

MINNESOTA DEPARTMENT OF TRANSPORTATION

ANOKA COUNTY

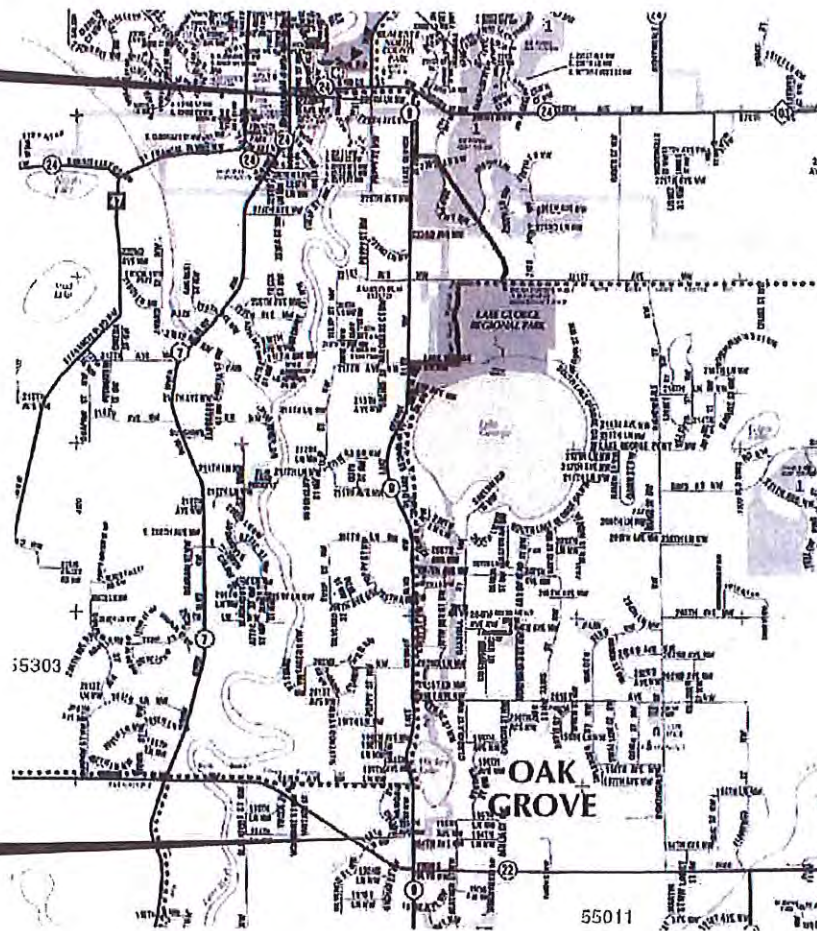
CONSTRUCTION PLAN FOR BITUMINOUS RECLAMATION AND BITUMINOUS SURFACING.

LOCATED ON CSAH 9 BETWEEN 800' N OF CSAH 22 AND 600' S OF CSAH 24

CSAH 9

GROSS LENGTH 23,083.00 FEET 4.372 MILES
 EXCEPTIONS-LENGTH 0.00 FEET 0.000 MILES
 NET LENGTH 23083.00 FEET 4.372 MILES

END SAP 002-609-018
 CSAH 9, STA: 241+13.00



BEGIN SAP 002-609-018
 CSAH 9, STA: 10+30.00

PROJECT LOCATION



CITY OF OAK GROVE
 ANOKA COUNTY
 MN/DOT TRANSPORTATION DISTRICT - METRO
 SECTION 35
 TOWNSHIP 33 NORTH
 RANGE 24 WEST

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 40 SHEETS

INDEX

SHEET NO.	DESCRIPTION
1	TITLE SHEET
2	STATEMENT OF ESTIMATED QUANTITIES
3-5	TYPICAL SECTIONS
6-8	DETAILS
9-17	CONSTRUCTION PLAN
18-23	PEDESTRIAN CURB RAMP DETAILS
24-40	SIGNING AND STRIPING PLANS

Approved [Signature] 5/6, 2019
 CITY OF OAK GROVE ENGINEER

Approved [Signature] 5/7, 2019
 CITY OF SAINT FRANCIS ENGINEER

Approved [Signature] 5/2/2019
 ANOKA COUNTY ENGINEER

[Signature] DATE 5/8/19
 DISTRICT STATE AID ENGINEER: REVIEWED FOR COMPLIANCE WITH STATE AID RULES/POLICY
 For

[Signature] DATE 5/8/19
 STATE AID ENGINEER: APPROVED FOR STATE AID FUNDING
 For

DESIGN DESIGNATION (CSAH 9)

ESAL 20	<u>870,315</u>	FUNCTIONAL CLASSIFICATION	<u>A MINOR CONNECTOR</u>
R VALUE	<u>60</u>	NO. OF TRAFFIC LANES	<u>2</u> NO. OF PARKING LANES <u>0</u>
ADT (2019)	<u>7367</u>	DESIGN SPEED	<u>55</u> MPH
PROJ. ADT (2039)	<u>7367</u>	STOPPING SIGHT DISTANCE BASED ON:	
PROJ. HCA DT (2039)	<u>435</u>	HEIGHT OF EYE	<u>3.5'</u> HEIGHT OF OBJECT <u>2.0'</u>
SOIL FACTOR	<u>N/A</u>	DESIGN SPEED NOT ACHIEVED AT:	
<u>10</u> TON DESIGN		STA. _____ TO STA. _____	MPH _____

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
 PRINT NAME: JOSEPH J. MACPHERSON
 SIGNATURE: [Signature]
 DATE: 5-1-19 LICENSE NO. 46732

DRAWN BY KPR DATE 02/08/2019
 DESIGN BY KPR DATE 02/08/2019
 CHECKED BY XXX DATE 04/30/2019



ANOKA COUNTY
 HIGHWAY DEPT.

STATE AID PROJECT 002-609-018

TITLE SHEET

Sheet 1 of 40 Sheets

NO DATE BY CKD APPR REVISION 04/30/2019 11:22:50 AM
 NAME: P:\19-01-00\CSAH_09_OakLakeGeorge Blvd-OakGroveCL\Bases\PROPOSED\PROPOSED SOUTH.dgn

STATEMENT OF ESTIMATED QUANTITIES

NOTES	ITEM NUMBER	ITEM DESCRIPTION	UNIT	TOTAL PROJECT QUANTITIES ESTIMATED
	2021.501	MOBILIZATION	LUMP SUM	1
	2104.503	SAWING CONCRETE PAVEMENT (FULL DEPTH)	LIN FT	26
	2104.503	SAWING BIT PAVEMENT (FULL DEPTH)	LIN FT	865
	2104.504	REMOVE CONCRETE WALK	SQ YD	17
1	2104.504	REMOVE CONCRETE DRIVEWAY PAVEMENT	SQ YD	27
2	2104.504	REMOVE BITUMINOUS DRIVEWAY PAVEMENT	SQ YD	520
	2104.504	REMOVE BITUMINOUS PAVEMENT	SQ YD	2041
3	2105.602	CONSTRUCT BY-PASS LANES	EACH	2
3	2105.602	CONSTRUCT TURN LANES	EACH	1
4	2123.510	MOTOR GRADER	HOUR	28
5	2123.510	DOZER	HOUR	8
6	2123.610	TRACTOR MOUNTED BACKHOE	HOUR	16
	2130.523	WATER	M GALLON	590
7	2211.509	AGGREGATE BASE CLASS 5	TON	112
9	2215.504	FULL DEPTH RECLAMATION	SQ YD	84227
8	2215.507	HAUL FULL DEPTH RECLAMATION (LV)	CU YD	120
10	2221.509	SHOULDER BASE AGGREGATE CLASS 5	TON	2413
11	2232.504	MILL BITUMINOUS SURFACE (2.0")	SQ YD	201
	2357.506	BITUMINOUS MATERIAL FOR TACK COAT	GALLON	4741
12	2360.509	TYPE SP 9.5 WEARING COURSE MIX (3;B)	TON	109
13	2360.509	TYPE SP 12.5 WEARING COURSE MIX (4;C)	TON	503
	2360.509	TYPE SP 12.5 WEARING COURSE MIX (4;C)	TON	20674
	2501.502	15" RC PIPE APRON	EACH	2
	2501.503	15" RC PIPE CULVERT CLASS III	LIN FT	56
	2521.518	6" CONCRETE WALK	SQ FT	17
	2531.503	CONCRETE CURB & GUTTER DESIGN B418	LIN FT	365
	2531.504	6" CONCRETE DRIVEWAY PAVEMENT	SQ YD	27
	2531.618	TRUNCATED DOMES	SQ FT	8
14	2540.602	MAIL BOX SUPPORT	EACH	44
15	2563.601	TRAFFIC CONTROL	LUMP SUM	1
16	2563.602	PORTABLE CHANGEABLE MESSAGE SIGN	EACH	20
	2564.518	SIGN PANELS TYPE C	SQ FT	75.75
	2573.503	SILT FENCE, TYPE MS	LIN FT	750
	2574.507	COMMON TOPSOIL BORROW	CU YD	80
17	2575.504	EROSION CONTROL BLANKETS CATEGORY 0	SQ YD	569
18	2581.503	REMOVABLE PREFORM PAVEMENT MARKING TAPE	LIN FT	1847
19	2582.503	4" SOLID LINE MULTI COMP	LIN FT	52723
19	2582.503	4" BROKEN LINE MULTI COMP	LIN FT	1660
19	2582.503	8" BROKEN LINE MULTI COMP	LIN FT	216
19	2582.503	4" DBLE SOLID LINE MULTI COMP	LIN FT	16321

CONSTRUCTION NOTES

1	ITEM FOR CONCRETE DRIVEWAYS. CONTRACTOR IS RESPONSIBLE FOR CONTACTING PROPERTY OWNER 48 HOURS BEFORE STARTING OPERATION.
2	ITEM FOR BITUMINOUS DRIVEWAYS AND STREET APPROACHES. CONTRACTOR IS RESPONSIBLE FOR CONTACTING PROPERTY OWNER 48 HOURS BEFORE STARTING OPERATION.
3	ITEMS INCLUDED IN BYPASS AND TURN LANE CONSTRUCTION ARE: COMMON EXCAVATION, SELECT GRANULAR BORROW, AGGREGATE BASE CL-5, AND TOPSOIL BORROW.
4	ITEM USED TO MOVE EXCESS RECLAIM MATERIAL AT THE RECLAIM AREA LIMITS TO CREATE A SMOOTH TRANSITION BETWEEN THE PROPOSED AND EXISTING PAVEMENT
5	TO BE USED FOR DITCH GRADING AND FOR DRESSING DISTURBED AREAS.
6	ITEM USED FOR REALIGNMENT AND GRADING OF COUNTY DITCH AT THE ENGINEERS DISCRETION.
7	ITEM USED FOR BITUMINOUS STREET APPROACH BASE MATERIAL, BITUMINOUS DRIVEWAY BASE MATERIAL, CONCRETE DRIVEWAY BASE MATERIAL AND CONCRETE WALK BASE MATERIAL.
8	MATERIAL SHALL BE HAULED AND USED FOR PROFILE CORRECTION AREAS. ITEM INCLUDES PLACEMENT, SHAPING, COMPACTION, AND MAINTENANCE OF MATERIAL. EXCESS MATERIAL SHALL BECOME THE PROPERTY OF THE CONTRACTOR.
9	BITUMINOUS CURB REMOVAL INCIDENTAL TO FULL DEPTH RECLAMATION
10	ITEM INCLUDES 7 TONS FOR EACH GRAVEL ENTRANCE AND 20 TONS FOR EACH GRAVEL STREET APPROACH.
11	ITEM INCLUDES 2" DEEP MILL AT BEGINNING AND END OF PROJECT, ALL PAVED STREET APPROACHES, AND DRIVEWAYS; SEE DETAILS FOR DIMENSIONS
12	ITEM FOR BITUMINOUS DRIVEWAYS. DRIVEWAYS SHALL BE PAVED AFTER MAINLINE AND BEFORE FINAL STRIPING.
13	ITEM FOR STREET APPROACHES. STREET APPROACHES SHALL BE PAVED AFTER MAINLINE, AND BEFORE FINAL STRIPING
14	MAILBOXES SHALL BE INSTALLED AT THE EXISTING MAILBOX LOCATION OR AS DIRECTED BY THE LOCAL POSTAL AUTHORITY. THE CONTRACTOR IS RESPONSIBLE FOR CONTACTING THE LOCAL POSTAL AUTHORITY. MAILBOX REMOVAL AND ALL MATERIALS NECESSARY FOR INSTALLATION ARE INCIDENTAL TO THIS ITEM.
15	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.
16	2 MESSAGE BOARDS, ONE ON EACH END OF PROJECT WILL BE INSTALLED 10 DAYS PRIOR TO ANY CONSTRUCTION; REFERENCE STRIPING PLAN FOR DETAILS.
17	ITEM USED AT THE ENGINEERS DISCRETION FOR THE RESTORATION ALONG DRIVEWAYS, STREET APPROACHES, AND BY-PASS LANE CONSTRUCTION AREAS. TYPE 1 FERTILIZER AND TYPE 25-121 SEED ARE INCIDENTAL TO THIS ITEM. SEE "BASIS OF PLANNED QUANTITIES" FOR APPLICATION RATES.
18	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.
19	FINAL STRIPING SHALL BE INSTALLED WITHIN 72 HOURS OF COMPLETION OF MAINLINE WEAR COURSE PAVING.

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 1	350 LBS / ACRE

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

MNDOT STANDARD PLATES

PLATE NUMBER	DESCRIPTION
7038A	DETECTABLE WARNING SURFACE TRUNCATED DOMES
7100H	CONCRETE CURB AND GUTTER (DESIGN B AND DESIGN V)
8000J	CHANNELIZERS (3 SHEETS)
9350A	MAILBOX SUPPORT (SWING-AWAY TYPE)

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SIGNATURE:

DATE: 5-1-19 LICENSE NO. 46732

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CHECKED BY: XXX DATE 04/23/2019



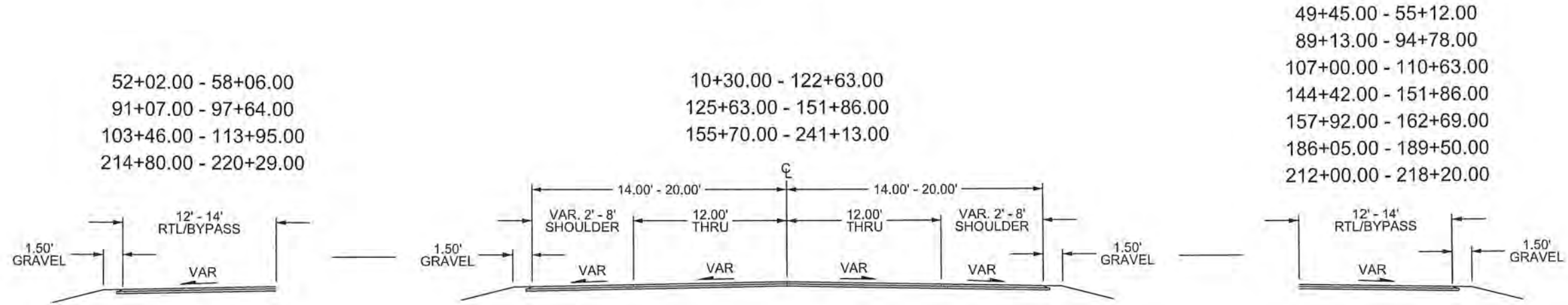
**ANOKA COUNTY
HIGHWAY DEPT.**

STATE AID PROJECT 002-609-018

STATEMENT OF ESTIMATED QUANTITIES

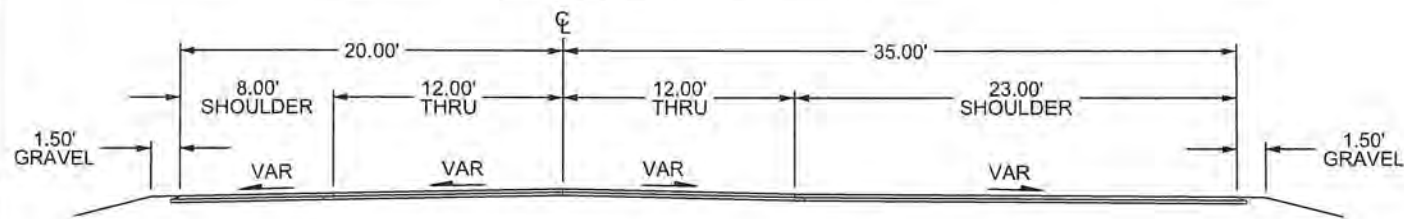
Sheet 2 of 40 Sheets

CSAH 9 - ROUND LAKE BLVD EXISTING SECTION



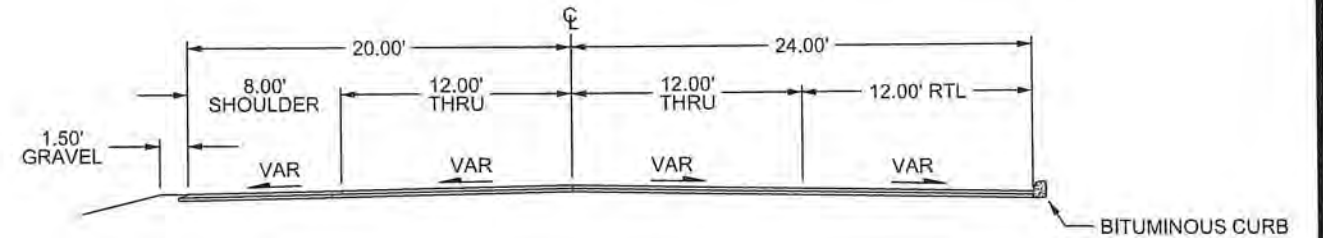
CSAH 9 - ROUND LAKE BLVD EXISTING SECTION

122+63.00 - 125+63.00



CSAH 9 - ROUND LAKE BLVD EXISTING SECTION

151+86.00 - 155+70.00



NO	DATE	BY	CKD	APPR	REVISION	
	04/23/2019					9:33:12 AM

NAME: P:\19-01-00\CSAH_09_(OldLkGeorgeBlvd-OakGroveCL)\Base\PROPOSED\PROPOSED SOUTH.dgn

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SIGNATURE: *Joseph J. MacPherson*

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ANOKA COUNTY
HIGHWAY DEPT.

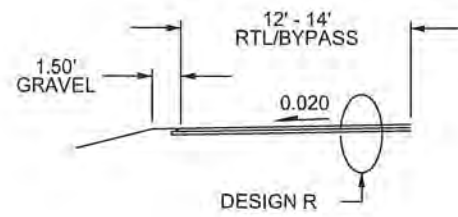
STATE AID PROJECT 002-609-018

TYPICAL SECTIONS

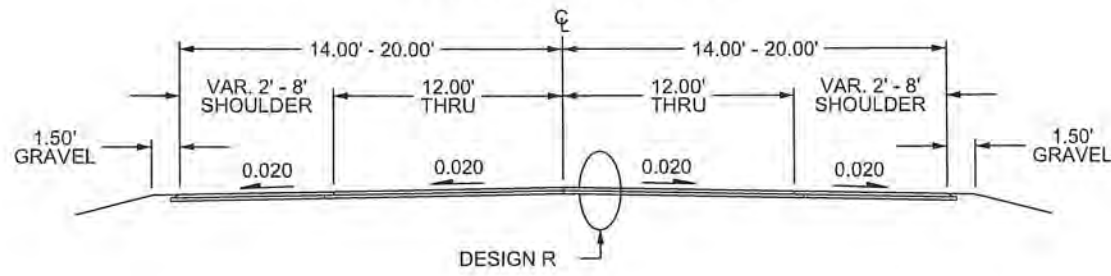
Sheet 3 of 40 Sheets

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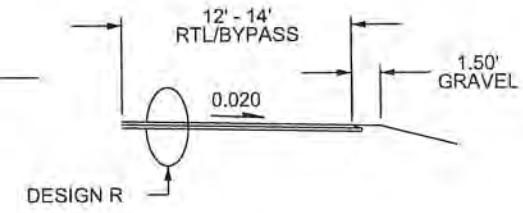
52+02.00 - 58+06.00
91+07.00 - 97+64.00
103+46.00 - 113+95.00
214+80.00 - 220+29.00



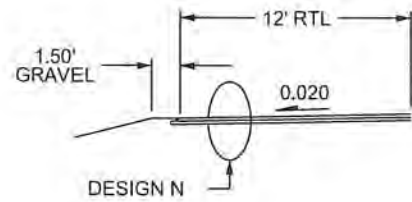
10+30.00 - 122+63.00
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155+70.00 - 179+05.00
199+08.00 - 241+13.00



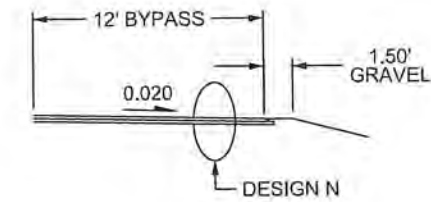
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89+13.00 - 94+78.00
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157+92.00 - 162+69.00
212+00.00 - 218+20.00



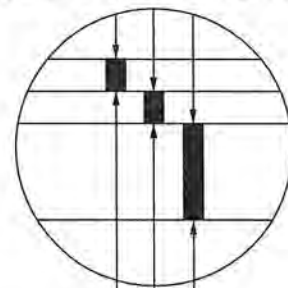
CHURCH RTL 227+66.50 - 232+46.50



60+55.00 - 66+75.00 202ND LN NW BYPASS
223+76.50 - 229+96.50 CHURCH BYPASS

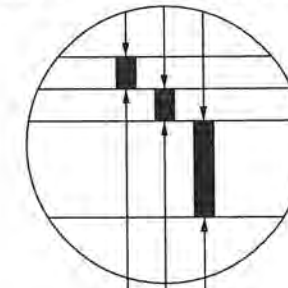


DESIGN R RECLAIM SECTION



2.0" BITUMINOUS WEAR(SPWEB440C)
2.0" BITUMINOUS WEAR(SPWEB440C)
RECLAIMED BITUMINOUS

DESIGN N BYPASS/RTL LANE



2.0" BITUMINOUS WEAR(SPWEB440C)
2.0" BITUMINOUS WEAR(SPWEB440C)
6" AGGREGATE BASE, CLASS 5

NO	DATE	BY	CHKD	APPR	REVISION
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NAME: P:\19-01-00\CSAH_09_(OldLKGeorgeBlvd-OakGroveCL)Base\PROPOSED\PROPOSED SOUTH.dgn

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**ANOKA COUNTY
HIGHWAY DEPT.**

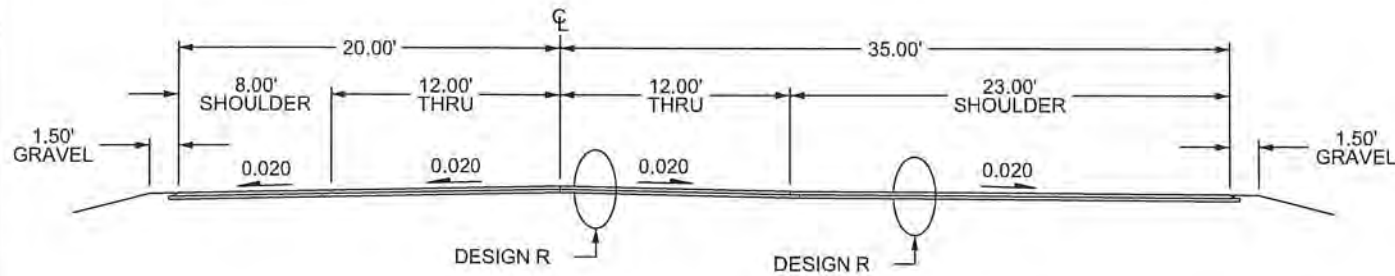
STATE AID PROJECT 002-609-018

TYPICAL SECTIONS
Sheet 4 of 40 Sheets

CSAH 9 - ROUND LAKE BLVD

PROPOSED SECTION

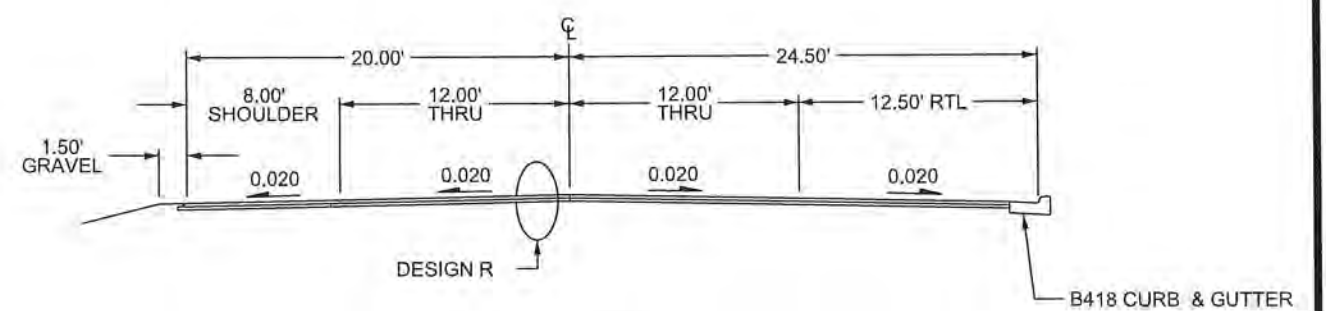
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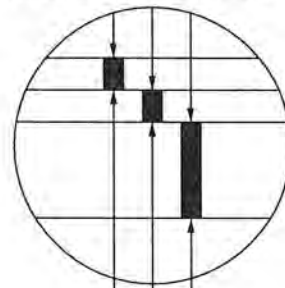
CSAH 9 - ROUND LAKE BLVD

PROPOSED SECTION

151+86.00 - 155+70.00

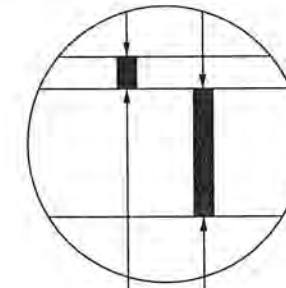


**DESIGN R
RECLAIM SECTION**



2.0" BITUMINOUS WEAR(SPWEB440C)
2.0" BITUMINOUS WEAR(SPWEB440C)
RECLAIMED BITUMINOUS

**DESIGN O
OVERLAY SECTION**

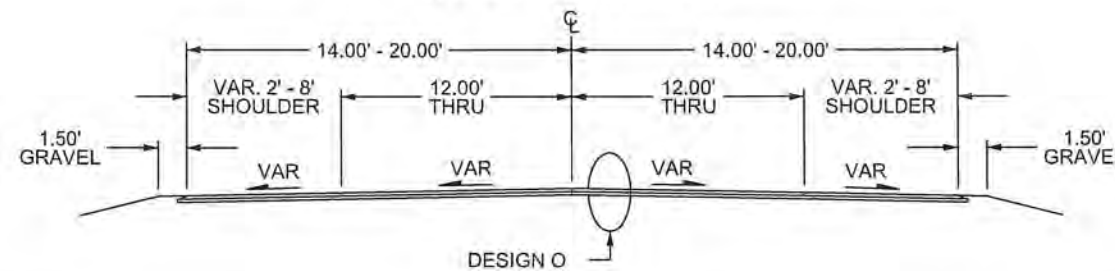


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EXISTING BITUMINOUS

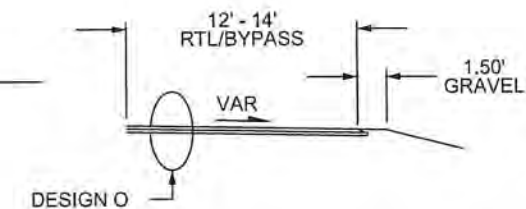
CSAH 9 - ROUND LAKE BLVD

PROPOSED SECTION

179+05.00 - 199+05.00



186+05.00 - 189+50.00



NO	DATE	BY	CKD	APPR	REVISION	
	04/23/2019					9:33:13 AM

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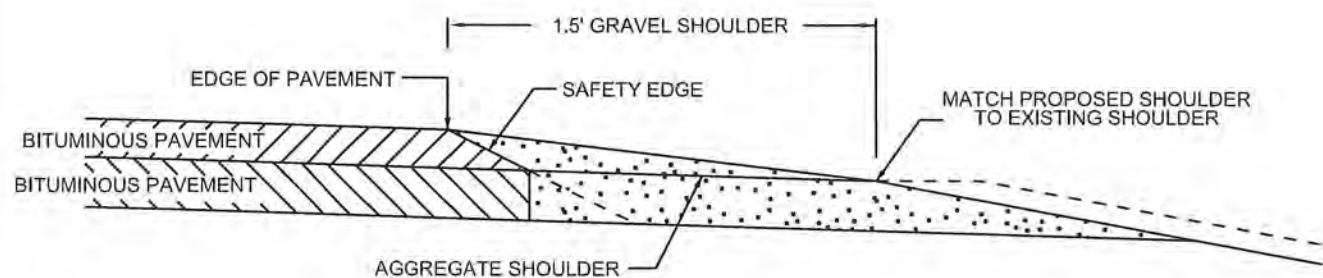
**ANOKA COUNTY
HIGHWAY DEPT.**

STATE AID PROJECT 002-609-018

TYPICAL SECTIONS

SHOULDER DETAIL

BITUMINOUS SAFETY EDGE
GRAVEL SHOULDER

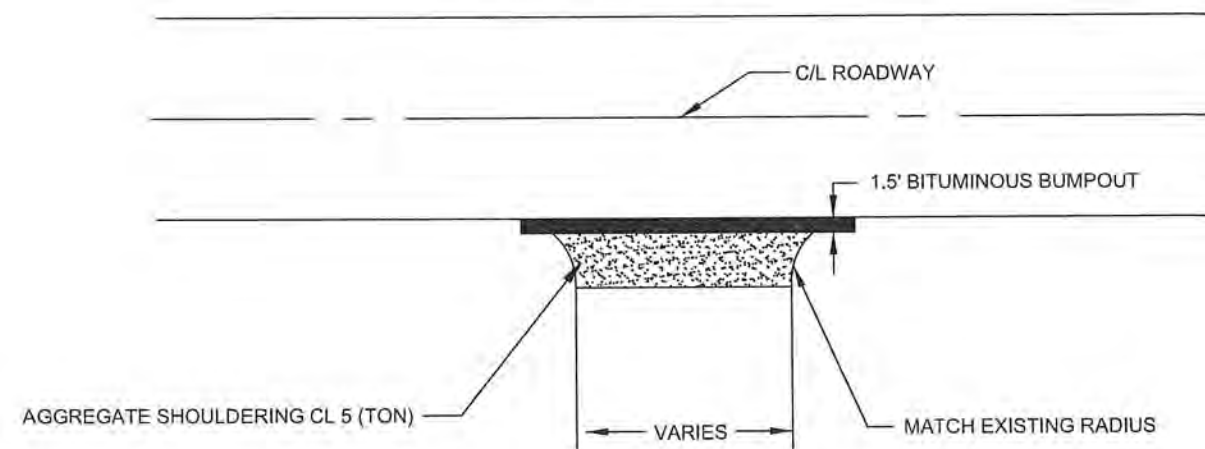


SAFETY EDGE TO BE USED IN ALL NON-CURB AREAS ON SHOULDER.

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

DRIVEWAY DETAIL

GRAVEL / FIELD ENTRANCE



NO	DATE	BY	CKD	APPR	REVISION	
	04/23/2019					9:33:14 AM

NAME: P:\19-01-00\CSAH_09_(Old)kGeorgeBlvd-OakGroveCL\JBase\PROPOSED\PROPOSED SOUTH.dgn

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PRINT NAME: JOSEPH J. MACPHERSON

SIGNATURE: *[Signature]*

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DRAWN BY: KPR DATE: 02/08/2019

DESIGN BY: KPR DATE: 20/08/2019

CHECKED BY: XXX DATE: 04/23/2019



ANOKA COUNTY
HIGHWAY DEPT.

STATE AID PROJECT 002-609-018

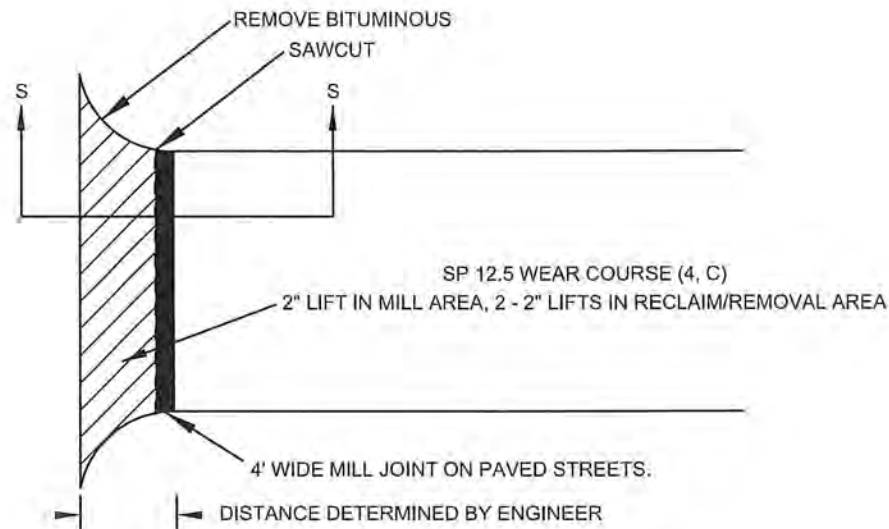
DETAILS

Sheet 6 of 40 Sheets

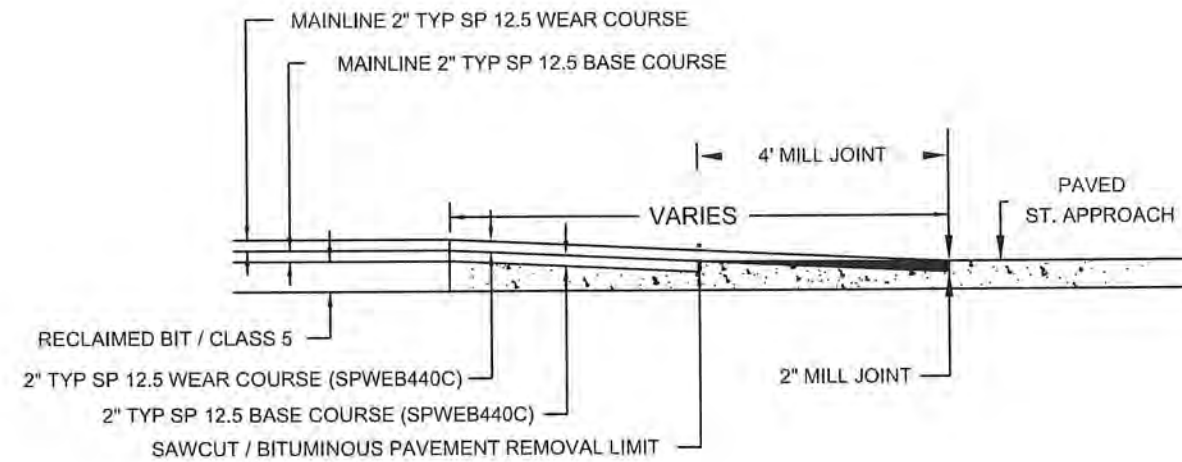
STREET APPROACH DETAIL (RECLAIM)

BITUMINOUS STREET

PLAN VIEW



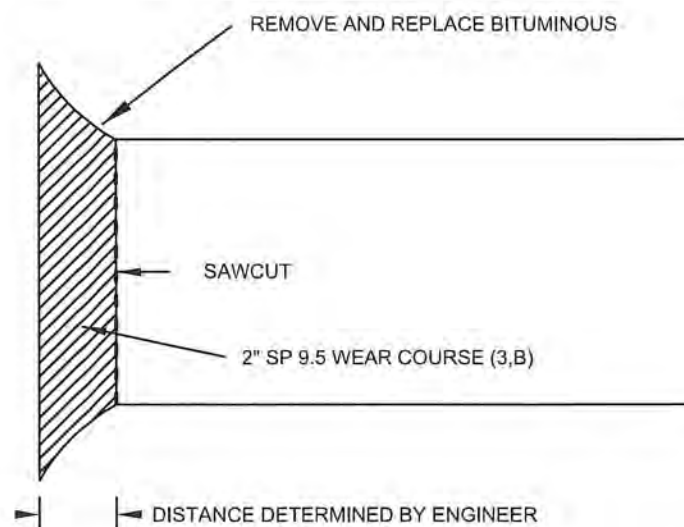
SECTION S - S



RECLAIM AREA - DRIVEWAY DETAIL

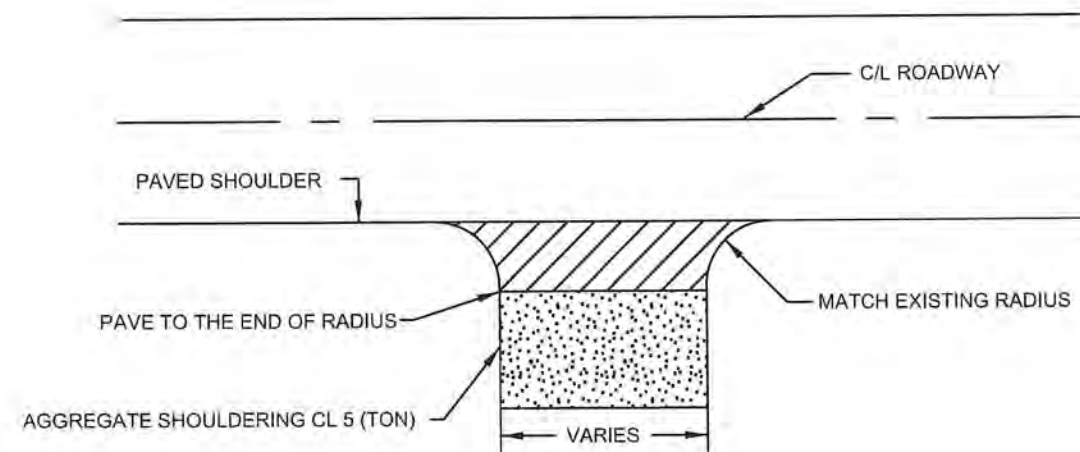
BITUMINOUS

PLAN VIEW



STREET APPROACH DETAIL

UNPAVED STREET



UNPAVED STREET APPROCHES, PAVED SEPRATE FROM MAINLINE

NO	DATE	BY	CHKD	APPR	REVISION	TIME
	04/23/2019					9:33:14 AM

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ANOKA COUNTY
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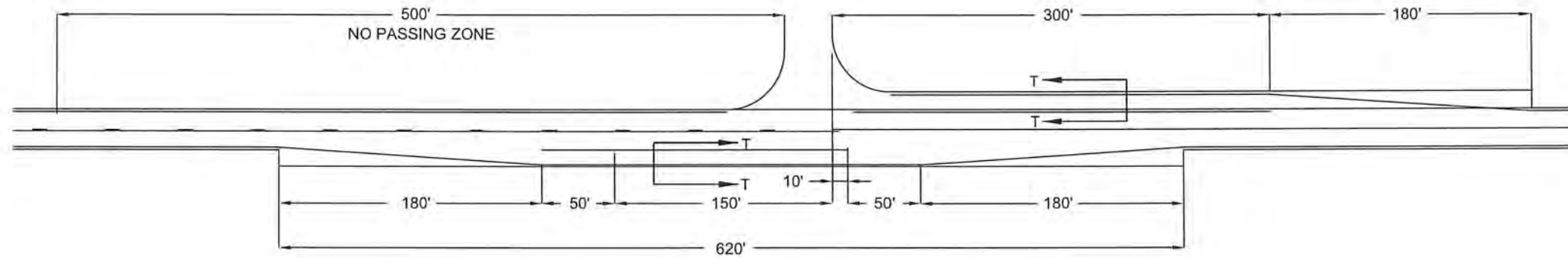
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DETAILS

Sheet 7 of 40 Sheets

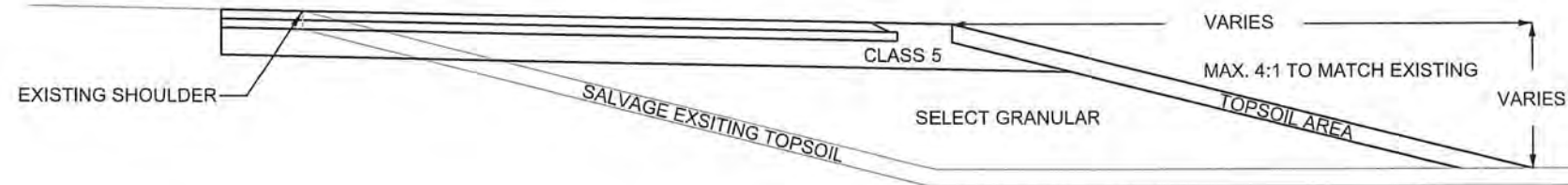
RIGHT TURN AND BYPASS LANE

GENERAL LAYOUT PLAN VIEW



RTL/BYPASS LANE

SECTION T - T



NO	DATE	BY	CKD	APPR	REVISION	

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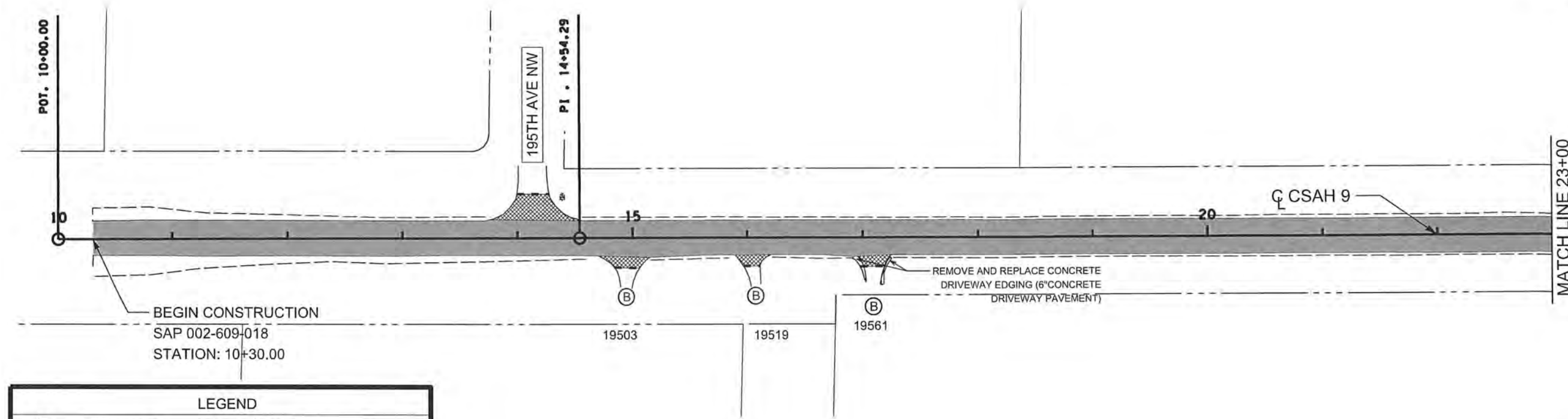
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 DESIGN BY: KPR DATE: 20/08/2019
 CHECKED BY: XXX DATE: 04/23/2019



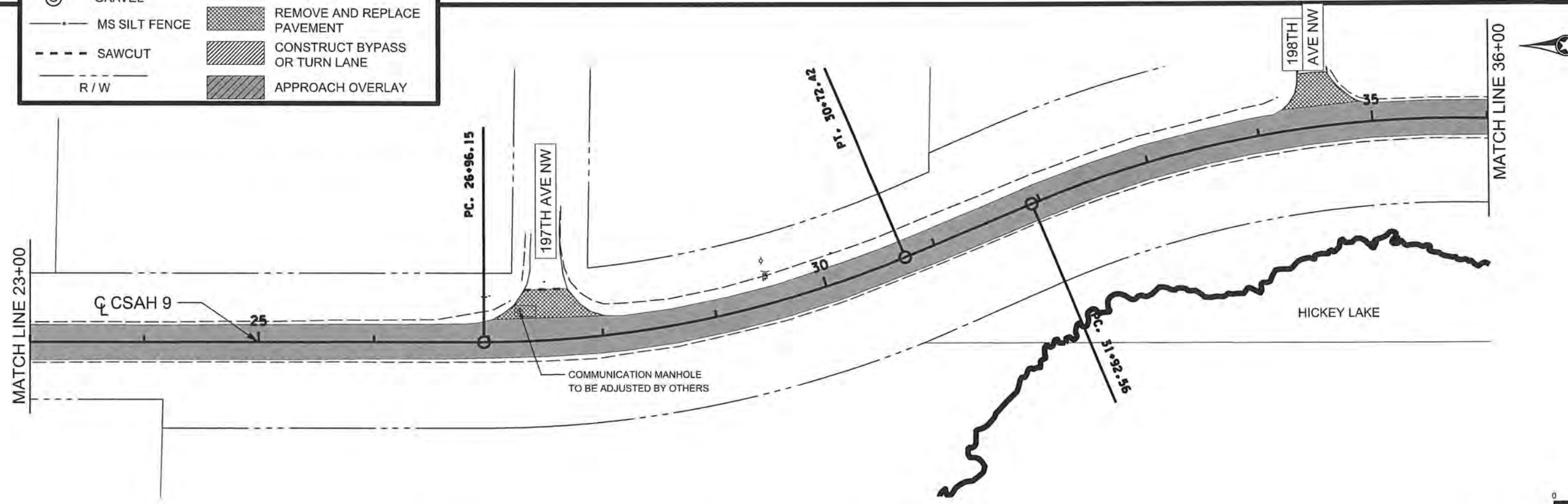
**ANOKA COUNTY
HIGHWAY DEPT.**

STATE AID PROJECT 002-609-018

DETAILS
 Sheet 8 of 40 Sheets



LEGEND			
(B)	BITUMINOUS	[Pattern]	MAINLINE (RECLAIM)
(C)	CONCRETE	[Pattern]	MAINLINE (OVERLAY)
(G)	GRAVEL	[Pattern]	REMOVE AND REPLACE PAVEMENT
[Symbol]	MS SILT FENCE	[Pattern]	CONSTRUCT BYPASS OR TURN LANE
[Symbol]	SAWCUT	[Pattern]	APPROACH OVERLAY
[Symbol]	R / W		



NO	DATE	BY	CKD	APPR	REVISION	
	04/23/2019					9:33:15 AM

NAME: P:\19-01-00\CSAH_09_OldLkGeorgeBlvd-OakGroveCL\Base\PROPOSED\PROPOSED SOUTH.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: JOSEPH J. MACPHERSON

SIGNATURE: *[Signature]*

DATE: 5-1-19 LICENSE NO. 46732

DRAWN BY: KPR DATE: 02/06/2019

DESIGN BY: KPR DATE: 02/06/2019

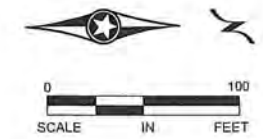
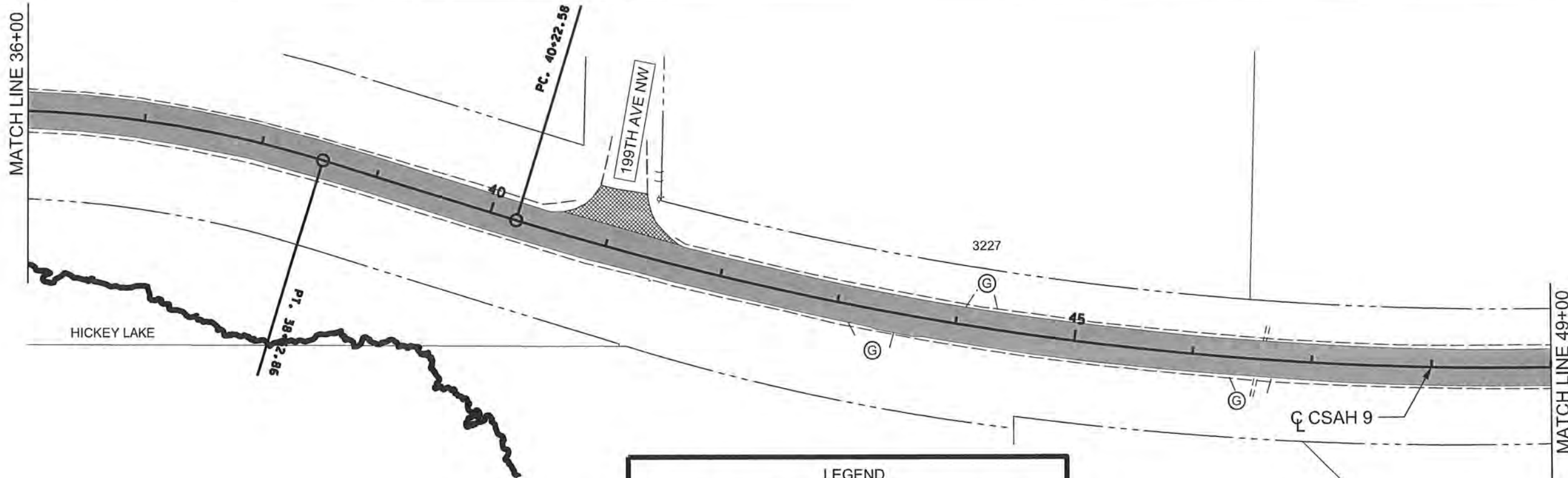
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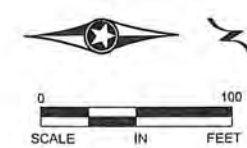
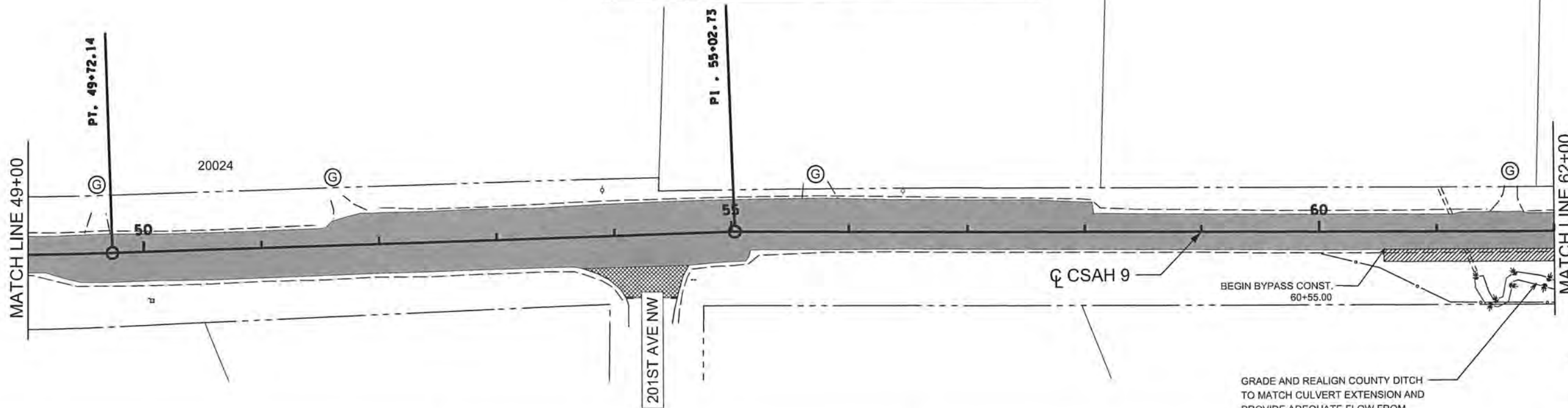
ANOKA COUNTY
HIGHWAY DEPT.

STATE AID PROJECT 002-609-018

CONSTRUCTION PLAN
STA 10+30 TO 36+00
Sheet 9 of 40 Sheets



LEGEND			
(B)	BITUMINOUS	[Pattern]	MAINLINE (RECLAIM)
(C)	CONCRETE	[Pattern]	MAINLINE (OVERLAY)
(G)	GRAVEL	[Pattern]	REMOVE AND REPLACE PAVEMENT
- - -	MS SILT FENCE	[Pattern]	CONSTRUCT BYPASS OR TURN LANE
- - -	SAWCUT	[Pattern]	APPROACH OVERLAY
- - -	R/W		



GRADE AND REALIGN COUNTY DITCH TO MATCH CULVERT EXTENSION AND PROVIDE ADEQUATE FLOW FROM SOUTH TO NORTH. PAID AS TRACTOR MOUNTED BACKHOE (HOUR)

NO	DATE	BY	CKD	APPR	REVISION	

NAME: P:\19-01-00\CSAH_09_OldLkGeorgeBlvd-OakGroveCL\Bse\PROPOSED\PROPOSED SOUTH.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: JOSEPH J. MACPHERSON

SIGNATURE: *Joseph J. MacPherson*

DATE: 3-1-19 LICENSE NO. 46732

DRAWN BY: KPR DATE: 02/08/2019

DESIGN BY: KPR DATE: 02/08/2019

CHECKED BY: XXX DATE: 04/23/2019



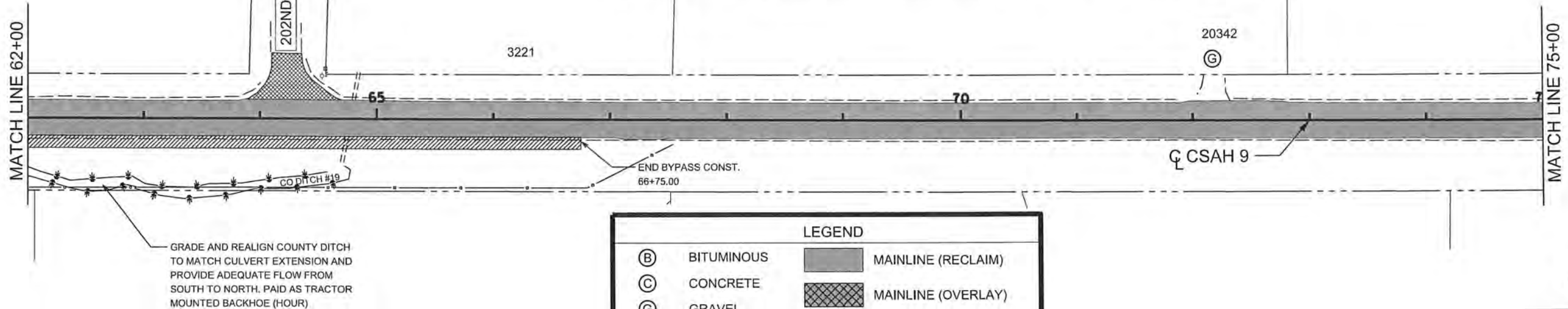
ANOKA COUNTY
HIGHWAY DEPT.

STATE AID PROJECT 002-609-018

CONSTRUCTION PLAN
STA 36+00 TO 62+00
Sheet 10 of 40 Sheets

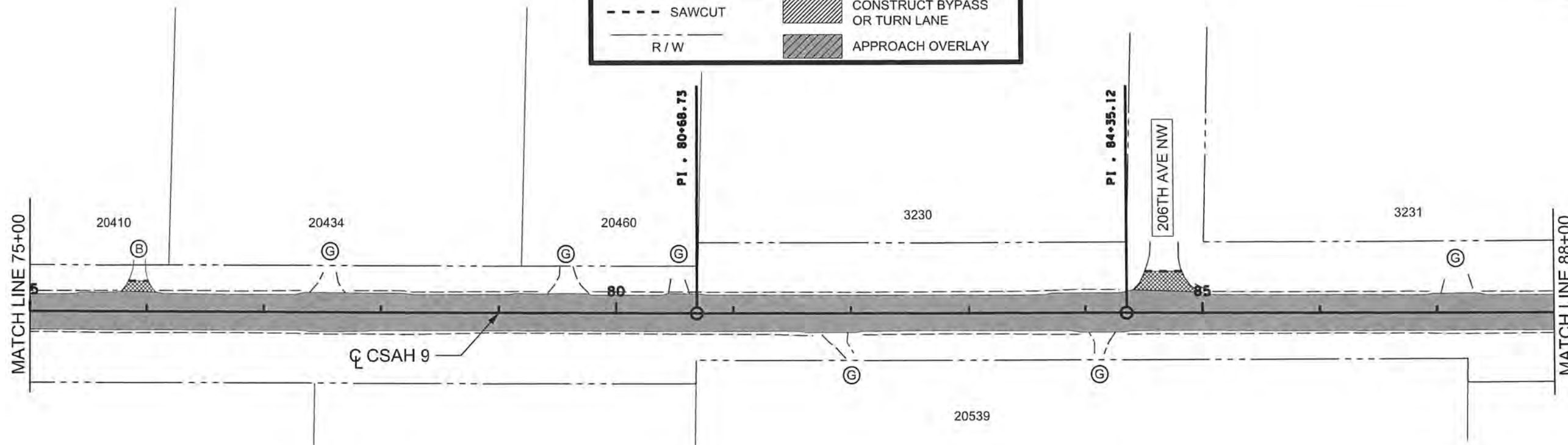


BYPASS LANE TAB						
STREET	STATION RANGE	RTL / BYPASS	COMMON EXCAVATION (CU YDS)	GRANULAR BORROW (CV) (CU YDS)	TOPSOIL BORROW (LV) (CU YDS)	CLASS 5 (TON)
202 nd	60+55 - 66+75	BYPASS	121	190	55	258
TOTALS:			121	190	55	258



GRADE AND REALIGN COUNTY DITCH TO MATCH CULVERT EXTENSION AND PROVIDE ADEQUATE FLOW FROM SOUTH TO NORTH. PAID AS TRACTOR MOUNTED BACKHOE (HOUR)

LEGEND	
(B) BITUMINOUS	MAINLINE (RECLAIM)
(C) CONCRETE	MAINLINE (OVERLAY)
(G) GRAVEL	REMOVE AND REPLACE PAVEMENT
MS SILT FENCE	CONSTRUCT BYPASS OR TURN LANE
SAWCUT	APPROACH OVERLAY
R / W	



NO	DATE	BY	CKD	APPR	REVISION	
	04/23/2019					9:33:17 AM

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
 SIGNATURE: *[Signature]*
 DATE: 5-1-19 LICENSE NO. 46732

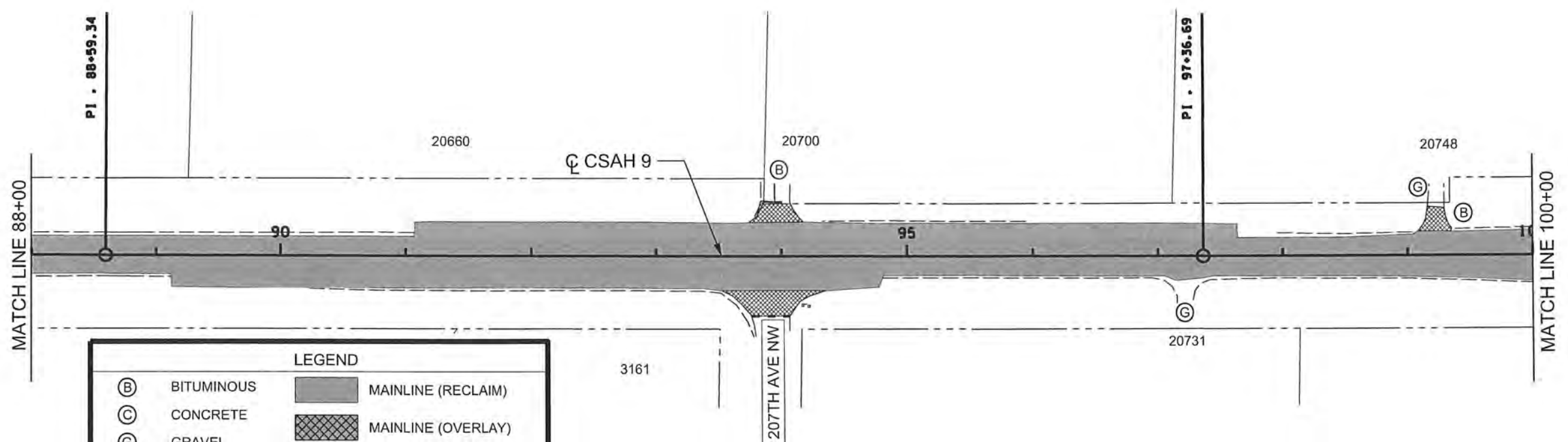
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 DESIGN BY: KPR DATE: 02/08/2019
 CHECKED BY: XXX DATE: 04/23/2019



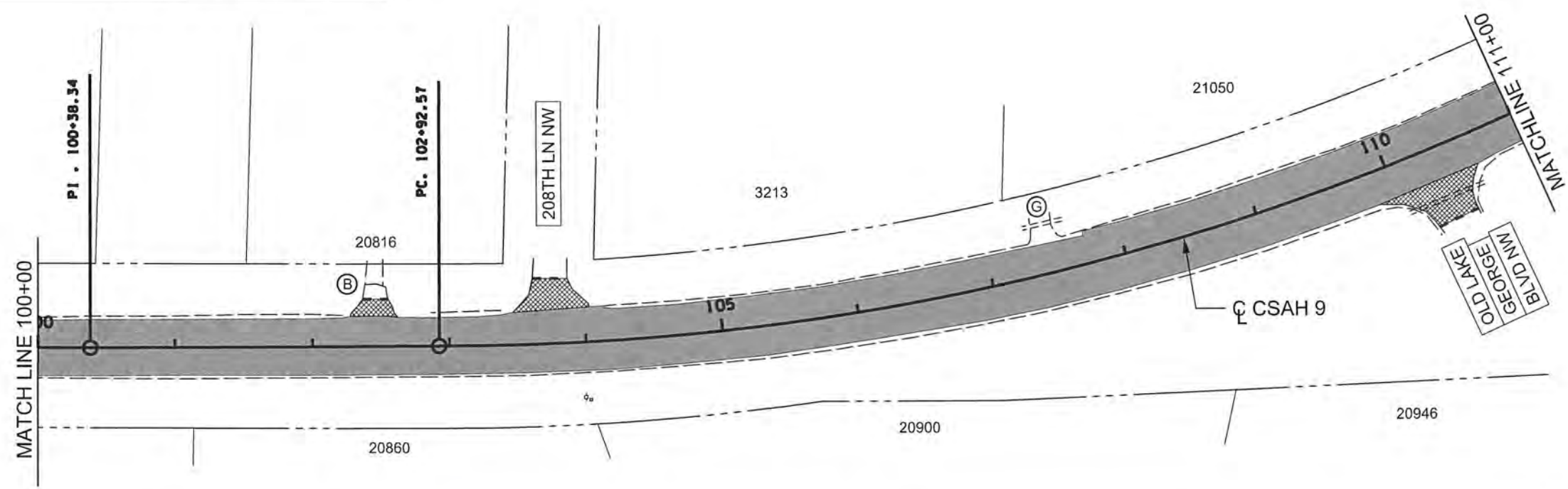
ANOKA COUNTY
 HIGHWAY DEPT.

STATE AID PROJECT 002-609-018

CONSTRUCTION PLAN
 STA 62+00 TO 88+00
 Sheet 11 of 40 Sheets



LEGEND	
(B) BITUMINOUS	MAINLINE (RECLAIM)
(C) CONCRETE	MAINLINE (OVERLAY)
(G) GRAVEL	REMOVE AND REPLACE PAVEMENT
MS SILT FENCE	CONSTRUCT BYPASS OR TURN LANE
SAWCUT	APPROACH OVERLAY
R / W	



NO	DATE	BY	CKD	APPR	REVISION	
	04/23/2019					9:33:18 AM

NAME: P:\19-01-00\CSAH_09_OldLakeGeorgeBlvd-OakGroveCL\Basel\PROPOSED\PROPOSED SOUTH.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: JOSEPH J. MACPHERSON

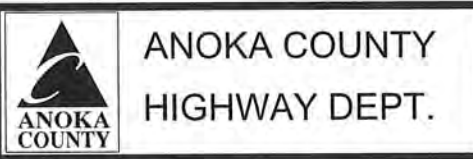
SIGNATURE: *[Signature]*

DATE: 5-1-19 LICENSE NO. 46732

DRAWN BY: KPR DATE: 02/08/2019

DESIGN BY: KPR DATE: 02/08/2019

CHECKED BY: XXX DATE: 04/23/2019

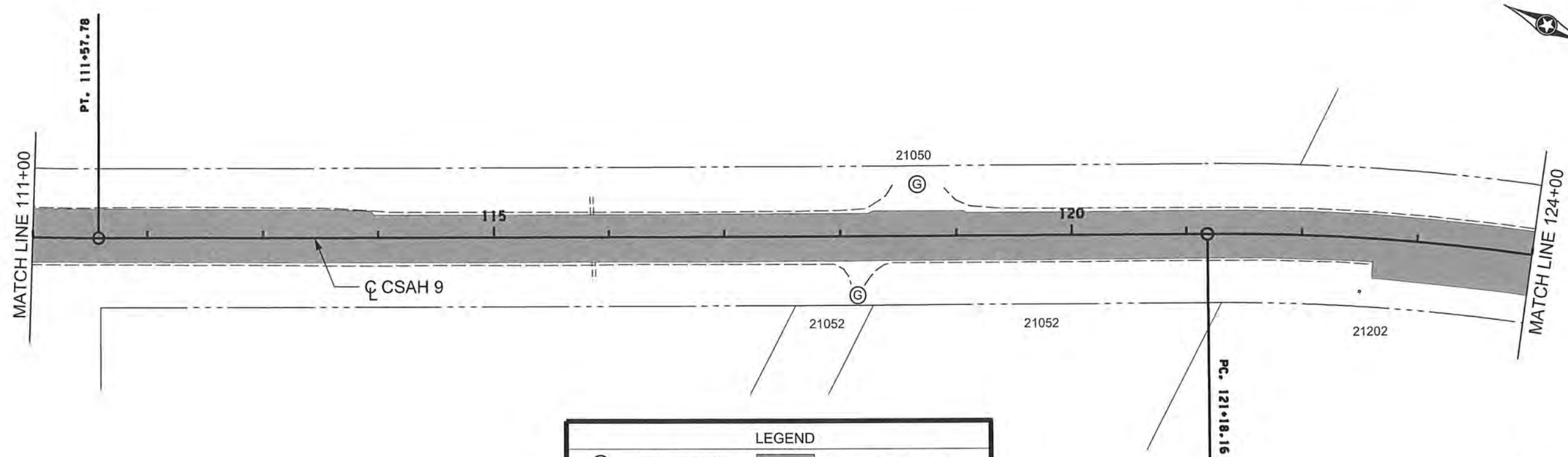


STATE AID PROJECT 002-609-018

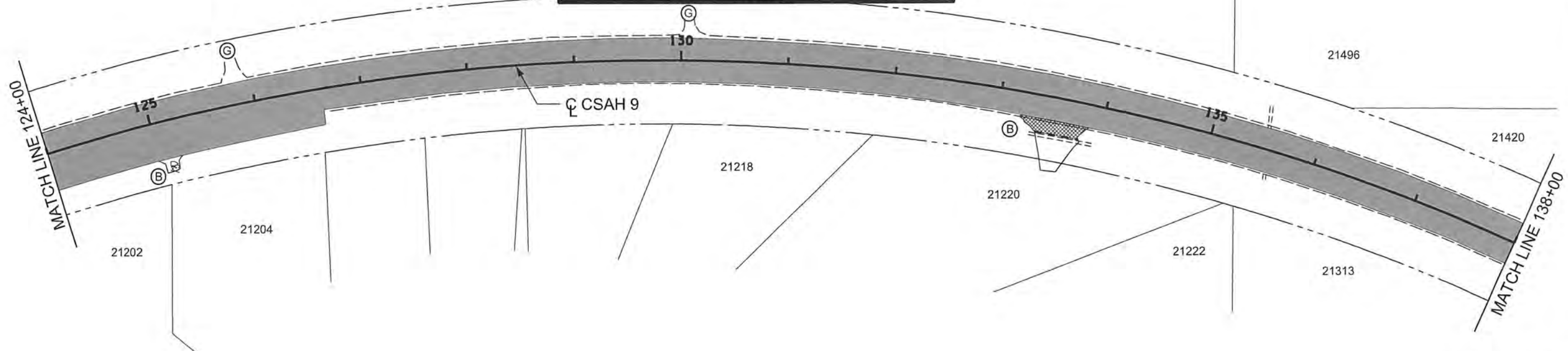
CONSTRUCTION PLAN

STA 88+00 TO 111+00

Sheet 12 of 40 Sheets



LEGEND			
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(C)	CONCRETE	[Cross-hatched Box]	MAINLINE (OVERLAY)
(G)	GRAVEL	[Diagonal-hatched Box]	REMOVE AND REPLACE PAVEMENT
---	MS SILT FENCE	[Diagonal-hatched Box]	CONSTRUCT BYPASS OR TURN LANE
---	SAWCUT	[Diagonal-hatched Box]	APPROACH OVERLAY
---	R/W		



NO	DATE	BY	CKD	APPR	REVISION	TIME
	04/23/2019					9:33:18 AM

NAME: P:\19-01-00\CSAH_09_(Old)kGeorgeBlvd-OakGroveCL\Bases\PROPOSED\PROPOSED SOUTH.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: JOSEPH J. MACPHERSON

SIGNATURE: *[Signature]*

DATE: 5-1-19 LICENSE NO. 46732

DRAWN BY: KPR DATE: 02/08/2019

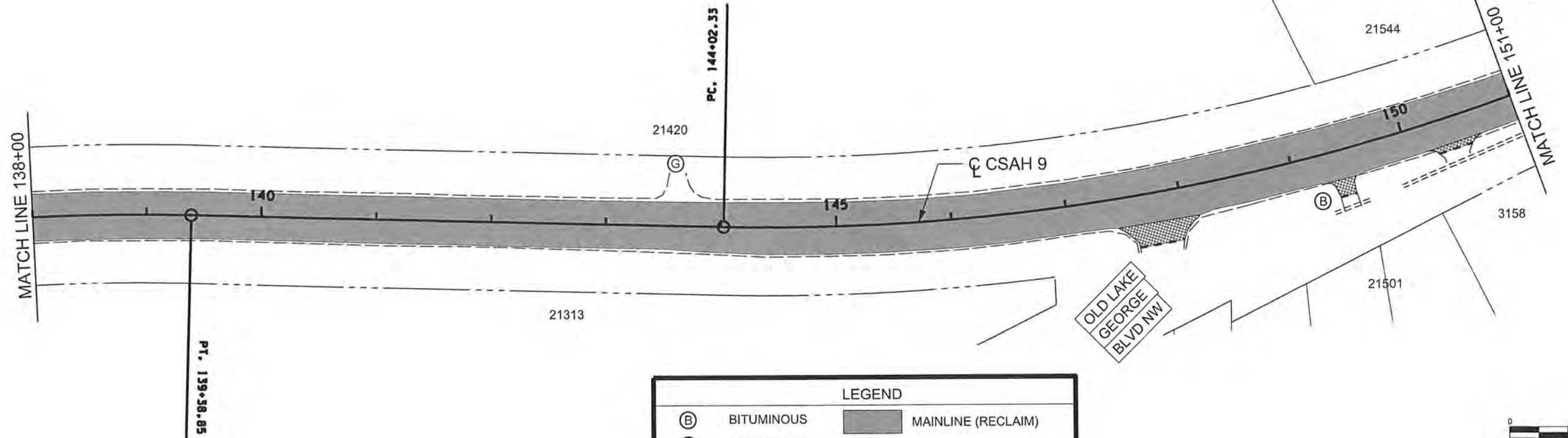
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CHECKED BY: XXX DATE: 04/23/2019

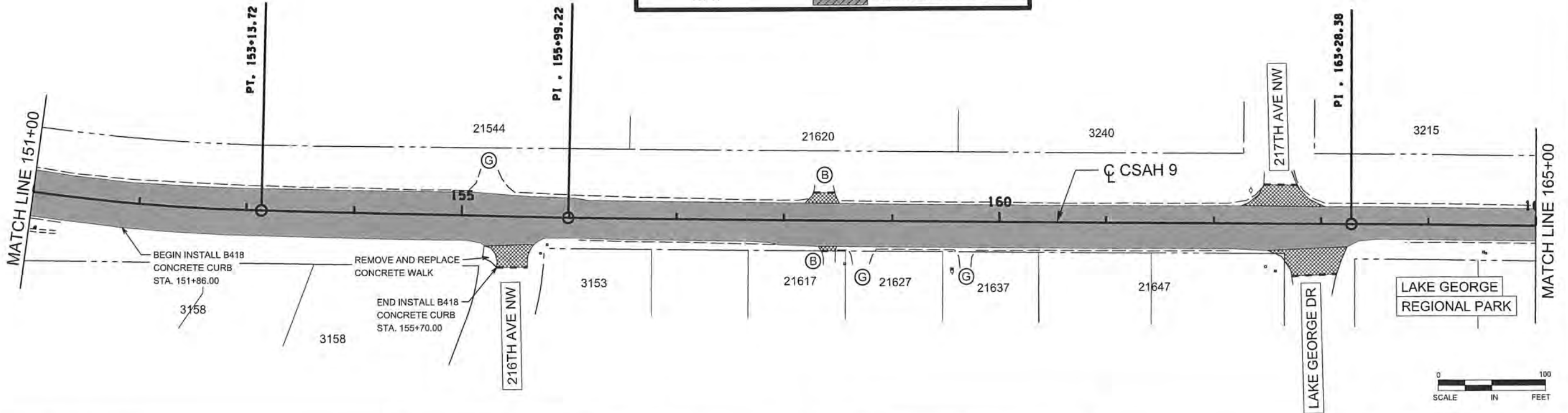
ANOKA COUNTY
HIGHWAY DEPT.

STATE AID PROJECT 002-609-018

CONSTRUCTION PLAN
STA 111+00 TO 138+00
Sheet 13 of 40 Sheets



LEGEND			
(B)	BITUMINOUS	[Pattern]	MAINLINE (RECLAIM)
(C)	CONCRETE	[Pattern]	MAINLINE (OVERLAY)
(G)	GRAVEL	[Pattern]	REMOVE AND REPLACE PAVEMENT
---	MS SILT FENCE	[Pattern]	CONSTRUCT BYPASS OR TURN LANE
- - -	SAWCUT	[Pattern]	APPROACH OVERLAY
---	R / W		



NO	DATE	BY	CKD	APPR	REVISION	DATE	TIME
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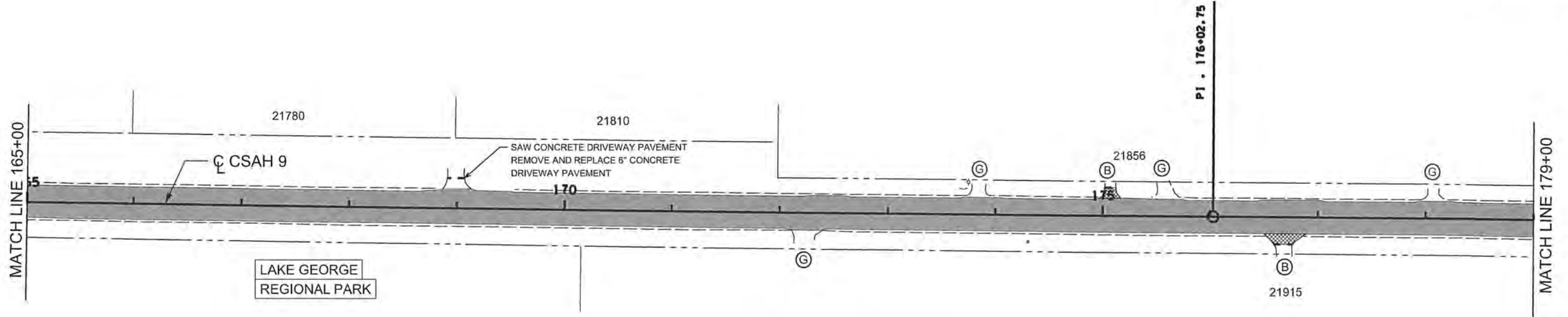
I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
 PRINT NAME: JOSEPH J. MACPHERSON
 SIGNATURE: [Signature]
 DATE: 5-1-19 LICENSE NO. 46732

DRAWN BY: KPR DATE: 02/08/2019
 DESIGN BY: KPR DATE: 02/08/2019
 CHECKED BY: XXX DATE: 04/23/2019

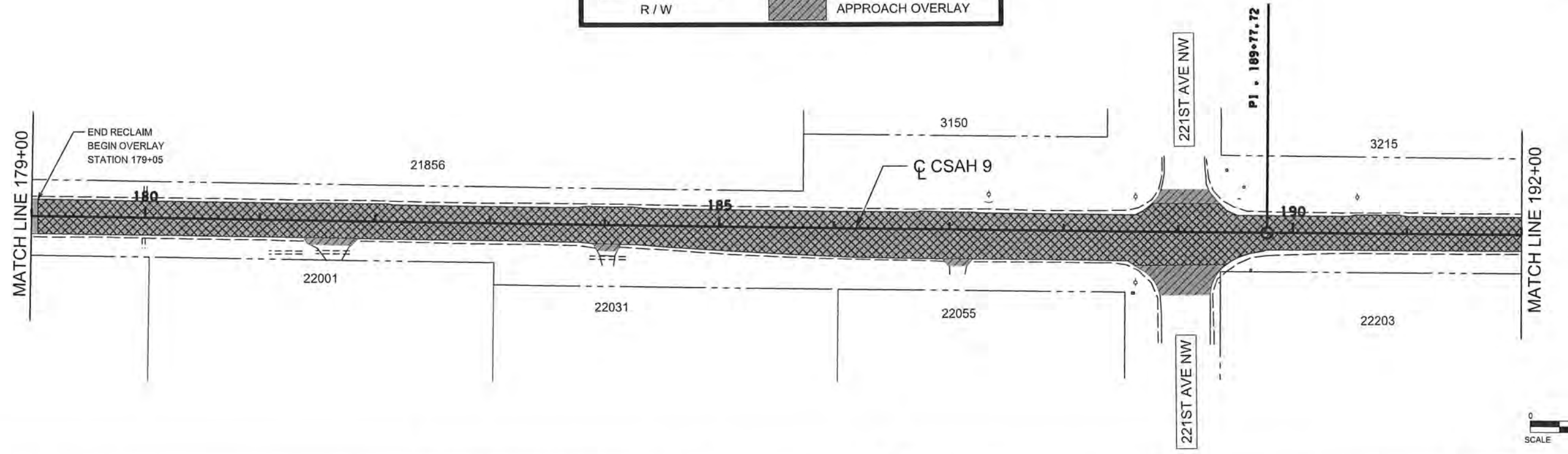
ANOKA COUNTY
HIGHWAY DEPT.

STATE AID PROJECT 002-609-018

CONSTRUCTION PLAN
 STA 138+00 TO 165+00
 Sheet 14 of 40 Sheets



LEGEND			
(B)	BITUMINOUS	[Solid Grey Box]	MAINLINE (RECLAIM)
(C)	CONCRETE	[Cross-hatched Box]	MAINLINE (OVERLAY)
(G)	GRAVEL	[Diagonal Hatched Box]	REMOVE AND REPLACE PAVEMENT
---	MS SILT FENCE	[Diagonal Hatched Box]	CONSTRUCT BYPASS OR TURN LANE
- - -	SAWCUT	[Diagonal Hatched Box]	APPROACH OVERLAY
---	R / W		



NO.	DATE	BY	CKD	APPR	REVISION	
	04/23/2019					9:33:19 AM

NAME: P:\119-01-00\CSAH_03_OldLkGeorgeBlvd-OakGroveCL\JBase\PROPOSED\PROPOSED SOUTH.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: JOSEPH J. MACPHERSON

SIGNATURE: *[Signature]*

DATE: 5-1-19 LICENSE NO. 46732

DRAWN BY: KPR DATE: 02/08/2019

DESIGN BY: KPR DATE: 02/08/2019

CHECKED BY: XXX DATE: 04/23/2019

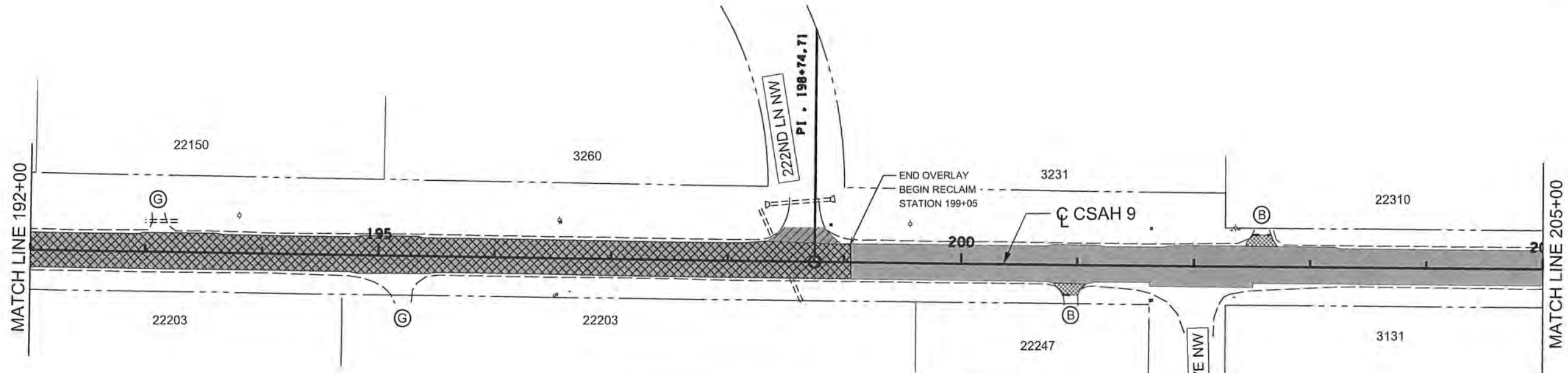
ANOKA COUNTY
HIGHWAY DEPT.

STATE AID PROJECT 002-609-018

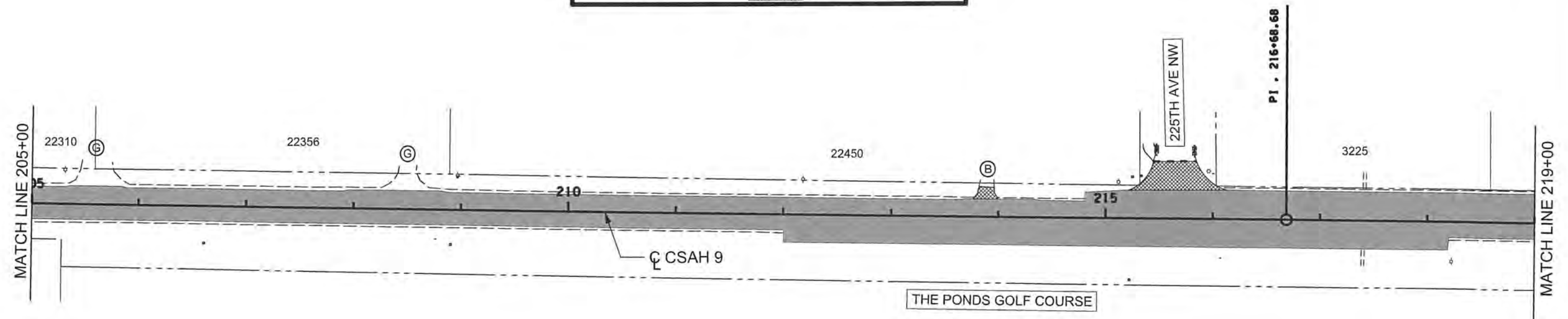
CONSTRUCTION PLAN

STA 165+00 TO 192+00

Sheet 15 of 40 Sheets



LEGEND			
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(C)	CONCRETE	[Pattern]	MAINLINE (OVERLAY)
(G)	GRAVEL	[Pattern]	REMOVE AND REPLACE PAVEMENT
— · — · —	MS SILT FENCE	[Pattern]	CONSTRUCT BYPASS OR TURN LANE
- - -	SAWCUT	[Pattern]	APPROACH OVERLAY
—	R / W		



NO	DATE	BY	CKD	APPR	REVISION	
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NAME: P:\119-01-00\CSAH_09_(OldLkGeorgeBlvd-OakGroveCL)\Base\PROPOSED\PROPOSED SOUTH.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: JOSEPH J. MACPHERSON

SIGNATURE: *[Signature]*

DATE: 5-1-19 LICENSE NO. 48732

DRAWN BY: KPR DATE 02/08/2019

DESIGN BY: KPR DATE 02/08/2019

CHECKED BY: XXX DATE 04/23/2019

ANOKA COUNTY
HIGHWAY DEPT.

STATE AID PROJECT 002-609-018

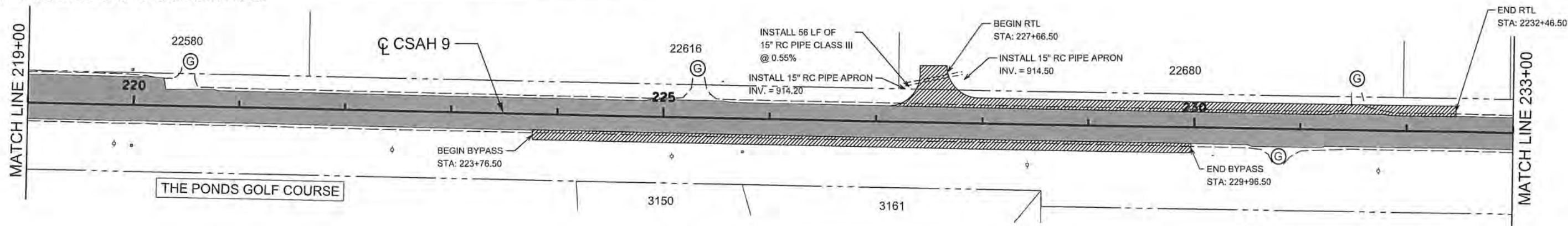
CONSTRUCTION PLAN
STA 192+00 TO 219+00
Sheet 16 of 40 Sheets

APAnders

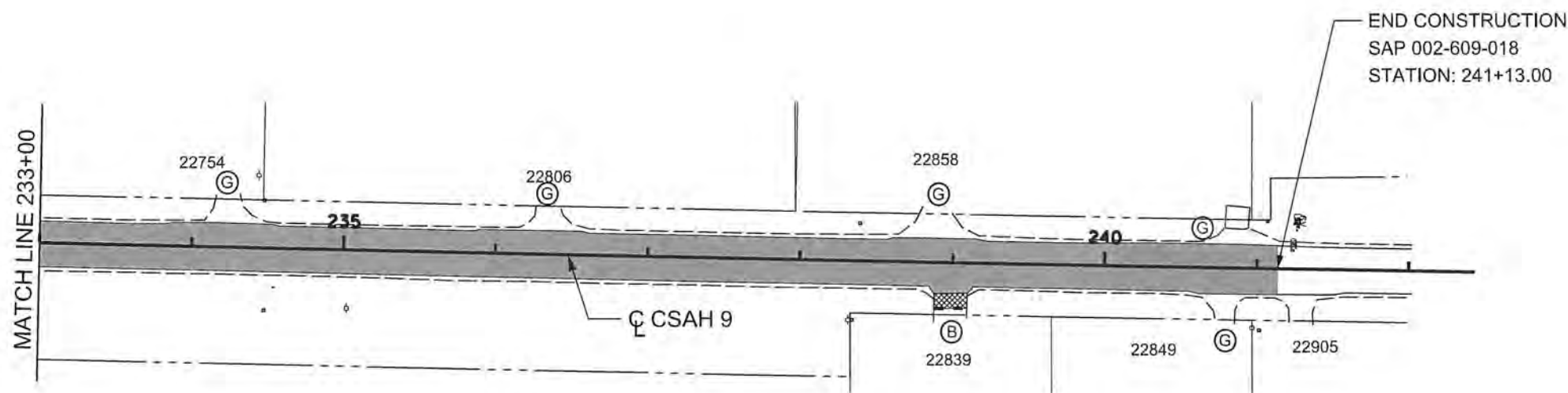
BYPASS LANE TAB

STREET	STATION RANGE	RTL / BYPASS	COMMON EXCAVATION (CU YDS)	GRANULAR BORROW (CV) (CU YDS)	TOPSOIL BORROW (LV) (CU YDS)	CLASS 5 (TON)
CHURCH RTL	227+66.50 - 232+46.50	RTL	110	460	120	170
CHURCH BYPASS (1)	223+76.50 - 229+96.50	BYPASS	165	650	170	215
TOTALS:			275	1110	290	385

(1) QUANTITY INCLUDES CONSTRUCTION OF CHURCH APPROACH



LEGEND	
(B) BITUMINOUS	MAINLINE (RECLAIM)
(C) CONCRETE	MAINLINE (OVERLAY)
(G) GRAVEL	REMOVE AND REPLACE PAVEMENT
MS SILT FENCE	CONSTRUCT BYPASS OR TURN LANE
SAWCUT	APPROACH OVERLAY
R / W	



NO	DATE	BY	CKD	APPR	REVISION	TIME

NAME: P:\19-01-00\CSAH_09_OldLkGeorgeBlvd-OakGroveCL\IBase\PROPOSED\PROPOSED SOUTH.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: JOSEPH J. MACPHERSON

SIGNATURE: *[Signature]*

DATE: 5-1-19 LICENSE NO. 46732

DRAWN BY: KPR DATE: 02/08/2019

DESIGN BY: KPR DATE: 02/09/2019

CHECKED BY: XXX DATE: 04/23/2019



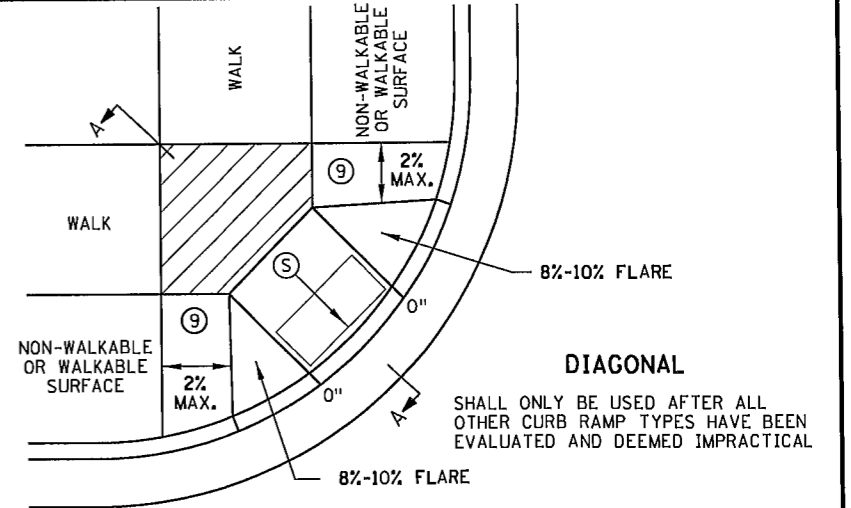
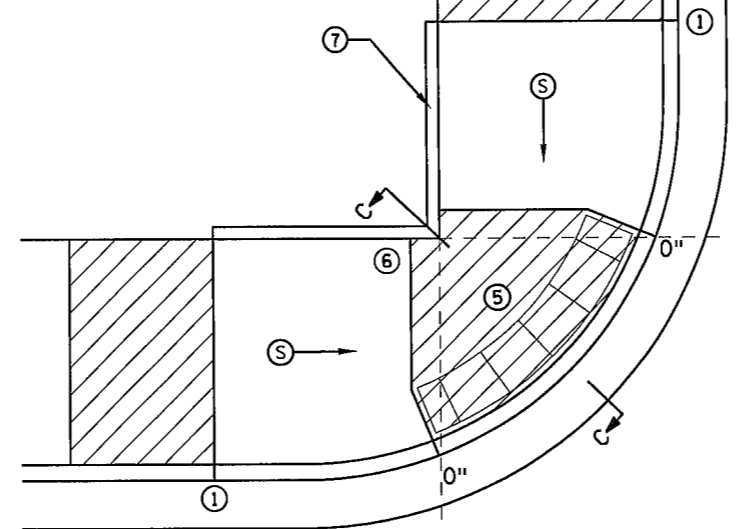
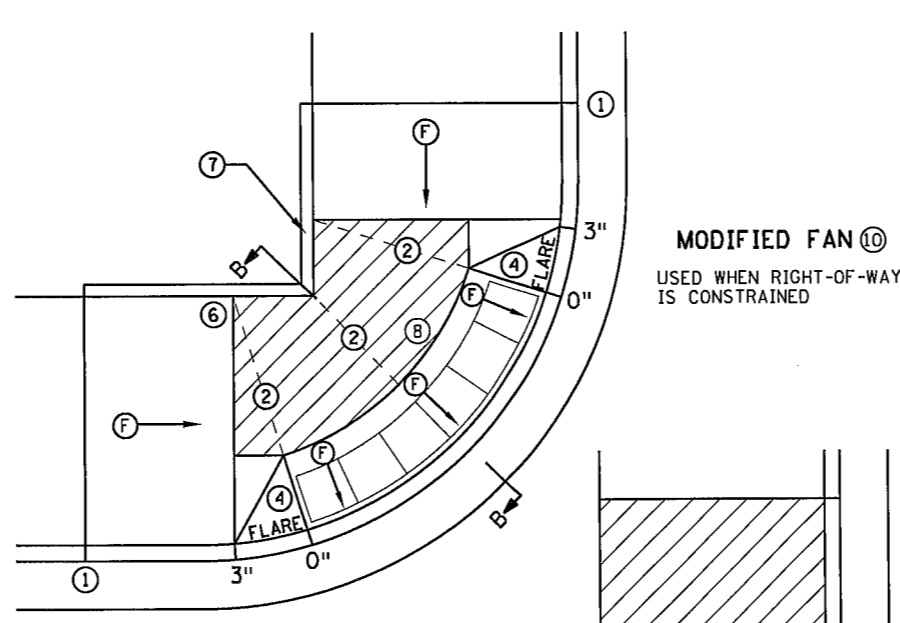
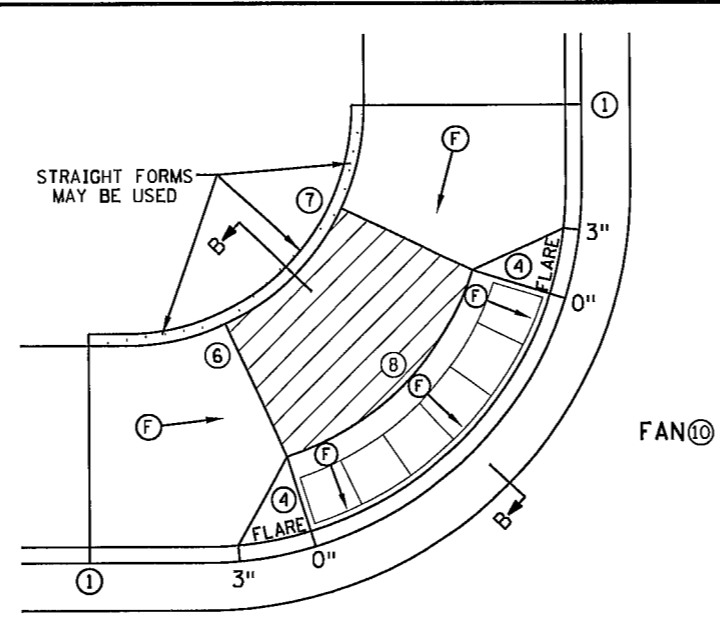
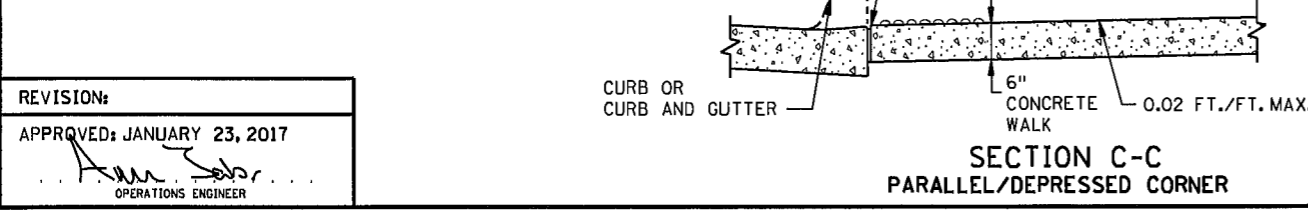
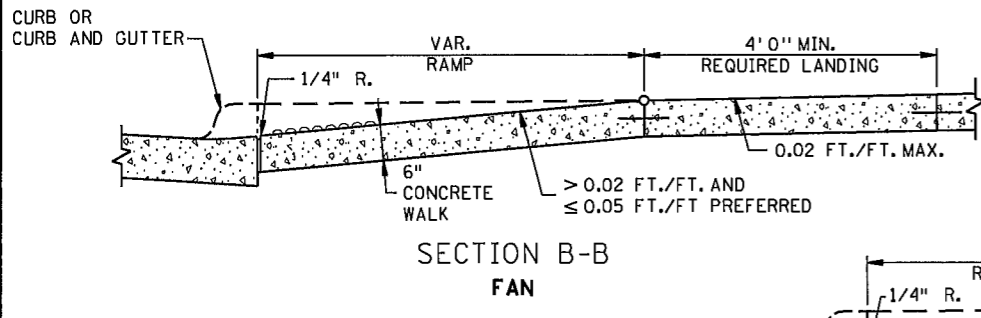
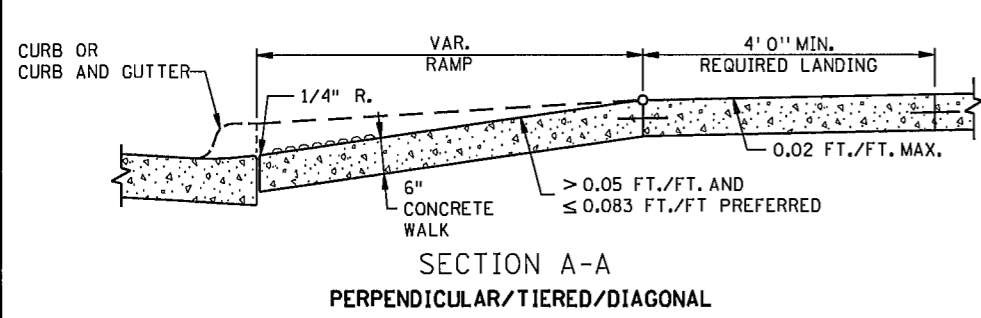
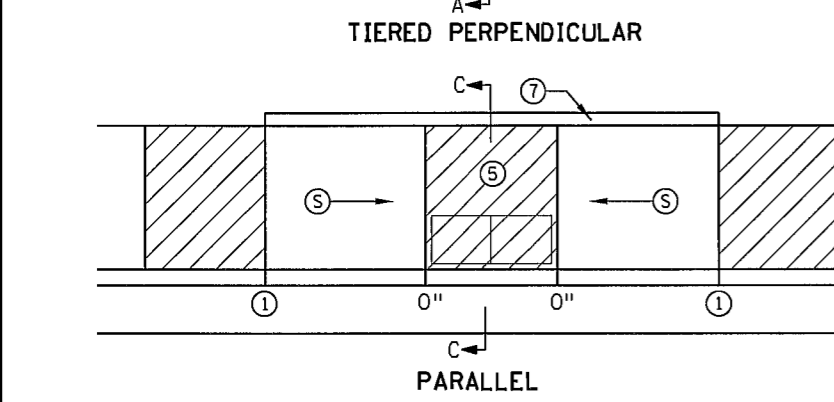
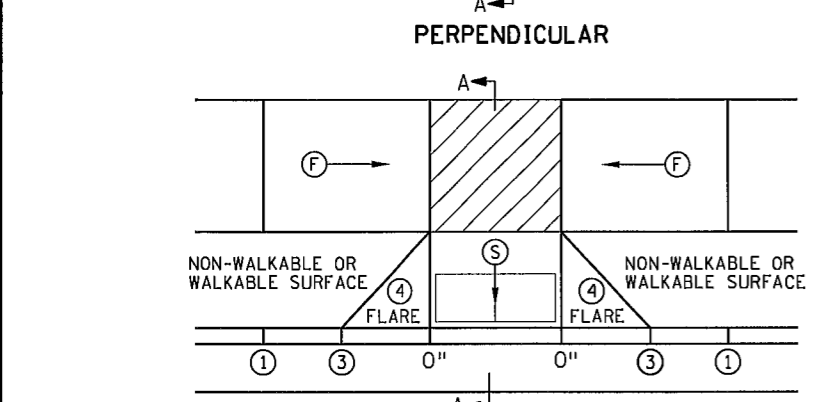
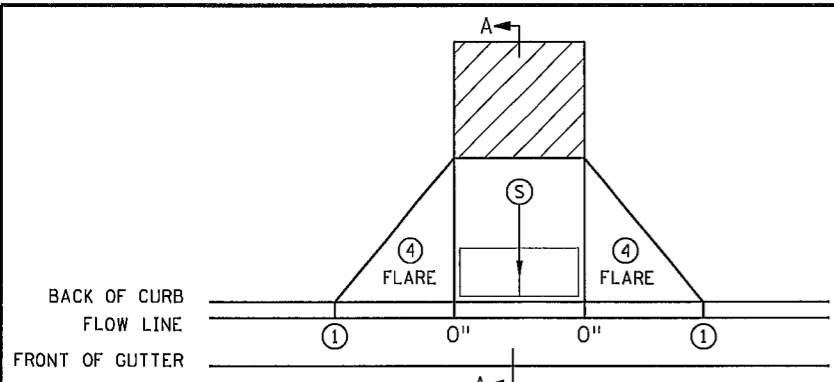
ANOKA COUNTY
HIGHWAY DEPT.

STATE AID PROJECT 002-609-018

CONSTRUCTION PLAN
STA 219+00 TO 241+13
Sheet 17 of 40 Sheets

PLOTTED/REVISED: \$\$\$@DATE\$\$\$\$

IPLOT NAME: \$\$\$@PILOT\$NAME\$\$\$
PATH & FILENAME: \$\$\$@PATH\$FILENAME\$\$\$



- 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.
- MATCH FULL HEIGHT CURB.
 - 4' MINIMUM DEPTH LANDING REQUIRED ACROSS TOP OF RAMP.
 - 3" HIGH CURB WHEN USING A 3' LONG RAMP, 4" HIGH CURB WHEN USING A 4' LONG RAMP.
 - SEE SHEET 4 OF 6, TYPICAL SIDE TREATMENT OPTIONS, FOR DETAILS ON FLARES AND RETURNED CURBS, WHEN INITIAL LANDING IS AT FULL CURB HEIGHT.
 - 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.
 - 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)
 - 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.
 - A 7' MIN TOP RADIUS GRADE BREAK REQUIRED TO BE CONSTRUCTIBLE.
 - PAVE FULL WALK WIDTH.
 - "S" SLOPES ON FANS SHALL ONLY BE USED WHEN ALL OTHER FEASIBLE OPTIONS HAVE BEEN EVALUATED AND DEEMED IMPRACTICAL.

LEGEND

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

- (S) INDICATES PEDESTRIAN RAMP - SLOPE SHALL BE BETWEEN 5.0% MINIMUM AND 8.3% MAXIMUM IN THE DIRECTION SHOWN AND THE CROSS SLOPE SHALL NOT EXCEED 2.0%.
- (F) INDICATES PEDESTRIAN RAMP - SLOPE SHALL BE GREATER THAN 2.0% AND LESS THAN 5.0% IN THE DIRECTION SHOWN AND CROSS SLOPE SHALL NOT EXCEED 2.0%.
- LANDING AREA - 4' X 4' MIN. (5' X 5' MIN. PREFERRED) DIMENSIONS AND MAX 2.0% SLOPE IN ALL DIRECTIONS. LANDING SHALL BE FULL WIDTH OF INCOMING PAR.
- X" CURB HEIGHT

REVISIONS:
APPROVED: JANUARY 23, 2017
OPERATIONS ENGINEER

002-609-018

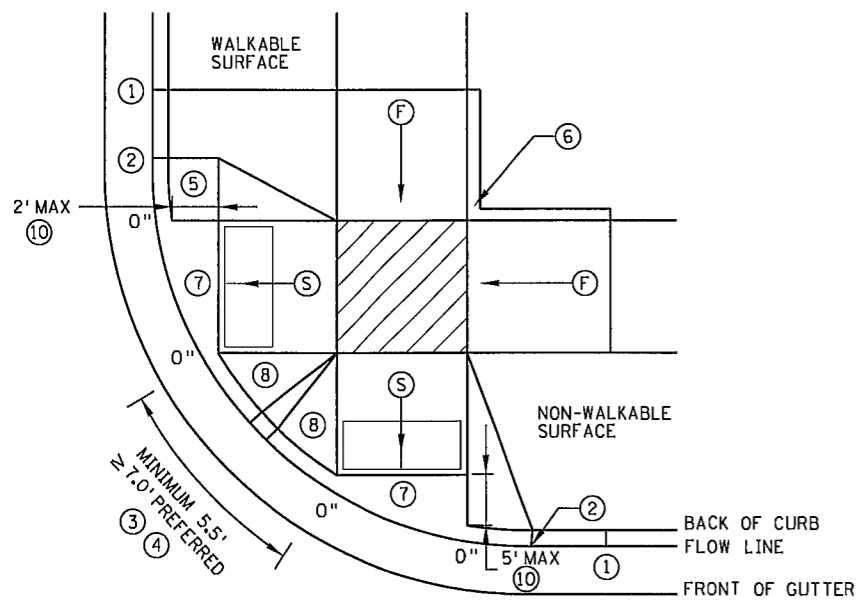


STANDARD PLAN 5-297.250 1 OF 6
APPROVED: 1-23-2017
REVISOR:
STATE PROJ. NO.

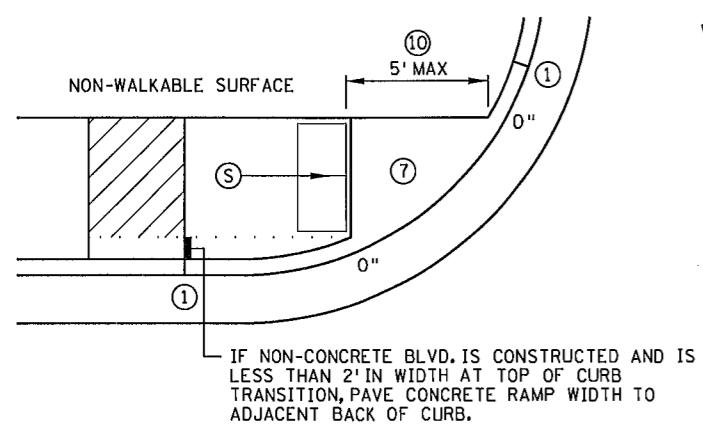
PEDESTRIAN CURB RAMP DETAILS
(T.H.) SHEET NO. 18 OF 40 SHEETS

PLOTTED/REVISED: \$\$\$@DATE@\$\$\$\$

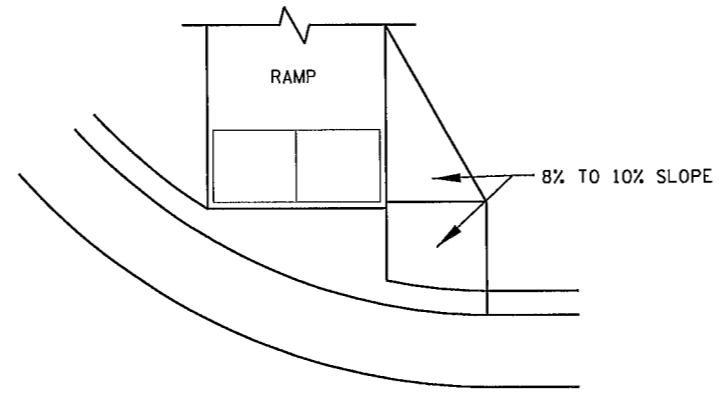
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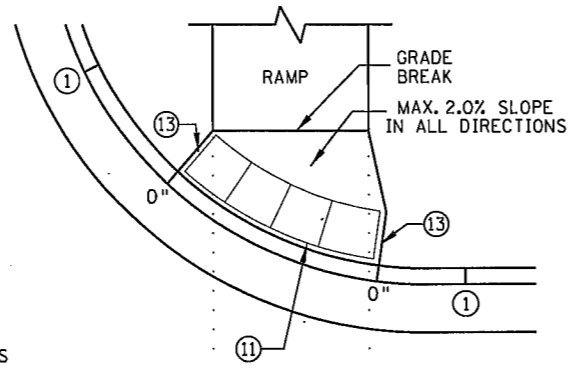
COMBINED DIRECTIONAL ⑨



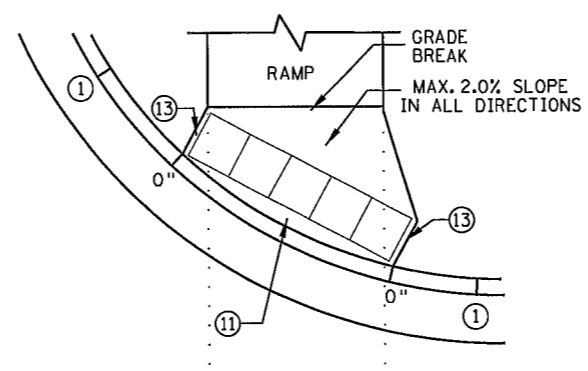
STANDARD ONE-WAY DIRECTIONAL ⑨



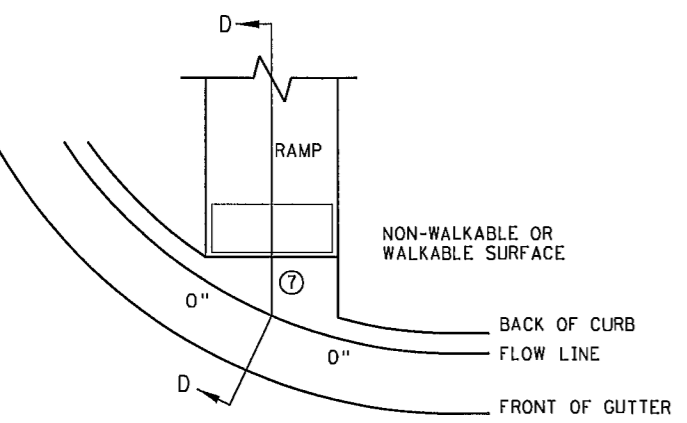
DIRECTIONAL RAMP WALKABLE FLARE



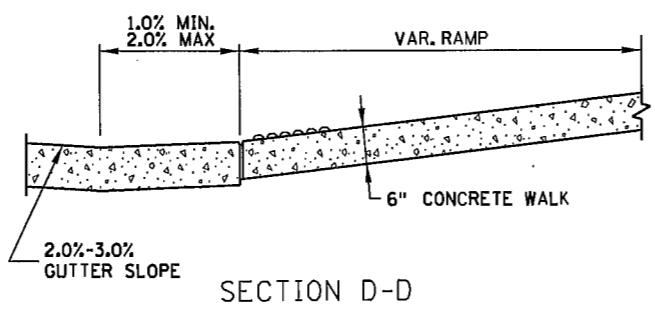
DETECTABLE WARNING PLACEMENT WHEN SETBACK CRITERIA IS EXCEEDED ⑫



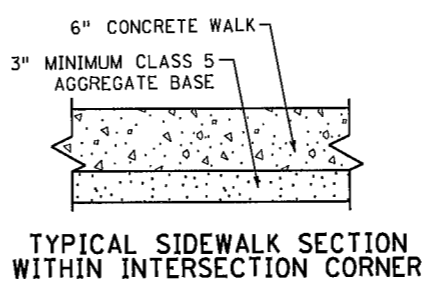
ONE-WAY DIRECTIONAL WITH DETECTABLE WARNING AT BACK OF CURB



CURB FOR DIRECTIONAL RAMPS ⑭



SECTION D-D



TYPICAL SIDEWALK SECTION WITHIN INTERSECTION CORNER

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.	
Ⓢ	INDICATES PEDESTRIAN RAMP - SLOPE SHALL BE BETWEEN 5.0% MINIMUM AND 8.3% MAXIMUM IN THE DIRECTION SHOWN AND THE CROSS SLOPE SHALL NOT EXCEED 2.0%.
Ⓣ	INDICATES PEDESTRIAN RAMP - SLOPE SHALL BE GREATER THAN 2.0% AND LESS THAN 5.0% IN THE DIRECTION SHOWN AND CROSS SLOPE SHALL NOT EXCEED 2.0%.
▨	LANDING AREA - 4' X 4' MIN. (5' X 5' MIN. PREFERRED) DIMENSIONS AND MAX 2.0% SLOPE IN ALL DIRECTIONS. LANDING SHALL BE FULL WIDTH OF INCOMING PAR.
X"	CURB HEIGHT

REVISION:
APPROVED: JANUARY 23, 2017
OPERATIONS ENGINEER

CURB FOR DIRECTIONAL RAMPS ⑭



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APPROVED: 1-23-2017
REVISOR:
STATE DESIGN ENGINEER

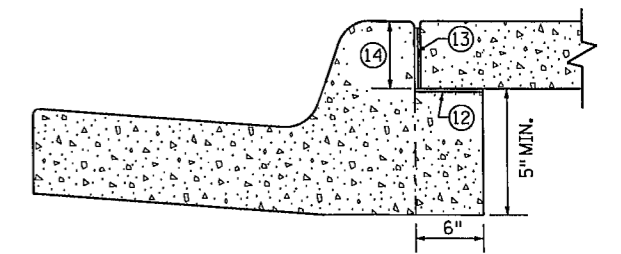
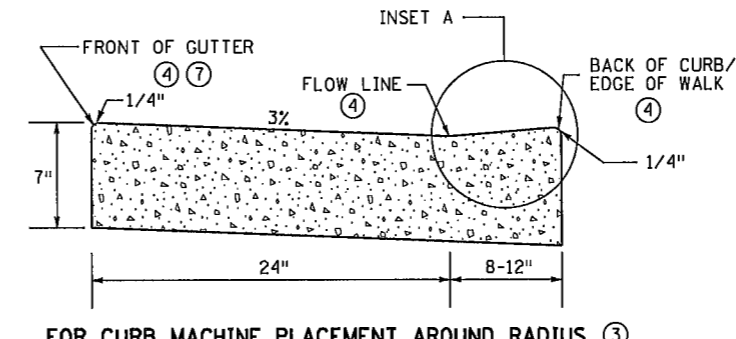
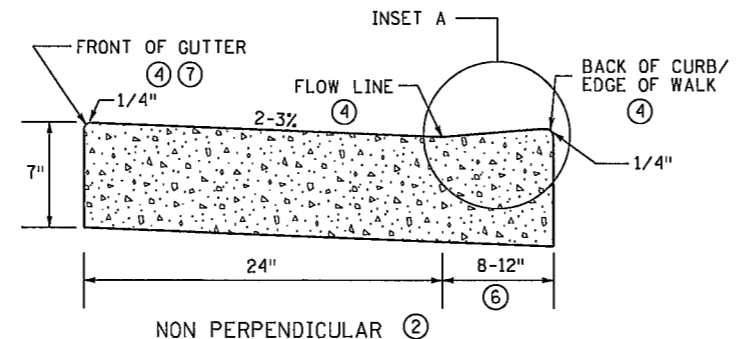
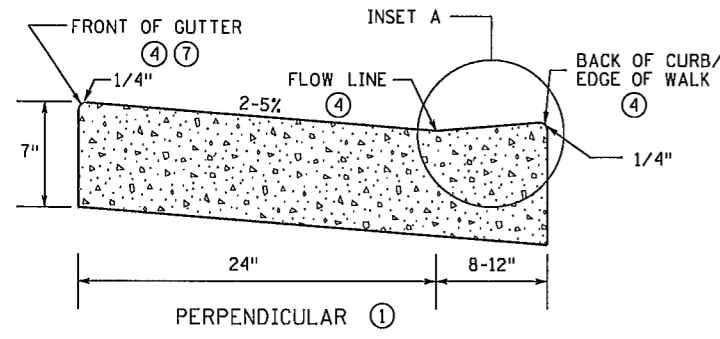
PEDESTRIAN CURB RAMP DETAILS

002-609-018

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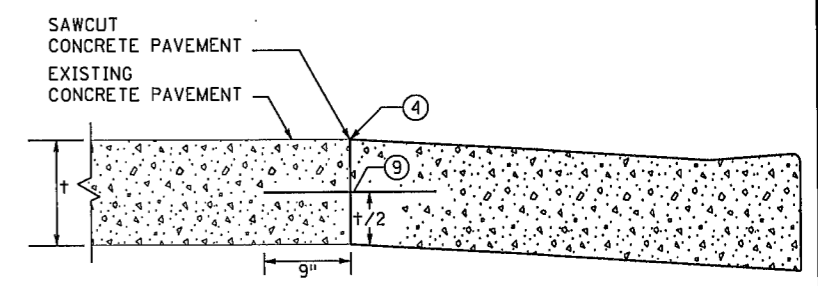
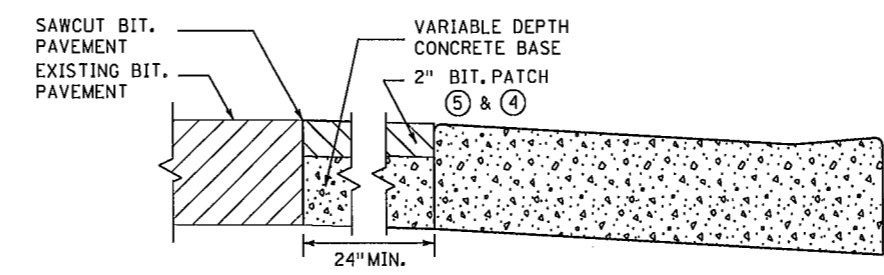
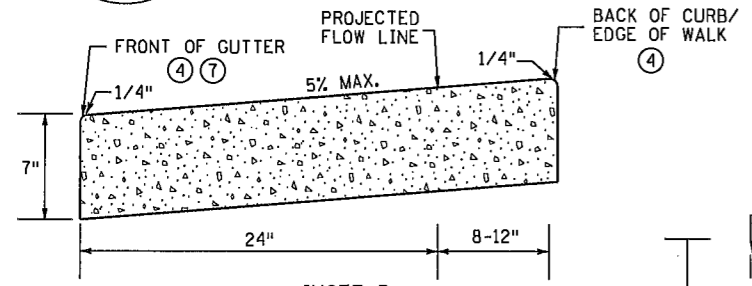
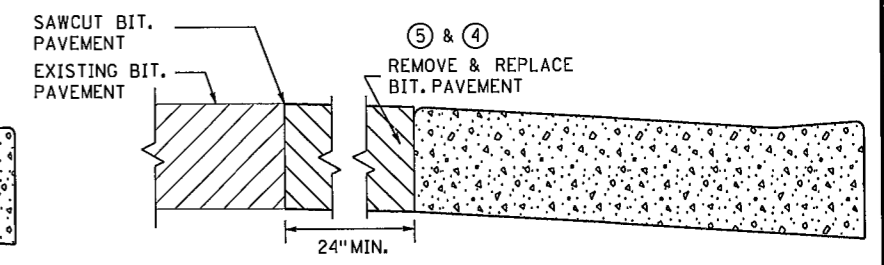
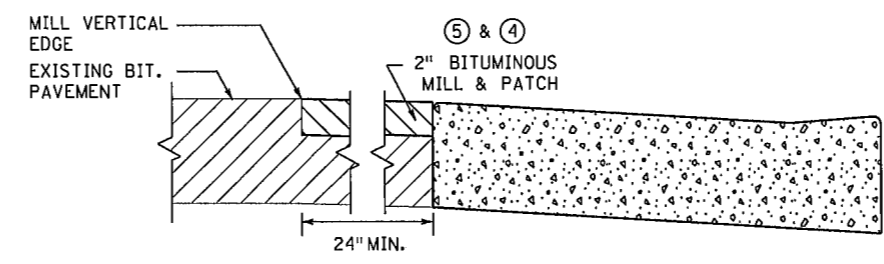
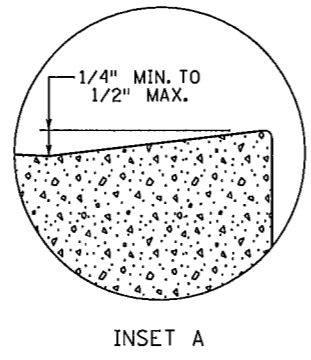
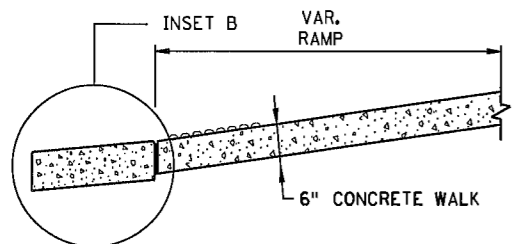
(T.H.) SHEET NO. 19 OF 40 SHEETS

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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

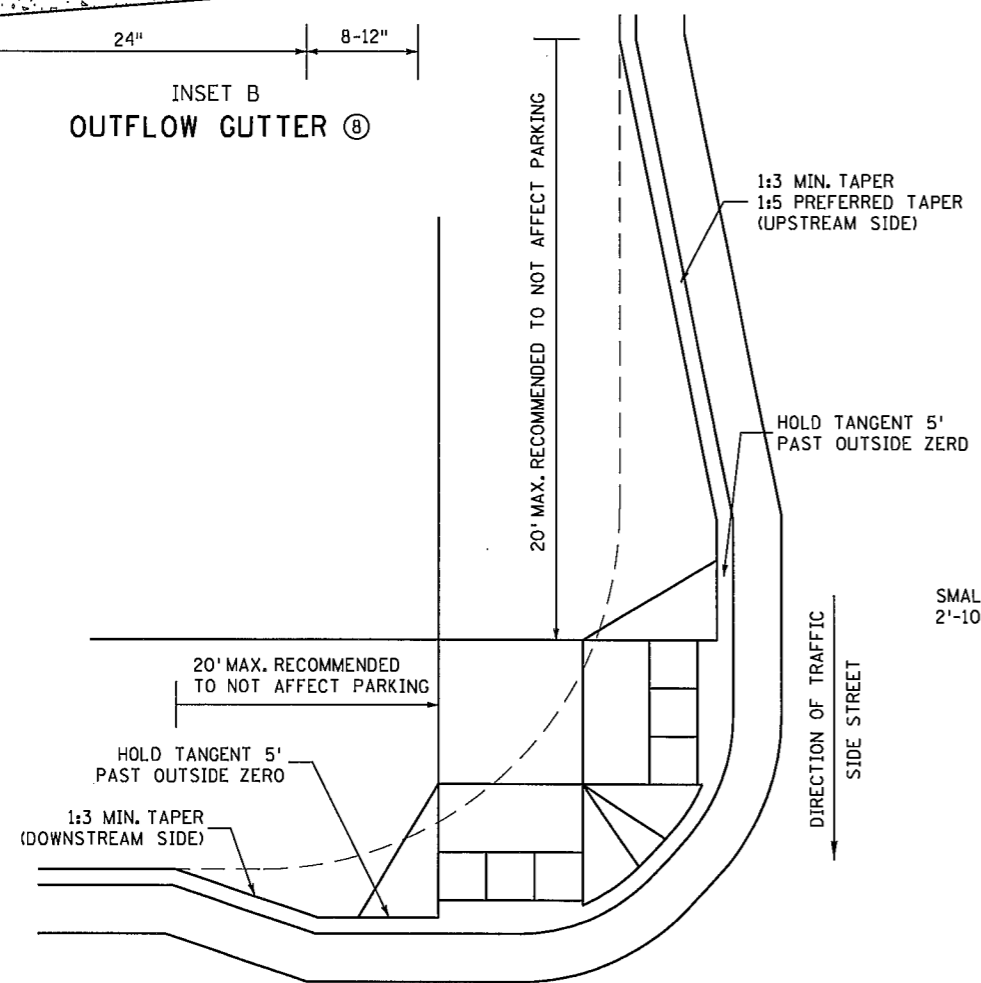


ONLY ALLOWED PER ENGINEER'S APPROVAL

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 RAMPS WHERE THE PEDESTRIAN'S PATH OF TRAVEL IS ASSUMED NON PERPENDICULAR TO THE GUTTER FLOW LINE. RAMP TYPES INCLUDE: FANS & DEPRESSED CORNERS.
- ③ BEGIN GUTTER SLOPE TRANSITION 10' OUTSIDE OF ALL CURB RAMPS.
- ④ THERE SHALL BE NO VERTICAL DISCONTINUITIES GREATER THAN 1/4\".
- ⑤ ELEVATION CHANGE TAKES PLACE FROM THE EXISTING TO NEW FRONT OF GUTTER. PATCH IS USED TO MATCH THE NEW GUTTER FACE INTO THE EXISTING ROADWAY.
- ⑥ VARIABLE WIDTH FOR DIRECTIONAL CURB APPLICATIONS. SEE SHEET 2 FOR DIRECTIONAL CURB SLOPE REQUIREMENTS.
- ⑦ TOP FRONT OF GUTTER SHALL BE CONSTRUCTED FLUSH WITH PROPOSED ADJACENT PAVEMENT ELEVATION. TOP 1.5\" OF THE GUTTER FACE MUST BE A FORMED EDGE. PAR GUTTER SHALL NOT BE OVERLAID.
- ⑧ SHOULD BE USED AT VERTICALLY CONSTRAINED AREAS WHEN AT A DRAINAGE HIGH POINT OR SUPER ELEVATED ROADWAY SEGMENTS.
- ⑨ DRILL AND GROUT NO. 4 EPOXY-COATED 18\" LONG TIE BARS AT 30\" CENTER TO CENTER INTO EXISTING CONCRETE PAVEMENT 1' MINIMUM FROM ALL JOINTS.
- ⑩ HELPS PROVIDE TWO SEPARATE RAMPS, REDUCES THE DOME SETBACK LENGTH AND MINIMIZES DIRECTIONAL CURB. THIS RADIUS DESIGN CLOSELY FOLLOWS THE TURNING VEHICLE PATH WHILE OPTIMIZING CURB RAMP LENGTH.
- ⑪ CURB EXTENSIONS SHOULD BE USED IN VERTICALLY CONSTRAINED AREAS, USUALLY IN DOWNTOWN ROADWAY SEGMENTS WHERE ON-STREET PARKING IS AVAILABLE. CURB EXTENSIONS SHOULD BE CONSIDERED FOR APS INTERSECTIONS WHERE SPACE IS LIMITED. PUSH BUTTONS MUST MEET APS CRITERIA AS DESCRIBED IN THE PUSH BUTTON LOCATION DETAIL SHEET.
- 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)

REVISION:
APPROVED: JANUARY 23, 2017
<i>[Signature]</i> OPERATIONS ENGINEER



STANDARD PLAN 5-297.250 3 OF 6
APPROVED: 1-23-2017
REVISOR:
[Signature]
STATE DESIGN ENGINEER

PEDESTRIAN CURB RAMP DETAILS

002-609-018

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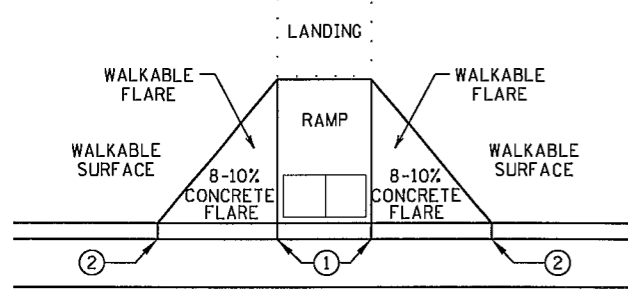
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SHEET NO. 20 OF 40 SHEETS

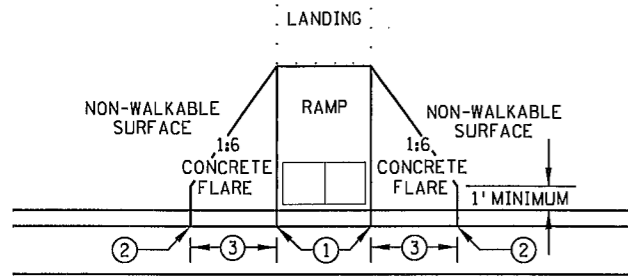
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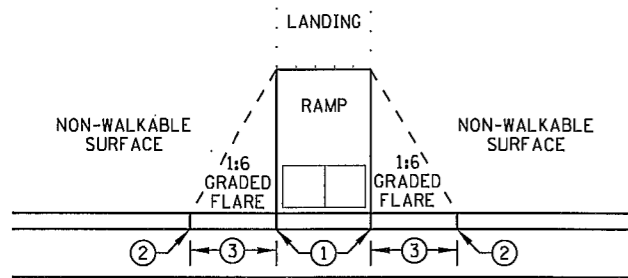
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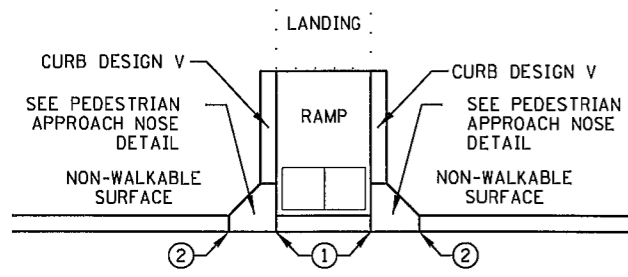
PAVED FLARES
ADJACENT TO WALKABLE SURFACE



PAVED FLARES
ADJACENT TO NON-WALKABLE SURFACE

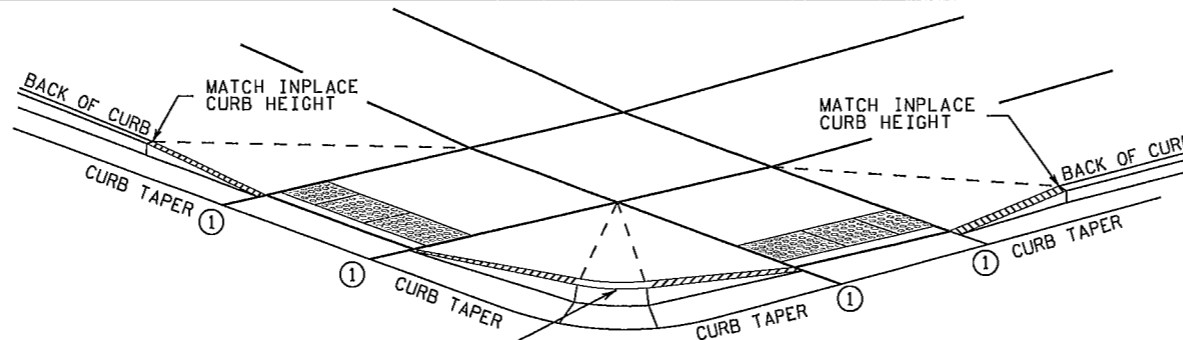


GRADED FLARES



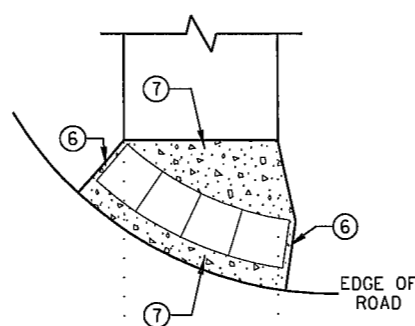
RETURNED CURB ⑤

TYPICAL SIDE TREATMENT OPTIONS ④ ⑪

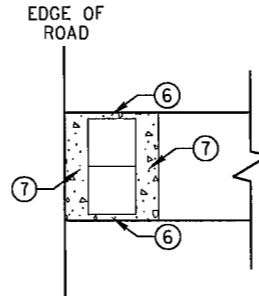


3" MINIMUM CURB HEIGHT, 4" PREFERRED
(MEASURED AT FRONT FACE OF CURB)
FOR A MIN. 6" LENGTH (MEASURED ALONG FLOW LINE)

DETECTABLE EDGE WITH ⑥
CURB AND GUTTER

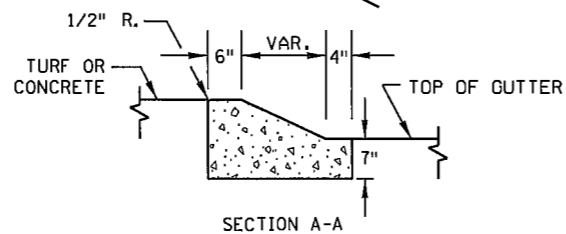
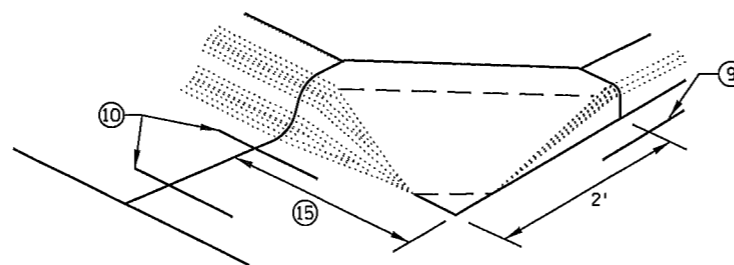


RADIAL DETECTABLE WARNING

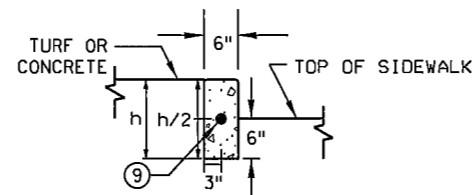


RECTANGULAR DETECTABLE WARNING

DETECTABLE EDGE WITHOUT CURB AND GUTTER



SECTION A-A



SECTION B-B

PEDESTRIAN APPROACH
NOSE DETAIL
(FOR RETURNED CURB
SIDE TREATMENT)

002-609-018



STANDARD PLAN 5-297.250 4 OF 6

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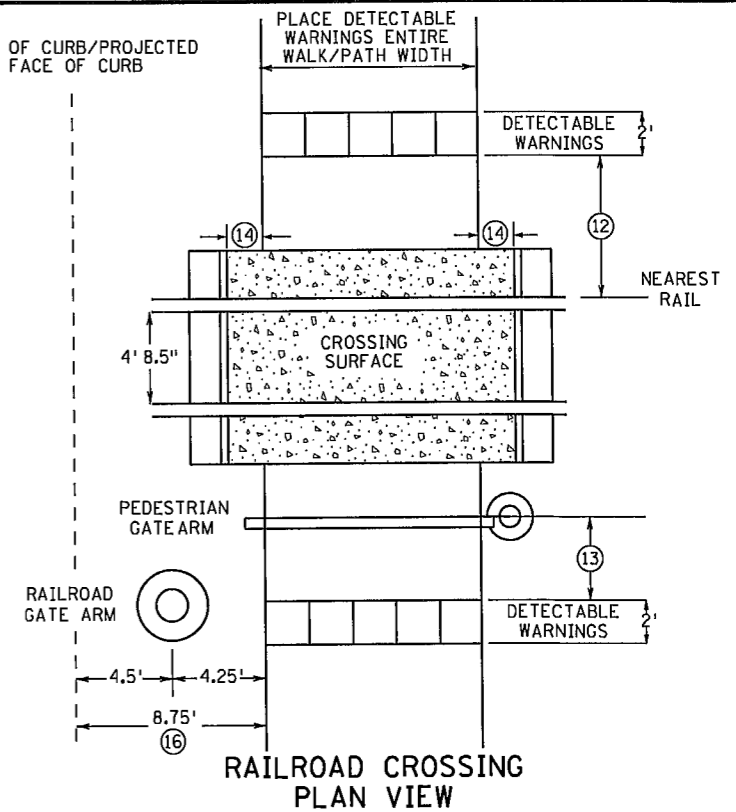
Tom S...
STATE DESIGN ENGINEER

STATE PROJ. NO.

PEDESTRIAN CURB RAMP DETAILS

(T.H.) SHEET NO. 21 OF 40 SHEETS

FACE OF CURB/PROJECTED
FACE OF CURB



RAILROAD CROSSING
PLAN VIEW

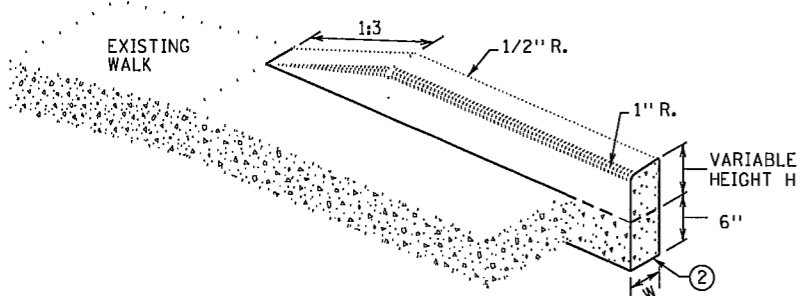
NOTES:

- 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" 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.

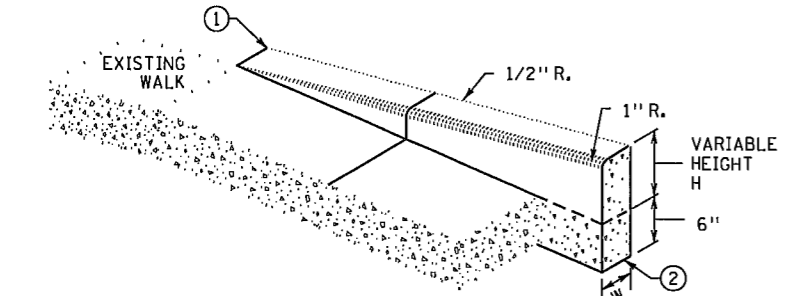
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APPROVED: JANUARY 23, 2017
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PLOTTED/REVISED: \$\$\$@DATE@\$\$\$

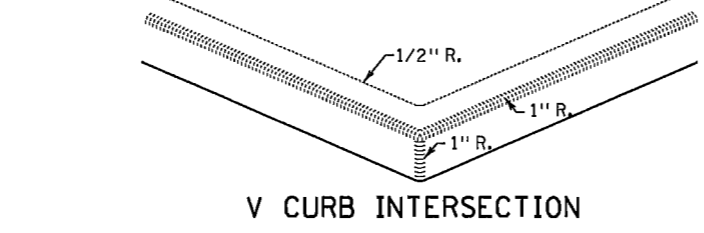
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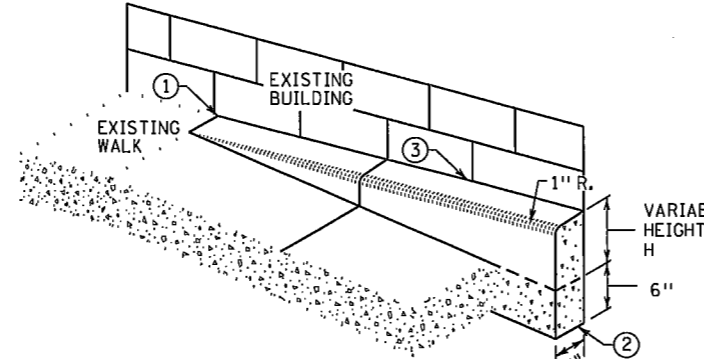
V CURB ADJACENT TO LANDSCAPE
 CURB WITHIN SIDEWALK LIMITS



V CURB ADJACENT TO LANDSCAPE
 CURB OUTSIDE SIDEWALK LIMITS

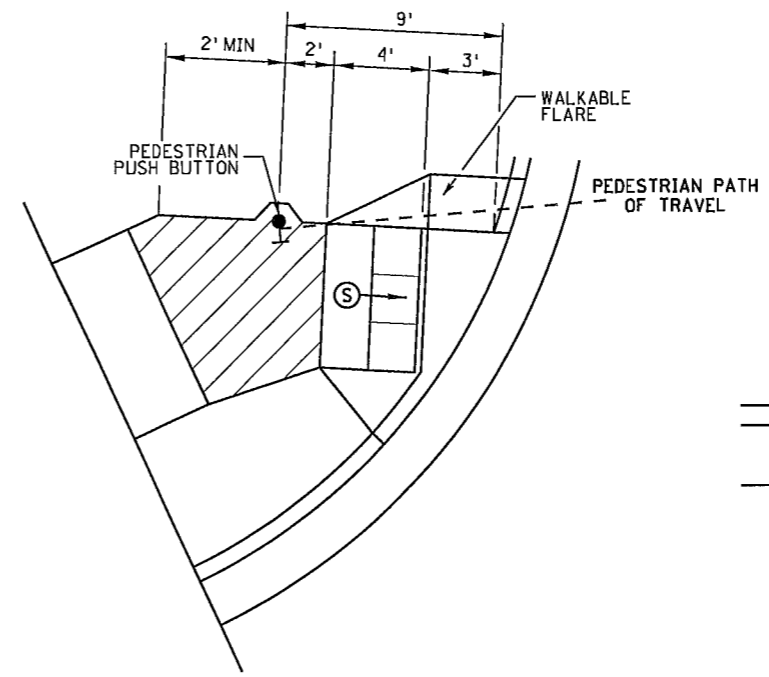


V CURB INTERSECTION



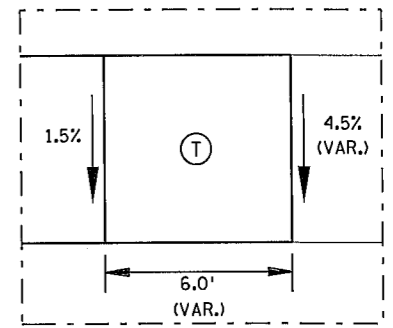
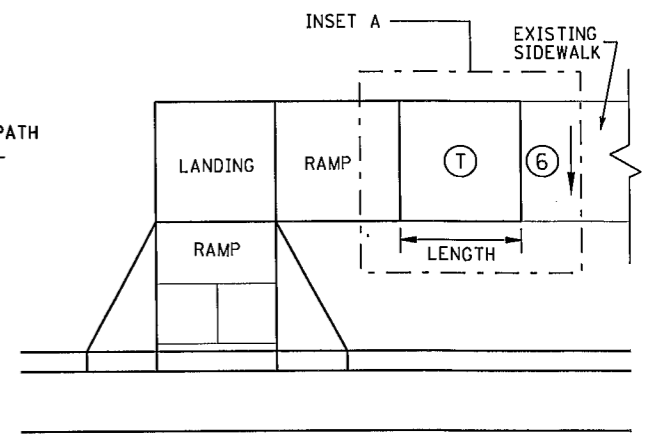
V CURB ADJACENT TO BUILDING OR BARRIER

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

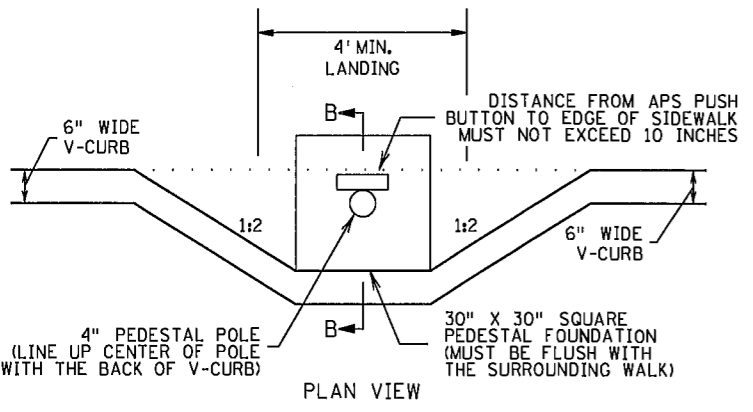


SEMI-DIRECTIONAL RAMP (3,4,9)

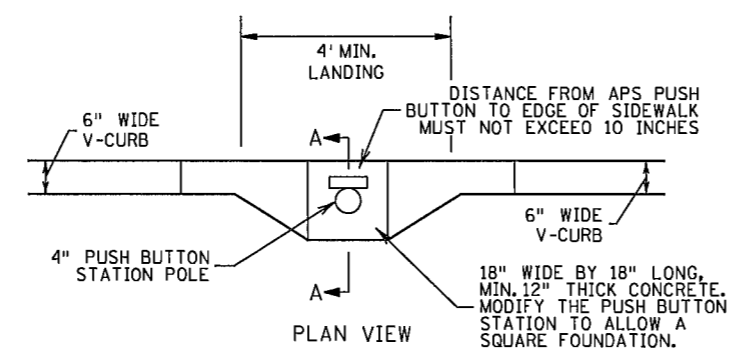
3' DOME SETBACK, 4' LONG RAMP AND PUSH BUTTON 9' FROM THE BACK OF CURB
 PRIMARILY USED FOR APS APPLICATIONS WHERE THE PAR DOES NOT CONTINUE PAST THE PUSH BUTTON (DEAD-END SIDEWALK)



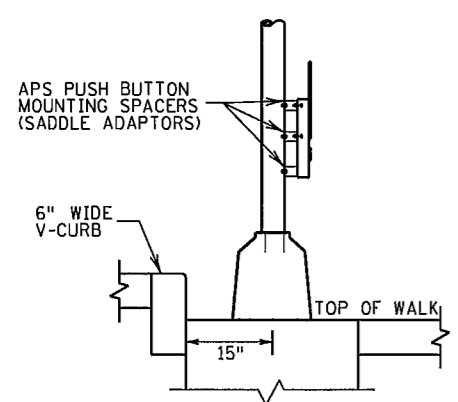
TRANSITION PANEL (4) (5)



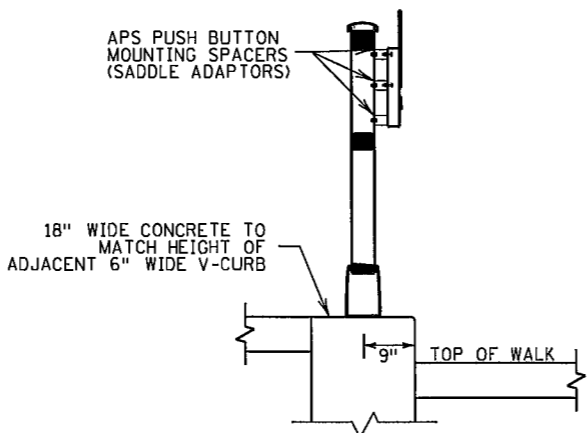
PLAN VIEW



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.
- END TAPERS AT TRANSITION SECTION SHALL MATCH INPLACE SIDEWALK GRADES.
- ALL V CURB SHALL MATCH BOTTOM OF ADJACENT WALK.
- EDGE BETWEEN NEW V CURB AND INPLACE STRUCTURE SHALL BE SEALED AND BOND BREAKER SHALL BE USED BETWEEN EXISTING STRUCTURE AND PLACED V-CURB.
- 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.
- TRANSITION PANELS ARE TO ONLY BE USED AFTER THE RAMP, OR IF NEEDED, LANDING ARE AT THE FULL CURB HEIGHT (TYPICAL SECTION).
- EXISTING CROSS SLOPE GREATER THAN 2.0%.

LEGEND

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

⑤ INDICATES PEDESTRIAN RAMP - SLOPE SHALL BE BETWEEN 5.0% MINIMUM AND 8.3% MAXIMUM IN THE DIRECTION SHOWN AND THE CROSS SLOPE SHALL NOT EXCEED 2.0%.

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

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

REVISION:
 APPROVED: JANUARY 23, 2017
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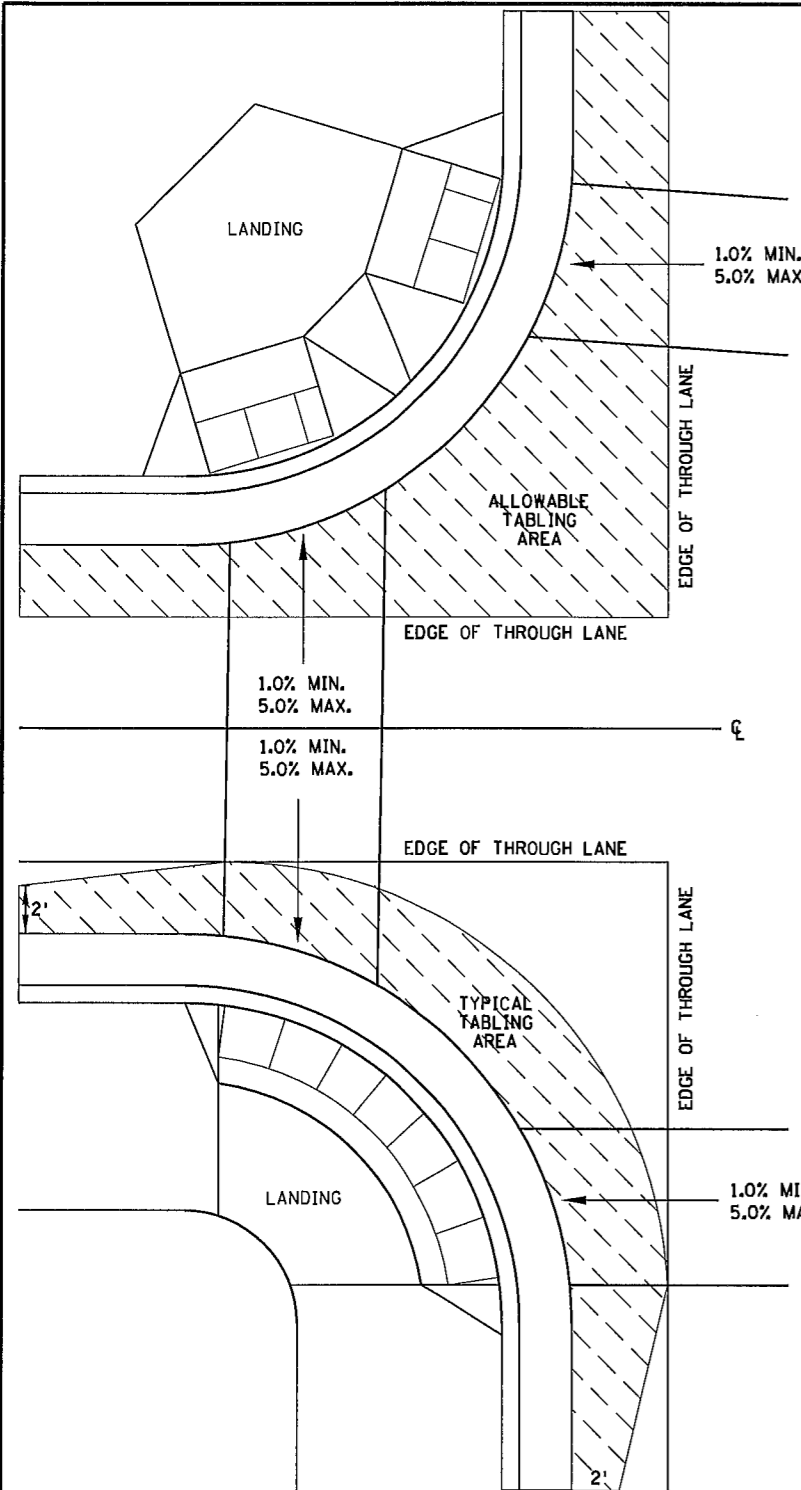
STANDARD PLAN 5-297.250 5 OF 6
 APPROVED: 1-23-2017
 REVISOR:
 STATE PROJ. NO. (T.H.)

PEDESTRIAN CURB RAMP DETAILS

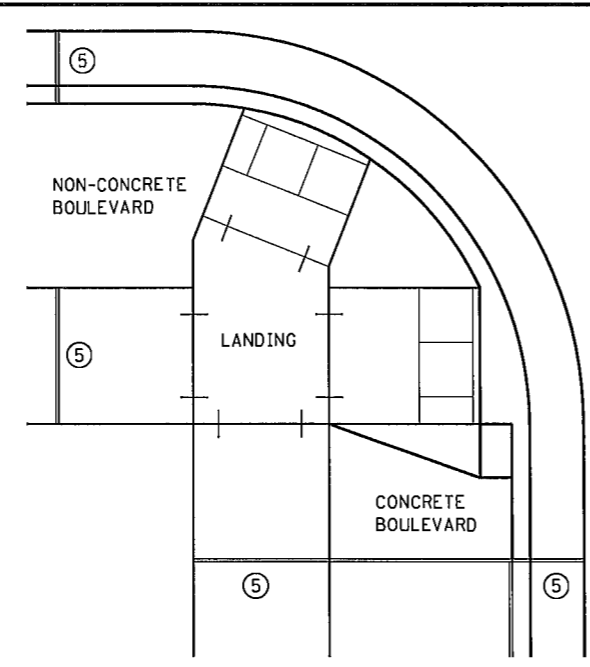
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SHEET NO. 22 OF 40 SHEETS

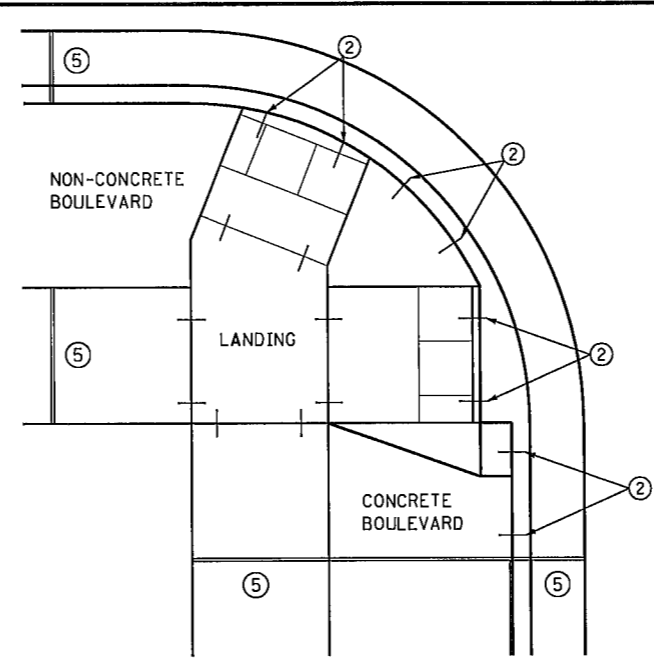
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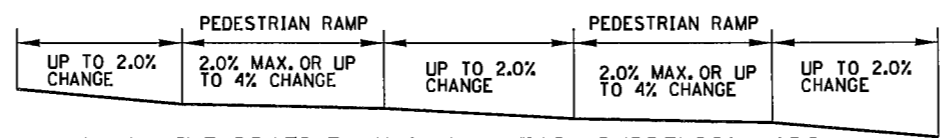
CURB LINE AND ROAD CROSSING ADJUSTMENTS



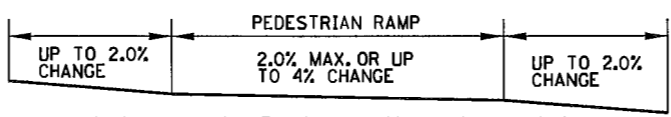
EXPANSION MATERIAL PLACEMENT FOR CONCRETE AND BITUMINOUS ROADWAYS



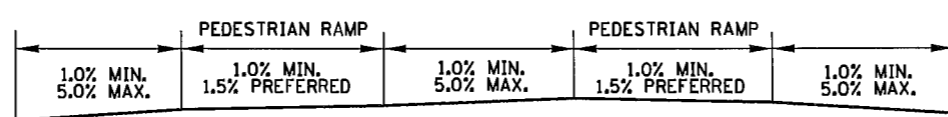
OPTIONAL CURB LINE REINFORCEMENT PLACEMENT ON BITUMINOUS ROADWAYS



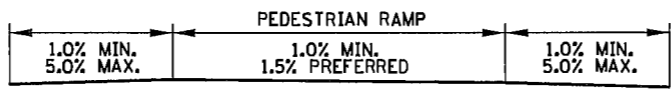
FLOW LINE PROFILE "TABLE" - TWIN PERPENDICULARS



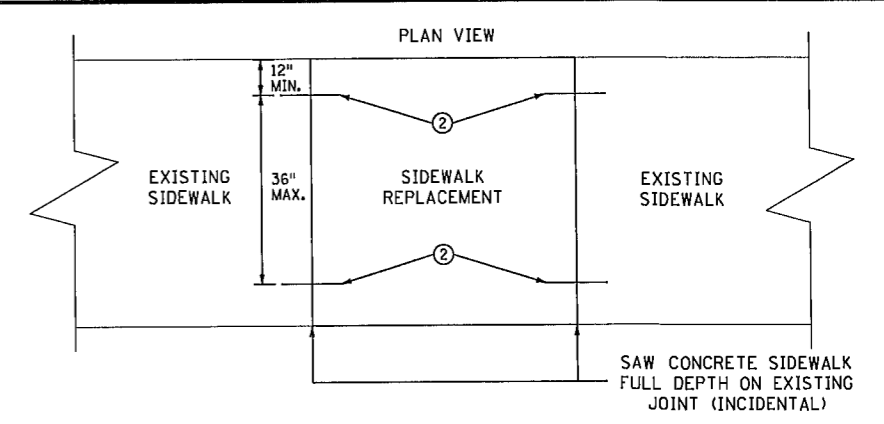
FLOW LINE PROFILE "TABLE" - FAN



FLOW LINE PROFILE RAISE - TWIN PERPENDICULARS

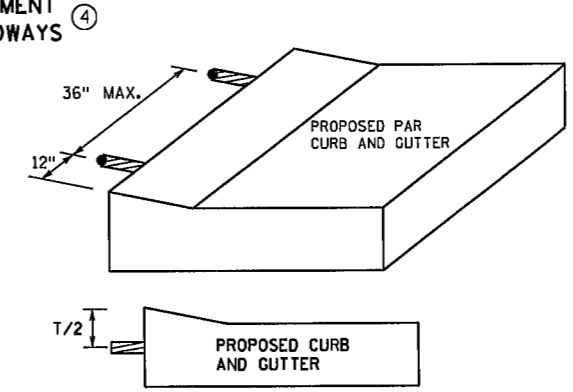


FLOW LINE PROFILE RAISE - FAN

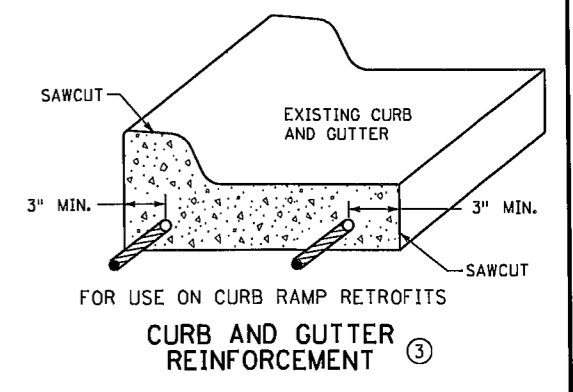


OPTIONAL SIDEWALK REINFORCEMENT

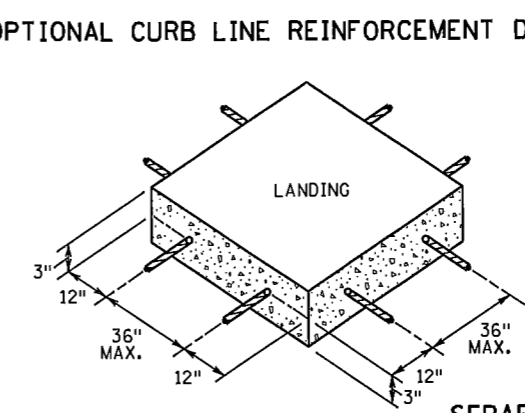
SIDEWALK REINFORCEMENT TO BE USED ONLY WHEN SPECIFIED IN THE PLAN.



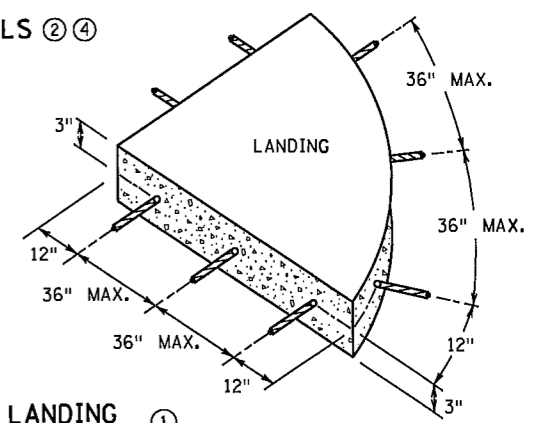
OPTIONAL CURB LINE REINFORCEMENT DETAILS



CURB AND GUTTER REINFORCEMENT



SEPARATE LANDING POUR REINFORCEMENT



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

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

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

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

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

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

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

NOTES:

- ① TO ENSURE RAMPS AND LANDINGS ARE PROPERLY CONSTRUCTED, ALL INITIAL LANDINGS AT A TOP OF A RAMPED SURFACE (RUNNING SLOPE GREATER THAN 2%) SHALL BE FORMED AND PLACED SEPARATELY IN AN INDEPENDENT CONCRETE POUR. FOLLOW SIDEWALK REINFORCEMENT DETAILS ON THIS SHEET FOR ALL SEPARATELY POURED INITIAL LANDINGS.
- ② DRILL AND GROUT NO. 4 12" LONG REINFORCEMENT BARS 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.

REVISIONS:
APPROVED: JANUARY 23, 2017
<i>Ann Sob...</i> OPERATIONS ENGINEER



STANDARD PLAN 5-297.250 6 OF 6
 APPROVED: 1-23-2017
 REVISED:
 STATE PROJ. NO. (T.H.)

PEDESTRIAN CURB RAMP DETAILS

**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 EPOXY PAVEMENT MARKINGS.

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

A MULTI COMP RESIN LINE 4" WIDE AND 15 MILL THICKNESS (WET), REQUIRES AN APPLICATION RATE OF ONE (1) GALLON OF COMPONENTS FOR 320 FEET OF LINE. GLASS BEADS SHALL BE APPLIED AT A POUND PER GALLON RATE SUFFICIENT TO ACHIEVE AN ACCEPTABLE NO-TRACK SYSTEM.

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

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

PREFORMED THERMOPLASTIC:

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

PAINT:

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

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

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

THE FILLING OF TANKS, POURING OF MATERIALS OR CLEANING OF EQUIPMENT SHALL NOT BE PERFORMED ON UNPROTECTED PAVEMENT SURFACES UNLESS ADEQUATE PROVISIONS ARE MADE TO PREVENT SPILLAGE OF MATERIAL.

PAVEMENT MARKING TABULATION		
ITEM	UNIT	TOTAL QUANTITY
4" SOLID LINE WHITE - MULTI COMP	LIN FT	49633
2 8" BROKEN LINE WHITE - MULTI COMP	LIN FT	216
4" SOLID LINE YELLOW - MULTI COMP	LIN FT	3090
1 4" BROKEN LINE YELLOW - MULTI COMP	LIN FT	1660
4" SOLID DOUBLE LINE YELLOW - MULTI COMP	LIN FT	16321

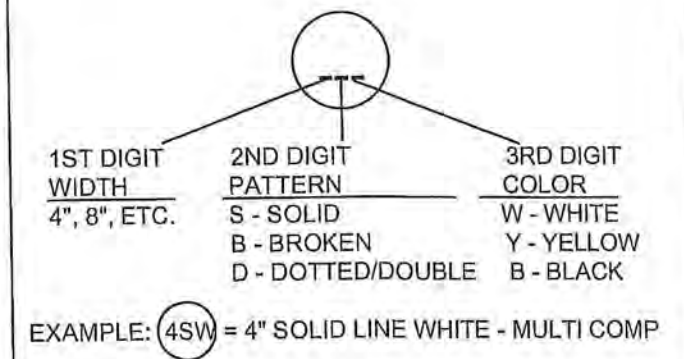
- 1 10' STRIPE, 40' GAP
- 2 3' STRIPE, 12' GAP

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

NAME: P:\002-618-032\Basetraffic\Perm pvmt mrkg guida notes_guidelines.dwg

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

PRINT NAME: DOUGLAS W. FISCHER
SIGNATURE: *[Signature]*
DATE: 5/21/19

DRAWN BY: LJK DATE: 3/28/19
DESIGN BY: LJK DATE: 3/28/19
CHECKED BY: JKR DATE: 4/23/19

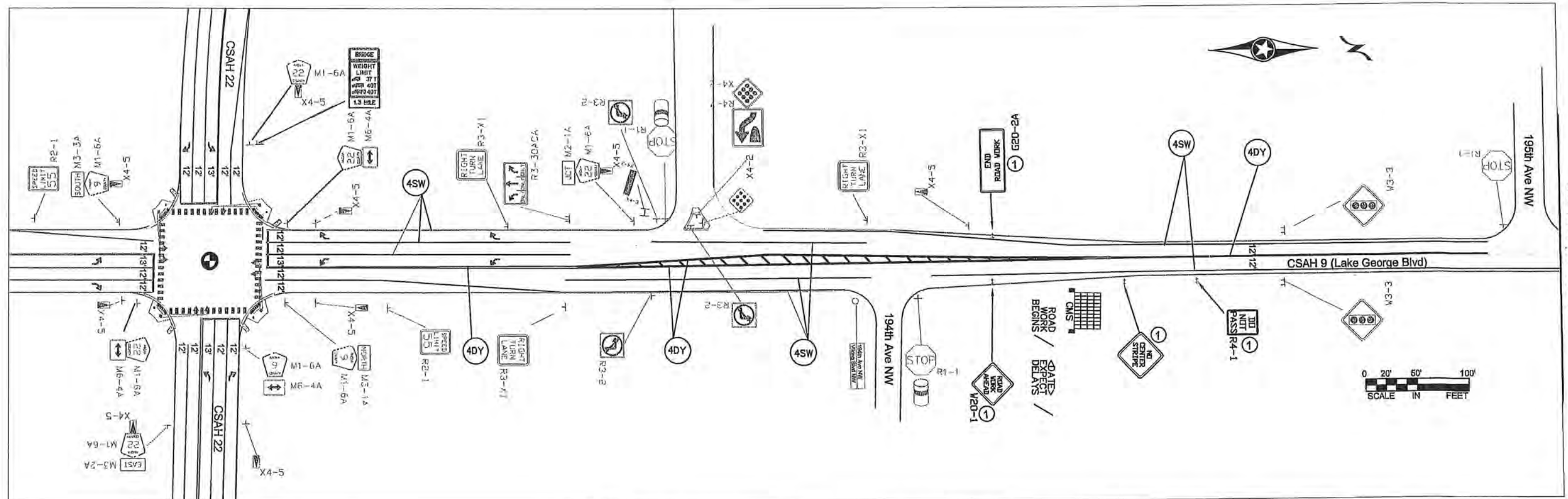
**ANOKA COUNTY
HIGHWAY DEPT.**

STATE PROJECT NO. _____
STATE AID PROJECT NO. 002-609-018
CITY PROJECT NO. _____
COUNTY PROJECT NO. _____

PERMANENT MARKING
TABULATION

Sheet 24 of 40 Sheets

- SIGN NOTES:
- ① TEMPORARY TRAFFIC CONTROL SIGN
 - ② F & I PERMANENT SIGN
 - ③ SALVAGE PERMANENT SIGN
 - ④ RE-INSTALL PERMANENT SIGN
 - ⑤ REMOVE SIGN



NOTES:

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- CONTRACTOR SHALL SUPPLY AND ERECT THE TEMPORARY TRAFFIC CONTROL SIGNS AS SHOWN ON THIS DRAWING AND DETAILED IN THE SPECIAL PROVISIONS FROM THE TIME WORK COMMENCES ON THIS ROADWAY UNTIL THIS ROADWAY IS PERMANENTLY STRIPED. ALL NECESSARY TEMPORARY TRAFFIC CONTROL SIGNS SHALL BE PAID FOR AS PART OF TRAFFIC CONTROL LUMP SUM.
- ALL 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. ALL 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

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY REGISTERED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
 PRINT NAME: DOUGLAS W. FISCHER
 SIGNATURE: *[Signature]*
 DATE: 5/2/19

DRAWN BY: LJK DATE 3/28/19
 DESIGN BY: LJK DATE 3/28/19
 CHECKED BY: JKR DATE 4/23/19

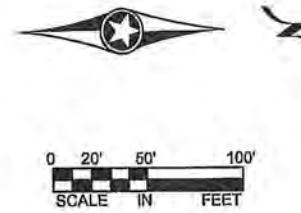


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 HIGHWAY DEPT.

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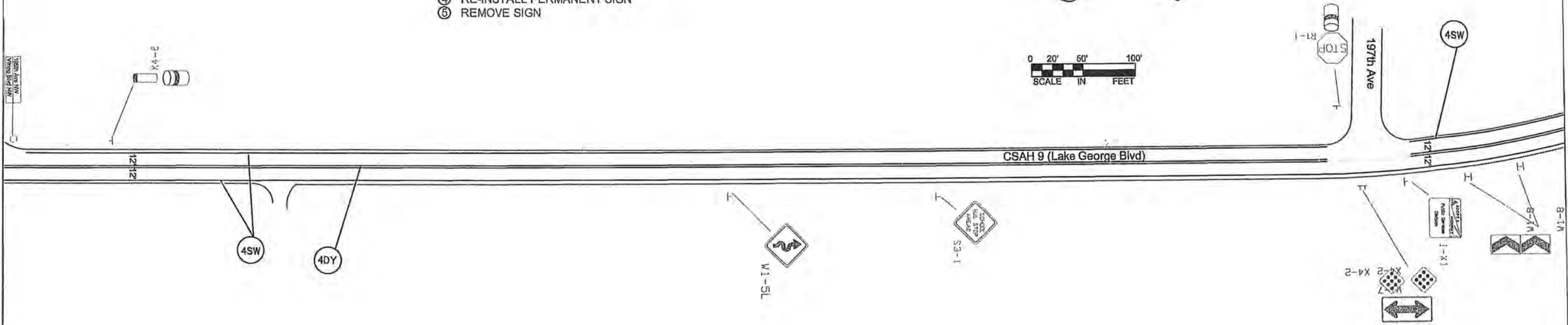
PERMANENT
 SIGNING / STRIPING
 Sheet 25 of 40 Sheets

- SIGN NOTES:
- ① TEMPORARY TRAFFIC CONTROL SIGN
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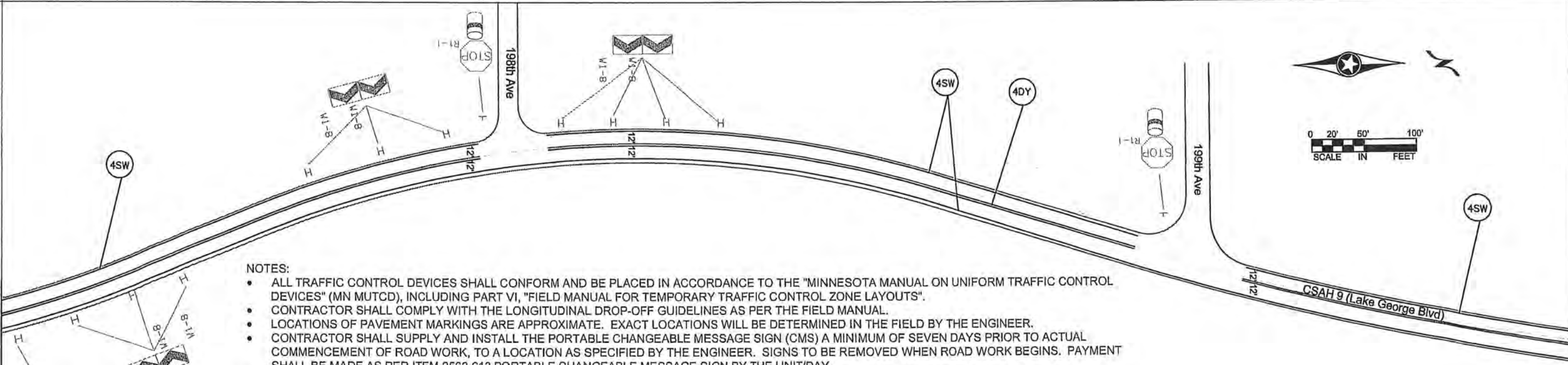
STATION 14+50

STATION 29+50



STATION 29+50

STATION 44+80



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PRINT NAME: DOUGLAS W. FISCHER

SIGNATURE: *[Signature]*

REG. NO. 20235

DRAWN BY: LJK DATE 3/28/19

DESIGN BY: LJK DATE 3/28/19

CHECKED BY: JKR DATE 4/23/19



ANOKA COUNTY
HIGHWAY DEPT.

STATE PROJECT NO. _____
STATE AID PROJECT NO. 002-609-018
CITY PROJECT NO. _____
COUNTY PROJECT NO. _____

PERMANENT
SIGNING / STRIPING
Sheet 26 of 40 Sheets

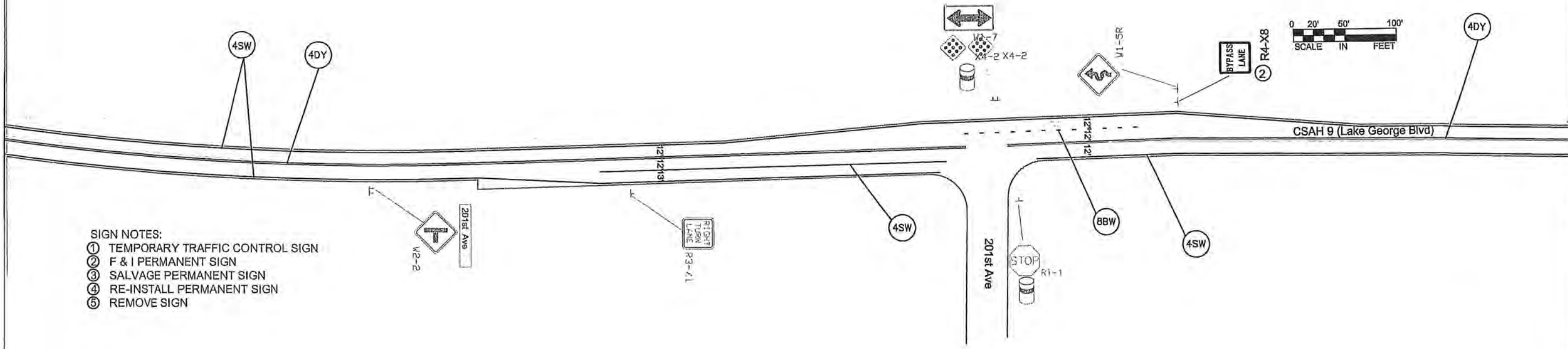
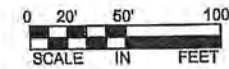
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STATION 60+00

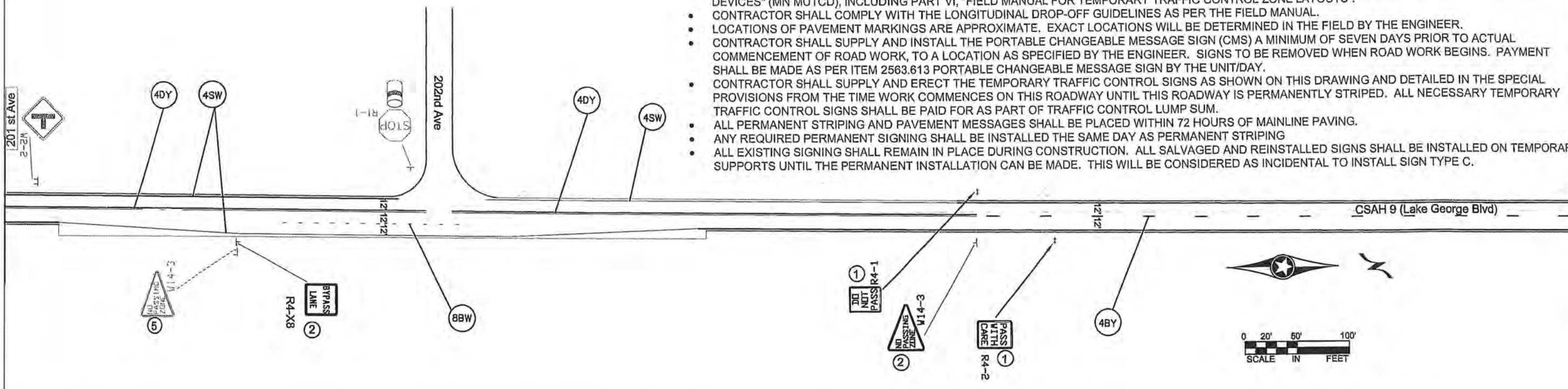
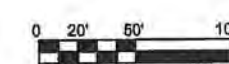
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STATION 60+00

STATION 75+15

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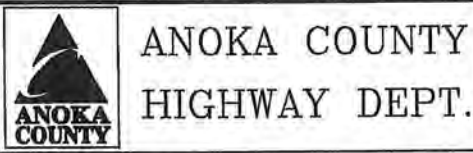


NO	DATE	BY	CHKD	APPR	REVISION

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

PRINT NAME: DOUGLAS W. FISCHER
 SIGNATURE: *[Signature]*
 REG. NO. 20235

DRAWN BY: LJK DATE 3/28/19
 DESIGN BY: LJK DATE 3/28/19
 CHECKED BY: JKR DATE 4/23/19



STATE PROJECT NO. _____
 STATE AID PROJECT NO. 002-609-018
 CITY PROJECT NO. _____
 COUNTY PROJECT NO. _____

PERMANENT SIGNING / STRIPING
 Sheet 27 of 40 Sheets

- SIGN NOTES:
- ① TEMPORARY TRAFFIC CONTROL SIGN
 - ② F & I PERMANENT SIGN
 - ③ SALVAGE PERMANENT SIGN
 - ④ RE-INSTALL PERMANENT SIGN
 - ⑤ REMOVE SIGN

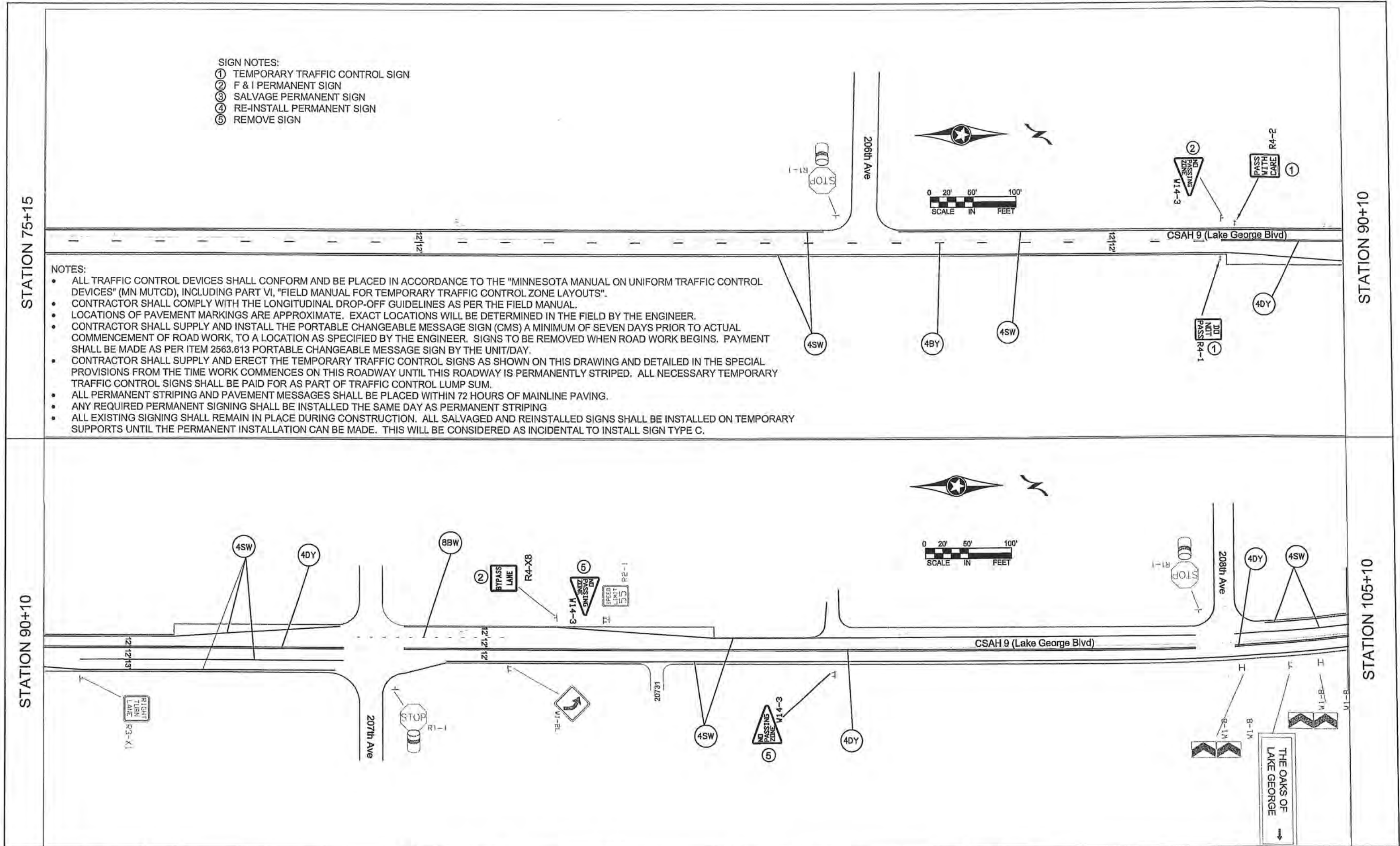
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STATION 75+15

STATION 90+10

STATION 90+10

STATION 105+10



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PRINT NAME: DOUGLAS W. FISCHER

SIGNATURE: *[Signature]* 5/2/19

REG. NO. 20235

DRAWN BY: LJK DATE: 3/28/19

DESIGN BY: LJK DATE: 3/28/19

CHECKED BY: JKR DATE: 4/23/19



ANOKA COUNTY
HIGHWAY DEPT.

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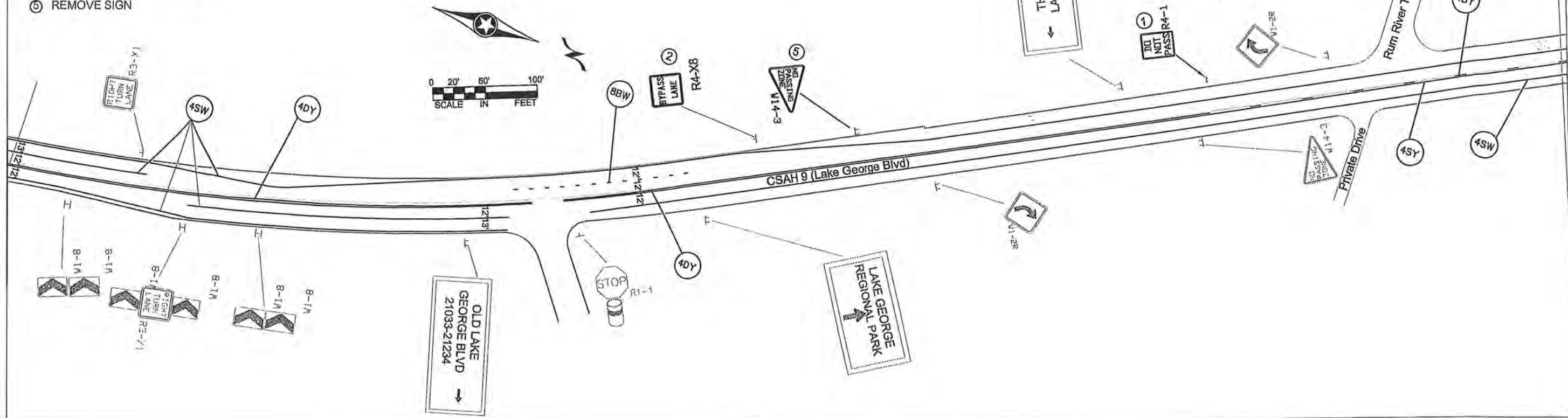
PERMANENT
SIGNING / STRIPING

Sheet 28 of 40 Sheets

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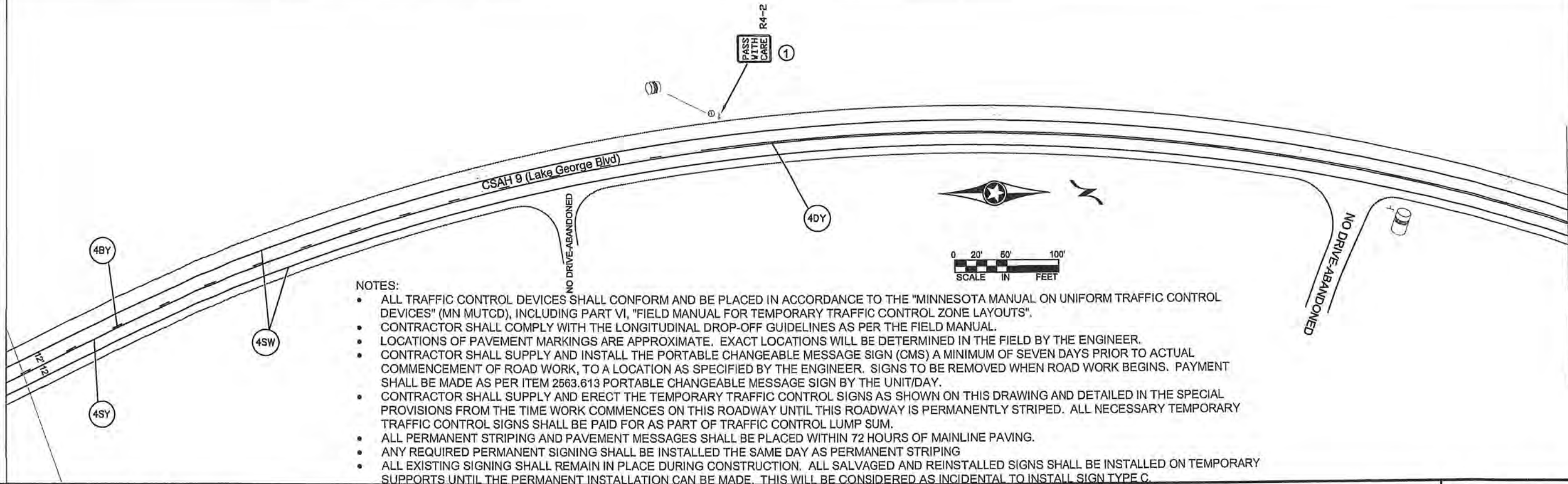
STATION 105+10

STATION 120+10



STATION 120+10

STATION 135+40



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PRINT NAME: DOUGLAS W. FISCHER

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REG. NO. 20235

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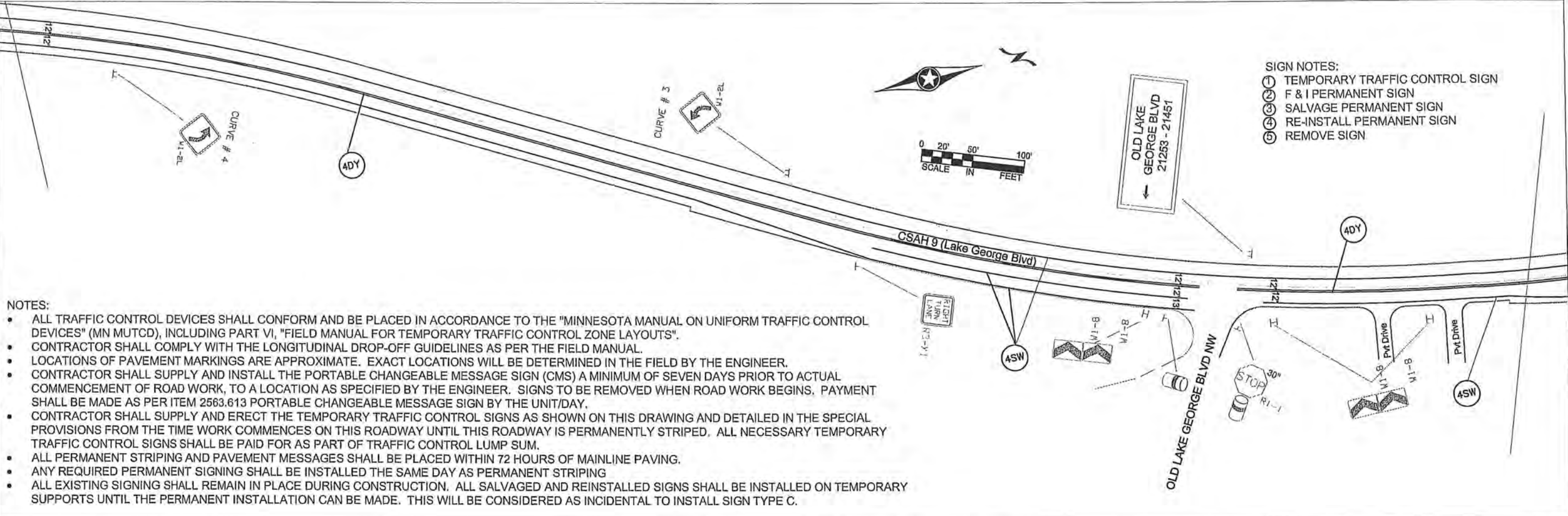
Sheet 29 of 40 Sheets

STATION 135+40

STATION 150+90

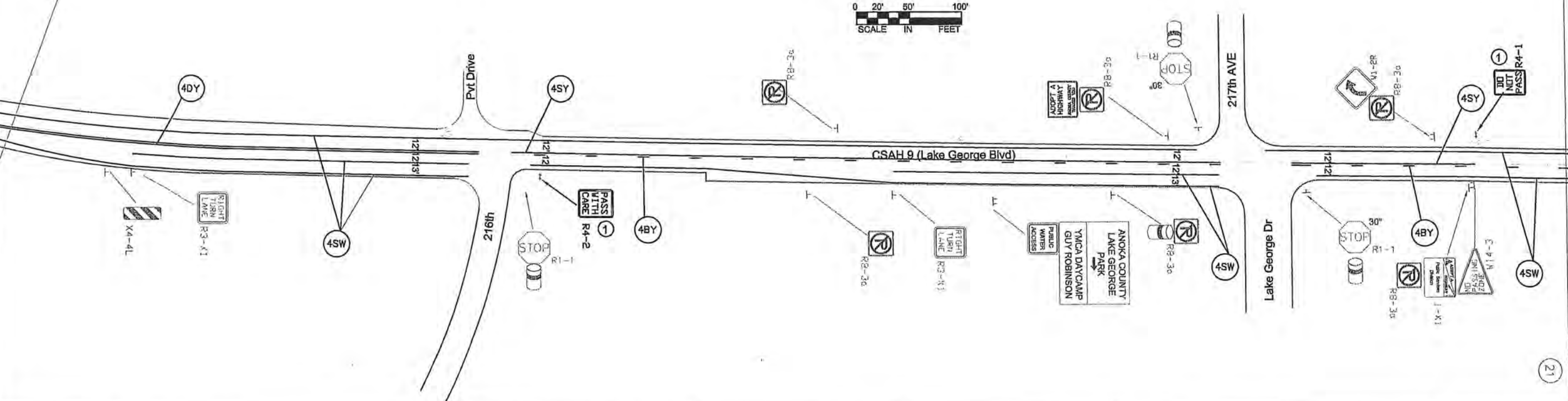
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 - (F) F & I PERMANENT SIGN
 - (S) SALVAGE PERMANENT SIGN
 - (R) RE-INSTALL PERMANENT SIGN
 - (O) REMOVE SIGN



STATION 150+90

STATION 165+90



NO	DATE	BY	CKD	APPR	REVISION

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PRINT NAME: **DOUGLAS W. FISCHER**

SIGNATURE: *[Signature]*

REG. NO. 20235

DRAWN BY: LJK DATE 3/28/19

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ANOKA COUNTY
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PERMANENT
SIGNING / STRIPING

Sheet 30 of 40 Sheets

NAME: T:\Traffic\dw\CSAH 9 (Round Lake Lake George)\from 14 to CSAH 22.dwg 02/11/2009 2:14:27 PM DCS

STATION 165+90

STATION 181+00

ANOKA COUNTY
LAKE GEORGE
PARK
YMCA DAYCAMP
GUY ROBINSON
PUBLIC
WATER
ACCESS

- SIGN NOTES:
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CSAH 9 (Lake George Blvd)

4SW

4BY

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STATION 181+00

STATION 196+00

W3-10

.96

X4-13

R1-1

H

STOP

4BY

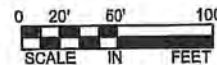
4SW

4SW

221st AVE

121+13

121+21



CSAH 9 (Lake George Blvd)

RIGHT TURN LANE R3-X1

STOP R1-1

STOP R1-1

X4-13

RIGHT TURN LANE R3-X1

R2-1

CS

121+13

22

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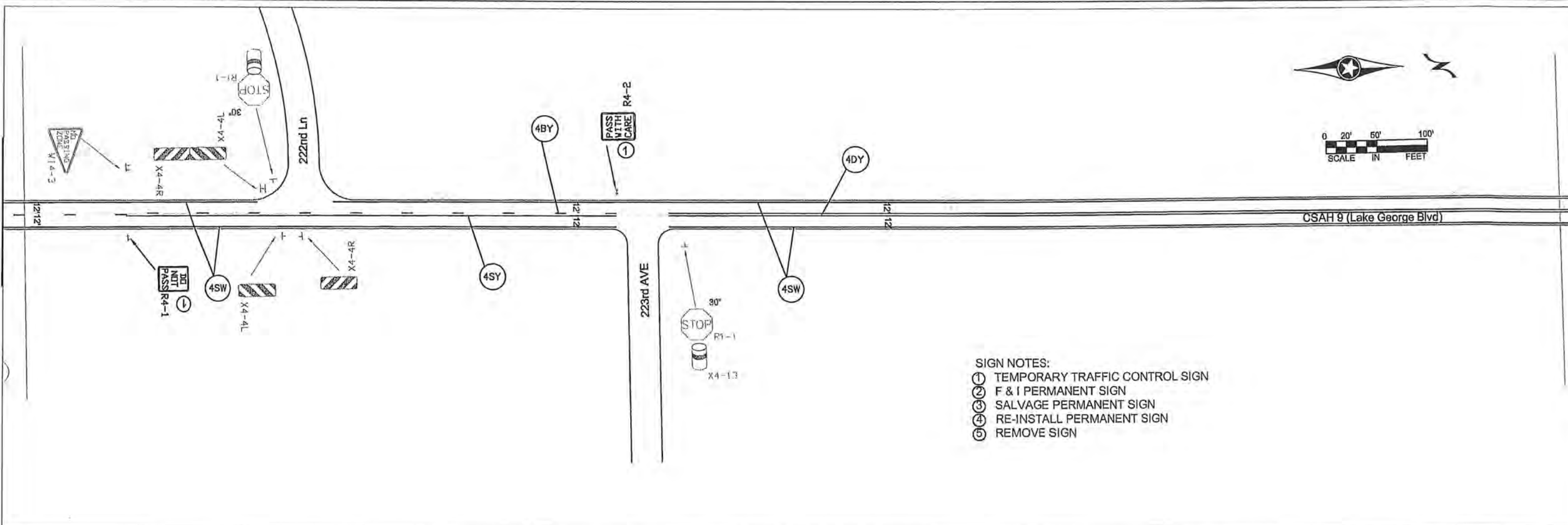
COUNTY PROJECT NO. _____

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Sheet 31 of 40 Sheets

STATION 196+00

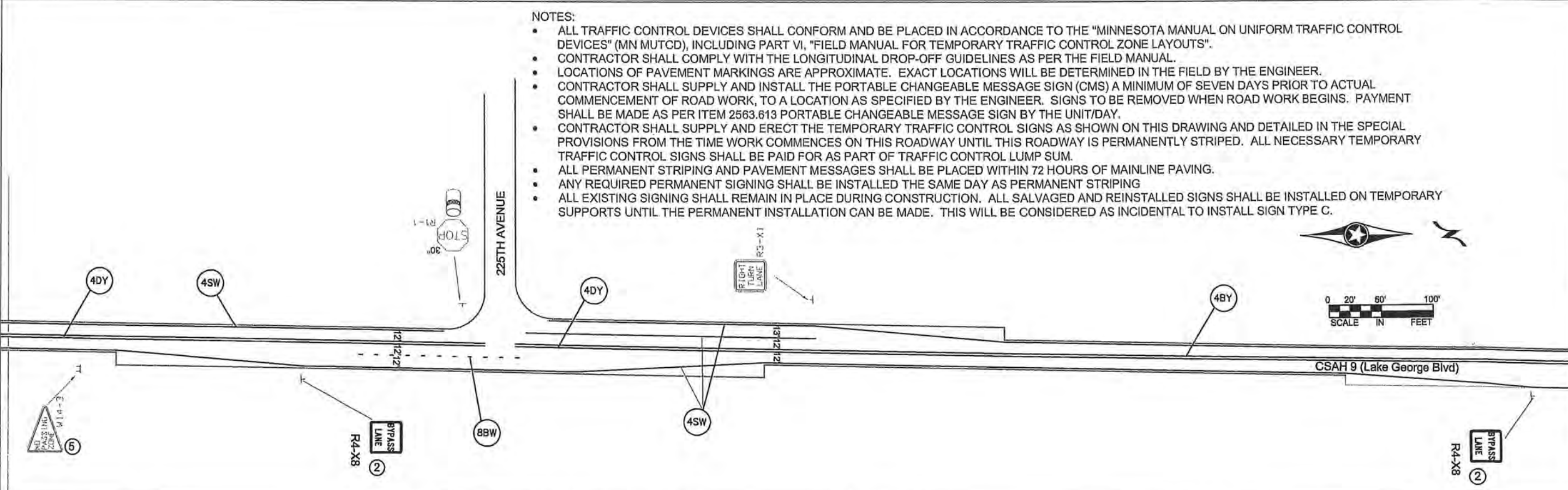
STATION 211+00



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 - ③ SALVAGE PERMANENT SIGN
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STATION 211+00

STATION 226+00



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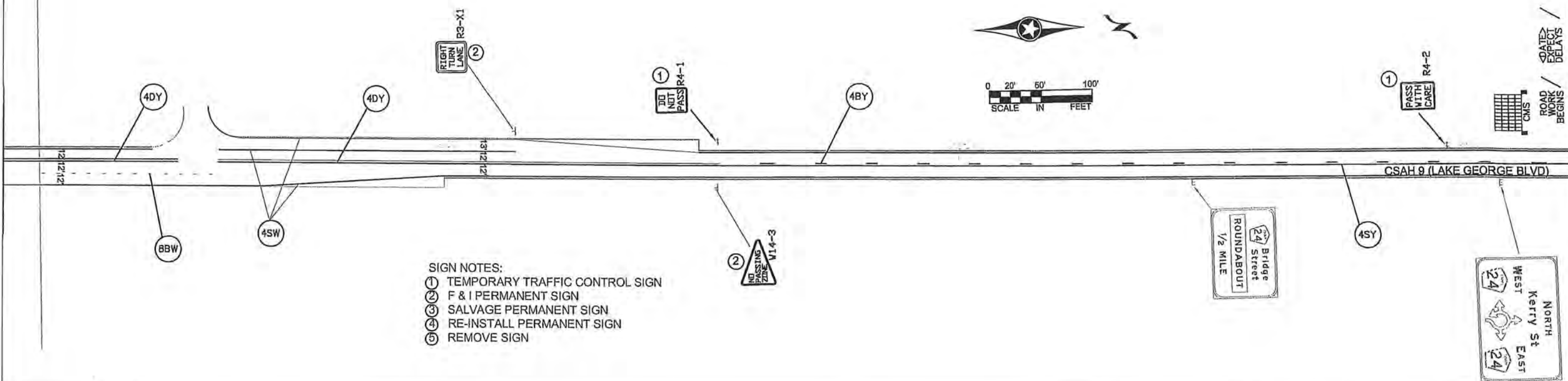
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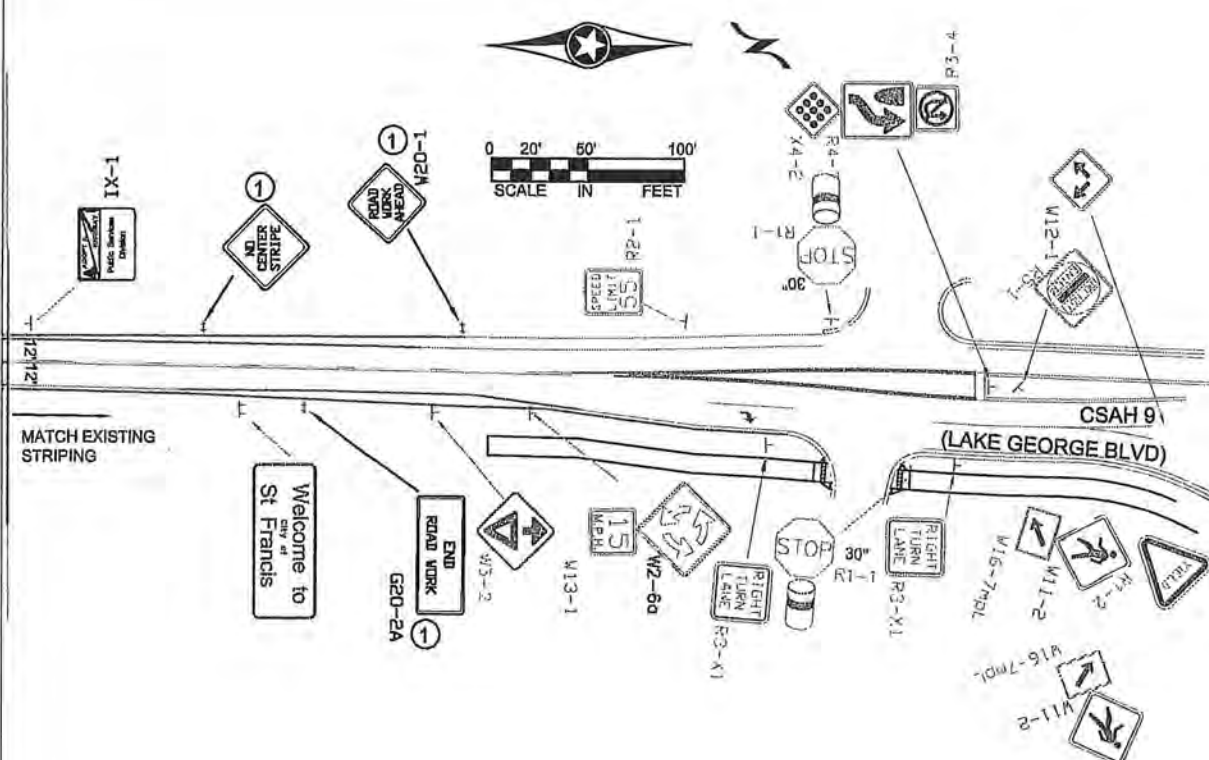
Sheet 32 of 40 Sheets

STATION 226+00

STATION 241+00



STATION 241+00



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Sheet 33 of 40 Sheets

TEMPORARY TRAFFIC CONTROL SIGNS						
M.U.T.C.D. CODE	SIZE	PANEL AREA FT. ²	INSERT	QUANTITY		MOUNTING HEIGHT TO PAYMENT EDGE FT.
					No. POST	
W8-12	48" x 48"	16.00		2	2	7.0'
R4-1	24" x 30"	5.00		7	1	7.0'
R4-2	24" x 30"	5.00		6	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		
W20-1	48" x 48"	16.00		AS NEEDED (ESTIMATED 2)		
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		

SIGN PANELS TYPE C							
M.U.T.C.D. CODE	SIZE	INSERT	QUANTITY	SQ FT PANEL AREA	SQ FT TOTAL AREA	MOUNTING POST PER INSTALLATION	MOUNTING HEIGHT
R4-X8	30" x 30"		6	6.25	37.5	1	7.0'
R4-X8	64" x 64" x 48"		3	10.67	32.0	2	7.0'
R3-X1	30" x 30"		1	6.25	6.25	1	7.0'

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	

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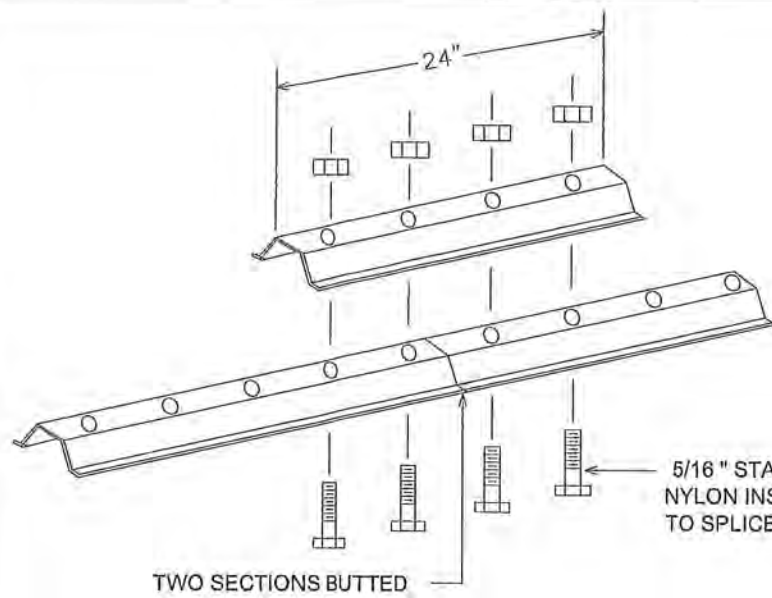
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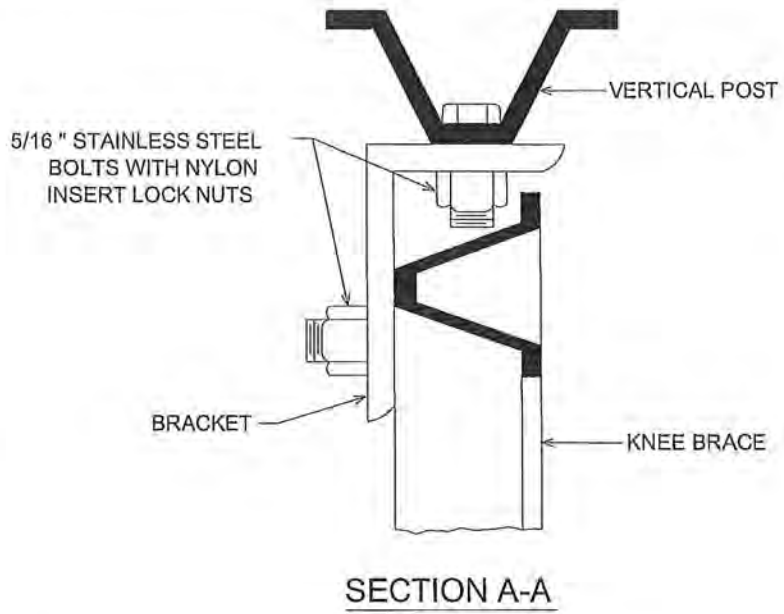
ANOKA COUNTY
 HIGHWAY DEPT.

STATE PROJECT NO. _____
 STATE AID PROJECT NO. 002-609-018
 CITY PROJECT NO. _____
 COUNTY PROJECT NO. _____

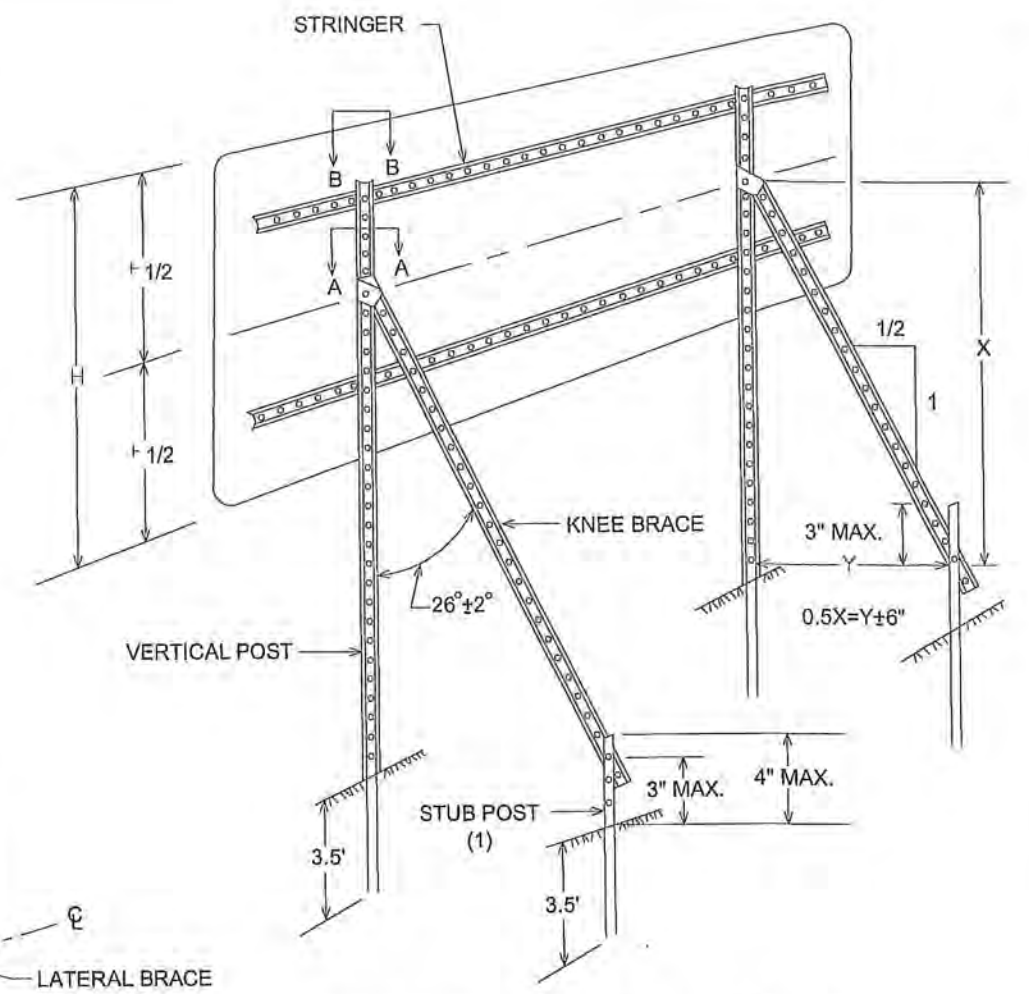
PERMANENT
 SIGNING / STRIPING
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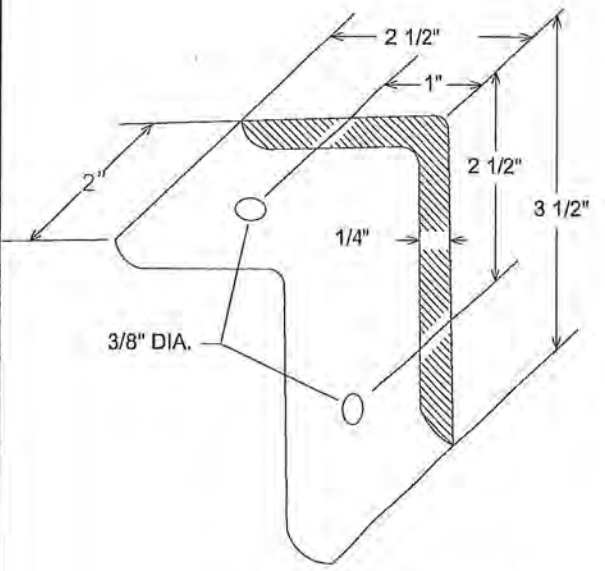
**LATERAL BRACE OR STRINGER
SPLICE DETAIL (EXPLODED VIEW)**



SECTION A-A

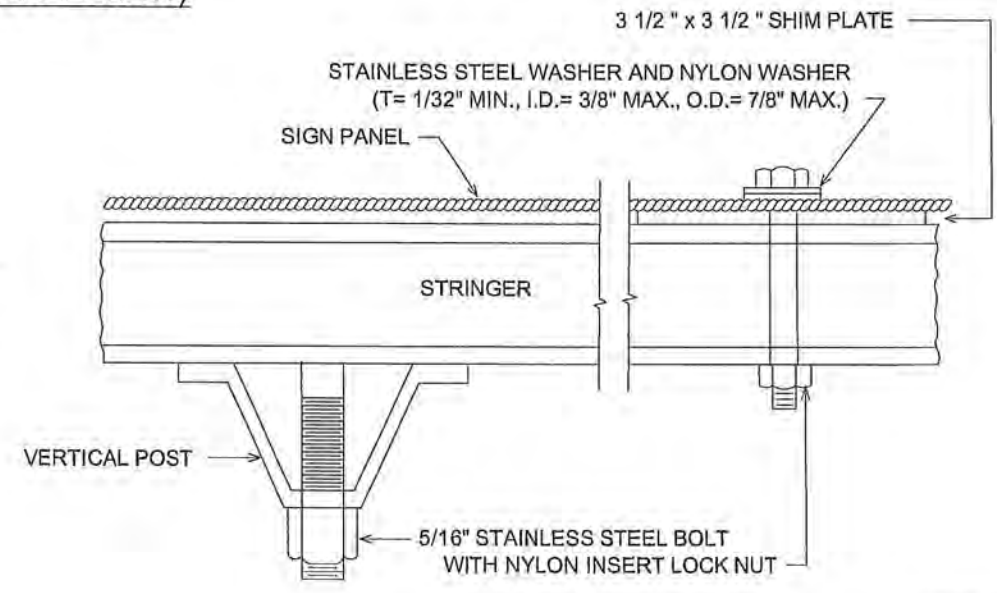


**TYPICAL "A-FRAME" INSTALLATION
TYPE "D" SIGNS**

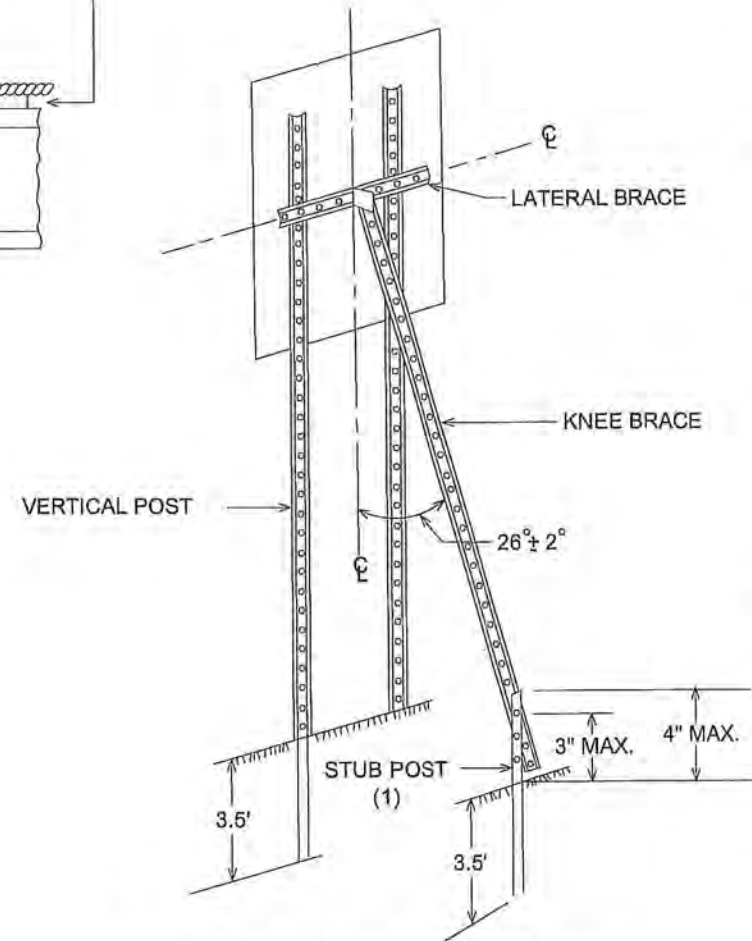


A-FRAME BRACKET

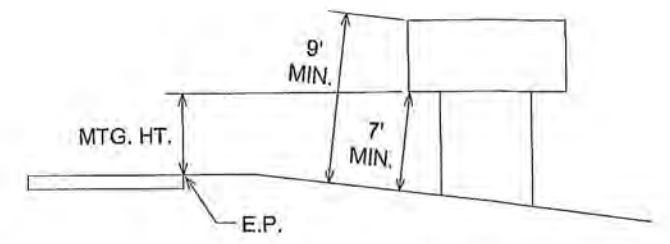
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SECTION B-B

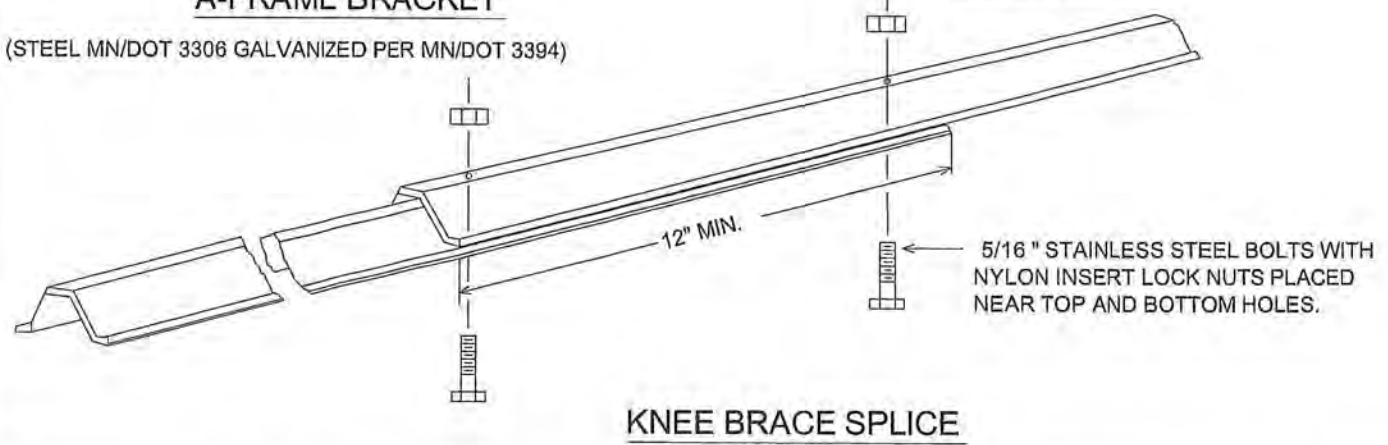


**TYPICAL "A-FRAME" INSTALLATION
TYPE "C" SIGNS**



TYPICAL MOUNTING

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



KNEE BRACE SPLICE

**TYPE C & D SIGN
STRUCTURAL DETAILS**

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 REGISTERED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
 PRINT NAME: DOUGLAS W. FISCHER
 SIGNATURE: *[Signature]*
 DATE: 5/2/19 REG. NO. 20235

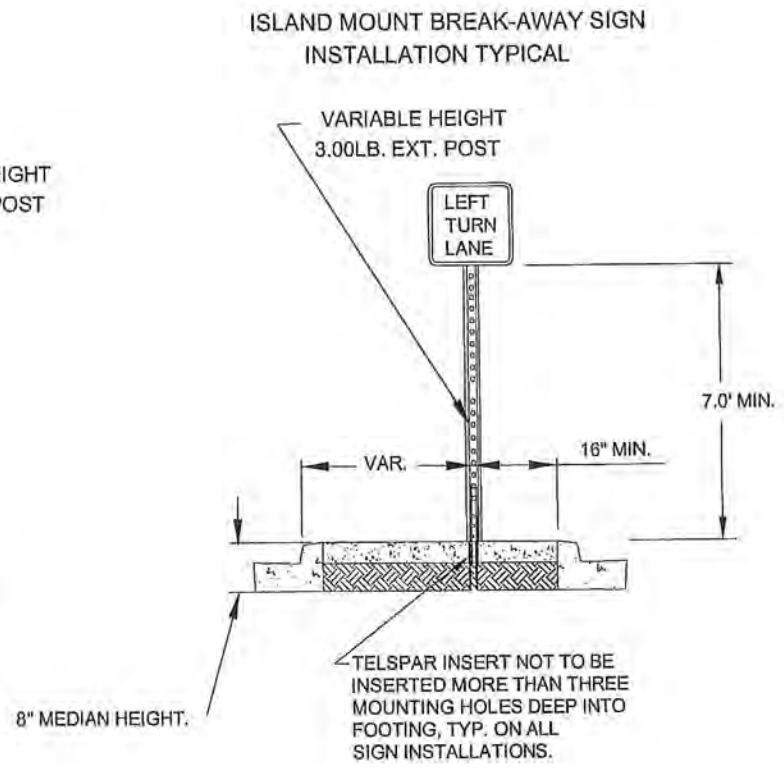
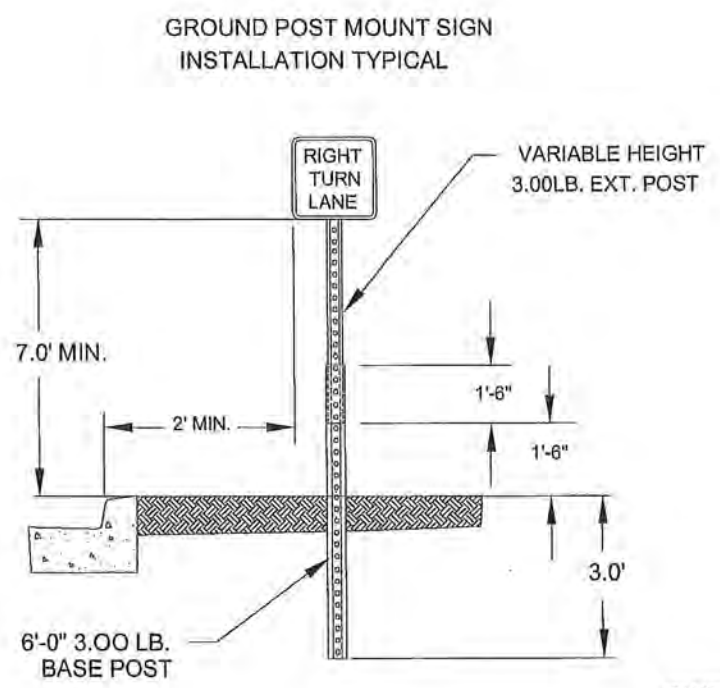
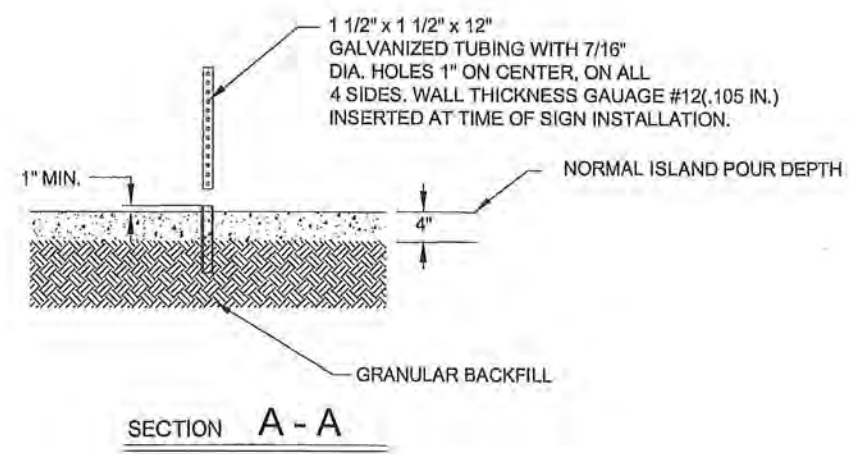
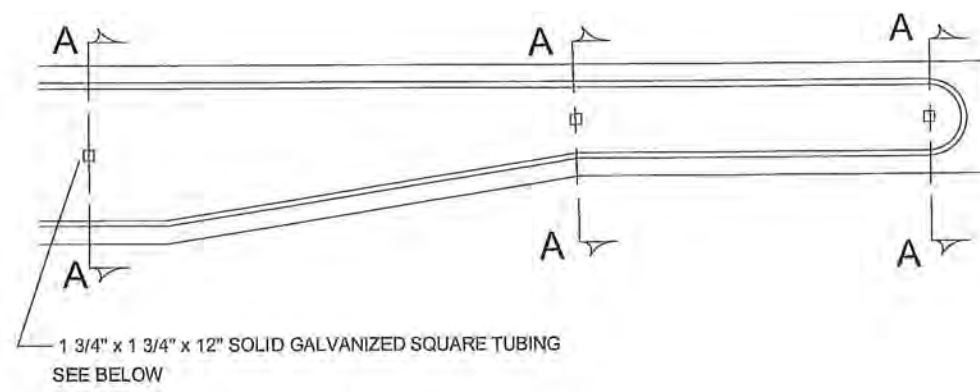
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 DESIGN BY: LJK DATE 3/13/19
 CHECKED BY: JKR DATE 4/23/19



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SIGNING & STRIPING
DETAILS
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 PRINT NAME: DOUGLAS W. FISCHER
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 CHECKED BY: JKR DATE: 4/23/19



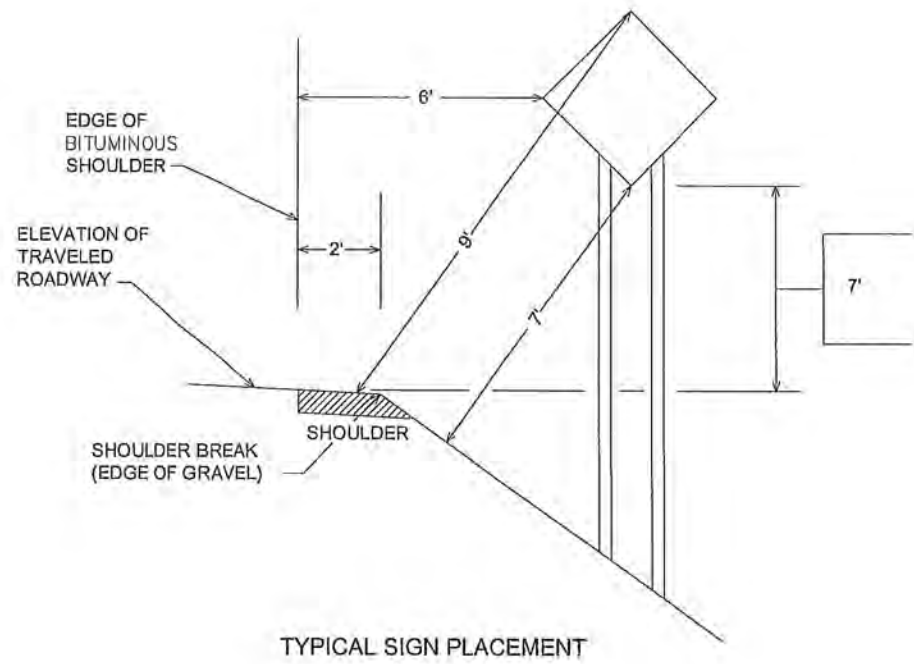
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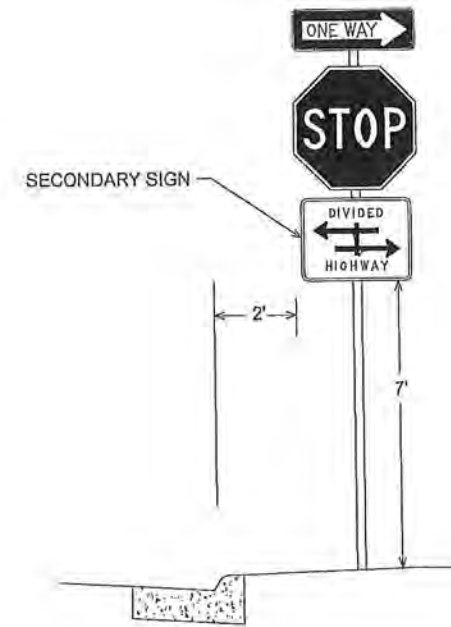
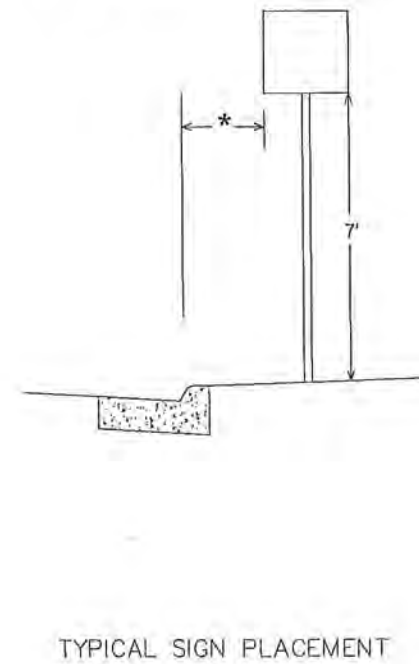
NO	DATE	BY	CKD	APPR	REVISION

RURAL



URBAN

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



NOTE:

- ALL DIMENSIONS ARE MINIMUMS
- MAINTAIN 2' CLEAR FROM SIGNS TO BITUMINOUS TRAIL

NO	DATE	BY	CKD	APPR	REVISION

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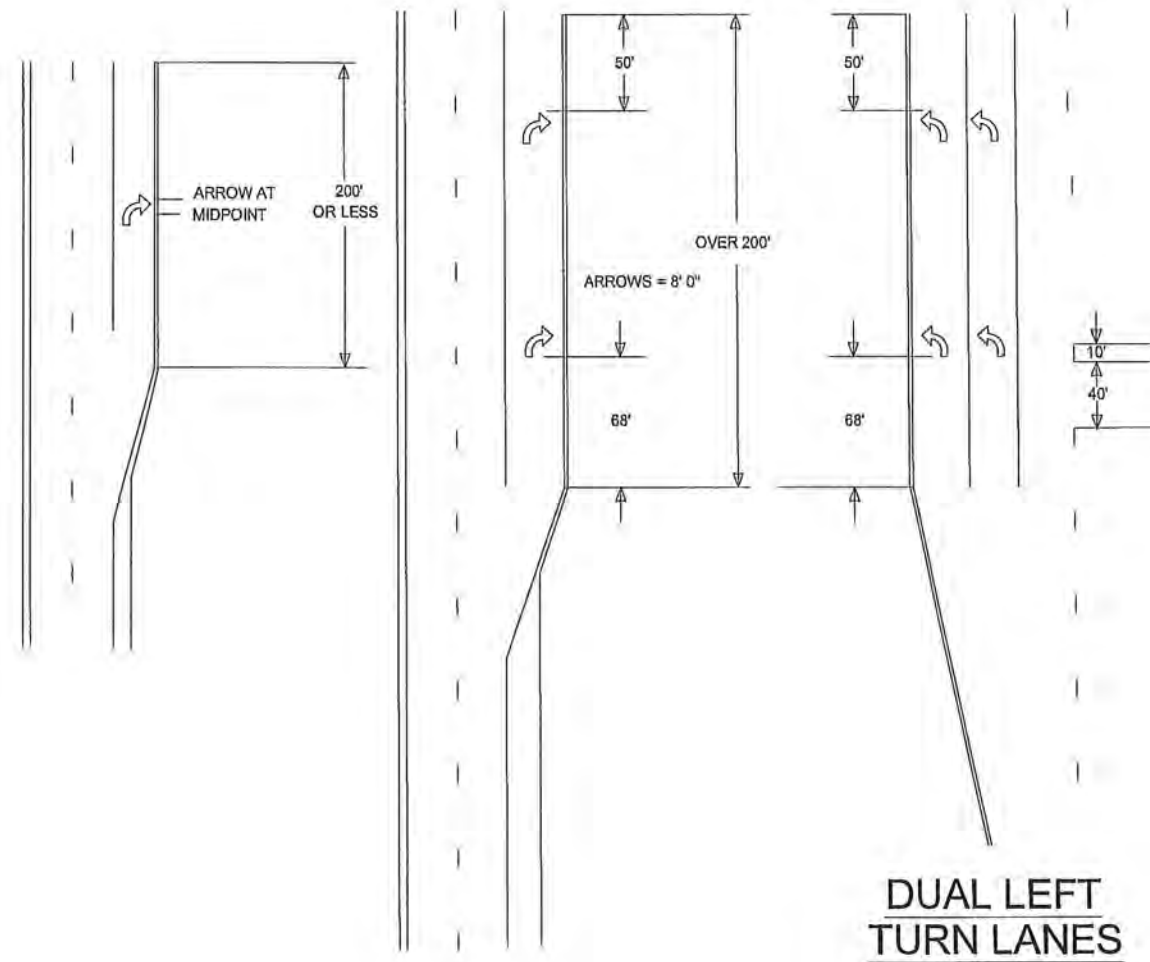


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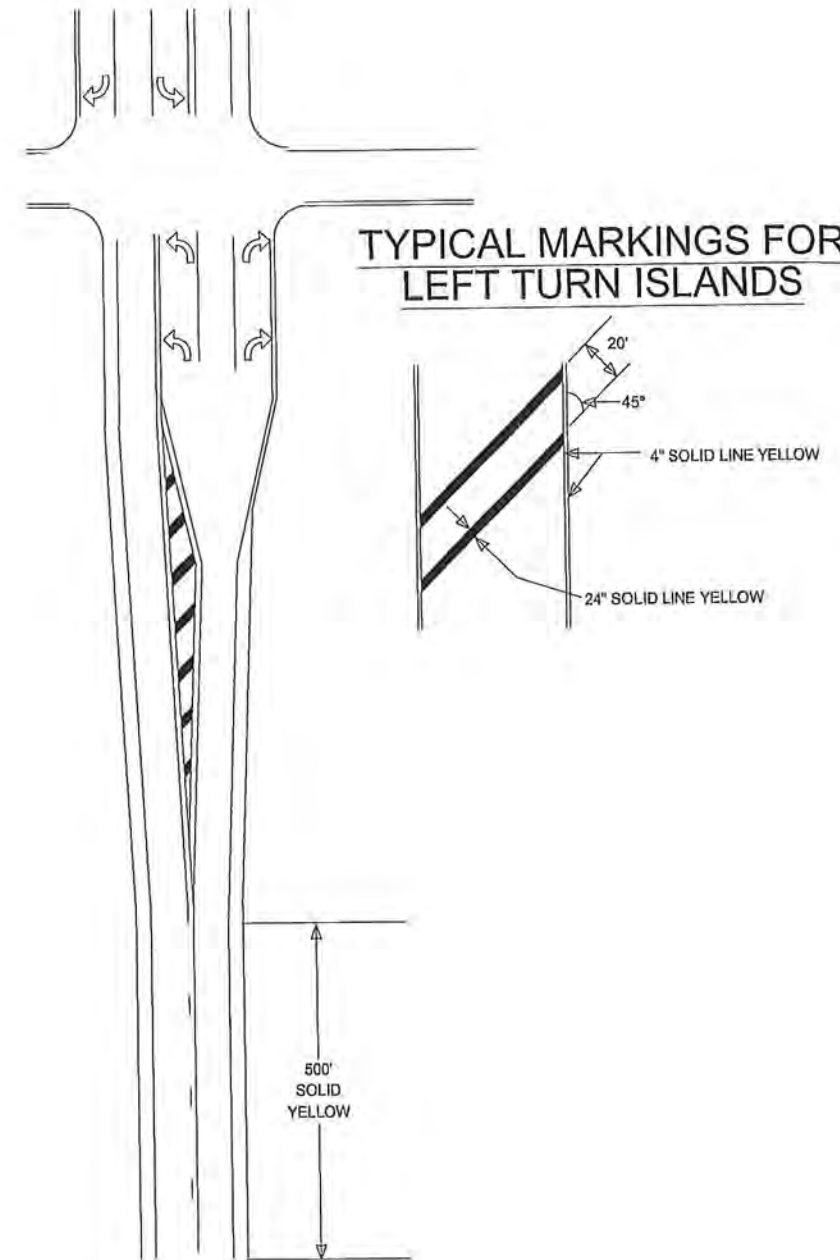
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 COUNTY PROJECT NO. _____

SIGNING & STRIPING
DETAILS

**TYPICAL MESSAGE PLACEMENT
FOR TURN LANES**



**TYPICAL MARKINGS FOR
LEFT TURN ISLANDS**



NO	DATE	BY	CKD	APPR	REVISION

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SIGNATURE: *[Signature]*

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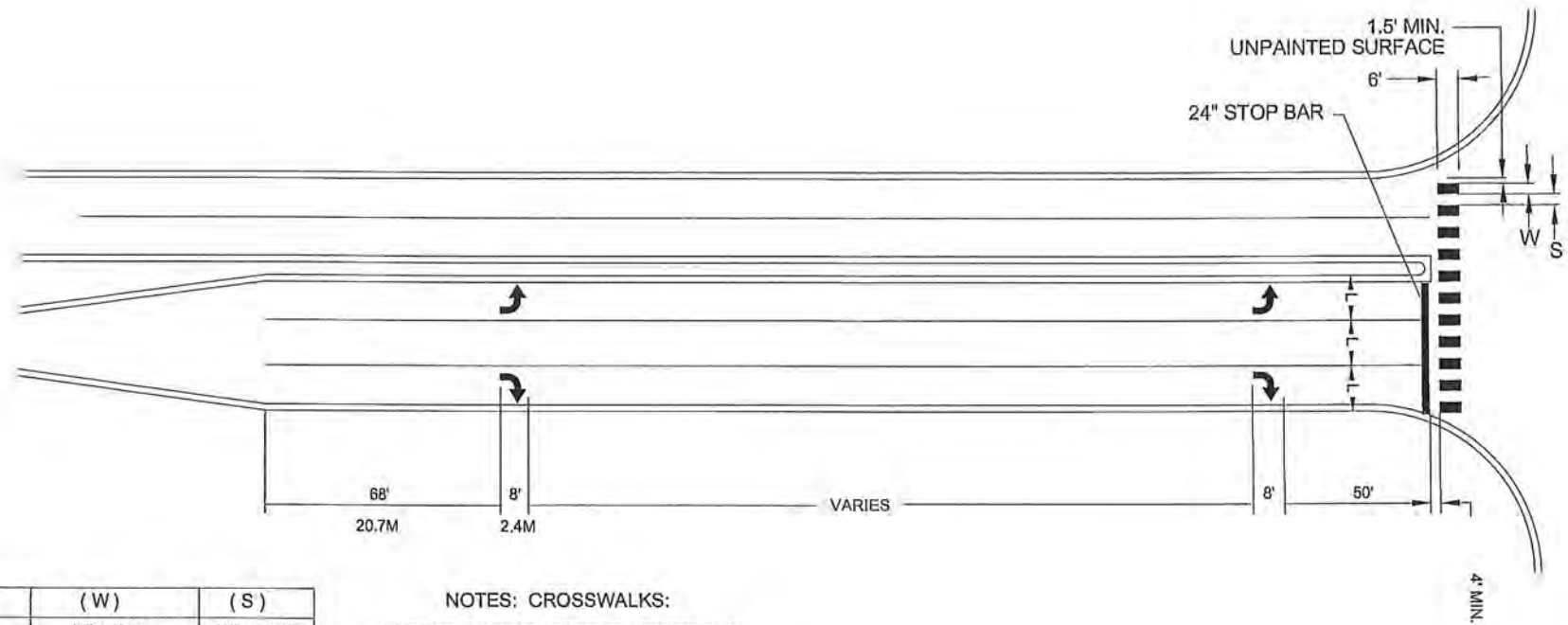
STATE AID PROJECT NO. 002-609-018

STATE AID PROJECT NO. _____

COUNTY PROJECT NO. _____

**SIGNING & STRIPING
DETAILS**

MARKINGS FOR PEDESTRIAN CROSSWALKS



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

NOTES: CROSSWALKS:

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

NO	DATE	BY	CKD	APPR	REVISION

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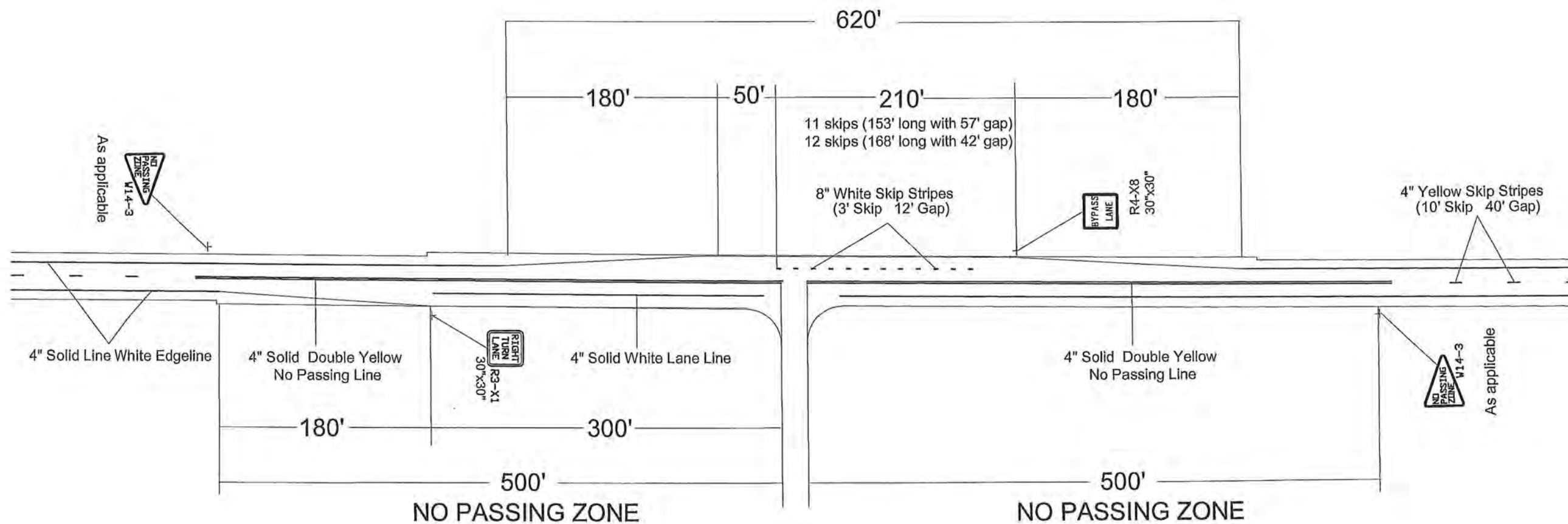
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BY-PASS TYPICAL



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NO	DATE	BY	CKD	APPR	REVISION