

# MINNESOTA DEPARTMENT OF TRANSPORTATION

## ANOKA COUNTY

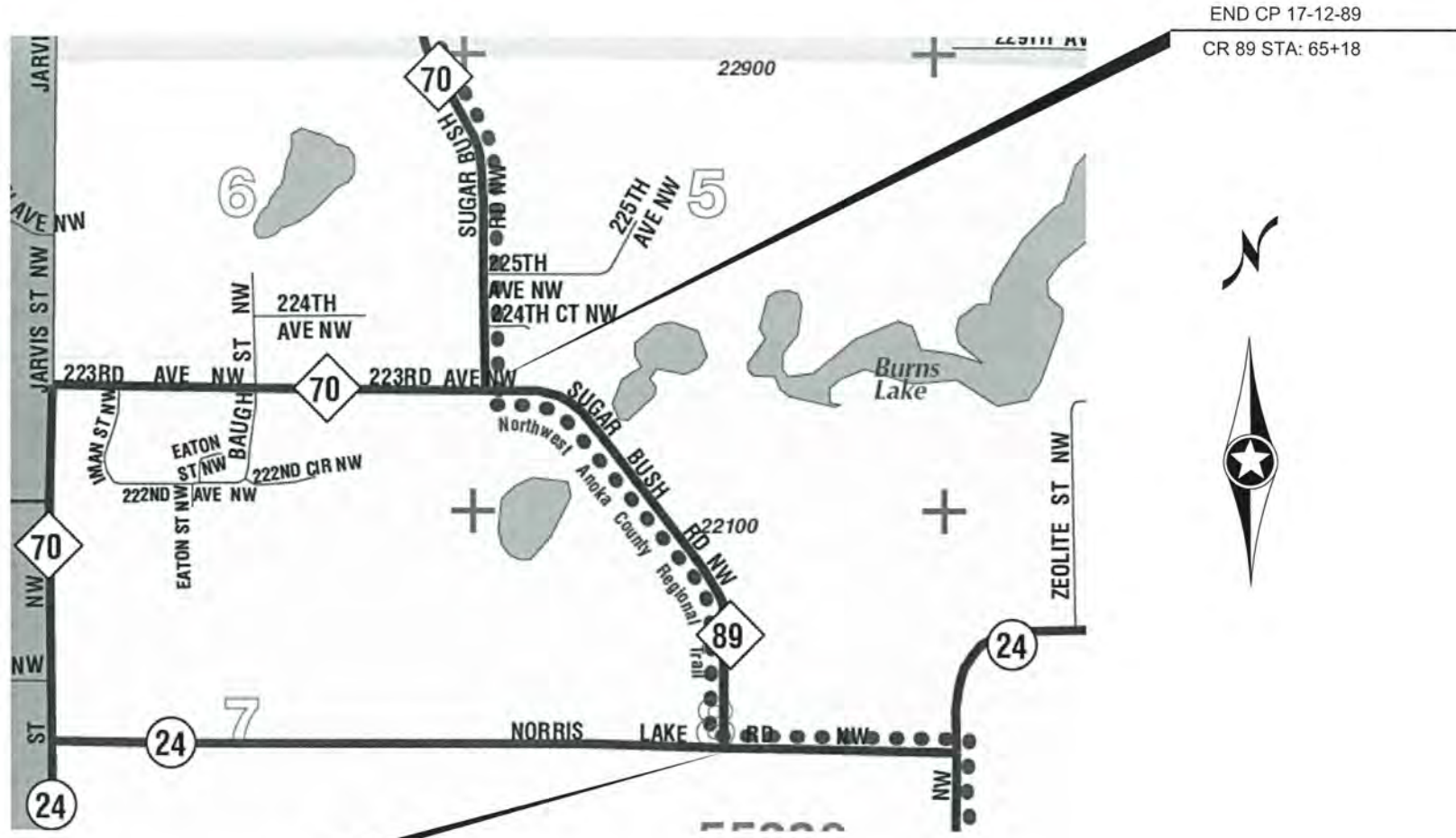
CONSTRUCTION PLAN FOR BITUMINOUS RECLAMATION AND BITUMINOUS SURFACING  
 LOCATED ON CR 89 BETWEEN CSAH 24 AND 223 RD AVE

GOVERNING SPECIFICATIONS  
 THE 2016 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 10 SHEETS

### INDEX

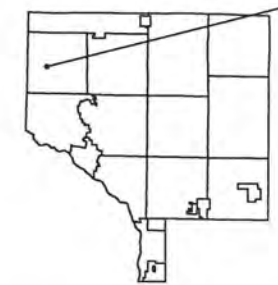
SHEET NO.	DESCRIPTION
1	TITLE SHEET
2	STATEMENT OF ESTIMATED QUANTITIES
3	TYPICAL SECTIONS
4	DETAILS
5-6	CONSTRUCTION PLAN
7	PERMANENT MARKING TABULATION
8-9	TEMPORARY SIGNING, PERMANENT SIGNING AND STRIPING
10	TRAFFIC CONTROL QUANTITY



BEGIN CP 17-12-89  
 CR 89 STA: 10+36

END CP 17-12-89  
 CR 89 STA: 65+18

CR 89	
GROSS LENGTH	5482 FEET      1.04 MILES
EXCEPTIONS-LENGTH	0.00 FEET      0.000 MILES
NET LENGTH	5482 FEET      1.04 MILES
DESIGN SPEED	55 MPH
CURRENT ADT	543



### PROJECT LOCATION

CITY OF ANDOVER  
 ANOKA COUNTY  
 MN/DOT TRANSPORTATION DISTRICT - METRO  
 SECTION 8  
 TOWNSHIP 33 NORTHWEST  
 RANGE 25 WEST

Approved: 4/7/17  
 ANOKA COUNTY ENGINEER

mjohn

STATEMENT OF ESTIMATED QUANTITIES				
ITEM NUMBER	ITEM DESCRIPTION	NOTES	UNIT	TOTAL PROJECT QUANTITIES ESTIMATED
2021.501	MOBILIZATION		LUMP SUM	1
2104.505	REMOVE BITUMINOUS PAVEMENT		SQ YD	274
2104.511	SAWING BITUMINOUS PAVEMENT (FULL DEPTH)		LIN FT	154
2211.501	AGGREGATE BASE CLASS 5	1	TON	20
2215.501	FULL DEPTH RECLAMATION		SQ YD	18442
2215.502	HAUL FULL DEPTH RECLAMATION (LV)	6	CU YDS	120
2221.501	SHOULDERING BASE AGGREGATE CLASS 5	2	TON	572
2123.503	MOTOR GRADER	10	HOUR	10
2130.501	WATER		MGAL	20
2232.501	MILL BITUMINOUS SURFACE (2.0")	3	SQ YD	67
2357.502	BITUMINOUS MATERIAL FOR TACK COAT		GAL	914
2360.501	TYPE SP 9.5 WEARING COURSE MIXTURE (3,B)		TON	67
2360.501	TYPE 12.5 WEARING COARSE MIX (4,C)		TON	4272
2540.602	MAIL BOX SUPPORT	4	EACH	8
2563.601	TRAFFIC CONTROL	5	LUMP SUM	1
2563.613	PORTABLE CHANGEABLE MESSAGE SIGN	7	UDAY	14
2574.525	COMMON TOPSOIL BORROW (LV)	11	CU YD	65
2575.523	EROSION CONTROL BLANKET CATEGORY 0	12	SQ YD	185
2581.501	REMOVABLE PREFORMED PAVEMENT MARKING TAPE	8	LN FT	439
2582.502	4" SOLID LINE EPOXY	9	LN FT	13564
2582.502	4" BROKEN LINE EPOXY	9	LN FT	530
2582.502	4" DOUBLE SOLID LINE EPOXY	9	LN FT	2681

CONSTRUCTION NOTES	
1	GRAVEL BASE FOR BITUMINOUS STREET APPROACHES.
2	ITEM INCLUDES 10 TONS FOR EACH GRAVEL ENTRANCE AND GRAVEL STREET APPROACH.
3	ITEM INCLUDES 2" DEEP MILL AT BEGINNING AND END OF PROJECT, AND PAVED STREET; SEE DETAILS FOR DIMENSIONS.
4	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.
5	ALL TRAFFIC CONTROL DEVICES SHALL CONFORM TO AND BE INSTALLED IN ACCORDANCE WITH THE "MINNESOTA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES." DO NOT PASS, PASS WITH CARE, NO CENTER STRIPE, AND STOP HERE ON RED SIGNS MUST BE IN PLACE WHENEVER PERMANENT PAVEMENT MARKINGS ARE NOT PRESENT.
6	MATERIAL SHALL BE HAULED TO AND USED FOR PROFILE AND SUPERELEVATION CORRECTION AREAS. ITEM INCLUDES PLACEMENT, SHAPING, COMPACTION AND MAINTENANCE OF MATERIAL. EXCESS MATERIAL SHALL BECOME PROPERTY OF THE CONTRACTOR.
7	2 MESSAGE BOARDS, ONE ON THE EACH END OF PROJECT WILL BE INSTALLED 7 DAYS PRIOR TO ANY CONSTRUCTION; REFERENCE STRIPING PLAN FOR DETAILS.
8	CENTERLINE AND LANE DESIGNATION SKIPS SHALL BE APPLIED AS SOON AS POSSIBLE ON EACH NEW LIFT OF PAVEMENT; SKIPS MUST BE INPLACE BEFORE THE CONTRACTOR LEAVES FOR THE DAY. CONTRACTOR SHALL REMOVE PRIOR TO FINAL PAINT STRIPING.
9	FINAL STRIPING SHALL BE INSTALLED WITHIN 72 HOURS OF COMPLETION OF MAINLINE WEAR COURSE PAVING.
10	ITEM USED TO MOVE EXCESS RECLAIM MATERIAL AT THE RECLAIM AREA LIMITS TO CREATE A SMOOTH TRANSITION BETWEEN THE PROPOSED AND EXISTING PAVEMENT.
11	ITEM USED AT THE ENGINEER'S DISCRETION FOR THE RESTORATION OF ANY DISTURBED AREAS ALONG DRIVEWAYS AND STREET APPROACHES.
12	TYPE 1 FERTILIZER AND TYPE 25-121 SEED ARE INCIDENTAL TO THIS ITEM.

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


MNDOT STANDARD PLATES	
PLATE	DESCRIPTION
8000J	CHANNELIZERS (3 SHEETS)
9350A	MAILBOX SUPPORTS (SWING-AWAY TYPE)

NO	DATE	BY	CKD	APPR	REVISION		
	03/13/2017					1:38:10 PM	

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: MATTHEW J. JOHN  
 SIGNATURE: *Matthew J. John*  
 DATE: 3/13/2017 LICENSE NO. 51639

DRAWN BY: BFL DATE: 1/25/2017  
 DESIGN BY: BFL DATE: 1/25/2017  
 CHECKED BY: MJJ DATE: 1/25/2017

 ANOKA COUNTY  
HIGHWAY DEPT.

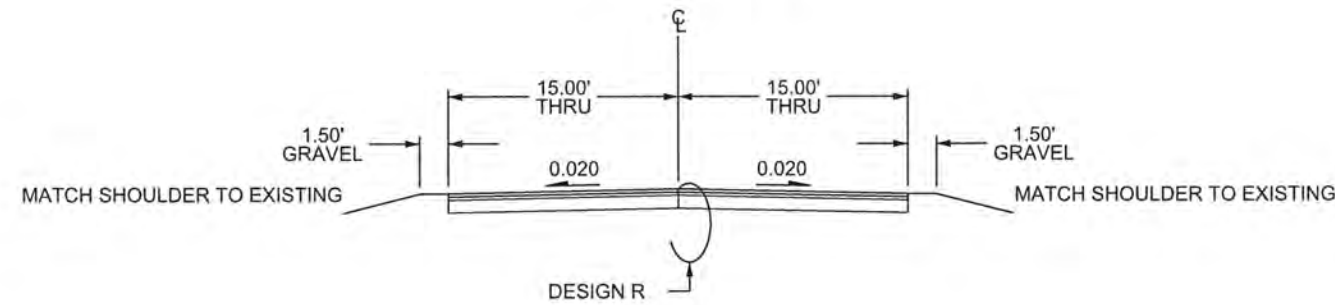
COUNTY PROJECT 17-28-89

STATEMENT OF ESTIMATED QUANTITIES  
 Sheet 2 of 10 Sheets

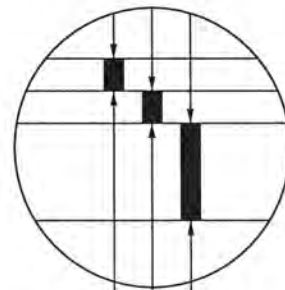
mjohn

### C.R. 89 - Sugar Bush Rd. PROPOSED SECTION

10+38 TO 65+18

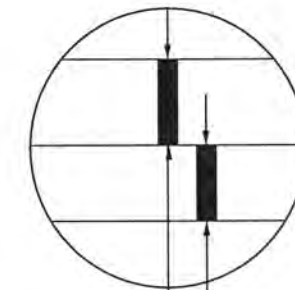


### DESIGN R RECLAIM SECTION



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

### EXISTING SECTION



7-3/4" EXISTING BITUMINOUS  
 NO AGGREGATE BASE

FOR INFORMATIONAL PURPOSES ONLY  
 CONTRACTOR SHALL FIELD VERIFY THE EXISTING SECTION

NO	DATE	BY	CKD	APPR	REVISION	03/15/2017	8:42:00 AM
NAME: P:\17-01-00\CR_89_(CSAH24-223rd)\Base\PROPOSED\PROPOSED.dgn							

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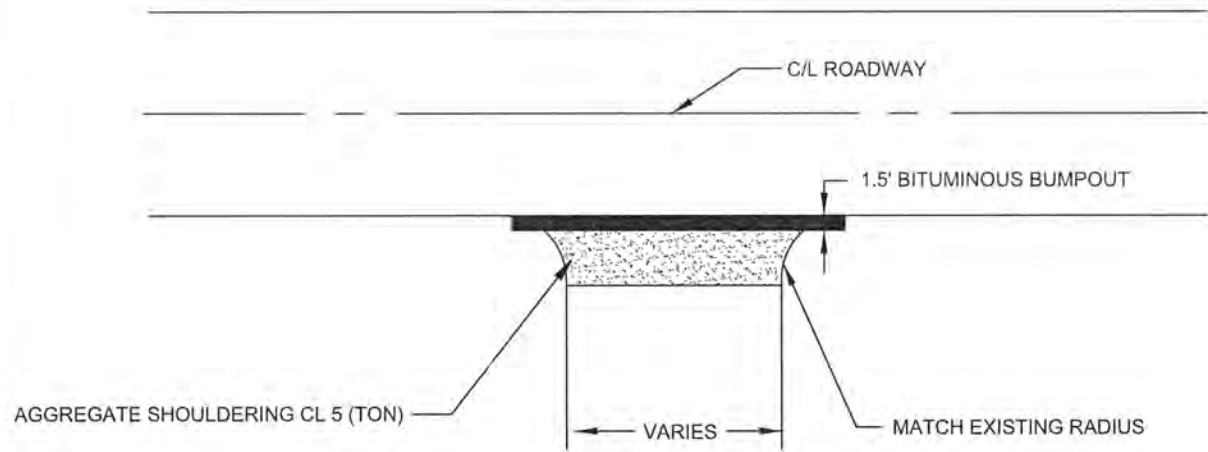
ANOKA COUNTY  
 HIGHWAY DEPT.

COUNTY PROJECT 17-28-89

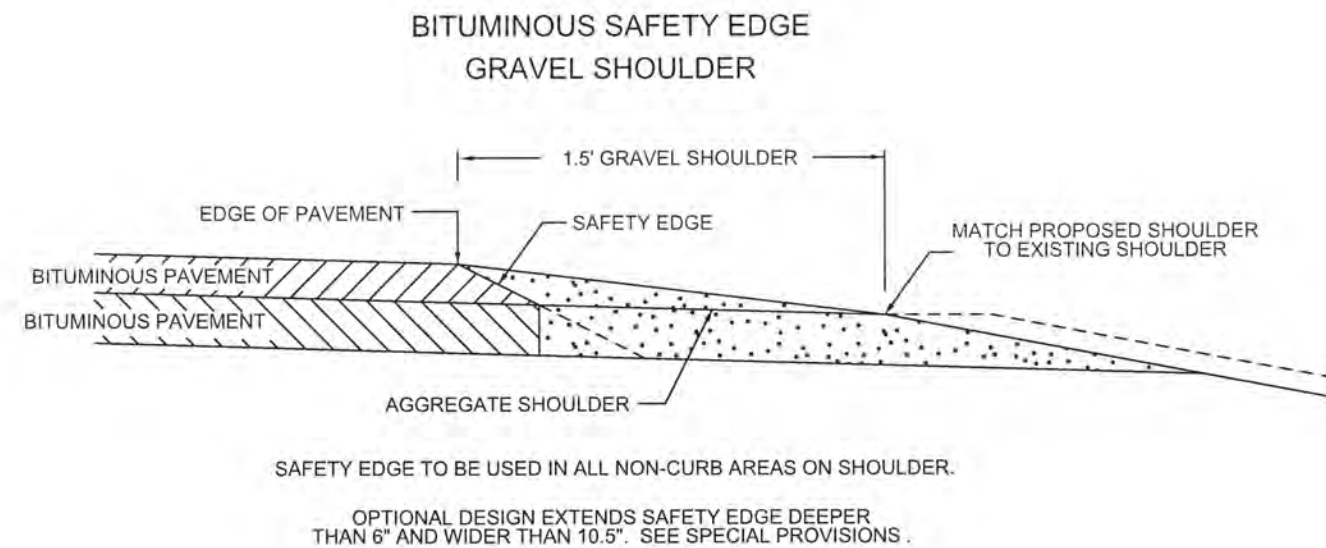
TYPICAL SECTIONS  
 Sheet 3 of 10 Sheets

m/john

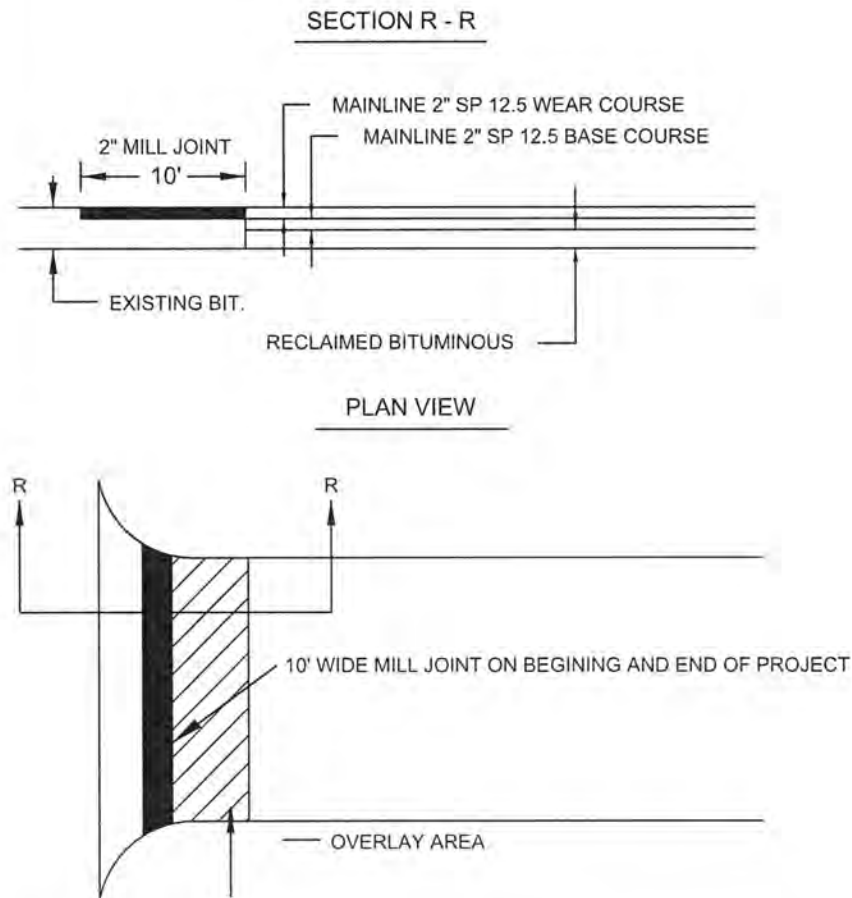
### DRIVEWAY DETAIL GRAVEL / FIELD ENTRANCE



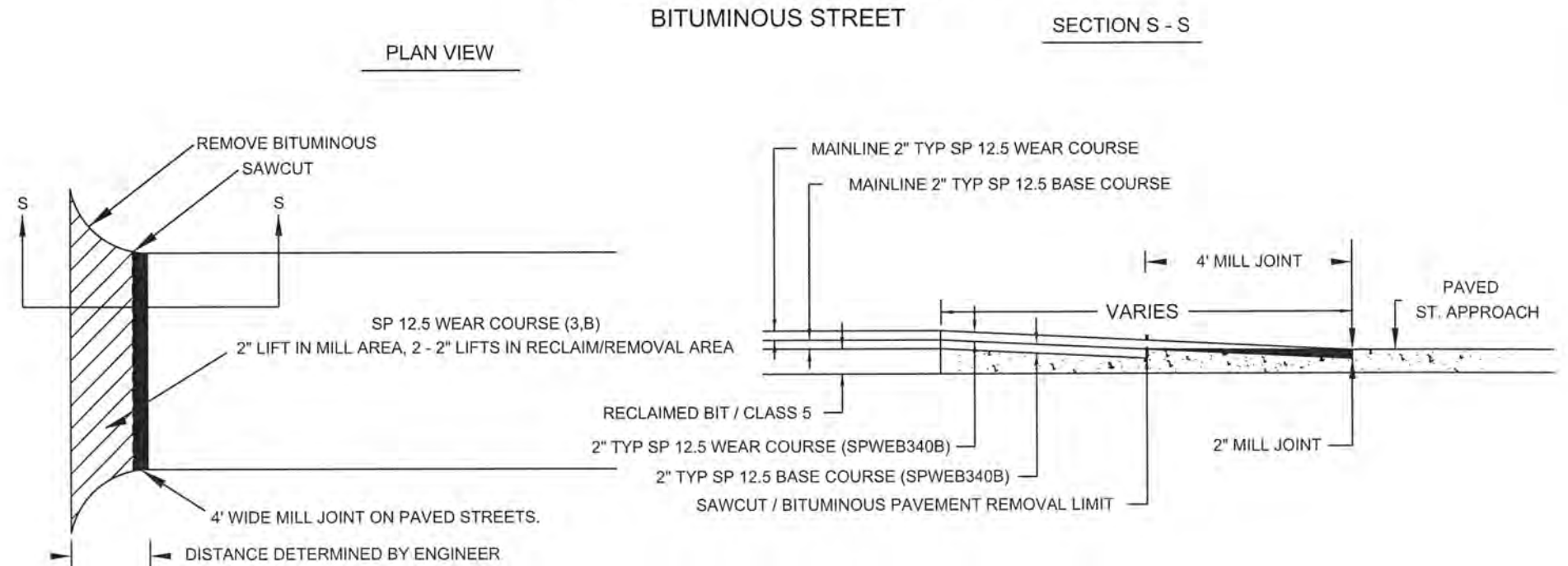
### SHOULDER DETAIL



### MAINLINE JOINT DETAIL (RECLAIM)



### STREET APPROACH DETAIL



NO	DATE	BY	CKD	APPR	REVISION	03/13/2017	1:38:16 PM
NAME: P:\17-01-00\CR_89_(CSAH24-223rd)\Base\PROPOSED\PROPOSED.dgn							

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DRAWN BY: BFL DATE: 1/25/2017

DESIGN BY: BFL DATE: 1/25/2017

CHECKED BY: M.J.J. DATE: 1/25/2017



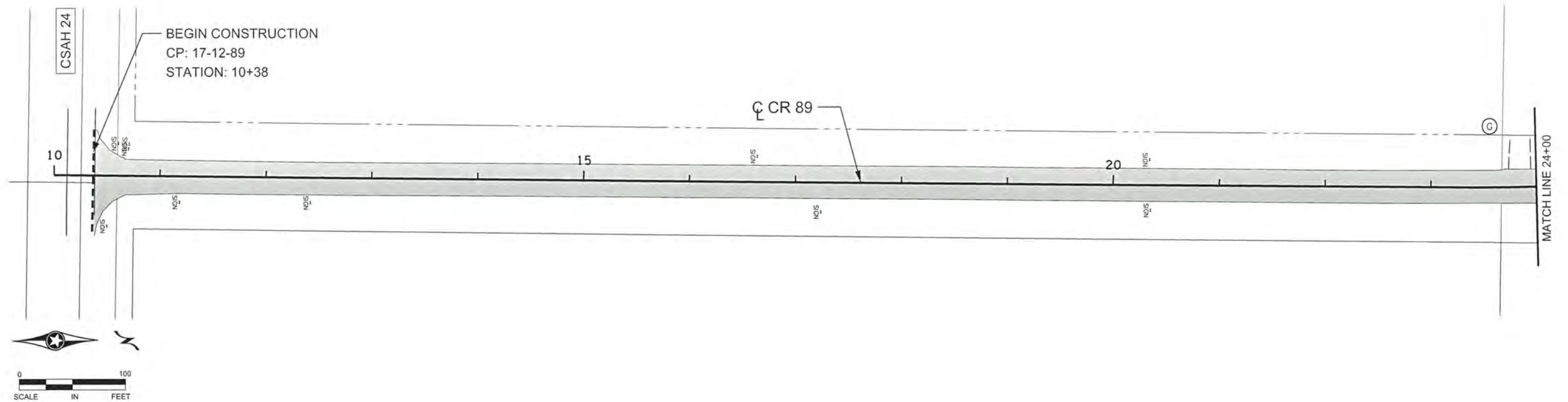
ANOKA COUNTY  
HIGHWAY DEPT.

COUNTY PROJECT 17-12-89

DETAILS

Sheet 4 of 10 Sheets

mjohn

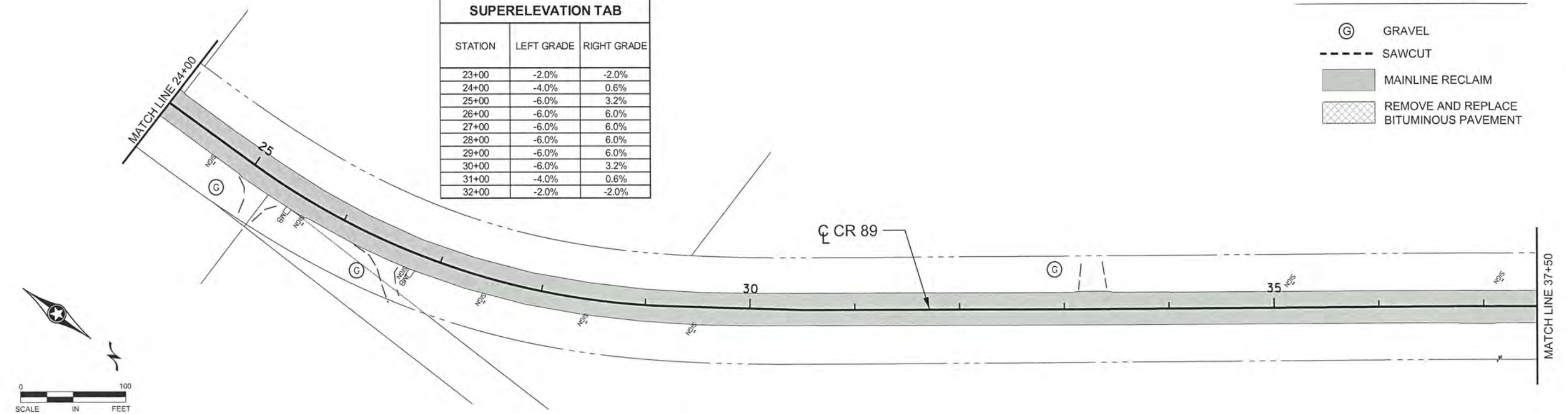


**SUPERELEVATION TAB**

STATION	LEFT GRADE	RIGHT GRADE
23+00	-2.0%	-2.0%
24+00	-4.0%	0.6%
25+00	-6.0%	3.2%
26+00	-6.0%	6.0%
27+00	-6.0%	6.0%
28+00	-6.0%	6.0%
29+00	-6.0%	6.0%
30+00	-6.0%	3.2%
31+00	-4.0%	0.6%
32+00	-2.0%	-2.0%

**LEGEND**

- G GRAVEL
- SAWCUT
- ▒ MAINLINE RECLAIM
- ▤ REMOVE AND REPLACE BITUMINOUS PAVEMENT



NO	DATE	BY	CKD	APPR	REVISION	03/13/2017	1:38:20 PM

NAME: P:\17-01-00\CR\_89 (CSAH24-223rd)\Base\PROPOSED\PROPOSED.dgn

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PRINT NAME: MATTHEW J. JOHN

SIGNATURE: *[Signature]*

DATE: 3/13/2017 LICENSE NO. 51639

DRAWN BY BFL DATE 1/25/2017

DESIGN BY BFL DATE 1/25/2017

CHECKED BY MJJ DATE 1/25/2017

**ANOKA COUNTY HIGHWAY DEPT.**

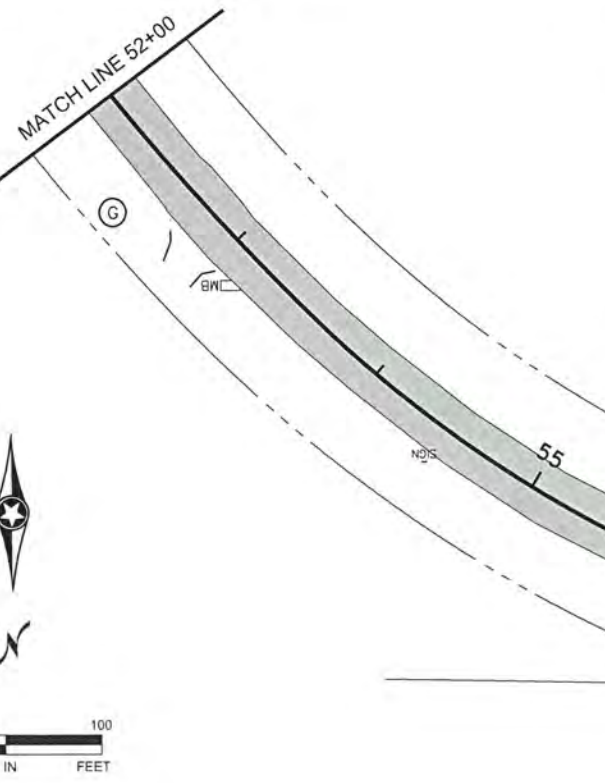
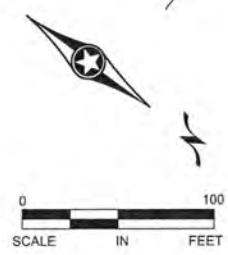
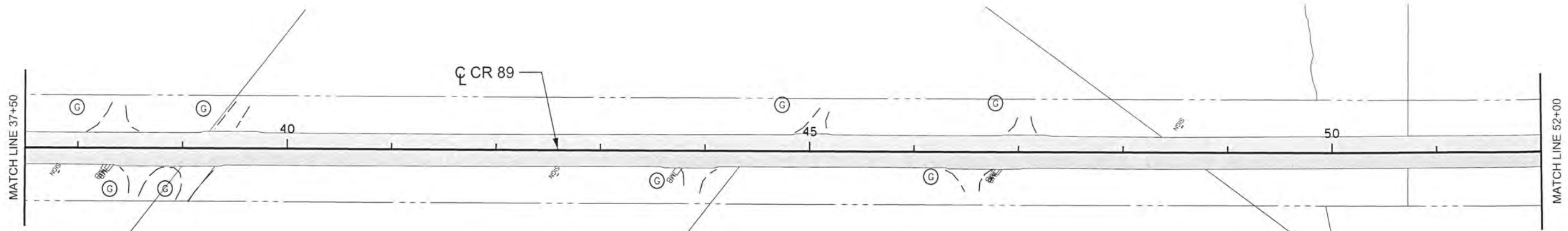
COUNTY PROJECT 17-28-89

**CONSTRUCTION PLAN**

STA 10+36 TO 37+50

Sheet 5 of 10 Sheets

mjohn



SUPERELEVATION TAB		
STATION	LEFT GRADE	RIGHT GRADE
50+00	-2.0%	-2.0%
51+00	-2.0%	0.6%
52+00	-4.0%	3.2%
53+00	-6.0%	6.0%
54+00	-6.0%	6.0%
55+00	-6.0%	6.0%
56+00	-6.0%	6.0%
57+00	-6.0%	6.0%
58+00	-6.0%	6.0%
59+00	-4.0%	3.2%
60+00	-2.0%	0.6%
61+00	-2.0%	-2.0%

- LEGEND
- ⊙ GRAVEL
  - SAWCUT
  - MAINLINE RECLAIM
  - ▨ REMOVE AND REPLACE BITUMINOUS PAVEMENT



END CONSTRUCTION  
CP: 17-12-89  
STATION: 65+18

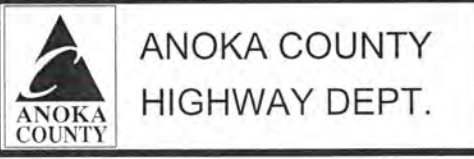
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NAME: P:\17-01-00\CR\_89\_(CSAH24-223rd)\Base\PROPOSED\PROPOSED.dgn

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PRINT NAME: MATTHEW J. JOHN  
SIGNATURE: *Matthew J. John*  
DATE: 3/13/2017 LICENSE NO. 51639

DRAWN BY: BFL DATE: 1/25/2017  
DESIGN BY: BFL DATE: 1/25/2017  
CHECKED BY: MJJ DATE: 1/25/2017



COUNTY PROJECT 17-28-89

CONSTRUCTION PLAN  
STA 37+50 TO 65+18  
Sheet 6 of 10 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.

**EPOXY:**

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 EPOXY 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.

AN EPOLY 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 APPLICAITON 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 FILM 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.

O PERMANENT MARKING QUANTITIES		
ITEM	UNIT	TOTAL QUANTITY
4" SOLID LINE WHITE - EPOXY PAINT	LIN FT	10854
4" BROKEN LINE WHITE - EPOXY PAINT	LIN FT	0
4" SOLID LINE YELLOW - EPOXY PAINT	LIN FT	2710
4" BROKEN LINE YELLOW - EPOXY PAINT	LIN FT	530
4" DOUBLE SOLID LINE YELLOW - EPOXY PAINT	LIN FT	2681

**SYMBOLS & MATERIALS LEGEND**

■ CROSSWALK BLOCK WHITE PREFORMED THERMOPLASTIC

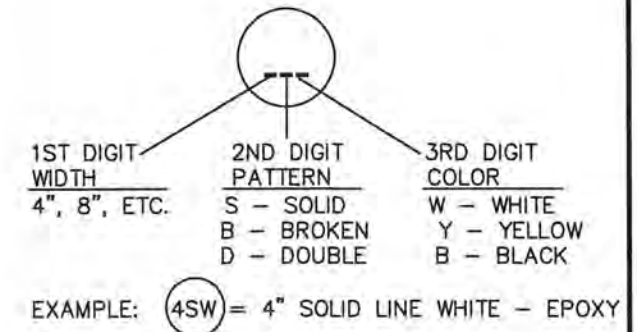
↩ PAVEMENT MESSAGE (LEFT ARROW) PREFORMED THERMOPLASTIC

**STRIPING KEY**

○ CIRCLE - EPOXY      □ SQUARE PREFORMED THERMOPLASTIC

△ TRIANGLE - PAINT

⬠ PENTAGON - REMOVABLE PREFORMED PLASTIC MARKING



NO	DATE	BY	CHKD	APPR	REVISION

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 PRINT NAME: MATTHEW J. JOHN  
 SIGNATURE: *[Signature]*  
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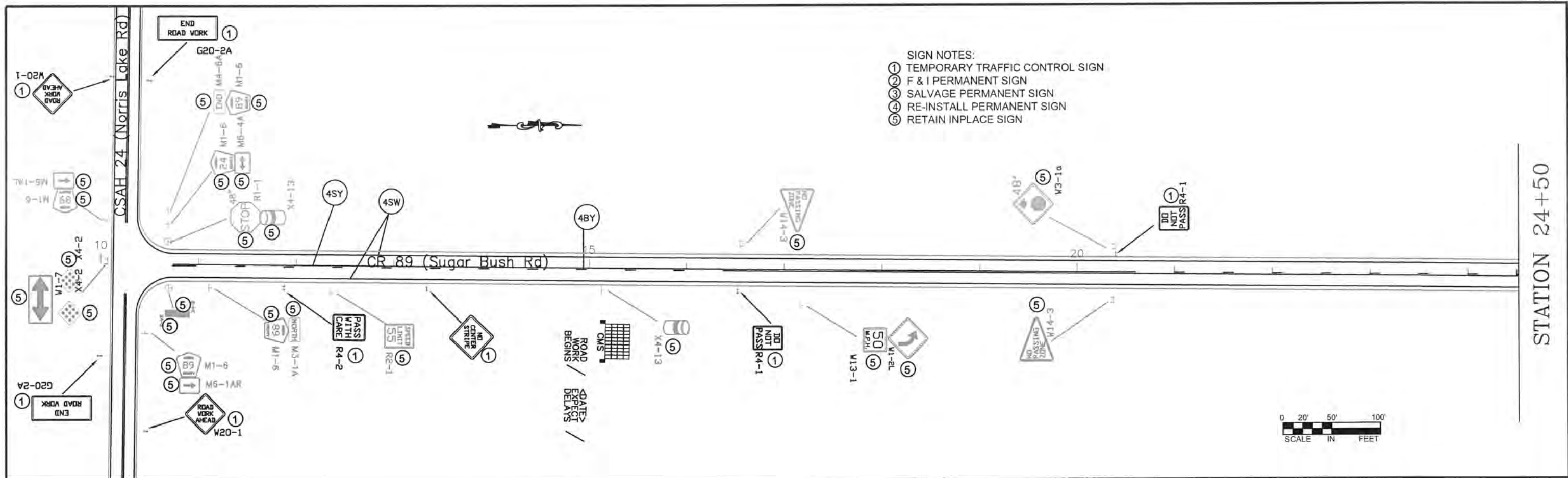
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 DESIGN BY: RLB DATE: 1/24/17  
 CHECKED BY: JR DATE: 1/24/17



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

STATE PROJECT NO. \_\_\_\_\_  
 STATE AID PROJECT NO. \_\_\_\_\_  
 STATE AID PROJECT NO. \_\_\_\_\_  
 COUNTY PROJECT NO. 17-28-89

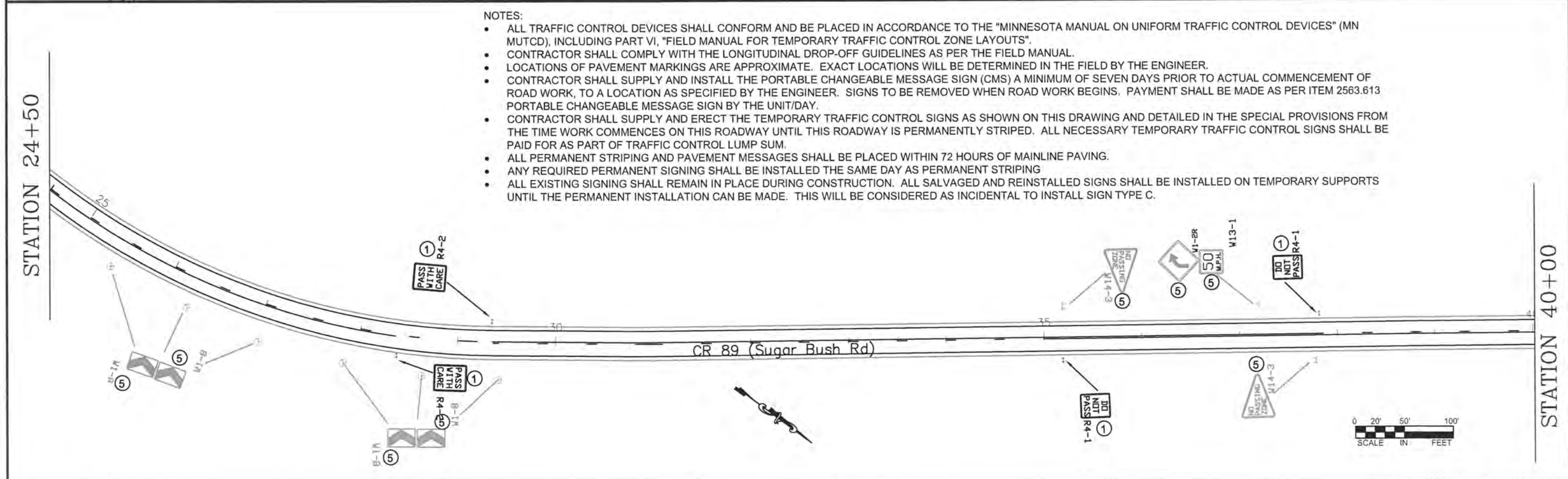
PERMANENT MARKING TABULATION  
 Sheet 7 of 10 Sheets



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

NOTES:

- ALL TRAFFIC CONTROL DEVICES SHALL CONFORM AND BE PLACED IN ACCORDANCE TO THE "MINNESOTA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" (MN MUTCD), INCLUDING PART VI, "FIELD MANUAL FOR TEMPORARY TRAFFIC CONTROL ZONE LAYOUTS".
- CONTRACTOR SHALL COMPLY WITH THE LONGITUDINAL DROP-OFF GUIDELINES AS PER THE FIELD MANUAL.
- LOCATIONS OF PAVEMENT MARKINGS ARE APPROXIMATE. EXACT LOCATIONS WILL BE DETERMINED IN THE FIELD BY THE ENGINEER.
- CONTRACTOR SHALL SUPPLY AND INSTALL THE PORTABLE CHANGEABLE MESSAGE SIGN (CMS) A MINIMUM OF SEVEN 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.
- 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

P:\02-617-19\base\Traffic\Curves from CSAH 18 to CSAH 22.dwg

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: MATTHEW J. JOHN  
 SIGNATURE: *Matthew J. John*  
 DATE: 3/13/2017 REG. NO. 51639

DRAWN BY: RLB DATE: 1/4/17  
 DESIGN BY: RLB DATE: 1/4/17  
 CHECKED BY: JR DATE: 1/4/17

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

STATE PROJECT NO. \_\_\_\_\_  
 STATE AID PROJECT NO. \_\_\_\_\_  
 STATE AID PROJECT NO. \_\_\_\_\_  
 COUNTY PROJECT NO. 17-28-89

TEMPORARY SIGNING,  
 PERMANENT SIGNING  
 AND STRIPING

Sheet 8 of 10 Sheets

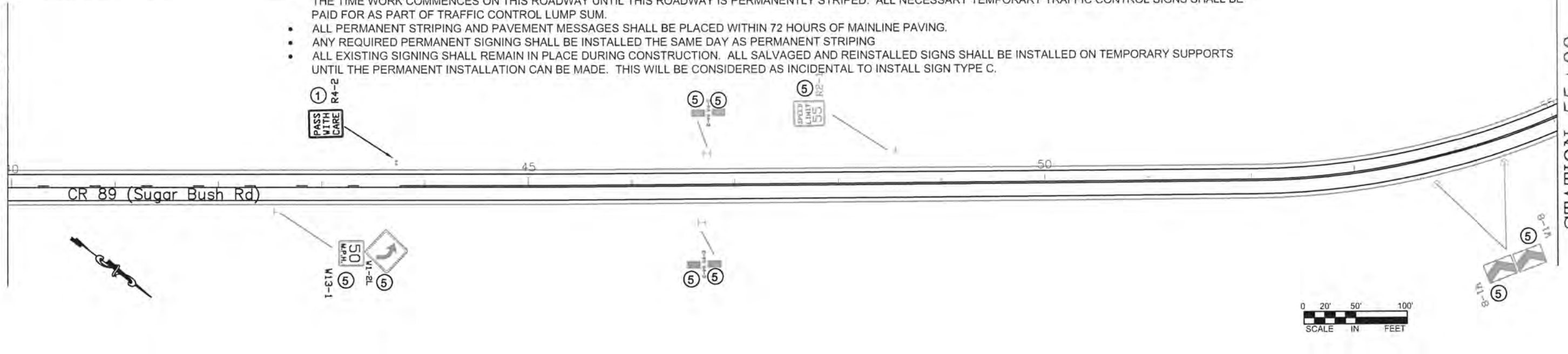


- SIGN NOTES:
- ① TEMPORARY TRAFFIC CONTROL SIGN
  - ② F & I PERMANENT SIGN
  - ③ SALVAGE PERMANENT SIGN
  - ④ RE-INSTALL PERMANENT SIGN
  - ⑤ RETAIN INPLACE SIGN

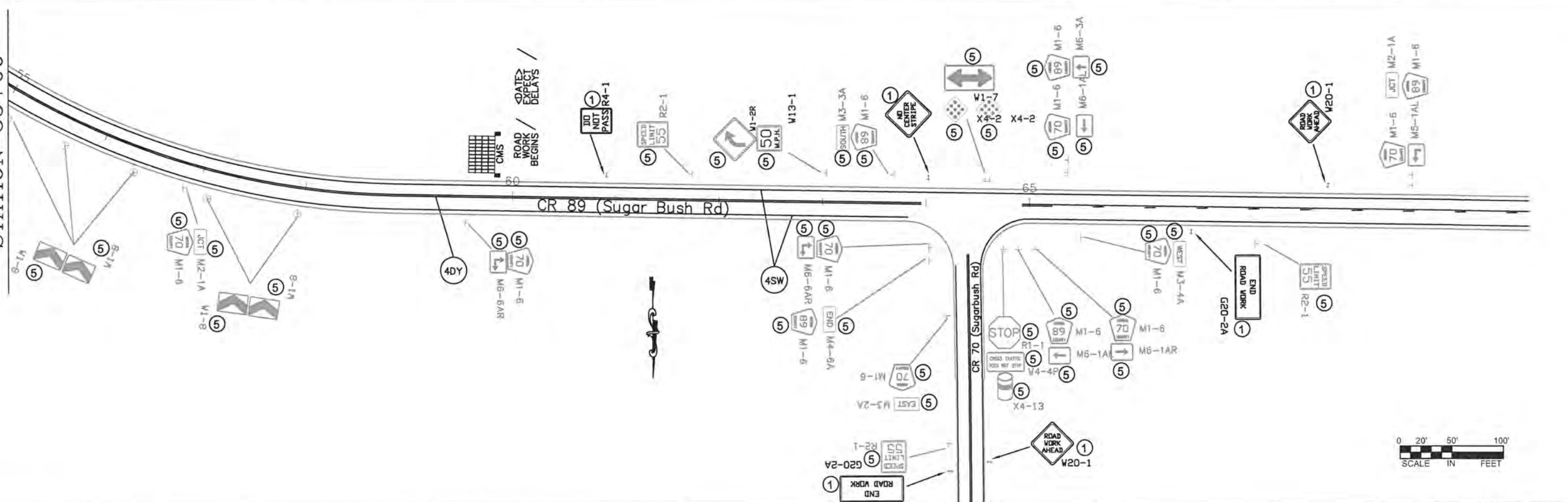
- NOTES:
- ALL TRAFFIC CONTROL DEVICES SHALL CONFORM AND BE PLACED IN ACCORDANCE TO THE "MINNESOTA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" (MN MUTCD), INCLUDING PART VI, "FIELD MANUAL FOR TEMPORARY TRAFFIC CONTROL ZONE LAYOUTS".
  - CONTRACTOR SHALL COMPLY WITH THE LONGITUDINAL DROP-OFF GUIDELINES AS PER THE FIELD MANUAL.
  - LOCATIONS OF PAVEMENT MARKINGS ARE APPROXIMATE. EXACT LOCATIONS WILL BE DETERMINED IN THE FIELD BY THE ENGINEER.
  - CONTRACTOR SHALL SUPPLY AND INSTALL THE PORTABLE CHANGEABLE MESSAGE SIGN (CMS) A MINIMUM OF SEVEN 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.
  - 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.

STATION 40+00

STATION 55+00



STATION 55+00



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: MATTHEW J. JOHN  
 SIGNATURE: *Matthew J. John*  
 DATE: 3/13/2017 REG. NO. 51639

DRAWN BY: RLB DATE: 1/4/17  
 DESIGN BY: RLB DATE: 1/4/17  
 CHECKED BY: JR DATE: 1/4/17

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

STATE PROJECT NO. \_\_\_\_\_  
 STATE AID PROJECT NO. \_\_\_\_\_  
 STATE AID PROJECT NO. \_\_\_\_\_  
 COUNTY PROJECT NO. 17-28-89

TEMPORARY SIGNING,  
 PERMANENT SIGNING  
 AND STRIPING

Sheet 9 of 10 Sheets

TEMPORARY TRAFFIC CONTROL SIGNS

M.U.T.C.D. CODE	SIZE	PANEL AREA FT. <sup>2</sup>	INSERT	QUANTITY		MOUNTING HEIGHT TO PAVEMENT EDGE FT.
					No. POST	
W8-12	48" x 48"	16.00		2	2	7.0'
R4-1	24" x 30"	5.00		3	1	7.0'
R4-2	24" x 30"	5.00		2	1	7.0'
G20-2A	48" x 24"	8.00		3	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 4)		
CMS sign to be installed a minimum of seven days prior to actual commencement of road work. Signs to be removed when road work begins.				2		

NOTES:

- ALL TRAFFIC CONTROL DEVICES SHALL CONFORM AND BE PLACED IN ACCORDANCE TO THE "MINNESOTA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" (MN MUTCD), INCLUDING PART VI, "FIELD MANUAL FOR TEMPORARY TRAFFIC CONTROL ZONE LAYOUTS".
- CONTRACTOR SHALL COMPLY WITH THE LONGITUDINAL DROP-OFF GUIDELINES AS PER THE FIELD MANUAL.
- LOCATIONS OF PAVEMENT MARKINGS ARE APPROXIMATE. EXACT LOCATIONS WILL BE DETERMINED IN THE FIELD BY THE ENGINEER.
- CONTRACTOR SHALL SUPPLY AND INSTALL THE PORTABLE CHANGEABLE MESSAGE SIGN (CMS) A MINIMUM OF SEVEN 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.
- 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.

CHANGEABLE MESSAGE BOARD - MESSAGE SEQUENCE LAYOUT

		R	O	A	D			
		W	O	R	K			
		B	E	G	I	N	S	
		<	D	A	T	E	>	
		E	X	P	E	C	T	
		D	E	L	A	Y	S	

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

NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\02-617-19\base\Traffic\Curves from CSAH 18 to CSAH 22.dwg

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ANOKA COUNTY  
 HIGHWAY DEPT.

STATE PROJECT NO. \_\_\_\_\_  
 STATE AID PROJECT NO. \_\_\_\_\_  
 STATE AID PROJECT NO. \_\_\_\_\_  
 COUNTY PROJECT NO. 17-28-89

TRAFFIC CONTROL  
 QUANTITY

# MINNESOTA DEPARTMENT OF TRANSPORTATION ANOKA COUNTY

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

LOCATED ON CSAH 2 BETWEEN 40 TH AVE AND 44 TH AVE

GOVERNING SPECIFICATIONS  
THE 2016 EDITION OF THE MINNESOTA DEPARTMENT OF TRANSPORTATION "STANDARD SPECIFICATIONS FOR CONSTRUCTION" SHALL GOVERN. ALL TRAFFIC CONTROL DEVICES SHALL CONFORM AND BE INSTALLED IN ACCORDANCE TO THE "MINNESOTA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" (MNMUTCD), AND PART VI, "FIELD MANUAL FOR TEMPORARY TRAFFIC CONTROL ZONE LAYOUTS."

THIS PLAN CONTAINS 13 SHEETS

### INDEX

SHEET NO.	DESCRIPTION
1	TITLE SHEET
2	STATEMENT OF ESTIMATED QUANTITIES
3	TABLATIONS
4	TYPICAL SECTIONS
5-6	DETAILS
7	REMOVAL PLAN
8	CONSTRUCTION PLAN
9	PERMANENT MARKING TABULATION
10	TEMPORARY SIGNING, PERMANENT SIGNING, AND STRIPING
11	TRAFFIC CONTROL QUANTITY
12-13	SIGNING AND STRIPING DETAILS



BEGIN CP 17-18-02  
CSAH 2, STA: 10+46

END CP 17-18-02  
CSAH 2, STA: 37+97

## PROJECT LOCATION

CSAH 2	
GROSS LENGTH	2751 FEET      0.521 MILES
EXCEPTIONS-LENGTH	0.00 FEET      0.000 MILES
NET LENGTH	2751 FEET      0.521 MILES
DESIGN SPEED	30 MPH
CURRENT ADT	2972



CITY OF COLUMBIA HEIGHTS  
ANOKA COUNTY  
MN/DOT TRANSPORTATION DISTRICT - METRO  
SECTION 35  
TOWNSHIP 32 NORTHWEST  
RANGE 24 WEST

Approved: 4/7/2017  
ANOKA COUNTY ENGINEER

NO	DATE	BY	CKD	APPR	REVISION	TIME

NAME: P:\17-01-00\CSAH\_02 (Main-TH47)\Base\PROPOSED\PROPOSED.dgn

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SIGNATURE:   
DATE: 3/28/2017      LICENSE NO. 51639

DRAWN BY: KPR      DATE: 03/17/2017  
DESIGN BY: KPR      DATE: 03/17/2017  
CHECKED BY: MJJ      DATE: 03/28/2017

**ANOKA COUNTY**  
HIGHWAY DEPT.

COUNTY PROJECT 17-18-02

TITLE SHEET  
Sheet 1 of 13 Sheets

**STATEMENT OF ESTIMATED QUANTITIES**

ITEM NUMBER	ITEM DESCRIPTION	NOTES	UNIT	TOTAL PROJECT QUANTITIES ESTIMATED
2021.501	MOBILIZATION		LUMP SUM	1
2104.501	REMOVE CURB & GUTTER	1	LIN FT	320
2104.503	REMOVE CONCRETE WALK	1	SQ FT	1439
2104.503	REMOVE CONCRETE DRIVEWAY PAVEMENT	1,2	SQ YD	208
2104.503	REMOVE BITUMINOUS DRIVEWAY PAVEMENT	1,2	SQ YD	140
2104.505	REMOVE BITUMINOUS PAVEMENT	1,3	SQ YD	2229
2104.505	REMOVE CONCRETE PAVEMENT	1	SQ YD	19
2104.509	REMOVE CASTING		EACH	30
2104.511	SAWING CONCRETE PAVEMENT (FULL DEPTH)	1	LIN FT	438
2104.513	SAWING BITUMINOUS PAVEMENT (FULL DEPTH)	1	LIN FT	6466
2104.523	SALVAGE SIGN	4	EACH	29
2123.503	MOTOR GRADER	5	HOUR	32
2211.501	AGGREGATE BASE CLASS 5	6,7	TON	706
2232.501	MILL BITUMINOUS SURFACE (2.0")	8	SQ YD	6135
2232.604	MILL BITUMINOUS PAVEMENT (SPECIAL)	9	SQ YD	522
2357.502	BITUMINOUS MATERIAL FOR TACK COAT		GALLON	680
2360.501	TYPE SP 12.5 WEARING COURSE MIXTURE (3,B)	2,10	TON	94
2360.501	TYPE SP 12.5 WEARING COURSE MIXTURE (4,C)		TON	1486
2360.505	TYPE SP 12.5 BIT MIXTURE FOR PATCHING	11	TON	629
2401.541	REINFORCEMENT BARS (EPOXY COATED)	12	POUND	154
2504.602	ADJUST GATE VALVE	13	EACH	6
2506.503	RECONSTRUCT DRAINAGE STRUCTURE	14	LIN FT	20.7
2506.516	CASTING ASSEMBLY		EACH	29
2506.602	GROUT CATCH BASIN OR MANHOLE	15	EACH	14
2521.501	4" CONCRETE WALK		SQ FT	1411
2531.501	CONCRETE CURB AND GUTTER DESIGN B412	6	LIN FT	5185
2531.507	6" CONCRETE DRIVEWAY PAVEMENT	2	SQ YD	221
2531.604	8" CONCRETE VALLEY GUTTER	2,16	SQ YD	26
2563.601	TRAFFIC CONTROL	17,18	LUMP SUM	1
2563.613	PORTABLE CHANGEABLE MESSAGE SIGN	19	UNIT DAY	14
2564.602	INSTALL SIGN	4	EACH	29
2573.530	STORM DRAIN INLET PROTECTION	20	EACH	48
2574.525	COMMON TOPSOIL BORROW (LV)		CU YD	274
2575.523	EROSION CONTROL BLANKETS CATEGORY 0	21	SQ YD	4609
2581.501	REMOVABLE PREFORMED PAVEMENT MARKING TAPE	22	LIN FT	440
2582.502	4" SOLID LINE EPOXY	23	LIN FT	5545
2582.502	4" BROKEN LINE EPOXY	23	LIN FT	370
2582.502	4" DOUBLE SOLID LINE EPOXY	23	LIN FT	380

**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
2401	REINFORCEMENT BARS (EPOXY COATED) #13	0.668 LBS / FT
2581	REMOVABLE PREFORM PAVEMENT MARKING TAPE	2' AT 50' INTERVALS

**MNDOT STANDARD PLATES**

PLATE NUMBER	DESCRIPTION
4006L	MANHOLE OR CATCH BASIN
4020J	MANHOLE OR CATCH BASIN
4026A	CONCRETE ENCASED CONCRETE ADJUSTING RINGS
4101D	RING CASTING FOR MANHOLE OR CATCH BASIN
4110F	COVER CASTING FOR MANHOLE
7038A	DETECTABLE WARNING SURFACE
7100H	CONCRETE CURB AND GUTTER
8000J	CHANNELIZERS (3 SHEETS)

**CONSTRUCTION NOTES**

1	REFERENCE REMOVALS SHEET (PAGE 6) FOR REMOVAL DETAILS.
2	CONTRACTOR IS RESPONSIBLE FOR CONTACTING PROPERTY OWNER 48 HOURS BEFORE STARTING OPERATION.
3	THIS ITEM INCLUDES BITUMINOUS CURB REMOVAL.
4	ITEM SHALL BE SALVAGED / REINSTALLED ONLY AS NECESSARY AS DETERMINED BY THE ENGINEER.
5	ITEM USED FOR GRADING THE BOULAVARD BEHIND THE CURB AND GUTTER.
6	EXCAVATION AND DISPOSAL OF EXISTING GRADING MATERIAL IS INCIDENTAL TO AGGREGATE BASE CLASS 5.
7	ITEM USED FOR NEW CONCRETE WALK, CURB AND GUTTER, 8" VALLEY GUTTER, CONCRETE DRIVEWAY, AND BITUMINOUS DRIVEWAY.
8	DETAIL MILLING AROUND MANHOLES, CATCH BASINS, GATE VALVES, AND ALONG CURB LINE IS INCIDENTAL TO THIS ITEM.
9	ITEM USED FOR MILLING STREET APPROACHES AND/OR DETAIL MILLING AREAS AS IDENTIFIED IN THE PLAN. DETAIL MILLING AROUND MANHOLES, CATCH BASINS, GATE VALVES, AND ALONG CURB LINE IS INCIDENTAL TO THIS ITEM.
10	STREET APPROACHES SHALL BE PAVED AFTER MAINLINE PAVING BUT BEFORE FINAL STRIPING.
11	ITEM INCLUDES BITUMINOUS PATCHING AROUND NEW CURB, STORM STRUCTURE REPAIRS, AND ANY POTHOLES.
12	ITEM USED FOR 8" VALLEY GUTTER.
13	ITEM SHALL TO BE ADJUSTED ONLY AS NECESSARY AS DETERMINED BY THE ENGINEER.
14	PAY HEIGHT IS MEASURED FROM THE BOTTOM OF THE RECONSTRUCTED PORTION TO THE BOTTOM OF THE CASTING ADJUSTMENT RINGS.
15	ITEM INCLUDES GROUTING OF INVERTS, DOGHOUSES, RINGS, AND CASTINGS AS REQUIRED (SEE DRAINAGE TAB, PAGE 3-5).
16	ITEM INCLUDES THE CROSS GUTTER AND TRIANGULAR SHAPED "WINGS".
17	CONTRACTOR SHALL FURNISH, INSTALL, AND MAINTAIN TEMPORARY SIGNAGE WHENEVER EXISTING SIGNAGE IS REMOVED. TEMPORARY SIGNAGE SHALL BE INCIDENTAL TO TRAFFIC CONTROL.
18	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.
19	2 MESSAGE BOARDS, ONE ON THE EACH END OF PROJECT, WILL BE INSTALLED 7 DAYS PRIOR TO ANY CONSTRUCTION; REFERENCE STRIPING PLAN FOR DETAILS.
20	ALL DRAINAGE STRUCTURES AFFECTED BY THIS PROJECT MUST HAVE INLET PROTECTION.
21	TYPE 1 FERTILIZER AND TYPE 25-121 SEED ARE INCIDENTAL TO THIS ITEM.
22	CENTERLINE AND LANE DESIGNATION SKIPS SHALL APPLIED AS SOON AS POSSIBLE ON EACH NEW LIFT OF PAVEMENT; SKIPS MUST BE INPLACE BEFORE THE CONTRACTOR LEAVES FOR THE DAY. CONTRACTOR IS TO REMOVE PRIOR TO FINAL PAINT STRIPING.
23	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
2401	REINFORCEMENT BARS (EPOXY COATED) #13	0.668 LBS / FT
2581	REMOVABLE PREFORM PAVEMENT MARKING TAPE	2' AT 50' INTERVALS
2581	REMOVABLE PREFORM PAVEMENT MARKING TAPE	2' AT 50' INTERVALS

**CASTING ASSEMBLIES SUMMARY**

ASSEMBLY	RING OR FRAME CASTING	COVER OR GRATE CASTING	CURB BOX	DESCRIPTION	NOTES	QUANTITY
A-7D	700-7	716	-	STD. PLATE: 4101D, 4110F	CASTING COVER STAMPED "STORM SEWER"	3
A-7D	700-7	716	-	STD. PLATE: 4101D, 4110F	CASTING COVER STAMPED "SANITARY SEWER"	13
R-3065V *			YES			5
R-3067V *			YES			5
R-2548 *			NO			3
GAS RE-USE					CONTRACTOR SHALL COORDINATE WITH UTILITY OWNER	1

\* OR APPROVED EQUAL

ALL CASTING HEIGHTS ARE TO BE FIELD VERIFIED.

ALL MANHOLE COVERS SHALL BE STAMPED AS STORM SEWER OR SANITARY SEWER.

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: MATTHEW J. JOHN  
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**ANOKA COUNTY  
HIGHWAY DEPT.**

COUNTY PROJECT 17-18-02

STATEMENT OF ESTIMATED QUANTITIES

Sheet 2 of 13 Sheets

**STORM DRAINAGE TAB**

NUMBER	TYPE	ACTION	NEW CASTING	FURNISH AND INSTALL CASTING ASSEMBLY	STRUCTURE TYPE	RING HEIGHT	GROUT CATCH BASIN OR MANHOLE	RECONSTRUCT DRAINAGE STRUCTURE	SAWING CONCRETE PAVEMENT (FULL DEPTH)	SAWING PAVEMENT (FULL DEPTH)	REMOVE BITUMINOUS PAVEMENT	TYPE SP 12.5 BIT MIXTURE FOR PATCHING	NOTES
						LIN FT	EACH	LIN FT	LIN FT	LIN FT	SQ YD	TON	
112	CB	NEW CURB / GROUT STRUCTURE	R-3065-V	1		1.4	1		3	16	5	2	
113	CB	NEW CURB / GROUT STRUCTURE	R-3065-V	1		0.0	1		3	16	5	2	
114	MH	RERING / GROUT STRUCTURE	A7-D	1		1.2	1			32	7	3	
114A	MH	RERING / GROUT STRUCTURE	A7-D	1		0.8	1			32	7	3	
115	CB	NEW CURB / GROUT STRUCTURE	R-3065-V	1		0.0	1		3	16	5	2	
116	MH	RERING / GROUT STRUCTURE	R-2548	1		0.6	1			32	7	3	
117	MH	RERING / GROUT STRUCTURE	R-2548	1		0.4	1			32	7	3	
118	CB	NEW CURB / GROUT STRUCTURE	R-3067-V	1		0.2	1		6	14	3	1	
119	CB	NEW CURB / GROUT STRUCTURE	R-3067-V	1		0.5	1		6	14	3	1	
120	MH	OK											
121	CB	NEW CURB / GROUT STRUCTURE	R-3067-V	1		0.4	1		3	16	5	2	
122	CB	NEW CURB / GROUT STRUCTURE	R-3067-V	1		0.4	1		3	16	5	2	
123	CB	NEW CURB / GROUT STRUCTURE	R-3065-V	1		0.3	1			16	5	2	
124	CB	NEW CURB / GROUT STRUCTURE	R-3067-V	1		0.5	1		3	16	5	2	
125	MH	RECONSTRUCT	R-2548	1	BLOCK	0.5		1.7		32	7	3	
126	CB	NEW CURB / GROUT STRUCTURE	A7-D	1		0.6	1		6	14	3	1	
127	CB	NEW CURB / RECONSTRUCT	R-3065-V	1	BLOCK	0.2		1.1	6	14	3	1	
204	SAN MH	RECONSTRUCT	A7-D	1		0.7		0.7		40	11	4	
205	SAN MH	RECONSTRUCT	A7-D	1		1.0		1		40	11	4	
206	SAN MH	RECONSTRUCT	A7-D	1	BLOCK	0.7		1.3		40	11	4	RECONSTRUCT TOP ROW OF BLOCK
207	SAN MH	RECONSTRUCT	A7-D	1	BLOCK	0.2		1.2		40	11	4	RECONSTRUCT TOP 2 ROWS OF BLOCK
208	SAN MH	RECONSTRUCT	A7-D	1	BLOCK	0.8		1.8		40	11	4	RECONSTRUCT TOP 2 ROWS OF BLOCK
209	SAN MH	RECONSTRUCT	A7-D	1	BLOCK	0.2		1.2		40	11	4	RECONSTRUCT TOP 2 ROWS OF BLOCK
210	SAN MH	RECONSTRUCT	A7-D	1	BLOCK	0.4		1.4		40	11	4	RECONSTRUCT TOP 2 ROWS OF BLOCK
211	SAN MH	RECONSTRUCT	A7-D	1	BLOCK	1.0		2.0		40	11	4	RECONSTRUCT TOP 2 ROWS OF BLOCK
212	SAN MH	RECONSTRUCT	A7-D	1	BLOCK	0.8		1.8		40	11	4	RECONSTRUCT TOP 2 ROWS OF BLOCK
213	UMH	RECONSTRUCT	A7-D	1		1.0		1.0		40	11	4	
213A	GAS MH	RECONSTRUCT	RE-USE			1.0		1.0		40	11	4	CONTRACTOR SHALL COORDINATE WITH UTILITY OWNER
214	SAN MH	RECONSTRUCT	A7-D	1	BLOCK	0.2		0.8		40	11	4	RECONSTRUCT TOP ROW OF BLOCK
215	SAN MH	RECONSTRUCT	A7-D	1	BLOCK	0.8		1.3		40	11	4	RECONSTRUCT TOP 2 ROWS OF BLOCK
216	SAN MH	RECONSTRUCT	A7-D	1	BLOCK	0.4		1.4		40	11	4	RECONSTRUCT TOP 2 ROWS OF BLOCK
<b>TOTALS</b>				<b>29</b>			<b>14</b>	<b>20.7</b>	<b>42</b>	<b>888</b>	<b>236</b>	<b>89</b>	

NO	DATE	BY	CKD	APPR	REVISION	03/28/2017	8:26:42 AM
NAME: P:\17-01-00\CSAH_02 (Main-TH47)\Base\PROPOSED\PROPOSED.dgn							

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COUNTY PROJECT 17-18-02

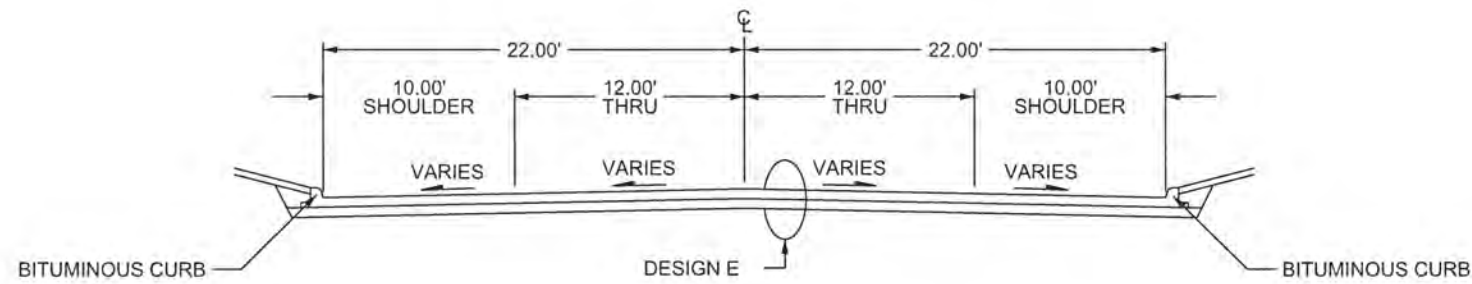
TABULATIONS  
 Sheet 3 of 13 Sheets

MJJohn

### MAIN ST (CSAH 2)

EXISTING SECTION

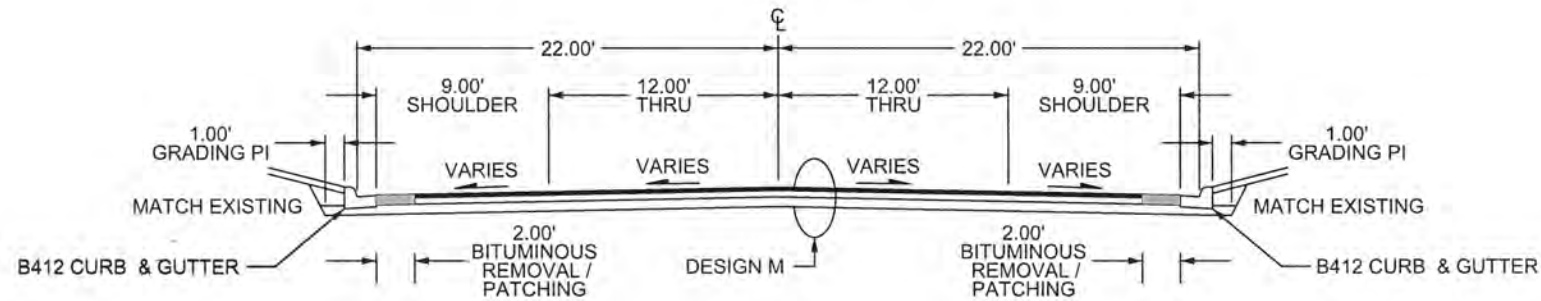
10+46 - 37+97



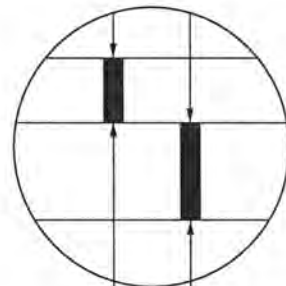
### MAIN ST (CSAH 2)

PROPOSED SECTION

10+46 - 37+97



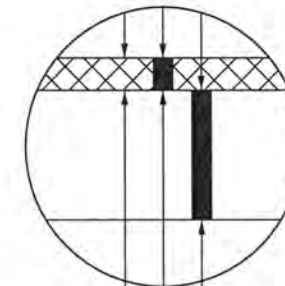
### DESIGN E EXISTING SECTION



8" EXISTING BITUMINOUS

NO AGGREGATE BASE

### DESIGN M MILL SECTION



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


NO	DATE	BY	CKD	APPR	REVISION		
						03/28/2017	8:26:51 AM

NAME: P:\17-01-00\CSAH\_02\_Main-TH47\Base\PROPOSED\PROPOSED.dgn

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

PRINT NAME: MATTHEW J. JOHN  
 SIGNATURE: *[Signature]*  
 DATE: 3/28/2017 LICENSE NO. 51639

DRAWN BY: KPR DATE: 03/17/2017  
 DESIGN BY: KPR DATE: 03/17/2017  
 CHECKED BY: MJJ DATE: 03/28/2017



**ANOKA COUNTY  
HIGHWAY DEPT.**

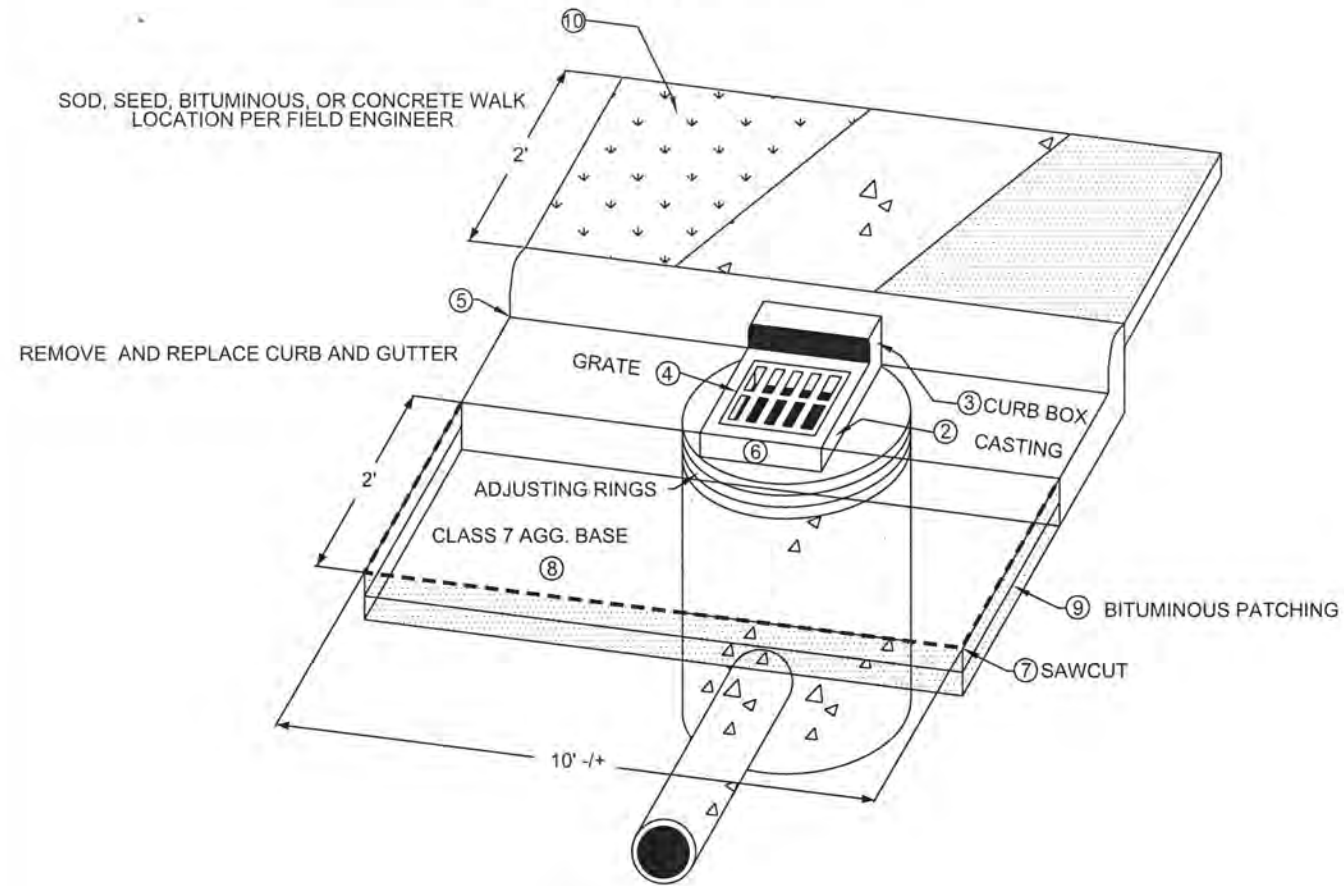
COUNTY PROJECT 17-18-02

TYPICAL SECTIONS  
 Sheet 4 of 13 Sheets

MJJohn

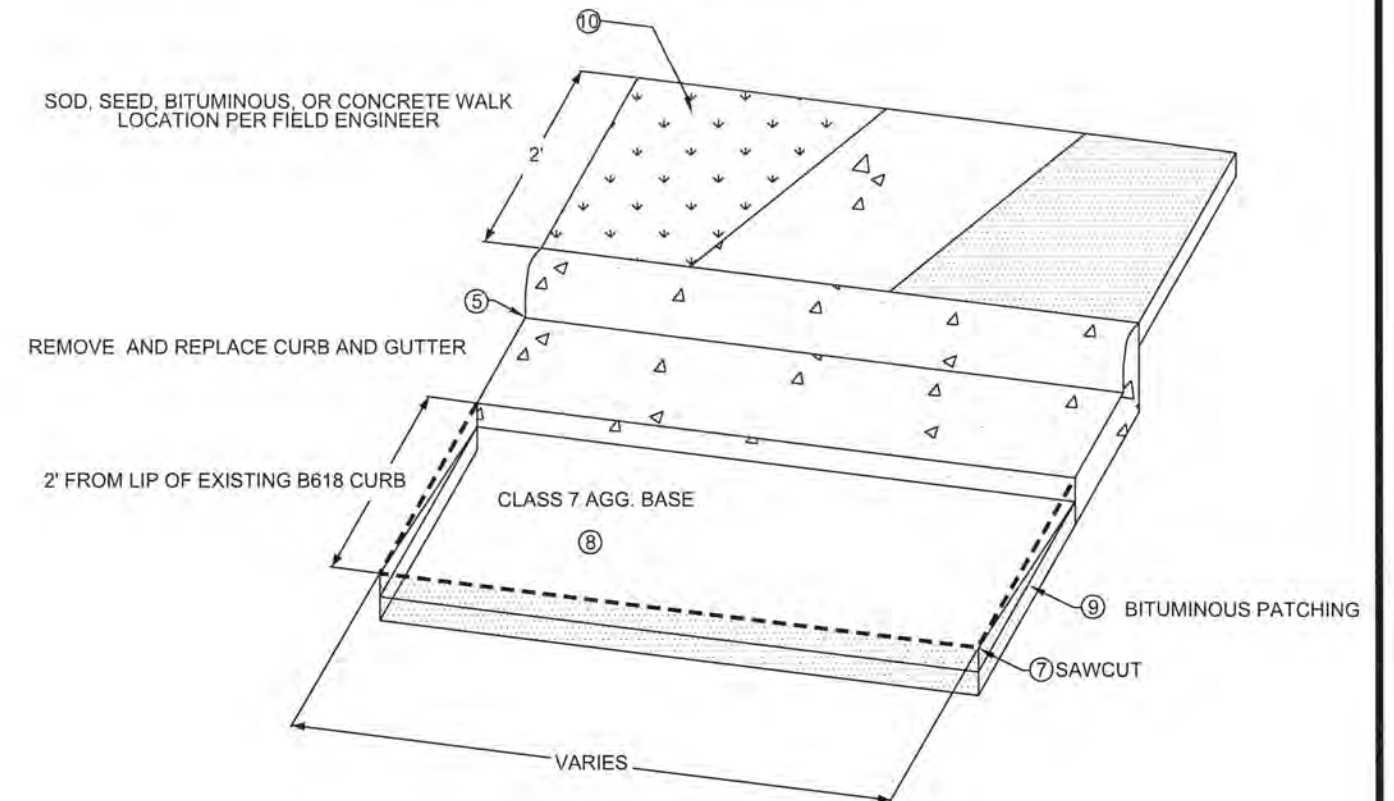
### CATCH BASIN DETAIL

SEE STRUCTURE TAB FOR LOCATION  
(PAGE 3)



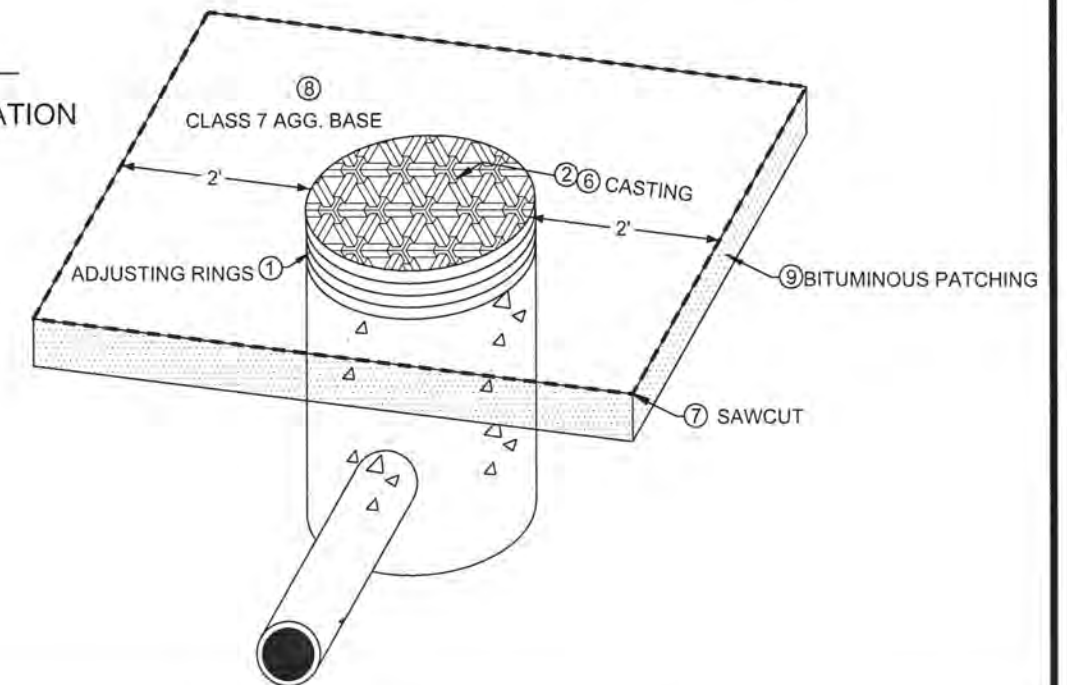
### NEW CURB DETAIL

SEE PLAN FOR LOCATION



### MANHOLE DETAIL

SEE STRUCTURE TAB FOR LOCATION  
(PAGE 3)



### NOTES

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

- ① CONCRETE ENCASED CONCRETE ADJUSTING RINGS STANDARD PLATE 4026A
- ② RING AND FRAME CASTING; REFERENCE CASTING ASSEMBLIES SUMMARY CHART FOR CASTING TYPE
- ③ CURB BOX MATCHES CASTING REFERENCE CHART FOR CASTING TYPE
- ④ GRATE CASTING; REFERENCE CASTING ASSEMBLIES SUMMARY CHART FOR CASTING TYPE
- ⑤ CONCRETE CURB AND GUTTER DESIGN B STANDARD PLATE 7100H, FORM CURB TO FIT CASTING
- ⑥ INSTALLATION OF CATCH BASIN OR MANHOLE CASTINGS; REFERENCE STANDARD PLATE PER TYPE OF CASTING
- ⑦ SAWCUT BITUMINOUS PAVEMENT / CONCRETE CURB FULL DEPTH.
- ⑧ ADD AND COMPACT AGGREGATE BASE CLASS 7 AROUND REPAIRED STRUCTURE. ITEM INCIDENTAL TO ENTIRE STRUCTURE REPAIR
- ⑨ REMOVE VARIABLE DEPTH BITUMINOUS, PATCH WITH 2, 3" LIFTS OF BITUMINOUS, TOP LIFT SHOULD TAPER TO BOTTOM LIFT AT CURB.
- ⑩ REPLACE DISTURBED AREA BEHIND CATCH BASIN WITH EITHER SOD (RESIDENTAL AREAS), EROSION CONTROL BLANKET, BITUMINOUS ,OR CONCRETE

NO	DATE	BY	CKD	APPR	REVISION	03/28/2017	8:26:58 AM
NAME: P:\17-01-00\CSAH_02 (Main-TH47)\Base\PROPOSED\PROPOSED.dgn							

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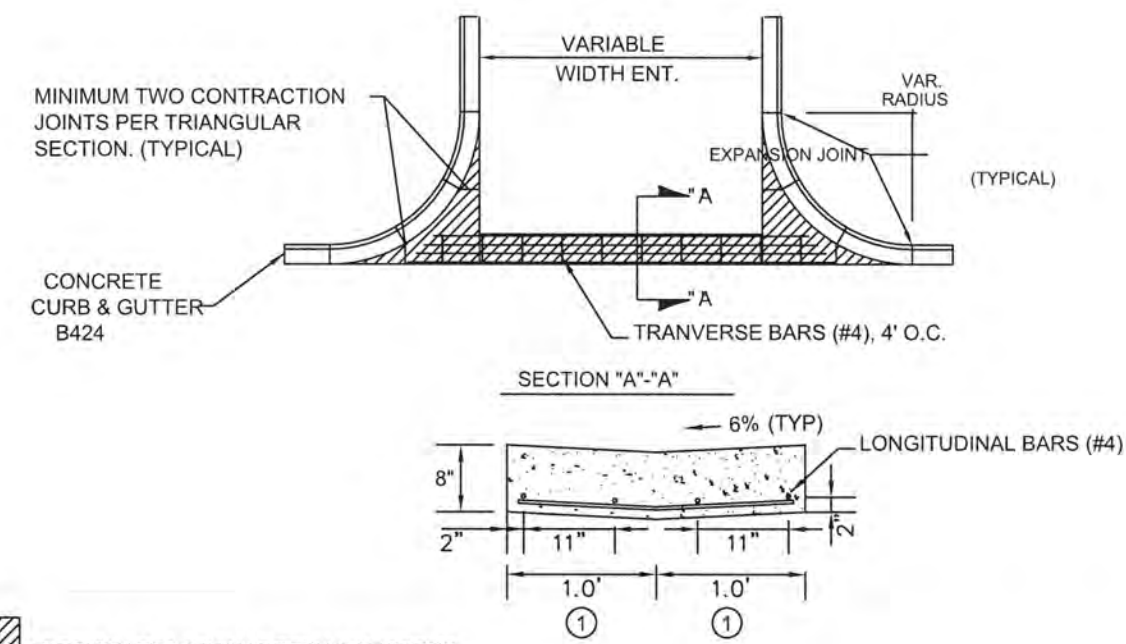
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 DESIGN BY: KPR DATE: 03/17/2017  
 CHECKED BY: MJJ DATE: 03/28/2017

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

COUNTY PROJECT 17-18-02

DETAILS  
 Sheet 5 of 13 Sheets

### CROSS GUTTER DETAIL PAID FOR AS 8" VALLEY GUTTER



= DESIGNATES 8 INCH DEPTH CONCRETE

① MATCH GUTTER WIDTH.



Anoka County Cross Gutter Standards

Date: 03/28/2017

FILE NAME: P:\17-01-00\CSAH\_02\_(Main-TH47)\Base\PROPOSED\PROPOSED.dgn

NO	DATE	BY	CKD	APPR	REVISION	
	03/28/2017					8:27:05 AM

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SIGNATURE:

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ANOKA COUNTY  
HIGHWAY DEPT.

COUNTY PROJECT 17-18-02

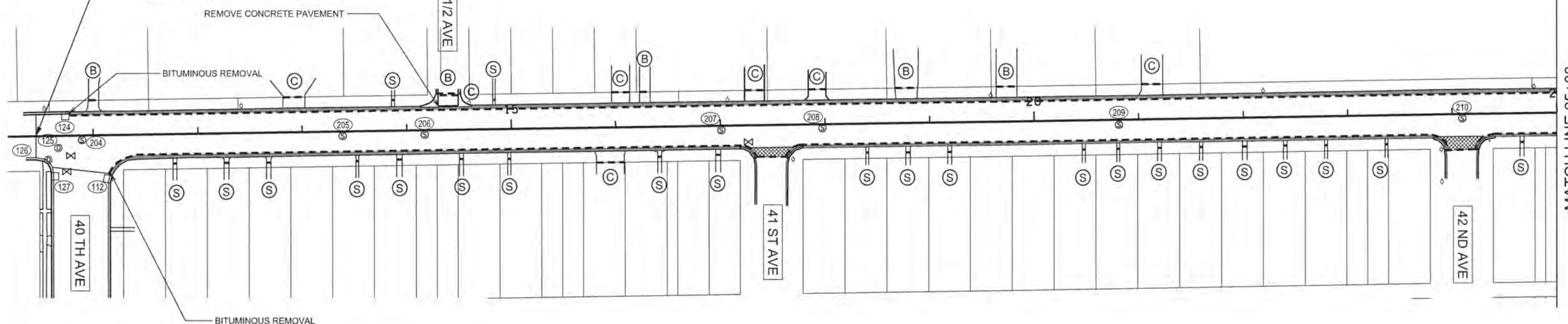
DETAILS

Sheet 6 of 13 Sheets



M. John

BEGIN CONSTRUCTION  
CP: 17-18-02  
STATION: 10+46



**LEGEND**

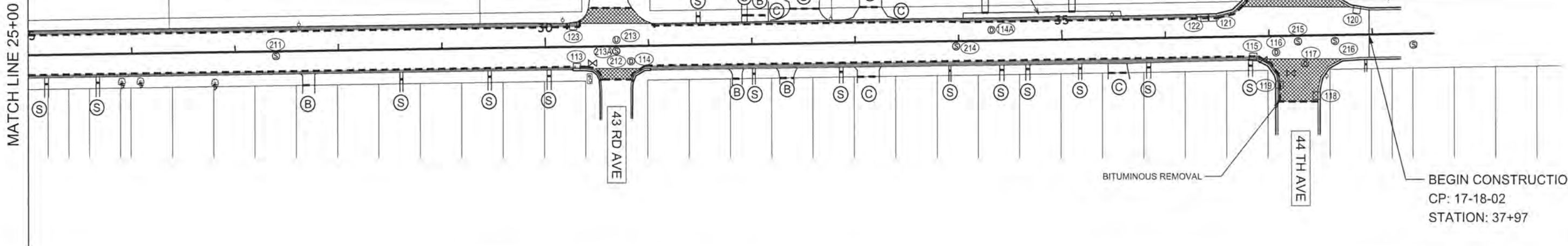
- CATCH BASIN
- ⊙ STORM MANHOLE
- ⊙ SANITARY MANHOLE
- ⊙ GAS MANHOLE
- ⊙ UTILITY MANHOLE
- ⊗ ADJUST GATE VALVE
- ⊙ BITUMINOUS DRIVEWAY REMOVAL
- ⊙ CONCRETE DRIVEWAY REMOVAL
- ⊙ SIDEWALK CONCRETE REMOVAL

--- SAWCUT

■ REMOVE BITUMINOUS / BITUMINOUS PATCHING

▨ MAINLINE MILL AREA

▨ STREET APPROACH MILL AREA



BEGIN CONSTRUCTION  
CP: 17-18-02  
STATION: 37+97

NO	DATE	BY	CKD	APPR	REVISION	03/28/2017	8:27:19 AM
NAME: P:\17-01-00\CSAH_02 (Main-TH47)\Base\PROPOSED\PROPOSED.dgn							

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

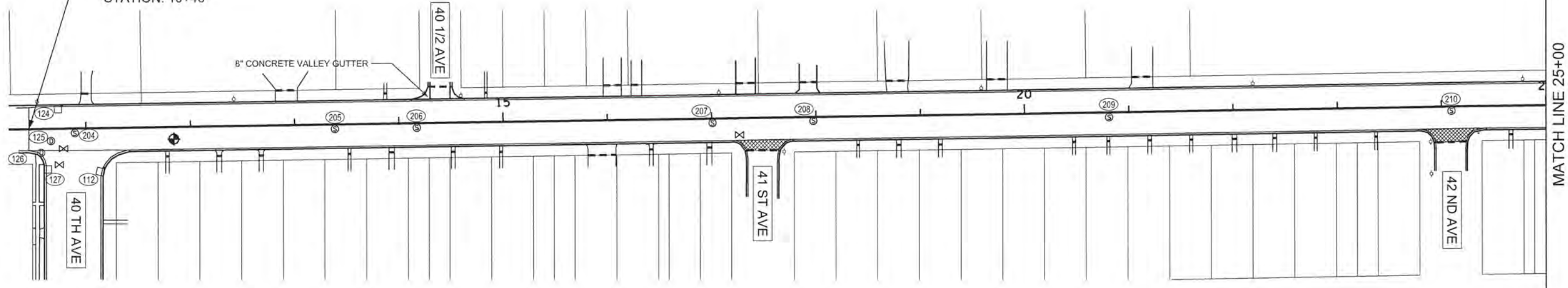
COUNTY PROJECT 17-18-02

REMOVAL PLAN

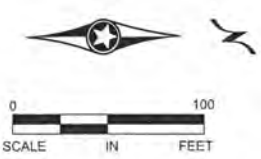
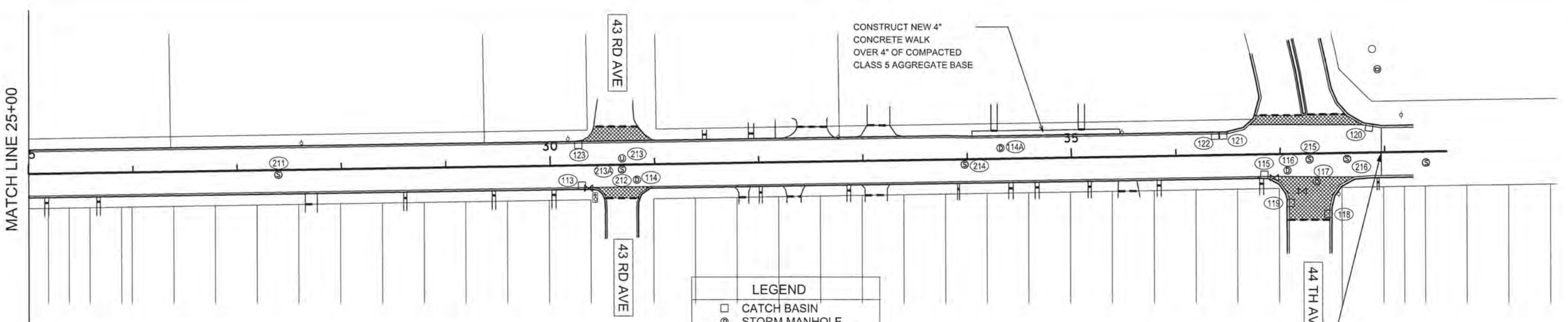
Sheet 7 of 13 Sheets

M.John

BEGIN CONSTRUCTION  
CP: 17-18-02  
STATION: 10+46



MATCH LINE 25+00



BEGIN CONSTRUCTION  
CP: 17-18-02  
STATION: 37+97

LEGEND	
□	CATCH BASIN
⊙	STORM MANHOLE
⊙	SANITARY MANHOLE
⊙	GAS MANHOLE
⊙	UTILITY MANHOLE
⊗	ADJUST GATE VALVE
⊙	CORE LOCATION
- - -	SAWCUT
▨	STREET APPROACH MILL AREA
▨	MAINLINE MILL / OVERLAY AREA

NO	DATE	BY	CKD	APPR	REVISION		

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

COUNTY PROJECT 17-18-02

CONSTRUCTION PLAN  
 STA 10+46 TO 37+97  
 Sheet 8 of 13 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.

**EPOXY:**

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

AN EPOXY 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 FILM 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.

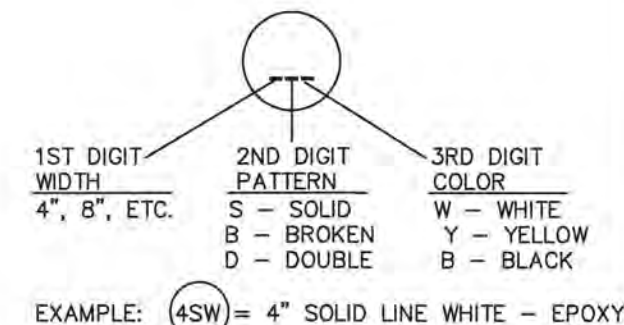
PERMANENT MARKING QUANTITIES		
ITEM	UNIT	TOTAL QUANTITY
4" SOLID LINE WHITE - EPOXY PAINT	LIN FT	4465
4" SOLID LINE YELLOW - EPOXY PAINT	LIN FT	1080
4" BROKEN LINE YELLOW - EPOXY PAINT	LIN FT	370
4" DOUBLE SOLID LINE YELLOW - EPOXY PAINT	LIN FT	380

**SYMBOLS & MATERIALS LEGEND**

- CROSSWALK BLOCK WHITE PREFORMED THERMOPLASTIC
- ← PAVEMENT MESSAGE (LEFT ARROW) PREFORMED THERMOPLASTIC

**STRIPING KEY**

- CIRCLE - EPOXY      □ SQUARE PREFORMED THERMOPLASTIC
- △ TRIANGLE - PAINT
- ⬠ PENTAGON - REMOVABLE PREFORMED PLASTIC MARKING



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 DATE: 3/28/2017 LICENSE NO. 51639

DRAWN BY: RLB DATE: 2/1/17  
 DESIGN BY: RLB DATE: 2/1/17  
 CHECKED BY: JR DATE: 2/1/17

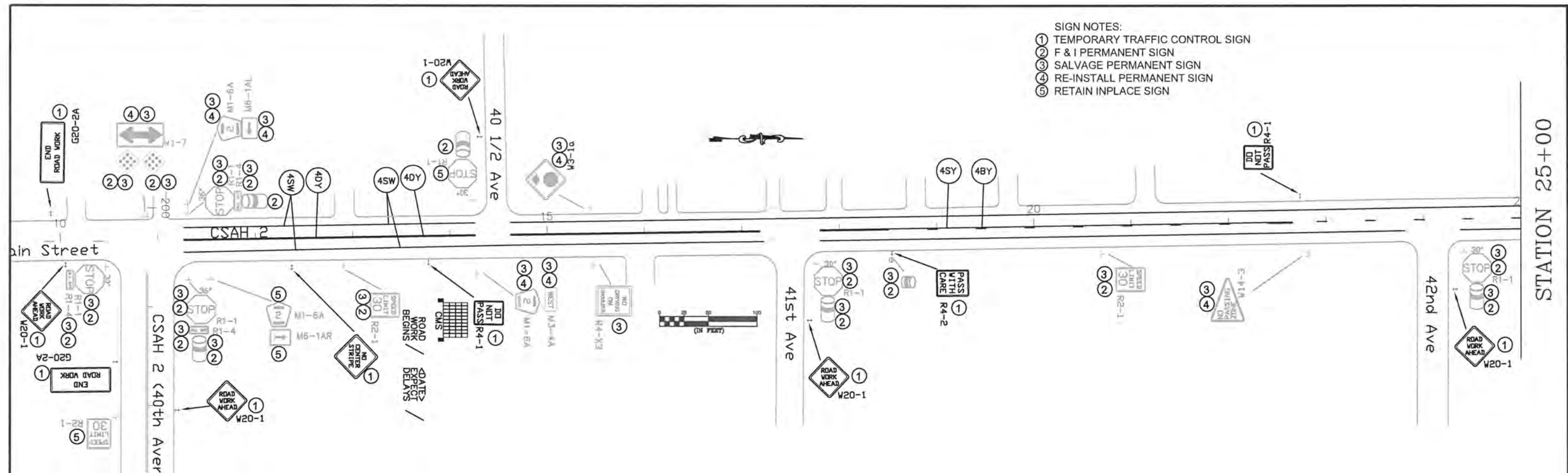


**ANOKA COUNTY  
HIGHWAY DEPT.**

STATE PROJECT NO. \_\_\_\_\_  
 STATE AID PROJECT NO. \_\_\_\_\_  
 STATE AID PROJECT NO. \_\_\_\_\_  
 COUNTY PROJECT NO. 17-18-02

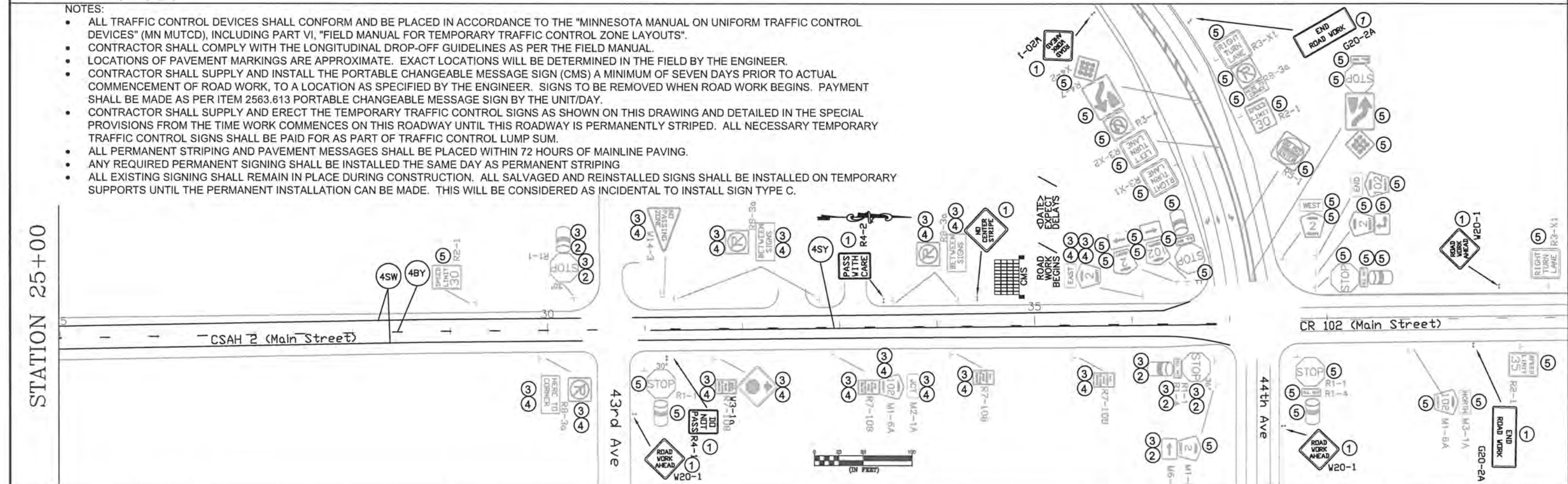
PERMANENT MARKING  
TABULATION  
 Sheet 9 of 13 Sheets

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



NOTES:

- ALL TRAFFIC CONTROL DEVICES SHALL CONFORM AND BE PLACED IN ACCORDANCE TO THE "MINNESOTA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" (MN MUTCD), INCLUDING PART VI, "FIELD MANUAL FOR TEMPORARY TRAFFIC CONTROL ZONE LAYOUTS".
- CONTRACTOR SHALL COMPLY WITH THE LONGITUDINAL DROP-OFF GUIDELINES AS PER THE FIELD MANUAL.
- LOCATIONS OF PAVEMENT MARKINGS ARE APPROXIMATE. EXACT LOCATIONS WILL BE DETERMINED IN THE FIELD BY THE ENGINEER.
- CONTRACTOR SHALL SUPPLY AND INSTALL THE PORTABLE CHANGEABLE MESSAGE SIGN (CMS) A MINIMUM OF SEVEN 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.
- 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.



<p>NO. DATE BY CKD APPR REVISION</p> <p>NAME: P:\16-01-00\CR 60\base\Traffic\Signing_Striping.dwg</p>	<p>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.</p> <p>PRINT NAME: MATTHEW J. JOHN</p> <p>SIGNATURE: <i>Matthew J. John</i></p> <p>DATE: 3/28/2017 REG. NO. 51639</p>	<p>DRAWN BY: RLB DATE: 1/20/17</p> <p>DESIGN BY: RLB DATE: 1/20/17</p> <p>CHECKED BY: JR DATE: 1/20/17</p>	<p style="text-align: center;"><b>ANOKA COUNTY</b></p> <p style="text-align: center;">HIGHWAY DEPT.</p> <p>STATE PROJECT NO. _____</p> <p>STATE AID PROJECT NO. _____</p> <p>STATE AID PROJECT NO. _____</p> <p>COUNTY PROJECT NO. 17-18-02</p>	<p style="text-align: center;">TEMPORARY SIGNING, PERMANENT SIGNING AND STRIPING</p> <p style="text-align: center;">Sheet 10 of 13 Sheets</p>
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TEMPORARY TRAFFIC CONTROL SIGNS						
M.U.T.C.D. CODE	SIZE	PANEL AREA FT. <sup>2</sup>	INSERT	QUANTITY		MOUNTING HEIGHT TO PAVERS EDGE FT.
				No.	POST	
W8-12	48" x 48"	16.00		2	2	7.0'
R4-1	24" x 30"	5.00		3	1	7.0'
R4-2	24" x 30"	5.00		2	1	7.0'
G20-2A	48" x 24"	8.00		4	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 9)		
CMS sign to be installed a minimum of seven days prior to actual commencement of road work. Signs to be removed when road work begins.				2		

SIGN PANELS TYPE C							E
M.U.T.C.D. CODE	SIZE	INSERT	QUANTITY	SQ FT PANEL AREA	SQ FT TOTAL AREA	MOUNTING POST PER INSTALLATION	MOUNTING HEIGHT
R1-1	36" x 36"		3	9.00	27.00	1	7.0'
R1-1	30" x 30"		4	6.25	25.00	1	7.0'
R1-3	18" x 6"		4	0.75	3.00		
X4-13	4" diameter x 15"		7	1.31	9.17		
R2-1	24" x 30"		2	5.00	10.00	1	7.0'
X4-2	18" x 18"		2	2.25	4.50		
M1-6	24" x 24"		0	4.00	0.00	1	7.0'
M6-1L	21" x 15"		1	2.19	2.19		
<b>TOTAL</b>			<b>23</b>		<b>80.86</b>		

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CHANGEABLE MESSAGE BOARD - MESSAGE SEQUENCE LAYOUT

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

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

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

NO	DATE	BY	CKD	APPR	REVISION

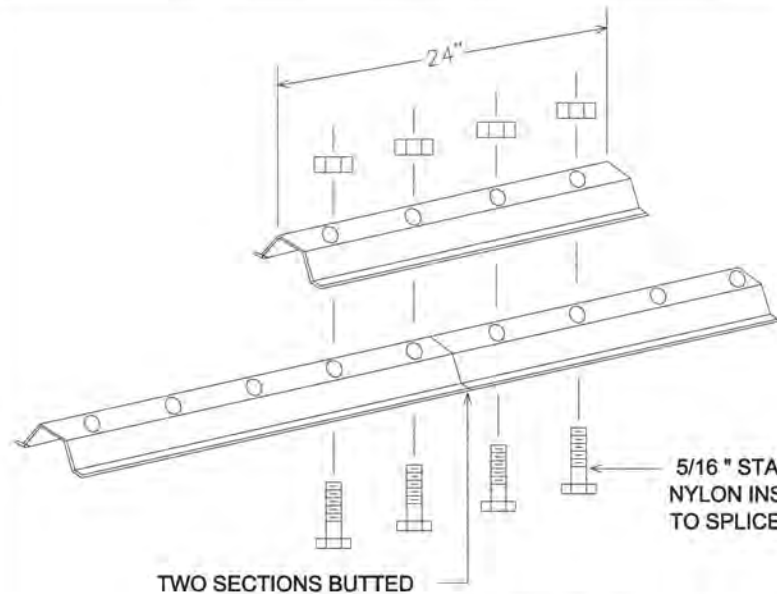
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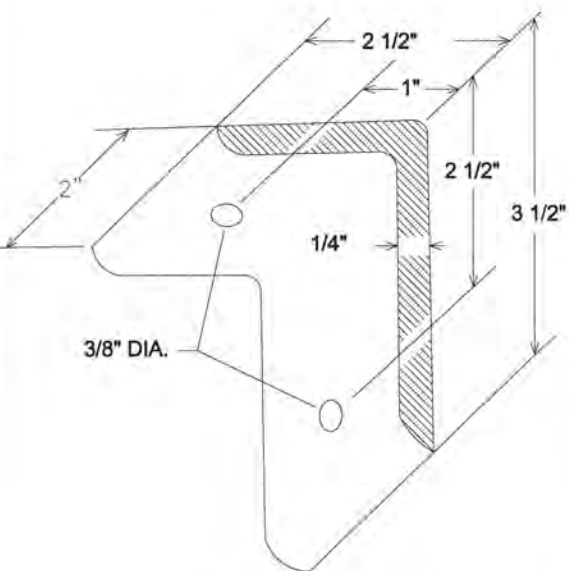
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ANOKA COUNTY HIGHWAY DEPT.

STATE PROJECT NO. \_\_\_\_\_  
 STATE AID PROJECT NO. \_\_\_\_\_  
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 COUNTY PROJECT NO. 17-18-02

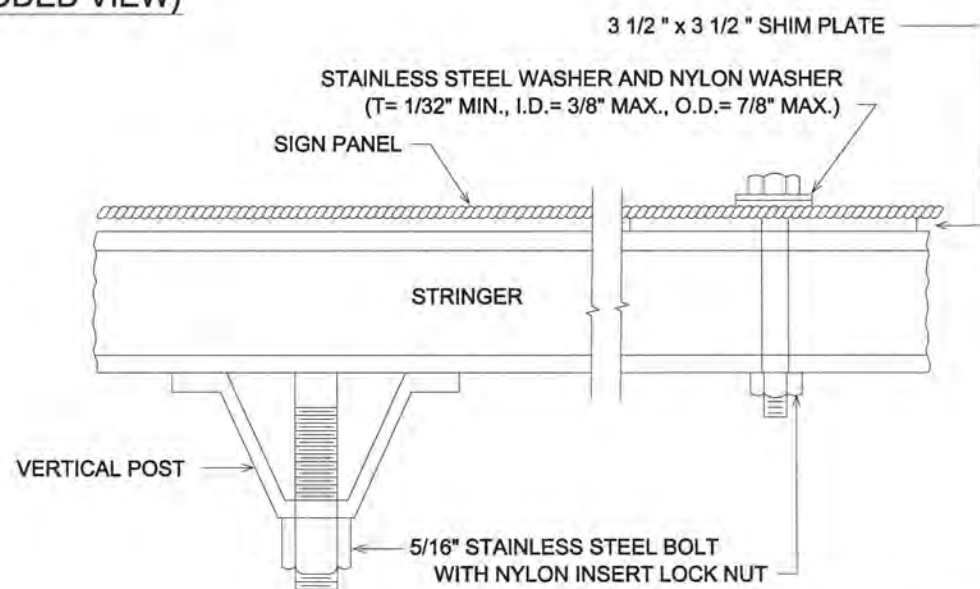


LATERAL BRACE OR STRINGER  
SPLICE DETAIL (EXPLODED VIEW)

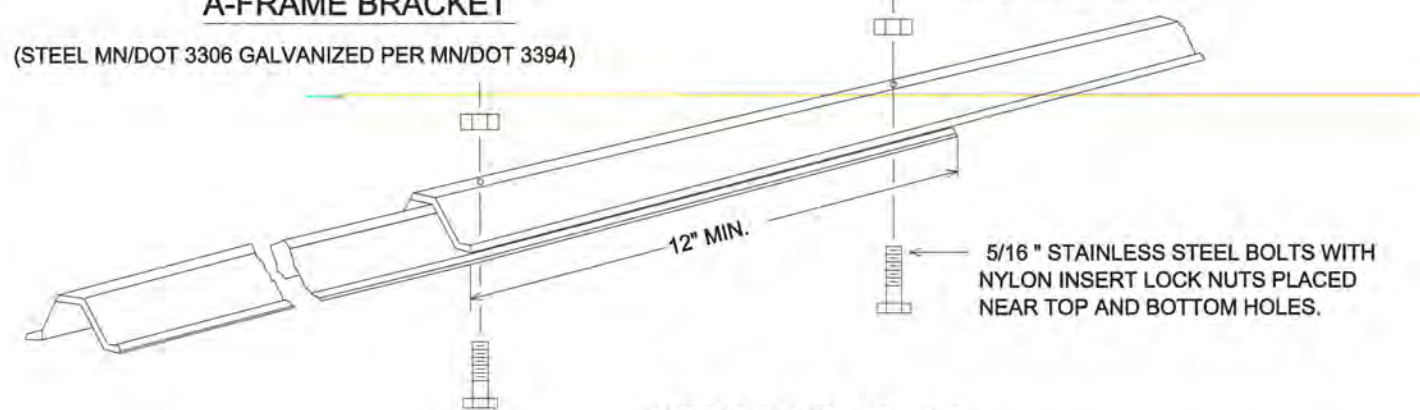


A-FRAME BRACKET

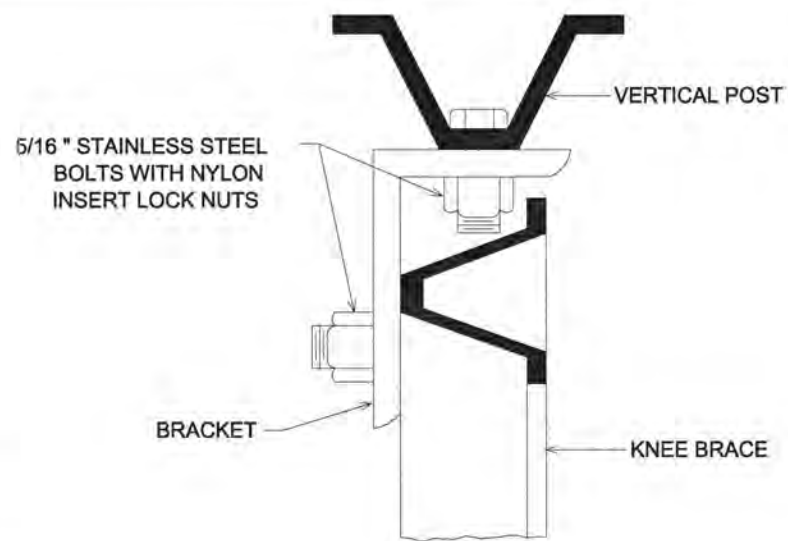
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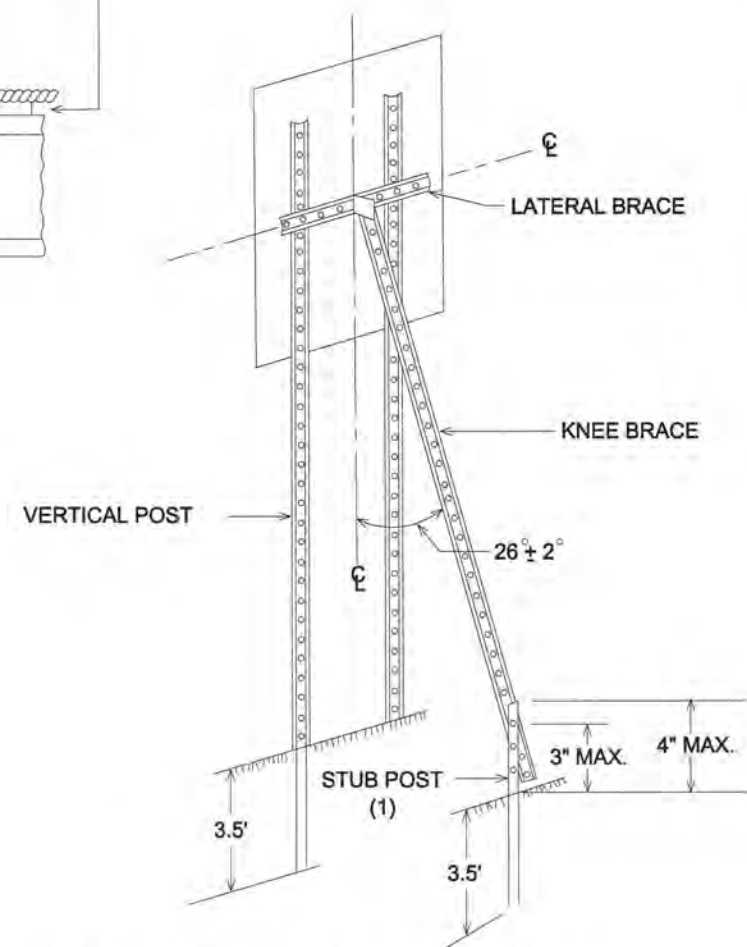
SECTION B-B



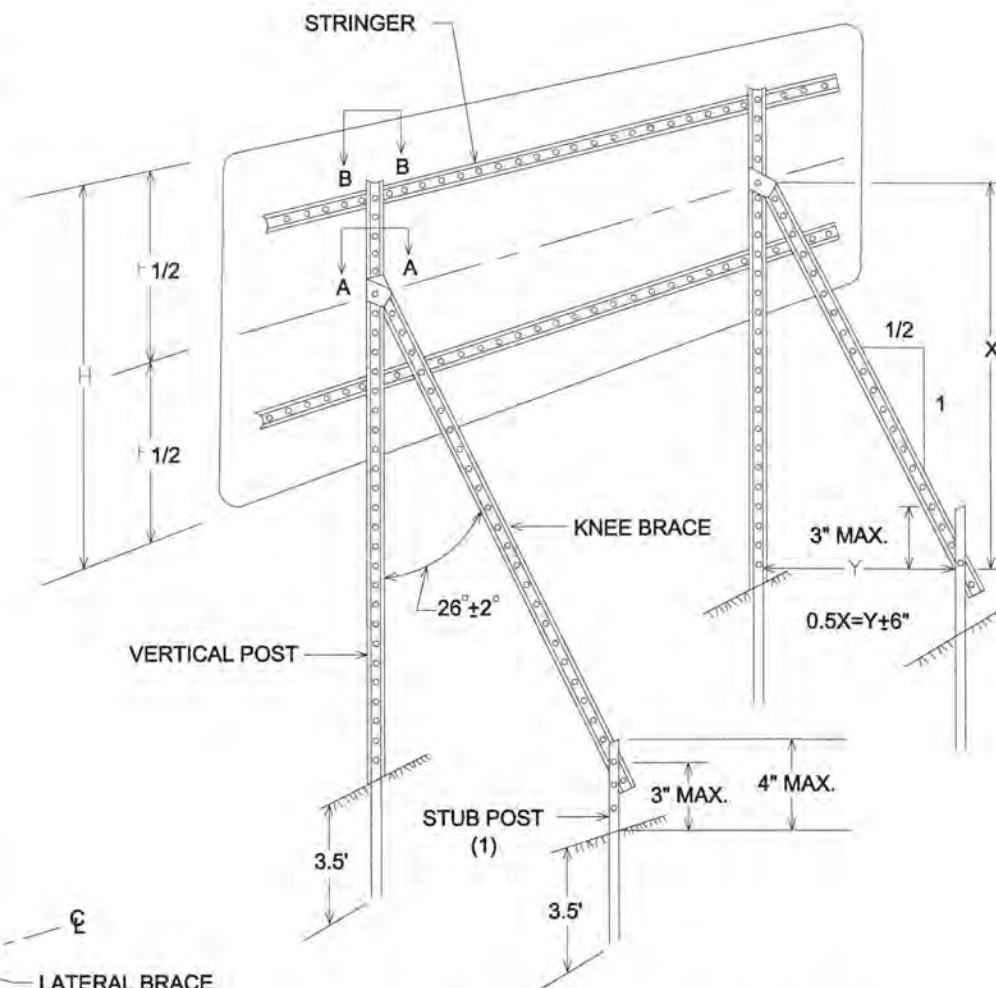
KNEE BRACE SPLICE



SECTION A-A



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



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



TYPICAL MOUNTING

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

TYPE C & D SIGN  
STRUCTURAL DETAILS

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: MATTHEW J. JOHN  
 SIGNATURE: *[Signature]*  
 DATE: 3/29/2017 REG. NO. 51639

DRAWN BY: RLB 3/9/17  
 DESIGN BY: RLB 3/9/17  
 CHECKED BY: JR 3/9/17

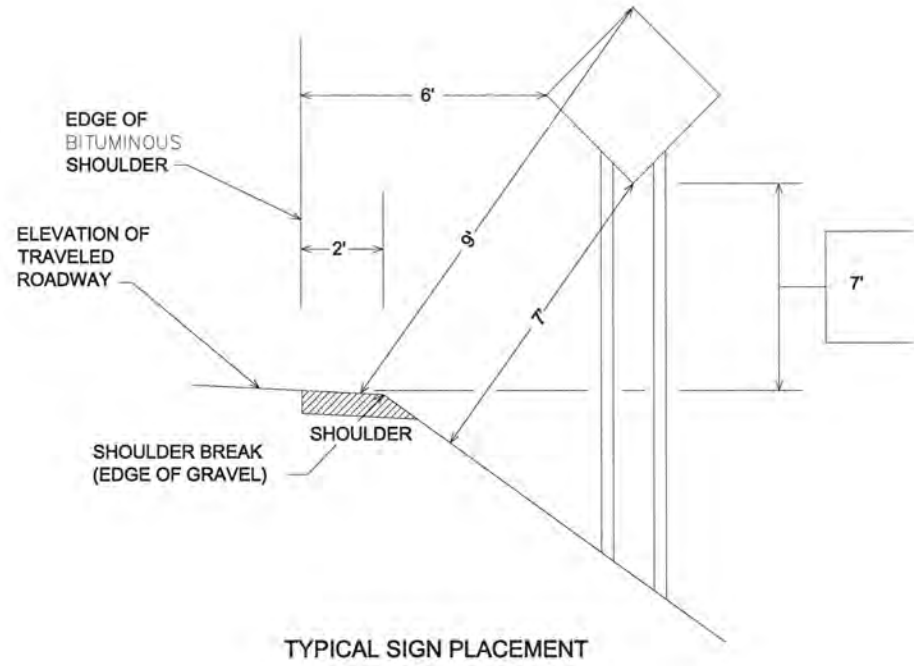


ANOKA COUNTY  
HIGHWAY DEPT.

STATE PROJECT NO. \_\_\_\_\_  
 STATE AID PROJECT NO. \_\_\_\_\_  
 STATE AID PROJECT NO. \_\_\_\_\_  
 COUNTY PROJECT NO. 17-18-02

SIGNING & STRIPING  
DETAILS

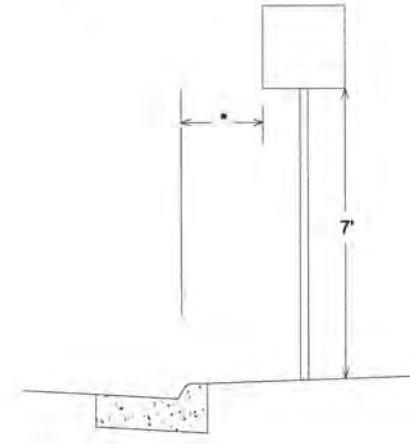
RURAL



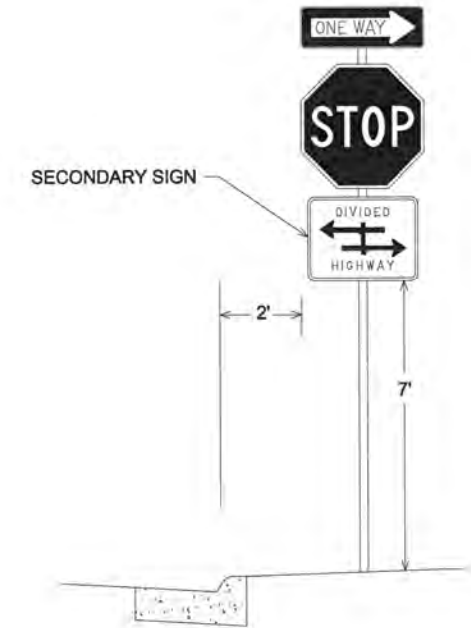
TYPICAL SIGN PLACEMENT

URBAN

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



TYPICAL SIGN PLACEMENT



NOTE:

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

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: MATTHEW J. JOHN  
 SIGNATURE: *[Signature]*  
 DATE: 3/28/2017 REG. NO. 51639

DRAWN BY: RLB 3/9/17  
 DESIGN BY: RLB 3/9/17  
 CHECKED BY: JR 3/9/17



ANOKA COUNTY  
 HIGHWAY DEPT.

STATE PROJECT NO. \_\_\_\_\_  
 STATE AID PROJECT NO. \_\_\_\_\_  
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 COUNTY PROJECT NO. 17-18-02

SIGNING & STRIPING  
 DETAILS  
 Sheet 13 of 13 Sheets