

MINNESOTA DEPARTMENT OF TRANSPORTATION ANOKA COUNTY

CONSTRUCTION PLAN FOR BITUMINOUS REMOVAL, BITUMINOUS SURFACING, AND GEOTEXTILE FABRIC/GEOTEXTILE PLACEMENT.

LOCATED ON CSAH 18 BETWEEN 1100' WEST OF KETTLE RIVER BLVD (CSAH 62) AND 1600' WEST OF KETTLE RIVER BLVD (CSAH 62)

	<u>CSAH 18</u>	
GROSS LENGTH	212 FEET	0.040 MILES
EXCEPTIONS-LENGTH	0.00 FEET	0.000 MILES
NET LENGTH	212 FEET	0.040 MILES

BEGIN CP 21-14-18
CSAH18, STA: 10+14.00

END CP 21-14-18
CSAH 18, STA: 12+26.00



PROJECT LOCATION



CITY OF COLUMBUS
ANOKA COUNTY
MN/DOT TRANSPORTATION DISTRICT - METRO
SECTION 1
TOWNSHIP 32 NORTH
RANGE 22 WEST

GOVERNING SPECIFICATIONS

THE 2018 EDITION OF THE MINNESOTA DEPARTMENT OF TRANSPORTATION "STANDARD SPECIFICATIONS FOR CONSTRUCTION" SHALL GOVERN. ALL TRAFFIC CONTROL DEVICES SHALL CONFORM AND BE INSTALLED IN ACCORDANCE WITH THE "MINNESOTA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" (MNMUTCD), AND PART VI, "FIELD MANUAL FOR TEMPORARY TRAFFIC CONTROL ZONE LAYOUTS."

THIS PLAN CONTAINS 12 SHEETS

INDEX

SHEET NO.	DESCRIPTION
1	TITLE SHEET
2	STATEMENT OF ESTIMATED QUANTITIES
3	TYPICAL SECTIONS
4	DETAILS
5	CONSTRUCTION PLAN
6-7	DETOUR PLANS
8-12	SIGNING AND STRIPING PLANS

DESIGN DESIGNATION (CSAH 18)

ESAL 20	742,373	FUNCTIONAL CLASSIFICATION	MINOR ARTERIAL
R VALUE	40	NO. OF TRAFFIC LANES	2
ADT (2021)	6284	NO. OF PARKING LANES	-
PROJ. ADT (2041)	6284	DESIGN SPEED	55 MPH
PROJ. HCADT (2021)	371	STOPPING SIGHT DISTANCE BASED ON:	
SOIL FACTOR	N/A	HEIGHT OF EYE	3.5'
		HEIGHT OF OBJECT	2.0'
		DESIGN SPEED NOT ACHIEVED AT:	
		STA.	TO STA.
			MPH

Approved ANOKA COUNTY ENGINEER 3-1-21

NO	DATE	BY	CKD	APPR	REVISION	
	02/25/2021					1:31:53 PM

NAME: P:\21-01-00\CSAH_18_(1100 to 1600 W of Kettle River)\Base\Proposed\CSAH_18_TITLE.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: 02-24-2021 LICENSE NO. 26511

DRAWN BY: SRK DATE: 02/25/2021
 DESIGN BY: SRK DATE: 02/25/2021
 CHECKED BY: CSQ DATE: 02/25/2021



**ANOKA COUNTY
HIGHWAY DEPT.**

COUNTY PROJECT 21-14-18

TITLE SHEET
Sheet 1 of 12 Sheets

STATEMENT OF ESTIMATED QUANTITIES

NOTES	ITEM NUMBER	ITEM DESCRIPTION	UNIT	TOTAL PROJECT QUANTITIES ESTIMATED
	2021.501	MOBILIZATION	LUMP SUM	1
	2104.503	SAWING BIT PAVEMENT (FULL DEPTH)	LIN FT	84
	2104.504	REMOVE BITUMINOUS PAVEMENT	SQ YD	983
8	2105.604	GEOTEXTILE FABRIC TYPE 7	SQ YD	1767
9	2105.604	GEOGRID	SQ YD	1060
	2105.609	SELECT GRANULAR BORROW	TON	2177
	2106.507	COMMON EXCAVATION	CU YD	1555
1	2211.509	AGGREGATE BASE CLASS 5	TON	455
2	2105.507	SUBGRADE EXCAVATION	CU YD	137
3	2123.510	DOZER	hour	8
	2357.506	BITUMINOUS MATERIAL FOR TACK COAT	GALLON	98
	2360.509	TYPE SP 12.5 WEARING COURSE MIX (4,C)	TON	333
4	2563.601	TRAFFIC CONTROL	LUMP SUM	1
	2563.601	DETOUR SIGNING	LUMP SUM	1
5	2563.602	PORTABLE CHANGEABLE MESSAGE SIGN	UNIT DAY	20
6	2574.507	COMMON TOPSOIL BORROW	CU YD	102
7	2575.508	HYDRAULIC REINFORCED FIBER MATRIX	POUND	491

CONSTRUCTION NOTES	
1	ITEM TO BE USED AS BASE TO BRING SHOULDER UP TO 2ND LIFT OF THRU LANE
2	ITEM USED TO SALVAGE INPLACE CLASS 5 AND PLACED BACK AFTER MUCK EXCAVATION IS COMPLETED.
3	ITEM USED TO REINSTALL TOPSOIL ON SLOPES IN DISTURBED AREA.
4	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. DETOUR IS INCIDENTAL TO TRAFFIC CONTROL.
5	2 MESSAGE BOARDS, ONE ON THE EACH END OF PROJECT, SHALL BE INSTALLED 10 DAYS PRIOR TO ANY CONSTRUCTION; REFERENCE STRIPING PLAN FOR DETAILS.
6	ITEM USED AT ENGINEER'S DISCRETION FOR RESTORATION OF DISTURBED AREAS ALONG SLOPES.
7	TYPE 3 FERTILIZER AND TYPE 25-121 SEED ARE INCIDENTAL TO THIS ITEM. SEE "BASIS OF PLANNED QUANTITIES" FOR APPLICATION RATES.
8	ITEM PLACED AT BOTTOM OF COMMON EXCAVATION AND OVERLAPPED ENTIRE WIDTH BETWEEN EXISTING R/W
9	GEOGRID (TENSAR TRIAX TX7 OR APPROVED EQUIVALENT) PLACED BETWEEN 2 4" LIFTS OF CLASS 5 AND OVERLAPPED TO A POINT ONE FOOT OUTSIDE FULL WIDTH OF ROADWAY.

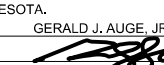
BASIS OF PLANNED QUANTITIES		
2357	BITUMINOUS MATERIAL FOR TACK COAT	0.05 GAL / SQ YD
2211	AGGREGATE BASE CLASS 5	1.8 TONS / CU YD
2360	ALL BITUMINOUS PAVEMENT	115 LBS / SQ YD / IN THICKNESS
2575	SEED MIXTURE 25-121	61 LBS / ACRE
2574	FERTILIZER TYPE 3	350 LBS / ACRE
2575	HYDRAULIC REINFORCED FIBER MATRIX	3900 LBS / ACRE

MNDOT STANDARD PLATES	
PLATE NO.	DESCRIPTION
8000J	CHANNELIZERS

NO	DATE	BY	CKD	APPR	REVISION	02/25/2021	1:31:56 PM
NAME: P:\21-01-00\CSAH_18_(1100 to 1600 W of Kettle River)\Base\Proposed\CSAH_18_SEQ.dgn							

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PRINT NAME: GERALD J. AUGER, JR.

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**ANOKA COUNTY
HIGHWAY DEPT.**

COUNTY PROJECT 21-14-18

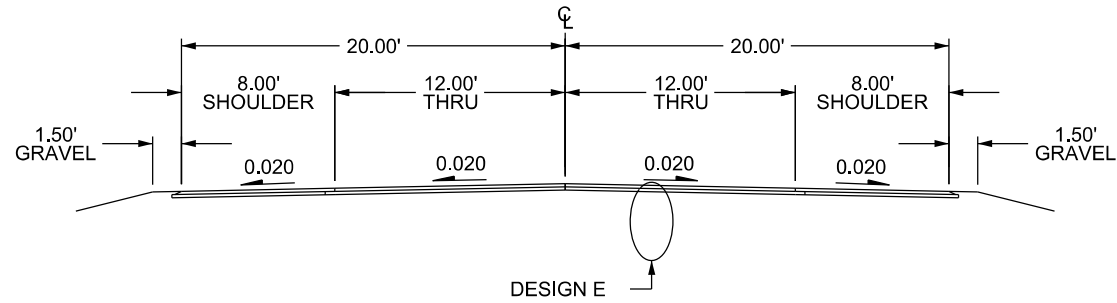
STATEMENT OF ESTIMATED QUANTITIES

Sheet 2 of 12 Sheets

CSAH 18 - BROADWAY AVENUE

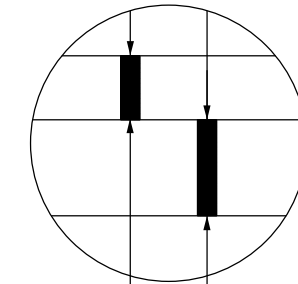
EXISTING SECTION

10+14 - 12+26



EXISTING SECTION

DESIGN E



2" EXISTING BITUMINOUS (SHOULDER)

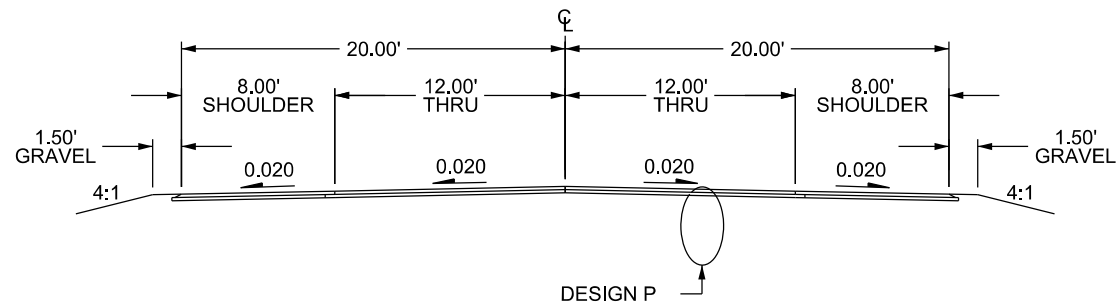
6" EXISTING BITUMINOUS (THRU LANE)

6" EXISTING AGGREGATE BASE, CLASS 5

CSAH 18 - BROADWAY AVENUE

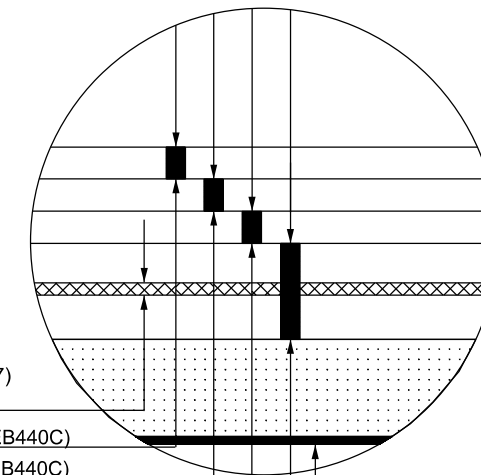
PROPOSED SECTION

10+14 - 12+26



PROPOSED SECTION

DESIGN P



GEOGRID (TENSAR TRIAX TX7)
OR APPROVED EQUIVALENT

2.0" BITUMINOUS WEAR (SPWEB440C)

2.0" BITUMINOUS WEAR (SPWEB440C)

2.0" BITUMINOUS WEAR (SPWEB440C)

8" AGGREGATE BASE, CLASS 5

GEOTEXTILE FABRIC TYPE 7

NOTE: GEOTEXTILE FABRIC TYPE 7 PLACED 3 FT BELOW BOTTOM OF CL. 5.

NO	DATE	BY	CHKD	APPR	REVISION	TIME
	02/25/2021					1:32:08 PM

NAME: P:\21-01-00\CSAH_18_(1100 to 1600 W of Kettle River)\Base\Proposed\CSAH_18_TYPICAL.dgn

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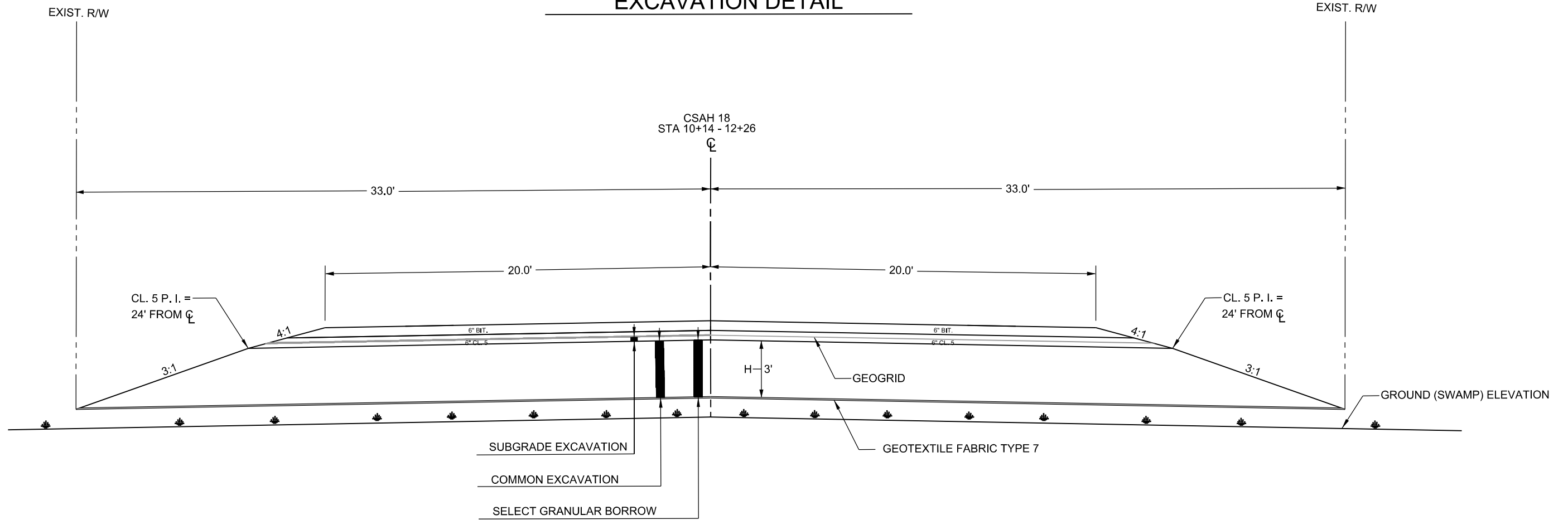
ANOKA COUNTY
HIGHWAY DEPT.

COUNTY PROJECT 21-14-18

TYPICAL SECTIONS

Sheet 3 of 12 Sheets

EXCAVATION DETAIL



* SUBGRADE EXCAVATION INVOLVES THE SALVAGE AND REUSE OF THE EXISTING CLASS 5 GRAVEL AS BASE MATERIAL.

NO	DATE	BY	CKD	APPR	REVISION	TIME

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 PRINT NAME: GERALD J. AUGER, JR.
 SIGNATURE: *[Signature]*
 DATE: 02-24-2021 LICENSE NO. 26511

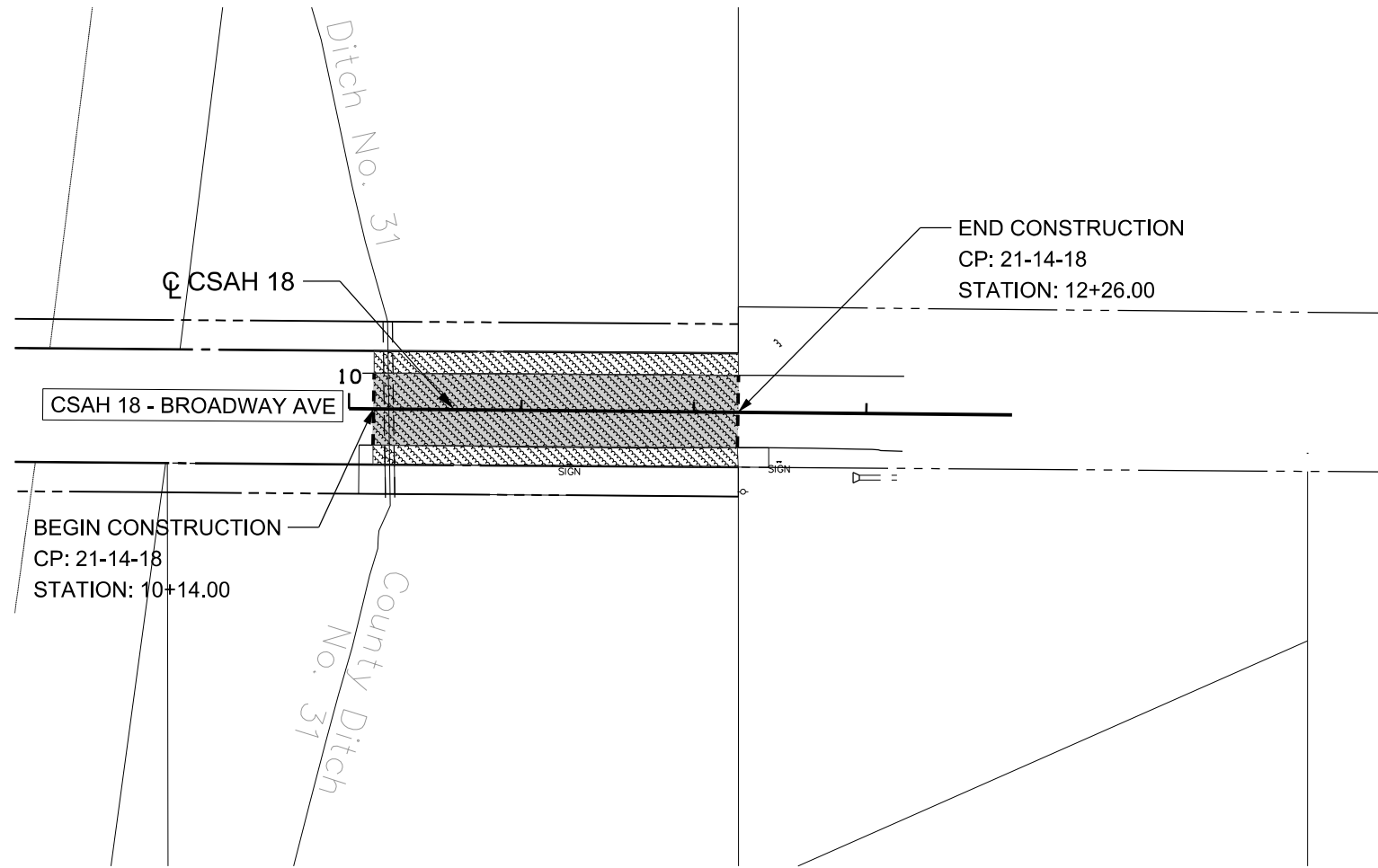
DRAWN BY SRK DATE 02/25/2021
 DESIGN BY SRK DATE 02/25/2021
 CHECKED BY CSO DATE 02/25/2021



**ANOKA COUNTY
 HIGHWAY DEPT.**

COUNTY PROJECT 21-14-18

DETAILS
 Sheet 4 of 12 Sheets



LEGEND

---	SAWCUT	---	CROSS CULVERT
	BIT. REMOVAL/ REPLACEMENT & GEOGRID INSTALLATION		GEOTEXTILE FABRIC TYPE 7 PLACEMENT
---	PE	---	EXIST. R / W
---		NEW R/W	

NO	DATE	BY	CKD	APPR	REVISION	DATE	TIME

NAME: P:\21-01-00\CSAH_18_(1100 to 1600 W of Kettle River)\Base\Proposed\CSAH_18_CP.dgn

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**ANOKA COUNTY
HIGHWAY DEPT.**

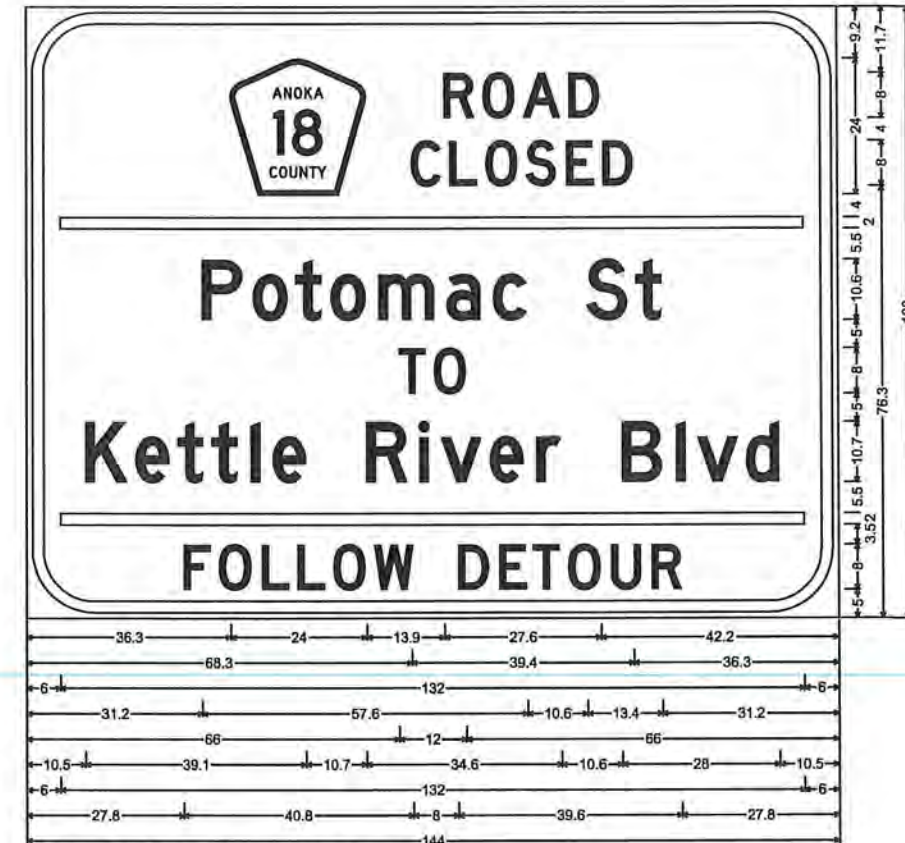
COUNTY PROJECT 21-14-18

CONSTRUCTION PLAN

STA 10+14 TO 12+26

Sheet 5 of 12 Sheets

M.U.T.C.D.K CODE	SIZE	INSERT	QUANTITY	M.U.T.C.D.K CODE	SIZE	INSERT	QUANTITY
W20-1	48" x 48"	W20-1	3	TYPE III	8 FOOT	SEE NOTE ②	3
M1-6	24" x 24"	M1-6	1	G20-X2	144" x 108"	2	2
W20-2	48" x 48"	W20-2	1	G20-X2	114" x 20"	* 2	2
W20-3	48" x 48"	W20-3	5	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	2 AT 10 days each
W20-100P	24" x 18"	W20-100P	2	M3-4A	24" x 12"	WEST M3-4A	9
W20-100P	24" x 18"	W20-100P	2	M4-8A	24" x 12"	DETOUR M4-8A	9
R11-4	60" x 30"	R11-4	SEE NOTE ②	M1-6	24" x 24"	M1-6	9
TYPE III	8 FOOT	W20-100P	2	21" x 15"		M5-2AL	2
FLASHER						M5-1AR	1
M4-10L	48" x 18"	M4-10L	SEE NOTE ②			M6-1AR	1
TYPE III	8 FOOT		1			M5-2AR	1
						M6-3A	4
R11-2	48" x 30"	R11-2	SEE NOTE ②	M3-4A	24" x 12"	EAST M3-2A	10
TYPE III	8 FOOT		3	M4-8A	24" x 12"	DETOUR M4-8A	10
FLASHER				M1-6	24" x 24"	M1-6	10
				21" x 15"		M5-1AL	2
R11-2	48" x 30"	R11-2	SEE NOTE ②			M6-1AL	2
TYPE III	8 FOOT		2			M6-1AR	1
FLASHER						M6-3A	5
				M4-6A	24" x 12"	END M4-6A	2
				M4-8A	24" x 12"	DETOUR M4-8A	2
				M1-6	24" x 24"	M1-6	2



12.0" Radius, 2.0" Border, 1.0" Indent, Black on Orange;
 Pentagonal County 18 M1-6; [ROAD] D; [CLOSED] D; [Potomac St] D; [TO] D; [Kettle River Blvd] D;
 [FOLLOW DETOUR] D;

* SIGN TO BE INSTALLED A MINIMUM OF SEVEN DAYS PRIOR TO ACTUAL CLOSING DATE OF ROAD CLOSURE AND IMPLEMENTATION OF DETOUR SIGNING. SIGNS TO BE REMOVED AT TIME OF DETOUR INSTALLATION.

NOTES:

- 1) ALL BARRICADES SHALL BE PROPERLY WEIGHTED WITH SANDBAGS.
- 2) ALL BARRICADES SHALL HAVE REFLECTIVE MATERIAL ON BOTH SIDES.
- 3) ALL BARRICADE MARKINGS SHALL BE SLANTED IN ACCORDANCE WITH THE MINNESOTA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, INCLUDING THE FIELD MANUAL DATED JANUARY, 1998
- 4) ALL TRAFFIC CONTROL DEVICES SHALL CONFORM TO THE MOST RECENT EDITION OF THE MINNESOTA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, INCLUDING THE FIELD MANUAL DATED JANUARY, 1998
- 5) ADDITIONS OR CHANGES TO THIS PLAN MAY BE MADE AS DETERMINED BY THE ENGINEER.

NO	DATE	BY	CKD	APPR	REVISION

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
 PRINT NAME: JOSEPH J. MACPHERSON, P.E.
 SIGNATURE: LICENSE NO. 46732
 DATE: 3-12-14

DRAWN BY: TMV DATE: 12/17/20
 DESIGN BY: TMV DATE: 12/17/20
 CHECKED BY: DATE:



ANOKA COUNTY
 HIGHWAY DEPT.

CP 21-14-18

DETOUR PLAN
 QUANTITIES

PERMANENT PAVEMENT MARKING PLAN
NOTES AND GUIDELINES

GENERAL INFORMATION:

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

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

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

MULTI COMPONENT (MULTI COMP):

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

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

A MULTI COMP RESIN LINE SHALL BE APPLIED WITH A MINIMUM THICKNESS OF 20 MILS (WET) AND 4" WIDE. GLASS BEANS 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
1 4" SOLID LINE WHITE - MULTI COMP	LIN FT	818
4" BROKEN LINE YELLOW - MULTI COMP	LIN FT	90
4" SOLID LINE YELLOW - MULTI COMP	LIN FT	409

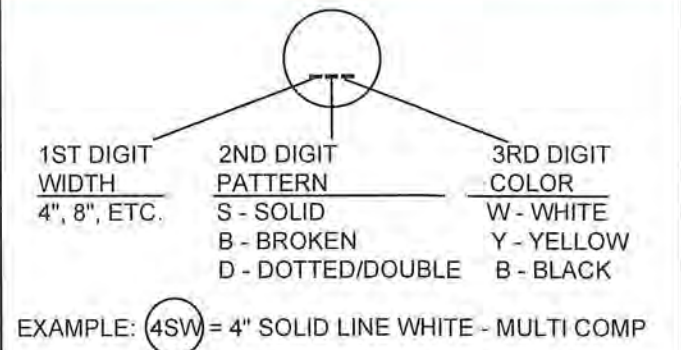
1 10' STRIPE, 40' GAP
* PAVEMENT MARKING SPECIAL

SYMBOLS & MATERIALS LEGEND

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

STRIPING KEY

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



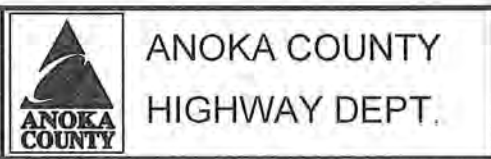
NO	DATE	BY	CHKD	APPR	REVISION

NAME: P:\21-01-00\CSAH_18_(1100 to 1600 W of Kettle River)\Base\Traffic\Perm Pvmt Mrkg Guide Notes.dwg

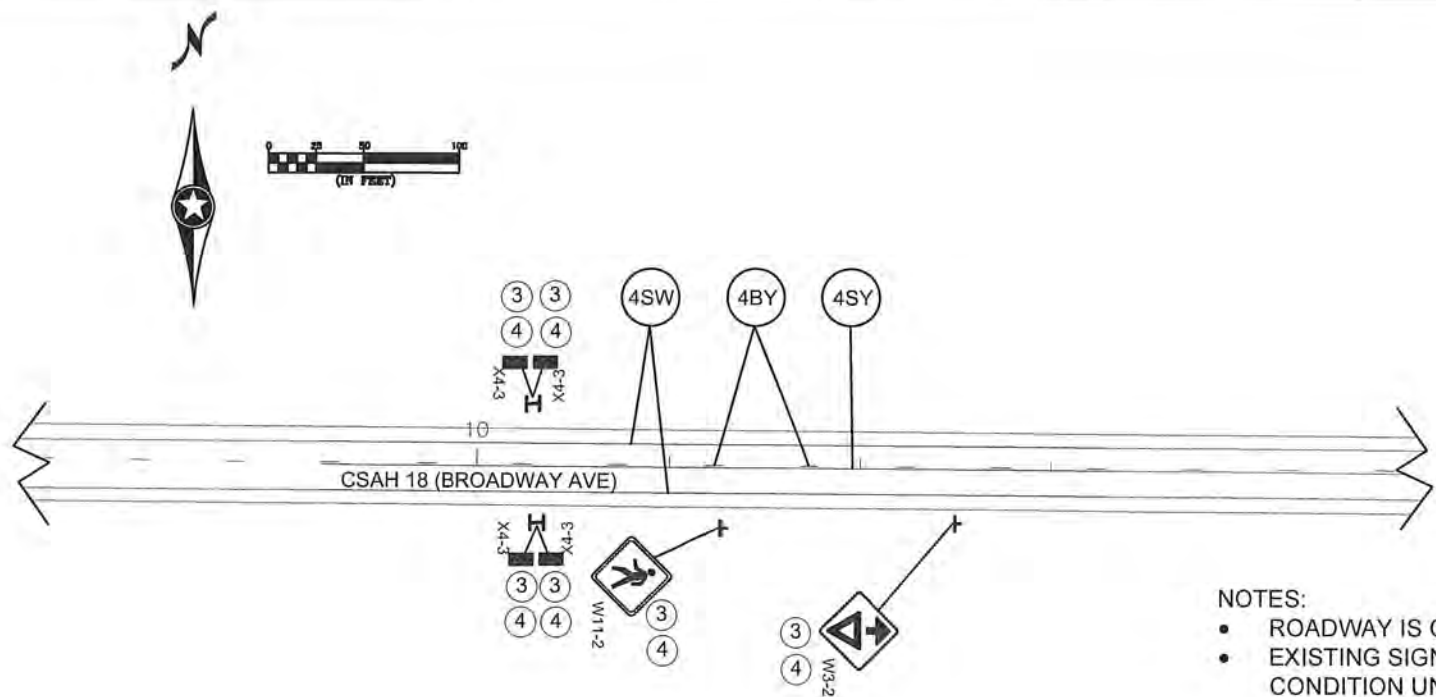
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PRINT NAME: JOSEPH J. MACPHERSON, P.E.
SIGNATURE: _____
DATE: 3-1-24 LICENSE NO: 46732

DRAWN BY TMV DATE 12/17/20
DESIGN BY TMV DATE 12/17/20
CHECKED BY _____ DATE _____



CP 21-14-18



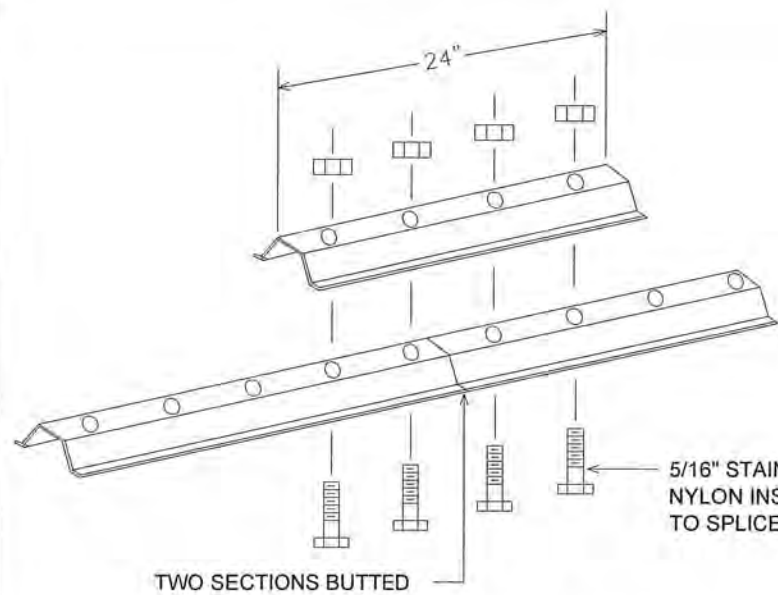
STRIPING KEY
 ○ CIRCLE - MULTI COMP

SIGN NOTES:
 ③ SALVAGE SIGN FOR REUSE ON THIS PROJECT
 ④ REINSTALL SALVAGED SIGN

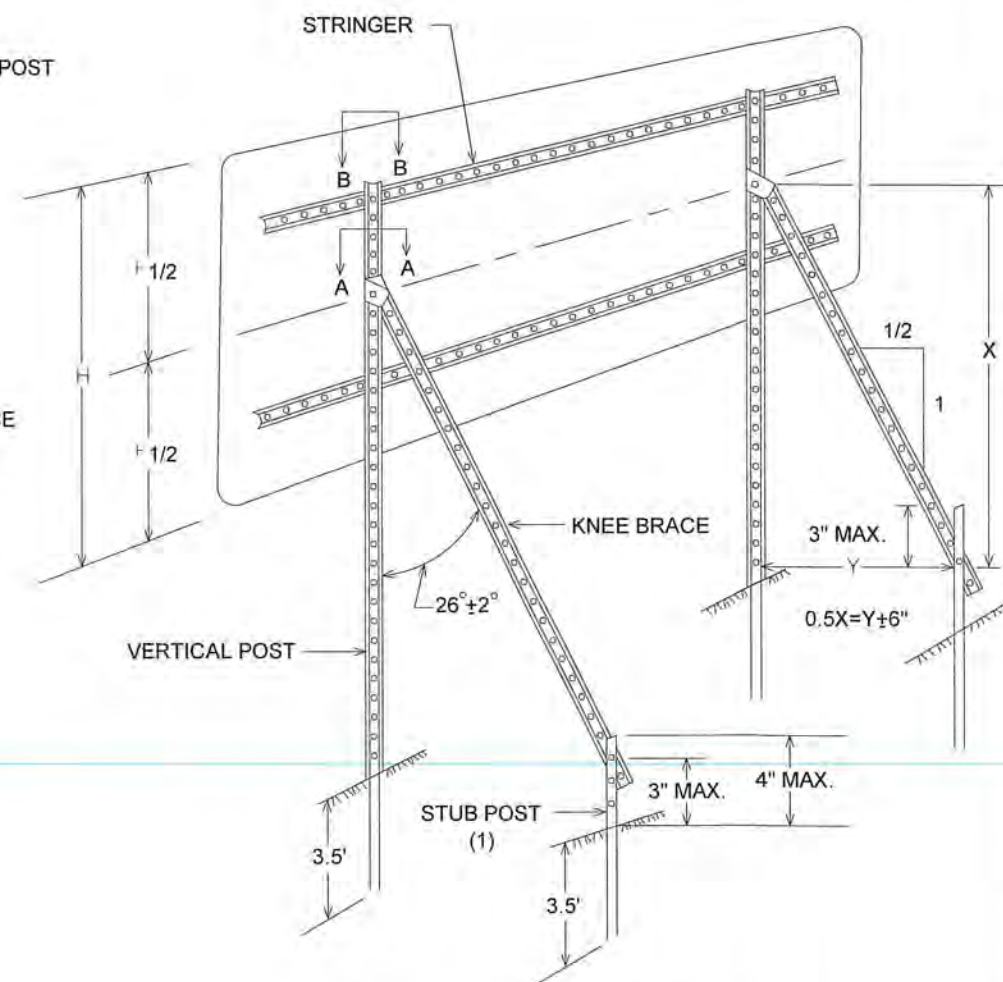
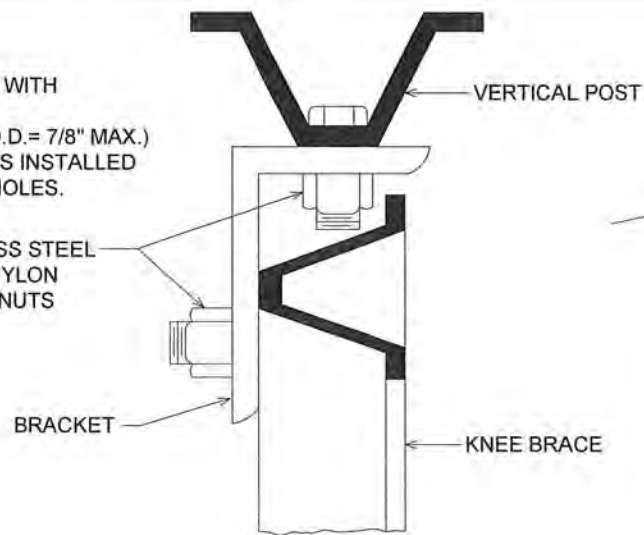
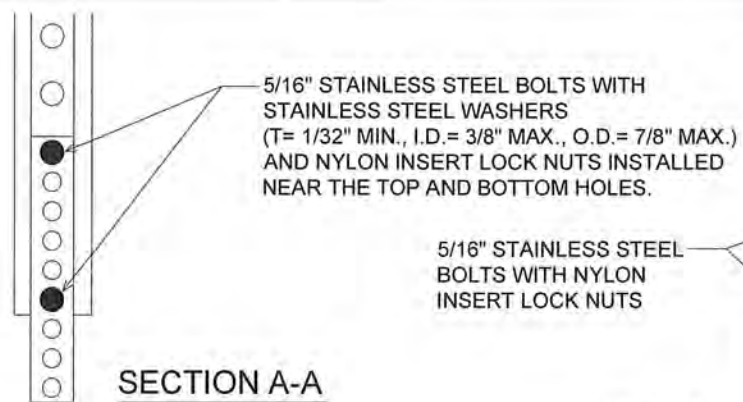
- NOTES:**
- ROADWAY IS CLOSED DURING CONSTRUCTION. REFER TO DETOUR PLAN.
 - EXISTING SIGNING SHALL REMAIN INPLACE DURING CONSTRUCTION. ANY SALVAGED SIGNS SHALL BE KEPT IN PRISTINE CONDITION UNTIL PERMANENT INSTALLATION CAN BE MADE. IF ANY DAMAGE OCCURS TO SALVAGE SIGNS, THEY SHALL BE REPLACED AT CONTRACTOR'S EXPENSE.
 - LOCATIONS OF PAVEMENT MARKINGS ARE APPROXIMATE. EXACT LOCATIONS WILL BE DETERMINED IN THE FIELD BY THE ENGINEER.
 - 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 SIGNING SHALL BE INSTALLED THE SAME DAY AS PERMANENT STRIPING.

EXISTING SIGN TAB					
STATION	ADDRESS/ DESCRIPTION (NOTES)	SALVAGE SIGN	REINSTALL SALVAGE SIGN	SIGN NUMBER	SIGN LEGEND
		EACH	EACH		
10+28	LT	1	1	X4-3	CULVERT MARKER
				X4-3	CULVERT MARKER
10+28	RT	1	1	X4-3	CULVERT MARKER
				X4-3	CULVERT MARKER
11+28	RT	1	1	W11-2	PED CROSSING
12+50	RT	1	1	W3-2	YIELD AHEAD
TOTAL		4	4		

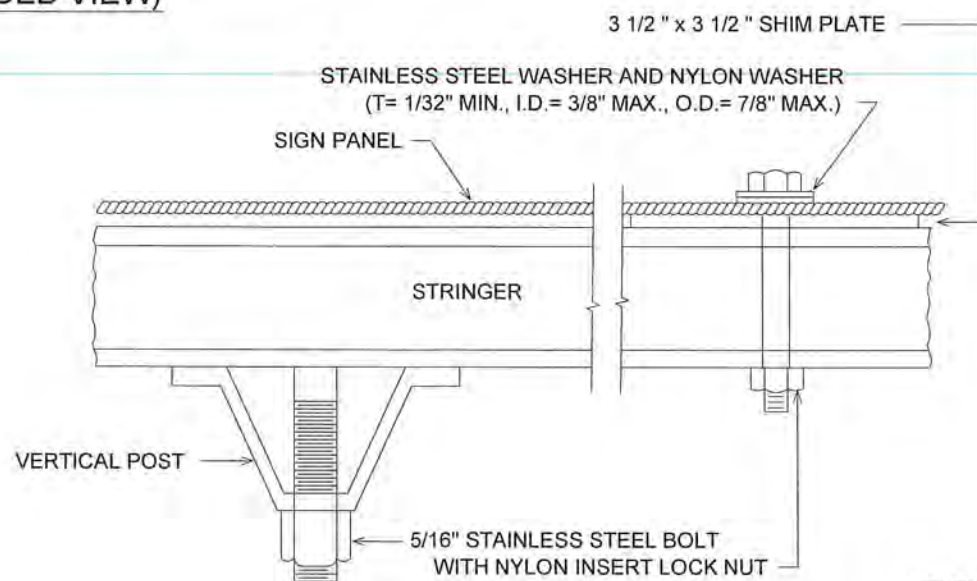
I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA. PRINT NAME: JOSEPH J. MACPHERSON, P.E. SIGNATURE: <i>[Signature]</i> DATE: 3-1-21 LICENSE NO. 46732					DRAWN BY: TMV DATE: 12/17/20 DESIGN BY: _____ DATE: _____ CHECKED BY: _____ DATE: _____	ANOKA COUNTY HIGHWAY DEPT.	CP 21-14-18	SIGNING & STRIPING PLAN Sheet 9 of 12 Sheets
NO. DATE BY CKD APPR REVISION NAME: P:\21-01-00\CSAH_18(1100to1800 W of Kettle River)\Base\Traffic\Signing & Striping.dwg								



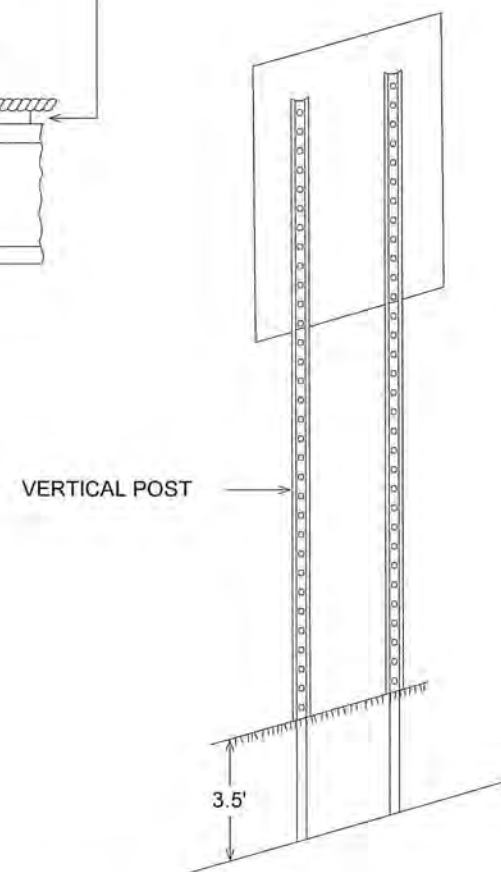
LATERAL BRACE OR STRINGER SPLICE DETAIL (EXPLODED VIEW)



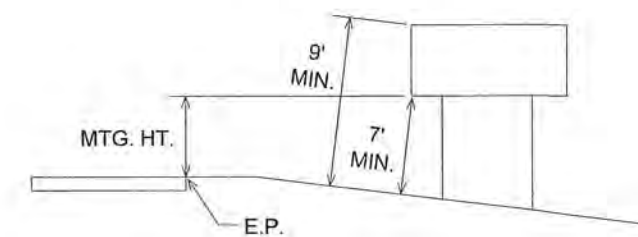
TYPICAL "A-FRAME" INSTALLATION TYPE "D" SIGNS



SECTION B-B



TYPICAL INSTALLATION 36" AND LARGER TYPE "C" SIGNS



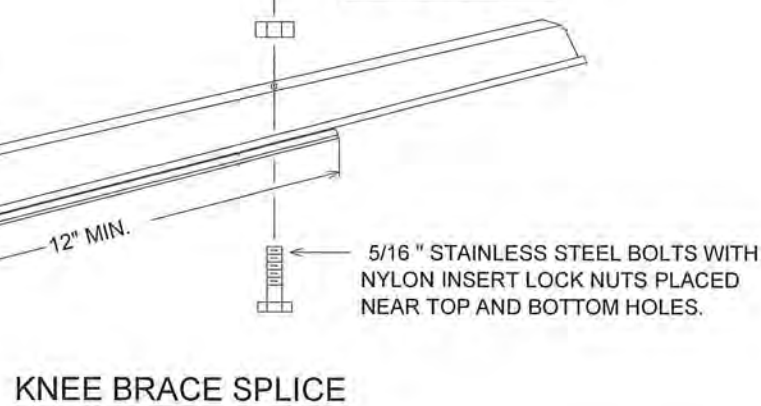
TYPICAL MOUNTING

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

TYPE C & D SIGN STRUCTURAL DETAILS

A-FRAME BRACKET

(STEEL MN/DOT 3306 GALVANIZED PER MN/DOT 3394)



NO	DATE	BY	CKD	APPR	REVISION

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PRINT NAME: JOSEPH J. MACPHERSON, P.E.

SIGNATURE: *[Signature]*

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DRAWN BY: TMV DATE: 12/17/20

DESIGN BY: TMV DATE: 12/17/20

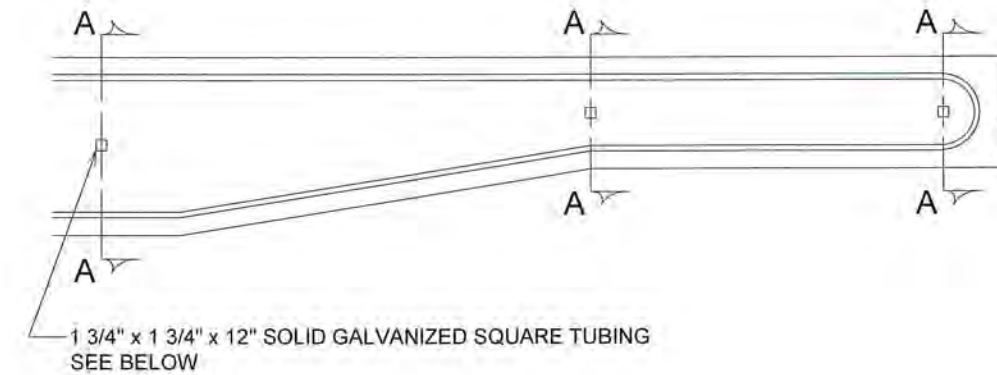
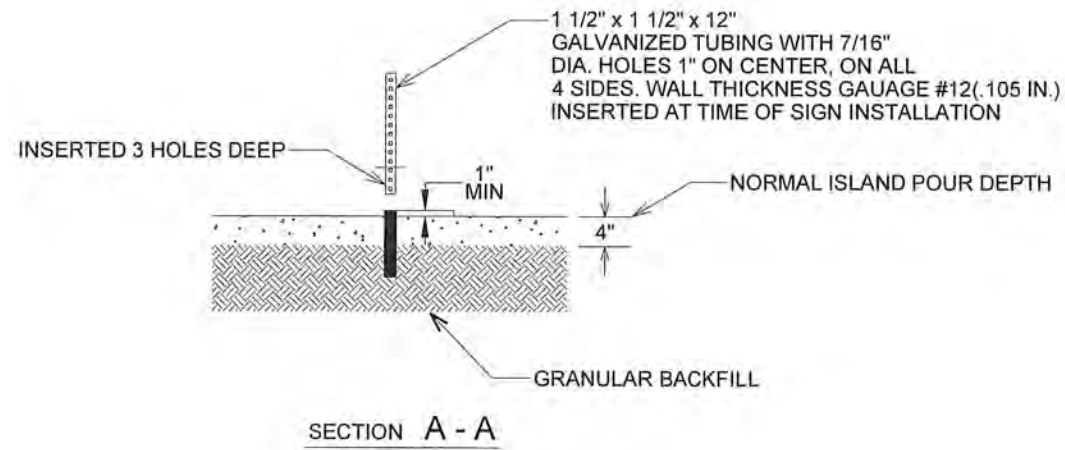
CHECKED BY: DATE:



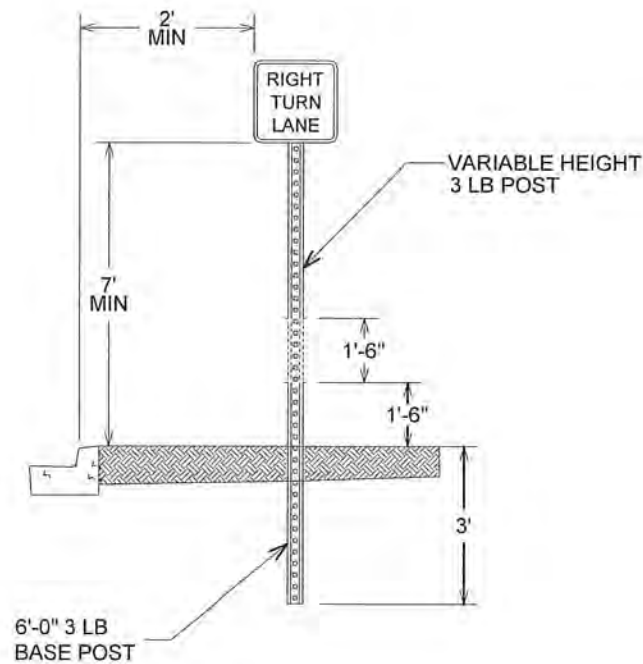
ANOKA COUNTY HIGHWAY DEPT.

CP 21-14-18

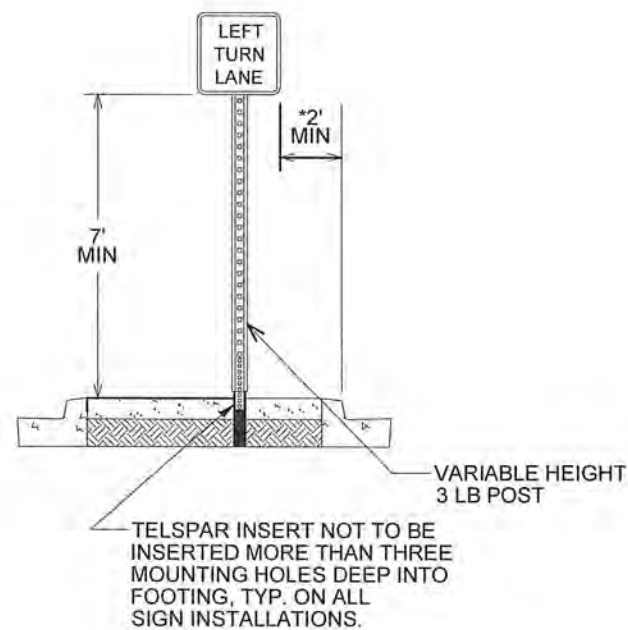
SIGNING & STRIPING DETAILS



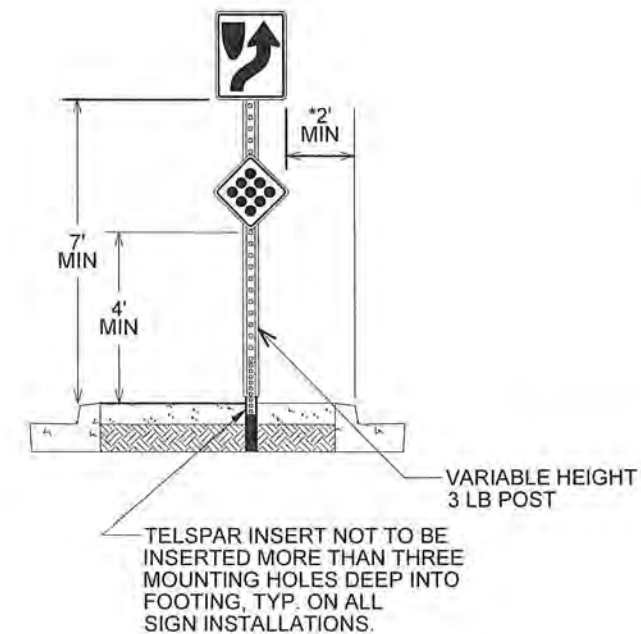
GROUND POST MOUNT SIGN INSTALLATION TYPICAL



ISLAND MOUNT BREAK-AWAY SIGN INSTALLATION TYPICAL



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



*1' MIN FOR NARROW URBAN LOCATIONS

INSTALLATION NEAR SIDEWALK (MN MUTCD)
 The minimum height, measured vertically from the bottom of the sign to the sidewalk, of signs installed above sidewalks shall be 7 feet. If the bottom of a secondary sign that is mounted below another sign is mounted lower than 7 feet above a pedestrian sidewalk or pathway, the secondary sign shall not project more than 4 inches into the pedestrian facility.

NO	DATE	BY	CKD	APPR	REVISION

NAME: P:121-01-00CSAH_18 (1100 to 1600 W of Kettle River)\BaseTrafficSign&Stripe Details.dwg

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PRINT NAME: JOSEPH J. MACPHERSON, P.E.

SIGNATURE: *[Signature]*

DATE: 3-1-21 LICENSE NO. 48732

DRAWN BY: TMV DATE: 12/11/20

DESIGN BY: TMV DATE: 12/11/20

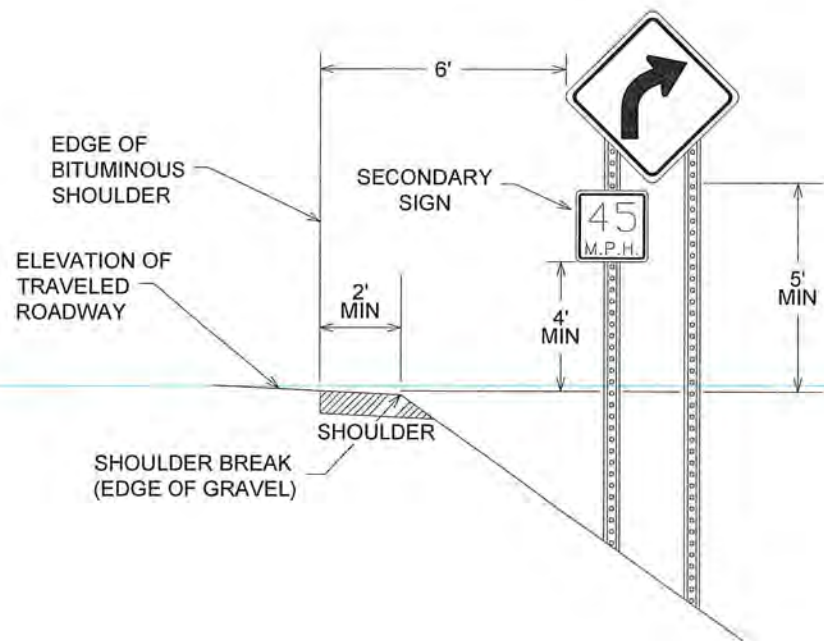
CHECKED BY: _____ DATE: _____



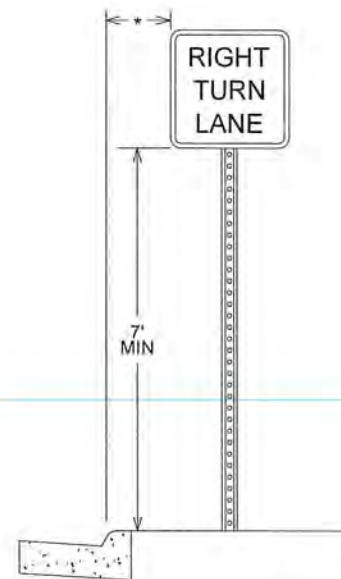
ANOKA COUNTY
HIGHWAY DEPT.

CP 21-14-18

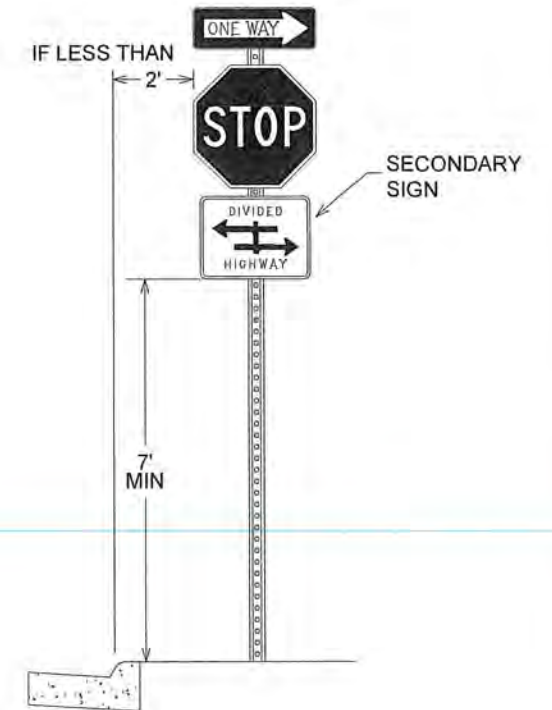
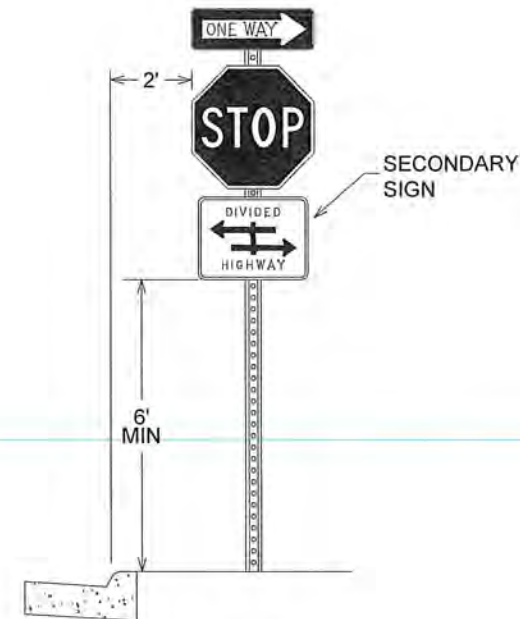
TYPICAL SIGN PLACEMENT
(RURAL)



TYPICAL SIGN PLACEMENT
(URBAN)



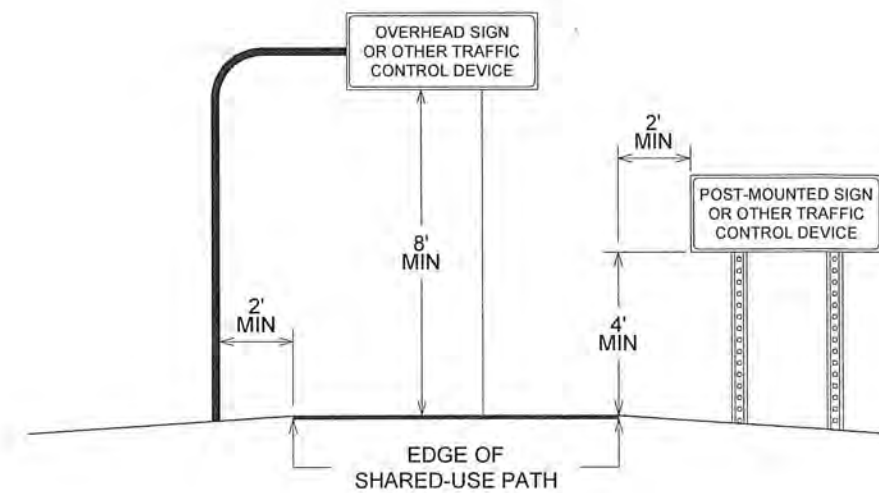
*2' - NARROW BOULEVARD (≤ 8' WIDE)
6' - WIDE BOULEVARD



NOTES:

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

TYPICAL SIGN PLACEMENT
SHARED-USE PATH



NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\21-01-00\CSAH_18_(1100 to 1600 W of Kettle River)\Base\Traffic\Sign&Stripe Details.dwg

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ANOKA COUNTY
HIGHWAY DEPT.

CP 21-14-18

SIGNING & STRIPING
DETAILS
Sheet 12 of 12 Sheets