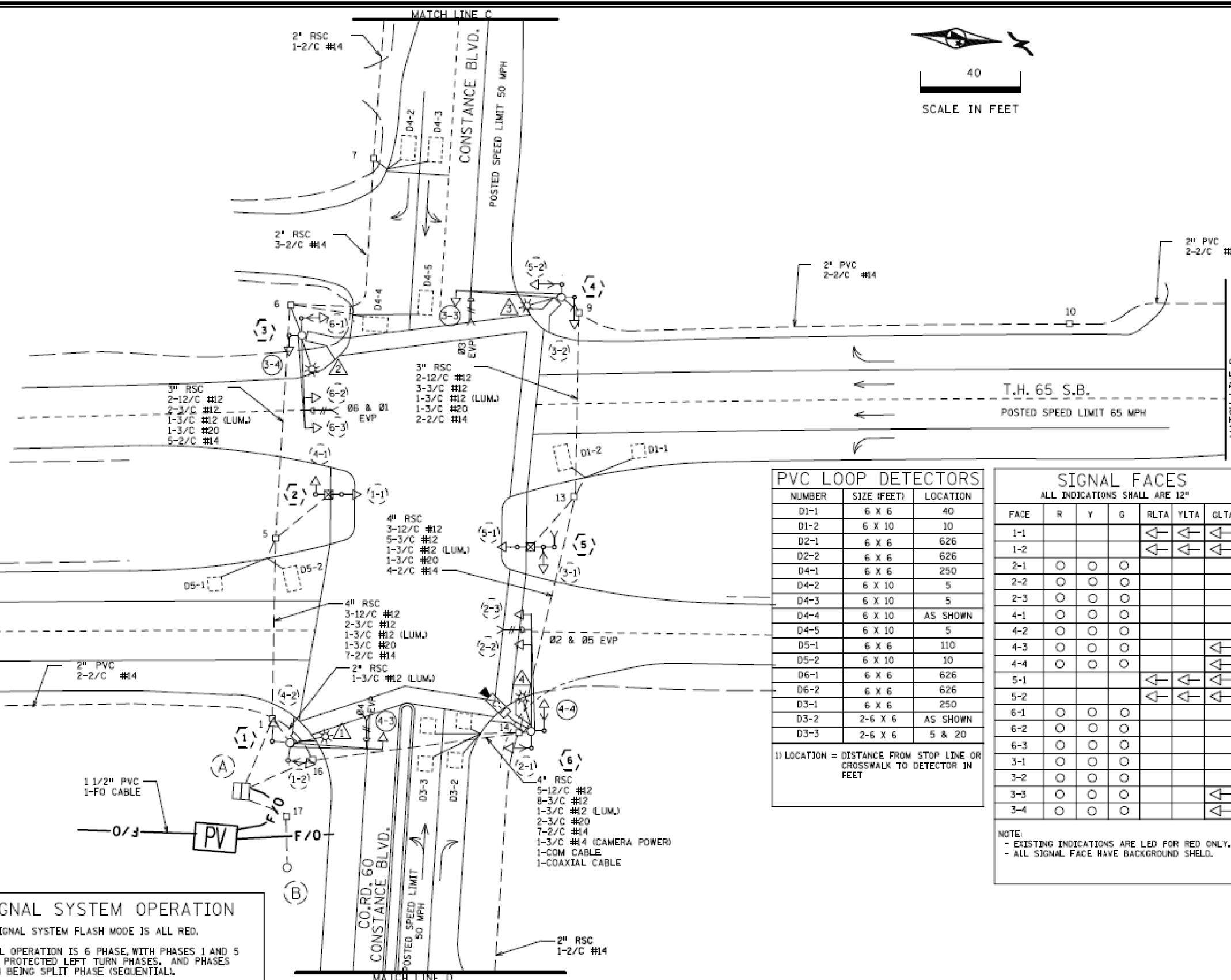
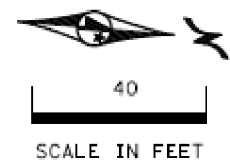
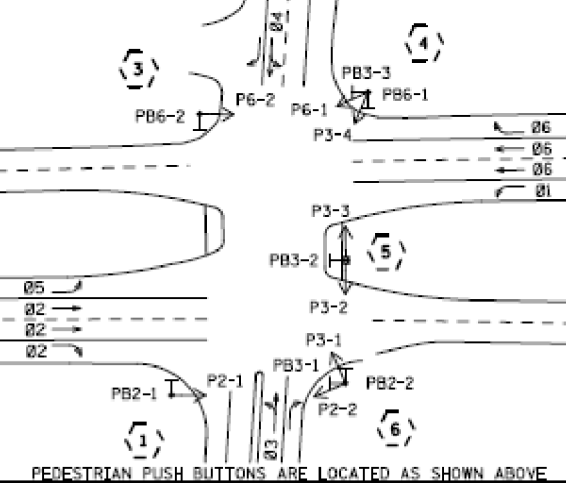
COUNTY PROJECT 20-11-60

EXISTING SIGNAL PLANS
 Sheet 33 of 39 Sheets

PLOTTED/REVISED: 8/6/2003

DISTRICT #: METRO
PLOT NAME: LAYOUT
PATH & FILENAME: IP:\PWP\00781323\2183A_SGL.DGN

CONTROLLER PHASING, PEDESTRIAN INDICATIONS AND PUSH BUTTONS



PVC LOOP DETECTORS

NUMBER	SIZE (FEET)	LOCATION
D1-1	6 X 6	40
D1-2	6 X 10	10
D2-1	6 X 6	626
D2-2	6 X 6	626
D4-1	6 X 6	250
D4-2	6 X 10	5
D4-3	6 X 10	5
D4-4	6 X 10	AS SHOWN
D4-5	6 X 10	5
D5-1	6 X 6	110
D5-2	6 X 10	10
D6-1	6 X 6	626
D6-2	6 X 6	626
D3-1	6 X 6	250
D3-2	2-6 X 6	AS SHOWN
D3-3	2-6 X 6	5 & 20

1) LOCATION = DISTANCE FROM STOP LINE OR CROSSWALK TO DETECTOR IN FEET

SIGNAL FACES

ALL INDICATIONS SHALL ARE 12"

FACE	R	Y	G	RLTA	YLTA	GLTA
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	○	○	○			
3-1	○	○	○			←
3-2	○	○	○			←
3-3	○	○	○			←
3-4	○	○	○			←

NOTE:
 - EXISTING INDICATIONS ARE LED FOR RED ONLY.
 - ALL SIGNAL FACE HAVE BACKGROUND SHELDS.

SIGNAL SYSTEM OPERATION

- THE SIGNAL SYSTEM FLASH MODE IS ALL RED.
- NORMAL OPERATION IS 6 PHASE, WITH PHASES 1 AND 5 BEING PROTECTED LEFT TURN PHASES, AND PHASES 3 & 4 BEING SPLIT PHASE (SEQUENTIAL).

BY	DATE	REVISIONS	SYSTEM ID: 21183	T.E.	S.A.P. NO.	DRAWN BY: BAM	CKD BY: CDB	DATE: 05-23-11
		AS-BUILT PLAN SP 0207-94	METER ADDRESS: 16299 HIGHWAY 65		CERTIFIED BY: <i>Michael P. Liburdy</i>			LIC. NO. 19863 DATE: 05-23-11
			MASTER ID:	T.E.	STATE PROJ. NO. 0207-94 (T.H.65) SHEET NO. SS68 OF SS88 SHEETS			

NO	DATE	BY	CKD	APPR	REVISION	03/17/2020	11:35:42 AM

NAME: P:\20-01-00\CR_60_(TH65-E_Lk_Netta)\Base\Proposed\Proposed.dgn

DRAWN BY: APA	DATE: 03/17/2020
DESIGN BY: APA	DATE: 03/17/2020
CHECKED BY: CO	DATE: 03/17/2020

ANOKA COUNTY
HIGHWAY DEPT.

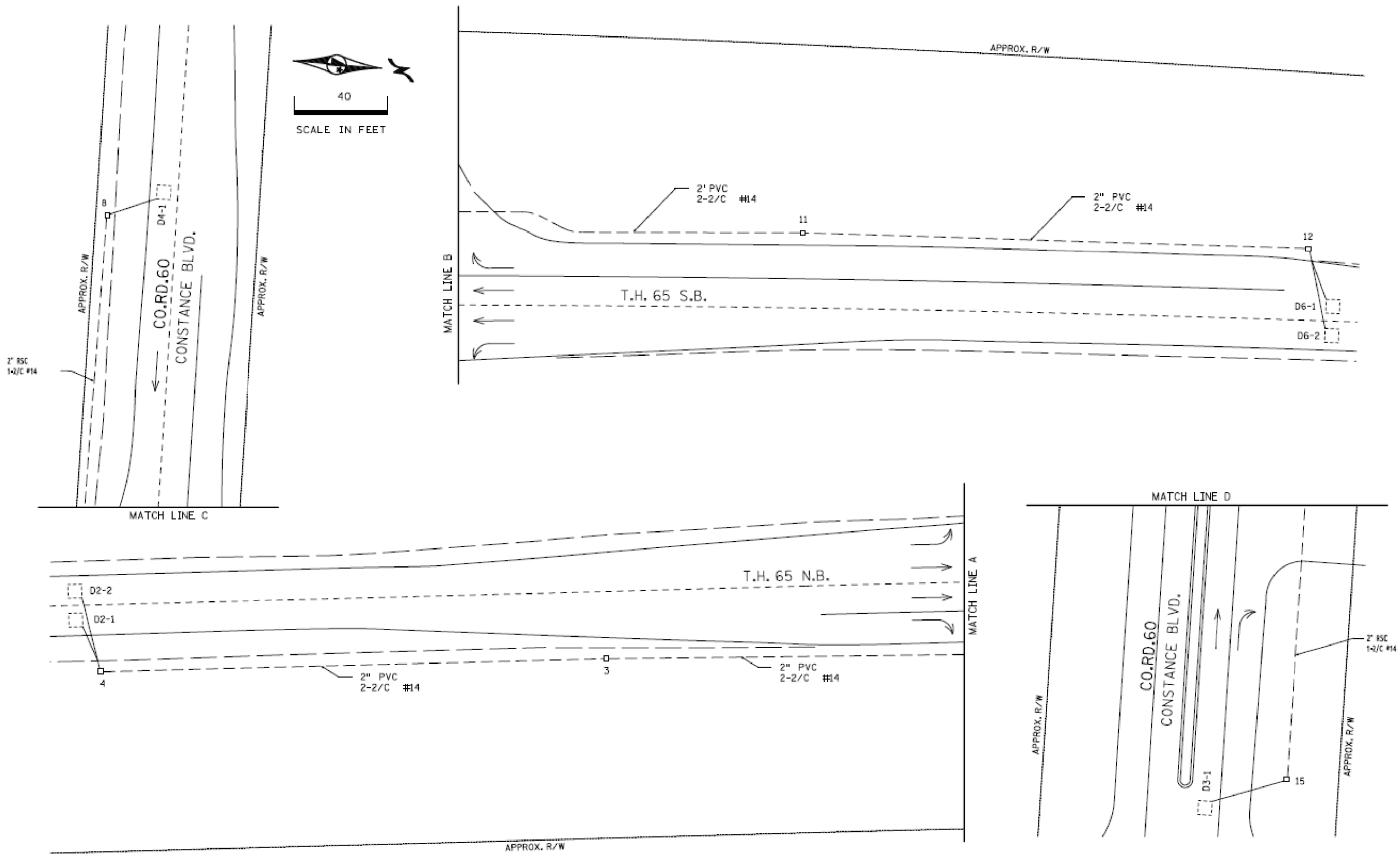
COUNTY PROJECT 20-11-60

EXISTING SIGNAL PLANS
 Sheet 34 of 39 Sheets

FOR REFERENCE PURPOSES ONLY

PLOTTED/REVISED: 8/6/2013

DISTRICT #: METRO
 PLOT NAME: MATCH LINE
 PATH & FILENAME: IP_CWP-80781323V2183A_SGL.DGN



BY	DATE	REVISIONS
		AS-BUILT PLAN SP 0207-94

SYSTEM ID: 21183 T.E.
 METER ADDRESS: 16299 HIGHWAY 65
 MASTER ID: T.E.

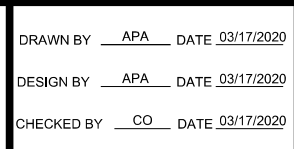
MATCH LINES
 TH 65 AT CO.RD.60 (CONSTANCE BLVD.)
 HAM LAKE, ANOKA COUNTY

STATE PROJ.NO. 0207-94 (T.H.65) SHEET NO. SS69 OF SS88 SHEETS

NO	DATE	BY	CKD	APPR	REVISION	TIME
	03/17/2020					11:35:52 AM

NAME: P:\20-01-00\CR_60_(TH65-E_Lk_Netta)\Base\Proposed\Proposed.dgn

DRAWN BY: APA DATE: 03/17/2020
 DESIGN BY: APA DATE: 03/17/2020
 CHECKED BY: CO DATE: 03/17/2020



**ANOKA COUNTY
 HIGHWAY DEPT.**

COUNTY PROJECT 20-11-60

EXISTING SIGNAL PLANS
 Sheet 35 of 39 Sheets

FOR REFERENCE PURPOSES ONLY

PLOTTED/REVISED: 8/6/2013

DISTRICT #: METRO
 PLOT NAME: NOTES
 PATH & FILENAME: IP_PWP-80781323\2183A_SGL.DGN

① PA90 POLE FOUNDATION
 TYPE PA90-A-30-D40-9 (DAVIT AT 350)
 2-SWING AWAY HINGES
 ONE WAY SIGNAL OVERHEAD AT 0'
 TYPE 10A POLE MOUNTED AT 180
 TYPE 10B POLE MOUNTED AT 90
 ONE WAY EVP DETECTOR AND CONFIRMATORY
 LIGHT PHASE 4
 LUMINAIRE-200 W HPS
 PED PUSH BUTTON AND SIGN (R10-4b)
 EXTEND INTO HH 1
 3" RSC
 1-12/C #12
 3-3/C #12
 2-3/C #12 (LUM.)
 1-5/C #12
 1-3/C #20

② PEDESTAL FOUNDATION
 13' PEDESTAL POLE PLUS BASE
 TYPE 6A
 2-R9-3a SIGNS (NO PED) FACING POLES 1 & 3
 EXTEND INTO HH 5
 3" RSC
 1-12/C #12

③ PA90 POLE FOUNDATION
 TYPE PA90-A-40-D40-9 (DAVIT AT 355)
 2-SWING AWAY HINGES
 2-ONE WAY SIGNALS OVERHEAD AT 0'
 AND 11'
 TYPE 10A POLE MOUNTED AT 90
 TYPE 10B POLE MOUNTED AT 180
 ONE WAY EVP DETECTOR AND CONFIRMATORY
 LIGHT PHASES 6&1
 LUMINAIRE-200 W HPS
 1-SIGN TYPE R6-1R (ONE WAY)
 1-SIGN TYPE R6-1L (ONE WAY)
 PED PUSH BUTTON AND SIGN (R10-4b)
 EXTEND INTO HH 6
 3" RSC
 2-12/C #12
 2-3/C #12
 1-3/C #12 (LUM.)
 1-3/C #20

④ PA90 POLE FOUNDATION
 TYPE PA90-A-25-D40-9 (DAVIT AT 350)
 2-SWING AWAY HINGES
 ONE WAY SIGNAL OVERHEAD AT 0'
 2-TYPE 10B POLE MOUNTED AT 90 AND 180
 ONE WAY EVP DETECTOR AND CONFIRMATORY
 LIGHT PHASE 8
 LUMINAIRE-200 W HPS
 2-PED PUSH BUTTONS AND SIGNS (R10-4b)
 EXTEND INTO HH 9
 3" RSC
 2-12/C #12
 3-3/C #12
 1-3/C #12 (LUM.)
 1-3/C #20

⑤ PEDESTAL FOUNDATION
 13' PEDESTAL POLE PLUS BASE
 TYPE 6D
 PED PUSH BUTTON AND SIGN
 (R10-4b)
 EXTEND INTO HH 13
 3" RSC
 1-12/C #12
 2-3/C #12

⑥ PA100 POLE FOUNDATION
 TYPE PA100-A-45
 1-XG-350/CAM 400 EXTENSION (MOUNTED AT 350 DEG)
 (INCLUDES LIGHTNING ROD, 7/16" GROUND BRAID AND GROUND ROD)
 1-VIDEO CAMERA WITH MOUNT
 2-SWING AWAY HINGES
 2-ONE WAY SIGNALS OVERHEAD AT 0' AND 11'
 2-TYPE 10B POLE MOUNTED AT 90 AND 180
 ONE WAY EVP DETECTOR AND CONFIRMATORY
 LIGHT PHASES 2&5
 LUMINAIRE-200 W HPS
 1-SIGN TYPE R6-1R (ONE WAY)
 1-SIGN TYPE R6-1L (ONE WAY)
 2-PED PUSH BUTTONS AND SIGNS (R10-4b)
 EXTEND INTO HH 14
 3" RSC
 2-12/C #12
 3-3/C #12
 2-3/C #12 (LUM.)
 1-3/C #20
 1-7/16" GROUNDING BRAID TO GROUND ROD IN HH 14
 1-3/C #14 (CAMERA POWER)
 1-COM CABLE
 1-COAXIAL CABLE

Ⓐ EQUIPMENT PAD
 SERVICE CABINET
 CONTROLLER CABINET AND CONTROLLER
 SERVICE CABINET TO CONTROLLER CABINET
 2" RSC
 2-1/C #6
 1-1/C #6 INS. GR.
 SERVICE CABINET TO HH 1
 2" RSC
 2-3/C #12 (LUM.)
 SERVICE CABINET TO HH 17
 2" RSC
 3-1/C #2
 CONTROLLER CABINET TO HH 16
 4" RSC
 5-12/C #12
 8-3/C #12
 2-3/C #20
 7-2/C #14
 1-3/C #14 (CAMERA POWER)
 1-COM CABLE
 1-COAXIAL CABLE
 CONTROLLER CABINET TO HH 1
 2-3" RSC
 4-12/C #12
 5-3/C #12
 1-5/C #12
 2-3/C #20
 9-2/C #14
 CONTROLLER CABINET TO TMS PULL VAULT
 1 1/2" CONDUIT INSIDE EXISTING 3" RSC
 1-6SM FIBER OPTIC

Ⓑ SOP WOOD POLE
 2" RSC RISER WITH
 WEATHERHEAD
 2" RSC TO HH 17
 WITH 3-1/C #2

FOR REFERENCE PURPOSES ONLY

BY	DATE	REVISIONS	SYSTEM ID: 21183	T.E.	S.A.P. NO.	DRAWN BY: BAM	CKD BY: CDB	DATE: 05-23-11
		AS-BUILT PLAN SP 0207-94	METER ADDRESS: 16299 HIGHWAY 65		CERTIFIED BY: <i>Michael P. Liburdy</i>		LIC. NO. 19863	DATE: 05-23-11
			MASTER ID:	T.E.	STATE PROJ. NO. 0207-94 (T.H.65)		SHEET NO. SS70 OF SS88 SHEETS	

DRAWN BY: APA DATE: 03/17/2020
 DESIGN BY: APA DATE: 03/17/2020
 CHECKED BY: CO DATE: 03/17/2020



ANOKA COUNTY
 HIGHWAY DEPT.

COUNTY PROJECT 20-11-60

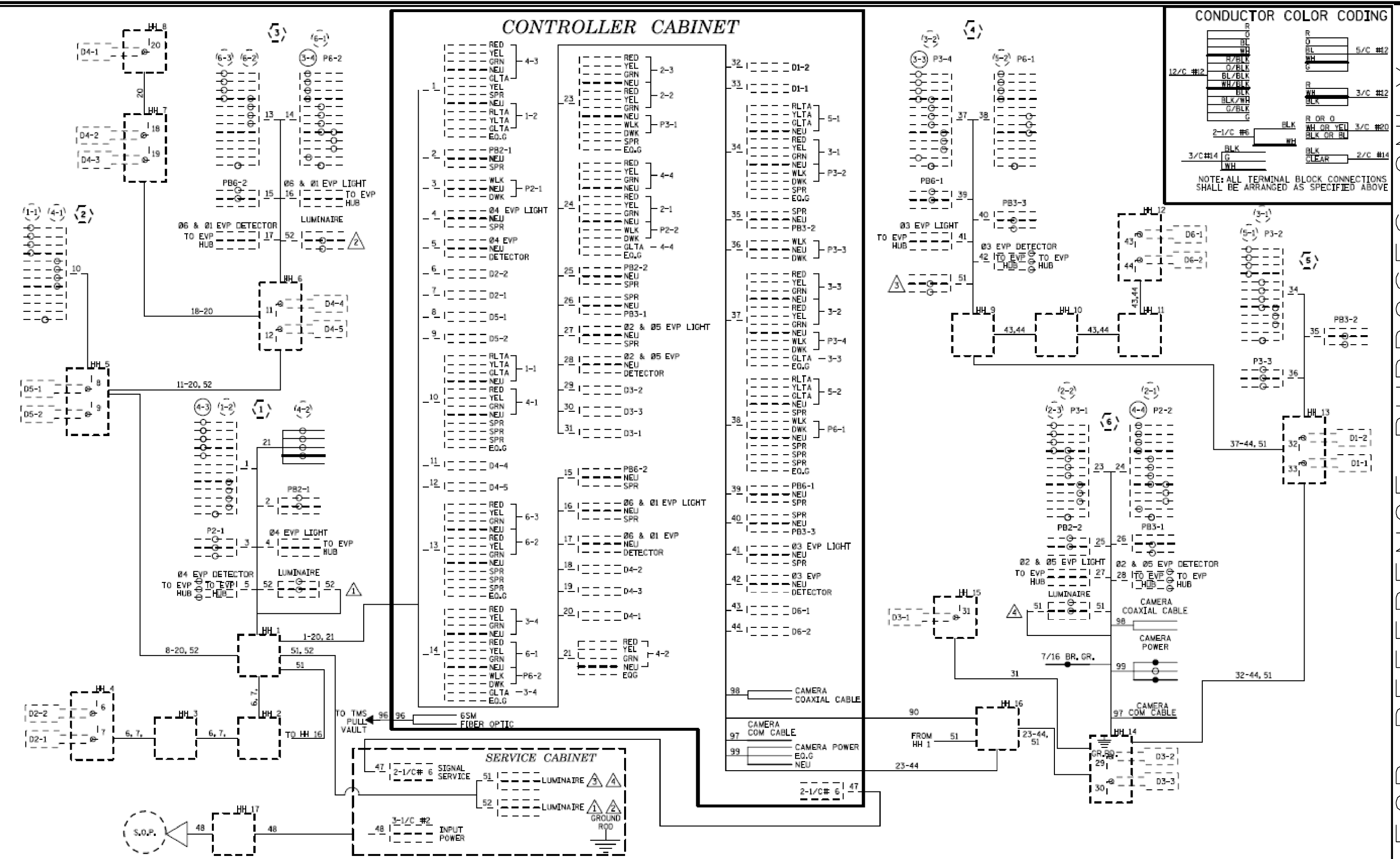
EXISTING SIGNAL PLANS
 Sheet 36 of 39 Sheets

NO	DATE	BY	CKD	APPR	REVISION	TIME
	03/17/2020					11:36:03 AM

AP Anders

PLOTTED/REVISED: 8/6/2003

DISTRICT #: METRO
PLOT NAME: WIRE
PATH & FILENAME: IP_PWP-00781323V2183A_SGLDGN



FOR REFERENCE PURPOSES ONLY

BY	DATE	REVISIONS	SYSTEM ID: 21183	T.E.	S.A.P. NO.	DRAWN BY: BAM	CKD BY: CDB	DATE: 05-23-11
		AS-BUILT PLAN SP 0207-94	METER ADDRESS: 16299 HIGHWAY 65		CERTIFIED BY: <i>Michael P. Liburdy</i> LIC. NO. 19863 DATE: 05-23-11			
			MASTER ID:	T.E.	STATE PROJ. NO. 0207-94 (T.H.65) SHEET NO. SS71 OF SS88 SHEETS			

NO	DATE	BY	CKD	APPR	REVISION	03/17/2020	11:36:13 AM
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DRAWN BY: <u>APA</u> DATE: <u>03/17/2020</u> DESIGN BY: <u>APA</u> DATE: <u>03/17/2020</u> CHECKED BY: <u>CO</u> DATE: <u>03/17/2020</u>	ANOKA COUNTY HIGHWAY DEPT.	COUNTY PROJECT <u>20-11-60</u> EXISTING SIGNAL PLANS Sheet <u>37</u> of <u>39</u> Sheets
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00215co MDR05FRW0023 TMS
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INDEX OF REFRACTION

PROVIDE CABLE MANUFACTURERS INDEX OF REFRACTION USED FOR TESTING ON PROJECT.

○ = FURNISHED SPLICE, NO SPLICE OTRD READING REQUIRED AT THIS LOCATION

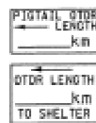
⊗ POWER METER TEST POINT
INSERT OPTICAL LINK LOSS IN dB
(TEST MULTI-MODE FIBER AT 1300)
(TEST SINGLE MODE FIBER AT 1550)



INSERT OTRD SPLICE LOSS SHOT FROM THIS DIRECTION

○ = FO CABLE SPLICE POINT & OTRD TEST SPLICE READING

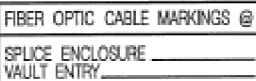
▧ = OTRD TEST SPLICE READING ON INPLACE CABLE



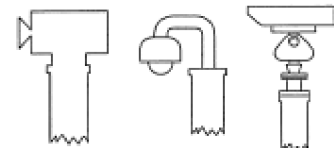
PROVIDE TRUNK AND PIGTAIL OTRD FIBER LENGTH MEASUREMENTS USING OTRD READINGS FROM CONNECTORS AT SHELTER OR CABINETS TO SPLICE POINTS IN VAULTS

PIGTAIL ID#:

PROVIDE PIGTAIL CABLE JACKET DISTANCE MARKINGS AT ENTRY TO CONTROL CABINET AND AT ENTRY TO OUTDOOR FIBER SPLICE ENCLOSURE



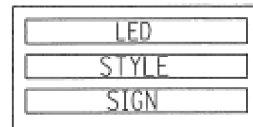
PROVIDE TRUNK CABLE JACKET DISTANCE MARKINGS AT ENTRY TO VAULT AND AT ENTRY TO OUTDOOR FIBER SPLICE ENCLOSURE



EXISTING CAMERA WITH PAN AND TILT UNIT



F&I CAMERA WITH PAN AND TILT UNIT

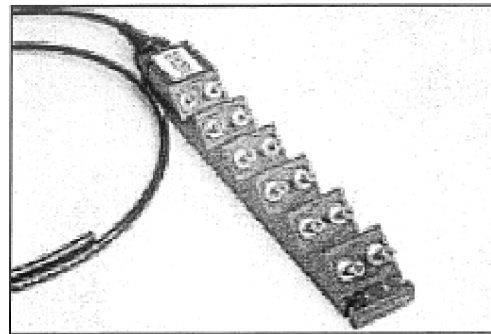


DYNAMIC MESSAGE SIGN

FIBER OPTIC PATCHCORD



TWISTED PAIR INTERCONNECT



FACTORY TERMINATED FIBER OPTIC PATCH/PIGTAIL PANEL



FO ETHERNET TRANSPORT



ETHERNET/SERIAL CONVERTER



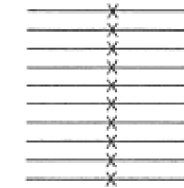
ETHERNET/SERIAL CONVERTER
RS232
FO ETHERNET TRANSPORT SFP1, SFP2
ETHERNET CABLE



ETHERNET SWITCH

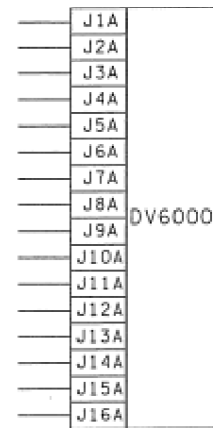
COMMON ETHERNET EQUIPMENT

EXISTING FO CABLE SPLICE POINT

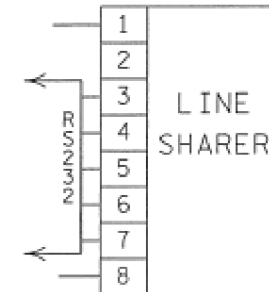


FIBER OPTIC PIGTAIL SPLICE DIAGRAM

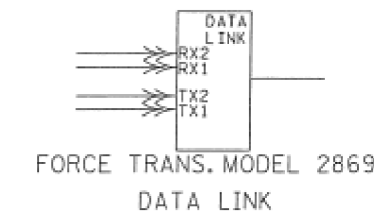
(SPLICE UNUSED FIBERS TOGETHER IN THE SPLICE VAULT SO THAT THE FIBERS CAN BE TESTED)



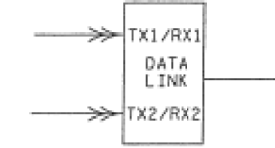
DTS EQUIPMENT



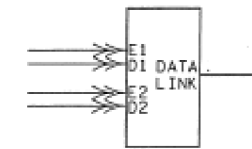
RS 232 LINE SHARER



FORCE TRANS. MODEL 2869 DATA LINK



OPTELECOM MODEM DATA LINK



EIA/TIA 232 DATA LINK



VIDEO & DATA TRANSCEIVER TRANSMITTER

170 170 CONTROLLER

DMS CHANGEABLE MESSAGE SIGN

FLS FLASHER

RCS RAMP CONTROL SIGNAL

LDS LOOP DETECTOR STATION

LD LOOP DETECTOR'S

ILCS INTELLIGENT LANE CONTROL SIGN

LEGEND FOR COMMUNICATION SCHEMATICS

REV. NO.	DATE: / /
REV. NO.	DATE: / /

CERTIFIED BY *[Signature]* LIC.NO. 26530 MAY 19 2011 STATE PROJ. NO. 0207-94 (TH 65) SHEET NO. SZ75 OF SZ102 SHEETS

NO	DATE	BY	CKD	APPR	REVISION	03/17/2020	11:36:23 AM
NAME: P:\20-01-00\CR_60_(TH65-E_Lk_Netta)\Base\Proposed\Proposed.dgn							

DRAWN BY APA DATE 03/17/2020
DESIGN BY APA DATE 03/17/2020
CHECKED BY CO DATE 03/17/2020



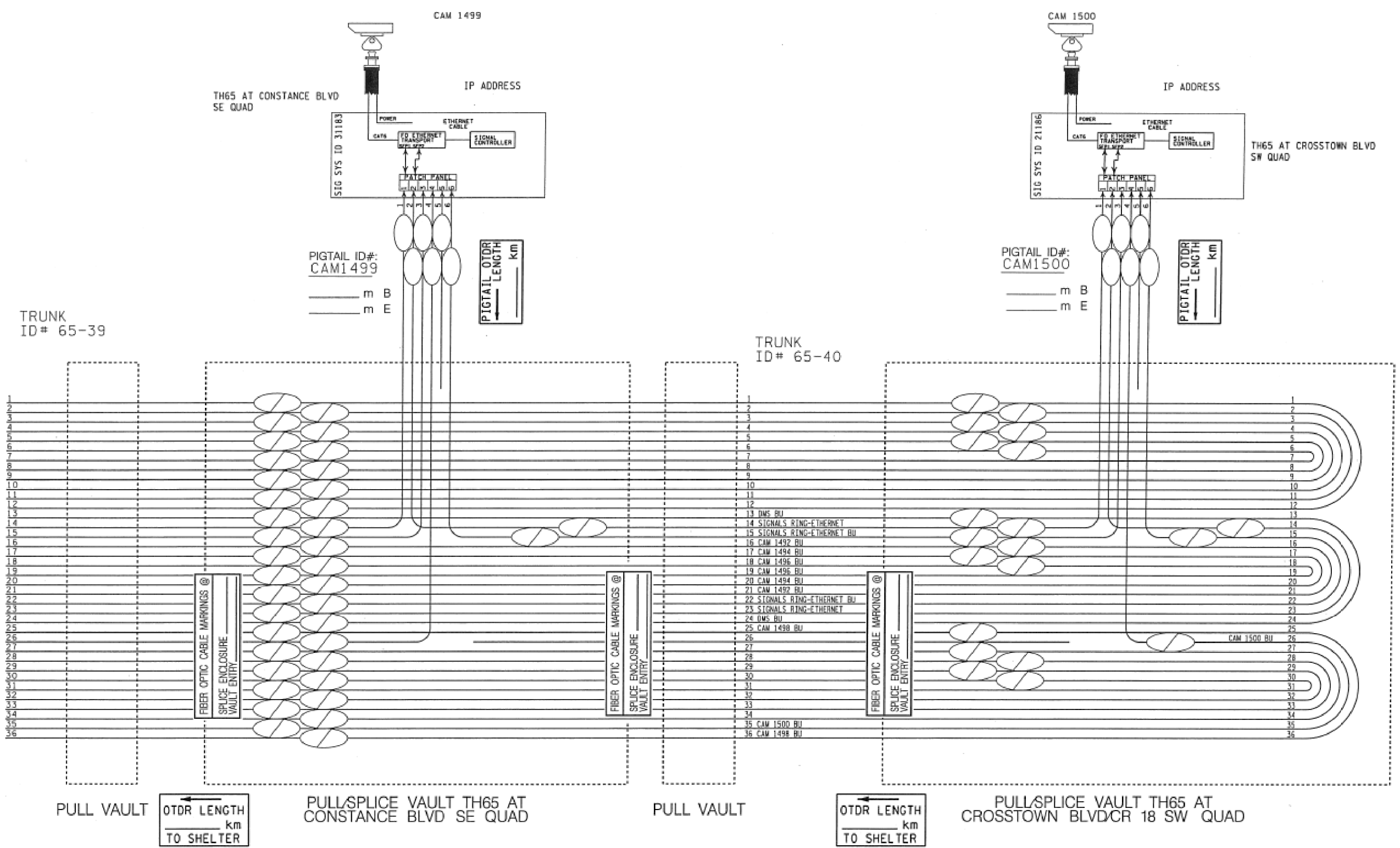
ANOKA COUNTY HIGHWAY DEPT.

COUNTY PROJECT 20-11-60

EXISTING SIGNAL PLANS

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FOR REFERENCE PURPOSES ONLY



FIBER OPTIC SCHEMATIC TH 65 AT CROSTOWN BLVD/CR 18

REV. NO.	MAY 19	/	/
REV. NO.	MAY 19	/	/

CERTIFIED BY *[Signature]* LIC.NO. 26530 MAY 19 2011 STATE PROJ. NO. 0207-94 (TH 65) SHEET NO. SZ96 OF SZ102 SHEETS

NO	DATE	BY	CKD	APPR	REVISION	03/17/2020	11:36:33 AM

NAME: P:\20-01-00\CR_60_(TH65-E_Lk_Netta)\Base\Proposed\Proposed.dgn

DRAWN BY APA DATE 03/17/2020
 DESIGN BY APA DATE 03/17/2020
 CHECKED BY CO DATE 03/17/2020



COUNTY PROJECT 20-11-60

EXISTING SIGNAL PLANS
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FOR REFERENCE PURPOSES ONLY