

# MINNESOTA DEPARTMENT OF TRANSPORTATION ANOKA COUNTY

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

LOCATED ON CSAH / CR 12 BETWEEN HEATHER CT AND CSAH 23

CSAH 12			CR 12		
GROSS LENGTH	8280.620 FEET	1.568 MILES	GROSS LENGTH	1214.740 FEET	0.230 MILES
EXCEPTIONS-LENGTH	0.00 FEET	0.000 MILES	EXCEPTIONS-LENGTH	0.00 FEET	0.000 MILES
NET LENGTH	8280.620 FEET	1.568 MILES	NET LENGTH	1214.740 FEET	0.230 MILES

GOVERNING SPECIFICATIONS

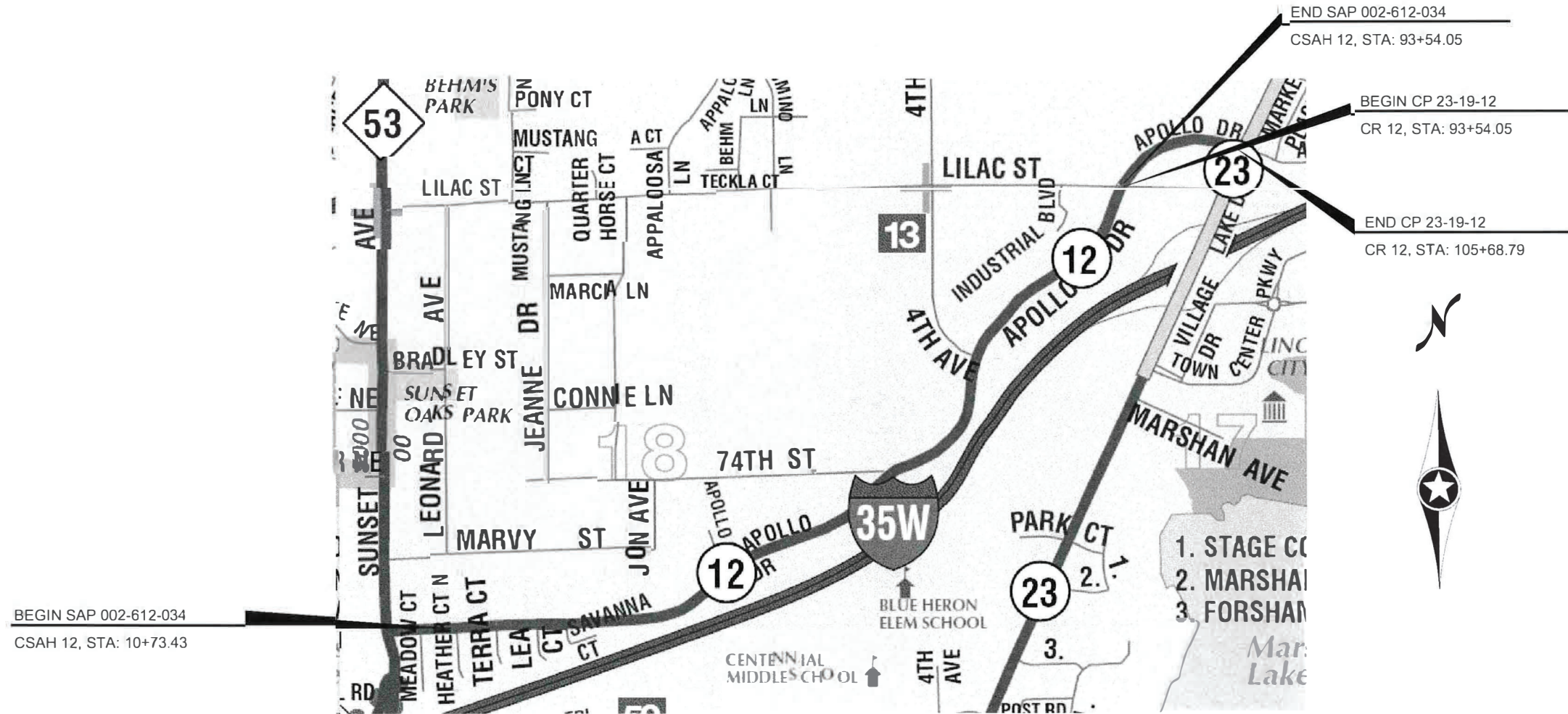
THE 2020 EDITION OF THE MINNESOTA DEPARTMENT OF TRANSPORTATION "STANDARD SPECIFICATIONS FOR CONSTRUCTION" AND THE "SUPPLEMENTAL SPECIFICATIONS" DATED SEPTEMBER 2022 SHALL GOVERN.

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 22 SHEETS

**INDEX**

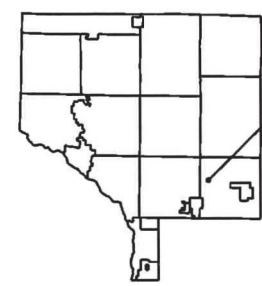
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5	TYPICAL SECTIONS
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Approved 5-18-23  
ANOKA COUNTY ENGINEER

Approved 5/23/23  
CITY OF LINO LAKES ENGINEER

**PROJECT LOCATION**



CITY OF LINO LAKES  
ANOKA COUNTY  
MN/DOT TRANSPORTATION DISTRICT - METRO  
SECTION 8, 17, 18  
TOWNSHIP 31 NORTH  
RANGE 22 WEST

**Dan Erickson** Digitally signed by Dan Erickson  
Date: 2023.05.24 08:50:45 -05'00' .20  
DISTRICT STATE AID ENGINEER: REVIEWED FOR COMPLIANCE WITH STATE AID RULES/POLICY

**Dan Erickson** Digitally signed by Dan Erickson  
Date: 2023.05.24 08:51:13 -05'00' .20  
for STATE AID ENGINEER: APPROVED FOR STATE AID FUNDING

DESIGN DESIGNATION		CSAH/CR 12	
ESAL 20	451.638	FUNCTIONAL CLASSIFICATION	MINOR ARTERIAL
R VALUE	75	NO. OF TRAFFIC LANES	2
ADT (2023)	3823	NO. OF PARKING LANES	0
PROJ. ADT (2043)	3823	DESIGN SPEED	50 MPH
PROJ. HCADT (2043)	230	STOPPING SIGHT DISTANCE BASED ON:	
SOIL FACTOR	N/A	HEIGHT OF EYE	3.5'
		HEIGHT OF OBJECT	20'
		DESIGN SPEED NOT ACHIEVED AT:	
		STA.	TO STA. MPH

NO	DATE	BY	CKD	APPR	REVISION	05/15/2023	8:59:52 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: GERALD J. AUGER JR.  
SIGNATURE:   
DATE: 05-10-2023 LICENSE NO. 26 51

DRAWN BY: MA DATE: 05/01/2023  
DESIGN BY: MA DATE: 05/01/2023  
CHECKED BY: CO DATE: 05/15/2023

**ANOKA COUNTY  
HIGHWAY DEPT.**

COUNTY PROJECT 23-19-12  
STATE AID PROJECT 002-612-034

TITLE SHEET  
Sheet 1 of 22 Sheets

### STATEMENT OF ESTIMATED QUANTITIES

Notes	Item Number	Code	ITEM DESCRIPTION	Unit	TOTAL PROJECT QUANTITIES ESTIMATED	002-612-034	23-19-12
	2013.601	00010	SURVEY EQUIPMENT	LUMP SUM	1	1	
	2021.501	00010	MOBILIZATION	LUMP SUM	1	0.87	0.13
	2104.502	03320	SALVAGE SIGN TYPE C	EACH	1		1
1	2104.503	00195	SAWING CONCRETE PAVEMENT (FULL DEPTH)	LIN FT	168	114	54
1	2104.503	00205	SAWING BITUMINOUS PAVEMENT (FULL DEPTH)	LIN FT	1185	969	216
1	2104.503	00315	REMOVE CURB AND GUTTER	LIN FT	589	441	148
	2104.504	00120	REMOVE BITUMINOUS PAVEMENT	SQ YD	230	190	40
	2104.518	00220	REMOVE CONCRETE MEDIAN	SQ FT	100		100
2	2211.509	00070	AGGREGATE BASE CLASS 5	TON	14	12	2
3	2232.504	00060	MILL BITUMINOUS SURFACE (2.0")	SQ YD	53579	46752	6827
4	2232.604	00470	MILL BITUMINOUS PAVEMENT (SPECIAL)	SQ YD	748	748	
	2357.506	00010	BITUMINOUS MATERIAL FOR TACK COAT	GALLON	2716	2370	346
5	2360.509	13200	TYPE SP 9.5 WEARING COURSE MIXTURE (3:B)	TON	12	12	
6	2360.509	20100	TYPE SP 12.5 BITUMINOUS MIXTURE FOR PATCHING	TON	26	21	5
7	2360.509	24300	TYPE SP 12.5 WEARING COURSE MIXTURE (4:C)	TON	86	86	
	2360.509	24300	TYPE SP 12.5 WEARING COURSE MIXTURE (4:C)	TON	6162	5377	785
8	2504.602	00033	ADJUST GATE VALVE	EACH	17	14	3
9	2506.502	06000	CASTING ASSEMBLY	EACH	55	46	9
10	2506.602	06040	GROUT CATCH BASIN OR MANHOLE	EACH	33	29	4
12	2521.518	00040	4" CONCRETE WALK	SQ FT	60		60
	2531.503	02080	CONCRETE CURB AND GUTTER DESIGN B418	LIN FT	138		138
	2531.503	02315	CONCRETE CURB AND GUTTER DESIGN B618	LIN FT	439	429	10
	2531.602	00110	CONCRETE MEDIAN NOSE-SPECIAL	EACH	1		1
11	2550.602	10000	LOOP DETECTOR DESIGN NMC	EACH	7		7
	2563.601	00001	TRAFFIC CONTROL SUPERVISOR	LUMP SUM	1	1	
13, 14	2563.601	00010	TRAFFIC CONTROL	LUMP SUM	1	1	
15	2563.613	01100	PORTABLE CHANGEABLE MESSAGE SIGN	UNIT DAY	20	20	
16	2573.502	00110	STORM DRAIN INLET PROTECTION	EACH	72	62	10
	2574.507	00100	COMMON TOPSOIL BORROW	CU YD	116	89	27
17	2575.508	40003	HYDRAULIC REINFORCED FIBER MATRIX	POUND	1410	833	577
	2581.503	00010	REMOVABLE PREFORMED PAVEMENT MARKING TAPE	LIN FT	380	332	48
18	2582.503	36104	4" SOLID LINE MULTI-COMPONENT GROUND IN	LIN FT	21470	18734	2736
18	2582.503	36204	4" BROKEN LINE MULTI-COMPONENT GROUND IN	LIN FT	900	785	115
18	2582.503	36404	4" DOUBLE SOLID LINE MULTI-COMPONENT GROUND IN	LIN FT	5550	4843	707
	2582.503	76124	24" SOLID LINE PREFORM THERMO GROUND IN	LIN FT	41		41
	2582.518	04000	PAVEMENT MESSAGE PREFORM THERMOPLASTIC	SQ FT	91		91
	2582.518	08000	CROSSWALK PREFORM THERMOPLASTIC	SQ FT	270		270

### CONSTRUCTION NOTES

1	REFERENCE DETAILS (PAGE 8) FOR REMOVAL DETAILS
2	ITEM TO BE USED AS BASE FOR CURB PATCHES AND CONCRETE MEDIAN AREAS.
3	DETAIL MILLING AROUND MANHOLES, CATCH BASINS, GATE VALVES, AND ALONG CURB LINE IS INCIDENTAL TO THIS ITEM.
4	TO BE USED FOR MILLING STREET APPROACHES AND/OR DETAIL MILLING AREAS AS IDENTIFIED IN THE PLAN.
5	ITEM FOR BITUMINOUS DRIVEWAYS. DRIVEWAYS SHALL BE PAVED AFTER MAINLINE AND BEFORE FINAL STRIPING.
6	ITEM INCLUDES BITUMINOUS PATCHING AROUND NEW CURB, STORM STRUCTURE REPAIRS, AND ANY POTHOLES.
7	STREET APPROACHES SHALL BE PAVED AFTER MAINLINE, AND BEFORE FINAL STRIPING.
8	GATE VALVES TO BE ADJUSTED ONLY AS NECESSARY AS DETERMINED BY THE ENGINEER.
9	ITEM INCLUDES FULL REPLACEMENT OF CASTING ADJUSTMENT RINGS. SEE STORM TABULATIONS FOR RING HEIGHTS. CASTINGS IN ROADWAY SHALL BE INSTALLED BETWEEN BASE AND WEAR LIFT PAVING.
10	ITEM INCLUDES GROUTING OF INVERTS, DOGHOUSES, RINGS, STRUCTURES AND CASTINGS AS DIRECTED BY PLAN AND ENGINEER. SEE DRAINAGE TAB, PAGES 3 AND 4.
11	FULL LOOP REPLACEMENT REQUIRED. CONTRACTOR SHALL CONTACT ANOKA COUNTY TO DETERMINE PLACEMENT. SIGNAL PLANS ARE INCLUDED AT THE END OF THIS PLAN.
12	ITEM USED FOR CONCRETE MEDIAN.
13	CONTRACTOR SHALL FURNISH, INSTALL, AND MAINTAIN TEMPORARY SIGNAGE WHENEVER EXISTING SIGNAGE IS REMOVED. TEMPORARY SIGNAGE SHALL BE INCIDENTAL TO TRAFFIC CONTROL.
14	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 IN PLACE WHENEVER PERMANENT PAVEMENT MARKINGS ARE NOT PRESENT.
15	2 MESSAGE BOARDS, ONE ON EACH END OF PROJECT, SHALL BE INSTALLED 10 DAYS PRIOR TO ANY CONSTRUCTION. REFERENCE STRIPING PLAN FOR DETAILS.
16	ALL DRAINAGE STRUCTURES AFFECTED BY THIS PROJECT MUST HAVE INLET PROTECTION.
17	TYPE 3 FERTILIZER AND TYPE 25-121 SEED ARE INCIDENTAL TO THIS ITEM. SEE "BASIS OF PLANNED QUANTITIES" FOR APPLICATION RATES.
18	FINAL STRIPING SHALL BE INSTALLED WITHIN 72 HOURS OF COMPLETION OF MAINLINE WEAR COURSE PAVING. CANNOT BE INSTALLED SOONER THAN 48 HOURS.

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

#### MNDOT STANDARD PLATES

PLATE NO.	DESCRIPTION
3007F	SHEAR REINFORCEMENT FOR PRECAST DRAINAGE STRUCTURES
4020J	MANHOLE OR CATCH BASIN (FOR USE WITH OR WITHOUT TRAFFIC LOADS) (2)
4026B	CONCRETE ENCASED CONCRETE ADJUSTING RINGS
4110F	COVER CASTING FOR MANHOLE (FOR USE IN ALL TRAFFIC AREAS) - CASTING NO. 715
4134A	CURB BOX CASTING FOR CATCH BASIN (FOR DESIGN B CURBS)- CASTING NO. 825
7100H	CONCRETE CURB AND GUTTER (DESIGN B AND DESIGN V)
7111J	INSTALLATION OF CATCH BASIN CASTINGS (CONCRETE CURB AND GUTTER)
7113A	CONCRETE APPROACH NOSE DETAIL
8000K	TEMPORARY CHANNELIZERS (3 SHEETS)
8132B	PREFORMED RIGID PVC CONDUIT LOOP DETECTOR - LAYOUT DETAILS, LAYOUT NOTES, TYPICAL INSTALLATION (3 SHEETS)

### BITUMINOUS STREET SUMMARY

LOCATION	BITUMINOUS		NOTES
	2360 TYPE SP 12.5 WEAR (4,C)	TON	
4TH AVE	16		[1]
LILAC ST WEST SIDE	44		[1]
LILAC ST EAST SIDE	26		[1]
<b>PROJECT TOTAL</b>	<b>86</b>		

#### BITUMINOUS SUMMARY NOTES:

[1] QUANTITY ESTIMATED FOR 1 LIFT

### BASIS OF PLANNED QUANTITIES

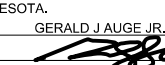
2357	BITUMINOUS MATERIAL FOR TACK COAT	0.05 GAL / SQ YD
2211	AGGREGATE BASE CLASS 5	1.8 TONS / CU YD
2360	ALL BITUMINOUS PAVEMENT	115 LBS / SQ YD / IN THICKNESS
2581	REMOVABLE PREFORM PAVEMENT MARKING TAPE	2' AT 50' INTERVALS
2575	SEED MIXTURE 25-121	61 LBS./ ACRE
2574	FERTILIZER TYPE 3	350 LBS./ ACRE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

NO	DATE	BY	CKD	APPR	REVISION
	05/18/2023				10:43:45 AM

NAME: P:\23-01-00\CSAH\_12\_(HEATHER-CSAH 23)\Base\Proposed\SEQ.dgn

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**ANOKA COUNTY  
HIGHWAY DEPT.**

COUNTY PROJECT 23-19-12  
STATE AID PROJECT 002-612-034

STATEMENT OF ESTIMATED QUANTITIES

Sheet 2 of 22 Sheets

**STORM DRAINAGE TAB 002-612-034**

NUMBER	TYPE	ACTION	NEW CASTING TYPE	FURNISH AND INSTALL CASTING ASSEMBLY	RING HEIGHT (INCIDENTAL)	GROUT CATCH BASIN OR MANHOLE	NOTES
				EACH	LIN FT	EACH	
100	CB	RERING	C	1	0.8		Clean
101	CB	OK					
102	CB	RERING	C	1	0.2		
103	CB	GROUT				1	Clean
104	CB	GROUT				1	Clean
105	CB	RERING	C	1	0.3		
106	CB	RERING	D	1	0.5		Grout Doghouses
107	CB	RERING	C	1	0.7		
108	CB	RERING	D	1	0.2		
109	CB	GROUT				1	
110	CB	RERING	C	1	0.9		Clean
111	CB	GROUT				1	Grout Doghouses
112	CB	RERING	D	1	0.6		
113	CB	GROUT				1	
114	CB	GROUT				1	Grout Doghouses
115	CB	RERING	C	1	0.6		
116	CB	RERING	C	1	0.8		
117	CB	RERING	C	1	0.6		
118	CB	GROUT				1	
119	CB	RERING	C	1	0.8		Grout Doghouses
120	CB	RERING	C	1	0.5		
121	CB	RERING	C	1	1.1		Clean
122	CB	GROUT				1	
123	CB	RERING	C	1	0.5		Grout Doghouses
123A	CB	RERING	D	1	0.2		
124	CB	GROUT				1	Clean
125	CB	GROUT				1	Grout Doghouses
126	CB	RERING	C	1	0.2		
127	CB	GROUT				1	
128	CB	RERING	C	1	1.4		
129	CB	GROUT				1	
130	CB	GROUT				1	Clean
131	CB	RERING	C	1	1.4		
131A	CB	RERING	C	1	0.6		
132	CB	RERING	C	1	1.2		
133	CB	GROUT				1	Clean
134	CB	GROUT				1	
135	CB	GROUT				1	Clean
136	CB	RERING	C	1	0.2		
137	CB	RERING	C	1	0.8		
138	CB	GROUT				1	Repair Invert & Doghouses
139	CB	RERING	C	1	0.9		
140	CB	GROUT				1	
141	CB	RERING	C	1	1.2		Clean
142	CB	RERING	C	1	2.0		
143	CB	RERING	C	1	0.4		
144	CB	RERING	C	1	0.8		
145	CB	RERING	C	1	0.2		
146	CB	RERING	C	1	0.8		
147	CB	RERING	C	1	0.7		Clean & Grout Doghouses
148	CB	RERING	C	1	0.9		Clean & Grout Doghouses
149	CB	RERING	C	1	0.9		Grout Doghouses
150	CB	GROUT				1	Grout Invert
151	CB	GROUT				1	Grout Doghouses & Barrel Section
152	CB	OK					
153	CB	RERING	C	1	0.5		
154	CB	RERING	C	1	0.4		Grout Doghouses
155	CB	OK					
156	CB	GROUT				1	Grout Invert
157	CB	GROUT				1	Clean
157A	CB	GROUT				1	Clean & Grout Invert
<b>TOTALS</b>				<b>35</b>	<b>24.5</b>	<b>23</b>	

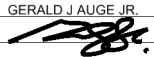
**SANITARY TAB 002-612-034**

NUMBER	TYPE	ACTION	NEW CASTING TYPE	FURNISH AND INSTALL CASTING ASSEMBLY	RING HEIGHT (INCIDENTAL)	GROUT CATCH BASIN OR MANHOLE	NOTES
				EACH	LIN FT	EACH	
400	SAN MH	GROUT				1	
401	SAN MH	RERING	A-7D	1	0.7		
402	SAN MH	RERING	A-7D	1	0.7		
403	SAN MH	RERING	A-7D	1	0.7		
404	SAN MH	RERING	A-7D	1	0.7		
405	SAN MH	OK					
407	SAN MH	RERING	A-7D	1	0.7		
408	SAN MH	GROUT				1	
409	SAN MH	GROUT				1	
410	SAN MH	RERING	A-7D	1	0.2		
411	SAN MH	RERING	A-7D	1	0.4		
412	SAN MH	RERING	A-7D	1	0.4		
413	SAN MH	GROUT				1	
414	SAN MH	GROUT				1	
415	SAN MH	RERING	A-7D	1	0.2		
440	SAN MH	RERING	A-7D	1	1.0		
450	SAN MH	RERING	A-7D	1	1.3		
<b>TOTALS</b>				<b>7</b>	<b>4.2</b>	<b>4</b>	

NO	DATE	BY	CKD	APPR	REVISION	05/15/2023	9:00:02 AM
NAME: P:\23-01-00\CSAH_12_(HEATHER-CSAH 23)\Base\Proposed\SEQ.dgn							

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**ANOKA COUNTY  
HIGHWAY DEPT.**

COUNTY PROJECT 23-19-12

STATE AID PROJECT 002-612-034

DRAINAGE  
TABULATIONS

Sheet 3 of 22 Sheets

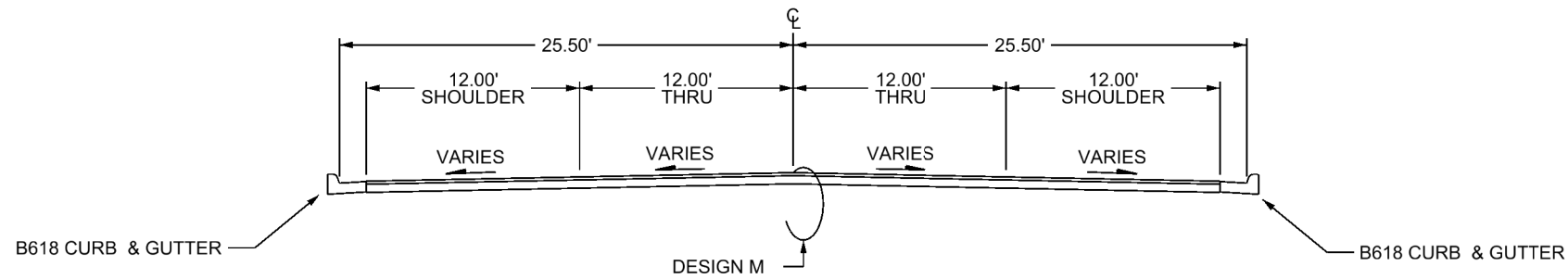


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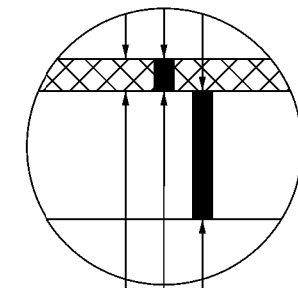
### APOLLO DRIVE - CSAH 12

EXISTING / PROPOSED SECTION

10+73.43 - 90+40.00



### DESIGN M MILL SECTION

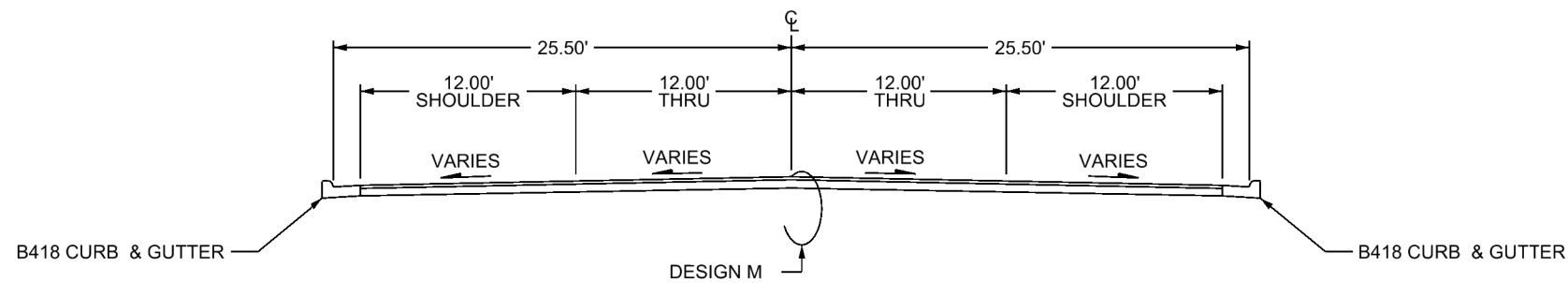


2.0" MILL BITUMINOUS  
 2.0" BITUMINOUS WEAR (SPWEB440C)  
 REMAINING BITUMINOUS

### APOLLO DRIVE - CSAH 12 / CR 12

EXISTING / PROPOSED SECTION

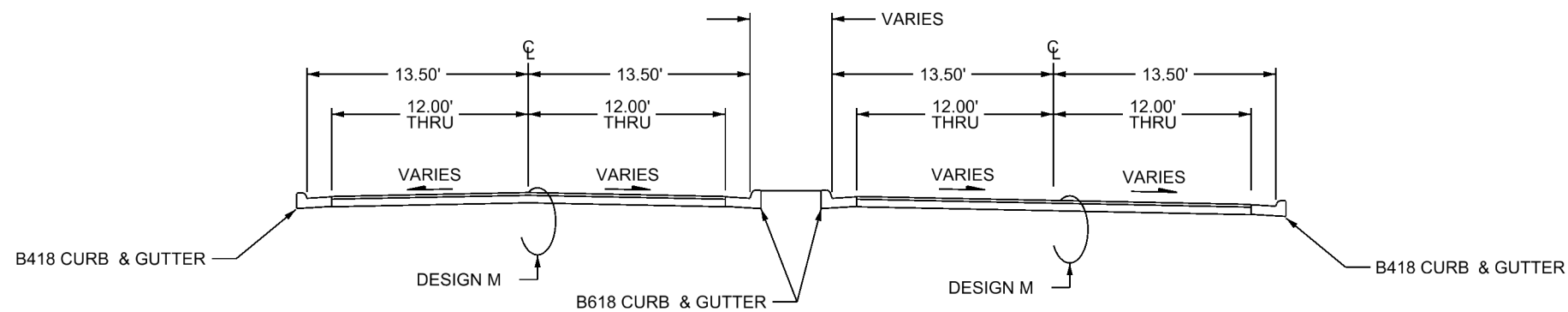
90+40.00 - 104+07.92



### APOLLO DRIVE - CR 12

EXISTING / PROPOSED SECTION

104+07.92 - 105+68.79



NO	DATE	BY	CKD	APPR	REVISION	05/15/2023	9:00:15 AM
NAME: P:\23-01-00\CSAH_12_(HEATHER-CSAH 23)\Base\Proposed\TYPICALS.dgn							

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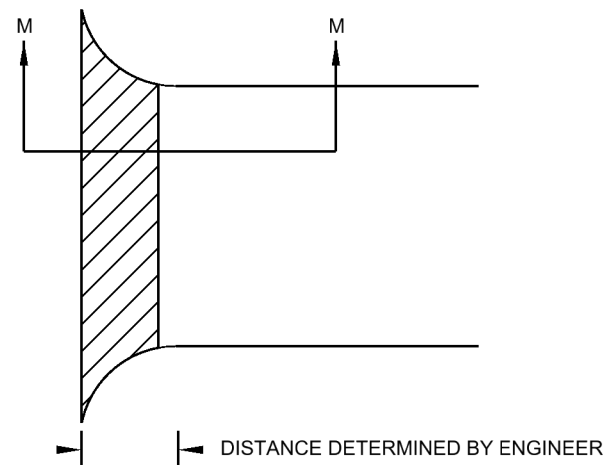
**ANOKA COUNTY**  
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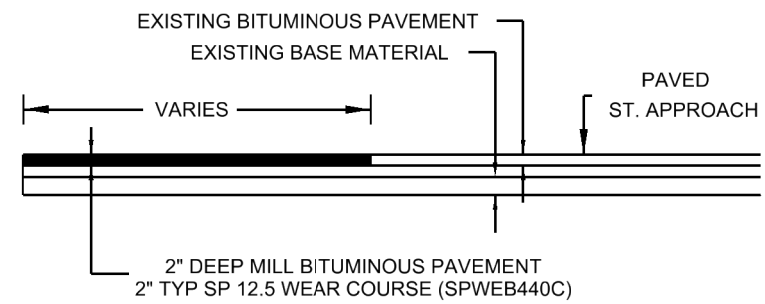
TYPICAL SECTIONS  
 Sheet 5 of 22 Sheets

# STREET APPROACH DETAIL (MILL & OVERLAY) BITUMINOUS STREET

PLAN VIEW



SECTION M - M



NO	DATE	BY	CKD	APPR	REVISION	
	05/15/2023					9:00:23 AM

NAME: P:\23-01-00\CSAH\_12\_(HEATHER-CSAH 23)\Base\Proposed\DETAILS.cgn

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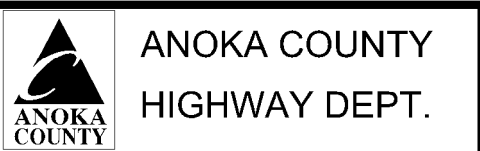
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COUNTY PROJECT 23-19-12

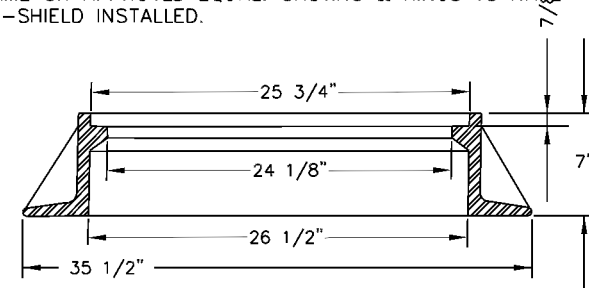
STATE AID PROJECT 002-612-034

DETAILS

Sheet 6 of 22 Sheets

### STANDARD MANHOLE CASTING

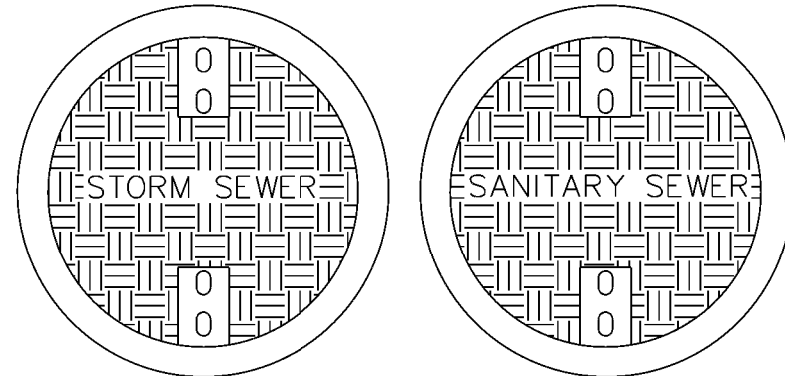
CASTING - NEENAH FOUNDRY NO. R-1733 SERIES MANHOLE FRAME OR APPROVED EQUAL. CASTING & RINGS TO HAVE INFI-SHIELD INSTALLED.



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

NEENAH R1733-5044

NEENAH R1733-5044



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

### CASTING ASSEMBLIES SUMMARY

ASSEMBLY	RING OR FRAME CASTING	COVER OR GRATE CASTING	CURB BOX	DESCRIPTION	NOTES	QUANTITY
A-7D	700-7	715		301-CP LID WITH RUBBER GASKET ON	CASTING COVER STAMPED "SANITARY SEWER" (NEENAH R-1733 WITH LID 301-CP)	12
C	NEENAH R-3250-DVSP	V	YES	NEENAH R-3250-DVSP		35
D	NEENAH R-3250-DVSP	V	NO	NEENAH R-3250-DVSP	CURB PLATE NEEDED	8

ALL CASTING HEIGHTS ARE TO BE VERIFIED IN THE FIELD  
 ALL MANHOLE COVERS SHOULD BE LABELED AS STORM OR SANITARY  
 NEW MANHOLE CASTINGS TO BE INSTALLED FLUSH WITH THE MILLED ASPHALT SURFACE.  
 ALL MANHOLES TO BE WRAPPED WITH INFI-SHIELD. THIS WORK IS INCIDENTAL TO THE CASTING ASSEMBLY.  
 ADJUSTING RINGS TO BE INSTALLED AND GLUED DURING THE PAVING OPERATION.  
 ADJUSTING RINGS TO BE RECESSED 1/4" FROM TOP OF FINISHED MAT

NO	DATE	BY	CKD	APPR	REVISION	
	05/15/2023					9:00:30 AM

NAME: P:\23-01-00\CSAH\_12\_(HEATHER-CSAH 23)\Base\Proposed\DETAILS.cgn

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: 05-10-2023 LICENSE NO. 26511

DRAWN BY MA DATE 05/01/2023  
 DESIGN BY MA DATE 05/01/2023  
 CHECKED BY CO DATE 05/15/2023

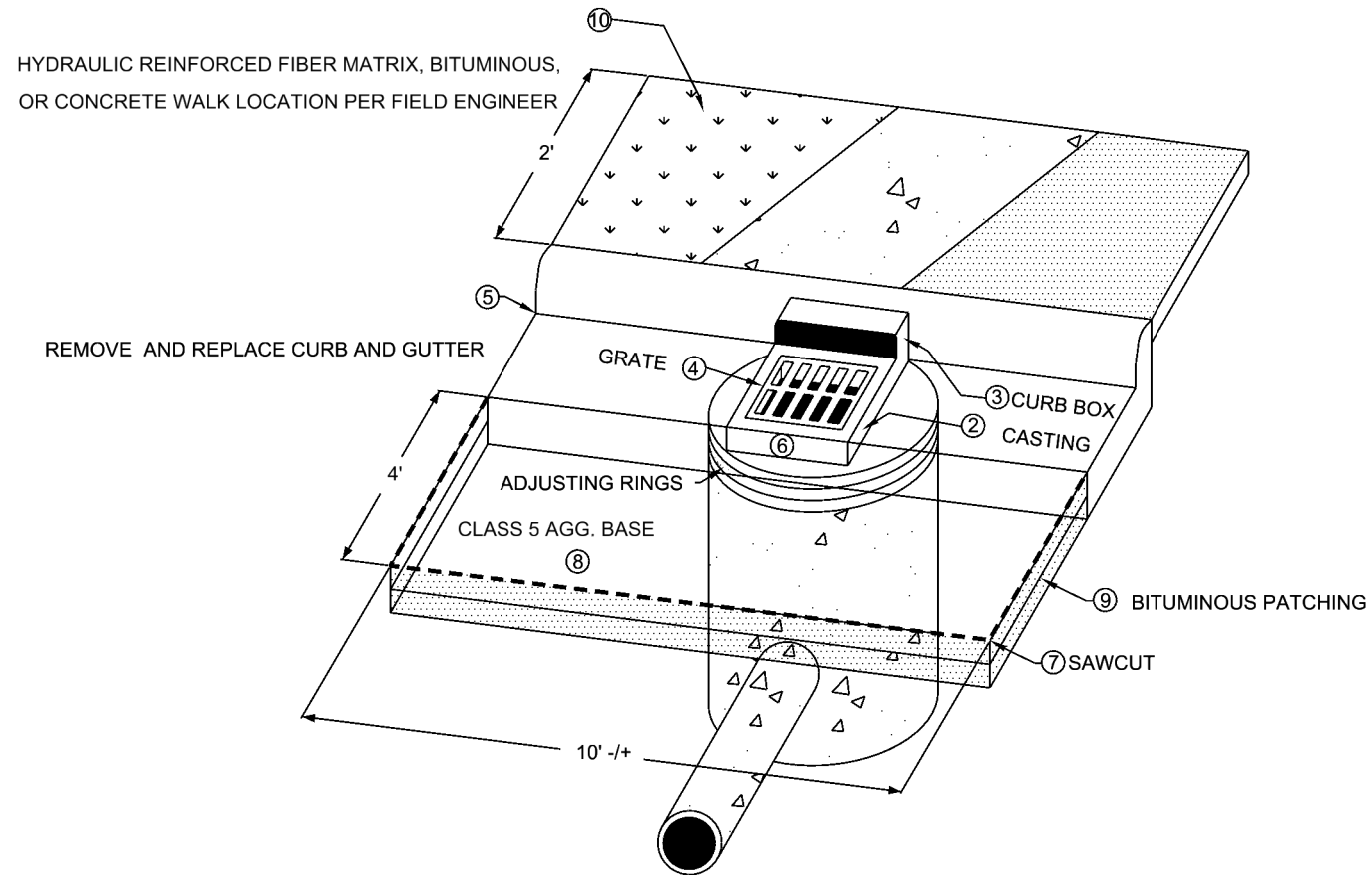
**ANOKA COUNTY**  
**HIGHWAY DEPT.**

COUNTY PROJECT 23-19-12  
 STATE AID PROJECT 002-612-034

DETAILS  
 Sheet 7 of 22 Sheets

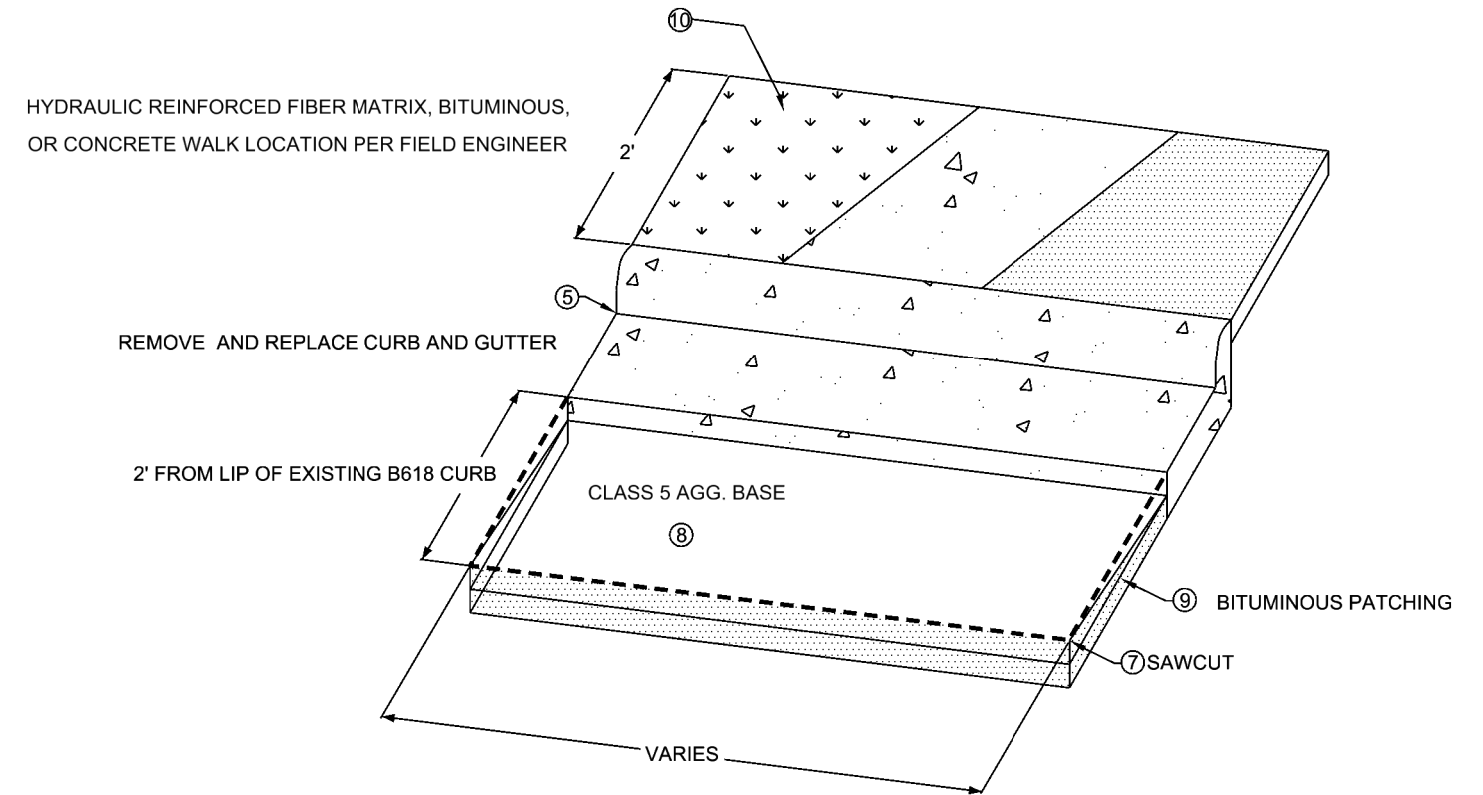
### CATCH BASIN DETAIL

SEE STRUCTURE TAB FOR LOCATION  
(PAGE 9)



### NEW CURB DETAIL

SEE PLAN FOR LOCATION



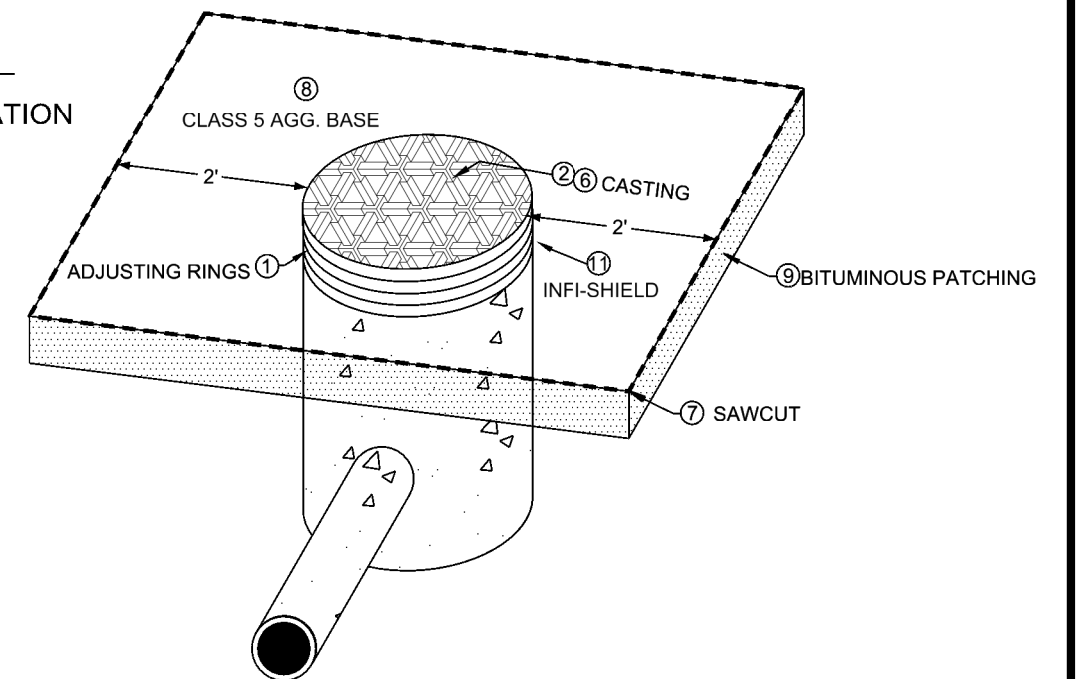
### NOTES

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

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

### MANHOLE DETAIL

SEE STRUCTURE TAB FOR LOCATION  
(PAGE 9)



NO	DATE	BY	CKD	APPR	REVISION		
	05/15/2023					9:00:40 AM	

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

PRINT NAME: GERALD J. AUGER, JR.  
SIGNATURE:   
DATE: 05-10-2023 LICENSE NO. 26511

DRAWN BY MA DATE 05/01/2023  
DESIGN BY MA DATE 05/01/2023  
CHECKED BY CO DATE 05/15/2023



ANOKA COUNTY  
HIGHWAY DEPT.

COUNTY PROJECT 23-19-12  
STATE AID PROJECT 002-612-034

DETAILS

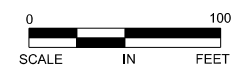
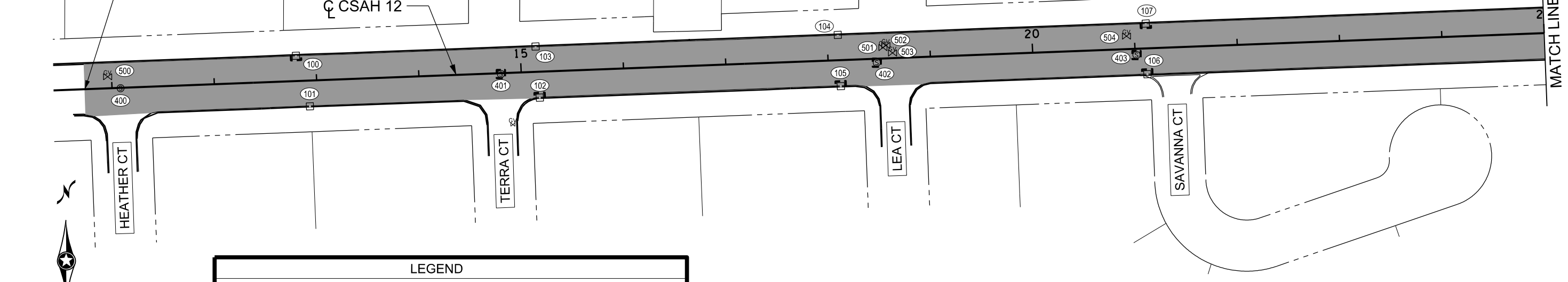
Sheet 8 of 22 Sheets



BEGIN CONSTRUCTION  
SAP: 002-612-034  
STATION: 10+73.43

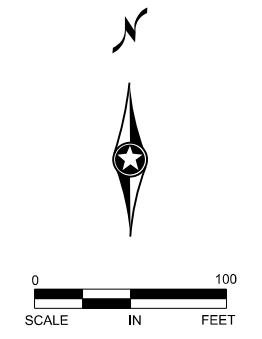
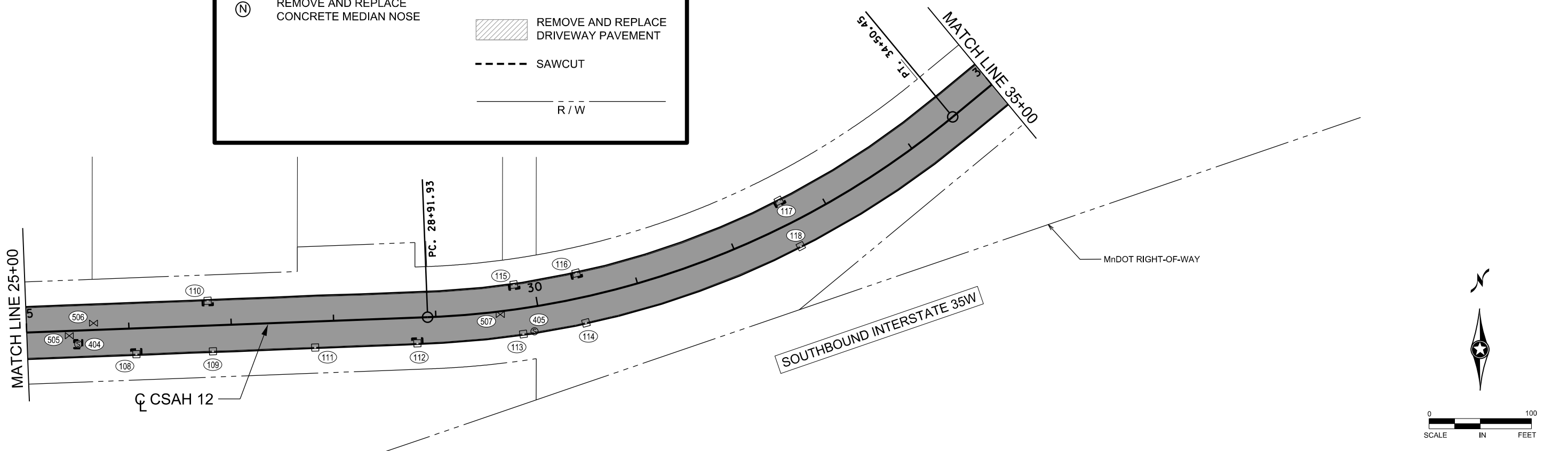
CSAH 12

MATCH LINE 25+00



**LEGEND**

⊗	ADJUST GATE VALVE	■	MAINLINE MILL AREA
□	APPROX. LOOP LOCATION	▨	STREET APPROACH MILL SPECIAL AREA
Ⓝ	REMOVE AND REPLACE CONCRETE MEDIAN NOSE	▧	REMOVE AND REPLACE DRIVEWAY PAVEMENT
		- - -	SAWCUT
		—	R / W



NO	DATE	BY	CKD	APPR	REVISION	
	05/18/2023					10:49:06 AM

NAME: P:\23-01-00\CSAH\_12\_(HEATHER-CSAH 23)\Base\Proposed\CP1.dgn

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

PRINT NAME: GERALD J. AUGER, JR.

SIGNATURE: *[Signature]*

DATE: 05-10-2023 LICENSE NO. 26511

DRAWN BY: MA DATE 05/01/2023

DESIGN BY: MA DATE 05/01/2023

CHECKED BY: CO DATE 05/18/2023

**ANOKA COUNTY  
HIGHWAY DEPT.**

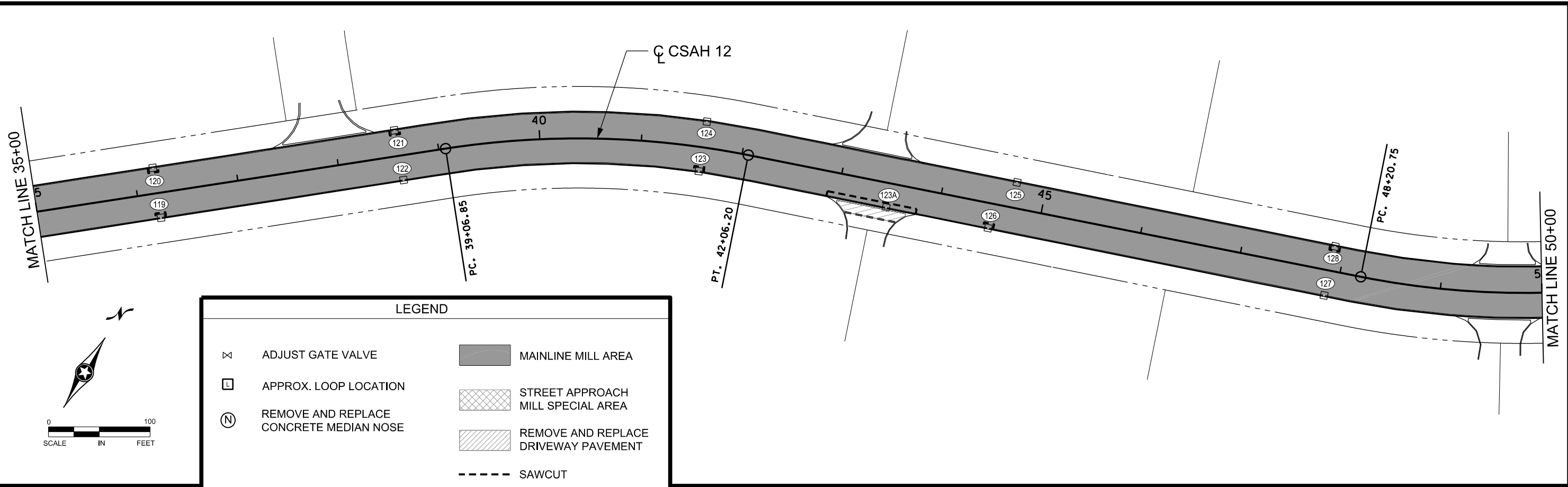
COUNTY PROJECT 23-19-12

STATE AID PROJECT 002-612-034

CONSTRUCTION PLAN

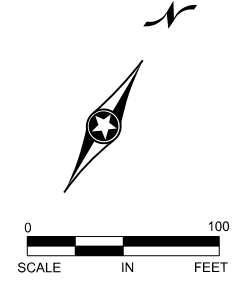
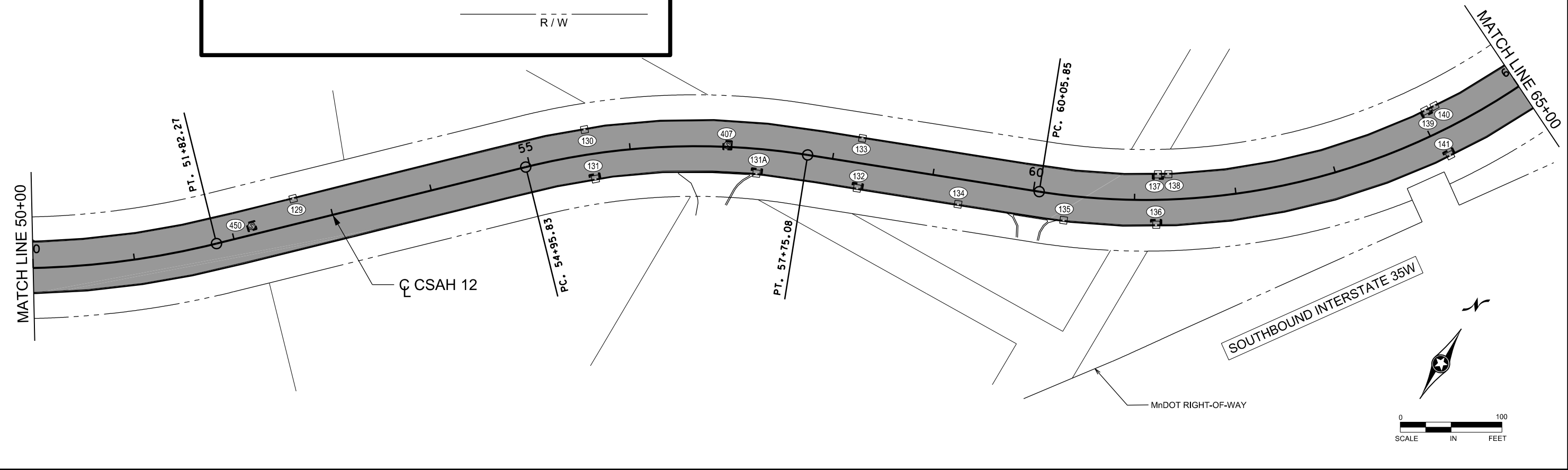
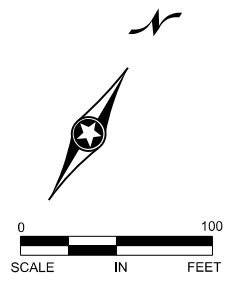
STA 10+73.43 TO 35+00

Sheet 9 of 22 Sheets



**LEGEND**

	ADJUST GATE VALVE		MAINLINE MILL AREA
	APPROX. LOOP LOCATION		STREET APPROACH MILL SPECIAL AREA
	REMOVE AND REPLACE CONCRETE MEDIAN NOSE		REMOVE AND REPLACE DRIVEWAY PAVEMENT
	SAWCUT		R/W



NO	DATE	BY	CKD	APPR	REVISION	TIME
	05/18/2023					10:48:30 AM

NAME: P:\23-01-00\CSAH\_12\_(HEATHER-CSAH 23)\Base\Proposed\CP2.dgn

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

PRINT NAME: GERALD J. AUGER JR.

SIGNATURE:

DATE: 05-10-2023 LICENSE NO. 26511

DRAWN BY: MA DATE 05/01/2023

DESIGN BY: MA DATE 05/01/2023

CHECKED BY: CO DATE 05/18/2023

**ANOKA COUNTY  
HIGHWAY DEPT.**

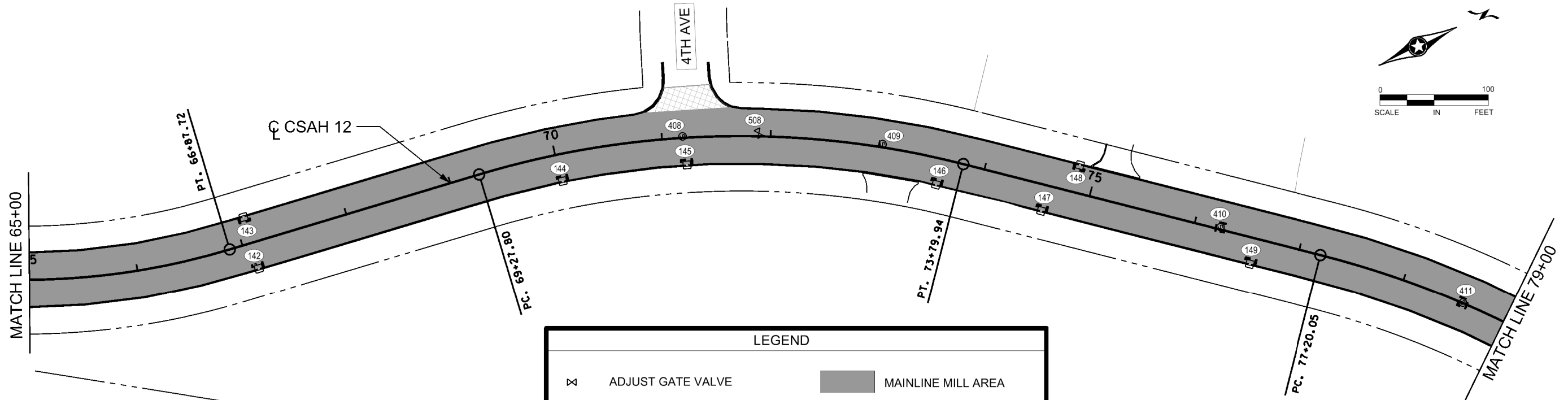
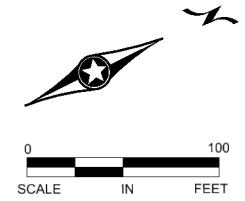
COUNTY PROJECT 23-19-12

STATE AID PROJECT 002-612-034

**CONSTRUCTION PLAN**

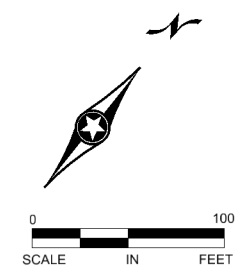
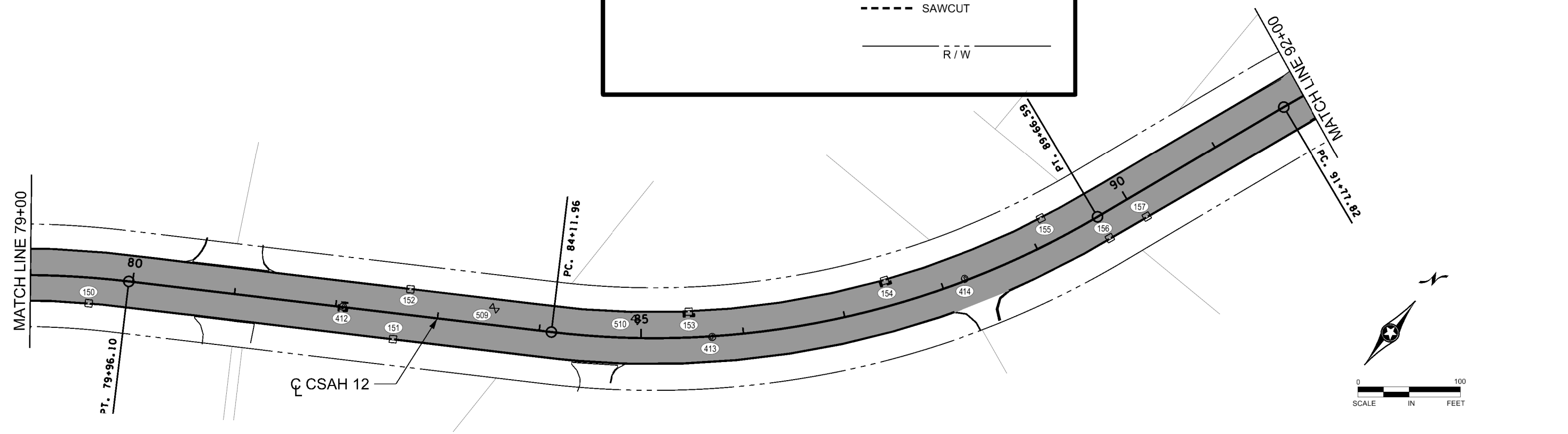
STA 35+00 TO 65+00

Sheet 10 of 22 Sheets



**LEGEND**

⊗	ADJUST GATE VALVE	■	MAINLINE MILL AREA
□	APPROX. LOOP LOCATION	▨	STREET APPROACH MILL SPECIAL AREA
Ⓝ	REMOVE AND REPLACE CONCRETE MEDIAN NOSE	▧	REMOVE AND REPLACE DRIVEWAY PAVEMENT
		---	SAWCUT
		—	R / W



NO	DATE	BY	CKD	APPR	REVISION		
	05/15/2023					9:01:12 AM	

NAME: P:\23-01-00\CSAH\_12\_(HEATHER-CSAH 23)\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.

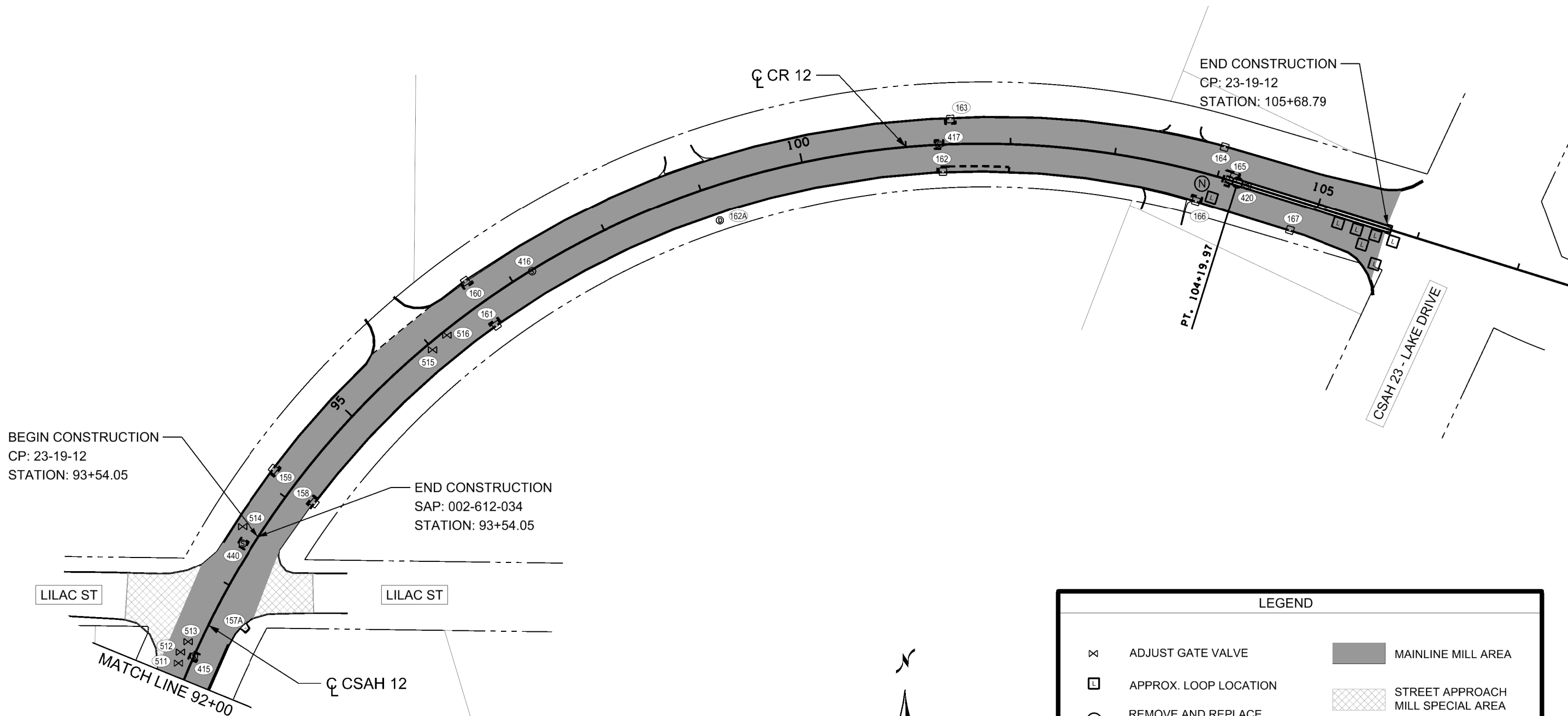
PRINT NAME: GERALD J. AUGER JR.  
 SIGNATURE:   
 DATE: 05-10-2023 LICENSE NO. 26511

DRAWN BY: MA DATE 05/01/2023  
 DESIGN BY: MA DATE 05/01/2023  
 CHECKED BY: CO DATE 05/15/2023



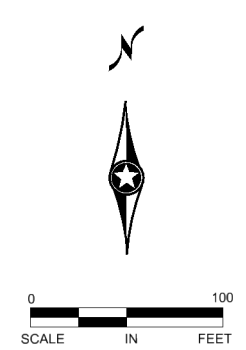
COUNTY PROJECT 23-19-12  
 STATE AID PROJECT 002-612-034

CONSTRUCTION PLAN  
 STA 65+00 TO 92+00  
 Sheet 11 of 22 Sheets



**LEGEND**

⊗	ADJUST GATE VALVE	■	MAINLINE MILL AREA
□	APPROX. LOOP LOCATION	▨	STREET APPROACH MILL SPECIAL AREA
Ⓝ	REMOVE AND REPLACE CONCRETE MEDIAN NOSE	▧	REMOVE AND REPLACE DRIVEWAY PAVEMENT
		---	SAWCUT
		---	R / W



NO	DATE	BY	CKD	APPR	REVISION	
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NAME: P:\23-01-00\CSAH\_12\_(HEATHER-CSAH 23)\Base\Proposed\CP4.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: 05-10-2023 LICENSE NO. 26511

DRAWN BY: MA DATE 05/01/2023

DESIGN BY: MA DATE 05/01/2023

CHECKED BY: CO DATE 05/15/2023

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

COUNTY PROJECT 23-19-12

STATE AID PROJECT 002-612-034

**CONSTRUCTION PLAN**

STA 92+00 TO 105+68.79

Sheet 12 of 22 Sheets

**PERMANENT PAVEMENT MARKING PLAN  
NOTES AND GUIDELINES**

**GENERAL INFORMATION:**

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

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

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

**MULTI COMPONENT (MULTI COMP):**

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

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

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

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

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

**PREFORMED THERMOPLASTIC:**

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

**PAINT:**

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

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

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

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

PAVEMENT MARKING TABULATION			
ITEM	UNIT	TOTAL QUANTITY	NOTES
4" SOLID LINE MULTICOMP GROUND IN (WHITE)	LIN FT	19890	
4" SOLID LINE MULTICOMP GROUND IN (YELLOW)	LIN FT	1580	
4" BROKEN LINE MULTICOMP GROUND IN (YELLOW)	LIN FT	790	1
4" BROKEN LINE MULTICOMP GROUND IN (WHITE)	LIN FT	110	1
4" SOLID DBL LINE MULTICOMP GROUND IN (YELLOW)	LIN FT	5550	
24" SOLID LINE PREFORMED THERMOPLASTIC GROUND IN (WHITE)	LIN FT	41	
3'X6' ZEBRA CROSSWALK PREFORMED THERMOPLASTIC GROUND IN (WHITE)	SQ FT	270	
PAVEMENT MESSAGE PREFORMED THERMOPLASTIC GROUND IN (LEFT ARROW)	SQ FT	31	
PAVEMENT MESSAGE PREFORMED THERMOPLASTIC GROUND IN (THRU/RIGHT ARROW)	SQ FT	60	

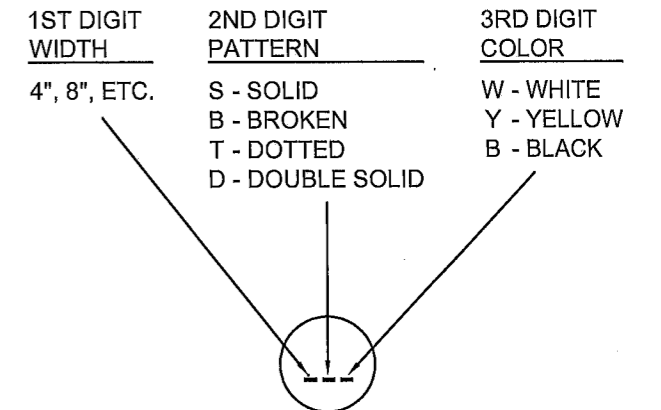
1 - 10' SKIP, 40' GAP

**SYMBOLS & MATERIALS LEGEND**

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

**STRIPING KEY**

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



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

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

NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\23-01-00\CSAH\_12\_(HEATHER-CSAH 23)\Base\Traffic\Perm Mrkg Guide.dwg

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

PRINT NAME: SEAN R. THIEL DATE: 5/1/2023

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

DRAWN BY TMV DATE 04/18/23

DESIGN BY TMV DATE 04/18/23

CHECKED BY SRT DATE 04/19/23



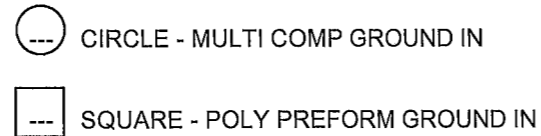
**ANOKA COUNTY  
HIGHWAY DEPT.**

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CP 23-19-12

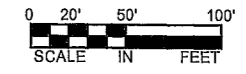
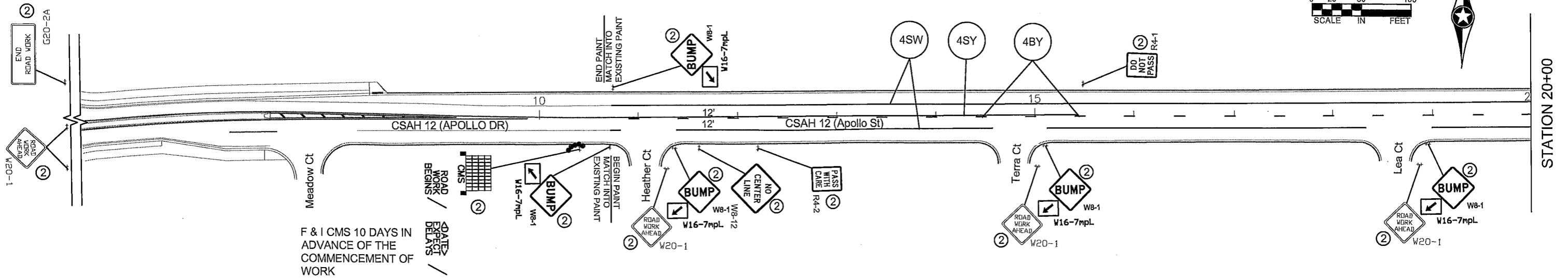
PERMANENT PAVEMENT  
MARKING PLAN DETAILS

SHEET 13 OF 22 SHEETS

STRIPING KEY



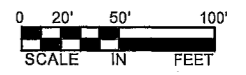
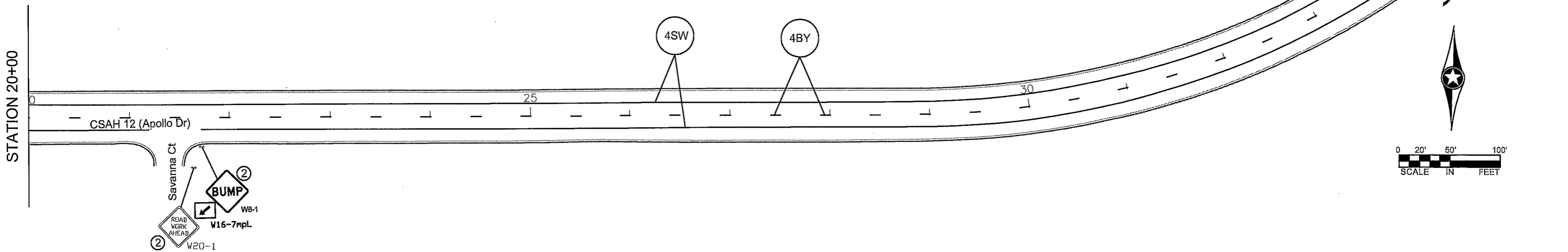
SIGN NOTES:  
 ② TEMPORARY TRAFFIC CONTROL SIGN



NOTES (TYP):

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

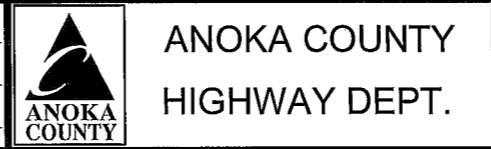
F & I CMS 10 DAYS IN ADVANCE OF THE COMMENCEMENT OF WORK



NO	DATE	BY	CKD	APPR	REVISION

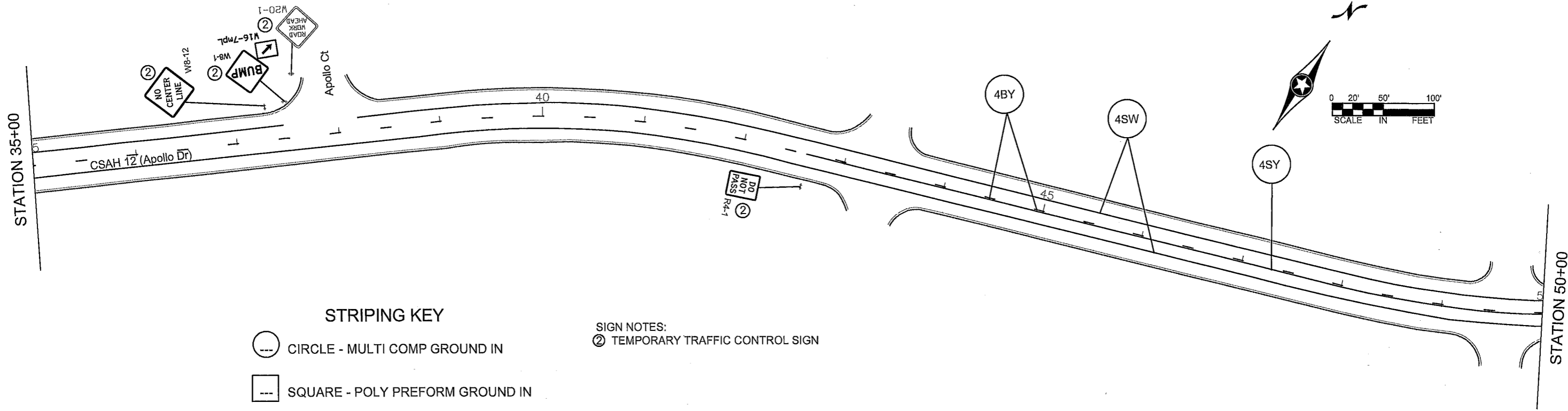
I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.  
 PRINT NAME: SEAN R. THIEL  
 SIGNATURE: *Sean R. Thiel*  
 DATE: 5/1/2023 LICENSE NO. 45129

DRAWN BY: TMV DATE: 04/18/23  
 DESIGN BY: TMV DATE: 04/18/23  
 CHECKED BY: SRT DATE: 04/19/23



SAP 002-612-034  
 CP 23-19-12

TEMPORARY SIGNING & PERMANENT STRIPING PLAN  
 Sheet 14 of 22 Sheets

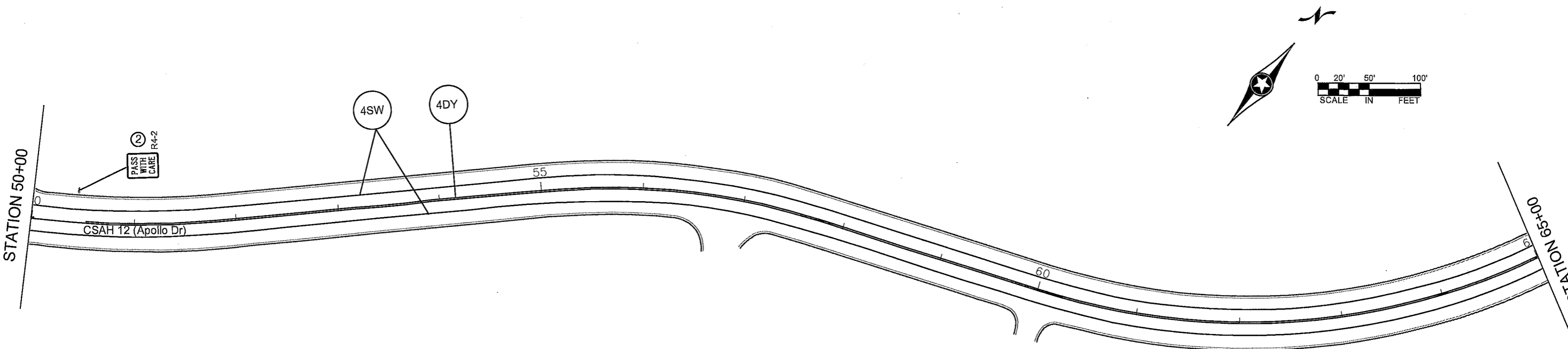


**STRIPING KEY**

○ CIRCLE - MULTI COMP GROUND IN

□ SQUARE - POLY PREFORM GROUND IN

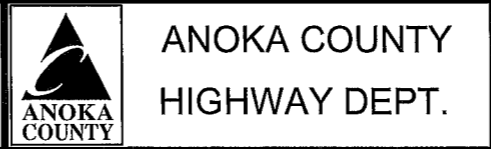
**SIGN NOTES:**  
 ② TEMPORARY TRAFFIC CONTROL SIGN



NO	DATE	BY	CKD	APPR	REVISION

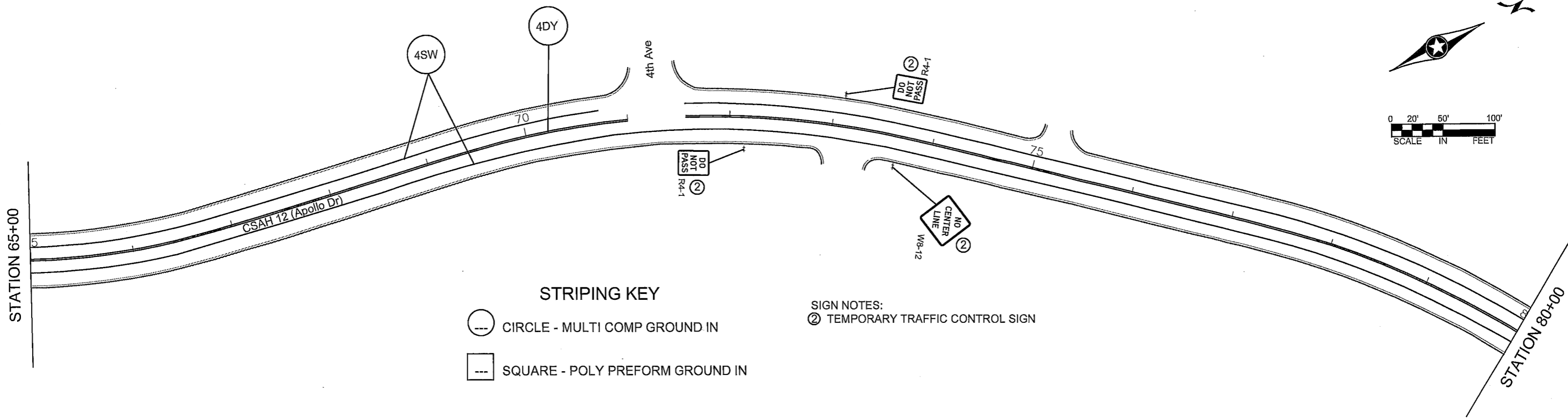
I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.  
 PRINT NAME: SEAN R. THIEL  
 SIGNATURE: *Sean R. Thiel*  
 DATE: 5/17/2023 LICENSE NO. 45129

DRAWN BY: TMV DATE: 04/18/23  
 DESIGN BY: TMV DATE: 04/18/23  
 CHECKED BY: SRT DATE: 04/19/23



SAP 002-612-034  
 CP 23-19-12

TEMPORARY SIGNING &  
 PERMANENT STRIPING PLAN  
 Sheet 15 of 22 Sheets



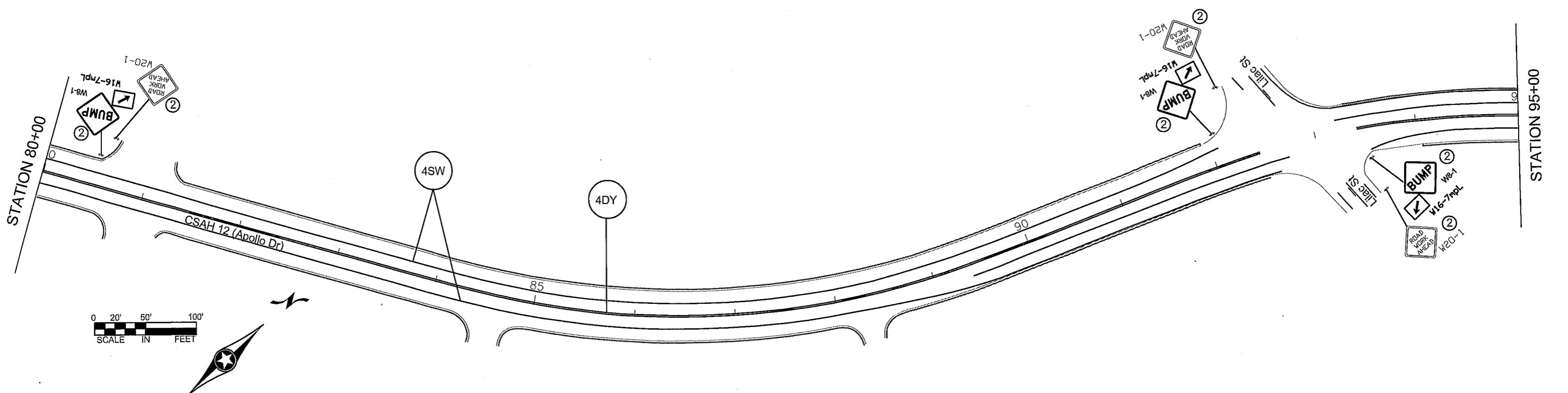
**STRIPING KEY**

○ CIRCLE - MULTI COMP GROUND IN

□ SQUARE - POLY PREFORM GROUND IN

**SIGN NOTES:**

② TEMPORARY TRAFFIC CONTROL SIGN



NO	DATE	BY	CKD	APPR	REVISION

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PRINT NAME: SEAN R. THIEL

SIGNATURE: *Sean R. Thiel*

DATE: 5/1/2023 LICENSE NO. 45129

DRAWN BY: TMV DATE: 04/18/23

DESIGN BY: TMV DATE: 04/18/23

CHECKED BY: SRT DATE: 04/19/23



**ANOKA COUNTY  
HIGHWAY DEPT.**




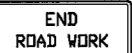






SAP 002-612-034  
CP 23-19-12








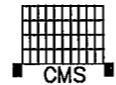
TEMPORARY SIGNING &  
PERMANENT STRIPING PLAN

Sheet 16 of 22 Sheets





TEMPORARY TRAFFIC CONTROL SIGNS			
M.U.T.C.D. CODE	SIZE	INSERT	QUANTITY
W8-12	48" x 48"		4
R4-1	24" x 30"		5
R4-2	24" x 30"		2
G20-2	36" x 18"		3
W8-1	48" x 48"		12
W16-7P	48" x 48"		12
M1-6M	24" x 24"		4
W20-1	48" x 48"		AS NEEDED (ESTIMATED 14)
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

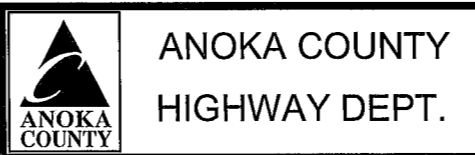
CMS SIGN TO BE PLACED A MINIMUM OF TEN DAYS PRIOR TO ACTUAL COMMENCEMENT OF ROAD WORK. SIGNS TO BE REMOVED WHEN ROAD WORK BEGINS.

NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\23-01-00\CSAH\_12\_(HEATHER-CSAH 23)\Base\Traffic\Temp Signing & Perm Striping.dwg

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.  
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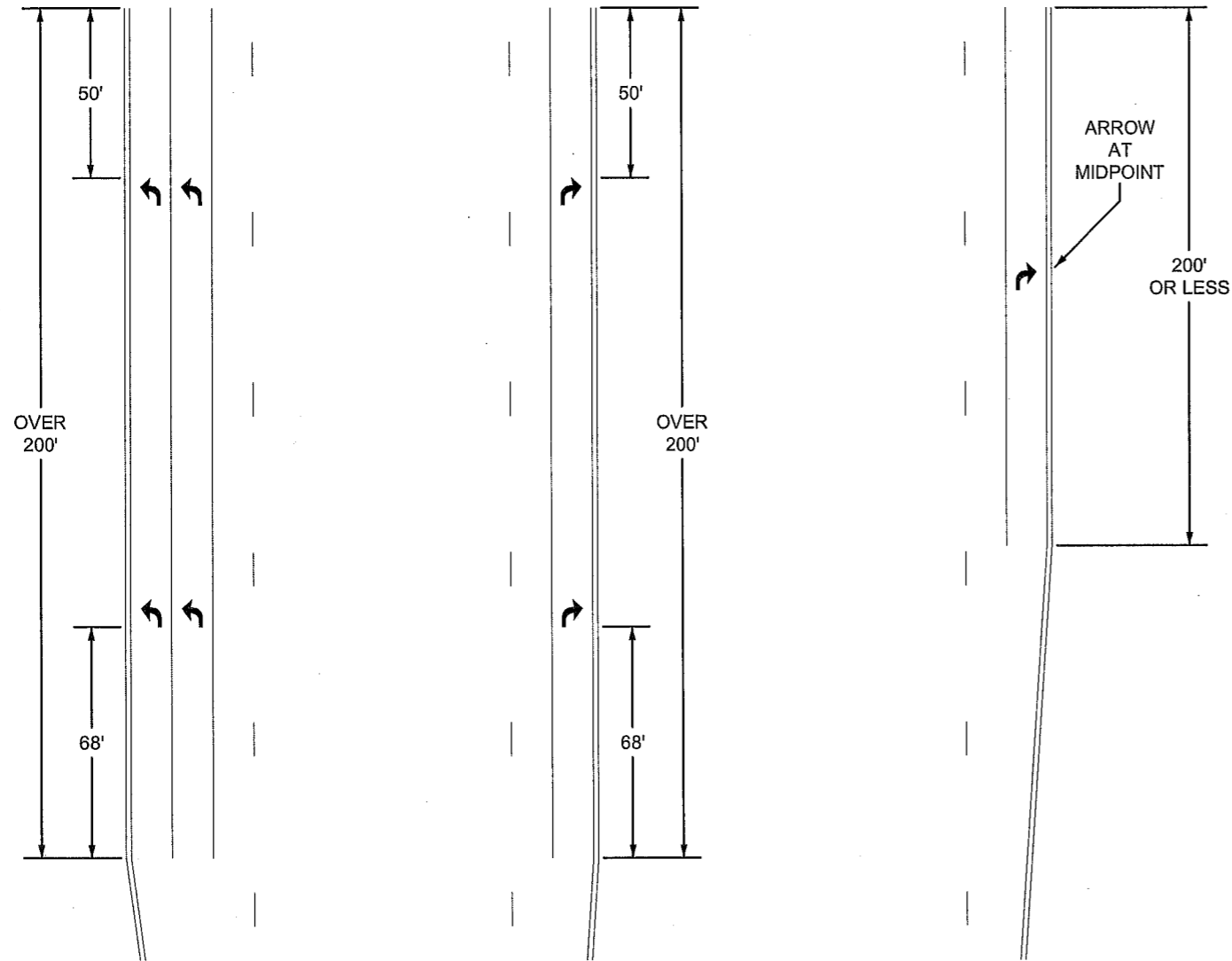
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 DESIGN BY: JMV DATE: 04/18/23  
 CHECKED BY: SRT DATE: 04/19/23



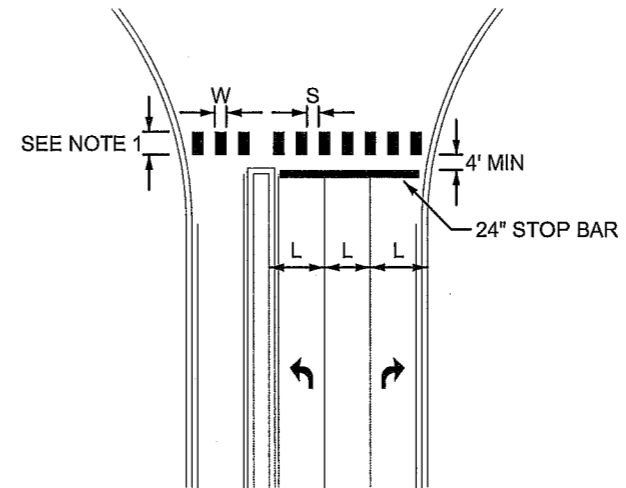
SAP 002-612-034  
 CP 23-19-12

PAVEMENT MARKING TYPICALS

TURN LANE ARROW PLACEMENT

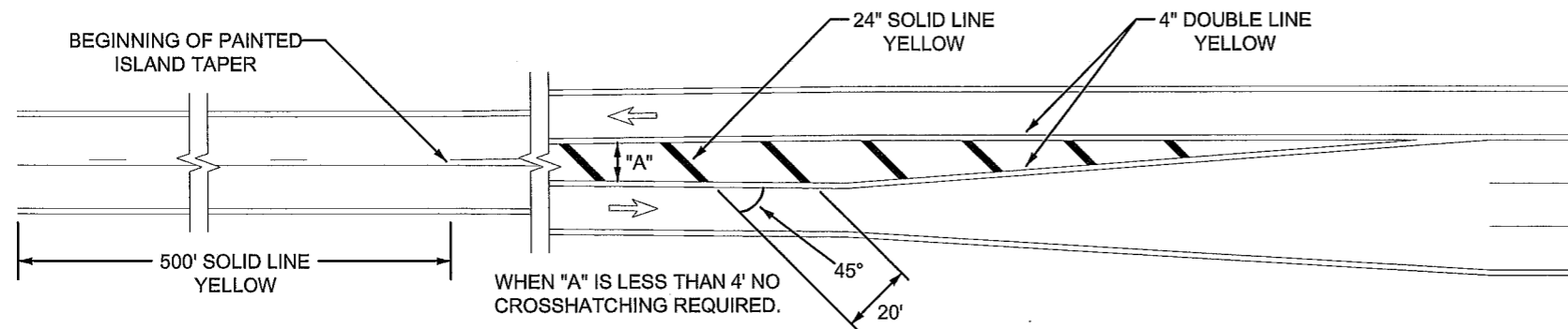


PEDESTRIAN CROSSWALK



(L) WIDTH OF INSIDE LANE	(W) WIDTH OF PAINTED AREAS	(S) 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'

LEFT TURN ISLAND MARKINGS



CROSSWALK NOTES:

1. THE BLOCKS SHALL BE A MINIMUM OF 6' AND AT LEAST AS LONG AS THE TRUNCATED DOMES. FOR FANNED TRUNCATED DOMES THE BLOCKS SHALL BE AT LEAST AS LONG AS THE APPROACHING SIDEWALK OR SHARED-USE PATH.
2. BLOCKS TO BE CENTERED ON CENTERLINE AND LANE LINES.
3. A MINIMUM OF 1.5' CLEAR DISTANCE SHALL BE LEFT ADJACENT TO THE CURB FACE. IF BLOCK FALLS INTO THIS DISTANCE IT MUST BE OMITTED.
4. ON TWO LANE TWO WAY STREETS, USE SPACING SHOWN FOR AN 11' INSIDE LANE.
5. FOR DIVIDED ROADWAYS, ADJUSTMENTS IN SPACING OF THE BLOCKS SHOULD BE MADE IN THE MEDIAN SO THAT THE BLOCKS ARE MAINTAINED IN THEIR PROPER LOCATION ACROSS THE TRAVELED PORTION OF THE ROADWAY.
6. AT SKEWED CROSSWALKS, THE BLOCKS ARE TO REMAIN PARALLEL TO THE LANE LINES.
7. THE BLOCKS SHALL BE PLACED SO THAT THEY ARE NOT LOCATED IN THE WHEEL PATH OF THE VEHICLES.
8. LOCATION OF CROSSWALK BLOCKS, STOP BARS, SIGNAL LOOPS AND PEDESTRIAN RAMPS ARE APPROXIMATE. FINAL LOCATIONS TO BE DETERMINED AND FIELD VERIFIED DURING CONSTRUCTION BY THE FIELD ENGINEER.

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ANOKA COUNTY  
 HIGHWAY DEPT.

SAP 002-612-034  
 CP 23-19-12

SIGNING & STRIPING  
 DETAILS

FOR REFERENCE PURPOSES ONLY

LOOP DETECTORS			
NUMBER	SIZE (FT.)	FUNCTION	LOCATION
D1-1	6x6	1	40
D1-2	6x6	1	10
D2-1	6x6	1	300
D2-2	6x6	1	300
D3-1	2-6x6	1	4 & 34
D3-2	2-6x6	1	-5 & 19
D4-1	6x6	3,8	180
D4-2	6x6x10	7	AS SHOWN
D5-1	6x6	1	40
D5-2	6x6	1	10
D6-1	6x6	1	400
D6-2	6x6	1	400
D7-1	2-6x6	1	4 & 34
D7-2	2-6x6	1	-5 & 19
D8-1	6x6	3,8	120
D8-2	6x6x10	7	AS SHOWN
D8-3	2-6x6	1	3

**LOOP DETECTOR FUNCTIONS**

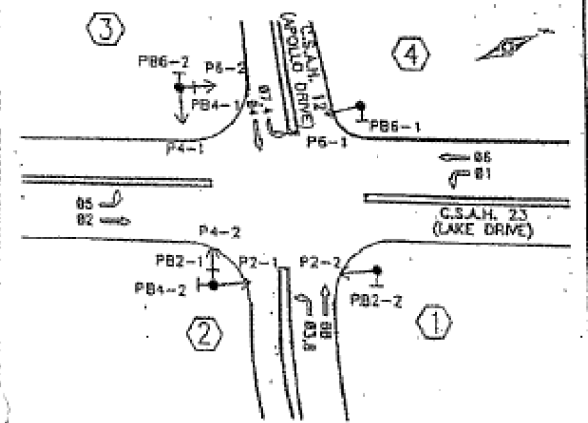
- 1) CALL AND EXTEND
  - 2) EXTEND ONLY
  - 3) DELAY CALL/IMMEDIATE EXTEND
  - 4) CARRY OVER (STRETCH)
- LOCATION = DISTANCE FROM STOP LINE TO DETECTOR IN FEET

\*\* = NEW NMC LOOP DETECTOR TO BE FURNISHED AND INSTALLED BY CONTRACTOR AS PART OF THIS PROJECT (REVISE SIGNAL SYSTEM "D").

INPLACE LOOPS D5-1/D5-2-ABANDON INPLACE ("D") F & I NEW LOOPS D5-1/D5-2 ("D")

H.H.5 TO H.H.6B:  
F & I - 2" R.S.C. ("D")  
2-2/c #14-INPLACE (SALVAGE AND INSTALL) ("D")  
F & I - 1-6/c FD CABLE (INTERCONNECT)

**CONTROLLER PHASING, PEDESTRIAN INDICATIONS AND PUSH BUTTONS**

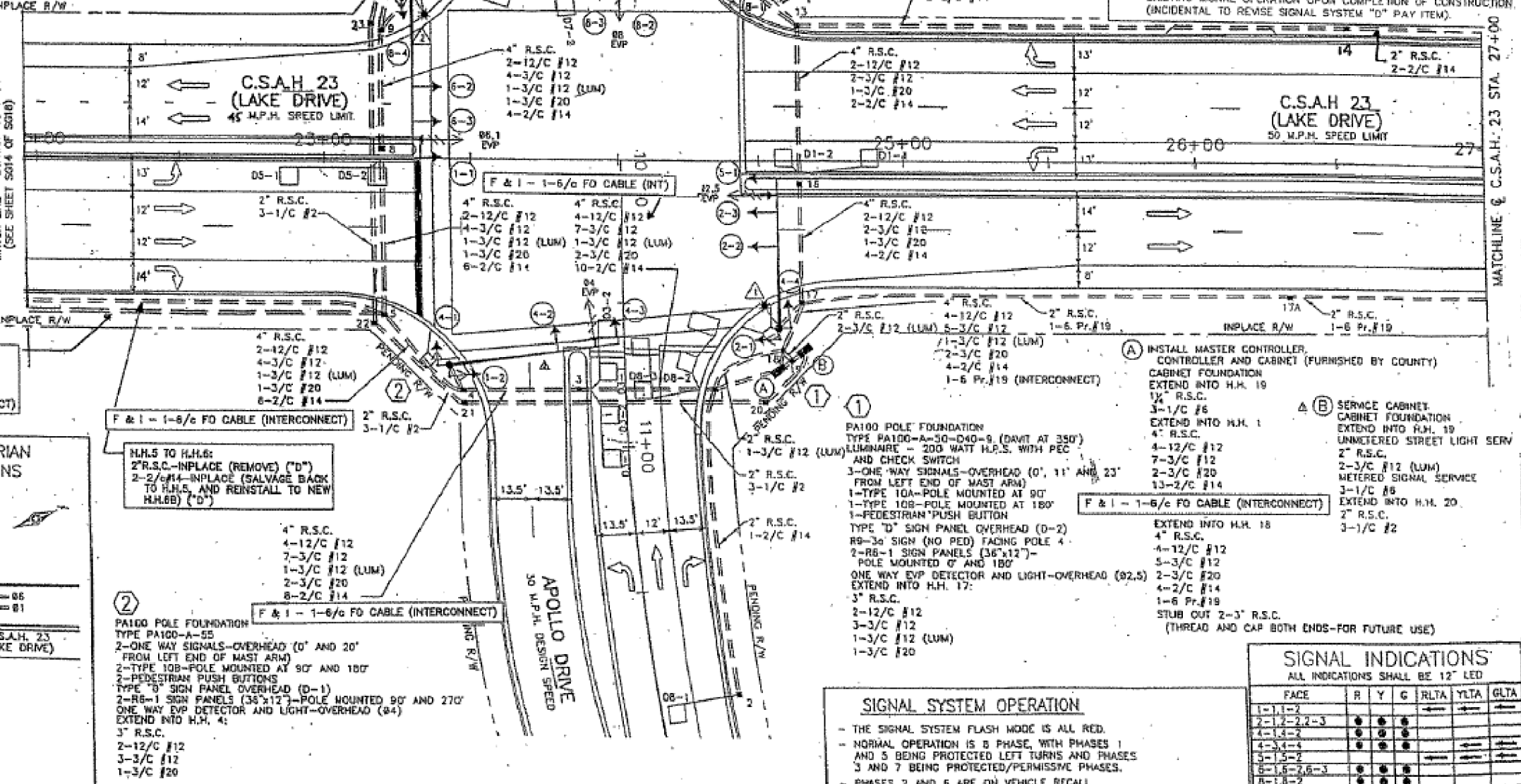
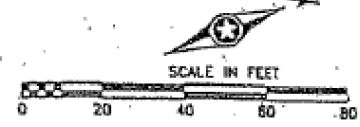


PA100 POLE FOUNDATION  
TYPE PA100-A-55-D40-9 (DAVT AT 350')  
LUMINAIRE - 200 WATT H.P.S. WITH PEC AND CHECK SWITCH  
3-ONE WAY SIGNALS OVERHEAD (0', 11' AND 23' FROM LEFT END OF MAST ARM)  
2-TYPE 10B-POLE MOUNTED AT 90' AND 180'  
2-PEDESTRIAN PUSH BUTTONS  
TYPE "D" SIGN PANEL OVERHEAD (D-2)  
2-R6-1 SIGN PANELS (36"x12")-POLE MOUNTED 0' AND 180'  
ONE WAY EVP DETECTOR AND LIGHT-OVERHEAD (86,1)  
EXTEND INTO H.H. 9:  
3" R.S.C.  
2-12/C #12  
4-3/C #12  
1-3/C #12 (LUM)  
1-3/C #20

SOP  
INPLACE: POLE MOUNTED TRANSFORMER  
F&I 2" R.S.C. RISER WITH WEATHERHEAD  
UP INPLACE UTILITY POLE  
EXTEND INTO H.H. 23  
2" R.S.C.  
3-1/C #2

PA100 POLE FOUNDATION  
TYPE PA100-A-15  
2-ONE WAY SIGNALS-OVERHEAD (0' AND 11' FROM LEFT END  
1-TYPE 10A-POLE MOUNTED AT 90'  
1-PEDESTRIAN PUSH BUTTON  
TYPE "D" SIGN PANEL OVERHEAD (D-1)  
2-R6-1 SIGN PANELS (36"x12")-POLE MOUNTED 90' AND 270'  
R6-3a SIGN (NO PED) FACING POLE 1  
ONE WAY EVP DETECTOR AND LIGHT-OVERHEAD (88)  
EXTEND INTO H.H. 13:  
3" R.S.C.  
2-12/C #12  
2-3/C #12  
1-3/C #20

- NOTES:**
- 1) ALL ITEMS OF THIS SIGNAL SYSTEM ARE INPLACE AND SHALL BE REUSED AND MAINTAINED INPLACE, EXCEPT WHERE BOXED IN AND DENOTED BY EITHER ("D") (ITEMS TO BE FURNISHED AND INSTALLED BY CONTRACTOR AS PART OF REVISE SIGNAL SYSTEM "D"), OR BY (INTERCONNECT) (ITEMS TO BE FURNISHED AND INSTALLED BY CONTRACTOR UNDER TRAFFIC CONTROL INTERCONNECT PAY ITEM).
  - 2) IF SHALL BE CONTRACTOR'S RESPONSIBILITY TO UTILIZE THE "ONE CALL EXCAVATION NOTICE SYSTEM" (TELEPHONE NUMBER 651-454-0002), AS REQUIRED BY MINNESOTA STATUTE 2160.
  - 3) DISTANCE OFF CURB OR SHOULDER FOR NEW CONDUIT AND INTERCONNECT CABLE SHALL BE 1-2 FEET.
  - 4) (INTERCONNECT) DENOTES ITEMS TO BE MEASURED AND PAID FOR UNDER ITEM NO. 2565 (TRAFFIC CONTROL INTERCONNECTION). SEE ESTIMATED QUANTITIES AND SPECIAL PROVISIONS.
  - 5) ("D") DENOTES ITEMS TO BE MEASURED AND PAID FOR UNDER ITEM NO. 2565 (REVISE SIGNAL SYSTEM "D"). SEE ESTIMATED QUANTITIES AND SPECIAL PROVISIONS.
  - 6) SEE SIGNAL PLAN SHEET SG14 REGARDING WORK ON INPLACE HANDHOLE 8 TO ACCOMMODATE MEDIAN CONSTRUCTION.
  - 7) CONTRACTOR SHALL BE RESPONSIBLE FOR TURNING OFF AND BAGGING HEAD 5-1 WHEN MEDIAN LEFT TURN LANE IS CLOSED, SHALL F & I (AND MAKE OPERATIONAL) LED ARROW INDICATIONS IN HEAD 2-3 FOR WHEN LEFT TURN LANE IS RELOCATED DURING CONSTRUCTION, AND SHALL RETURN HEADS 2-3 AND 5-1 TO EXISTING SIGNAL OPERATION UPON COMPLETION OF CONSTRUCTION (INCIDENTAL TO REVISE SIGNAL SYSTEM "D" PAY ITEM).



PA100 POLE FOUNDATION  
TYPE PA100-A-55  
2-ONE WAY SIGNALS-OVERHEAD (0' AND 20' FROM LEFT END OF MAST ARM)  
2-TYPE 10B-POLE MOUNTED AT 90' AND 180'  
2-PEDESTRIAN PUSH BUTTONS  
TYPE "D" SIGN PANEL OVERHEAD (D-1)  
2-R6-1 SIGN PANELS (36"x12")-POLE MOUNTED 90' AND 270'  
ONE WAY EVP DETECTOR AND LIGHT-OVERHEAD (84)  
EXTEND INTO H.H. 4:  
3" R.S.C.  
2-12/C #12  
3-3/C #12  
1-3/C #20

**SIGNAL SYSTEM OPERATION**

- THE SIGNAL SYSTEM FLASH MODE IS ALL RED.
- NORMAL OPERATION IS 5 PHASE, WITH PHASES 1 AND 5 BEING PROTECTED LEFT TURNS AND PHASES 3 AND 7 BEING PROTECTED/PERMISSIVE PHASES.
- PHASES 2 AND 6 ARE ON VEHICLE RECALL.

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

DESIGN TEAM	1	JMC	1/09/07	COUNTY COMMENTS
DRAWN BY:	JMC			
DESIGNER:	JMC			
CHECKED BY:	JMC			

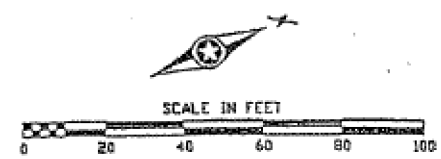
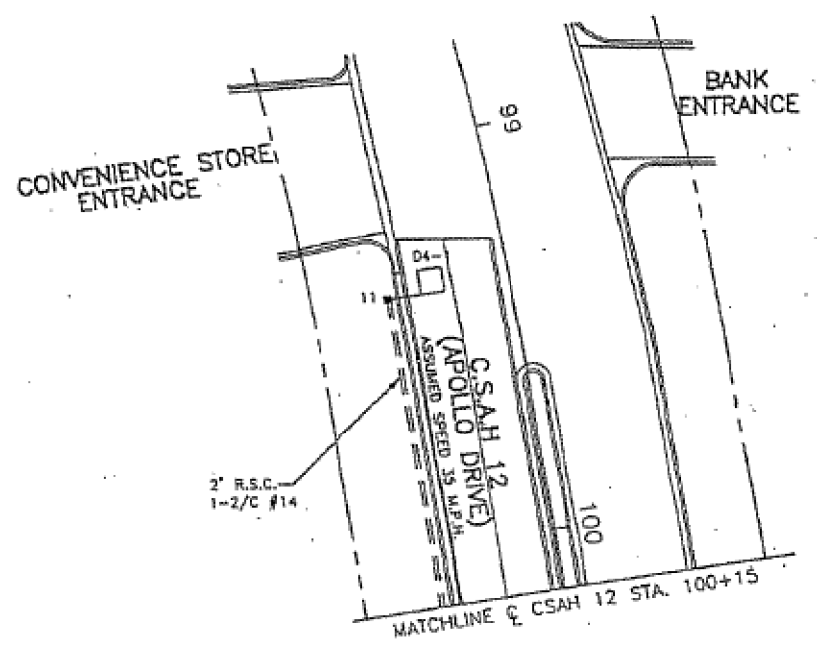
I hereby certify that this plan was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.  
Certified By: *[Signature]* License No. 22457  
Printed Name: JOE N. GRAY Date: 3/28/2002

MINNESOTA DEPARTMENT OF TRANSPORTATION  
STATE PROJ. NO. 0280-55 (TH 35W)  
STATE AID PROJ. NO. 02-623-13 & 210-020-04  
C.S.A.H. 23 (LAKE DRIVE)

REVISE SYSTEM "D"/INTERCONNECT  
INTERSECTION LAYOUT  
LAKE DRIVE (CSAH 23) AT APOLLO DRIVE

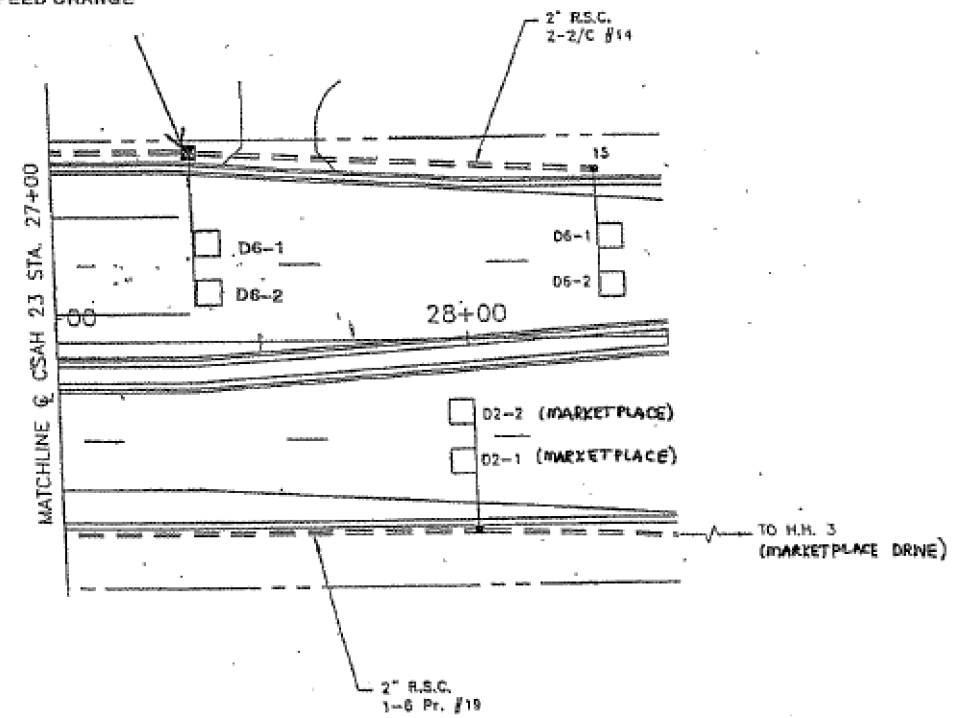
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ALN01.0505.00  
SG16  
OF 508  
198

FOR REFERENCE PURPOSES ONLY



**NOTES:**  
 1) ALL ITEMS OF THIS SIGNAL SYSTEM ARE INPLACE AND SHALL BE REUSED AND MAINTAINED INPLACE ON THIS PLAN SHEET (PLAN SHEET IS BEING PROVIDED FOR INFORMATION ONLY).

**NEW LOOPS FOR SPEED CHANGE**



S:\WORK\11\050500\PROJECTS\SIGNALS\231800\DETAILS\COURTVIEW.DWG

<b>DESIGN TEAM</b> DRAWN BY: JMG DESIGNER: JMG CHECKED BY: JMG	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>NO.</th> <th>BY</th> <th>DATE</th> <th>REVISIONS</th> </tr> </thead> <tbody> <tr> <td> </td> <td> </td> <td> </td> <td> </td> </tr> </tbody> </table>	NO.	BY	DATE	REVISIONS					I hereby certify that this plan was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota. Certified By: <i>[Signature]</i> Lic. No. 22457 Printed Name: JOHN M. GRAY Date: 3/26/2023	 <small>PHONE: 612.750.2020 3530 VANDAS CENTER DR. ST. PAUL, MN 55110</small>	 <b>CITY OF ANOKA</b>	<b>MINNESOTA DEPARTMENT OF TRANSPORTATION</b> STATE PROJ. NO. 0280-55 (TH 35W) STATE AID PROJ. NO. 02-623-13 & 210-020-04 C.S.A.H. 23 (LAKE DRIVE)	<b>SIGNAL SYSTEM "D" MATCH LINES</b> "FOR INFORMATION ONLY" LAKE DRIVE (CSAH 23) AT APOLLO DRIVE	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="font-size: small;">P&amp;E NO.</td> <td style="font-size: small;">ALNO.0505.00</td> <td style="font-size: x-large; font-weight: bold;">140</td> </tr> <tr> <td style="font-size: small;">SG17 OF SG18</td> <td></td> <td style="font-size: x-large; font-weight: bold;">198</td> </tr> </table>	P&E NO.	ALNO.0505.00	140	SG17 OF SG18		198
NO.	BY	DATE	REVISIONS																		
P&E NO.	ALNO.0505.00	140																			
SG17 OF SG18		198																			

NO.	DATE	BY	CHKD	APPR	REVISION	TIME

NAME: P:\23-01-00\CSAH\_12\_(HEATHER-CSAH 23)\Base\Proposed\SIGNAL PLANS.dgn

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.  
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 SIGNATURE: \_\_\_\_\_  
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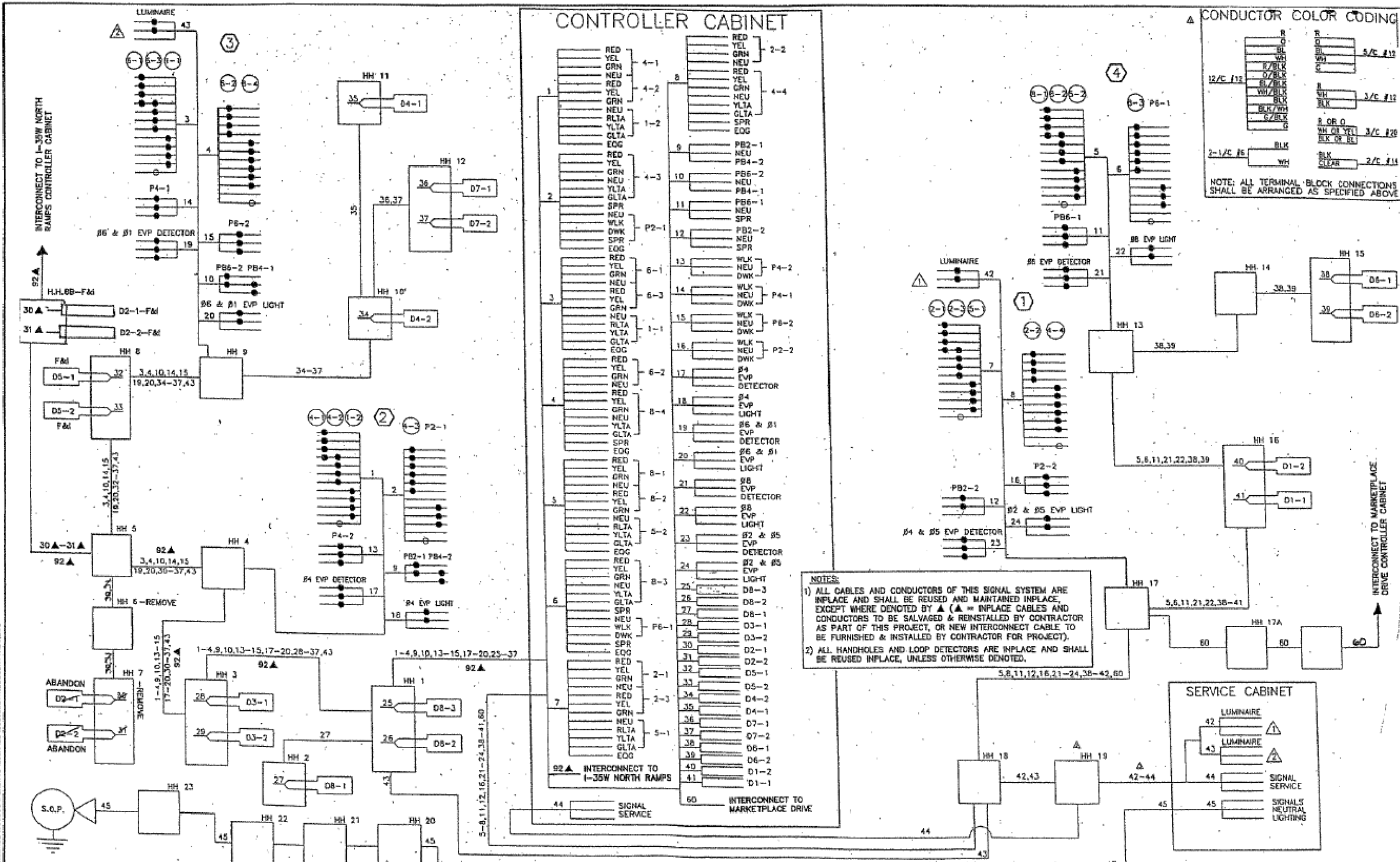
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 DESIGN BY: MA DATE 05/01/2023  
 CHECKED BY: CO DATE 05/15/2023

**ANOKA COUNTY  
 HIGHWAY DEPT.**

COUNTY PROJECT 23-19-12  
 STATE AID PROJECT 002-612-034

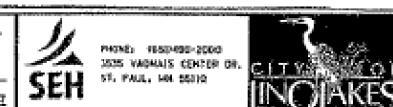
EXISTING SIGNAL PLANS

Sheet 21 of 22 Sheets



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

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.  
 Certified by: *[Signature]* License No. 22457  
 Printed Name: JOHN M. GRAY Date: 3/28/2022



MINNESOTA DEPARTMENT OF TRANSPORTATION  
 STATE PROJ. NO. 0280-55 (TH 35W)  
 STATE AID PROJ. NO. 02-623-13 & 210-020-04  
 C.S.A.H. 23 (LAKE DRIVE)

REVISE SYSTEM "D"/INTERCONNECT  
 FIELD WIRING DIAGRAM  
 LAKE DRIVE (CSAH 23) AT APOLLO DRIVE

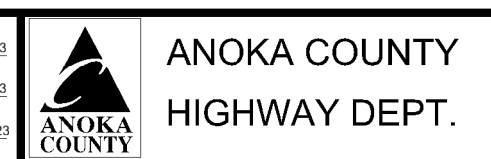
FILE NO.	141
SG18	198

NO.	DATE	BY	CKD	APPR	REVISION	05/15/2023	9:01:37 AM

NAME: P:\23-01-00CSAH\_12\_(HEATHER-CSAH 23)Base\Proposed\SIGNAL PLANS.dgn

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DRAWN BY: MA DATE 05/01/2023  
 DESIGN BY: MA DATE 05/01/2023  
 CHECKED BY: CO DATE 05/15/2023



COUNTY PROJECT 23-19-12  
 STATE AID PROJECT 002-612-034

EXISTING SIGNAL PLANS  
 Sheet 22 of 22 Sheets

FOR REFERENCE PURPOSES ONLY