

PLAN SYMBOLS

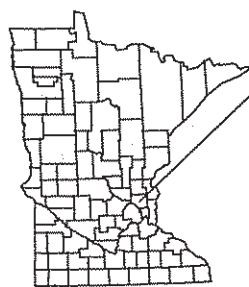
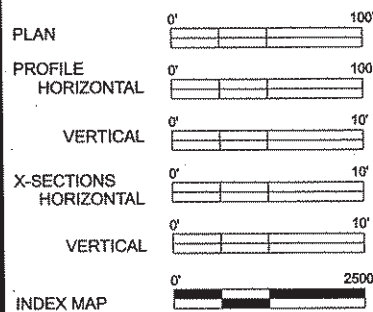
- COUNTY LINE _____
- TOWNSHIP OR RANGE LINE _____
- SECTION LINE _____
- QUARTER LINE _____
- SIXTEENTH LINE _____
- RIGHT OF WAY LINE _____
- SLOPE EASEMENT _____
- EXISTING RIGHT OF WAY _____
- PROPERTY LINE _____
- CORPORATE OR CITY LIMITS _____
- RETAINING WALL _____
- RAILROAD _____
- RAILROAD 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

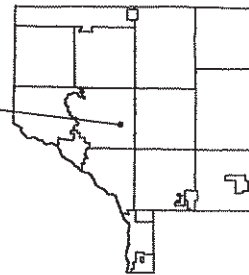
- POWER POLE LINE _____
- TELEPHONE OR TELEGRAPH POLE LINE _____
- JOINT TELEPHONE & POWER ON POWER POLES _____
- ON TELEPHONE POLES _____
- ANCHOR _____
- STEEL TOWER _____
- STREET LIGHT _____
- PEDESTAL (Cable Terminal) _____
- GAS MAIN _____
- WATER MAIN _____
- TELEPHONE CABLE IN CONDUIT _____
-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

SCALES



PROJECT LOCATION

CITY OF ANDOVER
 ANOKA COUNTY
 MN/DOT TRANSPORTATION DISTRICT - METRO
 ANDOVER SECTION 14
 ANDOVER TOWNSHIP T32 NORTH
 ANDOVER RANGE R24 WEST

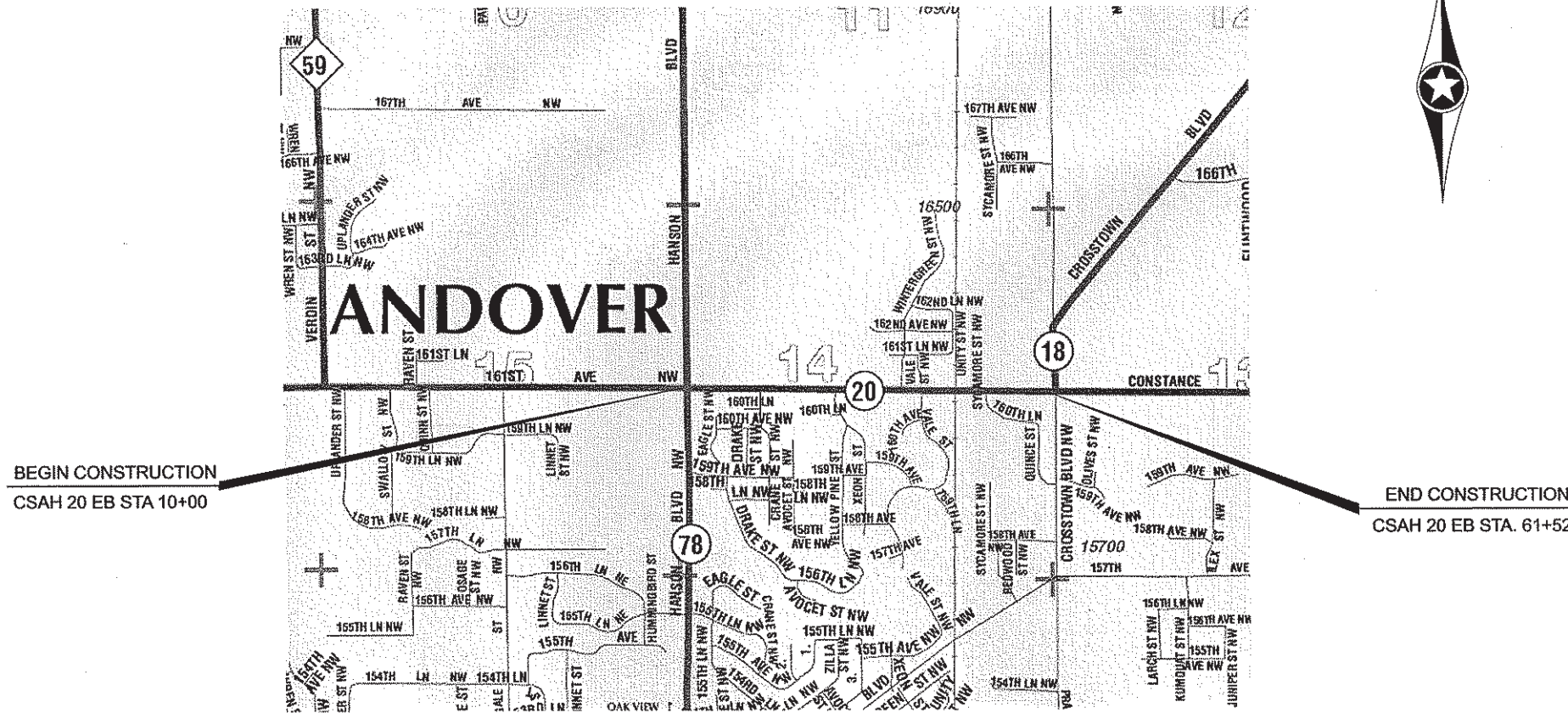


MINNESOTA DEPARTMENT OF TRANSPORTATION ANOKA COUNTY

CONSTRUCTION PLAN FOR _____ OVERLAY, RECLAIM AND OVERLAY, 4' - 8' WIDENING FOR NEW RTL / BYPASSES
 LOCATED ON CSAH 20 FROM CSAH 78 TO CSAH 18

	12-12-20	
GROSS LENGTH	5152.00 FEET	0.98 MILES
BRIDGES-LENGTH	0.00 FEET	0.00 MILES
EXCEPTIONS-LENGTH	0.00 FEET	0.00 MILES
NET LENGTH	5152.00 FEET	0.98 MILES

CITY OF ANDOVER



MINN. PROJ. NO. _____
 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 PART VI, "FIELD MANUAL FOR TEMPORARY TRAFFIC CONTROL ZONE LAYOUTS."

INDEX

SHEET NO.	DESCRIPTION
1	TITLE SHEET
2	STATEMENT OF ESTIMATED QUANTITIES
3-4	CONSTRUCTION TABS
5	CALCULATIONS FOR RTL / BYPASS CONSTRUCTION
6-15	TYPICAL SECTIONS
16-17	CONSTRUCTION DETAILS
18-19	CONSTRUCTION PLAN
20	PERMANENT MARKING TABULATION
21-23	SIGNING AND STRIPING LAYOUTS
24-25	SIGNING AND STRIPING DETAILS
26-28	DETOUR LAYOUT (SEE SPECIAL PROVISIONS & NOTE #21)

THIS PLAN CONTAINS 28 SHEETS

DESIGN DESIGNATION

ESAL 20	788,827
R VALUE	50
ADT (2010) =	5445
Proj. ADT (2032) =	9131
Proj. HADT (2032) =	539
Soil Factor	NA
10 TON DESIGN	
Functional Classification	A-MINOR EXPANDER
No. of Traffic Lanes	2
No. of Parking Lanes	0
Design Speed	55 MPH
Based on Stopping Sight Distance	_____
Height of eye	3.5'
Height of object	2.0'
Design Speed not achieved at:	_____
STA. --- TO STA. --- MPH ---	_____

Approved 3/4/12
 ANOKA COUNTY ENGINEER

NO	DATE	BY	CHKD	APPR	REVISION

NAME: P:\112-01-00\CSAH_20 (CSAH78-CSAH16)\Plan11 TITLE.dgn 03/01/2012 8:04:35 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 CADENHEAD
 SIGNATURE:
 DATE: 3/2/12 LICENSE NO. 40416

DRAWN BY: JF DATE: 1/18/2012
 DESIGN BY: JF DATE: 1/18/2012
 CHECKED BY: JO DATE: 4/1/2012

ANOKA COUNTY
 HIGHWAY DEPT.

STATE PROJECT NO. _____
 STATE AID PROJECT NO. _____
 CITY PROJECT NO. _____
 COUNTY PROJECT NO. CP 12-12-20

TITLE SHEET

Sheet 1 of 28 Sheets

STATEMENT OF ESTIMATED QUANTITIES						
ITEM NO.		ITEM	TAB	NOTE NO.	UNIT	TOTAL EST. QUANT.
2011.601	00003	CONSTRUCTION SURVEYING		32	LUMP SUM	1.00
2021.501	00010	MOBILIZATION			LUMP SUM	1.00
2021.601	00050	RAILROAD PROTECTIVE SERVICES		1	LUMP SUM	1.00
2101.502	00010	CLEARING		2	TREE	26.00
2101.507	00010	GRUBBING		2	TREE	26.00
2104.501	00012	REMOVE METAL CULVERT		2	LIN FT	50.00
2104.501	00024	REMOVE CURB AND GUTTER	A	3	LIN FT	30.00
2104.505	00120	REMOVE BITUMINOUS PAVEMENT	B	4	SQ YD	459.45
2104.513	00011	SAW BITUMINOUS PAVEMENT FULL DEPTH	C	5	LIN FT	312.00
2104.523	00543	SALVAGE SIGN TYPE C			EACH	2.00
2105.602	00020	CONSTRUCT NEW TURN LANE (YELLOWPINE ST)		6	EACH	1.00
2105.602	00024	CONSTRUCT NEW BY-PASS LANE (YELLOWPINE ST)		6	EACH	1.00
2105.602	00024	CONSTRUCT NEW BY-PASS LANE EXT. (WINTERGREEN ST)		6	EACH	1.00
2105.609	00100	TOPSOIL BORROW	D	7	TON	62.06
2123.503	00010	MOTOR GRADER	E	8	HOUR	8.00
2130.501	00010	WATER		9	M-GAL	56.00
2211.501	00050	AGGREGATE BASE CLASS 5	F	10	TON	398.00
2221.501	00050	AGGREGATE SHOULDERING CLASS 5	G	11	TON	386.00
2232.501	00050	MILL BITUMINOUS SURFACE (2") JOINTS	H	12	SQ YD	262.00
2331.604	00060	BITUMINOUS PAVEMENT RECLAMATION	I	13	SQ YD	21443.00
2331.607	00010	HAUL BITUMINOUS PAVEMENT RECLAMATION (LV)	J	14	CU YD	286.00
2357.502	00010	BITUMINOUS MATERIAL FOR TACK COAT	K		GALLON	1260.00
2360.501	24500	TYPE SP 12.5 WEARING COURSE MX (4 , E)	L	15,16,31	TON	5296.00
2360.501	24200	TYPE SP 12.5 WEARING COURSE MX (4 , B)	N	17	TON	191.00
2501.511	20150	15" CS PIPE CULVERT		2	LIN FT	44.00
2501.567	02150	15" CS SAFTY APR. AND GRATE DES.3128		2	EACH	2.00
2511.502	00012	RANDOM RIPRAP CLASS II	O	18	TON	20.00
2535.501	00010	BITUMINOUS CURB	P	19	LIN FT	335.00
2540.602	00140	INSTALL MAIL BOX SUPPORT	Q	20	EACH	7.00
2563.601	00010	TRAFFIC CONTROL		21	LUMP SUM	1.00
2563.601	00200	DETOUR SIGNING		22	LUMP SUM	1.00
2564.531	00130	SIGN PANEL TYPE C	R	23	SQ FT	6.25
2564.536	00013	INSTALL SIGN PANEL TYPE C			EACH	1.00
2573.508	00010	BITUMINOUS LINED FLUME	S	24	SQ YD	71.00
2573.502	00040	SILT FENCE TYPE MACHINE SLICED	T	25	LIN FT	192.00
2573.602	00090	CULVERT END PROTECTION	U	26	EACH	3.00
2575.523	00013	EROSION CONTROL BLANKET CATOGORY 3	V	27	SQ YD	142.00
2575.601	00010	RAPID STABILIZATION METHOD 3	W	28	SQ YD	298.00
2581.501	00010	REMOVABLE PREFORMED PLASTIC MARKING	X	29	LIN FT	412.00
2582.502	21124	24" WHITE PREF THERMOPLASTIC		30	LIN FT	24.00
2582.502	22124	24" YELLOW PREF THERMOPLASTIC		30	LIN FT	497.00
2582.502	41104	4" SOLID LINE WHITE - EPOXY		30	LIN FT	11578.00
2582.502	41204	4" BROKEN LINE WHITE-EPOXY		30	LIN FT	120.00
2582.502	42104	4" SOLID LINE YELLOW - EPOXY		30	LIN FT	400.00
2582.502	42404	4" DOUBLE SOLID LINE YELLOW - EPOXY		30	LIN FT	6033.00
2582.602	08010	PAVT MSSG (RR CROSSING) PREF THERMOPLASTIC		30	EACH	2.00
2582.602	08012	PAVT MSSG (RT ARROW) PREF THERMOPLASTIC		30	EACH	2.00
2582.602	08013	PAVT MSSG (LT ARROW) PREF THERMOPLASTIC		30	EACH	3.00
2582.602	08014	PAVT MSSG (THURRT ARROW) PREF THERMOPLASTIC		30	EACH	2.00

NOTES	
1	CONTRACTOR RESPONSIBLE TO CORRDINATE WITH RAIL ROAD FOR RXR-PROTECTIVE SERVICES. PROTECTIVE SERVICES MUST BE PRESENT DURING ALL WORK IN AND AROUND RXR CROSSING R/W.
2	FOR NEW RTL LEB AT YELLOW PINE ST.
3	CONCRETE CURB TO BE REMOVED FROM CHURCH ENT., LOCATION TO BE DETERMINED BY THE ENGINEER.
4	BITUMINOUS DR WAYS TO BE SAWCUT, BITUMINOUS REMOVED, GRVL ADDED AS NESSASARY AND REPAVED.
5	LOCATION TO BE DETERMINED BY ENGINEER.
6	EST. CALCS AND QTYS FOR THIS ITEM BY THE EACH CAN BE FOUND ON PAGE 5, CALCULATIONS FOR RIGHT TURN & BYPASS LANES.
7	RE-ESTABLISHING AREA BEHIND BITUMINOUS CURB AND AROUND FLUMES. PLACEMENT INCIDENTAL TO ITEM.
8	INCLUDES TIME AND EQUIPMENT TO REMOVE EXCESS RECLAIMED MATERIAL AT BEG. AND END OF RECLAIMAREAS FOR A SMOOTH TRANSITION TO EXISTING BITUMINOUS.
9	WATER TO BE USED AS DUST CONTROL AT THE DESCRETION OF THE ENGINEER.
10	LEVELING 8' PAVED SHLDR AREAS AND 1.5' GRVL SHLDR AREAS UP TO MAINLINE BASE COURSE , PRIOR TO WEAR.
11	SHOULDERING CLASS 5 FOR FINISHED 1.5' GRVL. SHLDR. AND ADDITIONAL GRAVEL FOR DR WAYS.(CALC. AT 3" DEPTH)
12	2" DEEP BY 4' WIDE MILL AT BEGINNING AND END OF PROJECT AND ALL PAVED ST APPROACHES.
13	FULL DEPTH RECLAMATION FROM STA 19+00 TO STA 61+52. ALL INPLACE CURB TO REMAIN INPLACE EXCEPT AT CHURCH ENT. CONCRETE CURB DAMAGED DURING RECLAIMING PROSSES TO BE REPLACED AT THE CONTRACTORS COST.
14	REMOVING EXCESS RECLAIMED MATERIAL IN CONCRETE CURB AREAS TO TRANSITION NEW ROAD PROFILE TO EXISTING CURB. PAID FOR BY THE TON REMOVED IN THE AREA OF STA.46+00 TO STA 51+00. AT THE DECRETION OF THE ENGINEER.
15	MAINLINE TOP COURSE 2" (SPWEB440 E) TOP WEARING SURFACE.
16	MAINLINE BOTTOM COURSE 2" (SPWEB440 E) PLACED ON RECLAIMED GRAVEL SURFACE.
17	STREET APPROACH / DR WAY BITUMINOUS 2" (SPWEB440 B) PAVED IN SEPARATE OPERATION THEN MAINLINE PAVING.
18	RIPRAP CLASS II TO BE PLACED AT BOTTOM OF NEW AND EXISTING CONC/BIT FLUMES. AREA TO BE COVERD IN RIPRAP TO BE AT THE DESCRETION OF THE ENGINEER.
19	INTEGRAL BITUMINOUS CURB TO BE PAVED IN CONJUNCTION WITH MAINLINE WEAR PAVING. BITUMINOUS CURB TO BE INSTALLED AT ALL EXISTING BITUMINOUS CURB LOCATIONS.
20	MAILBOXES TO BE INSTALLED AT THE EXISTING MAILBOX LOCATION. MAILBOX MATERIALS INCIDENTAL TO INSTALLATION.
21	" ALL TRAFFIC CONTROL METHODS SHALL CONFORM TO THE MINNESOTA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES. " DO NOT PASS, PASS WITH CARE, NO CENTER STRIPE AND STOP HERE WHEN FLASHING SIGNS TO BE INPLACE DURING RECLAIM / PAVING OPERATIONS.
22	DETOUR MAY NOT BE PUT INPLACE UNTIL ANOKA COUNTY PROJECT 11-24-78 HANSON BLVD NORTH OF CSAH 20 IS OPEN TO TRAFFIC. ANOKA COUNTY PROJECT 11-24-78 HANSON BLVD NORTH OF CSAH 20 HAS A COMPLETION DATE OF JULY 1ST, 2012. A DETOUR DOES NOT EXCLUDE THE NEED FOR RAILROAD PROTECTIVE SERVICES WHICH WILL STILL NEED TO BE PRESENT DURING CONSTRUCTION ACTMVTIES IN AND AROUND THE RAILROADS R/W. (DETOUR COST EST. BASED ON A 10 WORKING DAY DETOUR OF COMPRABLE SIZE AND LOCATION.)
23	FURNISH AND INSTALL SIGN PANEL TYPE C , MOUNTING POSTS ARE INCIDENTAL TO ITEM.
24	MATERIAL TO BE ADDED TO EXISTING FLUMES TO MATCH NEW ROAD SURFACE AND TO EXTEND FLUMES TO BOTTOM OF DITCH. ADDITIONAL FLUMES TO BE CONSTRUCTED AS NEEDED AND DIRECTED BY THE ENGINEER.
25	INSTALL SILT FENCE SURROUNDING DISTURBED AREA AROUND FLUMES.
26	INSTALL 1 PER CULVERT INSIDE RTL / BYPASS WIDENING AREAS - AT THE HIGH INVERT.
27	EROSION CONTROL BLANKET CAT. 3 TO BE INSTALLED ALONG FLUMES IN STEEP, HIGH EROSION AREAS ON ADDED TOPSOIL. PLACEMENT, SEED AND FERTILIZER INCIDENTAL TO BLANKET. SEED MIXTURE 250 (RATE - 70 LBS PER ACRE) AND FERTILIZER TYP 3 (RATE - 350 LBS PER ACRE)
28	RAPID STABILIZATION METHOD 3 TO BE USED IN DISTURBED AREAS BEHIND BITUMINOUS CURB INSTALATION SEED AND FERTILIZER INCIDENTAL TO RAPID STABILIZATION METHOD 3. SEED MIXTURE 250 (RATE - 70 LBS PER ACRE) AND FERTILIZER TYP 3 (RATE - 350 LBS PER ACRE) RAPID STABILIZATION METHOD 3 TO BE APPLIED AT A RATE OF 6 M-GAL PER ACRE. ITEM PAID FOR BY THE SQ YD.
29	CL YLW SKIPS TO BE APPLIED AS SOON AS POSSIBLE ON EACH LIFT (MUST BE APPLIED BEFORE CONTRACTOR LEAVES FOR THE DAY).
30	PERMANENT MARKINGS TO BE IN PLACE WITHIN 72 HOURS OF FINAL MAINLINE PAVING.
31	ITEM INCLUDES CONSTRUCTION OF SAFTY EDGE, REFER TO SPECIAL PROVISIONS.
32	CONSTRUCTION SURVEYING. CONTRACTOR RESPONSIBLE FOR ALL CONSTRUCTION STAKING REQUIRED FOR PROJECT. CONSTRUCTION CENTERLINE ALIGNMENT FOR CSAH 20 IS ONE ELEMENT, A STRAIGHT LINE FROM- PT # 1 STA. 10+00 N = 182884.8600 , E = 489853.3250 - TO - PT# 2 STA. 61+52 N = 182768.0439 , E = 495003.9905

INDEX OF TABULATION CHARTS					
TAB.	SHEET NO.	DESCRIPTION	TAB.	SHEET NO.	DESCRIPTION
A	3	REMOVE CURB AND GUTTER	L	4	TYPE SP 12.5 WEAR COURSE MIX (SPWEB440E)
B	3	REMOVE BITUMINOUS PAVEMENT	M	4	TYPE SP 12.5 WEAR COURSE MX (SPWEB440B)
C	3	SAW BITUMINOUS PAVEMENT FULL DEPTH	N	4	RANDOM RIPRAP CLASS II
D	3	TOPSOIL BORROW (LV)	O	4	BITUMINOUS CURB
E	3	MOTOR GRADER	P	4	INSTALL MAIL BOX SUPPORT
F	3	AGGREGATE BASE CLASS 5	Q	4	FURNISH AND INSTALL SIGN PANEL TYPE C
G	3	AGGREGATE SHOULDERING CLASS 5	R	4	BITUMINOUS LINED FLUME
H	3	MILL BITUMINOUS SURFACE (2") JOINTS	S	4	SILT FENCE MACHINED SLICED
I	3	BITUMINOUS PAVEMENT RECLAMATION	T	4	CULVERT END PROTECTION
J	3	HAUL BITUMINOUS PAVEMENT RECLAMATION (LV)	U	4	EROSION CONTROL BLANKET CATOGORY 3
K	3	BITUMINOUS MATERIAL FOR TACK COAT	V	4	RAPID STABILIZATION METHOD 3
			W	4	REMOVABLE PREFORMED PLASTIC MARKING

NO	DATE	BY	CKD	APPR	REVISION
NAME: P:\12-01-09\CSAH_20_(CSAH78-CSAH18)\PLAN\2_SED.DGN					
8/31/2012 8:05:20 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 CADENHEAD

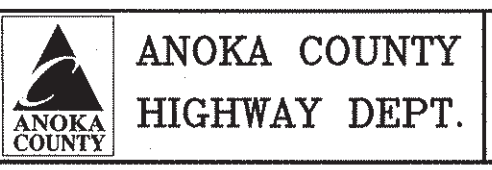
SIGNATURE: *Charles Cadenhead*

DATE: 7/2/12 LICENSE NO. 40416

DRAWN BY: JF DATE 1/18/2012

DESIGN BY: JF DATE 1/18/2012

CHECKED BY: JD DATE 4/1/2012



STATE PROJECT NO. _____

STATE AID PROJECT NO. _____

CITY PROJECT NO. _____

COUNTY PROJECT NO. CP 12-12-20

A REMOVE CURB AND GUTTER	
LOCATION	LIN FT
CHURCH ENT	30.0
TOTAL SQ YDS	30.0

B REMOVE BITUMINOUS PAVEMENT	
LOCATION	SQ YDS
#1487	30.61
#1341	25.04
#1374	28.84
#1326	48.50
#1177	59.63
#971	44.07
CONST FREE CHR.	69.21
REFUGE CHR.	27.47
W CEMETARY	22.67
MID CEMETARY	11.09
E REFUGE CHR.	56.11
E CEMETARY	36.21
TOTAL SQ YDS	459.5

C SAWING BITUMINOUS PAVEMENT FULL DEPTH	
LOCATION	LIN FT
MAINLINE STA. 19+00	46.00
MAINLINE STA 49+60	41.00
MAINLINE STA 49+75	44.00
#1487	17.50
#1326	17.00
#971	17.50
CONST FREE CHR.	40.00
REFUGE CHR.	15.00
W CEMETARY	13.00
MID CEMETARY	9.00
E REFUGE CHR.	34.00
E CEMETARY	18.00
TOTAL LIN FT	312.00

D TOPSOIL BORROW	
LOCATION	TONS
BIT CURB 18+68 - 20+00	19
FLUME 41+90	3.45
FLUME 48+25	3.45
FLUME 49+00	3.45
FLUME 50+70	3.45
BIT CURB 58+81 - 60+84	29.23
TOTAL TONS	62.03

E MOTOR GRADER	
LOCATION	HRS
19+00 - 20+00	4
60+52 - 61+52	4
TOTAL HOURS	8

F AGGREGATE BASE CLASS 5							
MAINLINE	STATION	STATION	LENGTH	WIDTH	2" DEPTH	CU YDS	TONS
LEB	19+00	20+00	100.0	10.0	0.17	6.3	11.33
LEB	20+80	26+50	570.0	10.0	0.17	35.9	64.60
LEB	32+25	36+25	400.0	10.0	0.17	25.2	45.33
LEB	45+25	48+25	300.0	10.0	0.17	18.9	34.00
LEB	54+00	57+75	375.0	10.0	0.17	23.6	42.50
LWB	19+00	20+00	100.0	10.0	0.17	6.3	11.33
LWB	25+50	29+00	350.0	10.0	0.17	22.0	39.67
LWB	35+15	39+40	425.0	10.0	0.17	26.8	48.17
LWB	45+10	49+50	440.0	10.0	0.17	27.7	49.87
LWB	57+00	61+52	452.0	10.0	0.17	28.5	51.23
TOTAL TONS							398.00

G AGGREGATE SHLDR CL-5 (INC ALL DR WAYS.)							
MAINLINE	STATION	STATION	LENGTH	WIDTH	3" DEPTH	CU YDS	
LEB	10+00	61+52	5152.0	2.0	0.25	95.4	
LWB	10+00	61+52	5152.0	2.0	0.25	95.4	
SUB TOTAL CU YDS						190.8	
SUBTRACT ST.				SHLDR			
CRANE ST S.			100.0	2.0	0.25	1.9	
CRANE ST N.			100.0	2.0	0.25	1.9	
YELLOW PINE S.			100.0	2.0	0.25	1.9	
WINTERGREEN N.			100.0	2.0	0.25	1.9	
VALE ST S.			100.0	2.0	0.25	1.9	
SYCAMORE S.			100.0	2.0	0.25	1.9	
LWB 19+00 - 20+00	BIT CURB		100.0	2.0	0.25	1.9	
LWB 41+90 - 44+60	CONC CURB		270.0	2.0	0.25	5.0	
LEB 48+25 - 49+60	CONC CURB		135.0	2.0	0.25	2.5	
LWB 49+75 - 51+00	CONC CURB		125.0	2.0	0.25	2.3	
LWB 58+90 - 61+00	BIT CURB		210.0	2.0	0.25	3.9	
SUBTRACT ST OPEN						26.7	
SHLDR CU YDS						190.8	
SUBTRACT ST OPENINGS						26.7	
CU YDS						164.1	
GRVL FACTOR						1.8	
TONS						295.5	
GRAVEL FOR ALL ENT.							
#1487						7.0	
#1341						7.0	
#1374						7.0	
#1326						7.0	
#1177						7.0	
#1055						7.0	
#971						7.0	
CONST FREE CHR.						7.0	
REFUGE CHR.						7.0	
W CEMETARY						7.0	
MID CEMETARY						7.0	
E REFUGE CHR.						7.0	
E CEMETARY						7.0	
TOTAL TONS							386.00

H MILL BITUMINOUS SURFACE 2" (JOINTS)					
LOCATION	STATION	LENGTH	WIDTH	SQ YDS	
MAINLINE	10+00	136.00	4.0	60.4	
MAINLINE	61+52	47.00	4.0	20.9	
BIT STREETS					
CRANE ST S.		62.00	4.0	27.6	
CRANE ST N.		63.00	4.0	28.0	
YELLOW PINE S.		72.00	4.0	32.0	
WINTERGREEN N.		64.00	4.0	28.4	
VALE ST S.		75.00	4.0	33.3	
SYCAMORE ST S.		70.00	4.0	31.1	
TOTAL SQ YDS					262.00

I BITUMINOUS PAVEMENT RECLAMATION				
LOCATION	STATION	STATION		MICRO
MAINLINE	19+00	48+25		14947.3
MAINLINE	48+25	51+00		1025.0
MAINLINE	51+00	61+52		5471.0
TOTAL SQ YDS				21443.00

J HAUL BITUMINOUS PAVEMENT RECLAMATION (LV)					
LOCATION	SQ FT	DEPTH	CU FT	CU YDS	
41+90 - 44+60	12420.00	0.33	4098.6	163.94	
48+25 - 51+00	9224.91	0.33	3044.2	121.77	
TOTAL CU YDS					286.00

K BITUMINOUS MATERIAL FOR TACK					
LOCATION		SQ YDS	GAL/SQYD	GAL	
BASE AREA (MICRO)					
STA 10+00 - 19+00		5055.66	0.05	252.8	
STA 19+00 - 48+25		12016.70	0.05	600.8	
STA 48+25 - 51+00		1025.00	0.05	51.3	
STA 51+00 - 61+52		4736.37	0.05	236.8	
NEW RT/BYPASS		1699	0.05	85.0	
BIT ST APP					
CRANE ST S.		110.33	0.05	5.5	
CRANE ST N.		106.46	0.05	5.3	
YELLOW PINE S.		109.81	0.05	5.5	
WINTERGREEN N.		115.3	0.05	5.8	
VALE ST S.		116.51	0.05	5.8	
SYCAMORE S.		111.71	0.05	5.6	
TOTAL GAL					1260.00

NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\12-01-00\CSAH_28_(CSAH78-CSAH18)\PLAN\3.CONSTRUCTION TABS.DGN 8/31/2012 8:28:07 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 CADENHEAD

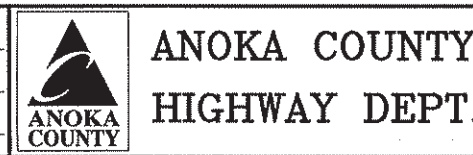
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DATE: 3/2/12 LICENSE NO. 40416

DRAWN BY: JF DATE: 1/18/2012

DESIGN BY: JF DATE: 1/18/2012

CHECKED BY: JO DATE: 4/1/2012



STATE PROJECT NO. _____

STATE AID PROJECT NO. _____

CITY PROJECT NO. _____

COUNTY PROJECT NO. CP 12-12-20

CONSTRUCTION TABS

Sheet 3 of 28 Sheets

L TYPE SP 12.5 WEARING COURSE MIX (SPWEB440 E)	
MAINLINE (TOP SURFACE) MICRO	
STA 10+00 - 19+00	SQ YDS
STA 19+00 - 48+25	5055.7
STA 48+25 - 51+00	14381.9
STA 51+00 - 61+52	1025.0
NEW RTL/BYPASS	5331.0
	780.0
	TOP SQ YDS
	26573.6
MAINLINE (BOTTOM SURFACE) MICRO	
STA 19+00 - 48+25	SQ YDS
STA 48+25 - 51+00	12016.0
STA 51+00 - 61+52	1025.0
NEW RTL/BYPASS	4736.4
	1699.0
	BOTTOM SQ YDS
	19476.4
	TOTAL TONS
	5296.00

O BITUMINOUS CURB	
LOCATION	LIN FT
LWB STA 18+68 - 20+00	132
LWB STA 58+81 - 60+84	203
TOTAL LIN FT	335

T CULVERT END PROTECTION	
LOCATION	QTY
LEB NEW RTL FOR YELLOW PINE ST	2
LEB BYPASS EXT. TO VALE ST	1
TOTAL	3

P INSTALL MAIL BOX SUPPORT			
ADDRESS	BOX LOC	DR LOC	QTY
#1487	LT	LT	1
#1341	LT	LT	1
#1374	RT	RT	1
#1326	RT	RT	1
#1177	LT	LT	1
#1055	LT	LT	1
#971	LT	LT	1
	TOTAL		7

U EROSION CONTROL BLANKET CAT 3				
LOCATION	WIDTH	LENGTHX2	SQ FT	SQ YD
FLUME AREAS				
LEB STA 41+90	8	40	320.0	35.6
LWB STA 48+25	8	40	320.0	35.6
LWB STA 49+00	8	40	320.0	35.6
LWB STA 56+00	8	40	320.0	35.6
		TOTAL SQ YDS		142.0

M TYPE SP 12.5 WEARING COURSE MIX (SPWEB440 B)	
STREETS	SQ.YDS.
CRANE ST S.	110.33
CRANE ST N.	106.46
YELLOW PINE S.	109.81
WINTERGREEN N.	115.3
VALE ST S.	116.51
SYCAMORE S.	111.71
BIT ENTRANCES	
#1487	30.61
#1341	25.04
#1374	28.84
#1326	28.26
#1177	59.63
#971	44.07
CONST FREE CHR.	69.21
REFUGE CHR.	27.47
W CEMETARY	22.67
MID CEMETARY	11.09
E REFUGE CHR.	56.11
E CEMETARY	36.21
(BASED ON 3" DEPTH VAR. ST APP.)	TOTAL SQ YDS
	1109.3
	TOTAL TONS
	191.00

Q FURNISH AND INSTALL SIGN PANEL TYPE C			
LOCATION	SIGN	QTY	SQ FT
LEB STA 28+25	30X30 RTL	1	6.25

V RAPID STABILIZATION METHOD 3			
LOCATION	LENGTH	WIDTH	SQ YD
BIT CURB 18+68 - 20+00	132	8	117.3
BIT CURB 58+81 - 60+84	203	8	180.4
	TOTAL SQ YDS		298.0

R BITUMINOUS LINED FLUME				
LOCATION	WIDTH	LENGTH	SQ FT	SQ YD
LEB STA 41+90	8	20	160.0	17.8
LWB STA 48+25	8	20	160.0	17.8
LWB STA 49+00	8	20	160.0	17.8
LWB STA 56+00	8	20	160.0	17.8
		TOTAL SQ YDS		71.0

W REMOVABLE PREFORMED PLASTIC MARKINGS				
BEG. STA.	END STA.	LENGTH	DIV BY 50'	X 2'
BASE 10+00	61+52	5152	103.0	206.1
WEAR 10+00	61+52	5152	103.0	206.1
		TOTAL LIN FT		412.0

N RANDOM RIPRAP CLASS II	
FLUME LOCATION	TONS EACH
LEB STA 41+90	4
LWB STA 48+25	4
LWB STA 49+00	4
LWB STA 50+70	4
LWB STA 56+00	4
	TOTAL TONS
	20

S SILT FENCE TYPE MACHINE SLICED			
LOCATION AROUND DIST. FLUMES			LENGTH
LEB STA 41+90			48.0
LWB STA 48+25			48.0
LWB STA 49+00			48.0
LWB STA 56+00			48.0
		TOTAL LIN FT	192.0

NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\12-81-88\CSAH_28...(CSAH78-CSAH18)\PLAN\3.CONSTRUCTION TABS.DGN 03/01/2012 8:28:24 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 BADENHEAD

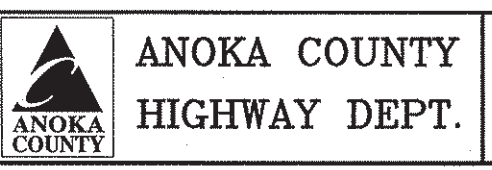
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DATE: 7/2/12 LICENSE NO. 40416

DRAWN BY: JF DATE: 1/18/2012

DESIGN BY: JF DATE: 1/18/2012

CHECKED BY: JO DATE: 4/1/2012

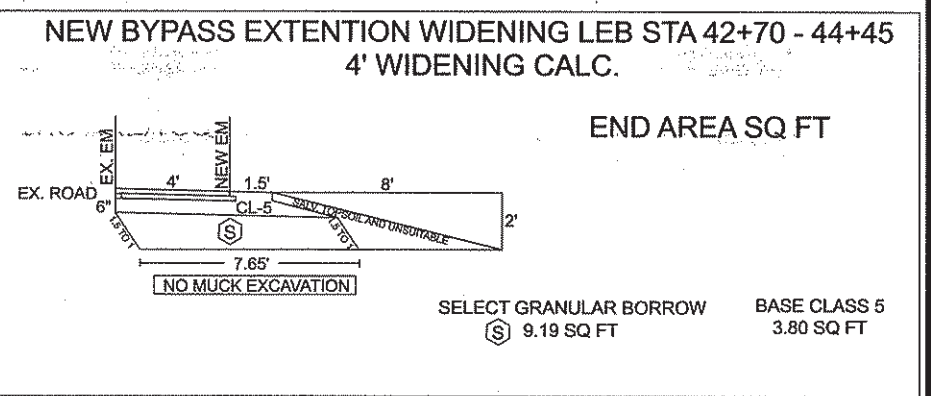
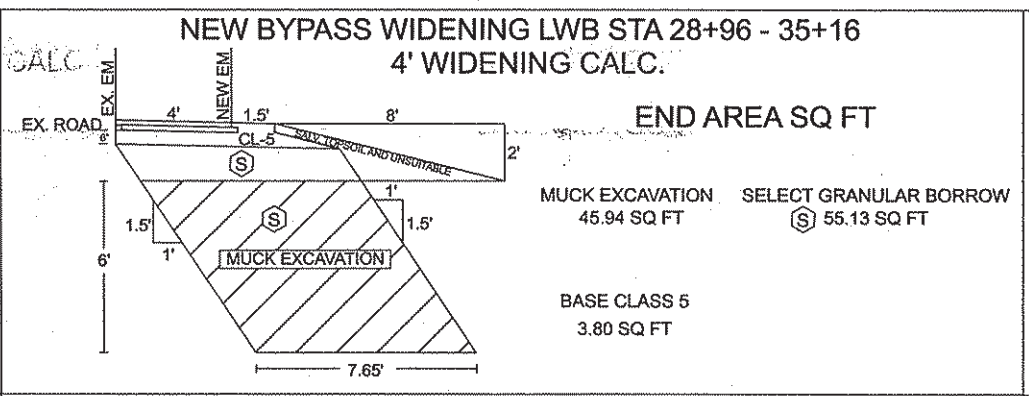
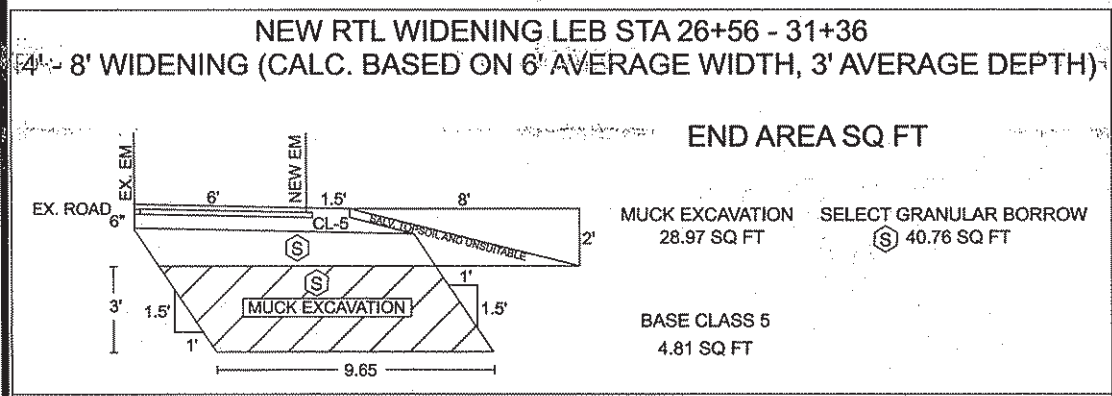


STATE PROJECT NO. _____

STATE AID PROJECT NO. _____

CITY PROJECT NO. _____

COUNTY PROJECT NO. CP 12-12-20



CU YDS PER 100'

MUCK EXCAVATION
 28.97 SQ FT X 100' = 2897 CU FT / 27 = 107.29 CU YDS
 SELECT GRANULAR BORROW
 40.76 SQ FT X 100' = 4076 CU FT / 27 = 150.96 CU YDS

BASE CLASS 5
 4.81 SQ FT X 100' = 481 CU FT / 27 = 17.81 CU YDS

CU YDS PER 100'

MUCK EXCAVATION
 45.94 SQ FT X 100' = 4594 CU FT / 27 = 170.14 CU YDS
 SELECT GRANULAR BORROW
 55.13 SQ FT X 100' = 5513 CU FT / 27 = 204.18 CU YDS

BASE CLASS 5
 3.80 SQ FT X 100' = 380 CU FT / 27 = 14.07 CU YDS

CU YDS PER 100'

SELECT GRANULAR BORROW
 9.19 SQ FT X 100' = 919 CU FT / 27 = 34.03 CU YDS

BASE CLASS 5
 3.80 SQ FT X 100' = 380 CU FT / 27 = 14.07 CU YDS

SUMMARY
480' RIGHT TURN LANE

MUCK EXCAVATION
 107.29 CU YDS (PER 100') X 4.8 RTL = 514.99 CU YDS (CV)

SELECT GRANULAR BORROW
 150.96 CU YDS (PER 100') X 4.8 RTL = 724.60 CU YDS X 1.8 = 1304.29 TONS (CV)

BASE CLASS 5
 17.81 CU YDS (PER 100') X 4.8 RTL = 85.48 CU YDS X 1.8 = 153.87 TONS (CV)

SUMMARY
620' BYPASS

MUCK EXCAVATION
 170.14 CU YDS (PER 100') X 6.2 BYPASS = 1054.86 CU YDS (CV)

SELECT GRANULAR BORROW
 204.18 CU YDS (PER 100') X 6.2 BYPASS = 1265.91 CU YDS X 1.8 = 2278.64 TONS (CV)

BASE CLASS 5
 14.07 CU YDS (PER 100') X 6.2 BYPASS = 87.23 CU YDS X 1.8 = 157.02 TONS (CV)

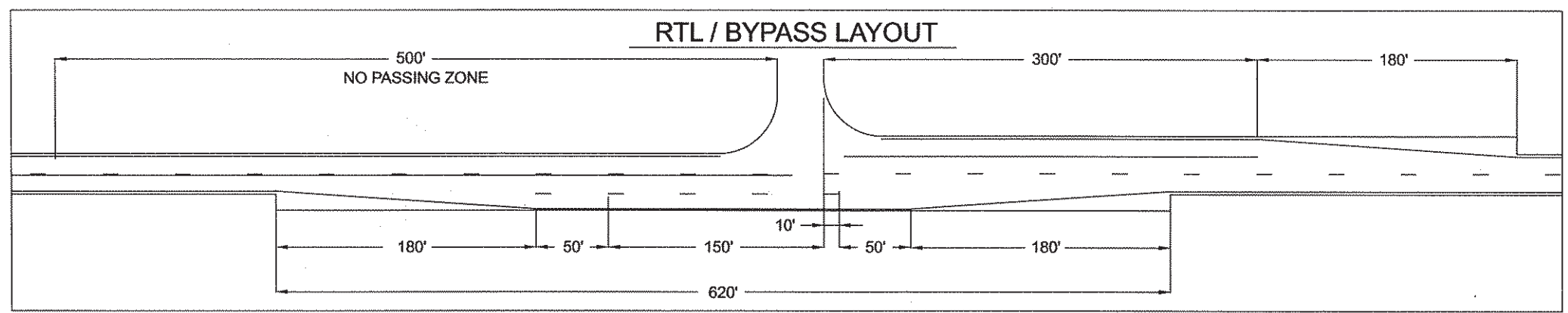
SUMMARY
175' BYPASS EXTENTION

SELECT GRANULAR BORROW
 34.03 CU YDS (PER 100') X 1.75 BYPASS = 59.55 CU YDS X 1.8 = 107.19 TONS (CV)

BASE CLASS 5
 14.07 CU YDS (PER 100') X 1.75 BYPASS = 24.62 CU YDS X 1.8 = 44.32 TONS (CV)

NEW RTL / BYPASS LOC BY THE EACH TOTALS

STREET	DIR.	RTL / BYPASS	ADD. BIT. WIDTH NEEDED	LENGTH	MUCK EXCAVATION 2105.505 (CU YD)	SELECT GRANULAR BORROW 2105.522 (TON)	AGG BASE CLASS 5 2211.501 (TON)	SILT FENCE MACHINE SLICED 2573.502 (LIN FT)	RAPID STABILIZATIO N METHOD 3 2575.601 (SQ YD)
YELLOW PINE	EB	RTL	4' - 8'	480.0	515.0	1304.3	153.9	480.0	960.00
YELLOW PINE	WB	BYPASS	4'	620.0	1054.9	2278.6	157.0	620.0	1240.00
WINTERGREEN	EB	BYPASS	4'	175.0		107.2	44.3	175.0	350.00
EST. TOTALS					1569.90	3690.09	355.22	1275.00	2550.00



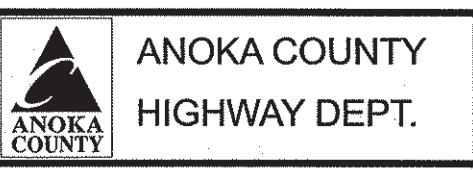
NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\12-01-00\CSAH_20 (CSAH78-CSAH18)\Plan4_CALCULATIONS RTL.dgn 03/01/2012 8:23:07 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 M. CADENHEAD JR.
 SIGNATURE: *[Signature]*
 DATE: 3/1/12 LICENSE NO. 40416

DRAWN BY: JF DATE: 1/18/2012
 DESIGN BY: JF DATE: 1/18/2012
 CHECKED BY: JO DATE: 4/1/2012



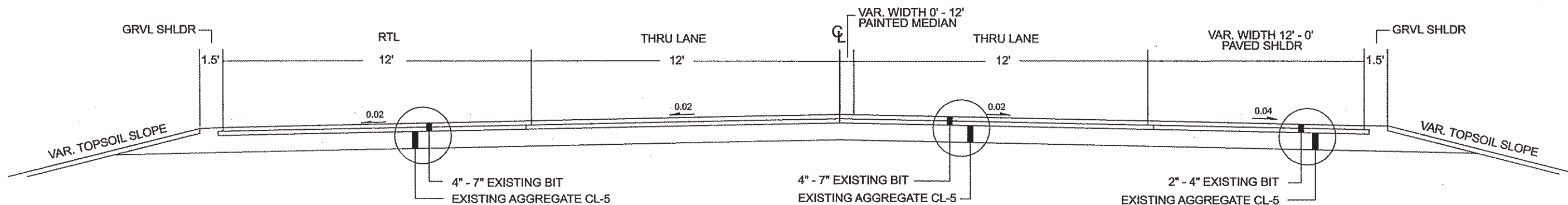
STATE PROJECT NO. _____
 STATE AID PROJECT NO. _____
 CITY PROJECT NO. _____
 COUNTY PROJECT NO. CP 12-12-20

CALCULATIONS FOR RTL / BYPASS CONSTRUCTION

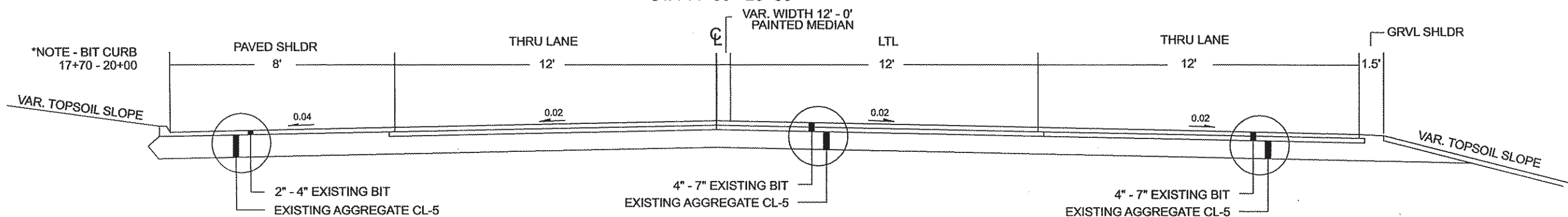
Sheet 5 of 28 Sheets

EXISTING TYPICALS

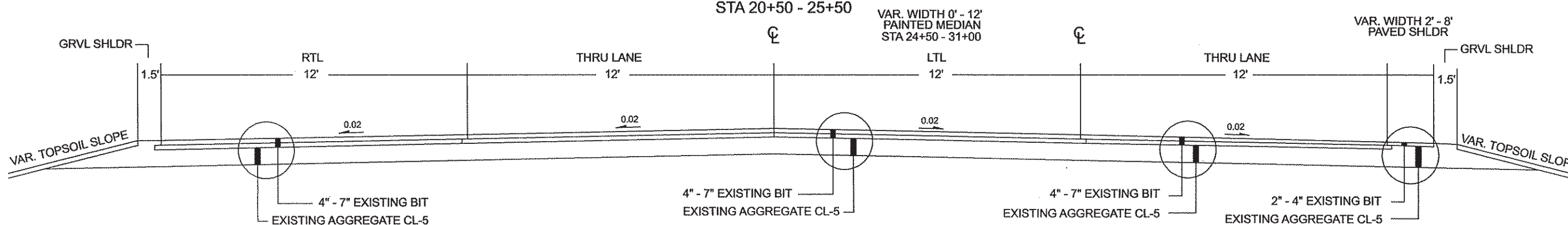
STA 10+00 - 14+80



STA 14+80 - 20+50



STA 20+50 - 25+50



GENERAL NOTES:
 - ALL CROSS SLOPES ARE APPROXIMATE
 - UNLESS OTHERWISE SPECIFIED, THE CLASS 5 CROSS SLOPES SHALL BE THE SAME AS THE FINISHED SURFACE OF THE MAINLINE.

NO	DATE	BY	CKD	APPR	REVISION

NAME: PA12-01-00CSAH_20_(CSAH78-CSAH18)Plan5_TYPICALS.dgn 03/01/2012 8:24:01 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 CADENHEAD
 SIGNATURE: *[Signature]*
 DATE: 2/2/12 LICENSE NO. 40416

DRAWN BY JF DATE 1/18/2012
 DESIGN BY JF DATE 1/18/2012
 CHECKED BY JO DATE 4/1/2012



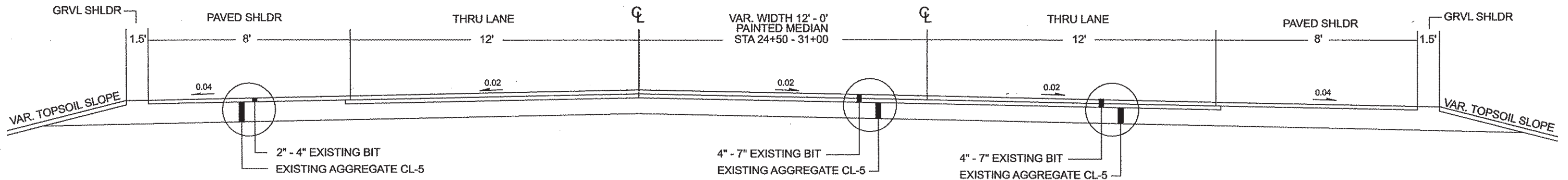
**ANOKA COUNTY
 HIGHWAY DEPT.**

STATE PROJECT NO. _____
 STATE AID PROJECT NO. _____
 CITY PROJECT NO. _____
 COUNTY PROJECT NO. CP 12-12-20

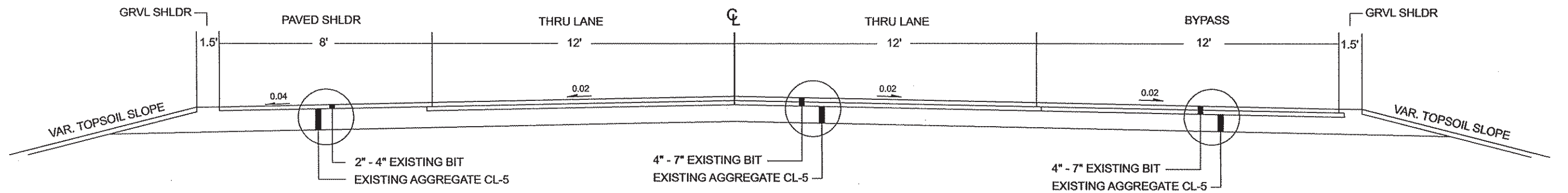
TYPICALS
 Sheet 6 of 28 Sheets

EXISTING TYPICALS

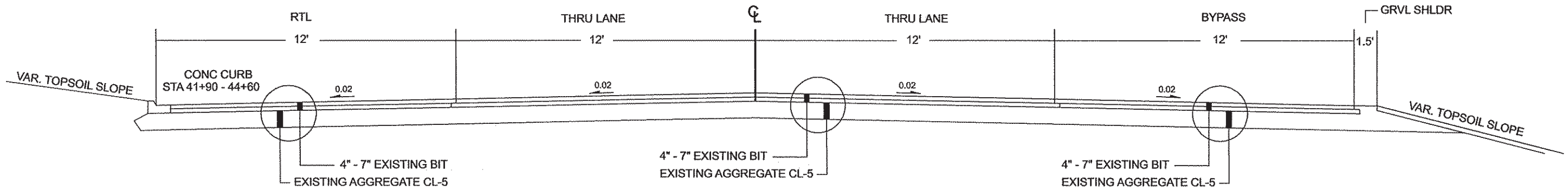
STA 25+50 - 36+25



STA 36+25 - 40+00



STA 40+00 - 42+70



GENERAL NOTES:
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NO	DATE	BY	CHKD	APPR	REVISION

NAME: P:\12-01-00\CSAH_20 (CSAH78-CSAH16)\Plan\5_TYPICALS.dgn 03/01/2012 8:24:14 AM

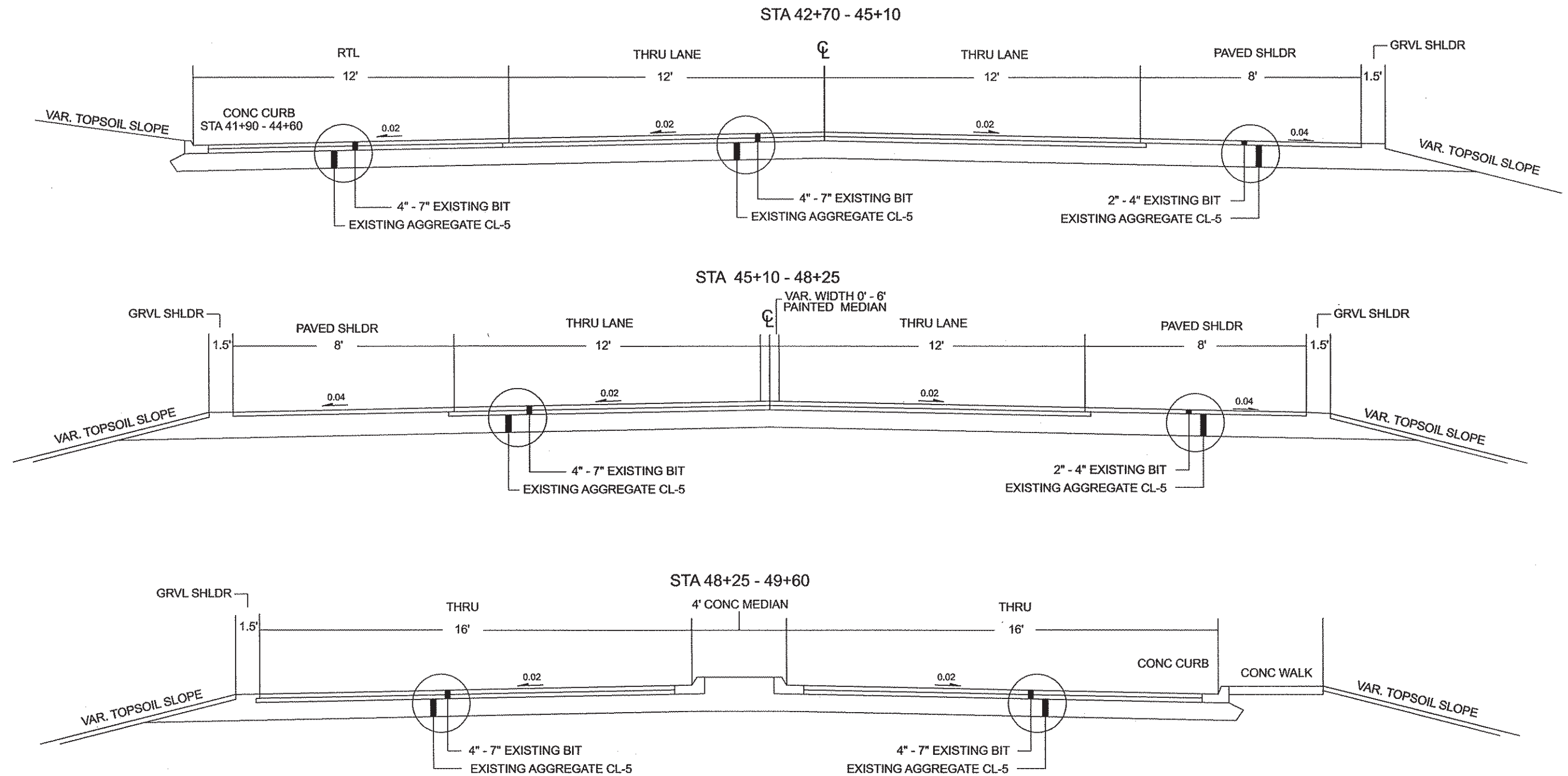
I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
 PRINT NAME: CHARLES CADENHEAD
 SIGNATURE: *[Signature]*
 DATE: 3/2/12 LICENSE NO. 40416

DRAWN BY: JF DATE: 1/18/2012
 DESIGN BY: JF DATE: 1/18/2012
 CHECKED BY: JO DATE: 4/1/2012



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 STATE AID PROJECT NO. _____
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 COUNTY PROJECT NO. CP 12-12-20

EXISTING TYPICALS



GENERAL NOTES:

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NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\12-01-00\CSAH_20_(CSAH78-CSAH18)\Plan\5_TYPICALS.dgn 03/01/2012 8:24:29 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 CADENHEAD

SIGNATURE: *[Signature]*

DATE: 1/18/12 LICENSE NO. 40316

DRAWN BY: JF DATE: 1/18/2012

DESIGN BY: JF DATE: 1/18/2012

CHECKED BY: JO DATE: 4/1/2012



**ANOKA COUNTY
HIGHWAY DEPT.**

STATE PROJECT NO. _____

STATE AID PROJECT NO. _____

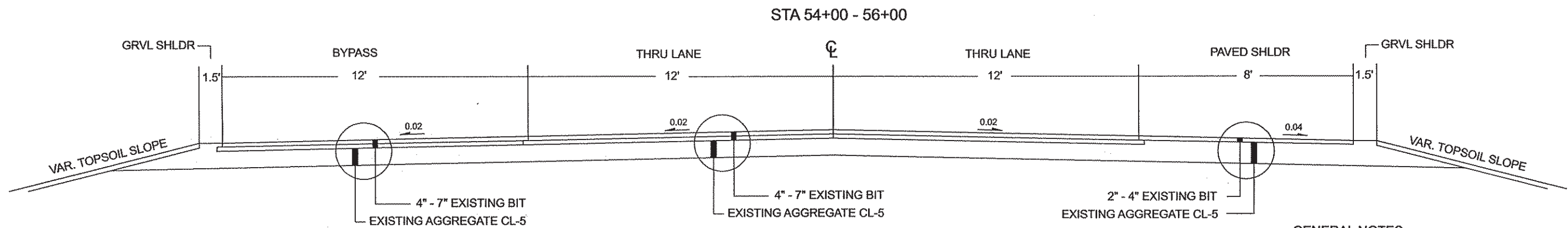
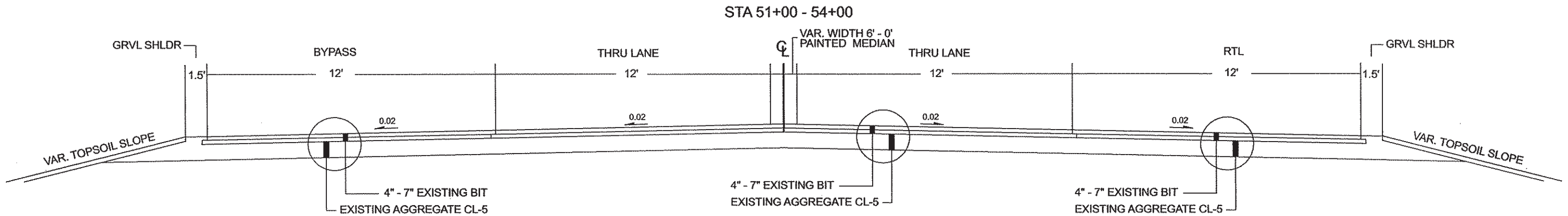
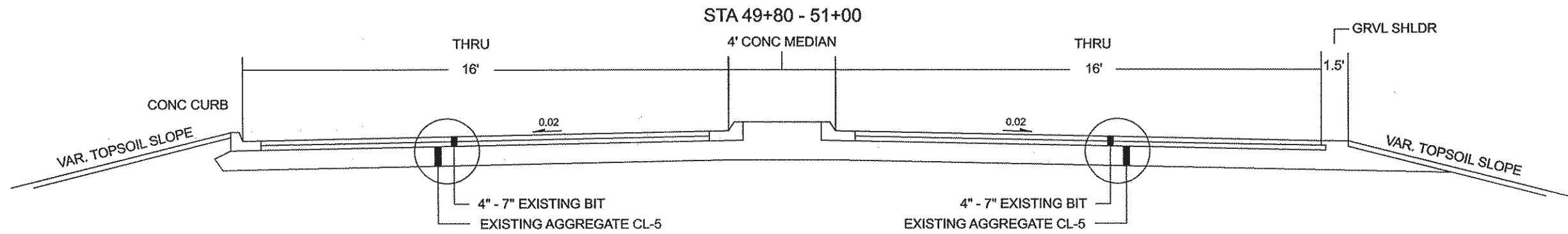
CITY PROJECT NO. _____

COUNTY PROJECT NO. CP 12-12-20

TYPICALS

Sheet 8 of 28 Sheets

EXISTING TYPICALS



GENERAL NOTES:

- ALL CROSS SLOPES ARE APPROXIMATE
- UNLESS OTHERWISE SPECIFIED, THE CLASS 5 CROSS SLOPES SHALL BE THE SAME AS THE FINISHED SURFACE OF THE MAINLINE.

NO	DATE	BY	CHKD	APPR	REVISION

NAME: P:\12-01-00\CSAH_20 (CSAH7&CSAH18)\Plan\5_TYPICALS.dgn 03/01/2012 8:24:50 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 CADERHEAD

SIGNATURE: *[Signature]*

DATE: 4/2/12 LICENSE NO. 40416

DRAWN BY: JF DATE: 1/18/2012

DESIGN BY: JF DATE: 1/18/2012

CHECKED BY: JO DATE: 4/1/2012



**ANOKA COUNTY
HIGHWAY DEPT.**

STATE PROJECT NO. _____

STATE AID PROJECT NO. _____

CITY PROJECT NO. _____

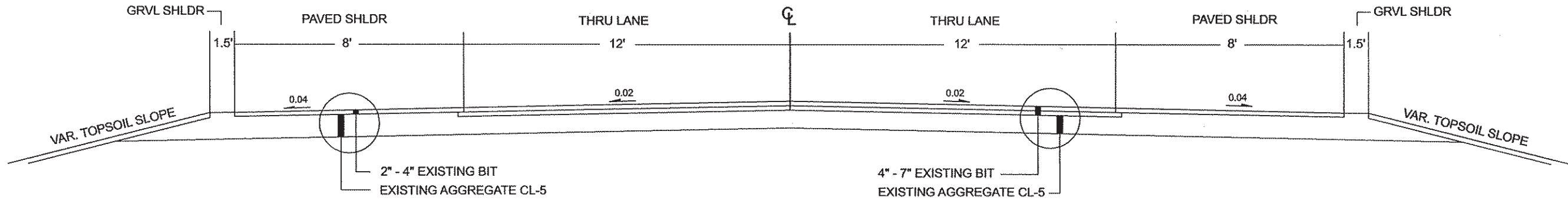
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TYPICALS

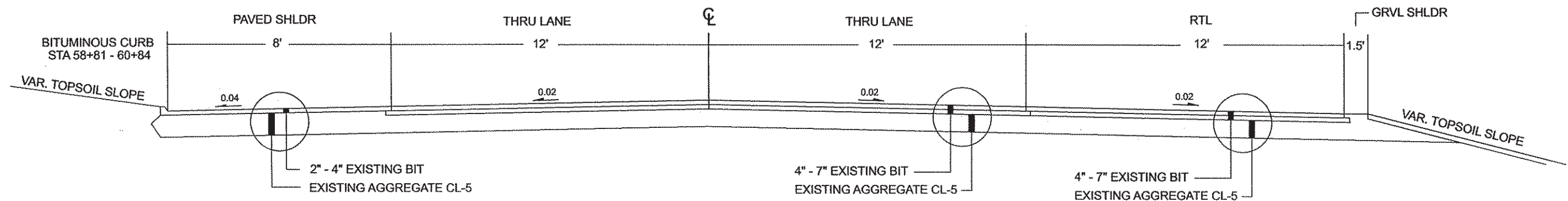
Sheet 9 of 28 Sheets

EXISTING TYPICALS

STA 56+00 - 57+75



STA 57+75 - 61+52



GENERAL NOTES:

- ALL CROSS SLOPES ARE APPROXIMATE
- UNLESS OTHERWISE SPECIFIED, THE CLASS 5 CROSS SLOPES SHALL BE THE SAME AS THE FINISHED SURFACE OF THE MAINLINE.

NO	DATE	BY	CHKD	APPR	REVISION

NAME: P:\12-01-00\CSAH_20_(CSAH78-CSAH18)\Plan5_TYPICALS.dgn 03/01/2012 8:25:04 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 CADENHEAD

SIGNATURE: *[Signature]*

DATE: 3/2/12 LICENSE NO. 40416

DRAWN BY JF DATE 1/18/2012

DESIGN BY JF DATE 1/18/2012

CHECKED BY JO DATE 4/1/2012



**ANOKA COUNTY
HIGHWAY DEPT.**

STATE PROJECT NO. _____

STATE AID PROJECT NO. _____

CITY PROJECT NO. _____

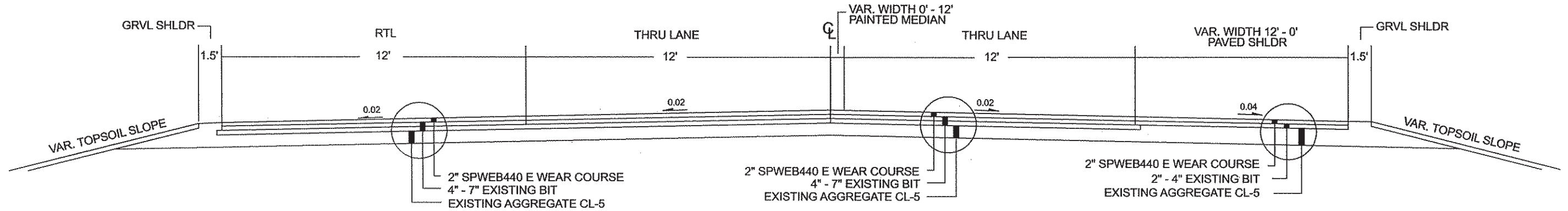
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TYPICALS

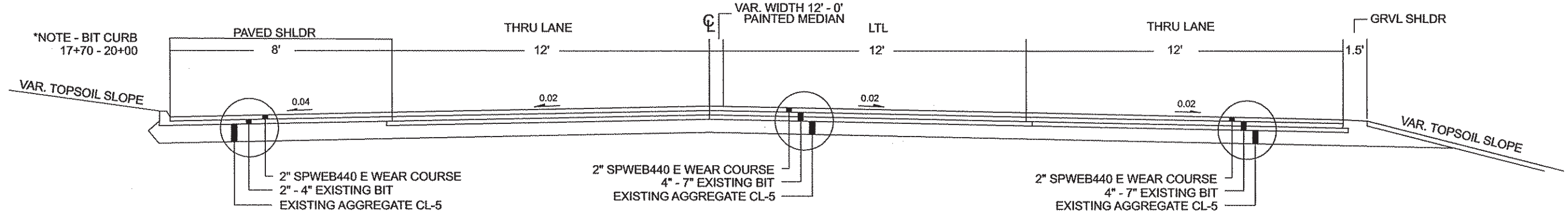
Sheet 10 of 28 Sheets

PROPOSED TYPICALS

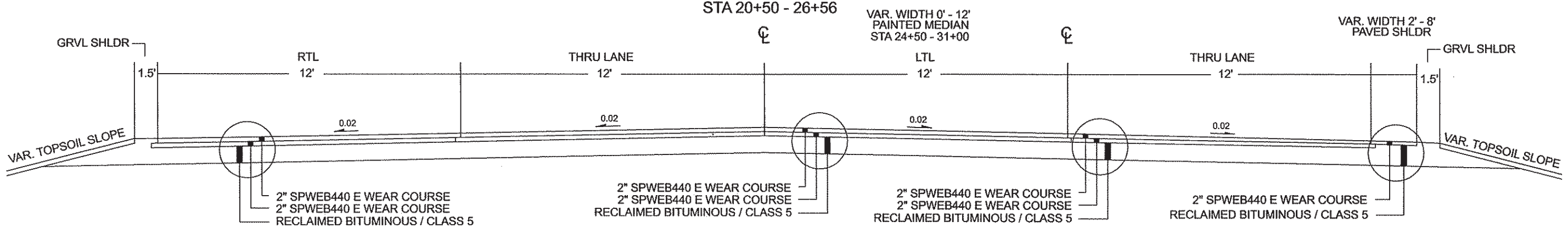
STA 10+00 - 14+80



STA 14+80 - 20+50
OVERLAY ENDS AT 19+00. RECLAIM AND OVERLAY BEGINS AT 19+00



STA 20+50 - 26+56



GENERAL NOTES:

- ALL CROSS SLOPES ARE APPROXIMATE
- UNLESS OTHERWISE SPECIFIED, THE CLASS 5 CROSS SLOPES SHALL BE THE SAME AS THE FINISHED SURFACE OF THE MAINLINE.

NO	DATE	BY	CKD	APPR	REVISION

NAME: P:12-01-00\CSAH_20_(CSAH78-CSAH18)\Plan6_TYPICALS.dgn 03/01/2012 8:25:20 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 CADENHEAD
 SIGNATURE: *[Signature]*
 DATE: 3/1/12 LICENSE NO. 40416

DRAWN BY: JF DATE: 1/18/2012
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 CHECKED BY: JO DATE: 4/1/2012



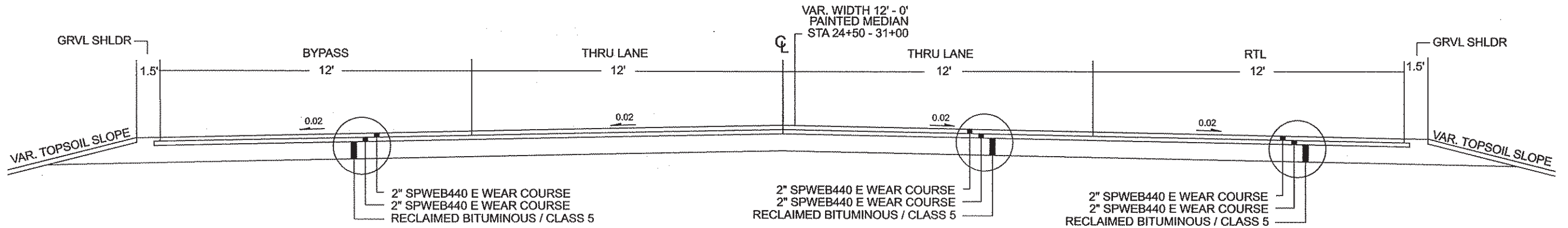
**ANOKA COUNTY
HIGHWAY DEPT.**

STATE PROJECT NO. _____
 STATE AID PROJECT NO. _____
 COUNTY PROJECT NO. CP 12-12-20

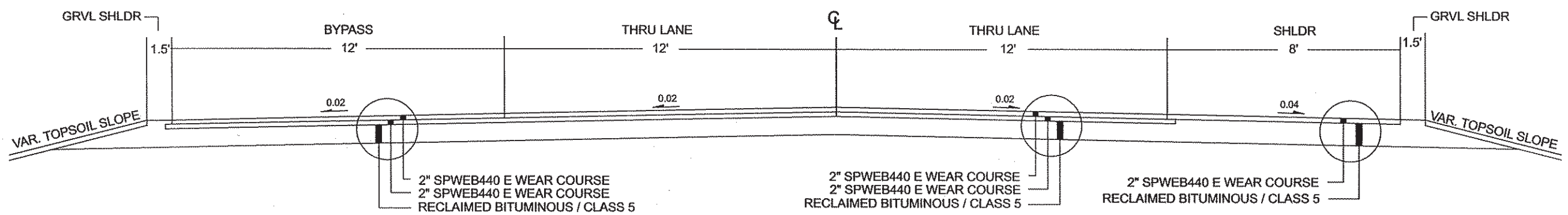
TYPICALS
 Sheet 11 of 28 Sheets

PROPOSED TYPICALS

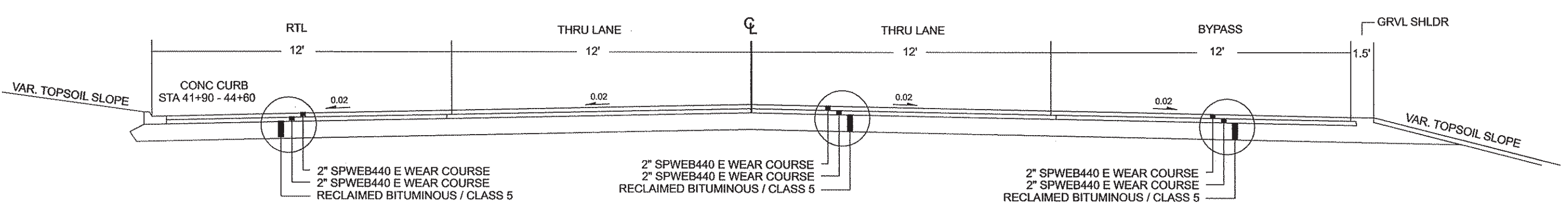
STA 26+56 - 31+00



STA 31+00 - 40+00



STA 40+00 - 42+70



GENERAL NOTES:

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- UNLESS OTHERWISE SPECIFIED, THE CLASS 5 CROSS SLOPES SHALL BE THE SAME AS THE FINISHED SURFACE OF THE MAINLINE.

NO	DATE	BY	CKD	APPR	REVISION
NAME: P:\12-01-00\CSAH_20_(CSAH78-CSAH18)\Plan\5_TYPICALS.dgn					
03/01/2012 8:25:31 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 CADENHEAD

SIGNATURE: *[Signature]*

DATE: 3/2/12 LICENSE NO. 40416

DRAWN BY: JF DATE: 1/18/2012

DESIGN BY: JF DATE: 1/18/2012

CHECKED BY: JO DATE: 4/1/2012



**ANOKA COUNTY
HIGHWAY DEPT.**

STATE PROJECT NO. _____

STATE AID PROJECT NO. _____

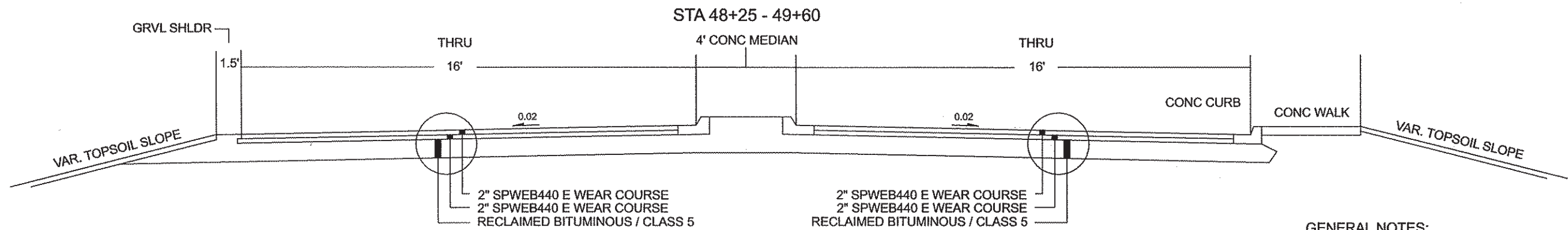
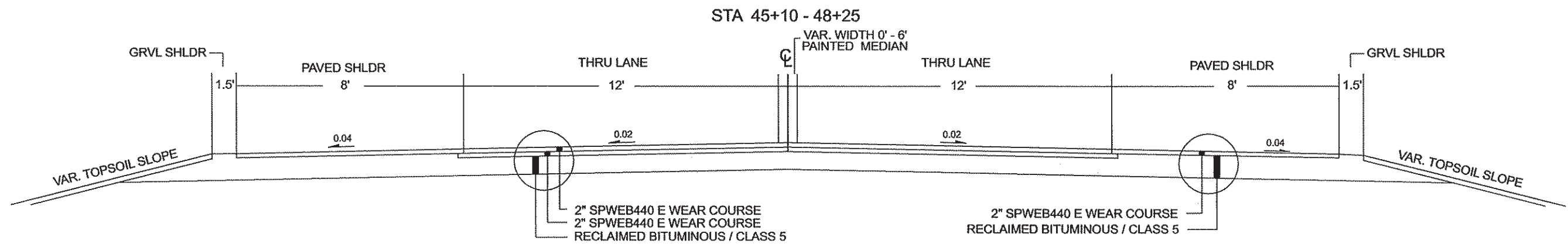
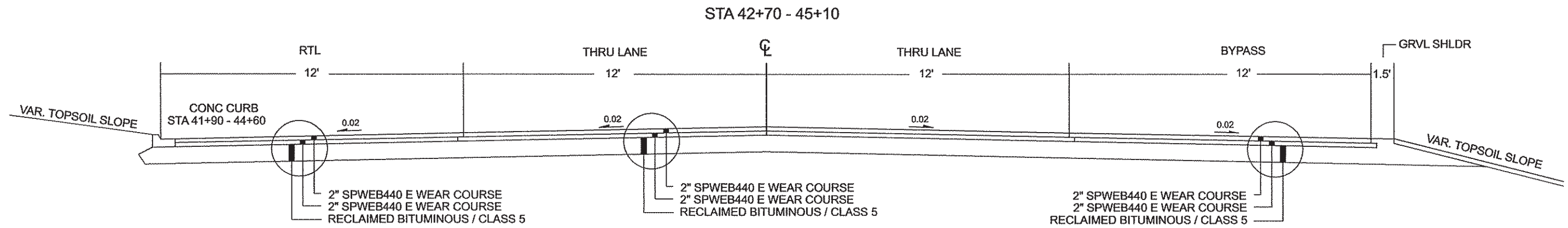
CITY PROJECT NO. _____

COUNTY PROJECT NO. CP 12-12-20

TYPICALS

Sheet 12 of 28 Sheets

PROPOSED TYPICALS



GENERAL NOTES:
 - ALL CROSS SLOPES ARE APPROXIMATE
 - UNLESS OTHERWISE SPECIFIED, THE CLASS 5 CROSS SLOPES SHALL BE THE SAME AS THE FINISHED SURFACE OF THE MAINLINE.

NO	DATE	BY	CKD	APPR	REVISION

NAME: P:112-01-001CSAH_20_(CSAH7B-CSAH18)Plan5_TYPICALS.dgn 03/01/2012 8:25:43 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 CADENHEAD

SIGNATURE: *Charles Cadenhead*

DATE: 3/2/12 LICENSE NO. 40416

DRAWN BY JF DATE 3/18/2012

DESIGN BY JF DATE 3/18/2012

CHECKED BY JO DATE 4/1/2012



ANOKA COUNTY
HIGHWAY DEPT.

STATE PROJECT NO. _____

STATE AID PROJECT NO. _____

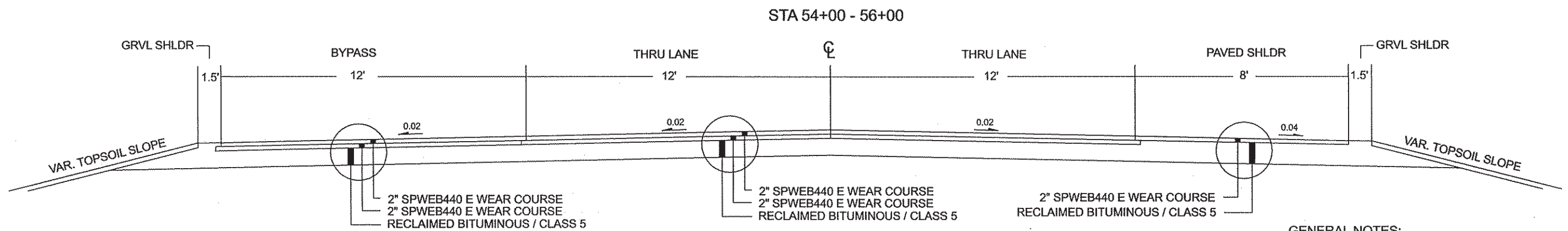
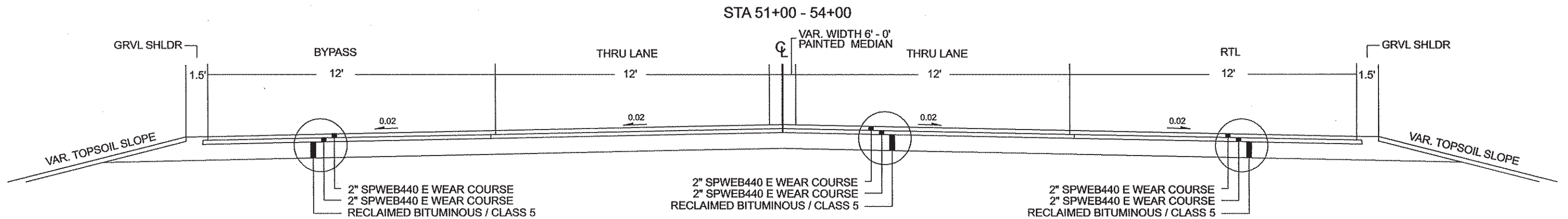
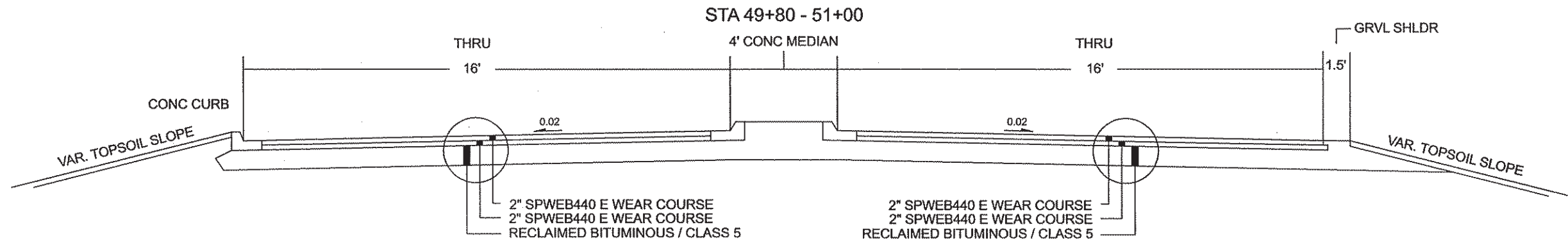
CITY PROJECT NO. _____

COUNTY PROJECT NO. CP 12-12-20

TYPICALS

Sheet 13 of 28 Sheets

PROPOSED TYPICALS



GENERAL NOTES:
 - ALL CROSS SLOPES ARE APPROXIMATE
 - UNLESS OTHERWISE SPECIFIED, THE CLASS 5 CROSS SLOPES SHALL BE THE SAME AS THE FINISHED SURFACE OF THE MAINLINE.

NO	DATE	BY	CHKD	APPR	REVISION

NAME: P:\12-01-00\CSAH_20_(CSAH78-CSAH18)\Plan5_TYPICALS.dgn 03/01/2012 8:25:58 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 CADENHEAD
 SIGNATURE: *[Signature]*
 DATE: 3/2/12 LICENSE NO. 40416

DRAWN BY: JF DATE: 1/18/2012
 DESIGN BY: JF DATE: 1/18/2012
 CHECKED BY: JO DATE: 4/1/2012

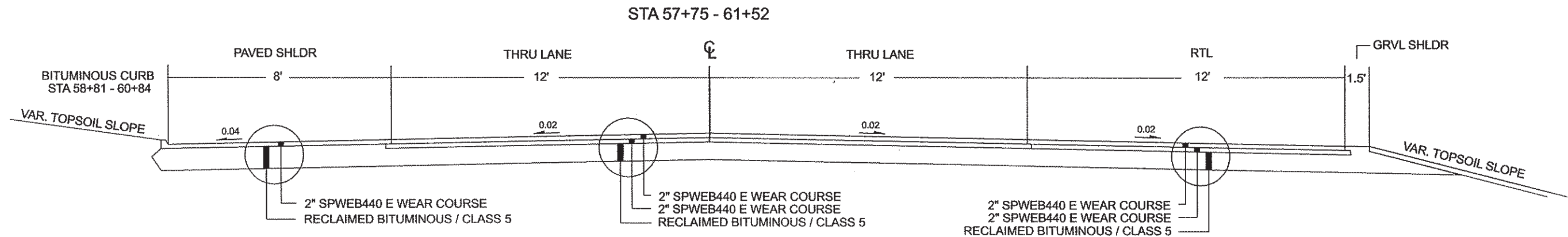
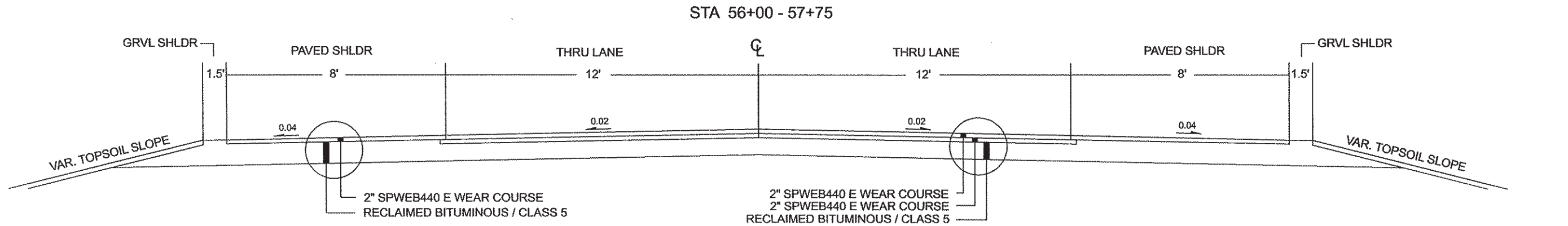


ANOKA COUNTY
 HIGHWAY DEPT.

STATE PROJECT NO. _____
 STATE AID PROJECT NO. _____
 CITY PROJECT NO. _____
 COUNTY PROJECT NO. CP 12-12-20

TYPICALS
 Sheet 14 of 28 Sheets

PROPOSED TYPICALS



GENERAL NOTES:

- ALL CROSS SLOPES ARE APPROXIMATE
- UNLESS OTHERWISE SPECIFIED, THE CLASS 5 CROSS SLOPES SHALL BE THE SAME AS THE FINISHED SURFACE OF THE MAINLINE.

NO	DATE	BY	CKD	APPR	REVISION

NAME: P:12-01-00CSAH_20 (CSAH78-CSAH18)Plan5_TYPICALS.dgn 03/01/2012 8:26:11 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 CADENHEAD
 SIGNATURE: *[Signature]*
 DATE: 3/2/12 LICENSE NO. 40416

DRAWN BY JF DATE 1/18/2012
 DESIGN BY JF DATE 1/18/2012
 CHECKED BY JO DATE 4/1/2012



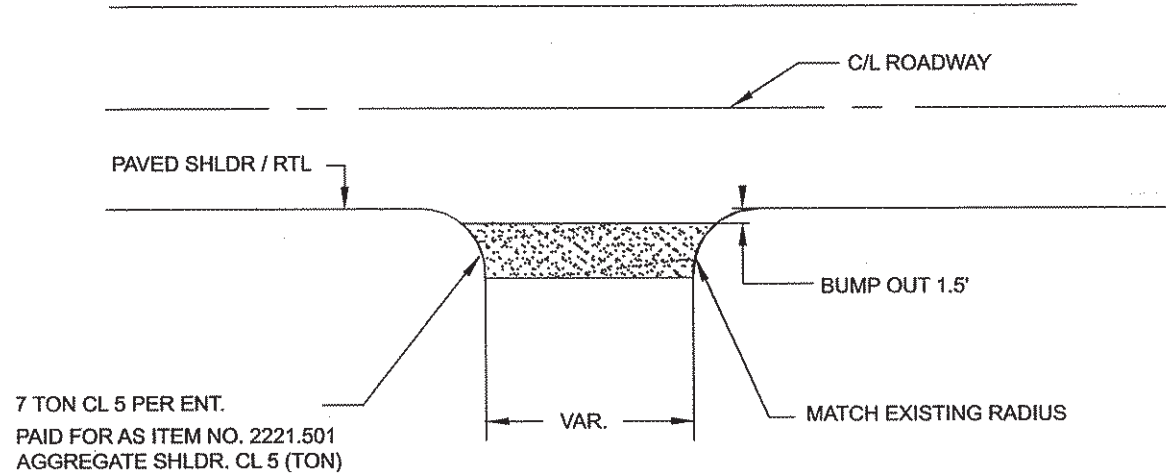
**ANOKA COUNTY
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STATE PROJECT NO. _____
 STATE AID PROJECT NO. _____
 CITY PROJECT NO. _____
 COUNTY PROJECT NO. CP 12-12-20

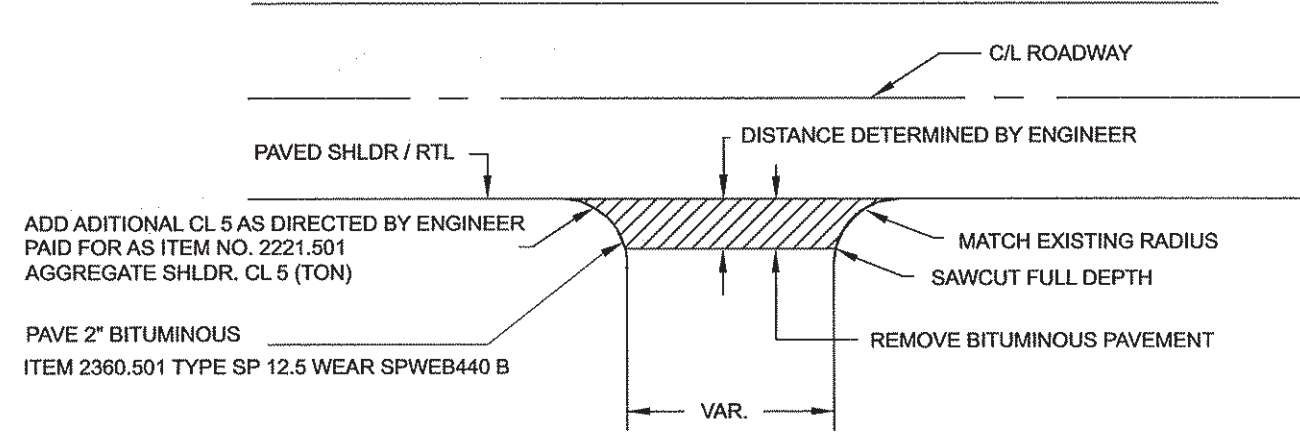
TYPICALS

Sheet 15 of 28 Sheets

GRAVEL DR. WAYS AND FEILD ENT.



PAVED DR. WAYS



PAVED STREET APPROACHES

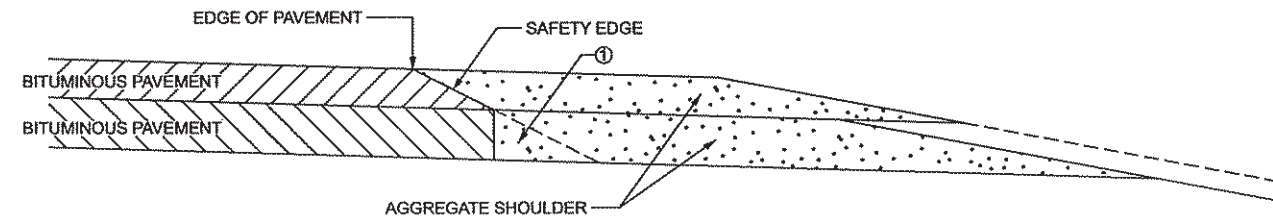
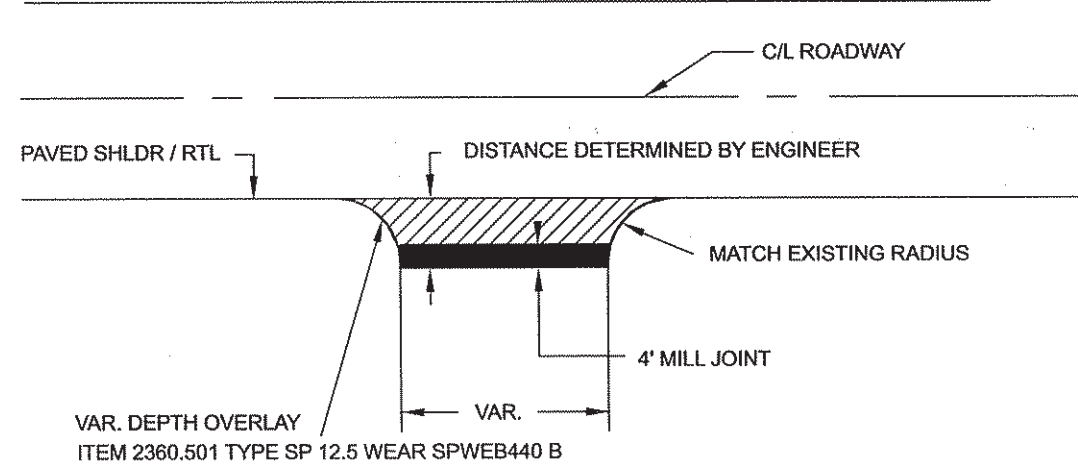


FIGURE B
BITUMINOUS PAVEMENT
SAFETY EDGE TO BE USED IN ALL NON-CURB AREAS ON SHOULDER.
① OPTIONAL DESIGN EXTENDS SAFETY EDGE DEEPER
THAN 6" AND WIDER THAN 10.5". SEE SPECIAL PROVISIONS.

NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\12-01-00\CSAH_20_(CSAH78-CSAH18)\Plan6_DETAILS.dgn 03/01/2012 8:27:00 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 CADEN (READ)

SIGNATURE: *[Signature]*

DATE: 3/2/12 LICENSE NO. 40416

DRAWN BY: JF DATE: 1/18/2012

DESIGN BY: JF DATE: 1/18/2012

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ANOKA COUNTY
HIGHWAY DEPT.

STATE PROJECT NO. _____

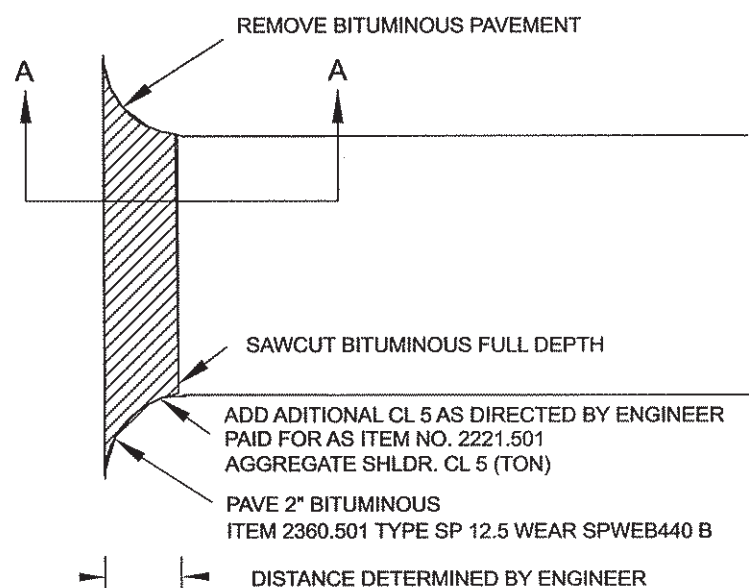
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CITY PROJECT NO. _____

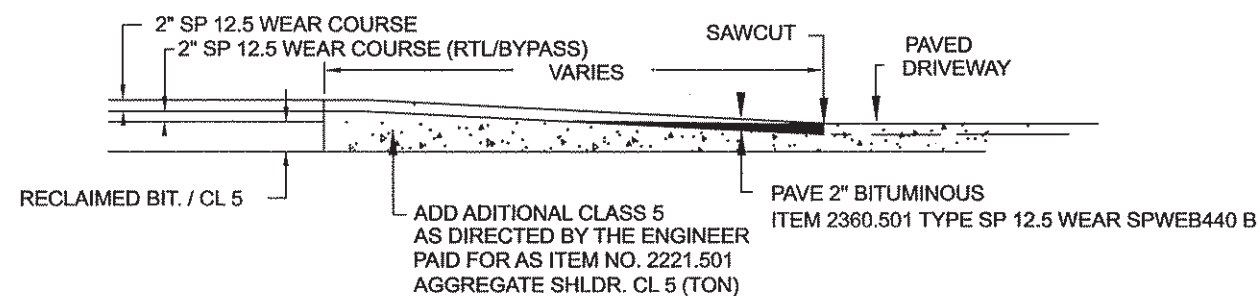
COUNTY PROJECT NO. CP 12-12-20

PAVED DRIVEWAYS

DETAILS

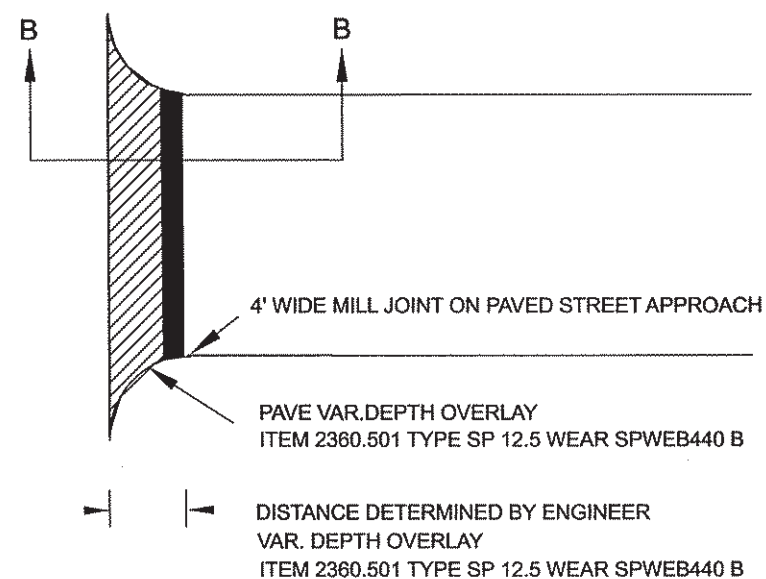


PAVED DRIVEWAY DETAILS A - A

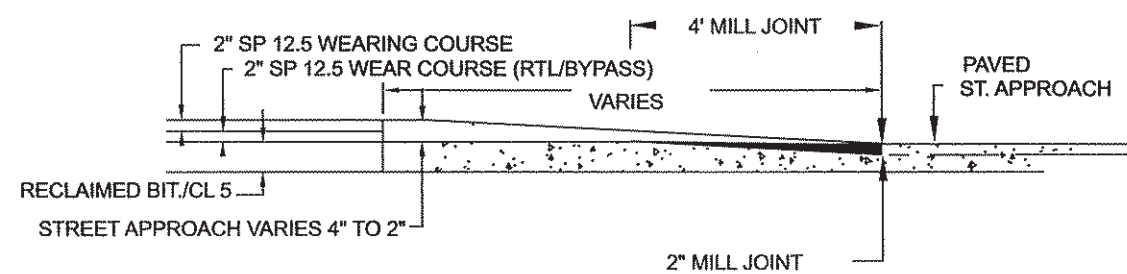


PAVED STREET APPROACH

JOINT DETAILS



PAVED STREET APPROACH JOINT DETAILS B - B



NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\12-01-00\CSAH_20 (CSAH78-CSAH118)\Plan\6 DETAILS.dgn 03/01/2012 8:27:15 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 CADENHEAD

SIGNATURE: *[Signature]*

DATE: 3/2/12 LICENSE NO. 40416

DRAWN BY: JF DATE: 1/18/2012

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CHECKED BY: JO DATE: 4/1/2012



ANOKA COUNTY
HIGHWAY DEPT.

STATE PROJECT NO. _____

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CITY PROJECT NO. _____

COUNTY PROJECT NO. CP 12-12-20

CONSTRUCTION DETAILS

Sheet 17 of 28 Sheets

BEGIN CP 12-12-20
STA 10+00

CSAH 78 HANSON BLVD

#1487

CRANE ST

MATCH LINE "A"

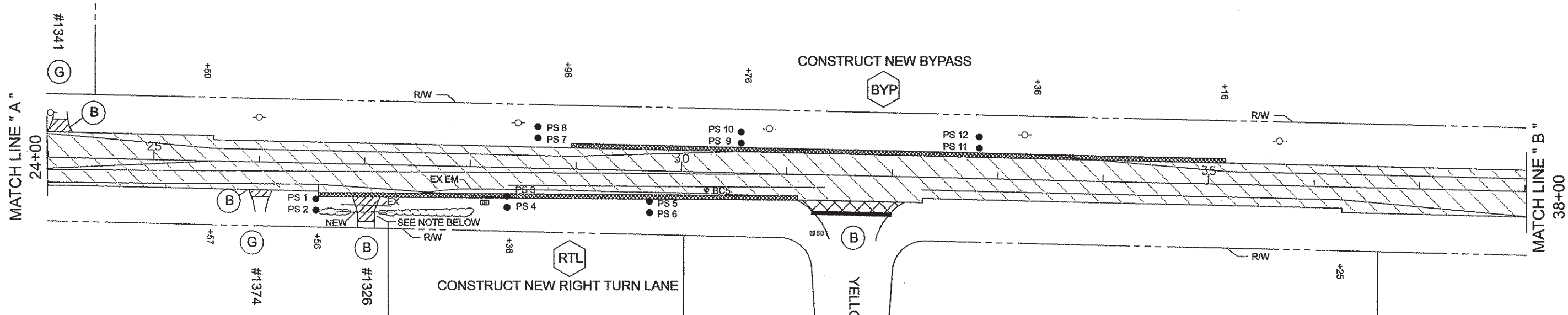
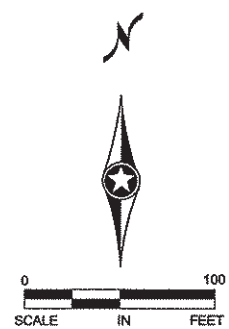
24+00

BITUMINOUS CORES		PUSH SOUNDINGS	
BC1	4.0" BIT	5.5" GRVL	PS1 0.0' @ 6' EM
BC2	5.5" BIT	6.0" GRVL	PS2 0.0' @ 18' EM
BC3	4.5" BIT	7.5" GRVL	PS3 0.0' @ 6' EM
BC4	5.5" BIT	4.0" GRVL	PS4 3.9' @ 18' EM
BC5	2.0" BIT	5.5" GRVL	PS5 6.0' @ 6' EM
BC6	5.0" BIT	6.0" GRVL	PS6 3.1' @ 18' EM
BC7	6.5" BIT	3.0" GRVL	PS7 6.0' @ 6' EM
BC8	6.0" BIT	6.0" GRVL	PS8 5.2' @ 18' EM
BC9	7.0" BIT	3.0" GRVL	PS9 6.9' @ 6' EM
BC10	5.0" BIT	6.0" GRVL	PS10 5.1' @ 18' EM
BC11	3.3" BIT	7.0" GRVL	PS11 7.7' @ 6' EM
			PS12 6.8' @ 18' EM
			PS13 0.0' @ 6' EM
			PS14 0.0' @ 18' EM

	OVERLAY 2"		CONSTRUCT NEW BYPASS
	FULL DEPTH RECLAIM / 4" OVERLAY		CONSTRUCT NEW RTL
	OVERLAY ST. APP.		BITUMINOUS CORE
	REMOVE / REPAVE BIT ENT.		PUSH SOUNDING
	RTL / BYPASS WIDENING		POWER POLE
	MILL JOINT		

(G) = GRAVEL, (B) = BIT, (C) = CONC

NOTE - PUSH SOUNDING DIST. FROM EX. EM.



REMOVE 50' 15" CMP INCLUDING APRONS
INSTALL 44' 15" CMP AND 2 APRONS AND SAFTY GRATES AT EXISTING APRON ELEV. 45' RT CL.
CLEAR AND GRUB PAID BY THE TREE (APPROX 15 - EVERGREEN, 11 - DECIDUOUS)
(WEST AREA 30' L X 10' W, EAST AREA 92' L X 10' W) BACK TO FIRST 2 ROWS OF PINES FROM ROAD.
* NOTE EXISTING FIBER SPLICEBOX BELOW GROUND IN NEW RTL INSLOPE.

NO	DATE	BY	CKD	APPR	REVISION

NAME: P:112-01-00\CSAH_20_(CSAH78-CSAH18)\Plan\6_PLAN.dgn 03/01/2012 8:28:09 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 CADENHEAD
SIGNATURE: *Charles Cadenhead*
DATE: 3/2/12 LICENSE NO. 40416

DRAWN BY: JF DATE: 1/18/2012
DESIGN BY: JF DATE: 1/18/2012
CHECKED BY: JO DATE: 4/1/2012



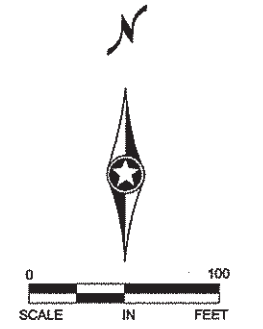
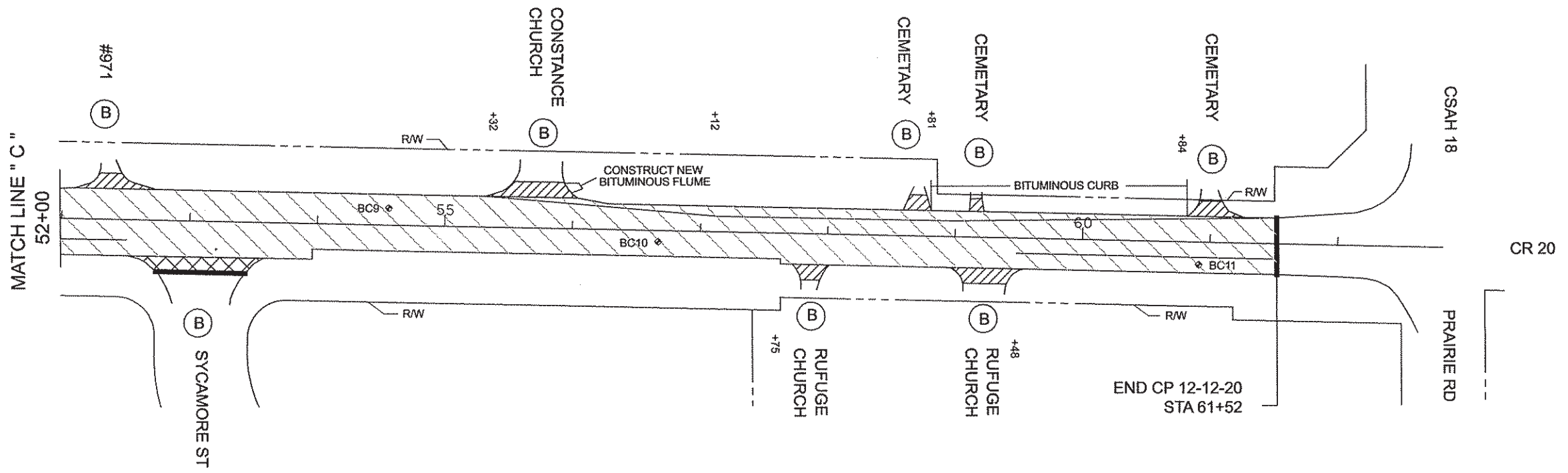
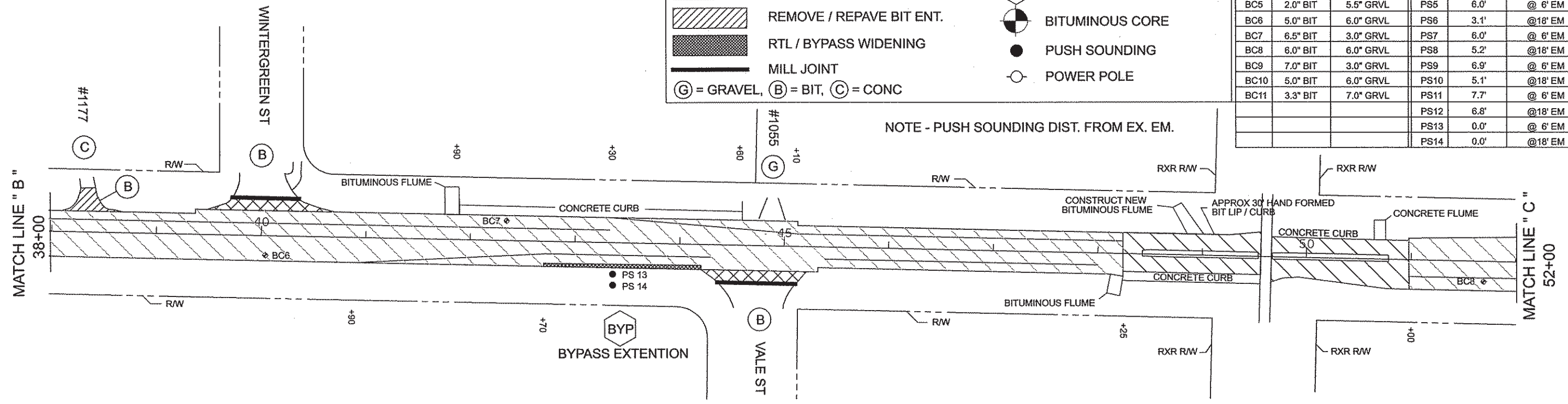
ANOKA COUNTY
HIGHWAY DEPT.

STATE PROJECT NO. _____
STATE AID PROJECT NO. _____
CITY PROJECT NO. _____
COUNTY PROJECT NO. CP 12-12-20

CONSTRUCTION PLAN
STA 10+00 TO 38+00
Sheet 18 of 28 Sheets

	OVERLAY 2"		CONSTRUCT NEW BYPASS
	FULL DEPTH RECLAIM / 4" OVERLAY		CONSTRUCT NEW RTL
	OVERLAY ST. APP.		BITUMINOUS CORE
	REMOVE / REPAVE BIT ENT.		PUSH SOUNDING
	RTL / BYPASS WIDENING		POWER POLE
	MILL JOINT		
(G) = GRAVEL, (B) = BIT, (C) = CONC			

BITUMINOUS CORES			PUSH SOUNDINGS		
BC1	4.0" BIT	5.5" GRVL	PS1	0.0'	@ 6' EM
BC2	5.5" BIT	6.0" GRVL	PS2	0.0'	@ 18' EM
BC3	4.5" BIT	7.5" GRVL	PS3	0.0'	@ 6' EM
BC4	5.5" BIT	4.0" GRVL	PS4	3.9'	@ 18' EM
BC5	2.0" BIT	5.5" GRVL	PS5	6.0'	@ 6' EM
BC6	5.0" BIT	6.0" GRVL	PS6	3.1'	@ 18' EM
BC7	6.5" BIT	3.0" GRVL	PS7	6.0'	@ 6' EM
BC8	6.0" BIT	6.0" GRVL	PS8	5.2'	@ 18' EM
BC9	7.0" BIT	3.0" GRVL	PS9	6.9'	@ 6' EM
BC10	5.0" BIT	6.0" GRVL	PS10	5.1'	@ 18' EM
BC11	3.3" BIT	7.0" GRVL	PS11	7.7'	@ 6' EM
			PS12	6.8'	@ 18' EM
			PS13	0.0'	@ 6' EM
			PS14	0.0'	@ 18' EM



NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\12-01-00\CSAH_20 (CSAH79-CSAH18)\Plan6_PLAN.dgn 03/01/2012 8:28:28 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 CADENHEAD
 SIGNATURE: *[Signature]*
 DATE: 3/4/12 LICENSE NO. 40416

DRAWN BY: JF DATE: 1/18/2012
 DESIGN BY: JF DATE: 1/18/2012
 CHECKED BY: JO DATE: 4/1/2012

ANOKA COUNTY
HIGHWAY DEPT.

STATE PROJECT NO. _____
 STATE AID PROJECT NO. _____
 CITY PROJECT NO. _____
 COUNTY PROJECT NO. CP 12-12-20

CONSTRUCTION PLAN
 STA 38+00 TO 61+52
 Sheet 19 of 28 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 FILD OR DUST TO BE DEPOSITED ON THE PAVEMENT SURFACE AFTER CLEANING AND BEFORE THE MARKING MATERIAL CAN BE APPLIED.

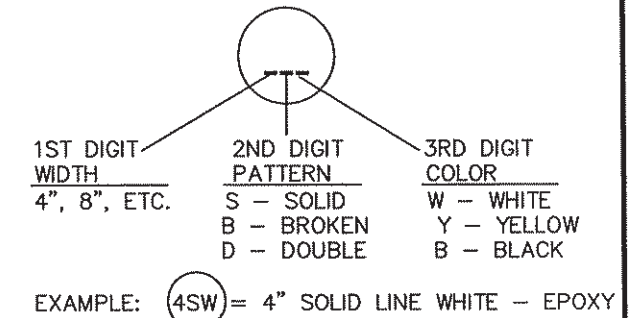
THE FILLING OF TANKS, POURING OF MATERIALS OR CLEANING OF EQUIPMENT SHALL NOT BE PERFORMED ON UNPROTECTED PAVEMENT SURFACES UNLESS ADEQUATE PROVISIONS ARE MADE TO PREVENT SPILLAGE OF MATERIAL.

SYMBOLS & MATERIALS LEGEND

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

STRIPING KEY

- CIRCLE - EPOXY
- SQUARE PREFORMED THERMOPLASTIC
- △ TRIANGLE - PAINT
- ◻ R x R PREFORMED THERMOPLASTIC
- ⬠ PENTAGON - REMOVABLE PREFORMED PLASTIC MARKING

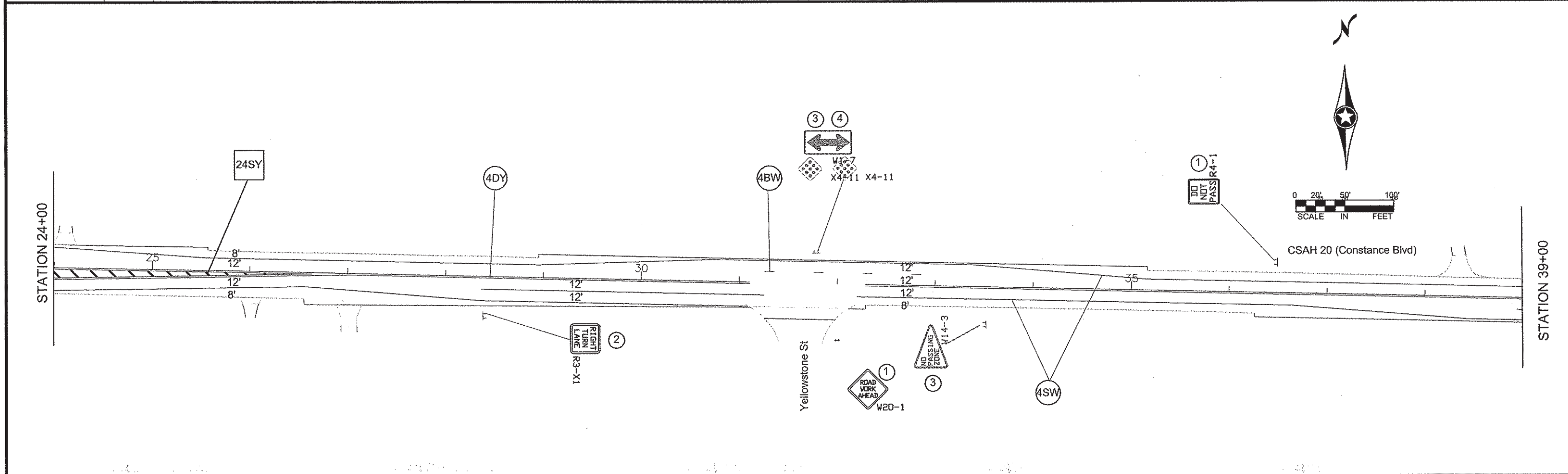
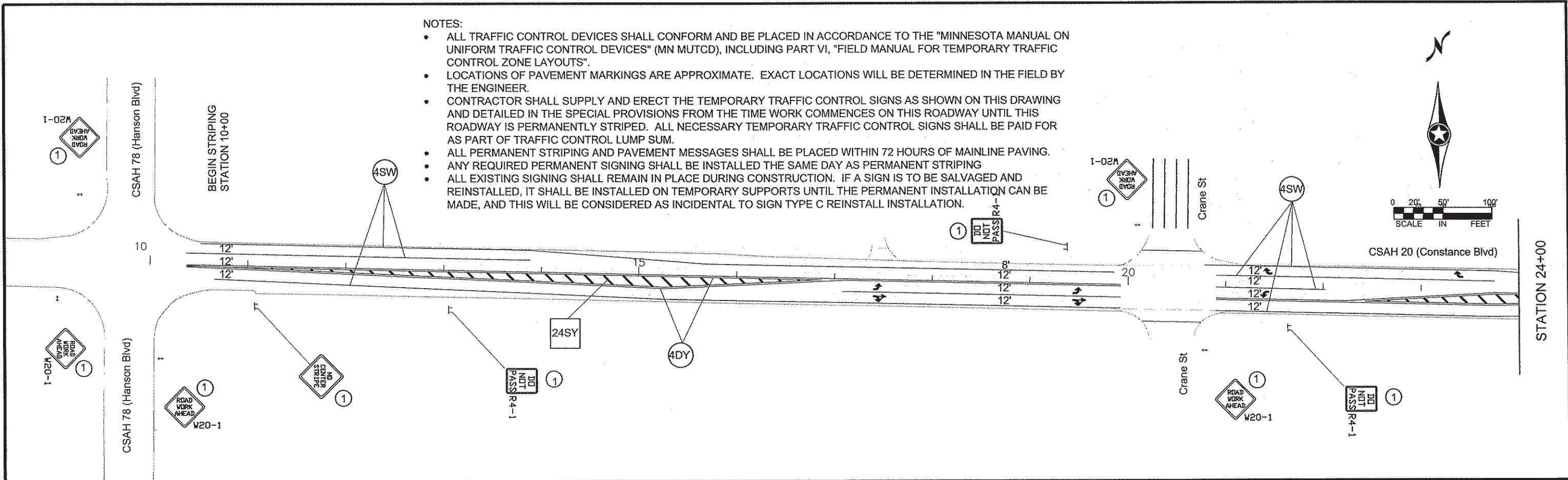


PAVEMENT MARKING QUANTITIES		
Item	Quantity	Units
4" Double Solid Line Yellow - Epoxy	6033	Lin Ft
4" Solid Line Yellow - Epoxy	400	Lin Ft
4" Solid Line White - Epoxy	11578	Lin Ft
4" Broken Line White - Epoxy (10 ft stripe / 40 ft gap)	120	Lin Ft
24" Yellow Pref Thermoplastic	497	Lin Ft
24" White Pref Thermoplastic	24	Lin Ft
Pvmt Mssg (Rt Arrow) Pref Thermoplastic	2	Each
Pvmt Mssg (Lt Arrow) Pref Thermoplastic	3	Each
Pvmt Mssg (Thru/Rt Arrow) Pref Thermoplastic	2	Each
Pavt Mssg (RR XING) Pref Thermoplastic	2	Each

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: <i>[Signature]</i> DATE: 3/2/17 LICENSE NO. 40416					DRAWN BY: MTH DATE 12/01/2011 DESIGN BY: MTH DATE 12/01/2011 CHECKED BY: JR DATE 2/14/2014		ANOKA COUNTY HIGHWAY DEPT.	STATE PROJECT NO. _____ STATE AID PROJECT NO. _____ STATE AID PROJECT NO. _____ COUNTY PROJECT NO. 12-12-20	PERMANENT MARKING TABULATION Sheet 20 of 28 Sheets
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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

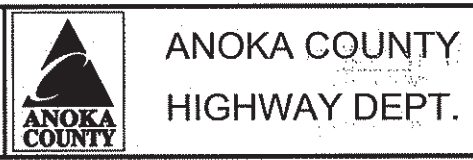
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DATE: 8/2/12 REG. NO. 40416

DRAWN BY: MTH DATE 1/12/2012

DESIGN BY: MTH DATE 1/12/2012

CHECKED BY: JR DATE 2/01/2012



STATE PROJECT NO. _____

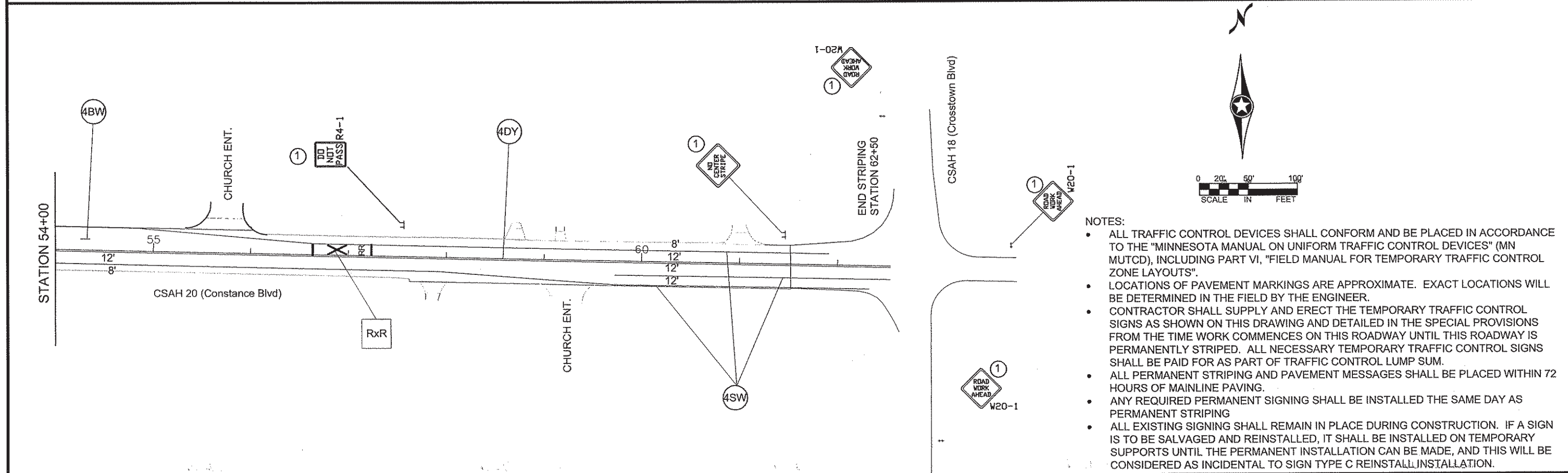
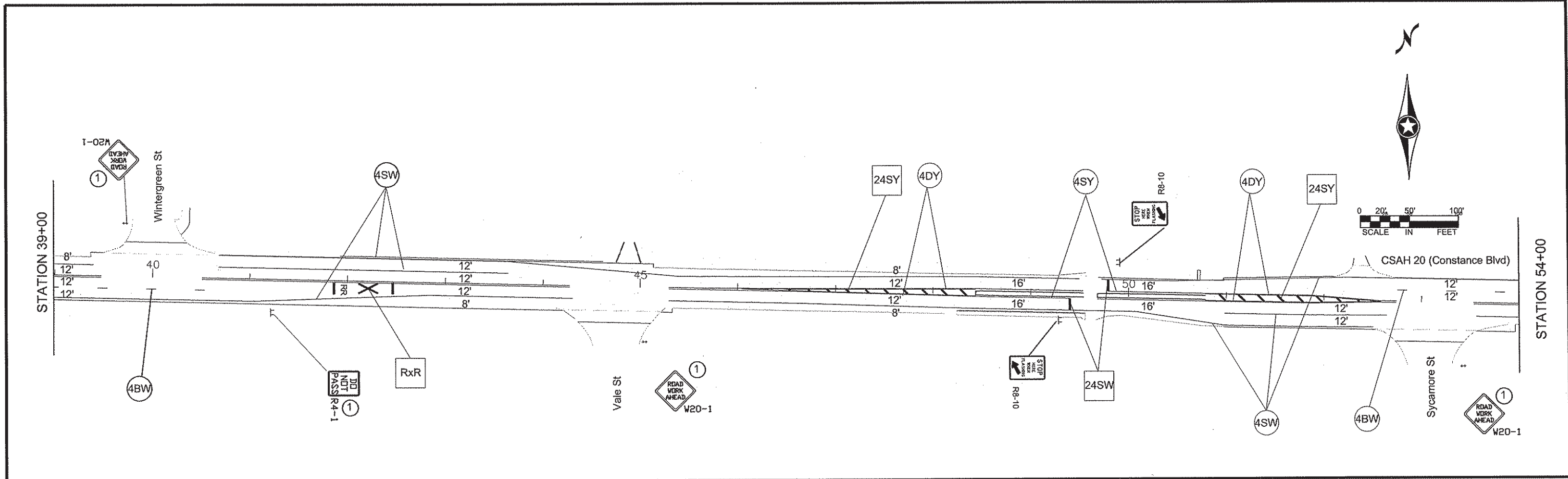
STATE AID PROJECT NO. _____

STATE AID PROJECT NO. _____

COUNTY PROJECT NO. 12-12-20

CSAH 20 (CONSTANCE BLVD)
TEMPORARY SIGNING
PERMANENT SIGNING, STRIPING AND
PAVEMENT MESSAGES

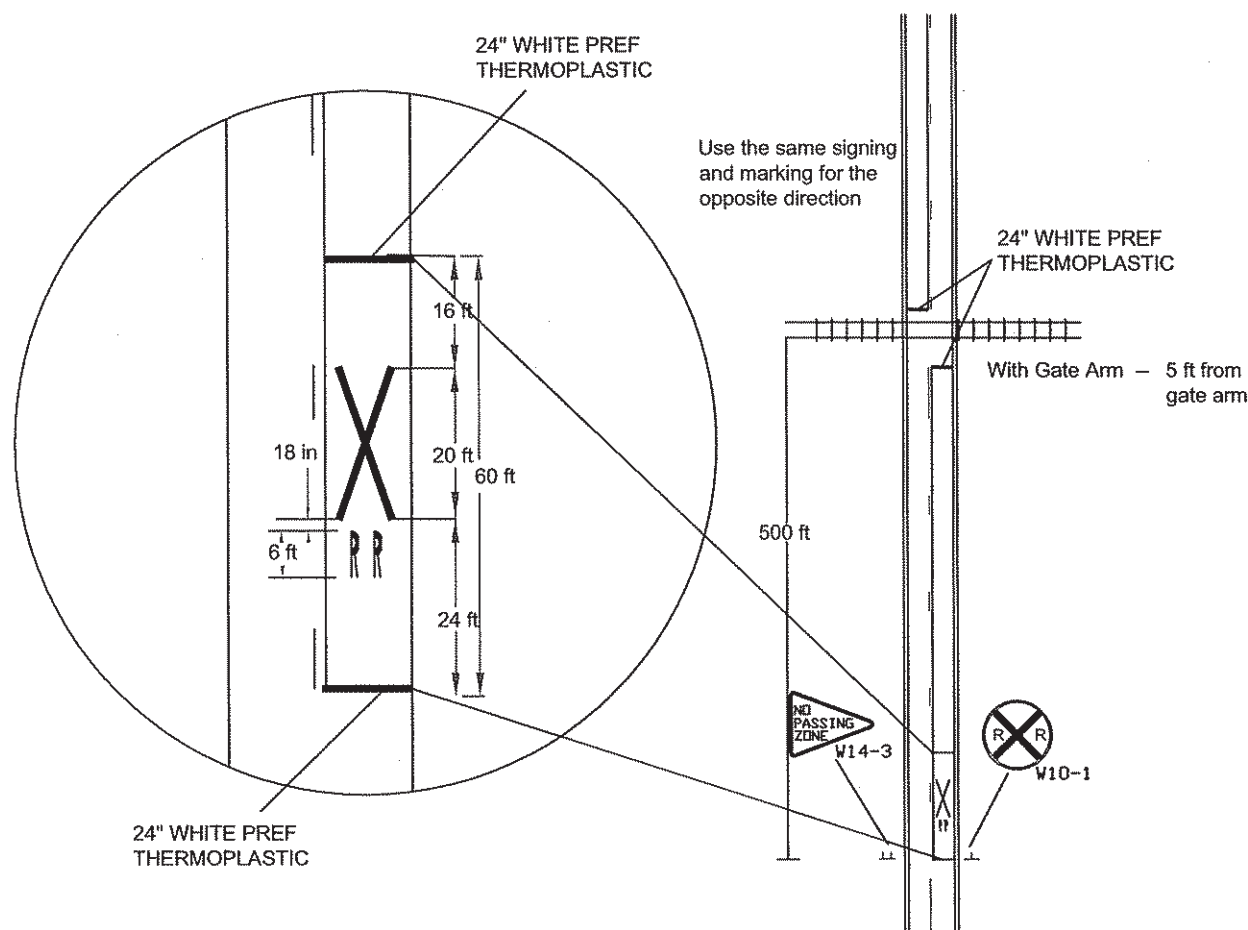
Sheet 21 of 28 Sheets













- 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 REINSTALLATION.

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: CHARLES CADENHEAD SIGNATURE: <i>[Signature]</i> DATE: 3/2/12 REG. NO. 40416					DRAWN BY: MTH DATE 1/12/2012 DESIGN BY: MTH DATE 1/12/2012 CHECKED BY: JR DATE 2/01/2012		ANOKA COUNTY HIGHWAY DEPT.		STATE PROJECT NO. _____ STATE AID PROJECT NO. _____ STATE AID PROJECT NO. _____ COUNTY PROJECT NO. 12-12-20		CSAH 20 (CONSTANCE BLVD) TEMPORARY SIGNING PERMANENT SIGNING, STRIPING AND PAVEMENT MESSAGES	
NO	DATE	BY	CKD	APPR	REVISION	NAME: P:\12-01-00\CSAH 20\base\PROPOSED\SIGNING AND STRIPING.DWG						
Sheet 22 of 28 Sheets												

RAILROAD CROSSING PAVEMENT MARKINGS



F & I PERMANENT SIGNS						
M.U.T.C.D. CODE	SIZE	PANEL AREA FT. ²	INSERT	QUANTITY	No. POST	MOUNTING HEIGHT TO PAVEMENT (EACH) FT.
R3-X1	30" x 30"	6.25	 R3-X1	1	1	7.0'

TEMPORARY TRAFFIC CONTROL SIGNS						
M.U.T.C.D. CODE	SIZE	PANEL AREA FT. ²	INSERT	QUANTITY	No. POST	MOUNTING HEIGHT TO PAVEMENT (EACH) FT.
W8-12	48" x 48"	16.00		2	2	7.0'
R4-1	24" x 30"	5.00	 R4-1	5	1	7.0'
R4-2	24" x 30"	5.00	 R4-2	0	1	7.0'
R8-10	24" x 36"	6.00	 R8-10	2	1	7.0'
W8-1A	48" x 48"	16.00	 W8-1A	AS NEEDED		
W8-1A	48" x 48"	16.00	 W8-1A	AS NEEDED		
W8-8	48" x 48"	16.00	 W8-8	AS NEEDED		
W8-11	48" x 48"	16.00	 W8-11	AS NEEDED		
W8-11	48" x 48"	16.00	 W20-1	AS NEEDED (ESTIMATED 13)		

SALVAGE AND RE-INSTALL PERM SIGNS				
STATION		SALVAGE SIGN TYPE C	INSTALL SIGN TYPE C	SIGN NUMBER
		EACH	EACH	
31+80	Lt		1	W1-7
31+80	Lt	1	1	X4-2
31+80	Lt			X4-2
33+50	Rt	1		W14-3
TOTAL		2	1	

— X —
H PAVEMENT MESSAGE RR CROSSING
PREFORMED THERMOPLASTIC

— X —
H

SPECIAL PROVISIONS

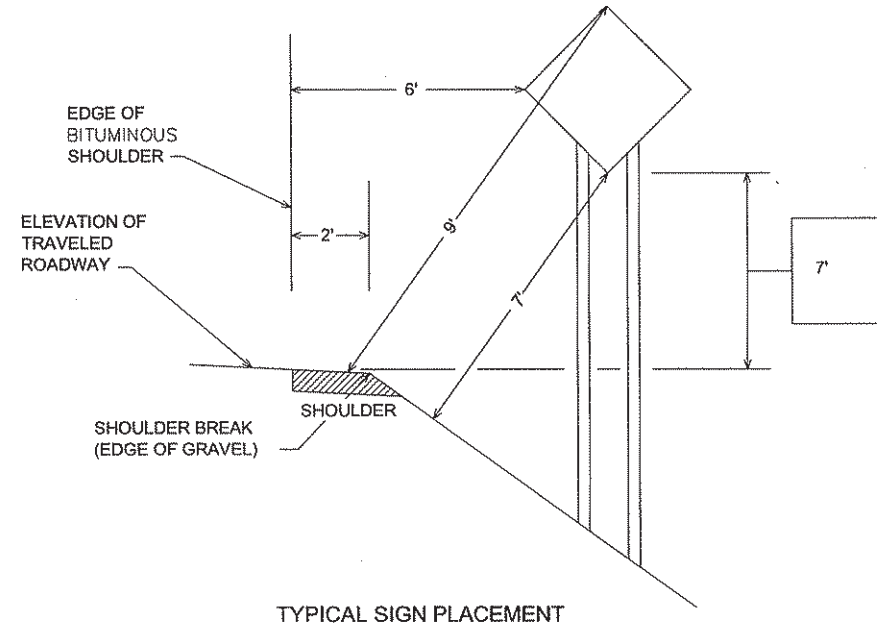
- TEMPORARY TRAFFIC CONTROL SIGN
- F & I PERMANENT SIGN
- SALVAGE PERMANENT SIGN
- RE-INSTALL PERMANENT SIGN

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".
- 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.

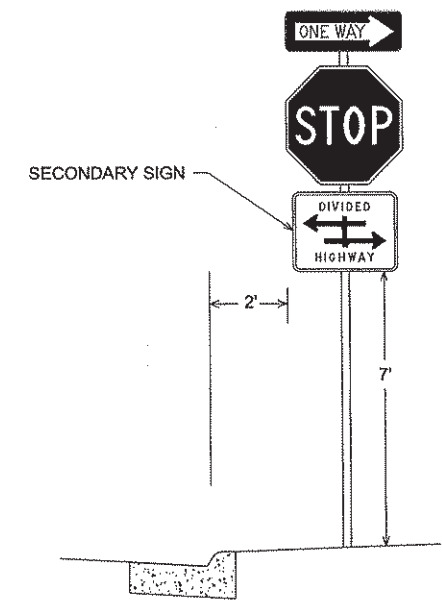
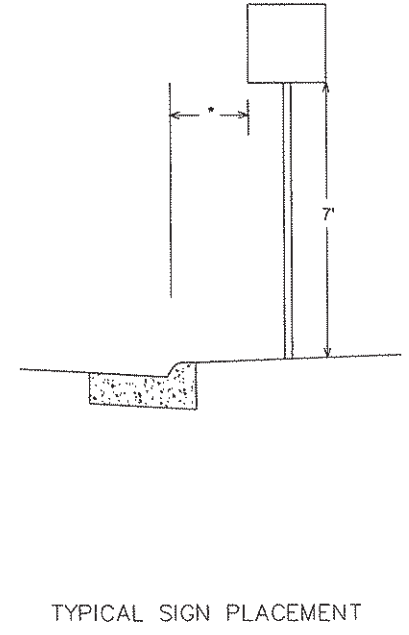
I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY REGISTERED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA. PRINT NAME: CHARLES CABENHEAD SIGNATURE: <i>[Signature]</i> DATE: 1/12/12 REG. NO. 40416					DRAWN BY: MTH DATE 1/12/2012 DESIGN BY: MTH DATE 1/12/2012 CHECKED BY: JR DATE 2/01/2012	ANOKA COUNTY HIGHWAY DEPT.	STATE PROJECT NO. _____ STATE AID PROJECT NO. _____ STATE AID PROJECT NO. _____ COUNTY PROJECT NO. 12-12-20	CSAH 20 (CONSTANCE BLVD) TEMPORARY SIGNING PERMANENT SIGNING, STRIPING AND PAVEMENT MESSAGES Sheet 23 of 28 Sheets	
NO	DATE	BY	CKD	APPR	REVISION				
NAME: P:\12-01-00\CSAH 20\base\PROPOSED\SIGNING AND STRIPING.DWG									

RURAL



URBAN

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



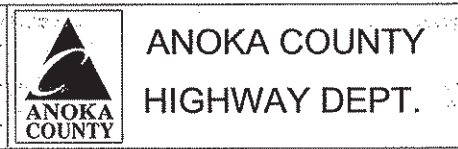
NOTE:

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

NO	DATE	BY	CHKD	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

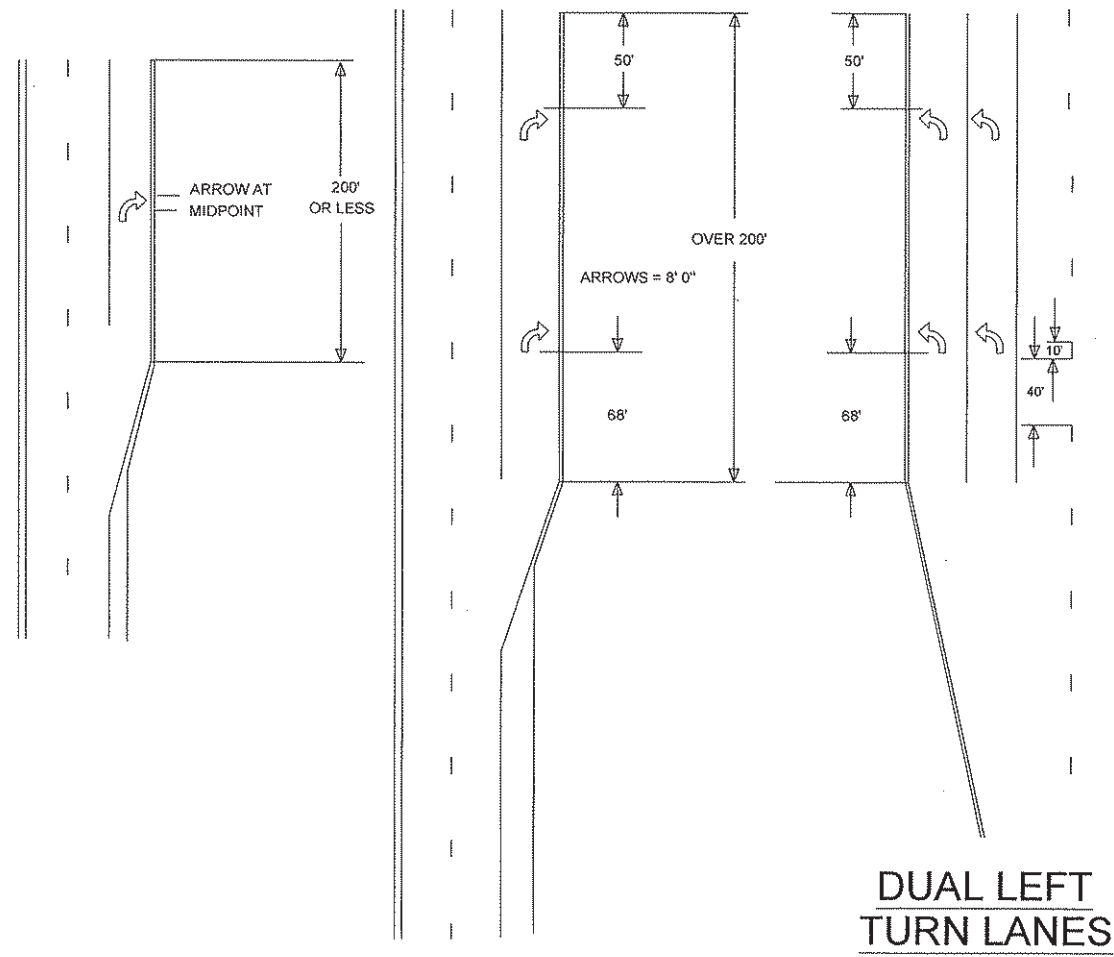
DRAWN BY: MTH DATE: 1-21-11
 DESIGN BY: MTH DATE: 1-21-11
 CHECKED BY: JR DATE: 1-21-11



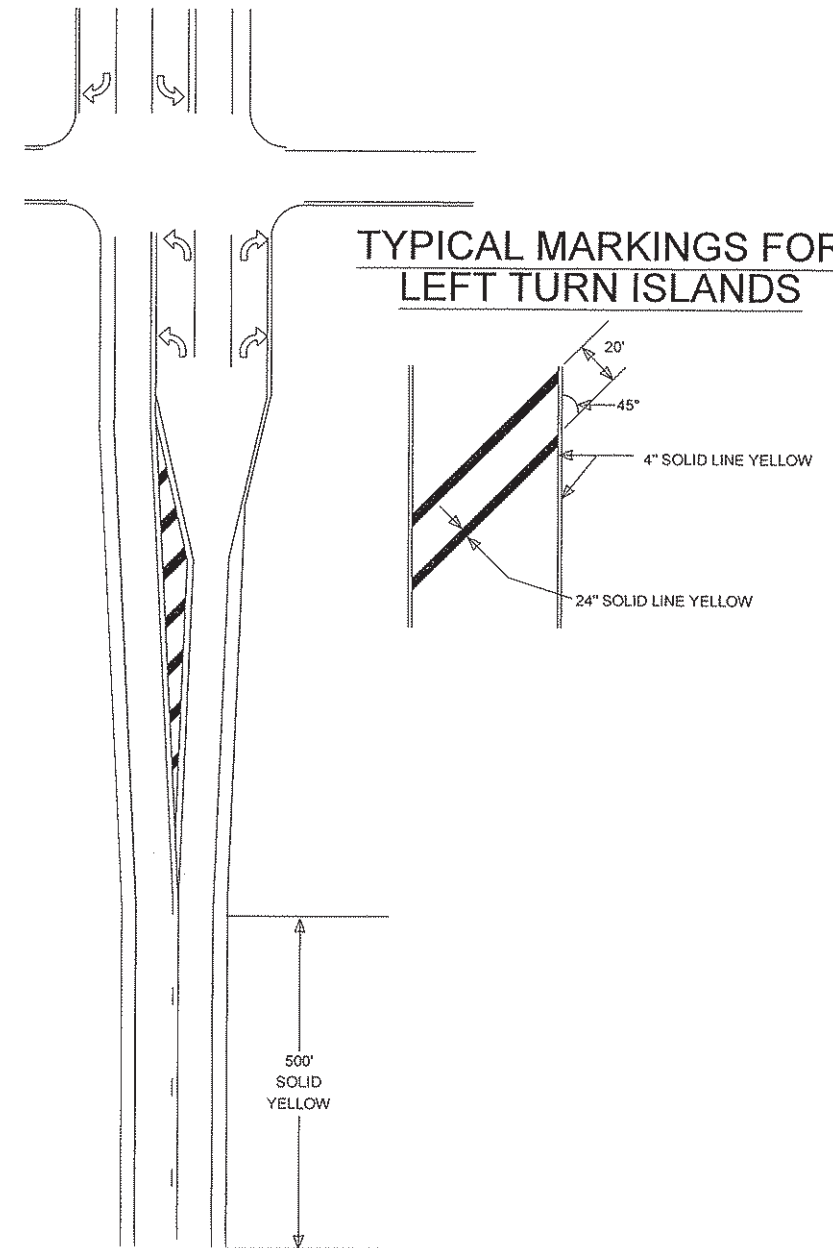
STATE PROJECT NO. _____
 STATE PROJECT NO. _____
 STATE PROJECT NO. _____
 COUNTY PROJECT NO. 12-12-20

SIGNING & STRIPING DETAILS
 STATE _____
 Sheet 24 of 28 Sheets

**TYPICAL MESSAGE PLACEMENT
FOR TURN LANES**



**TYPICAL MARKINGS FOR
LEFT TURN ISLANDS**



NO	DATE	BY	CHKD	APPR	REVISION

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

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

PRINT NAME: CHARLES CADENHEAD

SIGNATURE: *[Signature]*

DATE: 3/2/12 LICENSE NO. 80416

DRAWN BY MTH DATE 1-21-11

DESIGN BY MTH DATE 1-21-11

CHECKED BY JR DATE 1-21-11



**ANOKA COUNTY
HIGHWAY DEPT.**

STATE PROJECT NO. _____

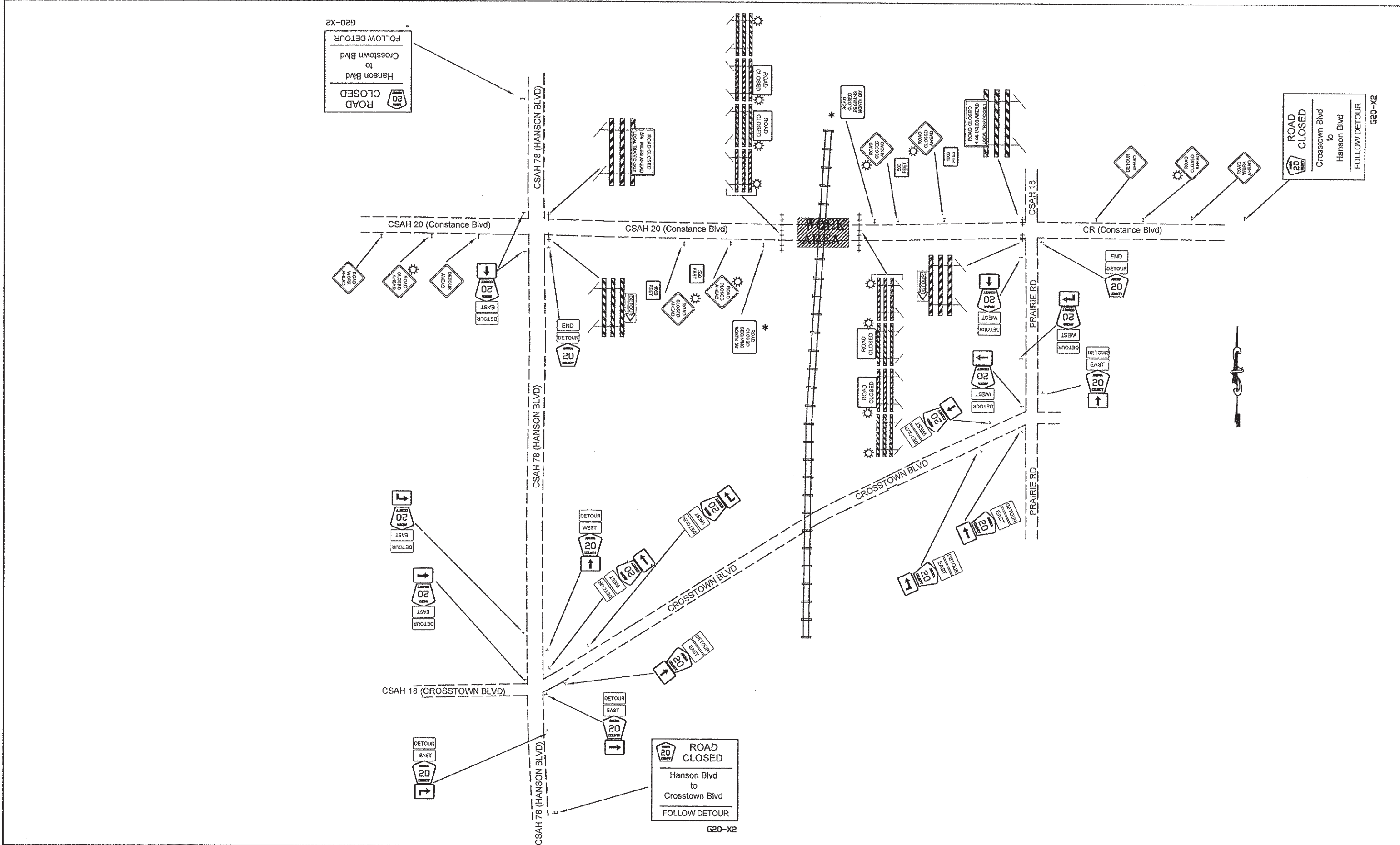
STATE PROJECT NO. _____

STATE PROJECT NO. _____

COUNTY PROJECT NO. 12-12-20

SIGNING & STRIPING DETAILS

Sheet 25 of 28 Sheets




NO	DATE	BY	CKD	APPR	REVISION
NAME: P:\12-01-00\CSAH 20\Bose\PROPOSED\detour.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: CHARLES CADENHEAD
 SIGNATURE: *[Signature]*
 DATE: 2/2/12
 REG. NO. 40416

DRAWN BY: RB DATE: 1/13/12
 DESIGN BY: RB DATE: 1/13/12
 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. 12-12-20

M.U.T.C.D. CODE	SIZE	INSERT	QTY.
FLASHER			• 4
R11-2	48"x48"		• 2
M4-10L	48"x18"		• 1
TYPE III	8 FT.		• 5
FLASHER			• 4
R11-2	48"x48"		• 2
M4-10L	48"x18"		• 1
TYPE III	8 FT.		• 5
R11-3	60"x30"		• 1
TYPE III	8 FT.		• 1
R11-3	60"x30"		• 1
TYPE III	8 FT.		• 1
G20-X2	132"x108"		• 2
G20-X2	132"x108"		• 1

M.U.T.C.D. CODE	SIZE	INSERT	QTY.
W20-2	48"x48"		• 2
W20-2	48"x48"		• 2
FLASHER			• 6
W20-3	48"x48"		• 6
W20-100P	24"x18"		• 2
W20-100P	24"x18"		• 2
M4-8	24"x12"		• 1
M3-4	24"x12"		• 0
M1-6	24"x24"		• 2
	21"x15"		• 0
			• 2
			• 3
M4-8	24"x12"		• 1
M3-2	24"x12"		• 2
M1-6	24"x24"		• 1
	21"x15"		• 2
			• 1
			• 3
G20-X1	72"x60"		• 2

* 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.

STANDARD TRAFFIC CONTROL NOTES:

1. ALL TYPE III BARRICADES SHALL BE REFLECTORIZED ON BOTH SIDES. BARRICADE MARKINGS SHALL BE SLANTED IN ACCORDANCE WITH M.U.T.C.D.
2. 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 FEBRUARY, 2011

NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\12-01-00\CSAH 20\Bose\PROPOSED\detour.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: CHARLES CADENHEAD
 SIGNATURE:
 DATE: 1/13/12 REG. NO. 40416

DRAWN BY: RB DATE: 1/13/12
 DESIGN BY: RB DATE: 1/13/12
 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. 12-12-20

CSAH 20 (Constance Blvd)
 DETOUR

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INTENTIONALLY

					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.		DRAWN BY <u>RB</u> DATE <u>1/13/12</u>	 ANOKA COUNTY	STATE PROJECT NO. _____	CSAH 20 (Constance Blvd) DETOUR
					PRINT NAME: <u>CHARLES CADENHEAD</u>	DESIGN BY <u>RB</u> DATE <u>1/13/12</u>	STATE AID PROJECT NO. _____			
					SIGNATURE: <u>[Signature]</u>	CHECKED BY <u>IR</u> DATE <u>2/14/12</u>	STATE AID PROJECT NO. _____	COUNTY PROJECT NO. <u>12-12-20</u>	Sheet <u>28</u> of <u>28</u> Sheets	
NO DATE BY CKD APPR REVISION					DATE: <u>5/12/12</u> REG. NO. <u>40416</u>					