

MINNESOTA DEPARTMENT OF TRANSPORTATION

ANOKA COUNTY

CONSTRUCTION PLAN FOR BITUMINOUS SURFACING, BITUMINOUS RECLAMATION AND CONSTRUCT TURN AND BYPASS LANE

LOCATED ON CR 103 BETWEEN CSAH 24 (NIGHTINGALE ST NW) AND CSAH 13 (CEDAR DR NW)

CR 103 (229TH AVE NW)

GROSS LENGTH	<u>8378.00</u>	FEET	<u>1.587</u>	MILES
EXCEPTIONS-LENGTH	<u>0.00</u>	FEET	<u>0.000</u>	MILES
NET LENGTH	<u>8378.00</u>	FEET	<u>1.587</u>	MILES

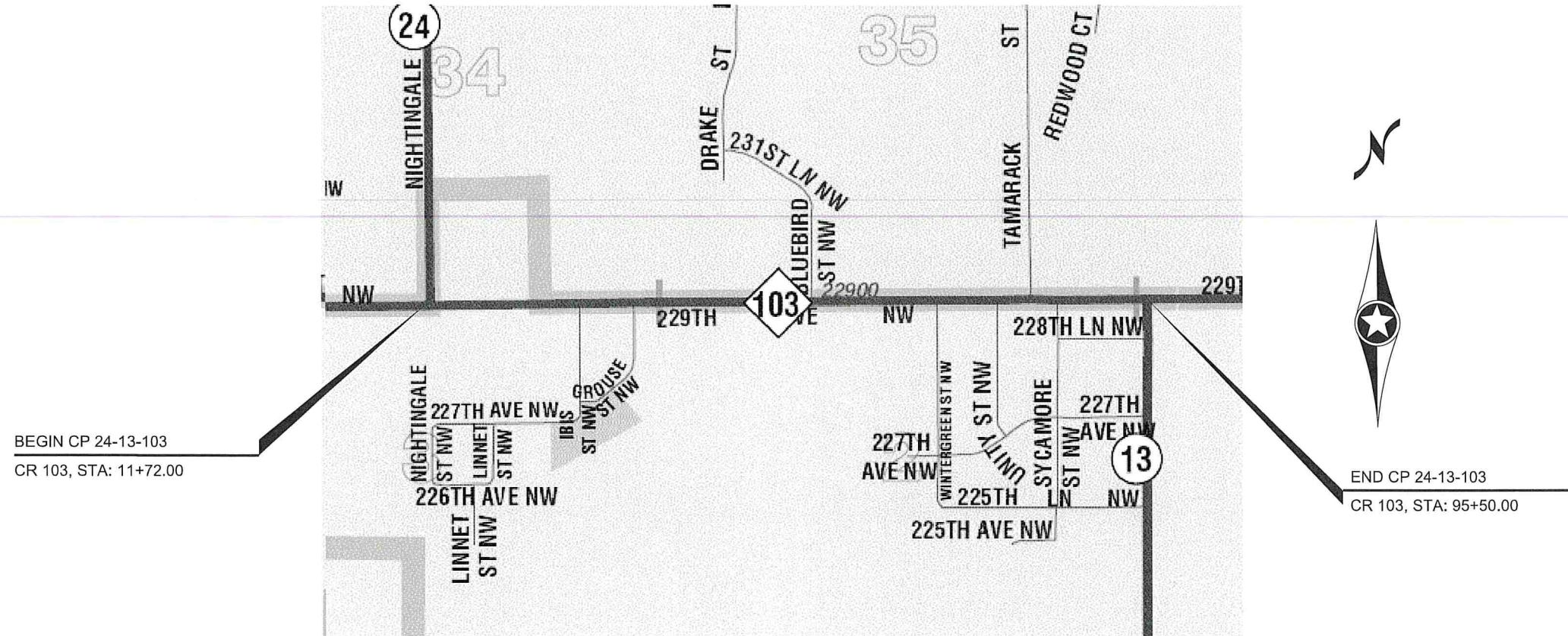
GOVERNING SPECIFICATIONS

THE 2020 EDITION OF THE MINNESOTA DEPARTMENT OF TRANSPORTATION "STANDARD SPECIFICATIONS FOR CONSTRUCTION" SHALL GOVERN.
ALL TRAFFIC CONTROL DEVICES SHALL CONFORM TO THE LATEST EDITION OF THE MINNESOTA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, INCLUDING THE LATEST FIELD MANUAL FOR TEMPORARY TRAFFIC CONTROL ZONE LAYOUTS.

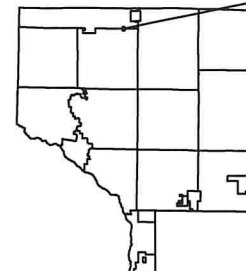
THIS PLAN CONTAINS 16 SHEETS

INDEX

SHEET NO.	DESCRIPTION
1	TITLE SHEET
2	STATEMENT OF ESTIMATED QUANTITIES
3	TYPICAL SECTIONS
4-6	DETAILS
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10-11	DETOUR PLAN
12	PERMANENT PAVEMENT MARKING PLAN NOTES & TABULATIONS
13-16	TEMPORARY SIGNING AND PERMANENT STRIPING



PROJECT LOCATION




CITY OF ST FRANCIS
CITY OF OAK GROVE
ANOKA COUNTY
MN/DOT TRANSPORTATION DISTRICT - METRO
SECTION 1, 2, 3, 34, 35, AND 36
TOWNSHIP 33 AND 34 NORTH
RANGE 24 WEST

Approved  12-19-23
ANOKA COUNTY ENGINEER

DESIGN DESIGNATION (CR 103)

ESAL 20	<u>523,819</u>	FUNCTIONAL CLASSIFICATION	<u>A-MINOR CONNECTOR</u>
R VALUE	<u>75</u>	NO. OF TRAFFIC LANES	<u>2</u> NO. OF PARKING LANES <u>0</u>
ADT (2022)	<u>4434</u>	DESIGN SPEED	<u>55</u> MPH
PROJ. ADT (2044)	<u>4434</u>	STOPPING SIGHT DISTANCE BASED ON:	
PROJ. HCADT (2044)	<u>262</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: GERALD J. AUGER JR.
SIGNATURE: 
DATE: 12-08-2023 LICENSE NO. 26511

DRAWN BY MA DATE 12/15/2023
DESIGN BY MA DATE 12/15/2023
CHECKED BY CO DATE 12/15/2023



ANOKA COUNTY
HIGHWAY DEPT.

COUNTY PROJECT 24-13-103

TITLE SHEET

Sheet 1 of 16 Sheets

NO	DATE	BY	CKD	APPR	REVISION
	12/15/2023				12:06:31 PM

NAME: P:\24-01-00\CR_103_(CSAH 24-CSAH 13)\Base\Proposed\TITLE.dgn

STATEMENT OF ESTIMATED QUANTITIES

Notes	Item Number	ITEM DESCRIPTION	Unit	TOTAL PROJECT QUANTITIES ESTIMATED
	2021.501	MOBILIZATION	LUMP SUM	1
2	2104.503	SAWING BITUMINOUS PAVEMENT (FULL DEPTH)	LIN FT	328
2,3	2104.504	REMOVE BITUMINOUS DRIVEWAY PAVEMENT	SQ YD	192
2	2104.504	REMOVE BITUMINOUS PAVEMENT	SQ YD	1702
	2106.507	EXCAVATION - COMMON	CU YD	321
1,4	2106.602	CONSTRUCT TURN LANES	EACH	2
	2108.504	GEOGRID TYPE 2	SQ YD	2311
5	2123.510	MOTOR GRADER	HOUR	20
6	2130.523	WATER	M GALLON	195
	2211.507	AGGREGATE BASE (CV) CLASS 5	CU YD	321
1,7	2211.509	AGGREGATE BASE CLASS 5	TON	189
8	2215.504	FULL DEPTH RECLAMATION	SQ YD	27912
9	2215.507	HAUL FULL DEPTH RECLAMATION (LV)	CU YD	108
10	2221.509	SHOULDER BASE AGGREGATE CLASS 5	TON	529
11	2232.604	MILL BITUMINOUS PAVEMENT (SPECIAL)	SQ YD	181
	2357.506	BITUMINOUS MATERIAL FOR TACK COAT	GALLON	1479
1,12	2360.509	TYPE SP 9.5 WEARING COURSE MIXTURE (3;B)	TON	22
13	2360.509	TYPE SP 12.5 WEARING COURSE MIXTURE (4;C)	TON	391
	2360.509	TYPE SP 12.5 WEARING COURSE MIXTURE (4;C)	TON	7085
14	2540.602	MAIL BOX SUPPORT	EACH	10
	2563.601	TRAFFIC CONTROL SUPERVISOR	LUMP SUM	1
15,16	2563.601	TRAFFIC CONTROL	LUMP SUM	1
17	2563.613	PORTABLE CHANGEABLE MESSAGE SIGN	UNIT DAY	20
	2573.501	EROSION CONTROL SUPERVISOR	LUMP SUM	1
	2574.507	COMMON TOPSOIL BORROW	CU YD	73
18	2575.508	HYDRAULIC REINFORCED FIBER MATRIX	POUND	347
19	2581.503	REMOVABLE PREFORMED PAVEMENT MARKING TAPE	LIN FT	335
20	2582.503	4" SOLID LINE MULTI-COMPONENT	LIN FT	17561
20	2582.503	4" BROKEN LINE MULTI-COMPONENT	LIN FT	1490
20	2582.503	8" DOTTED LINE MULTI-COMPONENT	LIN FT	36
20	2582.503	4" DOUBLE SOLID LINE MULTI-COMPONENT	LIN FT	728

CONSTRUCTION NOTES

1	REFERENCE DETAILS (PAGE 4-6)
2	REFERENCE DETAILS (PAGE 4-6) FOR REMOVAL DETAILS
3	ITEM FOR BITUMINOUS DRIVEWAYS AND STREET APPROACHES. CONTRACTOR IS RESPONSIBLE FOR CONTACTING PROPERTY OWNER 48 HOURS BEFORE STARTING OPERATION.
4	ITEMS INCLUDED IN THE TURNLANE BY THE EACH ARE - COMMON EXCAVATION, SELECT GRANULAR BORROW, TOPSOIL, AGG BASE CL-5. SHAPING OF SUBGRADE, AGGREGATE BASE AND GRADING OF DITCH IN-SLOPE AND BACK-SLOPE TO PROVIDE POSITIVE DRAINAGE ARE INCIDENTAL TO CONSTRUCT TURN LANES ITEM.
5	ITEM USED TO MOVE EXCESS RECLAIM MATERIAL AT THE RECLAIM AREA LIMITS TO CREATE A SMOOTH TRANSITION BETWEEN THE PROPOSED AND EXISTING PAVEMENT.
6	WATER TO BE USE FOR DUST CONTROL AS DIRECTED BY THE ENGINEER.
7	ITEM TO BE USED AS BASE FOR NEW BIT DRIVEWAY AND SIDE STREET AREAS.
8	THIS WORK INCLUDES SPREADING, WATERING, COMPACTING, SHAPING, AND MAINTAINING THE BLENDED RECLAIMED MATERIAL TO THE SPECIFIC PROFILE AND CROSS SECTION.
9	ITEM USED TO HAUL EXCESS RECLAIM FROM TIE-IN POINTS AND REUSED ON SITE.
10	ITEM INCLUDES 7 TONS FOR EACH GRAVEL ENTRANCE AND GRAVEL STREET APPROACH.
11	TO BE USED FOR BUTT MILLING BEGINNING/END TIE-INS AND SIDE STREETS ACCORDING TO DETAILS (PAGE 4)
12	ITEM FOR BITUMINOUS DRIVEWAYS. DRIVEWAYS SHALL BE PAVED AFTER MAINLINE AND BEFORE FINAL STRIPING.
13	STREET APPROACHES SHALL BE PAVED AFTER MAINLINE, AND BEFORE FINAL STRIPING
14	MAILBOXES ARE TO BE INSTALLED AT THE EXISTING MAILBOX LOCATION OR AS DIRECTED BY THE LOCAL POSTAL AUTHORITY, CONTRACTOR IS RESPONSIBLE FOR CONTACTING. MAILBOX REMOVAL AND ALL MATERIALS ARE INCIDENTAL TO INSTALLATION.
15	CONTRACTOR SHALL FURNISH, INSTALL, AND MAINTAIN TEMPORARY SIGNAGE WHENEVER EXISTING SIGNAGE IS REMOVED. TEMPORARY SIGNAGE SHALL BE INCIDENTAL TO TRAFFIC CONTROL.
16	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.
17	2 MESSAGE BOARDS, ONE ON THE EACH END OF PROJECT, SHALL BE INSTALLED 10 DAYS PRIOR TO ANY CONSTRUCTION; REFERENCE STRIPING PLAN FOR DETAILS.
18	TYPE 3 FERTILIZER AND TYPE 25-121 SEED ARE INCIDENTAL TO THIS ITEM. SEE "BASIS OF PLANNED QUANTITIES" FOR APPLICATION RATES.
19	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.
20	FINAL STRIPING SHALL BE INSTALLED WITHIN 72 HOURS OF COMPLETION OF MAINLINE WEAR COURSE PAVING. CANNOT BE INSTALLED SOONER THAN 48 HOURS.

BITUMINOUS STREET SUMMARY

LOCATION	BITUMINOUS		NOTES
	2360 TYPE SP 12.5 WEAR (4,C)	TON	
NIGHTINGALE ST	58		[1]
IBIS ST	45		[1]
GROUSE ST	42		[1]
BLUDBIRD ST	40		[1]
WINTERGREEN ST	38		[1]
UNITY ST	38		[1]
TAMARACK ST	31		[1]
SYCAMORE ST	39		[1]
CEDAR DR	60		[1]
PROJECT TOTAL	391		

BITUMINOUS SUMMARY NOTES:

[1] QUANTITY ESTIMATED FOR 2 LIFTS

BASIS OF PLANNED QUANTITIES

2357	BITUMINOUS MATERIAL FOR TACK COAT	0.05 GAL / SQ YD
2211	AGGREGATE BASE CLASS 5	1.8 TONS / CU YD
2360	ALL BITUMINOUS PAVEMENT	115 LBS / SQ YD / IN THICKNESS
2581	REMOVABLE PREFORM PAVEMENT MARKING TAPE	2' AT 50' INTERVALS
2575	SEED MIXTURE 25-121	61 LBS / ACRE
2574	FERTILIZER TYPE 3	350 LBS / ACRE
2575	HYDRAULIC REINFORCED FIBER MATRIX	3900 LBS / ACRE

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

MNDOT STANDARD PLATES

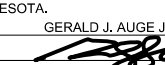
PLATE NO.	DESCRIPTION
8000K	TEMPORARY CHANNELIZERS (3 SHEETS)
9350B	MAILBOX SUPPORT - SWING-AWAY TYPE

NO	DATE	BY	CKD	APPR	REVISION	
	01/09/2024					3:44:40 PM

NAME: P:\24-01-00\CR_103_(CSAH 24-CSAH 13)\Base\Proposed\SEQ.dgn

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**ANOKA COUNTY
HIGHWAY DEPT.**

COUNTY PROJECT 24-13-103

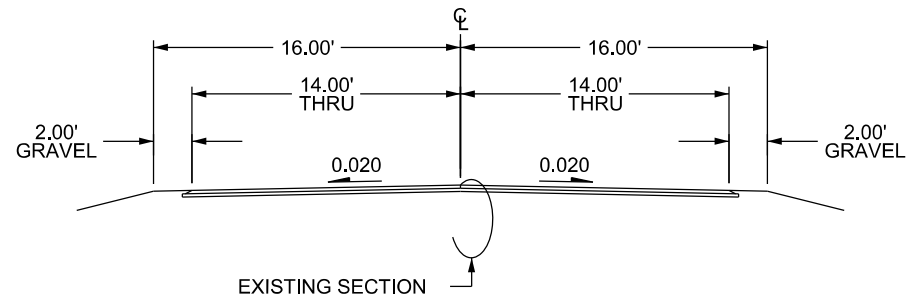
STATEMENT OF ESTIMATED QUANTITIES

Sheet 2 of 16 Sheets

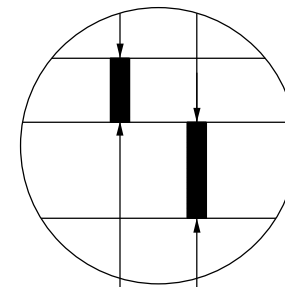
CR 103 - 229TH AVE

EXISTING SECTION

11+72.00 - 95+50.00



EXISTING SECTION



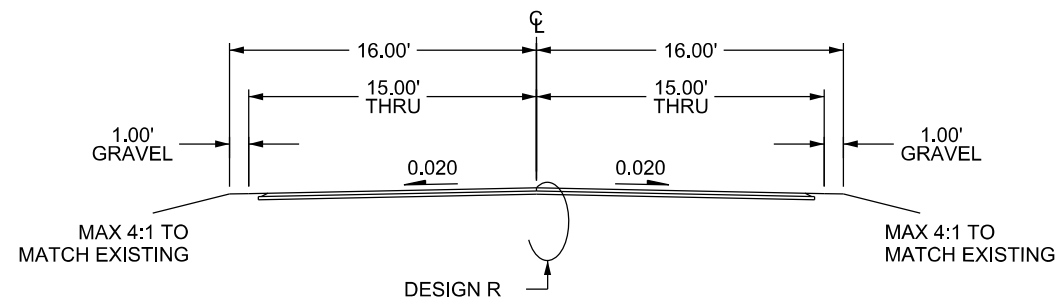
4" EXISTING BITUMINOUS

EXISTING AGGREGATE BASE

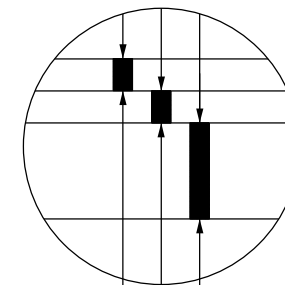
CR 103 - 229TH AVE

PROPOSED SECTION

11+72.00 - 95+50.00



DESIGN R RECLAIM SECTION



2.0" BITUMINOUS WEAR(SPWEB440C)

2.0" BITUMINOUS WEAR(SPWEB440C)

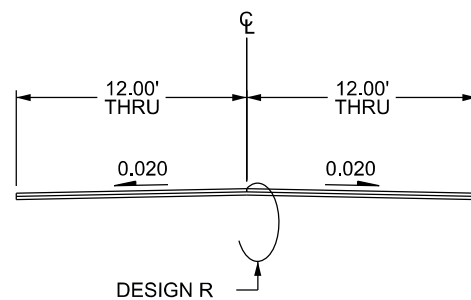
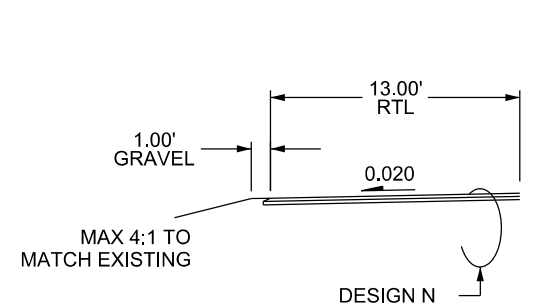
RECLAIMED BITUMINOUS

CR 103 - 229TH AVE

PROPOSED SECTION

11+72.00 - 20+00.00

88+70.23 - 93+50.29

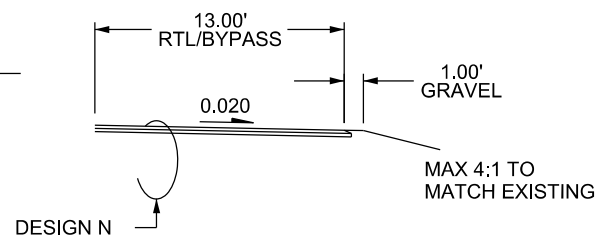


11+72.00 - 17+31.00

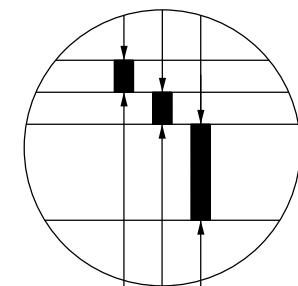
65+00.00 - 70+22.00

70+75.00 - 76+87.00

88+70.23 - 93+50.29



DESIGN N RIGHT TURN & BYPASS LANE



2.0" BITUMINOUS WEAR(SPWEB440C)

2.0" BITUMINOUS WEAR(SPWEB440C)

6" AGGREGATE BASE, CLASS 5

NO	DATE	BY	CKD	APPR	REVISION	12/15/2023	12:06:37 PM
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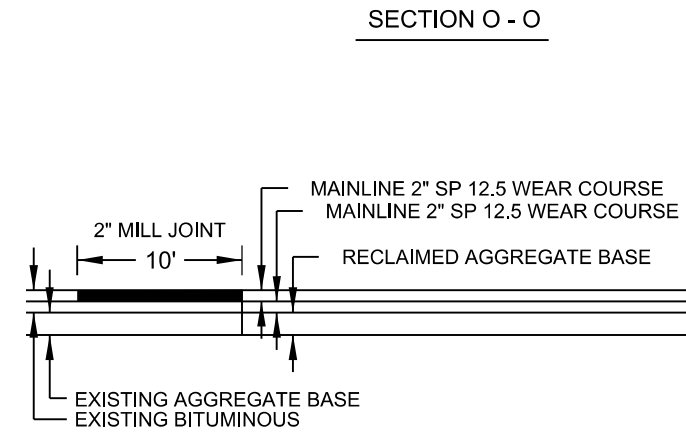
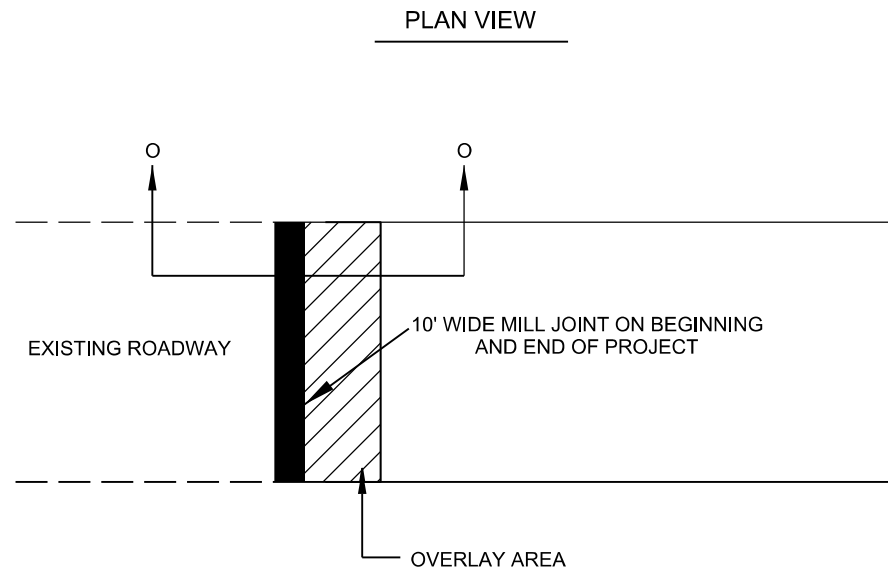
ANOKA COUNTY
HIGHWAY DEPT.

COUNTY PROJECT 24-13-103

TYPICAL SECTIONS

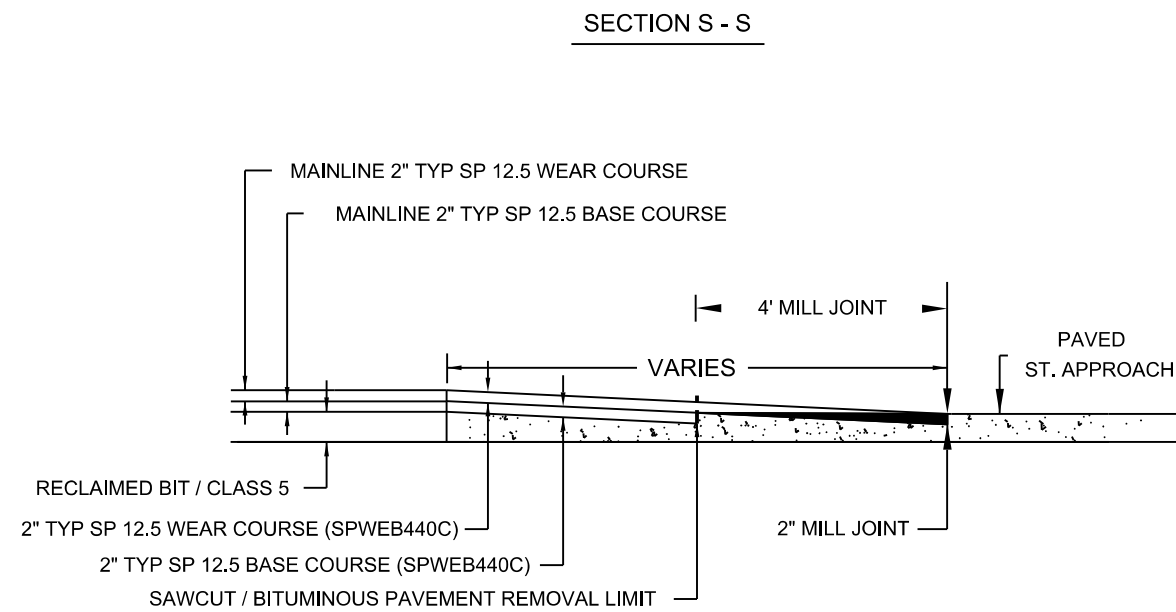
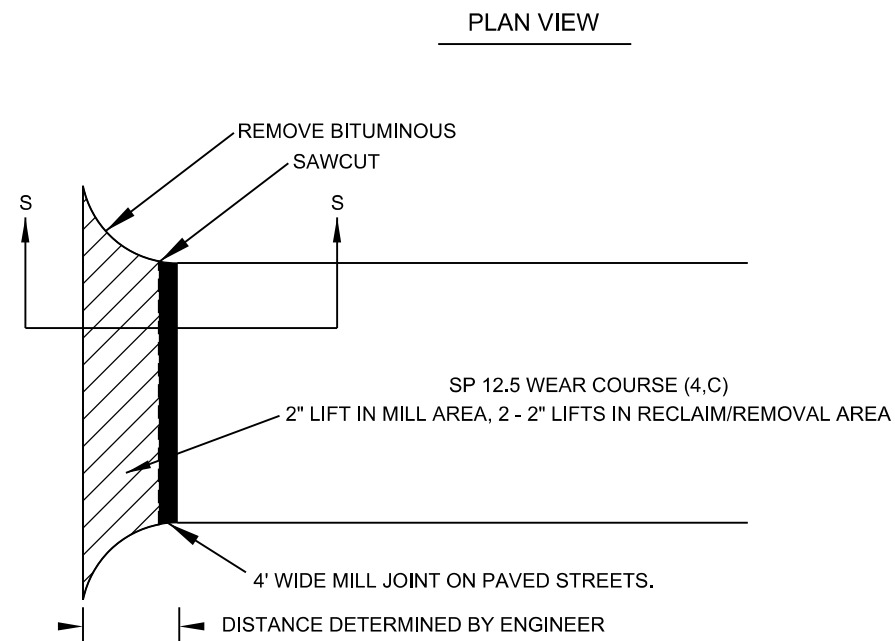
Sheet 3 of 16 Sheets

MAINLINE JOINT DETAIL (RECLAIM)



STREET APPROACH DETAIL (RECLAIM)

BITUMINOUS STREET



NO	DATE	BY	CKD	APPR	REVISION	12/15/2023	12:06:38 PM
NAME: P:\24-01-00\CR_103_(CSAH 24-CSAH 13)\Base\Proposed\DETAILS.dgn							

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COUNTY PROJECT 24-13-103

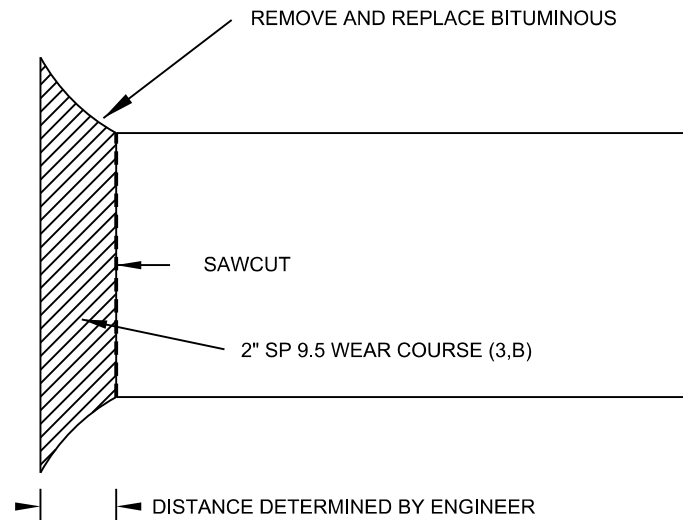
DETAILS

Sheet 4 of 16 Sheets

RECLAIM AREA - DRIVEWAY DETAIL

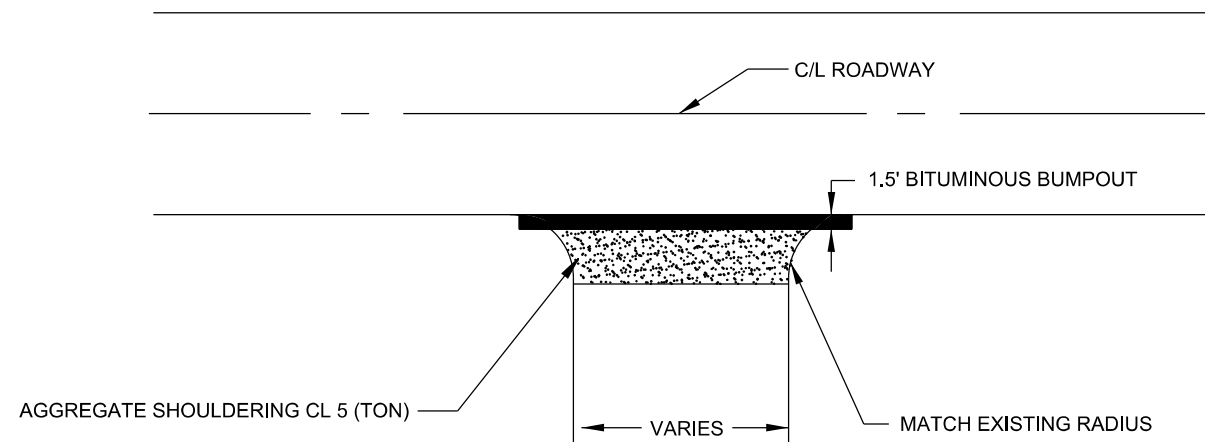
BITUMINOUS

PLAN VIEW



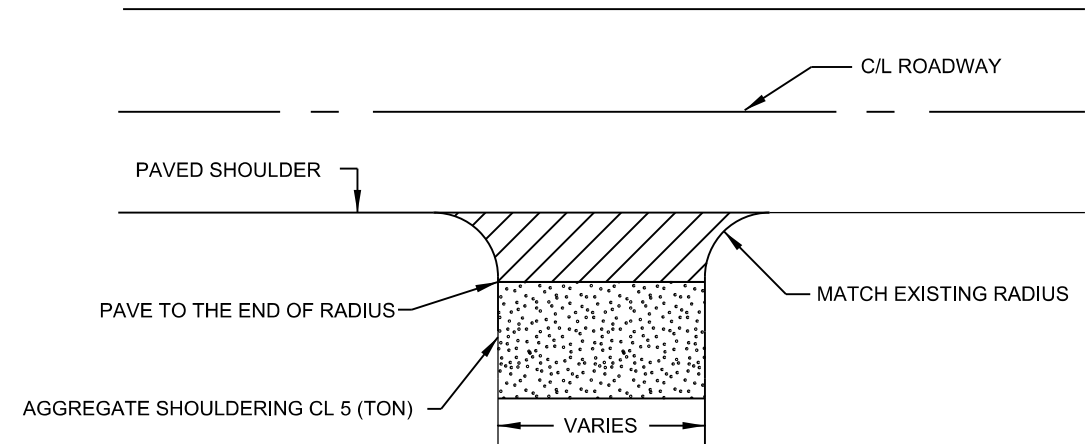
DRIVEWAY DETAIL

GRAVEL / FIELD ENTRANCE



STREET APPROACH DETAIL

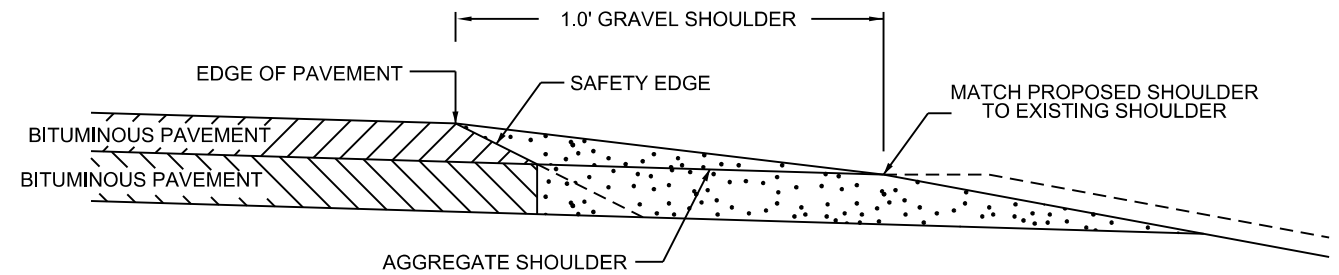
UNPAVED STREET



UNPAVED STREET APPROCHES, PAVED SEPRATE FROM MAINLINE

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 .

NO	DATE	BY	CKD	APPR	REVISION	12/15/2023	12:06:38 PM
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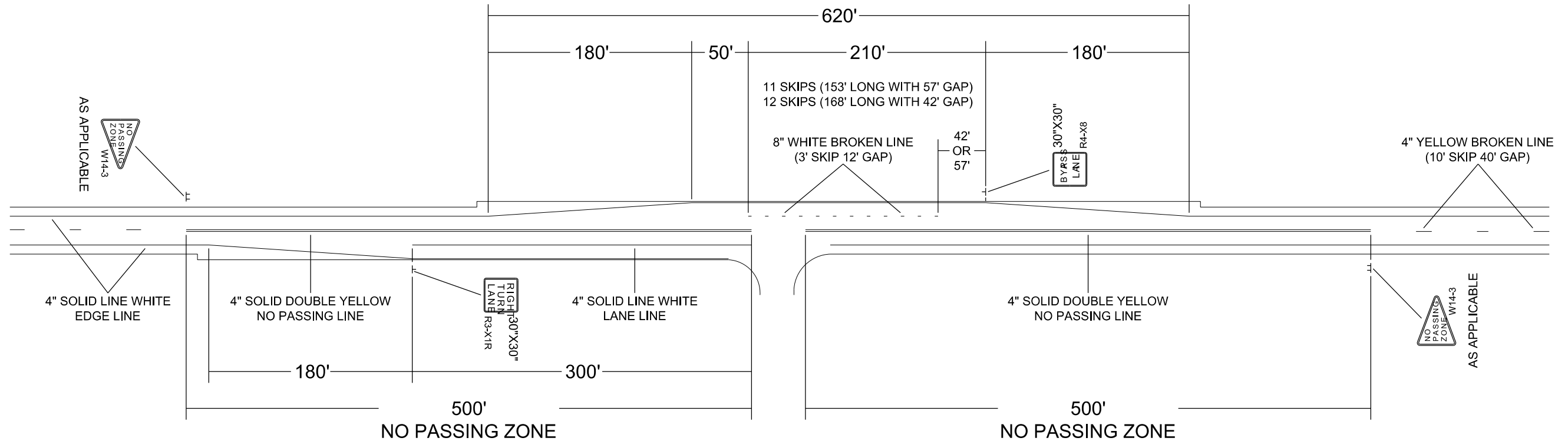
COUNTY PROJECT 24-13-103

DETAILS

Sheet 5 of 16 Sheets

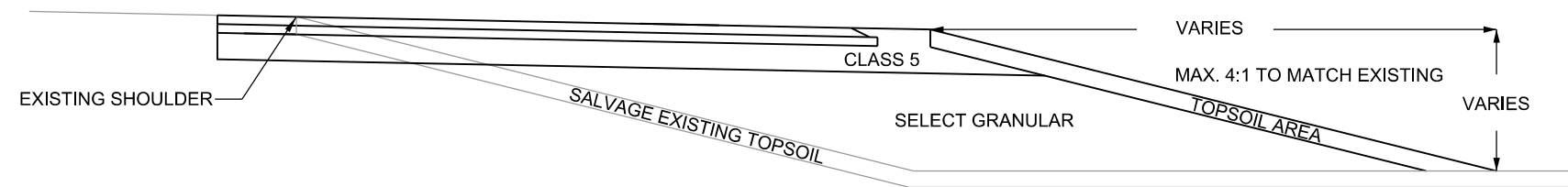
RIGHT TURN AND BYPASS LANE

GENERAL LAYOUT PLAN VIEW



RIGHT TURN AND BYPASS LANE

SECTION T - T



RIGHT TURN LANE TAB

STREET	STATION RANGE	RTL / BYPASS	COMMON EXCAVATION (CU YDS)	GRANULAR BORROW (CV) (CU YDS)	TOPSOIL BORROW (LV) (CU YDS)	CLASS 5 (TON)
WINTERGREEN ST	65+00 - 70+22	RTL	362	534	82	135
UNITY ST	70+75 - 76+87	RTL	393	743	108	161
TOTALS:			755	1277	190	296

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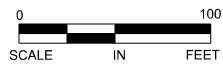
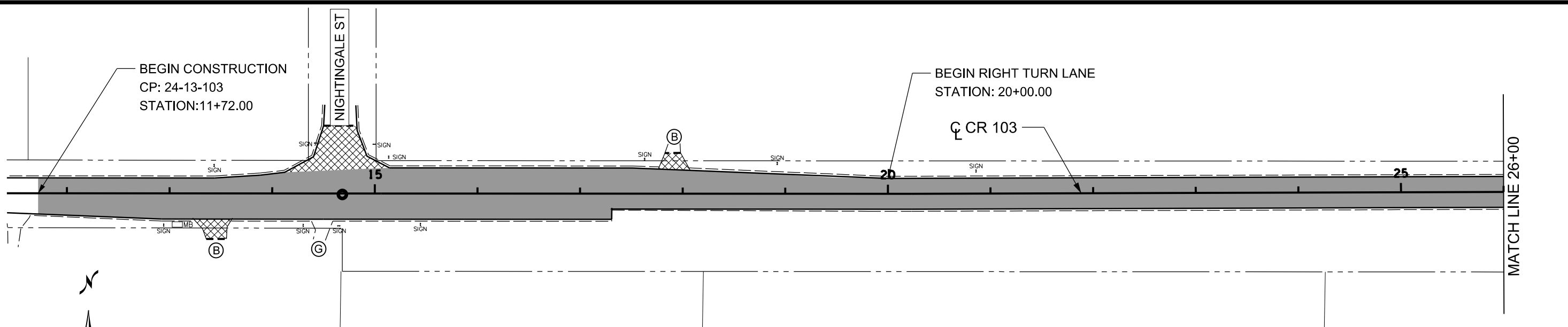
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COUNTY PROJECT 24-13-103

DETAILS
 Sheet 6 of 16 Sheets

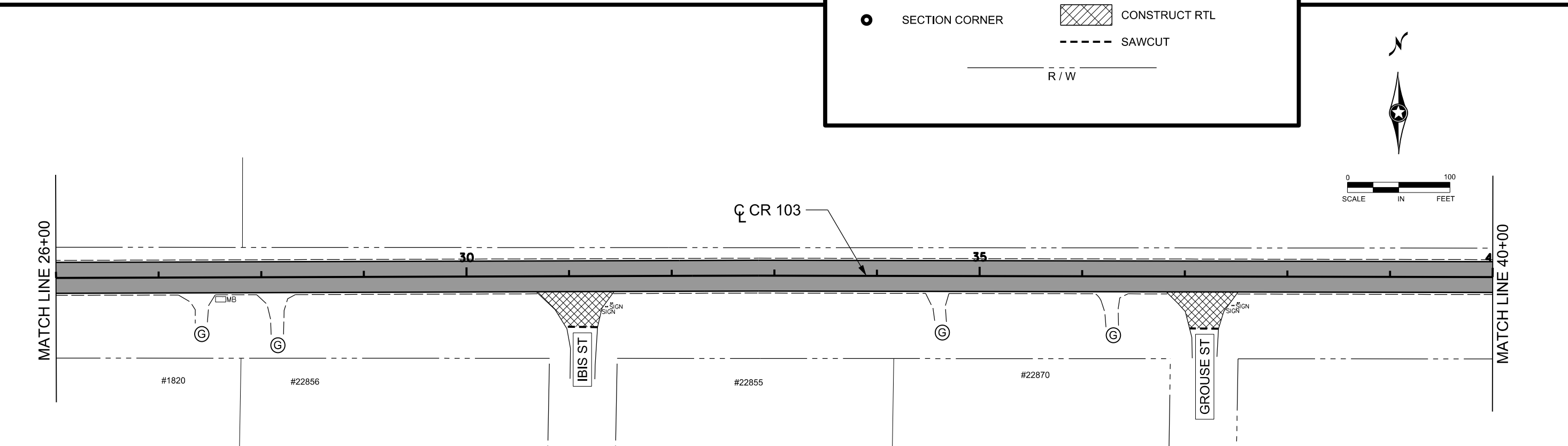
DBKost



MATCH LINE 26+00

LEGEND

(B)	BITUMINOUS	==	CROSS CULVERT
(G)	GRAVEL	■	MAINLINE (RECLAIM)
⊕	CORE LOCATION	▨	REMOVE BITUMINOUS
●	SECTION CORNER	▩	CONSTRUCT RTL
		- - -	SAWCUT
		—	R / W



MATCH LINE 26+00

MATCH LINE 40+00

NO	DATE	BY	CKD	APPR	REVISION	12/15/2023	12:06:41 PM

NAME: P:\24-01-00\CR_103_(CSAH 24-CSAH 13)\Base\Proposed\CP1.dgn

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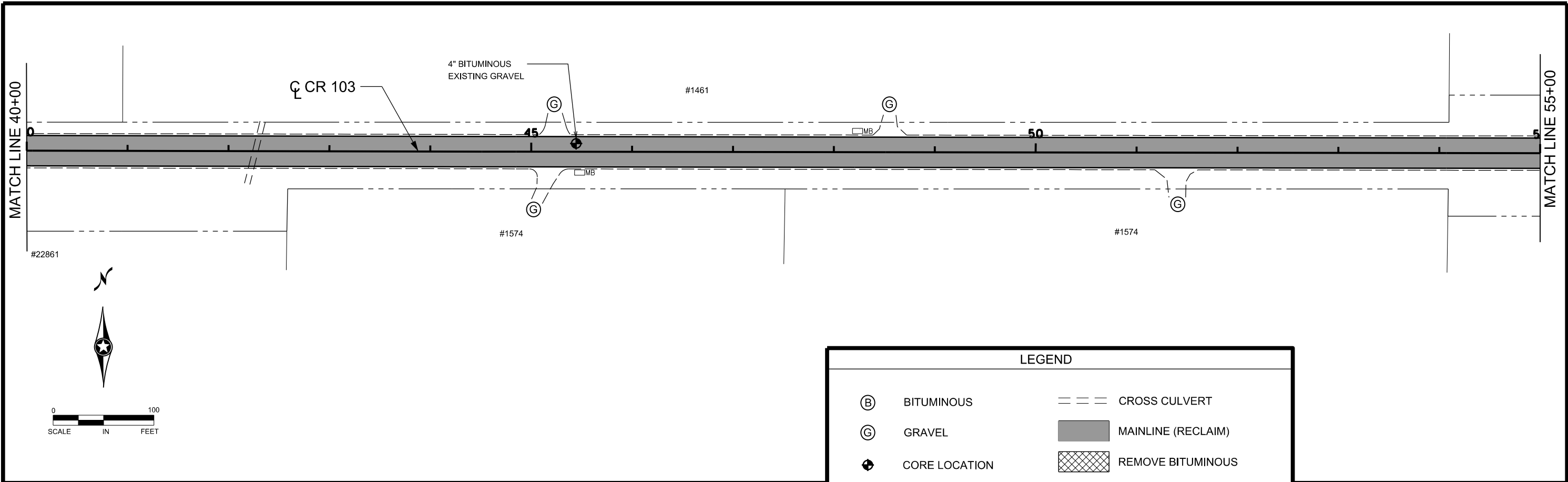
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ANOKA COUNTY
HIGHWAY DEPT.

COUNTY PROJECT 24-13-103

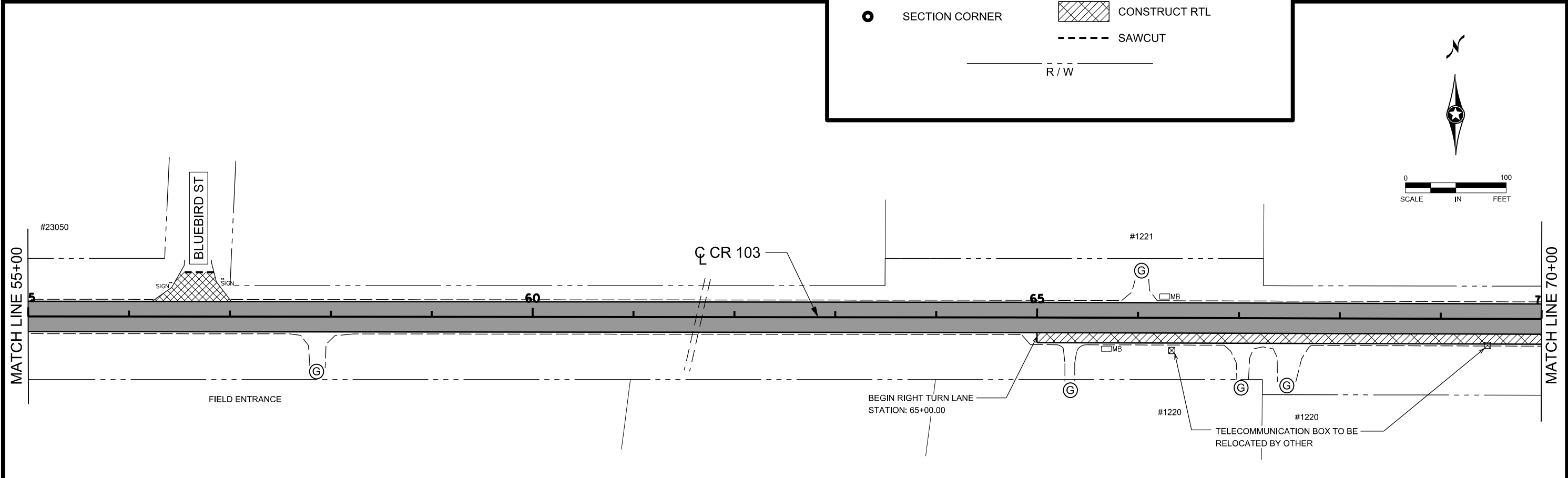
CONSTRUCTION PLAN
STA 11+72.00 TO 40+00.00
Sheet 7 of 16 Sheets

DBKost



LEGEND

(B)	BITUMINOUS	==	CROSS CULVERT
(G)	GRAVEL	[Solid Grey Box]	MAINLINE (RECLAIM)
⊕	CORE LOCATION	[Cross-hatched Box]	REMOVE BITUMINOUS
●	SECTION CORNER	[Diagonal-hatched Box]	CONSTRUCT RTL
		---	SAWCUT
		—	R / W



NO	DATE	BY	CKD	APPR	REVISION		
	12/15/2023					12:06:41 PM	

NAME: P:\24-01-00\CR_103_(CSAH 24-CSAH 13)\Base\Proposed\CP2.dgn

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**ANOKA COUNTY
HIGHWAY DEPT.**

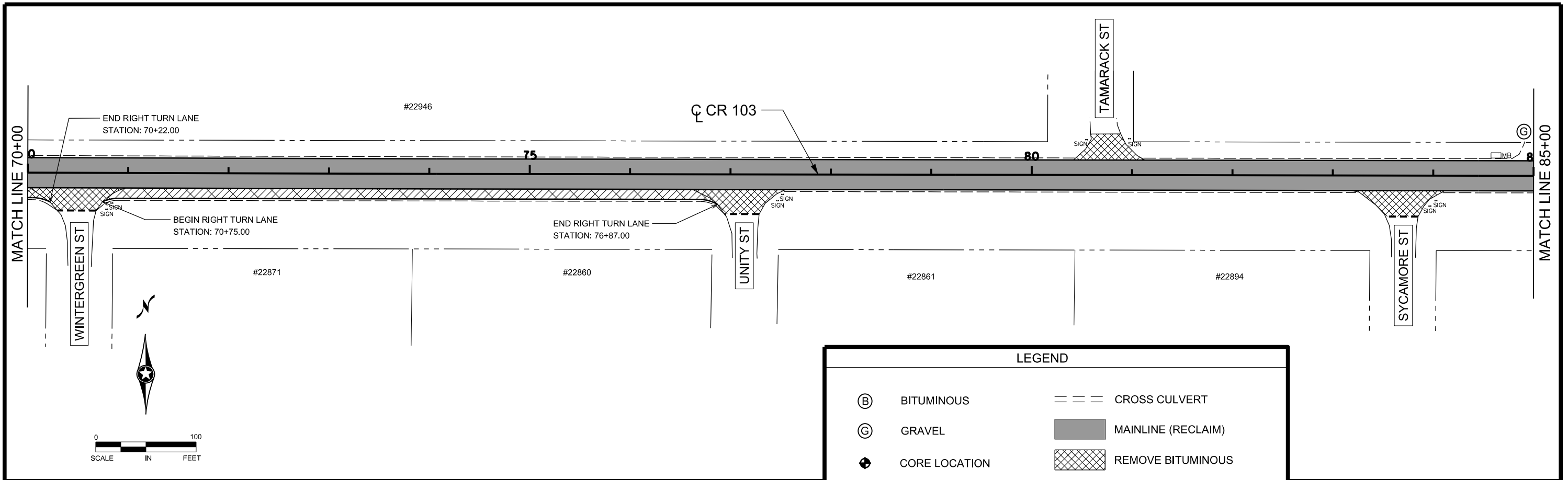
COUNTY PROJECT 24-13-103

CONSTRUCTION PLAN

STA 40+00.00 TO 70+00.00

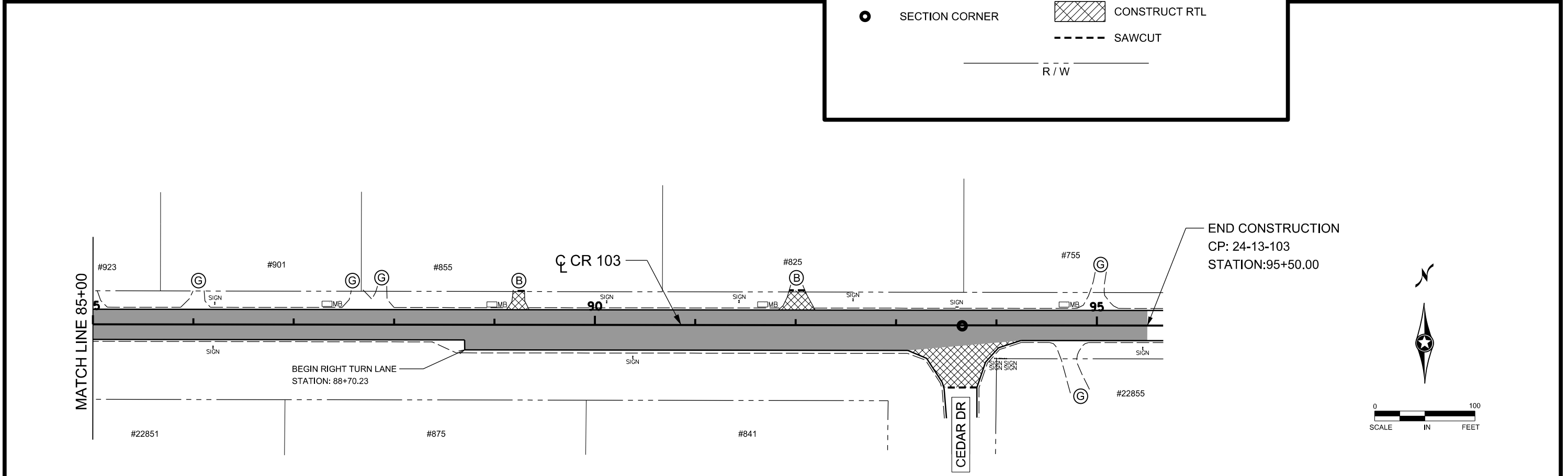
Sheet 8 of 16 Sheets

DBKost



LEGEND

(B)	BITUMINOUS	==	CROSS CULVERT
(G)	GRAVEL	[Solid Grey Box]	MAINLINE (RECLAIM)
+	CORE LOCATION	[Cross-hatched Box]	REMOVE BITUMINOUS
●	SECTION CORNER	[Diagonal-hatched Box]	CONSTRUCT RTL
		- - - -	SAWCUT
		— — — —	R / W



NO	DATE	BY	CKD	APPR	REVISION	
	12/15/2023					12:06:41 PM

NAME: P:\24-01-00\CR_103_(CSAH 24-CSAH 13)\Base\Proposed\CP3.dgn

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

PRINT NAME: GERALD J. AUGER JR.

SIGNATURE: *[Signature]*

DATE: 12-08-2023 LICENSE NO. 26511

DRAWN BY MA DATE 12/15/2023

DESIGN BY MA DATE 12/15/2023

CHECKED BY CO DATE 12/15/2023

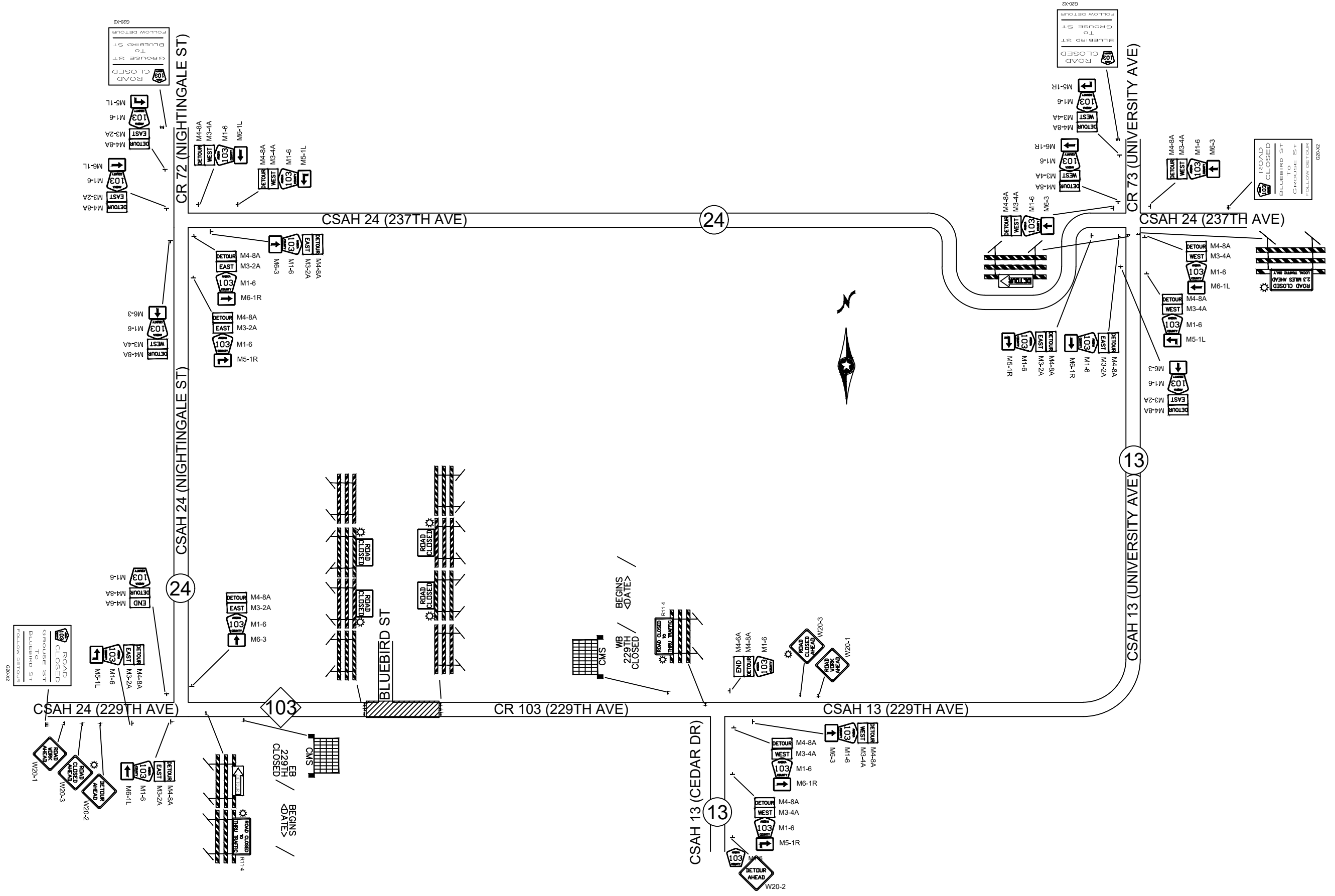
**ANOKA COUNTY
HIGHWAY DEPT.**

COUNTY PROJECT 24-13-103

CONSTRUCTION PLAN

STA 70+00.00 TO 95+50.00

Sheet 9 of 16 Sheets



NO	DATE	BY	CKD	APPR	REVISION

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

PRINT NAME: SEAN R. THIEL
 SIGNATURE: *Sean R. Thiel*
 DATE: 1/10/2024 LICENSE NO. 45129

DRAWN BY: LJK DATE: 11/29/23
 DESIGN BY: LJK DATE: 11/29/23
 CHECKED BY: SRT DATE: 11/30/23



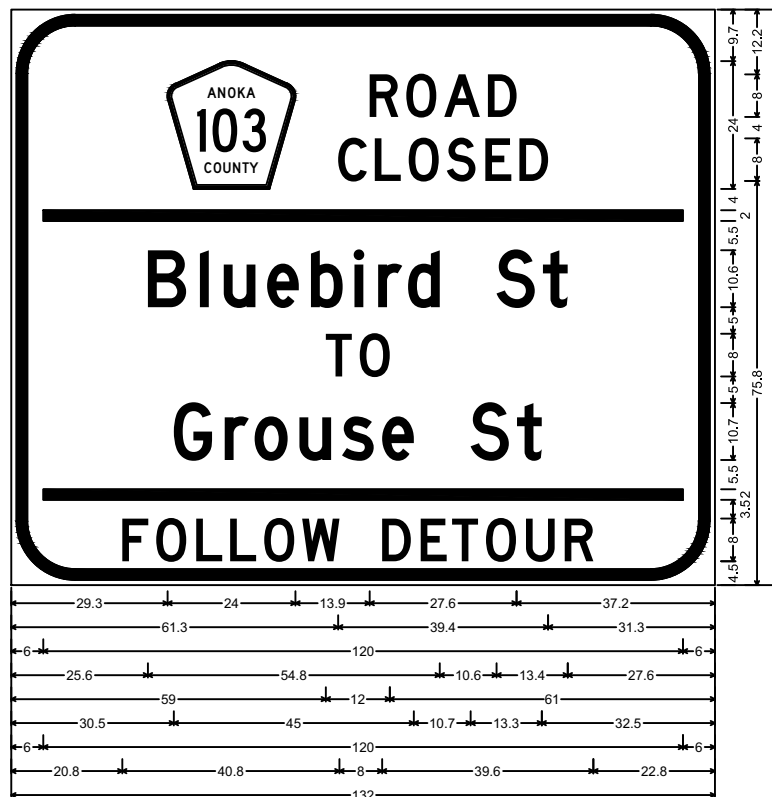
**ANOKA COUNTY
 HIGHWAY DEPT.**

CP 24-13-103

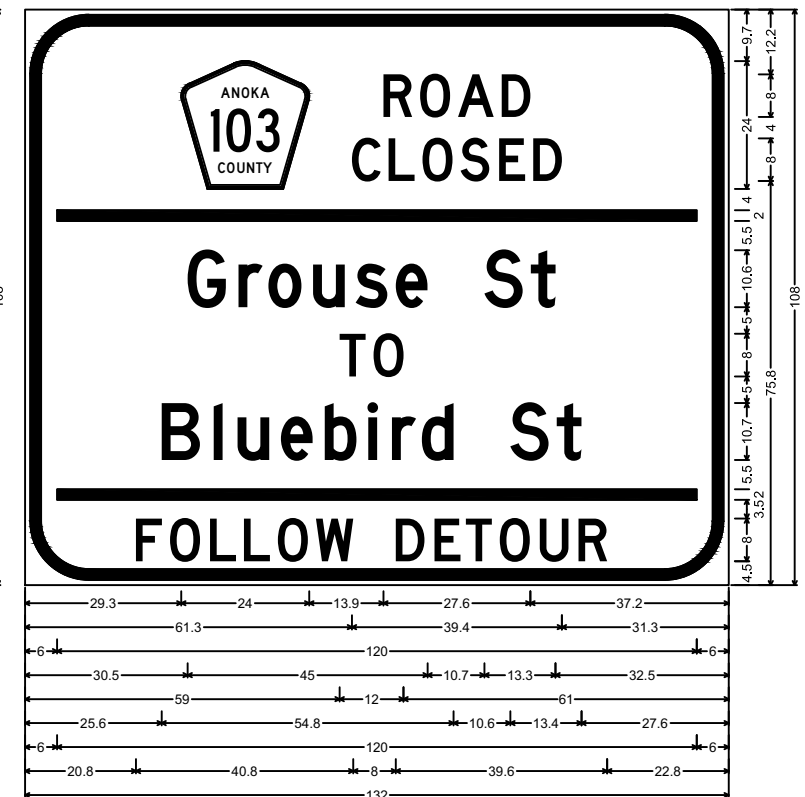
DETOUR PLAN
 Sheet 10 of 16 Sheets

M.U.T.C.D. CODE	SIZE	INSERT	QUANTITY
W20-1	36" x 36"		2
W20-2	36" x 36"		2
W20-3	36" x 36"		2
M4-8	24" x 12"	 	23
M3-4A	24" x 12"		12
M3-2A	24" x 12"		11
M1-6A	24" x 24"		23
	21" X 15"		4
			4
M4-6	24" x 12"		2
M4-8	24" x 12"		2
M1-6M	24" x 24"		2
TYPE B REFLECTORIZED REBOUNDBLE DRUM			10
			* 2 (1 @ 10 = 10 DAY)

M.U.T.C.D. CODE	SIZE	INSERT	QUANTITY
G20-X2	132" x 108"		2
G20-X2	132" x 108"		2
R11-2	48" x 30"		2
M4-10L	48" x 18"		1
R11-4	48" x 18"		2
TYPE III	8 FOOT		7
M4-10R	48" x 18"		2
M4-10R	48" x 18"		1
R11-3	60" x 30"		1
TYPE III	8 FOOT		6



G20-X2_132x108;
12.0" Radius, 2.0" Border, 1.0" Indent, Black on, None;
Pentagonal County 103 M1-6; "ROAD", D; "CLOSED", D; "Bluebird St", D; "TO", D; "Grouse St", D; "FOLLOW DETOUR", D;



G20-X2_132x108;
12.0" Radius, 2.0" Border, 1.0" Indent, Black on, None;
Pentagonal County 103 M1-6; "ROAD", D; "CLOSED", D; "Grouse St", D; "TO", D; "Bluebird St", D; "FOLLOW DETOUR", D;

CHANGEABLE MESSAGE BOARD - MESSAGE SEQUENCE LAYOUT

			E	B			
	2	2	9	T	H		
	C	L	O	S	E	D	

			W	B			
	2	2	9	T	H		
	C	L	O	S	E	D	

	B	E	G	I	N	S	
	<	D	A	T	E	>	

	B	E	G	I	N	S	
	<	D	A	T	E	>	

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

* SIGNS TO BE INSTALLED A MINIMUM OF TEN DAYS PRIOR TO ACTUAL CLOSING DATE OF ROAD CLOSURE AND IMPLEMENTATION OF DETOUR SIGNING. SIGNS TO BE REMOVED AT TIME OF DETOUR INSTALLATION. THESE SIGNS ARE INCIDENTAL TO DETOUR PAY ITEM.

NOTES:

- 1) ALL BARRICADES SHALL BE PROPERLY WEIGHTED WITH SANDBAGS.
- 2) ALL BARRICADES SHALL HAVE REFLECTIVE MATERIAL ON BOTH SIDES.
- 3) ALL BARRICADE MARKINGS SHALL BE SLANTED IN ACCORDANCE WITH THE MINNESOTA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES INCLUDING MOST RECENT FIELD MANUAL.
- 4) ALL TRAFFIC CONTROL DEVICES SHALL CONFORM TO THE MOST RECENT EDITION OF THE MINNESOTA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, INCLUDING THE MOST RECENT FIELD MANUAL.
- 5) ADDITIONS OR CHANGES TO THIS PLAN MAY BE MADE AS DETERMINED BY THE ENGINEER.

NO	DATE	BY	CKD	APPR	REVISION

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
 PRINT NAME: SEAN R. THIEL
 SIGNATURE: *Sean R. Thiel*
 DATE: 1/10/2024 LICENSE NO. 45129

DRAWN BY LJK DATE 11/29/23
 DESIGN BY LJK DATE 11/29/23
 CHECKED BY SRT DATE 11/30/23



ANOKA COUNTY
HIGHWAY DEPT.

CP 24-13-103

DETOUR
PLAN

**PERMANENT PAVEMENT MARKING PLAN
NOTES & GUIDELINES**

GENERAL INFORMATION:

1. 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.
2. EDGE LINES AND LANE LINES ARE TO BE BROKEN ONLY AT INTERSECTIONS WITH PUBLIC ROADS AND AT PRIVATE ENTRANCES IF THEY ARE CONTROLLED BY 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.
3. 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.
4. PERMANENT PAVEMENT MARKINGS SHALL NOT BE PLACED OVER TEMPORARY TAPE MARKINGS.
5. 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.

MULTI-COMPONENT (MULTI-COMP):

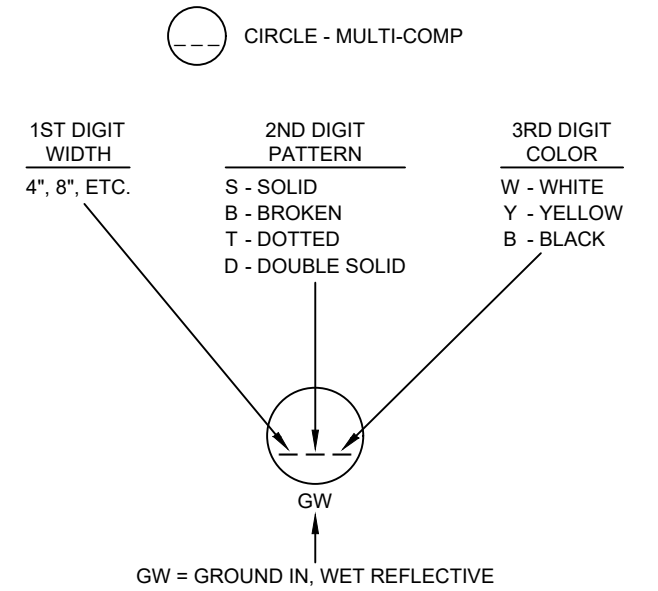
1. THE ROAD SURFACE SHALL BE CLEANED AT THE DIRECTION OF THE ENGINEER JUST PRIOR TO APPLICATION. PAVEMENT CLEANING SHALL CONSIST OF AT LEAST BRUSHING WITH A ROTARY BROOM (NON-METALLIC) OR AS RECOMMENDED BY THE MATERIAL MANUFACTURER AND ACCEPTABLE TO THE ENGINEER. NEW PORTLAND CEMENT CONCRETE SURFACES SHALL BE SANDBLAST CLEANED TO REMOVE ANY SURFACE TREATMENT AND/OR LAITANCE ON LOW SPEED (SPEED LIMIT 35 MPH OR LESS) URBAN PORTLAND CEMENT CONCRETE ROADWAYS. SANDBLAST CLEANING SHALL BE USED FOR ALL MULTI-COMP PAVEMENT MARKINGS.
2. THE MULTI-COMP MARKING APPLICATION SHALL IMMEDIATELY FOLLOW THE PAVEMENT CLEANING. GLASS BEADS SHALL BE APPLIED IMMEDIATELY AFTER APPLICATION OF THE MULTI-COMP LINE TO PROVIDE AN IMMEDIATE NO-TRACK SYSTEM.
3. A MULTI-COMP LINE SHALL BE APPLIED WITH A MINIMUM THICKNESS OF 20 MILS (WET) AND 4" WIDE. GLASS BEADS SHALL BE APPLIED AT A MINIMUM RATE OF 25 LBS POUNDS PER GALLON RATE SUFFICIENT TO ACHIEVE AN ACCEPTABLE NO-TRACK SYSTEM.
4. PAVEMENT MARKINGS SHALL ONLY BE APPLIED IN SEASONABLE WEATHER WHEN AIR AND PAVEMENT SURFACE TEMPERATURES ARE 40° OR HIGHER AND SHALL NOT BE APPLIED WHEN THE WIND OR OTHER CONDITIONS CAUSE A FILM OR DUST TO BE DEPOSITED ON THE PAVEMENT SURFACE AFTER CLEANING AND BEFORE THE MARKING MATERIAL CAN BE APPLIED.

PAVEMENT MARKING TABULATION		
ITEM	UNIT	TOTAL QUANTITY
4" SOLID LINE WHITE - MULTI COMP	LIN FT	16732
4" DOUBLE LINE YELLOW - MULTI COMP	LIN FT	728
4" SOLID LINE YELLOW - MULTI COMP	LIN FT	829
4" BROKEN LINE YELLOW - MULTI COMP	LIN FT	1490
8" DOTTED LINE WHITE - MULTI COMP	LIN FT	36

PAVEMENT MARKING SYMBOLS & MATERIALS LEGEND

— — BROKEN LINE - 50' CYCLE (10' LINE, 40' GAP)

STRIPING KEY



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

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**ANOKA COUNTY
HIGHWAY DEPT.**

CP 24-13-103

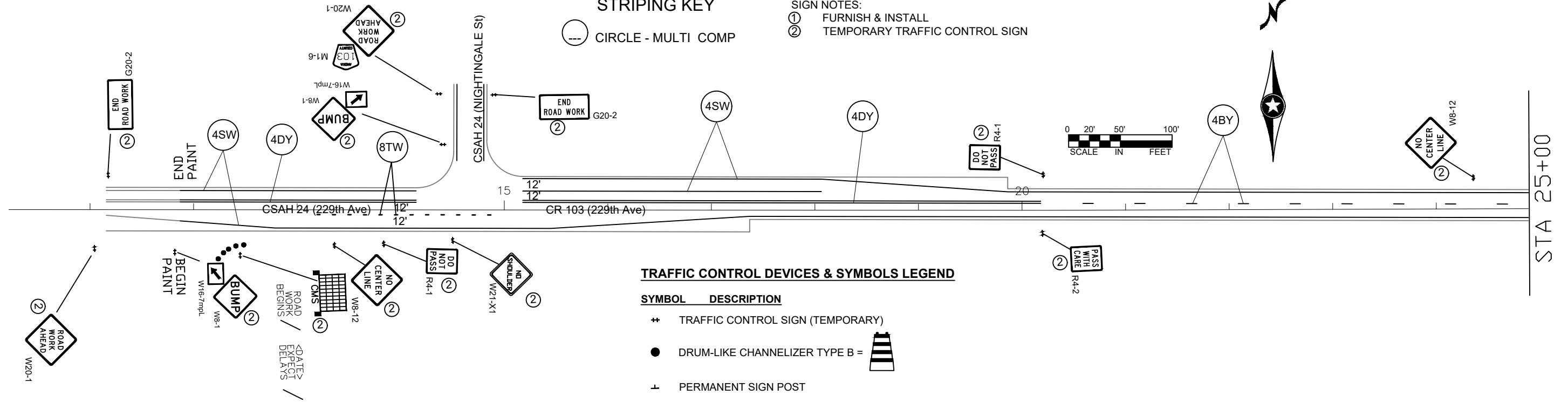
PERMANENT PAVEMENT
MARKING PLAN
NOTES & TABULATIONS

Sheet 12 of 16 Sheets

STRIPING KEY


--- CIRCLE - MULTI COMP

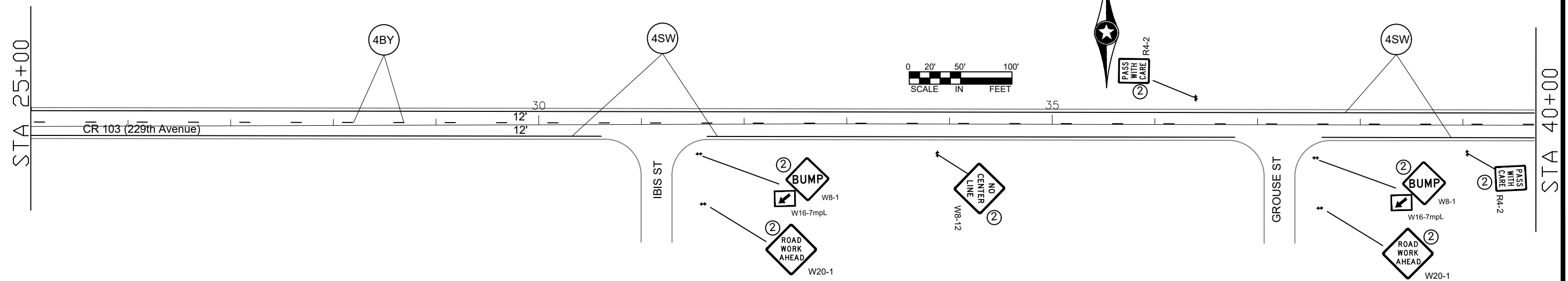
SIGN NOTES:
 ① FURNISH & INSTALL
 ② TEMPORARY TRAFFIC CONTROL SIGN



TRAFFIC CONTROL DEVICES & SYMBOLS LEGEND

SYMBOL DESCRIPTION

- ++ TRAFFIC CONTROL SIGN (TEMPORARY)
- DRUM-LIKE CHANNELIZER TYPE B = 
- ⊥ PERMANENT SIGN POST

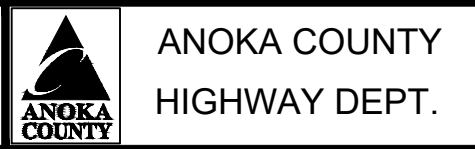


NO	DATE	BY	CKD	APPR	REVISION

NAME: P:124-01-00CR_163_(Baugh St-Nowthen Blvd)BaseTrafficSigning & Striping.dwg

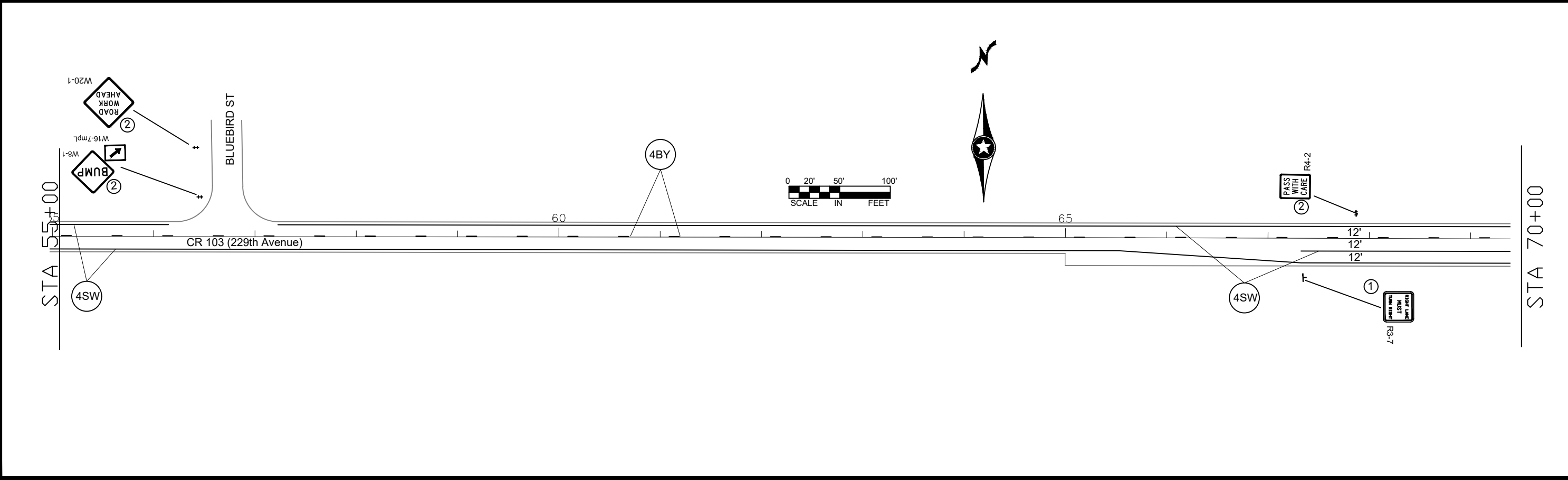
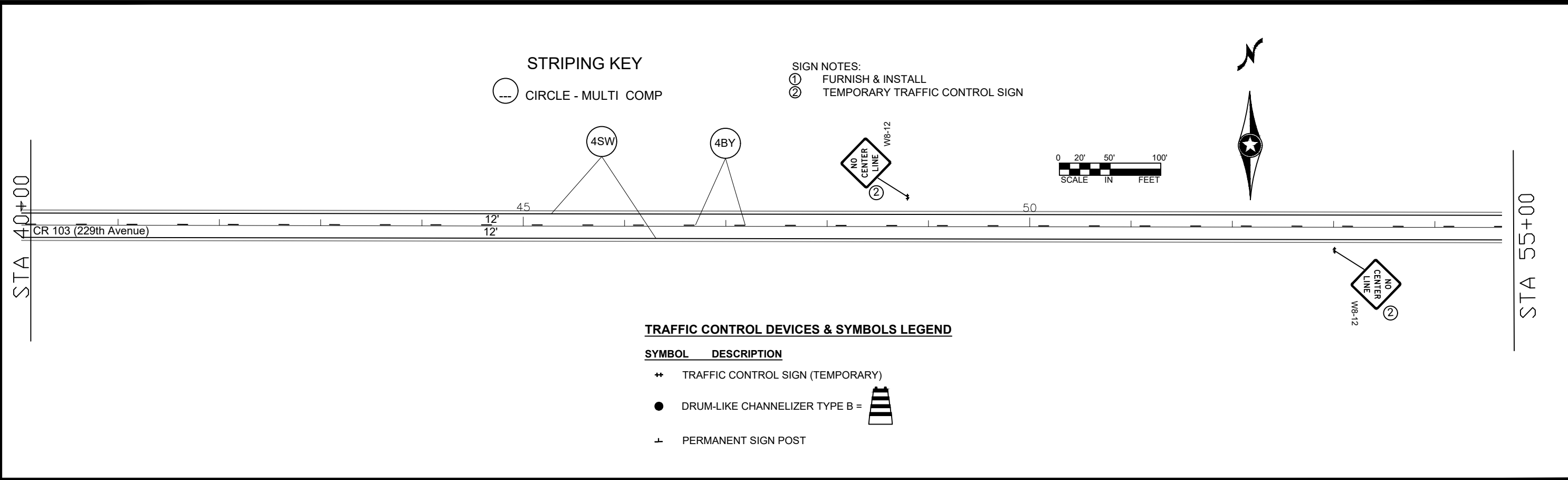
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 PRINT NAME: SEAN R. THIEL
 SIGNATURE: *Sean R. Thiel*
 DATE: 1/10/2024 LICENSE NO. 45129

DRAWN BY: LJK DATE: 11/1/23
 DESIGN BY: LJK DATE: 11/1/23
 CHECKED BY: SRT DATE: 11/29/23



CP 24-13-103

TEMPORARY SIGNING AND PERMANENT STRIPING
 Sheet 13 of 16 Sheets

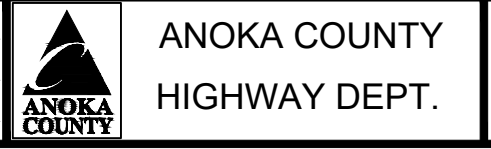


NO	DATE	BY	CKD	APPR	REVISION

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DRAWN BY LJK DATE 11/1/23
 DESIGN BY LJK DATE 11/1/23
 CHECKED BY SRT DATE 11/29/23



CP 24-13-103

TEMPORARY SIGNING AND PERMANENT STRIPING

Sheet 14 of 16 Sheets

STRIPING KEY


○ CIRCLE - MULTI COMP

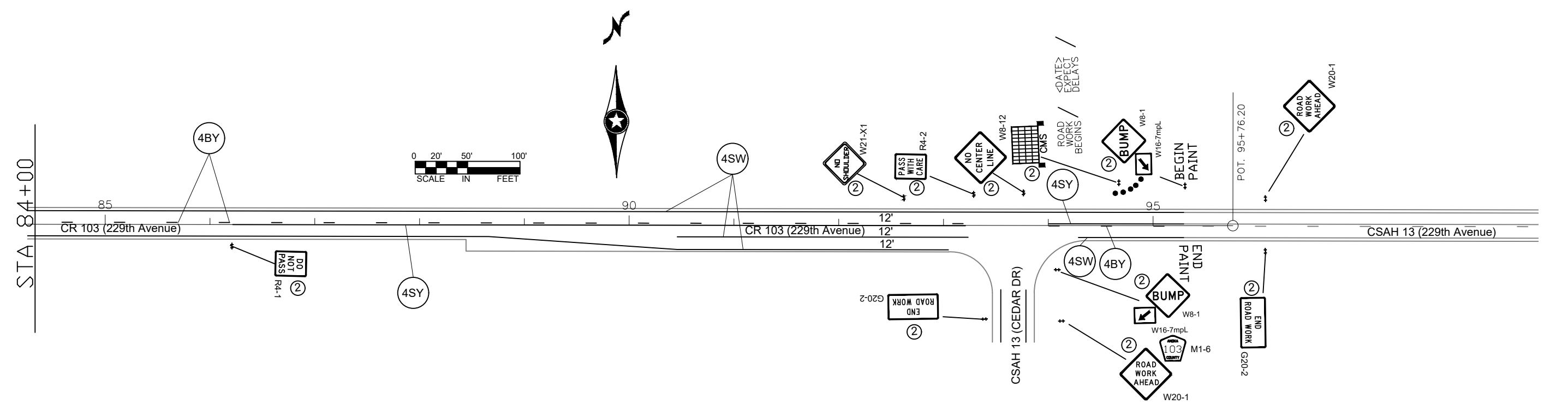
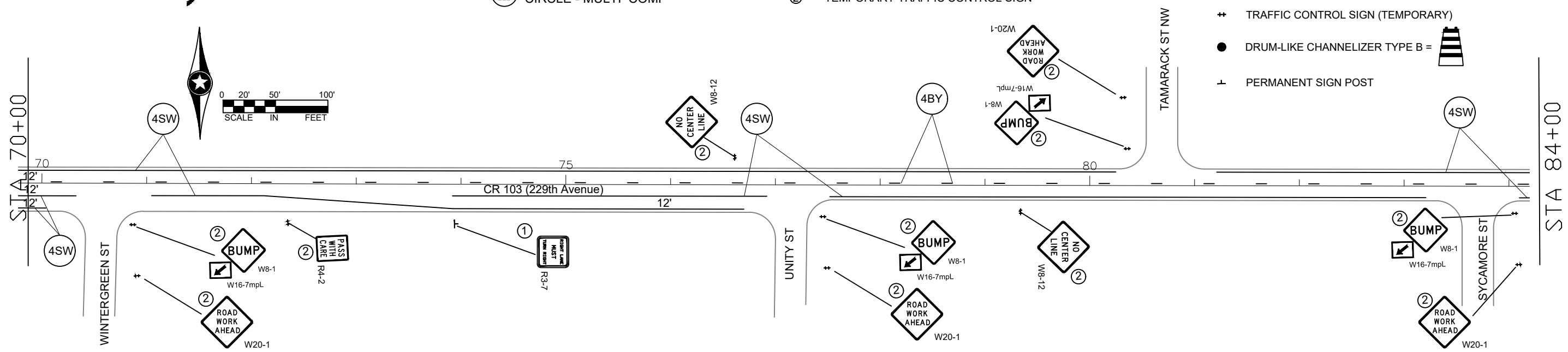
SIGN NOTES:

- ① FURNISH & INSTALL
- ② TEMPORARY TRAFFIC CONTROL SIGN

TRAFFIC CONTROL DEVICES & SYMBOLS LEGEND

SYMBOL DESCRIPTION

- ++ TRAFFIC CONTROL SIGN (TEMPORARY)
- DRUM-LIKE CHANNELIZER TYPE B = 
- + PERMANENT SIGN POST



NO	DATE	BY	CKD	APPR	REVISION


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CP 24-13-103

TEMPORARY SIGNING AND PERMANENT STRIPING
 Sheet 15 of 16 Sheets

TYPE C SIGN PANELS - ANOKA COUNTY CR 103							
M.U.T.C.D. CODE	SIZE	INSERT	QUANTITY	SQ FT PANEL AREA	SQ FT TOTAL AREA	MOUNTING POST PER INSTALLATION	MOUNTING HEIGHT
R3-7	30" x 30"		2	6.25	12.5	1	7.0'
TYPE C SIGN PANEL TOTALS			2		12.5		

TEMPORARY TRAFFIC CONTROL SIGNS			
M.U.T.C.D. CODE	SIZE	INSERT	QUANTITY
W8-12	48" x 48"		8
R4-1	24" x 30"		3
R4-2	24" x 30"		6
G20-2	36" x 18"		4
W8-1	48" x 48"		11
W16-7P	48" x 48"		11
M1-6M	24" x 24"		2
W20-1	48" x 48"		AS NEEDED (ESTIMATED 11)
W8-23	48" x 48"		AS NEEDED
W8-8	48" x 48"		AS NEEDED

TEMPORARY TRAFFIC CONTROL SIGNS			
M.U.T.C.D. CODE	SIZE	INSERT	QUANTITY
W8-9	48" x 48"		AS NEEDED
W8-11	48" x 48"		AS NEEDED
W8-1	48" x 48"		AS NEEDED
W3-4	48" x 48"		AS NEEDED
W20-4	48" x 48"		AS NEEDED
W20-7	48" x 48"		AS NEEDED (ESTIMATED 2)
REFLECTORIZED REBOUNDABLE DRUM			AS NEEDED (ESTIMATED 10)
CMS sign to be placed a minimum of ten days prior to actual commencement of road work. Signs to be removed when road work begins.			2 AT 10 DAYS EA

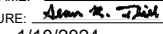
CHANGEABLE MESSAGE BOARD - MESSAGE SEQUENCE LAYOUT

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


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

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

NO	DATE	BY	CKD	APPR	REVISION

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 ANOKA COUNTY HIGHWAY DEPT.

CP 24-13-103