

# MINNESOTA DEPARTMENT OF TRANSPORTATION

## ANOKA COUNTY

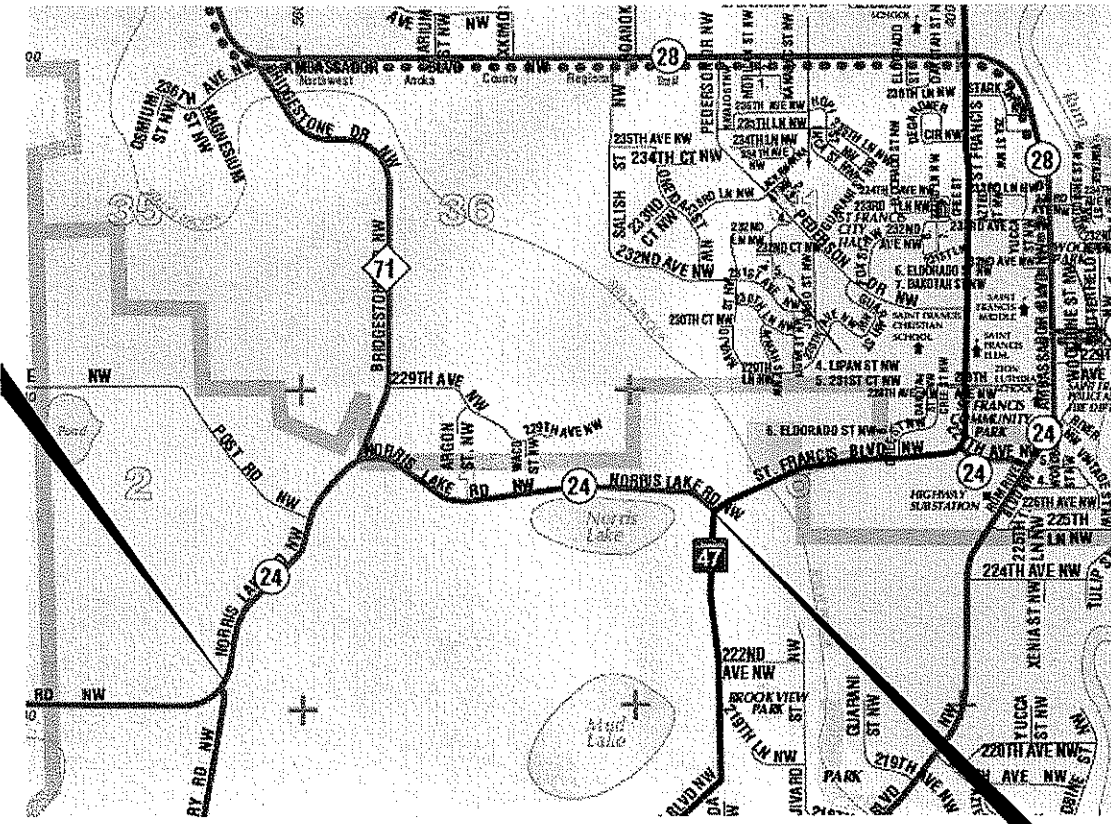
CONSTRUCTION PLAN FOR BITUMINOUS RECLAMATION AND OVERLAY, CONSTRUCT RIGHT TURN LANES AND BYPASSES

LOCATED ON CSAH 24 BETWEEN CR 66 AND TH 47

11-17-24

GROSS LENGTH	10575 FEET	2.003 MILES
BRIDGES-LENGTH	0.00 FEET	0.000 MILES
EXCEPTIONS-LENGTH	0.00 FEET	0.000 MILES
NET LENGTH	10575 FEET	2.003 MILES

CITY OF NOWTHEN  
CITY OF OAK GROVE



BEGIN COUNTY PROJECT 11-17-24  
CSAH 24 STA. 298+50

END COUNTY PROJECT 11-17-24  
CSAH 24 STA. 404+25

### PLAN SYMBOLS

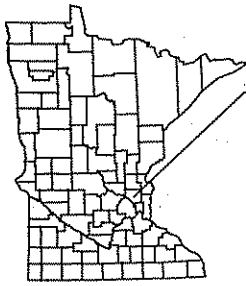
- COUNTY LINE
- TOWNSHIP OR RANGE LINE
- SECTION LINE
- QUARTER LINE
- SIXTEENTH LINE
- RIGHT OF WAY LINE
- SLOPE EASEMENT
- EXISTING RIGHT OF WAY
- PROPERTY LINE
- CORPORATE OR CITY LIMITS
- RETAINING WALL
- RAILROAD
- RAILROAD RIGHT OF WAY
- RIVER OR CREEK
- DRAINAGE DITCH
- CULVERT
- DROP INLET
- GUARD RAIL
- BARBED WIRE FENCE
- WOVEN WIRE FENCE
- CHAIN LINK FENCE
- WOOD FENCE
- STONE WALL OR FENCE
- HEDGE
- LOWLAND
- TIMBER
- ORCHARD
- BRUSH
- NURSERY
- CATTLE GUARD
- OVERPASS (Highway Over)
- UNDERPASS (Highway Under)
- BRIDGE
- BUILDING (One Story Frame)
- F-FRAME C-CONCRETE
- S-STONE T-TILE
- B-BRICK ST-STUCCO
- RAILROAD CROSSING BELL
- RAILROAD CROSSING GATE
- MANHOLE
- CATCH BASIN
- FIRE HYDRANT
- CAST IRON MONUMENT
- IRON PIN
- GRAVEL PIT
- SAND PIT
- BORROW PIT
- ROCK QUARRY

### UTILITY SYMBOLS

- POWER POLE LINE
- TELEPHONE OR TELEGRAPH POLE LINE
- JOINT TELEPHONE & POWER ON POWER POLES
- ON TELEPHONE POLES
- ANCHOR
- STEEL TOWER
- STREET LIGHT
- PEDESTAL (Cable Terminal)
- GAS MAIN
- WATERMAIN
- TELEPHONE CABLE IN CONDUIT
- ELECTRIC CABLE IN CONDUIT
- TELEPHONE MANHOLE
- ELECTRIC MANHOLE
- BURIED TELEPHONE CABLE
- BURIED ELECTRIC CABLE
- SEWER (Sanitary or Storm)
- SEWER MANHOLE

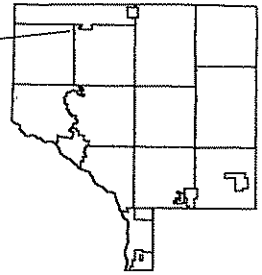
### SCALES

PLAN	0' = 100'
PROFILE HORIZONTAL	0' = 100'
VERTICAL	0' = 10'
X-SECTIONS HORIZONTAL	0' = 10'
VERTICAL	0' = 10'
INDEX MAP	0' = 2000'



PROJECT LOCATION

OAK GROVE  
NOWTHEN  
ANOKA COUNTY  
MN/DOT TRANSPORTATION DISTRICT - METRO  
SECTIONS 1, 2, 6  
TOWNSHIP 34 NORTH  
RANGE 24, 25 WEST



### GOVERNING SPECIFICATIONS

THE 2005 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 PAR VI, "FIELD MANUAL FOR TEMPORARY TRAFFIC CONTROL ZONE LAYOUTS."

### INDEX

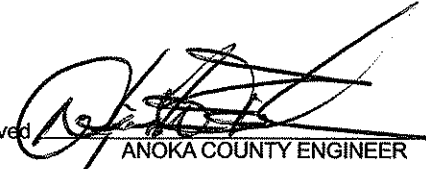
SHEET NO.	DESCRIPTION
1	TITLE SHEET
2	STATEMENT OF ESTIMATED QUANTITIES
3	CALCULATIONS FOR TURN LANES AND BYPASSES
4-5	TYPICAL SECTION
6-9	MISCELLANEOUS DETAILS
10-13	CONSTRUCTION PLAN
14	PERMANENT MARKING TABULATION
15-19	TEMP. SIGNING, PERM STRIPING, AND PAVE. MESSAGES
20	SIGNING & STRIPING PLAN DETAILS

THIS PLAN CONTAINS 20 SHEETS

### DESIGN DESIGNATION

ESAL 20	242,767
R VALUE	50
ADT (2010) =	2150
Proj. ADT (2030) =	3000
Proj. HCADT (2030) =	130
Soil Factor	NA
9 TON DESIGN	

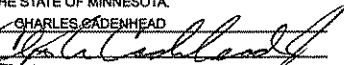
Functional Classification	MAJOR COLLECTOR
No. of Traffic Lanes	2
No. of Parking Lanes	0
Design Speed	55 MPH
Based on Stopping Sight Distance	N/A
Height of eye	3.5'
Height of object	2.0'

Approved:  3/5/12  
ANOKA COUNTY ENGINEER


NO	DATE	BY	CHKD	APPR	REVISION

NAME: P:\12-01-00\CSAH 24 (CR66-TH47)\Plan1 Title.dgn  
03/05/2012 10:28:03 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: CHARLES ADENHEAD  
SIGNATURE:   
DATE: 3/5/12 LICENSE NO. 44416

DRAWN BY: KPR DATE: 1/20/12  
DESIGN BY: KPR DATE: 1/20/12  
CHECKED BY: OFF DATE:  

  
ANOKA COUNTY  
HIGHWAY DEPT.

STATE PROJECT NO.    
STATE AID PROJECT NO.    
CITY PROJECT NO.    
COUNTY PROJECT NO. 11-17-24

TITLE SHEET  
Sheet 1 of 20 Sheets

CSAH 24		STATEMENT OF ESTIMATED QUANTITIES		
ITEM NO.	ITEM	NOTE NO.	UNIT	TOTAL EST. QUANT.
2011.601	CONSTRUCTION SURVEYING		LUMP SUM	1
2021.501	MOBILIZATION		LUMP SUM	1
2104.501	REMOVE PIPE SEWERS		LIN FT	60
2104.505	REMOVE CONCRETE DRIVEWAY PAVEMENT		SQ YD	154
2104.505	REMOVE BITUMINOUS PAVEMENT		SQ YD	1016
2104.511	SAWING CONCRETE PAVEMENT (FULL DEPTH)		LIN FT	44
2104.513	SAWING BIT PAVEMENT (FULL DEPTH)		LIN FT	105
2104.523	SALVAGE SIGN TYPE C		EACH	13
2105.525	TOPSOIL BORROW (LV)	1	CU YD	1033
2105.602	CONSTRUCT TURN LANE	6	EACH	1
2105.602	CONSTRUCT BYPASS	6	EACH	2
2123.503	MOTOR GRADER		hour	10
2130.501	WATER		M-GAL	10
2211.501	AGGREGATE BASE CLASS 5	3,9,12	TON	362
2221.501	AGGREGATE SHOULDERING CLASS 5	4,9	TON	931
2232.501	MILL BITUMINOUS SURFACE (2") ( JOINTS )	1	SQ YD	23
2331.604	BITUMINOUS PAVEMENT RECLAMATION	1	SQ YD	28337
2357.502	BITUMINOUS MATERIAL FOR TACK COAT		GALLON	1620
2360.501	TYPE SP 12.5 WEARING COURSE MIX (4,B)	2,5,9	TON	117
2360.501	TYPE SP 12.5 WEARING COURSE MIX (4,B)	14	TON	7180
2501.511	15" CS PIPE CULVERT		LIN FT	60
2501.515	15" GS PIPE APRON		EACH	2
2501.569	15" RC SAFETY APRON	13	EACH	2
2503.541	15" RC PIPE SEWER DES 3006 CL III		LIN FT	220
2506.501	CONST DRAINAGE STRUCTURE DES 48-4020		LIN FT	4
2506.516	CASTING ASSEMBLY		EACH	1
2531.507	6" CONCRETE DRIVEWAY PAVEMENT		SQ YD	160
2540.602	INSTALL MAIL BOX SUPPORT	10	EACH	19
2563.601	TRAFFIC CONTROL	8	LUMP SUM	1
2564.533	FURNISH SIGN PANEL TYPE C		SQ FT	68.63
2564.536	INSTALL SIGN PANEL TYPE C		EACH	3
2573.602	CULVERT PROTECTION		EACH	2
2575.523	EROSION CONTROL BLANKET CATEGORY 3	1,11	SQ YD	200
2575.571	RAPID STABILIZATION METHOD 3	1	M-GAL	23
2581.501	REMOVABLE PREFORMED PLASTIC MARKING	7	LIN FT	846
2582.502	4" SOLID LINE WHITE - EPOXY	9	LIN FT	21460
2582.502	4" BROKEN LINE WHITE-EPOXY	9	LIN FT	80
2582.502	4" SOLID LINE YELLOW-EPOXY	9	LIN FT	1456
2582.502	4" BROKEN LINE YELLOW-EPOXY	9	LIN FT	300
2582.502	4" DOUBLE SOLID LINE YELLOW-EPOXY	9	LIN FT	9055

NOTES:

- 1 LOCATION TO BE DETERMINED BY ENGINEER.
- 2 CONTRACTORS RESPONSIBILITY TO CONTACT OWNER 48 HOURS BEFORE STARTING OPERATION.
- 3 GRAVEL BASE FOR CONCRETE AND BITUMINOUS DRIVEWAYS AND FINISHED GRAVEL ENTRANCES.
- 4 MATERIAL FOR FINISHED GRAVEL SHOULDERS AND GRAVEL ENTRANCES.
- 5 ITEM USED FOR PAVING DRIVEWAYS AND STREET APPROACHES.
- 6 INCLUDES ALL TIME AND MATERIAL TO CONSTRUCT ITEM AS SHOWN IN PLAN AND AS DIRECTED BY ENGINEER. COMMON EXCAVATION, SELECT GRANULAR, AGGREGATE BASE CLASS 5, SILT FENCE, EROSION CONTROL BLANKET, SEED, FERTILIZER, & DOZER / MOTOR GRADER TIME TO CONSTRUCT TURN / BY-PASS LANE NOTE -BITUMINOUS BASE AND WEAR COURSE IS NOT INCLUDED IN THIS ITEM.
- 7 SHALL BE PLACED AFTER EACH DAYS PAVING OPERATION.
- 8 ROAD WORK AHEAD, DO NOT PASS, PASS WITH CARE, NO CENTERLINE STRIPE, BUMP AND BUMP AHEAD SIGNS TO BE INPLACE AT THE START OF RECLAIM AND OVERLAY OPERATIONS.
- 9 SHALL BE INSTALLED WITHIN 72 HOURS OF COMPLTION OF MAINLINE WEAR COURSE PAVING.
- 10 MAILBOXES TO BE INSTALLED AT THE EXSTING MAILBOX LOCATION. MAILBOX REMOVAL / INSTALLATION, INCIDENTAL TO ITEM.
- 11 ITEM INCLUDES BLANKET, FERTILIZER, AND SEED.
- 12 ITEM INCLUDES ADDING CLASS 5 TO MAINLINE AT 359+00 - 368+00 AND 398+00 - 404+00 (FOR LEVELING PRIOR TO PAVING BASE COURSE).
- 13 ITEM INCLUDES SAFETY APRON GRATE.
- 14 ITEM INCLUDES CONSTRUCTION OF SAFTEY EDGE, REFER TO SPECAIL PROVISIONS.

BASIS OF PLANNED QUANTITIES

2211.501	AGGREGATE BASE CLASS 5	CU YDS * 1.8 = TONS
2221.501	AGGREGATE SHOULDERING CLASS 5	CU YDS * 1.8 = TONS
2357.502	BITUMINOUS MATERIAL FOR TACK COAT	.05 GAL / SQ YD
2360.501	TYPE SP 12.5 WEARING COURSE (SPWEB440B) 2" THICK	115 LBS/SQYD/IN THICKNESS
2575.601	RAPID STABILIZATION METHOD 3	6 MGAL / ACRE
2581.501	REMOVABLE PREFORM PLASTIC MARKINGS	2' AT 50' INTERVALS FOR SKIPS

NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\12-01-00\CSAH\_24\_(CR66-TH47)\Plan2 Seq.dgn 02/24/2012 2:41:44 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: CHARLES CALDENHEAD  
 SIGNATURE: *[Signature]*  
 DATE: 2/2/12 LICENSE NO. 40416

DRAWN BY: KPR DATE: 1/29/12

DESIGN BY: KPR DATE: 1/29/12

CHECKED BY: OFF DATE: \_\_\_\_\_



ANOKA COUNTY  
HIGHWAY DEPT.

STATE PROJECT NO. \_\_\_\_\_  
 STATE AID PROJECT NO. \_\_\_\_\_  
 CITY PROJECT NO. \_\_\_\_\_  
 COUNTY PROJECT NO. 11-17-24

STATEMENT OF ESTIMATED QUANTITIES

Sheet 2 of 20 Sheets

ESTIMATED AVERAGE DEPTH FOR RT. TURN LANES AND BYPASSES USING ELEVATION AT EDGE OF MAT, SHOULDER PI, AND DITCH BOTTOM.											
BRIDGESTONE RT TURN LANE				BRIDGESTONE BYPASS				CR 66 BYPASS			
EM	SH PI	BOTTOM		EM	SH PI	BOTTOM		EM	SH PI	BOTTOM	
920.56	919.89	916.37		914.45	913.92	910.57		929.38	929.30	925.58	
921.47	920.95	918.18		915.17	914.30	909.67		930.00	930.00	926.06	
920.58	920.03	919.84		915.84	915.08	910.21		931.10	930.78	926.98	
921.28	920.67	919.51		916.98	915.90	910.42		932.33	931.76	927.87	
921.56	921.43	919.32		920.42	919.70	916.91		932.78	931.91	928.24	
921.00	920.76	919.44		920.88	920.26	917.94		933.39	932.69	929.51	
5526.45	5523.73	5512.66		5503.74	5499.16	5475.72		5588.98	5586.44	5564.24	
921.08	920.62	918.78		917.29	916.53	912.62		931.50	931.07	927.37	
AVERAGE DEPTH				AVERAGE DEPTH				AVERAGE DEPTH			
2.30				4.67				4.12			
minus 0.5'				minus 0.5'				minus 0.5'			
1.80				4.17				3.62			

ESTIMATED QUANTITIES FOR RT. TURN LANES AND BYPASSES														
<b>CONSTRUCT BYPASS (CSAH 66)</b>														
STATION	STATION	LENGTH	WIDTH	COMMON EX		WIDTH	SELECT GRANULAR		WIDTH	CLASS 5		DOZER (HOURS)	SILT FENCE (LF)	EROSION CONTROL BLANKET (SY)
				DEPTH	VOLUME (CY)		DEPTH	VOLUME (CY)		DEPTH	VOLUME (CY)			
298+50	304+70	620.0	22	0.5	252.6	15.0	3.6	1246.9	14.0	0.5	160.7	8.0	660.0	880.0
<b>CONSTRUCT BYPASS (BRIDGESTONE)</b>														
STATION	STATION	LENGTH	WIDTH	COMMON EX		WIDTH	SELECT GRANULAR		WIDTH	CLASS 5		DOZER (HOURS)	SILT FENCE (LF)	EROSION CONTROL BLANKET (SY)
				DEPTH	VOLUME (CY)		DEPTH	VOLUME (CY)		DEPTH	VOLUME (CY)			
341+95	348+15	620.0	22	0.5	252.6	15.0	4.2	1446.7	14.0	0.5	160.7	8.0	660.0	880.0
<b>CONSTRUCT TURN LANES (BRIDGESTONE)</b>														
STATION	STATION	LENGTH	WIDTH	COMMON EX		WIDTH	SELECT GRANULAR		WIDTH	CLASS 5		DOZER (HOURS)	SILT FENCE (LF)	EROSION CONTROL BLANKET (SY)
				DEPTH	VOLUME (CY)		DEPTH	VOLUME (CY)		DEPTH	VOLUME (CY)			
345+80	350+60	480.0	18	0.5	160.0	15.0	1.8	480.0	14.0	0.5	124.4	8.0	520.0	640.0

NO	DATE	BY	CKD	APPR	REVISION
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02/24/2012 2:42:33 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: CHARLES GADEKHEAD  
SIGNATURE: *[Signature]*  
DATE: 2/2/12 LICENSE NO. 40416

DRAWN BY: KPR DATE: 1/29/12  
DESIGN BY: KPR DATE: 1/29/12  
CHECKED BY: DFF DATE: \_\_\_\_\_



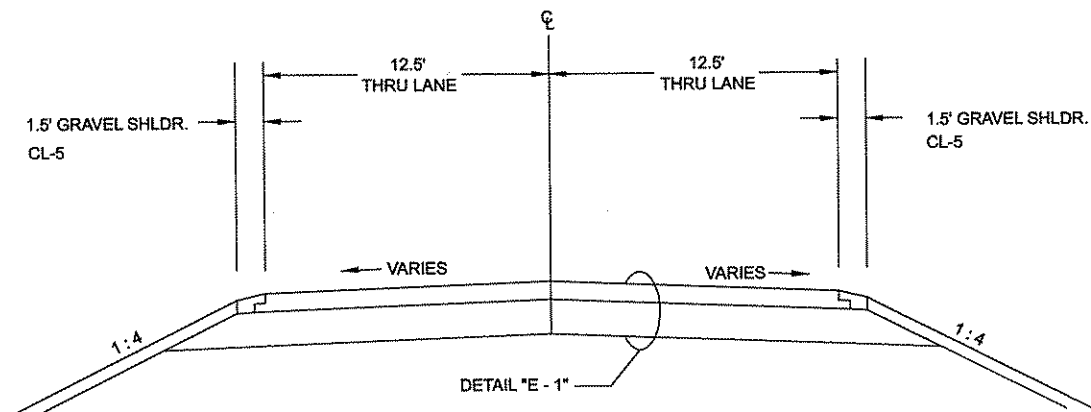
STATE PROJECT NO. \_\_\_\_\_  
STATE AID PROJECT NO. \_\_\_\_\_  
CITY PROJECT NO. \_\_\_\_\_  
COUNTY PROJECT NO. 11-17-24

CALCULATIONS FOR TURN LANES AND BYPASSES

Sheet 3 of 20 Sheets

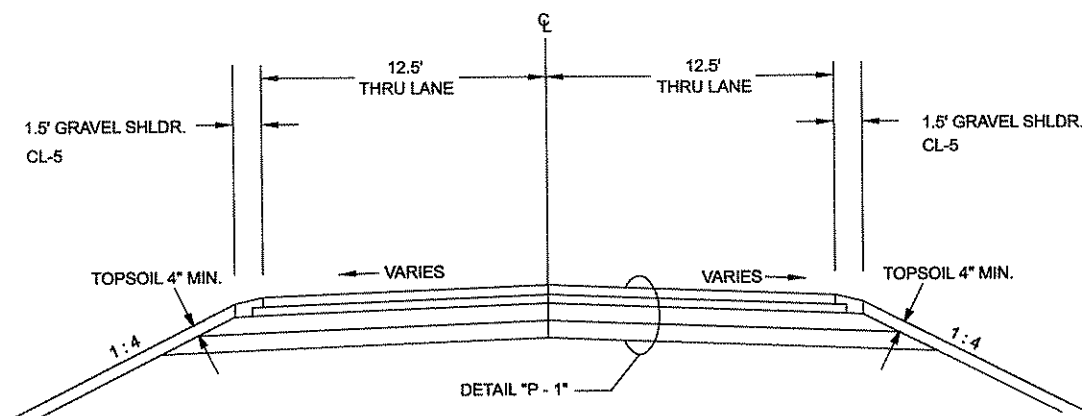
**EXISTING TYPICAL SECTION**

STA. 298+50 - 404+25

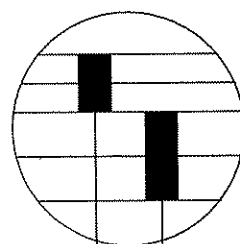


**PROPOSED TYPICAL SECTION**

STA. 298+50 - 404+25

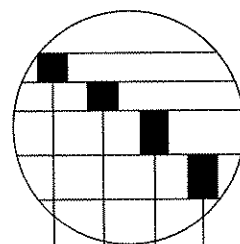


DETAIL "E - 1"



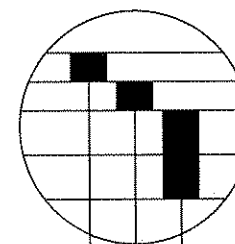
EXISTING BITUMINOUS APPROX. 5 1/2" THICK  
EXISTING BASE

DETAIL "P - 1"



2" TYP SP 12.5 WEARING COURSE (SPWEB440B)  
2" TYP SP 12.5 WEARING COURSE (SPWEB440B)  
RECLAIM EXISTING BIT / AGG. BASE  
EXISTING BASE

DETAIL "P - 2"



2" TYP SP 12.5 WEARING COURSE (SPWEB440B)  
2" TYP SP 12.5 WEARING COURSE (SPWEB440B)  
6" AGGREGATE BASE CL 5

NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\12-01-00\CSAH\_24\_(CR66-TH47)\Plan3 typicals.dgn      02/24/2012      2:50:12 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: CHARLES CADENHEAD  
SIGNATURE: *[Signature]*  
DATE: 3/2/17      LICENSE NO. 40416

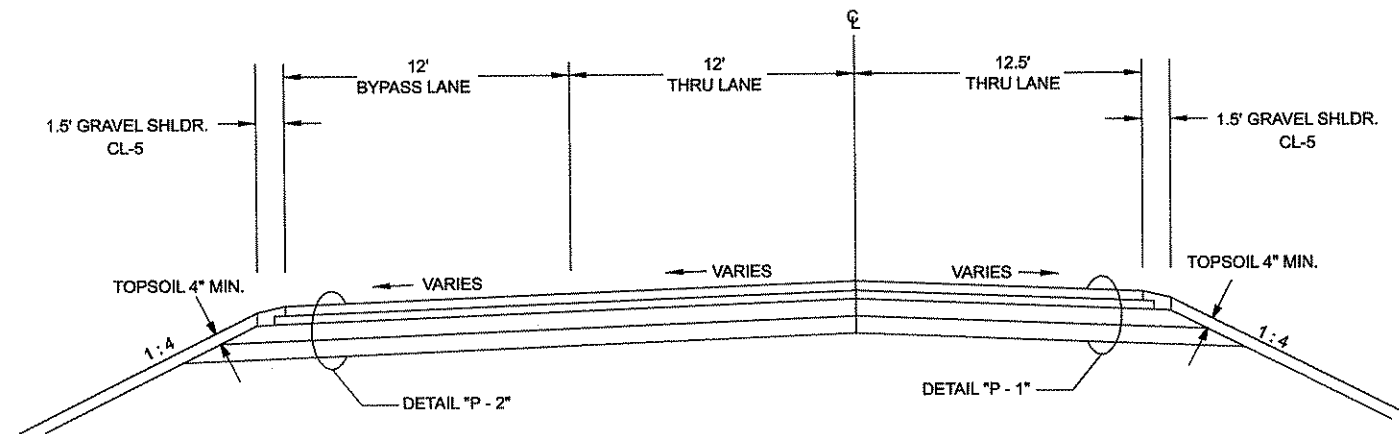
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DESIGN BY: KPR      DATE: 1/20/12  
CHECKED BY: DFF      DATE:     



STATE PROJECT NO. \_\_\_\_\_  
STATE AID PROJECT NO. \_\_\_\_\_  
CITY PROJECT NO. \_\_\_\_\_  
COUNTY PROJECT NO. 11-17-24

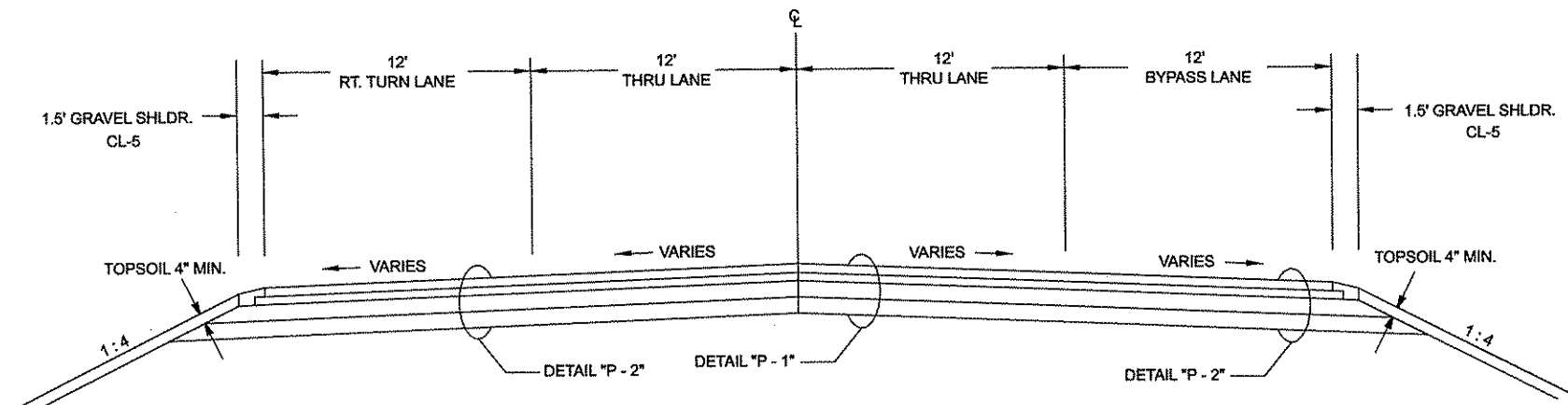
PROPOSED TYPICAL SECTION (BYPASS LANE EB)

STA. 298+50 - 304+70



PROPOSED TYPICAL SECTION (BYPASS LANE AND RT. TURN LANE)

STA. 341+95 - 350+55



NO	DATE	BY	CKD	APPR	REVISION
NAME: P:\12-01-00\CSAH_24_(CR66-TH47)\Plan\3 typicals.dgn					
02/24/2012 2:50:36 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: CHARLES CADENHEAD  
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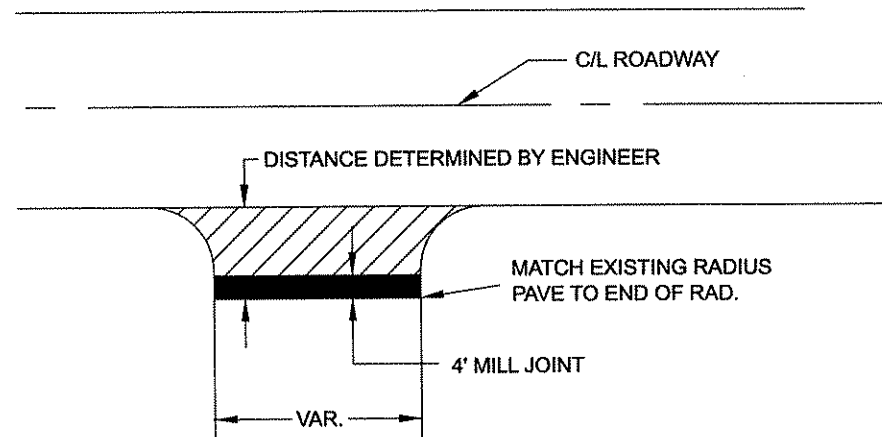
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 CHECKED BY: DFF DATE: \_\_\_\_\_



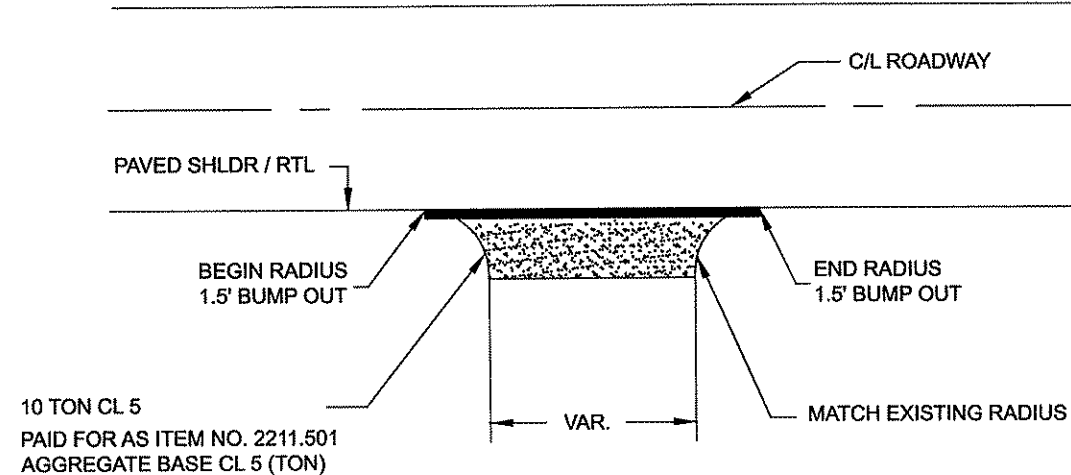
STATE PROJECT NO. \_\_\_\_\_  
 STATE AID PROJECT NO. \_\_\_\_\_  
 CITY PROJECT NO. \_\_\_\_\_  
 COUNTY PROJECT NO. 11-17-24

TYPICAL SECTION  
 Sheet 5 of 20 Sheets

PAVED STREET APPROACHES



UN-PAVED STREET APPROACHES



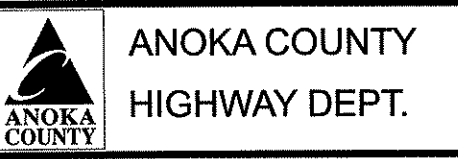
UNPAVED STREET APPROCHES AND DRIVEWAYS BUMPED OUT,  
PAVED WITH MAINLINE, PAID AS MAINLINE

NO	DATE	BY	CHKD	APPR	REVISION

NAME: P:112-01-00\CSAH\_24\_(CR66-TH47)\Plan3 typical.dgn      02/24/2012      2:48:21 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: CHARLES CADENHEAD  
 SIGNATURE: *[Signature]*  
 DATE: 3/2/12      LICENSE NO. 40416

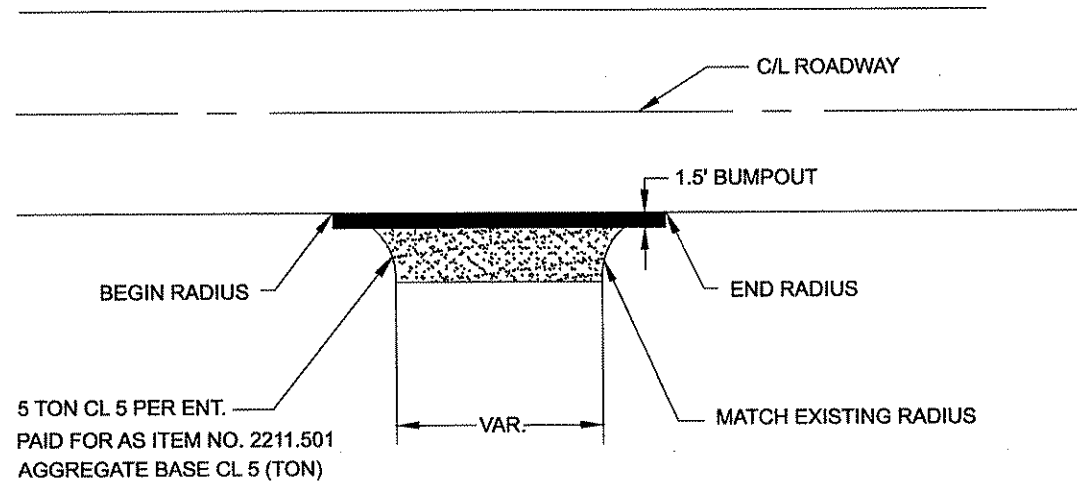
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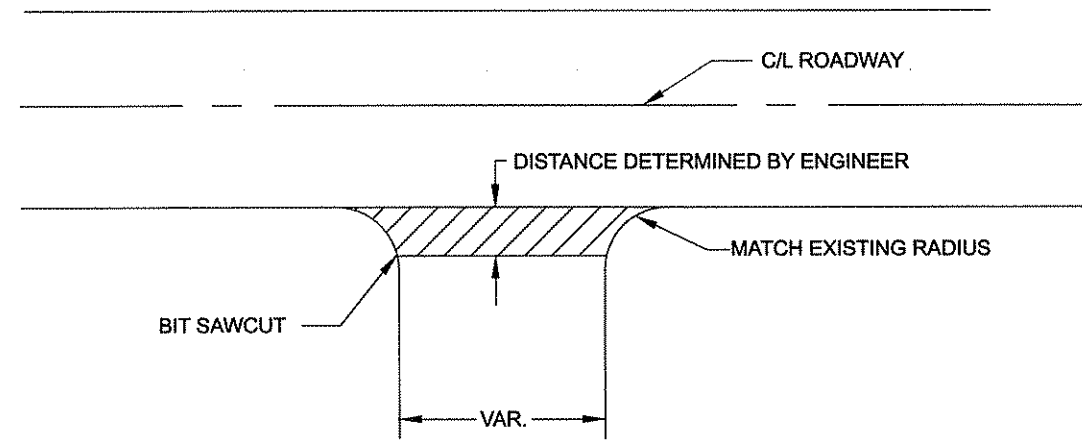
STATE PROJECT NO. \_\_\_\_\_  
 STATE AID PROJECT NO. \_\_\_\_\_  
 CITY PROJECT NO. \_\_\_\_\_  
 COUNTY PROJECT NO. 11-17-24

MISCELLANEOUS DETAILS  
 Sheet 6 of 20 Sheets

GRAVEL DR. WAYS AND FEILD ENT.

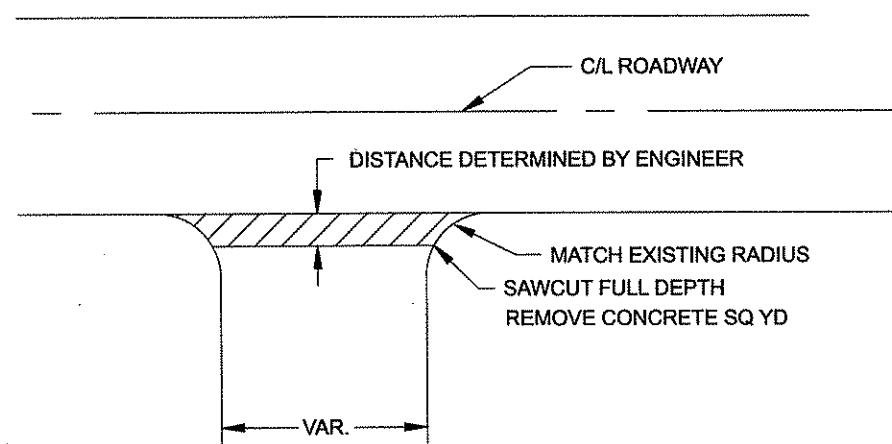


PAVED DR. WAYS



DRIVEWAYS BUMPOUT AND PAVED WITH MAINLINE PAID AS MAINLINE.  
 DRIVEWAYS PAVED IN DIFFERENT OPERATION FROM MAIN LINE PAVING PAID AS ST./DR. APPROACH.

CONCRETE DR. WAYS



NO	DATE	BY	CHKD	APPR	REVISION

NAME: P:\12-01-00\CSAH\_24\_(CR66-TH47)\Plan\3 typcats.dgn  
 02/24/2012 2:48:49 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: CHARLES CADENHEAD  
 SIGNATURE: *[Signature]*  
 DATE: 3/2/12 LICENSE NO. 40416

DRAWN BY KPR DATE 1/20/12  
 DESIGN BY KPR DATE 1/20/12  
 CHECKED BY DFF DATE



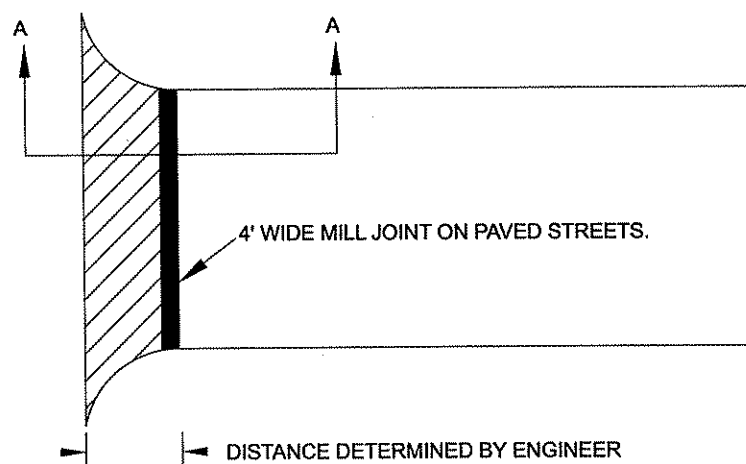
ANOKA COUNTY  
 HIGHWAY DEPT.

STATE PROJECT NO. \_\_\_\_\_  
 STATE AID PROJECT NO. \_\_\_\_\_  
 CITY PROJECT NO. \_\_\_\_\_  
 COUNTY PROJECT NO. 11-17-24

MISCELLANEOUS DETAILS  
 Sheet 7 of 20 Sheets

PAVED STREET APPROACHES

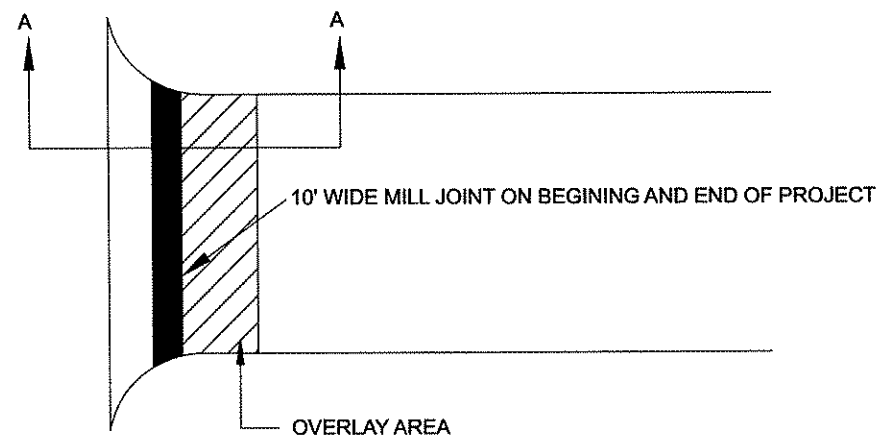
JOINT DETAILS



DRIVEWAYS BUMPED OUT TO BE PAVED WITH MAINLINE, PAID AS MAINLINE.  
 DRIVEWAYS PAVED IN DIFFERENT OPERATION FROM MAIN LINE PAVING PAID AS ST./DR. APPROACH.  
 STREETS PAID AS ST./DR. APPROACH.

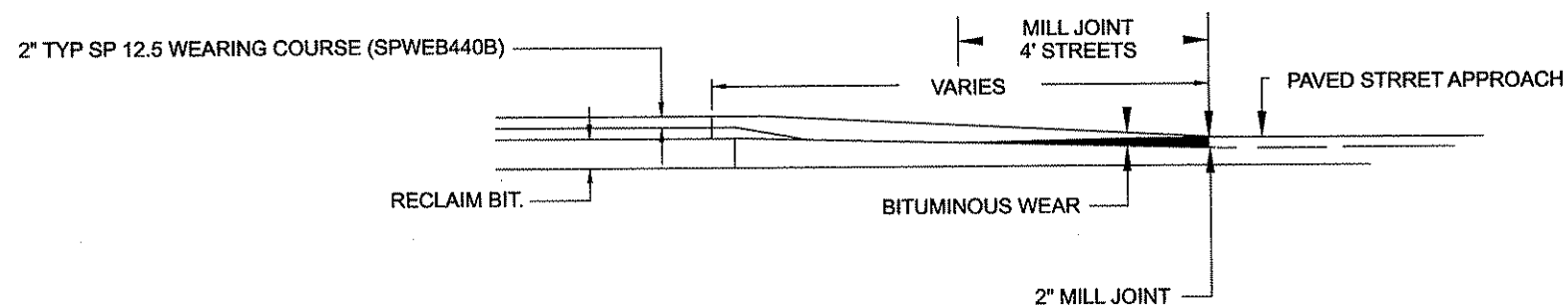
MAINLINE

JOINT DETAILS



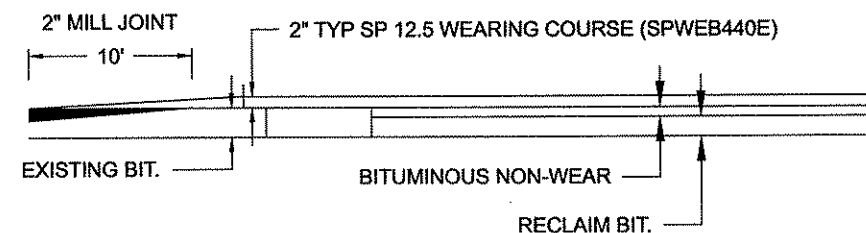
GRADING NEEDED TO TIE NONWEAR INTO EXISTING PAVING. TO BE PAID UNDER 2123.503 MOTOR GRADER HOURS

JOINT DETAILS A - A



PAID AS STREET APPROACH

JOINT DETAILS A - A



NO	DATE	BY	CKD	APPR	REVISION
NAME: P:12-01-00ICSAH_24_(CR66-TH47)Plan13 typlocals.dgn					
02/24/2012 2:49:23 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: CHARLES CADENHEAD  
 SIGNATURE: *[Signature]*  
 DATE: 2/2/12 LICENSE NO. 40418

DRAWN BY KPR DATE 1/20/12  
 DESIGN BY KPR DATE 1/20/12  
 CHECKED BY DFF DATE



ANOKA COUNTY  
 HIGHWAY DEPT.

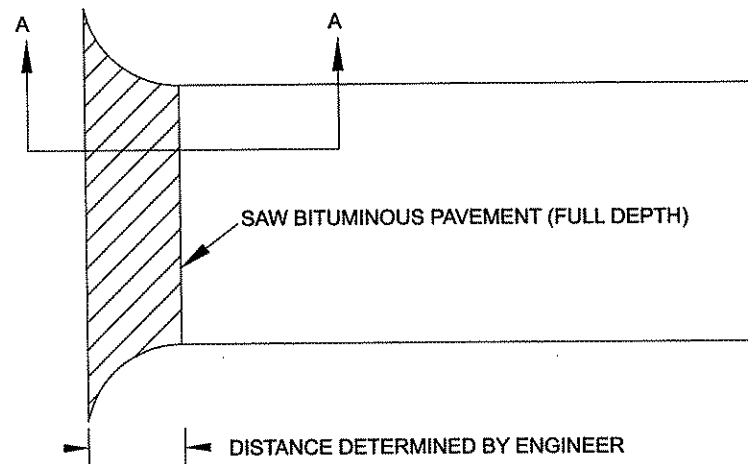
STATE PROJECT NO. \_\_\_\_\_  
 STATE AID PROJECT NO. \_\_\_\_\_  
 CITY PROJECT NO. \_\_\_\_\_  
 COUNTY PROJECT NO. 11-17-24

MISCELLANEOUS DETAILS  
 Sheet 8 of 20 Sheets



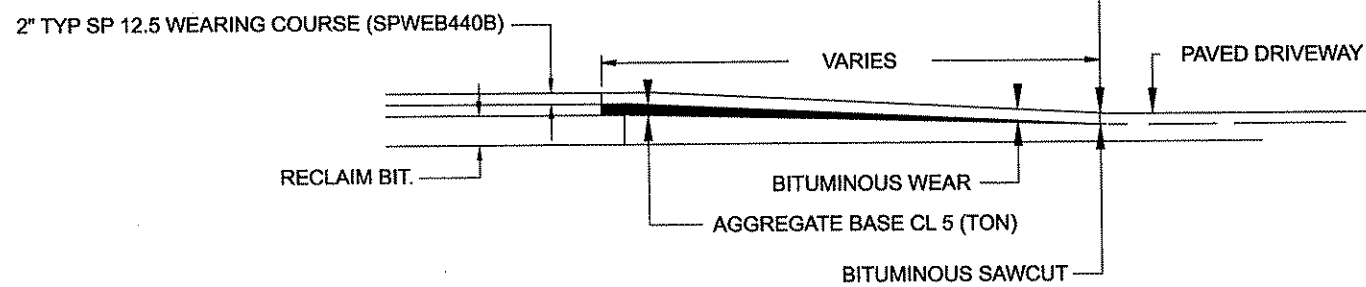
PAVED DRIVEWAYS

JOINT DETAILS



DRIVEWAYS BUMPED OUT TO BE PAVED WITH MAINLINE, PAID AS MAINLINE.  
 DRIVEWAYS PAVED IN DIFFERENT OPERATION FROM MAIN LINE PAVING PAID AS ST./DR. APPROACH.  
 STREETS PAID AS ST./DR. APPROACH.

JOINT DETAILS A - A



SAFETY EDGE CONSTRUCTION DETAIL

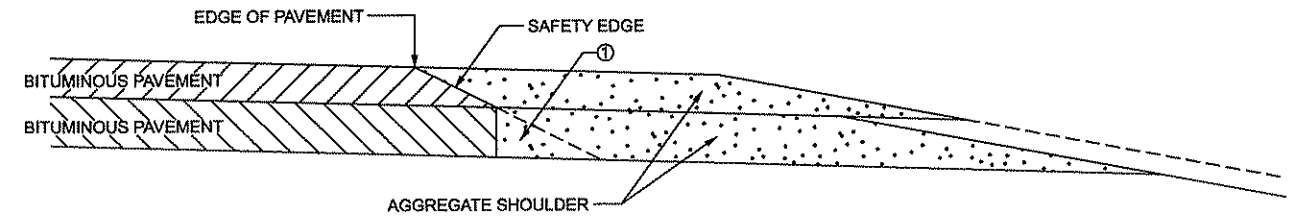


FIGURE B  
 BITUMINOUS PAVEMENT

① OPTIONAL DESIGN EXTENDS SAFETY EDGE DEEPER THAN 6" AND WIDER THAN 10.5". SEE PLAN DESIGN DETAILS.

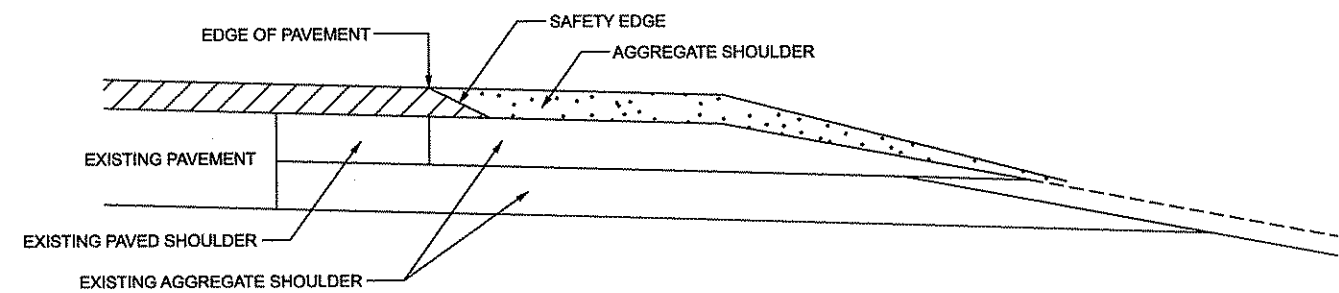


FIGURE C  
 BITUMINOUS OVERLAY

NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\12-01-00\CSAH\_24\_(CR66-TH47)\Plan\3 typical.dgn      02/24/2012      2:49:48 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: CHARLES CADENHEAD  
 SIGNATURE: *[Signature]*  
 DATE: 3/2/12      LICENSE NO. 40416

DRAWN BY: KPR      DATE: 1/20/12  
 DESIGN BY: KPR      DATE: 1/20/12  
 CHECKED BY: DFF      DATE: \_\_\_\_\_

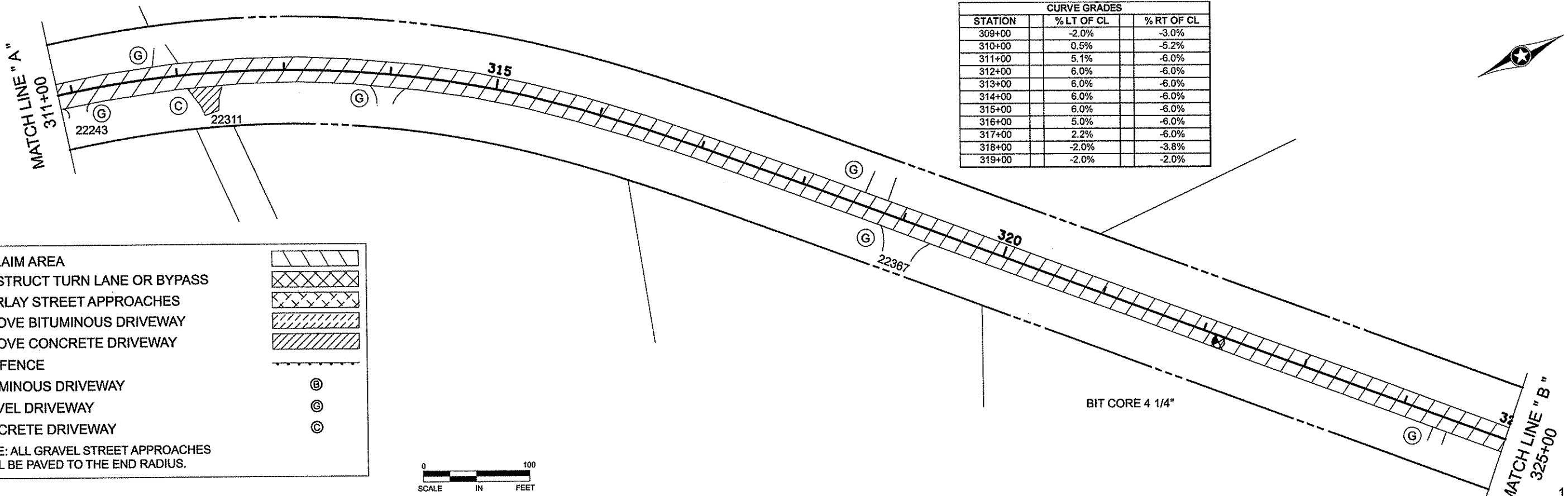
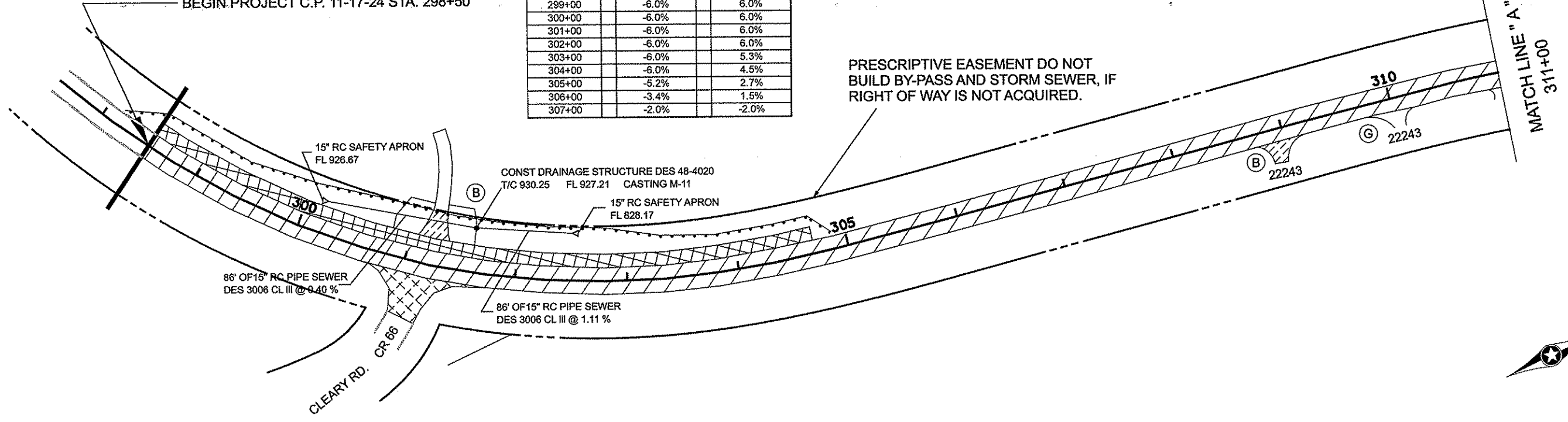
**ANOKA COUNTY**  
**HIGHWAY DEPT.**

STATE PROJECT NO. \_\_\_\_\_  
 STATE AID PROJECT NO. \_\_\_\_\_  
 CITY PROJECT NO. \_\_\_\_\_  
 COUNTY PROJECT NO. 11-17-24

BEGIN PROJECT C.P. 11-17-24 STA. 298+50

CURVE GRADES		
STATION	% LT OF CL	% RT OF CL
298+00	-6.0%	6.0%
299+00	-6.0%	6.0%
300+00	-6.0%	6.0%
301+00	-6.0%	6.0%
302+00	-6.0%	6.0%
303+00	-6.0%	5.3%
304+00	-6.0%	4.5%
305+00	-5.2%	2.7%
306+00	-3.4%	1.5%
307+00	-2.0%	-2.0%

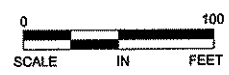
PRESCRIPTIVE EASEMENT DO NOT BUILD BY-PASS AND STORM SEWER, IF RIGHT OF WAY IS NOT ACQUIRED.



CURVE GRADES		
STATION	% LT OF CL	% RT OF CL
309+00	-2.0%	-3.0%
310+00	0.5%	-5.2%
311+00	5.1%	-6.0%
312+00	6.0%	-6.0%
313+00	6.0%	-6.0%
314+00	6.0%	-6.0%
315+00	6.0%	-6.0%
316+00	5.0%	-6.0%
317+00	2.2%	-6.0%
318+00	-2.0%	-3.8%
319+00	-2.0%	-2.0%

RECLAIM AREA	
CONSTRUCT TURN LANE OR BYPASS	
OVERLAY STREET APPROACHES	
REMOVE BITUMINOUS DRIVEWAY	
REMOVE CONCRETE DRIVEWAY	
SILT FENCE	
BITUMINOUS DRIVEWAY	(B)
GRAVEL DRIVEWAY	(C)
CONCRETE DRIVEWAY	(C)

\*NOTE: ALL GRAVEL STREET APPROACHES SHALL BE PAVED TO THE END RADIUS.



NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\12-01-00\CSAH\_24\_(CR66-TH47)\Plan\plan sheet 1.dgn      02/24/2012      3:23:26 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.

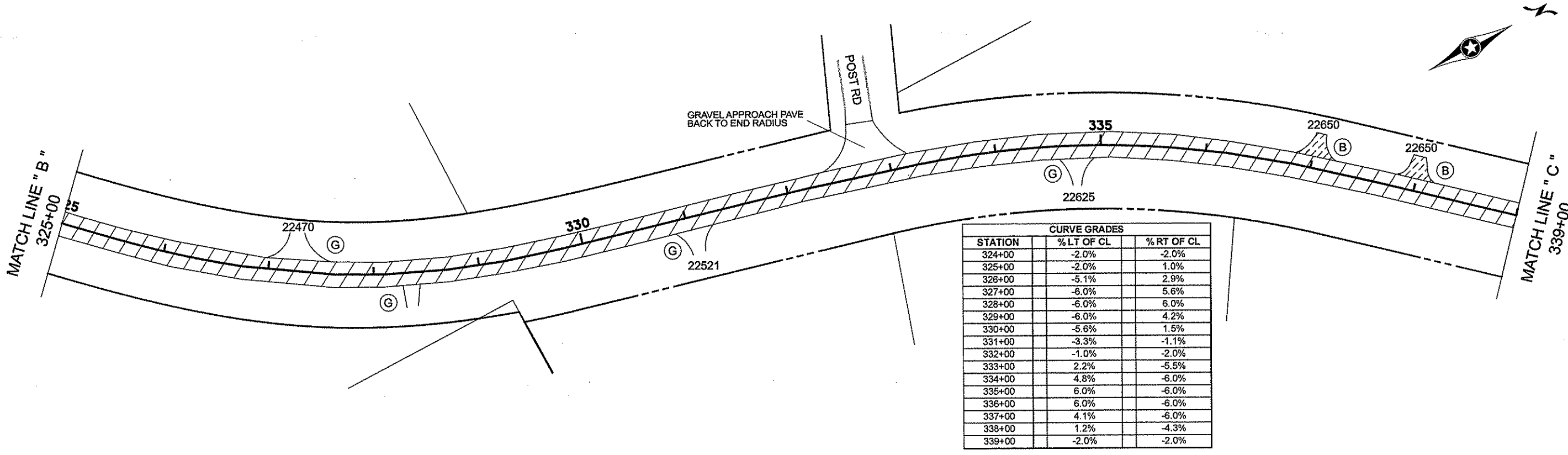
PRINT NAME: CHARLES CADENHEAD  
 SIGNATURE: *[Signature]*  
 DATE: 3/2/12      LICENSE NO. 40418

DRAWN BY: KPR      DATE: 1/20/12  
 DESIGN BY: KPR      DATE: 1/20/12  
 CHECKED BY: DFF      DATE:     

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

STATE PROJECT NO. \_\_\_\_\_  
 STATE AID PROJECT NO. \_\_\_\_\_  
 CITY PROJECT NO. \_\_\_\_\_  
 COUNTY PROJECT NO. 11-17-24

CONSTRUCTION PLAN  
 STA 298+50 TO 325+00  
 Sheet 10 of 20 Sheets

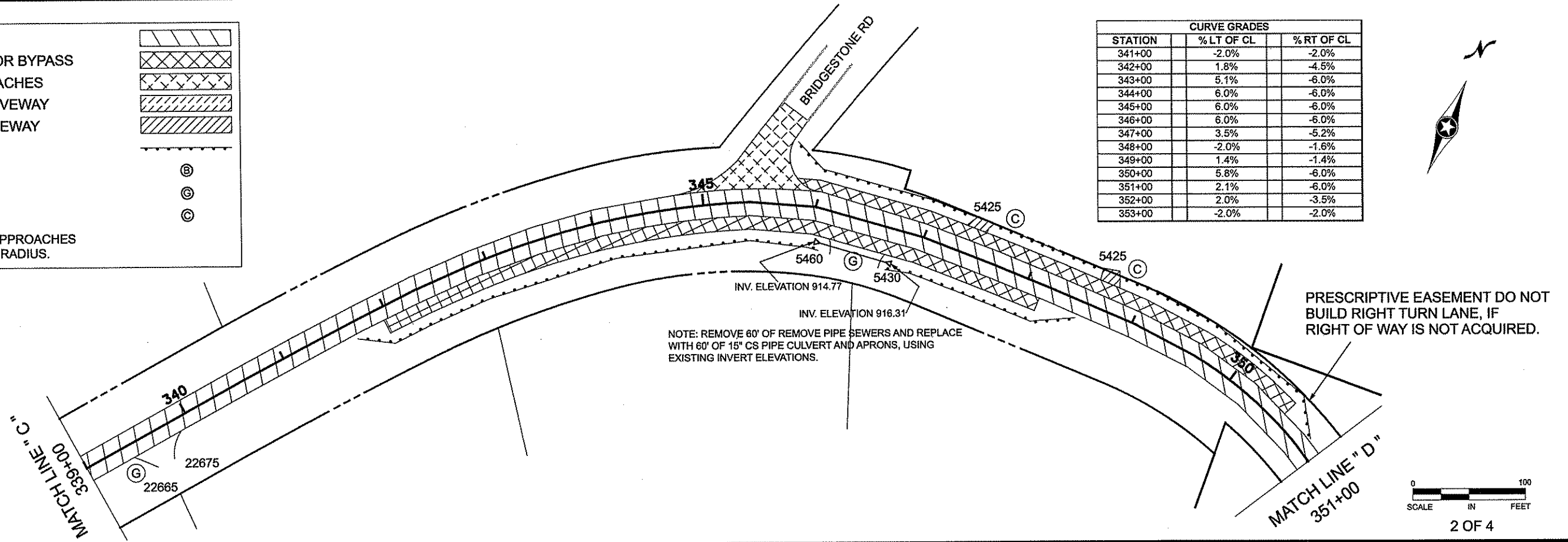


CURVE GRADES		
STATION	% LT OF CL	% RT OF CL
324+00	-2.0%	-2.0%
325+00	-2.0%	1.0%
326+00	-5.1%	2.9%
327+00	-6.0%	5.6%
328+00	-6.0%	6.0%
329+00	-6.0%	4.2%
330+00	-5.6%	1.5%
331+00	-3.3%	-1.1%
332+00	-1.0%	-2.0%
333+00	2.2%	-5.5%
334+00	4.8%	-6.0%
335+00	6.0%	-6.0%
336+00	6.0%	-6.0%
337+00	4.1%	-6.0%
338+00	1.2%	-4.3%
339+00	-2.0%	-2.0%

RECLAIM AREA  
 CONSTRUCT TURN LANE OR BYPASS  
 OVERLAY STREET APPROACHES  
 REMOVE BITUMINOUS DRIVEWAY  
 REMOVE CONCRETE DRIVEWAY  
 SILT FENCE  
 BITUMINOUS DRIVEWAY  
 GRAVEL DRIVEWAY  
 CONCRETE DRIVEWAY

\*NOTE: ALL GRAVEL STREET APPROACHES SHALL BE PAVED TO THE END RADIUS.

CURVE GRADES		
STATION	% LT OF CL	% RT OF CL
341+00	-2.0%	-2.0%
342+00	1.8%	-4.5%
343+00	5.1%	-6.0%
344+00	6.0%	-6.0%
345+00	6.0%	-6.0%
346+00	6.0%	-6.0%
347+00	3.5%	-5.2%
348+00	-2.0%	-1.6%
349+00	1.4%	-1.4%
350+00	5.8%	-6.0%
351+00	2.1%	-6.0%
352+00	2.0%	-3.5%
353+00	-2.0%	-2.0%



NO	DATE	BY	CHKD	APPR	REVISION

NAME: P:\12-01-00\CSAH\_24\_(CR66-TH47)\Plan\plan sheet 2.dgn 02/24/2012 2:56:26 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: CHARLES CADENHEAD  
 SIGNATURE: *Charles Cadenhead*  
 DATE: 3/2/12 LICENSE NO. 40418

DRAWN BY: KPR DATE: 1/20/12  
 DESIGN BY: KPR DATE: 1/20/12  
 CHECKED BY: DFF DATE: \_\_\_\_\_

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

STATE PROJECT NO. \_\_\_\_\_  
 STATE AID PROJECT NO. \_\_\_\_\_  
 CITY PROJECT NO. \_\_\_\_\_  
 COUNTY PROJECT NO. 11-17-24

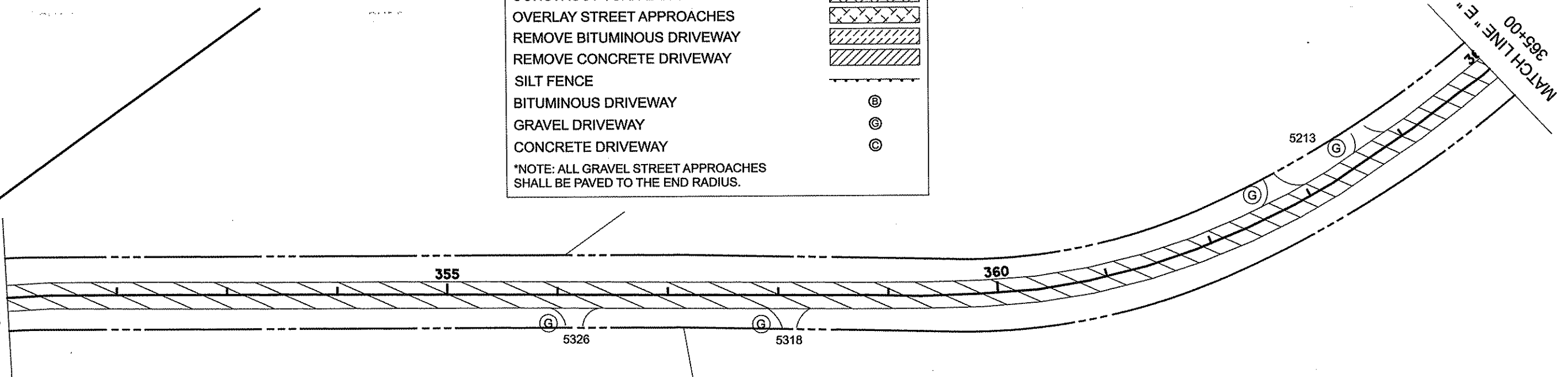
CONSTRUCTION PLAN  
 STA 325+00 TO 351+00  
 Sheet 11 of 20 Sheets



RECLAIM AREA  
 CONSTRUCT TURN LANE OR BYPASS  
 OVERLAY STREET APPROACHES  
 REMOVE BITUMINOUS DRIVEWAY  
 REMOVE CONCRETE DRIVEWAY  
 SILT FENCE  
 BITUMINOUS DRIVEWAY  
 GRAVEL DRIVEWAY  
 CONCRETE DRIVEWAY

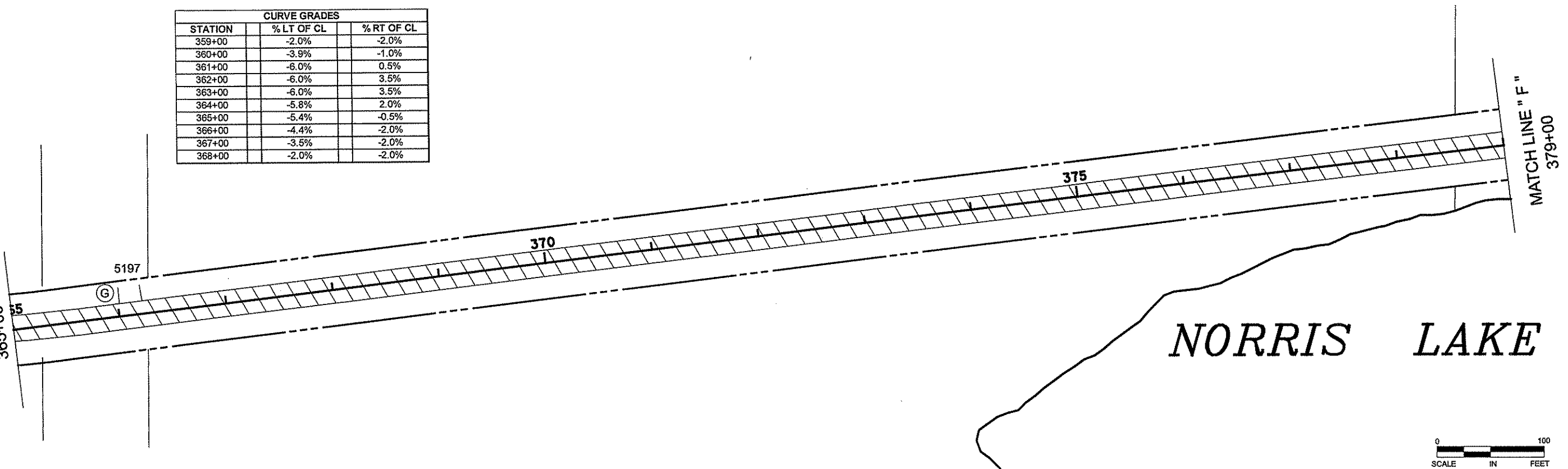
\*NOTE: ALL GRAVEL STREET APPROACHES SHALL BE PAVED TO THE END RADIUS.

MATCH LINE "D"  
351+00



CURVE GRADES		
STATION	% LT OF CL	% RT OF CL
359+00	-2.0%	-2.0%
360+00	-3.9%	-1.0%
361+00	-6.0%	0.5%
362+00	-6.0%	3.5%
363+00	-6.0%	3.5%
364+00	-5.8%	2.0%
365+00	-5.4%	-0.5%
366+00	-4.4%	-2.0%
367+00	-3.5%	-2.0%
368+00	-2.0%	-2.0%

MATCH LINE "E"  
365+00



3 OF 4

NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\12-01-00\CSAH\_24\_(CR66-TH47)\Plan\plan sheet 3.dgn  
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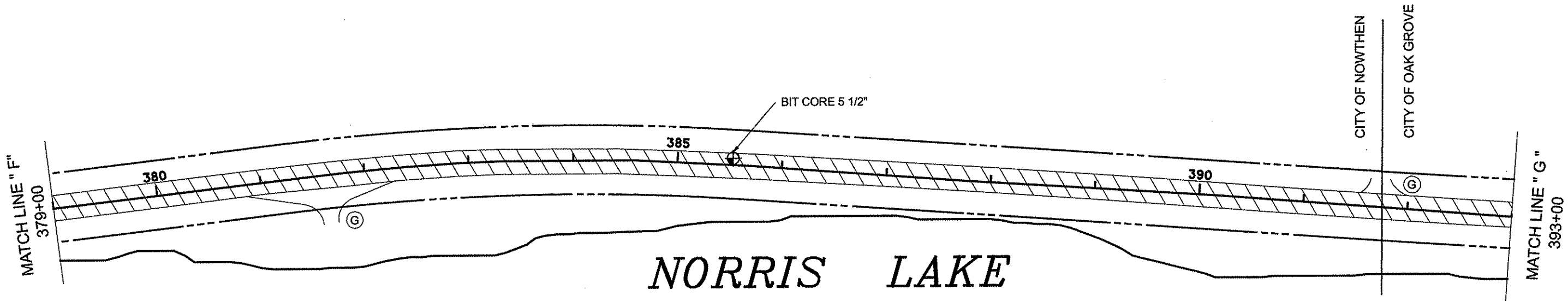
PRINT NAME: CHARLES CADENHEAD  
 SIGNATURE: *[Signature]*  
 DATE: 2/2/12 LICENSE NO. 40418

DRAWN BY: KPR DATE: 1/20/12  
 DESIGN BY: KPR DATE: 1/20/12  
 CHECKED BY: DFF DATE: \_\_\_\_\_

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

STATE PROJECT NO. \_\_\_\_\_  
 STATE AID PROJECT NO. \_\_\_\_\_  
 CITY PROJECT NO. \_\_\_\_\_  
 COUNTY PROJECT NO. 11-17-24

CONSTRUCTION PLAN  
 STA 351+00 TO 379+00  
 Sheet 12 of 20 Sheets



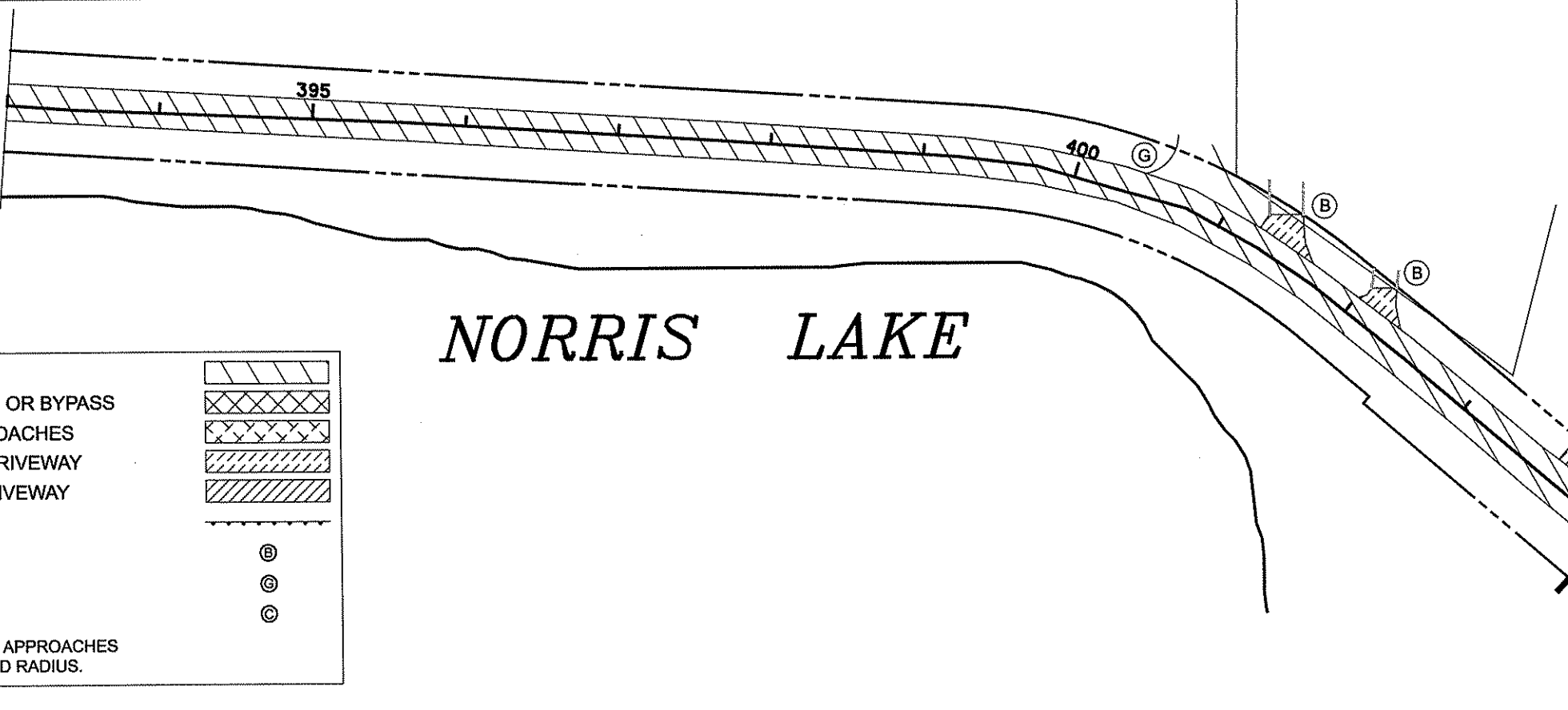
CITY OF NOWTHEN  
CITY OF OAK GROVE

NORRIS LAKE

MATCH LINE "G"  
393+00

MATCH LINE "F"  
379+00

MATCH LINE "G"  
393+00



CURVE GRADES		
STATION	% LT OF CL	% RT OF CL
398+00	-2.0%	-2.0%
399+00	-4.0%	-0.2%
400+00	-6.0%	1.7%
401+00	-6.0%	3.5%
402+00	-6.0%	1.7%
403+00	-5.1%	-0.2%
404+00	-2.0%	-2.0%

END PROJECT C.P. 11-17-24 STA. 404+25



RECLAIM AREA	
CONSTRUCT TURN LANE OR BYPASS	
OVERLAY STREET APPROACHES	
REMOVE BITUMINOUS DRIVEWAY	
REMOVE CONCRETE DRIVEWAY	
SILT FENCE	
BITUMINOUS DRIVEWAY	ⓑ
GRAVEL DRIVEWAY	ⓒ
CONCRETE DRIVEWAY	ⓐ

\*NOTE: ALL GRAVEL STREET APPROACHES SHALL BE PAVED TO THE END RADIUS.



4 OF 4

NO	DATE	BY	CHKD	APPR	REVISION

NAME: P:\12-01-00\CSAH\_24\_(CR68-TH47)\Plan\plan sheet 4.dgn      02/24/2012      2:54:11 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: CHARLES CADENHEAD  
SIGNATURE:   
DATE: 2/2/12      LICENSE NO. 40418

DRAWN BY: KPR      DATE: 1/20/12  
DESIGN BY: KPR      DATE: 1/20/12  
CHECKED BY: DFF      DATE: \_\_\_\_\_

**ANOKA COUNTY**  
HIGHWAY DEPT.

STATE PROJECT NO. \_\_\_\_\_  
STATE AID PROJECT NO. \_\_\_\_\_  
CITY PROJECT NO. \_\_\_\_\_  
COUNTY PROJECT NO. 11-17-24

CONSTRUCTION PLAN  
STA 379+00 TO 404+25  
Sheet 13 of 20 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 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 BEANS SHALL BE APPLIED AT A POUND PER GALLON RATE SUFFICIENT TO ACHIEVE AN ACCEPTABLE NO-TRACK SYSTEM.

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

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

**PREFORMED THERMOPLASTIC:**

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

**PAINT:**

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

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

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

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

**SYMBOLS & MATERIALS LEGEND**

■ CROSSWALK BLOCK WHITE PREFORMED THERMOPLASTIC

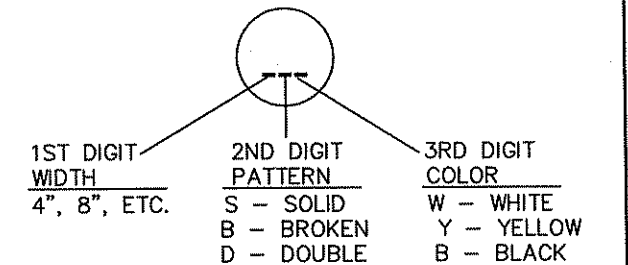
↩ PAVEMENT MESSAGE (LEFT ARROW) PREFORMED THERMOPLASTIC

**STRIPING KEY**

○ CIRCLE - EPOXY      □ SQUARE PREFORMED THERMOPLASTIC

△ TRIANGLE - PAINT

⬠ PENTAGON - REMOVABLE PREFORMED PLASTIC MARKING



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

PAVEMENT MARKING QUANTITIES		
Item	Quantity	Units
4" Double Solid Line Yellow - Epoxy	9055	Lin Ft
4" Solid Line Yellow - Epoxy	1456	Lin Ft
4" Broken Line Yellow Epoxy (10 ft stripe / 40 ft gap)	300	Lin Ft
4" Solid Line White - Epoxy	21460	Lin Ft
4" Broken Line White - Epoxy (10 ft stripe / 40 ft gap)	80	Lin Ft

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: CHARLES CADENHEAD  
 SIGNATURE: *[Signature]*  
 DATE: 3/2/12 LICENSE NO. 40416

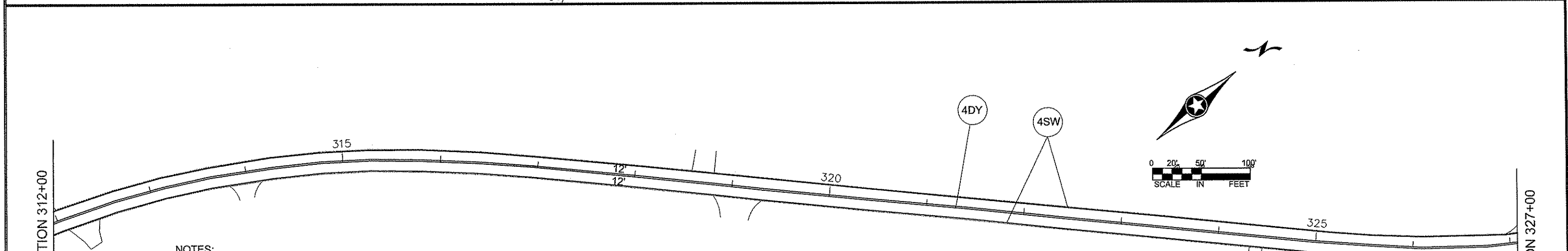
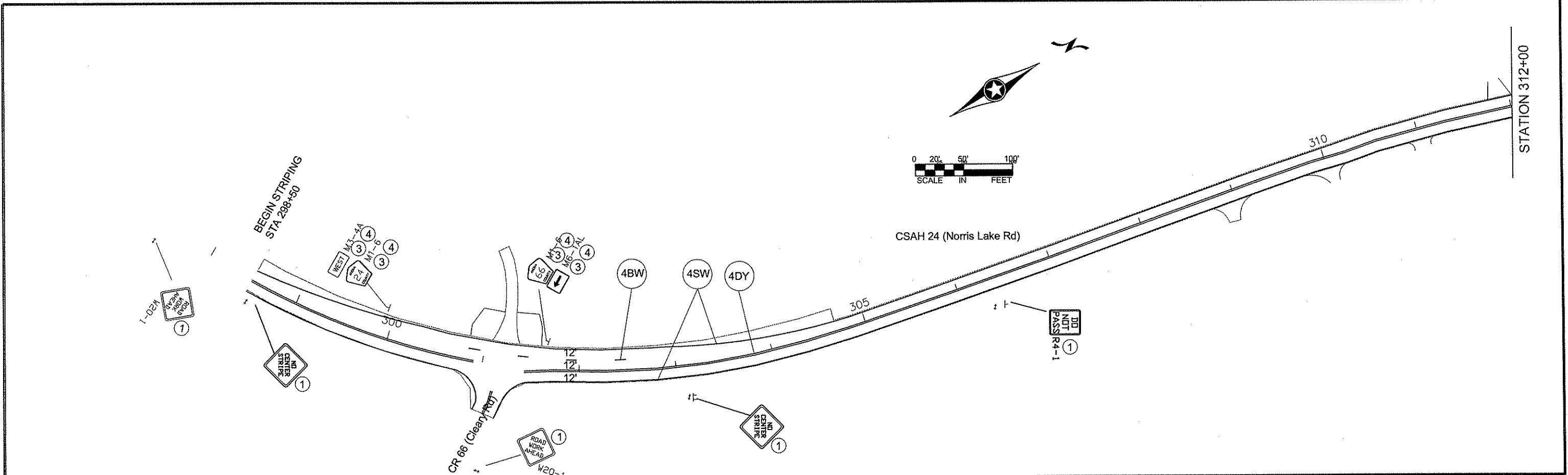
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 CHECKED BY: JR DATE: 2/14/12



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

STATE PROJECT NO. \_\_\_\_\_  
 STATE AID PROJECT NO. \_\_\_\_\_  
 STATE AID PROJECT NO. \_\_\_\_\_  
 COUNTY PROJECT NO. 11-17-24

**PERMANENT MARKING**  
**TABULATION**  
 Sheet 14 of 20 Sheets



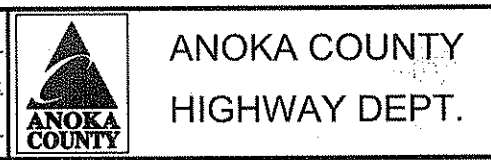
- NOTES:
- ALL TRAFFIC CONTROL DEVICES SHALL CONFORM AND BE PLACED IN ACCORDANCE TO THE "MINNESOTA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" (MN MUTCD), INCLUDING PART VI, "FIELD MANUAL FOR TEMPORARY TRAFFIC CONTROL ZONE LAYOUTS".
  - LOCATIONS OF PAVEMENT MARKINGS ARE APPROXIMATE. EXACT LOCATIONS WILL BE DETERMINED IN THE FIELD BY THE ENGINEER.
  - 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. IF A SIGN IS TO BE SALVAGED AND REINSTALLED, IT SHALL BE INSTALLED ON TEMPORARY SUPPORTS UNTIL THE PERMANENT INSTALLATION CAN BE MADE, AND THIS WILL BE CONSIDERED AS INCIDENTAL TO SIGN TYPE C REINSTALL INSTALLATION.

NO	DATE	BY	CKD	APPR	REVISION

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PRINT NAME: CHARLES CADENHEAD  
 SIGNATURE: *Charles Cadenhead*  
 DATE: 3/2/12 REG. NO. 40416

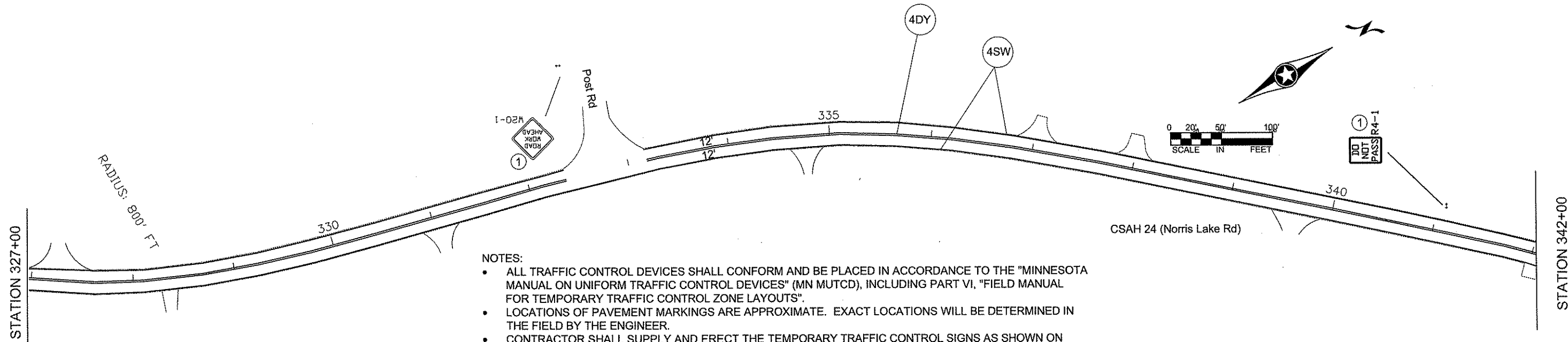
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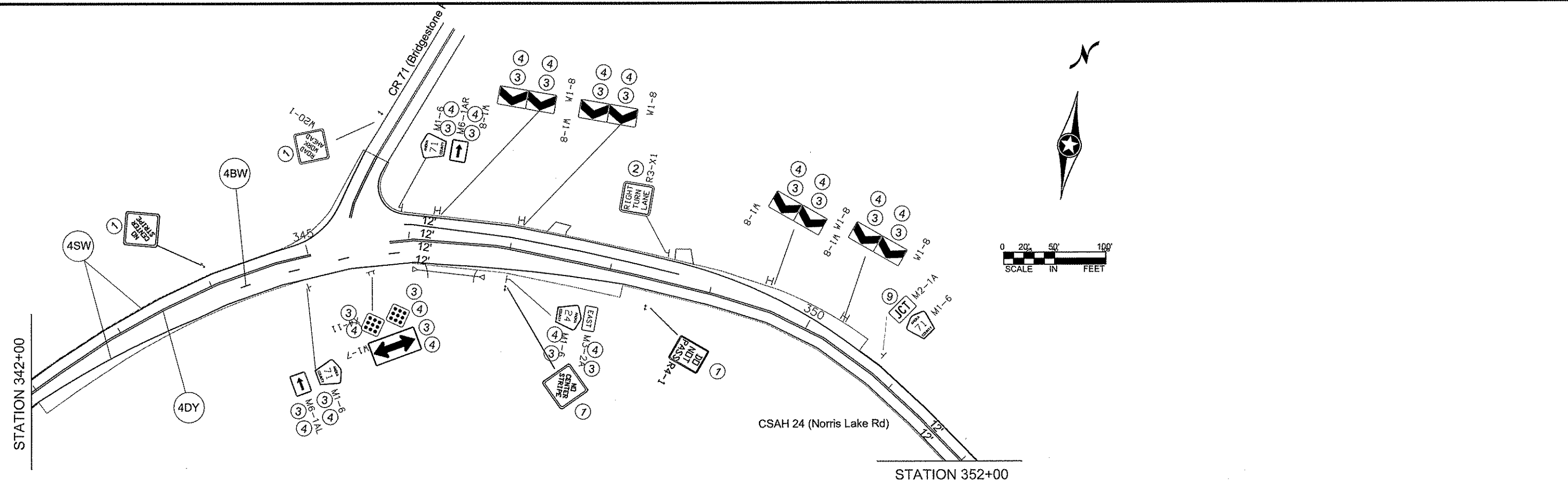
STATE PROJECT NO. \_\_\_\_\_  
 STATE AID PROJECT NO. \_\_\_\_\_  
 STATE AID PROJECT NO. \_\_\_\_\_  
 COUNTY PROJECT NO. 12-17-24

CSAH 24 (Norris Lake Rd)  
 TEMPORARY SIGNING  
 PERMANENT STRIPING  
 AND PAVEMENT MESSAGES

Sheet 15 of 20 Sheets



- NOTES:
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**ANOKA COUNTY**  
**HIGHWAY DEPT.**

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CSAH 24 (Norris Lake Rd)  
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Sheet 16 of 20 Sheets

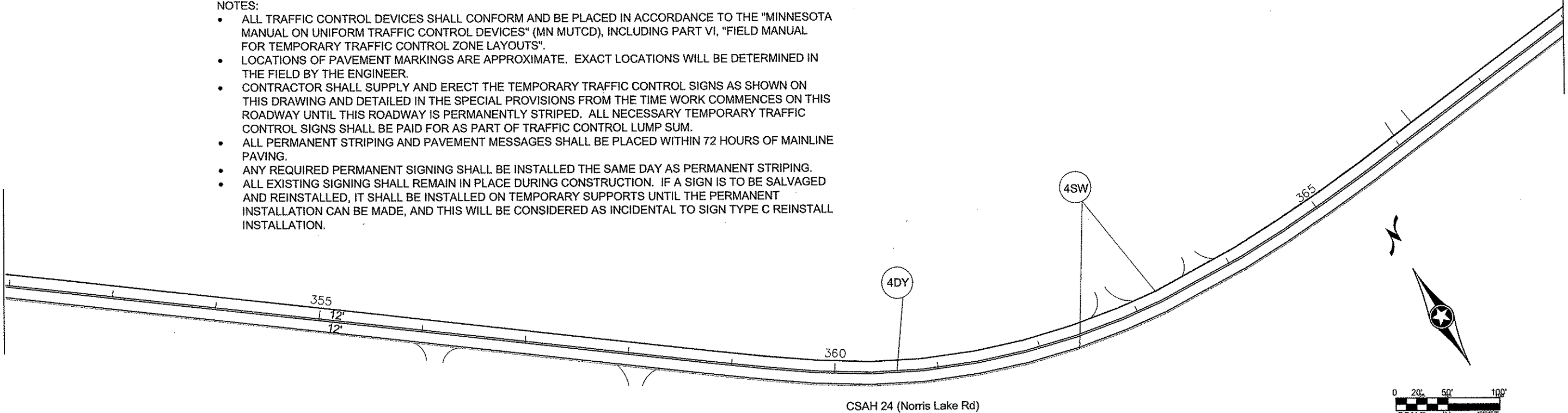


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STATION 352+00

STATION 368+00

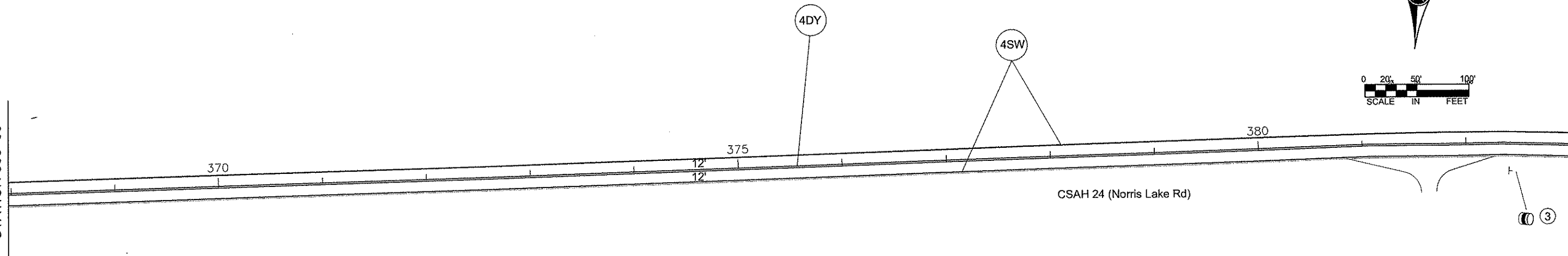


CSAH 24 (Norris Lake Rd)

0 20' 50' 100'  
SCALE IN FEET

STATION 368+00

STATION 383+00



CSAH 24 (Norris Lake Rd)

0 20' 50' 100'  
SCALE IN FEET

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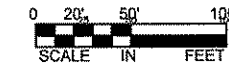
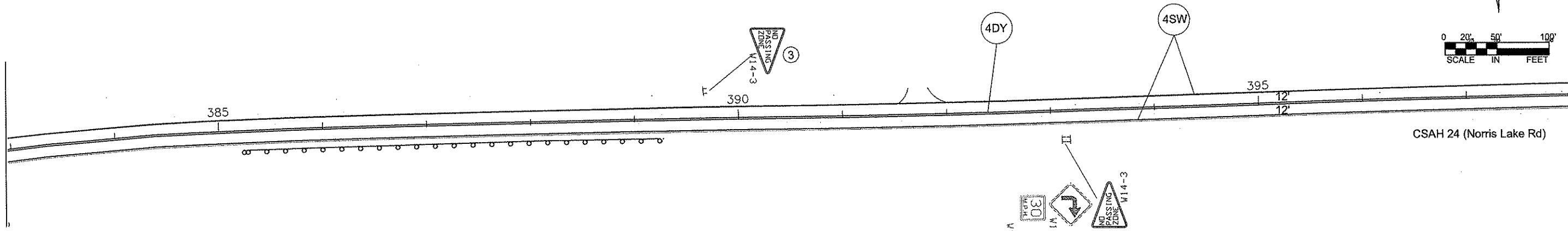
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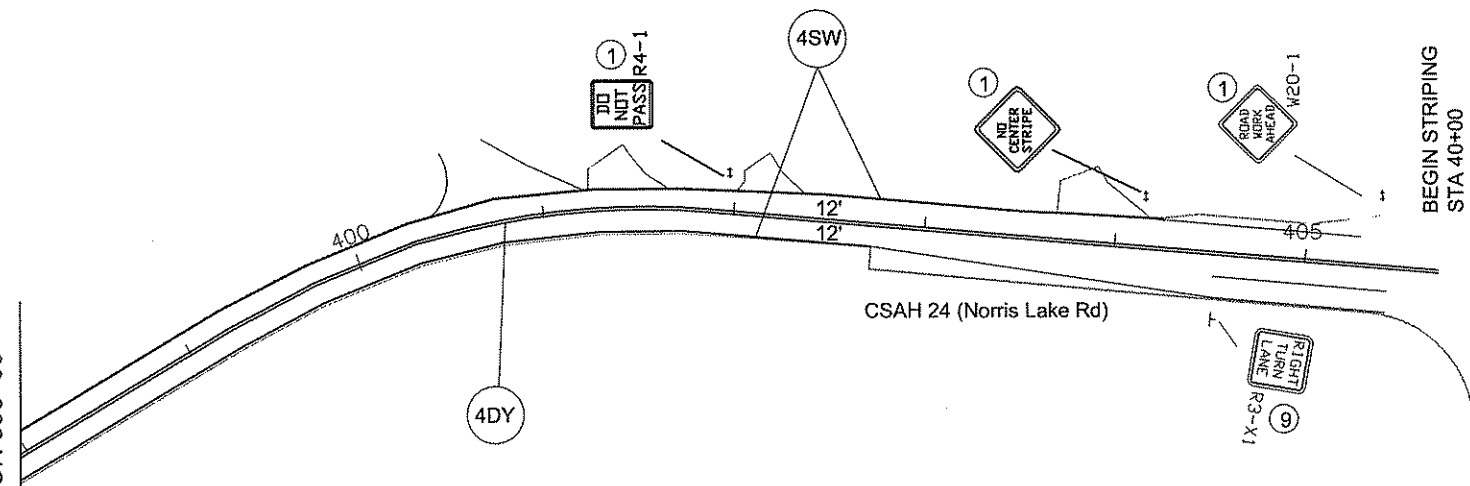
STATION 383+00

STATION 398+00



STATION 398+00

BEGIN STRIPING STA 40+00



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CSAH 24 (Norris Lake Rd)  
 TEMPORARY SIGNING  
 PERMANENT STRIPING  
 AND PAVEMENT MESSAGES

Sheet 18 of 20 Sheets

SALVAGE & RE-INSTALL PERMANENT SIGNS				
STATION		SALVAGE	INSTALL	SIGN NUMBER
		SIGN TYPE C	SIGN TYPE C	
		EACH	EACH	
300+00	Lt	1	1	M3-4a
300+00	Lt			M1-6
301+70	Lt	1	1	M1-6
301+70	Lt			M6-1AL
345+00	Rt	1	1	M1-6
345+00	Rt			M6-1AL
345+50	Rt			W1-7
345+50	Rt	1	1	x4-2
345+50	Rt			x4-2
345+90	Lt	1	1	M1-6
345+90	Lt			M6-1AR
346+20	Lt	1	1	W1-8
346+20	Lt			W1-8
347+00	Rt	1	1	M3-2A
347+00	Rt			M1-6
347+05	Lt	1	1	W1-8
347+05	Lt			W1-8
349+50	Lt	1	1	W1-8
349+50	Lt			W1-8
350+30	Lt	1	1	W1-8
350+30	Lt			W1-8
382+40	Rt	1		terminal post
389+60	Lt	1		W14-3
393+10	Rt	1		W14-3
TOTAL		13	10	

TEMPORARY TRAFFIC CONTROL SIGNS						
M.U.T.C.D. CODE	SIZE	PANEL AREA FT. <sup>2</sup>	INSERT	QUANTITY	No. POST MOUNTING HEIGHT (TO PAVEMENT EDGE)	
W8-12	48" x 48"	16.00		4	7.00	
R4-1	24" x 30"	5.00	 R4-1	4	7.00	
R4-2	24" x 30"	5.00	 R4-2	0	7.00	
W8-1A	48" x 48"	16.00	 W8-1A	AS NEEDED		
W8-1A	48" x 48"	16.00		AS NEEDED		
W8-8	48" x 48"	16.00		AS NEEDED		
W8-11	48" x 48"	16.00	 W8-11	AS NEEDED		
W20-1	48" x 48"	16.00	 W20-1	AS NEEDED (ESTIMATED 5)		

F & I PERMANENT SIGNS							
M.U.T.C.D. CODE	SIZE	PANEL AREA FT. <sup>2</sup>	INSERT	QUANTITY	No. POST MOUNTING HEIGHT (TO PAVEMENT EDGE)	TOTAL PANEL AREA FT. <sup>2</sup>	
R3-X1	30" x 30"	6.25	 R3-X1	1	7.00	6.25	
TOTAL PANEL AREA						6.25	

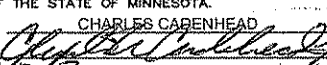
- SEE SPECIAL PROVISIONS**
- ① TEMPORARY TRAFFIC CONTROL SIGN
  - ② F & I PERMANENT SIGN
  - ③ SALVAGE PERMANENT SIGN
  - ④ RE-INSTALL PERMANENT SIGN
  - ⑨ INPLACE - RETAIN

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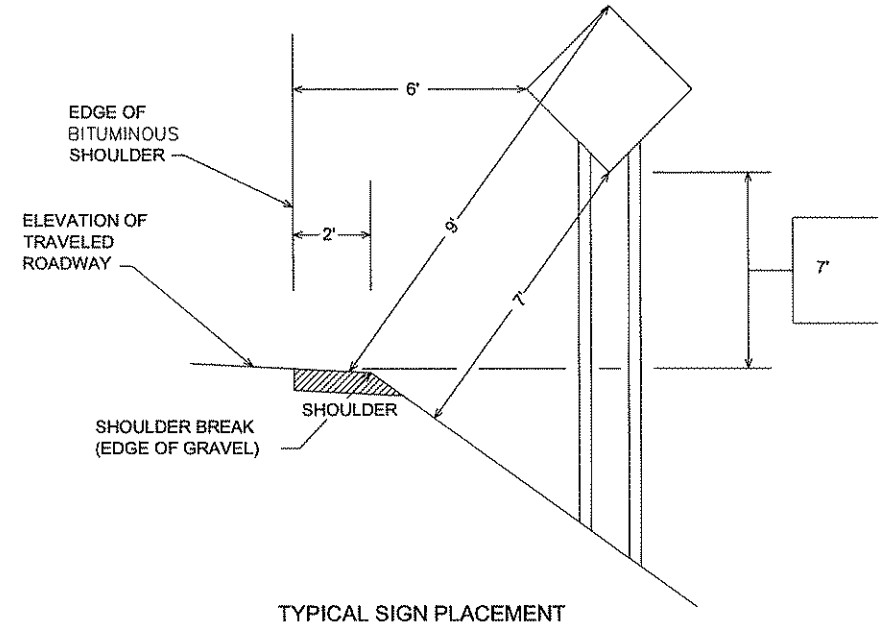


**ANOKA COUNTY  
HIGHWAY DEPT.**

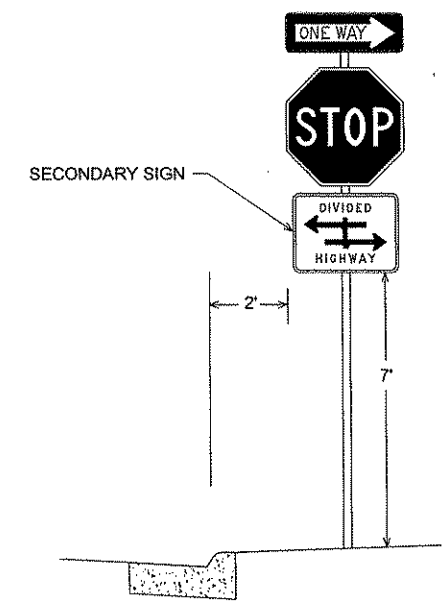
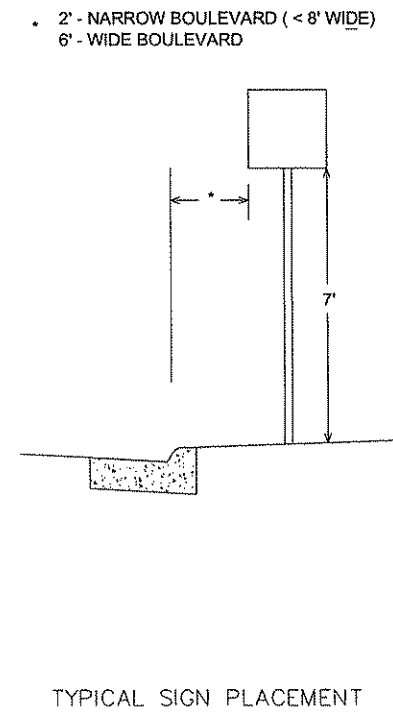
STATE PROJECT NO. \_\_\_\_\_  
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CSAH 24 (Norris Lake Rd)  
 TEMPORARY SIGNING  
 PERMANENT STRIPING  
 AND PAVEMENT MESSAGES

RURAL



URBAN



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

NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\12-01-00\CSAH 20\Base\PROPOSED\Sign&Stripe\_Details.dwg

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PRINT NAME: CHARLES CADENHEAD

SIGNATURE: *Charles Cadenhead*

DATE: 12/12 LICENSE NO. 40416

DRAWN BY MTH DATE 1-21-11

DESIGN BY MTH DATE 1-21-11

CHECKED BY JR DATE 12-14-12

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SIGNING & STRIPING DETAILS

Sheet 20 of 20 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.

**PERFORMED THERMOPLASTIC:**

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

**SYMBOLS & MATERIALS LEGEND**

■ CROSSWALK BLOCK WHITE PREFORMED THERMOPLASTIC

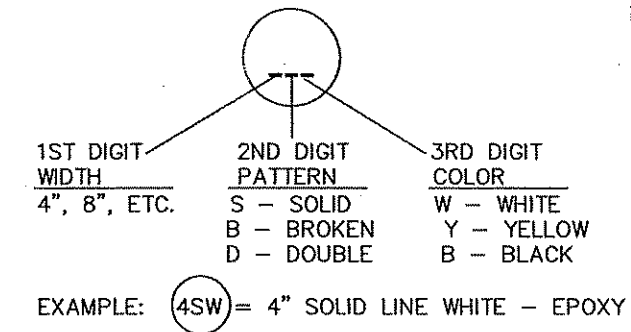
↩ PAVEMENT MESSAGE (LEFT ARROW) PREFORMED THERMOPLASTIC

**STRIPING KEY**

○ CIRCLE - EPOXY    □ SQUARE PREFORMED THERMOPLASTIC

△ TRIANGLE - PAINT

⬠ PENTAGON - REMOVABLE PREFORMED PLASTIC MARKING

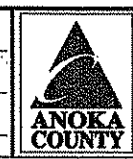


PAVEMENT MARKING QUANTITIES		
Item	Quantity	Units
4" Double Solid Line Yellow - Epoxy	9055	Lin Ft
4" Solid Line Yellow - Epoxy	1456	Lin Ft
4" Broken Line Yellow Epoxy (10 ft stripe / 40 ft gap)	300	Lin Ft
4" Solid Line White - Epoxy	21460	Lin Ft
4" Broken Line White - Epoxy (10 ft stripe / 40 ft gap)	80	Lin Ft

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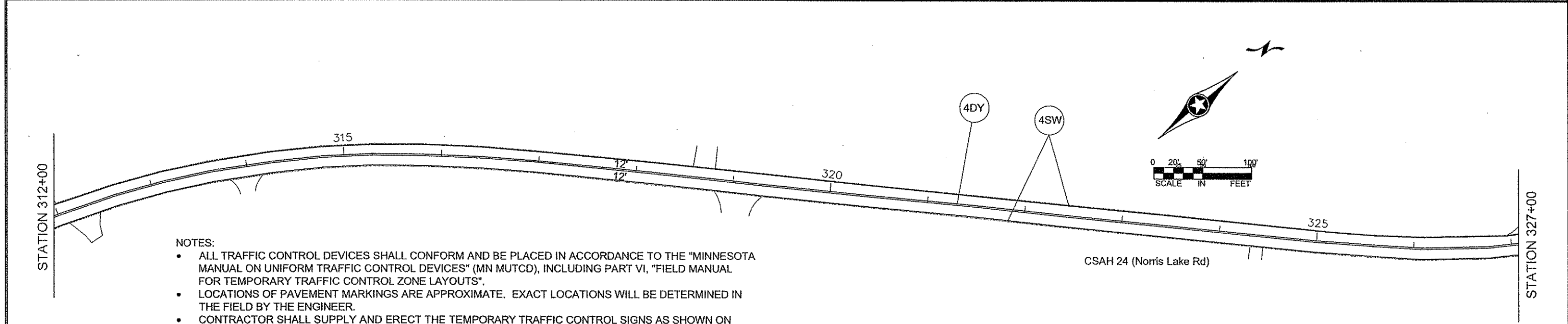
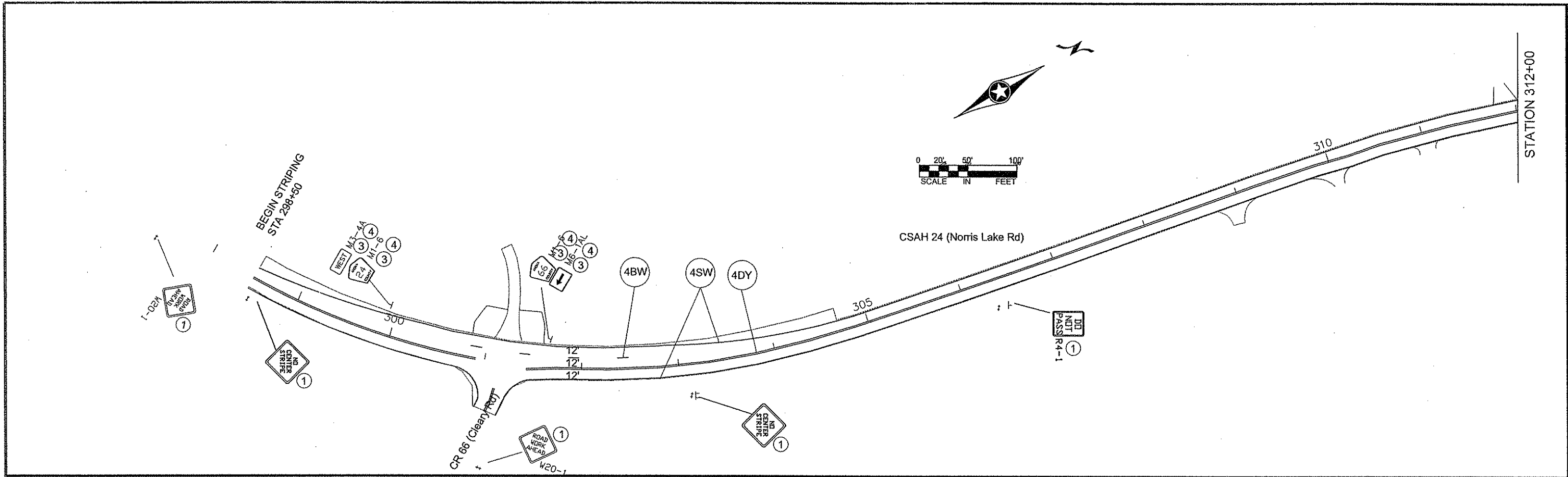
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PERMANENT MARKING  
 TABULATION  
 Sheet 14 of 20 Sheets



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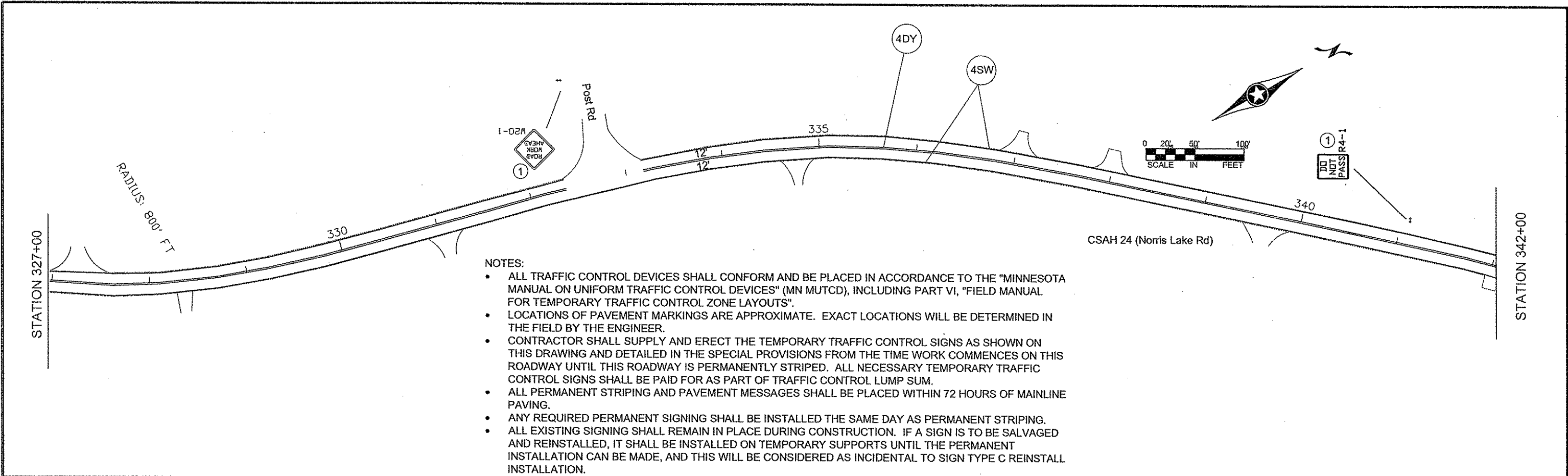


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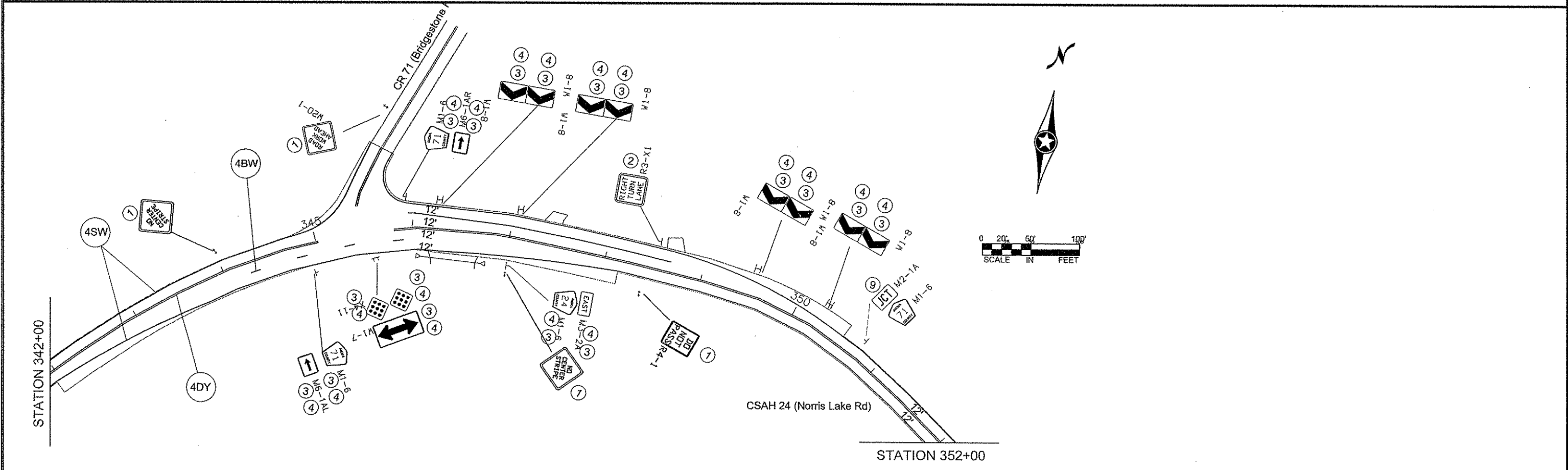
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Sheet 15 of 20 Sheets



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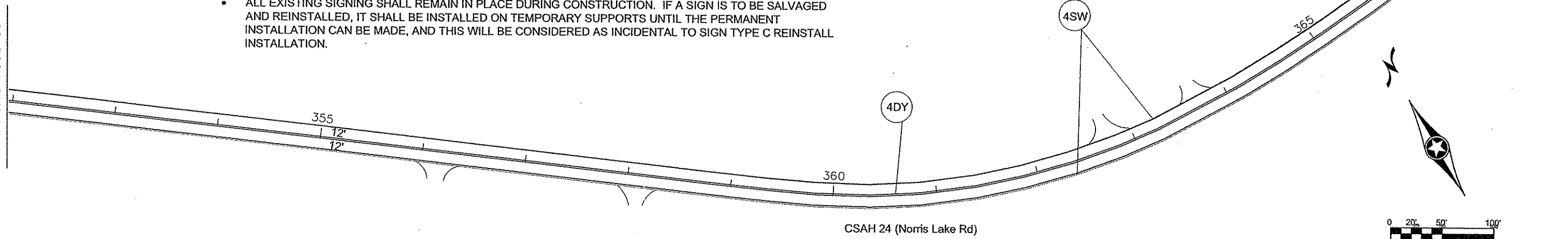
<table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th>NO</th> <th>DATE</th> <th>BY</th> <th>CKD</th> <th>APPR</th> <th>REVISION</th> </tr> </thead> <tbody> <tr> <td> </td> <td> </td> <td> </td> <td> </td> <td> </td> <td> </td> </tr> </tbody> </table>	NO	DATE	BY	CKD	APPR	REVISION							<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: CHARLES CADENHEAD          SIGNATURE: <i>[Signature]</i>          DATE: 12/11 REG. NO. 40416</p>	<p>DRAWN BY: MTH DATE 1/27/2012          DESIGN BY: MTH DATE 1/27/2012          CHECKED BY: JR DATE 2/14/2012</p> <p style="text-align: center;"><b>ANOKA COUNTY HIGHWAY DEPT.</b></p>	<p>STATE PROJECT NO. _____          STATE AID PROJECT NO. _____          STATE AID PROJECT NO. _____          COUNTY PROJECT NO. 12-17-24</p> <p style="text-align: center;">CSAH 24 (Norris Lake Rd) TEMPORARY SIGNING AND PAVEMENT MESSAGES</p> <p style="text-align: right;">Sheet 16 of 20 Sheets</p>
NO	DATE	BY	CKD	APPR	REVISION										

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STATION 352+00

STATION 368+00

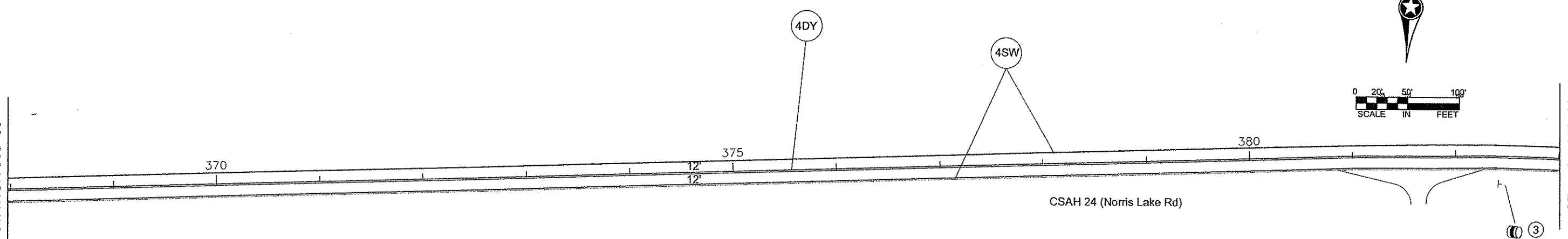


CSAH 24 (Norris Lake Rd)

SCALE IN FEET  
0 20 50 100

STATION 368+00

STATION 383+00



CSAH 24 (Norris Lake Rd)

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PRINT NAME: CHARLES CADENHEAD  
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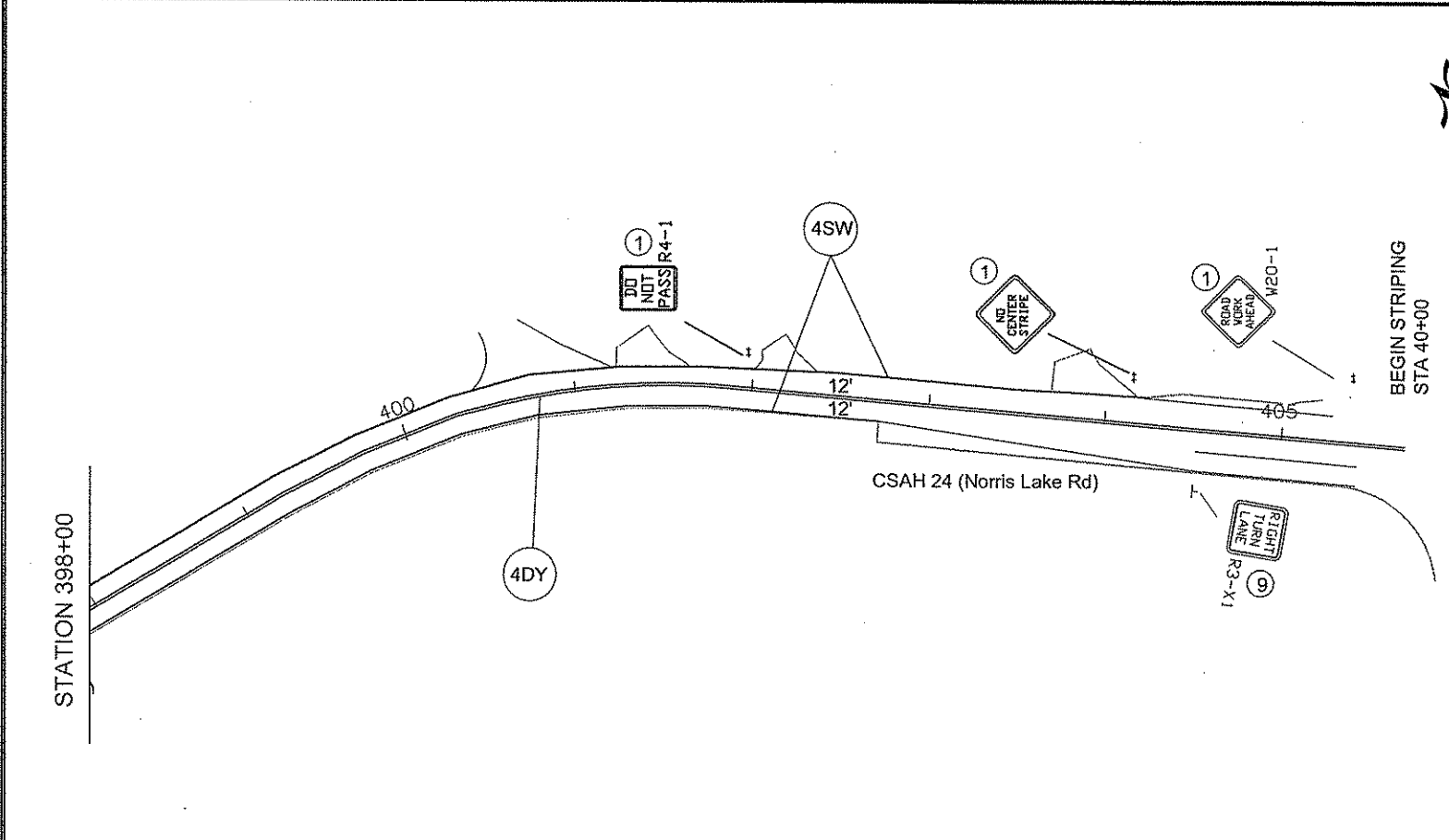
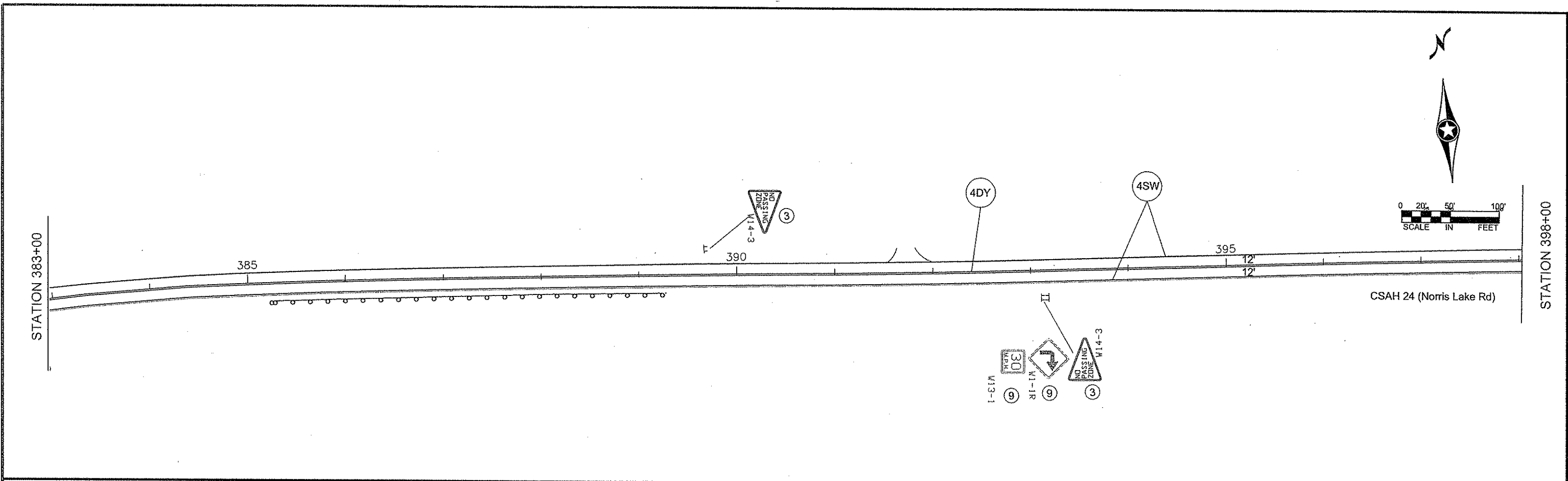
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STATE PROJECT NO. \_\_\_\_\_  
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CSAH 24 (Norris Lake Rd)  
 TEMPORARY SIGNING  
 PERMANENT STRIPING  
 AND PAVEMENT MESSAGES

Sheet 17 of 20 Sheets





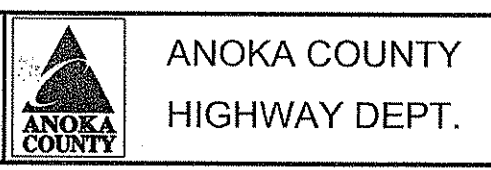
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CSAH 24 (Norris Lake Rd)  
 TEMPORARY SIGNING  
 PERMANENT STRIPING  
 AND PAVEMENT MESSAGES

Sheet 18 of 20 Sheets

SALVAGE & RE-INSTALL PERMANENT SIGNS				
STATION		SALVAGE SIGN TYPE C	INSTALL SIGN TYPE C	SIGN NUMBER
		EACH	EACH	
300+00	Lt	1	1	M3-4a
300+00	Lt			M1-6
301+70	Lt	1	1	M1-6
301+70	Lt			M6-1AL
345+00	Rt	1	1	M1-6
345+00	Rt			M6-1AL
345+50	Rt	1	1	W1-7
345+50	Rt			x4-2
345+50	Rt			x4-2
345+90	Lt	1	1	M1-6
345+90	Lt			M6-1AR
346+20	Lt	1	1	W1-8
346+20	Lt			W1-8
347+00	Rt	1	1	M3-2A
347+00	Rt			M1-6
347+05	Lt	1	1	W1-8
347+05	Lt			W1-8
349+50	Lt	1	1	W1-8
349+50	Lt			W1-8
350+30	Lt	1	1	W1-8
350+30	Lt			W1-8
382+40	Rt	1		terminal post
389+60	Lt	1		W14-3
393+10	Rt	1		W14-3
TOTAL		13	10	

TEMPORARY TRAFFIC CONTROL SIGNS						
M.U.T.C.D. CODE	SIZE	PANEL AREA FT. <sup>2</sup>	INSERT	QUANTITY	No. POST MOUNTING HEIGHT (TO PAVEMENT EDGE)	
W8-12	48" x 48"	16.00		4	7.00	
R4-1	24" x 30"	5.00	 R4-1	4	7.00	
R4-2	24" x 30"	5.00	 R4-2	0	7.00	
W8-1A	48" x 48"	16.00	 W8-1A	AS NEEDED		
W8-1A	48" x 48"	16.00		AS NEEDED		
W8-8	48" x 48"	16.00		AS NEEDED		
W8-11	48" x 48"	16.00	 W8-11	AS NEEDED		
W20-1	48" x 48"	16.00	 W20-1	AS NEEDED (ESTIMATED 5)		

F & I PERMANENT SIGNS							
M.U.T.C.D. CODE	SIZE	PANEL AREA FT. <sup>2</sup>	INSERT	QUANTITY	No. POST MOUNTING HEIGHT (TO PAVEMENT EDGE)	TOTAL PANEL AREA FT. <sup>2</sup>	
R3-X1	30" x 30"	6.25	 R3-X1	1	7.00	6.25	

TOTAL PANEL AREA 6.25

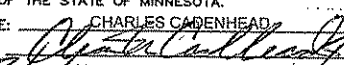
- SEE SPECIAL PROVISIONS
- ① TEMPORARY TRAFFIC CONTROL SIGN
  - ② F & I PERMANENT SIGN
  - ③ SALVAGE PERMANENT SIGN
  - ④ RE-INSTALL PERMANENT SIGN
  - ⑨ INPLACE - RETAIN

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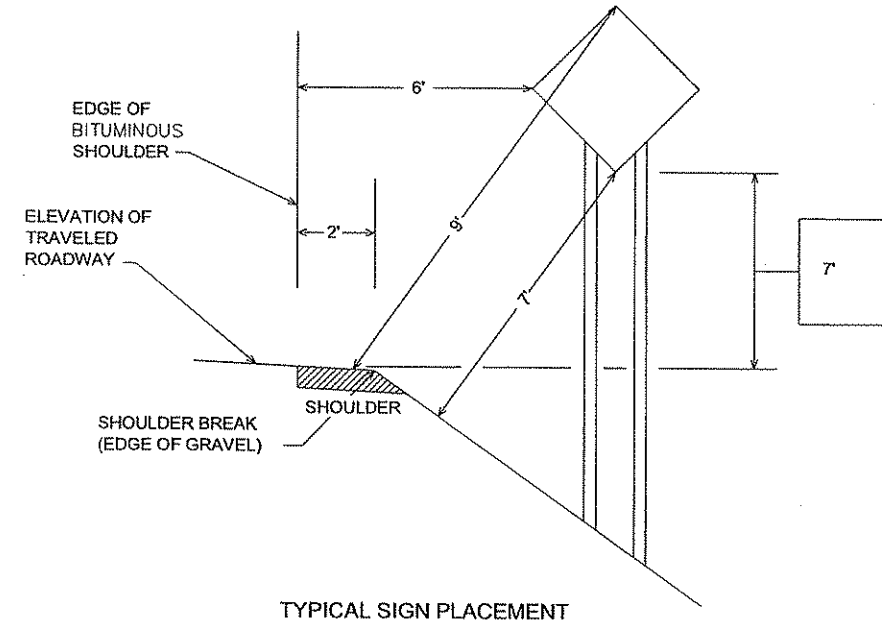
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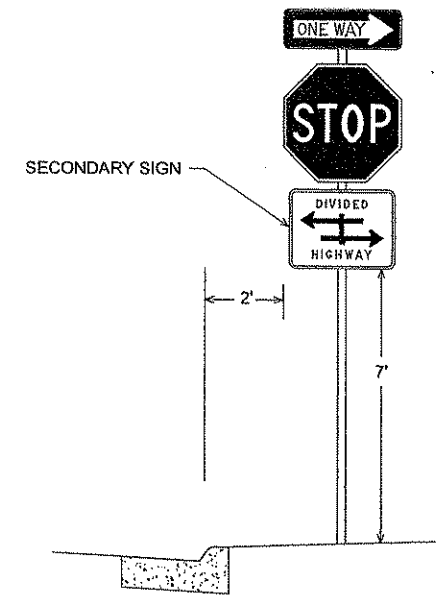
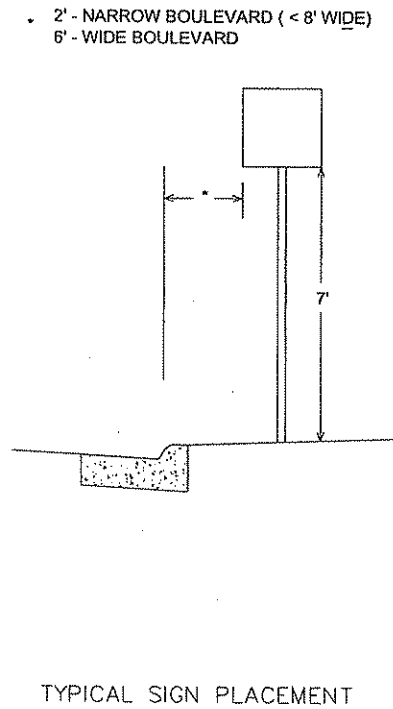
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Sheet 19 of 20 Sheets

RURAL



URBAN



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

NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\12-01-00\CSAH 20\Bose\PROPOSED\Sign&Stripe\_Details.dwg

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PRINT NAME: CHARLES GADENHEAD

SIGNATURE: *[Signature]*

DATE: 9/2/12 LICENSE NO. 40416

DRAWN BY: MTH DATE: 1-21-11

DESIGN BY: MTH DATE: 1-21-11

CHECKED BY: JR DATE: 12-14-12



ANOKA COUNTY  
HIGHWAY DEPT.

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COUNTY PROJECT NO. 11-17-24

SIGNING & STRIPING DETAILS

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