

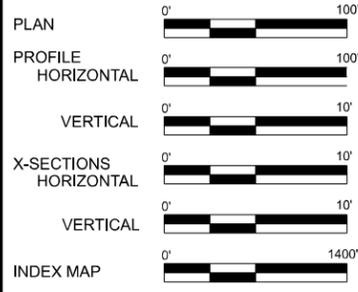
**PLAN SYMBOLS**

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

**UTILITY SYMBOLS**

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

**SCALES**



**MINNESOTA DEPARTMENT OF TRANSPORTATION**

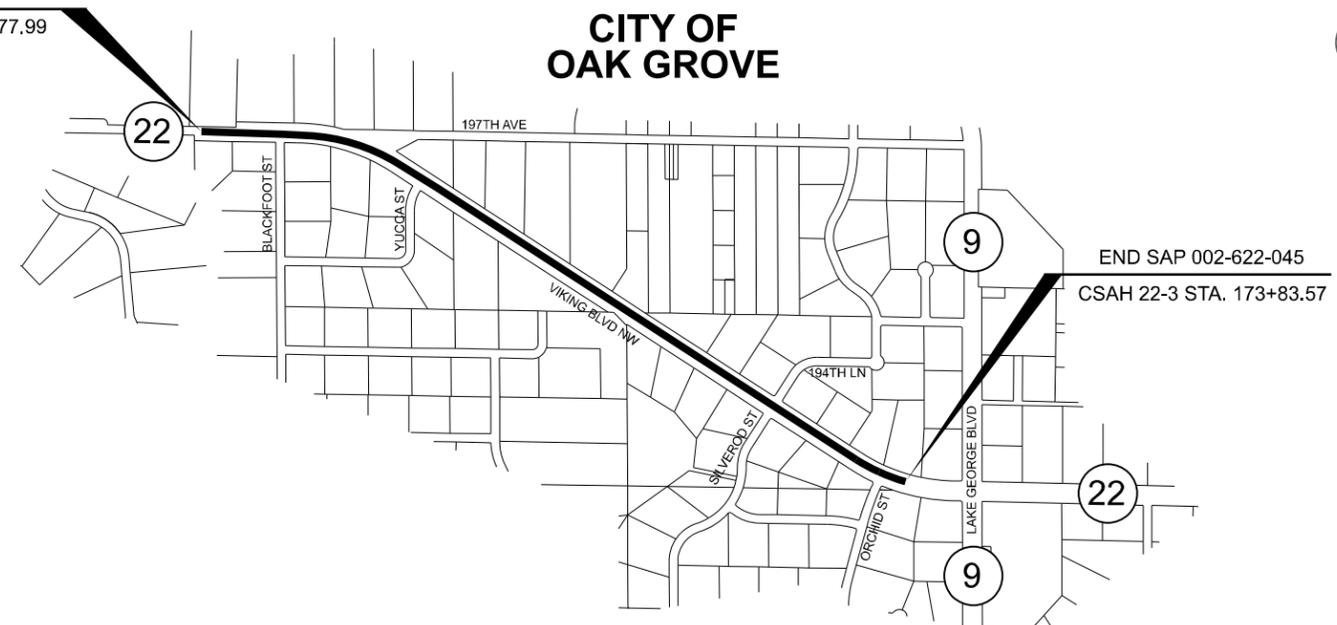
**ANOKA COUNTY**

CONSTRUCTION PLAN FOR GRADING, AGGREGATE BASE, CONCRETE PAVING, CONCRETE CURB, BITUMINOUS SURFACING, DRAINAGE, PAVEMENT MARKINGS  
 LOCATED ON CSAH 22 BETWEEN 550 FEET EAST OF RUM RIVER AND 550 FEET WEST OF CSAH 9

STATE AID PROJ. NO. 002-622-045  
CSAH 22

GROSS LENGTH	<u>6105.58</u> FEET	<u>1.156</u> MILES
BRIDGES-LENGTH	<u>0.00</u> FEET	<u>0.000</u> MILES
EXCEPTIONS-LENGTH	<u>0.00</u> FEET	<u>0.000</u> MILES
NET LENGTH	<u>6105.58</u> FEET	<u>1.156</u> MILES

BEGIN SAP 002-622-045  
 CSAH 22-3 STA. 112+77.99

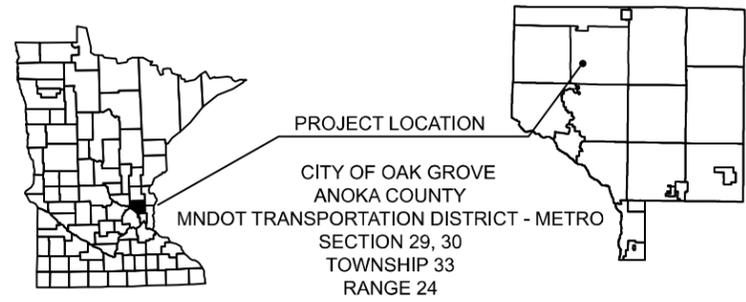


**CITY OF OAK GROVE**

END SAP 002-622-045  
 CSAH 22-3 STA. 173+83.57

**UTILITY QUALITY LEVEL NOTE:**

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 38-22, ENTITLED "STANDARD GUIDELINES FOR THE COLLECTION AND DEPICTION OF EXISTING SUBSURFACE UTILITY DATA."



DESIGN DESIGNATION (CSAH 22)			
ESAL <sub>20</sub>	<u>2,943,000</u>	FUNCTIONAL CLASSIFICATION	<u>MINOR ARTERIAL</u>
R VALUE	<u>40</u>	NO. OF TRAFFIC LANES	<u>2</u> NO. OF PARKING LANES <u>0</u>
ADT (2025)	<u>9,574</u>	DESIGN SPEED	<u>55</u> MPH SHOULDER WIDTH <u>10'</u>
PROJ. ADT (2045)	<u>10,180</u>	BASED ON STOPPING SIGHT DISTANCE:	
PROJ. HCADT (2045)	<u>723</u>	HEIGHT OF EYE	<u>3.5'</u> HEIGHT OF OBJECT <u>2.0'</u>
<u>10</u> TON DESIGN		DESIGN SPEED NOT ACHIEVED AT: STA. _____ TO STA. _____ MPH _____	

**GOVERNING SPECIFICATIONS**

THE 2020 EDITION OF THE MINNESOTA DEPARTMENT OF TRANSPORTATION "STANDARD SPECIFICATIONS FOR CONSTRUCTION" SHALL GOVERN.

ALL TRAFFIC CONTROL DEVICES SHALL CONFORM TO THE LATEST EDITION OF THE MINNESOTA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, INCLUDING THE LATEST FIELD MANUAL FOR TEMPORARY TRAFFIC CONTROL ZONE LAYOUTS.

**INDEX**

SHEET NO.	DESCRIPTION
1	TITLE SHEET
2	GENERAL LAYOUT
3 - 4	STATEMENT OF ESTIMATED QUANTITIES
5	STANDARD PLATES, BASIS OF QUANTITIES, AND TAB INDEX
6	EARTHWORK TABULATION
7	SOILS AND CONSTRUCTION NOTES
8 - 10	TABULATIONS
11 - 13	INPLACE UTILITY PLANS
14 - 16	TYPICAL SECTIONS AND INSETS
17 - 18	MISCELLANEOUS DETAILS
19 - 25	CONCRETE WASHOUT DETAILS
26 - 42	STANDARD PLANS
43 - 45	ALIGNMENT PLAN
46	ALIGNMENT TABULATION
47 - 50	EXISTING SIGNING AND STRIPING PLAN
51 - 53	INPLACE TOPOGRAPHY AND REMOVAL PLAN
54	STAGING NARRATIVE, DETAILS AND TABULATIONS
55 - 60	CONSTRUCTION PLAN AND PROFILE
61 - 63	CONCRETE PAVING PLAN AND DETAILS
64 - 66	SUPERELEVATION PLAN
67 - 69	SWPPP NARRATIVE
70 - 72	EROSION CONTROL AND TURF ESTABLISHMENT PLAN
73 - 81	SIGNING AND STRIPING PLAN, TABULATION AND DETAILS
82 - 85	EXISTING SIGNAL SYSTEM PLANS WITH REVISIONS
X1 - X40	CROSS SECTIONS

THIS PLAN CONTAINS 125 SHEETS

APPROVED	<b>Joseph MacPherson</b> Digitally signed by Joseph MacPherson Date: 2025.04.15 15:09:33 -05'00'	DATE
APPROVED	<b>Charles D. Schwartz, PE</b> Digitally signed by Charles D. Schwartz, PE, c.US, o:City of Oak Grove, ou:City Engineer, email=cschwartz@msa-oc.com Reason: I have reviewed this document Location: City of Oak Grove Date: 2025.04.15 10:14:28 -05'00'	DATE
	DISTRICT STATE AID ENGINEER: REVIEWED FOR COMPLIANCE WITH STATE AID RULES/POLICY	DATE
	FOR STATE AID ENGINEER: APPROVED FOR STATE AID FUNDING	DATE

NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\002-622-045 Concrete from Rum River thru CSAH 9\Plan\002622045\_100tsh.dgn 04/14/2025 3:32:54 PM

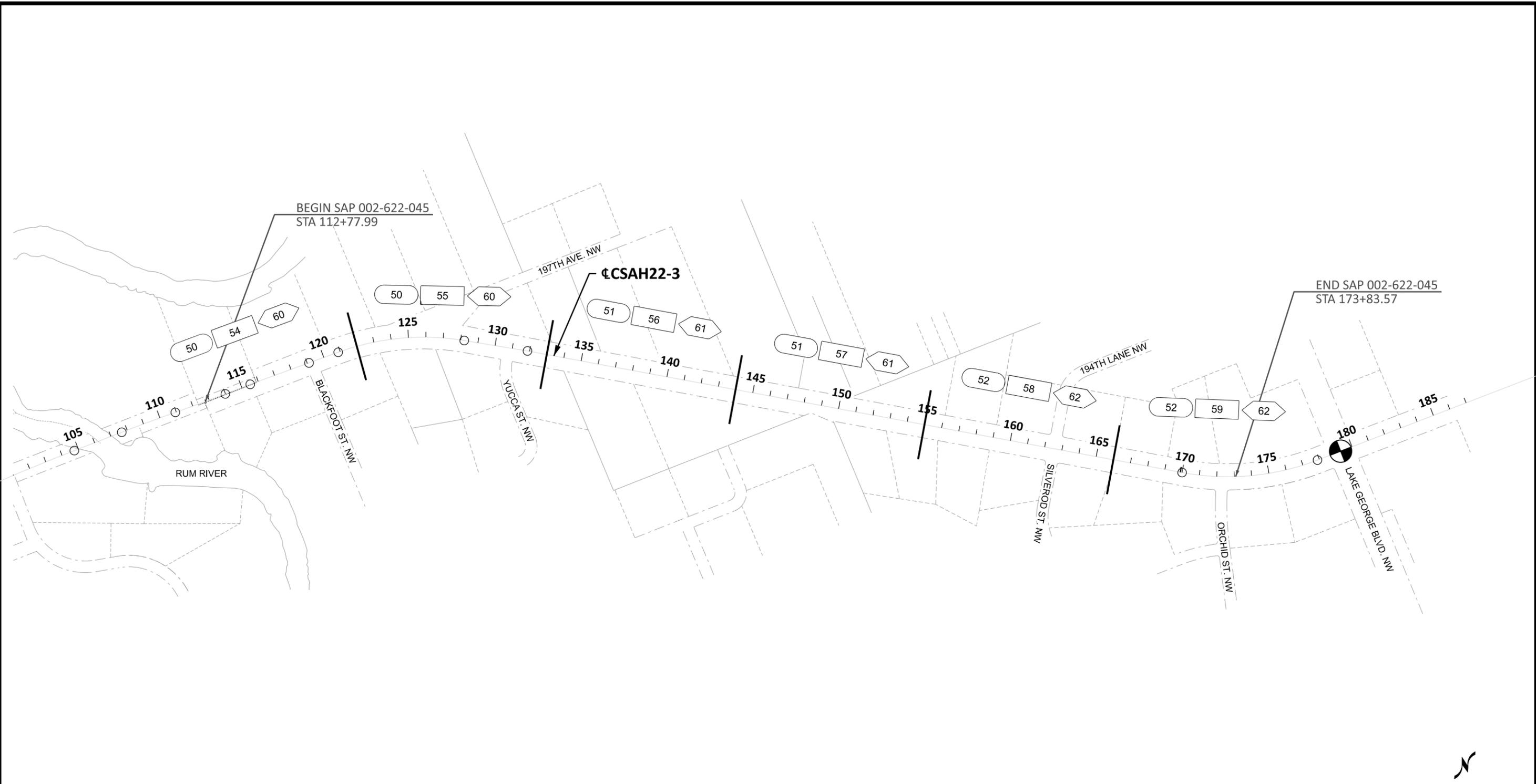
I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.  
 PRINT NAME: NICHOLAS J. DOBDA  
 SIGNATURE: \_\_\_\_\_  
 DATE: 04/11/25 LICENSE NO. 49046

DRAWN BY CA DATE 04/11/25  
 DESIGN BY MAP DATE 04/11/25  
 CHECKED BY NJD DATE 04/11/25

**ANOKA COUNTY HIGHWAY DEPT.**

SAP 002-622-045  
 SAP 223-020-011

TITLE SHEET  
 Sheet 1 of 85 Sheets



**LEGEND**

XXX	INPLACE TOPOGRAPHY AND REMOVAL PLAN SHEET NUMBER
XXX	CONSTRUCTION PLAN AND PROFILE SHEET NUMBER
XXX	CONCRETE PAVING PLAN SHEET NUMBER
	INPLACE SIGNAL SYSTEM

NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\002-622-045 Concrete from Rum River thru CSAH 9\Plan\002622045\_105gel.dgn    04/07/2025    2:54:47 PM

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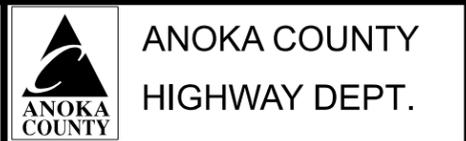
SIGNATURE:

DATE: 04/09/2025    LICENSE NO. 49046

DRAWN BY CA    DATE 04/03/25

DESIGN BY MAP    DATE 04/03/25

CHECKED BY NJD    DATE 04/03/25



SAP 002-622-045  
SAP 223-020-011

GENERAL LAYOUT

Sheet 2 of 85 Sheets

**STATEMENT OF ESTIMATED QUANTITIES**

TAB / NOTE	ITEM	DESCRIPTION	ITEM	PROJECT TOTAL	ANOKA COUNTY	CITY OF OAK GROVE
				ESTIMATED QUANTITY	SAP 002-622-045	SAP 223-020-011
					ESTIMATED QUANTITY	ESTIMATED QUANTITY
	2021.501	MOBILIZATION	LUMP SUM	1	0.996	0.004
	2031.502	FIELD OFFICE	EACH	1	0.996	0.004
A	2101.502	GRUBBING	EACH	24	24	
A	2101.505	GRUBBING	ACRE	1.11	1.11	
I	2104.502	REMOVE SIGN TYPE C	EACH	26	26	
I	2104.502	SALVAGE SIGN TYPE SPECIAL	EACH	5	5	
D	2104.503	SAWING CONCRETE PAVEMENT (FULL DEPTH)	LIN FT	31	31	
C, D, W	2104.503	SAWING BITUMINOUS PAVEMENT (FULL DEPTH)	LIN FT	8716	8716	
B / [1]	2104.503	REMOVE PIPE CULVERTS	LIN FT	356	356	
C	2104.503	REMOVE BITUMINOUS CURB	LIN FT	585	585	
C	2104.503	REMOVE CONCRETE CURB	LIN FT	423	423	
B	2104.503	SALVAGE PIPE CULVERT	LIN FT	80	80	
D	2104.504	REMOVE BITUMINOUS DRIVEWAY PAVEMENT	SQ YD	239	239	
D	2104.504	REMOVE CONCRETE DRIVEWAY PAVEMENT	SQ YD	135	135	
C	2104.504	REMOVE BITUMINOUS PAVEMENT	SQ YD	10648	10648	
W / [15]	2104.504	REMOVE BITUMINOUS PAVEMENT	SQ YD	1865	1865	
AA	2106.507	EXCAVATION - COMMON	CU YD	11530	11530	
W / [15]	2106.507	EXCAVATION - COMMON	CU YD	1445	1445	
AA	2106.507	EXCAVATION - SUBGRADE	CU YD	4090	4090	
AA	2106.507	SELECT GRANULAR EMBANKMENT (CV)	CU YD	4571	4571	
W / [15]	2106.507	SELECT GRANULAR EMBANKMENT (CV)	CU YD	583	583	
W / [13]	2106.507	SELECT GRANULAR EMBANKMENT (CV)	CU YD	583	583	
AA	2106.507	COMMON EMBANKMENT (CV)	CU YD	8518	8518	
W / [15]	2106.507	COMMON EMBANKMENT (CV)	CU YD	1794	1794	
[2]	2123.510	DOZER	HOUR	60	60	
[3]	2130.523	WATER	M GALLON	75	75	
E, F / [4]	2211.507	AGGREGATE BASE (CV) CLASS 5	CU YD	3442	3442	
W / [15]	2211.507	AGGREGATE BASE (CV) CLASS 5	CU YD	2020	2020	
D / [5]	2211.509	AGGREGATE BASE CLASS 5	TON	90	90	
C	2215.504	FULL DEPTH RECLAMATION	SQ YD	18490	18490	
W / [15]	2215.504	FULL DEPTH RECLAMATION	SQ YD	11189	11189	
C, W / [14]	2215.507	HAUL FULL DEPTH RECLAMATION (LV)	CU YD	1522	1522	
F / [6]	2221.509	SHOULDER BASE AGGREGATE CLASS 5	TON	126	126	
F	2232.504	MILL BITUMINOUS SURFACE (2.0")	SQ YD	43	43	
E	2301.504	CONCRETE PAVEMENT 8.0"	SQ YD	22043	22043	
E	2301.508	SUPPLEMENTAL PAVEMENT REINFORCEMENT	POUND	650	650	
E	2301.602	1.25" DOWEL BAR	EACH	13053	13053	
E	2301.602	DRILL AND GROUT REINF BAR (EPOXY COATED)	EACH	36	36	
[12]	2301.610	OPTIMIZED AGGREGATE GRADATION INCENTIVE	CU YD	4898	4898	
[12]	2301.611	W/C RATIO INCENTIVE/DISINCENTIVE	CU YD	4898	4898	
[12]	2301.612	COARSE AGGREGATE QUALITY INCENTIVE/DISINCENTIVE	CU YD	4898	4898	
F	2357.506	BITUMINOUS MATERIAL FOR TACK COAT	GALLON	1558	1558	

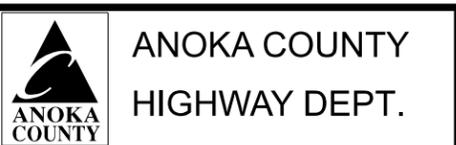
**NOTES:**

- [1] INCLUDES ALL PIPE AND APRON TYPES/MATERIALS.
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- [5] INCLUDES ALL BITUMINOUS AND AGGREGATE DRIVEWAY AND FIELD ENTRANCE AGGREGATE QUANTITIES.
- [6] FOR 2' AGGREGATE SHOULDER.
- [7] FOR BITUMINOUS DRIVEWAYS.
- [8] INCLUDES SHOULDERS, MILL/TRANSITION AREA, RIGHT-TURN LANES AND INTERSECTIONS.
- [9] ROAD SEGMENT REPRESENTS 528 FEET PER LANE (0.1 MILES).
- [10] CONTRACTOR IS RESPONSIBLE FOR COORDINATION OF TEMPORARY MAIL SERVICE AND FINAL MAIL BOX PLACEMENT.
- [11] SEE TABULATION FOR COLOR.
- [12] SEE SPECIAL PROVISIONS.
- [13] MATERIAL TO BE SALVAGED/REUSED ON SITE.
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- [15] SEE SPECIAL PROVISIONS ITEM S-30, PROSECUTION OF WORK (CONSTRUCTION).
- [16] ALL PAVEMENT MARKINGS WILL BE TESTED POST-INSTALLATION BY ANOKA COUNTY. CONTRACTOR IS RESPONSIBLE FOR REPLACING ANY PAVEMENT MARKINGS THAT DO NOT MEET RETROREFLECTIVITY PER MNDOT SPEC. 2582.3C.3, AS DIRECTED BY ENGINEER, AT NO COST TO ANOKA COUNTY.

NO	DATE	BY	CKD	APPR	REVISION
NAME: P:\002-622-045 Concrete from Rum River thru CSAH 9\Plan\002622045_110est.dgn 04/15/2025 3:53:02 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: *NJD*  
 DATE: 04/15/2025 LICENSE NO. 49046

DRAWN BY CA DATE 04/11/25  
 DESIGN BY MAP DATE 04/11/25  
 CHECKED BY NJD DATE 04/11/25



SAP 002-622-045  
 SAP 223-020-011

**STATEMENT OF ESTIMATED QUANTITIES**

TAB / NOTE	ITEM	DESCRIPTION	ITEM	PROJECT TOTAL	ANOKA COUNTY	CITY OF OAK GROVE
				ESTIMATED QUANTITY	SAP 002-622-045	SAP 223-020-011
					ESTIMATED QUANTITY	ESTIMATED QUANTITY
D / [7]	2360.509	TYPE SP 9.5 WEARING COURSE MIXTURE (3;B)	TON	41	41	
F	2360.509	TYPE SP 12.5 BITUMINOUS MIXTURE FOR PATCHING	TON	122	122	
W	2360.509	TYPE SP 12.5 NON WEARING COURSE MIXTURE (3;B)	TON	1930	1930	
F / [8]	2360.509	TYPE SP 12.5 WEARING COURSE MIXTURE (4;C)	TON	3359	3359	
[9],[12]	2399.601	PAVEMENT SMOOTHNESS INCENTIVE/DISINCENTIVE	RD SEG	22.6	22.6	
P	2451.507	FINE AGGREGATE BEDDING (CV)	CU YD	521	521	
P	2501.502	24" RC PIPE APRON	EACH	4	4	
P	2501.502	15" RC SAFETY APRON	EACH	2	2	
P	2501.502	18" RC SAFETY APRON	EACH	4	4	
P	2501.503	15" RC PIPE CULVERT DESIGN 3006	LIN FT	88	88	
P	2501.503	18" RC PIPE CULVERT DESIGN 3006	LIN FT	128	128	
P	2501.503	24" RC PIPE CULVERT DESIGN 3006	LIN FT	192	192	
W	2501.503	INSTALL PIPE CULVERT	LIN FT	80	80	
P	2501.602	SAFETY GRATE FOR 24" RC APRON	EACH	4	4	
P	2511.504	GEOTEXTILE FILTER TYPE 3	SQ YD	244	244	
P	2511.507	RANDOM RIPRAP CLASS II	CU YD	48	48	
E	2521.518	4" CONCRETE WALK	SQ FT	25	25	
E	2531.503	CONCRETE CURB AND GUTTER DESIGN B424	LIN FT	1232	616	616
E	2531.504	6" CONCRETE DRIVEWAY PAVEMENT	SQ YD	23	23	
E	2531.601	CONCRETE CURB AND GUTTER DESIGN B418 (MOD)	LIN FT	66	66	
D / [10]	2540.602	MAIL BOX SUPPORT	EACH	1	1	
D / [10]	2540.602	RELOCATE MAIL BOX SUPPORT	EACH	14	14	
P	2554.502	GUIDE POST TYPE B	EACH	10	10	
	2563.601	TRAFFIC CONTROL SUPERVISOR	LUMP SUM	1	0.996	0.004
	2563.601	TRAFFIC CONTROL	LUMP SUM	1	0.996	0.004
[12]	2563.613	PORTABLE CHANGEABLE MESSAGE SIGN	UNIT DAY	40	40	
[12]	2565.601	REVISE EMERGENCY VEHICLE PREEMPTION SYSTEM	LUMP SUM	1	1	
M	2564.518	SIGN PANELS TYPE C	SQ FT	242	242	
I	2564.602	INSTALL SIGN TYPE SPECIAL	EACH	5	5	
	2573.501	EROSION CONTROL SUPERVISOR	LUMP SUM	1	1	
G	2573.502	STORM DRAIN INLET PROTECTION	EACH	4	4	
G	2573.502	CULVERT END CONTROLS	EACH	6	6	
G	2573.503	SILT FENCE; TYPE MS	LIN FT	11801	11801	
G	2574.508	FERTILIZER TYPE 3	POUND	1519	1519	
G	2575.505	SEEDING	ACRE	7.8	7.8	
G	2575.608	SEED SANDY INSLOPE	POUND	463	463	
G	2575.508	HYDRAULIC REINFORCED FIBER MATRIX	POUND	29633	29633	
G / W	2575.523	RAPID STABILIZATION METHOD 3	M GALLON	58.2	58.2	
K / [11],[16]	2582.503	4" SOLID LINE PREFORM TAPE GROUND IN (WR)	LIN FT	15951	15951	
K / [11],[16]	2582.503	4" BROKEN LINE PREFORM TAPE GROUND IN (WR)	LIN FT	430	430	
K / [11],[16]	2582.503	4" DOUBLE SOLID LINE PREFORM TAPE GROUND IN (WR)	LIN FT	5096	5096	
K / [11],[16]	2582.518	PAVEMENT MESSAGE PREFORM THERMOPLASTIC	SQ FT	170	170	
K / [11],[16]	2582.503	24" SOLID LINE PREFORM THERMO GROUND IN	LIN FT	617	617	

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SIGNATURE: *NJD*

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 CHECKED BY NJD DATE 04/11/25



**ANOKA COUNTY  
HIGHWAY DEPT.**

SAP 002-622-045  
SAP 223-020-011

STATEMENT OF  
ESTIMATED QUANTITIES

THE FOLLOWING STANDARD PLATES APPROVED BY FEDERAL HIGHWAY ADMINISTRATION SHALL APPLY ON THIS PROJECT.

STANDARD PLATES	
PLATE NO.	DESCRIPTION
1070N	SUPPLEMENTAL PAVEMENT REINFORCEMENT
1103L	TYPICAL DOWEL BAR ASSEMBLY (2 SHEETS)
3000M	REINFORCED CONCRETE PIPE (6 SHEETS)
3006H	GASKET JOINT FOR R.C. PIPE (2 SHEETS)
3022C	PRECAST CONCRETE SAFETY APRON (3 SHEETS)
3100G	CONCRETE APRON FOR REINFORCED CONCRETE PIPE
3128H	METAL SAFETY APRON & GRATE
3133D	RIPRAP AT RCP OUTLETS
3145G	CONCRETE PIPE OR PRECAST BOX CULVERT TIES
3148A	SAFETY SLOPE METAL END SECTION FOR CIRCULAR & ARCHED PIPES (2 SHEETS)
8000K	TEMPORARY CHANNELIZERS (3 SHEETS)
9000E	APPROACHES AND ENTRANCES - RECOMMENDED STANDARDS
9350C	MAILBOX SUPPORT - SWING-AWAY TYPE

INDEX OF TABULATION CHARTS		
TAB	DESCRIPTION	SHEET NO.
AA	EARTHWORK TABULATION AND SUMMARY	6
A	GRUBBING	8
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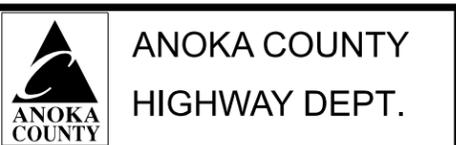
BASIS OF QUANTITIES		
SPEC NO.	DESCRIPTION	RATE
2357.506	BITUMINOUS MATERIAL FOR TACK COAT	0.05 GAL / SQ YD / LIFT
2360.509	TYPE SP 9.5 / SP 12.5 BITUMINOUS MIXTURE	115 LBS / SQ YD / IN
2574.508	FERTILIZER TYPE 3	200 LBS / ACRE
2575.508	SEED MIXTURE SANDY INSLOPE (SI)	65 LBS / ACRE
2575.508	HYDRAULIC REINFORCED FIBER MATRIX	3900 LBS / ACRE
2575.523	RAPID STABILIZATION METHOD 3	6 MGALLONS / ACRE

NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\002-622-045 Concrete from Rum River thru CSAH 9\Plan\002622045\_115spt.dgn 04/08/2025 8:57:48 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: 04/09/2025 LICENSE NO. 49046

DRAWN BY CA DATE 04/03/25  
 DESIGN BY MAP DATE 04/03/25  
 CHECKED BY NJD DATE 04/03/25



SAP 002-622-045  
 SAP 223-020-011

EARTHWORK TABULATION				AA
STATION TO STATION	EXCAVATION - COMMON	EXCAVATION - SUBGRADE	COMMON EMBANKMENT (CV)	SELECT GRANULAR EMBANKMENT (CV)
	CU YD	CU YD	CU YD	CU YD
CSAH 22				
112+77.99 - 113+00	50	39	6	39
113+00 - 113+50	121	88	11	88
113+50 - 114+00	142	88	7	88
114+00 - 114+50	205	89	20	89
114+50 - 115+00	236	89	20	89
115+00 - 115+50	254	89	10	89
115+50 - 116+00	279	88	11	88
116+00 - 116+50	268	99	15	99
116+50 - 117+00	245	102	10	102
117+00 - 117+50	189	104	8	104
117+50 - 118+00	134	103	8	103
118+00 - 118+50	111	110	43	111
118+50 - 119+00	87	101	59	114
119+00 - 119+50	29	143	38	170
119+50 - 120+00	36	82	89	123
120+00 - 120+50	32	81	89	124
120+50 - 121+00	38	101	83	122
121+00 - 121+50	54	112	79	124
121+50 - 122+00	64	116	78	124
122+00 - 122+50	74	116	89	124
122+50 - 123+00	76	110	79	121
123+00 - 123+50	68	106	93	123
123+50 - 124+00	70	102	109	124
124+00 - 124+50	46	96	103	124
124+50 - 125+00	52	93	89	124
125+00 - 125+50	63	92	98	124
125+50 - 126+00	98	98	112	125
126+00 - 126+50	72	107	67	123
126+50 - 127+00	109	106	87	130
127+00 - 127+50	140	167	85	191
127+50 - 128+00	131	158	71	175
128+00 - 128+50	142	118	113	134
128+50 - 129+00	145	116	116	132
129+00 - 129+50	123	117	107	128
129+50 - 130+00	117	117	92	125
130+00 - 130+50	130	117	74	120
130+50 - 131+00	117	161	35	164
131+00 - 131+50	145	110	42	111
131+50 - 132+00	137	59	31	59
132+00 - 132+50	122		25	
132+50 - 133+00	116		27	
133+00 - 133+50	103		26	
133+50 - 134+00	86		26	
134+00 - 134+50	81		35	
134+50 - 135+00	77		39	
135+00 - 135+50	75		33	
135+50 - 136+00	76		27	
136+00 - 136+50	77		26	

EARTHWORK TABULATION				AA
STATION TO STATION	EXCAVATION - COMMON	EXCAVATION - SUBGRADE	COMMON EMBANKMENT (CV)	SELECT GRANULAR EMBANKMENT (CV)
	CU YD	CU YD	CU YD	CU YD
CSAH 22 (CONTINUED)				
136+50 - 137+00	65		31	
137+00 - 137+50	54		27	
137+50 - 138+00	52		26	
138+00 - 138+50	52		28	
138+50 - 139+00	55		32	
139+00 - 139+50	63		33	
139+50 - 140+00	73		34	
140+00 - 140+50	80		32	
140+50 - 141+00	82		32	
141+00 - 141+50	82		35	
141+50 - 142+00	61		32	
142+00 - 142+50	48		25	
142+50 - 143+00	43		30	
143+00 - 143+50	47		29	
143+50 - 144+00	90		44	
144+00 - 144+50	73		65	
144+50 - 145+00	59		75	
145+00 - 145+50	53		65	
145+50 - 146+00	44		63	
146+00 - 146+50	45		75	
146+50 - 147+00	59		57	
147+00 - 147+50	89		65	
147+50 - 148+00	197		96	
148+00 - 148+50	101		89	
148+50 - 149+00	76		59	
149+00 - 149+50	83		42	
149+50 - 150+00	93		44	
150+00 - 150+50	89		46	
150+50 - 151+00	66		45	
151+00 - 151+50	43		61	
151+50 - 152+00	42		53	
152+00 - 152+50	45		44	
152+50 - 153+00	50		46	
153+00 - 153+50	49		78	
153+50 - 154+00	46		67	
154+00 - 154+50	48		53	
154+50 - 155+00	55		52	
155+00 - 155+50	66		53	
155+50 - 156+00	84		60	
156+00 - 156+50	83		86	
156+50 - 157+00	61		92	
157+00 - 157+50	80		120	
157+50 - 158+00	99		140	
158+00 - 158+50	128		132	
158+50 - 159+00	145		123	
159+00 - 159+50	157		111	
159+50 - 160+00	166		105	

EARTHWORK TABULATION				AA
STATION TO STATION	EXCAVATION - COMMON	EXCAVATION - SUBGRADE	COMMON EMBANKMENT (CV)	SELECT GRANULAR EMBANKMENT (CV)
	CU YD	CU YD	CU YD	CU YD
CSAH 22 (CONTINUED)				
160+00 - 160+50	178		99	
160+50 - 161+00	169		94	
161+00 - 161+50	124		104	
161+50 - 162+00	94		104	
162+00 - 162+50	71		67	
162+50 - 163+00	69		43	
163+00 - 163+50	55		110	
163+50 - 164+00	52		140	
164+00 - 164+50	61		160	
164+50 - 165+00	68		209	
165+00 - 165+50	68		213	
165+50 - 166+00	72		244	
166+00 - 166+50	73		235	
166+50 - 167+00	71		189	
167+00 - 167+50	74		151	
167+50 - 168+00	63		104	
168+00 - 168+50	79		128	
168+50 - 169+00	108		101	
169+00 - 169+50	99		69	
169+50 - 170+00	89		87	
170+00 - 170+50	79		82	
170+50 - 171+00	66		66	
171+00 - 171+50	68		63	
171+50 - 172+00	87		59	
172+00 - 172+50	141		22	
172+50 - 173+00	121		38	
173+00 - 173+50	141		38	
173+50 - 173+83.57	127		27	
<b>PROJECT TOTAL</b>	<b>11530</b>	<b>4090</b>	<b>8518</b>	<b>4571</b>

**NOTES:**

1. THE EXCAVATION - COMMON QUANTITY INCLUDES TOPSOIL STRIPPING.
2. EXISTING PAVEMENT DEPTH IS APPROXIMATELY 4.0 INCHES IN MAINLINE AND TURN LANES/BYPASS LANES, AND 2.0 INCHES IN SHOULDERS.
3. PAVEMENT REMOVAL HAS BEEN SUBTRACTED FROM THE COMMON EXCAVATION AND/OR SUBGRADE EXCAVATION QUANTITIES.
4. TOPSOIL IS INCLUDED IN COMMON EMBANKMENT.
5. PLACING, HAULING AND DISPOSING OF EXCAVATED MATERIALS IS CONSIDERED INCIDENTAL.
6. ALL STOCKPILE AREAS SHALL BE APPROVED BY THE ENGINEER.
7. SOILS NOT USED ON THE PROJECT SHALL BECOME PROPERTY OF THE CONTRACTOR AND SHALL BE DISPOSED OF OUTSIDE OF THE RIGHT OF WAY. NO DIRECT COMPENSATION WILL BE PAID FOR THE PREPARATION OF AN ACCEPTABLE DISPOSAL PLAN OR FOR OFF-PROJECT DISPOSAL OF MATERIALS. DISPOSAL SITES SHALL BE LEFT IN A WELL GRADED CONDITION WITH ALL SOLID WASTES AND BOULDERS ADEQUATELY COVERED.
8. UNLESS DIRECTED OTHERWISE BY THE PROJECT ENGINEER, IF ANY MATERIAL IS FOUND TO BE UNNECESSARY FOR THE CONSTRUCTION OF THE ROADWAY EMBANKMENT AND DISPOSAL OF SAME BECOMES NECESSARY, ON OR OFF THE PROJECT, THE DISPOSAL AND ALL RELATED ITEMS WILL BE CONSIDERED INCIDENTAL.

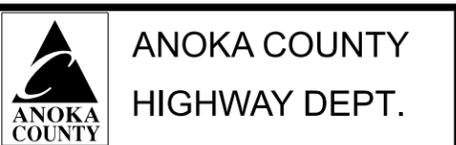
NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\002-622-045 Concrete from Rum River thru CSAH 9\Plan\002622045\_120ews.dgn 04/07/2025 2:55:12 PM

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

PRINT NAME: NICHOLAS J. DOBDA  
SIGNATURE: *N. Dobda*  
DATE: 04/09/2025 LICENSE NO. 49046

DRAWN BY CA DATE 04/03/25  
DESIGN BY MAP DATE 04/03/25  
CHECKED BY NJD DATE 04/03/25



SAP 002-622-045  
SAP 223-020-011

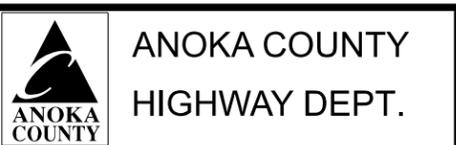
1. TOP OF THE GRADING SUBGRADE (GRADING GRADE) IS DEFINED AS THE BOTTOM OF THE CLASS 5 AGGREGATE BASE LAYER.
2. BOTTOM OF THE SUBBASE GRADE SHALL BE DEFINED AS THE BOTTOM OF THE 1' SUBGRADE EXCAVATION (SEE CROSS-SECTIONS FOR DETAILS).
3. CONSTRUCT EMBANKMENTS IN ACCORDANCE WITH SPECIFICATION 2106 AND THE MnDOT ROAD DESIGN MANUAL. ALL EMBANKMENT CORE-WIDENING MATERIAL SHALL BE SELECT GRADING MATERIAL OR COMMON EMBANKMENT (CV) IN ACCORDANCE WITH OTHER REQUIREMENTS PROVIDED IN SPEC. 2106.
4. SELECT GRANULAR MATERIAL SHALL MEET THE REQUIREMENTS OF MnDOT SPEC. 3149.2B2.
5. ALL TOPSOIL STRIPPING WILL BE CONSIDERED TO BE A PART OF EXCAVATION - COMMON. TOPSOIL SHALL BE DEFINED AS EXISTING SOILS WHICH MEET MnDOT SPEC. 3877 THAT WOULD BE SUITABLE FOR REUSE. 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 TOPSOIL AVAILABLE IS CONSIDERED TO BE 4 INCHES. CONTRACTOR SHALL VERIFY PRIOR TO PLACING BID.
6. SUITABLE GRADING MATERIAL SHALL BE USED TO BACK FILL THE EMBANKMENT UNDER THE NEW ROADWAY CORE, UP TO THE BOTTOM OF THE GRADING SUBGRADE.
7. SLOPE DRESSING ON THE PROJECT IS DEFINED AS THE TOPSOIL OR OTHER SOIL PLACED DURING PREVIOUS CONSTRUCTION TO PROVIDE A MEDIUM FOR ESTABLISHING TURF.
8. UNSUITABLE SOILS ARE DEFINED AS SOILS WHICH DO NOT MEET OR ARE NOT MANUFACTURED TO MEET ANY OF THE ABOVE DEFINED CATEGORIES, AND ARE THEREFORE NOT REUSABLE AS STRUCTURAL BACKFILL OR EMBANKMENT WITHIN THE ROADWAY CORE.
9. SUITABLE GRADING MATERIAL OBTAINED FROM COMMON EXCAVATION NOT MEETING THE REQUIREMENTS OF MnDOT SPEC. 3149.2B1 SHALL BE USED OUTSIDE THE ROADWAY CORE ON THE PROJECT AS APPROVED BY THE ENGINEER.
10. UNSUITABLE MATERIALS ARE TOPSOIL, PAVEMENT OR CONCRETE DEBRIS, PEAT, MUCK AND ORGANIC OR OTHER UNSTABLE SOILS.
11. 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.
12. WHERE CONNECTING TO THE INPLACE ROADWAYS AT THE TERMINI OF PROPOSED NEW CONSTRUCTION, CUT VERTICALLY TO THE BOTTOM OF THE INPLACE SURFACING OR TO THE BOTTOM OF THE NEW SURFACING DESIGN, WHICHEVER IS DEEPER, THEN AT A 1:20 TAPER TO THE BOTTOM OF THE RECOMMENDED SUBGRADE EXCAVATION.
13. WHERE MATCHING INTO INPLACE CROSSROADS, CUT VERTICALLY TO THE BOTTOM OF THE INPLACE SURFACING OR TO THE BOTTOM OF NEW SURFACING DESIGN, WHICHEVER IS DEEPER, THEN AT A 1:4 TAPER TO THE BOTTOM OF THE RECOMMENDED SUBGRADE EXCAVATION.
14. WHERE WIDENING ADJACENT TO EXISTING PAVEMENT, CUT VERTICALLY TO THE BOTTOM OF THE CLASS 5 AGGREGATE BASE AND THEN AT A 1V:1/2H SLOPE TO THE BOTTOM OF THE RECOMMENDED SUBGRADE EXCAVATION (AS SHOWN ON THE TYPICAL SECTIONS AND THE CROSS SECTIONS). BACKFILL PROMPTLY TO AVOID UNDERMINING THE EXISTING PAVEMENT.
15. CONTRACTOR SHALL PROVIDE A FULL DEPTH SAWCUT WHERE PLACING NEW PAVEMENT ADJACENT TO INPLACE PAVEMENT TO ENSURE A UNIFORM JOINT. IF NO ITEM FOR THIS WORK IS SPECIFICALLY CALLED OUT, THEN THE WORK SHALL BE INCIDENTAL WITH NO DIRECT COMPENSATION.
16. CONTRACTOR SHALL PROVIDE A UNIFORM BITUMINOUS TACK COAT BETWEEN ALL BITUMINOUS LAYERS AND PRIOR TO PLACING ANY BITUMINOUS MIXTURES ON EXISTING PAVEMENT IN ACCORDANCE WITH SPEC. 2357.
17. EMBANKMENT QUANTITIES SHOWN ON THE EARTHWORK TABULATION REPRESENT ALL EARTHWORK QUANTITIES BELOW THE PROPOSED GRADING GRADE OF ALL PERMANENT ROADWAYS AND TOPSOIL DRESSING. QUANTITIES REQUIRED ABOVE THE GRADING GRADE ARE PROVIDED IN DETAIL ON THE BITUMINOUS SUMMARY TAB AND CONCRETE TAB.
18. 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.
19. DITCH BOTTOMS, TOE OF FILL, CUT RUNOUTS AND THE TOP EDGE OF BACKSLOPES SHALL BE ROUNDED REGARDLESS OF THE SECTION USED ON THE CROSS SECTION SHEETS.
20. ANY DEBRIS WHICH MAY BE ENCOUNTERED DURING GRADING SHALL BE DISPOSED OF BY THE CONTRACTOR OFF THE PROJECT RIGHT OF WAY IN A SUITABLE DISPOSAL AREA AS APPROVED BY THE ENGINEER.
21. UNSUITABLE SOILS NOT USED ON THE PROJECT SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND SHALL BE REMOVED FROM THE PROJECT AND DISPOSED OF IN ACCORDANCE WITH MnDOT SPECIFICATIONS.
22. INPLACE BITUMINOUS PAVEMENT RANGES FROM 2.0" TO 8.5" THICK; **AVERAGE DEPTH IS 4.0" IN MAINLINE/RTL AND 2.0" IN SHOULDERS.** FOR INFORMATION ONLY, NO WARRANTY IS MADE OR IMPLIED WITH THIS INFORMATION. CONTRACTOR MAY VERIFY PAVEMENT DEPTH PRIOR TO PLACING BID.
23. COMPACTION OF AGGREGATE BASE SHOULD BE IN ACCORDANCE WITH MnDOT "MODIFIED PENETRATION INDEX METHOD." COMPACTION OF SELECT GRANULAR MATERIAL SHOULD BE IN ACCORDANCE WITH MnDOT "SPECIFIED DENSITY METHOD."
24. COMPACTION OF THE SHOULDER BINDER BITUMINOUS LIFTS SHALL BE BY THE "SPECIFIED DENSITY METHOD." COMPACTION OF MAINLINE WEAR AND ENTRANCES SHALL BE BY THE "QUALITY COMPACTION METHOD."
25. NO OVER-EXCAVATION WILL BE ALLOWED INSIDE THE COUNTY'S RIGHT OF WAY FOR THIS PROJECT.

NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\002-622-045 Concrete from Rum River thru CSAH 9\Plan\002622045\_125scn.dgn 04/07/2025 2:55:21 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: *NJD*  
 DATE: 04/09/2025 LICENSE NO. 49046

DRAWN BY CA DATE 04/03/25  
 DESIGN BY MAP DATE 04/03/25  
 CHECKED BY NJD DATE 04/03/25



SAP 002-622-045  
 SAP 223-020-011

GRUBBING				A
STATION TO STATION	OFFSET	GRUBBING (TREE)	GRUBBING (ACRE)	
115+87 - 123+92	50' LT		0.25	
117+01 - 119+02	60' RT		0.05	
119+54 - 122+36	51' RT		0.05	
124+84 - 125+35	58' RT		0.05	
128+64 - 129+21	64' RT		0.05	
130+43	69' LT	1		
130+77	69' LT	1		
133+69 - 134+82	65' RT		0.05	
136+61 - 137+50	68' RT		0.05	
136+71	67' LT	1		
136+73	61' LT	1		
137+89	67' LT	1		
136+61 - 143+03	66' RT		0.05	
143+83 - 145+48	60' RT		0.05	
147+63 - 149+89	59' RT		0.06	
148+00	59' LT	1		
148+11	64' LT	1		
148+16	68' LT	1		
149+82 - 151+58	56' LT		0.05	
152+92 - 158+35	44' RT		0.20	
155+14	57' LT	1		
159+20 - 162+15	69' RT		0.05	
159+38	63' RT	1		
160+07	71' LT	1		
160+25	66' LT	1		
160+46	67' LT	1		
160+64	68' LT	1		
160+85	68' LT	1		
161+04	70' LT	1		
161+25	71' LT	1		
161+47	72' LT	1		
161+69	73' LT	1		
162+98	65' RT	1		
163+00	67' RT	1		
163+10	63' RT	1		
163+27	61' RT	1		
163+49 - 164+40	661' RT		0.05	
164+59	73' RT	1		
165+96 - 167+47	49' RT		0.05	
TOTAL		24	1.11	

GENERAL NOTES:  
- REMOVAL OF MISCELLANEOUS SHRUBS AND LANDSCAPING SHALL BE CONSIDERED INCIDENTAL.  
- STUMP GRINDING RESIDUE SHALL BE REMOVED TO THE SATISFACTION OF THE ENGINEER.

REMOVE EXISTING CULVERT			
LOCATION	OFFSET	REMOVE PIPE CULVERTS	SALVAGE PIPE CULVERT
STATION TO STATION	FROM TO	(LIN FT)	(LIN FT)
130+45 - 131+15	40' RT - 43' LT	70	
145+15	41' LT - 42' RT	83	
165+58	54' LT - 60' RT	34	80
168+69 - 169+69	40' LT - 41' LT	100	
171+92 - 172+58	56' RT - 56' RT	69	
PROJECT TOTAL		356	80

REMOVALS, SAWING, MILLING AND RECLAIM							C
DESCRIPTION	LOCATION STATION TO STATION	SAWING	REMOVE				FULL DEPTH RECLAMATION
		BIT. PAVEMENT (FULL DEPTH) LIN FT	BIT. PAVEMENT SQ YD	BIT. CURB LIN FT	CONC. CURB LIN FT	HAUL FULL DEPTH RECLAMATION (LV) SQ YD	
MAINLINE AREA	112+78 - 131+88		9599				
MAINLINE AREA	131+88 - 173+74					221	18490
LT SIDE	112+78 - 116+96				418		
RT SIDE	112+78 - 114+44				167		
RT SIDE	114+44 - 118+68				423		
BLACKFOOT ST.	119+14 - 119+39	25	180				
197TH AVE.	127+36 - 127+64	30	288				
YUCCA ST.	130+65 - 130+93	30	102				
SILVEROD ST.	162+40 - 162+66	26	170				
194TH LN.	162+41 - 162+67	26	107				
ORCHID ST.	172+11 - 172+35	26	202				
END MAINLINE	173+74	61					
PROJECT TOTAL		224	10648	585	423	221	18490

DRIVEWAY REMOVAL, CONSTRUCTION & MAILBOXES										D
LOCATION	DESCRIPTION	SAWING		REMOVE		CONSTRUCT				
		BIT. PAVEMENT (FULL DEPTH) (LIN FT)	CONC. PAVEMENT (FULL DEPTH) (LIN FT)	BIT. PAVEMENT (SQ YD)	CONC. PAVEMENT (SQ YD)	AGGREGATE BASE CLASS 5 (TON)	TYPE SP 9.5 WEAR COURSE MIX (3;B) (3.0") (TON)	6" CONC. PAVEMENT (SQ YD)	MAIL BOX SUPPORT (EACH)	RELOCATE MAIL BOX SUPPORT (EACH)
115+31 - 115+64	4070 VIKING BLVD	12		68		6	12			1
115+63 - 115+73	4065 VIKING BLVD					7		2	1	1
117+40 - 117+95	4021 VIKING BLVD		18		96	9		16		1
122+80 - 123+08	3975 VIKING BLVD		13		39	3		5		1
	3915 VIKING BLVD					8				1
	3910 VIKING BLVD					6				1
	3760 VIKING BLVD					5				1
	3734 VIKING BLVD					8				1
	3622 197TH AVE (FIELD ENT.)					6				
147+55 - 147+93	3591 VIKING BLVD	12		63		5	10			1
	3570 VIKING BLVD					5				1
153+84 - 154+02	3540 VIKING BLVD	11		31		5	8			1
	3531 VIKING BLVD					7				1
	3514 VIKING BLVD					4				1
167+45 - 167+73	3360 VIKING BLVD	17		77		6	11			1
168+81 - 169+28	G-WILL LIQUORS	48								
PROJECT TOTAL		100	31	239	135	90	41	23	1	14

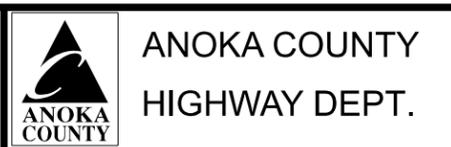
GENERAL NOTES:  
- RELOCATE MAIL BOX SUPPORT CONSISTS OF SALVAGING AND INSTALLING EXISTING MAIL BOX SUPPORTS. SEE MNDOT STANDARD PLATE 9350.  
- CONTRACTOR IS RESPONSIBLE FOR COORDINATION OF TEMPORARY MAIL SERVICE AND FINAL MAIL BOX PLACEMENT.

NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\002-622-045 Concrete from Rum River thru CSAH 9\Plan\002622045\_130tab.dgn 04/09/2025 1:53:30 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: 04/09/2025 LICENSE NO. 49046

DRAWN BY CA DATE 04/03/25  
DESIGN BY MAP DATE 04/03/25  
CHECKED BY NJD DATE 04/03/25



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SAP 223-020-011

CONCRETE										E		
					AGGREGATE BASE (CV) CLASS 5	CONCRETE PAVEMENT 8.0"	SUPPLEMENTAL PAVEMENT REINFORCEMENT	1.25" DOWEL BAR	CONCRETE CURB & GUTTER DESIGN B424	CONCRETE CURB & GUTTER DESIGN B418 (MOD)	4" CONCRETE WALK (MEDIAN)	DRILL AND GROUT REINF BAR (EPOXY COATED)
					CU YD	SQ YD	POUND	EACH	LIN FT	LIN FT	SQ FT	EACH
112+77.99 - 115+51.90	13'	LT	-	13'	RT	176	791		402			
	20'	LT	-	20'	LT					274		
	20'	RT	-	25'	RT					272		
115+51.90 - 119+10.06	13'-26'	LT	-	13'	RT	287	1294		657			
	20'	LT	-	35'	LT					359		
115+51.90	118+77.36	25'	RT	-	26'	RT				327		
119+10.06 - 122+00.00	26'	LT	-	13'	RT	280	1259		851			
122+00.00 - 128+20.74	26'	LT	-	13'	RT	600	2702		1824			
128+20.74 - 131+87.88	26'-13'	LT	-	13'	RT	299	1346		683			
131+87.88 - 133+00.00	13'	LT	-	13'	RT		324		164			
133+00.00 - 144+00.00	13'	LT	-	13'	RT		3178		1613			
144+00.00 - 154+03.71	13'	LT	-	13'	RT		2900	250	1472			
154+03.71 - 155+00.00	13'-15.25'	LT	-	13'-15.25'	RT		297		151			
155+00.00 - 157+61.21	15.25'-19.5'	LT	-	15.25'-19.5'	RT		994		505			
157+61.21 - 166+00.00	19.5'	LT	-	19.5'	RT		3635	400	2461			
166+00.00	170+00.44	19.5'	LT	-	19.5'	RT			1735			
170+00.44	173+73.57	19.5'	LT	-	19.5'	RT			1588			36
172+09.35 - 172+37.45	35.0'	RT	-	48.5'	RT					66	25	
<b>PROJECT TOTAL</b>					<b>1642</b>	<b>22043</b>	<b>650</b>	<b>13053</b>	<b>1232</b>	<b>66</b>	<b>25</b>	<b>36</b>

AGGREGATE AND BITUMINOUS SUMMARY										F
LOCATION	SHOULDERS / RTL				MILL / TRANSITION AREA				NOTES	
	AGGREGATE BASE (CV) CLASS 5	SHOULDER BASE AGGREGATE CLASS 5 (4.0")	BITUMINOUS MATERIAL FOR TACK COAT	TYPE SP 12.5 WEARING COURSE MIX (4;C)	MILL BITUMINOUS SURFACE (2.0")	BITUMINOUS MATERIAL FOR TACK COAT	TYPE SP 12.5 WEARING COURSE MIX (4;C)	TYPE SP 12.5 BIT MIXTURE FOR PATCHING		
STATION TO STATION	[1] CU YD	[2] TON	GALLON	[3] TON	SQ YD	GALLON	TON	TON		
112+77.99 - 122+00.00	663	26	190	437						
122+00.00 - 131+87.88	1032	91	256	602						
131+87.88 - 133+00.00	105	9	167	62						
133+00.00 - 144+00.00			220	522						
144+00.00 - 155+00.00			220	522			58	[4]		
155+00.00 - 166+00.00			277	653			64	[4]		
166+00.00 - 173+53.57			218	513						
173+53.57 - 173+83.57			8	18	43	2	30			
<b>PROJECT TOTAL</b>	<b>1800</b>	<b>126</b>	<b>1556</b>	<b>3329</b>	<b>43</b>	<b>2</b>	<b>30</b>	<b>122</b>		

- NOTES:  
[1] BITUMINOUS SHOULDER/RIGHT TURN LANE CONSTRUCTION.  
[2] 2' AGGREGATE SHOULDER.  
[3] INCLUDES MATERIAL FOR SAFETY EDGE. LABOR AND/OR EQUIPMENT NECESSARY TO FORM AND CONSTRUCT SAFETY EDGES ARE INCIDENTAL.  
[4] BIT MIXTURE FOR PATCHING THRU LANE AND SHOULDER AFTER CULVERT REPLACEMENT.

TURF ESTABLISHMENT AND EROSION CONTROL								G
	SILT FENCE TYPE MACHINE SLICED	CULVERT END CONTROLS	STORM DRAIN INLET PROTECTION [1]	FERTILIZER	SEEDING	SEED MIXTURE	HYDRAULIC REINFORCED FIBER MATRIX	RAPID STABILIZATION METHOD 3 [2]
				TYPE 3 (22-5-10)		SANDY INSLOPE (SI)		
	(LIN FT)	(EACH)	(EACH)	(POUND)	(ACRE)	(POUND)	(POUND)	(M GALLON)
108+85			4					
112+77.99 - 122+00.00	1418			238	1.2	73	4637	8.1
122+00.00 - 133+00.00	1693	1		258	1.3	79	5038	8.8
133+00.00 - 144+00.00	2506			247	1.3	75	4819	8.8
144+00.00 - 155+00.00	2904	2		298	1.5	91	5813	10.0
155+00.00 - 166+00.00	2102	2		326	1.7	99	6361	11.2
166+00.00 - 173+83.57	1178	1		152	0.8	46	2965	5.5
<b>TOTAL</b>	<b>11801</b>	<b>6</b>	<b>4</b>	<b>1519</b>	<b>7.8</b>	<b>463</b>	<b>29633</b>	<b>52.4</b>

- GENERAL NOTES:  
- RAPID STABILIZATION METHOD 3 TO BE APPLIED AS NECESSARY, AS DIRECTED BY ENGINEER.  
- TURF ESTABLISHMENT TO BE COMPLETED AS DIRECTED IN THE SWPPP, SEE SHEETS 66-68.

- NOTES:  
[1] FOR DOWNSTREAM STRUCTURES ON NORTH AND SOUTH SIDE OF BRIDGE.  
[2] INCLUDES QUANTITY FOR STABILIZATION FOLLOWING GRUBBING AND TEMPORARY WIDENING OPERATIONS.

NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\002-622-045 Concrete from Rum River thru CSAH 9\Plan\002622045\_130tab.dgn 04/09/2025 4:32:04 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: *Nicholas J. Dobda*  
DATE: 04/09/2025 LICENSE NO. 49046

DRAWN BY CA DATE 04/03/25  
DESIGN BY MAP DATE 04/03/25  
CHECKED BY NJD DATE 04/03/25



**ANOKA COUNTY  
HIGHWAY DEPT.**

SAP 002-622-045  
SAP 223-020-011

TABULATIONS  
Sheet 9 of 85 Sheets

CULVERT TABULATION																		P	
STATION AND OFFSET				SLOPE %	INVERT ELEVATION		15" RC PIPE CULVERT	15" RC SAFETY APRON	18" RC PIPE CULVERT	18" RC SAFETY APRON	24" RC PIPE CULVERT	24" RC PIPE APRON	SAFETY GRATE FOR 24" RC APRON	RANDOM RIPRAP CL II	GUIDE POST TYPE B [5]	FINE AGGREGATE BEDDING (CV)	GEOTEXTILE FILTER TYPE 3	NOTES	
							UPSTREAM	DOWNSTREAM	LIN FT	EACH	LIN FT	EACH	LIN FT	EACH	EACH	CU YD	EACH		CU YD
130+47	45' RT	-	131+23	42' RT	0.67%	898.40	897.90			56	2			9	2	87	45	[1]	
145+14	44' LT	-	145+15	48' RT	1.09%	884.00	883.00					80	2	2	12	2	140	59	[2]
165+58	58' LT	-	165+58	66' RT	2.90%	900.60	897.00					112	2	2	12	2	188	59	[2]
168+65	50' LT	-	169+69	47' LT	0.47%	905.00	904.50	88	2					6	2		36	[3]	
171+76	57' RT	-	172+65	57' RT	1.10%	901.30	900.30			72	2			9	2	106	45	[4]	
TOTAL							88	2	128	4	192	4	4	48	10	521	244		

NOTES:

- [1] CULVERT UNDER YUCCA ST.
- [2] CENTERLINE CULVERT UNDER CSAH 22.
- [3] DRIVEWAY CULVERT.
- [4] CULVERT UNDER ORCHID ST.
- [5] USE OM2-2V SIGN.

GENERAL NOTES:

- STATION AND OFFSEAT FOR EACH CULVERT GIVEN AT APRON ENDS.
- INVERT ELEVATIONS GIVEN AT END OF APRON.
- RCP PIPE LENGTH DOES NOT INCLUDE APRON LENGTH.
- FOR RIPRAP AND GEOTEXTILE FABRIC INSTALLATION, SEE MnDOT STANDARD PLATE 3134.
- PIPE TIES SHALL BE REQUIRED FOR ALL CONCRETE CULVERT PIPE JOINTS. FURNISHING AND INSTALLING PIPE TIES SHALL BE CONSIDERED INCIDENTAL. SEE MnDOT STANDARD PLATE 3145.
- PLACE CULVERT BEDDING PER STANDAR PLAN 5-297.440 UNLESS OTHERWISE NOTED (INCIDENTAL).

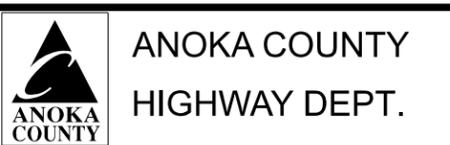
UTILITY / CITY CONTACTS		T
<p>CENTERPOINT ENERGY CONTACT: MARIO GILLAND (612) 322-0546 mario.m.gilland@centerpointenergy.com</p>	<p>COMCAST CONTACT: LUKE BASTIL (651) 493-5405 luke_bastil@comcast.com</p>	
<p>CENTURYLINK/LUMEN TERRA TECHNOLOGIES LLC CONTACT: ANTHONY VANDERHAGEN (612) 298-2825 avanderhagen@congruex.com</p>	<p>CONNEXUS ENERGY CONTACT: JENNIE WEISS  Jennie.Weiss@connexusenergy.com</p>	
<p>CITY OF OAK GROVE CONTACT: CHUCK SCHWARTZ CITY ENGINEER (612) 548-3141 cschwarz@msa-ps.com</p>	<p>ZAYO TERRA TECHNOLOGIES LLC CONTACT: JASON OVERKAMP (651) 788-5890 joverkamp@congruex.com</p>	
<p>OAK GROVE FIRE DEPARTMENT CONTACT: ROB ENGLER FIRE CHIEF (763) 404-7021 rengler@ci.oak-grove.mn.us</p>	<p>ANOKA COUNTY SIGNALS SIGNALS - CONSTRUCTION CONTACT: MARK LEKSON (763) 324-3139 Mark.Lekson@anokacountymn.gov</p>	

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: 04/09/2025 LICENSE NO. 49046

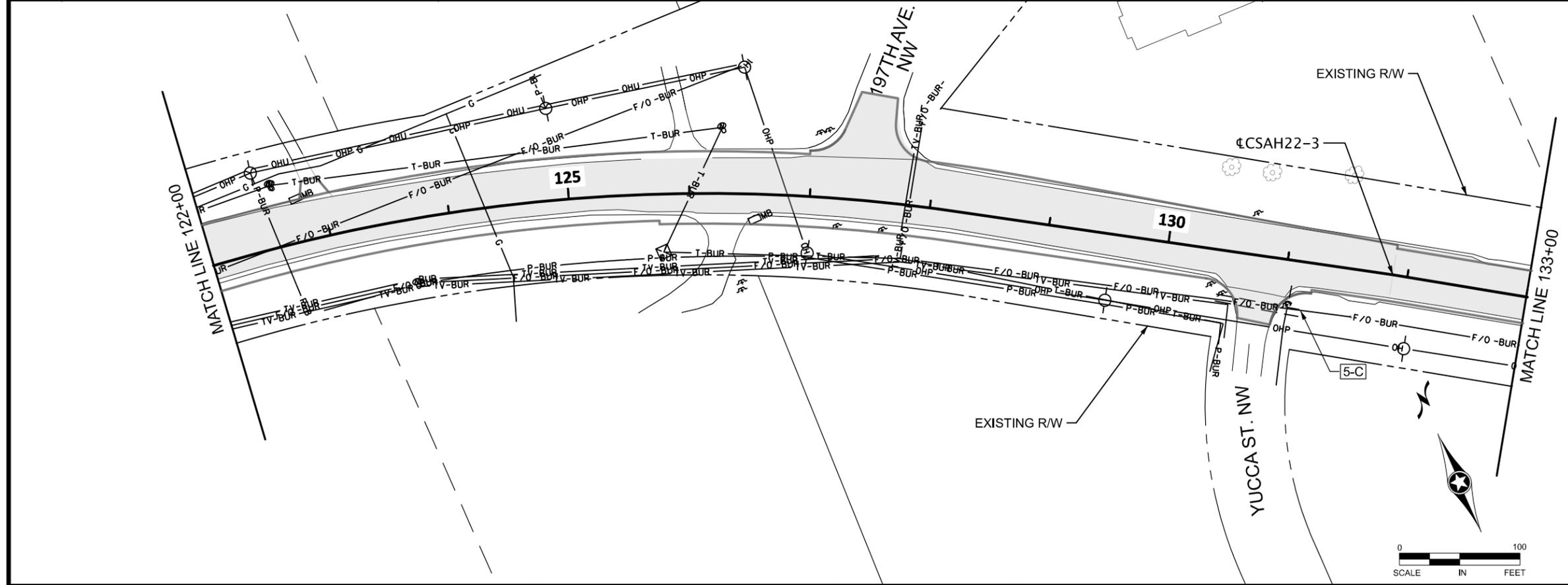
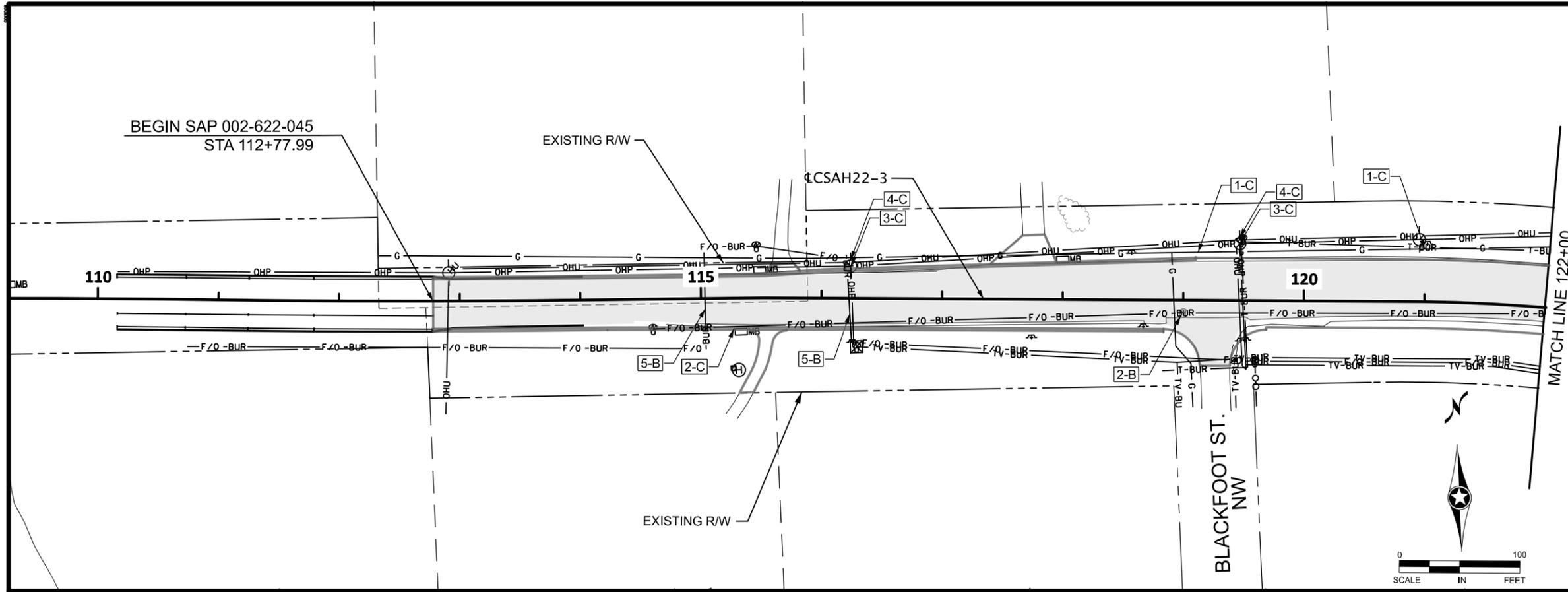
DRAWN BY CA DATE 04/03/25  
 DESIGN BY MAP DATE 04/03/25  
 CHECKED BY NJD DATE 04/03/25



SAP 002-622-045  
 SAP 223-020-011

LEGEND

- G — BURIED GAS MAIN/SERVICE
  - F/O -BUR— BURIED FIBER OPTIC
  - F/O -OH— COMMUNICATION
  - TV-BUR — BURIED TELEVISION LINE
  - OHU — OVERHEAD UTILITY LINE
  - OHP — OVERHEAD POWER LINE
  - SIG-BUR — TRAFFIC SIGNAL
  - ⊗ PEDESTAL
  - ⊙ METER
  - UTILITY POLE
  - ⊕ TREE
  - — — INPLACE CULVERT
  - ▭ EXISTING ROADWAY
  - ▭ PROPOSED ROADWAY
- 
- (1) CENTERPOINT ENERGY
  - (2) CENTURYLINK FIBER
  - (3) COMCAST
  - (4) CONNEXUS
  - (5) ZAYO
- 
- (A) LEAVE AS IS
  - (B) ADJUST
  - (C) RELOCATE
  - (D) REMOVE



NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\002-622-045 Concrete from Rum River thru CSAH 9\Plan\002622045\_135ute.dgn 04/09/2025 9:27:39 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

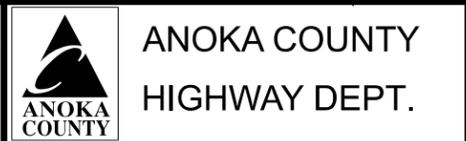
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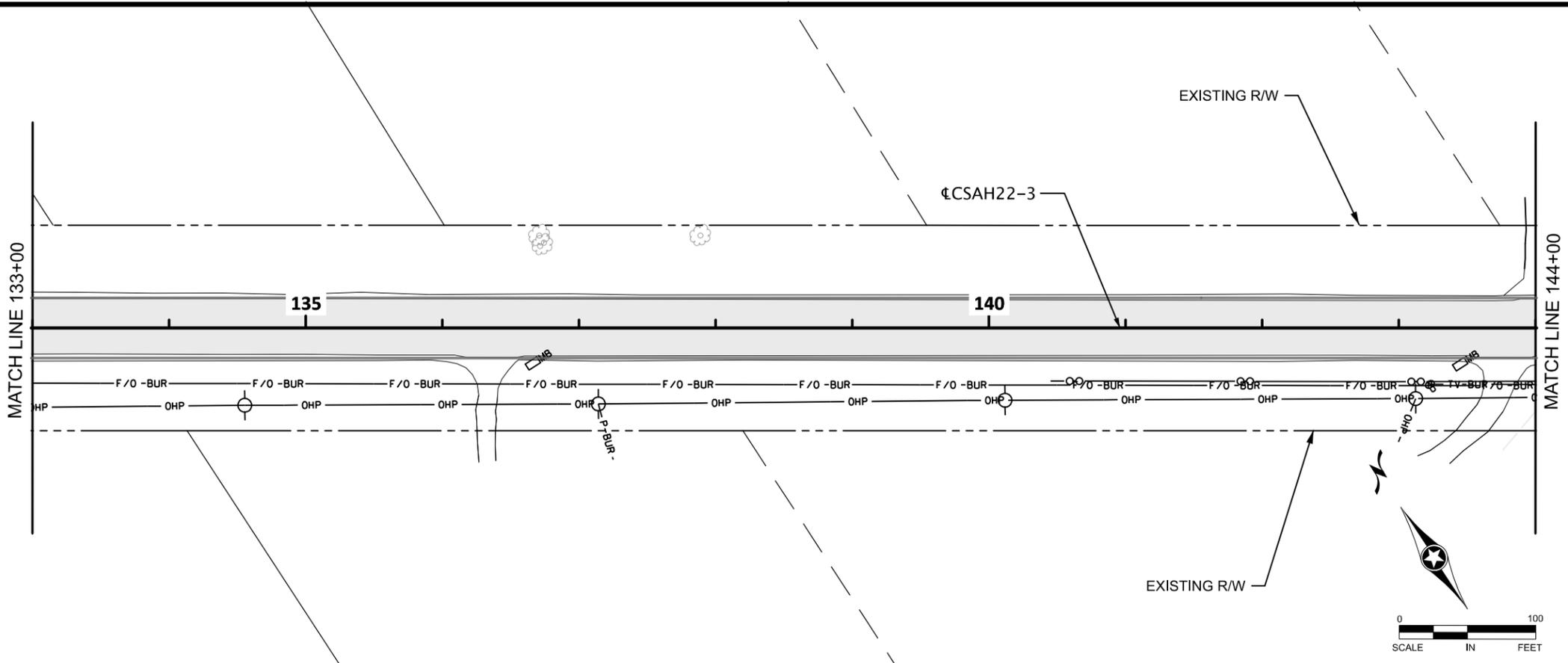
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CHECKED BY NJD DATE 04/03/25



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SAP 223-020-011

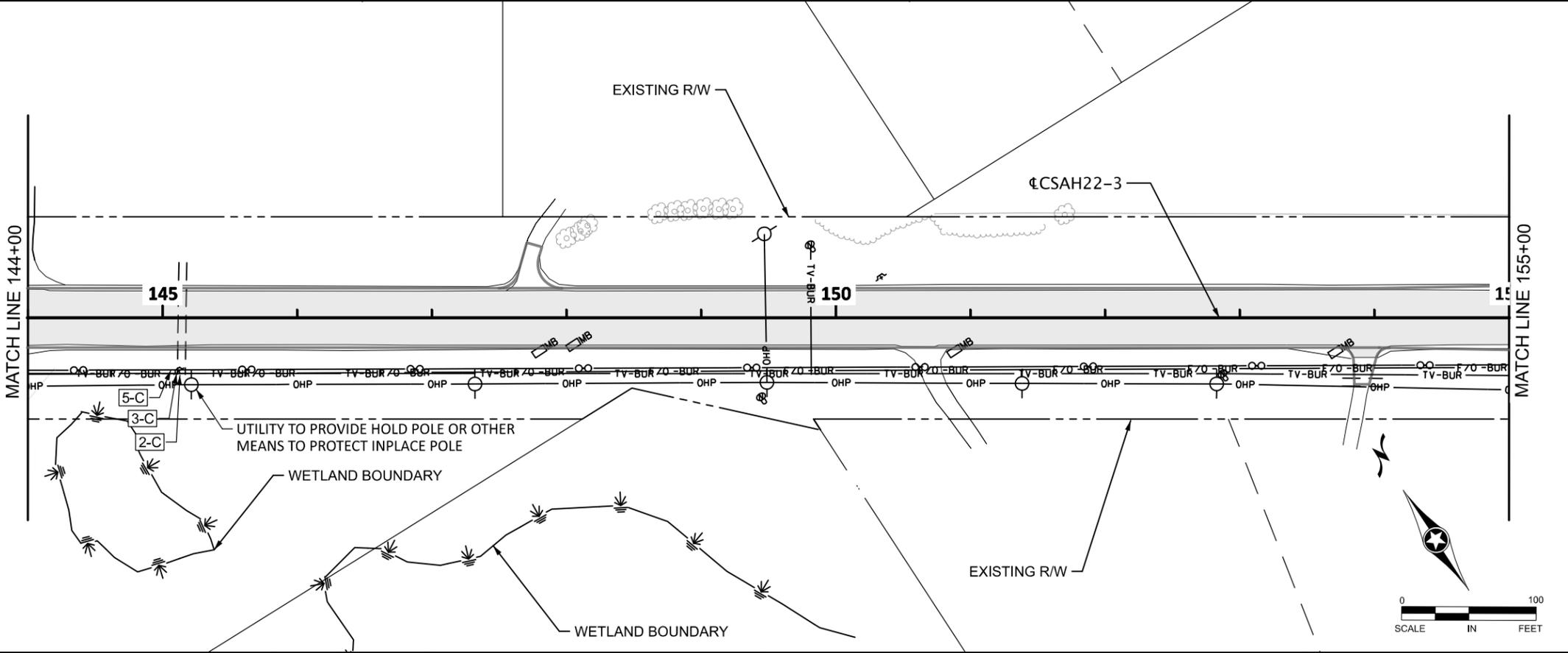
INPLACE UTILITY PLANS  
STA 112+77.99 TO 133+00.00  
Sheet 11 of 85 Sheets



**LEGEND**

- G — BURIED GAS MAIN/SERVICE
- F/O -BUR— BURIED FIBER OPTIC COMMUNICATION
- F/O -OH— BURIED TELEVISION LINE
- TV-BUR — OVERHEAD UTILITY LINE
- OHU — OVERHEAD POWER LINE
- OHP — OVERHEAD POWER LINE
- SIG-BUR — TRAFFIC SIGNAL
- ⊗ PEDESTAL
- ⊙ METER
- UTILITY POLE
- ☼ TREE
- — — INPLACE CULVERT
- ▬ EXISTING ROADWAY
- ▬ PROPOSED ROADWAY

- (1) CENTERPOINT ENERGY
- (2) CENTURYLINK FIBER
- (3) COMCAST
- (4) CONNEXUS
- (5) ZAYO
- (A) LEAVE AS IS
- (B) ADJUST
- (C) RELOCATE
- (D) REMOVE



2 OF 3

NO	DATE	BY	CKD	APPR	REVISION

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PRINT NAME: NICHOLAS J. DOBDA

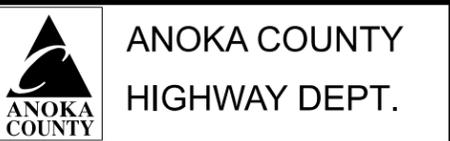
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DATE: 04/09/2025 LICENSE NO. 49046

DRAWN BY CA DATE 04/03/25

DESIGN BY MAP DATE 04/03/25

CHECKED BY NJD DATE 04/03/25



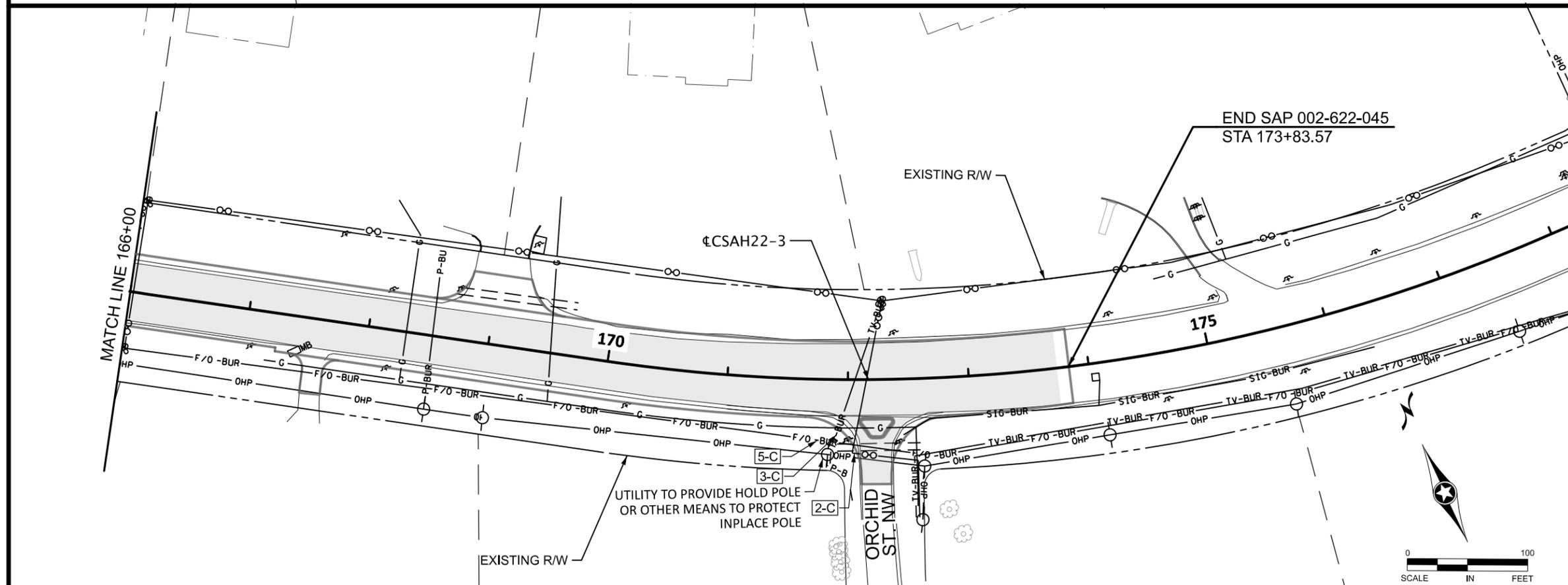
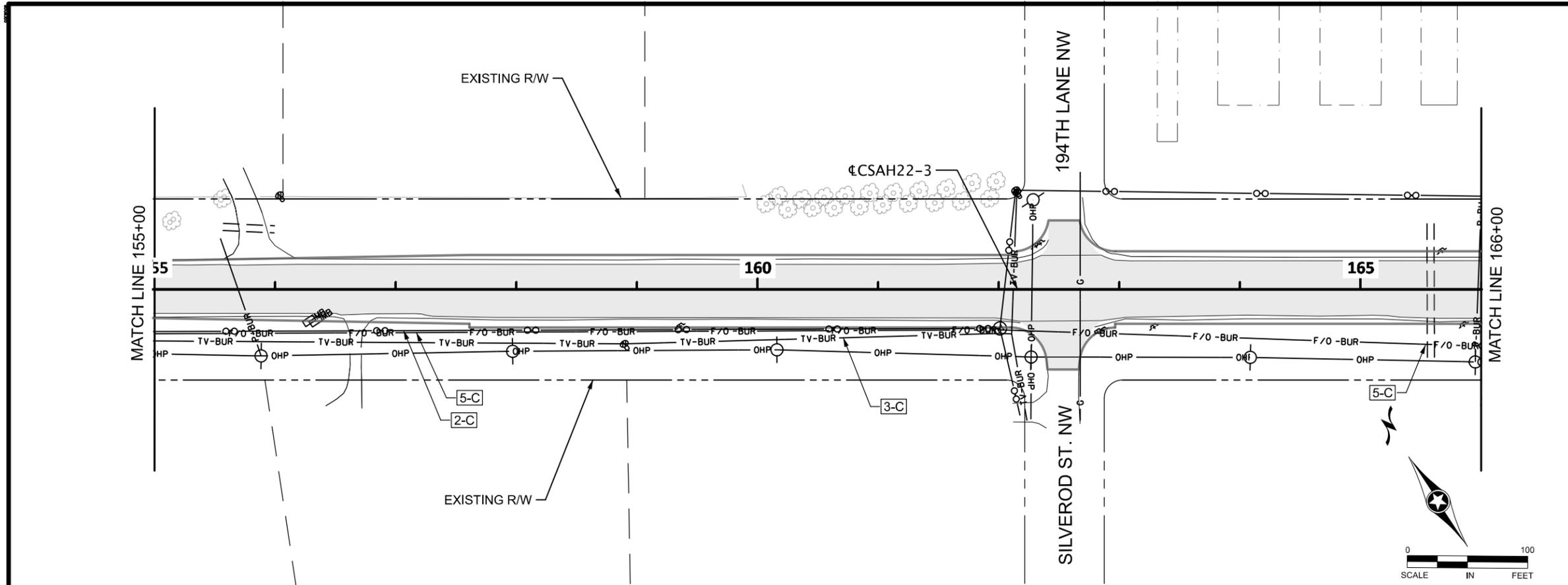
SAP 002-622-045  
SAP 223-020-011

INPLACE UTILITY PLANS  
STA 133+00.00 TO 155+00.00  
Sheet 12 of 85 Sheets

LEGEND

- G — BURIED GAS MAIN/SERVICE
- F/O -BUR — BURIED FIBER OPTIC COMMUNICATION
- F/O -OH — BURIED FIBER OPTIC COMMUNICATION
- TV-BUR — BURIED TELEVISION LINE
- OHU — OVERHEAD UTILITY LINE
- OHP — OVERHEAD POWER LINE
- SIG-BUR — TRAFFIC SIGNAL
- ⊗ PEDESTAL
- ⊙ METER
- UTILITY POLE
- ⊕ TREE
- INPLACE CULVERT
- ▬ EXISTING ROADWAY
- ▬ PROPOSED ROADWAY

- (1) CENTERPOINT ENERGY
- (2) CENTURYLINK FIBER
- (3) COMCAST
- (4) CONNEXUS
- (5) ZAYO
  
- (A) LEAVE AS IS
- (B) ADJUST
- (C) RELOCATE
- (D) REMOVE



NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\002-622-045 Concrete from Rum River thru CSAH 9\Plan\002622045\_135ute.dgn 04/09/2025 9:27:41 AM

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DATE: 04/09/2025 LICENSE NO. 49046

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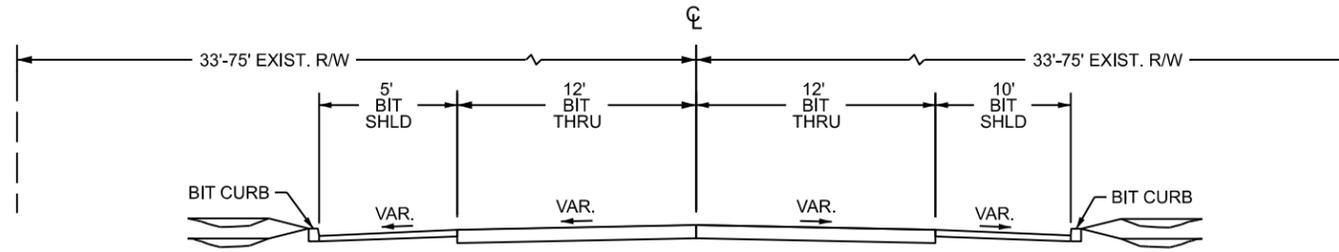
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**ANOKA COUNTY**  
**HIGHWAY DEPT.**

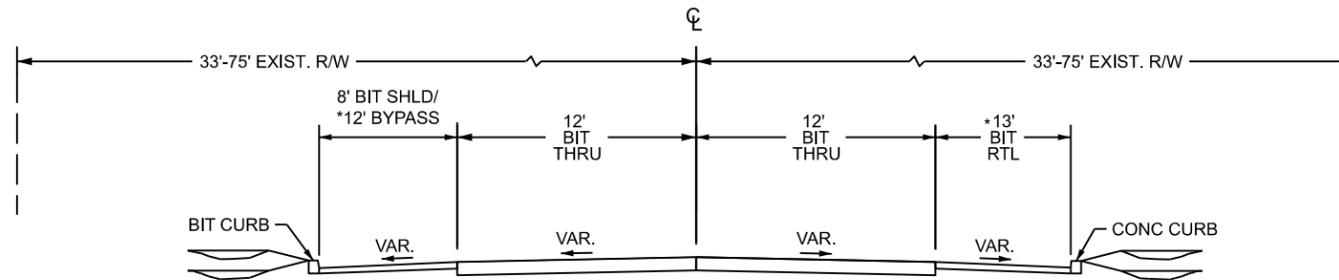
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SAP 223-020-011

INPLACE UTILITY PLANS  
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Sheet 13 of 85 Sheets

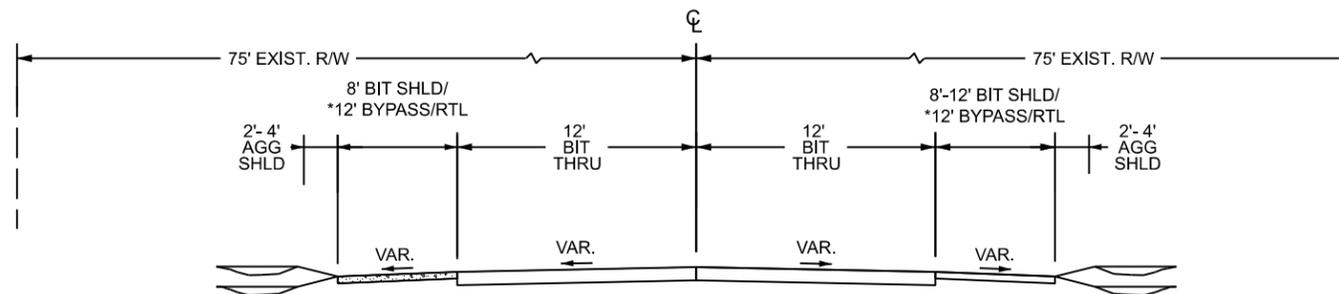
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STA. 112+77.99 - 114+44.11



EXISTING CSAH 22  
STA. 114+44.11 - 118+67.77



EXISTING CSAH 22  
STA. 118+67.77 - 173+83.57



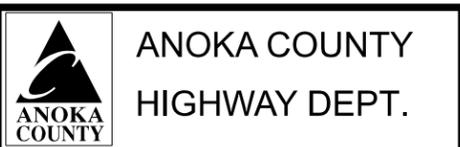
* EXISTING AUXILIARY LANE LOCATIONS			
STA. TO STA.	LOCATION	DESCRIPTION	
114+22.19	119.68.82	EB	RIGHT TURN LANE
116+96	122+61	WB	BYPASS LANE
125+40	130+53	EB	RIGHT TURN LANE
127+90	132+64	WB	RIGHT TURN LANE
157+21	162+20	EB	RIGHT TURN LANE
162+80	173+83.57	WB	RIGHT TURN LANE
165+22	171+18	EB	BYPASS LANE

NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\002-622-045 Concrete from Rum River thru CSAH 9\Plan\002622045\_145typ.dgn 04/07/2025 2:56:05 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: 04/09/2025 LICENSE NO. 49046

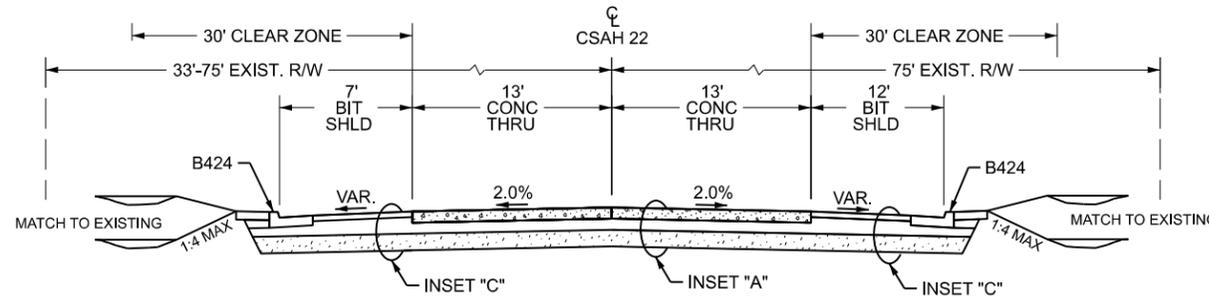
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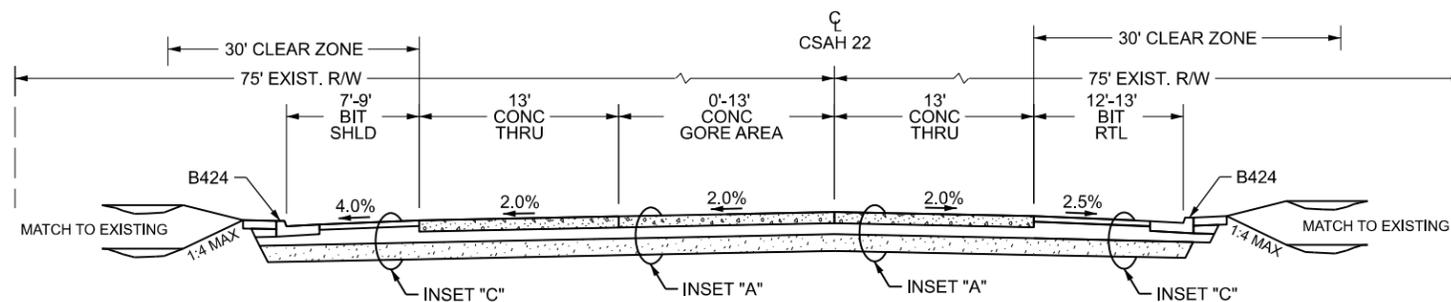
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 SAP 223-020-011

TYPICAL SECTIONS  
 EXISTING  
 Sheet 14 of 85 Sheets

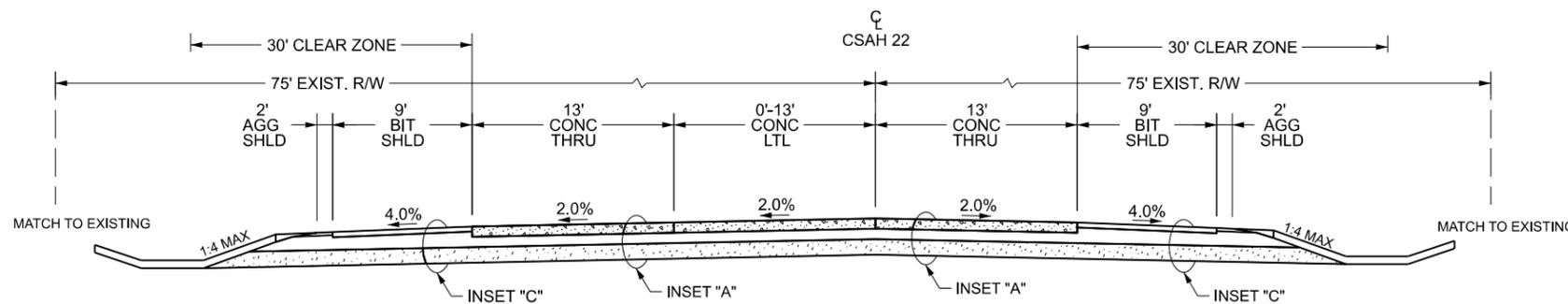
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PROPOSED CSAH 22  
STA. 115+51.90 - 119+10.06

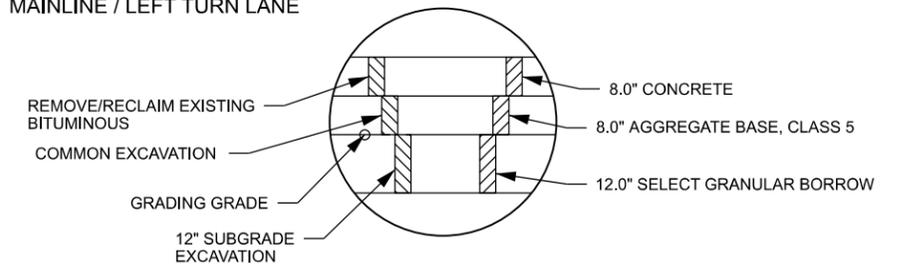


PROPOSED CSAH 22 ① FOR RTL STATIONING, SEE TABLE "E"  
STA. 119+10.06 - 131+87.88



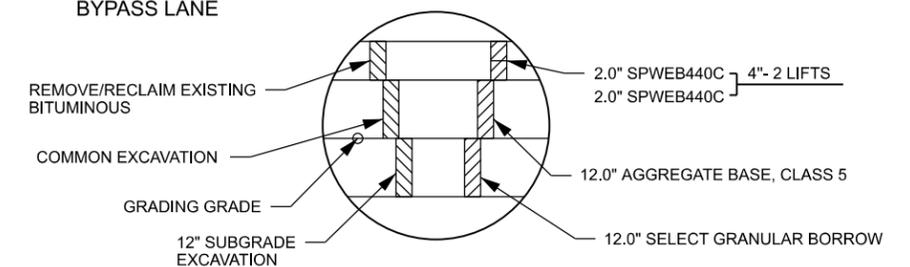
INSET "A"

FULL DEPTH CONCRETE  
MAINLINE / LEFT TURN LANE



INSET "C"

SHOULDER / RIGHT TURN LANE /  
BYPASS LANE



GENERAL NOTES:

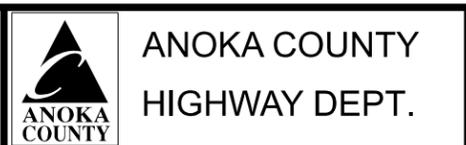
- ALL CROSS SLOPES ARE EXPRESSED IN FT / FT.
- UNLESS OTHERWISE SPECIFIED, THE GRADING GRADE CROSS SLOPES SHALL BE THE SAME AS THE FINISHED SURFACE OF THE MAINLINE.
- CONCRETE LANE WIDTH DIMENSIONS ARE MEASURED FROM JOINT TO JOINT.
- BITUMINOUS AND AGGREGATE DIMENSIONS ARE MEASURED ACROSS SURFACE WIDTH.
- 6.0" TOPSOIL AND SEED ON ALL DISTURBED AREAS.
- SEE CONSTRUCTION PLAN AND CROSS SECTIONS FOR EXACT RIGHT OF WAY LOCATION.
- SEE PERMANENT SIGNING AND STRIPING PLAN FOR LANE WIDTHS AND LOCATIONS.

NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\002-622-045 Concrete from Rum River thru CSAH 9\Plan\002622045\_145typ.dgn 04/07/2025 2:56:05 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: 04/09/2025 LICENSE NO. 49046

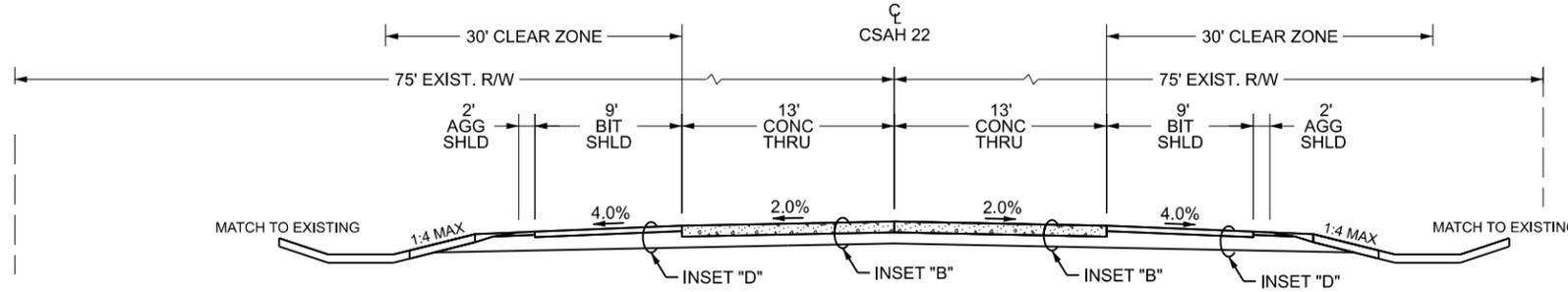
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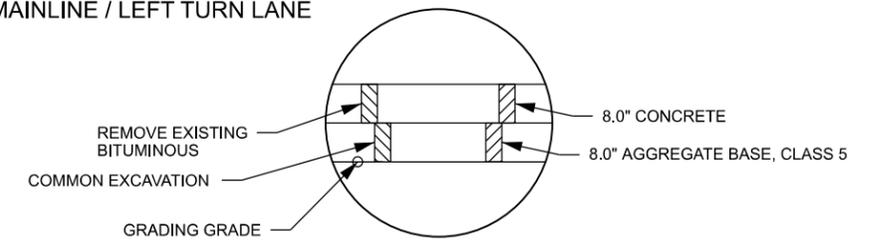
SAP 002-622-045  
SAP 223-020-011

TYPICAL SECTIONS  
AND INSETS  
PROPOSED  
Sheet 15 of 85 Sheets

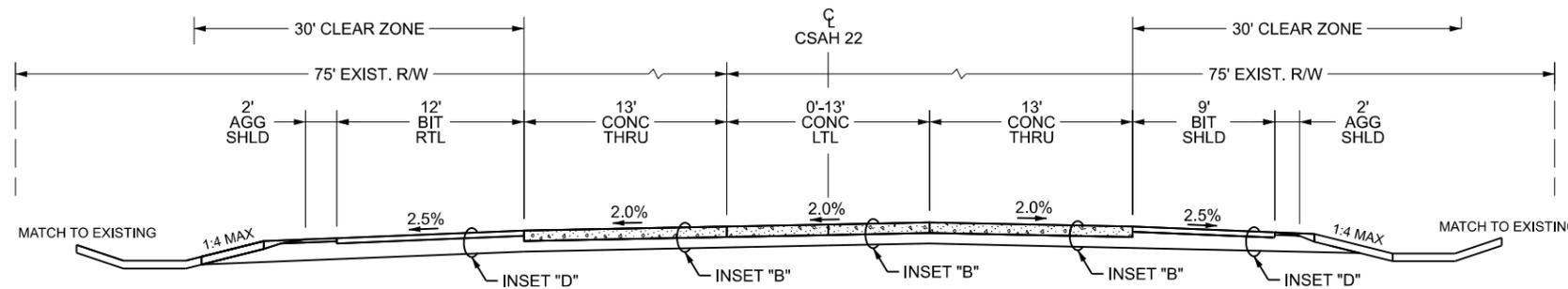
PROPOSED CSAH 22 ① FOR RTL STATIONING, SEE TABLE "E"  
 STA. 131+87.88 - 154+03.71



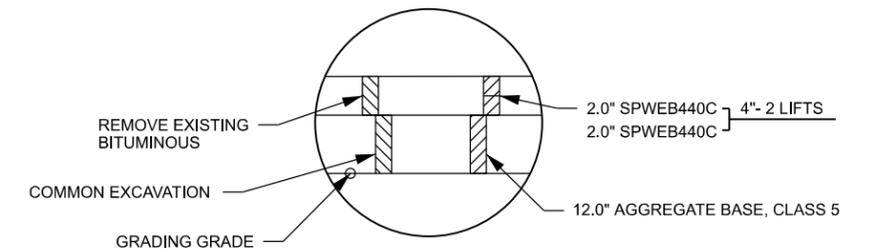
INSET "B"  
 FULL DEPTH CONCRETE  
 MAINLINE / LEFT TURN LANE



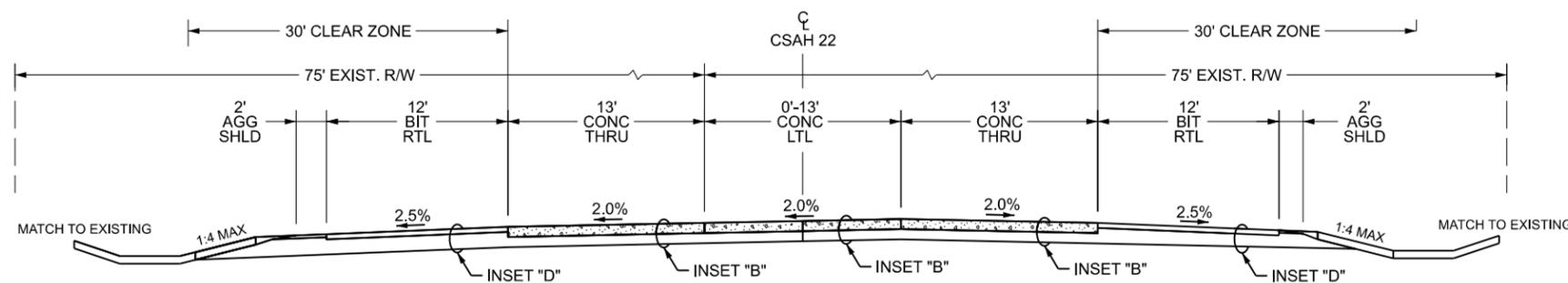
PROPOSED CSAH 22 ① FOR RTL STATIONING, SEE TABLE "E"  
 STA. 154+03.71 - 173+83.57



INSET "D"  
 SHOULDER / RIGHT TURN LANE /  
 BYPASS LANE



TYPICAL - RIGHT TURN LANES ① FOR RTL STATIONING, SEE TABLE "E"



① TABLE "E" - TURN LANE LOCATIONS

STA. TO STA.	LOCATION	DESCRIPTION
114+22.19	119+68.82	EB RIGHT TURN LANE
125+74.67	131+23.08	EB RIGHT TURN LANE
126+98.31	131+87.88	WB RIGHT TURN LANE
157+61.01	162+96.49	EB RIGHT TURN LANE
164+14.89	167+47.09	WB RIGHT TURN LANE
167+25.63	173+83.57	EB RIGHT TURN LANE

GENERAL NOTES:

- ALL CROSS SLOPES ARE EXPRESSED IN FT / FT.
- UNLESS OTHERWISE SPECIFIED, THE GRADING GRADE CROSS SLOPES SHALL BE THE SAME AS THE FINISHED SURFACE OF THE MAINLINE.
- CONCRETE LANE WIDTH DIMENSIONS ARE MEASURED FROM JOINT TO JOINT.
- BITUMINOUS AND AGGREGATE DIMENSIONS ARE MEASURED ACROSS SURFACE WIDTH.
- 6.0" TOPSOIL AND SEED ON ALL DISTURBED AREAS.
- SEE CONSTRUCTION PLAN AND CROSS SECTIONS FOR EXACT RIGHT OF WAY LOCATION.
- SEE PERMANENT SIGNING AND STRIPING PLAN FOR LANE WIDTHS AND LOCATIONS.

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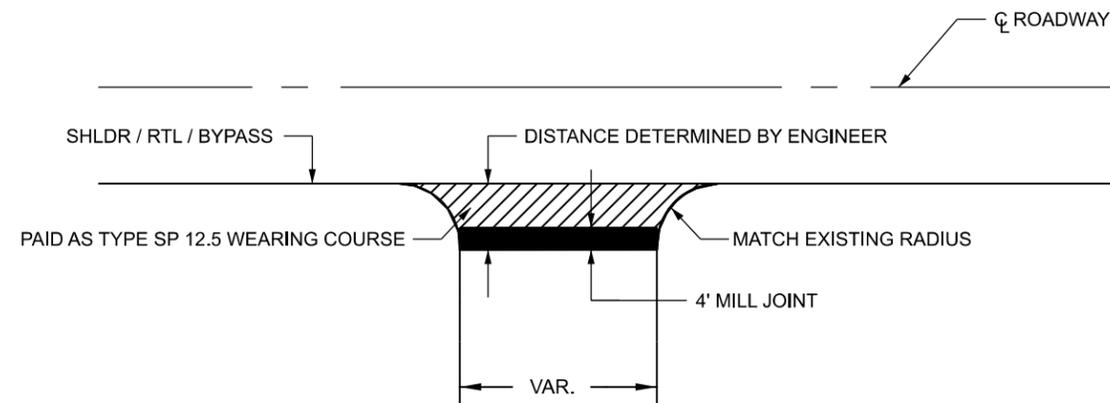


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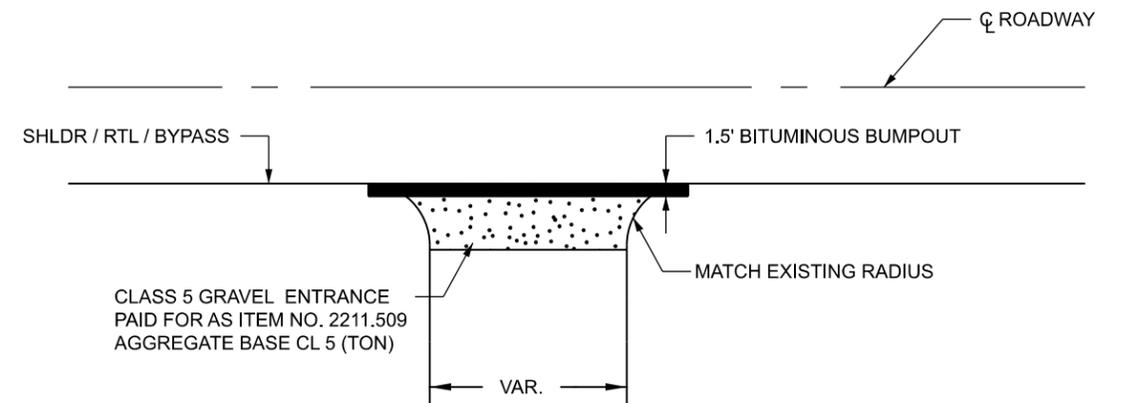
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TYPICAL SECTIONS  
 AND INSETS  
 PROPOSED

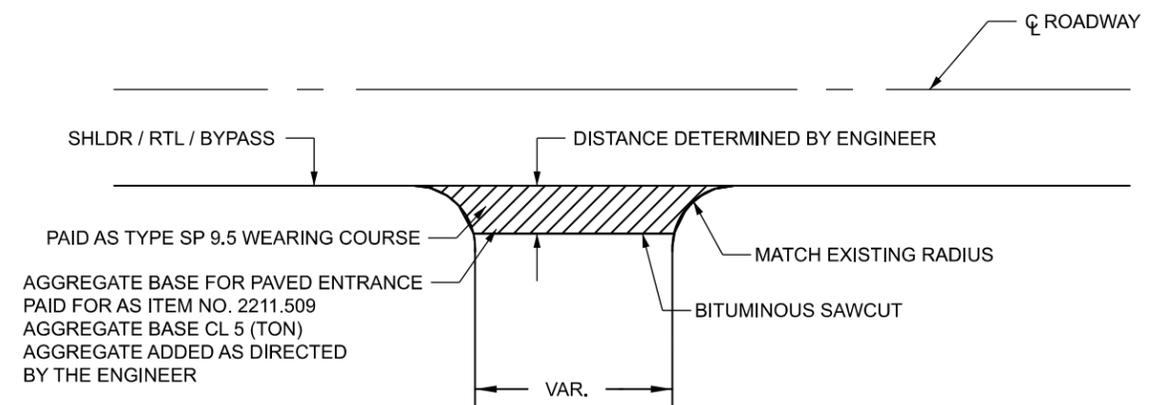
### PAVED STREET APPROACHES



### GRAVEL / FIELD ENT.



### PAVED DRIVEWAY



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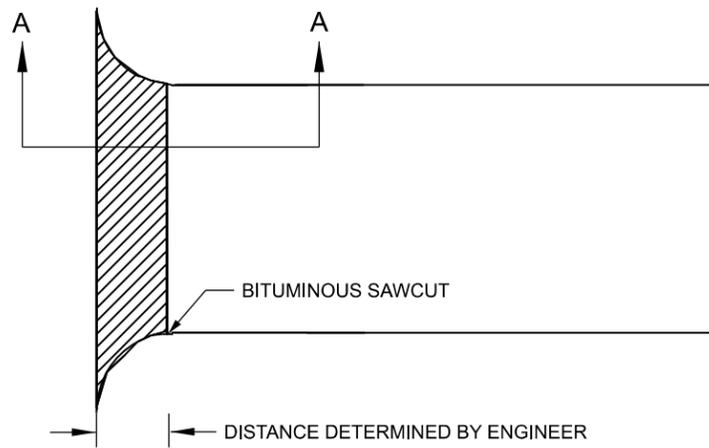
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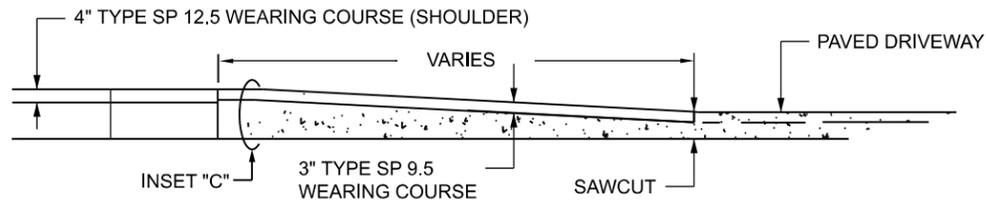
MISCELLANEOUS DETAILS

Sheet 17 of 85 Sheets

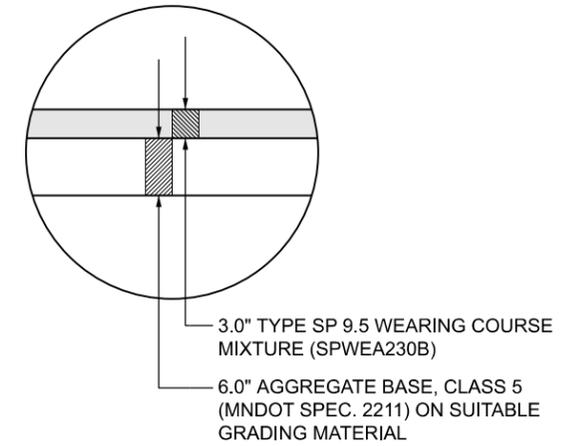
PAVED DRIVEWAY JOINT DETAIL



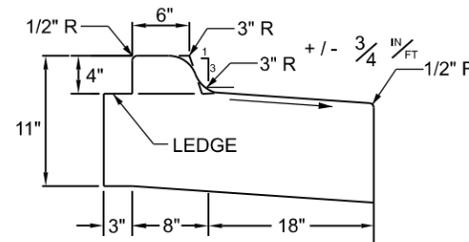
DRIVEWAY JOINT DETAIL A - A



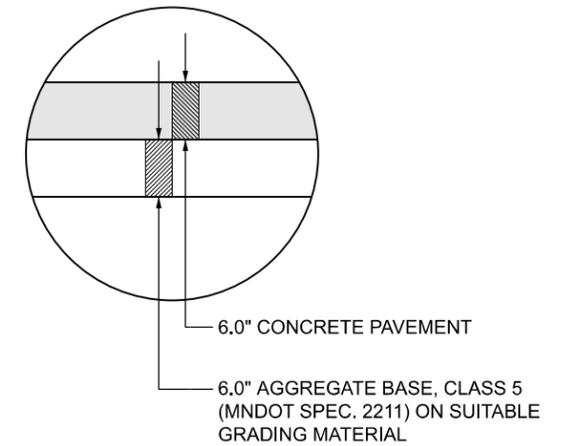
BITUMINOUS DRIVEWAY DETAIL



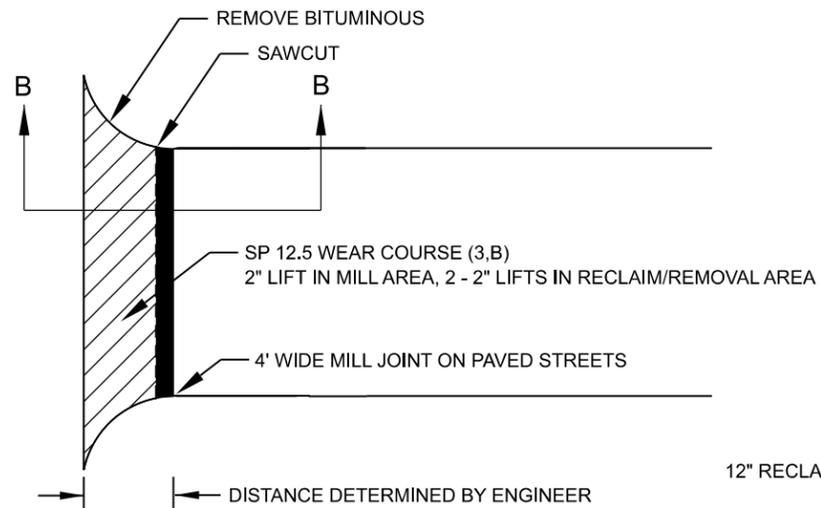
DETAIL " I " CONCRETE CURB AND GUTTER DESIGN B418 (MOD) - TIP-OUT ( NO VARIANCES ALLOWED )



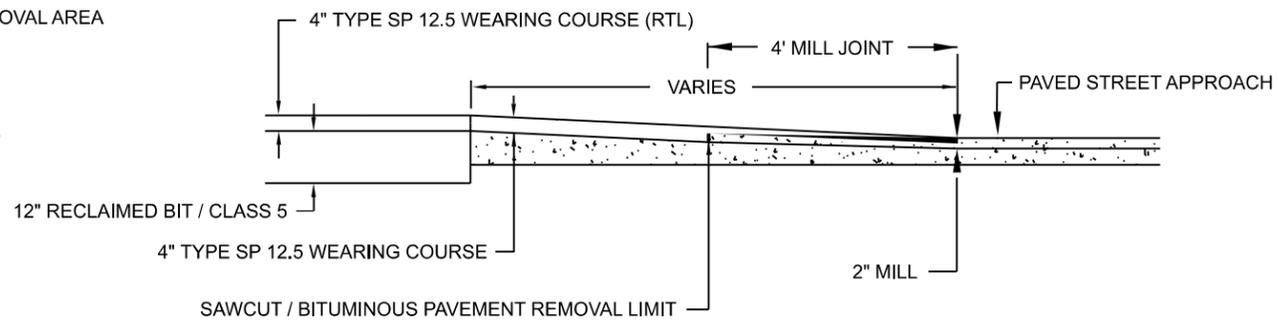
CONCRETE DRIVEWAY DETAIL



PAVED STREET JOINT DETAIL



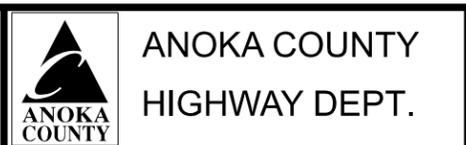
PAVED STREET JOINT DETAIL B - B



2	02/16/2024	MP	NJD		ADDED SUBSURFACE DRAIN DETAIL
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MISCELLANEOUS DETAILS  
 Sheet 18 of 85 Sheets

**Minnesota Department of Transportation  
Best Management Practices (BMP) for  
Concrete Washout  
May 2009, v5**

The NPDES permit requires that concrete washout be managed on all construction projects. This document is Mn/DOT's interpretation of MPCA's guidance on concrete washout dated February 2009, and describes recommended best management practices for concrete washout. As improvements in technology occur for managing liquid and solid concrete washout materials, the department will amend this guidance document.

Mn/DOT Guidance: The NPDES construction permit requires concrete washout management (Part IV.F.4) on every project that uses concrete and concrete products, with SWPPP amendments (Part III.A.5 & Part III.A.7) as necessary to prevent the discharge of concrete liquids and uncured solids from making contact with soils unless in defined containment Best Management Practices (Part V.C & MS4 Permit).

- Accidental Discharge. If concrete washout makes accidental contact with soils or discharges to waters of the state, state law requires notifying (Minn R 7045.0468 Subp 6) the State duty Officer and immediately stop further discharge, remove discharge materials and restore the site to the pre-disturbance condition.
- Designated Area. The NPDES permit requires that designated concrete washout areas be posted with a sign or spray painted in a conspicuous manner, and inspected as often as necessary to function without discharge. Unless shown, the concrete washout location must be amended in the SWPPP.
- Special Location Restriction. Washout 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 and amended into the SWPPP.
- The Department reserves the right to indicate in the plans and final details where or where not concrete washout may occur.

The following options are recommended as best management practices for handling concrete truck, pump, mixer, chute, hand tools, concrete testing equipment and wheel barrow washout:

- Option A: Lined Trap**
- Option B: Berm Trap**
- Option C: Dumpster**
- Option D: Chute Washout Systems**
- Option E: Concrete Truck & Pumper**
- Option F: Small Volume Systems**

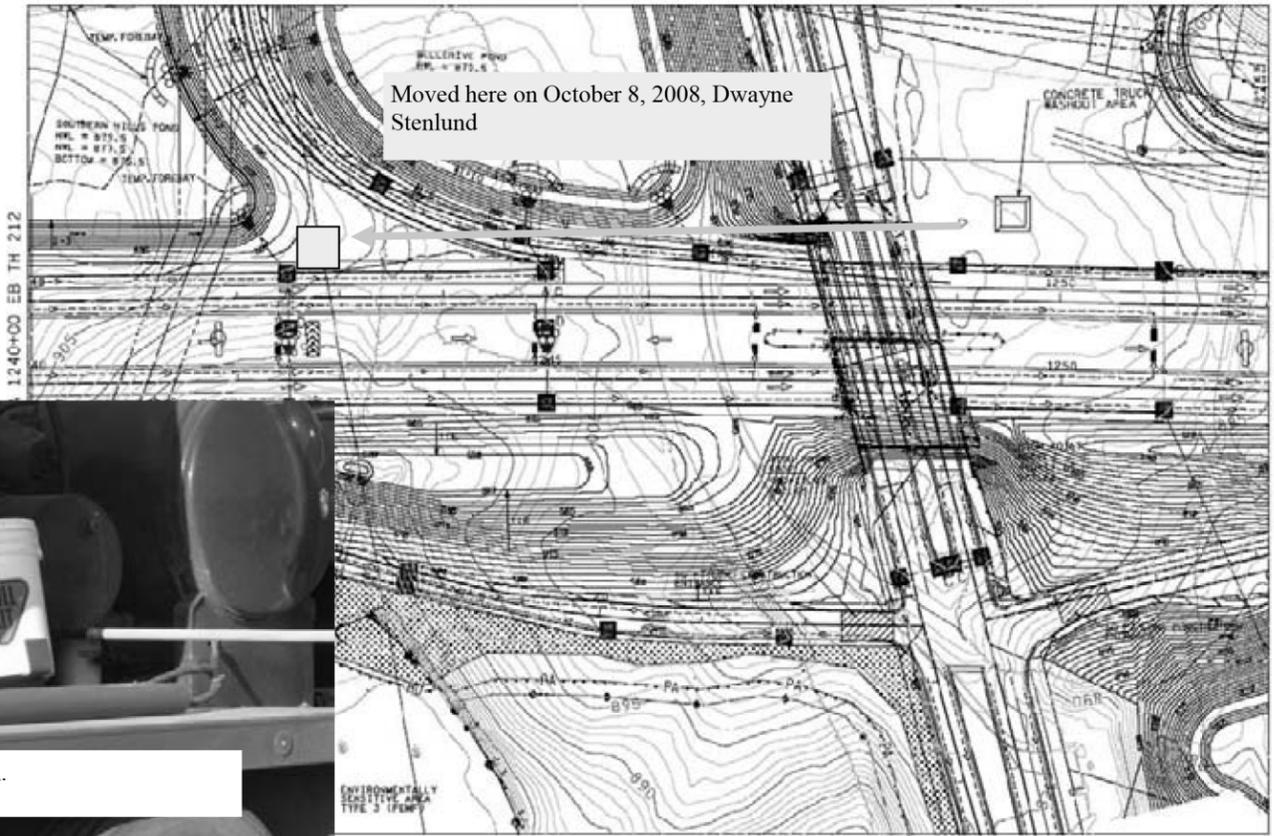
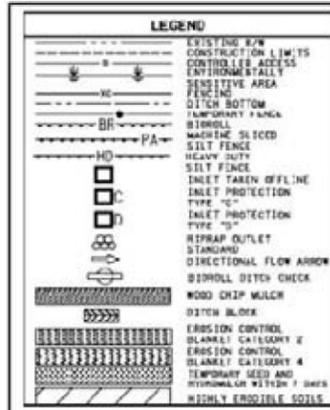
**Spill Response Program:** The contractor must have on hand the following items capable of capturing, containing or treating accidental discharge of concrete materials on ground and surface waters:

1. dry washed sand or wood slash mulch that can be used to temporarily solidify liquid concrete washout fluids to facilitate emergency pickup, and
2. Citric acid, dry ice or CO2 compressed gas cylinder (CO2 Sparging) to pH neutralize overflowing traps, berms, dumpsters or other emergency cementitious discharge due to weather or under-capacity trap containment conditions.

1. Prevent nuisance conditions as defined in Minn. R. 7050.0210, subp. 2
2. Compliance to the NPDES Construction and Minnesota State Disposal System (SDS) Permit of the Federal Clean Water Act, as amended, (33 U.S.C. 1251 et seq.), 40 CFR 122, 123, and 124, as amended, et seq.; Minn. Stat. chs. 115 and 116, as amended, Minn. R. chs. 7001 and 7090
3. Protection of ground and surface waters as defined in Minn. Stat. § 115.01, subd. 22
4. Beneficial reuse as defined in Minn. R. 7035.2860, subp. 4, item I

Photos shown throughout this guidance document does not constitute endorsement of any manufacturer by the Department.

Prepared by Dwayne Stenlund, CPESC #2052. Office of Environmental Services. 612-810-9409



Concrete Truck Spill kit system.



Excess and slump test solids placed on plastic until hardened. Contractor may consider installing wire or rebar hook for later pickup removal to crusher or recycling stockpile.



Discharge prevention pallet lined with disposable plastic for testing of concrete and washout of tools by Inspectors. Pallet may be made to accommodate skidsteer forks for quick pickup and discharge to defined washout trap areas until liquid evaporates and solids harden.

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1

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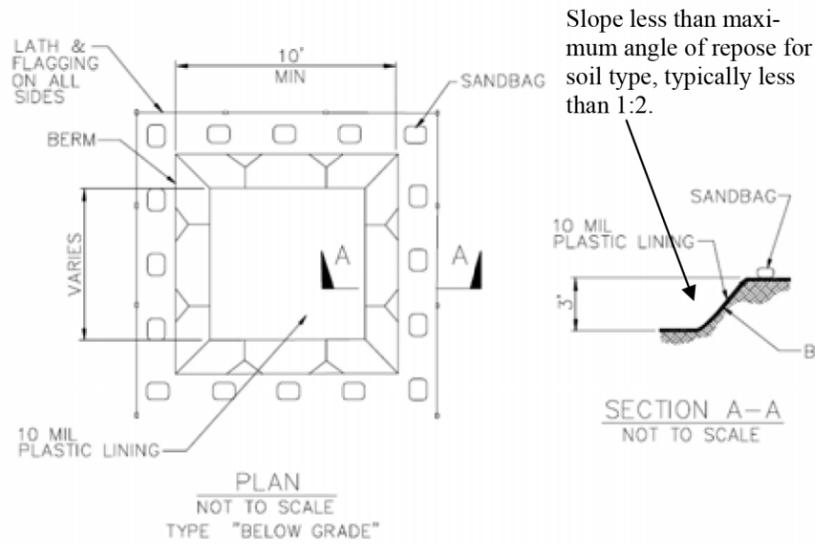
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CONCRETE WASHOUT  
 DETAILS  
 Sheet 19 of 85 Sheets

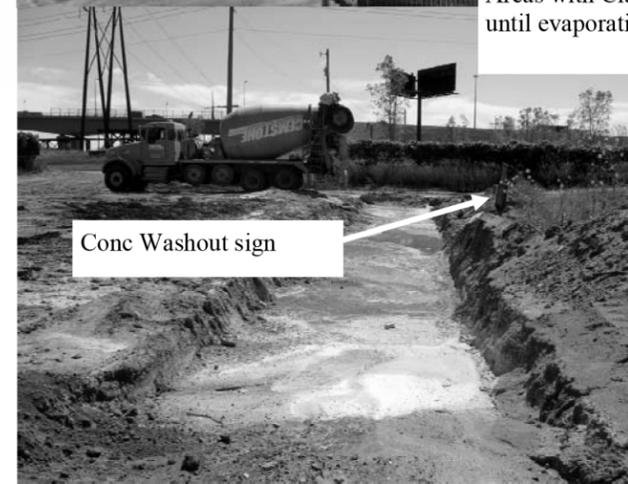
**Minnesota Department of Transportation  
BMP for Concrete Washout  
May 2009, v5**

**Option A: Lined Trap System.**

A Lined Trap system is excavated in an area with storm water overflow protection and can consist of either a (1) plastic sheeting for all soil types that infiltrate or (2) constructed clay liner or other suitable zero infiltrating soil (Hydraulic Soil Group D). The goal is to retain the liquids until evaporation, CO2 neutralization/settling or pump extraction. A maximum of 0.5 cu yd of cured material can be buried in trap area.



Areas with Clay soil that allow storage until evaporation of liquids



Conc Washout sign



Spray Paint 'Conc Washout' on inside poured wall containment area



Plastic Liner with posted sign or spray painted notice for washout.



Option A, Type 2. Compacted clay or Hydraulic Soils Group D Liner for low infiltration soils. Size of excavated and compacted trap must be commensurate with washout requirements for daily construction activities. Maintenance must be sufficient to prevent overflows due to excess washout, trackout and storm water. The contractor may washout concrete slurries behind poured walls as long as there is no connection to the soil below nor drain-tiled, and 100 percent of material remains contained until evaporation or extraction. No concrete washout may occur if dewatering is or may be required to complete the fill of abutment or footing.



Option A, Type 1. Plastic liner for sandy soil, well head protections area, and critical soil shear area with side slope wall failure above MPCA/DNR Listed Special, or Impaired Waters. Trap size must be appropriate to expected washout volumes and allow suitable time for evaporation, or sufficient capacity for pump extraction. Sides of plastic liner can be held in place with any suitable material including sand, sand bags, rock, metal, wood logs, etc. The Type 1 Traps must be routinely maintained, and replaced as necessary to perform.

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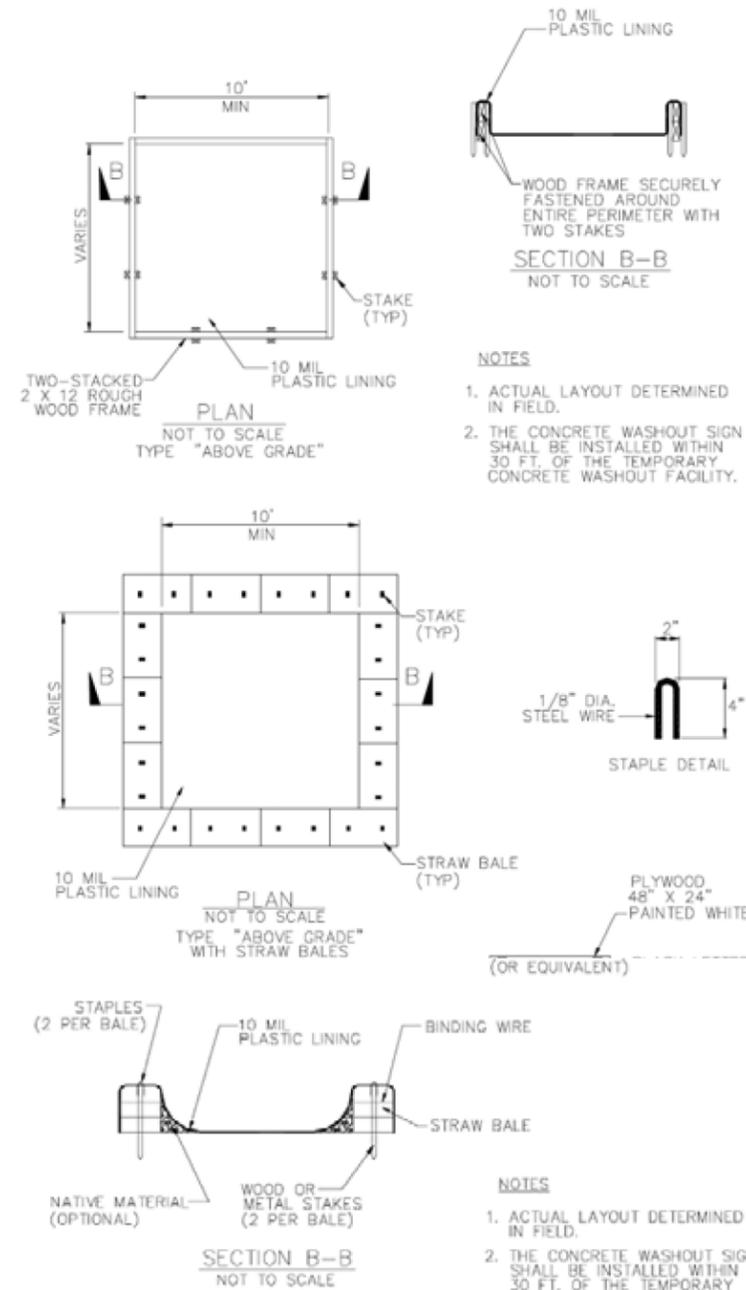
**CONCRETE WASHOUT  
DETAILS**

**Minnesota Department of Transportation  
BMP for Concrete Washout**

May 2009, v5

**Option B: Berm Trap System.**

A Berm Trap System may consist of raised walls constructed from wood or wood slash (3882 Type 5 Mulch Material), straw bales, Compost Filter Logs, sand bags, soil, lined concrete barriers, or any suitable strength materials to contain concrete washout liquids and solids until evaporation, curing, or extraction and final removal. No material can be left in place once operations are completed for that area.



High cohesive, low infiltration soil berm



Concrete washout tote



Superduty washout berm



Sealed or plastic lined wood washout box



Slash mulch filter ring on low infiltration soils



Mixing sand berm with plastic liner



2x10 plastic and geotextile box, with 2x4 cleats for front loader pickup and movement



Granular berm and plastic liner

3

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CONCRETE WASHOUT  
DETAILS

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**Option C: Dumpster System.**

A dumpster washout system is any commercial or retrofitted leak-proof dumpster capable of holding liquid and solid concrete washout materials until final treatment and disposal. There are commercial companies available to manage and treat all liquid wastes and recycle all solids. Prevent comingling of other solid wastes with concrete washout materials.



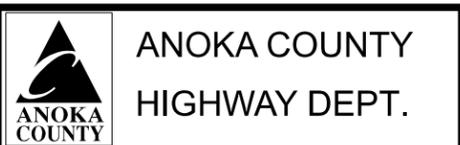
Various concrete liquid and solid dumpster systems sized to store all materials until liquid evaporates or vacuum removed and treated by commercial operators.

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CONCRETE WASHOUT  
 DETAILS  
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**Option D: Chute Washout System**

Two commercial types known include (1) a portable truck mounted pump recovery system, and (2) portable truck mounted pull behind wash tank. A locally manufactured system includes a portable truck mounted plastic trough and reinforced insulated wash box with sealed transport lid.

All devices appear capable of containing all concrete liquids and solids, or possess the ability to separate the liquids from the aggregate.

At the request of the ready mix operator, the clean washed aggregate may be left in suitable grade areas as determined by the Project Engineer or may be reused as concrete aggregate once processed to comply with Mn/DOT Specifications. At this time, all similar chute washout systems appear equal in ultimate performance goal of leaving no trace of concrete washout residues. Due to the nature of the liquid waste recovery system, there are no restrictions on where the operator may washout the chutes, tools, test equipment, and any portion of the truck that directly drains into the filter apparatus. **A washout sign is not required for chute washout systems.** Mn/DOT concrete inspectors are allowed to deposit tool wash water into the filter bucket system at the discretion of the concrete producer. The contractor is advised not to wash-off truck parts and equipment that does not flow back into the chute system unless performed in designated equipment wash-off areas indicated in the SWPPP or SWPPP amendments.



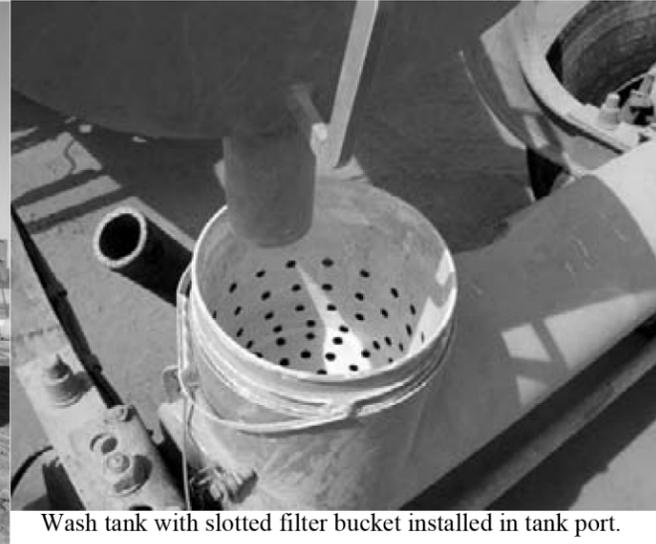
All liquid and solid materials are recovered in filter bucket with vacuum pumping



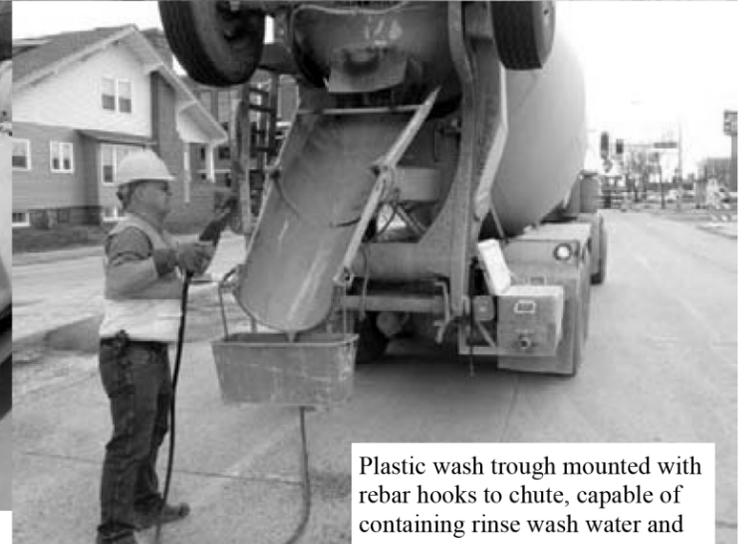
Chute funnel installed onto chute section, prior to lowering chute funnel port to tank opening.



Chute Washout System, mounted on metal carriage.



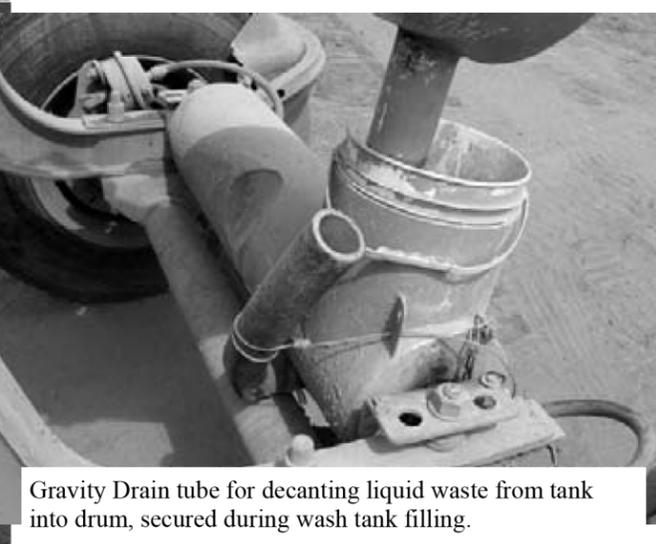
Wash tank with slotted filter bucket installed in tank port.



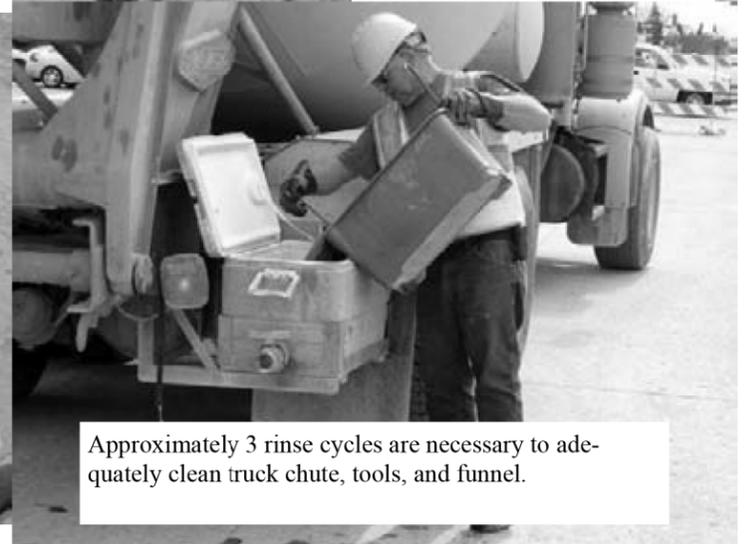
Plastic wash trough mounted with rebar hooks to chute, capable of containing rinse wash water and



Final rinsing of aggregate.



Gravity Drain tube for decanting liquid waste from tank into drum, secured during wash tank filling.



Approximately 3 rinse cycles are necessary to adequately clean truck chute, tools, and funnel.

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CONCRETE WASHOUT  
 DETAILS  
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**Option E: Concrete Truck & Pumper**

Certain operations involving pumper trucks that require priming and end flush cleaning will require special consideration of washout management. Empty concrete truck tank discharge is the process of total containment during high volume preparation and final cleaning of boom pipes and hoses. Final hopper and pump motor cleaning can use Options A through C, front loader bucket, or other Project Engineer accepted plan, and as amended in the SWPPP. Depending on concrete pumper location (ie. well head protection area, sand soils, etc.), concrete perimeter control using super duty barrier and liner, sand, sand bags and plastic or plywood liners may be required to prevent discharge to ground and surface waters during pump hopper loading. If liquid or solid material spills to the soil surface, remove at a frequency to prevent loss to ground or surface waters of the state, and clean by removal of contaminated soil areas to trap areas amended to the SWPPP.



Pumper grout slurry discharge form box

Plastic liner with 2x4 wood perimeter containment system during concrete transfer operations to pumper truck.



Priming or washing out of pumper truck into empty concrete truck for total containment of washout slurry.

Concrete Slurry Perimeter control using super duty barrier, aggregate filter toe, and slash mulch filter berms of pumper loading area



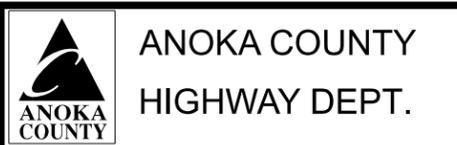
Final remnant of pumper hopper washout into designated and signed washout trap.

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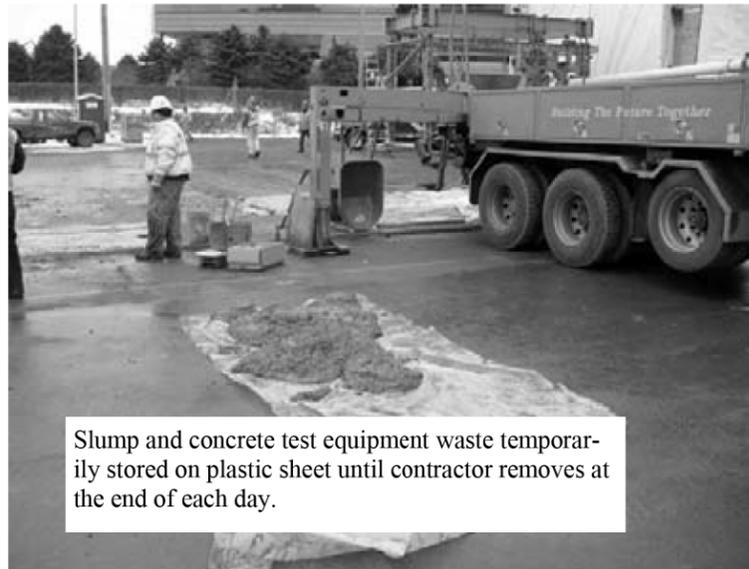


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CONCRETE WASHOUT DETAILS  
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**Option F: Small Volume**

Concrete shaping, forming, and inspection operations involving concrete test equipment, tools, and other small items including trowels, forms, wheelbarrows, boots, and gloves that require washout and/or cleaning will require special consideration of washout management. All items must be cleaned or washed in a manner consistent with the requirements described in this guidance document such that liquids and solids from the cleaning operations do not enter ground or surface waters of the state. This can be accomplished by washing items by any method described in this guidance document, or other Project Engineer accepted plan, and as amended in the SWPPP. Less than 0.5 gallons of liquid wash waste may be disposed on the grade. If wash liquid or solid material spills to the soil surface, remove at a frequency to prevent loss to ground or surface waters of the state, and clean by removal of contaminated soil areas to concrete washout trap areas and as amended to the SWPPP.



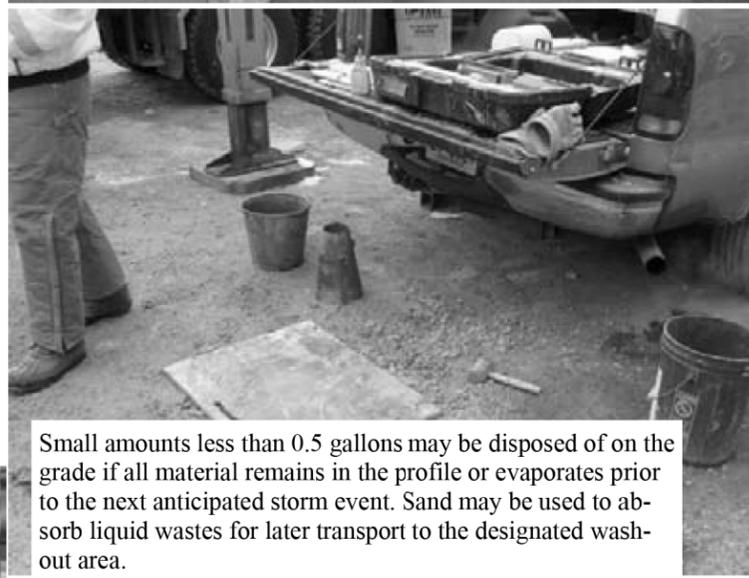
Slump and concrete test equipment waste temporarily stored on plastic sheet until contractor removes at the end of each day.



Small quantity concrete wash water into bermed plastic lined trap



Traditional designated washout areas can be used for rinse water until evaporation.



Small amounts less than 0.5 gallons may be disposed of on the grade if all material remains in the profile or evaporates prior to the next anticipated storm event. Sand may be used to absorb liquid wastes for later transport to the designated wash-out area.



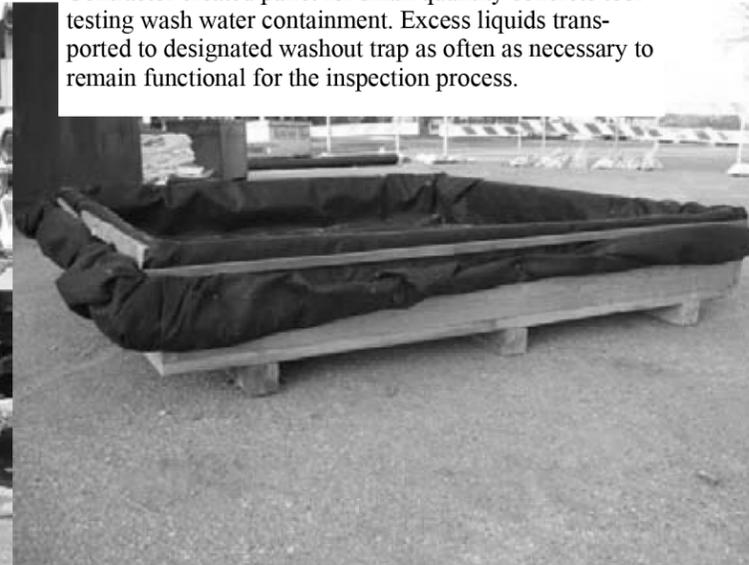
Contractor created pallet for small quantity concrete tool testing wash water containment. Excess liquids transported to designated washout trap as often as necessary to remain functional for the inspection process.



Small quantity wash water placed on grade where equipment washoff has been designated in the SWPPP, in areas to receive permanent pavements.



Temporary rinse buckets used during testing operations, with liquids transported back into the ready mix truck to batch plant



Concrete bucket washout and solids management placed in contractor developed containment box, maintained each day of ready mix operations.

NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\002-622-045 Concrete from Rum River thru CSAH 9\Plan\002622045\_147con.dgn 04/07/2025 2:56:36 PM

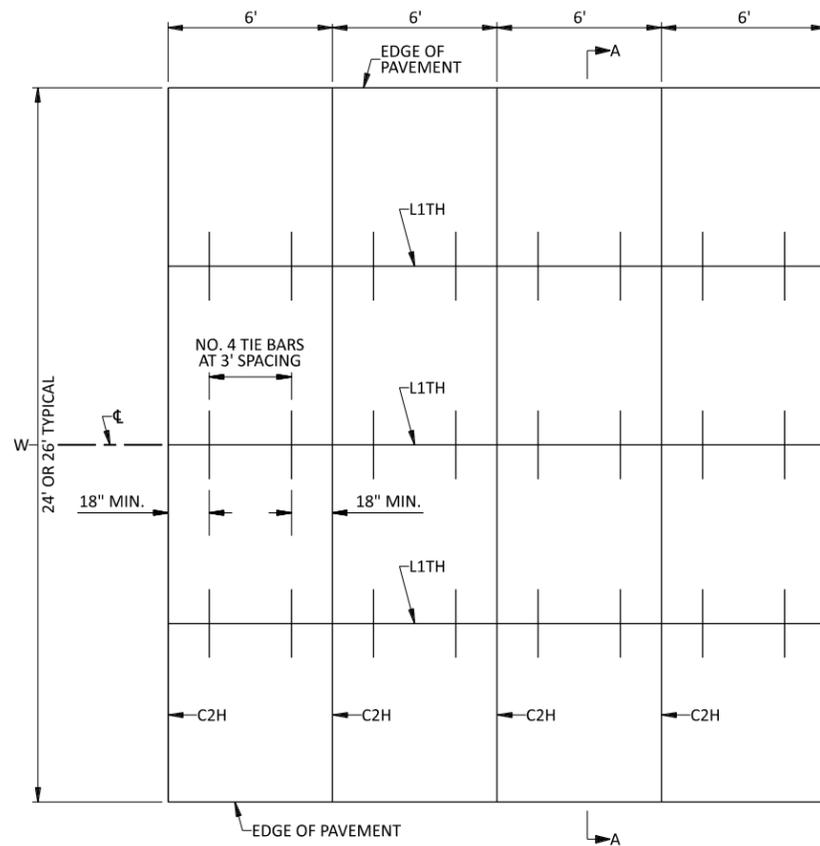
I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.  
 PRINT NAME: NICHOLAS J. DOBDA  
 SIGNATURE: *Nicholas J. Dobda*  
 DATE: 04/09/2025 LICENSE NO. 49046

DRAWN BY CA DATE 04/03/25  
 DESIGN BY MAP DATE 04/03/25  
 CHECKED BY NJD DATE 04/03/25

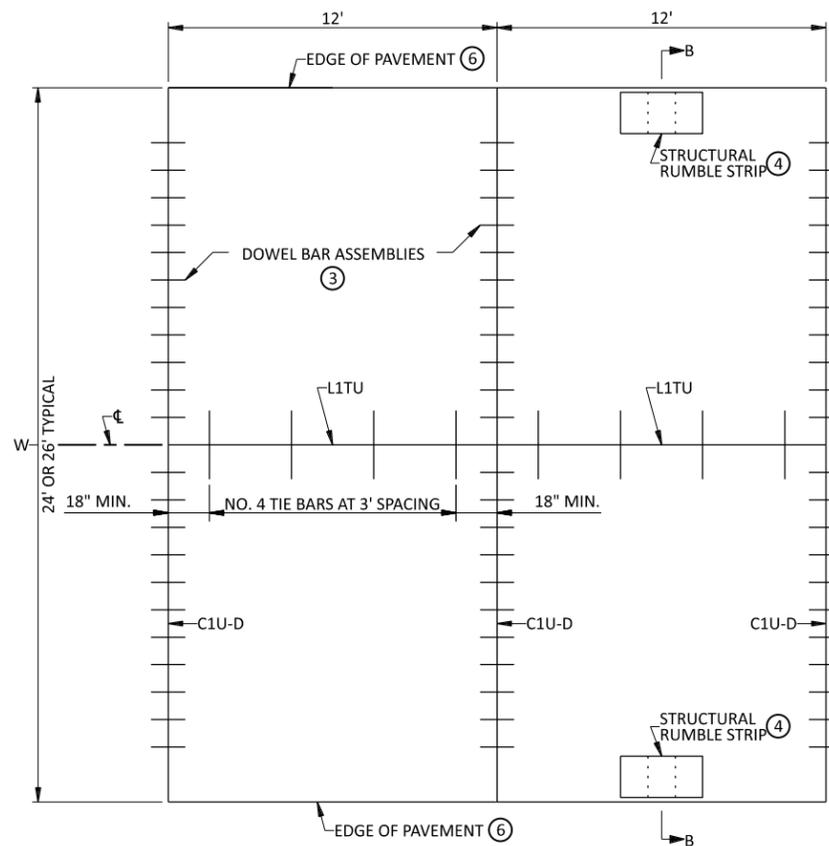
**ANOKA COUNTY  
 HIGHWAY DEPT.**

SAP 002-622-045  
 SAP 223-020-011

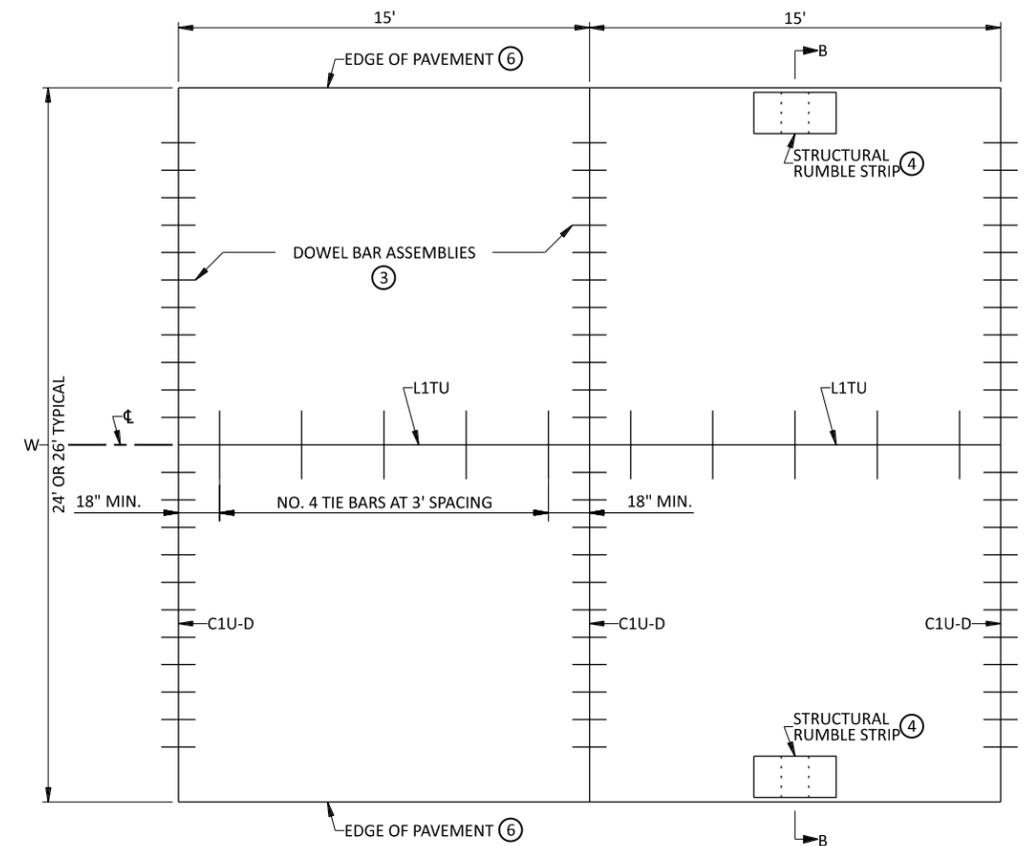
CONCRETE WASHOUT  
 DETAILS  
 Sheet 25 of 85 Sheets



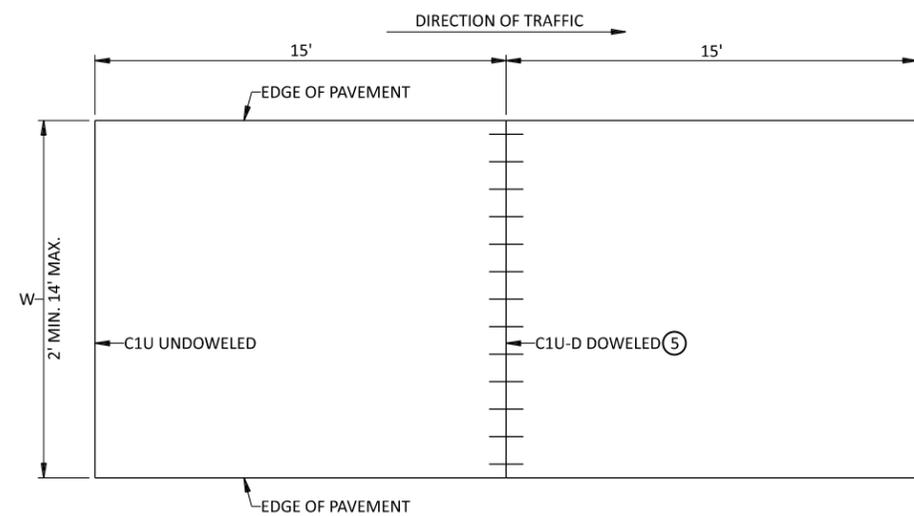
**MAINLINE PAVEMENT**  
UNDOWELED  
(PAVEMENT THICKNESS LESS THAN 7")



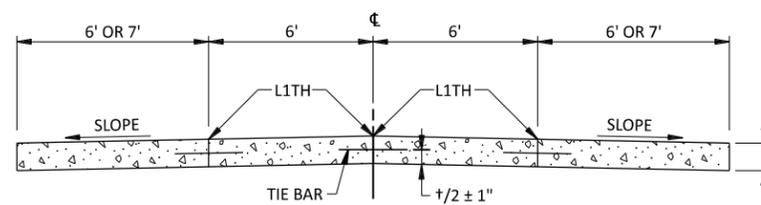
**MAINLINE PAVEMENT**  
DOWELED  
(PAVEMENT THICKNESS FROM 7" TO 7½")



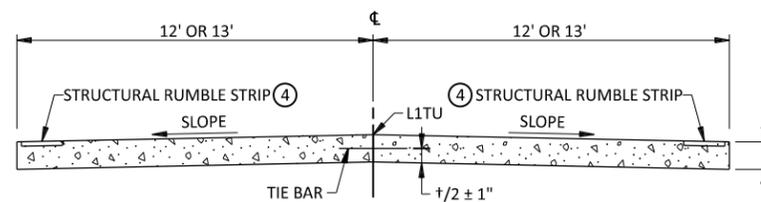
**MAINLINE PAVEMENT**  
DOWELED  
(PAVEMENT THICKNESS 8" AND GREATER)



**PAVEMENT 2' THRU 14' WIDTH**  
UNDOWELED OR DOWELED  
①②



**SECTION A-A**



**SECTION B-B**

**NOTES:**

- SEE TYPICAL SECTIONS AND PLAN SHEETS FOR CROSS SLOPES, LANE WIDTHS AND PAVEMENT THICKNESS.
- PROVIDE EPOXY COATED TIE BARS COMPLYING WITH SPEC. 3301.
- FOR SUPPLEMENTAL PAVEMENT REINFORCEMENT, SEE STANDARD PLATE 1070.
- FOR DOWEL BAR ASSEMBLIES, SEE STANDARD PLATE 1103.
- FOR SAFETY EDGE DETAILS, SEE STANDARD PLAN 5-297.220.
- FOR PAVEMENT JOINT DETAILS, SEE STANDARD PLAN 5-297.221.
- ① ADD A LONGITUDINAL JOINT DOWN THE MIDDLE OF THE LANE WHEN THE PAVING WIDTH IS GREATER THAN 14'.
- ② IN PAVEMENT TAPER AREAS 6' WIDE OR LESS, PLACE A NO. 4 REINFORCEMENT BAR 4" FROM AND ALONG EACH SIDE OF THE TAPERING PANEL.
- ③ PROVIDE 11 DOWEL BARS PER BASKET FOR NEW/RECONSTRUCTED PAVEMENTS. PROVIDE 8 WHEEL PATH DOWEL BARS PER BASKET FOR CONCRETE OVERLAYS.
- ④ SEE PLANS FOR RUMBLE STRIP DETAILS. CONSTRUCT STRUCTURAL RUMBLE STRIPS (INCIDENTAL) IN THE PLASTIC CONCRETE WHERE THE PAVEMENT WIDTH (W) IS GREATER THAN 24' AND THERE IS NO OUTSIDE CONCRETE SHOULDER ADDED.
- ⑤ PROVIDE DOWELS WHEN PAVEMENT WIDTH IS GREATER THAN OR EQUAL TO 4'.
- ⑥ PROVIDE AN L1TU OR L2TU JOINT WHEN ADDING OUTSIDE CONCRETE SHOULDER.

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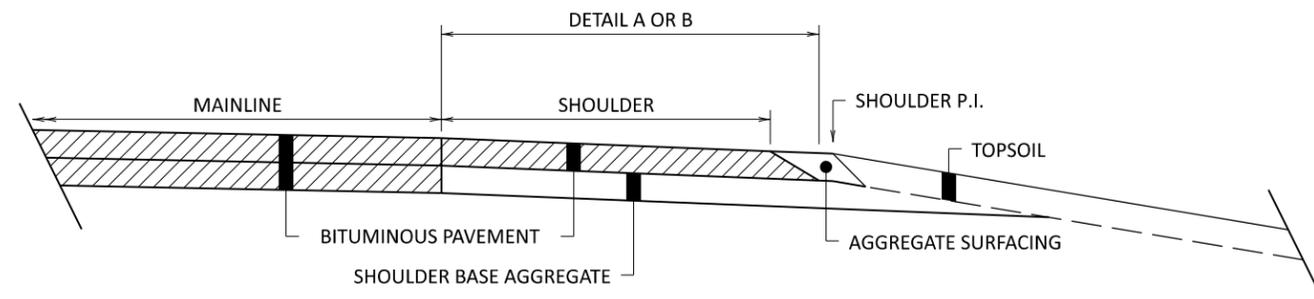
CONCRETE MAINLINE PAVEMENT  
TWO-LANE ROADWAY

APPROVED:  
01-30-2025

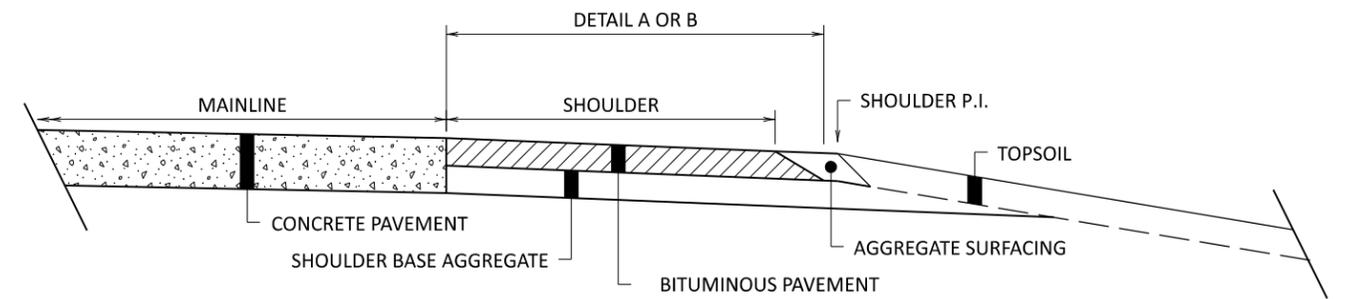
THOMAS STYRBICKI  
STATE DESIGN ENGINEER

STANDARD  
PLAN  
5-297.217

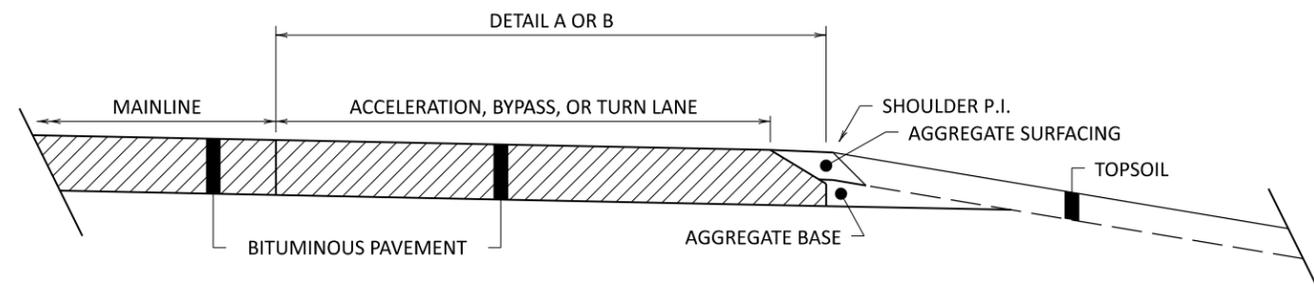
1 OF 2



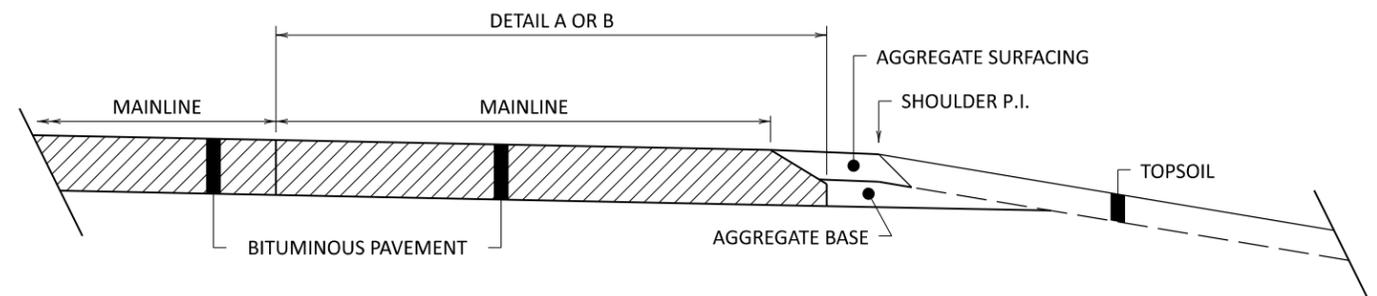
BITUMINOUS PAVEMENT WITH BITUMINOUS SHOULDERS (8' OR LESS)



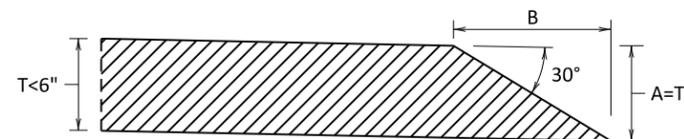
CONCRETE PAVEMENT WITH BITUMINOUS SHOULDERS (8' OR LESS)



BITUMINOUS PAVEMENT WITH ACCELERATION LANES, BYPASS LANES OR TURN LANES

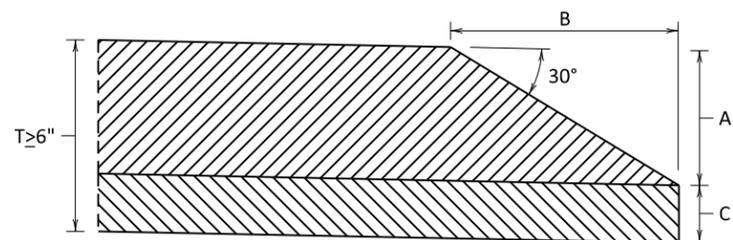


BITUMINOUS PAVEMENT WITH AGGREGATE SHOULDERING



DETAIL A  
PAVEMENT THICKNESS < 6"

FOR BITUMINOUS PAVEMENT THICKNESS < 6"	
PAVEMENT THICKNESS, T	B
2"	3.5"
3"	5.2"
4"	6.9"
5"	8.7"



DETAIL B  
PAVEMENT THICKNESS ≥ 6"

FOR BITUMINOUS PAVEMENT THICKNESS ≥ 6"			
PAVEMENT THICKNESS, T	A	B	C
6"	5"	8.7"	1"
8"	5"	8.7"	3"
10"	5"	8.7"	5"
12"	5"	8.7"	7"

NOTES:

CONSTRUCT THE SAFETY EDGE ALONG ALL BITUMINOUS PAVEMENT EDGES ADJACENT TO AGGREGATE SURFACING. THIS INCLUDES:

- MAINLINE ROADWAYS
- SHOULDERS 8' WIDE OR LESS
- RAMPS AND LOOPS
- ACCELERATION, BYPASS AND TURN TURN LANES

CONSTRUCT THE SAFETY EDGE USING A MANUFACTURED SHOE DEVICE ATTACHED TO THE PAVING MACHINE. A SINGLE-PLATE STRIKE-OFF METHOD IS NOT ALLOWED.

PROVIDE THE SAFETY EDGE ALONG THE ROADWAY THROUGH UNPAVED ENTRANCES SUCH AS FARM ACCESSES, UNPAVED DRIVEWAYS, AND GRAVEL ROAD ACCESSES. FOR PAVED PUBLIC ENTRANCES AND PAVED DRIVEWAYS, STOP THE SAFETY EDGE AND MATCH THE PROPOSED CONSTRUCTED PAVEMENT TO THE EXISTING CONDITIONS OR FOLLOW THE DESIGN PLANS. SHORT SECTIONS OF HANDWORK MAY BE NECESSARY FOR TRANSITIONS AND TURNOUTS.

SAFETY EDGE IS OPTIONAL FOR PAVED SHOULDER WIDTHS GREATER THAN 8'.

SEE TYPICAL SECTIONS FOR SAFETY EDGE PLACEMENT LOCATIONS.

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SAFETY EDGE

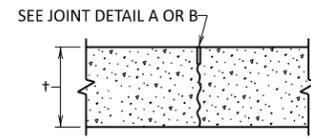
BITUMINOUS PAVEMENT

APPROVED: 02-21-2024  
REVISED: \_\_\_\_\_

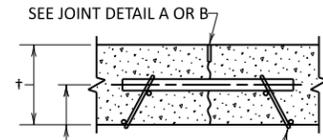
THOMAS STYRBICKI  
STATE DESIGN ENGINEER

STANDARD PLAN  
5-297.220

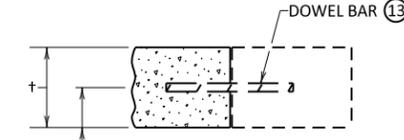
2 OF 2



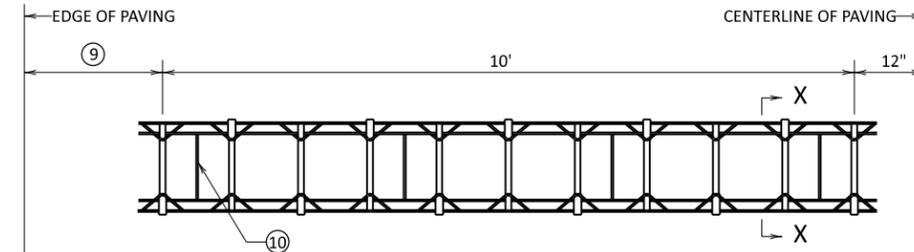
C1U & C2H



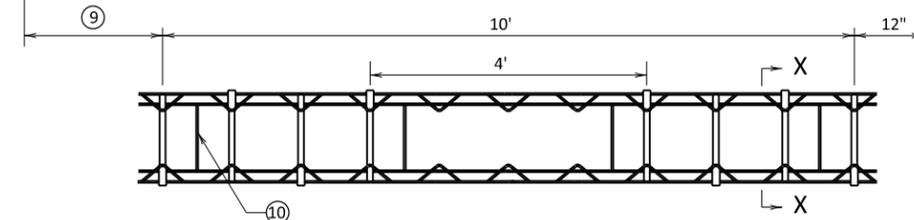
C1U-D & C2H-D (8)



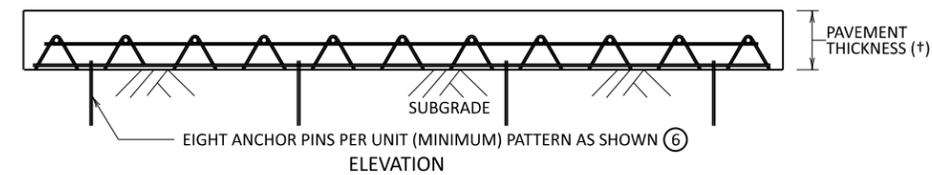
DRILL AND GROUT DOWEL BAR DETAIL (12)



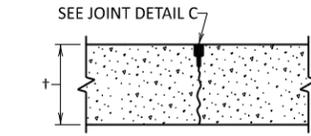
PLAN VIEW ELEVEN DOWEL BASKET (SPACED AT 12")



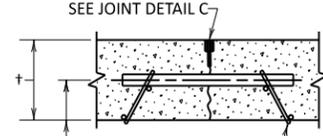
PLAN VIEW EIGHT DOWEL BASKET (WHEEL PATH DOWELS SPACED AT 12")



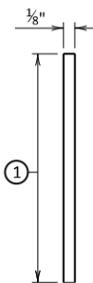
CONTRACTION JOINT DOWEL BAR ASSEMBLIES FOR 12' LANES OR GREATER (11)



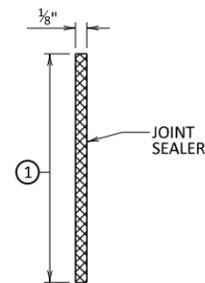
C3P



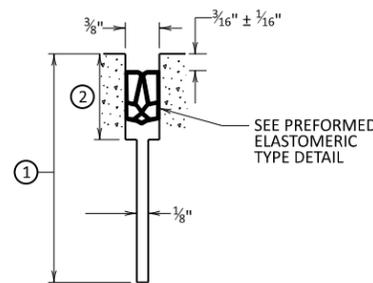
C3P-D (8)



JOINT DETAIL A (3)(5) SAWED & UNSEALED

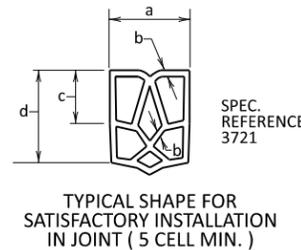


JOINT DETAIL B (3)(4)(5) SAWED & SEALED



JOINT DETAIL C (3)(4)(5) SAWED AND SEALED

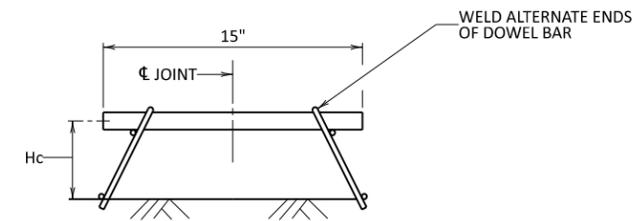
REQUIRED DIMENSIONS (2)	
JOINT TYPE	TRANSVERSE
NOMINAL SEALER SIZE	1 1/16" USE IN ALL 3/8" JOINTS
a	0.69" + 0.13" - 0.05"
b	0.08" ± 0.02"
c	0.25" MIN.
d	0.63" MIN.



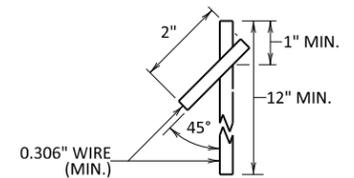
TYPICAL SHAPE FOR SATISFACTORY INSTALLATION IN JOINT (5 CELL MIN.)

PREFORMED ELASTOMERIC TYPE DETAIL (2)

DOWEL BAR TABLE		
† PAVEMENT THICKNESS (INCHES)	DOWEL BAR DIAMETER (INCHES)	Hc HEIGHT TO CENTER OF DOWEL BAR (INCHES)
7 - 7 1/2	1	3
8 - 10	1 1/4	4
≥ 10 1/2	1 1/2	5



SECTION X-X (8)



ANCHOR PIN (7)

CONTRACTION JOINT REFERENCE, DETAIL & SEALER SPEC. TABLE				
JOINT REFERENCE		JOINT DETAIL	JOINT SEALER SPEC.	JOINT WIDTH
WITHOUT DOWELS	WITH DOWELS			
C1U	C1U-D	A	UNSEALED	3/8"
C2H	C2H-D	B	3725	3/8"
C3P	C3P-D	C	3721	3/8"

LEGEND		EXAMPLE	
C = CONTRACTION JOINT		C2H-D	
NO. = JOINT REFERENCE			
U = UNSEALED			
H = HOT Poured			
P = PREFORMED			
D = DOWEL BARS			

NOTES:

SEE STANDARD PLATE 1103 FOR DOWEL BAR ASSEMBLY.

FURNISH AND INSTALL ALL JOINT SEALER IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.

SEE STANDARD PLANS 5-297.217 AND 5-297.219 FOR CONCRETE MAINLINE/RAMP PAVEMENT.

SEE PAVING LAYOUTS IN THE PLANS FOR JOINT CLASS DESIGNATION TO USE AND SPECIAL REINFORCEMENT REQUIREMENTS.

- (1) JOINT DEPTH AND TOLERANCE:  $\pm 3 \pm 1/4"$ .
- (2) JOINT TO FIT THE JOINT DESIGN WIDTH. "a" DIMENSION APPLIES AT ANY POINT THROUGHOUT "c" DEPTH. SHARP CORNERS NOT PERMITTED. PROVIDE CORNERS WITH SUITABLE FILLET.
- (3) WHEN WET-CUT SAWING, CLEAN JOINT FACES WITH WATER DURING THE SAW CUTTING OPERATION OR BY WATER BLASTING AFTER SAWING. WHEN EARLY-ENTRY SAWING, USE AIR BLASTING TO REMOVE SAWING RESIDUE.

- (4) CLEAN AND DRY JOINT FACES BY SANDBLASTING AND AIR BLASTING. TOP OF JOINT SEALER 3725 FLUSH TO 1/8" BELOW TOP OF PAVEMENT SURFACE.
- (5) JOINT WIDTH TOLERANCE IS  $+1/16"$  TO  $-1/32"$ .
- (6) EVENLY SPACE A MINIMUM OF EIGHT ANCHOR PINS (FOUR PER SIDE) PER DOWEL ASSEMBLY. PROVIDE QUALITY CONTROL PLAN FOR ANCHORING THE DOWEL BAR ASSEMBLIES TO THE ENGINEER FOR ACCEPTANCE IN ACCORDANCE WITH SPEC. 2301.
- (7) ANCHOR PIN REQUIREMENTS FOR CONCRETE PAVEMENT ON GRADE CONSTRUCTION. FOR CONCRETE OVERLAYS, ANCHOR PIN REQUIREMENT AS APPROVED BY THE ENGINEER.
- (8) TOLERANCES:
  - PLACE DOWEL BARS PARALLEL TO THE SUBSTRATE SURFACE,  $\pm 1/8"$  IN 15".
  - PLACE DOWEL BARS PARALLEL TO THE CENTERLINE OF THE PAVEMENT,  $\pm 1/4"$  IN 15".
  - SAW CONTRACTION JOINTS PERPENDICULAR TO THE CENTERLINE OF THE PAVEMENT AND CENTERED ON THE DOWEL BAR,  $\pm 3"$ .
  - HEIGHT (Hc) TO CENTER OF DOWEL BAR:  $\pm 1/2"$ .

- (9) DISTANCE TO EDGE OF PAVEMENT FROM OUTSIDE DOWEL:
  - 3' 0" FOR 14' 0" LANE.
  - 2' 6" FOR 13' 6" LANE.
  - 2' 0" FOR 13' 0" LANE.
  - 1' 0" FOR 12' 0" LANE.
- (10) CONTRACTOR OPTION TO CUT AND BEND SPACER WIRES AFTER STAKING.
- (11) REMOVE ONE DOWEL BAR PER FOOT OF LANE WIDTH REDUCTION LESS THAN 12'.
- (12) DRILL THE HOLE 1/8" WIDER THAN THE NOMINAL OUTSIDE DIAMETER OF THE BAR TO A DEPTH OF 9". INJECT A MnDOT-APPROVED EPOXY OR NON-SHRINK GROUT IN THE BACK OF THE DRILL HOLE IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.
- (13) PROVIDE DOWEL BAR, 18" LONG, SPACED AT 12" ON CENTER.

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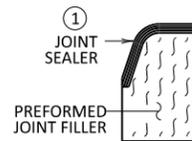
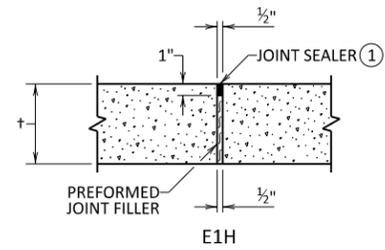
PAVEMENT JOINTS  
CONTRACTION (DESIGN C)

APPROVED:  
01-30-2025

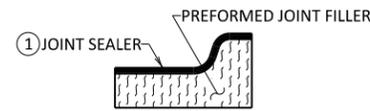
THOMAS STYRBICKI  
STATE DESIGN ENGINEER

STANDARD PLAN  
5-297.221

1 OF 5



SECTION THRU CURB



SECTION THRU CURB

EXPANSION JOINT REFERENCE, DETAIL & SEALER SPEC. TABLE			
JOINT REFERENCE	PREFORMED JOINT FILLER SPEC.	JOINT SEALER SPEC.	JOINT WIDTH
WITHOUT DOWELS			
E1H	3702	3725	1/2"

LEGEND	EXAMPLE
E = EXPANSION JOINT	E1H-D
NO. = JOINT REFERENCE	
H = HOT POURED	
-D = DOWEL BARS	

NOTES:

PROVIDE PREFORMED JOINT FILLER MATERIAL IN ACCORDANCE WITH SPEC. 3702.

FURNISH AND INSTALL ALL JOINT SEALER IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.

① JOINT SEALER SPEC. 3725. CLEAN AND DRY JOINT FACES BY SANDBLASTING AND AIR BLASTING. TOP OF SEALER FLUSH TO 1/8" BELOW TOP OF PAVEMENT SURFACE.

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OFFICE

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DIRECTOR  
OFFICE OF MATERIALS  
& ROAD RESEARCH

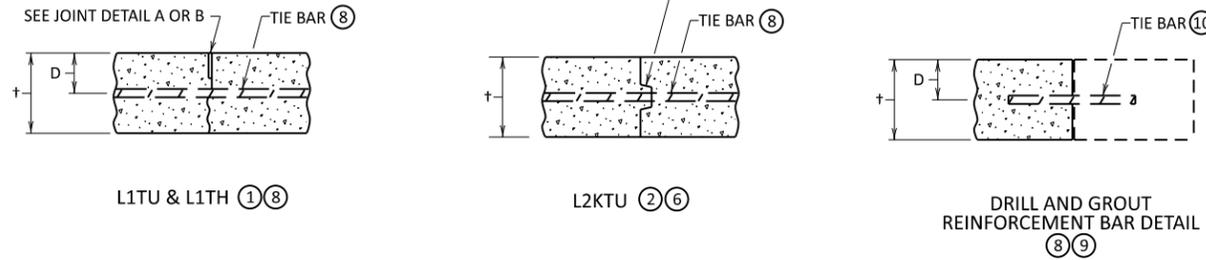
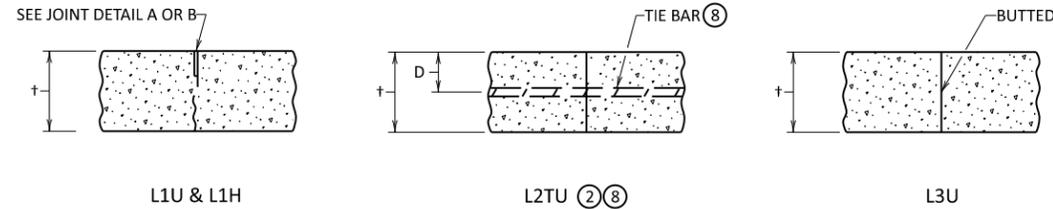
PAVEMENT JOINTS  
EXPANSION (DESIGN E)

APPROVED:  
01-30-2025

THOMAS STYRBICKI  
STATE DESIGN ENGINEER

STANDARD  
PLAN  
5-297.221

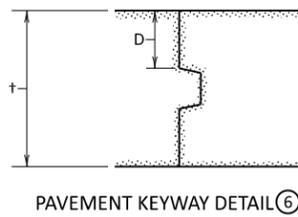
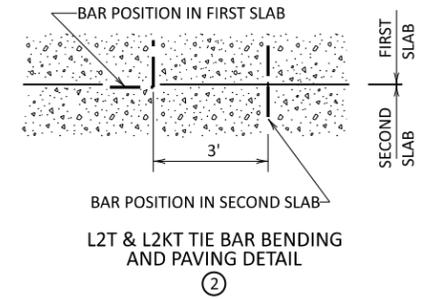
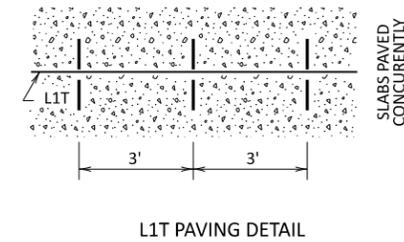
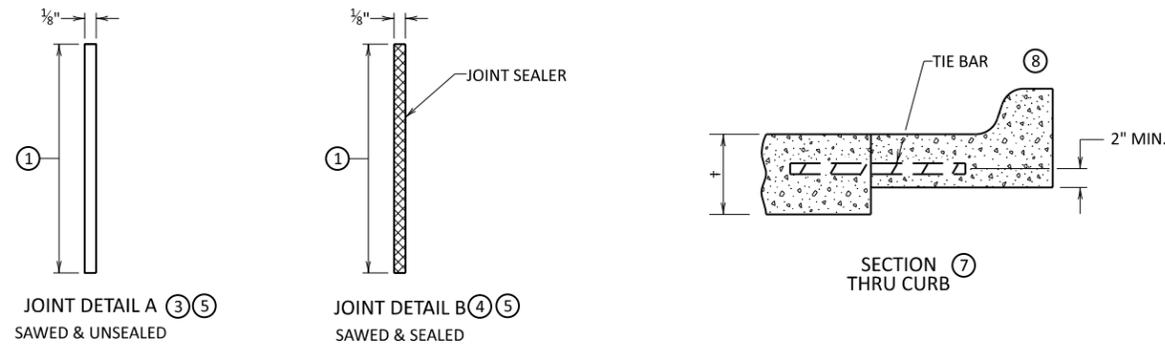
2 OF 5



LONGITUDINAL JOINT REFERENCE, DETAIL & SEALER SPECIFICATION TABLE					
JOINT REFERENCE			JOINT DETAIL	JOINT SEALER SPEC	JOINT WIDTH
WITHOUT TIE BARS	WITH TIE BARS	WITH KEYWAY & TIE BARS			
L1U	L1TU		A	UNSEALED	1/8"
L1H	L1TH		B	3725	1/8"
	L2TU	L2KTU	NONE	UNSEALED	
L3U			NONE	UNSEALED	

LEGEND		EXAMPLE	
L	= LONGITUDINAL JOINT		L2KTU
NO.	= JOINT REFERENCE		
1	= PAVED CONSTRUCTION JOINT		
2	= TIED CONSTRUCTION JOINT		
3	= BUTTED CONSTRUCTION JOINT		
K	= KEYWAY		
T	= TIE BARS		
U	= UNSEALED		
H	= HOT Poured		



FIXED FORM KEYWAY TABLE (6)	
† PAVEMENT THICKNESS	D (MINIMUM DEPTH)
< 7"	2 1/2"
7" TO 7 1/2"	3"
8" TO 9 1/2"	4"
≥ 10"	5"

SLIPFORM KEYWAY TABLE (6)	
† PAVEMENT THICKNESS	D (MINIMUM DEPTH)
< 10"	NO KEYWAY
≥ 10"	5"

**NOTES:**

- PROVIDE EPOXY-COATED TIE BARS COMPLYING WITH SPEC. 3301.
- FURNISH AND INSTALL ALL JOINT SEALER IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.
- SEE STANDARD PLANS 5-297.217 AND 5-297.219 FOR CONCRETE MAINLINE AND RAMP PAVEMENT.
- SEE PAVING LAYOUTS IN THE PLANS FOR JOINT CLASS DESIGNATION TO USE AND SPECIAL REINFORCEMENT REQUIRED.
- FOR LONGITUDINAL JOINTS SAWED WIDER THAN 1/8", CONTACT THE CONCRETE UNIT FOR SEALING RECOMMENDATIONS.
- (1) JOINT DEPTH AND TOLERANCE:  $\pm 3 \pm 1/4"$ .
- (2) BEND TIE BARS 90 DEGREES WHEN INSERTED IN THE L2 JOINTS, EXCEPT WHEN NOTED OTHERWISE IN THE PLANS.
- (3) CLEAN JOINT FACES WITH WATER DURING THE SAW CUTTING OPERATION OR BY WATER BLASTING AFTER SAWING.
- (4) CLEAN AND DRY JOINT FACES BY SANDBLASTING AND AIR BLASTING WHEN SEALING IS REQUIRED.
- (5) JOINT WIDTH TOLERANCE IS  $+1/16"$  TO  $-1/32"$ .
- (6) CONTRACTOR'S OPTION TO USE KEYWAY WHEN:
  - PLACING FIXED FORM CONSTRUCTION.
  - PLACING SLIPFORM CONSTRUCTION WHEN  $\pm \geq 10"$ .
 USE OF KEYWAY FOR ANY OTHER APPLICATION REQUIRES APPROVAL BY THE ENGINEER. OTHER KEYWAY SHAPES MAY BE USED WITH THE APPROVAL OF THE CONCRETE ENGINEER.
- (7) WHEN CURB AND GUTTER IS NOT CONSTRUCTED AT THE SAME DEPTH AS ADJACENT CONCRETE, PLACE TIE BAR A MINIMUM OF 2" ABOVE THE CURB AND GUTTER GRADE.
- (8) PROVIDE NO. 4 TIE BAR, 30" LONG, SPACED AT 3' ON CENTER AT A DEPTH (D) BETWEEN  $t/2$  AND  $t/2$  PLUS 1".
- (9) DRILL THE HOLE 1/8" WIDER THAN THE NOMINAL OUTSIDE DIAMETER OF THE REINFORCEMENT BAR TO A DEPTH OF 9". INJECT A MnDOT-APPROVED EPOXY OR NON-SHRINK GROUT IN THE BACK OF THE DRILL HOLE IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.
- (10) PROVIDE NO. 4 TIE BAR, 18" LONG, SPACED AT 3' ON CENTER AT A DEPTH (D) BETWEEN  $t/2$  AND  $t/2$  PLUS 1".

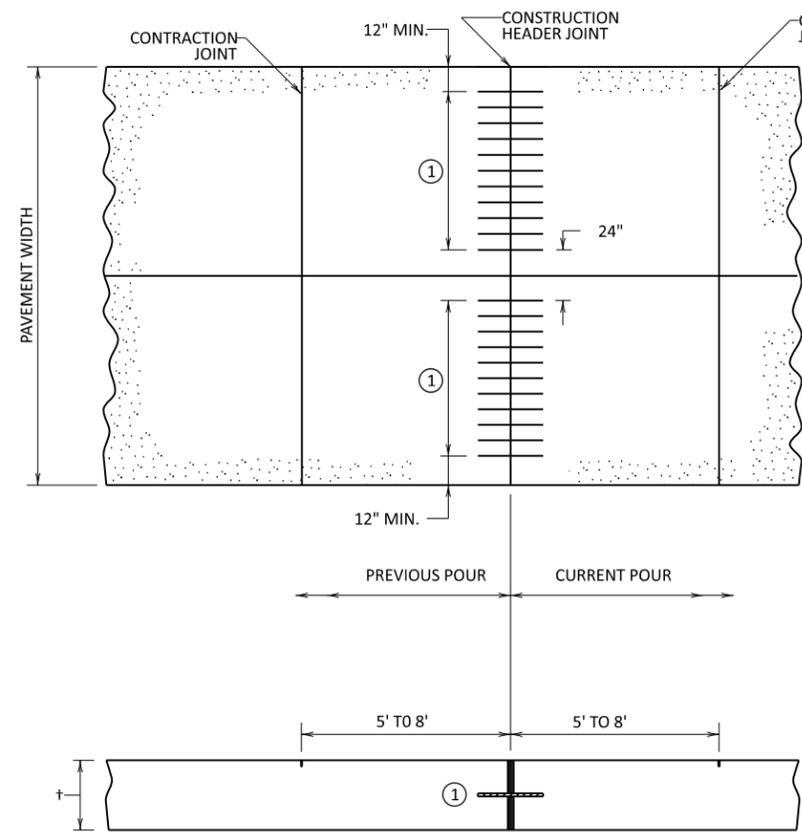
LEAD EXPERT OFFICE  
 CURT TURGEON  
 DIRECTOR  
 OFFICE OF MATERIALS & ROAD RESEARCH

PAVEMENT JOINTS  
 LONGITUDINAL (DESIGN L)

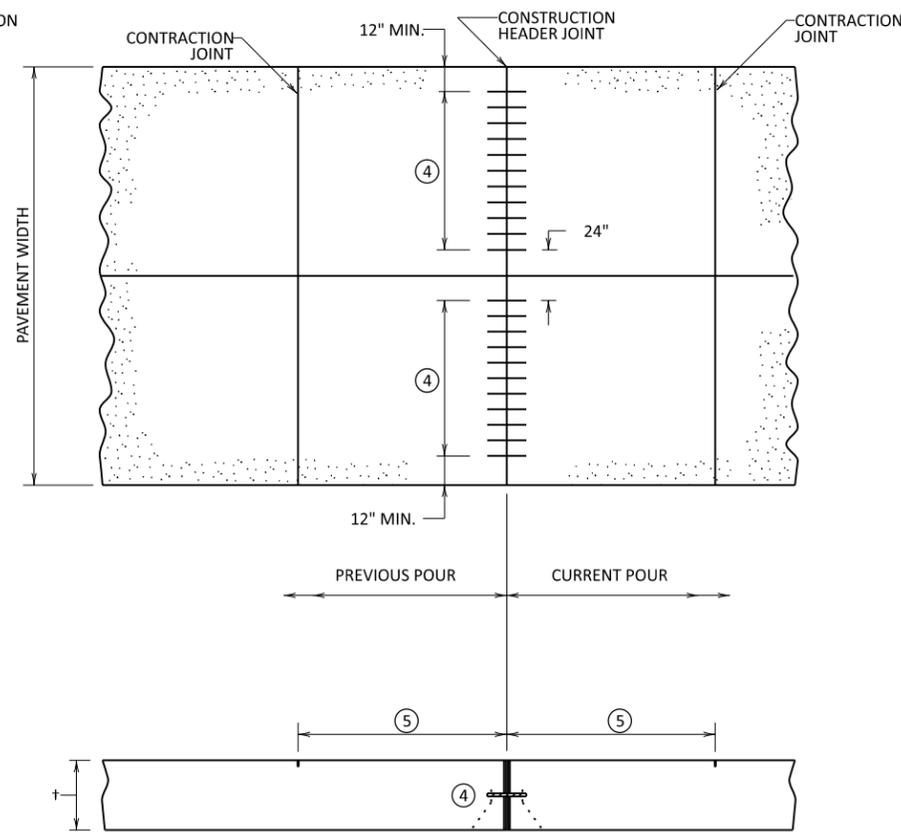
APPROVED:  
 01-30-2025

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 STATE DESIGN ENGINEER

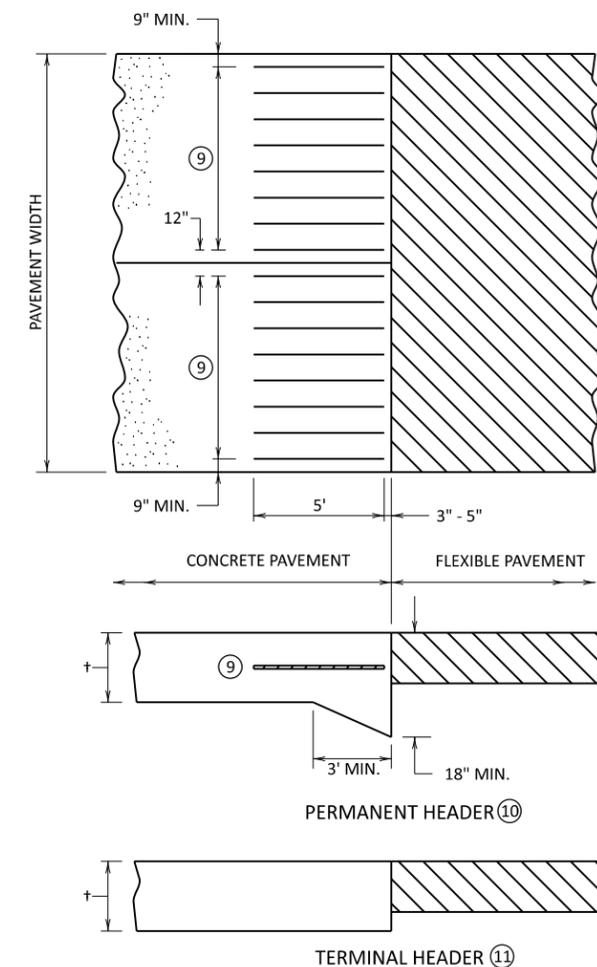
STANDARD PLAN  
 5-297.221



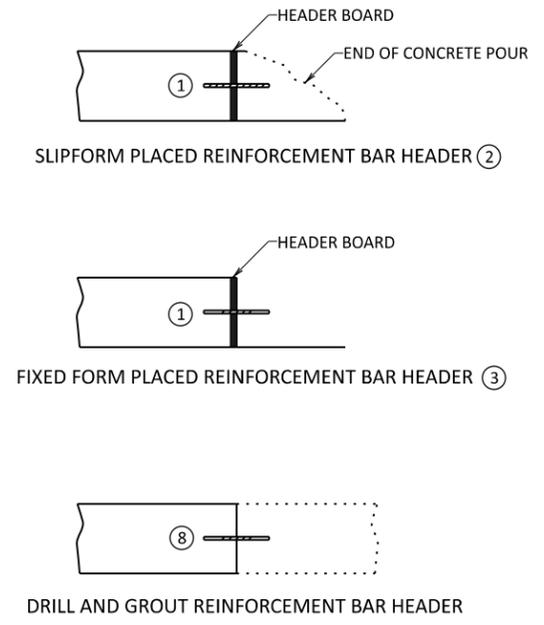
REINFORCEMENT BAR CONSTRUCTION HEADERS



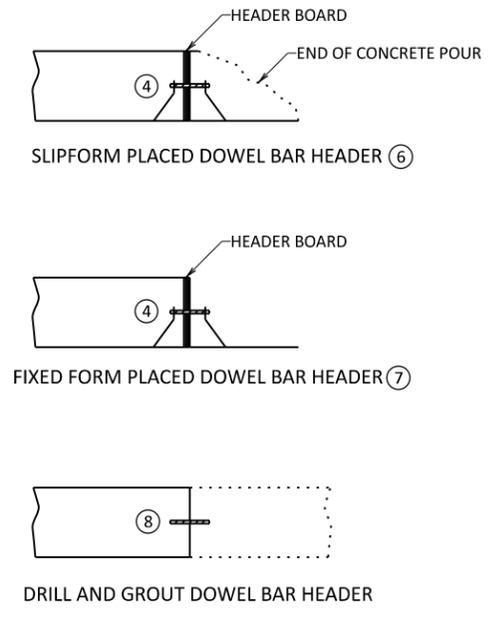
DOWEL BAR CONSTRUCTION HEADERS



PERMANENT HEADER ⑩  
TERMINAL HEADER ⑪



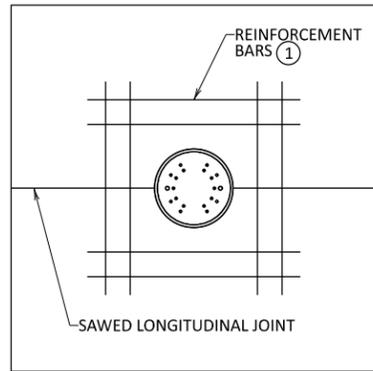
SLIPFORM PLACED REINFORCEMENT BAR HEADER ②  
FIXED FORM PLACED REINFORCEMENT BAR HEADER ③  
DRILL AND GROUT REINFORCEMENT BAR HEADER



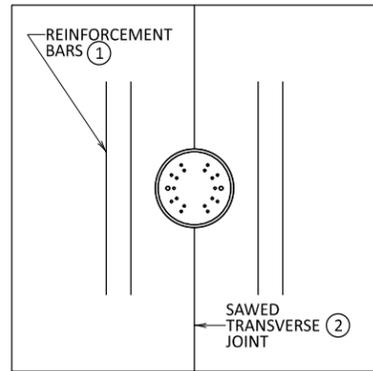
SLIPFORM PLACED DOWEL BAR HEADER ⑥  
FIXED FORM PLACED DOWEL BAR HEADER ⑦  
DRILL AND GROUT DOWEL BAR HEADER

NOTES:

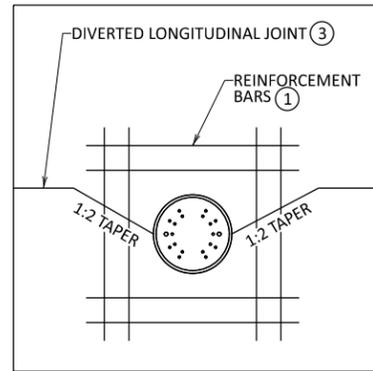
- PROVIDE EPOXY-COATED TIE BARS COMPLYING WITH SPEC. 3301.
- ① PROVIDE NO. 4 REINFORCEMENT BARS, 30" LONG, SPREAD 12" ON CENTER AT DEPTH OF  $\frac{1}{2} \pm 1"$ .
- ② PAVE PAST THE HEADER LOCATION. REMOVE END OF CONCRETE POUR. SET HEADER BOARD SHAPED TO PAVEMENT CROSS SECTION AND SLOTTED OR DRILLED FOR REINFORCEMENT BARS. INSERT THE REINFORCEMENT BARS AND FINISH THE CONCRETE BEHIND THE BOARD.
- ③ SET HEADER BOARD SHAPED TO PAVEMENT CROSS SECTION AND SLOTTED OR DRILLED FOR REINFORCEMENT BARS. PLACE THE CONCRETE BEHIND THE BOARD AND INSERT THE REINFORCEMENT BARS. CONSOLIDATE AND FINISH THE CONCRETE BEHIND THE HEADER BOARD.
- ④ PROVIDE DOWEL BARS IN ACCORDANCE WITH SPEC. 3302 AND THE CONTRACT.
- ⑤ DISTANCE EQUAL TO OR LESS THAN THE DESIGNED CONTRACTION JOINT SPACING IN ACCORDANCE WITH THE CONTRACT.
- ⑥ PLACE DOWEL BAR BASKET AT DESIRED HEADER LOCATION. SET HEADER BOARD SHAPED TO PAVEMENT CROSS SECTION ABOVE AND BELOW THE DOWELS. PAVE PAST THE HEADER LOCATION AND FINISH CONCRETE BEHIND THE HEADER BOARD. THOROUGHLY REMOVE ALL CONCRETE FROM THE EXPOSED DOWELS.
- ⑦ PLACE DOWEL BAR BASKET AT DESIRED HEADER LOCATION. SET HEADER BOARD SHAPED TO PAVEMENT CROSS SECTION ABOVE AND BELOW THE DOWELS. PLACE, CONSOLIDATE, AND FINISH THE CONCRETE BEHIND THE HEADER BOARD.
- ⑧ DRILL AND GROUT 18" LONG DOWEL OR REINFORCEMENT BARS SPACED AT 12" ON CENTER AT A DEPTH OF  $\frac{1}{2} \pm 1"$ . DRILL THE HOLE  $\frac{1}{8}"$  GREATER THAN THE NOMINAL OUTSIDE DIAMETER OF THE BAR BEING PLACED TO A DEPTH OF 9". INJECT A MnDOT-APPROVED EPOXY OR NON-SHRINK GROUT IN THE BACK OF THE DRILL HOLE IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.  
- FOR DOWEL BAR HEADERS, USE DOWEL BARS HAVING A DIAMETER IN ACCORDANCE WITH SPEC. 3302 AND THE CONTRACT.  
- FOR REINFORCEMENT BAR HEADERS, USE NO. 4 REINFORCEMENT BARS.
- ⑨ PROVIDE NO. 7 REINFORCEMENT BARS, 5' LONG, SPACED 18" ON CENTER AT DEPTH OF  $\frac{1}{2} \pm 1"$ .
- ⑩ USE PERMANENT HEADER WHEN LONG SECTIONS OF CONCRETE (400' OR GREATER) ABUT BITUMINOUS. CONTACT THE CONCRETE UNIT WHEN FUTURE CONCRETE IS BEING CONSTRUCTED ADJACENT TO AN EXISTING PERMANENT HEADER.
- ⑪ USE TERMINAL HEADER WHEN SHORT SECTIONS OF CONCRETE (LESS THAN 400') ABUT BITUMINOUS (ON SIDE STREETS, FOR EXAMPLE).



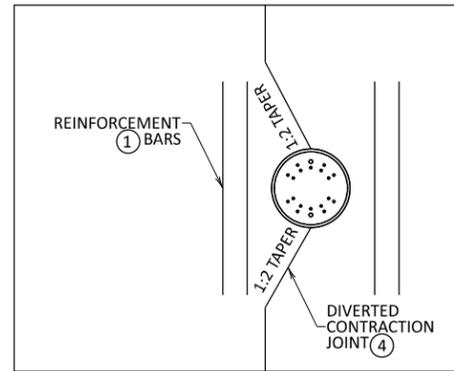
MANHOLE WITH LONGITUDINAL JOINT



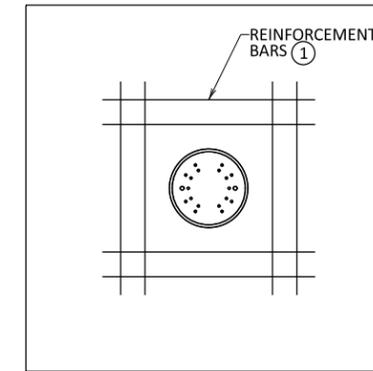
MANHOLE WITH CONTRACTION JOINT



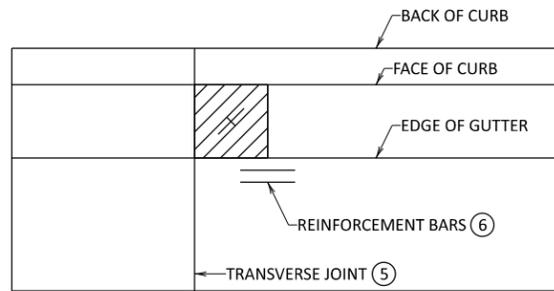
MANHOLE WITH DIVERTED LONGITUDINAL JOINT



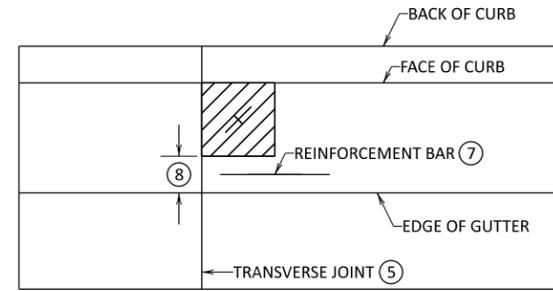
MANHOLE WITH DIVERTED CONTRACTION JOINT



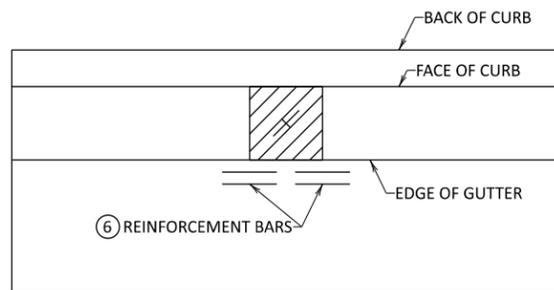
MANHOLE WITH NO JOINTS



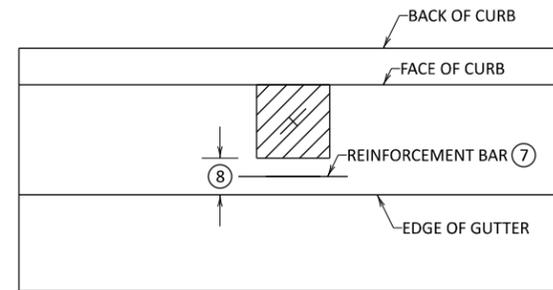
INLET WITH CONTRACTION JOINT



INLET WITH CONTRACTION JOINT (GUTTER WIDTHS GREATER THAN 24 ")



INLET WITHOUT CONTRACTION JOINT



INLET WITHOUT CONTRACTION JOINT (GUTTER WIDTHS GREATER THAN 24 ")

- NOTES:
- PROVIDE EPOXY-COATED REINFORCEMENT BARS COMPLYING WITH SPEC. 3301.
- DO NOT FORM "BOX-OUTS" OF CASTINGS UNLESS APPROVED BY THE ENGINEER.
- ① PLACE NO. 4 REINFORCEMENT BARS AT 8" AND 16" FROM THE EDGE OF THE MANHOLE. PLACE REINFORCEMENT BARS ON CHAIRS AT A DEPTH OF  $1/2 \pm 1/4$ ".
  - ② ADJUST TRANSVERSE JOINT TO INTERSECT MANHOLE WHERE POSSIBLE.
  - ③ IF DISTANCE BETWEEN THE LONGITUDINAL JOINT AND THE EDGE OF MANHOLE IS 2' OR LESS, DIVERT THE LONGITUDINAL JOINT AT A 2:1 TAPER RATE TO THE CENTER OF THE MANHOLE. IF THE DISTANCE IS GREATER THAN 2', DO NOT DIVERT THE JOINT AND SAW AS NORMAL. PLACE REINFORCEMENT BARS AROUND THE MANHOLE.
  - ④ IF THE DISTANCE FROM THE EDGE OF THE MANHOLE TO THE CONTRACTION JOINT IS LESS THAN 4', DIVERT THE CONTRACTION JOINT AT A 2:1 TAPER TO THE CENTER OF THE MANHOLE. DO NOT DOWEL THE TAPER. IF THE DISTANCE IS 4' OR GREATER, DO NOT DIVERT THE JOINT. WHENEVER POSSIBLE, MOVING THE CONTRACTION JOINT TO A DISTANCE 4' OR GREATER IS PREFERRED OVER DIVERTING THE JOINT.
  - ⑤ ALIGN TRANSVERSE JOINT WITH ONE EDGE OF INLET WHERE PRACTICAL.
  - ⑥ PLACE TWO NO. 4 x 18" REINFORCEMENT BARS SPACED 4" AND 10" FROM LONGITUDINAL JOINT.
  - ⑦ PLACE NO. 4 x 36" REINFORCEMENT BAR BETWEEN INLET AND EDGE OF GUTTER.
  - ⑧ FILL IN ANY GAP THAT IS 1" OR LESS USING BACKER ROD AND HOT POUR.

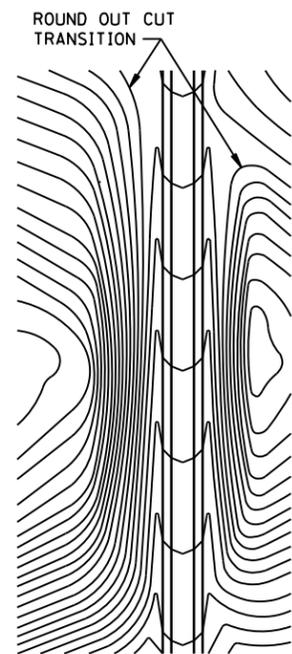
LEAD EXPERT OFFICE  
 CURT TURGEON  
 DIRECTOR  
 OFFICE OF MATERIALS  
 & ROAD RESEARCH

PAVEMENT JOINTS  
 UTILITY FIXTURES

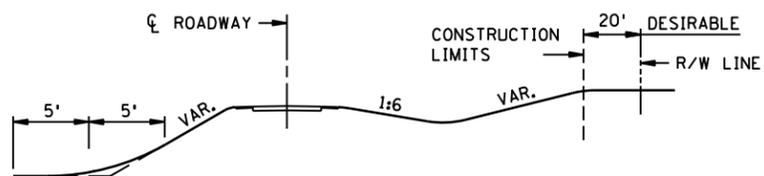
APPROVED:  
 01-30-2025

THOMAS STYRBICKI  
 STATE DESIGN ENGINEER

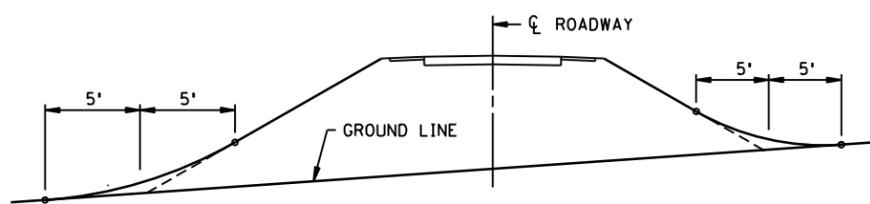
STANDARD PLAN  
 5-297.221



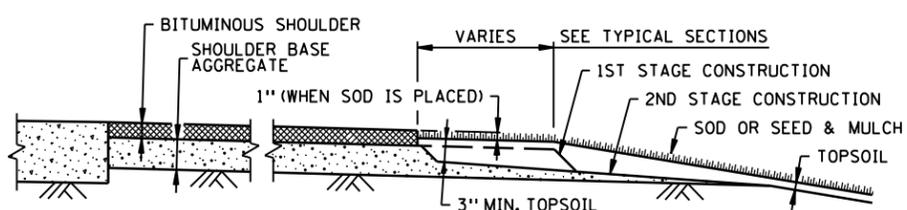
CONTOURING ROAD CUTS



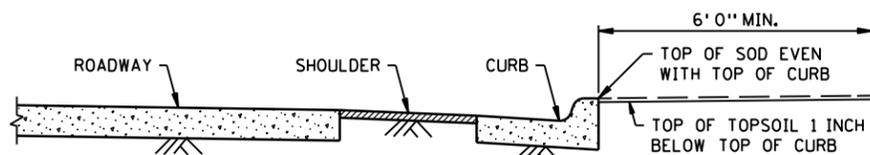
ROUNDING SHOULDERS AND BACKSLOPES



SHAPING FOR DRAINAGE ALONG THE TOE OF FILL SLOPES

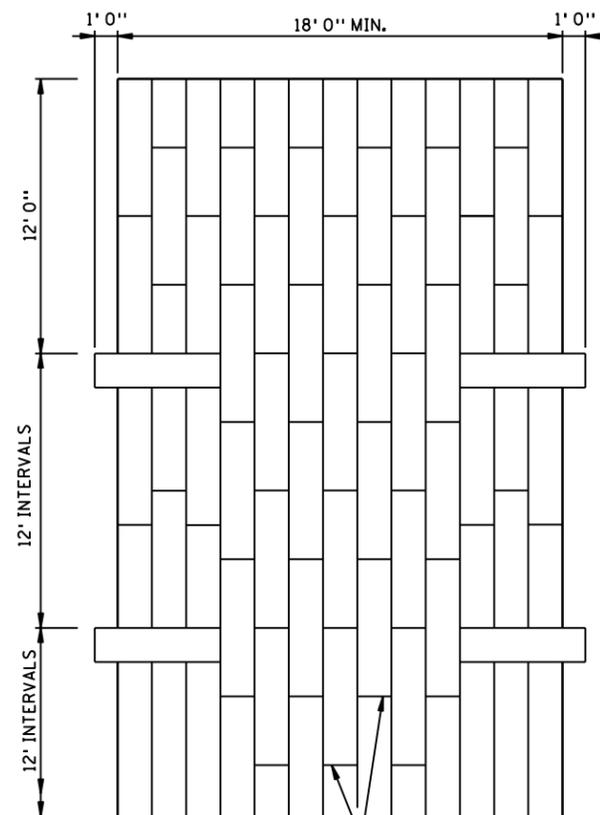


SHAPING AND TOPSOILING INSLOPES

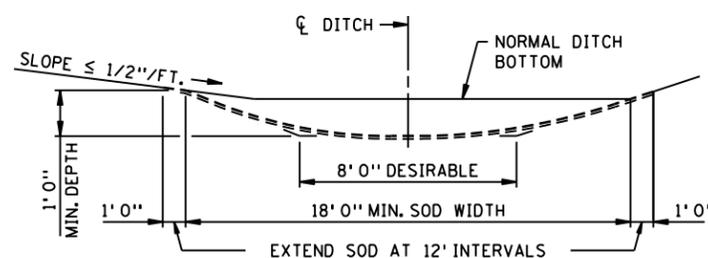


SHAPING ADJACENT TO CURBS WHEN SOD IS PLACED

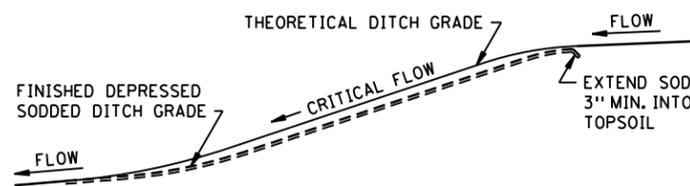
**NOTES:**  
 SEE SPEC. 2575.3 FOR ADDITIONAL INFORMATION.  
 ① CONSTRUCT TAPER AS DIRECTED BY THE ENGINEER.



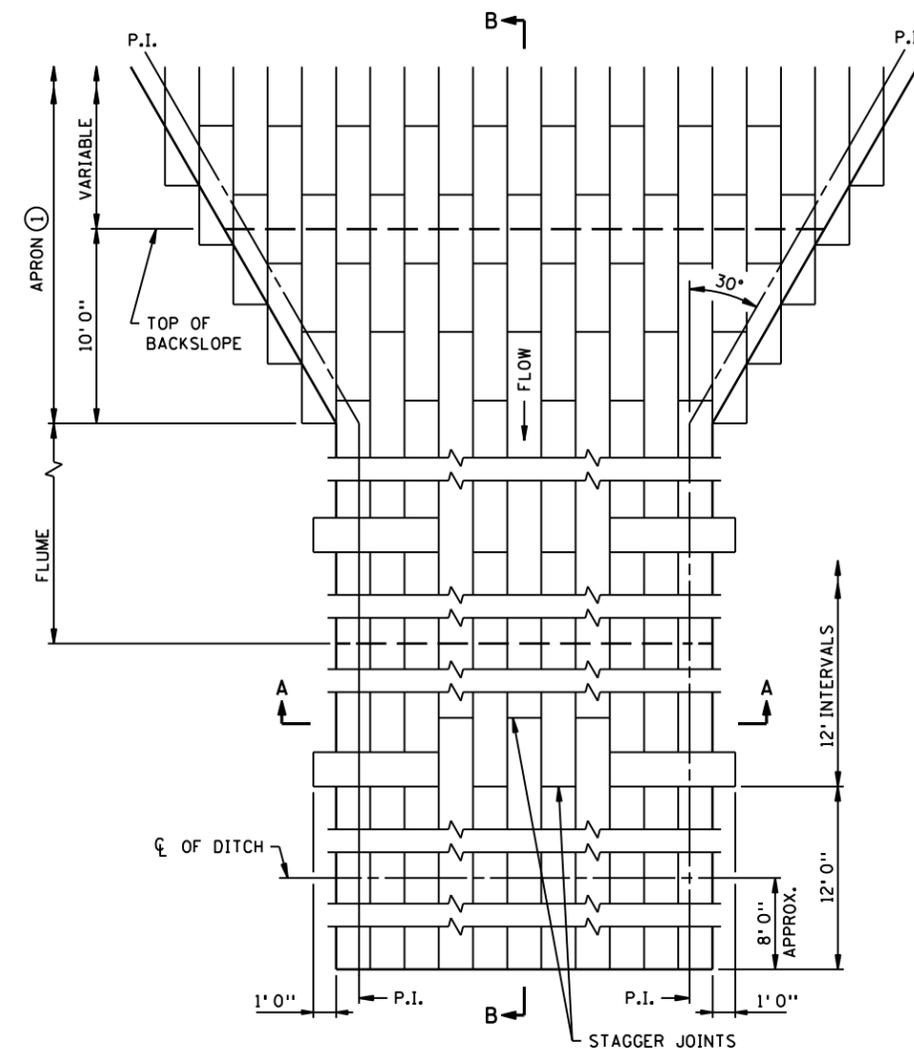
PLAN VIEW



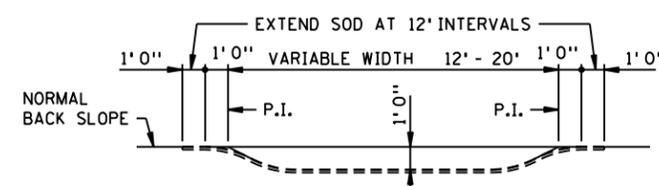
**SODDED DITCH CROSS SECTION**  
 WHERE FRONT OR BACK SLOPE IS FLAT (LESS THAN 1/2"/FT.), FIRST NOTCH DITCH AND THEN PROVIDE ROUNDING.



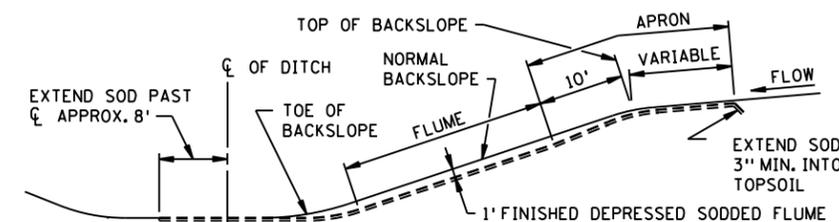
DITCH PROFILE  
**SODDED DITCH DETAILS**



PLAN VIEW



SECTION A-A



SECTION B-B

**SODDED FLUME DETAILS**

LEAD EXPERT OFFICE  
 LYNN CLARKOWSKI  
 CHIEF ENVIRONMENTAL OFFICER  
 OFFICE OF ENVIRONMENTAL STEWARDSHIP

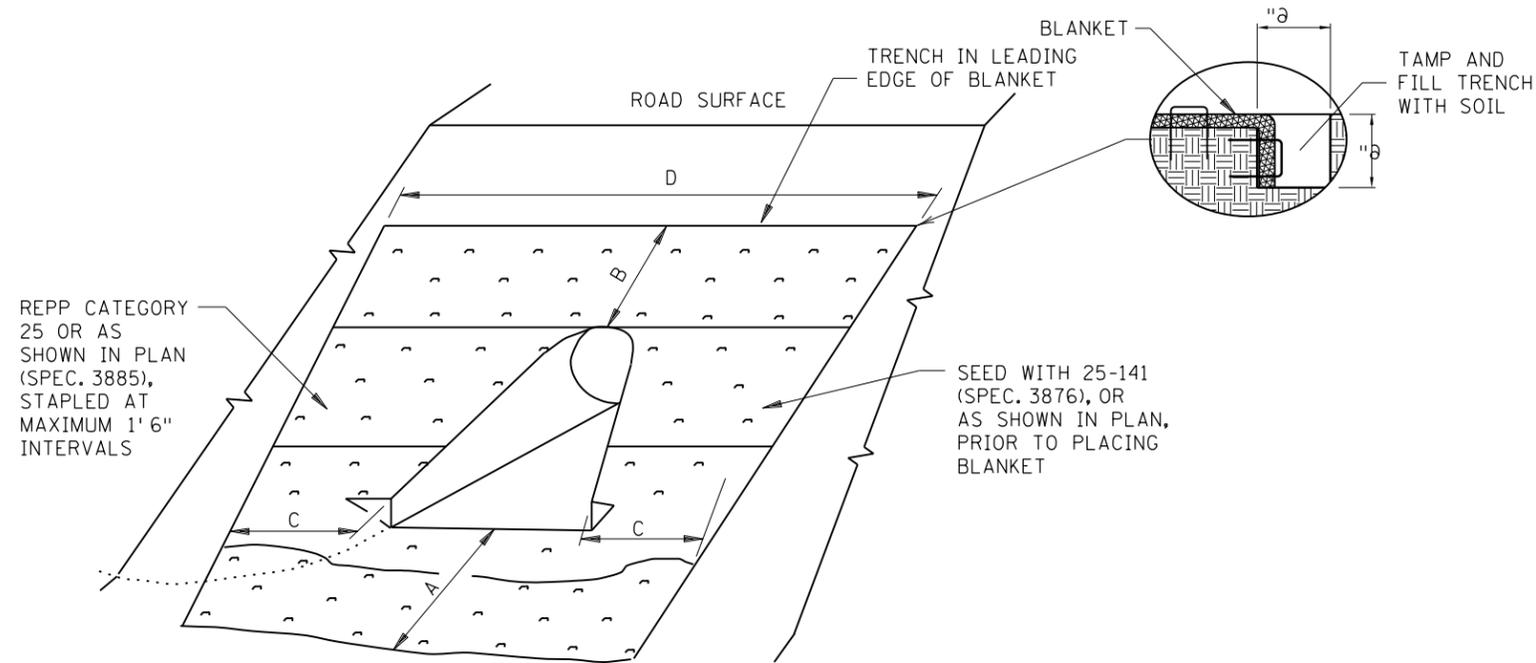
PERMANENT EROSION CONTROL  
 ALONG ROADWAYS, DITCHES AND FLUMES

APPROVED: 02-28-2017  
 REVISED: \_\_\_\_\_

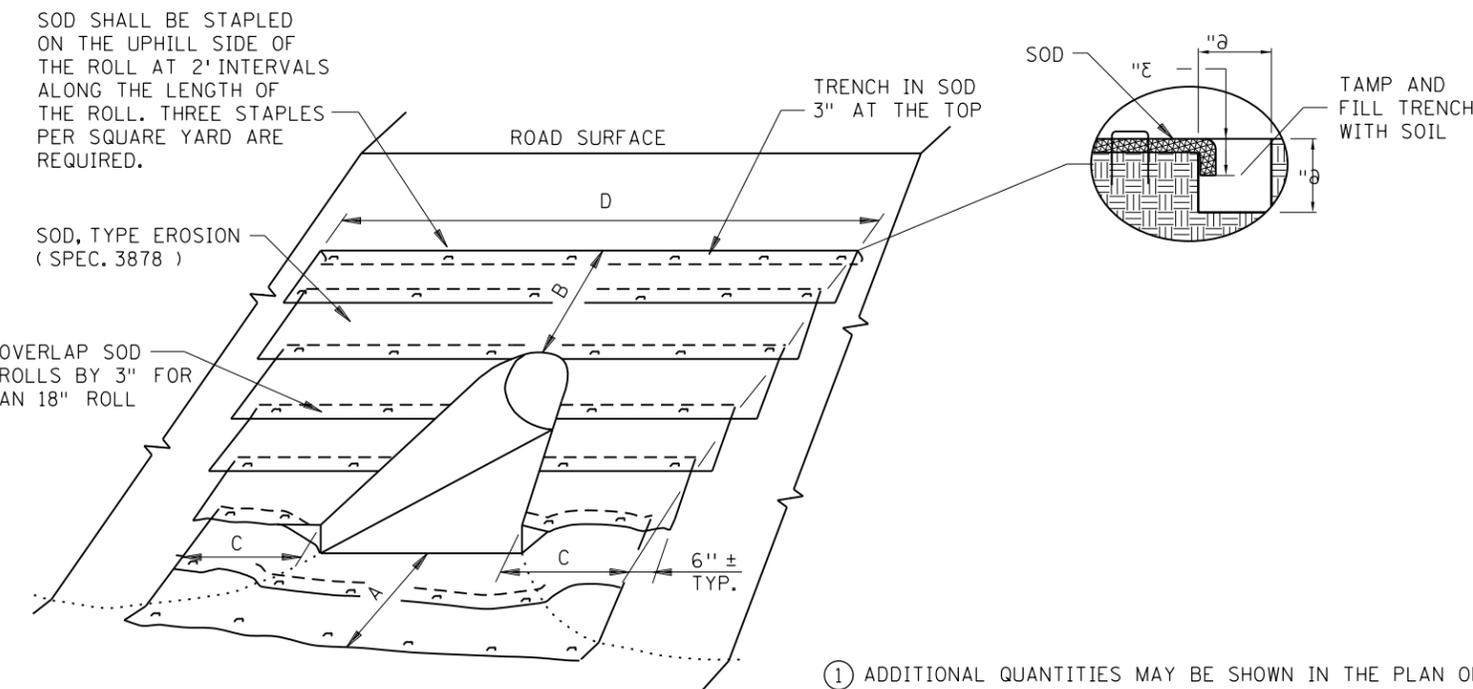
THOMAS STYRBICKI  
 STATE DESIGN ENGINEER

STANDARD PLAN  
 5-297.404

1 OF 3



ROLLED EROSION PREVENTION PRODUCT (BLANKET) & SEED DETAIL



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.

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.

LEAD EXPERT OFFICE  
MARNI KARNOWSKI  
CHIEF ENVIRONMENTAL OFFICER  
OFFICE OF ENVIRONMENTAL STEWARDSHIP

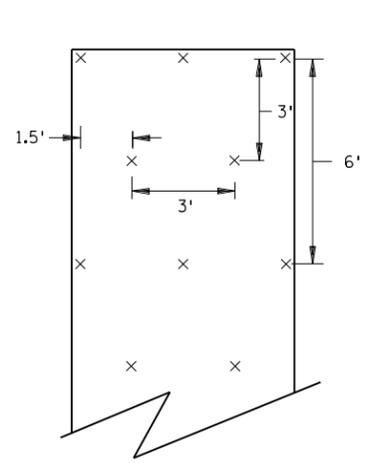
PERMANENT EROSION CONTROL  
TURF ESTABLISHMENT DETAIL AT CULVERT ENDS

APPROVED: 01-08-2020  
REVISED: \_\_\_\_\_

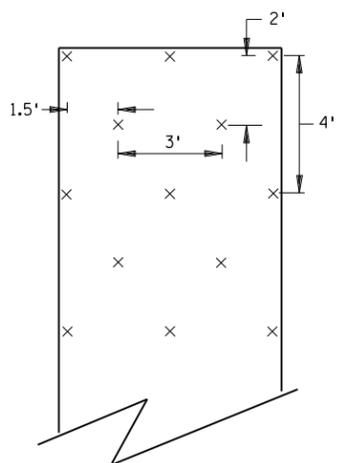
THOMAS STYRBICKI  
STATE DESIGN ENGINEER

STANDARD PLAN  
5-297.404

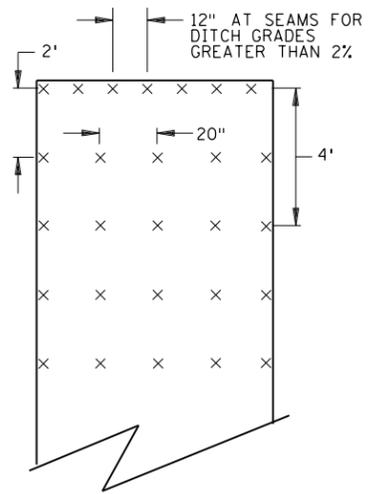
2 OF 3



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

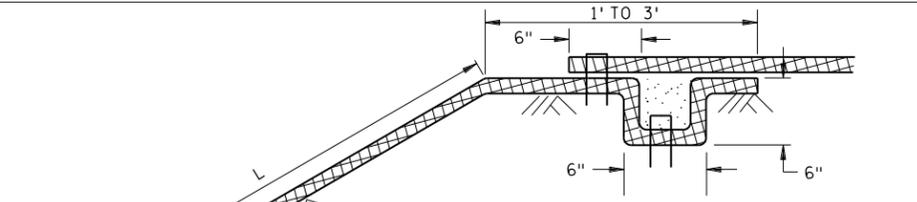


SLOPES 1:2 TO 1:1  
170 STAPLES PER 100 SQ YD

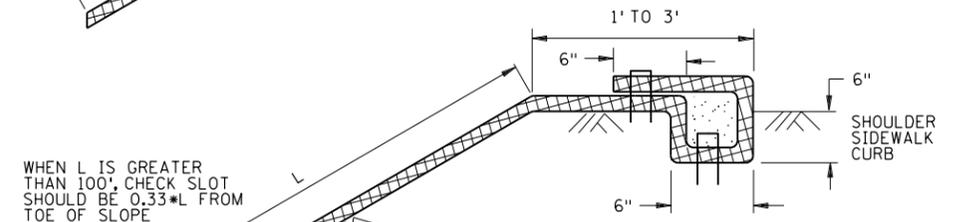


CHANNEL AND DITCH APPLICATIONS  
350 STAPLES PER 100 SQ YD

BLANKET STAPLE PATTERN

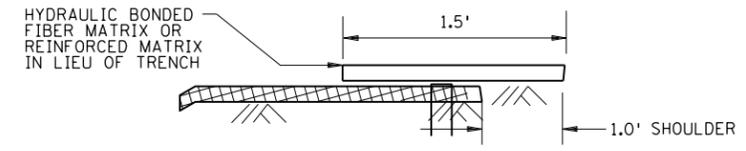


CHECK SLOT WHERE BLANKET CONTINUES

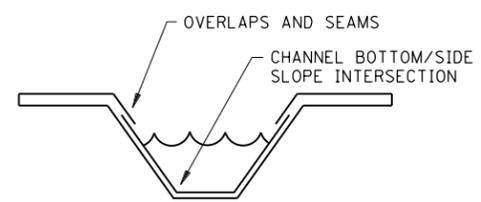


CHECK SLOT AT BEGINNING OF BLANKET

**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.



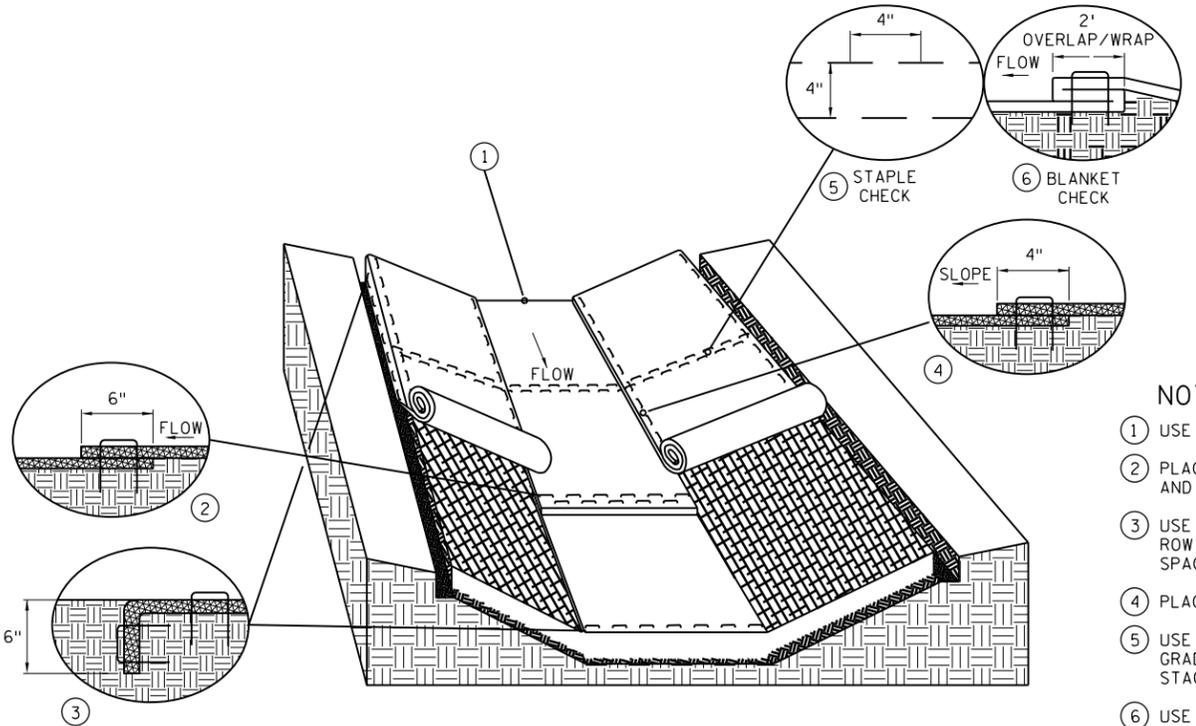
CHECK SLOT ALTERNATIVE  
PLACE SINGLE ROW STAPLES AT 12" SPACING  
CHECK SLOT DETAILS



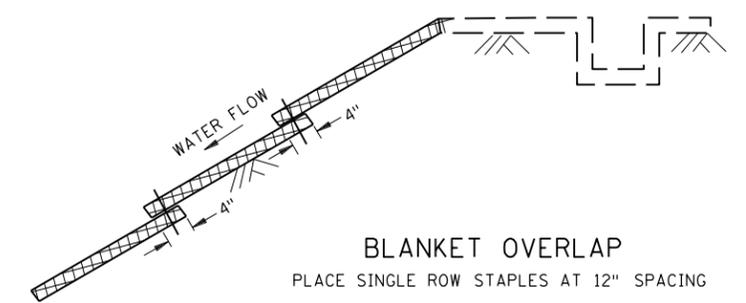
DITCH BLANKET CRITICAL POINTS ⑦

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.

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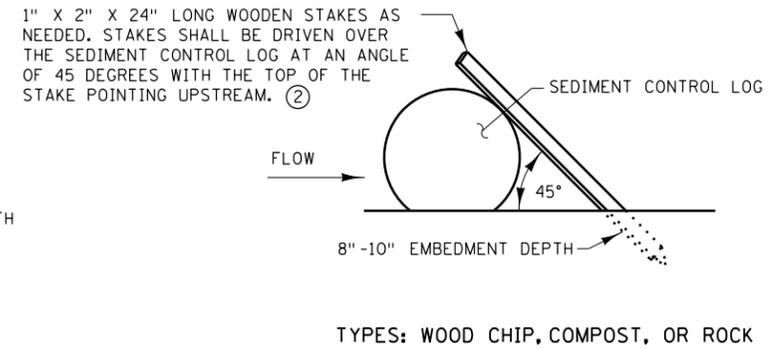
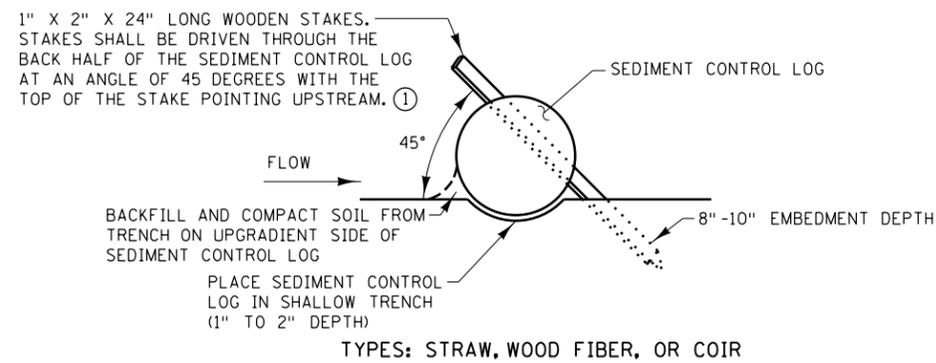
PERMANENT EROSION CONTROL  
REPP (BLANKET) STAPLE PATTERN FOR SLOPES

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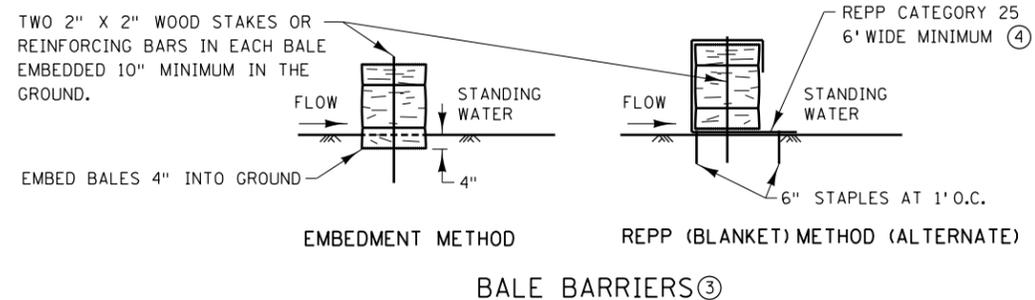
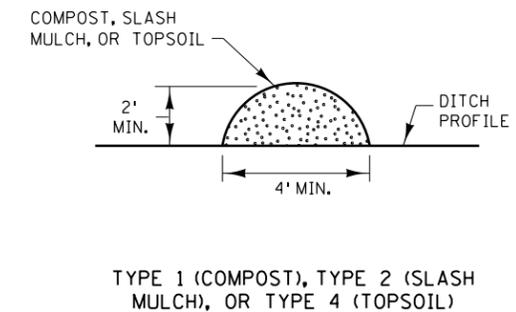
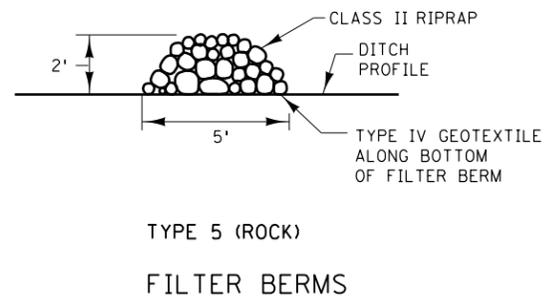
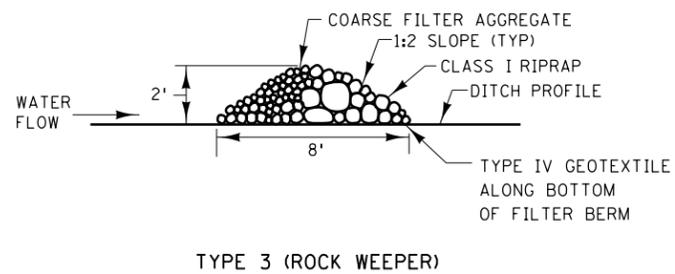
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### SEDIMENT CONTROL LOGS



### 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.

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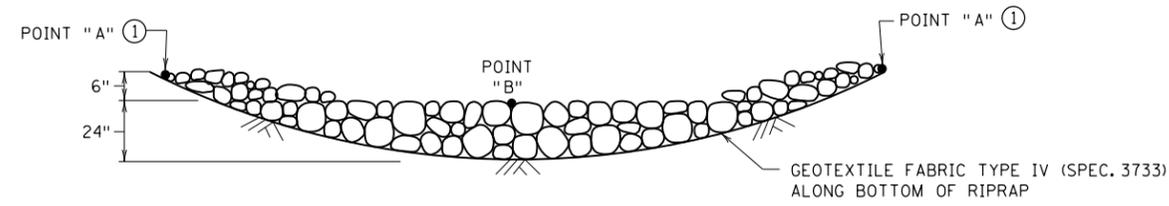
TEMPORARY SEDIMENT CONTROL  
FILTER BERMS, SEDIMENT CONTROL LOGS, AND BALE BARRIERS

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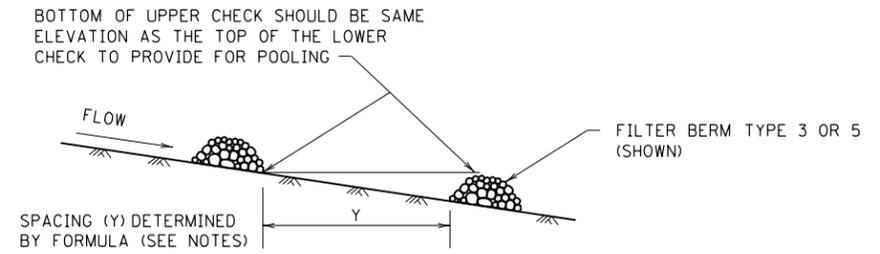
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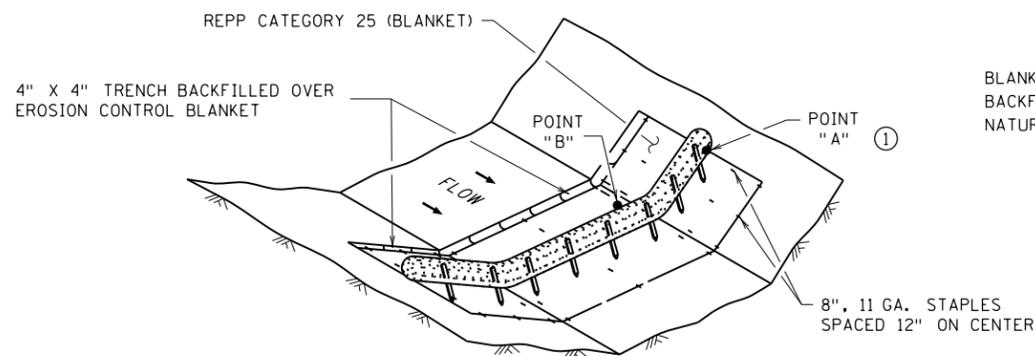
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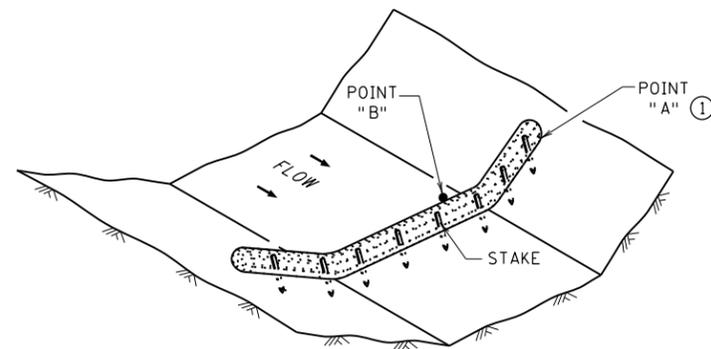
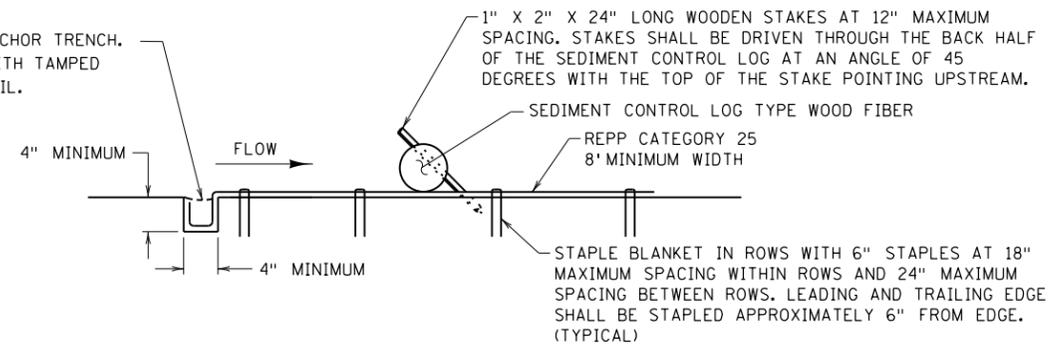
ROCK DITCH CHECKS  
 FILTER BERMS TYPE 3 (ROCK WEEPER) OR FILTER TYPE 5 (ROCK) ③  
 FOR USE ON ROUGH-GRADED AREAS  
 ONLY FOR USE OUTSIDE CLEAR ZONE ②



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.

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TEMPORARY SEDIMENT CONTROL  
 DITCH CHECK

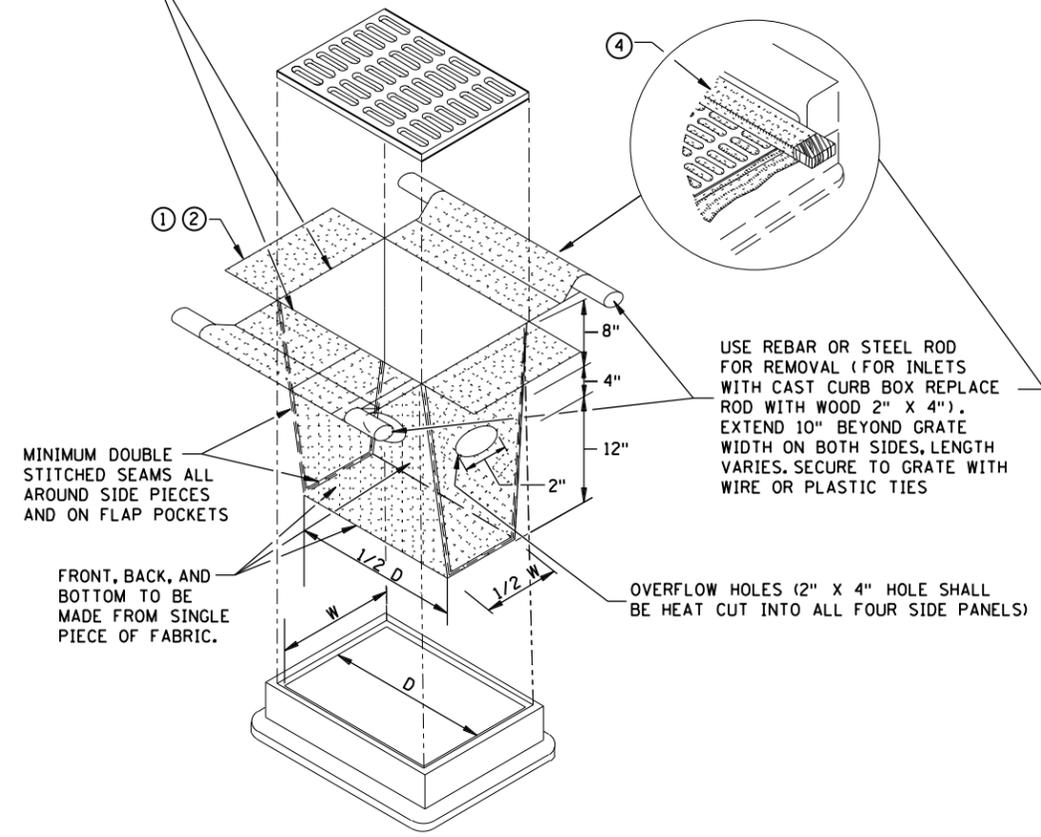
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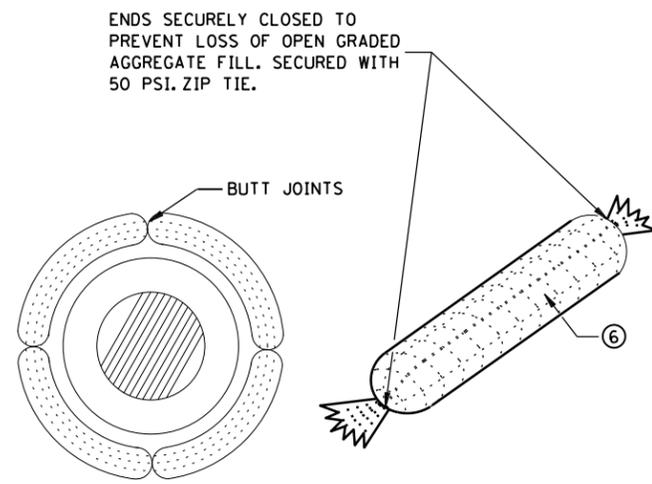
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INLET SPECIFICATIONS AS PER THE PLAN DIMENSION LENGTH AND WIDTH TO MATCH FLAP POCKET

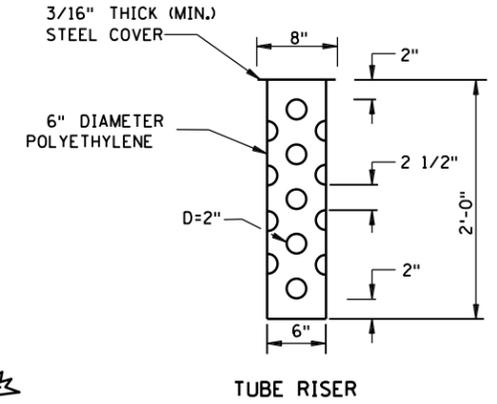


**FILTER BAG INSERT ③**

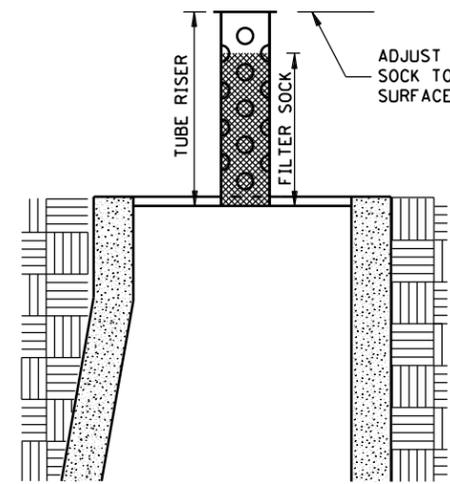
(CAN BE INSTALLED IN ANY INLET TYPE WITH OR WITHOUT A CURB BOX)



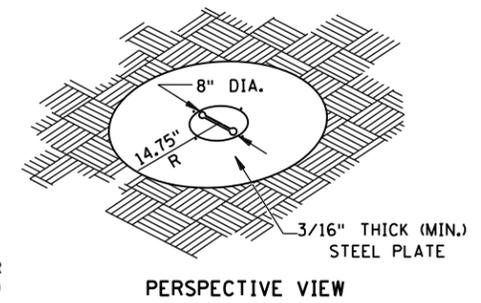
**ROCK LOG/COMPOST LOG**



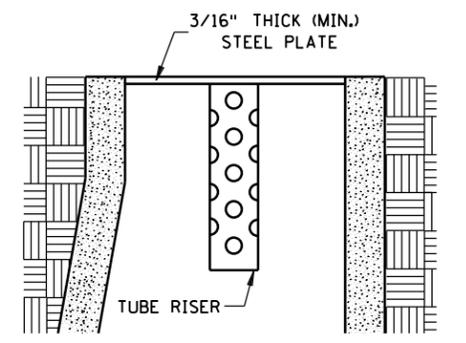
**TUBE RISER**



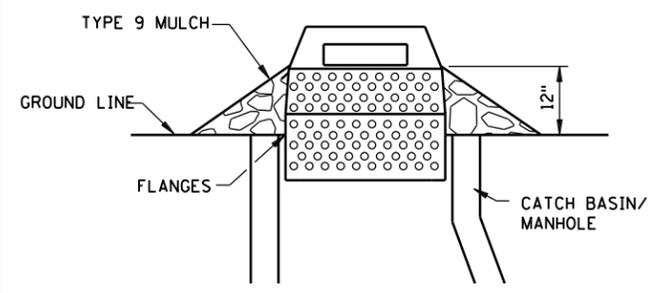
**SECTION (UP POSITION)**



**PERSPECTIVE VIEW**

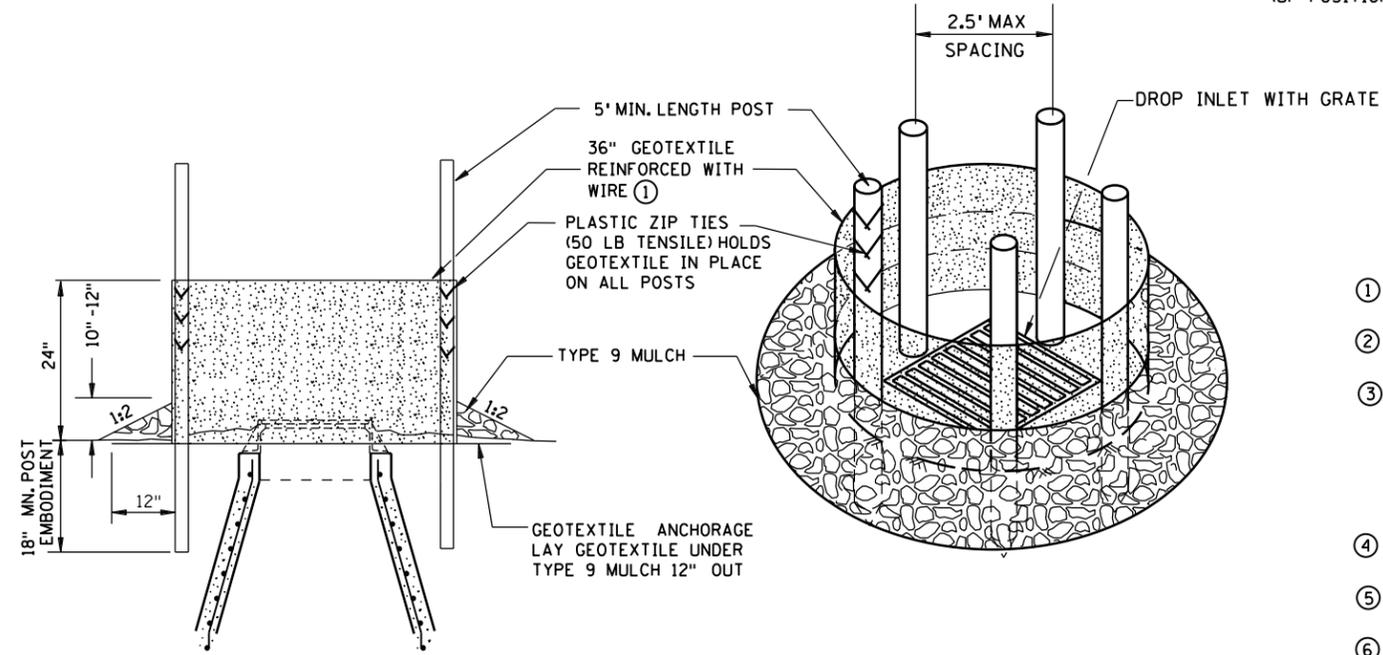


**SECTION (DOWN POSITION)**



**SEDIMENT CONTROL INLET HAT**

NOTE: THE SEDIMENT CONTROL BARRIER SHALL BE A METAL OR PLASTIC/POLYETHYLENE RISER SIZED TO FIT INSIDE THE CATCH BASIN/MANHOLE; HAVE PERFORATIONS TO ALLOW FOR WATER INFILTRATION; HAVE AN OVERFLOW OPENING, FLANGES AND A LID/COVER.



**SILT FENCE RING AND ROCK FILTER BERM**  
USE WHERE INLET DRAINS IN AN AREA WITH SLOPES AT 1:3 OR LESS

**POP-UP HEAD**

**NOTES:**

- SEE SPECS. 2573, 3137, & 3886.
- DEVICES MUST BE ADJUSTED ACCORDINGLY AS TO NOT CAUSE FLOODING ON ROADWAY THAT WOULD IMPEDE TRAFFIC FLOW.
- ① ALL GEOTEXTILE USED FOR INLET PROTECTION SHALL BE MONOFILAMENT IN BOTH DIRECTIONS, MEETING SPEC. 3886.
- ② FINISHED SIZE, INCLUDING POCKETS WHERE REQUIRED SHALL EXTEND A MINIMUM OF 10 INCHES AROUND THE PERIMETER TO FACILITATE MAINTENANCE OR REMOVAL.
- ③ INSTALLATION NOTES: DO NOT PLACE FILTER BAG INSERT IN INLETS SHALLOWER THAN 30 INCHES, MEASURED FROM THE BOTTOM OF THE INLET TO THE TOP OF THE GRATE. THE PLACED BAG SHALL HAVE A MINIMUM SIDE CLEARANCE OF 3 INCHES BETWEEN THE INLET WALLS AND THE BAG, MEASURED AT THE BOTTOM OF THE OVERFLOW HOLES. WHERE NECESSARY THE CONTRACTOR SHALL CLINCH THE BAG, USING PLASTIC ZIP TIES, TO ACHIEVE THE 3 INCH SIDE CLEARANCE.
- ④ FLAP POCKETS SHALL BE LARGE ENOUGH TO ACCEPT WOOD 2 INCH X 4 INCH OR USE A ROCK SOCK OR SAND BAGS IN PLACE OF THE FLAP POCKETS.
- ⑤ SOCK HEIGHT MUST NOT BE SO HIGH AS TO SLOW DOWN WATER FILTRATION TO CAUSE FLOODING OF THE ROADWAY.
- ⑥ GEOTEXTILE SOCK BETWEEN 4-10 FEET LONG AND 4-6 INCH DIAMETER. SEAM TO BE JOINED BY TWO ROWS OF STITCHING WITH A PLASTIC MESH BACKING OR PROVIDE A HEAT BONDED SEAM (OR APPROVED EQUIVALENT), FILL ROCK LOG WITH OPEN GRADED AGGREGATE CONSISTING OF SOUND DURABLE PARTICLES OF COARSE AGGREGATE CONFORMING TO SPEC. 3137 TABLE 3137-1; CA-3 GRADATION.

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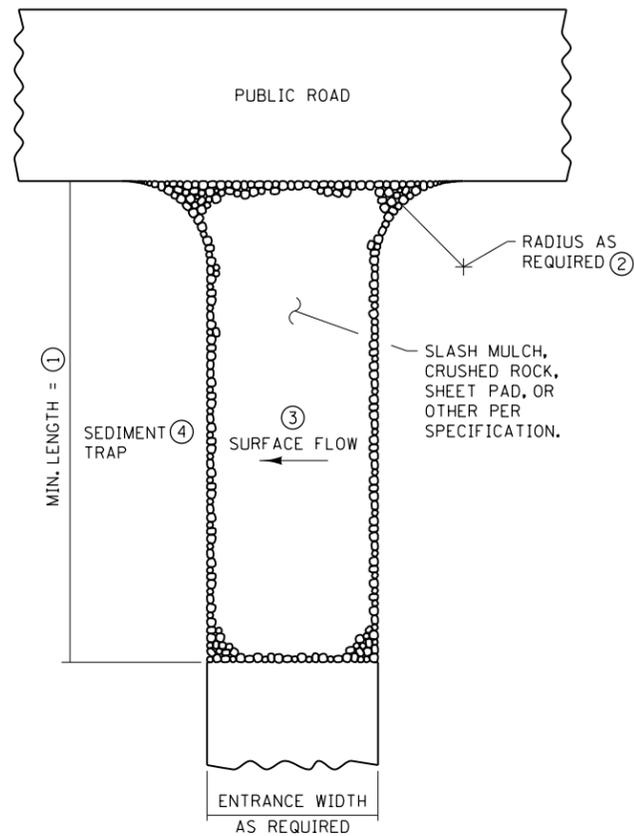
TEMPORARY SEDIMENT CONTROL  
STORM DRAIN INLET PROTECTION

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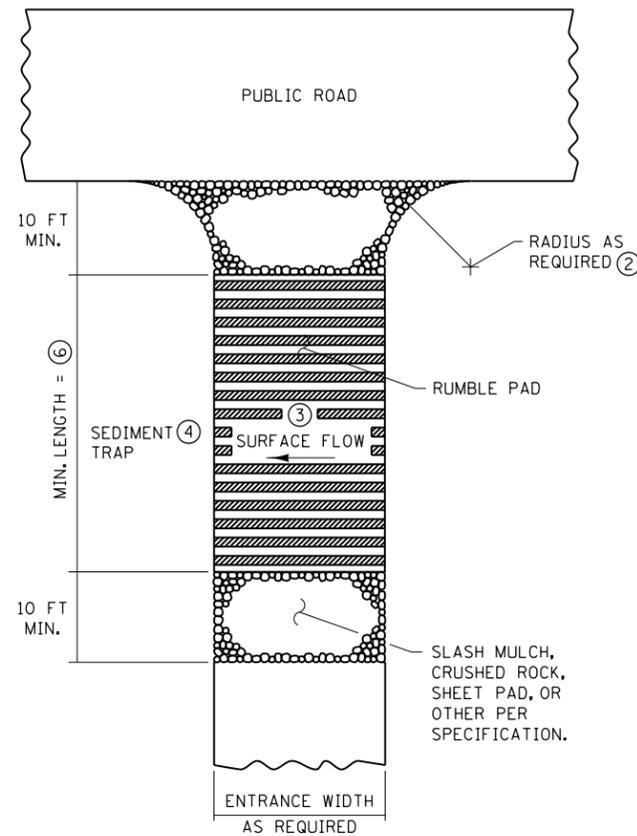
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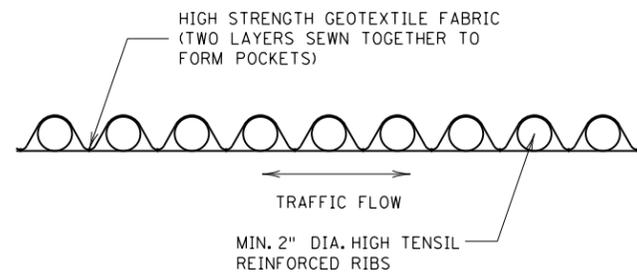
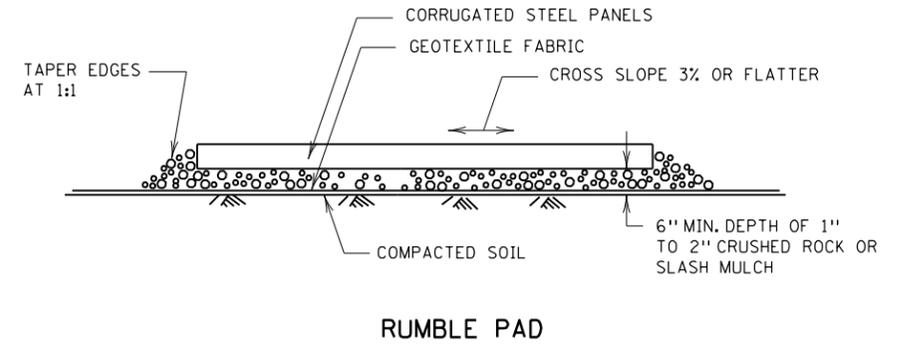
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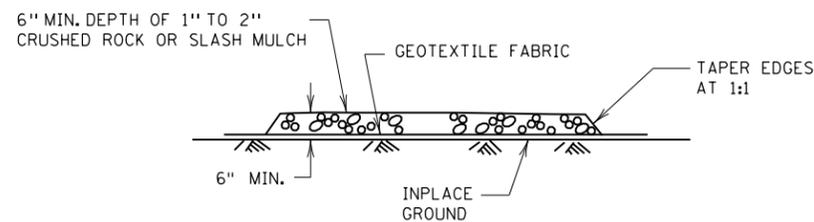
SLASH MULCH, CRUSHED ROCK, OR SHEET PAD CONSTRUCTION EXIT ⑤⑦



RUMBLE PAD CONSTRUCTION EXIT ⑤⑦



SHEET PAD



SLASH MULCH OR CRUSHED ROCK

**NOTES:**

SEE SPECS. 2573 & 3882.

- ① MINIMUM LENGTH SHALL BE THE GREATER OF 50 FEET OR A LENGTH SUFFICIENT TO ALLOW A MINIMUM OF 5 TIRE ROTATIONS ON THE PROVIDED PAD. MINIMUM LENGTH SHALL BE CALCULATED USING THE LARGEST TIRE WHICH WILL BE USED IN TYPICAL OPERATIONS.
- ② PROVIDE RADIUS OR WIDEN PAD SUFFICIENTLY TO PREVENT VEHICLE TIRES FROM TRACKING OFF OF PAD WHEN LEAVING SITE.
- ③ IF RUNOFF FROM DISTURBED AREAS FLOWS TOWARD CONSTRUCTION EXITS, PREVENT RUNOFF FROM DRAINING DIRECTLY TO PUBLIC ROAD OVER CONSTRUCTION EXIT BY CROWNING THE EXIT OR SLOPING TO ONE SIDE. IF SURFACE GRADING IS INSUFFICIENT, PROVIDE OTHER MEANS OF INTERCEPTING RUNOFF.
- ④ IF RUNOFF FROM CONSTRUCTION EXITS WILL DRAIN OFF OF PROJECT SITE, PROVIDE SEDIMENT TRAP WITH STABILIZED OVERFLOW.
- ⑤ IF A TIRE WASH OFF IS REQUIRED THE CONSTRUCTION EXITS SHALL BE GRADED TO DRAIN THE WASH WATER TO A SEDIMENT TRAP.
- ⑥ MINIMUM LENGTH OF RUMBLE PAD SHALL BE 20 FEET, OR AS REQUIRED TO REMOVE SEDIMENT FROM TIRES. IF SIGNIFICANT SEDIMENT IS TRACKED FROM THE SITE, THE RUMBLE PAD SHALL BE LENGTHENED OR THE DESIGN MODIFIED TO PROVIDE ADDITIONAL VIBRATION. WASH-OFF LENGTH SHALL BE AS REQUIRED TO EFFECTIVELY REMOVE CONSTRUCTION SEDIMENT FROM VEHICLE TIRES.
- ⑦ MAINTENANCE OF CONSTRUCTION EXITS SHALL OCCUR WHEN THE EFFECTIVENESS OF SEDIMENT REMOVAL HAS BEEN REDUCED. MAINTENANCE SHALL CONSIST OF REMOVING SEDIMENT AND CLEANING THE MATERIALS OR PLACING ADDITIONAL MATERIAL (SLASH MULCH OR CRUSHED ROCK) OVER SEDIMENT FILLED MATERIAL TO RESTORE EFFECTIVENESS.

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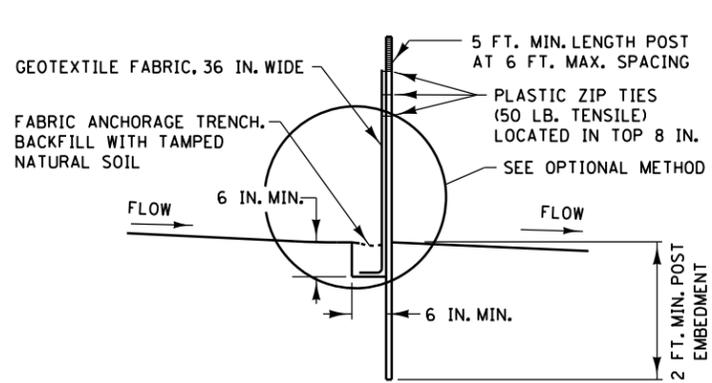
TEMPORARY SEDIMENT CONTROL  
STABILIZED CONSTRUCTION EXIT

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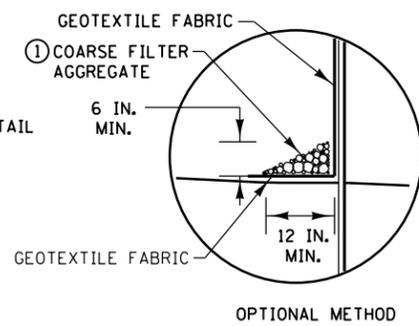
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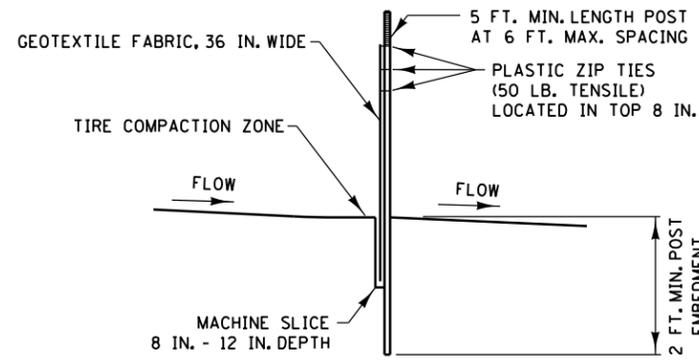
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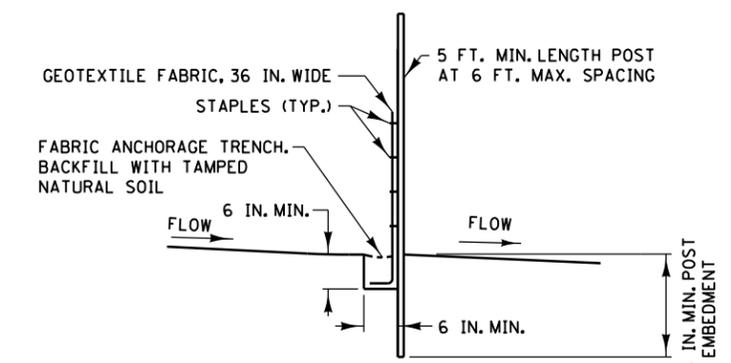
**SILTS FENCE TYPE HI ②  
(HAND INSTALLED)**



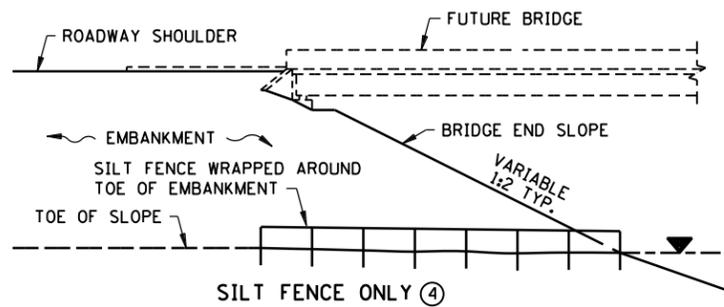
OPTIONAL METHOD



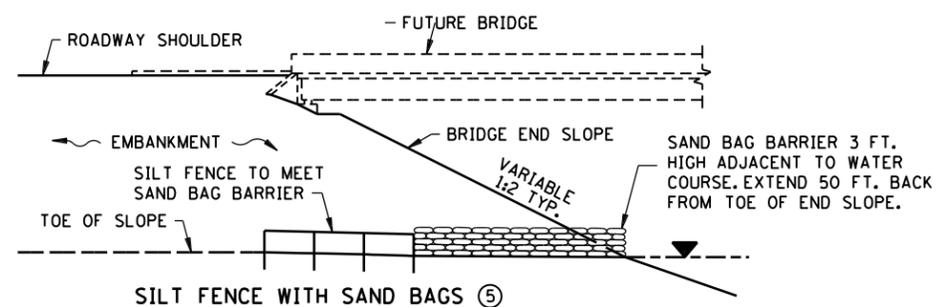
**SILTS FENCE TYPE MS ②  
(MACHINE SLICED)**



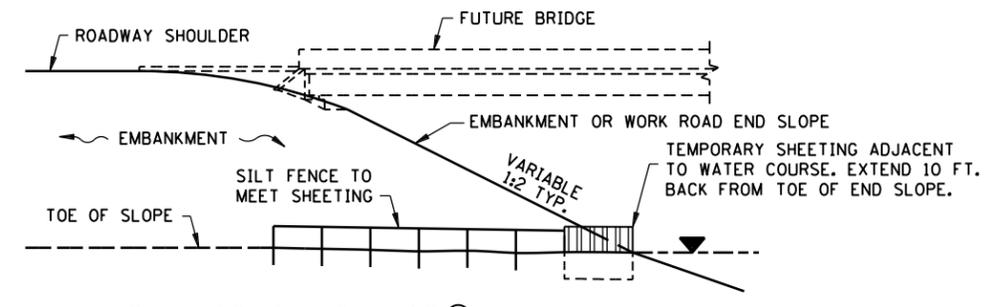
**SILTS FENCE TYPE PA ③  
(PREASSEMBLED)**



SILTS FENCE ONLY ④

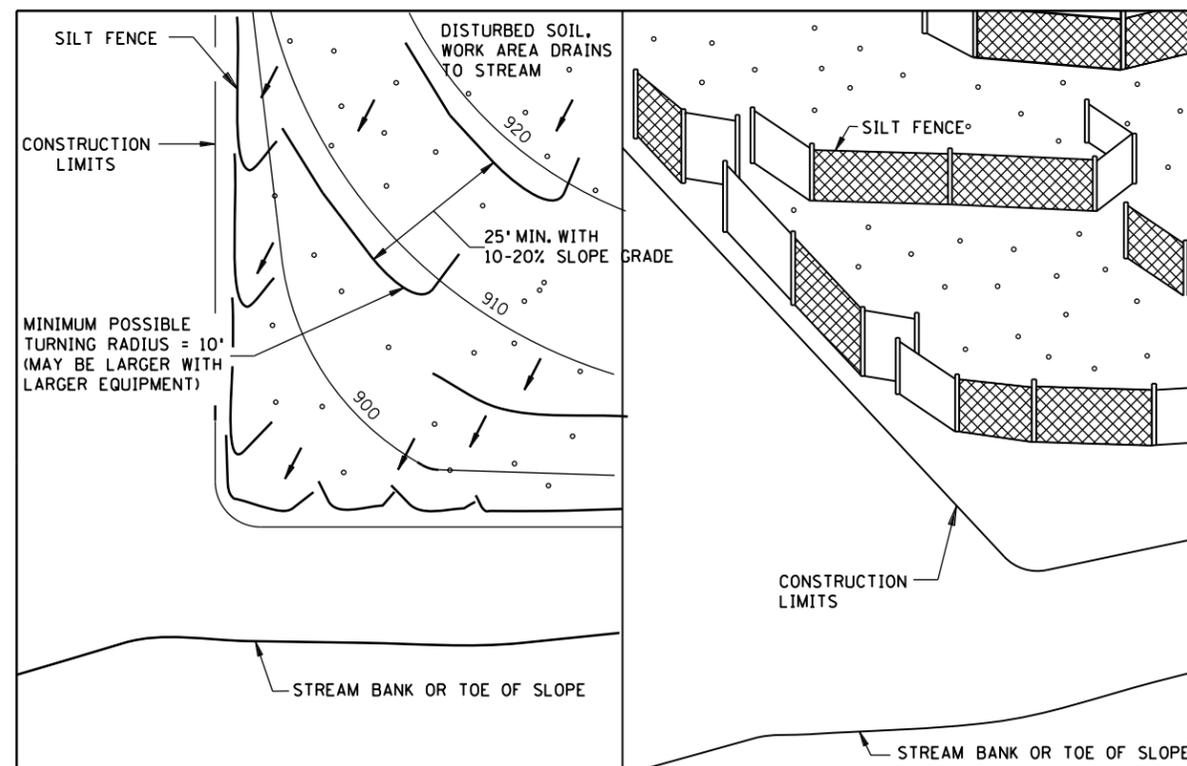


SILTS FENCE WITH SAND BAGS ⑤



SILTS FENCE WITH SHEETING ⑥

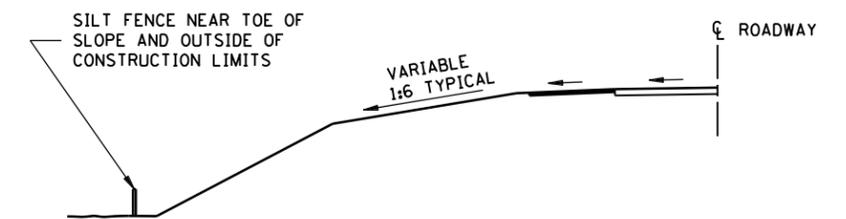
**INSTALLATION AT BRIDGE EMBANKMENT ADJACENT TO WATER**



PLAN VIEW

**J-HOOK INSTALLATION**

PERSPECTIVE VIEW



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.

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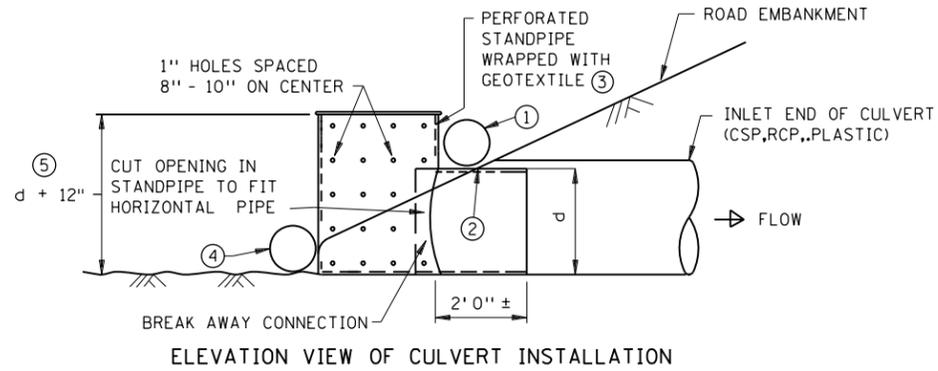
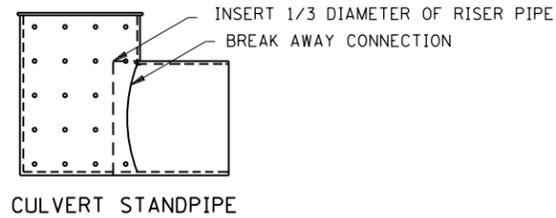
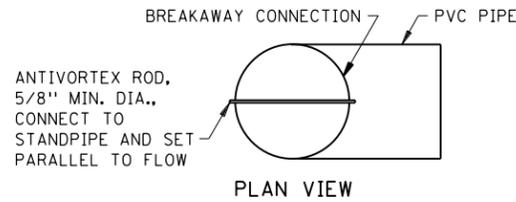
TEMPORARY SEDIMENT CONTROL  
SILTS FENCE

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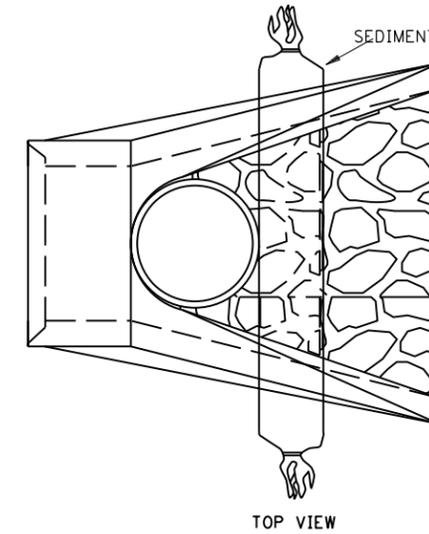
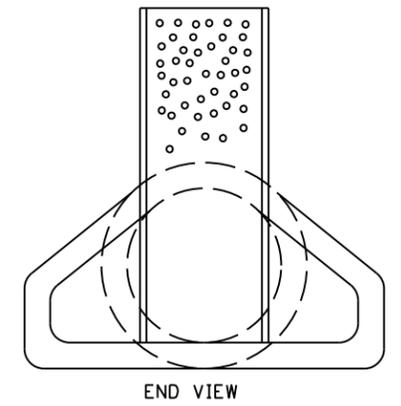
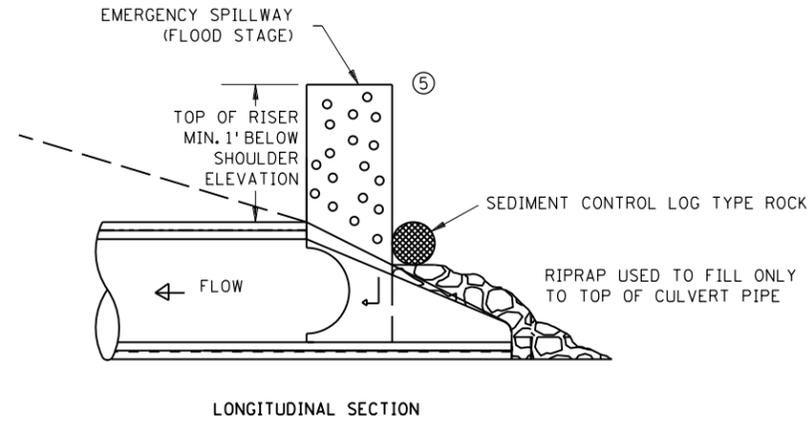
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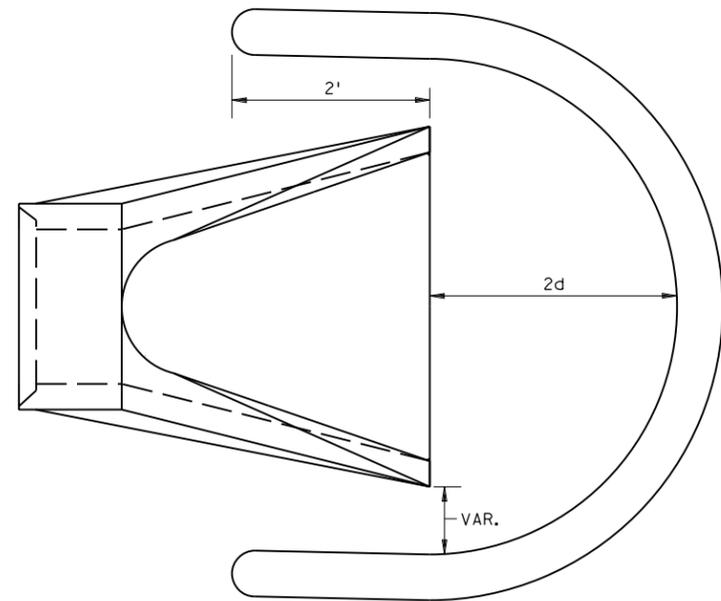


CULVERT STANDPIPE INSERT (D-RISER)  
d = CULVERT SIZE: 12" - 36"

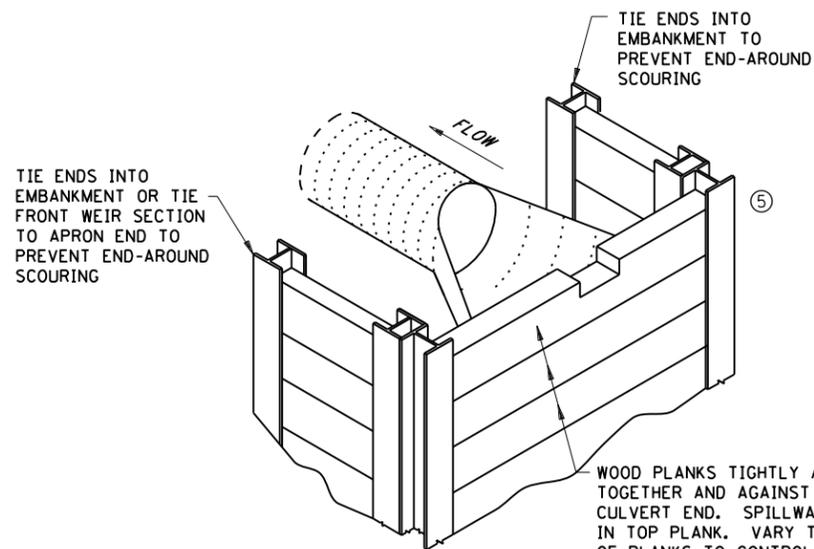


CULVERT STANDPIPE INSERT (D-RISER)

NOTE: SEDIMENT CONTROL LOG TYPE ROCK MAY BE WRAPPED AROUND 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 MDOT'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.

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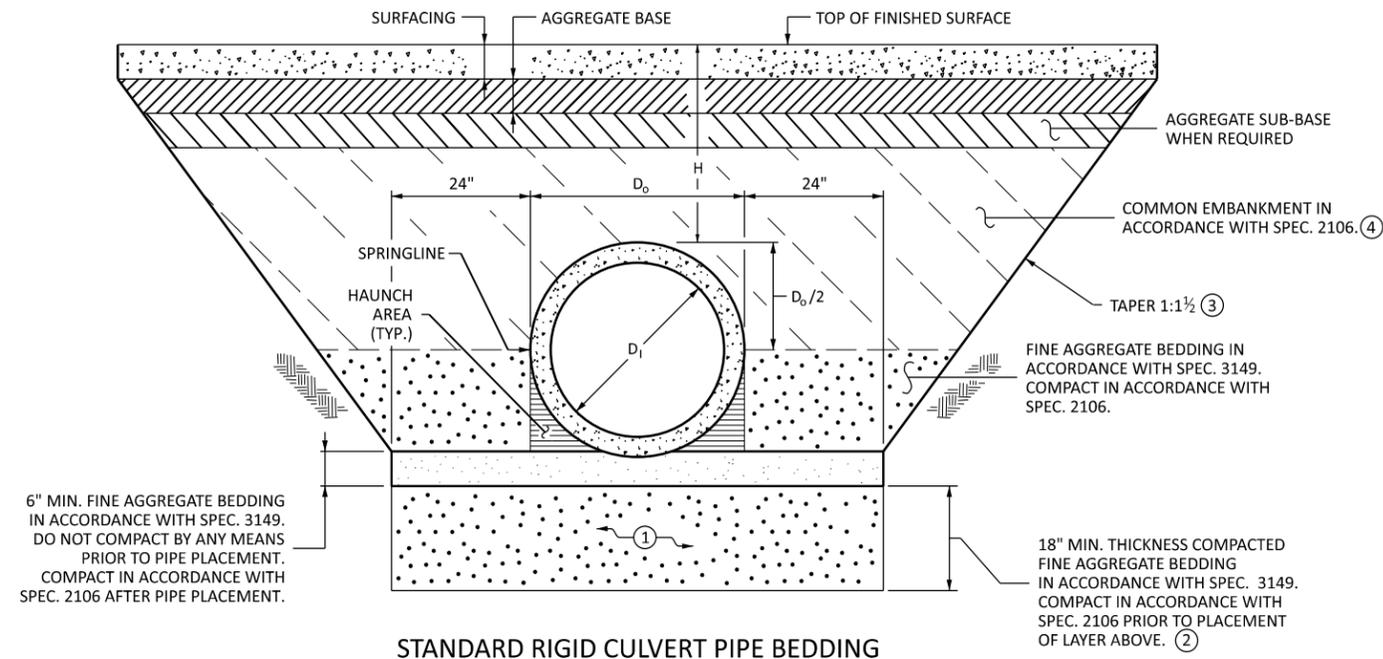
TEMPORARY SEDIMENT CONTROL  
CULVERT END CONTROLS

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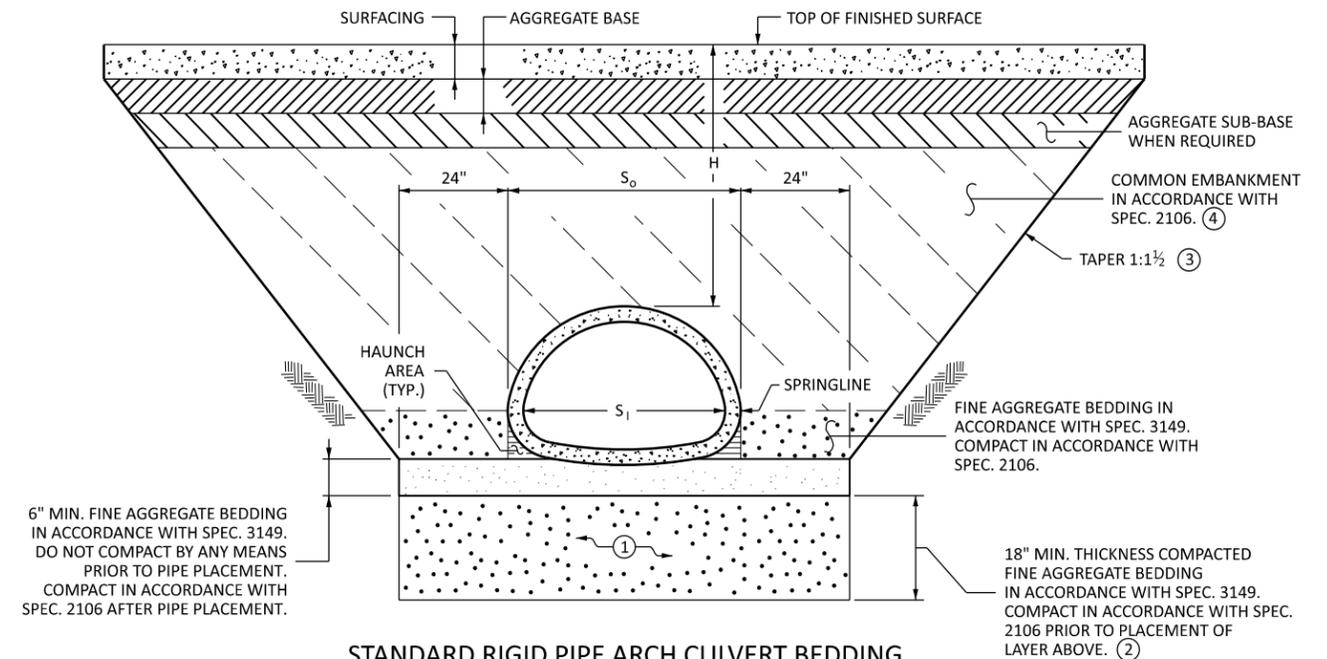
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STATE DESIGN ENGINEER

STANDARD PLAN  
5-297.405

8 OF 8

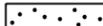


STANDARD RIGID CULVERT PIPE BEDDING



STANDARD RIGID PIPE ARCH CULVERT BEDDING

LEGEND

- D<sub>1</sub> = INSIDE DIAMETER OF ROUND PIPE (INCHES).
- D<sub>0</sub> = OUTSIDE DIAMETER OF ROUND PIPE (INCHES).
- S<sub>1</sub> = INSIDE SPAN OF PIPE-ARCH (INCHES).
- S<sub>0</sub> = OUTSIDE SPAN OF PIPE-ARCH (INCHES).
- H = FILL COVER HEIGHT OVER PIPE (FEET).
-  = UNDISTURBED SOIL
-  = COMPACTED BEDDING
-  = LOOSE BEDDING, COMPACTED AFTER PIPE PLACEMENT

NOTES

- STANDARD BEDDING FOR RIGID PIPE CULVERTS WITHOUT TREATMENTS.
- RIGID PIPE INCLUDES CONCRETE.
- ENTRANCE CULVERTS (FIELD AND DRIVEWAY CULVERTS) DO NOT NEED BEDDING UNLESS SPECIFIED IN THE PLANS OR SPECIAL PROVISIONS.
- UNLESS OTHERWISE NOTED IN THE PLAN, BEDDING QUANTITIES ARE COMPUTED FOR THE FULL LENGTH OF THE PIPE AND APRON, AND WILL NOT BE ADJUSTED FOR CHANGES TO MEET OSHA REQUIREMENTS.
- WHEN RIPRAP IS REQUIRED AT THE APRON END, SEE STANDARD PLATE OR PLAN FOR RIPRAP PLACEMENT AND QUANTITIES. FOR APRONS WITHOUT RIPRAP PLACE 6" MIN. FINE AGGREGATE BEDDING UNDER APRONS. USE A TRENCH WIDTH EQUAL TO THE PIPE TRENCH WIDTH.
- CONTRACT PAY ITEM FOR FINE AGGREGATE BEDDING INCLUDES THE COST OF EXCAVATION, PLACEMENT AND COMPACTION.
- RECYCLED CONCRETE AGGREGATE (RCA) IS PROHIBITED IN FINE AGGREGATE BEDDING AND BACKFILL.
- EXCAVATION AND BACKFILL WITH COMMON EMBANKMENT ARE NOT TABULATED SEPARATELY BUT ARE INCLUDED IN THE CONTRACT UNIT PRICE OF THE RELEVANT CULVERT PAY ITEM.
- EXCAVATE AND CONSTRUCT ALL TRENCHES AND SLOPES IN ACCORDANCE WITH OSHA REQUIREMENTS.
- ALL SLOPES SHOWN AS (V):(H).
- PIPE SIZE IS BASED ON THE NOMINAL INSIDE DIAMETER OR SPAN.
- PROTECT ALL PIPE DURING CONSTRUCTION IN ACCORDANCE WITH SPEC. 2501.
- PLACE MULTIPLE PIPE CULVERTS WITH A CLEARANCE OF 24" OR GREATER BETWEEN STRINGS OF PIPE.
- ① IF APPROVED BY THE ENGINEER, IN WET CONDITIONS THE CONTRACTOR MAY SUBSTITUTE 18" OF COARSE FILTER AGGREGATE IN ACCORDANCE WITH SPEC. 3149, COMPACTED TO THE QUALITY COMPACTION REQUIREMENTS OF SPEC. 2106. WRAP WITH GEOTEXTILE FABRIC TYPE 4 IN ACCORDANCE WITH SPEC. 3733. SEAM ALL FABRIC SIDES AND ENDS IN ACCORDANCE WITH SPEC. TABLE 3733-1 INCLUDING FOOTNOTE (e) OR OVERLAP A MINIMUM OF 3', ALL AT NO ADDITIONAL COST.
- ② FOR INSTALLATIONS ON INTACT BEDROCK, OMIT THIS LAYER.
- ③ OVER-EXCAVATION BENEATH TAPERS IS NOT PERMITTED UNLESS REQUIRED BY OSHA. (TYP.)
- ④ MAXIMUM EMBANKMENT PARTICLE SIZE WITHIN 2' OF RIGID PIPE IS 3".

CONSTRUCTION SEQUENCE

1. PLACE AND COMPACT 18" OF FINE AGGREGATE BEDDING TO THE REQUIREMENTS OF SPEC. 2106.
2. LOOSELY PLACE 6" OF FINE AGGREGATE BEDDING (SPEC. 3149) TO GRADE. DO NOT COMPACT PRIOR TO PIPE PLACEMENT.
3. FOR PIPES WITH BELL, REMOVE MATERIAL IN BELL AREA PRIOR TO PLACEMENT.
4. FURNISH AND INSTALL PIPE TO GRADE.
5. AFTER PLACEMENT OF THE PIPE, PLACE ADDITIONAL BEDDING AND COMPACT THE FULL LENGTH ON BOTH SIDES OF THE PIPE UNDERNEATH THE HAUNCH AREA BY FIRST SHOVEL SLICING (MANUALLY SHOVE THE BLADE END OF A SHOVEL AT AN ANGLE DOWN THE ENTIRE LENGTH OF THE PIPE IN THE HAUNCH AREA) THEN COMPACT THE HAUNCH AT AN ANGLE USING A POWERED MECHANICAL OR PNEUMATIC DEVICE (I.E. POLE TAMPER, JUMPING JACK, OR SIMILAR).
6. COMPACT THE REMAINING MATERIAL OUTSIDE THE HAUNCH AREA TO THE REQUIREMENTS OF SPEC. 2106 ENSURING THAT THE ENTIRE LENGTH OF PIPE IS SUPPORTED UNIFORMLY BY BEDDING.
7. PLACE AND COMPACT BACKFILL EVENLY AND SIMULTANEOUSLY IN 6" LIFTS ON EACH SIDE OF THE PIPE UP TO THE SPRINGLINE WHEN COMPACTED.
8. COMPLETE REMAINING BACKFILL.

LEAD EXPERT OFFICE  
EDWARD LUTGEN  
OFFICE DIRECTOR  
BRIDGE OFFICE

STANDARD CULVERT BEDDING FOR RIGID PIPE  
(WITHOUT TREATMENTS)

APPROVED:  
11-15-2024

THOMAS STYRBICKI  
STATE DESIGN ENGINEER

STANDARD PLAN  
5-297.441

1 OF 1

CSAH22-3  
 PI 109+30.41 4155 VIKING BLVD NW  
 X 472974.42  
 Y 206580.01  
 $\Delta$  1°38'10" (RT)  
 D 0°30'0"  
 T 163.62'  
 L 327.21'  
 R 11459.00'  
 PC 107+66.79  
 PT 110+94.01

BEGIN SAP 002-622-045  
 STA 112+77.99

4065 VIKING BLVD NW

4021 VIKING BLVD NW

3975 VIKING BLVD NW

110

115

120

AZ AZ: 91°22'12"  
 L = L = 152.53'

AZ AZ: 92°24'35"  
 L = L = 358.16'

AZ AZ: 92°24'37"  
 L = L = 177.83'

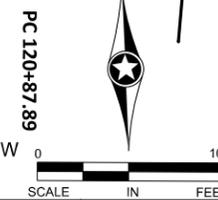
CSAH22-3  
 PI 112+46.70  
 X 473290.33  
 Y 206564.02  
 $\Delta$  1°31'37" (LT)  
 D 0°30'0"  
 T 152.69'  
 L 305.36'  
 R 11459.00'  
 PC 110+94.01  
 PT 113+99.37

4070 VIKING BLVD NW

19646 BLACKFOOT ST NW

BLACKFOOT ST.  
 NW

19671 BLACKFOOT ST NW



MATCH LINE 122+00

3975 VIKING BLVD NW

CSAH22-3  
 PI 124+62.53  
 X 474505.28  
 Y 206518.43  
 $\Delta$  29°19'19" (RT)  
 D 4°0'4"  
 T 374.64'  
 L 732.85'  
 R 1432.00'  
 PC 120+87.89  
 PT 128+20.74

CSAH22-3

3915 VIKING BLVD NW

3840 197TH AVE NW

EXISTING R/W

POT 131+87.88

MATCH LINE 122+00

125

130

AZ AZ: 121°43'55"  
 L = L = 367.14'

MATCH LINE 133+00

197TH AVE  
 NW

PT 128+20.74

EXISTING R/W

YUCCA ST. NW

19601 YUCCA ST NW



19671 BLACKFOOT ST NW

Type text here

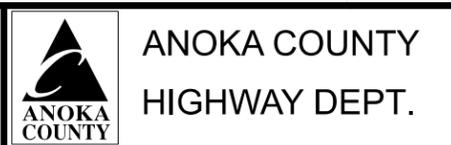
1 OF 3

NO	DATE	BY	CHKD	APPR	REVISION

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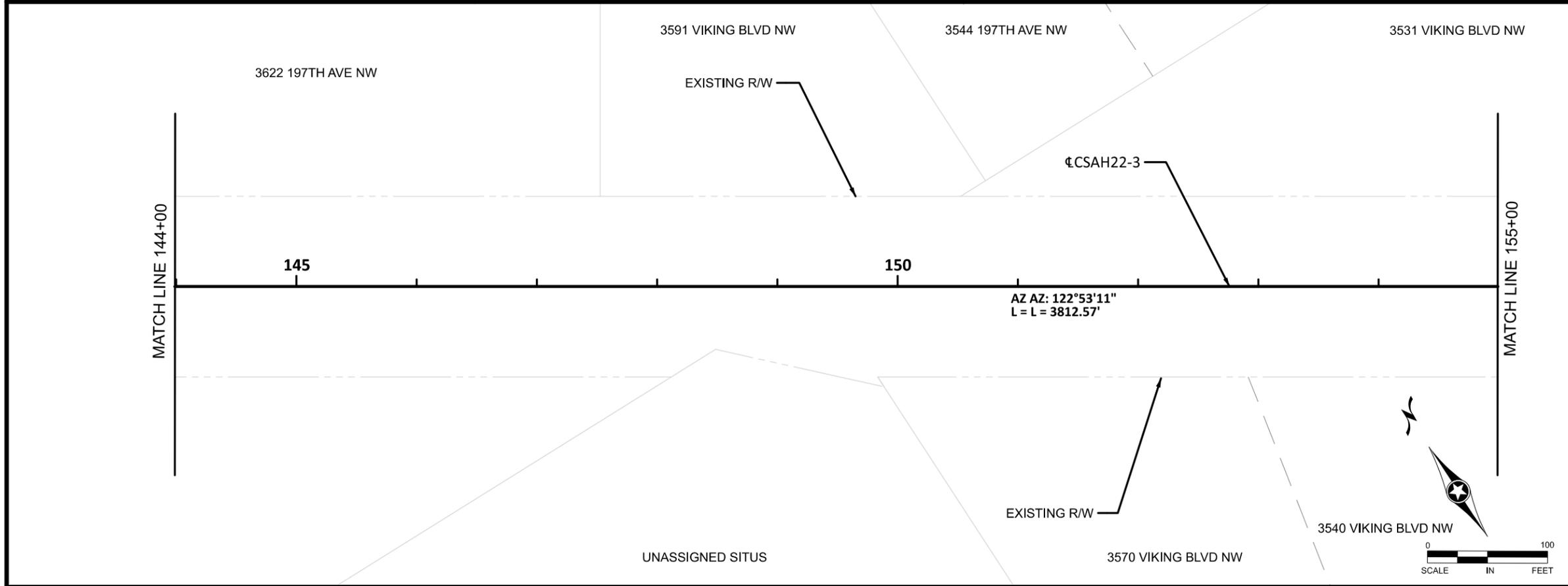
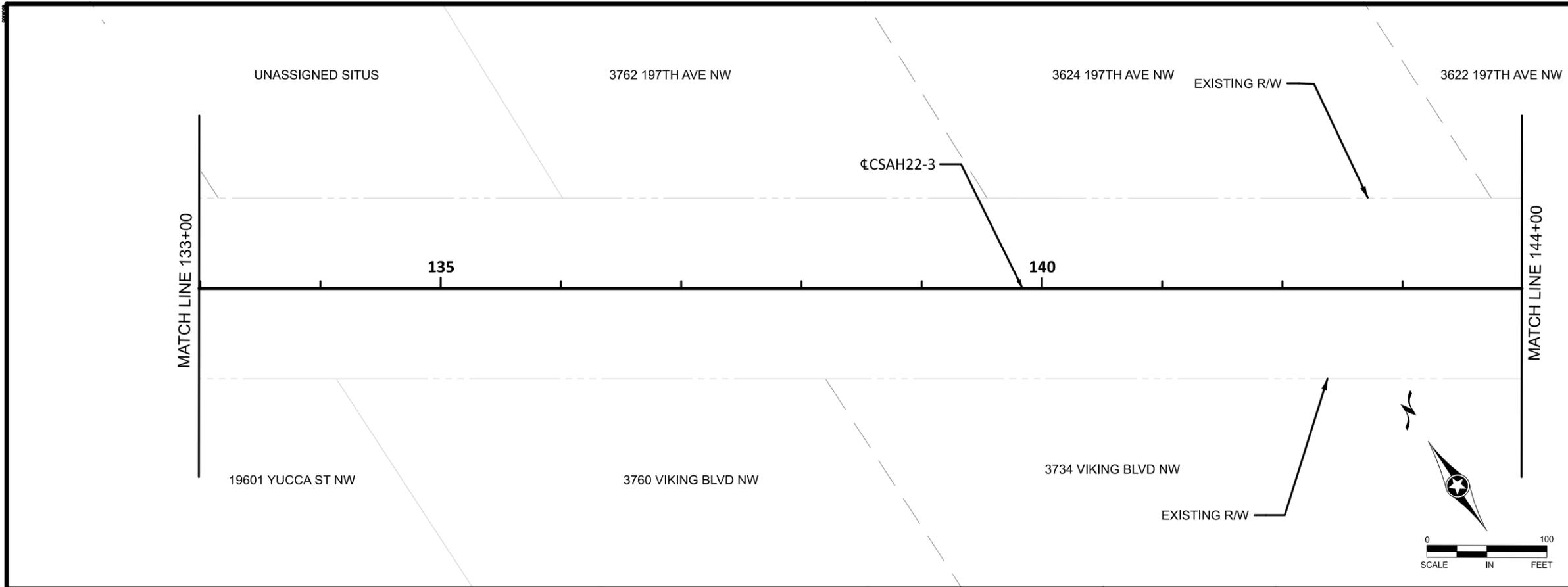
I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.  
 PRINT NAME: NICHOLAS J. DOBDA  
 SIGNATURE: *Nicholas J. Dobda*  
 DATE: 04/09/2025 LICENSE NO. 49046

DRAWN BY CA DATE 04/03/25  
 DESIGN BY MAP DATE 04/03/25  
 CHECKED BY NJD DATE 04/03/25



SAP 002-622-045  
 SAP 223-020-011

ALIGNMENT PLAN  
 STA 112+77.99 TO 133+00.00  
 Sheet 43 of 85 Sheets

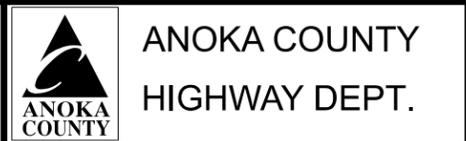


NO	DATE	BY	CKD	APPR	REVISION

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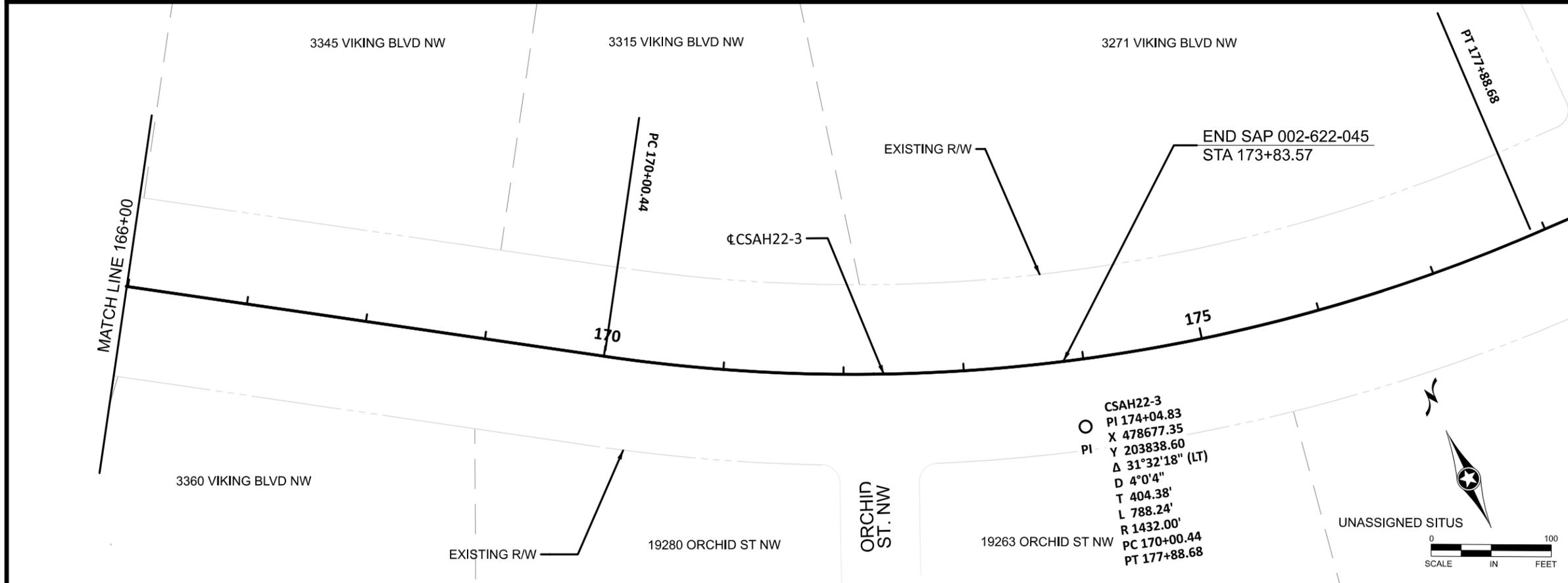
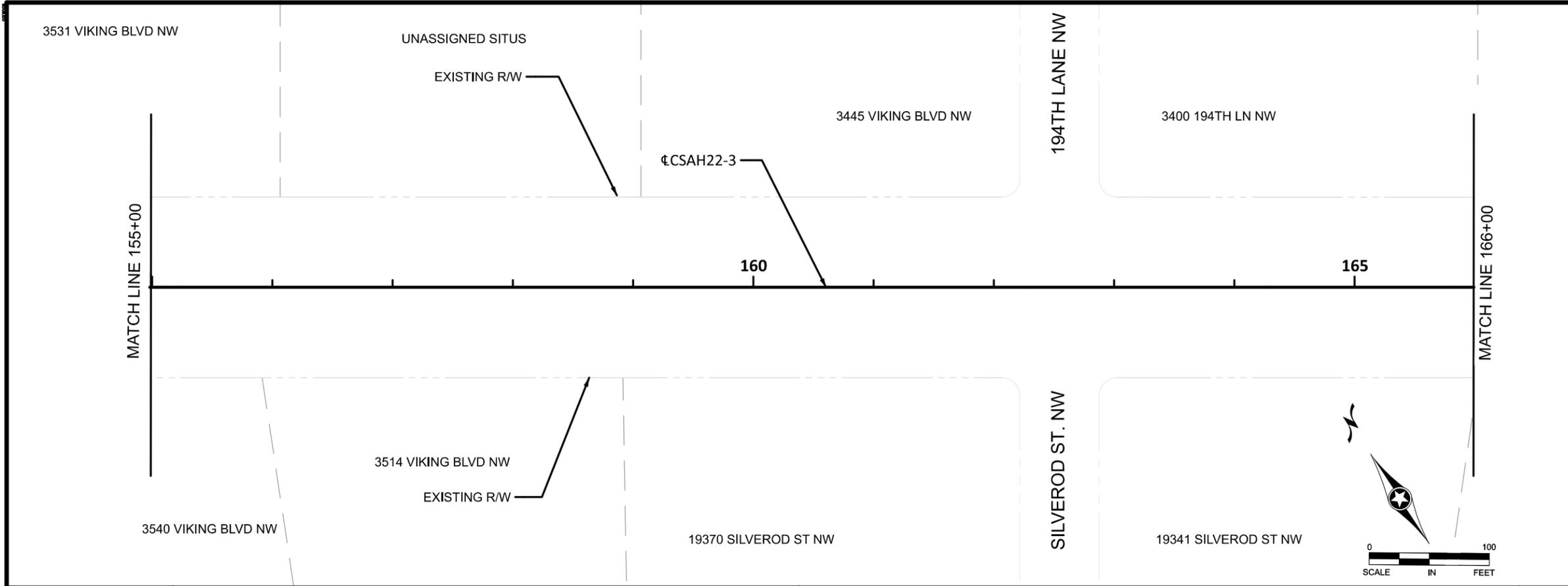
I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.  
 PRINT NAME: NICHOLAS J. DOBDA  
 SIGNATURE: *N. Dobda*  
 DATE: 04/09/2025 LICENSE NO. 49046

DRAWN BY CA DATE 04/03/25  
 DESIGN BY MAP DATE 04/03/25  
 CHECKED BY NJD DATE 04/03/25



SAP 002-622-045  
 SAP 223-020-011

ALIGNMENT PLAN  
 STA 133+00.00 TO 155+00.00  
 Sheet 44 of 85 Sheets



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: 04/09/2025 LICENSE NO. 49046

DRAWN BY CA DATE 04/03/25

DESIGN BY MAP DATE 04/03/25

CHECKED BY NJD DATE 04/03/25



SAP 002-622-045  
SAP 223-020-011

ALIGNMENT PLAN

STA 155+00.00 TO 173+83.57

Sheet 45 of 85 Sheets

### ALIGNMENT TABULATION

ELEMENT	POINT NUMBER	POINT TYPE	STATION	CIRCULAR CURVE DATA					COORDINATES		DIRECTION AZIMUTH
				DELTA	DEGREE	RADIUS	TANGENT	LENGTH	EASTING (X)	NORTHING (Y)	
				SPIRAL CURVE DATA							
				THETA	DEGREE	ST	LT	LS			
ALIGNMENT: CSAH22-3											
ARC	PRC	PRC	11094.007 R1						473137.8306	206571.7391	272°53'48.29"
ARC	HPI	HPI	11246.697 R1	01°31'36.58" LT	00°30'00.02"	11459	152.69	305.362	473290.3254	206564.0227	PI
ARC	CC	CC							473716.9256	218016.0971	
ARC	PT	PT	11399.369 R1						473442.9716	206560.3723	271°22'11.71"
TANGENT	PT	PT	11399.369 R1						473442.9716	206560.3723	
TANGENT	HPI	HPI	11551.900 R1						473595.4593	206556.7257	271°22'11.71"
TANGENT	HPI	HPI	11551.900 R1						473595.4593	206556.7257	
TANGENT	HPI	HPI	11910.059 R1						473953.3016	206541.6663	272°24'35.28"
TANGENT	HPI	HPI	11910.059 R1						473953.3016	206541.6663	
TANGENT	PC	PC	12087.893 R1						474130.978	206534.1878	272°24'36.65"
ARC	PC	PC	12087.893 R1						474130.978	206534.1878	272°24'36.65"
ARC	HPI	HPI	12462.528 R1	29°19'18.80" RT	04°00'03.97"	1432	374.635	732.845	474505.2816	206518.4332	PI
ARC	CC	CC							474070.7578	205103.4546	
ARC	PT	PT	12820.738 R1						474823.9151	206321.3947	301°43'55.45"
TANGENT	PT	PT	12820.738 R1						474823.9151	206321.3947	
TANGENT	HPI	HPI	13187.877 R1						475136.1728	206128.2989	301°43'55.45"
TANGENT	HPI	HPI	13187.877 R1						475136.1728	206128.2989	
TANGENT	PC	PC	17000.443 R1						478337.773	204058.1741	302°53'10.79"
ARC	PC	PC	17000.443 R1						478337.773	204058.1741	302°53'10.79"
ARC	HPI	HPI	17404.826 R1	31°32'17.91" LT	04°00'03.97"	1432	404.383	788.241	478677.3531	203838.6049	PI
ARC	CC	CC							479115.312	205260.6953	
ARC	PT	PT	17788.684 R1						479081.6237	203829.0916	271°20'52.89"
TANGENT	PT	PT	17788.684 R1						479081.6237	203829.0916	

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

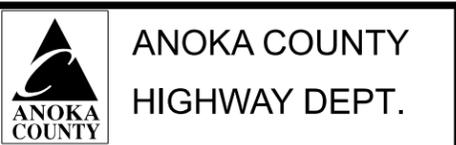
SIGNATURE: *Nicholas J. Dobda*

DATE: 04/09/2025 LICENSE NO. 49046

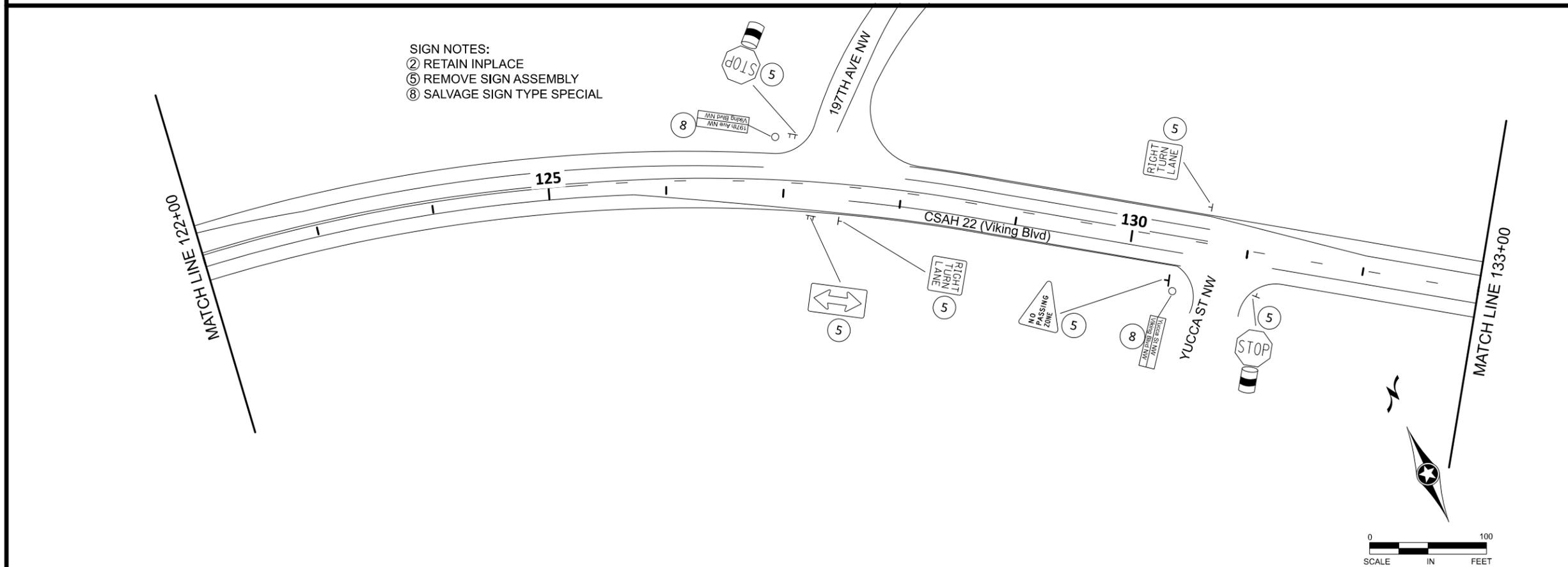
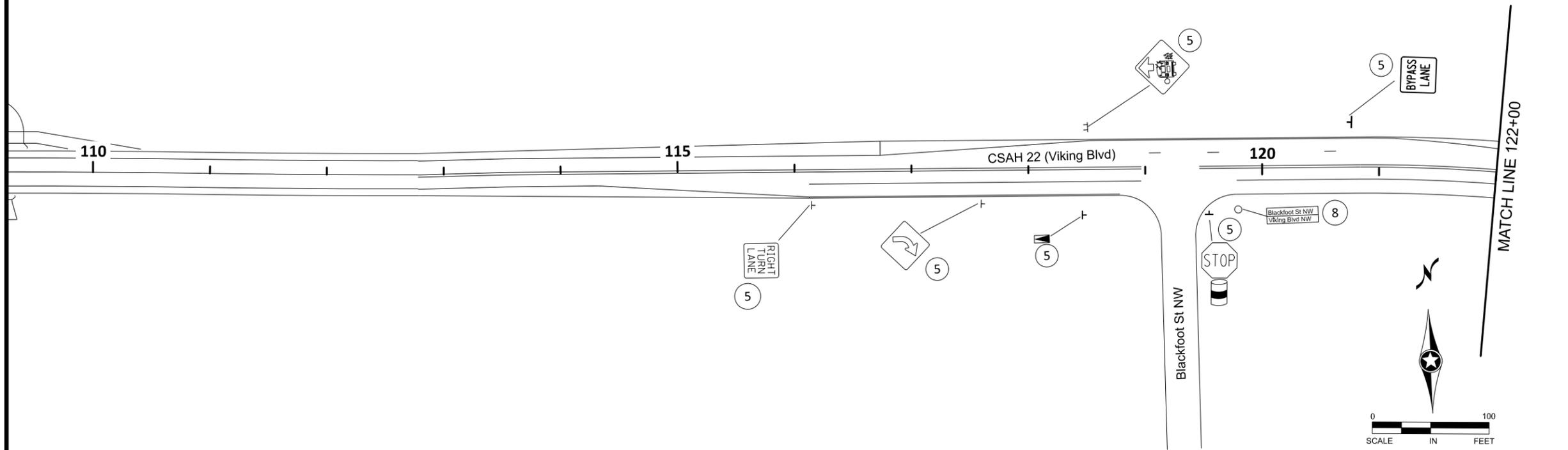
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DESIGN BY MAP DATE 04/03/25

CHECKED BY NJD DATE 04/03/25



SAP 002-622-045  
SAP 223-020-011



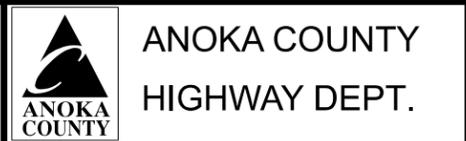
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 ② RETAIN INPLACE  
 ⑤ REMOVE SIGN ASSEMBLY  
 ⑧ SALVAGE SIGN TYPE SPECIAL

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 R. THIEL  
 SIGNATURE: *Sean R. Thiel*  
 DATE: 04/15/2025 LICENSE NO. 45129

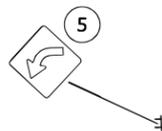
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 CHECKED BY SRT DATE 04/03/25



SAP 002-622-045  
 SAP 223-020-011

EXISTING SIGNING & STRIPING  
 STA 112+77.99 TO 133+00.00  
 Sheet 47 of 85 Sheets

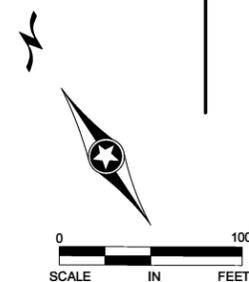
MATCH LINE 133+00



135

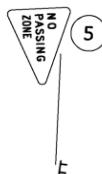
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MATCH LINE 144+00



MATCH LINE 144+00

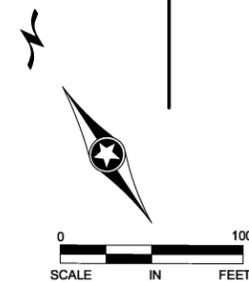
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 ② RETAIN INPLACE  
 ⑤ REMOVE SIGN ASSEMBLY  
 ⑧ SALVAGE SIGN TYPE SPECIAL



145

150

MATCH LINE 155+00

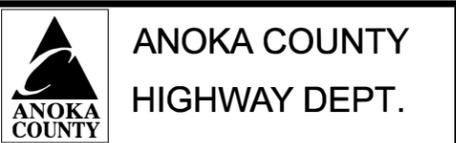


NO	DATE	BY	CKD	APPR	REVISION

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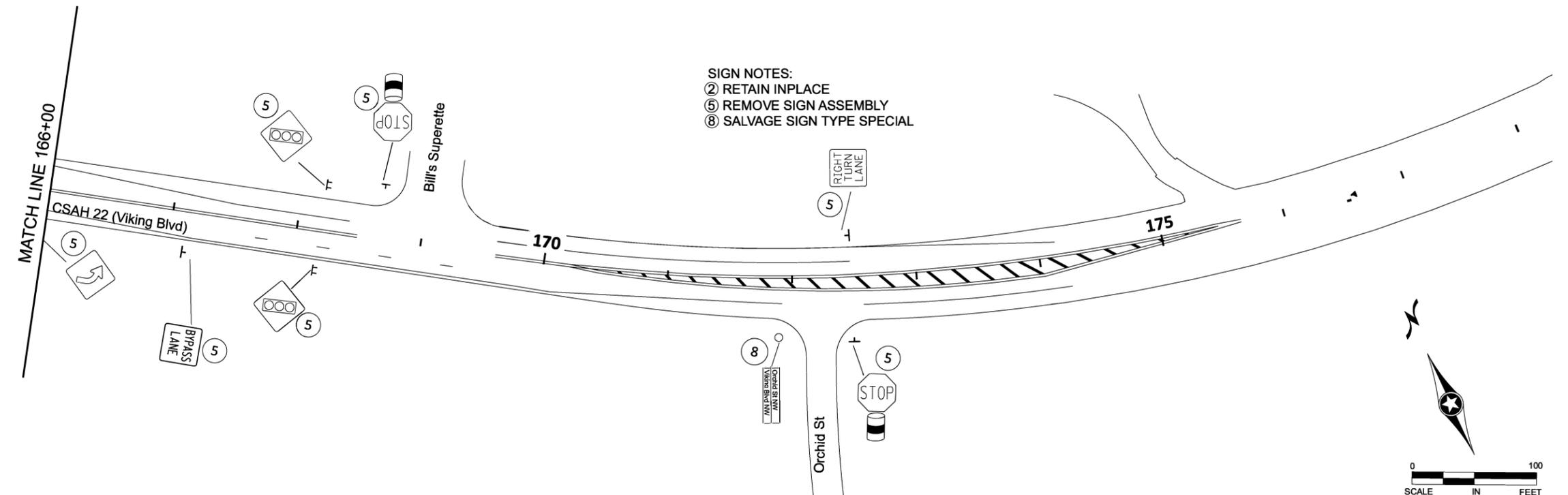
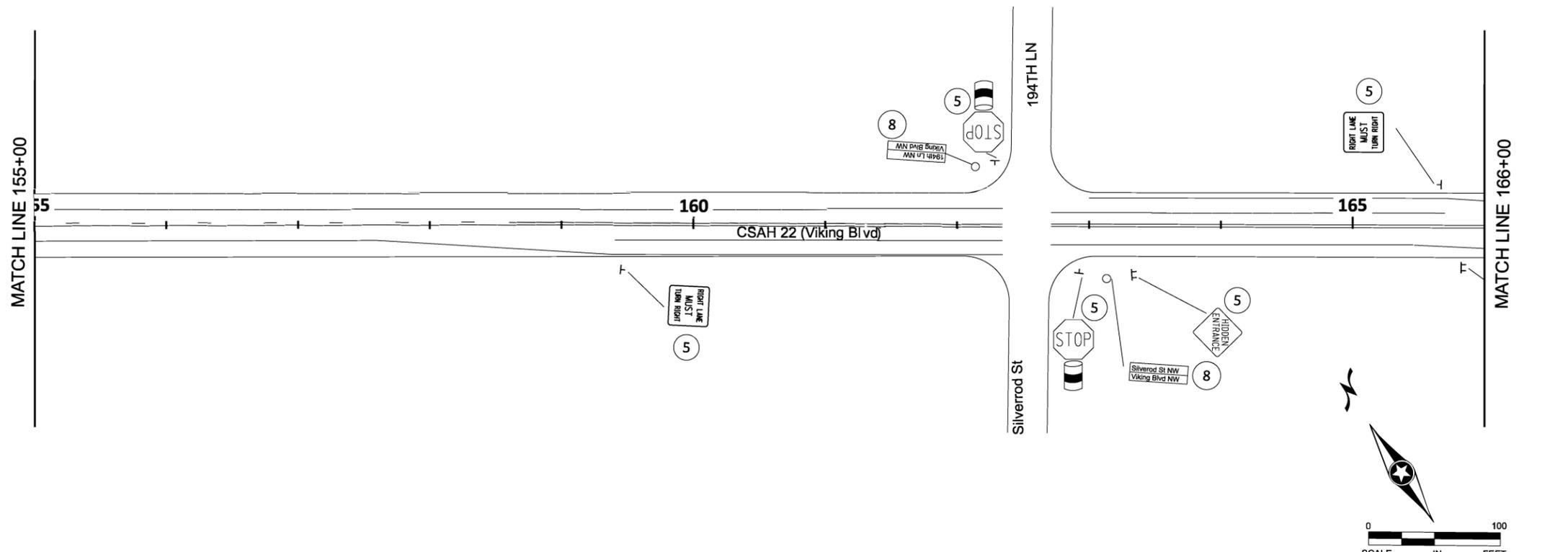
I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.  
 PRINT NAME: SEAN R. THIEL  
 SIGNATURE: *Sean R. Thiel*  
 DATE: 04/15/2025 LICENSE NO. 45129

DRAWN BY LJK DATE 04/03/25  
 DESIGN BY LJK DATE 04/03/25  
 CHECKED BY SRT DATE 04/03/25



SAP 002-622-045  
 SAP 223-020-011

EXISTING  
 SIGNING & STRIPING  
 STA 133+00.00 TO 155+00.00  
 Sheet 48 of 85 Sheets



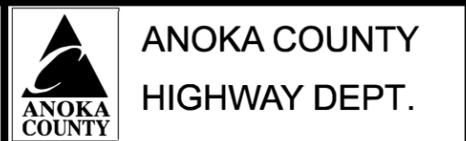
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 ② RETAIN IN PLACE  
 ⑤ REMOVE SIGN ASSEMBLY  
 ⑧ SALVAGE SIGN TYPE SPECIAL

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 R. THIEL  
 SIGNATURE: *Sean R. Thiel*  
 DATE: 04/15/2025 LICENSE NO. 45129

DRAWN BY: LJK DATE: 04/11/25  
 DESIGN BY: LJK DATE: 04/11/25  
 CHECKED BY: SRT DATE: 04/11/25



SAP 002-622-045  
 SAP 223-020-011

EXISTING SIGNING & STRIPING  
 STA 155+00.00 TO 173+83.57  
 Sheet 49 of 85 Sheets

EXISTING SIGN TAB					I
STATION	ADDRESS/ DESCRIPTION (NOTES)	REMOVE SIGN TYPE C	SIGN TYPE SPECIAL	SIGN NUMBER	SIGN LEGEND
		EACH	EACH		
<b>CSAH 22 (VIKING BLVD)</b>					
116+10	RT	1			RIGHT TURN LANE
117+75	RT	1		W1-2R	CURVE RIGHT
118+50	LT	1		S3-1	BUS STOP AHEAD
	RT	1		X3-5	SNOW PLOW MARKER
119+50	RT	1		R1-1	STOP
				X4-3	DELINEATOR
119+75	RT		1		CITY STREET SIGN
120+80	LT	1		R4-X8	BYPASS LANE
127+00	LT	1		R1-1	STOP
				X4-3	DELINEATOR
					1
127+25	RT	1		W1-7	DOUBLE HEADED ARROW
127+50	RT	1			RIGHT TURN LANE
130+50	RT	1		1	CITY STREET SIGN
	LT	1		W14-3	NO PASSING ZONE
131+00	RT	1		R1-1	STOP
				X4-3	DELINEATOR
135+50	LT	1		W1-2L	CURVE LEFT
149+75	LT	1		W14-3	NO PASSING ZONE
159+50	RT	1		R3-7R	RIGHT LANE MUST TURN RIGHT
162+00	LT	1		R1-1	STOP
				X4-3	DELINEATOR
					1
163+00	RT	1		R1-1	STOP
				X4-3	DELINEATOR
			1		CITY STREET SIGN
163+25	RT	1		W2-X12	HIDDEN ENTRANCE
165+75	LT	1		R3-7R	RIGHT LANE MUST TURN RIGHT
	RT	1		W1-2L	CURVE LEFT
167+00	RT	1		R4-X8	BYPASS LANE
	LT	1		W3-3	SIGNAL AHEAD
168+25	RT	1		W3-3	SIGNAL AHEAD
	LT	1			
168+75	LT	1		R1-1	STOP
				X4-3	DELINEATOR
172+50	LT	1			RIGHT TURN LANE
	RT	1		R1-1	STOP
				X4-3	DELINEATOR
TOTAL		26	5		

**CONSTRUCTION NOTES:**

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

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 R. THIEL  
 SIGNATURE: *Sean R. Thiel*  
 DATE: 04/03/25 LICENSE NO. 45129

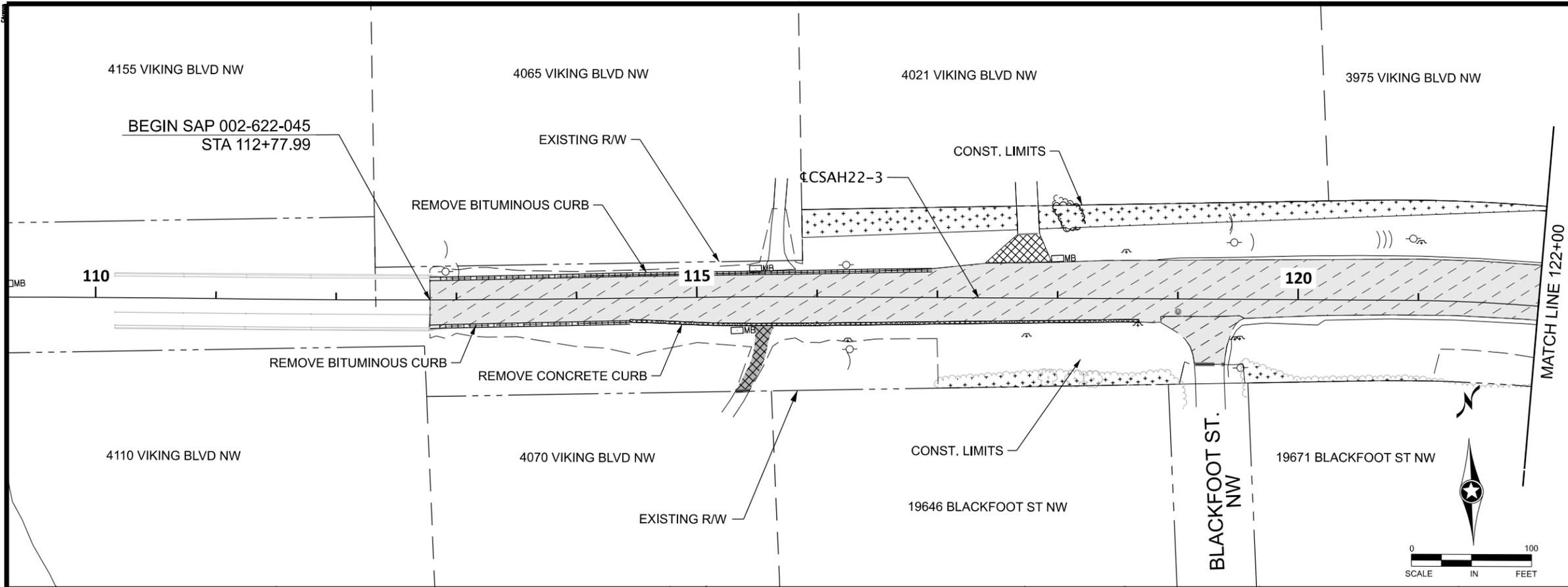
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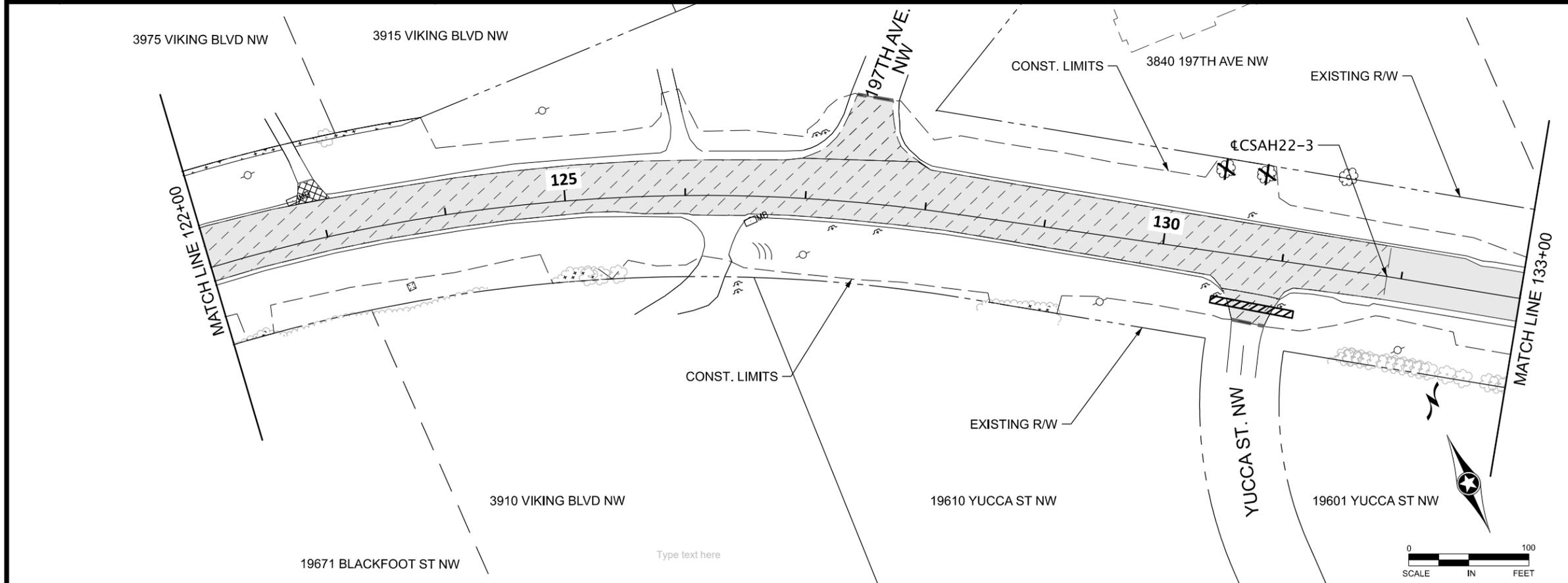
**ANOKA COUNTY  
HIGHWAY DEPT.**

SAP 002-622-045  
 SAP 223-020-011

EXISTING SIGN REMOVAL  
 QUANTITIES  
 Sheet 50 of 85 Sheets



LEGEND	
	EXISTING RIGHT OF WAY
	WETLAND BOUNDARY
	CONSTRUCTION LIMITS
	REMOVE BITUMINOUS PAVEMENT
	FULL DEPTH RECLAMATION
	REMOVE CONCRETE DRIVEWAY
	REMOVE BITUMINOUS DRIVEWAY
	MILL AND OVERLAY BITUMINOUS PAVEMENT
	GRUBBING (ACRE)
	REMOVE CONCRETE CURB AND GUTTER
	REMOVE BITUMINOUS CURB
	SAWING BITUMINOUS/CONCRETE PAVEMENT (FULL DEPTH)
	REMOVE PIPE CULVERTS
	GRUBBING (EACH)



NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\002-622-045 Concrete from Rum River thru CSAH 9\Plan\002622045\_180rem.dgn 04/07/2025 2:57:55 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

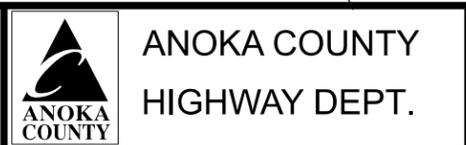
SIGNATURE: *N. Dobda*

DATE: 04/09/2025 LICENSE NO. 49046

DRAWN BY CA DATE 04/03/25

DESIGN BY MAP DATE 04/03/25

CHECKED BY NJD DATE 04/03/25

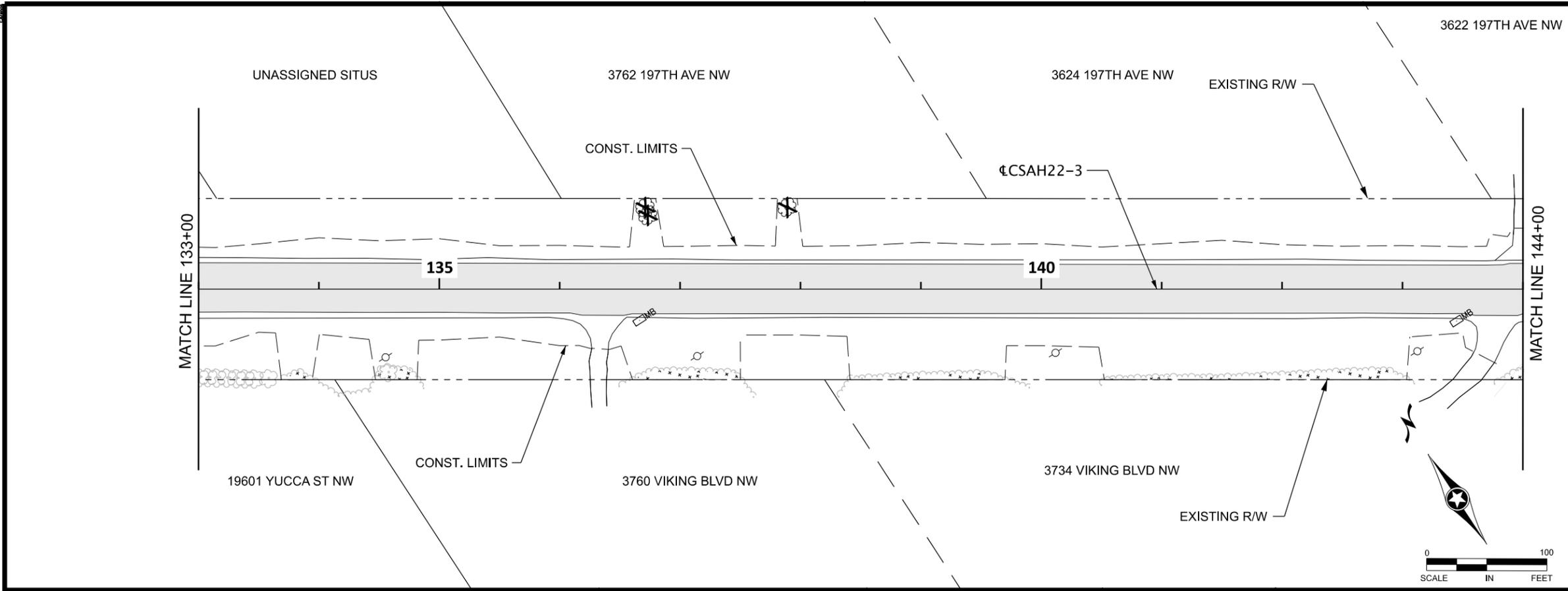


SAP 002-622-045  
SAP 223-020-011

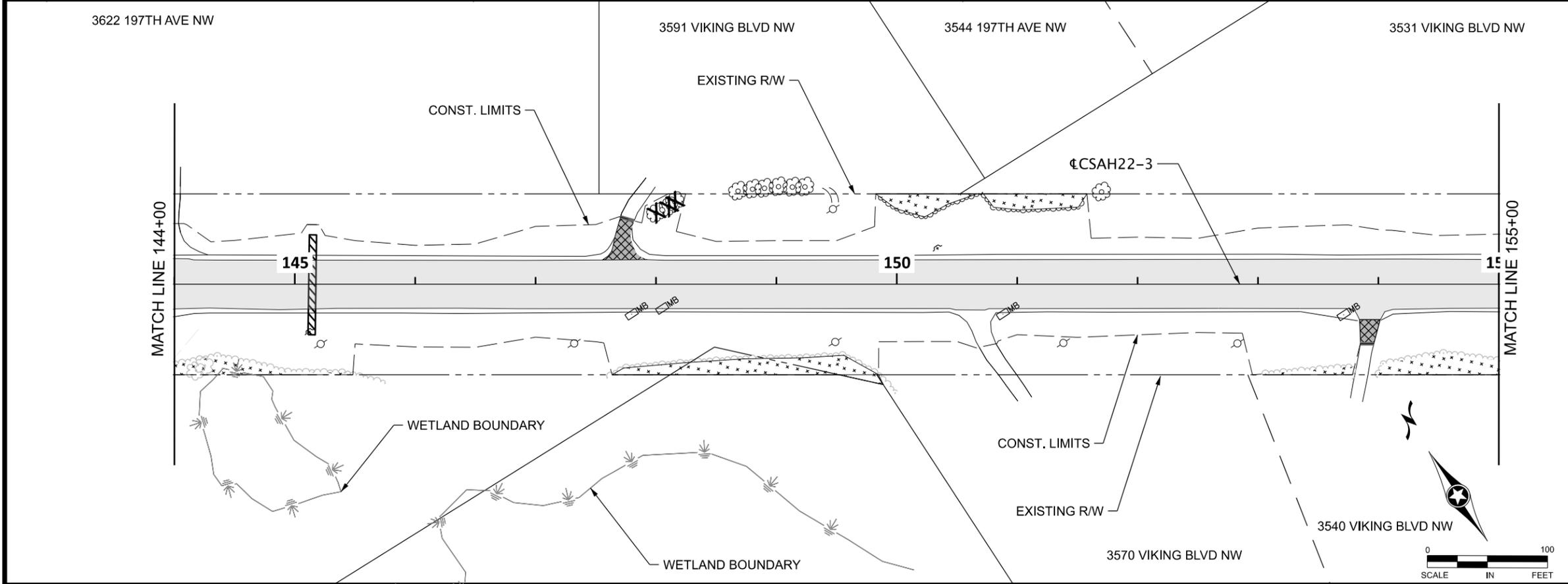
1 OF 3

INPLACE TOPOGRAPHY AND REMOVAL PLANS  
STA 112+77.99 TO 133+00.00

Sheet 51 of 85 Sheets



LEGEND	
	EXISTING RIGHT OF WAY
	WETLAND BOUNDARY
	CONSTRUCTION LIMITS
	REMOVE BITUMINOUS PAVEMENT
	FULL DEPTH RECLAMATION
	REMOVE CONCRETE DRIVEWAY
	REMOVE BITUMINOUS DRIVEWAY
	MILL AND OVERLAY BITUMINOUS PAVEMENT
	GRUBBING (ACRE)
	REMOVE CONCRETE CURB AND GUTTER
	REMOVE BITUMINOUS CURB
	SAWING BITUMINOUS/CONCRETE PAVEMENT (FULL DEPTH)
	REMOVE PIPE CULVERTS
	GRUBBING (EACH)



NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\002-622-045 Concrete from Rum River thru CSAH 9\Plan\002622045\_180rem.dgn 04/07/2025 2:57:56 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: 04/09/2025 LICENSE NO. 49046

DRAWN BY CA DATE 04/03/25  
 DESIGN BY MAP DATE 04/03/25  
 CHECKED BY NJD DATE 04/03/25

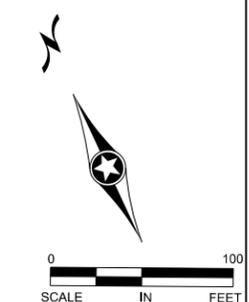
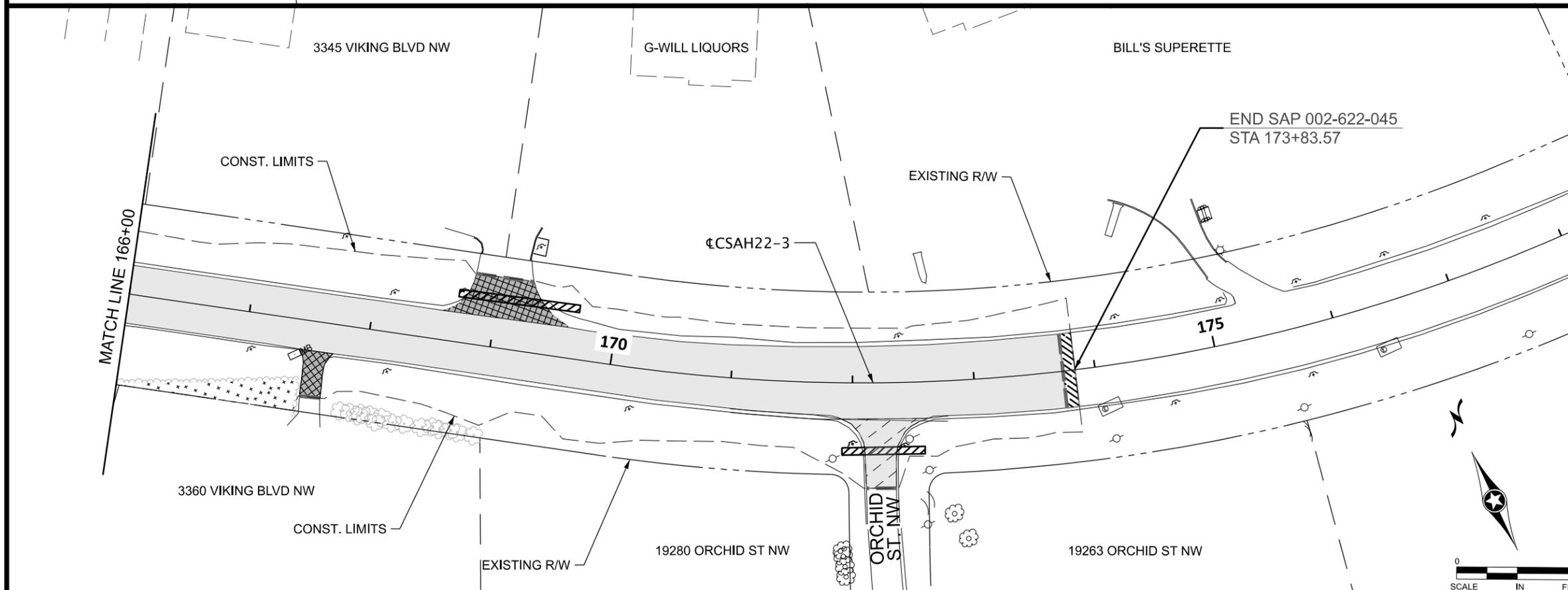
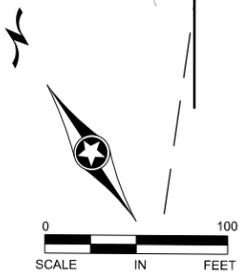
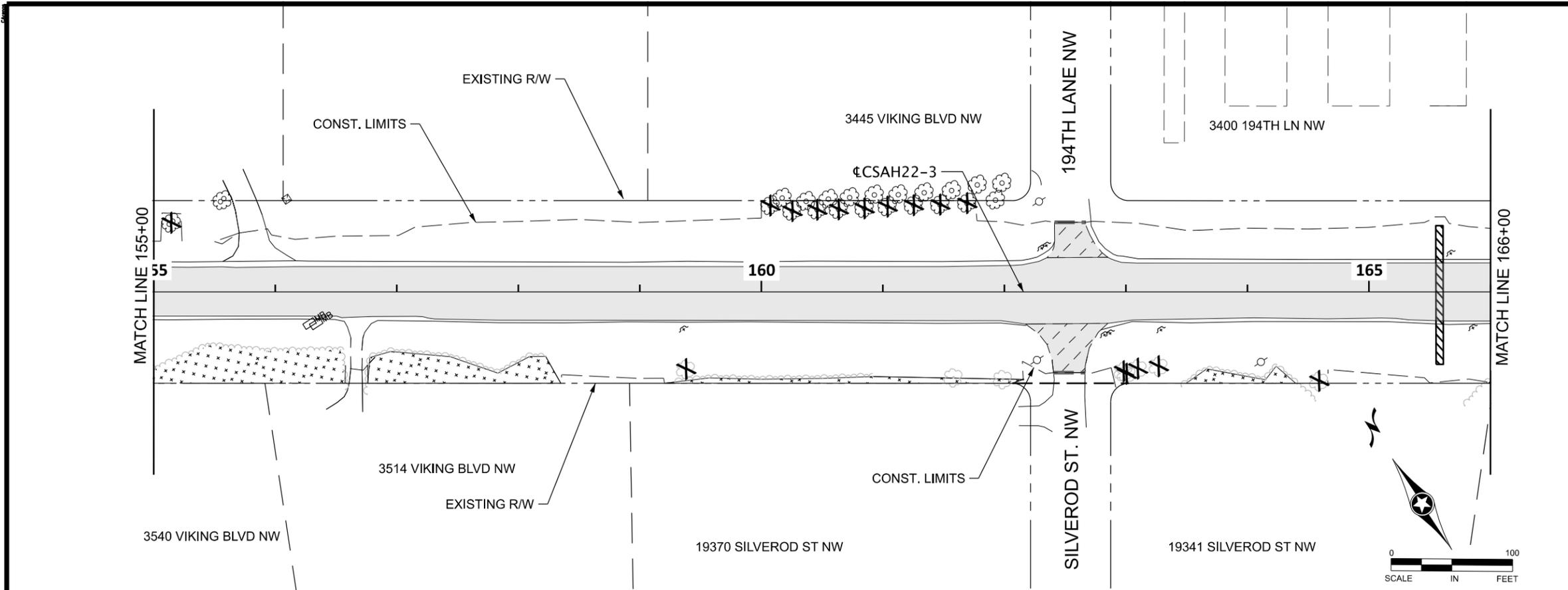


SAP 002-622-045  
 SAP 223-020-011

INPLACE TOPOGRAPHY AND REMOVAL PLANS  
 STA 133+00.00 TO 155+00.00  
 Sheet 52 of 85 Sheets

LEGEND

-  EXISTING RIGHT OF WAY
-  WETLAND BOUNDARY
-  CONSTRUCTION LIMITS
-  REMOVE BITUMINOUS PAVEMENT
-  FULL DEPTH RECLAMATION
-  REMOVE CONCRETE DRIVEWAY
-  REMOVE BITUMINOUS DRIVEWAY
-  MILL AND OVERLAY BITUMINOUS PAVEMENT
-  GRUBBING (ACRE)
-  REMOVE CONCRETE CURB AND GUTTER
-  REMOVE BITUMINOUS CURB
-  SAWING BITUMINOUS/CONCRETE PAVEMENT (FULL DEPTH)
-  REMOVE PIPE CULVERTS
-  GRUBBING (EACH)



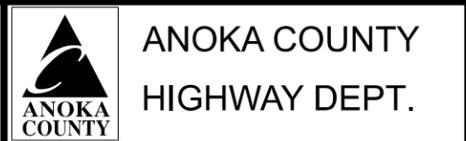
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NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\002-622-045 Concrete from Rum River thru CSAH 9\Plan\002622045\_180rem.dgn 04/07/2025 2:57:57 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: 04/09/2025 LICENSE NO. 49046

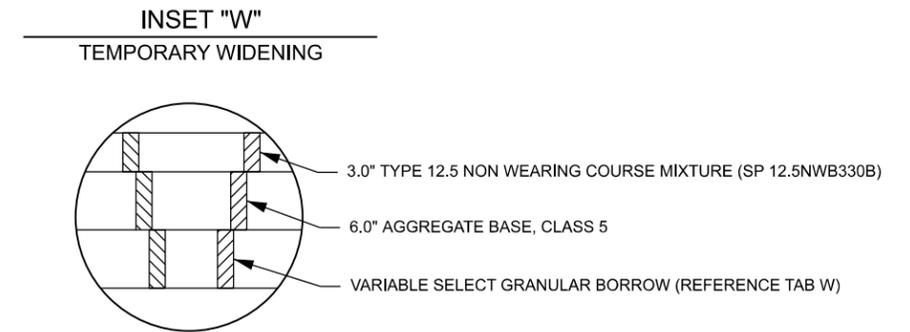
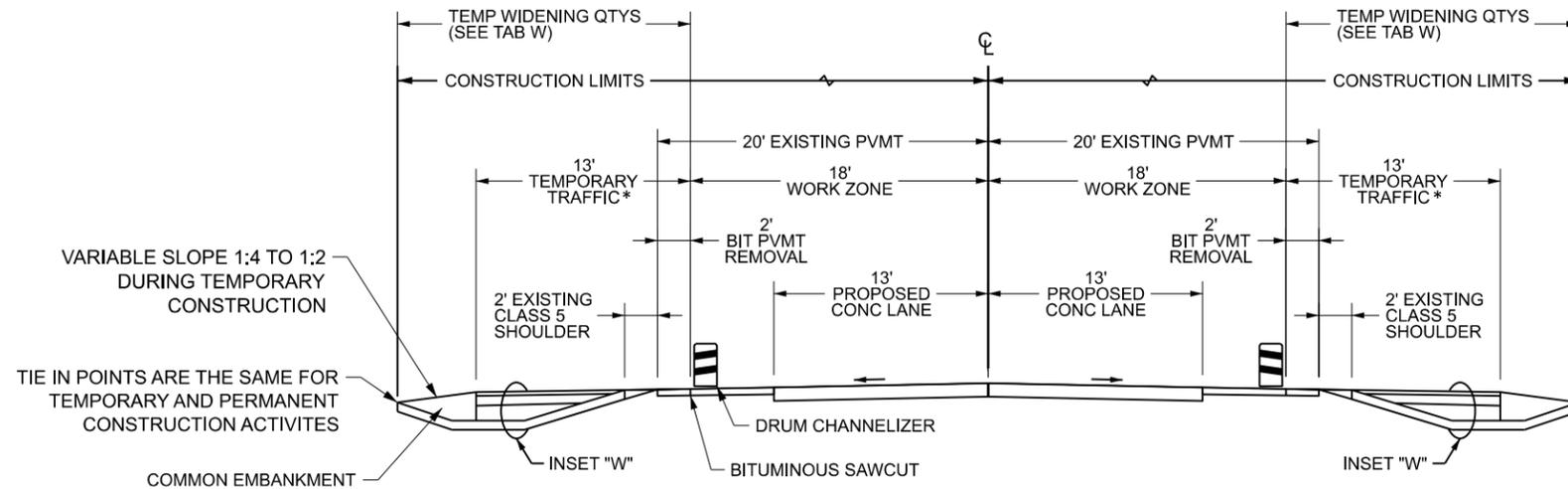
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 DESIGN BY MAP DATE 04/03/25  
 CHECKED BY NJD DATE 04/03/25



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 SAP 223-020-011

INPLACE TOPOGRAPHY AND REMOVAL PLANS  
 STA 155+00.00 TO 173+83.57  
 Sheet 53 of 85 Sheets

**CSAH 22 STAGING**  
STA. 131+88 - 173+84



**STAGING NARRATIVE:**

STAGE 1: REPLACE CENTERLINE CULVERTS. EXTEND CULVERTS WITH SALVAGED PIPE STUBS FOR TEMPORARY DRAINAGE.

STAGE 2: IN AREAS OF TEMPORARY WIDENING (STA 131+88 - 173+84), STRIP TOPSOIL, SAWCUT AND REMOVE OUTSIDE BITUMINOUS, INSTALL SELECT GRANULAR, AGGREGATE BASE CLASS 5, AND 12' OF TEMPORARY PAVEMENT WITH 1' GRAVEL SHOULDER (\*SEE TYPICAL SECTION ABOVE). INSTALL COMMON EMBANKMENT FOR OUTSIDE SAFETY SHOULDER.

STAGE 3: MOVE TRAFFIC TO TEMPORARY WIDENING. CONSTRUCT MAINLINE.

STAGE 4: MOVE TRAFFIC TO CONCRETE MAINLINE, RECLAIM TEMPORARY WIDENING. HAUL EXCESS WIDTH GRAVEL FROM TEMPORARY WIDENING TO BUILD GRAVEL SHOULDERS. PAVE BITUMINOUS SHOULDERS AND INSTALL AGGREGATE BASE SHOULDERS.

STAGE 5: FROM 112+77.9 - 131+88, SHIFT TRAFFIC TO NORTH SIDE OF ROADWAY. BUILD SOUTH PORTION OF ROADWAY BY SALVAGING SELECT GRANULAR FROM WIDENING AREAS IN STA 131+88 - 173+84. REMOVE TEMPORARY DRAINAGE STUBS, PLACE TOPSOIL FROM STA 131+88 - 173+84.

STAGE 6: FROM STA 112+77.9 - 131+88, SHIFT TRAFFIC TO SOUTH SIDE OF ROADWAY. BUILD NORTH PORTION OF ROADWAY BY SALVAGING SELECT GRANULAR FROM WIDENING AREAS IN STA 131+88 - 173+84. REMOVE TEMPORARY DRAINAGE STUBS, PLACE TOPSOIL IN ALL REMAINING AREAS REQUIRING TURF ESTABLISHMENT.

TEMPORARY WIDENING TABULATIONS		W
ITEM	UNIT	TOTAL
REMOVE PIPE CULVERT	LF	80
INSTALL PIPE CULVERT	LF	80
SAWING BIT PAVEMENT (FULL DEPTH)	LF	8392
REMOVE BITUMINOUS PAVEMENT	SY	1865
EXCAVATION - COMMON	CY	1445
SELECT GRANULAR EMBANKMENT (CV)	CY	583
SELECT GRANULAR EMBANKMENT (CV) (ON SITE)	CY	758
COMMON EMBANKMENT (CV)	CY	1794
AGGREGATE BASE CLASS 5 (CV)	CY	2,020
FULL DEPTH RECLAMATION	SY	11,189
HAUL FULL DEPTH RECLAMATION (LV)	CY	1,301
TYPE SP 12.5 NON WEARING COURSE MIXTURE (3,B)	TON	1,930
RAPID STABILIZATION METHOD 3	MGAL	5.8

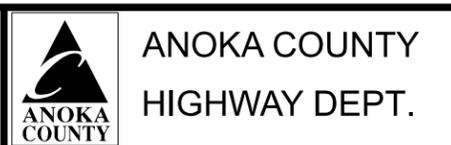
NOTE: QUANTITIES INCLUDE CROSSOVERS OUTSIDE OF TYPICAL SECTION

NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\002-622-045 Concrete from Rum River thru CSAH 9\Plan\002622045\_160stg.dgn 04/09/2025 3:43:23 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: *[Signature]*  
 DATE: 04/10/2025 LICENSE NO. 49046

DRAWN BY CA DATE 04/03/25  
 DESIGN BY MAP DATE 04/03/25  
 CHECKED BY NJD DATE 04/03/25



SAP 002-622-045  
 SAP 223-020-011

STAGING NARRATIVE,  
 DETAILS AND TABULATIONS  
 Sheet 54 of 85 Sheets

CONSTRUCTION NOTES

- (A) AGGREGATE DRIVEWAY
- (B) BITUMINOUS DRIVEWAY
- (C) CONCRETE DRIVEWAY
- (D) 9' BITUMINOUS SHOULDER
- (F) 2' AGGREGATE SHOULDER
- (G) B424 CONCRETE CURB & GUTTER
- (H) B424 (MOD) CONCRETE CURB & GUTTER AND 4" CONCRETE WALK (MEDIAN)

PROPOSED CULVERT

MILL AND OVERLAY BITUMINOUS PAVEMENT

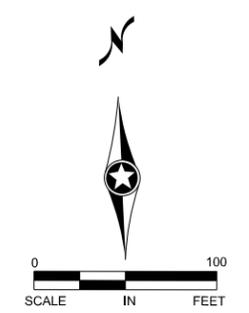
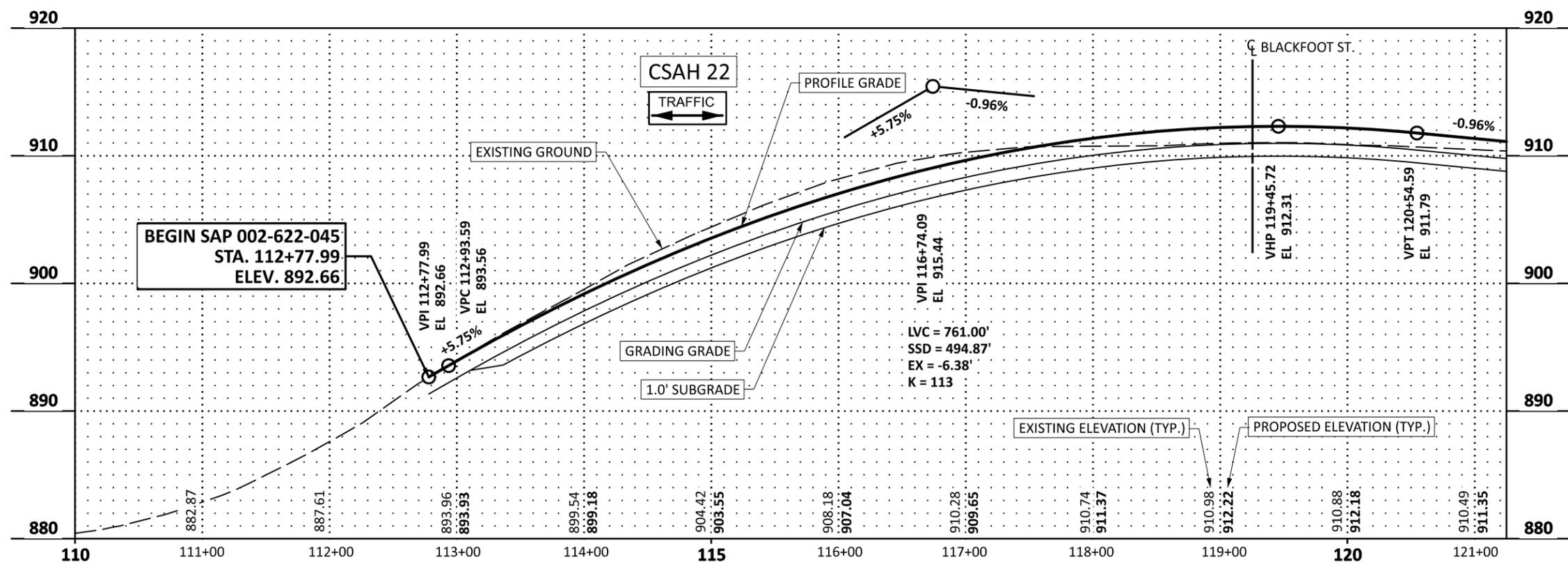
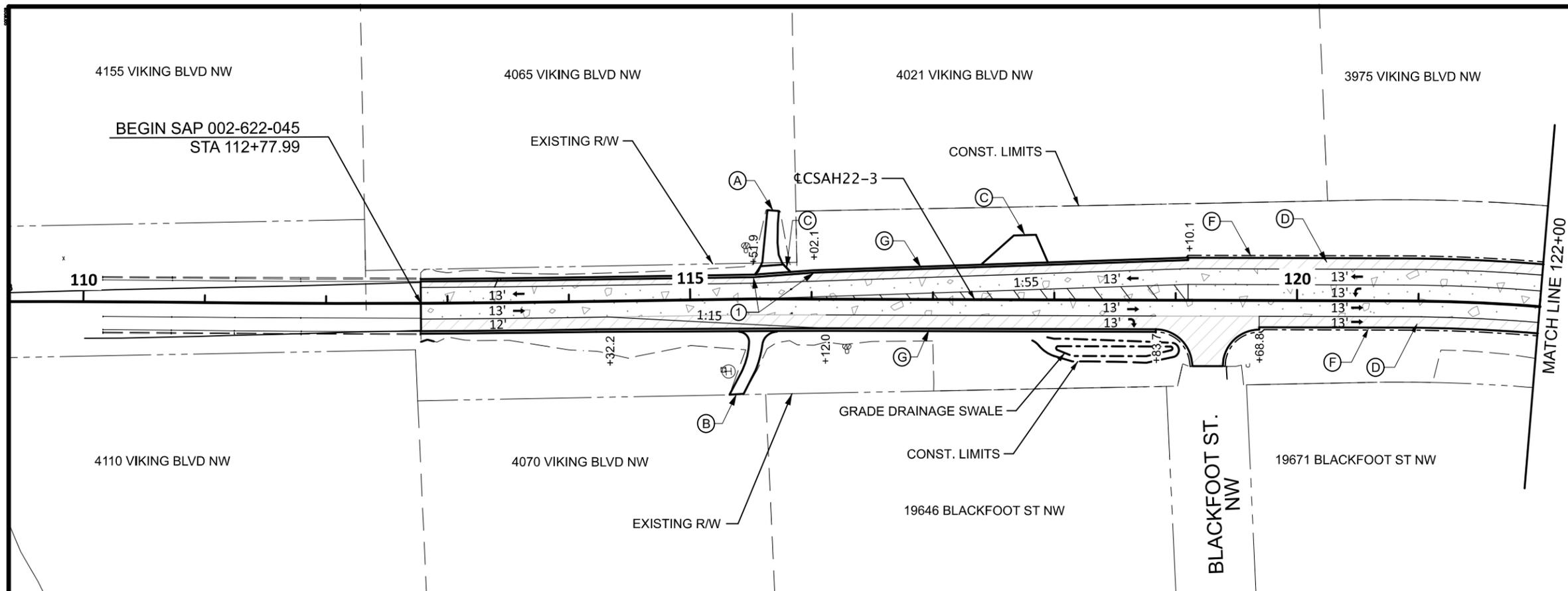
BITUMINOUS TRANSITION

8" CONCRETE PAVEMENT

4" BITUMINOUS PAVEMENT

ALL DIMENSIONS ARE TO EDGE OF PAVEMENT OR FACE OF CURB UNLESS OTHERWISE NOTED.

① TAPER SHLD FROM 7'-9" WIDTH (FACE OF CURB).



NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\002-622-045 Concrete from Rum River thru CSAH 9\Plan\002622045\_185cpp.dgn 04/08/2025 12:34:49 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

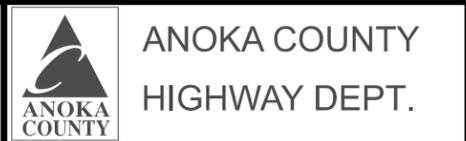
SIGNATURE: *Nicholas J. Dobda*

DATE: 04/09/2025 LICENSE NO. 49046

DRAWN BY: CA DATE: 04/03/25

DESIGN BY: MAP DATE: 04/03/25

CHECKED BY: NJD DATE: 04/03/25



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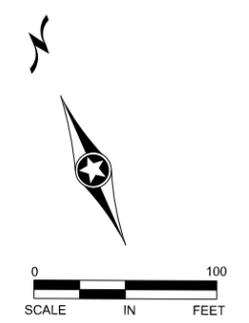
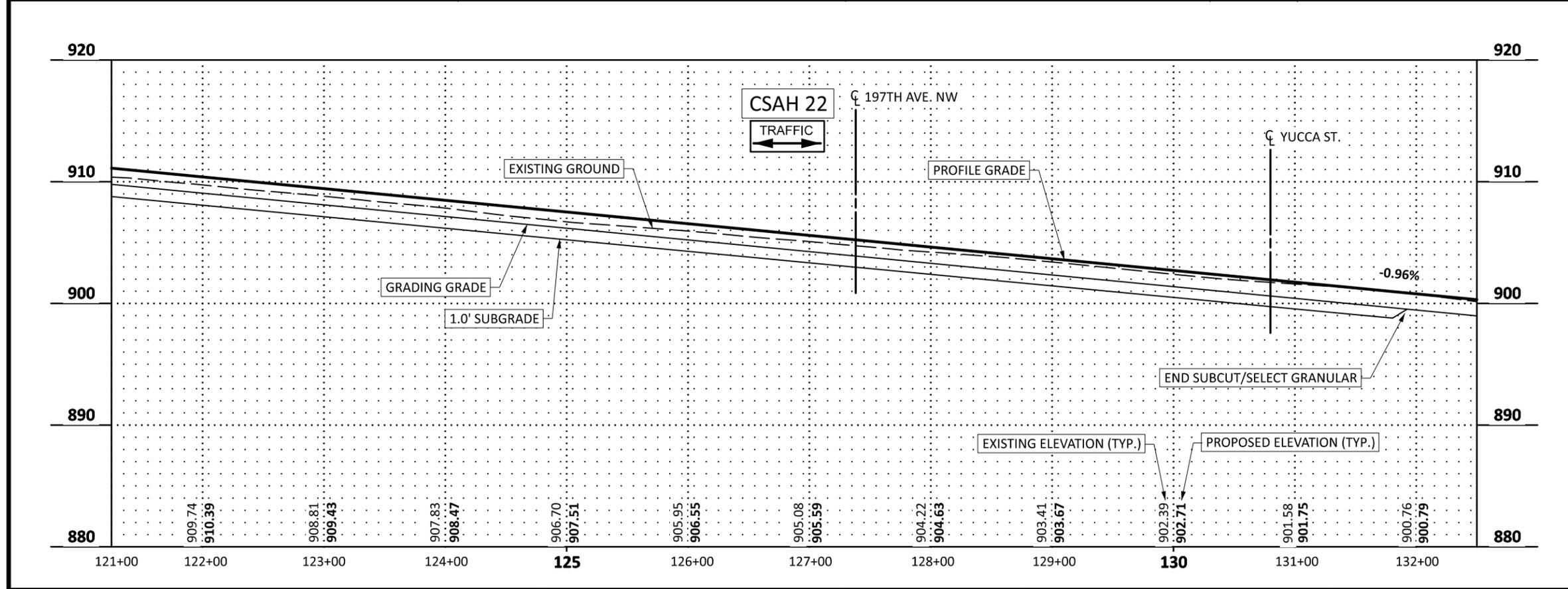
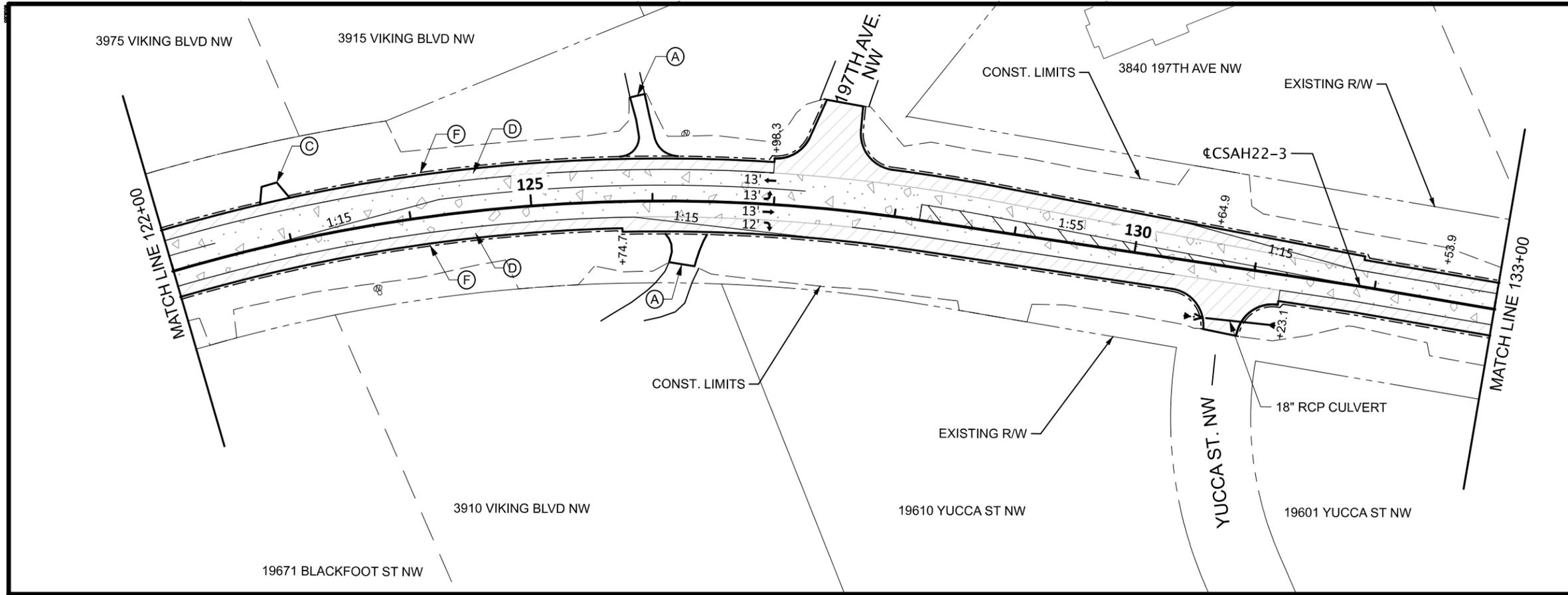
CONSTRUCTION PLAN AND PROFILE  
STA 112+77.99 TO 122+00.00  
Sheet 55 of 85 Sheets

CONSTRUCTION NOTES

- (A) AGGREGATE DRIVEWAY
- (B) BITUMINOUS DRIVEWAY
- (C) CONCRETE DRIVEWAY
- (D) 9' BITUMINOUS SHOULDER
- (F) 2' AGGREGATE SHOULDER
- (G) B424 CONCRETE CURB & GUTTER
- (H) B418 (MOD) CONCRETE CURB & GUTTER AND 4" CONCRETE WALK (MEDIAN)

- PROPOSED CULVERT
- MILL AND OVERLAY BITUMINOUS PAVEMENT
- BITUMINOUS TRANSITION
- 8" CONCRETE PAVEMENT
- 4" BITUMINOUS PAVEMENT

ALL DIMENSIONS ARE TO EDGE OF PAVEMENT OR FACE OF CURB UNLESS OTHERWISE NOTED.



NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\002-622-045 Concrete from Rum River thru CSAH 9\Plan\002622045\_185cpp.dgn 04/08/2025 12:34:50 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.

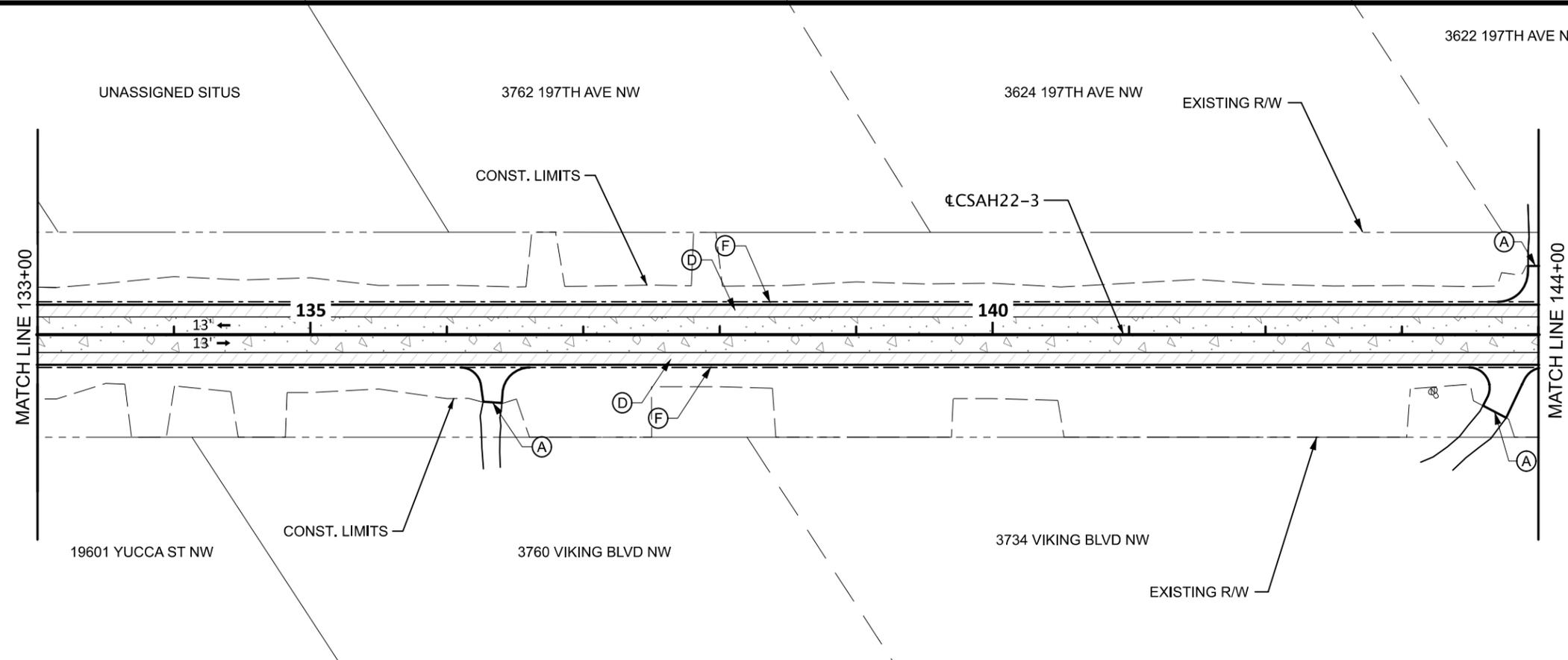
PRINT NAME: NICHOLAS J. DOBDA  
 SIGNATURE: *NJD*  
 DATE: 04/09/2025 LICENSE NO. 49046

DRAWN BY CA DATE 04/03/25  
 DESIGN BY MAP DATE 04/03/25  
 CHECKED BY NJD DATE 04/03/25

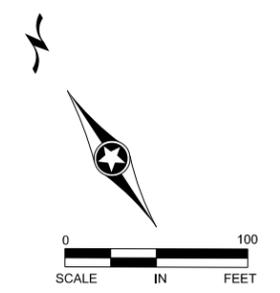
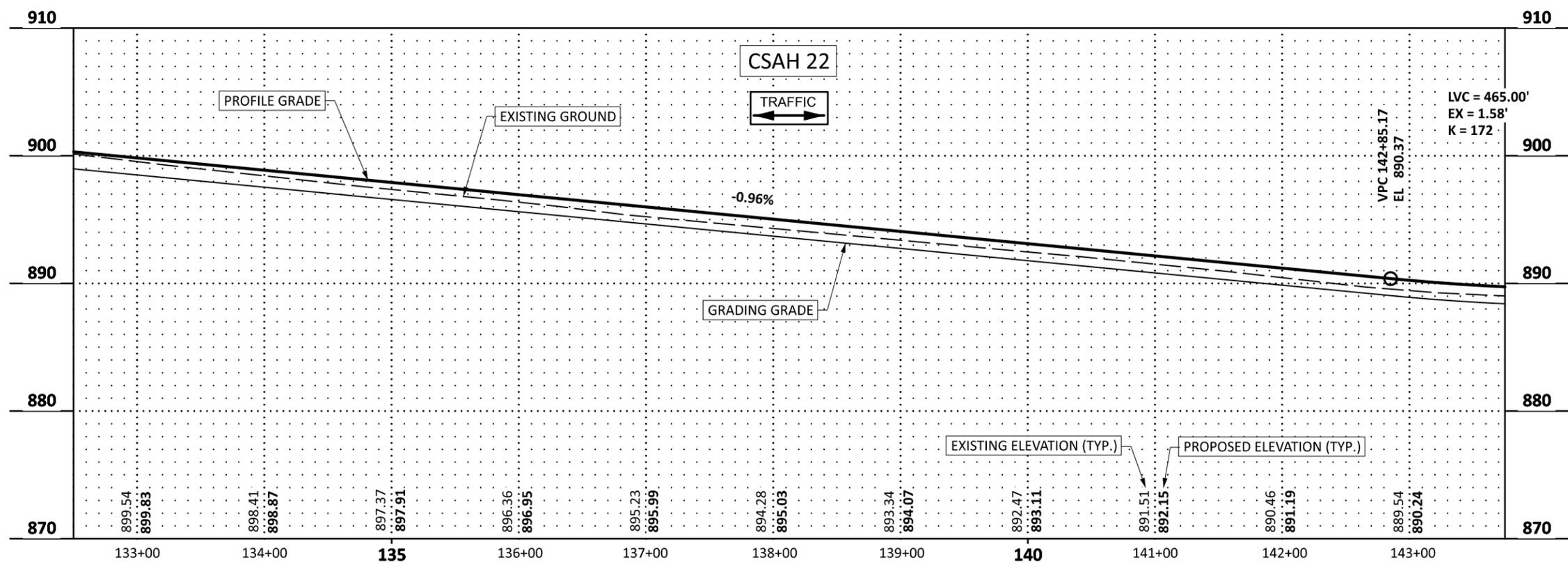


SAP 002-622-045  
 SAP 223-020-011

CONSTRUCTION PLAN AND PROFILE  
 STA 122+00.00 TO 133+00.00  
 Sheet 56 of 85 Sheets



- CONSTRUCTION NOTES**
- (A) AGGREGATE DRIVEWAY
  - (B) BITUMINOUS DRIVEWAY
  - (C) CONCRETE DRIVEWAY
  - (D) 9' BITUMINOUS SHOULDER
  - (F) 2' AGGREGATE SHOULDER
  - (G) B424 CONCRETE CURB & GUTTER
  - (H) B418 (MOD) CONCRETE CURB & GUTTER AND 4" CONCRETE WALK (MEDIAN)
- PROPOSED CULVERT
  - MILL AND OVERLAY BITUMINOUS PAVEMENT
  - BITUMINOUS TRANSITION
  - 8" CONCRETE PAVEMENT
  - 4" BITUMINOUS PAVEMENT
- ALL DIMENSIONS ARE TO EDGE OF PAVEMENT OR FACE OF CURB UNLESS OTHERWISE NOTED.



3 OF 6

NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\002-622-045 Concrete from Rum River thru CSAH 9\Plan\002622045\_185cpp.dgn 04/08/2025 12:34:51 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

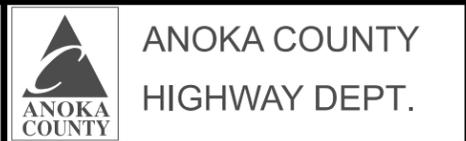
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DATE: 04/09/2025 LICENSE NO. 49046

DRAWN BY CA DATE 04/03/25

DESIGN BY MAP DATE 04/03/25

CHECKED BY NJD DATE 04/03/25



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SAP 223-020-011

CONSTRUCTION PLAN  
AND PROFILE

STA 133+00.00 TO 144+00.00

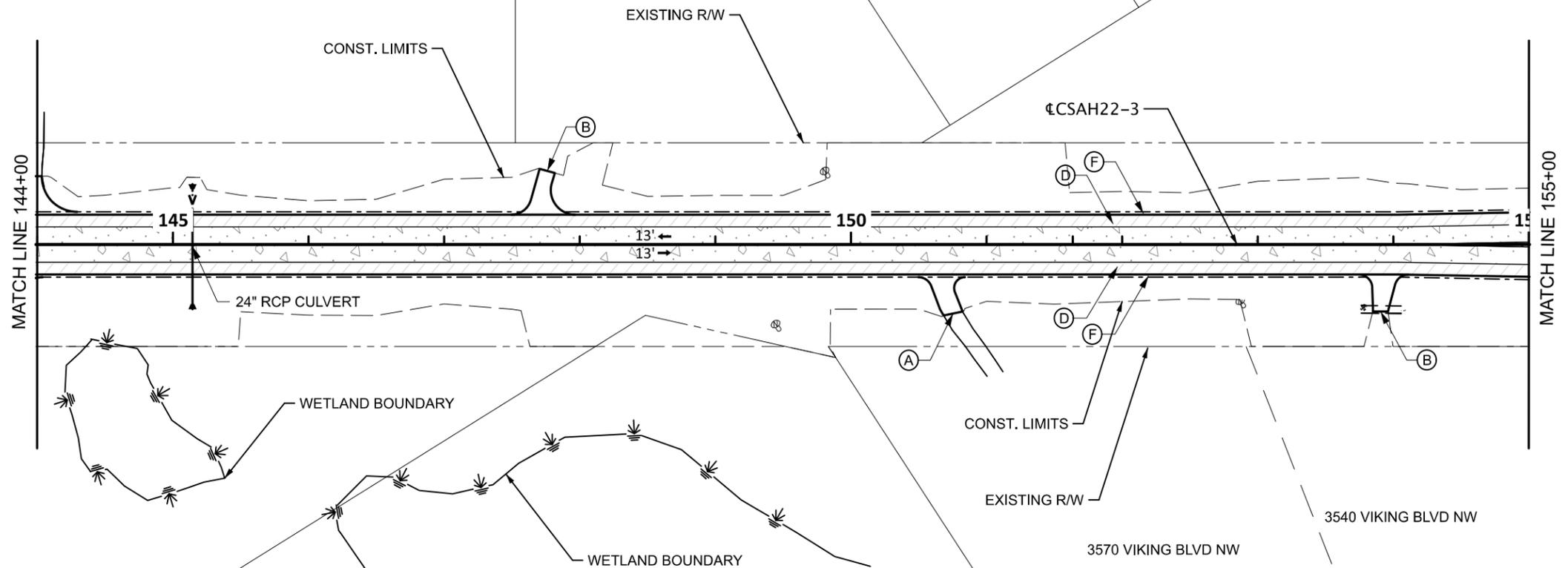
Sheet 57 of 85 Sheets

3622 197TH AVE NW

3591 VIKING BLVD NW

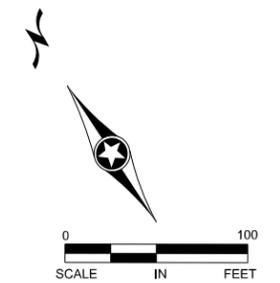
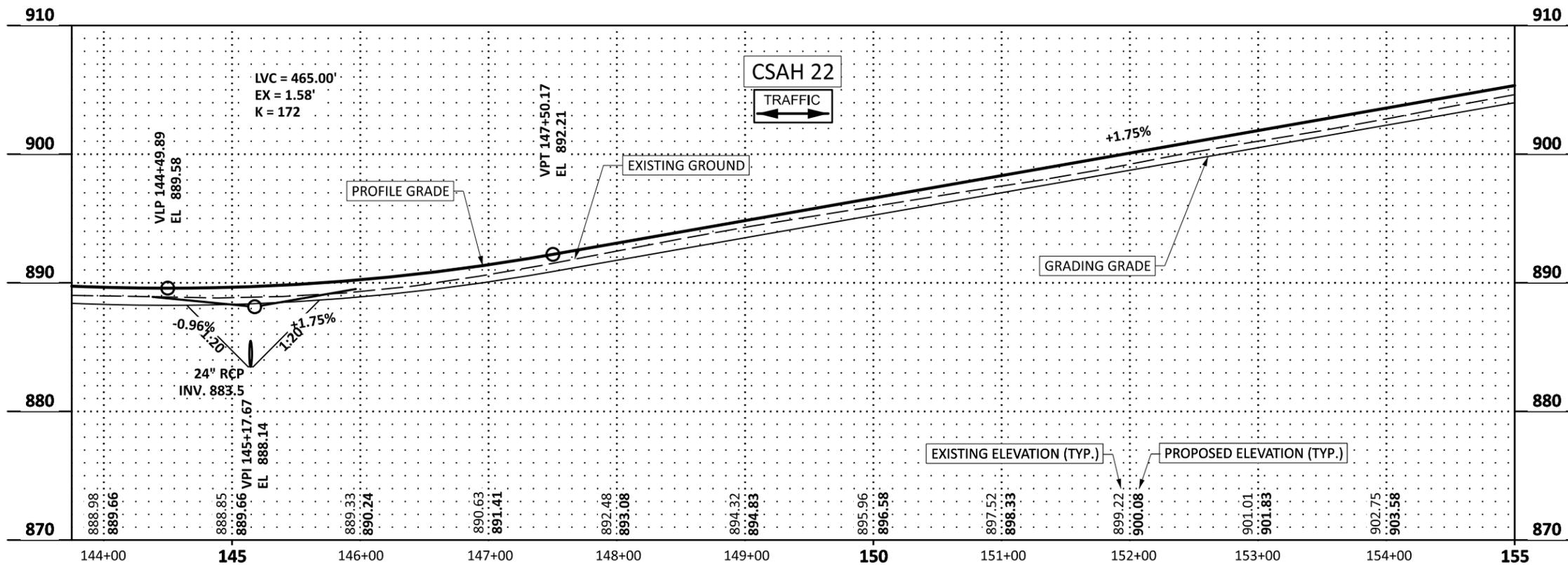
3544 197TH AVE NW

3531 VIKING BLVD NW



CONSTRUCTION NOTES

- (A) AGGREGATE DRIVEWAY
  - (B) BITUMINOUS DRIVEWAY
  - (C) CONCRETE DRIVEWAY
  - (D) 9' BITUMINOUS SHOULDER
  - (F) 2' AGGREGATE SHOULDER
  - (G) B424 CONCRETE CURB & GUTTER
  - (H) B418 (MOD) CONCRETE CURB & GUTTER AND 4" CONCRETE WALK (MEDIAN)
  - PROPOSED CULVERT
  - MILL AND OVERLAY BITUMINOUS PAVEMENT
  - BITUMINOUS TRANSITION
  - 8" CONCRETE PAVEMENT
  - 4" BITUMINOUS PAVEMENT
- ALL DIMENSIONS ARE TO EDGE OF PAVEMENT OR FACE OF CURB UNLESS OTHERWISE NOTED.



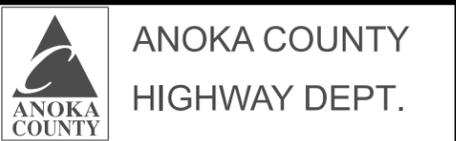
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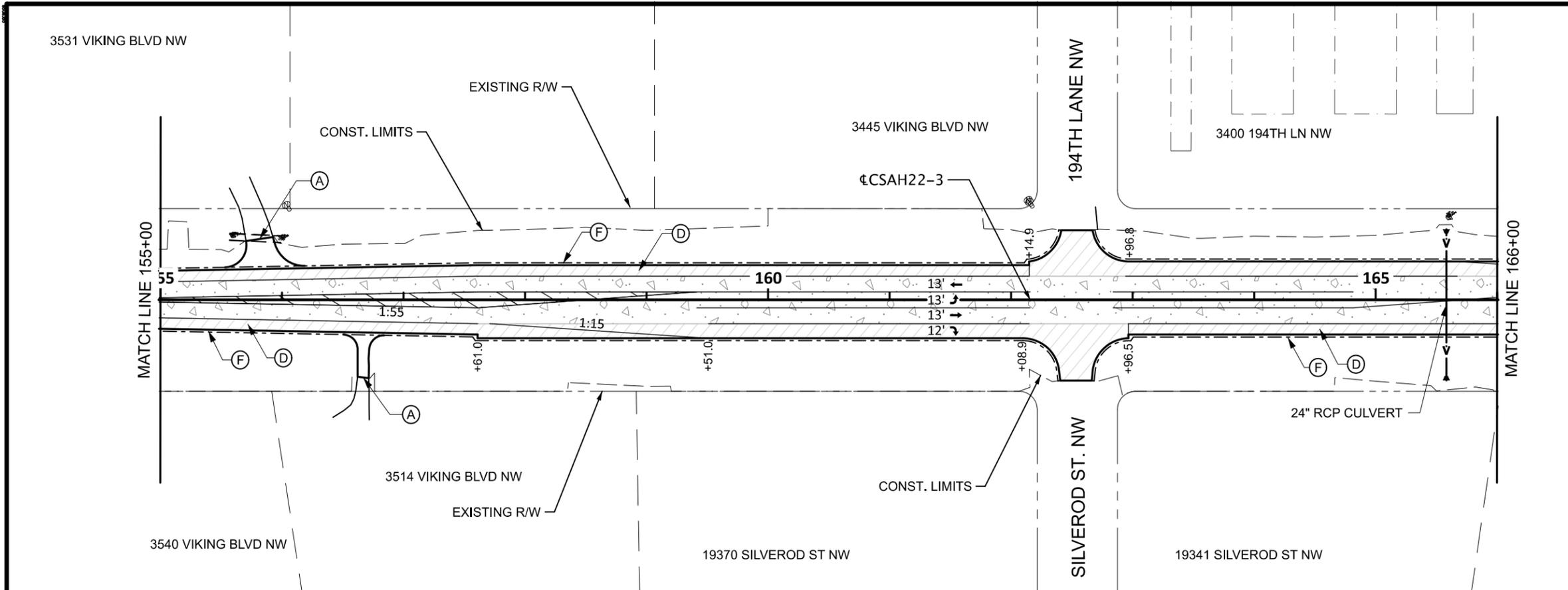
PRINT NAME: NICHOLAS J. DOBDA  
 SIGNATURE: *N. Dobda*  
 DATE: 04/09/2025 LICENSE NO. 49046

DRAWN BY CA DATE 04/03/25  
 DESIGN BY MAP DATE 04/03/25  
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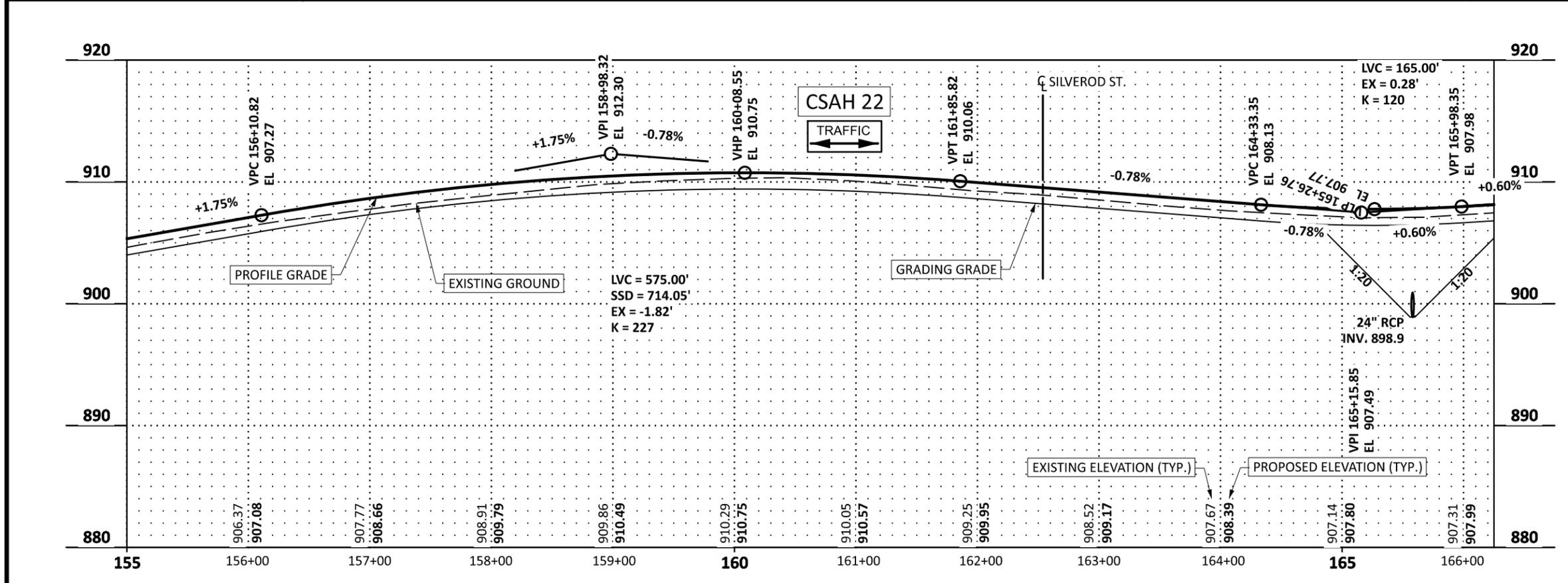


SAP 002-622-045  
 SAP 223-020-011

CONSTRUCTION PLAN AND PROFILE  
 STA 144+00.00 TO 155+00.00  
 Sheet 58 of 85 Sheets



- CONSTRUCTION NOTES**
- (A) AGGREGATE DRIVEWAY
  - (B) BITUMINOUS DRIVEWAY
  - (C) CONCRETE DRIVEWAY
  - (D) 9' BITUMINOUS SHOULDER
  - (F) 2' AGGREGATE SHOULDER
  - (G) B424 CONCRETE CURB & GUTTER
  - (H) B418 (MOD) CONCRETE CURB & GUTTER AND 4" CONCRETE WALK (MEDIAN)
- ▶▶ PROPOSED CULVERT
  - ▨ MILL AND OVERLAY BITUMINOUS PAVEMENT
  - ▩ BITUMINOUS TRANSITION
  - ▧ 8" CONCRETE PAVEMENT
  - ▦ 4" BITUMINOUS PAVEMENT
- ALL DIMENSIONS ARE TO EDGE OF PAVEMENT OR FACE OF CURB UNLESS OTHERWISE NOTED.



5 OF 6

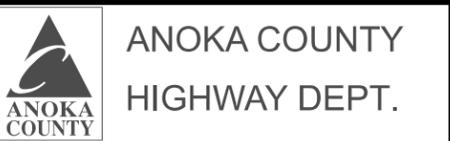
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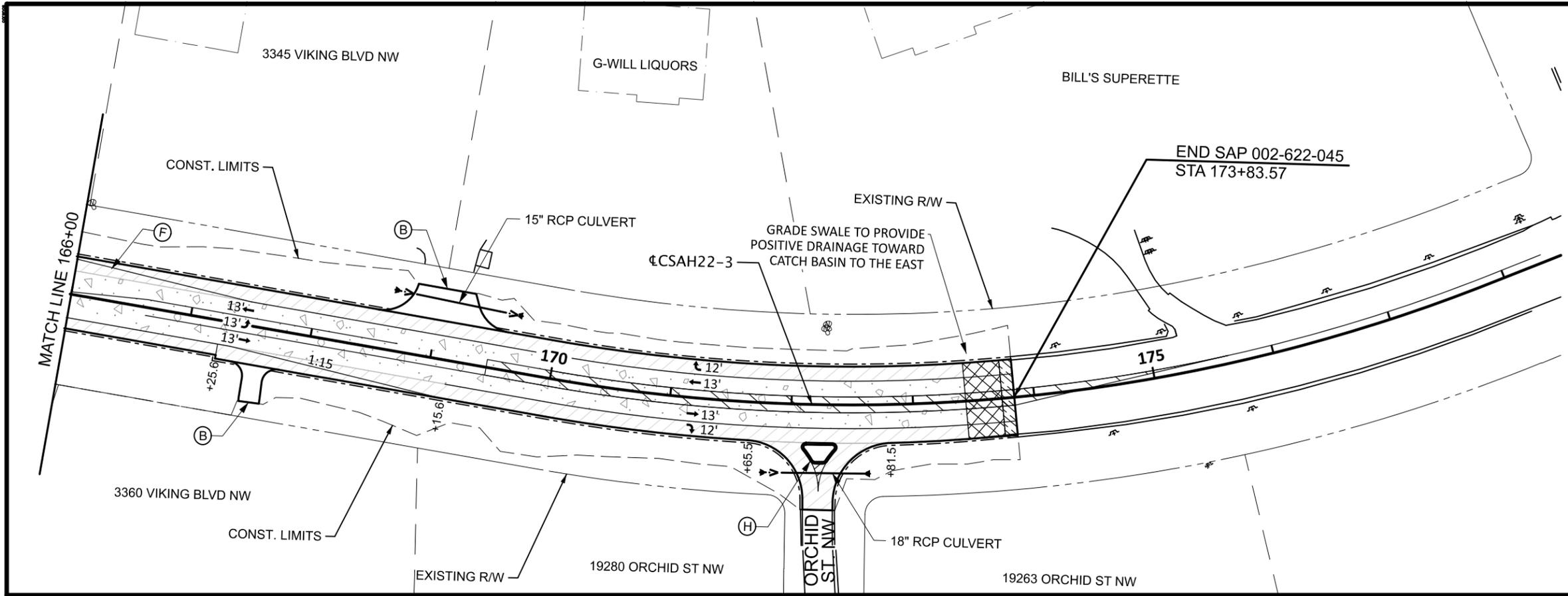
PRINT NAME: NICHOLAS J. DOBDA  
 SIGNATURE: *N. Dobda*  
 DATE: 04/09/2025 LICENSE NO. 49046

DRAWN BY CA DATE 04/03/25  
 DESIGN BY MAP DATE 04/03/25  
 CHECKED BY NJD DATE 04/03/25



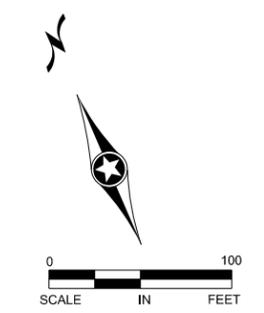
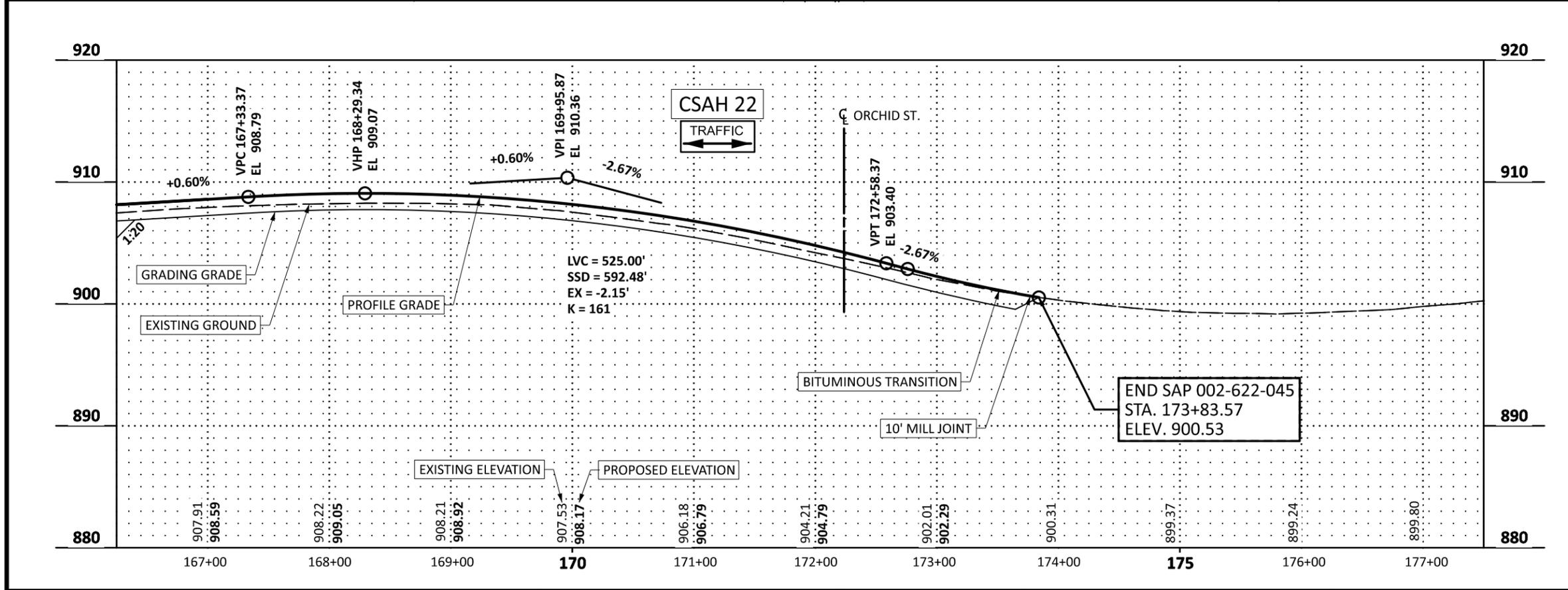
SAP 002-622-045  
 SAP 223-020-011

CONSTRUCTION PLAN AND PROFILE  
 STA 155+00.00 TO 166+00.00  
 Sheet 59 of 85 Sheets



- CONSTRUCTION NOTES**
- (A) AGGREGATE DRIVEWAY
  - (B) BITUMINOUS DRIVEWAY
  - (C) CONCRETE DRIVEWAY
  - (D) 9' BITUMINOUS SHOULDER
  - (F) 2' AGGREGATE SHOULDER
  - (G) B424 CONCRETE CURB & GUTTER
  - (H) B418 (MOD) CONCRETE CURB & GUTTER AND 4" CONCRETE WALK (MEDIAN)
- ←→ PROPOSED CULVERT
  - [Hatched Box] MILL AND OVERLAY BITUMINOUS PAVEMENT
  - [Cross-hatched Box] BITUMINOUS TRANSITION
  - [Dotted Box] 8" CONCRETE PAVEMENT
  - [Diagonal Lines] 4" BITUMINOUS PAVEMENT
- ALL DIMENSIONS ARE TO EDGE OF PAVEMENT OR FACE OF CURB UNLESS OTHERWISE NOTED.

**NOTES:**  
 4" CONC. MEDIAN PAID FOR AS 4" CONCRETE WALK.

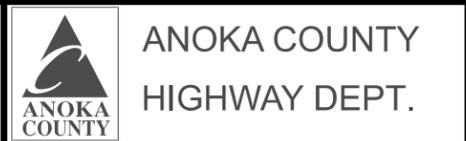


NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\002-622-045 Concrete from Rum River thru CSAH 9\Plan\002622045\_185cpp.dgn 04/08/2025 12:34:54 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: *NJD*  
 DATE: 04/09/2025 LICENSE NO. 49046

DRAWN BY CA DATE 04/03/25  
 DESIGN BY MAP DATE 04/03/25  
 CHECKED BY NJD DATE 04/03/25



SAP 002-622-045  
 SAP 223-020-011

**CONSTRUCTION PLAN AND PROFILE**  
 STA 166+00.00 TO 173+83.57  
 Sheet 60 of 85 Sheets

LEGEND

-  4" BITUMINOUS PAVEMENT
-  8" CONCRETE PAVEMENT

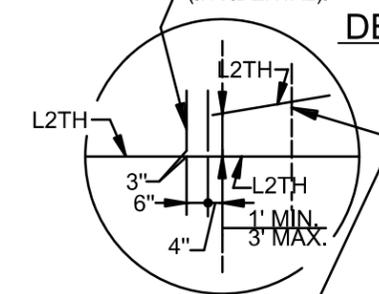
ALL DIMENSIONS ARE TO EDGE OF PAVEMENT UNLESS OTHERWISE NOTED.

REINFORCEMENT BARS FOR ALL LONGITUDINAL JOINTS ARE CONSIDERED INCIDENTAL.

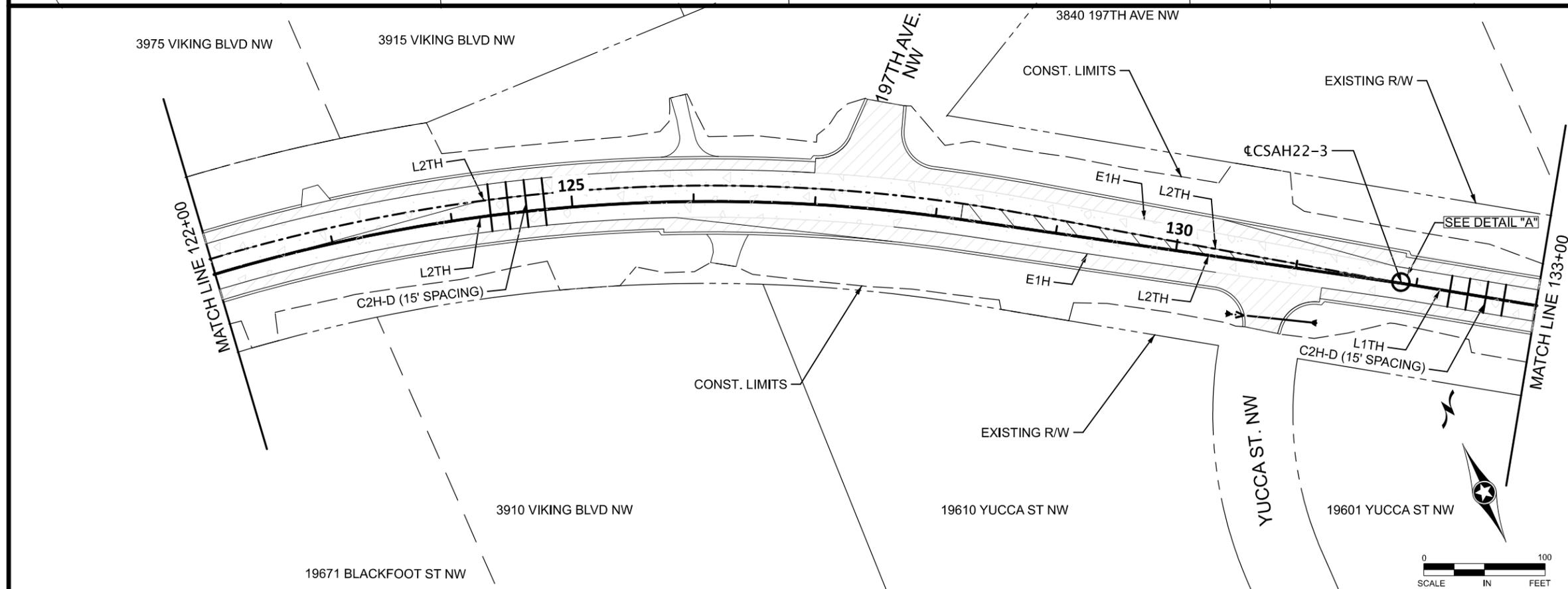
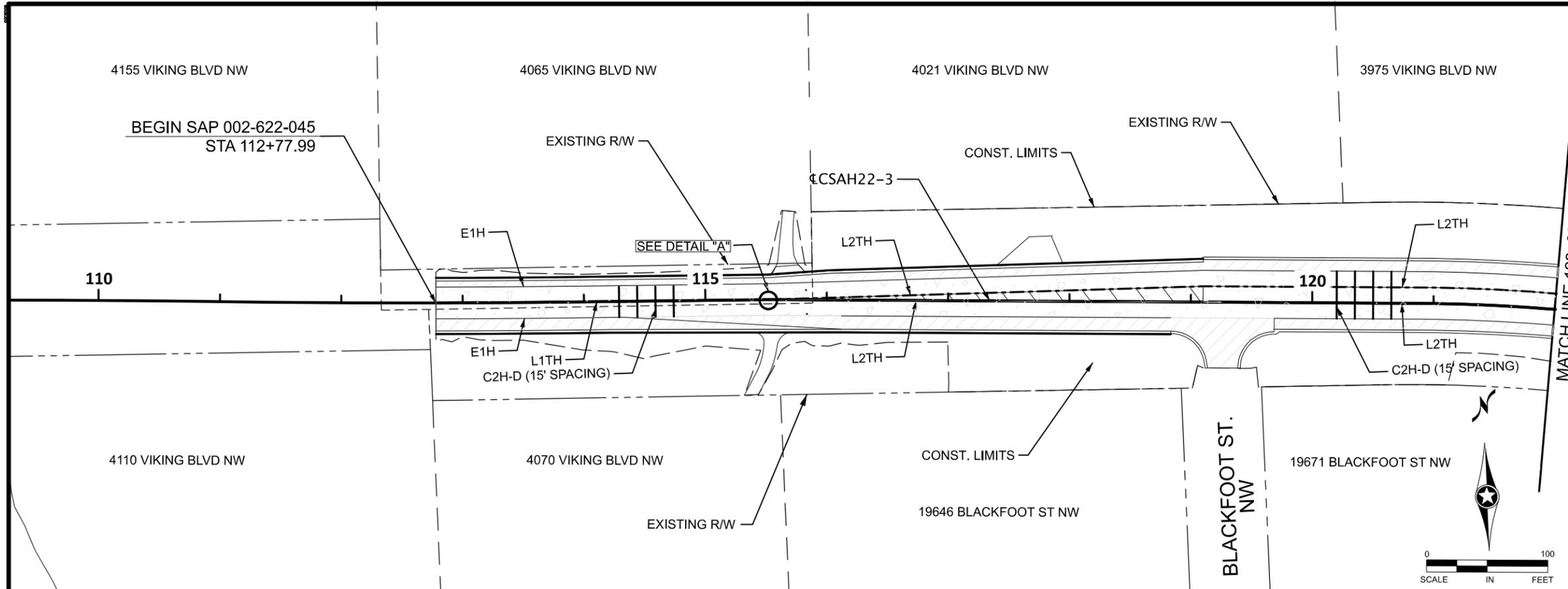
JOINTS MAY BE CHANGED IN THE FIELD BY THE CONTRACTOR WITH APPROVAL OF THE ENGINEER.

END TAPER LONGITUDINAL JOINT AT A TRANSVERSE JOINT. PLACE TWO NO. 4 REINFORCEMENT BARS (INCIDENTAL).

DETAIL "A"



CONTINUE PLACING DOWEL BARS IN TAPER WHEN WIDTH IS ENOUGH TO ENSURE NO OVERLAP WITH TIE BARS.



NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\002-622-045 Concrete from Rum River thru CSAH 9\Plan\002622045\_195cpj.dgn 04/08/2025 2:14:57 PM

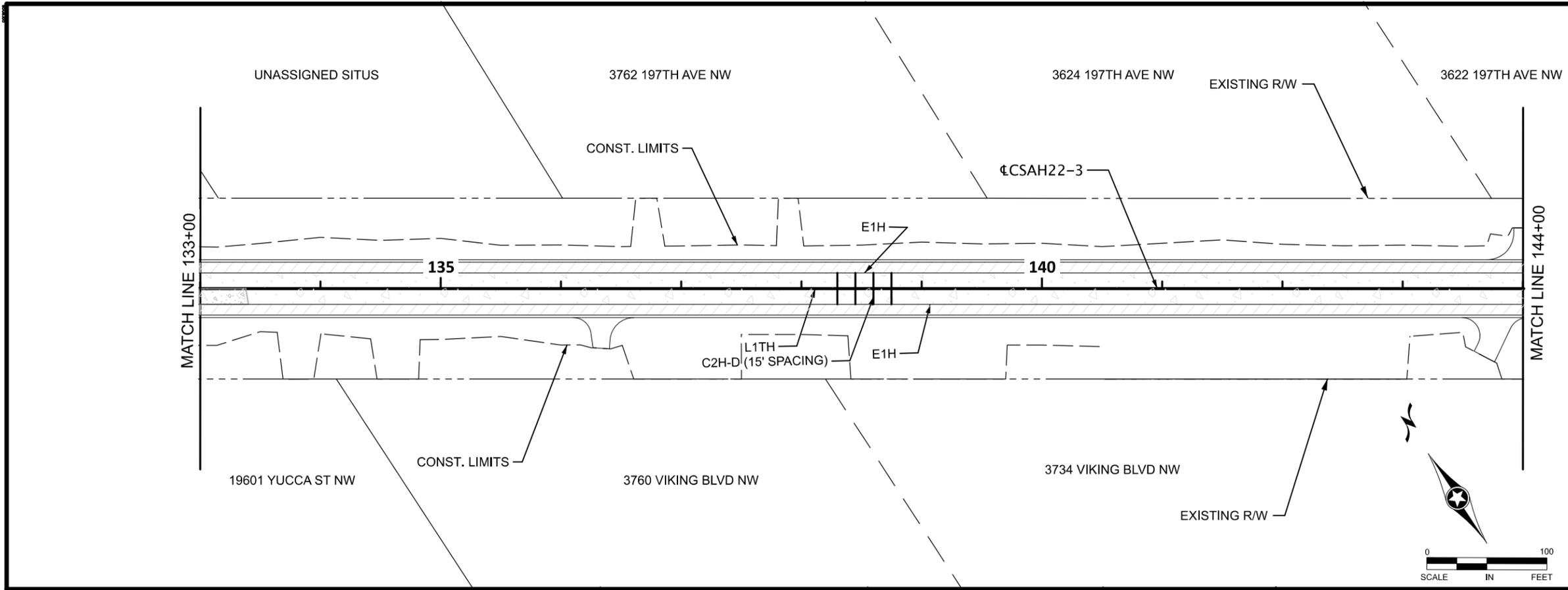
I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.  
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 SAP 223-020-011

CONCRETE PAVING PLAN  
 STA 112+77.99 TO 133+00.00  
 Sheet 61 of 85 Sheets



**LEGEND**

4" BITUMINOUS PAVEMENT

8" CONCRETE PAVEMENT

ALL DIMENSIONS ARE TO EDGE OF PAVEMENT UNLESS OTHERWISE NOTED.

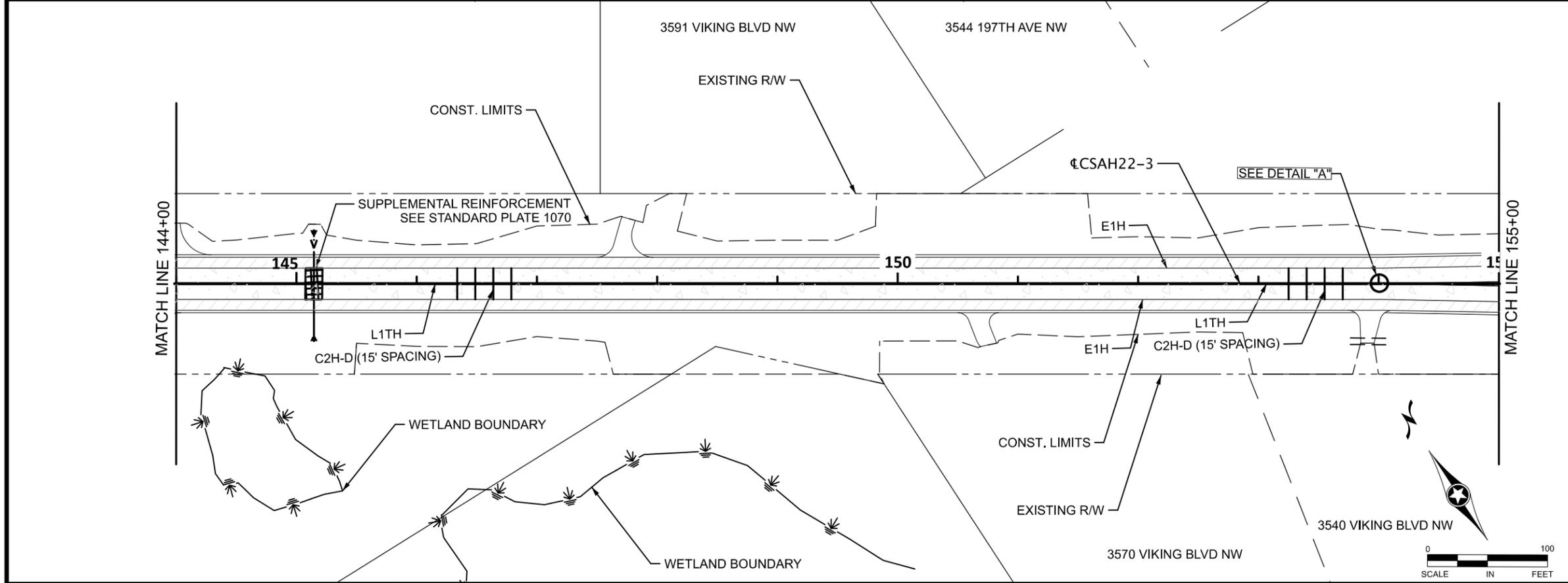
REINFORCEMENT BARS FOR ALL LONGITUDINAL JOINTS ARE CONSIDERED INCIDENTAL.

JOINTS MAY BE CHANGED IN THE FIELD BY THE CONTRACTOR WITH APPROVAL OF THE ENGINEER.

**DETAIL "A"**

END TAPER LONGITUDINAL JOINT AT A TRANSVERSE JOINT. PLACE TWO NO. 4 REINFORCEMENT BARS (INCIDENTAL).

CONTINUE PLACING DOWEL BARS IN TAPER WHEN WIDTH IS ENOUGH TO ENSURE NO OVERLAP WITH TIE BARS.



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NAME: P:\002-622-045 Concrete from Rum River thru CSAH 9\Plan\002622045\_195cpj.dgn 04/08/2025 2:14:59 PM

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SIGNATURE: *Nicholas J. Dobda*

DATE: 04/09/2025 LICENSE NO. 49046

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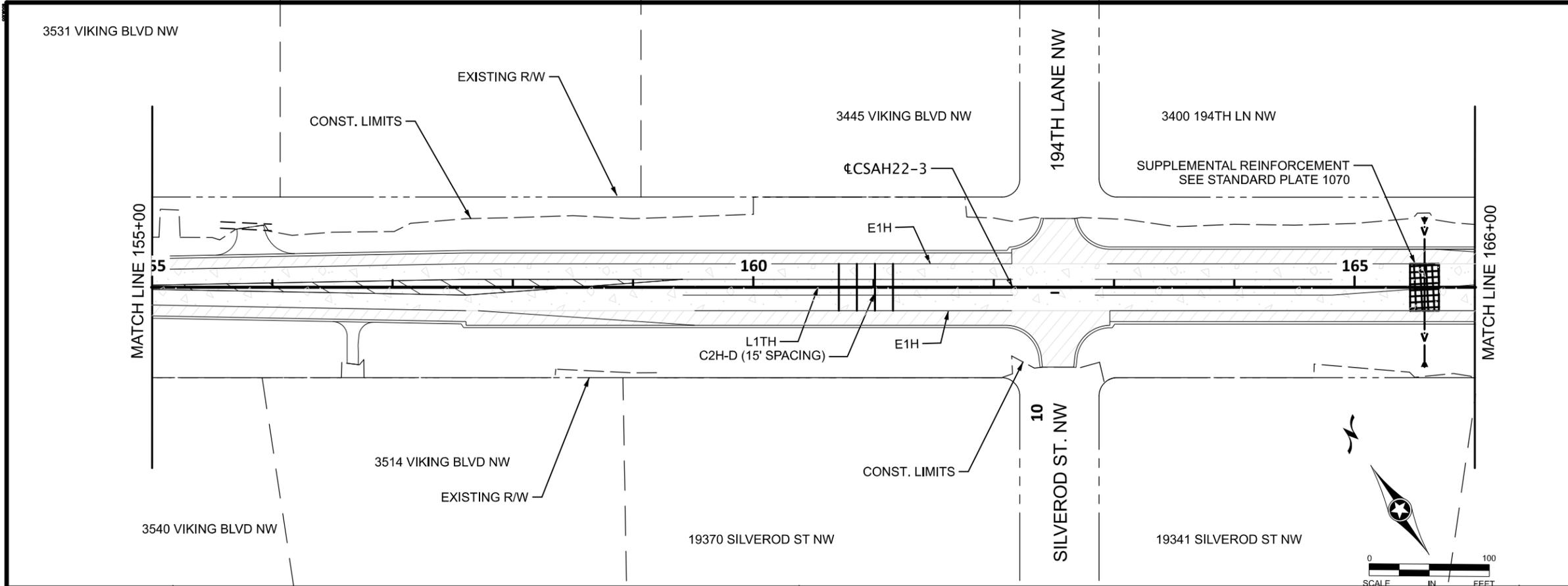
DESIGN BY MAP DATE 04/03/25

CHECKED BY NJD DATE 04/03/25

**ANOKA COUNTY HIGHWAY DEPT.**

SAP 002-622-045  
SAP 223-020-011

CONCRETE PAVING PLAN  
STA 133+00.00 TO 155+00.00  
Sheet 62 of 85 Sheets



**LEGEND**

4" BITUMINOUS PAVEMENT

8" CONCRETE PAVEMENT

ALL DIMENSIONS ARE TO EDGE OF PAVEMENT UNLESS OTHERWISE NOTED.

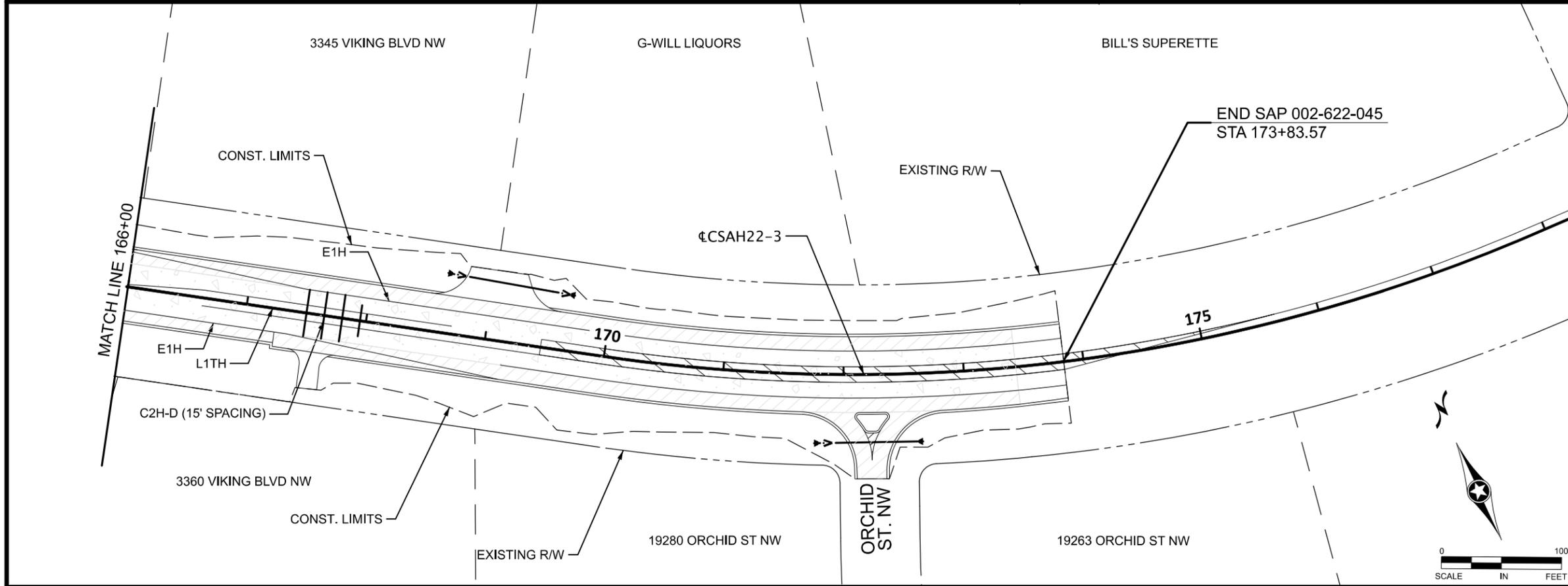
REINFORCEMENT BARS FOR ALL LONGITUDINAL JOINTS ARE CONSIDERED INCIDENTAL.

JOINTS MAY BE CHANGED IN THE FIELD BY THE CONTRACTOR WITH APPROVAL OF THE ENGINEER.

END TAPER LONGITUDINAL JOINT AT A TRANSVERSE JOINT. PLACE TWO NO. 4 REINFORCEMENT BARS (INCIDENTAL).

**DETAIL "A"**

CONTINUE PLACING DOWEL BARS IN TAPER WHEN WIDTH IS ENOUGH TO ENSURE NO OVERLAP WITH TIE BARS.



NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\002-622-045 Concrete from Rum River thru CSAH 9\Plan\002622045\_195cpj.dgn 04/08/2025 2:15:00 PM

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SIGNATURE: *N. Dobda*

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DESIGN BY MAP DATE 04/03/25

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ANOKA COUNTY HIGHWAY DEPT.

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SAP 223-020-011

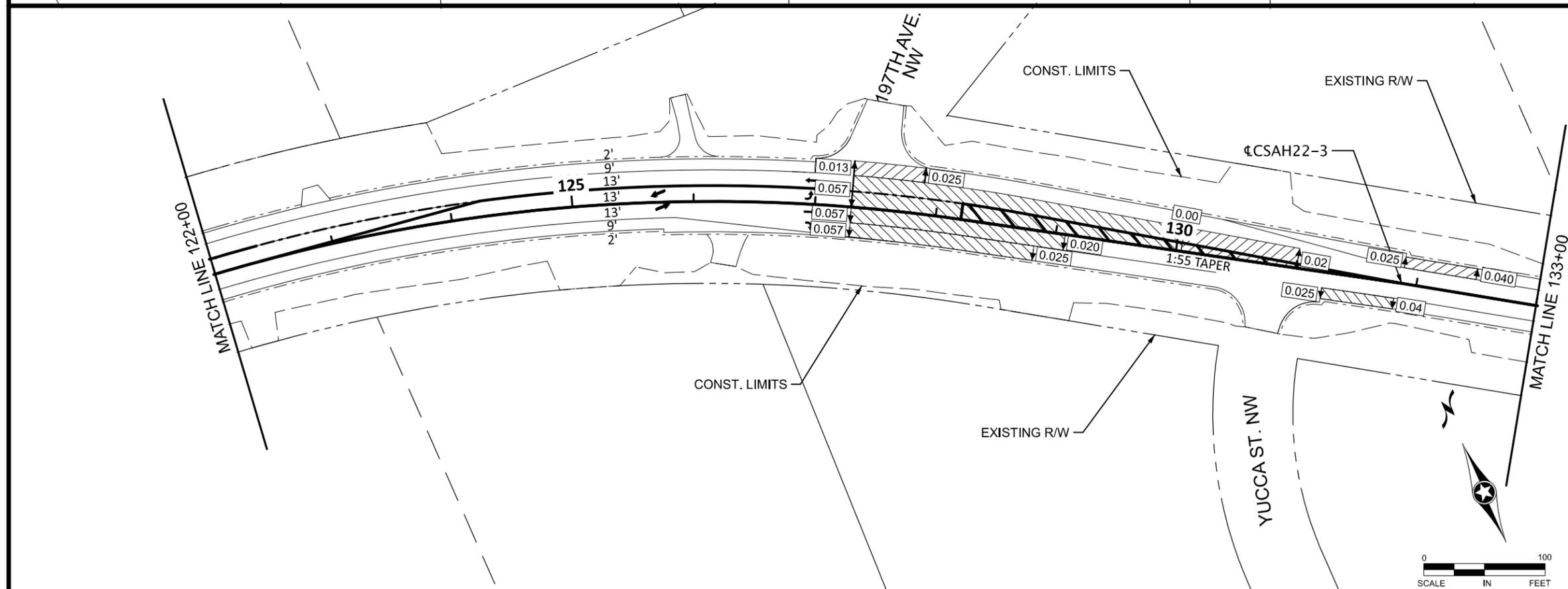
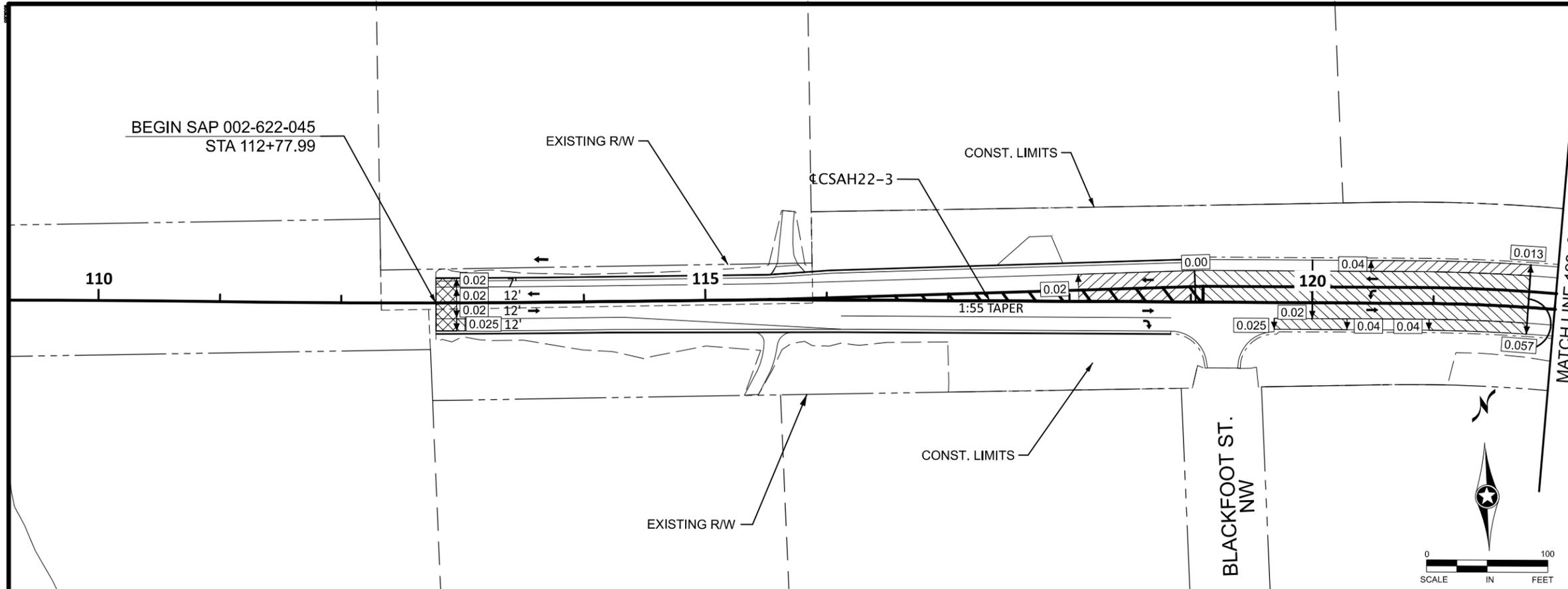
CONCRETE PAVING PLAN  
STA 155+00.00 TO 173+83.57  
Sheet 63 of 85 Sheets

LEGEND

-  SUPERELEVATION TRANSITION
-  MATCH TO EXISTING

NOTES:

1. ALL CROSS SLOPES ARE IN FEET PER FEET.



NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\002-622-045 Concrete from Rum River thru CSAH 9\Plan\002622045\_205spr.dgn 04/08/2025 3:36:05 PM

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PRINT NAME: NICHOLAS J. DOBDA

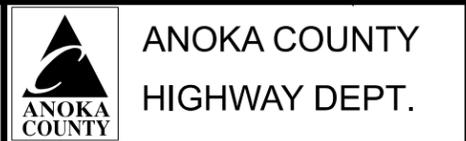
SIGNATURE: *Nicholas J. Dobda*

DATE: 04/09/2025 LICENSE NO. 49046

DRAWN BY CA DATE 04/03/25

DESIGN BY MAP DATE 04/03/25

CHECKED BY NJD DATE 04/03/25



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SAP 223-020-011

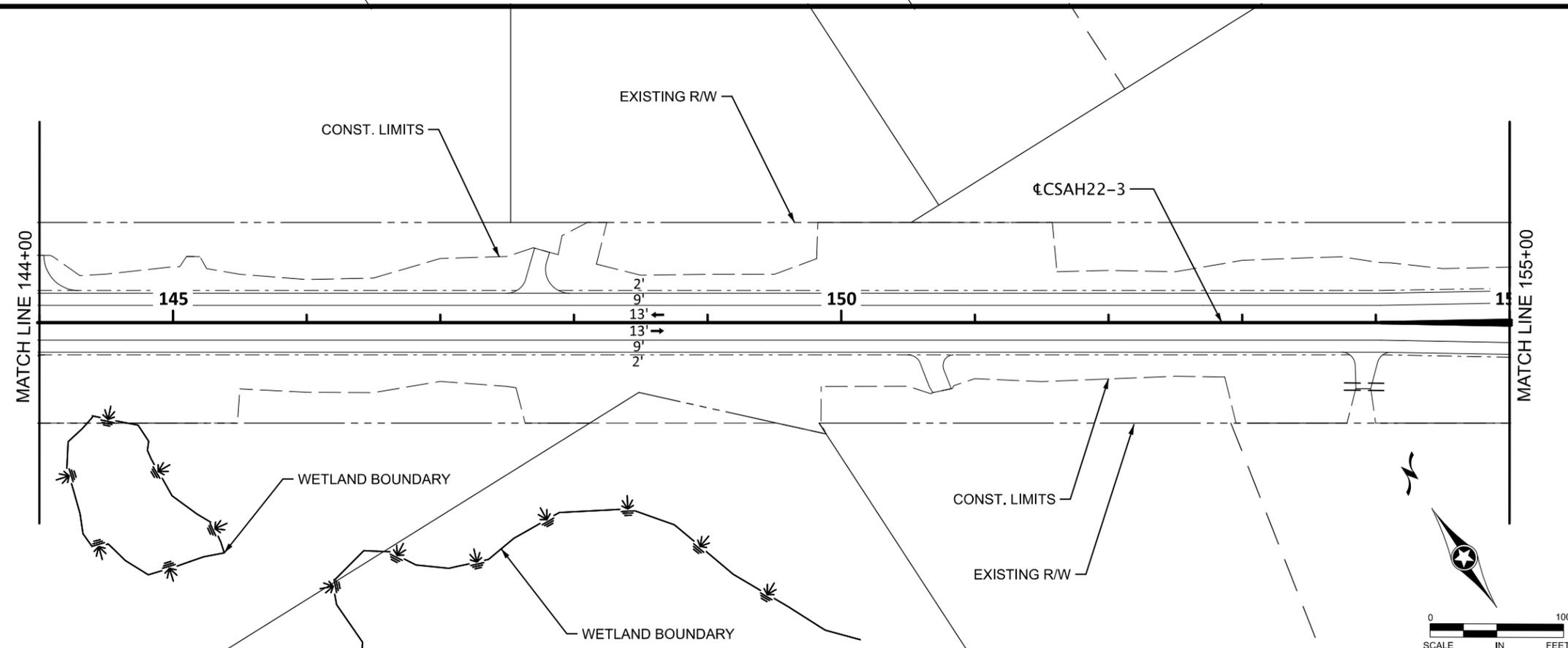
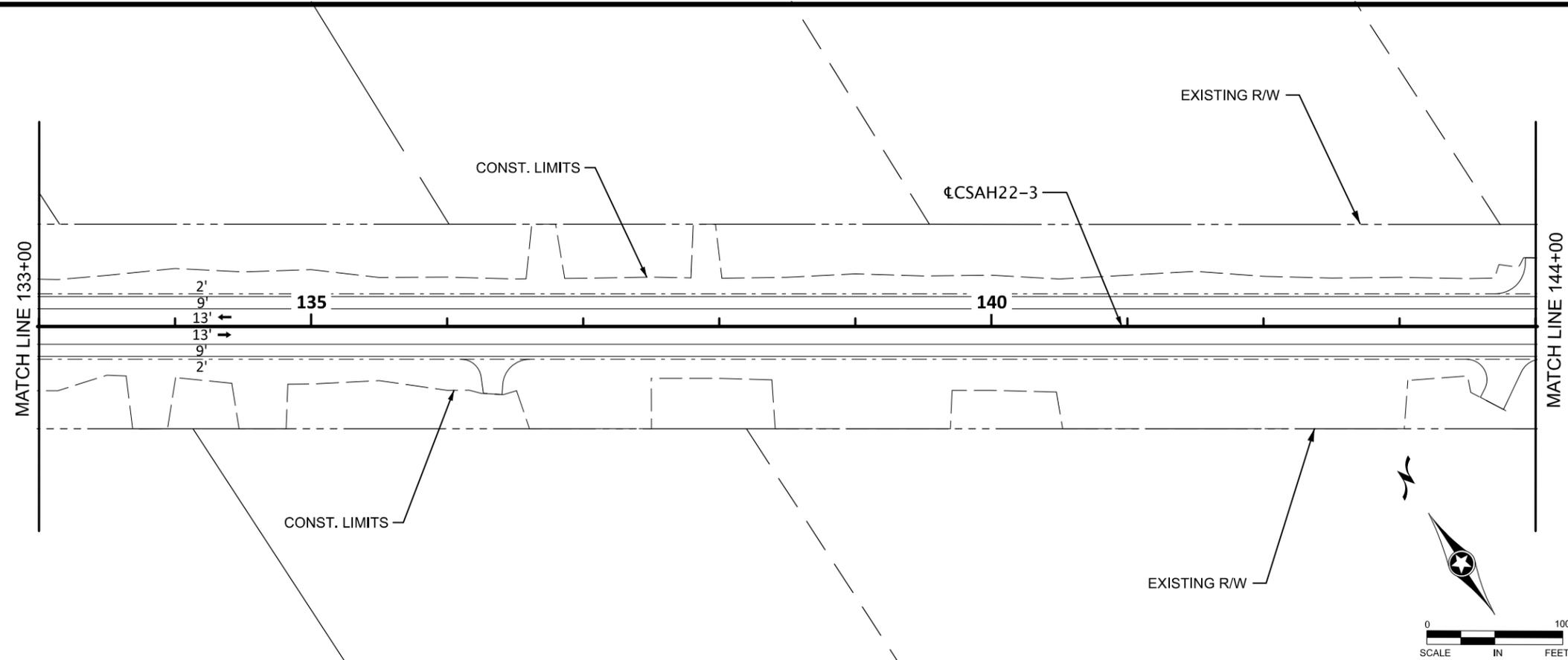
SUPERELEVATION PLAN  
STA 112+77.99 TO 133+00.00  
Sheet 64 of 85 Sheets

LEGEND

-  SUPERELEVATION TRANSITION
-  MATCH TO EXISTING

NOTES:

1. ALL CROSS SLOPES ARE IN FEET PER FEET.

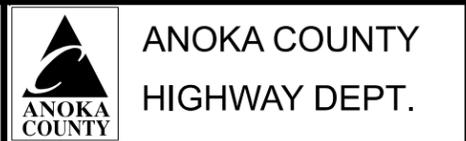


NO	DATE	BY	CKD	APPR	REVISION

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SAP 002-622-045  
 SAP 223-020-011

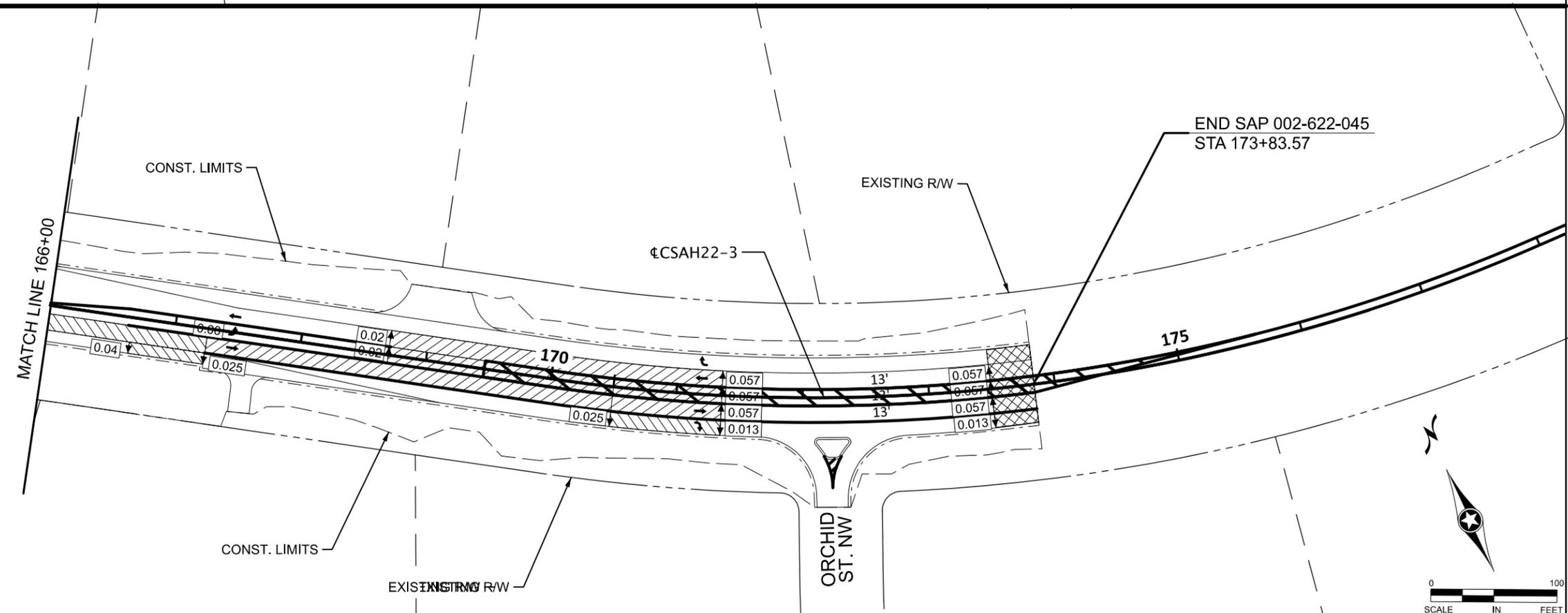
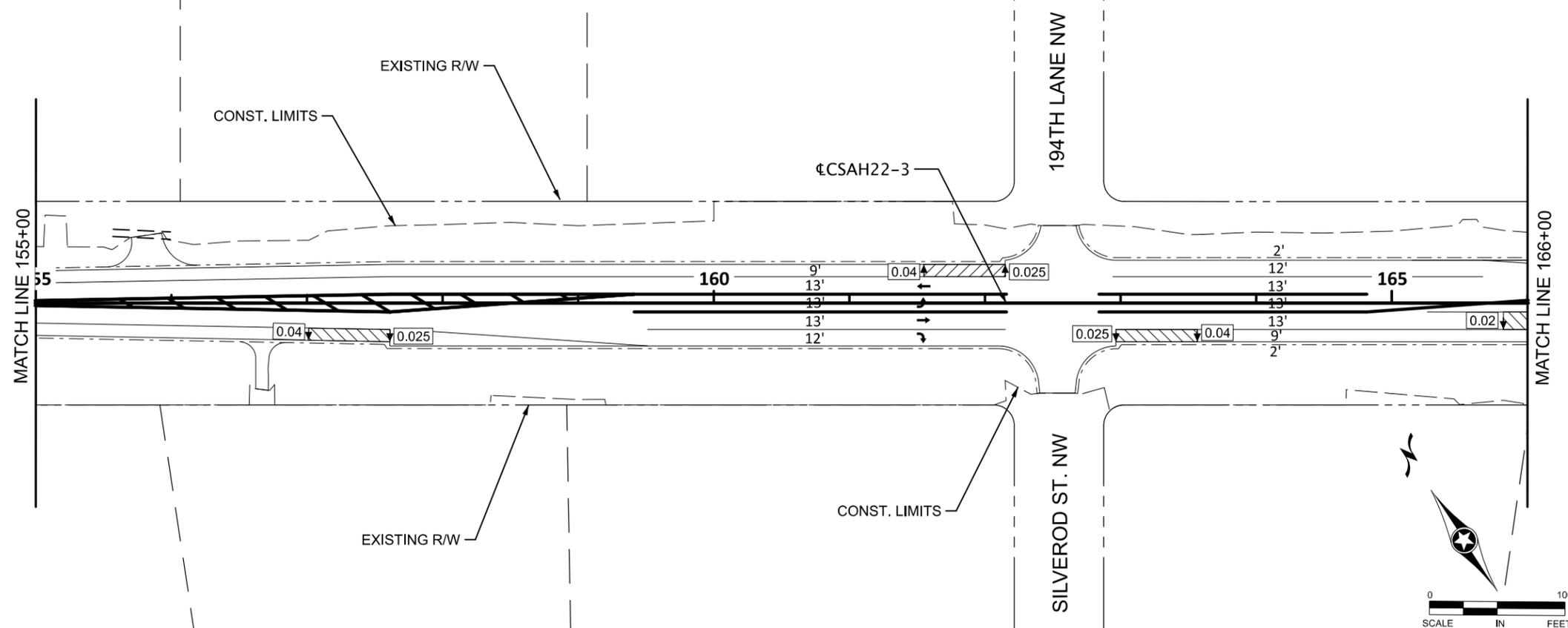
SUPERELEVATION PLAN  
 STA 133+00.00 TO 155+00.00  
 Sheet 65 of 85 Sheets

LEGEND

-  SUPERELEVATION TRANSITION
-  MATCH TO EXISTING

NOTES:

1. ALL CROSS SLOPES ARE IN FEET PER FEET.

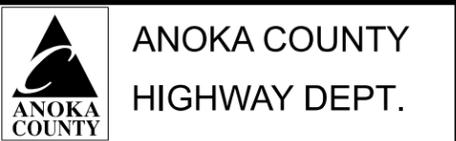


NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\002-622-045 Concrete from Rum River thru CSAH 9\Plan\002622045\_205spr.dgn 04/08/2025 3:36:07 PM

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SAP 002-622-045  
 SAP 223-020-011

SUPERELEVATION PLAN  
 STA 155+00.00 TO 173+83.57  
 Sheet 66 of 85 Sheets

## STORM WATER POLLUTION PREVENTION PLAN (SWPPP) NARRATIVE

### PROJECT DESCRIPTION/LOCATION

SAP 002-622-045 IS LOCATED ON CSAH 22 (VIKING BLVD.) BETWEEN CSAH 7 (RUM RIVER BLVD.) AND CSAH 9 (LAKE GEORGE BLVD.) IN THE CITY OF OAK GROVE. THE PLANNED SCOPE OF THE PROJECT INCLUDES: GRADING, AGGREGATE BASE, CONCRETE PAVING, BITUMINOUS SURFACING, DRAINAGE, AND PAVEMENT MARKINGS.

**THE SWPPP MUST BE AMENDED TO DOCUMENT ANY CHANGES TO EROSION AND SEDIMENT CONTROLS, METHODS OR PRACTICES. THESE AMENDMENTS MUST BE NOTED WITHIN 7 DAYS TO KEEP THE SWPPP UPDATED AND NEED TO BE KEPT ON SITE.**

### RESPONSIBILITIES

PROVIDE A CERTIFIED EROSION CONTROL SUPERVISOR PER MNDOT SPECIFICATION 2573.3.A.1. EROSION CONTROL SUPERVISOR WILL WORK WITH PROJECT ENGINEER TO OVERSEE IMPLEMENTATION OF SWPPP AND INSTALLATION, INSPECTION, AND MAINTENANCE OF THE EROSION PREVENTION AND SEDIMENT CONTROL BMPs BEFORE, DURING AND AFTER CONSTRUCTION UNTIL PERMIT TERMINATION CONDITIONS HAVE BEEN MET.

PROVIDE AT LEAST ONE CERTIFIED INSTALLER PER MNDOT SPECIFICATION 2573.3.A.2. FOR EACH CONTRACTOR OR SUBCONTRACTOR THAT PLACES THE PRODUCTS LISTED IN MNDOT SPECIFICATION SECTION 2573.3.A.2.

### CHAIN OF RESPONSIBILITY

ANOKA COUNTY AND THE CONTRACTOR ARE CO-PERMITTEES FOR THE NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) CONSTRUCTION PERMIT. THE CONTRACTOR IS RESPONSIBLE TO COMPLY WITH ALL ASPECTS OF THE NPDES CONSTRUCTION PERMIT AT ALL TIMES UNTIL THE NOTICE OF TERMINATION (NOT) HAS BEEN FILED WITH THE MPCA. THE CONSTRUCTION PROJECT ENGINEER WILL ENSURE THAT THE CONTRACTOR'S EROSION AND SEDIMENT CONTROL SUPERVISOR FULFILLS THEIR DUTIES.

### LAND FEATURE CHANGES

TOTAL DISTURBED AREA	13.70 ACRES
WITHIN THE DISTURBED AREA: TOTAL EXISTING IMPERVIOUS SURFACE AREA	7.58 ACRES
WITHIN THE DISTURBED AREA: TOTAL PROPOSED IMPERVIOUS SURFACE AREA	8.33 ACRES
TOTAL PROPOSED NET CHANGE IN IMPERVIOUS SURFACE AREA	0.75 ACRES

NOTE: DISTURBED AREA INCLUDES ONLY THE AREAS WHERE EXCAVATION EXTENDS INTO THE UNDERLYING SOILS. INPLACE AGGREGATE BASE LAYER AND SELECT GRANULAR LAYER IS NOT CONSIDERED THE UNDERLYING SOIL.

SWPPP SHEET DESCRIPTIONS	LOCATION
TEMPORARY EROSION CONTROL MEASURES	SHEETS NO. 69 - 71
PERMANENT EROSION CONTROL MEASURES	SHEETS NO. 69 - 71
DIRECTION OF FLOW	SHEETS NO. 69 - 71
FINAL STABILIZATION	SHEETS NO. 69 - 71
SOILS AND CONSTRUCTION NOTES	SHEETS NO. 7
DRAINAGE STRUCTURES	SHEETS NO. N/A
DRAINAGE TABULATION	SHEETS NO. 10
EROSION AND SEDIMENT CONTROL DETAILS	SHEETS NO. 30 - 39
EROSION CONTROL TABULATION	SHEETS NO. 10
TURF ESTABLISHMENT TABULATION	SHEETS NO. 10
SITE MAP	SHEETS NO. 68
STORMWATER TREATMENT CONSTRUCTION STAGING	SHEETS NO. 68
STORMWATER CALCULATIONS	AVAILABLE ON REQUEST

### SOIL TYPES

SOIL TYPES TYPICALLY FOUND ON THIS PROJECT ARE NYMORE LOAMY SAND AND ZIMMERMAN FINE SAND PER THE NRCS SOIL SURVEY FOR ANOKA COUNTY. THESE SOILS ARE PREDOMINANTLY COMPOSED OF HYDROLOGIC GROUP A SOILS.

### ENVIRONMENTAL REVIEW

THERE ARE NO STORMWATER MITIGATION MEASURES REQUIRED AS A RESULT OF AN ENVIRONMENTAL, ARCHEOLOGICAL OR AGENCY REVIEW. ALL MITIGATION MEASURES HAVE BEEN ADDRESSED IN THIS PLAN SET OR THE SPECIAL PROVISIONS.

THIS PROJECT IS NOT LOCATED IN A WELL HEAD PROTECTION AREA.

THIS PROJECT IS NOT LOCATED IN A DRINKING WATER SUPPLY MANAGEMENT AREA (DWSMA).

THIS PROJECT IS NOT LOCATED IN A KARST AREA.

THIS PROJECT IS NOT LOCATED IN AN EMERGENCY RESPONSE AREA (ERA) PER DEPARTMENT OF HEALTH.

### WATER RELATED PERMITS

AGENCY	TYPE OF PERMIT
MINNESOTA POLLUTION CONTROL AGENCY (MPCA)	NPDES CONSTRUCTION PERMIT
WATERSHED DISTRICT	UPPER RUM RIVER WMO

READ AND REVIEW ALL PERMITS FOR SPECIAL CONDITIONS THAT WILL AFFECT CONSTRUCTION OF THE PROJECT.

IF IT BECOMES NECESSARY TO DISTURB AREAS OUTSIDE OF THE CONSTRUCTION LIMITS, OPERATIONS SHOULD CEASE AND DETERMINATION MADE IF ADDITIONAL PERMITS ARE NEEDED OR EXISTING PERMITS NEED TO BE MODIFIED.

TEMPORARY DEWATERING ACTIVITIES MAY BE REQUIRED FOR ROADWAY CONSTRUCTION AND UTILITY WORK. CONTRACTOR IS RESPONSIBLE FOR OBTAINING THE PERMIT. SUBMIT A SITE MANAGEMENT PLAN TO THE ENGINEER FOR APPROVAL PRIOR TO COMMENCING WORK.

### SPECIAL AND IMPAIRED WATERS THAT ARE LOCATED WITHIN ONE MILE (AERIAL RADIUS) OF THE PROJECT LIMITS AND RECEIVE RUNOFF FROM THE PROJECT SITE.

WATERBODY NAME	IMPAIRED(S) OR SPECIAL STATUS
RUM RIVER	SCENIC RECREATIONAL RIVER SEGMENT AND RESTRICTED WATER, NOT IMPAIRED.

THIS RIVER SEGMENT IS CONSIDERED A SCENIC OR RECREATIONAL RIVER SEGMENT AND RESTRICTED WATER AS DESCRIBED IN THE NPDES PERMIT FOR CONSTRUCTION AND REQUIRE THE ADDITIONAL BMPs FOUND IN ITEMS 23.9, 23.10 AND 23.11 OF THE PERMIT.

23.9: PERMITTEES MUST IMMEDIATELY INITIATE STABILIZATION OF EXPOSED SOIL AREAS, AS DESCRIBED IN ITEM 8.4, AND COMPLETE THE STABILIZATION WITHIN SEVEN (7) CALENDAR DAYS AFTER THE CONSTRUCTION ACTIVITY IN THAT PORTION OF THE SITE TEMPORARILY OR PERMANENTLY CEASES.

23.10: PERMITTEES MUST PROVIDE A TEMPORARY SEDIMENT BASIN AS DESCRIBED IN SECTION 14 FOR COMMON DRAINAGE LOCATIONS THAT SERVE AN AREA WITH FIVE (5) OR MORE ACRES DISTURBED AT ONE TIME.

23.11: PERMITTEES MUST INCLUDE AN UNDISTURBED BUFFER ZONE OF NOT LESS THAN 100 LINEAR FEET FROM A SPECIAL WATER (NOT INCLUDING TRIBUTARIES) AND MUST MAINTAIN THIS BUFFER ZONE AT ALL TIMES, BOTH DURING CONSTRUCTION AND AS A PERMANENT FEATURE POST CONSTRUCTION, EXCEPT WHERE A WATER CROSSING OR OTHER ENCROACHMENT IS NECESSARY TO COMPLETE THE PROJECT. PERMITTEES MUST FULLY DOCUMENT THE CIRCUMSTANCE AND REASONS THE BUFFER ENCROACHMENT IS NECESSARY IN THE SWPPP AND INCLUDE RESTORATION ACTIVITIES. THIS PERMIT ALLOWS REPLACEMENT OF EXISTING IMPERVIOUS SURFACE WITHIN THE BUFFER. PERMITTEES MUST MINIMIZE ALL POTENTIAL WATER QUALITY, SCENIC AND OTHER ENVIRONMENTAL IMPACTS OF THESE EXCEPTIONS BY THE USE OF ADDITIONAL OR REDUNDANT BMPs AND MUST DOCUMENT THIS IN THE SWPPP FOR THE PROJECT.

### AREAS OF ENVIRONMENTAL SENSITIVITY (AES)

WETLANDS AND EXISTING STORMWATER FACILITIES WITHIN AND NEAR THE PROJECT BOUNDARY ARE SHOWN ON CONSTRUCTION PLANS.

PROJECT ORGANIZATION CONTACTS	NAME	PHONE
CONTRACTOR'S EROSION AND SEDIMENT CONTROL SUPERVISOR		
CONTRACTOR'S EROSION AND SEDIMENT CONTROL INSTALLER		
ANOKA COUNTY PROJECT REPRESENTATIVE	CHRIS OSTERHUS	763-324-3189
UPPER RUM RIVER WATERSHED MANAGEMENT ORGANIZATION	CHUCK SCHWARTZ	612-548-3141
MPCA DUTY OFFICER 24 HR EMERGENCY NOTIFICATION	651-649-5451 OR 1(800)-422-0798	
ARMY CORP OF ENGINEERS		
CERTIFIED SWPPP DESIGNER	MICHELLE PRITCHARD	763-324-3162

### SITE INSPECTION AND MAINTENANCE

INSPECT THE ENTIRE CONSTRUCTION SITE A MINIMUM OF ONCE EVERY SEVEN DAYS DURING ACTIVE CONSTRUCTION AND WITHIN 24 HOURS AFTER A RAINFALL EVENT GREATER THAN 0.5 INCHES IN 24 HOURS. INSPECT ALL TEMPORARY AND PERMANENT WATER QUALITY MANAGEMENT, EROSION PREVENTION AND SEDIMENT CONTROL BMPs UNTIL THE SITE HAS UNDERGONE FINAL STABILIZATION AND THE NOT HAS BEEN SUBMITTED. INSPECT SURFACE WATER INCLUDING DRAINAGE DITCHES FOR SIGNS OF EROSION AND SEDIMENT DEPOSITION. INSPECT CONSTRUCTION SITE VEHICLE EXIT LOCATIONS FOR EVIDENCE OF TRACKING ONTO PAVED SURFACES. INSPECT SURROUNDING PROPERTIES FOR EVIDENCE OF OFF SITE SEDIMENT ACCUMULATION. INSPECT INFILTRATION AREAS FOR SIGNS OF SEDIMENT DEPOSITION AND COMPACTION (TO ENSURE THAT EQUIPMENT IS NOT BEING DRIVEN ACROSS THE AREA).

INSPECT DAILY THE FOLLOWING: CONSTRUCTION EXITS FOR SIGNS OF TRACKOUT, DEWATERING AREAS, FLOOD PRONE INLETS, SURROUNDING PROPERTIES (STAY WITHIN PROJECT LIMITS), INFILTRATION AREAS, AND ALL SITE MANAGEMENT PLAN LOCATIONS IN ACTIVE CONSTRUCTION.

RECORD ALL INSPECTIONS AND MAINTENANCE ACTIVITIES IN WRITING WITHIN 24 HOURS. SUBMIT INSPECTION REPORTS IN A FORMAT THAT IS ACCEPTABLE TO THE PROJECT ENGINEER. INCLUDE THE FOLLOWING IN THE RECORDS OF EACH INSPECTION AND MAINTENANCE ACTIVITY:

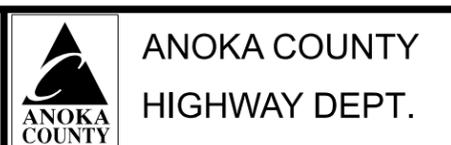
- DATE AND TIME OF INSPECTIONS
- NAME OF PERSONS CONDUCTING INSPECTIONS
- FINDINGS OF INSPECTIONS, INCLUDING RECOMMENDATIONS FOR CORRECTIVE ACTIONS
- CORRECTIVE ACTIONS TAKEN, INCLUDING DATES, TIMES, AND PARTY COMPLETING MAINTENANCE ACTIVITIES
- DATE AND AMOUNT OF ALL RAINFALL EVENTS GREATER THAN 0.5 INCHES IN 24 HOURS
- ANY DISCHARGES DURING INSPECTIONS MUST BE PHOTOGRAPHED AND DESCRIBED
- ANY AMENDMENTS TO THE SWPPP AS A RESULT OF INSPECTIONS MUST BE DOCUMENTED WITHIN 7 DAYS

NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\002-622-045 Concrete from Rum River thru CSAH 9\Plan\002622045\_320swp.dgn 04/07/2025 2:58:03 PM

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SAP 002-622-045  
 SAP 223-020-011

STORM WATER POLLUTION PREVENTION PLAN  
 Sheet 67 of 85 Sheets

**STORM WATER POLLUTION PREVENTION PLAN (SWPPP) NARRATIVE (CONTINUED)**

**EROSION AND SEDIMENT CONTROL MEASURES**

AREA	TIME FRAME
ESTABLISH SEDIMENT CONTROL DEVICES ON ALL DOWN GRADIENT PERIMETERS AND UPGRADIENT OF ANY BUFFER ZONES	BEFORE ANY UP GRADIENT LAND DISTURBING ACTIVITIES BEGIN
REPAIR, REPLACE OR SUPPLEMENT PERIMETER CONTROL BMPS	WHEN BMP BECOMES NONFUNCTIONAL OR SEDIMENT REACHES 1/2 THE HEIGHT OF THE BMP BY THE END OF THE NEXT BUSINESS DAY AFTER DISCOVERY.
REPLACE, REPAIR OR SUPPLEMENT ALL NONFUNCTIONAL BMPS	BY THE END OF THE NEXT BUSINESS DAY AFTER DISCOVERY.
REPAIR, REPLACE, OR SUPPLEMENT INLET PROTECTION BMPS	WHEN THEY BECOME NONFUNCTIONAL OR SEDIMENT REACHES 1/2 THE HEIGHT AND/OR DEPTH OF THE BMP BY THE END OF THE NEXT BUSINESS DAY AFTER DISCOVERY.
REMOVE TRACKED SEDIMENT FROM PAVED SURFACES BOTH ON AND OFF SITE (LIGHTLY WET PRIOR TO SWEEPING)	WITHIN 24 HOURS OF DISCOVERY
REMOVE ALL DELTAS AND SEDIMENT DEPOSITED IN SURFACE WATERS AND RESTABILIZE	WITHIN 7 DAYS OF DISCOVERY

1. PROVIDE PERIMETER CONTROL AROUND ALL STOCKPILES AND DO NOT PLACE THEM IN NATURAL BUFFER AREAS, SURFACE WATERS OR STORMWATER CONVEYANCES. TOPSOIL BERMS MUST BE STABILIZED IN ORDER TO BE CONSIDERED PERIMETER CONTROL BMPS.
2. PROTECT STORM SEWER INLETS AT ALL TIMES WITH THE APPROPRIATE INLET PROTECTION BMP AND PROVIDE EMERGENCY OVERFLOW CAPABILITIES. SILT FENCE PLACED IN THE INLET GRATE IS NOT AN ACCEPTABLE INLET PROTECTION BMP FOR GRADING OPERATIONS.
3. PLACE AND MAINTAIN CONSTRUCTION EXITS OF SUFFICIENT SIZE TO PREVENT TRACKING OF SEDIMENT ONTO PAVED SURFACES BOTH ON AND OFF THE PROJECT SITE. REGULAR STREET SWEEPING IS NOT AN ACCEPTABLE ALTERNATIVE TO PROPER CONSTRUCTION EXIT INSTALLATION AND MAINTENANCE.
4. PROVIDE SCOUR PROTECTION AT OUTFALL OF DEWATERING ACTIVITIES. PROVIDE STABILIZATION IN TRENCHES CUT FOR DEWATERING OR SITE DRAINING PURPOSES.
5. PREPARE AND SUBMIT A SITE MANAGEMENT PLAN AND CONTACT ALL APPROPRIATE AUTHORITIES PRIOR TO WORKING IN SURFACE WATERS.
6. MAINTAIN ALL BMPS UNTIL WORK HAS BEEN COMPLETED, SITE HAS GONE UNDER FINAL STABILIZATION FOR PERMIT TERMINATION, AND THE NOTICE OF TERMINATION (NOT) HAS BEEN SUBMITTED TO THE MPCA.

**STABILIZATION**

AREA	TIME FRAME	NOTES
LAST 200 LINEAL FEET OF DRAINAGE DITCH OR SWALE	WITHIN 24 HOURS OF CONNECTION TO SURFACE WATER OR PROPERTY EDGE	2A, 3A
REMAINING PORTIONS OF DRAINAGE DITCH OR SWALE	7 DAYS	3A
PIPE AND CULVERT OUTLETS	24 HOURS	
EXPOSED SOILS AND STOCKPILES	7 DAYS	1A
WHEN CONSTRUCTION HAS TEMP. OR PERM. CEASED	IMMEDIATELY	

- 1A. TEMPORARY SOIL STOCKPILES WITHOUT SIGNIFICANT CLAY OR SILT AND STOCKPILED AND CONSTRUCTED ROAD BASE ARE EXEMPT FROM THE STABILIZATION REQUIREMENT.
- 2A. STABILIZE WETTED PERIMETER OF DITCH (I.E. WHERE THE DITCH GETS WET).
- 3A. APPLICATION OF MULCH, HYDROMULCH (SLOPE>2%), DISK-ANCHORED MULCH (SLOPE>2%), TACKIFIER AND POLYACRYLAMIDE ARE NOT ACCEPTABLE STABILIZATION METHODS IN DITCHES AND SWALES.

**MATERIAL STORAGE, WASTE MANAGEMENT, FUELING AND DUST CONTROL**

1. PROVIDE A SPILL KIT AT EACH WORK LOCATION ON THE SITE. ENSURE ALL SPILLS ARE CLEANED UP IMMEDIATELY.
2. STORE ALL LIQUID CHEMICALS UNDER COVER WITH SECONDARY CONTAINMENT. CREATE AND FOLLOW A WRITTEN DISPOSAL PLAN FOR ALL WASTE MATERIALS. STORE, COLLECT AND DISPOSE OF ALL SOLID WASTE.
3. FUEL AND MAINTAIN VEHICLES IN A DESIGNATED CONTAINED AREA WHENEVER FEASIBLE. USE DRIP PANS OR ABSORBENT MATERIALS TO PREVENT SPILLS OR LEAKED CHEMICALS FROM DISCHARGING TO SURFACE WATER OR STORMWATER CONVEYANCES.
4. PROVIDE EFFECTIVE CONTAINMENT FOR ALL LIQUID AND SOLID WASTES GENERATED BY WASHOUT OF CONCRETE, STUCCO, PAINT, FORM RELEASE OILS, CURING COMPOUNDS AND OTHER CONSTRUCTION MATERIALS. LIQUID AND SOLID WASHOUT WASTES MUST NOT CONTACT THE GROUND. DESIGN THE CONTAINMENT SO THAT IT DOES NOT RESULT IN RUNOFF FROM THE WASHOUT OPERATIONS OR CONTAINMENT AREA.
5. USE METHODS AND OPERATIONAL PROCEDURES THAT PREVENT DISCHARGE OR PLACEMENT OF BITUMINOUS GRINDINGS, CUTTINGS, MILLINGS, AND OTHER BITUMINOUS WASTES FROM AREAS OF EXISTING OR FUTURE VEGETATED SOILS AND FROM ALL WATER CONVEYANCE SYSTEMS, INCLUDING INLETS, DITCHES AND CURB FLOW LINES.
6. USE METHODS AND OPERATIONAL PROCEDURES THAT PREVENT CONCRETE DUST, STREET SWEEPING DUST, SAWCUT SLURRY, PLANING WASTE, CONCRETE WASH OUT, AND OTHER CONCRETE WASTES FROM LEAVING ANOKA COUNTY RIGHT OF WAY, DEPOSITING IN EXISTING OR FUTURE VEGETATED AREAS, AND FROM ENTERING STORMWATER CONVEYANCE SYSTEMS, INCLUDING INLETS, DITCHES AND CURB FLOW LINES.
7. PORTABLE TOILETS MUST BE POSITIONED SO THAT THEY ARE SECURE AND WILL NOT BE TIPPED OR KNOCKED OVER. SANITARY WASTE MUST BE DISPOSED OF PROPERLY IN ACCORDANCE WITH MINN. R. CHAPTER 7041.

**IMPORTANT SWPPP NOTES FOR CONSTRUCTION ACTIVITY**

1. PREPARE AND SUBMIT A SITE MANAGEMENT PLAN FOR THE ENGINEER'S ACCEPTANCE FOR CONCRETE MANAGEMENT, CONCRETE SLURRY APPLICATION AREAS, WORK IN AND NEAR AREAS OF ENVIRONMENTAL SENSITIVITY, AREAS IDENTIFIED IN THE PLANS AS "SITE MANAGEMENT PLAN AREA", ANY WORK THAT WILL REQUIRE DEWATERING, AND AS REQUESTED BY THE ENGINEER. SUBMIT ALL SITE MANAGEMENT PLANS TO THE ENGINEER IN WRITING. ALLOW A MINIMUM OF 7 DAYS FOR ANOKA COUNTY TO REVIEW AND ACCEPT SITE MANAGEMENT PLAN SUBMITTALS. WORK WILL NOT BE ALLOWED TO COMMENCE IF A SITE MANAGEMENT PLAN IS REQUIRED UNTIL ACCEPTANCE HAS BEEN GRANTED BY THE ENGINEER. THERE WILL BE NO EXTRA TIME ADDED TO THE CONTRACT DUE TO THE UNTIMELY SUBMITTAL.
2. DO NOT BUILD INFILTRATION AREAS OR PLACE FINAL FILTRATION MEDIA UNTIL THE PROJECT IS NEARLY COMPLETE. PROTECT THESE AREAS FROM COMPACTION AND FROM CONSTRUCTION STORMWATER RUNOFF.
3. ROUTE STORMWATER AROUND UNSTABILIZED AREAS OF THE SITE WHENEVER FEASIBLE.
4. CONSTRUCTION PROJECT SHOULD BE PHASED TO MINIMIZE THE DURATION OF EXPOSED SOILS.
5. MINIMIZE COMPACTION OF SOILS AND PRESERVE TOPSOIL IN AREAS WHERE VEGETATION WILL BE ESTABLISHED.
6. DIRECT DISCHARGES FROM BMPS TO VEGETATED AREAS WHENEVER FEASIBLE. PROVIDE VELOCITY DISSIPATION DEVICES AS NEEDED TO PREVENT EROSION.
7. FLOATING SILT CURTAIN IS ALLOWED AS PERIMETER CONTROL FOR IN WATER WORK ONLY. PLACE THE FLOATING SILT CURTAIN AS CLOSE TO SHORE AS POSSIBLE. PLACE PERIMETER CONTROL BMP ON LAND IMMEDIATELY AFTER THE IN WATER WORK IS COMPLETED.
8. DISCHARGE TURBID OR SEDIMENT LADEN WATER TO TEMPORARY SEDIMENT BASINS WHENEVER FEASIBLE (REQUIRED IF DRAINAGE AREA IS 10 ACRES OR LARGER OR 5 ACRES OR LARGER AND WITHIN 1 MILE OF IMPAIRED WATER). IN THE EVENT THAT IT IS NOT FEASIBLE TO DISCHARGE THE SEDIMENT LADEN WATER TO A TEMPORARY SEDIMENT BASIN, THE WATER MUST BE TREATED SO THAT IT DOES NOT CAUSE A NUISANCE CONDITION IN THE RECEIVING WATERS OR TO DOWNSTREAM LANDOWNERS. MUST DOCUMENT WHY SEDIMENT BASIN IS NOT FEASIBLE.
9. PROVIDE STABILIZATION IN ANY TRENCHES CUT FOR DEWATERING OR SITE DRAINING PURPOSES.
10. PROVIDE A 50 FOOT NATURAL BUFFER OR, IF BUFFER IS INFEASIBLE, PROVIDE A DOUBLE ROW OF SEDIMENT CONTROLS SPACED AT LEAST 5' APART WHEN A SURFACE WATER IS LOCATED WITHIN 50 FEET OF LAND DISTURBANCE AND STORMWATER FLOWS TO THE SURFACE WATER.
11. PROVIDE A 100 FOOT NATURAL BUFFER OR, IF BUFFER IS INFEASIBLE, PROVIDE A DOUBLE ROW OF SEDIMENT CONTROLS SPACED AT LEAST 5' APART WHEN A SPECIAL WATER IS LOCATED WITHIN 100 FEET OF THE LAND DISTURBANCE AND STORMWATER FLOWS TO THE SPECIAL WATER.
12. SUBSOIL ALL DISTURBED GREEN SPACES EXCEPT AS LISTED IN 2574.3A.5.

**PIPE AND STRUCTURE NOTES**

1. SIZE AND ELEVATION OF CULVERTS, STORM SEWER PIPES, CATCH BASINS, PONDS, INFILTRATION/FILTRATION BASINS, PERMEABLE DITCH BLOCKS AND OVERFLOW DEVICES HAVE BEEN SPECIFICALLY DESIGNED TO CONFORM TO MNDOT DESIGN STANDARDS AND PERMIT REQUIREMENTS. THE DESIGN COMPUTATIONS ARE ON FILE WITH ANOKA COUNTY. CHANGING THESE ITEMS OR THE DIRECTION OF FLOW FROM WHAT IS SHOWN ON THE PLANS MAY CAUSE PROBLEMS OFF THE PROJECT AND COULD MEAN THE PROJECT IS OUT OF COMPLIANCE WITH APPROVED DRAINAGE PERMITS. ANY CHANGES OF THE DRAINAGE SYSTEM MUST BE APPROVED BY ANOKA COUNTY.
2. PERFORM POST INSTALLATION MANDREL TESTING OF ALL PLASTIC PIPE.
3. SUBSURFACE DRAINAGE TILES DAMAGED DURING CONSTRUCTION SHALL BE REPAIRED, REPLACED OR REROUTED, AND CONNECTED TO THE EXISTING TILE OR DRAINAGE SYSTEM TO ENSURE THAT EXISTING UPLAND DRAINAGE IS PERPETUATED. THIS SHALL BE DONE TO THE APPROVAL AND SATISFACTION OF THE ENGINEER.

**NPDES PERMIT TERMINATION CONDITIONS**

1. CONTRACTOR MUST COMPLETE ALL CONSTRUCTION ACTIVITY AND MUST INSTALL PERMANENT COVER OVER ALL AREAS PRIOR TO SUBMITTING NOT. VEGETATIVE COVER MUST CONSIST OF A UNIFORM PERENNIAL VEGETATION WITH A DENSITY OF 70% OF ITS EXPECTED FINAL GROWTH.
2. CONTRACTOR MUST REMOVE ANY ACCUMULATED SEDIMENT AND STABILIZE THE PERMANENT STORMWATER TREATMENT SYSTEM(S) AND MUST ENSURE THE SYSTEM(S) ARE OPERATING AS DESIGNED.
3. CONTRACTOR MUST REMOVE ALL SEDIMENT FROM CONVEYANCE SYSTEMS PRIOR TO SUBMITTING THE NOT.
4. CONTRACTOR MUST REMOVE ALL TEMPORARY SYNTHETIC EROSION PREVENTION AND SEDIMENT CONTROL BMPS PRIOR TO SUBMITTING THE NOT. CONTRACTOR MAY LEAVE BMPS DESIGNED TO DECOMPOSE ON-SITE IN PLACE.
5. FOR CONSTRUCTION PROJECTS ON AGRICULTURAL LAND, CONTRACTOR MUST RETURN THE DISTURBED LAND TO ITS PRECONSTRUCTION AGRICULTURAL USE PRIOR TO SUBMITTING THE NOT.

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><i>NJD</i></u> DATE: <u>04/09/2025</u> LICENSE NO. <u>49046</u>					DRAWN BY <u>CA</u> DATE <u>04/03/25</u> DESIGN BY <u>MAP</u> DATE <u>04/03/25</u> CHECKED BY <u>NJD</u> DATE <u>04/03/25</u>	 <b>ANOKA COUNTY HIGHWAY DEPT.</b>	SAP 002-622-045 SAP 223-020-011	<b>STORM WATER POLLUTION PREVENTION PLAN</b>  Sheet <u>68</u> of <u>85</u> Sheets	
NO	DATE	BY	CKD	APPR	REVISION	NAME: P:\002-622-045 Concrete from Rum River thru CSAH 9\Plan\002622045_320swp.dgn 04/07/2025 2:58:04 PM			

**STORM WATER POLLUTION PREVENTION PLAN (SWPPP) NARRATIVE (CONTINUED)**

OFFSITE FLOW INFORMATION  
OAK GROVE

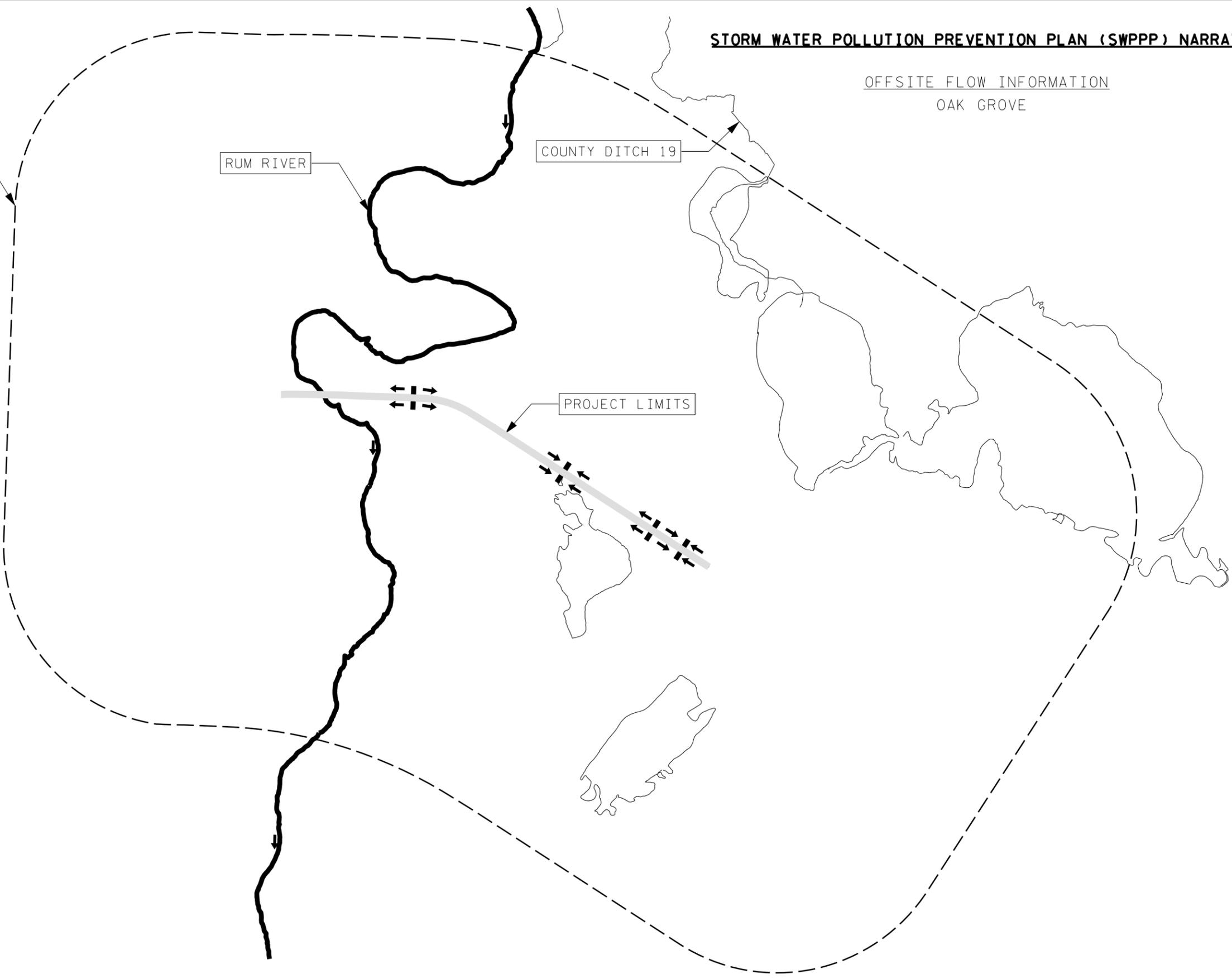


1 MILE RADIUS

RUM RIVER

COUNTY DITCH 19

PROJECT LIMITS



NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\002-622-045 Concrete from Rum River thru CSAH 9\Plan\002622045\_320swp.dgn 04/07/2025 2:59:04 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: *[Signature]*  
 DATE: 04/09/2025 LICENSE NO. 49046

DRAWN BY CA DATE 04/03/25  
 DESIGN BY MAP DATE 04/03/25  
 CHECKED BY NJD DATE 04/03/25



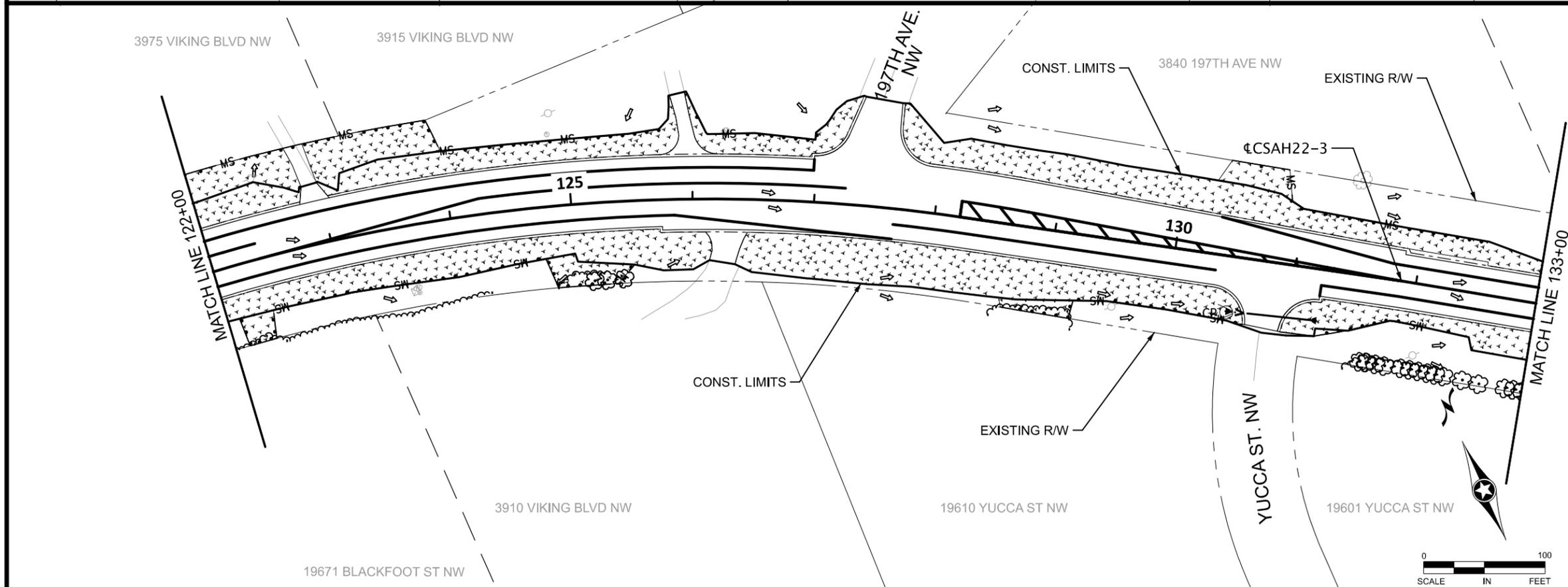
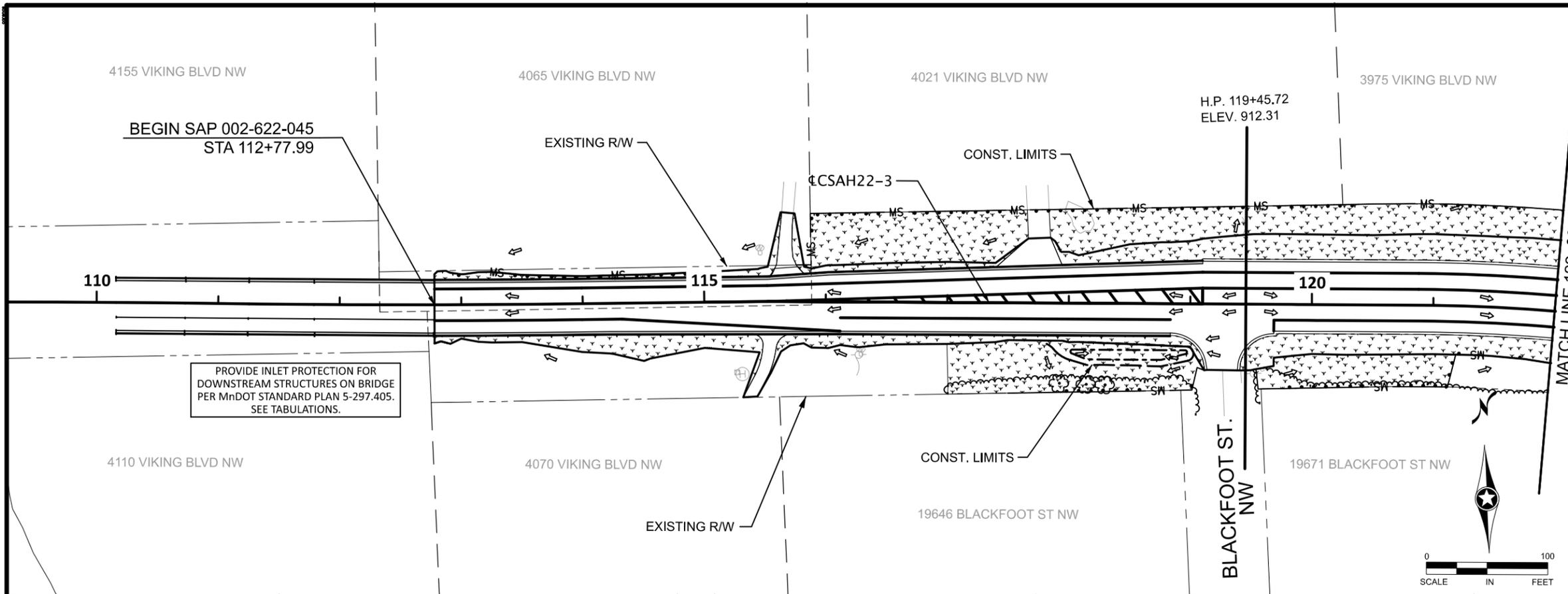
**ANOKA COUNTY  
HIGHWAY DEPT.**

SAP 002-622-045  
SAP 223-020-011

**STORM WATER POLLUTION  
PREVENTION PLAN**

LEGEND

- ▼ PROPOSED APRON
- ▽ INPLACE APRON
- == INPLACE CULVERT
- > PROPOSED CULVERT
- MS- SILT FENCE, TYPE MACHINE SLICED
- WETLAND BOUNDARIES
- ▲ RIPRAP (CLASS II UNLESS OTHERWISE NOTED)
- ⊙ CP CULVERT END TREATMENT
- ⇨ SURFACE FLOW ARROW
- SEEDING MIX SANDY INSLOPE (SI)  
FERT. TYPE 3 (22-5-10)  
HYDRAULIC REINFORCED FIBER MATRIX

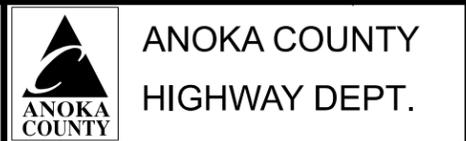


NO	DATE	BY	CKD	APPR	REVISION

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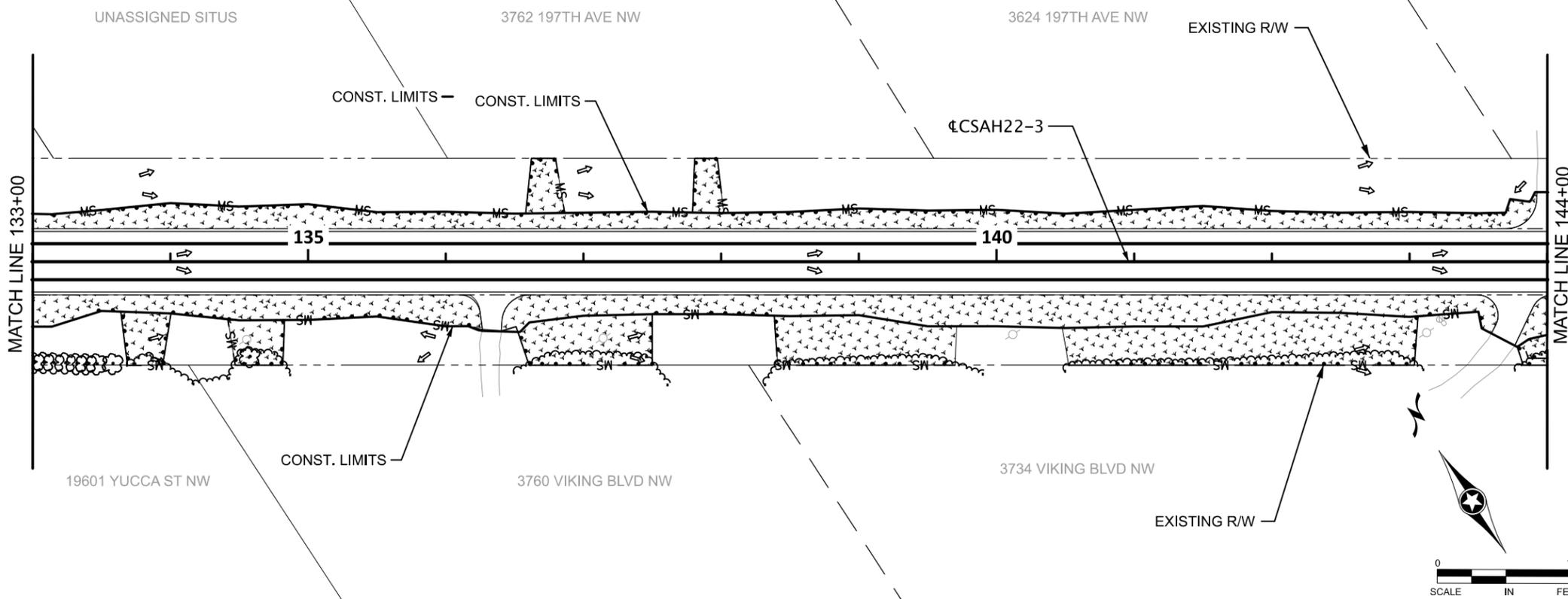
I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.  
 PRINT NAME: NICHOLAS J. DOBDA  
 SIGNATURE: *N. Dobda*  
 DATE: 04/09/2025 LICENSE NO. 49046

DRAWN BY CA DATE 04/03/25  
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 CHECKED BY NJD DATE 04/03/25

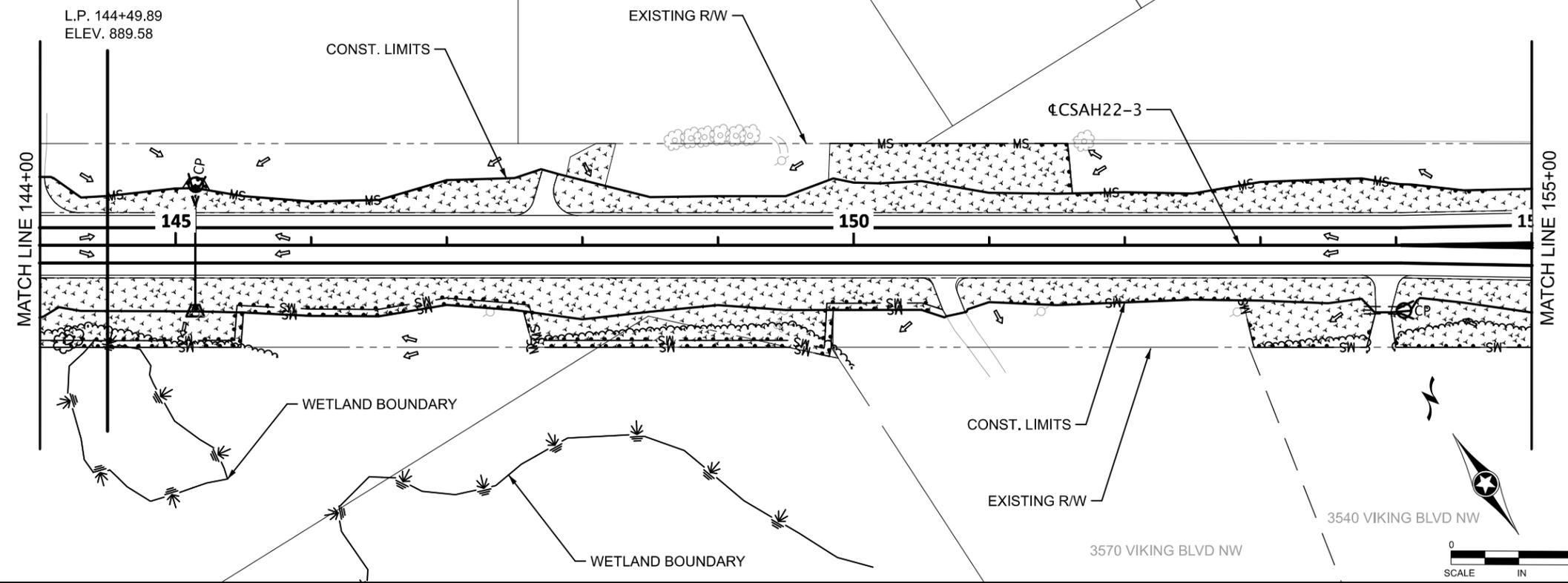


SAP 002-622-045  
 SAP 223-020-011

EROSION CONTROL AND TURF ESTABLISHMENT PLAN  
 STA 112+77.99 TO 133+00.00  
 Sheet 70 of 85 Sheets



- ▼ PROPOSED APRON
- ▽ INPLACE APRON
- == INPLACE CULVERT
- > PROPOSED CULVERT
- MS- SILT FENCE, TYPE MACHINE SLICED
- W- WETLAND BOUNDARIES
- ▲ RIPRAP (CLASS II UNLESS OTHERWISE NOTED)
- CP CULVERT END TREATMENT
- SURFACE FLOW ARROW
- SEEDING MIX SANDY INSLOPE (SI)  
FERT. TYPE 3 (22-5-10)  
HYDRAULIC REINFORCED FIBER MATRIX

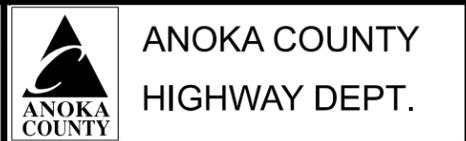


NO	DATE	BY	CKD	APPR	REVISION

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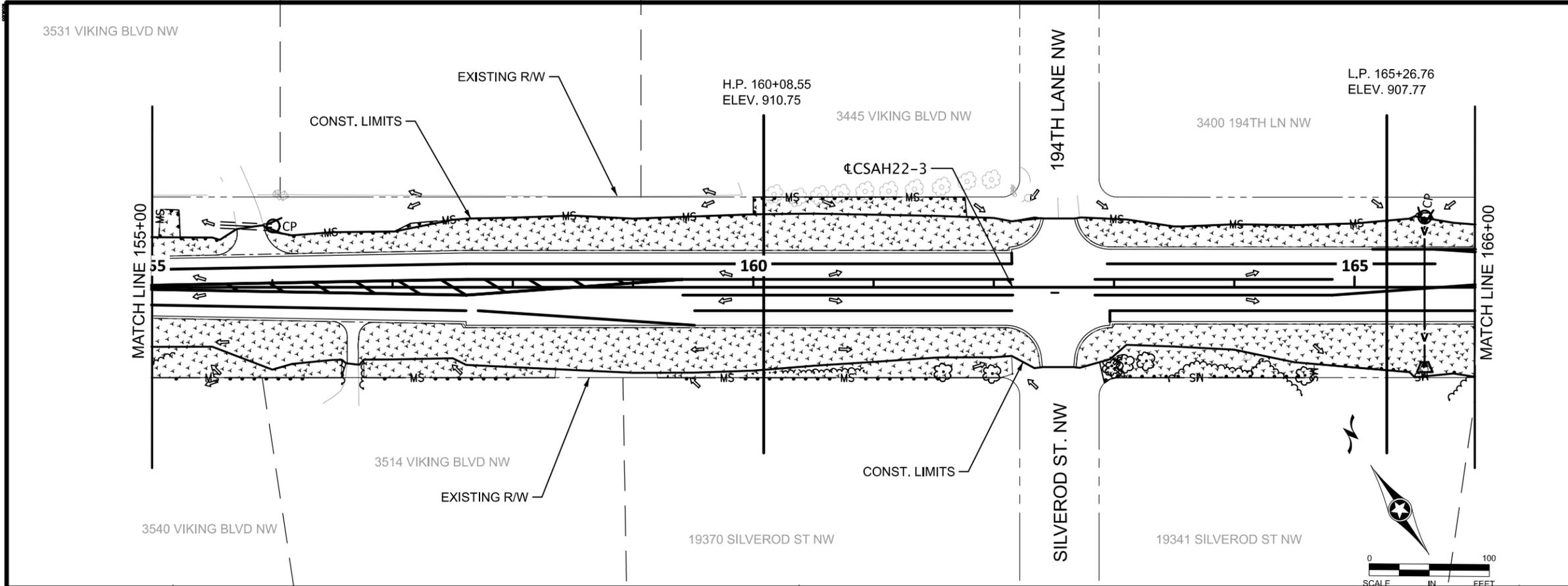
I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.  
 PRINT NAME: NICHOLAS J. DOBDA  
 SIGNATURE: *N. Dobda*  
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 CHECKED BY NJD DATE 04/03/25

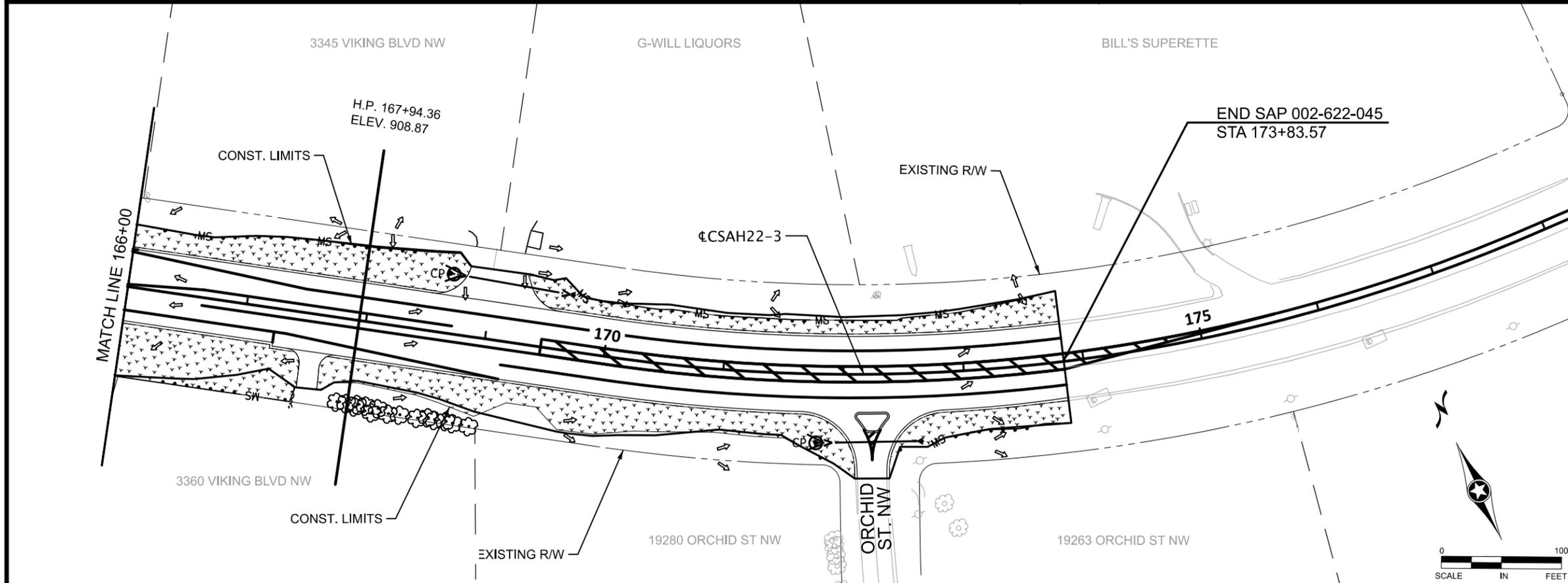


SAP 002-622-045  
 SAP 223-020-011

EROSION CONTROL AND TURF ESTABLISHMENT PLAN  
 STA 133+00.00 TO 155+00.00  
 Sheet 71 of 85 Sheets



LEGEND	
	PROPOSED APRON
	INPLACE APRON
	INPLACE CULVERT
	PROPOSED CULVERT
	SILT FENCE, TYPE MACHINE SLICED
	WETLAND BOUNDARIES
	RIPRAP (CLASS II UNLESS OTHERWISE NOTED)
	CULVERT END TREATMENT
	SURFACE FLOW ARROW
	SEEDING MIX SANDY INSLOPE (SI)
	FERT. TYPE 3 (22-5-10)
	HYDRAULIC REINFORCED FIBER MATRIX



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NAME: P:\002-622-045 Concrete from Rum River thru CSAH 9\Plan\002622045\_325erc.dgn 04/08/2025 3:40:23 PM

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PRINT NAME: NICHOLAS J. DOBDA

SIGNATURE: *N. Dobda*

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CHECKED BY NJD DATE 04/03/25



SAP 002-622-045  
SAP 223-020-011

3 OF 3

EROSION CONTROL AND TURF ESTABLISHMENT PLAN  
STA 155+00.00 TO 173+83.57

Sheet 72 of 85 Sheets

**PERMANENT PAVEMENT MARKING PLAN  
NOTES & GUIDELINES**

**GENERAL INFORMATION:**

1. 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.
2. 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.
3. 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.
4. PERMANENT PAVEMENT MARKINGS SHALL NOT BE PLACED OVER TEMPORARY TAPE MARKINGS.
5. 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.

**PREFORMED TAPE LAY APPLICATION:**

1. APPLY THE PREFORMED PAVEMENT MARKING TAPE AS RECOMMENDED BY THE MANUFACTURER TO PROVIDE A NEAT, DURABLE MARKING THAT WILL NOT FLOW OR DISTORT DUE TO TEMPERATURE IF THE PAVEMENT SURFACE REMAINS STABLE. USE EQUIPMENT AND APPLICATION METHODS SPECIFIED BY THE MANUFACTURER.

**PREFORMED THERMOPLASTIC:**

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

**PERMANENT STRIPING**

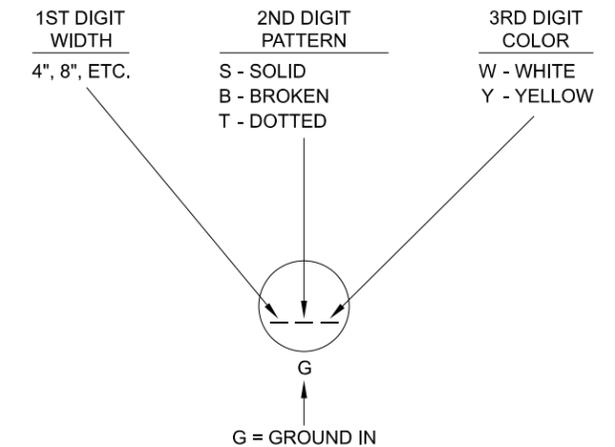
PERMANENT PAVEMENT MARKING TABULATION				K
ITEM DESCRIPTION	UNIT	TOTAL QUANTITY		
		WHITE	YELLOW	
4" SOLID LINE PREF TAPE GROUND IN (WR)	LIN FT	14,951	1,000	
4" BROKEN LINE PREF TAPE GROUND IN (WR)	LIN FT		430	
4" SOLID DOUBLE LINE PREF TAPE GROUND IN (WR)	LIN FT		5,096	
24" SOLID LINE, PREF THERMOPLASTIC, GROUND IN	LIN FT		617	
PAVEMENT MESSAGE, PREF THERMOPLASTIC	SQ FT	170		

**PAVEMENT MARKING SYMBOLS & MATERIALS LEGEND**

- — BROKEN LINE - 50' CYCLE (10' LINE, 40' GAP)
- ↶ ↷ PAVEMENT MESSAGE - LEFT OR RIGHT ARROW

**STRIPING KEY**

-  SQUARE - PREF TAPE
-  OCTAGON - PREF THERMO



EXAMPLE:  = 4" SOLID LINE WHITE PREF TAPE GROUND IN, WET REFLECTIVE

NO	DATE	BY	CKD	APPR	REVISION

NAME: P3

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 R. THIEL

SIGNATURE: *Sean R. Thiel*

DATE: 04/11/25 LICENSE NO. 45129

DRAWN BY LJK DATE 04/11/25

DESIGN BY LJK DATE 04/11/25

CHECKED BY SRT DATE 04/11/25



**ANOKA COUNTY  
HIGHWAY DEPT.**

SAP 002-622-045  
SAP 223-020-011

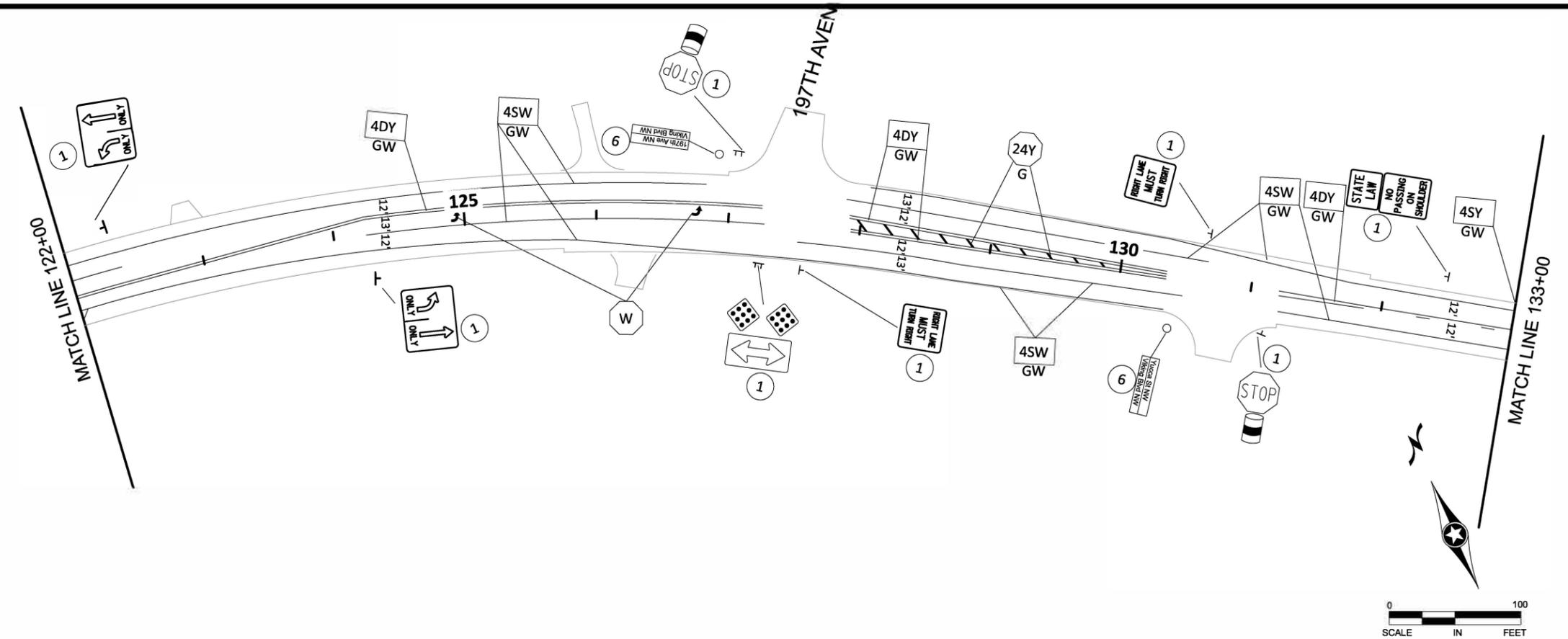
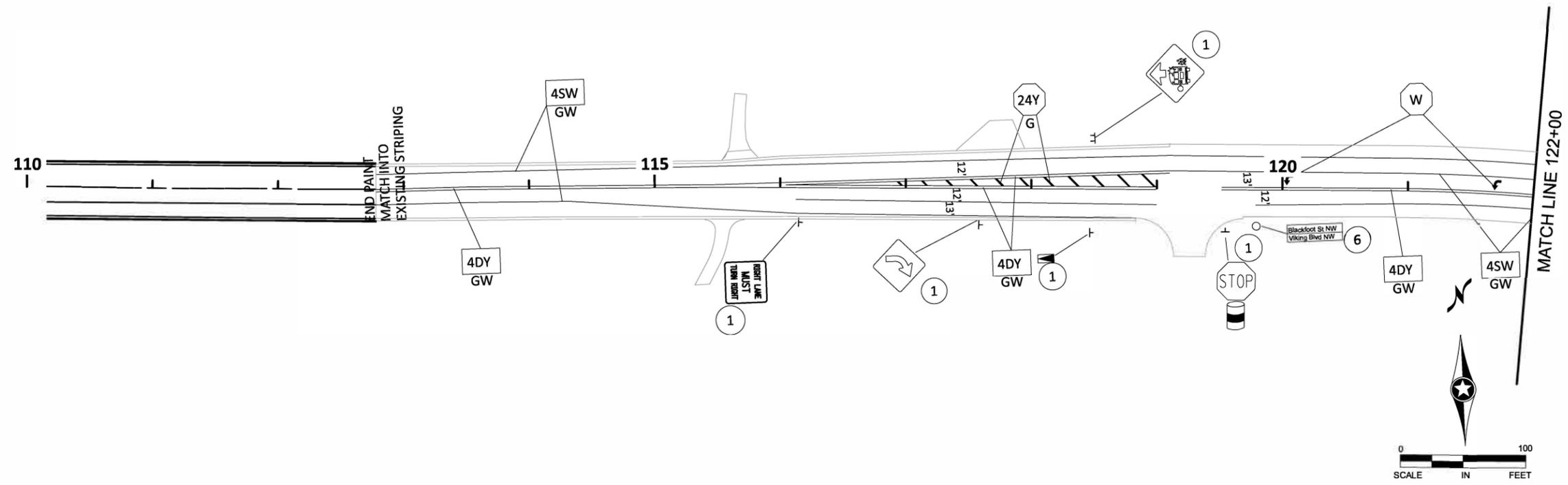
PERMANENT PAVEMENT  
MARKING NOTES AND  
TABULATIONS

STRIPING KEY

-  SQUARE - PREFORM TAPE GROUND IN (WR)
-  OCTAGON - POLY PREFORM THERMO GROUND IN

- NOTES:
- LOCATIONS OF PAVEMENT MARKINGS ARE APPROXIMATE. EXACT LOCATIONS WILL BE DETERMINED IN THE FIELD BY THE ENGINEER.
  - ALL PERMANENT STRIPING AND PAVEMENT MESSAGES SHALL BE PLACED PRIOR TO THE ROAD BEING OPENED.
  - MATCH INTO EXISTING STRIPING.
  - TOUCH UP ALL EXISTING STRIPING THAT WAS MARRED/DAMAGED FROM LANE TAPE.

- SIGN NOTES:
- ① FURNISH & INSTALL
  - ⑥ INSTALL
  - ⑧ SALVAGE SIGN TYPE SPECIAL



NO	DATE	BY	CKD	APPR	REVISION

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PRINT NAME: SEAN R. THIEL  
 SIGNATURE: *Sean R. Thiel*  
 DATE: 04/15/2025 LICENSE NO. 45129

DRAWN BY: LJK DATE: 04/11/25  
 DESIGN BY: LJK DATE: 04/11/25  
 CHECKED BY: SRT DATE: 04/11/25



SAP 002-622-045  
 SAP 223-020-011

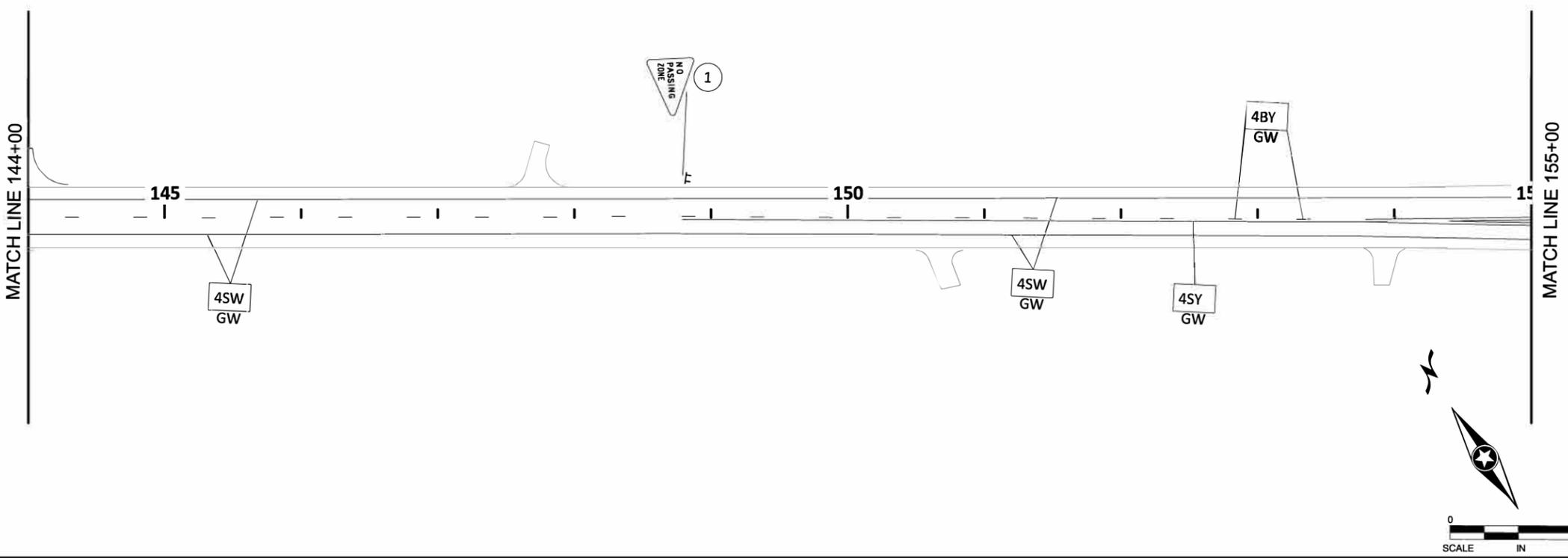
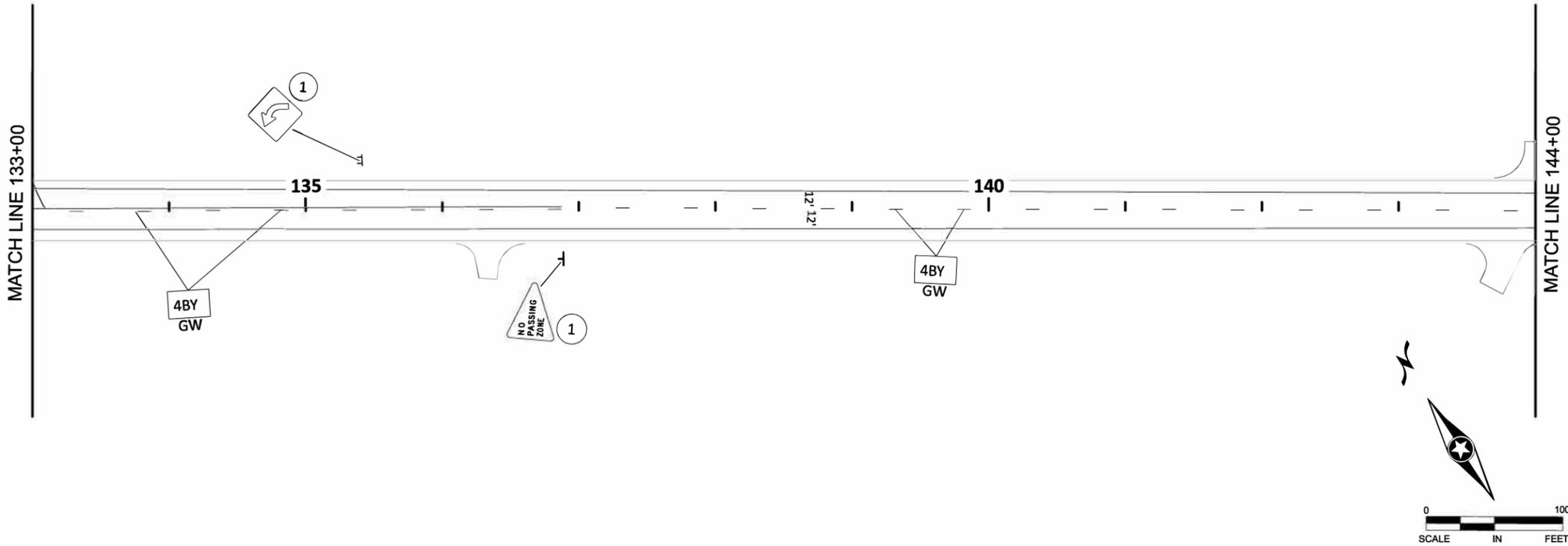
PERMANENT SIGNING & STRIPING  
 STA 112+00.00 TO 133+00.00  
 Sheet 74 of 85 Sheets

STRIPING KEY

- XXX SQUARE - PREFORM TAPE GROUND IN (WR)  
 GW
- XXX OCTAGON - POLY PREFORM THERMO GROUND IN  
 G

- NOTES:
- LOCATIONS OF PAVEMENT MARKINGS ARE APPROXIMATE. EXACT LOCATIONS WILL BE DETERMINED IN THE FIELD BY THE ENGINEER.
  - ALL PERMANENT STRIPING AND PAVEMENT MESSAGES SHALL BE PLACED PRIOR TO THE ROAD BEING OPENED.
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  - TOUCH UP ALL EXISTING STRIPING THAT WAS MARRED/DAMAGED FROM LANE TAPE.

- SIGN NOTES:
- ① FURNISH & INSTALL
  - ⑥ INSTALL
  - ⑧ SALVAGE SIGN TYPE SPECIAL



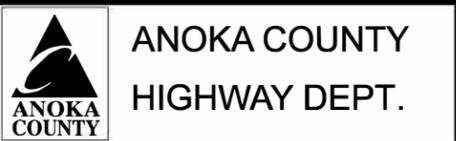
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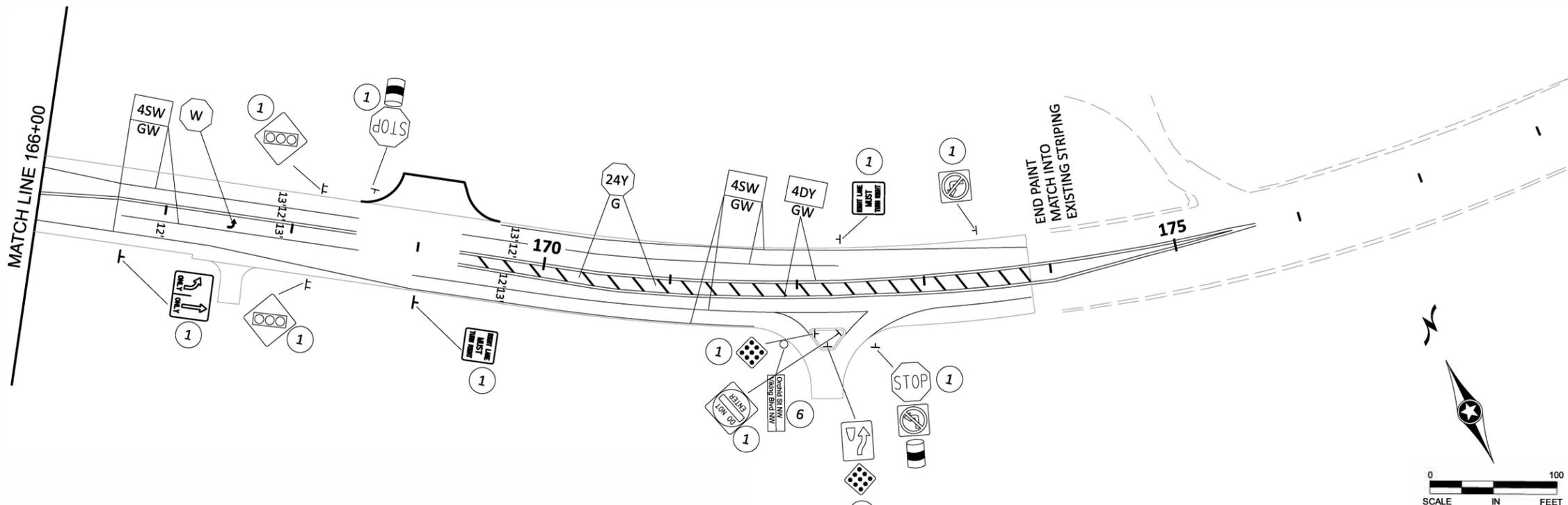
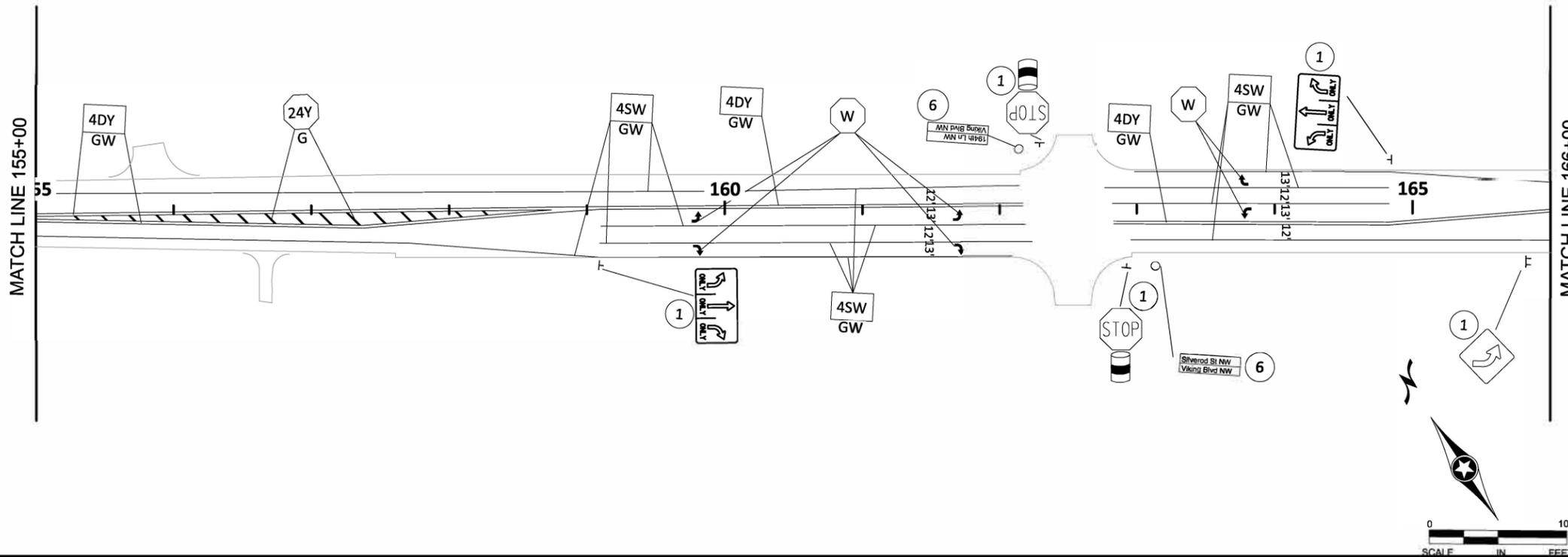
PERMANENT SIGNING & STRIPING  
 STA 133+00.00 TO 155+00.00  
 Sheet 75 of 85 Sheets

STRIPING KEY

-  SQUARE - PREFORM TAPE GROUND IN (WR)
-  OCTAGON - POLY PREFORM THERMO GROUND IN

- NOTES:
- LOCATIONS OF PAVEMENT MARKINGS ARE APPROXIMATE. EXACT LOCATIONS WILL BE DETERMINED IN THE FIELD BY THE ENGINEER.
  - ALL PERMANENT STRIPING AND PAVEMENT MESSAGES SHALL BE PLACED PRIOR TO THE ROAD BEING OPENED.
  - MATCH INTO EXISTING STRIPING.
  - TOUCH UP ALL EXISTING STRIPING THAT WAS MARRED/DAMAGED FROM LANE TAPE.

- SIGN NOTES:
- ① FURNISH & INSTALL
  - ⑥ INSTALL
  - ⑧ SALVAGE SIGN TYPE SPECIAL



NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\002-622-045 Concrete from Rum River thru CSAH 9\Plant\002622045\_440sgn.dgn 04/14/2025 4:05:50 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: SEAN R. THIEL  
 SIGNATURE: *Sean R. Thiel*  
 DATE: 04/15/2025 LICENSE NO. 45129

DRAWN BY: LJK DATE: 04/11/25  
 DESIGN BY: LJK DATE: 04/11/25  
 CHECKED BY: SRT DATE: 04/11/25



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

SAP 002-622-045  
 SAP 223-020-011

PERMANENT  
 SIGNING & STRIPING  
 STA 155+00.00 TO 173+83.57  
 Sheet 76 of 85 Sheets

TYPE C SIGN PANELS - ANOKA COUNTY CSAH 22							M
M.U.T.C.D. CODE	SIZE	INSERT	QUANTITY	SQ FT PANEL AREA	SQ FT TOTAL AREA	MOUNTING POSTS PER INSTALLATION	MOUNTING HEIGHT
R3-7R	30" x 30"		5	6.25	31.25	1	7.0'
W1-2R	30" x 30"		1	6.25	6.25	1	7.0'
X3-5	6" x 12"		1	0.50	0.50	1	7.0'
S3-1	36" x 36"		1	9.00	9.00	2	7.0'
R1-1	30" x 30"		7	6.25	43.75	1	7.0'
R3-2	24" x 24"		1	4.00	4.00		
X4-3	H:9" D:6"		7	1.18	8.26		
R3-2	24" x 24"		1	4.00	4.00	1	7.0'
R3-8AC	36" x 30"		3	7.50	22.50	2	7.0'
(1) R4-7	24" x 30"		1	5.00	5.00	1	7.0'
OM1-1	18" x 18"		1	2.25	2.25		
(1) R5-1	30" x 30"		1	6.25	6.25	1	7.0'
W1-7	48" x 24"		1	8.00	8.00	2	7.0'
OM1-1	18" x 18"		2	2.25	4.50		
(1) OM1-1	18" x 18"		1	2.25	2.25	1	4.0'
W14-3	48" x 48" x 36"		2	6.00	12.00	2	7.0'
W1-2L	30" x 30"		2	6.25	12.50	1	7.0'
R3-8ACA	54" x 30"		2	11.25	22.50	2	7.0'
W3-3	36" x 36"		1	9.00	9.00	2	7.0'
	48" x 48"		1	16.00	16.00		
R16-XSP	30" x 24"		1	5.00	5.00	2	7.0'
R4-18a	30" x 36"		1	7.50	7.50		
TYPE C SIGN PANEL TOTALS			44		242		

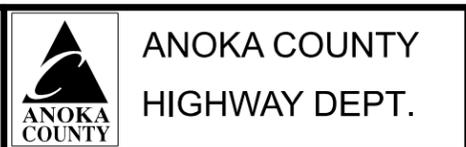
SPECIFIC NOTES:  
(1) S-CONC: 2" POST

NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\24-01-00\CSAH\_01\_(550 E HANSON-EGRET)\Base\Traffic\CSAH 1 - Signing and Striping

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 R. THIEL  
SIGNATURE:

DRAWN BY LJK DATE 04/11/25  
DESIGN BY LJK DATE 04/11/25  
CHECKED BY SRT DATE 04/11/25

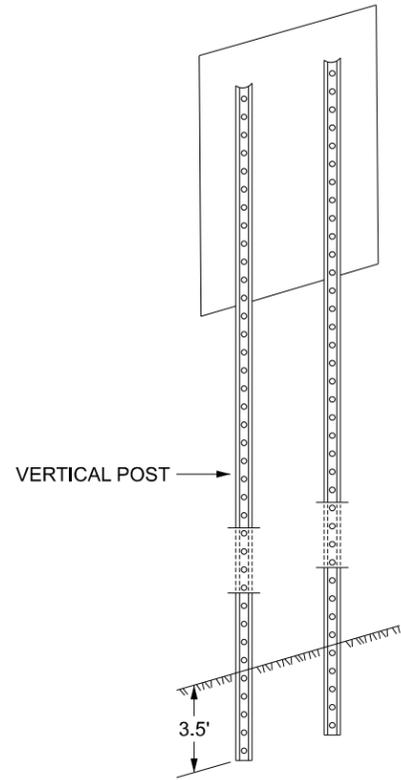


SAP 002-622-045  
SAP 223-020-011

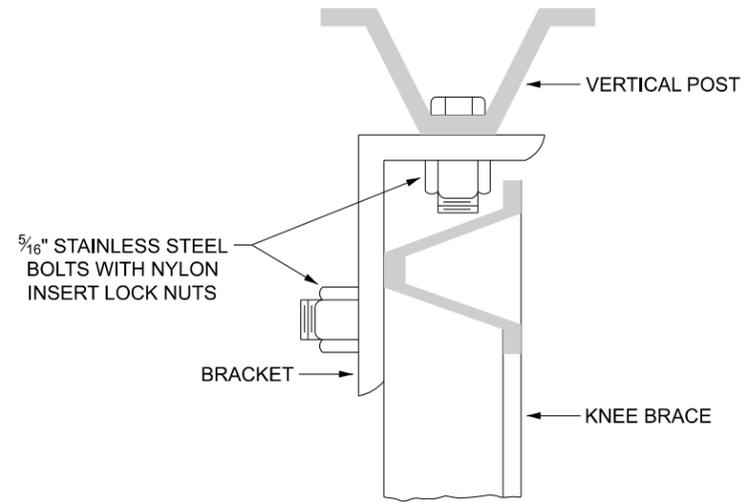
PERMANENT SIGNING TABULATIONS  
Sheet 77 of 85 Sheets

# TYPE C & D SIGN STRUCTURAL DETAILS

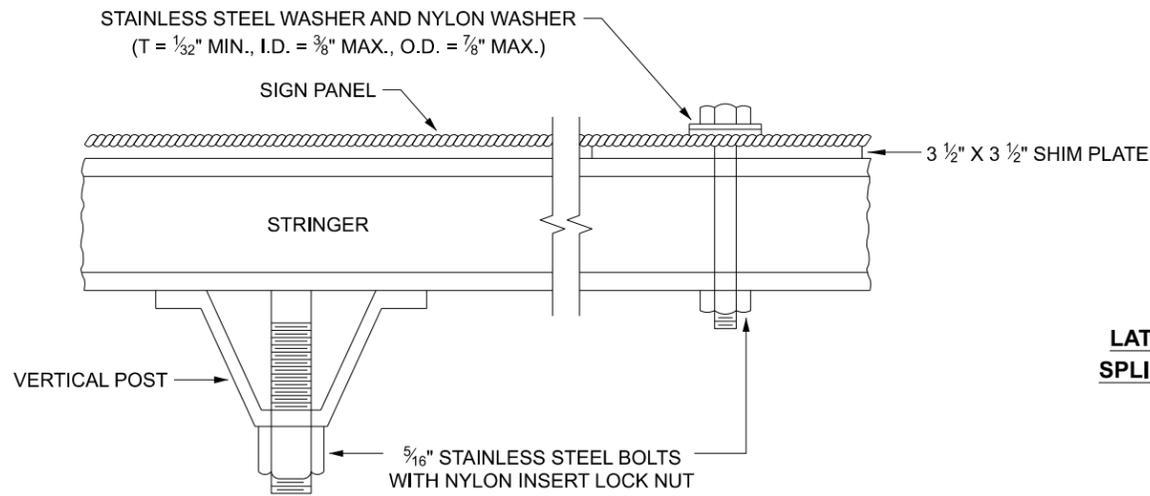
**TYPICAL INSTALLATION 36" AND LARGER  
TYPE "C" SIGNS**



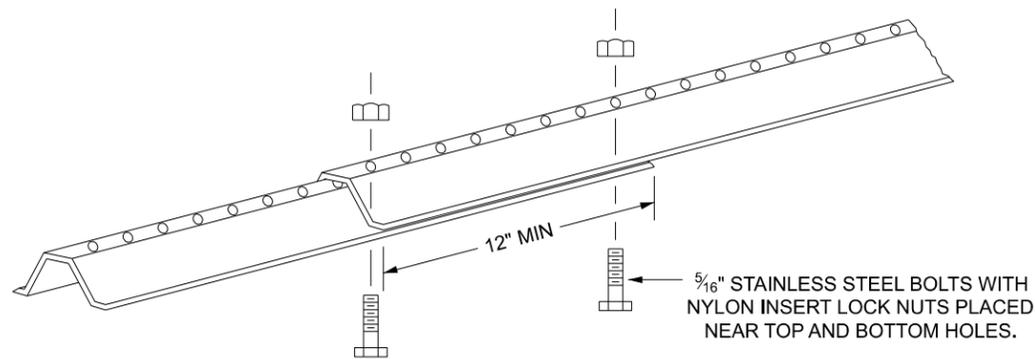
**SECTION A-A**



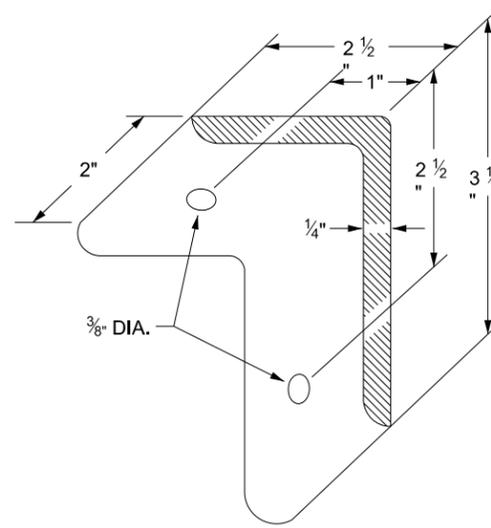
**SECTION B-B**



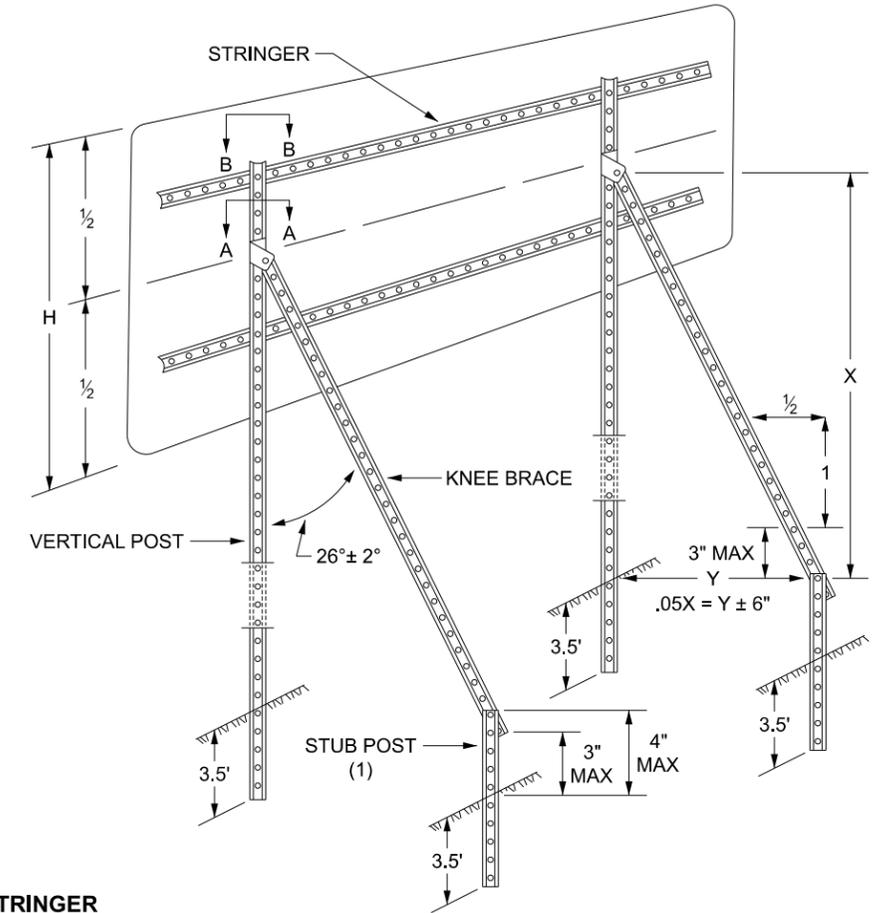
**KNEE BRACE SPLICE**



**A-FRAME BRACKET  
(STEEL MN/DOT 3306 GALVANIZED PER MN/3394)**

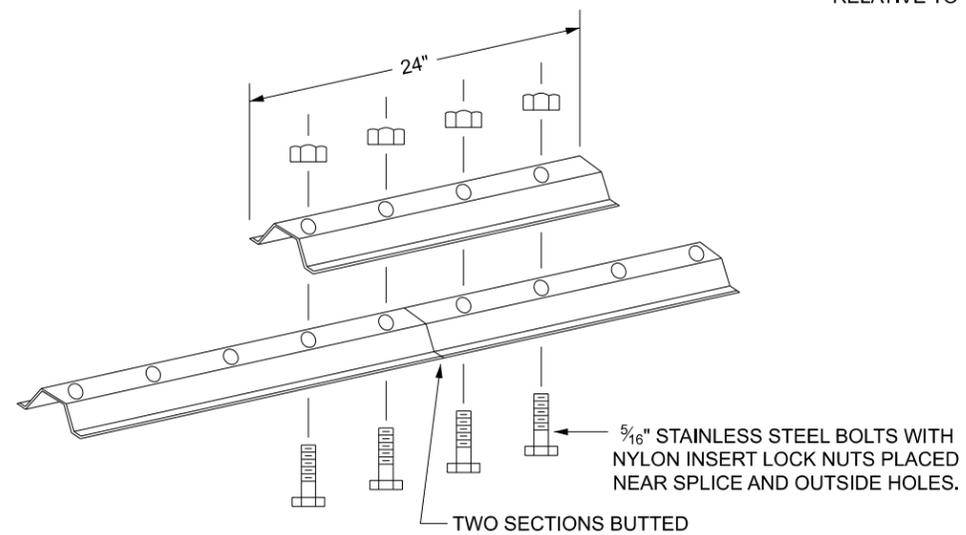


**TYPICAL "A-FRAME" INSTALLATION  
TYPE "D" SIGNS**



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

**LATERAL BRACE OR STRINGER  
SPLICE DETAIL (EXPLODED VIEW)**



NO	DATE	BY	CKD	APPR	REVISION

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 SIGNATURE: *Sean R. Thiel*  
 DATE: 04/11/25 LICENSE NO. 45129

DRAWN BY LJK DATE 04/11/25  
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 CHECKED BY SRT DATE 04/11/25



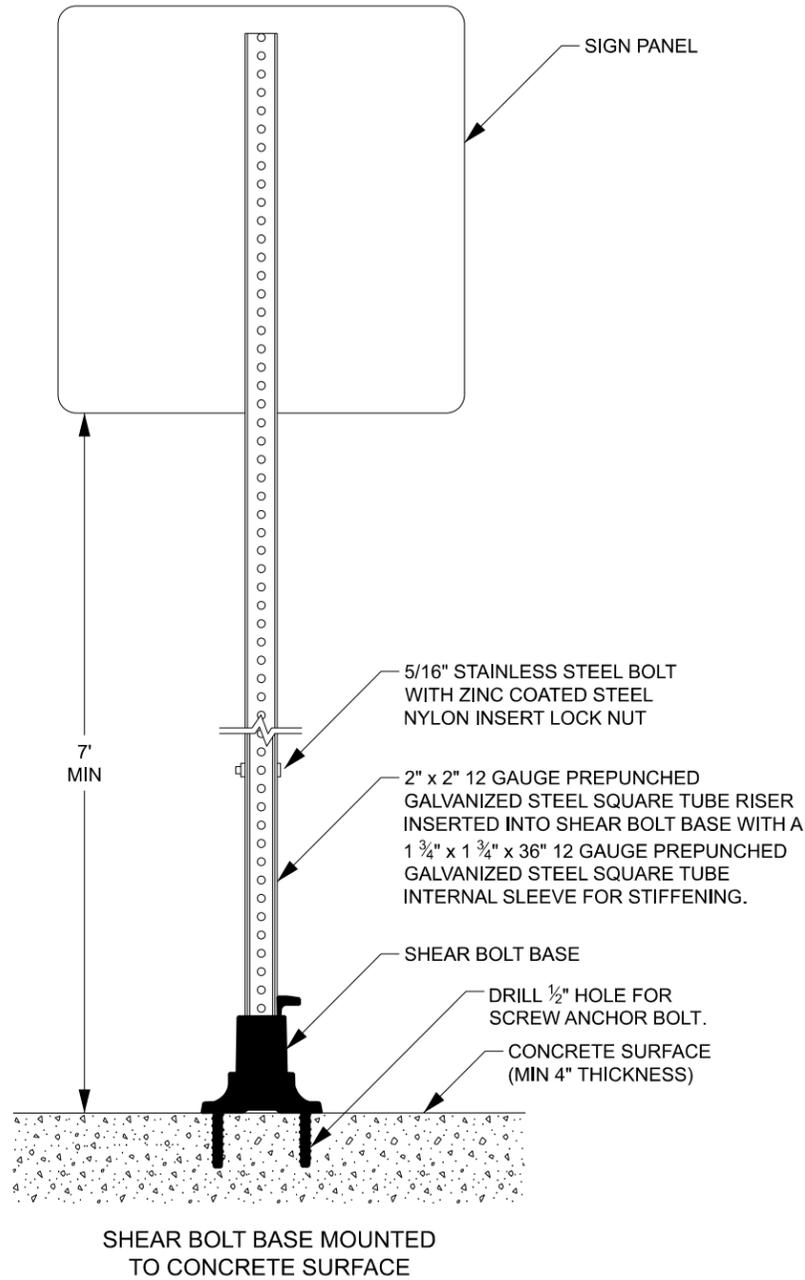
**ANOKA COUNTY  
HIGHWAY DEPT.**

SAP 002-622-045  
SAP 223-020-011

**SIGNING & STRIPING  
DETAILS**

**SIGN INSTALLATION TYPICALS**

**ISLAND MOUNT  
SQUARE TUBE SHEAR BOLT BASE  
SIGN INSTALLATION TYPICAL**

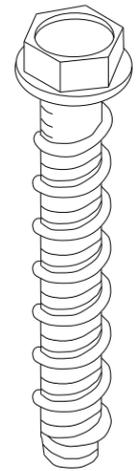


**SIGN NOTES:**

1. TO MEET CRASHWORTHY REQUIREMENTS THE DISTANCE BETWEEN THE BOTTOM OF THE SIGN PANEL AND THE GROUND SURFACE BELOW ANY PORTION OF THE PRIMARY SIGN PANEL MUST BE A MINIMUM OF 7 FEET. SEE TABULATIONS FOR MOUNTING HEIGHT.
2. INSTALLATION OF SHEAR BOLT BASE MUST BE NO EARLIER THAN 3 DAYS AFTER CONCRETE IS PLACED.
3. FOR SHEAR BOLT BASE USE APPROVED PRODUCT FROM MnDOT APPROVED PRODUCTS LIST. PRODUCT MUST BE MODIFIED AS SHOWN.
4. USE ANTI SEIZE ON THE SHEAR BOLT CONNECTIONS.

**INSTALLATION NEAR SHARED-USE PATHWAY (MN MUTCD):**

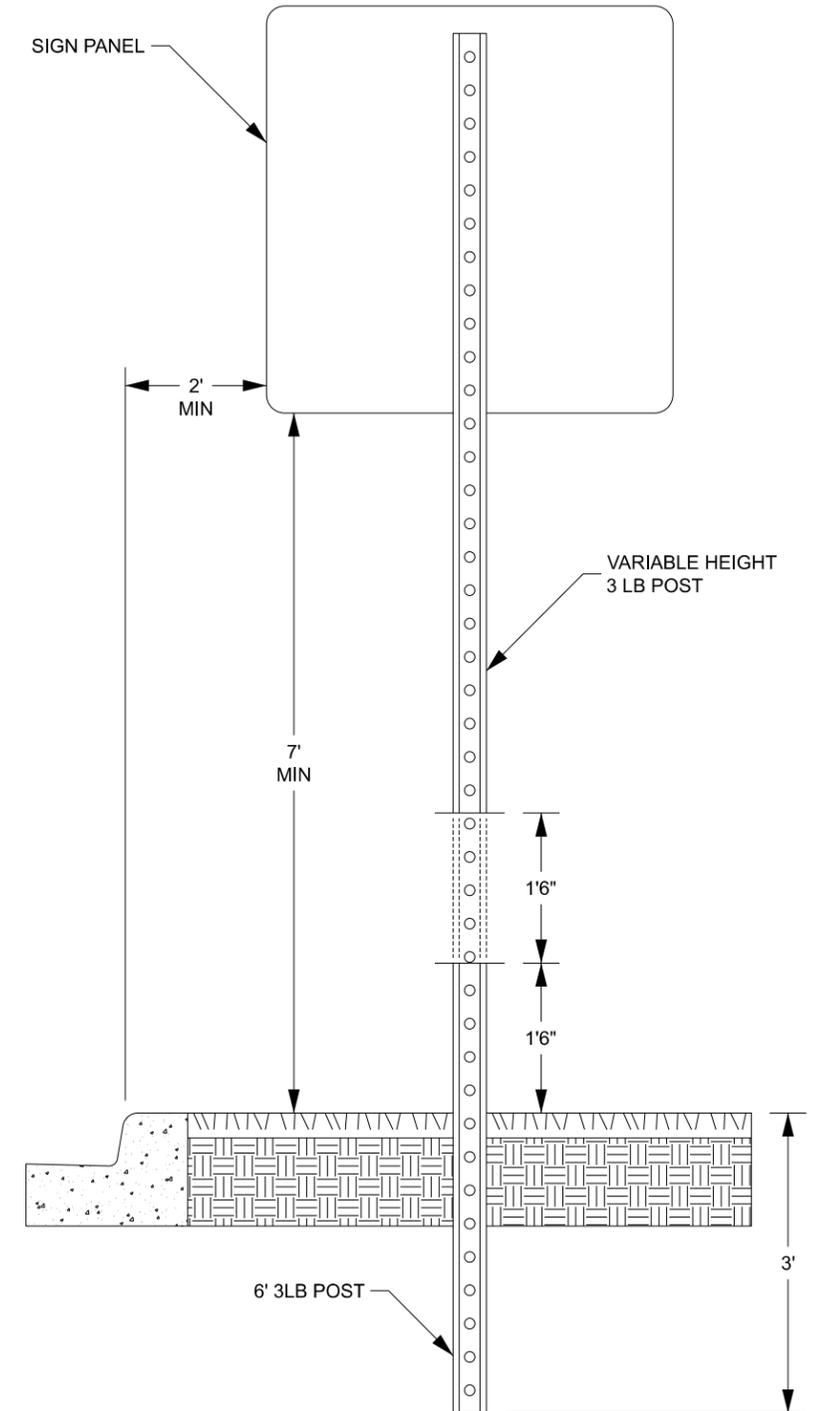
- THE MINIMUM HEIGHT MEASURED VERTICALLY FROM THE SHARED-USE PATHWAY TO THE BOTTOM OF THE SIGN SHALL BE 7 FEET. IF A SECONDARY SIGN IS MOUNTED BELOW THE PRIMARY SIGN AND IS MOUNTED LESS THAN 7 FEET, IT SHALL NOT PROJECT MORE THAN 4 INCHES INTO THE SHARED-USE PATHWAY.



**SCREW ANCHOR BOLT**

5" LONG CARBON STEEL THAT MUST MEET A MINIMUM ALLOWABLE TENSION LOAD OF 2270 PSI.

**GROUND POST MOUNT  
SIGN INSTALLATION TYPICAL**



NO	DATE	BY	CKD	APPR	REVISION

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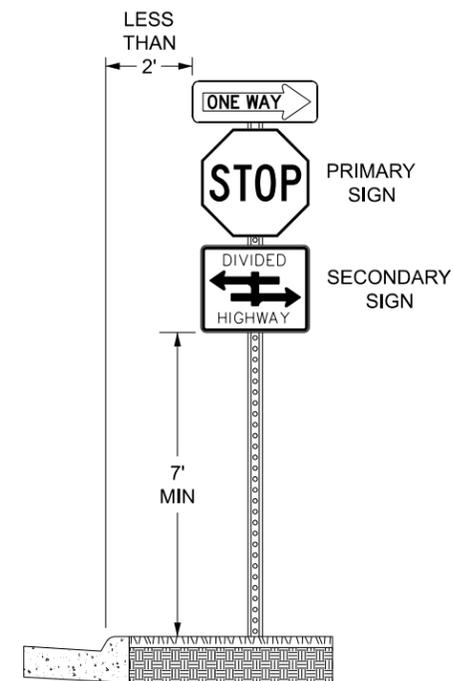
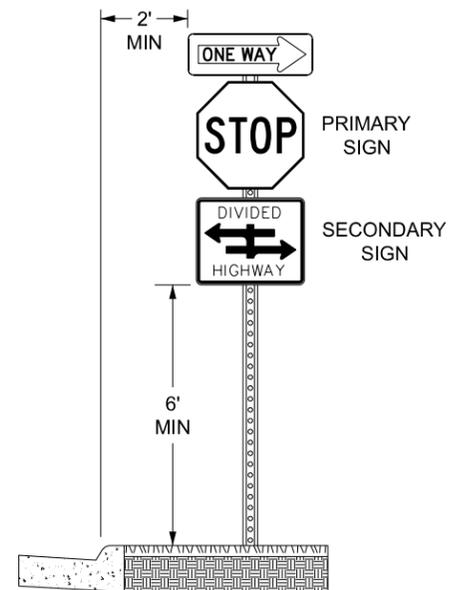
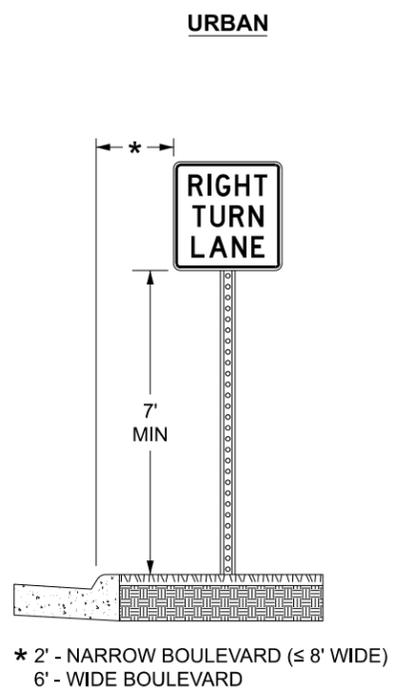
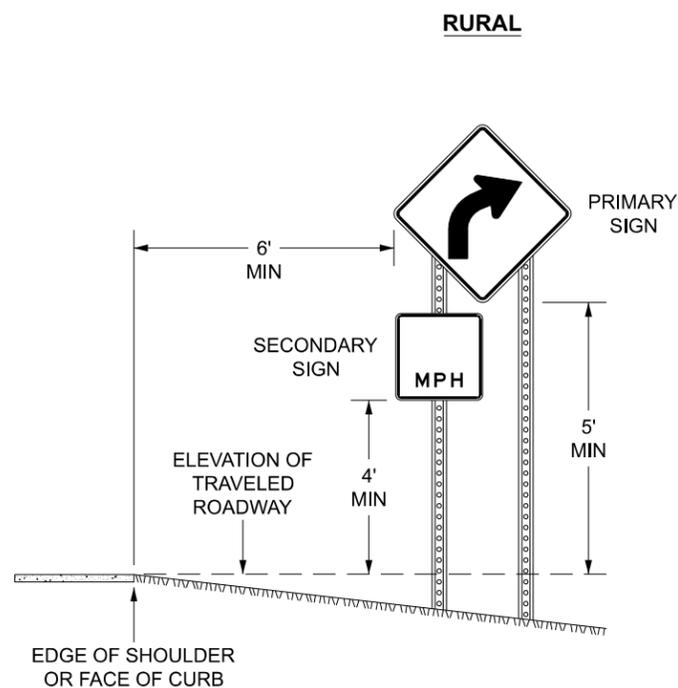
DRAWN BY LJK DATE 04/11/25  
 DESIGN BY LJK DATE 04/11/25  
 CHECKED BY SRT DATE 04/11/25

**ANOKA COUNTY  
HIGHWAY DEPT.**

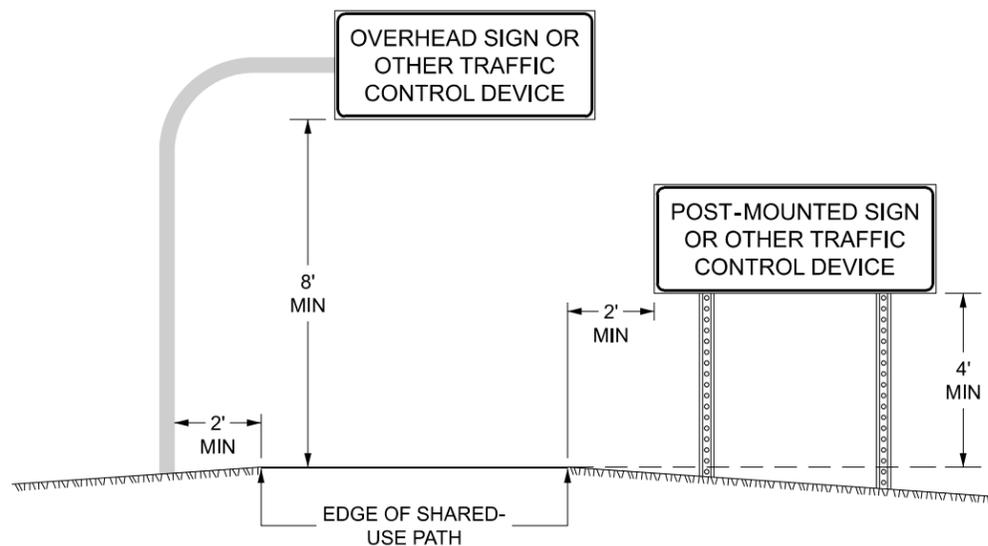
SAP 002-622-045

**SIGNING & STRIPING  
DETAILS**  
 Sheet 79 of 85 Sheets

## SIGN PLACEMENT TYPICALS



### SHARED-USE PATH



**NOTES:**

- ALL DIMENSIONS ARE MINIMUMS.
- MAINTAIN A DISTANCE OF 2' BETWEEN TRAFFIC CONTROL DEVICE AND SHARED-USE PATH.
- 7' SIGN CLEARANCE IF 2' DISTANCE BETWEEN SIGN AND SHARED-USE PATH CANNOT BE MAINTAINED.

NO	DATE	BY	CKD	APPR	REVISION

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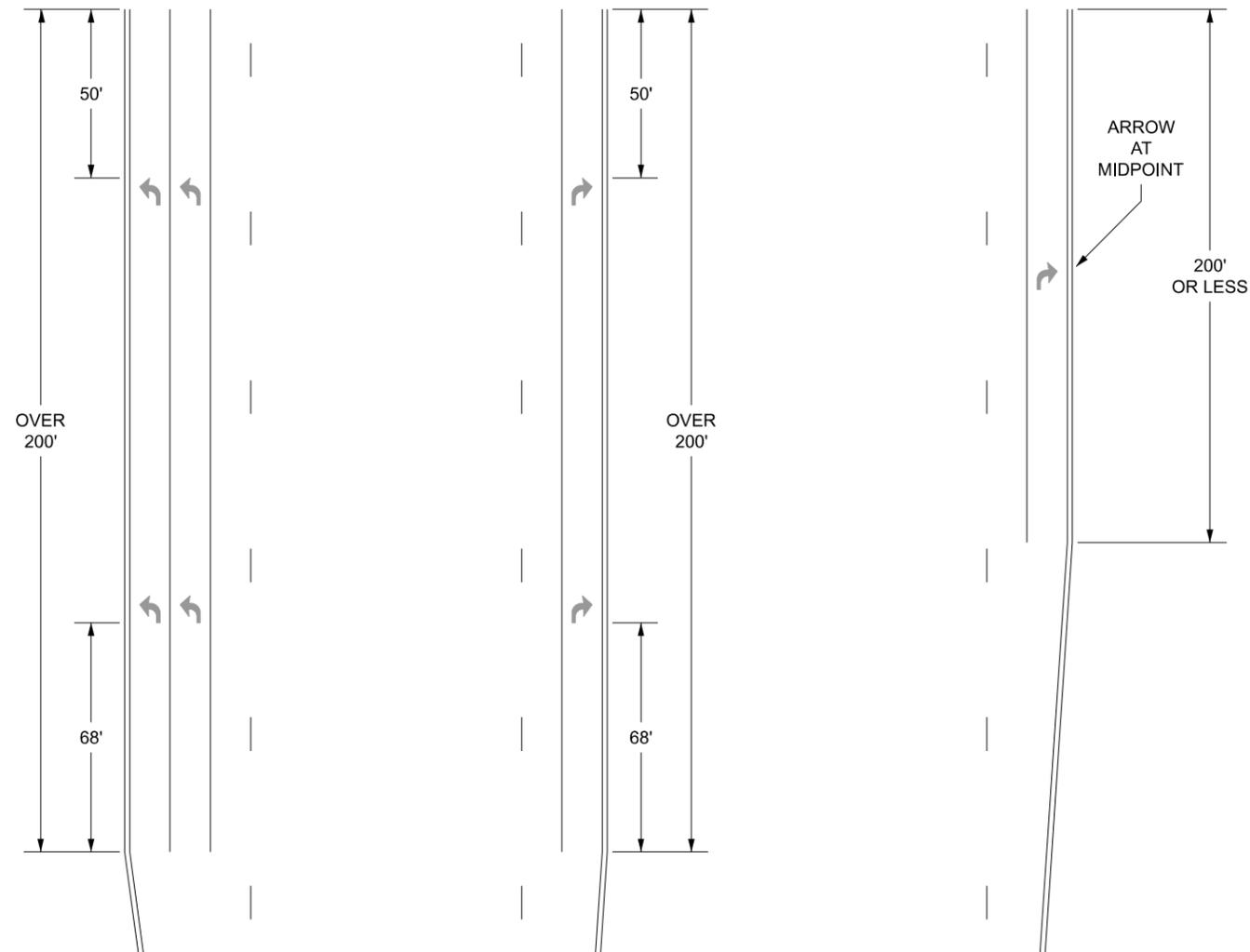
**ANOKA COUNTY**  
**HIGHWAY DEPT.**

SAP 002-622-045  
SAP 223-020-011

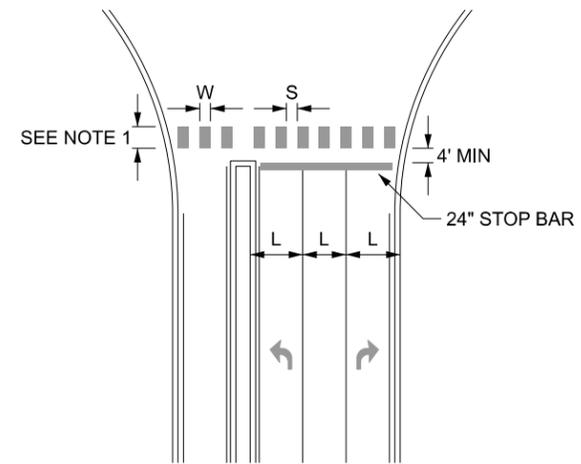
SIGNING & STRIPING  
DETAILS

# PAVEMENT MARKING TYPICALS

## TURN LANE ARROW PLACEMENT

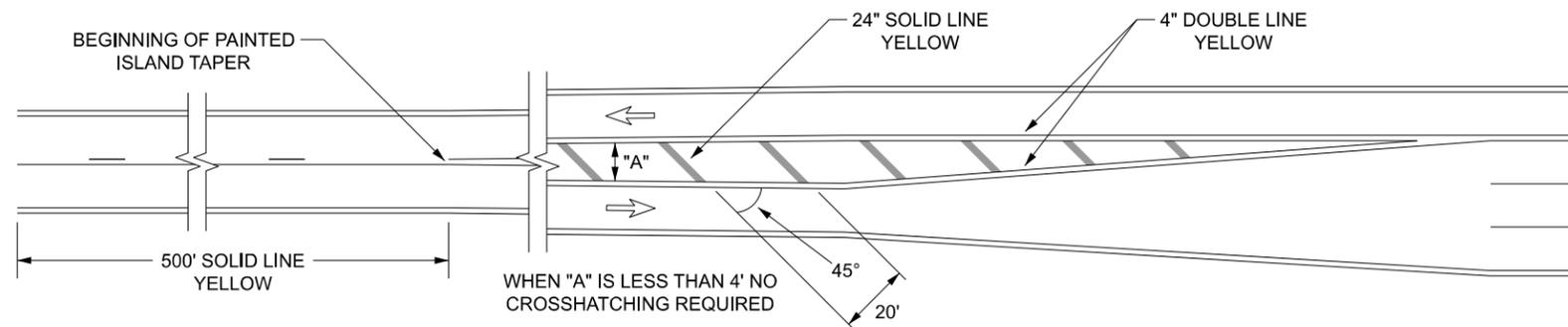


## PEDESTRIAN CROSSWALK



(L) WIDTH OF INSIDE LANE	(W) WIDTH OF PAINTED AREAS	(S) 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'

## LEFT TURN ISLAND MARKINGS



### CROSSWALK NOTES:

1. THE BLOCKS SHALL BE A MINIMUM OF 6' AND AT LEAST AS LONG AS THE TRUNCATED DOMES. FOR FANNED TRUNCATED DOMES THE BLOCKS SHALL BE AT LEAST AS LONG AS THE APPROACHING SIDEWALK OR SHARED-USE PATH.
2. BLOCKS TO BE CENTERED ON CENTERLINE AND LANE LINES.
3. A MINIMUM OF 1.5' CLEAR DISTANCE SHALL BE LEFT ADJACENT TO THE CURB FACE. IF BLOCK FALLS INTO THIS DISTANCE IT MUST BE OMITTED.
4. ON TWO LANE TWO WAY STREETS, USE SPACING SHOWN FOR AN 11' INSIDE LANE.
5. FOR DIVIDED ROADWAYS, ADJUSTMENTS IN SPACING OF THE BLOCKS SHOULD BE MADE IN THE MEDIAN SO THAT THE BLOCKS ARE MAINTAINED IN THEIR PROPER LOCATION ACROSS THE TRAVELED PORTION OF THE ROADWAY.
6. AT SKEWED CROSSWALKS, THE BLOCKS ARE TO REMAIN PARALLEL TO THE LANE LINES.
7. THE BLOCKS SHALL BE PLACED SO THAT THEY ARE NOT LOCATED IN THE WHEEL PATH OF THE VEHICLES.
8. LOCATION OF CROSSWALK BLOCKS, STOP BARS, SIGNAL LOOPS AND PEDESTRIAN RAMPS ARE APPROXIMATE. FINAL LOCATIONS TO BE DETERMINED AND FIELD VERIFIED DURING CONSTRUCTION BY THE FIELD ENGINEER.

NO	DATE	BY	CKD	APPR	REVISION

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 PRINT NAME: SEAN R. THIEL  
 SIGNATURE: *Sean R. Thiel*  
 DATE: 04/11/25 LICENSE NO. 45129

DRAWN BY LJK DATE 04/11/25  
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ANOKA COUNTY  
 HIGHWAY DEPT.

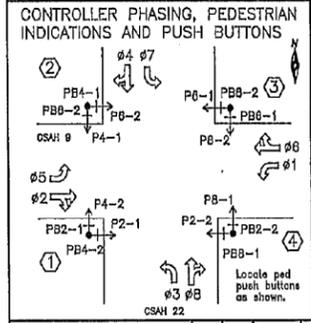
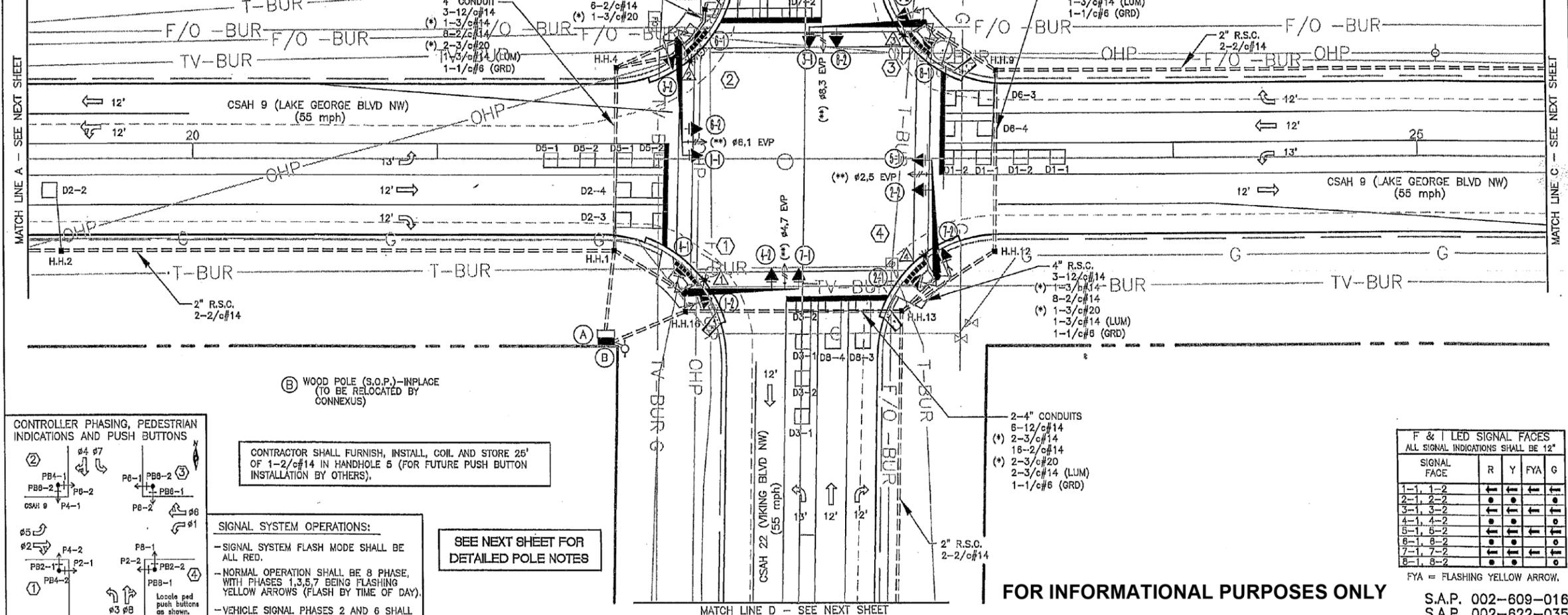
SAP 002-622-045  
 SAP 223-020-011

SIGNING & STRIPING  
 DETAILS  
 Sheet 81 of 85 Sheets

- NOTES:**
- 1) LOCATION OF FOUNDATIONS, LOOP DETECTORS, AND HANDHOLES SHALL BE DETERMINED IN THE 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 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). SEE SPECIAL PROVISIONS.
  - 6) SEE SPECIAL PROVISIONS AND DETAILS REGARDING SIGNS TO BE FURNISHED AND INSTALLED BY CONTRACTOR (INCLUDED AS PART OF PAY ITEM FOR "TRAFFIC CONTROL SIGNAL SYSTEM").
  - 7) EACH PEDESTRIAN INDICATION SHALL BE ONE SECTION LED FILLED 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) IN 3/4" N.M.C. SEE SPECIAL PROVISIONS.
  - 11) (\*) DENOTES ITEMS TO BE INCLUDED AS PART OF THE PAY ITEM FOR ITEM NO. 2565 (EMERGENCY VEHICLE PREEMPTION SYSTEM). SEE STATEMENT OF ESTIMATED AND SPECIAL PROVISIONS.
  - 12) ALL ITEMS OF THE COMPLETE SIGNAL AND EVP SYSTEM SHALL BE CONTRACTOR FURNISHED AND INSTALLED UNLESS SPECIFICALLY DENOTED OTHERWISE.

F & I	N.M.C.	LOOP DETECTORS	LOOP DETECTORS FUNCTIONS:
NUMBER	SIZE (FT.)	LOCATION	FUNCTION
D1-1	2-6x6	15' & 45'	1
D1-2	2-6x6	0' & 30'	1
D2-1	6x6	475'	1
D2-2	6x6	250'	1
D2-3	2-6x6	0' & 15'	7
D2-4	2-6x6	0' & 15'	1
D3-1	2-6x6	15' & 45'	1
D3-2	2-6x6	0' & 30'	1
D4-1	6x6	475'	1
D4-2	2-6x6	0' & 15'	7
D4-3	2-6x6	0' & 15'	1
D5-1	2-6x6	15' & 45'	1
D5-2	2-6x6	0' & 30'	1
D6-1	6x6	475'	1
D6-2	6x6	250'	1
D6-3	2-6x6	0' & 15'	7
D6-4	2-6x6	0' & 15'	1
D7-1	2-6x6	15' & 45'	1
D7-2	2-6x6	0' & 30'	1
D8-1	6x6	475'	1
D8-2	6x6	250'	1
D8-3	2-6x6	0' & 15'	7
D8-4	2-6x6	0' & 15'	1

- 1) CALL AND EXTEND
- 7) DELAYED CALL, IMMEDIATE EXTEND



CONTRACTOR SHALL FURNISH, INSTALL, COIL AND STORE 25' OF 1-2/c#14 IN HANDHOLE 5 (FOR FUTURE PUSH BUTTON INSTALLATION BY OTHERS).

**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 (FLASH BY TIME OF DAY).
- VEHICLE SIGNAL PHASES 2 AND 6 SHALL OPERATE ON RECALL.

SEE NEXT SHEET FOR DETAILED POLE NOTES

**F & I LED SIGNAL FACES**  
ALL SIGNAL INDICATIONS SHALL BE 12"

SIGNAL FACE	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.

**DESIGN TEAM**

NO.	BY	DATE

**REVISIONS**

NO.	BY	DATE	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.

Date: July 14, 2016 Name: John M. Gray, PE Lic. No. 22457



**ANOKA COUNTY, MINNESOTA**  
CITY OF OAK GROVE

**TRAFFIC CONTROL SIGNAL SYSTEM INTERSECTION LAYOUT**  
CSAH 22 (VIKING BLVD NW) AT CSAH 9 (LAKE GEORGE BLVD NW)

FILE NO. ANOKC 136736  
SIGNAL SHEET 6 OF 9  
**85**  
**119**

FOR INFORMATIONAL PURPOSES ONLY

S.A.P. 002-609-016  
S.A.P. 002-622-035

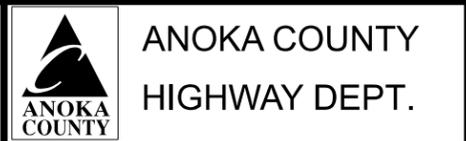
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NO.	DATE	BY	CKD	APPR	REVISION

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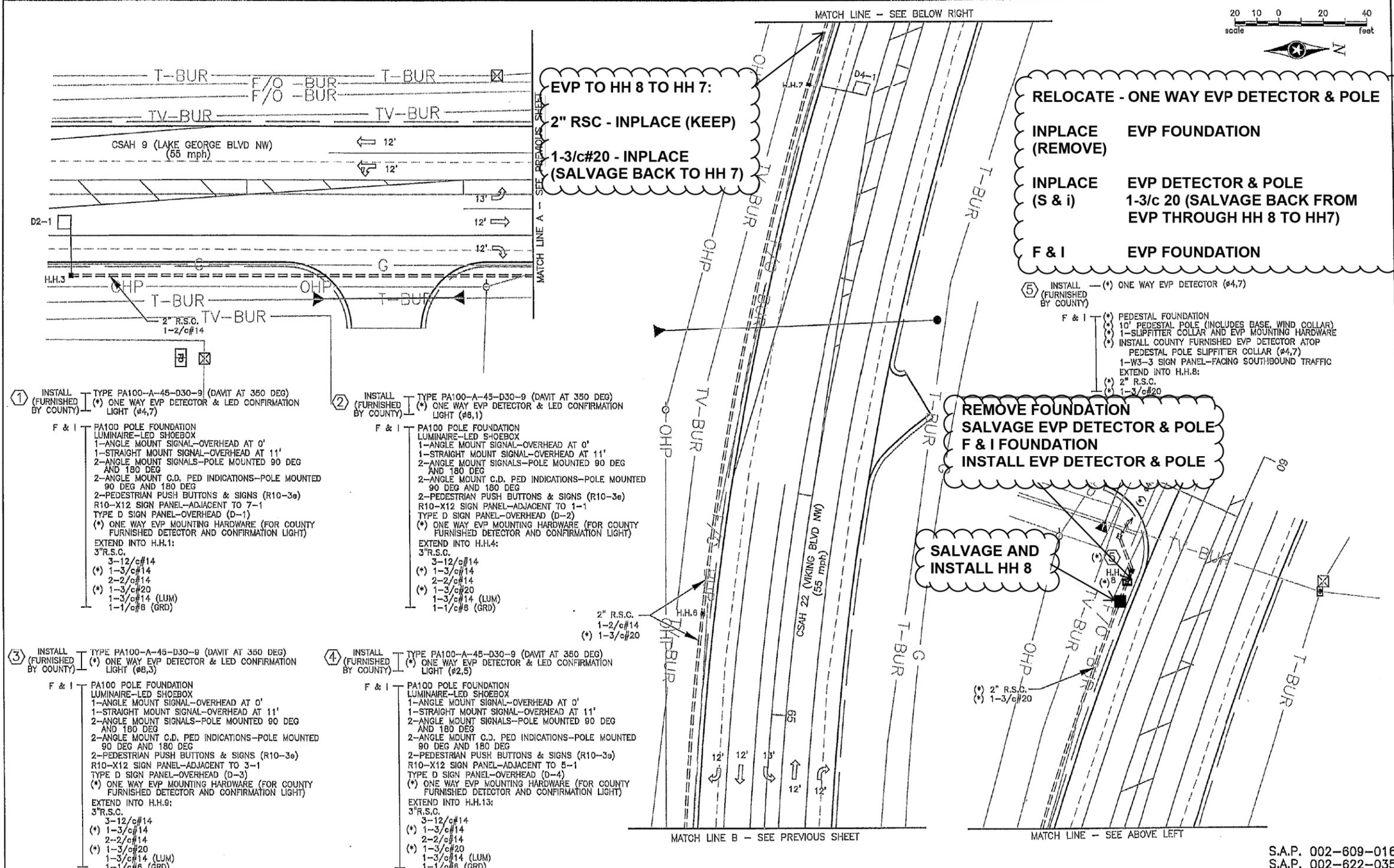
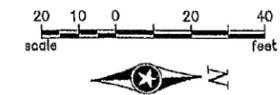
PRINT NAME: NICHOLAS J. DOBDA  
SIGNATURE: NJD  
DATE: 04/09/2025 LICENSE NO. 49046

DRAWN BY CA DATE 04/03/25  
DESIGN BY MAP DATE 04/03/25  
CHECKED BY NJD DATE 04/03/25



SAP 002-622-045  
SAP 223-020-011

EXISTING SIGNAL SYSTEM PLANS WITH REVISIONS  
Sheet 82 of 85 Sheets



① INSTALL (FURNISHED BY COUNTY) TYPE PA100-A-45-D30-9 (DAVIT AT 350 DEG) (\*) ONE WAY EVP DETECTOR & LED CONFIRMATION LIGHT (#4,7)

F & I PA100 POLE FOUNDATION LUMINAIRE-LED SHOEBOX  
 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  
 2-PEDESTRIAN PUSH BUTTONS & SIGNS (R10-3e)  
 R10-X12 SIGN PANEL-ADJACENT TO 7-1  
 TYPE D SIGN PANEL-OVERHEAD (D-1)  
 (\*) ONE WAY EVP MOUNTING HARDWARE (FOR COUNTY FURNISHED DETECTOR AND CONFIRMATION LIGHT)  
 EXTEND INTO H.H.1:  
 3"R.S.C.  
 3-12/c#14  
 (\*) 1-3/c#14  
 2-2/c#14  
 (\*) 1-3/c#20  
 1-3/c#14 (LUM)  
 1-1/c#8 (GRD)

② INSTALL (FURNISHED BY COUNTY) TYPE PA100-A-45-D30-9 (DAVIT AT 350 DEG) (\*) ONE WAY EVP DETECTOR & LED CONFIRMATION LIGHT (#6,1)

F & I PA100 POLE FOUNDATION LUMINAIRE-LED SHOEBOX  
 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  
 2-PEDESTRIAN PUSH BUTTONS & SIGNS (R10-3e)  
 R10-X12 SIGN PANEL-ADJACENT TO 1-1  
 TYPE D SIGN PANEL-OVERHEAD (D-2)  
 (\*) ONE WAY EVP MOUNTING HARDWARE (FOR COUNTY FURNISHED DETECTOR AND CONFIRMATION LIGHT)  
 EXTEND INTO H.H.4:  
 3"R.S.C.  
 3-12/c#14  
 (\*) 1-3/c#14  
 2-2/c#14  
 (\*) 1-3/c#20  
 1-3/c#14 (LUM)  
 1-1/c#8 (GRD)

③ INSTALL (FURNISHED BY COUNTY) TYPE PA100-A-45-D30-9 (DAVIT AT 350 DEG) (\*) ONE WAY EVP DETECTOR & LED CONFIRMATION LIGHT (#8,3)

F & I PA100 POLE FOUNDATION LUMINAIRE-LED SHOEBOX  
 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  
 2-PEDESTRIAN PUSH BUTTONS & SIGNS (R10-3e)  
 R10-X12 SIGN PANEL-ADJACENT TO 3-1  
 TYPE D SIGN PANEL-OVERHEAD (D-3)  
 (\*) ONE WAY EVP MOUNTING HARDWARE (FOR COUNTY FURNISHED DETECTOR AND CONFIRMATION LIGHT)  
 EXTEND INTO H.H.9:  
 3"R.S.C.  
 3-12/c#14  
 (\*) 1-3/c#14  
 2-2/c#14  
 (\*) 1-3/c#20  
 1-3/c#14 (LUM)  
 1-1/c#8 (GRD)

④ INSTALL (FURNISHED BY COUNTY) TYPE PA100-A-45-D30-9 (DAVIT AT 350 DEG) (\*) ONE WAY EVP DETECTOR & LED CONFIRMATION LIGHT (#2,5)

F & I PA100 POLE FOUNDATION LUMINAIRE-LED SHOEBOX  
 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  
 2-PEDESTRIAN PUSH BUTTONS & SIGNS (R10-3e)  
 R10-X12 SIGN PANEL-ADJACENT TO 5-1  
 TYPE D SIGN PANEL-OVERHEAD (D-4)  
 (\*) ONE WAY EVP MOUNTING HARDWARE (FOR COUNTY FURNISHED DETECTOR AND CONFIRMATION LIGHT)  
 EXTEND INTO H.H.13:  
 3"R.S.C.  
 3-12/c#14  
 (\*) 1-3/c#14  
 2-2/c#14  
 (\*) 1-3/c#20  
 1-3/c#14 (LUM)  
 1-1/c#8 (GRD)

**RELOCATE - ONE WAY EVP DETECTOR & POLE**

**INPLACE (REMOVE) EVP FOUNDATION**

**INPLACE (S & i) EVP DETECTOR & POLE 1-3/c 20 (SALVAGE BACK FROM EVP THROUGH HH 8 TO HH 7)**

**F & I EVP FOUNDATION**

- ⑤ INSTALL (FURNISHED BY COUNTY) (\*) ONE WAY EVP DETECTOR (#4,7)
- F & I (\*) PEDESTAL FOUNDATION
- (\*) 10' PEDESTAL POLE (INCLUDES BASE, WIND COLLAR)
- (\*) 1-SLIPFITTER COLLAR AND EVP MOUNTING HARDWARE
- (\*) INSTALL COUNTY FURNISHED EVP DETECTOR ATOP PEDESTAL POLE SLIPFITTER COLLAR (#4,7)
- 1-W3-3 SIGN PANEL-FACING SOUTHBOUND TRAFFIC EXTEND INTO H.H.8:
- (\*) 2" R.S.C.
- (\*) 1-3/c#20

**REMOVE FOUNDATION SALVAGE EVP DETECTOR & POLE F & I FOUNDATION INSTALL EVP DETECTOR & POLE**

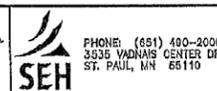
**SALVAGE AND INSTALL HH 8**

S.A.P. 002-609-016  
 S.A.P. 002-622-035

DRAWN BY: JMG	DESIGNER: JMG	CHECKED BY: JMG
NO.	BY	DATE

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 14, 2016  
 Lic. No.: 22437



ANOKA COUNTY, MINNESOTA  
 CITY OF OAK GROVE

TRAFFIC CONTROL SIGNAL SYSTEM  
 MATCH LINES AND NOTES  
 CSAH 22 (VIKING BLVD NW)  
 AT CSAH 9 (LAKE GEORGE BLVD NW)

FILE NO. ANOKO 136736	86
SIGNAL SHEET 7 OF 9	119

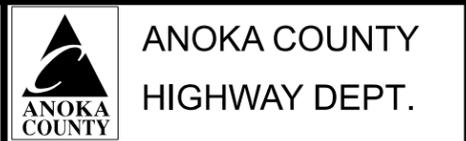
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I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

PRINT NAME: NICHOLAS J. DOBDA  
 SIGNATURE: *N. Dobda*  
 DATE: 04/09/2025 LICENSE NO. 49046

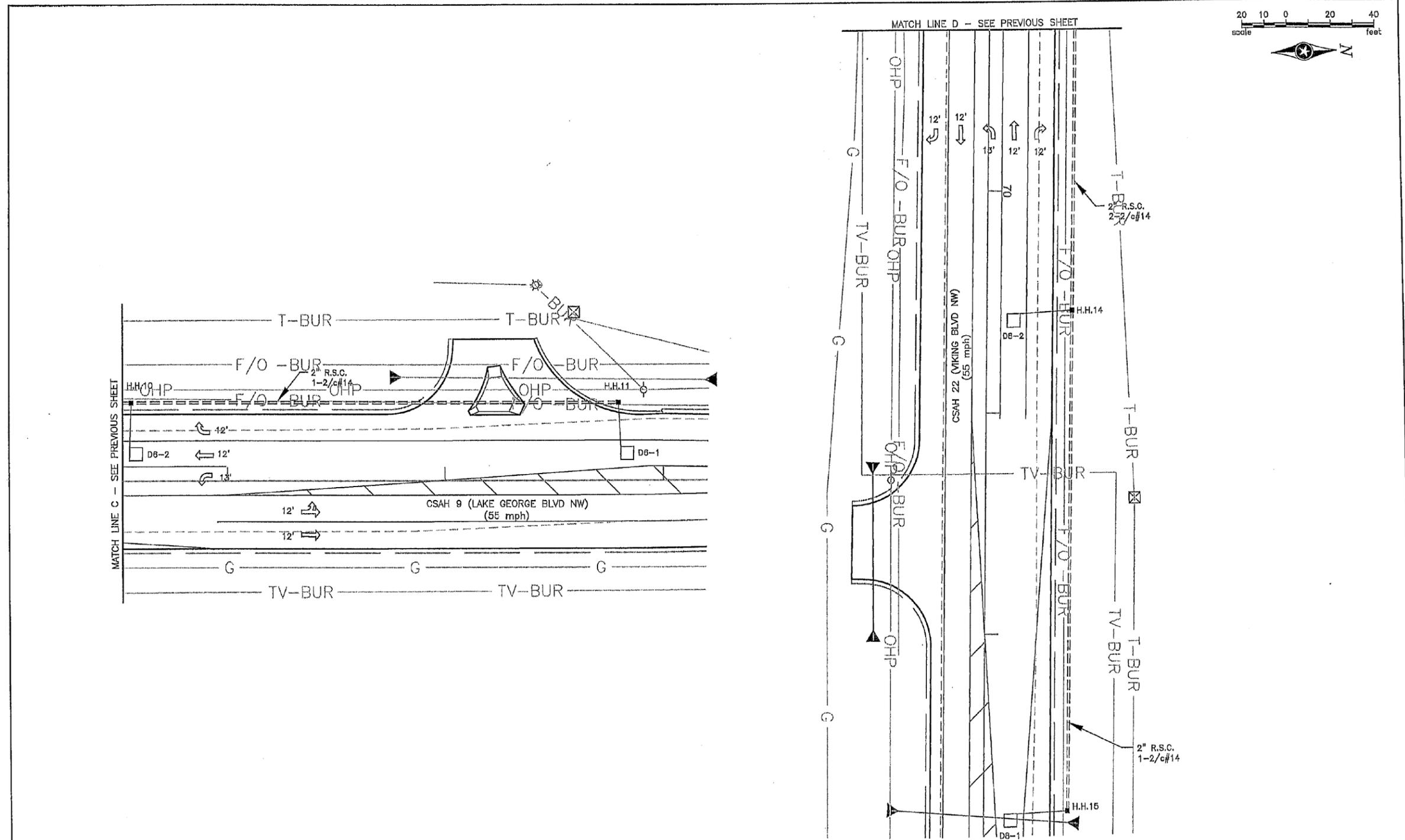
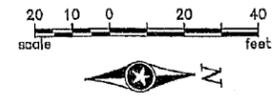
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 DESIGN BY: MAP DATE: 04/03/25  
 CHECKED BY: NJD DATE: 04/03/25



SAP 002-622-045  
 SAP 223-020-011

EXISTING SIGNAL SYSTEM PLANS WITH REVISIONS  
 Sheet 83 of 85 Sheets

7100



FOR INFORMATIONAL PURPOSES ONLY

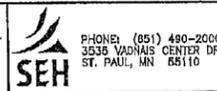
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S.A.P. 002-622-035

DRAWN BY:	JMG
DESIGNER:	JMG
CHECKED BY:	JMG

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.

Signature: *John M. Gray*  
Name: John M. Gray, PE  
Date: July 14, 2018  
Lic. No. 22457



ANOKA COUNTY,  
MINNESOTA  
CITY OF OAK GROVE

TRAFFIC CONTROL SIGNAL SYSTEM  
MATCH LINES  
CSAH 22 (VIKING BLVD NW)  
AT CSAH 9 (LAKE GEORGE BLVD NW)

FILE NO. ANOKA 136736	87
SIGNAL SHEET 8 OF 9	119

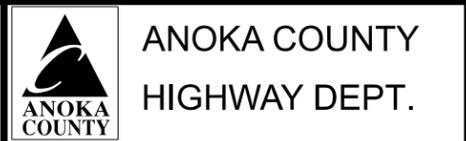
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I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

PRINT NAME: NICHOLAS J. DOBDA  
SIGNATURE: *Nicholas J. Dobda*  
DATE: 04/09/2025 LICENSE NO. 49046

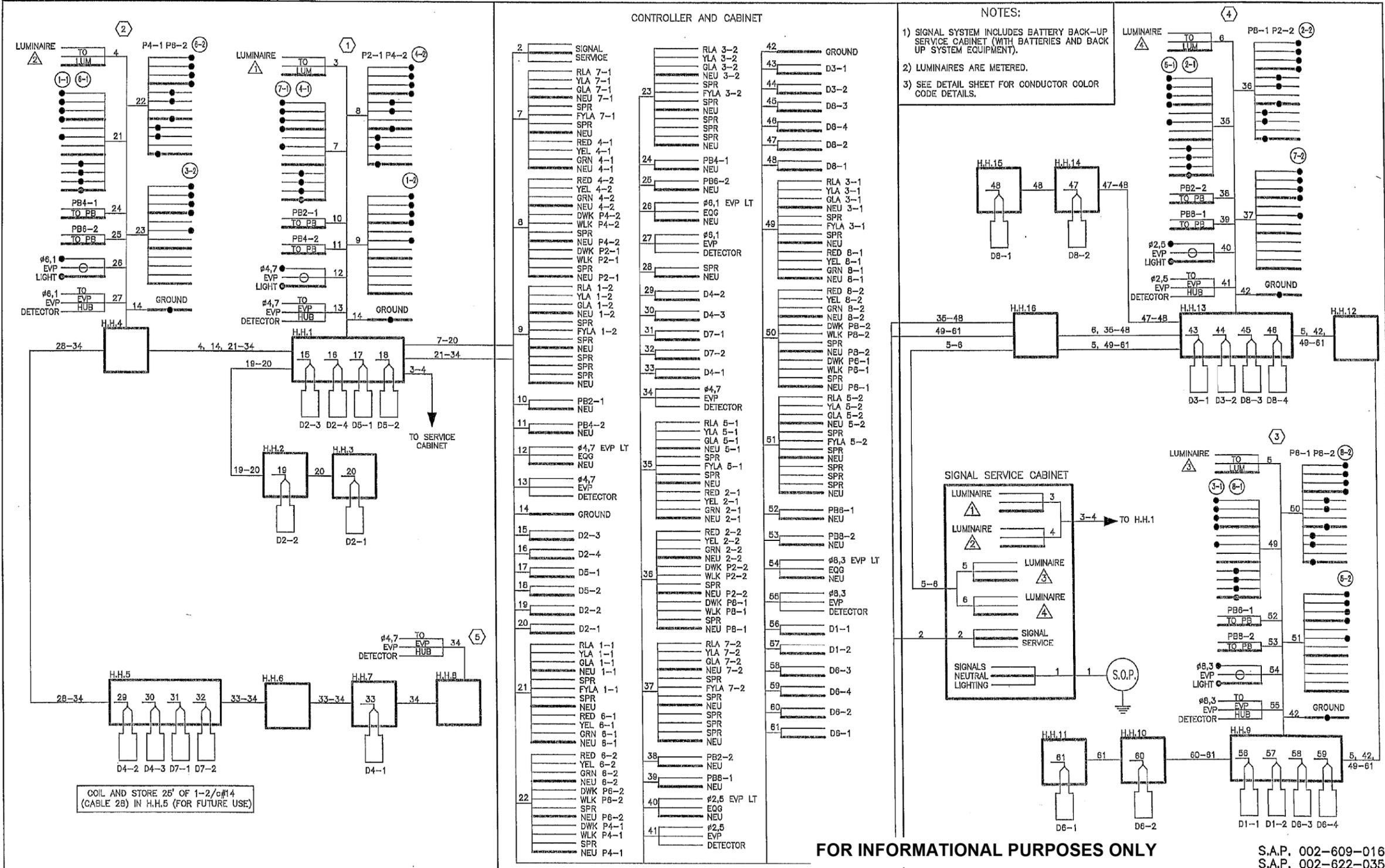
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CHECKED BY: NJD DATE: 04/03/25



SAP 002-622-045  
SAP 223-020-011

EXISTING SIGNAL SYSTEM  
PLANS WITH REVISIONS  
Sheet 84 of 85 Sheets

7100



NOTES:  
 1) SIGNAL SYSTEM INCLUDES BATTERY BACK-UP SERVICE CABINET (WITH BATTERIES AND BACK UP SYSTEM EQUIPMENT).  
 2) LUMINAIRES ARE METERED.  
 3) SEE DETAIL SHEET FOR CONDUCTOR COLOR CODE DETAILS.

FOR INFORMATIONAL PURPOSES ONLY

S.A.P. 002-609-016  
S.A.P. 002-622-035

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.

*John M. Gray*  
 Name: John M. Gray, PE  
 Lic. No. 22457  
 Date: July 14, 2018

SEH  
 PHONE: (651) 498-2000  
 3535 WADSWORTH CENTER DR.  
 ST. PAUL, MN 55110

ANOKA COUNTY,  
 MINNESOTA  
 CITY OF OAK GROVE

TRAFFIC CONTROL SIGNAL SYSTEM  
 FIELD WIRING DIAGRAM  
 CSAH 22 (Viking Blvd NW)  
 AT CSAH 9 (LAKE GEORGE BLVD NW)

FILE NO.	88
ANOKA 136738	
SIGNAL SHEET	119
9 OF 9	

NO.	DATE	BY	CKD	APPR	REVISION

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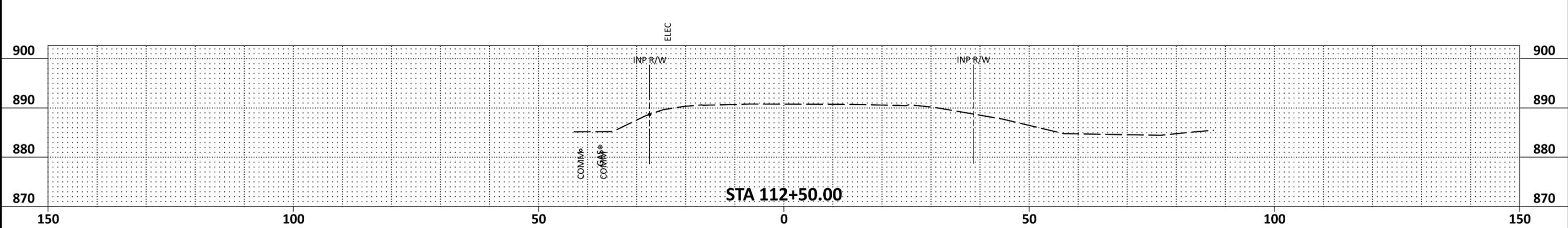
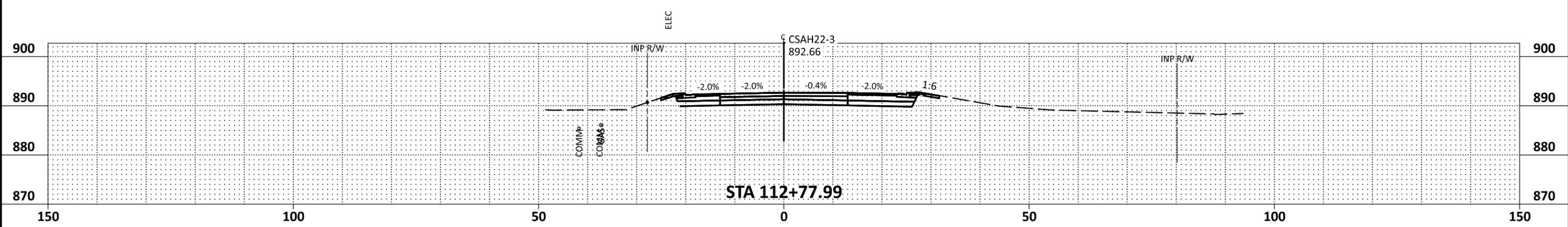
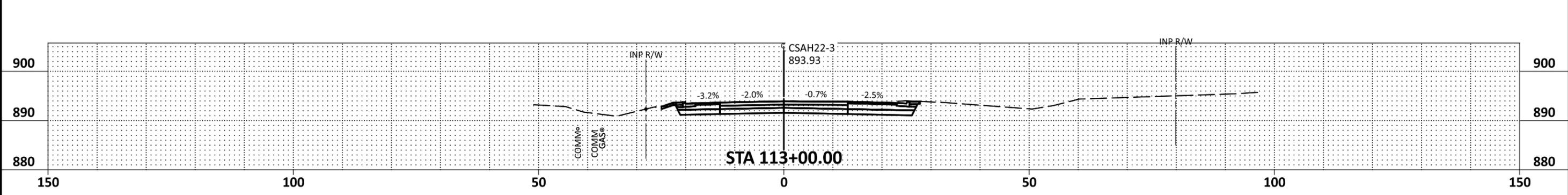
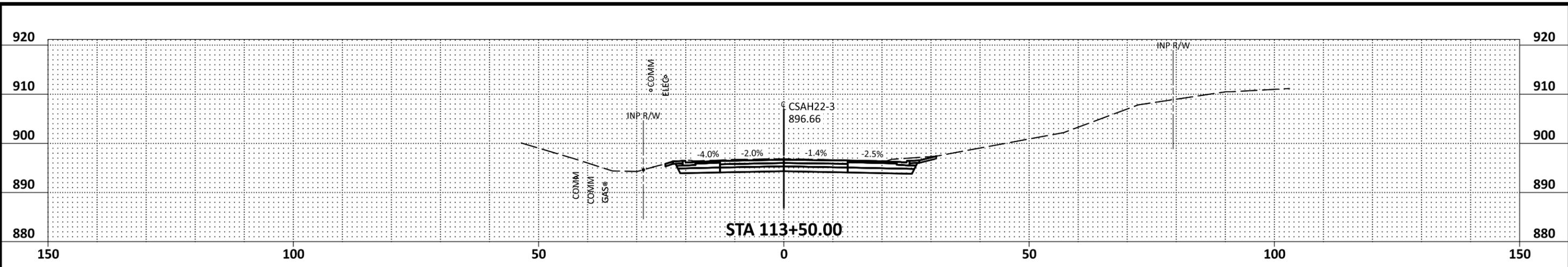
PRINT NAME: NICHOLAS J. DOBDA  
 SIGNATURE: *Nicholas J. Dobda*  
 DATE: 04/09/2025 LICENSE NO. 49046

DRAWN BY: CA DATE: 04/03/25  
 DESIGN BY: MAP DATE: 04/03/25  
 CHECKED BY: NJD DATE: 04/03/25

ANOKA COUNTY  
 HIGHWAY DEPT.

SAP 002-622-045  
 SAP 223-020-011

EXISTING SIGNAL SYSTEM  
 PLANS WITH REVISIONS  
 Sheet 85 of 85 Sheets

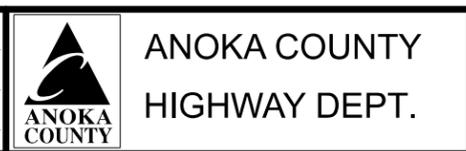


CSAH22-3 112+50.00 - 113+50.00

NO	DATE	BY	CKD	APPR	REVISION

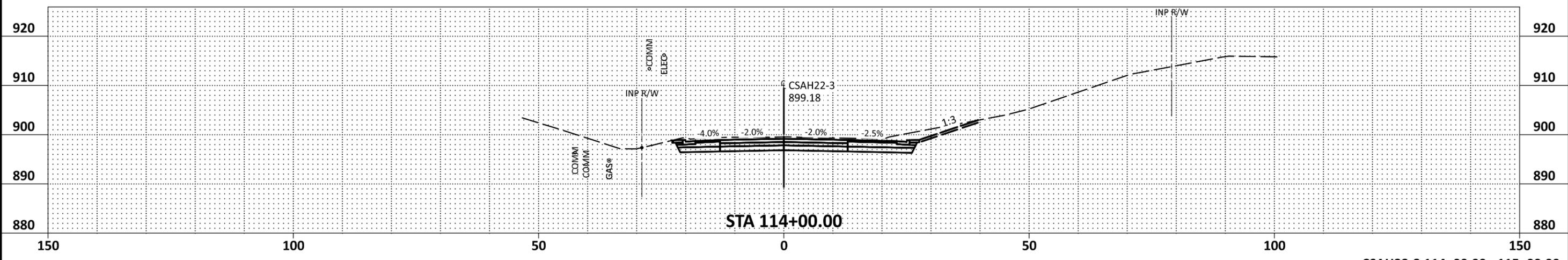
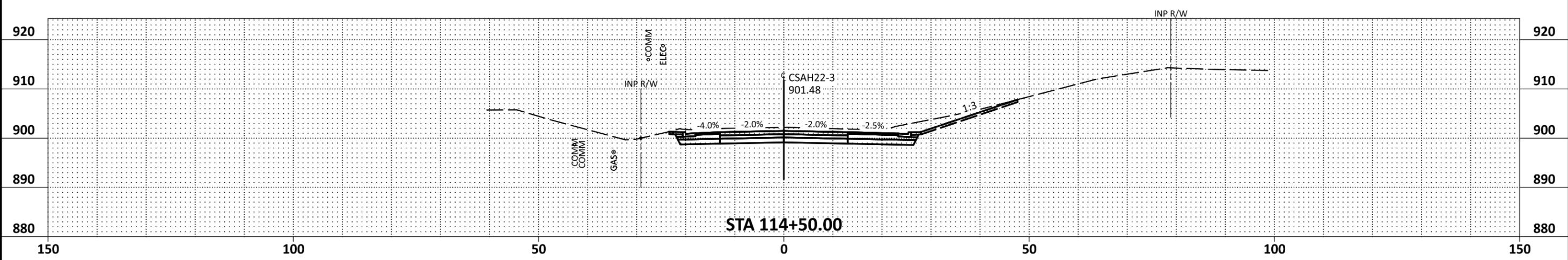
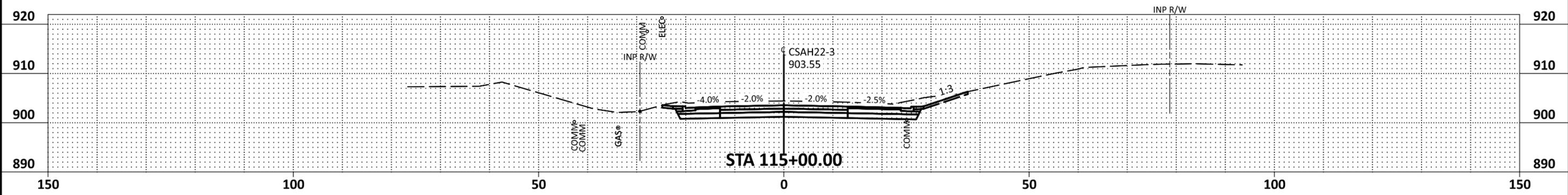
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DRAWN BY CA DATE 03/19/25  
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 CHECKED BY NJD DATE 03/19/25



SAP 002-622-045  
 SAP 223-020-011

CROSS SECTIONS  
 Sheet X1 of X40 Sheets

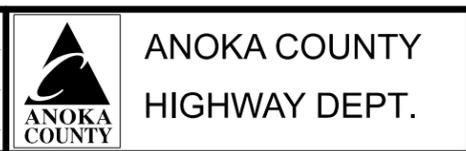


CSAH22-3 114+00.00 - 115+00.00

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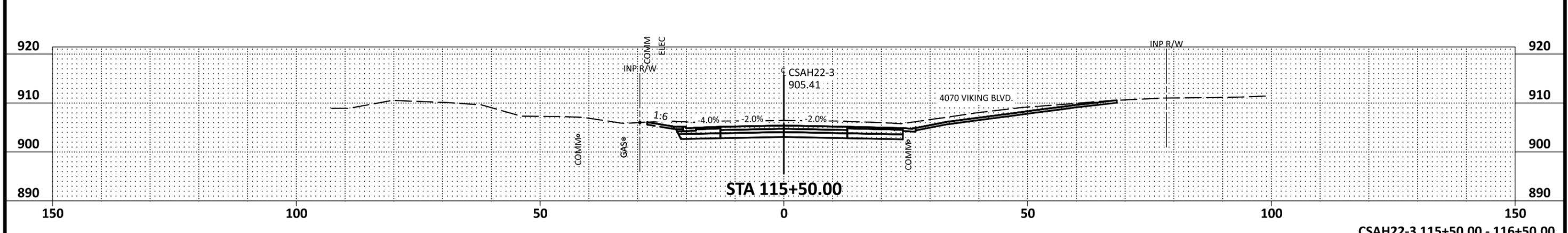
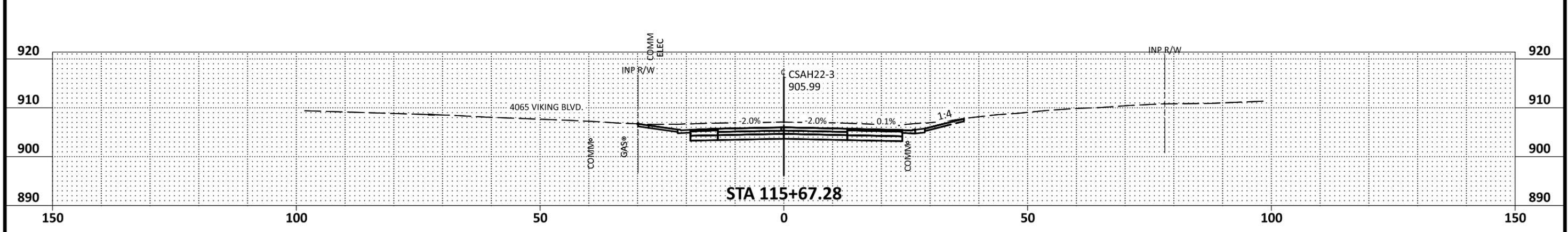
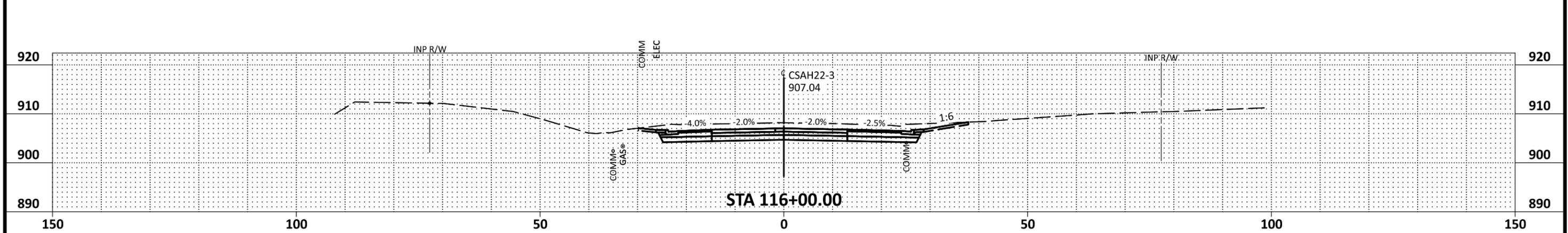
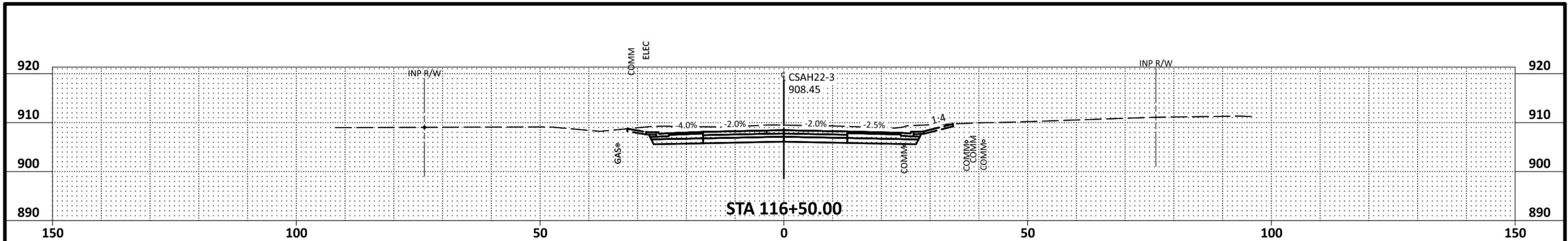
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 CHECKED BY NJD DATE 03/19/25



SAP 002-622-045  
 SAP 223-020-011

CROSS SECTIONS  
 Sheet X2 of X40 Sheets

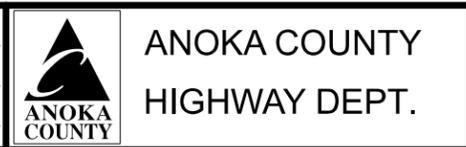


CSAH22-3 115+50.00 - 116+50.00

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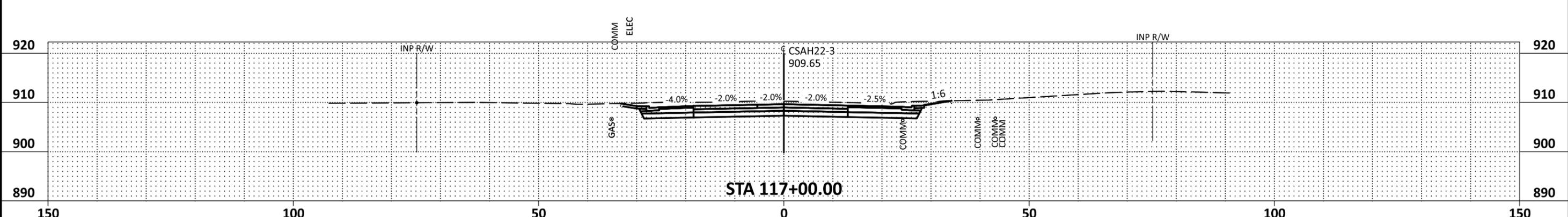
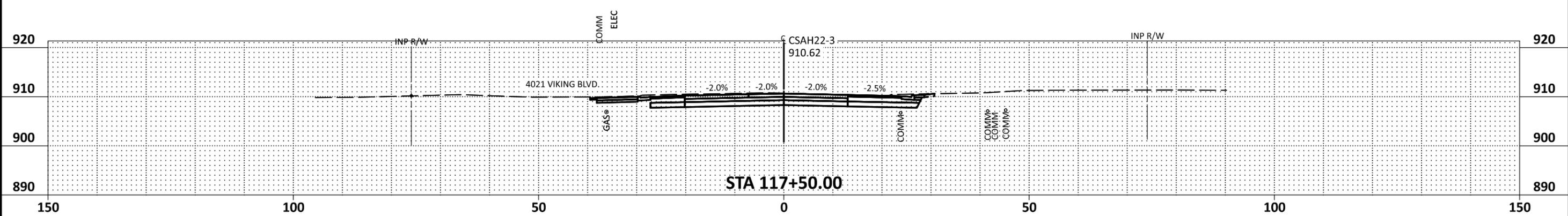
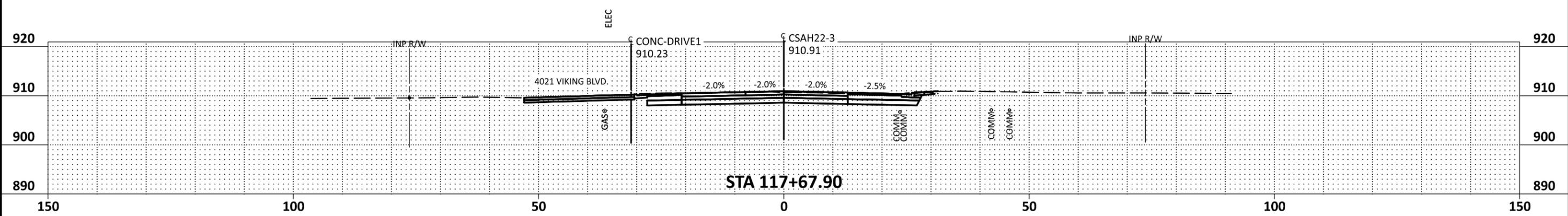
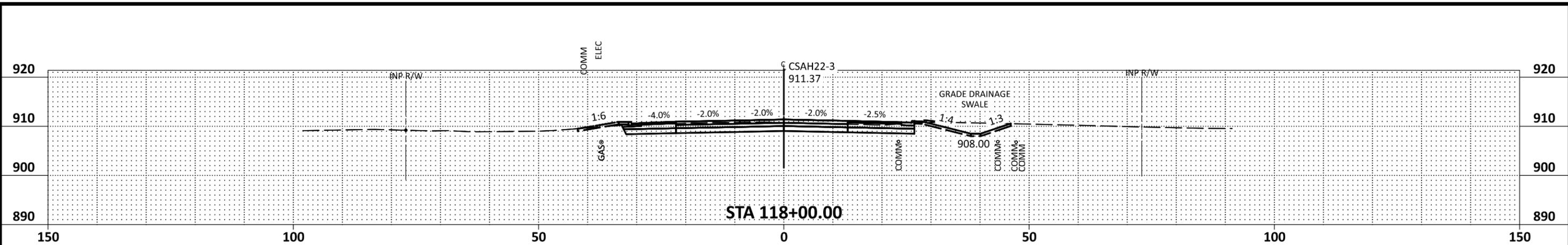
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 SAP 223-020-011

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 Sheet X3 of X40 Sheets

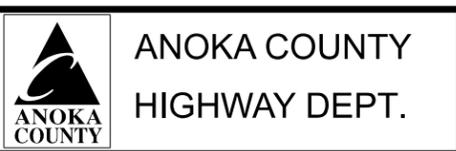


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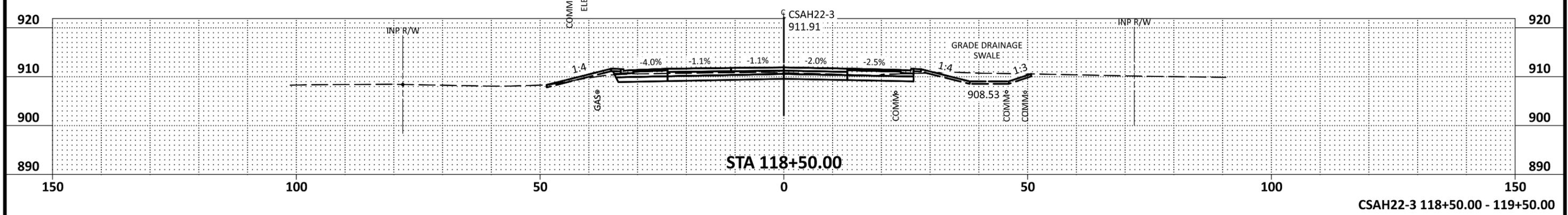
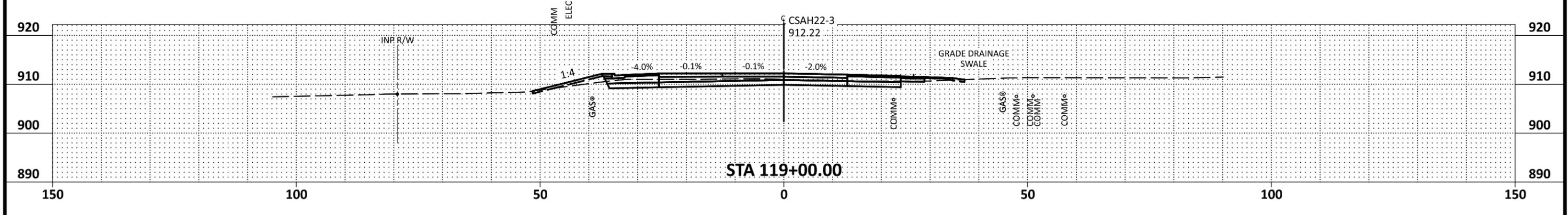
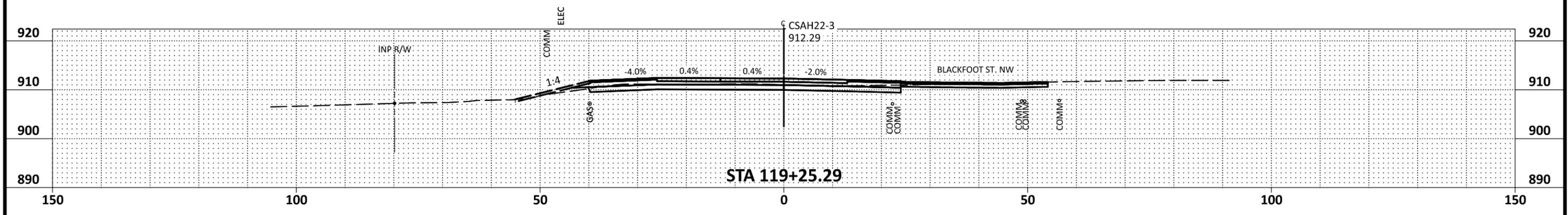
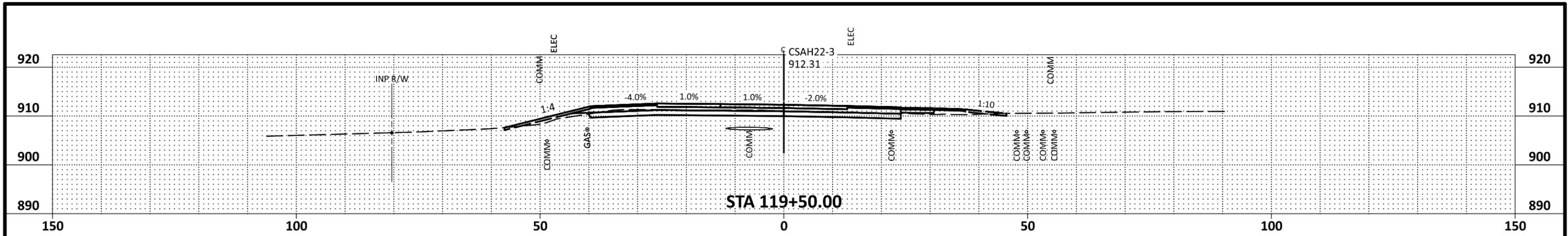
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 SAP 223-020-011

CROSS SECTIONS  
 Sheet X4 of X40 Sheets



CSAH22-3 118+50.00 - 119+50.00

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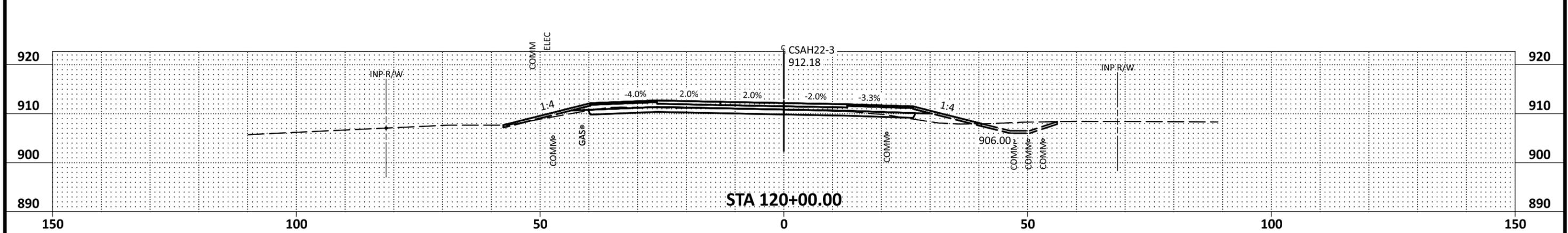
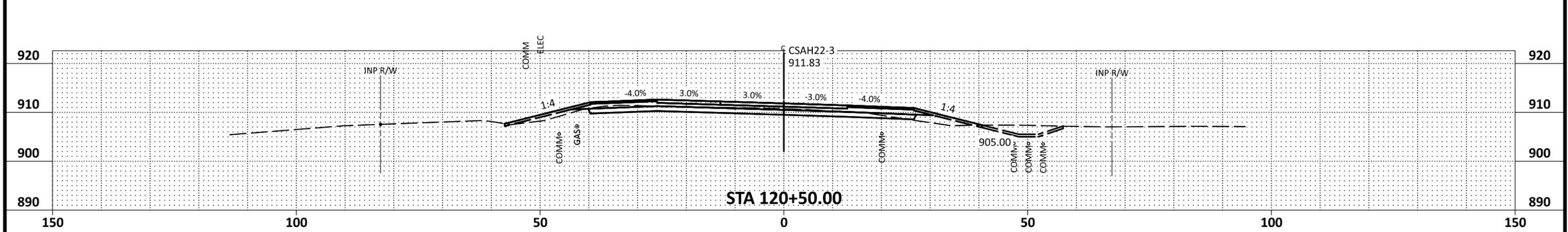
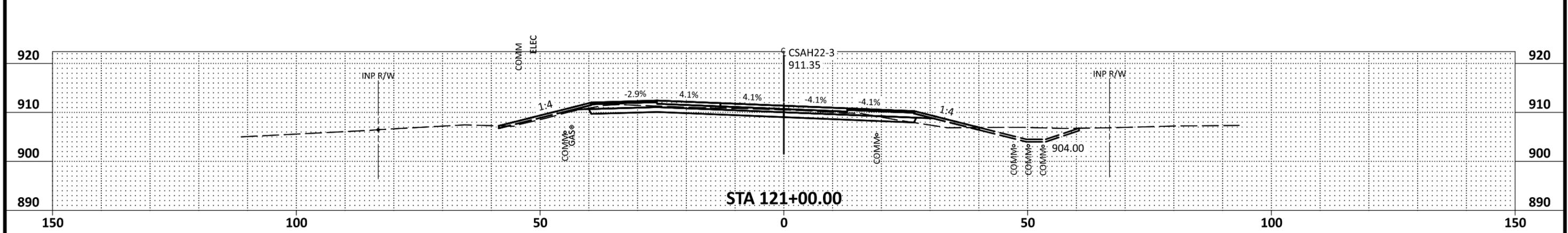
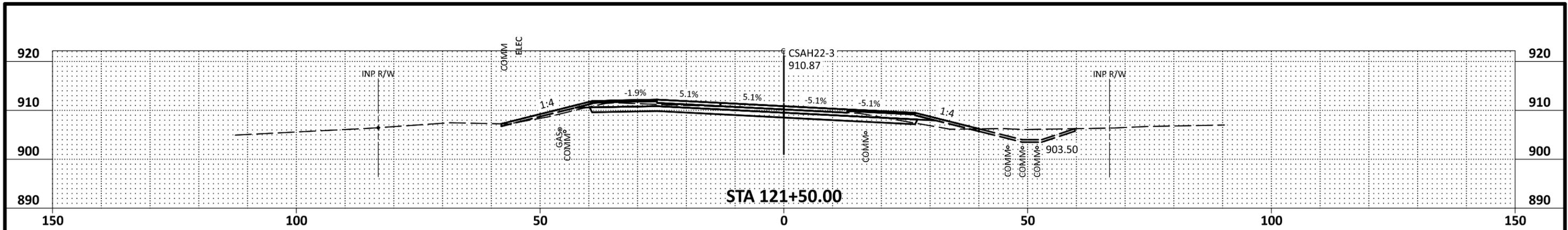
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SAP 002-622-045  
 SAP 223-020-011

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 Sheet X5 of X40 Sheets

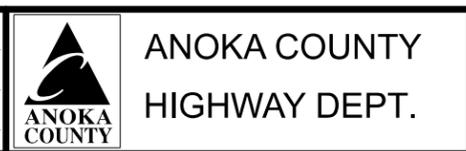


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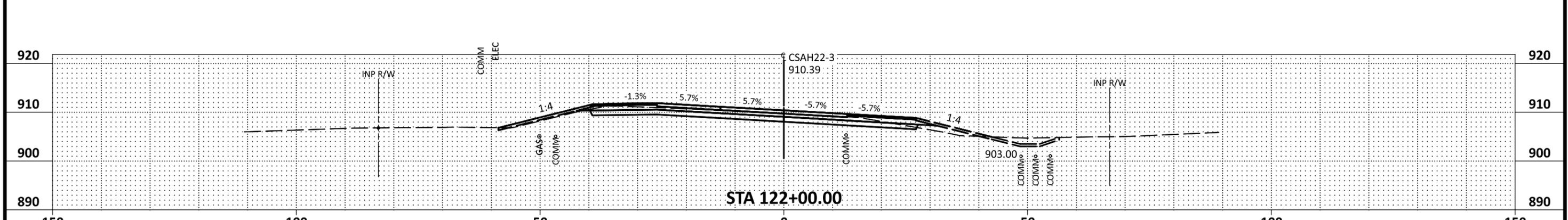
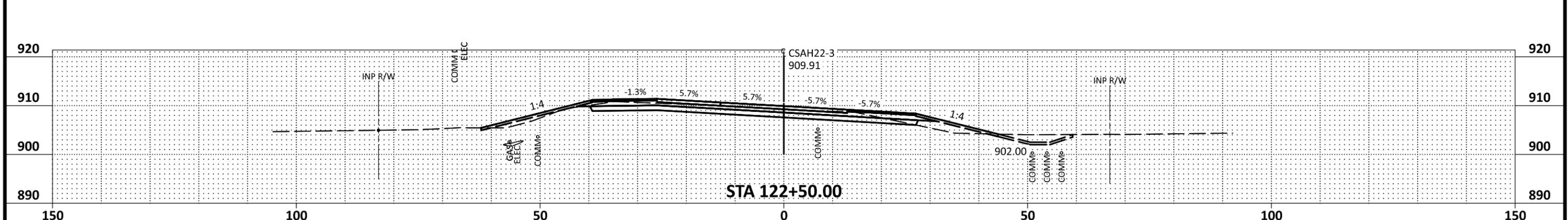
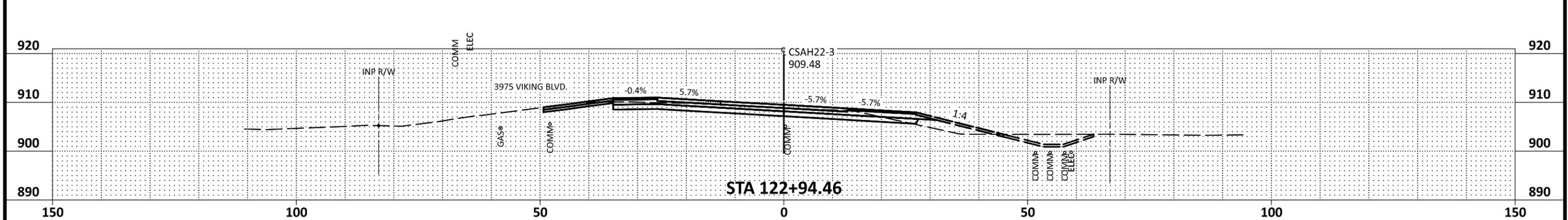
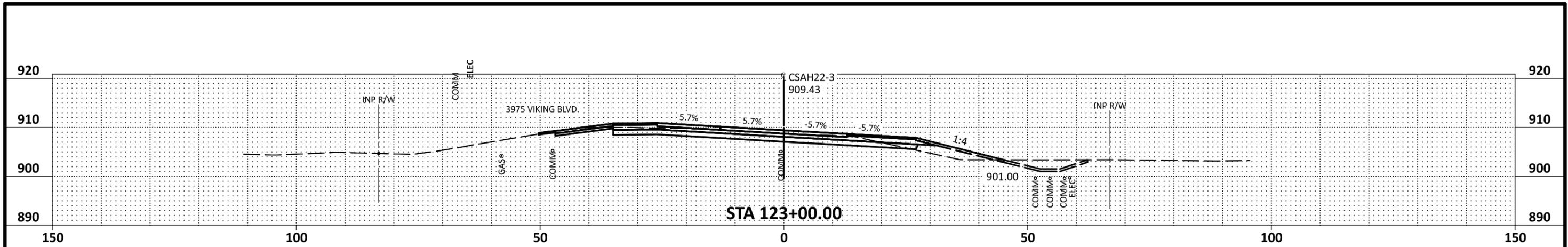
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 CHECKED BY NJD DATE 03/19/25



SAP 002-622-045  
 SAP 223-020-011

CROSS SECTIONS  
 Sheet X6 of X40 Sheets

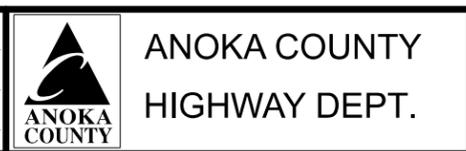


CSAH22-3 122+00.00 - 123+00.00

NO	DATE	BY	CKD	APPR	REVISION

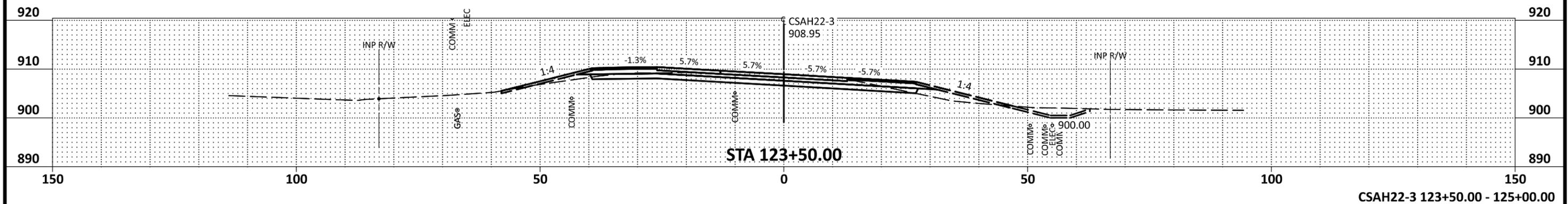
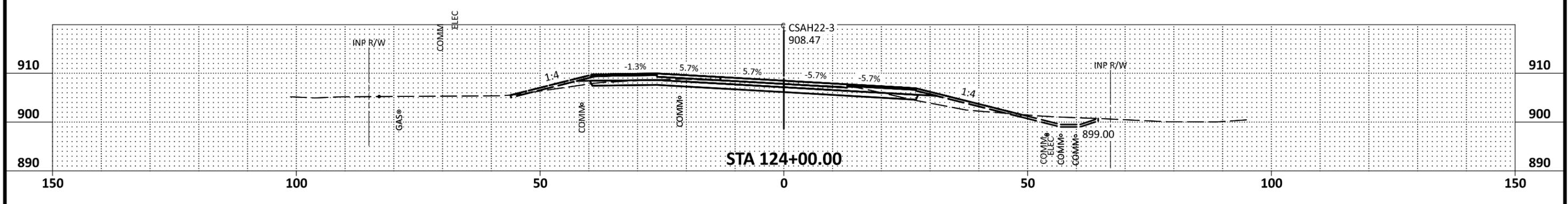
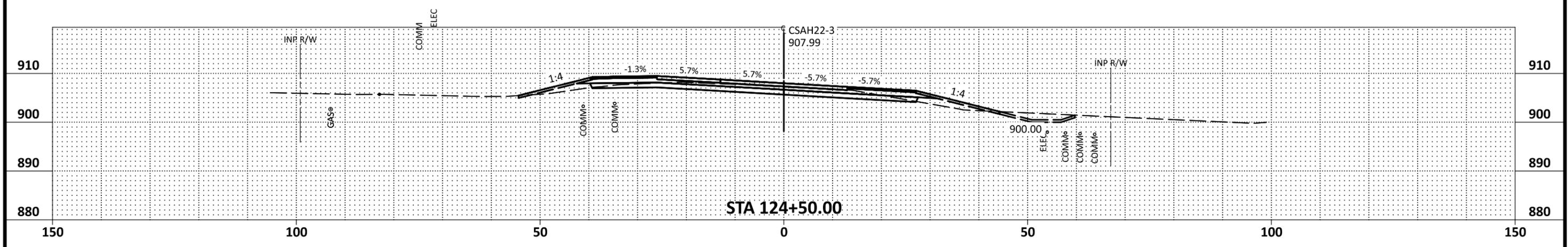
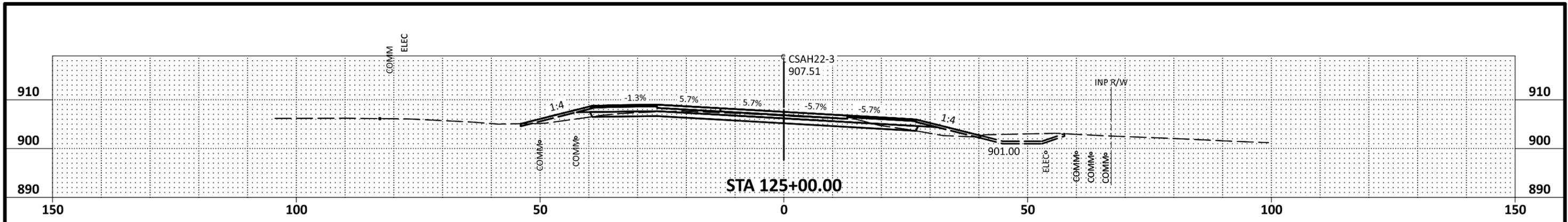
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SAP 002-622-045  
 SAP 223-020-011

CROSS SECTIONS  
 Sheet X7 of X40 Sheets

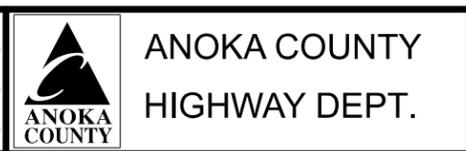


CSAH22-3 123+50.00 - 125+00.00

NO	DATE	BY	CKD	APPR	REVISION

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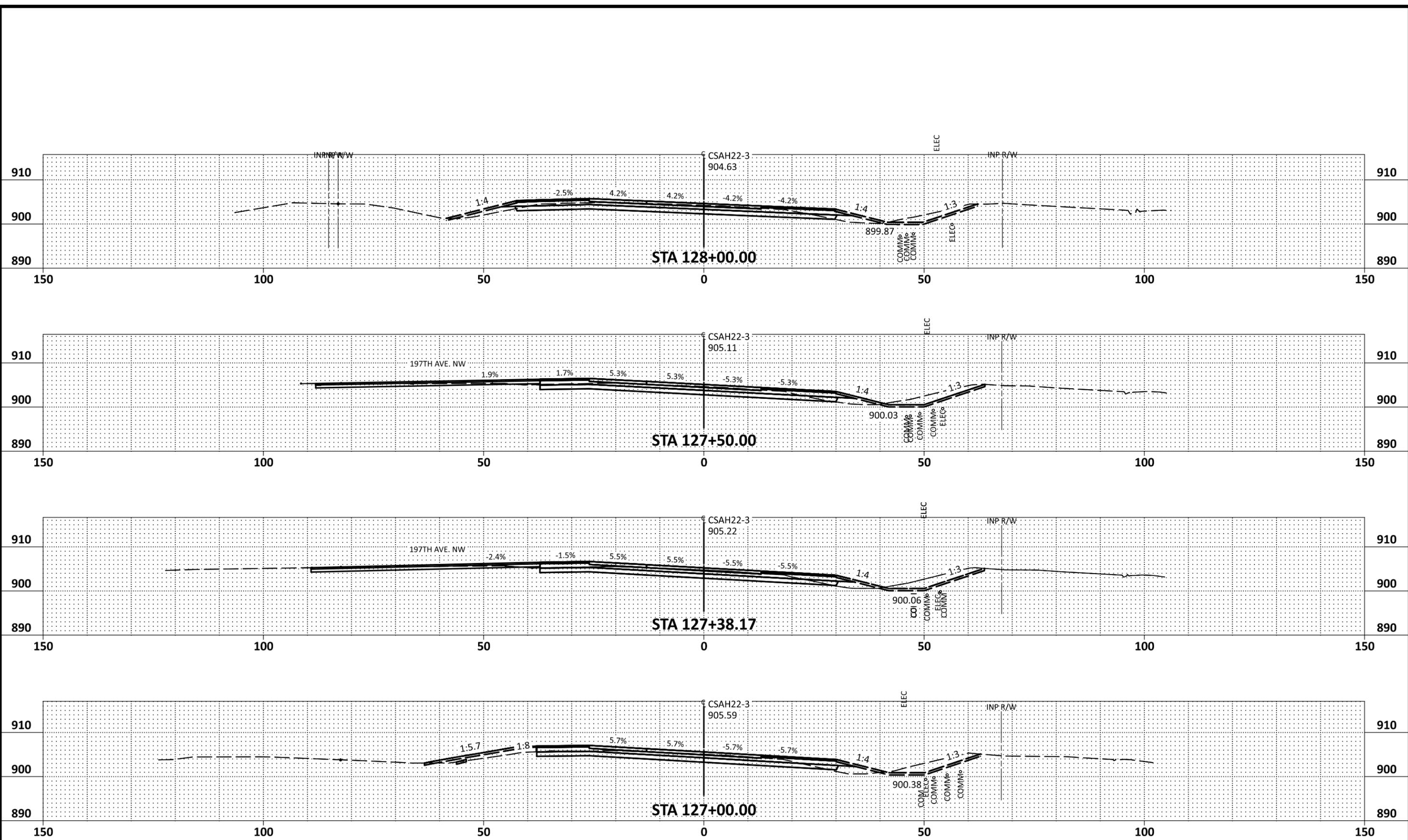

DRAWN BY CA DATE 03/19/25  
 DESIGN BY MAP DATE 03/19/25  
 CHECKED BY NJD DATE 03/19/25



SAP 002-622-045  
 SAP 223-020-011

CROSS SECTIONS  
 Sheet X8 of X40 Sheets



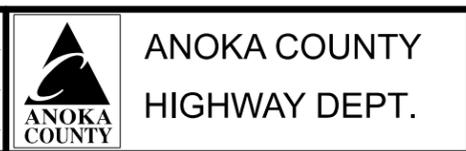


CSAH22-3 127+00.00 - 128+00.00

NO	DATE	BY	CKD	APPR	REVISION

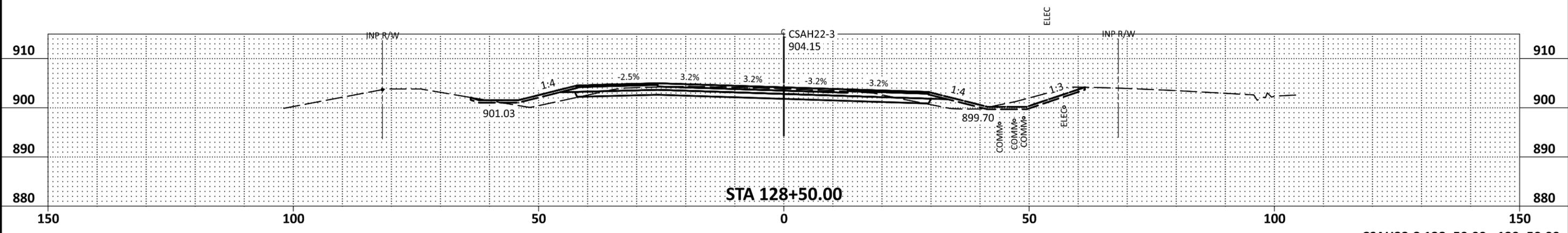
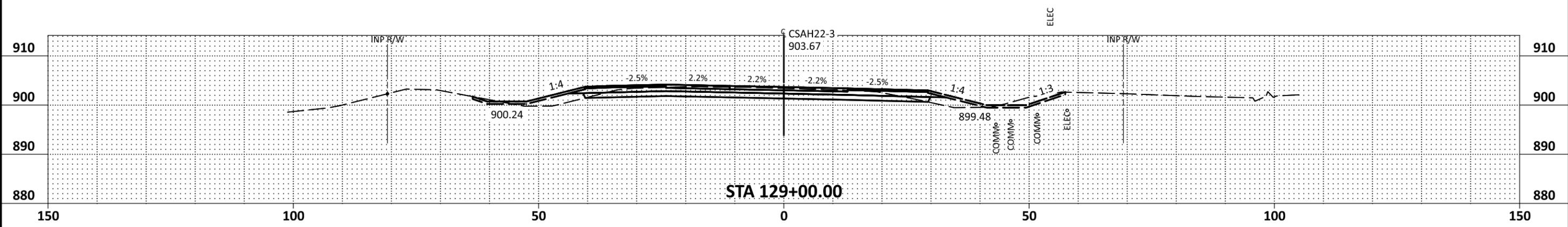
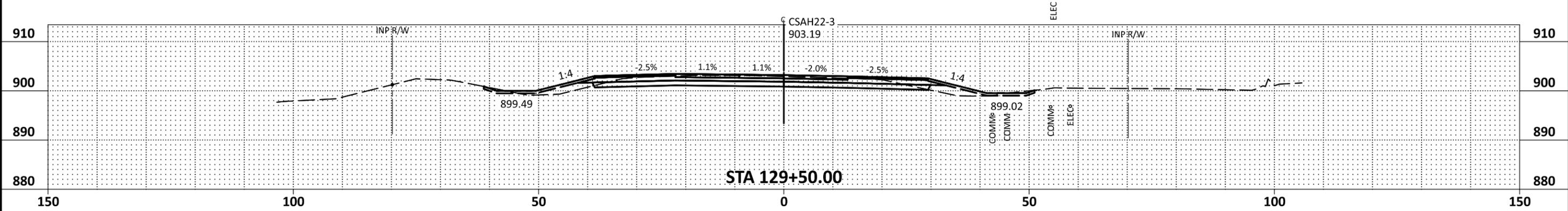
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DRAWN BY CA DATE 03/19/25  
 DESIGN BY MAP DATE 03/19/25  
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CROSS SECTIONS  
 Sheet X10 of X40 Sheets

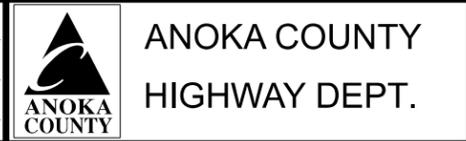


CSAH22-3 128+50.00 - 129+50.00

NO	DATE	BY	CKD	APPR	REVISION

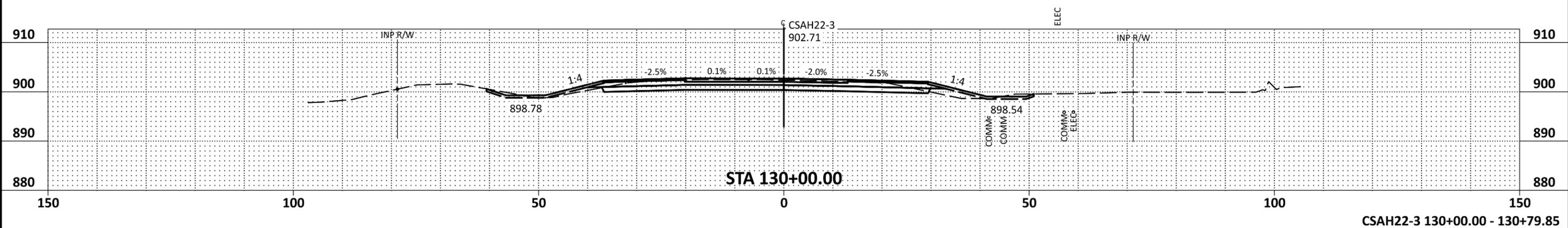
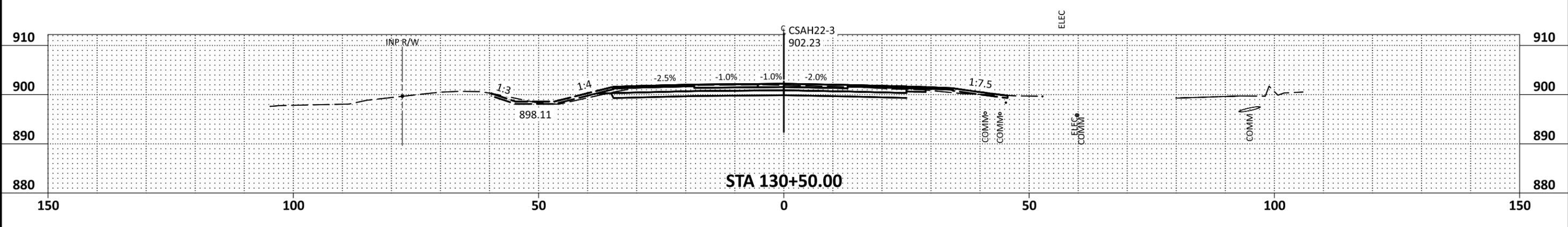
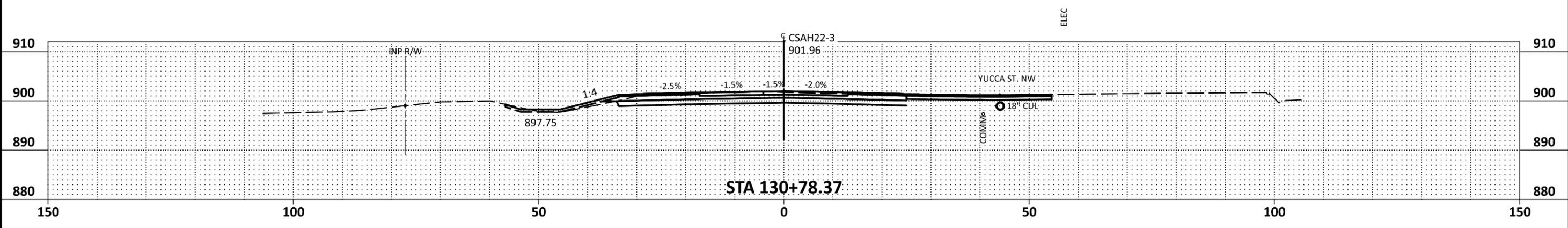
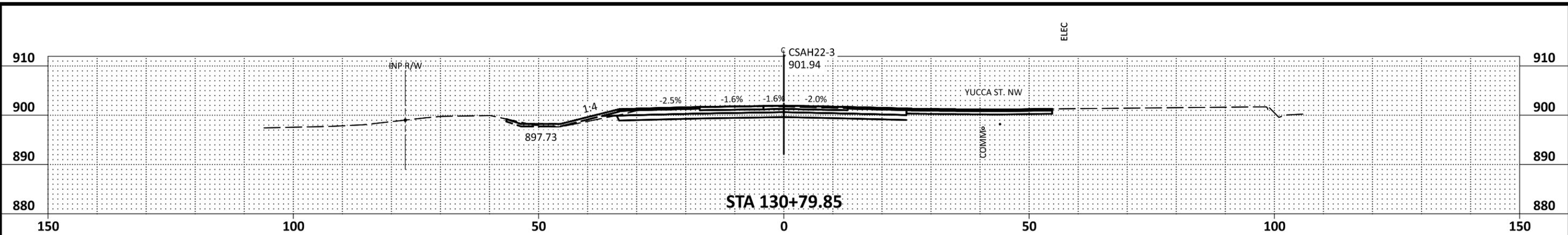
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DRAWN BY CA DATE 03/19/25  
 DESIGN BY MAP DATE 03/19/25  
 CHECKED BY NJD DATE 03/19/25



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CROSS SECTIONS  
 Sheet X11 of X40 Sheets

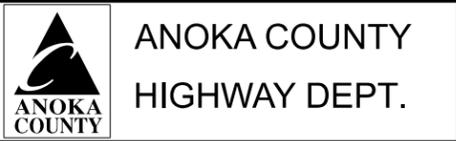


CSAH22-3 130+00.00 - 130+79.85

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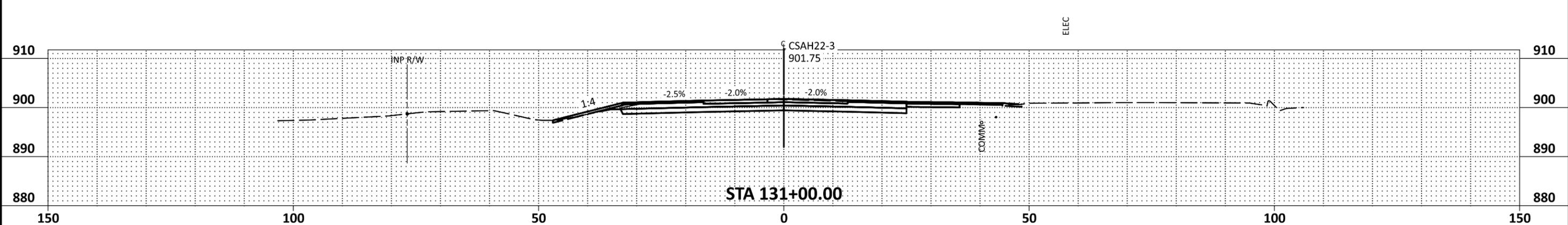
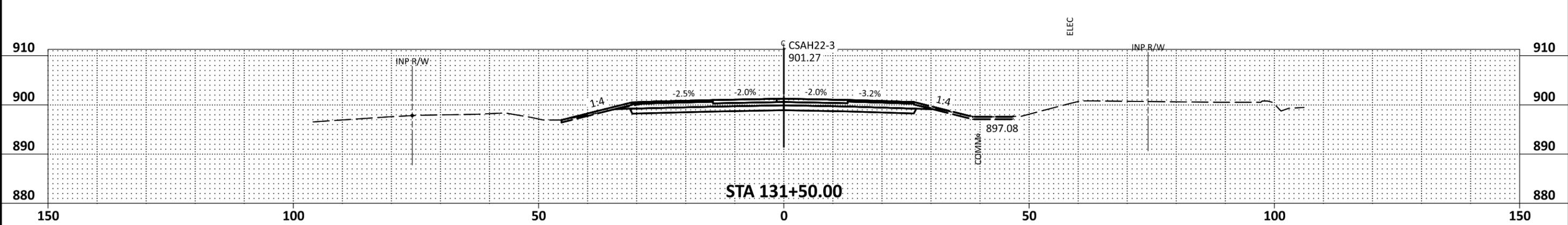
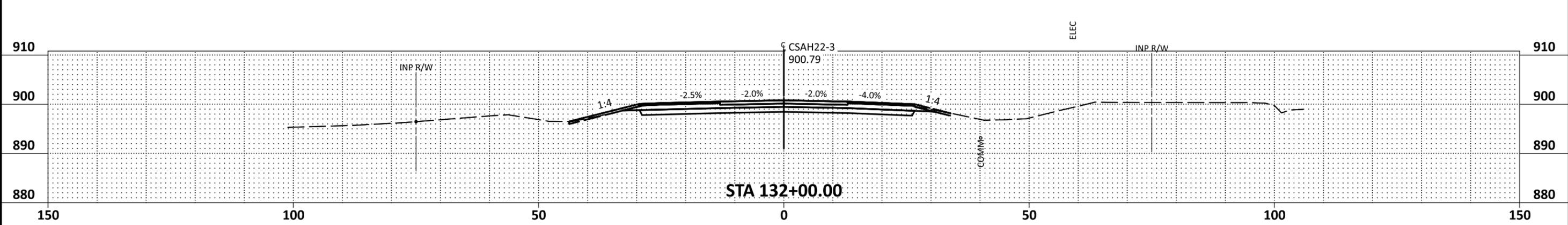
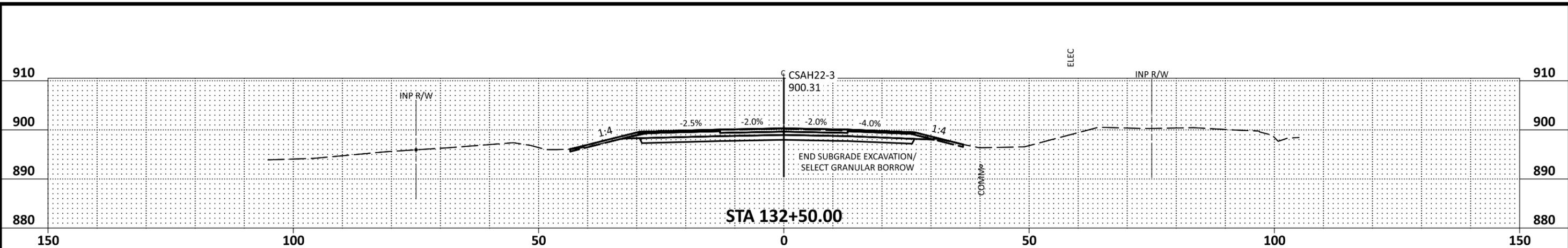
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DRAWN BY CA DATE 03/19/25  
 DESIGN BY MAP DATE 03/19/25  
 CHECKED BY NJD DATE 03/19/25



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CROSS SECTIONS  
 Sheet X12 of X40 Sheets

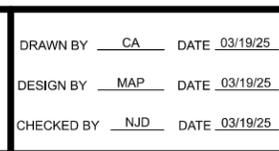


CSAH22-3 131+00.00 - 132+50.00

NO	DATE	BY	CKD	APPR	REVISION

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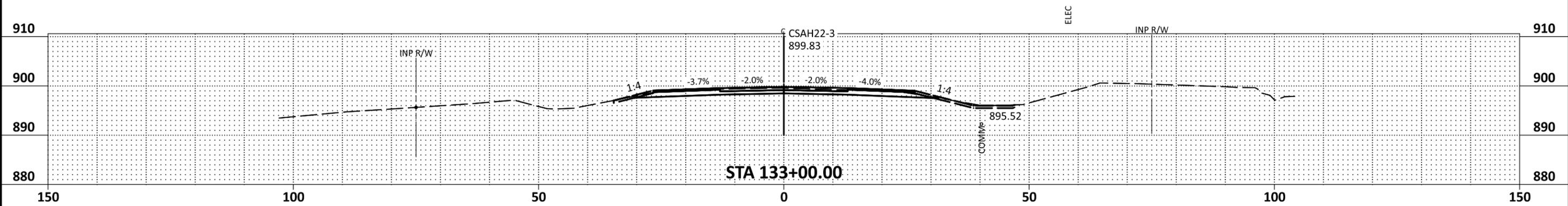
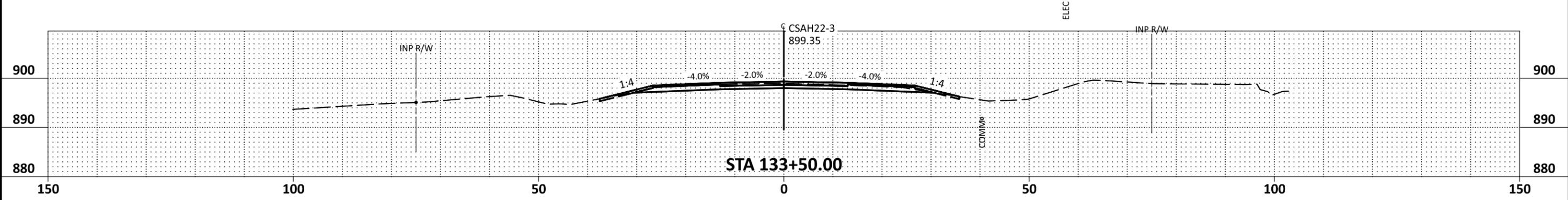
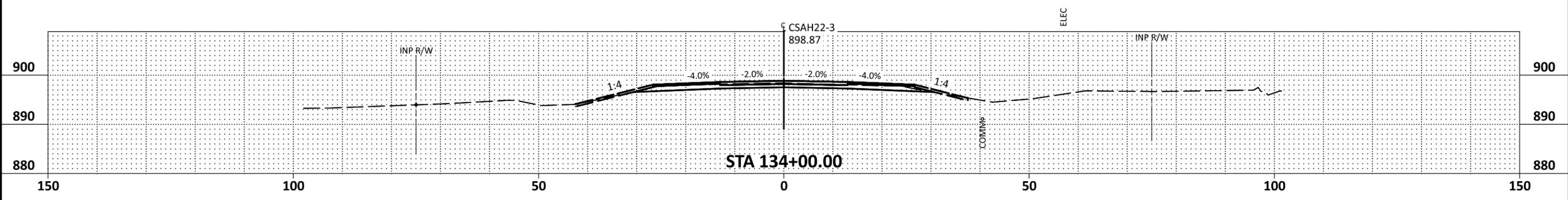
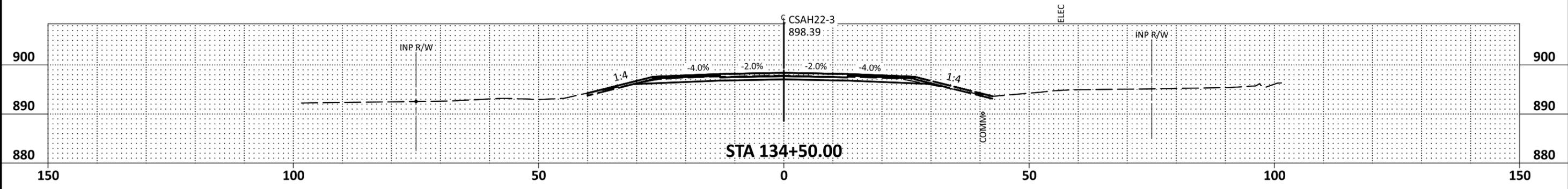
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DESIGN BY	MAP	DATE	03/19/25
CHECKED BY	NJD	DATE	03/19/25



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HIGHWAY DEPT.**

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CROSS SECTIONS  
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CSAH22-3 133+00.00 - 134+50.00

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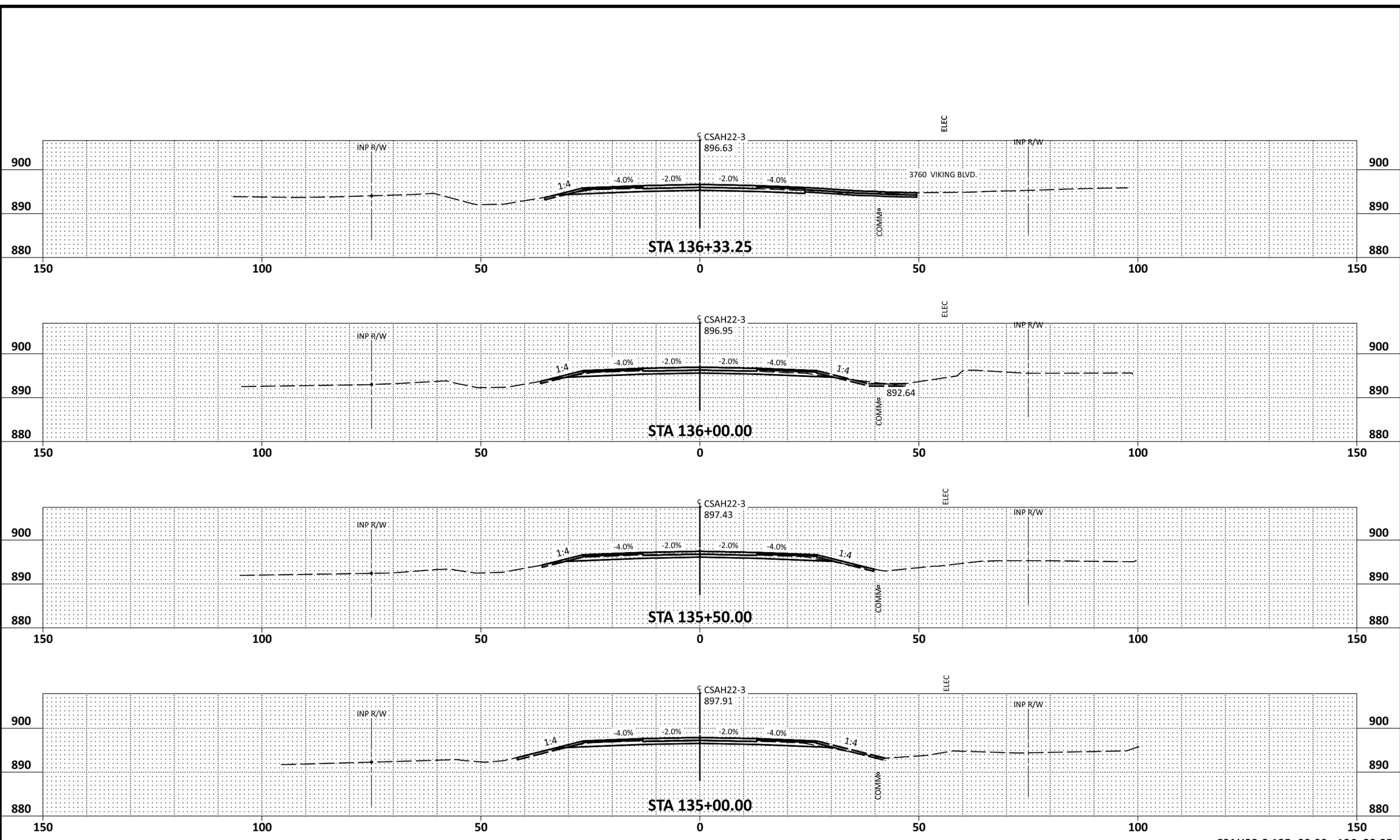
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 DESIGN BY MAP DATE 03/19/25  
 CHECKED BY NJD DATE 03/19/25



ANOKA COUNTY  
 HIGHWAY DEPT.

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CROSS SECTIONS  
 Sheet X14 of X40 Sheets

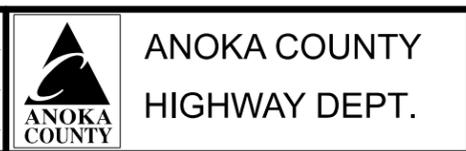


CSAH22-3 135+00.00 - 136+33.25

NO	DATE	BY	CKD	APPR	REVISION

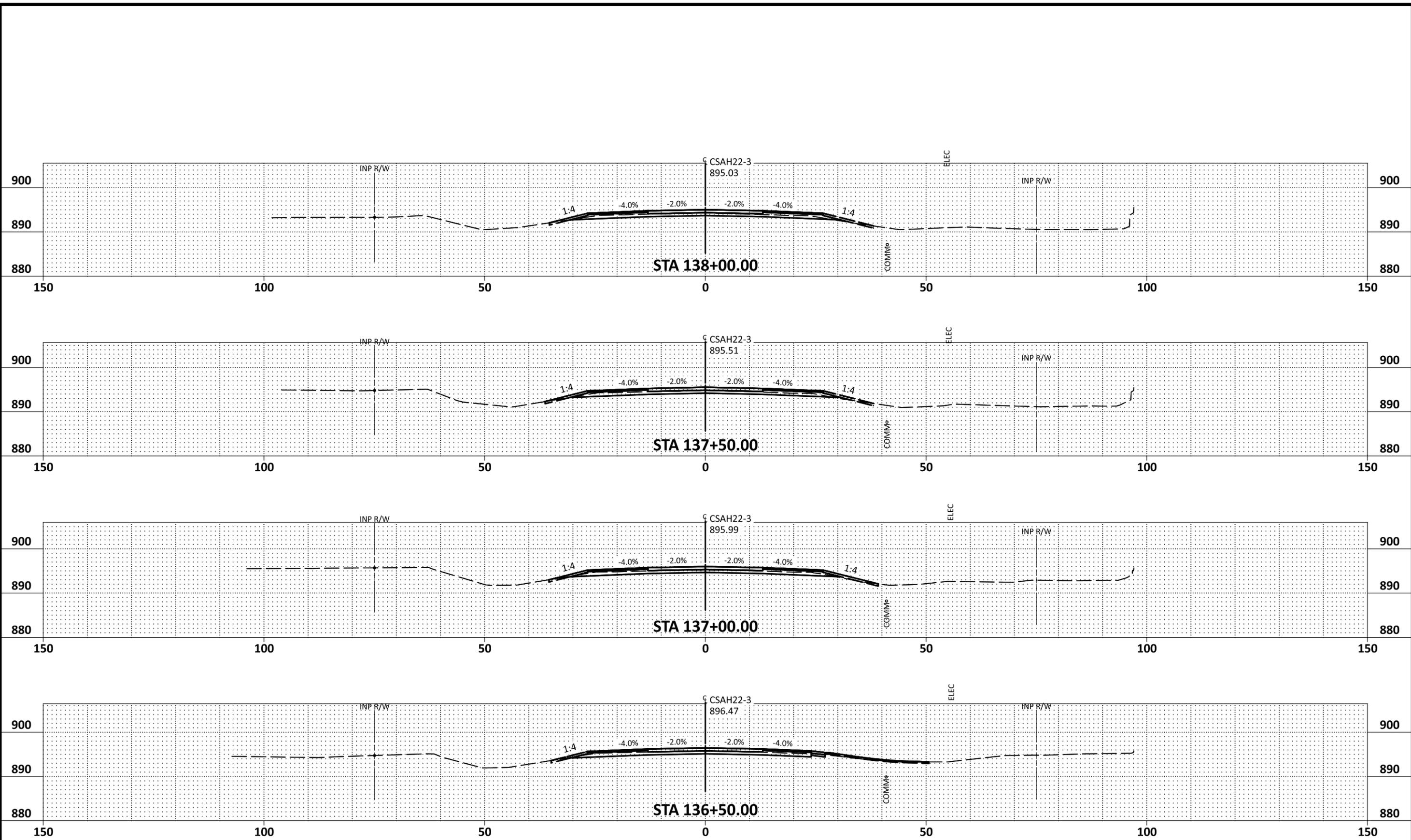
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DRAWN BY CA DATE 03/19/25  
 DESIGN BY MAP DATE 03/19/25  
 CHECKED BY NJD DATE 03/19/25



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CROSS SECTIONS  
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CSAH22-3 136+50.00 - 138+00.00

NO	DATE	BY	CKD	APPR	REVISION

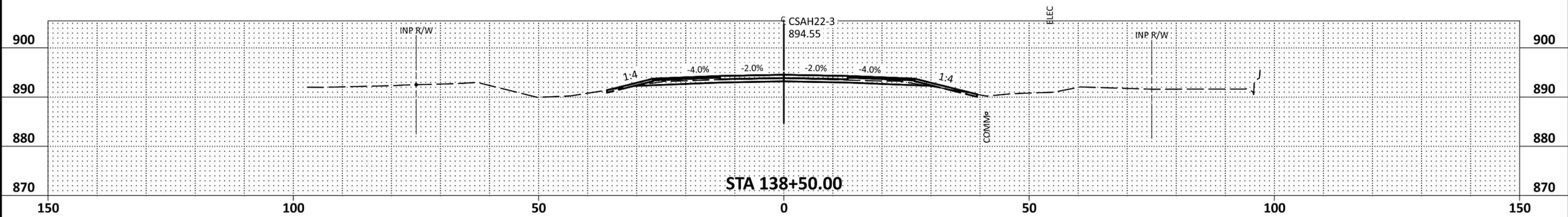
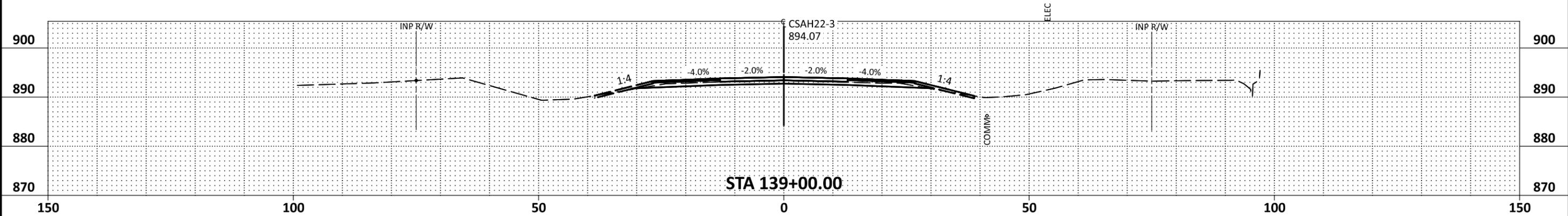
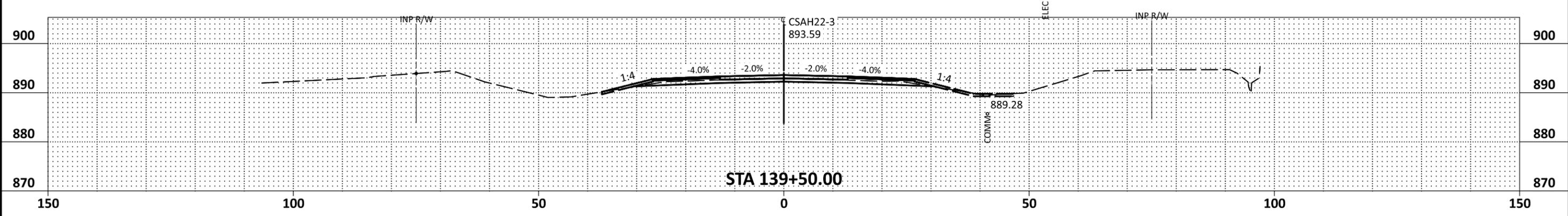
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DRAWN BY CA DATE 03/19/25  
 DESIGN BY MAP DATE 03/19/25  
 CHECKED BY NJD DATE 03/19/25



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CROSS SECTIONS  
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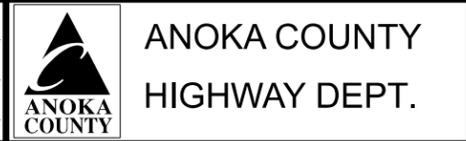


CSAH22-3 138+50.00 - 139+50.00

NO	DATE	BY	CKD	APPR	REVISION

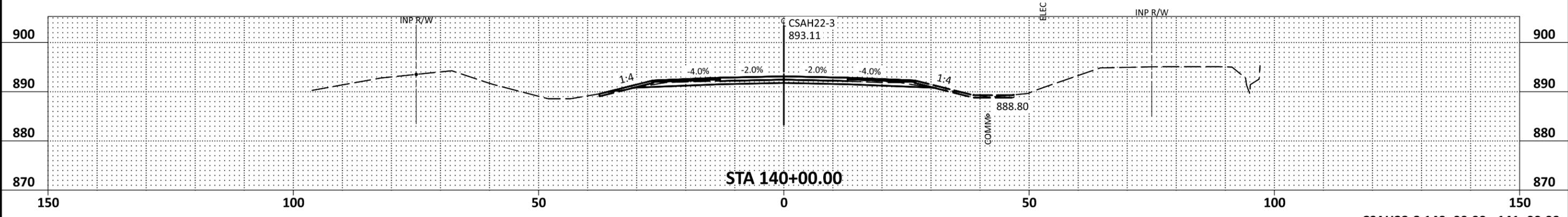
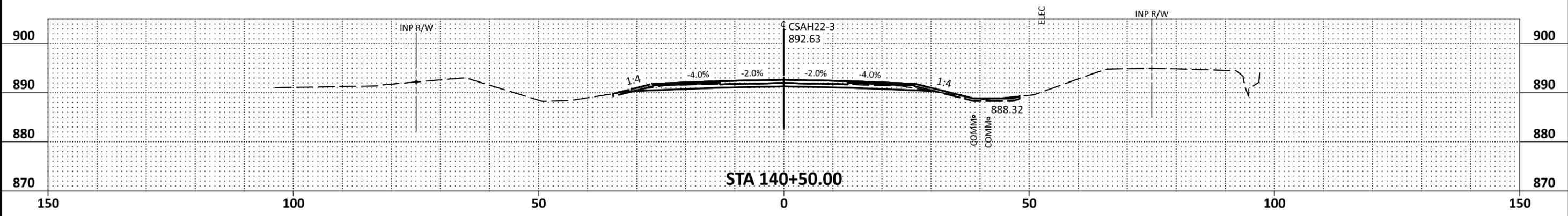
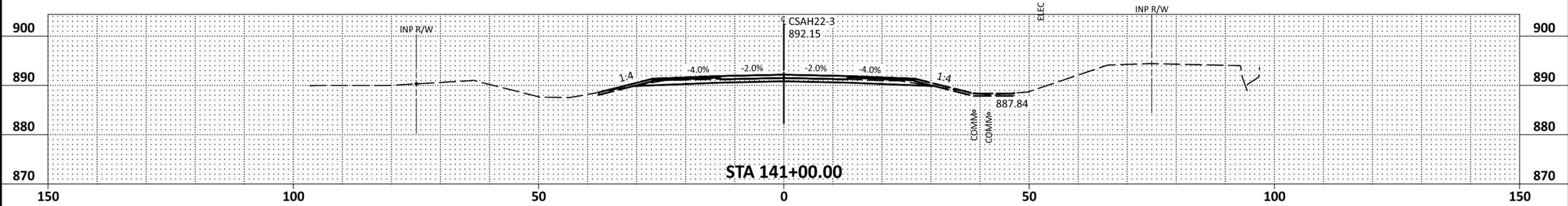
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DRAWN BY CA DATE 03/19/25  
 DESIGN BY MAP DATE 03/19/25  
 CHECKED BY NJD DATE 03/19/25



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 SAP 223-020-011

CROSS SECTIONS  
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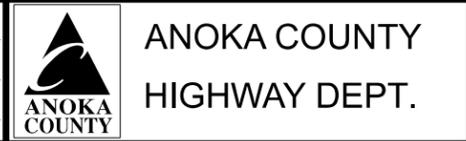


CSAH22-3 140+00.00 - 141+00.00

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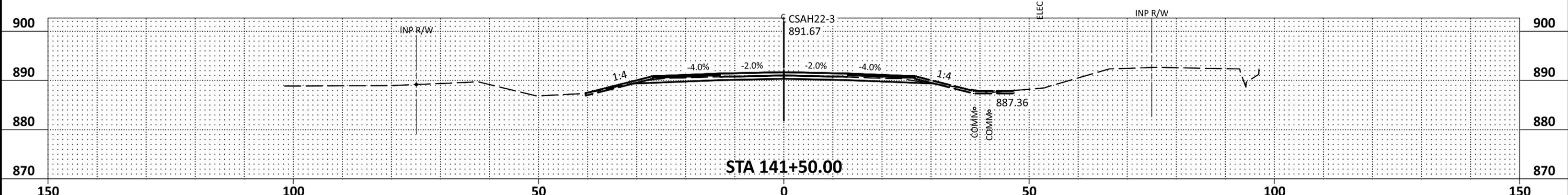
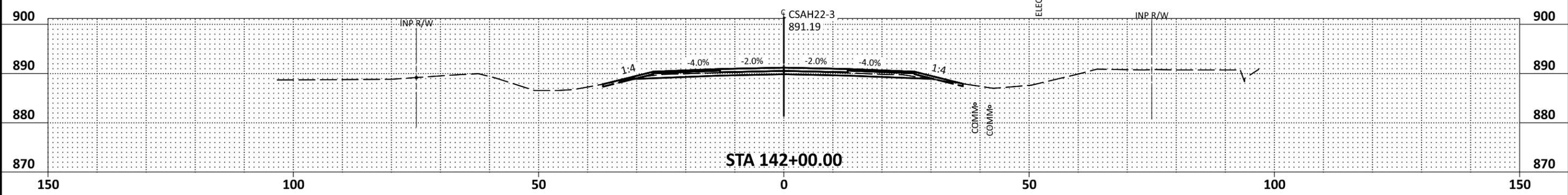
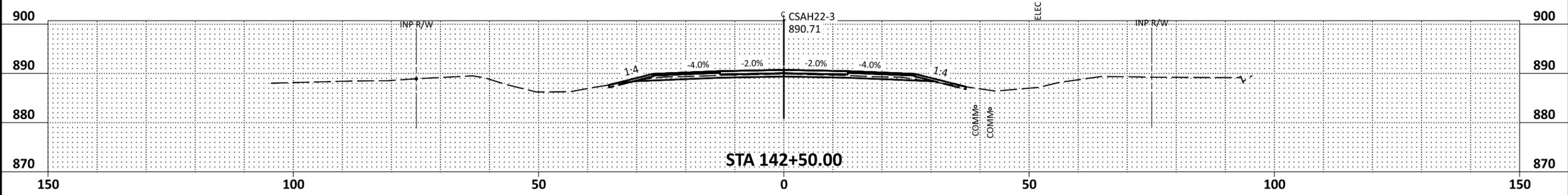
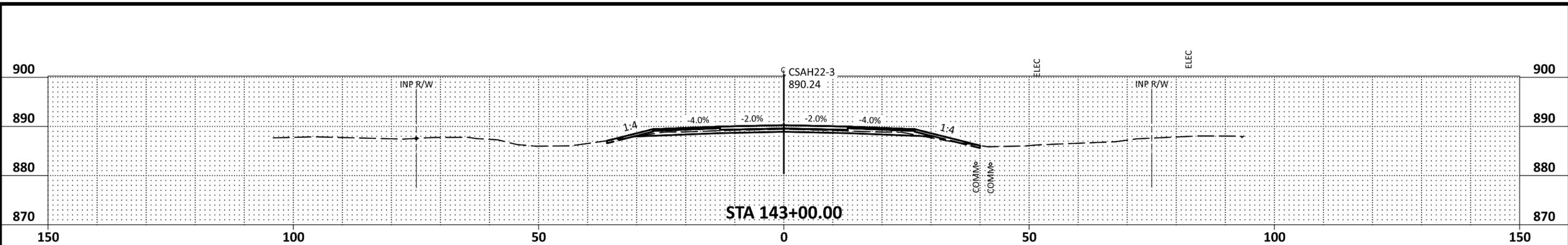
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DRAWN BY CA DATE 03/19/25  
 DESIGN BY MAP DATE 03/19/25  
 CHECKED BY NJD DATE 03/19/25



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CROSS SECTIONS  
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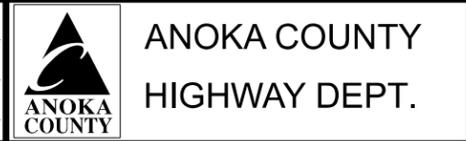


CSAH22-3 141+50.00 - 143+00.00

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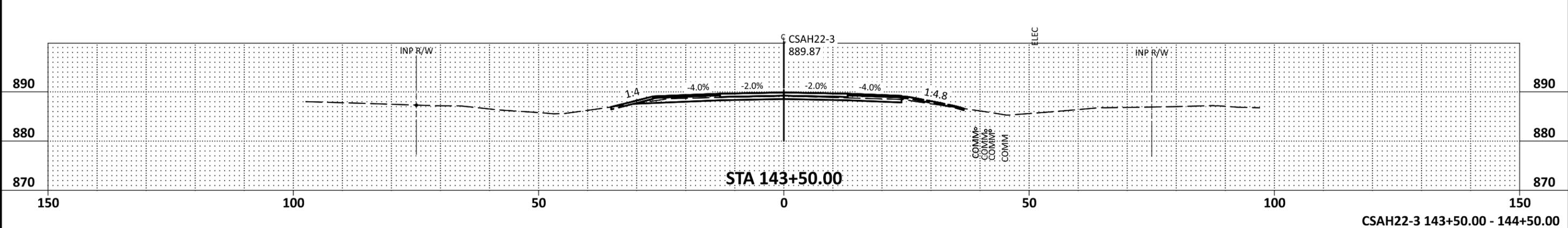
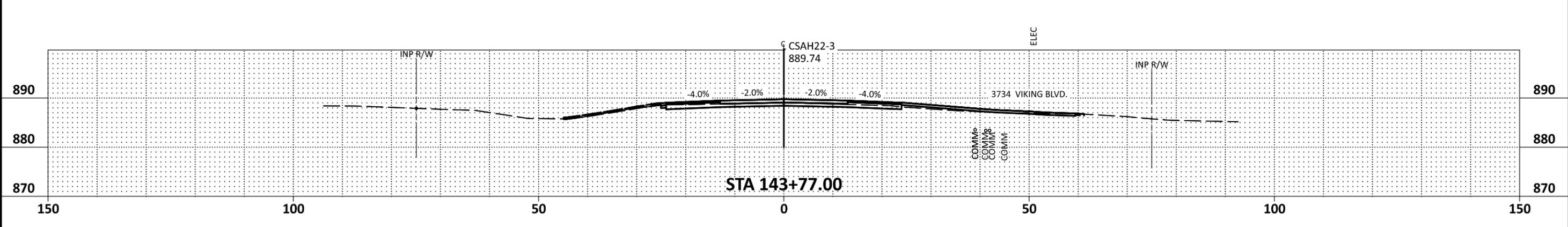
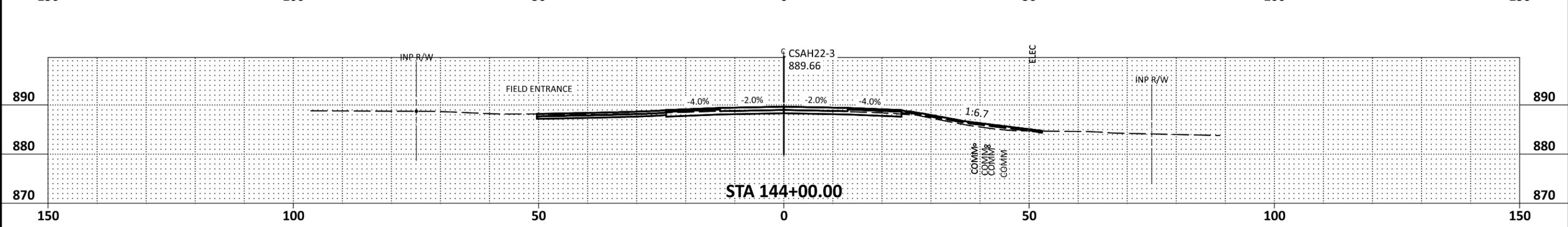
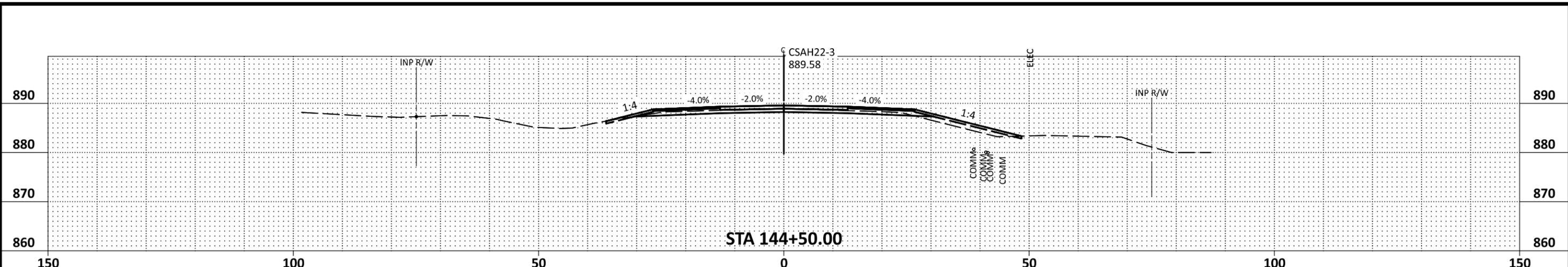
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CROSS SECTIONS  
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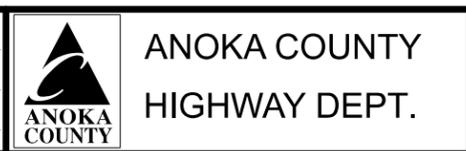


CSAH22-3 143+50.00 - 144+50.00

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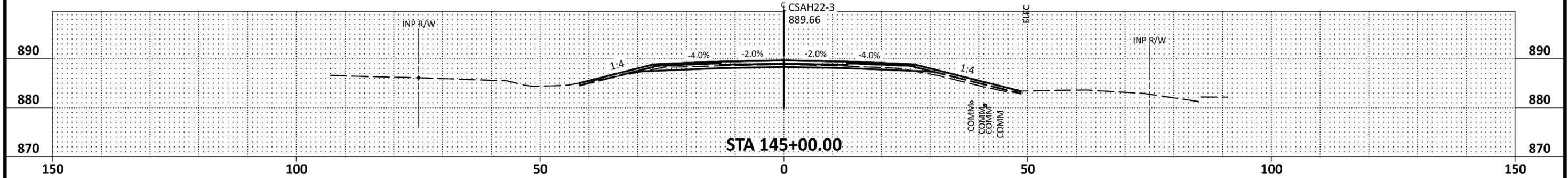
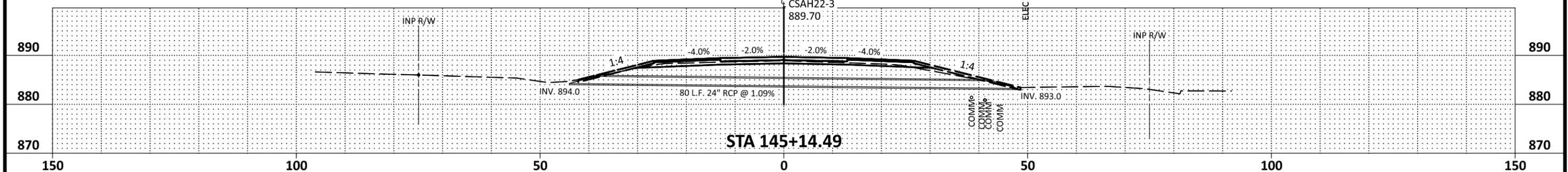
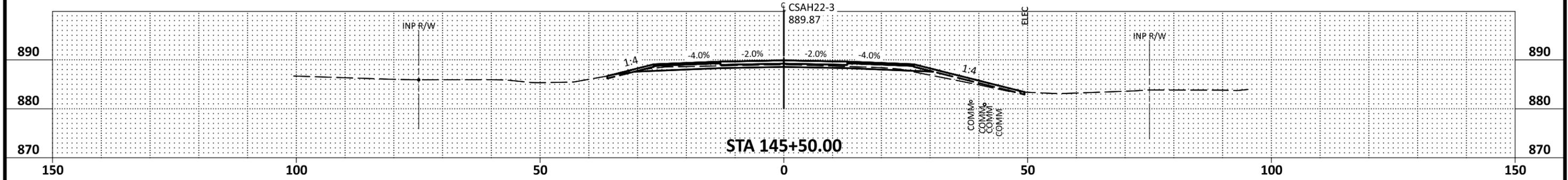
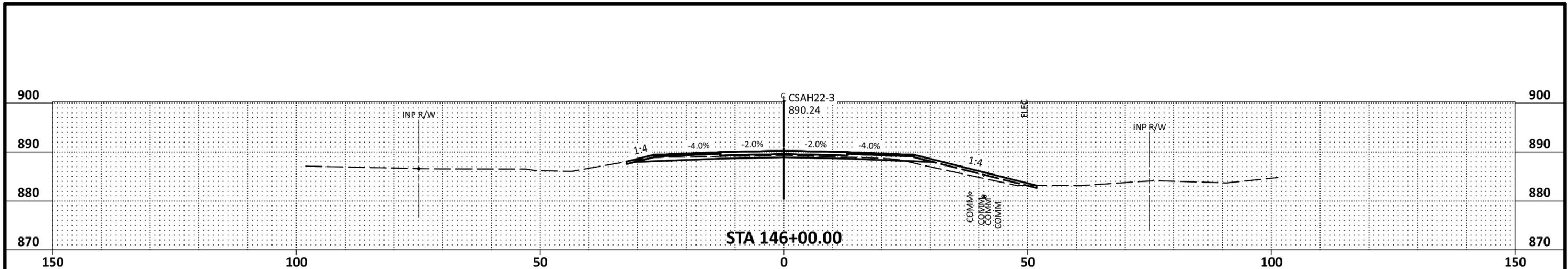
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DRAWN BY CA DATE 03/19/25  
 DESIGN BY MAP DATE 03/19/25  
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 SAP 223-020-011

CROSS SECTIONS  
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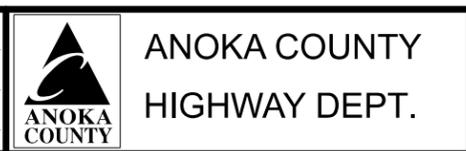


CSAH22-3 145+00.00 - 146+00.00

NO	DATE	BY	CKD	APPR	REVISION

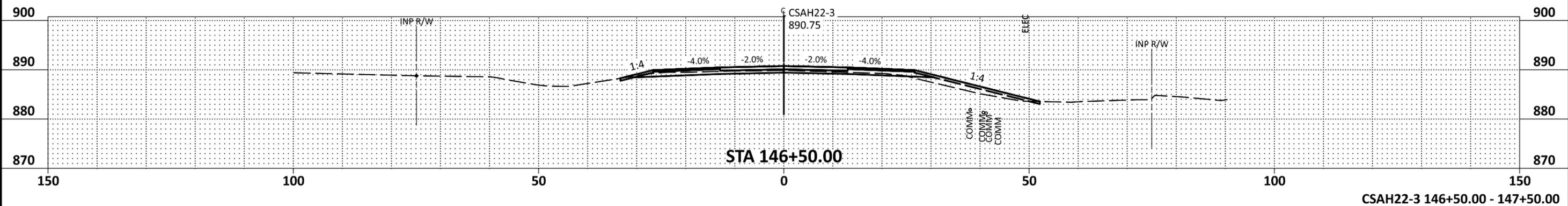
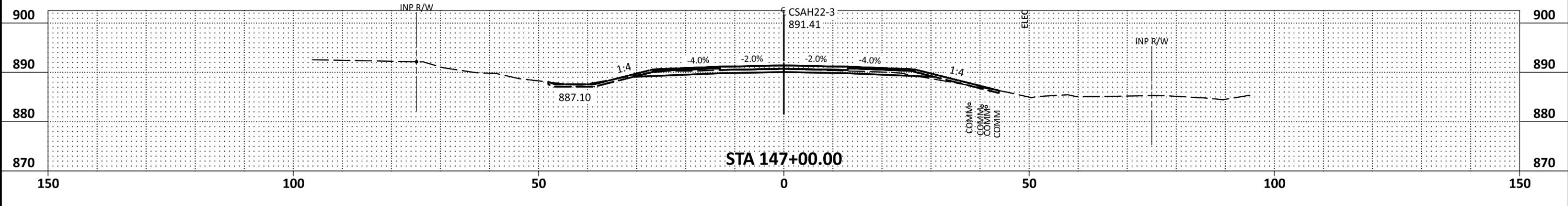
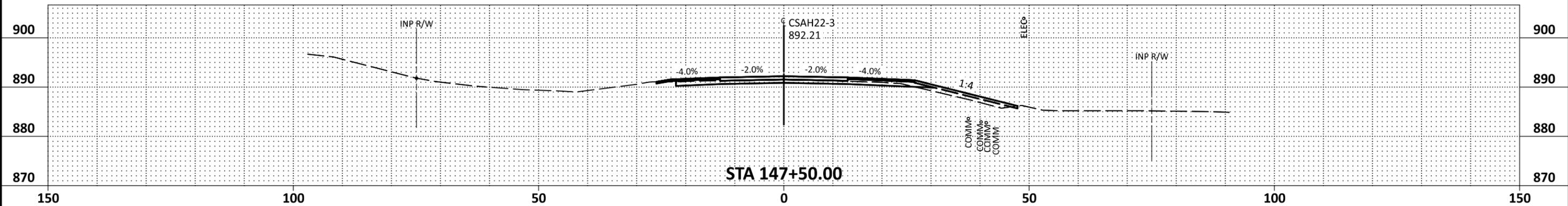
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DRAWN BY CA DATE 03/19/25  
 DESIGN BY MAP DATE 03/19/25  
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CROSS SECTIONS  
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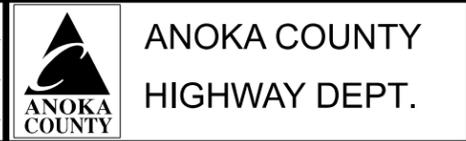


CSAH22-3 146+50.00 - 147+50.00

NO	DATE	BY	CKD	APPR	REVISION

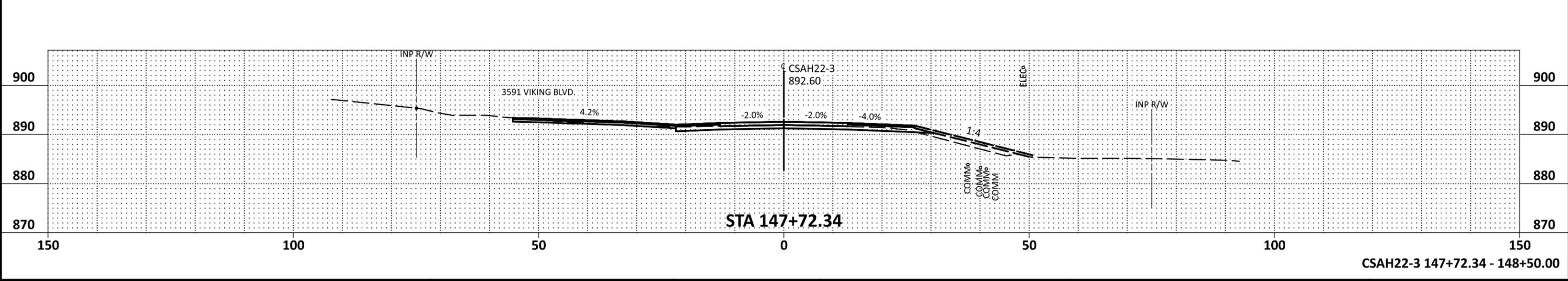
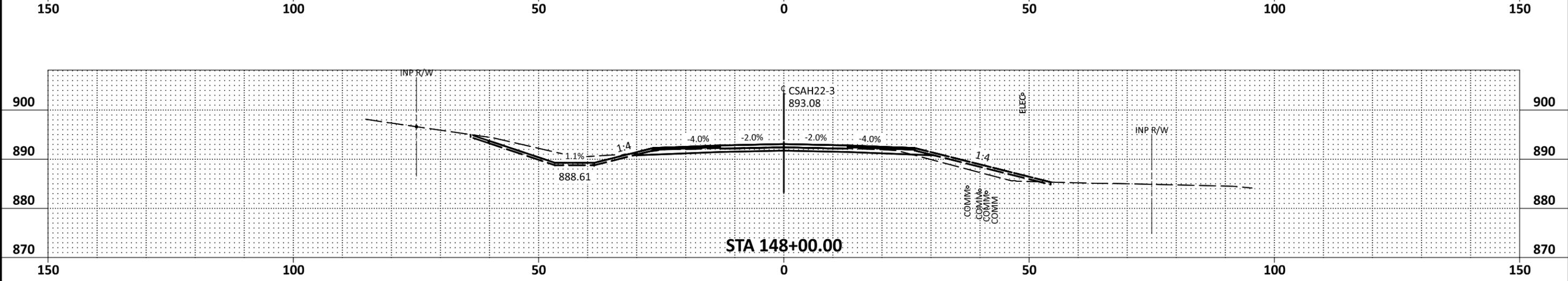
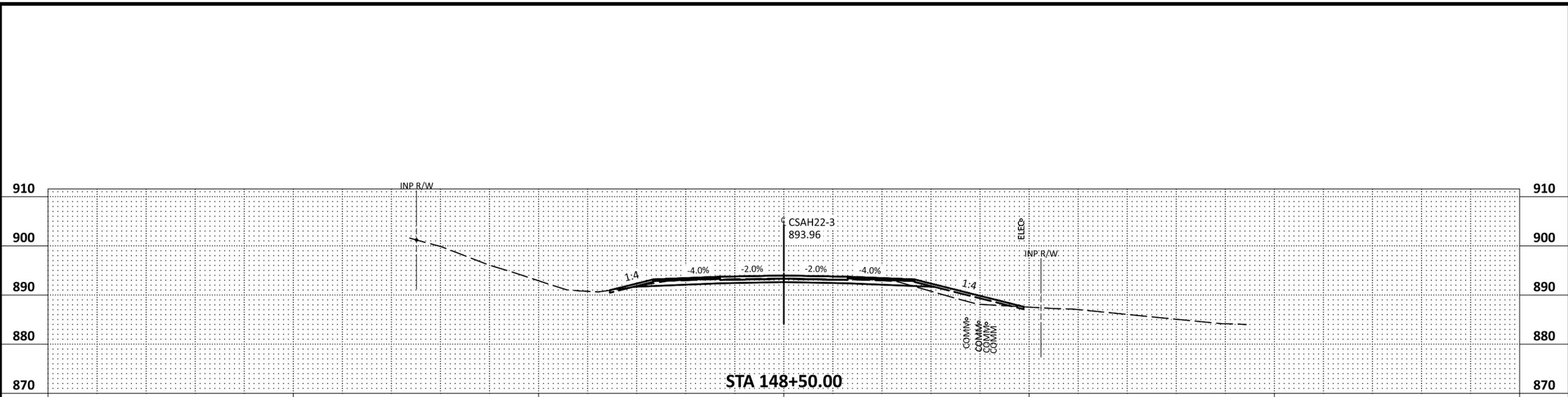
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 CHECKED BY NJD DATE 03/19/25



SAP 002-622-045  
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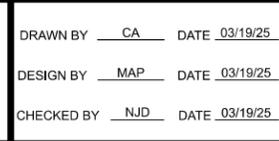
CROSS SECTIONS  
 Sheet X22 of X40 Sheets



CSAH22-3 147+72.34 - 148+50.00

NO	DATE	BY	CKD	APPR	REVISION
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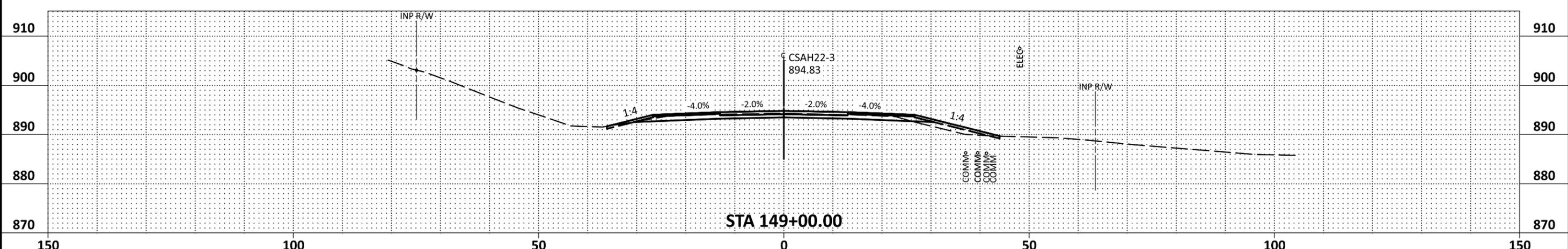
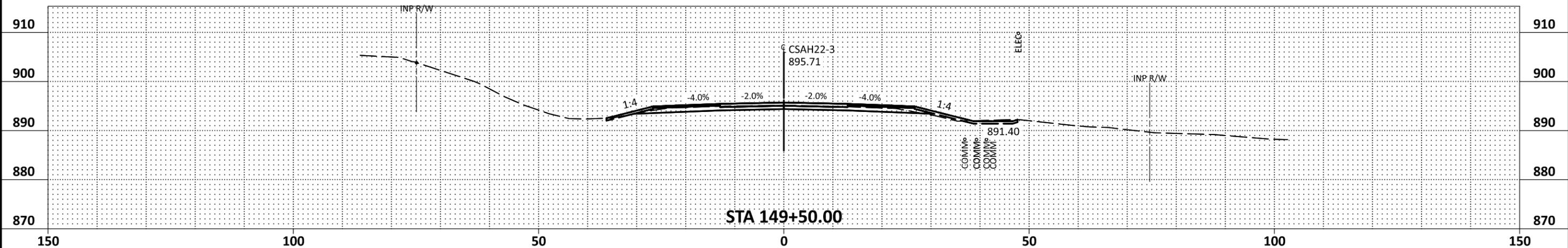
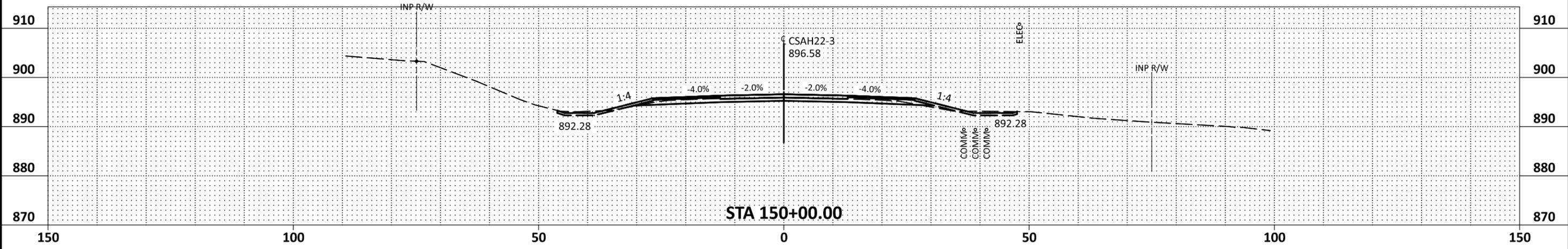
DRAWN BY CA DATE 03/19/25  
 DESIGN BY MAP DATE 03/19/25  
 CHECKED BY NJD DATE 03/19/25



**ANOKA COUNTY  
HIGHWAY DEPT.**

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CROSS SECTIONS  
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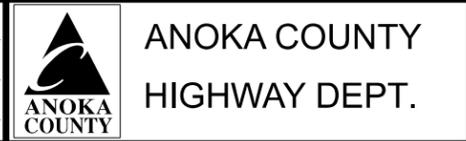


CSAH22-3 149+00.00 - 150+00.00

NO	DATE	BY	CKD	APPR	REVISION

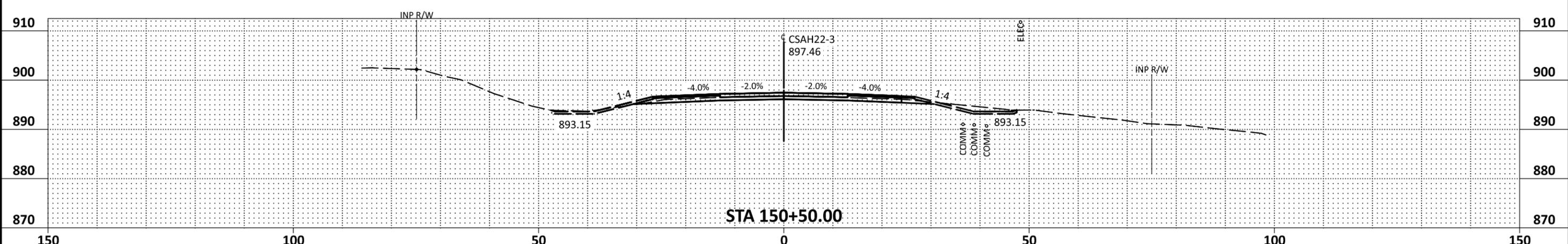
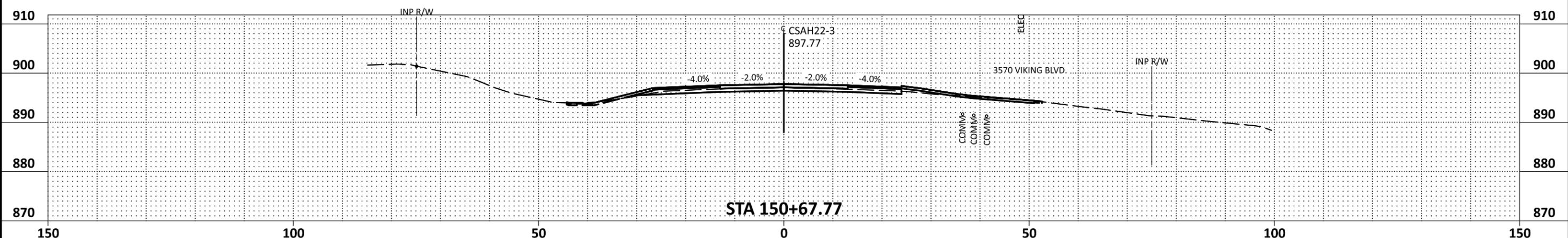
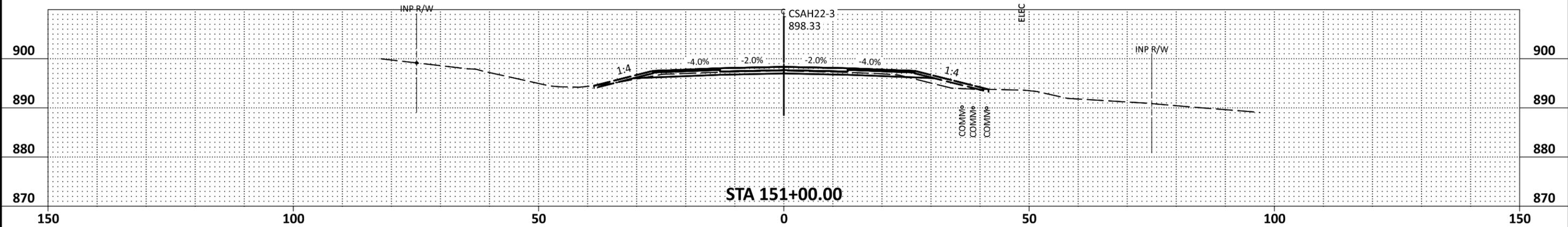
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DRAWN BY CA DATE 03/19/25  
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 CHECKED BY NJD DATE 03/19/25



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CROSS SECTIONS  
 Sheet X24 of X40 Sheets

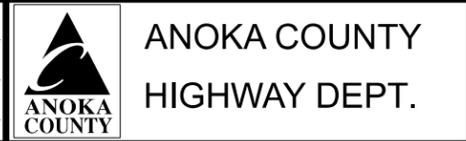


CSAH22-3 150+50.00 - 151+00.00

NO	DATE	BY	CKD	APPR	REVISION

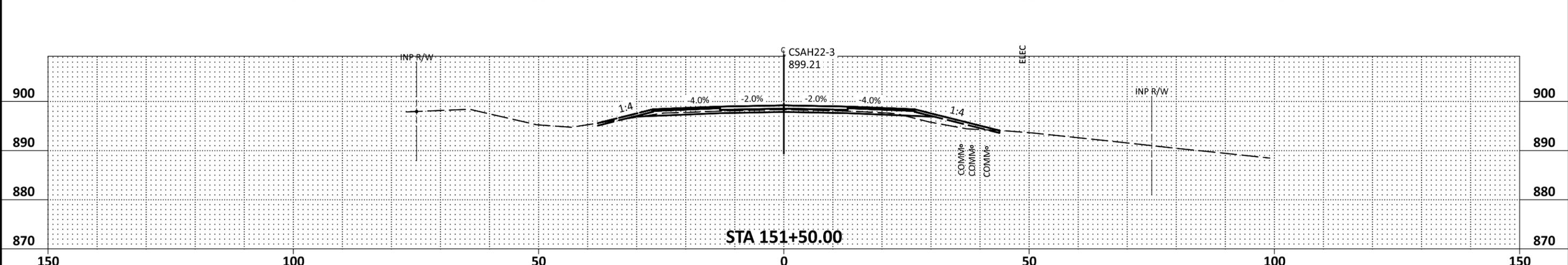
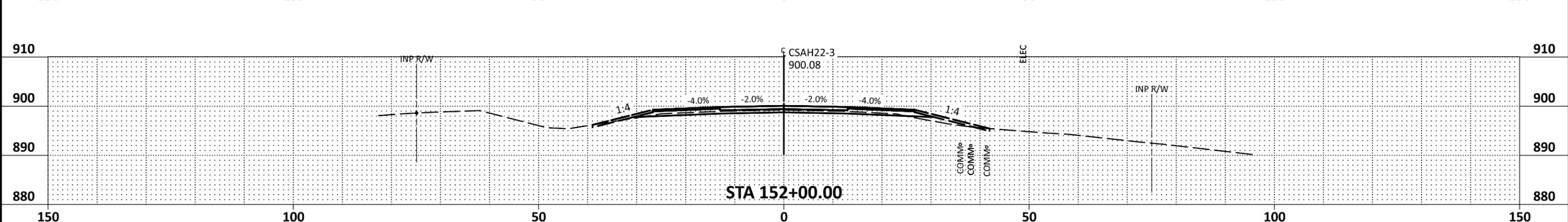
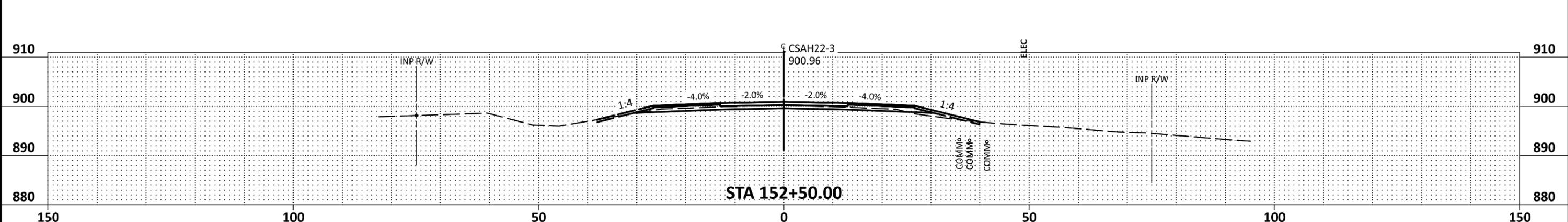
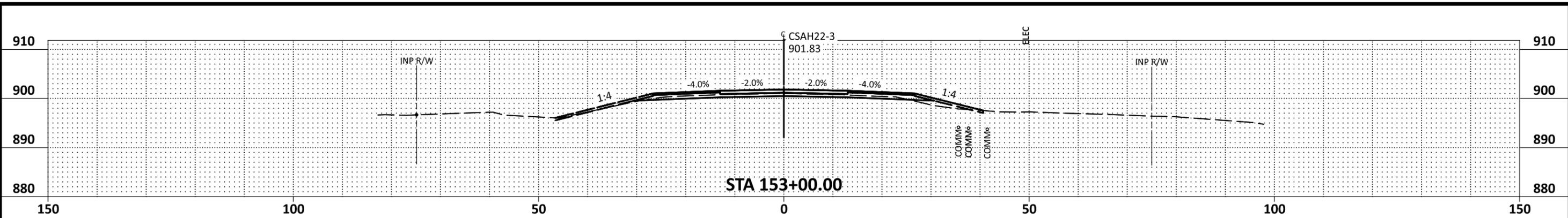
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DRAWN BY CA DATE 03/19/25  
 DESIGN BY MAP DATE 03/19/25  
 CHECKED BY NJD DATE 03/19/25



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CROSS SECTIONS  
 Sheet X25 of X40 Sheets

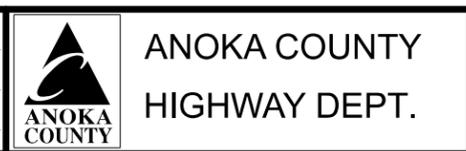


CSAH22-3 151+50.00 - 153+00.00

NO	DATE	BY	CKD	APPR	REVISION

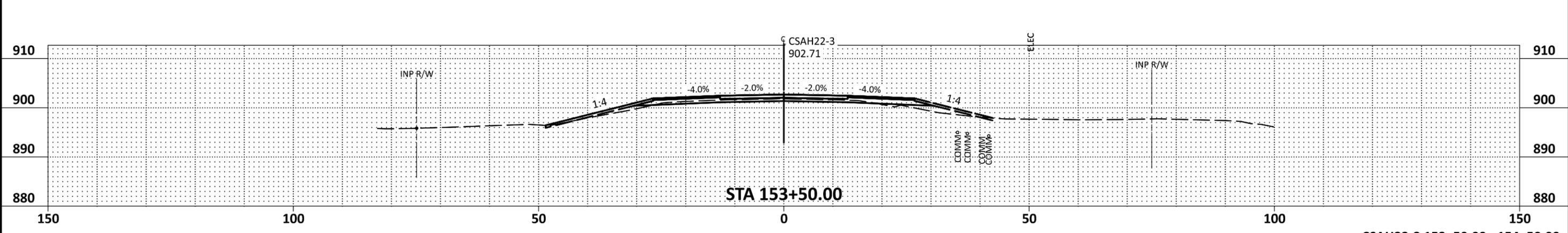
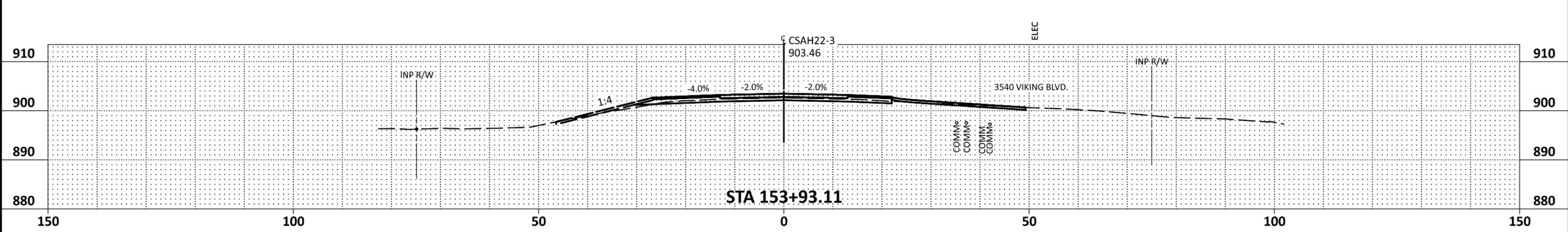
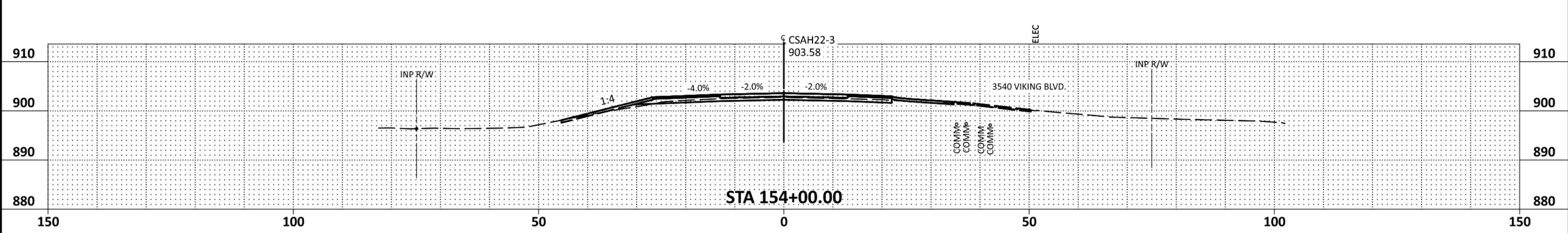
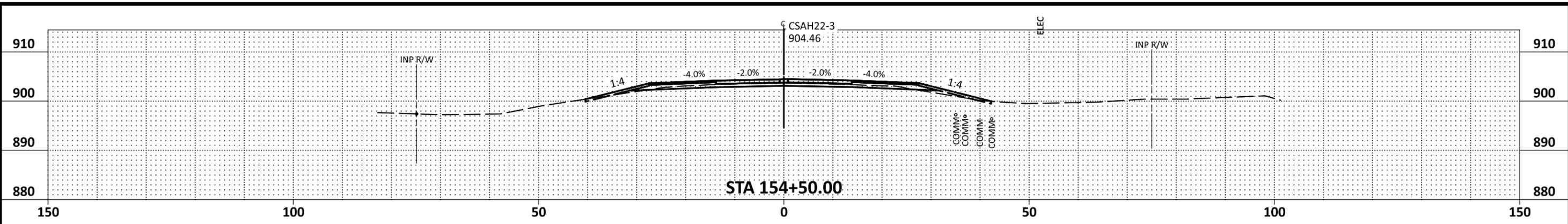
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DRAWN BY CA DATE 03/19/25  
 DESIGN BY MAP DATE 03/19/25  
 CHECKED BY NJD DATE 03/19/25



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CROSS SECTIONS  
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CSAH22-3 153+50.00 - 154+50.00

NO	DATE	BY	CKD	APPR	REVISION

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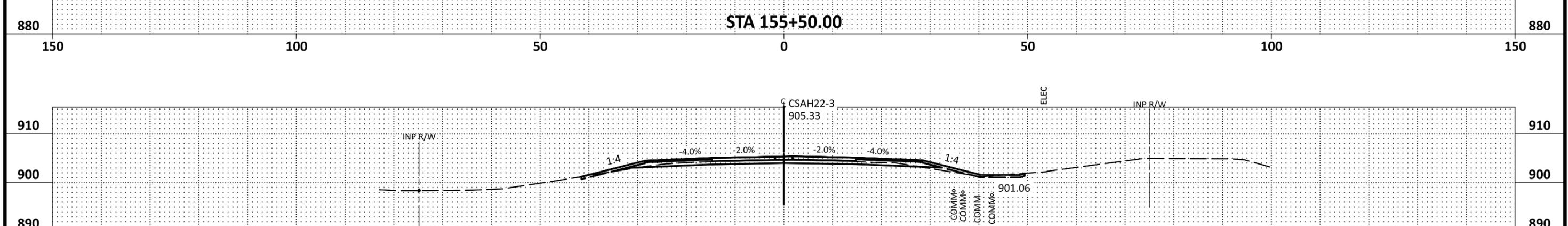
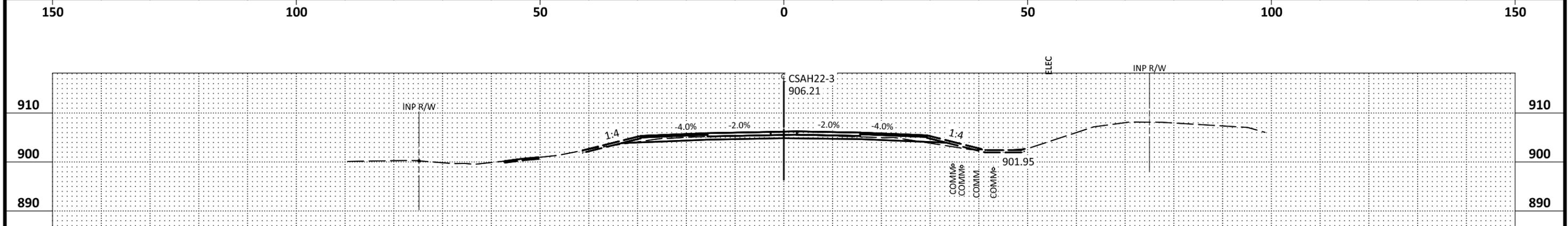
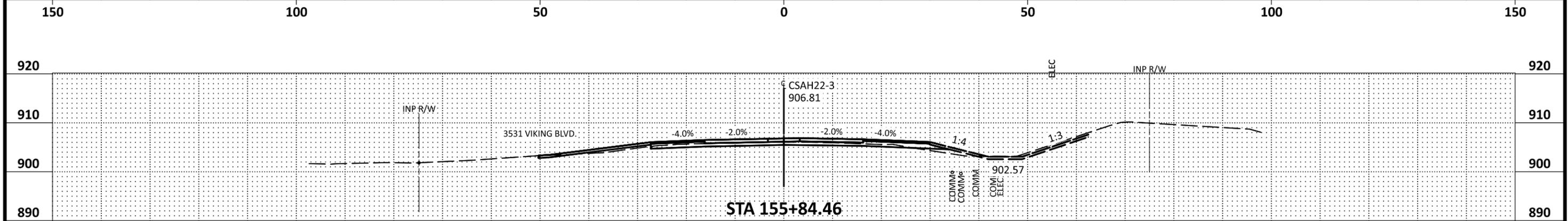
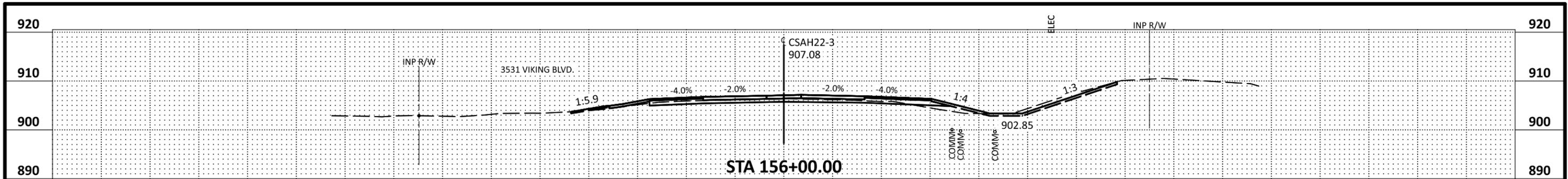
DRAWN BY CA DATE 03/19/25  
 DESIGN BY MAP DATE 03/19/25  
 CHECKED BY NJD DATE 03/19/25



ANOKA COUNTY  
 HIGHWAY DEPT.

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CROSS SECTIONS  
 Sheet X27 of X40 Sheets

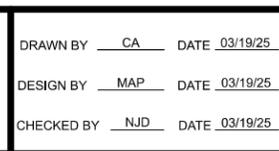


CSAH22-3 155+00.00 - 156+00.00

NO	DATE	BY	CKD	APPR	REVISION

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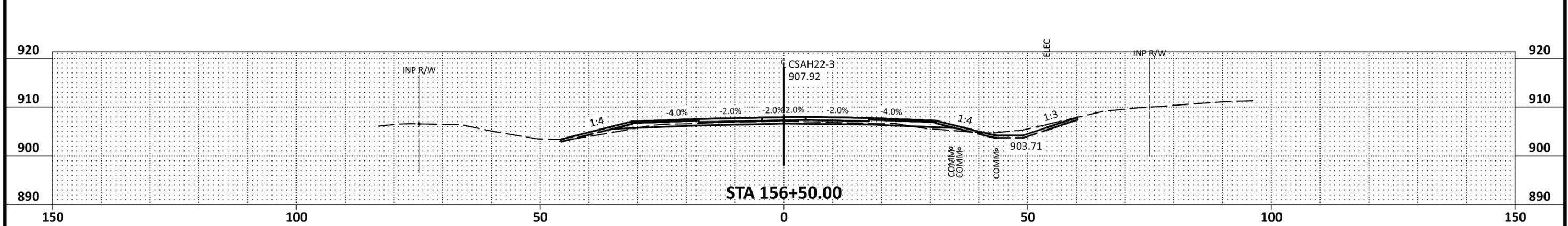
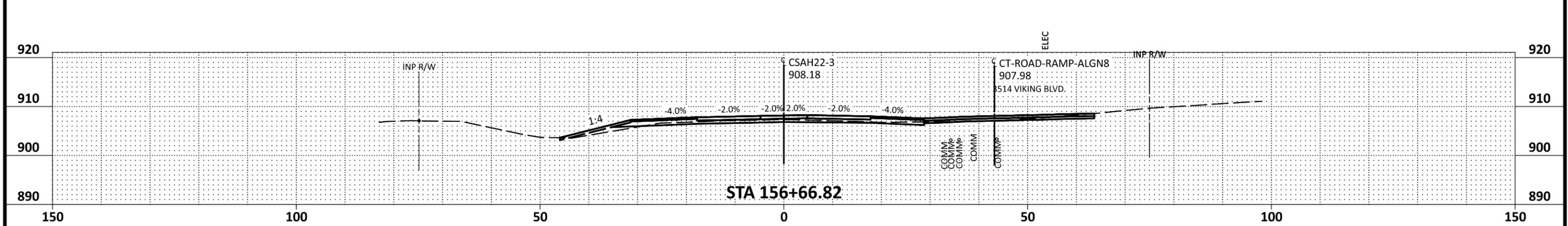
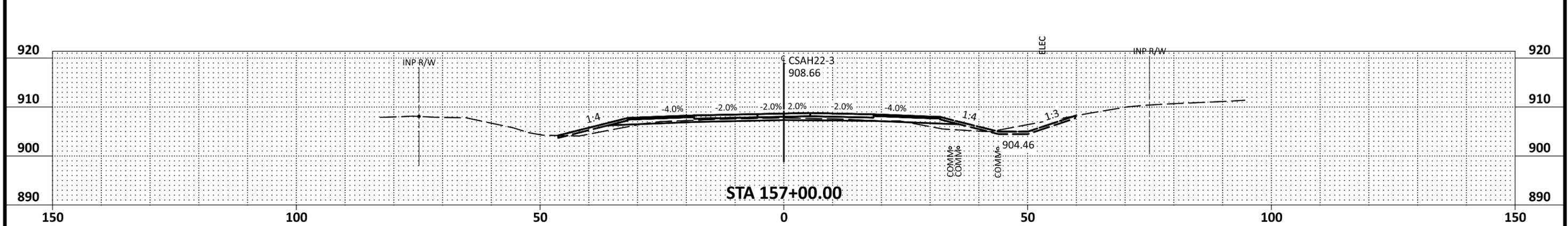
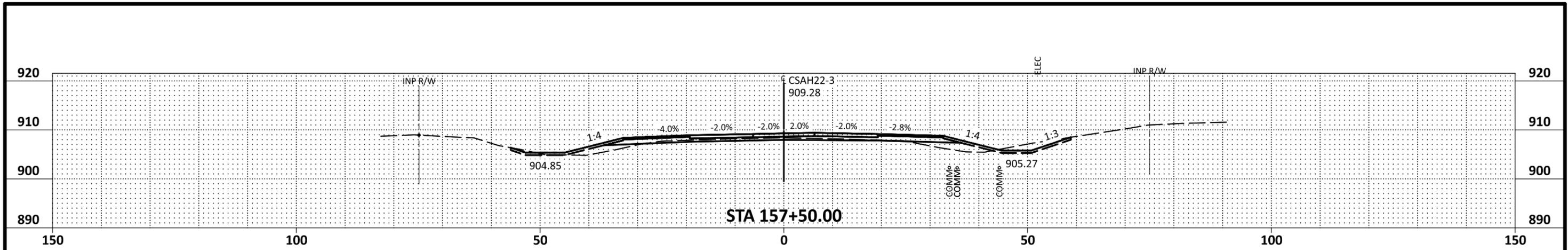
DRAWN BY	CA	DATE	03/19/25
DESIGN BY	MAP	DATE	03/19/25
CHECKED BY	NJD	DATE	03/19/25



**ANOKA COUNTY  
HIGHWAY DEPT.**

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CROSS SECTIONS  
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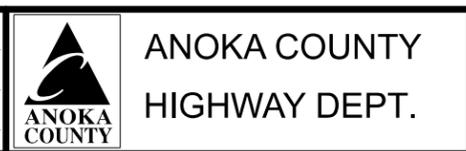


CSAH22-3 156+50.00 - 157+50.00

NO	DATE	BY	CKD	APPR	REVISION

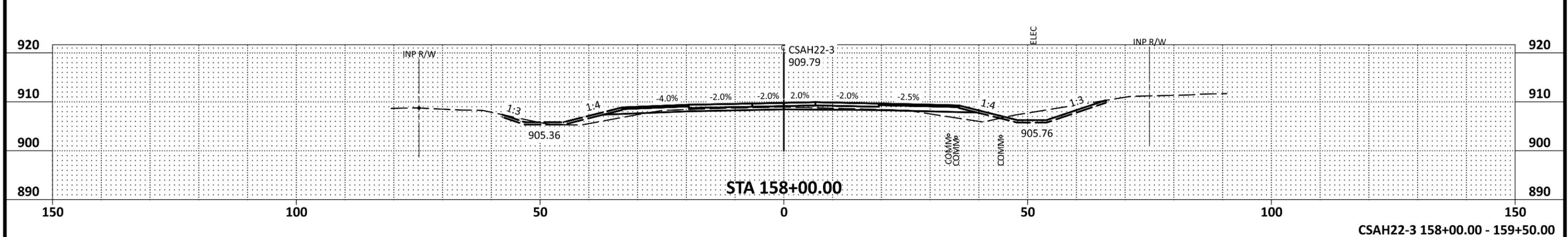
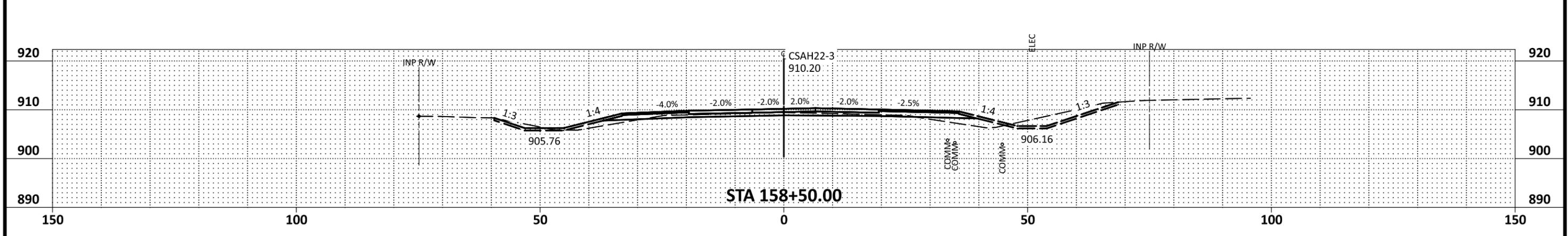
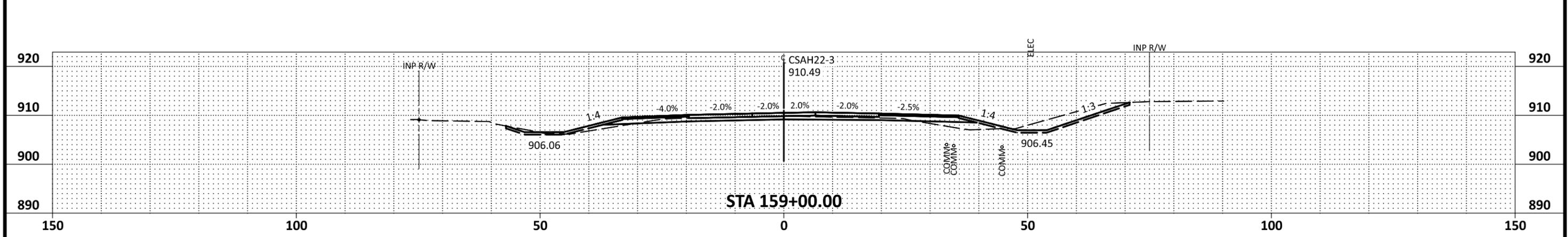
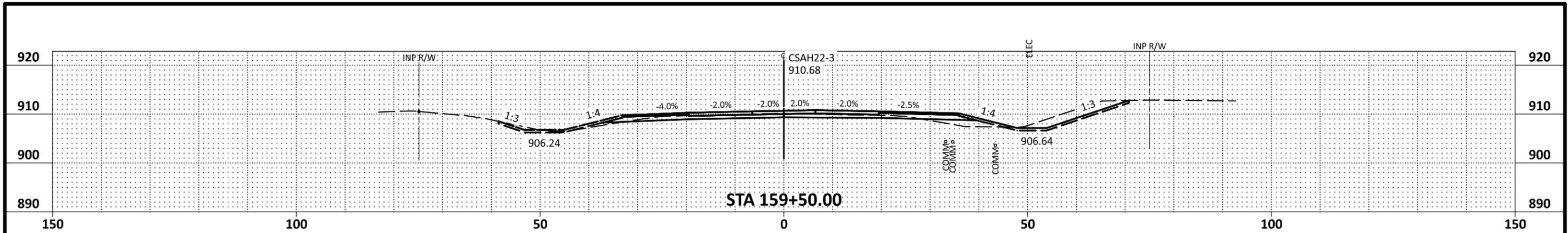
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DRAWN BY CA DATE 03/19/25  
 DESIGN BY MAP DATE 03/19/25  
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CROSS SECTIONS  
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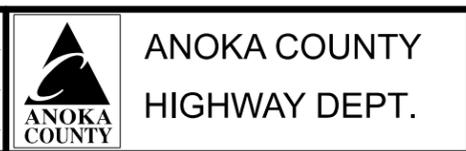


CSAH22-3 158+00.00 - 159+50.00

NO	DATE	BY	CKD	APPR	REVISION

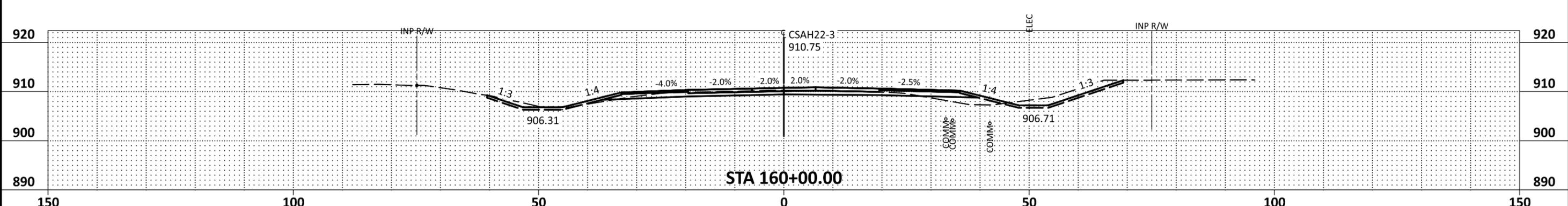
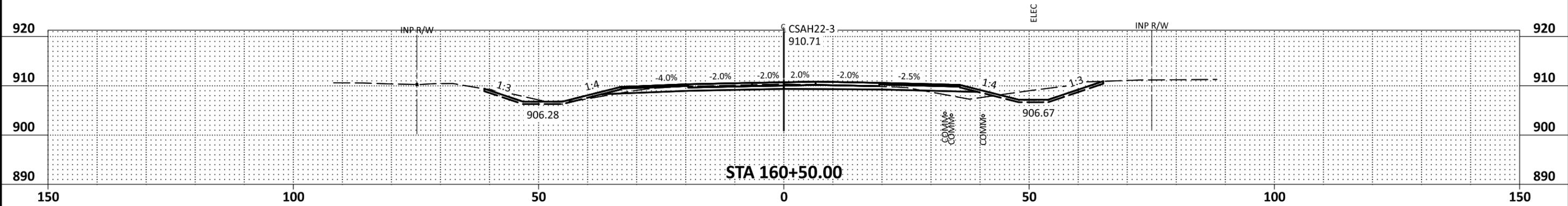
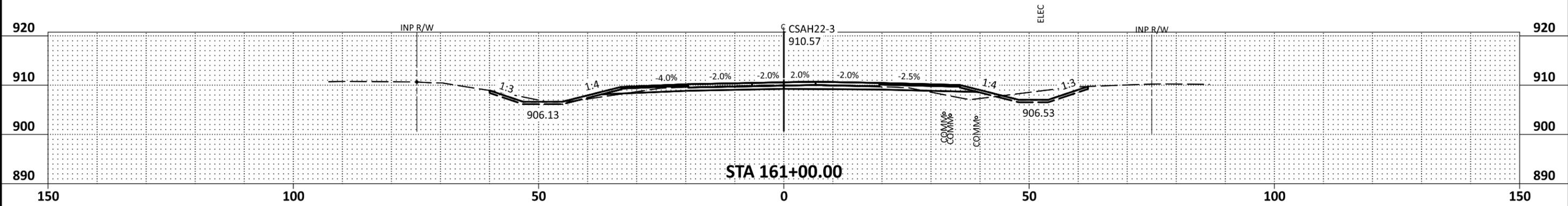
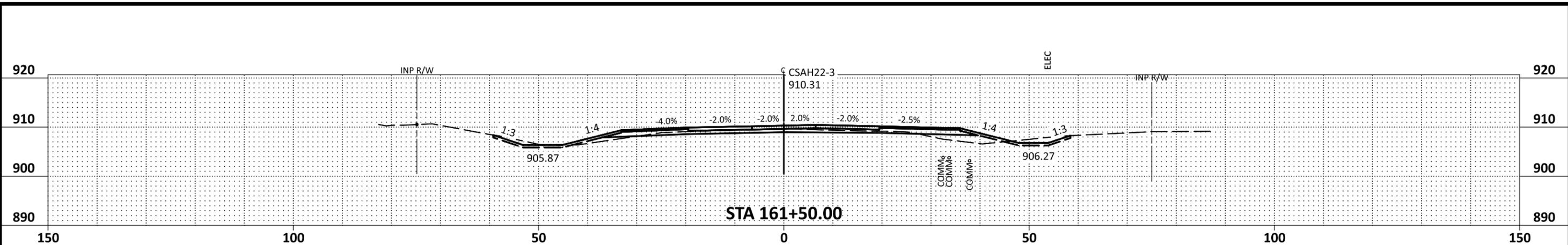
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DRAWN BY CA DATE 03/19/25  
 DESIGN BY MAP DATE 03/19/25  
 CHECKED BY NJD DATE 03/19/25



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CSAH22-3 160+00.00 - 161+50.00

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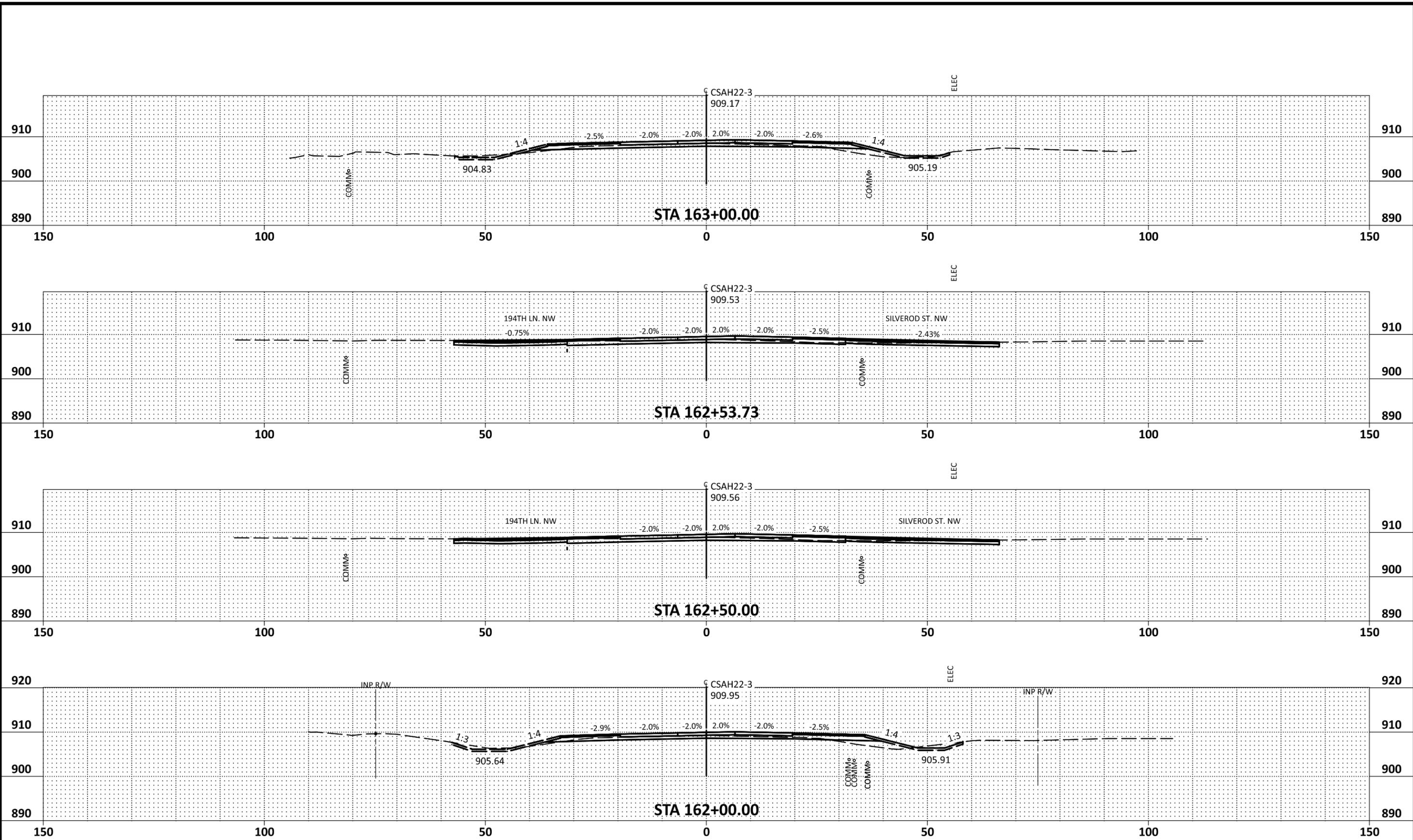

DRAWN BY CA DATE 03/19/25  
 DESIGN BY MAP DATE 03/19/25  
 CHECKED BY NJD DATE 03/19/25



ANOKA COUNTY  
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CSAH22-3 162+00.00 - 163+00.00

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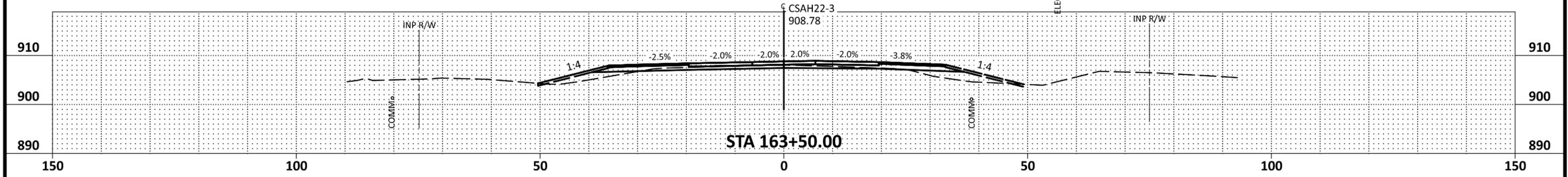
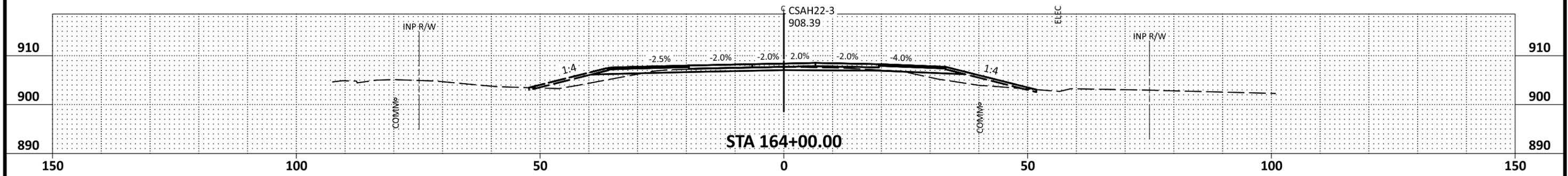
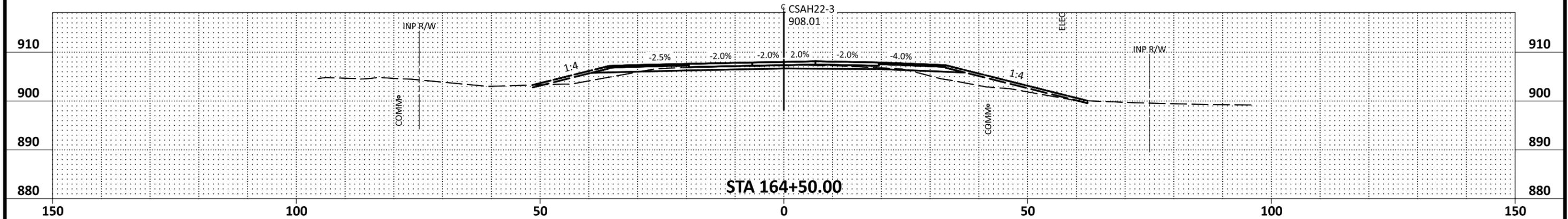
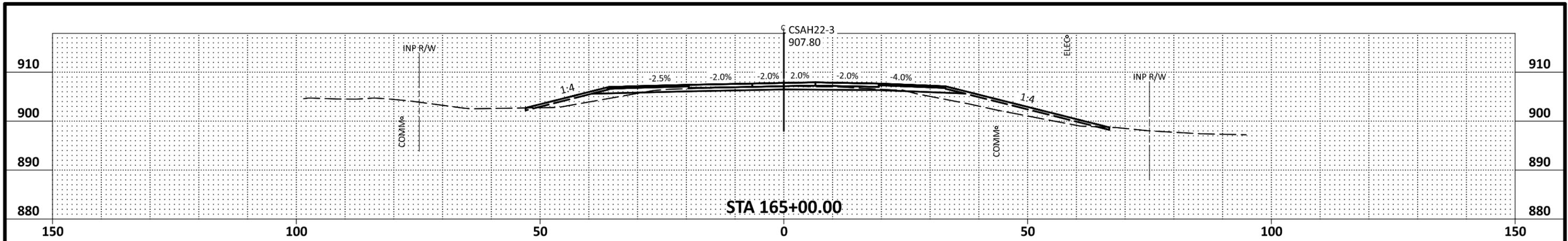
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DRAWN BY CA DATE 03/19/25  
 DESIGN BY MAP DATE 03/19/25  
 CHECKED BY NJD DATE 03/19/25



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CROSS SECTIONS  
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CSAH22-3 163+50.00 - 165+00.00

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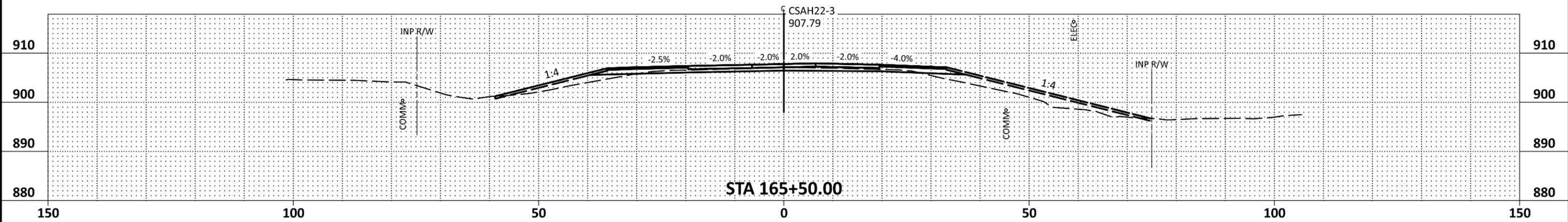
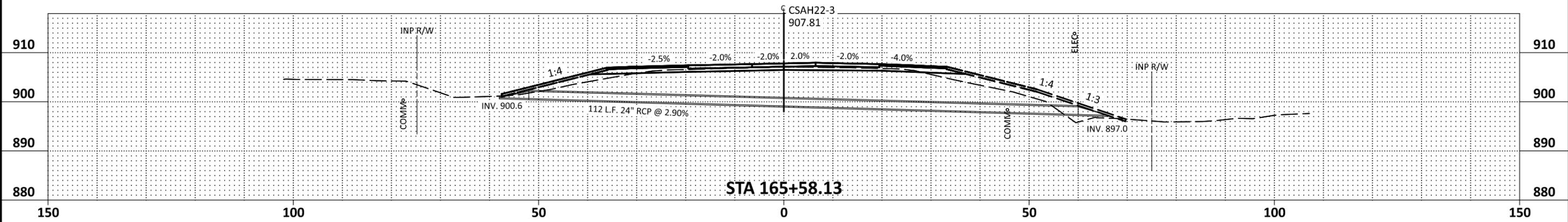
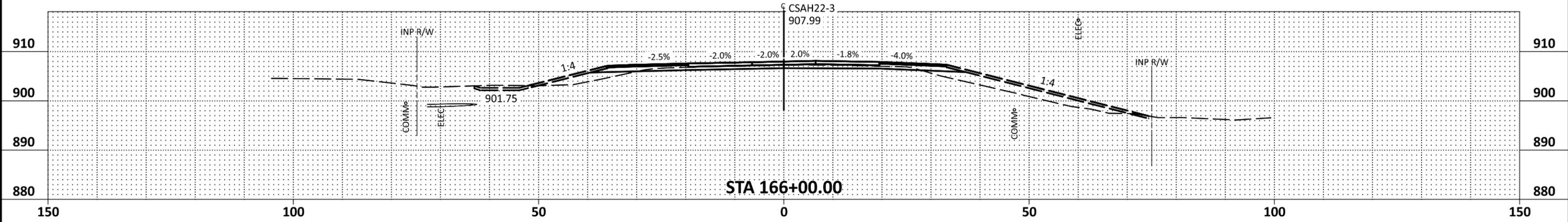
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DRAWN BY CA DATE 03/19/25  
 DESIGN BY MAP DATE 03/19/25  
 CHECKED BY NJD DATE 03/19/25



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CSAH22-3 165+50.00 - 166+00.00

NO	DATE	BY	CKD	APPR	REVISION

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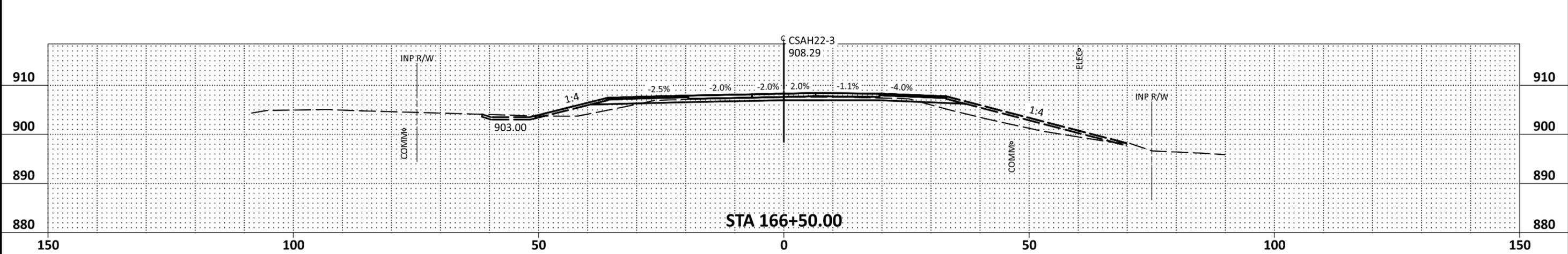
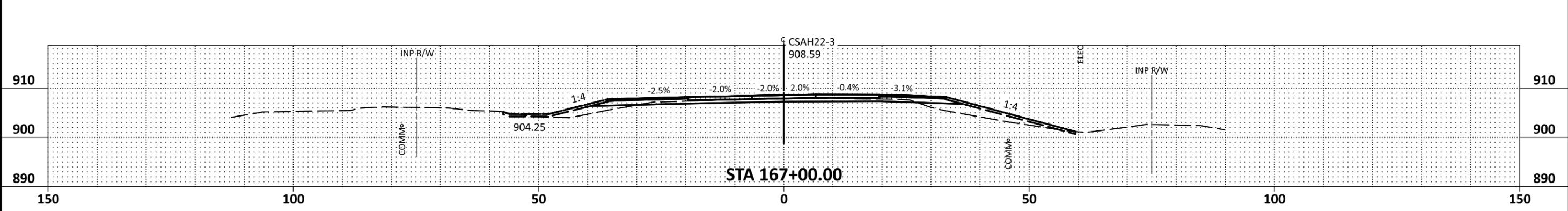
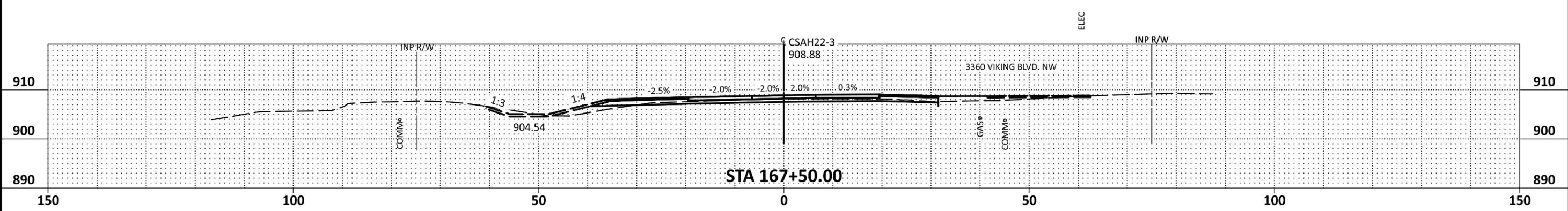
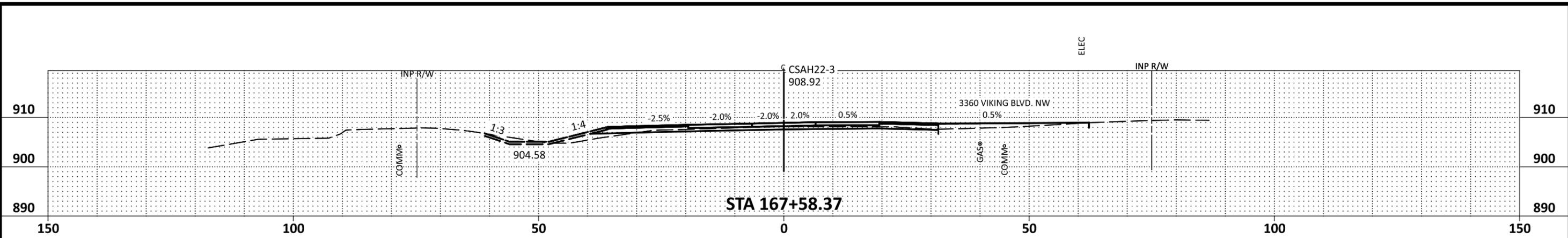

DRAWN BY CA DATE 03/19/25  
 DESIGN BY MAP DATE 03/19/25  
 CHECKED BY NJD DATE 03/19/25



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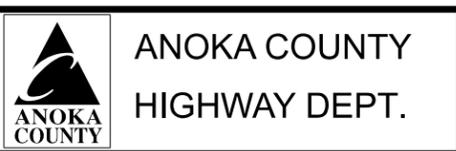


CSAH22-3 166+50.00 - 167+58.37

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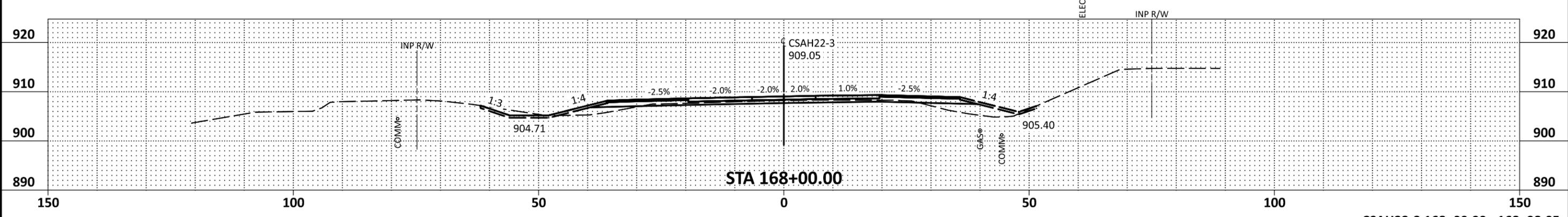
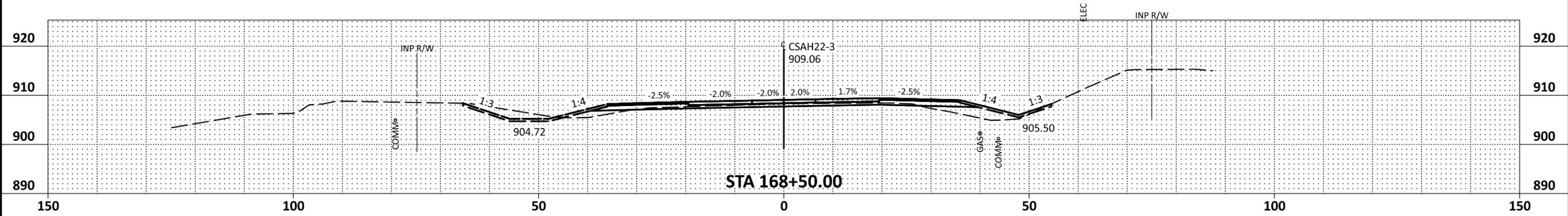
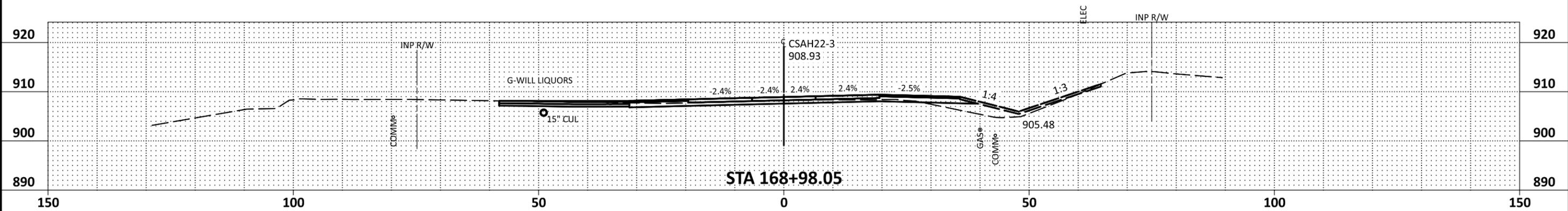
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DRAWN BY CA DATE 03/19/25  
 DESIGN BY MAP DATE 03/19/25  
 CHECKED BY NJD DATE 03/19/25



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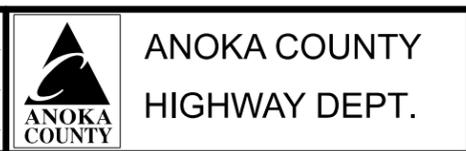


CSAH22-3 168+00.00 - 168+98.05

NO	DATE	BY	CKD	APPR	REVISION

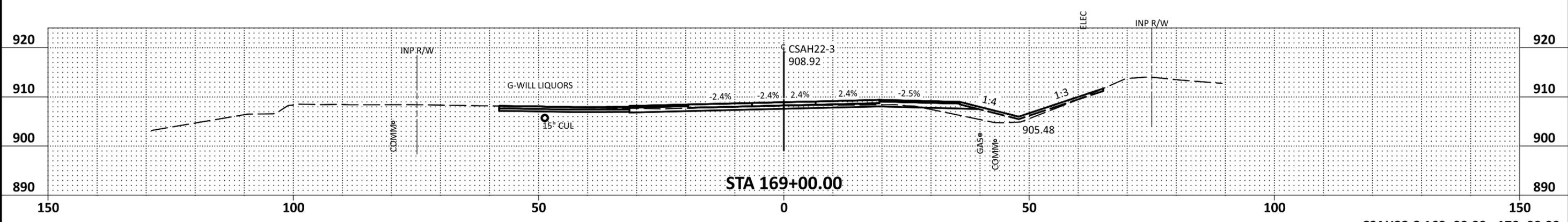
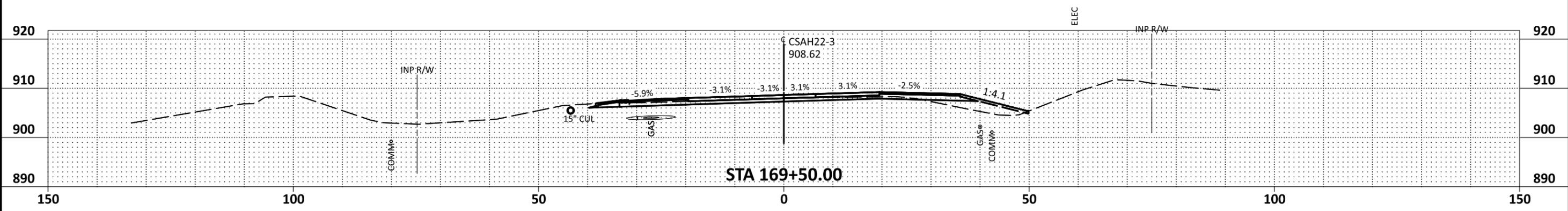
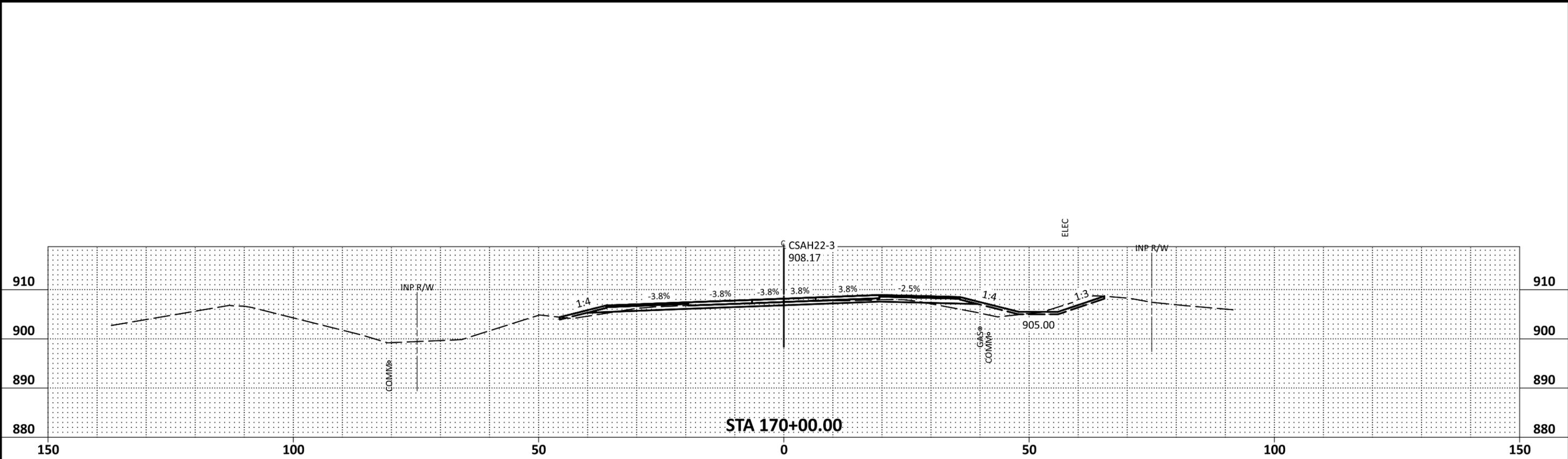
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DRAWN BY CA DATE 03/19/25  
 DESIGN BY MAP DATE 03/19/25  
 CHECKED BY NJD DATE 03/19/25



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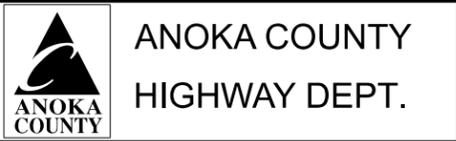


CSAH22-3 169+00.00 - 170+00.00

NO	DATE	BY	CKD	APPR	REVISION

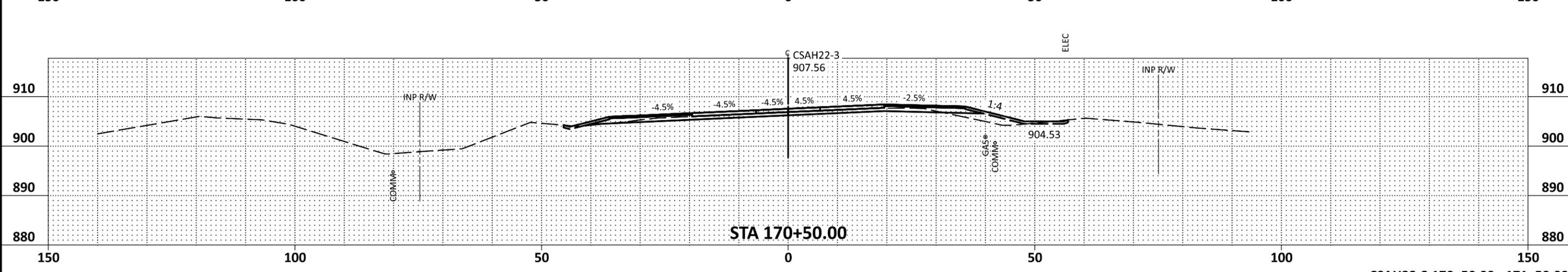
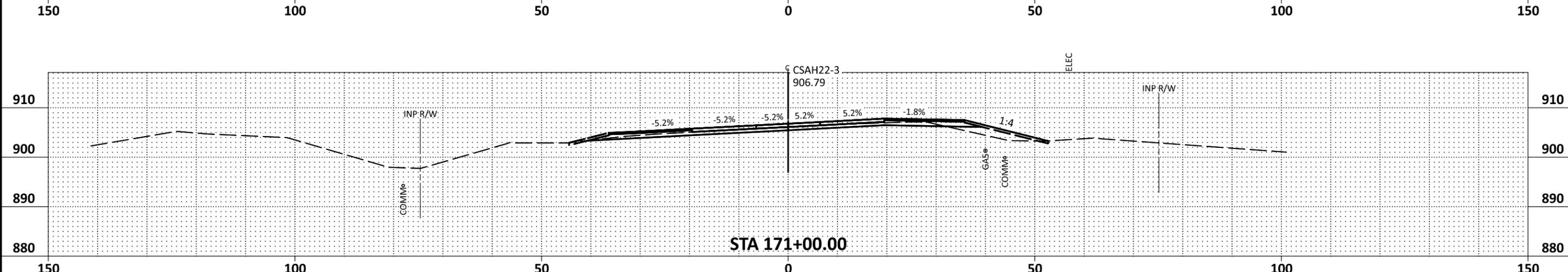
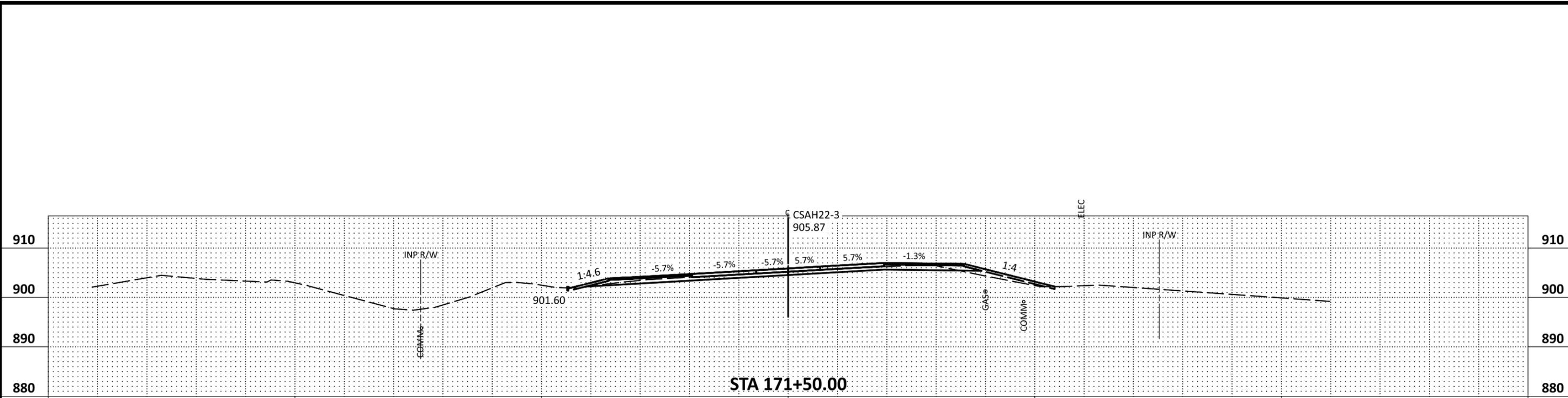
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DRAWN BY CA DATE 03/19/25  
 DESIGN BY MAP DATE 03/19/25  
 CHECKED BY NJD DATE 03/19/25



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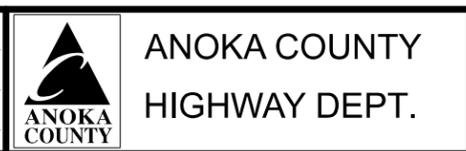


CSAH22-3 170+50.00 - 171+50.00

NO	DATE	BY	CKD	APPR	REVISION

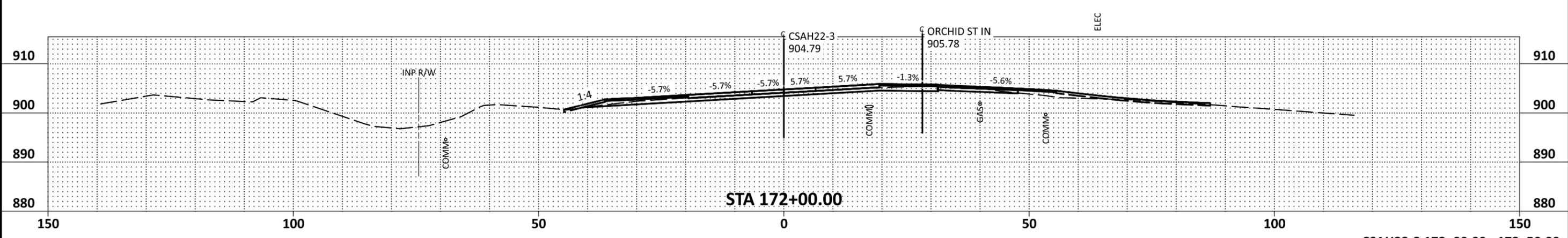
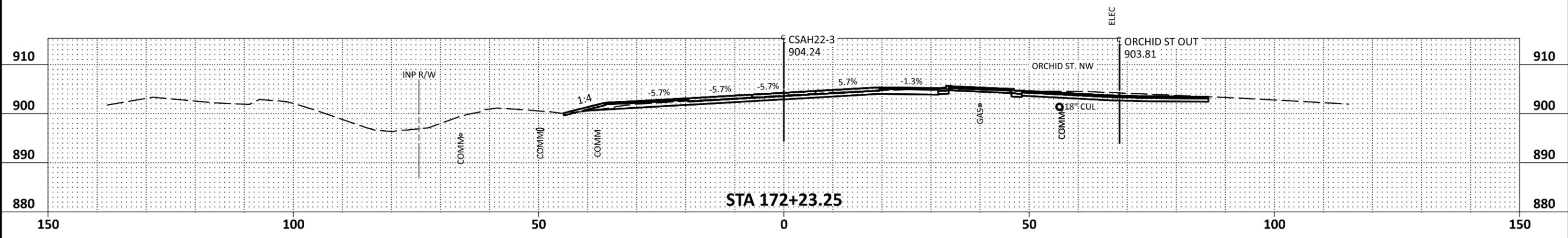
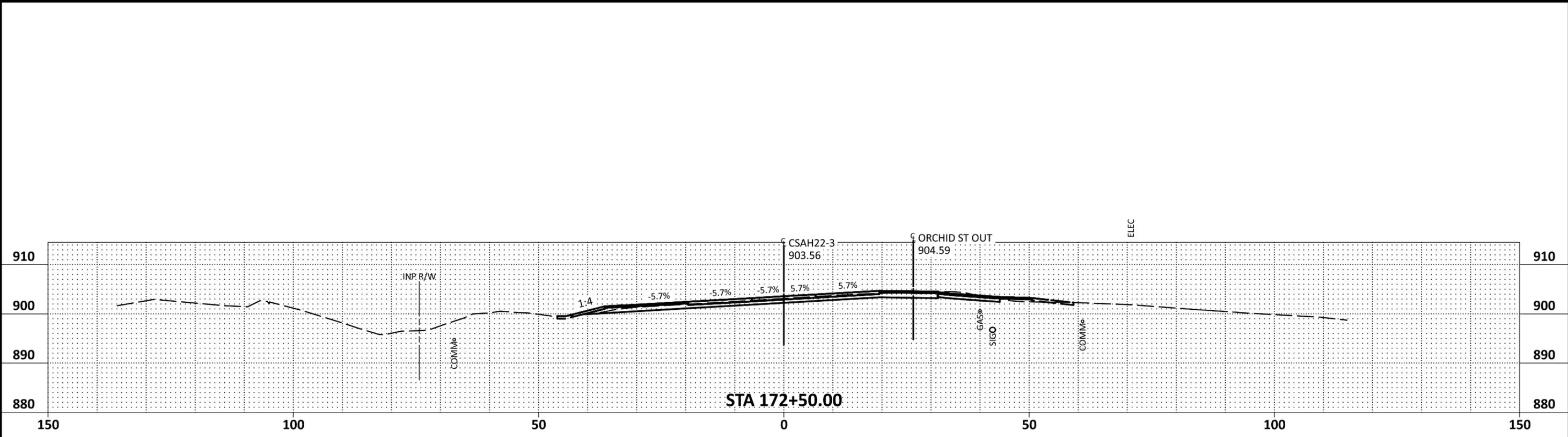
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DRAWN BY CA DATE 03/19/25  
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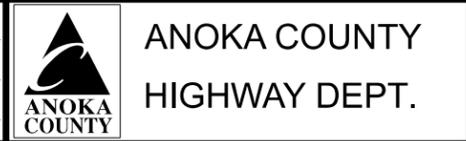


CSAH22-3 172+00.00 - 172+50.00

NO	DATE	BY	CKD	APPR	REVISION

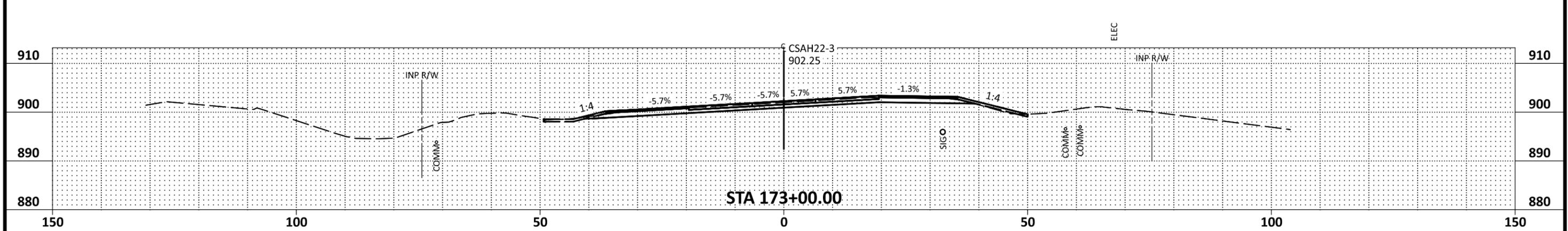
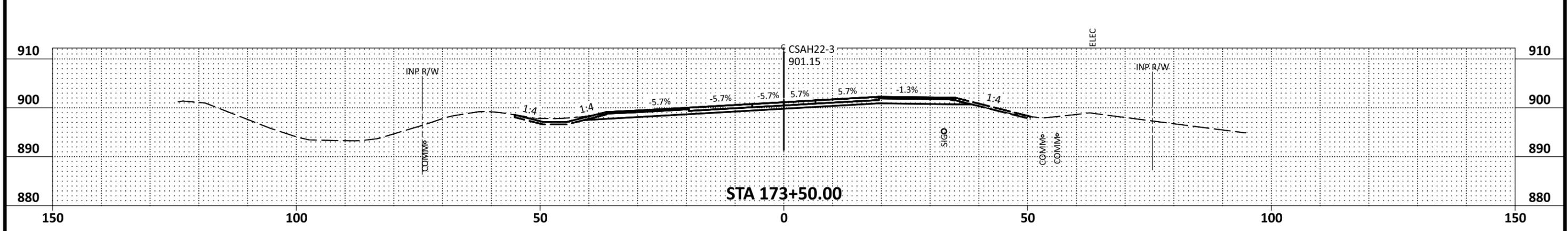
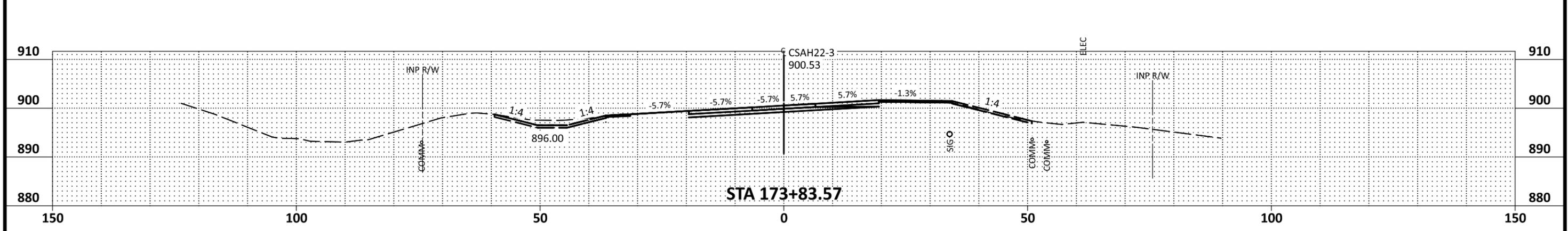
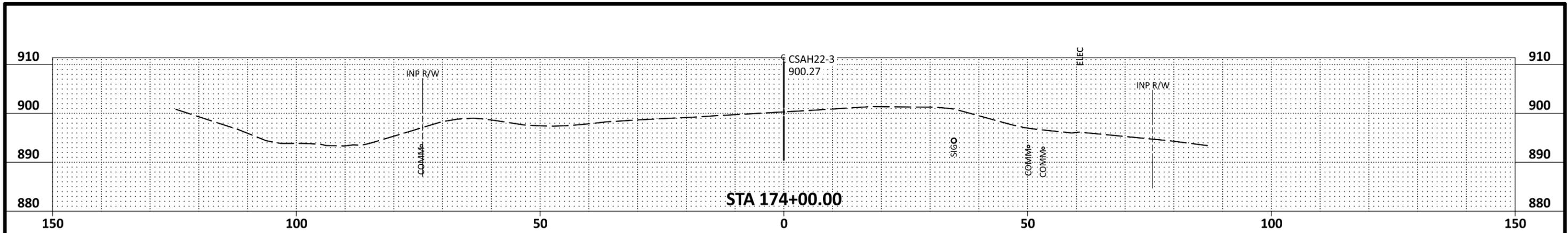
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DRAWN BY CA DATE 03/19/25  
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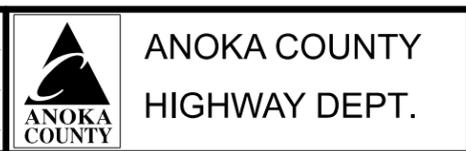


CSAH22-3 173+00.00 - 174+00.00

NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\002-622-045 Concrete from Rum River thru CSAH 9\Plan\002622045\_900xsp.dgn 03/24/2025 9:55:32 AM


DRAWN BY CA DATE 03/19/25  
 DESIGN BY MAP DATE 03/19/25  
 CHECKED BY NJD DATE 03/19/25



SAP 002-622-045  
 SAP 223-020-011

CROSS SECTIONS  
 Sheet X40 of X40 Sheets