

# MINNESOTA DEPARTMENT OF TRANSPORTATION ANOKA COUNTY

CONSTRUCTION PLAN FOR SHOULDER WIDENING, MEDIAN, SIGNAL, DRAINAGE, BITUMINOUS SURFACING, PAVEMENT MARKINGS  
SPOT MODIFICATIONS THROUGHOUT CORRIDOR

LOCATED ON CSAH 116, BUNKER LAKE BLVD BETWEEN CSAH 83, ARMSTRONG BLVD. AND WOLFRAM ST. (E. OF SUNFISH BLVD)  
CSAH 116 SUNWOOD DR

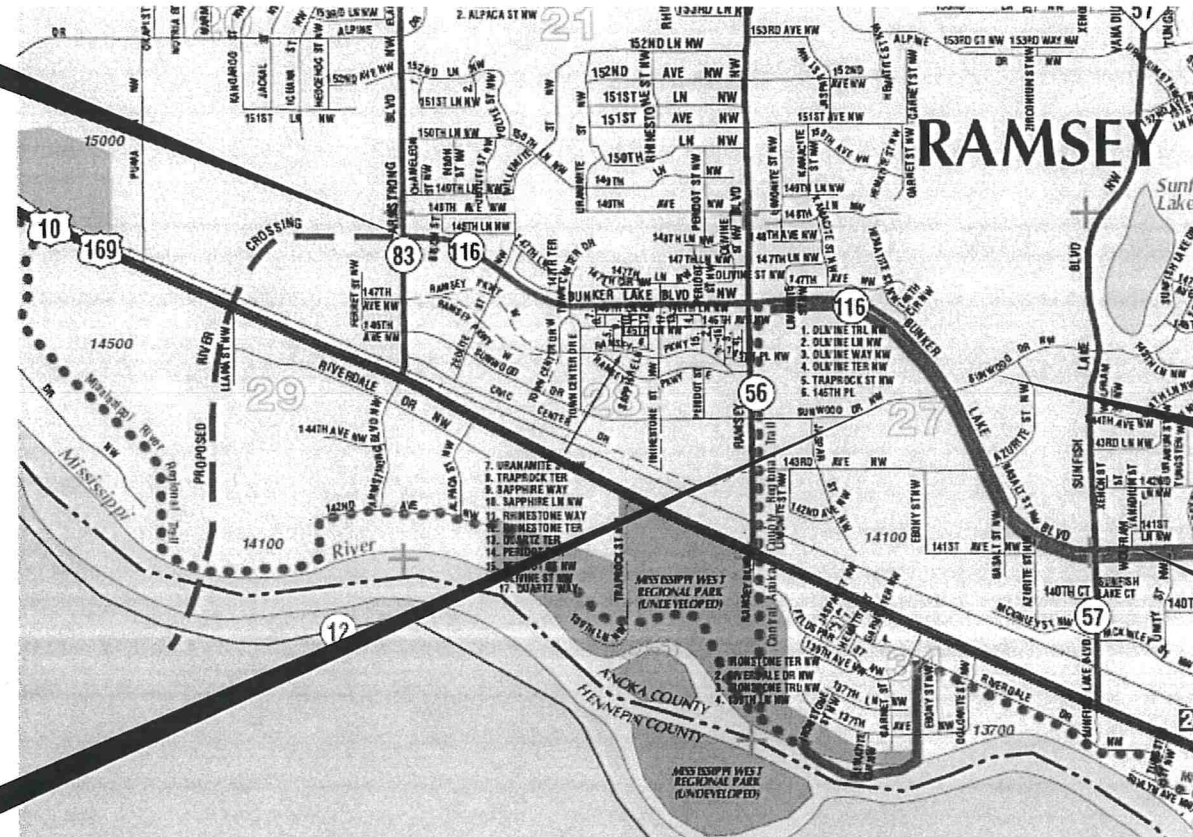
GROSS LENGTH 13440.00 FEET 2.545 MILES      GROSS LENGTH 1,452.50 FEET 0.275 MILES  
NET LENGTH 13440.00 FEET 2.545 MILES      NET LENGTH 1,452.50 FEET 0.275 MILES

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

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250 - 259	CROSS SECTIONS    SUNWOOD 17+00 - 21+75

BEGIN SAP 002-716-021  
STA. 10+50.00 CSAH 116



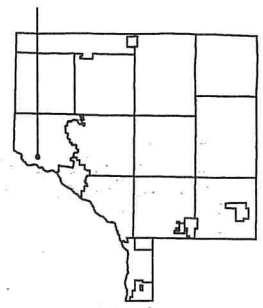
END SAP 199-104-014  
STA. 29+52.50 SUNWOOD DR

END SAP 002-716-021  
STA. 144+90.00 CSAH 116

BEGIN SAP 199-104-014  
STA. 15+00.00 SUNWOOD DR

The subsurface utility information in this plan is utility quality level "D". This utility quality level was determined according to the guidelines of CI/ASCE 38-02, entitled "Standard Guidelines for the Collection and depiction of Existing Subsurface Utility Data."

## PROJECT LOCATION



CITY OF RAMSEY  
ANOKA COUNTY  
MN/DOT TRANSPORTATION DISTRICT - METRO  
SECTION 27,28  
TOWNSHIP 32 NORTH  
RANGE 25 WEST

Approved *[Signature]* 8/10/21, 2021  
ANOKA COUNTY ENGINEER

Approved *[Signature]* 8/10/21, 2021  
CITY OF RAMSEY ENGINEER

*[Signature]* For \_\_\_\_\_ DATE 8/10/2021

DISTRICT STATE AID ENGINEER: REVIEWED FOR COMPLIANCE WITH STATE AID RULES/POLICY

*[Signature]* For \_\_\_\_\_ DATE 8/10/2021

STATE AID ENGINEER:  
APPROVED FOR STATE AID FUNDING

DESIGN DESIGNATION ( CSAH 116 )			
ESAL 20	978,722	FUNCTIONAL CLASSIFICATION	A-MINOR RELIEVER
R VALUE	70	NO. OF TRAFFIC LANES	2
ADT (2021)	7,800	NO. OF PARKING LANES	0
PROJ. ADT (2041)	8,580	DESIGN SPEED	55 MPH
PROJ. HCA DT (2041)	285	STOPPING SIGHT DISTANCE BASED ON:	
SOIL FACTOR	NA	HEIGHT OF EYE	3.5'
10 TON DESIGN		HEIGHT OF OBJECT	2.0'
		DESIGN SPEED NOT ACHIEVED AT:	
		STA.	TO STA. MPH
DESIGN DESIGNATION ( BIKE PATH )			
DESIGN SPEED MPH	20	BASED ON:	4.5 FT HEIGHT OF EYE 0.0 FT HEIGHT OF OBJECT

NO	DATE	BY	CKD	APPR	REVISION	08/09/2021	12:43:40 PM
1	7/21/21	JCF			ADDED BIKE PATH DESIGNATION		
2	8/09/21	JCF			ADDED BEGIN SAP 199-104-014 TO SUNWOOD DRIVE LIMIT.		

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: NICHOLAS J. DOBDA  
SIGNATURE: *[Signature]*  
DATE: 8/10/21 LICENSE NO. 49046

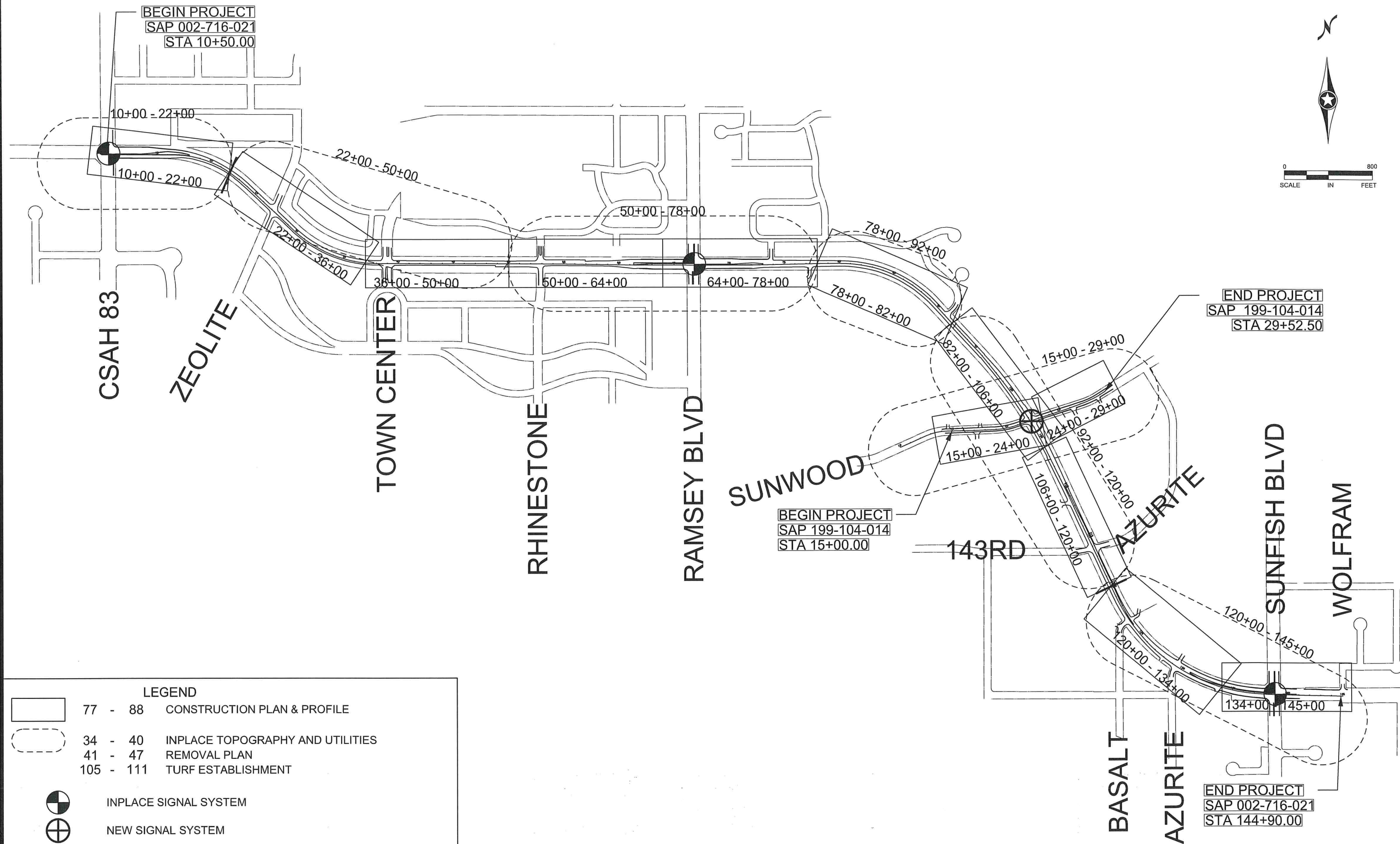
DRAWN BY JCF DATE 07/01/21  
DESIGN BY JCF DATE 07/01/21  
CHECKED BY NJD DATE 07/09/21



ANOKA COUNTY  
HIGHWAY DEPT.

SAP 002-716-021  
SAP 199-104-014

TITLE SHEET  
Sheet 1 of 259 Sheets



**LEGEND**

	77 - 88	CONSTRUCTION PLAN & PROFILE
	34 - 40	INPLACE TOPOGRAPHY AND UTILITIES
	41 - 47	REMOVAL PLAN
	105 - 111	TURF ESTABLISHMENT
		INPLACE SIGNAL SYSTEM
		NEW SIGNAL SYSTEM

1	8/09/21	JCF		ADDED CITY SAP NO. & BEG/END LABELS ON SUNWOOD DRIVE	
NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\002-716-021\Plan\002716021\_GL.dgn      08/09/2021      12:57:40 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: NICHOLAS J. DOBDA

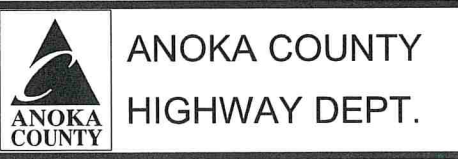
SIGNATURE: *Nicholas J. Dobda*

DATE: 8/10/21      LICENSE NO. 49046

DRAWN BY: JCF      DATE: 07/01/21

DESIGN BY: JCF      DATE: 07/01/21

CHECKED BY: NJD      DATE: 07/09/21



SAP 002-716-021  
SAP 199-104-014

GENERAL LAYOUT

Sheet 2 of 259 Sheets



CLEARING & GRUBBING									A
ALIGNMENT	STATION	TO	STATION	OFFSET		CLEARING (TREE)	GRUBBING (TREE)	GRUBBING (ACRE)	NOTES
				LEFT	RIGHT				
BUNKER6	30+64		38+00		32 - 50			0.666	[ 1 ]
	42+51		45+00		31 - 38			0.233	[ 1 ]
	45+70		46+50		39 - 37			0.082	[ 1 ]
	102+54				38	1	1		[ 2 ]
	102+65				45	1	1		[ 2 ]
SUBTOTAL (A)						2	2	0.981	
SUNWOOD 4	20+70				29	1	1		[ 3 ]
	20+89				32	1	1		[ 2 ]
	20+90				23	1	1		[ 2 ]
	21+01				17	1	1		[ 2 ]
	21+01				33	1	1		[ 2 ]
	21+02				43	1	1		[ 2 ]
	21+11				20	1	1		[ 2 ]
	21+62				48	1	1		[ 2 ]
SUBTOTAL (B)						8	8	0.000	
PROJECT TOTAL (A+B)						10	10	0.981	

**CLEARING & GRUBBING GENERAL NOTES:**  
 REMOVAL OF MISC. SHRUBS AND LANDSCAPING SHALL BE CONSIDERED INCIDENTAL.  
 TREES WILL BE MARKED FOR REMOVAL BY ANOKA COUNTY.  
 [ 1 ] GRUB BY THE ACRE REFLECTS MEASUREMENT 10' OUTSIDE OF SURVEYED TREE BOUNDARY.  
 [ 2 ] TD = TREE DECIDUOUS.  
 [ 3 ] TE = TREE EVERGREEN.

REMOVALS - STORM / CULVERT / GV														B		
LOCATION	FLOWS FROM				TO				REMOVE					RELOCATE	ADJUST	NOTES
	STR	STA	OFFSET	INV	STR	STA	OFFSET	INV	CATCH BASIN	CATCH BASIN GRATE CASTING	PIPE APRON	PIPE SEWERS	PIPE CULVERTS	<del>RELOCATE</del>	GATE VALVE	
														<del>RELOCATE</del>	ADJUST	
MED	EX 15	13+90	-9						1							[ 1 ]
MED	EX 25	15+09	-21													[ 5 ]
MAINLINE	GV	16+60	12												1	[ 6 ]
ZEOLITE ST	GV	27+40	17												1	[ 6 ]
ZEOLITE ST	GV	27+50	29												1	[ 6 ]
W. OF TOWN CNTR	30-A	36+86	-43.87	866.00						1						[ 4 ]
W. OF TOWN CNTR	40-A	36+86	38.28	866.24						1						[ 4 ]
W. OF TOWN CNTR	EX 45-A	37+11								1			24			[ 7 ]
ALTRON ENT		111+29				111+89							60			[ 2 ]
AZURITE ST		115+86	-41	880.48		116+66	-45	880.04					80			[ 2 ]
AZURITE ST		115+89	-35												1	[ 6 ]
AZURITE ST		116+21	-35												1	[ 6 ]
AZURITE ST		116+60	-36												1	[ 6 ]
MED		130+89	-11						1							[ 1 ]
MED	EX113	132+14	-19													[ 5 ]
MED	EX104	132+14	-2		EX113						16					[ 3 ]
WOLFRAM ST		144+55	-53	883.40					1							[ 1 ]
SUNWOOD		19+91	28													[ 6 ]
		21+65	-15													[ 6 ]
		22+70	-15													[ 6 ]
		22+80	-20													[ 6 ]
		22+96	23													[ 6 ]
		28+15	18													[ 6 ]
SUB TOTAL									3	2	3	16	164	<del>1</del>	11	

**NOTES**

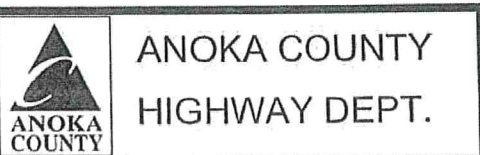
[ 1 ] INCLUDES GRATE CASTING  
 [ 2 ] REMOVE AND REPLACE INPLACE CULVERT. LENGTH OF REMOVAL INCLUDES APRONS. APRONS REMOVED WITH PIPE IS INCIDENTAL TO REMOVAL OF PIPE.  
 [ 3 ] REMOVE EXISTING STORM SEWER PIPE  
 [ 4 ] REMOVE CROSS-CULVERT SAFETY APRONS, PAID BY THE EACH. PIPE TO BE EXTENDED & NEW STANDARD APRONS INSTALLED.  
 [ 5 ] REMOVE CASTING, STORM SEWER STRUCTURE TO REMAIN INPLACE. INSTALL MANHOLE CASTING.  
 [ 6 ] ADJUST GV TO NEW SURFACE ELEV.  
 [ 7 ] REMOVE STORM APRON OUTLET (6') AND 24' OF PIPE, RE-INSTALL APRON.

NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\002-716-021\Plant\002716021 TA.dgn 07/12/2021 11:37:59 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: NICHOLAS J. DOBDA  
 SIGNATURE: *NJD*  
 DATE: 7/13/21 LICENSE NO. 49046

DRAWN BY JCF DATE 07/01/21  
 DESIGN BY JCF DATE 07/01/21  
 CHECKED BY NJD DATE 07/09/21



SAP 002-716-021

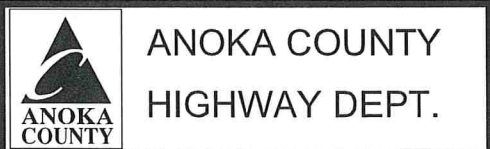
REMOVALS, SAWING AND MILLING													C	
ALI.	STA.	TO STA.	ADDRESS / STREET	OFFSET	REMOVE					SAWING			MILLING	
					FULL DEPTH RECLAMATION	BIT. PAVEMENT	BITUMINOUS WALK	CONCRETE MEDIAN	CONC. CURB & GUTTER	BIT PAVEMENT	CONC. PAVEMENT	BIT SURFACE 2" MAINLINE	BIT SURFACE 2" JOINTS	
					SQ YD	SQ YD	SQ FT	SQ YD	LIN FT	LIN FT	LIN FT	SQ YD	SQ YD	
BUNKER6	13+57	16+03	LTL	LT		340					266			
	13+57	13+57	MED	LT								7		
	13+57	17+97	MED	LT			959	725						
	13+57	18+50	MAINLINE	LT / RT								3335		[ 2 ]
	15+30	17+97	MED CURB	LT / RT						280				
	18+00		MAINLINE	LT / RT									62	
	20+25	48+82	MAINLINE	LT	3226									
	20+25	20+25	MAINLINE	LT						11				
	20+68	48+82	MAINLINE	RT	3313									
	20+68	20+68	MAINLINE	RT						10				
	26+82	27+21	ZEOLITE	LT						43			19	
	27+25	27+60	ZEOLITE	RT						36			15	
	38+58	39+39	TOWN CNTR	LT						81			36	
	38+58	39+39	TOWN CNTR	RT						83			31	
	48+72	48+82	MAINLINE	LT / RT									44	
	48+82	48+82	MAINLINE	LT / RT						20				
	48+85	51+50	TEMP PAVEMENT	LT		63								
	61+34	63+30	LTL	LT		122			196					
	61+34	63+30	MED	LT			252			195				
	63+30	63+30	MED	LT							7			
	70+29	73+09	LTL	LT		163			280					
	70+29	73+09	MED	LT			411			298				
	70+29	70+29	MED	LT							7			
	108+80	108+90	MAINLINE	LT / RT									62	
	110+00	125+95	MAINLINE	LT	3422	1244								[ 1 ]
	110+00	110+00	MAINLINE	LT / RT						29				
	111+20	112+06	ALTRON	RT		148				90				
	111+31	111+60	ALTRON	RT									13	
	115+81	115+97	TRAIL	LT		15								
	115+81	115+81	TRAIL	LT						10				
	115+83	116+32	143RD	RT									21	
	115+97	116+05	AZURITE PED RAMP	LT			127	8						
	116+05	116+12	AZURITE CURB	LT					26					
	116+12	116+50	AZURITE	LT									17	
	116+12	116+12	AZURITE	LT						38				
	116+50	116+62	AZURITE PED RAMP	LT			43	15						
	116+62	116+69	TRAIL	LT		7								
	116+69	116+69	TRAIL	LT						10				
	117+50	119+50	TRAIL	LT		217	1954							
	117+50	117+50	TRAIL	LT						10				
	119+50	119+50	TRAIL	LT						10				
	123+27	123+65	BASALT	RT									18	
	123+41	123+61	DRWAY	RT						22			10	
	124+00	124+00	MAINLINE	LT						21				
	125+94	134+00	MAINLINE	LT / RT								6029		[ 2 ]
	125+94	125+94	RTL	LT						12				
	126+15		MAINLINE	LT / RT									63	
	128+89	133+85	LTL	LT / RT		676				571				
	130+80	133+85	MED	LT			435	621						
	133+85	133+85	MED	LT							7			
	142+50	144+80	WOLFRAM	LT					217		6			
SUNWOOD 4	15+00	22+19	SUNWOOD MAIN	LT / RT								3004		
	17+73		SUNWOOD	RT							4			
	17+73	21+70	SUNWOOD	RT					408					
	17+73	17+73	SUN CURB	RT							3			
	17+07	22+19	RTL SW QUAD	RT		456				563				
	21+41	21+81	NW QUAD	LT		14	413			75				
	21+69	21+78	CMP REMOVAL	LT / RT		28								
	22+43	22+82	NE QUAD	LT		33								
	22+43	22+82	NE QUAD	LT			1346			69				
	22+65	23+04	SE QUAD	RT		64								
	22+65	29+52	SUNWOOD MAIN	LT / RT								3241		
	22+88	22+96	SE QUAD	RT			204			91				
ALTRON 143RD			NEW ENT						80	30	6			
PROJECT TOTAL					9962	3591	4087	2079	2553	2974	47	15609	411	

**REMOVALS NOTES:**  
 [ 1 ] STAGE 1 BITUMINOUS REMOVAL FROM STA 110+00 - 124+00 FOR LEB CURB INSTALLATION. 8'W X 1400'. BITUMINOUS AND GRAVEL TO BE REMOVED TO ALLOW FOR CURB INSTALLATION. ONCE TRAFFIC HAS BEEN SWITCHED FOR STAGE 2, REST OF WIDENING AREA LWB TO BE RECLAIMED.  
 [ 2 ] QTY OF (2) TWO SIGNAL LOOPS BY THE "EACH" HAVE BEEN INCLUDED IN THE SIGNAL PLAN SET FOR REPLACEMENT OF ANY DAMAGED SIGNAL LOOPS DURING THE MILLING PROCESS.

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: NICHOLAS J. DOBDA  
 SIGNATURE: *[Signature]*  
 DATE: 8/3/21 LICENSE NO. 49046

DRAWN BY: JCF DATE: 07/01/21  
 DESIGN BY: JCF DATE: 07/01/21  
 CHECKED BY: NJD DATE: 07/09/21



SAP 002-716-021  
 SAP 199-104-014

**STORM / CULVERT**

**D**

LOCATION STA & OFFSET ARE FROM BUNKER6)	STRUCTURE											NEW											NOTES							
						TO						15" RC APRON	18" RC APRON	24" RC APRON	18" CS SAFETY APRON & GRATE DES 3128	18" RC SAFETY APRON & GRATE DES 3128	18" CS PIPE CULVERT	18" PIPE CULVERT CLASS V	24" RC PIPE CULVERT CLASS V	15" RC PIPE SEWER CLASS V	18" RC PIPE SEWER CLASS III	CONNECT TO EXISTING STORM SEWER		CONST DRAINAGE STRUCTURE DES H	CONST DRAINAGE STRUCTURE DES 48-4020	CONST DRAINAGE STRUCTURE DES 72-4020	CASTING ASSEMBLY	GEOTEXTILE FILTER FABRIC TYPE 1	RANDOM RIPRAP CLASS II	
	STR	STA	OS	T/C	INV		%	STR	STA	OS	T/C	INV	EACH	EACH	EACH	EACH	EACH	LIN FT	LIN FT	LIN FT	LIN FT	LIN FT		EACH	LIN FT	LIN FT	LIN FT	LIN FT	EACH	SQ YD
MED	10	13+90.27	-6.75	869.60	865.10		EX 25	15+09.49	-21.46	870.48	864.48																			[ 1 ]
MED	20	15+20.23	-6.75	869.40	864.66	1.00%	EX 25	15+09.49	-21.46	870.48	864.48																			[ 2 ]
MED	EX 25	15+09.49	-21.46	870.48	864.48																									[ 3 ]
MED	EX 35	15+23.82	-1.25	869.22	864.72	1.00%	20	15+20.23	-6.75	869.40	864.66																			[ 4 ]
W. OF TOWN CNTR	30-A	36+86.89	-45.87		866.24	0.00%	40-A	36+86.28	48.28		866.24																			[ 5 ]
W. OF TOWN CNTR	40-A	36+86.28	48.28		866.24	0.00%	30-A																							[ 6 ]
W. OF TOWN CNTR	EX 45	37+11.82	-45.71		867.48																									[ 7 ]
SUN X CULVERT	48-A	103+79.93	43.37		886.60	0.17%	47-A	102+58.63	40.44		886.40																			[ 8 ]
ALTRON	49-B	111+87.90	41.61		879.20	0.50%	49C	111+08.00	39.84		878.80																			[ 16 ]
CONCRETE FLUME		119+75	-50.00																											[ 9 ]
NEW MED	50	122+00	-1.25	873.40	869.70	2.00%	55-A	122+00	-43.25		868.90	1																		[ 10 ]
NEW MED	60	123+85	-1.25	868.25	864.05	0.50%	70	123+95	-1.25		864.00																			[ 11 ]
NEW MED	70	123+95	-1.25	868.20	864.00	2.16%	75-A	123+95	-45.25		863.05																			[ 11 ]
MED / NEW LTL	80	130+89.39	-1.25	873.60	868.94	1.00%	EX129	130+89.39	-10.91		868.84																			[ 12 ]
MED / NEW LTL	EX 104	132+13.76	-1.25	876.80	873.25	1.33%	90	132+13.76	-6.75	876.80	873.17																			[ 13 ]
MED / NEW LTL	90	132+13.76	-6.75	876.80	873.17	0.00%	EX113	132+14.26	-18.64	876.86	873.17																			[ 14 ]
LTL, LANE LINE	EX 113	132+14.26	-18.64	876.86	873.17																									[ 3 ]
WOLFRAM ST	100	144+55	-53.00	887.29	883.40	0.50%																								[ 15 ]
<b>TOTAL</b>												1	1	2	2	2	56	96	24	77	62	10	16.4	12.3	4.5	11	234	54		

**NOTES**

- [ 1 ] REPLACES EXISTING CB 15. TRUNKLINE TO REMAIN IN-PLACE. CASTING TO FIT NEW WB CURBLINE.
- [ 2 ] REPLACES CB EXISTING 25, CASTING TO FIT NEW WB CURBLINE.
- [ 3 ] STRUCTURE REMAINS IN-PLACE, CASTING REMOVED AND MH CASTING INSTALLED.
- [ 4 ] CONNECT TO NEW CB 20, STRUCTURE AND CASTING REMAIN IN-PLACE.
- [ 5 ] REMOVE EXISTING 12' SAFETY APRON. ADD ADDITIONAL 8' PIPE AND INSTALL NEW 6' STANDARD APRON. RIP RAP.
- [ 6 ] REMOVE EXISTING 12' SAFETY APRON. ADD ADDITIONAL 16' PIPE AND INSTALL NEW 6' STANDARD APRON. RIP RAP.
- [ 7 ] 18" ARCH OUTLET PIPE FROM TOWN CENTER DR TO BE SHORTEND AND EXISTING APRON INSTALLED. RIP RAP TO APRON 30-A
- [ 8 ] TOTAL LENGTH 120' END OF APRON TO END OF APRON. 12' SAFETY APRONS " CAUTION "MUST FIT BETWEEN SIGNAL BASE LOCATIONS. EAST END REQUIRES DITCH SHAPING (CUT) TO INVERT.
- [ 9 ] CONSTRUCT CONCRETE FLUME FROM LOW END OF CURB TO BOTTOM OF DITCH, RIPRAP.
- [ 10 ] TOTAL LENGTH 40' FROM CB 50 TO END OF APRON 55-A, RIPRAP, LOCATION OF APRON IS THE BEG OF THE SPECIAL DITCH.
- [ 11 ] TOTAL LENGTH 44' FROM CB 70 TO END OF APRON 75-A. RIPRAP
- [ 12 ] EXISTING STR 129 GETS REMOVED, PIPE IS EXTENDED TO NEW STR 80 IN NEW EB MEDIAN CURBLINE.
- [ 13 ] NEW CASTING INSTALLED TO FIT NEW EB MEDIAN CURBLINE. CONNECTS TO NEW CB 90 AT 0.00%.
- [ 14 ] NEW STR 90 CONSTRUCTED IN NEW MEDIAN LTL CURBLINE. PIPE FROM EX 104 AT 0.00%, PIPE TO EX 113 AT 0.00%.
- [ 15 ] STR EX CB 248 TO BE REMOVED AND PIPE EXTENDED TO NEW CB 100 IN NEW LEB SHLDER CURBLINE.
- [ 16 ] TOTAL LENGTH 80' END OF APRON TO END OF APRON. 12' SAFETY APRONS

1	7/21/21	JCF	REMOVED DECIMALS GEO & RIPRAP		
<p align="center">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.</p> <p>PRINT NAME: NICHOLAS J. DOBDA</p> <p>SIGNATURE: </p> <p>DATE: 8/3/21 LICENSE NO. 49046</p>					
DRAWN BY JCF		DATE 07/01/21		<b>ANOKA COUNTY</b> HIGHWAY DEPT.	
DESIGN BY JCF		DATE 07/01/21			
CHECKED BY NJD		DATE 07/09/21		SAP 002-716-021 SAP 199-104-014	
				TABULATIONS Sheet 6 of 259 Sheets	

AGGREGATE						E
DESCRIPTION	ALI	STA. TO STA.	LOC.	AGGREGATE BASE CLASS 5 (CV)	SHLDR BASE CLASS 5 (CV)	NOTES
				CU YD	CU YD	
LEB BUNKER LAKE BLVD MEDIAN FILL AT ARMSTRONG BLVD	BUNKER6	13+57 - 18+00		180		1
LEB SHLDR		16+10 - 48+85	RT		61	2
LEB WIDENING BEG TO ZEOLITE ST		20+68 - 27+21	RT	231		1
LEB WIDENING ZEOLITE ST TO TOWN CNTR DR		27+21 - 38+56	RT	331		1
LEB WIDENING TOWN CNTR DR TO END OF WIDENING		38+56 - 48+82	RT	337		1
LEB MEDIAN FILL IN AT RAMSEY BLVD		61+34 - 63+30	LT	62		1
LEB SHLDR		108+40 - 129+00	RT		19	2
LWB BUNKER LAKE BLVD LWB SHLDR	BUNKER6	20+25 - 48+85	LT		26	2
LWB WIDENING BEG TO ZEOLITE ST		20+25 - 26+79	LT	223		1
LWB WIDENING ZEOLITE ST TO TOWN CNTR DR		27+21 - 38+56	LT	426		1
LWB WIDENING TOWN CNTR DR TO END OF WIDENING		38+56 - 48+82	LT	423		1
LWB MEDIAN FILL IN AT RAMSEY BLVD		70+30 - 73+06	LT	65		1
LWB SHLDR		108+40 - 116+09	LT		7	2
LWB WIDENING BEG TO AZURITE ST		110+00 - 116+09	LT	413		1
LWB WIDENING AZURITE ST TO END		116+09 - 125+95	LT	710		1
TRAIL		117+50 - 119+50	LT	2		3
LWB SHLDR		119+75 - 125+94	LT		6	2
AZURITE LTL		128+89 - 133+85	LT	138		1
RTL BUMPOUT REMOVAL AT WOLFRAM ST		142+70 - 144+90	LT	13		1
SUNWOOD DR RTL [4]	SUNWOOD4	17+72 - 22+19	RT	272		1
<b>TOTAL</b>				<b>3827</b>	<b>119</b>	

**AGGREGATE NOTES**

- [ 1 ] CLASS 5 QUANTITY FOR WIDENING AREAS (CL-5, 6 INCH DEPTH)
- [ 2 ] 2.0' WIDE GRAVEL SHOULDER ( CALC AT 3 INCH DEPTH )
- [ 3 ] 4.0" CLASS 5 BASE FOR BITUMINOUS TRAIL
- [ 4 ] OPTION OF EITHER 10.0" BASE CLASS 5 OR 6.0" OF STABILIZED RECLAIMED BITUMINOUS.

UTILITY OWNERS			H
<b>CENTURYLINK</b> CONTACT CHARLES DAHER TEL: 612-298-2825	<b>CONNEXUS ENERGY</b> CONTACT DAN MESSNER TEL:	<b>ZAYO BANDWIDTH</b> CONTACT JASON OVERKAMP TEL: 651.788.5890	
<b>ARVIG</b> CONTACT CURTIS OLSON TEL: 612-503-2718	<b>COMCAST</b> CONTACT LUKE BASTIL TEL:		
<b>ANOKA COUNTY SIGNALS</b> CONTACT MARK LEKSON TEL: 763-324-3139	<b>CENTERPOINT ENERGY</b> CONTACT TRAVIS DENZEL TEL: 612-321-5207	<b>CITY OF RAMSEY</b> CONTACT LEONARD LINTON TEL: 763-433-9834	

BITUMINOUS SUMMARY											F
ALI	DESCRIPTION	STA. TO STA.	LOC.	2105 CONSTRUCT TURN LANE	2357 BITUMINOUS MATERIAL TACK COAT	2360 TYPE SP 9.5 WEARING COURSE MIX (2,B)	2360 TYPE SP 12.5 BIT MIXTURE FOR PATCHING	2360 TYPE SP 12.5 NON-WEARING COURSE MIX (3,B)	2360 TYPE SP 12.5 WEARING COURSE MIX (3,C)	INTERIM PAVEMENT MARKINGS	NOTES
				EACH	GALLON	TON	TON	TON	TON	LIN FT	
BUNKER6	MEDIAN FILL	13+57 - 18+00	LT		54			124	124		[ 1 ]
	MAINLINE WEAR CAP	13+57 - 48+85	LT \ RT		1151				2647	848	[ 2 ], [ 16 ]
	PATCH ALONG CURB MED	15+30 - 18+00	RT		3		14				[ 4 ]
	MAINLINE LWB WIDENING	20+25 - 48+85	LT		283			651	651		[ 6 ]
	MAINLINE LEB WIDENING	20+68 - 48+85	RT		239			550	550		[ 6 ]
	TEMP PAVING	48+85 - 51+50	LT				10				[ 7 ]
	MEDIAN FILL	61+33 - 63+30	LT		25						[ 8 ]
	MEDIAN FILL	70+29 - 73+08	LT		37						[ 8 ]
	CONNEXUS RTL	72+43 - 77+22	RT	1							[ 9 ]
	MAINLINE WEAR CAP	108+90 - 134+00	LT / RT		823				1894	602	[ 2 ], [ 16 ]
	MAINLINE WIDENING	110+00 - 125+94	LT		260						[ 6 ]
	PATCH ALONG CURB MED	110+00 - 113+00	LT		3		15				[ 10 ]
	ALTRON ENT	111+10 - 112+06	RT		9	43					[ 11 ]
	ALTRON ENT ON 143RD		RT		6	26					[ 17 ]
	143RD	115+63 - 116+52	RT		7	17					[ 12 ]
	PATCH ALONG CURB MED	116+70 - 124+00	LT		8		37				[ 10 ]
	TRAIL	117+50 - 119+50	LT			25					[ 13 ]
	BASALT	123+10 - 124+00	RT		6	14					[ 12 ]
	4' WIDE TEMP PAVING	124+00 - 126+00	RT				10				[ 7 ]
	AZURITE LTL	128+89 - 133+85	LT		42			96	96		[ 1 ]
	PATCH ALONG CURB MED	129+75 - 133+85	LT		5		21				[ 4 ]
	WOLFRAM RTL	142+60 - 144+85	LT		4		31				[ 14 ]
SUNWOOD 4	MAINLINE WEAR CAP	15+00 - 22+18	LT \ RT		177				406	172	[ 2 ], [ 16 ]
	NEW RTL	17+72 - 22+18	RT		46				107		[ 15 ]
	N.W. QUAD	21+75	LT				5				[ 18 ]
	N.E. QUAD	22+75	LT				4				[ 18 ]
	S.E. QUAD	22+75	RT				20				[ 18 ]
	MAINLINE WEAR CAP	22+65 - 29+52	LT \ RT		162				373	165	[ 2 ], [ 16 ]
<b>PROJECT TOTAL</b>				<b>1</b>	<b>3350</b>	<b>125</b>	<b>167</b>	<b>1421</b>	<b>6848</b>	<b>1788</b>	

**BITUMINOUS SUMMARY NOTES:**

- [ 1 ] PERMANENT MEDIAN FILL, 2 LIFTS UP TO MILLED SURFACE ELEV, BASE AND BINDER. (WEAR COURSE CAP TO FOLLOW)
- [ 2 ] MAINLINE 2.0" OVERLAY (CAP)
- [ 3 ] NOTE DELETED.
- [ 4 ] 2.0' PATCHING ALONG NEW MEDIAN CURB UP TO MILLED SURFACE.
- [ 5 ] NOTE DELETED.
- [ 6 ] MAINLINE WIDENING, 2 LIFTS UP TO EXISTNG BIT ELEV, BASE AND BINDER. (WEAR COURSE CAP TO FOLLOW)
- [ 7 ] PAVE 2" TEMPORARY PAVING FOR STAGING.
- [ 8 ] MEDIAN FILL, 3 LIFTS UP TO PAVED SURFACE, BASE, BINDER WEAR.
- [ 9 ] NEW CONNEXUS RTL, ITEM INCLUDES BUT NOT LIMITED TO ALL REMOVAL ITEMS, NEW MATERIALS AND EQUIPMENT TO CONSTRUCT NEW RTL . SEE DETAILS.
- [ 10 ] 2.0' PATCHING ALONG NEW MEDIAN CURB UP TO EXISTING BITUMINOUS ELEV.
- [ 11 ] ALTRON DRIVEWAY, 2 LIFTS, FOLLOWING OVERLAY MAINLINE CAP.
- [ 12 ] 2.0" OVERLAY STREET APPROACH FOLLOWING MAINLINE OVERLAY CAP.
- [ 13 ] 10' BITUMINOUS TRAIL TIGHT TO BACK OF CURB AND TRANSITIONS TO EXISTING TRAIL, 2.0" DEPTH.
- [ 14 ] SHOULDER FILL, 3 LIFTS OF PATCHING TO EXISTING BITUMINOUS ELEV.
- [ 15 ] PAVE 1 - 2.0" LIFT UP TO MILLED SURFACE ELEV, (WEAR COURSE CAP TO FOLLOW)
- [ 16 ] INTERIM PAVEMENT MARKINGS PLACED ON NEW BIT PRIOR TO PERMANENT STRIPING. BASED ON PROJECT AREA LENGTH DIVIDED BY 50' X 4' SKIPS 3-MARKINGS CL AND EDGES.
- [ 17 ] ALTRON ENTRANCE ON 143RD TO BE CONSTRUCTED AND OPEN PRIOR TO THE CONSTRUCTION OF THE WEST ALTRON ENTRANCE ON BUNKER.
- [ 18 ] BITUMINOUS PATCHING UP TO MILLED SURFACE ALONG NEW RAD CURB/PEDESTRIAN RAMPS, SUNWOOD SIGNAL.

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: NICHOLAS J. DOBDA  
 SIGNATURE: *NJD*  
 DATE: 8/31/21 LICENSE NO. 49046

DRAWN BY JCF DATE 07/01/21  
 DESIGN BY JCF DATE 07/01/21  
 CHECKED BY NJD DATE 07/09/21



**ANOKA COUNTY  
HIGHWAY DEPT.**

SAP 002-716-021  
SAP 199-104-014

TABULATIONS

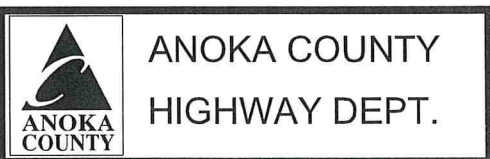
CONCRETE													G
ALIGNMENT	LOCATION	STATION			OFFSET	CONCRETE FLUME	4" CONCRETE WALK	6" CONCRETE WALK	CONCRETE CURB AND GUTTER DES B418	CONCRETE CURB AND GUTTER DES B424	CONCRETE CURB AND GUTTER DES B618	CONCRETE MEDIAN NOSE SPECIAL	TRUNCATED DOMES
		BEGIN	TO	END		[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]
						EACH	SQ FT	SQ FT	LIN FT	LIN FT	LIN FT	EACH	SQ FT
BUNKER6	MED LWB	13+57.40	-	17+96.60	LT			439					
	MED	13+57.40	-	17+96.60	LT		1223						
	MED LEB	15+30.00	-	17+96.60	LT			266					
	MED NOSE	17+96.60			LT						1		
	MED NOSE	61+34.22			LT						1		
	MED LEB	61+34.22	-	63+30.25	LT			196					
	MED	61+34.22	-	63.30.25	LT		623						
	MED LWB	70+29.96	-	73+08.82	LT			279					
	MED	70+29.96	-	73+08.82	LT			948					
	MED NOSE	73+08.82			LT						1		
	MED NOSE	110+00.00			LT						1		
	MED LEB	110+00.00	-	115+87.35	LT			588					
	MED	110+00.00	-	115+87.35	LT		2780						
	MED NOSE	115+87.35			LT						1		
	MED NOSE	116+71.43			LT						1		
	MED LEB	116+71.43	-	124+00	LT			729					
	MED	116+71.43	-	124+00	LT		3394						
	MED NOSE	124+00.00			LT						1		
	MED NOSE	129+76.11			LT						1		
	MED LEB	129+76.11	-	133+85.19	LT			409					
	MED LWB	129+76.11	-	133+85.19	LT			409					
	MED	129+76.11	-	133+85.19	LT		1140						
	SHLDR LWB	142+66.83	-	144+80.62	LT				214				
BUNKER6E2	MED LWB	210+00.00	-	215+87.72	RT			588					
	NE AZURITE RAD	215+70.09	-	216+10.47	LT			62					
	NE AZURITE PED RAMP	216+10.47			LT		60	131				24	
	SE AZURITE PED RAMP	216+51.10			LT			114				24	
	NE AZURITE	216+51.10	-	219+75.00	LT			325					
	LWB FLUME	219+75.00			LT	1							
SUNWOOD DR	RTL LEB	17+72.76	-	21+76.82	RT					412			
	RTL RETAINING WALL	18+00.00	-	21+00.00	RT								
	SW QUAD RAD	21+76.82	-	22+06.06	RT			471	57			32	
	NW QUAD RAD	21+49.29	-	21+81.76	LT		83	416	47			32	
	NE QUAD RAD	22+46.44	-	22+84.10	LT		759	589	47			40	
	SE QUAD	22+71.12	-	23+04.64	RT		104	174	43			32	
<b>CONCRETE TOTAL</b>						<b>1</b>	<b>11114</b>	<b>1895</b>	<b>4484</b>	<b>214</b>	<b>412</b>	<b>8</b>	<b>184</b>

[ 1 ] FLUME TO EXTEND TO BOTTOM OF DITCH, FINISH WITH RIP RAP.  
[ 2 ] ITEM USED FOR CONCRETE MEDIAN AND PEDESTRIAN RAMP LOCATIONS  
[ 3 ] ITEM USED IN AREAS OF PEDESTRIAN RAMP CONSTRUCTION WHERE TRUNCATED DOMES WILL BE PLACED.  
[ 4 ] NOTE: PLAN LOCATIONS OF AREAS OF "GUTTER IN CURB AND GUTTER" AND "GUTTER OUT CURB AND GUTTER". MEDIAN B418 CURB SHALL BE "MODIFIED" PAID FOR AS CONCRETE CURB AND GUTTER B418. SEE DETAILS.  
[ 5 ] CURB LINE TO BE EXTENDED PAST EXISTING HYD AT 16+10. / CURB RAD ADDED PAST HYD AT ZEOLITE ST. / USED WHERE RTL CURB LINE BUBBLE TO BE REMOVED AT WOLFRAM ST.  
[ 6 ] 6.0" CURB SUNWOOD DRIVE RTL ONLY. RAD'S FOR BUNKER LAKE AND SUNWOOD SHALL BE 4.0" CURB.  
[ 7 ] STANDARD RAMPED CONCRETE MEDIAN NOSE.  
[ 8 ] SEE INTERSECTION DETAILS.

1	7/30/2021	JCF			ADDED TO NOTE NUMBER 4, MODIFIED CURB VERBIAGE
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: NICHOLAS J. DOBDA  
SIGNATURE: *[Signature]*  
DATE: 8/3/21 LICENSE NO. 49046

DRAWN BY JCF DATE 07/01/21  
DESIGN BY JCF DATE 07/01/21  
CHECKED BY NJD DATE 07/09/21



SAP 002-716-021  
SAP 199-104-014



TURF ESTABLISHMENT AND EROSION CONTROL

ALI	LOCATION					TEMPORARY EROSION CONTROL						PERMANENT EROSION CONTROL					I	
						SILT FENCE TYPE MACHINE SLICED [2]	SEDIMENT REMOVAL BACKHOE [11]	STREET SWEEPER WITH PICKUP BROOM [12]	STORM DRAIN INLET PROTECTION [1]	CULVERT END CONTROLS [3]	RAPID STABILIZATION METHOD 3 [4]	SEEDING	SEED MIXTURE 25-121 [5][10]	MULCH MATERIAL TYPE 1 [6]	DISK ANCHORING	FERTILIZER TYPE 3 [7]		EROSION CONTROL BLANKETS CAT. 3N [8][9]
						LIN FT	HOUR	HOUR	EACH	EACH	MGAL	ACRE	POUND	TON	ACRE	POUND		SQ YD
BUNKER6	10+00			144+90														
	11+28	37						34										
	11+48	-69							1									
	11+49	1							1									
	11+50	-6							1									
	11+60	-6							1									
	12+90	-6							1									
	13+90	-6							1									
	15+20	-6							1									
	15+23	-2							1									
	15+24	31							1									
	16+07	35	TO	27+20	42	1094	2				1.0	0.173	11	0.3	0.173	61		
	20+25	-32	TO	26+78	-54	662	1				0.7	0.110	7	0.22	0.110	39		
	26+62	-117							1									
	26+96	-131							1									
	27+29	-51	TO	36+87	-50	935	2											
	27+29	-51	TO	38+55	-54						1.2	0.204	12	0.41	0.204	71		
	27+59	44	TO	38+55	45	1138	2				3.2	0.533	33	1.07	0.533	187		
	36+87	52								1								18
	36+87	-50								1								18
	37+29	-50																18
	38+60	-69								1								
	38+61	100								1								
	38+83	100								1								
	38+97	-70								1								
	39+00	100								1								
	39+13	-70								1								
	39+37	100								1								
	39+37	-70								1								
	39+40	44	TO	48+82	22	943	2				1.7	0.280	17	0.56	0.280	98		
	39+43	-53	TO	48+82	-36	941	2				0.7	0.116	7	0.23	0.116	41		
	39+83	-44																13
	65+29	38								1								
	65+29	-51								1								
	69+98	-57								1								
	70+00	31								1								
	72+42	39	TO	77+09	42	474	1				0.6	0.105	6	0.21	0.105	37		
	77+09	42								1								12
	110+00	-32	TO	113+00	-45	301	1											
	110+00	-32	TO	115+91	-44						0.5	0.081	5	0.16	0.081	28		
	111+88	42								1								
	116+53	-60	TO	117+50	-50						0.1	0.020	1	0.04	0.020	7		
	119+50	-49	TO	123+39	-57						0.7	0.111	7	0.22	0.111	39		
	122+00	-2								1								
	123+28	-44								1								14

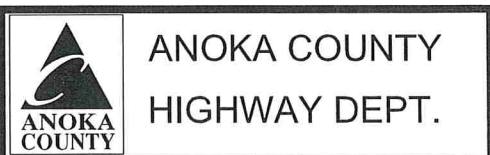
NOTES:

- [ 1 ] INSTALLED AT THE INLET APRON PRIOR TO DISTURBING SOIL.
- [ 2 ] LOCATION OF PROPOSED SILT FENCE TO BE LAID OUT BY ENGINEER PRIOR TO INSTALLATION.
- [ 3 ] PLACED AT HIGH INVERT OF CULVERT LOCATED WITHIN THE PROJECTS CONSTRUCTION LIMITS AND SILT FENCE.
- [ 4 ] BASED ON 6 MGAL PER ACRE FOR TEMP SEEDING EXPOSED SOILS PRIOR TO FINISH SEEDING.
- [ 5 ] SEED MIXTURE 25-121 APPLIED AT A RATE OF 61 LBS PER ACRE
- [ 6 ] MULCH APPLIED AT A RATE OF 2 TONS PER ACRE.
- [ 7 ] FERTILIZER APPLIED AT A RATE OF 350 LBS PER ACRE.
- [ 8 ] BLANKETS OF NATURAL NETTING USED AT ALL DISTURBED CULVERT APRONS, SEE DETAILS, "TURF ESTABLISHMENT DETAIL AT CULVERT ENDS".
- [ 9 ] FOR RIPRAP QUANTITIES AT APRON ENDS SEE "STORM CULVERT TAB" AND SEE DETAILS, " RIPRAP AT OUTLETS - 3133D & 3134D".
- [ 10 ] INPLACE TOPSOIL TO BE STRIPPED AND USED FOR FINAL SEEDING.
- [ 11 ] SILT FENCE TO BE MAINTAINED. REMOVAL OF SEDIMENT ALONG SILT FENCE.
- [ 12 ] ROADWAY TO BE KEPT FREE OF SOILS; DUST CONTROL. AREAS OF CONSTRUCTION ACTIVITY MUST BE SWEEPED AT THE END OF EACH WORKING DAY AND AS DIRECTED BY ENGINEER.

1	7/21/21	JCF			REMOVED DECIMALS FROM BACKHOE
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: NICHOLAS J. DOBDA  
 SIGNATURE: *Nicholas J. Dobda*  
 DATE: 8/3/21 LICENSE NO. 49046

DRAWN BY JCF DATE 07/01/21  
 DESIGN BY JCF DATE 07/01/21  
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SAP 002-716-021  
 SAP 199-104-014

**TURF ESTABLISHMENT AND EROSION CONTROL - CONTINUED**

ALI	LOCATION					TEMPORARY EROSION CONTROL							PERMANENT EROSION CONTROL					I
						SILT FENCE TYPE MACHINE SLICED [2]	SEDIMENT REMOVAL BACKHOE [11]	STREET SWEEPER WITH PICKUP BROOM [12]	STORM DRAIN INLET PROTECTION [1]	CULVERT END CONTROLS [3]	RAPID STABILIZATION METHOD 3 [4]	SEEDING	SEED MIXTURE 25-121 [5][10]	MULCH MATERIAL TYPE 1 [6]	DISK ANCHORING	FERTILIZER TYPE 3 [7]	EROSION CONTROL BLANKETS CAT. 3N [8][9]	
												ACRE	POUND	TON	ACRE	POUND	SQ YD	
STATION	OFFSET	TO	STATION	OFFSET	LIN FT	HOUR	HOUR	EACH	EACH	MGAL	ACRE	POUND	TON	ACRE	POUND	SQ YD		
	123+66	-59	TO	126+00	-37	227	1		1		0.8	0.134	8	0.27	0.134	47		
	123+79	156						1										
	123+85	-2						1										
	123+95	-2						1										
	126+26	37						1										
	126+26	-44							1								14	
	126+35	37						1										
	129+99	30						1										
	130+00	-51						1										
	130+89	-2						1										
	130+90	-51						1										
	132+14	30						1										
	132+14	-2						1										
	132+14	-6						1										
	132+14	-51						1										
	133+68	-51						1										
	142+60	-58	TO	144+85	-58					0.1	0.019	1	0.04	0.019	7			
	144+50	-58						1										
<b>SUNWOOD4</b>	10+00			29+50														
	15+65	17						1										
	15+65	-22						1										
	17+70	29	TO	22+02	66					1.3	0.219	13	0.44	0.219	77			
	20+87	38	TO	22+02	66	136	1											
	21+46	-45		21+78	-100					0.2	0.040	2	0.08	0.040	14		13	
	21+60	-61																
	22+46	-48		22+58	-142					0.1	0.016	1	0.03	0.016	6		12	
	22+89	-57																
	26+22	17						1										
	26+24	-22						1										
<b>PROJECT TOTAL</b>						<b>6,851</b>	<b>15</b>	<b>39</b>	<b>44</b>	<b>7</b>	<b>12.9</b>	<b>2.161</b>	<b>132</b>	<b>4.28</b>	<b>2.161</b>	<b>759</b>	<b>132</b>	

**NOTES:**

- [ 1 ] INSTALLED AT THE INLET APRON PRIOR TO DISTURBING SOIL.
- [ 2 ] LOCATION OF PROPOSED SILT FENCE TO BE LAID OUT BY ENGINEER PRIOR TO INSTALLATION.
- [ 3 ] PLACED AT HIGH INVERT OF CULVERT LOCATED WITHIN THE PROJECTS CONSTRUCTION LIMITS AND SILT FENCE.
- [ 4 ] BASED ON 6 MGAL PER ACRE FOR TEMP SEEDING EXPOSED SOILS PRIOR TO FINISH SEEDING.
- [ 5 ] SEED MIXTURE 25-121 APPLIED AT A RATE OF 61 LBS PER ACRE
- [ 6 ] MULCH APPLIED AT A RATE OF 2 TONS PER ACRE.
- [ 7 ] FERTILIZER APPLIED AT A RATE OF 350 LBS PER ACRE.
- [ 8 ] BLANKETS OF NATURAL NETTING USED AT ALL DISTURBED CULVERT APRONS, SEE DETAILS, "TURF ESTABLISHMENT DETAIL AT CULVERT ENDS".
- [ 9 ] FOR RIPRAP QUANTITIES AT APRON ENDS SEE "STORM CULVERT TAB" AND SEE DETAILS, " RIPRAP AT OUTLETS - 3133D & 3134D".
- [ 10 ] INPLACE TOPSOIL TO BE STRIPPED AND USED FOR FINAL SEEDING.
- [ 11 ] SILT FENCE TO BE MAINTAINED. REMOVAL OF SEDIMENT ALONG SILT FENCE.
- [ 12 ] ROADWAY TO BE KEPT FREE OF SOILS; DUST CONTROL. AREAS OF CONSTRUCTION ACTIVITY MUST BE SWEEPED AT THE END OF EACH WORKING DAY AND AS DIRECTED BY ENGINEER.

1	7/21/21	JCF		REMOVED DECIMALS FROM BACKHOE
NO	DATE	BY	CKD	APPR
NAME: P:\002-716-021\Plan\002716021 TA.dgn				07/27/2021 1:46:01 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: NICHOLAS J. DOBDA  
 SIGNATURE: *[Signature]*  
 DATE: 8/21/21 LICENSE NO. 49046

**ANOKA COUNTY**  
HIGHWAY DEPT.

SAP 002-716-021  
 SAP 199-104-014

TABLATIONS  
 Sheet 10 of 259 Sheets

1. GRANULAR MATERIALS SHALL MEET THE REQUIREMENTS OF MNDOT 3149.2B1
2. TOPSOIL SHALL BE DEFINED AS EXISTING SOILS WHICH MEET MN/DOT SPECIFICATION 3877 THAT WOULD BE SUITABLE FOR REUSE.
3. INPLACE TOPSOIL IS ASSUMED TO BE 4 INCHES IN DEPTH ON ALL AREAS WHERE BITUMINOUS IS NOT PRESENT.
4. FOR THIS PROJECT IT IS ASSUMED THAT ALL OTHER INPLACE SOILS MEET THE REQUIREMENTS GRANULAR MATERIAL.
5. ALL TOPSOIL STRIPPING WILL BE QUANTIFIED AS COMMON EXCAVATION. RE-PLACING THIS STRIPPED MATERIAL WILL BE INCIDENTAL TO COMMON EXCAVATION.
6. IN ALL AREAS OF NEW OR RECONSTRUCTED MAINLINE ROADWAY RECONSTRUCTION, PROVIDE FOR A MINIMUM 12 INCH COMPACTION SUBCUT UNLESS OTHERWISE NOTED. BACKFILL WITH INPLACE GRANULAR MATERIAL OR GRANULAR MATERIAL TAKEN FROM ELSEWHERE WITHIN THE PROJECT LIMITS. ANY UNCONTAMINATED SUITABLE GRANULAR MATERIAL REMOVED FROM THE EXISTING SUBGRADE AREA MAY BE USED IN OTHER AREAS DESIGNATED FOR THE SAME MATERIAL.
7. UNLESS OTHERWISE SPECIFICALLY ALLOWED OR REQUIRED BY THE CONTRACT, BITUMINOUS AND CONCRETE ITEMS DISTURBED BY CONSTRUCTION SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND SHALL BE RECYCLED TO THE EXTENT ALLOWED IN BASE AND SURFACING ITEMS OR DISPOSED OF OUTSIDE THE RIGHT-OF-WAY IN ACCORDANCE WITH SPEC. 2104.3C3.
8. WHERE CONNECTING NEW SURFACING ADJACENT TO ANY INPLACE PAVEMENTS TO BE WIDENED, CUT VERTICALLY TO THE BOTTOM OF THE INPLACE SURFACING OR TO THE BOTTOM OF THE NEW SURFACING DESIGN, WHICHEVER IS DEEPER, THEN AT 1:2 SLOPE TO THE BOTTOM OF THE RECOMMENDED SUBGRADE EXCAVATION.
9. WHERE MATCHING INTO INPLACE CROSSROADS, CUT VERTICALLY TO THE BOTTOM OF THE INPLACE SURFACING OR TO THE BOTTOM OF THE NEW SURFACING DESIGN, WHICHEVER IS DEEPER, THEN AT A 1:2 TAPER TO THE BOTTOM OF THE RECOMMENDED SUBGRADE EXCAVATION.
10. USE TACK COAT BETWEEN ALL BITUMINOUS MIXTURES AND PRIOR TO PLACING ANY BITUMINOUS MIXTURES ON THE EXISTING PAVEMENT. THE BITUMINOUS TACK COAT MATERIAL SHALL BE APPLIED AT A UNIFORM RATE OF 0.03 TO 0.05 GALLONS/SQ. YD. BETWEEN BITUMINOUS LAYERS AND 0.07 TO 0.10 GALLONS/SQ. YD. ON CONCRETE OR MILLED BITUMINOUS SURFACES PRIOR TO BEING OVERLAID. THE APPLICATION RATES ARE FOR UNDILUTED EMULSIONS (AS SUPPLIED FROM THE REFINERY) OR MC AND RC LIQUID ASPHALTS. THE ASPHALT EMULSION MAY BE FURTHER DILUTED IN THE FIELD IN ACCORDANCE WITH SPECIFICATION 2357.
11. PROVIDE A SAWCUT WHERE PLACING NEW PAVEMENT ADJACENT TO INPLACE PAVEMENT TO ENSURE A UNIFORM JOINT.
12. STRIP ALL TOPSOIL AND INPLACE SLOPE DRESSING WHERE PRESENT IN AREAS TO BE DISTURBED BY CONSTRUCTION AND REUSE AS SLOPE DRESSING. FOR ESTIMATING PURPOSES, THE DEPTH OF THE INPLACE TOPSOIL AVAILABLE IS CONSIDERED TO BE 4 INCHES.
13. EMBANKMENT QUANTITIES SHOWN ON THE EARTHWORK TABULATION REPRESENT ALL EARTHWORK QUANTITIES BELOW THE TOP OF SUBGRADE. QUANTITIES REQUIRED ABOVE THE TOP OF SUBGRADE OR FOR TEMPORARY CONSTRUCTION ARE PROVIDED IN DETAIL ON THE BITUMINOUS, AGGREGATE SUMMARY, OR TEMPORARY WIDENING TABS.
14. THE CONSTRUCTION LIMITS AS SHOWN IN THE PLANS REPRESENT THE POINT OF INTERSECTION BETWEEN THE REQUIRED FILL OR CUT SLOPE AND THE EXISTING GROUND LINE AS DEPICTED ON THE CROSS SECTIONS. THE CONSTRUCTION LIMITS DO NOT INCLUDE AREAS REQUIRED FOR SLOPE ROUNDING.
15. DITCH BOTTOMS, TOE OF FILL, CUT RUNOUTS AND THE TOP EDGE OF THE BACKSLOPES SHALL BE ROUNDED REGARDLESS OF THE SECTION USED ON THE CROSS SECTION SHEETS.
16. ANY DEBRIS WHICH MAY BE ENCOUNTERED DURING GRADING SHALL BECOME PROPERTY OF THE CONTRACTOR AND DISPOSED OF OFF THE PROJECT RIGHT OF WAY IN A SUITABLE DISPOSAL AREA AS APPROVED BY THE ENGINEER.
17. UNSUITABLE SOILS NOT USED ON THE PROJECT SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND REMOVED FROM THE PROJECT AND DISPOSED OF IN ACCORDANCE WITH MN/DOT SPECIFICATIONS.
18. FOR ESTIMATING PURPOSES, INPLACE BITUMINOUS PAVEMENT HAS BEEN ASSUMED TO BE 4". FOR INFORMATION ONLY, CONTRACTOR TO VERIFY PAVEMENT DEPTH PRIOR TO PLACING BID.
19. IT IS ASSUMED THAT BITUMINOUS PAVEMENT WILL BE REMOVED FROM THE PROJECT SITE AND NOT RE-USED AS EMBANKMENT.
20. AGGREGATE BASE MATERIAL SHALL MEET THE REQUIREMENTS OF MN/DOT SPEC. 3138, CLASS 5.
21. COMPACTION OF ALL AGGREGATE BASE, GRANULAR, AND SELECT GRANULAR MATERIAL SHOULD BE IN ACCORDANCE WITH MN/DOT "MODIFIED PENETRATION INDEX METHOD"
22. COMPACTION OF ALL PERMANENT BITUMINOUS MIXTURES SHALL BE THE "MAXIMUM DENSITY METHOD"
23. NO OVER-EXCAVATION WILL BE ALLOWED INSIDE THE COUNTY'S RIGHT OF WAY OF THIS PROJECT.
24. EXCESS GRANULAR MATERIAL MUST BE DEEMED EXCESS BY THE PROJECT ENGINEER PRIOR TO REMOVING IT FROM THE PROJECT.

1	7/21/21	JCF			ADDED SHALL TO NOTE 1
NO	DATE	BY	CKD	APPR	REVISION
NAME: P:\002-716-021\Plan\002716021 SC.dgn 07/27/2021 1:46:06 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: NICHOLAS J. DOBDA  
 SIGNATURE: *NJD*  
 DATE: 8/3/21 LICENSE NO. 49046

DRAWN BY JCF DATE 07/01/21  
 DESIGN BY JCF DATE 07/01/21  
 CHECKED BY NJD DATE 07/09/21



ANOKA COUNTY  
 HIGHWAY DEPT.

SAP 002-716-021  
 SAP 199-104-014

SOILS AND CONSTRUCTION  
 NOTES

TAB AA

SUN- WOOD	EXCAVATION TOTALS		EMBANKMENT VOLUMES		
	COMMON (C.Y.)	SUBGRADE (C.Y.)	TOPSOIL (C.Y.)	SUITABLE (C.Y.)	SEL. GRAN. (C.Y.)
17+50.00	0	0	0	0	0
17+75.00	12	12	3	0	12
18+00.00	22	14	5	0	14
18+25.00	32	15	6	0	15
18+50.00	43	17	6	0	15
18+75.00	59	19	8	0	20
19+00.00	74	20	8	0	20
19+25.00	78	20	8	0	20
19+50.00	74	20	7	0	20
19+75.00	72	20	7	0	20
20+00.00	70	20	7	0	20
20+25.00	68	20	6	0	20
20+50.00	61	20	5	0	20
20+75.00	51	20	4	0	20
21+00.00	40	20	4	0	20
21+25.00	31	20	2	0	20
21+50.00	27	20	2	0	20
21+75.00	21	20	0	0	0
<b>SUNWOOD</b>	<b>835</b>	<b>317</b>	<b>95</b>	<b>0</b>	<b>317</b>

TAB AA

BUNKER	EXCAVATION TOTALS		EMBANKMENT VOLUMES		
	COMMON (C.Y.)	SUBGRADE (C.Y.)	TOPSOIL (C.Y.)	SUITABLE (C.Y.)	SEL. GRAN. (C.Y.)
16+10.29	0	0	0	0	0
16+50.00	0	0	0	0	0
17+00.00	0	0	0	0	0
17+50.00	0	0	0	0	0
18+00.00	0	0	0	0	0
18+50.00	0	0	0	0	0
19+00.00	0	0	0	0	0
19+50.00	12	29	0	0	0
20+00.00	25	56	0	0	0
20+50.00	27	54	4	1	34
21+00.00	28	53	8	11	68
21+50.00	30	57	7	19	68
22+00.00	33	61	7	21	68
22+50.00	35	62	7	24	71
23+00.00	35	64	7	24	75
23+50.00	35	66	7	20	75
24+00.00	33	66	8	17	75
24+50.00	33	66	8	16	75
25+00.00	35	68	9	16	75
25+50.00	34	66	9	17	75
26+00.00	35	86	9	15	75
26+50.00	40	109	9	15	75
27+00.00	34	83	5	8	92
27+50.00	26	55	2	1	110
28+00.00	29	55	4	4	85
28+50.00	32	56	6	8	60
29+00.00	30	57	10	10	60
29+50.00	31	58	13	14	60
30+00.00	30	59	14	18	60
30+50.00	31	59	13	18	60
31+00.00	36	58	16	10	60
31+50.00	31	57	18	24	60
32+00.00	34	56	18	42	60
32+50.00	41	56	17	42	58
33+00.00	41	56	17	39	57
33+50.00	41	56	17	36	57
34+00.00	40	56	18	84	66
34+50.00	42	57	19	123	75
35+00.00	44	57	19	120	75
35+50.00	45	57	20	119	75
36+00.00	47	57	21	117	75
36+50.00	49	55	21	115	75
37+00.00	49	57	24	108	75
37+50.00	34	72	26	108	75
38+00.00	78	113	26	111	75
38+50.00	84	113	14	55	81
39+00.00	31	76	1	0	114
39+50.00	29	66	0	0	113
40+00.00	30	62	4	3	78
40+50.00	31	58	7	7	71
41+00.00	32	57	8	12	71
41+50.00	32	57	10	25	71
42+00.00	31	58	11	31	71
42+50.00	32	57	12	35	71
43+00.00	30	56	13	39	71

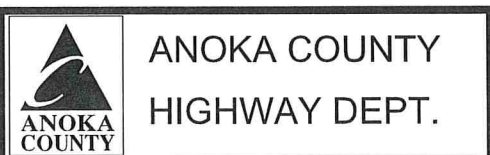
TAB AA

BUNKER	EXCAVATION TOTALS		EMBANKMENT VOLUMES		
	COMMON (C.Y.)	SUBGRADE (C.Y.)	TOPSOIL (C.Y.)	SUITABLE (C.Y.)	SEL. GRAN. (C.Y.)
43+50.00	30	55	13	38	71
44+00.00	27	53	14	42	71
44+50.00	28	53	14	43	69
45+00.00	29	54	14	35	67
45+50.00	28	56	14	27	68
46+00.00	31	61	14	30	68
46+50.00	32	62	13	28	68
47+00.00	28	60	12	19	68
47+50.00	25	58	11	15	68
48+00.00	12	28	9	12	68
48+50.00	17	27	6	8	68
110+00.00	0	0	0	0	0
110+50.00	36	55	0	0	0
111+00.00	37	57	2	1	57
111+50.00	38	59	2	1	59
112+00.00	42	62	2	1	62
112+50.00	44	65	2	1	65
113+00.00	41	67	4	1	68
113+50.00	33	68	4	4	71
114+00.00	24	64	4	11	74
114+50.00	21	61	4	12	75
115+00.00	22	63	4	7	75
115+50.00	25	64	3	4	75
116+00.00	36	75	1	2	79
116+50.00	47	112	0	0	112
117+00.00	50	105	3	6	111
117+50.00	44	73	5	9	84
118+00.00	39	76	3	11	84
118+50.00	37	76	2	18	84
119+00.00	36	76	3	22	84
119+50.00	35	77	3	23	84
120+00.00	43	80	3	12	85
120+50.00	51	82	2	2	85
121+00.00	52	82	3	2	84
121+50.00	46	79	3	2	82
122+00.00	48	70	7	2	72
122+50.00	55	62	13	4	62
123+00.00	48	57	15	8	58
123+50.00	48	83	8	5	85
124+00.00	93	88	9	0	89
124+50.00	107	47	19	0	47
125+00.00	77	28	19	0	28
125+50.00	63	28	19	0	28
126+00.00	44	28	10	0	28
<b>BUNKER</b>	<b>5146</b>	<b>6395</b>	<b>1041</b>	<b>2170</b>	<b>6929</b>
<b>TOTAL</b>	<b>5981</b>	<b>6712</b>	<b>1136</b>	<b>2170</b>	<b>7246</b>

NO	DATE	BY	CKD	APPR	REVISION
NAME: P:\002-716-021\Plan\002716021 EW.dgn					
07/27/2021 1:46:11 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: NICHOLAS J. DOBDA  
 SIGNATURE: *Nicholas J. Dobda*  
 DATE: 8/3/21 LICENSE NO. 49046

DRAWN BY JCF DATE 07/01/21  
 DESIGN BY JCF DATE 07/01/21  
 CHECKED BY NJD DATE 07/09/21

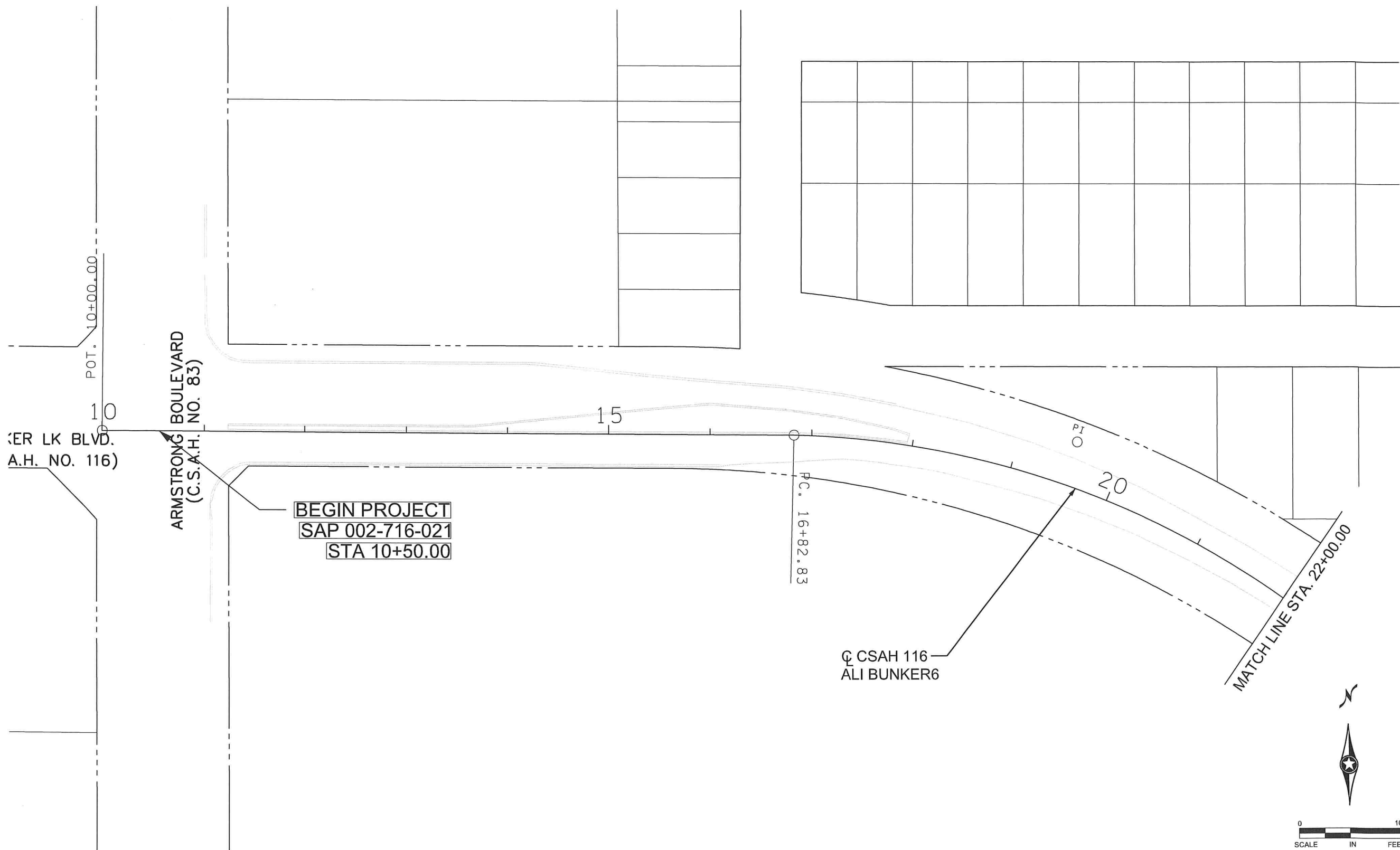


SAP 002-716-021  
 SAP 199-104-014

**TAB BB**  
**EARTHWORK BALANCE**

EXCAVATION (CY)			
		COMMON	4,293 (EV) / 1.2 = 3,578 (CV)
COMMON (EV) (P) (1)	5,981	EXISTING PAVEMENT	
		EXISTING TOPSOIL	1,688 (EV) / 1.2 = 1,407 (CV)
SUBGRADE EXCAVATION (EV) (P) (2)	6,712	SUBGRADE	6,712 (EV) / 1.2 = 5,593 (CV) (3)
EMBANKMENT (CY)			
SUITABLE	2,170 (CV)	2,170 (CV)	
TOPSOIL	1,136 (CV)	1,136 (CV)	
SELECT GRANULAR	7,246 (CV)	7,246 (CV) (4)	
EXCESS (CY)			
SUITABLE	3,578 (CV) - 2,170 (CV)	= 1,408 (CV) (5)	
TOPSOIL	1,407 (CV) - 1,136 (CV)	= 271 (CV) (6)	
BORROW (CY)			
SELECT GRANULAR	7,246 (CV) - 5,593 (CV)	= 1,653 (CV) *1.4 = 2,314 (LV) (7)	

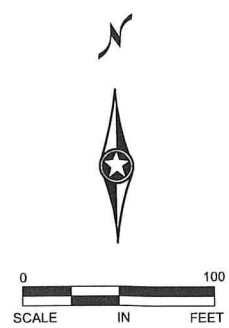
- (1) TOTAL COMMON EXCAVATION FOR PROJECT (INCLUDES RECLAIMED AREA/VOLUME)
- (2) TOTAL SUBGRADE EXCAVATION FOR PROJECT
- (3) ALL SUBGRADE EXCAVATION ASSUMED TO MEET REQUIREMENTS FOR SELECT GRANULAR
- (4) SELECT GRANULAR QUANTITY
- (5) TOTAL COMMON EXCESS FOR THIS PROJECT
- (6) TOTAL TOPSOIL EXCESS FOR PROJECT
- (7) TOTAL SELECT GRANULAR BORROW FOR PROJECT



**BEGIN PROJECT**  
**SAP 002-716-021**  
**STA 10+50.00**

Q CSAH 116  
 ALI BUNKER6

MATCH LINE STA. 22+00.00

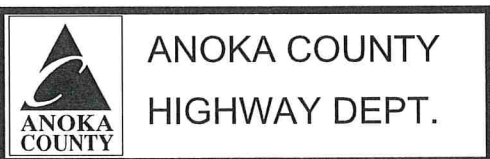


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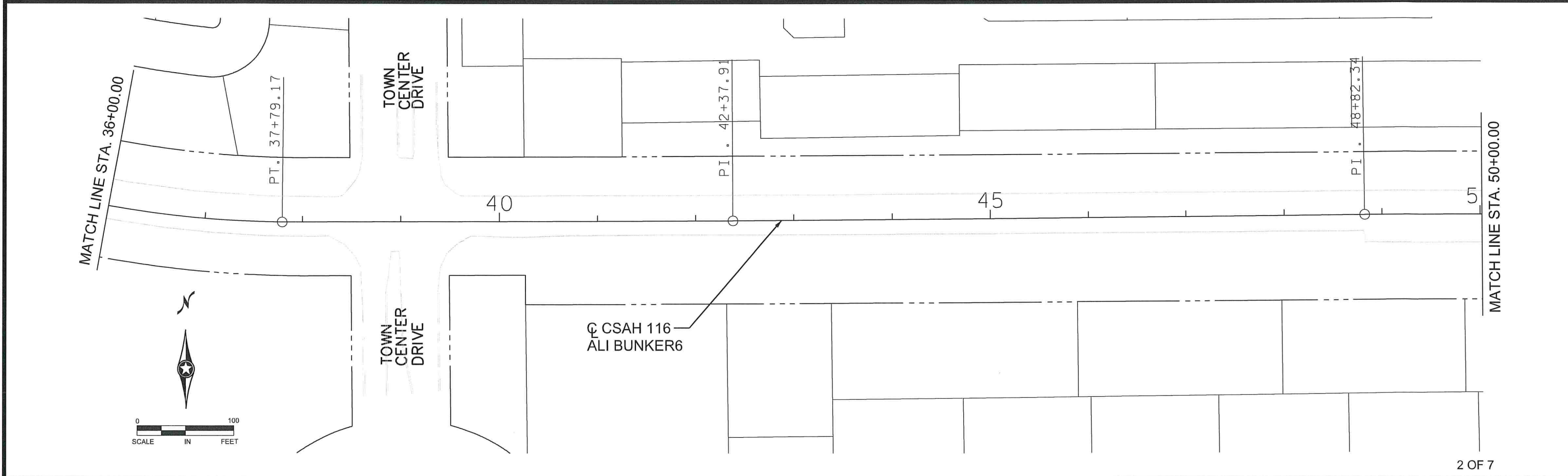
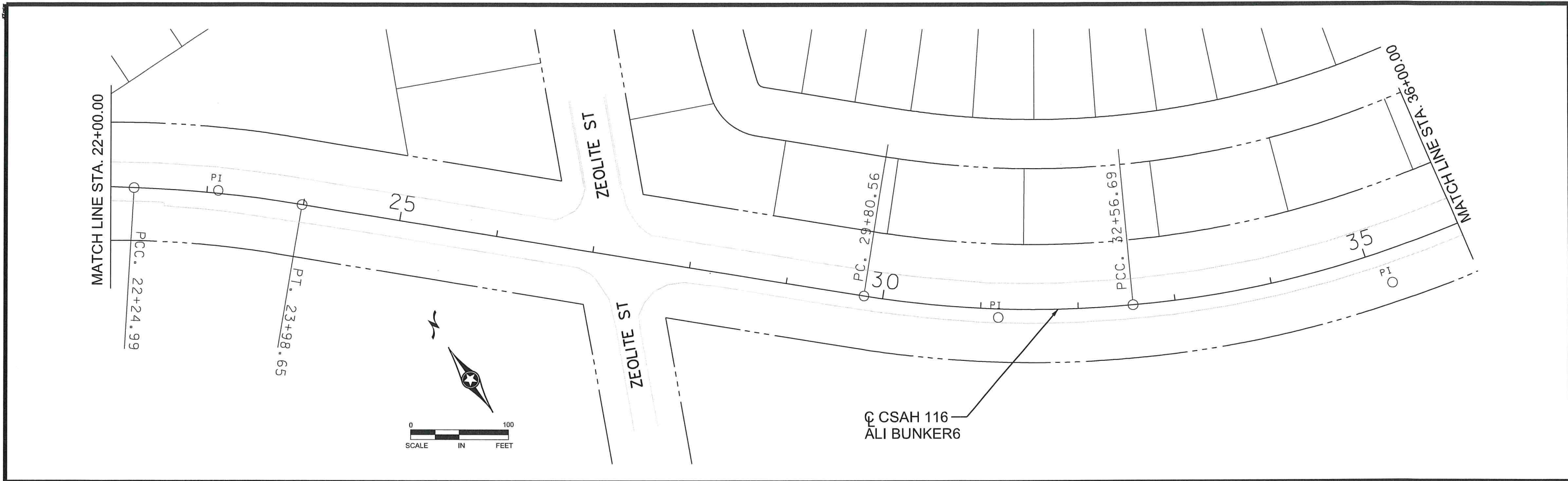
I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.  
 PRINT NAME: NICHOLAS J. DOBDA  
 SIGNATURE: *NJD*  
 DATE: 8/31/21      LICENSE NO. 49046

DRAWN BY JCF      DATE 07/01/21  
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 CHECKED BY NJD      DATE 07/09/21



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 SAP 199-104-014

ALIGNMENT  
 BUNKER LAKE BLVD  
 STA 10+00.00 TO 22+00.00  
 Sheet 14 of 259 Sheets

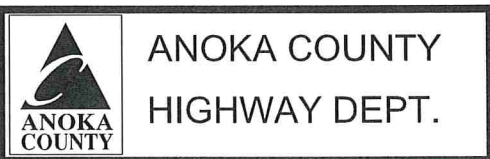


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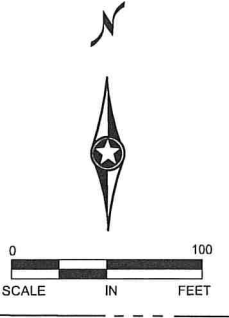
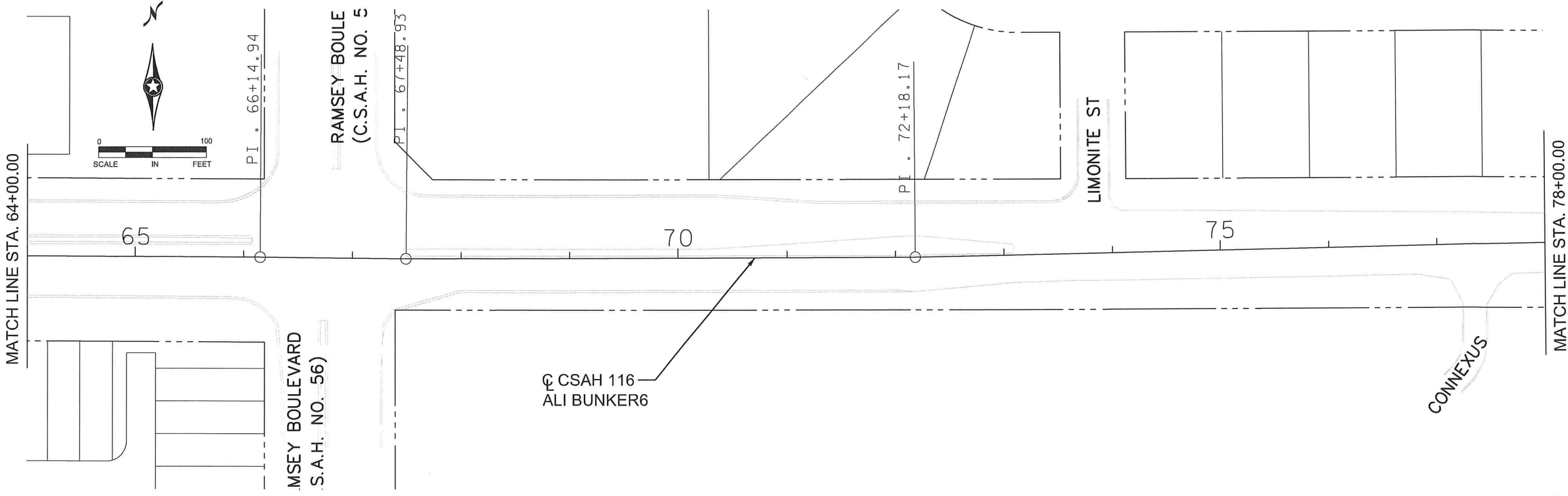
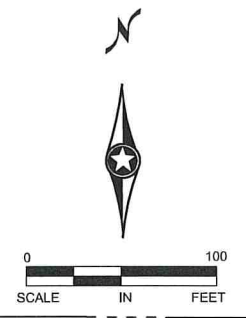
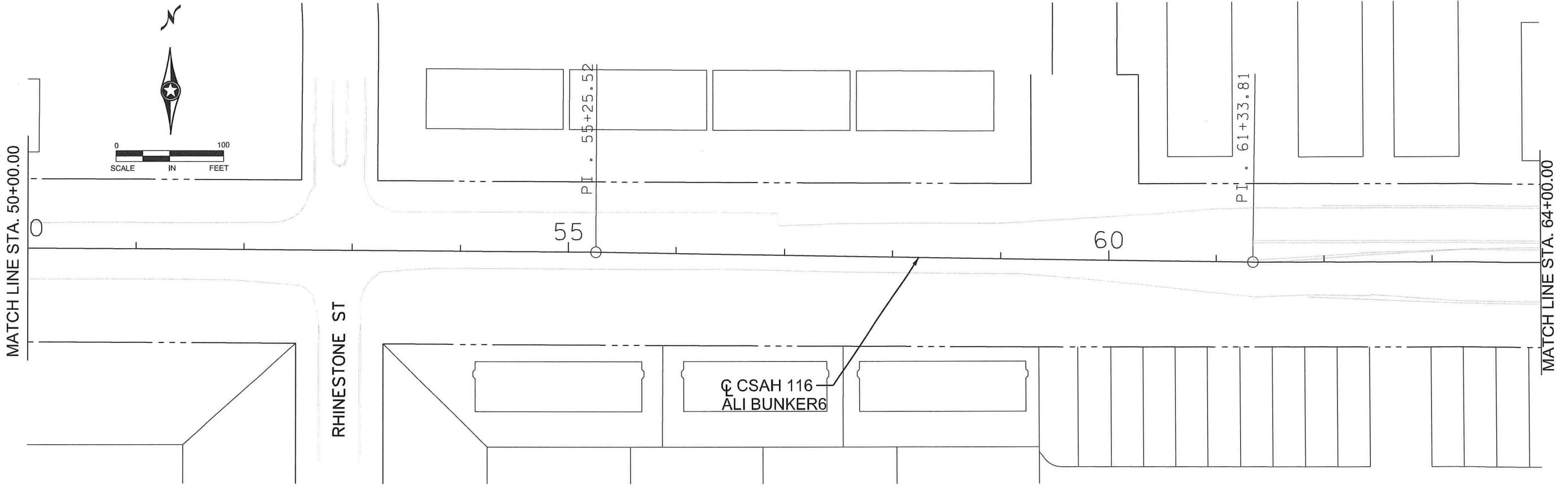
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 PRINT NAME: NICHOLAS J. DOBDA  
 SIGNATURE: *NJD*  
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DRAWN BY JCF DATE 07/01/21  
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 SAP 199-104-014

ALIGNMENT  
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 STA 22+00.00 TO 50+00.00  
 Sheet 15 of 259 Sheets

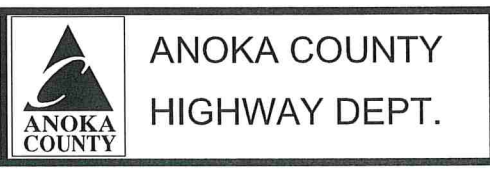


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 PRINT NAME: NICHOLAS J. DOBDA  
 SIGNATURE: *NJD*  
 DATE: 8/31/21 LICENSE NO. 49046

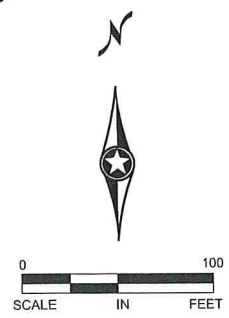
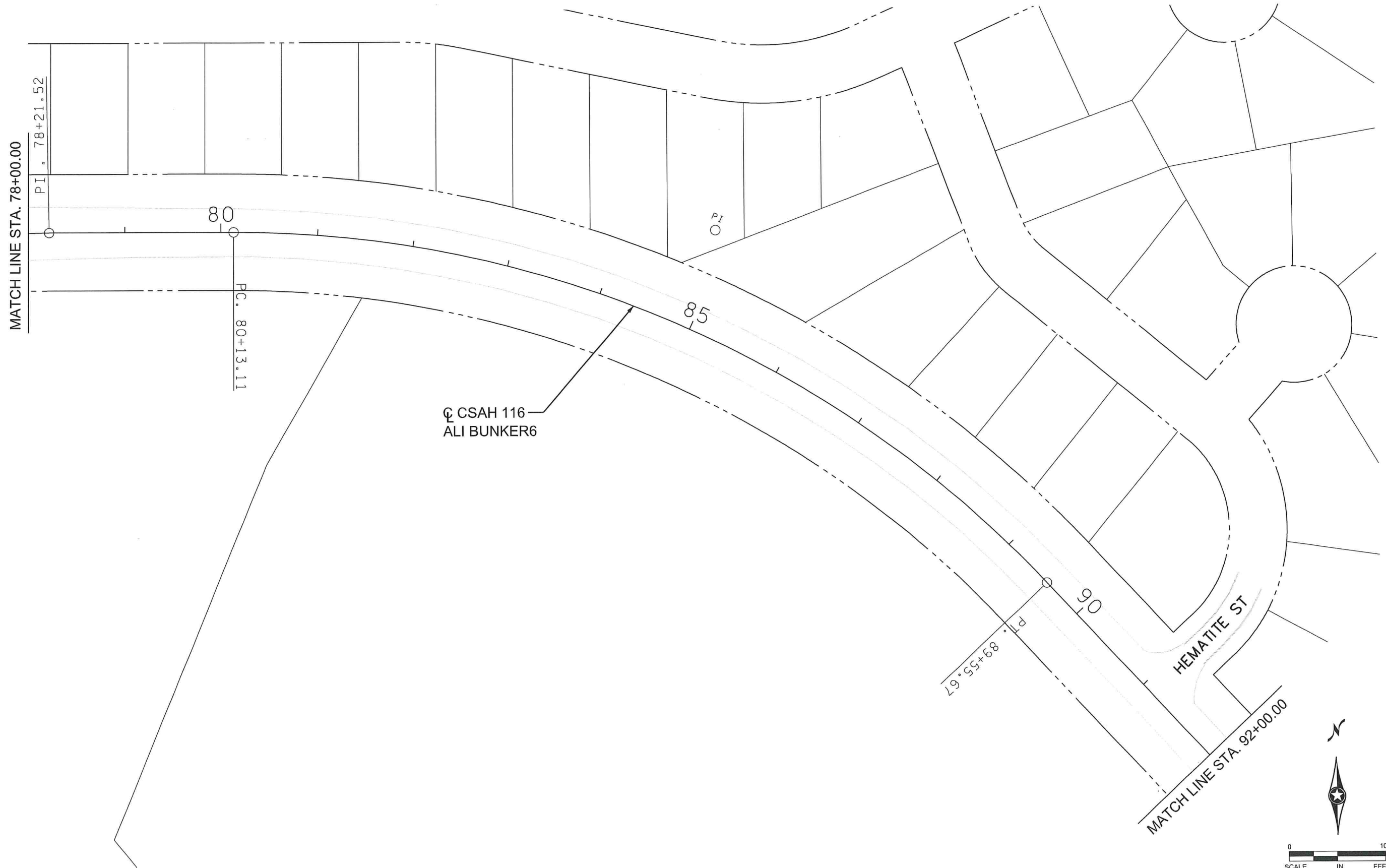
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 STA 50+00.00 TO 78+00.00  
 Sheet 16 of 259 Sheets





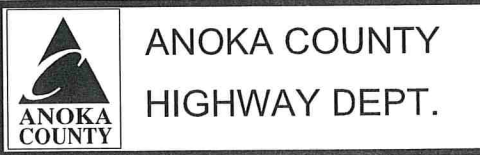
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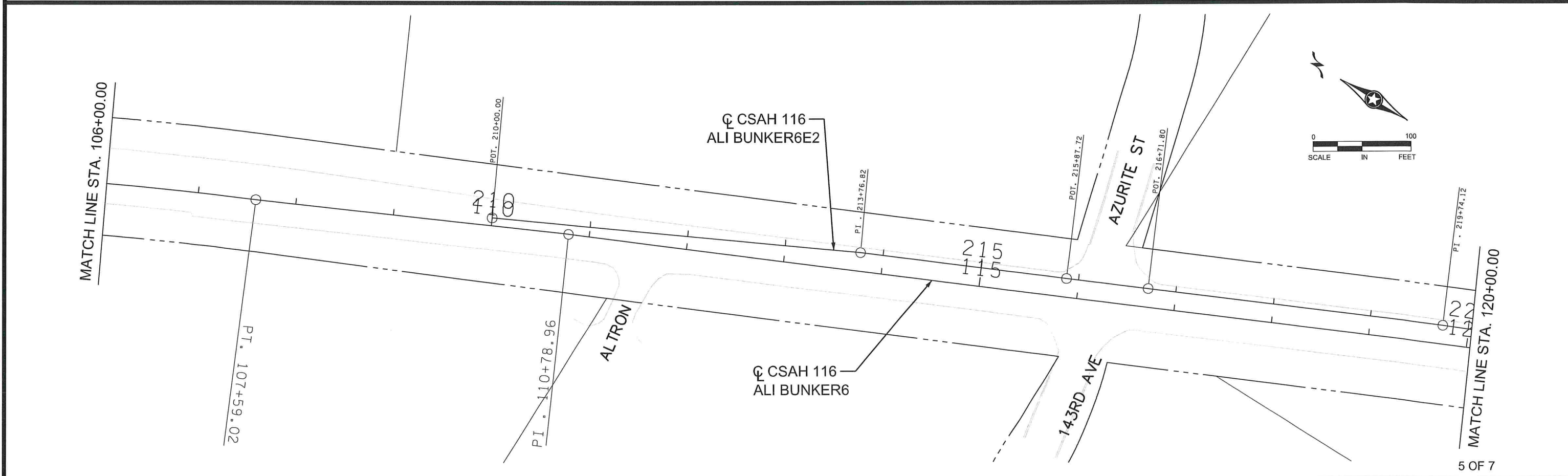
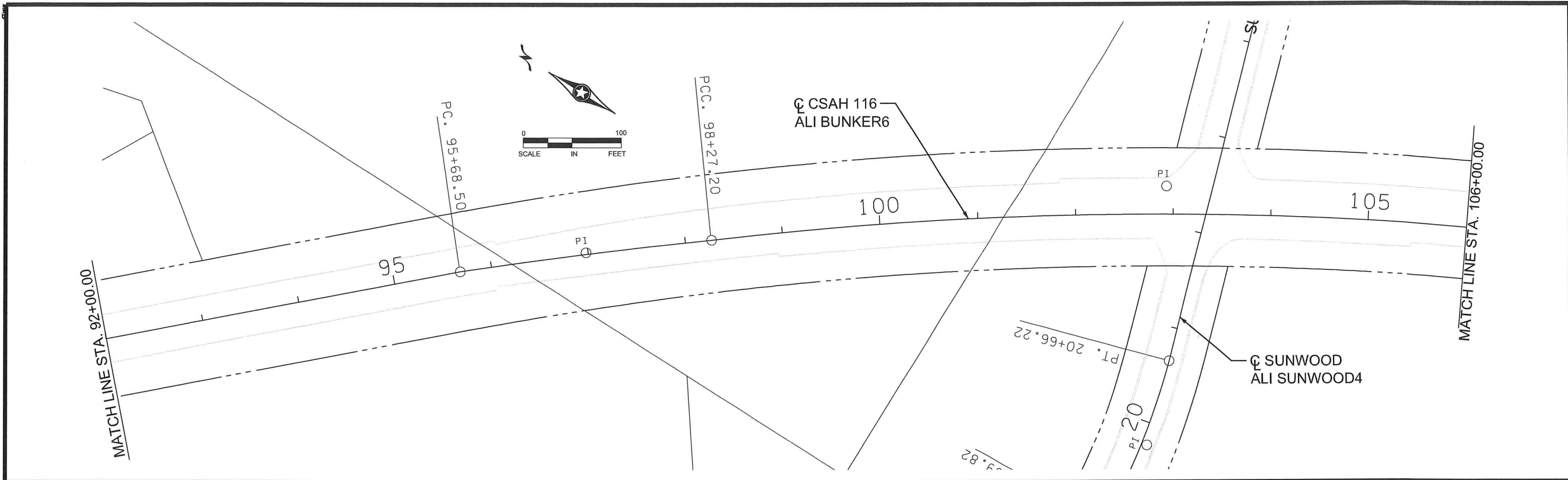
I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.  
 PRINT NAME: NICHOLAS J. DOBDA  
 SIGNATURE: *[Signature]*  
 DATE: 8/3/21      LICENSE NO. 49046

DRAWN BY JCF      DATE 07/01/21  
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 BUNKER LAKE BLVD  
 STA 78+00.00 TO 92+00.00  
 Sheet 17 of 259 Sheets



5 OF 7

NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\002-716-021\Plan\002716021 AL5.dgn 07/27/2021 1:46:26 PM

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PRINT NAME: NICHOLAS J. DOBDA

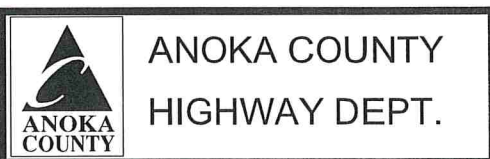
SIGNATURE: *Nicholas J. Dobda*

DATE: 8/3/21 LICENSE NO. 49046

DRAWN BY: JCF DATE: 07/01/21

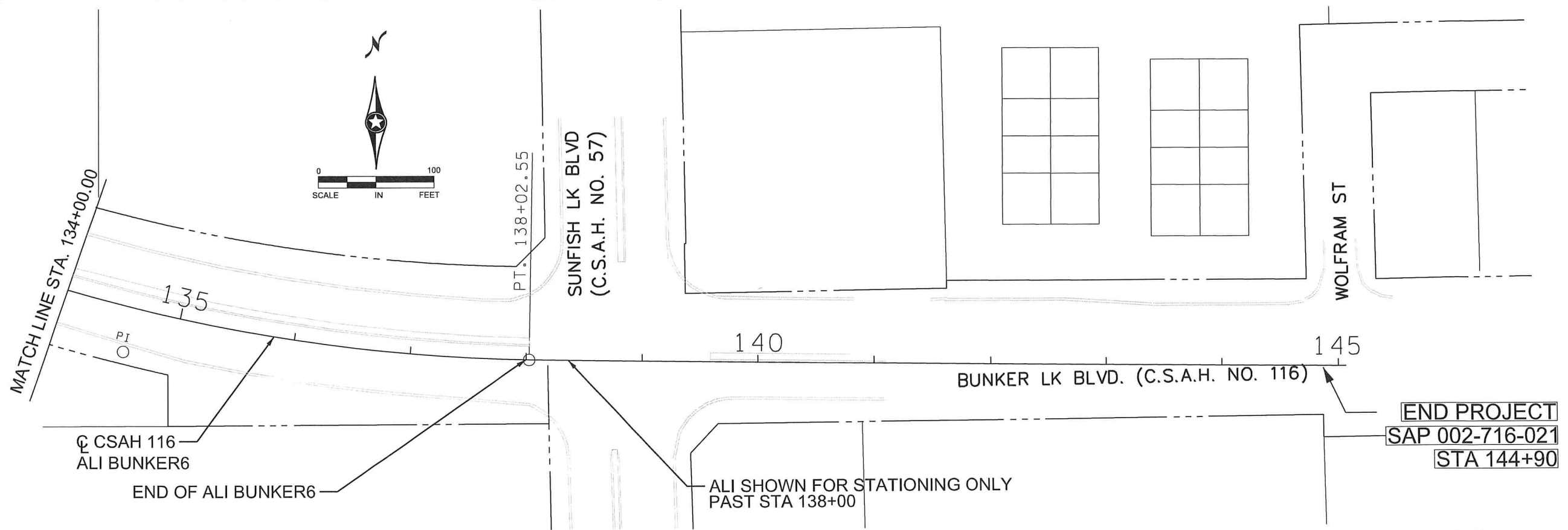
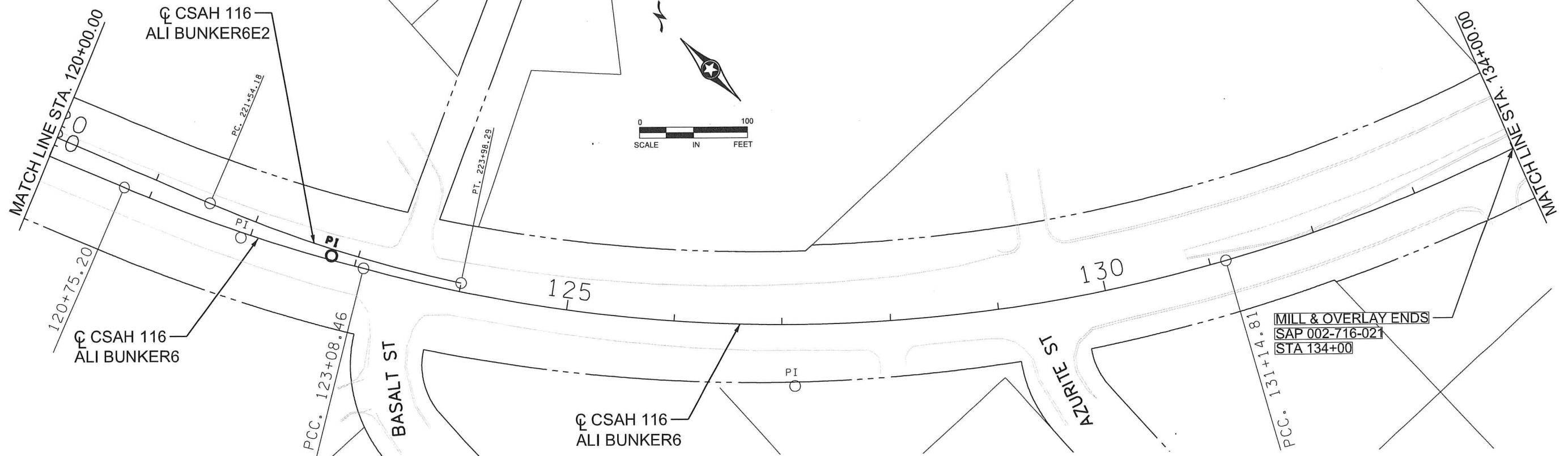
DESIGN BY: JCF DATE: 07/01/21

CHECKED BY: NJD DATE: 07/09/21



SAP 002-716-021  
SAP 199-104-014

ALIGNMENT  
BUNKER LAKE BLVD  
STA 92+00.00 TO 120+00.00  
Sheet 18 of 259 Sheets



6 OF 7

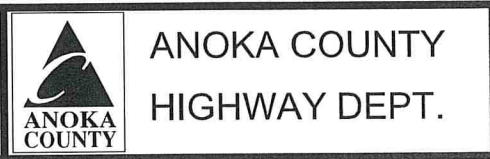
NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\002-716-021\Plan\002716021 AL6.dgn 07/27/2021 1:46:27 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.

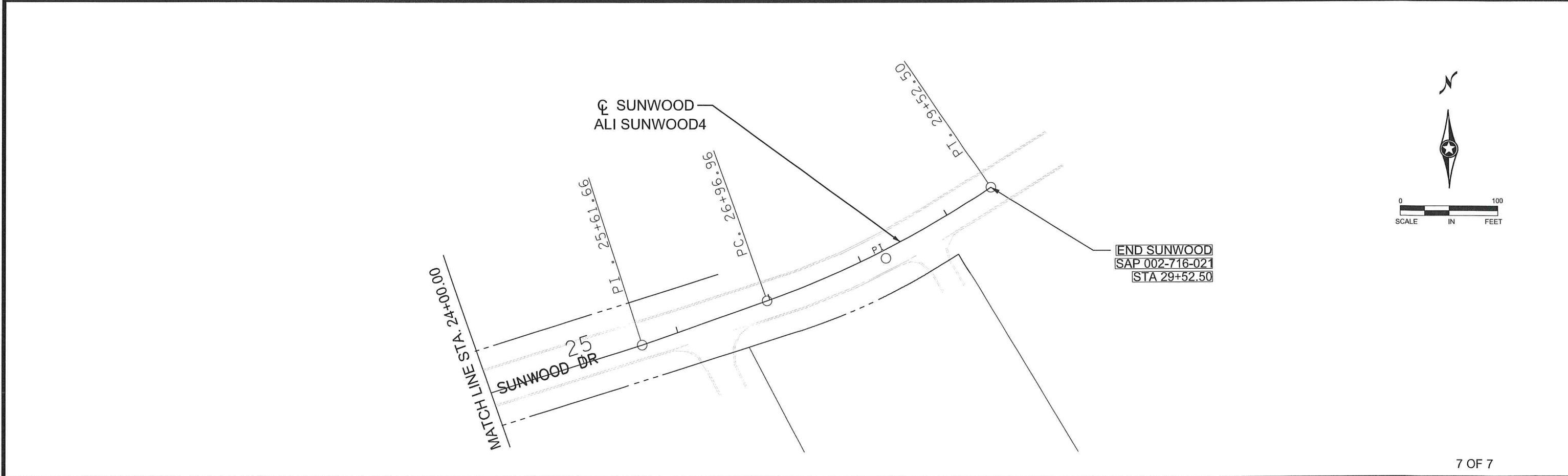
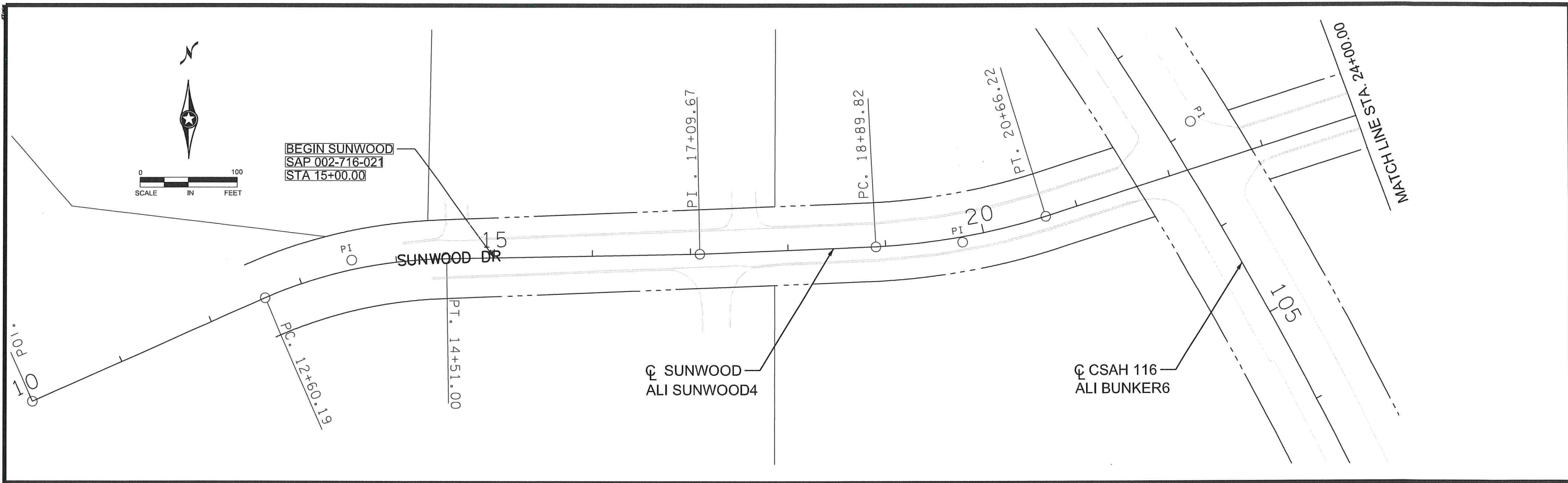
PRINT NAME: NICHOLAS J. DOBDA  
 SIGNATURE: *NJD*  
 DATE: 8/3/21 LICENSE NO. 49046

DRAWN BY: JCF DATE: 07/01/21  
 DESIGN BY: JCF DATE: 07/01/21  
 CHECKED BY: NJD DATE: 07/09/21



SAP 002-716-021  
 SAP 199-104-014

ALIGNMENT  
 BUNKER LAKE BLVD  
 STA 120+00.00 TO 138+02.55  
 Sheet 19 of 259 Sheets



NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\002-716-021\Plan\002716021 AL7.dgn      07/27/2021      1:46:27 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: NICHOLAS J. DOBDA

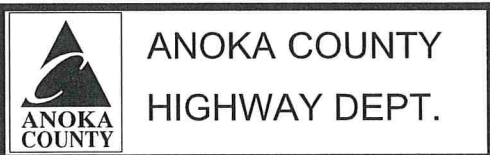
SIGNATURE: *NJD*

DATE: 8/3/21      LICENSE NO. 49046

DRAWN BY JCF      DATE 07/01/21

DESIGN BY JCF      DATE 07/01/21

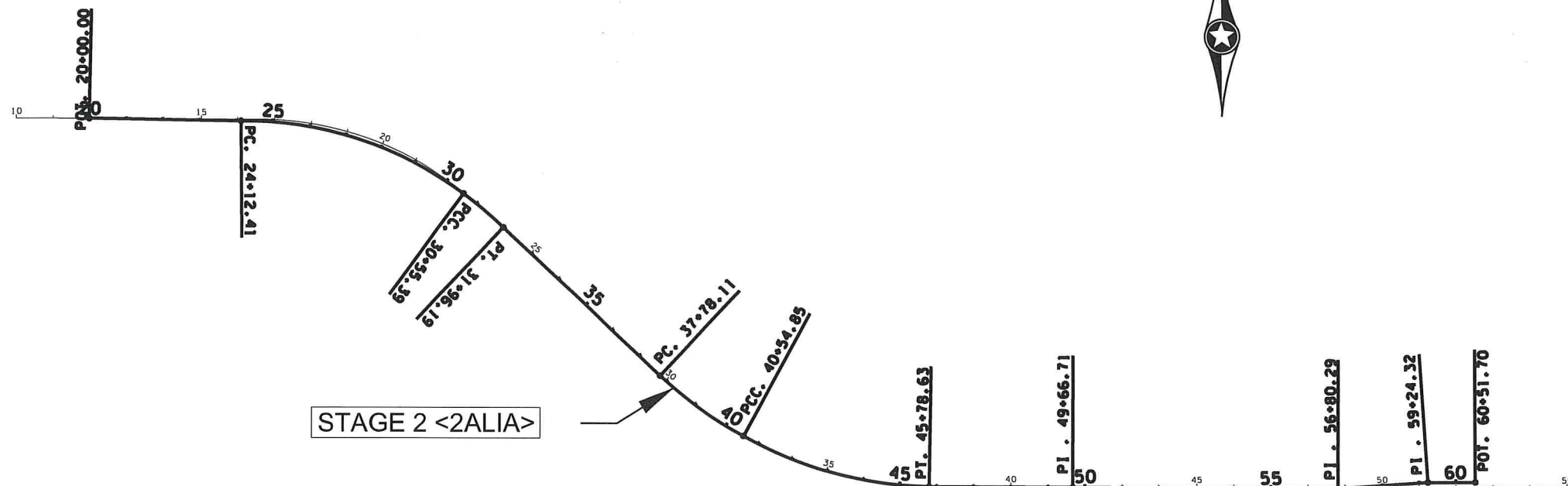
CHECKED BY NJD      DATE 07/09/21



SAP 002-716-021  
SAP 199-104-014

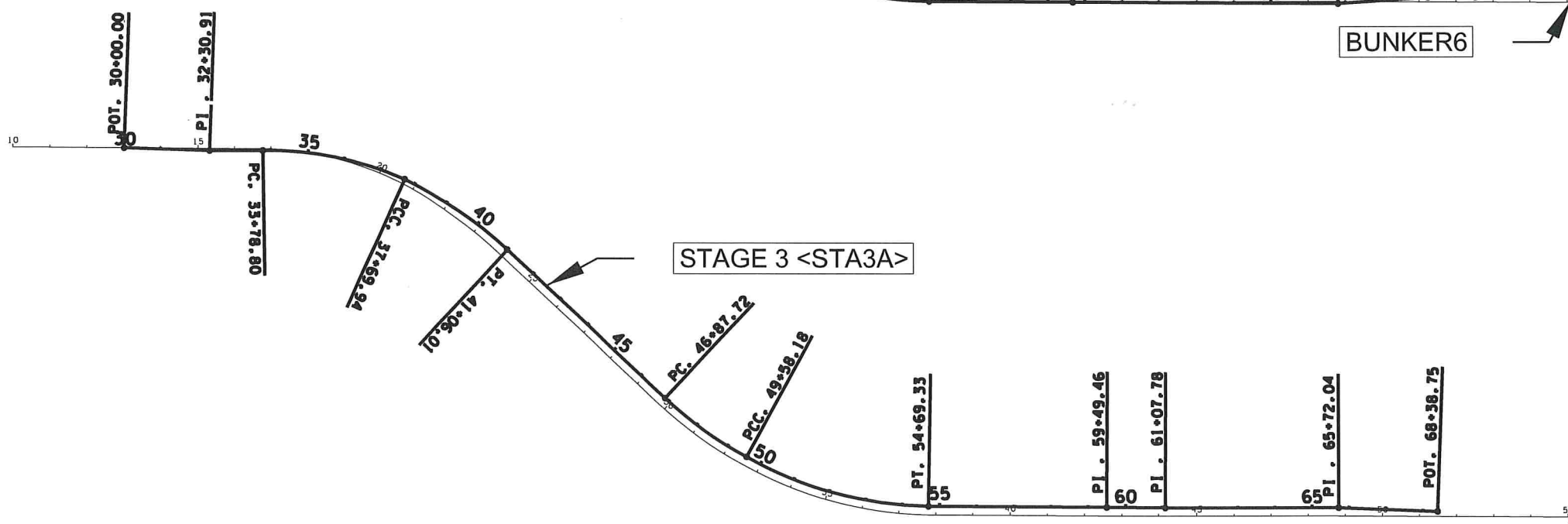
ALIGNMENT  
SUNWOOD DR  
STA 10+00.00 TO 29+52.50  
Sheet 20 of 259 Sheets





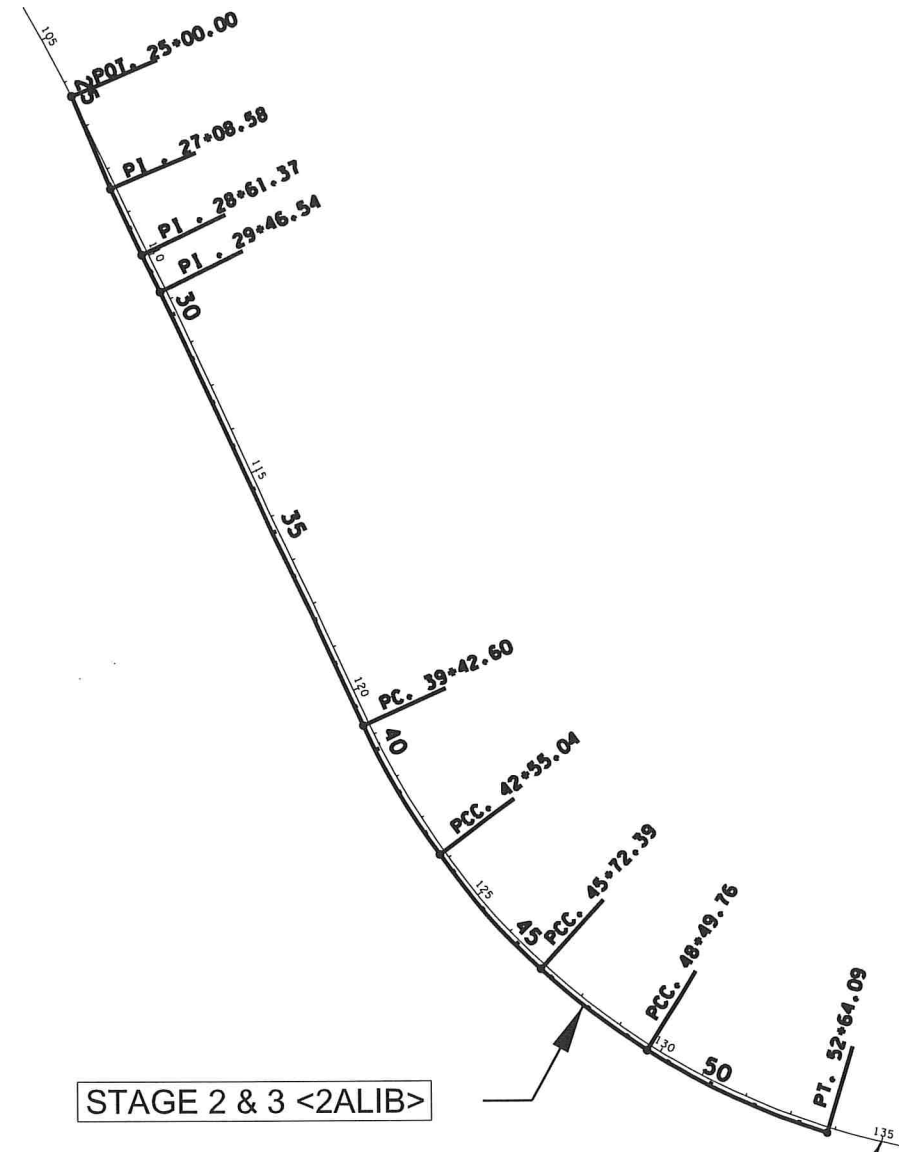
STAGE 2 <2ALIA>

BUNKER6



STAGE 3 <STA3A>

BUNKER6



STAGE 2 & 3 <2ALIB>

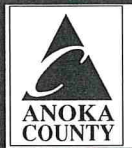
BUNKER6

NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\002-716-021\Plan\002716021 ALS.dgn 07/27/2021 1:46:29 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: NICHOLAS J. DOBDA  
 SIGNATURE: *N. Dobda*  
 DATE: 8/3/21 LICENSE NO. 49046

DRAWN BY JCF DATE 07/01/21  
 DESIGN BY JCF DATE 07/01/21  
 CHECKED BY NJD DATE 07/09/21

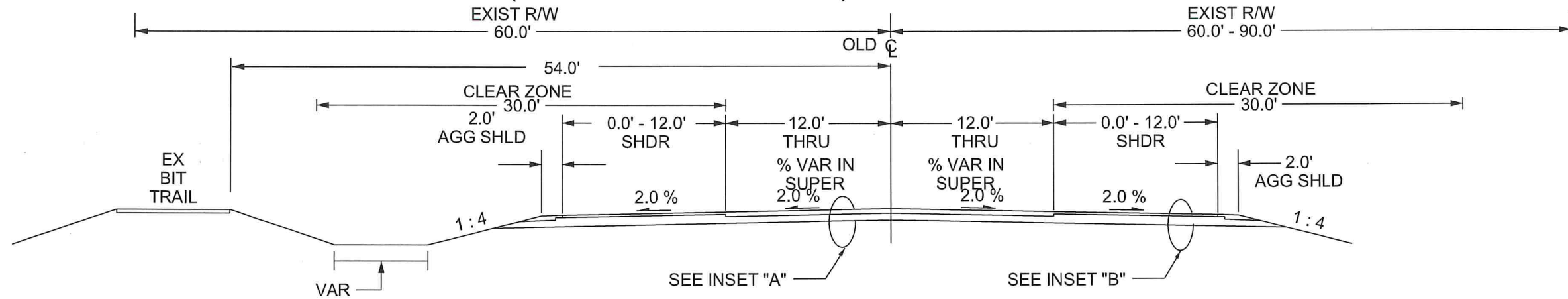


ANOKA COUNTY  
 HIGHWAY DEPT.

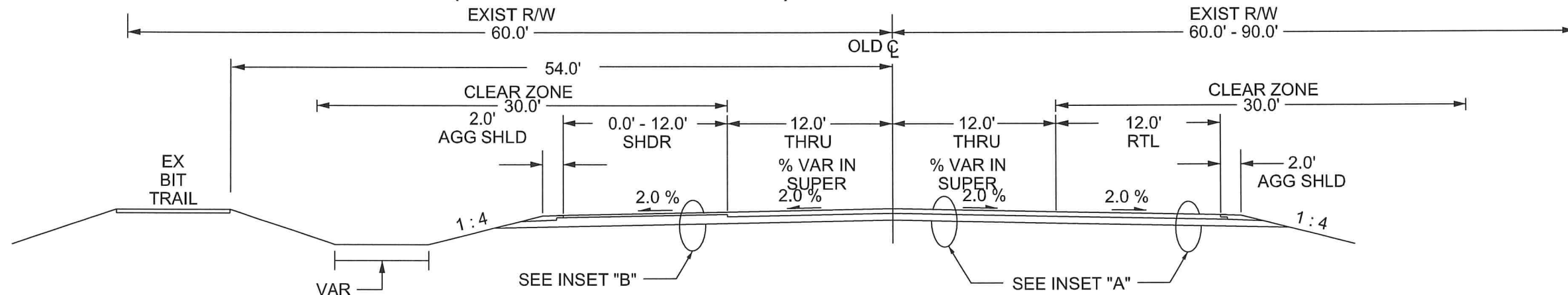
SAP 002-716-021  
 SAP 199-104-014



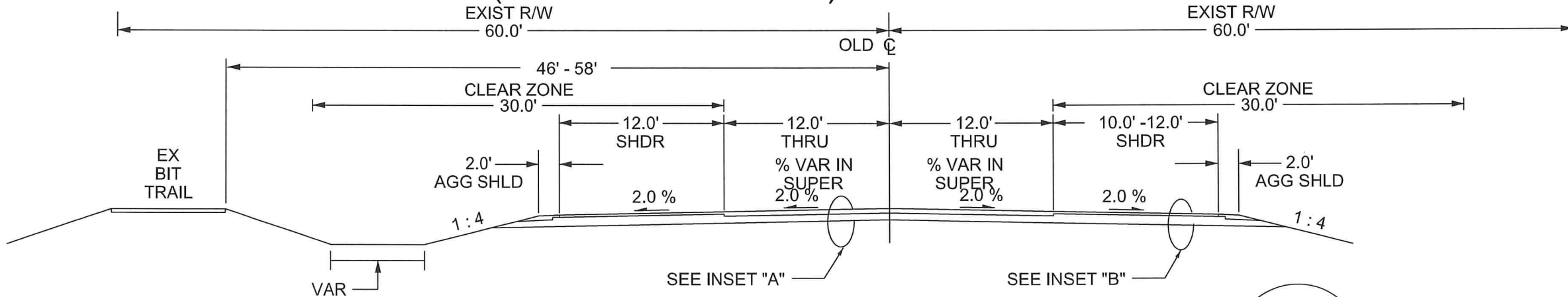
### C.S.A.H. 116 (BUNKER LAKE BLVD.) EXISTING 20+50 - 48+50



### C.S.A.H. 116 (BUNKER LAKE BLVD.) EXISTING RTL 20+50 - 48+50



### C.S.A.H. 116 (BUNKER LAKE BLVD.) EXISTING 110+00 - 128+00



[1] FOR REFERENCE ONLY, CONTRACTOR TO VERIFY PRIOR TO PLACING BID

INSET "A" [1]

INPLACE 4.0" BITUMINOUS  
8.0" RECLAIMED AGGREGATE BASE CL-5  
INPLACE SUBGRADE

INSET "B" [1]

INPLACE 2.0" BITUMINOUS  
8.0" RECLAIMED AGGREGATE BASE CL-5  
INPLACE SUBGRADE

NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\002-716-021\Plan\002716021 TY.dgn  
07/27/2021 1:46:30 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: NICHOLAS J. DOBDA  
SIGNATURE: *Nicholas J. Dobda*  
DATE: 8/31/21 LICENSE NO. 49046

DRAWN BY: JCF DATE: 07/01/21  
DESIGN BY: JCF DATE: 07/01/21  
CHECKED BY: NJD DATE: 07/09/21



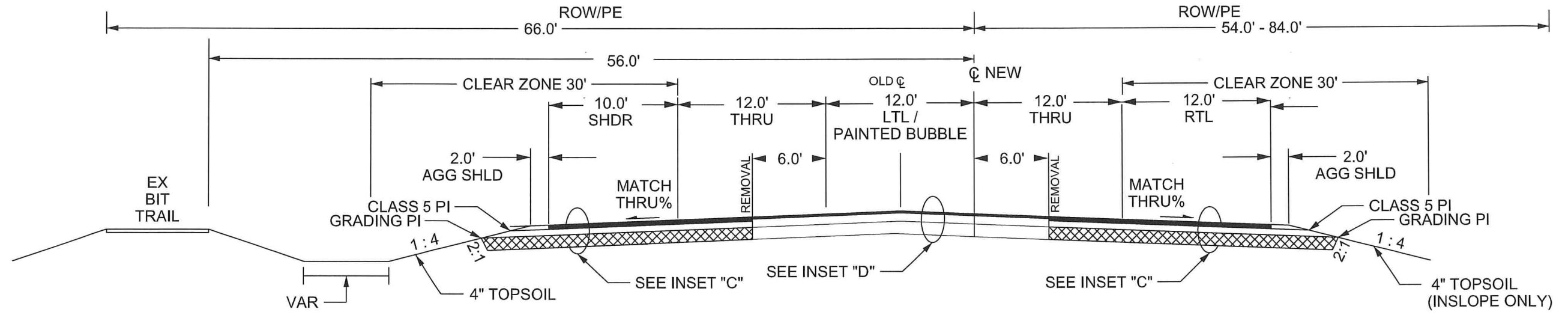
ANOKA COUNTY  
HIGHWAY DEPT.

SAP 002-716-021  
SAP 199-104-014

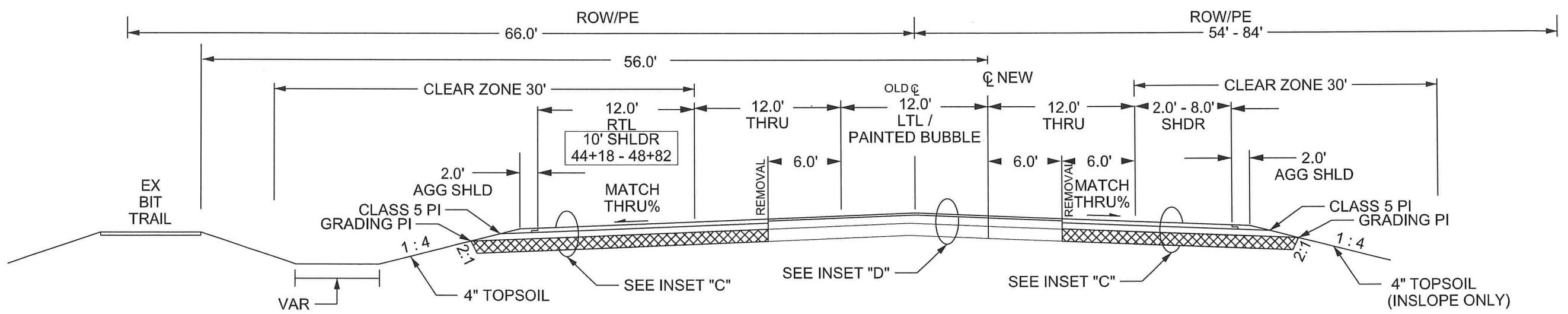
TYPICALS  
BUNKER LAKE BLVD  
Sheet 24 of 259 Sheets



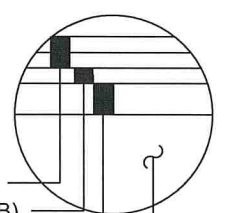
C.S.A.H. 116 (BUNKER LAKE BLVD.) PROPOSED STA. 20+25 - 48+50 & STA. 33+76 - 39+00



C.S.A.H. 116 (BUNKER LAKE BLVD.) PROPOSED STA. 27+00 - 33+76 & STA. 39+00 - 48+82

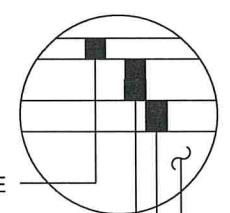


INSET "C"



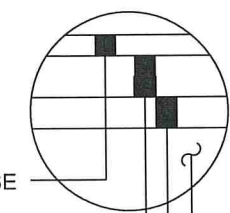
4.0" TYPE SP 12.5 WEARING COURSE (SPWEB340C)  
 2.0" TYPE SP 12.5 NON-WEARING COURSE (SPNWB330B)  
 6.0" AGGREGATE BASE CL-5  
 VARIABLE DEPTH GRANULAR FILL

INSET "D"



2.0" TYPE SP 12.5 WEARING COURSE (SPWEB340C)  
 4.0" INPLACE BITUMINOUS  
 8.0" RECLAIMED AGGREGATE BASE  
 INPLACE SUBGRADE

INSET "E"



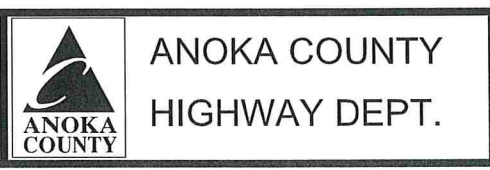
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 2.0" INPLACE BITUMINOUS  
 8.0" RECLAIMED AGGREGATE BASE  
 INPLACE SUBGRADE

NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\002-716-021\Plan\002716021 TY.dgn 07/27/2021 1:46:30 PM

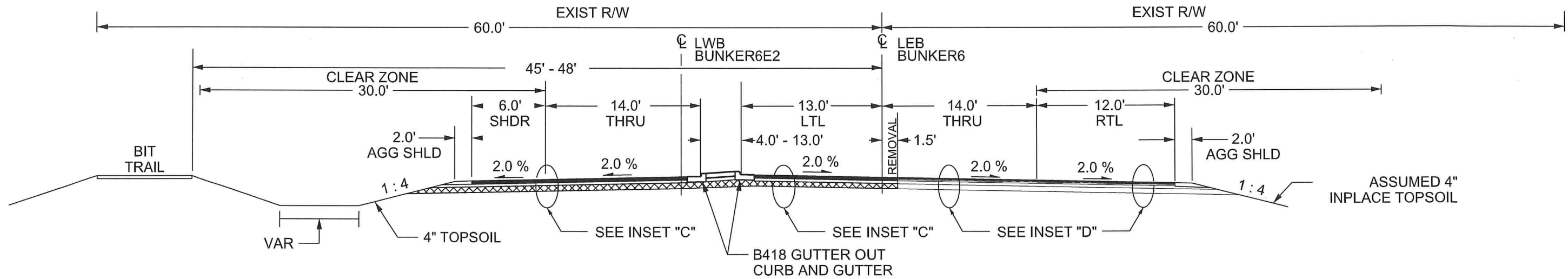
I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.  
 PRINT NAME: NICHOLAS J. DOBDA  
 SIGNATURE: *N. Dobda*  
 DATE: 8/3/21 LICENSE NO. 49046

DRAWN BY: JCF DATE: 07/01/21  
 DESIGN BY: JCF DATE: 07/01/21  
 CHECKED BY: NJD DATE: 07/09/21

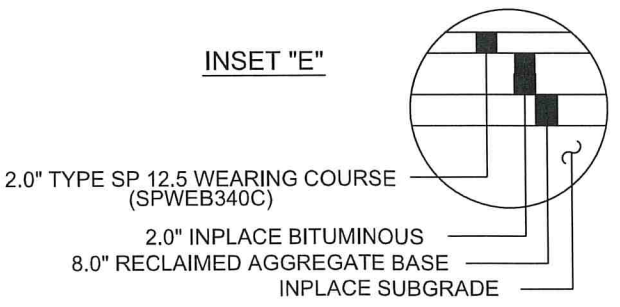
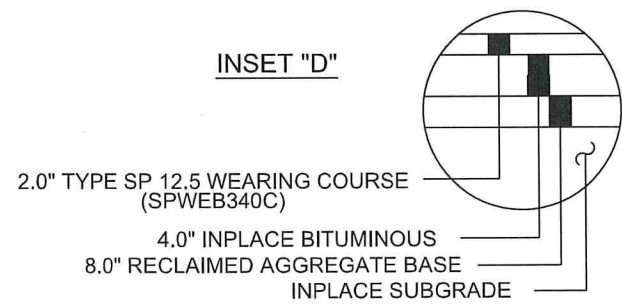
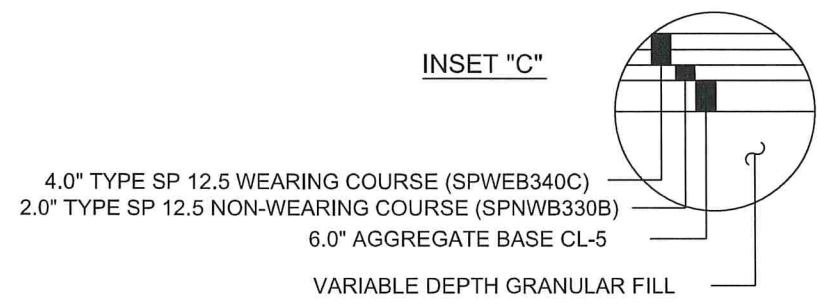
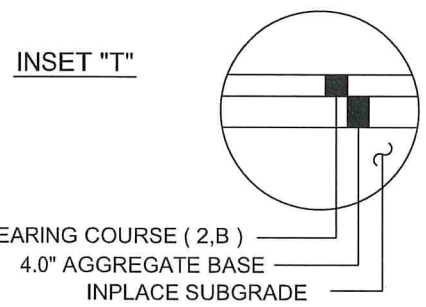
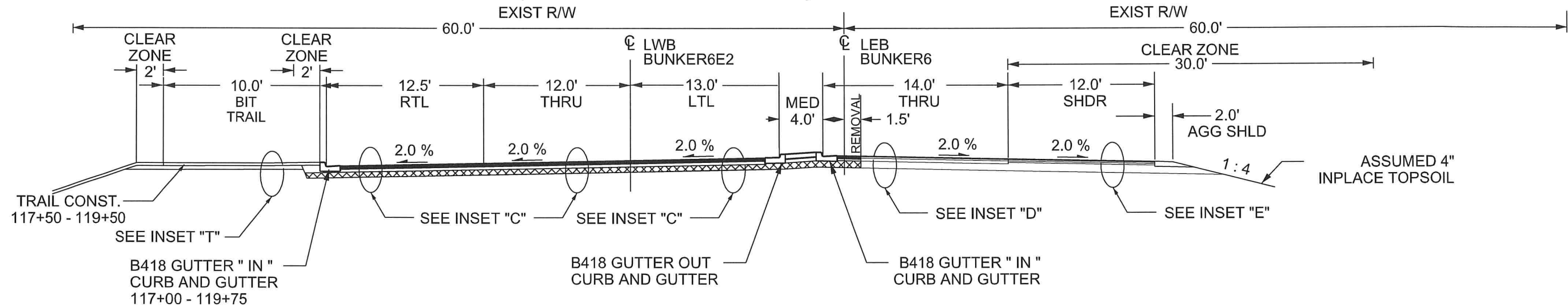


SAP 002-716-021  
 SAP 199-104-014

## C.S.A.H. 116 (BUNKER LAKE BLVD.) PROPOSED LEB 110+00 - 116+50



## C.S.A.H. 116 (BUNKER LAKE BLVD.) PROPOSED LEB 116+50 - 119+75



1	7/20/21	JCF			2' CLEAR ZONE FROM BACK OF CURB
2	7/20/21	JCF			ADDED OUTSIDE TRAIL CLEAR ZONE
3	7/20/21	JCF			ADDED TRAIL INSET "T"
NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\002-716-021\Plan\002716021 TY.dgn      07/27/2021      1:46:31 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: NICHOLAS J. DOBDA

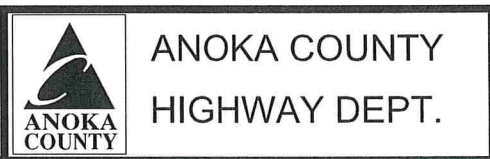
SIGNATURE: *NJD*

DATE: 8/3/21      LICENSE NO. 49046

DRAWN BY: JCF      DATE: 07/01/21

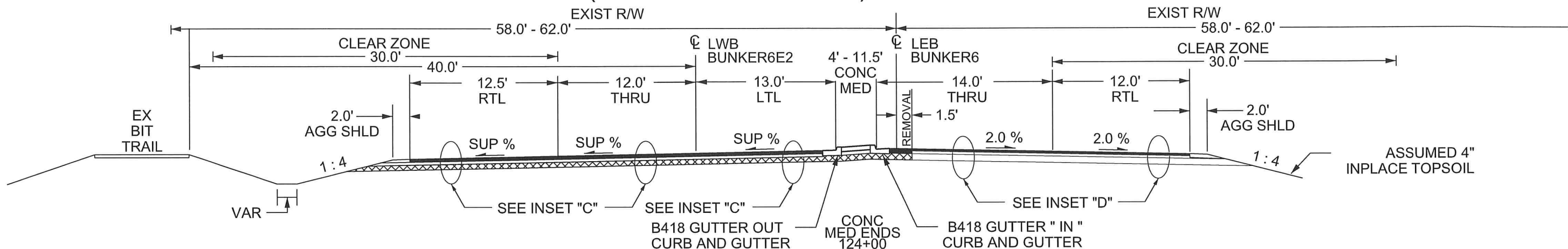
DESIGN BY: JCF      DATE: 07/01/21

CHECKED BY: NJD      DATE: 07/09/21

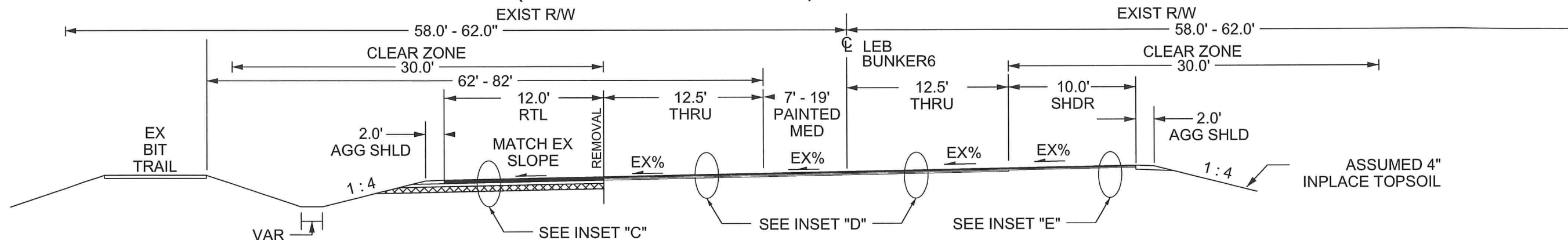


SAP 002-716-021  
SAP 199-104-014

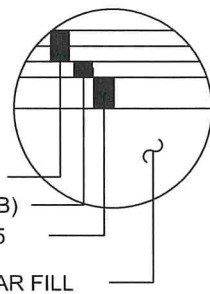
### C.S.A.H. 116 (BUNKER LAKE BLVD.) PROPOSED LEB 119+75 - 124+00



### C.S.A.H. 116 (BUNKER LAKE BLVD.) PROPOSED LEB 124+00 - 128+00

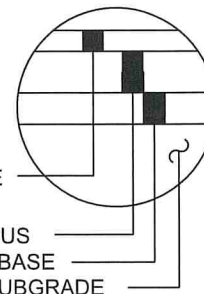


INSET "C"



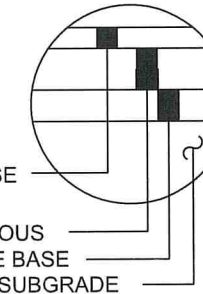
4.0" TYPE SP 12.5 WEARING COURSE (SPWEB340C)  
 2.0" TYPE SP 12.5 NON-WEARING COURSE (SPNWB330B)  
 6.0" AGGREGATE BASE CL-5  
 VARIABLE DEPTH GRANULAR FILL

INSET "D"



2.0" TYPE SP 12.5 WEARING COURSE (SPWEB340C)  
 4.0" INPLACE BITUMINOUS  
 8.0" RECLAIMED AGGREGATE BASE  
 INPLACE SUBGRADE

INSET "E"



2.0" TYPE SP 12.5 WEARING COURSE (SPWEB340C)  
 2.0" INPLACE BITUMINOUS  
 8.0" RECLAIMED AGGREGATE BASE  
 INPLACE SUBGRADE

1	7/20/21	JCF			REPLACED "VAR" WITH DIMENSION RANGE.
2	8/09/21	JCF			ADDED DIMENSION TO CONC. MEDIAN
REVISION					
NO	DATE	BY	CKD	APPR	
NAME: P:\002-716-021\Plan\002716021 TY.dgn 08/09/2021 1:11:59 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: NICHOLAS J. DOBDA  
 SIGNATURE: *[Signature]*  
 DATE: 8/10/21 LICENSE NO. 49046

DRAWN BY: JCF DATE: 07/01/21  
 DESIGN BY: JCF DATE: 07/01/21  
 CHECKED BY: NJD DATE: 07/09/21

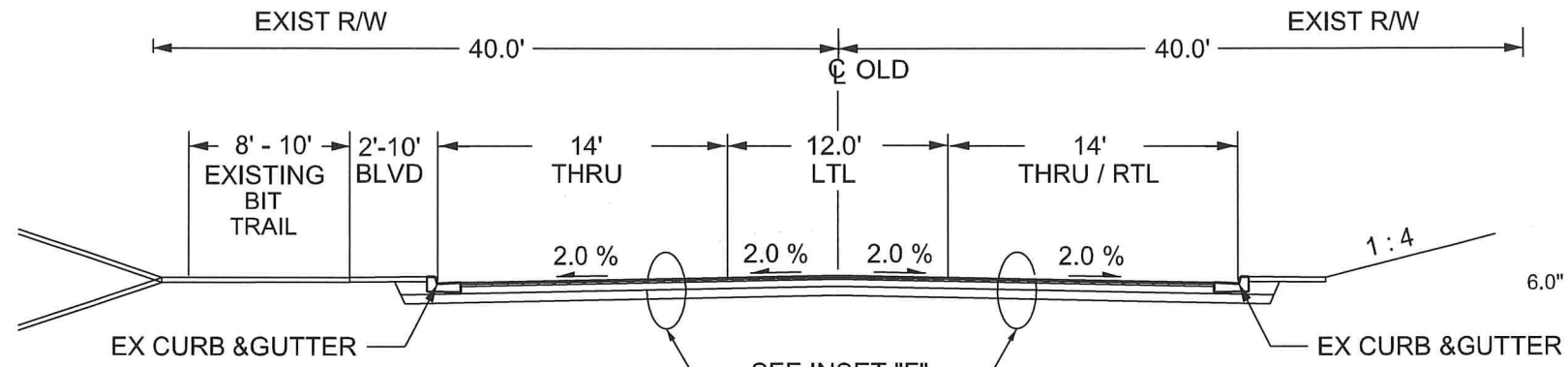


ANOKA COUNTY  
 HIGHWAY DEPT.

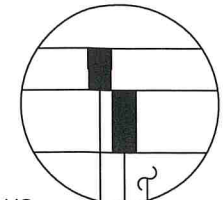
SAP 002-716-021  
 SAP 199-104-014

TYPICALS  
 BUNKER LAKE BLVD  
 Sheet 27 of 259 Sheets

### SUNWOOD DR EXISTING 15+00 - 29+52



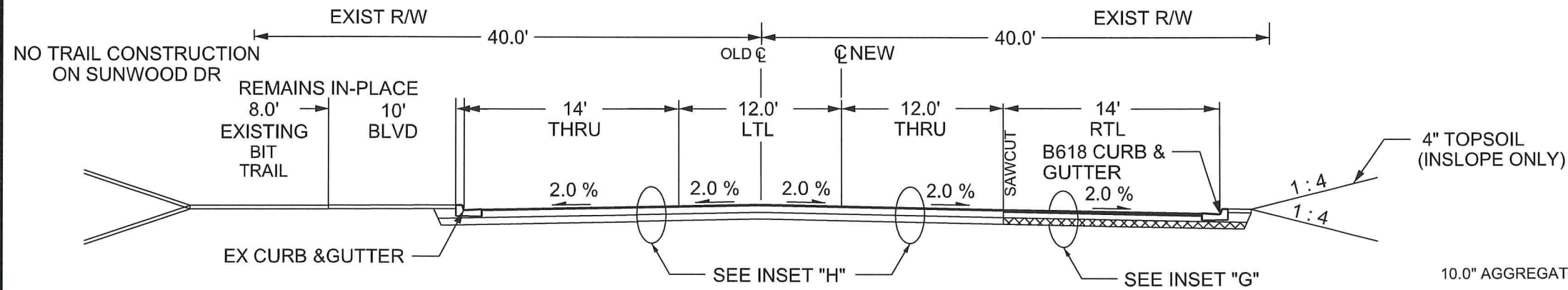
INSET "F" [1]



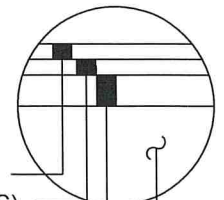
INPLACE 4.0" BITUMINOUS  
6.0" STABILIZED RECLAIMED BITUMINOUS  
INPLACE SUBGRADE

[1] FOR REFERENCE ONLY, CONTRACTOR TO VERIFY PRIOR TO PLACING BID

### SUNWOOD DR PROPOSED 15+00 - 22+18

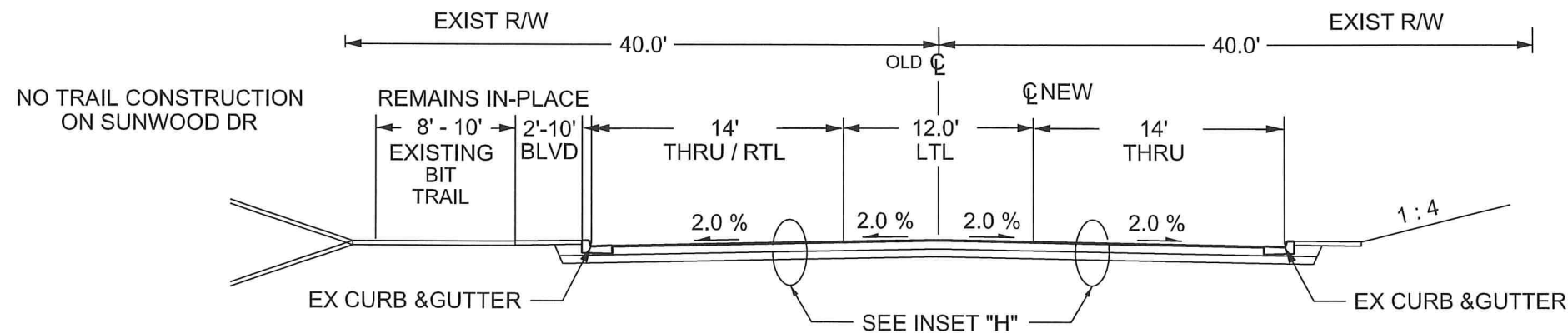


INSET "G"

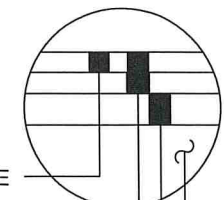


4" TOPSOIL (INSLOPE ONLY)  
2.0" TYPE SP 12.5 WEARING COURSE (SPWEB340C)  
2.0" TYPE SP 12.5 WEARING COURSE (SPWEB340C)  
10.0" AGGREGATE BASE CL-5 OR 6.0" STABILIZED RECLAIMED BITUMINOUS  
VARIABLE DEPTH GRANULAR FILL

### SUNWOOD DR PROPOSED 22+65 - 29+52



INSET "H"



MILL 2.0' / PAVE BACK  
2.0" TYPE SP 12.5 WEARING COURSE (SPWEB340C)  
4.0" INPLACE BITUMINOUS  
INPLACE AGGREGATE BASE  
INPLACE SUBGRADE

1	7/20/21	JCF		ADDED EXISTING TRAIL/BLVD WIDTHS (NOTE NO TRAIL CONST ON SUNWOOD)
NO	DATE	BY	CKD	REVISION
				07/27/2021 1:46:31 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: NICHOLAS J. DOBDA  
SIGNATURE: *[Signature]*  
DATE: 8/3/21 LICENSE NO. 49046

DRAWN BY JCF DATE 07/01/21  
DESIGN BY JCF DATE 07/01/21  
CHECKED BY NJD DATE 07/09/21

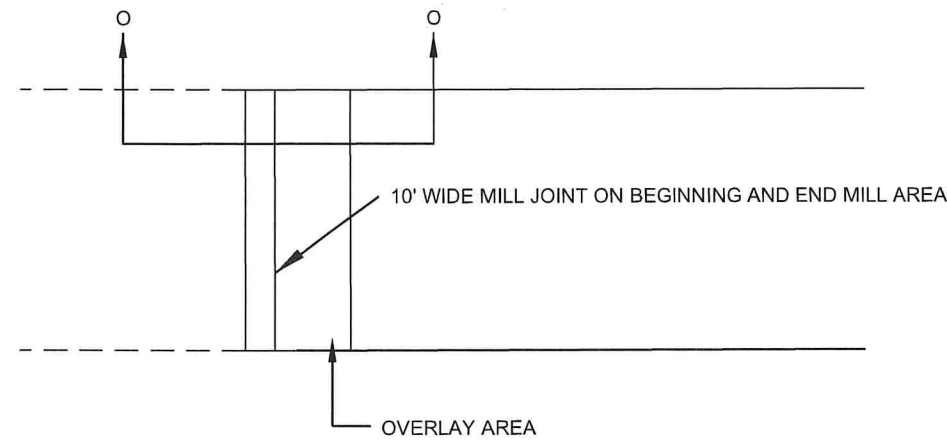


ANOKA COUNTY  
HIGHWAY DEPT.

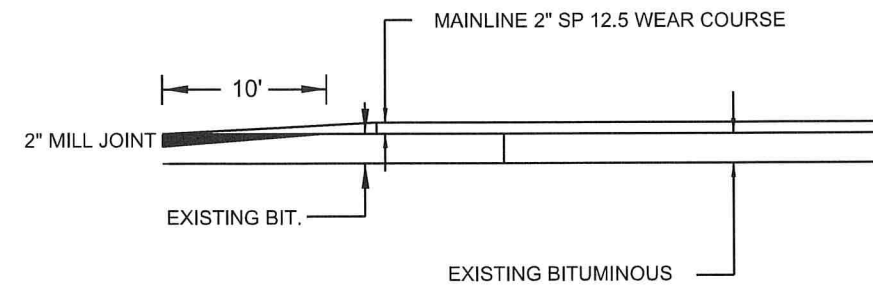
SAP 002-716-021  
SAP 199-104-014

## MAINLINE JOINT DETAIL (OVERLAY)

PLAN VIEW

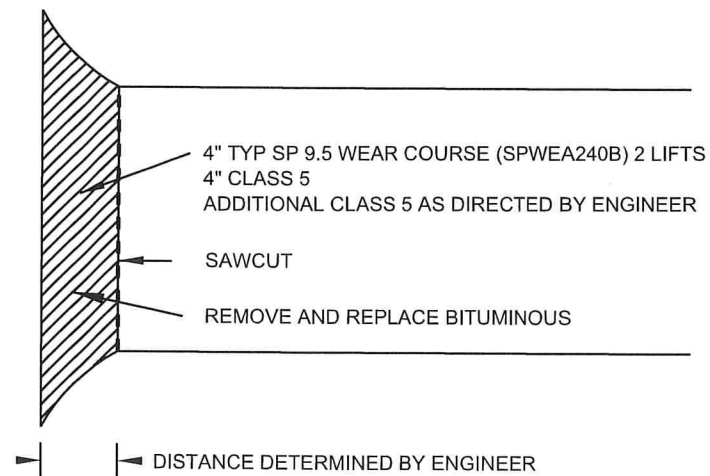


SECTION O - O



## BITUMINOUS DRIVEWAY DETAIL

ALTRON - BUNKER  
ALTRON - 143RD

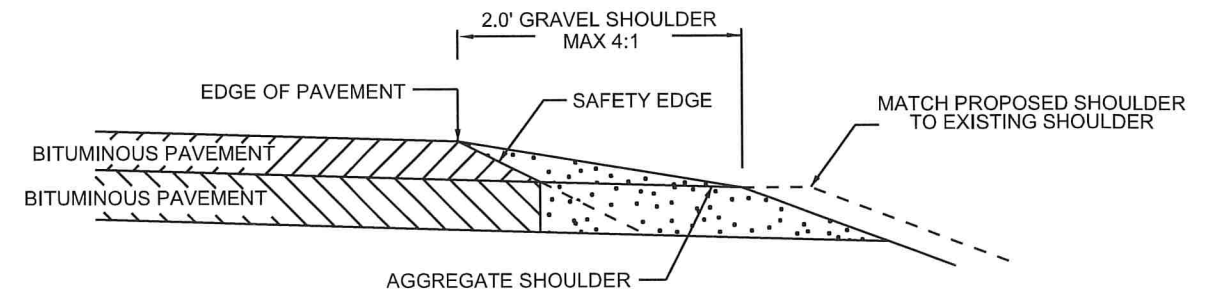


### NOTE:

CONTRACTOR TO CONTACT PROPERTY OWNER IN ADVANCE PRIOR TO DRIVEWAY  
REMOVAL, CONSTRUCTION & CULVERT REPLACEMENT  
NEW ALTRON DRIVEWAY ON 143RD MUST BE COMPLETED AND OPEN PRIOR TO  
THE NORTH ALTRON ENT. ON BUNKER LK BLVD.

## SHOULDER DETAIL

BITUMINOUS SAFETY EDGE  
GRAVEL SHOULDER



SAFETY EDGE TO BE USED IN ALL NON-CURB AREAS ON SHOULDER.

OPTIONAL DESIGN EXTENDS SAFETY EDGE DEEPER  
THAN 6" AND WIDER THAN 10.5". SEE SPECIAL PROVISIONS .

NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\002-716-021\Plan\002716021 DT.dgn      07/27/2021      1:46:37 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: NICHOLAS J. DOBDA

SIGNATURE: *NJD*

DATE: 8/3/21      LICENSE NO. 49046

DRAWN BY JCF      DATE 07/01/21

DESIGN BY JCF      DATE 07/01/21

CHECKED BY NJD      DATE 07/09/21

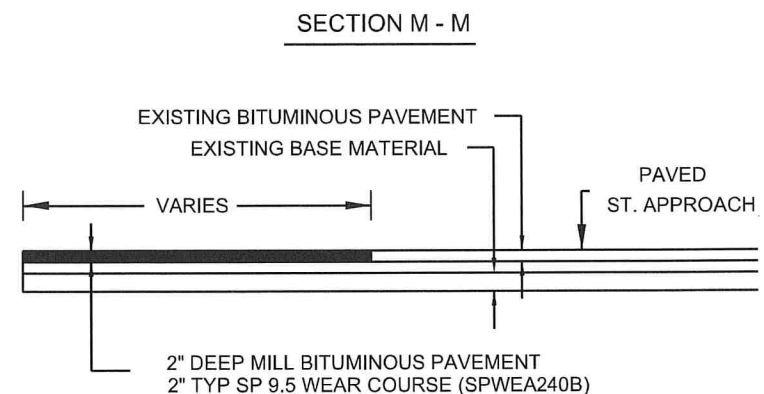
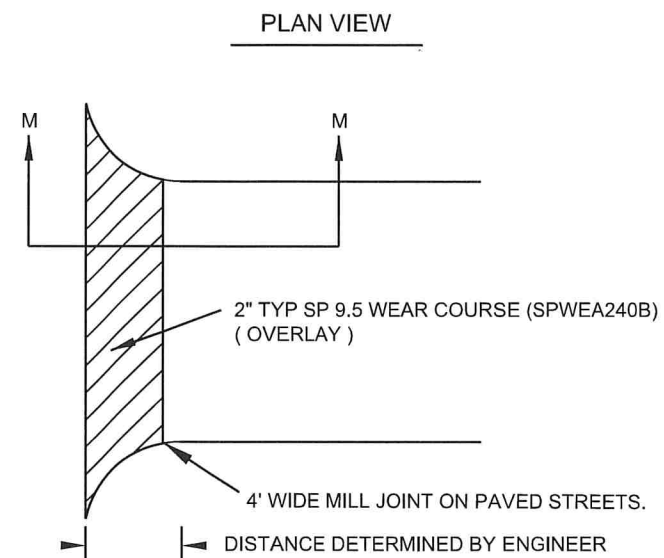


**ANOKA COUNTY  
HIGHWAY DEPT.**

SAP 002-716-021  
SAP 199-104-014

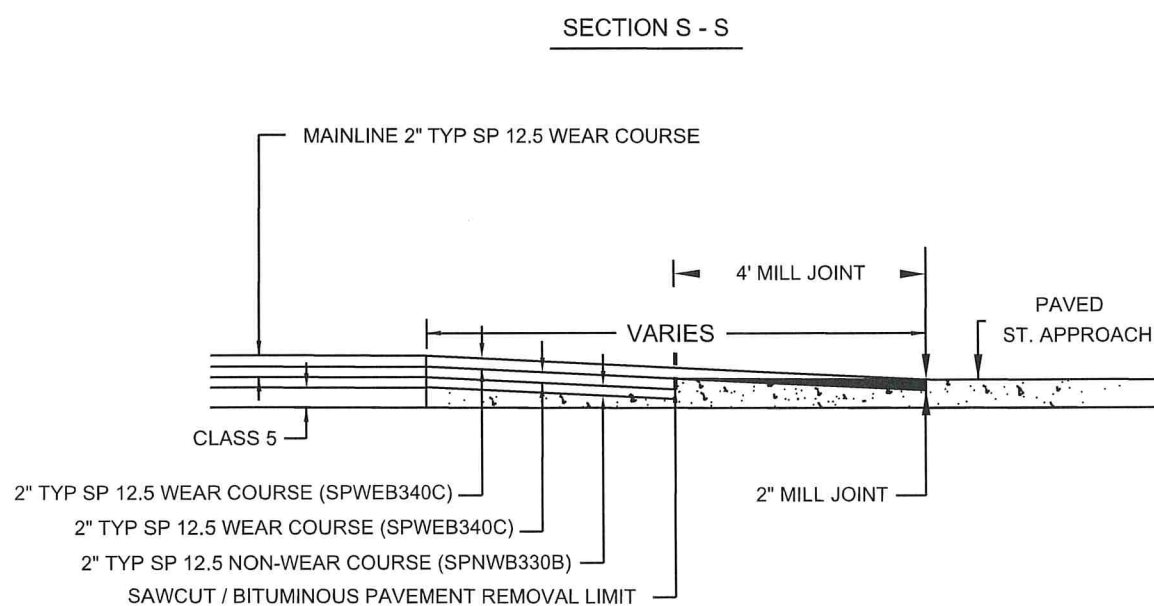
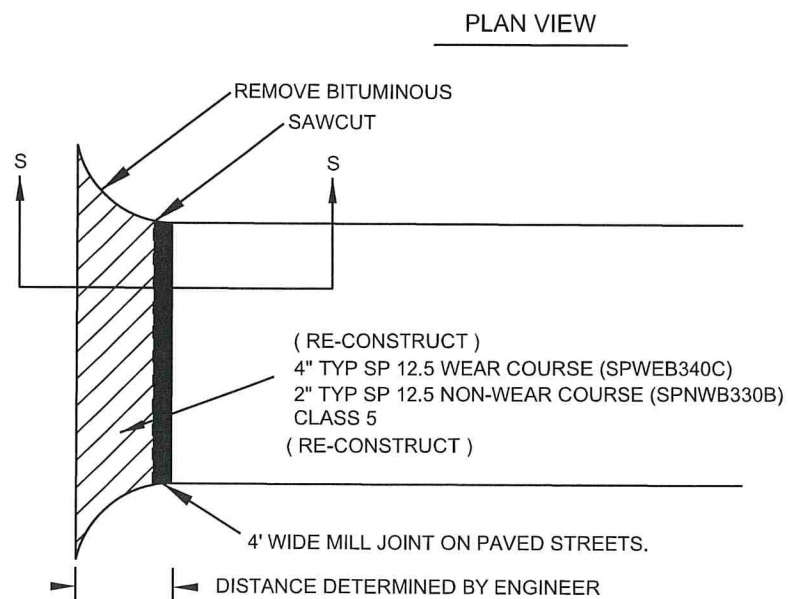
## STREET APPROACH DETAIL ( OVERLAY )

BITUMINOUS STREET - 143RD AVE & BASALT ST - ONLY



## STREET APPROACH DETAIL ( RE-CONSTRUCT, FULL DEPTH )

BITUMINOUS STREET



NO	DATE	BY	CKD	APPR	REVISION
NAME: P:\002-716-021\Plan\002716021 DT.dgn					
07/27/2021 1:46:37 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: NICHOLAS J. DOBDA

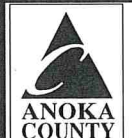
SIGNATURE: *NJD*

DATE: 8/31/21 LICENSE NO. 49046

DRAWN BY JCF DATE 07/01/21

DESIGN BY JCF DATE 07/01/21

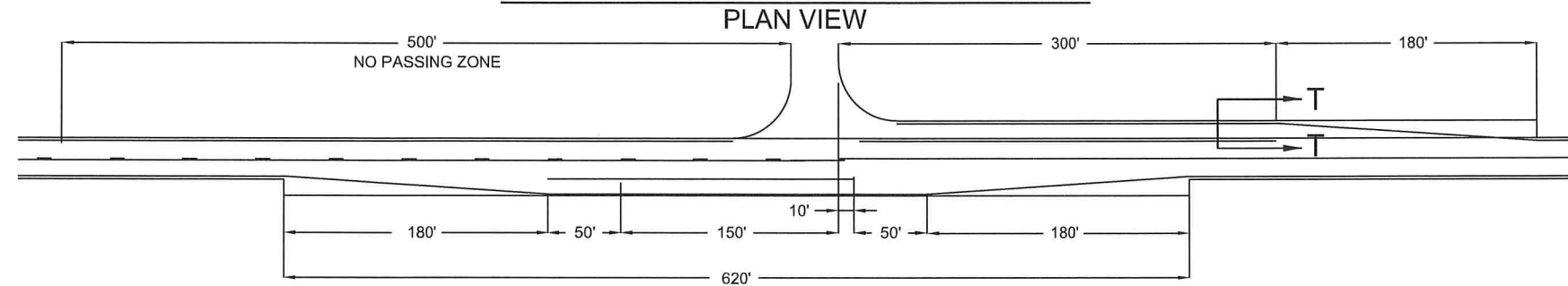
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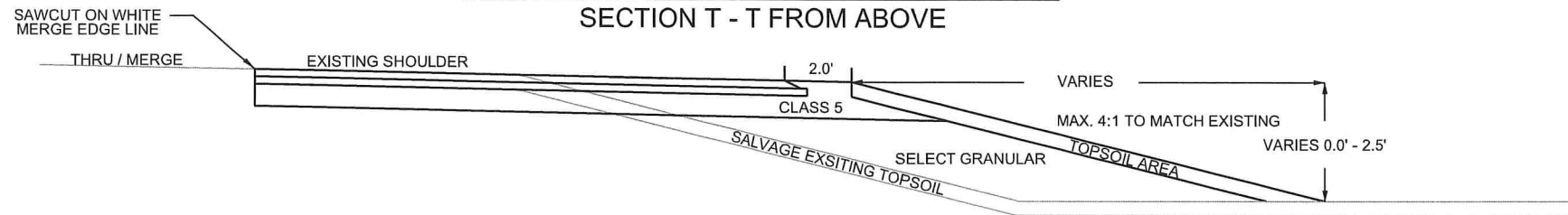
**ANOKA COUNTY  
HIGHWAY DEPT.**

SAP 002-716-021  
SAP 199-104-014

## ANOKA COUNTY RIGHT TURN / BYPASS LANE GENERAL LAYOUT



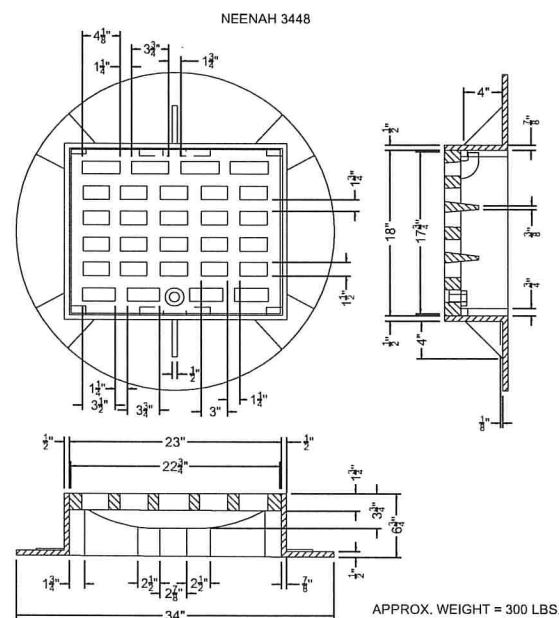
### RIGHT TURN LANE / CONNEXUS SECTION T - T FROM ABOVE



**CONNEXUS RTL PAID FOR BY ITEM  
2501.602 - CONSTRUCT TURN LANE BY THE EACH  
ITEMS AND QUANTITIES SHOWN FOR ESTIMATING PURPOSES ONLY  
CONTRACTOR TO VERIFY ALL ITEMS AND AREAS  
ITEM INCLUDES BUT NOT LIMITED TO ALL REMOVAL ITEMS,  
NEW MATERIALS AND EQUIPMENT TO CONSTRUCT NEW RTL.**

#### CONNEXUS RTL EST

ADD. WIDTH NEEDED	LENGTH	BIT SAWCUT FULL DEPTH	BITUNINOUS REMOVAL	COMMON EXCAVATION	SELECT GRANULAR	CLASS 5	TOPSOIL	SILT FENCE	SEEDING	SEED	FERT. TYPE 3
LIN FT	LIN FT	LIN FT	SQ YD	CU YDS	CU YD	CU YD	CU YD	LIN FT	ACRE	POUND	POPUND
7.0' - 0.0'	480	525	480	140	90	45	8	480	0.09	7	32



#### CASTING SCHEDULE

LETTER	DESCRIPTION	PLATE	No.	GRATE / COVER	QTY
"A"	18" CASTING	NEENAH	3448	BIKE SAFE	8
"B"	24" CASTING	4132G	805	815	1
"C"	MANHOLE CASTING	4126F	801	715	2
				<b>TOTAL</b>	<b>11</b>

ALSO SHOWN IN DRAINAGE DETAILS

<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							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: <u>NICHOLAS J. DOBDA</u> SIGNATURE: <u>[Signature]</u> DATE: <u>8/3/21</u> LICENSE NO. <u>49046</u>	DRAWN BY <u>JCF</u> DATE <u>07/01/21</u> DESIGN BY <u>JCF</u> DATE <u>07/01/21</u> CHECKED BY <u>NJD</u> DATE <u>07/09/21</u>	 <b>ANOKA COUNTY HIGHWAY DEPT.</b>	SAP 002-716-021 SAP 199-104-014	<b>DETAILS</b>  Sheet <u>31</u> of <u>259</u> Sheets
NO	DATE	BY	CKD	APPR	REVISION												

ZEOLITE ST RAD INFO					
QUAD	RAD	STATION FROM BUNKER6	OFFSET	POINT	
NW	35 EM	26+49.14	-69.00	RAD PT	
NE	30 EM	27+52.92	-66.00	RAD PT	
SW	30 EM	26+95.28	54.00	RAD PT	
SE	40 E/M	27+98.62	54.00	RAD PT	

TOWN CENTER DR RAD INFO					
QUAD	RAD	STATION FROM BUNKER6	OFFSET	POINT	
NW	40 EM	38+23.49	-74.00	RAD PT	
NE	30 EM	39+68.32	-66.00	RAD PT	
SW	30 EM	38+29.56	54.00	RAD PT	
SE	30 EM	39+69.58	50.00	RAD PT	

CONNEXUS ENT RAD INFO					
QUAD	RAD	STATION FROM BUNKER6	OFFSET	POINT	
SW	30 EM	76+92.96	57.49	RAD PT	

SUNWOOD DR RAD INFO					
QUAD	RAD	STATION FROM SUNWOOD4	OFFSET	POINT	FLOW LINE ELEV
NW	30 F/C	21+49.36	-54.89	RAD PT	B618
				BEG	869.61
				1/4	869.65
				MID	869.69
				3/4	869.73
END	869.76				
NE	40 F/C	22+82.53	-65.11	RAD PT	
				BEG	871.91
				1/4	871.81
				MID	871.71
				3/4	871.61
END	871.51				
SW	30 F/C	21+76.82	56.00	RAD PT	
				BEG	869.81
				1/4	870.06
				MID	870.32
				3/4	870.51
END	871.10				
SE	35 F/C	23+04.58	49.46	RAD PT	
				NC	NC
				1/4	872.73
				MID	872.32
				3/4	872.09
END	871.41				

ALTRON NORTH RAD INFO					
QUAD	RAD	STATION FROM BUNKER6	OFFSET	POINT	
NW	30 EM	111+02.15	55.00	RAD PT	
SW	30 EM	111+96.60	54.62	RAD PT	

ALTRON SOUTH RAD INFO					
QUAD	RAD	STATION FROM BUNKER6	OFFSET	POINT	FLOW LINE ELEV
NW	25 F/C	114+64.88	299.06	RAD PT	
				BEG	
				MID	
				END	
NE	25 F/C	114+98.55	226.49	RAD PT	
				BEG	
				MID	
				END	

AZURITE / 143RD RAD INFO					
QUAD	RAD	STATION FROM BUNKER6	OFFSET	POINT	FLOW LINE ELEV
NE	40 F/C	115+69.72	-77.00	RAD PT	
				BEG	883.14
				1/4	882.89
				MID	882.64
				3/4	882.39
END	882.14				
SE	30 F/C	116+80.71	-73.50	RAD PT	
				BEG	881.88
				1/4	881.99
				MID	882.10
				3/4	882.21
END HP	882.31				

ACROSS FROM BASALT ST RAD INFO					
QUAD	RAD	STATION FROM BUNKER6	OFFSET	POINT	
NE	25 EM	123+14.49	-51.62	RAD PT	
SE	25 EM	123+89.50	-57.05	RAD PT	

WOLFRAM ST RAD INFO					
QUAD	RAD	X	Y		
NW	15 F/C	458669.8105	169868.2848	RAD PT	

1	7/20/21	JCF			REMOVED RIPRAP STANDARD PLATES
NO	DATE	BY	CKD	APPR	REVISION
NAME: P:\002-716-021\Plan\002716021 DT.dgn					
07/27/2021 1:46:39 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: NICHOLAS J. DOBDA  
 SIGNATURE: *[Signature]*  
 DATE: 8/3/21 LICENSE NO. 49046

DRAWN BY JCF DATE 07/01/21  
 DESIGN BY JCF DATE 07/01/21  
 CHECKED BY NJD DATE 07/09/21

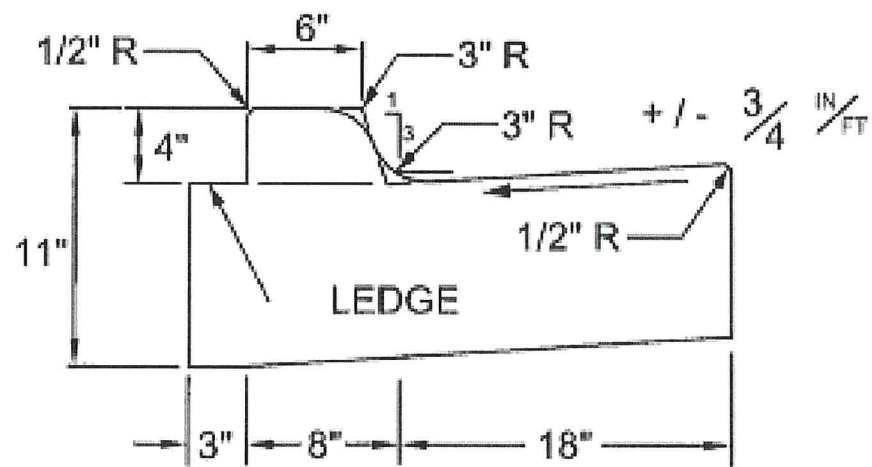


ANOKA COUNTY  
 HIGHWAY DEPT.

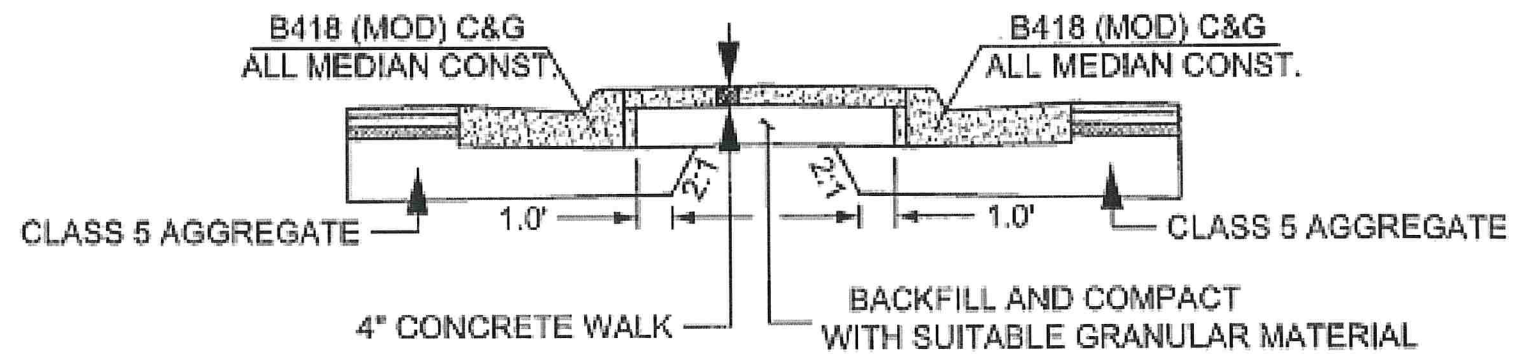
SAP 002-716-021  
 SAP 199-104-014



**18" MEDIAN CURB  
B4 MODIFIED CURB & GUTTER  
( NO VARIANCES ALLOWED )**



**MEDIAN**



1	7/30/2021	JCF			REMOVED STANDARD PLATE, ADDED CURB DETAIL
NO	DATE	BY	CKD	APPR	REVISION
NAME: P:\002-716-021\Plan\002716021 DT.dgn 07/30/2021 11:00:19 AM					

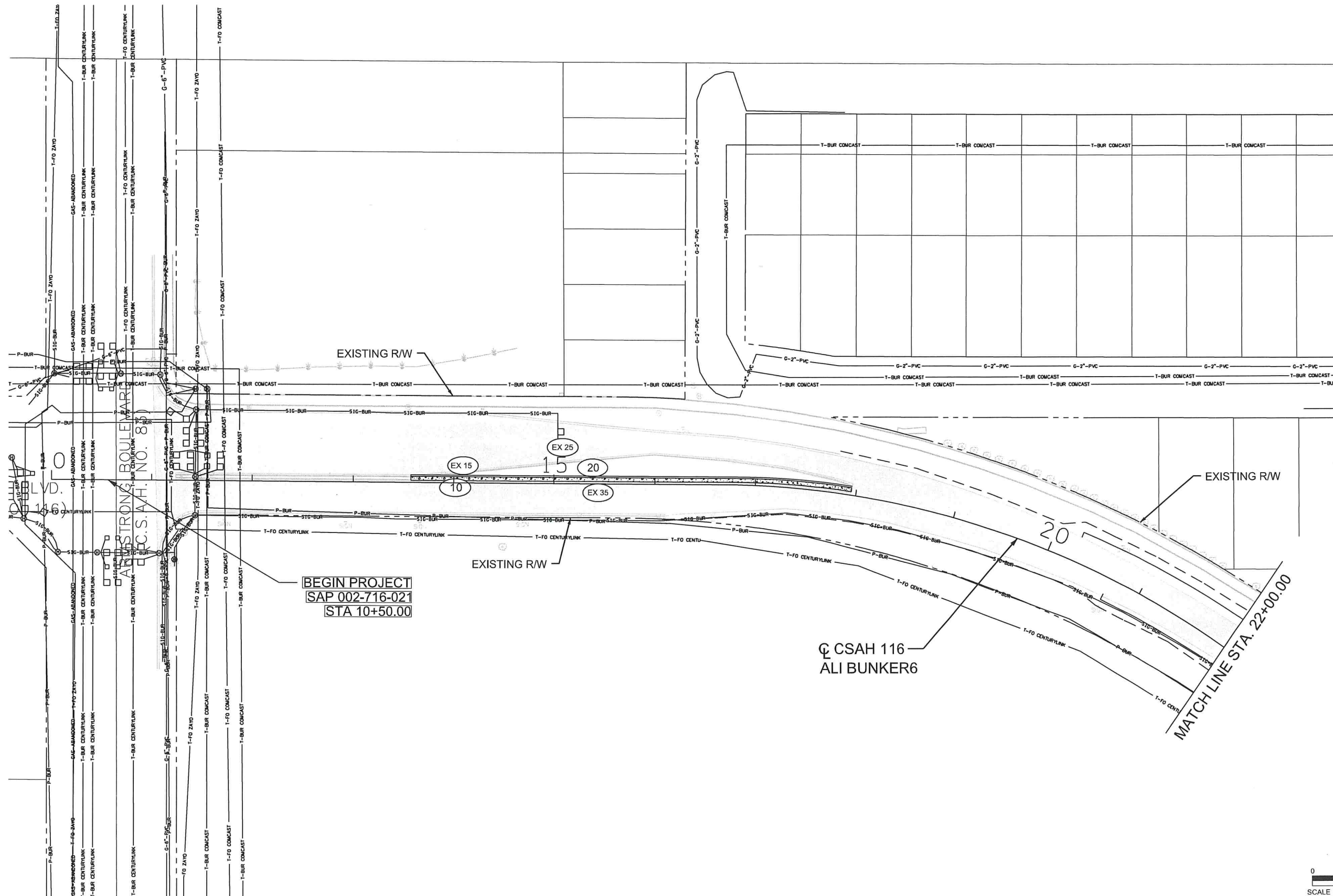
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 PRINT NAME: NICHOLAS J. DOBDA  
 SIGNATURE: *NJD*  
 DATE: 8/3/21 LICENSE NO. 49046

DRAWN BY JCF DATE 07/01/21  
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**ANOKA COUNTY  
HIGHWAY DEPT.**

SAP 002-716-021  
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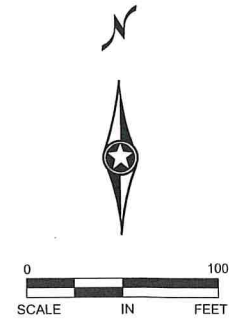


**LEGEND**

- EXISTING ROADWAY
- PROPOSED CONST.
- G — GAS
- OHP — POWER OH
- P-BUR — POWER UG
- SIG BUR — POWER - SIGNAL
- T-BUR — TELEPHONE
- TV — TV
- > STORM / CULVERT
- V.C.P. >>> SAN. SEWER
- D.L.P. >>> WATER MAIN
- CONST. LIMITS
- - - - EXISTING R/W
- - - - PROPOSED R/W
- - - - TEMP. EASE
- - - - PERM. EASE
- ☒ SBTV SPLICE BOX TV
- ☒ SBT SPLICE BOX TELE
- ☐ FIBER SPLICE BOX FIBER
- POWER POLE
- SIGNAL POLE
- ⊙ LIGHT POLE
- ⊕ HAND HOLE
- ⊗ GAS VALVE
- ⊗ GATE VALVE
- ⊗ WATER SHUT OFF
- ⊕ HYDRANT

THE EXISTING SUBSURFACE UTILITY INFORMATION IS ASSUMED TO BE QUALITY LEVEL D IN ACCORDANCE LEVEL D IN ACCORDANCE TO THE GUIDELINES OF CI/ASCE 38-02.

EXISTING UTILITIES SHOWN FOR INFORMATIONAL PURPOSES. ALL UTILITIES MUST BE LOCATED AND FIELD VERIFIED.



NO	DATE	BY	CKD	APPR	REVISION

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

PRINT NAME: NICHOLAS J. DOBDA

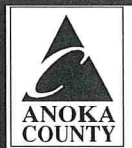
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DATE: 8/3/21      LICENSE NO. 49046

DRAWN BY JCF      DATE 07/01/21

DESIGN BY JCF      DATE 07/01/21

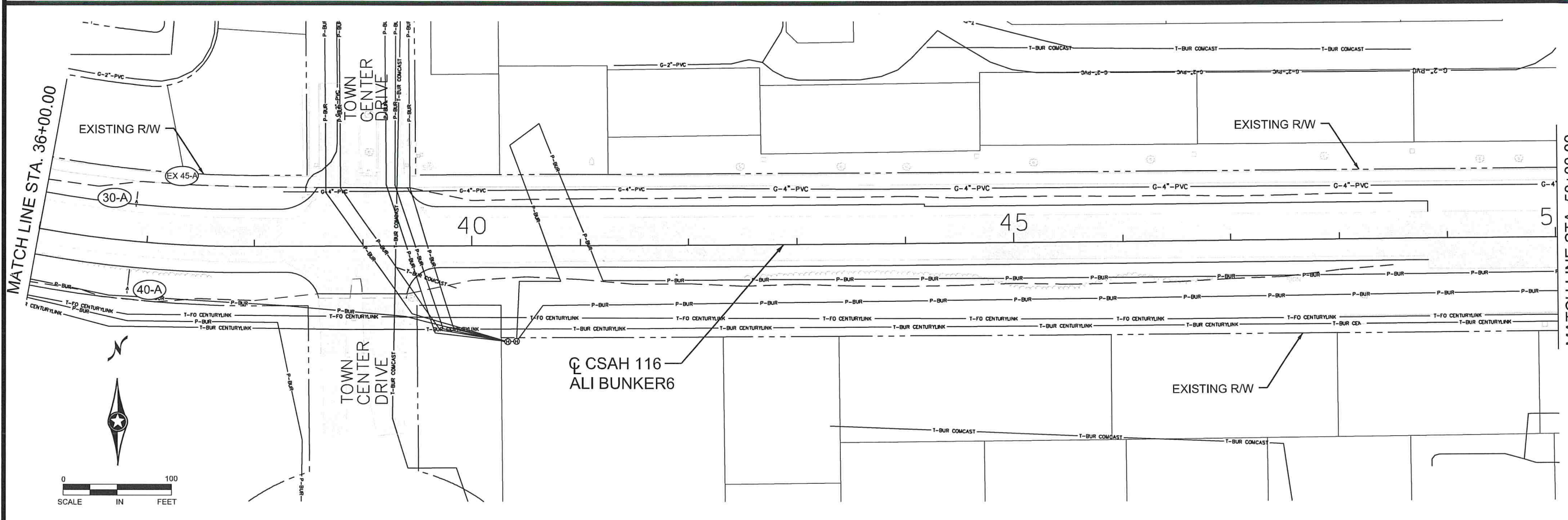
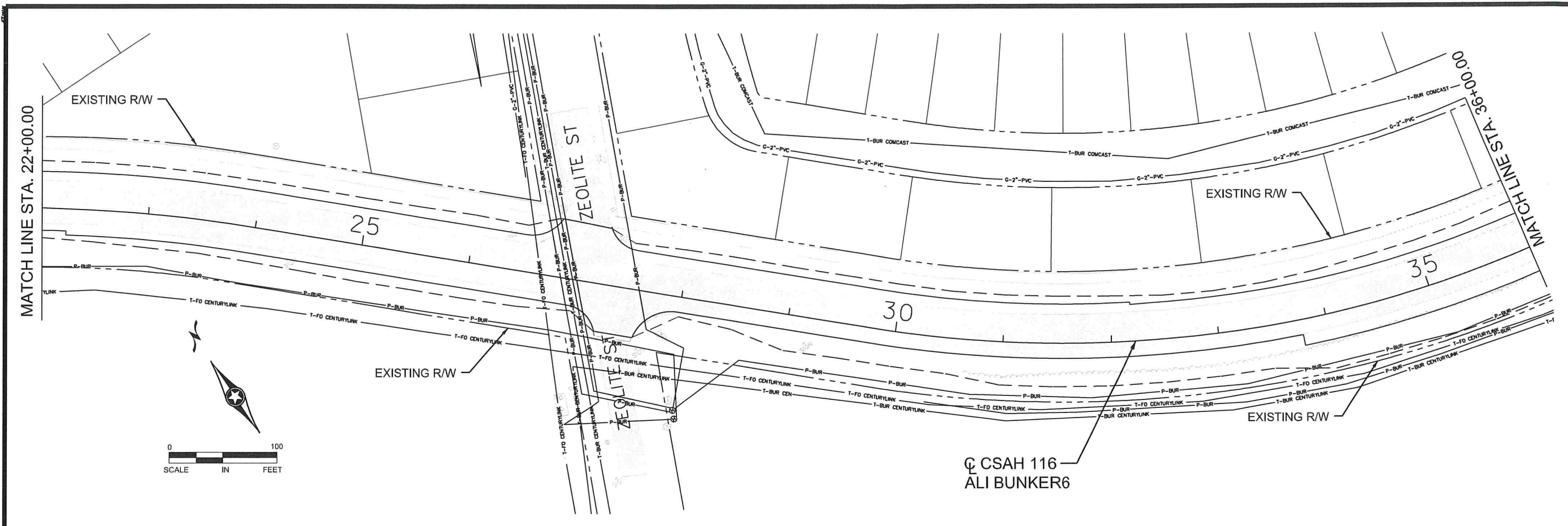
CHECKED BY NJD      DATE 07/09/21



**ANOKA COUNTY  
HIGHWAY DEPT.**

SAP 002-716-021  
SAP 199-104-014

TOPO & INPLACE UTILITIES  
STA 10+00.00 TO 22+00.00  
Sheet 34 of 259 Sheets



- LEGEND**
- EXISTING ROADWAY
  - PROPOSED CONST.
  - G GAS
  - OH POWER OH
  - P-BUR POWER UG
  - SIG BUR POWER - SIGNAL
  - T-BUR TELEPHONE
  - TV TV
  - STORM / CULVERT
  - SAN. SEWER
  - WATER MAIN
  - CONST. LIMITS
  - EXISTING R/W
  - PROPOSED R/W
  - TEMP. EASE.
  - PERM. EASE
  - SBTV SPLICE BOX TV
  - SBT SPLICE BOX TELE
  - SPLICE BOX FIBER
  - POWER POLE
  - SIGNAL POLE
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  - HAND HOLE
  - GAS VALVE
  - GATE VALVE
  - WATER SHUT OFF
  - HYDRANT

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NO	DATE	BY	CKD	APPR	REVISION

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

PRINT NAME: NICHOLAS J. DOBDA

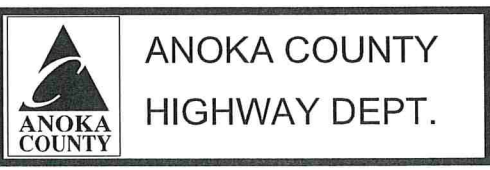
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DATE: 8/3/21      LICENSE NO. 49046

DRAWN BY JCF      DATE 07/01/21

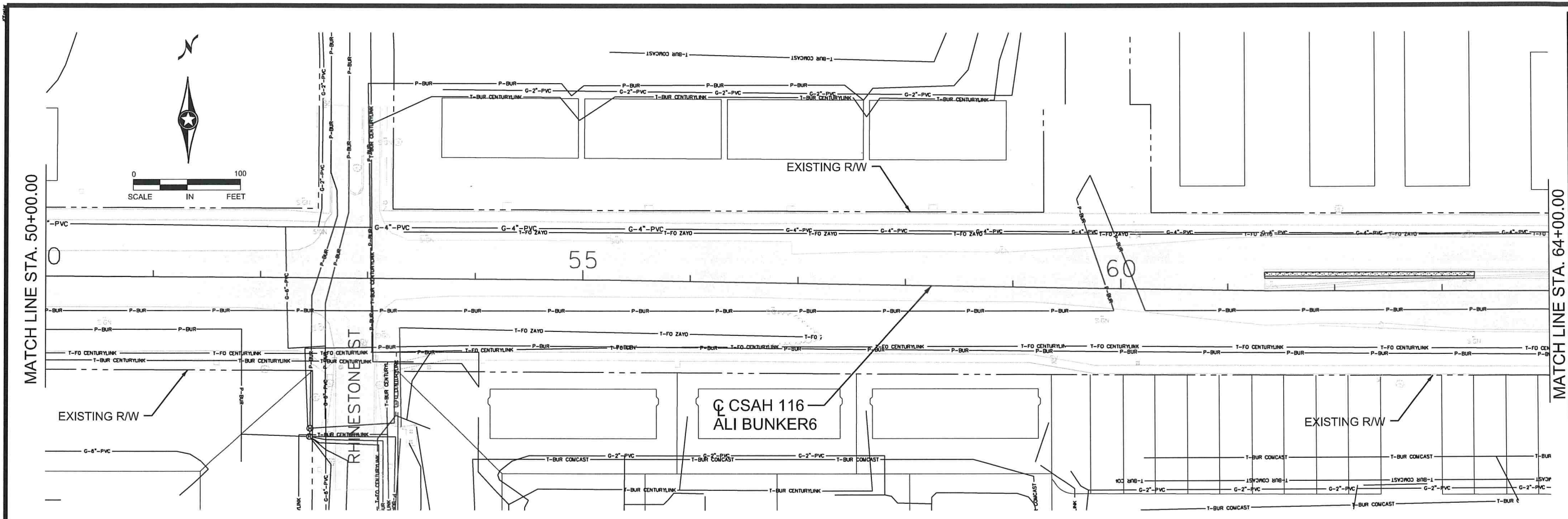
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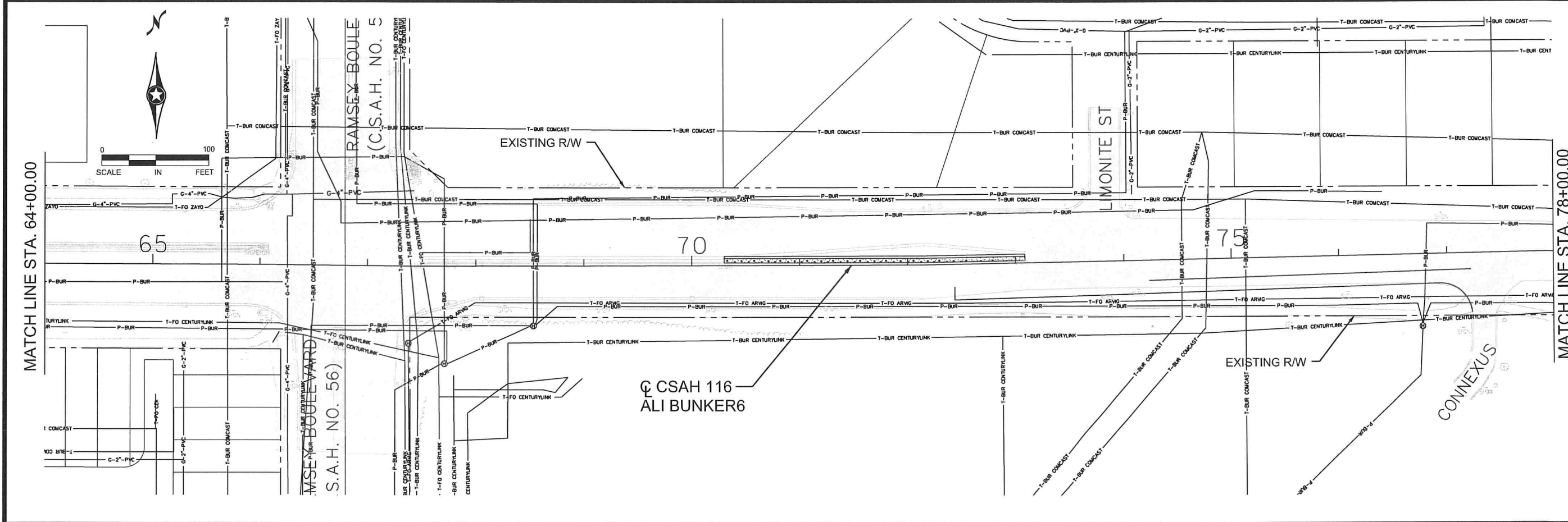


SAP 002-716-021  
SAP 199-104-014

TOPO & INPLACE UTILITIES  
STA 22+00.00 TO 50+00.00  
Sheet 35 of 259 Sheets



- LEGEND**
- EXISTING ROADWAY
  - PROPOSED CONST.
  - G — GAS
  - OHP — POWER OH
  - P-BUR — POWER UG
  - SIG BUR — POWER - SIGNAL
  - T-BUR — TELEPHONE
  - TV — TV
  - STORM / CULVERT
  - S.C.P. — SAN. SEWER
  - D.L.P. — WATER MAIN
  - — CONST. LIMITS
  - — EXISTING R/W
  - — PROPOSED R/W
  - — TEMP. EASE.
  - — PERM. EASE
  - ☒ SBTV — SPLICE BOX TV
  - ☒ SBT — SPLICE BOX TELE
  - ☐ — SPLICE BOX FIBER
  - — POWER POLE
  - — SIGNAL POLE
  - ⊙ — LIGHT POLE
  - ⊕ — HAND HOLE
  - ⊗ — GAS VALVE
  - ⊗ — GATE VALVE
  - ⊗ — WATER SHUT OFF
  - ⊕ — HYDRANT



THE EXISTING SUBSURFACE UTILITY INFORMATION IS ASSUMED TO BE QUALITY LEVEL D IN ACCORDANCE LEVEL D IN ACCORDANCE TO THE GUIDELINES OF C/ASCE 38-02.

EXISTING UTILITIES SHOWN FOR INFORMATIONAL PURPOSES, ALL UTILITIES MUST BE LOCATED AND FIELD VERIFIED.

NO	DATE	BY	CKD	APPR	REVISION

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

PRINT NAME: NICHOLAS J. DOBDA

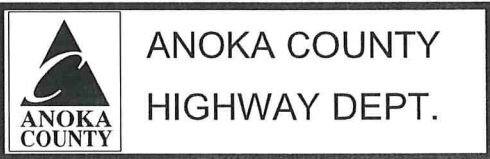
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DATE: 8/3/21 LICENSE NO. 49046

DRAWN BY JCF DATE 07/01/21

DESIGN BY JCF DATE 07/01/21

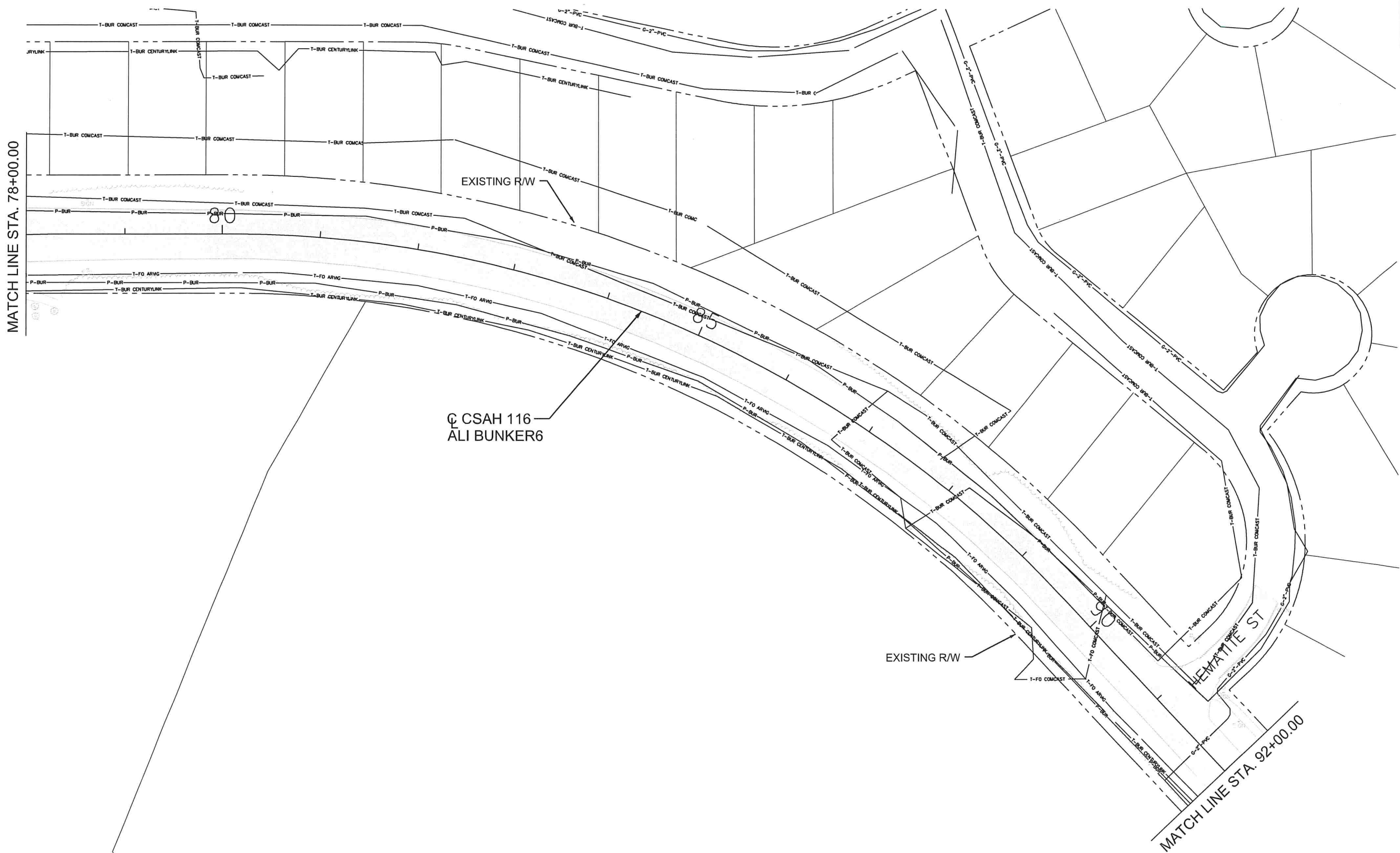
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SAP 002-716-021  
SAP 199-104-014

TOPO & INPLACE UTILITIES  
STA 50+00.00 TO 78+00.00  
Sheet 36 of 259 Sheets

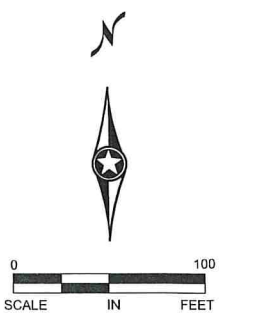
MATCH LINE STA. 78+00.00



LEGEND	
	EXISTING ROADWAY
	PROPOSED CONST.
	GAS
	POWER OH
	POWER UG
	POWER - SIGNAL
	TELEPHONE
	TV
	STORM / CULVERT
	SAN. SEWER
	WATER MAIN
	CONST. LIMITS
	EXISTING R/W
	PROPOSED R/W
	TEMP. EASE.
	PERM. EASE
	SPLICE BOX TV
	SPLICE BOX TELE
	SPLICE BOX FIBER
	POWER POLE
	SIGNAL POLE
	LIGHT POLE
	HAND HOLE
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	GATE VALVE
	WATER SHUT OFF
	HYDRANT

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NO	DATE	BY	CHKD	APPR	REVISION

NAME: P:\002-716-021\Plan\002716021 UT4.dgn 07/27/2021 1:46:49 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: NICHOLAS J. DOBDA

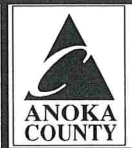
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DATE: 8/3/21 LICENSE NO. 49046

DRAWN BY JCF DATE 07/01/21

DESIGN BY JCF DATE 07/01/21

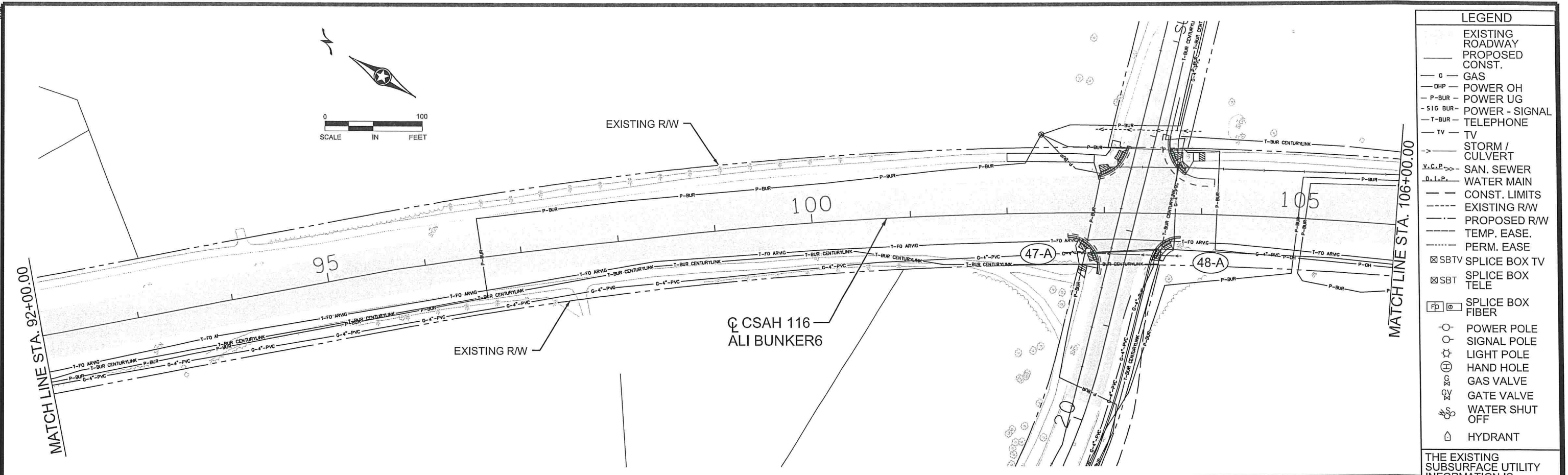
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ANOKA COUNTY  
HIGHWAY DEPT.

SAP 002-716-021  
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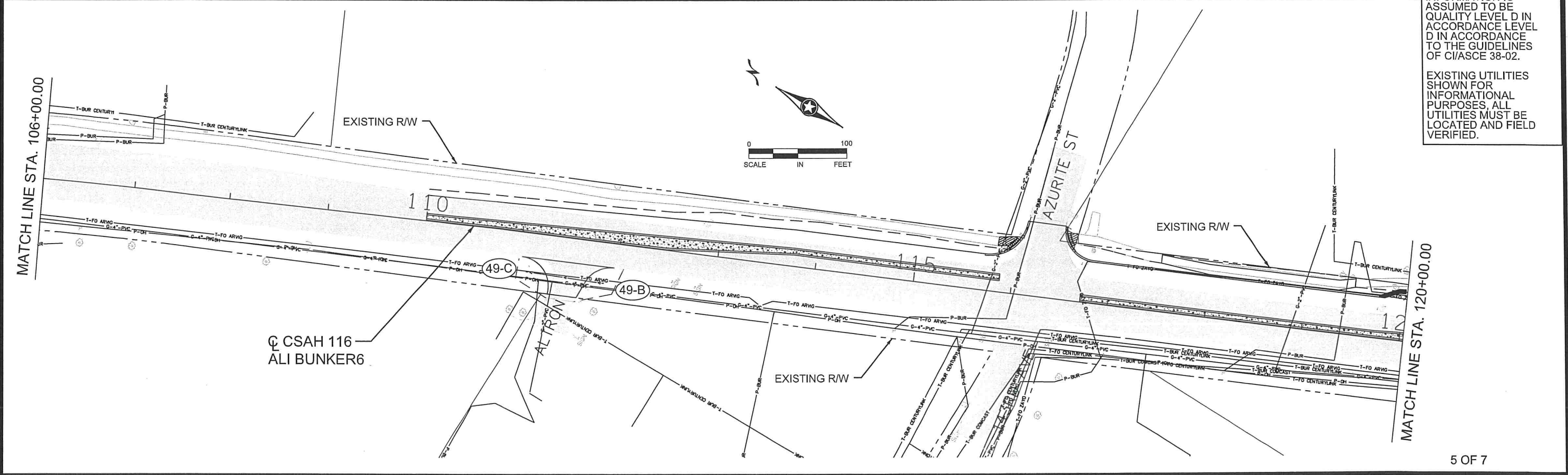
TOPO & INPLACE UTILITIES  
STA 78+00.00 TO 92+00.00  
Sheet 37 of 259 Sheets



- LEGEND**
- EXISTING ROADWAY
  - PROPOSED CONST.
  - G — GAS
  - DHP — POWER OH
  - P-BUR — POWER UG
  - SIG BUR — POWER - SIGNAL
  - T-BUR — TELEPHONE
  - TV — TV
  - STORM / CULVERT
  - V.C.P. — SAN, SEWER
  - W.M. — WATER MAIN
  - — CONST. LIMITS
  - — EXISTING R/W
  - — PROPOSED R/W
  - — TEMP. EASE.
  - — PERM. EASE
  - ☒ SBTV — SPLICE BOX TV
  - ☒ SBT — SPLICE BOX TELE
  - ☒ FB — SPLICE BOX FIBER
  - — POWER POLE
  - — SIGNAL POLE
  - ⊙ — LIGHT POLE
  - ⊕ — HAND HOLE
  - ⊗ — GAS VALVE
  - ⊗ — GATE VALVE
  - ⊗ — WATER SHUT OFF
  - ⊕ — HYDRANT

THE EXISTING SUBSURFACE INFORMATION IS ASSUMED TO BE QUALITY LEVEL D IN ACCORDANCE WITH THE GUIDELINES OF CI/ASCE 38-02.

EXISTING UTILITIES SHOWN FOR INFORMATIONAL PURPOSES, ALL UTILITIES MUST BE LOCATED AND FIELD VERIFIED.



NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\002-716-021\Plan\002716021 UT5.dgn 08/03/2021 6:48:36 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: NICHOLAS J. DOBDA

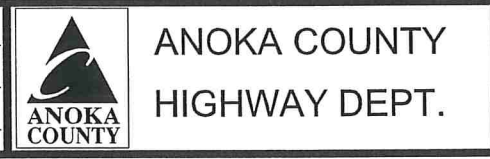
SIGNATURE: *N. Dobda*

DATE: 8/3/21 LICENSE NO. 49046

DRAWN BY: JCF DATE: 07/01/21

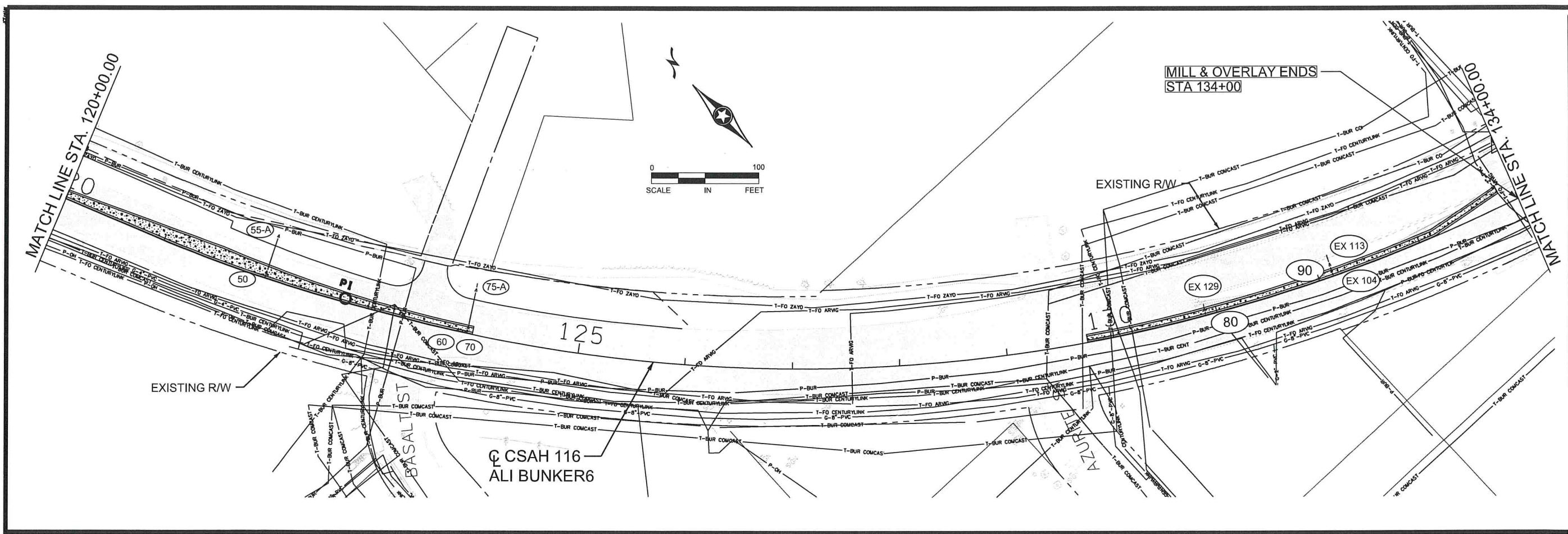
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SAP 002-716-021  
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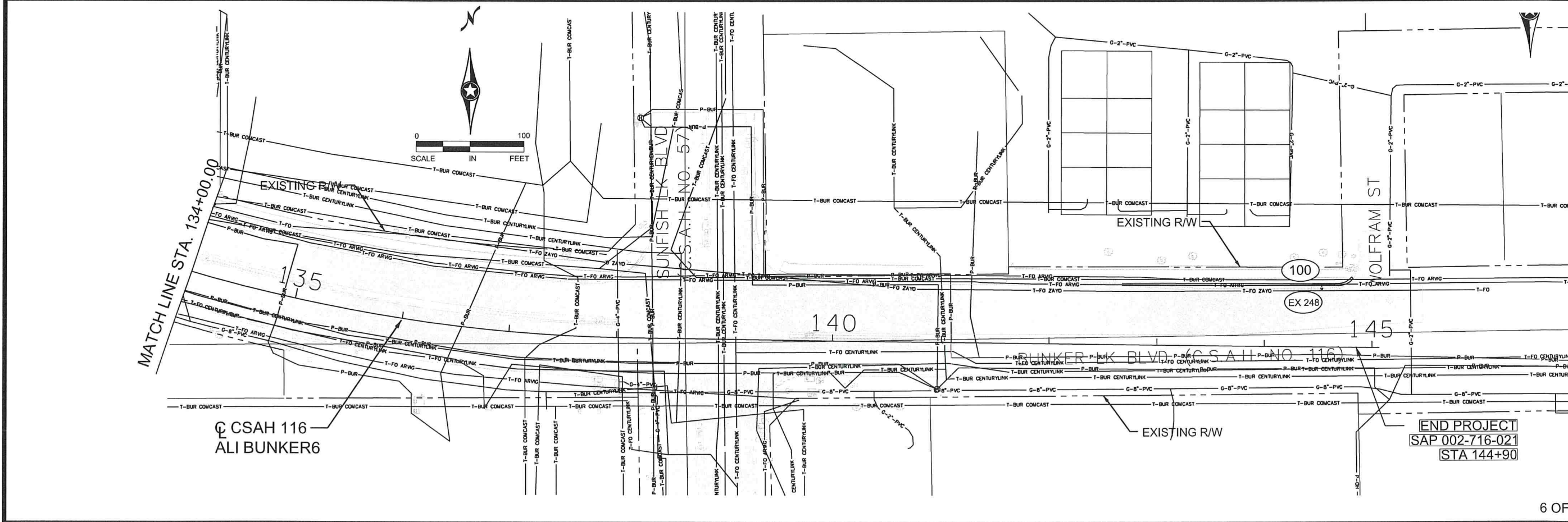
TOPO & INPLACE UTILITIES  
STA 92+00.00 TO 120+00.00  
Sheet 38 of 259 Sheets



- LEGEND**
- EXISTING ROADWAY
  - PROPOSED CONST.
  - G GAS
  - OHP POWER OH
  - P-BUR POWER UG
  - SIG BUR POWER - SIGNAL
  - T-BUR TELEPHONE
  - TV TV
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  - CONST. LIMITS
  - EXISTING R/W
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  - TEMP. EASE.
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  - SBTV SPlice BOX TV
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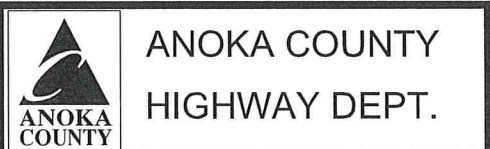
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DATE: 8/3/21      LICENSE NO. 49046

DRAWN BY JCF      DATE 07/01/21

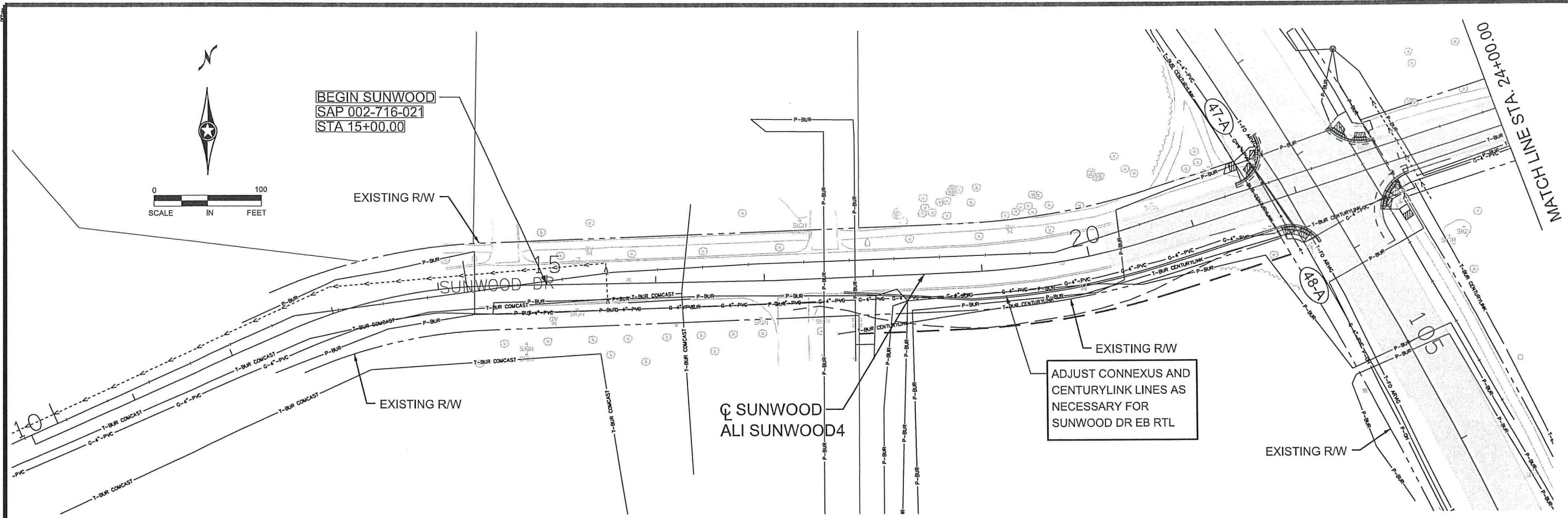
DESIGN BY JCF      DATE 07/01/21

CHECKED BY NJD      DATE 07/09/21



SAP 002-716-021  
SAP 199-104-014

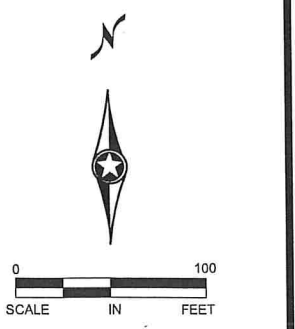
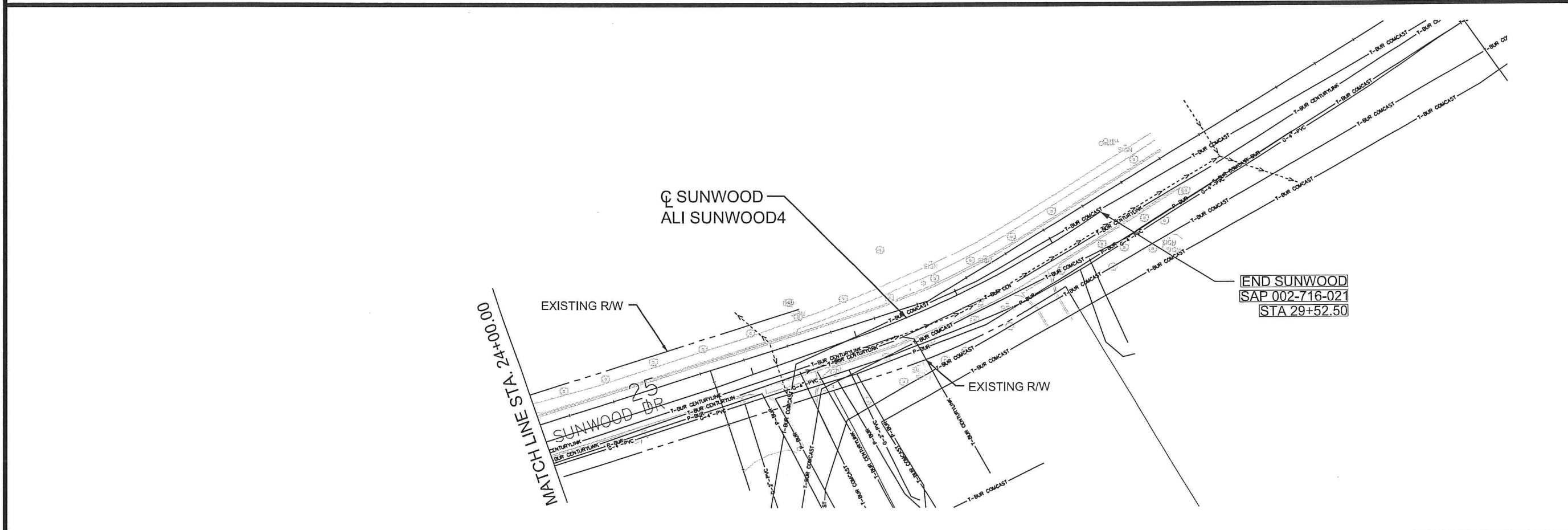
TOPO & INPLACE UTILITIES  
STA 120+00.00 TO 144+90.00  
Sheet 39 of 259 Sheets



- LEGEND**
- EXISTING ROADWAY
  - PROPOSED CONST.
  - GAS
  - POWER OH
  - POWER UG
  - POWER - SIGNAL
  - TELEPHONE
  - TV
  - STORM / CULVERT
  - SAN. SEWER
  - WATER MAIN
  - CONST. LIMITS
  - EXISTING R/W
  - PROPOSED R/W
  - TEMP. EASE.
  - PERM. EASE
  - SPLICE BOX TV
  - SPLICE BOX TELE
  - SPLICE BOX FIBER
  - POWER POLE
  - SIGNAL POLE
  - LIGHT POLE
  - HAND HOLE
  - GAS VALVE
  - GATE VALVE
  - WATER SHUT OFF
  - HYDRANT

THE EXISTING SUBSURFACE UTILITY INFORMATION IS ASSUMED TO BE QUALITY LEVEL D IN ACCORDANCE LEVEL D IN ACCORDANCE TO THE GUIDELINES OF CI/ASCE 38-02.

EXISTING UTILITIES SHOWN FOR INFORMATIONAL PURPOSES, ALL UTILITIES MUST BE LOCATED AND FIELD VERIFIED.



NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\002-716-021\Plan\002716021 UT7.dgn      08/03/2021      6:48:37 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: NICHOLAS J. DOBDA

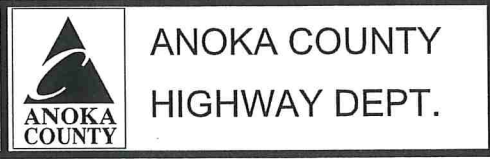
SIGNATURE: *N. Dobda*

DATE: 8/3/21      LICENSE NO. 49046

DRAWN BY: JCF      DATE: 07/01/21

DESIGN BY: JCF      DATE: 07/01/21

CHECKED BY: NJD      DATE: 07/09/21

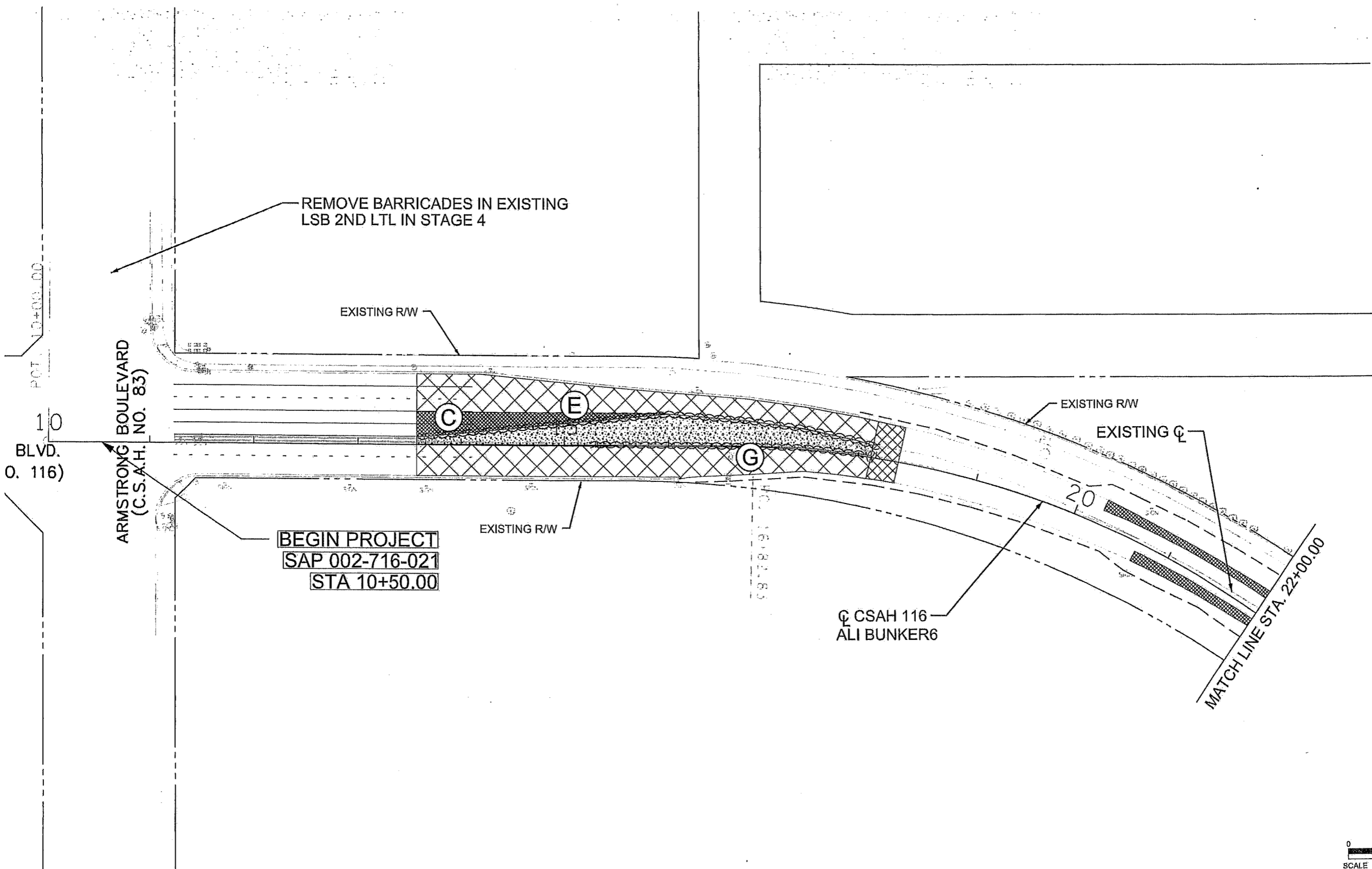


SAP 002-716-021  
SAP 199-104-014

TOPO & INPLACE UTILITIES  
STA 10+00.00 TO 29+52.50  
Sheet 40 of 259 Sheets



LEGEND	
	REMOVE BIT PAVEMENT
	REMOVE CONC MEDIAN
	REMOVE CONC CURB & GUTTER
	MILL BIT 2.0"
	MILL BIT TRANS 0.0" - 2.0"
	MILL BIT (JOINTS)
	SAWING BIT / CONC FULL DEPTH
	CLEAR / GRUB EACH
	GRUB / ACRE
	REMOVE PIPE
	REMOVE PIPE APRON
	REMOVE CATCH BASIN & CASTING
	REMOVE CASTING
	ADJUST GV
	RELOCATE HYD
	CONST LIMIT
	EXISTING R/W
	TEMP EASM.



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.

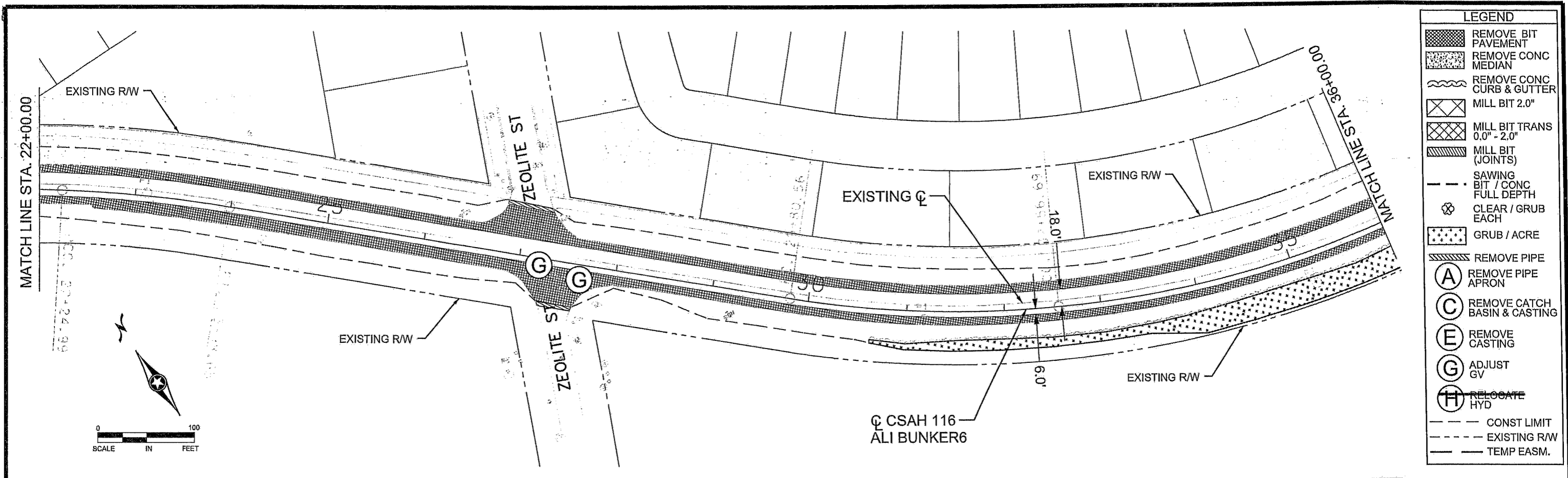
PRINT NAME: NICHOLAS J. DOBDA  
 SIGNATURE: *[Signature]*  
 DATE: 7/15/21 LICENSE NO. 49046

DRAWN BY JCF DATE 07/01/21  
 DESIGN BY JCF DATE 07/01/21  
 CHECKED BY NJD DATE 07/09/21

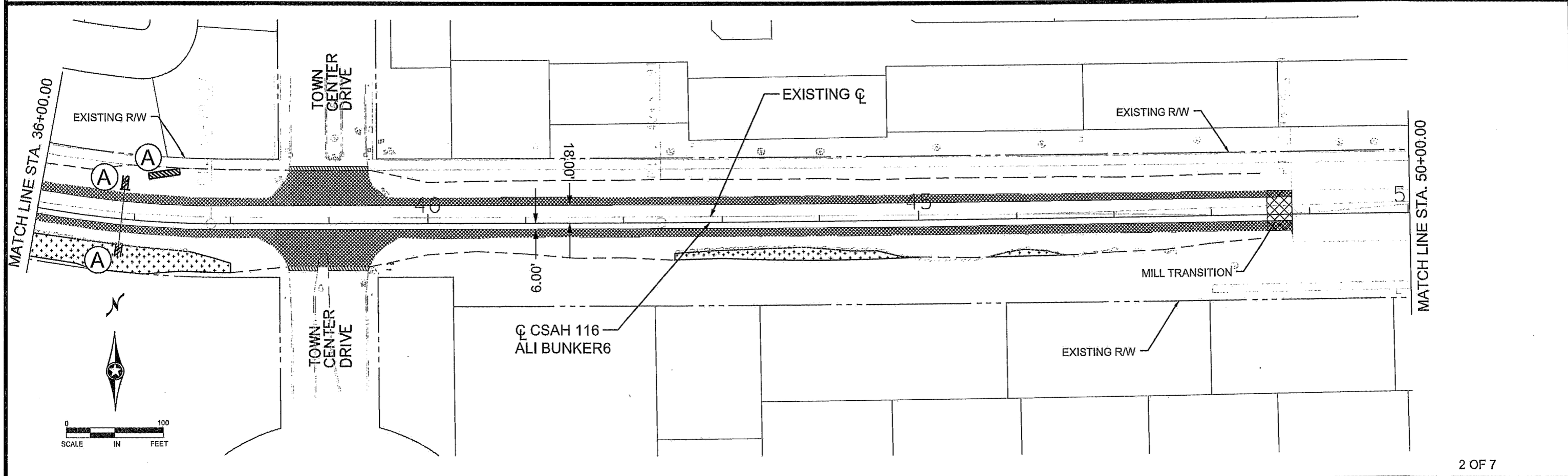
ANOKA COUNTY HIGHWAY DEPT.

SAP 002-716-021

REMOVALS  
 BUNKER LAKE BLVD  
 STA 10+00.00 TO 22+00.00  
 Sheet 41 of 259 Sheets



- LEGEND**
- REMOVE BIT PAVEMENT
  - REMOVE CONC MEDIAN
  - REMOVE CONC CURB & GUTTER
  - MILL BIT 2.0"
  - MILL BIT TRANS 0.0" - 2.0"
  - MILL BIT (JOINTS)
  - SAWING BIT / CONC FULL DEPTH
  - CLEAR / GRUB EACH
  - GRUB / ACRE
  - REMOVE PIPE
  - REMOVE PIPE APRON
  - REMOVE CATCH BASIN & CASTING
  - REMOVE CASTING
  - ADJUST GV
  - RELOCATE HYD
  - CONST LIMIT
  - EXISTING R/W
  - TEMP EASM.



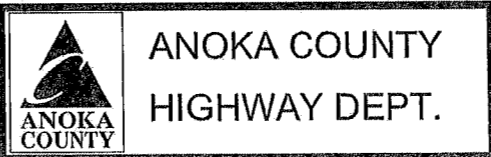
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NAME: P:\002-716-021\Plan\002716021\_RM2.dgn 07/12/2021 11:40:37 AM

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.

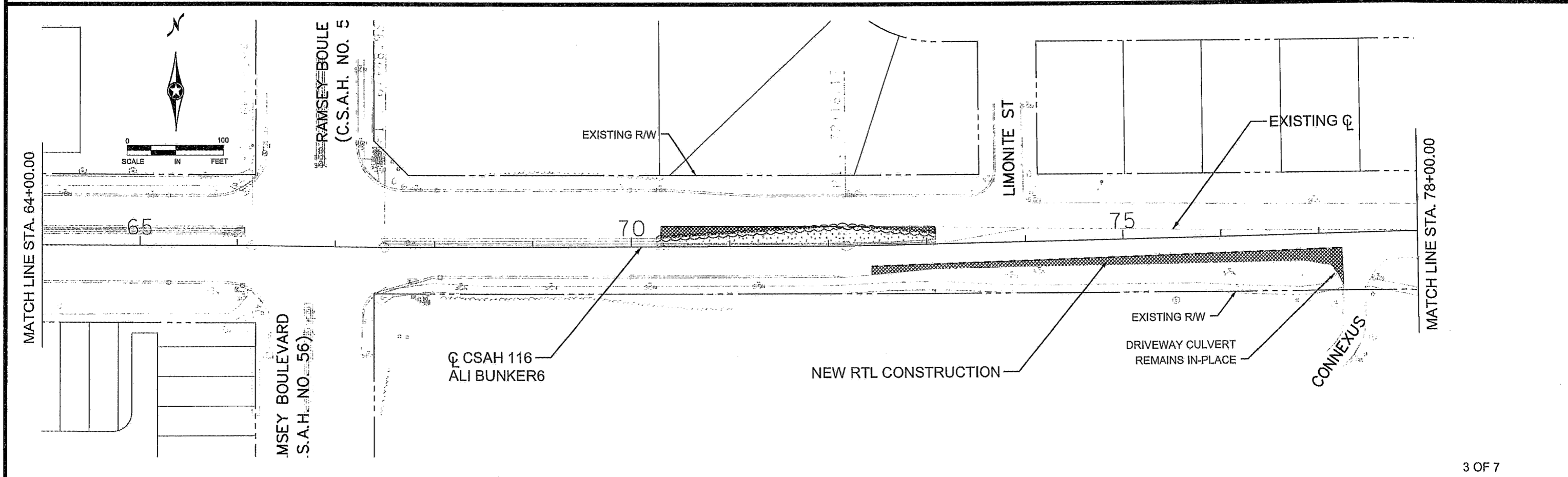
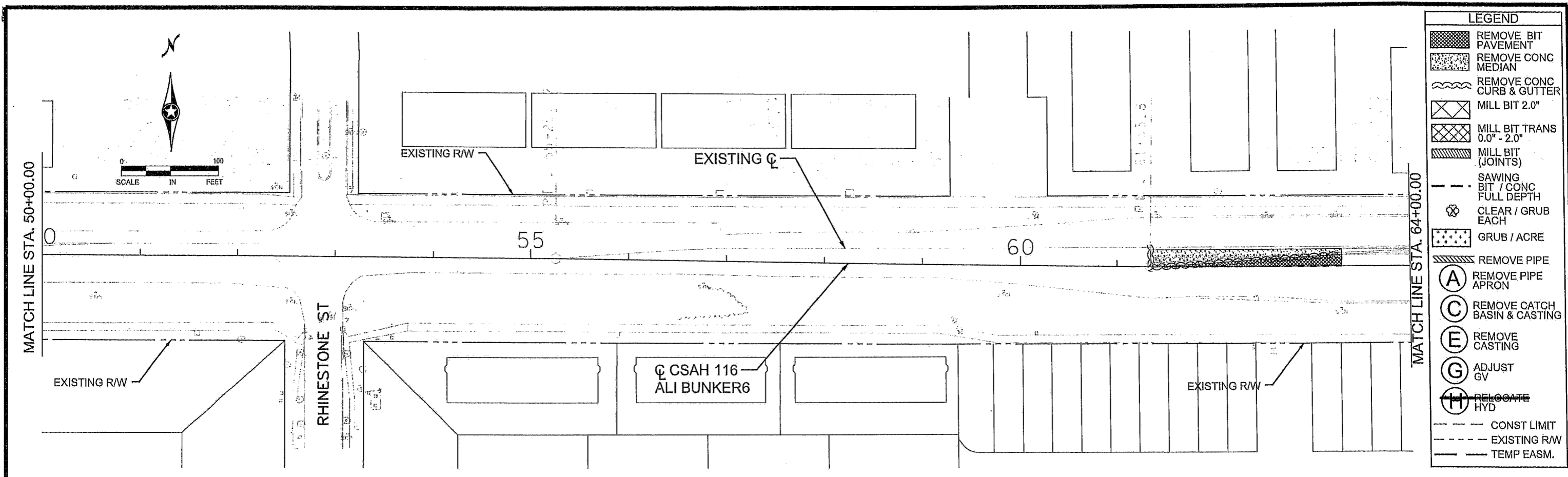
PRINT NAME: NICHOLAS J. DOBDA  
 SIGNATURE: *N. Dobda*  
 DATE: 7/15/21 LICENSE NO. 49046

DRAWN BY JCF DATE 07/01/21  
 DESIGN BY JCF DATE 07/01/21  
 CHECKED BY NJD DATE 07/09/21



SAP 002-716-021

REMOVALS  
 BUNKER LAKE BLVD  
 STA 22+00.00 TO 50+00.00  
 Sheet 42 of 259 Sheets



- LEGEND**
- REMOVE BIT PAVEMENT
  - REMOVE CONC MEDIAN
  - REMOVE CONC CURB & GUTTER
  - MILL BIT 2.0"
  - MILL BIT TRANS 0.0" - 2.0"
  - MILL BIT (JOINTS)
  - SAWING BIT / CONC FULL DEPTH
  - CLEAR / GRUB EACH
  - GRUB / ACRE
  - REMOVE PIPE
  - REMOVE PIPE APRON
  - REMOVE CATCH BASIN & CASTING
  - REMOVE CASTING
  - ADJUST GV
  - RELOCATE HYD
  - CONST LIMIT
  - EXISTING R/W
  - TEMP EASM.

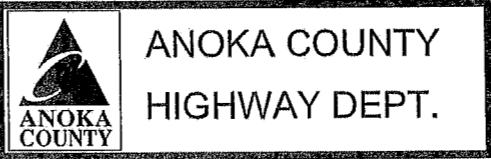
NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\002-716-021\Plan\002716021 RM3.dgn 07/12/2021 11:40:30 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: NICHOLAS J. DOBDA  
 SIGNATURE: *[Signature]*  
 DATE: 7/15/21 LICENSE NO. 49046

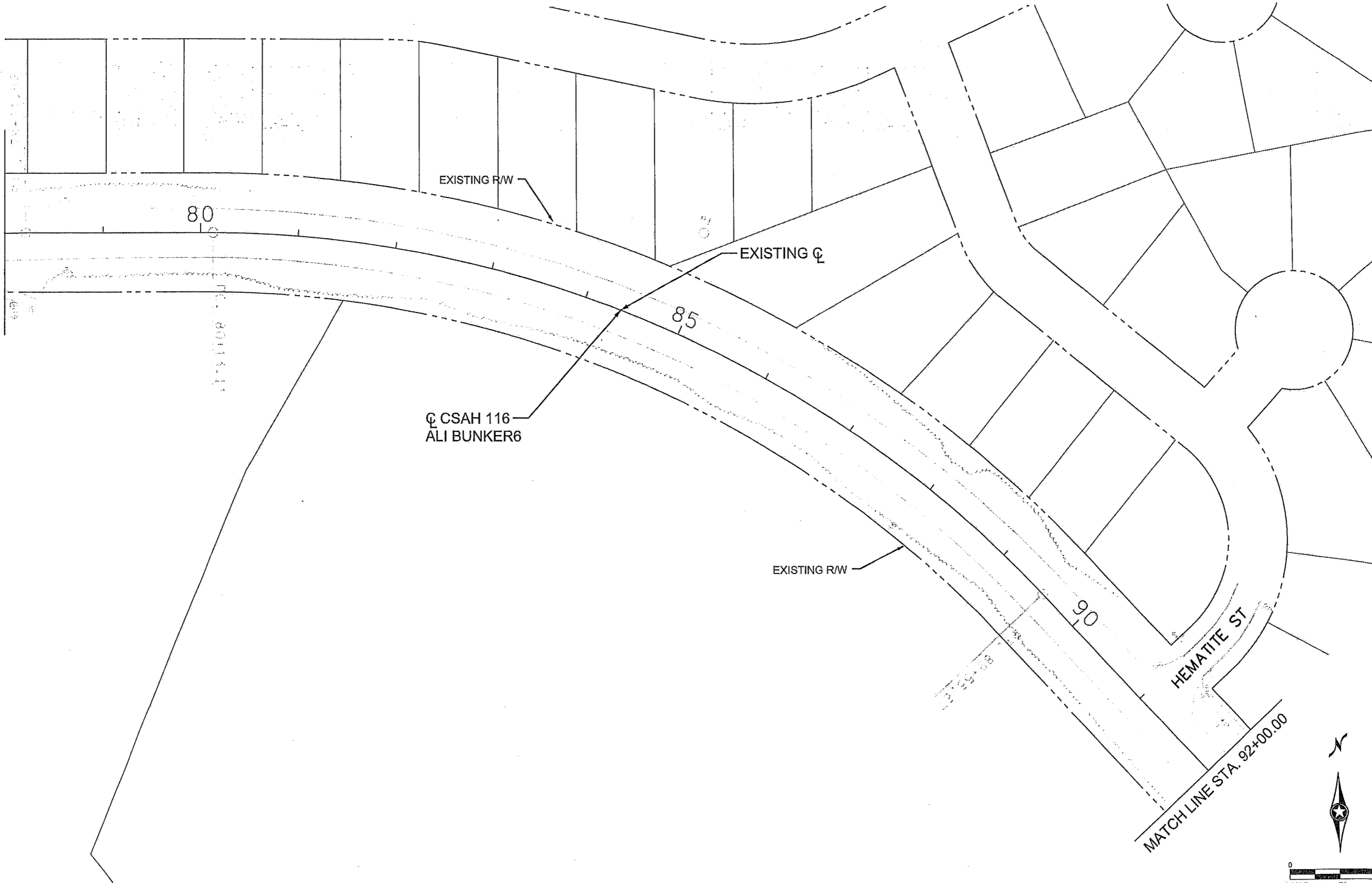
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 CHECKED BY NJD DATE 07/09/21



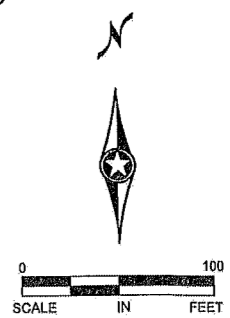
SAP 002-716-021

REMOVALS  
 BUNKER LAKE BLVD  
 STA 50+00.00 TO 78+00.00  
 Sheet 43 of 259 Sheets

MATCH LINE STA. 78+00.00



LEGEND	
	REMOVE BIT PAVEMENT
	REMOVE CONC MEDIAN
	REMOVE CONC CURB & GUTTER
	MILL BIT 2.0"
	MILL BIT TRANS 0.0" - 2.0"
	MILL BIT (JOINTS)
	SAWING BIT / CONC FULL DEPTH
	CLEAR / GRUB EACH
	GRUB / ACRE
	REMOVE PIPE
	REMOVE PIPE APRON
	REMOVE CATCH BASIN & CASTING
	REMOVE CASTING
	ADJUST GV
	RELOCATE HYD
	CONST LIMIT
	EXISTING R/W
	TEMP EASM.



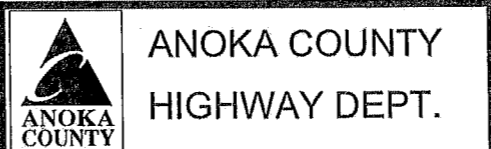
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NAME: P:\002-716-021\Plan\002716021 RM4.dgn 07/12/2021 11:40:42 AM

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.

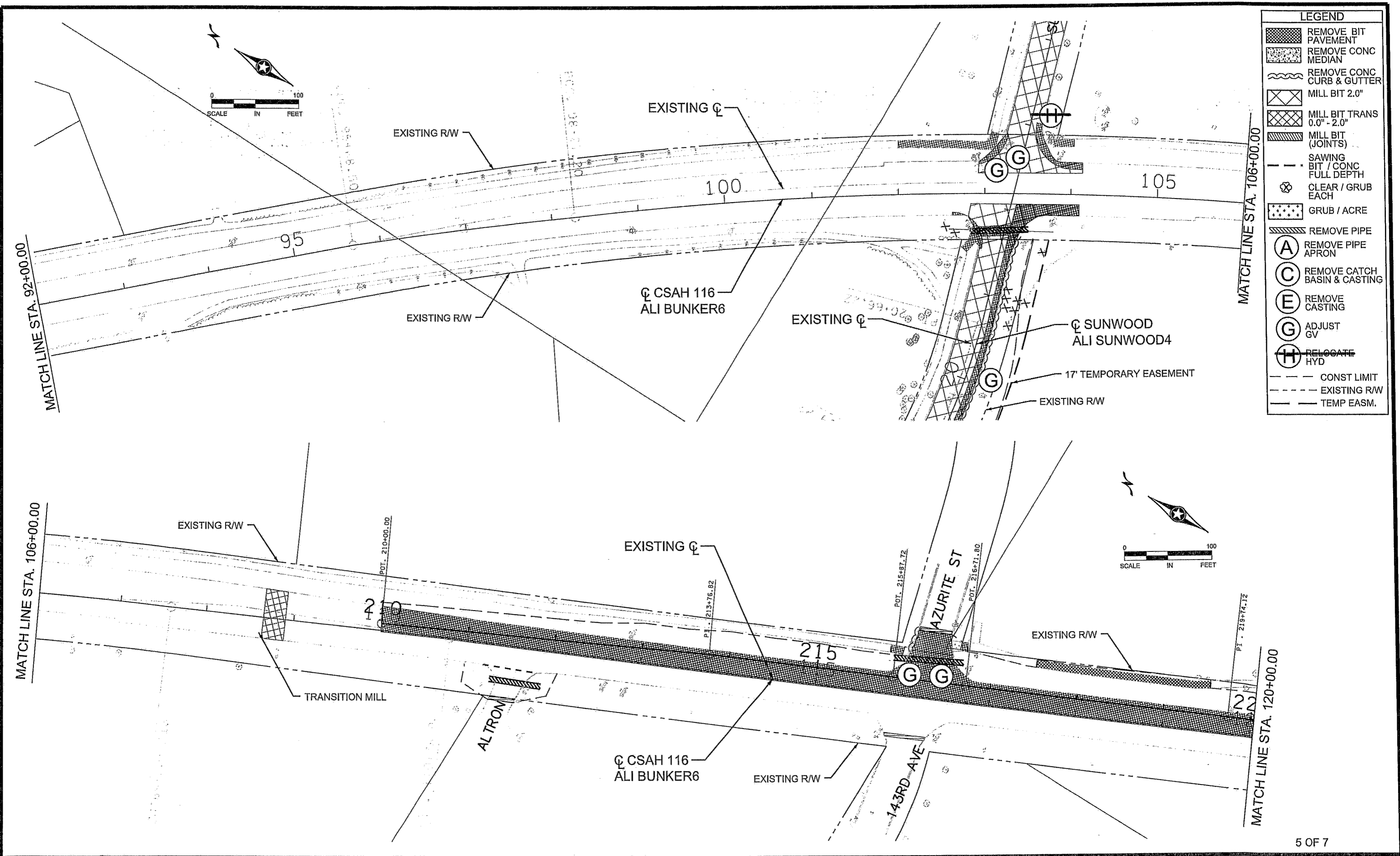
PRINT NAME: NICHOLAS J. DOBDA  
 SIGNATURE: *N. Dobda*  
 DATE: 7/15/21 LICENSE NO. 49046

DRAWN BY JCF DATE 07/01/21  
 DESIGN BY JCF DATE 07/01/21  
 CHECKED BY NJD DATE 07/09/21



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REMOVALS  
 BUNKER LAKE BLVD  
 STA 78+00.00 TO 92+00.00  
 Sheet 44 of 259 Sheets



**LEGEND**

- REMOVE BIT PAVEMENT
- REMOVE CONC MEDIAN
- REMOVE CONC CURB & GUTTER
- MILL BIT 2.0"
- MILL BIT TRANS 0.0" - 2.0"
- MILL BIT (JOINTS)
- SAWING BIT / CONC FULL DEPTH
- CLEAR / GRUB EACH
- GRUB / ACRE
- REMOVE PIPE
- REMOVE PIPE APRON
- REMOVE CATCH BASIN & CASTING
- REMOVE CASTING
- ADJUST GV
- RELOCATE HYD
- CONST LIMIT
- EXISTING R/W
- TEMP EASM.

5 OF 7

NO	DATE	BY	CHKD	APPR	REVISION

NAME: P:\002-716-021\Plan\002716021 RM5.dgn 07/12/2021 11:40:44 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.

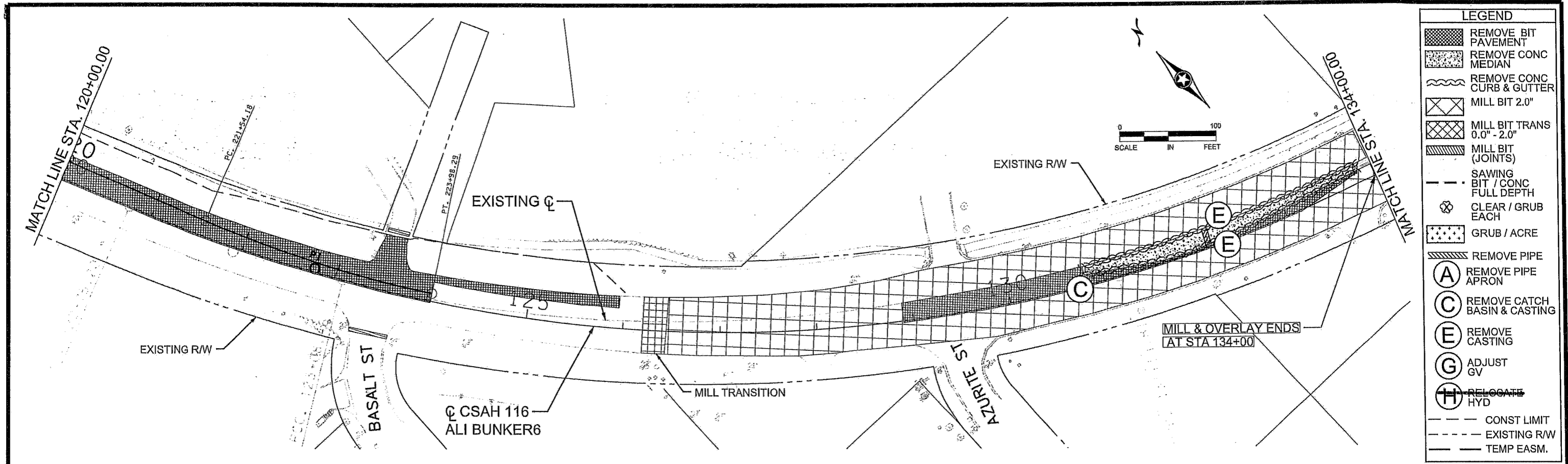
PRINT NAME: NICHOLAS J. DOBDA  
 SIGNATURE: *N. Dobda*  
 DATE: 7/15/21 LICENSE NO. 49046

DRAWN BY: JCF DATE: 07/01/21  
 DESIGN BY: JCF DATE: 07/01/21  
 CHECKED BY: NJD DATE: 07/09/21

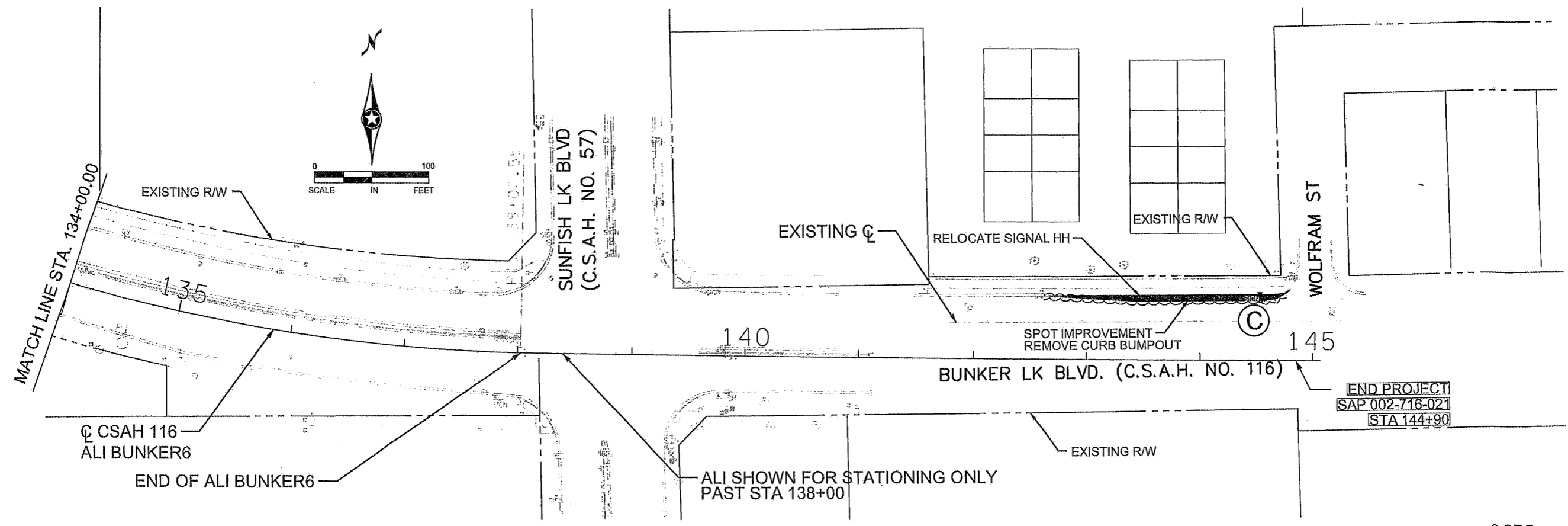


SAP 002-716-021

REMOVALS  
 BUNKER LAKE BLVD  
 STA 92+00.00 TO 120+00.00  
 Sheet 45 of 259 Sheets



LEGEND	
[Cross-hatched pattern]	REMOVE BIT PAVEMENT
[Dotted pattern]	REMOVE CONC MEDIAN
[Wavy line pattern]	REMOVE CONC CURB & GUTTER
[Diagonal line pattern]	MILL BIT 2.0"
[Cross-hatched pattern]	MILL BIT TRANS 0.0" - 2.0"
[Diagonal line pattern]	MILL BIT (JOINTS)
[Dashed line]	SAWING BIT / CONC FULL DEPTH
[Star symbol]	CLEAR / GRUB EACH
[Dotted pattern]	GRUB / ACRE
[Diagonal line pattern]	REMOVE PIPE
(A)	REMOVE PIPE APRON
(C)	REMOVE CATCH BASIN & CASTING
(E)	REMOVE CASTING
(G)	ADJUST GV
(H)	RELOCATE HYD
[Dashed line]	CONST LIMIT
[Dotted line]	EXISTING R/W
[Solid line]	TEMP EASM.



6 OF 7

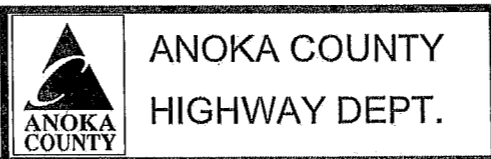
NO	DATE	BY	CHKD	APPR	REVISION

NAME: P:\002-716-021\Plan\002716021 RM6.dgn 07/12/2021 11:40:48 AM

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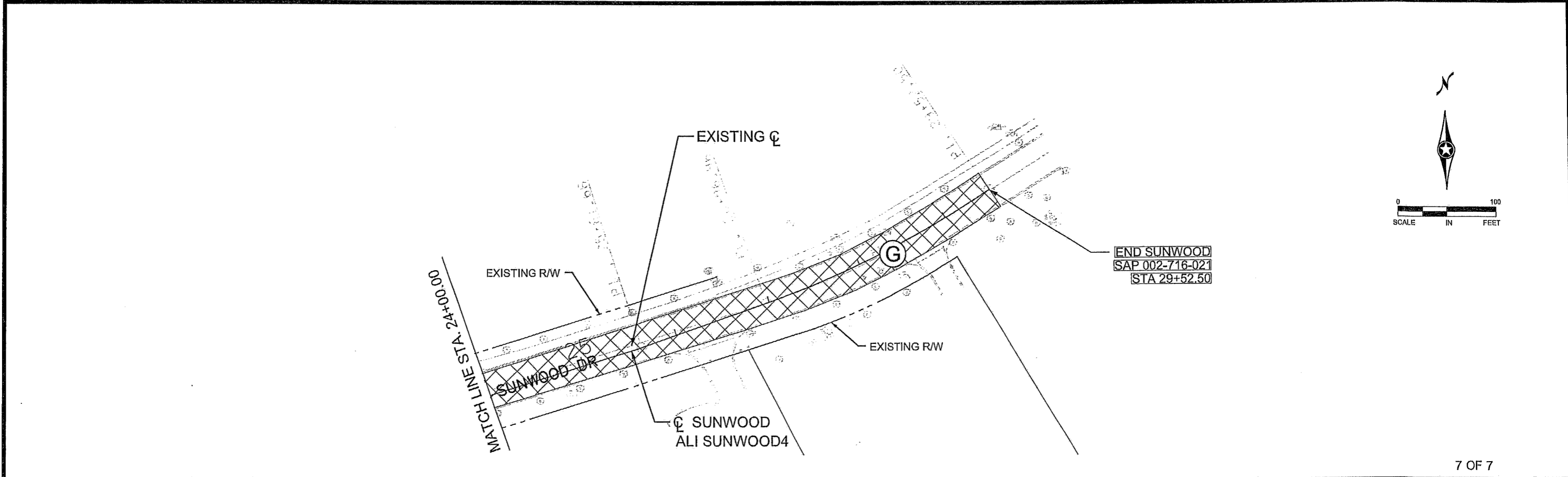
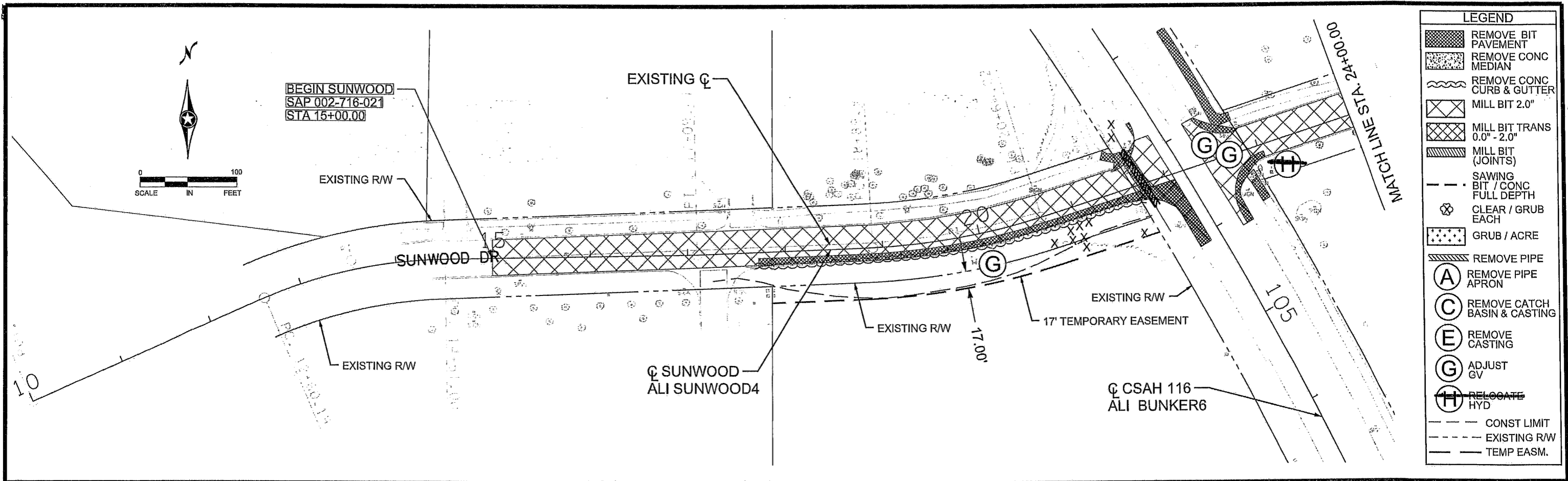
PRINT NAME: NICHOLAS J. DOBDA  
 SIGNATURE: *N. Dobda*  
 DATE: 7/15/21 LICENSE NO. 49046

DRAWN BY: JCF DATE: 07/01/21  
 DESIGN BY: JCF DATE: 07/01/21  
 CHECKED BY: NJD DATE: 07/09/21



SAP 002-716-021

REMOVALS  
 BUNKER LAKE BLVD  
 STA 120+00.00 TO 183+02.55  
 Sheet 46 of 259 Sheets



- LEGEND**
- REMOVE BIT PAVEMENT
  - REMOVE CONC MEDIAN
  - REMOVE CONC CURB & GUTTER
  - MILL BIT 2.0"
  - MILL BIT TRANS 0.0" - 2.0"
  - MILL BIT (JOINTS)
  - SAWING BIT / CONC FULL DEPTH
  - CLEAR / GRUB EACH
  - GRUB / ACRE
  - REMOVE PIPE
  - REMOVE PIPE APRON
  - REMOVE CATCH BASIN & CASTING
  - REMOVE CASTING
  - ADJUST GV
  - RELOCATE HYD
  - CONST LIMIT
  - EXISTING R/W
  - TEMP EASM.

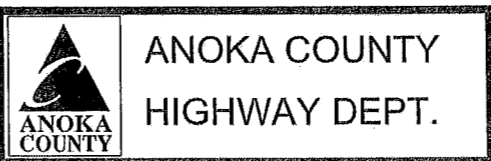
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NAME: P:\002-716-021\Plan\002716021 RM7.dgn 07/12/2021 11:40:52 AM

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

PRINT NAME: NICHOLAS J. DOBDA  
 SIGNATURE: *N. Dobda*  
 DATE: 7/15/21 LICENSE NO. 49046

DRAWN BY JCF DATE 07/01/21  
 DESIGN BY JCF DATE 07/01/21  
 CHECKED BY NJD DATE 07/09/21



SAP 002-716-021

7 OF 7

REMOVALS  
SUNWOOD DR

STA 10+00.00 TO 29+52.50

Sheet 47 of 259 Sheets

**STAGE 1:**

ALL PROJECT MILLING TO TAKE PLACE IN STAGE 1

REMOVE WIDE PORTIONS OF MEDIANS AT ARMSTRONG BLVD, RAMSEY BLVD, AZURITE S AND THE RTL BUMPOUT AT WOLFRAM ST.

**ARMSTRONG LWB MEDIAN CONSTRUCTION:** COMPLETE ALL STORM SEWER MODIFICATIONS, REMOVALS AND NEW CB CONSTRUCTION. CONSTRUCT NEW WB CURBLINE 2.0" HIGHER THEN MILLED SURFACE, SET CASTINGS-- (NEW MH CASTING WILL HAVE TO BE RAISED FOR FINAL PAVING) BITUMINOUS PAVE IN THE CONCRETE MEDIAN REMOVAL AREA UP TO THE MILLED SURFACE.

**RAMSEY BLVD LEB AND LWB MEDIAN CONSTRUCTION:** CONSTRUCT NEW CURBLINE FOR 4.0' MEDIAN - ON THE WEST ISLAND THE WB CURB REMAINS INPLACE. ON THE EAST ISLAND THE EB CURBLINE REMAINS INPLACE. PAVE IN TO MATCH EXISTING BITUMINOUS.

**SUNWOOD DR:** ALL 2.0" MILLING ON SUNWOOD TO HAVE BEEN COMPLETED. ADJUST GV THAT FALLS IN SLOPE OF BLVD WHERE NEW EB RTL WILL BE CONSTRUCTED. LEB CURB REMOVAL FOR RTL IN THIS STAGE. REMOVE EXISTING CMP PIPE CULVERT ON WEST SIDE OF BUNKER CROSSING SUNWOOD DR, REPLACE WITH RC CULVERT AND EXTEND BEYOND PEDESTRIAN RAMP SIGNAL CONSTRUCTION. "CAUTION" STAKE PROPOSED SIGNAL BASE LOCATIONS FOR INTERFERENCE WITH PROPOSED CULVERT LOCATION. PATCH CULVERT TRENCH WITH BITUMINOUS UP TO MILLED SURFACE. ~~HYDRANT IN S.E. QUAD TO BE MOVED AS TO NOT INTERFERE WITH SIGNAL / PEDESTRIAN CONSTRUCTION. CITY OF RAMSEY TO BE CONSULTED AND PRESENT DURING HYDRANT RELOCATION.~~

**SOUTH ALTRON DRIVEWAY ON 143<sup>RD</sup>:** SOUTH ENTRANCE TO BE CONSTRUCTED TO IN STAGES 1 & 2.

**WIDENING AREA BUNKER6 STA 110+00 126+00:** TRAFFIC IS PUSHED OUT TO THE SHOULDERS. REMOVE 8.0' STRIP OF INPLACE BITUMINOUS AND GRAVEL TO INSTALL LEB CURBLINE ALONG THRU LANE - SEE CROSS SECTIONS. INSTALL CB50, CB60, CB70 AND STUB OUT OUTLET PIPES- PREP AND INSTALL LEB MEDIAN CURB 2.0" HIGHER THAN THE EXISTING BITUMINOUS, "CAUTION" MEDIAN CURB FROM 110+00 TO 126+00 IS GUTTER OUT WITH THE EXCEPTION OF LEB STA 116+70 TO 124+00 SHALL BE GUTTER IN. SET CASTINGS AND FILL. BACKFILL/ RAMP AGAINST THE BACK OF THE NEW CURB, PATCH LEB BITUMINOUS ALONG NEW CURB UP TO EXISTING BIT SURFACE.

**AZURITE ST S. LTL / MEDIAN CONSTRUCTION:** REMOVE BITUMINOUS, CURB AND GUTTER, CONC MEDIAN AND STORM CASTINGS.

**WOLFRAM ST:** REMOVE LWB RTL BUMPOUT FOR NB SUNFISH BLVD. "CAUTION" SIGNAL HAND HOLE TO BE REPLACED IN BLVD. REMOVE CURB AND EX CB 248. CONSTRUCT CB 100 AND CONNECT TO EXISTING STORM PIPE. CONSTRUCT NEW LWB CURBLINE, SET CASTING, PAVE IN UP TO EXISTING BIT SURFACE. COMPLETE ALL EROSION CONTROL.

**STAGE 3:**

**WIDENING AREA LEB 20+70 - 48+50:** BOTH LANES OF TRAFFIC ARE ON THE LWB SHOULDER. RECLAIM LINE 6' SOUTH OF ALIGNMENT BUNKER6. LEB FULL DEPTH CONSTRUCTION UP TO EXISTING BITUMINOUS ELEV (CONTRACTOR MAY PAVE WEAR COURSE CAP TO LANE IF DONE SO IN STAGE 2). REMOVE EXISTING SOUTH APRON OF CROSS-CULVERT BUNKER6 STA 36+90, EXTEND CROSS PIPE AND INSTALL NEW APRON 40-A. COMPLETE ALL CLASS 5 SHOULDERING AND EROSION CONTROL.

**RAMSEY BLVD LEB AND LWB MEDIAN CONSTRUCTION:** COMPLETED BY THIS STAGE.

**CONNEXUS RTL:** CONSTRUCT NEW RTL LEB AT CONNEXUS ENTRANCE. SAWCUT ON TAPER/ EDGE LINE AND CONSTRUCT 12'0 RTL BY THE EACH. CULVERT UNDER CONNEXUS DRIVEWAY REMAINS IN-PLACE.

**SUNWOOD DR:** SIGNAL / PEDESTRIAN RAMP CONSTRUCTION NW & NE QUADS. PATCH BITUMINOUS ALONG NEW PEDESTRIAN RAMPS UP TO MILLED SURFACE.

**SOUTH ALTRON ENTRANCE:** COMPLETED.

**WIDENING AREA BUNKER6 STA 110+00 126+00:** LEB TRAFFIC IS ON THE LEB SHOULDER, LWB IS IN THE FINISHED CONFIGURATION LWB ON FINAL WEAR COURSE. COMPLETE ANY REMAINING MEDIAN FLATWORK. PAVE FINAL WEAR COURSE AGAINST MEDIAN. PAVE WEAR COURSE TO STA 134+00 LEB THROUGH LANE.

**AZURITE ST S. LTL / MEDIAN CONSTRUCTION:** COMPLETED

**WOLFRAM ST:** COMPLETED

**STAGE 2:**

**WIDENING AREA LWB 20+25 - 48+50:** BOTH LANES OF TRAFFIC ARE ON THE LEB SHOULDER. RECLAIM LINE 18' NORTH OF ALIGNMENT BUNKER6. LWB FULL DEPTH CONSTRUCTION UP TO EXISTING BITUMINOUS ELEV (CONTRACTOR MAY PAVE FINAL WEAR COURSE CAP TO PROPOSED LANE LINE). REMOVE EXISTING NORTH APRON OF CROSS-CULVERT BUNKER6 STA 36+90, EXTEND CROSS PIPE AND INSTALL NEW APRON 30-A. REMOVE EXISTING ARCH APRON EX 45-A AND SEGMENTS OF PIPE, RE-INSTALL EX APRON 45-A. TEMPORARY PAVE BITUMINOUS WEDGE FOR STAGE 3 AT BUNKER6 STA 49+00. COMPLETE ALL CLASS 5 SHOULDERING AND EROSION CONTROL.

**RAMSEY BLVD LEB AND LWB MEDIAN CONSTRUCTION:** COMPLETE ANY REMAINING CONSTRUCTION NOT COMPLETED IN STAGE 1.

**SUNWOOD DR:** CULVERT ACROSS WEST SUNWOOD MUST BE REPLACED BY THIS POINT. CONSTRUCT LEB RTL AND SIGNAL / PEDESTRIAN RAMP CONSTRUCTION SW & SE QUADS. PAVE NEW RTL UP TO MILLED SURFACE ELEV. PATCH BITUMINOUS ALONG NEW PEDESTRIAN RAMP S.E. QUAD UP TO MILLED SURFACE.

**SOUTH ALTRON DRIVEWAY ON 143<sup>RD</sup>:** MUST BE FINISHED TO COMPLETION BY STAGE 3.

**WIDENING AREA BUNKER6 STA 110+00 126+00:** BOTH LANES OF TRAFFIC ARE ON THE LEB SHOULDER, MEDIAN AND FULL DEPTH CONSTRUCTION ON LWB. RECLAIM REMAINING BITUMINOUS ON LWB. ALL REMOVALS ON LWB. REMOVE EXISTING CROSS CULVERT UNDER AZURITE STREET (CULVERT DOES NOT GET REPLACED). COMPLETE STORM SEWER PIPE AND APRON CONSTRUCTION FROM CB50 TO APRON 55-A. ALSO FROM CB70 TO APRON 75-A. COMPLETE MEDIAN AND SHOULDER CURB, CONC FLUME, SET CASTINGS, CONC FLAT WORK IN MEDIAN. PAVE BITUMINOUS TRAIL LWB ALI BUNKER6 STA 117+50 - 119+50. PAVE LWB TO FINAL WEAR COURSE. COMPLETE ALL CLASS 5 SHOULDERING AND EROSION CONTROL.

**AZURITE ST S. LTL / MEDIAN CONSTRUCTION:** COMPLETE ALL STORM SEWER MODIFICATIONS, REMOVALS AND NEW CB CONSTRUCTION. CONSTRUCT NEW CURBLINE 2.0" HIGHER THEN MILLED SURFACE, SET CASTINGS - (NEW MH CASTING WILL HAVE TO BE RAISED FOR FINAL PAVING) BITUMINOUS PATCH ALONG NEW LEB CURB UP TO MILLED SURFACE. PAVE IN THE CONCRETE MEDIAN REMOVAL AREA UP TO THE MILLED SURFACE. PAVING SHALL EXTEND ACROSS THE INTERSECTION OF AZURITE ST LEVELING OUT THE INPLACE INVERTED CROWN.

**WOLFRAM ST:** COMPLETE ANY REMAINING CONSTRUCTION NOT COMPLETED IN STAGE 1.

**STAGE 4:**

**BEGINNING OF PROJECT ALI BUNKER6 STA 13+58 - 48+85:** COMPLETE ALL WEAR COURSE PAVING THAT HAS NOT BEEN COMPLETED. COMPLETE ALL CLASS 5 SHOULDERING AND EROSION CONTROL. REMOVE TEMPORARY PAVING WEDGE LWB STA 50+00. FINAL STRIPING.

**RAMSEY BLVD LEB AND LWB MEDIAN CONSTRUCTION:** COMPLETED BY THIS STAGE.

**CONNEXUS RTL:** COMPLETE ANY REMAINING CONSTRUCTION NOT COMPLETED IN STAGE 3. COMPLETE ALL CLASS 5 SHOULDERING AND EROSION CONTROL. FINAL STRIPING

**SUNWOOD DR:** FINAL WEAR COURSE PAVING. FINAL STRIPING AND PAVEMENT MESSAGES. SIGNAL SHOULD BE IN OPERATION AND TRAFFIC SHOULD BE IN FINAL LANE CONFIGURATIONS ON ALL LEGS AT COMPLETION OF STAGE 4.

**NORTH ALTRON DRIVEWAY ALI BUNKER6 STA 111+50:** REMOVE/REPLACE/EXTEND CULVERT UNDER NORTH ENTRANCE. WIDEN WEST RADIUS AND CONSTRUCT ENTRANCE.

**SOUTH ALTRON ENTRANCE:** COMPLETED.

**WIDENING AREA BUNKER6 STA 110+00 126+00:** LEB TRAFFIC IS AGAINST MEDIAN, LWB IS IN THE FINISHED CONFIGURATION LWB ON FINAL WEAR COURSE. PAVE WEAR COURSE OVERLAY ON THE SHOULDER TO STA 134+00. COMPLETE ALL CLASS 5 SHOULDERING AND EROSION CONTROL.

**MAINLINE LWB 126+00 - 134+00:** FINAL WEAR COURSE PAVING. FINAL STRIPING.

**AZURITE ST S. LTL / MEDIAN CONSTRUCTION:** COMPLETED

**WOLFRAM ST:** COMPLETED

**END OF FINAL STAGE 4:** COMPLETE PAVING OF NORTH ALTON ENTRANCE, COMPLETE ALL CLASS 5 SHOULDERING AND EROSION CONTROL. FINAL STRIPING.

**OVERLAY 143<sup>RD</sup> STREET APPROACH.** COMPLETE ALL CLASS 5 SHOULDERING AND EROSION CONTROL.

**OVERLAY BASALT STREET APPROACH.** COMPLETE ALL CLASS 5 SHOULDERING AND EROSION CONTROL.

NOTE: NIGHTLY BACKFILL REQUIRED OF DROPOFF EDGE WITHIN WORKZONE. CONTRACTOR TO COMPLY WITH ALL DROPOFF REQUIREMENTS IN THE MNDOT FIELD MANUAL FOR TRAFFIC CONTROL AND THE MINNESOTA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, CHAPTER 6.

NO	DATE	BY	CKD	APPR	REVISION
NAME: P:\002-716-021\Plan\002716021 STN.dgn					
07/12/2021 11:40:54 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: NICHOLAS J. DOBDA  
 SIGNATURE: *[Signature]*  
 DATE: 7/15/21 LICENSE NO. 49046

DRAWN BY: JCF DATE: 07/01/21  
 DESIGN BY: JCF DATE: 07/01/21  
 CHECKED BY: NJD DATE: 07/09/21



ANOKA COUNTY  
 HIGHWAY DEPT.

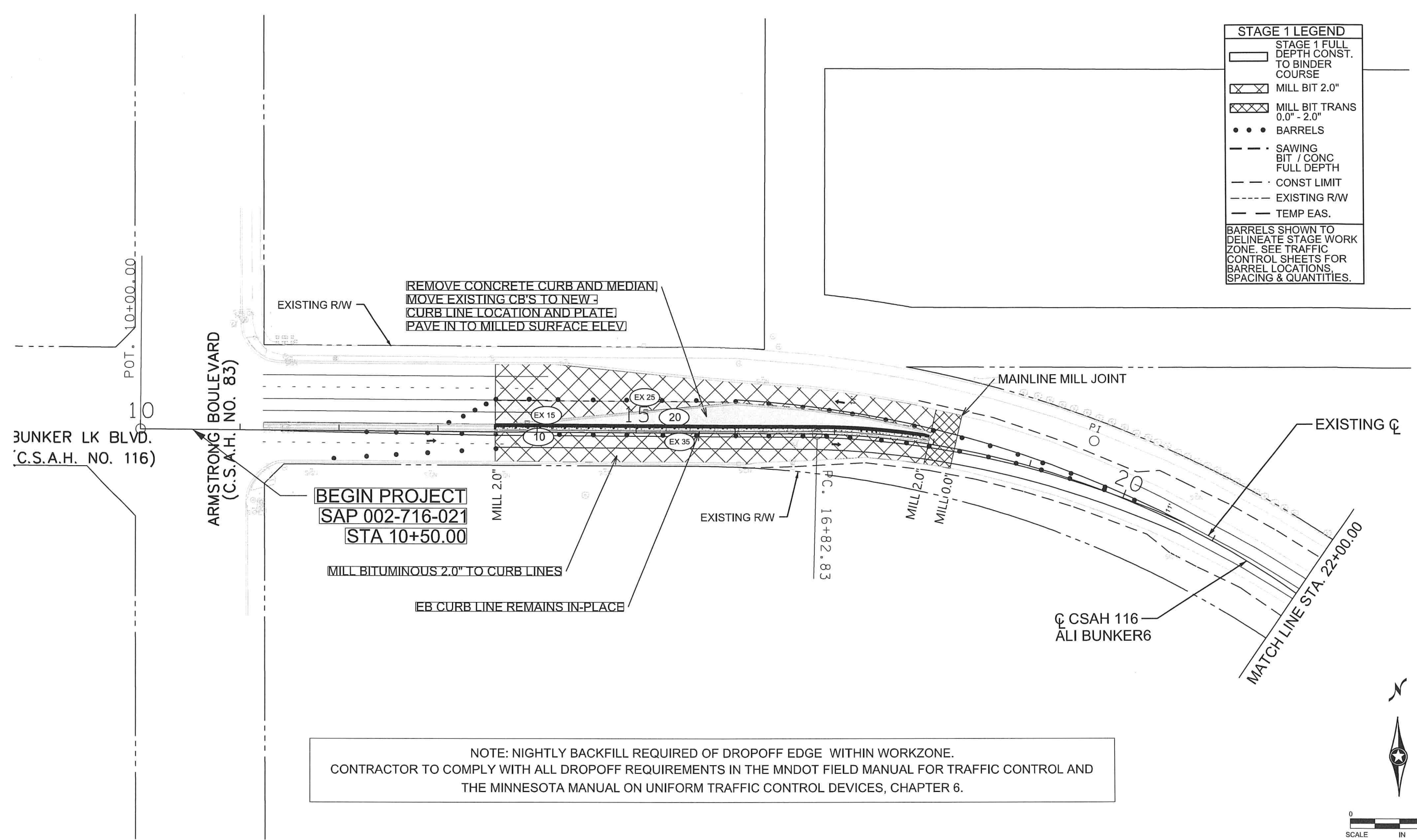
SAP 002-716-021

STAGE NARRATIVE

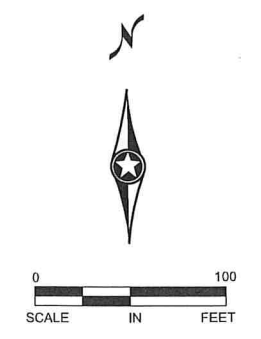


STAGE 1 LEGEND	
	STAGE 1 FULL DEPTH CONST. TO BINDER COURSE
	MILL BIT 2.0"
	MILL BIT TRANS 0.0" - 2.0"
	BARRELS
	SAWING BIT / CONC FULL DEPTH
	CONST LIMIT
	EXISTING R/W
	TEMP EAS.

BARRELS SHOWN TO DELINEATE STAGE WORK ZONE. SEE TRAFFIC CONTROL SHEETS FOR BARREL LOCATIONS, SPACING & QUANTITIES.



NOTE: NIGHTLY BACKFILL REQUIRED OF DROPOFF EDGE WITHIN WORKZONE.  
 CONTRACTOR TO COMPLY WITH ALL DROPOFF REQUIREMENTS IN THE MNDOT FIELD MANUAL FOR TRAFFIC CONTROL AND THE MINNESOTA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, CHAPTER 6.

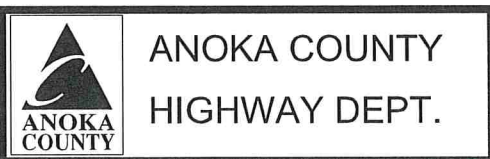


NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\002-716-021\Plan\002716021 ST1\_1.dgn 07/27/2021 1:47:06 PM

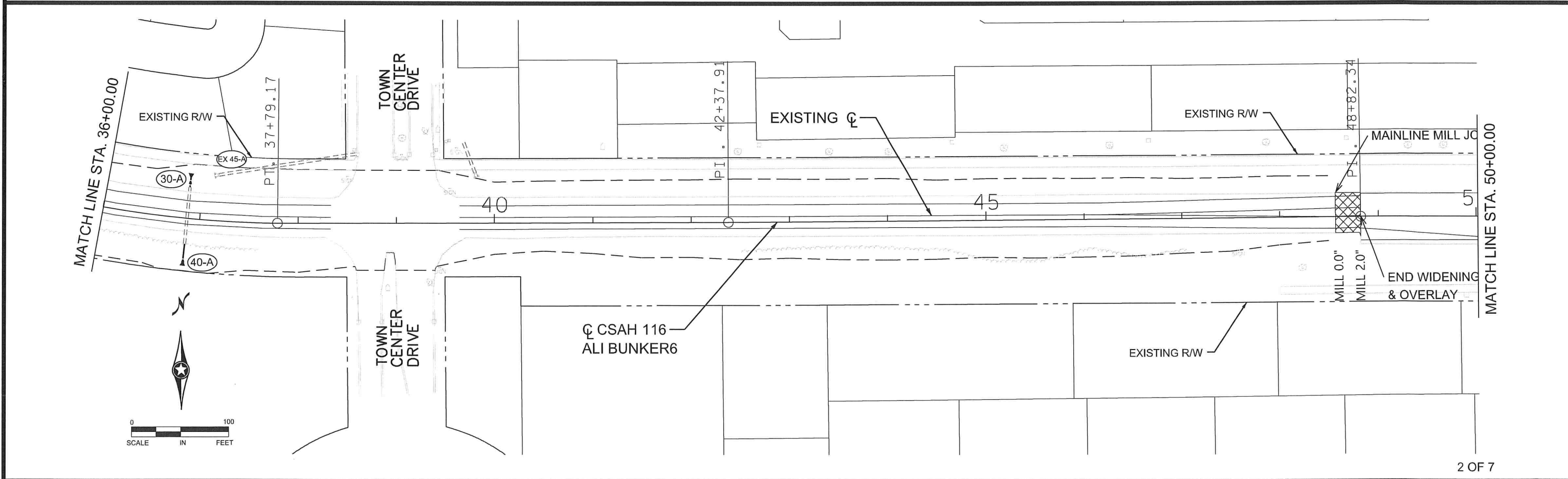
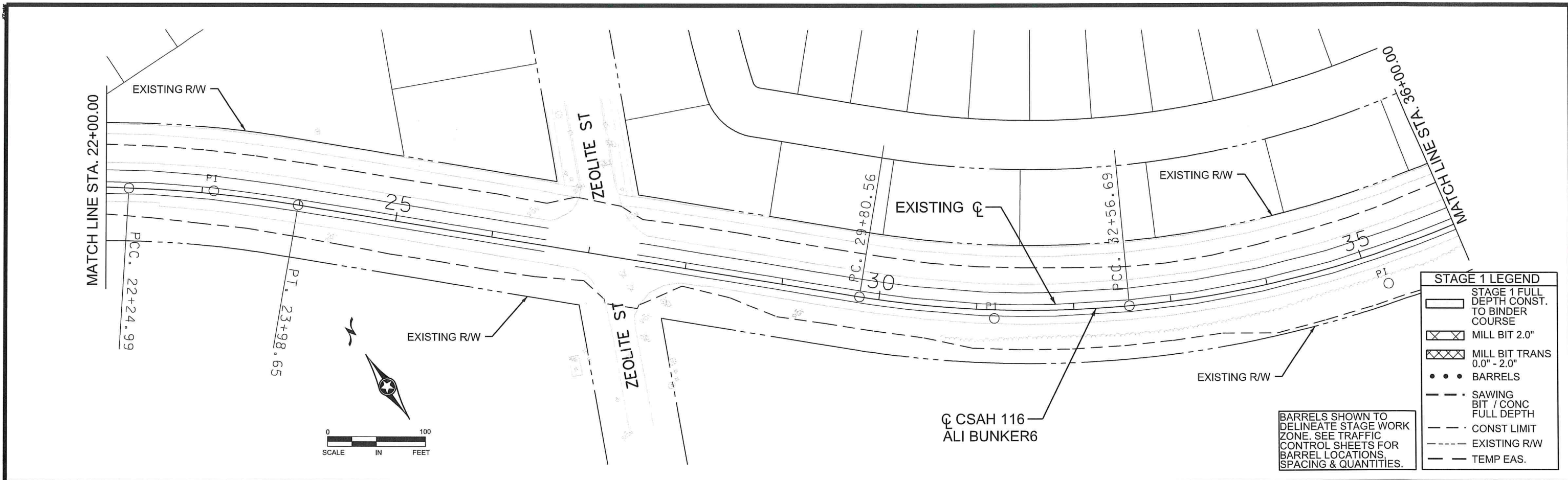
I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.  
 PRINT NAME: NICHOLAS J. DOBDA  
 SIGNATURE: *N. Dobda*  
 DATE: 8/31/21 LICENSE NO. 49046

DRAWN BY JCF DATE 07/01/21  
 DESIGN BY JCF DATE 07/01/21  
 CHECKED BY NJD DATE 07/09/21



SAP 002-716-021  
 SAP 199-104-014

STAGE 1  
 STA 10+00.00 TO 22+00.00  
 Sheet 49 of 259 Sheets



NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\002-716-021\Plan\002716021 ST1\_2.dgn 07/27/2021 1:47:07 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: NICHOLAS J. DOBDA

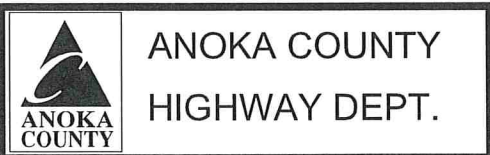
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DATE: 8/3/21 LICENSE NO. 49046

DRAWN BY JCF DATE 07/01/21

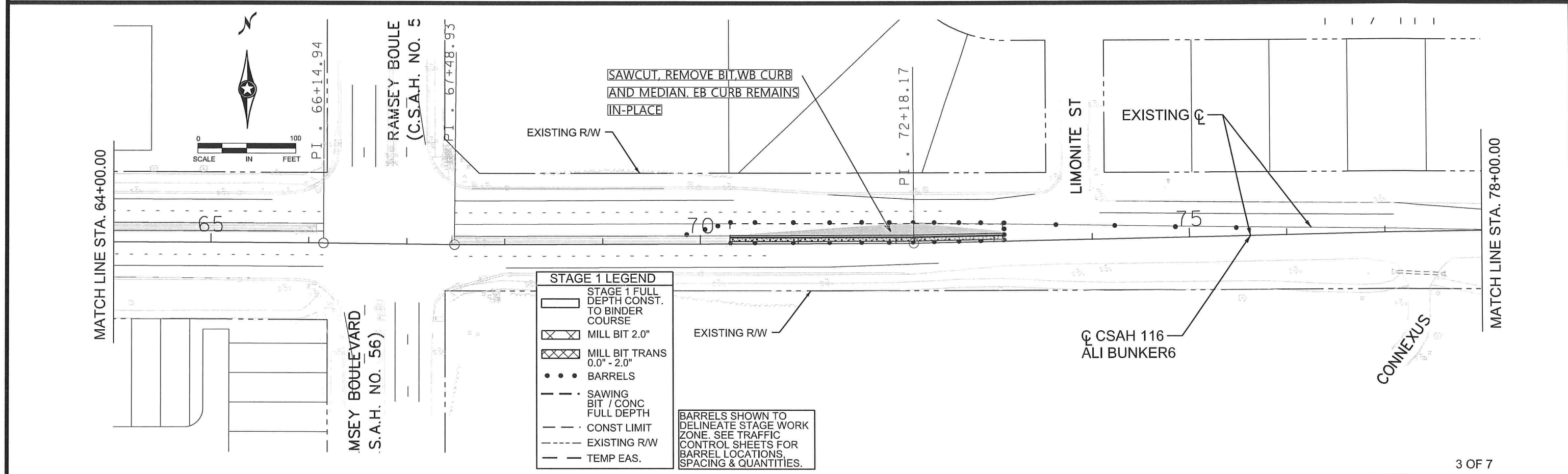
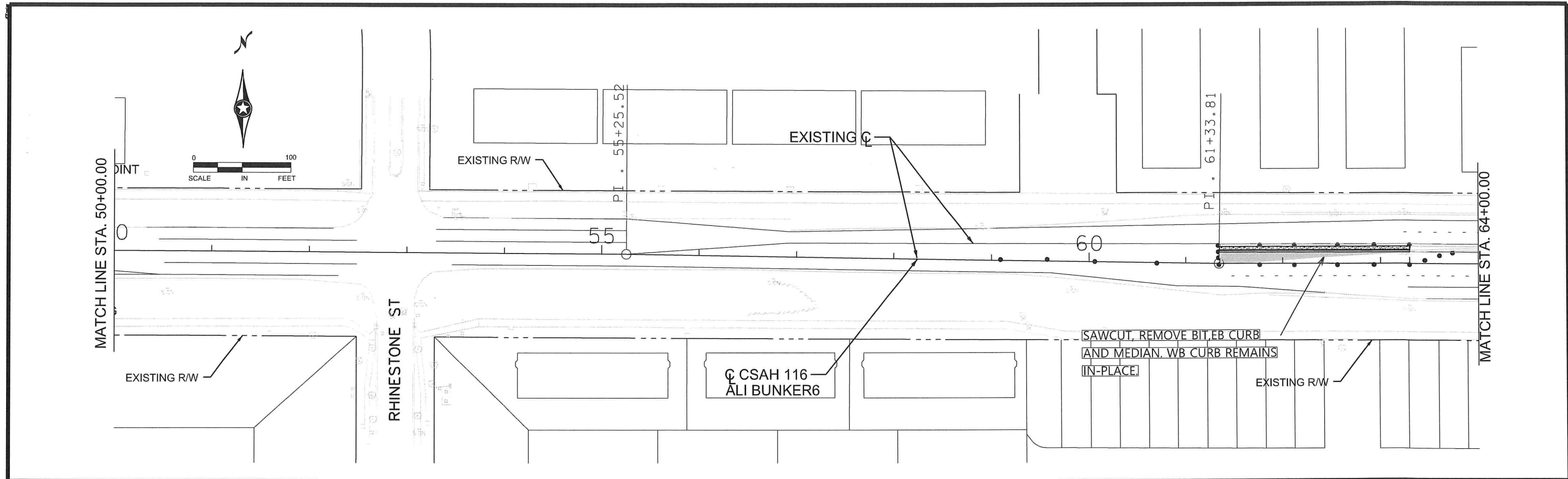
DESIGN BY JCF DATE 07/01/21

CHECKED BY NJD DATE 07/09/21



SAP 002-716-021  
SAP 199-104-014

STAGE 1  
STA 22+00.00 TO 50+00.00  
Sheet 50 of 259 Sheets



**STAGE 1 LEGEND**

	STAGE 1 FULL DEPTH CONST. TO BINDER COURSE
	MILL BIT 2.0"
	MILL BIT TRANS 0.0" - 2.0"
	BARRELS
	SAWING BIT / CONC FULL DEPTH
	CONST LIMIT
	EXISTING R/W
	TEMP EAS.

BARRELS SHOWN TO DELINEATE STAGE WORK ZONE. SEE TRAFFIC CONTROL SHEETS FOR BARREL LOCATIONS, SPACING & QUANTITIES.

NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\002-716-021\Plan\002716021 ST1\_3.dgn      07/27/2021      1:47:08 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: NICHOLAS J. DOBDA

SIGNATURE: *NJD*

DATE: 8/31/21      LICENSE NO. 49046

DRAWN BY: JCF      DATE: 07/01/21

DESIGN BY: JCF      DATE: 07/01/21

CHECKED BY: NJD      DATE: 07/09/21



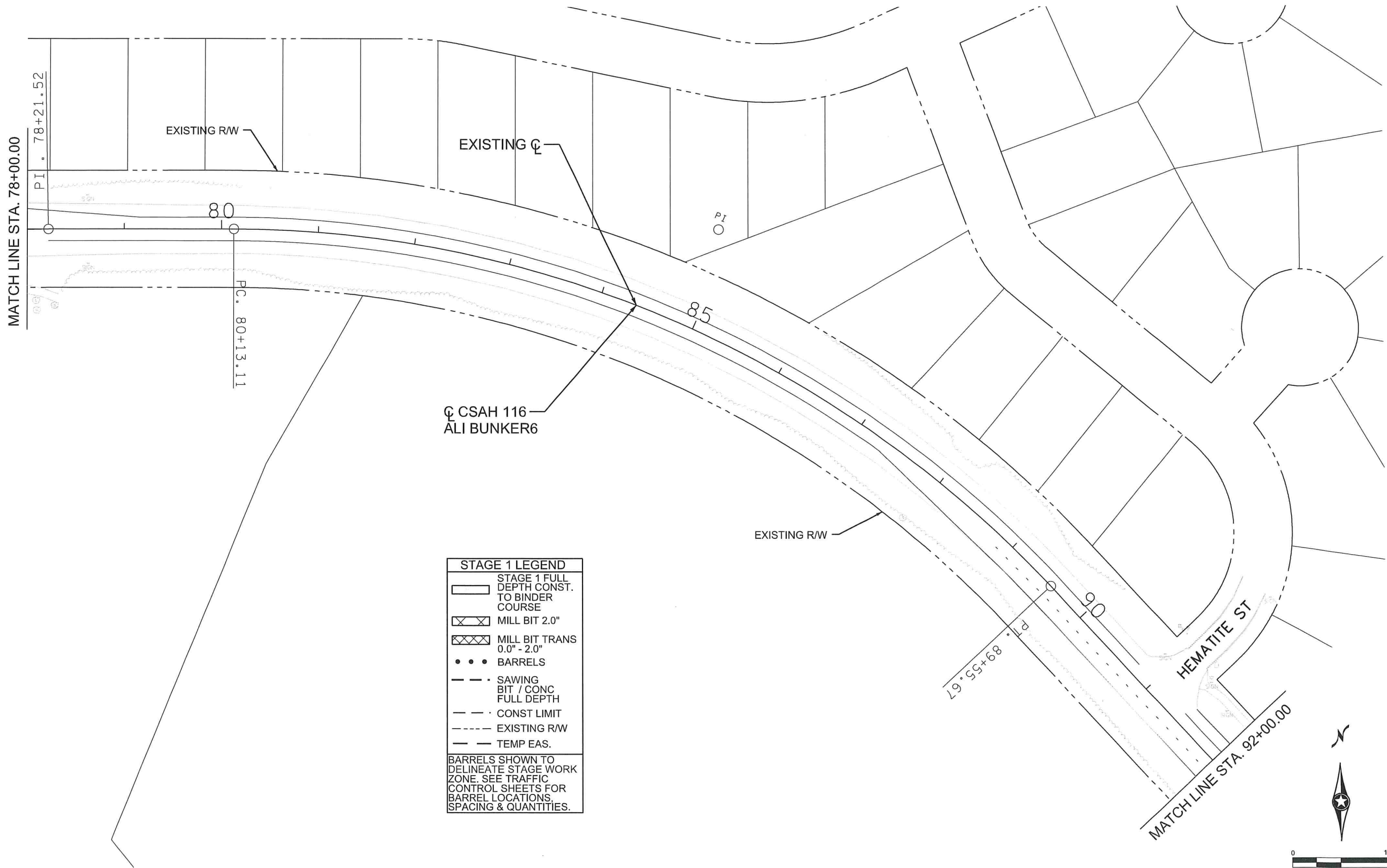
**ANOKA COUNTY  
HIGHWAY DEPT.**

SAP 002-716-021  
SAP 199-104-014

**STAGE 1**

STA 50+00.00 TO 78+00.00

Sheet 51 of 259 Sheets



**STAGE 1 LEGEND**

	STAGE 1 FULL DEPTH CONST. TO BINDER COURSE
	MILL BIT 2.0"
	MILL BIT TRANS 0.0" - 2.0"
	BARRELS
	SAWING BIT / CONC FULL DEPTH
	CONST LIMIT
	EXISTING RW
	TEMP EAS.

BARRELS SHOWN TO DELINEATE STAGE WORK ZONE. SEE TRAFFIC CONTROL SHEETS FOR BARREL LOCATIONS, SPACING & QUANTITIES.

NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\002-716-021\Plan\002716021 ST1\_4.dgn      07/27/2021      1:47:09 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: NICHOLAS J. DOBDA


SIGNATURE: *N. Dobda*

DATE: 8/31/21      LICENSE NO. 49046

DRAWN BY: JCF      DATE: 07/01/21

DESIGN BY: JCF      DATE: 07/01/21

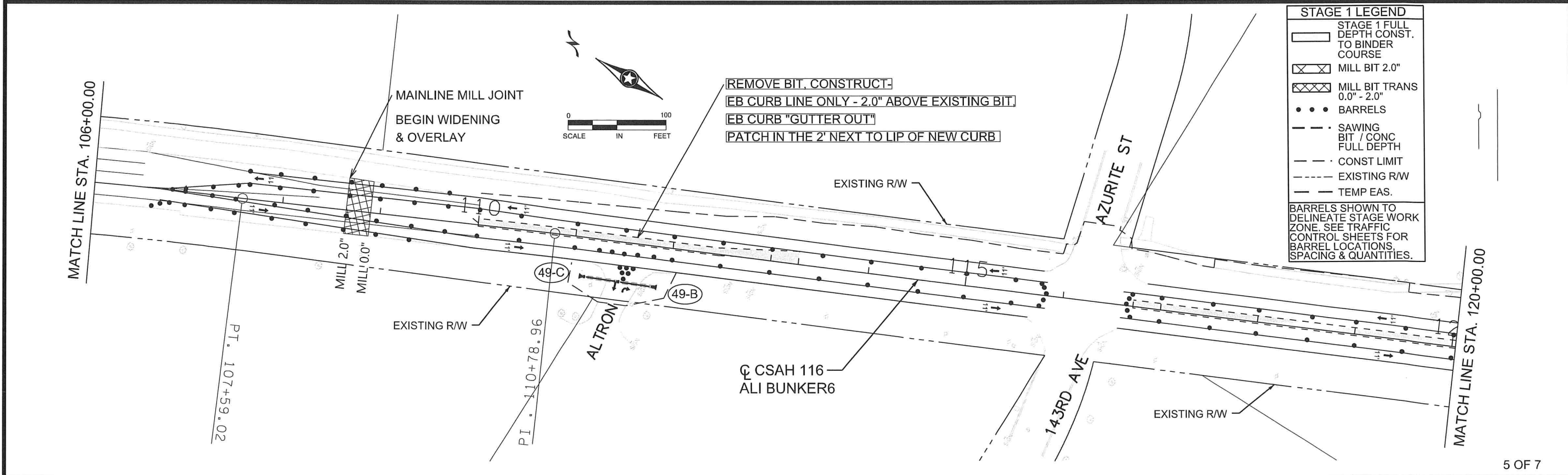
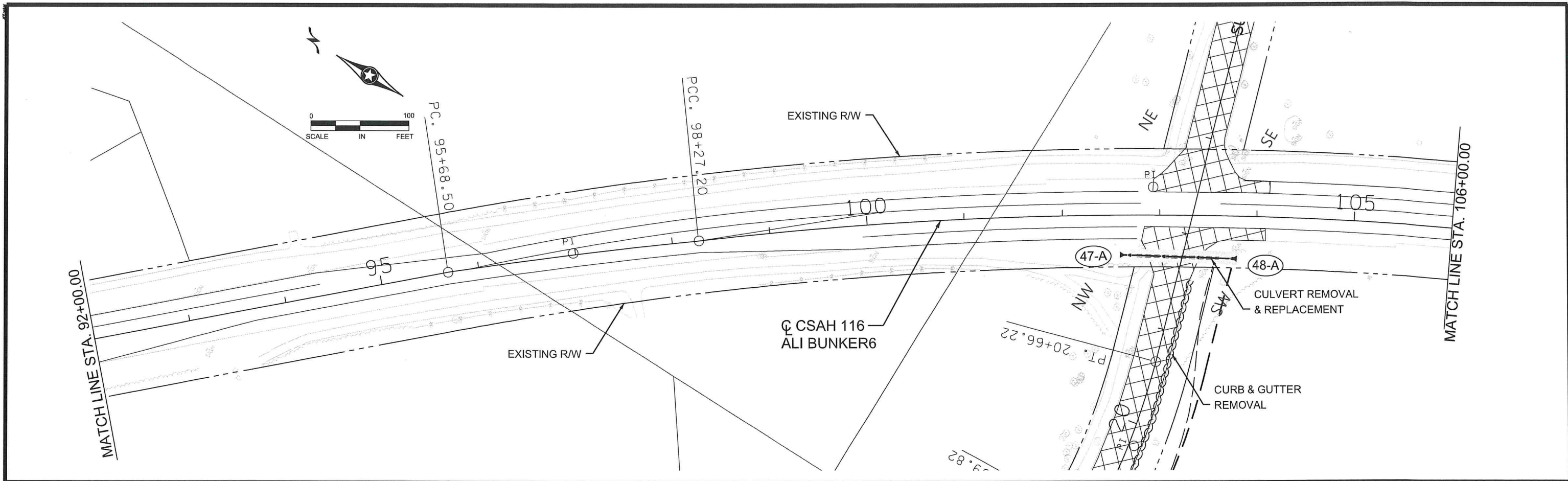
CHECKED BY: NJD      DATE: 07/09/21



**ANOKA COUNTY**  
HIGHWAY DEPT.

SAP 002-716-021  
SAP 199-104-014

STAGE 1  
STA 78+00.00 TO 92+00.00  
Sheet 52 of 259 Sheets



**STAGE 1 LEGEND**

- STAGE 1 FULL DEPTH CONST. TO BINDER COURSE
- MILL BIT 2.0"
- MILL BIT TRANS 0.0" - 2.0"
- BARRELS
- SAWING BIT / CONC FULL DEPTH
- CONST LIMIT
- EXISTING R/W
- TEMP EAS.

BARRELS SHOWN TO DELINEATE STAGE WORK ZONE. SEE TRAFFIC CONTROL SHEETS FOR BARREL LOCATIONS, SPACING & QUANTITIES.

NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\002-716-021\Plan\002716021 ST1\_5.dgn      07/27/2021      1:47:10 PM

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

PRINT NAME: NICHOLAS J. DOBDA

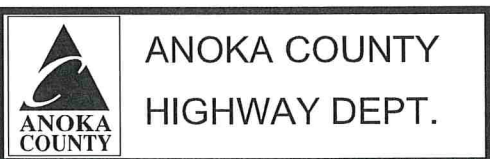
SIGNATURE: *N. Dobda*

DATE: 8/3/21      LICENSE NO. 49046

DRAWN BY: JCF      DATE: 07/01/21

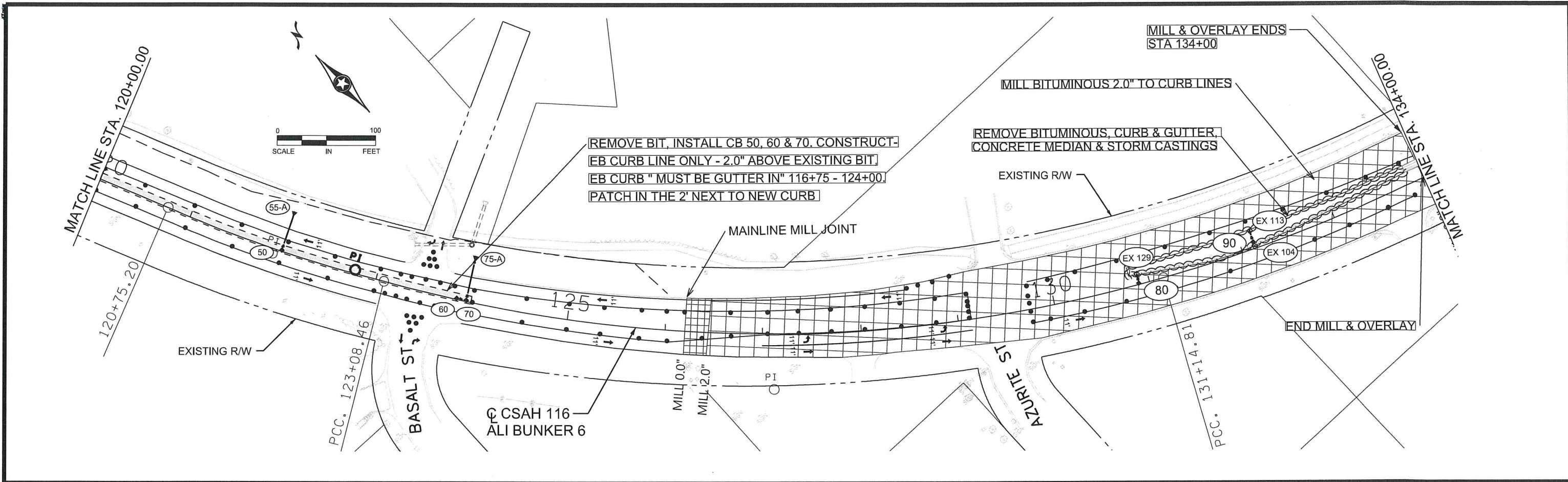
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CHECKED BY: NJD      DATE: 07/09/21

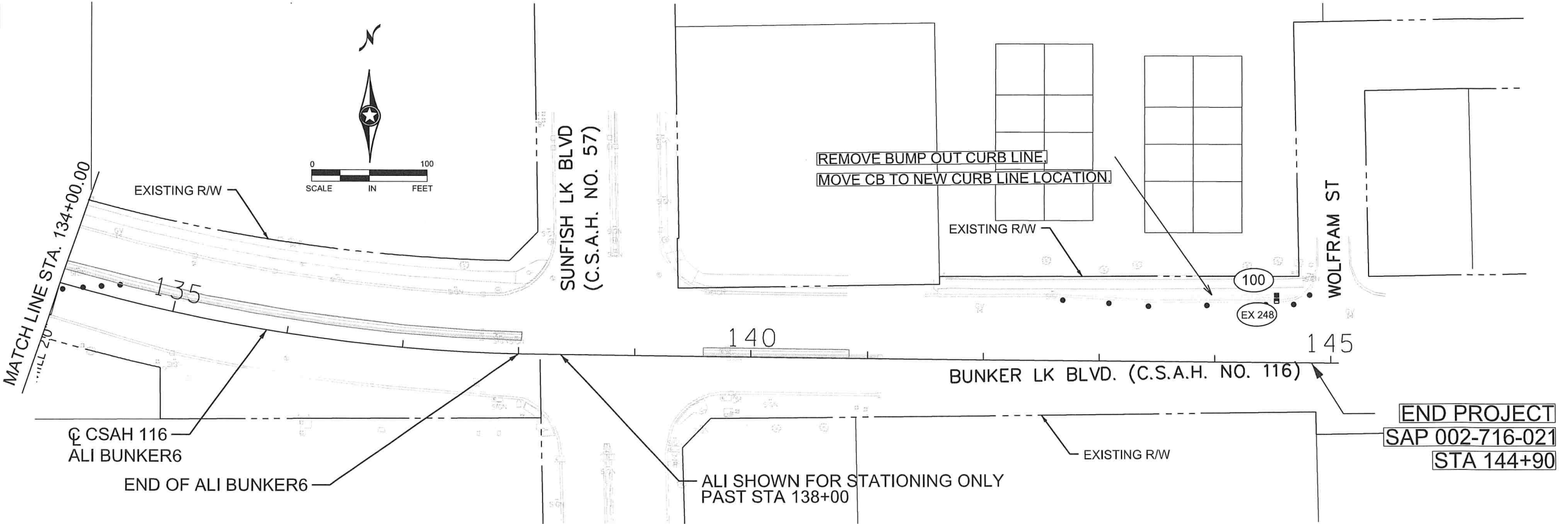


SAP 002-716-021  
SAP 199-104-014

STAGE 1  
STA 92+00.00 TO 120+00.00  
Sheet 53 of 259 Sheets



- STAGE 1 LEGEND**
- STAGE 1 FULL DEPTH CONST. TO BINDER COURSE
  - MILL BIT 2.0"
  - MILL BIT TRANS 0.0" - 2.0"
  - BARRELS
  - SAWING BIT / CONC FULL DEPTH
  - CONST LIMIT
  - EXISTING R/W
  - TEMP EAS.
- BARRELS SHOWN TO DELINEATE STAGE WORK ZONE. SEE TRAFFIC CONTROL SHEETS FOR BARREL LOCATIONS, SPACING & QUANTITIES.



NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\002-716-021\Plan\002716021 ST1\_6.dgn 07/27/2021 1:47:11 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: NICHOLAS J. DOBDA

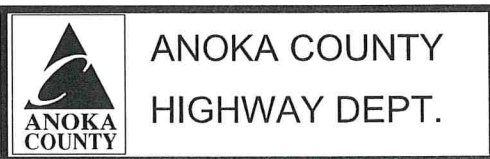
SIGNATURE: *N. Dobda*

DATE: 8/3/21 LICENSE NO. 49046

DRAWN BY: JCF DATE: 07/01/21

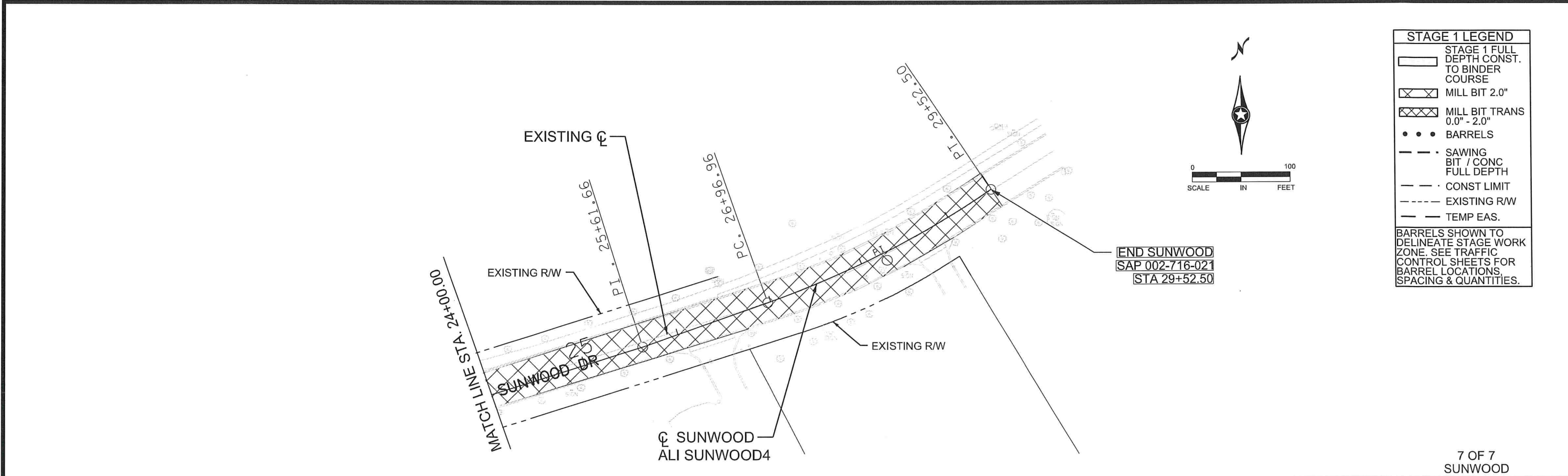
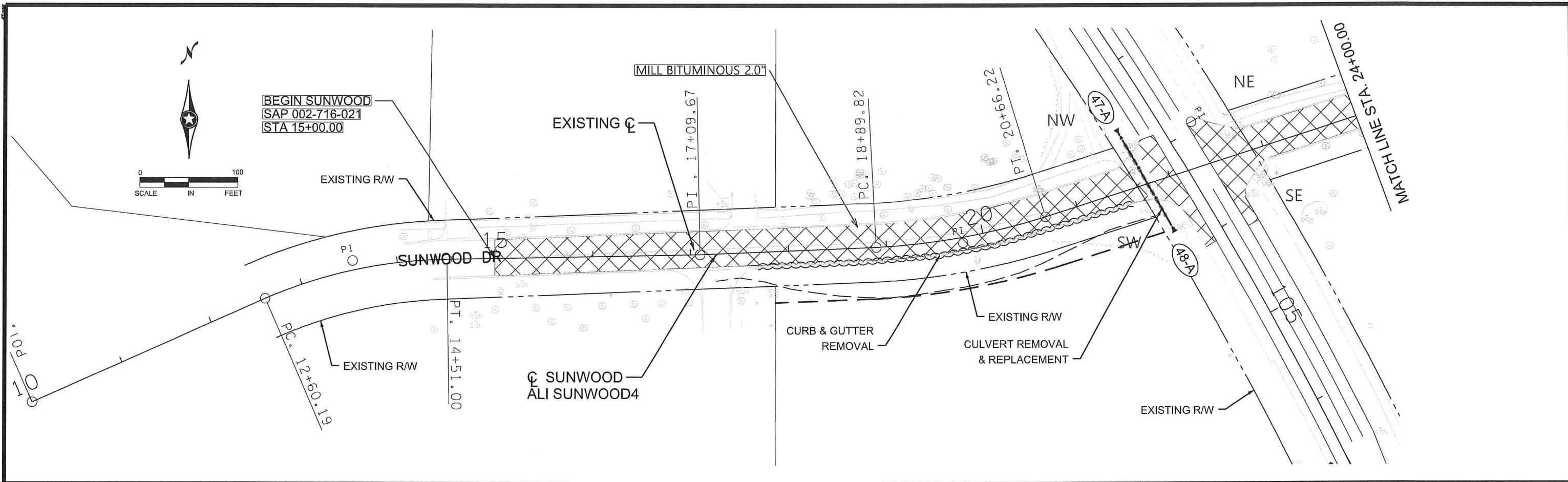
DESIGN BY: JCF DATE: 07/01/21

CHECKED BY: NJD DATE: 07/09/21



SAP 002-716-021  
SAP 199-104-014

STAGE 1  
STA 120+00.00 TO 144+90.00  
Sheet 54 of 259 Sheets



**STAGE 1 LEGEND**

- STAGE 1 FULL DEPTH CONST. TO BINDER COURSE
- MILL BIT 2.0"
- MILL BIT TRANS 0.0" - 2.0"
- BARRELS
- SAWING BIT / CONC FULL DEPTH
- CONST LIMIT
- EXISTING R/W
- TEMP EAS.

BARRELS SHOWN TO DELINEATE STAGE WORK ZONE. SEE TRAFFIC CONTROL SHEETS FOR BARREL LOCATIONS, SPACING & QUANTITIES.

NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\002-716-021\Plan\002716021 ST1\_7.dgn      07/27/2021      1:47:19 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: NICHOLAS J. DOBDA

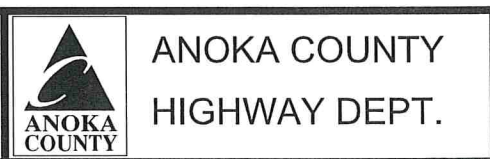
SIGNATURE: *Nicholas J. Dobda*

DATE: 8/3/21      LICENSE NO. 49046

DRAWN BY: JCF      DATE: 07/01/21

DESIGN BY: JCF      DATE: 07/01/21

CHECKED BY: NJD      DATE: 07/09/21



SAP 002-716-021  
SAP 199-104-014

7 OF 7  
SUNWOOD

STAGE 1

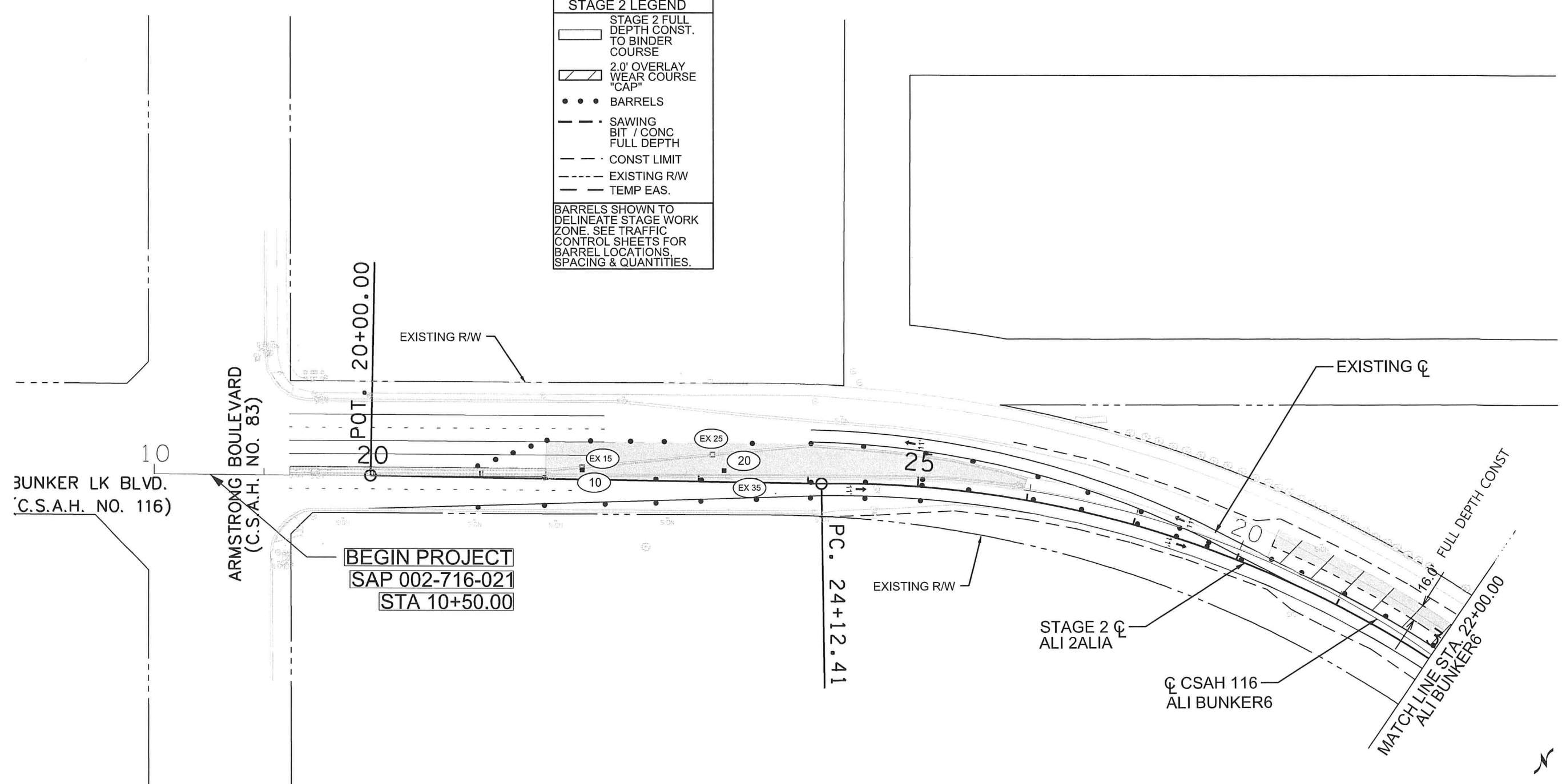
STA 10+00.00 TO 29++52.50

Sheet 55 of 259 Sheets

**STAGE 2 LEGEND**

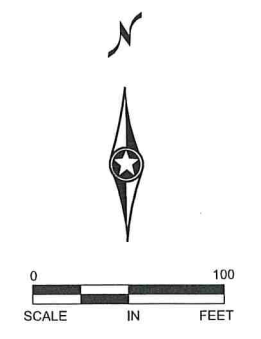
- STAGE 2 FULL DEPTH CONST. TO BINDER COURSE
- 2.0' OVERLAY WEAR COURSE "CAP"
- BARRELS
- SAWING BIT / CONC FULL DEPTH
- CONST LIMIT
- EXISTING R/W
- TEMP EAS.

BARRELS SHOWN TO DELINEATE STAGE WORK ZONE. SEE TRAFFIC CONTROL SHEETS FOR BARREL LOCATIONS, SPACING & QUANTITIES.



**BEGIN PROJECT**  
 SAP 002-716-021  
 STA 10+50.00

NOTE: NIGHTLY BACKFILL REQUIRED OF DROPOFF EDGE WITHIN WORKZONE.  
 CONTRACTOR TO COMPLY WITH ALL DROPOFF REQUIREMENTS IN THE MNDOT FIELD MANUAL FOR TRAFFIC CONTROL AND THE MINNESOTA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, CHAPTER 6.

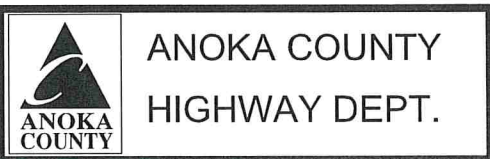


NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\002-716-021\Plan\002716021 ST2\_1.dgn 07/27/2021 1:47:20 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: NICHOLAS J. DOBDA  
 SIGNATURE: *[Signature]*  
 DATE: 8/3/21 LICENSE NO. 49046

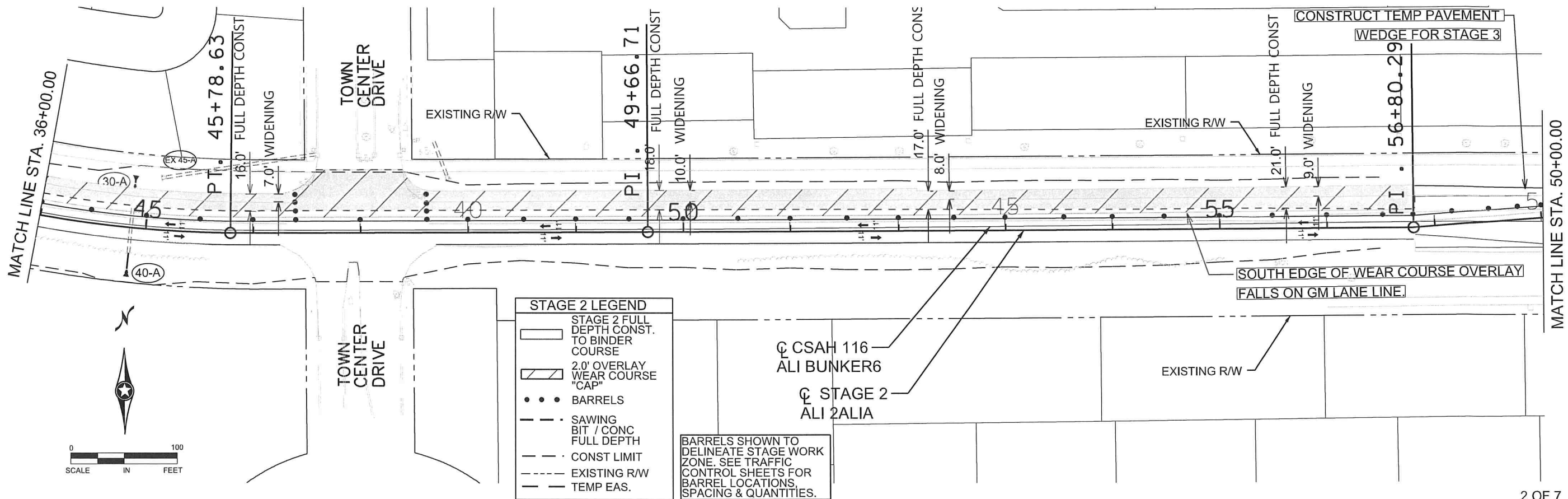
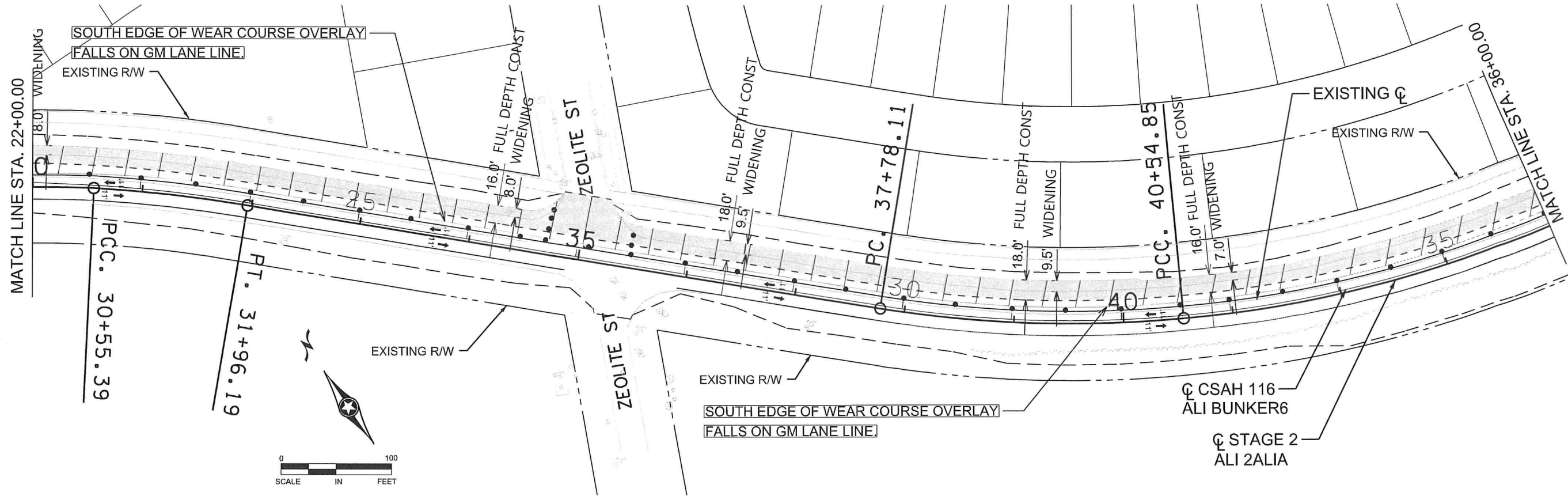
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 DESIGN BY JCF DATE 07/01/21  
 CHECKED BY NJD DATE 07/09/21



SAP 002-716-021  
 SAP 199-104-014

STAGE 2  
 STA 10+00.00 TO 22+00.00  
 Sheet 56 of 259 Sheets





**STAGE 2 LEGEND**

	STAGE 2 FULL DEPTH CONST. TO BINDER COURSE
	2.0' OVERLAY WEAR COURSE "CAP"
	BARRELS
	SAWING BIT / CONC FULL DEPTH
	CONST LIMIT
	EXISTING R/W
	TEMP EAS.

BARRELS SHOWN TO DELINEATE STAGE WORK ZONE. SEE TRAFFIC CONTROL SHEETS FOR BARREL LOCATIONS, SPACING & QUANTITIES.

NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\1002-716-021\Plan\002716021 ST2\_2.dgn 07/27/2021 1:47:21 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: NICHOLAS J. DOBDA  
 SIGNATURE: *N. Dobda*  
 DATE: 8/31/21 LICENSE NO. 49046

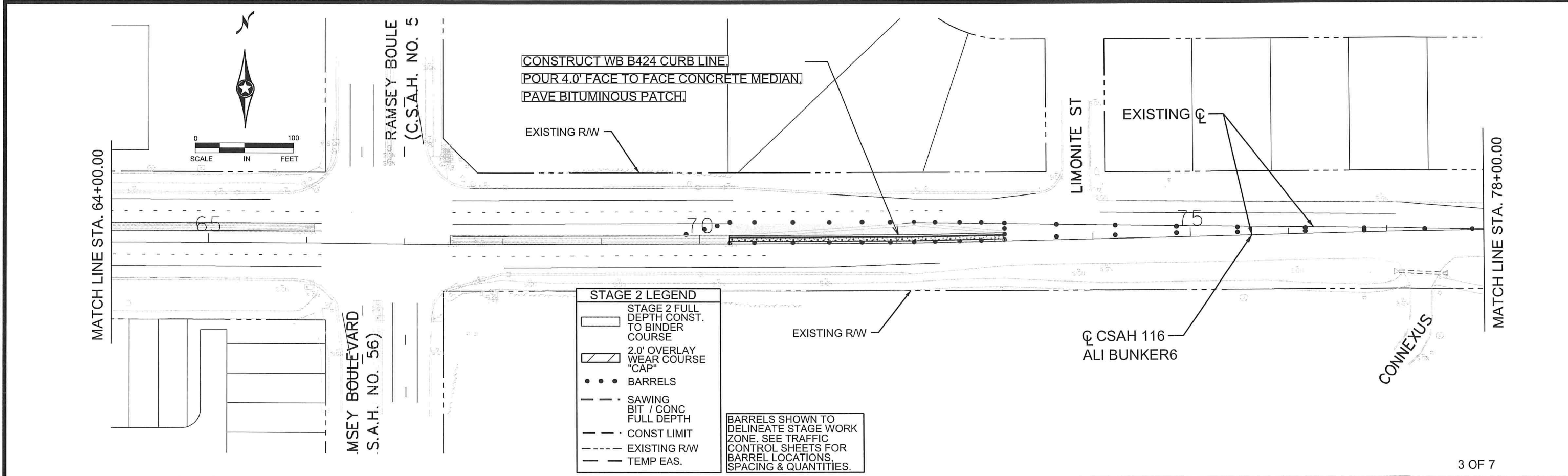
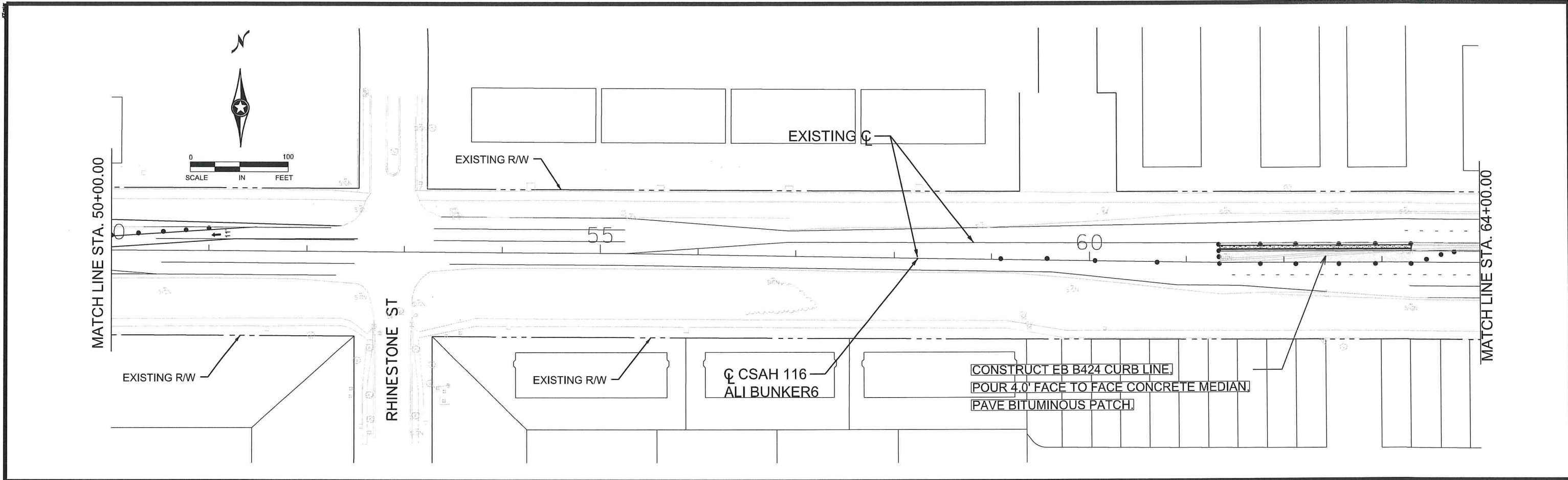
DRAWN BY JCF DATE 07/01/21  
 DESIGN BY JCF DATE 07/01/21  
 CHECKED BY NJD DATE 07/09/21



**ANOKA COUNTY  
HIGHWAY DEPT.**

SAP 002-716-021  
SAP 199-104-014

STAGE 2  
 STA 22+00.00 TO 50+00.00  
 Sheet 57 of 259 Sheets



**STAGE 2 LEGEND**

- STAGE 2 FULL DEPTH CONST. TO BINDER COURSE
- 2.0' OVERLAY WEAR COURSE "CAP"
- BARRELS
- SAWING BIT / CONC FULL DEPTH
- CONST LIMIT
- EXISTING R/W
- TEMP EAS.

BARRELS SHOWN TO DELINEATE STAGE WORK ZONE. SEE TRAFFIC CONTROL SHEETS FOR BARREL LOCATIONS, SPACING & QUANTITIES.

NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\002-716-021\Plan\002716021 ST2\_3.dgn 07/27/2021 1:47:22 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: NICHOLAS J. DOBDA

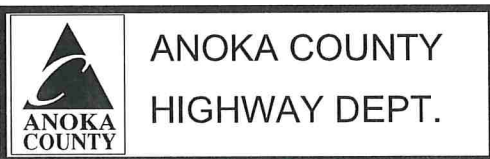
SIGNATURE: *N. Dobda*

DATE: 8/3/21 LICENSE NO. 49046

DRAWN BY: JCF DATE: 07/01/21

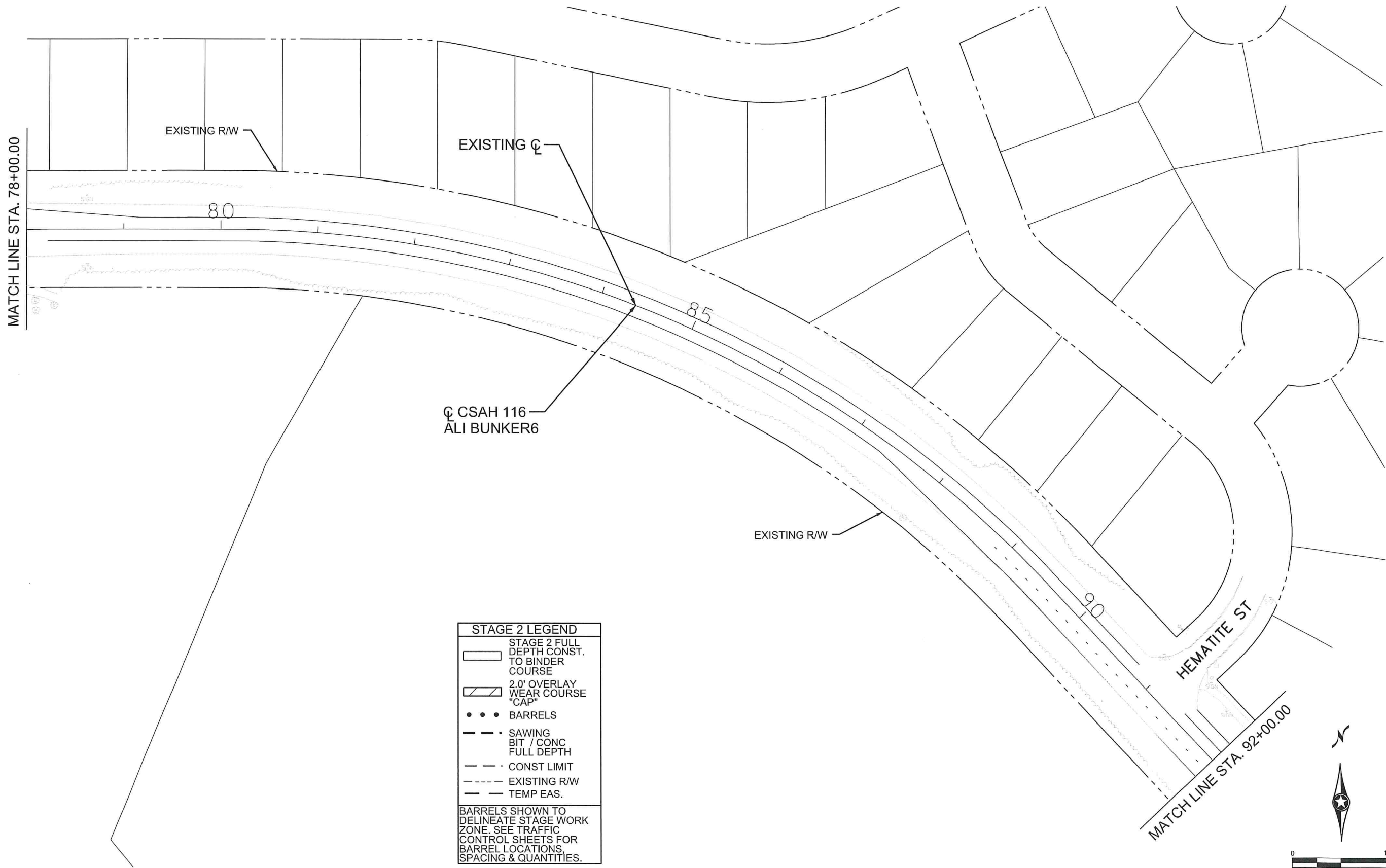
DESIGN BY: JCF DATE: 07/01/21

CHECKED BY: NJD DATE: 07/09/21



SAP 002-716-021  
SAP 199-104-014

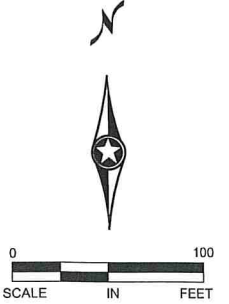
STAGE 2  
STA 50+00.00 TO 78+00.00  
Sheet 58 of 259 Sheets



**STAGE 2 LEGEND**

- ▭ STAGE 2 FULL DEPTH CONST. TO BINDER COURSE
- ▨ 2.0' OVERLAY WEAR COURSE "CAP"
- BARRELS
- · - SAWING BIT / CONC FULL DEPTH
- - - CONST LIMIT
- · - - EXISTING R/W
- - - TEMP EAS.

BARRELS SHOWN TO DELINEATE STAGE WORK ZONE. SEE TRAFFIC CONTROL SHEETS FOR BARREL LOCATIONS, SPACING & QUANTITIES.



NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\002-716-021\Plan\002716021 ST2\_4.dgn      07/27/2021      1:47:23 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: NICHOLAS J. DOBDA

SIGNATURE: *NJD*

DATE: 8/3/21      LICENSE NO. 49046

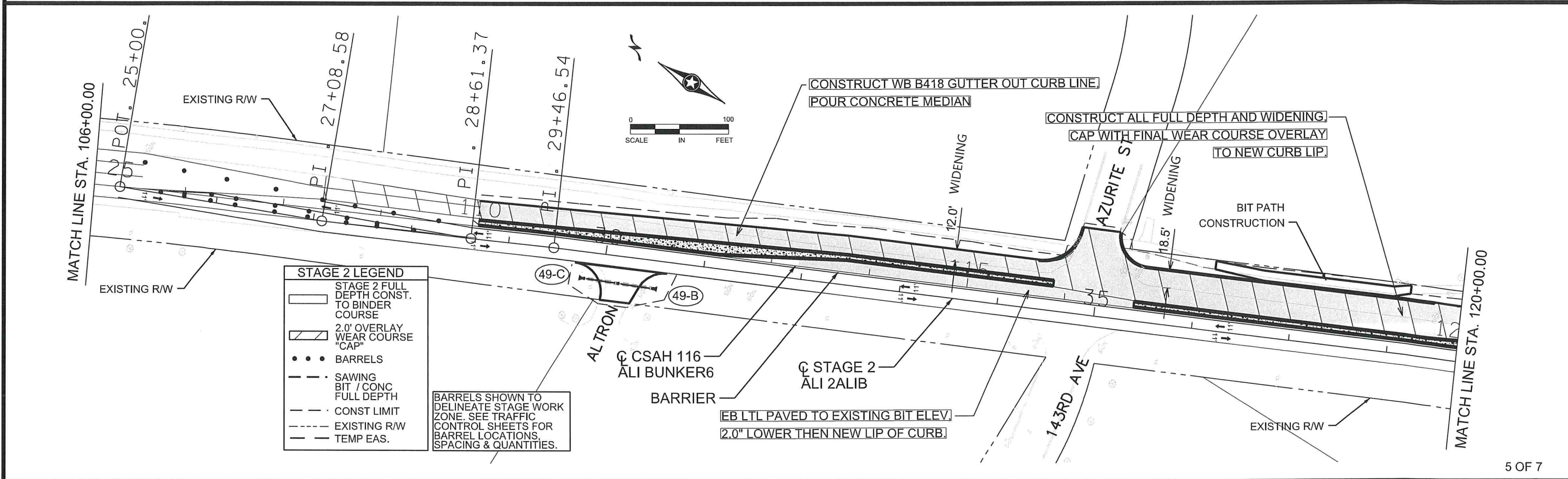
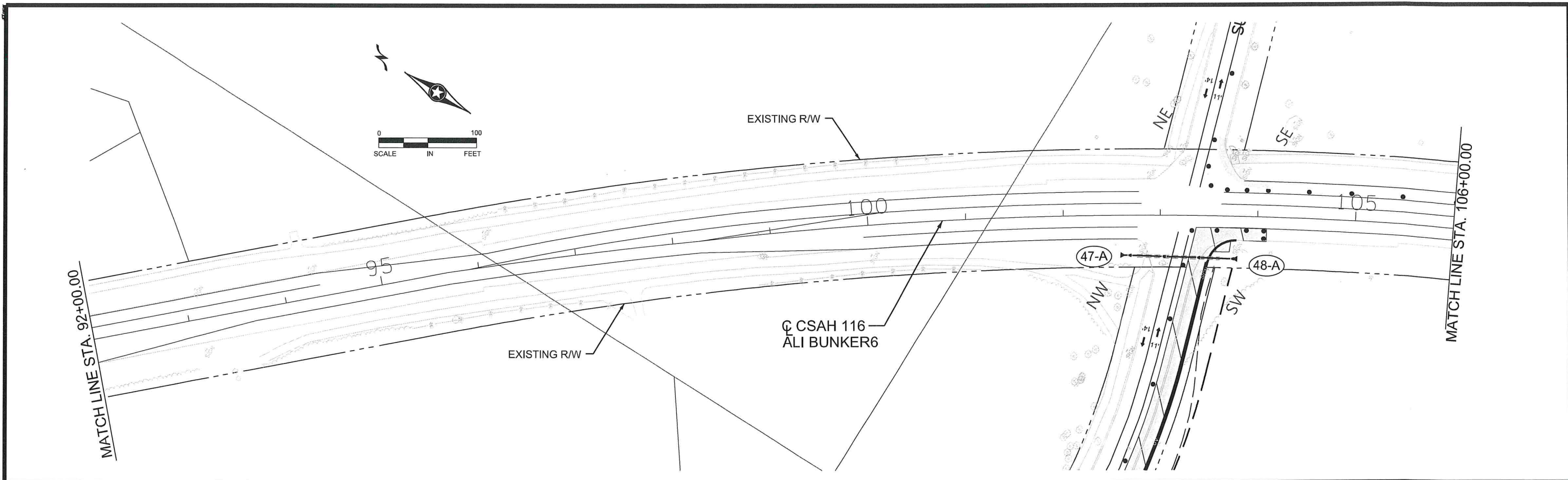
DRAWN BY JCF      DATE 07/01/21

DESIGN BY JCF      DATE 07/01/21

CHECKED BY NJD      DATE 07/09/21

SAP 002-716-021  
SAP 199-104-014

STAGE 2  
STA 78+00.00 TO 92+00.00  
Sheet 59 of 259 Sheets



NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\002-716-021\Plan\002716021 ST2\_5.dgn 07/27/2021 1:47:24 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: NICHOLAS J. DOBDA

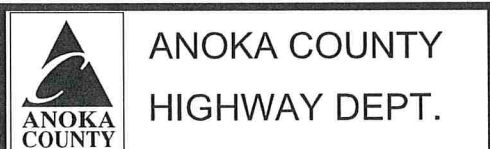
SIGNATURE: *Nicholas J. Dobda*

DATE: 8/31/21 LICENSE NO. 49046

DRAWN BY: JCF DATE: 07/01/21

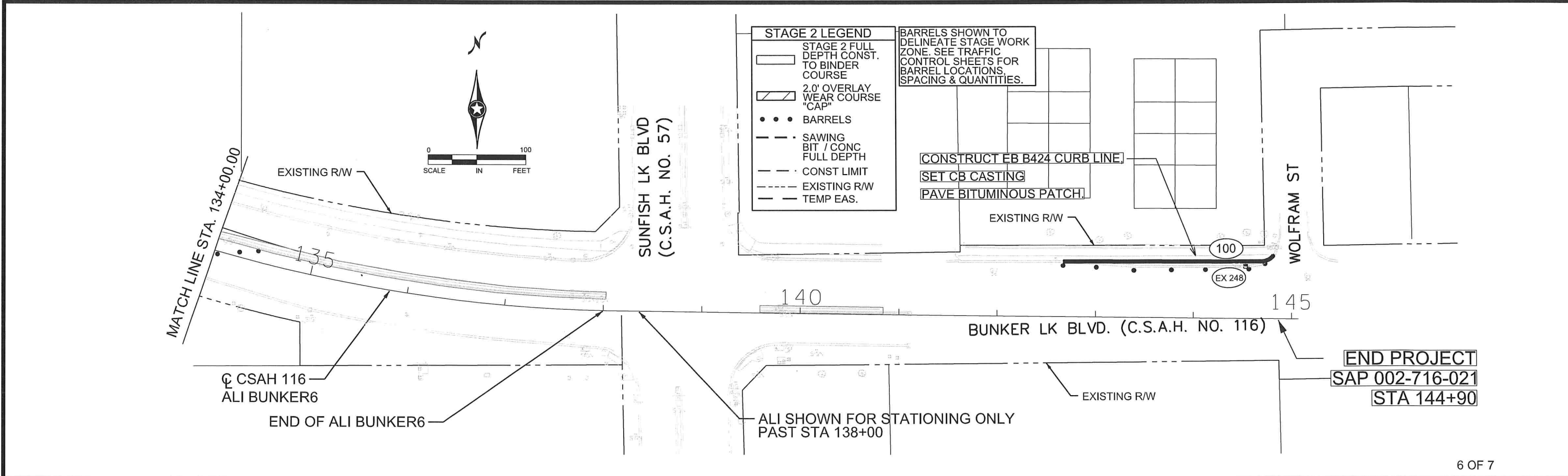
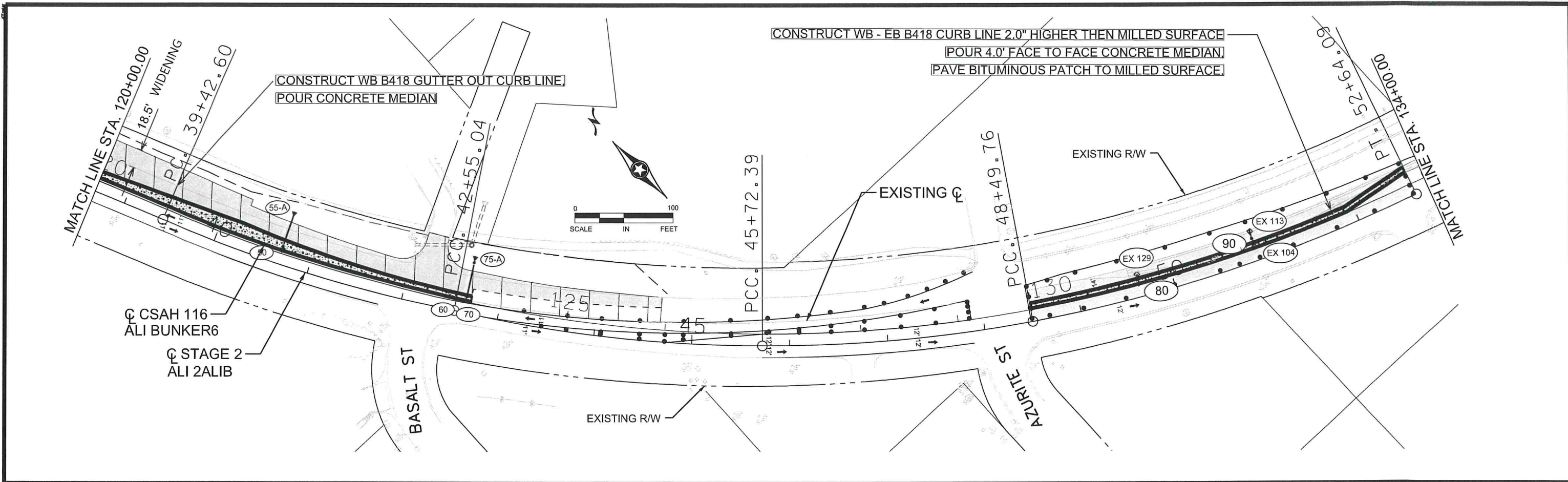
DESIGN BY: JCF DATE: 07/01/21

CHECKED BY: NJD DATE: 07/09/21



SAP 002-716-021  
SAP 199-104-014

STAGE 2  
STA 92+00.00 TO 120+00.00  
Sheet 60 of 259 Sheets



NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\002-716-021\Plan\002716021 ST2\_6.dgn 07/27/2021 1:47:24 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: NICHOLAS J. DOBDA

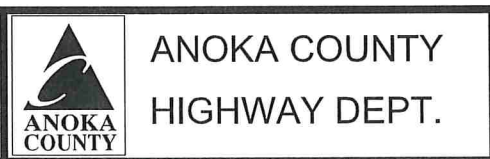
SIGNATURE: *Nicholas J. Dobda*

DATE: 8/3/21 LICENSE NO. 49046

DRAWN BY: JCF DATE: 07/01/21

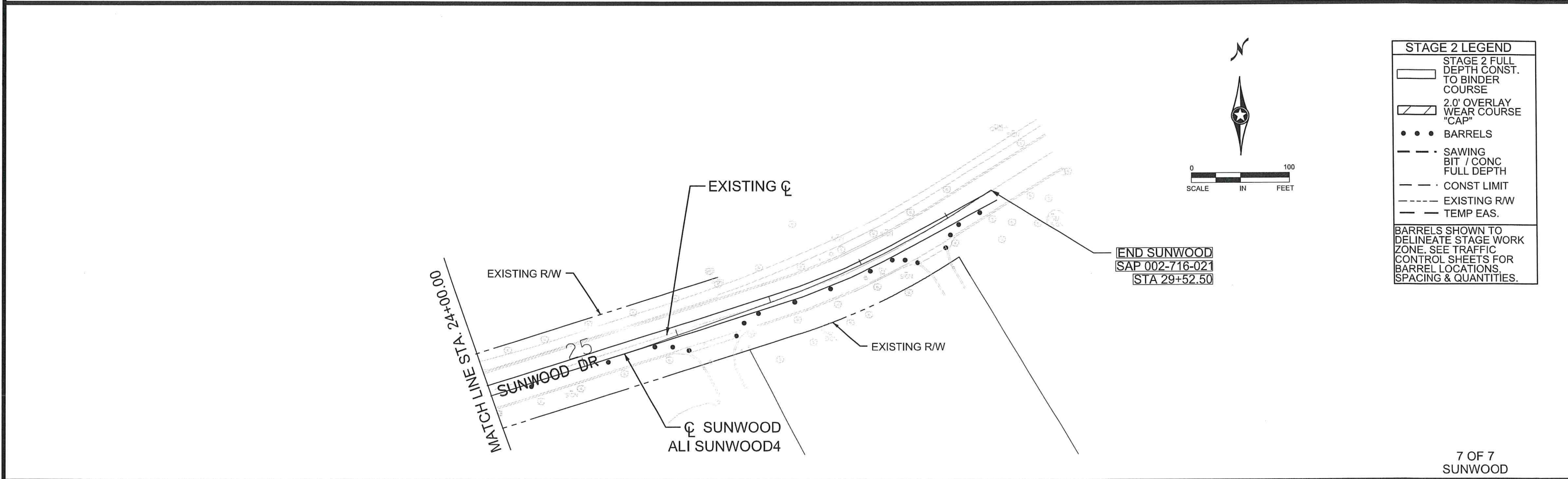
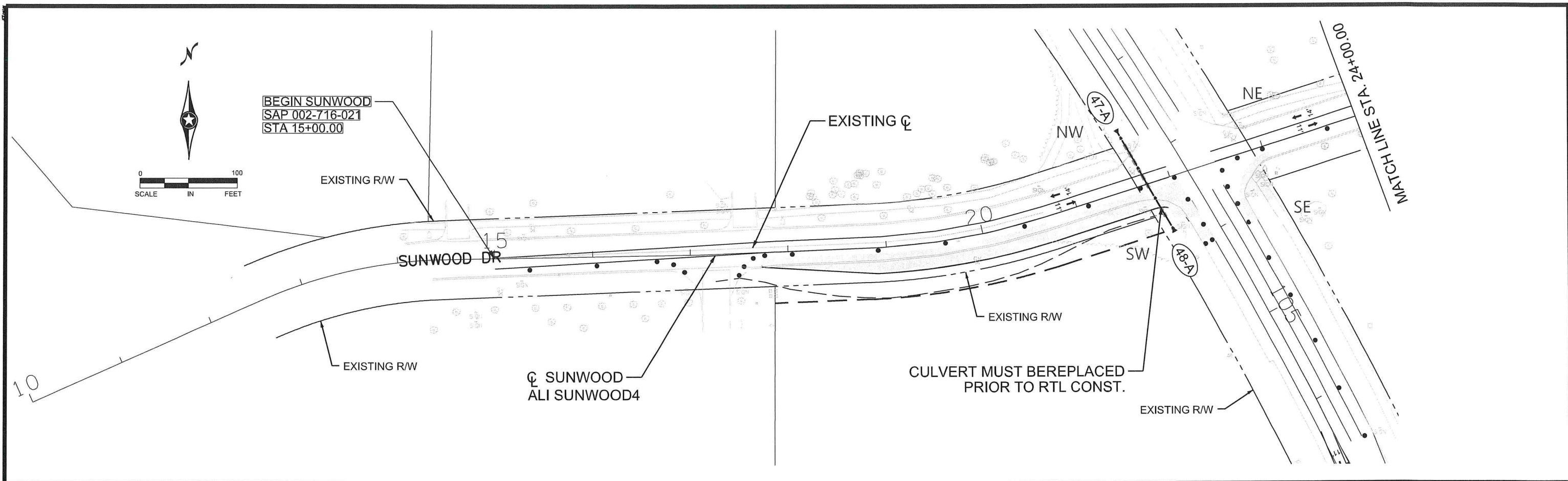
DESIGN BY: JCF DATE: 07/01/21

CHECKED BY: NJD DATE: 07/09/21



SAP 002-716-021  
SAP 199-104-014

STAGE 2  
STA 120+00.00 TO 144+90.00  
Sheet 61 of 259 Sheets




7 OF 7  
SUNWOOD

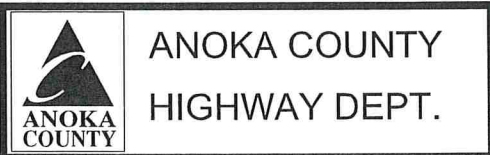
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I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

PRINT NAME: NICHOLAS J. DOBDA  
 SIGNATURE:   
 DATE: 8/3/21      LICENSE NO. 49046








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 DESIGN BY: JCF      DATE: 07/01/21  
 CHECKED BY: NJD      DATE: 07/09/21



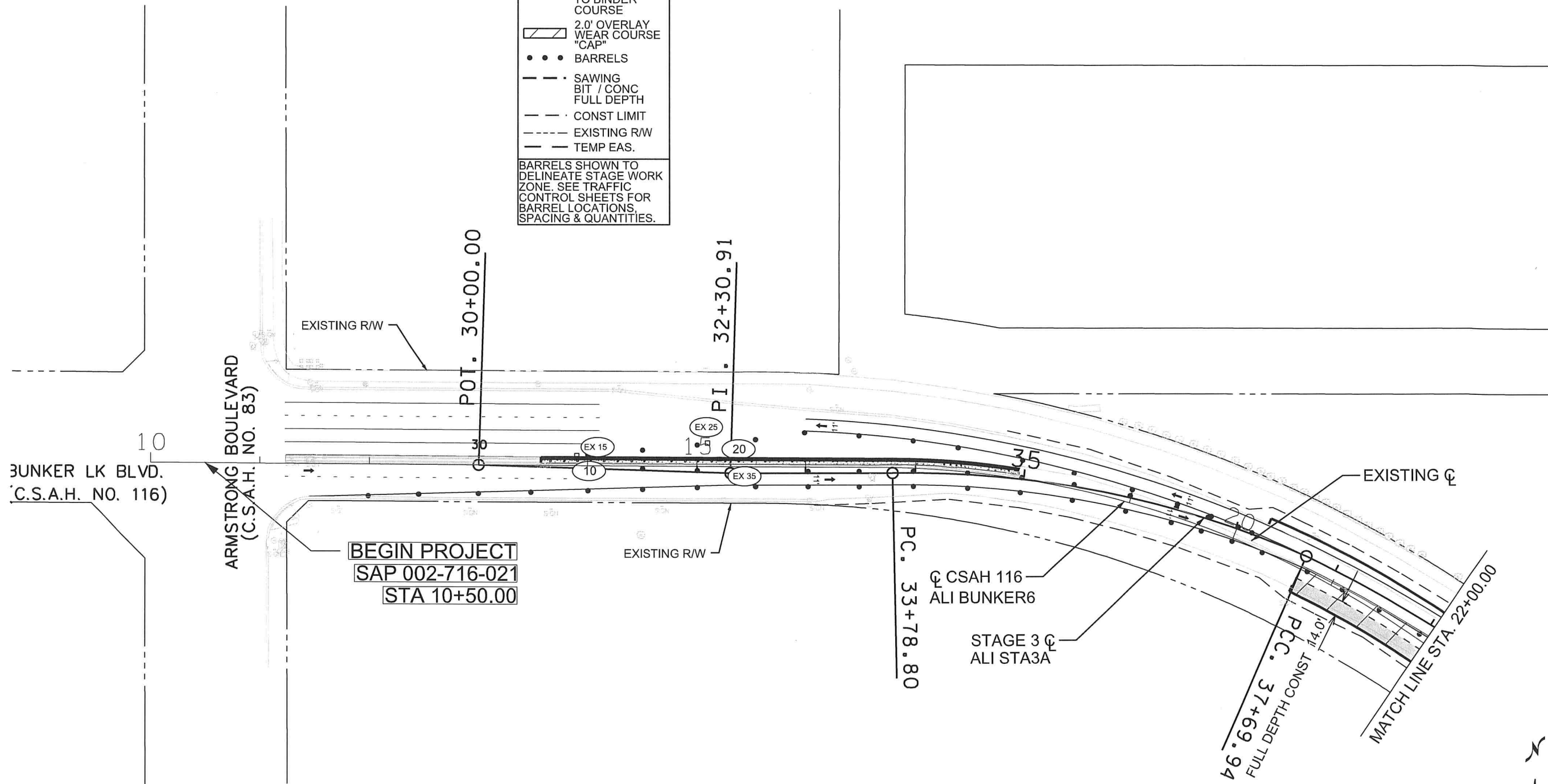
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 SAP 199-104-014

STAGE 2  
 STA 10+00.00 TO 29+52.50  
 Sheet 62 of 259 Sheets

**STAGE 3 LEGEND**

-  STAGE 3 FULL DEPTH CONST. TO BINDER COURSE
-  2.0' OVERLAY WEAR COURSE "CAP"
-  BARRELS
-  SAWING BIT / CONC FULL DEPTH
-  CONST LIMIT
-  EXISTING R/W
-  TEMP EAS.

BARRELS SHOWN TO DELINEATE STAGE WORK ZONE. SEE TRAFFIC CONTROL SHEETS FOR BARREL LOCATIONS, SPACING & QUANTITIES.



NOTE: NIGHTLY BACKFILL REQUIRED OF DROPOFF EDGE WITHIN WORKZONE.  
 CONTRACTOR TO COMPLY WITH ALL DROPOFF REQUIREMENTS IN THE MNDOT FIELD MANUAL FOR TRAFFIC CONTROL AND THE MINNESOTA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, CHAPTER 6.

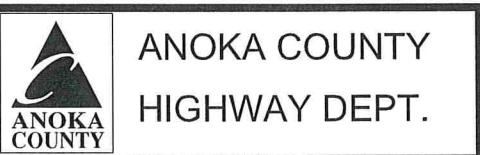
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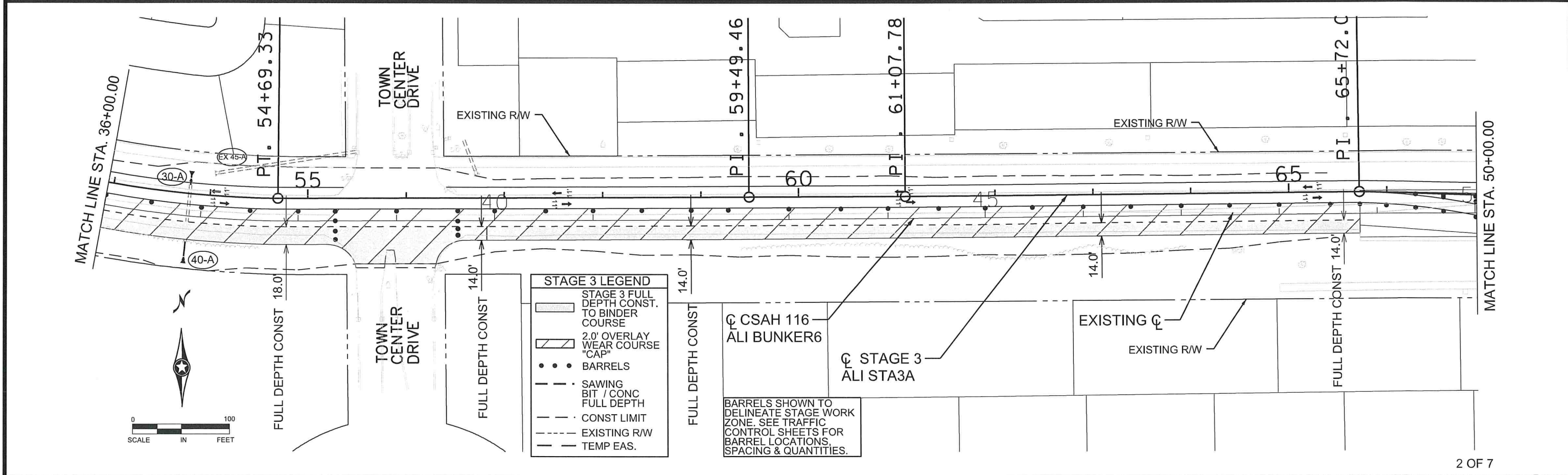
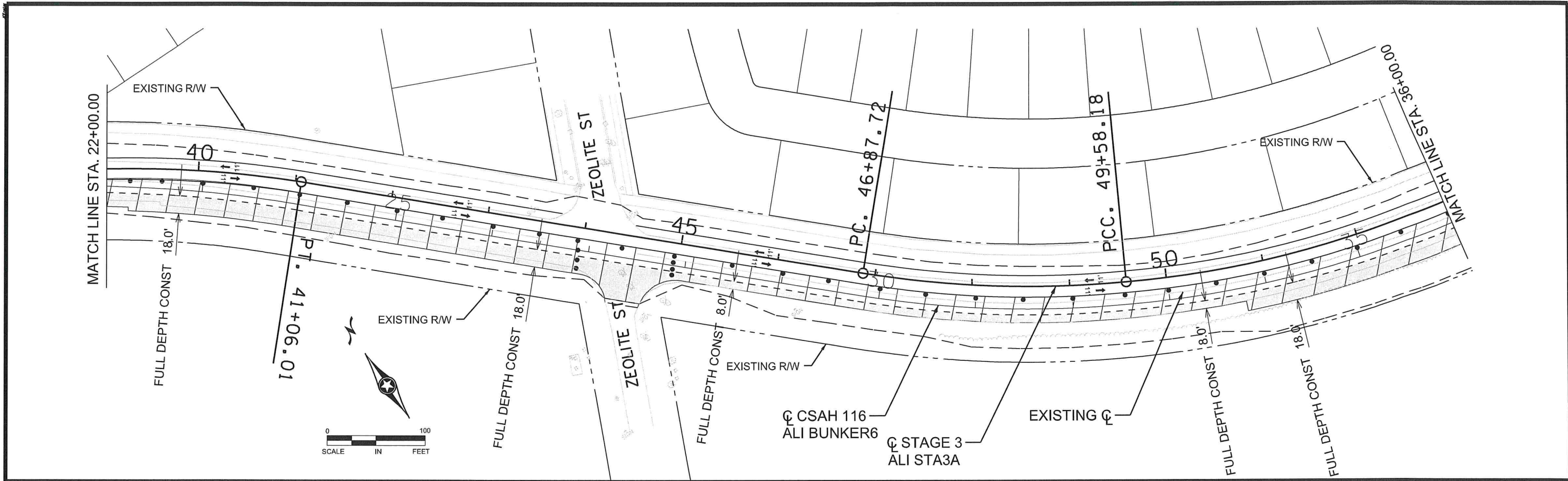
PRINT NAME: NICHOLAS J. DOBDA  
 SIGNATURE: *Nicholas J. Dobda*  
 DATE: 8/3/21      LICENSE NO. 49046

DRAWN BY: JCF      DATE: 07/01/21  
 DESIGN BY: JCF      DATE: 07/01/21  
 CHECKED BY: NJD      DATE: 07/09/21



SAP 002-716-021  
 SAP 199-104-014

STAGE 3  
 STA 10+00.00 TO 22+00.00  
 Sheet 63 of 259 Sheets



NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\002-716-021\Plan\002716021\_ST3\_2.dgn      07/27/2021      1:47:27 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: NICHOLAS J. DOBDA

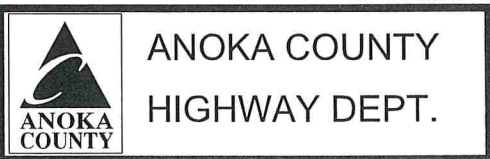
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DATE: 8/3/21      LICENSE NO. 49046

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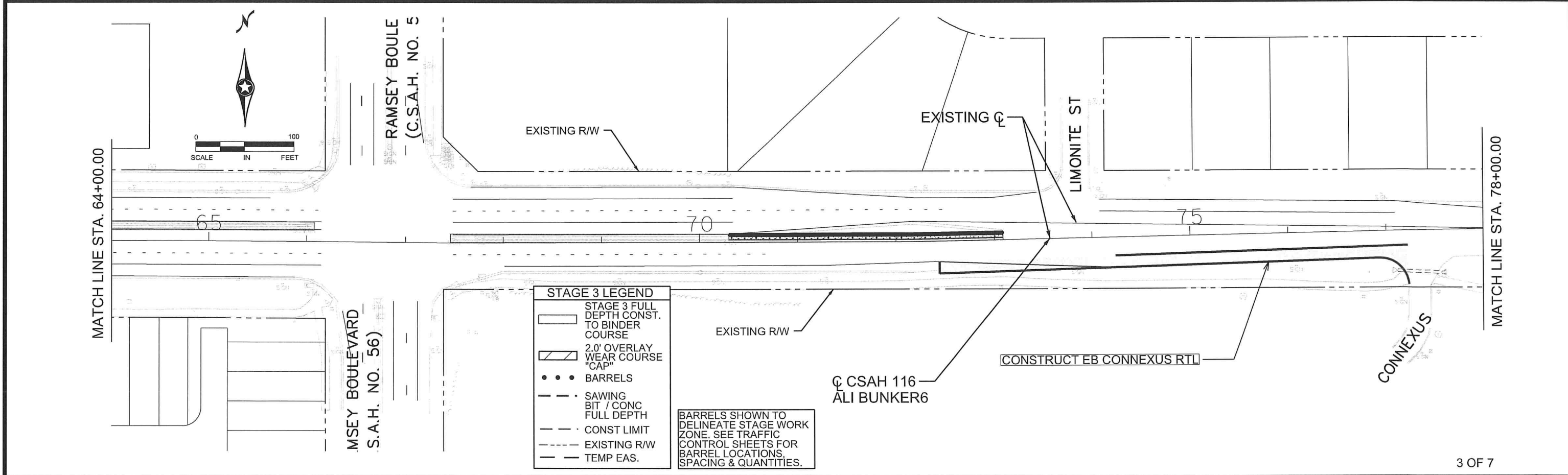
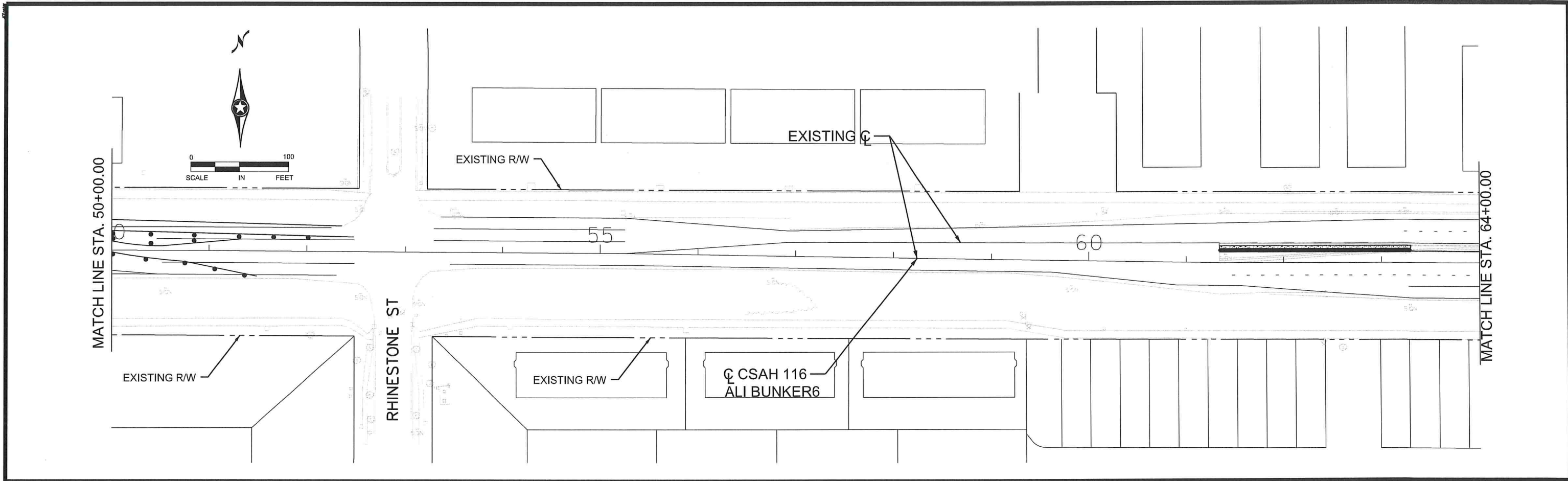
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SAP 002-716-021  
SAP 199-104-014

STAGE 3  
STA 22+00.00 TO 50+00.00  
Sheet 64 of 259 Sheets





NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\002-716-021\Plan\002716021 ST3\_3.dgn      07/27/2021      1:47:28 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: NICHOLAS J. DOBDA

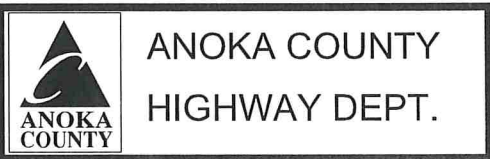
SIGNATURE: *N. Dobda*

DATE: 8/3/21      LICENSE NO. 49046

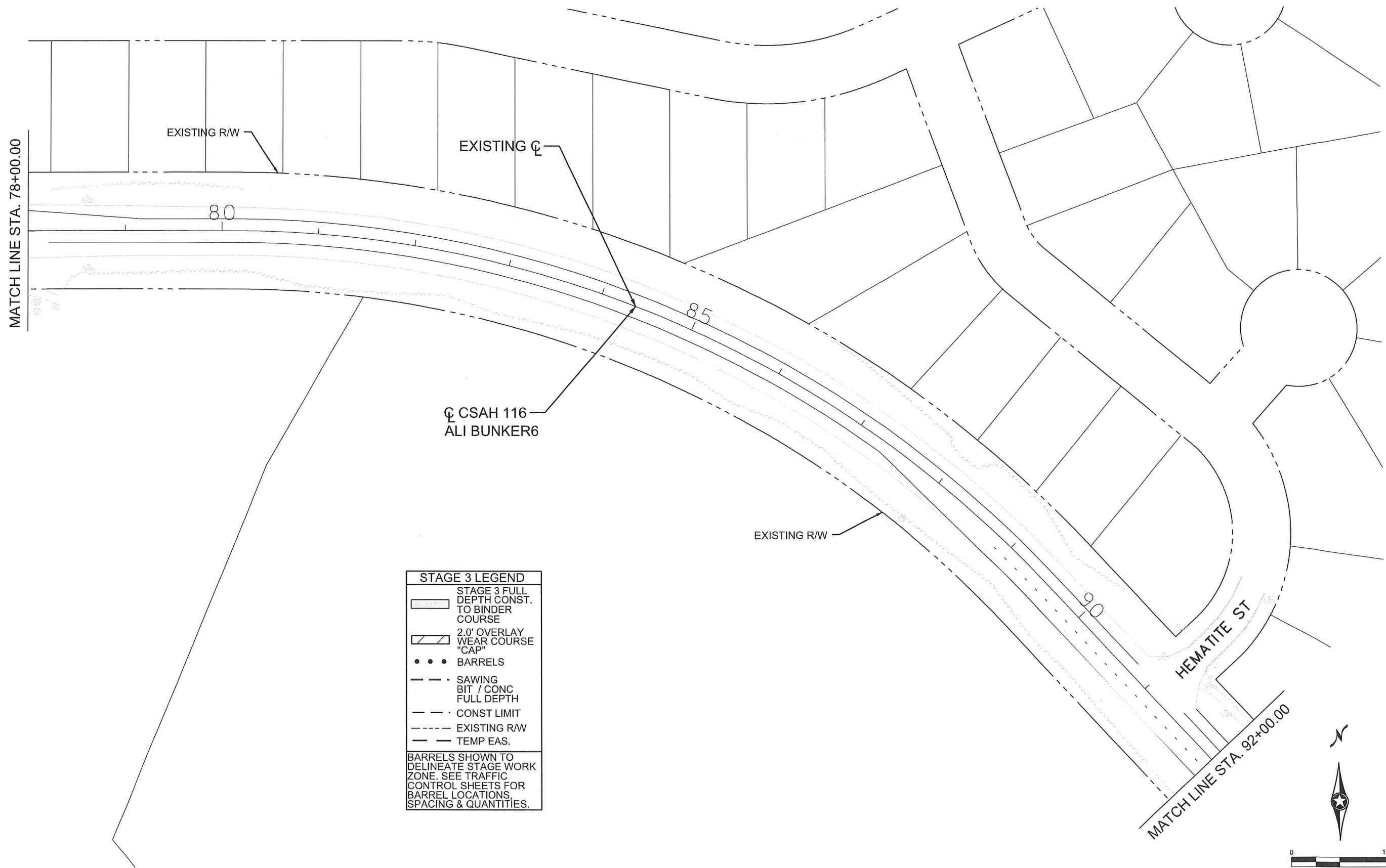
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DESIGN BY: JCF      DATE: 07/01/21

CHECKED BY: NJD      DATE: 07/09/21



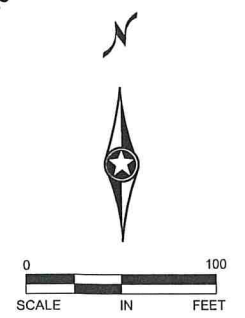
SAP 002-716-021  
SAP 199-104-014



**STAGE 3 LEGEND**

- STAGE 3 FULL DEPTH CONST. TO BINDER COURSE
- 2.0' OVERLAY WEAR COURSE "CAP"
- BARRELS
- SAWING BIT / CONC FULL DEPTH
- CONST LIMIT
- EXISTING R/W
- TEMP EAS.

BARRELS SHOWN TO DELINEATE STAGE WORK ZONE. SEE TRAFFIC CONTROL SHEETS FOR BARREL LOCATIONS, SPACING & QUANTITIES.



NO	DATE	BY	CKD	APPR	REVISION

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

PRINT NAME: NICHOLAS J. DOBDA

SIGNATURE:

DATE: 8/3/21 LICENSE NO. 49046

DRAWN BY JCF DATE 07/01/21

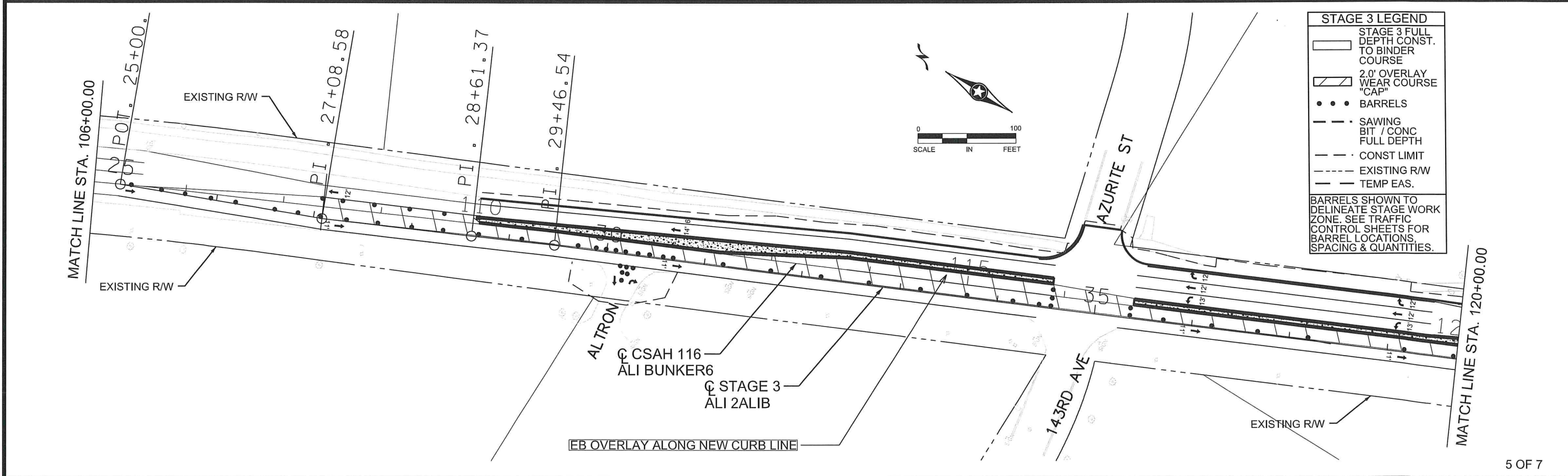
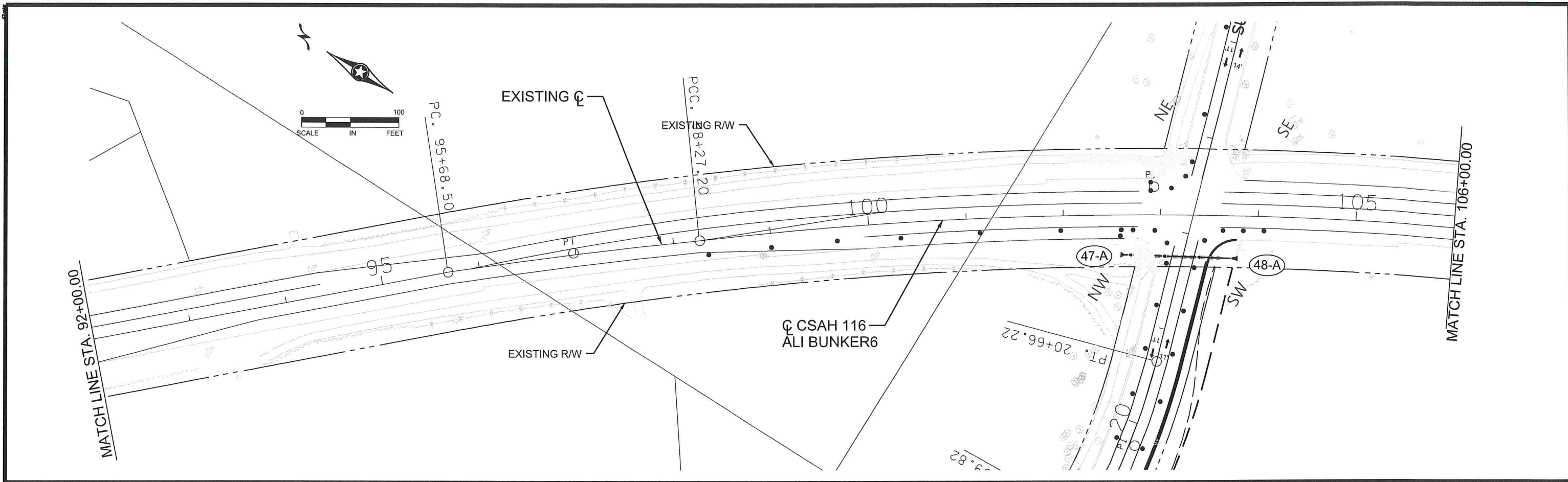
DESIGN BY JCF DATE 07/01/21

CHECKED BY NJD DATE 07/09/21

**ANOKA COUNTY  
HIGHWAY DEPT.**

SAP 002-716-021  
SAP 199-104-014

STAGE 3  
STA 78+00.00 TO 92+00.00  
Sheet 66 of 259 Sheets



**STAGE 3 LEGEND**

- STAGE 3 FULL DEPTH CONST. TO BINDER COURSE
- 2.0' OVERLAY WEAR COURSE "CAP"
- BARRELS
- SAWING BIT / CONC FULL DEPTH
- CONST LIMIT
- EXISTING R/W
- TEMP EAS.

BARRELS SHOWN TO DELINEATE STAGE WORK ZONE. SEE TRAFFIC CONTROL SHEETS FOR BARREL LOCATIONS, SPACING & QUANTITIES.

NO	DATE	BY	CKD	APPR	REVISION
NAME: P:\002-716-021\Plan\002716021 ST3_5.dgn					
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I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

PRINT NAME: NICHOLAS J. DOBDA

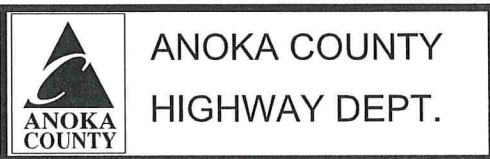
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DATE: 8/3/21 LICENSE NO. 49046

DRAWN BY JCF DATE 07/01/21

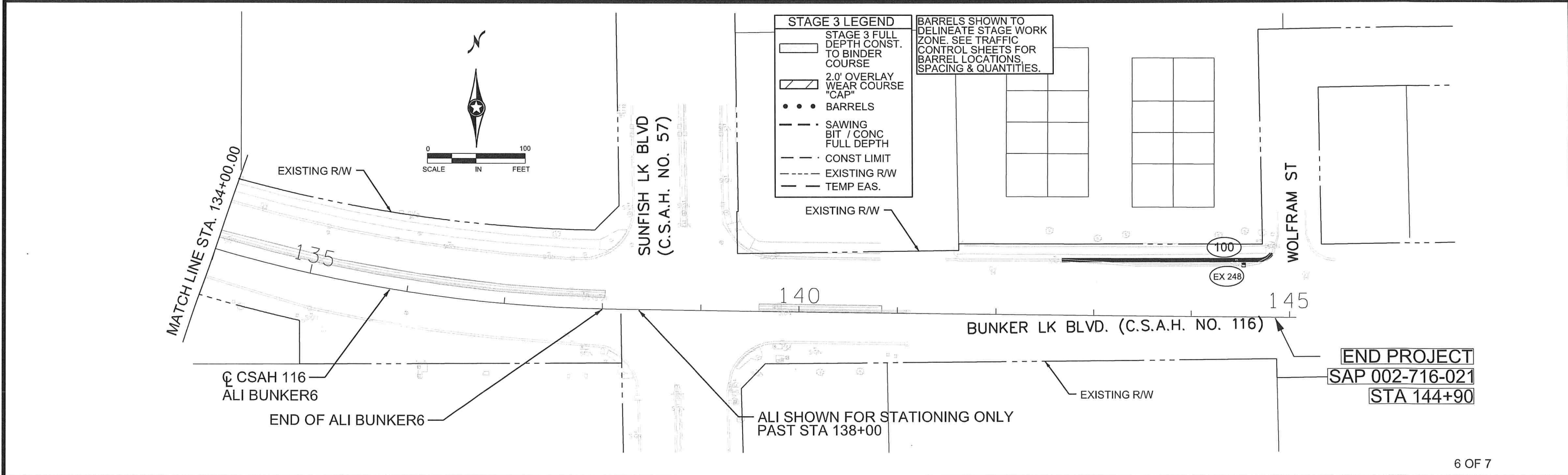
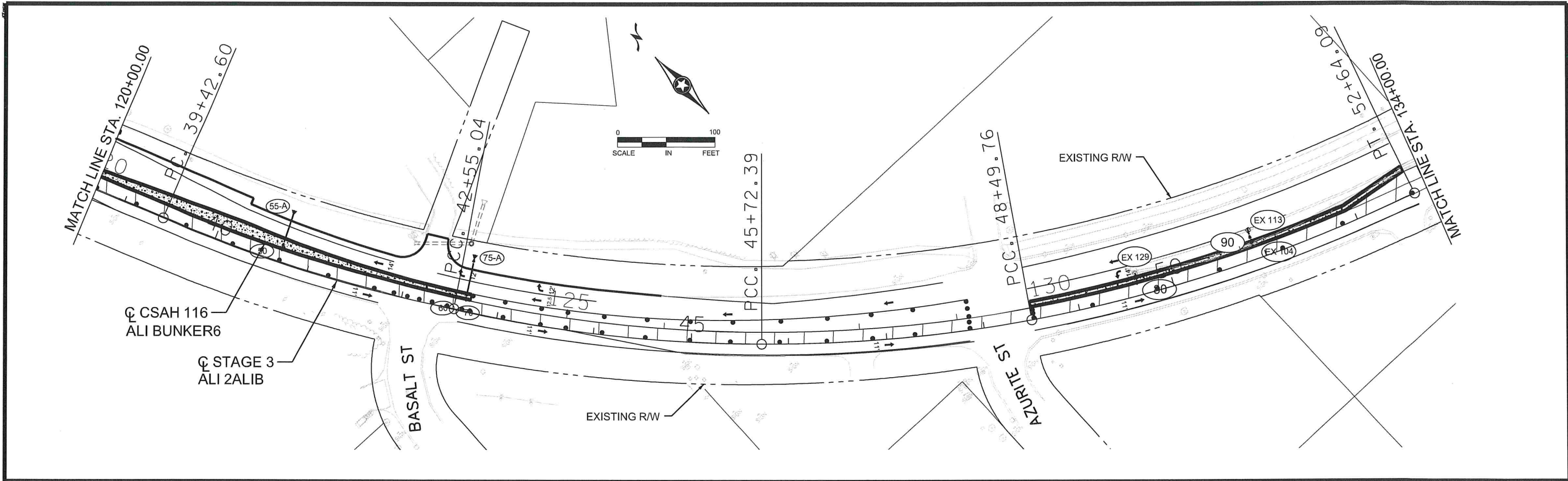
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CHECKED BY NJD DATE 07/09/21



SAP 002-716-021  
SAP 199-104-014

STAGE 3  
STA 92+00.00 TO 120+00.00  
Sheet 67 of 259 Sheets



NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\002-716-021\Plan\002716021 ST3\_6.dgn      07/27/2021      1:47:30 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: NICHOLAS J. DOBDA

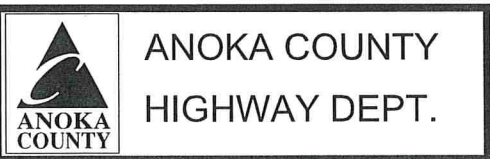
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DATE: 8/31/21      LICENSE NO. 49046

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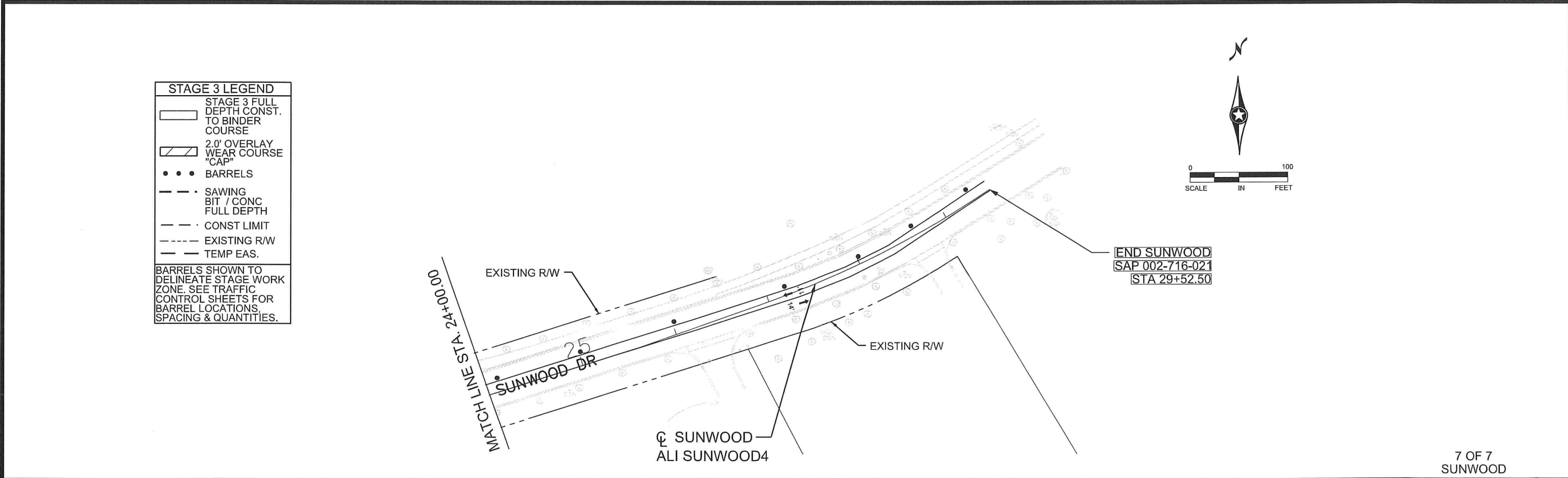
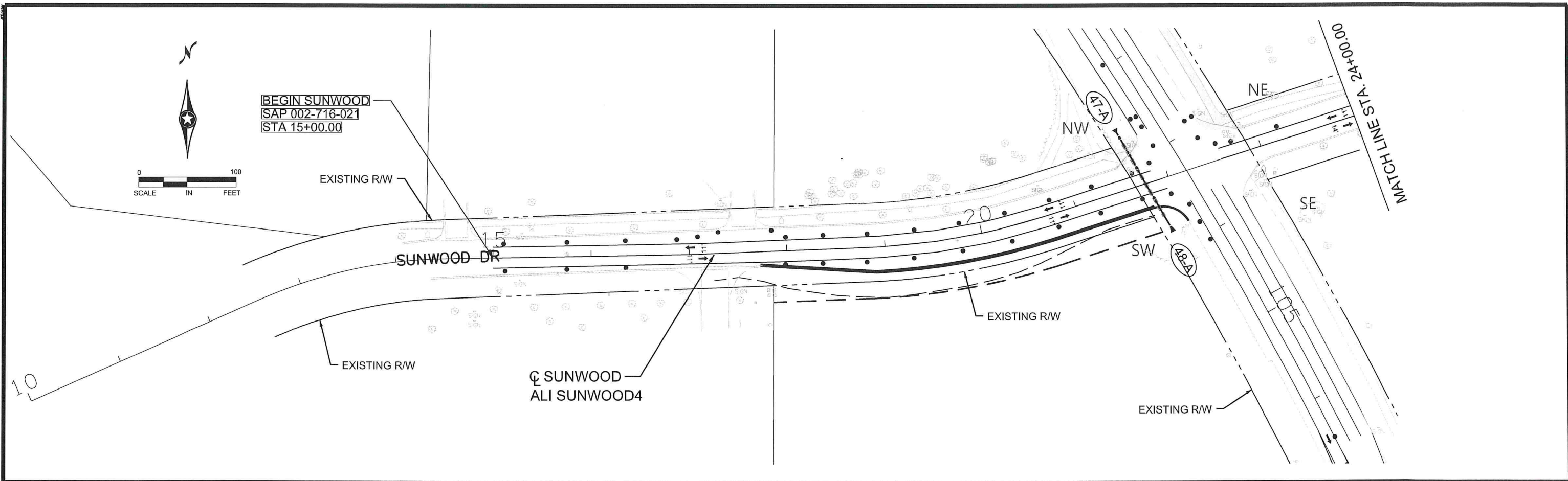
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SAP 199-104-014

STAGE 3  
STA 120+00.00 TO 144+90.00  
Sheet 68 of 259 Sheets



STAGE 3 LEGEND	
	STAGE 3 FULL DEPTH CONST. TO BINDER COURSE
	2.0' OVERLAY WEAR COURSE "CAP"
	BARRELS
	SAWING BIT / CONC FULL DEPTH
	CONST LIMIT
	EXISTING R/W
	TEMP EAS.
BARRELS SHOWN TO DELINEATE STAGE WORK ZONE. SEE TRAFFIC CONTROL SHEETS FOR BARREL LOCATIONS, SPACING & QUANTITIES.	

7 OF 7  
SUNWOOD

NO	DATE	BY	CKD	APPR	REVISION

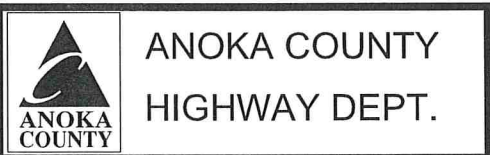
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I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

PRINT NAME: NICHOLAS J. DOBDA  
SIGNATURE:

DATE: 8/3/21      LICENSE NO. 49046

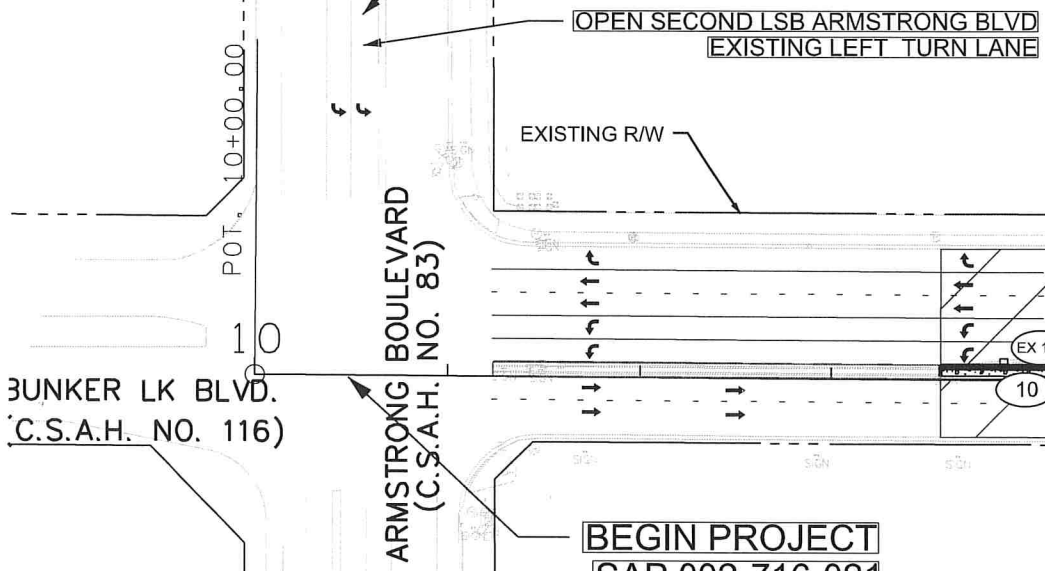
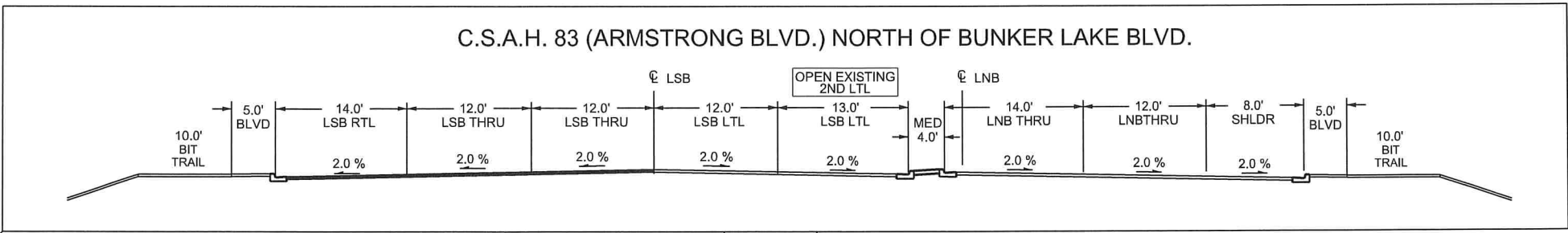
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CHECKED BY: NJD      DATE: 07/09/21



SAP 002-716-021  
SAP 199-104-014

STAGE 3  
STA 10+00.00 TO 29+52.50  
Sheet 69 of 259 Sheets

C.S.A.H. 83 (ARMSTRONG BLVD.) NORTH OF BUNKER LAKE BLVD.

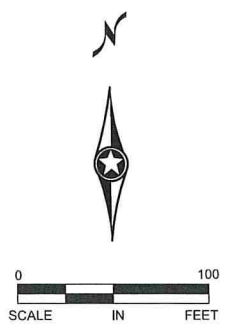


**STAGE 4 LEGEND**

- 2.0' OVERLAY WEAR COURSE "CAP"
- BARRELS
- SAWING BIT / CONC FULL DEPTH
- CONST LIMIT
- EXISTING R/W
- TEMP EAS.

BARRELS SHOWN TO DELINEATE STAGE WORK ZONE. SEE TRAFFIC CONTROL SHEETS FOR BARREL LOCATIONS, SPACING & QUANTITIES.

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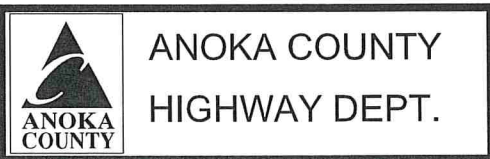


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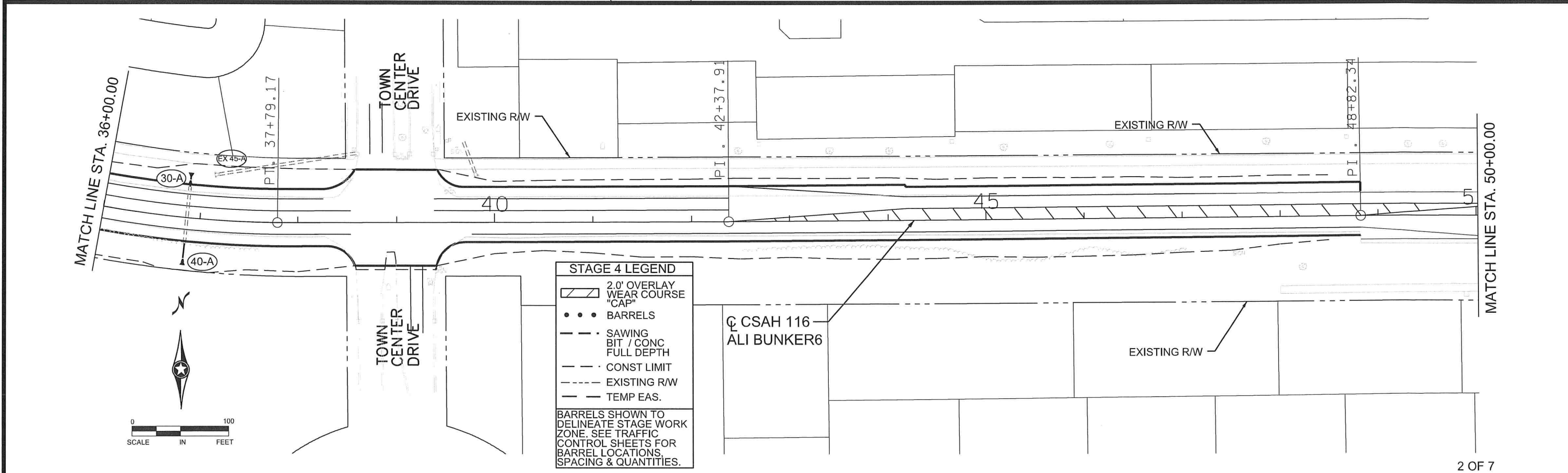
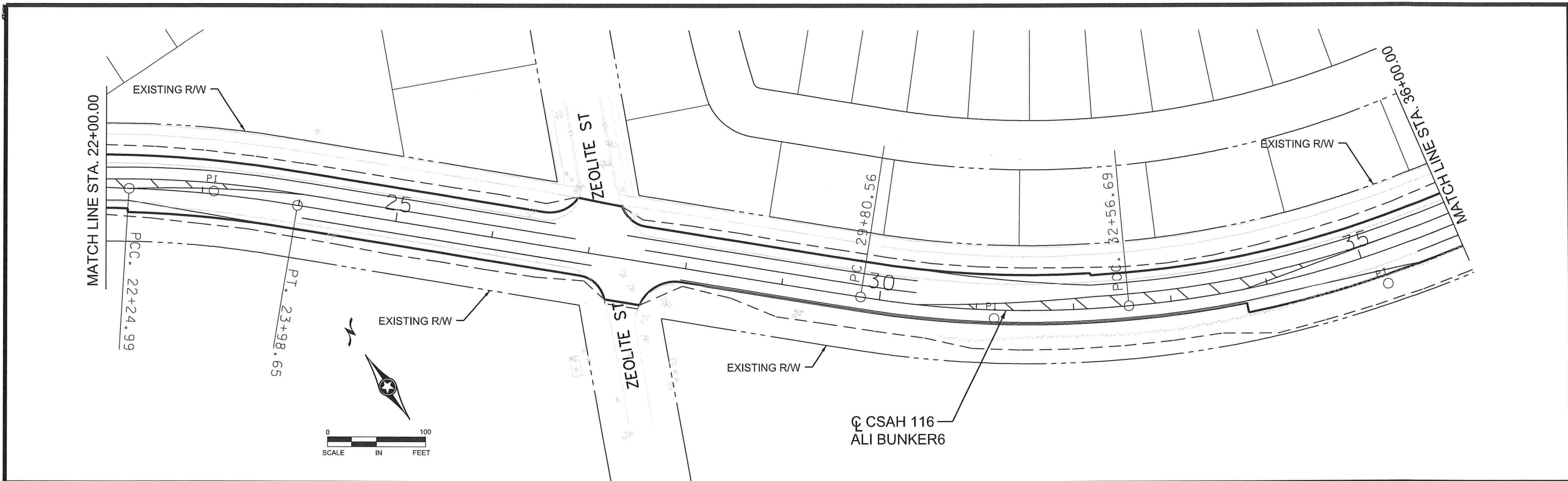
I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.  
 PRINT NAME: NICHOLAS J. DOBDA  
 SIGNATURE: *N. Dobda*  
 DATE: 8/3/21 LICENSE NO. 49046

DRAWN BY JCF DATE 07/01/21  
 DESIGN BY JCF DATE 07/01/21  
 CHECKED BY NJD DATE 07/09/21

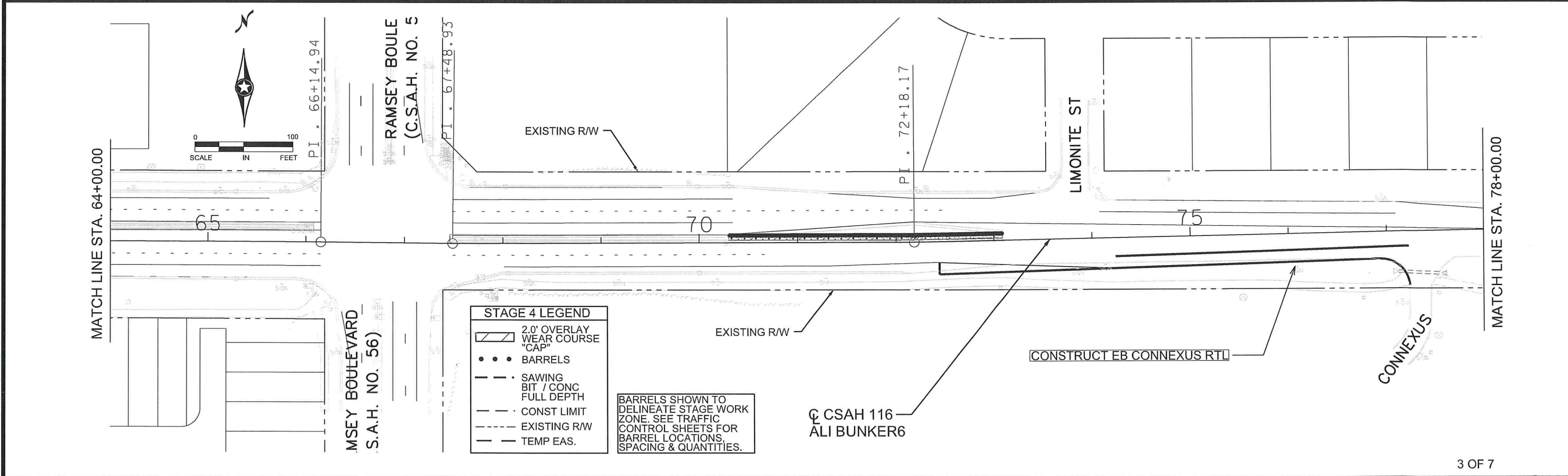
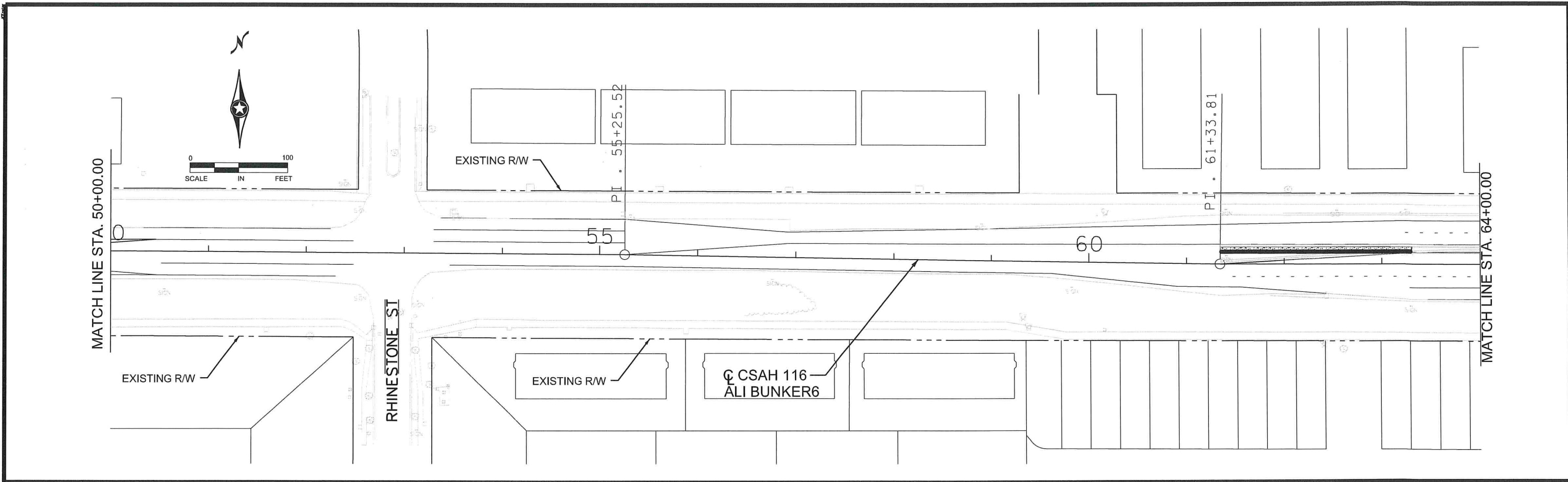


SAP 002-716-021  
 SAP 199-104-014

STAGE 4  
 STA 10+00.00 TO 22+00.00  
 Sheet 70 of 259 Sheets



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: NICHOLAS J. DOBDA SIGNATURE: <i>NJD</i> DATE: 8/31/21 LICENSE NO. 49046					DRAWN BY: JCF DATE: 07/01/21 DESIGN BY: JCF DATE: 07/01/21 CHECKED BY: NJD DATE: 07/09/21	 <b>ANOKA COUNTY</b> <b>HIGHWAY DEPT.</b>	SAP 002-716-021 SAP 199-104-014	<b>STAGE 4</b> STA 22+00.00 TO 50+00.00 Sheet 71 of 259 Sheets									
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NO	DATE	BY	CKD	APPR	REVISION												



NO	DATE	BY	CKD	APPR	REVISION
NAME: P:\002-716-021\Plan\002716021 ST4_3.dgn					
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I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

PRINT NAME: NICHOLAS J. DOBDA

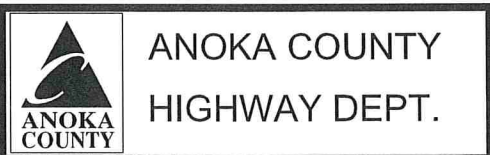
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DATE: 8/3/21 LICENSE NO. 49046

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DESIGN BY JCF DATE 07/01/21

CHECKED BY NJD DATE 07/09/21



SAP 002-716-021

SAP 199-104-014

STAGE 4

STA 50+00.00 TO 78+00.00

Sheet 72 of 259 Sheets



MATCH LINE STA. 78+00.00

PI . 78+21.52

EXISTING R/W

EXISTING C

80

PC . 80+13.11

PI

85

C CSAH 116  
BALI BUNKER6

EXISTING R/W


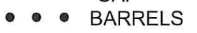

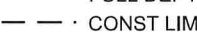
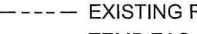
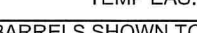
90

PI . 89+55.67

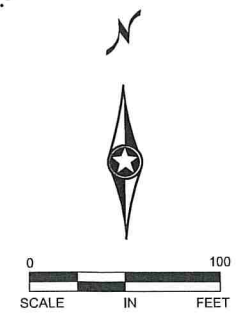
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MATCH LINE STA. 92+00.00

**STAGE 4 LEGEND**

-  2.0' OVERLAY WEAR COURSE "CAP"
-  BARRELS
-  SAWING BIT / CONC FULL DEPTH
-  CONST LIMIT
-  EXISTING R/W
-  TEMP EAS.

BARRELS SHOWN TO DELINEATE STAGE WORK ZONE. SEE TRAFFIC CONTROL SHEETS FOR BARREL LOCATIONS, SPACING & QUANTITIES.



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: NICHOLAS J. DOBDA

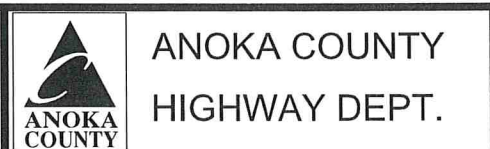
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DATE: 8/3/21 LICENSE NO. 49046

DRAWN BY JCF DATE 07/01/21

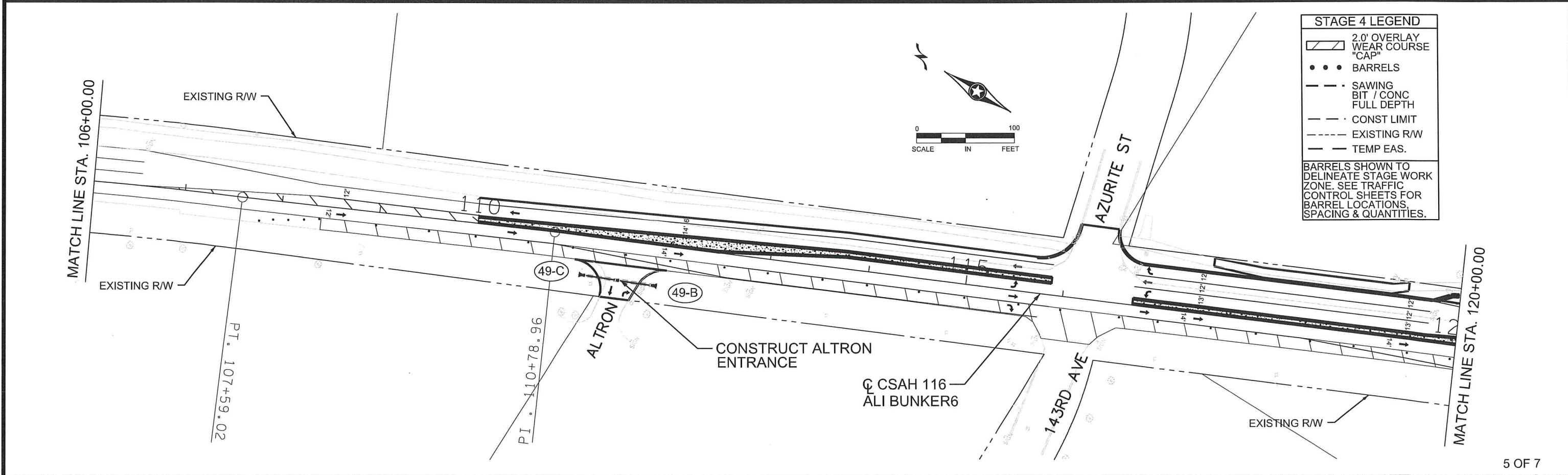
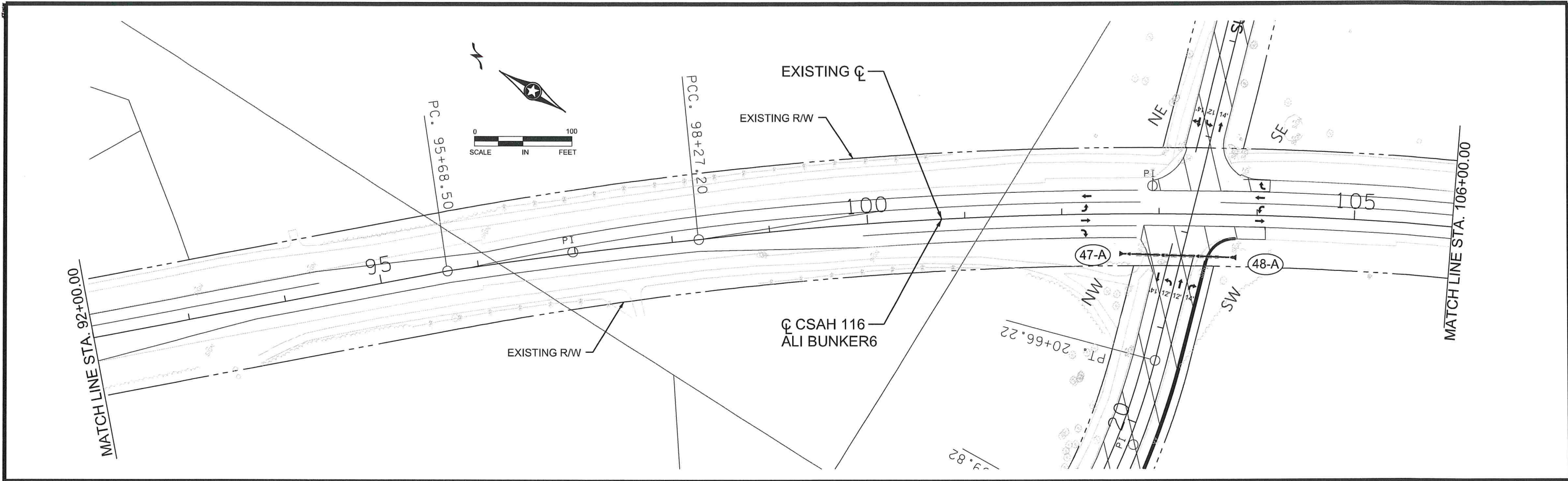
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CHECKED BY NJD DATE 07/09/21



SAP 002-716-021  
SAP 199-104-014

STAGE 4  
STA 78+00.00 TO 92+00.00  
Sheet 73 of 259 Sheets



**STAGE 4 LEGEND**

- 2.0' OVERLAY WEAR COURSE "CAP"
- BARRELS
- SAWING BIT / CONC FULL DEPTH
- CONST LIMIT
- EXISTING R/W
- TEMP EAS.

BARRELS SHOWN TO DELINEATE STAGE WORK ZONE. SEE TRAFFIC CONTROL SHEETS FOR BARREL LOCATIONS, SPACING & QUANTITIES.

NO	DATE	BY	CKD	APPR	REVISION
NAME: P:\002-716-021\Plan\002716021 ST4_5.dgn					
07/27/2021 1:47:36 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: NICHOLAS J. DOBDA

SIGNATURE: *N. Dobda*

DATE: 8/31/21 LICENSE NO. 49046

DRAWN BY JCF DATE 07/01/21

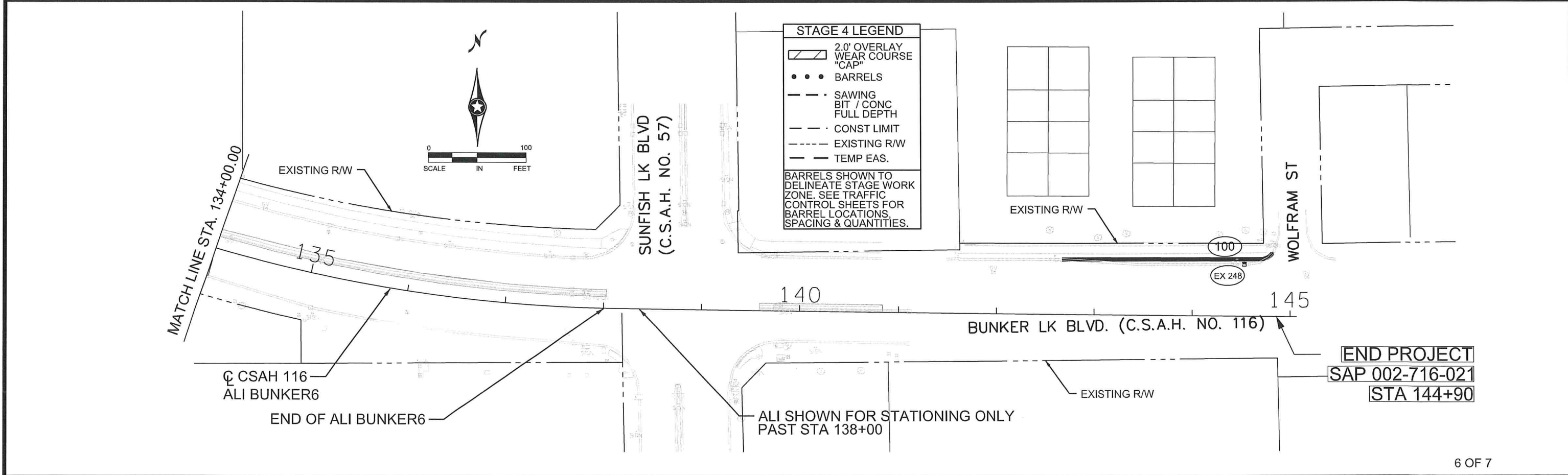
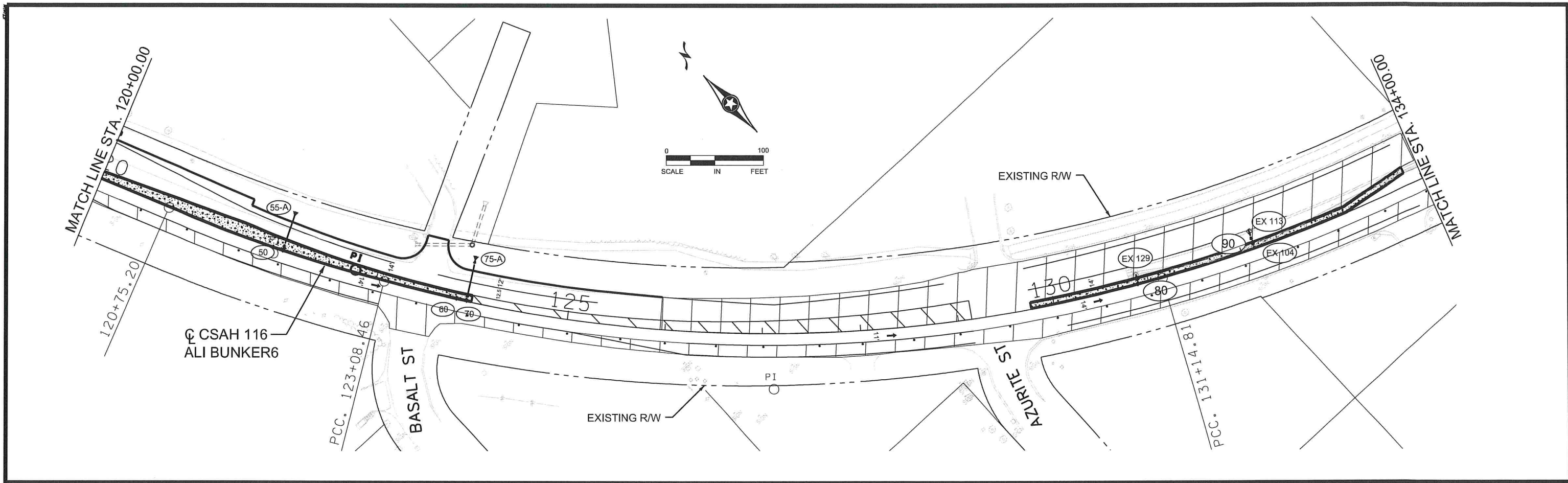
DESIGN BY JCF DATE 07/01/21

CHECKED BY NJD DATE 07/09/21

**ANOKA COUNTY  
HIGHWAY DEPT.**

SAP 002-716-021  
SAP 199-104-014

STAGE 4  
STA 92+00.00 TO 120+00.00  
Sheet 74 of 259 Sheets



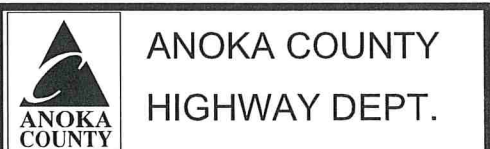
NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\002-716-021\Plan\002716021 ST4\_6.dgn 07/27/2021 1:47:37 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: NICHOLAS J. DOBDA  
 SIGNATURE: *Nicholas J. Dobda*  
 DATE: 8/3/21 LICENSE NO. 49046

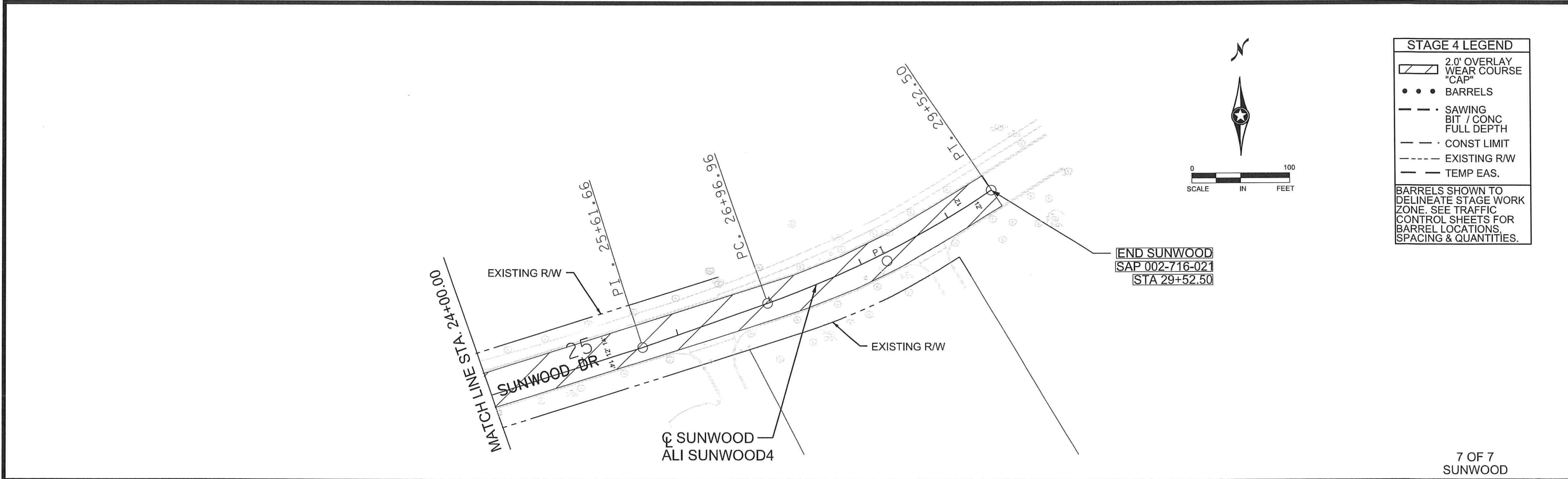
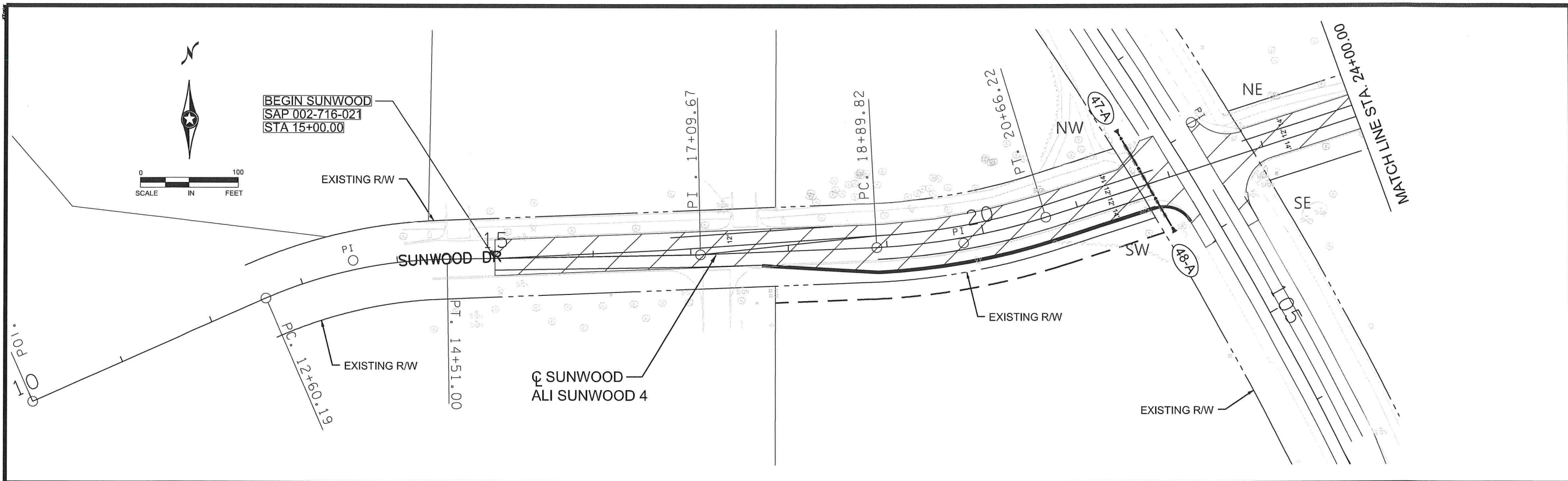
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 DESIGN BY: JCF DATE: 07/01/21  
 CHECKED BY: NJD DATE: 07/09/21



SAP 002-716-021  
 SAP 199-104-014

6 OF 7

STAGE 4  
 STA 120+00.00 TO 144+90.00  
 Sheet 75 of 259 Sheets



**STAGE 4 LEGEND**

- 2.0' OVERLAY WEAR COURSE "CAP"
- BARRELS
- SAWING BIT / CONC FULL DEPTH
- CONST LIMIT
- EXISTING R/W
- TEMP EAS.

BARRELS SHOWN TO DELINEATE STAGE WORK ZONE. SEE TRAFFIC CONTROL SHEETS FOR BARREL LOCATIONS, SPACING & QUANTITIES.

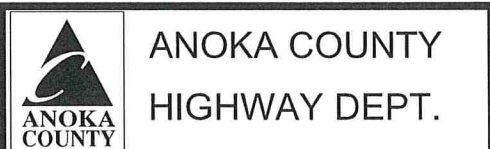
7 OF 7  
SUNWOOD

NO	DATE	BY	CKD	APPR	REVISION

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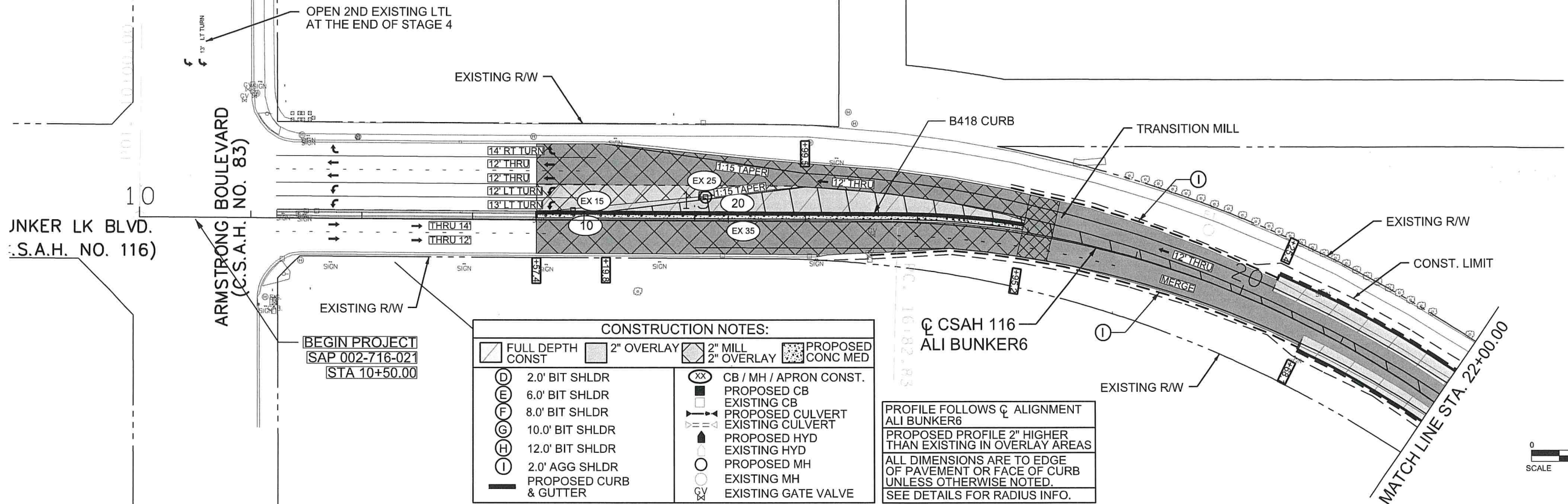
I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.  
 PRINT NAME: NICHOLAS J. DOBDA  
 SIGNATURE: *NJD*  
 DATE: 8/3/21      LICENSE NO. 49046

DRAWN BY JCF      DATE 07/01/21  
 DESIGN BY JCF      DATE 07/01/21  
 CHECKED BY NJD      DATE 07/09/21



SAP 002-716-021  
 SAP 199-104-014

STAGE 4  
 STA 10+00.00 TO 29+52.50  
 Sheet 76 of 259 Sheets

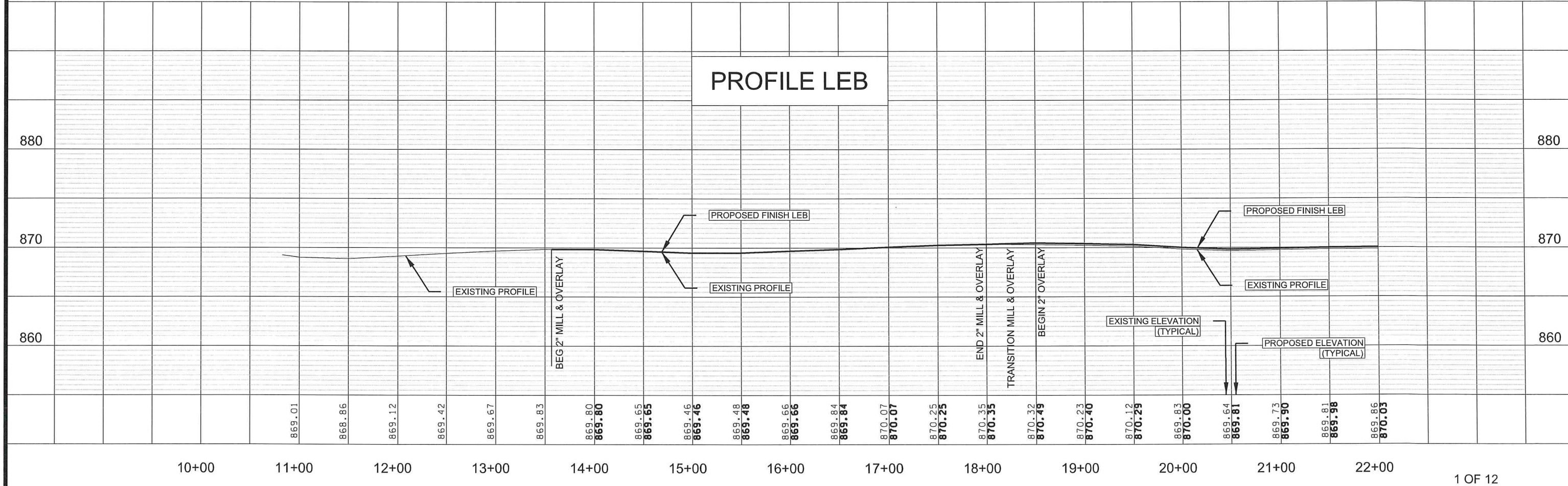


BEGIN PROJECT  
SAP 002-716-021  
STA 10+50.00

CONSTRUCTION NOTES:			
	FULL DEPTH CONST		2" OVERLAY
	2" MILL		2" OVERLAY
	PROPOSED CONC MED		CB / MH / APRON CONST.
	2.0' BIT SHLDR		PROPOSED CB
	6.0' BIT SHLDR		EXISTING CB
	8.0' BIT SHLDR		PROPOSED CULVERT
	10.0' BIT SHLDR		EXISTING CULVERT
	12.0' BIT SHLDR		PROPOSED HYD
	2.0' AGG SHLDR		EXISTING HYD
	PROPOSED CURB & GUTTER		PROPOSED MH
			EXISTING MH
			EXISTING GATE VALVE

PROFILE FOLLOWS  $\phi$  ALIGNMENT  
ALI BUNKER6  
PROPOSED PROFILE 2" HIGHER  
THAN EXISTING IN OVERLAY AREAS  
ALL DIMENSIONS ARE TO EDGE  
OF PAVEMENT OR FACE OF CURB  
UNLESS OTHERWISE NOTED.  
SEE DETAILS FOR RADIUS INFO.

### PROFILE LEB

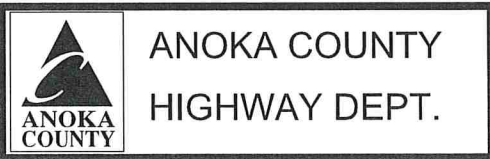


NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\002-716-021\Plan\002716021 PP1.dgn      07/27/2021      1:47:38 PM

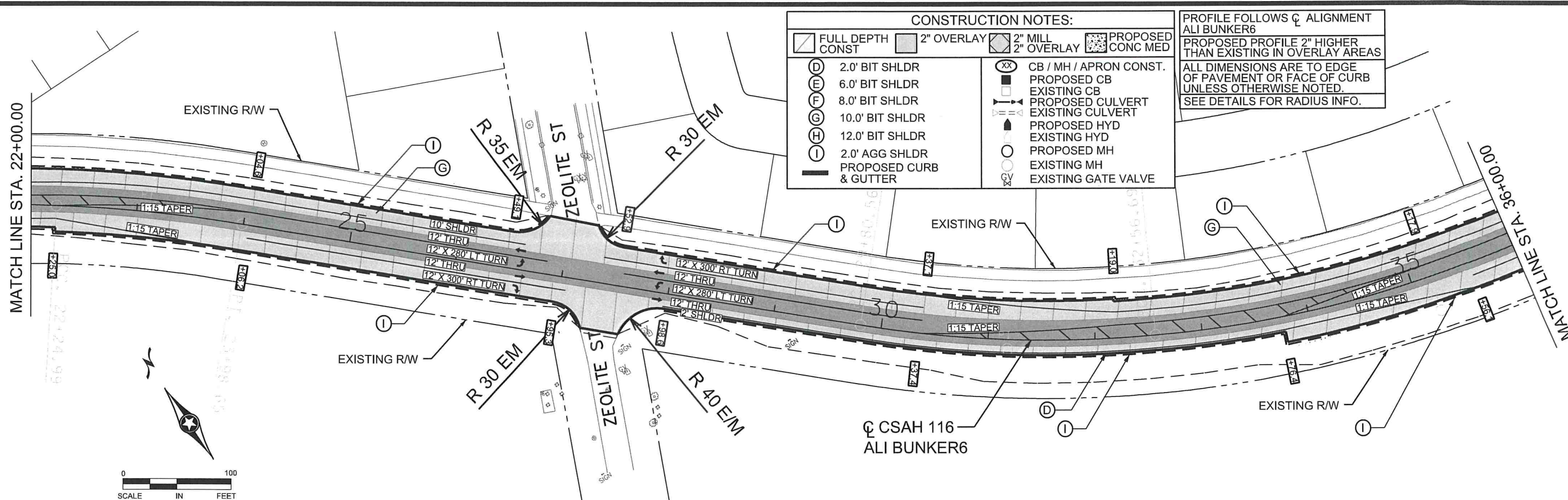
I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.  
PRINT NAME: NICHOLAS J. DOBDA  
SIGNATURE: *N. Dobda*  
DATE: 8/3/21      LICENSE NO. 49046

DRAWN BY: JCF      DATE: 07/01/21  
DESIGN BY: JCF      DATE: 07/01/21  
CHECKED BY: NJD      DATE: 07/09/21

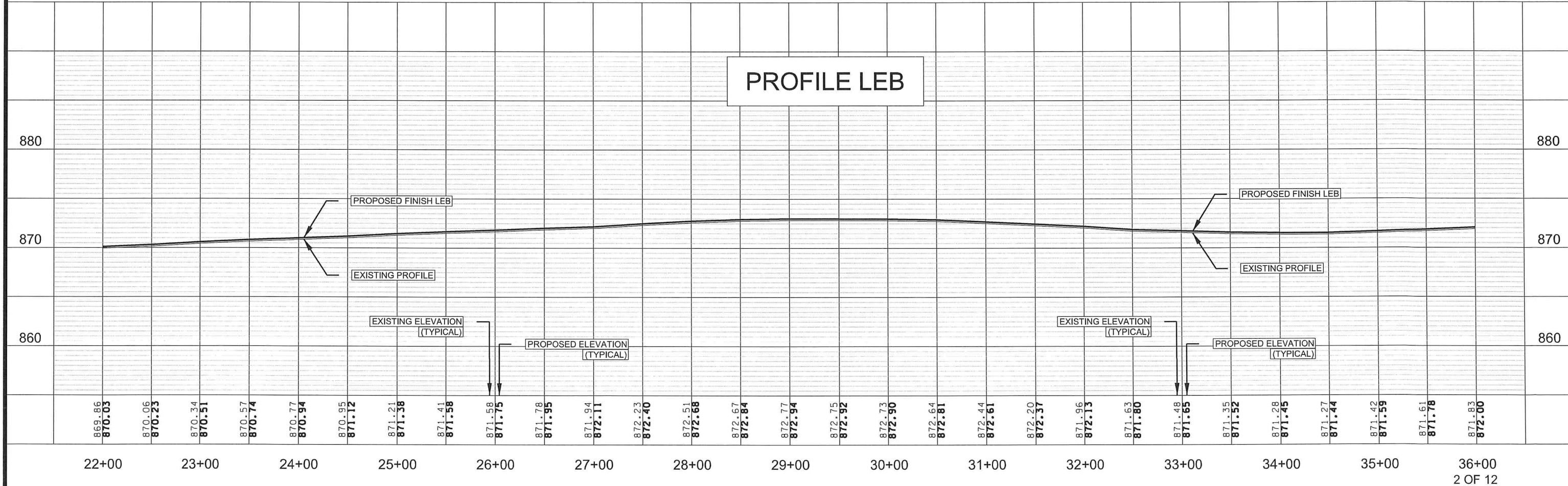


SAP 002-716-021  
SAP 199-104-014

CONSTRUCTION PLAN  
BUNKER LAKE BLVD  
STA 10+00.00 TO 22+00.00  
Sheet 77 of 259 Sheets



### PROFILE LEB



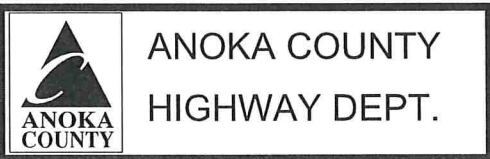
NO	DATE	BY	CKD	APPR	REVISION

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

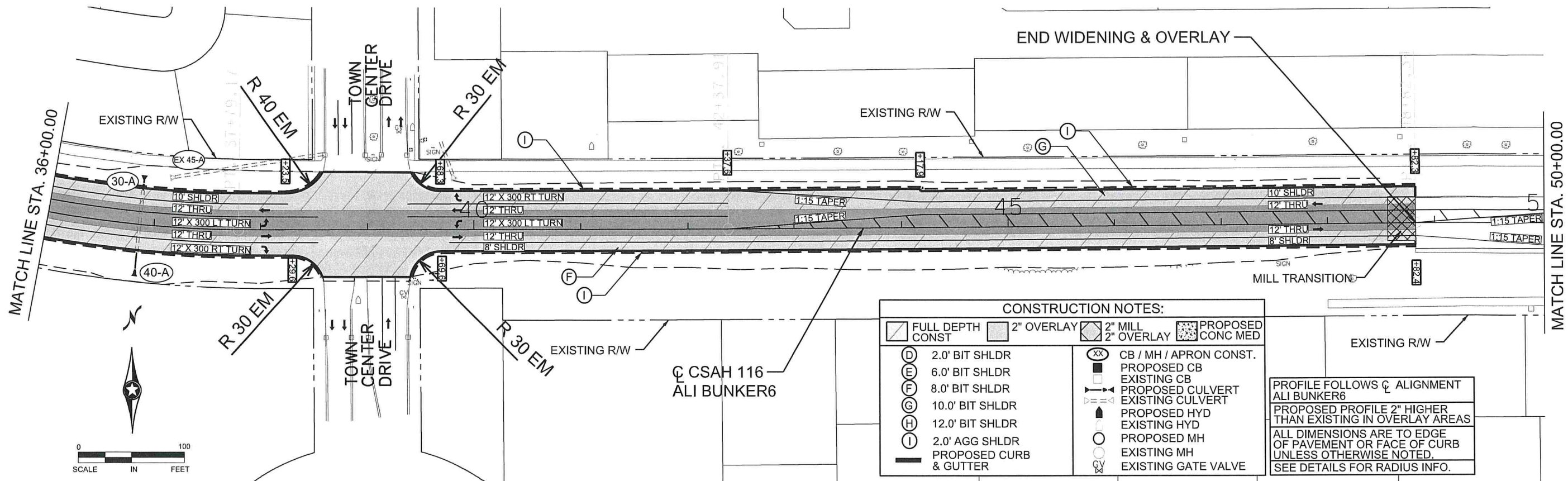
PRINT NAME: NICHOLAS J. DOBDA  
 SIGNATURE: *[Signature]*  
 DATE: 8/3/21      LICENSE NO. 49046

DRAWN BY: JCF      DATE: 07/01/21  
 DESIGN BY: JCF      DATE: 07/01/21  
 CHECKED BY: NJD      DATE: 07/09/21



SAP 002-716-021  
 SAP 199-104-014

CONSTRUCTION PLAN  
 BUNKER LAKE BLVD  
 STA 22+00.00 TO 50+00.00  
 Sheet 78 of 259 Sheets

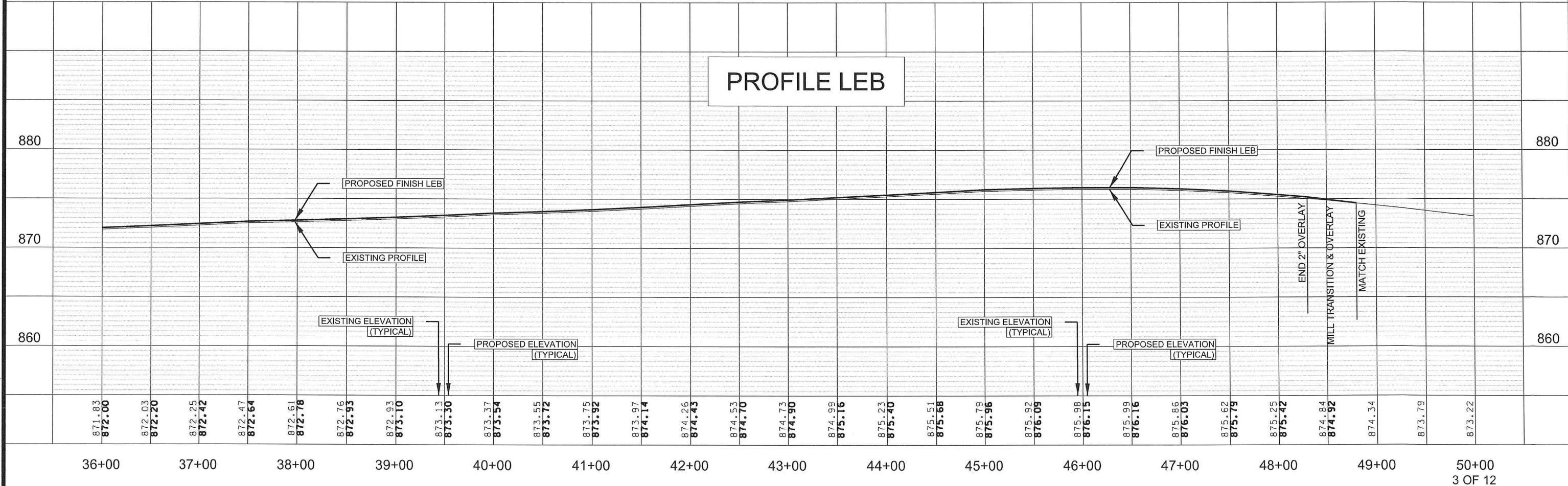


**CONSTRUCTION NOTES:**

FULL DEPTH CONST	2" OVERLAY	2" MILL OVERLAY	PROPOSED CONC MED
(D) 2.0' BIT SHLDR	(E) 6.0' BIT SHLDR	(F) 8.0' BIT SHLDR	(G) 10.0' BIT SHLDR
(H) 12.0' BIT SHLDR	(I) 2.0' AGG SHLDR	PROPOSED CURB & GUTTER	
(XX) CB / MH / APRON CONST.	PROPOSED CB	EXISTING CB	PROPOSED CULVERT
EXISTING CULVERT	PROPOSED HYD	EXISTING HYD	PROPOSED MH
EXISTING MH	EXISTING MH	EXISTING GATE VALVE	

PROFILE FOLLOWS  $\phi$  ALIGNMENT ALI BUNKER6  
 PROPOSED PROFILE 2" HIGHER THAN EXISTING IN OVERLAY AREAS  
 ALL DIMENSIONS ARE TO EDGE OF PAVEMENT OR FACE OF CURB UNLESS OTHERWISE NOTED.  
 SEE DETAILS FOR RADIUS INFO.

**PROFILE LEB**

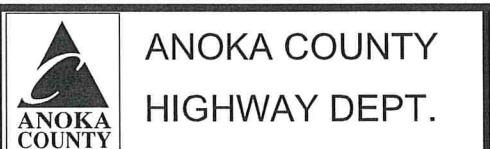


NO	DATE	BY	CKD	APPR	REVISION

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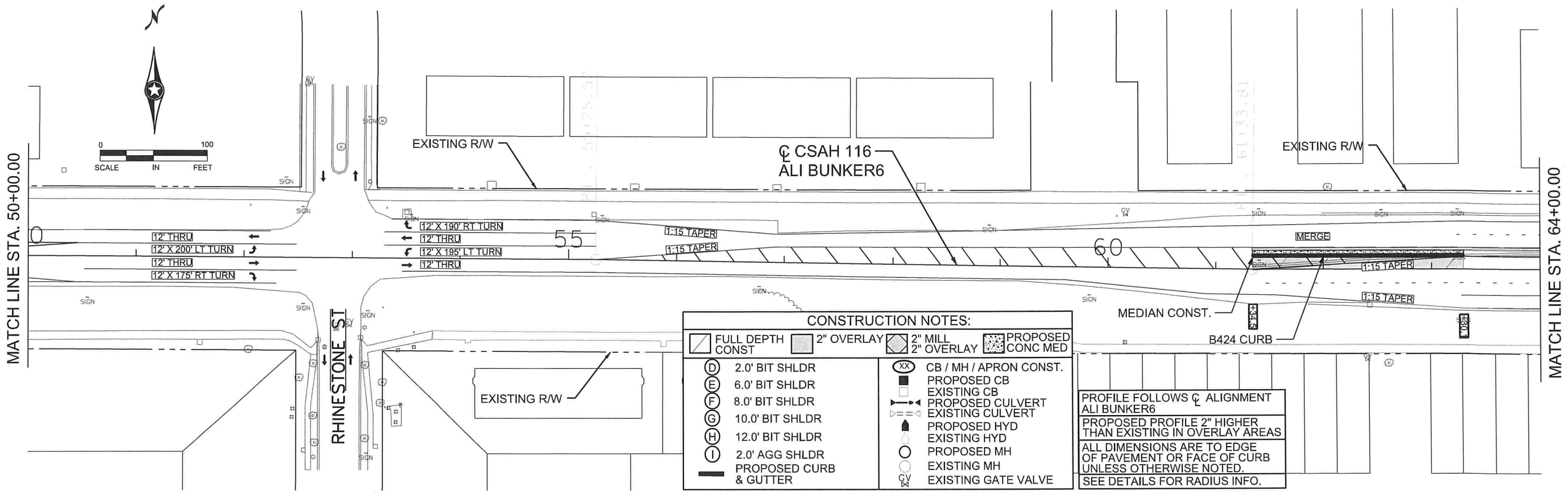
I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.  
 PRINT NAME: NICHOLAS J. DOBDA  
 SIGNATURE: *[Signature]*  
 DATE: 8/3/21 LICENSE NO. 49046

DRAWN BY JCF DATE 07/01/21  
 DESIGN BY JCF DATE 07/01/21  
 CHECKED BY NJD DATE 07/09/21

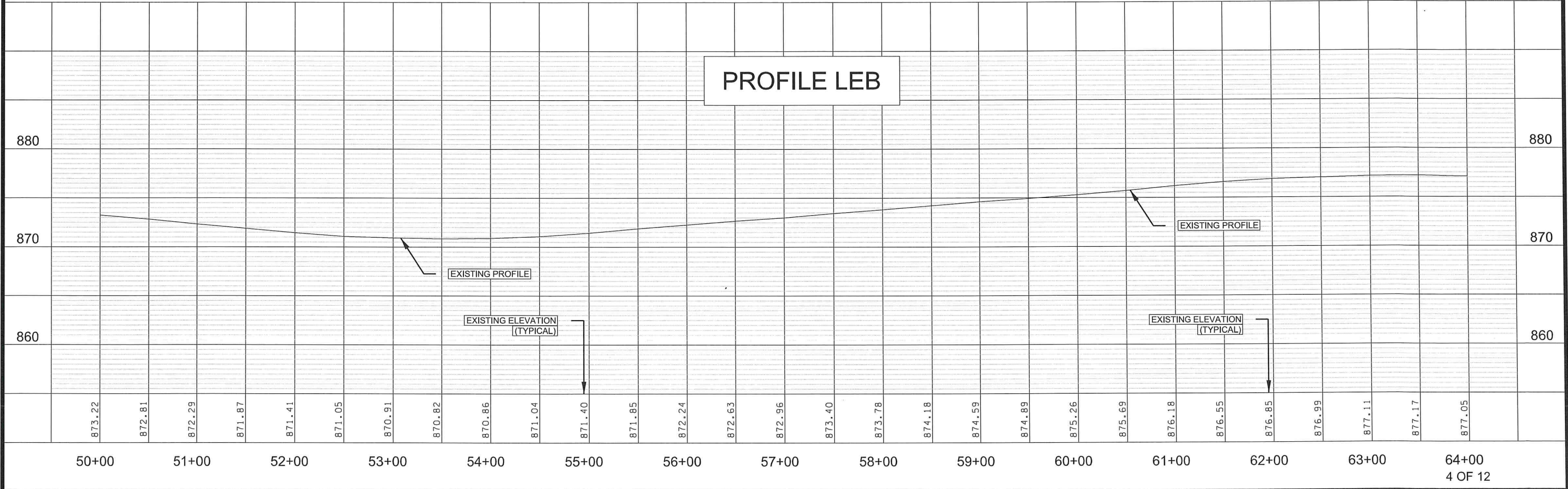


SAP 002-716-021  
 SAP 199-104-014

CONSTRUCTION PLAN  
 BUNKER LAKE BLVD  
 STA 36+00.00 TO 50+00.00  
 Sheet 79 of 259 Sheets



### PROFILE LEB



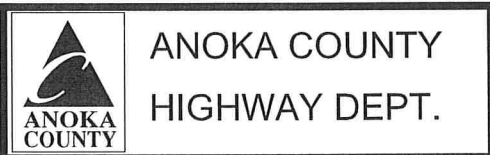
NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\002-716-021\Plan\002716021 PP4.dgn      07/27/2021      1:47:49 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.

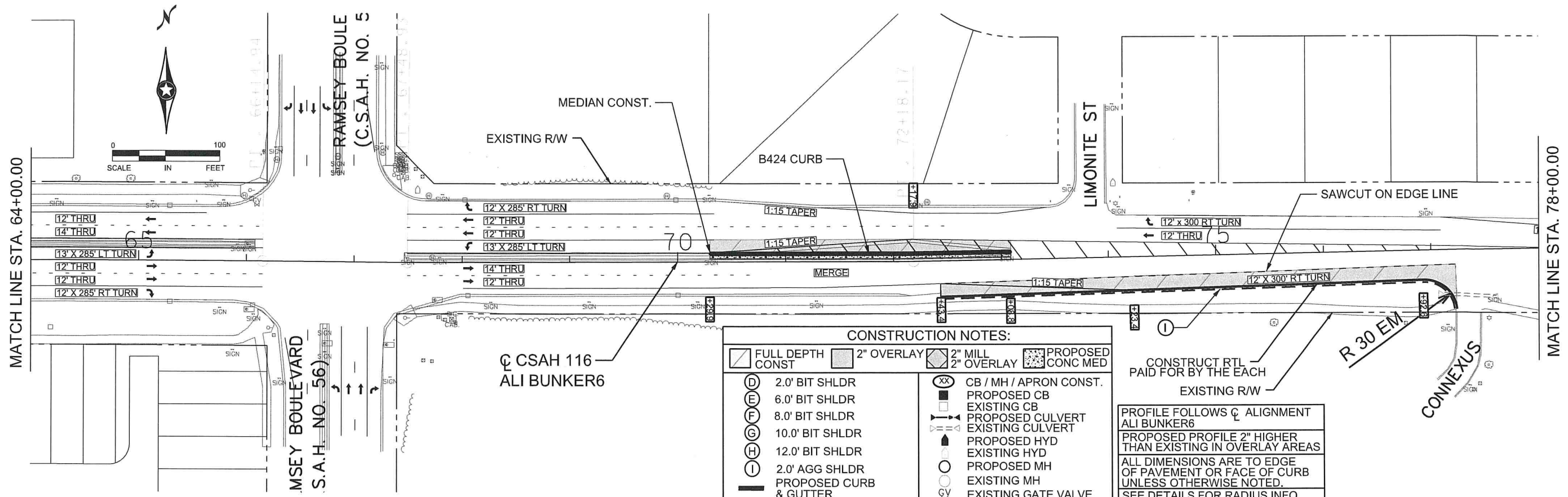
PRINT NAME: NICHOLAS J. DOBDA  
 SIGNATURE: *N. Dobda*  
 DATE: 8/3/21      LICENSE NO. 49046

DRAWN BY: JCF      DATE: 07/01/21  
 DESIGN BY: JCF      DATE: 07/01/21  
 CHECKED BY: NJD      DATE: 07/09/21



SAP 002-716-021  
 SAP 199-104-014





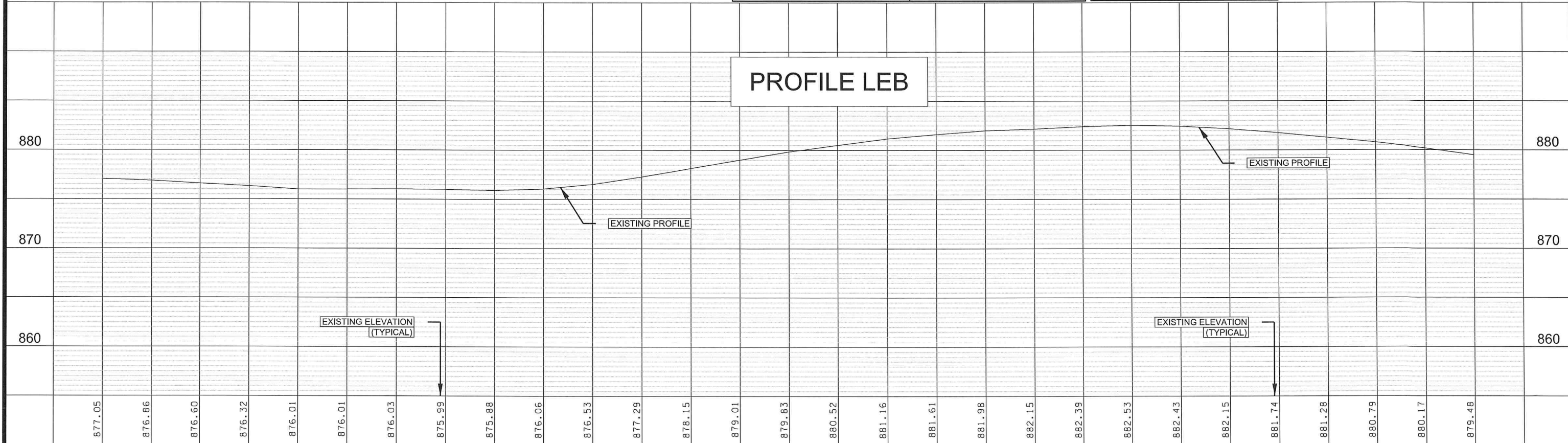
**CONSTRUCTION NOTES:**

FULL DEPTH CONST	2" OVERLAY	2" MILL 2" OVERLAY	PROPOSED CONC MED
2.0' BIT SHLDR	6.0' BIT SHLDR	8.0' BIT SHLDR	10.0' BIT SHLDR
12.0' BIT SHLDR	2.0' AGG SHLDR	PROPOSED CURB & GUTTER	CB / MH / APRON CONST.
PROPOSED CB	EXISTING CB	PROPOSED CULVERT	EXISTING CULVERT
PROPOSED HYD	EXISTING HYD	PROPOSED MH	EXISTING MH
EXISTING GATE VALVE			

CONSTRUCT RTL PAID FOR BY THE EACH EXISTING R/W

PROFILE FOLLOWS  $\phi$  ALIGNMENT ALI BUNKER6  
 PROPOSED PROFILE 2" HIGHER THAN EXISTING IN OVERLAY AREAS  
 ALL DIMENSIONS ARE TO EDGE OF PAVEMENT OR FACE OF CURB UNLESS OTHERWISE NOTED.  
 SEE DETAILS FOR RADIUS INFO.

**PROFILE LEB**



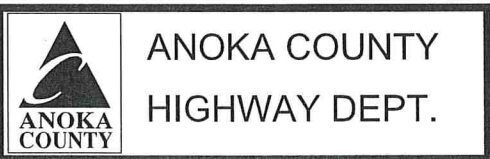
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64+00	65+00	66+00	67+00	68+00	69+00	70+00	71+00	72+00	73+00	74+00	75+00	76+00	77+00	78+00														

NO	DATE	BY	CKD	APPR	REVISION
NAME: P:\002-716-021\Plan\002716021 PP5.dgn					07/27/2021 1:47:49 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.

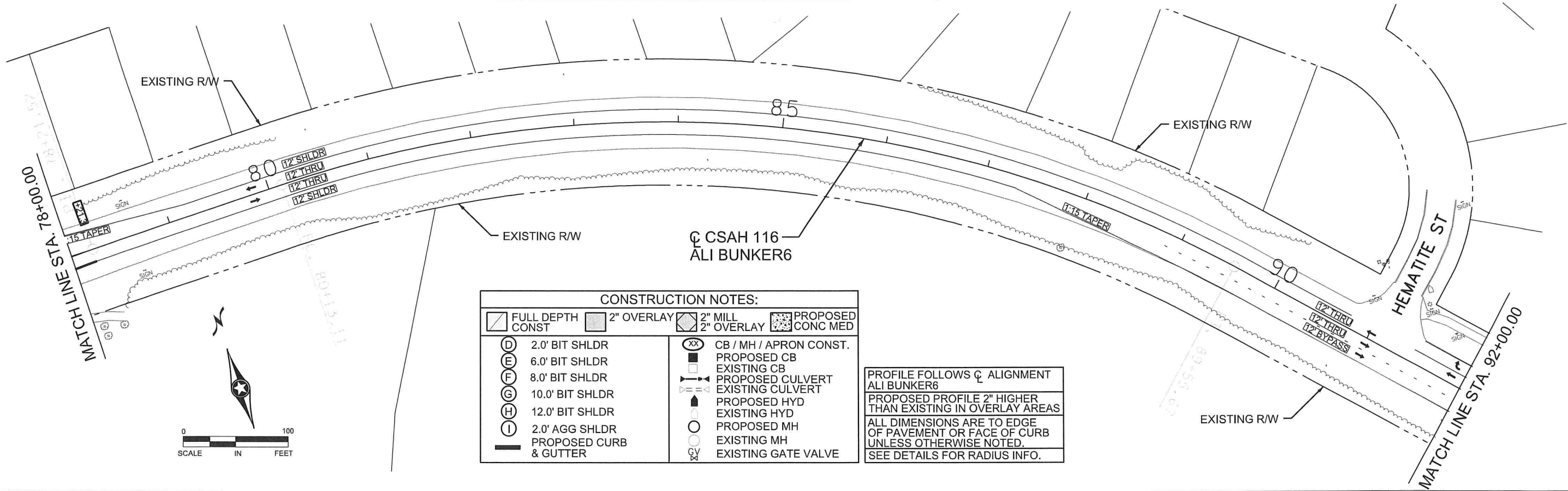
PRINT NAME: NICHOLAS J. DOBDA  
 SIGNATURE: *N. Dobda*  
 DATE: 8/3/21 LICENSE NO. 49046

DRAWN BY JCF DATE 07/01/21  
 DESIGN BY JCF DATE 07/01/21  
 CHECKED BY NJD DATE 07/09/21



SAP 002-716-021  
 SAP 199-104-014

CONSTRUCTION PLAN  
 BUNKER LAKE BLVD  
 STA 64+00.00 TO 78+00.00  
 Sheet 81 of 259 Sheets

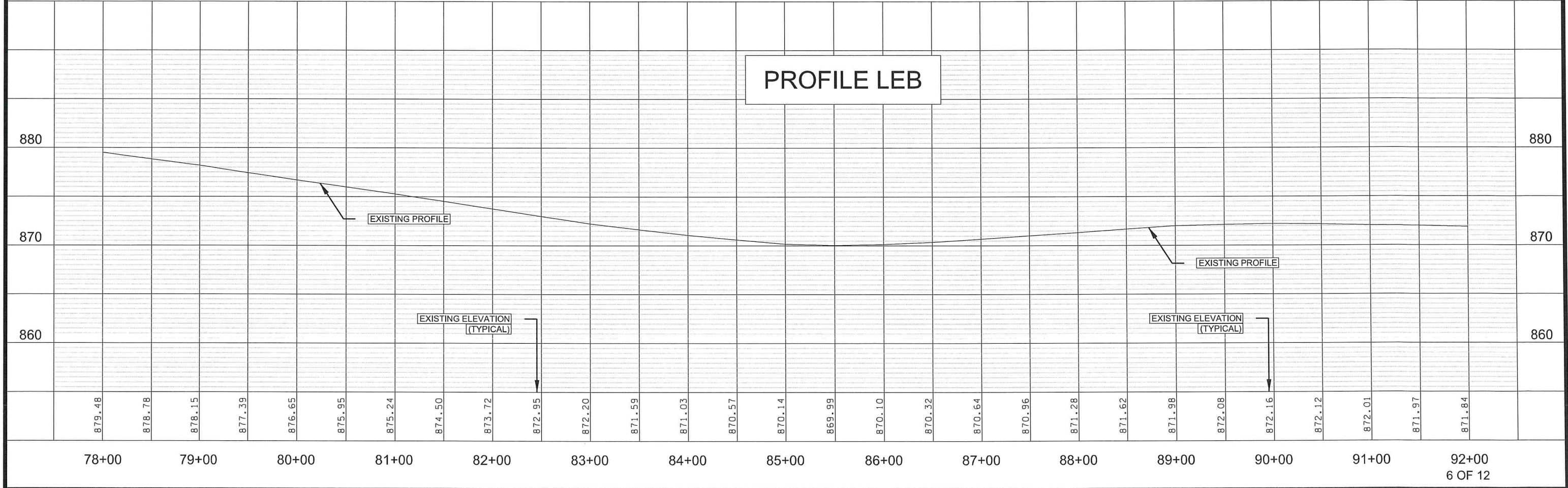


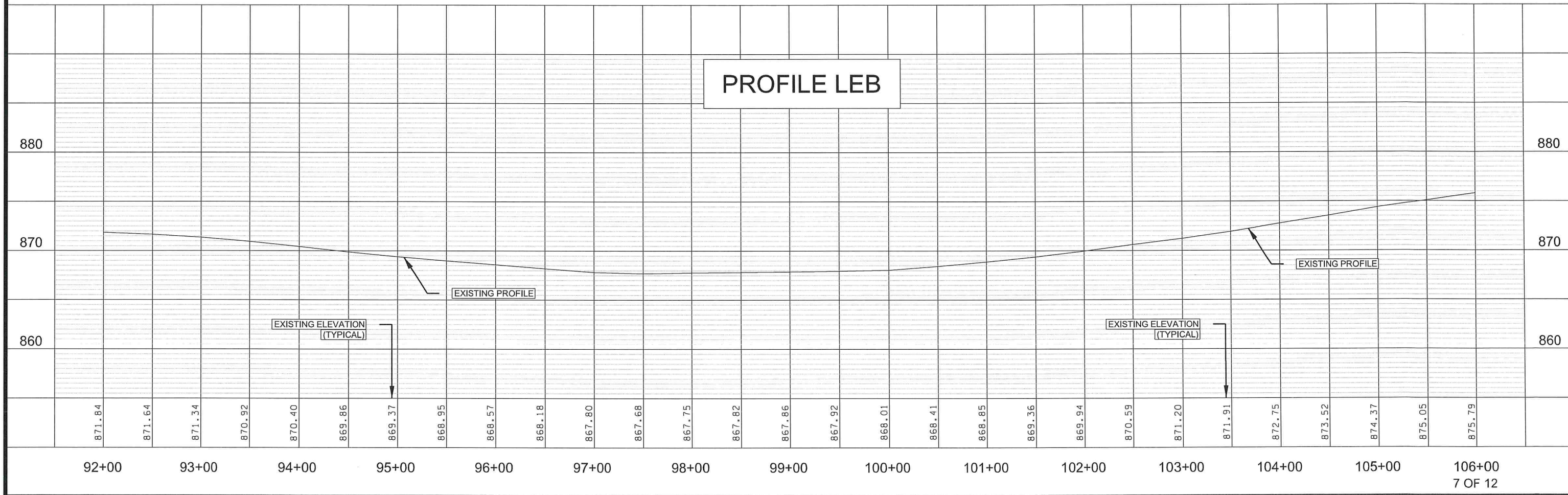
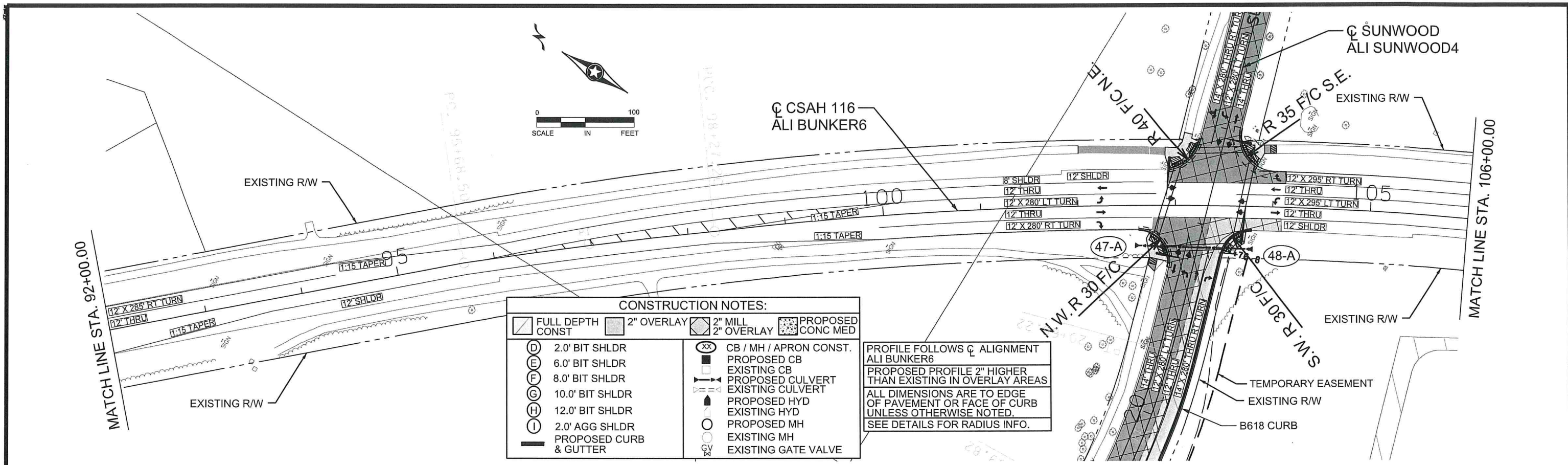
**CONSTRUCTION NOTES:**

FULL DEPTH CONST	2" OVERLAY	2" MILL 2" OVERLAY	PROPOSED CONC MED
2.0' BIT SHLDR	6.0' BIT SHLDR	8.0' BIT SHLDR	10.0' BIT SHLDR
12.0' BIT SHLDR	2.0' AGG SHLDR	PROPOSED CURB & GUTTER	
CB / MH / APRON CONST.	PROPOSED CB	EXISTING CB	PROPOSED CULVERT
EXISTING CULVERT	PROPOSED HYD	EXISTING HYD	PROPOSED MH
EXISTING MH	EXISTING MH	EXISTING GATE VALVE	

PROFILE FOLLOWS  $\phi$  ALIGNMENT ALI BUNKER6  
 PROPOSED PROFILE 2" HIGHER THAN EXISTING IN OVERLAY AREAS  
 ALL DIMENSIONS ARE TO EDGE OF PAVEMENT OR FACE OF CURB UNLESS OTHERWISE NOTED.  
 SEE DETAILS FOR RADIUS INFO.

**PROFILE LEB**



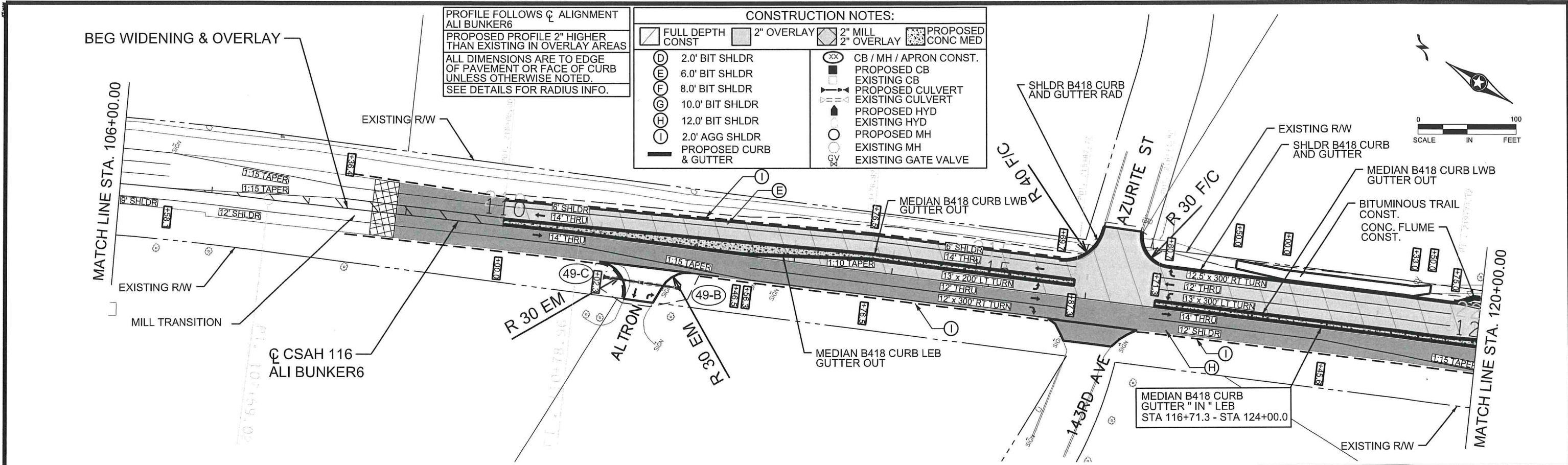
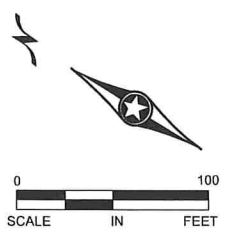


BEG WIDENING & OVERLAY

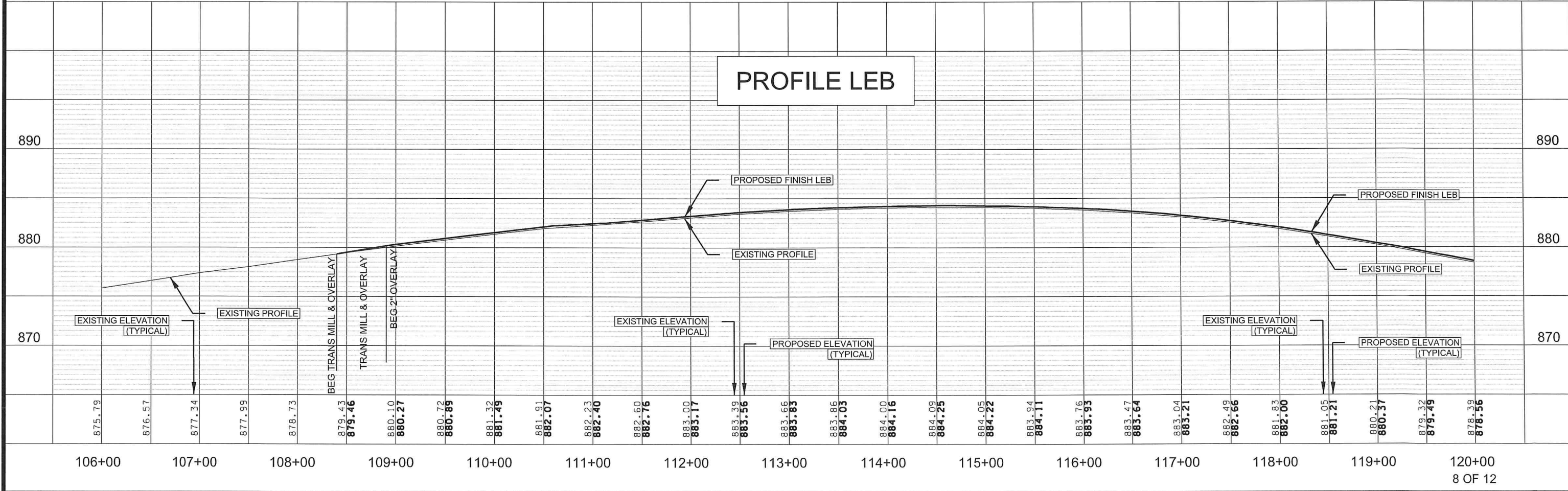
PROFILE FOLLOWS  $\phi$  ALIGNMENT ALI BUNKER6  
 PROPOSED PROFILE 2" HIGHER THAN EXISTING IN OVERLAY AREAS  
 ALL DIMENSIONS ARE TO EDGE OF PAVEMENT OR FACE OF CURB UNLESS OTHERWISE NOTED.  
 SEE DETAILS FOR RADIUS INFO.

**CONSTRUCTION NOTES:**

	FULL DEPTH CONST		2" OVERLAY		2" MILL 2" OVERLAY		PROPOSED CONC MED
	2.0' BIT SHLDR		CB / MH / APRON CONST.		PROPOSED CB		EXISTING CB
	6.0' BIT SHLDR		PROPOSED CULVERT		EXISTING CULVERT		PROPOSED HYD
	8.0' BIT SHLDR		EXISTING HYD		PROPOSED MH		EXISTING MH
	10.0' BIT SHLDR		EXISTING GATE VALVE				
	12.0' BIT SHLDR						
	2.0' AGG SHLDR						
	PROPOSED CURB & GUTTER						



**PROFILE LEB**

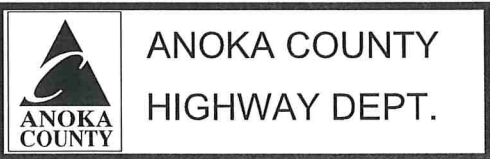


NO	DATE	BY	CKD	APPR	REVISION

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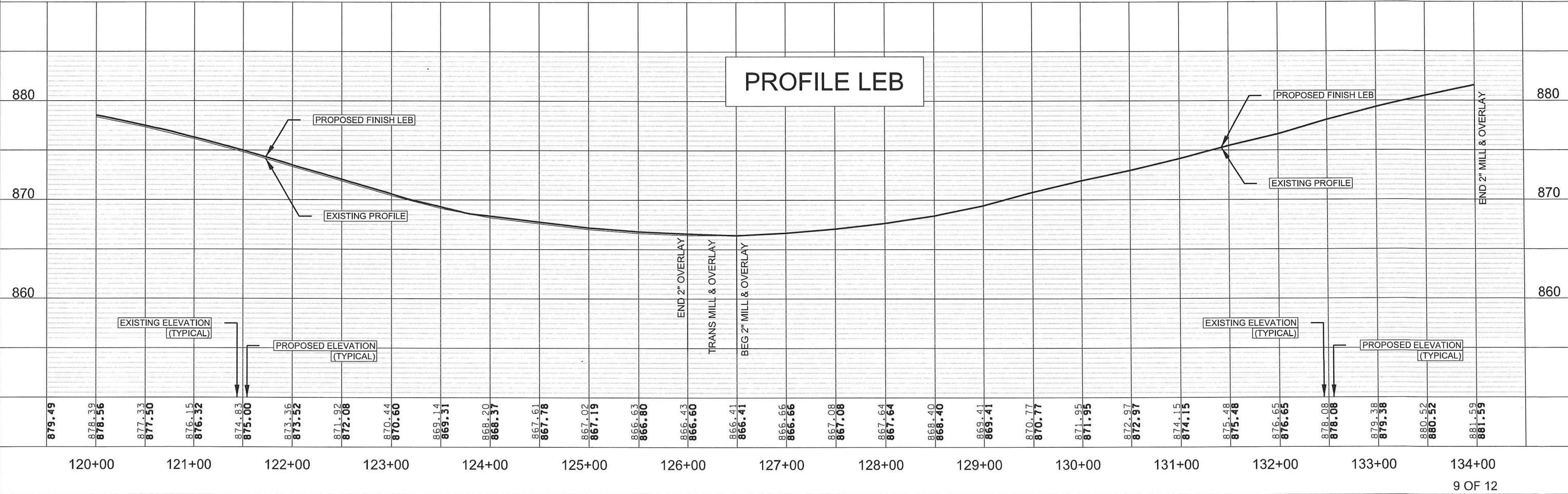
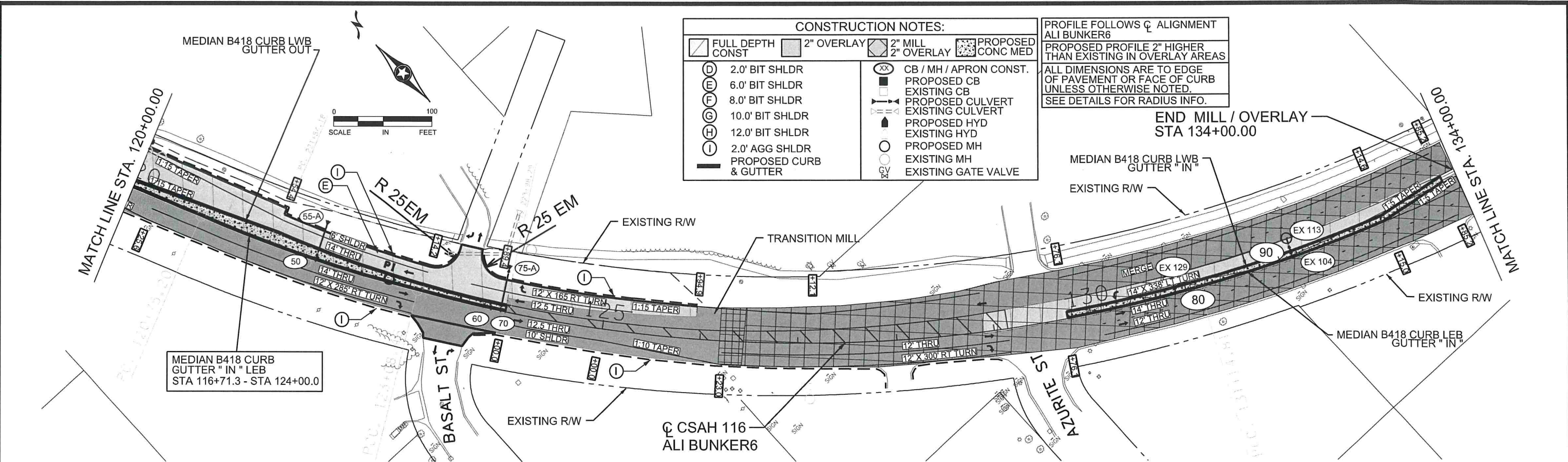
I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.  
 PRINT NAME: NICHOLAS J. DOBDA  
 SIGNATURE: *Nicholas J. Dobda*  
 DATE: 8/31/21 LICENSE NO. 49046

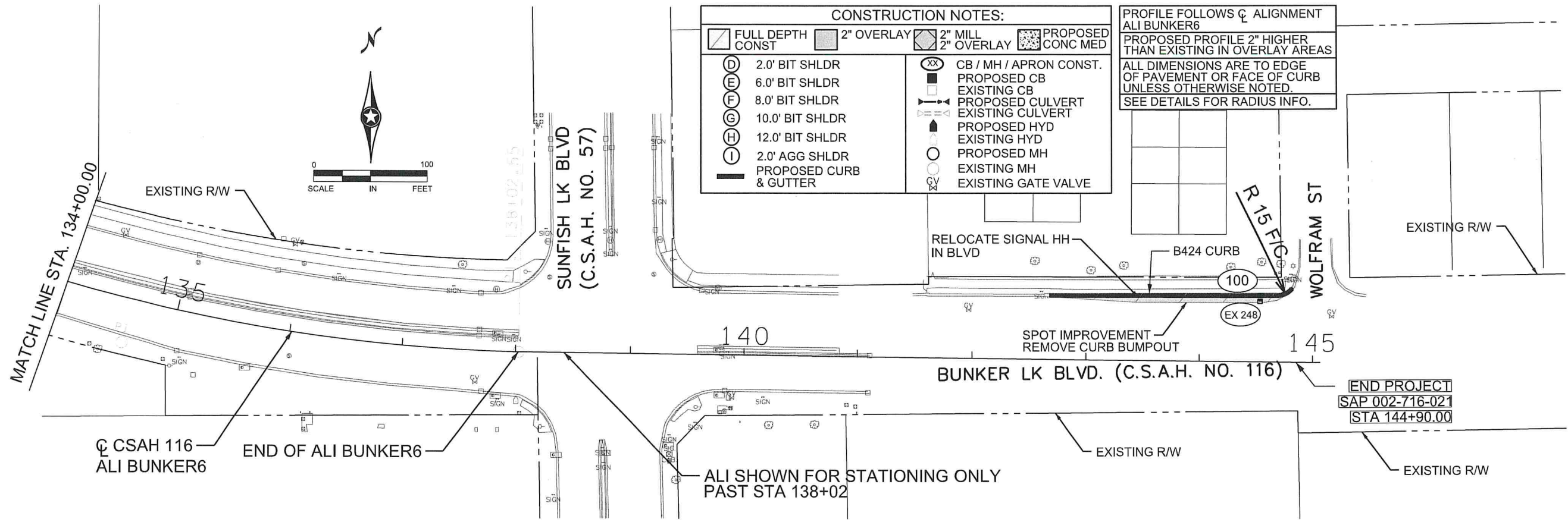
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 DESIGN BY: JCF DATE: 07/01/21  
 CHECKED BY: NJD DATE: 07/09/21



SAP 002-716-021  
 SAP 199-104-014

CONSTRUCTION PLAN  
 BUNKER LAKE BLVD  
 STA 106+00.00 TO 120+00.00  
 Sheet 84 of 259 Sheets





**PROFILE LEB**



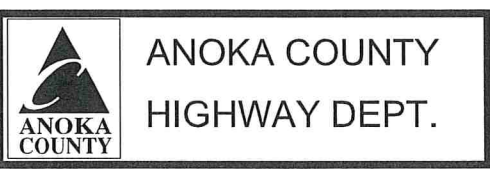
NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\002-716-021\Plan\002716021 PP10.dgn 07/27/2021 1:47:54 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: NICHOLAS J. DOBDA  
 SIGNATURE: *[Signature]*  
 DATE: 8/31/21 LICENSE NO. 49046

DRAWN BY: JCF DATE: 07/01/21  
 DESIGN BY: JCF DATE: 07/01/21  
 CHECKED BY: NJD DATE: 07/09/21



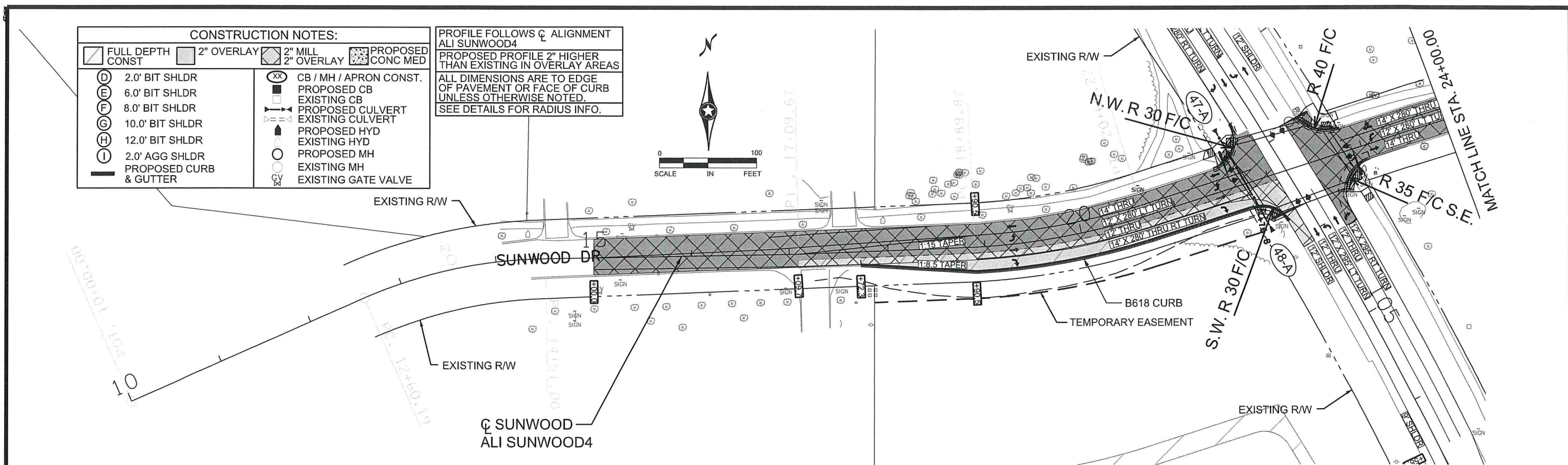
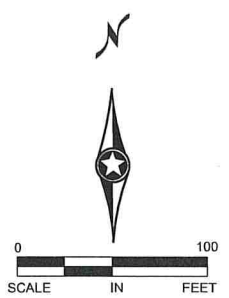
SAP 002-716-021  
 SAP 199-104-014

CONSTRUCTION PLAN  
 BUNKER LAKE BLVD  
 STA 134+00.00 TO 183+02.55  
 Sheet 86 of 259 Sheets

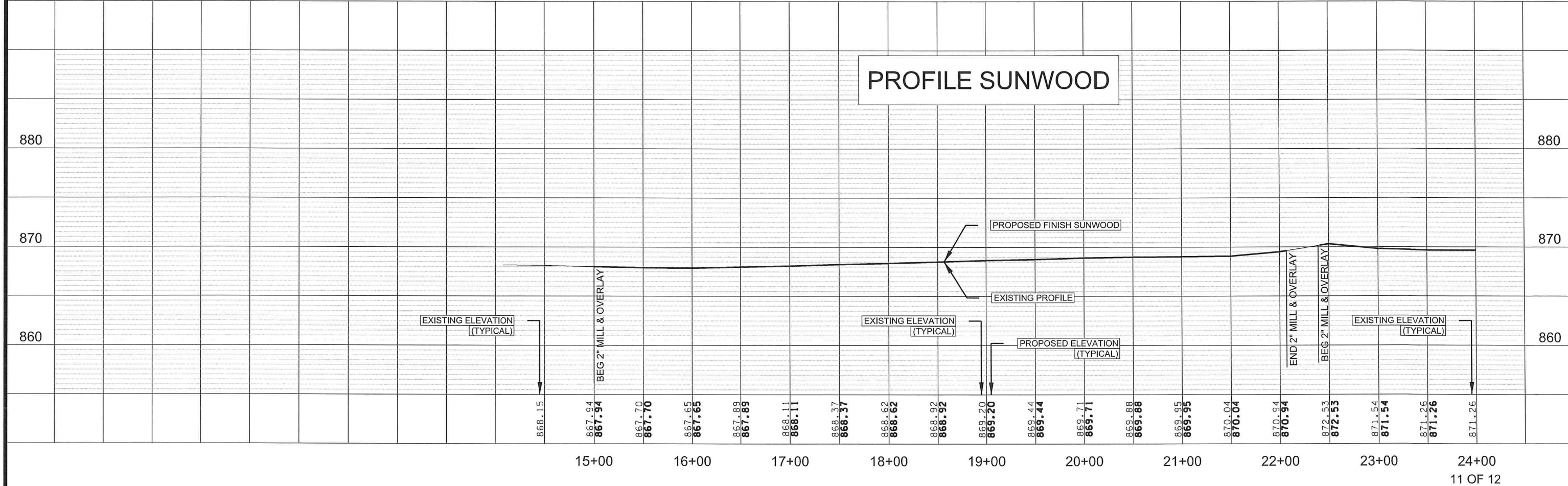
**CONSTRUCTION NOTES:**

	FULL DEPTH CONST		2" OVERLAY		2" MILL		PROPOSED CONC MED
(D)	2.0' BIT SHLDR	(XX)	CB / MH / APRON CONST.	(Hatched)	PROPOSED CB	(Dashed)	PROPOSED CULVERT
(E)	6.0' BIT SHLDR	(Solid)	EXISTING CB	(Dashed)	EXISTING CULVERT	(Dashed)	PROPOSED HYD
(F)	8.0' BIT SHLDR	(Dashed)	PROPOSED HYD	(Dashed)	EXISTING HYD	(Circle)	PROPOSED MH
(G)	10.0' BIT SHLDR	(Dashed)	EXISTING MH	(Circle)	EXISTING MH	(Circle with X)	EXISTING GATE VALVE
(H)	12.0' BIT SHLDR	(Dashed)	PROPOSED CURB & GUTTER	(Circle with X)	EXISTING GATE VALVE		

PROFILE FOLLOWS  $\phi$  ALIGNMENT ALI SUNWOOD4  
 PROPOSED PROFILE 2" HIGHER THAN EXISTING IN OVERLAY AREAS  
 ALL DIMENSIONS ARE TO EDGE OF PAVEMENT OR FACE OF CURB UNLESS OTHERWISE NOTED.  
 SEE DETAILS FOR RADIUS INFO.



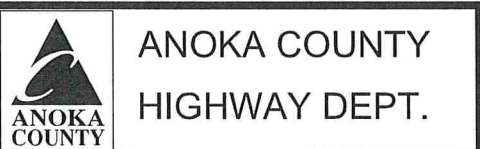
**PROFILE SUNWOOD**



1	7/21/21	JCF		ADJUSTED BACKGROUND ON SUNWOOD RTL
NO	DATE	BY	CKD	APPR

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: NICHOLAS J. DOBDA  
 SIGNATURE: *[Signature]*  
 DATE: 8/3/21 LICENSE NO. 49046

DRAWN BY JCF DATE 07/01/21  
 DESIGN BY JCF DATE 07/01/21  
 CHECKED BY NJD DATE 07/09/21



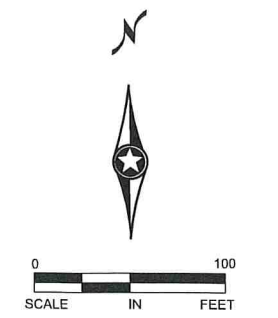
SAP 002-716-021  
 SAP 199-104-014

CONSTRUCTION PLAN  
 SUNWOOD DR  
 STA 10+00.00 TO 24+00.00  
 Sheet 87 of 259 Sheets

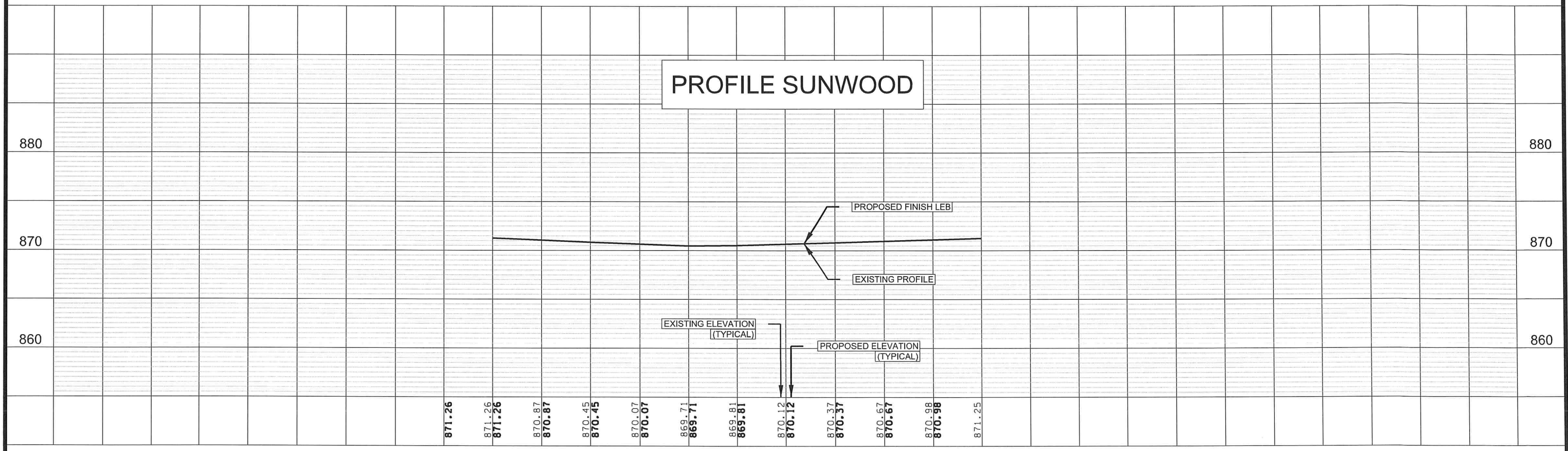
**CONSTRUCTION NOTES:**

FULL DEPTH CONST	2" OVERLAY	2" MILL OVERLAY	PROPOSED CONC MED
2.0' BIT SHLDR	CB / MH / APRON CONST.	PROPOSED CB	EXISTING CB
6.0' BIT SHLDR	PROPOSED CULVERT	EXISTING CULVERT	PROPOSED HYD
8.0' BIT SHLDR	PROPOSED MH	EXISTING MH	EXISTING MH
10.0' BIT SHLDR	EXISTING GATE VALVE	EXISTING GATE VALVE	
12.0' BIT SHLDR			
2.0' AGG SHLDR			
PROPOSED CURB & GUTTER			

PROFILE FOLLOWS  $\phi$  ALIGNMENT ALI SUNWOOD4  
 PROPOSED PROFILE 2" HIGHER THAN EXISTING IN OVERLAY AREAS  
 ALL DIMENSIONS ARE TO EDGE OF PAVEMENT OR FACE OF CURB UNLESS OTHERWISE NOTED.  
 SEE DETAILS FOR RADIUS INFO.



**PROFILE SUNWOOD**



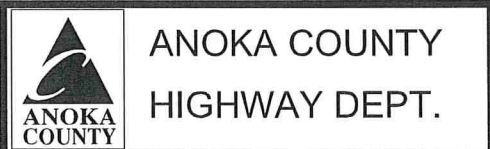
24+00      25+00      26+00      27+00      28+00      29+00

NO	DATE	BY	CHKD	APPR	REVISION

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I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.  
 PRINT NAME: NICHOLAS J. DOBDA  
 SIGNATURE:   
 DATE: 8/3/21      LICENSE NO. 49046

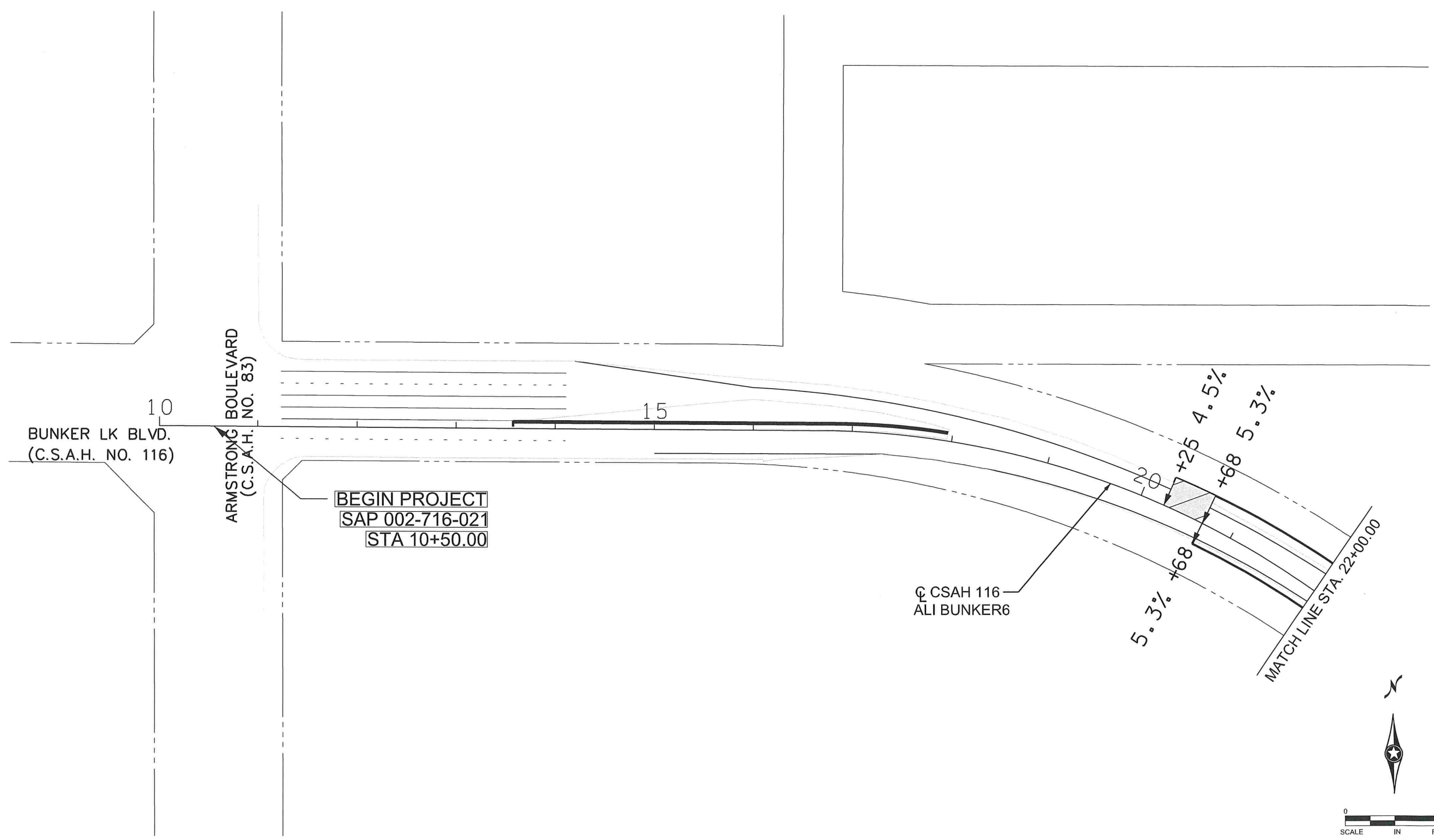
DRAWN BY: JCF      DATE: 07/01/21  
 DESIGN BY: JCF      DATE: 07/01/21  
 CHECKED BY: NJD      DATE: 07/09/21



SAP 002-716-021  
 SAP 199-104-014

CONSTRUCTION PLAN  
 SUNWOOD DR  
 STA 10+00.00 TO 29+52.50  
 Sheet 88 of 259 Sheets

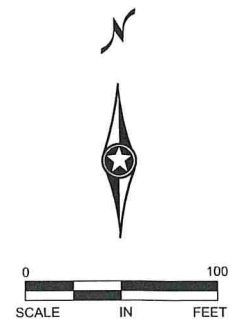




**BEGIN PROJECT**  
 SAP 002-716-021  
 STA 10+50.00

☐ CSAH 116  
 ALI BUNKER6

MATCH LINE STA. 22+00.00

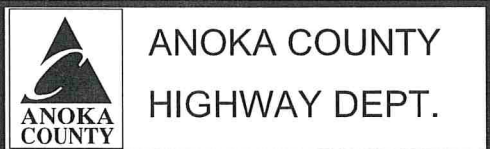


NO	DATE	BY	CKD	APPR	REVISION

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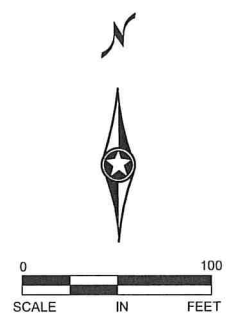
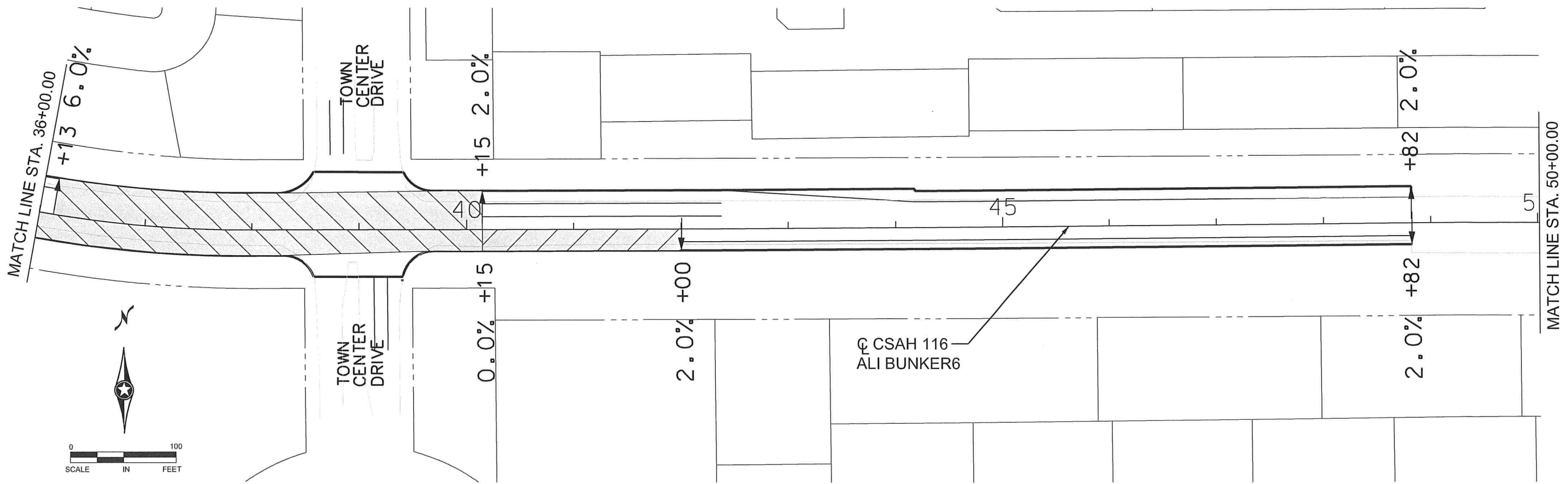
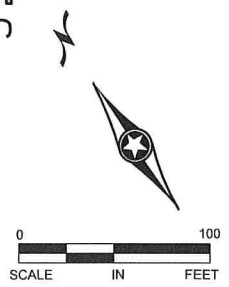
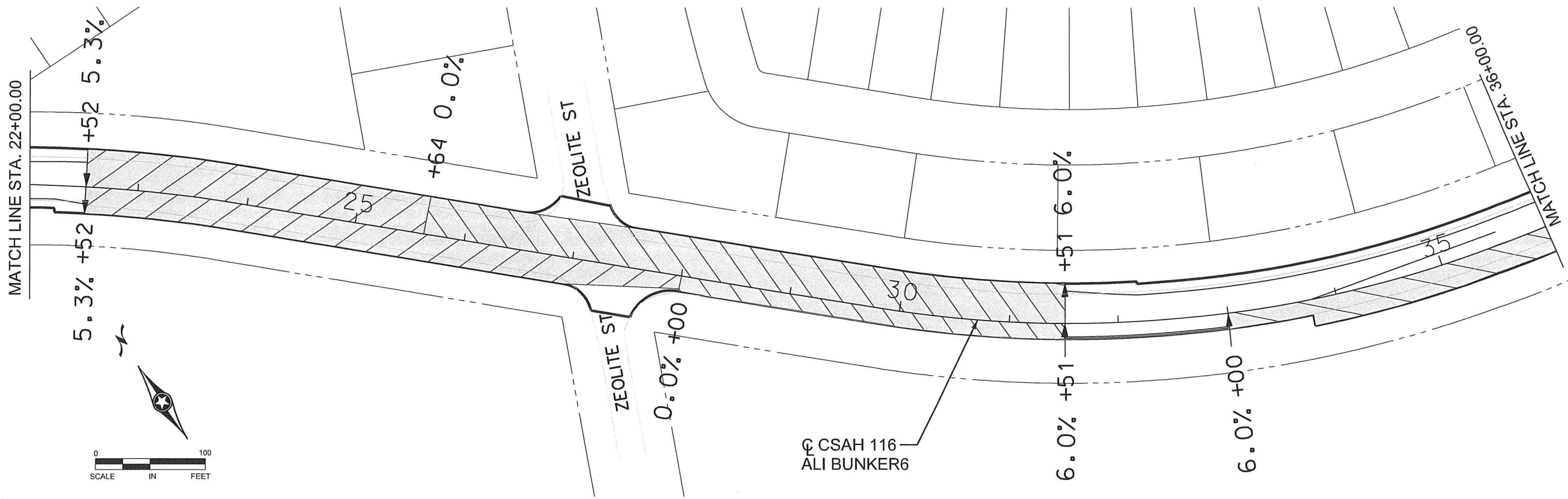
I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.  
 PRINT NAME: NICHOLAS J. DOBDA  
 SIGNATURE: *Nicholas J. Dobda*  
 DATE: 8/3/21      LICENSE NO. 49046

DRAWN BY JCF      DATE 07/01/21  
 DESIGN BY JCF      DATE 07/01/21  
 CHECKED BY NJD      DATE 07/09/21



SAP 002-716-021  
 SAP 199-104-014

SUPER ELEVATION  
 FULL DEPTH CONST. AREAS  
 BUNKER LAKE BLVD  
 STA 10+00.00 TO 22+00.00  
 Sheet 89 of 259 Sheets



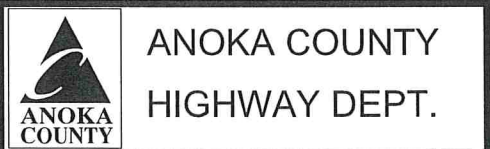
2 OF 5

NO	DATE	BY	CKD	APPR	REVISION

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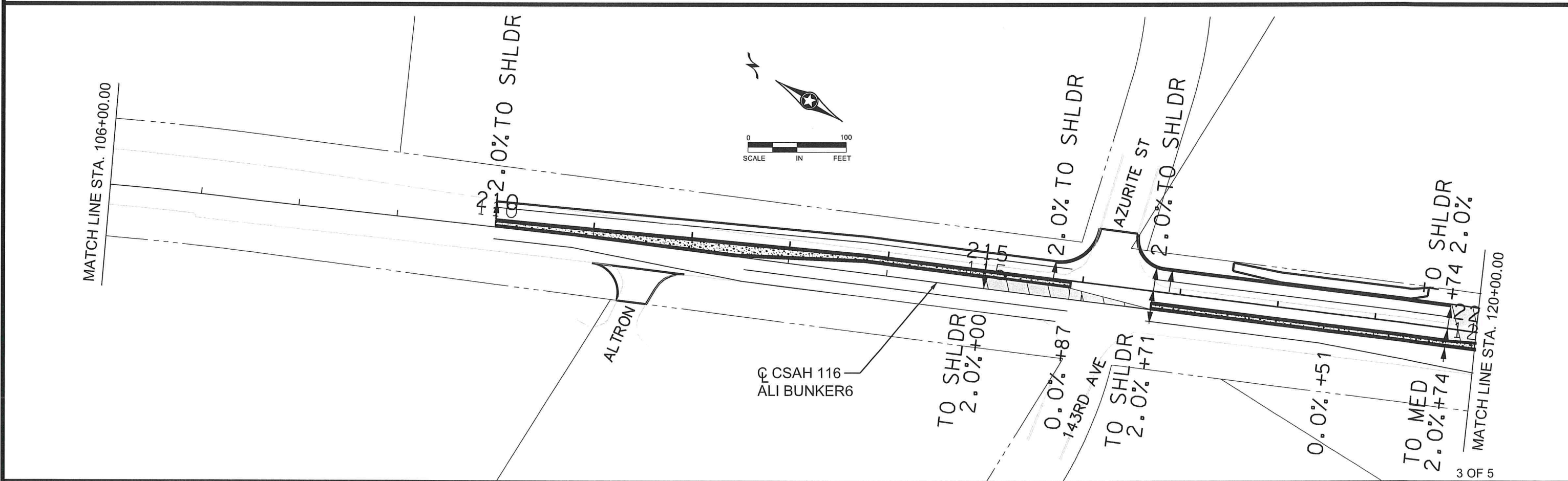
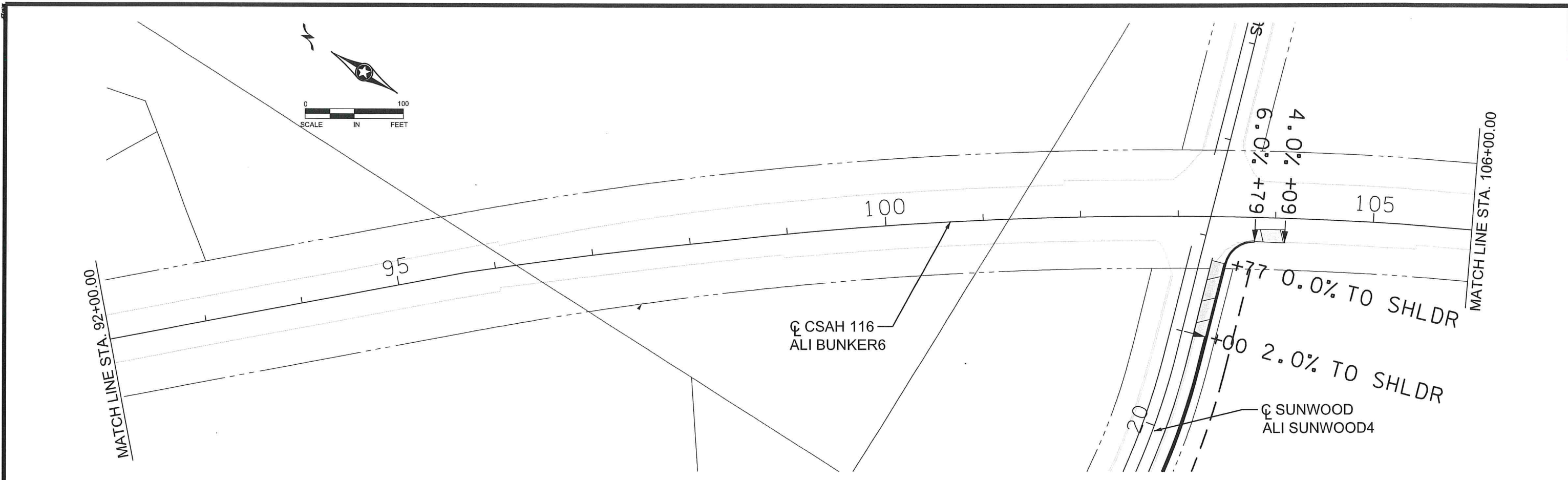
I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.  
 PRINT NAME: NICHOLAS J. DOBDA  
 SIGNATURE: *[Signature]*  
 DATE: 8/3/21 LICENSE NO. 49046

DRAWN BY JCF DATE 07/01/21  
 DESIGN BY JCF DATE 07/01/21  
 CHECKED BY NJD DATE 07/09/21



SAP 002-716-021  
 SAP 199-104-014

SUPER ELEVATION  
 FULL DEPTH CONST. AREAS  
 BUNKER LAKE BLVD  
 STA 22+00.00 TO 50+00.00  
 Sheet 90 of 259 Sheets

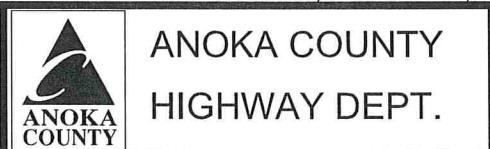


NO	DATE	BY	CKD	APPR	REVISION

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: NICHOLAS J. DOBDA  
 SIGNATURE: *Nicholas J. Dobda*  
 DATE: 8/31/21 LICENSE NO. 49046

DRAWN BY JCF DATE 07/01/21  
 DESIGN BY JCF DATE 07/01/21  
 CHECKED BY NJD DATE 07/09/21

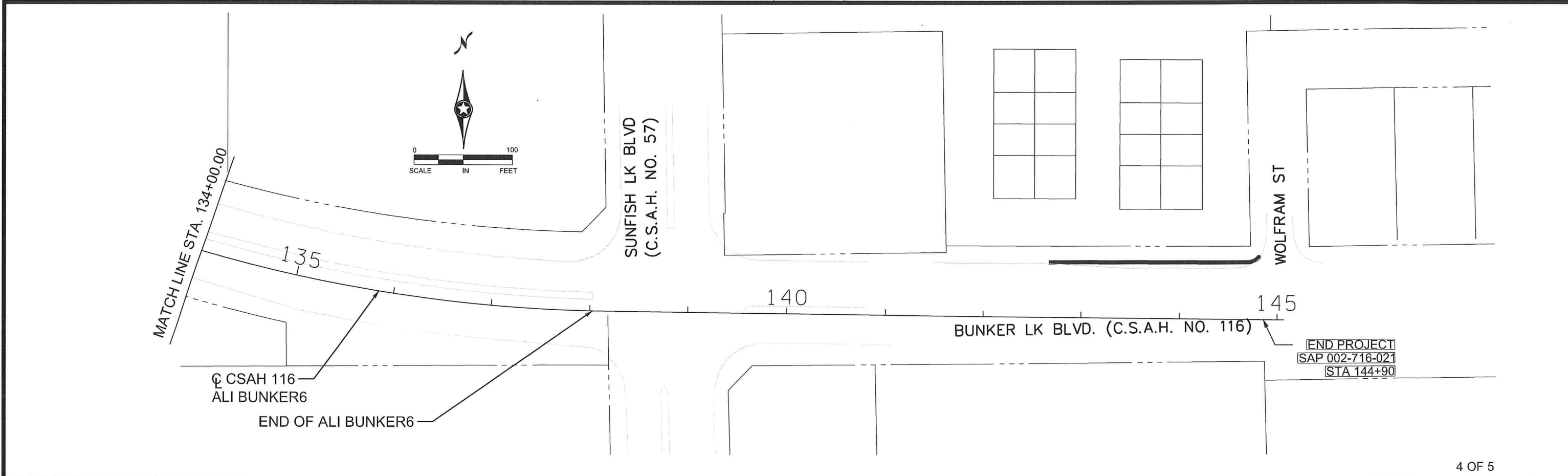
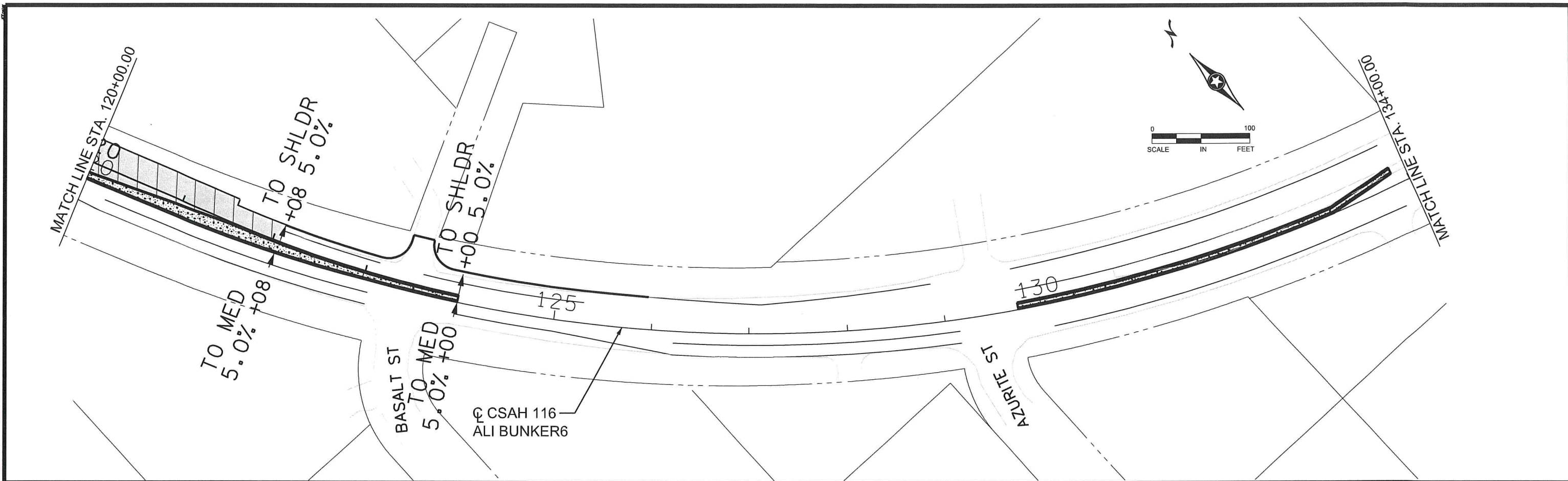


SAP 002-716-021  
 SAP 199-104-014

3 OF 5

SUPER ELEVATION  
 FULL DEPTH CONST. AREAS  
 BUNKER LAKE BLVD  
 STA 92+00.00 TO 120+00.00

Sheet 91 of 259 Sheets



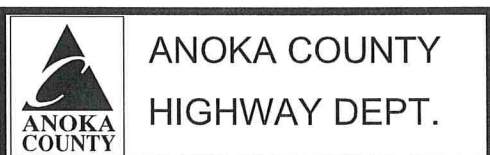
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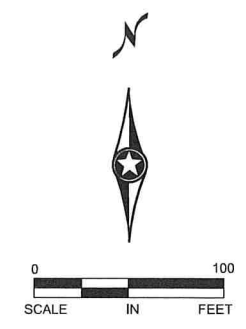
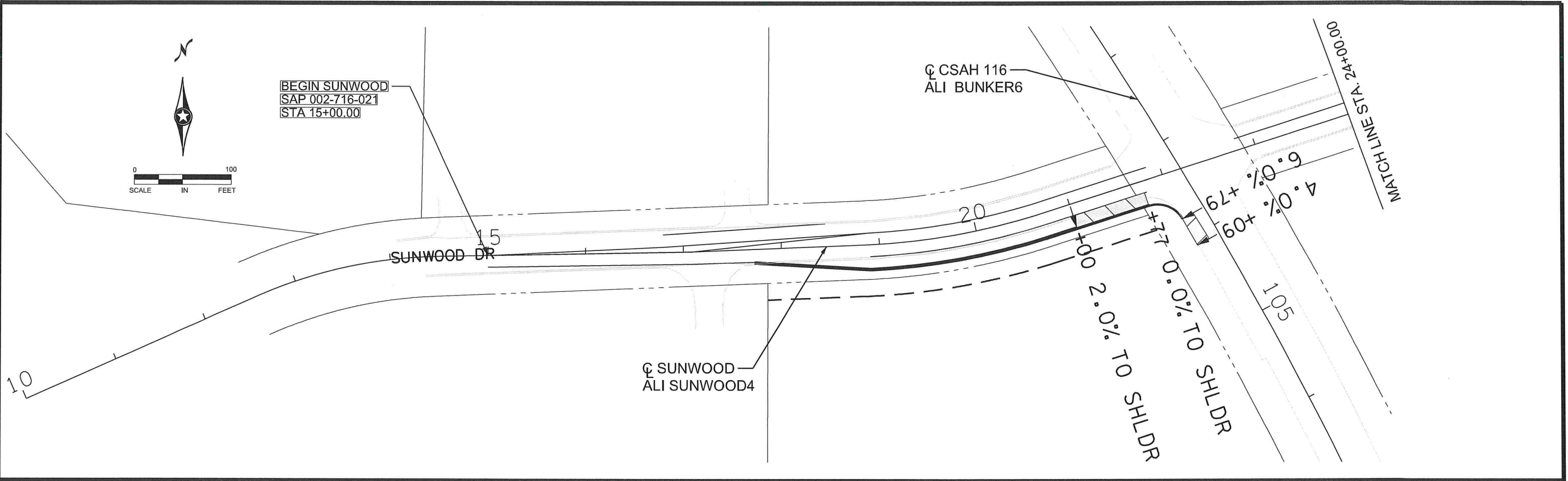
PRINT NAME: NICHOLAS J. DOBDA  
 SIGNATURE: *N. Dobda*  
 DATE: 8/31/21 LICENSE NO. 49046

DRAWN BY JCF DATE 07/01/21  
 DESIGN BY JCF DATE 07/01/21  
 CHECKED BY NJD DATE 07/09/21



SAP 002-716-021  
 SAP 199-104-014

SUPER ELEVATION  
 FULL DEPTH CONST. AREAS  
 BUNKER LAKE BLVD  
 STA 120+00.00 TO 144+90.00  
 Sheet 92 of 259 Sheets



BEGIN SUNWOOD  
SAP 002-716-021  
STA 15+00.00

☉ CSAH 116  
ALI BUNKER6

MATCH LINE STA. 24+00.00

SUNWOOD DR

☉ SUNWOOD  
ALI SUNWOOD4

2.0% TO SHLDR

0.0% TO SHLDR

4.0%  
6.0%

105

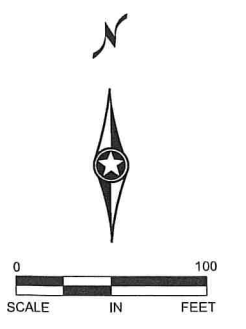
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MATCH LINE STA. 24+00.00

SUNWOOD DR

☉ SUNWOOD  
ALI SUNWOOD4

END SUNWOOD  
SAP 002-716-021  
STA 29+52.50

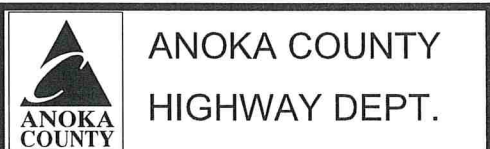


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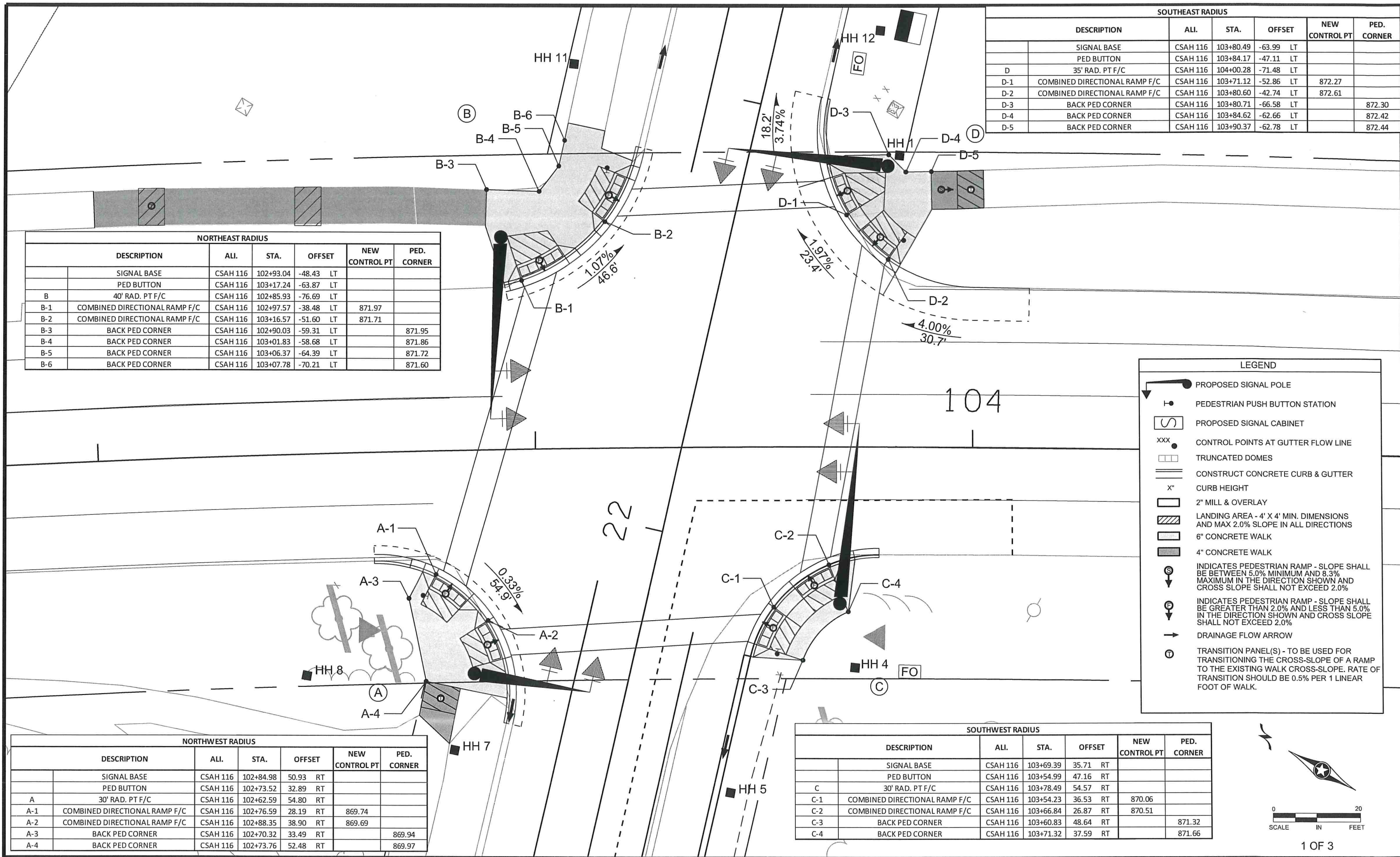
I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.  
 PRINT NAME: NICHOLAS J. DOBDA  
 SIGNATURE: *NJD*  
 DATE: 8/3/21      LICENSE NO. 49046

DRAWN BY JCF      DATE 07/01/21  
 DESIGN BY JCF      DATE 07/01/21  
 CHECKED BY NJD      DATE 07/09/21



SAP 002-716-021  
SAP 199-104-014

SUPER ELEVATION  
FULL DEPTH CONST. AREAS  
SUNWOOD DR  
STA 10+00.00 TO 29+52.50  
Sheet 93 of 259 Sheets



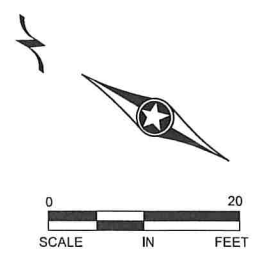
SOUTHEAST RADIUS					
DESCRIPTION	ALI.	STA.	OFFSET	NEW CONTROL PT	PED. CORNER
SIGNAL BASE	CSAH 116	103+80.49	-63.99 LT		
PED BUTTON	CSAH 116	103+84.17	-47.11 LT		
D	35' RAD. PT F/C	CSAH 116	104+00.28	-71.48 LT	
D-1	COMBINED DIRECTIONAL RAMP F/C	CSAH 116	103+71.12	-52.86 LT	872.27
D-2	COMBINED DIRECTIONAL RAMP F/C	CSAH 116	103+80.60	-42.74 LT	872.61
D-3	BACK PED CORNER	CSAH 116	103+80.71	-66.58 LT	872.30
D-4	BACK PED CORNER	CSAH 116	103+84.62	-62.66 LT	872.42
D-5	BACK PED CORNER	CSAH 116	103+90.37	-62.78 LT	872.44

NORTHEAST RADIUS					
DESCRIPTION	ALI.	STA.	OFFSET	NEW CONTROL PT	PED. CORNER
SIGNAL BASE	CSAH 116	102+93.04	-48.43 LT		
PED BUTTON	CSAH 116	103+17.24	-63.87 LT		
B	40' RAD. PT F/C	CSAH 116	102+85.93	-76.69 LT	
B-1	COMBINED DIRECTIONAL RAMP F/C	CSAH 116	102+97.57	-38.48 LT	871.97
B-2	COMBINED DIRECTIONAL RAMP F/C	CSAH 116	103+16.57	-51.60 LT	871.71
B-3	BACK PED CORNER	CSAH 116	102+90.03	-59.31 LT	871.95
B-4	BACK PED CORNER	CSAH 116	103+01.83	-58.68 LT	871.86
B-5	BACK PED CORNER	CSAH 116	103+06.37	-64.39 LT	871.72
B-6	BACK PED CORNER	CSAH 116	103+07.78	-70.21 LT	871.60

LEGEND	
	PROPOSED SIGNAL POLE
	PEDESTRIAN PUSH BUTTON STATION
	PROPOSED SIGNAL CABINET
	CONTROL POINTS AT GUTTER FLOW LINE
	TRUNCATED DOMES
	CONSTRUCT CONCRETE CURB & GUTTER
	CURB HEIGHT
	2" MILL & OVERLAY
	LANDING AREA - 4' X 4' MIN. DIMENSIONS AND MAX 2.0% SLOPE IN ALL DIRECTIONS
	6" CONCRETE WALK
	4" CONCRETE WALK
	INDICATES PEDESTRIAN RAMP - SLOPE SHALL BE BETWEEN 5.0% MINIMUM AND 8.3% MAXIMUM IN THE DIRECTION SHOWN AND CROSS SLOPE SHALL NOT EXCEED 2.0%
	INDICATES PEDESTRIAN RAMP - SLOPE SHALL BE GREATER THAN 2.0% AND LESS THAN 5.0% IN THE DIRECTION SHOWN AND CROSS SLOPE SHALL NOT EXCEED 2.0%
	DRAINAGE FLOW ARROW
	TRANSITION PANEL(S) - TO BE USED FOR TRANSITIONING THE CROSS-SLOPE OF A RAMP TO THE EXISTING WALK CROSS-SLOPE. RATE OF TRANSITION SHOULD BE 0.5% PER 1 LINEAR FOOT OF WALK.

NORTHWEST RADIUS					
DESCRIPTION	ALI.	STA.	OFFSET	NEW CONTROL PT	PED. CORNER
SIGNAL BASE	CSAH 116	102+84.98	50.93 RT		
PED BUTTON	CSAH 116	102+73.52	32.89 RT		
A	30' RAD. PT F/C	CSAH 116	102+62.59	54.80 RT	
A-1	COMBINED DIRECTIONAL RAMP F/C	CSAH 116	102+76.59	28.19 RT	869.74
A-2	COMBINED DIRECTIONAL RAMP F/C	CSAH 116	102+88.35	38.90 RT	869.69
A-3	BACK PED CORNER	CSAH 116	102+70.32	33.49 RT	869.94
A-4	BACK PED CORNER	CSAH 116	102+73.76	52.48 RT	869.97

SOUTHWEST RADIUS					
DESCRIPTION	ALI.	STA.	OFFSET	NEW CONTROL PT	PED. CORNER
SIGNAL BASE	CSAH 116	103+69.39	35.71 RT		
PED BUTTON	CSAH 116	103+54.99	47.16 RT		
C	30' RAD. PT F/C	CSAH 116	103+78.49	54.57 RT	
C-1	COMBINED DIRECTIONAL RAMP F/C	CSAH 116	103+54.23	36.53 RT	870.06
C-2	COMBINED DIRECTIONAL RAMP F/C	CSAH 116	103+66.84	26.87 RT	870.51
C-3	BACK PED CORNER	CSAH 116	103+60.83	48.64 RT	871.32
C-4	BACK PED CORNER	CSAH 116	103+71.32	37.59 RT	871.66



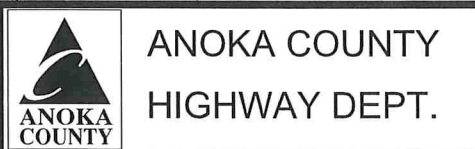
NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\002-716-021\Plan\002716021 IN\_1\_ALT.dgn 1:48:02 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: NICHOLAS J. DOBDA  
 SIGNATURE:   
 DATE: 8/3/21 LICENSE NO. 49046

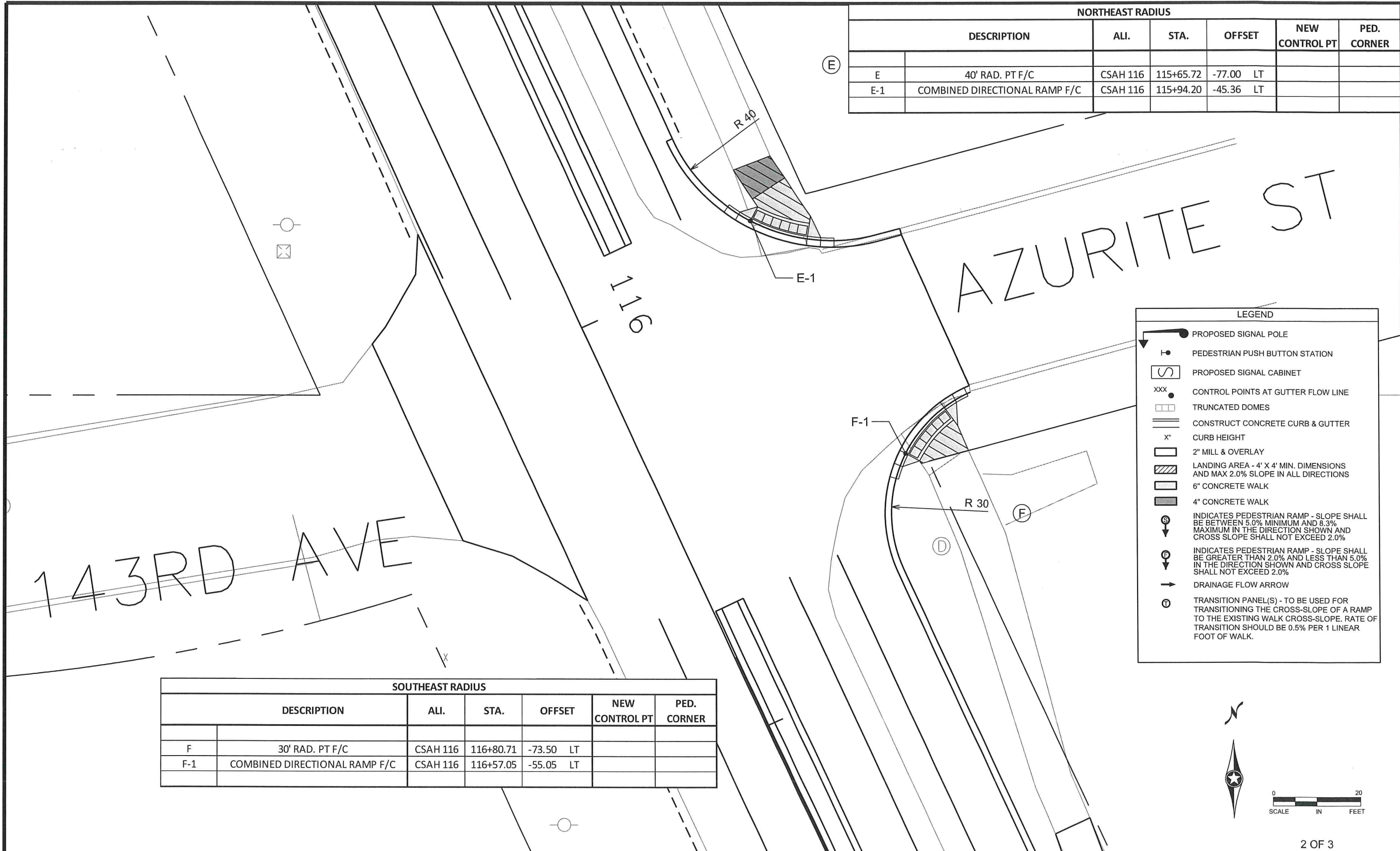
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 DESIGN BY: JCF DATE: 07/01/21  
 CHECKED BY: NJD DATE: 07/09/21



SAP 002-716-021  
 SAP 199-104-014

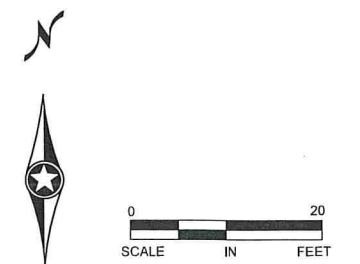
INTERSECTION DETAILS & PED RAMPS  
 Sheet 94 of 259 Sheets

NORTHEAST RADIUS						
	DESCRIPTION	ALI.	STA.	OFFSET	NEW CONTROL PT	PED. CORNER
E	40' RAD. PT F/C	CSAH 116	115+65.72	-77.00 LT		
E-1	COMBINED DIRECTIONAL RAMP F/C	CSAH 116	115+94.20	-45.36 LT		



LEGEND	
	PROPOSED SIGNAL POLE
	PEDESTRIAN PUSH BUTTON STATION
	PROPOSED SIGNAL CABINET
	CONTROL POINTS AT GUTTER FLOW LINE
	TRUNCATED DOMES
	CONSTRUCT CONCRETE CURB & GUTTER
	x" CURB HEIGHT
	LANDING AREA - 4' X 4' MIN. DIMENSIONS AND MAX 2.0% SLOPE IN ALL DIRECTIONS
	INDICATES PEDESTRIAN RAMP - SLOPE SHALL BE BETWEEN 5.0% MINIMUM AND 8.3% MAXIMUM IN THE DIRECTION SHOWN AND CROSS SLOPE SHALL NOT EXCEED 2.0%
	INDICATES PEDESTRIAN RAMP - SLOPE SHALL BE GREATER THAN 2.0% AND LESS THAN 5.0% IN THE DIRECTION SHOWN AND CROSS SLOPE SHALL NOT EXCEED 2.0%
	DRAINAGE FLOW ARROW
	TRANSITION PANEL(S) - TO BE USED FOR TRANSITIONING THE CROSS-SLOPE OF A RAMP TO THE EXISTING WALK CROSS-SLOPE. RATE OF TRANSITION SHOULD BE 0.5% PER 1 LINEAR FOOT OF WALK.

SOUTHEAST RADIUS						
	DESCRIPTION	ALI.	STA.	OFFSET	NEW CONTROL PT	PED. CORNER
F	30' RAD. PT F/C	CSAH 116	116+80.71	-73.50 LT		
F-1	COMBINED DIRECTIONAL RAMP F/C	CSAH 116	116+57.05	-55.05 LT		



2 OF 3

NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\002-716-021\Plan\002716021 IN\_2.dgn 07/27/2021 1:48:04 PM

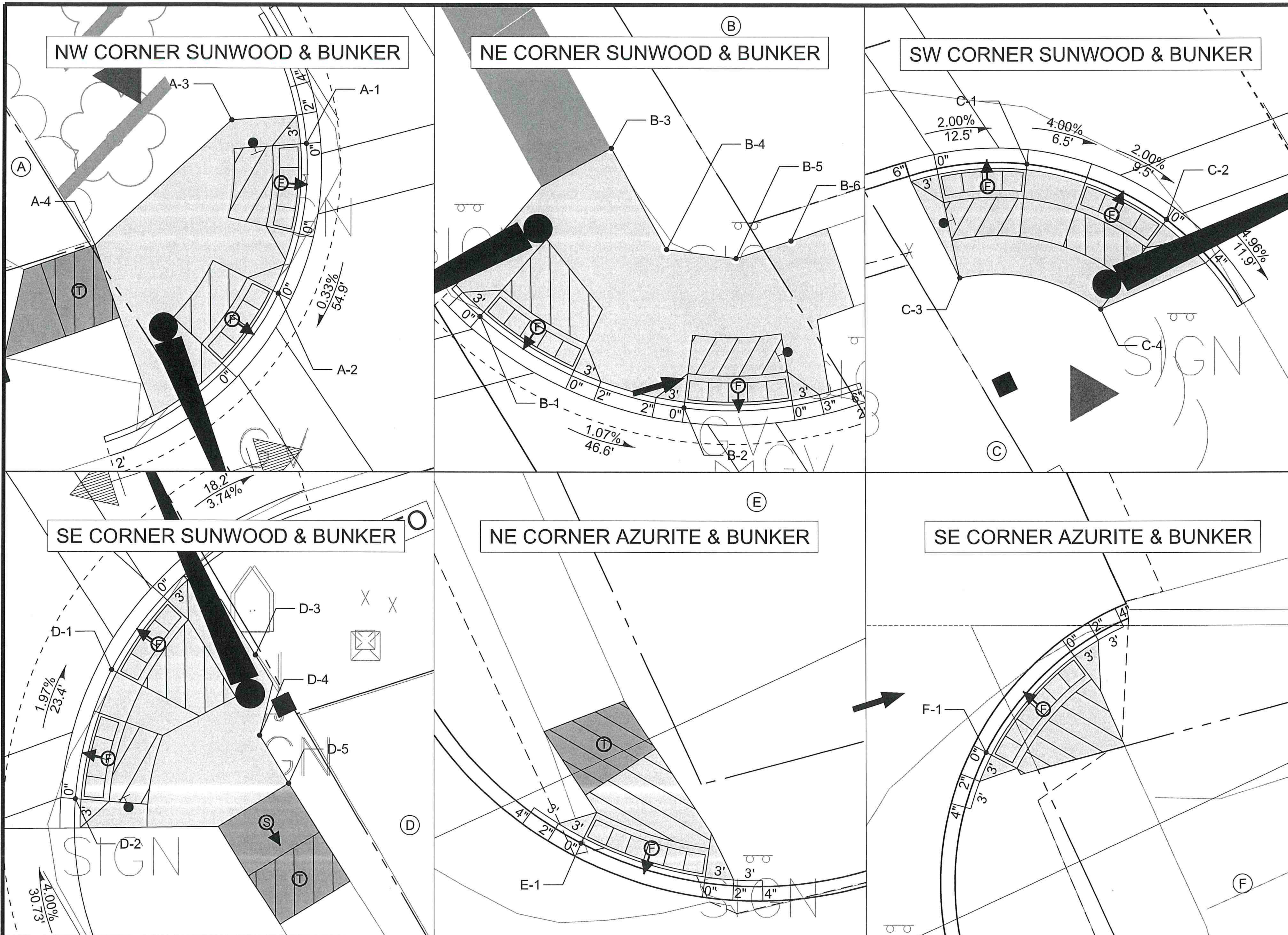
I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.  
 PRINT NAME: NICHOLAS J. DOBDA  
 SIGNATURE: *N. Dobda*  
 DATE: 8/3/21 LICENSE NO. 49046

DRAWN BY JCF DATE 07/01/21  
 DESIGN BY JCF DATE 07/01/21  
 CHECKED BY NJD DATE 07/09/21

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

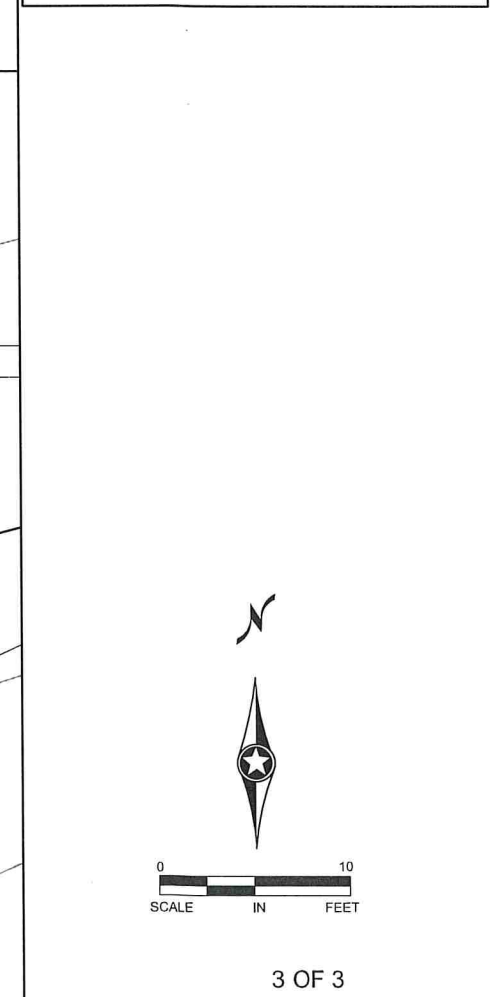
SAP 002-716-021  
 SAP 199-104-014

INTERSECTION DETAILS & PED RAMPS  
 Sheet 95 of 259 Sheets



**LEGEND**

- PROPOSED SIGNAL POLE
- PEDESTRIAN PUSH BUTTON STATION
- PROPOSED SIGNAL CABINET
- CONTROL POINTS AT GUTTER FLOW LINE
- TRUNCATED DOMES
- CONSTRUCT CONCRETE CURB & GUTTER
- CURB HEIGHT
- 2" MILL & OVERLAY
- LANDING AREA - 4' X 4' MIN. DIMENSIONS AND MAX 2.0% SLOPE IN ALL DIRECTIONS
- 6" CONCRETE WALK
- 4" CONCRETE WALK
- INDICATES PEDESTRIAN RAMP - SLOPE SHALL BE BETWEEN 5.0% MINIMUM AND 8.3% MAXIMUM IN THE DIRECTION SHOWN AND CROSS SLOPE SHALL NOT EXCEED 2.0%
- INDICATES PEDESTRIAN RAMP - SLOPE SHALL BE GREATER THAN 2.0% AND LESS THAN 5.0% IN THE DIRECTION SHOWN AND CROSS SLOPE SHALL NOT EXCEED 2.0%
- DRAINAGE FLOW ARROW
- TRANSITION PANEL(S) - TO BE USED FOR TRANSITIONING THE CROSS-SLOPE OF A RAMP TO THE EXISTING WALK CROSS-SLOPE. RATE OF TRANSITION SHOULD BE 0.5% PER 1 LINEAR FOOT OF WALK.



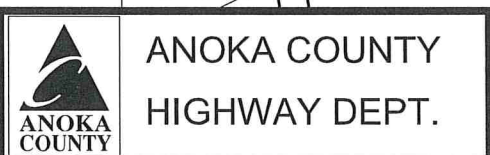
3 OF 3

NO	DATE	BY	CKD	APPR	REVISION
NAME: P:\002-716-021\Plan\002716021 IN_3.dgn					

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

PRINT NAME: NICHOLAS J. DOBDA  
 SIGNATURE:   
 DATE: 8/18/21 LICENSE NO. 49046

DRAWN BY: JCF DATE: 07/10/21  
 DESIGN BY: JCF DATE: 07/10/21  
 CHECKED BY: NJD DATE: 07/09/21



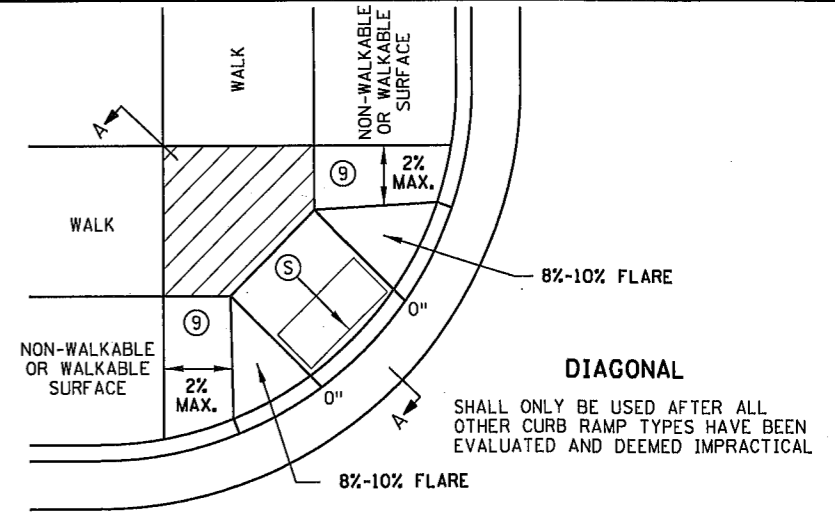
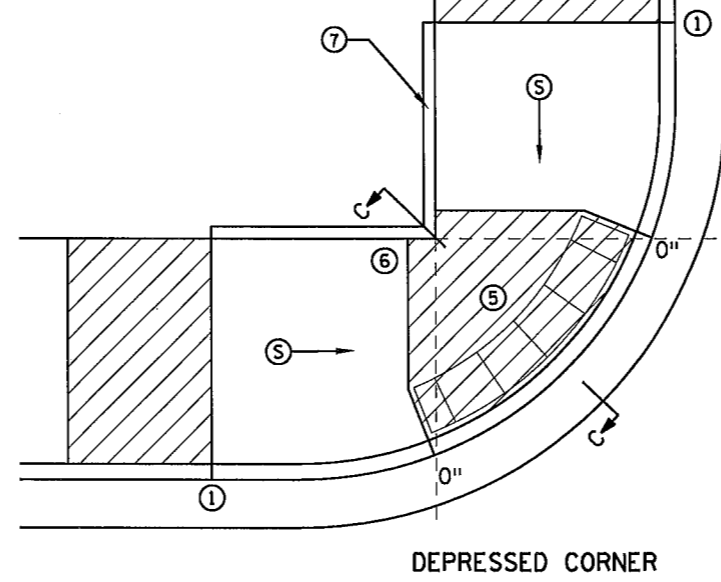
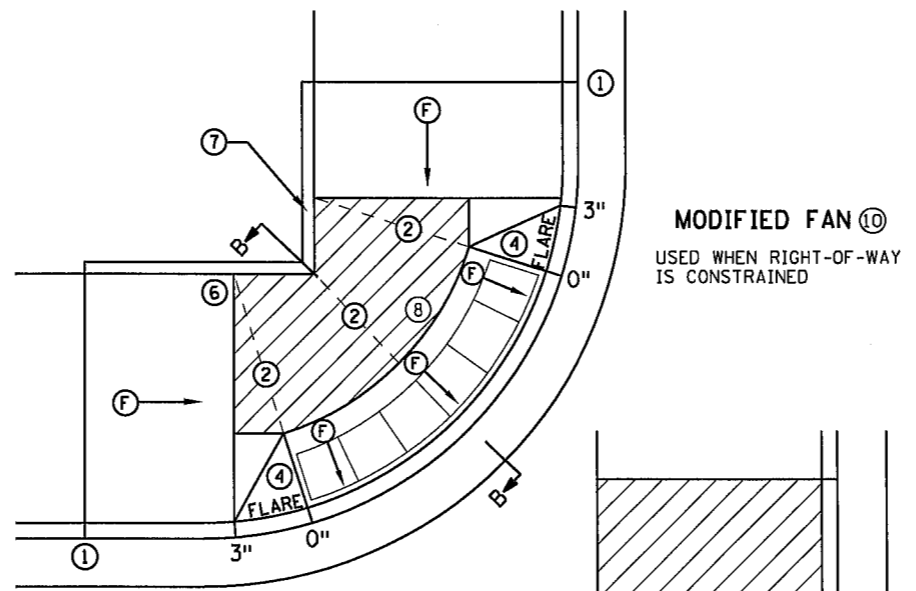
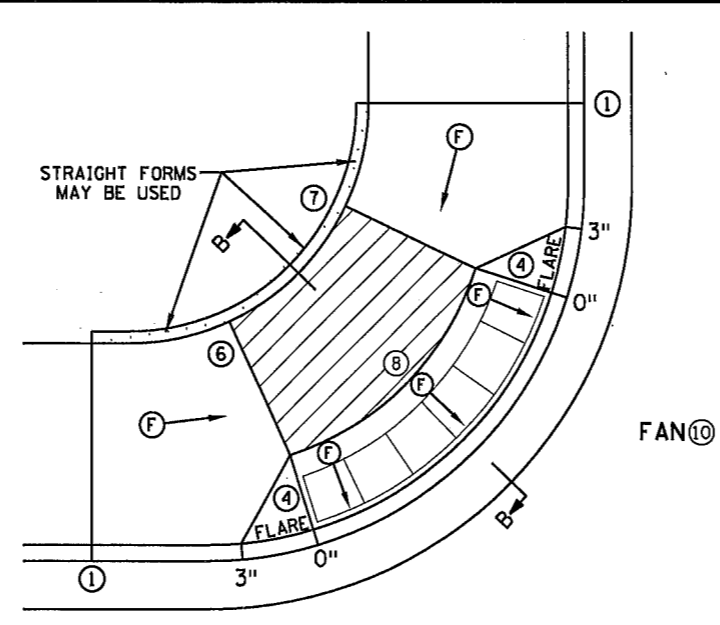
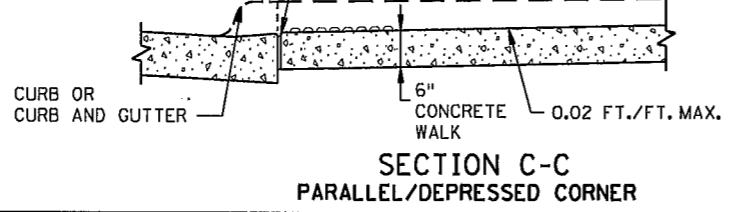
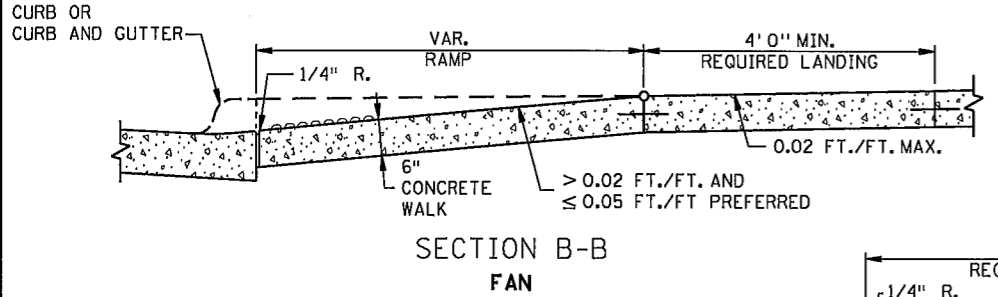
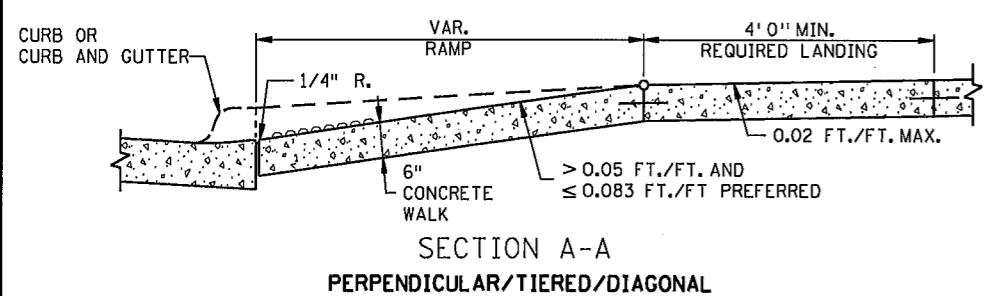
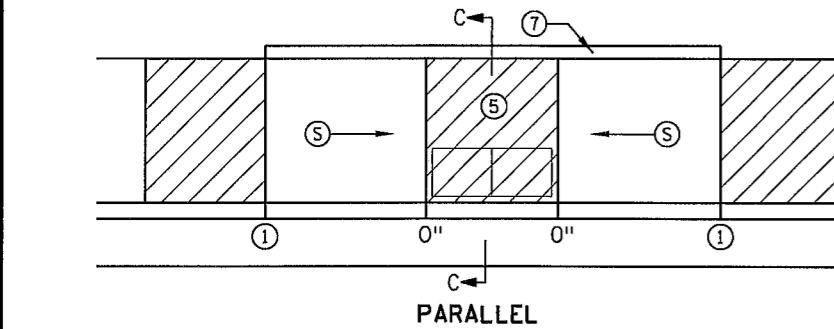
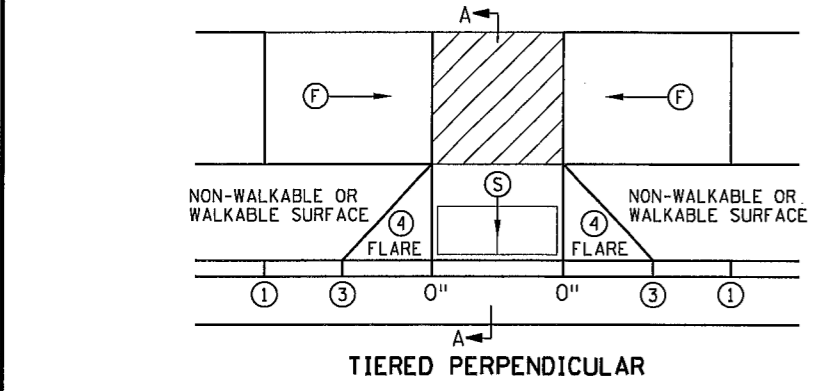
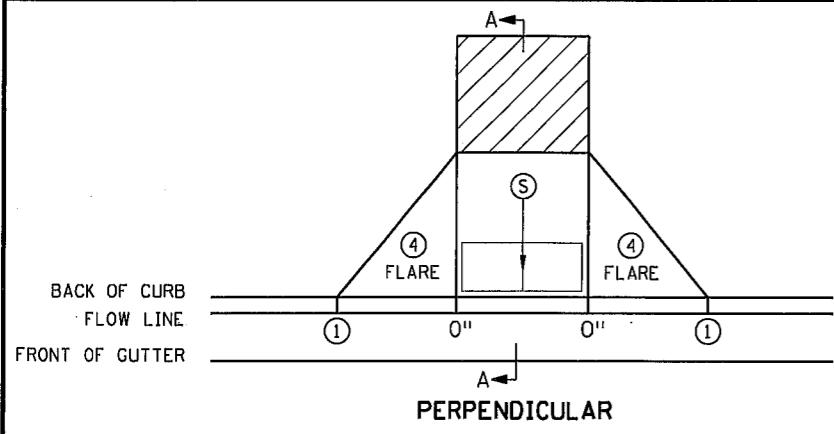
SAP 002-716-021  
 SAP 199-104-014

MISCELLANEOUS DETAILS

Sheet 96 of 259 Sheets



PLOTTED/REVISED: 07/27/2021



**NOTES:**

LANDINGS SHALL BE LOCATED ANYWHERE THE PEDESTRIAN ACCESS ROUTE (PAR) CHANGES DIRECTION, AT THE TOP OF RAMPS THAT HAVE RUNNING SLOPES GREATER THAN 5.0%, AND IF THE APPROACHING WALK IS INVERSE GRADE GREATER THAN 2%.

INITIAL CURB RAMP LANDINGS SHALL BE CONSTRUCTED WITHIN 15' FROM THE BACK OF CURB, WITH 6' FROM THE BACK OF CURB BEING THE PREFERRED DISTANCE, ONLY APPLICABLE WHEN THE INITIAL RAMP RUNNING SLOPE IS OVER 5.0%.

SECONDARY CURB RAMP LANDINGS ARE REQUIRED FOR EVERY 30" OF VERTICAL RISE WHEN THE LONGITUDINAL RUNNING SLOPE IS GREATER THAN 5.0%.

CONTRACTION JOINTS SHALL BE CONSTRUCTED ALONG ALL GRADE BREAKS WITHIN THE PAR. 1/4" DEEP VISUAL JOINTS SHALL BE USED AT THE TOPS OF CONCRETE FLARES ADJACENT TO WALKABLE SURFACES.

ALL GRADE BREAKS WITHIN THE PAR SHALL BE PERPENDICULAR TO THE PATH OF TRAVEL, THUS BOTH SIDES OF A SLOPED WALKING SURFACE MUST BE EQUAL LENGTH, EXCEPT AS STATED IN (6) BELOW.

TO ENSURE INITIAL RAMPS AND INITIAL LANDINGS ARE PROPERLY CONSTRUCTED, LANDINGS SHALL BE CAST SEPARATELY, FOLLOW SIDEWALK REINFORCEMENT DETAILS ON SHEET 6 AND THE ADA SPECIAL PROVISIONS - PROSECUTION OF WORK (ADA).

TOP OF CURB SHALL MATCH PROPOSED ADJACENT WALK GRADE.

WHEN THE BOULEVARD IS 4' WIDE OR LESS, THE TOP OF CURB TAPER SHALL MATCH THE RAMP SLOPES TO REDUCE NEGATIVE BOULEVARD SLOPES FROM THE TOP BACK OF CURB TO THE PAR.

ALL RAMP TYPES SHOULD HAVE A MINIMUM 3' LONG RAMP LENGTH.

4' MINIMUM WIDTH OF DETECTABLE WARNING IS REQUIRED FOR ALL RAMPS. DETECTABLE WARNINGS SHALL CONTINUOUSLY EXTEND FOR A MIN. OF 24" IN THE PATH OF TRAVEL. DETECTABLE WARNING TO COVER ENTIRE WIDTH OF SHARED-USE PATHS AND THE ENTIRE PAR WIDTH OF THE WALK. DETECTABLE WARNING SHOULD BE 6" LESS THAN THE PAR/TRAIL WIDTH, ARC LENGTH OF RADIAL DETECTABLE WARNINGS SHOULD NOT BE GREATER THAN 20 FEET.

RECTANGULAR DETECTABLE WARNINGS SHALL BE SETBACK 3" FROM THE BACK OF CURB. RADIAL DETECTABLE WARNINGS SHALL BE SETBACK 3" MINIMUM TO 6" MAXIMUM FROM THE BACK OF CURB.

- ① MATCH FULL HEIGHT CURB.
- ② 4' MINIMUM DEPTH LANDING REQUIRED ACROSS TOP OF RAMP.
- ③ 3" HIGH CURB WHEN USING A 3' LONG RAMP, 4" HIGH CURB WHEN USING A 4' LONG RAMP.
- ④ SEE SHEET 4 OF 6, TYPICAL SIDE TREATMENT OPTIONS, FOR DETAILS ON FLARES AND RETURNED CURBS, WHEN INITIAL LANDING IS AT FULL CURB HEIGHT.
- ⑤ DETECTABLE WARNINGS MAY BE PART OF THE 4' X 4' MIN. LANDING AREA IF IT IS NOT FEASIBLE TO CONSTRUCT THE LANDING OUTSIDE OF THE DETECTABLE WARNING AREA.
- ⑥ THE GRADE BREAK SHALL BE PERPENDICULAR TO THE BACK OF WALK. THIS WILL ENSURE THAT THE GRADE BREAK IS PERPENDICULAR TO THE DIRECTION OF TRAVEL. (TYPICAL FOR ALL)
- ⑦ WHEN ADJACENT TO GRASS, GRADING SHALL ALWAYS BE USED WHEN FEASIBLE. V CURB, IF USED, SHALL BE PLACED OUTSIDE THE SIDEWALK LIMITS WHEN RIGHT OF WAY ALLOWS. WHEN ADJACENT TO PARKING LOTS, CONCRETE OR BITUMINOUS TAPERS SHOULD BE USED OVER V CURB TO REDUCE TRIPPING HAZARDS AND FACILITATE SNOW & ICE REMOVAL.
- ⑧ A 7' MIN TOP RADIUS GRADE BREAK REQUIRED TO BE CONSTRUCTIBLE.
- ⑨ PAVE FULL WALK WIDTH.
- ⑩ "S" SLOPES ON FANS SHALL ONLY BE USED WHEN ALL OTHER FEASIBLE OPTIONS HAVE BEEN EVALUATED AND DEEMED IMPRACTICAL.

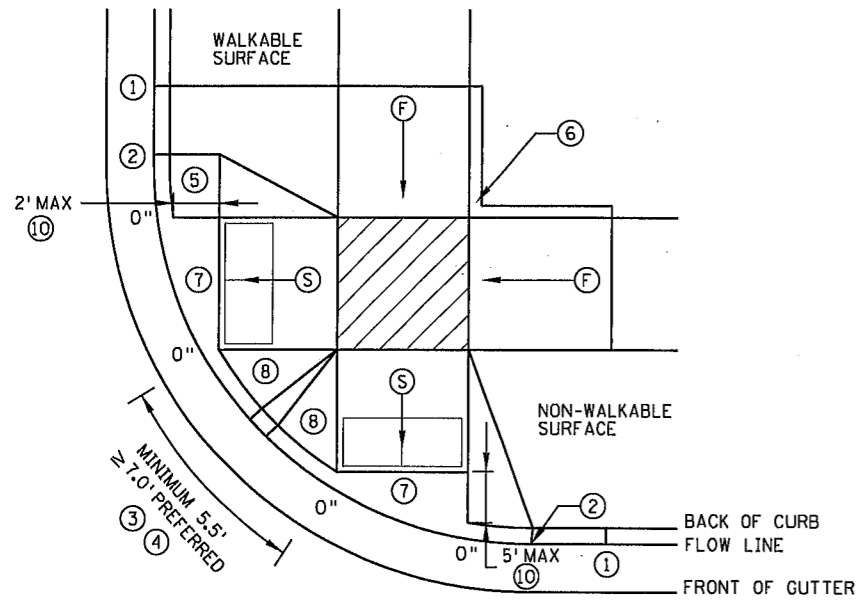
LEGEND	
(S)	INDICATES PEDESTRIAN RAMP - SLOPE SHALL BE BETWEEN 5.0% MINIMUM AND 8.3% MAXIMUM IN THE DIRECTION SHOWN AND THE CROSS SLOPE SHALL NOT EXCEED 2.0%.
(F)	INDICATES PEDESTRIAN RAMP - SLOPE SHALL BE GREATER THAN 2.0% AND LESS THAN 5.0% IN THE DIRECTION SHOWN AND CROSS SLOPE SHALL NOT EXCEED 2.0%.
[Hatched Box]	LANDING AREA - 4' X 4' MIN. (5' X 5' MIN. PREFERRED) DIMENSIONS AND MAX 2.0% SLOPE IN ALL DIRECTIONS. LANDING SHALL BE FULL WIDTH OF INCOMING PAR.
X"	CURB HEIGHT

REVISION:  
 APPROVED: JANUARY 23, 2017  
 OPERATIONS ENGINEER

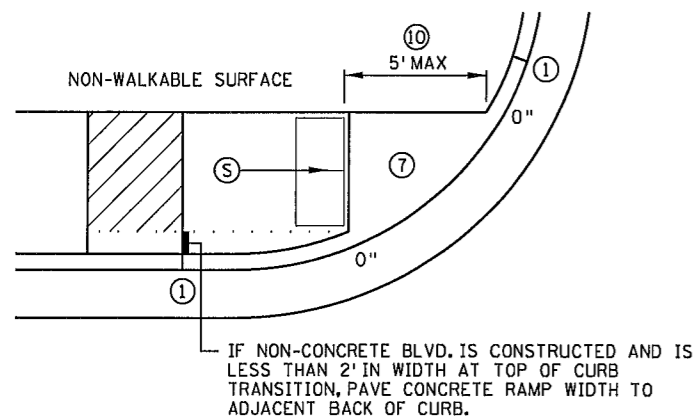
**m** MINNESOTA DEPARTMENT OF TRANSPORTATION  
 STANDARD PLAN 5-297.250 1 OF 6  
 APPROVED: 1-23-2017  
 REVISOR:  
 STATE DESIGN ENGINEER

**PEDESTRIAN CURB RAMP DETAILS**

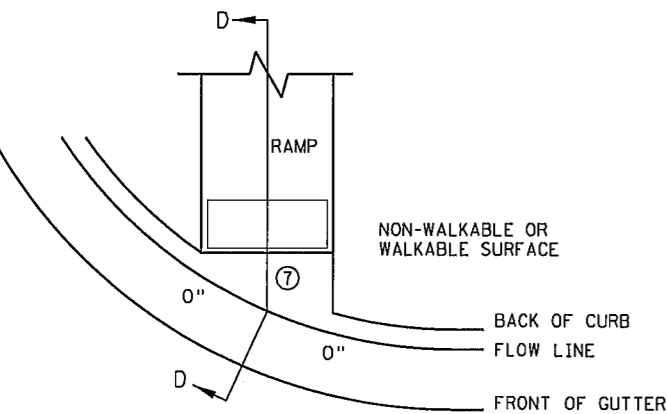
PLOTTED/REVISED: 07/27/2021



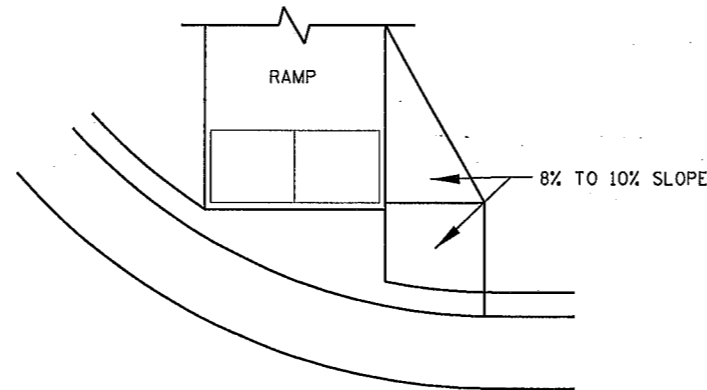
**COMBINED DIRECTIONAL ⑨**



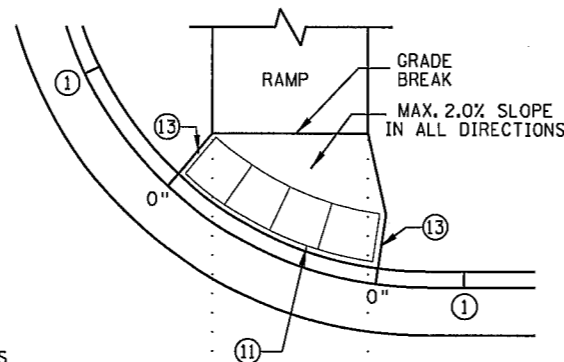
**STANDARD ONE-WAY DIRECTIONAL ⑨**



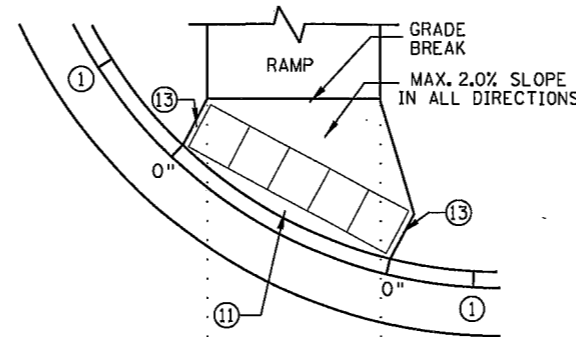
**CURB FOR DIRECTIONAL RAMPS ⑭**



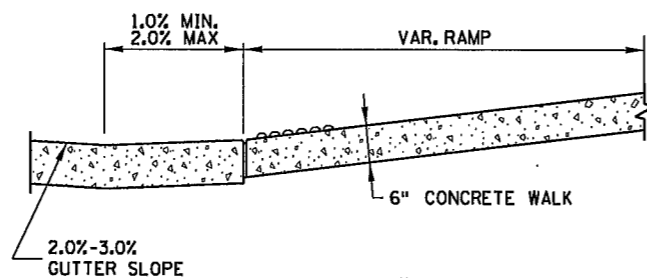
**DIRECTIONAL RAMP WALKABLE FLARE**



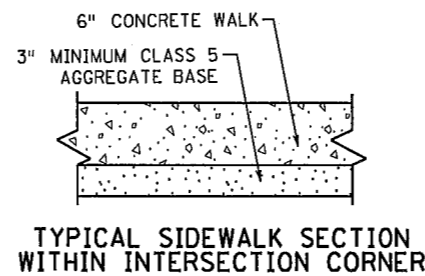
**DETECTABLE WARNING PLACEMENT WHEN SETBACK CRITERIA IS EXCEEDED ⑫**



**ONE-WAY DIRECTIONAL WITH DETECTABLE WARNING AT BACK OF CURB**



**SECTION D-D**



**TYPICAL SIDEWALK SECTION WITHIN INTERSECTION CORNER**

**NOTES:**

- LANDINGS SHALL BE LOCATED ANYWHERE THE PEDESTRIAN ACCESS ROUTE (PAR) CHANGES DIRECTION, AT THE TOP OF RAMPS THAT HAVE RUNNING SLOPES GREATER THAN 5.0%, AND IF THE APPROACHING WALK IS INVERSE GRADE.
- INITIAL CURB RAMP LANDINGS SHALL BE CONSTRUCTED WITHIN 15' FROM THE BACK OF CURB, WITH 6' FROM THE BACK OF CURB BEING THE PREFERRED DISTANCE, ONLY APPLICABLE WHEN THE INITIAL RAMP RUNNING SLOPE IS OVER 5.0%.
- SECONDARY CURB RAMP LANDINGS ARE REQUIRED FOR EVERY 30" OF VERTICAL RISE WHEN THE LONGITUDINAL SLOPE IS GREATER THAN 5.0%.
- CONTRACTION JOINTS SHALL BE CONSTRUCTED ALONG ALL GRADE BREAKS WITHIN THE PAR. 1/4" DEEP VISUAL JOINTS SHALL BE USED AT THE TOP GRADE BREAK OF CONCRETE FLARES ADJACENT TO WALKABLE SURFACES.
- ALL GRADE BREAKS WITHIN THE PAR SHALL BE PERPENDICULAR TO THE PATH OF TRAVEL. THUS BOTH SIDES OF A SLOPED WALKING SURFACE MUST BE EQUAL LENGTH.
- TO ENSURE INITIAL RAMPS AND INITIAL LANDINGS ARE PROPERLY CONSTRUCTED, LANDINGS SHALL BE CAST SEPARATELY. FOLLOW SIDEWALK REINFORCEMENT DETAILS ON SHEET 6 AND THE ADA SPECIAL PROVISION (PROSECUTION OF WORK).
- TOP OF CURB SHALL MATCH PROPOSED ADJACENT WALK GRADE.
- WHEN THE BOULEVARD IS 4' WIDE OR LESS, THE TOP OF CURB TAPER SHALL MATCH THE RAMP SLOPES TO REDUCE NEGATIVE BOULEVARD SLOPES FROM THE TOP BACK OF CURB TO THE PAR.
- ALL RAMP TYPES SHOULD HAVE A MINIMUM 3' LONG RAMP LENGTH.
- 4' MINIMUM WIDTH OF DETECTABLE WARNING IS REQUIRED FOR ALL RAMPS. DETECTABLE WARNINGS SHALL CONTINUOUSLY EXTEND FOR A MIN. OF 24" IN THE PATH OF TRAVEL. DETECTABLE WARNING TO COVER ENTIRE WIDTH OF SHARED-USE PATH AND THE ENTIRE PAR WIDTH OF THE WALK. DETECTABLE WARNING SHOULD BE 6" LESS THAN THE PAR/PATH WIDTH. ARC LENGTH OF RADIAL DETECTABLE WARNINGS SHOULD NOT BE GREATER THAN 20 FEET.
- RADIAL DETECTABLE WARNINGS SHALL BE SETBACK 3" MINIMUM TO 6" MAXIMUM FROM THE BACK OF CURB. SEE NOTES ⑩ & ⑪ FOR INFORMATION REGARDING RECTANGULAR DETECTABLE WARNING PLACEMENT.
- ① MATCH FULL CURB HEIGHT.
- ② 3" HIGH CURB WHEN USING A 3' LONG RAMP  
4" HIGH CURB WHEN USING A 4' LONG RAMP.
- ③ 3" MINIMUM CURB HEIGHT (5.5' MIN. DISTANCE REQUIRED BETWEEN DOMES)  
4" PREFERRED (7' MIN. DISTANCE REQUIRED BETWEEN DOMES).
- ④ THE "BUMP" IN BETWEEN THE RAMPS SHOULD NOT BE IN THE PATH OF TRAVEL FOR COMBINED DIRECTIONAL RAMPS. IF THIS OCCURS MODIFY THE RAMP LOCATION OR SWITCH RAMP TO A FAN/DEPRESSED CORNER.
- ⑤ WHEN USING CONCRETE PAVED FLARES ON THE OUTSIDE OF DIRECTIONAL RAMPS, AND ADJACENT TO A WALKABLE SURFACE, DIRECTIONAL RAMP FLARES SHOULD BE USED. SEE THE DETAIL ON THIS SHEET.
- ⑥ GRADING SHALL ALWAYS BE USED WHEN FEASIBLE. V CURB, IF USED, SHALL BE PLACED OUTSIDE THE SIDEWALK LIMITS WHEN RIGHT OF WAY ALLOWS. WHEN ADJACENT TO PARKING LOTS, CONCRETE OR BITUMINOUS TAPERS SHOULD BE USED OVER V CURB TO REDUCE TRIPPING HAZARDS AND FACILITATE SNOW & ICE REMOVAL.
- ⑦ MAX. 2.0% SLOPE IN ALL DIRECTIONS IN FRONT OF GRADE BREAK AND DRAIN TO FLOW LINE. SHALL BE CONSTRUCTED INTEGRAL WITH CURB AND GUTTER.
- ⑧ 8% TO 10% WALKABLE FLARE.
- ⑨ PLACE DOMES AT THE BACK OF CURB WHEN ALLOWABLE SETBACK CRITERIA IS EXCEEDED.
- ⑩ FRONT EDGE OF DETECTABLE WARNING SHALL BE SET BACK 2' MAXIMUM WHEN ADJACENT TO WALKABLE SURFACE, AND 5' MAXIMUM WHEN ADJACENT TO NON-WALKABLE SURFACE WITH ONE CORNER SET 3" FROM BACK OF CURB. A WALKABLE SURFACE IS DEFINED AS A PAVED SURFACE ADJACENT TO A CURB RAMP WITHOUT RAISED OBSTACLES THAT COULD MISTAKENLY BE TRAVERSED BY A USER WHO IS VISUALLY IMPAIRED.
- ⑪ RECTANGULAR DETECTABLE WARNINGS MAY BE SETBACK UP TO 9" FROM THE BACK OF CURB WITH CORNERS SET 3" FROM BACK OF CURB. IF 9" SETBACK IS EXCEEDED USE RADIAL DETECTABLE WARNINGS.
- ⑫ FOR DIRECTIONAL RAMPS WITH THE DETECTABLE WARNINGS PLACED AT THE BACK OF CURB, THE DETECTABLE WARNINGS SHALL COVER THE ENTIRE WIDTH OF THE WALK/PATH. THIS ENSURES A DETECTABLE EDGE AND HELPS ELIMINATE THE CURB TAPER OBSTRUCTING THE PATH OF PEDESTRIAN TRAVEL.
- ⑬ THE CONCRETE WALK SHALL BE FORMED AND CONSTRUCTED PERPENDICULAR TO THE BACK OF CURB. MAINTAIN 3" BETWEEN EDGE OF DOMES AND EDGE OF CONCRETE.
- ⑭ TO BE USED FOR ALL DIRECTIONAL RAMPS, EXCEPT WHERE DOMES ARE PLACED ALONG THE BACK OF CURB.

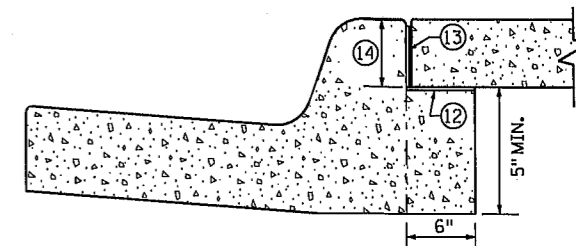
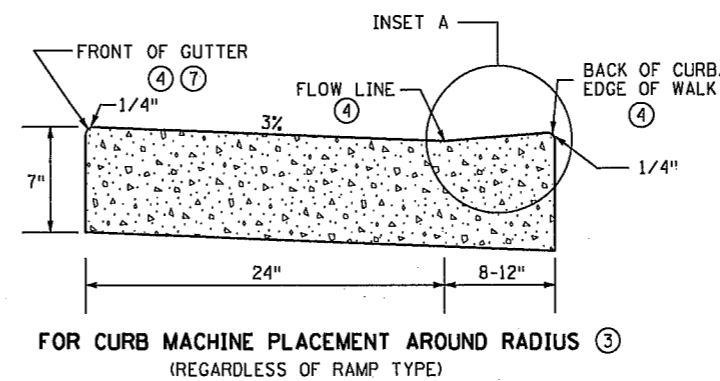
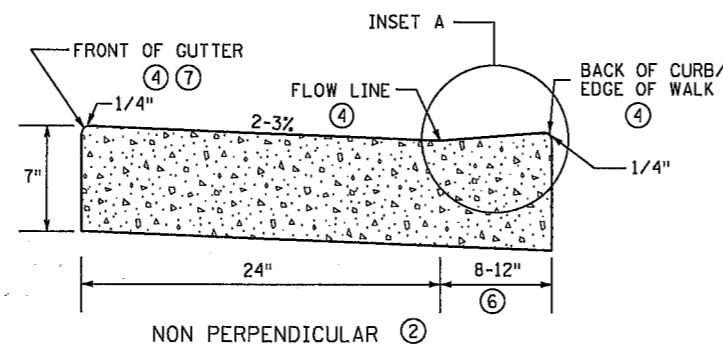
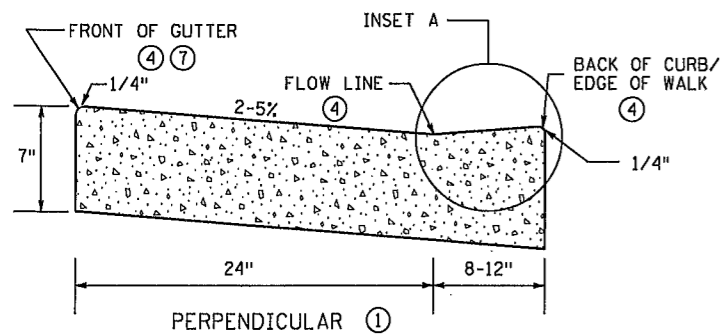
LEGEND	
THESE LONGITUDINAL SLOPE RANGES SHALL BE THE STARTING POINT. IF SITE CONDITIONS WARRANT, LONGITUDINAL SLOPES UP TO 8.3% OR FLATTER ARE ALLOWED.	
⑤	INDICATES PEDESTRIAN RAMP - SLOPE SHALL BE BETWEEN 5.0% MINIMUM AND 8.3% MAXIMUM IN THE DIRECTION SHOWN AND THE CROSS SLOPE SHALL NOT EXCEED 2.0%.
⑥	INDICATES PEDESTRIAN RAMP - SLOPE SHALL BE GREATER THAN 2.0% AND LESS THAN 5.0% IN THE DIRECTION SHOWN AND CROSS SLOPE SHALL NOT EXCEED 2.0%.
	LANDING AREA - 4' X 4' MIN. (5' X 5' MIN. PREFERRED) DIMENSIONS AND MAX. 2.0% SLOPE IN ALL DIRECTIONS. LANDING SHALL BE FULL WIDTH OF INCOMING PAR.
X"	CURB HEIGHT

REVISION:  
APPROVED: JANUARY 23, 2017  
*[Signature]*  
OPERATIONS ENGINEER

**m** MINNESOTA DEPARTMENT OF TRANSPORTATION  
STANDARD PLAN 5-297.250 2 OF 6  
*[Signature]* APPROVED: 1-23-2017  
REVISOR: STATE DESIGN ENGINEER

**PEDESTRIAN CURB RAMP DETAILS**  
SAP 002-716-021 / SAP 199-104-014  
SHEET NO. 98 OF 259 SHEETS

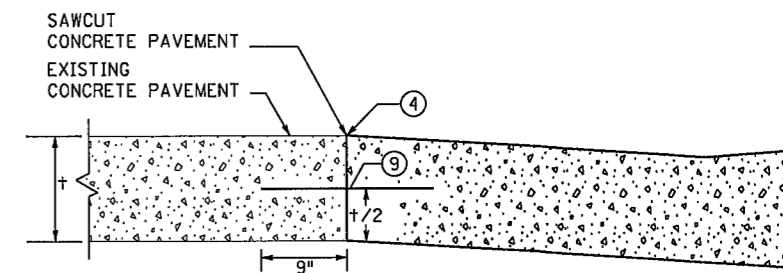
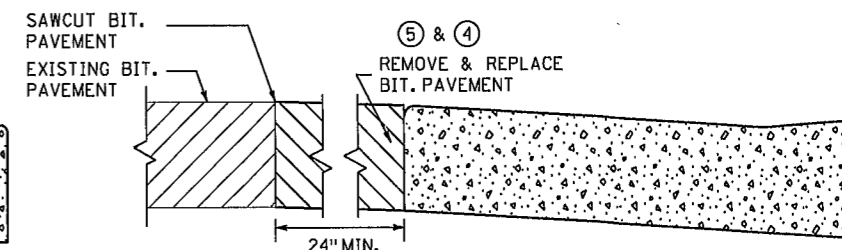
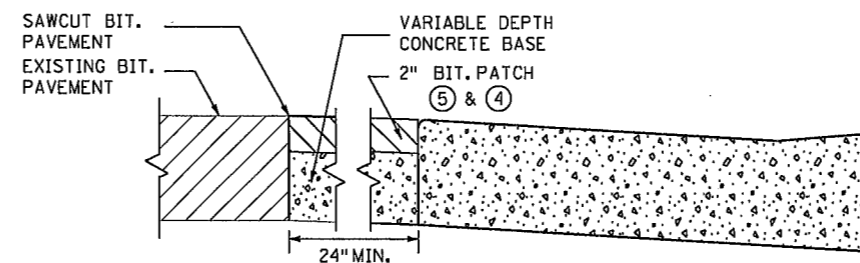
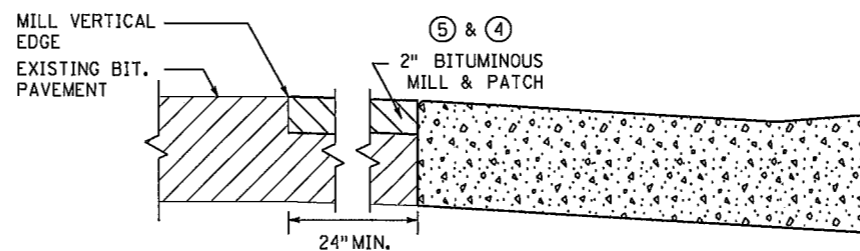
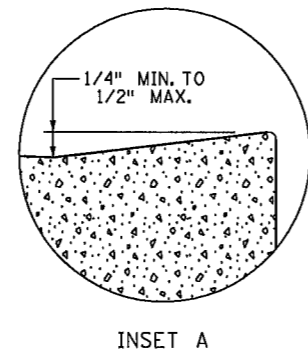
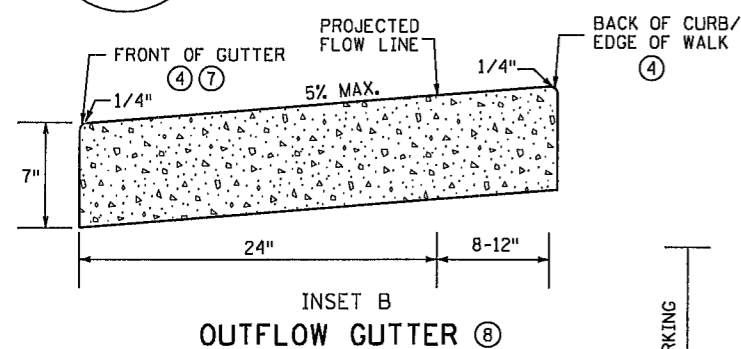
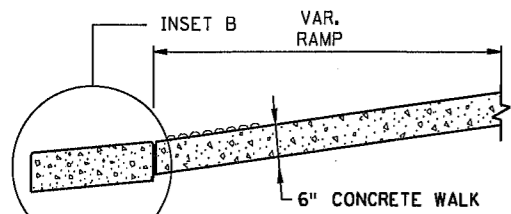
PLOTTED/REVISED: 07/27/2021



**OPTIONAL SILL CURB WHEN SIDEWALK IS AT BACK OF CURB**

CONCRETE SILL TO BE USED ONLY WHEN SPECIFIED IN THE PLAN.

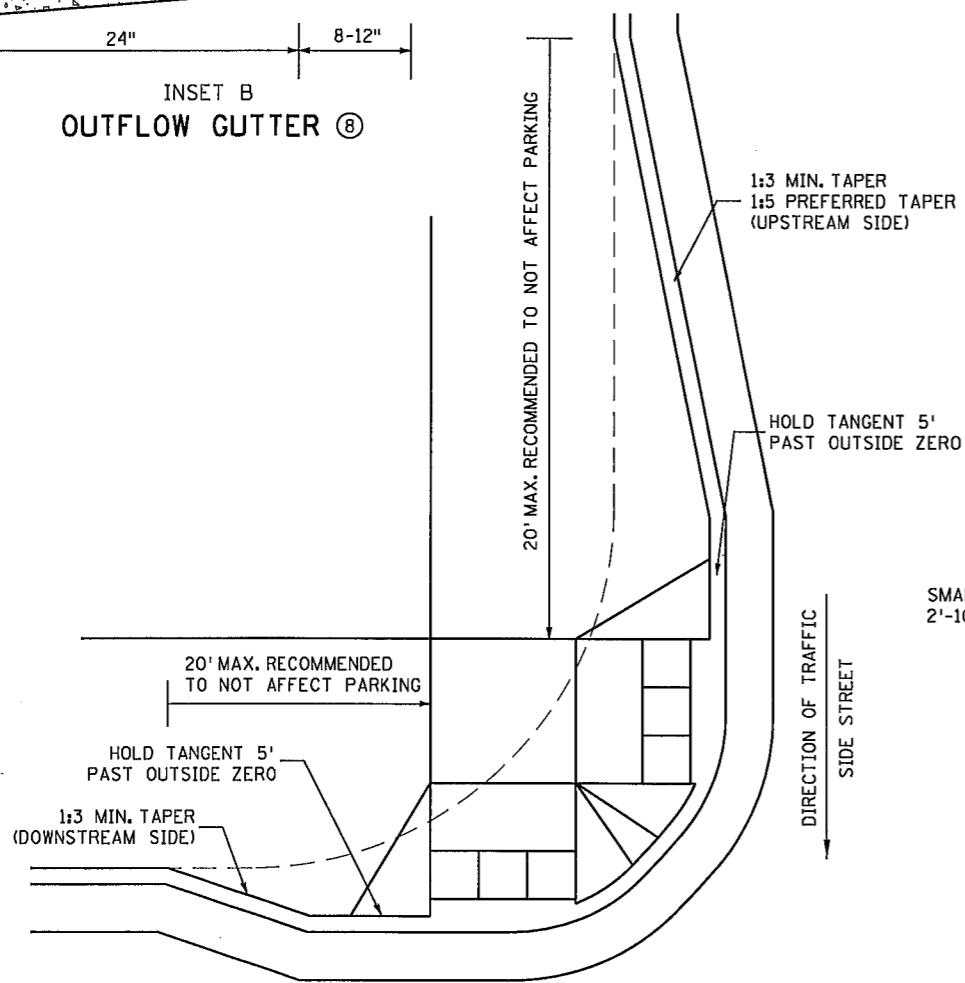
**PEDESTRIAN ACCESS ROUTE CURB & GUTTER DETAIL**



ONLY ALLOWED PER ENGINEER'S APPROVAL

**PAVEMENT TREATMENT OPTIONS IN FRONT OF CURB & GUTTER**  
FOR USE ON CURB RAMP RETROFITS

- NOTES:**
- POSITIVE FLOW LINE DRAINAGE SHALL BE MAINTAINED THROUGH THE PEDESTRIAN ACCESS ROUTE (PAR) AT A 2% MAXIMUM. NO PONDING SHALL BE PRESENT IN THE PAR.
  - ANY VERTICAL LIP THAT OCCURS AT THE FLOW LINE SHALL NOT BE GREATER THAN 1/4 INCH.
  - ① FOR USE AT CURB CUTS WHERE THE PEDESTRIAN'S PATH OF TRAVEL IS ASSUMED PERPENDICULAR TO THE GUTTER FLOW LINE. RAMP TYPES INCLUDE: PERPENDICULAR, TIERED PERPENDICULAR, PARALLEL, AND DIAGONAL RAMP.
  - ② FOR USE AT CURB RAMP WHERE THE PEDESTRIAN'S PATH OF TRAVEL IS ASSUMED NON PERPENDICULAR TO THE GUTTER FLOW LINE. RAMP TYPES INCLUDE: FANS & DEPRESSED CORNERS.
  - ③ BEGIN GUTTER SLOPE TRANSITION 10' OUTSIDE OF ALL CURB RAMP.
  - ④ THERE SHALL BE NO VERTICAL DISCONTINUITIES GREATER THAN 1/4\".
  - ⑤ ELEVATION CHANGE TAKES PLACE FROM THE EXISTING TO NEW FRONT OF GUTTER. PATCH IS USED TO MATCH THE NEW GUTTER FACE INTO THE EXISTING ROADWAY.
  - ⑥ VARIABLE WIDTH FOR DIRECTIONAL CURB APPLICATIONS. SEE SHEET 2 FOR DIRECTIONAL CURB SLOPE REQUIREMENTS.
  - ⑦ TOP FRONT OF GUTTER SHALL BE CONSTRUCTED FLUSH WITH PROPOSED ADJACENT PAVEMENT ELEVATION. TOP 1.5\"/>



**COMBINED DIRECTIONAL (COMPOUND RADIUS)**

REVISION:  
APPROVED: JANUARY 23, 2017  
OPERATIONS ENGINEER

DIRECTION OF TRAFFIC  
MAIN STREET

**m**  
MINNESOTA  
DEPARTMENT  
OF  
TRANSPORTATION

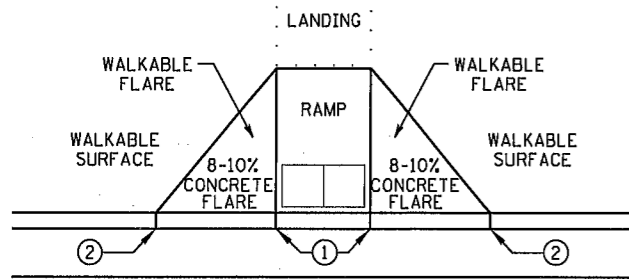
STANDARD PLAN 5-297.250 3 OF 6  
APPROVED: 1-23-2017  
REVISOR:  
STATE DESIGN ENGINEER

**PEDESTRIAN CURB RAMP DETAILS**

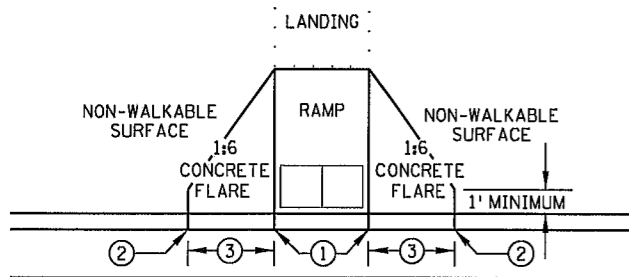
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SHEET NO. 99 OF 259 SHEETS

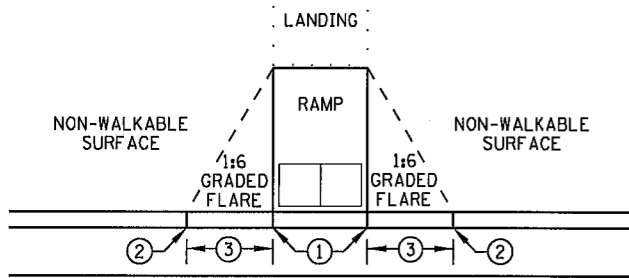
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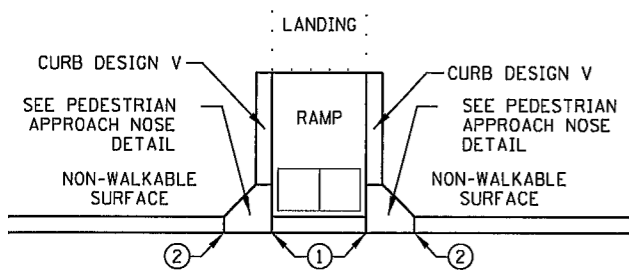
PAVED FLARES  
ADJACENT TO WALKABLE SURFACE



PAVED FLARES  
ADJACENT TO NON-WALKABLE SURFACE

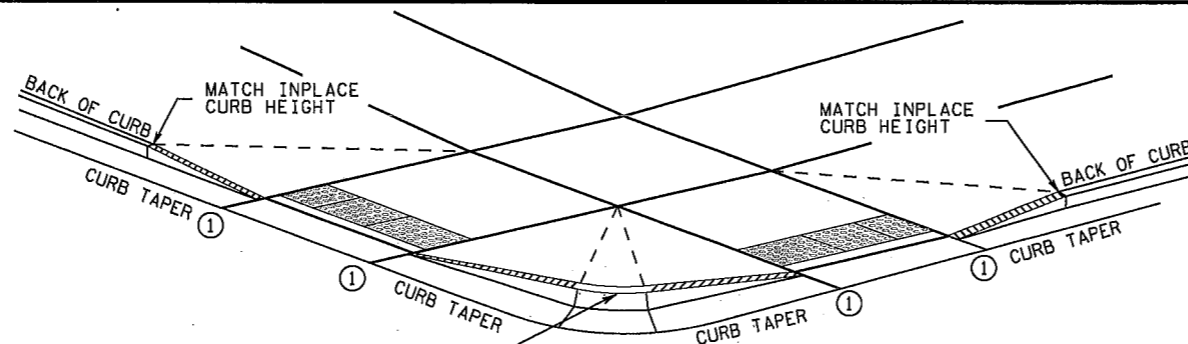


GRADED FLARES



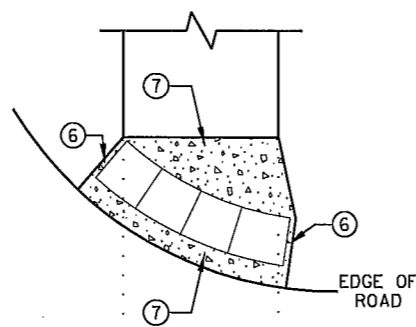
RETURNED CURB ⑤

TYPICAL SIDE TREATMENT OPTIONS ④ ⑪

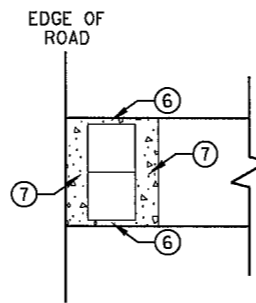


3" MINIMUM CURB HEIGHT, 4" PREFERRED  
(MEASURED AT FRONT FACE OF CURB)  
FOR A MIN. 6" LENGTH (MEASURED ALONG FLOW LINE)

DETECTABLE EDGE WITH ⑧  
CURB AND GUTTER

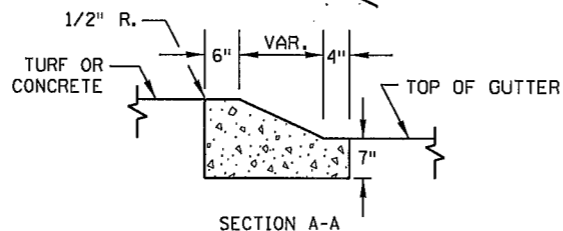
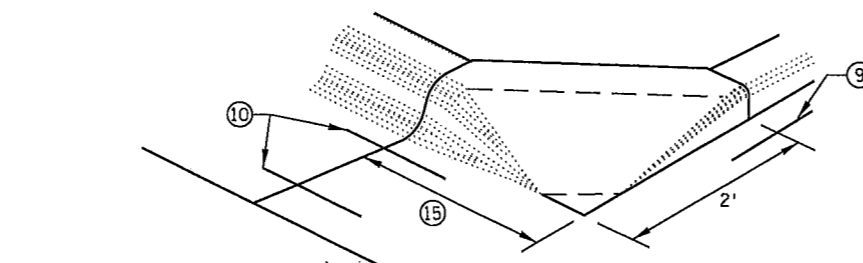


RADIAL DETECTABLE WARNING

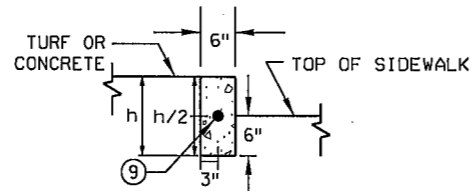


RECTANGULAR DETECTABLE WARNING

DETECTABLE EDGE WITHOUT CURB AND GUTTER

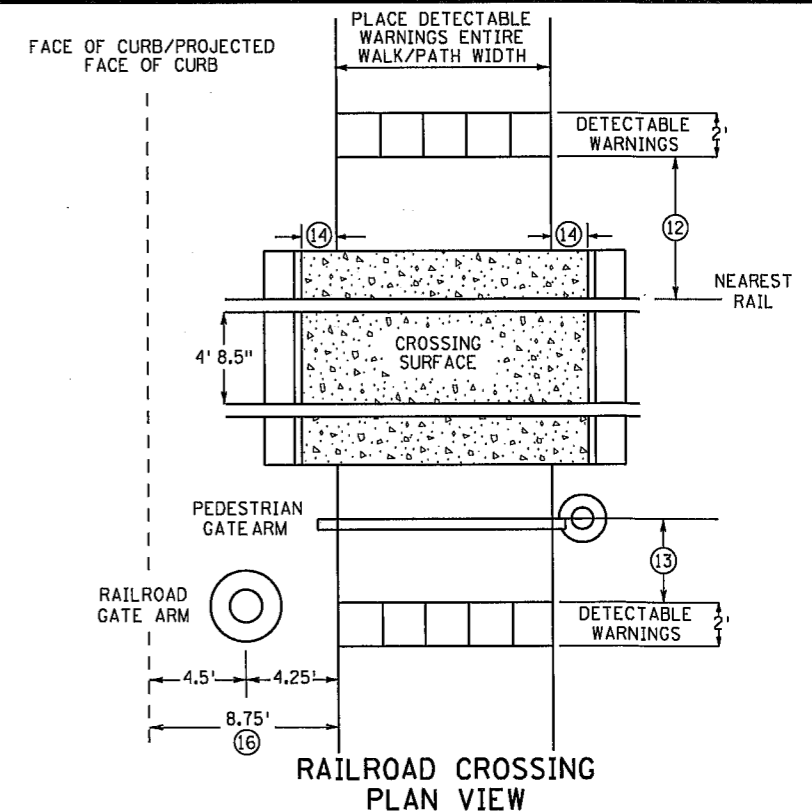


SECTION A-A



SECTION B-B

PEDESTRIAN APPROACH  
NOSE DETAIL  
(FOR RETURNED CURB  
SIDE TREATMENT)



RAILROAD CROSSING  
PLAN VIEW

NOTES:

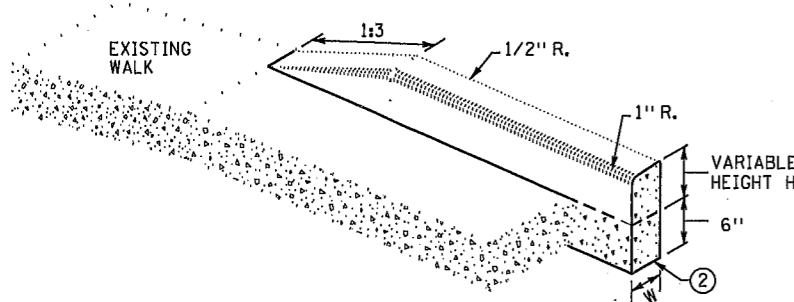
- SEE STANDARD PLATE 7038 AND THIS SHEET FOR ADDITIONAL DETAILS ON DETECTABLE WARNING.
- A WALKABLE SURFACE IS DEFINED AS A PAVED SURFACE ADJACENT TO A CURB RAMP WITHOUT RAISED OBSTACLES THAT COULD MISTAKENLY BE TRAVERSED BY A USER WHO IS VISUALLY IMPAIRED.
- CONCRETE FLARE LENGTHS ADJACENT TO NON-WALKABLE SURFACES SHOULD BE LESS THAN 8' LONG MEASURED ALONG THE RAMP FROM THE BACK OF CURB.
- ① 0" CURB HEIGHT.
- ② FULL CURB HEIGHT.
- ③ 2' FOR 4" HIGH CURB AND 3' FOR 6" HIGH CURB.
- ④ SIDE TREATMENTS ARE APPLICABLE TO ALL RAMP TYPES AND SHOULD BE IMPLEMENTED AS NEEDED AS FIELD CONDITIONS DICTATE. THE ENGINEER SHALL DETERMINE THE RAMP SIDE TREATMENTS BASED ON MAINTENANCE OF BOTH ROADWAY AND SIDEWALK, ADJACENT PROPERTY CONSIDERATIONS, AND MITIGATING CONSTRUCTION IMPACTS.
- ⑤ TYPICALLY USED FOR MEDIANS AND ISLANDS.
- ⑥ WHEN NO CONCRETE FLARES ARE PROPOSED, THE CONCRETE WALK SHALL BE FORMED AND CONSTRUCTED PERPENDICULAR TO THE EDGE OF ROADWAY. MAINTAIN 3" MAX. BETWEEN EDGE OF DOMES AND EDGE OF CONCRETE.
- ⑦ IF NO CURB AND GUTTER IS PLACED IN RURAL SECTIONS, DETECTABLE WARNINGS SHALL BE PLACED 1' FROM THE EDGE OF BITUMINOUS ROADWAY AND/OR BITUMINOUS SHARED-USE PATH TO PROVIDE VISUAL CONTRAST.
- ⑧ ALL CONSTRUCTED CURBS MUST HAVE A CONTINUOUS DETECTABLE EDGE FOR THE VISUALLY IMPAIRED. THIS DETECTABLE EDGE REQUIRES DETECTABLE WARNINGS WHEREVER THERE IS ZERO-INCH HIGH CURB, CURB TAPERS ARE CONSIDERED A DETECTABLE EDGE WHEN THE TAPER STARTS WITHIN 3" OF THE EDGE OF THE DETECTABLE WARNINGS AND UNIFORMLY RISES TO A 3-INCH MINIMUM CURB HEIGHT. ANY CURB NOT PART OF A CURB TAPER AND LESS THAN 3 INCHES IN HEIGHT IS NOT CONSIDERED A DETECTABLE EDGE AND THEREFORE IS NOT COMPLIANT WITH ACCESSIBILITY STANDARDS.
- ⑨ DRILL AND GROUT 1 - NO. 4 12" LONG REINFORCEMENT BAR (EPOXY COATED) WITH 3" MIN. COVER. REINFORCEMENT BARS ARE NOT NEEDED IF THE APPROACH NOSE IS POURED INTEGRAL WITH THE V CURB.
- ⑩ DRILL AND GROUT 2 - NO. 4 12" LONG REINFORCEMENT BARS (EPOXY COATED) WITH 3" MIN. COVER. REINFORCEMENT BARS ARE NOT NEEDED IF THE APPROACH NOSE IS POURED INTEGRAL WITH THE CURB AND GUTTER.
- ⑪ SIDE TREATMENT EXAMPLES SHOWN ARE WHEN THE INITIAL LANDING IS APPROXIMATELY LEVEL WITH THE FULL HEIGHT CURB (I.E. 6' LONG RAMP FOR 6" HIGH CURB). WHEN THE INITIAL LANDING IS MORE THAN 1" BELOW FULL HEIGHT CURB REFER TO SHEETS 1 & 2 TO MODIFY THE CURB HEIGHT TAPERS AND MAINTAIN POSITIVE BOULEVARD DRAINAGE.
- ⑫ NEAREST EDGE OF DETECTABLE WARNING SURFACES SHALL BE PLACED 12' MINIMUM TO 15' MAXIMUM FROM THE NEAREST RAIL. FOR SKEWED RAILWAYS IN NO INSTANCE SHALL THE DETECTABLE WARNING BE CLOSER THAN 12' MEASURED PERPENDICULAR TO THE NEAREST RAIL.
- ⑬ WHEN PEDESTRIAN GATES ARE PROVIDED, DETECTABLE WARNING SURFACES SHALL BE PLACED ON THE SIDE OF THE GATES OPPOSITE THE RAIL, 2' FROM THE APPROACHING SIDE OF THE GATE ARM. THIS CRITERIA GOVERNS OVER NOTE ⑫.
- ⑭ CROSSING SURFACE SHALL EXTEND 2' MINIMUM PAST THE OUTSIDE EDGE OF WALK OR SHARED-USE PATH.
- ⑮ 3' FOR MEDIANS AND SPLITTER ISLANDS. NOSE CAN BE REDUCED TO 2' ON FREE RIGHT ISLANDS.
- ⑯ SIDEWALK TO BE PLACED 8.75' MIN. FROM THE FACE OF CURB/PROJECTED FACE OF CURB. THIS ENSURES MIN. CLEARANCE BETWEEN THE SIDEWALK AND GATE ARM COUNTERWEIGHT SUPPORTS.

REVISION:
APPROVED: JANUARY 23, 2017
<i>Ann Sobor</i> OPERATIONS ENGINEER

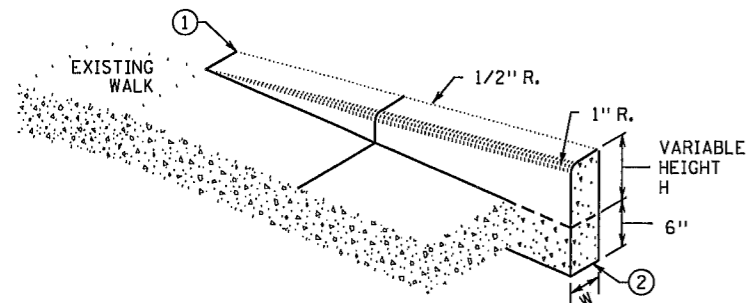
	STANDARD PLAN 5-297.250	4 OF 6
	APPROVED: 1-23-2017 REVISED:	
STATE DESIGN ENGINEER <i>Rom S...</i>		SAP 002-716-021 / SAP 199-104-014

PEDESTRIAN CURB RAMP DETAILS

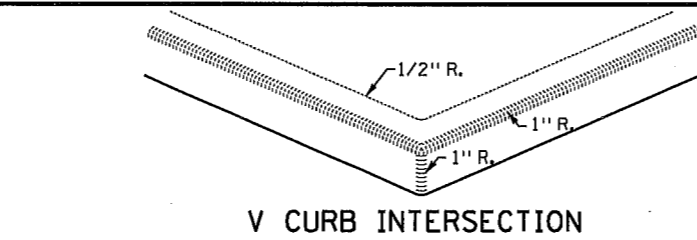
PLOTTED/REVISED: 07/27/2021



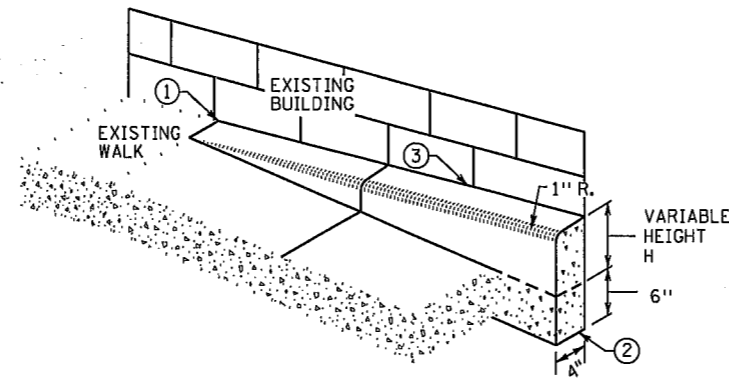
**V CURB ADJACENT TO LANDSCAPE**  
CURB WITHIN SIDEWALK LIMITS



**V CURB ADJACENT TO LANDSCAPE**  
CURB OUTSIDE SIDEWALK LIMITS

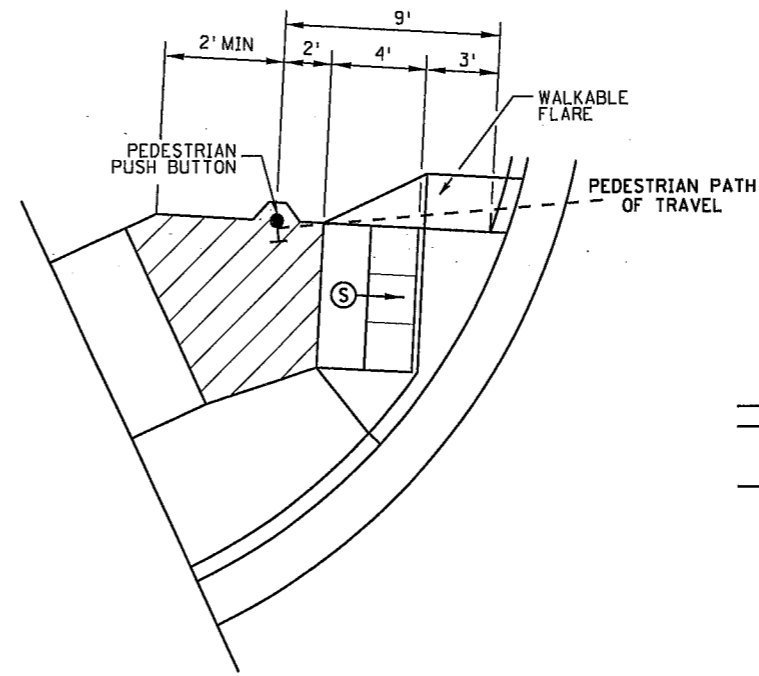


**V CURB INTERSECTION**



**V CURB ADJACENT TO BUILDING OR BARRIER**

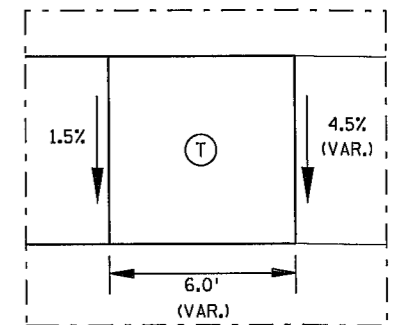
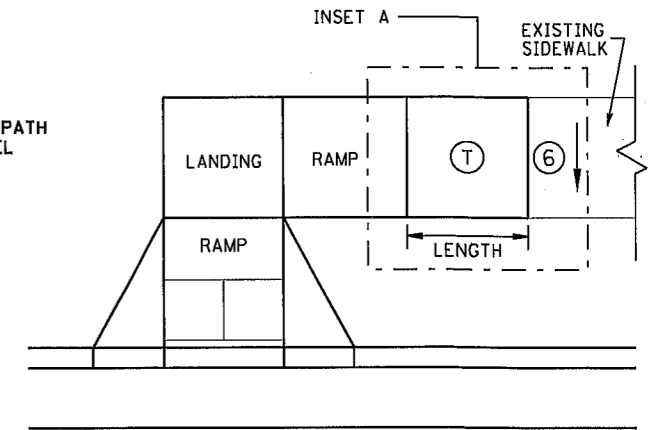
CONCRETE CURB DESIGN V	
CURB HEIGHT H	CURB WIDTH W
< 6"	4"
≥ 6"	6"



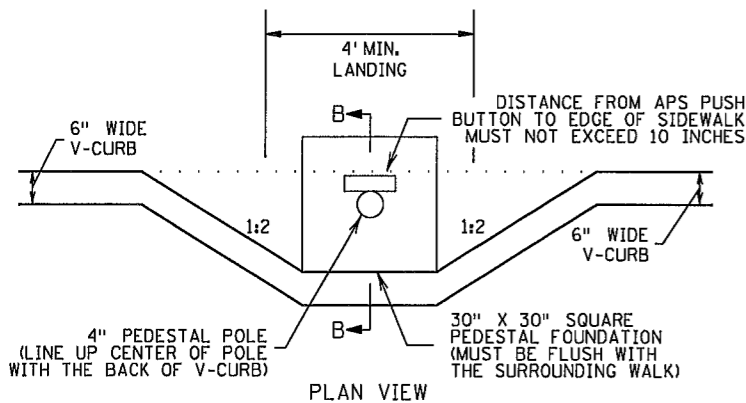
**SEMI-DIRECTIONAL RAMP (3,4,9)**

3' DOME SETBACK, 4' LONG RAMP AND PUSH BUTTON 9' FROM THE BACK OF CURB

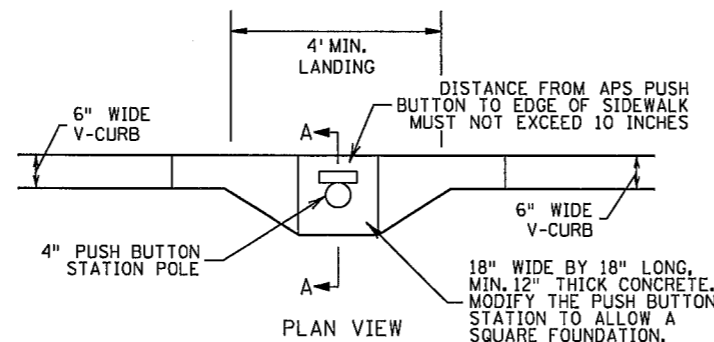
PRIMARYLY USED FOR APS APPLICATIONS WHERE THE PAR DOES NOT CONTINUE PAST THE PUSH BUTTON (DEAD-END SIDEWALK)



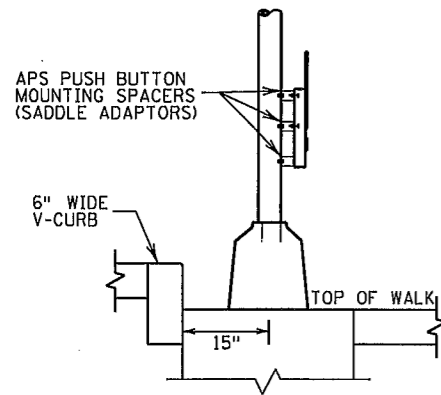
**TRANSITION PANEL (4,5)**



PLAN VIEW

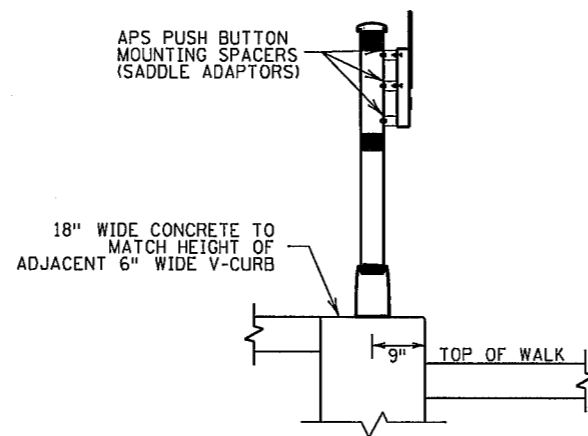


PLAN VIEW



SECTION B-B

**SIGNAL PEDESTAL & PUSH BUTTON (V-CURB)**



SECTION A-A

**PUSH BUTTON STATION (V-CURB)**

**NOTES:**

A WALKABLE FLARE IS AN 8-10% CONCRETE FLARE THAT IS REQUIRED WHEN THE FLARE IS ADJACENT TO A WALKABLE SURFACE, OR WHEN THE PEDESTRIAN PATH OF TRAVEL OF A PUSH BUTTON TRAVERSES THE FLARE.

ALL V CURB CONTRACTION JOINTS SHALL MATCH CONCRETE WALK JOINTS.

WHERE RIGHT-OF-WAY ALLOWS, USE OF V CURB SHOULD BE MINIMIZED. GRADING ADJACENT TURF OR SLOPING ADJACENT PAVEMENT IS PREFERRED.

V CURB SHALL BE PLACED OUTSIDE THE SIDEWALK LIMITS WHEN RIGHT OF WAY ALLOWS.

V CURB NEXT TO BUILDING SHALL BE A 4" WIDTH AND SHALL MATCH PREVIOUS TOP OF SIDEWALK ELEVATIONS.

① END TAPERS AT TRANSITION SECTION SHALL MATCH INPLACE SIDEWALK GRADES.

② ALL V CURB SHALL MATCH BOTTOM OF ADJACENT WALK.

③ EDGE BETWEEN NEW V CURB AND INPLACE STRUCTURE SHALL BE SEALED AND BOND BREAKER SHALL BE USED BETWEEN EXISTING STRUCTURE AND PLACED V-CURB.

④ THE MAX. RATE OF CROSS SLOPE TRANSITIONING IS 1' LINEAR FOOT OF SIDEWALK PER HALF PERCENT CROSS SLOPE. WHEN PAR WIDTH IS GREATER THAN 6' OR THE RUNNING SLOPE IS GREATER THAN 5%, DOUBLE THE CALCULATED TRANSITION LENGTH.

⑤ TRANSITION PANEL(S) ARE TO ONLY BE USED AFTER THE RAMP, OR IF NEEDED, LANDING ARE AT THE FULL CURB HEIGHT (TYPICAL SECTION).

⑥ EXISTING CROSS SLOPE GREATER THAN 2.0%.

**LEGEND**

THESE LONGITUDINAL SLOPE RANGES SHALL BE THE STARTING POINT. IF SITE CONDITIONS WARRANT, LONGITUDINAL SLOPES UP TO 8.3% OR FLATTER ARE ALLOWED.

⑤ INDICATES PEDESTRIAN RAMP - SLOPE SHALL BE BETWEEN 5.0% MINIMUM AND 8.3% MAXIMUM IN THE DIRECTION SHOWN AND THE CROSS SLOPE SHALL NOT EXCEED 2.0%.

④ LANDING AREA - 4' X 4' MIN. (5' X 5' MIN. PREFERRED) DIMENSIONS AND MAX 2.0% SLOPE IN ALL DIRECTIONS. LANDING SHALL BE FULL WIDTH OF INCOMING PAR.

① TRANSITION PANEL(S) - TO BE USED FOR TRANSITIONING THE CROSS-SLOPE OF A RAMP TO THE EXISTING WALK CROSS-SLOPE. RATE OF TRANSITION SHOULD BE 0.5% PER 1 LINEAR FOOT OF WALK. SEE THIS SHEET FOR ADDITIONAL INFORMATION.

REVISION:
APPROVED: JANUARY 23, 2017
<i>[Signature]</i> OPERATIONS ENGINEER



STANDARD PLAN 5-297.250 5 OF 6

*[Signature]*  
STATE DESIGN ENGINEER

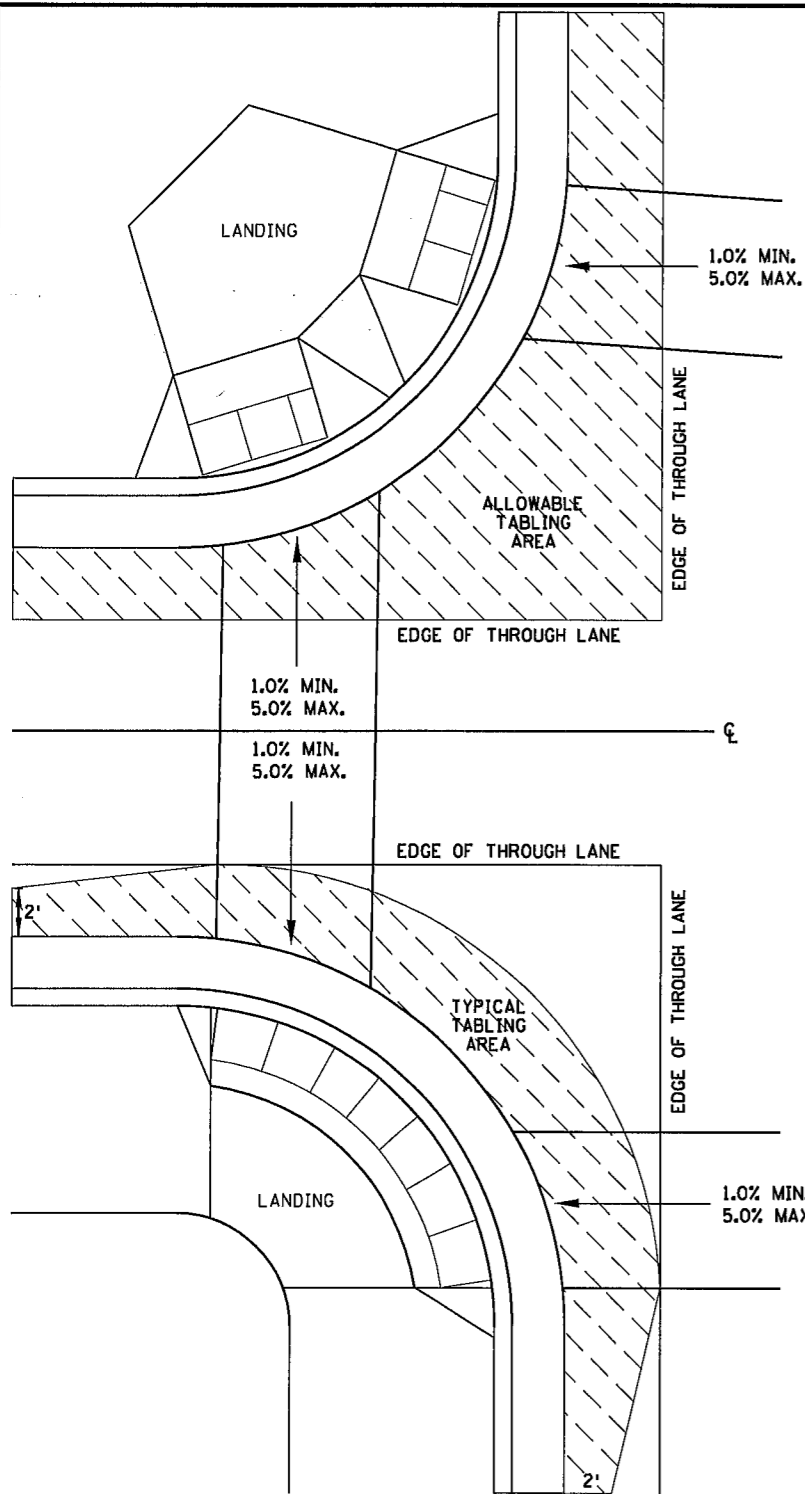
APPROVED: 1-23-2017  
REVISED:

SAP 002-716-021 / SAP 199-104-014

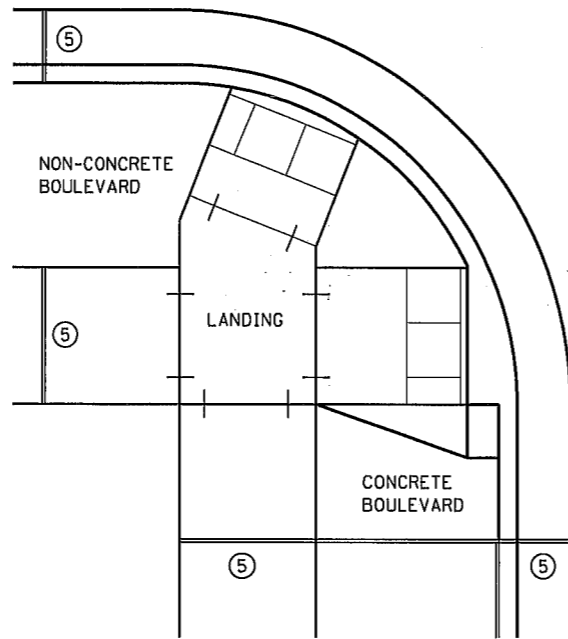
**PEDESTRIAN CURB RAMP DETAILS**

SHEET NO. 1010F 259 SHEETS

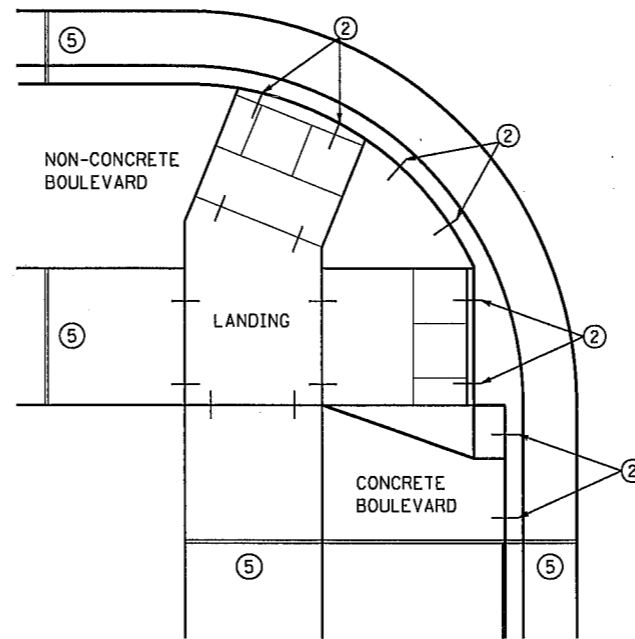
PLOTTED/REVISED: 07/27/2021



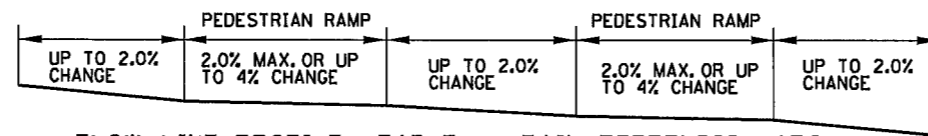
**CURB LINE AND ROAD CROSSING ADJUSTMENTS**



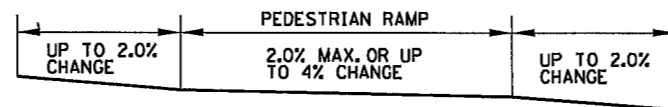
**EXPANSION MATERIAL PLACEMENT FOR CONCRETE AND BITUMINOUS ROADWAYS**



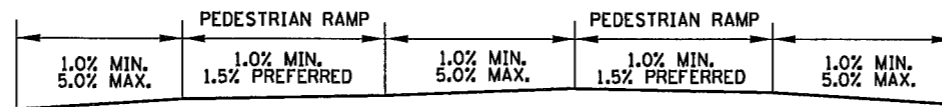
**OPTIONAL CURB LINE REINFORCEMENT PLACEMENT ON BITUMINOUS ROADWAYS** ④



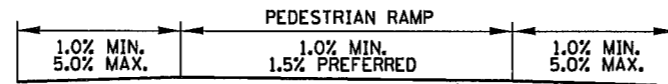
**FLOW LINE PROFILE "TABLE" - TWIN PERPENDICULARS**



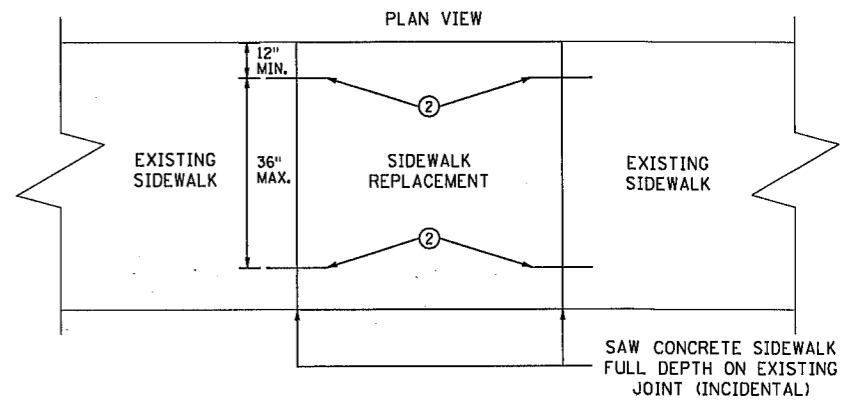
**FLOW LINE PROFILE "TABLE" - FAN**



**FLOW LINE PROFILE RAISE - TWIN PERPENDICULARS**

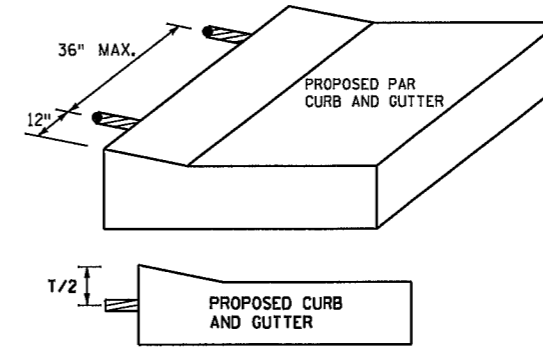


**FLOW LINE PROFILE RAISE - FAN**

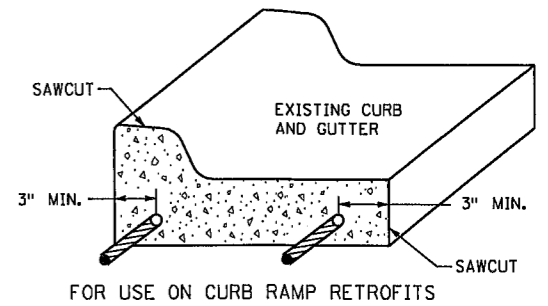


**OPTIONAL SIDEWALK REINFORCEMENT**

SIDEWALK REINFORCEMENT TO BE USED ONLY WHEN SPECIFIED IN THE PLAN.

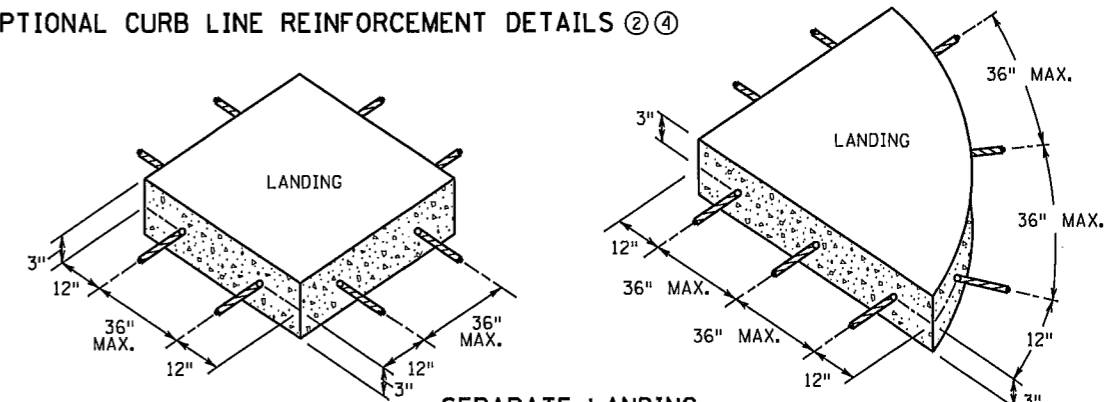


**OPTIONAL CURB LINE REINFORCEMENT DETAILS** ② ④



FOR USE ON CURB RAMP RETROFITS

**CURB AND GUTTER REINFORCEMENT** ③



**SEPARATE LANDING POUR REINFORCEMENT** ①

"TABLING" OF CROSSWALKS MEANS MAINTAINING LESS THAN 2% CROSS SLOPE WITHIN A CROSSWALK, IS REQUIRED WHEN A ROADWAY IS IN A STOP OR YIELD CONDITION AND THE PROJECT SCOPE ALLOWS.

RECONSTRUCTION PROJECTS: ON FULL PAVEMENT REPLACEMENT PROJECTS "TABLING" OF ENTIRE CROSSWALK SHALL OCCUR WHEN FEASIBLE.

MILL & OVERLAY PROJECTS: "TABLING" OF FLOW LINES, IN FRONT OF THE PEDESTRIAN RAMP, IS REQUIRED WHEN THE EXISTING FLOW LINE IS GREATER THAN 2%. WARPING OF THE BITUMINOUS PAVEMENT CAN NOT EXTEND INTO THE THROUGH LANE. TABLE THE FLOW LINE TO 2% OR AS MUCH AS POSSIBLE WHILE ADHERING TO THE FOLLOWING CRITERIA:

- 1) 1.0% MIN. CROSS-SLOPE OF THE ROAD
- 2) 5.0% MAX. CROSS-SLOPE OF THE ROAD
- 3) "TABLE" FLOW LINE UP TO 4% CHANGE FROM EXISTING SLOPE IN FRONT OF PEDESTRIAN RAMP
- 4) UP TO 2% CHANGE IN FLOW LINE FROM EXISTING SLOPE BEYOND THE PEDESTRIAN CURB RAMP

STAND-ALONE ADA RETROFITS: FOLLOW MILL & OVERLAY CRITERIA ABOVE HOWEVER ALL PAVEMENT WARPING IS DONE WITH BITUMINOUS PATCHING ON BITUMINOUS ROADWAYS AND FULL-DEPTH APRON REPLACEMENT ON CONCRETE ROADWAYS.

RAISING OF CURB LINES SHOULD OCCUR IN VERTICALLY CONSTRAINED AREAS. RAISE THE CURB LINES ENOUGH TO ALLOW COMPLIANT RAMPS OR AS MUCH AS POSSIBLE WHILE ADHERING TO THE FOLLOWING CRITERIA:

- 1) 1.0% MIN. AND 5.0% MAXIMUM CROSS-SLOPE OF THE ROAD
- 2) 1.0% MIN. FLOW LINE (ON EITHER SIDE OF PEDESTRIAN RAMP) TO MAINTAIN POSITIVE DRAINAGE
- 3) 5.0% RECOMMENDED MAX. FLOW LINE
- 4) LONGITUDINAL THROUGH LANE ROADWAY TAPERS SHOULD BE 1" VERTICAL PER 15' HORIZONTAL

**NOTES:**

- ① TO ENSURE RAMPS AND LANDINGS ARE PROPERLY CONSTRUCTED, ALL INITIAL LANDINGS AT A TOP OF A RAMPED SURFACE (RUNNING SLOPE GREATER THAN 2%) SHALL BE FORMED AND PLACED SEPARATELY IN AN INDEPENDENT CONCRETE POUR. FOLLOW SIDEWALK REINFORCEMENT DETAILS ON THIS SHEET FOR ALL SEPARATELY POURED INITIAL LANDINGS.
- ② DRILL AND GROUT NO. 4 12" LONG REINFORCEMENT BARS AT 36" MAXIMUM CENTER TO CENTER (EPOXY COATED). BARS TO BE ADJUSTED TO MATCH RAMP GRADE.
- ③ DRILL AND GROUT 2 - NO. 4 X 12" LONG REINFORCEMENT BARS (EPOXY COATED). REINFORCEMENT REQUIRED FOR ALL CONSTRUCTION JOINTS WITHIN RADIUS.
- ④ THIS OPTIONAL CURB LINE REINFORCEMENT DETAIL SHOULD ONLY BE USED ON BITUMINOUS ROADWAYS WHEN SPECIFIED IN THE PLAN.
- ⑤ 1/2 IN. PREFORMED JOINT FILLER MATERIAL PER MNDOT SPEC. 3702.

REVISION:  
APPROVED: JANUARY 23, 2017  
*Ann Sobor*  
OPERATIONS ENGINEER

**m**  
MINNESOTA  
DEPARTMENT  
OF  
TRANSPORTATION

STANDARD PLAN 5-297.250 6 OF 6

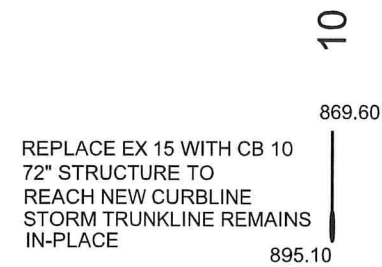
APPROVED: 1-23-2017  
REVISED:  
*Rom S...*  
STATE DESIGN ENGINEER

SAP 002-716-021 / SAP 199-104-014

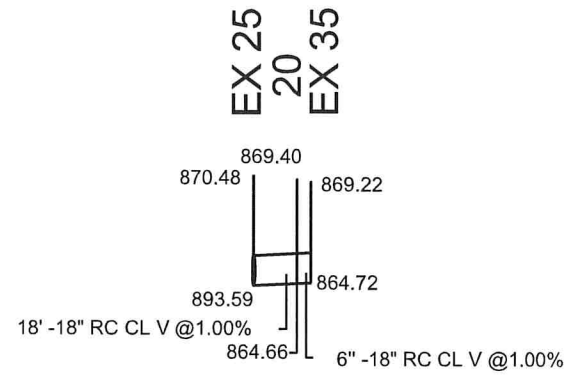
**PEDESTRIAN CURB RAMP DETAILS**

SHEET NO. 102 OF 259 SHEETS

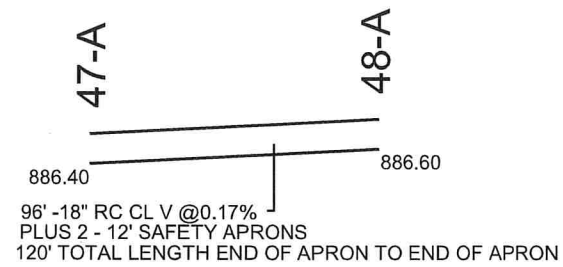
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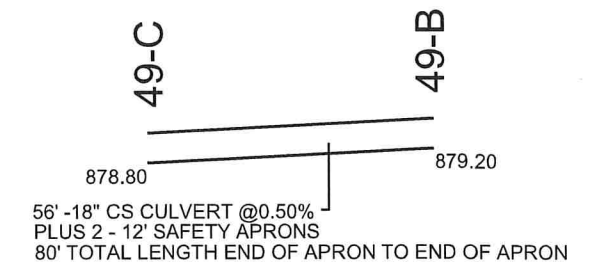
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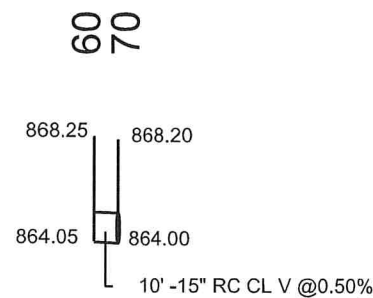
# 47A - 48A SUNWOOD



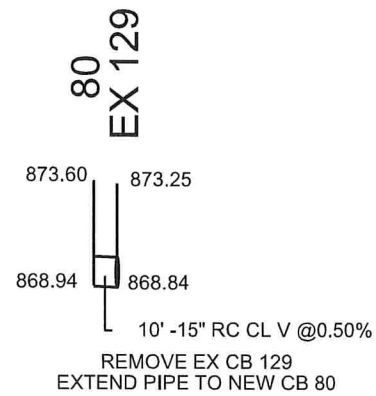
# 49C - 49B ALTRON



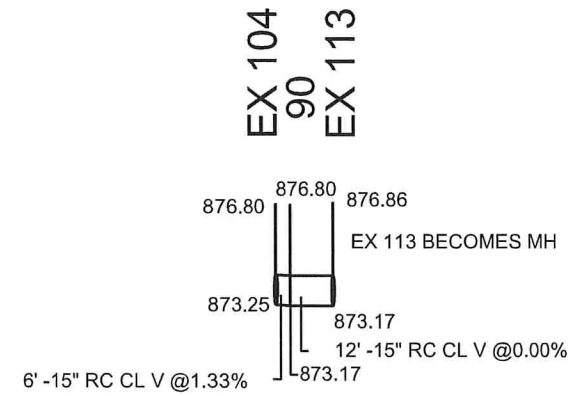
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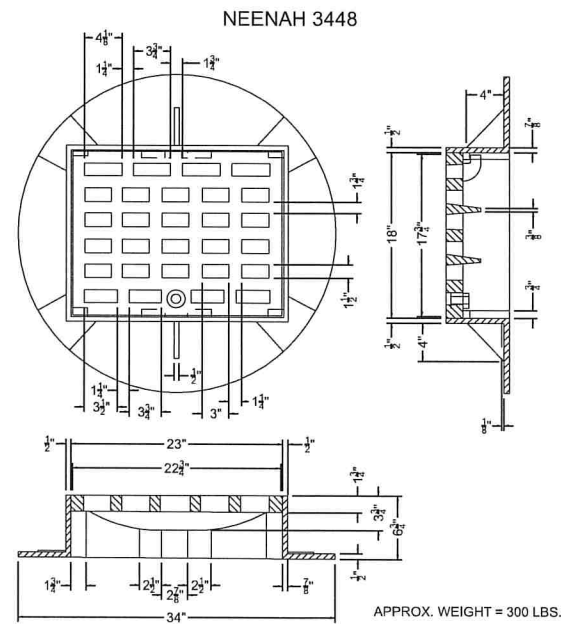
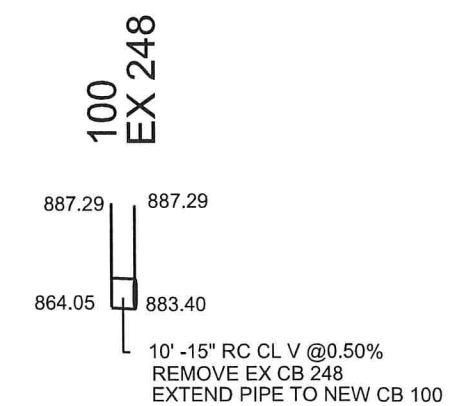
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# EX 104 - EX 113



# 100 - EX 248



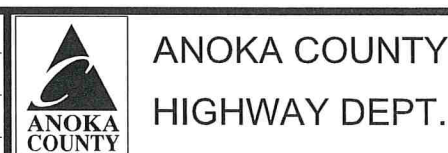
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LETTER	DESCRIPTION	PLATE	No.	GRATE / COVER	QTY
"A"	18" CASTING	NEENAH	3448	BIKE SAFE	8
"B"	24" CASTING	4132G	805	815	1
"C"	MANHOLE CASTING	4126F	801	715	2
<b>TOTAL</b>					<b>11</b>

NO	DATE	BY	CKD	APPR	REVISION

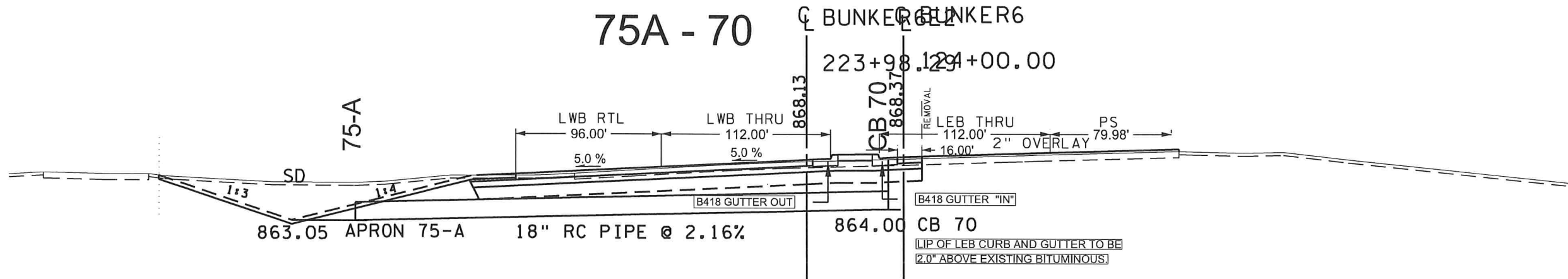
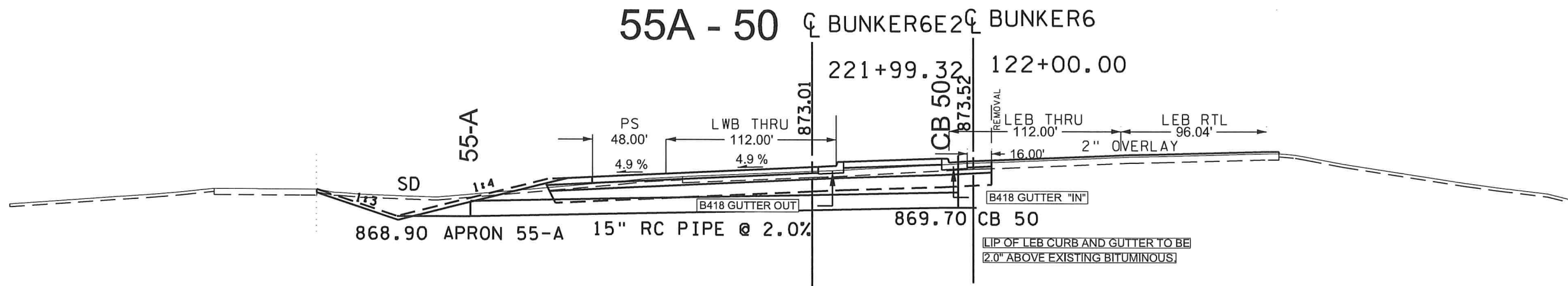
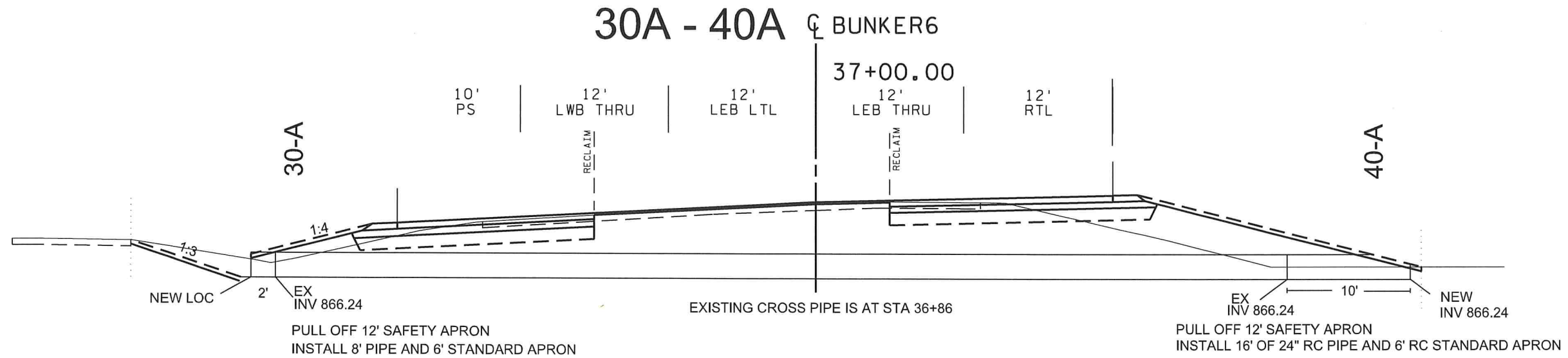
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I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.  
 PRINT NAME: NICHOLAS J. DOBDA  
 SIGNATURE: *[Signature]*  
 DATE: 8/31/21 LICENSE NO. 49046

DRAWN BY JCF DATE 07/01/21  
 DESIGN BY JCF DATE 07/01/21  
 CHECKED BY NJD DATE 07/09/21



SAP 002-716-021  
 SAP 199-104-014



NO	DATE	BY	CKD	APPR	REVISION
NAME: P:\002-716-021\Plan\002716021 DR1.dgn					
07/27/2021 1:48:10 PM					

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

PRINT NAME: NICHOLAS J. DOBDA  
SIGNATURE: *NJD*  
DATE: 8/3/21 LICENSE NO. 49046

DRAWN BY: JCF DATE: 07/01/21  
DESIGN BY: JCF DATE: 07/01/21  
CHECKED BY: NJD DATE: 07/09/21



**ANOKA COUNTY  
HIGHWAY DEPT.**

SAP 002-716-021  
SAP 199-104-014



LEGEND	
	SEEDING SEED TYPE 25 - 121 FERTILIZER TYPE 3 MULCH W/ DISK ANCHORING
	SOD, ALTRON 2 ENT
	SILT FENCE TYPE MACHINE SLICED
	RIPRAP CLASS II
	BLANKET APRON INLET OR OUTLET
	CULVERT END CONTROLS
	INLET PROTECTION
	PROP. CULVERT
	PROP. APRON
	INPLACE CULVERT
	WETLAND BOUNDARIES
NOTES	

THE CONTRACTOR SHALL CONSTRUCT WASHED GRAVEL ENTRANCES AT POINTS OF EXIT FROM THE WORK AREA ONTO EXISTING BIT PAVEMENT AS DIRECTED BY THE ENGINEER.

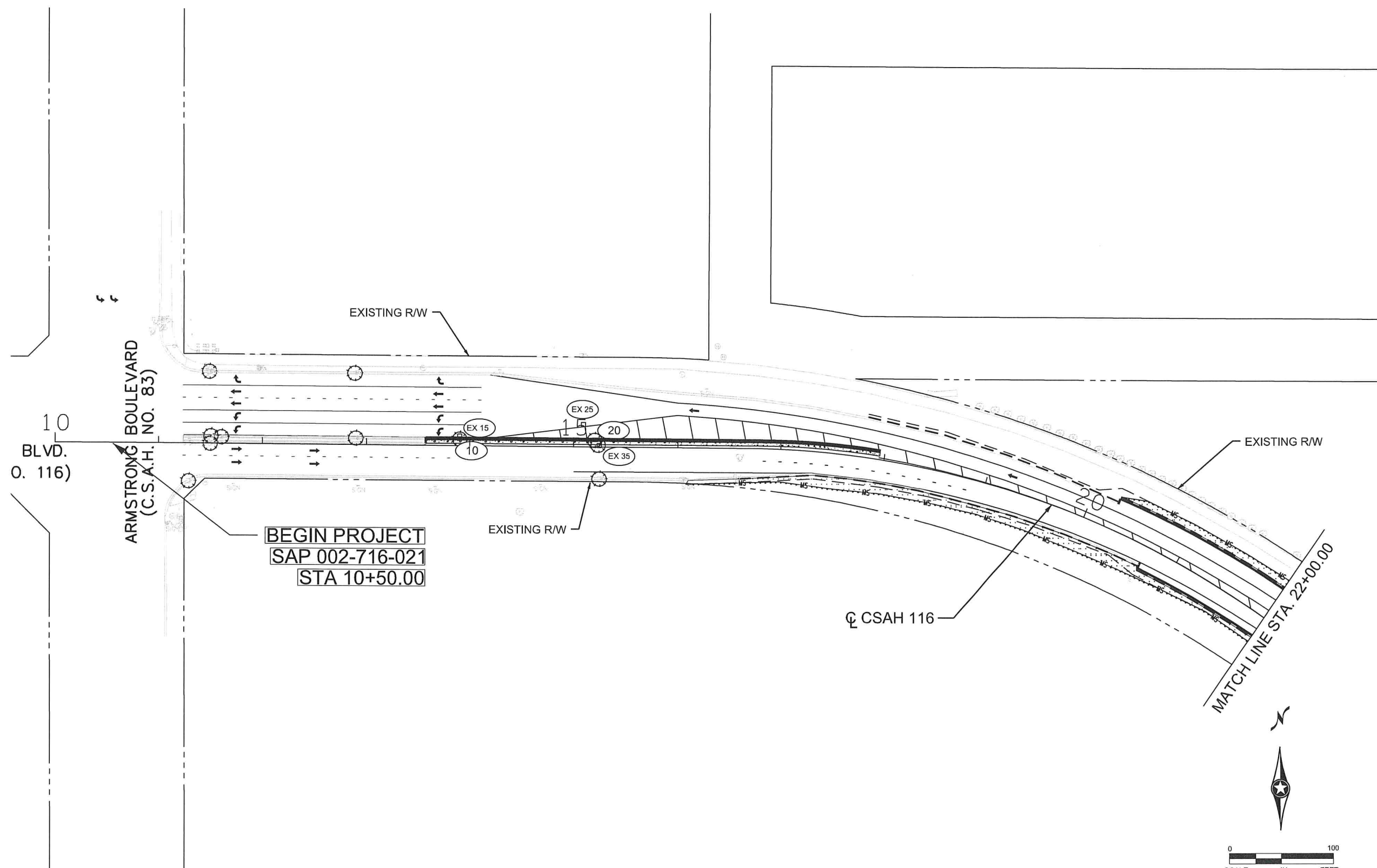
SILT FENCE SHALL FOLLOW AS CLOSE AS POSSIBLE A SINGLE CONTOUR.

SILT FENCE SHALL BE CLEANED OUT OR REPLACED WHEN SEDIMENT REACHES 8" OR  $\frac{1}{3}$  OF SILT FENCE HEIGHT.

WHEN SEDIMENT DEPOSITS IN A WATER OF THE STATE, THE MATERIAL MUST BE REMOVED WITHIN 7 DAYS.

IF SILT DEPOSITS IN THE ANOKA COUNTY R/W THE CONTRACTOR IS RESPONSIBLE FOR ITS REMOVAL.

ALL GRADED AREAS TO BE REVEGETATED WITHIN 7 DAYS OF THE COMPLETION OF GRADING.



NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\002-716-021\Plan\002716021 ER1.dgn      07/27/2021      1:48:13 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.

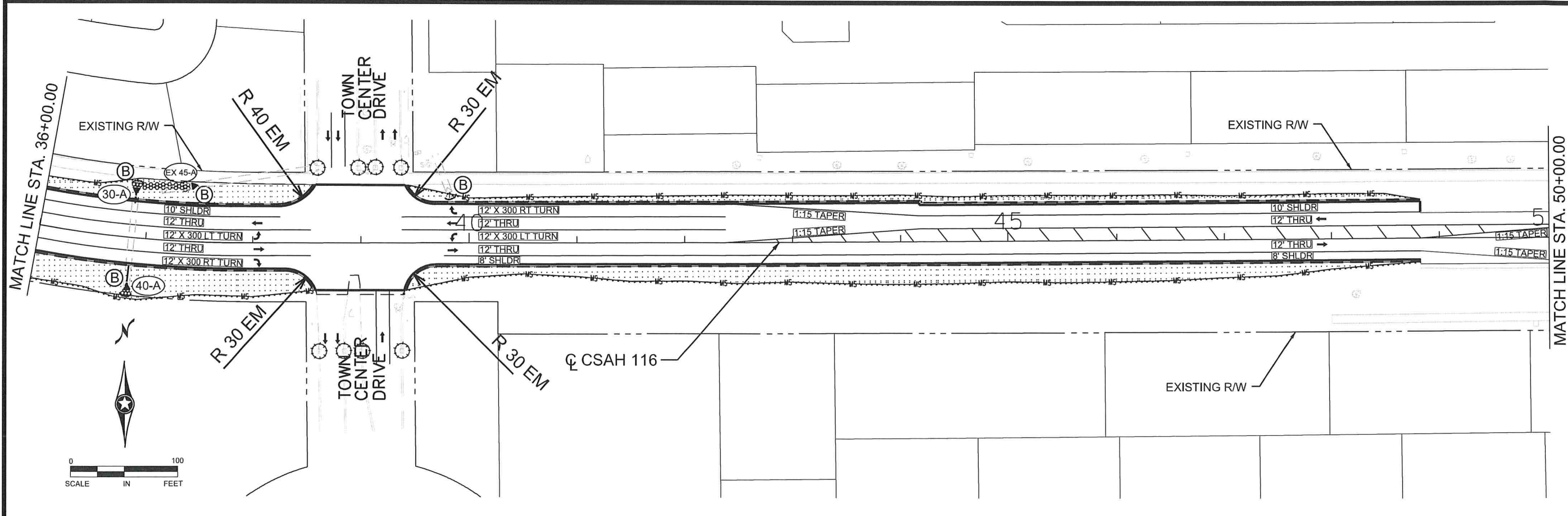
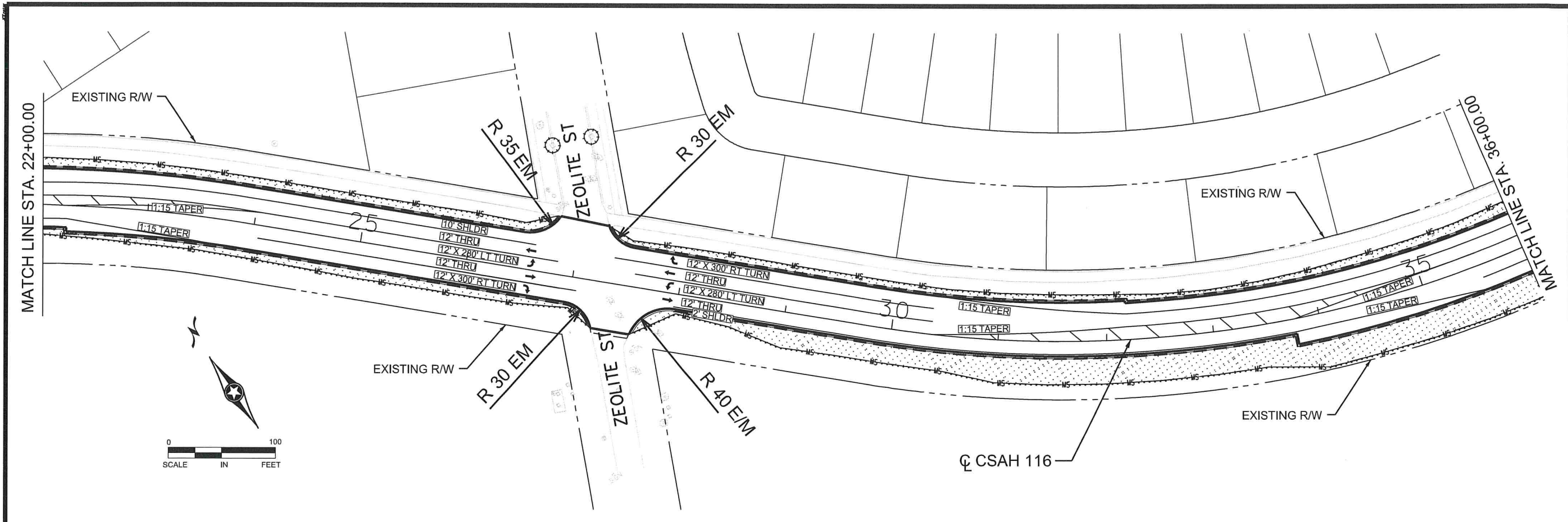
PRINT NAME: NICHOLAS J. DOBDA  
SIGNATURE: *N. Dobda*  
DATE: 8/13/21      LICENSE NO. 49046

DRAWN BY: JCF      DATE: 07/01/21  
DESIGN BY: JCF      DATE: 07/01/21  
CHECKED BY: NJD      DATE: 07/09/21

ANOKA COUNTY  
HIGHWAY DEPT.

SAP 002-716-021  
SAP 199-104-014

TURF ESTABLISHMENT & EROSION CONTROL  
STA 10+00.00 TO 22+00.00  
Sheet 105 of 259 Sheets



- LEGEND**
- SEEDING
  - SEED TYPE 25 - 121
  - FERTILIZER TYPE 3
  - MULCH W/ DISK ANCHORING
  - SOD, ALTRON 2 ENT
  - SILT FENCE TYPE MACHINE SLICED
  - RIPRAP CLASS II
  - BLANKET APRON INLET OR OUTLET
  - CULVERT END CONTROLS
  - INLET PROTECTION
  - PROP. CULVERT
  - PROP. APRON
  - INPLACE CULVERT
  - WETLAND BOUNDARIES

**NOTES**

THE CONTRACTOR SHALL CONSTRUCT WASHED GRAVEL ENTRANCES AT POINTS OF EXIT FROM THE WORK AREA ONTO EXISTING BIT PAVEMENT AS DIRECTED BY THE ENGINEER.

SILT FENCE SHALL FOLLOW AS CLOSE AS POSSIBLE A SINGLE CONTOUR.

SILT FENCE SHALL BE CLEANED OUT OR REPLACED WHEN SEDIMENT REACHES 8" OR  $\frac{1}{3}$  OF SILT FENCE HEIGHT.

WHEN SEDIMENT DEPOSITS IN A WATER OF THE STATE, THE MATERIAL MUST BE REMOVED WITHIN 7 DAYS.

IF SILT DEPOSITS IN THE ANOKA COUNTY RW THE CONTRACTOR IS RESPONSIBLE FOR ITS REMOVAL.

ALL GRADED AREAS TO BE REVEGETATED WITHIN 7 DAYS OF THE COMPLETION OF GRADING.

NO	DATE	BY	CKD	APPR	REVISION
NAME: P:\002-716-021\Plan\002716021 ER2.dgn					

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

PRINT NAME: NICHOLAS J. DOBDA

SIGNATURE:

DATE: 8/31/21 LICENSE NO. 49046

DRAWN BY: JCF DATE: 07/01/21

DESIGN BY: JCF DATE: 07/01/21

CHECKED BY: NJD DATE: 07/09/21

ANOKA COUNTY HIGHWAY DEPT.

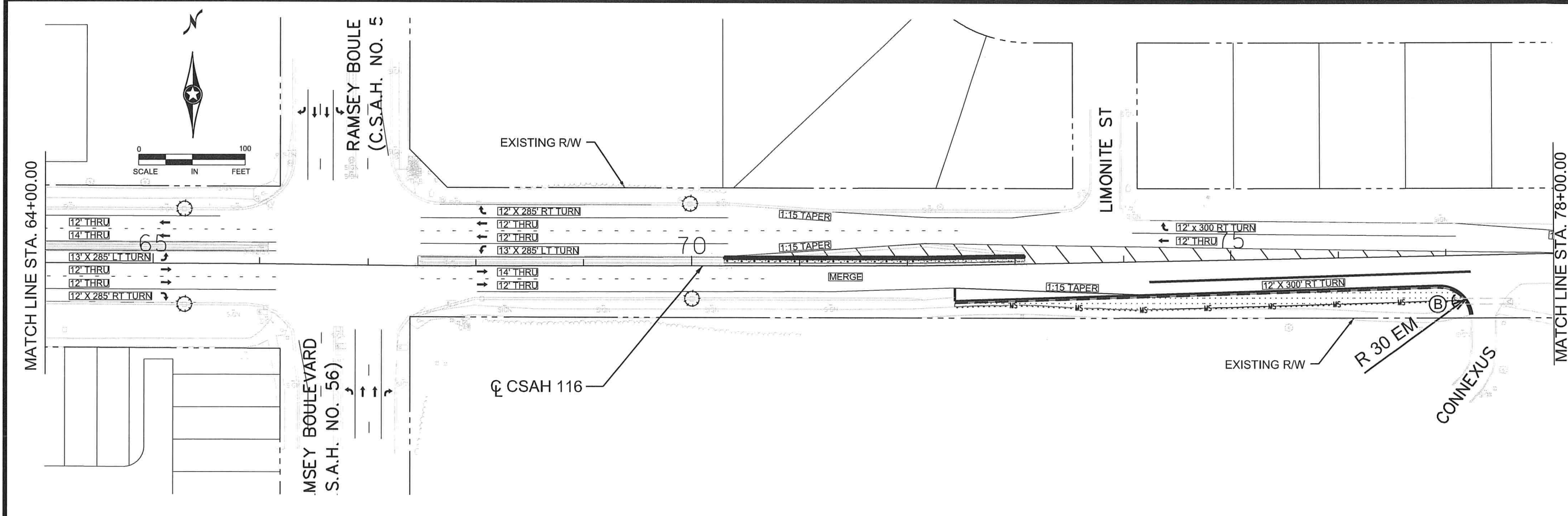
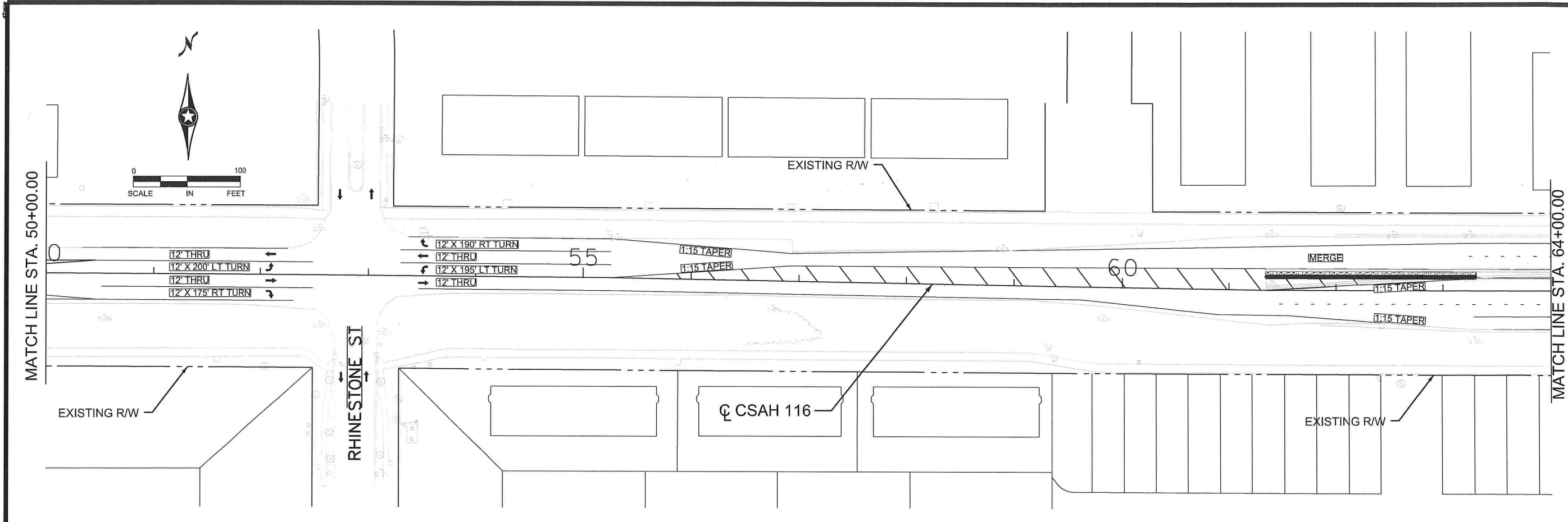
SAP 002-716-021  
SAP 199-104-014

2 OF 7

TURF ESTABLISHMENT & EROSION CONTROL

STA 22+00.00 TO 50+00.00

Sheet 106 of 259 Sheets



- LEGEND**
- SEEDING
  - SEED TYPE 25 - 121
  - FERTILIZER TYPE 3
  - MULCH W/ DISK ANCHORING
  - SOD, ALTRON 2 ENT
  - SILT FENCE TYPE MACHINE SLICED
  - RIPRAP CLASS II
  - BLANKET APRON INLET OR OUTLET
  - CULVERT END CONTROLS
  - INLET PROTECTION
  - PROP. CULVERT
  - PROP. APRON
  - INPLACE CULVERT
  - WETLAND BOUNDARIES

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NO	DATE	BY	CKD	APPR	REVISION
NAME: P:\002-716-021\Plan\002716021 ER3.dgn					
07/27/2021 1:48:24 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: NICHOLAS J. DOBDA

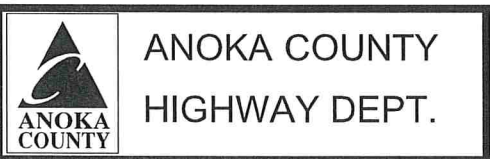
SIGNATURE: *N. Dobda*

DATE: 8/3/21 LICENSE NO. 49046

DRAWN BY: JCF DATE: 07/01/21

DESIGN BY: JCF DATE: 07/01/21

CHECKED BY: NJD DATE: 07/09/21



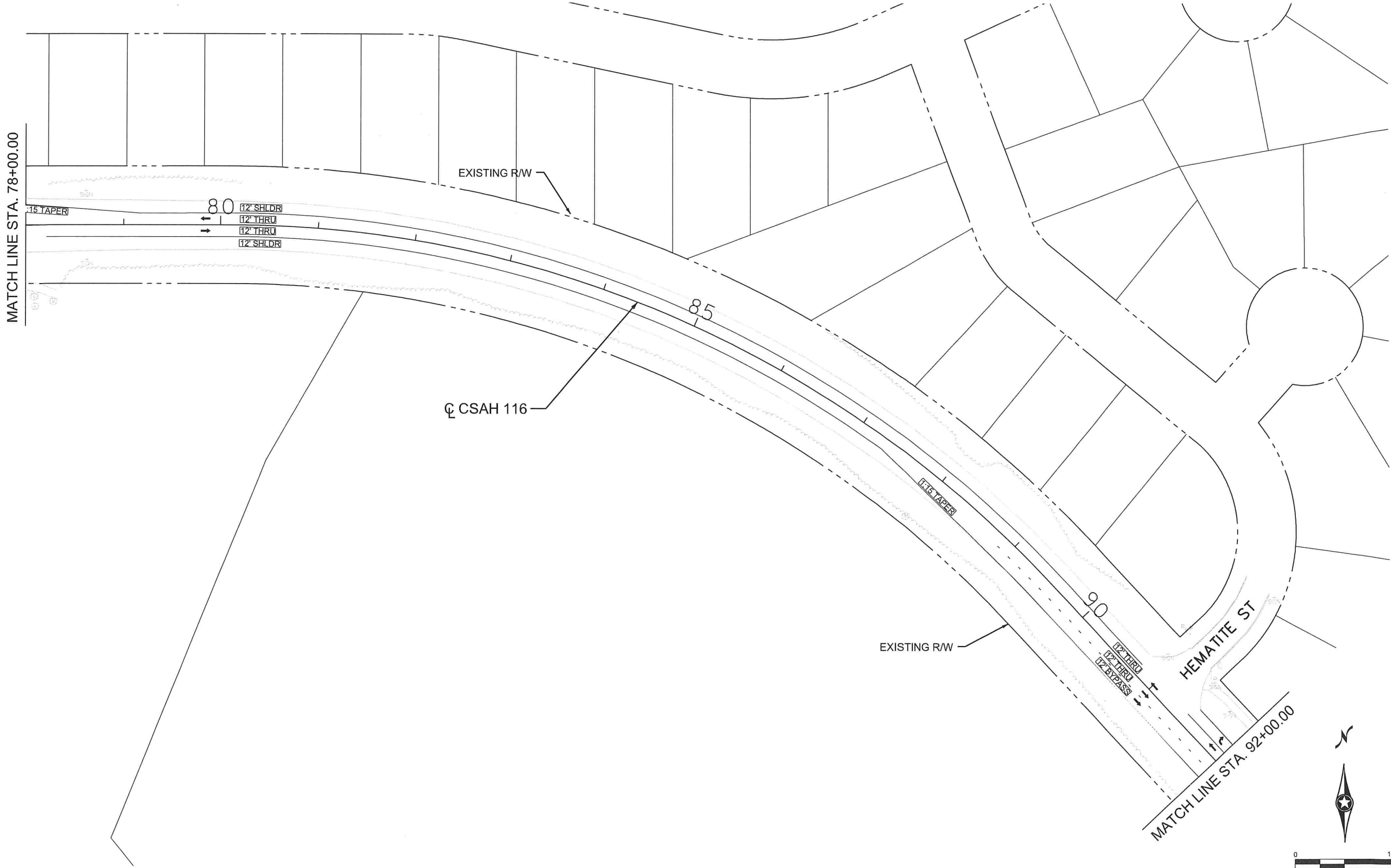
SAP 002-716-021  
SAP 199-104-014

3 OF 7

TURF ESTABLISHMENT & EROSION CONTROL

STA 50+00.00 TO 78+00.00

Sheet 107 of 259 Sheets



LEGEND	
[Symbol]	SEEDING
[Symbol]	SEED TYPE 25 - 121
[Symbol]	FERTILIZER TYPE 3
[Symbol]	MULCH W/ DISK ANCHORING
[Symbol]	SOD, ALTRON 2 ENT
[Symbol]	SILT FENCE TYPE MACHINE SLICED
[Symbol]	RIPRAP CLASS II
[Symbol]	BLANKET APRON INLET OR OUTLET
[Symbol]	CULVERT END CONTROLS
[Symbol]	INLET PROTECTION
[Symbol]	PROP. CULVERT
[Symbol]	PROP. APRON
[Symbol]	INPLACE CULVERT
[Symbol]	WETLAND BOUNDARIES

**NOTES**

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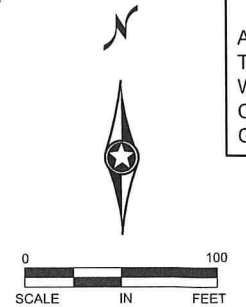
SILT FENCE SHALL FOLLOW AS CLOSE AS POSSIBLE A SINGLE CONTOUR.

SILT FENCE SHALL BE CLEANED OUT OR REPLACED WHEN SEDIMENT REACHES 8" OR  $\frac{1}{3}$  OF SILT FENCE HEIGHT.

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NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\002-716-021\Plan\002716021 ER4.dgn      07/27/2021      1:48:25 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: NICHOLAS J. DOBDA

SIGNATURE: *Nicholas J. Dobda*

DATE: 8/3/21      LICENSE NO. 49046

DRAWN BY: JCF      DATE: 07/01/21

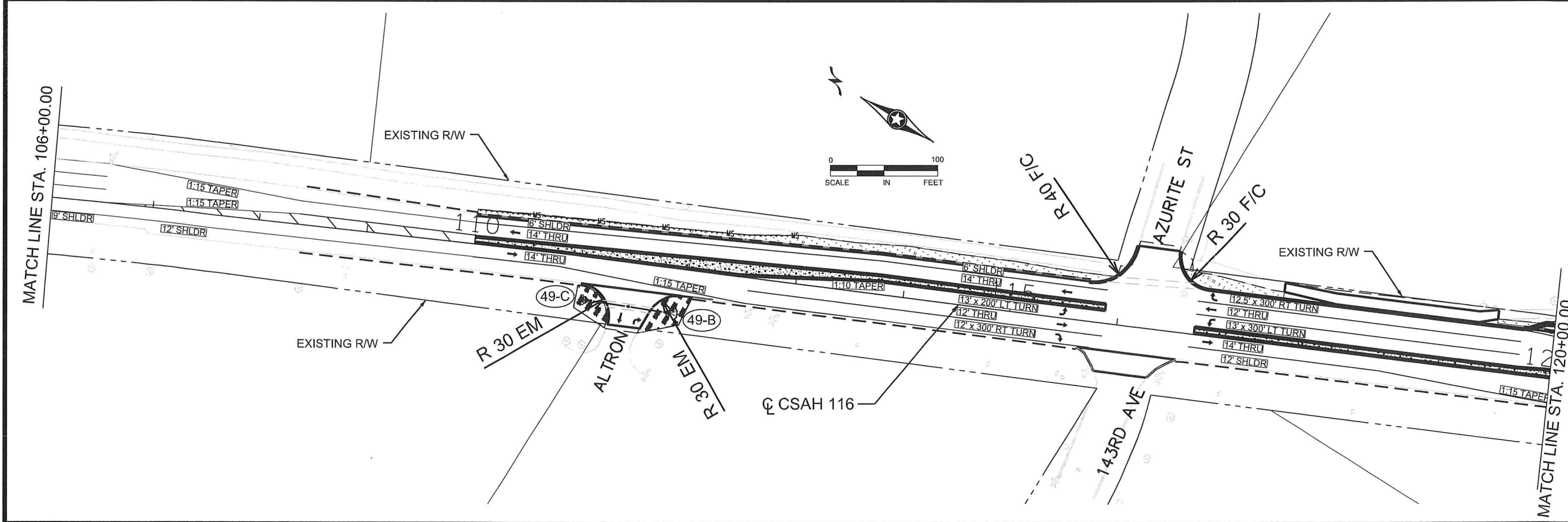
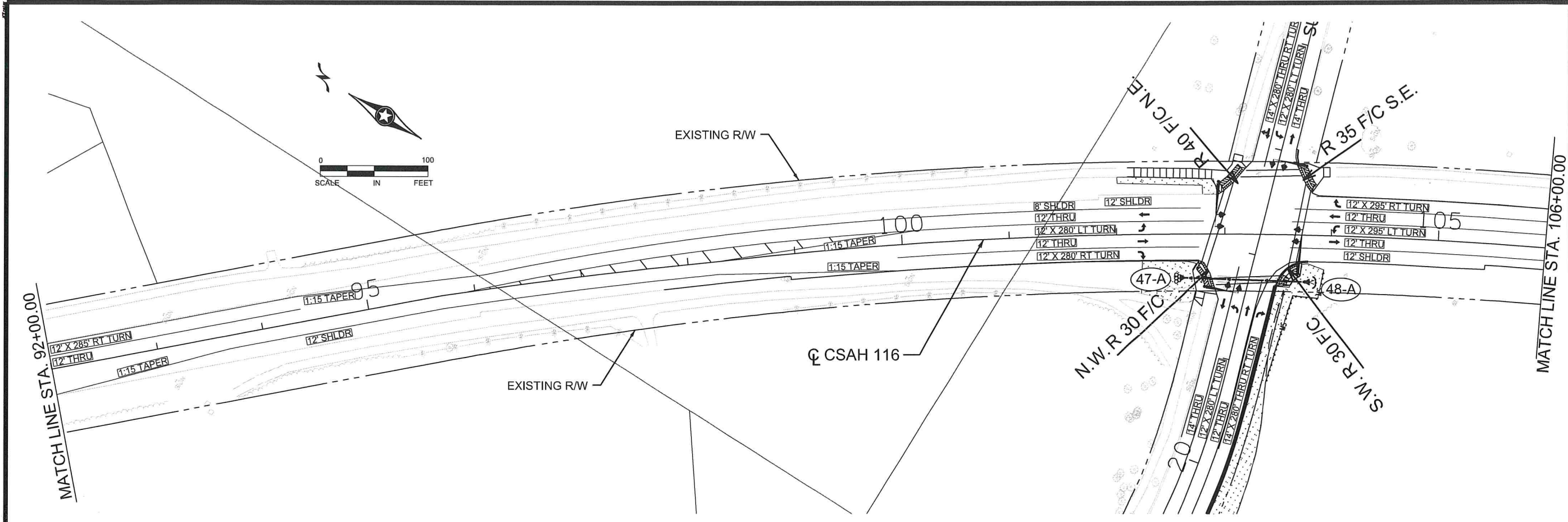
DESIGN BY: JCF      DATE: 07/01/21

CHECKED BY: NJD      DATE: 07/09/21

**ANOKA COUNTY**  
HIGHWAY DEPT.

SAP 002-716-021  
SAP 199-104-014

**TURF ESTABLISHMENT & EROSION CONTROL**  
STA 78+00.00 TO 92+00.00  
Sheet 108 of 259 Sheets



**LEGEND**

- SEEDING
- SEED TYPE 25 - 121
- FERTILIZER TYPE 3
- MULCH W/ DISK ANCHORING
- SOD, ALTRON 2 ENT
- SILT FENCE TYPE MACHINE SLICED
- RIPRAP CLASS II
- BLANKET APRON INLET OR OUTLET
- CULVERT END CONTROLS
- INLET PROTECTION
- PROP. CULVERT
- PROP. APRON
- INPLACE CULVERT
- WETLAND BOUNDARIES

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NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\002-716-021\Plan\002716021 ER5.dgn      07/27/2021      1:48:26 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: NICHOLAS J. DOBDA

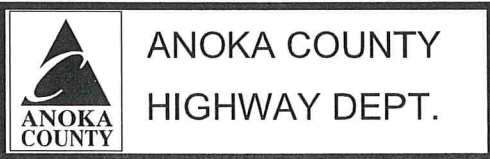
SIGNATURE: *N. Dobda*

DATE: 8/3/21      LICENSE NO. 49046

DRAWN BY: JCF      DATE: 07/01/21

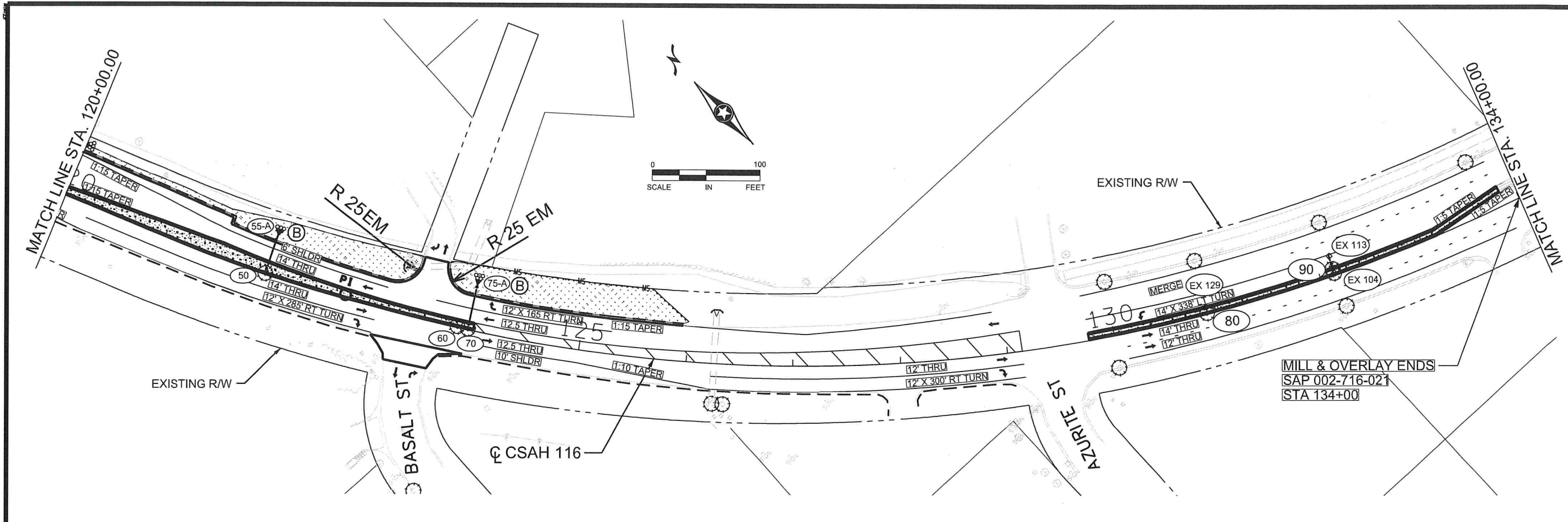
DESIGN BY: JCF      DATE: 07/01/21

CHECKED BY: NJD      DATE: 07/09/21



SAP 002-716-021  
SAP 199-104-014

TURF ESTABLISHMENT & EROSION CONTROL  
STA 92+00.00 TO 120+00.00  
Sheet 109 of 259 Sheets



LEGEND	
[Stippled Area]	SEEDING SEED TYPE 25 - 121 FERTILIZER TYPE 3 MULCH W/ DISK ANCHORING
[Square with 'S']	SOD, ALTRON 2 ENT
[Square with 'M']	SILT FENCE TYPE MACHINE SLICED
[Circle with 'R']	RIPRAP CLASS II
[Circle with 'B']	BLANKET APRON INLET OR OUTLET
[Triangle with 'C']	CULVERT END CONTROLS
[Circle with 'I']	INLET PROTECTION
[Dashed Line]	PROP. CULVERT
[Solid Line]	PROP. APRON
[Dashed Line]	INPLACE CULVERT
[Dotted Line]	WETLAND BOUNDARIES

**NOTES**

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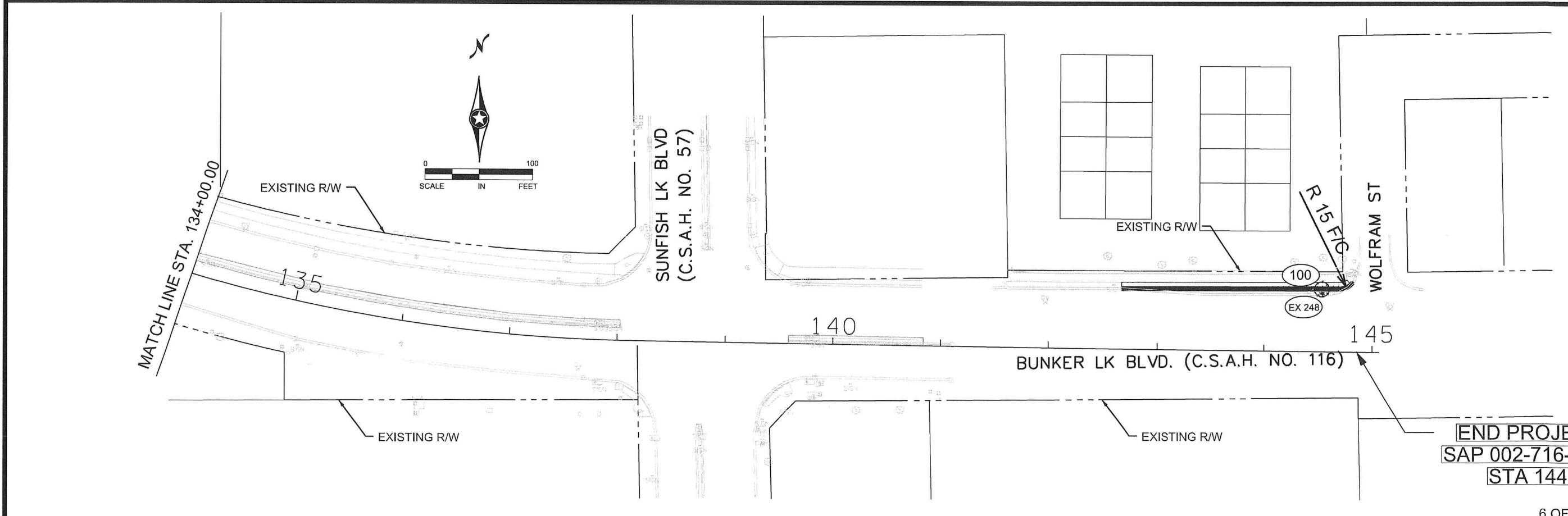
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**END PROJECT**  
SAP 002-716-021  
STA 144+90

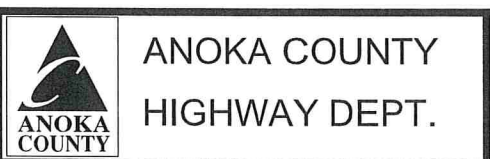
NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\002-716-021\Plan\002716021 ER6.dgn 07/27/2021 1:48:27 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.

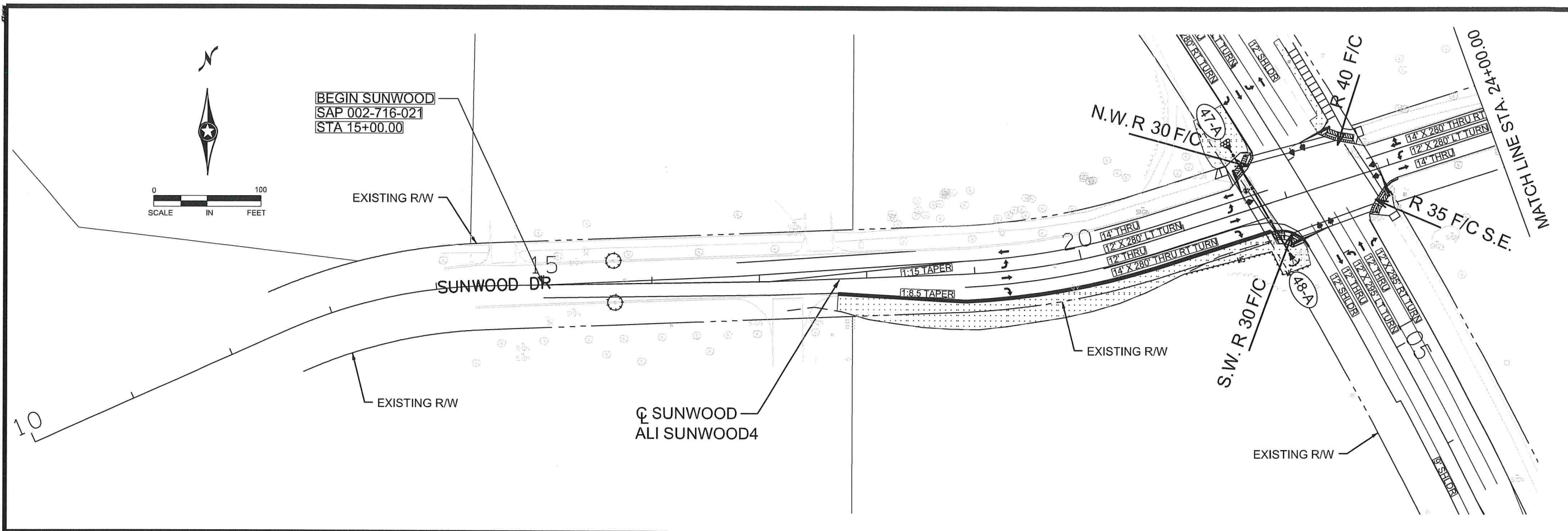
PRINT NAME: NICHOLAS J. DOBDA  
SIGNATURE: *[Signature]*  
DATE: 8/3/21 LICENSE NO. 49046

DRAWN BY JCF DATE 07/01/21  
DESIGN BY JCF DATE 07/01/21  
CHECKED BY NJD DATE 07/09/21



SAP 002-716-021  
SAP 199-104-014

TURF ESTABLISHMENT & EROSION CONTROL  
STA 120+00.00 TO 183+02.55  
Sheet 110 of 259 Sheets



LEGEND	
[Symbol]	SEEDING
[Symbol]	SEED TYPE 25 - 121
[Symbol]	FERTILIZER TYPE 3
[Symbol]	MULCH W/ DISK ANCHORING
[Symbol]	SOD, ALTRON 2 ENT
[Symbol]	SILT FENCE TYPE MACHINE SLICED
[Symbol]	RIPRAP CLASS II
[Symbol]	BLANKET APRON INLET OR OUTLET
[Symbol]	CULVERT END CONTROLS
[Symbol]	INLET PROTECTION
[Symbol]	PROP. CULVERT
[Symbol]	PROP. APRON
[Symbol]	INPLACE CULVERT
[Symbol]	WETLAND BOUNDARIES

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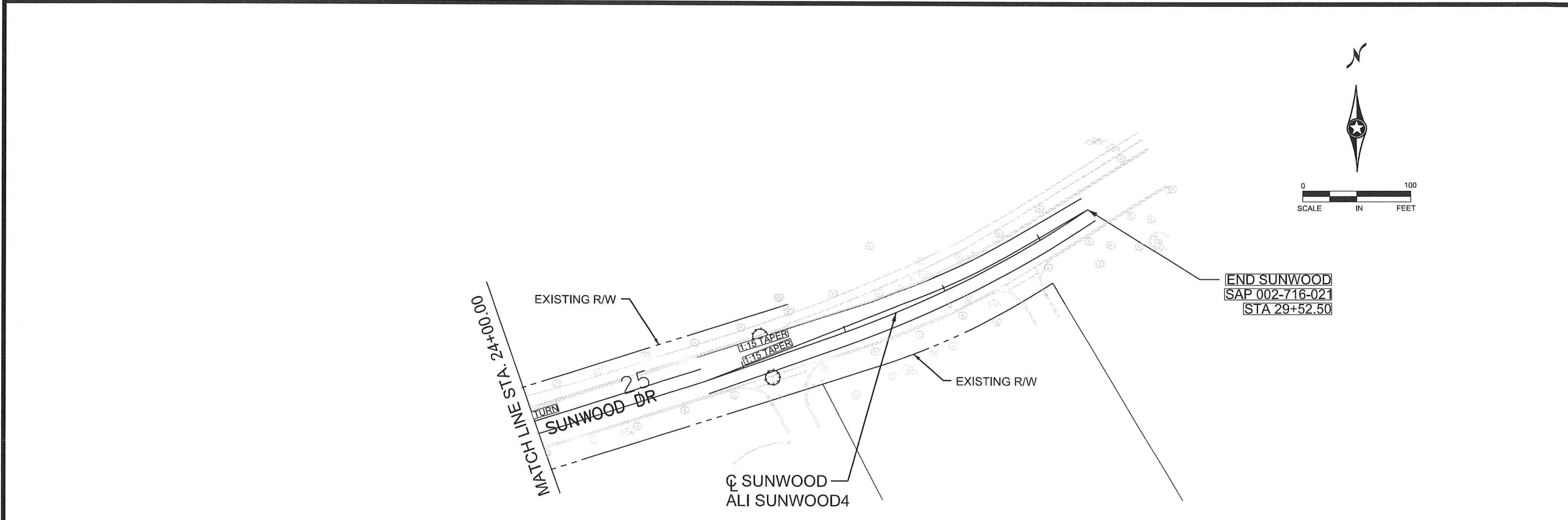
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NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\002-716-021\Plan\002716021 ER7.dgn 07/27/2021 1:48:28 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: NICHOLAS J. DOBDA

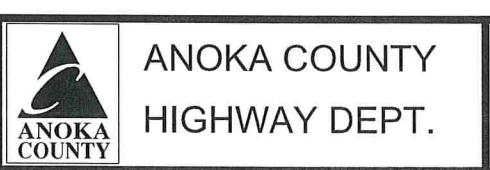
SIGNATURE: *N. Dobda*

DATE: 8/3/21 LICENSE NO. 49046

DRAWN BY JCF DATE 07/01/21

DESIGN BY JCF DATE 07/01/21

CHECKED BY NJD DATE 07/09/21

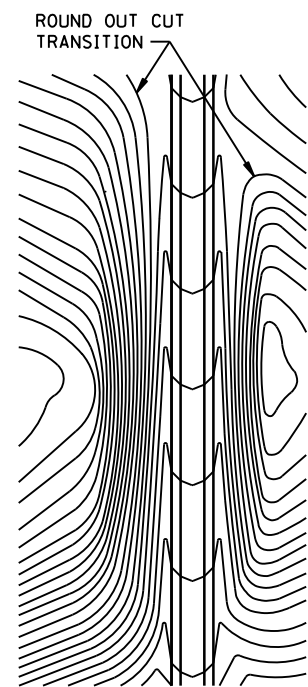


SAP 002-716-021  
SAP 199-104-014

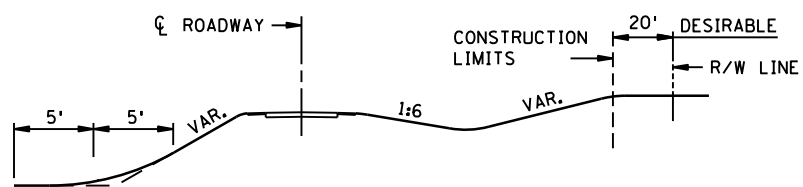
7 OF 7  
SUNWOOD DR

TURF ESTABLISHMENT & EROSION CONTROL  
STA 10+00.00 TO 29+52.50

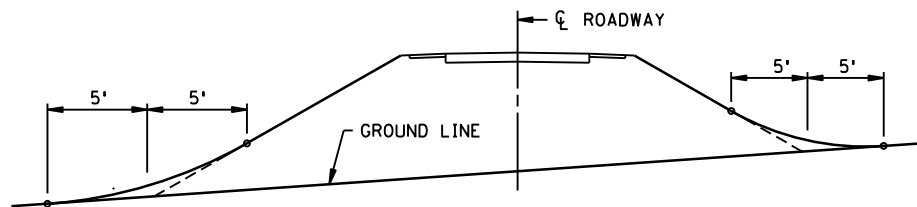
Sheet 111 of 259 Sheets



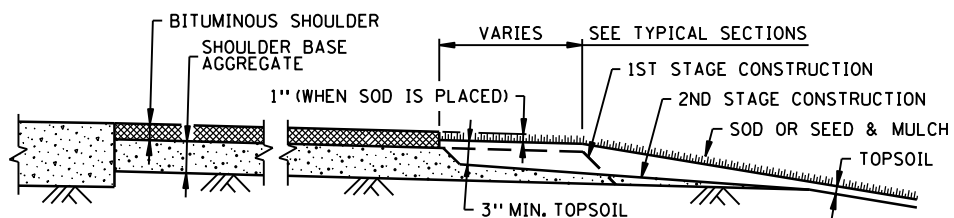
CONTOURING ROAD CUTS



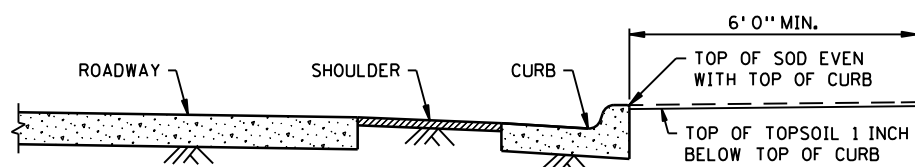
ROUNDING SHOULDERS AND BACKSLOPES



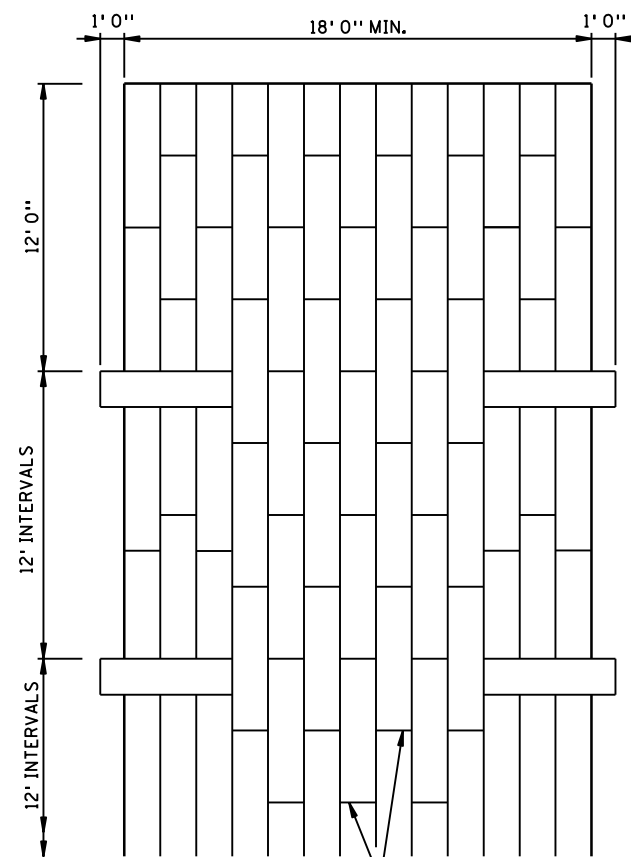
SHAPING FOR DRAINAGE ALONG THE TOE OF FILL SLOPES



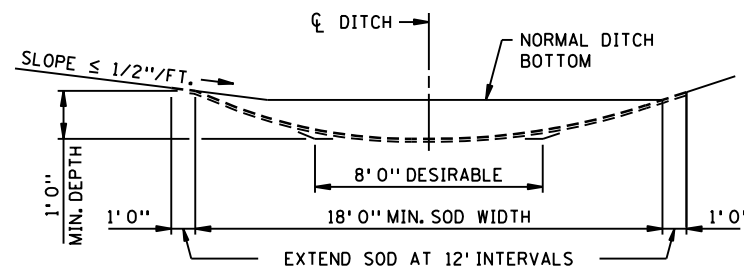
SHAPING AND TOPSOILING INSLOPES



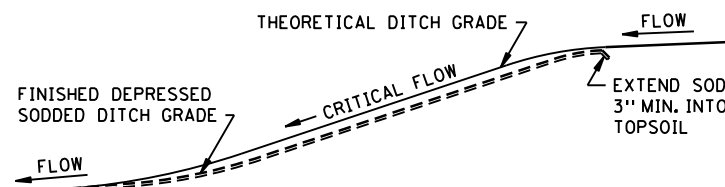
SHAPING ADJACENT TO CURBS WHEN SOD IS PLACED



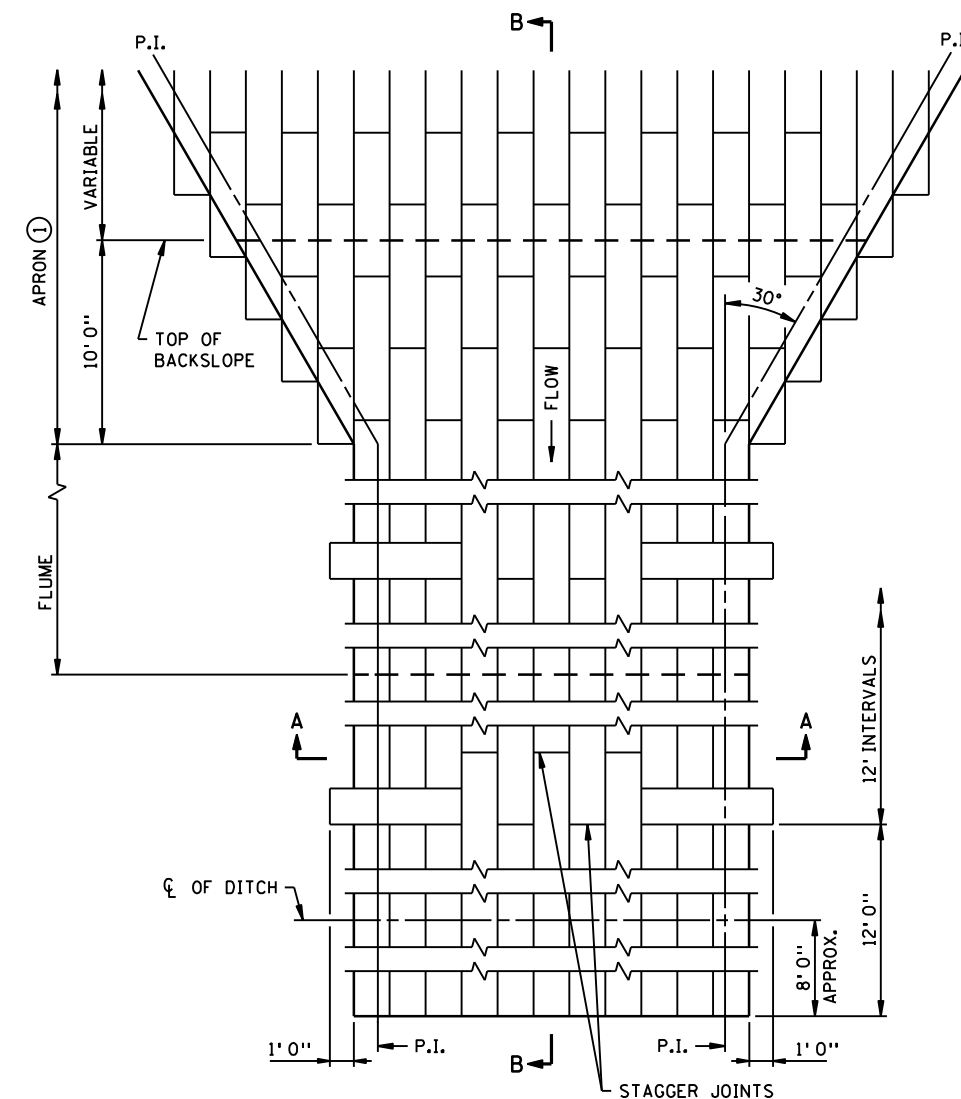
PLAN VIEW



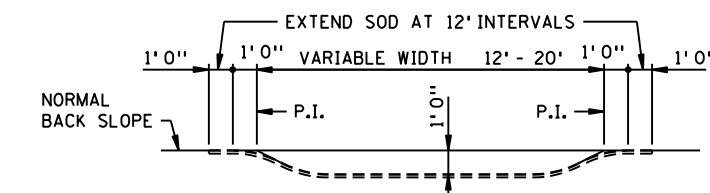
SODDED DITCH CROSS SECTION  
WHERE FRONT OR BACK SLOPE IS FLAT (LESS THAN 1/2"/FT.), FIRST NOTCH DITCH AND THEN PROVIDE ROUNDING.



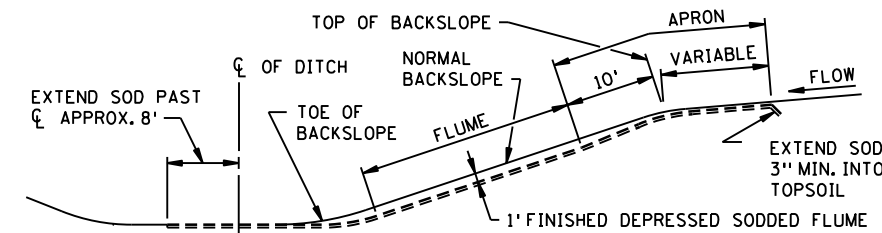
DITCH PROFILE  
SODDED DITCH DETAILS



PLAN VIEW



SECTION A-A



SECTION B-B

SODDED FLUME DETAILS

NOTES:  
SEE SPEC. 2575.3 FOR ADDITIONAL INFORMATION.  
① CONSTRUCT TAPER AS DIRECTED BY THE ENGINEER.

REVISION:  
APPROVED: 2-28-2017  
*Chap. Elvick*  
CHIEF ENVIRONMENTAL OFFICER

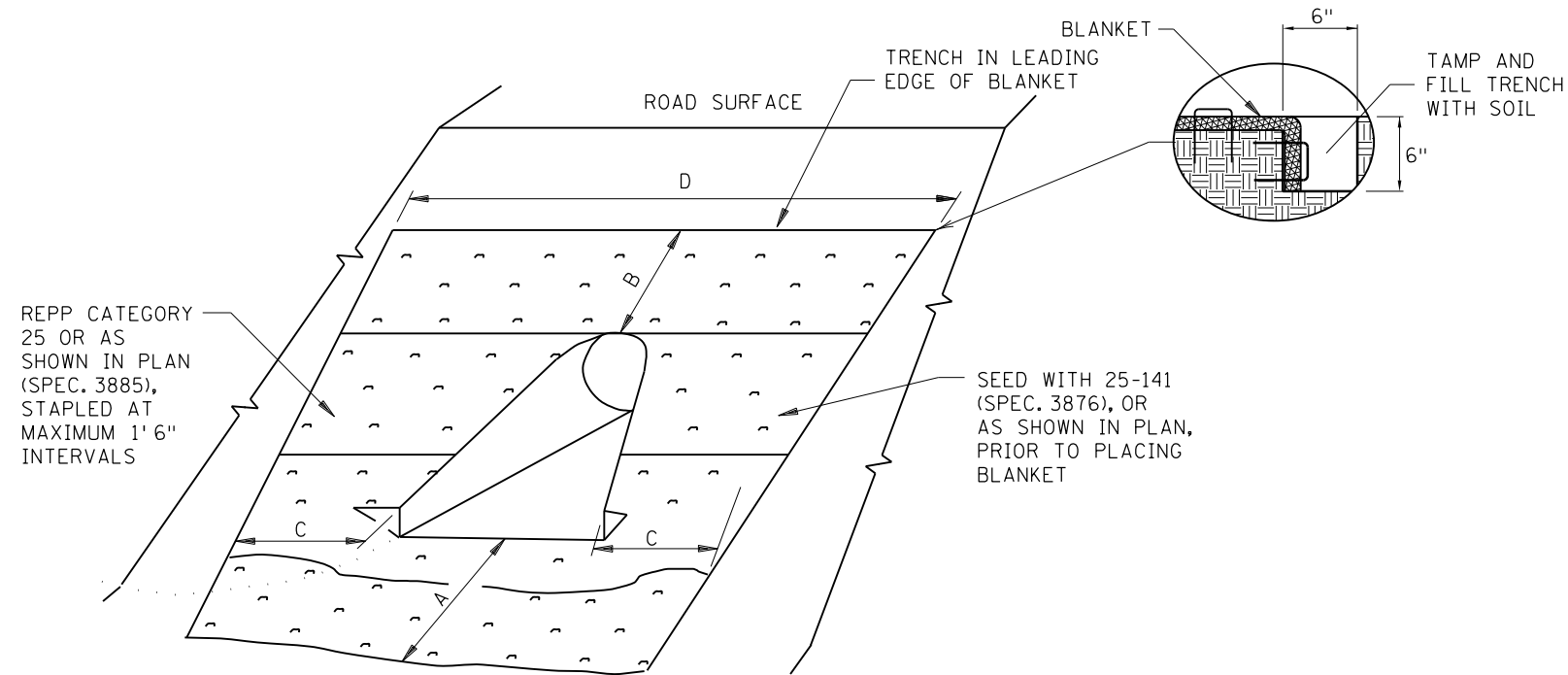
**m**  
MINNESOTA  
DEPARTMENT  
OF  
TRANSPORTATION

*Tom John*  
STATE DESIGN ENGINEER

REVISED:  
APPROVED:  
2-28-2017

PERMANENT EROSION CONTROL  
ALONG ROADWAYS, DITCHES AND FLUMES  
**STANDARD PLAN 5-297.404**  
SAP 002-716-021  
SAP 199-104-014  
112 OF 259





ROLLED EROSION PREVENTION PRODUCT (BLANKET) & SEED DETAIL

CULVERT DIAMETER ②	SOD OR REPP (SQ. YDS.)						"A"	"B"	"C"	"D"
	CIRCULAR AND ARCH PIPE METAL APRON (PLATE 3123, PLATE 3122)	CIRCULAR AND ARCH PIPE CONCRETE APRON (PLATE 3100, PLATE 3110)	CIRCULAR AND ARCH PIPE METAL SAFETY APRON 1:4 SLOPE (PLATE 3148)	CIRCULAR AND ARCH PIPE METAL SAFETY APRON 1:6 SLOPE (PLATE 3148)	CIRCULAR CORRUGATED METAL PIPE SAFETY APRON 1:6 SLOPE (PLATE 3128)	CIRCULAR CORRUGATED METAL PIPE SAFETY APRON 1:4 SLOPE (PLATE 3128)				
15"	9	9	8	8	N/A	N/A	3'	1.5'	3'	13'
18"	13	12	12	14	16	N/A	3'	3'	3'	16'
21"	14	14	14	16	18	14	3'	3'	3'	17'
24"	16	15	16	19	21	17	3'	3'	3'	18'
27"	N/A	20	N/A	N/A	N/A	N/A	3'	4.5'	3'	20'
30"	23	22	25	30	32	N/A	3'	4.5'	3'	22'
36"	34	34	39	48	51	37	4.5'	4.5'	4.5'	27'
42"	43	40	51	64	N/A	N/A	4.5'	6'	4.5'	30'
48"	54	50	66	82	N/A	N/A	4.5'	7.5'	4.5'	34'
54"	65	58	81	102	N/A	N/A	4.5'	9'	4.5'	37'
60"	69	59	91	115	N/A	N/A	4.5'	9'	4.5'	39'
66"	69	63	N/A	N/A	N/A	N/A	4.5'	9'	4.5'	39'
72"	78	72	99	122	N/A	N/A	4.5'	10.5'	4.5'	41'

CULVERT DIAMETER ②	SOD OR REPP (SQ. YDS.)						"A"	"B"	"C"	"D"
	CIRCULAR AND ARCH PIPE METAL APRON (PLATE 3123, PLATE 3122)	CIRCULAR AND ARCH PIPE CONCRETE APRON (PLATE 3100, PLATE 3110)	CIRCULAR AND ARCH PIPE METAL SAFETY APRON 1:4 SLOPE (PLATE 3148)	CIRCULAR AND ARCH PIPE METAL SAFETY APRON 1:6 SLOPE (PLATE 3148)	CIRCULAR CORRUGATED METAL PIPE SAFETY APRON 1:6 SLOPE (PLATE 3128)	CIRCULAR CORRUGATED METAL PIPE SAFETY APRON 1:4 SLOPE (PLATE 3128)				
15"	10	10	9	10	N/A	N/A	4.5'	1.5'	3'	13'
18"	13	13	12	14	15	N/A	6'	1.5'	3'	14'
21"	16	14	16	18	19	15	6'	1.5'	3'	15'
24"	18	18	18	21	22	18	7.5'	1.5'	3'	16'
27"	N/A	19	N/A	N/A	N/A	N/A	7.5'	1.5'	3'	17'
30"	23	23	24	28	29	N/A	9'	1.5'	3'	18'
36"	36	35	38	47	48	37	10.5'	1.5'	4.5'	23'
42"	43	40	47	58	N/A	N/A	12'	1.5'	4.5'	25'
48"	50	46	57	70	N/A	N/A	13.5'	1.5'	4.5'	27'
54"	57	50	67	84	N/A	N/A	15'	1.5'	4.5'	29'
60"	74	63	90	113	N/A	N/A	16.5'	1.5'	6'	33'
66"	75	67	N/A	N/A	N/A	N/A	16.5'	1.5'	6'	33'
72"	77	70	92	114	N/A	N/A	16.5'	1.5'	6'	34'

NOTES:

REPP = ROLLED EROSION PREVENTION PRODUCT.

AREA SHOWN IN SQUARE YARDS IS FOR ONE CULVERT END.

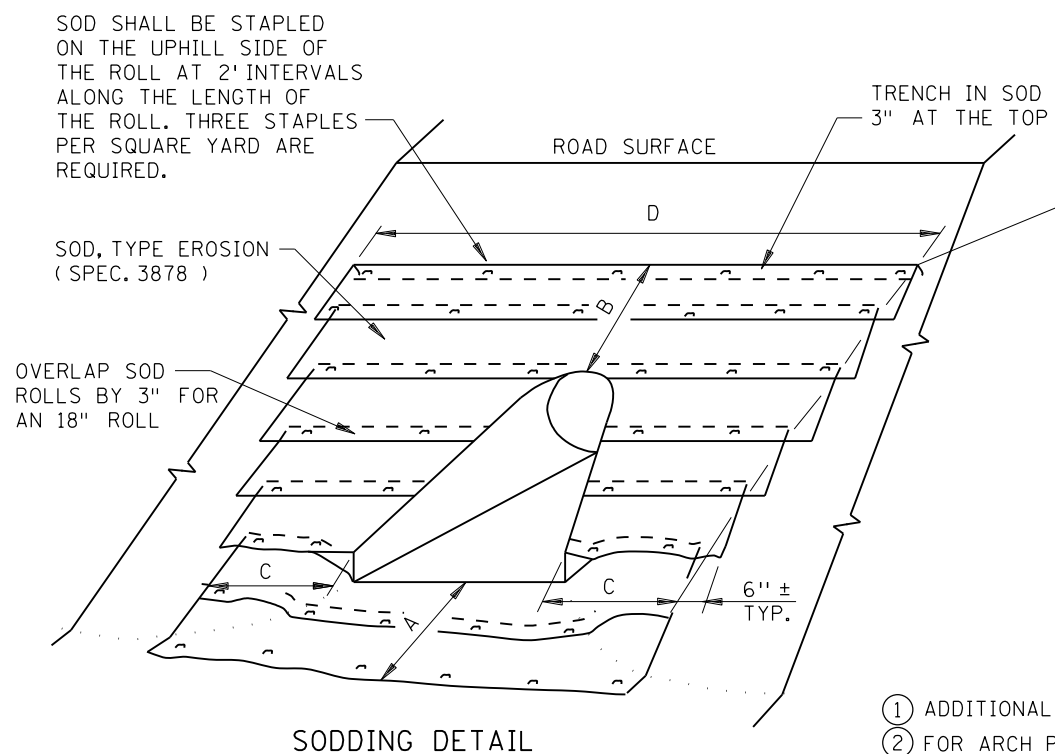
QUANTITIES ARE CALCULATED TO INCLUDE SOD REQUIRED TO PROVIDE A 3" OVERLAP ON ALL 18" WIDE ROLLS. THIS ALLOWS FOR SHRINKAGE OF THE SOD.

FOR PIPE ARCHES USE EQUIVALENT PIPE DIAMETER TO APPROXIMATE AREA.

FOR CORRUGATED POLYETHYLENE PIPE METAL APRON (PLATE 3129), USE THE METAL APRON COLUMN (PLATE 3123).

AREAS AND DIMENSIONS ARE APPROXIMATE AND ARE BASED ON APRON SIDE SLOPES OF NO STEEPER THAN 1:2, UNLESS INDICATED AS FOR SAFETY APRONS.

CARE SHOULD BE TAKEN IN SELECTING SOD TO STABILIZE THE APRON. RIP-RAP SHOULD BE USED FOR FLOW VELOCITIES GREATER THAN 6 FPS.



SODDING DETAIL

- ① ADDITIONAL QUANTITIES MAY BE SHOWN IN THE PLAN OR REQUIRED BY THE ENGINEER.
- ② FOR ARCH PIPE USE CLOSEST CIRCULAR PIPE DIAMETER AND APRON SLOPE. DIAMETERS LARGER THAN 72" REQUIRE SPECIAL DESIGNS.

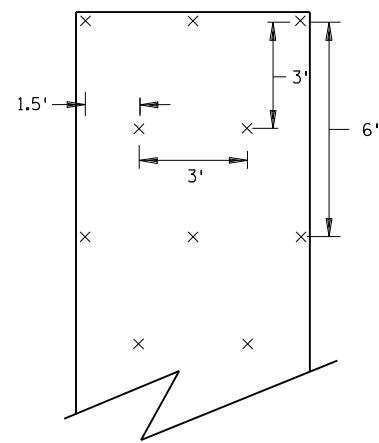
REVISION:  
APPROVED: JANUARY 8, 2020  
*Marni Karnowski*  
MARNI KARNOWSKI  
CHIEF ENVIRONMENTAL OFFICER

**m**  
MINNESOTA  
DEPARTMENT  
OF  
TRANSPORTATION

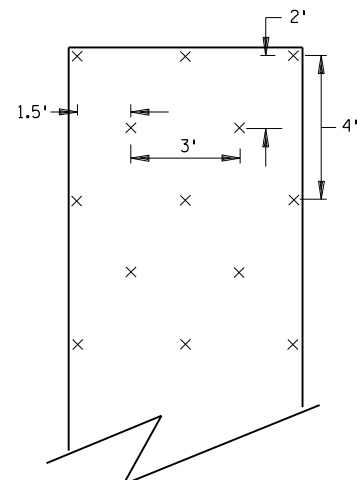
STANDARD PLAN 5-297.404 2 OF 3  
*Tom Styrbicki*  
THOMAS STYRBICKI  
STATE DESIGN ENGINEER  
APPROVED: 1-8-2020  
REVISED:

PERMANENT EROSION CONTROL  
TURF ESTABLISHMENT DETAIL AT CULVERT ENDS

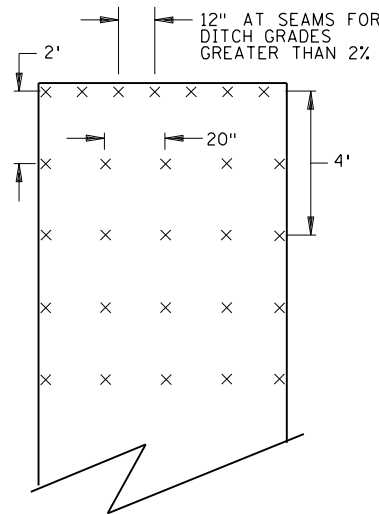
SAP 002-716-021 / SAP 199-104-014 SHEET NO.113 OF 259 SHEETS



SLOPES FLATTER THAN 1:2  
120 STAPLES PER 100 SQ YD

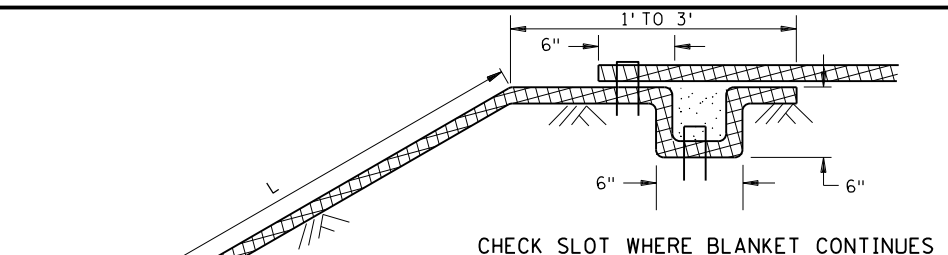


SLOPES 1:2 TO 1:1  
170 STAPLES PER 100 SQ YD

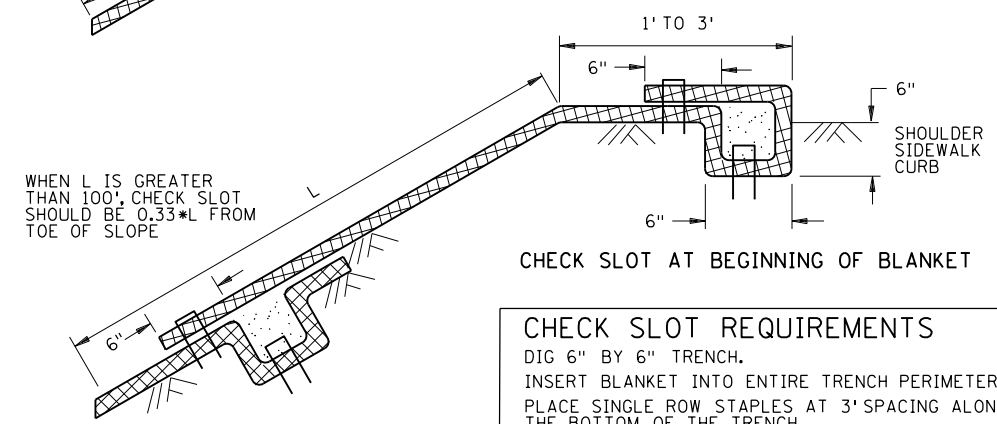


CHANNEL AND DITCH APPLICATIONS  
350 STAPLES PER 100 SQ YD

BLANKET STAPLE PATTERN



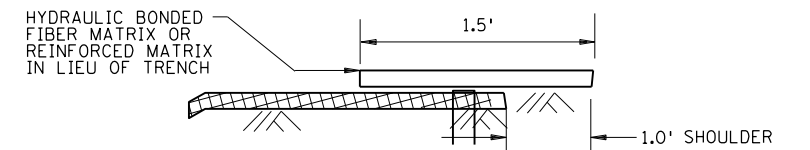
CHECK SLOT WHERE BLANKET CONTINUES



CHECK SLOT AT BEGINNING OF BLANKET

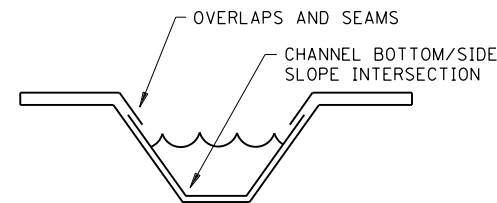
CHECK SLOT REQUIREMENTS

DIG 6" BY 6" TRENCH.  
INSERT BLANKET INTO ENTIRE TRENCH PERIMETER.  
PLACE SINGLE ROW STAPLES AT 3' SPACING ALONG THE BOTTOM OF THE TRENCH.  
BACKFILL TRENCH WITH SOIL AND TAMP.  
PLACE SINGLE ROW STAPLES AT 3' SPACING ON OVERLAP.



CHECK SLOT ALTERNATIVE  
PLACE SINGLE ROW STAPLES AT 12" SPACING

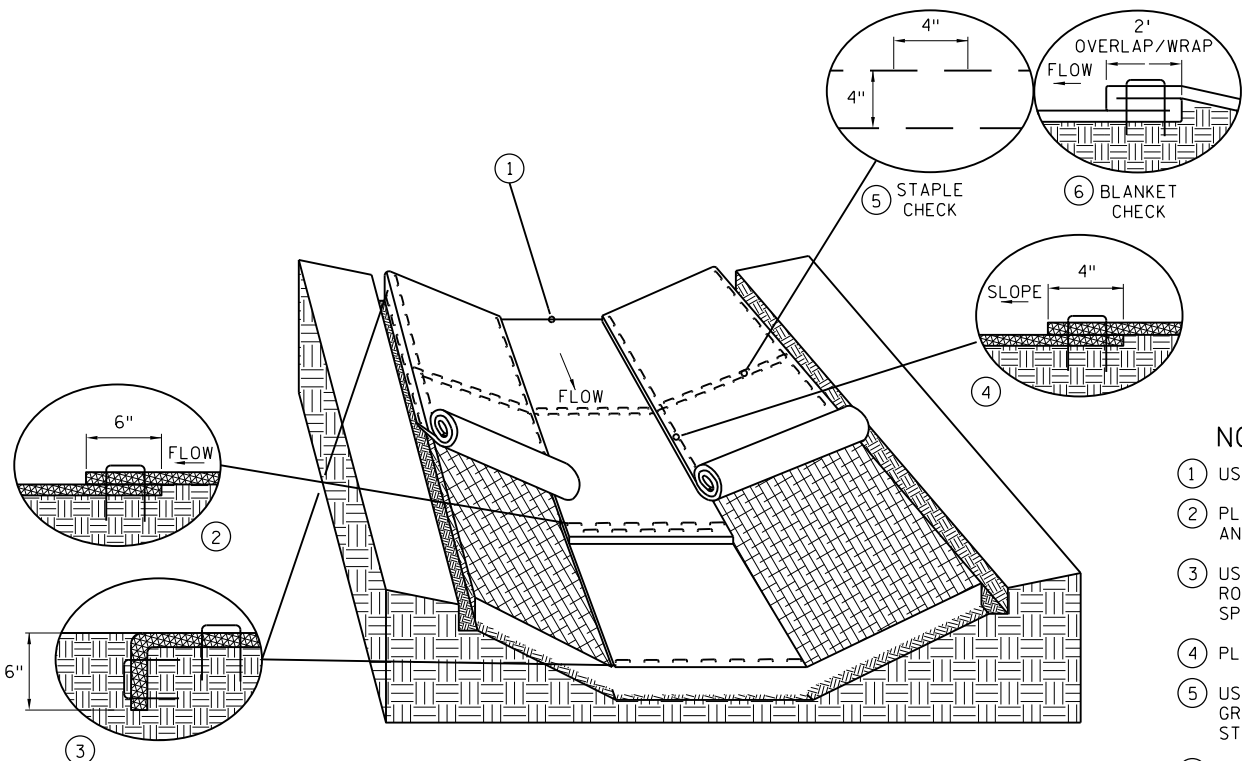
CHECK SLOT DETAILS



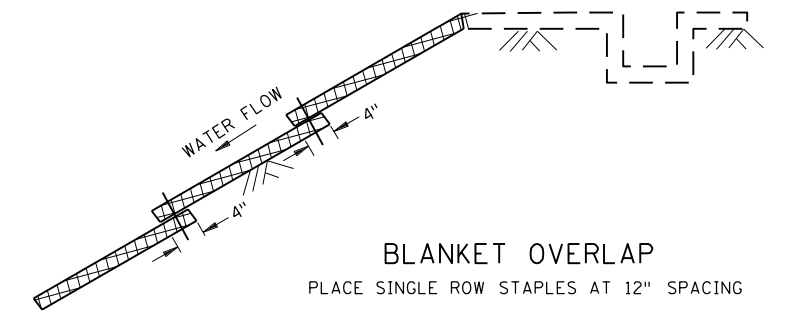
DITCH BLANKET CRITICAL POINTS 7

NOTES:

- 1 USE CHECK SLOT DETAIL (NO ALTERNATES).
- 2 PLACE DOUBLE ROW OF STAPLES STAGGERED 4" APART AND 4" ON CENTER.
- 3 USE 6" X 6" TRENCH TO PLACE BLANKET. PLACE SINGLE ROW OF STAPLES ON TOP AND TRENCH SIDES AT 12" SPACING. BACKFILL TRENCH WITH SOIL AND TAMP.
- 4 PLACE SINGLE ROW OF STAPLES AT 12" SPACING.
- 5 USE STAPLE CHECK FOR CHANNEL SLOPES LESS THAN 2.5%. GRADE AT 100' INTERVALS. PLACE DOUBLE ROW OF STAPLES STAGGERED 4" APART AND AT 4" SPACING.
- 6 USE BLANKET CHECKS FOR THE FOLLOWING SLOPES:  
2.5%-3% 100' INTERVALS  
3%-5% 50' INTERVALS  
5%-7% 25' INTERVALS
- 7 CRITICAL POINTS SHALL BE SECURED WITH PROPER STAPLE PATTERNS.



DITCH BLANKET STAPLE DETAIL



BLANKET OVERLAP  
PLACE SINGLE ROW STAPLES AT 12" SPACING

GENERAL BLANKET INSTALLATION REQUIREMENTS

REPP = ROLLED EROSION PREVENTION PRODUCT.  
PREPARE SOIL AS PER SPECIFICATION 2574.  
LAY PARALLEL OR PERPENDICULAR TO THE DIRECTION OF WATER FLOW.  
OVERLAP ADJACENT STRIP EDGES A MINIMUM OF 4".  
OVERLAP BLANKET 6" (MINIMUM) AT EACH END. OVERLAP BOTTOM END OF UPPER BLANKET OVER TOP END OF LOWER BLANKET. STAPLE ALONG OVERLAP EVERY 1.5'.  
THE UPPERMOST BLANKET OF ALL SLOPE APPLICATIONS MUST START IN A CHECK SLOT. IF SLOPE LENGTH (L) IS 100' OR GREATER, INSERT BLANKET INTO A CHECK SLOT 1/3 FROM THE BOTTOM OF THE SLOPE.

REVISION:  
APPROVED: JANUARY 8, 2020  
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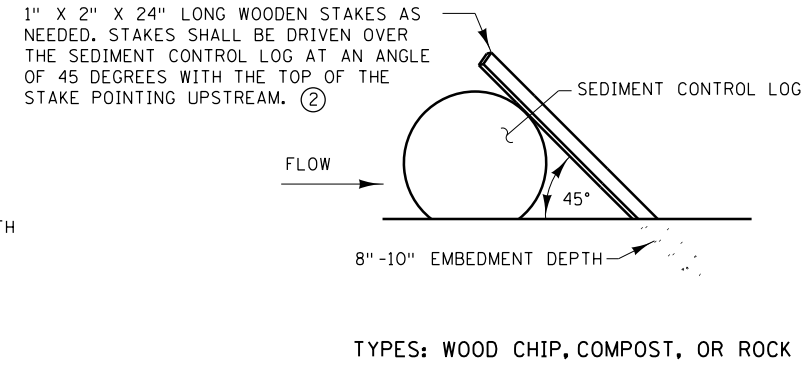
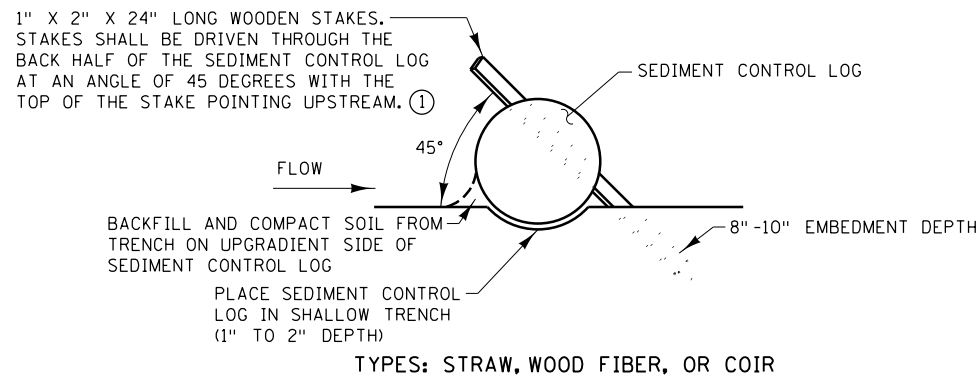
STANDARD PLAN 5-297.404  
3 OF 3  
*Tom Styrbicki*  
THOMAS STYRBICKI  
STATE DESIGN ENGINEER

APPROVED: 1-8-2020  
REVISED:

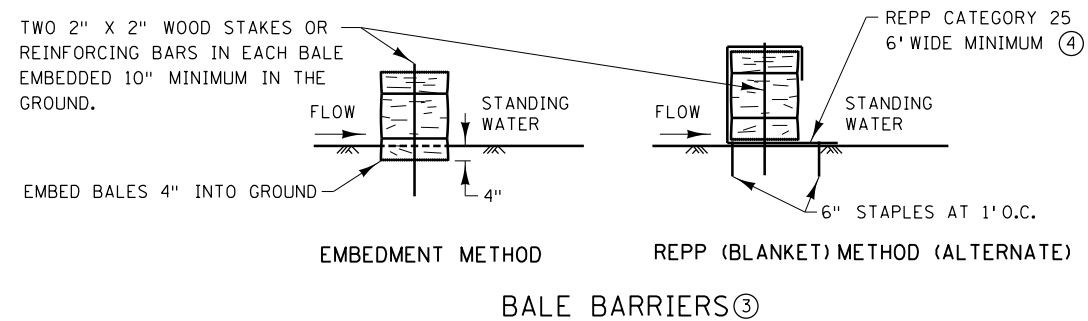
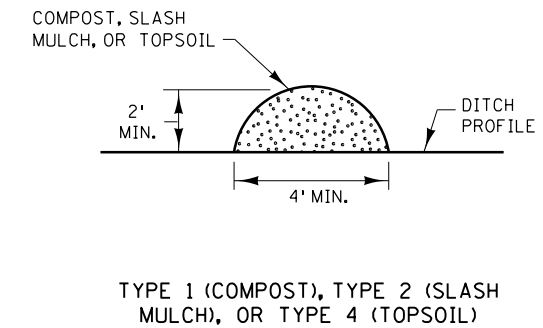
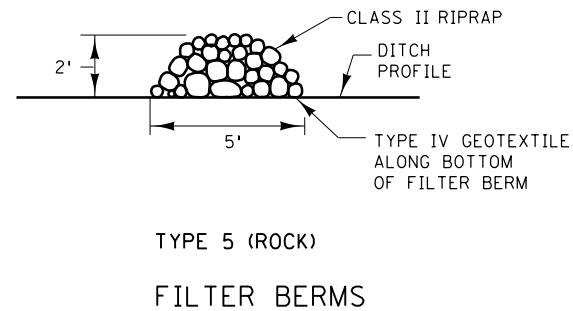
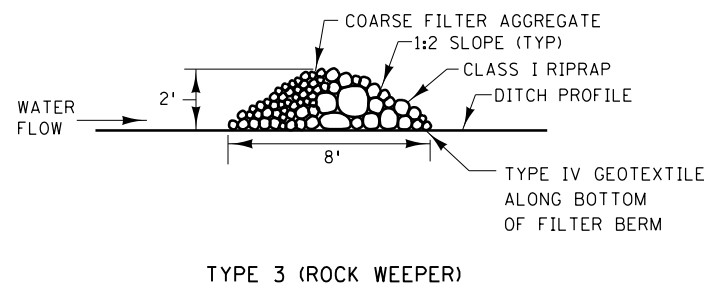
PERMANENT EROSION CONTROL  
REPP (BLANKET) STAPLE PATTERN FOR SLOPES

SAP 002-716-021 / SAP 199-104-014 SHEET NO.114 OF 259 SHEETS

**SHEET**  
**INTENTIONALLY**  
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### SEDIMENT CONTROL LOGS



### NOTES:

REPP = ROLLED EROSION PREVENTION PRODUCT.

SEE SPECS. 2573, 3149, 3874, 3882, 3885, 3886, AND 3897.

- ① SPACE BETWEEN STAKES SHALL BE A MAXIMUM OF 1' FOR DITCH CHECKS OR 2' FOR OTHER APPLICATIONS.
- ② PLACE STAKES AS NEEDED TO PREVENT MOVEMENT OF SEDIMENT CONTROL LOGS PLACED ON SLOPES OR AS NEEDED DUE TO OTHER FACTORS. STAKES SHALL BE INCIDENTAL.
- ③ TO BE USED FOR CRITICAL PERIMETER CONTROL AREAS WHERE STANDING WATER OCCURS (6" MAXIMUM DEPTH). BALES SHALL CONSIST OF TYPE 1 MULCH OF APPROXIMATELY 14" X 18" X 36" LONG. BALES SHALL BE PLACED ON EDGE AND BUTTED TIGHT TO ADJACENT BALES.
- ④ INSTEAD OF TRENCHING, PLACE BALE ON THE REPP (BLANKET) AND WRAP BLANKET AROUND THE BALE. PLACE STAKE THROUGH BALE AND BLANKET.

REVISION:

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*Marni Karnowski*  
MARNI KARNOWSKI  
CHIEF ENVIRONMENTAL OFFICER



STANDARD PLAN 5-297.405

2 OF 8

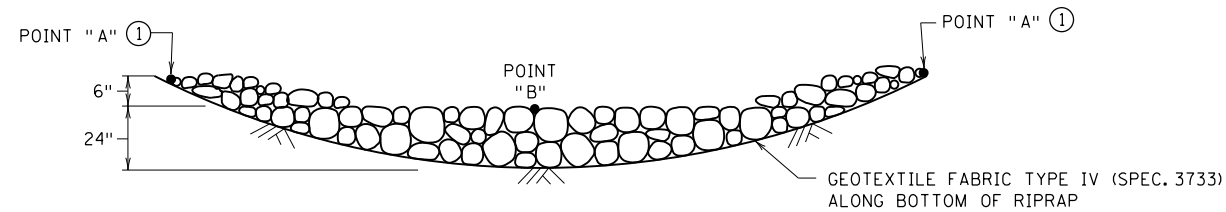
*Tom Styrbicki*  
THOMAS STYRBICKI  
STATE DESIGN ENGINEER

APPROVED: 1-8-2020  
REVISED:

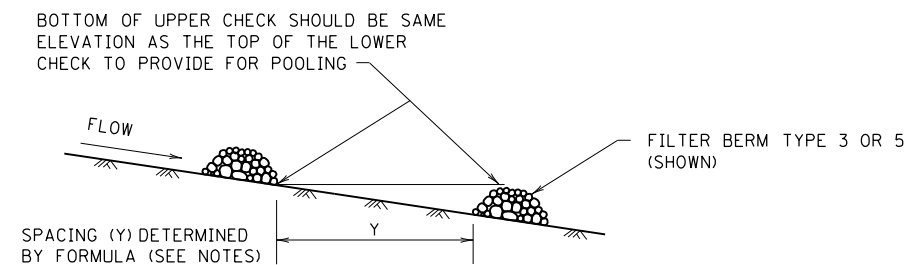
TEMPORARY SEDIMENT CONTROL

FILTER BERMS, SEDIMENT CONTROL LOGS, AND BALE BARRIERS

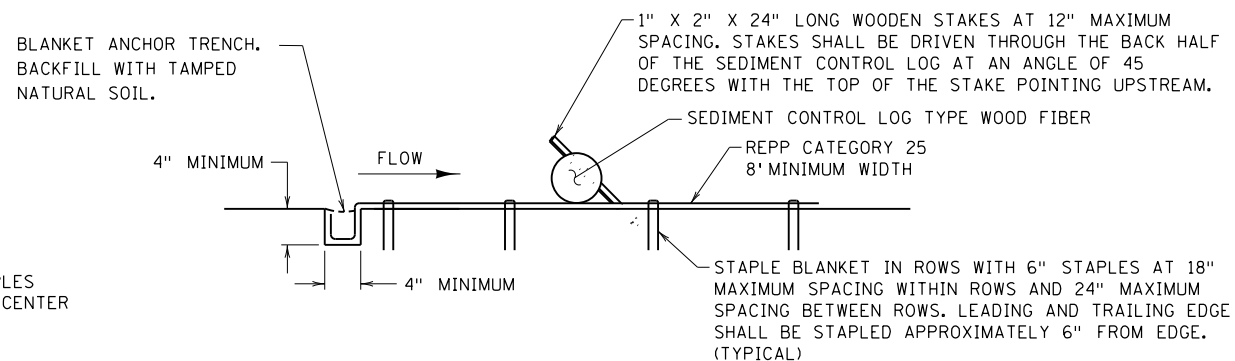
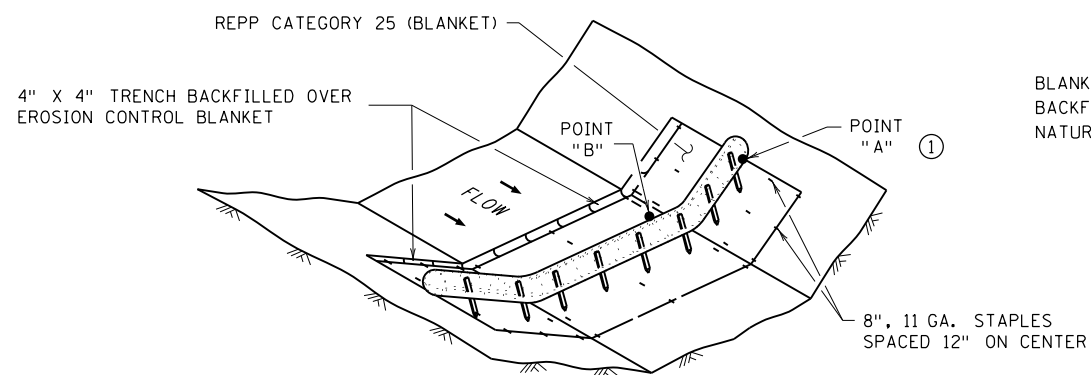
SAP 002-716-021 / SAP 199-104-014 SHEET NO. 116 OF 259 SHEETS



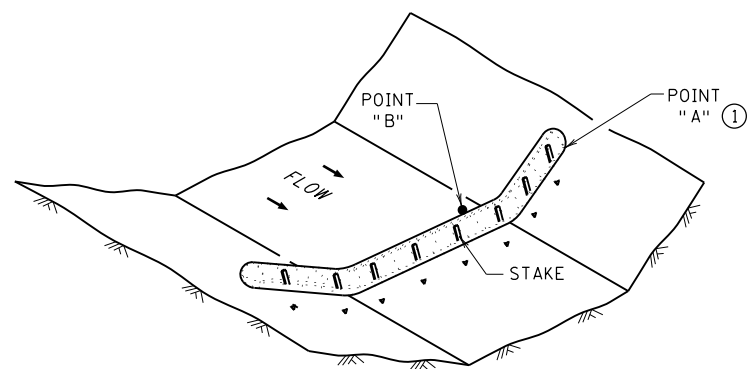
**ROCK DITCH CHECKS**  
 FILTER BERMS TYPE 3 (ROCK WEEPER) OR FILTER TYPE 5 (ROCK) ③  
 FOR USE ON ROUGH-GRADED AREAS  
 ONLY FOR USE OUTSIDE CLEAR ZONE ②



**DITCH CHECK SPACING**  
 FOR ALL FILTER BERM TYPES



**SEDIMENT CONTROL LOG TYPE REPP (BLANKET) SYSTEM ④**



**SEDIMENT CONTROL LOG TYPE WOOD FIBER, OR TYPE COMPOST ⑤**  
 FOR USE ON ROUGH GRADED AREAS

**NOTES:**

REPP = ROLLED EROSION PREVENTION PRODUCT.

SEE SPECS. 2573, 3601, 3733, 3885, 3886 & 3889.

FOR DITCH CHECKS, PLACE SEDIMENT CONTROL LOG PERPENDICULAR TO FLOW AND IN A CRESCENT SHAPE WITH THE ENDS FACING UPSTREAM.

APPROXIMATE SPACING BETWEEN EACH DITCH CHECK SHOULD BE DETERMINED FROM THE FOLLOWING SPACING FORMULA:

$$\text{APPROXIMATE SPACING OF DITCH CHECKS (FT.)} = Y = \frac{\text{DITCH CHECK HEIGHT (FT.)}}{\% \text{ CHANNEL SLOPE}} \times 100$$

- ① POINT "A" MUST BE A MINIMUM OF 6" HIGHER THAN POINT "B" TO ENSURE THAT WATER FLOWS OVER THE DIKE AND NOT AROUND THE ENDS.
- ② ROCK DITCH CHECKS PLACED WITHIN THE CLEAR ZONE ARE TO BE 18" OR LESS IN HEIGHT. A 1:6 APPROACH AND DEPARTURE SLOPE SHALL BE PROVIDED.
- ③ DITCH GRADE 3% - 5%, MAX. FLOW VELOCITY 12 FT./SEC.
- ④ DITCH GRADE 1.5% - 3%, MAX. FLOW VELOCITY 4.5 FT./SEC.
- ⑤ DITCH GRADE 1.5% - 3%, MAX. FLOW VELOCITY 1.5 FT./SEC.

REVISION:  
 APPROVED: JANUARY 8, 2020  
*Marni Karnowski*  
 MARNI KARNOWSKI  
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 DEPARTMENT  
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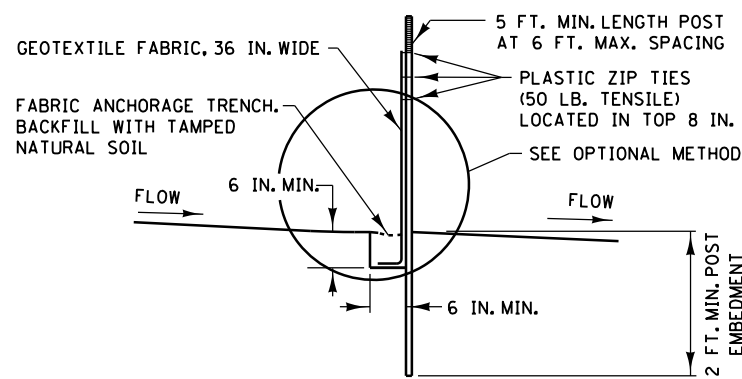
STANDARD PLAN 5-297.405  
 3 OF 8  
 APPROVED: 1-8-2020  
 REVISED:  
*Tom Styrbicki*  
 THOMAS STYRBICKI  
 STATE DESIGN ENGINEER

**TEMPORARY SEDIMENT CONTROL**  
**DITCH CHECK**

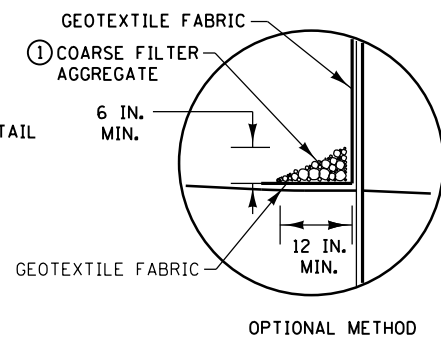
SAP 002-716-021 / SAP 199-104-014 SHEET NO.117 OF 259 SHEETS

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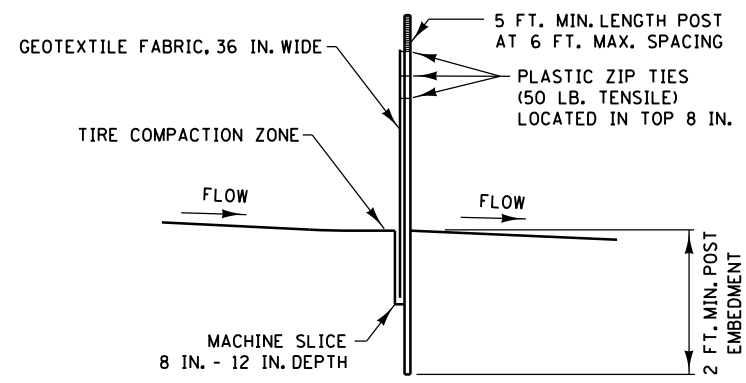
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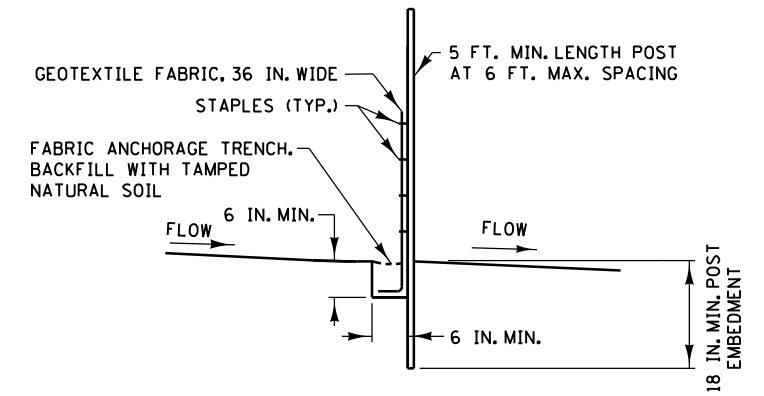
**SILTS FENCE TYPE HI ②  
(HAND INSTALLED)**



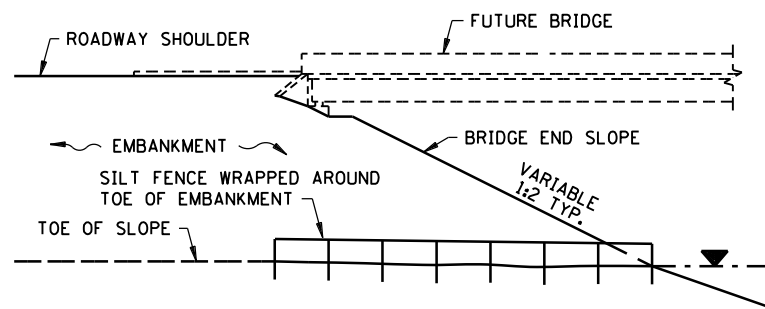
OPTIONAL METHOD



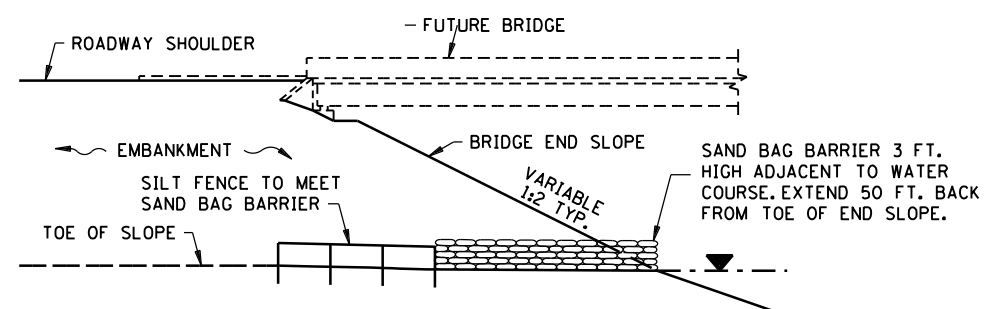
**SILTS FENCE TYPE MS ②  
(MACHINE SLICED)**



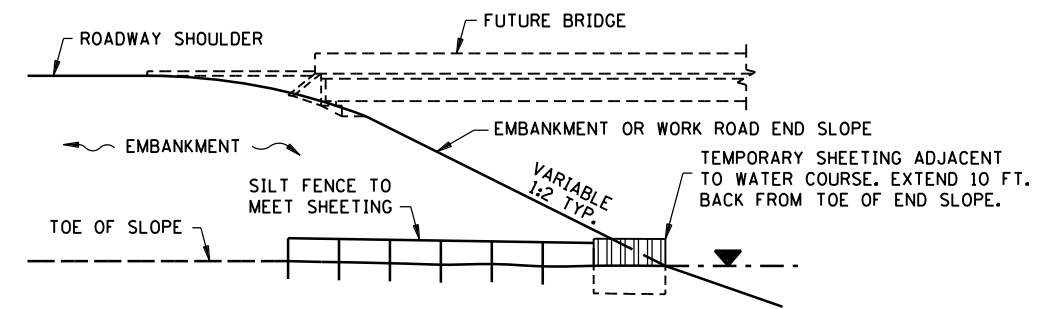
**SILTS FENCE TYPE PA ③  
(PREASSEMBLED)**



**SILTS FENCE ONLY ④**

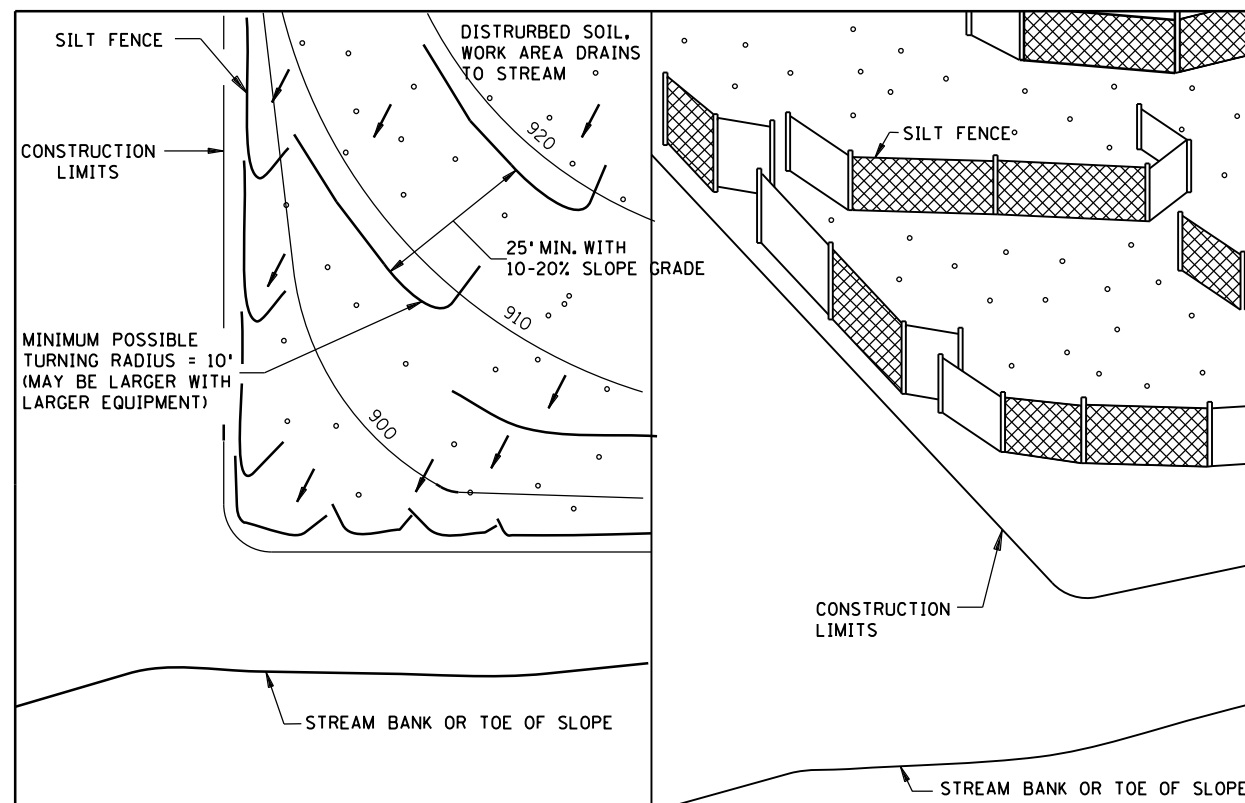


**SILTS FENCE WITH SAND BAGS ⑤**



**SILTS FENCE WITH SHEETING ⑥**

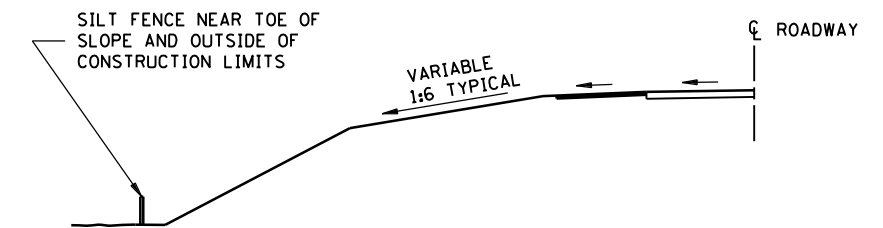
**INSTALLATION AT BRIDGE EMBANKMENT ADJACENT TO WATER**



PLAN VIEW

PERSPECTIVE VIEW

**J-HOOK INSTALLATION**



**LOCATION AT TOE OF ROADWAY EMBANKMENT**

**NOTES:**

- SEE SPECS. 2573, 3149 & 3886.
- ① COARSE FILTER AGGREGATE (SPEC. 3149) SHALL BE INCIDENTAL.
- ② TO PROTECT AREAS FROM SHEET FLOW, MAXIMUM CONTRIBUTING AREA: 1 ACRE.
- ③ TO PROTECT AREAS FROM SHEET FLOW, MAXIMUM CONTRIBUTING AREA: 0.25 ACRE.
- ④ WATER COURSE FLOW VELOCITY: STANDING, CONTRIBUTING SLOPE AREA: 1/2 ACRE.
- ⑤ WATER COURSE FLOW VELOCITY: 1 TO 7 FT./SEC. CONTRIBUTING SLOPE AREA: 1 ACRE.
- ⑥ WATER COURSE FLOW VELOCITY: 8 TO 15 FT./SEC. CONTRIBUTING SLOPE AREA: 3 ACRES.

REVISION:  
APPROVED: 2-28-2017  
*[Signature]*  
CHIEF ENVIRONMENTAL OFFICER

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TRANSPORTATION

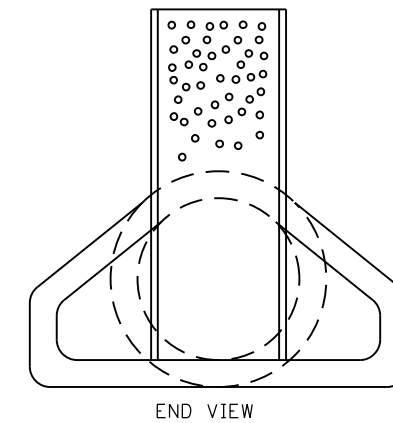
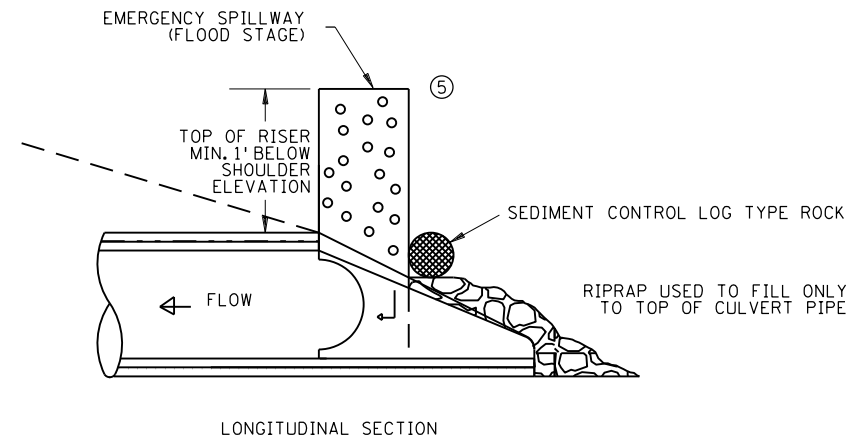
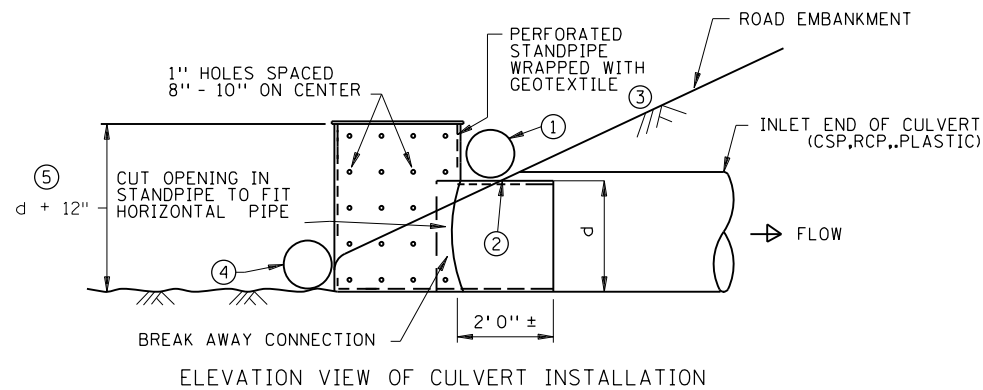
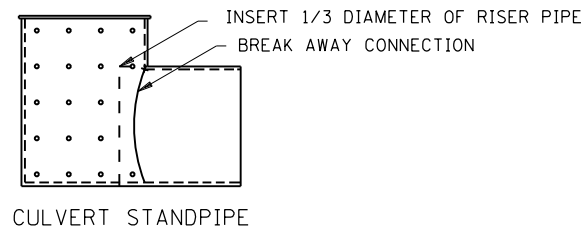
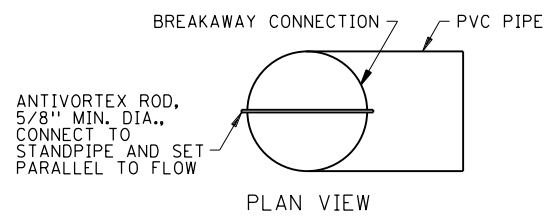
*[Signature]*  
STATE DESIGN ENGINEER

REVISED:  
APPROVED:  
2-28-2017

**TEMPORARY SEDIMENT CONTROL**  
SILTS FENCE  
**STANDARD PLAN 5-297.405**  
SAP 002-716-021  
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120 OF 259

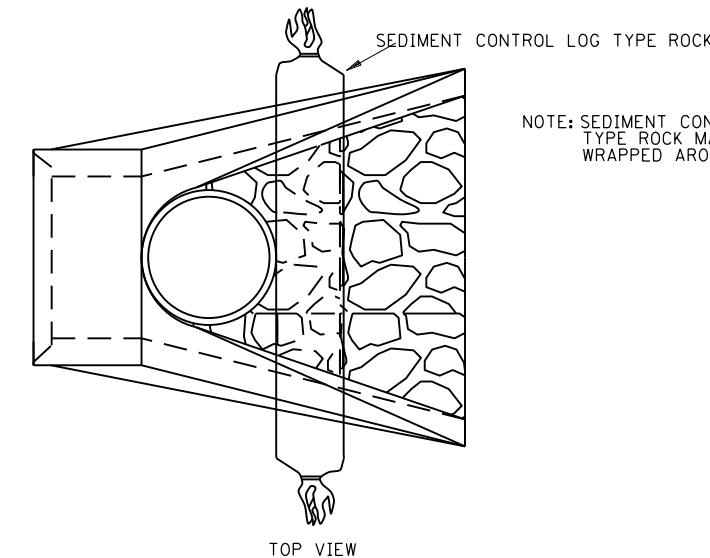


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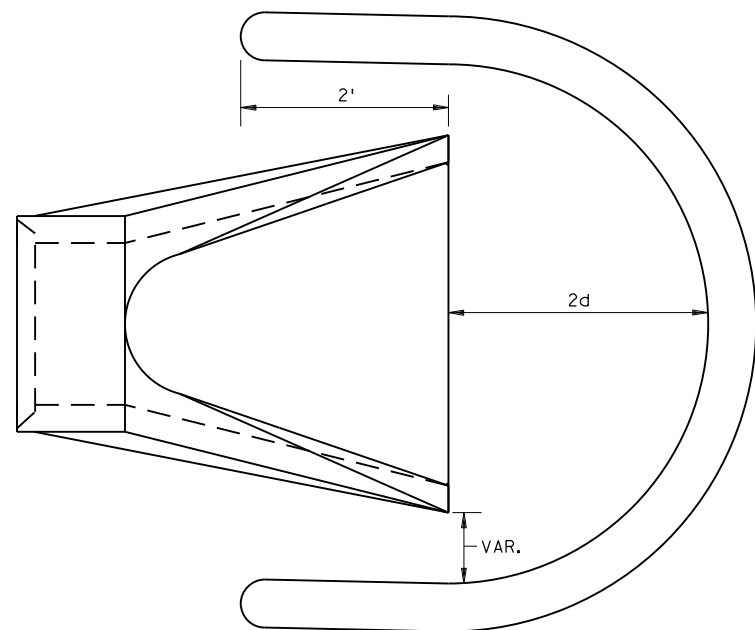


CULVERT STANDPIPE INSERT (D-RISER)

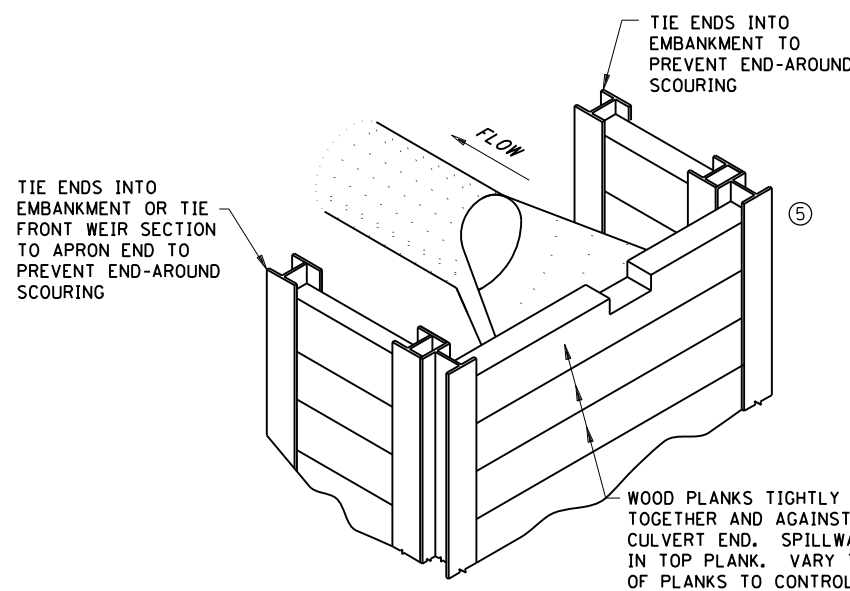
d= CULVERT SIZE: 12" - 36"



CULVERT STANDPIPE INSERT (D-RISER)



SEDIMENT CONTROL LOG WEIR (COMPOST, WOOD CHIP, OR ROCK)  
d = CULVERT SIZE: 12" - 36"



WOOD PLANK WEIR

NOTES:

- SEE SPECS. 2573, 3891 & 3893.
- FOR USE WHEN TEMPORARY PONDING IS NEEDED IN DITCH SECTIONS FOR SEDIMENT CONTROL.
- MANUFACTURED ALTERNATIVES LISTED ON MnDOT'S APPROVED PRODUCTS LIST MAY BE SUBSTITUTED AT NO ADDITIONAL COST.
- ① ROCK LOG OR SANDBAG TO HOLD STANDPIPE AND ACT AS A SEAL BETWEEN RISER PIPE AND CULVERT.
- ② PLACE CULVERT APRON AND SLIDE TEMPORARY STANDPIPE INTO CSP OR RCP CULVERT.
- ③ ALL GEOTEXTILE USED FOR CULVERT PROTECTION SHALL BE MONOFILAMENT IN BOTH DIRECTIONS, MEETING SPEC. 3886 FOR MACHINE SLICED.
- ④ ROCK LOG OR RIP RAP TO HOLD STANDPIPE AND ACT AS A FILTER BETWEEN RISER PIPE AND CULVERT.
- ⑤ HEIGHT OVERFLOW NOT TO CAUSE FLOODING OF ROAD OR ADJACENT PROPERTIES.

REVISION:  
APPROVED: 2-28-2017  
*Chief Environmental Officer*  
CHIEF ENVIRONMENTAL OFFICER

**m**  
MINNESOTA  
DEPARTMENT OF TRANSPORTATION

*Rom*  
STATE DESIGN ENGINEER

REVISED:  
APPROVED:  
2-28-2017

TEMPORARY SEDIMENT CONTROL  
CULVERT END CONTROLS  
STANDARD PLAN 5-297.405  
SAP 002-716-021  
SAP 199-104-014  
122 OF 259

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**PROJECT LOCATION AND GENERAL INFORMATION**

THIS ROAD CONSTRUCTION SPOT IMPROVEMENT PROJECT ADDS LEFT & RIGHT TURN LANES AND AND A SIGNAL TO ROADWAY. THIS PROJECT WILL PRIMARILY CONSIST OF GRADING, PLACING AGGREGATE BASE, BITUMINOUS PAVING, CULVERT EXTENTIONS, CULVERT REPLACEMENT, CURB & GUTTER AND SIGNAL CONSTRUCTION.

THIS PROJECT WILL REQUIRE THE DISTURBANCE OF 6.408 ACRES OF SOILS AND DOES CREATE THE POTENTIAL FOR SEDIMENT DISCHARGE FROM THE SITE.

**TRAINING REQUIREMENTS**

THE CONTRACTOR WILL ENSURE COMPLIANCE WITH THE TRAINING REQUIRED IN PART 111.A.2 OF THE GENERAL STORMWATER PERMIT FOR CONSTRUCTION ACTIVITY.

THE INDIVIDUALS TRAINED AND THE TRAINING RECEIVED WILL BE RECORDED IN THE SWPPP BEFORE THE START OF CONSTRUCTION OR AS SOON AS PERSONEL FOR THE PROJECT HAVE BEEN DETERMINED.

**LONG TERM OPERATION AND MAINTENANCE**

ANOKA COUNTY WILL BE RESPONSIBLE FOR THE LONG TERM OPERATION AND MAINTENANCE OF THE PERMANENT STORMWATER MANAGEMENT AND SNOW REMOVAL OPERATIONS.

ANOKA COUNTY HIGHWAY DEPARTMENT  
1440 BUNKER LAKE BLVD.  
CITY OF ANDOVER  
ANDOVER, MN 55304  
(763) 324-3100

**RECEIVING SURFACE WATERS, DISCHARGE TO IMPAIRED WATERS & SPECIAL WATERS**

THE FOLLOWING TABLE IDENTIFIES ALL SURFACE WATERS WITHIN 1 MILE OF THE PROJECT DISTURBED SOIL BOUNDARIES, WHICH WILL RECEIVE STORMWATER RUNOFF FROM THE CONSTRUCTION SITE, DURING OR AFTER CONSTRUCTION.

STORMWATER FROM A DISCHARGE POINT ON THE PROJECT THAT FLOWS TO A SURFACE WATER IDENTIFIED AS IMPAIRED AND/OR SPECIAL MUST INCLUDE THE FOLLOWING ADDITIONAL BMP REQUIREMENTS:

- 1) ALL EXPOSED SOIL AREAS MUST BE STABILIZED AS SOON AS POSSIBLE TO LIMIT SOIL EROSION BUT IN NO CASE LATER THAN SEVEN (7) DAYS AFTER THE CONSTRUCTION ACTIVITY IN THAT PORTION OF THE SITE HAS TEMPORARILY OR PERMANENTLY CEASED.
- 2) TEMPORARY SEDIMENT BASINS OR PERMANENT PONDS MUST BE USED FOR COMMON DRAINAGE LOCATIONS THAT SERVE AN AREA WITH FIVE (10+) OR MORE ACRES DISTURBED AT ONE TIME.

RECEIVING SURFACE WATERS WITHIN 1 MILE OF PROJECT					
NAME OF WATER BODY	SPECIAL	IMPAIRED	TMDL NEEDED	TMDL APPROVED FOR	TMDL NOT REQUIRED
JEGLENS MARSH	NO	NO	NONE	NONE	NONE
UNNAMED 02-0671-00	NO	NO	NONE	NONE	NONE
UNNAMED 02-0117-00	NO	NO	NONE	NONE	NONE
UNNAMED 02-0116-00	NO	NO	NONE	NONE	NONE
MISSISSIPPI RIVER	YES	YES	NONE	Hg-F	NONE

DISTURBED SOIL AREA / PERDOMINANT SOIL ON PROJECT - SAND

TOTAL DISTURBED SOILS AREA FOR THIS PROJECT IS 6.408 ACRES

**IMPERVIOUS AREA**

EXISTING AREA OF IMPERVIOUS SURFACE IS 8.933 ACRES.

POST CONSTRUCTION AREA OF IMPERVIOUS SURFACE 10.279 ACRES.

TOTAL IMP INCREASE 1.346 ACRES

**SEDIMENT CONTROL PRACTICES**

TEMPORARY STOCKPILED TOPSOIL BERMS MUST INCLUDE PERIMETER BMP'S AS PROVIDED IN THE PLAN AT LOCATIONS WHERE CONSTRUCTION STORMWATER DRAINS FROM THE PROJECT

IN ORDER TO MAINTAIN SHEET FLOW AND MINIMIZE RILLS AND/OR GULLIES, THERE SHALL BE NO UNBROKEN SLOPE LENGTH OF GREATER THAN 75 FEET FOR SLOPES WITH A GRADE OF 1:3 OR STEEPER

ALL STORM DRAIN INLETS MUST BE PROTECTED BY APPROPRIATE BMP'S DURING CONSTRUCTION UNTIL ALL SOURCES WITH POTENTIAL DISCHARGE TO THE INLET HAVE BEEN STABILIZED

VEHICLE TRACKING OF SEDIMENT FROM THE CONSTRUCTION SITE MUST BE MINIMIZED. STREET SWEEPING MUST BE USED IF SEDIMENT IS BEING TRACKED OFF THE CONSTRUCTION SITE

**POLLUTION PROVENTION MEASURES**

THE CONTRACTOR WILL IMPLEMENT THE POLLUTION PREVENTION MANAGEMENT MEASURES AS DRECTED IN THE NPDES PERMIT PART IV.F AS PERTAINING TO SOLID WASTE, HAZARDOUS MATERIALS EXTERNAL TRUCK WASHING, AND CONCRETE WASHOUT ONSITE.

**CONSTRUCTION PHASING**

SILT FENCE AND/OR OTHER SUITABLE PERIMETER BMP'S AS PROVIDED IN THE PLANS WILL BE INSTALLED PRIOR TO THE START OF ANY LAND DISTURBING ACTIVITY. CONSTRUCTION WILL BE PHASED SO THAT ALL DOWN GRADIENT SEDIMENT CONTROL MEASURES ARE INSTALLED PRIOR TO OR IN CONJUNCTION WITH ANY SOIL DISTURBING ACTIVITIES.

WHEN TOPSOIL IS DISTURBED, THE TOPSOIL WILL BE STRIPPED AND STOCKPILED IN SOIL BERMS AT THE TOE OF THE STRIPPED SLOPES ALONG THE PROJECT LIMITS. TEMPORARY VEGETATION WILL BE ESTABLISHED ON THE STOCKPILED TOPSOIL BERMS WITH RAPID STABILIZATION AS PROVIDED IN THE PLAN. STOCKPILED TOPSOIL BERMS WILL NOT BE PLACED IN ANY STORMWATER CONVEYANCES.

AFTER STRIPPING THE TOPSOIL THE EXPOSED SOIL INSLOPES WILL BE STABILIZED WITH DISK ANCHORED TYPE 3 MULCH AND SEED WITHIN 7 DAYS OR RAPID STABILIZATION 7 DAYS AFTER THE CONSTRUCTION ACTIVITY IN THAT PORTION OF THE SITE HAS BEEN TEMPORARILY OR PERMANENTLY CEASED.

**TEMPORARY SEDIMENT BASINS**

THIS ROAD CONSTRUCTION PROJECT AS DESIGNED DOES NOT MEET ANY OF THE TEMPORARY SEDIMENT BASIN DISTURBED AREA THRESH HOLD REQUIREMENTS IF PERMANENT POND LOCATIONS ARE CONSTRUCTED PRIOR TO DISCHARGE. TEMPORARY SEDIMENT BASINS WILL NOT BE REQUIRED.

**PERMANENT STORMWATER MANAGEMENT SYSTEM**

ALL STORMWATER MUST BE DISCHARGED IN A MANNER THAT DOES NOT CAUSE NUISANCE CONDITIONS, EROSION IN RECEIVING WATERS OR ON DOWNSLOPE PROPERTIES, OR INUNDATION IN WETLANDS CAUSING A SIGNIFICANT ADVERSE IMPACT TO THE WETLAND.

**EROSION PREVENTION PRACTICES**

ALL EXPOSED SOIL AREAS MUST BE STABILIZED AS SOON AS POSSIBLE TO LIMIT SOIL EROSION BUT IN NO CASE LATER THEN 7 DAYS AFTER THE CONSTRUCTION ACTIVITY IN THAT PORTION OF THE SITE HAS TEMPORARILY OR PERMANENTLY CEASED. FOR ALL AREAS WHERE DISTURBED SOILS DRAIN TO AN IMPAIRED OR SPECIAL WATER THE EXPOSED SOIL MUST BE STABILIZED NO LATER THEN 7 DAYS AFTER THE CONSTRUCTION ACTIVITY IN THAT AREA CEASED. SEE THE IMPAIRED & SPECIAL WATERS SECTION OF THIS SWPPP FOR ADDITIONAL BMP REQUIREMENTS FOR DISTURBED AREAS THAT DRAIN TO A SPECIAL OR IMPAIRED WATER

THE NORMAL WETTED PERIMETER OF ANY TEMPORARY OR PERMANENT DRAINAGE DITCH OR SWALE THAT DRAINS WATER FROM ANY PORTION OF THE CONSTRUCTION SITE, OR DIVERTS WATER AROUND THE SITE, MUST BE STABILIZED WITHIN 200 LINEAL FEET FROM THE POINT OF DISCHARGE INTO ANY SURFACE WATER. STABILIZATION OF THE LAST 200 FEET MUST BE COMPLETED WITHIN 24 HOURS AFTER CONNECTING TO A SURFACE WATER.

PIPE CULVERT OUTLETS MUST BE PROVIDED WITH TEMPORARY OR PERMANENT ENERGY DISSIPATION WITHIN 24 HOURS AFTER CONNECTION TO A SURFACE WATER. THIS WILL INCLUDE DRAINAGE DITCHES THAT DRAIN WATER FROM ANY PORTION OF THE CONSTRUCTION SITE

**THESE MANAGEMENT MEASURES FOR POLLUTION PREVENTION WILL BE STRICTLY ENFORCED.**

**WITHHOLDING OF PAYMENT NONCOMPLIANCE**

IF THE CONTRACTOR FAILS TO INSTALL EROSION OR SEDIMENT CONTROL MEASURES ORDERED BY THE ENGINEER, THE ENGINEER MAY WITHHOLD PAYMENT FROM RELATED WORK UNTIL THE CONTROL MEASURES ARE UNDERTAKEN BY THE CONTRACTOR WHEN THE CONTRACTOR FAILS TO CONDUCT THE QUALITY CONTROL PROGRAM, DOESNT CONDUCT THE INSPECTIONS REQUIRED IN THE NPDES PERMIT, OR FAILS TO TAKE ACTION ORDERED BY THE ENGINEER TO REMEDY EROSION OR SEDIMENT CONTROL PROBLEMS. THE ENGINEER WILL ISSUE A WRITTEN ORDER TO THE CONTRACTOR. THE CONTRACTOR SHALL RESPOND WITHIN 24 HOURS WITH SUFFICIENT PERSONNEL, EQUIPMENT AND/OR MATERIALS AND CONDUCT THE REQUIRED WORK OR BE SUBJECT TO A \$500.00 PER CALENDAR DAY DEDUCTION FOR NONCOMPLIANCE.

**PROJECT CONTACTS**

MPCA	NPDES	LAURAL MEZNER	218-316-3889
MPCA	EMERGENCY	STATE DUTY OFFICER	800-422-0798
DNR	NOT REQUIRED		
	U OF MN		
ANOKA COUNTY DESIGN SWPPP PREPARATION	DESIGN OF SWPPP EXPIRES 5/24	JEFF FOSTER	763-324-3126
ANOKA COUNTY PROJECT REPRESENTATIVE		CHRIS OSTERHUS	763-324-3189
EROSION CONTROL SUPERVISOR (CONTRACTOR)			

**WORKSITE DEWATERING**

- 1. WORKSITE DEWATERING (E. G., PUMPED DISCHARGES OF COFFER DAMS AND OTHER WORK AREAS) RELATED TO THE CONSTRUCTION ACTIVITY MUST BE DISCHARGED TO A TEMPORARY OR PERMANENT SEDIMENTATION BASIN ON THE PROJECT SITE. IF THE WATER CANNOT BE DISCHARGED TO A SEDIMENTATION BASIN PRIOR TO ENTERING THE SURFACE WATER, IT MUST BE TREATED WITH THE APPROPRIATE BEST PRACTICES, SUCH THAT THE DISCHARGE DOES NOT ADVERSELY AFFECT THE RECEIVING WATER OR DOWNSREAM LANDOWNERS. SEDIMENT CONTROL DEVICES CAN BE BYPASSED WHEN THE DISCHARGE WATER APPEARS CLEAR.
- 2. STREAM DIVERSION WATER, SUCH AS A PUMPED BYPASS, SHALL BE IMMEDIATELY RETURNED TO THE ORIGINAL CHANNEL DOWNSTREAM. THIS WATER DOES NOT REQUIRE TREATMENT PRIOR TO DISCHARGE.
- 3. IN EITHER CASE (WORKSITE DEWATERING OR STREAM DIVERSION WATER), PRACTICES MUST BE IN PLACE TO ENSURE THAT DISCHARGE POINTS ARE ADEQUATELY PROTECTED FROM EROSION AND SCOUR.
- 4. ALL DRAIN PLUGS ON PUMPS SHALL BE REMOVED AND ALL DEWATERING EQUIPMENT, INCLUDING HOSES, SHALL BE DRAINED PRIOR TO TRANSPORT OFF SITE (SEE BEST PRACTICES FOR PREVENTION OF SPREAD OF AQUATIC INVASIVE SPECIES CHAPTER 1 PAGE 8).
- 5. FOR CONSTRUCTION DEWATERING AMOUNTS THAT EXCEED 10,000 GALLONS/ DAY OR 1 MILLION GALLONS/YR, THE PERMITTEE OR THEIR CONTRACTORS MUST SUBMIT A GP 1997-0005 NOTIFICATION FORM TO THE DNR AT LEAST 5 DAYS PRIOR TO THE START OF PUMPING OPERATIONS. PRIOR AUTHORIZATION TO USE GENERAL PERMIT 1997-0005 MUST BE OBTAINED BY SUBMITTING AN APPLICATION USING THE MNDNR PERMITTING AND REPORTING SYSTEM.

**CONCRETE WASHOUT**

THE NPDES PERMIT REQUIRES THAT CONCRETE WASHOFF BE MANAGED ON ALL CONSTRUCTION PROJECTS. MN/DOT GUIDANCE: RECOMMENDED BEST MANAGEMENT PRACTICES FOR CONCRETE WASHOFF. THE NPDES CONSTRUCTION PERMIT REQUIRES CONCRETE WASHOFF MANAGEMENT ON EVERY PROJECT THAT USES CONCRETE VEHICLES, EQUIPMENT, TOOLS AND SURFACE PREPARATION, REQUIRING CLEANING OR WASHOFF TO REMAIN FUNCTIONAL, PROVIDE PUBLIC SAFETY OR FOR ENGINEERING PROCESS, WITH SWPPP AMENDMENTS AS NECESSARY TO PREVENT THE DISCHARGE OF CONCRETE LIQUIDS AND SOLIDS FROM MAKING CONTACT WITH SOILS UNLESS IN DEFINED, DESIGNATED AREAS USING BEST MANAGEMENT PRACTICES TO THE MAXIMUM EXTENT PRACTICABLE. ACCIDENTAL DISCHARGE: IF WASHOFF OPERATIONS MAKES ACCIDENTAL DISCHARGE TO WATERS OF THE STATE, STATE LAW REQUIRES NOTIFYING THE STATE DUTY OFFICER AND IMMEDIATELY REMOVING DISCHARGE MATERIALS AND RESTORING THE SITE. DESIGNATED AREA: ALL DESIGNATED CONCRETE WASHOFF AREAS MUST BE DETERMINED DAILY, AS NEEDED, AND THE SWPPP AMENDED TO SHOW THE LOCATIONS, AS REQUIRED BY PERMIT. SPECIAL LOCATION RESTRICTION: WASHOFF BMP MUST BE SITED MORE THAN 200 FEET FROM A DNR PUBLIC OR PERMIT LISTED SPECIAL WATER UNLESS ROBUST, REDUNDANT BEST PRACTICE PROTECTION MEASURES ARE INSTALLED WITH WASH RECOVERY MEASURES. THE DEPARTMENT RESERVES THE RIGHT TO INDICATE IN THE PLANS AND FINAL DETAILS WHERE OR WHERE NOT CONCRETE WASHOFF MAY OCCUR.

**LOCATION OF SWPPP REQUIREMENTS**

REQUIREMENT	TITLE	LOCATION	MN/DOT SPECIFICATION	SPECIAL PROVISION
NPDES PERMIT COMPLIANCE		SPEC	1701, 1702, & 1717	1717 (AIR, LAND & WATER) 1717 (NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) PERMIT)
CERTIFIED PERSONNEL IN EROSION AND SEDIMENT CONTROL SITE MANAGEMENT		124	1506, 1717, & 2573	1717 (AIR, LAND & WATER) 1717 (NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) PERMIT)
CHAIN OF RESPONSIBILITY	AGENCY CONTACTS	124	1506, 1717, & 2573	
PROJECT SCHEDULE / WEEKLY EROSION & SEDIMENT CONTROL SCHEDULE / COMPLETING INSPECTION / MAINTENANCE LOG	AGENCY CONTACTS	FIELD TRAILER 124 - 125	1717 & 2573	1717 (AIR, LAND & WATER) 1717 (NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) PERMIT)
SWPPP PREPARATION	AGENCY CONTACTS	124		
SITE MAP / RECEIVING WATERS / DIRECTION OF FLOW			1717	
TEMPORARY EROSION AND SEDIMENT CONTROL BMP LOCATIONS, INSTALLATION, TIMING OF INSTALLATION AND TYPE OF BMP	QUANTITY TABULATIONS	112 - 118	2573 & 2525	2575 (RAPID STABILIZATION SPECIFICATION)
ADDITIONAL TEMPORARY AND/OR PERMANENT EROSION AND SEDIMENT CONTROL BMP'S NOT PROVIDED OR SHOWN IN THE PLAN		SPEC	1717, 2573, & 2575	1717 (AIR, LAND & WATER) 1717 (NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) PERMIT) 2575 (RAPID STABILIZATION SPECIFICATION)
MAINTENANCE OF EROSION AND SEDIMENT CONTROL DEVICES, REMOVAL OF TRACKED SEDIMENT, REMOVAL OF DEVICES		124 - 125	1717 & 2573	1514 (MAINTENANCE DURING CONSTRUCTION) 1717 (LAND AIR & WATER) 1717 (NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) PERMIT)
DEWATERING		124	2105.3B, & 2451.3C	DEWATERING MAY ALSO REQUIRE DNR PERMIT. DEWATERING IS ANTICIPATED FOR THIS PROJECT IN POND LOCATIONS
FINAL STABILIZATION	QUANTITY TABULATIONS EROSION CONTROL PLAN	112 - 118 124	1717, 2573, & 2575	1717 (AIR, LAND & WATER) 1717 (NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) PERMIT)
TEMPORARY EROSION AND SEDIMENT CONTROL DETAILS	QUANTITY TABULATIONS EROSION CONTROL PLAN	106 - #ER12	2575	2575 (RAPID STABILIZATION SPECIFICATION)
PERMANENT EROSION CONTROL DETAILS	EROSION CONTROL DETAILS	105	2575	2575 (CONTROLLING EROSION AND ESTABLISHING VEGETATION)

NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\002-716-021\Plan\002716021 SW.dgn      07/27/2021      1:48:32 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: NICHOLAS J. DOBDA  
SIGNATURE: *[Signature]*  
DATE: 8/3/21      LICENSE NO. 49046

DRAWN BY JCF    DATE 07/01/21

DESIGN BY JCF    DATE 07/01/21

CHECKED BY NJD    DATE 07/09/21



**ANOKA COUNTY  
HIGHWAY DEPT.**

SAP 002-716-021  
SAP 199-104-014

SWPPP NARRATIVE

Sheet 124 of 259 Sheets

## STORM WATER POLLUTION PREVENTION PLAN (SWPPP)

**Training** |

Individual revising or amending the SWPPP and individuals performing inspections must fill in the following table.

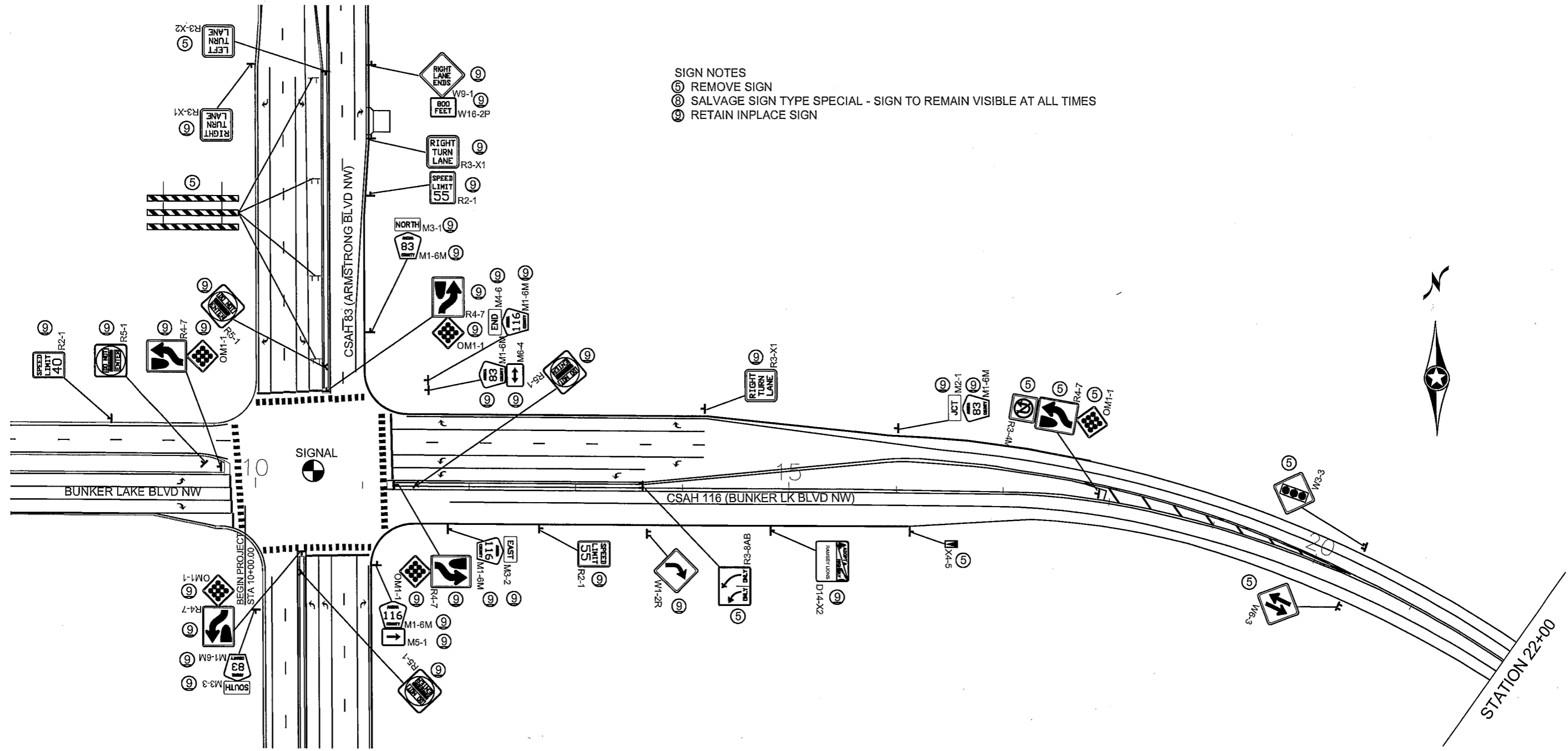
<b>Name of on-site personnel trained</b>	
<b>Dates of training</b>	
<b>Name of instructor(s)</b>	
<b>Entity providing training</b>	
<b>Content of training course or workshop</b>	

**Amending the SWPPP**

The SWPPP must be amended to record changes or modifications to permanent BMP's or other storm water treatment systems and removals of temporary BMP's. Changes to temporary BMP's may be recorded on this sheet. Include a brief description of the problem, location, nature of alteration, and comments. This record is to be retained for three years after project completion.

Date Reported	Plan Location (sheet)	Project Location (station)	Problem, solution, and notes

<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> <tr> <td> </td> <td> </td> <td> </td> <td> </td> <td> </td> <td> </td> </tr> </tbody> </table> <p>NAME: P:\002-716-021\Plan\002716021 SW.dgn</p>	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 LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.</p> <p>PRINT NAME: NICHOLAS J. DOBDA</p> <p>SIGNATURE: </p> <p>DATE: <u>8/3/21</u> LICENSE NO. 49046</p>	<p>DRAWN BY JCF DATE 07/01/21</p> <p>DESIGN BY JCF DATE 07/01/21</p> <p>CHECKED BY NJD DATE 07/09/21</p>	 <b>ANOKA COUNTY HIGHWAY DEPT.</b>	<p>SAP 002-716-021 SAP 199-104-014</p>	<p>SWPPP NARRATIVE</p> <hr/> <p>Sheet <u>125</u> of <u>259</u> Sheets</p>
NO	DATE	BY	CKD	APPR	REVISION																		



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 (5) REMOVE SIGN  
 (8) SALVAGE SIGN TYPE SPECIAL - SIGN TO REMAIN VISIBLE AT ALL TIMES  
 (9) RETAIN INPLACE SIGN

NO	DATE	BY	CKD	APPR	REVISION

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.  
 PRINT NAME: SEAN THIEL  
 SIGNATURE: *Sean Thiel*  
 DATE: 1/21/21 LICENSE NO. 45129

DRAWN BY: TMV DATE: 05/08/21  
 DESIGN BY: TMV DATE: 05/08/21  
 CHECKED BY: SRT DATE: 07/01/21



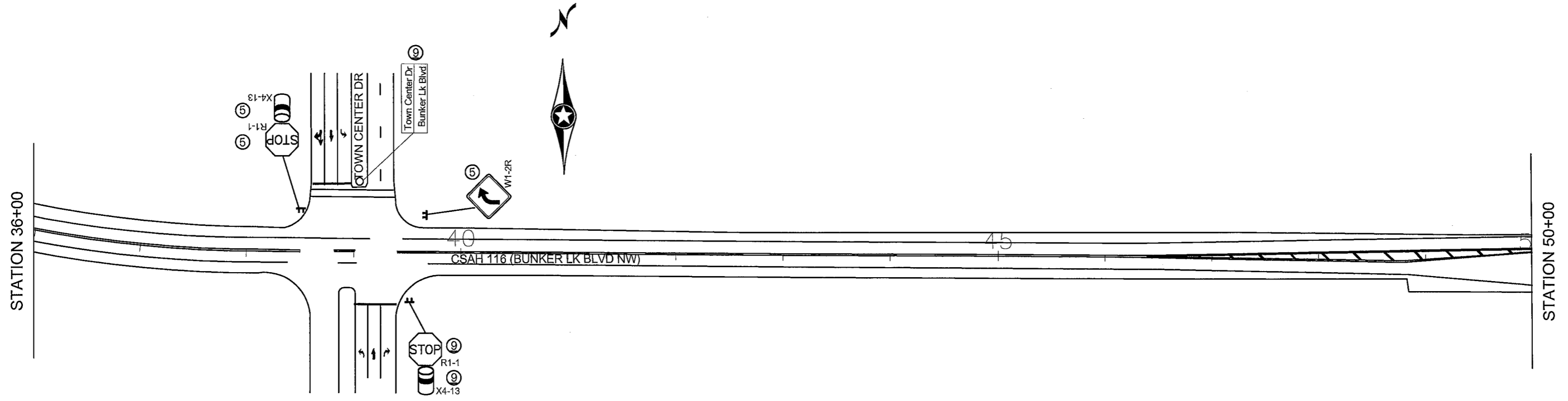
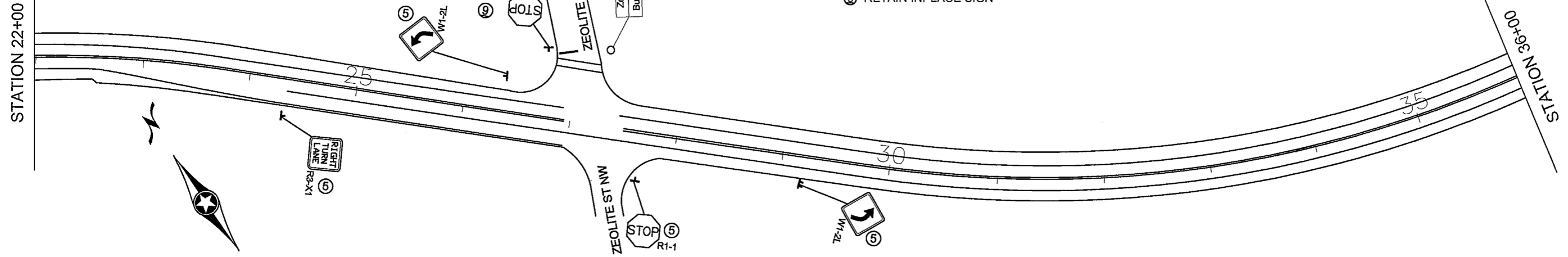
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 HIGHWAY DEPT.

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 SAP 199-104-014



EXISTING SIGN & STRIPING PLAN  
 Sheet 126 of 259 Sheets

- SIGN NOTES
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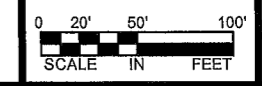
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 SIGNATURE: *Sean Thiel*  
 DATE: 7/21/21 LICENSE NO. 45129

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ANOKA COUNTY  
HIGHWAY DEPT.

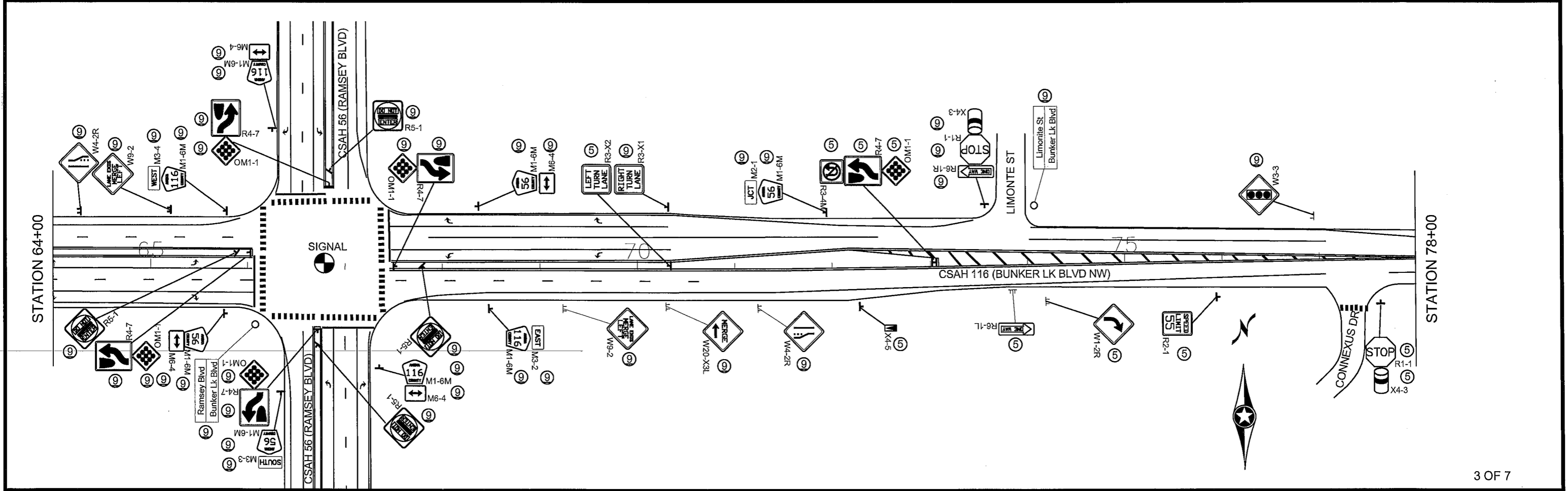
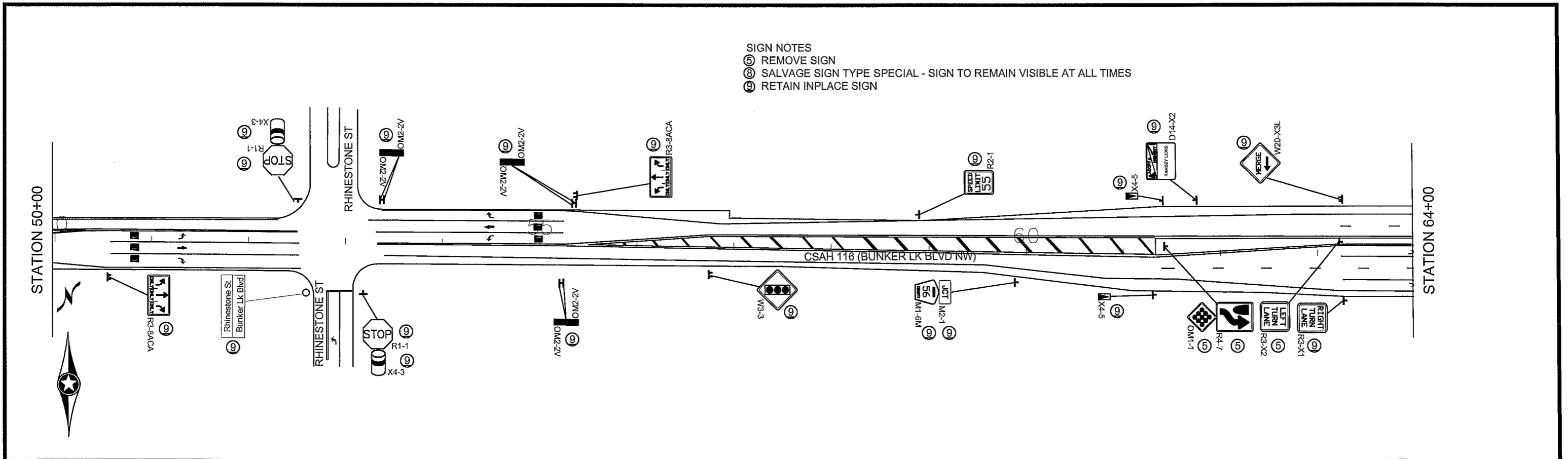
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Sheet 127 of 259 Sheets

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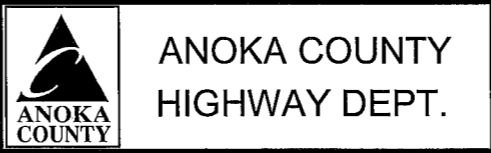
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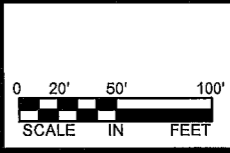
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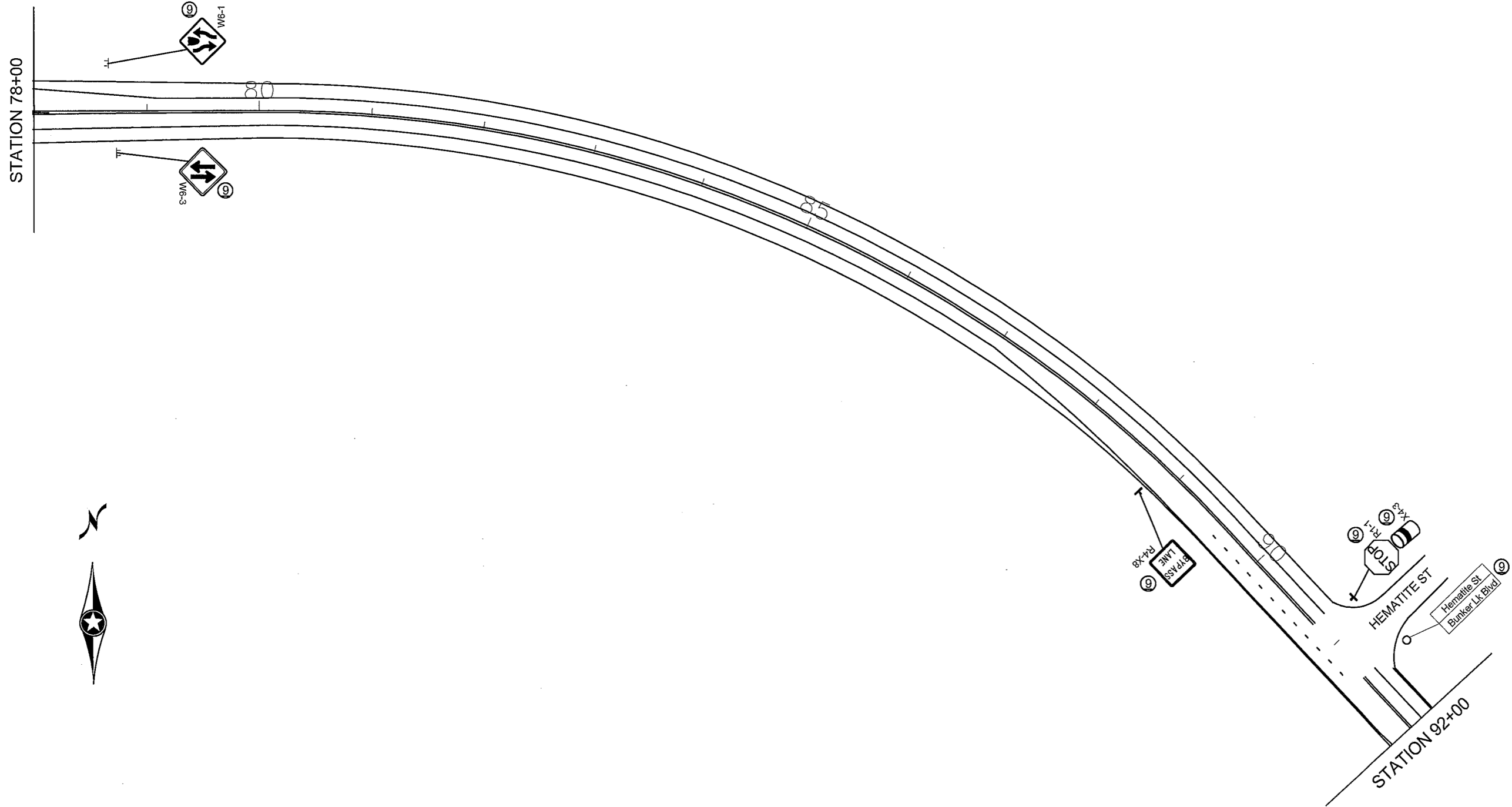
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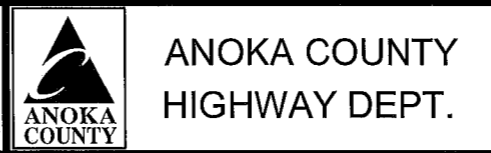


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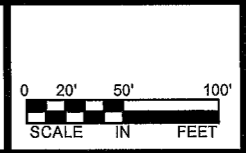
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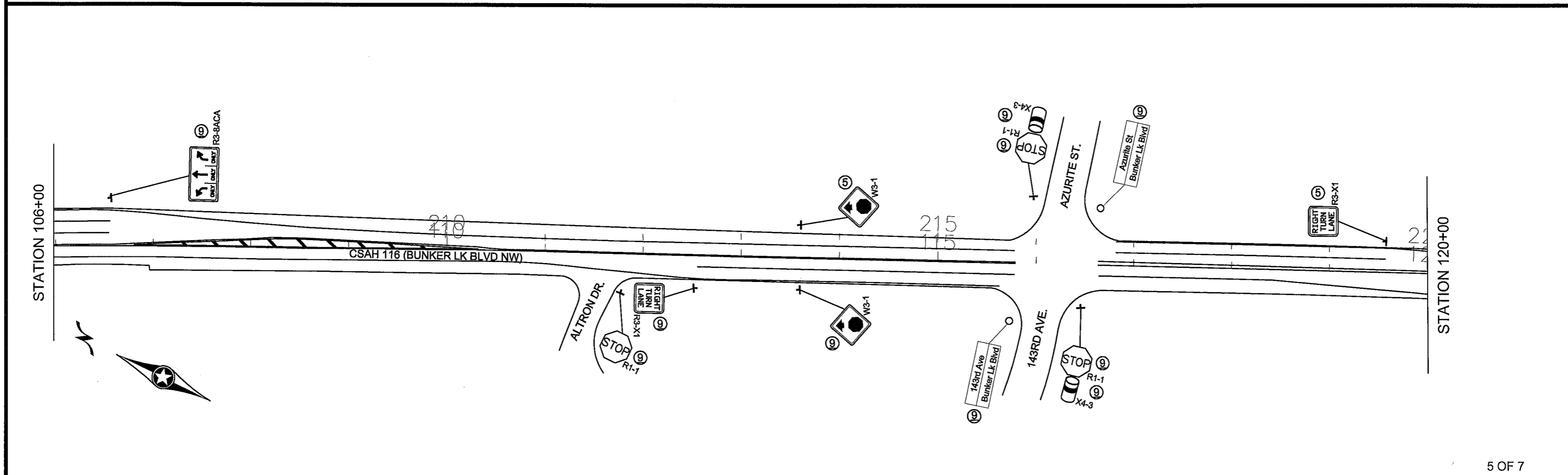
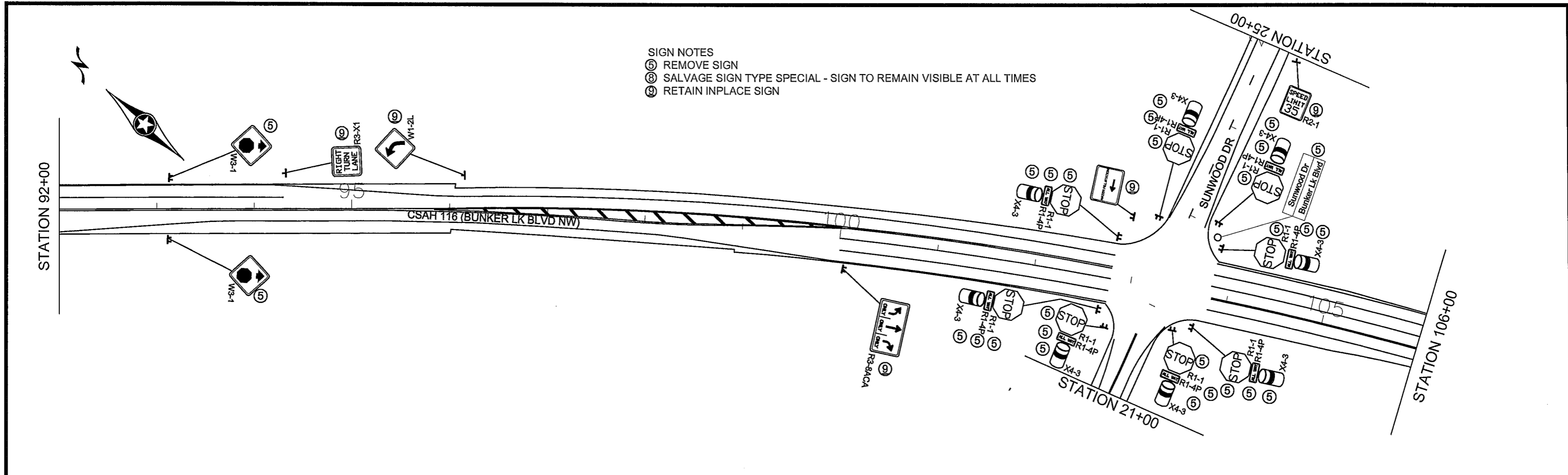
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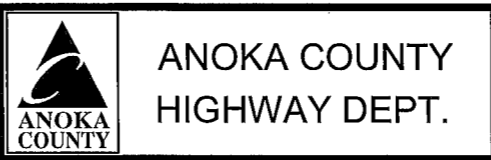


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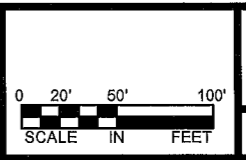
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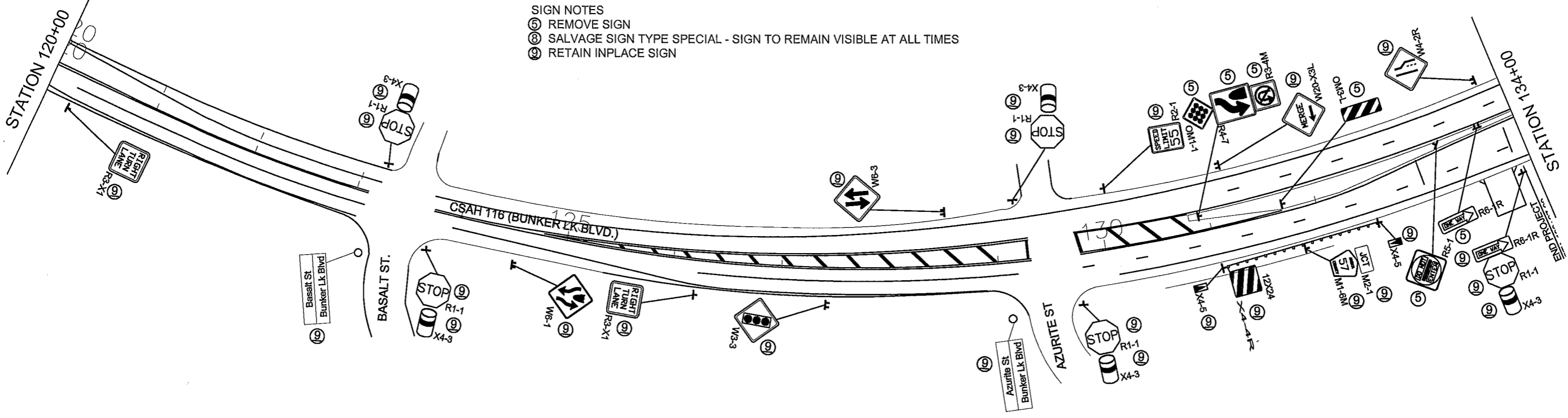
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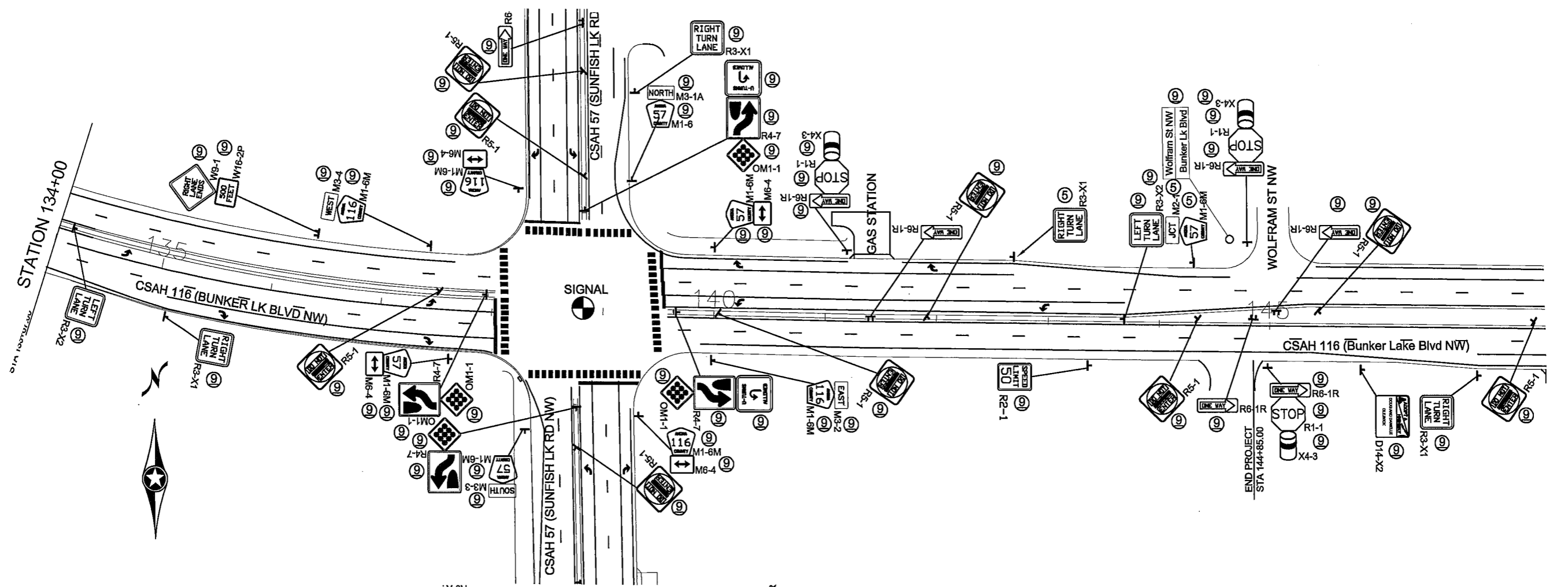


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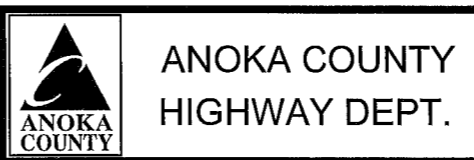
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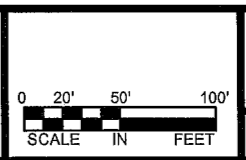
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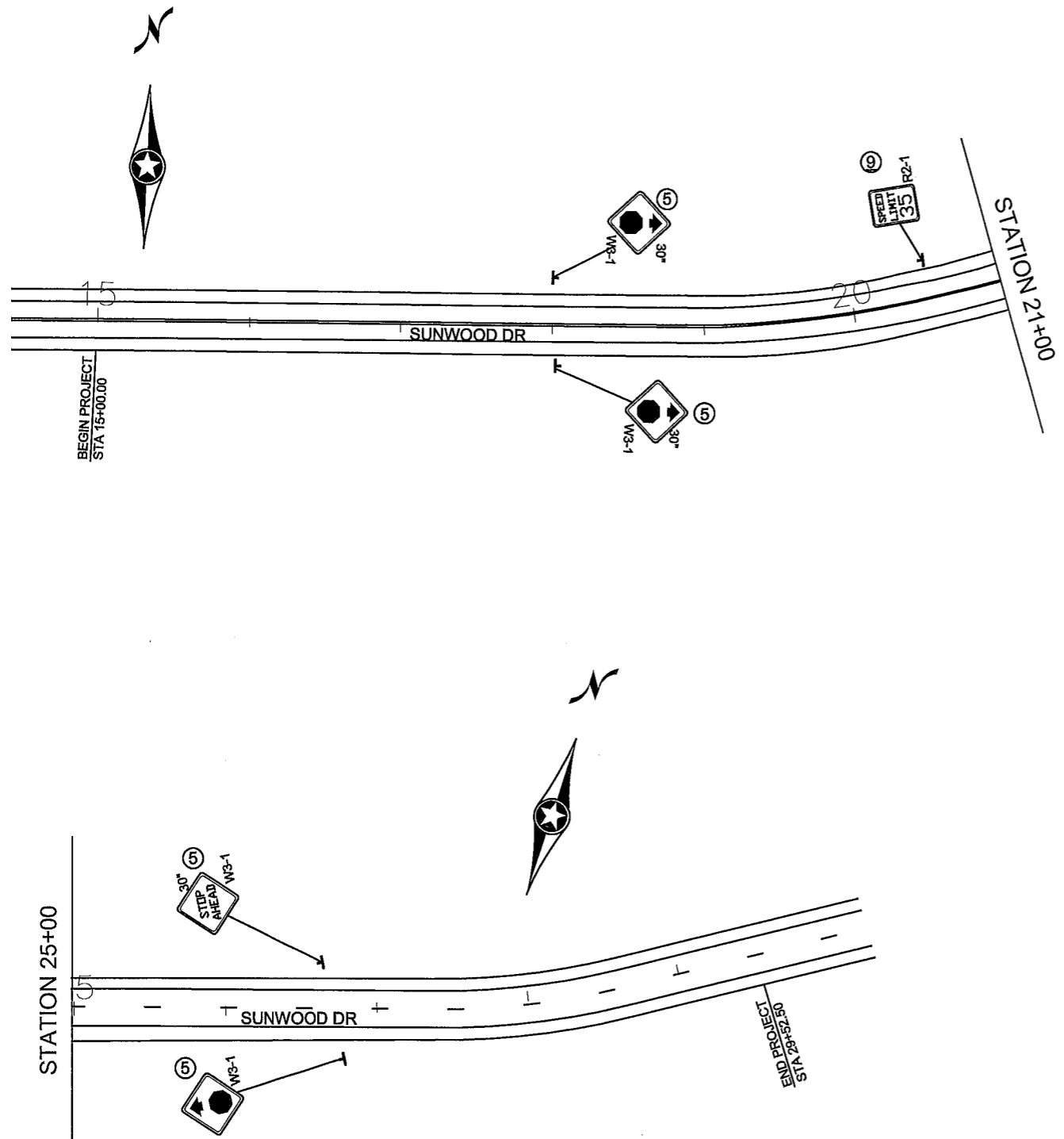


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 SAP 199-104-014



EXISTING SIGN & STRIPING PLAN  
 Sheet 131 of 259 Sheets

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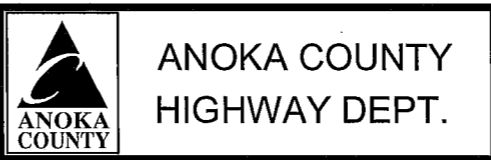
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		EACH	EACH	EACH	EACH	EACH			
SB CSAH 83	MEDIAN			4					
13+60	MEDIAN	1					R3-8AB	LT DESIGNATION	
16+10	RT	1					X4-5	PLOW MARKER	
							R3-4	NO U TURN	
							R4-7	KEEP RIGHT	
17+90	MEDIAN	1					OM-1	9 BUTTON	
20+40	RT	1					W6-3	TWO-WAY	
20+40	LT	1					W3-3	SIGNAL AHEAD	
24+40	RT	1					R3-X1	RIGHT TURN LN	
26+40	LT	1					W1-2L	LT CURVE AHEAD	
27+40	LT		1			1		STREET SIGN	
27+70	RT	1					R1-1	STOP SIGN	
29+20	RT	1					W1-2L	LT CURVE AHEAD	
38+50	LT	1					R1-1	STOP SIGN	
							X4-3	DELINEATOR	
39+60	LT	1					W1-2R	RT CURVE AHEAD	
61+45	MEDIAN	1					R4-7	KEEP RIGHT	
							OM-1	9 BUTTON	
63+30	RT	1					R3-X2	RIGHT TURN LN	
63+30	MEDIAN	1					RE-X2	LEFT TURN LN	
70+40	MEDIAN	1					R3-X2	LEFT TURN LN	
72+20	RT	1					X4-5	PLOW MARKER	
							R3-4	NO U TURN	
73+00	MEDIAN	1					R4-7	KEEP RIGHT	
							OM-1	9 BUTTON	
73+80	RT	1					R6-1L	ONE WAY	
74+20	RT	1					W1-2R	RT CURVE AHEAD	
75+90	RT	1					R2-1	55 SPEED LIMIT	
							R1-1	STOP SIGN	
77+60	RT	1					X4-3	DELINEATOR	
93+10	RT	1					W3-1	STOP AHEAD	
93+10	LT	1					W3-1	STOP AHEAD	
							R1-1	STOP	
							R1-4P	ALL WAY	
							X4-3	DELINEATOR	
							R1-1	STOP	
							R1-4P	ALL WAY	
							X4-3	DELINEATOR	
102+40	RT	1					R1-1	STOP	
							R1-4P	ALL WAY	
							X4-3	DELINEATOR	
102+40	LT	1					R1-1	STOP	
							R1-4P	ALL WAY	
							X4-3	DELINEATOR	
103+67	LT	1					R1-1	STOP	
							R1-4P	ALL WAY	
							X4-3	DELINEATOR	
106+21	RT	1					W3-1	STOP AHEAD	
							W3-1	STOP AHEAD	
113+60	RT	1					R3-X1	RIGHT TURN LN	
113+60	LT	1					W6-3	TWO-WAY	
119+60	LT	1					R3-4	NO U TURN	
128+61	LT	1					R4-7	KEEP RIGHT	
							OM-1	9 BUTTON	
130+90	MEDIAN	1					OM3-L	MARKER	
							R5-1	DO NOT ENTER	
131+70	MEDIAN	1					R6-1R	ONE WAY	
133+20	MEDIAN	1					R3-X1	RIGHT TURN LN	
133+70	MEDIAN	1					M2-1	JCT	
142+70	LT	1					M1-6M	57 RTE MKR	
144+30	LT	1							
SUNWOOD DR									
18+10	RT	1					W3-1A	STOP AHEAD	
18+10	LT	1					W3-1A	STOP AHEAD	
							R1-1	STOP SIGN	
21+90	RT	1					R1-4P	ALL WAY	
							X4-3	DELINEATOR	
							R1-1	STOP SIGN	
21+90	LT	1					R1-4P	ALL WAY	
							X4-3	DELINEATOR	
							R1-1	STOP SIGN	
22+90	RT	1					R1-4P	ALL WAY	
							X4-3	DELINEATOR	
22+90	LT	1					R1-1	STOP SIGN	
							R1-4P	ALL WAY	
							X4-3	DELINEATOR	
26+66	RT	1					W3-1	STOP AHEAD	
26+66	LT	1					W3-1	STOP AHEAD	
TOTAL		45	1	4	0	1			

CONSTRUCTION NOTES:  
 1. SIGN TYPE SPECIAL ARE TO REMAIN VISIBLE AT ALL TIMES. SHALL BE PAID BY THE EACH, WHEN RELOCATION IS REQUIRED.

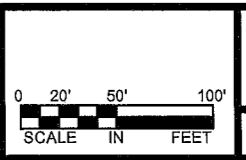
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 PRINT NAME: SEAN THIEL, P.E.  
 SIGNATURE: *Sean Thiel*  
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DRAWN BY TMV DATE 05/08/21  
 DESIGN BY TMV DATE 06/08/21  
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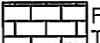
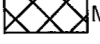





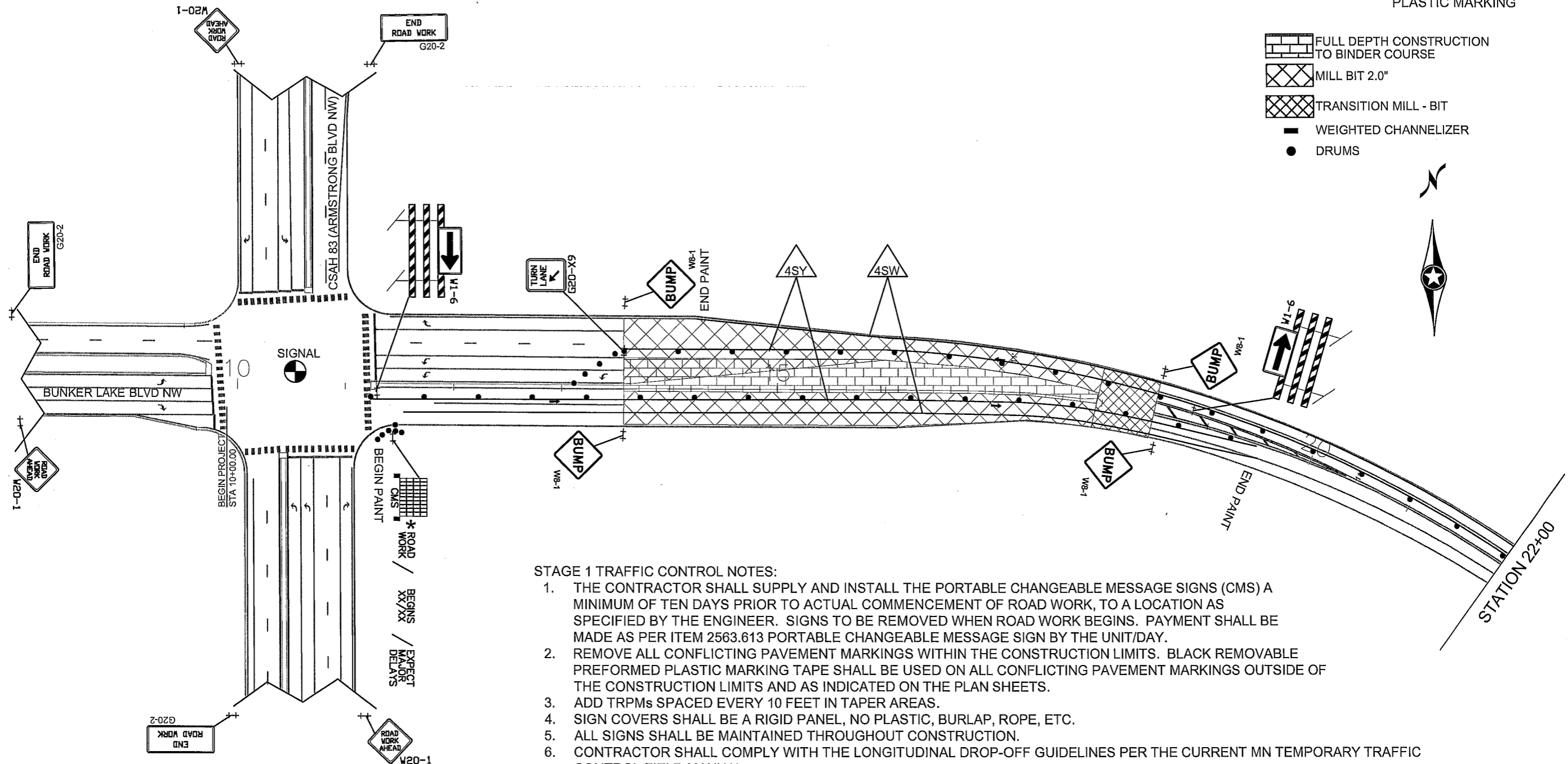
SAP 002-716-021  
 SAP 199-104-014



EXISTING SIGN & STRIPING PLAN  
 Sheet 132 of 259 Sheets

**STRIPING KEY**

-  TRIANGLE - PAINT
-  PENTAGON - REMOVABLE PREFORMED PLASTIC MARKING
-  FULL DEPTH CONSTRUCTION TO BINDER COURSE
-  MILL BIT 2.0"
-  TRANSITION MILL - BIT
-  WEIGHTED CHANNELIZER
-  DRUMS



**STAGE 1 TRAFFIC CONTROL NOTES:**

1. THE CONTRACTOR SHALL SUPPLY AND INSTALL THE PORTABLE CHANGEABLE MESSAGE SIGNS (CMS) A MINIMUM OF TEN DAYS PRIOR TO ACTUAL COMMENCEMENT OF ROAD WORK, TO A LOCATION AS SPECIFIED BY THE ENGINEER. SIGNS TO BE REMOVED WHEN ROAD WORK BEGINS. PAYMENT SHALL BE MADE AS PER ITEM 2563.613 PORTABLE CHANGEABLE MESSAGE SIGN BY THE UNIT/DAY.
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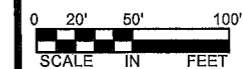
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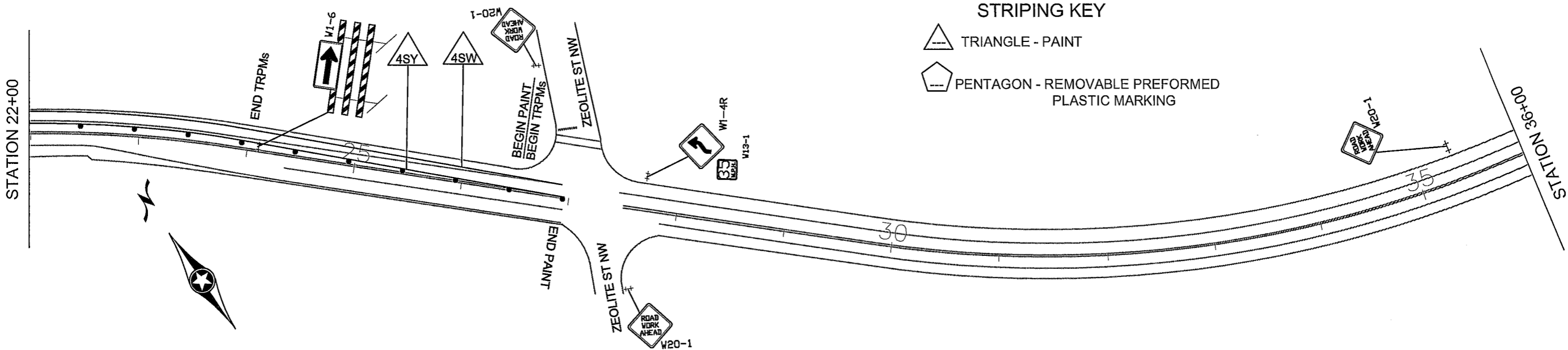


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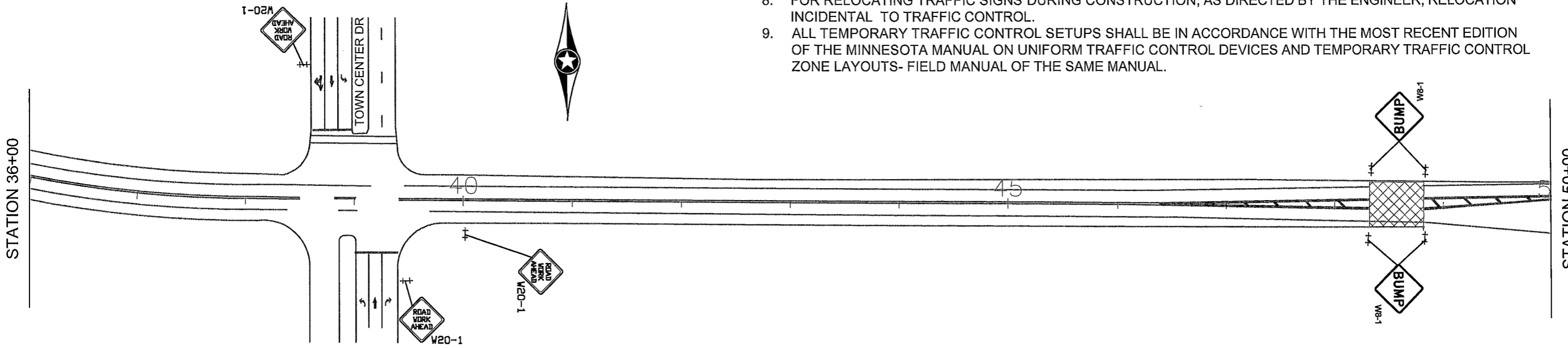


TRAFFIC CONTROL  
STAGE 1  
Sheet 133 of 259 Sheets



- FULL DEPTH CONSTRUCTION TO BINDER COURSE
- MILL BIT 2.0"
- TRANSITION MILL - BIT
- WEIGHTED CHANNELIZER
- DRUMS

- STAGE 1 TRAFFIC CONTROL NOTES:
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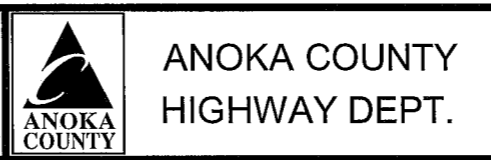
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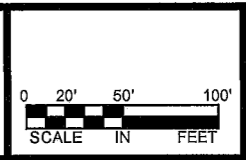
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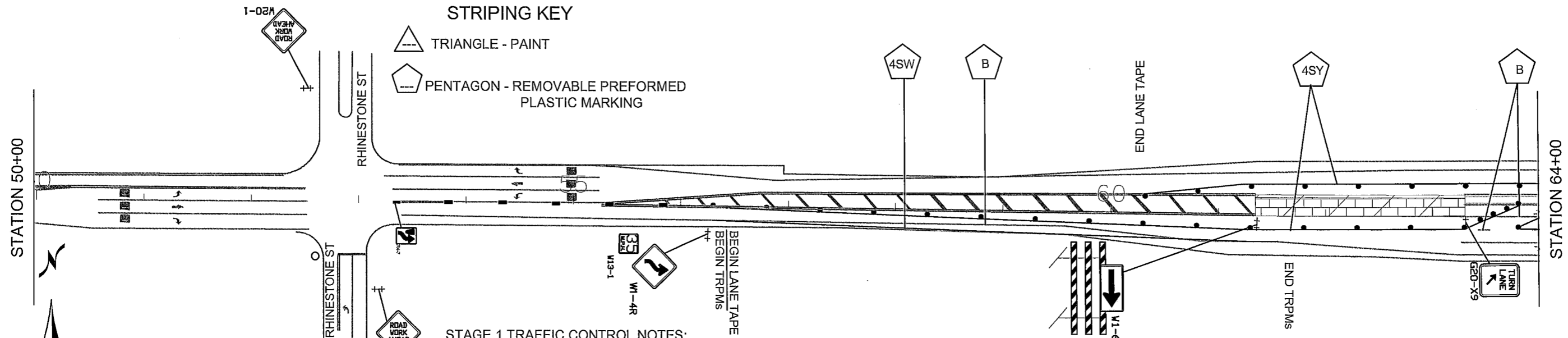
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SAP 002-716-021  
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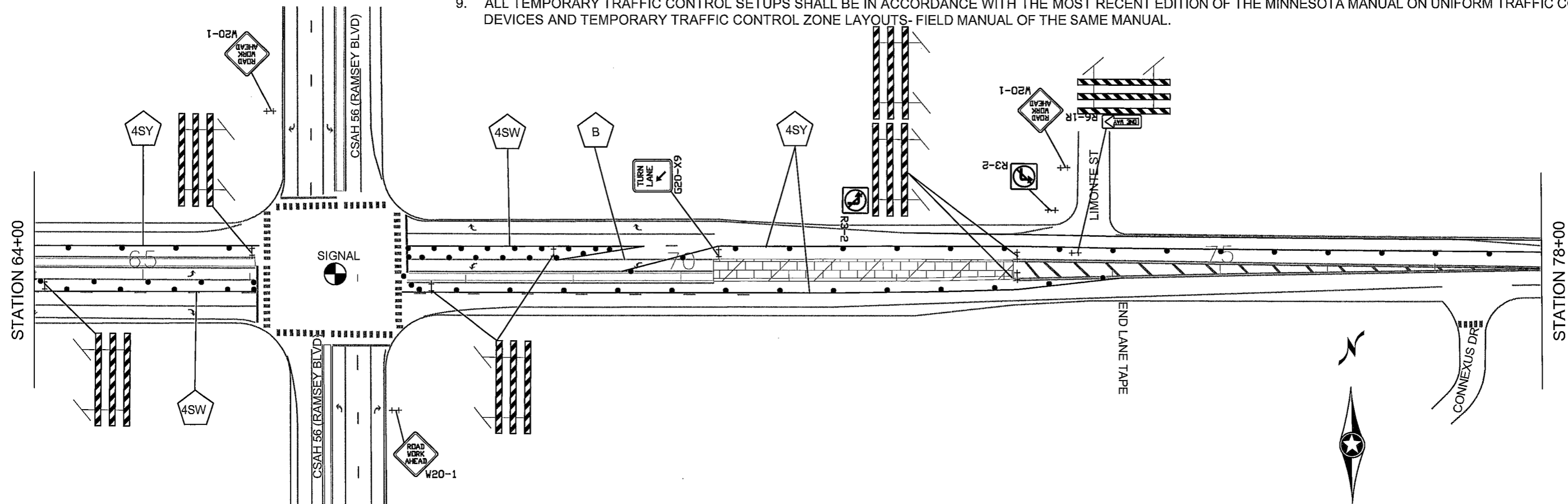
**STRIPING KEY**

- TRIANGLE - PAINT
- PENTAGON - REMOVABLE PREFORMED PLASTIC MARKING

- FULL DEPTH CONSTRUCTION TO BINDER COURSE
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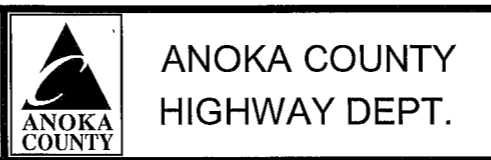
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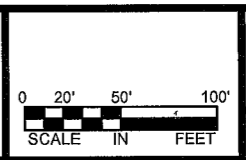
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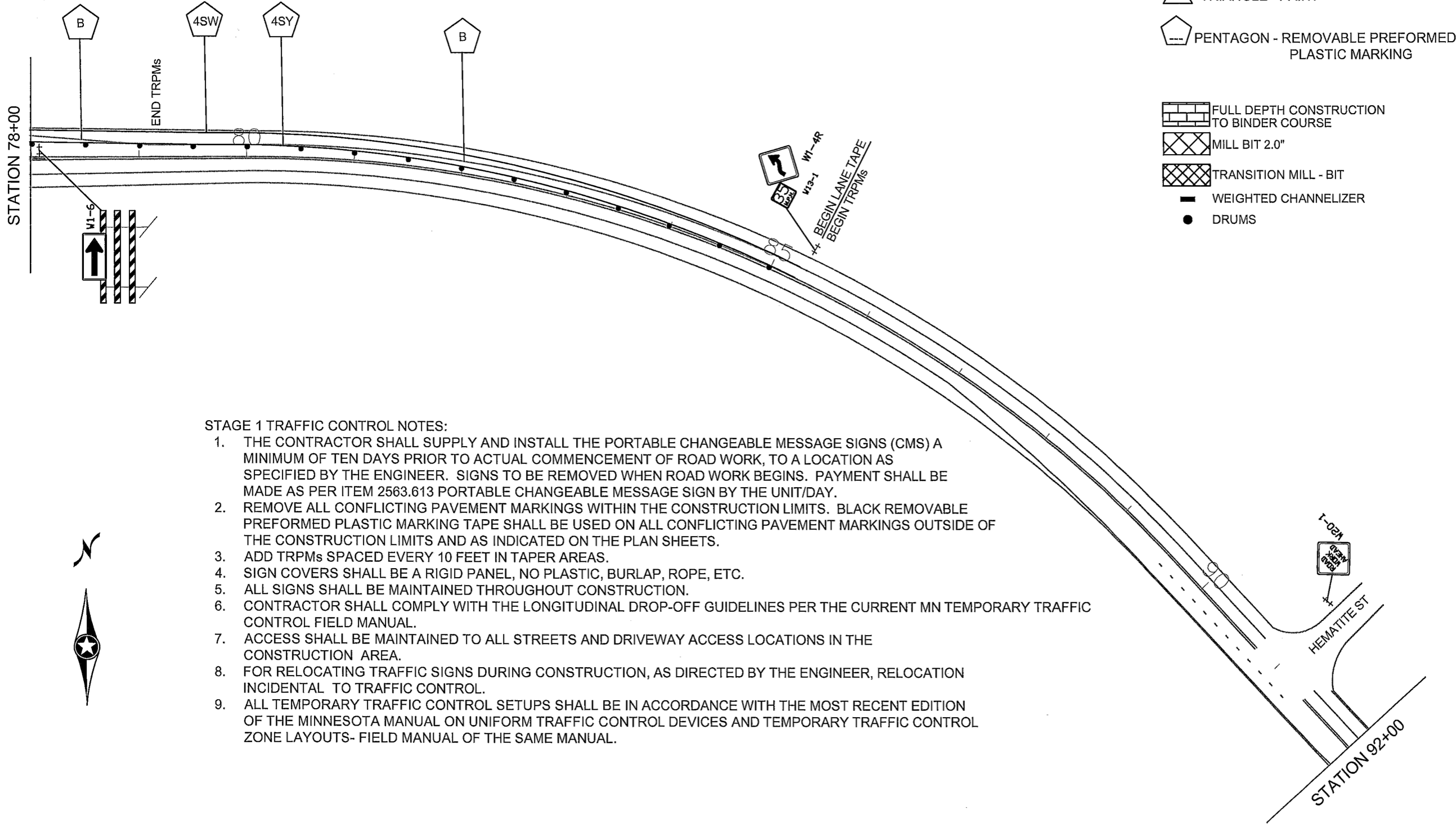
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SAP 002-716-021  
 SAP 199-104-014



TRAFFIC CONTROL  
 STAGE 1  
 Sheet 135 of 259 Sheets



- STRIPING KEY**
- TRIANGLE - PAINT
  - PENTAGON - REMOVABLE PREFORMED PLASTIC MARKING
  - FULL DEPTH CONSTRUCTION TO BINDER COURSE
  - MILL BIT 2.0"
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**STRIPING KEY**

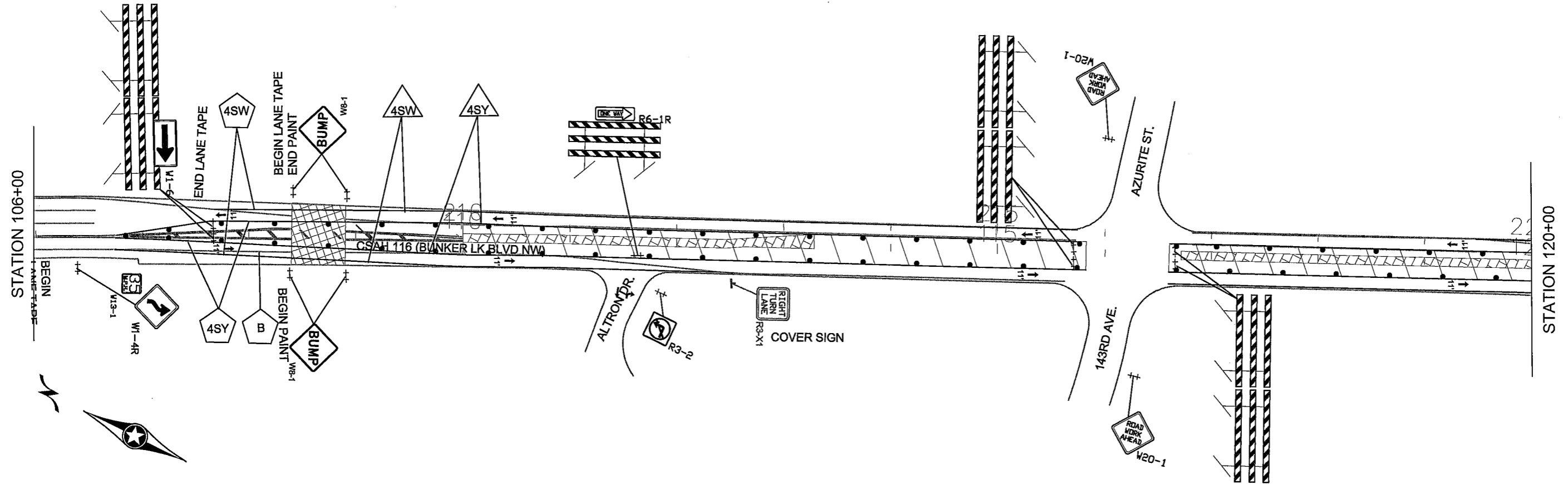
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STATION 92+00

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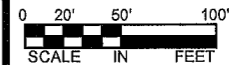
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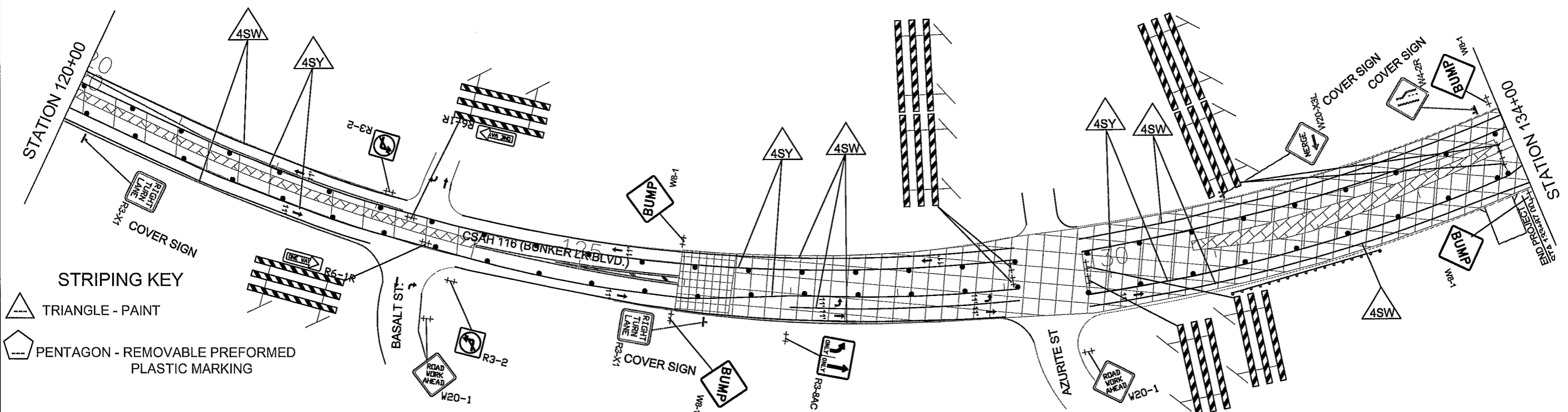


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SAP 002-716-021  
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TRAFFIC CONTROL  
 STAGE 1



**STRIPING KEY**

△ TRIANGLE - PAINT

⬠ PENTAGON - REMOVABLE PREFORMED PLASTIC MARKING

▨ FULL DEPTH CONSTRUCTION TO BINDER COURSE

▩ MILL BIT 2.0"

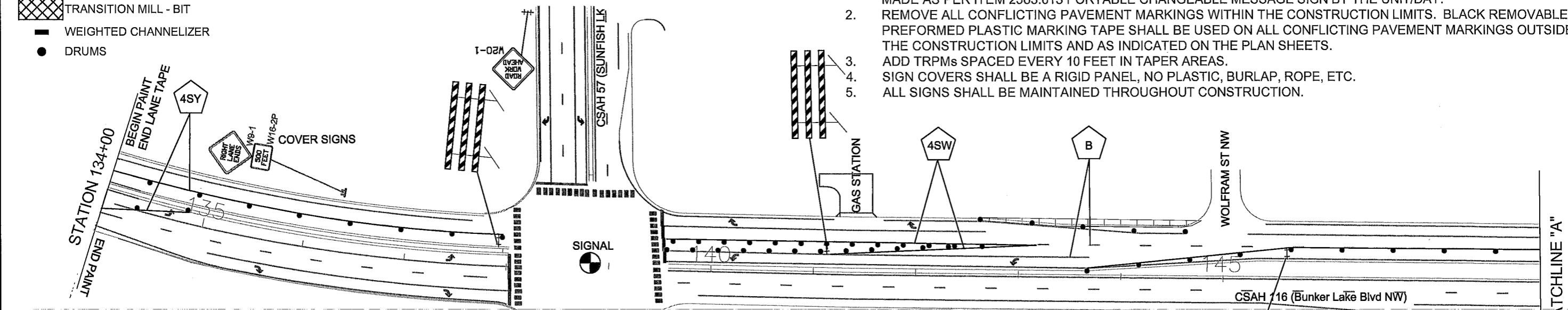
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**STAGE 1 TRAFFIC CONTROL NOTES (cont.):**

6. CONTRACTOR SHALL COMPLY WITH THE LONGITUDINAL DROP-OFF GUIDELINES PER THE CURRENT MN TEMPORARY TRAFFIC CONTROL FIELD MANUAL.
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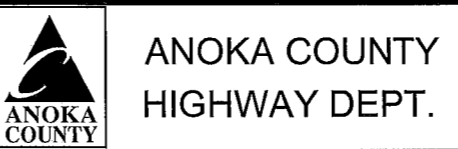
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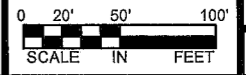
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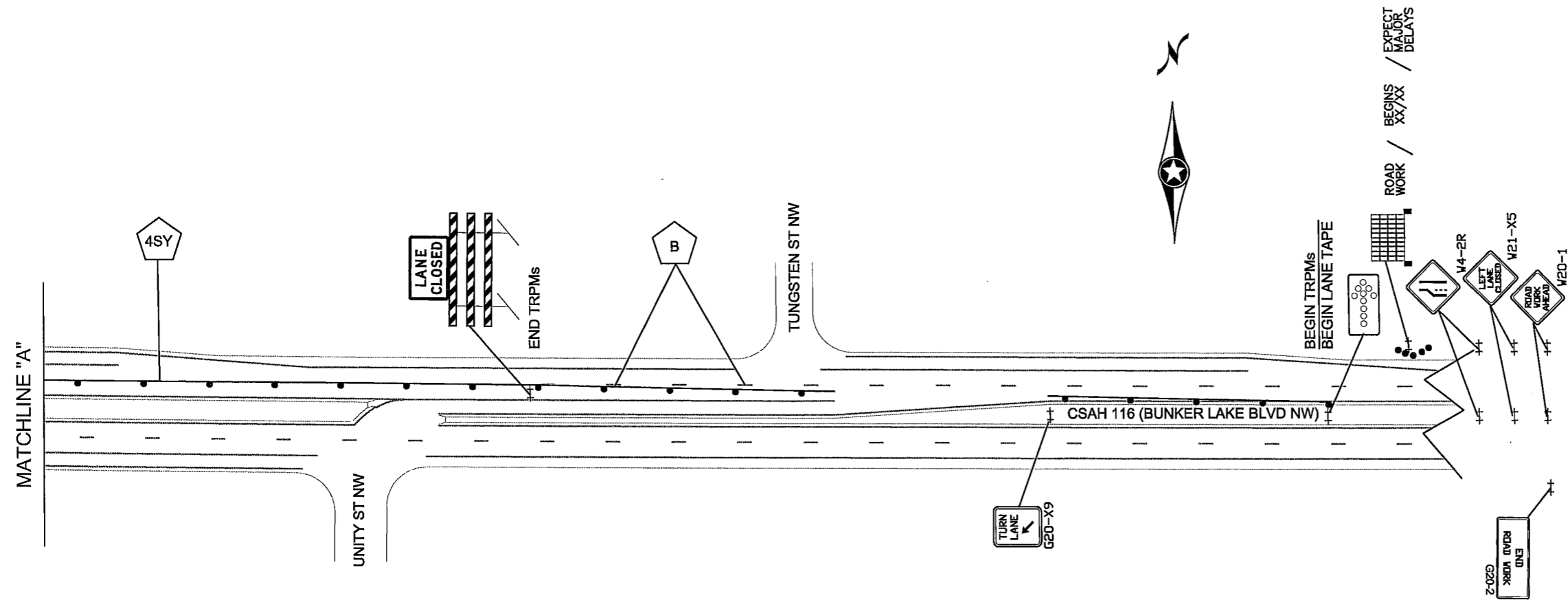


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TRAFFIC CONTROL  
STAGE 1

Sheet 138 of 259 Sheets



**STAGE 1 TRAFFIC CONTROL NOTES:**

1. THE CONTRACTOR SHALL SUPPLY AND INSTALL THE PORTABLE CHANGEABLE MESSAGE SIGNS (CMS) A MINIMUM OF TEN DAYS PRIOR TO ACTUAL COMMENCEMENT OF ROAD WORK, TO A LOCATION AS SPECIFIED BY THE ENGINEER. SIGNS TO BE REMOVED WHEN ROAD WORK BEGINS. PAYMENT SHALL BE MADE AS PER ITEM 2563.613 PORTABLE CHANGEABLE MESSAGE SIGN BY THE UNIT/DAY.
2. REMOVE ALL CONFLICTING PAVEMENT MARKINGS WITHIN THE CONSTRUCTION LIMITS. BLACK REMOVABLE PREFORMED PLASTIC MARKING TAPE SHALL BE USED ON ALL CONFLICTING PAVEMENT MARKINGS OUTSIDE OF THE CONSTRUCTION LIMITS AND AS INDICATED ON THE PLAN SHEETS.
3. ADD TRPMS SPACED EVERY 10 FEET IN TAPER AREAS.
4. SIGN COVERS SHALL BE A RIGID PANEL, NO PLASTIC, BURLAP, ROPE, ETC.
5. ALL SIGNS SHALL BE MAINTAINED THROUGHOUT CONSTRUCTION.
6. CONTRACTOR SHALL COMPLY WITH THE LONGITUDINAL DROP-OFF GUIDELINES PER THE CURRENT MN TEMPORARY TRAFFIC CONTROL FIELD MANUAL.
7. ACCESS SHALL BE MAINTAINED TO ALL STREETS AND DRIVEWAY ACCESS LOCATIONS IN THE CONSTRUCTION AREA.
8. FOR RELOCATING TRAFFIC SIGNS DURING CONSTRUCTION, AS DIRECTED BY THE ENGINEER, RELOCATION INCIDENTAL TO TRAFFIC CONTROL.
9. ALL TEMPORARY TRAFFIC CONTROL SETUPS SHALL BE IN ACCORDANCE WITH THE MOST RECENT EDITION OF THE MINNESOTA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES AND TEMPORARY TRAFFIC CONTROL ZONE LAYOUTS- FIELD MANUAL OF THE SAME MANUAL.

**STRIPING KEY**

- TRIANGLE - PAINT
- PENTAGON - REMOVABLE PREFORMED PLASTIC MARKING
- FULL DEPTH CONSTRUCTION TO BINDER COURSE
- MILL BIT 2.0"
- TRANSITION MILL - BIT
- WEIGHTED CHANNELIZER
- DRUMS

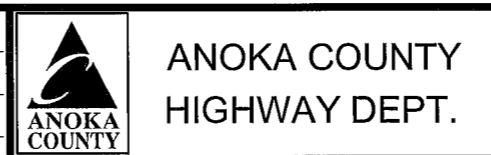
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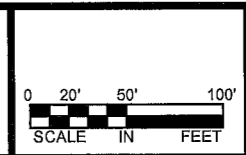
I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

PRINT NAME: SEAN THIEL, P.E.  
 SIGNATURE: *Sean Thiel*  
 DATE: 7/29/21 LICENSE NO. 45129

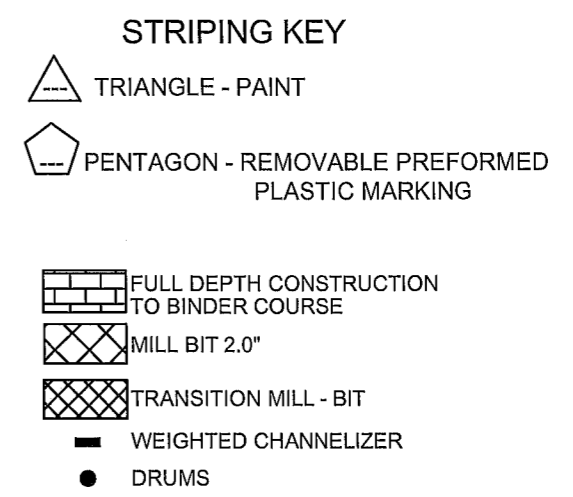
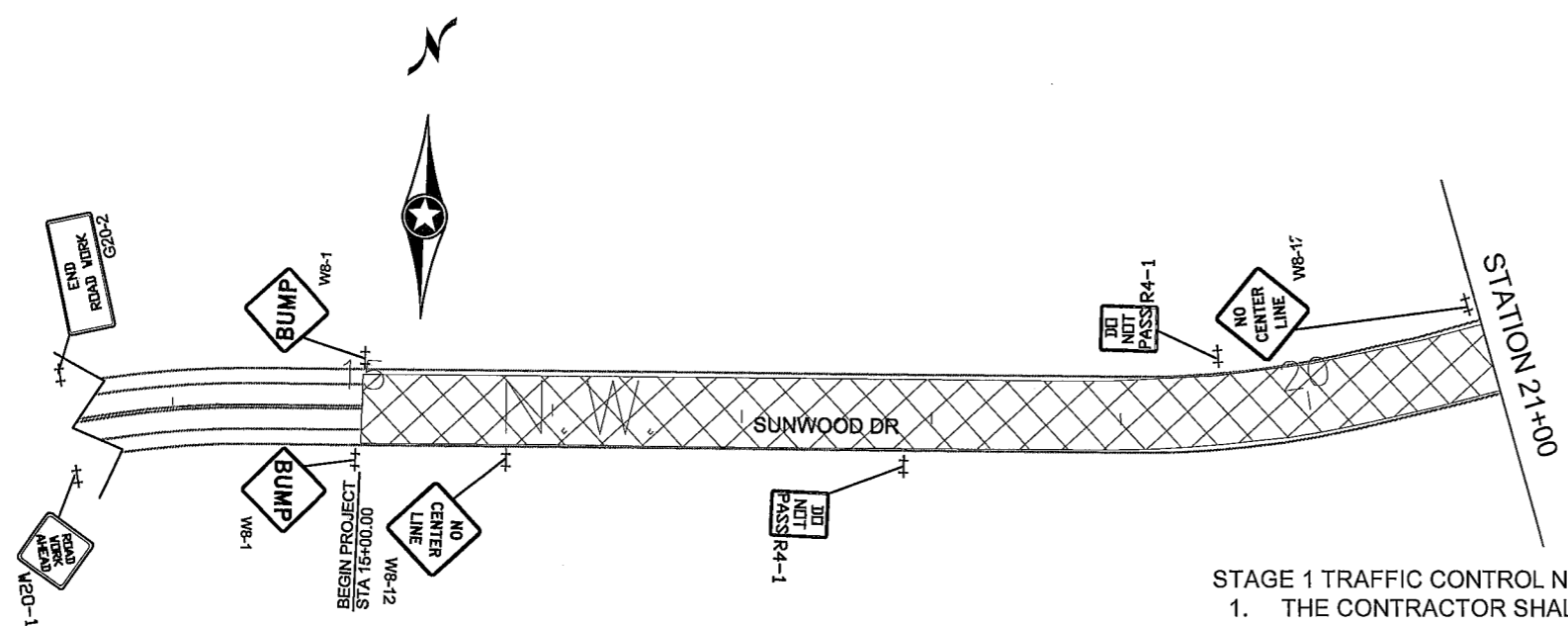
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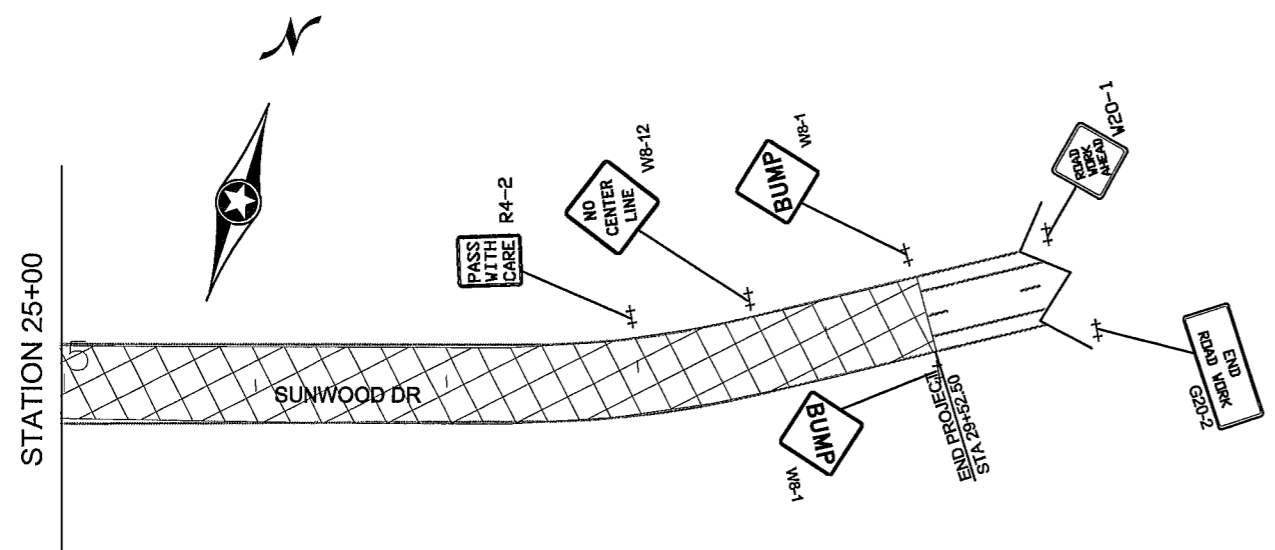


TRAFFIC CONTROL  
 STAGE 1  
 Sheet 139 of 259 Sheets



**STAGE 1 TRAFFIC CONTROL NOTES:**

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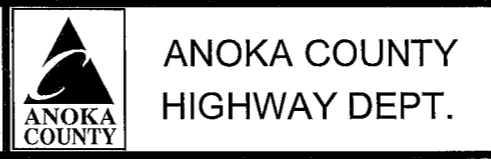
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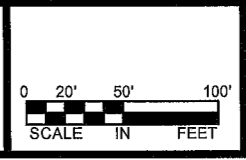
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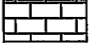



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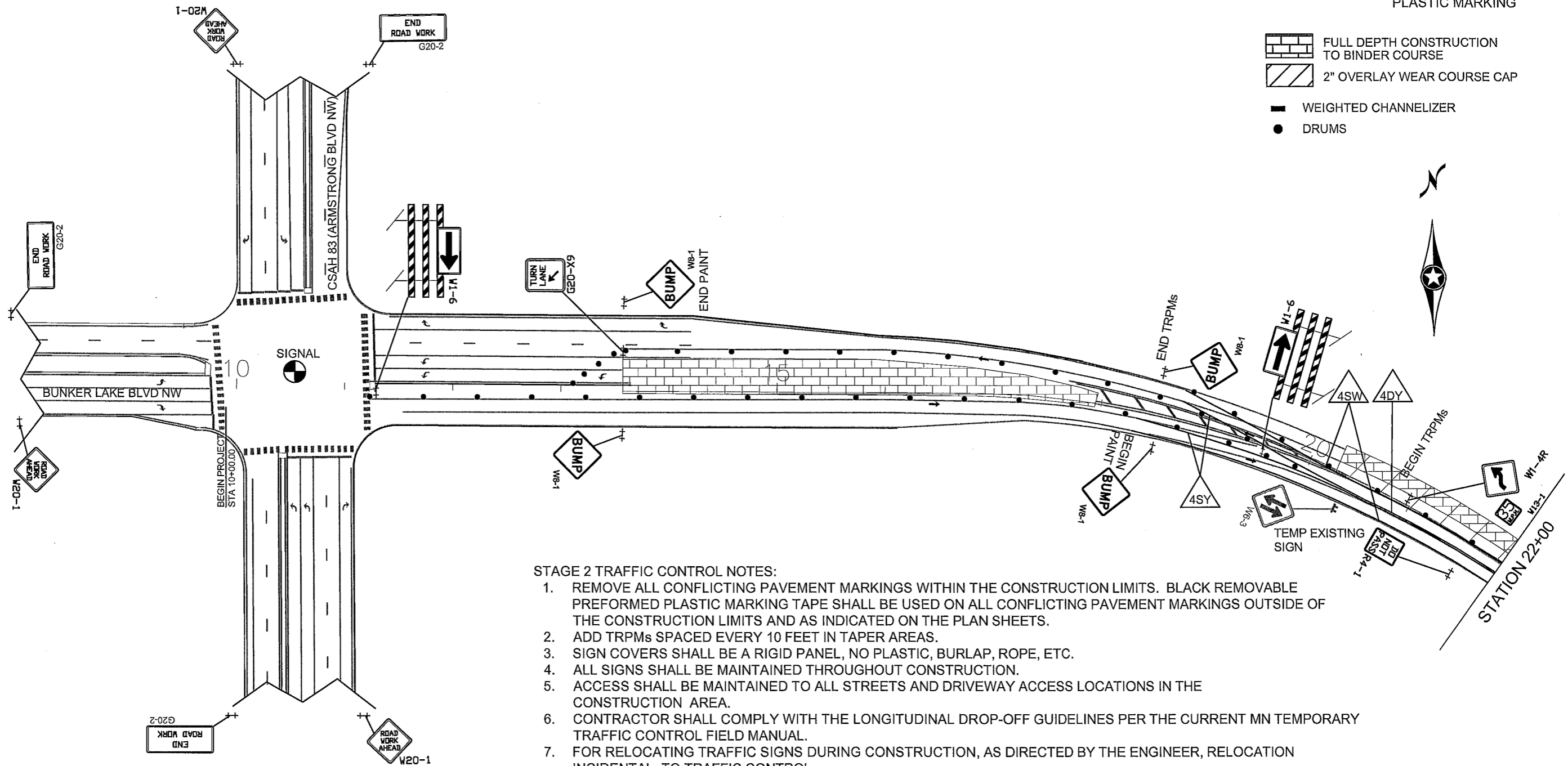


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**STRIPING KEY**

-  TRIANGLE - PAINT
-  PENTAGON - REMOVABLE PREFORMED PLASTIC MARKING
-  FULL DEPTH CONSTRUCTION TO BINDER COURSE
-  2" OVERLAY WEAR COURSE CAP
-  WEIGHTED CHANNELIZER
-  DRUMS



**STAGE 2 TRAFFIC CONTROL NOTES:**

1. REMOVE ALL CONFLICTING PAVEMENT MARKINGS WITHIN THE CONSTRUCTION LIMITS. BLACK REMOVABLE PREFORMED PLASTIC MARKING TAPE SHALL BE USED ON ALL CONFLICTING PAVEMENT MARKINGS OUTSIDE OF THE CONSTRUCTION LIMITS AND AS INDICATED ON THE PLAN SHEETS.
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NO	DATE	BY	CKD	APPR	REVISION

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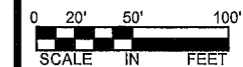
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**ANOKA COUNTY  
HIGHWAY DEPT.**

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SAP 199-104-014









TRAFFIC CONTROL  
STAGE 2

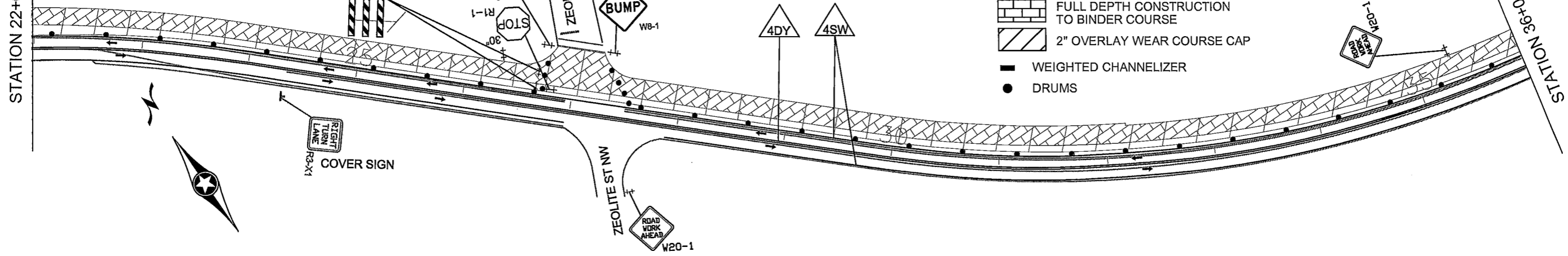
Sheet 141 of 259 Sheets

STATION 22+00

STATION 36+00

### STRIPING KEY

-  TRIANGLE - PAINT
-  PENTAGON - REMOVABLE PREFORMED PLASTIC MARKING
-  FULL DEPTH CONSTRUCTION TO BINDER COURSE
-  2" OVERLAY WEAR COURSE CAP
-  WEIGHTED CHANNELIZER
-  DRUMS

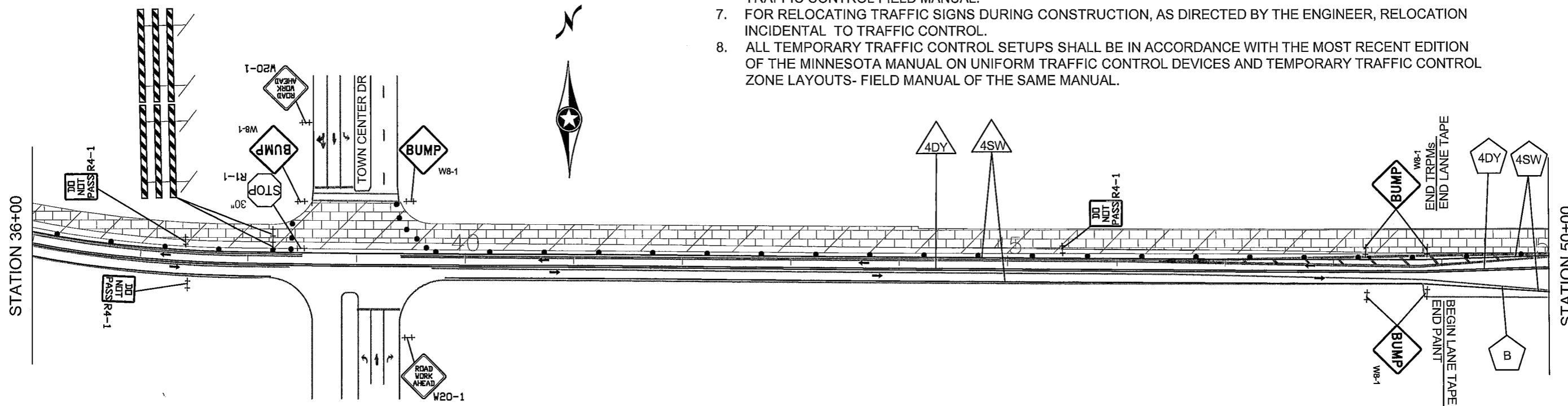


#### STAGE 2 TRAFFIC CONTROL NOTES:

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STATION 36+00

STATION 50+00



NO	DATE	BY	CHKD	APPR	REVISION

NAME: P:\002-716-021\BaselTraffic\Stage 2.dwg

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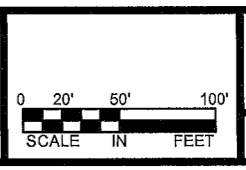
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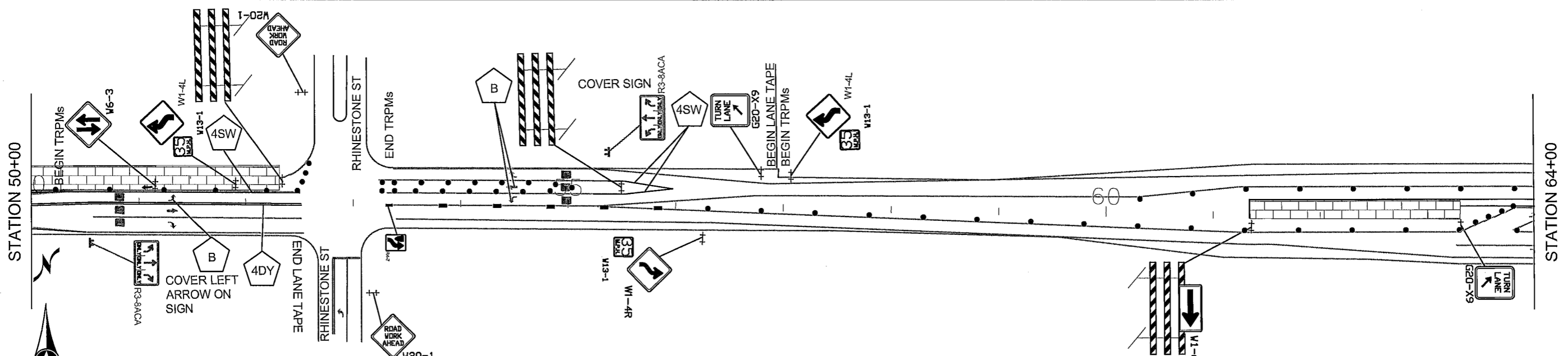
**ANOKA COUNTY**  
**HIGHWAY DEPT.**

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SAP 199-104-014



TRAFFIC CONTROL  
STAGE 2

Sheet 142 of 259 Sheets



**STRIPING KEY**

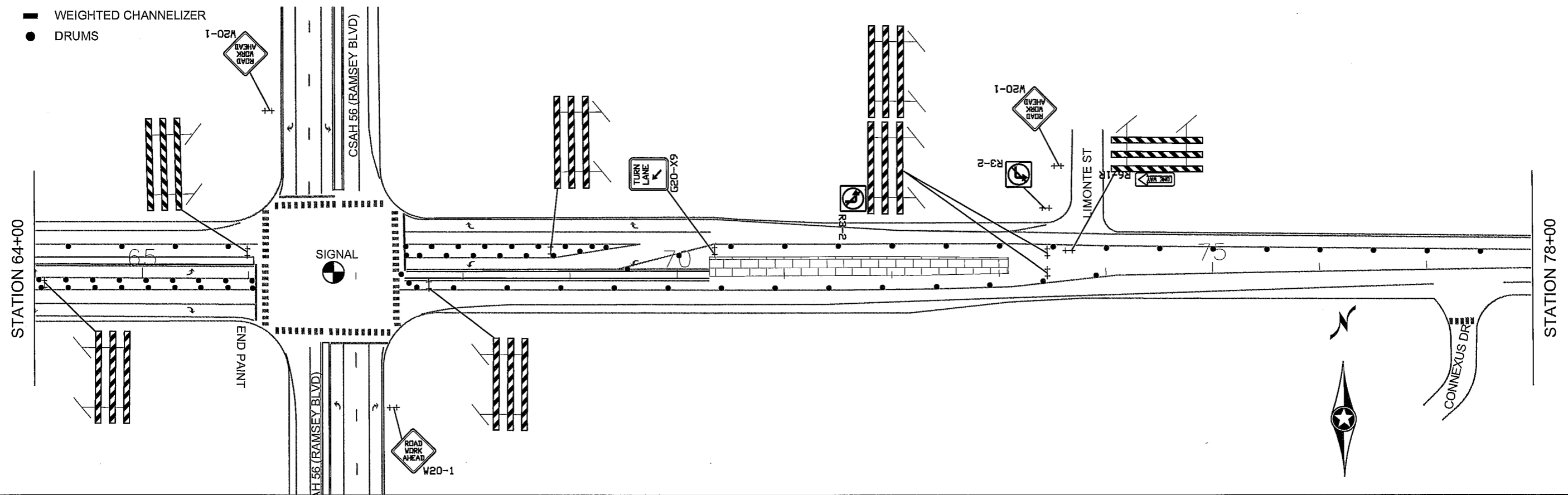
- TRIANGLE - PAINT
- PENTAGON - REMOVABLE PREFORMED PLASTIC MARKING

- FULL DEPTH CONSTRUCTION TO BINDER COURSE
- 2" OVERLAY WEAR COURSE CAP

- WEIGHTED CHANNELIZER
- DRUMS

**STAGE 2 TRAFFIC CONTROL NOTES:**

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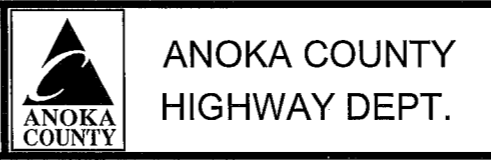
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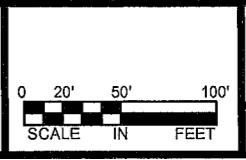
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



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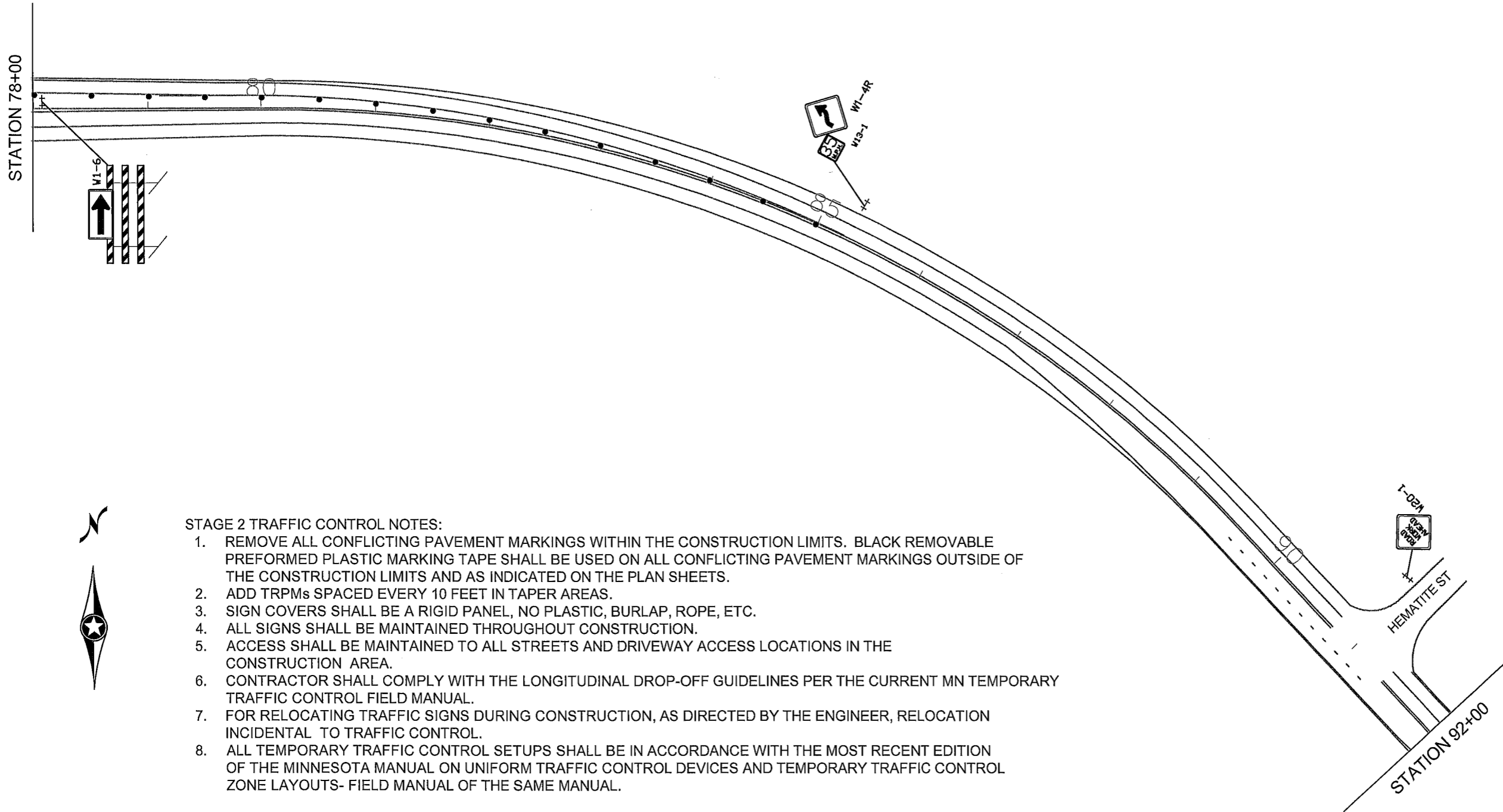


TRAFFIC CONTROL  
 STAGE 2  
 Sheet 143 of 259 Sheets

**STRIPING KEY**

-  TRIANGLE - PAINT
-  PENTAGON - REMOVABLE PREFORMED PLASTIC MARKING

-  FULL DEPTH CONSTRUCTION TO BINDER COURSE
-  2" OVERLAY WEAR COURSE CAP
-  WEIGHTED CHANNELIZER
-  DRUMS



**STAGE 2 TRAFFIC CONTROL NOTES:**

1. REMOVE ALL CONFLICTING PAVEMENT MARKINGS WITHIN THE CONSTRUCTION LIMITS. BLACK REMOVABLE PREFORMED PLASTIC MARKING TAPE SHALL BE USED ON ALL CONFLICTING PAVEMENT MARKINGS OUTSIDE OF THE CONSTRUCTION LIMITS AND AS INDICATED ON THE PLAN SHEETS.
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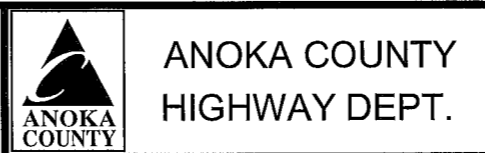
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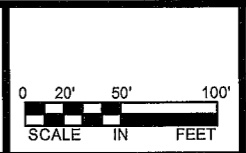
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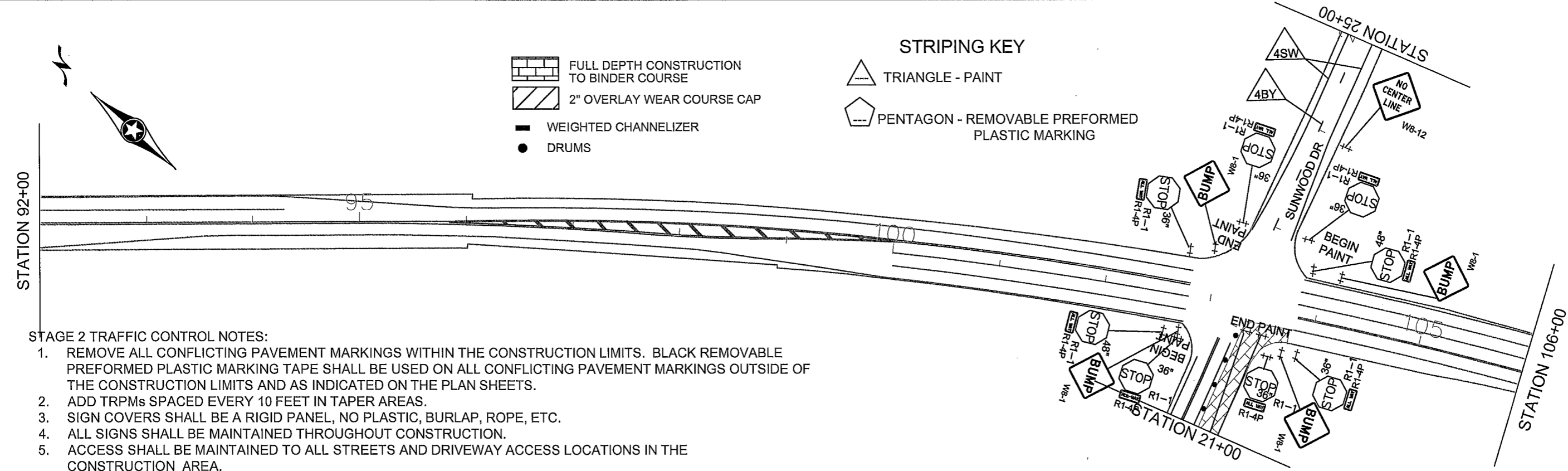
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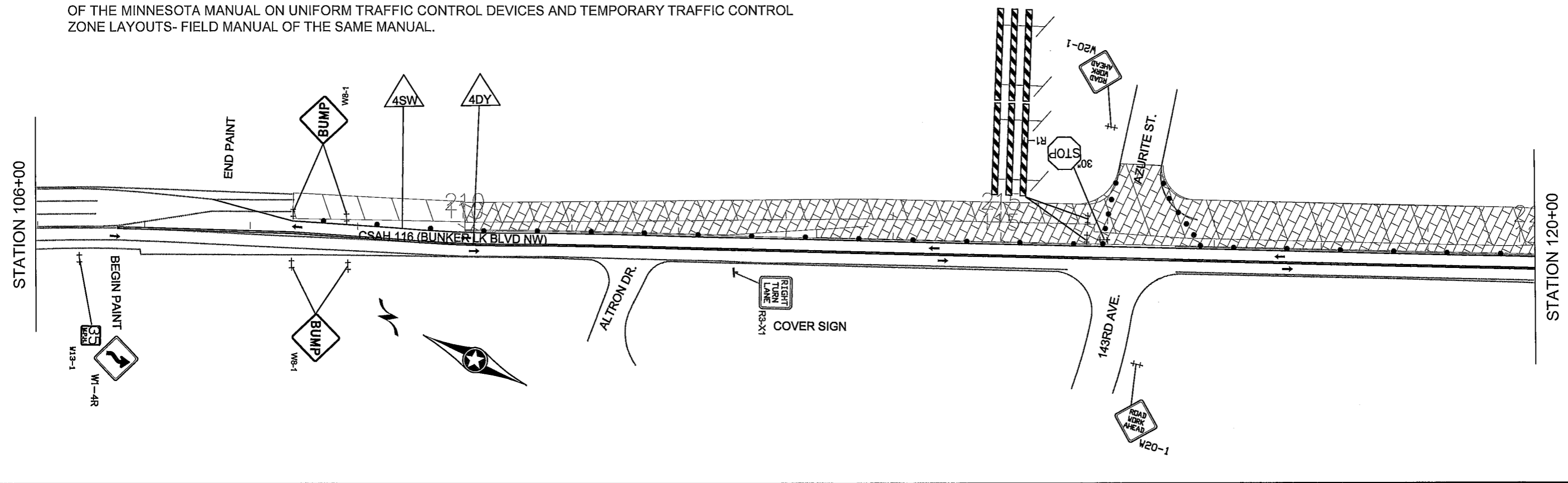
TRAFFIC CONTROL  
STAGE 2

Sheet 144 of 259 Sheets





- STAGE 2 TRAFFIC CONTROL NOTES:
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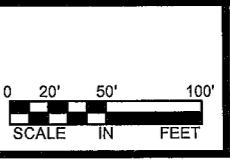
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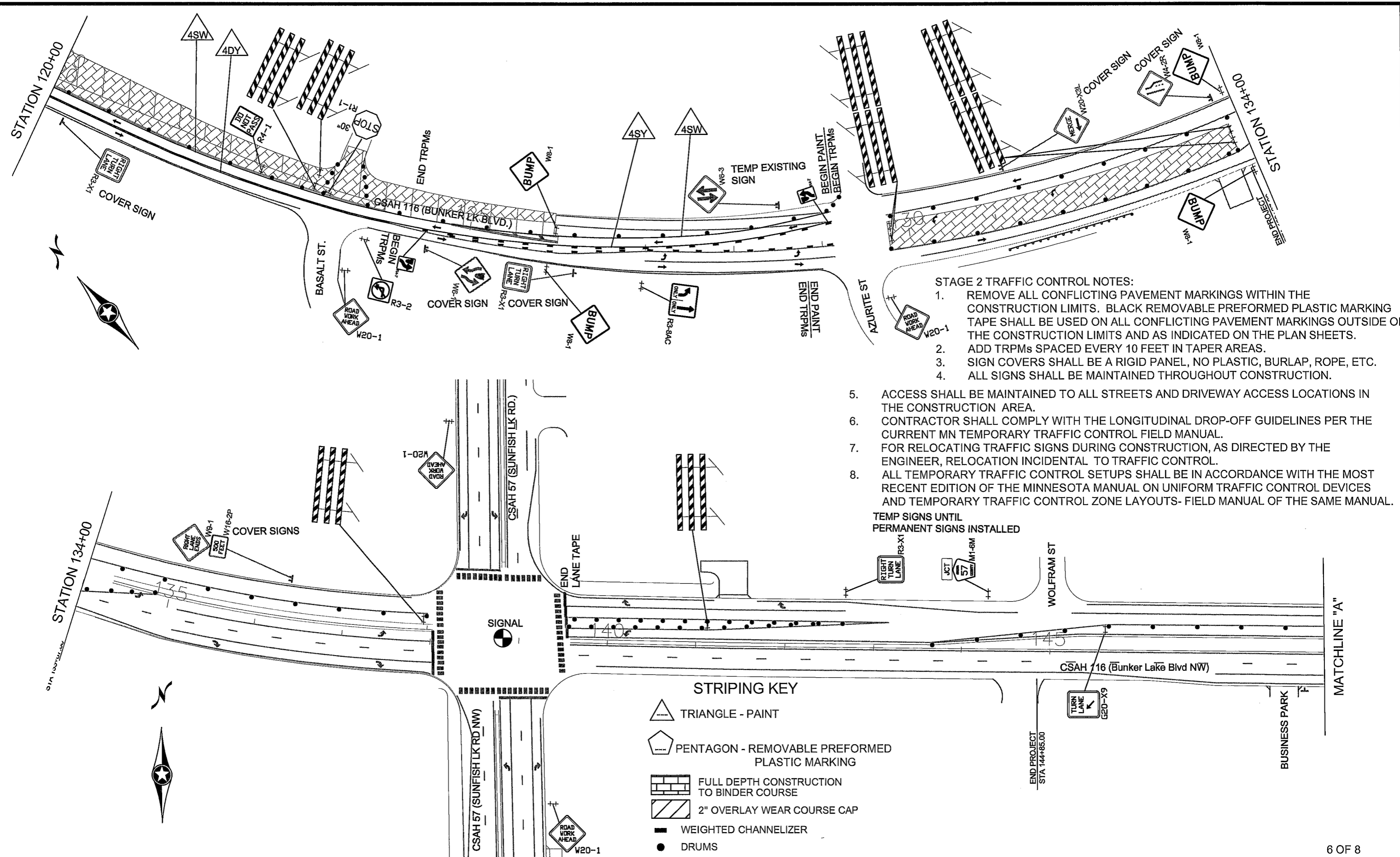
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TEMP SIGNS UNTIL PERMANENT SIGNS INSTALLED

- STRIPING KEY**
- ▲ TRIANGLE - PAINT
  - ▮ PENTAGON - REMOVABLE PREFORMED PLASTIC MARKING
  - ▨ FULL DEPTH CONSTRUCTION TO BINDER COURSE
  - ▩ 2" OVERLAY WEAR COURSE CAP
  - ▬ WEIGHTED CHANNELIZER
  - DRUMS

NO	DATE	BY	CKD	APPR	REVISION

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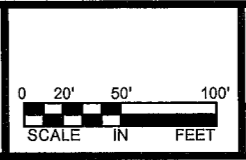
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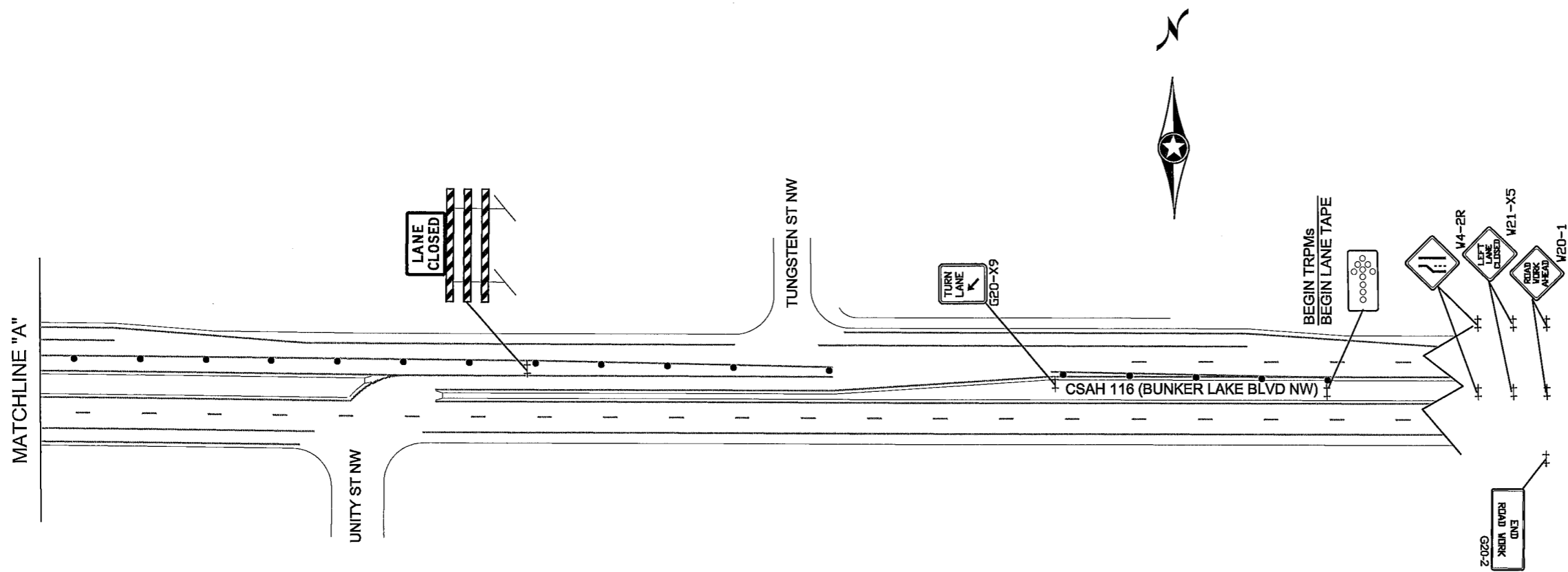
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- DRUMS

**STAGE 2 TRAFFIC CONTROL NOTES:**

1. REMOVE ALL CONFLICTING PAVEMENT MARKINGS WITHIN THE CONSTRUCTION LIMITS. BLACK REMOVABLE PREFORMED PLASTIC MARKING TAPE SHALL BE USED ON ALL CONFLICTING PAVEMENT MARKINGS OUTSIDE OF THE CONSTRUCTION LIMITS AND AS INDICATED ON THE PLAN SHEETS.
2. ADD TRPMs SPACED EVERY 10 FEET IN TAPER AREAS.
3. SIGN COVERS SHALL BE A RIGID PANEL, NO PLASTIC, BURLAP, ROPE, ETC.
4. ALL SIGNS SHALL BE MAINTAINED THROUGHOUT CONSTRUCTION.
5. ACCESS SHALL BE MAINTAINED TO ALL STREETS AND DRIVEWAY ACCESS LOCATIONS IN THE CONSTRUCTION AREA.
6. CONTRACTOR SHALL COMPLY WITH THE LONGITUDINAL DROP-OFF GUIDELINES PER THE CURRENT MN TEMPORARY TRAFFIC CONTROL FIELD MANUAL.
7. FOR RELOCATING TRAFFIC SIGNS DURING CONSTRUCTION, AS DIRECTED BY THE ENGINEER, RELOCATION INCIDENTAL TO TRAFFIC CONTROL.
8. ALL TEMPORARY TRAFFIC CONTROL SETUPS SHALL BE IN ACCORDANCE WITH THE MOST RECENT EDITION OF THE MINNESOTA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES AND TEMPORARY TRAFFIC CONTROL ZONE LAYOUTS- FIELD MANUAL OF THE SAME MANUAL.

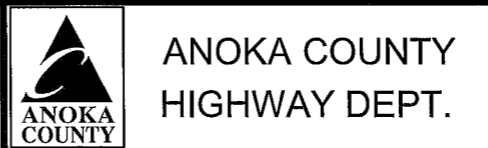
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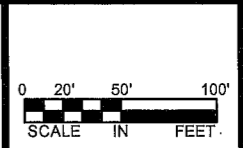
I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

PRINT NAME: SEAN THIEL, P.E.  
 SIGNATURE: *Sean Thiel*  
 DATE: 7/29/21 LICENSE NO. 45129

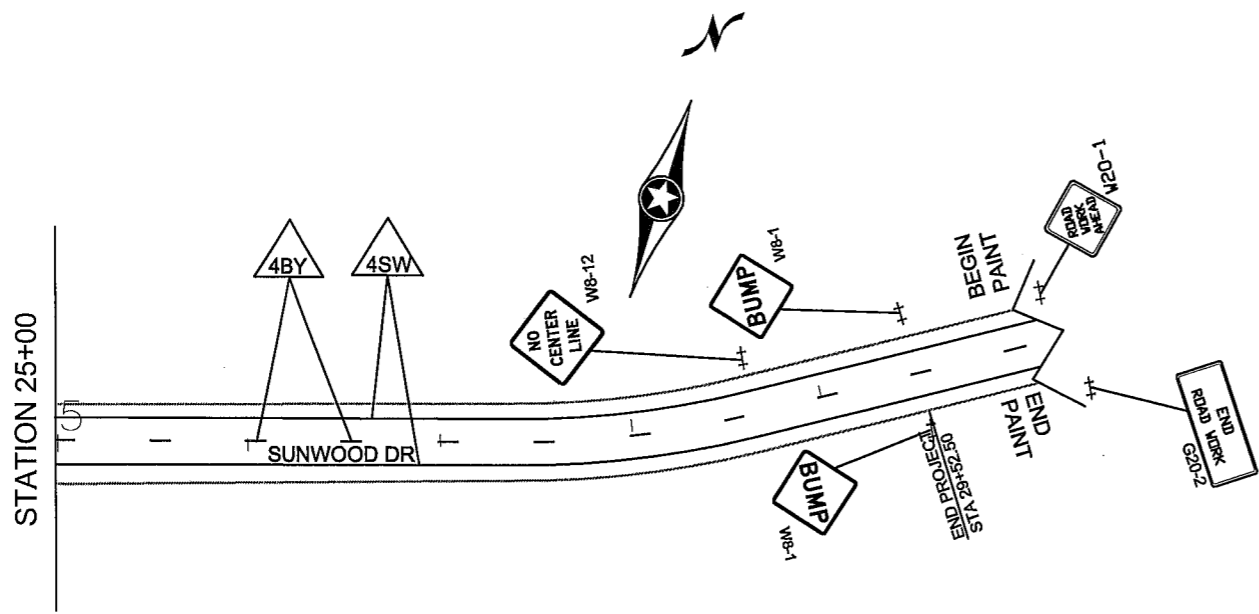
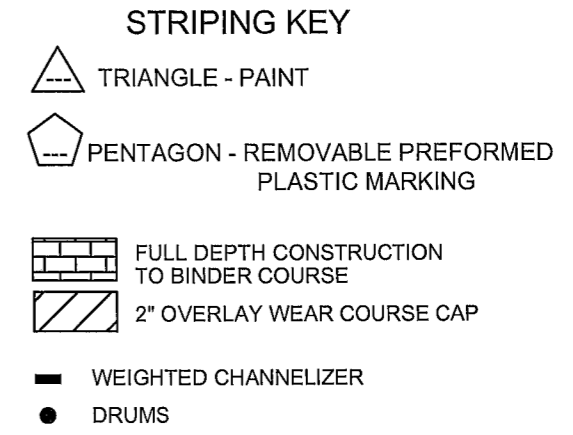
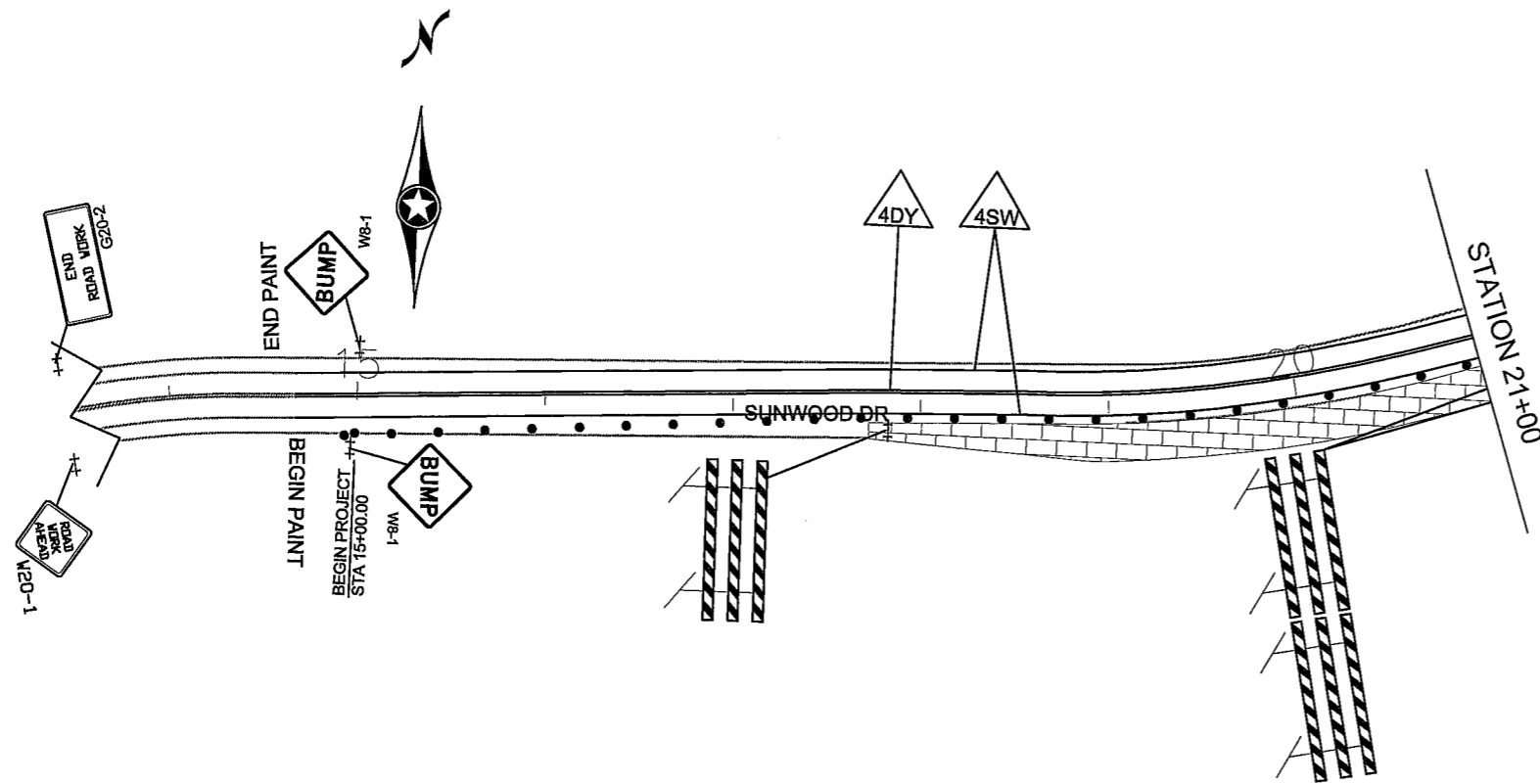
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 SAP 199-104-014



TRAFFIC CONTROL  
 STAGE 2  
 Sheet 147 of 259 Sheets



- STAGE 2 TRAFFIC CONTROL NOTES:
1. REMOVE ALL CONFLICTING PAVEMENT MARKINGS WITHIN THE CONSTRUCTION LIMITS. BLACK REMOVABLE PREFORMED PLASTIC MARKING TAPE SHALL BE USED ON ALL CONFLICTING PAVEMENT MARKINGS OUTSIDE OF THE CONSTRUCTION LIMITS AND AS INDICATED ON THE PLAN SHEETS.
  2. ADD TRPMs SPACED EVERY 10 FEET IN TAPER AREAS.
  3. SIGN COVERS SHALL BE A RIGID PANEL, NO PLASTIC, BURLAP, ROPE, ETC.
  4. ALL SIGNS SHALL BE MAINTAINED THROUGHOUT CONSTRUCTION.
  5. ACCESS SHALL BE MAINTAINED TO ALL STREETS AND DRIVEWAY ACCESS LOCATIONS IN THE CONSTRUCTION AREA.
  6. CONTRACTOR SHALL COMPLY WITH THE LONGITUDINAL DROP-OFF GUIDELINES PER THE CURRENT MN TEMPORARY TRAFFIC CONTROL FIELD MANUAL.
  7. FOR RELOCATING TRAFFIC SIGNS DURING CONSTRUCTION, AS DIRECTED BY THE ENGINEER, RELOCATION INCIDENTAL TO TRAFFIC CONTROL.
  8. ALL TEMPORARY TRAFFIC CONTROL SETUPS SHALL BE IN ACCORDANCE WITH THE MOST RECENT EDITION OF THE MINNESOTA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES AND TEMPORARY TRAFFIC CONTROL ZONE LAYOUTS- FIELD MANUAL OF THE SAME MANUAL.

NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\002-716-021\Base\Traffic\Stage 2.dwg

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PRINT NAME: BEAN THIEL, P.E.

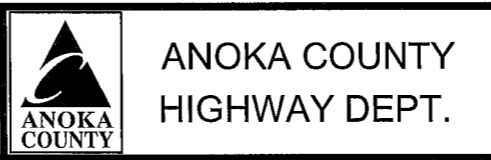
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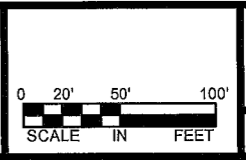
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CHECKED BY SRT DATE 07/01/21









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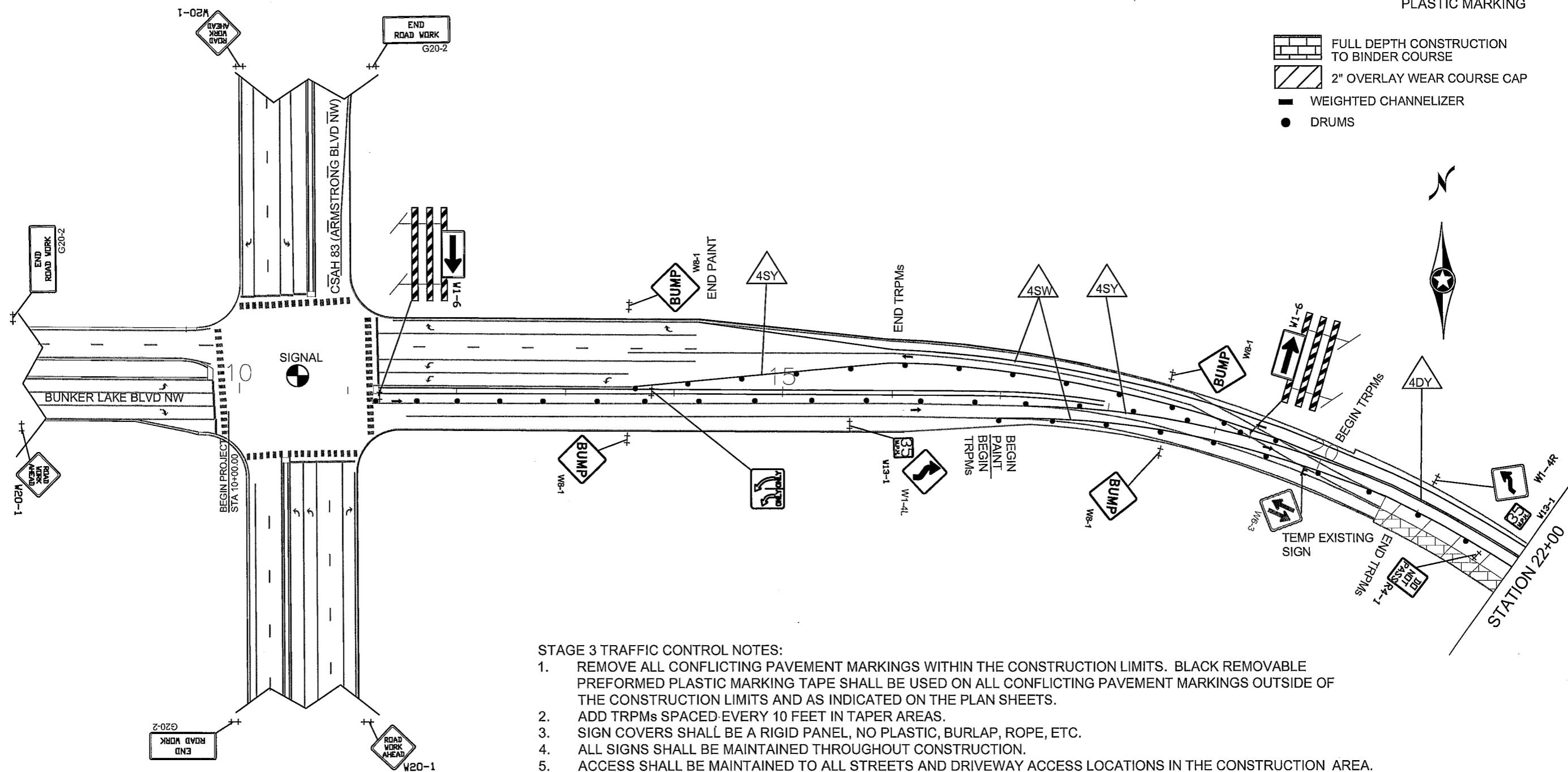


TRAFFIC CONTROL  
STAGE 2

Sheet 148 of 259 Sheets

STRIPING KEY

-  TRIANGLE - PAINT
-  PENTAGON - REMOVABLE PREFORMED PLASTIC MARKING
-  FULL DEPTH CONSTRUCTION TO BINDER COURSE
-  2" OVERLAY WEAR COURSE CAP
-  WEIGHTED CHANNELIZER
-  DRUMS



STAGE 3 TRAFFIC CONTROL NOTES:

1. REMOVE ALL CONFLICTING PAVEMENT MARKINGS WITHIN THE CONSTRUCTION LIMITS. BLACK REMOVABLE PREFORMED PLASTIC MARKING TAPE SHALL BE USED ON ALL CONFLICTING PAVEMENT MARKINGS OUTSIDE OF THE CONSTRUCTION LIMITS AND AS INDICATED ON THE PLAN SHEETS.
2. ADD TRPMS SPACED EVERY 10 FEET IN TAPER AREAS.
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NO	DATE	BY	CKD	APPR	REVISION

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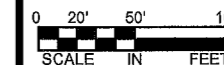
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




ANOKA COUNTY  
 HIGHWAY DEPT.

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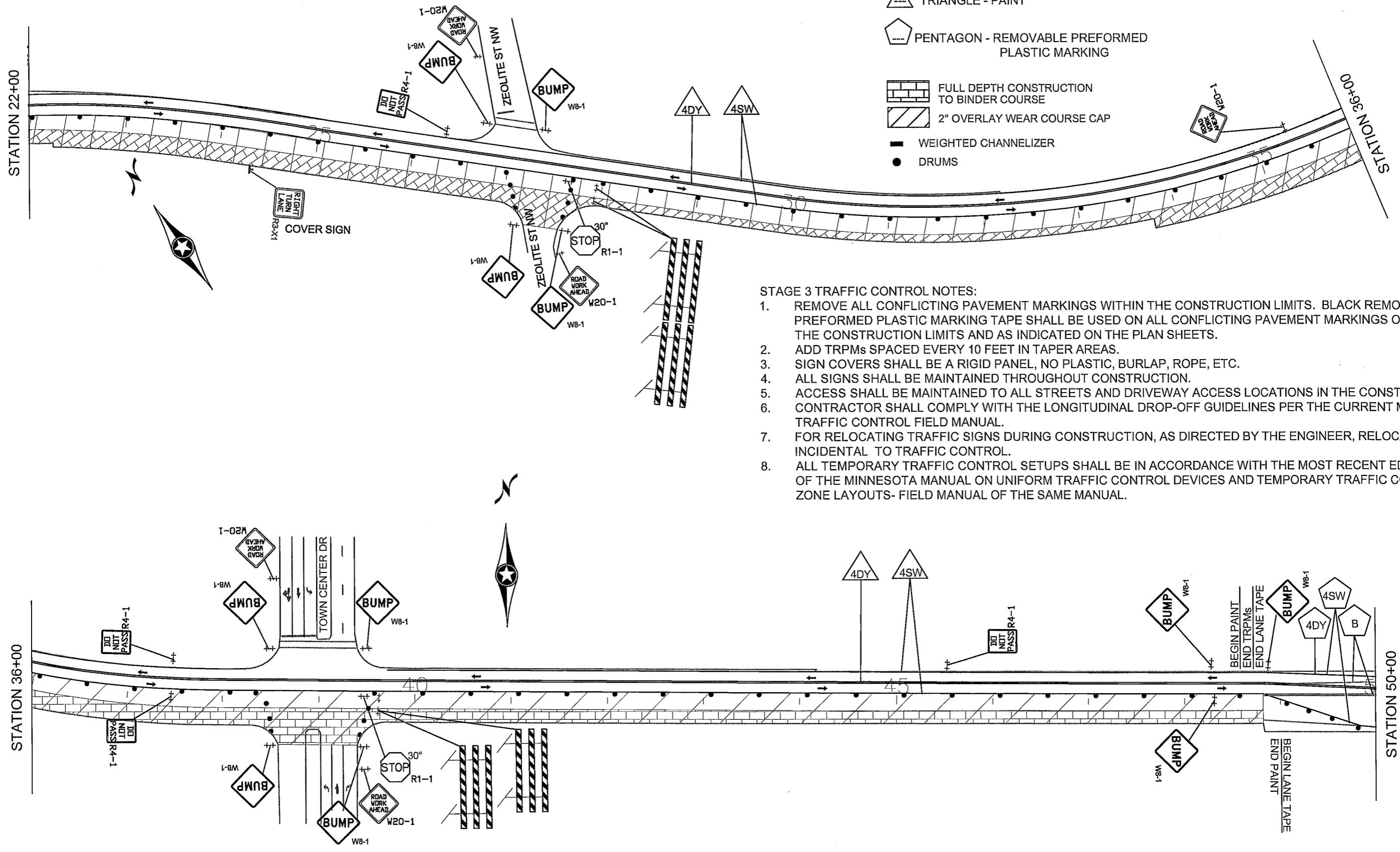
TRAFFIC CONTROL  
 STAGE 3

**STRIPING KEY**

-  TRIANGLE - PAINT
-  PENTAGON - REMOVABLE PREFORMED PLASTIC MARKING
-  FULL DEPTH CONSTRUCTION TO BINDER COURSE
-  2" OVERLAY WEAR COURSE CAP
-  WEIGHTED CHANNELIZER
-  DRUMS

**STAGE 3 TRAFFIC CONTROL NOTES:**

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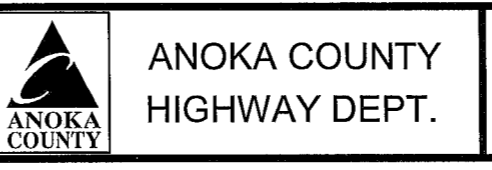
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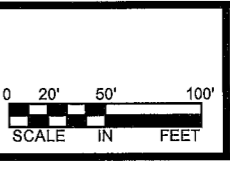
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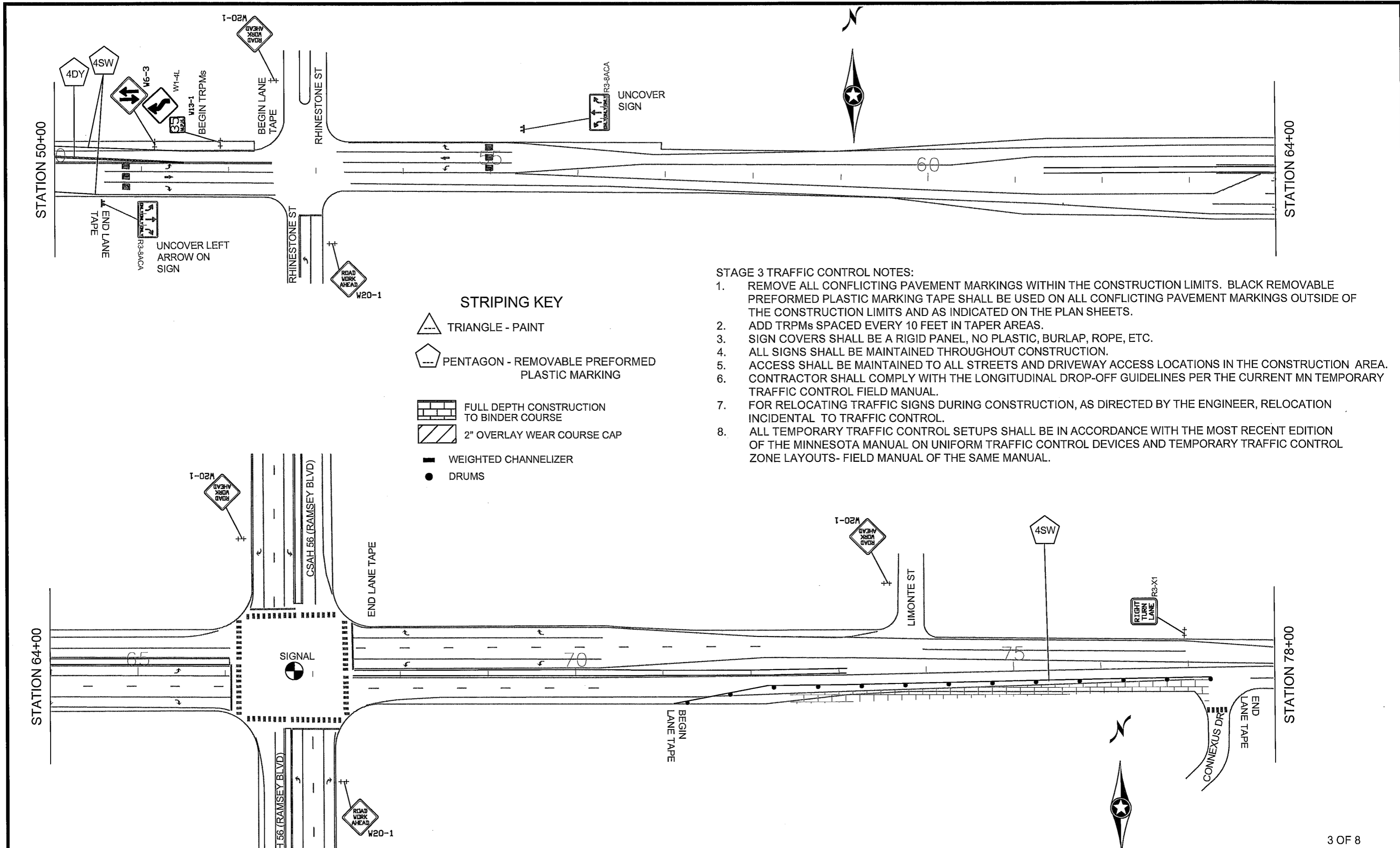
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 SAP 199-104-014



TRAFFIC CONTROL  
 STAGE 3  
 Sheet 150 of 259 Sheets



**STAGE 3 TRAFFIC CONTROL NOTES:**

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**STRIPING KEY**

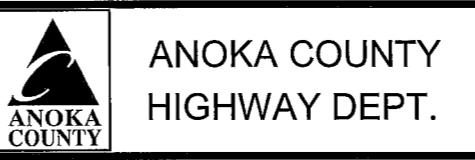
- TRIANGLE - PAINT
- PENTAGON - REMOVABLE PREFORMED PLASTIC MARKING
- FULL DEPTH CONSTRUCTION TO BINDER COURSE
- 2" OVERLAY WEAR COURSE CAP
- WEIGHTED CHANNELIZER
- DRUMS

NO	DATE	BY	CKD	APPR	REVISION

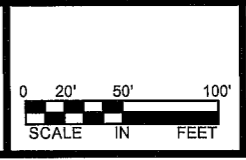
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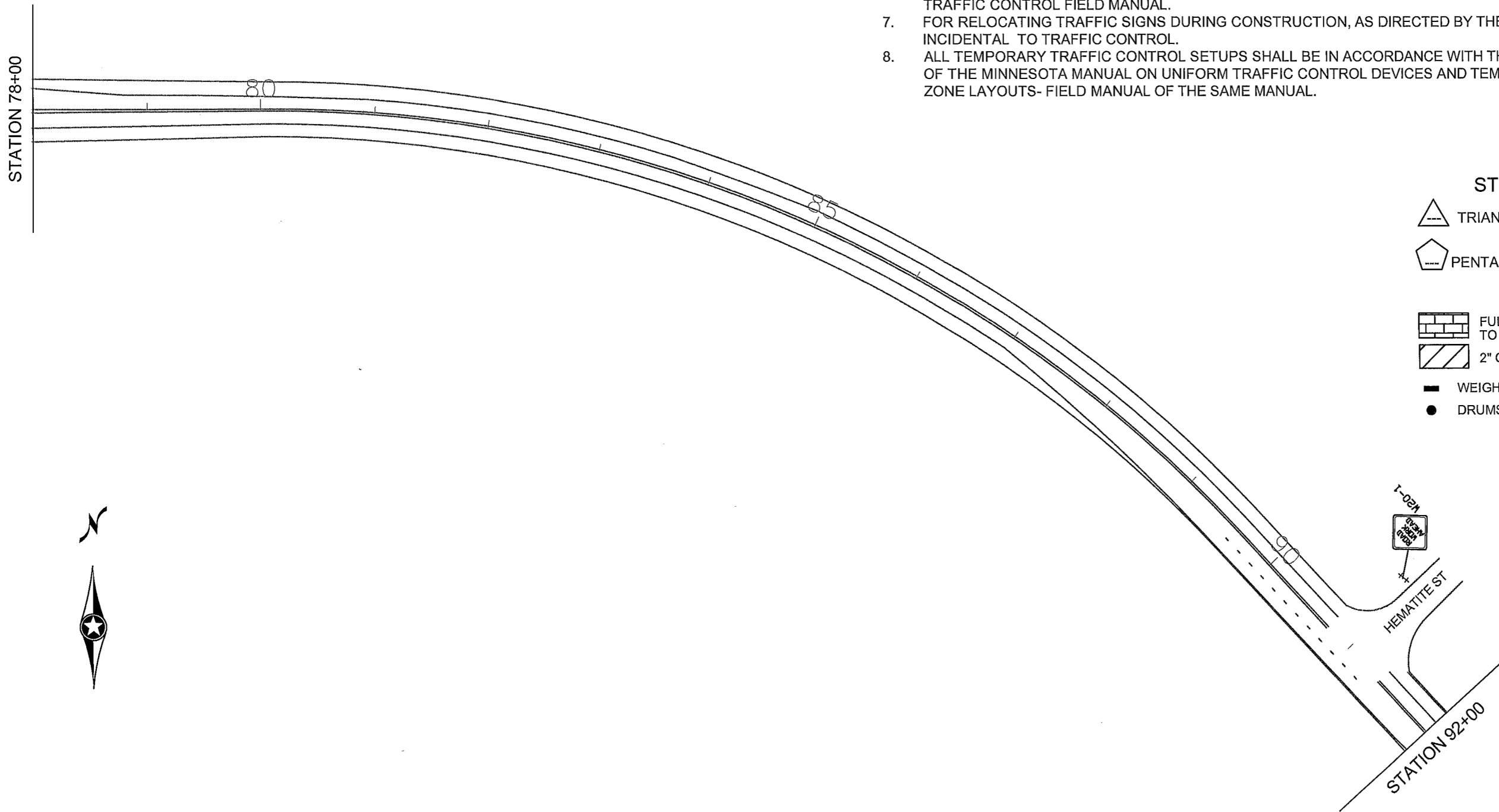
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




TRAFFIC CONTROL  
 STAGE 3  
 Sheet 151 of 259 Sheets

STAGE 3 TRAFFIC CONTROL NOTES:

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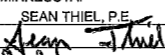
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-  PENTAGON - REMOVABLE PREFORMED PLASTIC MARKING
-  FULL DEPTH CONSTRUCTION TO BINDER COURSE
-  2" OVERLAY WEAR COURSE CAP
-  WEIGHTED CHANNELIZER
-  DRUMS



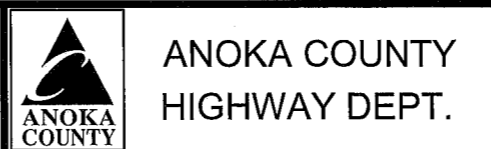
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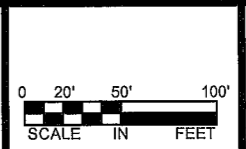
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SAP 199-104-014



TRAFFIC CONTROL  
STAGE 3  
Sheet 152 of 259 Sheets



STATION 92+00

STATION 106+00





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
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STATION 21+00

STATION 106+00

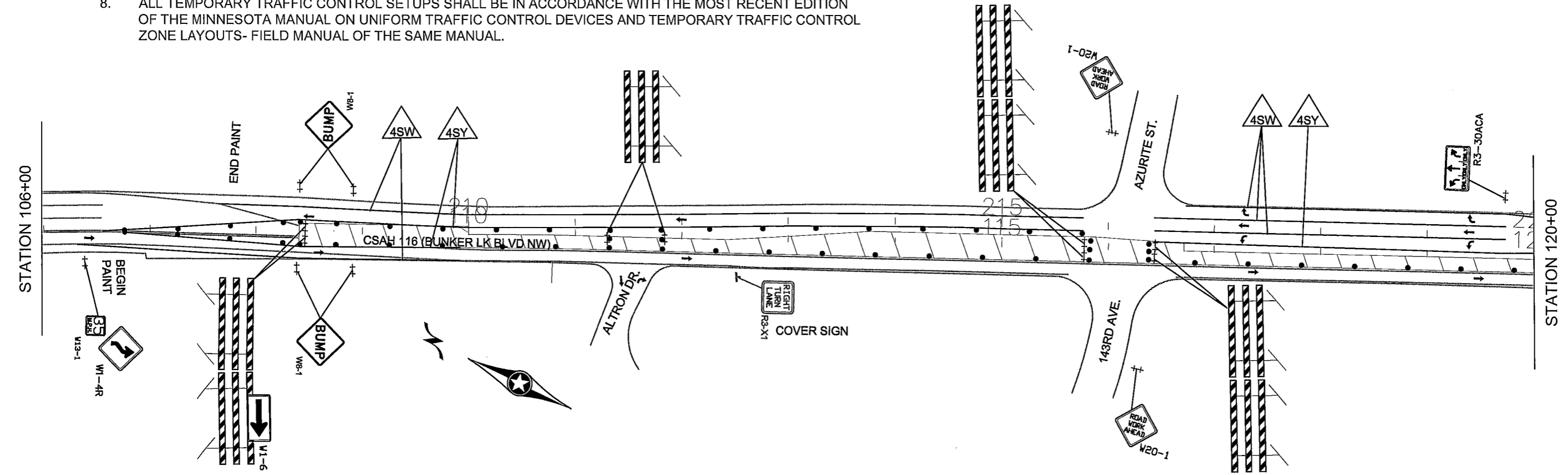
### STRIPING KEY

-  FULL DEPTH CONSTRUCTION TO BINDER COURSE
-  2" OVERLAY WEAR COURSE CAP
-  WEIGHTED CHANNELIZER
-  DRUMS

-  TRIANGLE - PAINT
-  PENTAGON - REMOVABLE PREFORMED PLASTIC MARKING

#### STAGE 3 TRAFFIC CONTROL NOTES:

1. REMOVE ALL CONFLICTING PAVEMENT MARKINGS WITHIN THE CONSTRUCTION LIMITS. BLACK REMOVABLE PREFORMED PLASTIC MARKING TAPE SHALL BE USED ON ALL CONFLICTING PAVEMENT MARKINGS OUTSIDE OF THE CONSTRUCTION LIMITS AND AS INDICATED ON THE PLAN SHEETS.
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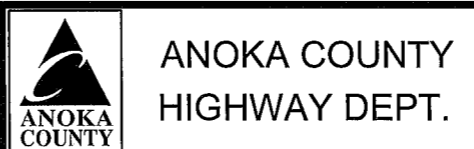


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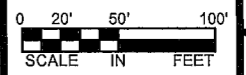
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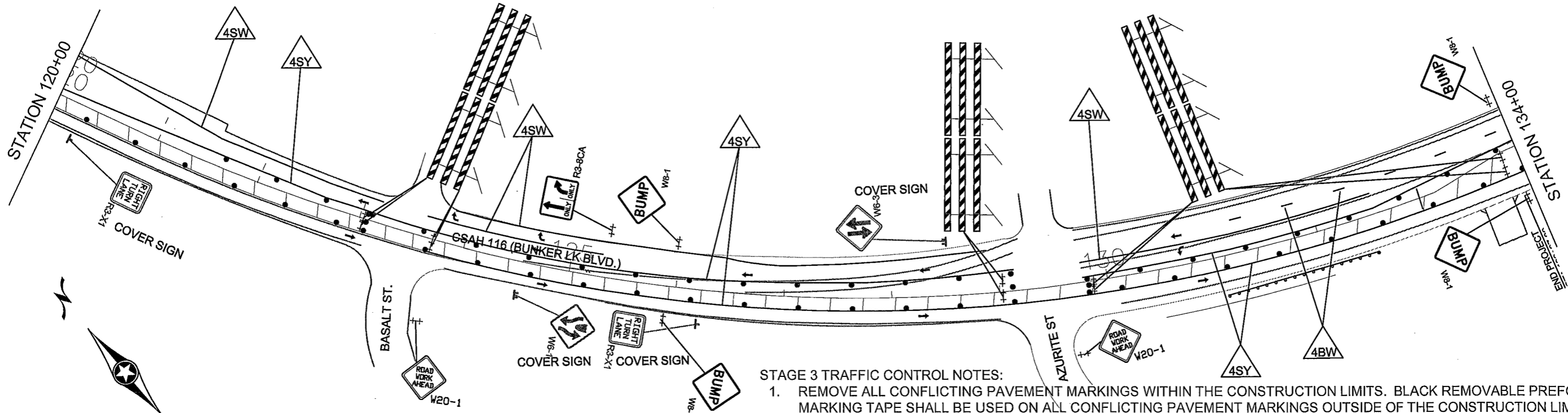
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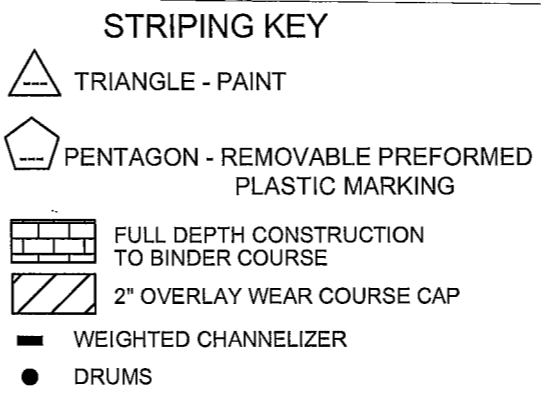
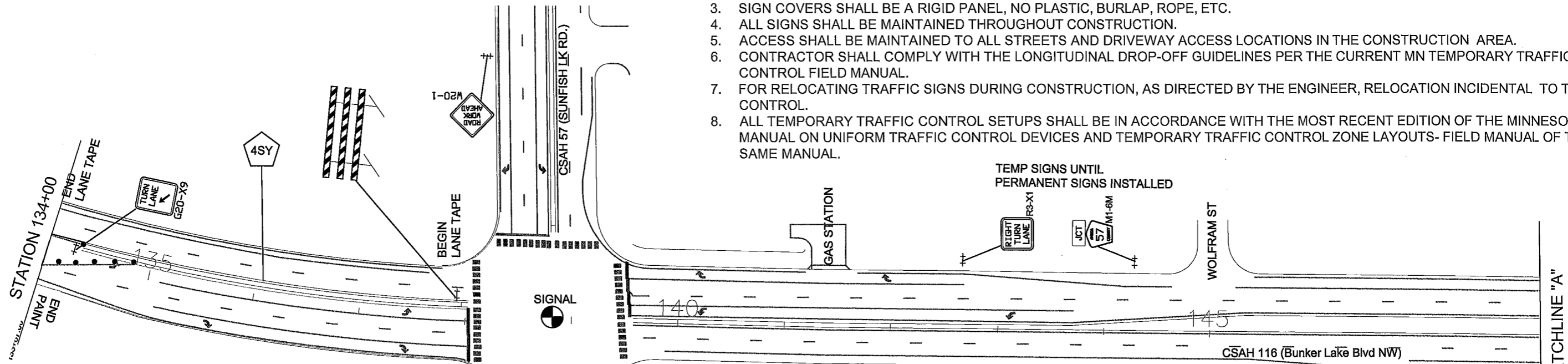
SAP 002-716-021  
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TRAFFIC CONTROL  
 STAGE 3  
 Sheet 153 of 259 Sheets



- STAGE 3 TRAFFIC CONTROL NOTES:**
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NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\002-716-02\1\Bases\Traffic\Stage 2.dwg

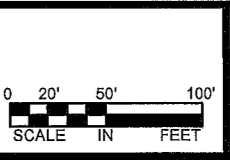
I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

PRINT NAME: SEAN THIEL, P.E.  
 SIGNATURE: *Sean Thiel*  
 DATE: 7/29/21 LICENSE NO. 45129

DRAWN BY: TMV DATE: 06/21/21  
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 CHECKED BY: SRT DATE: 07/01/21



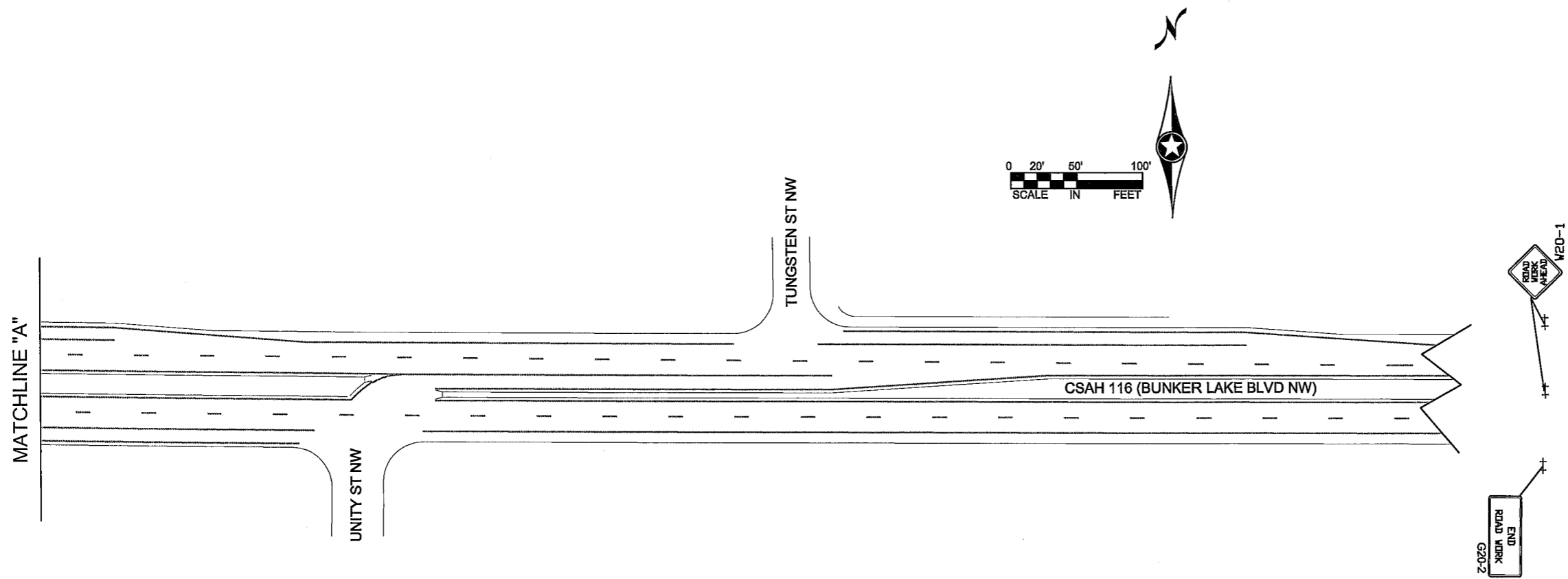
SAP 002-716-021  
 SAP 199-104-014









6 OF 8

TRAFFIC CONTROL  
 STAGE 3

Sheet 154 of 259 Sheets



**STRIPING KEY**

-  TRIANGLE - PAINT
-  PENTAGON - REMOVABLE PREFORMED PLASTIC MARKING
-  FULL DEPTH CONSTRUCTION TO BINDER COURSE
-  2" OVERLAY WEAR COURSE CAP
-  WEIGHTED CHANNELIZER
-  DRUMS

**STAGE 3 TRAFFIC CONTROL NOTES:**

1. REMOVE ALL CONFLICTING PAVEMENT MARKINGS WITHIN THE CONSTRUCTION LIMITS. BLACK REMOVABLE PREFORMED PLASTIC MARKING TAPE SHALL BE USED ON ALL CONFLICTING PAVEMENT MARKINGS OUTSIDE OF THE CONSTRUCTION LIMITS AND AS INDICATED ON THE PLAN SHEETS.
2. ADD TRPMs SPACED EVERY 10 FEET IN TAPER AREAS.
3. SIGN COVERS SHALL BE A RIGID PANEL, NO PLASTIC, BURLAP, ROPE, ETC.
4. ALL SIGNS SHALL BE MAINTAINED THROUGHOUT CONSTRUCTION.
5. ACCESS SHALL BE MAINTAINED TO ALL STREETS AND DRIVEWAY ACCESS LOCATIONS IN THE CONSTRUCTION AREA.
6. CONTRACTOR SHALL COMPLY WITH THE LONGITUDINAL DROP-OFF GUIDELINES PER THE CURRENT MN TEMPORARY TRAFFIC CONTROL FIELD MANUAL.
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8. ALL TEMPORARY TRAFFIC CONTROL SETUPS SHALL BE IN ACCORDANCE WITH THE MOST RECENT EDITION OF THE MINNESOTA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES AND TEMPORARY TRAFFIC CONTROL ZONE LAYOUTS- FIELD MANUAL OF THE SAME MANUAL.

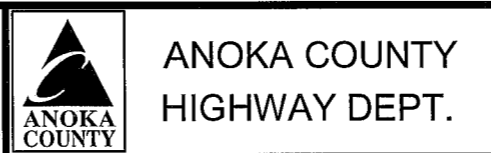
NO	DATE	BY	CKD	APPR	REVISION

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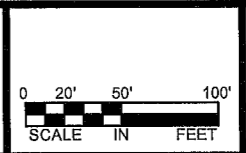
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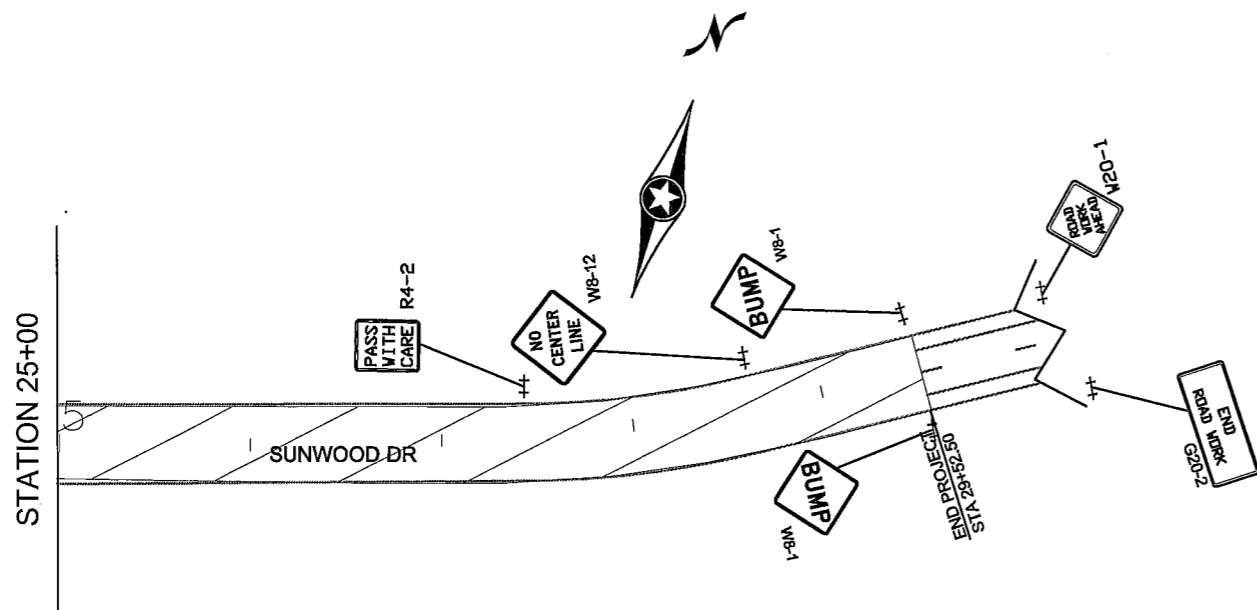
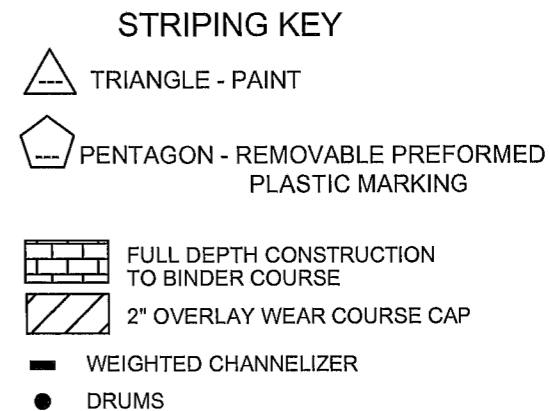
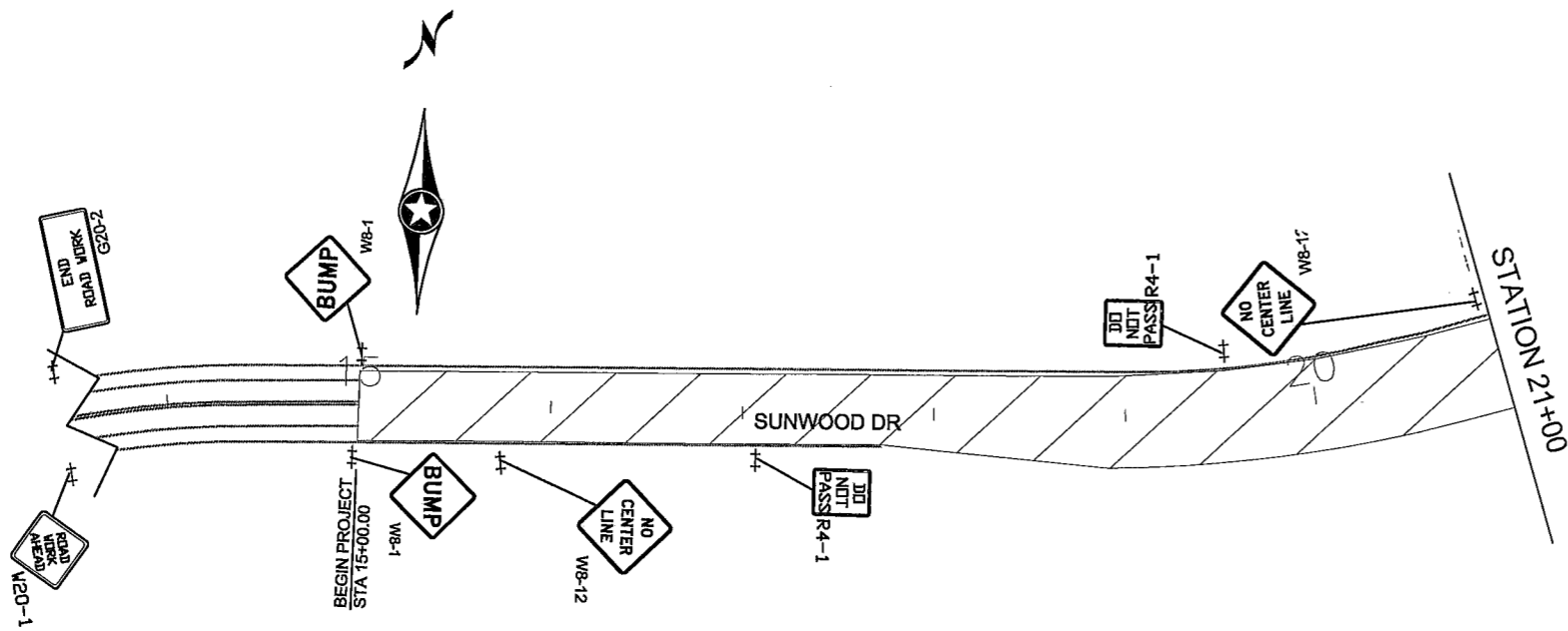
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 SAP 199-104-014



TRAFFIC CONTROL  
 STAGE 3  
 Sheet 155 of 259 Sheets



**STAGE 3 TRAFFIC CONTROL NOTES:**

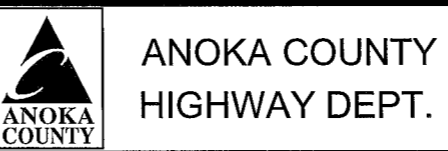
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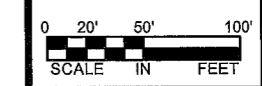
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





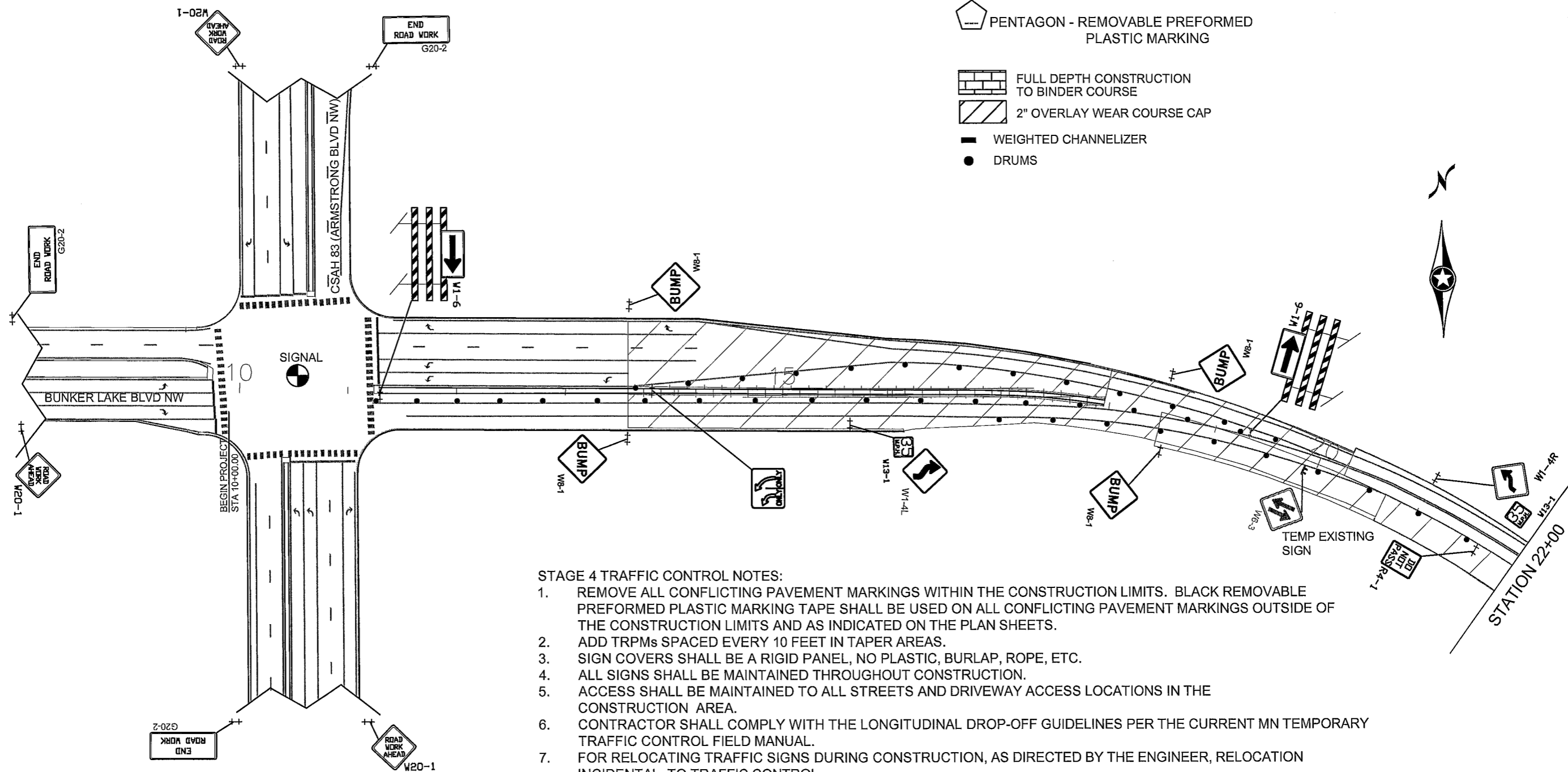
SAP 002-716-021  
 SAP 199-104-014



TRAFFIC CONTROL  
 STAGE 3  
 Sheet 156 of 259 Sheets

**STRIPING KEY**

-  TRIANGLE - PAINT
-  PENTAGON - REMOVABLE PREFORMED PLASTIC MARKING
-  FULL DEPTH CONSTRUCTION TO BINDER COURSE
-  2" OVERLAY WEAR COURSE CAP
-  WEIGHTED CHANNELIZER
-  DRUMS



**STAGE 4 TRAFFIC CONTROL NOTES:**

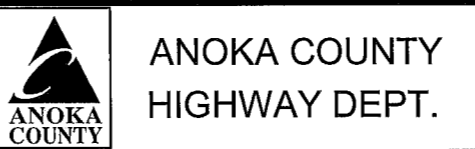
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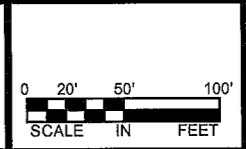
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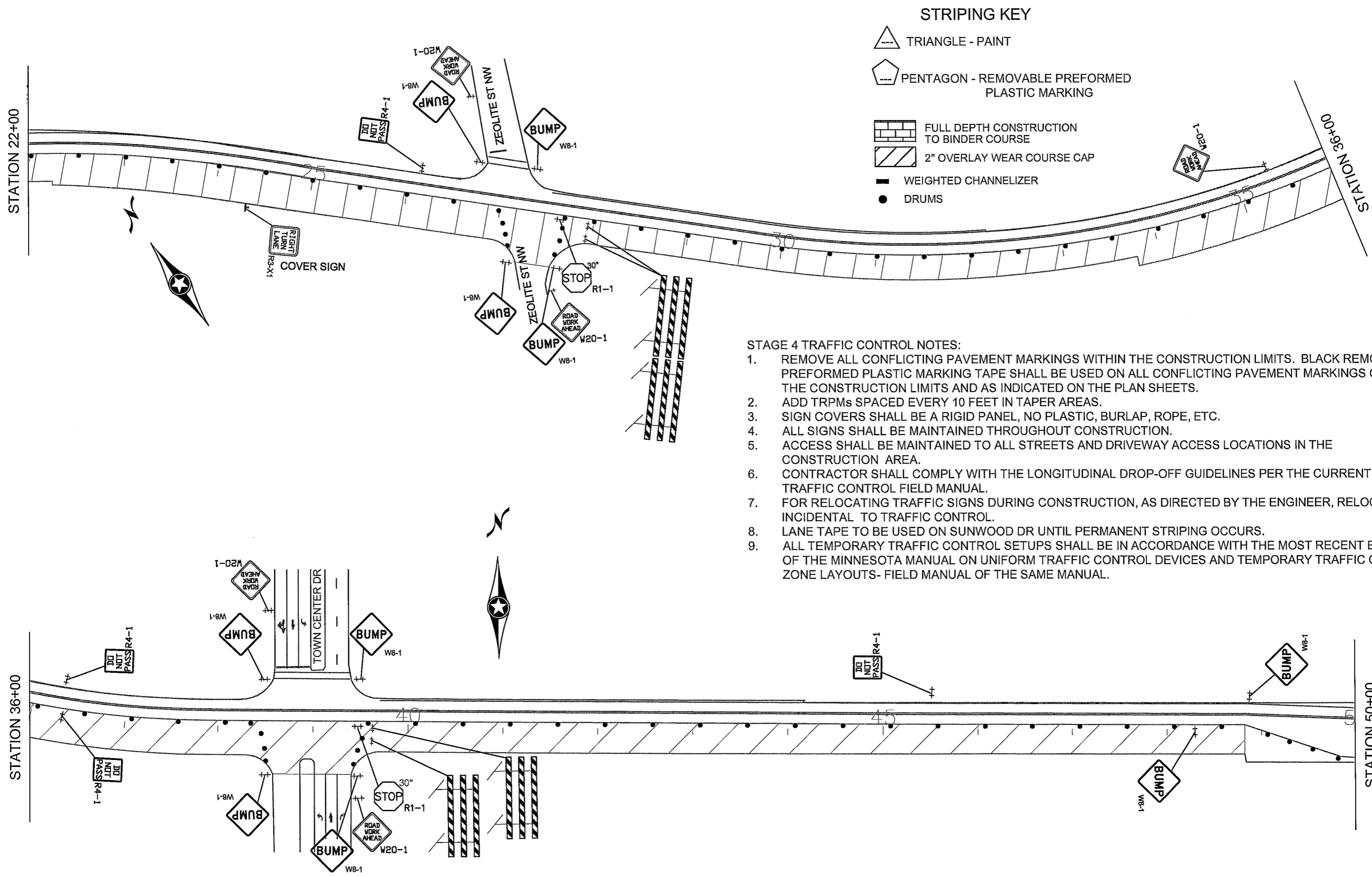
PRINT NAME: SEAN THIEL, P.E.  
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DRAWN BY: TMV DATE: 08/23/21  
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**STRIPING KEY**

- TRIANGLE - PAINT
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- 2" OVERLAY WEAR COURSE CAP
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- DRUMS

**STAGE 4 TRAFFIC CONTROL NOTES:**

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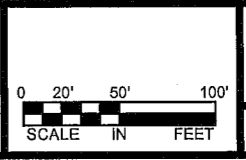
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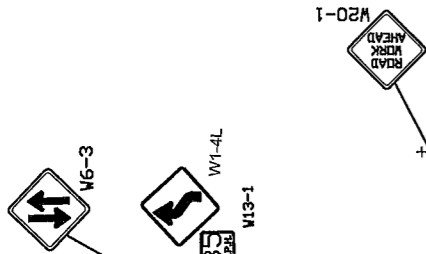
TRAFFIC CONTROL  
 STAGE 4  
 Sheet 158 of 259 Sheets

STATION 50+00

STATION 64+00

STATION 64+00

STATION 78+00



RHINESTONE ST

RHINESTONE ST



### STRIPING KEY

- TRIANGLE - PAINT
- PENTAGON - REMOVABLE PREFORMED PLASTIC MARKING
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CSAH 56 (RAMSEY BLVD)

END LANE TAPE

SIGNAL

CSAH 56 (RAMSEY BLVD)



LIMONTE ST



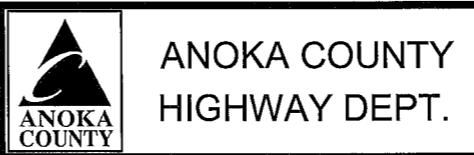
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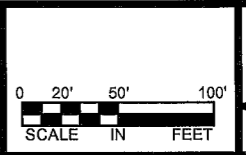
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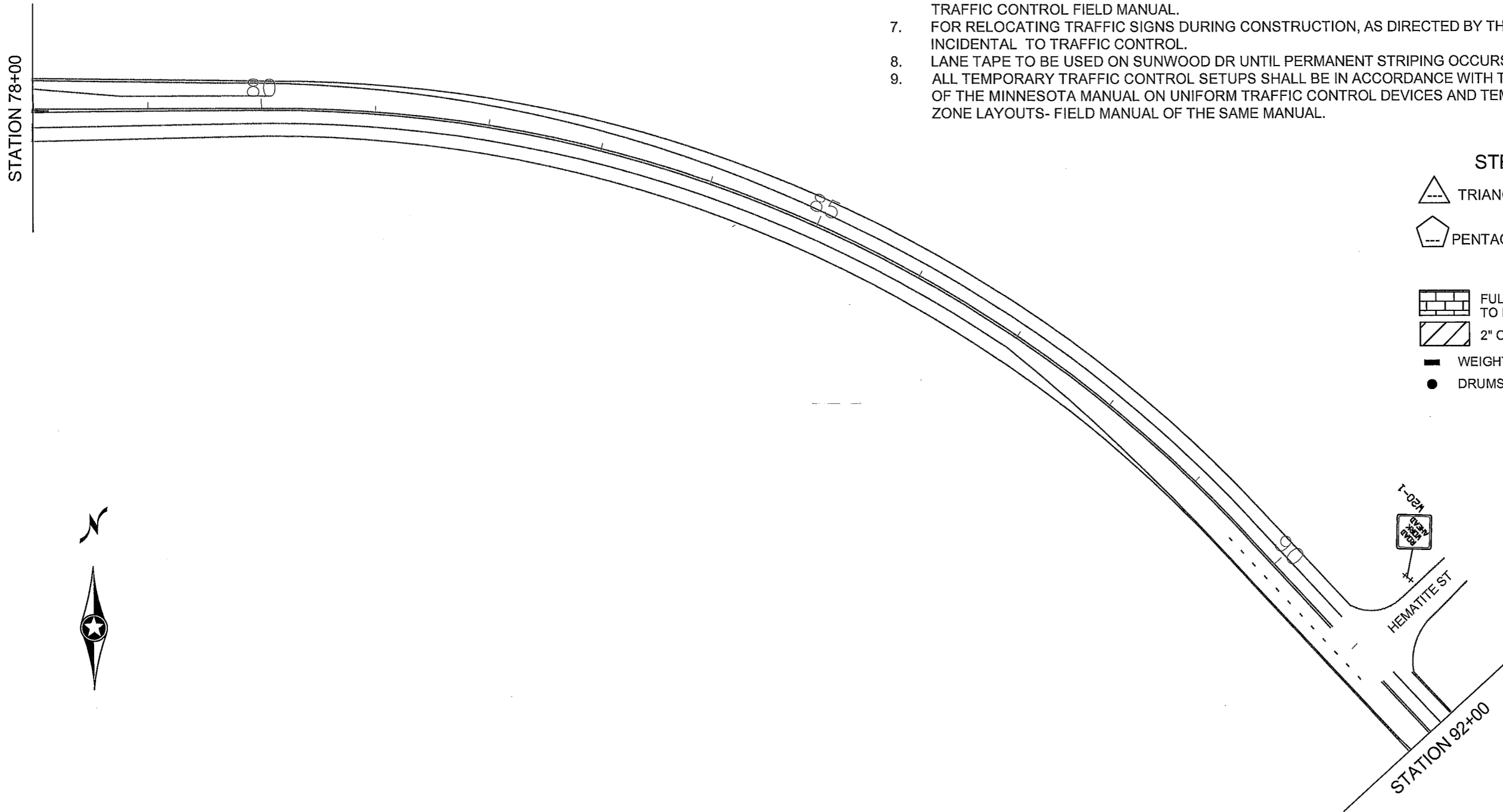
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TRAFFIC CONTROL  
 STAGE 4  
 Sheet 159 of 259 Sheets

STAGE 4 TRAFFIC CONTROL NOTES:

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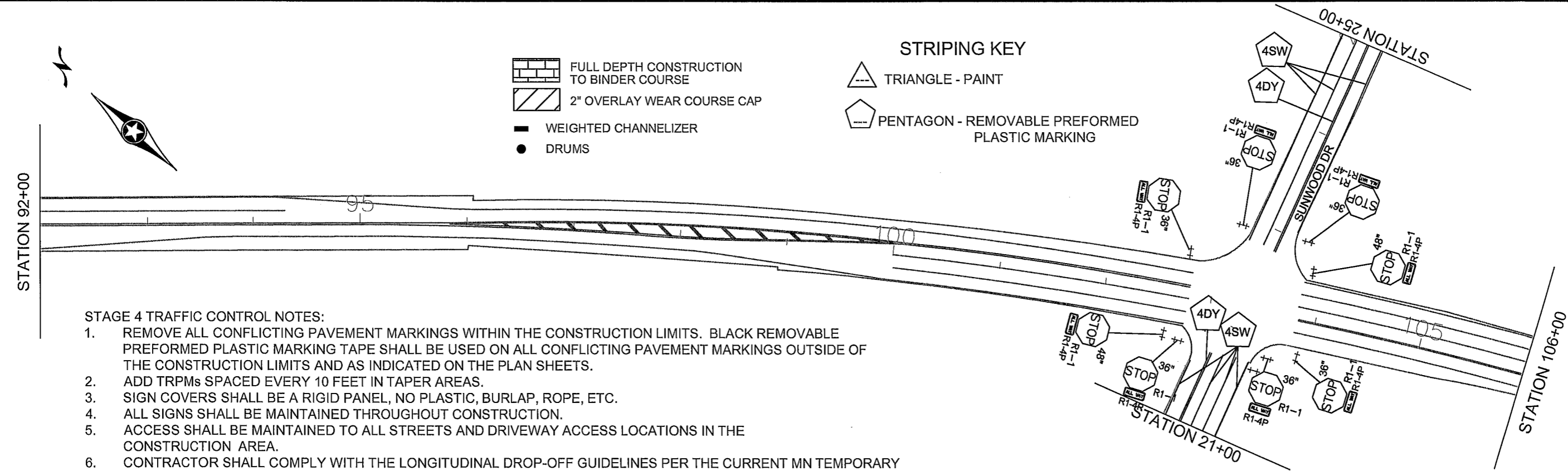
ANOKA COUNTY  
 HIGHWAY DEPT.

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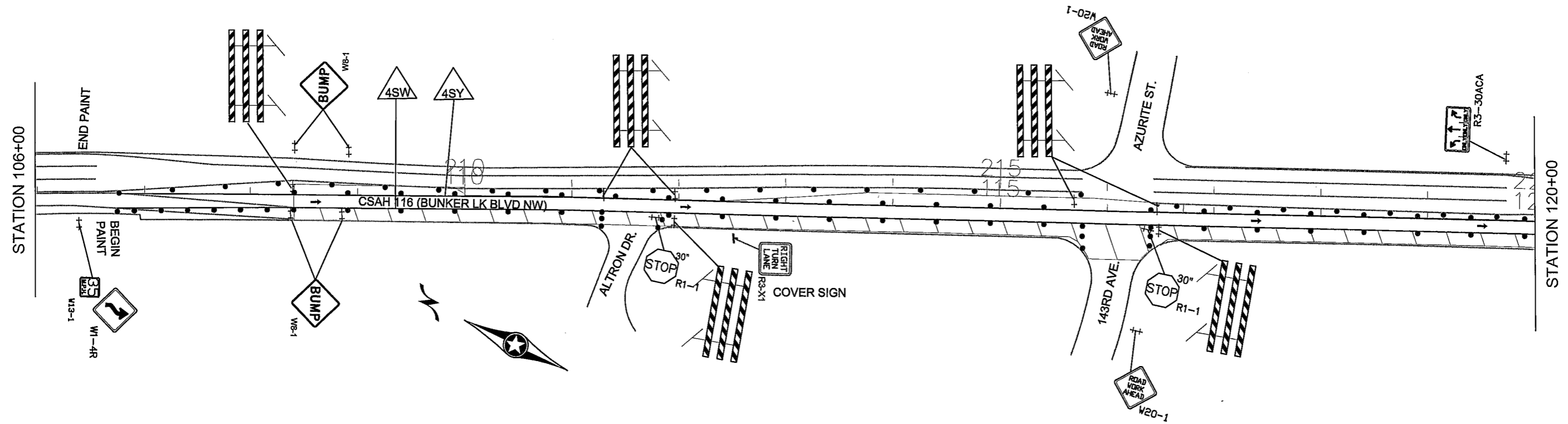
TRAFFIC CONTROL  
 STAGE 4





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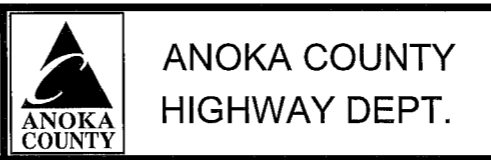
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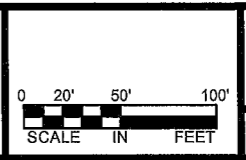
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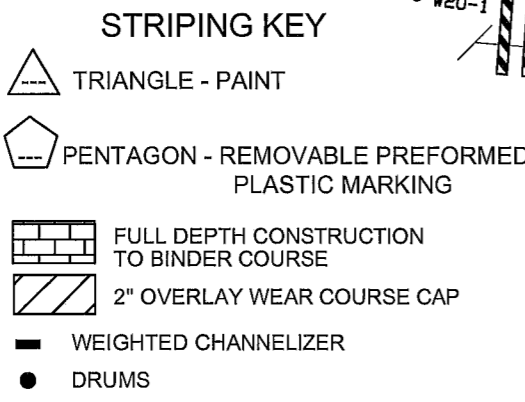
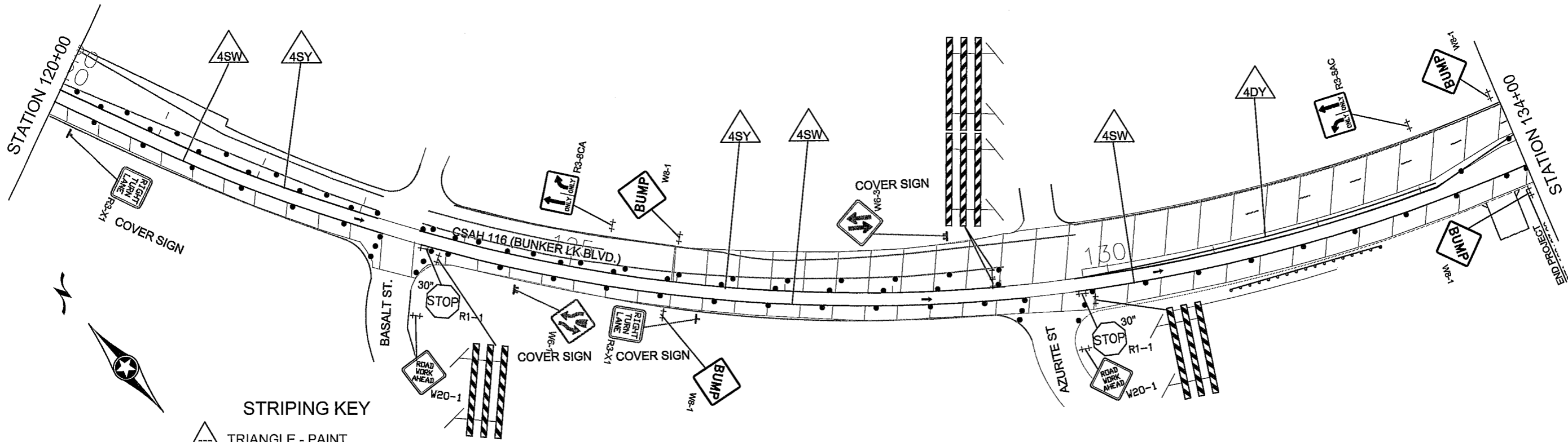
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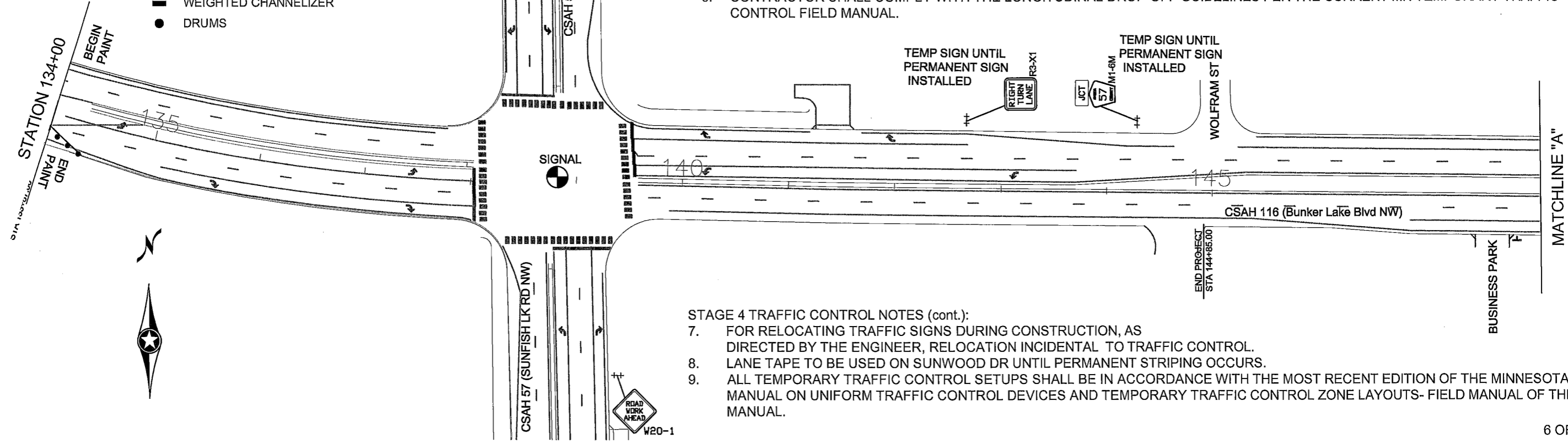


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- STAGE 4 TRAFFIC CONTROL NOTES (cont.):**
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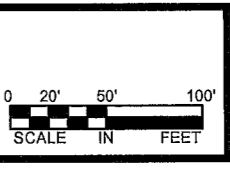
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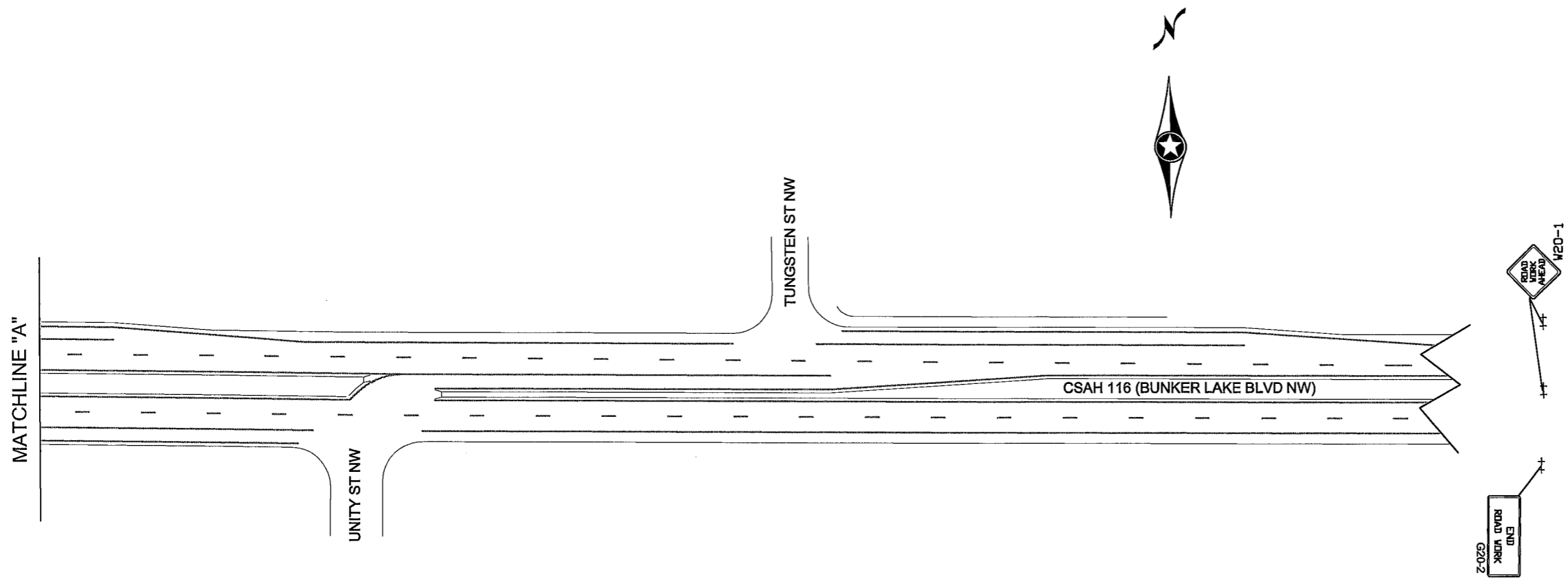
DESIGN BY: TMV DATE: 06/23/21

CHECKED BY: SRT DATE: 07/02/21









SAP 002-716-021  
SAP 199-104-014





**STRIPING KEY**

-  TRIANGLE - PAINT
-  PENTAGON - REMOVABLE PREFORMED PLASTIC MARKING
-  FULL DEPTH CONSTRUCTION TO BINDER COURSE
-  2" OVERLAY WEAR COURSE CAP
-  WEIGHTED CHANNELIZER
-  DRUMS

**STAGE 4 TRAFFIC CONTROL NOTES:**

1. REMOVE ALL CONFLICTING PAVEMENT MARKINGS WITHIN THE CONSTRUCTION LIMITS. BLACK REMOVABLE PREFORMED PLASTIC MARKING TAPE SHALL BE USED ON ALL CONFLICTING PAVEMENT MARKINGS OUTSIDE OF THE CONSTRUCTION LIMITS AND AS INDICATED ON THE PLAN SHEETS.
2. ADD TRPMs SPACED EVERY 10 FEET IN TAPER AREAS.
3. SIGN COVERS SHALL BE A RIGID PANEL, NO PLASTIC, BURLAP, ROPE, ETC.
4. ALL SIGNS SHALL BE MAINTAINED THROUGHOUT CONSTRUCTION.
5. ACCESS SHALL BE MAINTAINED TO ALL STREETS AND DRIVEWAY ACCESS LOCATIONS IN THE CONSTRUCTION AREA.
6. CONTRACTOR SHALL COMPLY WITH THE LONGITUDINAL DROP-OFF GUIDELINES PER THE CURRENT MN TEMPORARY TRAFFIC CONTROL FIELD MANUAL.
7. FOR RELOCATING TRAFFIC SIGNS DURING CONSTRUCTION, AS DIRECTED BY THE ENGINEER, RELOCATION INCIDENTAL TO TRAFFIC CONTROL.
8. LANE TAPE TO BE USED ON SUNWOOD DR UNTIL PERMANENT STRIPING OCCURS.
9. ALL TEMPORARY TRAFFIC CONTROL SETUPS SHALL BE IN ACCORDANCE WITH THE MOST RECENT EDITION OF THE MINNESOTA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES AND TEMPORARY TRAFFIC CONTROL ZONE LAYOUTS- FIELD MANUAL OF THE SAME MANUAL.

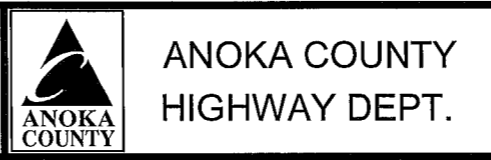
NO	DATE	BY	CKD	APPR	REVISION

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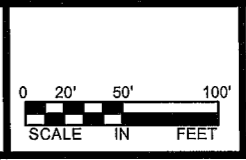
I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

PRINT NAME: SEAN THIEL, P.E.  
 SIGNATURE: *Sean Thiel*  
 DATE: 7/29/21 LICENSE NO. 45129

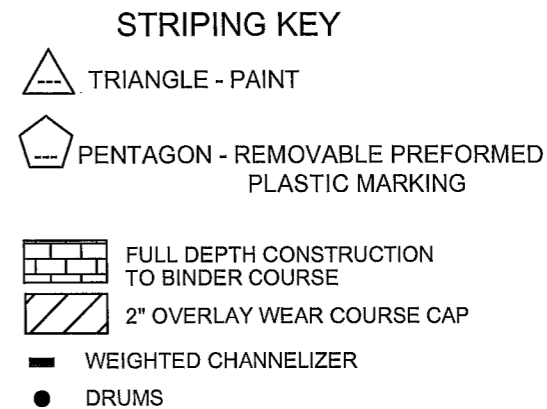
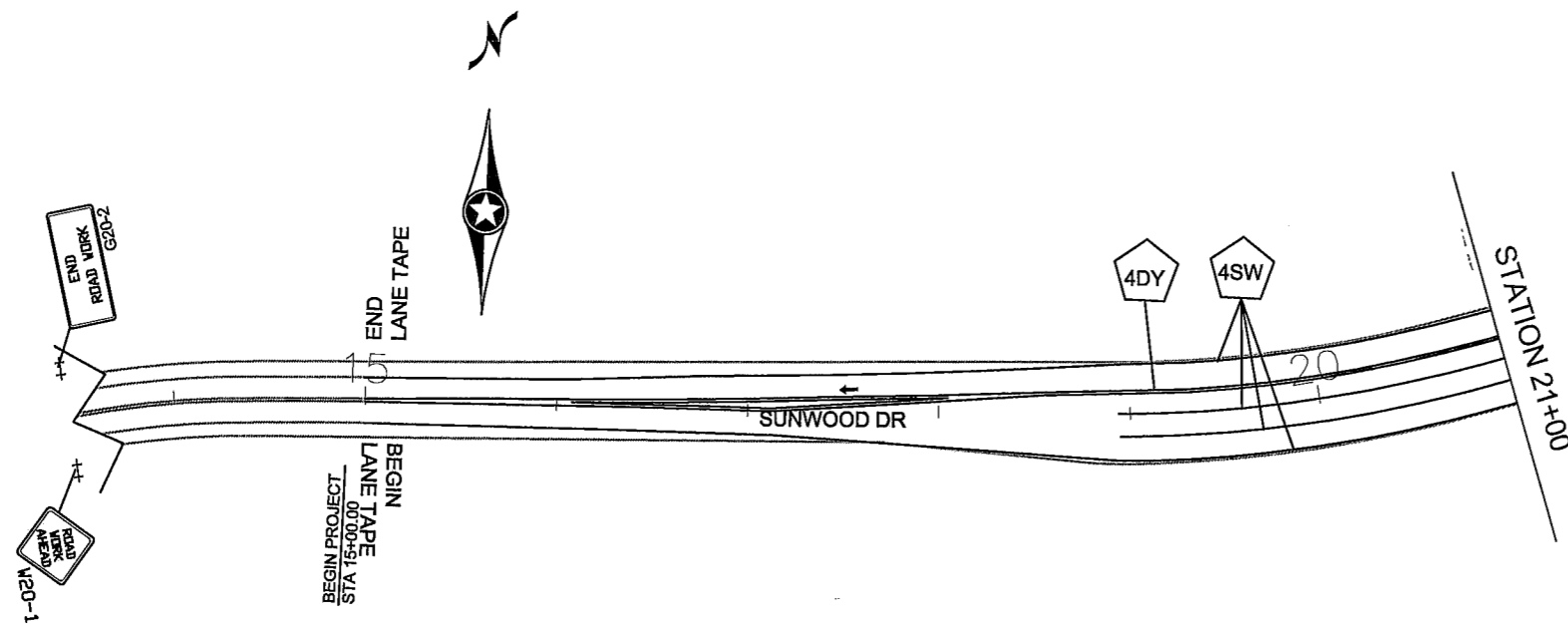
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 SAP 199-104-014

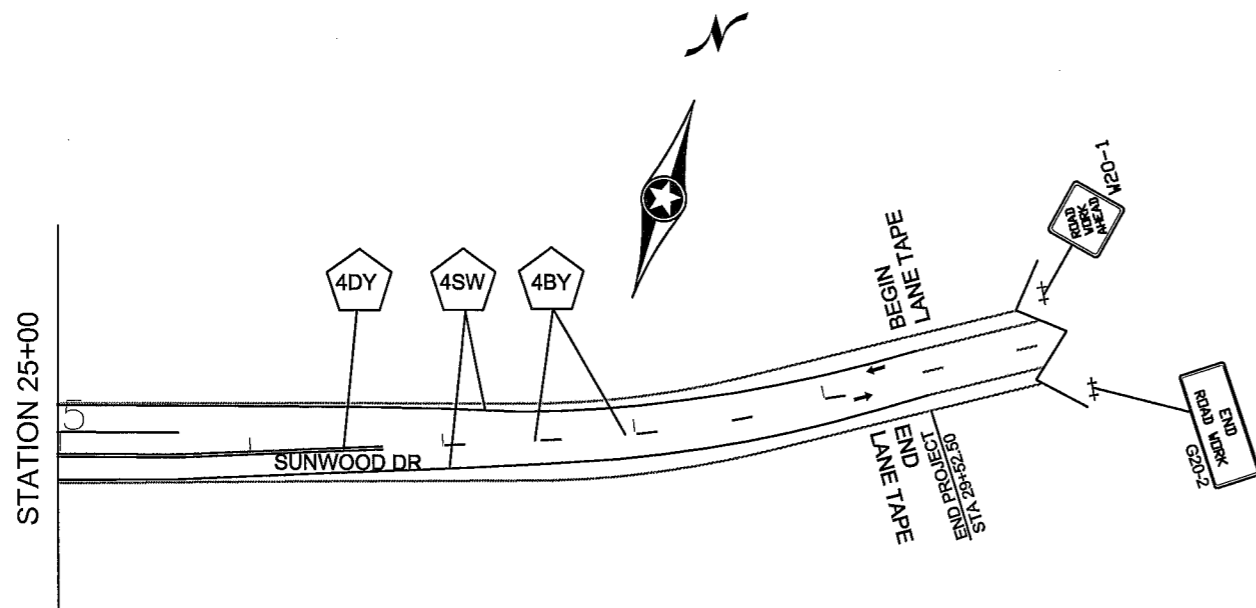


TRAFFIC CONTROL  
 STAGE 4  
 Sheet 163 of 259 Sheets



**STAGE 4 TRAFFIC CONTROL NOTES:**

1. REMOVE ALL CONFLICTING PAVEMENT MARKINGS WITHIN THE CONSTRUCTION LIMITS. BLACK REMOVABLE PREFORMED PLASTIC MARKING TAPE SHALL BE USED ON ALL CONFLICTING PAVEMENT MARKINGS OUTSIDE OF THE CONSTRUCTION LIMITS AND AS INDICATED ON THE PLAN SHEETS.
2. ADD TRPMs SPACED EVERY 10 FEET IN TAPER AREAS.
3. SIGN COVERS SHALL BE A RIGID PANEL, NO PLASTIC, BURLAP, ROPE, ETC.
4. ALL SIGNS SHALL BE MAINTAINED THROUGHOUT CONSTRUCTION.
5. ACCESS SHALL BE MAINTAINED TO ALL STREETS AND DRIVEWAY ACCESS LOCATIONS IN THE CONSTRUCTION AREA.
6. CONTRACTOR SHALL COMPLY WITH THE LONGITUDINAL DROP-OFF GUIDELINES PER THE CURRENT MN TEMPORARY TRAFFIC CONTROL FIELD MANUAL.
7. FOR RELOCATING TRAFFIC SIGNS DURING CONSTRUCTION, AS DIRECTED BY THE ENGINEER, RELOCATION INCIDENTAL TO TRAFFIC CONTROL.
8. LANE TAPE TO BE USED ON SUNWOOD DR UNTIL PERMANENT STRIPING OCCURS.
9. ALL TEMPORARY TRAFFIC CONTROL SETUPS SHALL BE IN ACCORDANCE WITH THE MOST RECENT EDITION OF THE MINNESOTA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES AND TEMPORARY TRAFFIC CONTROL ZONE LAYOUTS- FIELD MANUAL OF THE SAME MANUAL.



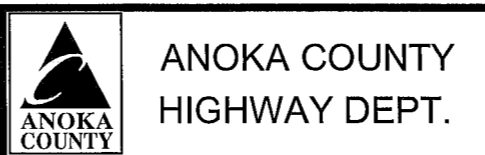
NO	DATE	BY	CHKD	APPR	REVISION

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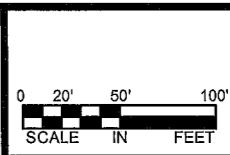
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 SIGNATURE: *Sean Thiel*  
 DATE: 7/27/21 LICENSE NO. 45129

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 SAP 199-104-014



TRAFFIC CONTROL  
 STAGE 4  
 Sheet 164 of 259 Sheets

M.U.T.C.D. CODE	SIZE	INSERT	QTY. STG. 1	QTY. STG. 2	QTY. STG. 3	QTY. STG. 4
R1-1	30" x 30"		0	4	2	6
	36" x 36"		6	6	6	6
	48" x 48"		2	2	2	2
R1-4P	18" x 6"		8	8	8	8
R3-2	24" x 24"		4	2	0	0
R3-7	30" x 30"		0	0	1	1
R3-8AB	36" x 30"		0	0	1	1
R3-8AC	36" x 30"		1	1	0	1
R3-8CA	36" x 30"		0	0	1	1
R3-8ACA	54" x 30"		0	0	1	1
R4-1	24" x 30"		2	5	7	5
R4-2	24" x 30"		2	0	2	0
R4-7	12" x 18"		1	3	0	0
W1-4R	48" x 48"		4	4	2	2
W13-1	30" x 30"		4	4	2	2
W1-4L	48" x 48"		0	2	2	2
W13-1	30" x 30"		0	2	2	2
W6-3	48" x 48"		0	1	1	1
W4-2	48" x 48"		2	2	0	0

M.U.T.C.D. CODE	SIZE	INSERT	QTY. STG. 1	QTY. STG. 2	QTY. STG. 3	QTY. STG. 4
W8-1	48" x 48"		24	28	31	22
W8-12	48" x 48"		4	2	4	0
W20-1	48" x 48"		25	24	24	24
W20-4	48" x 48"		AS NEEDED	AS NEEDED	AS NEEDED	AS NEEDED
W20-7	48" x 48"		AS NEEDED	AS NEEDED	AS NEEDED	AS NEEDED
W20-X5	48" x 48"		2	2	0	0
G20-2	48" x 24"		6	6	6	6
G20-X9	30" x 36"		5	5	1	0
G20-X9	30" x 36"		0	1	0	0
R11-2M	48" x 30"		1	1	0	0
TYPE III	8 FOOT					
R6-1R	54" x 18"		4	1	0	0
TYPE III	8 FOOT					
W1-6	48" x 24"		5	5	3	2
TYPE III	8 FOOT					

M.U.T.C.D. CODE	SIZE	INSERT	QTY. STG. 1	QTY. STG. 2	QTY. STG. 3	QTY. STG. 4
TYPE III	8 FOOT		0	14	4	8
R3-2	36" x 36"		1	1	0	0
TYPE III	8 FOOT		20	11	18	4
ARROWBOARD			1	1	0	0
WEIGHTED CHANNELIZER			6	40	0	0
REFLECTORIZED REBOUNDABLE DRUM			342	398	240	291
			2	0	0	2
			10 DAYS EACH			14 DAYS EACH

K TEMPORARY PAVEMENT MARKING TABULATION		
PAVEMENT MARKING REMOVAL 4" SOLID WHITE PAINT	LIN FT	6778
PAVEMENT MARKING REMOVAL 4" SOLID YELLOW PAINT	LIN FT	3752
PAVEMENT MARKING REMOVAL 4" DOUBLE YELLOW PAINT	LIN FT	14586
PAVEMENT MARKING REMOVAL 24" SOLID YELLOW POLY PREFORM	LIN FT	170
1 TEMPORARY RAISED PAVEMENT MARKER	EACH	456
REMOVABLE BLACK MASK	LIN FT	2698
REMOVABLE BLACK MASK	SQ FT	44
REMOVABLE POLY PREFORM MARKING (4" WHITE)	LIN FT	8234
REMOVABLE POLY PREFORM MARKING (4" YELLOW)	LIN FT	5784
4" SOLID LINE WHITE - PAINT	LIN FT	28773
4" SOLID LINE YELLOW - PAINT	LIN FT	14351
4" DOUBLE LINE YELLOW - PAINT	LIN FT	8130
2 4" BROKEN LINE WHITE - PAINT	LIN FT	193

1 - SPACED EVERY 10'  
2 - 10' STRIPE, 40' GAP

NOTES:

- ALL TRAFFIC CONTROL DEVICES SHALL CONFORM TO THE LATEST EDITION OF THE MINNESOTA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, INCLUDING THE LATEST FIELD MANUAL FOR TEMPORARY TRAFFIC CONTROL ZONE LAYOUTS.
- ALL TYPE III BARRICADES SHALL BE REFLECTORIZED ON BOTH SIDES. BARRICADE MARKINGS SHALL BE SLANTED IN ACCORDANCE WITH THE M.U.T.C.D.

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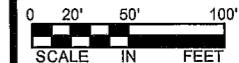
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 SIGNATURE:   
 DATE: 7/29/21 LICENSE NO. 45129

DRAWN BY: TMV DATE: 06/28/21  
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ANOKA COUNTY  
HIGHWAY DEPT.

SAP 002-716-021  
SAP 199-104-014



STAGING QUANTITIES

**PERMANENT PAVEMENT MARKING PLAN  
NOTES AND GUIDELINES**

**GENERAL INFORMATION:**

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

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

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

**MULTI COMPONENT (MULTI COMP):**

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

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

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

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

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

**PREFORMED THERMOPLASTIC:**

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

**PAINT:**

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

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

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

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

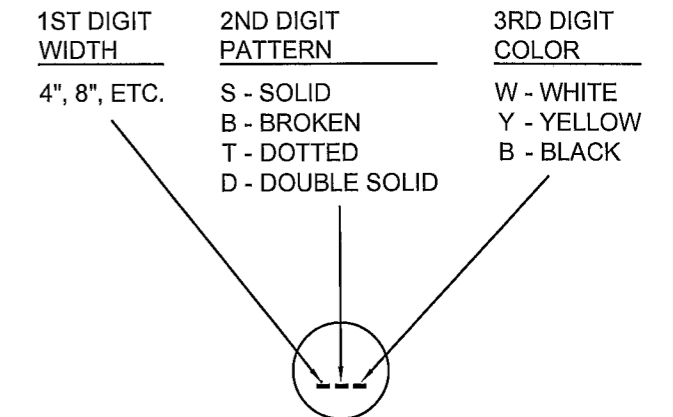
PAVEMENT MARKING TABULATION			
ITEM	UNIT	TOTAL QUANTITY	
4" SOLID LINE WHITE - MULTI COMP	LIN FT	27839	
4" BROKEN LINE WHITE - MULTI COMP	LIN FT	580	
4" SOLID LINE YELLOW - MULTI COMP	LIN FT	6524	
4" DOUBLE LINE YELLOW - MULTI COMP	LIN FT	11206	
24" SOLID LINE WHITE - PREFORMED THERMOPLASTIC (PMS*)	LIN FT	331	
24" SOLID LINE YELLOW - PREFORMED THERMOPLASTIC (PMS*)	LIN FT	2300	
3'x6' ZEBRA CROSSWALK - PREFORMED THERMOPLASTIC	SQ FT	1764	
PAVEMENT MESSAGE (RT ARROW) - PREFORMED THERMOPLASTIC	SQ FT	186	
PAVEMENT MESSAGE (LT ARROW) - PREFORMED THERMOPLASTIC	SQ FT	279	
PAVEMENT MESSAGE (THRU/RT ARROW) - PREFORMED THERMOPLASTIC	SQ FT	61	
1 10' STRIPE, 40' GAP			
* PAVEMENT MARKING SPECIAL			

**SYMBOLS & MATERIALS LEGEND**

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

**STRIPING KEY**

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



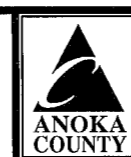
EXAMPLE: (4SW) = SOLID LINE WHITE - MULTI COMP

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

NO	DATE	BY	CKD	APPR	REVISION

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 PRINT NAME: Sean Thiel, P.E. DATE: 7/29/21  
 SIGNATURE: *Sean Thiel* LICENSE NO. 46129

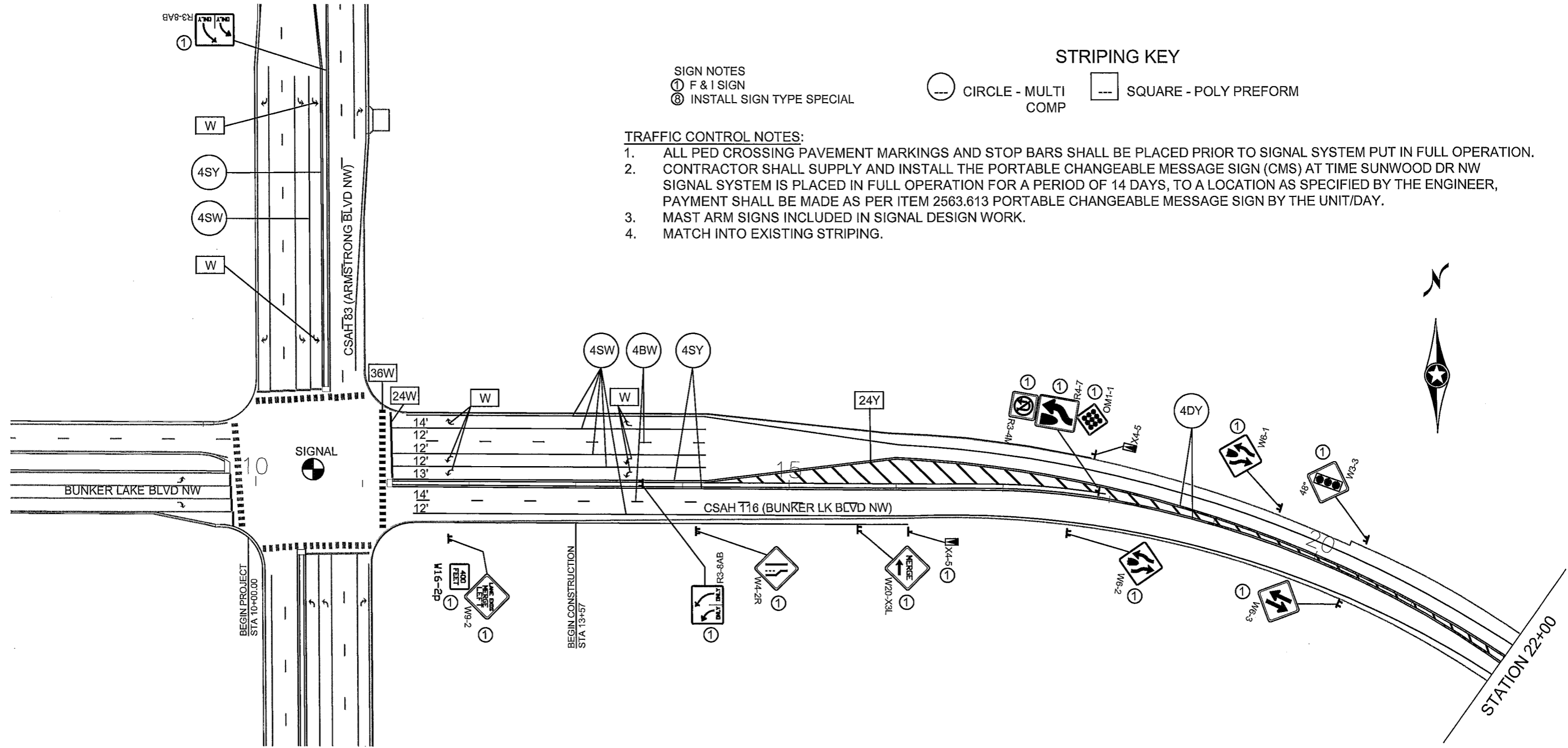
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**ANOKA COUNTY  
HIGHWAY DEPT.**

SAP 002-716-021

PERMANENT PAVEMENT MARKING PLAN DETAILS  
 SHEET 166 OF 259 SHEETS



SIGN NOTES  
 ① F & I SIGN  
 ② INSTALL SIGN TYPE SPECIAL

STRIPING KEY  
 ○ CIRCLE - MULTI COMP  
 □ SQUARE - POLY PREFORM

TRAFFIC CONTROL NOTES:

1. ALL PED CROSSING PAVEMENT MARKINGS AND STOP BARS SHALL BE PLACED PRIOR TO SIGNAL SYSTEM PUT IN FULL OPERATION.
2. CONTRACTOR SHALL SUPPLY AND INSTALL THE PORTABLE CHANGEABLE MESSAGE SIGN (CMS) AT TIME SUNWOOD DR NW SIGNAL SYSTEM IS PLACED IN FULL OPERATION FOR A PERIOD OF 14 DAYS, TO A LOCATION AS SPECIFIED BY THE ENGINEER, PAYMENT SHALL BE MADE AS PER ITEM 2563.613 PORTABLE CHANGEABLE MESSAGE SIGN BY THE UNIT/DAY.
3. MAST ARM SIGNS INCLUDED IN SIGNAL DESIGN WORK.
4. MATCH INTO EXISTING STRIPING.

NO	DATE	BY	CKD	APPR	REVISION

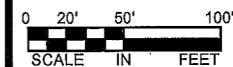
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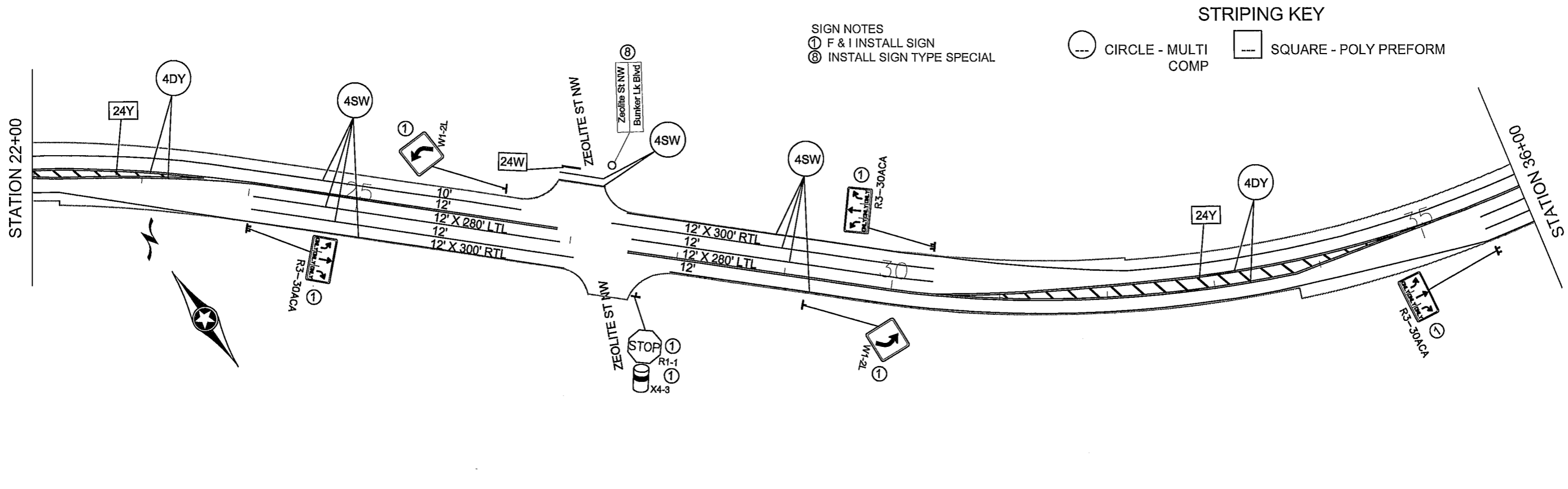


ANOKA COUNTY  
 HIGHWAY DEPT.

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PERMANENT SIGNING  
 & STRIPING PLAN

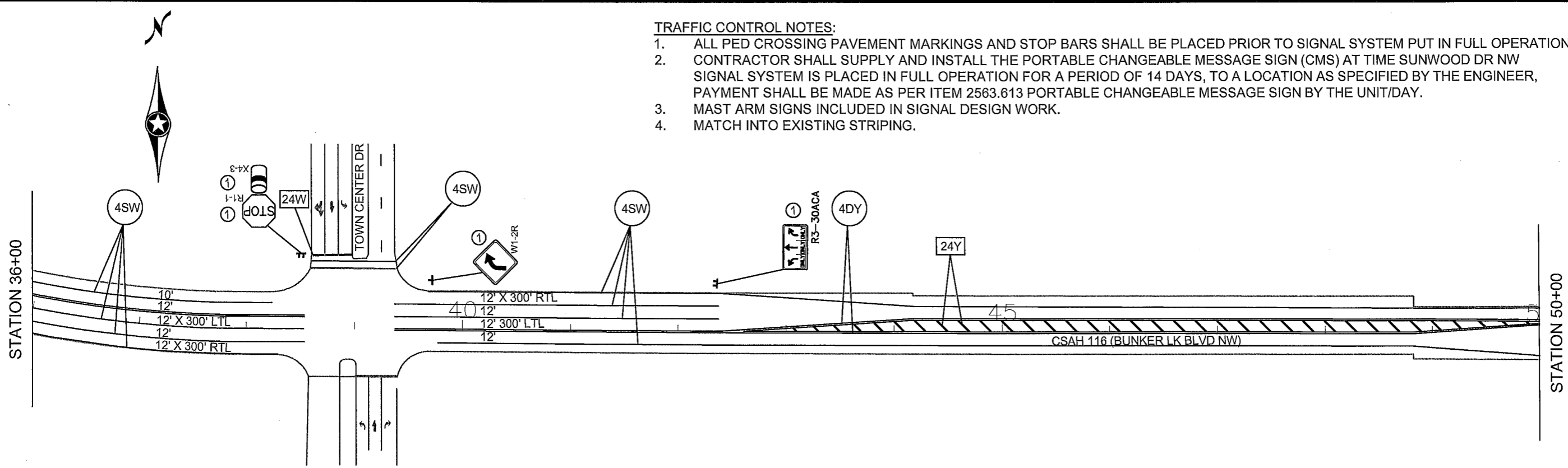


SIGN NOTES  
 ① F & I INSTALL SIGN  
 ② INSTALL SIGN TYPE SPECIAL

STRIPING KEY  
 ○ CIRCLE - MULTI COMP  
 □ SQUARE - POLY PREFORM

TRAFFIC CONTROL NOTES:

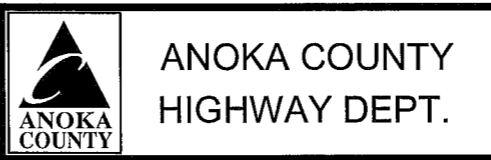
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4. MATCH INTO EXISTING STRIPING.



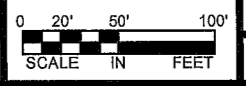
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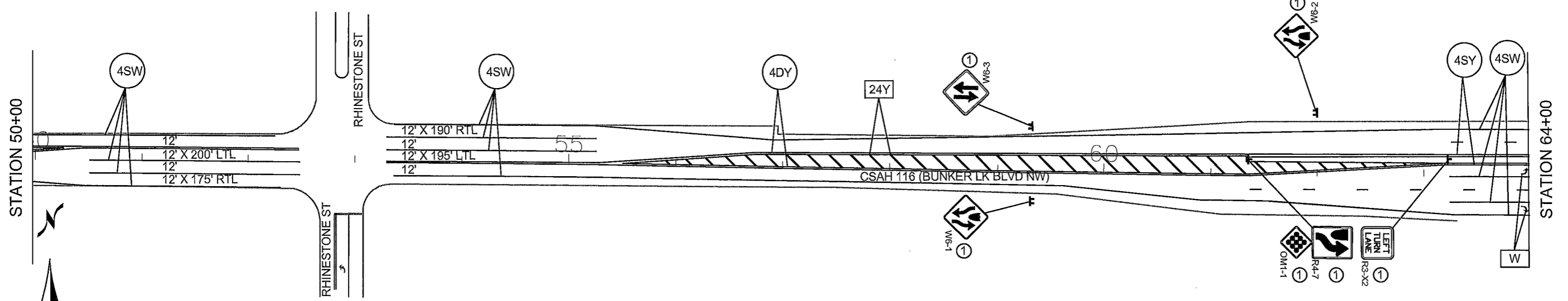
PERMANENT SIGNING & STRIPING PLAN  
 Sheet 168 of 259 Sheets



STRIPING KEY

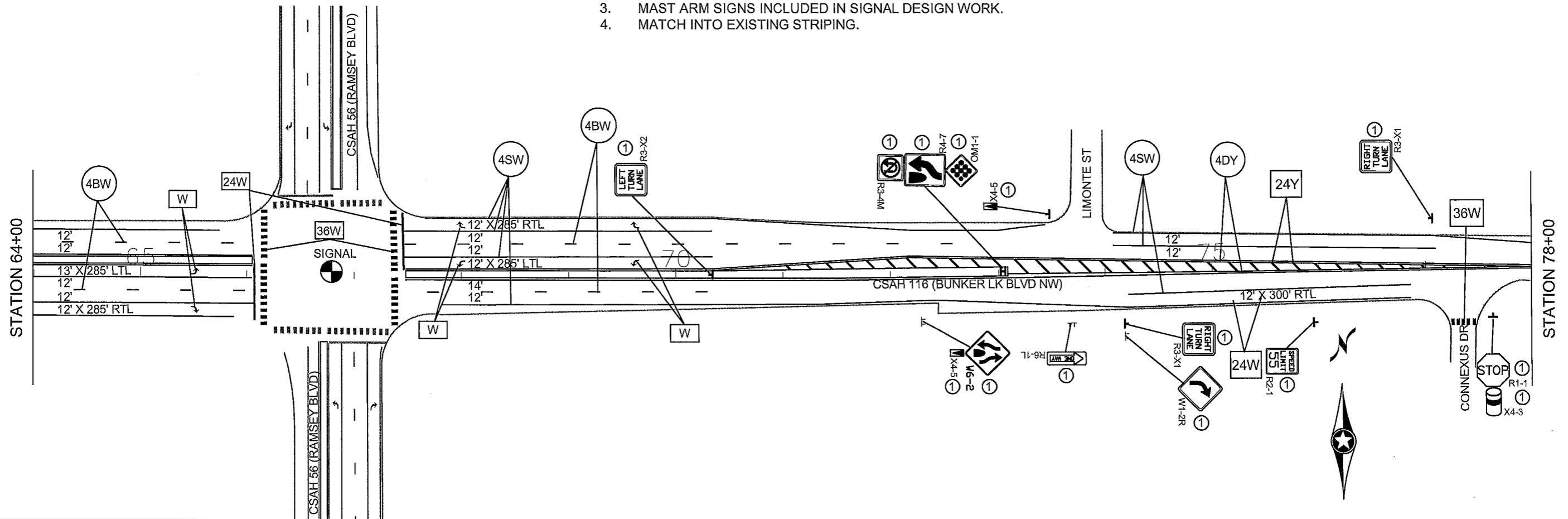
- SIGN NOTES  
 ① F & I INSTALL SIGN  
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- CIRCLE - MULTI COMP  
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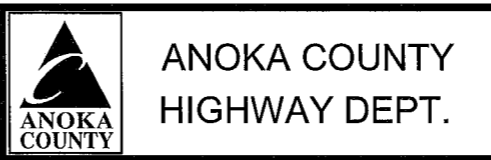


3 OF 8

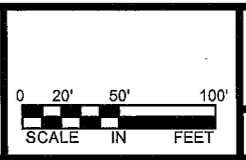
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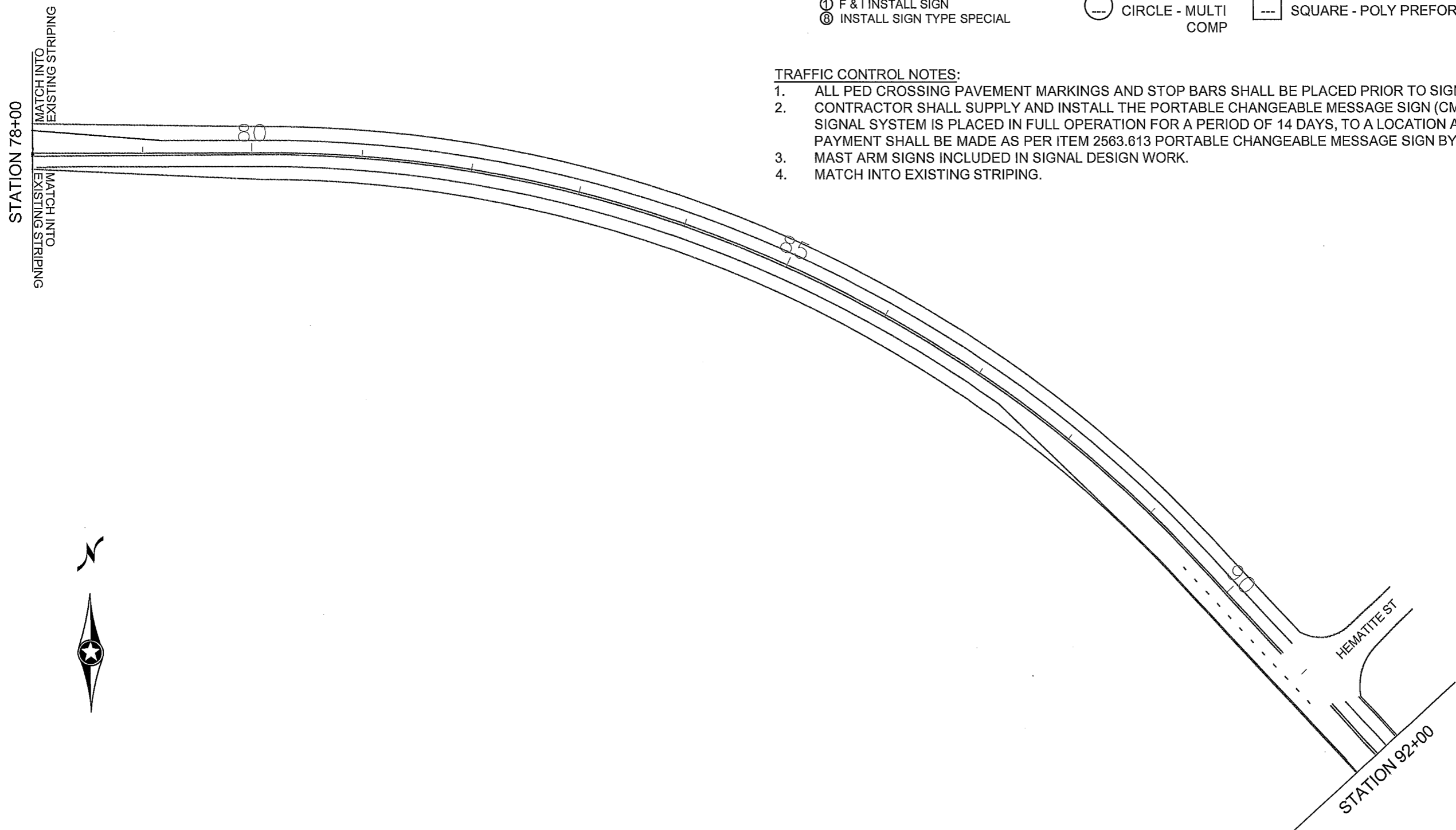
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 DESIGN BY: TMV DATE: 08/28/21  
 CHECKED BY: SRT DATE: 07/02/21



SAP 002-716-021  
 SAP 199-104-014



PERMANENT SIGNING & STRIPING PLAN  
 Sheet 169 of 259 Sheets



SIGN NOTES  
 ① F & I INSTALL SIGN  
 ② INSTALL SIGN TYPE SPECIAL

STRIPING KEY  
 ○ CIRCLE - MULTI COMP  
 □ SQUARE - POLY PREFORM

- TRAFFIC CONTROL NOTES:
1. ALL PED CROSSING PAVEMENT MARKINGS AND STOP BARS SHALL BE PLACED PRIOR TO SIGNAL SYSTEM PUT IN FULL OPERATION.
  2. CONTRACTOR SHALL SUPPLY AND INSTALL THE PORTABLE CHANGEABLE MESSAGE SIGN (CMS) AT TIME SUNWOOD DR NW SIGNAL SYSTEM IS PLACED IN FULL OPERATION FOR A PERIOD OF 14 DAYS, TO A LOCATION AS SPECIFIED BY THE ENGINEER, PAYMENT SHALL BE MADE AS PER ITEM 2563.613 PORTABLE CHANGEABLE MESSAGE SIGN BY THE UNIT/DAY.
  3. MAST ARM SIGNS INCLUDED IN SIGNAL DESIGN WORK.
  4. MATCH INTO EXISTING STRIPING.



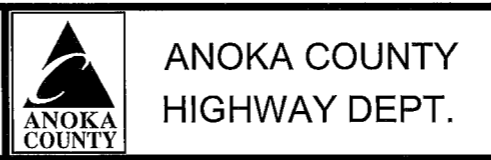
NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\002-716-021\Bases\Traffic\Form S & S Plan.dwg

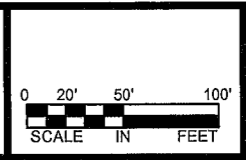
I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

PRINT NAME: SEAN THIEL, P.E.  
 SIGNATURE: *Sean Thiel*  
 DATE: 7/24/21 LICENSE NO. 45129

DRAWN BY: TMV DATE: 06/28/21  
 DESIGN BY: TMV DATE: 06/28/21  
 CHECKED BY: SRT DATE: 07/02/21



SAP 002-716-021  
 SAP 199-104-014

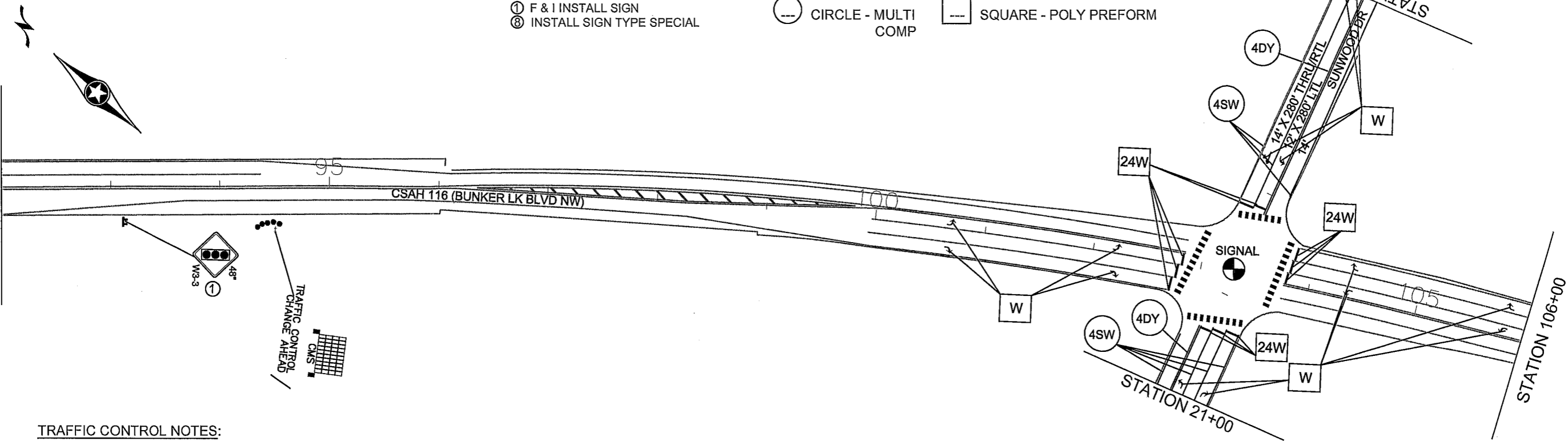


STRIPING KEY

SIGN NOTES  
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○ CIRCLE - MULTI COMP  
 □ SQUARE - POLY PREFORM

STATION 92+00



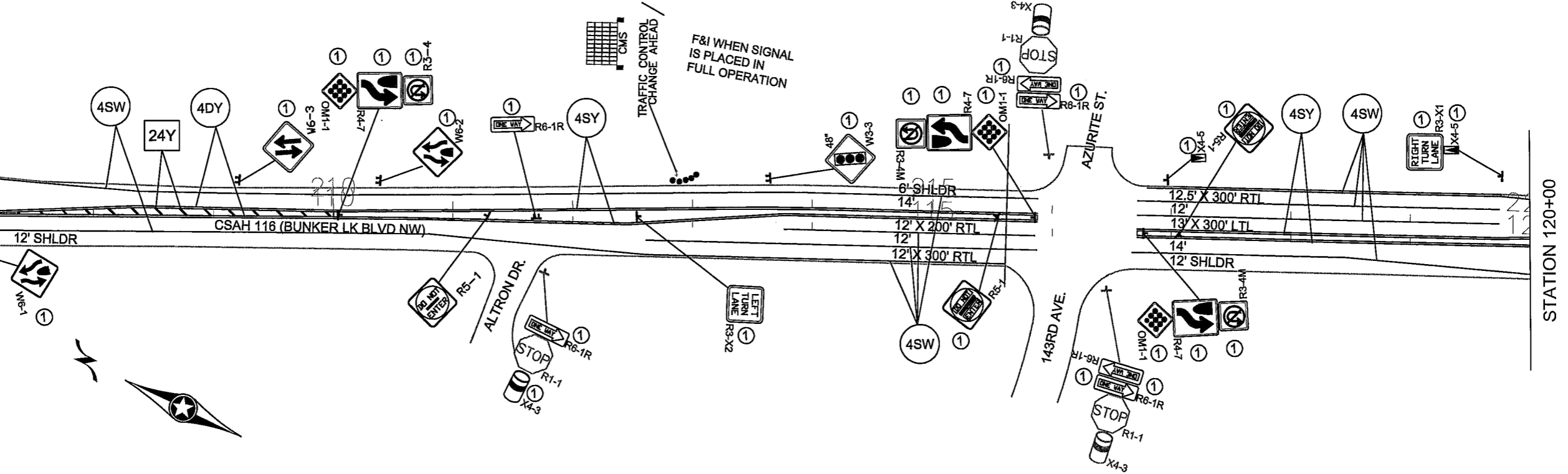
TRAFFIC CONTROL NOTES:

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3. MAST ARM SIGNS INCLUDED IN SIGNAL DESIGN WORK.
4. MATCH INTO EXISTING STRIPING.

STATION 106+00

MATCH INTO EXISTING STRIPING

MATCH INTO EXISTING STRIPING

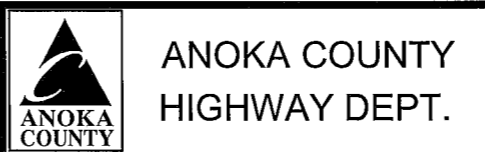


STATION 120+00

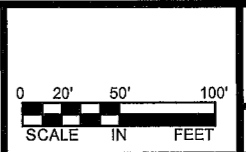
NO	DATE	BY	CKD	APPR	REVISION

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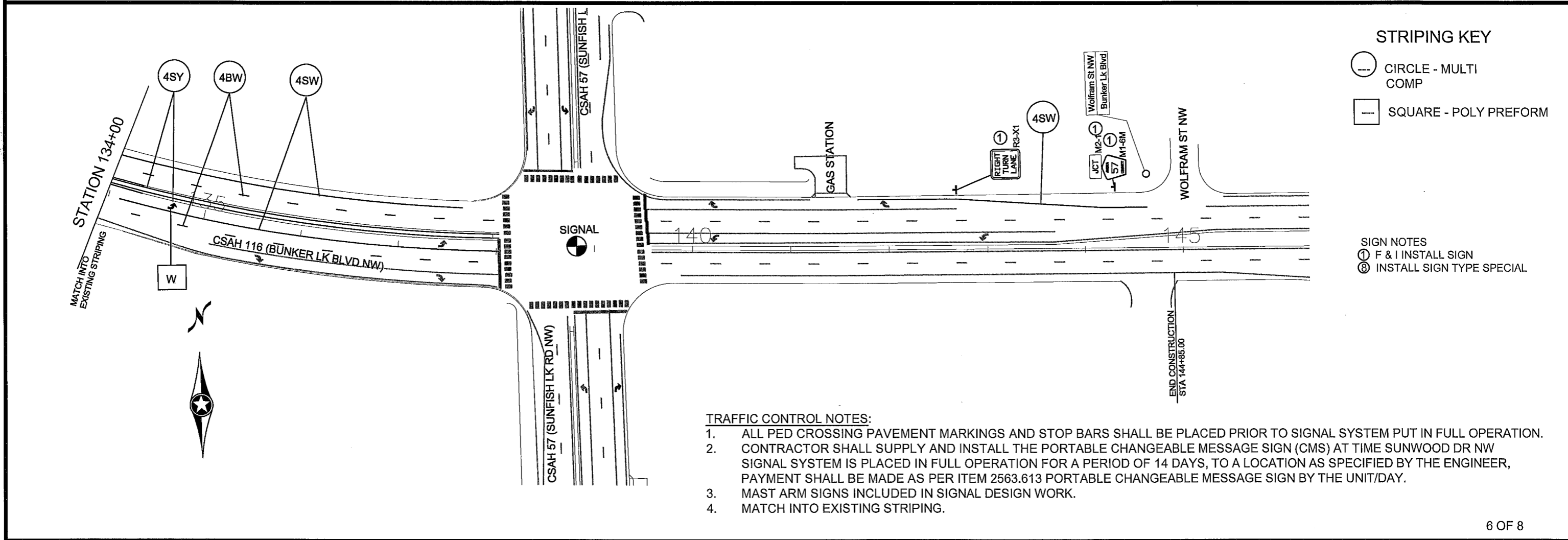
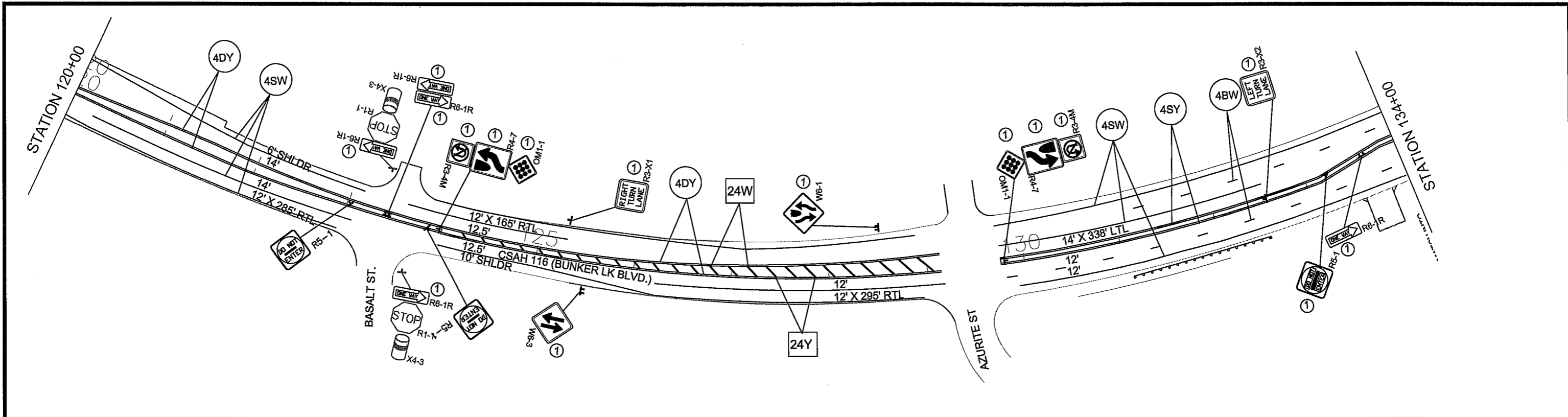
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 CHECKED BY: SRT DATE: 07/02/21



SAP 002-716-021  
 SAP 199-104-014



PERMANENT SIGNING & STRIPING PLAN  
 Sheet 171 of 259 Sheets



**STRIPING KEY**

○ CIRCLE - MULTI COMP

□ SQUARE - POLY PREFORM

**SIGN NOTES**

① F & I INSTALL SIGN

② INSTALL SIGN TYPE SPECIAL

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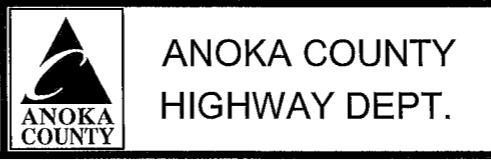
SIGNATURE: *Sean Thiel*

DATE: 7/29/21 LICENSE NO. 45129

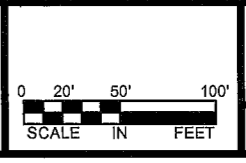
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CHECKED BY: SRT DATE: 07/02/21



SAP 002-716-021  
SAP 199-104-014



PERMANENT SIGNING & STRIPING PLAN

Sheet 172 of 259 Sheets

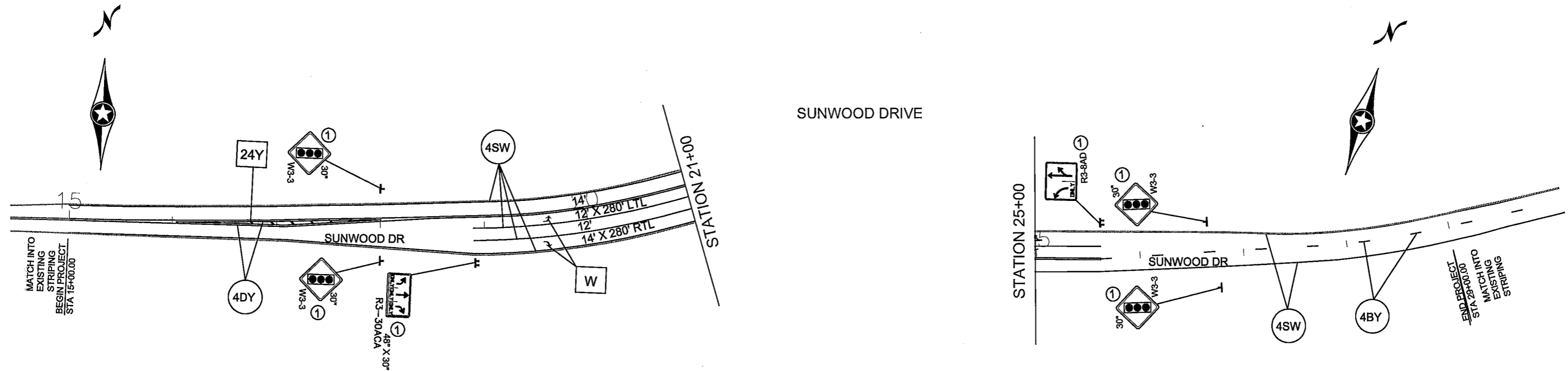
STRIPING KEY

- SIGN NOTES  
 ① F & I INSTALL SIGN  
 ② INSTALL SIGN TYPE SPECIAL

- CIRCLE - MULTI COMP  
 □ SQUARE - POLY PREFORM

TRAFFIC CONTROL NOTES:

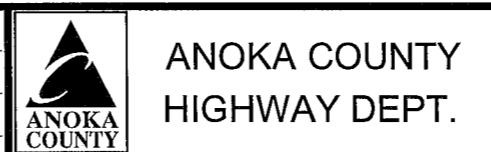
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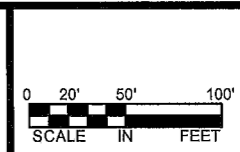
NO	DATE	BY	CKD	APPR	REVISION

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SAP 002-716-021  
 SAP 199-104-014



PERMANENT SIGNING & STRIPING PLAN  
 Sheet 173 of 259 Sheets

M

SIGN TYPE C PANELS

M.U.T.C.D. CODE	SIZE	INSERT	QUANTITY	SQ FT PANEL AREA	SQ FT TOTAL AREA	MOUNTING POST PER INSTALLATION	MOUNTING HEIGHT
R6-1R	36" x 12"		6	3.00	18.00	1	7.0'
R1-1	30" x 30"		3	6.25	18.75		
X4-3	4" x 15"		4	0.42	1.68		
R2-1	24" X 30"		1	5.00	5.00	1	7.0'
R3-8AB	36" X 30"		2	7.50	15.00	2	7.0'
R3-8AD	36" X 30"		1	7.50	7.50	2	7.0'
R3-30ACA	54" X 30"		5	11.25	56.25	2	7.0'
R3-X1	30" X 30"		3	6.25	18.75	1	7.0'
R3-X2	30" X 30"		4	6.25	25.00	1	7.0'
R3-4M	24" X 24"		7	4.00	28.00	1	7.0'
R4-7	24" X 30"		8	5.00	40.00		
X4-2	18" X 18"		8	2.25	18.00		
R5-1	30" X 30"		6	6.25	37.50	1	7.0'
R6-1R	54" X 18"		7	6.75	47.25	2	7.0'
R6-1L	54" X 18"		1	6.75	6.75	2	7.0'
W1-2L	30" x 30"		2	6.25	12.50	0	7.0'

M.U.T.C.D. CODE	SIZE	INSERT	QUANTITY	SQ FT PANEL AREA	SQ FT TOTAL AREA	MOUNTING POST PER INSTALLATION	MOUNTING HEIGHT
W1-2R	30" x 30"		2	6.25	12.50	1	7.0'
W3-3	30" X 30"		4	6.25	25.00	1	7.0'
	48" X 48"		3	16.00	48.00	2	7.0'
W4-2R	36" X 36"		1	9.00	9.00	2	7.0'
W6-1	36" X 36"		4	9.00	36.00	2	7.0'
W6-2	36" X 36"		4	9.00	36.00	2	7.0'
W6-3	36" X 36"		4	9.00	36.00	2	7.0'
W9-2	36" X 36"		1	9.00	9.00	2	7.0'
W16-2p	30" X 24"		1	5.00	5.00		
W20-X3L	36" X 36"		1	9.00	9.00	2	7.0'
M2-1	21" X 15"		1	2.19	2.19	1	7.0'
W20-X3L	36" X 36"		1	4.00	4.00		
SIGN TYPE C PANELS TOTAL			95	587.62			

SIGN TYPE MARKER PANELS

M.U.T.C.D. CODE	SIZE	INSERT	QUANTITY	SQ FT PANEL AREA	SQ FT TOTAL AREA	MOUNTING POST PER INSTALLATION	MOUNTING HEIGHT
X4-5	6" X 12"		3	0.50	1.50	1	4.0'
X4-5	6" X 12"		3	0.50	1.50	1	4.0'
SIGN TYPE MARKER PANELS TOTAL			6	3.00			

PROJECT TOTALS 101 590.62

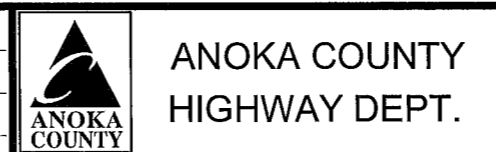
NOTES:

- ALL TRAFFIC CONTROL DEVICES SHALL CONFORM AND BE PLACED IN ACCORDANCE WITH THE MOST RECENT EDITION OF THE "MINNESOTA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" (MN MUTCD), INCLUDING PART VI, "FIELD MANUAL", DATED JANUARY 2018.
- LOCATIONS OF ALL PERMANENT STRIPING AND PAVEMENT MARKINGS ARE APPROXIMATE. EXACT LOCATIONS WILL BE DETERMINED IN THE FIELD BY THE ENGINEER.
- ALL MAINLINE PERMANENT STRIPING AND PAVEMENT MESSAGES SHALL BE PLACED WITHIN 72 HOURS OF MAINLINE PAVING.
- SEE PERMANENT SIGN TABULATIONS FOR ADDITIONAL INFORMATION.
- ALL SEGMENT STRIPE LINES SHALL BE EPOXY. PERMANENT MESSAGES AND ARROWS SHALL BE PREFORMED THERMOPLASTIC.
- ALL SIGNS SHALL BE FURNISHED AND INSTALLED UNLESS OTHERWISE NOTED.

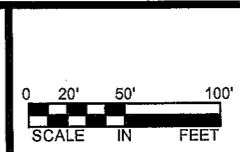
NO	DATE	BY	CHKD	APPR	REVISION

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 PRINT NAME: SEAN THIEL, P.E.  
 SIGNATURE:   
 DATE: 7/29/21 LICENSE NO. 45129

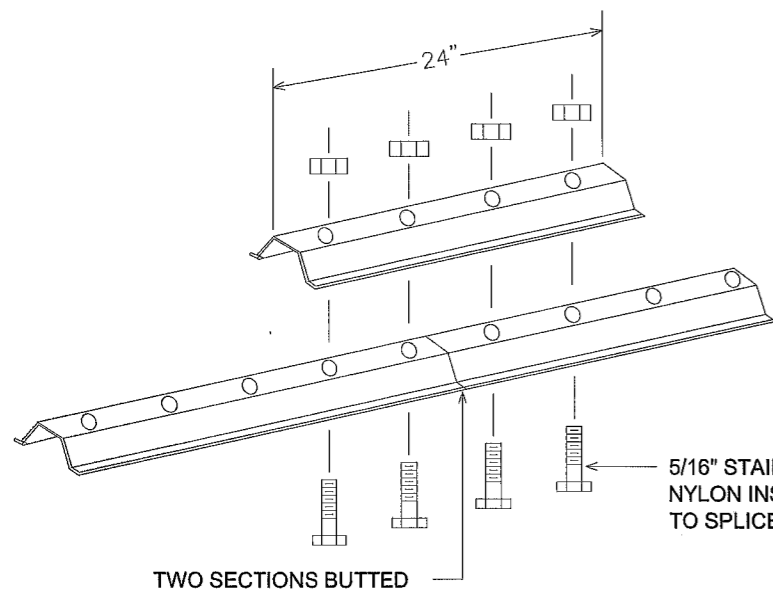
DRAWN BY: TMV DATE: 06/28/21  
 DESIGN BY: TMV DATE: 06/28/21  
 CHECKED BY: SRT DATE: 07/02/21



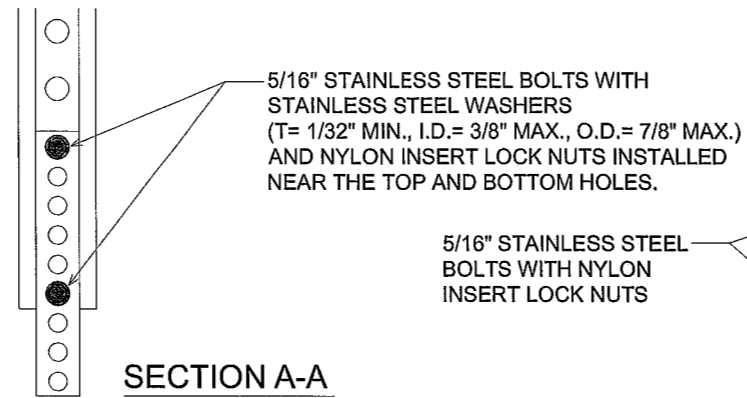
SAP 002-716-021  
 SAP 199-104-014



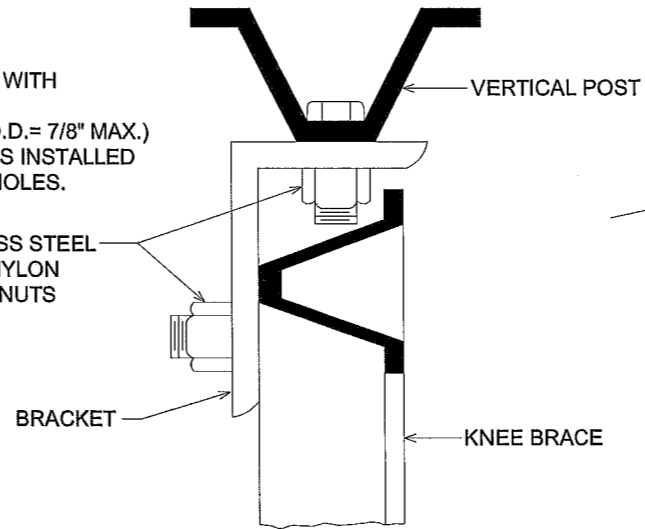
PERMANENT SIGNING & STRIPING QUANTITIES  
 Sheet 174 of 259 Sheets



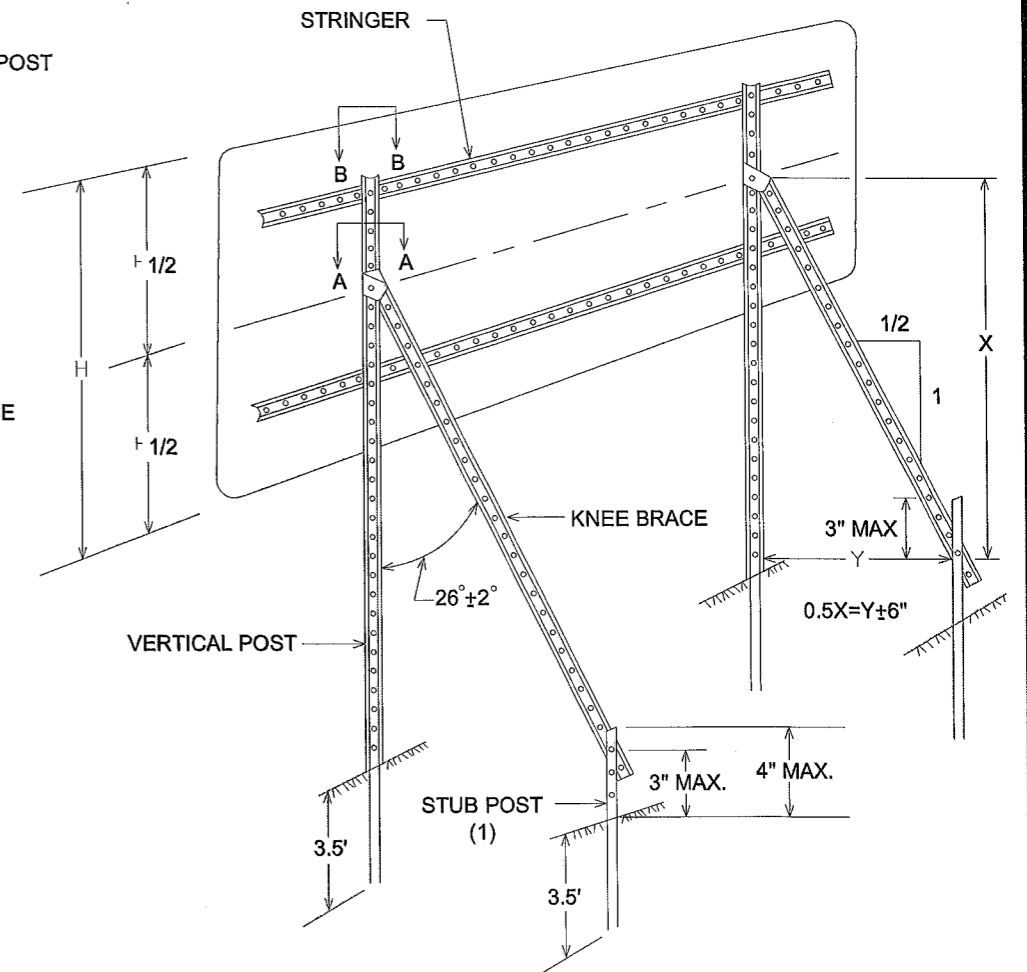
**LATERAL BRACE OR STRINGER  
SPLICE DETAIL (EXPLODED VIEW)**



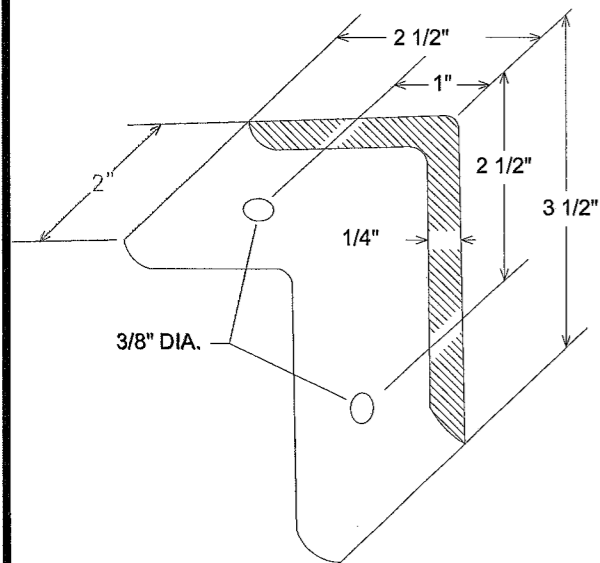
**SECTION A-A**



**BRACKET**  
**KNEE BRACE**

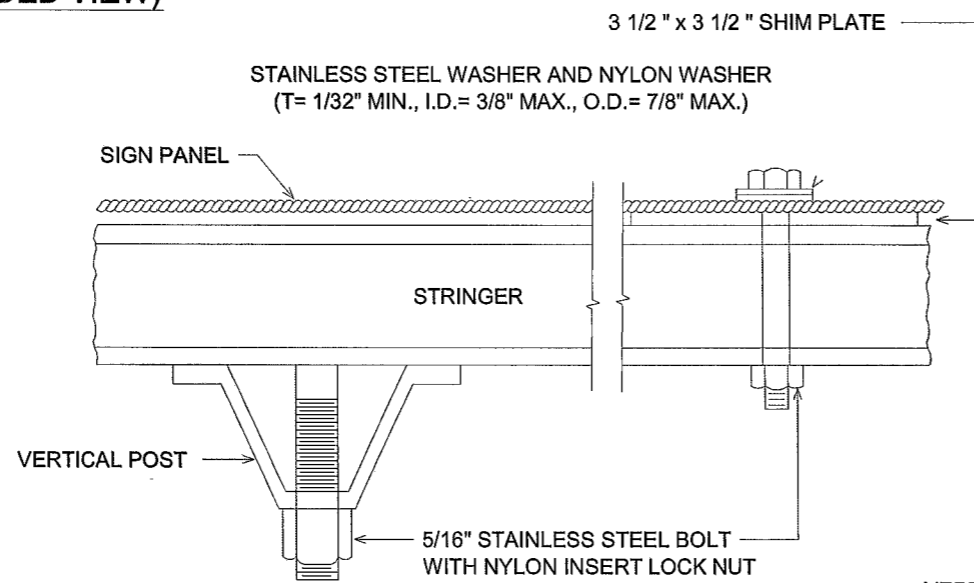


**TYPICAL "A-FRAME" INSTALLATION  
TYPE "D" SIGNS**

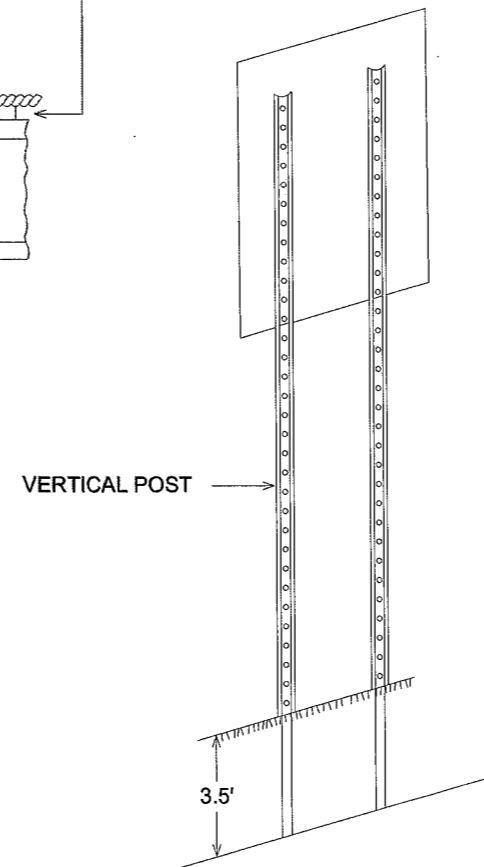


**A-FRAME BRACKET**

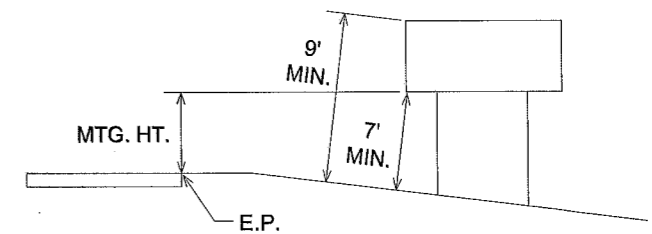
(STEEL MN/DOT 3306 GALVANIZED PER MN/DOT 3394)



**SECTION B-B**



**TYPICAL INSTALLATION 36" AND LARGER  
TYPE "C" SIGNS**



**TYPICAL MOUNTING**

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

**TYPE C & D SIGN  
STRUCTURAL DETAILS**

NO	DATE	BY	CKD	APPR	REVISION
NAME: T:\Traffic\SS Details Sheets\Sign&Stripe_Details 2019.dwg					

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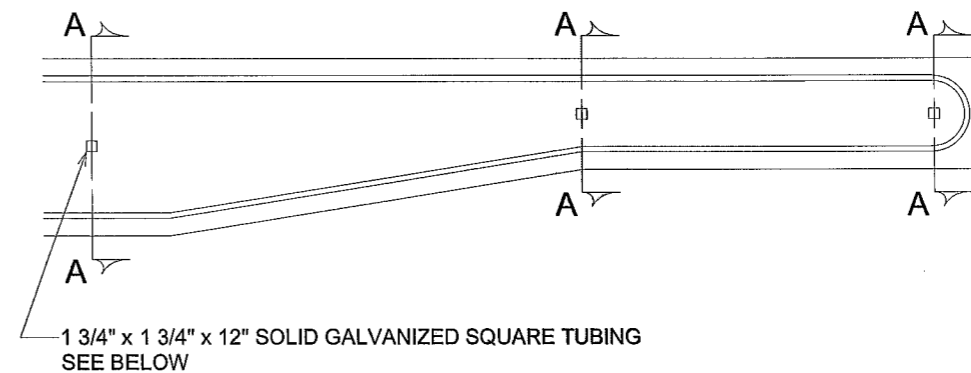
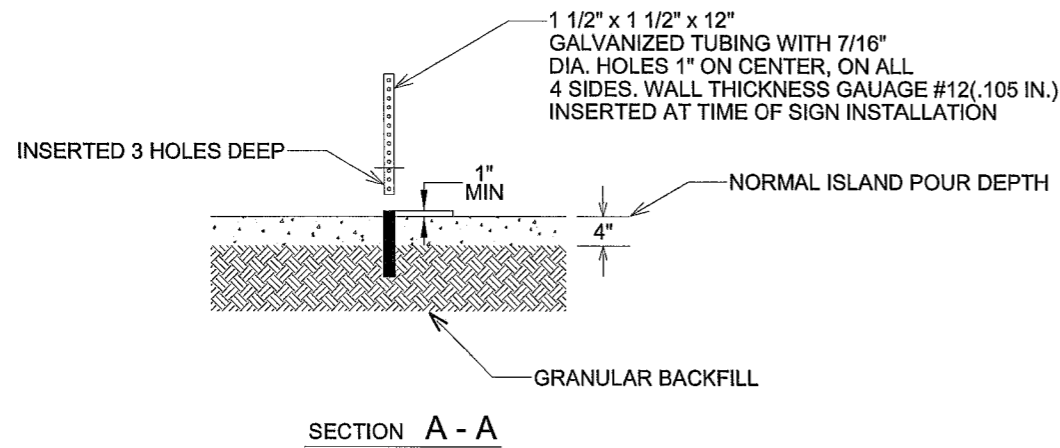
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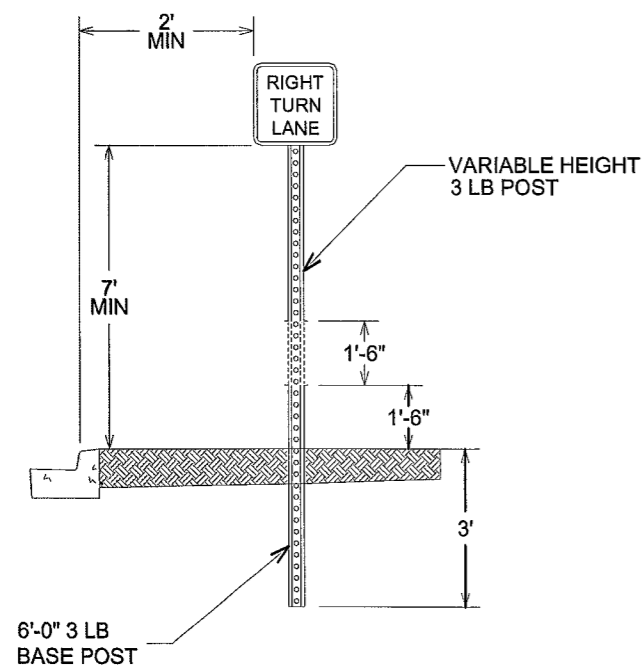
**ANOKA COUNTY  
HIGHWAY DEPT.**

SAP 002-716-021  
SAP 199-104-014

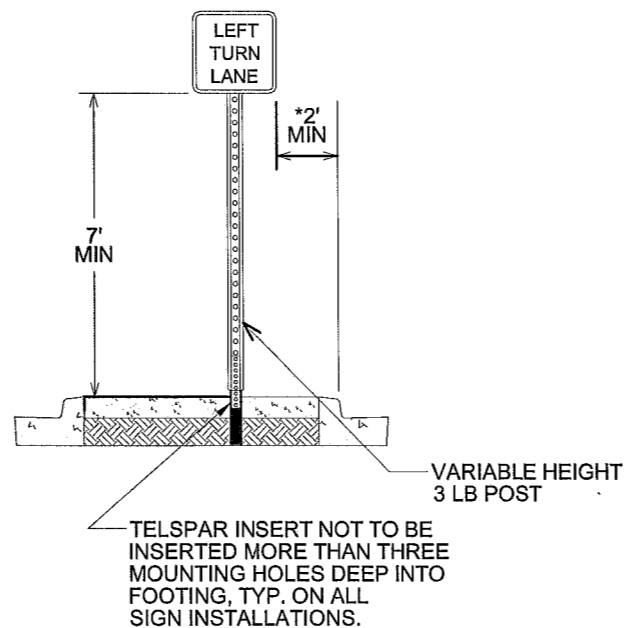
**SIGNING & STRIPING  
DETAILS**



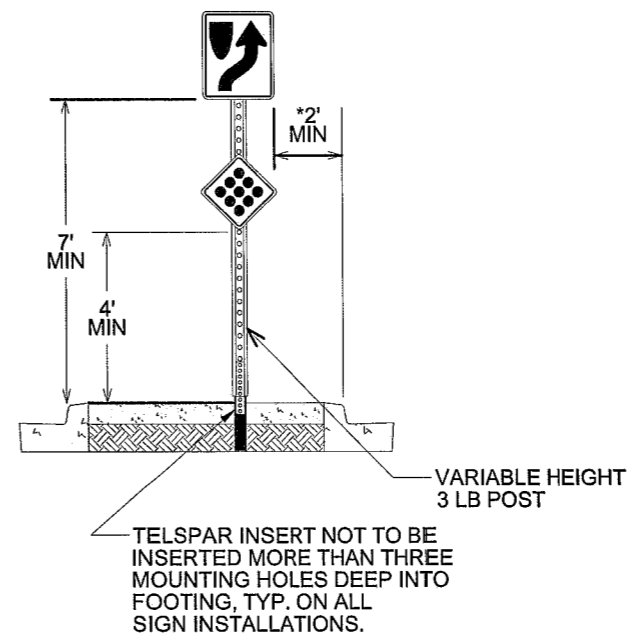
GROUND POST MOUNT SIGN INSTALLATION TYPICAL



ISLAND MOUNT BREAK-AWAY SIGN INSTALLATION TYPICAL



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



\*1' MIN FOR NARROW URBAN LOCATIONS

INSTALLATION NEAR SIDEWALK (MN MUTCD)

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

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ANOKA COUNTY HIGHWAY DEPT.

SAP 002-716-021  
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SIGNING & STRIPING DETAILS

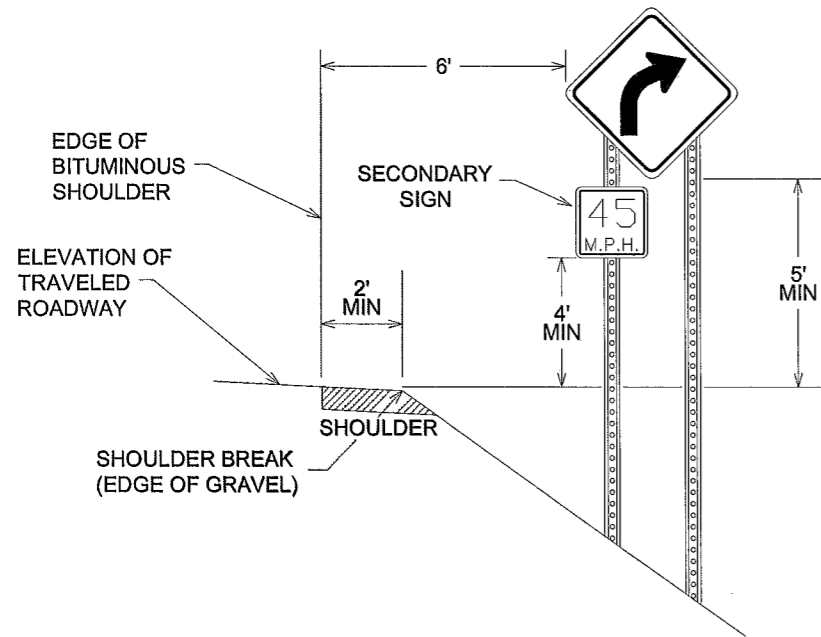
SHEET 176 OF 259 SHEETS

NO	DATE	BY	CKD	APPR	REVISION

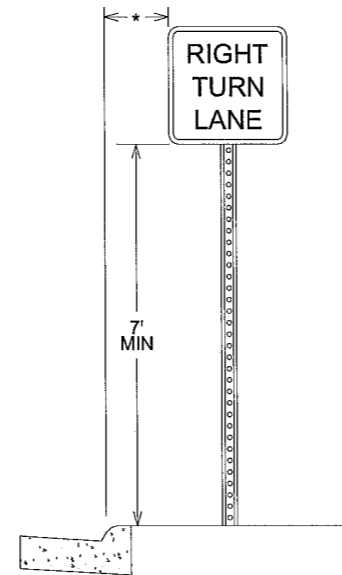
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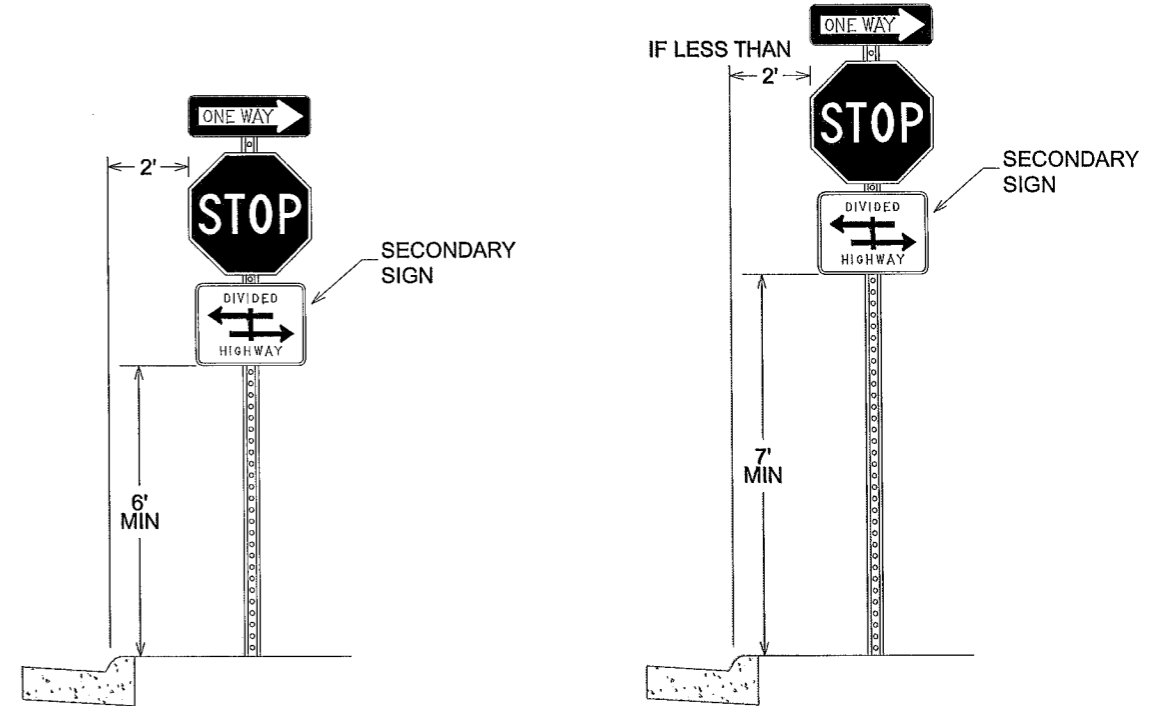
TYPICAL SIGN PLACEMENT  
(RURAL)



TYPICAL SIGN PLACEMENT  
(URBAN)



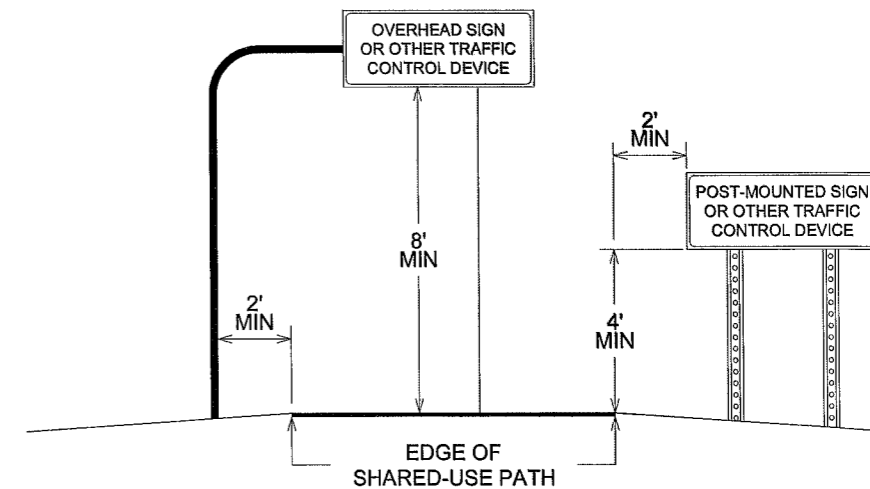
\*2' - NARROW BOULEVARD ( $\leq 8'$  WIDE)  
6' - WIDE BOULEVARD



NOTES:

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

TYPICAL SIGN PLACEMENT  
SHARED-USE PATH



NO	DATE	BY	CKD	APPR	REVISION

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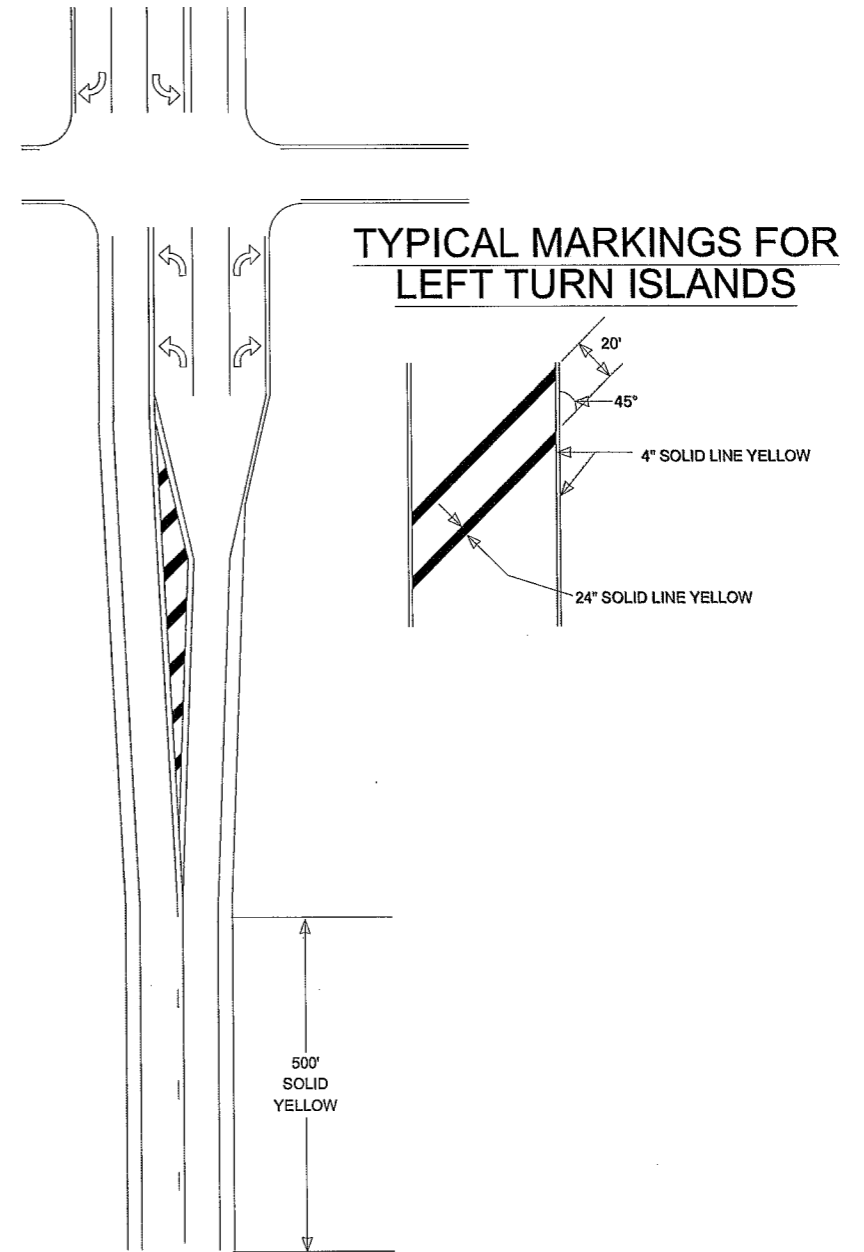
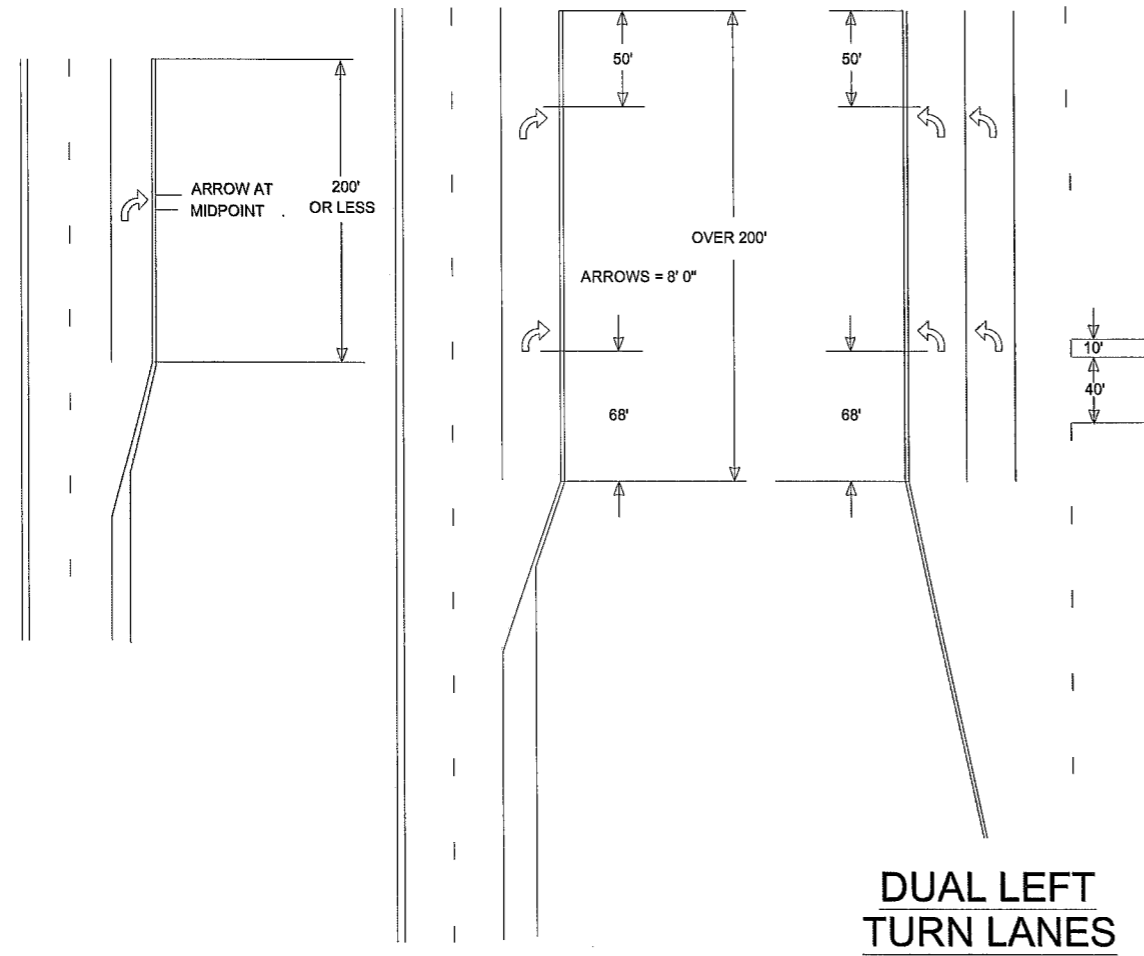
ANOKA COUNTY  
HIGHWAY DEPT.

SAP 002-716-021  
SAP 199-104-014

SIGNING & STRIPING  
DETAILS

SHEET 177 OF 259 SHEETS

**TYPICAL MESSAGE PLACEMENT  
FOR TURN LANES**



NO	DATE	BY	CKD	APPR	REVISION

NAME: T:\Traffic\SS Details Sheets\Sign&Stripe\_Details 2019.dwg

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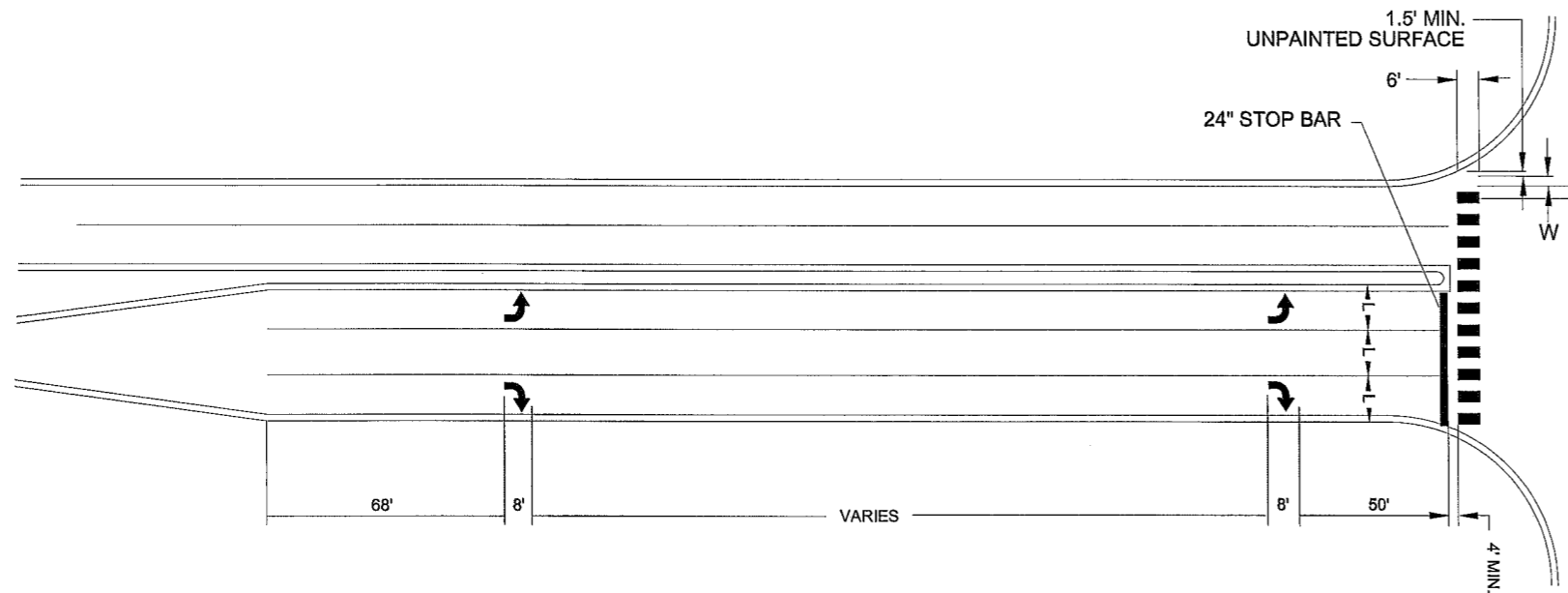
**ANOKA COUNTY  
HIGHWAY DEPT.**

SAP 002-716-021  
SAP 199-104-014

**SIGNING & STRIPING  
DETAILS**

SHEET 178 OF 259 SHEETS

MARKINGS FOR PEDESTRIAN CROSSWALKS



(L)	(W)	(S)
WIDTH OF INSIDE LANE	WIDTH OF PAINTED AREAS	WIDTH OF SPACE
9'	2.0'	2.5'
10'	2.5'	2.5'
11'	2.5'	3.0'
12'	3.0'	3.0'
13'	3.0'	3.5'

NOTES: CROSSWALKS:

- 1.) PAINTED AREAS ARE TO BE CENTERED ON CENTER AND LANE LINES, EVEN IF INTERSECTION IS NOT ALIGNED.
- 2.) LOCATION OF ZEBRA CROSSWALKS AND STOP BARS, SIGNAL LOOPS AND PED RAMP ARE APPROXIMATE. FINAL LOCATIONS ARE TO BE DETERMINED AND FIELD VERIFIED DURING CONSTRUCTION BY THE FIELD ENGR.
- 3.) ZEBRA CROSSWALKS ARE TO BE PARALLEL TO THE DRIVING LANE OR LANES. EVEN IF THE STREET IS ON AN ANGLE TO THE INTERSECTION.
- 4.) A MIN. OF 1.5' (450mm) CLEAR DISTANCE MUST BE LEFT ADJACENT TO THE CURB. IF LAST PAINTED AREA FALLS INTO THIS AREA, IT MUST BE OMITTED.
- 5.) ON TWO LANE STREETS, USE SPACING SHOWN FOR AN 11' (3.3m) INSIDE LANE.

NO	DATE	BY	CKD	APPR	REVISION

NAME: T:\Traffic\SS Details Sheets\Sign&Stripe\_Details 2019.dwg

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

PRINT NAME: SEAN THIEL, P.E. DATE: 7/29/21  
 SIGNATURE: *Sean Thiel* LICENSE NO. 45129

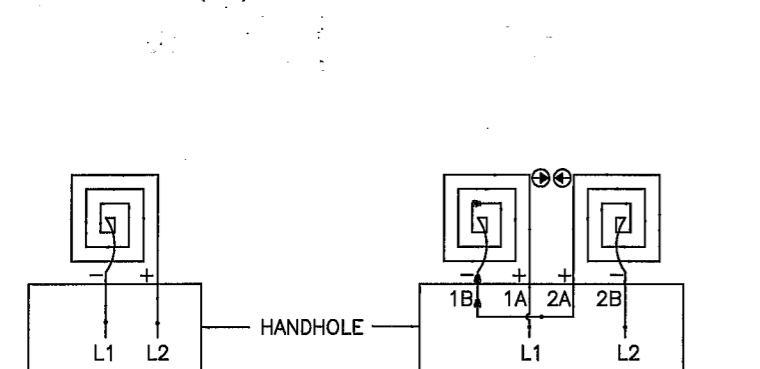
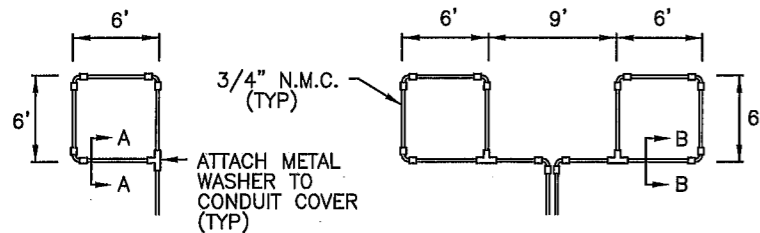
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 DESIGN BY \_\_\_TMV\_\_\_ DATE \_\_\_06/28/21\_\_\_  
 CHECKED BY \_\_\_SRT\_\_\_ DATE \_\_\_07/02/21\_\_\_



ANOKA COUNTY  
 HIGHWAY DEPT.

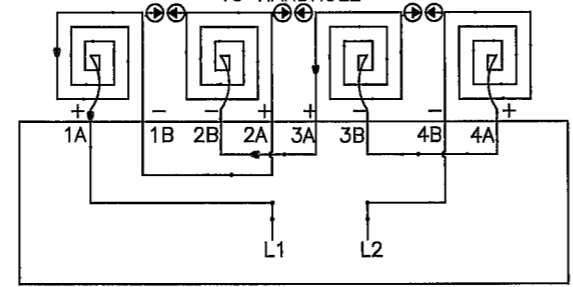
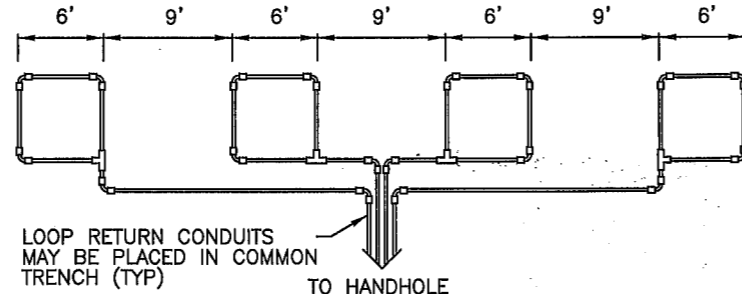
SAP 002-716-021  
 SAP 199-104-014

SIGNING & STRIPING  
 DETAILS  
 SHEET 179 OF 259 SHEETS

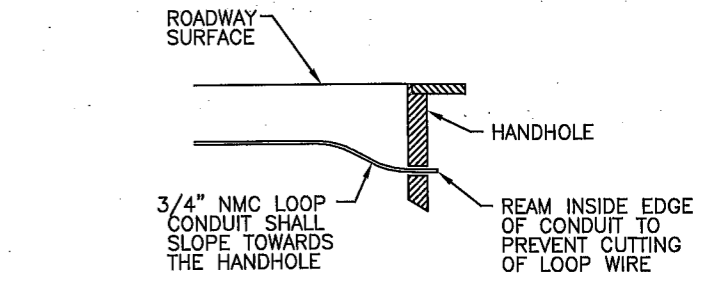
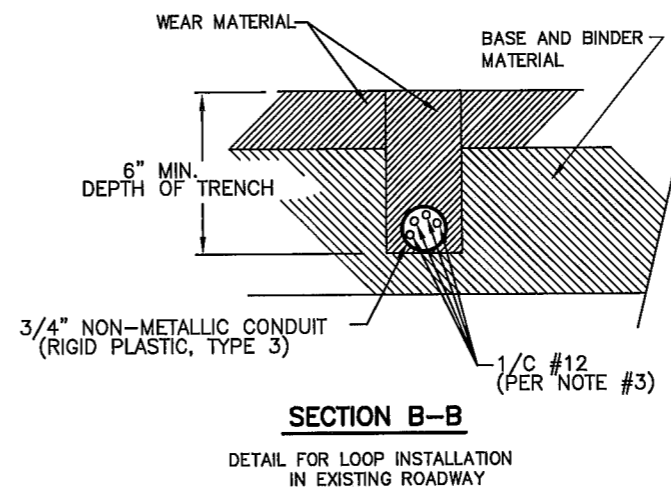
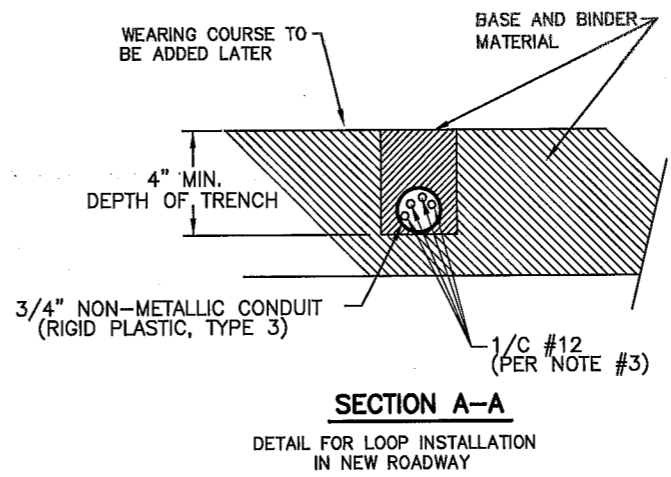


**LOOP DETECTOR DETAIL A**  
(LOOP PHASING FOR SINGLE CONNECTION)

**LOOP DETECTOR DETAIL B**  
(LOOP PHASING FOR SERIES CONNECTION)



**LOOP DETECTOR DETAIL C**  
(LOOP PHASING FOR SERIES CONNECTION)



- LOOP DETECTOR WIRING**
- 1) ALL CORNERS SHALL BE 90° CONDUIT BENDS.
  - 2) CONNECT WIRES IN HANDHOLES USING SPLICE KIT METHOD DESCRIBED IN THE SPECIAL PROVISIONS.
  - 3) LOOP DETECTOR WIRES SHALL BE #12 AWG CROSSED LINKED POLYETHYLENE (XLP). SEE SPECIAL PROVISIONS.
  - 4) LOOP LEAD IN WIRES SHALL BE TWISTED A MIN. OF (5) TURNS PER FOOT THROUGH THE CONDUIT TO THE HANDHOLE.
  - 5) NMC DESIGNATES NON-METALLIC CONDUIT (SPEC. 3803)
  - 6) LOOPS 6' x 6' THRU 6' x 14' SHALL HAVE (4) TURNS.
  - 7) LOOPS 6' x 15' AND LARGER SHALL HAVE (2) TURNS.

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**LEGEND OF SYMBOLS**

CONTROLLER AND SERVICE EQUIP. NO's	(A)
SIGNAL BASE NO.	(B)
SIGNAL FACE NO.	(C)
LUMINAIRE NO.	(D)
CONTROLLER AND CABINET	(E)
CONTROLLER AND CABINET - IN PLACE	(F)
HANDHOLE	(G)
HANDHOLE - IN PLACE	(H)
RIGID STEEL CONDUIT (RSC)	(I)
RIGID STEEL CONDUIT (RSC) - IN PLACE	(J)
SIGNAL FACE WITH BACKGROUND SHIELD	(K)
SIGNAL FACE W/O BACKGROUND SHIELD	(L)
SIGNAL FACE - IN PLACE	(M)
PEDESTRIAN INDICATORS	(N)
PEDESTRIAN INDICATORS - IN PLACE	(O)
PEDESTRIAN PUSH BUTTONS ON PEDESTAL OR POLE	(P)
PEDESTRIAN PUSH BUTTON STATION	(Q)
TRAFFIC SIGNAL PEDESTAL	(R)
TRAFFIC SIGNAL PEDESTAL - IN PLACE	(S)
TRAFFIC SIGNAL POLE AND MAST ARM	(T)
TRAFFIC SIGNAL POLE AND MAST ARM - IN PLACE	(U)
STREET LIGHT POLE AND LUMINAIRE	(V)
STREET LIGHT POLE AND LUMINAIRE - IN PLACE	(W)
MAST ARM AND LUMINAIRE	(X)
MAST ARM AND LUMINAIRE - IN PLACE	(Y)
WOOD POLE	(Z)
WOOD POLE - IN PLACE	(AA)
SOURCE OF POWER	(AB)
RAILROAD SIGNAL - IN PLACE	(AC)
RIGHT OF WAY LINE	(AD)
CENTERLINE	(AE)
EDGE OF ROADWAY	(AF)
SHOULDERLINE	(AG)
CURB LINE	(AH)
STOP BAR	(AI)
EMERGENCY VEHICLE PREEMPTION DETECTOR	(AJ)

**ABBREVIATIONS**

3-1(EG)	SIGNAL HEAD PHASE "3" - NO. "1"	P2-1(EG)	PED INDICATION PHASE "2" - NO. "1"
BR. GR.	BARE GROUND	PB	PUSH BUTTON
CH. SW.	CHECK SWITCH	PB2-1(EG)	PUSH BUTTON PHASE "2" - NO. "1"
CLR	CLEAR	PEC	PHOTOELECTRIC CELL
D2-1(EG)	DETECTOR PHASE "2" - NO. "1"	PED	PEDESTRIAN
DWK	DON'T WALK	R	RED
EQG	EQUIPMENT GROUND	R&S	REMOVE AND SALVAGE
EVP	EMERGENCY VEHICLE PRE-EMPTION	RLTA	RED LEFT TURN ARROW
F&I	FURNISH AND INSTALL	RRTA	RED RIGHT TURN ARROW
FL	FLASH/FLASHING	RSC	RIGID STEEL CONDUIT
G	GREEN	SOP	SOURCE OF POWER
GLTA	GREEN LEFT TURN ARROW	SPR	SPARE
GRN	GREEN	ST. LHT	STREET LIGHT
GR. R	GROUND ROD	STA	STATION
GRTA	GREEN RIGHT TURN ARROW	SW	SWITCH
GTHA	GREEN THRU ARROW	SWD	SWITCHED
HH	HANDHOLE	S&R	SALVAGE AND REINSTALL
HPS	HIGH PRESSURE SODIUM	TDW	TELEPHONE DROP WIRE
JB	JUNCTION BOX	WLK	WALK
LUM	LUMINAIRE	YEL	YELLOW
NEU	NEUTRAL	YLTA	YELLOW LEFT TURN ARROW
NMC	NONMETALLIC CONDUIT	YRTA	YELLOW RIGHT TURN ARROW
		YTHA	YELLOW THRU ARROW

**CONDUCTOR COLOR CODE**

R	RED
O	ORANGE
BL	BLUE
WH	WHITE
R/BLK	RED WITH BLACK TRACER
O/BLK	ORANGE WITH BLACK TRACER
BL/BLK	BLUE WITH BLACK TRACER
WH/BLK	WHITE WITH BLACK TRACER
BLK	BLACK
BLK/WH	BLACK WITH WHITE TRACER
G/BLK	GREEN WITH BLACK TRACER
G	GREEN

**TRAFFIC SIGNAL TABULATION**

ITEM NO	ITEM	UNIT	TOTAL ESTIMATED QUANTITY	PARTICIPATION	
				SAP 002-716-021	SAP 199-104-014
2545	SIGNAL SERVICE CABINET	EACH	1	0.25	0.75
2565	EMERGENCY VEHICLE PREEMPTION SYSTEM C	LUMP SUM	1		1
2565	TRAFFIC CONTROL INTERCONNECT	LUMP SUM	1	1	
2565	TRAFFIC CONTROL SIGNAL SYSTEM C	SYSTEM	1	0.25	0.75
2565	RIGID PVC LOOP DETECTOR 6' x 6'	EACH	2	2	
2565	REVISE SIGNAL SYSTEM A	SYSTEM	1	1	
2565	REVISE SIGNAL SYSTEM B	SYSTEM	1	1	
2565	REVISE SIGNAL SYSTEM D	SYSTEM	1	1	

**STANDARD PLATES - SIGNAL SYSTEMS**

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

PLATE NO.	DESCRIPTION
8111 E	TRAFFIC SIGNAL BRACKETING (PEDESTAL MOUNTED) (3 SHEETS)
8112 I	PEDESTAL FOUNDATION (FOR TRAFFIC CONTROL SIGNALS)
8118 D	SERVICE EQUIPMENT & POLE-TRAFFIC CONTROL SIGNALS
8119 C	GROUND MOUNTED CABINET FOUNDATION
8121 H	TRANSFORMER BASE & POLE BASE PLATE (2 SHEETS)
8122 F	PEDESTAL AND PEDESTAL BASE (FOR TRAFFIC CONTROL SIGNALS SUPPORT) (2 SHEETS)
8123 G	POLE & MAST ARM-LUMINAIRES & TRAFFIC LIGHTS ASSEMBLY (2 SHEETS)
8126 L	POLE FOUNDATION (PA90 & PA100)
8129 A	SHIM AND WASHER (TRAFFIC CONTROL SIGNALS AND ROADWAY LIGHTING)

DRAWN BY: JMG  
DESIGNER: JMG  
CHECKED BY: JMG

DESIGN TEAM	NO.	BY	DATE	REVISIONS

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.  
Date: July 7, 2021 Name: John M. Gray, PE Lic. No. 22457

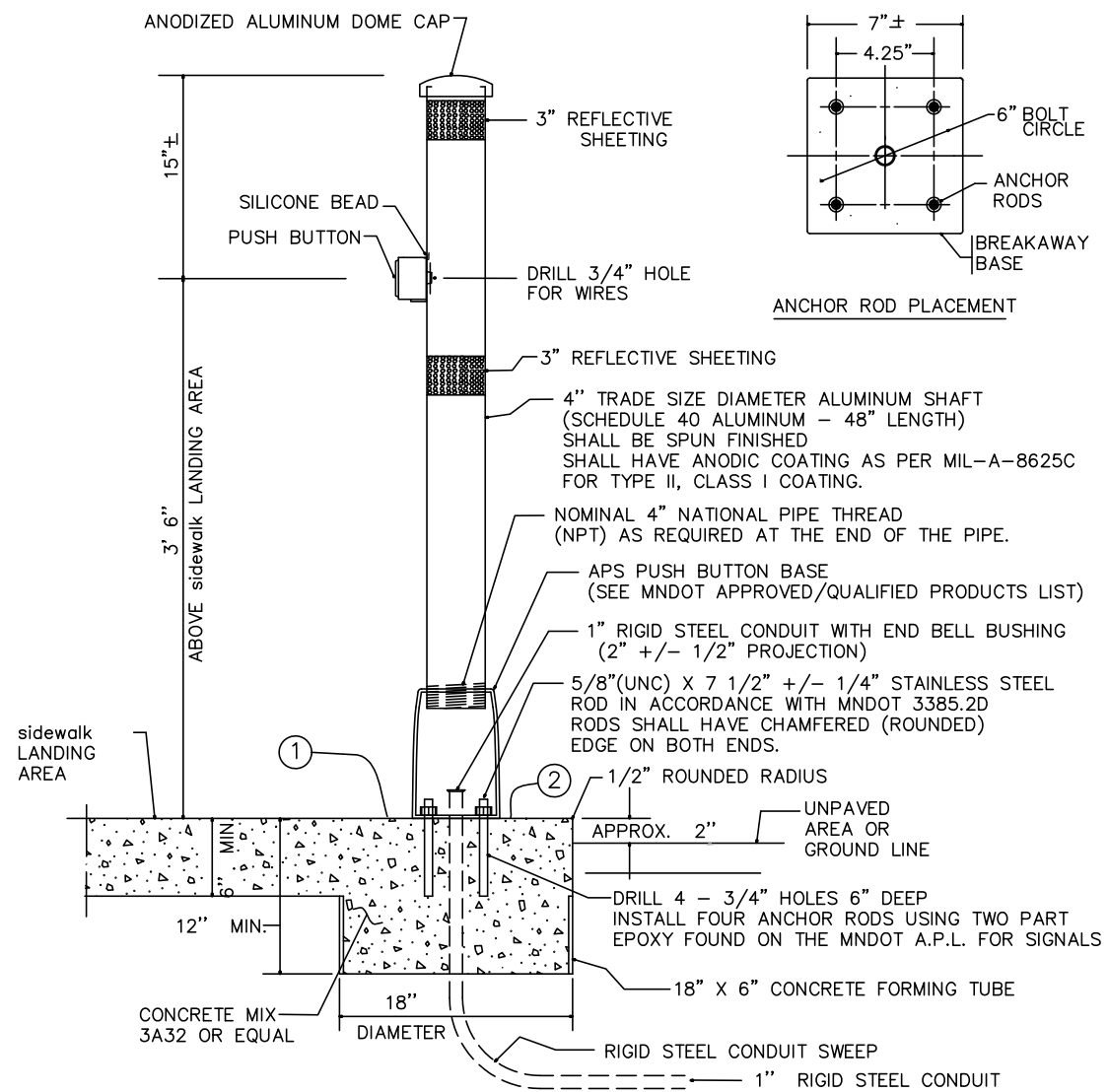
**SEH**  
PHONE: (651) 490-2000  
3535 VADNAIS CENTER DR.  
ST. PAUL, MN 55110

**ANOKA COUNTY, MN**  
**CITY OF RAMBEY**  
SAP 002-716-021  
SAP 199-104-014

**SIGNAL SYSTEMS 'A-D'/INTERCONNECT**  
**DETAILS AND STANDARD PLATES**  
CSAH 116 (BUNKER LAKE BLVD NW)  
(CSAH 83 TO CSAH 57)

FILE NO. ANOKC 159572  
SIGNAL SHEET 1 OF 25  
**180**  
**259**

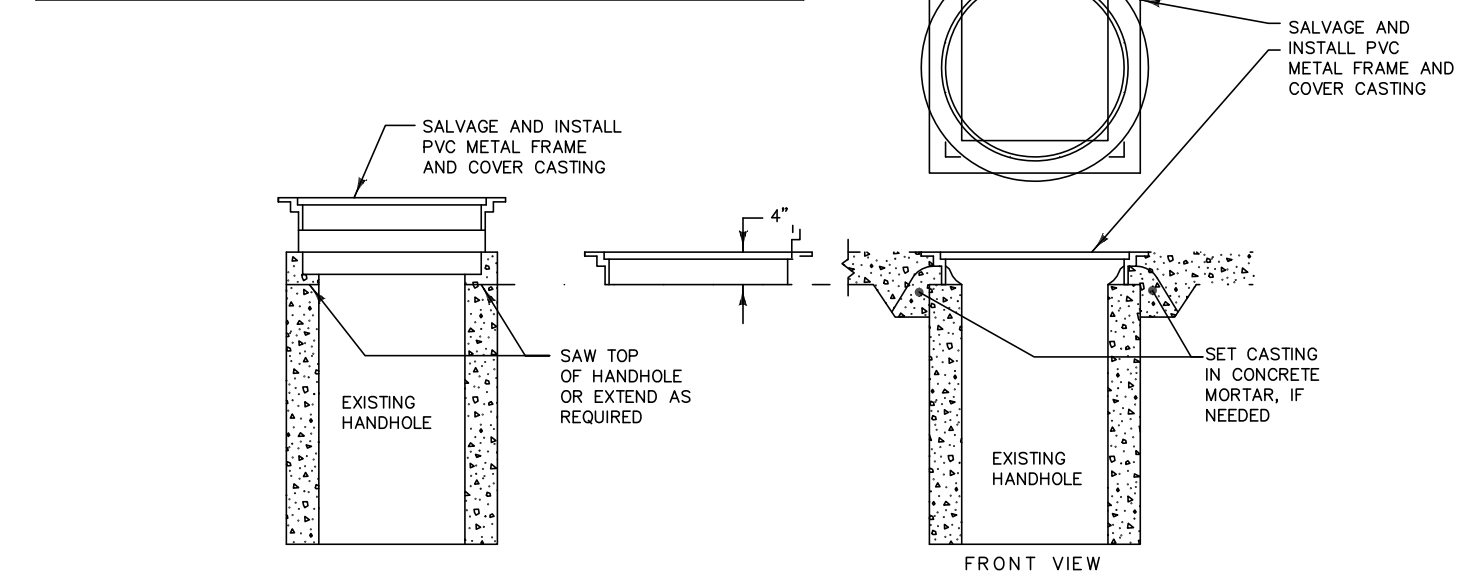
PEDESTRIAN PUSH BUTTON STATION DETAILS



NOTES:

- PLACEMENT AND ORIENTATION OF THE PUSH BUTTON STATION IS CRITICAL. MOUNT THE BUTTON SO THAT THE FACE IS PARALLEL WITH THE ASSOCIATED CROSSWALK. SCREW IN POST TO A TIGHTENED POSITION BEFORE MOUNTING ACCESSIBLE PEDESTRIAN PUSH BUTTON UNIT TO THE POST.
  - ORIENT ACCESS OPENING ON THE BREAKAWAY PEDESTAL DIRECTLY BELOW THE APS BUTTON.
  - PLUMB THE PUSH BUTTON STATION WITH LEVELING SHIMS IN ACCORDANCE WITH STANDARD PLATE 8129.
  - BLIND THREADED INSERTS (RIVET NUT) MUST BE INSERTED USING MANUFACTURERS SPECIFIC INSTALLATION TOOL. NO OTHER METHOD OF INSTALLATION IS ACCEPTABLE.
  - BLIND THREADED INSERTS SHALL BE ZINC PLATED STEEL WITH 1/4 - 20 UNC THREADS. INSERT SHALL BE SUITABLE FOR USE ON A MOUNTING SURFACE WALL THICKNESS OF .337". APPROVED BLIND THREADED INSERTS CAN BE FOUND ON THE MN/DOT QUALIFIED PRODUCTS LIST FOR SIGNALS.
  - MOUNTING BOLTS SHALL BE 1/4 - 20 STAINLESS STEEL. APPLY BRUSH ON ANTI SEIZE COMPOUND TO BOLTS PRIOR TO ASSEMBLY.
  - APPLY A BEAD OF 100% SILICONE SEALANT ALONG THE TOP OF THE PUSH BUTTON UNIT WHERE IT COMES IN CONTACT WITH THE 4" POST.
  - THE REFLECTIVE SHEETING SHALL BE WHITE AT INTERSECTION CORNERS AND SHALL BE YELLOW WHEN USED IN CENTER MEDIANS. SEE MN/DOT SIGNING QUALIFIED PRODUCTS LIST (QPL) FOR APPROVED TUBE DELINEATOR SHEETING.
  - ANTI-SEIZE COMPOUND MUST BE USED ON ALL THREADED BOLTS WHEN INSTALLING PEDESTRIAN PUSH BUTTON STATIONS.
- ① THE PUSH BUTTON STATION FOUNDATION IS CONSTRUCTED AS PART OF THE SIDEWALK. INCREASE THE SIDEWALK THICKNESS TO 12" THICK (MIN.) TO PROVIDE FOR THE PUSH BUTTON STATION FOUNDATION.  
② ALL JOINTS SHALL BE A MINIMUM OF 9" FROM THE CENTER OF THE PUSH BUTTON FOUNDATION.

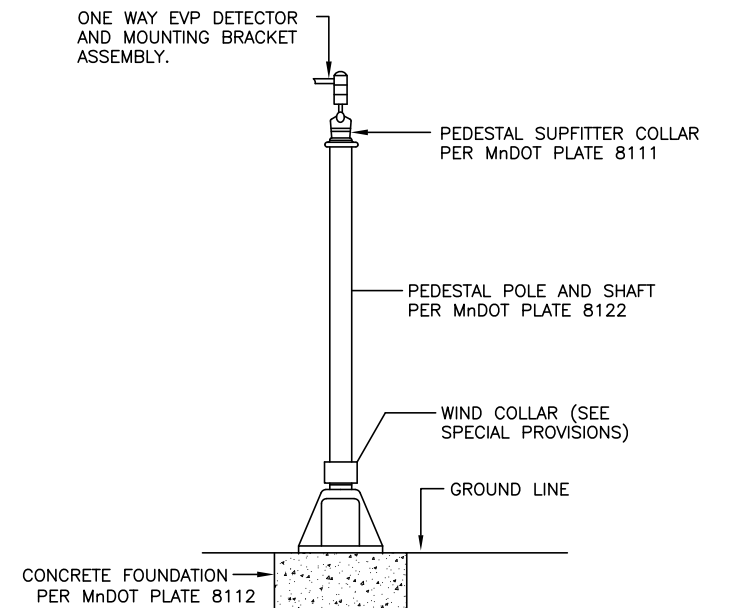
WHERE EXISTING PVC HANDHOLES WITH METAL RINGS AND COVERS ARE REQUIRED TO BE ADJUSTED TO MATCH FINISHED SURROUNDING SIDEWALK, MEDIAN OR BOULEVARD GRADE, CONTRACTOR SHALL REUSE THE EXISTING METAL RING & COVER. ADJUSTMENT WORK WILL REQUIRE EITHER THE CUTTING THE TOP OF THE HANDHOLE OR EXTENDING THE PVC HANDHOLE CYLINDER SO THAT THE TOP OF THE SALVAGED AND REINSTALLED PVC METAL RING AND COVER FITS THE ELEVATION OF THE SURROUNDING SIDEWALK/MEDIAN/BOULEVARD. THIS WORK WILL BE INCLUDED AS PART OF THE PAY ITEM FOR "REVISE SIGNAL SYSTEMS A, B, AND D", WITH NO DIRECT COMPENSATION BEING MADE THEREFORE.



TO SIGNAL CABINET		TO DEVICE	
1/C#6 - G	R	R	RED
6PR#19	BLK	Y	YEL
	WH	BLK	BLK
3-1/C#2 - WH	BLK/R	CABLE	4 & 5 SECTION SIGNAL INDICATION
BLK	BLK	BLK/R	NEU
		BLK	YLA/FYLA
		BLK	GLA
3-1/C#6 - WH	SIGNAL SERVICE		
	G		
		4/C#14	RED/DWK 3 SECTION AND PED INDICATION
		BLK/R	YEL/MLK
		BLK	GRN/SPR
		WH	NEU
12/C#14		3/C#14	EVV LIGHT LUM/FLASHER
R	R	BLK	EVV LIGHT LUM/FLASHER
O	BLK/R	CABLE	
BL	BLK		
WH	WH		
R/BLK	BLK		
O/BLK	G		
BL/BLK	WH		
WH/BLK	BLK		
BLK	WH or CL		
BLK/WH			
BLK/R	R or O	2/C#14	PED PUSH BUTTON (if required)
WH/R	WH or YEL	CABLE	
	BLK or BL		

NOTE: ALL TERMINAL BLOCK CONNECTIONS SHALL BE ARRANGED AS SPECIFIED ABOVE.

PEDESTAL POLE MOUNTED EVP DETECTOR DETAIL



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

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Name: John M. Gray, PE  
Lic. No. 22457  
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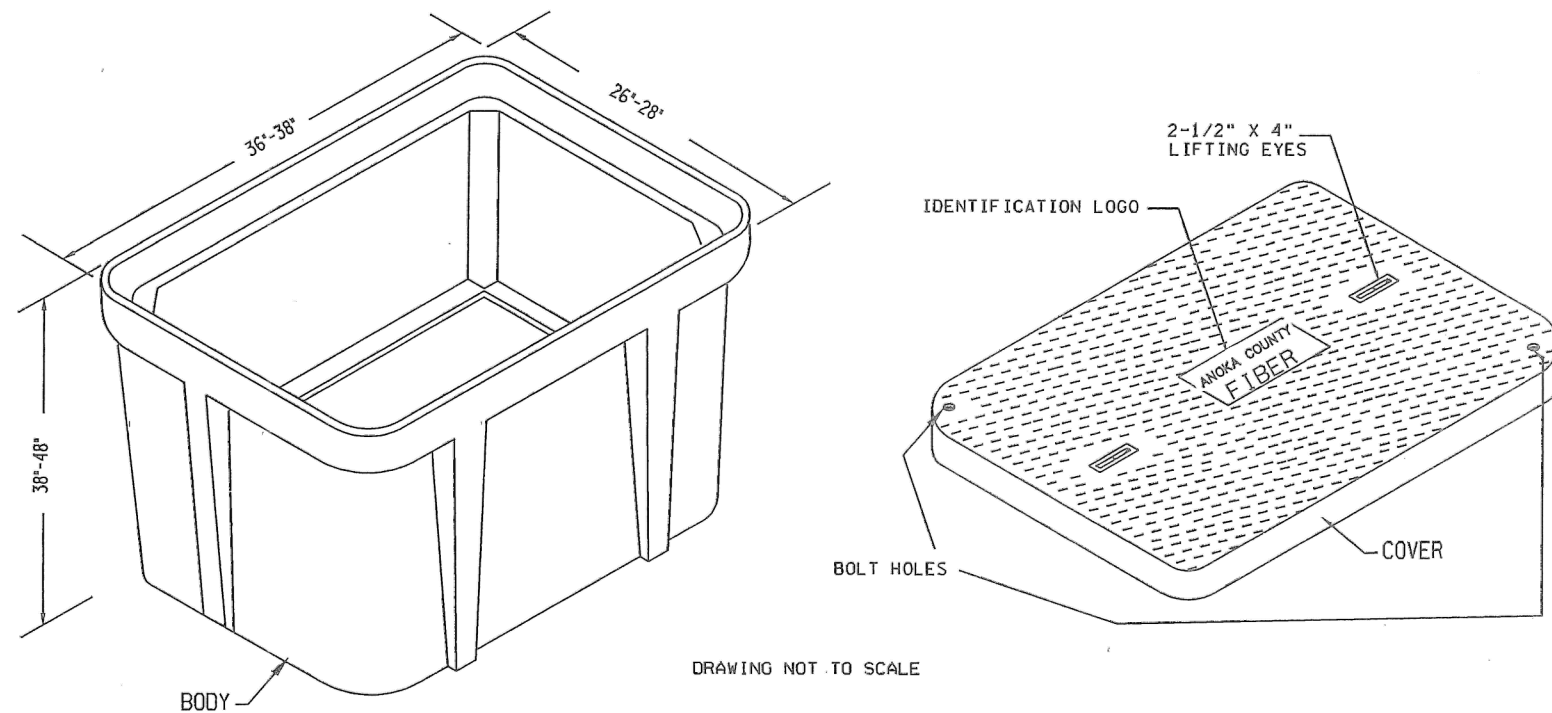


ANOKA COUNTY, MN  
CITY OF RAMSEY  
SAP 002-716-021  
SAP 199-104-014

SIGNAL SYSTEMS "A-D"/INTERCONNECT  
MISCELLANEOUS DETAILS  
CSAH 116 (BUNKER LAKE BLVD NW)  
(CSAH 83 TO CSAH 57)

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FIBER-OPTIC PULLING VAULT DETAIL



DRAWING NOT TO SCALE

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 PHONE: (651) 490-2000  
 3535 VADNAIS CENTER DR.  
 ST. PAUL, MN 55110

**ANOKA COUNTY, MN**  
**CITY OF RAMSEY**  
 SAP 002-716-021  
 SAP 199-104-014

**TRAFFIC CONTROL INTERCONNECT**  
**FIBER OPTIC VAULT DETAIL**  
 CSAH 116 (BUNKER LAKE BLVD NW)  
 (CSAH 83 TO CSAH 57)

FILE NO.  
 ANOKC 159572  
 SIGNAL SHEET  
 3 OF 25

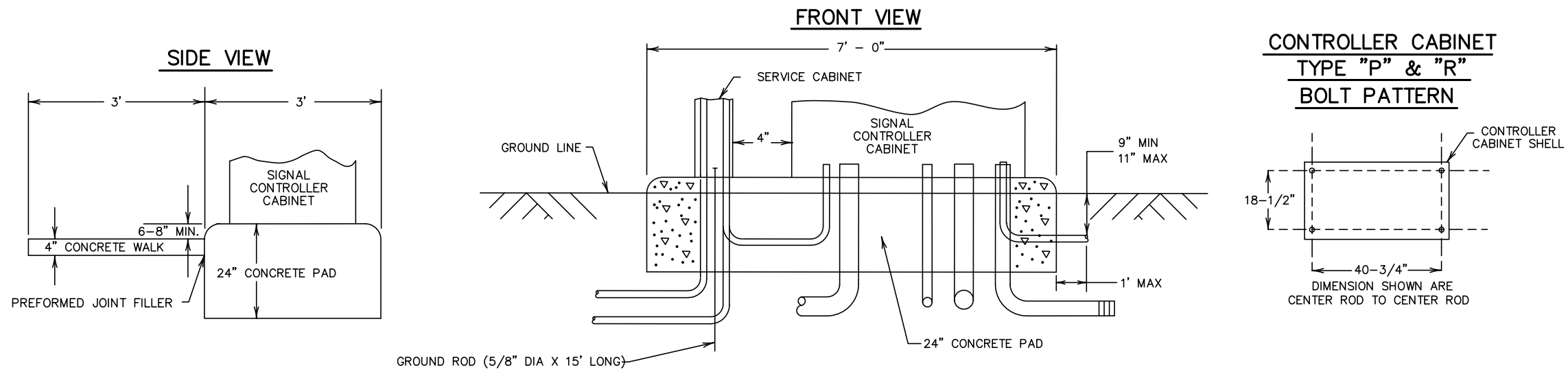
**182**  
**259**

# TYPICAL PAD WITH CONTROLLER CABINET AND SERVICE CABINET

SEE INTERSECTION LAYOUT FOR CABLE INFORMATION (NOT TO SCALE)

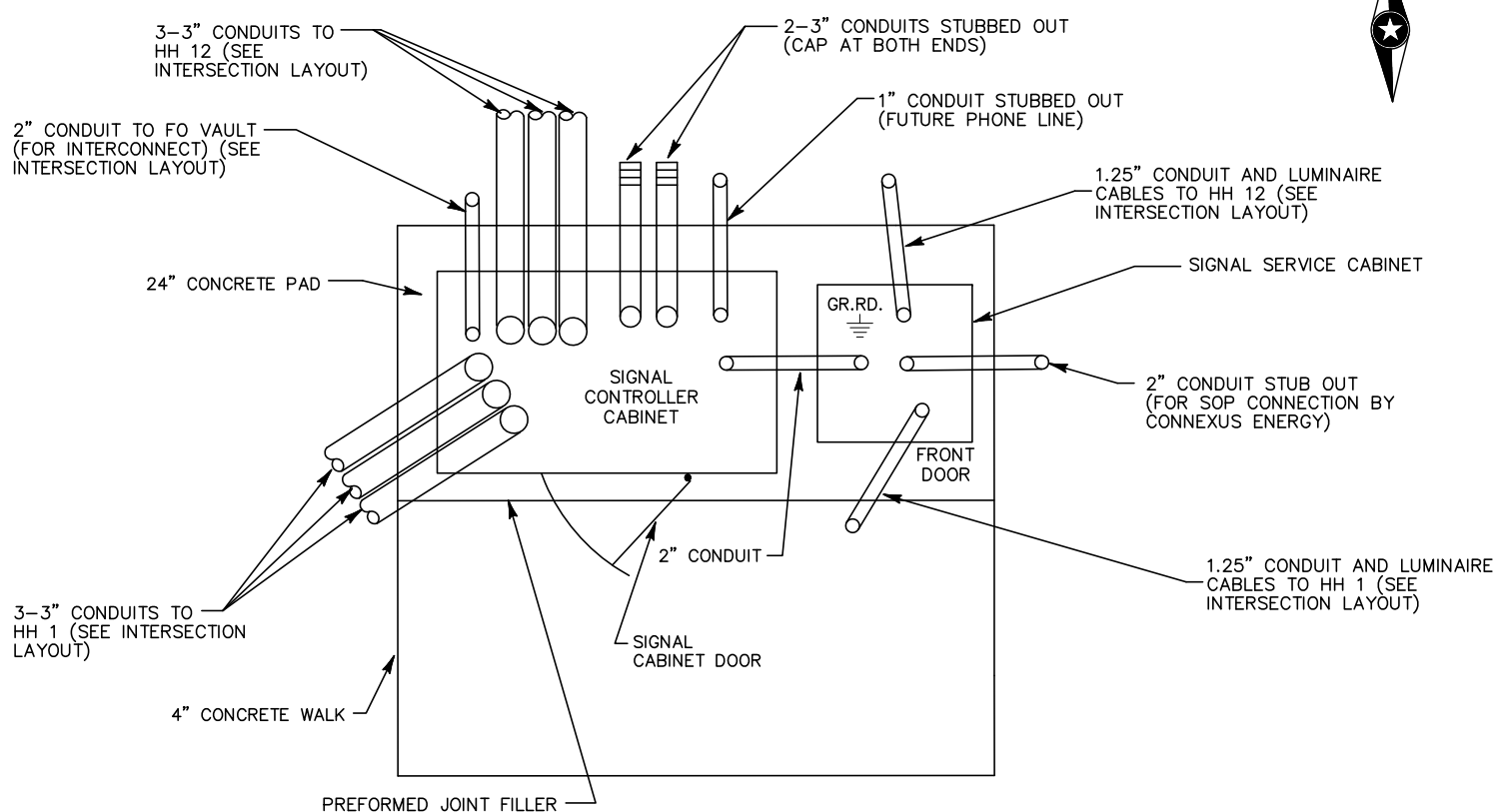
**NOTES:**

1. THE ANCHOR RODS, NUTS AND WASHERS FOR THE COUNTY FURNISHED CONTROLLER AND CABINET SHALL BE FURNISHED BY THE COUNTY AND INSTALLED BY THE CONTRACTOR.
2. THE UPPER PART OF THE NEW EQUIPMENT PAD SHALL BE BEVELLED OR CHAMFERED IN A NEAT MANNER AS DIRECTED BY THE ENGINEER.
3. THE TOP OF THE CONDUITS SHALL BE THREADED AND CAPPED AFTER INSTALLATION (UNTIL CABLES ARE INSTALLED).
4. CONDUIT SHALL PROJECT A MINIMUM OF 2" ABOVE CONCRETE AND SHALL BE LOCATED INSIDE OF THE CABINET WHERE DIRECTED BY THE ENGINEER, BUT SHALL NOT INTERFERE WITH THE CABINET FUNCTIONS (SUPPORTING MEMBERS, ETC.).
5. CONCRETE MIX 3F52 OR EQUAL SHALL BE USED FOR THE EQUIPMENT PAD AND SIDEWALK.
6. CONDUITS WITH BOTH ENDS TERMINATING WITHIN THE PAD SHALL NOT BE INSTALLED BELOW THE CONCRETE.
7. THE EXACT LOCATION OF CONDUITS WITHIN THE PAD SHALL BE DETERMINED BY THE ENGINEER IN THE FIELD.
8. ANCHOR RODS SHALL PROJECT A MINIMUM OF 3" ABOVE THE CONCRETE BUT SHALL NOT INTERFERE WITH THE CABINET FUNCTIONS (SUPPORTING MEMBERS, ETC.).
9. CONTRACTOR SHALL PROVIDE MINIMUM 4-INCH CLEARANCE BETWEEN CONTROLLER AND SERVICE CABINETS ON THE EQUIPMENT PAD FOUNDATION AS SHOWN.



## PLAN VIEW

CSAH 116 (BUNKER LAKE BLVD NW) AT SUNWOOD DRIVE NW



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CHECKED BY: JMG					
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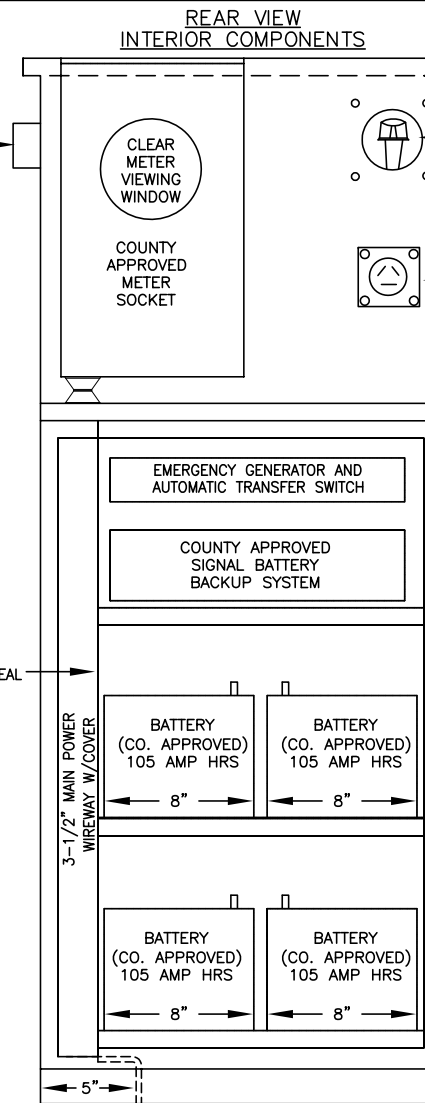
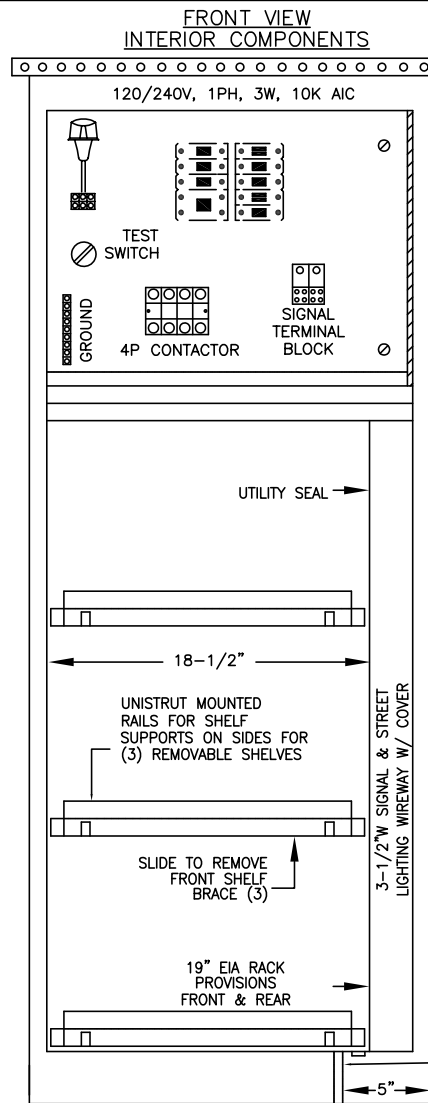
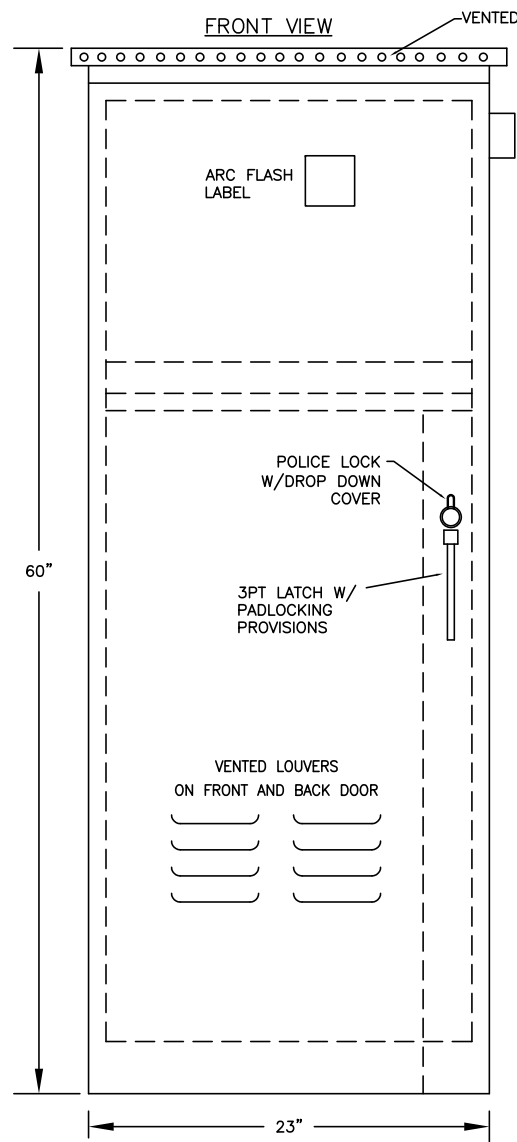
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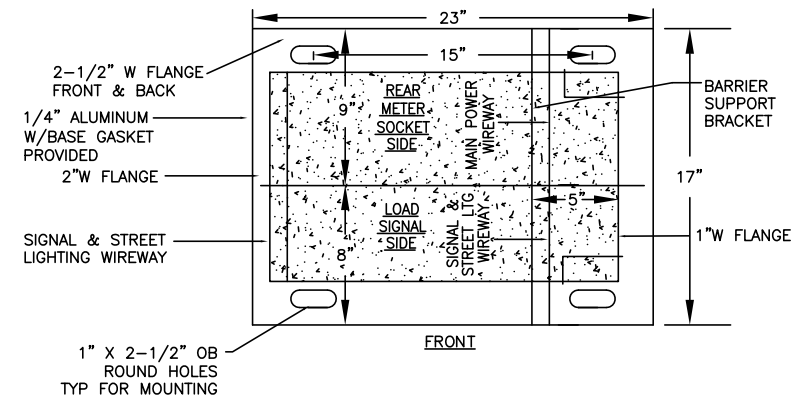
**ANOKA COUNTY, MN**  
**CITY OF RAMSEY**  
 SAP 002-716-021  
 SAP 199-104-014

**TRAFFIC SIGNAL SYSTEM "C"**  
**EQUIPMENT PAD DETAILS**  
 CSAH 116 (BUNKER LAKE BLVD NW)  
 AT SUNWOOD DRIVE NW

FILE NO. ANOKC 159572	<b>183</b>
SIGNAL SHEET 4 OF 25	<b>259</b>



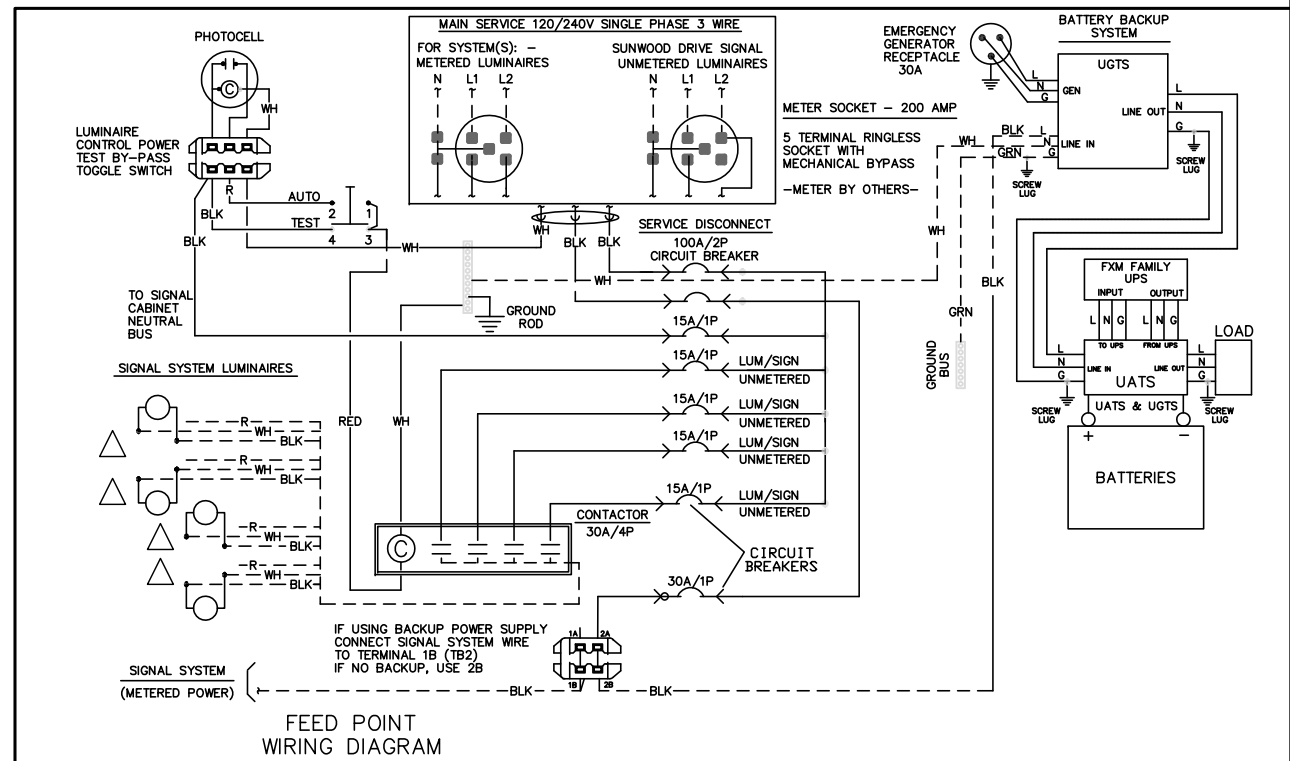
INTERIOR COMPONENTS BEHIND HINGED DEAD FRONT W/ (2)-1/4 TURN LATCHES



**CABINET CONSTRUCTION**

- NEMA 3R
- 1/8" ALUMINUM 5052-H32
- ANODIZED 30 MINUTE CLEAR
- NEOPRENE GASKETED DOORS
- NON-CORRODING HARDWARE
- ETL LISTED IN ACCORDANCE W/UL508A

SEE SPECIAL PROVISIONS AND STATEMENT OF ESTIMATED QUANTITIES REGARDING SEPARATE PAY ITEM FOR FURNISHING & INSTALLING NEW BATTERY BACK-UP SIGNAL SERVICE CABINET.



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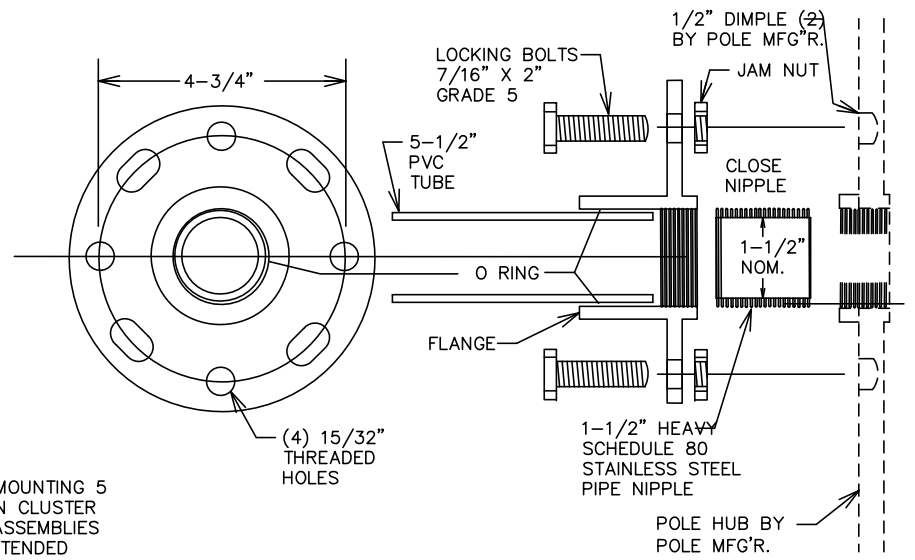
ANOKA COUNTY, MN  
CITY OF RAMSEY  
SAP 002-716-021  
SAP 199-104-014

TRAFFIC SIGNAL SYSTEM "C"  
SERVICE CABINET DETAILS  
CSAH 116 (BUNKER LAKE BLVD NW)  
AT SUNWOOD DRIVE NW

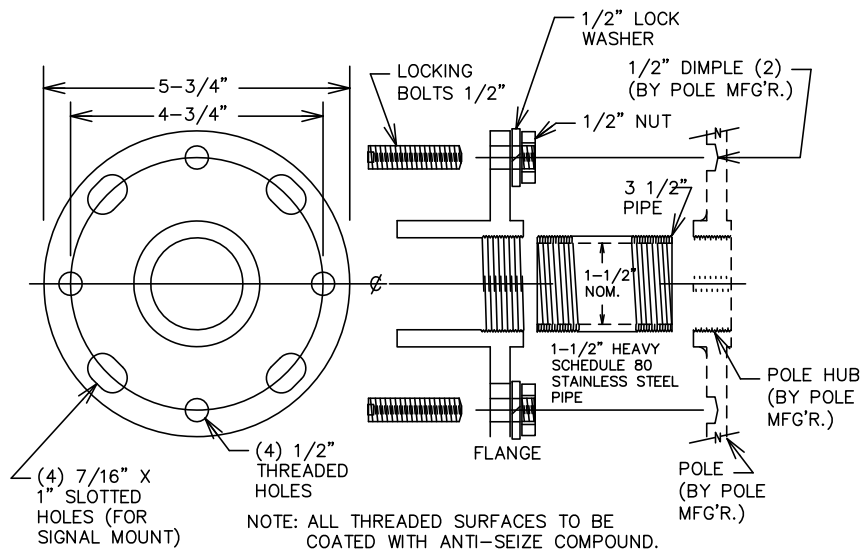
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SIGNAL SHEET 5 OF 25  
184  
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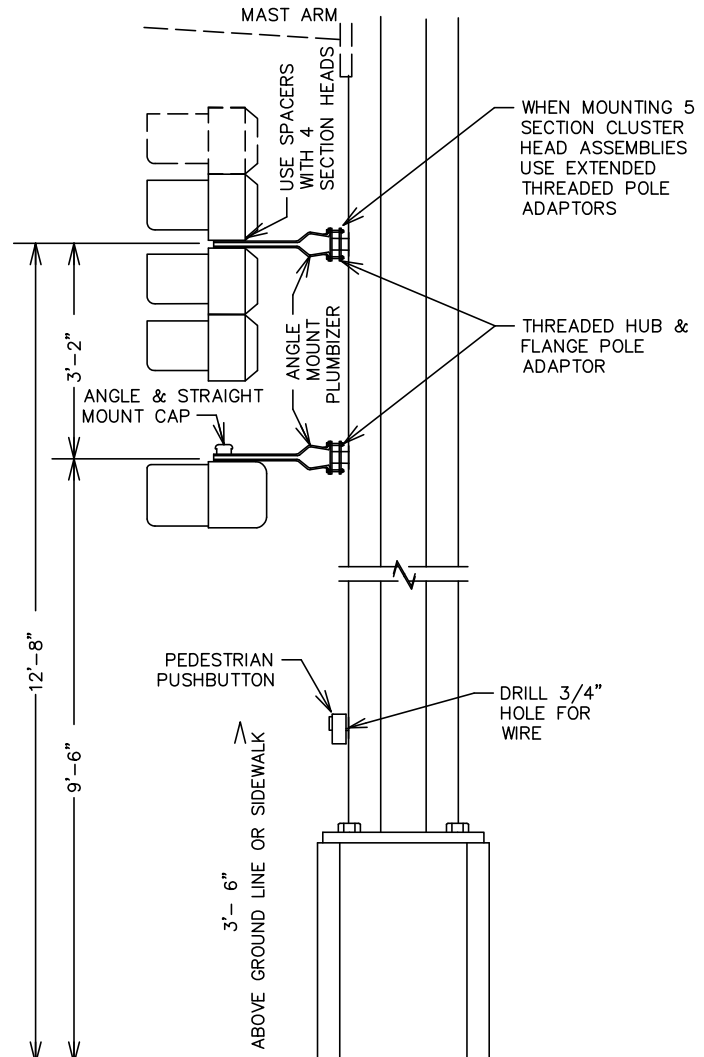


THREADED HUB AND FLANGE POLE ADAPTOR

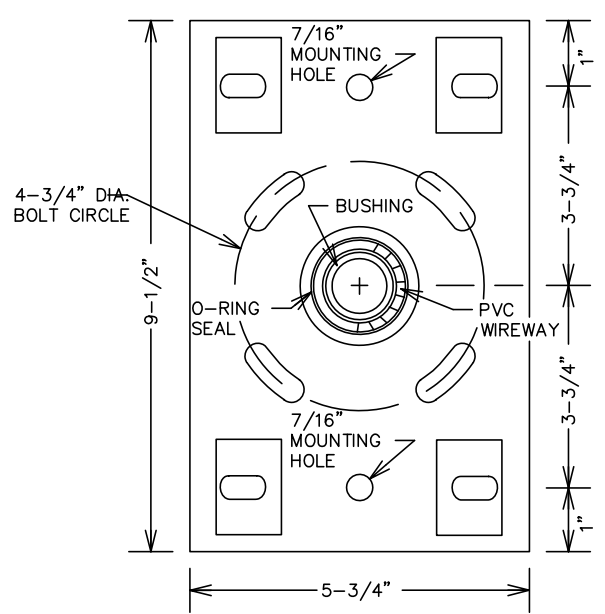


EXTENDED THREADED POLE ADAPTER

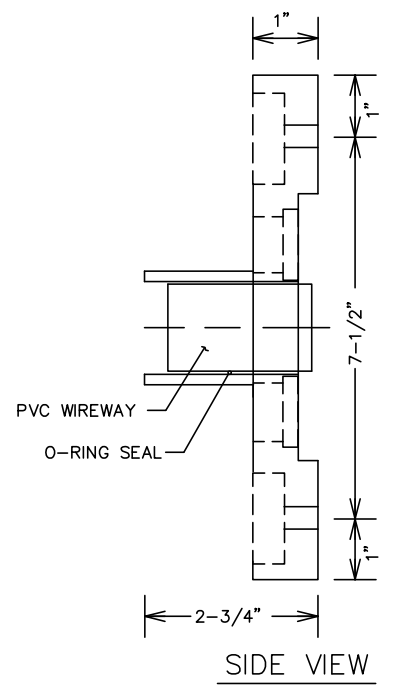
- NOTES:
1. ALL THREADED SURFACES TO BE COATED WITH ANTI-SEIZE COMPOUND.
  2. USE SIGNAL HEAD MOUNTED SPACERS FOR 4 SECTION POLY HEADS.
  3. SEE STANDARD PLATE NUMBER 8123 FOR ADDITIONAL SIGNAL POLE DETAILS.
  4. EXTENDED THREADED POLE ADAPTOR ONLY USED WITH 5 SECTION CLUSTER HEADS.



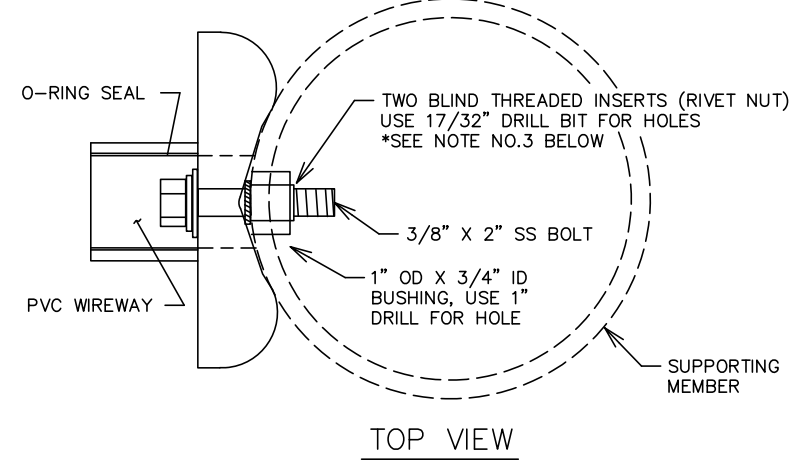
TYPICAL SIGNAL POLE MOUNTING  
NOT TO SCALE



BOLT ON HUB & FLANGE



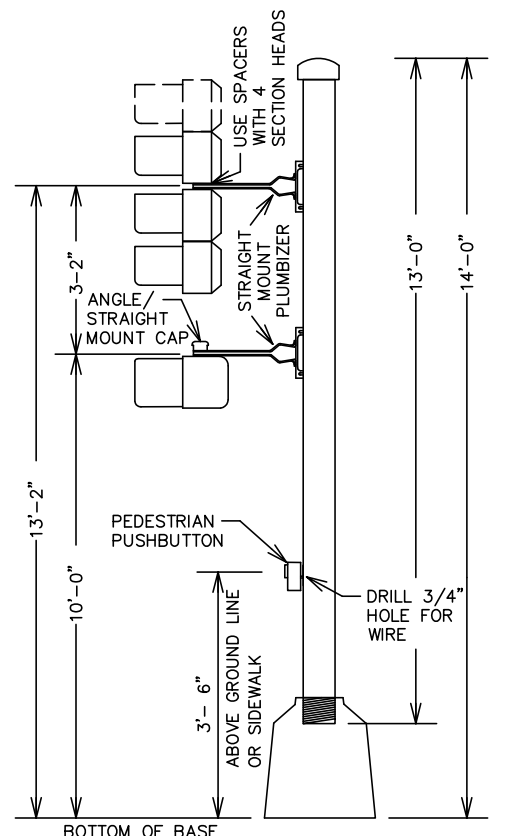
SIDE VIEW



TOP VIEW



- NOTES:
1. ALL THREADED SURFACES TO BE COATED WITH ANTI-SEIZE COMPOUND.
  2. USE SIGNAL HEAD MOUNTED SPACERS FOR 4 SECTION POLY HEADS.
  3. BLIND THREADED INSERTS (RIVET NUT) MUST BE INSERTED USING MANUFACTURERS SPECIFIC INSERTION TOOL. NO OTHER METHOD IS ACCEPTABLE.
  4. SEE STANDARD PLATE NUMBER 8122 FOR ADDITIONAL PEDESTAL POLE DETAILS.



TYPICAL PEDESTAL MOUNTING  
NOT TO SCALE

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

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.

*John M. Gray*  
Name: John M. Gray, PE  
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Date: July 7, 2021

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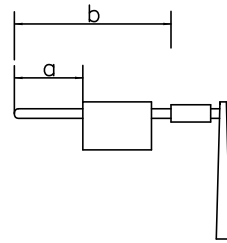
**ANOKA COUNTY, MN**  
**CITY OF RAMSEY**  
SAP 002-716-021  
SAP 199-104-014

**TRAFFIC SIGNAL SYSTEM "C"**  
**ONE-WAY MOUNT DETAILS**  
CSAH 116 (BUNKER LAKE BLVD NW)  
AT SUNWOOD DRIVE NW

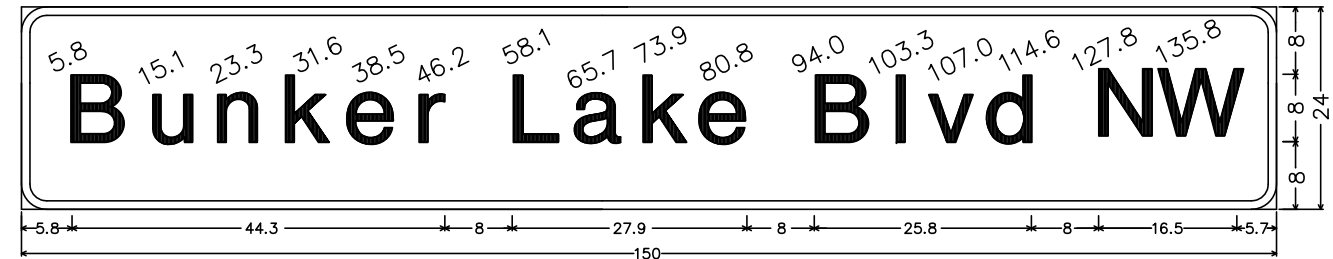
FILE NO. ANOKC 159572  
SIGNAL SHEET 6 OF 25  
**185**  
**259**

SIGNS FOR TRAFFIC SIGNAL SYSTEM "C"									
SIGN PANELS TYPE C (FURNISH & INSTALL) (OVERHEAD)									
SIGN PANEL	POLE NO.	a (FT)	b (FT)	SIZE (IN)	MOUNTING BRACKET		UNIT AREA (SQ FT)	NO. REQ.	PANEL LEGEND
					QUANTITY	SPACING (1)			
R10-X12	1,2,3,4	1'	-	36 x 42	2	---	10.50	4	Left Turn Yield on Flashing Yellow Arrow
TOTAL QUANTITIES							42.00	4	

SIGNS FOR TRAFFIC SIGNAL SYSTEM "C"									
SIGN PANELS TYPE D (FURNISH & INSTALL)									
SIGN PANEL	POLE NO.	a (FT)	b (FT)	SIZE (IN)	MOUNTING BRACKET		UNIT AREA (SQ FT)	NO. REQ.	PANEL LEGEND
					QUANTITY	SPACING (1)			
D-1	1	-	16'	150 x 24	5	---	26.00	1	Bunker Lake Blvd NW
D-2	2	-	26'	114 x 24	4	---	19.00	1	Sunwood Dr NW
D-3	3	-	12'	150 x 24	5	---	26.00	1	Bunker Lake Blvd NW
D-4	4	-	26'	114 x 24	4	---	19.00	1	Sunwood Dr NW
TOTAL QUANTITIES							90.00	4	

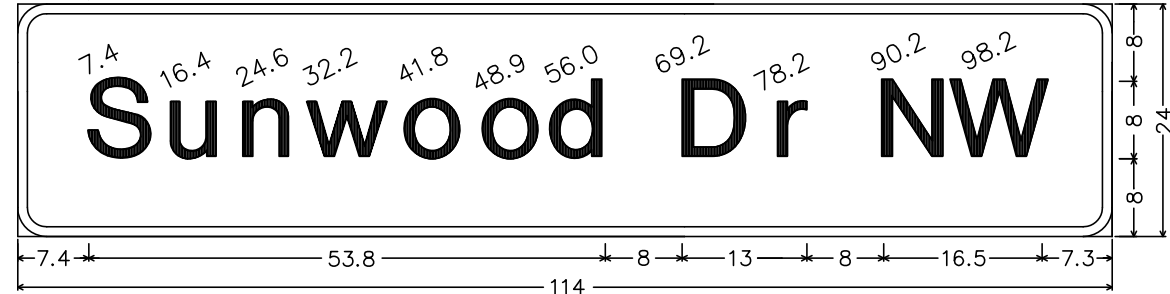


D-1, D-3



3.0" Radius, 1.0" Border, White on Green;  
[Bunker Lake Blvd NW] E Mod;

D-2, D-4



3.0" Radius, 1.0" Border, White on Green;  
[Sunwood Dr NW] E Mod;

SPECIFIC NOTES:

(1) = SPACING BETWEEN STIFFENERS SHALL NOT EXCEED 36 INCHES AND SHALL BE UNIFORMLY SPACED. SEE MNDOT STANDARD SIGNS AND MARKINGS MANUAL (PAGE 105A) FOR BRACKET SPACING REQUIREMENTS.

GENERAL SIGNING NOTES:

- COLOR FOR ALL TYPE D SIGNS SHALL BE WHITE LEGEND AND BORDER ON GREEN BACKGROUND, FULLY REFLECTORIZED.
- CORNERS EXTENDING BEYOND THE BORDER SHALL NOT BE TRIMMED. CORNERS OF STANDARD SIGN PANELS WITH MARGINS SHALL BE TRIMMED.
- FOR STRUCTURAL DETAILS OF MAST ARM MOUNTED SIGNS, SEE MNDOT STANDARD SIGNS AND MARKINGS MANUAL, PAGE 105A, AND SPECIAL PROVISIONS.
- SEE MNDOT STANDARD SIGNS AND MARKINGS MANUAL FOR PUNCHING CODES AND DETAILED DRAWINGS OF TYPE C SIGN PANELS.
- FURNISHING AND INSTALLING NEW TYPE C AND TYPE D SIGNS WILL BE INCLUDED AS PART OF BID ITEM FOR ITEM NO. 2565 (TRAFFIC CONTROL SIGNAL SYSTEM C). SEE SPECIAL PROVISIONS.
- ALL TRAFFIC CONTROL, MOBILIZATION AND WORK RELATED TO THE INSTALLATION OF THE SIGNING FOR TRAFFIC CONTROL SIGNAL SYSTEM C IS INCIDENTAL.
- CONTRACTOR SHALL PROVIDE DETAILED SHOP DRAWINGS OF THE NEW TYPE D SIGN PANELS FOR ENGINEER APPROVAL, PRIOR TO FABRICATION OF THESE SIGN PANELS.
- DIMENSIONS OF ALL SIGN PANELS ARE IN INCHES.

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

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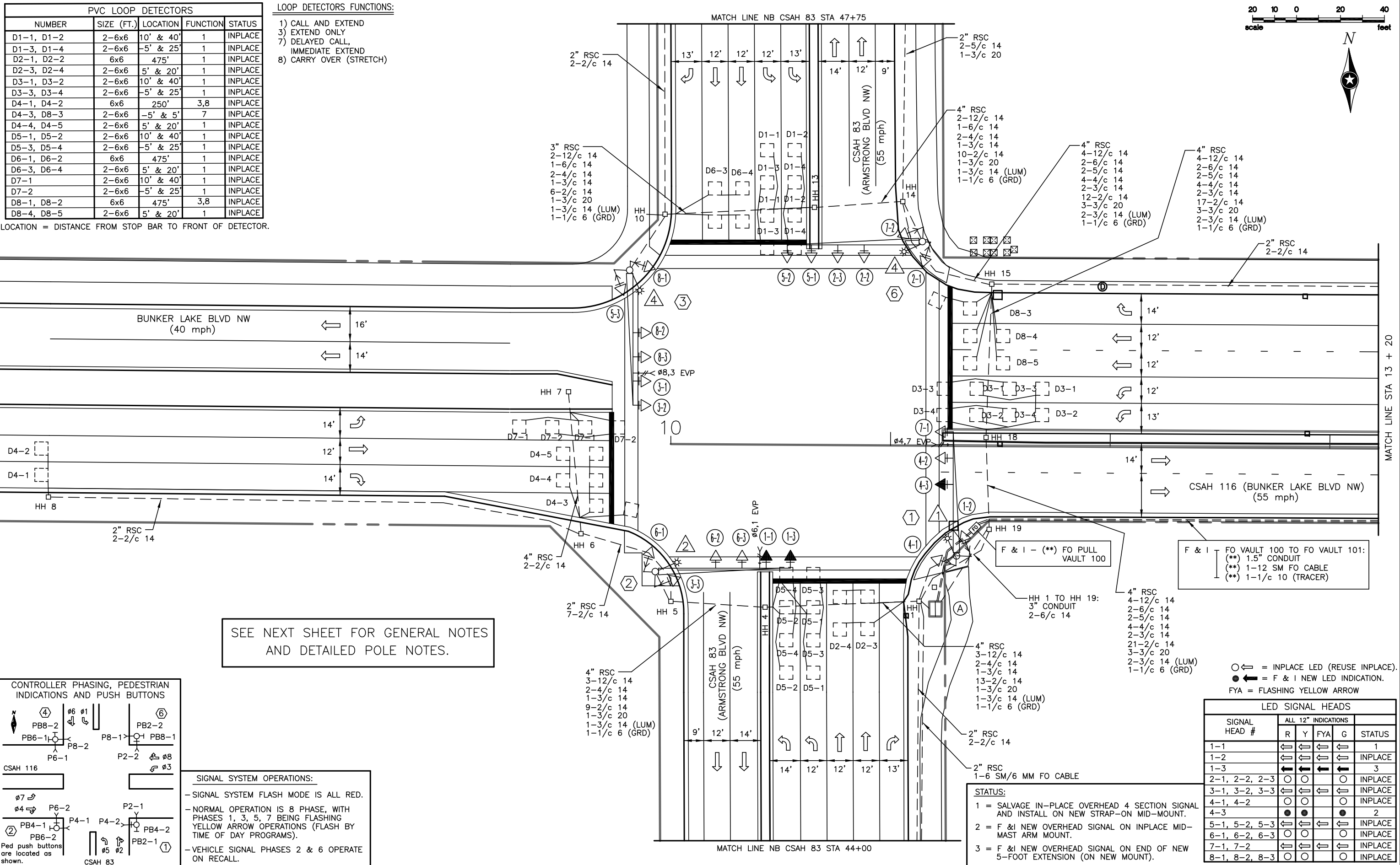
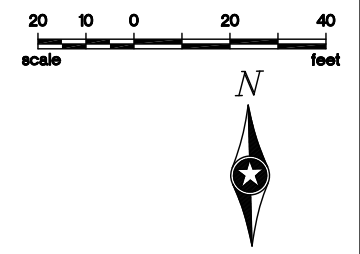
**TRAFFIC SIGNAL SYSTEM "C"**  
**SIGNAL SIGNING DETAILS**  
CSAH 116 (BUNKER LAKE BLVD NW)  
AT SUNWOOD DRIVE NW

FILE NO. ANOKC 159572	<b>186</b>
SIGNAL SHEET 7 OF 25	

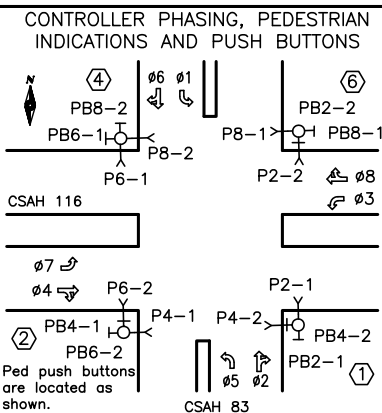
PVC LOOP DETECTORS				
NUMBER	SIZE (FT.)	LOCATION	FUNCTION	STATUS
D1-1, D1-2	2-6x6	10' & 40'	1	INPLACE
D1-3, D1-4	2-6x6	-5' & 25'	1	INPLACE
D2-1, D2-2	6x6	475'	1	INPLACE
D2-3, D2-4	2-6x6	5' & 20'	1	INPLACE
D3-1, D3-2	2-6x6	10' & 40'	1	INPLACE
D3-3, D3-4	2-6x6	-5' & 25'	1	INPLACE
D4-1, D4-2	6x6	250'	3,8	INPLACE
D4-3, D8-3	2-6x6	-5' & 5'	7	INPLACE
D4-4, D4-5	2-6x6	5' & 20'	1	INPLACE
D5-1, D5-2	2-6x6	10' & 40'	1	INPLACE
D5-3, D5-4	2-6x6	-5' & 25'	1	INPLACE
D6-1, D6-2	6x6	475'	1	INPLACE
D6-3, D6-4	2-6x6	5' & 20'	1	INPLACE
D7-1	2-6x6	10' & 40'	1	INPLACE
D7-2	2-6x6	-5' & 25'	1	INPLACE
D8-1, D8-2	6x6	475'	3,8	INPLACE
D8-4, D8-5	2-6x6	5' & 20'	1	INPLACE

LOCATION = DISTANCE FROM STOP BAR TO FRONT OF DETECTOR.

- LOOP DETECTORS FUNCTIONS:**
- 1) CALL AND EXTEND
  - 3) EXTEND ONLY
  - 7) DELAYED CALL, IMMEDIATE EXTEND
  - 8) CARRY OVER (STRETCH)



SEE NEXT SHEET FOR GENERAL NOTES AND DETAILED POLE NOTES.



- SIGNAL SYSTEM OPERATIONS:**
- SIGNAL SYSTEM FLASH MODE IS ALL RED.
  - NORMAL OPERATION IS 8 PHASE, WITH PHASES 1, 3, 5, 7 BEING FLASHING YELLOW ARROW OPERATIONS (FLASH BY TIME OF DAY PROGRAMS).
  - VEHICLE SIGNAL PHASES 2 & 6 OPERATE ON RECALL.

LED SIGNAL HEADS					
SIGNAL HEAD #	ALL 12" INDICATIONS				STATUS
	R	Y	FYA	G	
1-1	←	←	←	←	1
1-2	←	←	←	←	INPLACE
1-3	←	←	←	←	3
2-1, 2-2, 2-3	○	○	○	○	INPLACE
3-1, 3-2, 3-3	←	←	←	←	INPLACE
4-1, 4-2	○	○	○	○	INPLACE
4-3	●	●	●	●	2
5-1, 5-2, 5-3	←	←	←	←	INPLACE
6-1, 6-2, 6-3	○	○	○	○	INPLACE
7-1, 7-2	←	←	←	←	INPLACE
8-1, 8-2, 8-3	○	○	○	○	INPLACE

DRAWN BY: JMG  
 DESIGNER: JMG  
 CHECKED BY: JMG

NO.	BY	DATE	REVISIONS

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*John M. Gray*  
 Name: John M. Gray, PE  
 Lic. No. 22457  
 Date: July 7, 2021



ANOKA COUNTY, MN  
 CITY OF RAMSEY  
 SAP 002-716-021  
 SAP 199-104-014

REVISE SIGNAL SYSTEM 'A'  
 INTERSECTION LAYOUT  
 CSAH 116 (BUNKER LAKE BLVD NW)  
 AT CSAH 83 (ARMSTRONG BLVD NW)

FILE NO. ANOKC 159572  
 SIGNAL SHEET 8 OF 25  
 187  
 259

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- REVISE SIGNAL SYSTEM A NOTES:
- 1) ALL ITEMS OF THIS SIGNAL SYSTEM ARE INPLACE AND SHALL BE REUSED AND MAINTAINED INPLACE, UNLESS OTHERWISE NOTED ON PLANS.
  - 2) CONTRACTOR SHALL PROTECT AND MAINTAIN ALL EXISTING PVC HANDHOLES (WITH METAL FRAMES AND COVERS) IN THE VICINITY OF CONSTRUCTION, AND SHALL ADJUST HANDHOLE 17 AS NEEDED TO MATCH FINISHED SURROUNDING GRADE AFTER ROAD WORK HAS BEEN COMPLETED. SEE SPECIAL PROVISIONS (INCIDENTAL).
  - 3) LOCATION OF FIBER VAULT SHALL BE DETERMINED IN THE FIELD BY THE ENGINEER.
  - 4) SEE SPECIAL PROVISIONS FOR COUNTY FURNISHED MATERIALS.
  - 5) ALL LOOP DETECTORS ARE INPLACE AND SHALL BE REUSED AND MAINTAINED INPLACE AND OPERATIONAL, EXCEPT AS FOLLOWS: A SEPARATE PAY ITEM HAS BEEN ADDED (2565 - RIGID PVC LOOP DETECTOR 6' x 6') SHOULD ANY EXISTING LOOP DETECTOR BE DAMAGED OR DISTURBED DUE TO CONSTRUCTION OPERATIONS. SEE SPECIAL PROVISIONS FOR FURTHER INFORMATION.
  - 6) ANY DAMAGE TO INPLACE TRAFFIC SIGNAL FACILITIES (CONDUIT, CABLES, HANDHOLES, SIGNAL POLES, ETC.), DUE TO TRAFFIC SIGNAL OR ROAD WORK, SHALL BE REPAIRED BY CONTRACTOR TO SATISFACTION OF THE ENGINEER, AT NO EXPENSE TO THE COUNTY.
  - 7) CONTRACTOR SHALL MAINTAIN OPERATION OF THE SIGNAL SYSTEM AT ALL TIMES, EXCEPT AS OTHERWISE APPROVED BY ENGINEER.
  - 8) ALL NEW VEHICULAR SIGNAL HEADS SHALL HAVE BACKGROUND SHIELDS FURNISHED & INSTALLED BY CONTRACTOR. ALL INPLACE VEHICULAR SIGNAL HEADS BEING REUSED AS PART OF REVISE SIGNAL SYSTEM "A" HAVE BACKGROUND SHIELDS (REUSE AND MAINTAIN INPLACE).
  - 9) F & I = NEW, FURNISH AND INSTALL.  
S & I = INPLACE, SALVAGE AND INSTALL.
  - 10) ALL NEW VEHICULAR SIGNAL HOUSINGS, BACKGROUND SHIELDS AND VISORS SHALL BE FABRICATED USING BLACK POLYCARBONATE MATERIALS. SEE SPECIAL PROVISIONS.
  - 11) ALL CABLES AND CONDUCTORS, CONDUIT, HANDHOLES, AND LOOP DETECTORS ARE INPLACE AND SHALL BE REUSED AND MAINTAINED INPLACE, EXCEPT WHERE BOXED IN AND DENOTED OTHERWISE.
  - 12) (\*\*) DENOTES ITEMS TO BE FURNISHED AND INSTALLED BY THE CONTRACTOR UNDER ITEM NO. 2565 (TRAFFIC CONTROL INTERCONNECT). SEE STATEMENT OF ESTIMATED QUANTITIES AND SPECIAL PROVISIONS.
  - 13) SEE SPECIAL PROVISIONS REGARDING WORK TO RAISE OVERHEAD SIGNAL HEADS ON MAST ARM 2 (INCLUDED AS PART OF PAY ITEM FOR ITEM NO. 2565-REVISE SIGNAL SYSTEM A).

① INPLACE (MAINTAIN INPLACE) PA100 POLE FOUNDATION  
 TYPE PA100-A-55-D40-9 (DAVIT AT 350 DEG)  
 LUMINAIRE-250 W HPS  
 2-ONE WAY SIGNALS-OVERHEAD AT 0' & 11'  
 CAPPED MID-MOUNT AT 23'  
 2-ONE WAY SIGNALS-POLE MOUNTED 90/180 DEG  
 2-SETS CD PED SIGNALS-POLE MOUNTED 90/180 DEG  
 2-PEDESTRIAN PUSH BUTTONS & SIGNS (R10-3e)  
 R10-X12 SIGN PANEL-ADJACENT TO 7-1  
 TYPE D SIGN PANEL-OVERHEAD AT 24'  
 ONE WAY EVP DETECTOR AND LIGHT AT 6' (Ø4,7)  
 2-R6-1 SIGN PANELS-POLE MOUNTED 0/180 DEG  
 EXTENDED INTO HH 1:  
 3" RSC  
 2-12/c 14  
 2-4/c 14  
 1-3/c 14  
 1-3/c 20  
 2-2/c 14  
 1-3/c 14 (LUM)  
 1-1/c 6 (GRD)

F & I 1-ONE WAY SIGNAL AND STRAIGHT MOUNT-OVERHEAD AT 23'  
 (NEW 4-3, ON INPLACE CAPPED MID-MOUNT)  
 1-4/c 14

④ INPLACE (MAINTAIN INPLACE) PA100 POLE FOUNDATION  
 TYPE PA100-A-55-D40-9 (DAVIT AT 350 DEG)  
 5 FOOT MAST ARM EXTENSION  
 LUMINAIRE-250 W HPS  
 4-ONE WAY SIGNALS-OVERHEAD AT -5', 6', 17', 29'  
 STRAP-ON MID-MAST ARM MOUNT AT 6' (FOR 3-1)  
 2-ONE WAY SIGNALS-POLE MOUNTED 90/180 DEG  
 2-SETS CD PED SIGNALS-POLE MOUNTED 90/180 DEG  
 2-PEDESTRIAN PUSH BUTTONS & SIGNS (R10-3e)  
 R10-X12 SIGN PANEL-ADJACENT TO 3-2  
 TYPE D SIGN PANEL-OVERHEAD AT 32'  
 2-R6-1 SIGN PANELS-POLE MOUNTED 0/180 DEG  
 ONE WAY EVP DETECTOR AND LIGHT-OVERHEAD AT 6' (Ø8,3)  
 EXTENDED INTO HH 10:  
 3" RSC  
 2-12/c 14  
 1-6/c 14  
 2-4/c 14  
 1-3/c 14  
 1-3/c 20  
 2-2/c 14  
 1-3/c 14 (LUM)  
 1-1/c 6 (GRD)

② INPLACE (MAINTAIN INPLACE) PA100 POLE FOUNDATION  
 TYPE PA100-A-55-D40-9 (DAVIT AT 350 DEG)  
 LUMINAIRE-250 W HPS  
 2-ONE WAY SIGNALS-OVERHEAD AT 17' & 29'  
 2-ONE WAY SIGNALS-POLE MOUNTED 90/180 DEG  
 2-SETS CD PED SIGNALS-POLE MOUNTED 90/180 DEG  
 2-PEDESTRIAN PUSH BUTTONS & SIGNS (R10-3e)  
 R10-X12 SIGN PANEL-NEAR END OF MAST ARM  
 TYPE D SIGN PANEL-OVERHEAD AT 33'  
 2-R6-1 SIGN PANELS-POLE MOUNTED 0/180 DEG  
 EXTENDED INTO HH 5:  
 3" RSC  
 3-12/c 14  
 2-4/c 14  
 1-3/c 14  
 1-3/c 20  
 2-2/c 14  
 1-3/c 14 (LUM)  
 1-1/c 6 (GRD)

INPLACE ONE WAY SIGNAL AND MOUNT-OVERHEAD AT 0' (RELOCATE TO 6')  
 (S & I) ONE WAY EVP DETECTOR & LIGHT AT 6' (Ø6,1)  
 F & I 5-FOOT EXTENSION ON END OF MAST ARM  
 1-ONE WAY SIGNAL AND ANGLE MOUNT-OVERHEAD AT -5' (NEW 1-3)  
 STRAP-ON MID MAST ARM MOUNT AT 6' (FOR 1-1)  
 3/4" RSC EXTENSION AT 6' (FOR EVP EXTENSION OVER HEAD 1-1)  
 ADJUST MAST ARM/POLE SO THAT ALL OVERHEAD SIGNAL HEADS ARE  
 AT LEAST 17 FEET ABOVE GROUND LINE TO BOTTOM OF BACKGROUND  
 SHIELD (CURRENTLY AT 16.6 FEET ABOVE GROUND LINE) (SEE  
 SPECIAL PROVISIONS).

⑥ INPLACE (MAINTAIN INPLACE) PA100 POLE FOUNDATION  
 TYPE PA100-A-55-D40-9 (DAVIT AT 350 DEG)  
 5 FOOT MAST ARM EXTENSION  
 LUMINAIRE-250 W HPS  
 4-ONE WAY SIGNALS-OVERHEAD AT -5', 6', 17', 29'  
 STRAP-ON MID-MAST ARM MOUNT AT 6' (FOR 5-1)  
 2-ONE WAY SIGNALS-POLE MOUNTED 90/180 DEG  
 2-SETS CD PED SIGNALS-POLE MOUNTED 90/180 DEG  
 2-PEDESTRIAN PUSH BUTTONS & SIGNS (R10-3e)  
 R10-X12 SIGN PANEL-ADJACENT TO 5-2  
 TYPE D SIGN PANEL-OVERHEAD AT 32'  
 2-R6-1 SIGN PANELS-POLE MOUNTED 0/180 DEG  
 ONE WAY EVP DETECTOR AND LIGHT-OVERHEAD AT 6' (Ø2,5)  
 EXTENDED INTO HH 14:  
 3" RSC  
 2-12/c 14  
 1-6/c 14  
 2-4/c 14  
 1-3/c 14  
 1-3/c 20  
 2-2/c 14  
 1-3/c 14 (LUM)  
 1-1/c 6 (GRD)

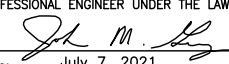
Ⓐ INPLACE (MAINTAIN INPLACE) EQUIPMENT PAD FOUNDATION  
 CONTROLLER AND CABINET  
 SIGNAL SERVICE CABINET  
 CONTROLLER CABINET TO HH 1:  
 4" RSC  
 4-12/c 14  
 4-4/c 14  
 2-3/c 14  
 2-3/c 20  
 19-2/c 14  
 1-FO CABLE  
 CONTROLLER CABINET TO HH 19:  
 4" RSC  
 4-12/c 14  
 2-5/c 14  
 4-4/c 14  
 2-3/c 14  
 3-3/c 20  
 21-2/c 14  
 CONTROLLER CABINET TO HH 1:  
 3" RSC STUB OUT (EXTENDED)  
 1-12/c 14  
 2-6/c 14

F & I - 1-4/c 14

INPLACE (MAINTAIN INPLACE) SERVICE CABINET TO CONTROLLER CABINET:  
 2" RSC  
 3-1/c 6  
 SERVICE CABINET TO HH 1:  
 2" RSC  
 4-3/c 14 (LUM)  
 SERVICE CABINET TO SOP:  
 2" RSC  
 3-1/c 2

F & I CONTROLLER CABINET TO FO VAULT 100:  
 (\*\*) 2" CONDUIT (CORE INTO  
 CONTROLLER CABINET FOUNDATION)  
 (\*\*) 1-12 SM FO CABLE

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

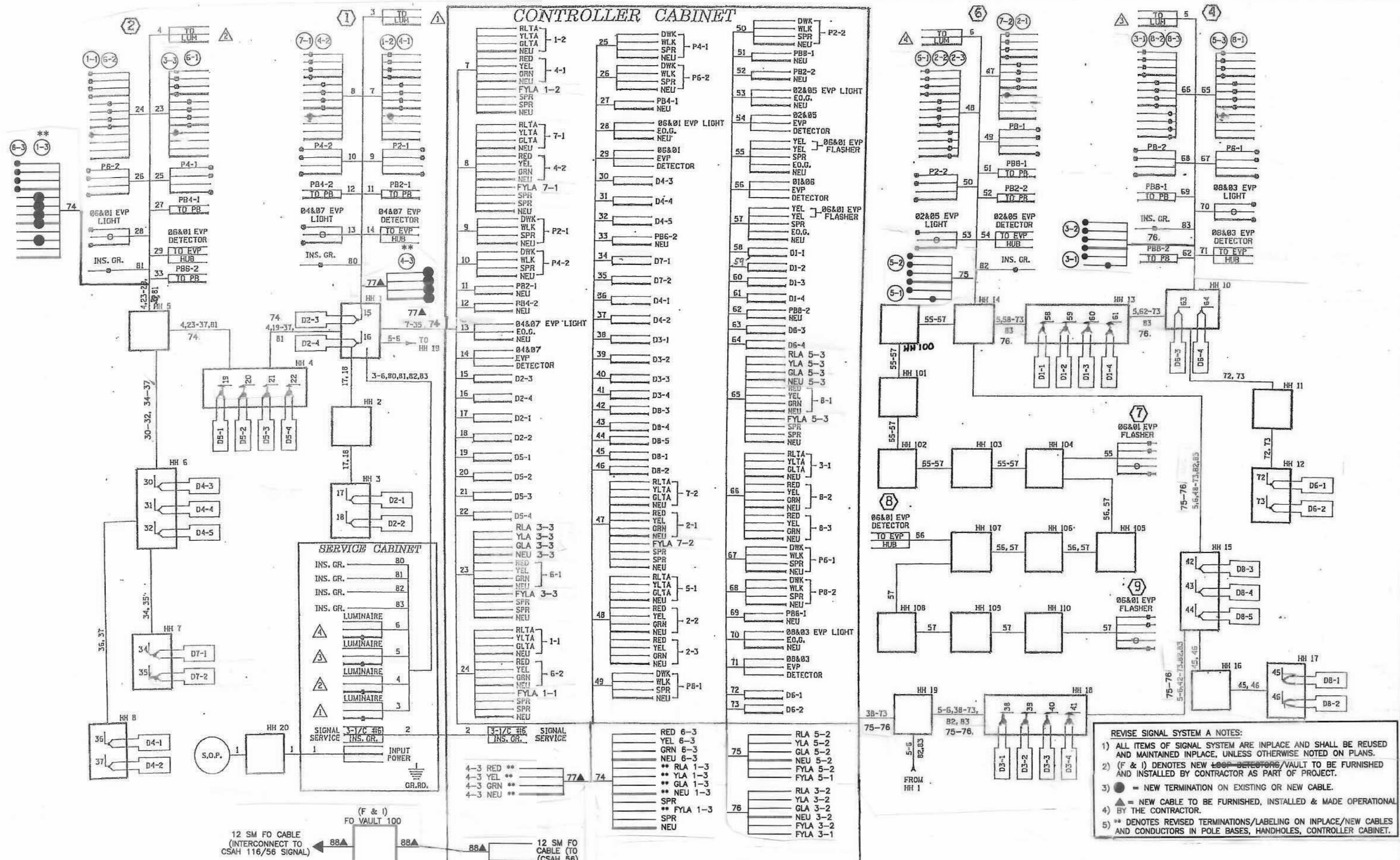
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 Name: John M. Gray, PE  
 Date: July 7, 2021  
 Lic. No. 22457



ANOKA COUNTY, MN  
 CITY OF RAMSEY  
 SAP 002-716-021  
 SAP 199-104-014

REVISE SIGNAL SYSTEM "A"  
 SIGNAL SYSTEM NOTES  
 CSAH 116 (BUNKER LAKE BLVD NW)  
 AT CSAH 83 (ARMSTRONG BLVD NW)

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**REVISE SIGNAL SYSTEM 'A' NOTES:**

- 1) ALL ITEMS OF SIGNAL SYSTEM ARE INPLACE AND SHALL BE REUSED AND MAINTAINED INPLACE, UNLESS OTHERWISE NOTED ON PLANS.
- 2) (F & I) DENOTES NEW LOOP DETECTORS/VAULT TO BE FURNISHED AND INSTALLED BY CONTRACTOR AS PART OF PROJECT.
- 3) ● = NEW TERMINATION ON EXISTING OR NEW CABLE.
- 4) ▲ = NEW CABLE TO BE FURNISHED, INSTALLED & MADE OPERATIONAL BY THE CONTRACTOR.
- 5) \*\* DENOTES REVISED TERMINATIONS/LABELING ON INPLACE/NEW CABLES AND CONDUCTORS IN POLE BASES, HANDHOLES, CONTROLLER CABINET.

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

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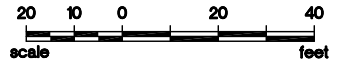
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 Name: John M. Gray, PE  
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 Date: July 7, 2021

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**ANOKA COUNTY, MN**  
**CITY OF RAMSEY**  
 SAP 002-716-021  
 SAP 199-104-014

**REVISE SIGNAL SYSTEM 'A'**  
**FIELD WIRING DIAGRAM**  
 CSAH 116 (BUNKER LAKE BLVD NW)  
 AT CSAH 83 (ARMSTRONG BLVD NW)

FILE NO. ANOKC 159572	189
SIGNAL SHEET 10 OF 25	259

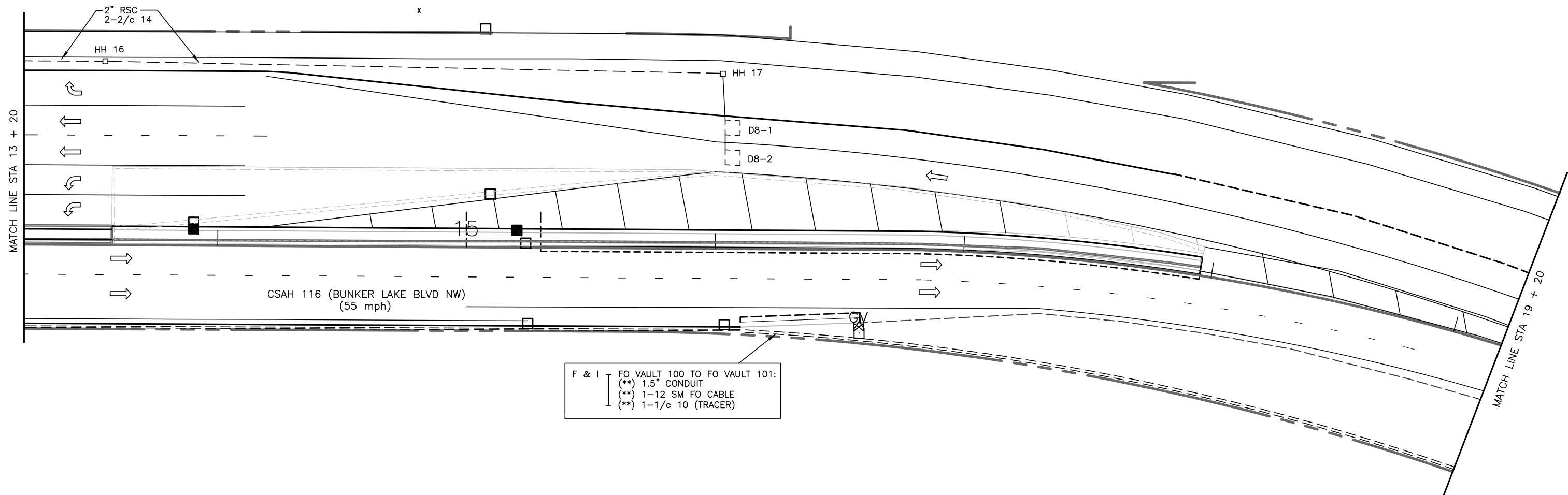


N



**INTERCONNECT NOTES:**

- 1) IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO UTILIZE THE "ONE CALL EXCAVATION NOTICE SYSTEM" (TELEPHONE NUMBER 651-454-0002) AS REQUIRED BY MINNESOTA STATUTE 2160.
- 2) DISTANCE OFF SHOULDER OR CURB FOR INTERCONNECT CONDUIT SHALL BE AS DETERMINED IN THE FIELD BY THE ENGINEER.
- 3) (\*\*) DENOTES ITEMS TO BE FURNISHED AND INSTALLED BY THE CONTRACTOR UNDER ITEM NO. 2565 (TRAFFIC CONTROL INTERCONNECT). SEE STATEMENT OF ESTIMATED QUANTITIES AND SPECIAL PROVISIONS.
- 4) (F & I) DENOTES ITEMS TO BE FURNISHED AND INSTALLED BY CONTRACTOR AS PART OF THIS PROJECT.



F & I FO VAULT 100 TO FO VAULT 101:  
 (\*\*) 1.5" CONDUIT  
 (\*\*) 1-12 SM FO CABLE  
 (\*\*) 1-1/c 10 (TRACER)

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 DESIGNER: JMG  
 CHECKED BY: JMG

DESIGN TEAM	NO.	BY	DATE	REVISIONS

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

*John M. Gray*  
 Name: John M. Gray, PE  
 Date: July 7, 2021 Lic. No. 22457

**SEH**  
 PHONE: (651) 490-2000  
 3535 VADNAIS CENTER DR.  
 ST. PAUL, MN 55110

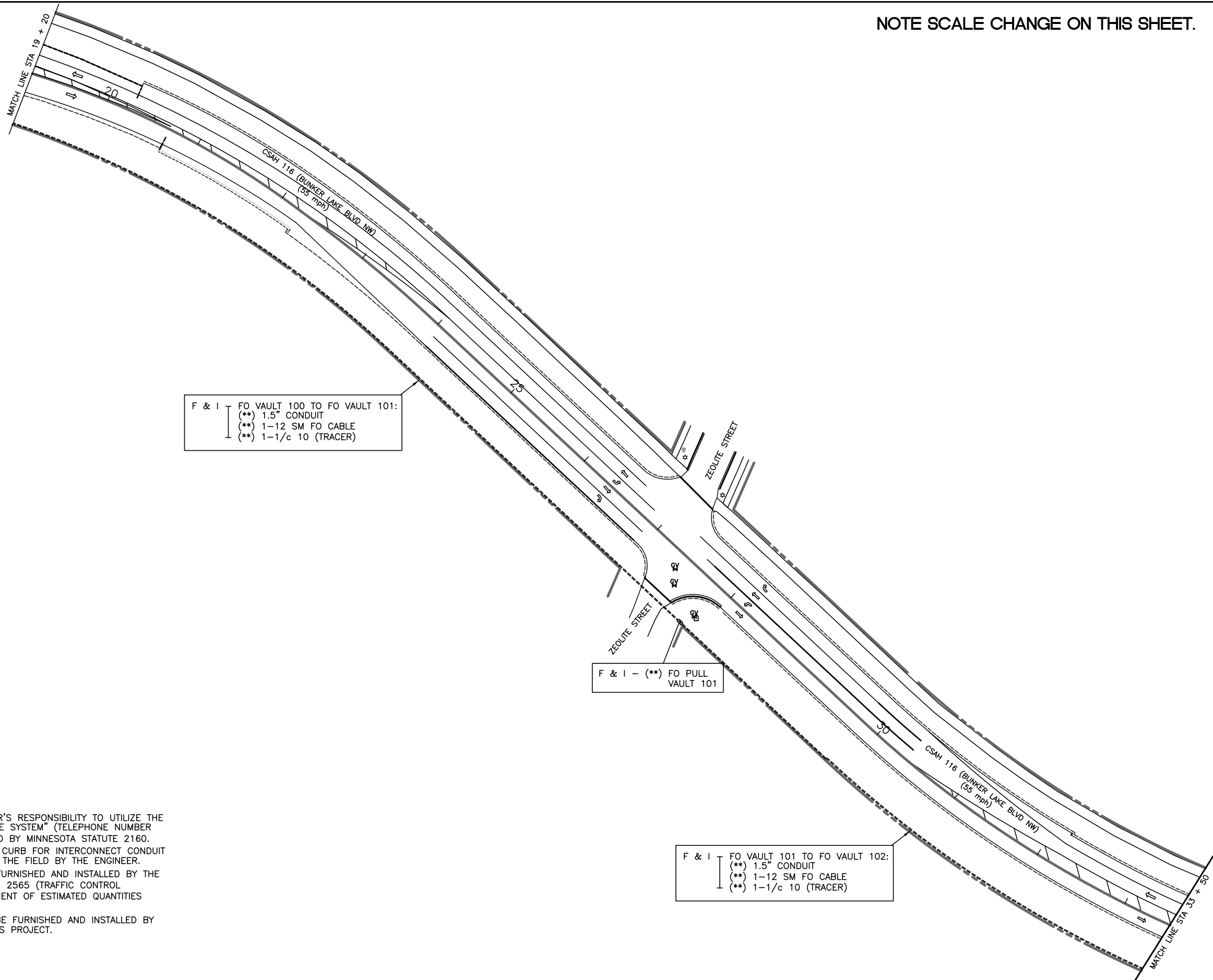
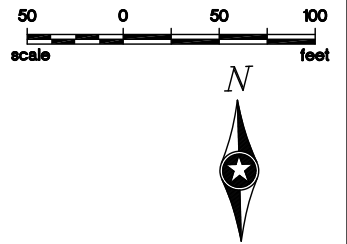
**ANOKA COUNTY, MN**  
**CITY OF RAMSEY**  
 SAP 002-716-021  
 SAP 199-104-014

**REVISE SIGNAL "A" / INTERCONNECT**  
**INTERSECTION LAYOUT**  
 CSAH 116 (BUNKER LAKE BLVD NW)  
 AT CSAH 83 (ARMSTRONG BLVD NW)

FILE NO.  
 ANOKC 159572  
 SIGNAL SHEET  
 11 OF 25

**190**  
**259**

NOTE SCALE CHANGE ON THIS SHEET.



F & I FO VAULT 100 TO FO VAULT 101:  
 (\*\*) 1.5" CONDUIT  
 (\*\*) 1-12 SM FO CABLE  
 (\*\*) 1-1/c 10 (TRACER)

F & I - (\*\*) FO PULL VAULT 101

F & I FO VAULT 101 TO FO VAULT 102:  
 (\*\*) 1.5" CONDUIT  
 (\*\*) 1-12 SM FO CABLE  
 (\*\*) 1-1/c 10 (TRACER)

INTERCONNECT NOTES:

- 1) IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO UTILIZE THE "ONE CALL EXCAVATION NOTICE SYSTEM" (TELEPHONE NUMBER 651-454-0002) AS REQUIRED BY MINNESOTA STATUTE 2160.
- 2) DISTANCE OFF SHOULDER OR CURB FOR INTERCONNECT CONDUIT SHALL BE AS DETERMINED IN THE FIELD BY THE ENGINEER.
- 3) (\*\*) DENOTES ITEMS TO BE FURNISHED AND INSTALLED BY THE CONTRACTOR UNDER ITEM NO. 2565 (TRAFFIC CONTROL INTERCONNECT). SEE STATEMENT OF ESTIMATED QUANTITIES AND SPECIAL PROVISIONS.
- 4) (F & I) DENOTES ITEMS TO BE FURNISHED AND INSTALLED BY CONTRACTOR AS PART OF THIS PROJECT.

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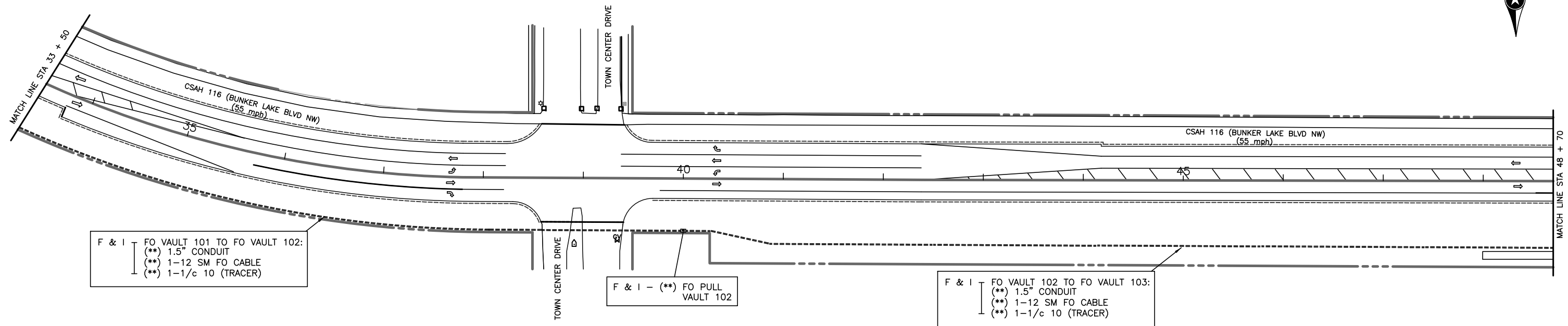
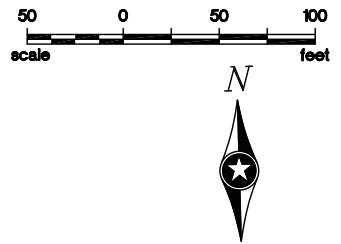
PHONE: (651) 490-2000  
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 ST. PAUL, MN 55110

ANOKA COUNTY, MN  
 CITY OF RAMSEY  
 SAP 002-716-021  
 SAP 199-104-014

TRAFFIC CONTROL INTERCONNECT  
 INTERSECTION LAYOUT  
 CSAH 116 (BUNKER LAKE BLVD NW)  
 (CSAH 83 TO CSAH 56)

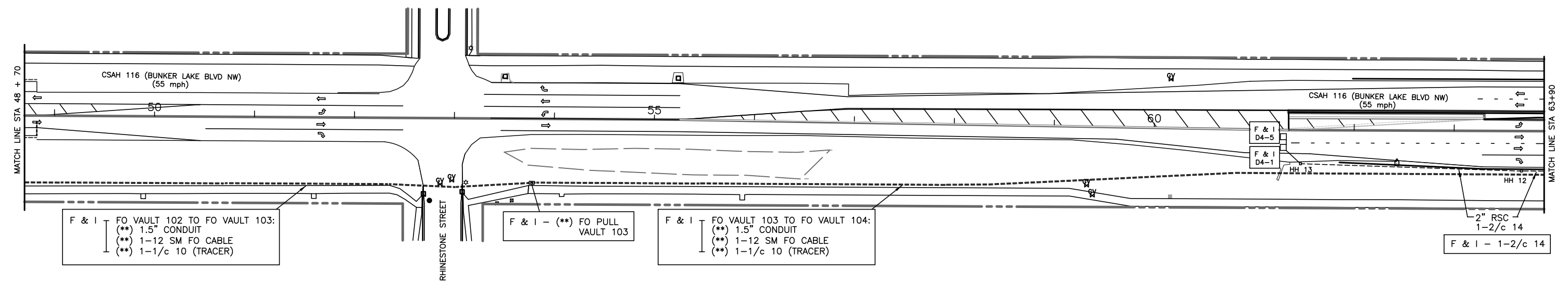
FILE NO. ANOKC 159572	<b>191</b>
SIGNAL SHEET 12 OF 25	

NOTE SCALE CHANGE ON THIS SHEET.



INTERCONNECT NOTES:

- 1) IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO UTILIZE THE "ONE CALL EXCAVATION NOTICE SYSTEM" (TELEPHONE NUMBER 651-454-0002) AS REQUIRED BY MINNESOTA STATUTE 2160.
- 2) DISTANCE OFF SHOULDER OR CURB FOR INTERCONNECT CONDUIT SHALL BE AS DETERMINED IN THE FIELD BY THE ENGINEER.
- 3) (\*\*) DENOTES ITEMS TO BE FURNISHED AND INSTALLED BY THE CONTRACTOR UNDER ITEM NO. 2565 (TRAFFIC CONTROL INTERCONNECT). SEE STATEMENT OF ESTIMATED QUANTITIES AND SPECIAL PROVISIONS.
- 4) (F & I) DENOTES ITEMS TO BE FURNISHED AND INSTALLED BY CONTRACTOR AS PART OF THIS PROJECT.
- 5) NEW LOOP DETECTORS FOR EB CSAH 116 WILL BE MEASURED AND PAID FOR UNDER ITEM NO. 2565 (REVISE SIGNAL SYSTEM B).



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**ANOKA COUNTY, MN**  
**CITY OF RAMSEY**  
 SAP 002-716-021  
 SAP 199-104-014

**REVISE SIGNAL "B"/INTERCONNECT**  
**INTERSECTION LAYOUT**  
 CSAH 116 (BUNKER LAKE BLVD NW)  
 (CSAH 83 TO CSAH 56)

FILE NO.  
 ANOKC 159572  
 SIGNAL SHEET  
 13 OF 25

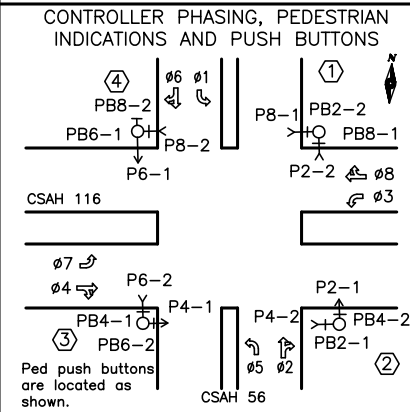
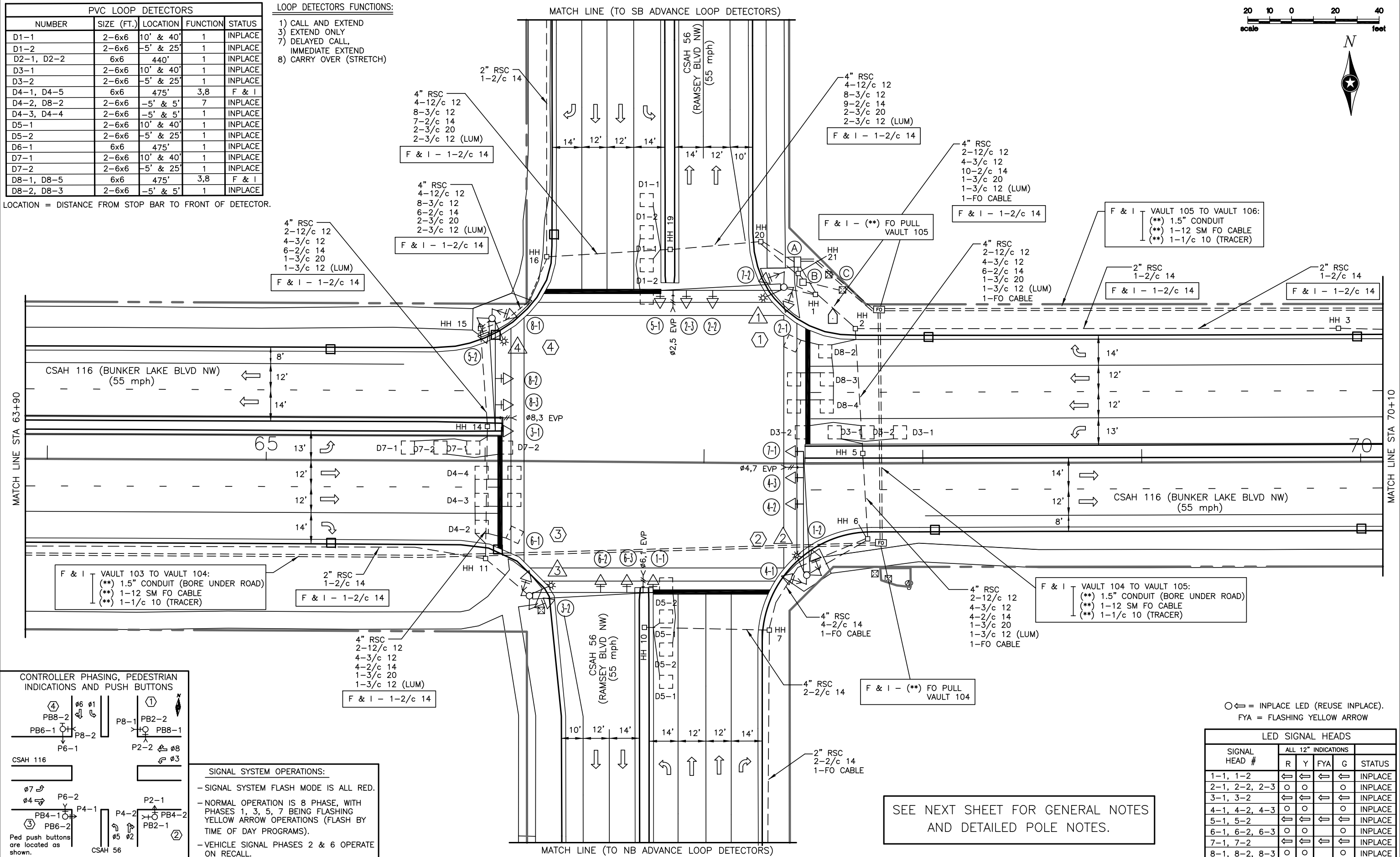
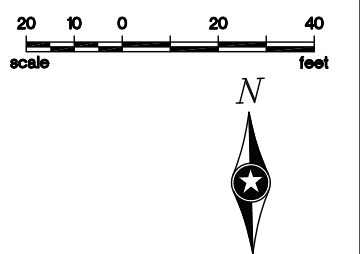
**192**  
**259**



PVC LOOP DETECTORS				
NUMBER	SIZE (FT.)	LOCATION	FUNCTION	STATUS
D1-1	2-6x6	10' & 40'	1	INPLACE
D1-2	2-6x6	-5' & 25'	1	INPLACE
D2-1, D2-2	6x6	440'	1	INPLACE
D3-1	2-6x6	10' & 40'	1	INPLACE
D3-2	2-6x6	-5' & 25'	1	INPLACE
D4-1, D4-5	6x6	475'	3,8	F & I
D4-2, D8-2	2-6x6	-5' & 5'	7	INPLACE
D4-3, D4-4	2-6x6	-5' & 5'	1	INPLACE
D5-1	2-6x6	10' & 40'	1	INPLACE
D5-2	2-6x6	-5' & 25'	1	INPLACE
D6-1	6x6	475'	1	INPLACE
D7-1	2-6x6	10' & 40'	1	INPLACE
D7-2	2-6x6	-5' & 25'	1	INPLACE
D8-1, D8-5	6x6	475'	3,8	F & I
D8-2, D8-3	2-6x6	-5' & 5'	1	INPLACE

- LOOP DETECTORS FUNCTIONS:
- 1) CALL AND EXTEND
  - 3) EXTEND ONLY
  - 7) DELAYED CALL, IMMEDIATE EXTEND
  - 8) CARRY OVER (STRETCH)

LOCATION = DISTANCE FROM STOP BAR TO FRONT OF DETECTOR.



- SIGNAL SYSTEM OPERATIONS:
- SIGNAL SYSTEM FLASH MODE IS ALL RED.
  - NORMAL OPERATION IS 8 PHASE, WITH PHASES 1, 3, 5, 7 BEING FLASHING YELLOW ARROW OPERATIONS (FLASH BY TIME OF DAY PROGRAMS).
  - VEHICLE SIGNAL PHASES 2 & 6 OPERATE ON RECALL.

SEE NEXT SHEET FOR GENERAL NOTES AND DETAILED POLE NOTES.

LED SIGNAL HEADS

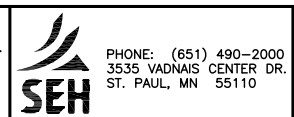
SIGNAL HEAD #	ALL 12" INDICATIONS				STATUS
	R	Y	FYA	G	
1-1, 1-2	←	←	←	←	INPLACE
2-1, 2-2, 2-3	○	○	○	○	INPLACE
3-1, 3-2	←	←	←	←	INPLACE
4-1, 4-2, 4-3	○	○	○	○	INPLACE
5-1, 5-2	←	←	←	←	INPLACE
6-1, 6-2, 6-3	○	○	○	○	INPLACE
7-1, 7-2	←	←	←	←	INPLACE
8-1, 8-2, 8-3	○	○	○	○	INPLACE

DRAWN BY: JMG  
 DESIGNER: JMG  
 CHECKED BY: JMG

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 Date: July 7, 2021



ANOKA COUNTY, MN  
 CITY OF RAMSEY  
 SAP 002-716-021  
 SAP 199-104-014

REVISE SIGNAL SYSTEM 'B'  
 INTERSECTION LAYOUT  
 CSAH 116 (BUNKER LAKE BLVD NW)  
 AT CSAH 56 (RAMSEY BLVD NW)

FILE NO.  
 ANOKC 159572  
 SIGNAL SHEET  
 14 OF 25

**193**  
**259**

REVISE SIGNAL SYSTEM B NOTES:

- 1) ALL ITEMS OF THIS SIGNAL SYSTEM ARE INPLACE AND SHALL BE REUSED AND MAINTAINED INPLACE, UNLESS OTHERWISE NOTED ON PLANS.
- 2) CONTRACTOR SHALL PROTECT AND MAINTAIN ALL EXISTING PVC HANDHOLES (WITH METAL FRAMES AND COVERS) IN THE VICINITY OF CONSTRUCTION, AND SHALL ADJUST HANDHOLES 4 AND 13 AS NEEDED TO MATCH FINISHED SURROUNDING GRADE AFTER ROAD WORK HAS BEEN COMPLETED. SEE SPECIAL PROVISIONS (INCIDENTAL).
- 3) LOCATION OF FIBER VAULT AND LOOP DETECTORS SHALL BE DETERMINED IN THE FIELD BY THE ENGINEER.
- 4) SEE SPECIAL PROVISIONS FOR COUNTY FURNISHED MATERIALS.
- 5) ALL LOOP DETECTORS ARE INPLACE AND SHALL BE REUSED AND MAINTAINED INPLACE AND OPERATIONAL, EXCEPT AS FOLLOWS: CONTRACTOR SHALL FURNISH AND INSTALL NEW LOOP DETECTORS D4-1, D4-5, D8-1, D8-5 IN PVC AS PER THE DETAILS INCLUDED ELSEWHERE IN THESE PLANS. LOOP DETECTOR WIRES FOR NEW LOOP DETECTORS SHALL BE CROSS-LINKED POLY-ETHYLENE (XLP) #12 AWG IN 3/4" NMC. SEE SPECIAL PROVISIONS.
- 6) ANY DAMAGE TO INPLACE TRAFFIC SIGNAL FACILITIES (CONDUIT, CABLES, HANDHOLES, SIGNAL POLES, ETC.), DUE TO TRAFFIC SIGNAL OR ROAD WORK, SHALL BE REPAIRED BY CONTRACTOR TO SATISFACTION OF THE ENGINEER, AT NO EXPENSE TO THE COUNTY.
- 7) CONTRACTOR SHALL MAINTAIN OPERATION OF THE SIGNAL SYSTEM AT ALL TIMES, EXCEPT AS OTHERWISE APPROVED BY ENGINEER.
- 8) ALL VEHICULAR HEADS ARE INPLACE AND SHALL BE REUSED AND MAINTAINED INPLACE (ALL HAVE BACKGROUND SHIELDS).
- 9) F & I = NEW, FURNISH AND INSTALL.
- 10) ALL CABLES AND CONDUCTORS, CONDUIT, HANDHOLES, AND LOOP DETECTORS ARE INPLACE AND SHALL BE REUSED AND MAINTAINED INPLACE, EXCEPT WHERE BOXED IN AND DENOTED OTHERWISE.
- 11) (\*\*) DENOTES ITEMS TO BE FURNISHED AND INSTALLED BY THE CONTRACTOR UNDER ITEM NO. 2565 (TRAFFIC CONTROL INTERCONNECT). SEE STATEMENT OF ESTIMATED QUANTITIES AND SPECIAL PROVISIONS.

① INPLACE (MAINTAIN INPLACE) PA100 POLE FOUNDATION  
 TYPE PA100-A-55-D40-9 (DAVIT AT 350 DEG)  
 LUMINAIRE-250 W HPS  
 3-ONE WAY SIGNALS-OVERHEAD AT 0', 11', 23'  
 2-TYPE 10B-POLE MOUNTED 90/180 DEG  
 2-PEDESTRIAN PUSH BUTTONS & SIGNS (R10-3e)  
 R10-X12 SIGN-ADJACENT TO 5-1  
 TYPE D SIGN PANEL-OVERHEAD AT 30'  
 2-R6-1 SIGN PANELS-POLE MOUNTED 0/180 DEG  
 ONE WAY EVP DETECTOR AND LIGHT AT 6' (ø2,5)  
 EXTENDED INTO HH 1:  
 3" RSC  
 2-12/c 12  
 4-3/c 12  
 1-3/c 20  
 1-3/c 12 (LUM)

② INPLACE (MAINTAIN INPLACE) PA100 POLE FOUNDATION  
 TYPE PA100-A-55-D40-9 (DAVIT AT 350 DEG)  
 LUMINAIRE-250 W HPS  
 3-ONE WAY SIGNALS-OVERHEAD AT 0', 11', 23'  
 2-TYPE 10B-POLE MOUNTED 90/180 DEG  
 2-PEDESTRIAN PUSH BUTTONS & SIGNS (R10-3e)  
 R10-X12 SIGN-ADJACENT TO 7-1  
 TYPE D SIGN PANEL-OVERHEAD AT 30'  
 2-R6-1 SIGN PANELS-POLE MOUNTED 0/180 DEG  
 ONE WAY EVP DETECTOR AND LIGHT AT 6' (ø4,7)  
 EXTENDED INTO HH 6:  
 3" RSC  
 2-12/c 12  
 4-3/c 12  
 1-3/c 20  
 1-3/c 12 (LUM)

③ INPLACE (MAINTAIN INPLACE) PA100 POLE FOUNDATION  
 TYPE PA100-A-55-D40-9 (DAVIT AT 350 DEG)  
 LUMINAIRE-250 W HPS  
 3-ONE WAY SIGNALS-OVERHEAD AT 0', 11', 23'  
 2-TYPE 10B-POLE MOUNTED 90/180 DEG  
 2-PEDESTRIAN PUSH BUTTONS & SIGNS (R10-3e)  
 R10-X12 SIGN-ADJACENT TO 1-1  
 TYPE D SIGN PANEL-OVERHEAD AT 30'  
 2-R6-1 SIGN PANELS-POLE MOUNTED 0/180 DEG  
 ONE WAY EVP DETECTOR AND LIGHT AT 6' (ø6,1)  
 EXTENDED INTO HH 11:  
 3" RSC  
 2-12/c 12  
 4-3/c 12  
 1-3/c 20  
 1-3/c 12 (LUM)

④ INPLACE (MAINTAIN INPLACE) PA100 POLE FOUNDATION  
 TYPE PA100-A-50-D40-9 (DAVIT AT 350 DEG)  
 LUMINAIRE-250 W HPS  
 3-ONE WAY SIGNALS-OVERHEAD AT 0', 11', 23'  
 2-TYPE 10B-POLE MOUNTED 90/180 DEG  
 2-PEDESTRIAN PUSH BUTTONS & SIGNS (R10-3e)  
 R10-X12 SIGN-ADJACENT TO 3-1  
 TYPE D SIGN PANEL-OVERHEAD AT 30'  
 2-R6-1 SIGN PANELS-POLE MOUNTED 0/180 DEG  
 ONE WAY EVP DETECTOR AND LIGHT AT 6' (ø8,3)  
 EXTENDED INTO HH 15:  
 3" RSC  
 2-12/c 12  
 4-3/c 12  
 1-3/c 20  
 1-3/c 12 (LUM)

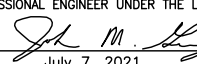
Ⓐ INPLACE (MAINTAIN INPLACE) CABINET FOUNDATION  
 CONTROLLER AND CABINET  
 CONTROLLER CABINET TO HH 1:  
 4" RSC  
 4-12/c 12  
 8-3/c 12  
 2-3/c 20  
 10-2/c 14  
 1-FIBER OPTIC CABLE  
 CONTROLLER CABINET TO HH 20:  
 4" RSC  
 4-12/c 12  
 8-3/c 12  
 2-3/c 20  
 10-2/c 14  
 CONTROLLER CABINET TO HH 21:  
 2" RSC  
 METERED SIGNAL SERVICE  
 3-1/c 6  
 2-3" RSC STUB OUTS FROM CONTROLLER CABINET (BOTH ENDS THREADED AND CAPPED FOR FUTURE USE)  
 F & I CONTROLLER CABINET TO FO VAULT 105:  
 (\*\*) 3" RSC STUB OUT FROM CABINET (EXTEND INTO VAULT 105)  
 (\*\*) 2-12 SM FO CABLES


Ⓑ INPLACE (MAINTAIN INPLACE) CABINET FOUNDATION  
 SIGNAL SERVICE CABINET  
 EXTENDED INTO HH 21:  
 2" RSC  
 METERED SIGNAL SERVICE  
 3-1/c 6  
 UNMETERED STREET LIGHT SERVICE  
 4-3/c 12 (LUM)  
 EXTENDED TO SOURCE OF POWER:  
 2" RSC  
 3-1/c 2

Ⓒ INPLACE (MAINTAIN INPLACE) GROUND MOUNTED TRANSFORMER (SOP)  
 EXTENDED TO SERVICE CABINET:  
 2" RSC  
 3-1/c 2

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ANOKA COUNTY, MN  
 CITY OF RAMSEY  
 SAP 002-716-021  
 SAP 199-104-014

REVISE SIGNAL SYSTEM 'B'  
 SIGNAL SYSTEM NOTES  
 CSAH 116 (BUNKER LAKE BLVD NW)  
 AT CSAH 56 (RAMSEY BLVD NW)

FILE NO.  
 ANOKC 159572  
 SIGNAL SHEET  
 15 OF 25

194  
 259

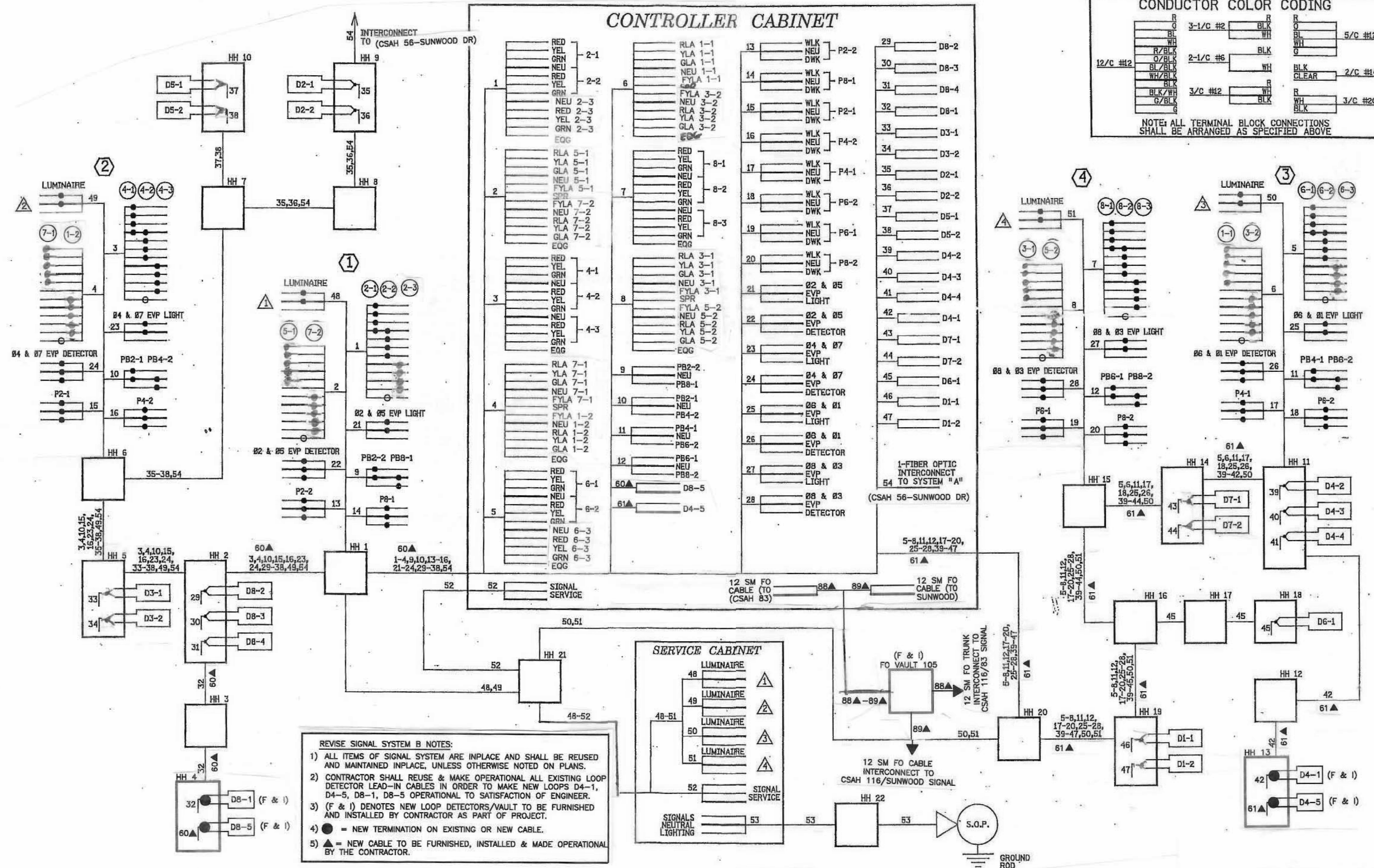
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### CONDUCTOR COLOR CODING

R	3-1/C #2	BLK	R	5/C #12
O		WH	BL	WH
BL			BLK	
WH			G	
R/BLK	2-1/C #6	BLK	BLK	2/C #14
O/BLK		WH	CLEAR	
BL/BLK				
WH/BLK				
BLK	3/C #12	R	R	3/C #20
BLK/WH		BLK	WH	
G/BLK			BLK	
G				

NOTE: ALL TERMINAL BLOCK CONNECTIONS SHALL BE ARRANGED AS SPECIFIED ABOVE

## CONTROLLER CABINET



DRAWN BY: JMG  
DESIGNER: JMG  
CHECKED BY: JMG

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**SEH**

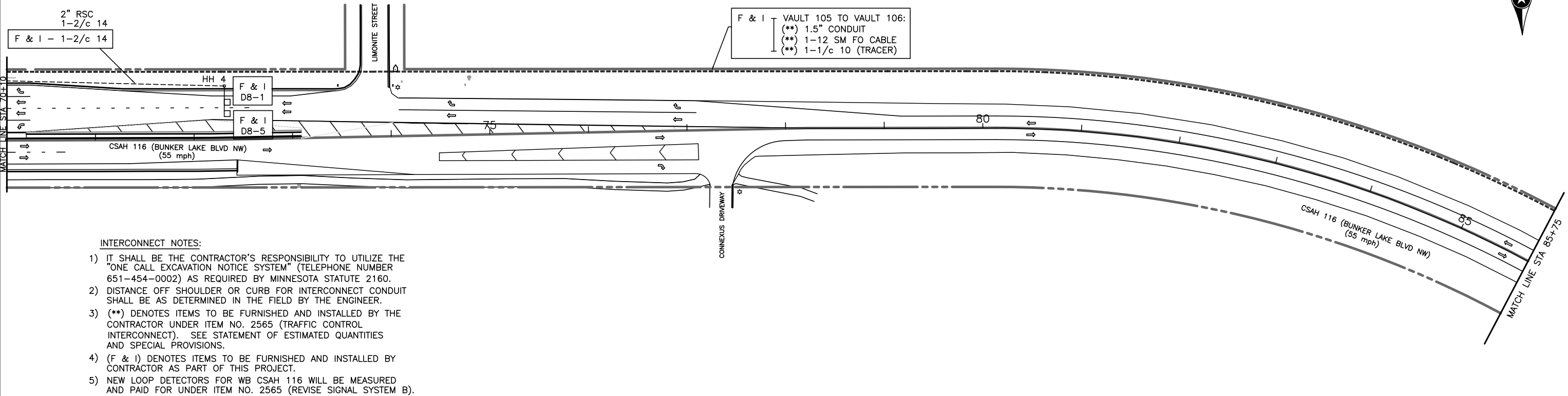
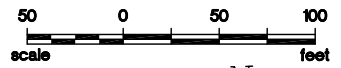
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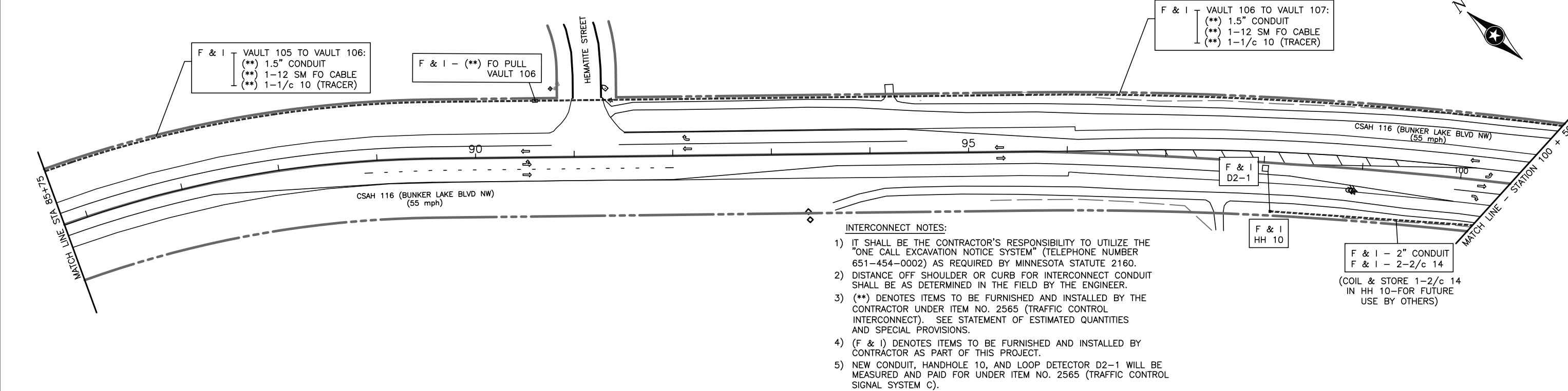
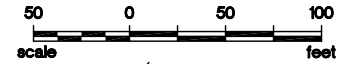
**REVISE SIGNAL SYSTEM 'B'**  
FIELD WIRING DIAGRAM  
CSAH 116 (BUNKER LAKE BLVD NW)  
AT CSAH 56 (RAMSEY BLVD NW)

FILE NO. ANOKC 159572  
SIGNAL SHEET 16 OF 25  
**195**  
**259**

NOTE SCALE CHANGE ON THIS SHEET.



- INTERCONNECT NOTES:**
- 1) IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO UTILIZE THE "ONE CALL EXCAVATION NOTICE SYSTEM" (TELEPHONE NUMBER 651-454-0002) AS REQUIRED BY MINNESOTA STATUTE 2160.
  - 2) DISTANCE OFF SHOULDER OR CURB FOR INTERCONNECT CONDUIT SHALL BE AS DETERMINED IN THE FIELD BY THE ENGINEER.
  - 3) (\*\*) DENOTES ITEMS TO BE FURNISHED AND INSTALLED BY THE CONTRACTOR UNDER ITEM NO. 2565 (TRAFFIC CONTROL INTERCONNECT). SEE STATEMENT OF ESTIMATED QUANTITIES AND SPECIAL PROVISIONS.
  - 4) (F & I) DENOTES ITEMS TO BE FURNISHED AND INSTALLED BY CONTRACTOR AS PART OF THIS PROJECT.
  - 5) NEW LOOP DETECTORS FOR WB CSAH 116 WILL BE MEASURED AND PAID FOR UNDER ITEM NO. 2565 (REVISE SIGNAL SYSTEM B).



- INTERCONNECT NOTES:**
- 1) IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO UTILIZE THE "ONE CALL EXCAVATION NOTICE SYSTEM" (TELEPHONE NUMBER 651-454-0002) AS REQUIRED BY MINNESOTA STATUTE 2160.
  - 2) DISTANCE OFF SHOULDER OR CURB FOR INTERCONNECT CONDUIT SHALL BE AS DETERMINED IN THE FIELD BY THE ENGINEER.
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  - 4) (F & I) DENOTES ITEMS TO BE FURNISHED AND INSTALLED BY CONTRACTOR AS PART OF THIS PROJECT.
  - 5) NEW CONDUIT, HANDHOLE 10, AND LOOP DETECTOR D2-1 WILL BE MEASURED AND PAID FOR UNDER ITEM NO. 2565 (TRAFFIC CONTROL SIGNAL SYSTEM C).

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DRAWN BY: JMG  
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**ANOKA COUNTY, MN**  
**CITY OF RAMSEY**  
 SAP 002-716-021  
 SAP 199-104-014

**SIGNAL SYSTEMS "B-C"/INTERCONNECT**  
**INTERSECTION LAYOUT**  
 CSAH 116 (BUNKER LAKE BLVD NW)  
 (CSAH 56 TO SUNWOOD DRIVE)

FILE NO. ANOKC 159572  
 SIGNAL SHEET 17 OF 25  
**196**  
**259**

MATCH LINE - STATION 100 + 50

LOOP DETECTORS FUNCTIONS:

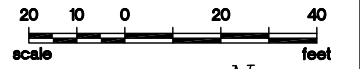
- 1) CALL AND EXTEND
- 3) EXTEND ONLY
- 7) DELAYED CALL, IMMEDIATE EXTEND
- 8) CARRY OVER (STRETCH)

PVC LOOP DETECTORS

NUMBER	SIZE (FT.)	LOCATION	FUNCTION
D1-1	2-6x6	15' & 45'	1
D1-2	2-6x6	0' & 30'	7
D2-1	6x6	475'	1
D2-2	(future)	---	1
D3-1	2-6x6	15' & 45'	1
D3-2	2-6x6	0' & 30'	7
D4-1	6x6	180'	3,8
D4-2	2-6x6	0' & 15'	7
D4-3	(future)	---	7
D5-1	2-6x6	15' & 45'	1
D5-2	2-6x6	0' & 30'	1
D6-1	6x6	475'	1
D6-2	(future)	---	1
D7-1	2-6x6	15' & 45'	1
D7-2	2-6x6	0' & 30'	7
D8-1	6x6	180'	3,8
D8-2	2-6x6	0' & 15'	7
D8-3	2-6x6	0' & 15'	1

NOTE: LOCATION=DISTANCE FROM STOP BAR TO FRONT OF LOOP DETECTOR.

SEE NEXT SHEET FOR GENERAL NOTES, POLE NOTES, AND EQUIPMENT PAD NOTES.



- (\*) PEDESTAL FOUNDATION
  - (\*) 10' PEDESTAL POLE, BASE, WIND COLLAR
  - (\*) SLIPFITTER COLLAR ATOP POLE
  - (\*) INSTALL 1-ONE WAY EVP DETECTOR ATOP POLE (ø4,7) EXTEND INTO HH 14:
  - (\*) 2" CONDUIT
  - (\*) 1-3/c 20
  - (\*) 1-1/c 6 (GRD)
- INSTALL (FURNISHED BY COUNTY)
- 1-ONE WAY EVP DETECTOR (ø4,7)

PEDESTRIAN PUSH BUTTON STATION (SEE DETAILS)

1-PED PUSH BUTTON & SIGN (R10-3e)

EXTEND INTO HH 11:

1" CONDUIT

1-2/c 14

1-1/c 6 (INS GR)

PEDESTRIAN PUSH BUTTON STATION (SEE DETAILS)

1-PED PUSH BUTTON & SIGN (R10-3e)

EXTEND INTO HH 8:

1" CONDUIT

1-2/c 14

1-1/c 6 (INS GR)

INPLACE 30' STREET LIGHT POLE AND LUMINAIRE-SALVAGE TO CITY

INPLACE CONCRETE FOUNDATION-REMOVE

REMOVE INPLACE STREET LIGHT CABLE BACK TO NEAREST STREET LIGHT POLE TO SOUTH

2-3" CONDUITS

3-6/c 14

4-4/c 14

(\*) 1-3/c 14

5-2/c 14

(\*) 2-3/c 20

1-3/c 14 (LUM)

1-1/c 6 (GRD)

F & I VAULT 106 TO VAULT 107:

(\*\*) 1.5" CONDUIT (BORE UNDER ROAD)

(\*\*) 1-12 SM FO CABLE

(\*\*) 1-1/c 10 (TRACER)

F & I - (\*\*) FO PULL VAULT 107

25' OF 1-2/c 14 CABLE SHALL BE COILED AND STORED IN HANDHOLES 3, 10, AND 11 (FOR FUTURE LOOP DETECTORS BY OTHERS).

PEDESTRIAN PUSH BUTTON STATION (SEE DETAILS)

1-PED PUSH BUTTON & SIGN (R10-3e)

EXTEND INTO HH 1:

1" CONDUIT

1-2/c 14

1-1/c 6 (INS GR)

F & I VAULT 107 TO VAULT 108:

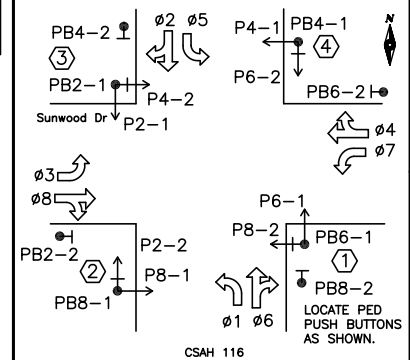
VAULT 108 TO VAULT 109:

(\*\*) 1.5" CONDUIT (BORE UNDER ROAD)

(\*\*) 1-12 SM FO CABLE

(\*\*) 1-1/c 10 (TRACER)

CONTROLLER PHASING, PEDESTRIAN INDICATIONS AND PUSH BUTTONS



LED SIGNAL HEADS				
SIGNAL HEAD	ALL SIGNAL INDICATIONS SHALL BE 12".			
	R	Y	FYA	G
1-1, 1-2	←	←	←	←
2-1, 2-2	•	•	•	•
3-1, 3-2	←	←	←	←
4-1, 4-2	•	•	•	•
5-1, 5-2	←	←	←	←
6-1, 6-2	•	•	•	•
7-1, 7-2	←	←	←	←
8-1, 8-2	•	•	•	•

FYA = FLASHING YELLOW ARROW

SIGNAL SYSTEM OPERATIONS:

- SIGNAL SYSTEM FLASH MODE SHALL BE ALL RED.
- NORMAL OPERATION SHALL BE 8 PHASE, WITH PHASES 1, 3, 5, 7 BEING FLASHING YELLOW ARROWS (BY TOD PROGRAMMING).
- VEHICLE SIGNAL PHASES 2 AND 6 SHALL OPERATE ON RECALL.

MATCH LINE - STATION 104 + 95

S:\AE\A\Anokc\Common\signals\116-Sunwood\County Files 05242021\002716021-sigbase-a2.dwg B/1/2021 8:58 AM jgray

DRAWN BY: JMG

DESIGNER: JMG

CHECKED BY: JMG

NO.	BY	DATE	REVISIONS

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.

*John M. Gray* Name: John M. Gray, PE  
Date: July 7, 2021 Lic. No. 22457

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ANOKA COUNTY, MN  
CITY OF RAMSEY  
SAP 002-716-021  
SAP 199-104-014

TRAFFIC SIGNAL SYSTEM "C"  
INTERSECTION LAYOUT  
CSAH 116 (BUNKER LAKE BLVD NW)  
AT SUNWOOD DRIVE NW

FILE NO. ANOKC 159572  
SIGNAL SHEET 18 OF 25  
197  
259

**NOTES:**

- 1) LOCATION OF FOUNDATIONS, LOOP DETECTORS, HANDHOLES, AND PUSH BUTTON STATIONS SHALL BE DETERMINED IN FIELD BY THE ENGINEER.
- 2) SEE SPECIAL PROVISIONS FOR COUNTY FURNISHED MATERIALS.
- 3) NEW HANDHOLES SHALL BE PVC HANDHOLES WITH METAL FRAMES AND COVERS (SEE SPECIAL PROVISIONS).
- 4) A 3/4" HALF COUPLING, 3/4" PIPE NIPPLE & CONDUIT OUTLET BODY SHALL BE FURNISHED AND INSTALLED 6 FEET FROM THE END OF EACH MAST ARM (FOR EVP).
- 5) THE CONTRACTOR SHALL BE RESPONSIBLE FOR CONTACTING THE POWER COMPANY TO ARRANGE FOR THE POWER CONNECTION (CONNEXUS ENERGY). SEE SPECIAL PROVISIONS.
- 6) SEE SPECIAL PROVISIONS & DETAILS REGARDING SIGNS TO BE FURNISHED AND INSTALLED BY CONTRACTOR (INCLUDED AS PART OF THE "TRAFFIC CONTROL SIGNAL SYSTEM C" PAY ITEM).
- 7) EACH PEDESTRIAN INDICATION SHALL BE ONE SECTION LED COUNTDOWN TIMER "HAND/WALKING PERSON" INDICATION.
- 8) EACH SIGNAL FACE SHALL HAVE A BACKGROUND SHIELD.
- 9) SEE DETAILS, SPECIAL PROVISIONS & STATEMENT OF ESTIMATED QUANTITIES REGARDING BATTERY BACK-UP SIGNAL SERVICE CABINET TO BE FURNISHED AND INSTALLED BY CONTRACTOR (SEPARATE FROM ITEM NO. 2565 FOR THIS SIGNAL SYSTEM).
- 10) LOOP DETECTOR WIRES SHALL BE CROSS-LINKED POLYETHYLENE (XLP) #12 AWG IN 3/4" N.M.C. SEE SPECIAL PROVISIONS.
- 11) (\*) DENOTES ITEMS TO BE INCLUDED AS PART OF THE PAY ITEM FOR ITEM INO. 2565 (EMERGENCY VEHICLE PREEMPTION SYSTEM). SEE STATEMENT OF ESTIMATED QUANTITIES AND SPECIAL PROVISIONS.
- 12) (\*\*) DENOTES ITEMS TO BE FURNISHED AND INSTALLED BY CONTRACTOR UNDER ITEM NO. 2565 (TRAFFIC CONTROL INTERCONNECT). SEE STATEMENT OF ESTIMATED QUANTITIES AND SPECIAL PROVISIONS.
- 13) ALL CABLES AND CONDUCTORS SHALL BE NEW (FURNISHED AND INSTALLED BY THE CONTRACTOR).
- 14) NO SPLICING IS ALLOWED ON ANY CABLE OR CONDUCTOR BETWEEN THE CONTROLLER/SERVICE CABINETS AND EACH POLE OR MAST ARM MOUNTED COMPONENT (EXCEPT THAT LOOP DETECTORS SPLICES ARE ALLOWED IN ADJACENT HANDHOLES ONLY).

(A) INSTALL — CONTROLLER AND CABINET  
(FURNISHED BY COUNTY)

F & I — EQUIPMENT PAD FOUNDATION  
BBU SIGNAL SERVICE CABINET  
BETWEEN CONTROLLER CABINET  
AND SERVICE CABINET:  
METERED SIGNAL SERVICE  
2" CONDUIT  
3-1/c 6  
CONTROLLER CABINET TO HH 1:  
3" CONDUIT 2-3" CONDUITS  
3-6/c 14 3-6/c 14  
4-4/c 14 4-4/c 14  
(\*) 1-3/c 14 (\*) 1-3/c 14  
6-2/c 14 12-2/c 14  
(\*) 2-3/c 20 (\*) 1-3/c 20  
1-1/c 6 (GRD)  
CONTROLLER CABINET TO HH 12:  
3" CONDUIT 2-3" CONDUITS  
3-6/c 14 3-6/c 14  
4-4/c 14 4-4/c 14  
(\*) 1-3/c 14 (\*) 1-3/c 14  
2-2/c 14 6-2/c 14  
(\*) 2-3/c 20 (\*) 2-3/c 20  
1-1/c 6 (GRD)

F & I — SERVICE CABINET TO HH 1:  
1.25" CONDUIT  
UNMETERED STREET LIGHT SERVICE  
2-3/c 14 (LUM)  
SERVICE CABINET TO HH 12:  
1.25" CONDUIT  
UNMETERED STREET LIGHT SERVICE  
2-3/c 14 (LUM)  
STUB OUT 2" CONDUIT FROM SERVICE  
CABINET (FOR POWER CONNECTION  
BY CONNEXUS)  
STUB OUT 2-3" CONDUITS FROM CONTROLLER  
CABINET TO NORTH (THREAD  
AND CAP-FOR FUTURE USE)  
STUB OUT 1" CONDUIT FROM CONTROLLER  
CABINET (FOR FUTURE PHONE  
LINE BY OTHERS)  
CONTROLLER CABINET TO FO VAULT 107:  
(\*\*) 2" CONDUIT  
(\*\*) 2-12 SM FO CABLES

① F & I — PA100 POLE FOUNDATION  
LUMINAIRE-LED  
1-ANGLE MOUNT SIGNAL-OVERHEAD AT 0'  
1-STRAIGHT MOUNT SIGNAL-OVERHEAD AT 11'  
2-ANGLE MOUNT SIGNALS-POLE MOUNTED 90 DEG  
AND 180 DEG  
2-ANGLE MOUNT C.D. PED INDICATIONS-POLE MOUNTED  
90 DEG AND 180 DEG  
1-PEDESTRIAN PUSH BUTTON & SIGN (R10-3e)  
R10-X12 SIGN PANEL-ADJACENT TO 3-1  
TYPE D SIGN PANEL-OVERHEAD (D-1)  
(\*) INSTALL ONE WAY EVP DETECTOR & LED CONFIRMATION  
LIGHT (Ø8,3)  
(\*) ONE WAY EVP MOUNTING HARDWARE (FOR COUNTY  
FURNISHED DETECTOR AND CONFIRMATION LIGHT)  
EXTEND INTO HH 12:  
3" CONDUIT  
3-6/c 14  
4-4/c 14  
(\*) 1-3/c 14  
1-2/c 14  
(\*) 1-3/c 20  
1-3/c 14 (LUM)  
2-1/c 6 (GRD)

INSTALL (FURNISHED BY COUNTY) — TYPE PA100-A-35-D30-9 (DAVIT AT 350 DEG)  
(\*) ONE WAY EVP DETECTOR & LED CONFIRMATION  
LIGHT (Ø8,3)

③ F & I — PA100 POLE FOUNDATION  
LUMINAIRE-LED  
1-ANGLE MOUNT SIGNAL-OVERHEAD AT 0'  
1-STRAIGHT MOUNT SIGNAL-OVERHEAD AT 10'  
2-ANGLE MOUNT SIGNALS-POLE MOUNTED 90 DEG  
AND 180 DEG  
2-ANGLE MOUNT C.D. PED INDICATIONS-POLE MOUNTED  
90 DEG AND 180 DEG  
1-PEDESTRIAN PUSH BUTTON & SIGN (R10-3e)  
R10-X12 SIGN PANEL-ADJACENT TO 7-1  
TYPE D SIGN PANEL-OVERHEAD (D-3)  
(\*) INSTALL ONE WAY EVP DETECTOR & LED CONFIRMATION  
LIGHT (Ø4,7)  
(\*) ONE WAY EVP MOUNTING HARDWARE (FOR COUNTY  
FURNISHED DETECTOR AND CONFIRMATION LIGHT)  
EXTEND INTO HH 7:  
3" CONDUIT  
3-6/c 14  
4-4/c 14  
(\*) 1-3/c 14  
1-2/c 14  
(\*) 1-3/c 20  
1-3/c 14 (LUM)  
2-1/c 6 (GRD)

INSTALL (FURNISHED BY COUNTY) — TYPE PA100-A-25-D30-9 (DAVIT AT 350 DEG)  
(\*) ONE WAY EVP DETECTOR & LED CONFIRMATION  
LIGHT (Ø4,7)

② F & I — PA100 POLE FOUNDATION  
LUMINAIRE-LED  
1-ANGLE MOUNT SIGNAL-OVERHEAD AT 0'  
1-STRAIGHT MOUNT SIGNAL-OVERHEAD AT 11'  
2-ANGLE MOUNT SIGNALS-POLE MOUNTED 90 DEG  
AND 180 DEG  
2-ANGLE MOUNT C.D. PED INDICATIONS-POLE MOUNTED  
90 DEG AND 180 DEG  
1-PEDESTRIAN PUSH BUTTON & SIGN (R10-3e)  
R10-X12 SIGN PANEL-ADJACENT TO 5-1  
TYPE D SIGN PANEL-OVERHEAD (D-2)  
(\*) INSTALL ONE WAY EVP DETECTOR & LED CONFIRMATION  
LIGHT-OVERHEAD AT 6' (Ø2,5)  
(\*) INSTALL ONE WAY EVP DETECTOR — POLE MOUNTED  
AT 180 DEG (Ø8,3)  
(\*) 2-SETS ONE WAY EVP MOUNTING HARDWARE (FOR COUNTY  
FURNISHED OVERHEAD DETECTOR/CONFIRMATION LIGHT  
AND COUNTY FURNISHED POLE MOUNTED DETECTOR)  
EXTEND INTO HH 4:  
3" CONDUIT  
3-6/c 14  
4-4/c 14  
(\*) 1-3/c 14  
1-2/c 14  
(\*) 2-3/c 20  
1-3/c 14 (LUM)  
2-1/c 6 (GRD)

INSTALL (FURNISHED BY COUNTY) — TYPE PA100-A-40-D30-9 (DAVIT AT 350 DEG)  
(\*) ONE WAY EVP DETECTOR & LED CONFIRMATION  
LIGHT (OVERHEAD) (Ø2,5)  
(\*) ONE WAY EVP DETECTOR (POLE MOUNTED) (Ø8,3)

④ F & I — PA100 POLE FOUNDATION  
LUMINAIRE-LED  
1-ANGLE MOUNT SIGNAL-OVERHEAD AT 0'  
1-STRAIGHT MOUNT SIGNAL-OVERHEAD AT 11'  
2-ANGLE MOUNT SIGNALS-POLE MOUNTED 90 DEG  
AND 180 DEG  
2-ANGLE MOUNT C.D. PED INDICATIONS-POLE MOUNTED  
90 DEG AND 180 DEG  
1-PEDESTRIAN PUSH BUTTON & SIGN (R10-3e)  
R10-X12 SIGN PANEL-ADJACENT TO 1-1  
TYPE D SIGN PANEL-OVERHEAD (D-4)  
(\*) INSTALL ONE WAY EVP DETECTOR & LED CONFIRMATION  
LIGHT-OVERHEAD AT 6' (Ø6,1)  
(\*) INSTALL ONE WAY EVP DETECTOR — POLE MOUNTED  
AT 90 DEG (Ø2,5)  
(\*) 2-SETS ONE WAY EVP MOUNTING HARDWARE (FOR COUNTY  
FURNISHED OVERHEAD DETECTOR/CONFIRMATION LIGHT  
AND COUNTY FURNISHED POLE MOUNTED DETECTOR)  
EXTEND INTO HH 11:  
3" CONDUIT  
3-6/c 14  
4-4/c 14  
(\*) 1-3/c 14  
1-2/c 14  
(\*) 2-3/c 20  
1-3/c 14 (LUM)  
2-1/c 6 (GRD)

INSTALL (FURNISHED BY COUNTY) — TYPE PA100-A-40-D30-9 (DAVIT AT 350 DEG)  
(\*) ONE WAY EVP DETECTOR & LED CONFIRMATION  
LIGHT (OVERHEAD) (Ø6,1)  
(\*) ONE WAY EVP DETECTOR (POLE MOUNTED) (Ø2,5)

DRAWN BY: JMG  
DESIGNER: JMG  
CHECKED BY: JMG

DESIGN TEAM	NO.	BY	DATE	REVISIONS

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.  
Name: John M. Gray, PE  
Lic. No. 22457  
Date: July 7, 2021

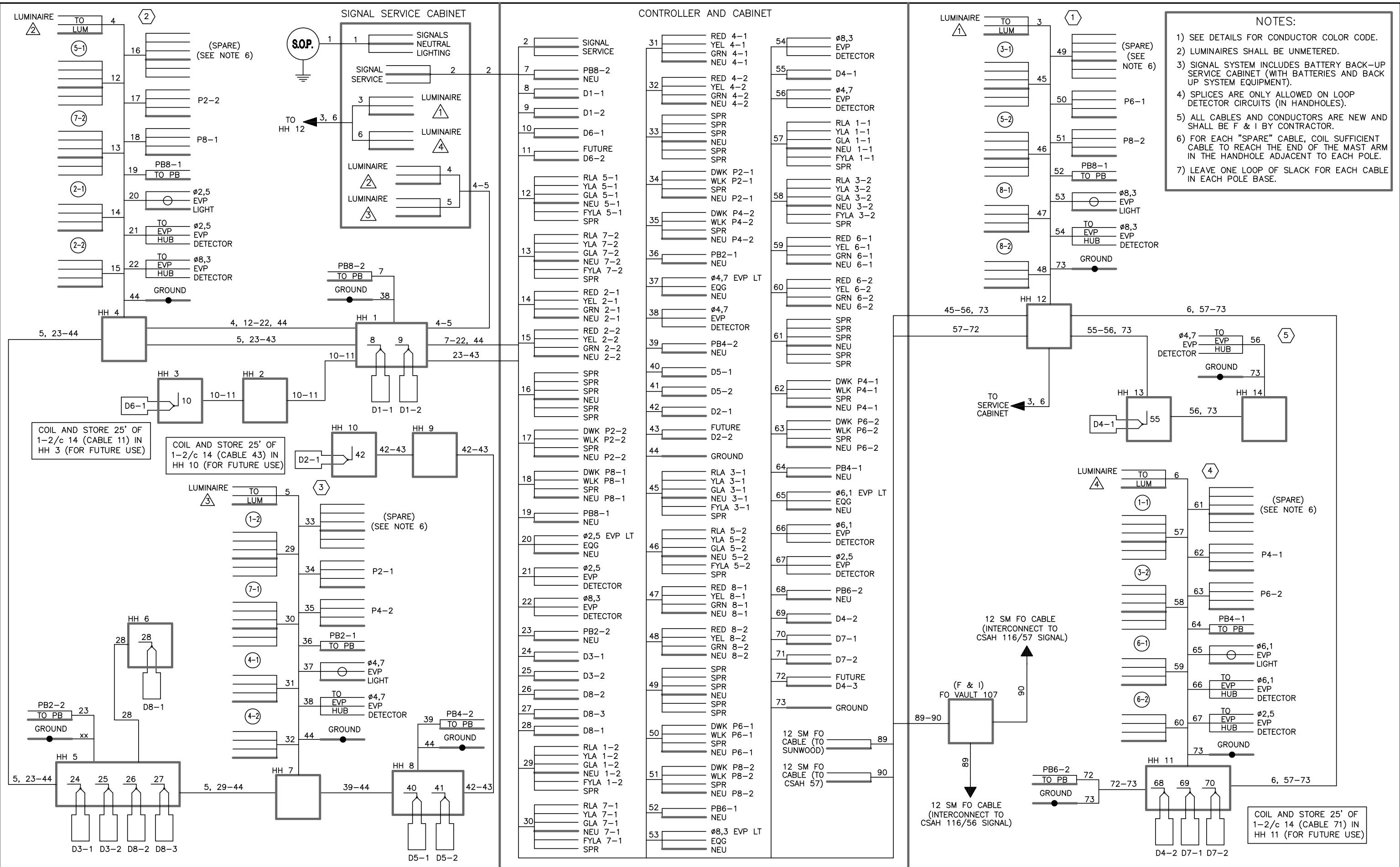


ANOKA COUNTY, MN  
CITY OF RAMSEY  
SAP 002-716-021  
SAP 199-104-014

TRAFFIC SIGNAL SYSTEM "C"  
SIGNAL SYSTEM NOTES  
CSAH 116 (BUNKER LAKE BLVD NW)  
AT SUNWOOD DRIVE NW

FILE NO.  
ANOKC 159572  
SIGNAL SHEET  
19 OF 25

198  
259



- NOTES:**
- 1) SEE DETAILS FOR CONDUCTOR COLOR CODE.
  - 2) LUMINAIRES SHALL BE UNMETRED.
  - 3) SIGNAL SYSTEM INCLUDES BATTERY BACK-UP SERVICE CABINET (WITH BATTERIES AND BACK UP SYSTEM EQUIPMENT).
  - 4) SPLICES ARE ONLY ALLOWED ON LOOP DETECTOR CIRCUITS (IN HANDHOLES).
  - 5) ALL CABLES AND CONDUCTORS ARE NEW AND SHALL BE F & I BY CONTRACTOR.
  - 6) FOR EACH "SPARE" CABLE, COIL SUFFICIENT CABLE TO REACH THE END OF THE MAST ARM IN THE HANDHOLE ADJACENT TO EACH POLE.
  - 7) LEAVE ONE LOOP OF SLACK FOR EACH CABLE IN EACH POLE BASE.

DRAWN BY: JMG  
 DESIGNER: JMG  
 CHECKED BY: JMG

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*John M. Gray*  
 Name: John M. Gray, PE  
 Date: July 7, 2021  
 Lic. No. 22457

**SEH**  
 PHONE: (651) 490-2000  
 3535 VADNAIS CENTER DR.  
 ST. PAUL, MN 55110

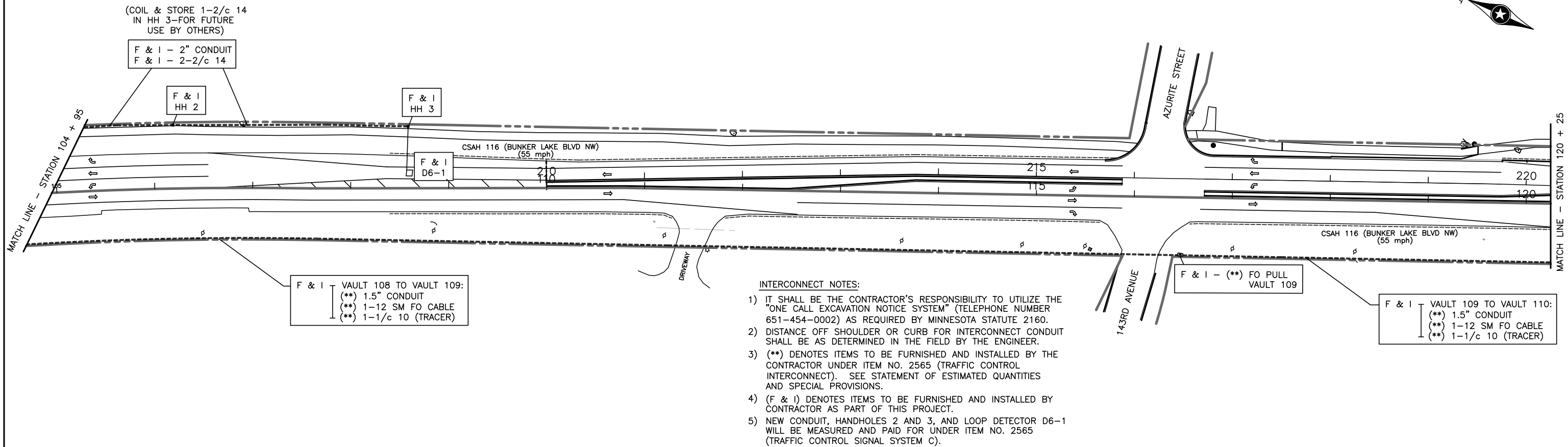
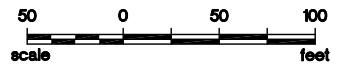
**ANOKA COUNTY, MN**  
**CITY OF RAMSEY**  
 SAP 002-716-021  
 SAP 199-104-014

**TRAFFIC SIGNAL SYSTEM "C"**  
**FIELD WIRING DIAGRAM**  
 CSAH 116 (BUNKER LAKE BLVD NW)  
 AT SUNWOOD DRIVE NW

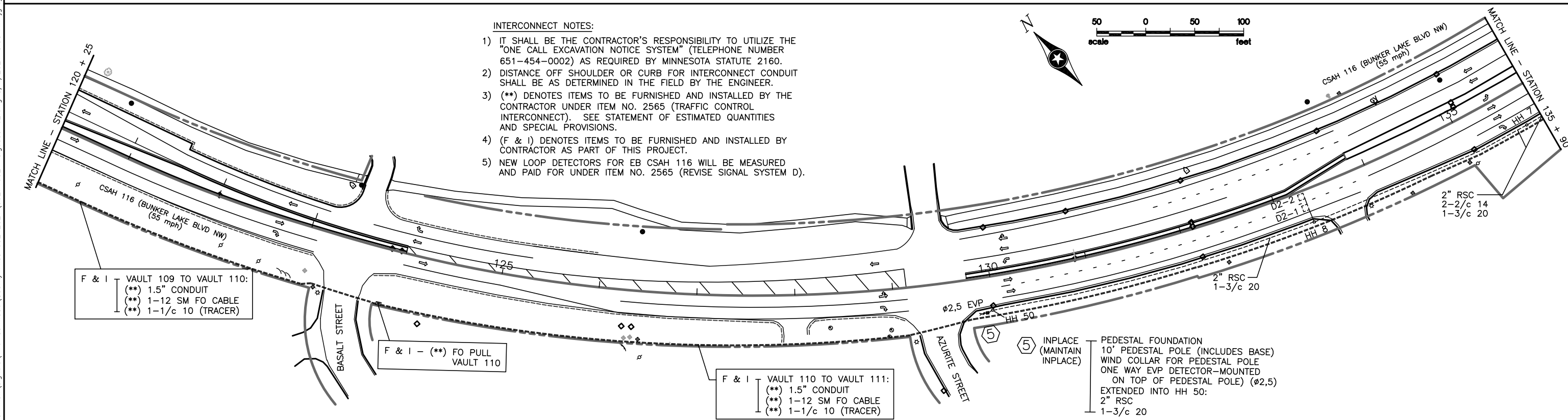
FILE NO.  
 ANOKC 159572  
 SIGNAL SHEET  
 20 OF 25

**199**  
**259**

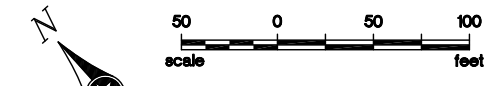
NOTE SCALE CHANGE ON THIS SHEET.



- INTERCONNECT NOTES:
- 1) IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO UTILIZE THE "ONE CALL EXCAVATION NOTICE SYSTEM" (TELEPHONE NUMBER 651-454-0002) AS REQUIRED BY MINNESOTA STATUTE 2160.
  - 2) DISTANCE OFF SHOULDER OR CURB FOR INTERCONNECT CONDUIT SHALL BE AS DETERMINED IN THE FIELD BY THE ENGINEER.
  - 3) (\*\*) DENOTES ITEMS TO BE FURNISHED AND INSTALLED BY THE CONTRACTOR UNDER ITEM NO. 2565 (TRAFFIC CONTROL INTERCONNECT). SEE STATEMENT OF ESTIMATED QUANTITIES AND SPECIAL PROVISIONS.
  - 4) (F & I) DENOTES ITEMS TO BE FURNISHED AND INSTALLED BY CONTRACTOR AS PART OF THIS PROJECT.
  - 5) NEW CONDUIT, HANDHOLES 2 AND 3, AND LOOP DETECTOR D6-1 WILL BE MEASURED AND PAID FOR UNDER ITEM NO. 2565 (TRAFFIC CONTROL SIGNAL SYSTEM C).



- INTERCONNECT NOTES:
- 1) IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO UTILIZE THE "ONE CALL EXCAVATION NOTICE SYSTEM" (TELEPHONE NUMBER 651-454-0002) AS REQUIRED BY MINNESOTA STATUTE 2160.
  - 2) DISTANCE OFF SHOULDER OR CURB FOR INTERCONNECT CONDUIT SHALL BE AS DETERMINED IN THE FIELD BY THE ENGINEER.
  - 3) (\*\*) DENOTES ITEMS TO BE FURNISHED AND INSTALLED BY THE CONTRACTOR UNDER ITEM NO. 2565 (TRAFFIC CONTROL INTERCONNECT). SEE STATEMENT OF ESTIMATED QUANTITIES AND SPECIAL PROVISIONS.
  - 4) (F & I) DENOTES ITEMS TO BE FURNISHED AND INSTALLED BY CONTRACTOR AS PART OF THIS PROJECT.
  - 5) NEW LOOP DETECTORS FOR EB CSAH 116 WILL BE MEASURED AND PAID FOR UNDER ITEM NO. 2565 (REVISE SIGNAL SYSTEM D).



DRAWN BY: JMG  
 DESIGNER: JMG  
 CHECKED BY: JMG

DESIGN TEAM	NO.	BY	DATE	REVISIONS

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**ANOKA COUNTY, MN**  
**CITY OF RAMSEY**  
 SAP 002-716-021  
 SAP 199-104-014

**SIGNAL SYSTEMS 'C-D'/INTERCONNECT**  
**INTERSECTION LAYOUT**  
 CSAH 116 (BUNKER LAKE BLVD NW)  
 (SUNWOOD DRIVE TO CSAH 57)

FILE NO. ANOKC 159572  
 SIGNAL SHEET 21 OF 25  
**200**  
**259**

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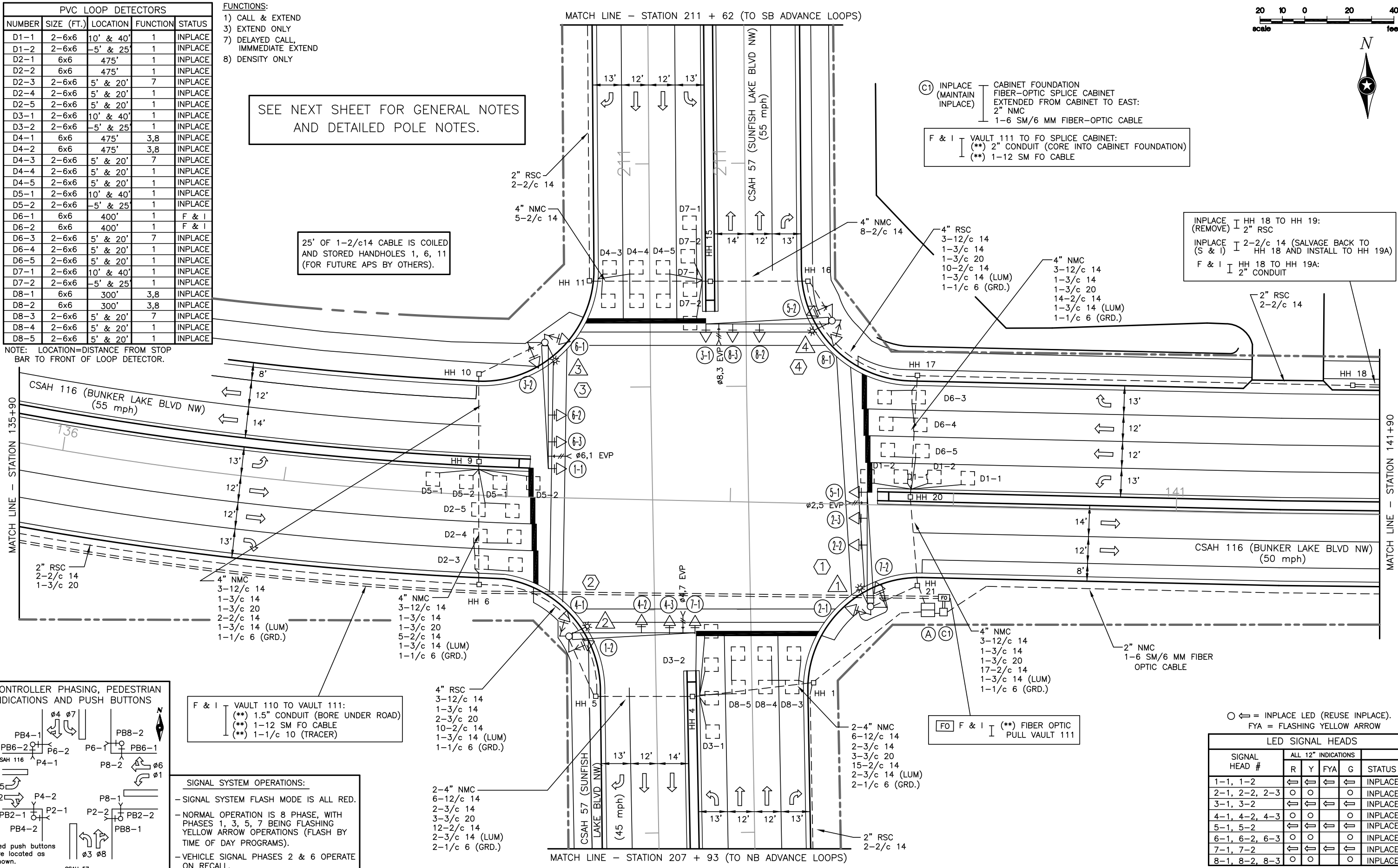
PVC LOOP DETECTORS				
NUMBER	SIZE (FT.)	LOCATION	FUNCTION	STATUS
D1-1	2-6x6	10' & 40'	1	INPLACE
D1-2	2-6x6	-5' & 25'	1	INPLACE
D2-1	6x6	475'	1	INPLACE
D2-2	6x6	475'	1	INPLACE
D2-3	2-6x6	5' & 20'	7	INPLACE
D2-4	2-6x6	5' & 20'	1	INPLACE
D2-5	2-6x6	5' & 20'	1	INPLACE
D3-1	2-6x6	10' & 40'	1	INPLACE
D3-2	2-6x6	-5' & 25'	1	INPLACE
D4-1	6x6	475'	3,8	INPLACE
D4-2	6x6	475'	3,8	INPLACE
D4-3	2-6x6	5' & 20'	7	INPLACE
D4-4	2-6x6	5' & 20'	1	INPLACE
D4-5	2-6x6	5' & 20'	1	INPLACE
D5-1	2-6x6	10' & 40'	1	INPLACE
D5-2	2-6x6	-5' & 25'	1	INPLACE
D6-1	6x6	400'	1	F & I
D6-2	6x6	400'	1	F & I
D6-3	2-6x6	5' & 20'	7	INPLACE
D6-4	2-6x6	5' & 20'	1	INPLACE
D6-5	2-6x6	5' & 20'	1	INPLACE
D7-1	2-6x6	10' & 40'	1	INPLACE
D7-2	2-6x6	-5' & 25'	1	INPLACE
D8-1	6x6	300'	3,8	INPLACE
D8-2	6x6	300'	3,8	INPLACE
D8-3	2-6x6	5' & 20'	7	INPLACE
D8-4	2-6x6	5' & 20'	1	INPLACE
D8-5	2-6x6	5' & 20'	1	INPLACE

- FUNCTIONS:  
 1) CALL & EXTEND  
 3) EXTEND ONLY  
 7) DELAYED CALL, IMMEDIATE EXTEND  
 8) DENSITY ONLY

SEE NEXT SHEET FOR GENERAL NOTES AND DETAILED POLE NOTES.

25' OF 1-2/c14 CABLE IS COILED AND STORED HANDHOLES 1, 6, 11 (FOR FUTURE APS BY OTHERS).

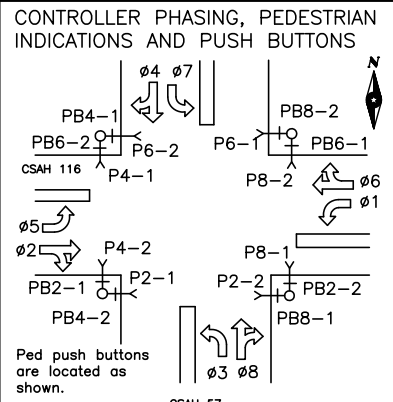
NOTE: LOCATION=DISTANCE FROM STOP BAR TO FRONT OF LOOP DETECTOR.



(C1) INPLACE (MAINTAIN) INPLACE  
 CABINET FOUNDATION FIBER-OPTIC SPLICE CABINET EXTENDED FROM CABINET TO EAST:  
 2" NMC  
 1-6 SM/6 MM FIBER-OPTIC CABLE

F & I VAULT 111 TO FO SPLICE CABINET:  
 (\*\*) 2" CONDUIT (CORE INTO CABINET FOUNDATION)  
 (\*\*) 1-12 SM FO CABLE

INPLACE (REMOVE) HH 18 TO HH 19:  
 2" RSC  
 INPLACE 2-2/c 14 (SALVAGE BACK TO HH 18 AND INSTALL TO HH 19A)  
 F & I HH 18 TO HH 19A:  
 2" CONDUIT



F & I VAULT 110 TO VAULT 111:  
 (\*\*) 1.5" CONDUIT (BORE UNDER ROAD)  
 (\*\*) 1-12 SM FO CABLE  
 (\*\*) 1-1/c 10 (TRACER)

SIGNAL SYSTEM OPERATIONS:  
 - SIGNAL SYSTEM FLASH MODE IS ALL RED.  
 - NORMAL OPERATION IS 8 PHASE, WITH PHASES 1, 3, 5, 7 BEING FLASHING YELLOW ARROW OPERATIONS (FLASH BY TIME OF DAY PROGRAMS).  
 - VEHICLE SIGNAL PHASES 2 & 6 OPERATE ON RECALL.

○ ◀ = INPLACE LED (REUSE INPLACE).  
 FYA = FLASHING YELLOW ARROW

SIGNAL HEAD #	ALL 12" INDICATIONS				STATUS
	R	Y	FYA	G	
1-1, 1-2	◀	◀	◀	◀	INPLACE
2-1, 2-2, 2-3	○	○	○	○	INPLACE
3-1, 3-2	◀	◀	◀	◀	INPLACE
4-1, 4-2, 4-3	○	○	○	○	INPLACE
5-1, 5-2	◀	◀	◀	◀	INPLACE
6-1, 6-2, 6-3	○	○	○	○	INPLACE
7-1, 7-2	◀	◀	◀	◀	INPLACE
8-1, 8-2, 8-3	○	○	○	○	INPLACE

DRAWN BY: JMG  
 DESIGNER: JMG  
 CHECKED BY: JMG

NO.	BY	DATE	REVISIONS

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.

*John M. Gray*  
 Name: John M. Gray, PE  
 Lic. No. 22457  
 Date: July 7, 2021



ANOKA COUNTY, MN  
 CITY OF RAMSEY  
 SAP 002-716-021  
 SAP 199-104-014

REVISE SIGNAL SYSTEM 'D'  
 INTERSECTION LAYOUT  
 CSAH 116 (BUNKER LAKE BLVD NW)  
 AT CSAH 57 (SUNFISH LAKE BLVD NW)

FILE NO.  
 ANOKC 159572  
 SIGNAL SHEET  
 22 OF 25

**201**  
**259**

REVISE SIGNAL SYSTEM D NOTES:

- ALL ITEMS OF THIS SIGNAL SYSTEM ARE INPLACE AND SHALL BE REUSED AND MAINTAINED INPLACE, UNLESS OTHERWISE NOTED ON PLANS.
- CONTRACTOR SHALL PROTECT AND MAINTAIN ALL EXISTING PVC HANDHOLES (WITH METAL FRAMES AND COVERS) IN THE VICINITY OF CONSTRUCTION, EXCEPT AS FOLLOWS (ALL INCIDENTAL):
  - CONTRACTOR SHALL REMOVE AND DISPOSE OF HANDHOLE 19 AND SHALL FURNISH AND INSTALL NEW HANDHOLE 19A (PVC HANDHOLE WITH METAL FRAME AND COVER - SEE DETAILS IN SPECIAL PROVISIONS).
  - CONTRACTOR SHALL ADJUST HANDHOLES 7, 8, 19A, AND 50 TO MATCH FINISHED SURROUNDING GRADE AFTER ROAD WORK HAS BEEN COMPLETED (SEE SPECIAL PROVISIONS).
- LOCATION OF HANDHOLE, FIBER VAULT, AND LOOP DETECTORS SHALL BE DETERMINED IN THE FIELD BY THE ENGINEER.
- SEE SPECIAL PROVISIONS FOR COUNTY FURNISHED MATERIALS.
- ALL LOOP DETECTORS ARE INPLACE AND SHALL BE REUSED AND MAINTAINED INPLACE AND OPERATIONAL, EXCEPT AS FOLLOWS: CONTRACTOR SHALL FURNISH AND INSTALL NEW LOOP DETECTORS D6-1 AND D6-2 IN PVC AS PER THE DETAILS INCLUDED ELSEWHERE IN THESE PLANS. LOOP DETECTOR WIRES FOR NEW LOOP DETECTORS SHALL BE CROSS-LINKED POLY-ETHYLENE (XLP) #12 AWG IN 3/4" NMC. SEE SPECIAL PROVISIONS.
- ANY DAMAGE TO INPLACE TRAFFIC SIGNAL FACILITIES (CONDUIT, CABLES, HANDHOLES, SIGNAL POLES, ETC.), DUE TO TRAFFIC SIGNAL OR ROAD WORK, SHALL BE REPAIRED BY CONTRACTOR TO SATISFACTION OF THE ENGINEER, AT NO EXPENSE TO THE COUNTY.
- CONTRACTOR SHALL MAINTAIN OPERATION OF THE SIGNAL SYSTEM AT ALL TIMES, EXCEPT AS OTHERWISE APPROVED BY ENGINEER.
- ALL VEHICULAR HEADS ARE INPLACE AND SHALL BE REUSED AND MAINTAINED INPLACE (ALL HAVE BACKGROUND SHIELDS).
- F & I = NEW, FURNISH AND INSTALL.  
S & I = INPLACE, SALVAGE AND INSTALL.
- ALL CABLES AND CONDUCTORS, CONDUIT, HANDHOLES, AND LOOP DETECTORS ARE INPLACE AND SHALL BE REUSED AND MAINTAINED INPLACE, EXCEPT WHERE BOXED IN AND DENOTED OTHERWISE.
- (\*\*) DENOTES ITEMS TO BE FURNISHED AND INSTALLED BY THE CONTRACTOR UNDER ITEM NO. 2565 (TRAFFIC CONTROL INTERCONNECT). SEE STATEMENT OF ESTIMATED QUANTITIES AND SPECIAL PROVISIONS.
- SEE SPECIAL PROVISIONS REGARDING WORK TO RAISE OVERHEAD SIGNAL HEADS ON MAST ARMS 3 AND 4 (INCLUDED AS PART OF PAY ITEM FOR ITEM NO. 2565-REVISE SIGNAL SYSTEM D).

① INPLACE (MAINTAIN INPLACE) PA100 POLE FOUNDATION  
 TYPE PA100-A-50-D40-9 (DAVIT AT 350 DEG)  
 LUMINAIRE-250 W HPS  
 3-ONE WAY SIGNALS-OVERHEAD AT 0', 11', 23'  
 2-ANGLE MOUNT SIGNALS-POLE MOUNTED 90/180 DEG  
 2-ANGLE MOUNT C.D. PED INDICATIONS-POLE MOUNTED 90/180 DEG  
 2-PEDESTRIAN PUSH BUTTONS & SIGNS  
 2-R6-1 SIGN PANELS-POLE MOUNTED 0/180 DEG  
 R10-X12 SIGN PANEL-ADJACENT TO 5-1  
 TYPE D SIGN PANEL-OVERHEAD AT 30'  
 ONE WAY EVP DETECTOR AND LIGHT AT 6' (ø2,5)  
 EXTENDED INTO HH 21:  
 3" RSC  
 3-12/c 14  
 1-3/c 14  
 1-3/c 20  
 2-2/c 14  
 1-3/c 14 (LUM)  
 1-1/c 6 (GRD.)

② INPLACE (MAINTAIN INPLACE) PA100 POLE FOUNDATION  
 TYPE PA100-A-55-D40-9 (DAVIT AT 350 DEG)  
 LUMINAIRE-250 W HPS  
 3-ONE WAY SIGNALS-OVERHEAD AT 0', 11', 23'  
 2-ANGLE MOUNT SIGNALS-POLE MOUNTED 90/180 DEG  
 2-ANGLE MOUNT C.D. PED INDICATIONS-POLE MOUNTED 90/180 DEG  
 2-PEDESTRIAN PUSH BUTTONS & SIGNS  
 2-R6-1 SIGN PANELS-POLE MOUNTED 0/180 DEG  
 R10-X12 SIGN PANEL-ADJACENT TO 7-1  
 TYPE D SIGN PANEL-OVERHEAD AT 28'  
 ONE WAY EVP DETECTOR AND LIGHT AT 6' (ø4,7)  
 EXTENDED INTO HH 5:  
 3" RSC  
 3-12/c 14  
 1-3/c 14  
 1-3/c 20  
 2-2/c 14  
 1-3/c 14 (LUM)  
 1-1/c 6 (GRD.)

③ INPLACE (MAINTAIN INPLACE) PA100 POLE FOUNDATION  
 TYPE PA100-A-55-D40-9 (DAVIT AT 350 DEG)  
 LUMINAIRE-250 W HPS  
 3-ONE WAY SIGNALS-OVERHEAD AT 0', 11', 23'  
 2-ANGLE MOUNT SIGNALS-POLE MOUNTED 90/180 DEG  
 2-ANGLE MOUNT C.D. PED INDICATIONS-POLE MOUNTED 90/180 DEG  
 2-PEDESTRIAN PUSH BUTTONS & SIGNS  
 2-R6-1 SIGN PANELS-POLE MOUNTED 0/180 DEG  
 R10-X12 SIGN PANEL-ADJACENT TO 1-1  
 TYPE D SIGN PANEL-OVERHEAD AT 28'  
 ONE WAY EVP DETECTOR AND LIGHT AT 6' (ø6,1)  
 EXTENDED INTO HH 10:  
 3" RSC  
 3-12/c 14  
 1-3/c 14  
 1-3/c 20  
 2-2/c 14  
 1-3/c 14 (LUM)  
 1-1/c 6 (GRD.)

F & I ADJUST MAST ARM/POLE SO THAT ALL OVERHEAD SIGNAL HEADS ARE 17 FEET ABOVE GROUND LINE TO BOTTOM OF BACKGROUND SHIELD (CURRENTLY AT 16.8 FEET ABOVE GROUND LINE) (SEE SPECIAL PROVISIONS).

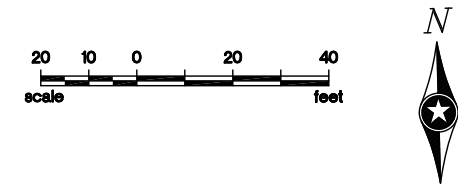
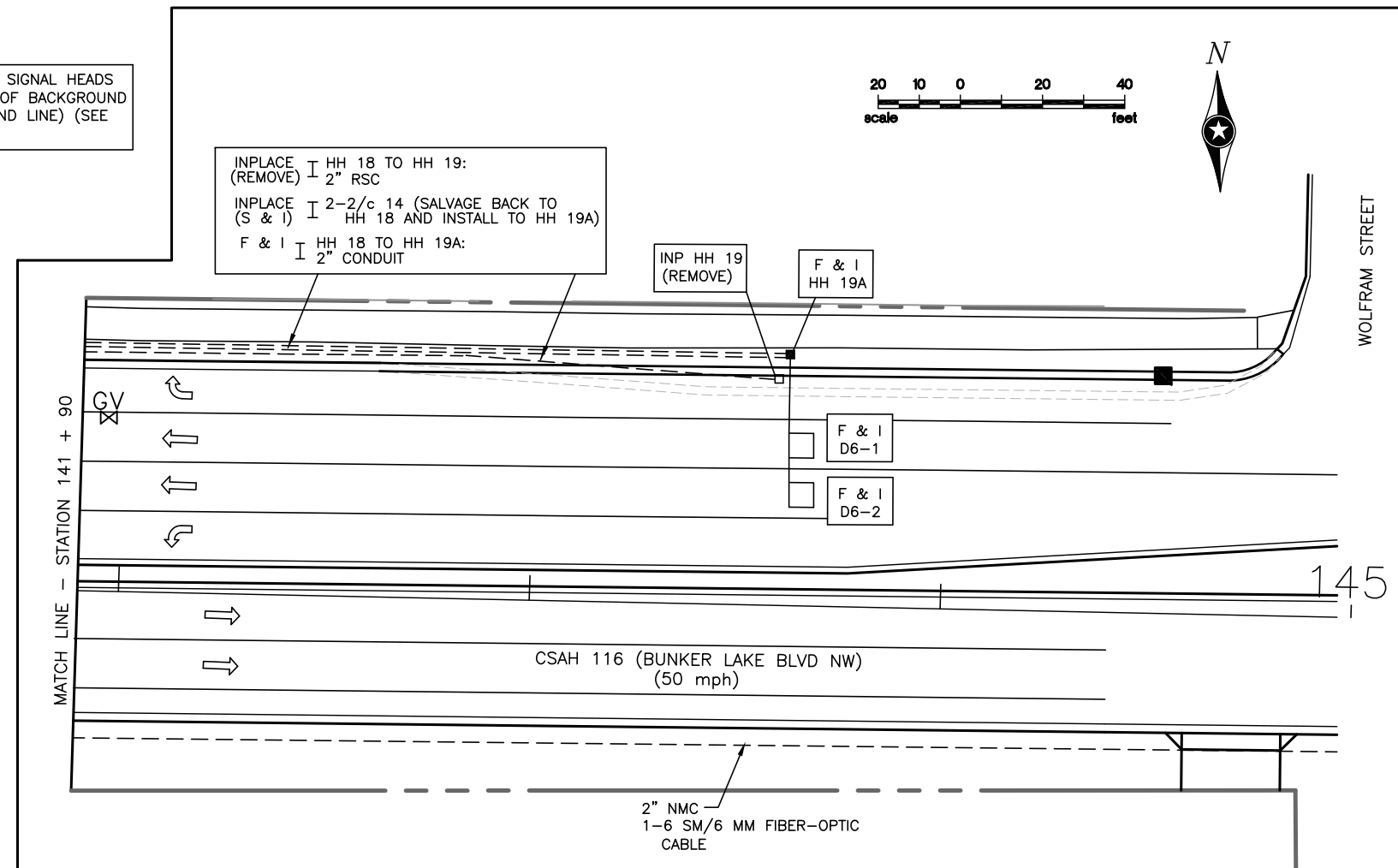
④ INPLACE (MAINTAIN INPLACE) PA100 POLE FOUNDATION  
 TYPE PA100-A-55-D40-9 (DAVIT AT 350 DEG)  
 LUMINAIRE-250 W HPS  
 3-ONE WAY SIGNALS-OVERHEAD AT 0', 11', 23'  
 2-ANGLE MOUNT SIGNALS-POLE MOUNTED 90/180 DEG  
 2-ANGLE MOUNT C.D. PED INDICATIONS-POLE MOUNTED 90/180 DEG  
 2-PEDESTRIAN PUSH BUTTONS & SIGNS  
 2-R6-1 SIGN PANELS-POLE MOUNTED 0/180 DEG  
 R10-X12 SIGN PANEL-ADJACENT TO 3-1  
 TYPE D SIGN PANEL-OVERHEAD AT 28'  
 ONE WAY EVP DETECTOR AND LIGHT AT 6' (ø8,3)  
 EXTENDED INTO HH 16:  
 3" RSC  
 3-12/c 14  
 1-3/c 14  
 1-3/c 20  
 2-2/c 14  
 1-3/c 14 (LUM)  
 1-1/c 6 (GRD.)

F & I ADJUST MAST ARM/POLE SO THAT ALL OVERHEAD SIGNAL HEADS ARE 17 FEET ABOVE GROUND LINE TO BOTTOM OF BACKGROUND SHIELD (CURRENTLY AT 16.8 FEET ABOVE GROUND LINE) (SEE SPECIAL PROVISIONS).

Ⓐ INPLACE (MAINTAIN INPLACE) CONTROLLER AND CABINET  
 EQUIPMENT PAD FOUNDATION  
 BATTERY BACK-UP SIGNAL SERVICE CABINET  
 BETWEEN CONTROLLER CABINET AND SERVICE CABINET:  
 METERED SIGNAL SERVICE  
 2" RSC  
 3-1/c 6  
 CONTROLLER CABINET TO HH 1:  
 4" RSC 4" RSC  
 3-12/c 14 3-12/c 14  
 1-3/c 14 1-3/c 14  
 1-3/c 20 2-3/c 20  
 9-2/c 14 10-2/c 14  
 1-1/c 6 (GRD) 1-1/c 6 (GRD)  
 CONTROLLER CABINET TO H.H.21:  
 4" RSC 4" RSC  
 3-12/c 14 3-12/c 14  
 1-3/c 14 1-3/c 14  
 1-3/c 20 1-3/c 20  
 2-2/c 14 17-2/c 14  
 1-1/c 6 (GRD) 1-1/c 6 (GRD.)

INPLACE (MAINTAIN INPLACE) SERVICE CABINET TO HH 1:  
 2" RSC  
 UNMETERED STREET LIGHT SERVICE  
 2-3/c 14 (LUM)  
 SERVICE CABINET TO HH 21:  
 2" RSC  
 UNMETERED STREET LIGHT SERVICE  
 2-3/c 14 (LUM)  
 SERVICE CABINET TO SOURCE OF POWER:  
 2" RSC  
 POWER CABLES BY CONNEXUS  
 1" RSC STUBBED OUT FROM CONTROLLER CABINET (FOR FUTURE PHONE LINE BY OTHERS)  
 3" RSC STUBBED OUT FROM CONTROLLER CABINET TO NORTH (BOTH ENDS THREADED AND CAPPED-FOR FUTURE USE)

INPLACE (MAINTAIN INPLACE) CONTROLLER CABINET TO FO ENCLOSURE:  
 2" RSC  
 1-6 SM/6 MM FIBER OPTIC CABLE  
 F & I - (\*\*) 1-12 SM FO CABLE



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DRAWN BY:	JMG
DESIGNER:	JMG
CHECKED BY:	JMG
DESIGN TEAM	

NO.	BY	DATE	REVISIONS

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.  
*John M. Gray*  
 Name: John M. Gray, PE  
 Date: July 7, 2021  
 Lic. No. 22457

**SEH**  
 PHONE: (651) 490-2000  
 3535 VADNAIS CENTER DR.  
 ST. PAUL, MN 55110

**ANOKA COUNTY, MN**  
**CITY OF RAMSEY**  
 SAP 002-716-021  
 SAP 199-104-014

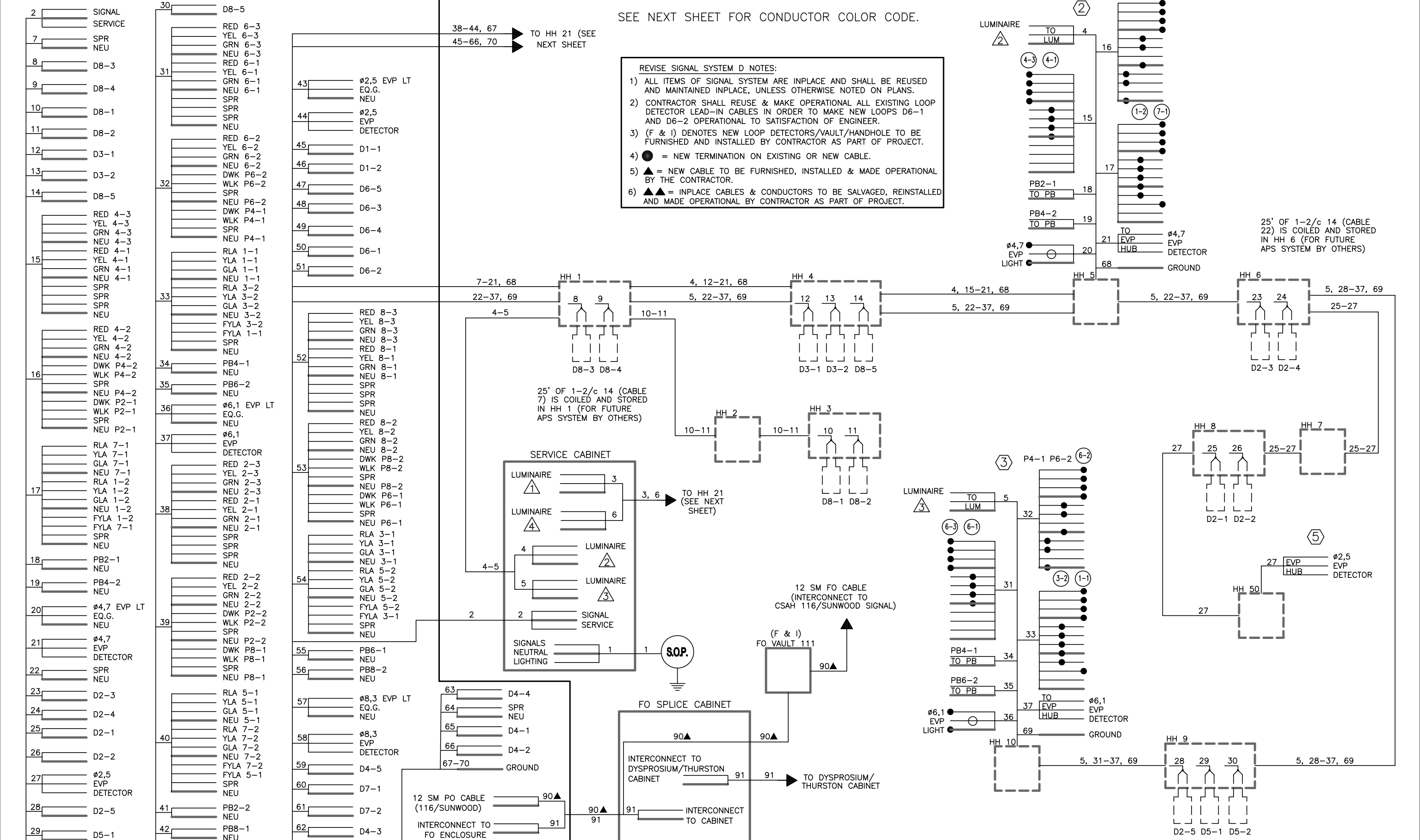
**REVISE SIGNAL SYSTEM 'D'**  
**SIGNAL SYSTEM NOTES**  
 CSAH 116 (BUNKER LAKE BLVD NW)  
 AT CSAH 57 (SUNFISH LAKE BLVD NW)

FILE NO. ANOKC 159572	<b>202</b>
SIGNAL SHEET 23 OF 25	

CONTROLLER AND CABINET

SEE NEXT SHEET FOR CONDUCTOR COLOR CODE.

- REVISE SIGNAL SYSTEM 'D' NOTES:
- 1) ALL ITEMS OF SIGNAL SYSTEM ARE INPLACE AND SHALL BE REUSED AND MAINTAINED INPLACE, UNLESS OTHERWISE NOTED ON PLANS.
  - 2) CONTRACTOR SHALL REUSE & MAKE OPERATIONAL ALL EXISTING LOOP DETECTOR LEAD-IN CABLES IN ORDER TO MAKE NEW LOOPS D6-1 AND D6-2 OPERATIONAL TO SATISFACTION OF ENGINEER.
  - 3) (F & I) DENOTES NEW LOOP DETECTORS/VAULT/HANDHOLE TO BE FURNISHED AND INSTALLED BY CONTRACTOR AS PART OF PROJECT.
  - 4) ● = NEW TERMINATION ON EXISTING OR NEW CABLE.
  - 5) ▲ = NEW CABLE TO BE FURNISHED, INSTALLED & MADE OPERATIONAL BY THE CONTRACTOR.
  - 6) ▲▲ = INPLACE CABLES & CONDUCTORS TO BE SALVAGED, REINSTALLED AND MADE OPERATIONAL BY CONTRACTOR AS PART OF PROJECT.



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 DESIGNER: JMG  
 CHECKED BY: JMG

NO.	BY	DATE	REVISIONS

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*John M. Gray*  
 Name: John M. Gray, PE  
 Lic. No. 22457  
 Date: July 7, 2021

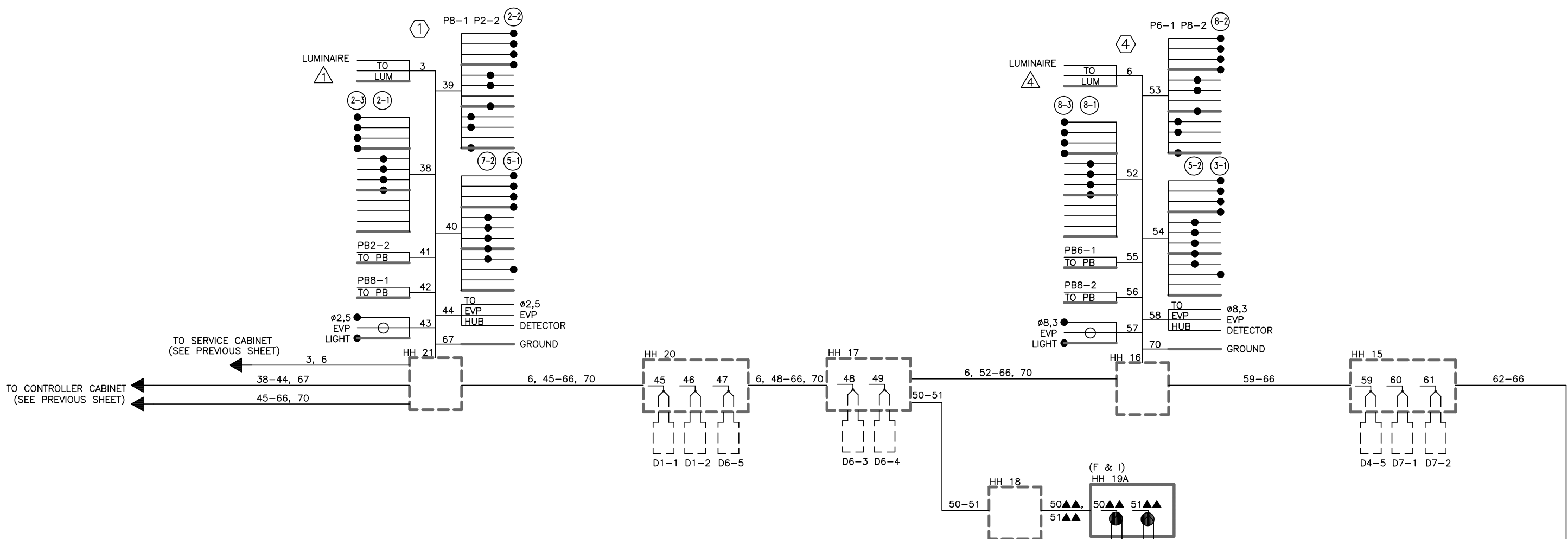
**SEH**  
 PHONE: (651) 490-2000  
 3535 VADNAIS CENTER DR.  
 ST. PAUL, MN 55110

**ANOKA COUNTY, MN**  
**CITY OF RAMSEY**  
 SAP 002-716-021  
 SAP 199-104-014

**REVISE SIGNAL SYSTEM 'D'**  
**FIELD WIRING DIAGRAM**  
 CSAH 116 (BUNKER LAKE BLVD NW)  
 AT CSAH 57 (SUNFISH LAKE BLVD NW)

FILE NO. ANOKC 159572  
 SIGNAL SHEET 24 OF 25  
**203**  
**259**

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CONDUCTOR COLOR CODE (14 GAUGE)			
TO SIGNAL CABINET		TO DEVICE	
1/C#6	G	R	RED
6PR#19		O	YEL
		BL	BLK
		WH	GRN
3-1/C#2	R	BLK/R	NEU
	WH	BLK	YLTA
	BLK	BLK	GLTA
			4 & 5 SECTION SIGNAL INDICATION
3-1/C#6	BLK	R	RED/DWK
	WH	BLK/R	YEL/WLK
	G	BLK	GRN/SPR
		WH	NEU
			3 SECTION AND PED INDICATION
			EVP LIGHT LUM/FLASHER
			PED PUSH BUTTON (if required)

NOTE: ALL TERMINAL BLOCK CONNECTIONS SHALL BE ARRANGED AS SPECIFIED ABOVE.

- REVISE SIGNAL SYSTEM 'D' NOTES:
- ALL ITEMS OF SIGNAL SYSTEM ARE INPLACE AND SHALL BE REUSED AND MAINTAINED INPLACE, UNLESS OTHERWISE NOTED ON PLANS.
  - CONTRACTOR SHALL REUSE & MAKE OPERATIONAL ALL EXISTING LOOP DETECTOR LEAD-IN CABLES IN ORDER TO MAKE NEW LOOPS D6-1 AND D6-2 OPERATIONAL TO SATISFACTION OF ENGINEER.
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  - = NEW TERMINATION ON EXISTING OR NEW CABLE.
  - ▲ = NEW CABLE TO BE FURNISHED, INSTALLED & MADE OPERATIONAL BY THE CONTRACTOR.
  - ▲▲ = INPLACE CABLES & CONDUCTORS TO BE SALVAGED, REINSTALLED AND MADE OPERATIONAL BY CONTRACTOR AS PART OF PROJECT.

25' OF 1-2/c 14 (CABLE 64) IS COILED AND STORED IN HH 11 (FOR FUTURE APS SYSTEM BY OTHERS)

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

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.

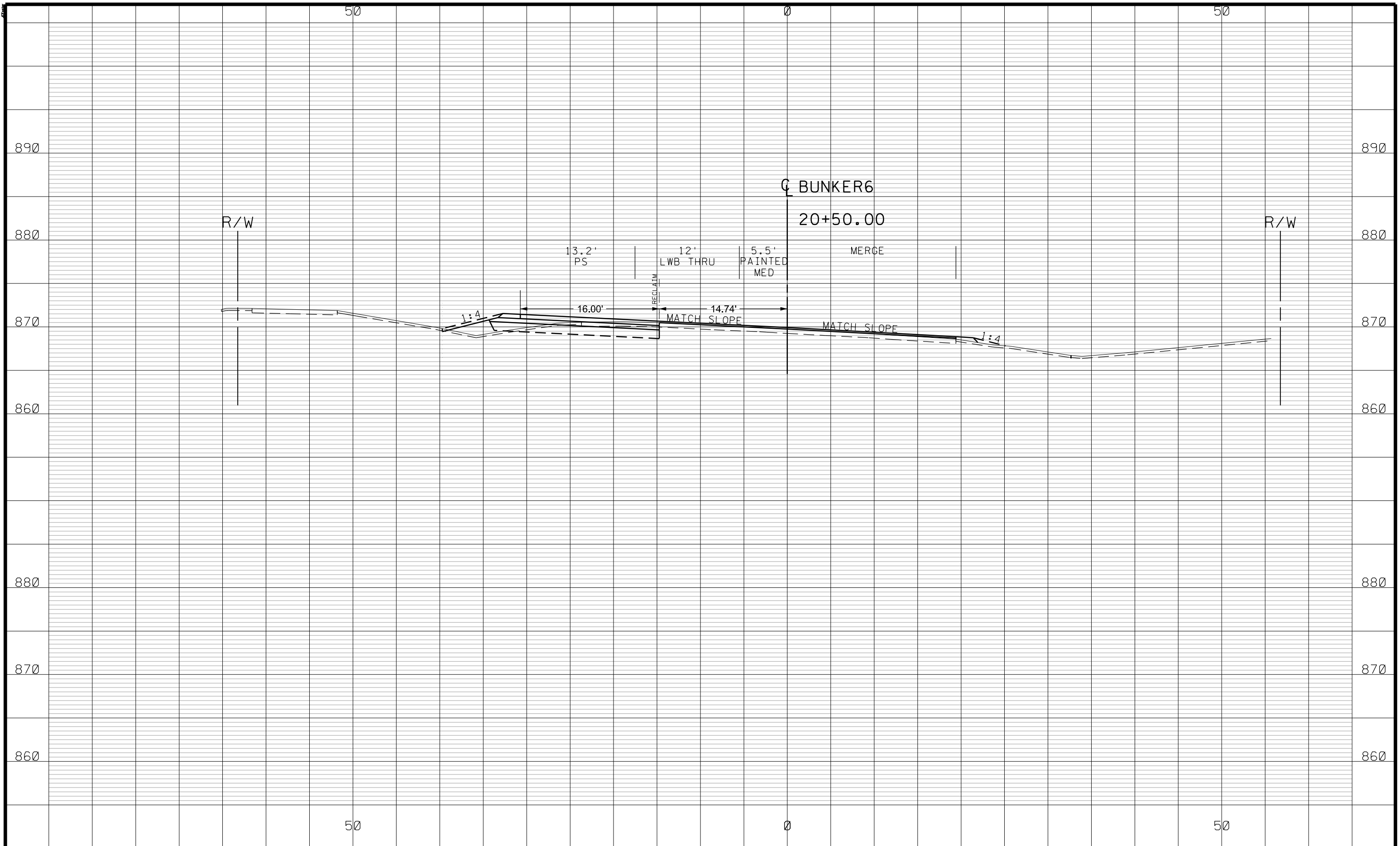
*John M. Gray* Name: John M. Gray, PE  
Date: July 7, 2021 Lic. No. 22457



ANOKA COUNTY, MN  
CITY OF RAMSEY  
SAP 002-716-021  
SAP 199-104-014

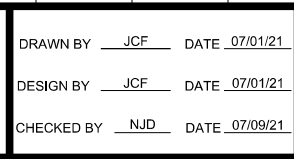
REVISE SIGNAL SYSTEM 'D'  
FIELD WIRING DIAGRAM  
CSAH 116 (BUNKER LAKE BLVD NW)  
AT CSAH 57 (SUNFISH LAKE BLVD NW)

FILE NO. ANOKC 159572  
SIGNAL SHEET 25 OF 25



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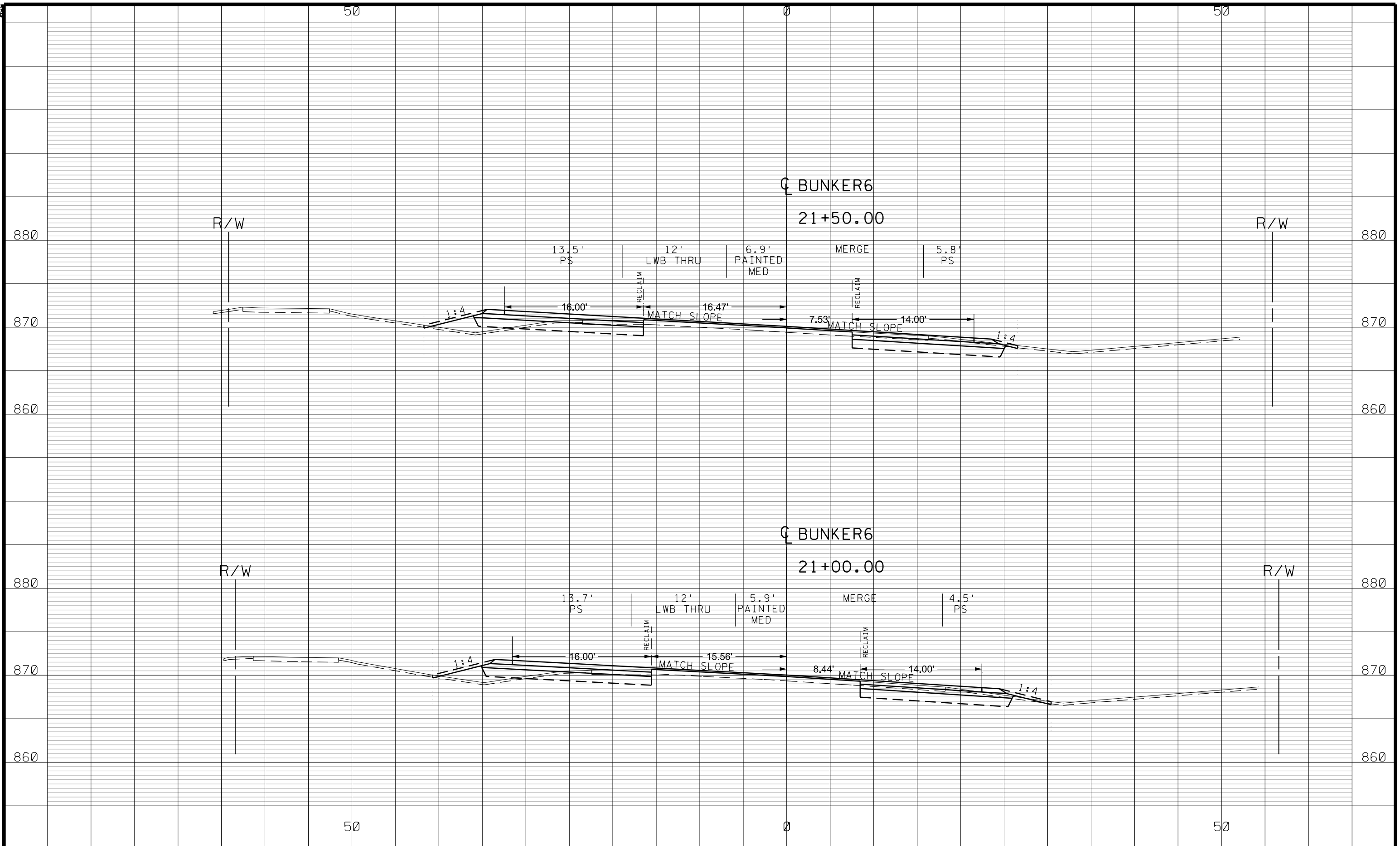
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 CHECKED BY NJD DATE 07/09/21



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

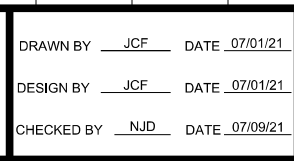
SAP 002-716-021  
 SAP 199-104-014

**CROSS SECTIONS**  
 STA 20+50.00 TO 20+50.00  
 Sheet 205 of 259 Sheets



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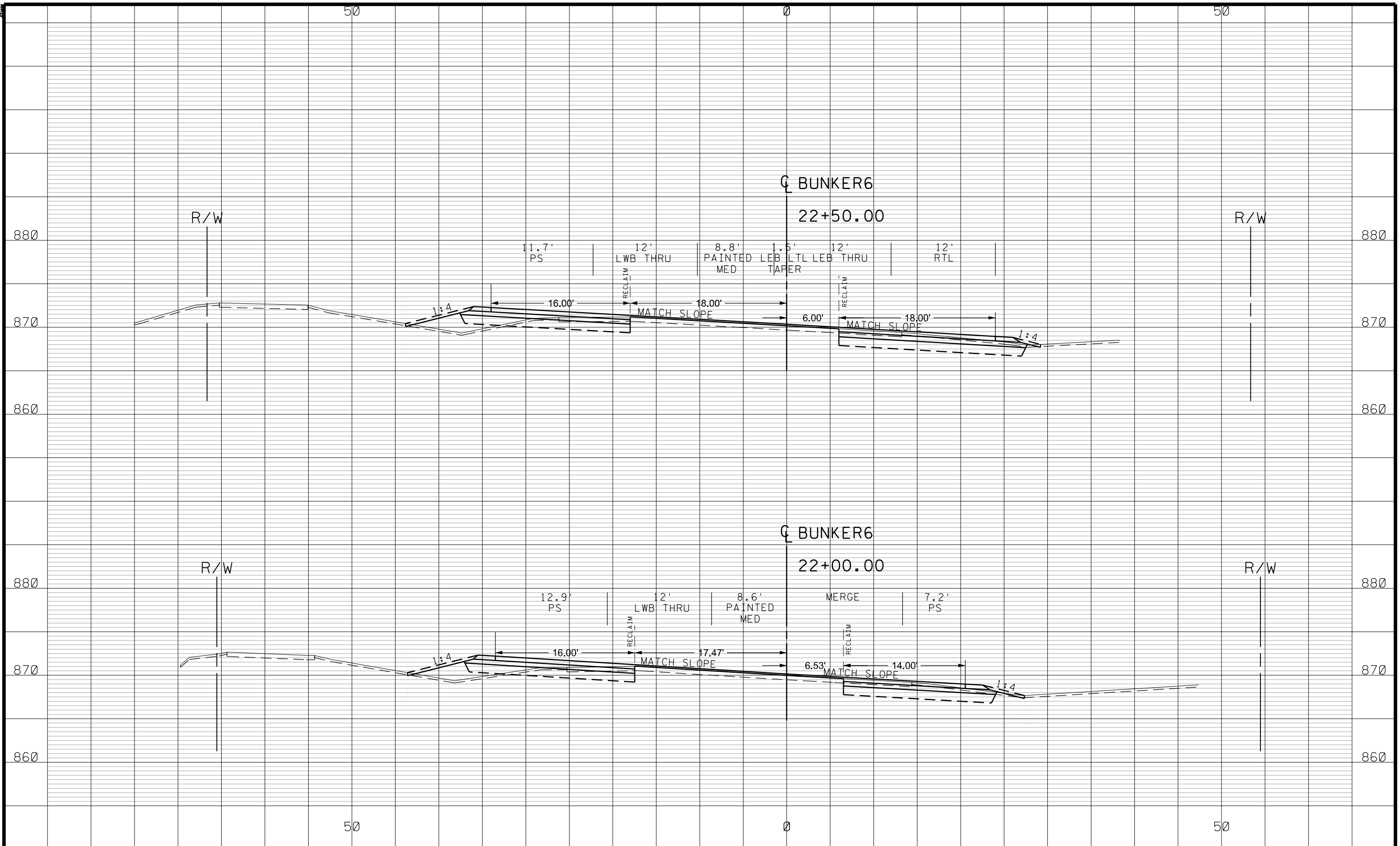
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**ANOKA COUNTY**  
**HIGHWAY DEPT.**

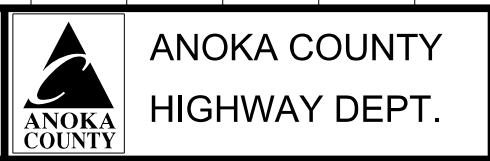
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 Sheet 206 of 259 Sheets



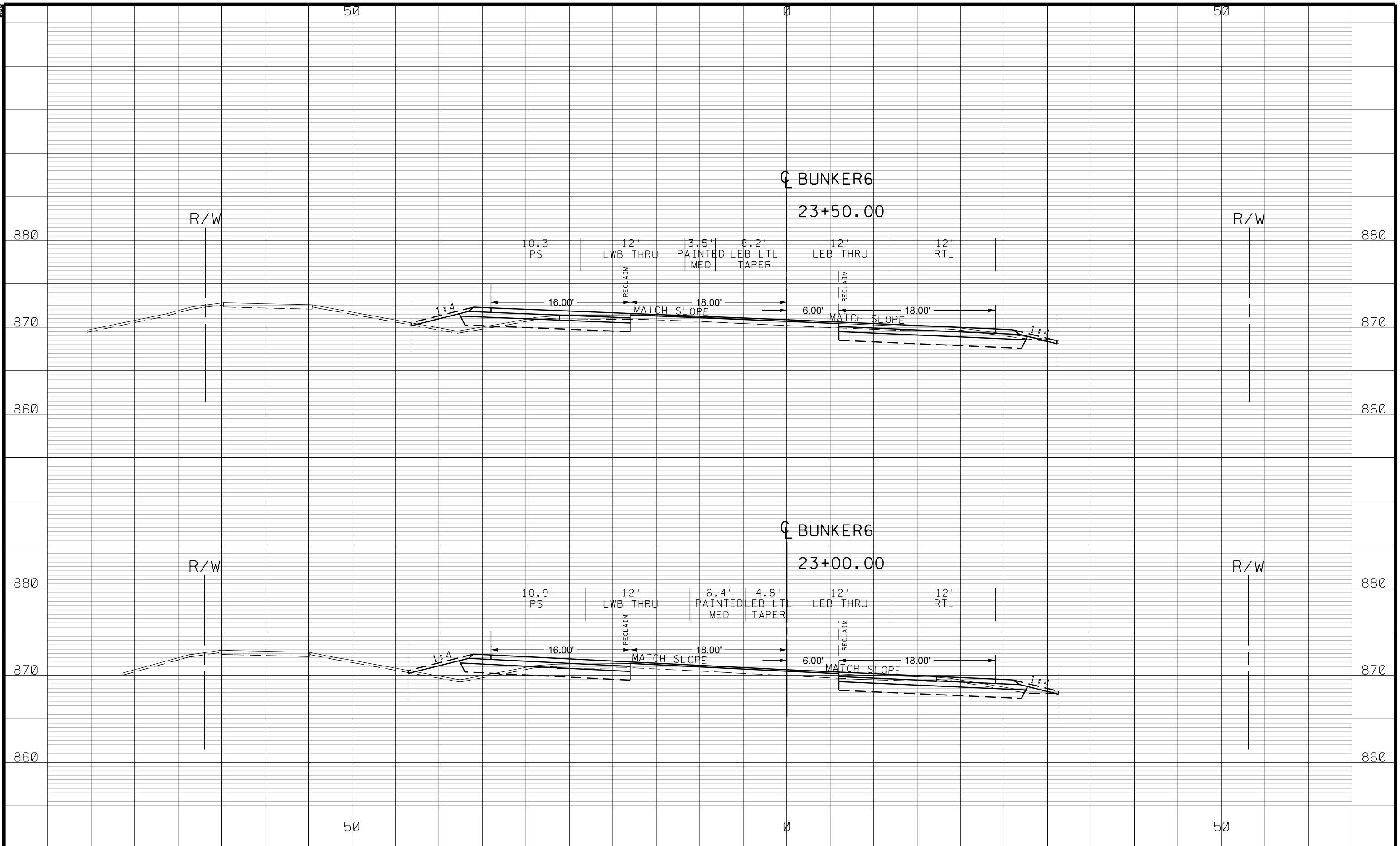
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 CHECKED BY NJD DATE 07/09/21



SAP 002-716-021  
 SAP 199-104-014

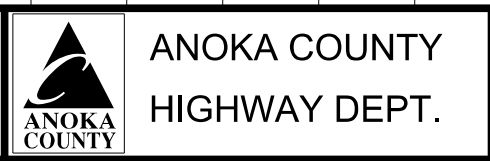
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 Sheet 207 of 259 Sheets



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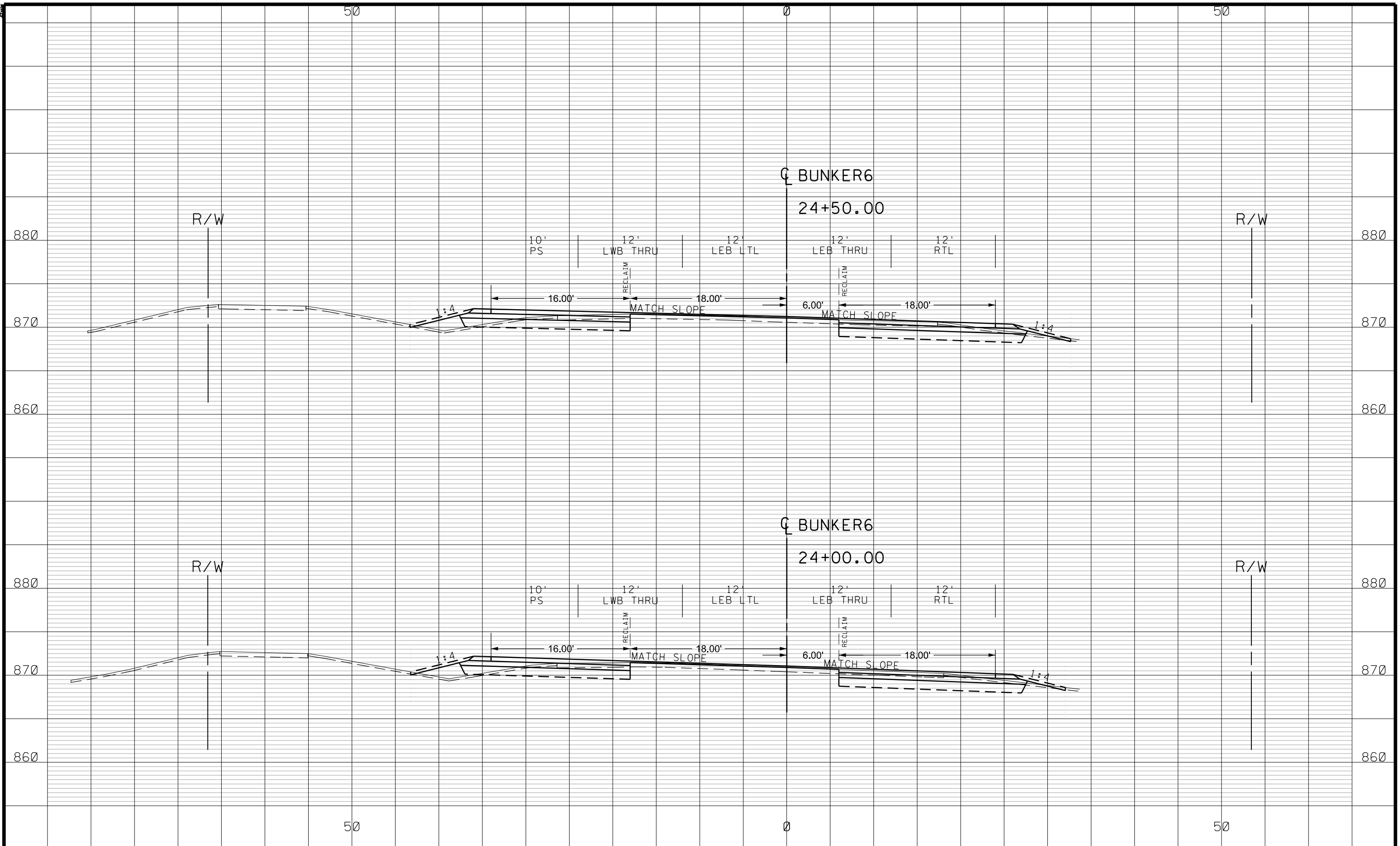
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SAP 002-716-021  
 SAP 199-104-014

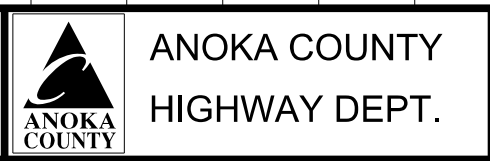
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 Sheet 208 of 259 Sheets





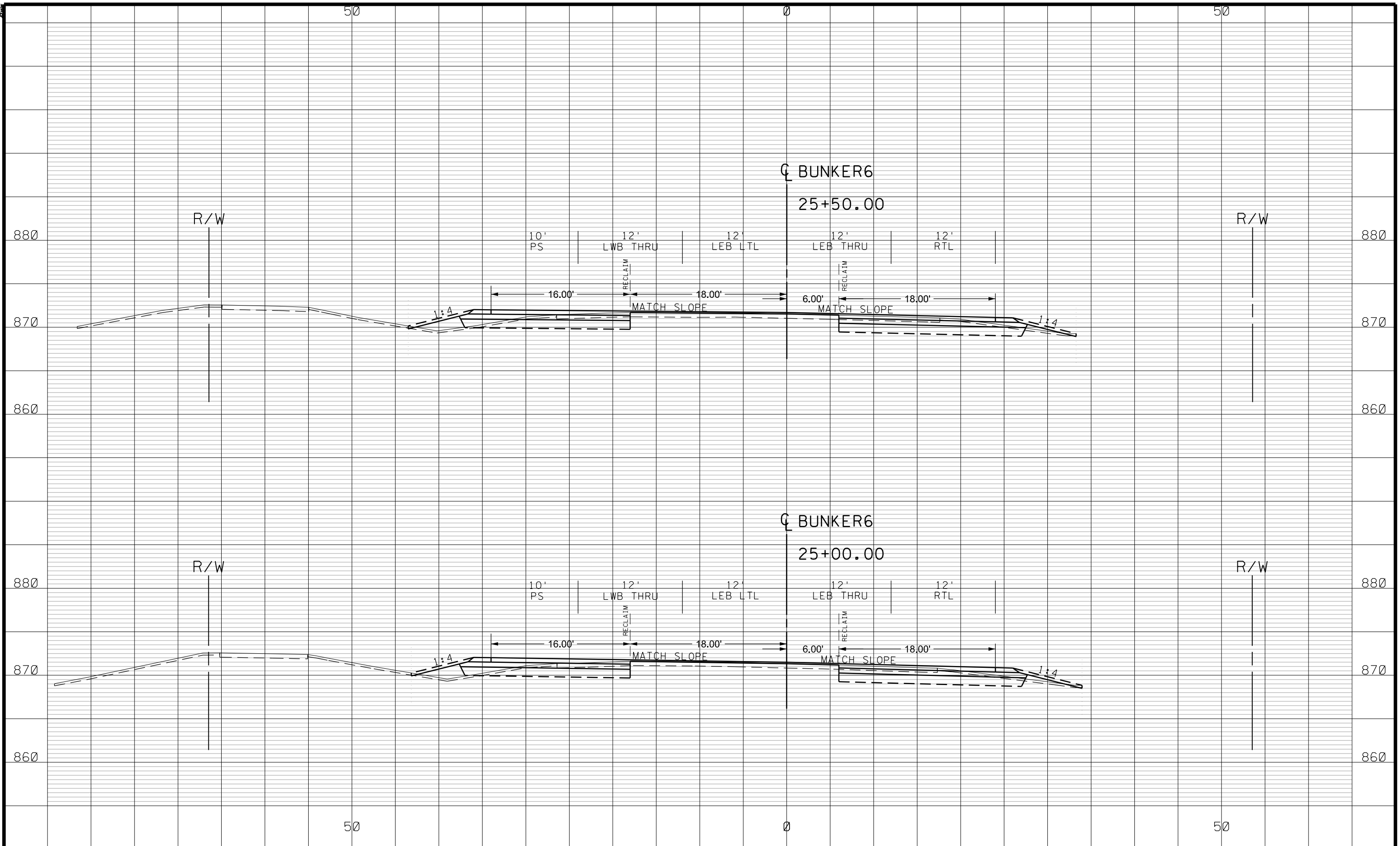
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 CHECKED BY NJD DATE 07/09/21



SAP 002-716-021  
 SAP 199-104-014

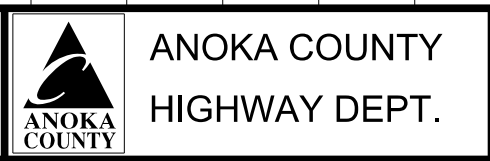
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 Sheet 209 of 259 Sheets



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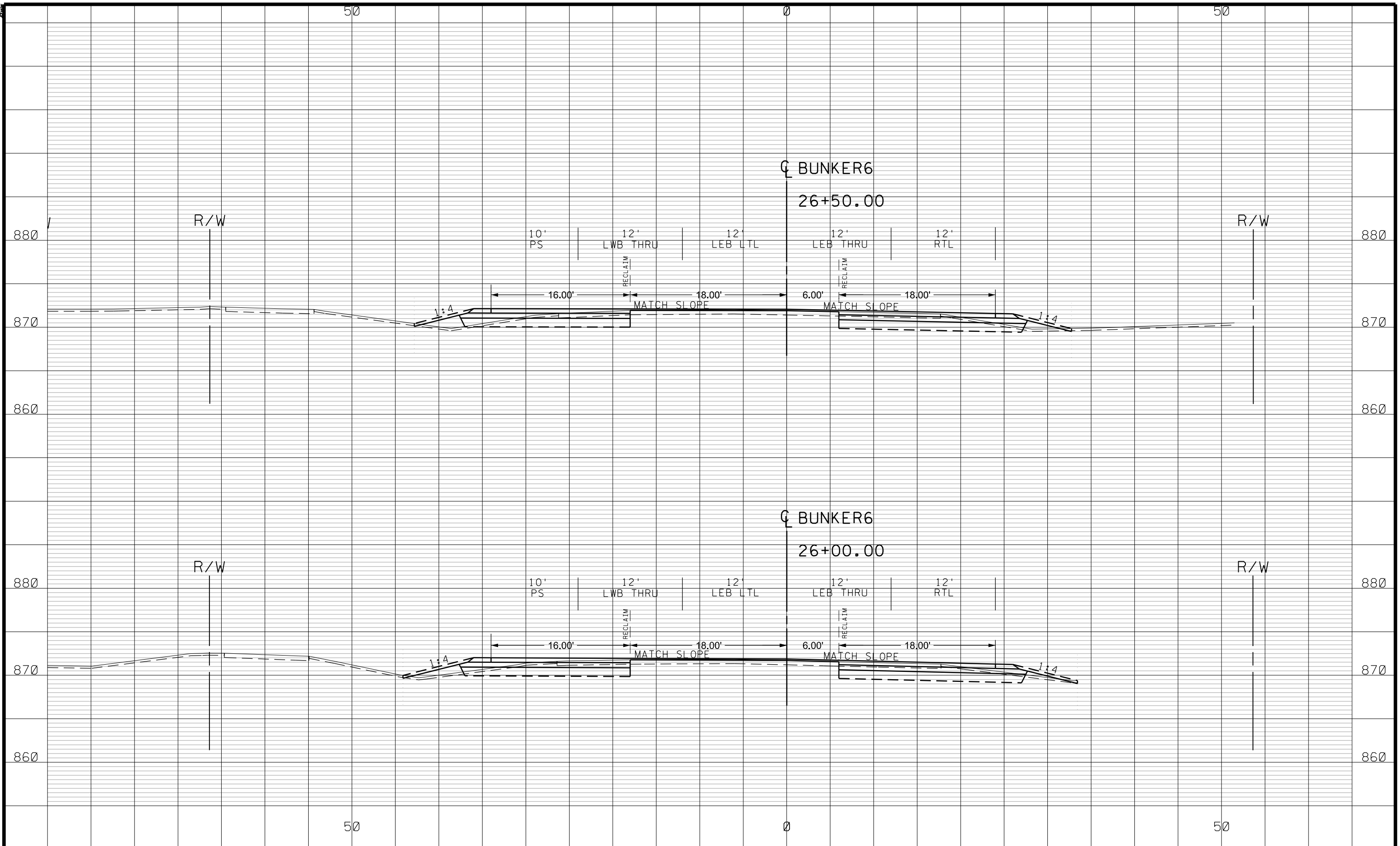
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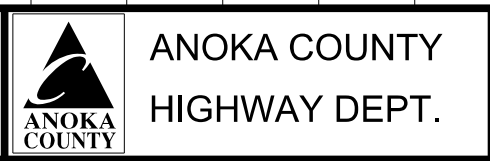
SAP 002-716-021  
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CROSS SECTIONS  
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 Sheet 210 of 259 Sheets



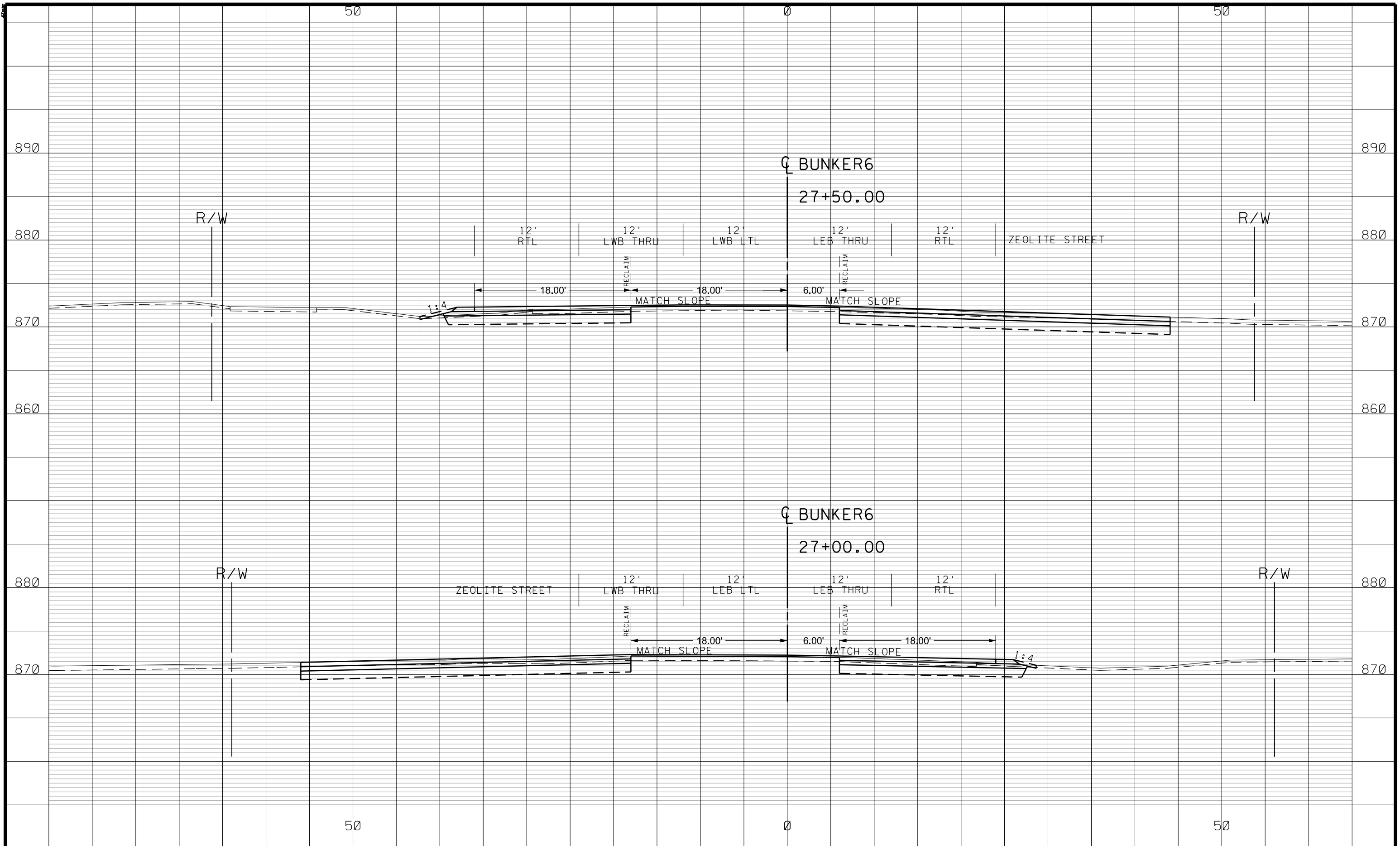
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DRAWN BY JCF DATE 07/01/21  
 DESIGN BY JCF DATE 07/01/21  
 CHECKED BY NJD DATE 07/09/21



SAP 002-716-021  
 SAP 199-104-014

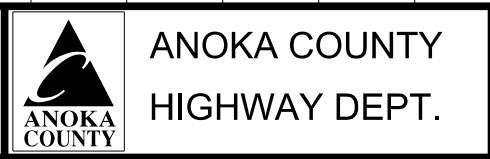
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 Sheet 211 of 259 Sheets



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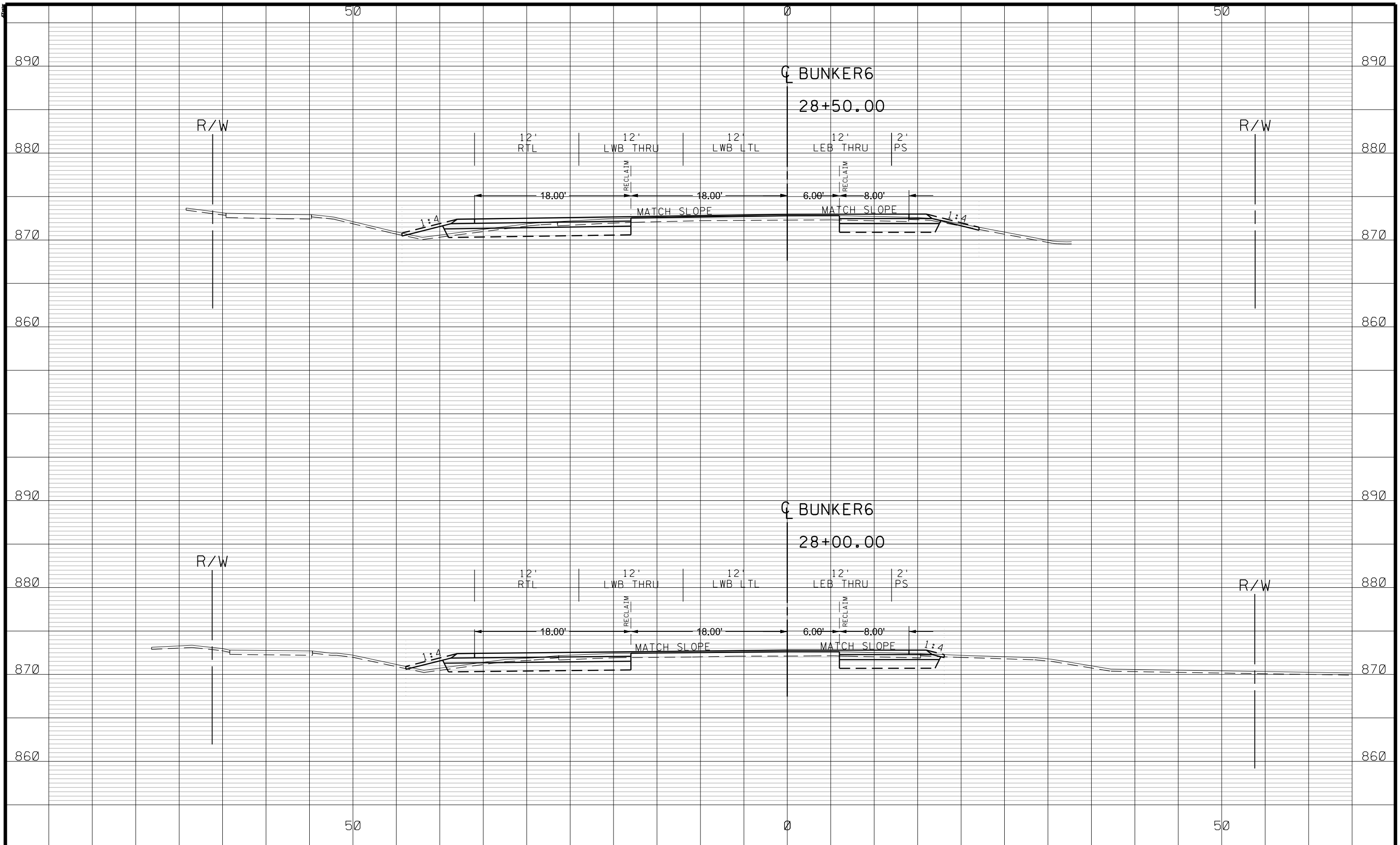
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SAP 002-716-021  
 SAP 199-104-014

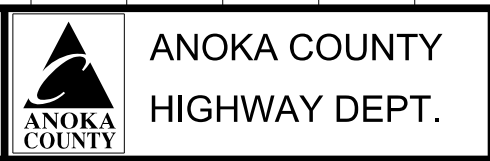
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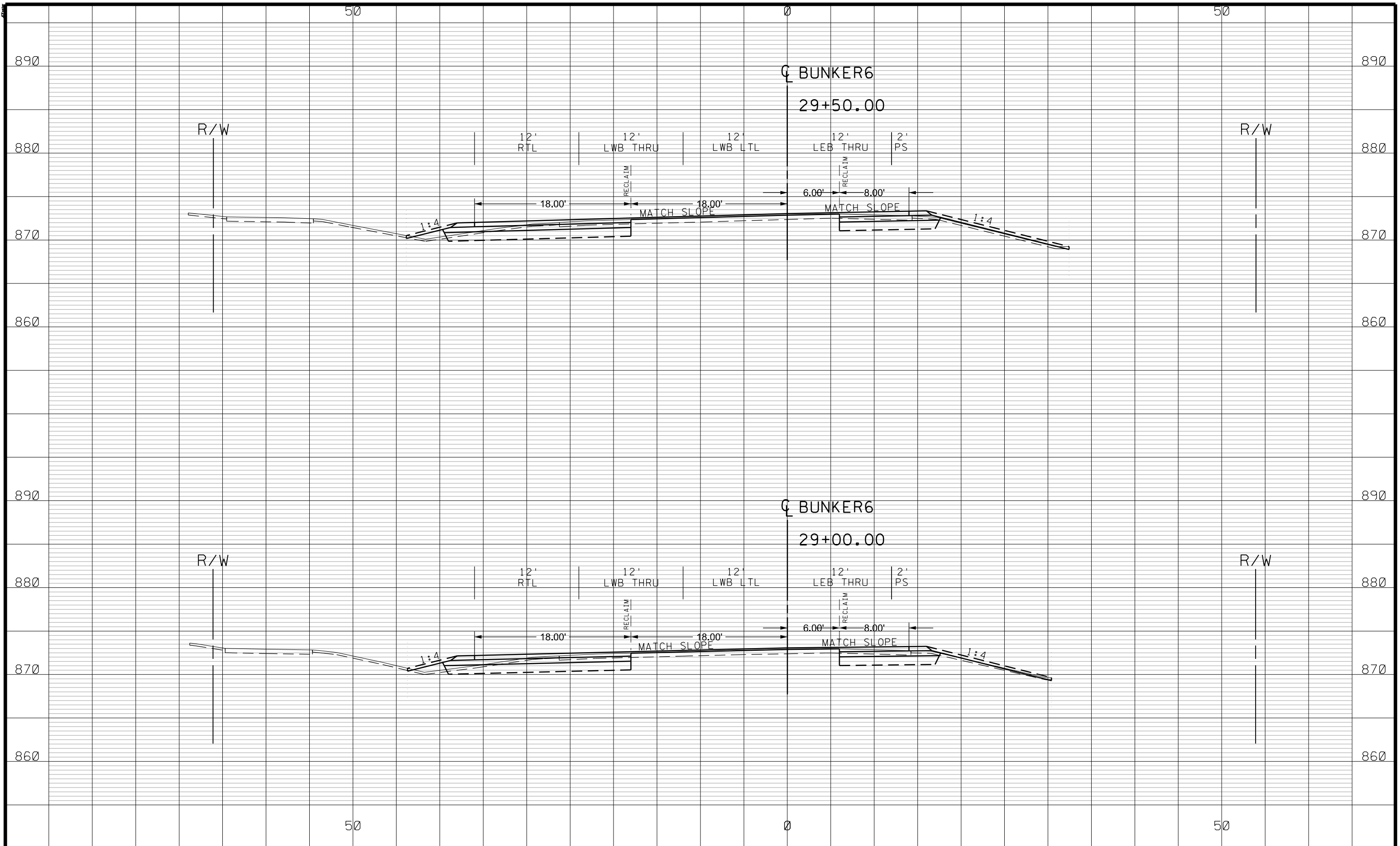
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SAP 002-716-021  
 SAP 199-104-014

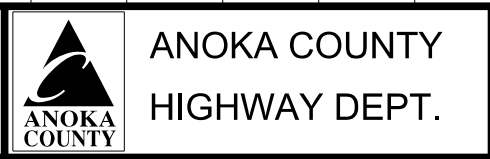
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 Sheet 213 of 259 Sheets



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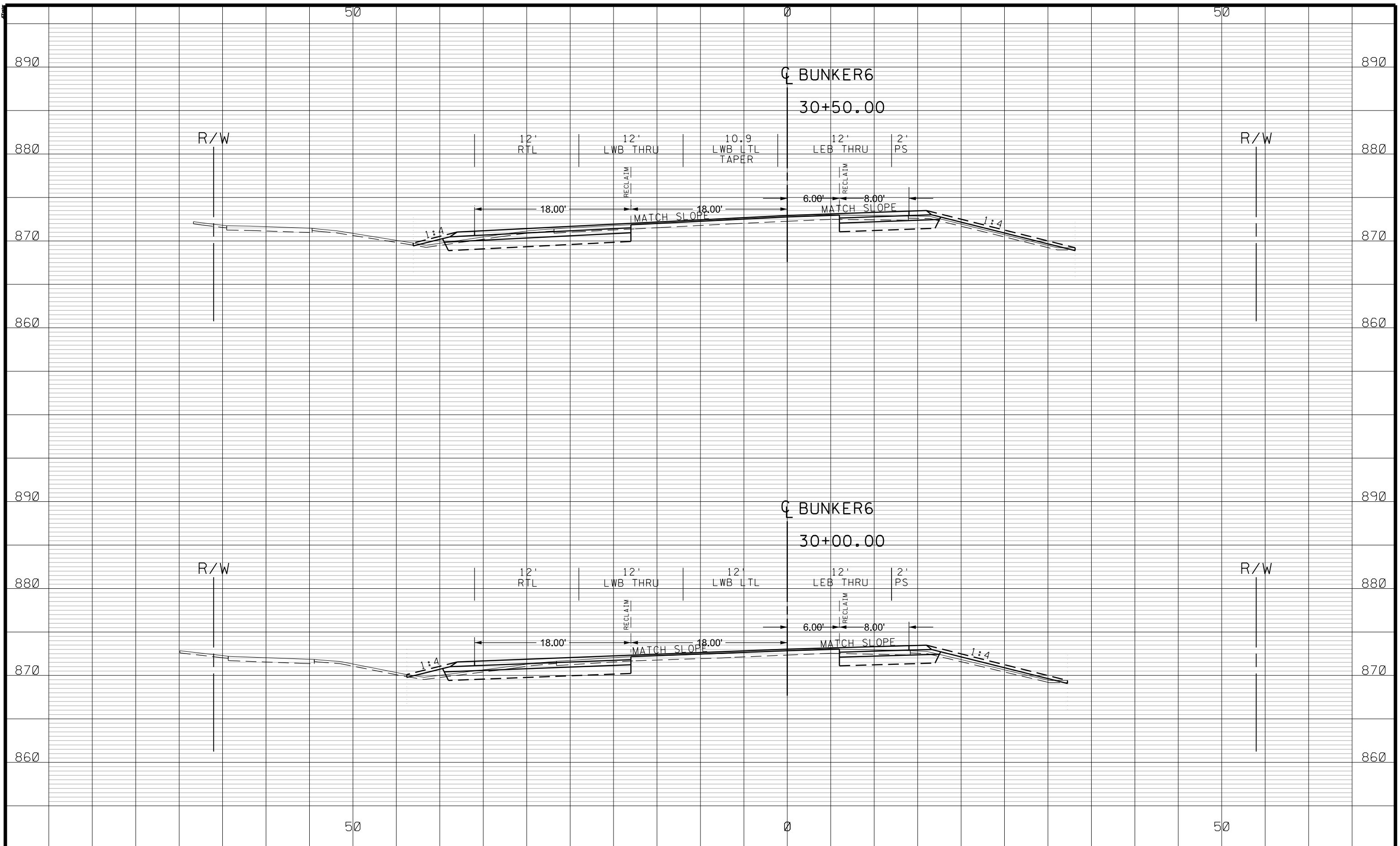
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 CHECKED BY NJD DATE 07/09/21



SAP 002-716-021  
 SAP 199-104-014

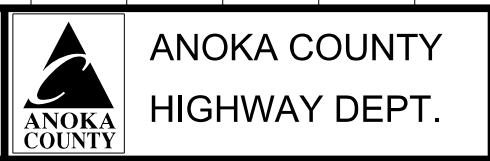
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 Sheet 214 of 259 Sheets



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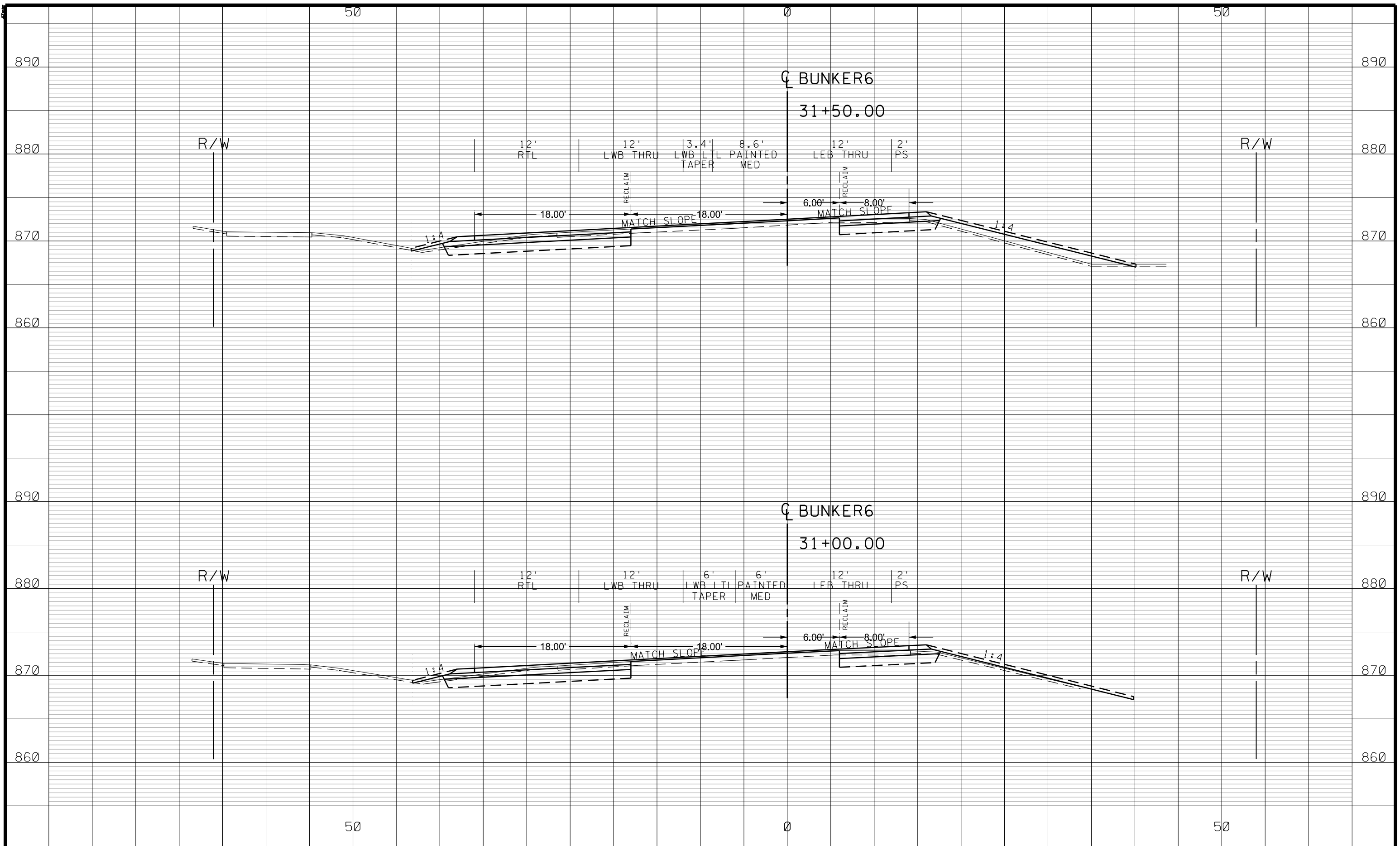
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 CHECKED BY NJD DATE 07/09/21



SAP 002-716-021  
 SAP 199-104-014

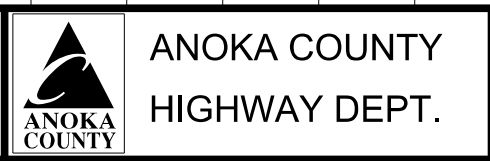
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 Sheet 215 of 259 Sheets



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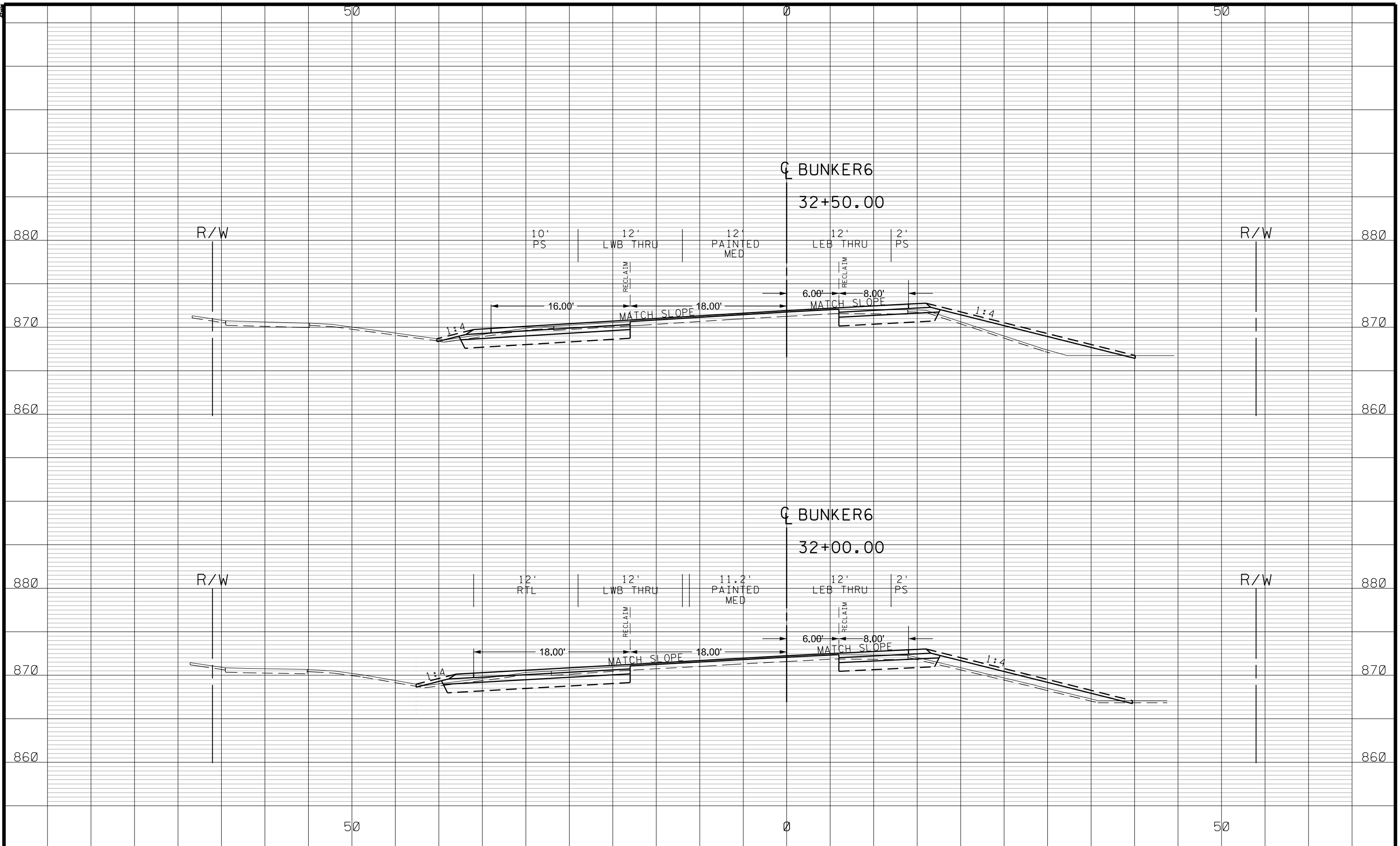
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SAP 002-716-021  
SAP 199-104-014

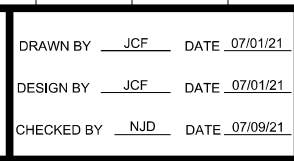
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 Sheet 216 of 259 Sheets





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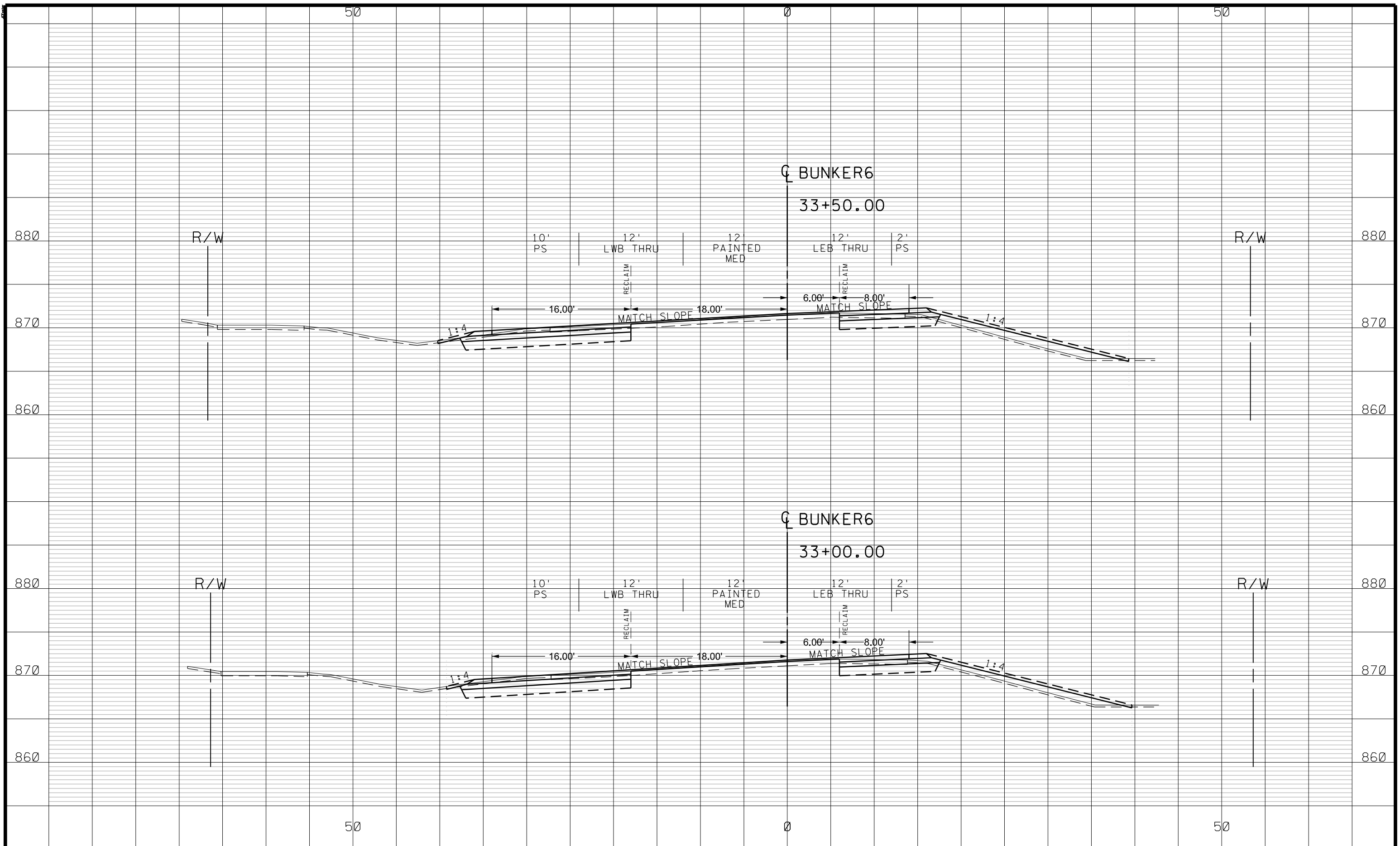
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CHECKED BY	NJD	DATE	07/09/21



**ANOKA COUNTY  
HIGHWAY DEPT.**

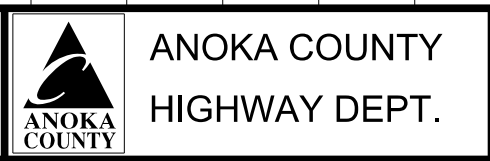
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CROSS SECTIONS  
STA 32+00.00 TO 32+50.00  
Sheet 217 of 259 Sheets



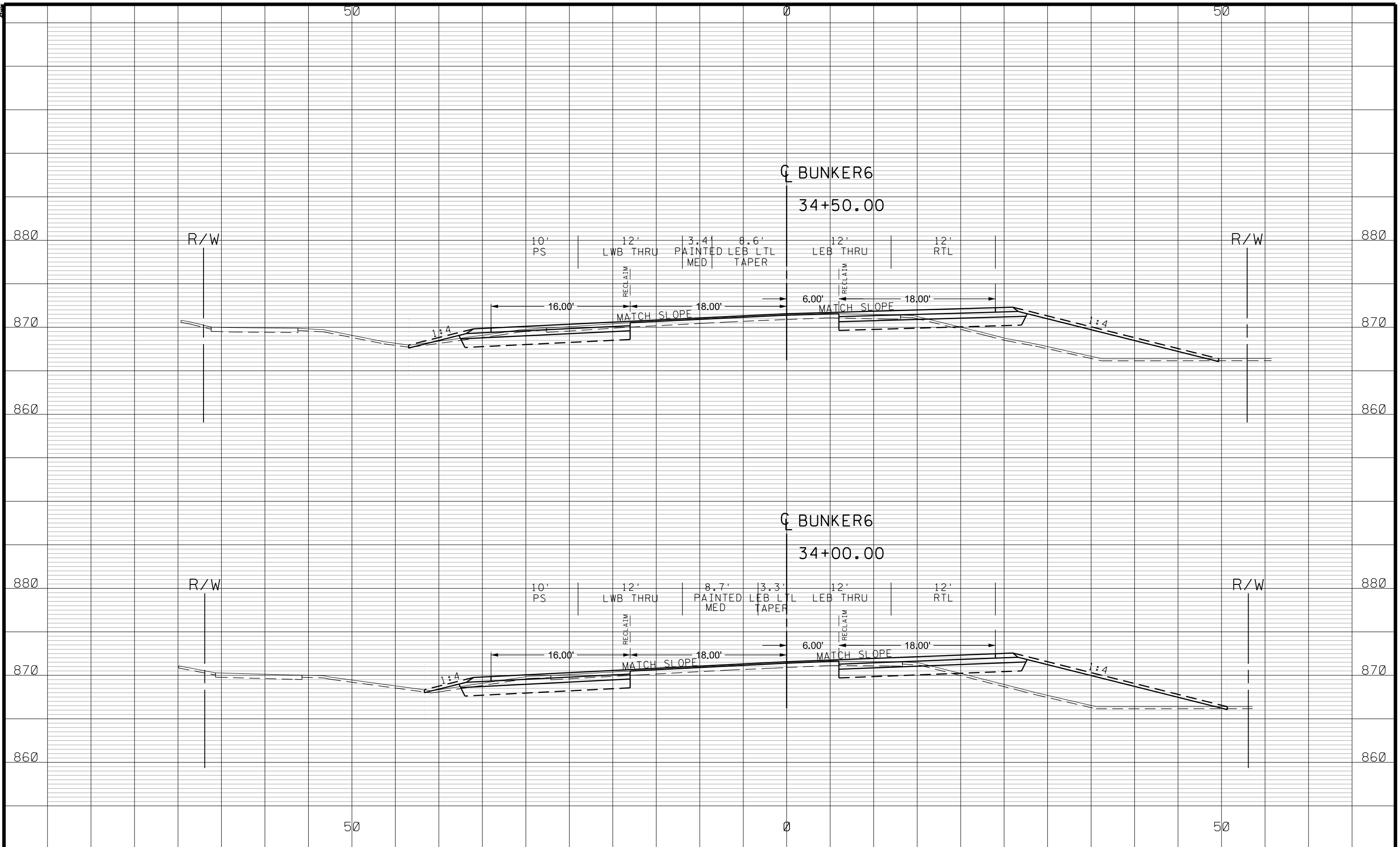
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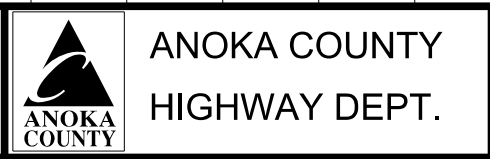
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 SAP 199-104-014

CROSS SECTIONS  
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 Sheet 218 of 259 Sheets



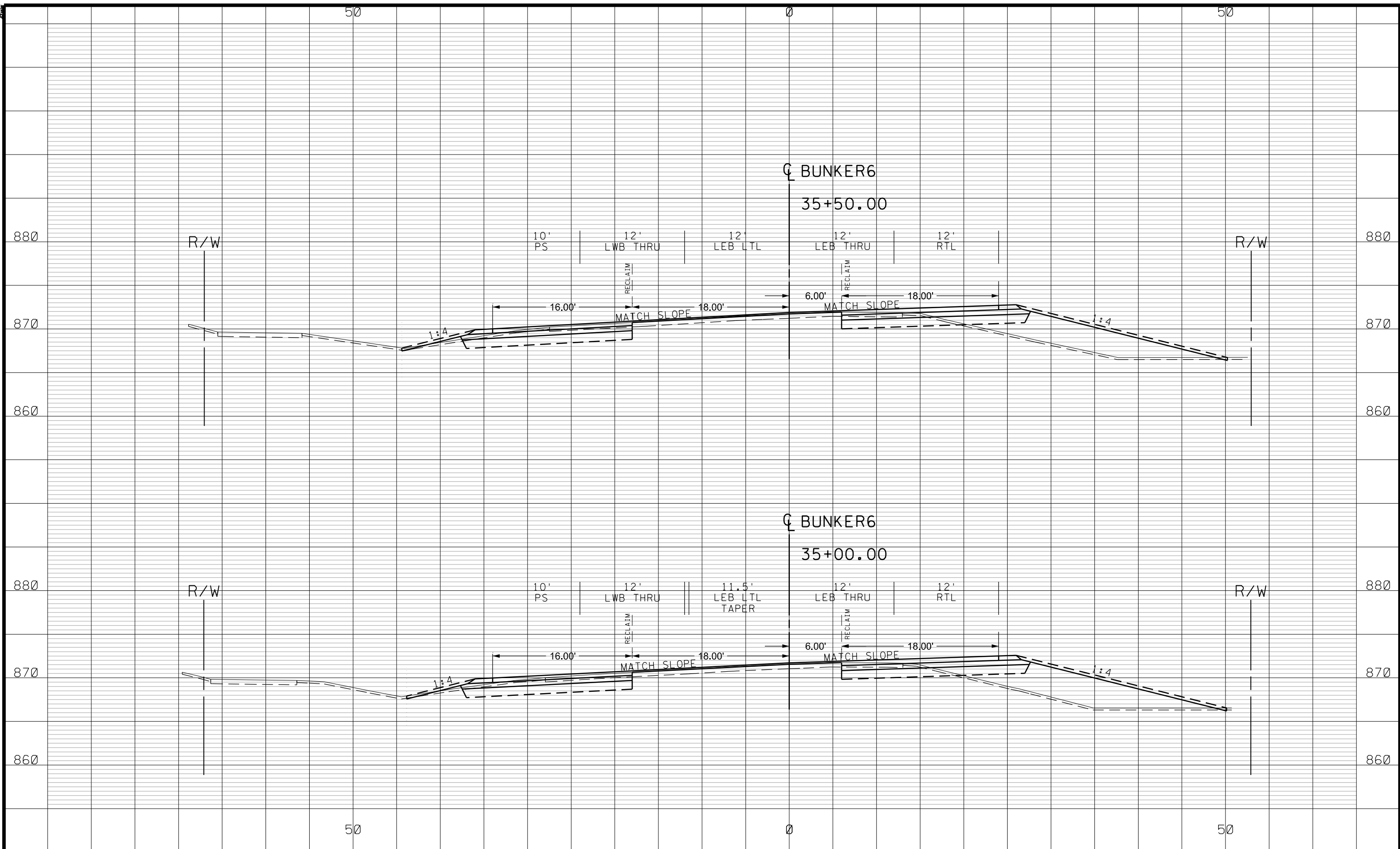
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SAP 002-716-021  
 SAP 199-104-014

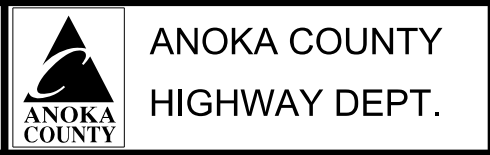
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 Sheet 219 of 259 Sheets



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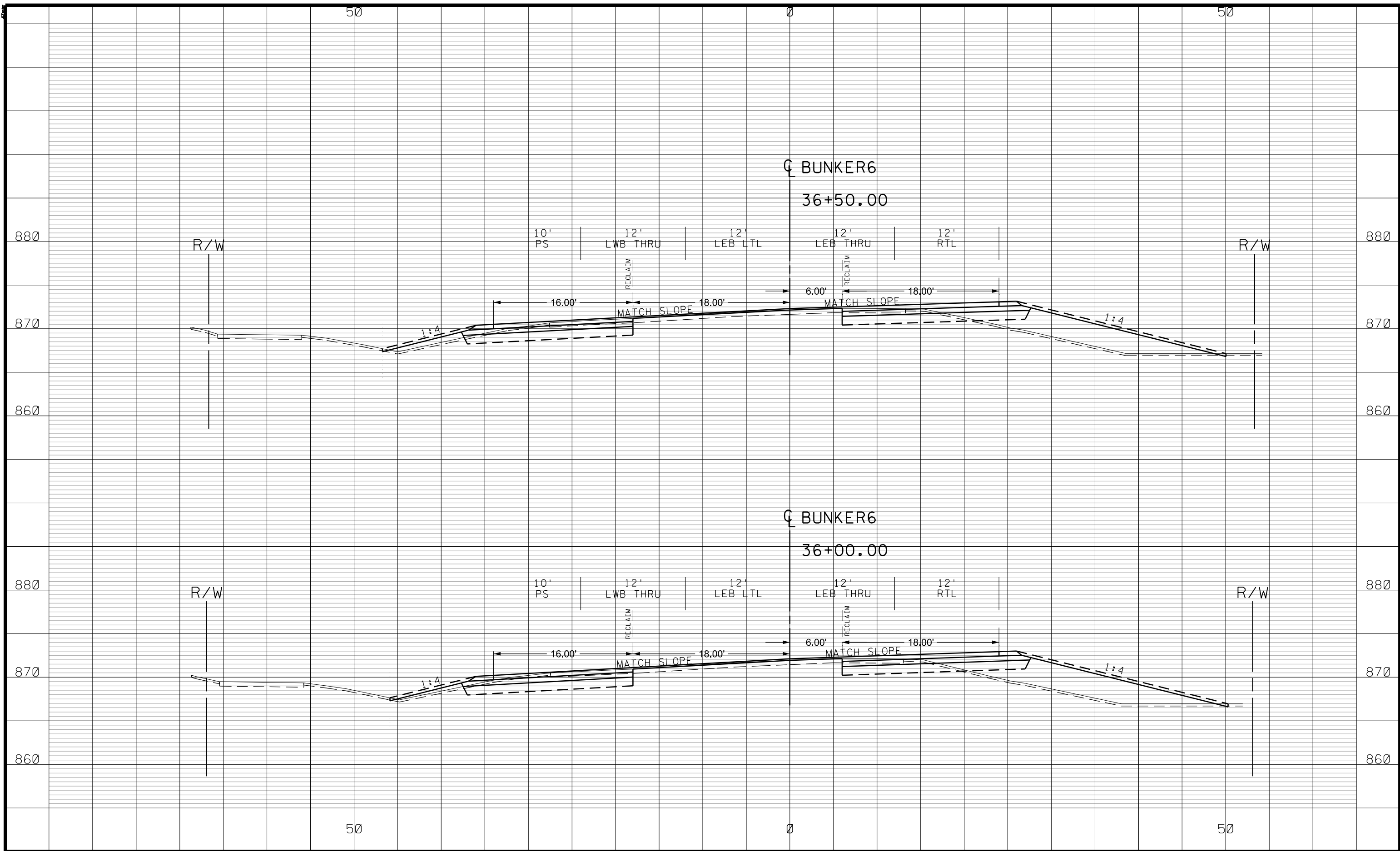
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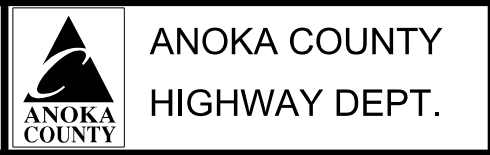
SAP 002-716-021  
 SAP 199-104-014

CROSS SECTIONS  
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 Sheet 220 of 259 Sheets



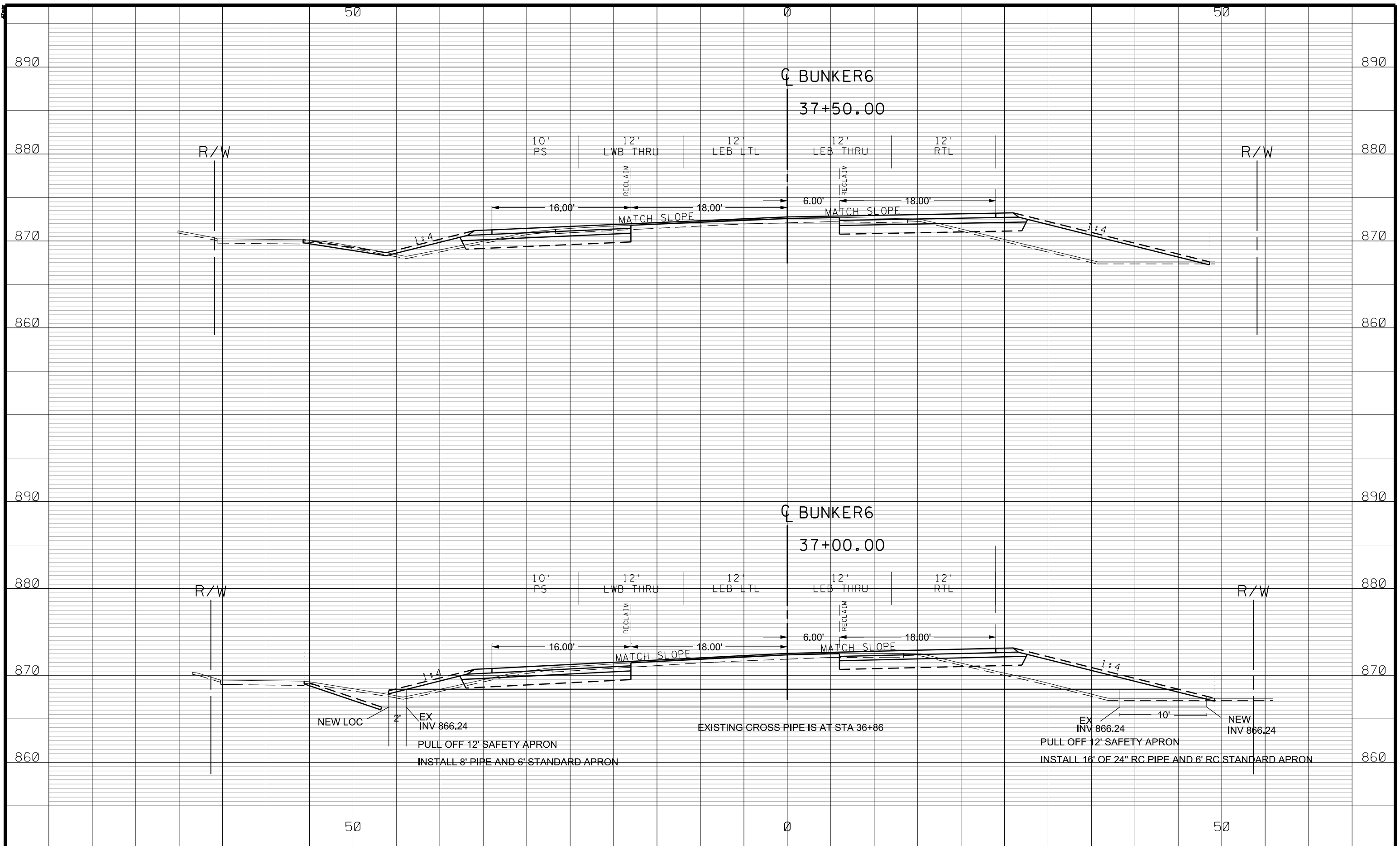
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SAP 002-716-021  
 SAP 199-104-014

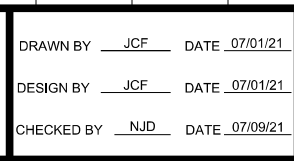
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 Sheet 221 of 259 Sheets



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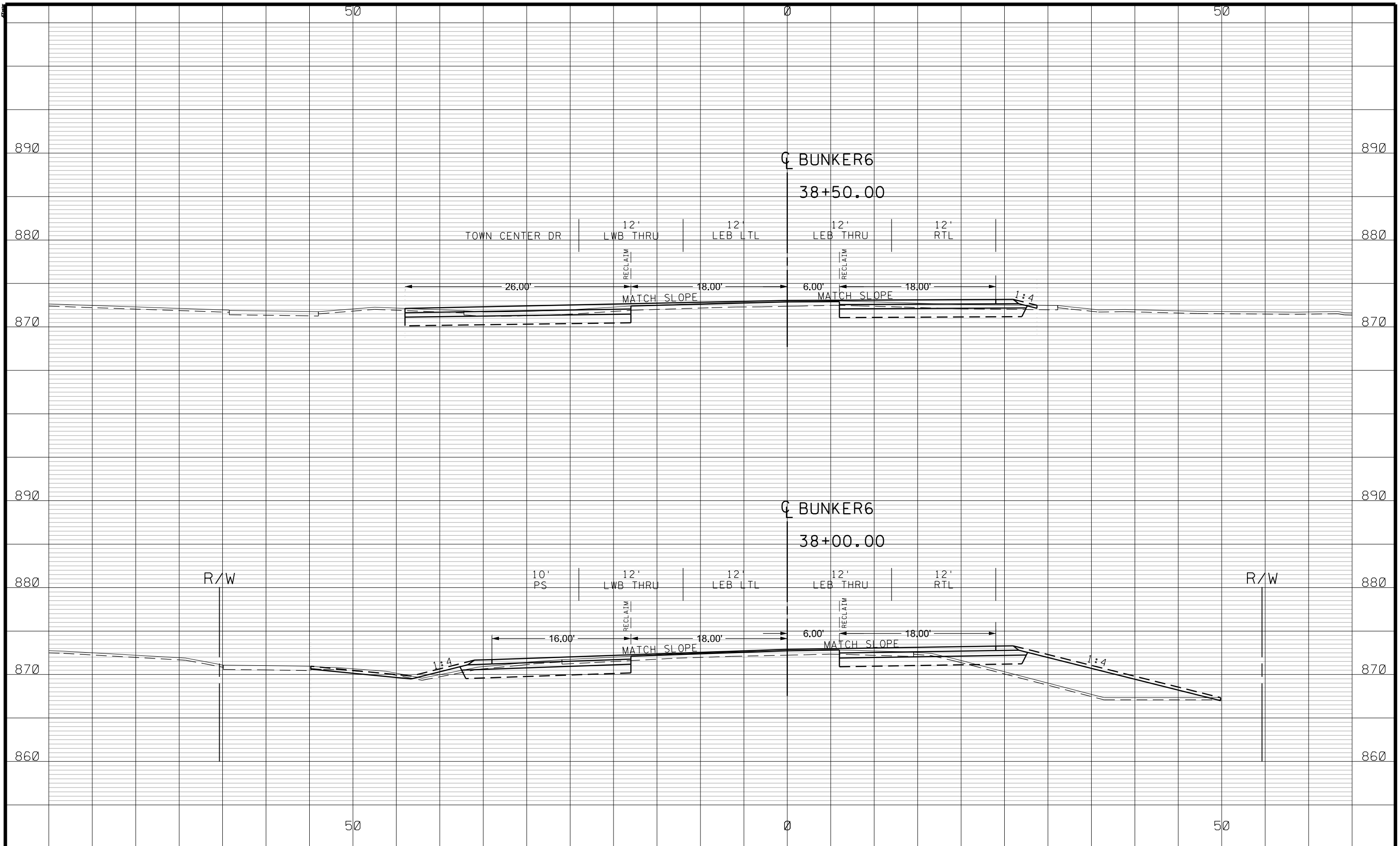
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**ANOKA COUNTY  
HIGHWAY DEPT.**

SAP 002-716-021  
 SAP 199-104-014

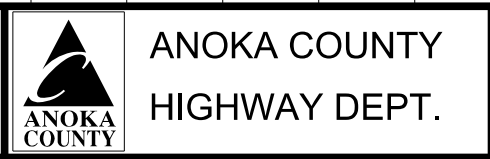
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 Sheet 222 of 259 Sheets



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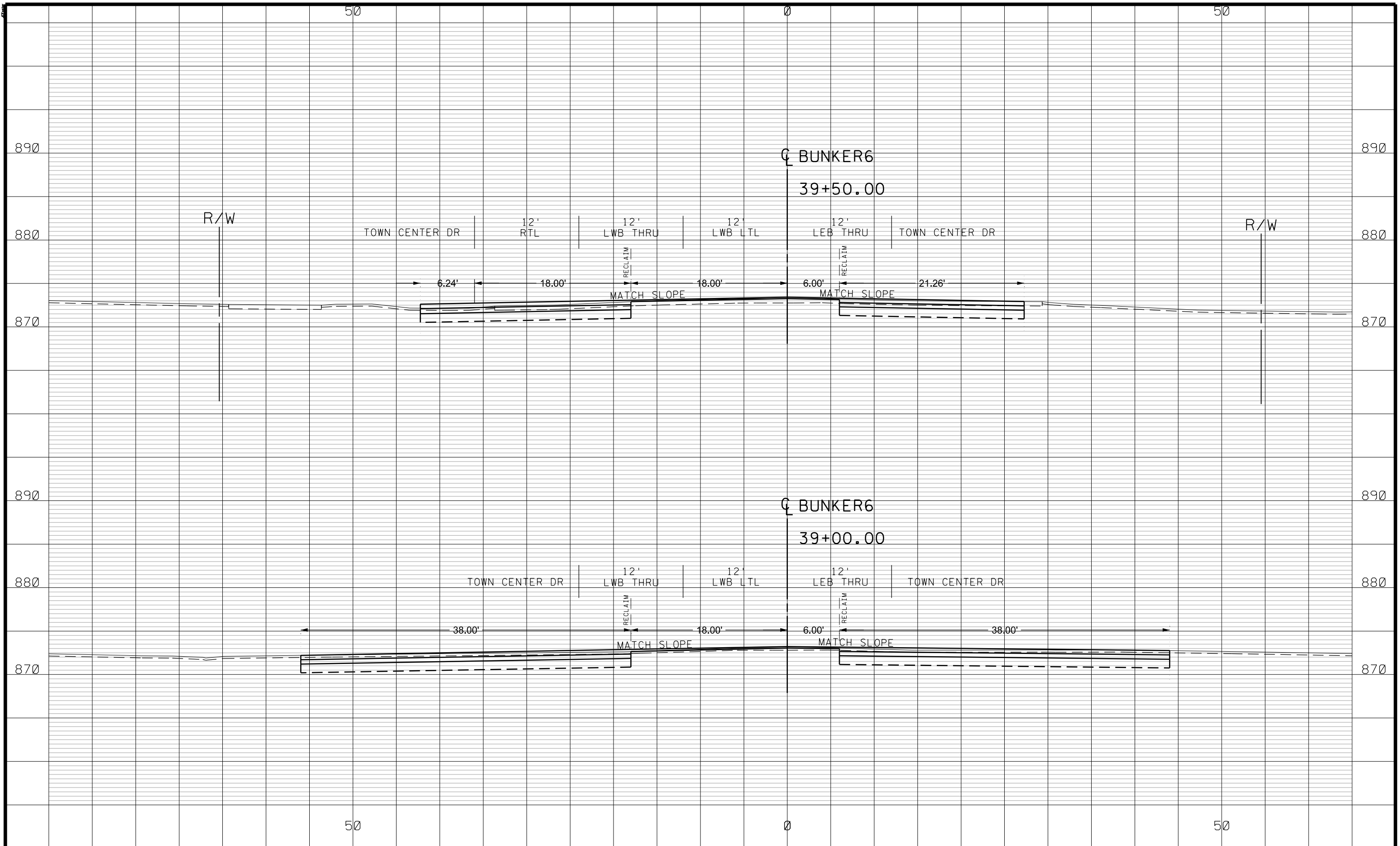
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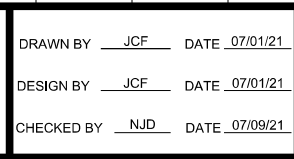
SAP 002-716-021  
 SAP 199-104-014

CROSS SECTIONS  
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 Sheet 223 of 259 Sheets



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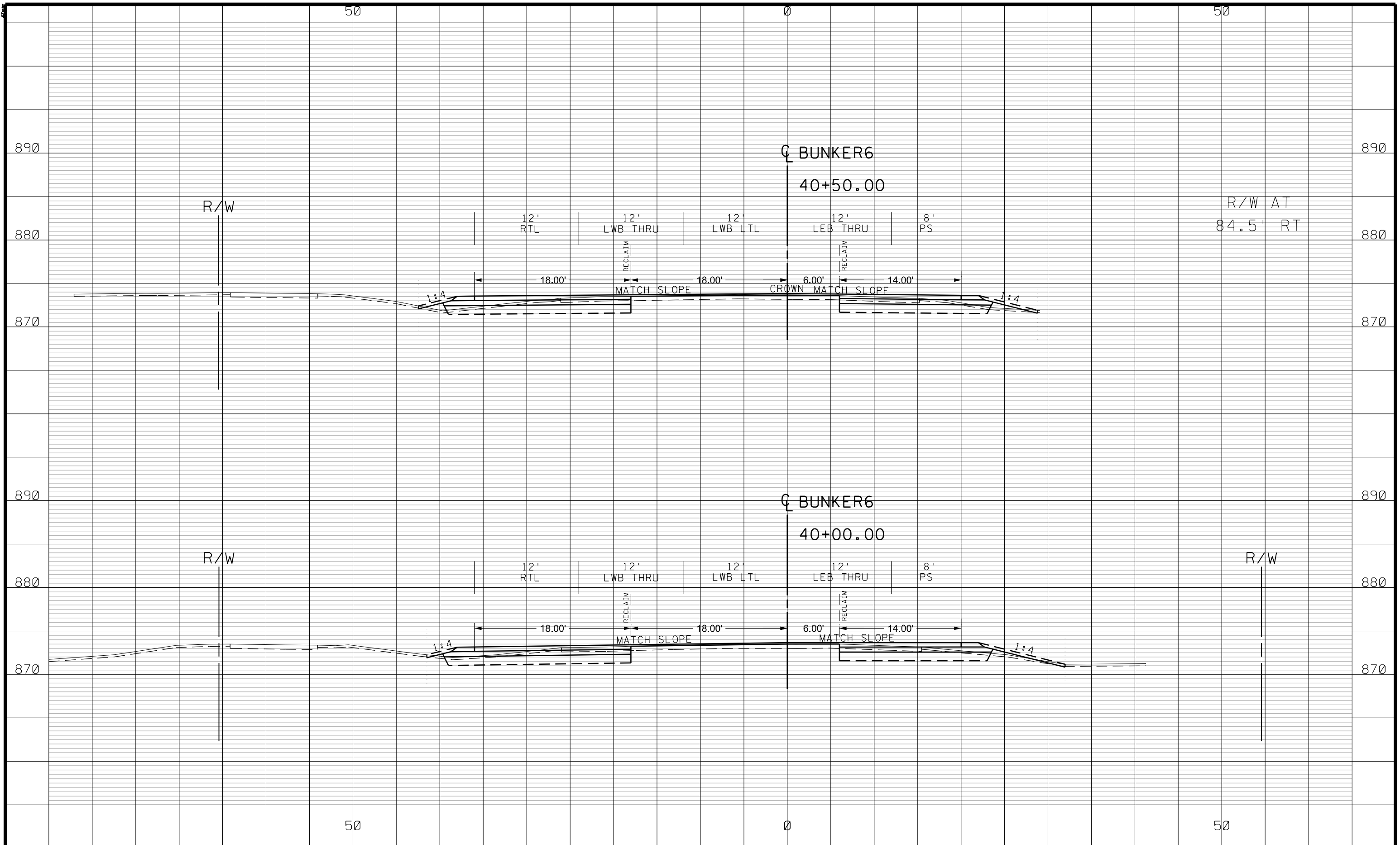
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CHECKED BY	NJD	DATE	07/09/21



SAP 002-716-021  
SAP 199-104-014

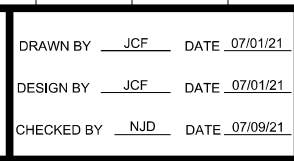
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Sheet 224 of 259 Sheets





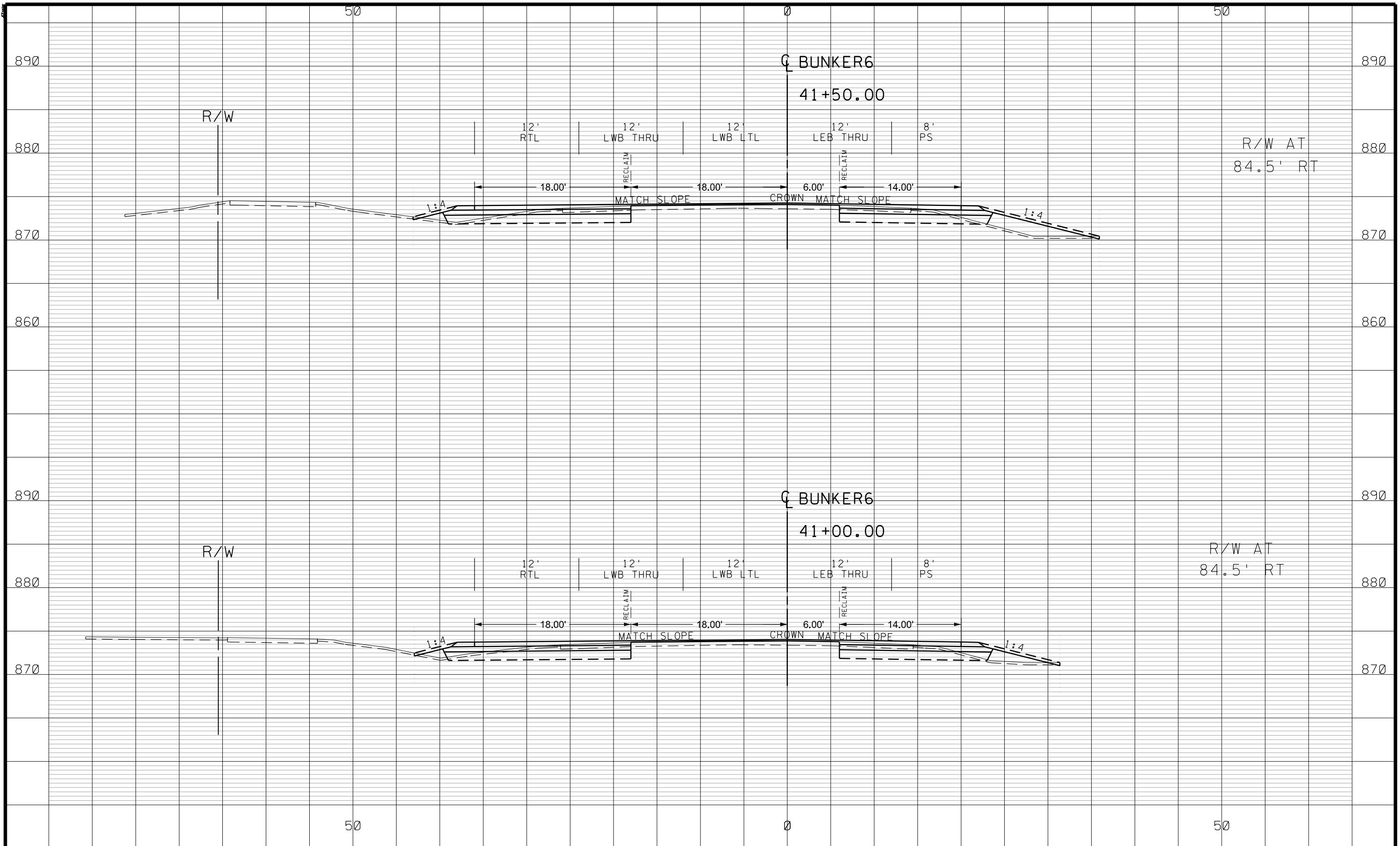
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CHECKED BY	NJD	DATE	07/09/21



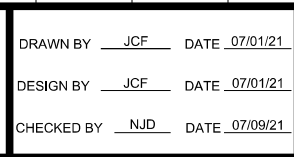
SAP 002-716-021  
SAP 199-104-014

CROSS SECTIONS  
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Sheet 225 of 259 Sheets



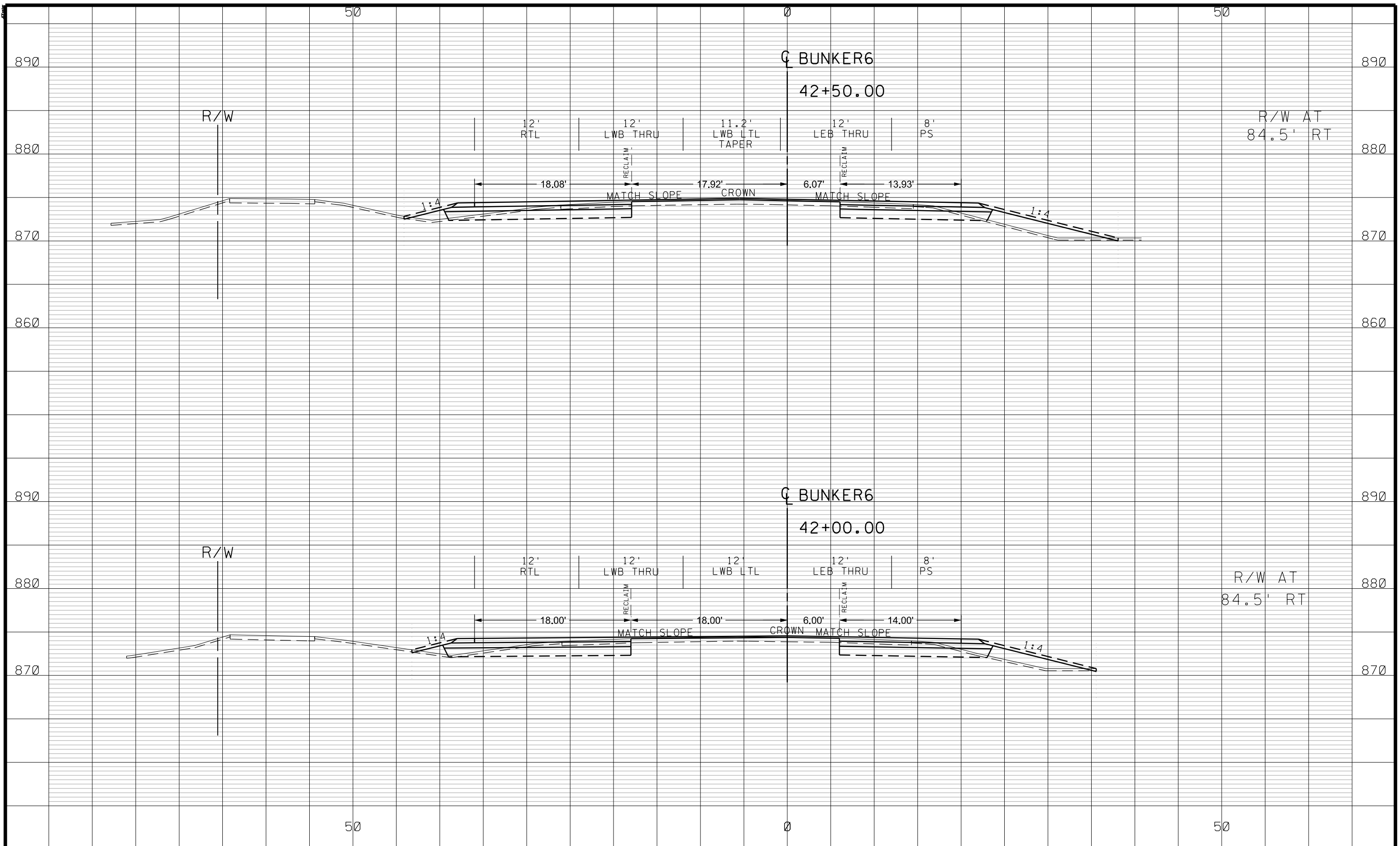
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SAP 199-104-014

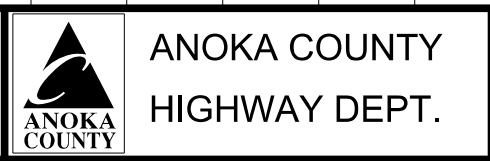
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Sheet 226 of 259 Sheets



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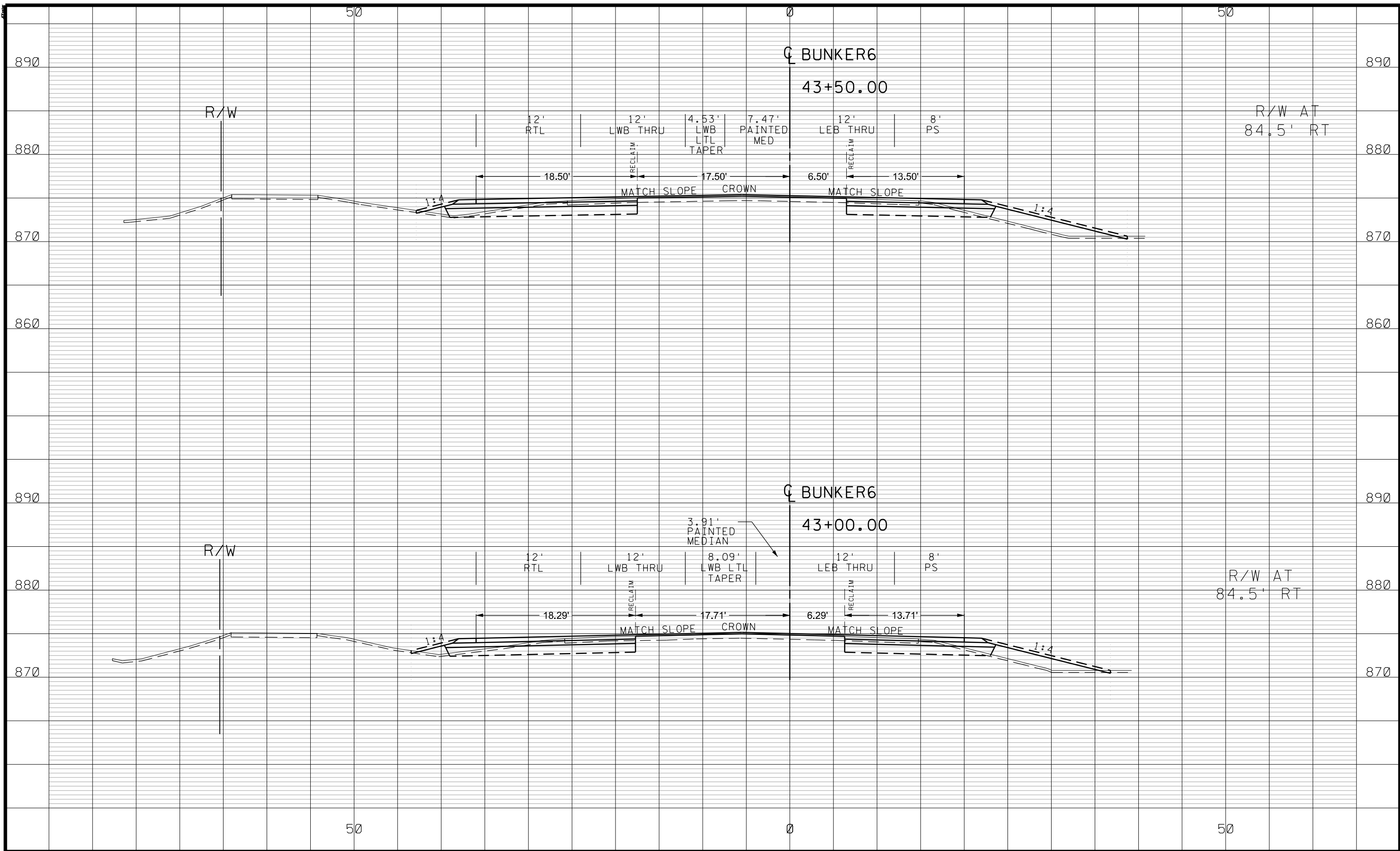
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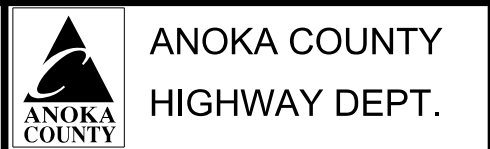
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 Sheet 227 of 259 Sheets



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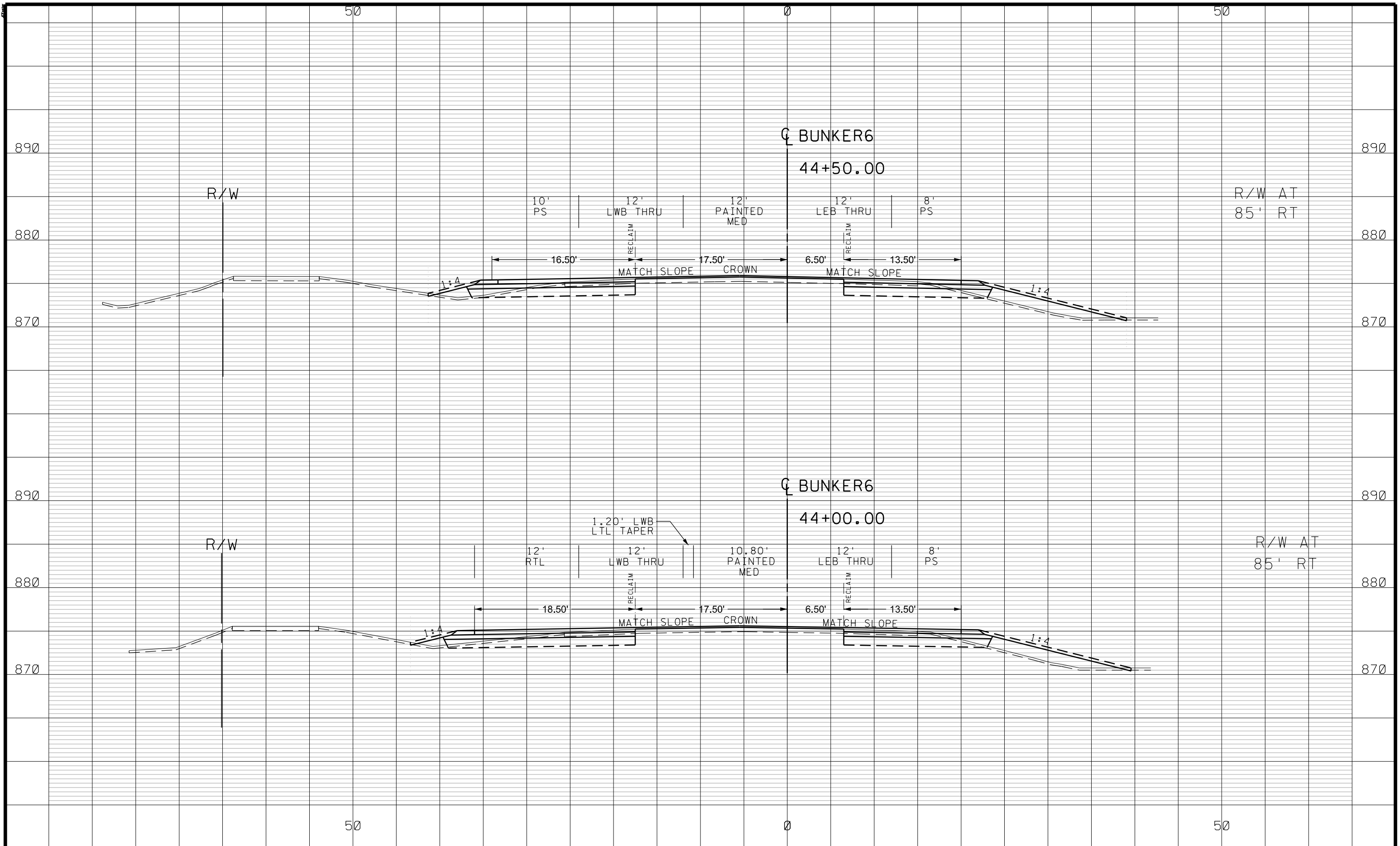
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 SAP 199-104-014

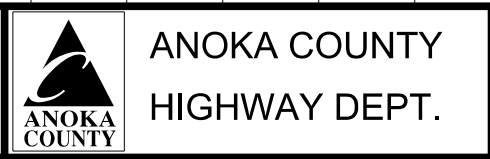
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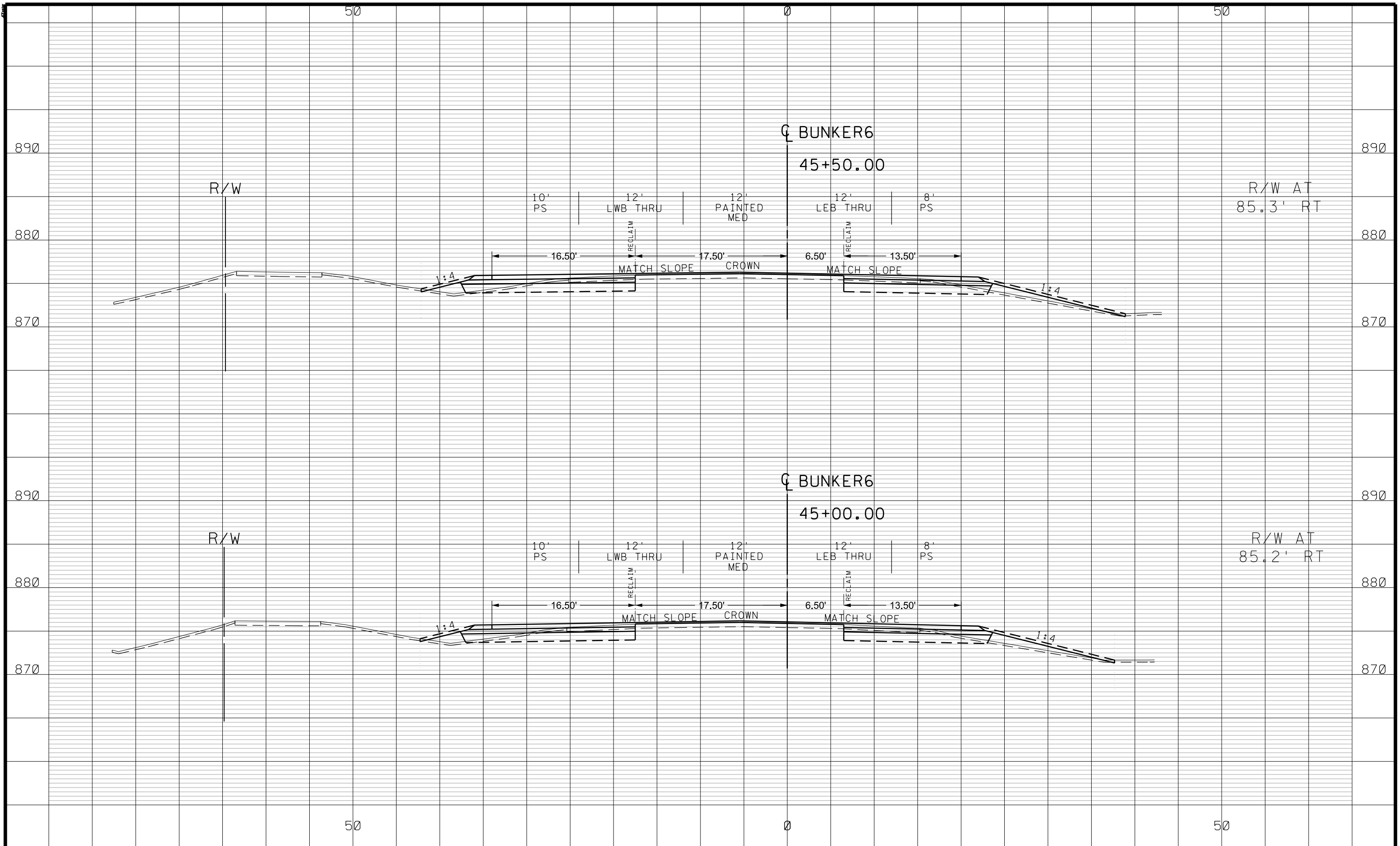
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SAP 002-716-021  
 SAP 199-104-014

**CROSS SECTIONS**  
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 Sheet 229 of 259 Sheets

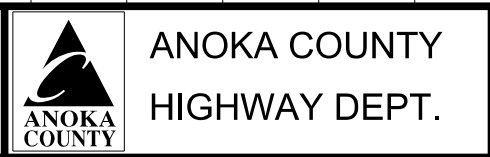


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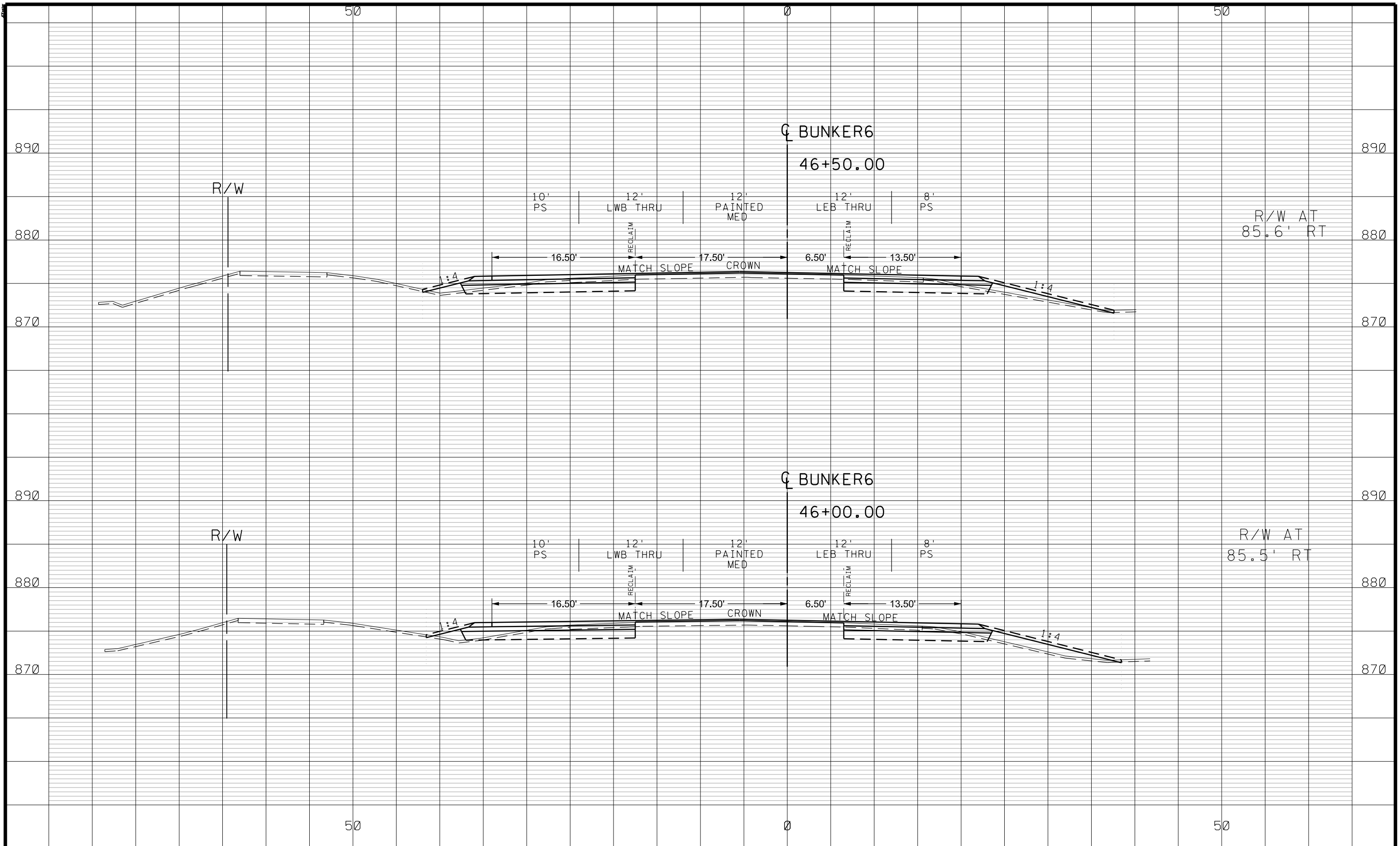
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SAP 002-716-021  
 SAP 199-104-014

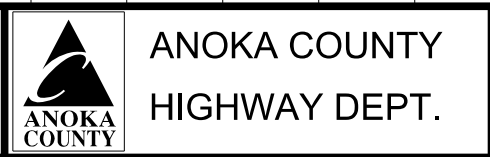
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 Sheet 230 of 259 Sheets



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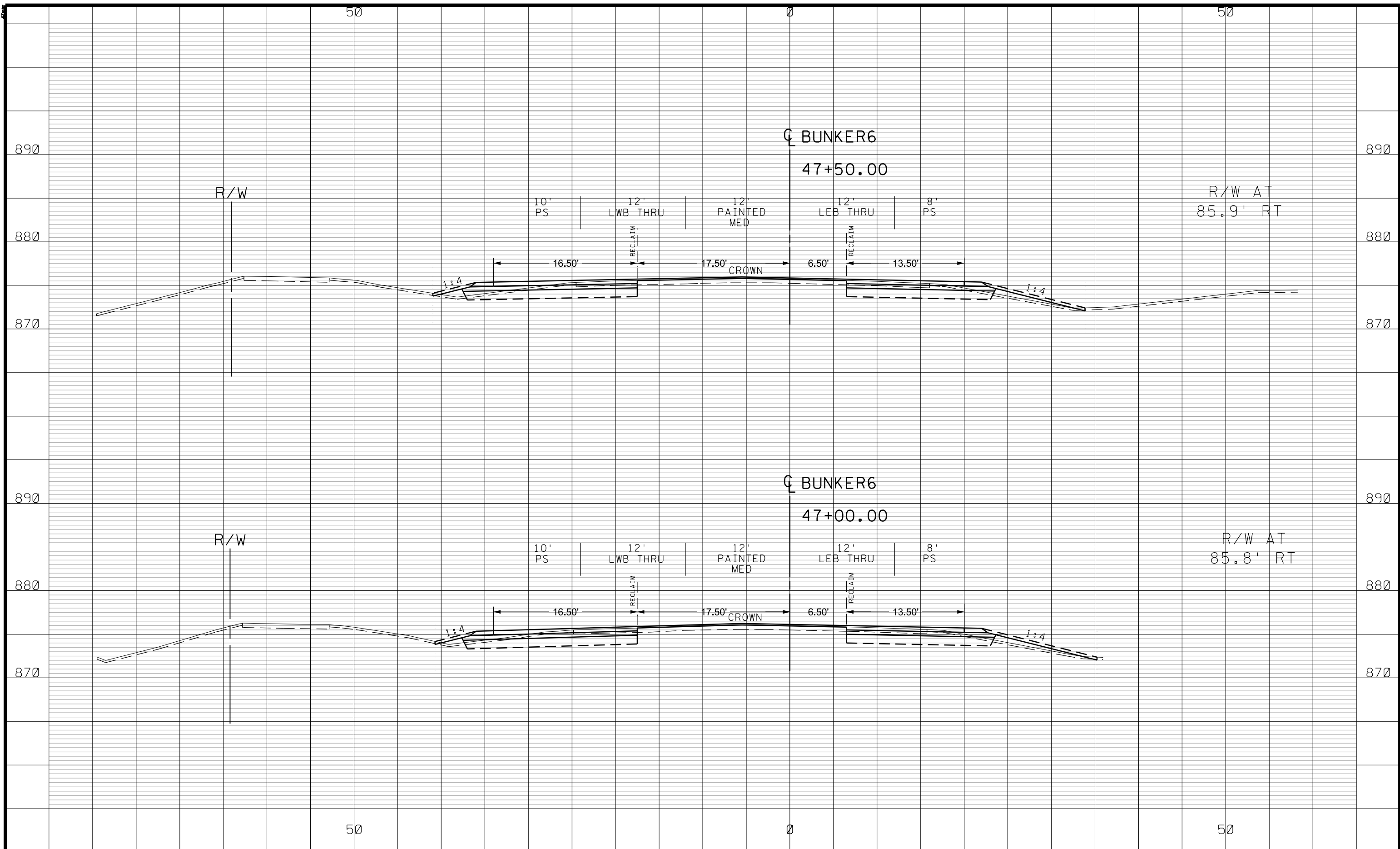
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SAP 002-716-021  
 SAP 199-104-014

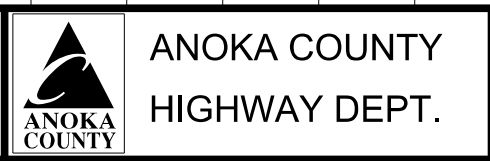
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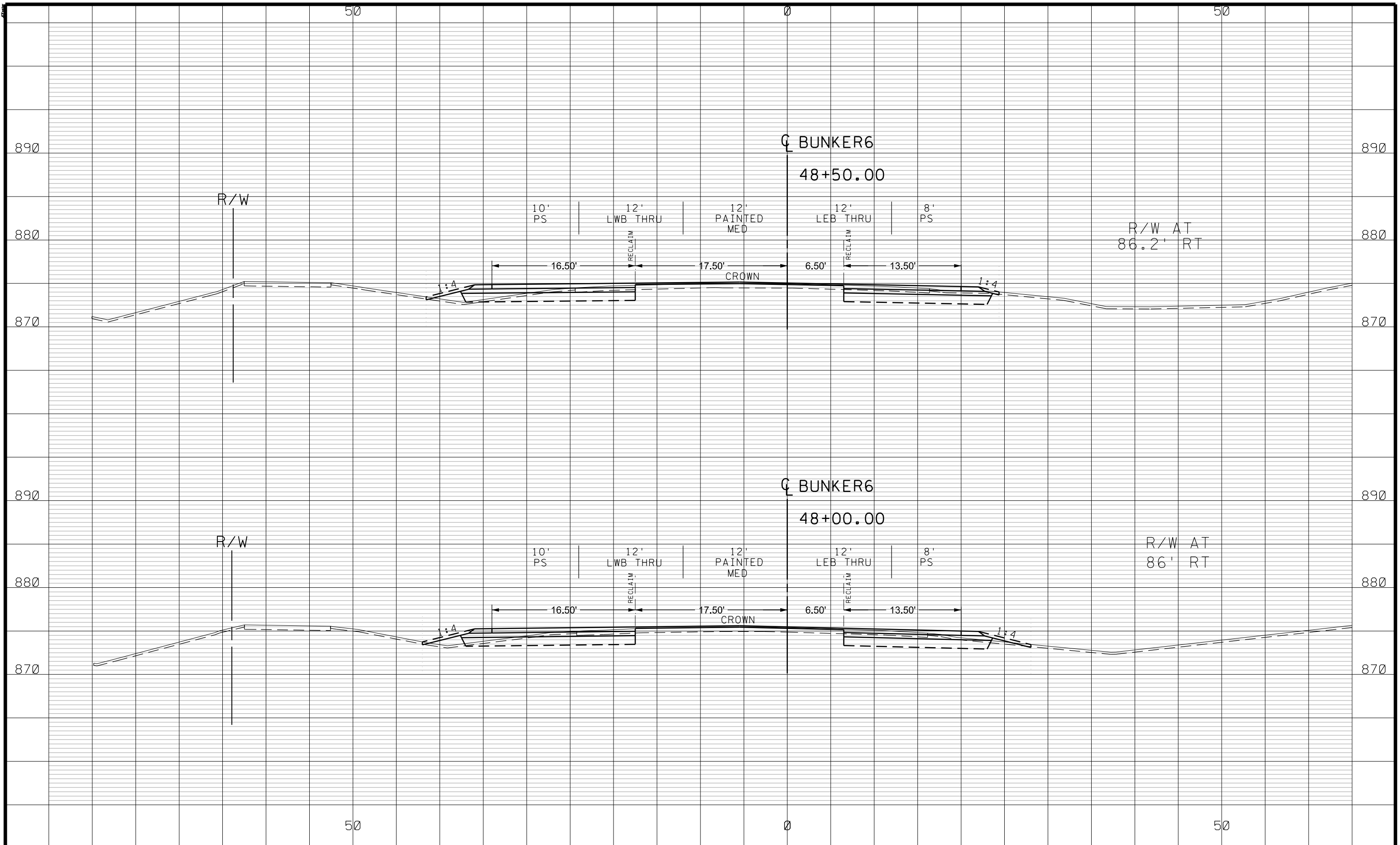
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SAP 002-716-021  
 SAP 199-104-014

**CROSS SECTIONS**  
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 Sheet 232 of 259 Sheets

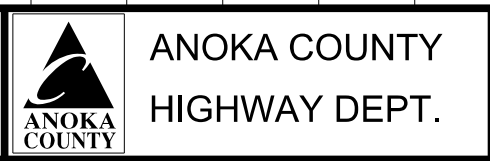




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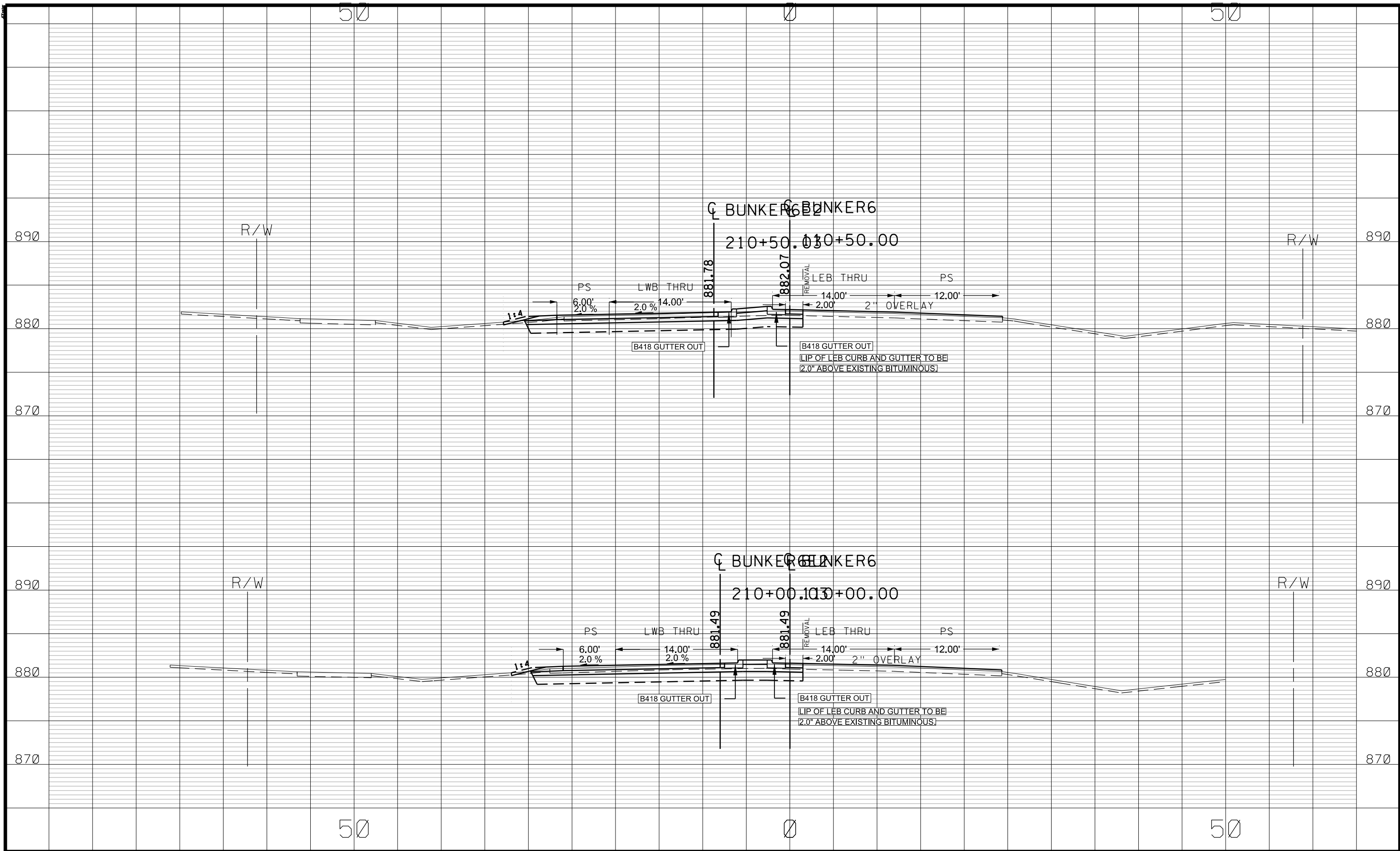
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SAP 002-716-021  
 SAP 199-104-014

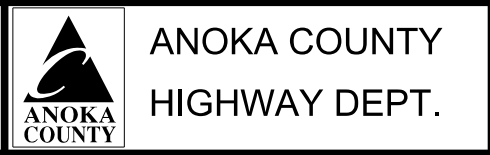
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 Sheet 233 of 259 Sheets



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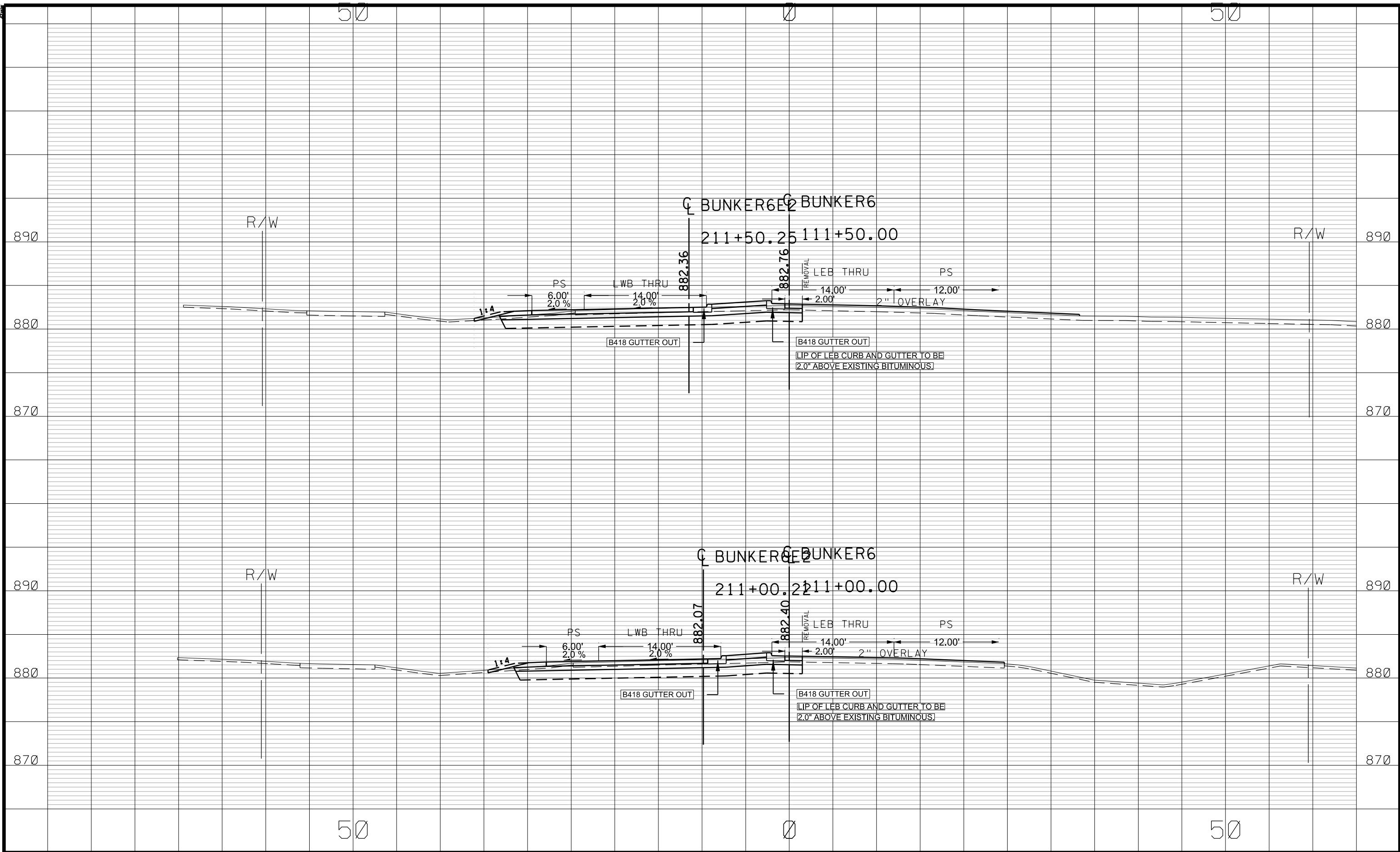
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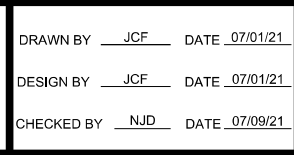
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 SAP 199-104-014

CROSS SECTIONS  
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 Sheet 234 of 259 Sheets



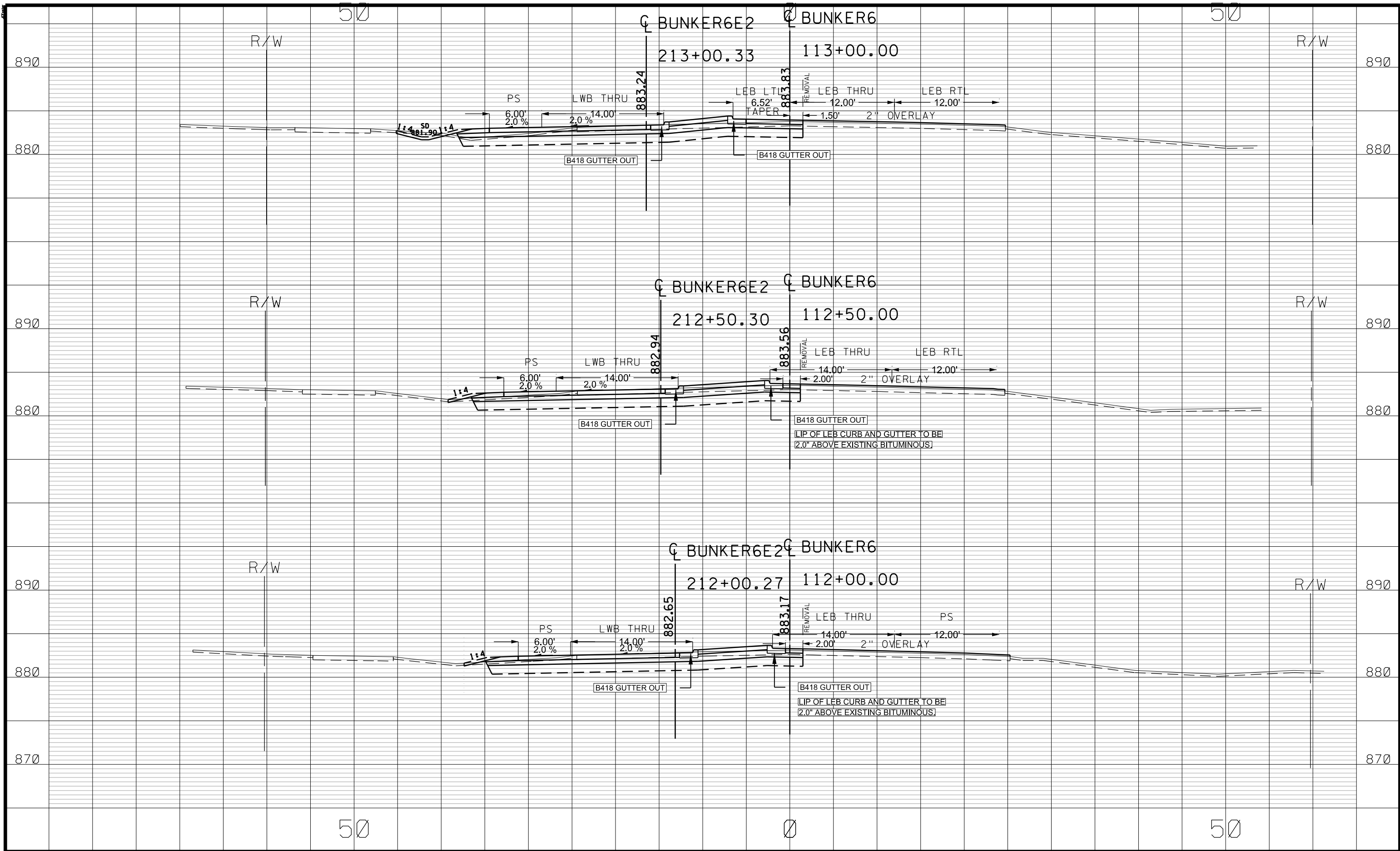
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SAP 002-716-021  
SAP 199-104-014

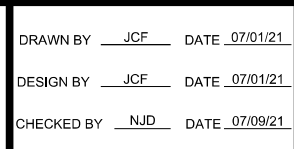
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Sheet 235 of 259 Sheets



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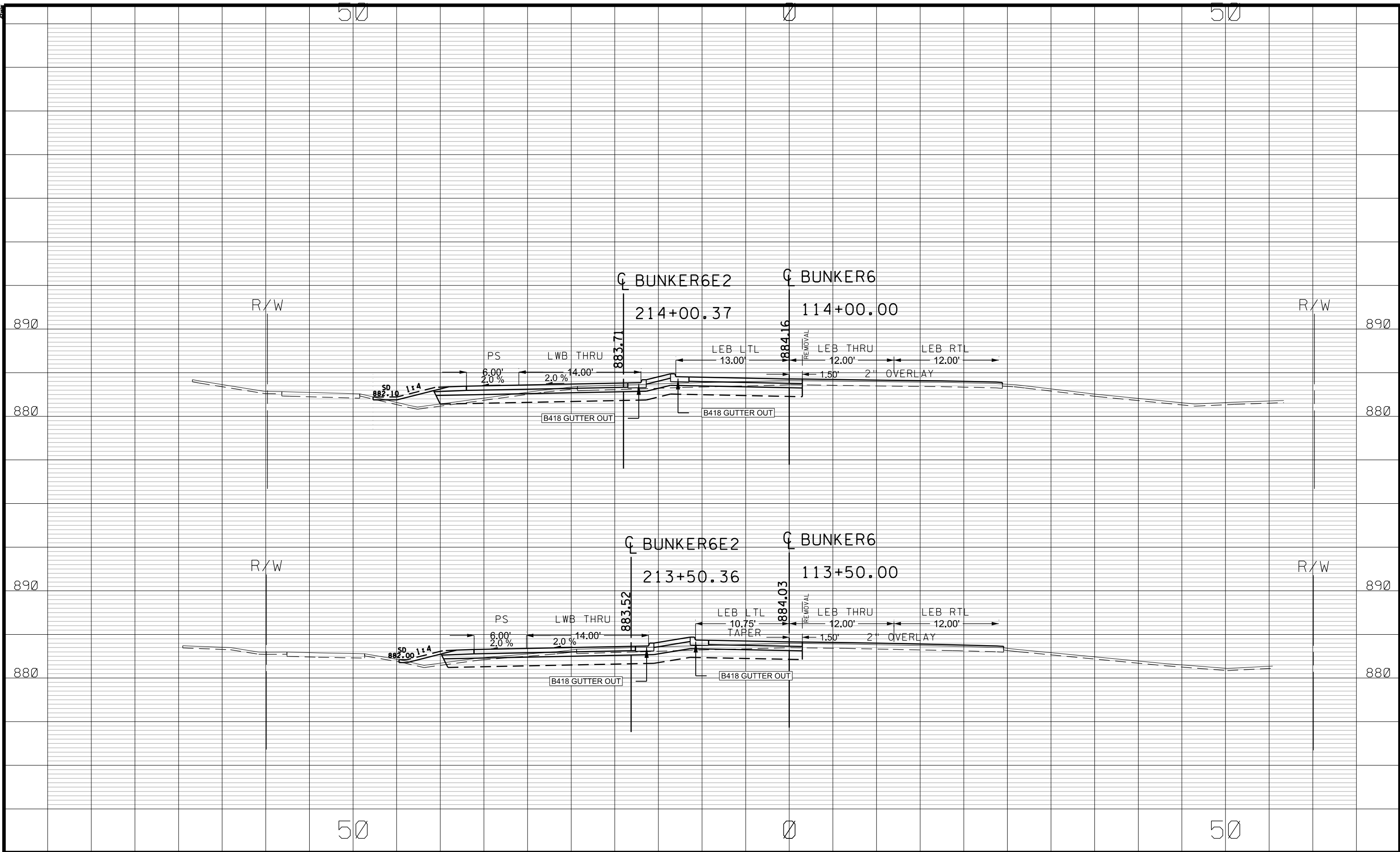
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 CHECKED BY NJD DATE 07/09/21



SAP 002-716-021  
SAP 199-104-014

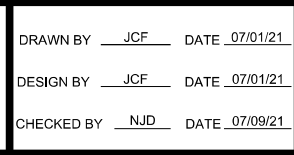
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STA 112+00.00 TO 113+00.00  
Sheet 236 of 259 Sheets



NO	DATE	BY	CKD	APPR	REVISION

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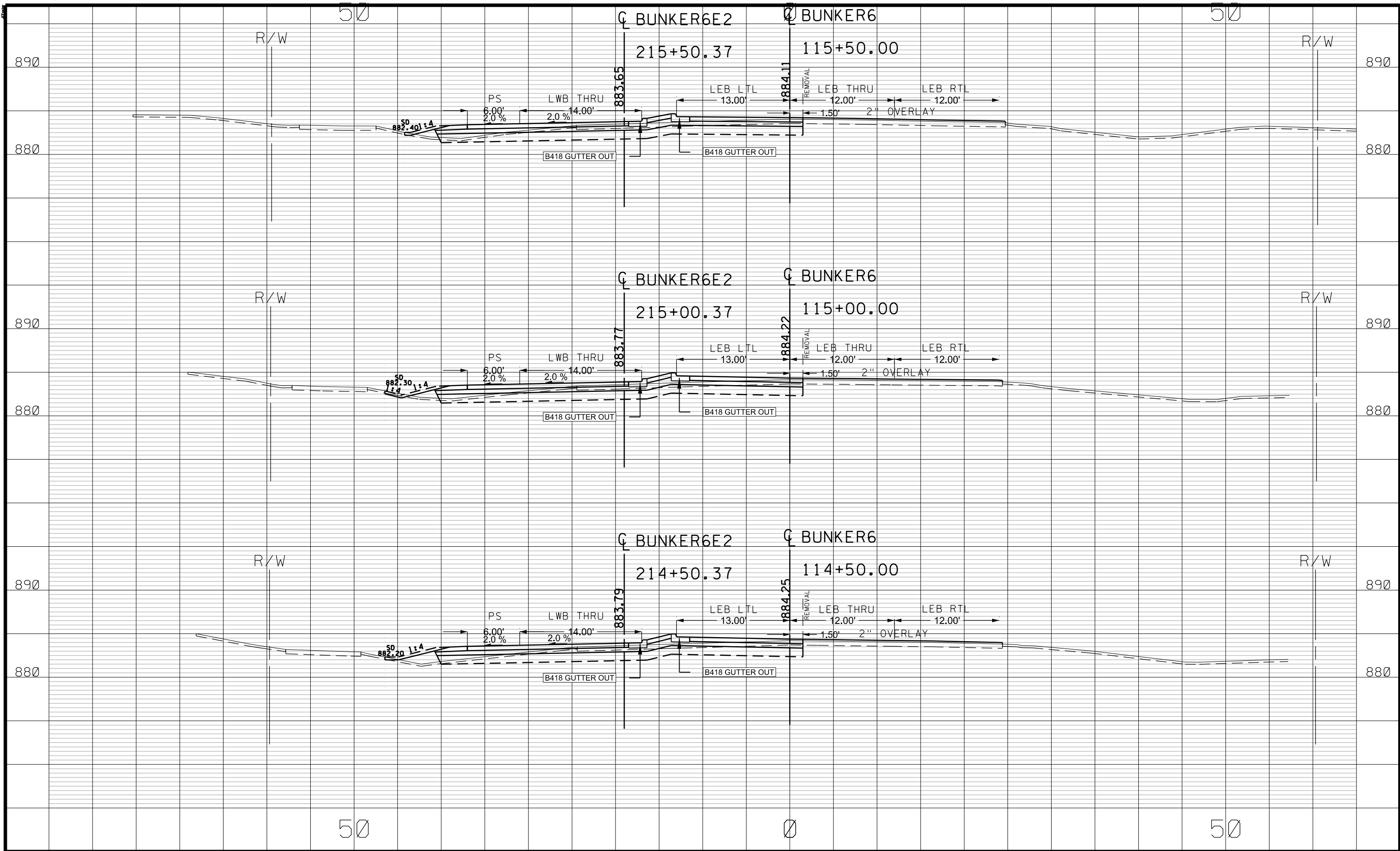
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 CHECKED BY NJD DATE 07/09/21



**ANOKA COUNTY  
HIGHWAY DEPT.**

SAP 002-716-021  
SAP 199-104-014

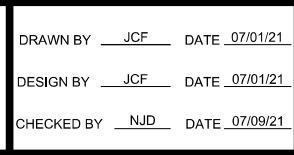
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 Sheet 237 of 259 Sheets



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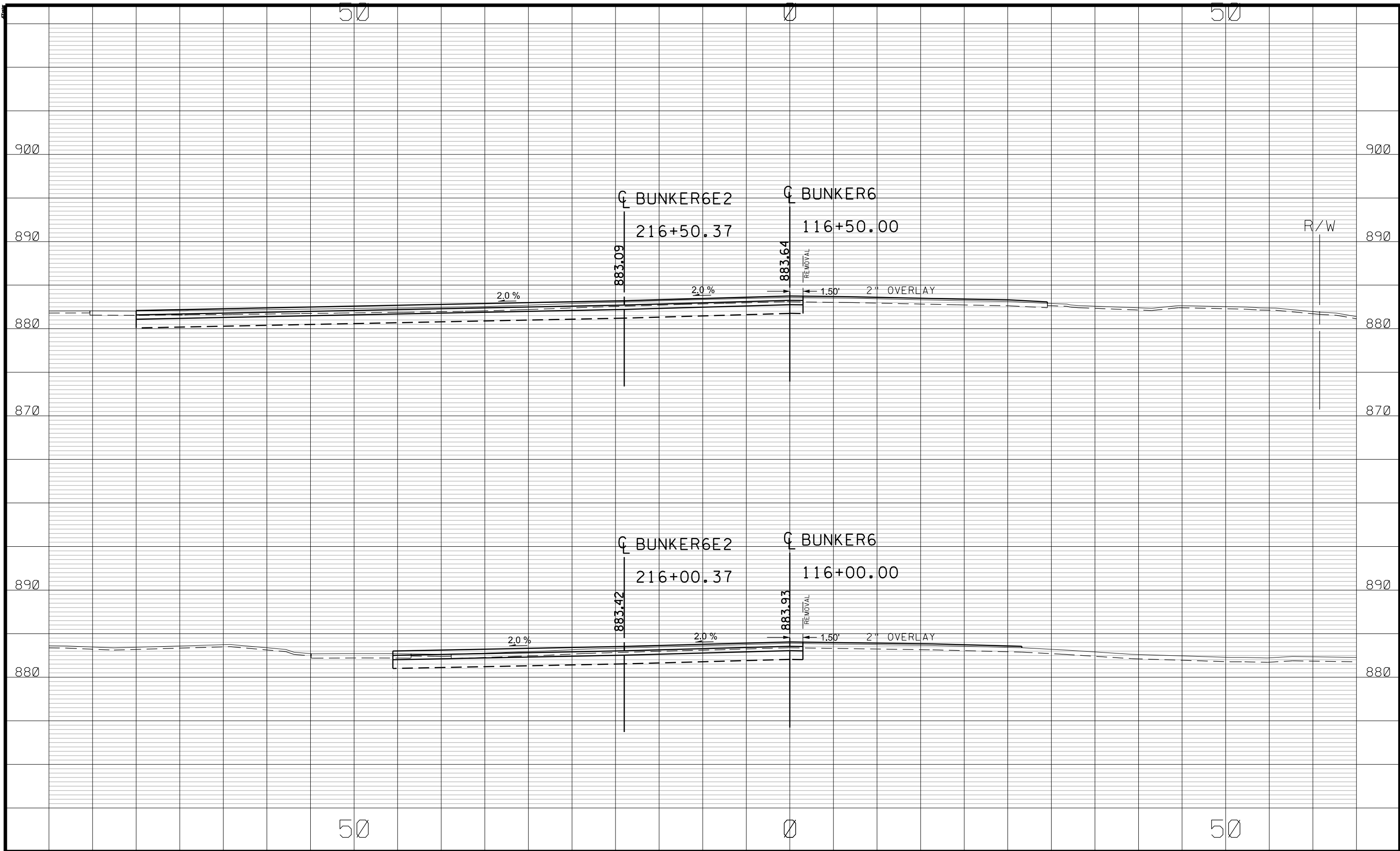
DRAWN BY	JCF	DATE	07/01/21
DESIGN BY	JCF	DATE	07/01/21
CHECKED BY	NJD	DATE	07/09/21



**ANOKA COUNTY  
HIGHWAY DEPT.**

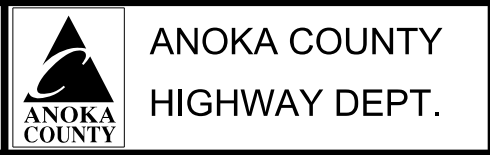
SAP 002-716-021  
SAP 199-104-014

**CROSS SECTIONS**  
STA 114+50.00 TO 115+50.00  
Sheet 238 of 259 Sheets



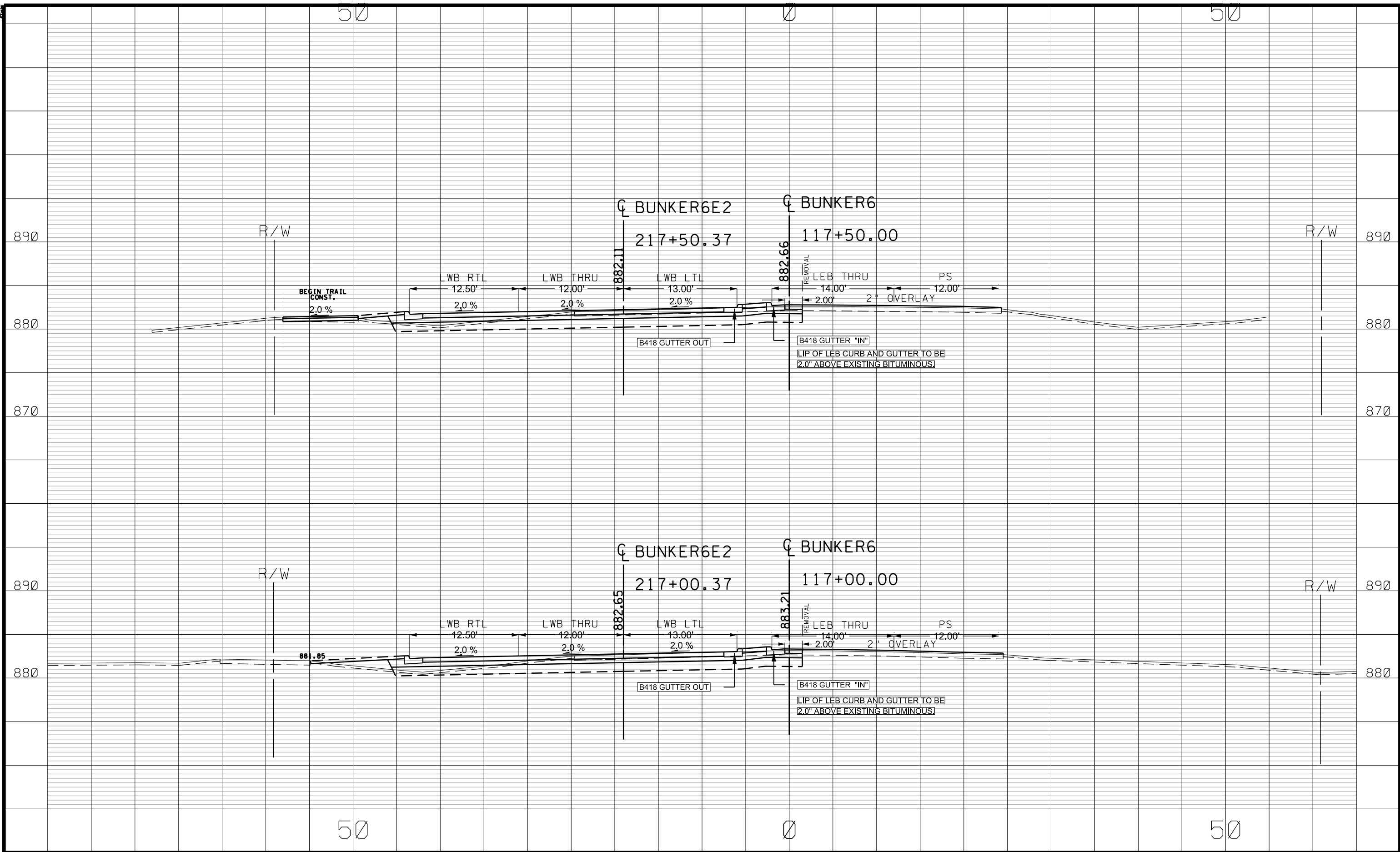
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DRAWN BY JCF DATE 07/01/21  
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 CHECKED BY NJD DATE 07/09/21



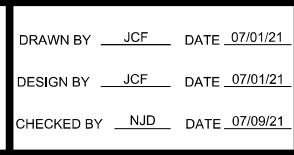
SAP 002-716-021  
 SAP 199-104-014

CROSS SECTIONS  
 STA 116+00.00 TO 116+50.00  
 Sheet 239 of 259 Sheets



NO	DATE	BY	CKD	APPR	REVISION
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DESIGN BY	JCF	DATE	07/01/21
CHECKED BY	NJD	DATE	07/09/21

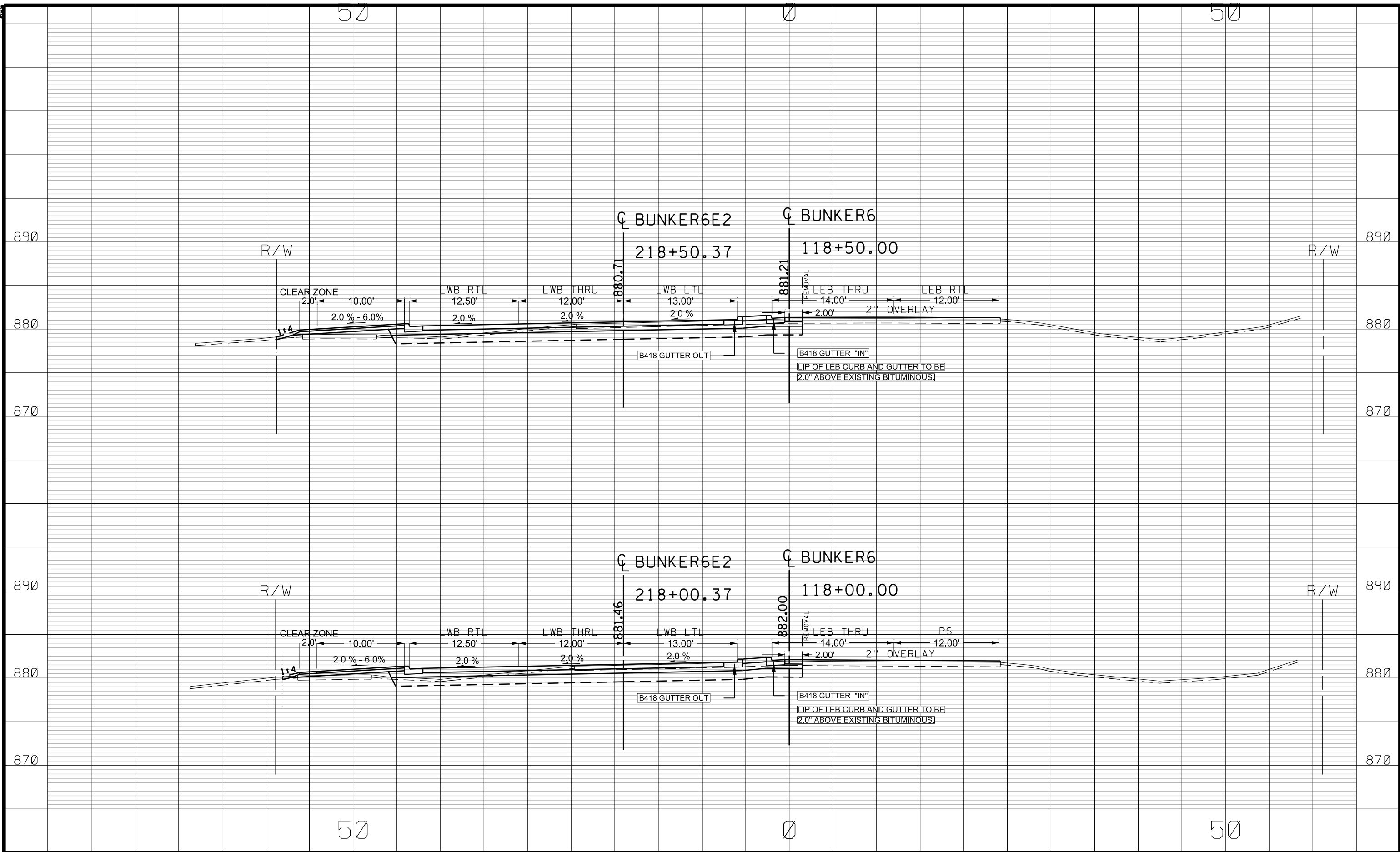


**ANOKA COUNTY  
HIGHWAY DEPT.**

SAP 002-716-021  
SAP 199-104-014

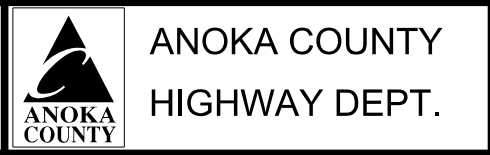
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Sheet 240 of 259 Sheets





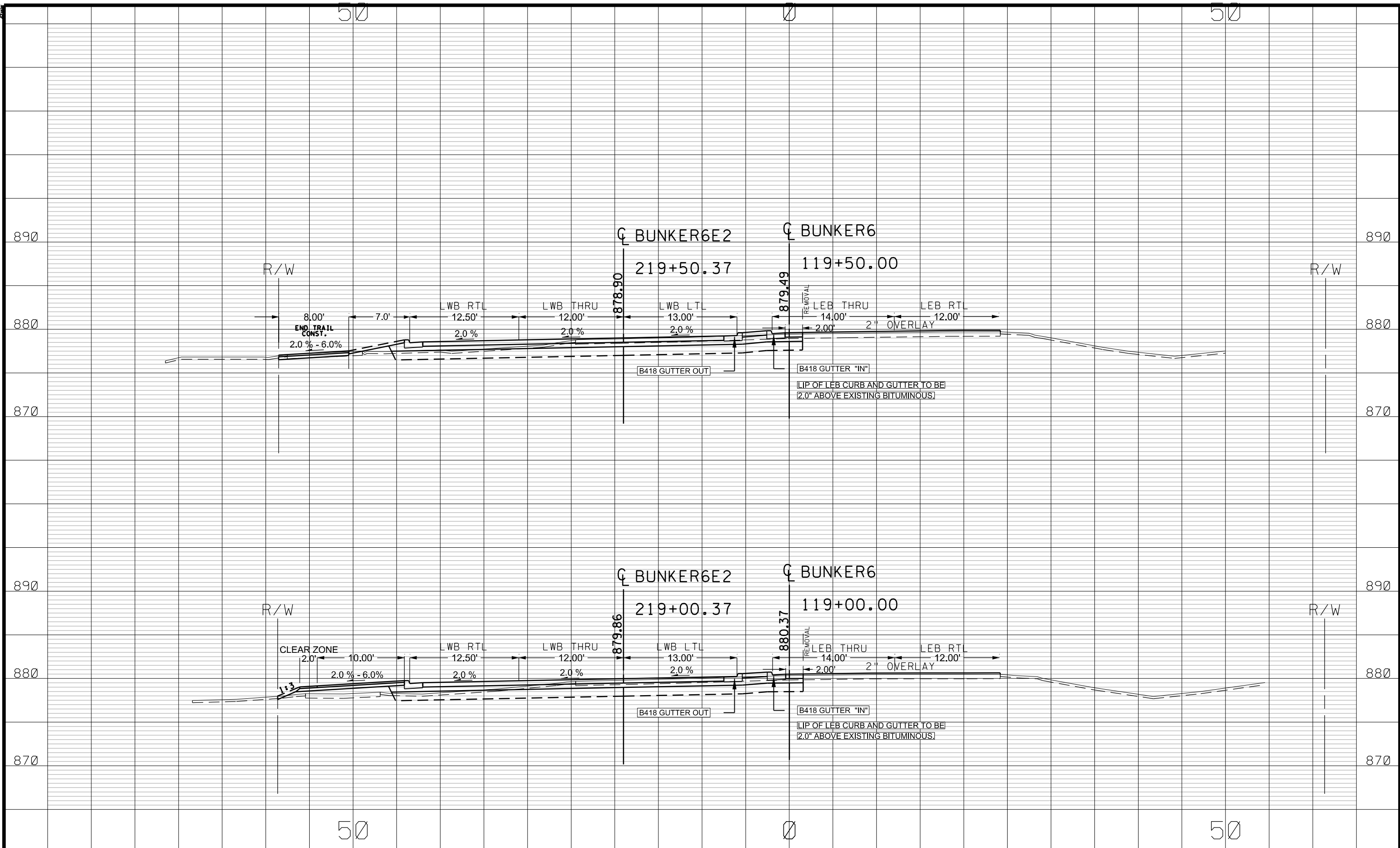
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NO	DATE	BY	CKD	APPR	REVISION
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DRAWN BY JCF DATE 07/01/21  
 DESIGN BY JCF DATE 07/01/21  
 CHECKED BY NJD DATE 07/09/21



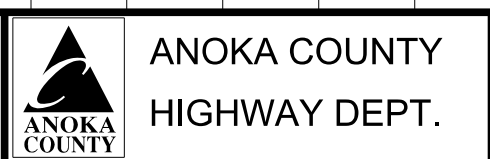
SAP 002-716-021  
SAP 199-104-014

CROSS SECTIONS  
 STA 118+00.00 TO 118+50.00  
 Sheet 241 of 259 Sheets



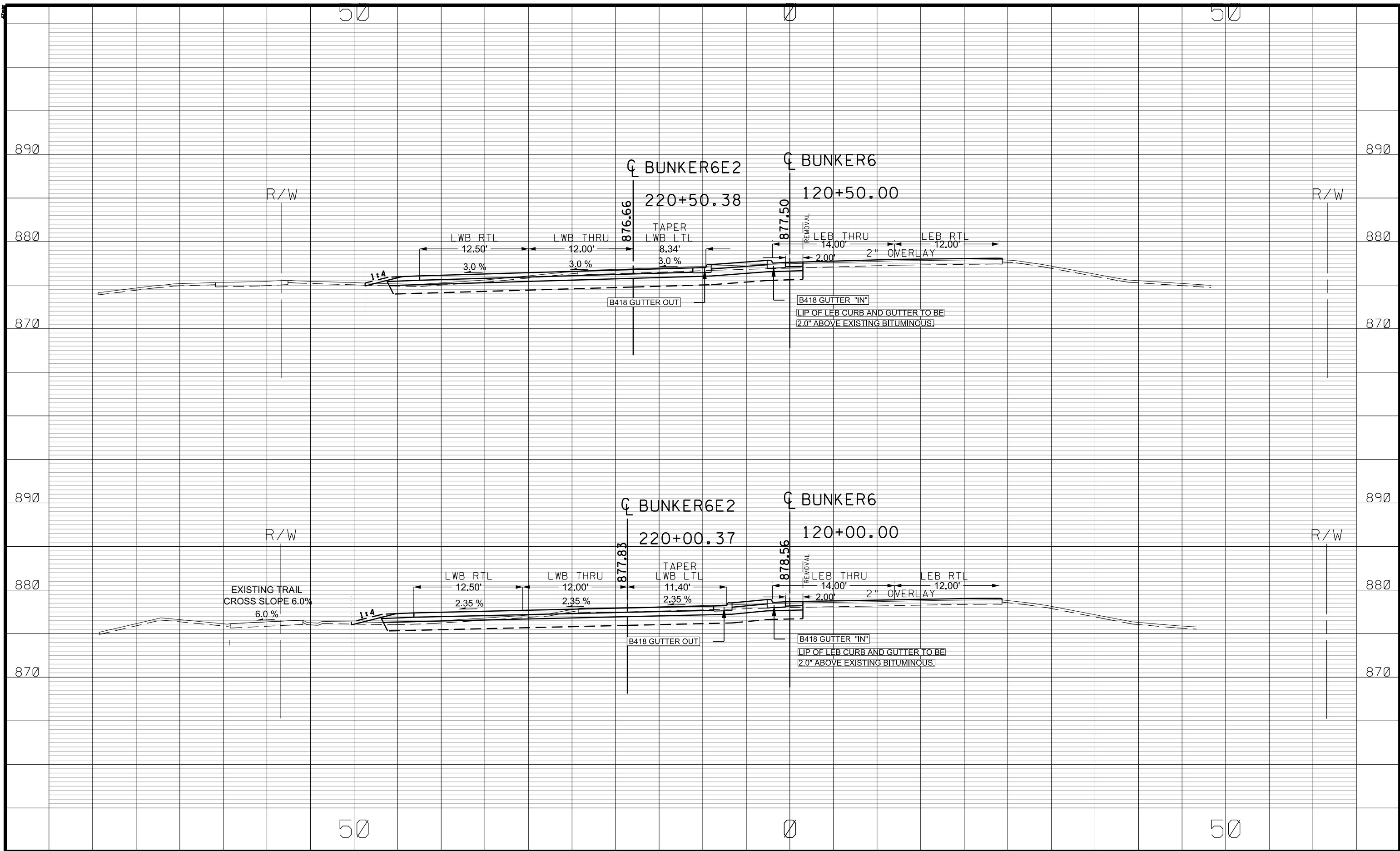
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SAP 002-716-021  
 SAP 199-104-014

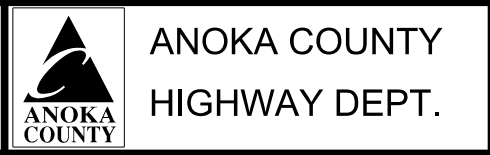
CROSS SECTIONS  
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 Sheet 242 of 259 Sheets



NO	DATE	BY	CKD	APPR	REVISION

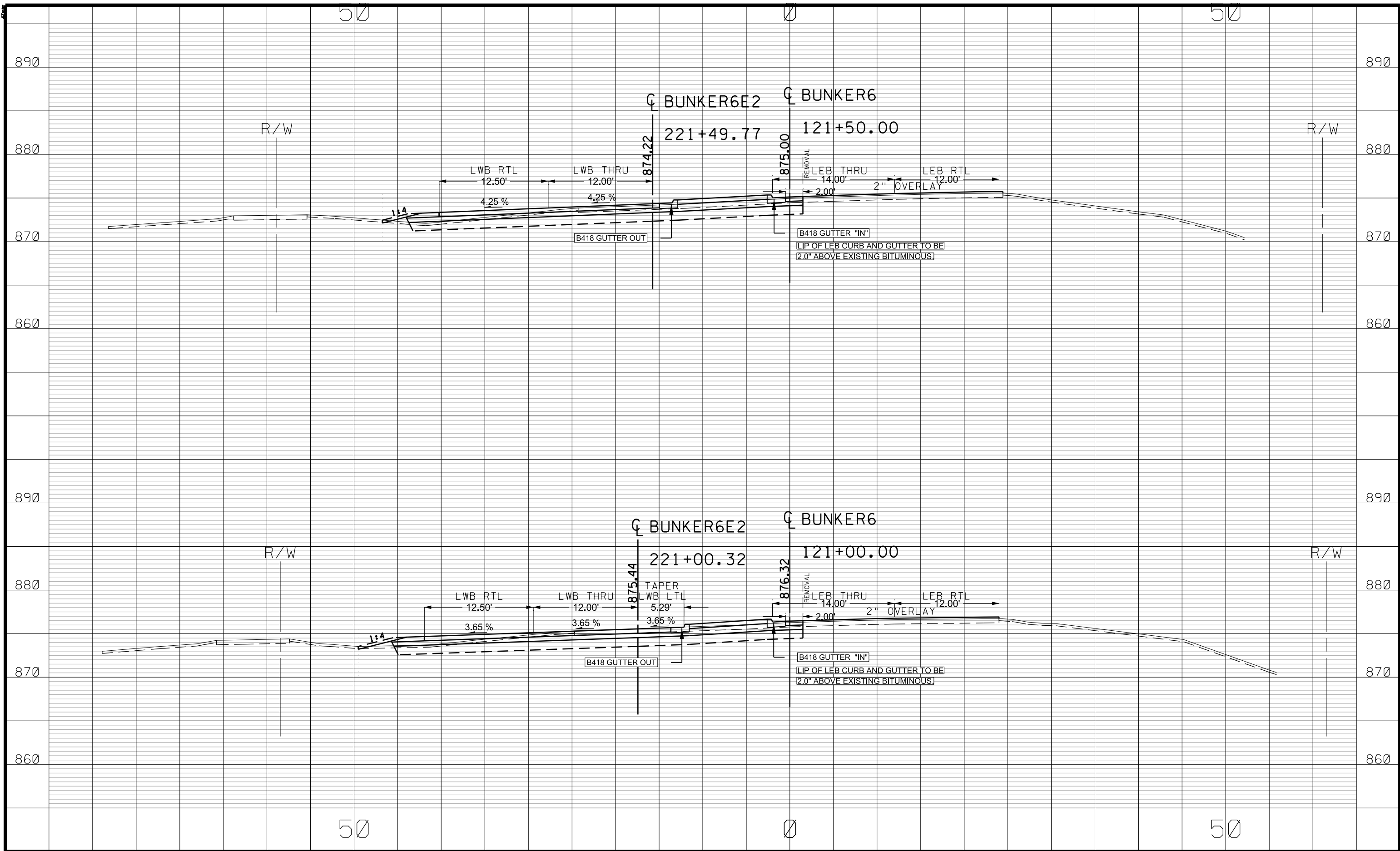
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 CHECKED BY NJD DATE 07/09/21



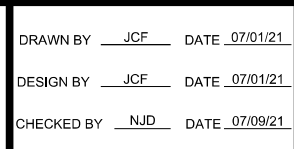
SAP 002-716-021  
 SAP 199-104-014

**CROSS SECTIONS**  
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 Sheet 243 of 259 Sheets



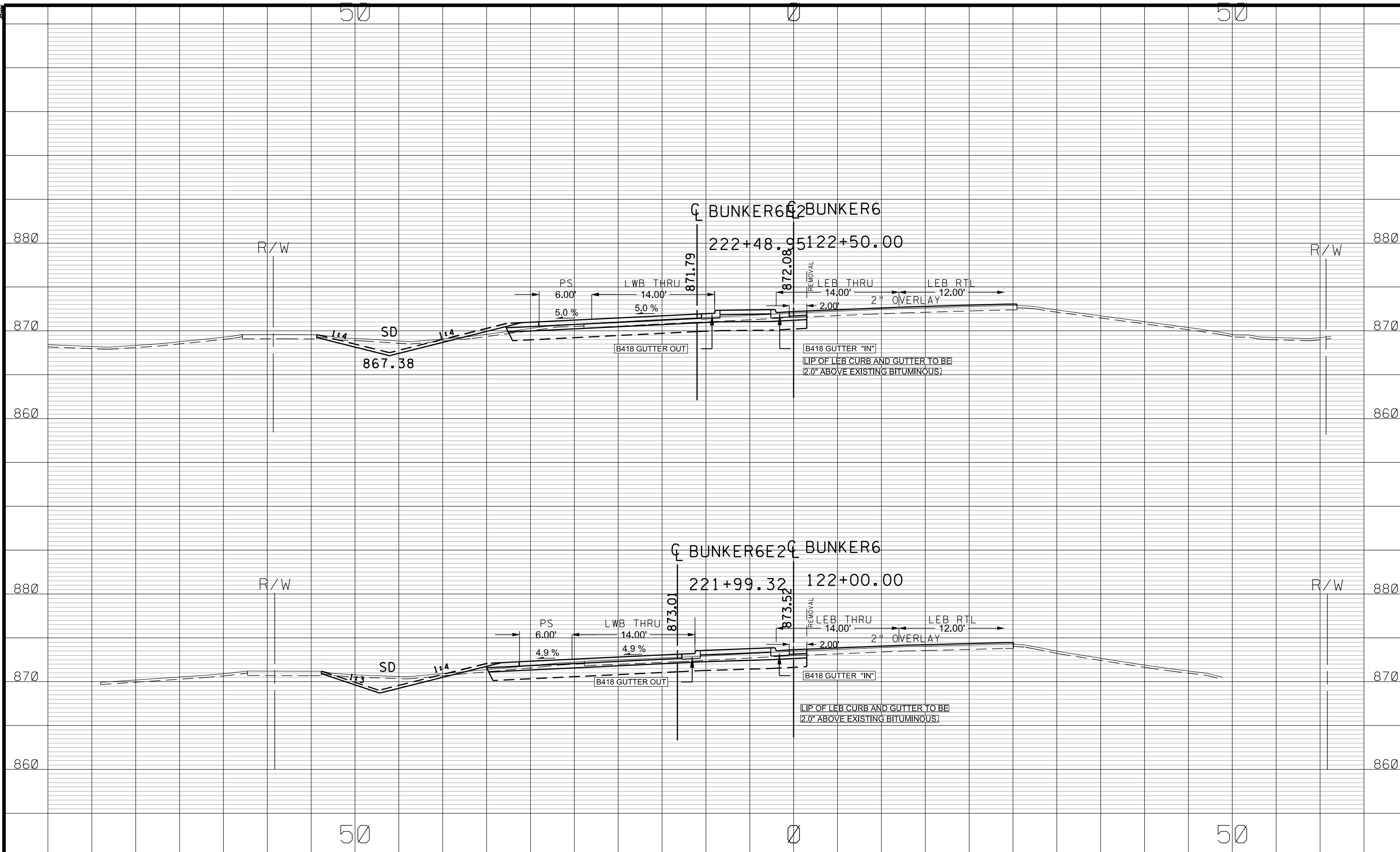
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 CHECKED BY NJD DATE 07/09/21



SAP 002-716-021  
SAP 199-104-014

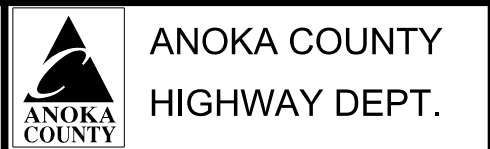
CROSS SECTIONS  
STA 121+00.00 TO 121+50.00  
Sheet 244 of 259 Sheets



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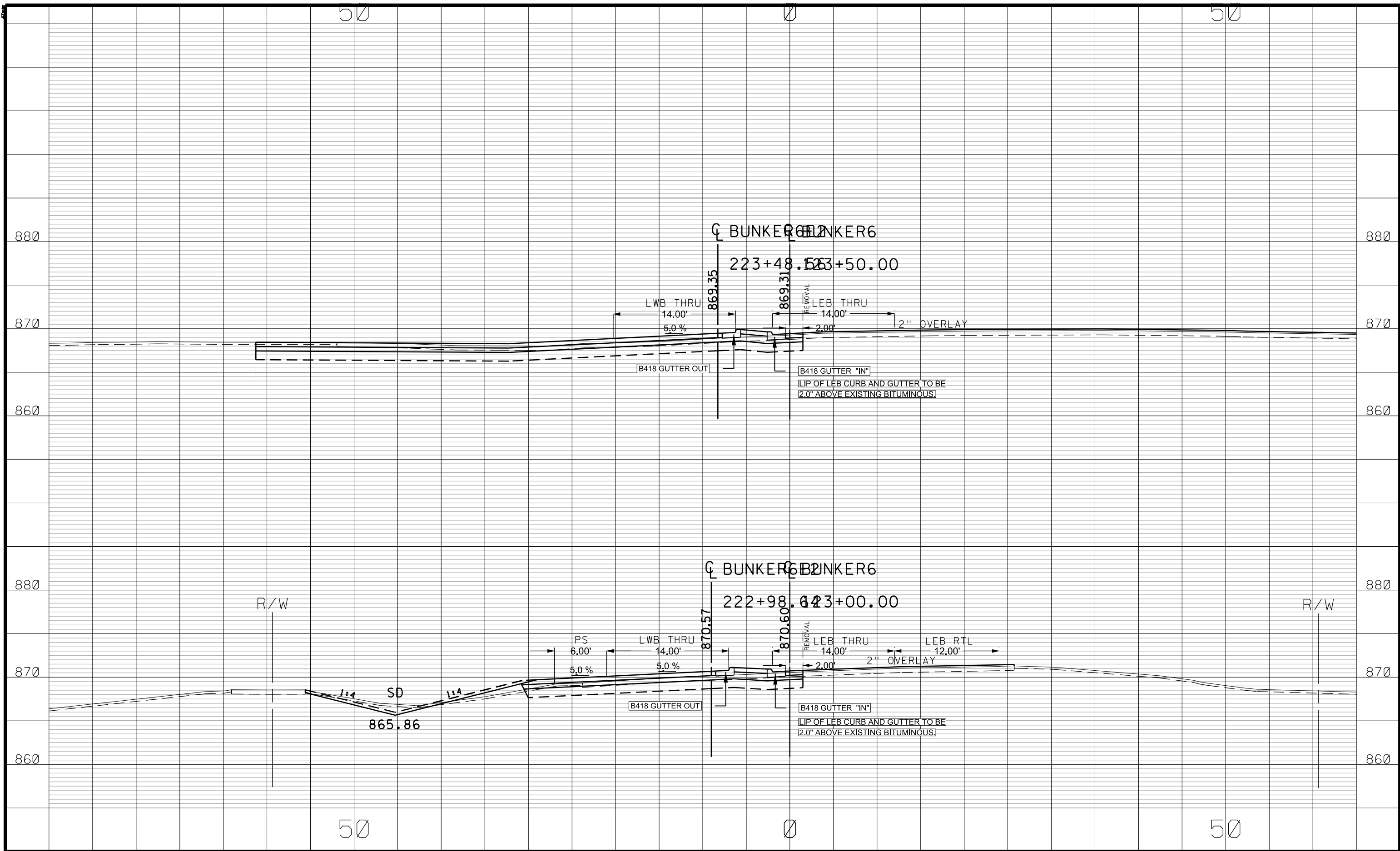
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 CHECKED BY NJD DATE 07/09/21



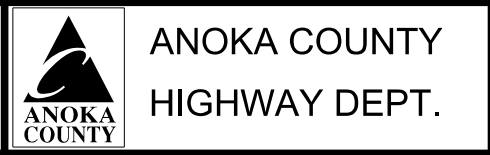
SAP 002-716-021  
 SAP 199-104-014

CROSS SECTIONS  
 STA 122+00.00 TO 122+50.00  
 Sheet 245 of 259 Sheets



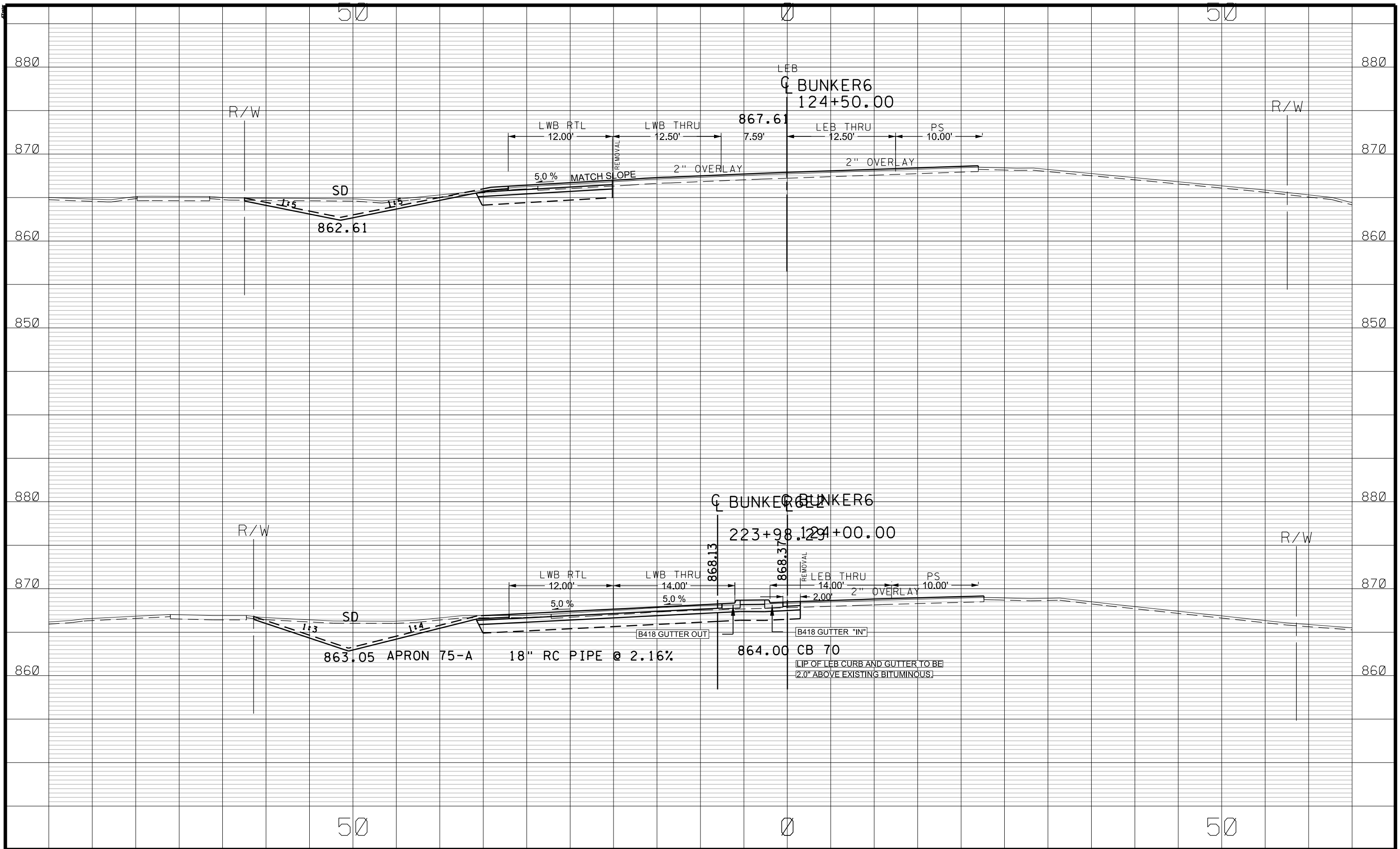
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SAP 002-716-021  
 SAP 199-104-014

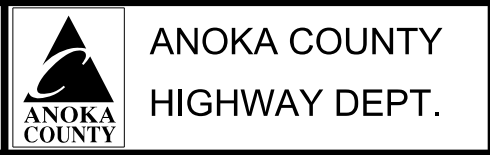
CROSS SECTIONS  
 STA 123+00.00 TO 123+50.00  
 Sheet 246 of 259 Sheets



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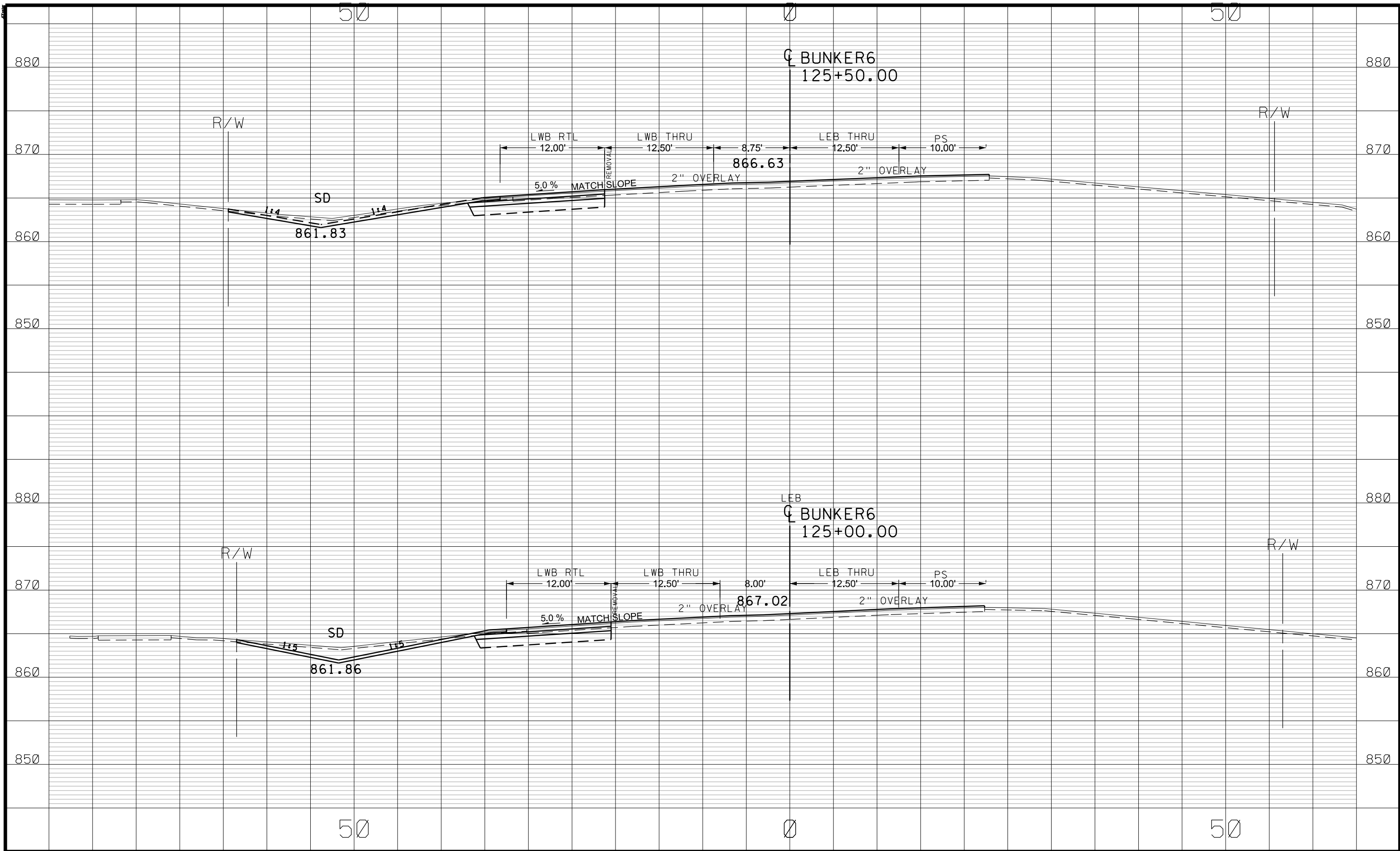
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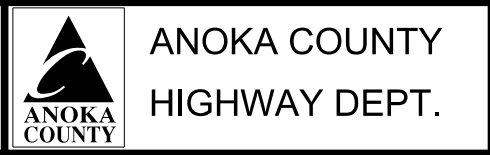
SAP 002-716-021  
 SAP 199-104-014

CROSS SECTIONS  
 STA 124+00.00 TO 124+50.00  
 Sheet 247 of 259 Sheets



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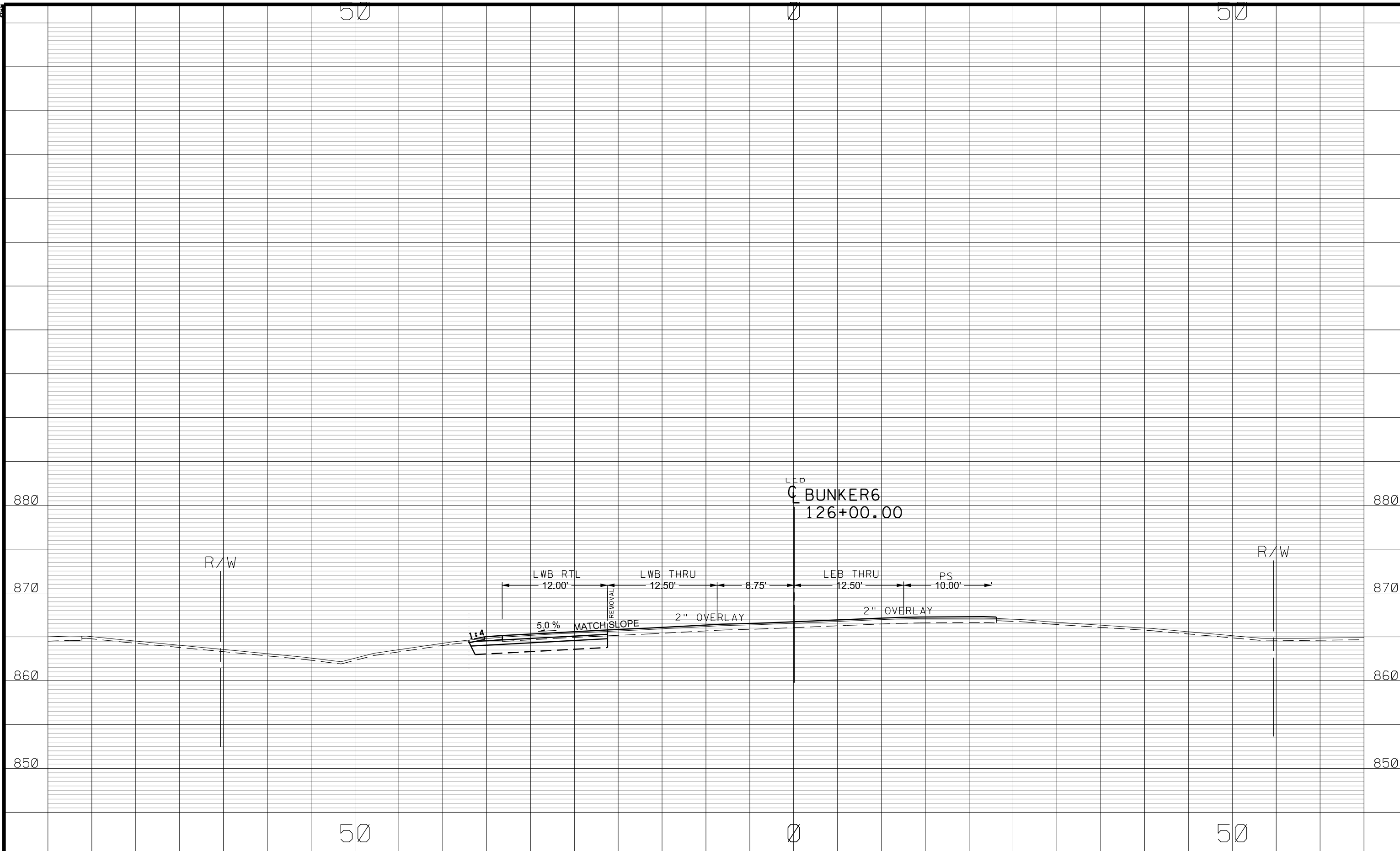

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 CHECKED BY NJD DATE 07/09/21



SAP 002-716-021  
 SAP 199-104-014

CROSS SECTIONS  
 STA 125+00.00 TO 125+50.00  
 Sheet 248 of 259 Sheets

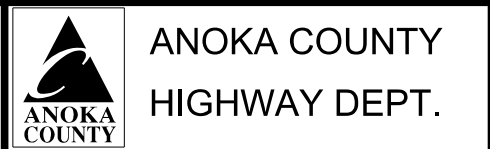




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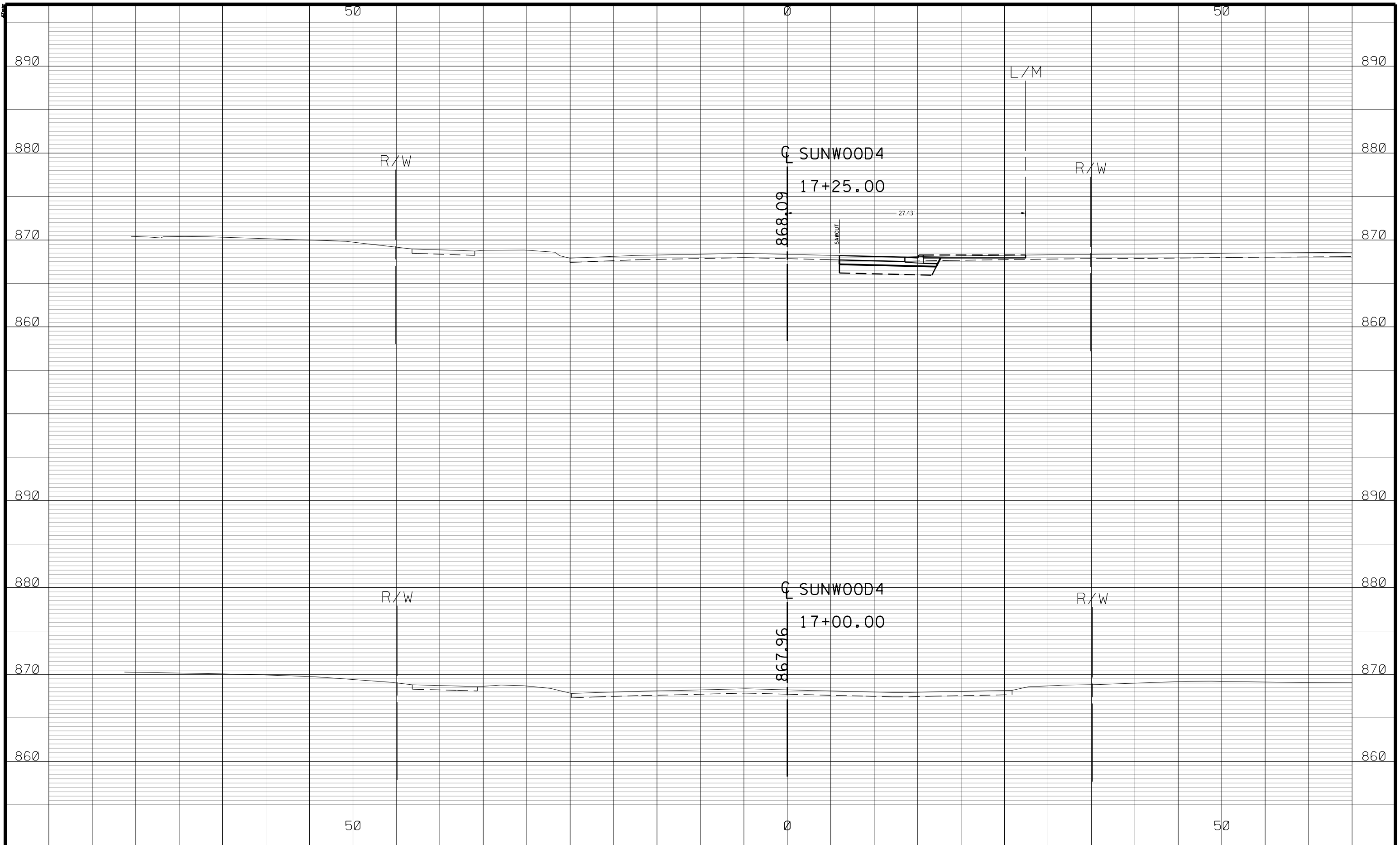
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 SAP 199-104-014

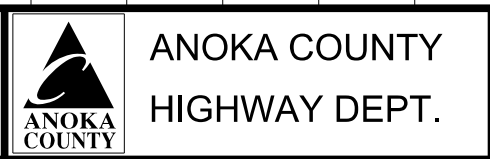
CROSS SECTIONS  
 STA 126+00.00 TO 126+00.00  
 Sheet 249 of 259 Sheets



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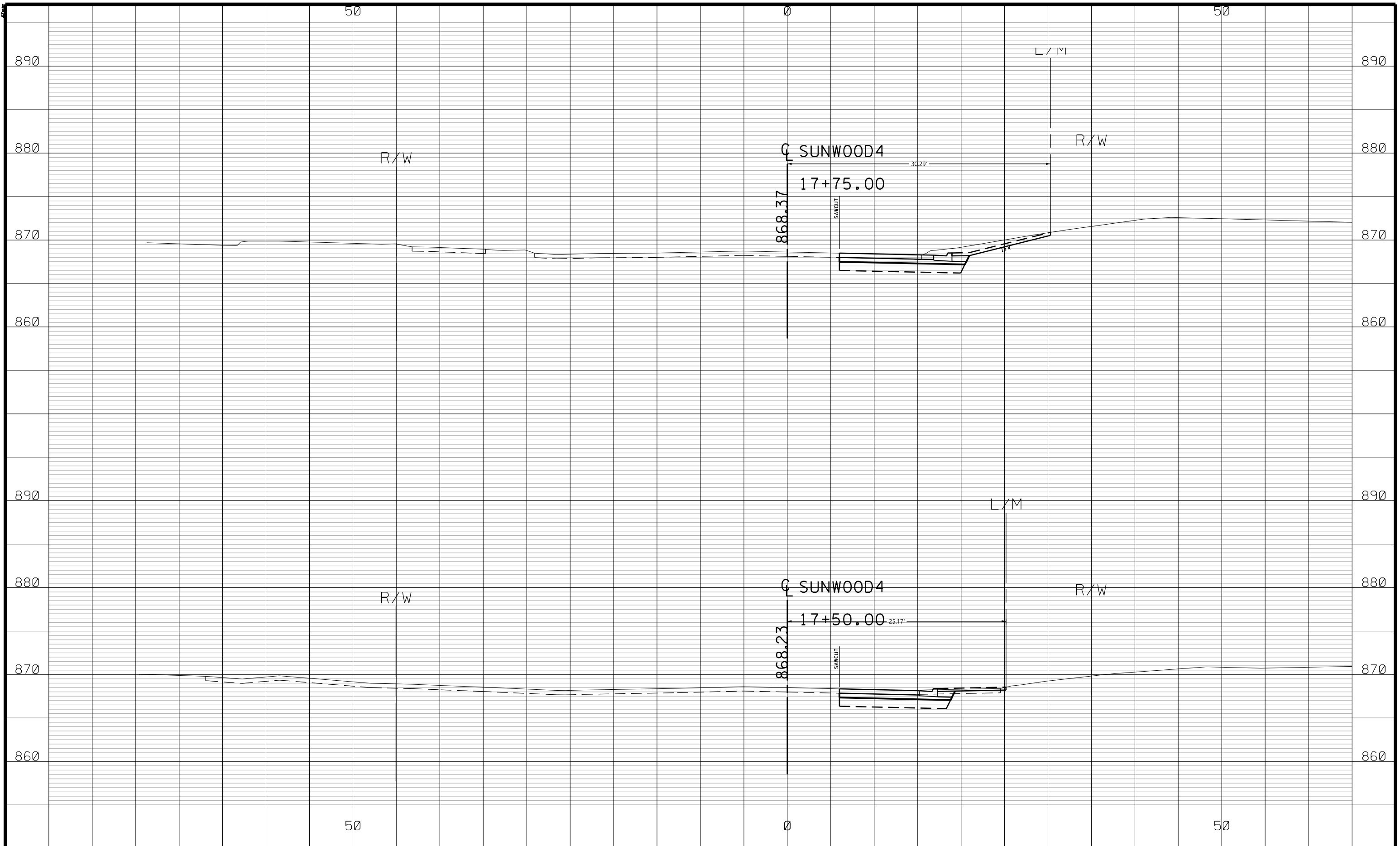
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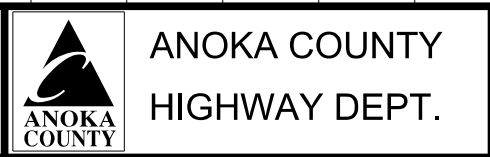
**CROSS SECTIONS**  
 STA 17+00.00 TO 17+25.00  
 Sheet 250 of 259 Sheets



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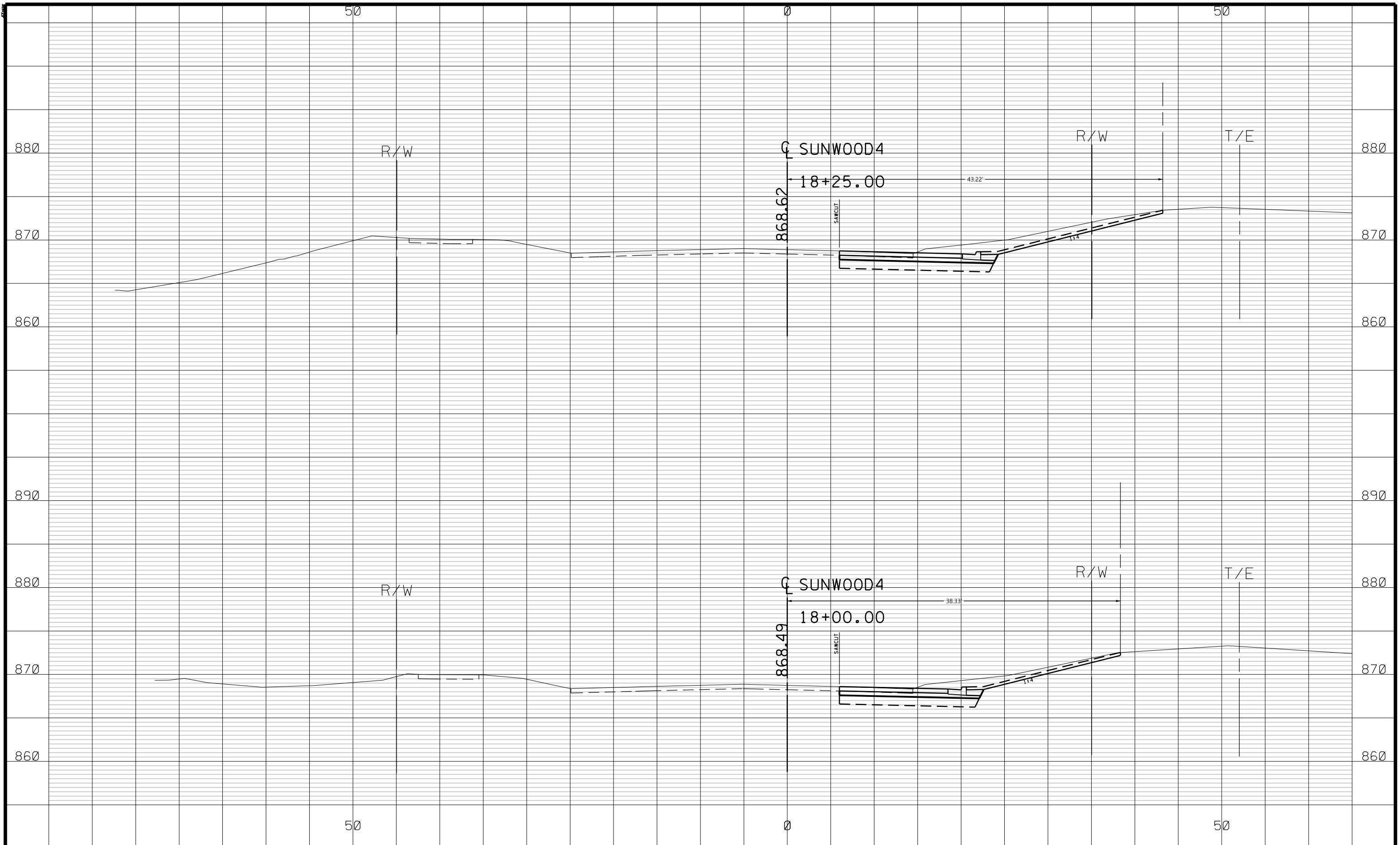
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 CHECKED BY NJD DATE 07/09/21



SAP 002-716-021  
 SAP 199-104-014

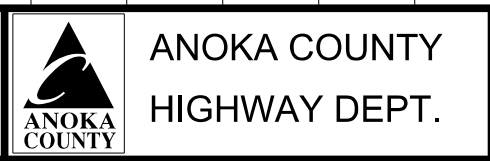
**CROSS SECTIONS**  
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 Sheet 251 of 259 Sheets



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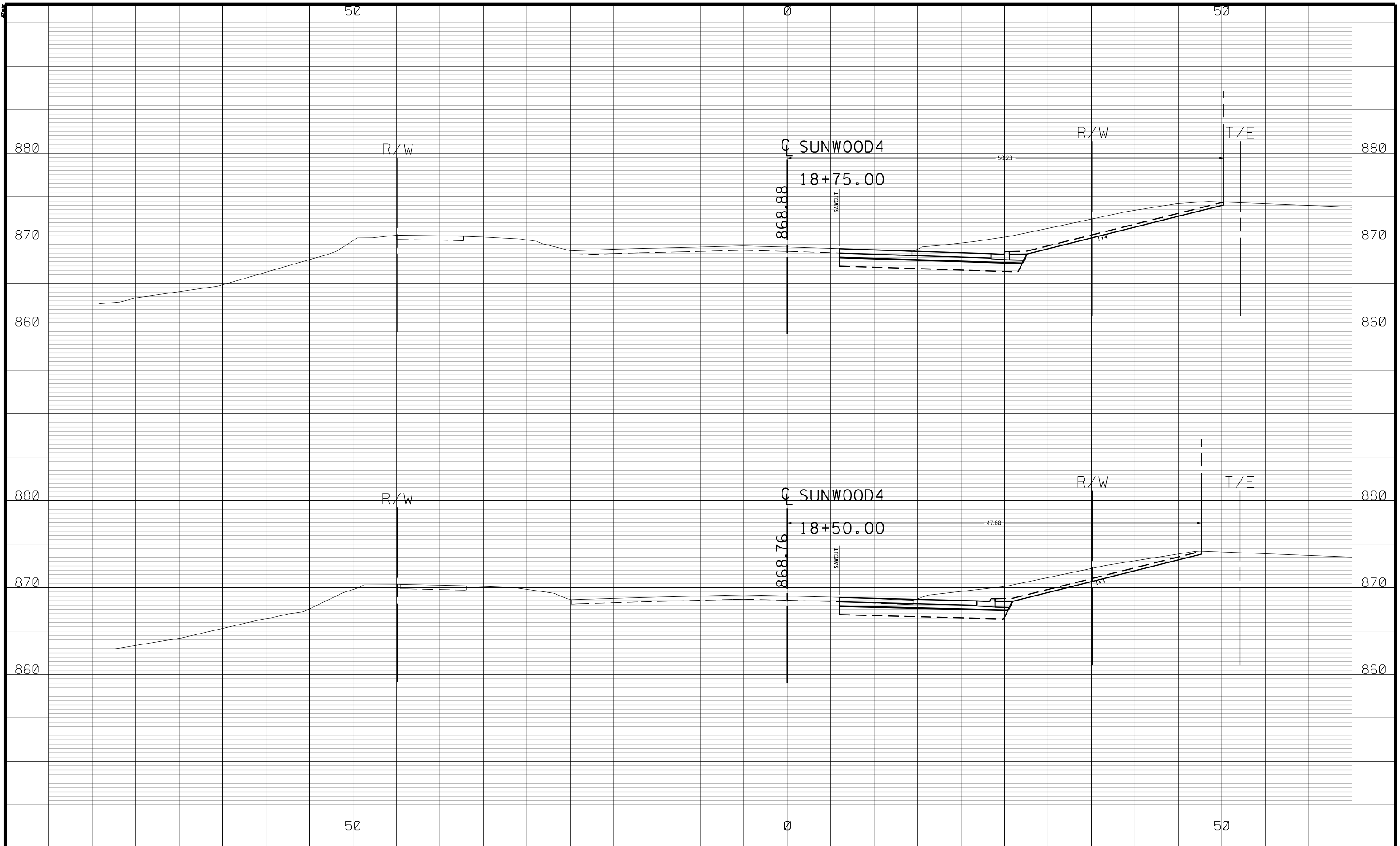
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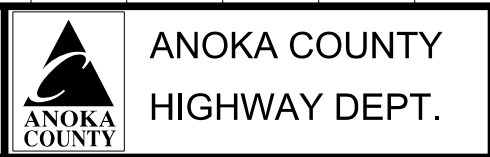
SAP 002-716-021  
 SAP 199-104-014

CROSS SECTIONS  
 STA 18+00.00 TO 18+25.00  
 Sheet 252 of 259 Sheets



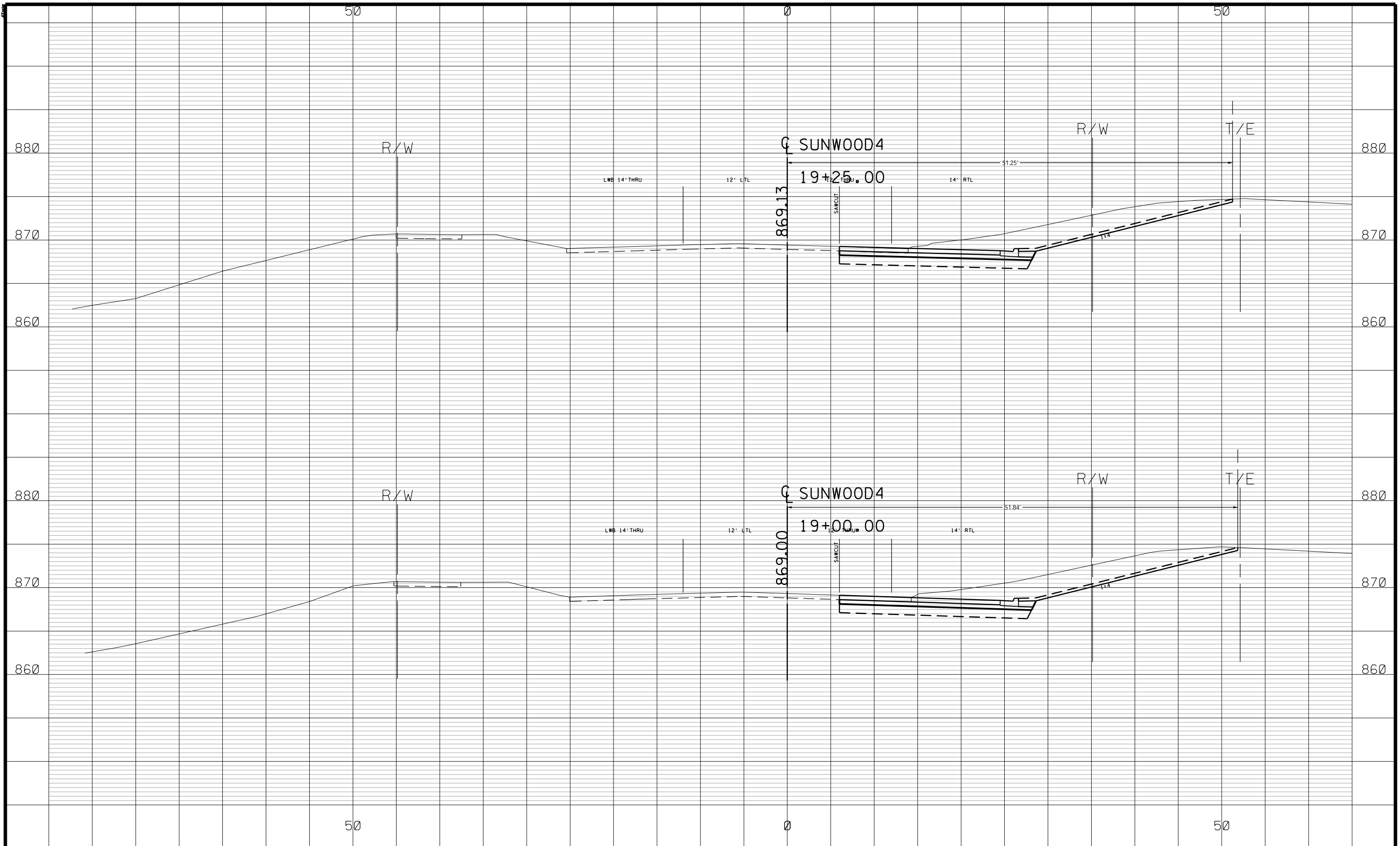
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CHECKED BY NJD DATE 07/09/21



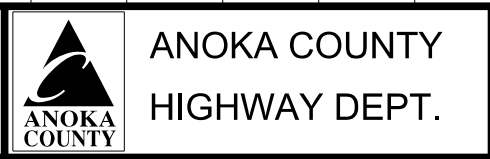
SAP 002-716-021  
SAP 199-104-014

**CROSS SECTIONS**  
STA 18+50.00 TO 18+75.00  
Sheet 253 of 259 Sheets



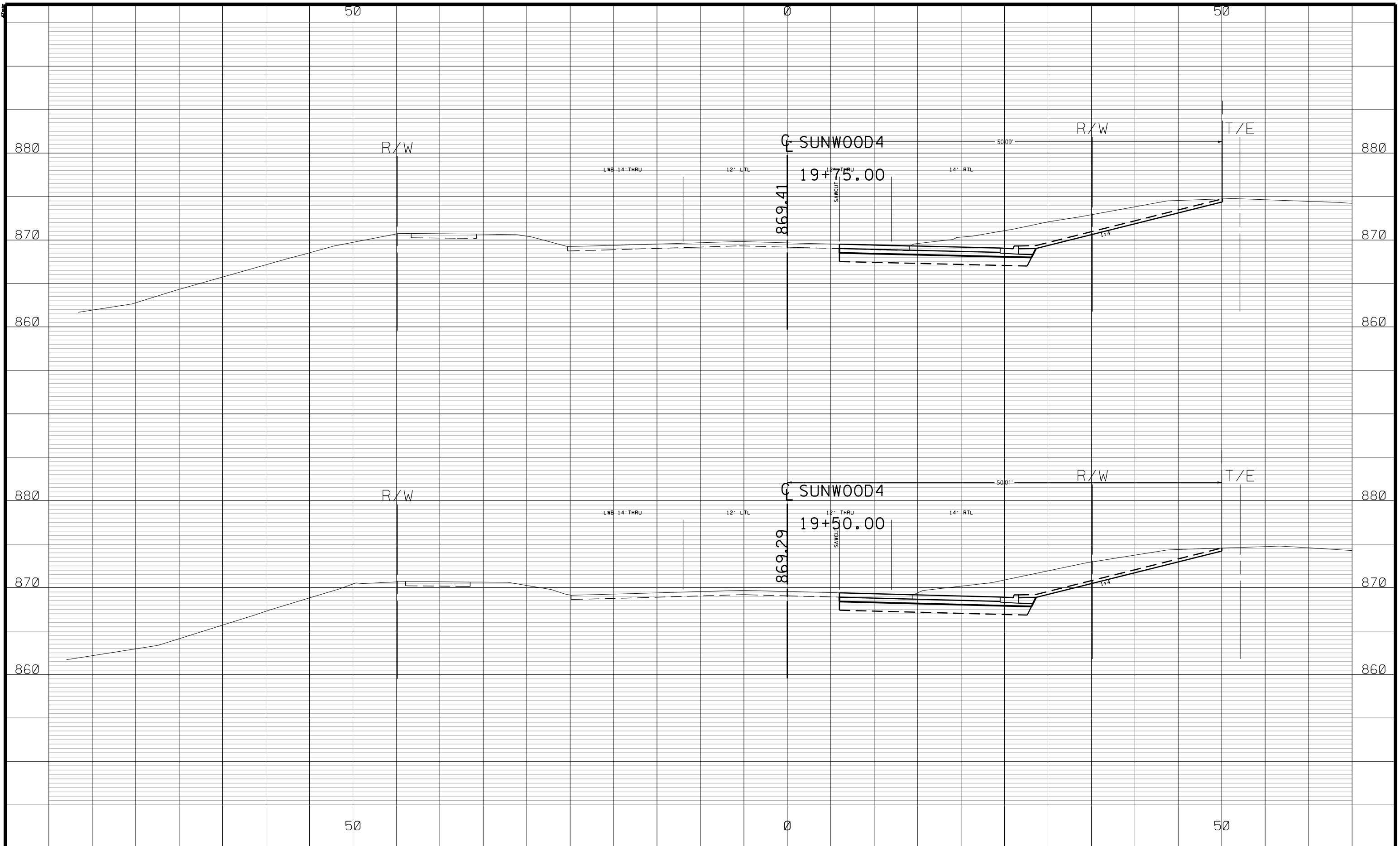
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 CHECKED BY NJD DATE 07/09/21



SAP 002-716-021  
 SAP 199-104-014

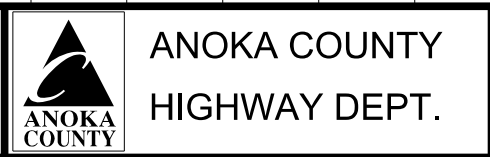
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 Sheet 254 of 259 Sheets



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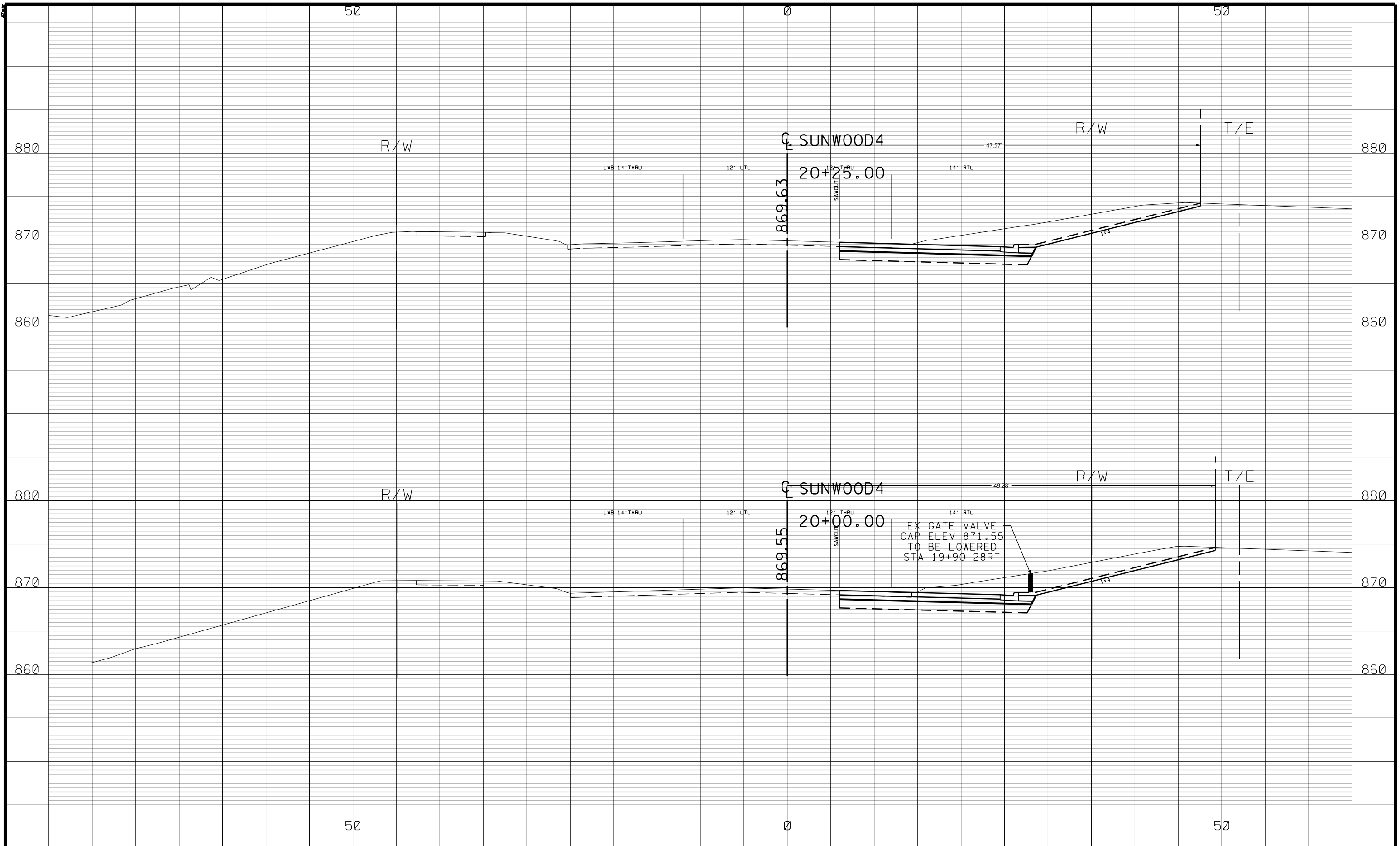
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SAP 002-716-021  
 SAP 199-104-014

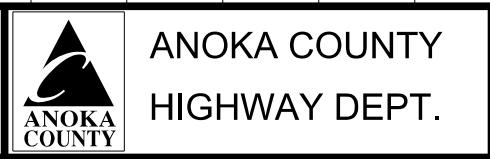
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 Sheet 255 of 259 Sheets



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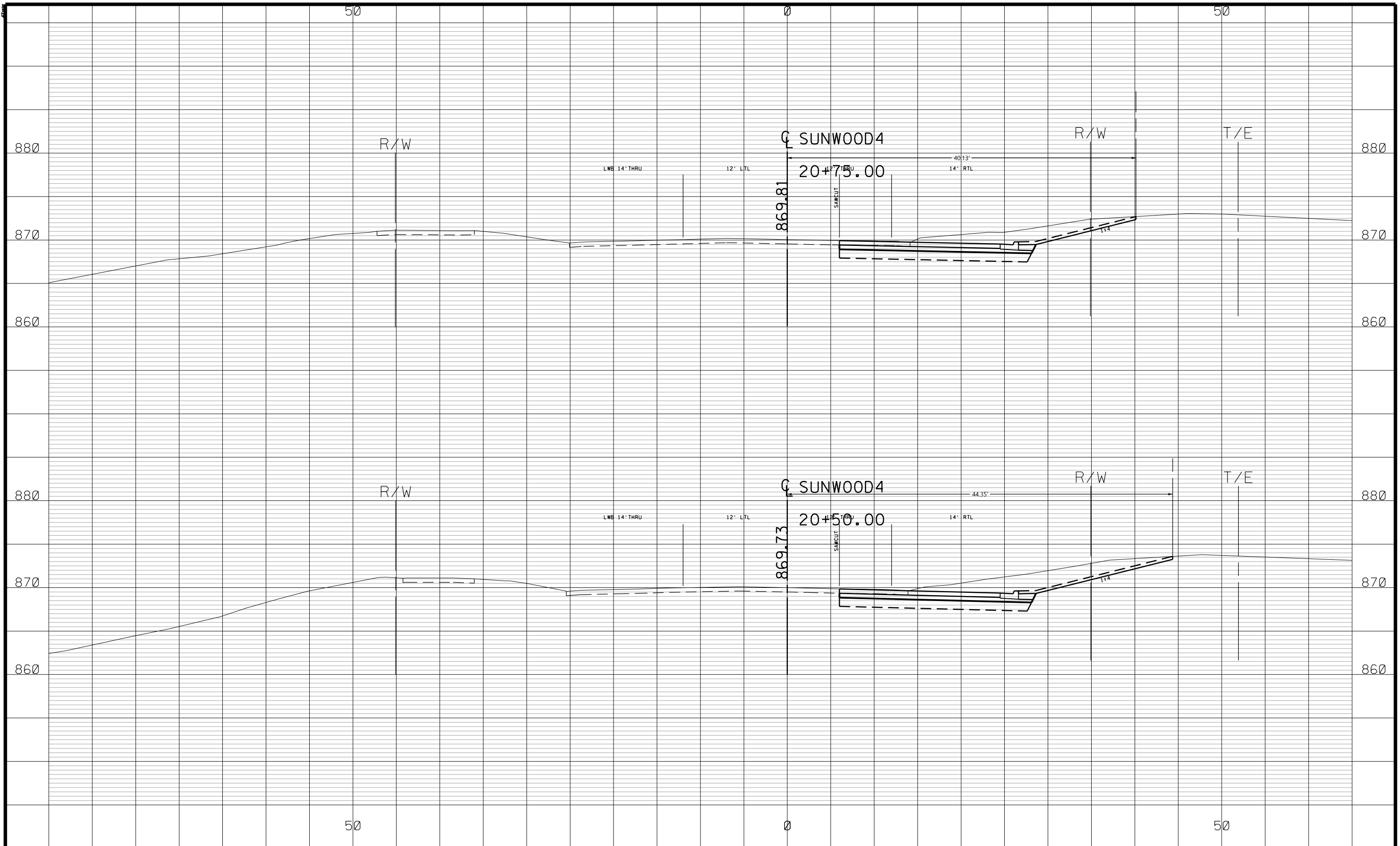
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SAP 002-716-021  
 SAP 199-104-014

CROSS SECTIONS  
 STA 20+00.00 TO 20+25.00  
 Sheet 256 of 259 Sheets

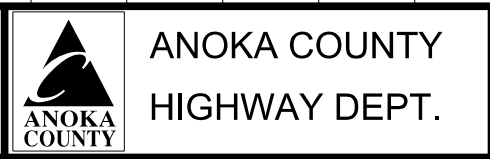




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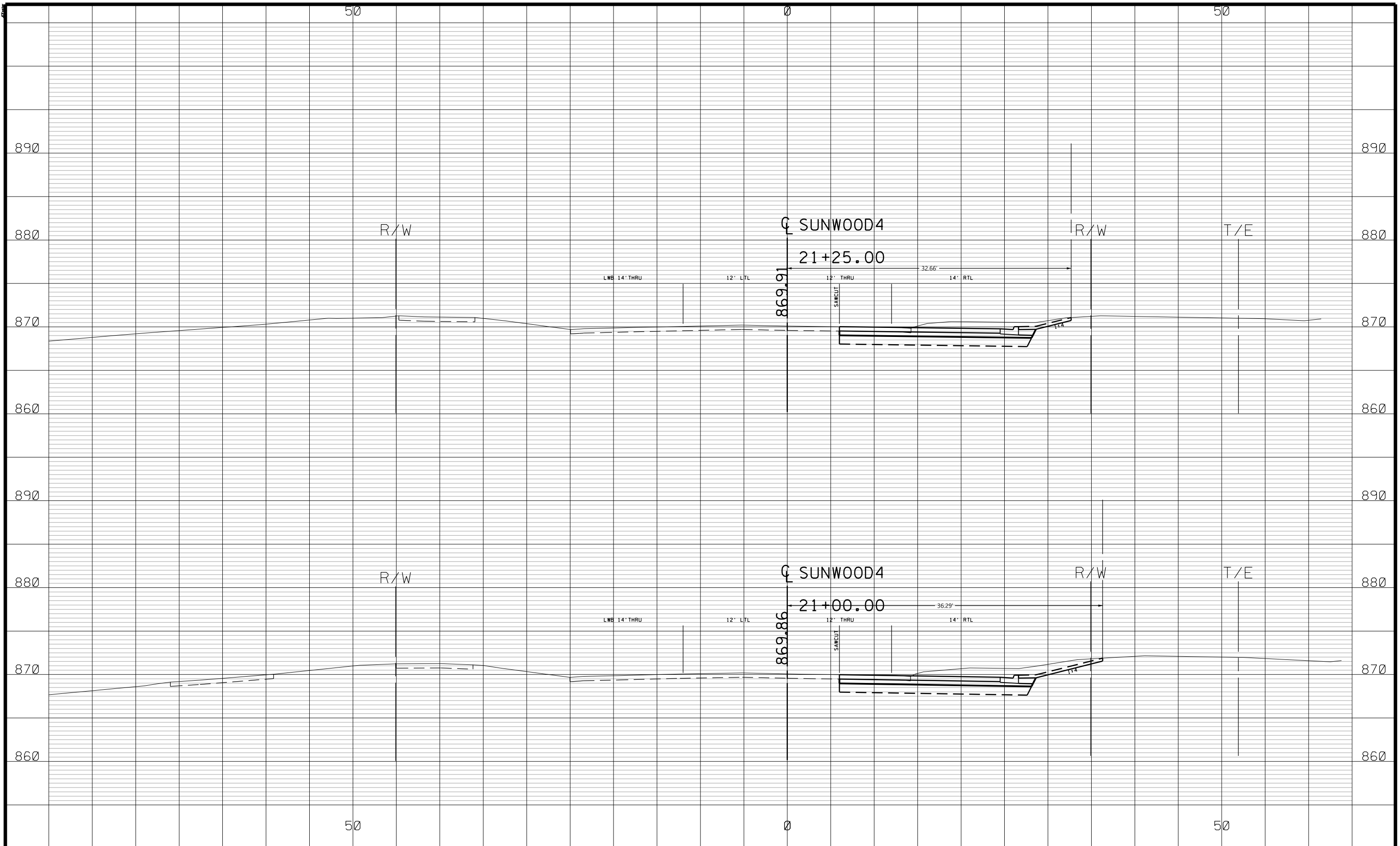
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SAP 002-716-021  
 SAP 199-104-014

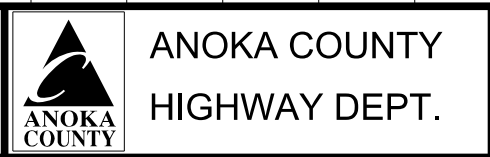
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 Sheet 257 of 259 Sheets



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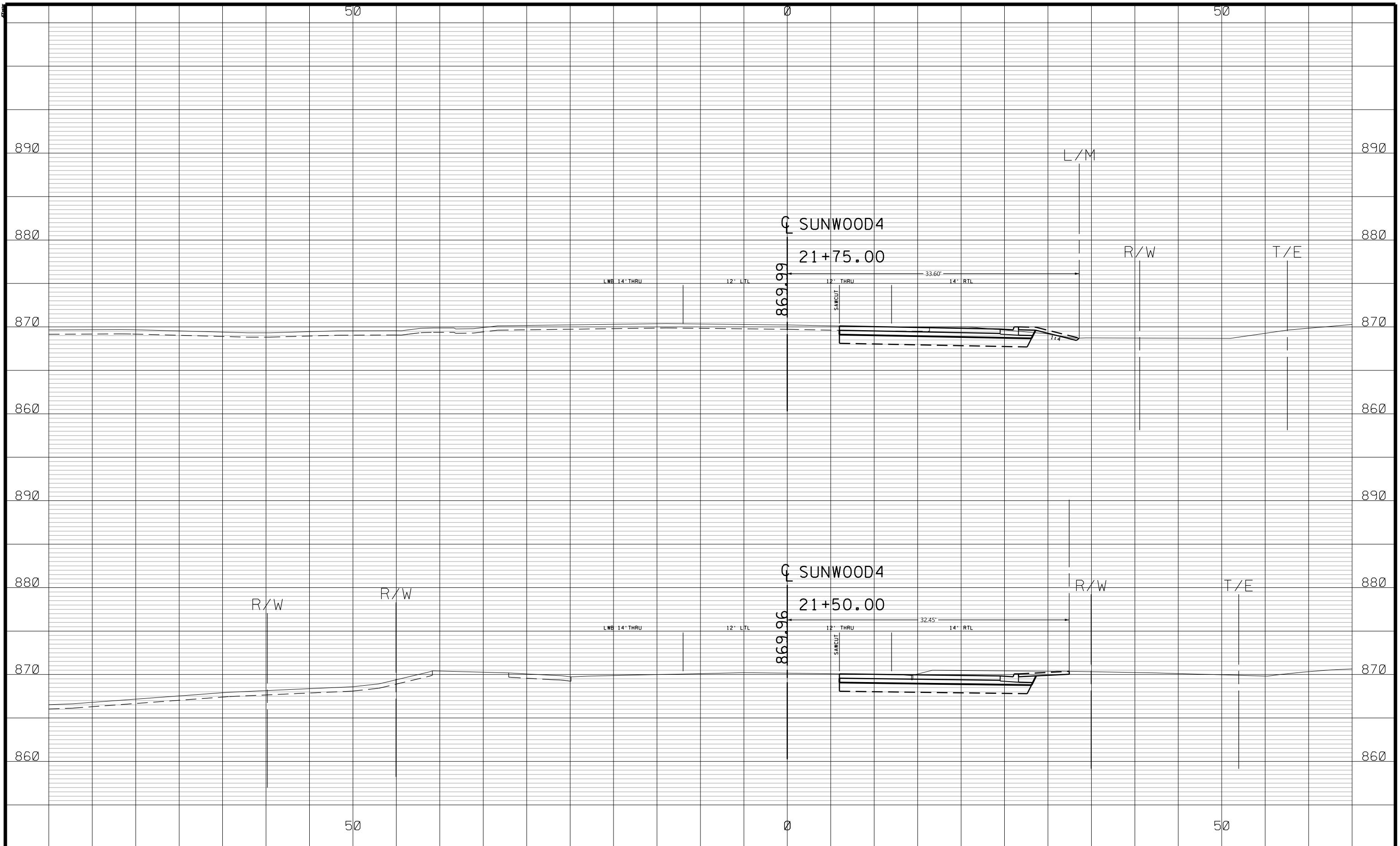
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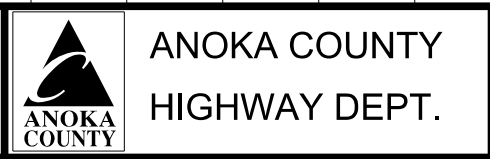
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 SAP 199-104-014

CROSS SECTIONS  
 STA 21+00.00 TO 21+25.00  
 Sheet 258 of 259 Sheets



NO	DATE	BY	CKD	APPR	REVISION
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DRAWN BY JCF DATE 07/01/21  
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 CHECKED BY NJD DATE 07/09/21



SAP 002-716-021  
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CROSS SECTIONS  
 STA 21+50.00 TO 21+75.00  
 Sheet 259 of 259 Sheets