

MINNESOTA DEPARTMENT OF TRANSPORTATION ANOKA COUNTY

CONSTRUCTION PLAN FOR MILL BITUMINOUS, BITUMINOUS SURFACING, RIGHT TURN LANE CONSTRUCTION, BITUMINOUS REMOVAL AND SEWER REPAIRS
 LOCATED ON CR 53 (SUNSET AVE) BETWEEN NORTH ROAD AND 35W BRIDGE

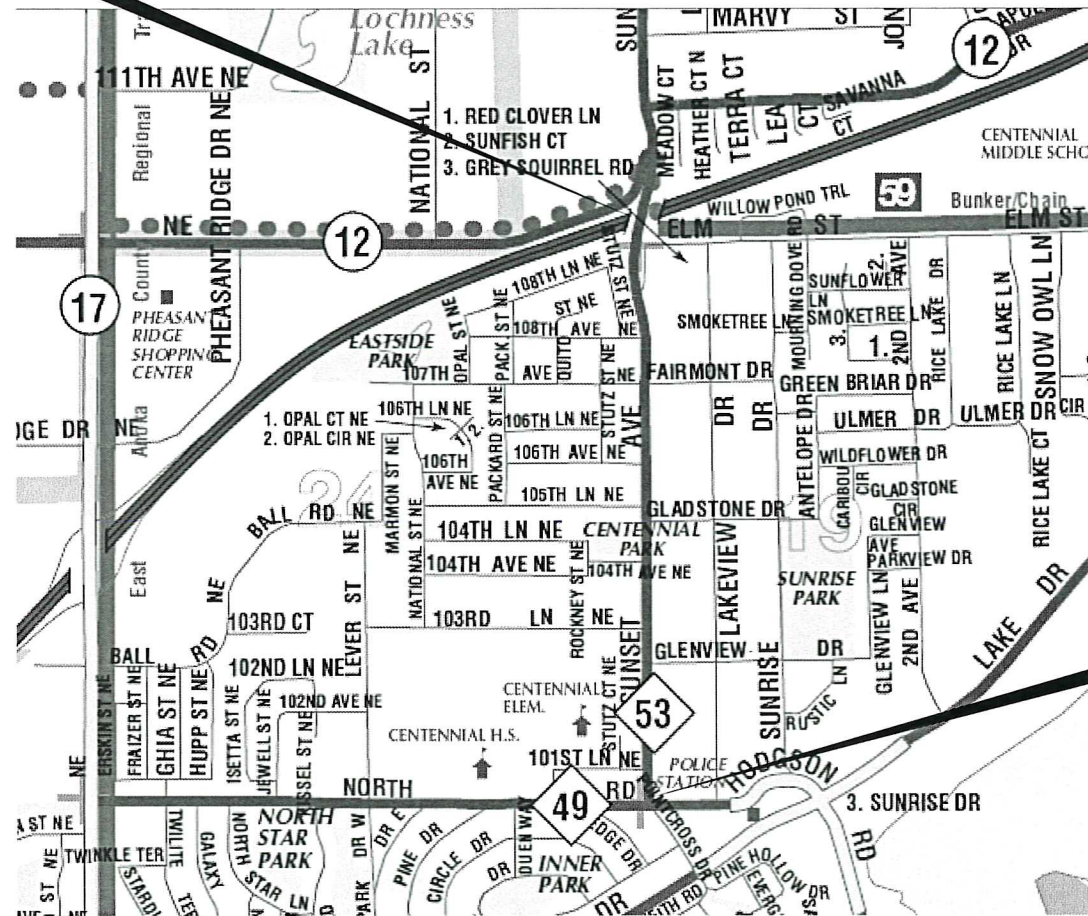
GOVERNING SPECIFICATIONS

THE 2016 EDITION OF THE MINNESOTA DEPARTMENT OF TRANSPORTATION "STANDARD SPECIFICATIONS FOR CONSTRUCTION" SHALL GOVERN. ALL TRAFFIC CONTROL DEVICES SHALL CONFORM AND BE INSTALLED IN ACCORDANCE TO THE "MINNESOTA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" (MNMUTCD), AND PART VI, "FIELD MANUAL FOR TEMPORARY TRAFFIC CONTROL ZONE LAYOUTS."

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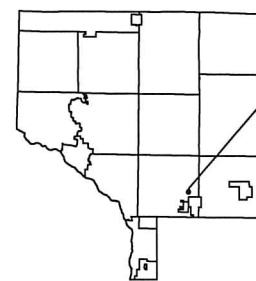
END COUNTY PROJECT 16-10-53
SOUTH CR 53, STA 54+41



BEGIN COUNTY PROJECT 16-10-53
SOUTH CR 53, STA: 00+80

THIS PLAN CONTAINS 48 SHEETS

PROJECT LOCATION



CITY OF BLAINE
CITY OF LINO LAKES
ANOKA COUNTY
MN/DOT TRANSPORTATION DISTRICT - METRO
SECTION 35
TOWNSHIP 31 NORTH
RANGE 22 WEST

CR 53	
GROSS LENGTH	5361 FEET 1.015 MILES
EXCEPTIONS-LENGTH	0.00 FEET 0.000 MILES
NET LENGTH	5361 FEET 1.015 MILES
DESIGN SPEED	35 - 45 MPH
CURRENT ADT	6305

Approved 4/8/2016
ANOKA COUNTY ENGINEER

NO	DATE	BY	CKD	APPR	REVISION	TIME

NAME: P:\16-01-00\CR_53(35W-CR49)\Plan\1_53_TITLE.dgn

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
 PRINT NAME: MATTHEW J. JOHN
 SIGNATURE:
 DATE: 4/6/2016 LICENSE NO. 51639

DRAWN BY JCF DATE 03/11/2016
 DESIGN BY JCF DATE 03/11/2016
 CHECKED BY MJJ DATE 03/16/2016

ANOKA COUNTY
HIGHWAY DEPT.

COUNTY PROJECT 16-10-53

TITLE SHEET
Sheet 1 of 48 Sheets

SOUTH CR 53 STATEMENT OF ESTIMATED QUANTITIES				
TAB	NOTE	ITEM NUMBER	ITEM DESCRIPTION	SOUTH SUNSET QUANTITIES ESTIMATED
	41	2021.501	MOBILIZATION	LUMP SUM 0
A	28	2101.502	CLEARING	TREE 4
A	28	2101.507	GRUBBING	TREE 4
A	1	2104.501	REMOVE CURB AND GUTTER	LIN FT 474
A	2	2104.505	REMOVE BITUMINOUS PAVEMENT	SQ YD 3712
D	3	2104.509	REMOVE CASTING	EACH 31
A	1	2104.511	SAWING CONCRETE PAVEMENT (FULL DEPTH)	LIN FT 31
A	4	2104.513	SAWING BITUMINOUS PAVEMENT (FULL DEPTH)	LIN FT 1470
A	29	2104.521	SALVAGE GUARDRAIL	LIN FT 324
A	34	2104.523	SALVAGE PIPE APRON	EACH 1
H		2104.523	SALVAGE SIGN TYPE C	EACH 15
H		2104.523	SALVAGE SIGN TYPE SPECIAL	EACH 2
A	35	2105.501	COMMON EXCAVATION	CU YD 393
A	35	2105.521	GRANULAR BORROW (CV)	CU YD 396
	5	2123.503	MOTOR GRADER	HR 40
	6	2130.501	WATER	MGAL 75
A	30	2211.503	AGGREGATE BASE (CV) CLASS 5	CU YD 190
A	7	2221.503	SHOULDER BASE AGGREGATE (CV) CLASS 5	CU YD 78
A	9, 10	2232.501	MILL BITUMINOUS SURFACE (3.0")	SQ YD 20101
A	11	2357.502	BITUMINOUS MATERIAL FOR TACK COAT	GALLON 2355
A	32	2360.501	TYPE SP 9.5 WEARING COURSE (3,C) [DRWAY/TRAIL]	TON 29
A	12	2360.501	TYPE SP 9.5 WEARING COURSE (3,C) [MAINLINE WEAR]	TON 4104
A	31	2360.501	TYPE SP 12.5 NON-WEAR COURSE (3,B) [MAINLINE BASE]	TON 643
A	13	2360.505	TYPE SP 12.5 BIT MIXTURE FOR PATCHING	TON 112
A	34	2501.573	INSTALL CONCRETE APRON	EACH 1
A	34	2503.511	18" RC PIPE SEWER CLASS V	LIN FT 8
D	14, 15	2504.602	ADJUST GATE VALVE	EACH 4
D	16	2506.516	CASTING ASSEMBLY	EACH 31
D	17	2506.602	GROUT CATCH BASIN OR MANHOLE	EACH 2
B	18	2521.501	6" CONCRETE WALK	SQ FT 490
B	1	2531.501	CONCRETE CURB AND GUTTER DESIGN B618	LIN FT 813
B	18	2531.603	CONCRETE CURB DESIGN V	LIN FT 26
B	18	2531.618	TRUNCATED DOMES	SQ FT 40
C	19	2540.602	MAIL BOX SUPPORT	EACH 59
C	19	2540.602	RELOCATE MAIL BOX SUPPORT	EACH 59
B	29	2554.603	INSTALL GUARDRAIL	LIN FT 324
		2563.601	TRAFFIC CONTROL SUPERVISOR	LUMP SUM 1
	20, 21, 22, 25	2563.601	TRAFFIC CONTROL	LUMP SUM 1
	22	2563.601	DETOUR SIGNING	LUMP SUM 0
	8	2563.610	POLICE OFFICER	HR 16
F	23	2563.613	PORTABLE CHANGEABLE MESSAGE SIGN	UNIT DAY 14
F		2564.531	SIGN PANELS TYPE C	SQ FT 14.5
H		2564.536	INSTALL SIGN PANEL TYPE C	EACH 12
H		2564.536	INSTALL SIGN TYPE SPECIAL	EACH 2
B		2573.502	SILT FENCE, TYPE MS	LIN FT 1166
B	39	2573.530	STORM DRAIN INLET PROTECTION	EACH 20
B	24	2573.560	CULVERT END CONTROLS	EACH 2
B		2574.508	FERTILIZER TYPE 3 [22-5-10]	LB 106
B	40	2574.525	COMMON TOPSOIL BORROW	CU YD 180
B		2575.501	SEEDING	ACRE 0.16
B		2575.502	SEED MIXTURE [25-141]	LB 9.4
B	27	2575.505	SODDING TYPE SALT TOLERANT	SQ YD 691
B		2575.523	EROSION CONTROL BLANKET CAT 0	SQ YD 769
B	33	2575.571	RAPID STABILIZATION METHOD 3	MGAL 1.0
B	25	2581.501	REMOVABLE PREFORMED PAVEMENT MARKING TAPE	LIN FT 643
	26, 38	2582.501	PAVT MSSG PREF THERMO	SQ FT 348
G	26, 36	2582.502	4" SOLID LINE EPOXY (WHITE AND YELLOW)	LIN FT 11355
G	26, 37	2582.502	4" BROKEN LINE EPOXY (YELLOW)	LIN FT 860
G	26, 37	2582.502	4" DBLE SOLID LINE EPOXY (YELLOW)	LIN FT 1100

BASIS OF PLANNED QUANTITIES		
ITEM NUMBER	DESCRIPTION	QUANTITY
2211	BASE AGGREGATE CLASS 5	1.8 TONS / CU YD
2221	SHOULDER BASE AGGREGATE CLASS 5	1.8 TONS / CU YD
2357	BITUMINOUS MATERIAL FOR TACK COAT	0.05 GAL / SQ YD
2360	ALL BITUMINOUS PAVEMENT	115 LBS / SQ YD / IN THICKNESS
2574	FERTILIZER TYPE 3	350 LBS / ACRE
2575	SEED MIXTURE [25-141]	59LBS / ACRE
2575	RAPID STABILIZATION METHOD 3	6 MGAL / ACRE
2581	REMOVABLE PREFORM PAVEMENT MARKING TAPE	2' AT 50' INTERVALS / EACH PAVED SURFACE

CONSTRUCTION NOTES

- CATCH BASIN REPAIR AT 35W BRIDGE APPROACH, NEW RTL @ 101ST AND CURB REPLACEMENT AREAS, SEE DETAILS.
- REMOVAL AT ALL STORM / SANITARY REPAIRS, CURB REPAIRS, DRIVEWAYS & BITUMINOUS REMOVAL AREA NORTH BETWEEN STA. 45+25 AND STA. 54+41. BITUMINOUS MATERIAL REMOVED MAY BE USED AS AGGREGATE BASE MATERIAL IF IT MEETS ALL OF MNDOT SPEC 2211, AGGREGATE BASE.
- ITEM INCLUDES REMOVAL OF CASTINGS, PLATING OF STRUCTURE BELOW MILLING DEPTH, PRIOR TO MILLING.
- SAWCUT FULL DEPTH AT 101ST LN NEW RTL, END OF MILL 45+25 & ELM STREET APPROACH, SEE DETAILS.
- ITEM USED TO MOVE EXCESS MATERIAL IN THE BITUMINOUS REMOVAL AREA LIMITS TO CREATE A SMOOTH TRANSITION BETWEEN THE PROPOSED AND EXISTING PAVEMENT.
- DUST CONTROL.
- SHOULDERING IN BITUMINOUS REMOVAL AREA NON CURB LOCATIONS.
- POLICE OFFICER TO BE USED AT THE DISCRETION OF THE ENGINEER FOR TRAFFIC CONTROL AT INTERSECTIONS AS NEEDED DURING MILLING AND PAVING OPERATIONS.
- MAINLINE MILLING STA. 00+80 - 45+25. ITEM INCLUDES 1.5" DEEP MILL AT 101ST & ELM ST. APPROACHES. DRWAYS & STREETS TO BE RAMPED WITH MILLINGS IMMEDIATELY FOLLOWING MILL AS DIRECTED BY ENGINEER. RAMPING SHALL BE INCIDENTAL TO MILLING ITEM.
- DETAIL MILLING AROUND MANHOLES, CATCH BASINS, GATE VALVES, AND ALONG CURB LINE IS INCIDENTAL TO THIS ITEM.
- TACK COAT TO BE APPLIED ON EACH BITUMINOUS SURFACE TO BE PAVED OVER.
- NEW PG BINDER GRADE MSCR " PG 58H-34 " MAINLINE AND TRAIL WEAR.
- ITEM INCLUDES BITUMINOUS PATCHING AROUND STORM / SANITARY STRUCTURE REPAIRS, CURB REPAIRS AND POTHoles AFTER MILLING AS DIRECTED BY ENGINEER.
- GATE VALVES TO BE ADJUSTED ONLY AS NECESSARY AS DETERMINED BY THE ENGINEER.
- EACH ADJUST GATE VALVE INCLUDES TEMPORARY ADJUSTMENT BELOW MILL ELEV. PRIOR TO OR IN CONJUNCTION WITH MILLING OPERATION, AND FINAL ADJUSTMENT TO FINISH GRADE BETWEEN PAVING BASE AND WEAR LIFTS.
- ITEM INCLUDES FULL REPLACEMENT OF CASTING, GRATE AND COVER. ADJUSTMENT RINGS INCIDENTAL TO CASTING ASSEMBLY. CONTRACTOR TO VERIFY IN THE FIELD. SEE TAB D. ALL IRON TO BE RAISED TO FINISHED ELEVATION FOLLOWING FIRST LIFT OF WEAR COURSE. (1.5" ABOVE FIRST WEAR COUSE). RAISING OF IRON IS INCIDENTAL TO CASTING ITEM.
- ITEM INCLUDES GROUTING OF INVERTS, DOGHOUSES, RINGS, AND CASTINGS AS REQUIRED.
- 6" CONCRETE WALK TO BE USED IN CONJUNCTION WITH TRUNCATED DOMES FOR ADA UPGRADES IN BIT. TRAIL LNB, SOUTH OF ELM STREET. PEDESTRIAN OPENING MUST COMEPLY WITH ALL ADA REQUIREMENTS. 6" CONC WALK ALSO TO BE USED TO FILL IN BACK TO BACK CURBS LSB IN NEW RTL @ 101ST LN.
- MAILBOXES ARE TO BE INSTALLED AT THE EXISTING MAILBOX LOCATION OR AS DIRECTED BY THE LOCAL POSTAL AUTHORITY, CONTRACTOR IS RESPONSIBLE FOR CONTACTING POSTAL AUTHORITY AND HOME OWNERS REGARDING TEMP. LOCATING FOR CONSTRUCTION AND PRIOR TO ANY REMOVAL. ITEM INCLUDES ALL MATERIALS TO MOVE -CONST.
- CONTRACTOR SHALL FURNISH, INSTALL, AND MAINTAIN TEMPORARY SIGNAGE WHENEVER EXISTING SIGNAGE IS REMOVED. TEMPORARY SIGNAGE SHALL BE INCIDENTAL TO TRAFFIC CONTROL.
- DO NOT PASS, PASS WITH CARE AND NO CENTER STRIPE SIGNS MUST BE IN PLACE WHENEVER PERMANENT PAVEMENT MARKINGS ARE NOT PRESENT.
- DETOUR IN PLACE FOR S.A.P. 002-012-013 UTILIZED FOR BOTH PROJECTS SHALL BE PAID UNDER PROJECT S.A.P. 002-012-013.
- 2 MESSAGE BOARDS, ONE ON THE EACH END OF PROJECT WILL BE INSTALLED 7 DAYS PRIOR TO ANY CONSTRUCTION; REFERENCE STRIPING PLAN FOR DETAILS.
- CULVERT END CONTROL TO BE PLACED AT HIGH INVERT OF CROSS CULVERT, SOUTH OF ELM ST. LNB. SALVAGE EXISTING APRON / REINSTALL.
- CENTERLINE SKIPS TO BE APPLIED AS SOON AS POSSIBLE ON EACH NEW LIFT OF PAVEMENT; SKIPS MUST BE IN PLACE BEFORE THE CONTRACTOR LEAVES FOR THE DAY. CONTRACTOR SHALL REMOVE PRIOR TO FINAL PAINT STRIPING.
- FINAL STRIPING SHALL BE INSTALLED WITHIN 72 HOURS OF COMPLETION OF MAINLINE WEAR COURSE PAVING.
- SOD PLACED BEHIND CURB IN CURB REPLACEMENT AREAS, DISTURBED AREAS AT CATCH BASIN REPAIRS, 101ST LN RTL AND ELM ST. RTL.
- CLEAR AND GRUB OPERATIONS TO BE COMPLETED IN ACCORDANCE WITH ALL CITY ORDINANCES RESTRICTING TREE REMOVAL.
- GUARDRAIL / END TREATMENT TO BE SALVAGED AND RE-INSTALLED AT CORRECT LOCATION AND HEIGHT AS PER MINDOT STANDARD PLANS. SEE SPECIAL PROVISIONS.
- BASE CLASS 5 USED IN NEW RTL CONSTRUCTION AT 101ST LN AND ELM ST, DRIVEWAYS, AND BASE MATERIAL UNDER BITUMINOUS TRAIL.
- NEW PG BINDER GRADE MSCR " PG 58S-28 " BASE COURSE
- NEW PG BINDER GRADE MSCR " PG 58H-34 " DRIVEWAYS AND BITUMINOUS TRAIL TO BE 2.5" BIT WEAR 3,C OVER 4" GRAVEL BASE CLASS 5.
- FOR TEMPORARY COVER ON EXPOSED SEED AREAS IF FINAL SEEDING HAS NOT TAKEN PLACE. APPLIED AT THE DISCRETION OF THE ENGINEER.
- 8" RC PIPE EXTENSION OF EXISTING CULVERT LNB NEW RTL FOR ELM ST.
- NEW RIGHT TURN LANE CONSTRUCTION, LSB AT 101ST LN. AND LNB AT ELM ST.
- TOTAL INCLUDES WHITE AND YELLOW EPOXY.
- YELLOW EPOXY.
- WHITE THERMOPLASTIC. INCLUDES ANY THERMOPLASTIC STOP BARS, GORE HATCHING, CROSS WALKS, LANE DESIGNATIONS ARROWS AND PAVEMENT MESSAGES.
- ALL DRAINAGE STRUCTURES EFFECTED BY THIS PROJECT MUST HAVE INLET PROTECTION.
- 4" TOPSOIL BORROW USED IN NEW RTL CONST. IN ADDITION TO EXISTING TOPSOIL ROLLED OUT TO CONSTRUCT NEW RIGHT TURN LANES AND SHOULDERS 45+25 - 54+41.
- MOBILIZATION FOR S.A.P. 002-012-013 SHALL BE UTILIZED FOR BOTH PROJECTS AND SHALL BE PAID UNDER PROJECT S.A.P. 002-012-013.

MNDOT STANDARD PLATES

PLATE NUMBER	DESCRIPTION
3000L	REINFORCED CONCRETE PIPE
3006G	GASKET JOINT FOR RC PIPE
3145G	CONCRETE PIPE OR PRECAST BOX CULVERT TIES
4026A	CONCRETE ENCASED CONCRETE ADJUSTING RINGS
4101D	RING CASTING FOR MANHOLE OR CATCH BASIN
4108F	ADJUSTING RINGS FOR CATCH BASINS AND MANHOLES
4110F	COVER CASTING FOR MANHOLE
4126F	CATCH BASIN FRAME CASTING
4134A	CURB BOX CASTING FOR CATCH BASIN (B CURBS)
4149C	GRATE CASTING FOR CATCH BASIN
7038A	DETECTABLE WARNING SURFACE
7100H	CONCRETE CURB AND GUTTER (DESIGN B & V)
8000J	CHANNELIZERS
9102E	TURF ESTABLISHMENT AREAS AT PIPE CULVERT AREAS
9350A	MAILBOX SUPPORT SWING-AWAY TYPE

NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\16-01-00\CR_53(35W-CR49)\Plan\2_5_53_SEWER TAB.dgn 04/08/2016 7:48:09 AM

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PRINT NAME: MATTHEW J. JOHN
SIGNATURE: *Matthew J. John*
DATE: 4/8/2016 LICENSE NO. 51639

DRAWN BY JCF DATE 03/11/2016
DESIGN BY JCF DATE 03/11/2016
CHECKED BY MJJ DATE 03/19/2016



ANOKA COUNTY
HIGHWAY DEPT.

COUNTY PROJECT 16-10-53

STATEMENT OF ESTIMATED QUANTITIES

Sheet 2 of 48 Sheets

ROADWAY TABULATIONS

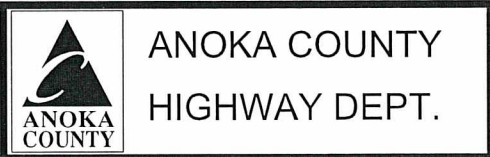
A

STR.#	DESCRIPTION	STATION	OFFSET	CLEARING	GRUBBING	REMOVE CONCRETE CURB	REMOVE BITUMINOUS PAVEMENT	SALVAGE GUARDRAIL	SAWING CONCRETE PAVEMENT	SAWING BITUMINOUS PAVEMENT	SALVAGE PIPE APRON	COMMON EXCAVATION	GRANULAR BORROW (CV)	BASE AGGREGATE CLASS 5 (CV)	SHLDR BASE AGGREGATE CLASS 5 (CV)	MILL BITUMINOUS SURFACE 3"	BIT MATERIAL FOR TACK COAT	TYPE SP 9.5 WEAR MIX MAINLINE (3, C)	TYPE SP 12.5 NON-WEAR MIX (3, B)	TYPE SP 9.5 WEAR MIX DRWAY/TRAIL (3, C)	TYPE SP 12.5 BIT MIX FOR PATCHING
				2101.502 TREE	2101.507 TREE	2104.501 LIN FT	2104.505 SQ YD	2104.521 LIN FT	2140.511 LIN FT	2104.513 LIN FT	2104.523 EACH	2105.501 CU YD	2105.521 CU YD	2211.503 CU YD	2221.501 CU YD	2232.501 SQ YD	2357.502 GALLON	2360.501 TON	2360.501 TON	2360.502 TON	2360.505 TON
	MILL / OVERLAY	0+80 - 45+40	MAINLINE													20062	2006	3461			50
103	MH SAN	1+58	-12.7				9			36							1				2
104	MH SAN	3+56	-11.8				9			36							1				2
105	MH STORM	3+71	-6.2				9			36											2
	101ST LN APPROACH	3+72	-60.0				132			116				22		6	2	23	23		
	101ST LN / NEW RTL	3+72 - 7+15	-22.4	2	2	360	14		2	94		130	61	41		6	4	44	44		
	DRIVEWAY #10130	5+46 - 5+85	-25.0				45		3	39				5		9	2			6	
106	MH STORM	5+88	-5.1				9			36							1				2
	DRIVEWAY #10136	6+09 - 6+32	-25.0				19			24				2		5	1			3	
107	MH SAN	6+80	-12.1				9			36											2
110	CASTING / CURB REPL.	8+14 - 8+24	-22.0			10	2		3	14											1
109	MH STORM	8+22	-6.1				9			36							1				2
111	MH SAN	10+04	-12.2				9			36											2
112	MH STORM	10+64	-6.1				9			36											2
	CURB REPLACEMENT	12+85 - 13+15	22.0			30	7		3	34											2
113	MH SAN	13+29	-12.1				9			36							1				2
	CURB REPLACEMENT	13+61 - 13+69	-22.0			8	2		3	12											1
114	MH STORM	13+62	-6.1				9			36											2
115	MH SAN	13+79	-12.2				9			36											2
	CURB REPLACEMENT	15+44 - 15+54	-22.0			10	2		3	14											1
117	MH SAN	16+81	-5.1				9			36							1				2
118	MH STORM	16+90	-12.3				9			36											2
120	MH STORM	19+81	-6.2				9			36											2
121	MH SAN	20+08	-12.4				9			36							1				2
123	MH STORM	23+01	-6.1				9			36							1				2
125	MH SAN	23+17	-13.4				9			36							1				2
127	MH SAN	25+55	-12.1				9			36											2
128	MH STORM	26+08	-6.3				9			36							1				2
	CURB REPLACEMENT	27+17 - 27+37	-22.0			20	4		3	24											2
130	MH SAN	28+33	-12.1				9			36											2
129	MH STORM	28+36	-16.4				9			36							1				2
131	MH STORM	28+47	-6.1				9			36							1				2
134	CASTING / CURB REPL.	31+86 - 32+02	-22.0			16	4		3	20											1
135	MH SAN	32+38	-15.3				9			36											2
138	MH SAN	36+33	-15.9				9			36											2
139	MH STORM	39+87	20.4				9			36											2
140	MH SAN	40+38	-12.6				9			36											2
142	MH SAN	44+45	-12.6				9			36											2
	BIT TRAIL & ADA	45+25 - 46+46	30.6				114							13						16	
	END MILL/BEG REMOVE	45+25	MAINLINE							41											
	REM AREA INC RTL	45+25 - 54+41	MAINLINE				2954										321	554	554		
	ELM RTL BASE CLS/TREES	45+25 - 48+34	25.0	2	2							263	335	90							
	LSB SHLDR	45+39 - 54+41	-16.0												67						
	DRIVEWAY #7148	46+58	45.0				27			26				3						4	
	INLET APRON	48+10	28.0								1										
	BIT TRAIL ADA	48+35	35.0				13			12											
	ELM ST. APPROACH	48+50	25.0				130			28				14		13	7	22	22		
	LNB SHLDR	48+78 - 54+41	17.0												11						
	GUARDRAIL	52+76 - 54+41	20.0					165													
	GUARDRAIL	52+82 - 54+41	-20.0					159													
147	CASTING / CURB REPL.	54+36	15.6			10			4												
147	CASTING / CURB REPL.	54+36	-14.4			10			4												
TOTALS				4	4	474	3712	324	31	1470	1	393	396	190	78	20101	2355	4104	643	29	112

NO	DATE	BY	CKD	APPR	REVISION
NAME: P:\16-01-00\CR_53(35W-CR49)\Plan2_5_53_SEWER TAB.dgn 04/06/2016 11:48:34 AM					

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 SIGNATURE: *Matthew J. John*
 DATE: 4/6/2016 LICENSE NO. 51639

DRAWN BY: JCF DATE 03/11/2016
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 CHECKED BY: MJJ DATE 03/16/2016




COUNTY PROJECT 16-10-53

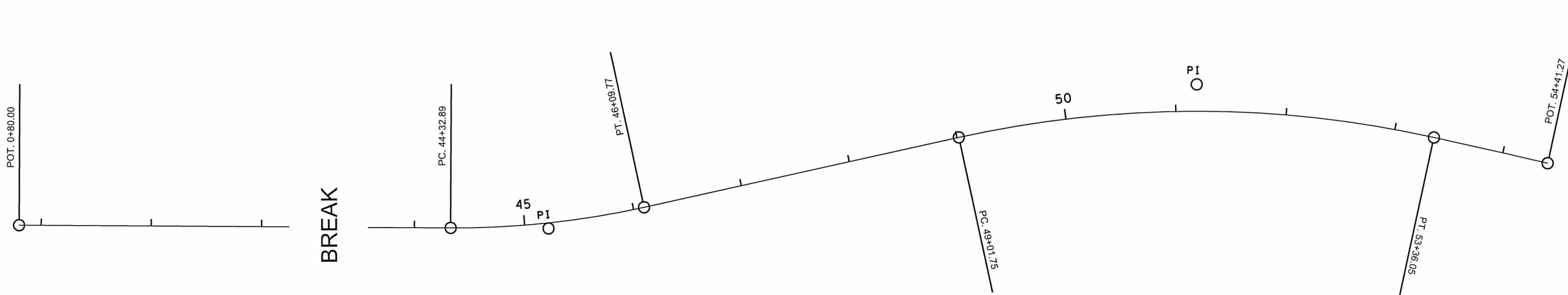
TABULATIONS
 Sheet 3 of 48 Sheets

ROADWAY TABULATIONS

B

STR.#	DESCRIPTION	STATION	OFFSET	INSTALL CONCRETE APRON	18" RC PIPE SEWER CLASS V	6" CONCRETE WALK	CONC. CURB AND GUTTER DESIGN B618	CONCRETE CURB DESIGN V	TRUNCATED DOMES	INSTALL GUARDRAIL	SILT FENCE TYPE MS	STORM DRAIN INLET PROTECTION	CULVERT END CONTROLS	FERTILIZER TYPE 3 [22-5-10]	COMMON TOPSOIL BORROW	SEEDING	SEED MIXTURE [25-141]	SODDING TYPE SALT TOLERANT	EROSION CONTROL BLANKET CAT 0	RAPID STABILIZATION METHOD 3	REMOVABLE PREFORMED PAVEMENT MARKING
				2501.573	2503.511	2521.501	2531.501	2531.603	2531.618	2554.603	2573.502	2573.502	2573.530	2573.560	2574.508	2574.525	2575.501	2575.502	2575.505	2575.523	2575.571
				EACH	LIN FT	SQ FT	LIN FT	LIN FT	SQ FT	LIN FT	LIN FT	EACH	EACH	LB	CU YD	ACRE	POUND	SQ YD	SQ YD	MGAL	LIN FT
	MILL / OVERLAY	0+80 - 45+25	MAINLINE																		533
	EX CB ON 101ST LN	3+43	-146									1									
	EX CB ON 101ST LN	3+71	-146									1									
	NEW RTL LSB @ 101ST	3+72 - 7+15	-22.4			290	382							18	25			229			
108	CB	8+19	22.0									1									
110	CASTING / CURB REPL.	8+14 - 8+24	-22.0				10					1						3			
	CURB REPLACEMENT	12+85 - 13+15	22.0				30											7			
	CURB REPLACEMENT	13+61 - 13+69	-22.0				8											2			
	CURB REPLACEMENT	15+44 - 15+54	-22.0				10											2			
116	CB	16+46	-22.0									1									
119	CB	17+25	22.0									1									
122	CB	22+81	-22.0									1									
124	CB	23+01	22.0									1									
126	CB	23+53	-22.0									1									
	CURB REPLACEMENT	27+17 - 27+37	-22.0				20											4			
132	CB	28+63	22.0									1									
133	CB	31+98	22.0									1									
134	CASTING / CURB REPL.	31+86 - 32+02	-22.0				16					1						4			
136	CB	33+82	-22.0									1									
137	CB	33+82	22.0									1									
	CB	44+25	22.0									1									
	CB	44+70	-22.0									1									
	BIT TRAIL & ADA	45+25 - 46+46	30.6			100		12	16												
	REMOVE BIT /OVERLAY	45+25 - 54+41	MAINLINE																		110
	NEW RTL LNB @ ELM ST	45+25 - 48+34	25.0				340							32	48			440			
	SHLDR LSB	45+39 - 52+85	-16.0							761				35	66	0.10	5.9		500	0.6	
	CULVERT HIGH APRON 145	48+05	36.0	1	8								1								
	BIT TRAIL ADA	48+35	35.0			100		14	24												
	N.E. RAD ELM ST	48+78 - 48+98	16.0				35														
	SHLDR LNB	48+78 - 52+78	17.0							405				21	41	0.06	3.5		269	0.4	
	EX CB ON ELM ST	50+33	119.0									1									
	EX CB ON ELM ST	50+35	90.0									1									
	EX CULVERT ON ELM ST	50+40	65.0										1.0								
	GUARDRAIL	52+76 - 54+41	20.0						165												
	GUARDRAIL	52+82 - 54+41	-20.0						159												
147	CASTING / CURB REPL.	54+36	15.6				10					1									
147	CASTING / CURB REPL.	54+36	-14.4				10					1									
TOTALS				1	8	490	871	26	40	324	1166	20	2	106	180	0.16	9.4	691	769	1.0	643

NO _____ DATE _____ BY _____ CKD _____ APPR _____ REVISION _____ NAME: P:\16-01-00\CR_53(35W-CR49)\Plan2_5_53_SEWER TAB.dgn 04/06/2016 11:48:37 AM					I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA. PRINT NAME: MATTHEW J. JOHN SIGNATURE: <i>Matthew J. John</i> DATE: 4/6/2016 LICENSE NO. 51639			DRAWN BY: JCF DATE 03/11/2016 DESIGN BY: JCF DATE 03/11/2016 CHECKED BY: MJJ DATE 03/16/2016			 ANOKA COUNTY HIGHWAY DEPT.		COUNTY PROJECT <u>16-10-53</u>		TABULATIONS Sheet <u>4</u> of <u>48</u> Sheets	
---	--	--	--	--	---	--	--	--	--	--	---	--	--------------------------------	--	---	--



ALIGNMENT TABULATION											
POINT NUMBER	POINT	ALIGNMENT	CIRCULAR CURVE DATA					COORDINATES		AZIMUTH	
			DELTA	DEGREE	RADIUS	TANGENT	LENGTH	E	N		
Q SOUTH CR 53 < 53_S2 >											
41000	POT	0+80.000							531,921.5789	142,975.7118	
	PC	44+32.893							531,949.9831	147,328.5117	N 0° 22' 25.96" E
53_S2-1	PI	45+21.695	12° 40' 05.25" LT	7° 09' 43.10"	800.000'	88.802'	176.880'	531,950.5626	147,417.3120	PI	
	CC							531,150.0001	147,333.7320		
	PT	46+09.773						531,931.6537	147,504.0778	N 12° 17' 39.29" W	
	PC	49+01.750						531,869.4823	147,789.3593	N 12° 17' 39.29" W	
53_S2-2	PI	51+22.377	24° 52' 59.78" RT	5° 43' 46.48"	1,000.000'	220.626'	434.295'	531,822.5038	148,004.9259	PI	
	CC							532,846.5492	148,002.2916		
	PT	53+36.045						531,870.5907	148,220.2479	N 12° 35' 20.49" E	
41001	POT	54+41.270						531,893.5249	148,322.9423		

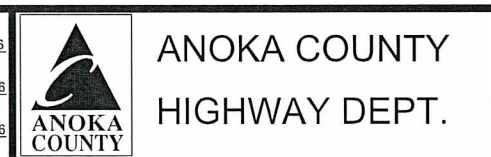
NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\16-01-00\CR_53(35W-CR49)\Plan\6_53_ALI.dgn 04/06/2016 11:48:39 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.

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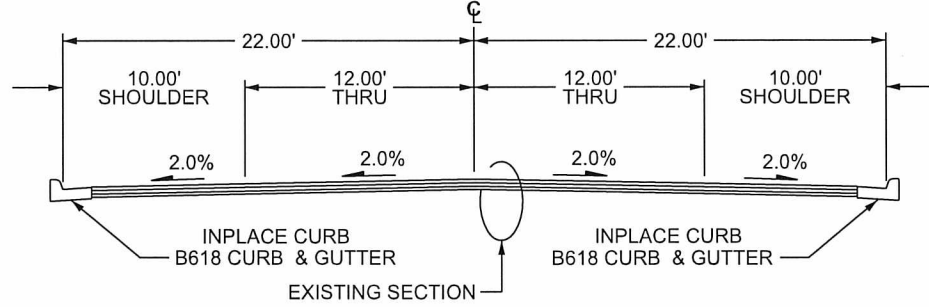
DRAWN BY JCF DATE 03/11/2016
 DESIGN BY JCF DATE 03/11/2016
 CHECKED BY MJJ DATE 03/16/2016



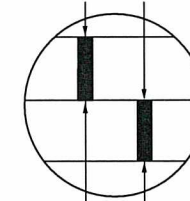
ANOKA COUNTY
 HIGHWAY DEPT.
 COUNTY PROJECT 16-10-53

ALIGNMENT
 STA 00+80.00 TO 54+41.27
 Sheet 6 of 48 Sheets

EXISTING SUNSET CR 53
MILL / OVERLAY SECTION STA. 00+80 - 45+25

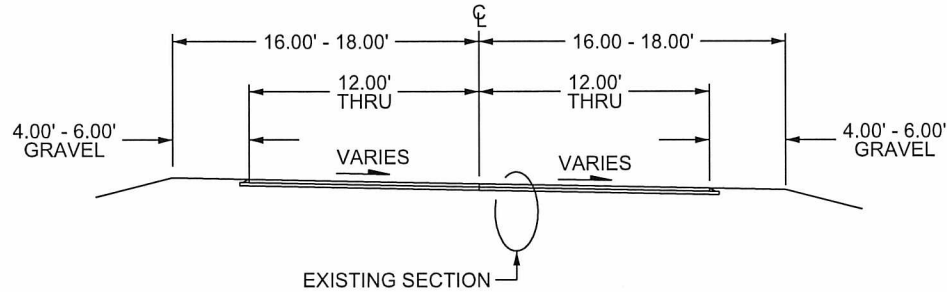


EXISTING SECTION



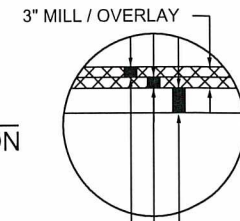
6.0" - 7.0" EXISTING BITUMINOUS
5" EXISTING AGGREGATE BASE

EXISTING SUNSET CR 53
BITUMINOUS REMOVAL / OVERLAY SECTION STA. 45+25 - 54+41



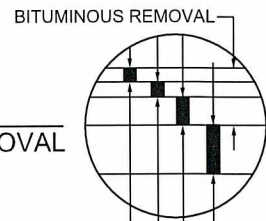
EXISTING SECTION

DESIGN "M"
3" MILL SECTION



1.5" BITUMINOUS WEAR (SPWEA340C)
1.5" BITUMINOUS WEAR (SPWEA340C)
3.0" REMAINING BITUMINOUS

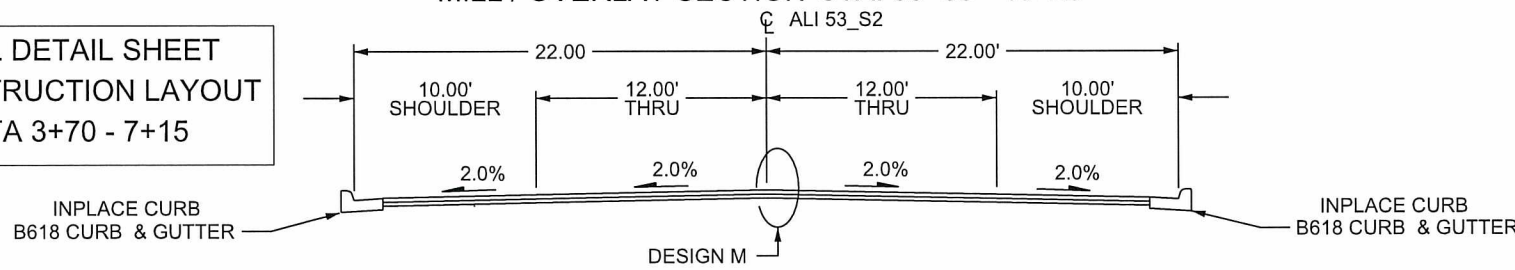
DESIGN "R"
BITUMINOUS REMOVAL SECTION



1.5" BITUMINOUS WEAR (SPWEA340C)
1.5" BITUMINOUS WEAR (SPWEA340C)
3.0" BITUMINOUS NON-WEAR (SPNWB330B)
5.0" EXISTING INPLACE CLASS 5 BASE

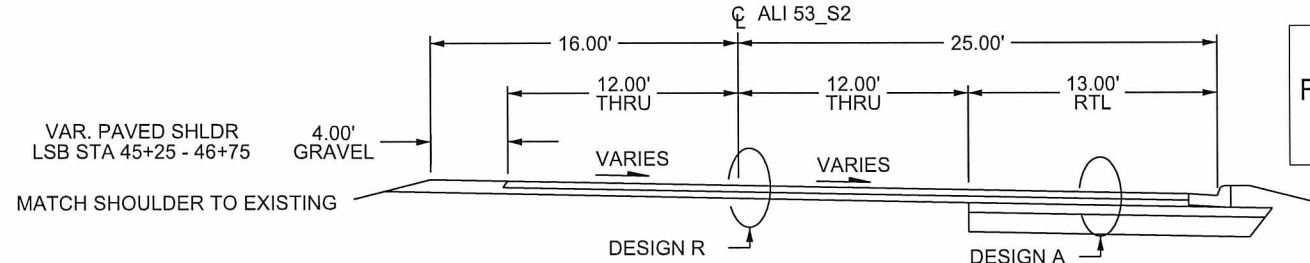
PROPOSED SUNSET CR 53
MILL / OVERLAY SECTION STA. 00+80 - 45+25

SEE "RTL DETAIL SHEET
FOR CONSTRUCTION LAYOUT
LSB STA 3+70 - 7+15



DESIGN M

PROPOSED SUNSET CR 53
BITUMINOUS REMOVAL / OVERLAY SECTION STA. 45+25 - 48+15

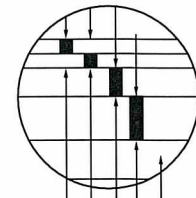


DESIGN R

DESIGN A

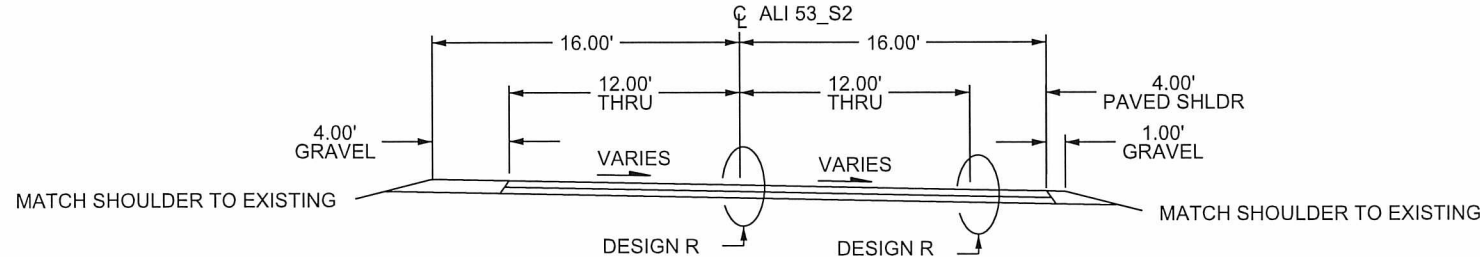
SEE "RTL DETAIL SHEET
FOR CONSTRUCTION LAYOUT
LNB STA 45+25 - 48+15

DESIGN "A"
RIGHT TURN LANE SECTION



1.5" BITUMINOUS WEAR (SPWEA340C)
1.5" BITUMINOUS WEAR (SPWEA340C)
3.0" BITUMINOUS NON-WEAR (SPNWB330B)
5.0" CLASS 5 BASE
1.0' - 1.5' SUBCUT / GRANULAR BORROW
(SEE RTL COMPS)

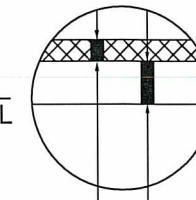
PROPOSED SUNSET CR 53
BITUMINOUS REMOVAL / OVERLAY SECTION STA. 48+15 - 54+41



DESIGN R

DESIGN R

DESIGN "T"
BITUMINOUS TRAIL
& DRIVEWAYS

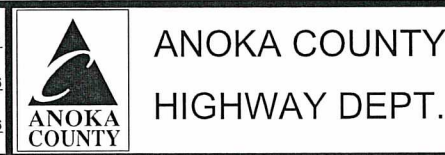


2.5" BITUMINOUS WEAR 9.5 (SPWEA340C)
4.0" BASE CLASS-5

NO	DATE	BY	CKD	APPR	REVISION

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DRAWN BY: JCF DATE: 03/11/2016
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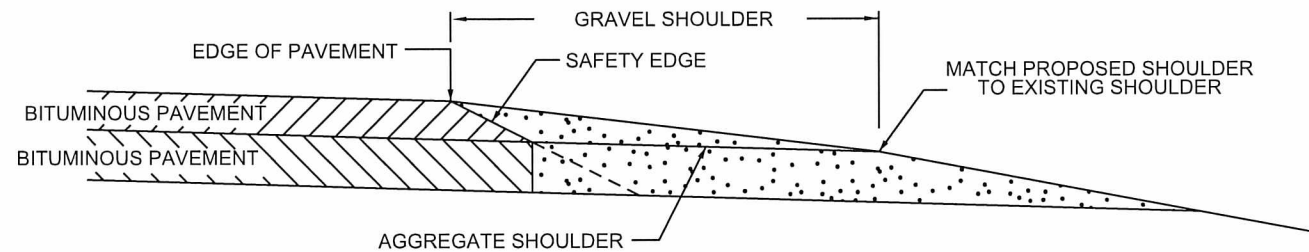


COUNTY PROJECT 16-10-53

TYPICALS
Sheet 7 of 48 Sheets

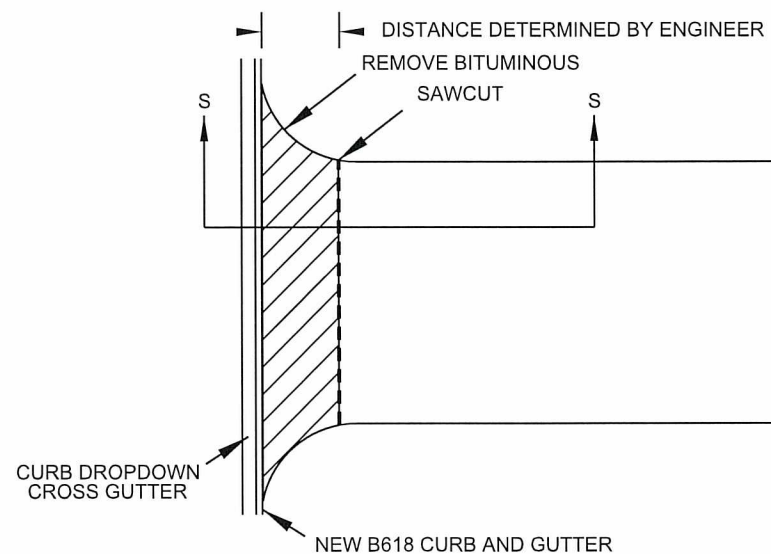
SHOULDER DETAIL

BITUMINOUS SAFETY EDGE
GRAVEL SHOULDER



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

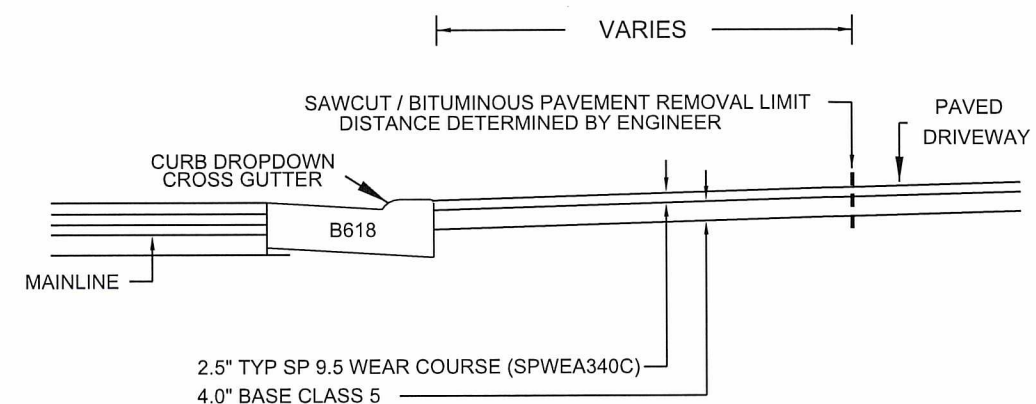
PLAN VIEW



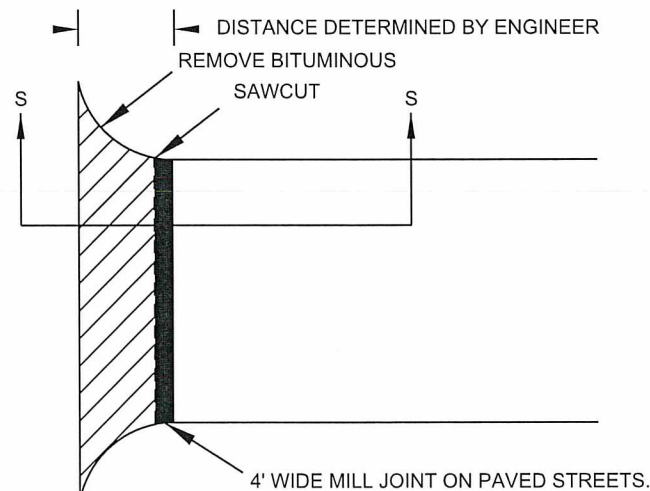
BITUMINOUS DRIVEWAY DETAIL

ADDRESS #10130, #10136 & #7148

SECTION S - S



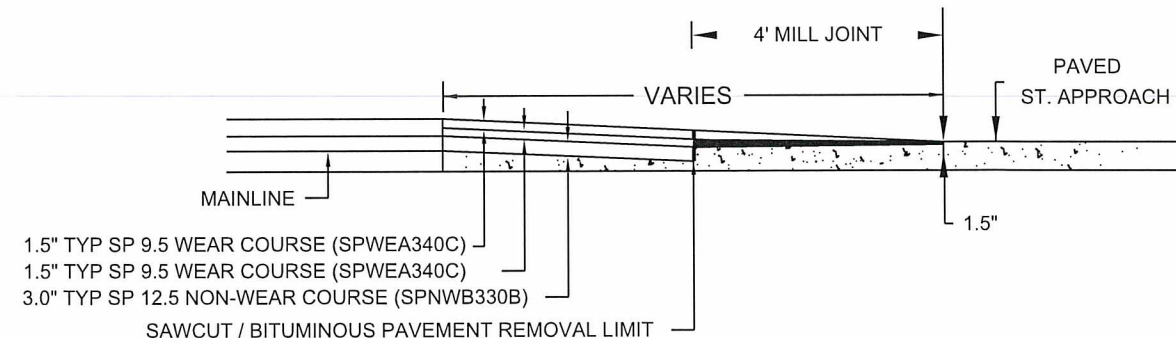
PLAN VIEW



101ST LN & ELM STREET APPROACH DETAIL

BITUMINOUS STREET

SECTION S - S



NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\16-01-00\CR_53(35W-CR49)\Plan\8_9_53_DETAILS.dgn 04/06/2016 11:48:43 AM

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CHECKED BY MJJ DATE 03/16/2016



ANOKA COUNTY
HIGHWAY DEPT.

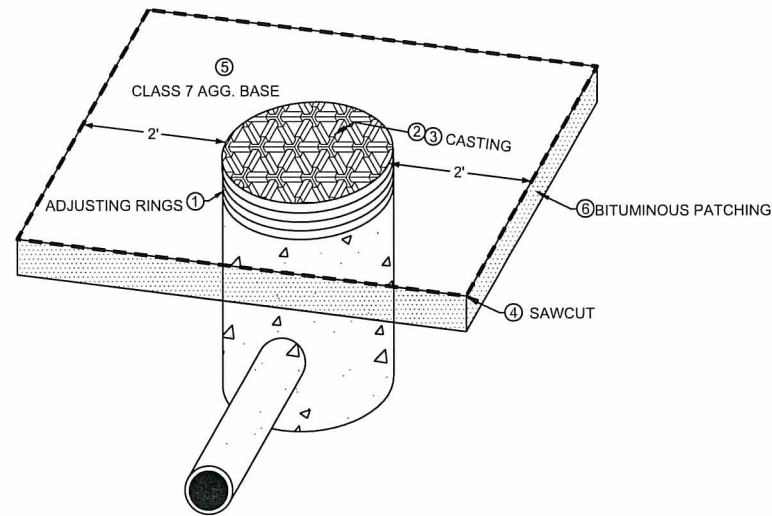
COUNTY PROJECT 16-10-53

DETAILS / ROAD CORES

Sheet 8 of 48 Sheets

MANHOLE DETAIL

SEE STORM / SANITARY TAB FOR LOCATION



NOTES

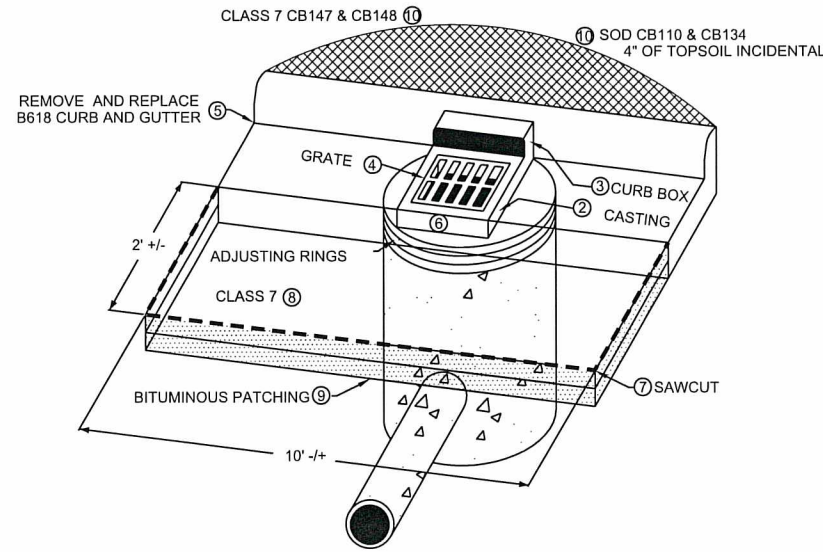
FOR TRAFFIC CONTROL AT CATCH BASIN AND MANHOLE REPAIRS REFER TO LSB RAISED IRON STAGE PLANS AND THE MANUAL ON TEMPORARY TRAFFIC CONTROL LAYOUTS FIELD MANUAL.

* ALL STORM AND SANITARY REPAIRS SHALL BE COMPLETED PRIOR TO PAVING WEAR. *

- ① CONCRETE ENCASED CONCRETE ADJUSTING RINGS STANDARD PLATE 4026A
- ② RING AND FRAME CASTING; REFERENCE CASTING ASSEMBLIES SUMMARY CHART FOR CASTING TYPE
- ③ INSTALLATION OF CATCH BASIN OR MANHOLE CASTINGS; REFERENCE STANDARD PLATE PER TYPE OF CASTING
- ④ SAWCUT BITUMINOUS PAVEMENT / CONCRETE CURB FULL DEPTH.
- ⑤ ADD AND COMPACT AGGREGATE BASE CLASS 7 AROUND REPAIRED STRUCTURE. ITEM INCIDENTAL TO BITUMINOUS PATCHING ITEM 2360.505
- ⑥ REMOVE VARIABLE DEPTH BITUMINOUS, PATCH WITH 3" OF BITUMINOUS PATCHING TO PROPOSED MILLED SURFACE.

CATCH BASIN DETAIL

CB147 & CB148, CB110 & CB134



NOTES

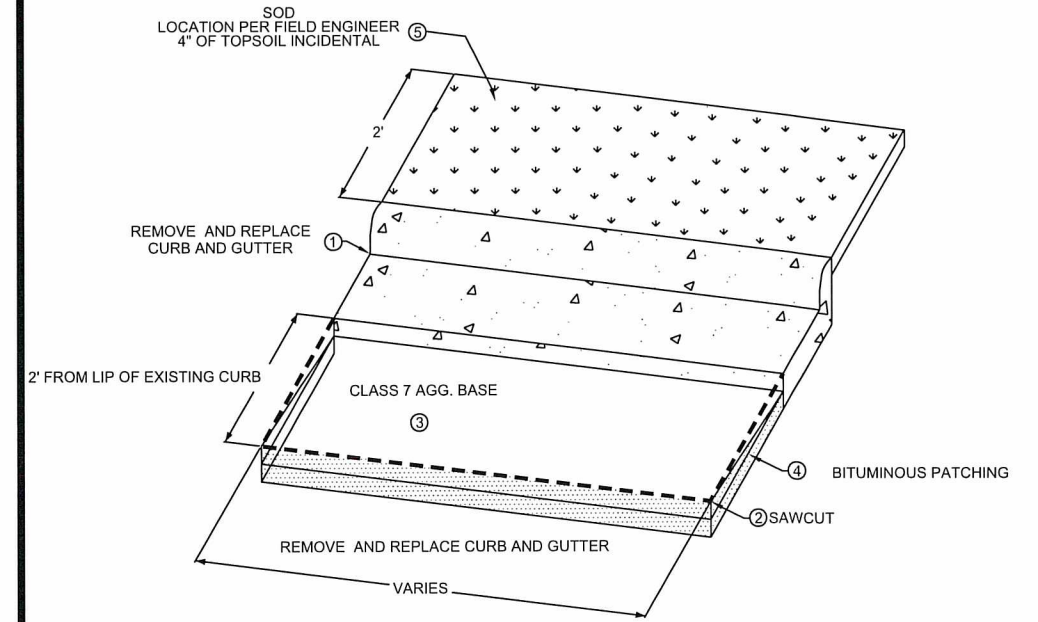
FOR TRAFFIC CONTROL AT CATCH BASIN AND MANHOLE REPAIRS REFER TO LSB RAISED IRON STAGE PLANS AND THE MANUAL ON TEMPORARY TRAFFIC CONTROL LAYOUTS FIELD MANUAL.

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- ① CONCRETE ENCASED CONCRETE ADJUSTING RINGS STANDARD PLATE 4026A
- ② RING AND FRAME CASTING; REFERENCE CASTING ASSEMBLIES SUMMARY CHART FOR CASTING TYPE
- ③ CURB BOX MATCHES CASTING REFERENCE CHART FOR CASTING TYPE
- ④ GRATE CASTING; REFERENCE CASTING ASSEMBLIES SUMMARY CHART FOR CASTING TYPE
- ⑤ CONCRETE CURB AND GUTTER DESIGN B STANDARD PLATE 7100G, FORM CURB TO FIT CASTING
- ⑥ INSTALLATION OF CATCH BASIN OR MANHOLE CASTINGS; REFERENCE STANDARD PLATE PER TYPE OF CASTING
- ⑦ SAWCUT BITUMINOUS PAVEMENT / CONCRETE CURB FULL DEPTH.
- ⑧ ADD AND COMPACT AGGREGATE BASE CLASS 7 AROUND REPAIRED STRUCTURE. ITEM INCIDENTAL TO BITUMINOUS PATCHING TO ITEM 2360.505.
- ⑨ REMOVE VARIABLE DEPTH BITUMINOUS, PATCH WITH 3" OF BITUMINOUS PATCHING TO PROPOSED MILLED SURFACE. (MILLED AREA ONLY)
- ⑩ REPLACE DISTURBED AREA BEHIND CATCH BASIN UNDER GUARDRAIL WITH BASE CLASS 7, ITEM INCIDENTAL TO ENTIRE STRUCTURE REPAIR.

NEW CURB DETAIL

SEE PLAN FOR LOCATION



NOTES

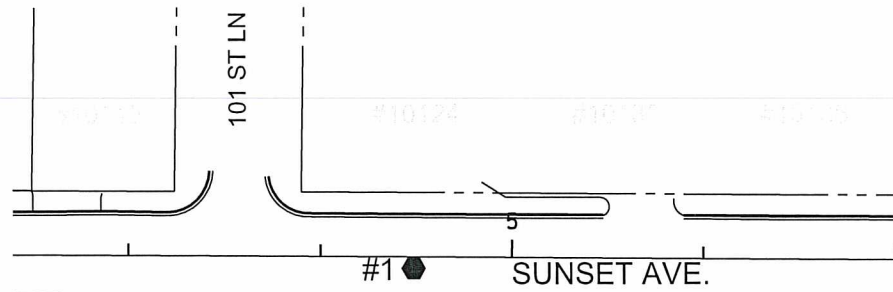
FOR TRAFFIC CONTROL AT CURB REPAIRS REFER TO THE MINNESOTA MANUAL ON TEMPORARY TRAFFIC CONTROL LAYOUTS FIELD MANUAL.

* ALL STORM AND SANITARY REPAIRS SHALL BE COMPLETED PRIOR TO PAVING WEAR. *

- ① CONCRETE CURB AND GUTTER DESIGN B STANDARD PLATE 7100G, FORM CURB TO FIT CASTING
- ② SAWCUT BITUMINOUS PAVEMENT / CONCRETE CURB FULL DEPTH.
- ③ ADD AND COMPACT AGGREGATE BASE CLASS 7 AROUND REPAIRED STRUCTURE. ITEM INCIDENTAL TO BITUMINOUS PATCHING ITEM 2360.505.
- ④ REMOVE VARIABLE DEPTH BITUMINOUS, PATCH WITH 3" OF BITUMINOUS PATCHING TO PROPOSED MILLED SURFACE.
- ⑤ REPLACE DISTURBED AREA BEHIND CATCH BASIN WITH SOD (RESIDENTIAL AREAS).

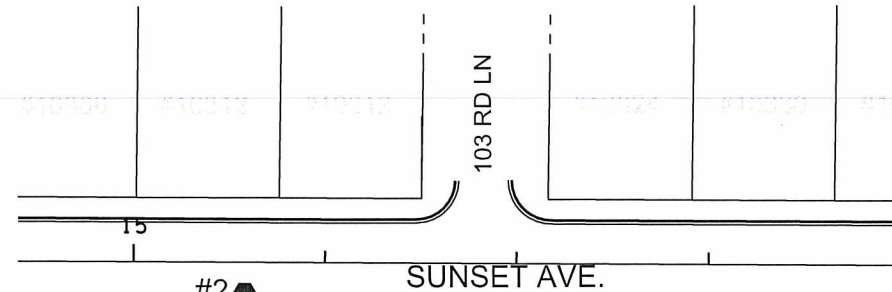
ROAD CORE #1

● 90' N. OF 101ST LN INSIDE FOG LINE, THRU LANE.
BIT. 6.25"
AGG. BASE 5.00"



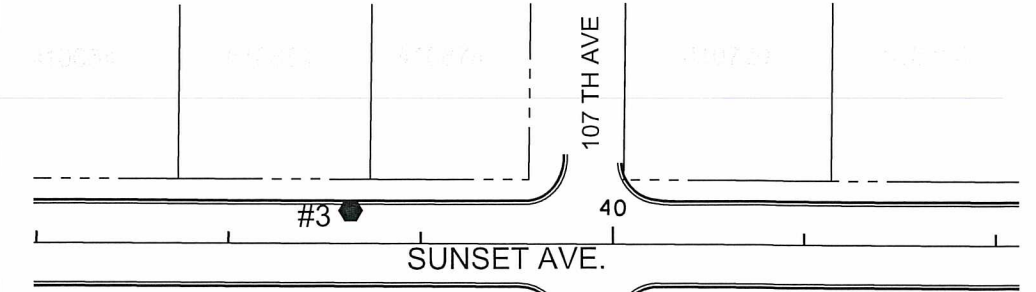
ROAD CORE #2

● LNB SHOULDER 125' S. OF 103RD LN.
BIT. 7.00"
AGG. BASE 5.00"



ROAD CORE #3

● LSB SHOULDER 125' S. OF 107TH AVE
BIT. 7.25"
AGG. BASE 5.00"



NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\16-01-00\CR_53(35W-CR49)\Plan8_9_53_DETAILS.dgn 04/06/2016 11:48:44 AM

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DATE: 4/6/2016 LICENSE NO. 51639

DRAWN BY: JCF DATE: 03/11/2016
DESIGN BY: JCF DATE: 03/11/2016
CHECKED BY: MJJ DATE: 03/16/2016

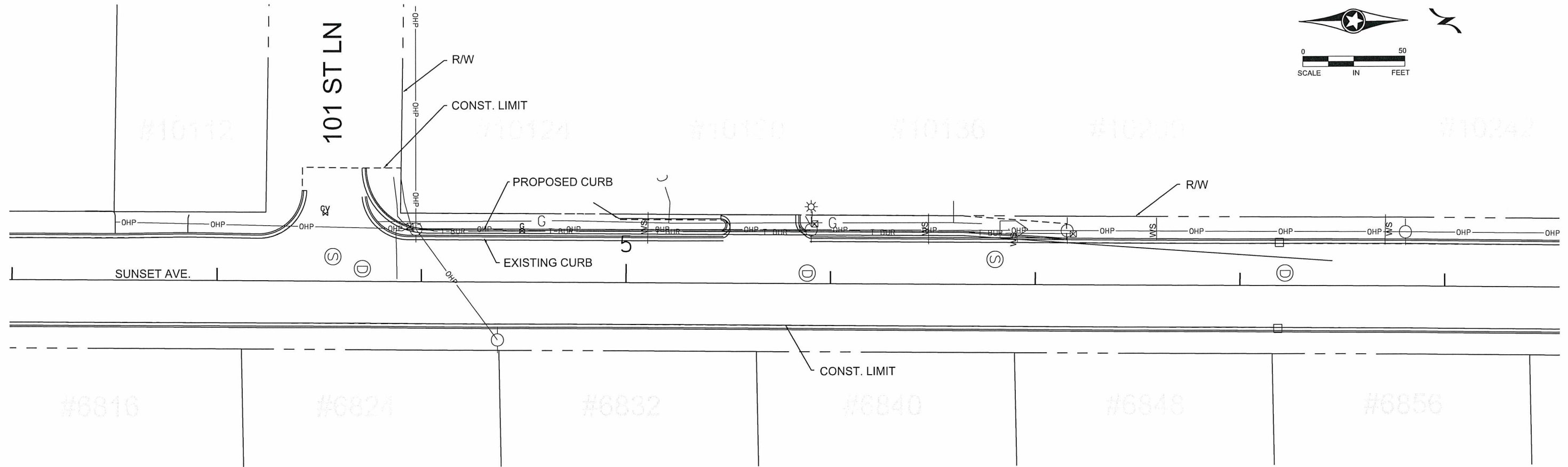
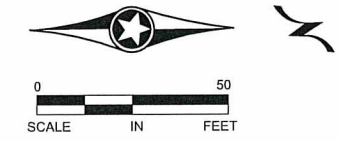


**ANOKA COUNTY
HIGHWAY DEPT.**

COUNTY PROJECT 16-10-53

DETAILS / ROAD CORES

Sheet 9 of 48 Sheets



-OHP-OHP-	XCEL ENERGY OHP	LEGEND - - - - - EXISTING R/W - - - - - CONSTRUCTION LIMITS ->->-> EXISTING CROSS CULVERT -WS- WATER SERVICE	⊙ ⊛	POWER POLE / LIGHT POLE
-G-	CENTERPOINT ENERGY		⊠	SPLICE BOX TV / TEL
-T-BUR-	COMCAST ZAYO BANDWIDTH CENTURYLINK ZAYO BANDWIDTH		⊗ ⊙ ⊕	GATE VALVE / GAS VALVE / HYD
			⊙ ⊕	SAN MH / STORM MH

CODE	COMPANY NAME	UTILITY TYPE	PHONE
CBLAIN01	CITY OF BLAINE		(763)785-6165
CCRPNS01	CITY OF CIRCLE PINES	G,S,W	(763)784-5898
CENISD01	CENTENNIAL SCHOOLS	TEL	(320)963-2400
CLNOLK01	CITY OF LINO LAKES	S,W	(651)982-2400
COMCST01	COMCAST - COMCST01	TV	(612)522-8141
CTLMN01	CENTURYLINK CTLQL	TEL	(855)742-6062
MINGAS03	CENTER POINT ENERGY - MINGAS0	G	(800)778-9140
EANOCA01	CONNEXUS ENERGY	E	(763)323-4215
METWAS01	METRO WASTE COMMISSION	S	(651)602-4511
MNSDOT01	DEPARTMENT OF TRANSPORTATION	E,FO,S	(651)366-5750
WILPIP01	MEGELLAN MIDSTREAM PARTNERS	G,O	(918)574-7098
WLMTCM01	LEVEL 3 COMMUNICATIONS	FO	(877)366-8344
XCEL03	XCEL ENERGY		(651)229-2427
ZAYO01	ZAYO BANDWIDTH	FO	(888)267-1063

* NOTE - THESE UTILITIES ARE LISTED TO BE NEAR THE AREA OF WHERE CONSTRUCTION IS TO TAKE PLACE. GSOC WAS USED FOR LOCATES. ANOKA COUNTY SURVEYED THE INPLACE UTILITIES. SOME LISTED MAY BE CLEAR. CONTRACTOR TO CONTACT GSOC, ATTAIN LOCATES AND VERIFY ALL UTILITIES PRIOR TO ANY CONSTRUCTION ACTIVITY.

NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\16-01-00\CR_53(35W-CR49)\Plan\10_EX UTIL DETAIL RTL.dgn 04/06/2016 11:48:47 AM

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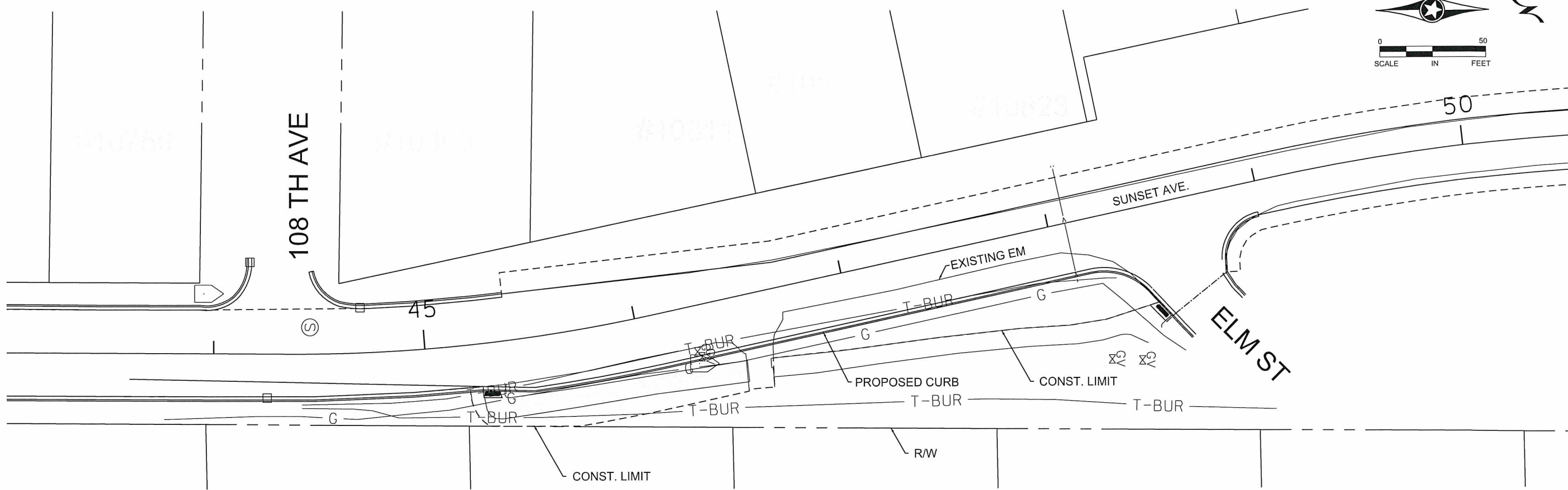
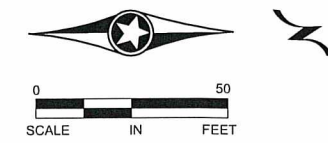
DRAWN BY JCF DATE 03/11/2016
 DESIGN BY JCF DATE 03/11/2016
 CHECKED BY MJJ DATE 03/16/2016



ANOKA COUNTY
HIGHWAY DEPT.

COUNTY PROJECT 16-10-53

EXISTING UTILITIES
RTL LSB @ 101ST LN
STA 2+00.00 TO 9+50.00
Sheet 10 of 48 Sheets

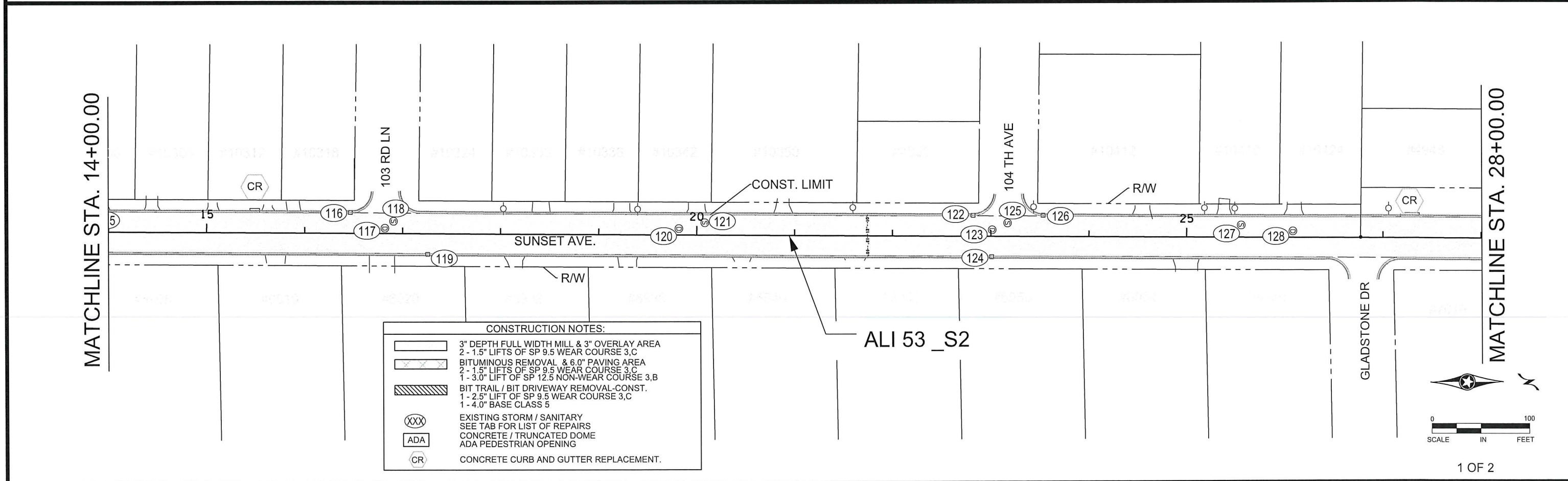
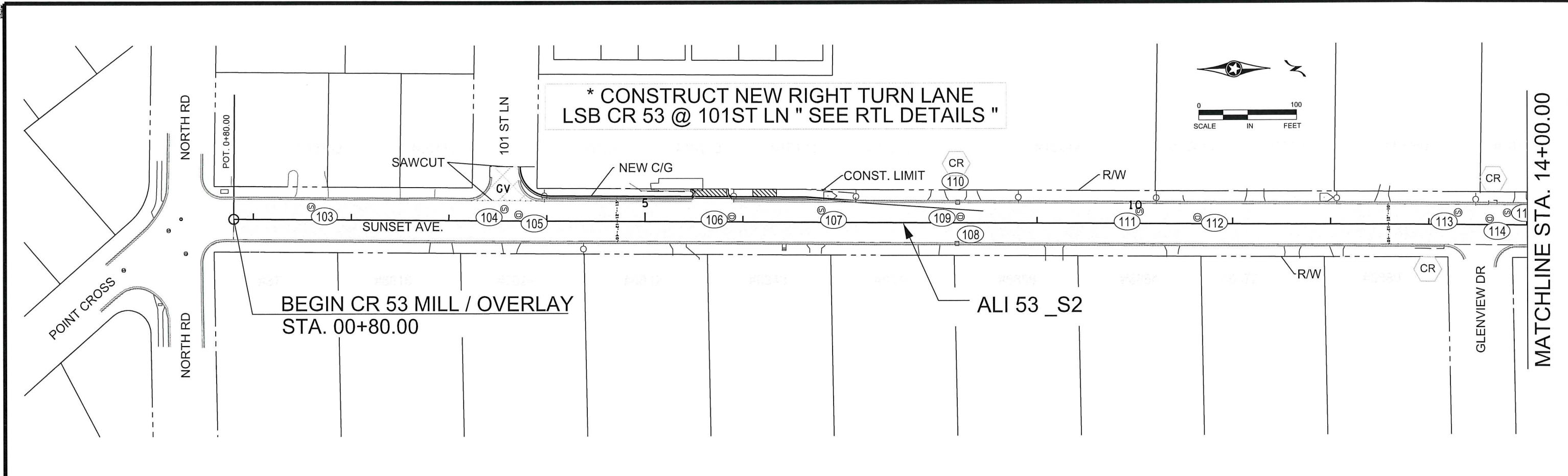


-OHP	XCEL ENERGY OHP	LEGEND - - - - - EXISTING R/W - - - - - CONSTRUCTION LIMITS ->->->- EXISTING CROSS CULVERT -ws- WATER SERVICE	⊙ ⊛	POWER POLE / LIGHT POLE
-G-	CENTERPOINT ENERGY		⊠	SPLICE BOX TV / TEL
-T-BUR-	COMCAST ZAYO BANDWIDTH CENTURYLINK ZAYO BANDWIDTH		⊗ ⊗	GATE VALVE / GAS VALVE / HYD
			Ⓢ Ⓣ	SAN MH / STORM MH

CODE	COMPANY NAME	UTILITY TYPE	PHONE
CBLAIN01	CITY OF BLAINE		(763)785-6165
CCRPNS01	CITY OF CIRCLE PINES	G,S,W	(763)784-5898
CENISD01	CENTENNIAL SCHOOLS	TEL	(320)963-2400
CLNOLK01	CITY OF LINO LAKES	S,W	(651)982-2400
COMCST01	COMCAST - COMCST01	TV	(612)522-8141
CTLMN01	CENTURYLINK CTLQL	TEL	(855)742-6062
MINGAS03	CENTER POINT ENERGY - MINGAS0	G	(800)778-9140
EANOKA01	CONNEXUS ENERGY	E	(763)323-4215
METWAS01	METRO WASTE COMMISSION	S	(651)602-4511
MNSDOT01	DEPARTMENT OF TRANSPORTATION	E,FO,S	(651)366-5750
WILPIP01	MEGELLAN MIDSTREAM PARTNERS	G,O	(918)574-7098
WLMTCM01	LEVEL 3 COMMUNICATIONS	FO	(877)366-8344
XCEL03	XCEL ENERGY		(651)229-2427
ZAYO01	ZAYO BANDWIDTH	FO	(888)267-1063

* NOTE - THESE UTILITIES ARE LISTED TO BE NEAR THE AREA OF WHERE CONSTRUCTION IS TO TAKE PLACE. GSOC WAS USED FOR LOCATES. ANOKA COUNTY SURVEYED THE INPLACE UTILITIES. SOME LISTED MAY BE CLEAR. CONTRACTOR TO CONTACT GSOC, ATTAIN LOCATES AND VERIFY ALL UTILITIES PRIOR TO ANY CONSTRUCTION ACTIVITY.

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: MATTHEW J. JOHN SIGNATURE: <i>Matthew J. John</i> DATE: 4/6/2016 LICENSE NO. 51639					DRAWN BY: JCF DATE 03/11/2016 DESIGN BY: JCF DATE 03/11/2016 CHECKED BY: MJJ DATE 03/16/2016	ANOKA COUNTY HIGHWAY DEPT.	COUNTY PROJECT 16-10-53	EXISTING UTILITIES RTL LNB @ ELM ST STA 43+00.00 TO 50+50.00 Sheet 11 of 48 Sheets	
NO	DATE	BY	CKD	APPR	REVISION				
NAME: P:\16-01-00\CR_53(35W-CR49)\Plan11 EX UTIL DETAIL RTL_2.dgn 04/06/2016 11:48:49 AM									



CONSTRUCTION NOTES:

	3" DEPTH FULL WIDTH MILL & 3" OVERLAY AREA
	2 - 1.5" LIFTS OF SP 9.5 WEAR COURSE 3,C
	BITUMINOUS REMOVAL & 6.0" PAVING AREA
	2 - 1.5" LIFTS OF SP 9.5 WEAR COURSE 3,C
	1 - 3.0" LIFT OF SP 12.5 NON-WEAR COURSE 3,B
	BIT TRAIL / BIT DRIVEWAY REMOVAL-CONST.
	1 - 2.5" LIFT OF SP 9.5 WEAR COURSE 3,C
	1 - 4.0" BASE CLASS 5
	EXISTING STORM / SANITARY
	SEE TAB FOR LIST OF REPAIRS
	CONCRETE / TRUNCATED DOME
	ADA PEDESTRIAN OPENING
	CONCRETE CURB AND GUTTER REPLACEMENT.

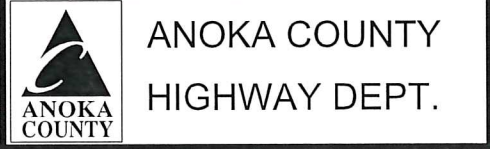
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I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

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DRAWN BY: JCF DATE 03/11/2016
 DESIGN BY: JCF DATE 03/11/2016
 CHECKED BY: MJJ DATE 03/16/2016

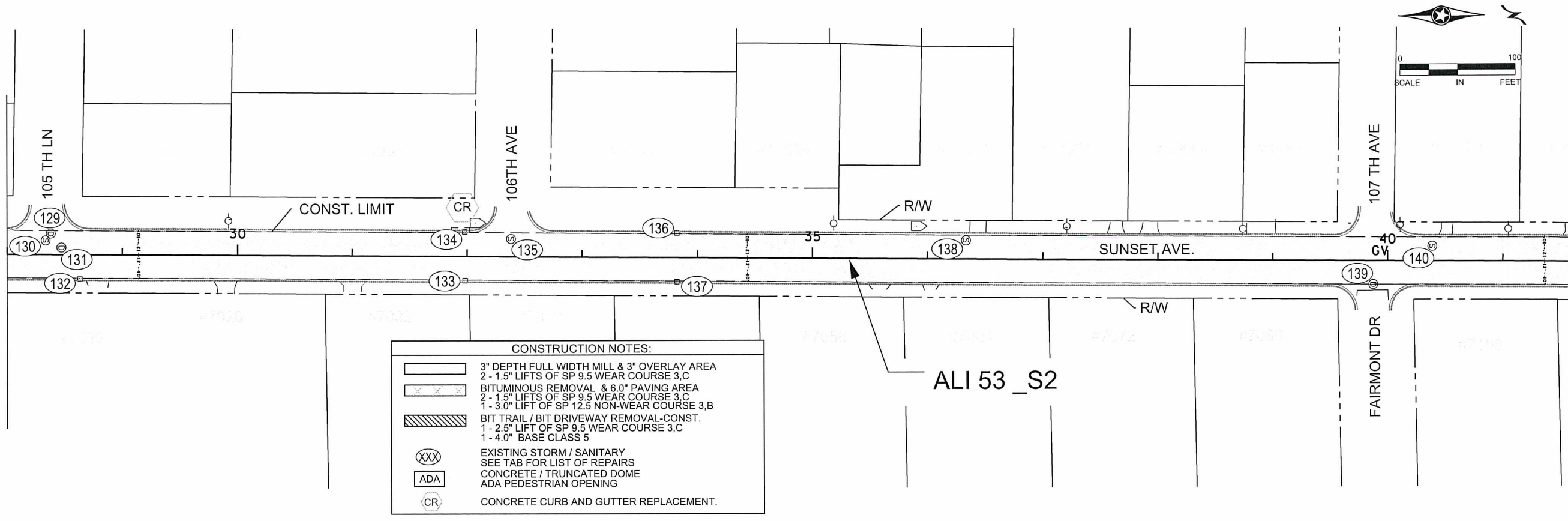


COUNTY PROJECT 16-10-53

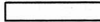

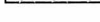










CONSTRUCTION PLAN
 STA 00+80.00 TO 28+00.00
 Sheet 12 of 48 Sheets

MATCHLINE STA. 28+00.00

MATCHLINE STA. 42+00.00



CONSTRUCTION NOTES:

-  3" DEPTH FULL WIDTH MILL & 3" OVERLAY AREA
-  2 - 1.5" LIFTS OF SP 9.5 WEAR COURSE 3,C
-  BITUMINOUS REMOVAL & 6.0" PAVING AREA
-  2 - 1.5" LIFTS OF SP 9.5 WEAR COURSE 3,C
-  1 - 3.0" LIFT OF SP 12.5 NON-WEAR COURSE 3,B
-  BIT TRAIL / BIT DRIVEWAY REMOVE-CONST.
-  1 - 2.5" LIFT OF SP 9.5 WEAR COURSE 3,C
-  1 - 4.0" BASE CLASS 5
-  EXISTING STORM / SANITARY
-  SEE TAB FOR LIST OF REPAIRS
-  CONCRETE / TRUNCATED DOME
-  ADA PEDESTRIAN OPENING
-  CONCRETE CURB AND GUTTER REPLACEMENT.

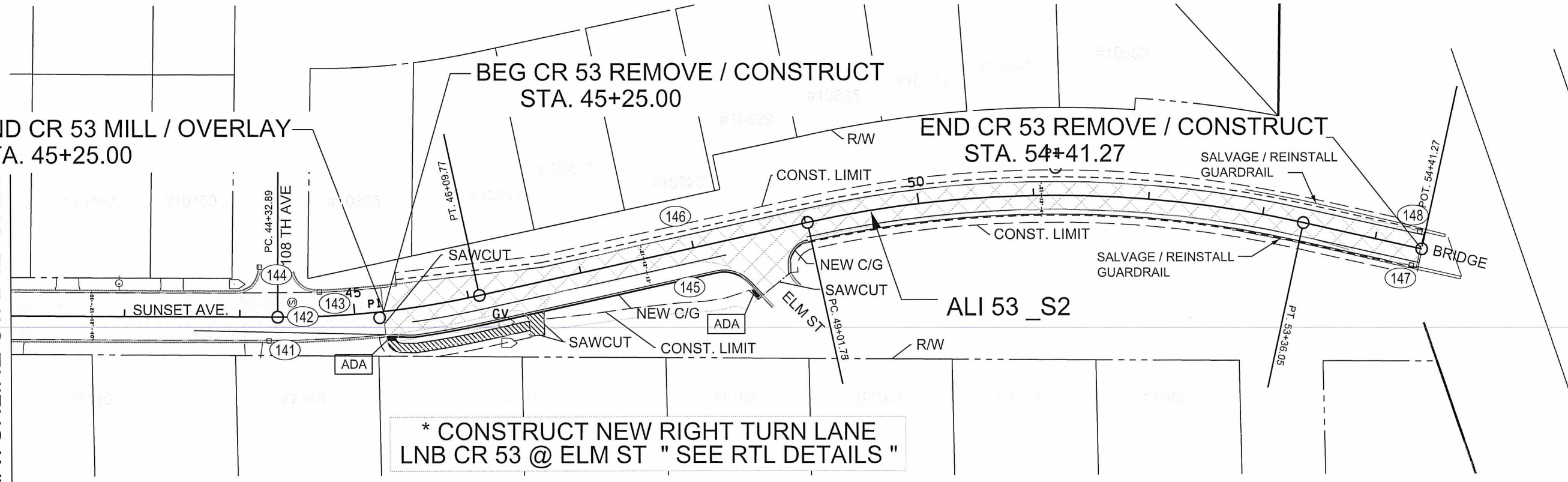
ALI 53_S2

END CR 53 MILL / OVERLAY
STA. 45+25.00

BEG CR 53 REMOVE / CONSTRUCT
STA. 45+25.00

END CR 53 REMOVE / CONSTRUCT
STA. 54+41.27

MATCHLINE STA. 42+00.00



* CONSTRUCT NEW RIGHT TURN LANE
LNB CR 53 @ ELM ST " SEE RTL DETAILS "

NO	DATE	BY	CKD	APPR	REVISION


NAME: P:\16-01-00\CR_53(35W-CR49)\Plan\13_53_PLAN_2.dgn 04/06/2016 11:48:52 AM

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

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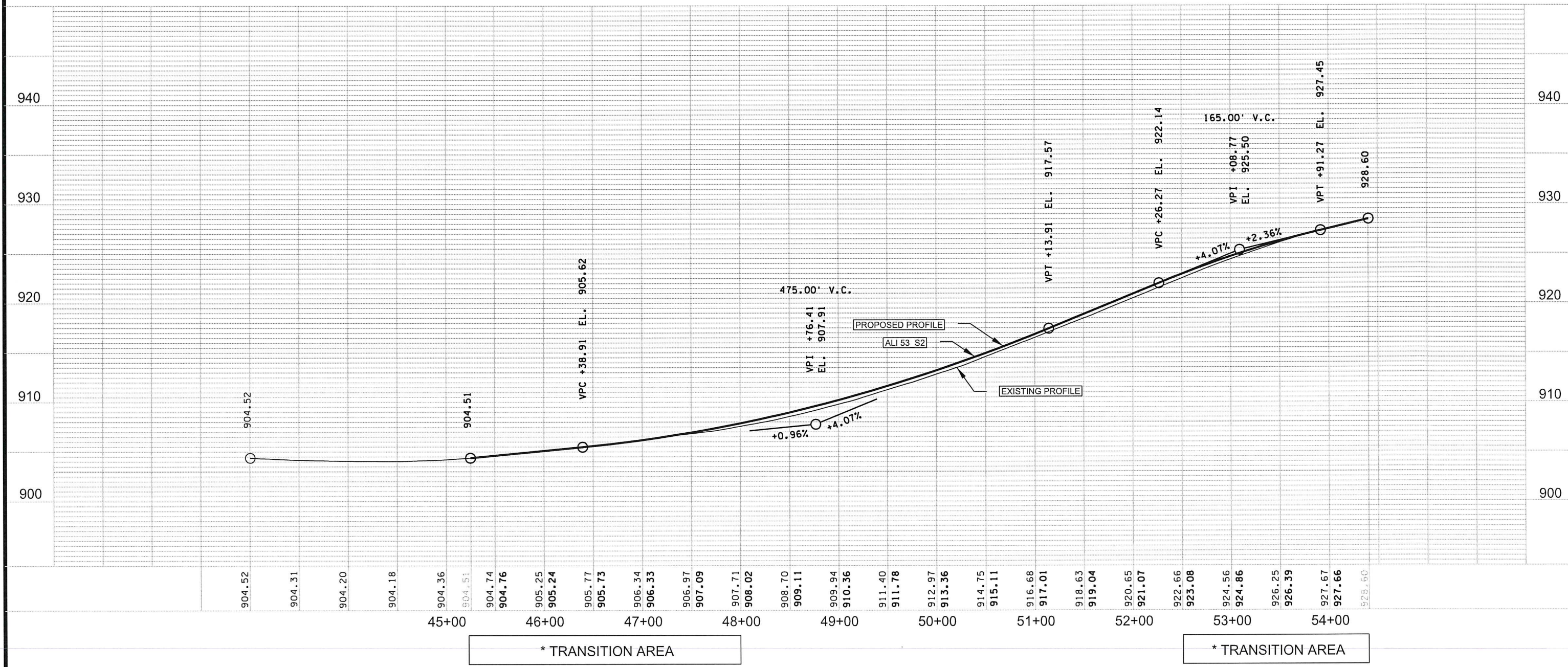
DRAWN BY: JCF DATE: 03/11/2016
 DESIGN BY: JCF DATE: 03/11/2016
 CHECKED BY: MJJ DATE: 03/16/2016

ANOKA COUNTY
HIGHWAY DEPT.



COUNTY PROJECT 16-10-53

CONSTRUCTION PLAN
 STA 28+00.00 TO 54+41.27
 Sheet 13 of 48 Sheets



* TRANSITION AREA - BITUMINOUS TO BE REMOVED TO EXISTING CLASS 5 GRADE AS TO ALLOW FOR TRANSITION TO INPLACE BITUMINOUS AT STATION 45+25 AND THE BRIDGE APPROACH PANEL AT STATION 54+41.

EXCESS REMOVED BITUMINOUS MATERIAL MAY BE USED IF IT COMPLIES WITH ALL REQUIREMENTS OF MnDOT 2211 CLASS 5.

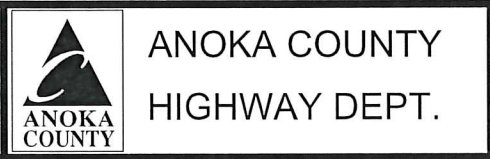
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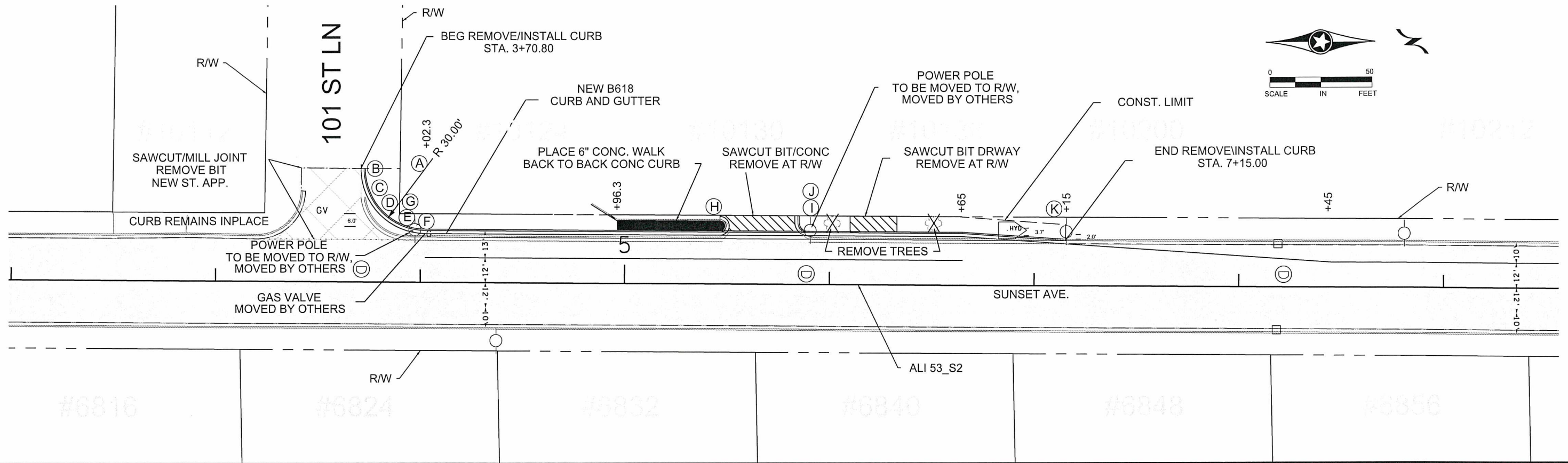
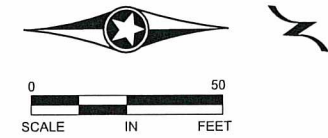
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 CHECKED BY MJJ DATE 03/16/2016



COUNTY PROJECT 16-10-53

CONSTRUCTION PROFILE
 STA 45+25.00 TO 54+41.27
 Sheet 14 of 48 Sheets



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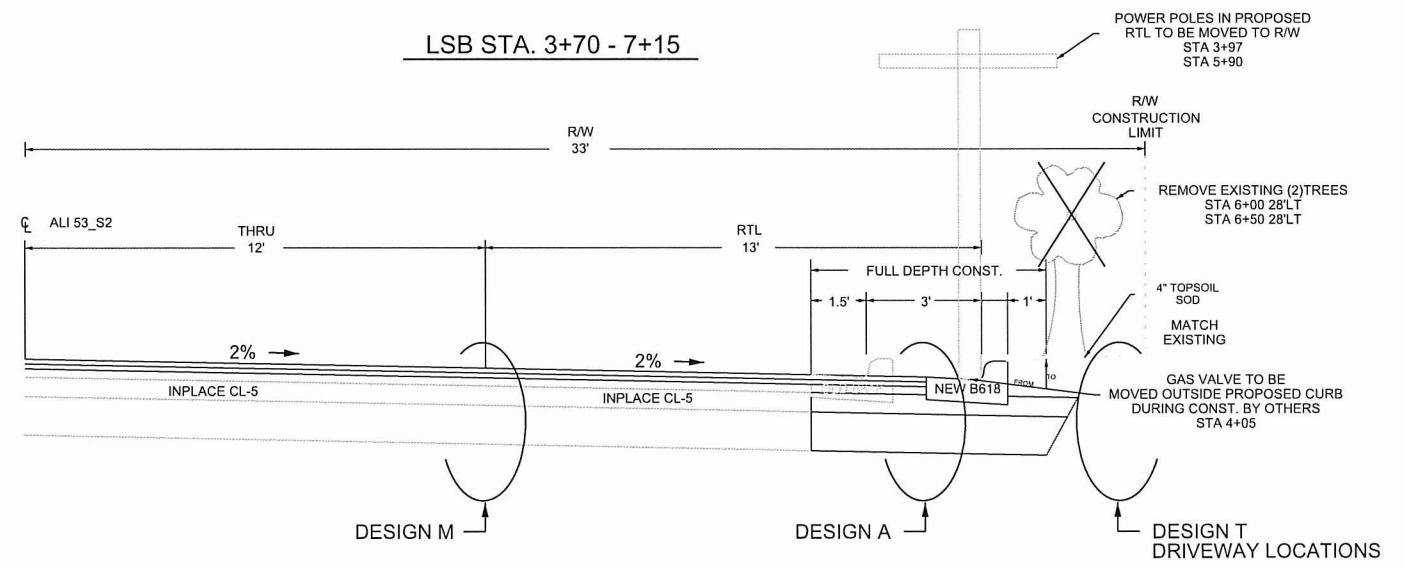
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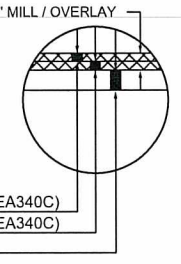
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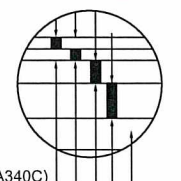


DESIGN "M"
3" MILL SECTION



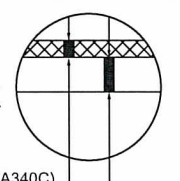
1.5" BITUMINOUS WEAR (SPWEA340C)
1.5" BITUMINOUS WEAR (SPWEA340C)
3.0" REMAINING BITUMINOUS

DESIGN "A"
RIGHT TURN LANE SECTION



1.5" BITUMINOUS WEAR (SPWEA340C)
1.5" BITUMINOUS WEAR (SPWEA340C)
3.0" BITUMINOUS NON-WEAR (SPNWB330B)
5.0" CLASS 5 BASE
1.0' - 1.5' SUBCUT / GRANULAR BORROW
(SEE RTL COMPS)

DESIGN "T"
BITUMINOUS TRAIL & DRIVEWAYS



2.5" BITUMINOUS WEAR 9.5 (SPWEA340C)
4.0" BASE CLASS-5

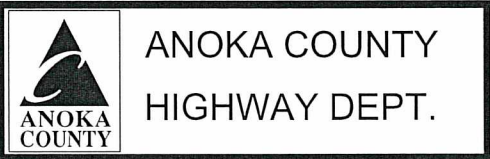
POINT	ITEM	STATION	OFFSET 3' B/C	OLD TBC ELEV	HUB ELEV	NEW TBC B618	C / F
A	30' RAD PT	4+02.30	-55.00 ACT LOC				
B	BEG RAD	3+75.92	-54.83	909.51		909.51	
C	1/4 PT	3+77.97	-44.79			909.71	
D	MID PT	3+83.70	-36.29			909.91	
E	3/4 PT	3+92.24	-30.61			910.10	
F	END RAD	4+02.30	-28.62	910.38		910.30	
G	(R/W CORNER)	3+89.77	-33.09				
		4+25.00	-28.62	910.20		910.12	
		4+50.00	-28.62	910.03		909.95	
		4+75.00	-28.62	909.85		909.77	
		5+00.00	-28.62	909.68		909.60	
		5+25.00	-28.62	909.50		909.42	
H	3' RAD PT	5+46.43	-28.00 ACT LOC				
	BEG RAD			909.37		909.29	
	MID PT					909.84	
	END RAD			910.39		910.39	
		5+50.00	-28.62	909.33		909.25	
		5+75.00	-28.62	909.15		909.07	
I	5' RAD PT	5+89.44	-30.00 ACT LOC				
	BEG RAD			909.36		909.36	
	MID PT					909.18	
	END RAD	5+89.44	-28.62	909.07		908.99	
J	R/W AT PP	5+90.45	-33.11 ACT LOC				
		6+00.00	-28.62	908.98		908.90	
		6+25.00	-28.62	908.80		908.72	
		6+50.00	-28.62	908.63		908.55	
	BEG TP	6+65.00	-28.62	908.53		908.45	
		6+75.00	-27.99			908.35	
		7+00.00	-26.39			908.26	
	END TP (MATCH)	7+15.00	-25.62	908.17		908.17	
K	R/W AT PP	7+15.23	-33.12				

NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\16-01-00\CR_53(35W-CR49)\Plan\15_DETAIL RTL.dgn 04/06/2016 11:48:55 AM

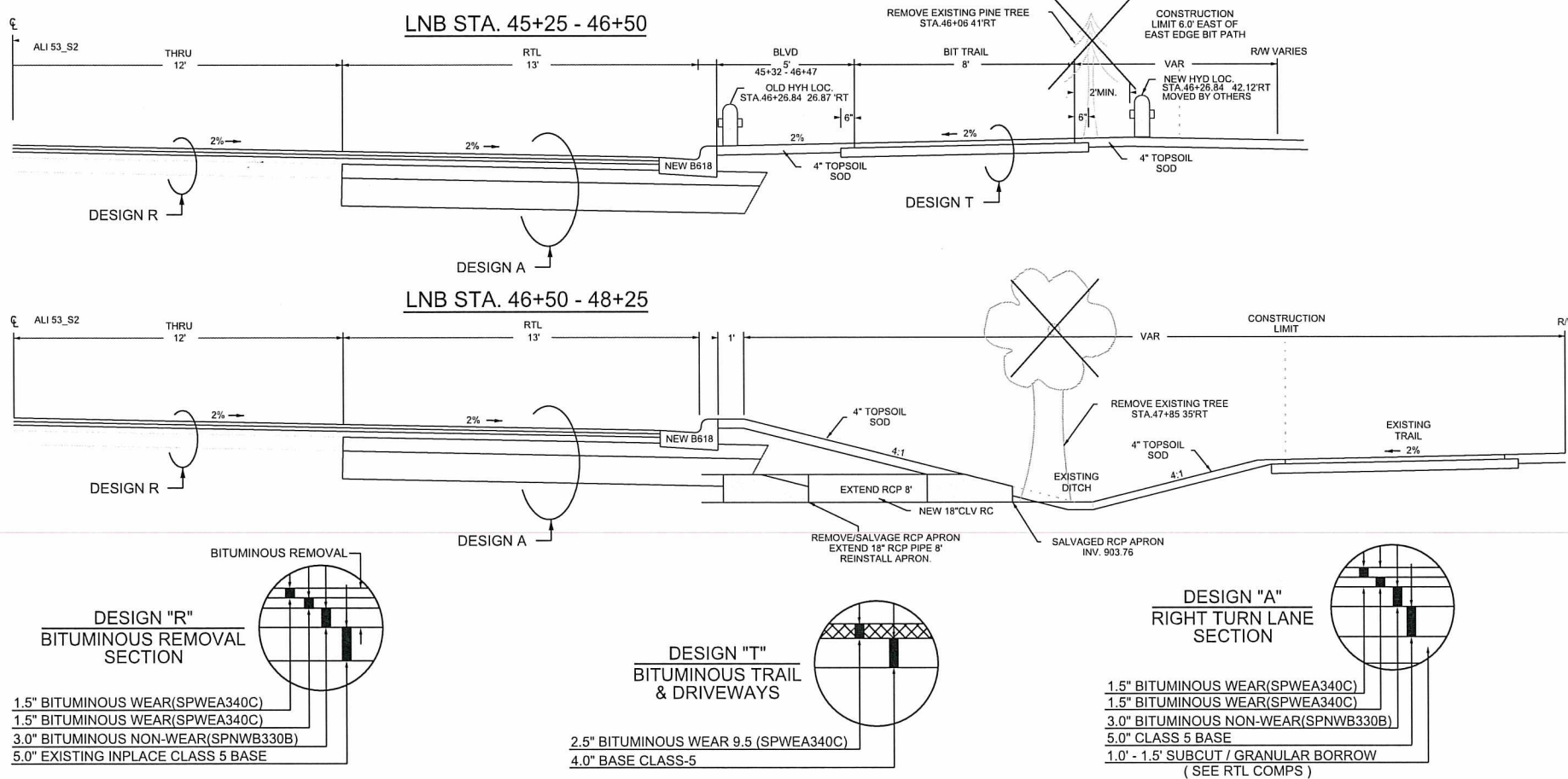
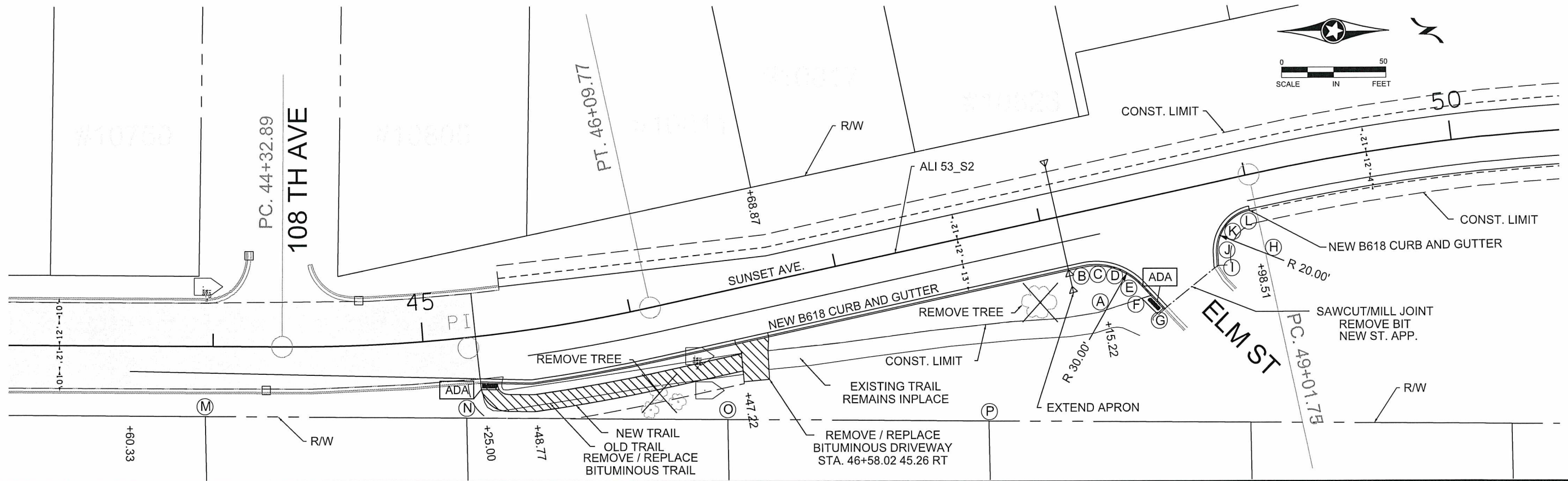
I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
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 DATE: 4/6/2016 LICENSE NO. 51639

DRAWN BY: JCF DATE: 03/11/2016
 DESIGN BY: JCF DATE: 03/11/2016
 CHECKED BY: MJJ DATE: 03/16/2016



COUNTY PROJECT 16-10-53

RTL CONSTRUCTION DETAIL
 STA 2+00.00 TO 9+50.00
 Sheet 15 of 48 Sheets



POINT	ITEM	STATION	OFFSET 3' B/C	HUB ELEV	NEW TBC B618	C / F
	BEG TP	45+25.00	25.07		904.55	
	END TP	45+48.77	28.62		904.68	
		45+75.00	28.62		904.92	
		46+00.00	28.62		905.16	
	PT	46+09.77	28.62		905.24	
		46+25.00	28.62		905.40	
		46+50.00	28.62		905.65	
		46+75.00	28.62		905.93	
		47+00.00	28.62		906.25	
		47+25.00	28.62		906.61	
		47+50.00	28.62		907.01	
		47+75.00	28.62		907.46	
		48+00.00	28.62		907.94	
A	30' RAD PT F/C	48+15.22	55.00 ACT LOC.			
B	BEG RAD	48+15.22	28.62		908.25	
C	1/4 PT	48+21.89	29.48		908.41 HP	
D	MID PT	48+28.12	31.99		908.25	
E	3/4 PT	48+33.52	36.00		908.08	
F	END RAD	48+37.73	41.24		907.91	
G	MATCH PT	48+46.16	55.04		907.58	
H	20' RAD PT F/C	48+98.51	36.00 ACT LOC			
I	MATCH PT	48+81.42	39.25		907.66	
J	BEG RAD	48+82.33	33.45		908.12	
K	MID PT	48+87.76	23+64		909.18	
L	END RAD	48+98.51	19.62		910.24	
M	R/W @ P-COR.	43+96.42	33.05 ACT LOC			
N	R/W @ P-COR.	45+17.19	37.71 ACT LOC			
O	R/W @ P-COR.	46+34.58	59.45 ACT LOC			
P	R/W @ P-COR.	47+56.12	86.79 ACT LOC			

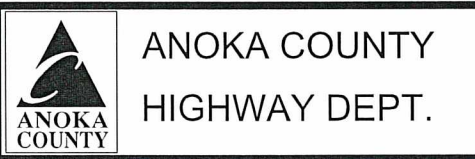
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 SIGNATURE: *[Signature]*
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DRAWN BY: JCF DATE 03/11/2016
 DESIGN BY: JCF DATE 03/11/2016
 CHECKED BY: MJJ DATE 03/18/2016



COUNTY PROJECT 16-10-53

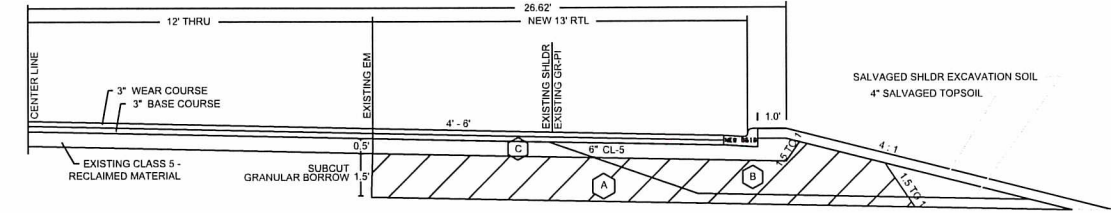
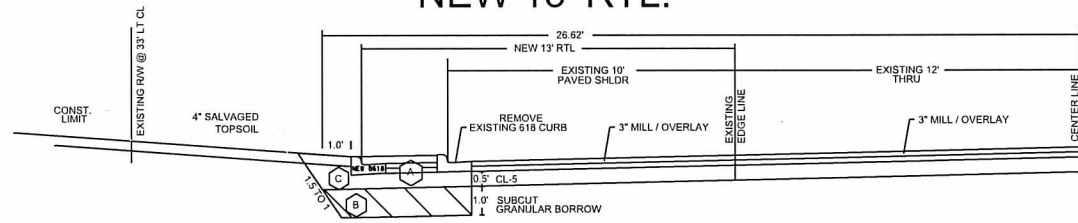
RTL CONSTRUCTION DETAIL
 STA 43+00.00 TO 50+50.00
 Sheet 16 of 48 Sheets

LSB SUNSET AVE. @ 101ST LN

LNB SUNSET AVE. @ ELM STREET

NEW 13' RTL.

NEW 13' RTL.



- (A) COMMON EXCAVATION 10.3 SQ FT
- (B) GRANULAR BORROW (HATCHED AREA) 4.8 SQ FT
- (C) CLASS 5 3.2 SQ FT

- (A) COMMON EXCAVATION 22.5 SQ FT
- (B) GRANULAR BORROW (HATCHED AREA) 28.7 SQ FT
- (C) CLASS 5 7.7 SQ FT

CU YDS PER 100'

CU YDS PER 100'

- (A) COMMON EXCAVATION
10.3 SQ FT X 100' = 1030 CU FT / 27 = 38.1 CU YDS
- (B) GRANULAR BORROW
4.8 SQ FT X 100' = 480 CU FT / 27 = 17.8 CU YDS (CV)
- (C) BASE CLASS 5
3.2 SQ FT X 100' = 320 CU FT / 27 = 11.9 CU YDS (CV)

- (A) COMMON EXCAVATION
22.5 SQ FT X 100' = 2250 CU FT / 27 = 83.3 CU YDS
- (B) GRANULAR BORROW
28.7 SQ FT X 100' = 2870 CU FT / 27 = 106.2 CU YDS (CV)
- (C) BASE CLASS 5
7.7 SQ FT X 100' = 770 CU FT / 27 = 28.5 CU YDS (CV)

SUMMARY
340' RTL EXCAVATED AREA

SUMMARY
315' RTL EXCAVATED AREA

- (A) COMMON EXCAVATION
38.1 CU YDS (PER 100') X 3.40 RTL = 130.0 CU YDS
- (B) GRANULAR BORROW
17.8 CU YDS (PER 100') X 3.40 RTL = 61.0 CU YDS (CV)
- (C) BASE CLASS 5
11.9 CU YDS (PER 100') X 3.40 RTL = 41.0 CU YDS (CV)

- (A) COMMON EXCAVATION
83.3 CU YDS (PER 100') X 3.15 RTL = 263.0 CU YDS
- (B) GRANULAR BORROW
106.2 CU YDS (PER 100') X 3.15 RTL = 335.0 CU YDS (CV)
- (C) BASE CLASS 5
28.5 CU YDS (PER 100') X 3.15 RTL = 90.0 CU YDS (CV)

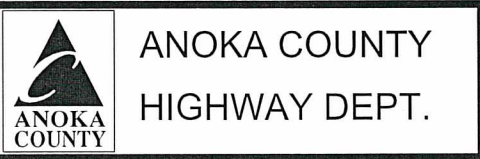
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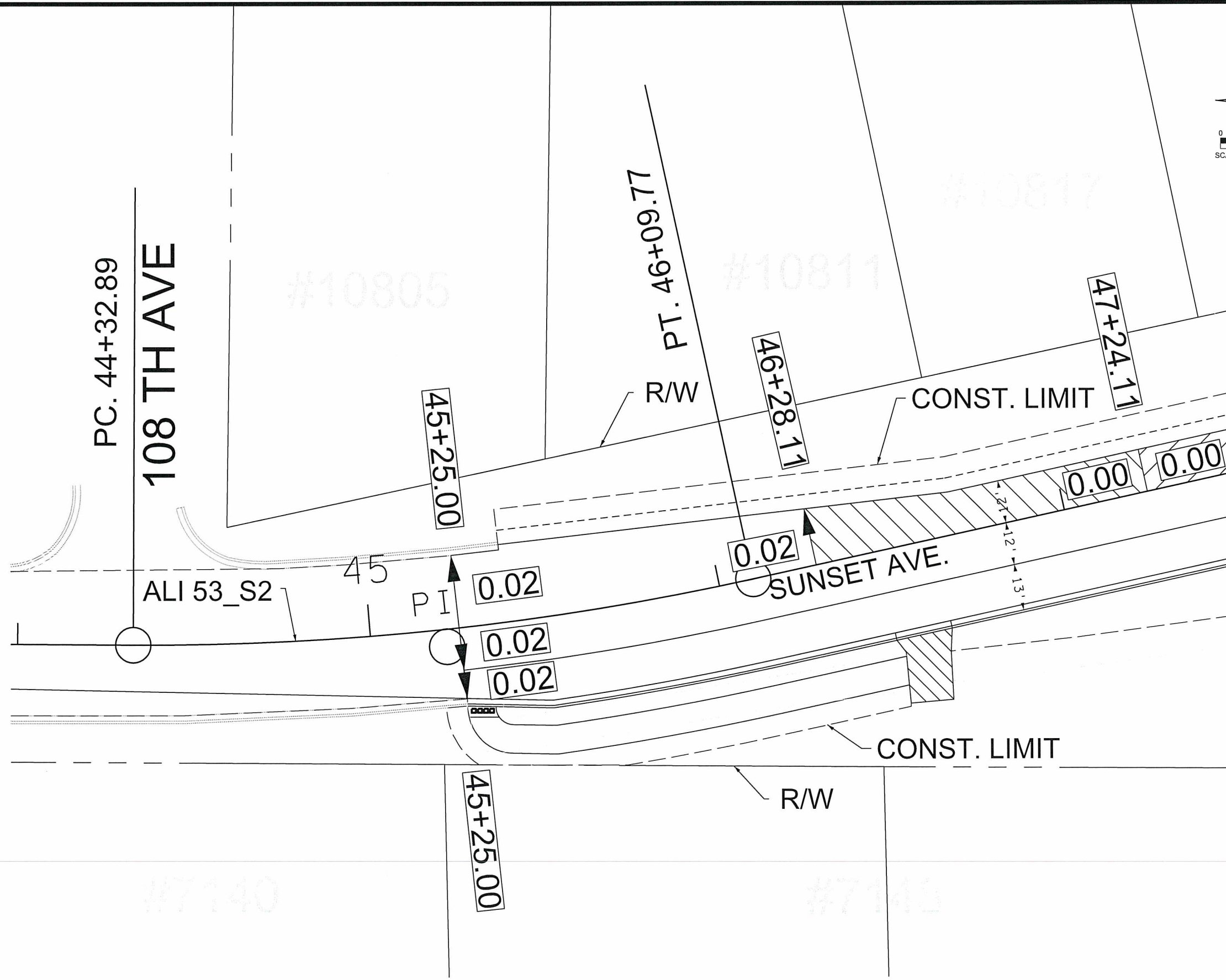
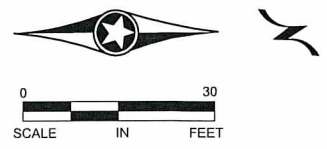
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COUNTY PROJECT 16-10-53

RIGHT TURN LANE COMPS
 Sheet 17 of 48 Sheets



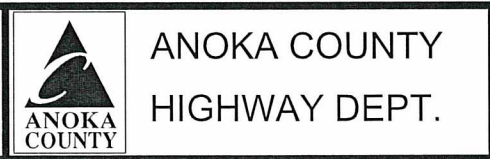
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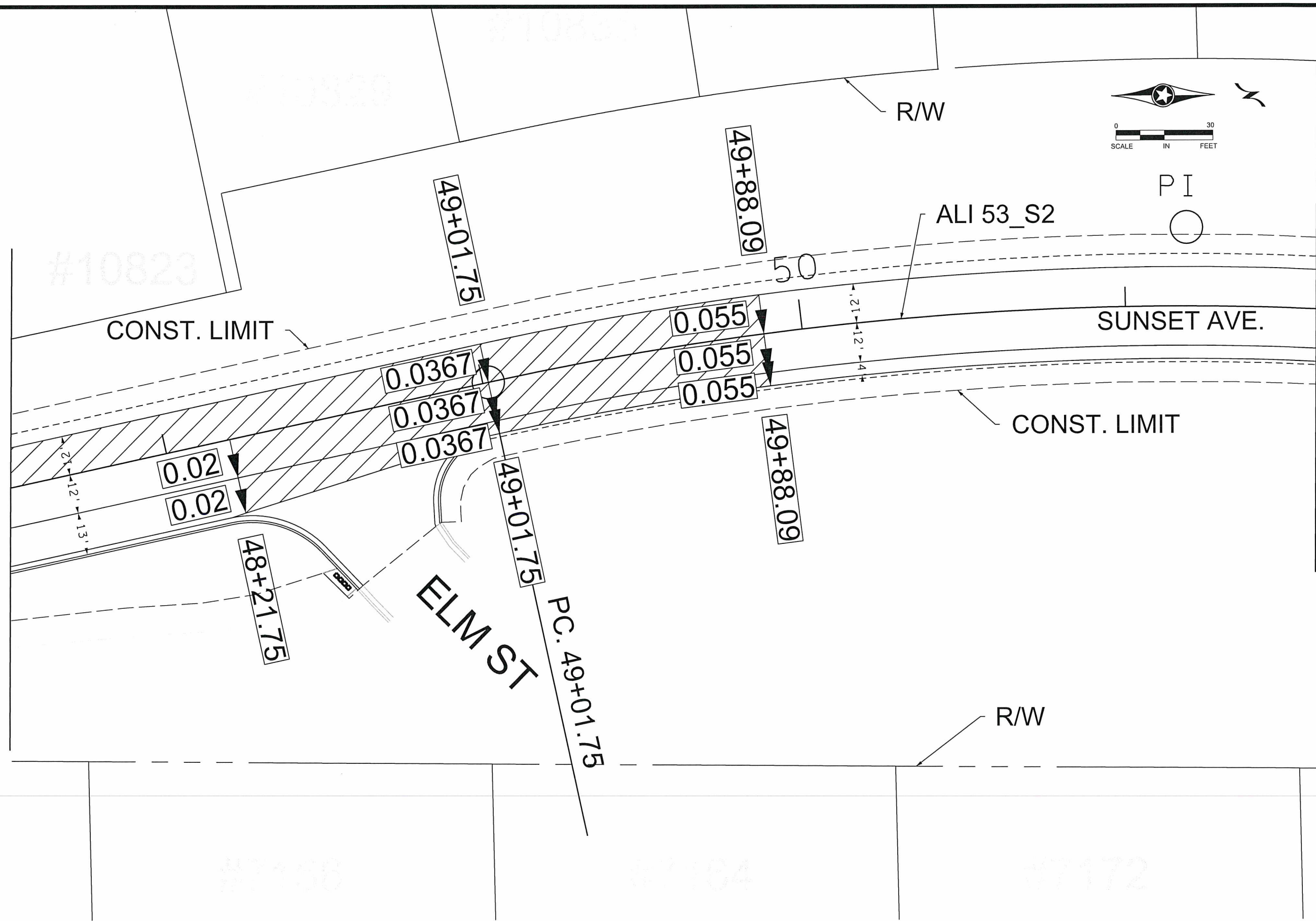


COUNTY PROJECT 16-10-53

SUPER ELEVATION PLAN
 STA 44+00.00 TO 47+50.00
 Sheet 18 of 48 Sheets

MATCHLINE STA. 47+50.00

MATCHLINE STA. 51+50.00



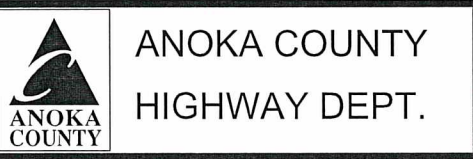
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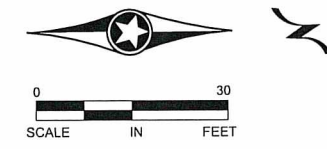
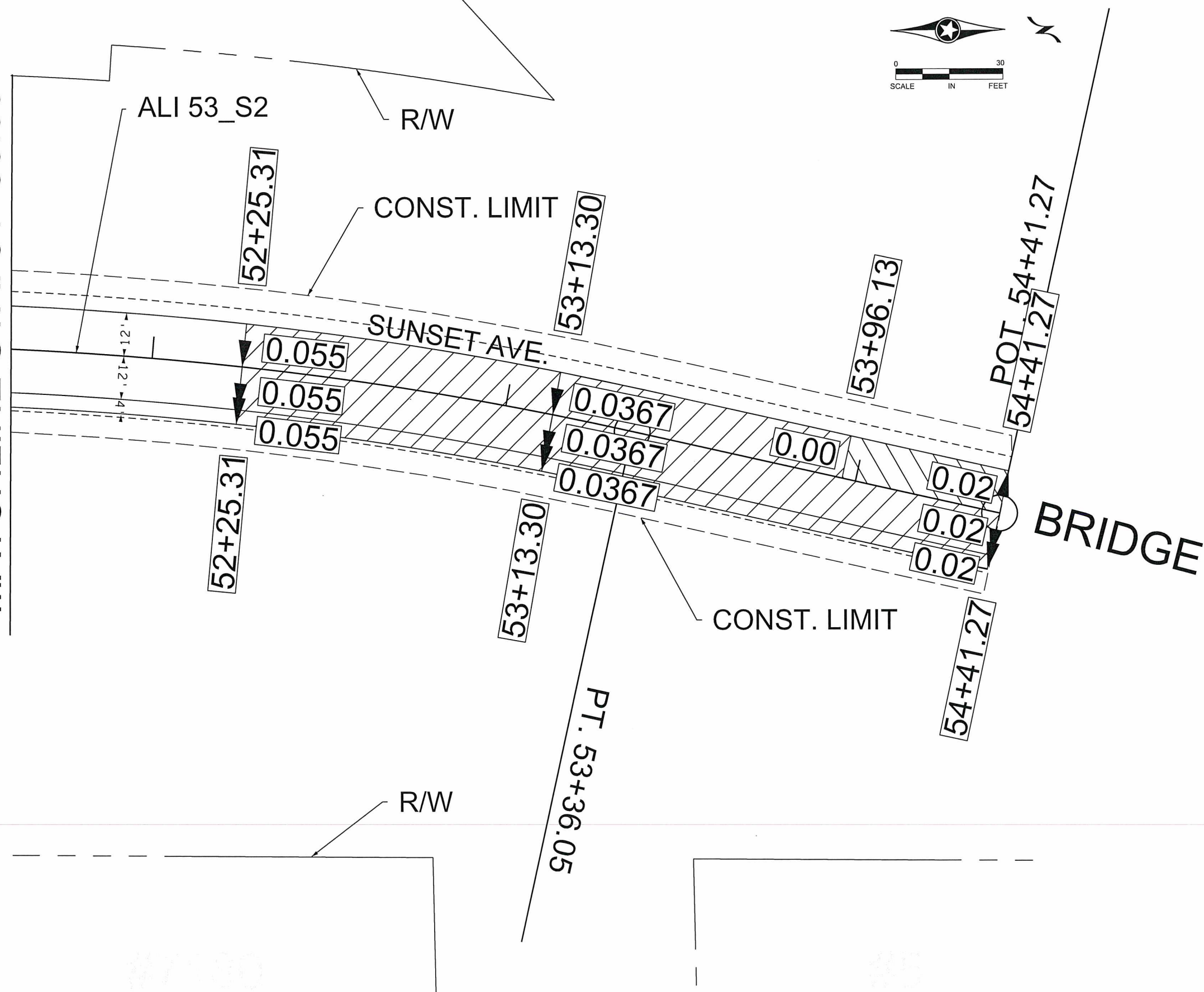
DRAWN BY: JCF DATE 03/11/2016
 DESIGN BY: JCF DATE 03/11/2016
 CHECKED BY: MJJ DATE 03/16/2016



COUNTY PROJECT 16-10-53

SUPER ELEVATION PLAN
 STA 47+50.00 TO 51+50.00
 Sheet 19 of 48 Sheets

MATCHLINE STA. 51+50.00



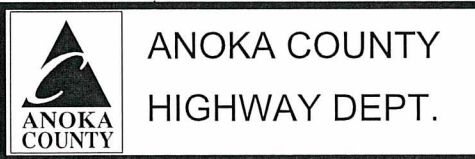
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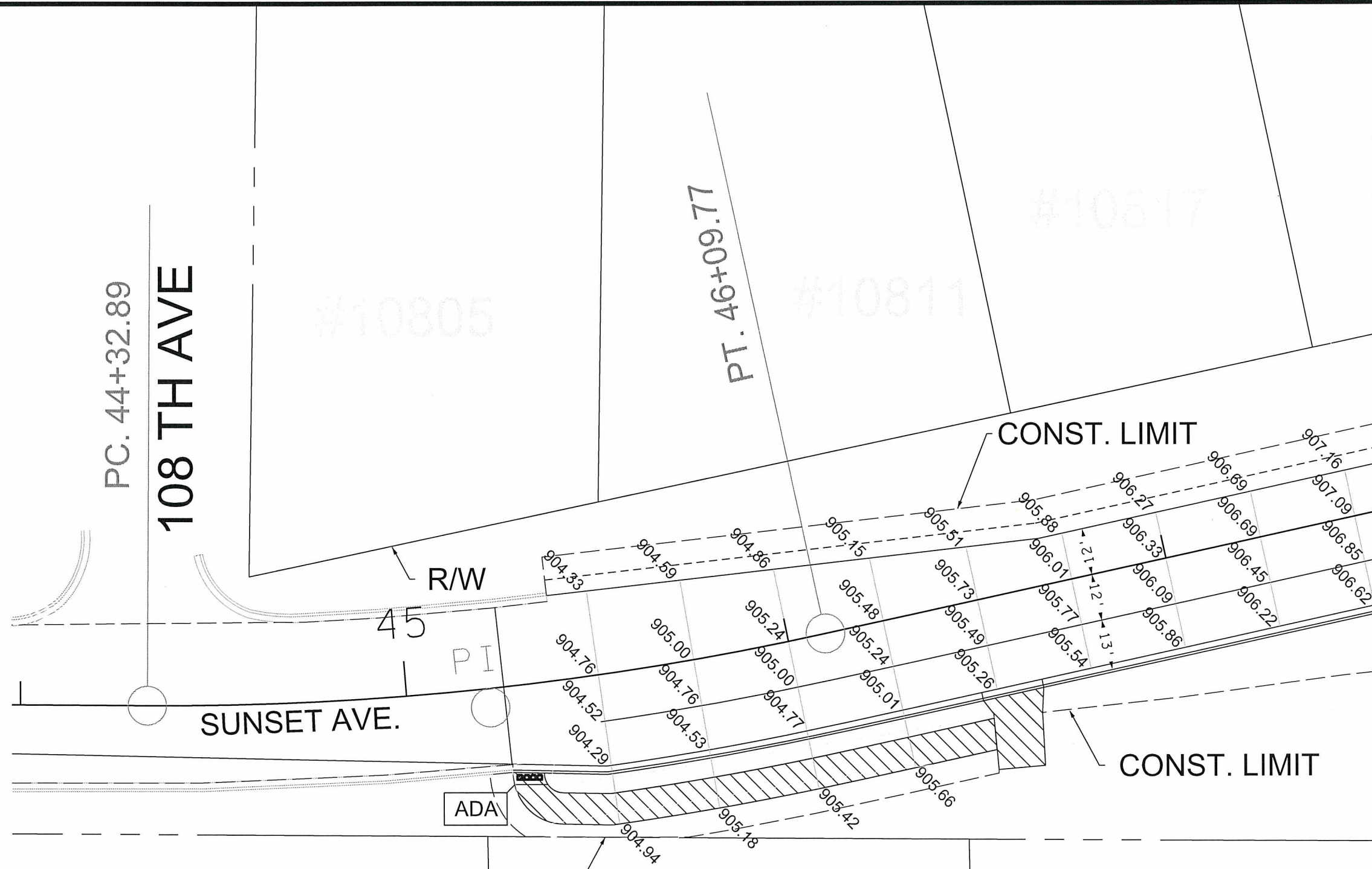
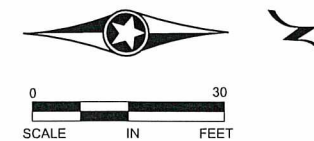
PRINT NAME: MATTHEW J. JOHN
 SIGNATURE: *Matthew J. John*
 DATE: 4/6/2016 LICENSE NO. 51639

DRAWN BY: JCF DATE: 03/11/2016
 DESIGN BY: JCF DATE: 03/11/2016
 CHECKED BY: MJJ DATE: 03/16/2016



COUNTY PROJECT 16-10-53

SUPER ELEVATIONS PLAN
 STA 51+50.00 TO 54+41.27
 Sheet 20 of 48 Sheets



*ELEVATIONS ON ROAD AND BIT TRAIL ARE " FINISHED BIT"
GRID 25' ON STATION BEGINING @ 45+50

MATCHLINE STA. 47+50.00

PC. 44+32.89
108 TH AVE

PT. 46+09.77

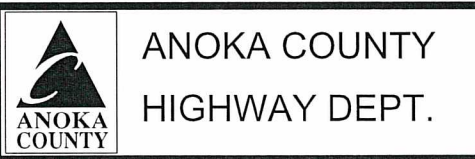
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NAME: P:\16-01-00\CR_53(35W-CR49)\Plan\21_53_SUPER GRADES.dgn 04/06/2016 11:49:06 AM

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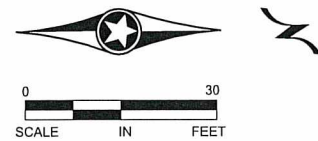
PRINT NAME: MATTHEW L. JOHN
SIGNATURE: *Matthew L. John*
DATE: 4/6/2016 LICENSE NO. 51639

DRAWN BY: JCF DATE 03/11/2016
DESIGN BY: JCF DATE 03/11/2016
CHECKED BY: MJJ DATE 03/16/2016



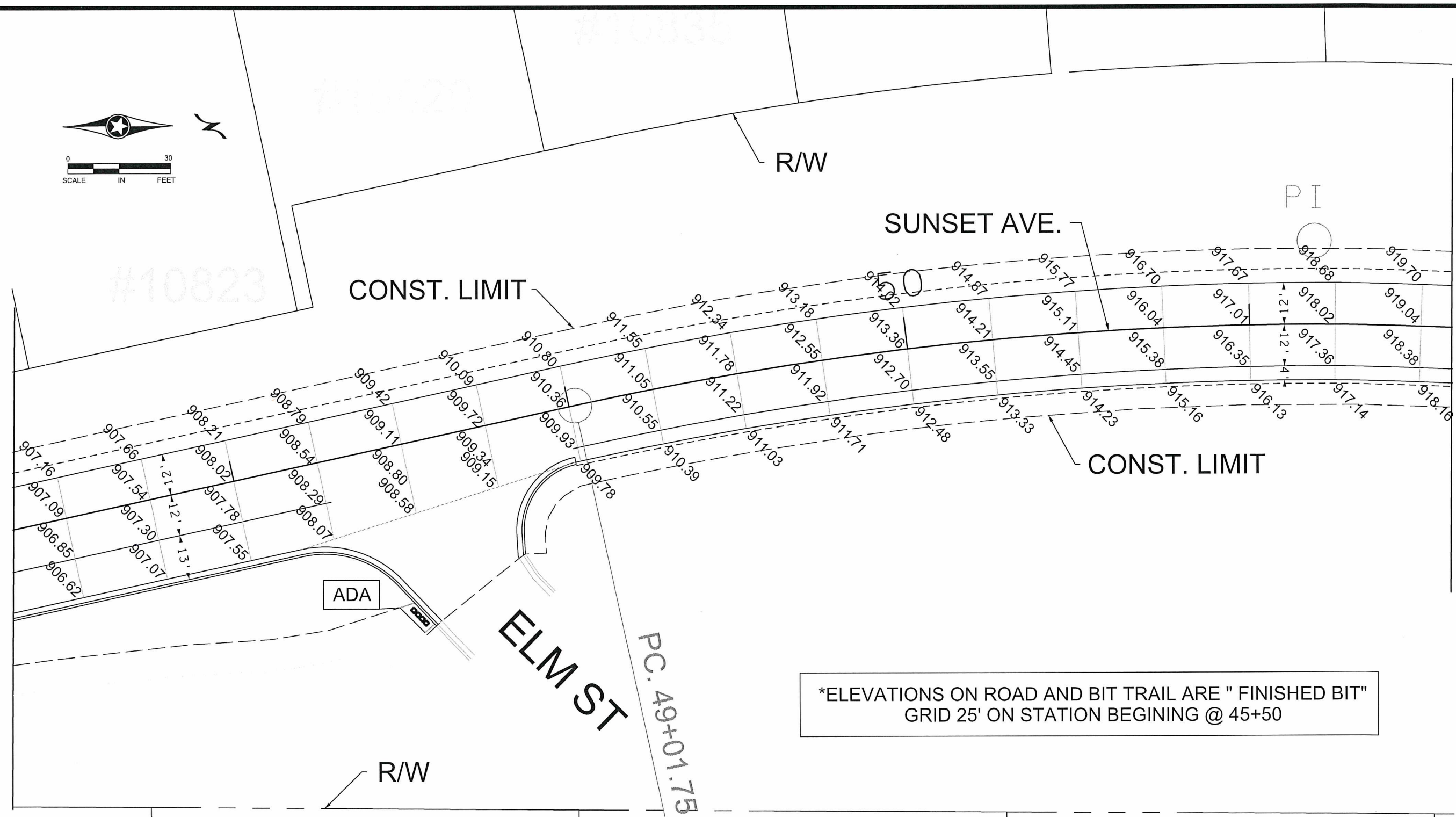
COUNTY PROJECT 16-10-53

FINISHED GRADES
STA 44+00.00 TO 47+50.00
Sheet 21 of 48 Sheets



MATCHLINE STA. 47+50.00

MATCHLINE STA. 51+50.00



*ELEVATIONS ON ROAD AND BIT TRAIL ARE " FINISHED BIT"
GRID 25' ON STATION BEGINING @ 45+50

NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\16-01-00\CR_53(35W-CR49)\Plan\22_53_SUPER GRADES 2.dgn 04/06/2016 11:49:07 AM

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

PRINT NAME: MATTHEW J. JOHN
SIGNATURE: *Matthew J. John*
DATE: 4/6/2016 LICENSE NO. 51639

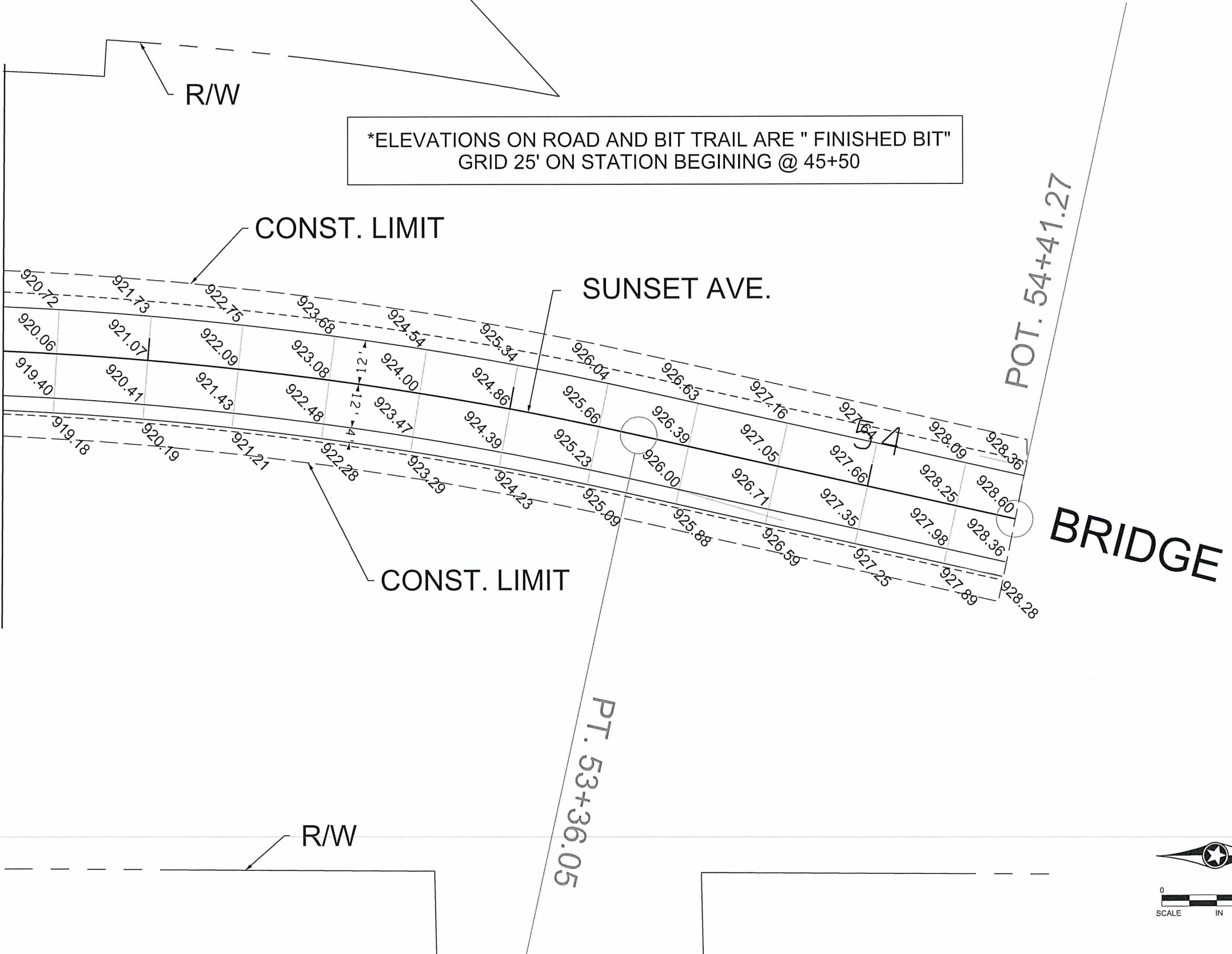
DRAWN BY JCF DATE 03/11/2016
DESIGN BY JCF DATE 03/11/2016
CHECKED BY MJJ DATE 03/16/2016

ANOKA COUNTY
HIGHWAY DEPT.

COUNTY PROJECT 16-10-53

FINISHED GRADES
STA 47+50.00 TO 51+50.00
Sheet 22 of 48 Sheets

MATCHLINE STA. 51+50.00



*ELEVATIONS ON ROAD AND BIT TRAIL ARE " FINISHED BIT" GRID 25' ON STATION BEGINING @ 45+50

CONST. LIMIT

SUNSET AVE.

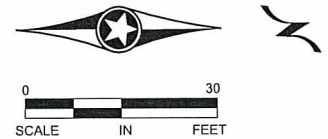
POT. 54+41.27

BRIDGE

CONST. LIMIT

R/W

PT. 53+36.05



#7180

#5

NO	DATE	BY	CKD	APPR	REVISION

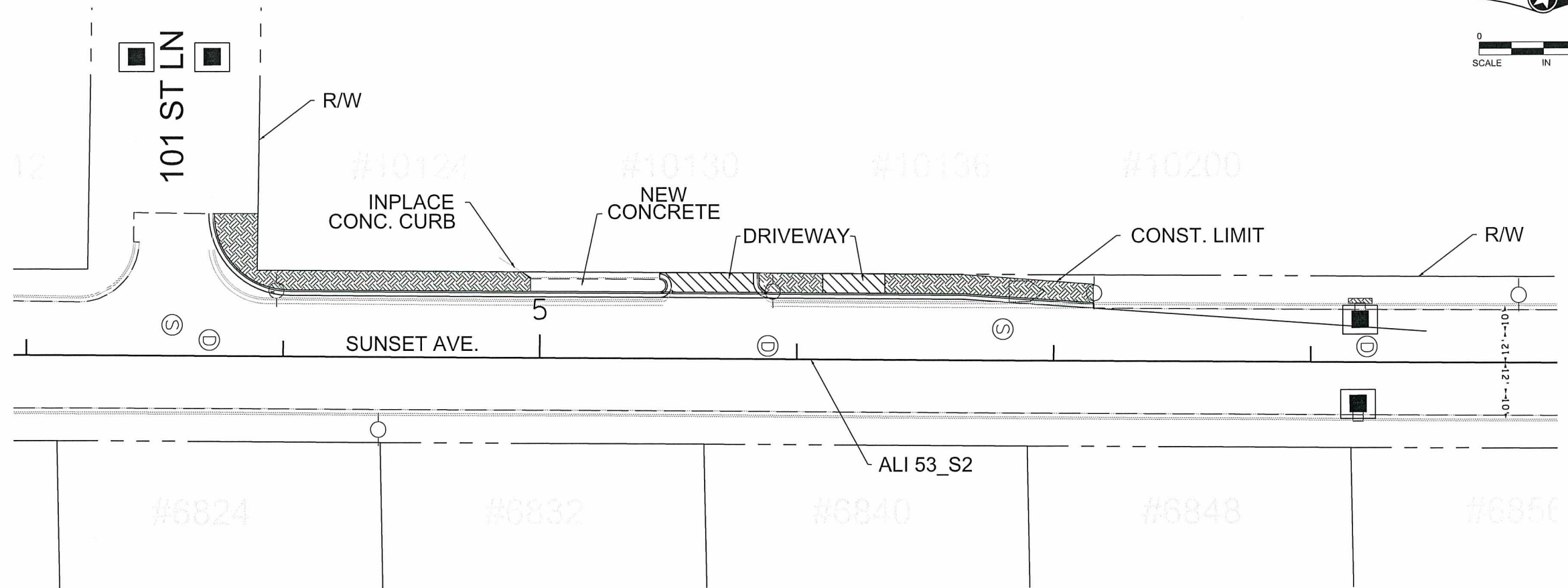
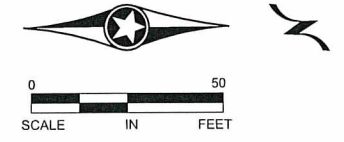
I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
 PRINT NAME: MATTHEW J. JOHN
 SIGNATURE: *Matthew J. John*
 DATE: 4/6/2016 LICENSE NO. 51639

DRAWN BY JCF DATE 03/11/2016
 DESIGN BY JCF DATE 03/11/2016
 CHECKED BY MJJ DATE 03/16/2016

ANOKA COUNTY
HIGHWAY DEPT.

COUNTY PROJECT 16-10-53

FINISHED GRADES
 STA 51+50.00 TO 54+41.27
 Sheet 23 of 48 Sheets



LEGEND	
	SEED MIXTURE 25-141 FERTILIZER TYPE 3 COMMON TOPSOIL BORROW EROSION CONTROL BLANKET CAT 0
	SOD TYPE SALT RESISTANT FERTILIZER TYPE 3 COMMON TOPSOIL BORROW
	CULVERT END CONTROLS (CULVERT PROTECTION)
	SILT FENCE, TYPE MACHINE SLICED
	STORM DRIAN INLET PROTECTION
* NOTE: SEE "DETAILS" FOR EROSION CONTROL AT CB REPAIRS AND CURB REPLACEMENT LOCATIONS.	

NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\16-01-00\CR_53(35W-CR49)\Plant24_ERO_1.dgn 04/06/2016 11:49:11 AM

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

PRINT NAME: MATTHEW J. JOHN
 SIGNATURE: *Matthew J. John*
 DATE: 4/6/2016 LICENSE NO. 51639

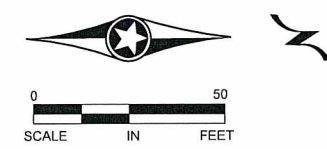
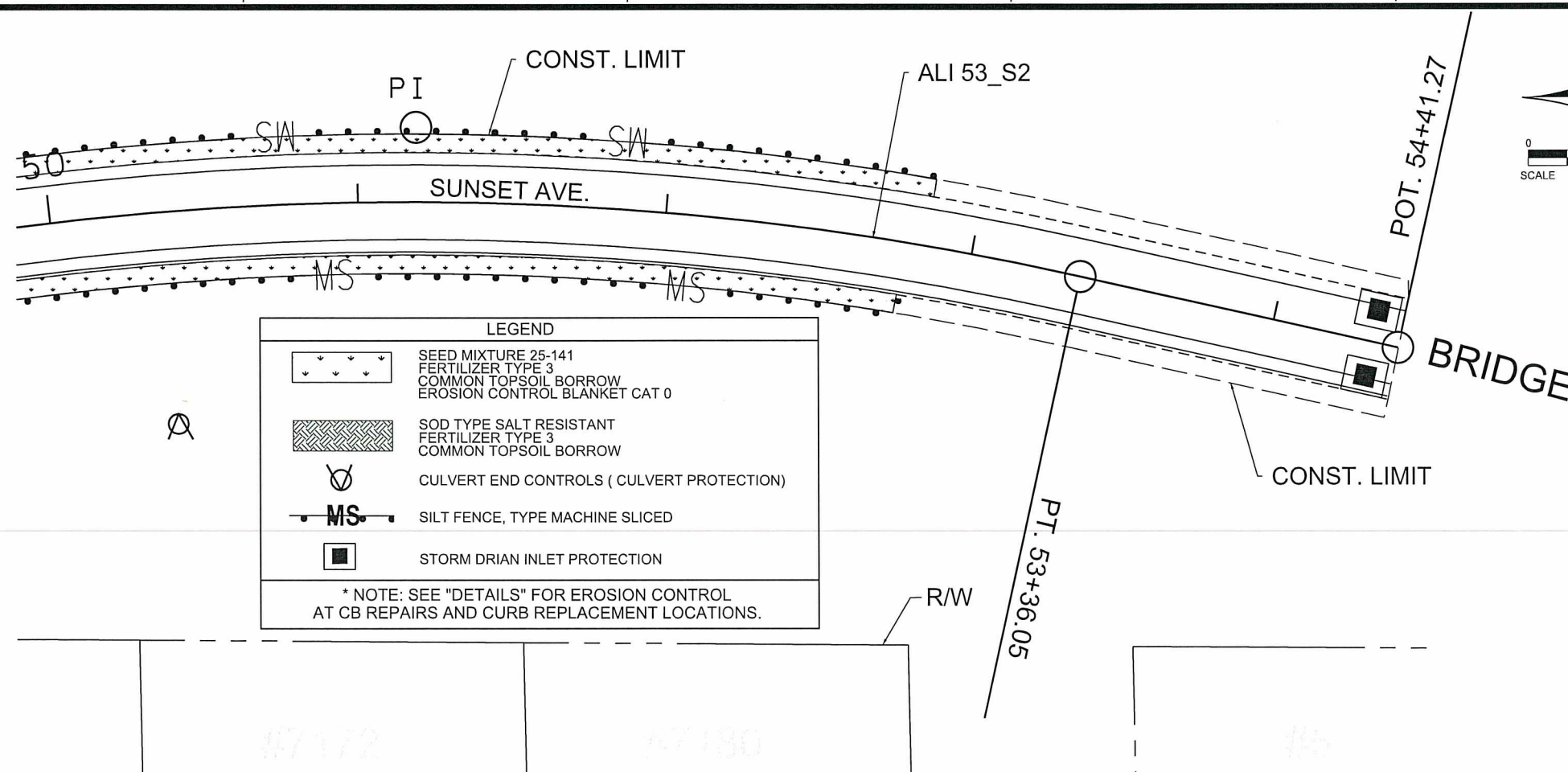
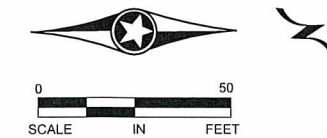
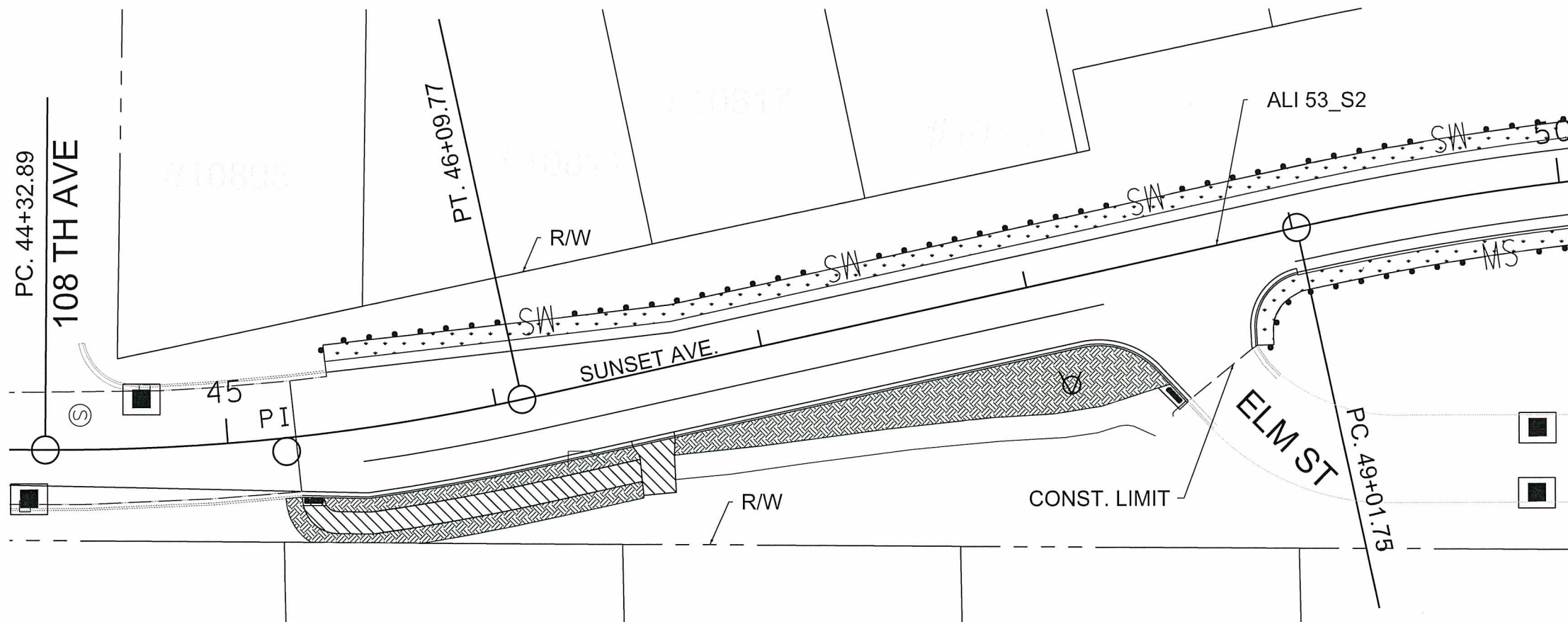
DRAWN BY JCF DATE 03/11/2016
 DESIGN BY JCF DATE 03/11/2016
 CHECKED BY MJJ DATE 03/18/2016



ANOKA COUNTY
HIGHWAY DEPT.

COUNTY PROJECT 16-10-53

EROSION CONTROL
 STA 3+00.00 TO 9+00.00
 Sheet 24 of 48 Sheets



LEGEND	
	SEED MIXTURE 25-141 FERTILIZER TYPE 3 COMMON TOPSOIL BORROW EROSION CONTROL BLANKET CAT 0
	SOD TYPE SALT RESISTANT FERTILIZER TYPE 3 COMMON TOPSOIL BORROW
	CULVERT END CONTROLS (CULVERT PROTECTION)
	SILT FENCE, TYPE MACHINE SLICED
	STORM DRAIN INLET PROTECTION
* NOTE: SEE "DETAILS" FOR EROSION CONTROL AT CB REPAIRS AND CURB REPLACEMENT LOCATIONS.	

2 OF 2

NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\16-01-00\CR_53(35W-CR49)\Plan\25_ERO_2.dgn 04/06/2016 11:49:12 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.

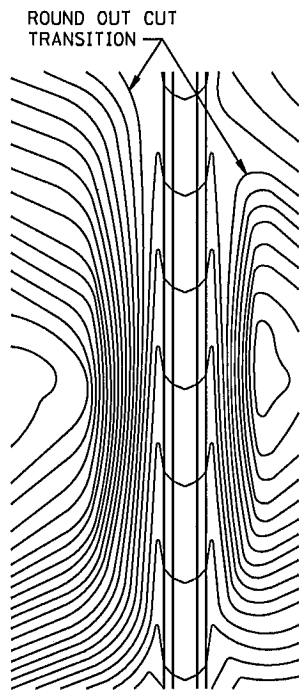
PRINT NAME: MATTHEW J. JOHN
 SIGNATURE:
 DATE: 4/6/2016 LICENSE NO. 51639

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 DESIGN BY: JCF DATE: 03/11/2016
 CHECKED BY: MJJ DATE: 03/16/2016

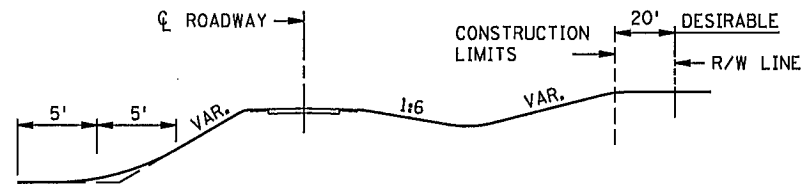
ANOKA COUNTY
HIGHWAY DEPT.

COUNTY PROJECT 16-10-53

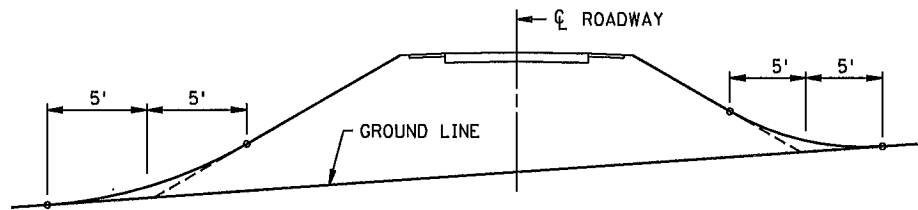
EROSION CONTROL
 STA 44+00.00 TO 54+41.00
 Sheet 25 of 48 Sheets



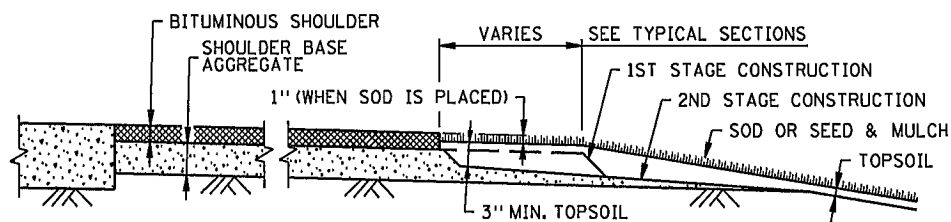
CONTOURING ROAD CUTS



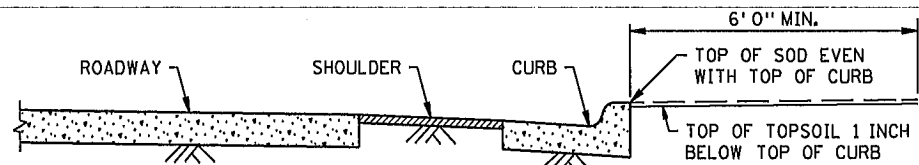
ROUNDING SHOULDERS AND BACKSLOPES



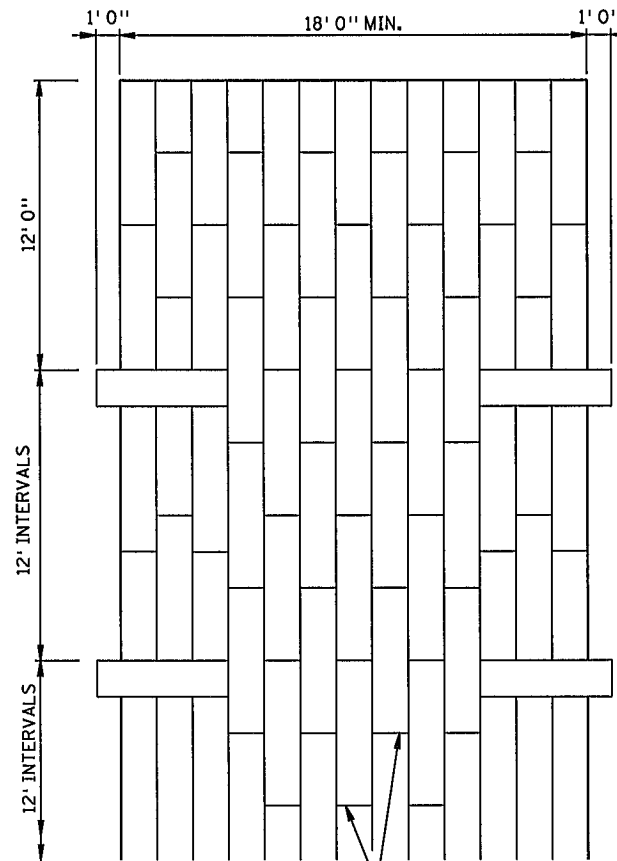
SHAPING FOR DRAINAGE ALONG THE TOE OF FILL SLOPES



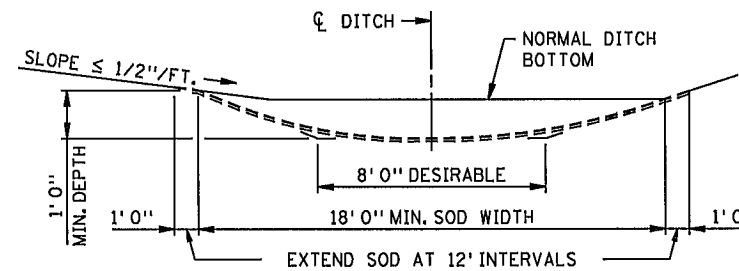
SHAPING AND TOPSOILING INSLOPES



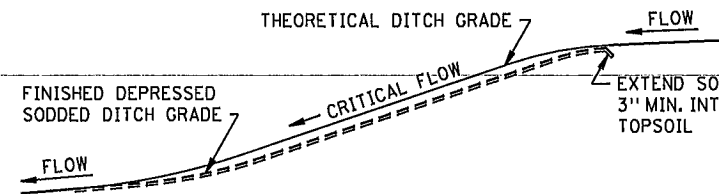
SHAPING ADJACENT TO CURBS WHEN SOD IS PLACED



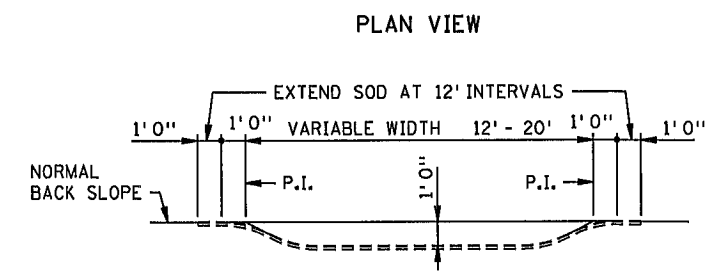
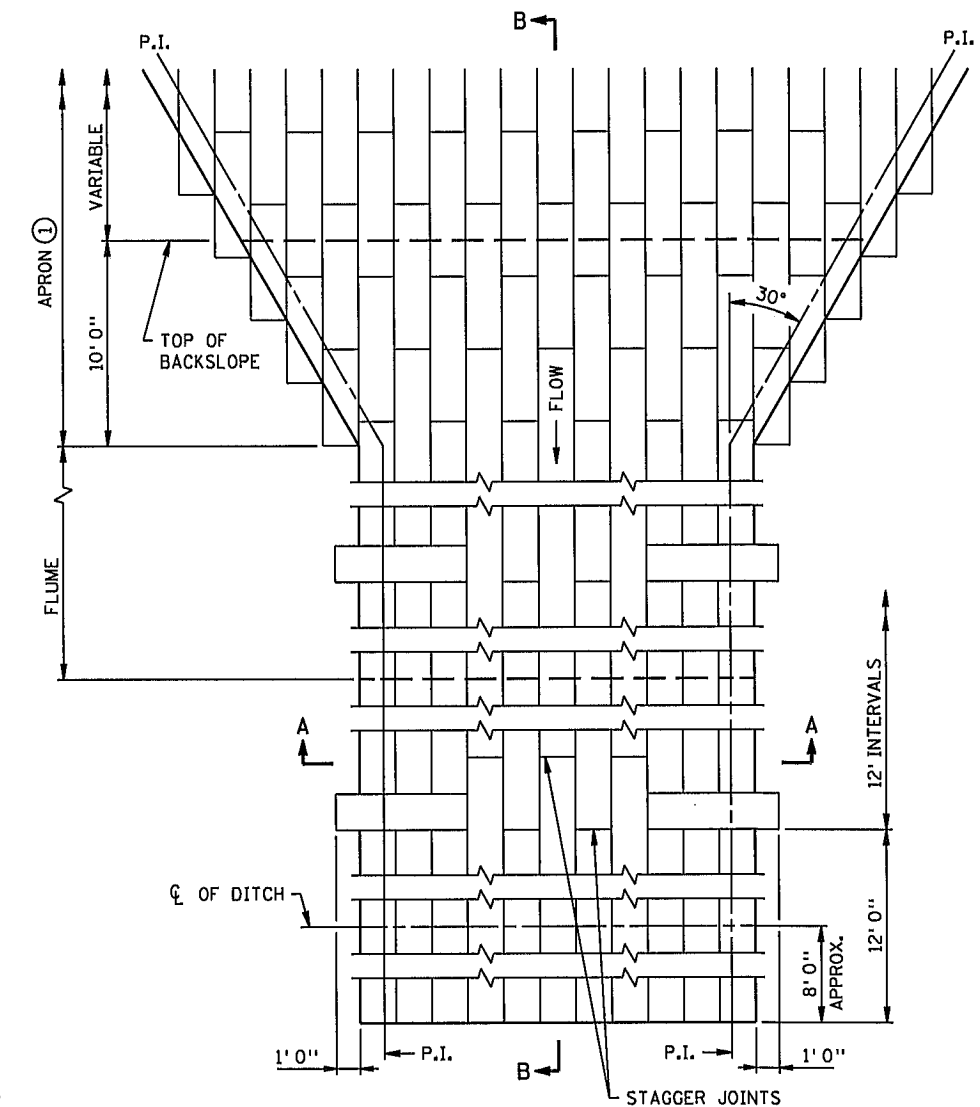
STAGGER JOINTS
PLAN VIEW



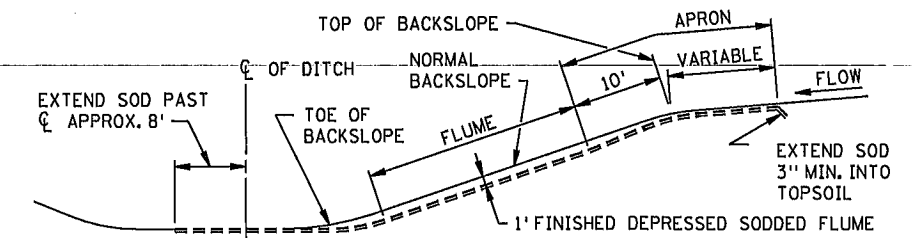
SODDED DITCH CROSS SECTION
WHERE FRONT OR BACK SLOPE IS FLAT (LESS THAN 1/2"/FT.), FIRST NOTCH DITCH AND THEN PROVIDE ROUNDING.



DITCH PROFILE
SODDED DITCH DETAILS



SECTION A-A
SODDED FLUME DETAILS



SECTION B-B
SODDED FLUME DETAILS

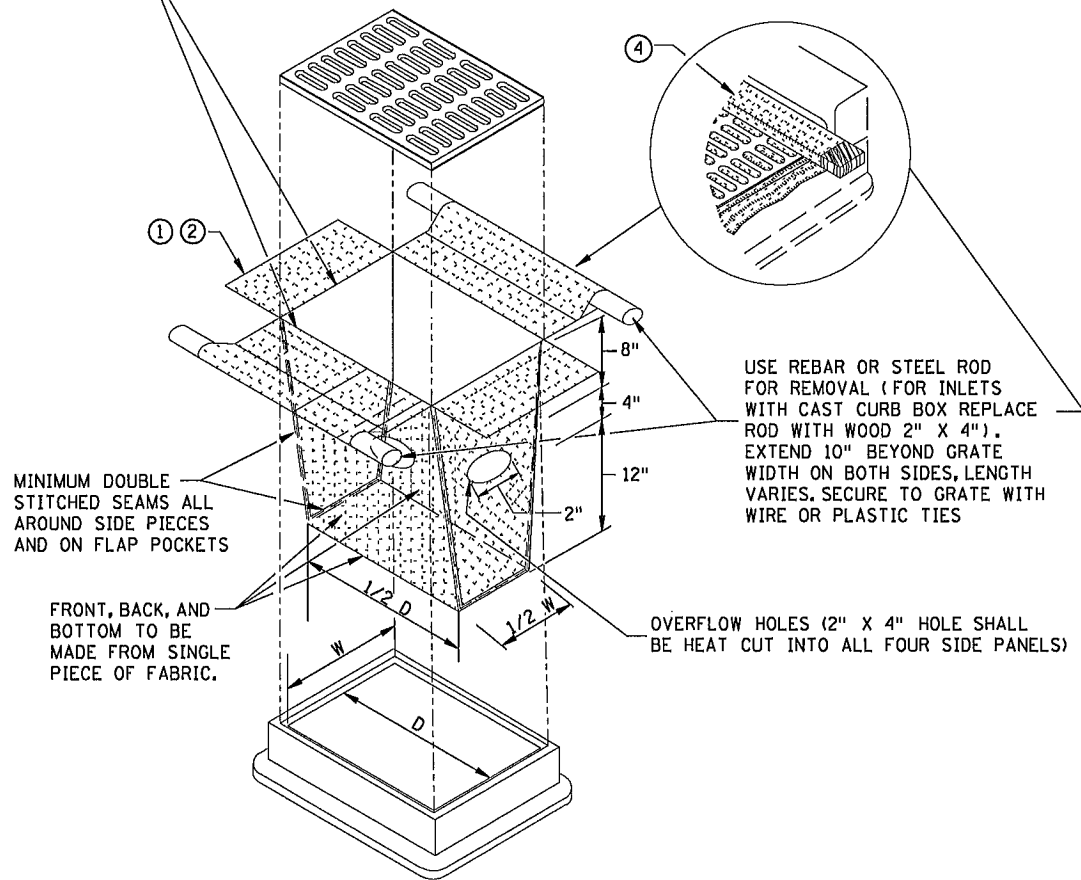
NOTES:
SEE SPEC. 2575.3 FOR ADDITIONAL INFORMATION.
① CONSTRUCT TAPER AS DIRECTED BY THE ENGINEER.

REVISION:
APPROVED: 8-6-2014
[Signature]
CHIEF ENVIRONMENTAL OFFICER

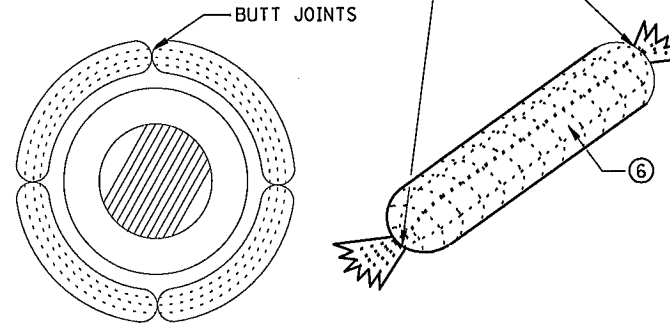
REVISOR:
[Signature]
APPROVED: 8-6-2014
STATE DESIGN ENGINEER

PERMANENT EROSION CONTROL
ALONG ROADWAYS, DITCHES AND FLUMES
STANDARD PLAN 5-297.404
COUNTY PROJECT 16-10-53
1 OF 1
SHEET
26 OF 48

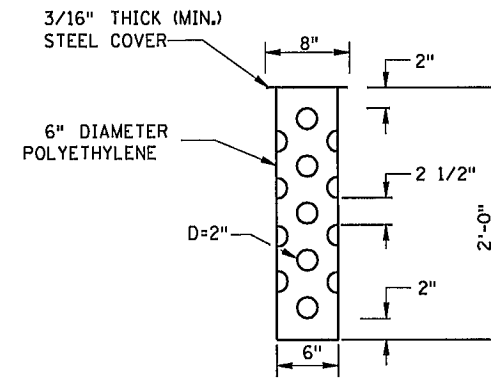
INLET SPECIFICATIONS AS PER THE PLAN DIMENSION LENGTH AND WIDTH TO MATCH FLAP POCKET



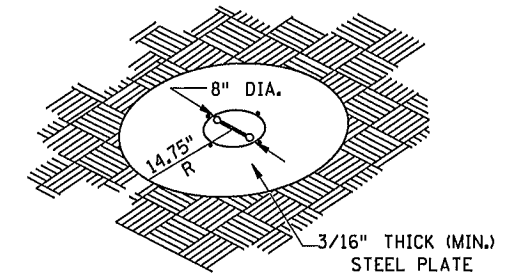
ENDS SECURELY CLOSED TO PREVENT LOSS OF OPEN GRADED AGGREGATE FILL. SECURED WITH 50 PSI. ZIP TIE.



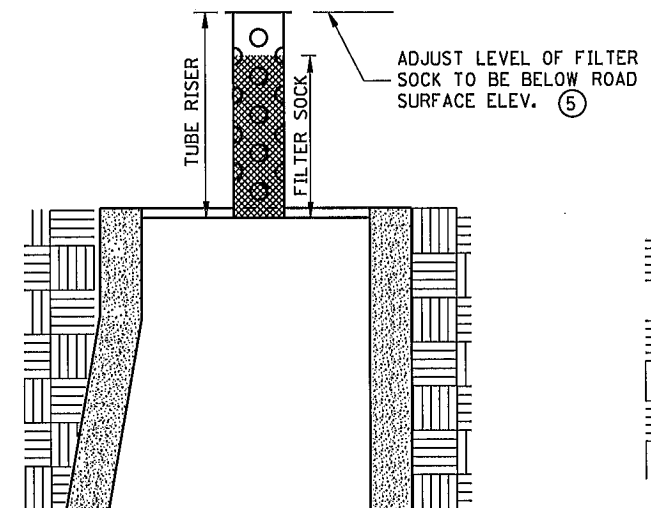
ROCK LOG/COMPOST LOG



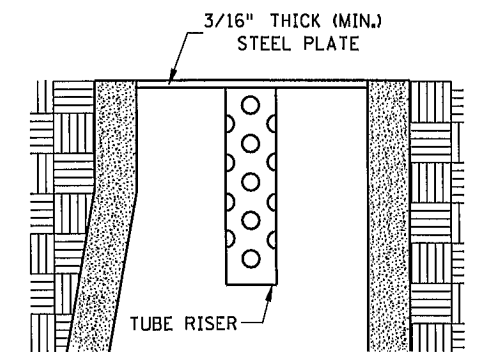
TUBE RISER



PERSPECTIVE VIEW



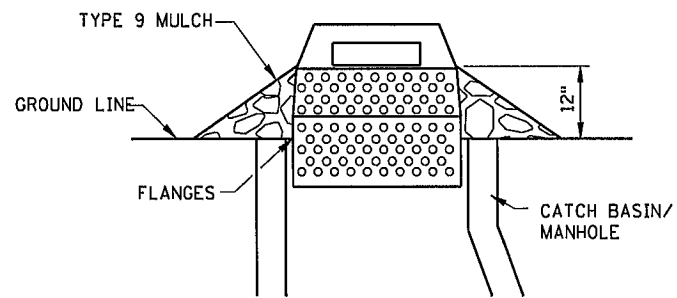
SECTION (UP POSITION)



SECTION (DOWN POSITION)

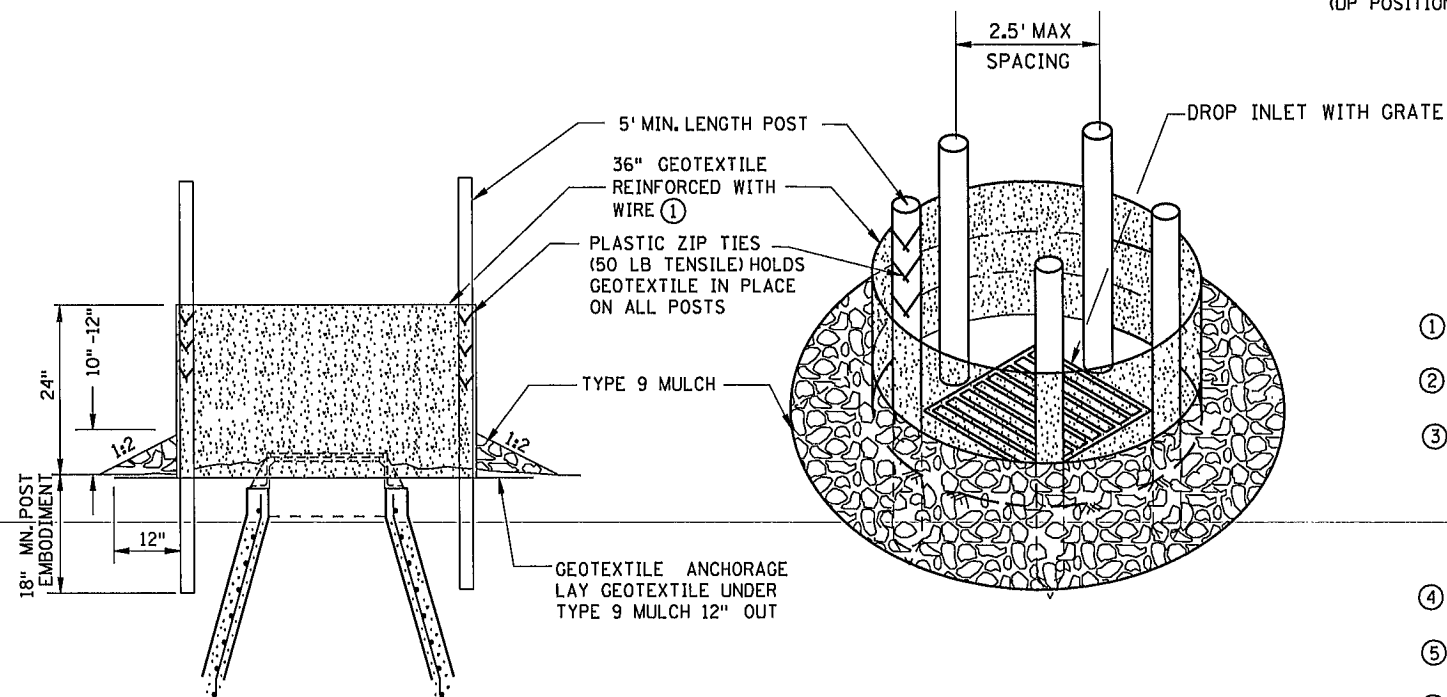
FILTER BAG INSERT ③

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



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.



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.

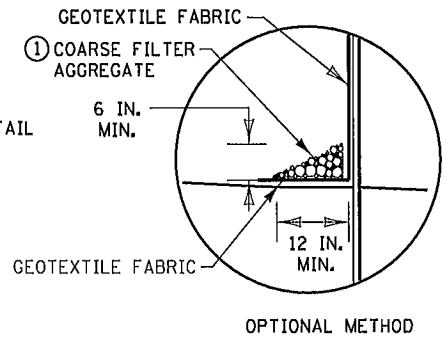
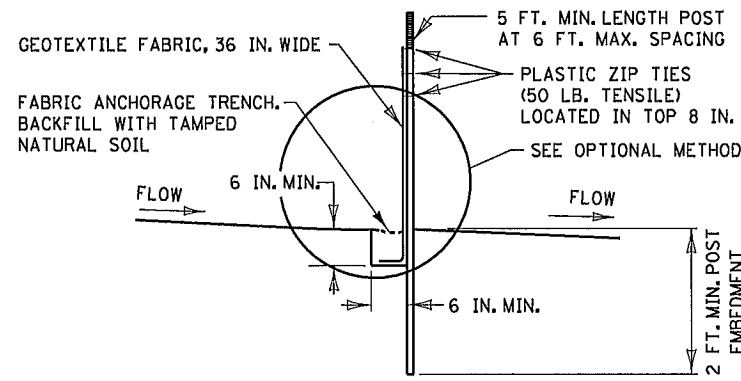
SILT FENCE RING AND ROCK FILTER BERM

USE WHERE INLET DRAINS IN AN AREA WITH SLOPES AT 1:3 OR LESS

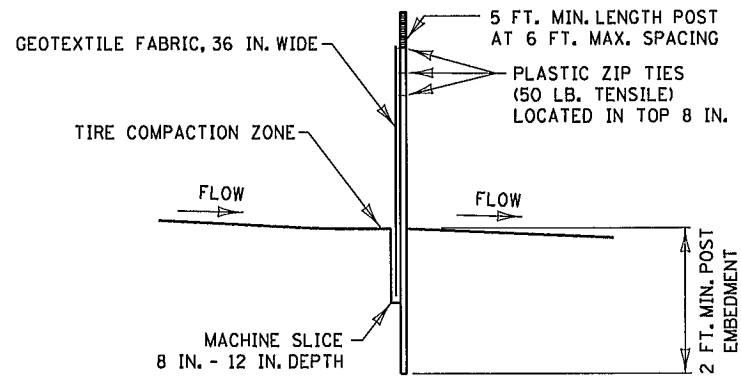
REVISION:
APPROVED: 8-6-2014
[Signature]
CHIEF ENVIRONMENTAL OFFICER

MINNESOTA DEPARTMENT OF TRANSPORTATION
REVISOR:
[Signature]
STATE DESIGN ENGINEER
APPROVED:
8-6-2014

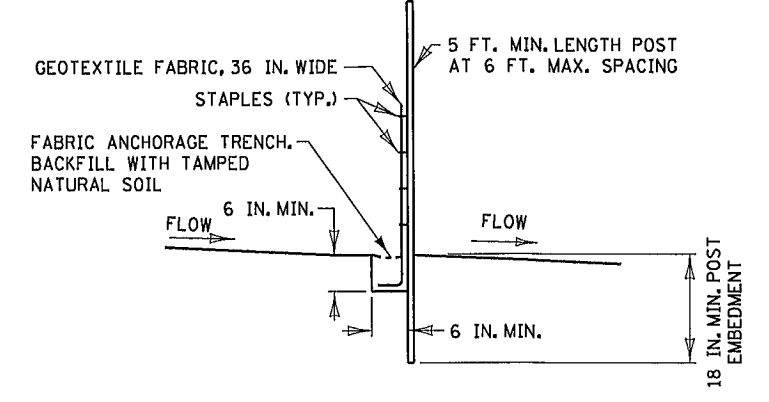
TEMPORARY SEDIMENT CONTROL
STORM DRAIN INLET PROTECTION
STANDARD PLAN 5-297.405
COUNTY PROJECT 16-10-53
4 OF 7
SHEET 27 OF 48



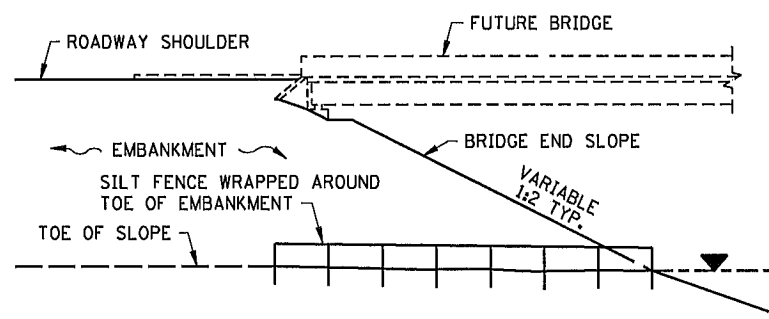
**SILT FENCE TYPE HI ②
(HAND INSTALLED)**



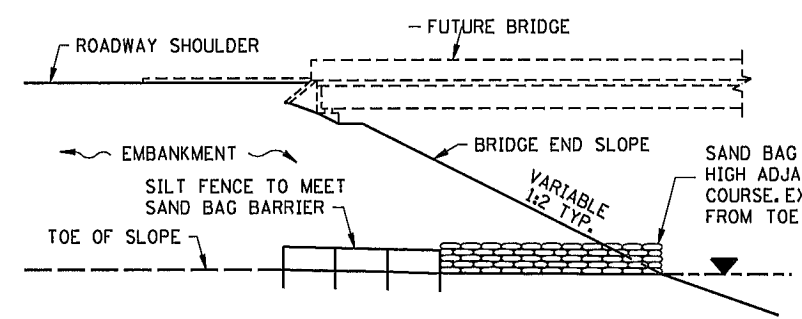
**SILT FENCE TYPE MS ②
(MACHINE SLICED)**



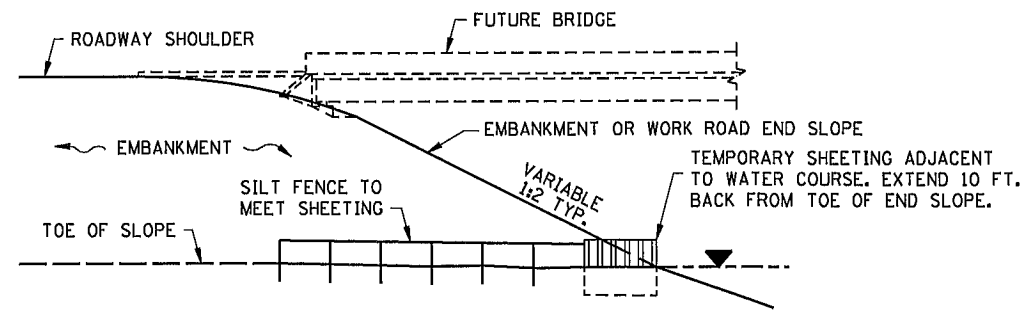
**SILT FENCE TYPE PA ③
(PREASSEMBLED)**



SILT FENCE ONLY ④

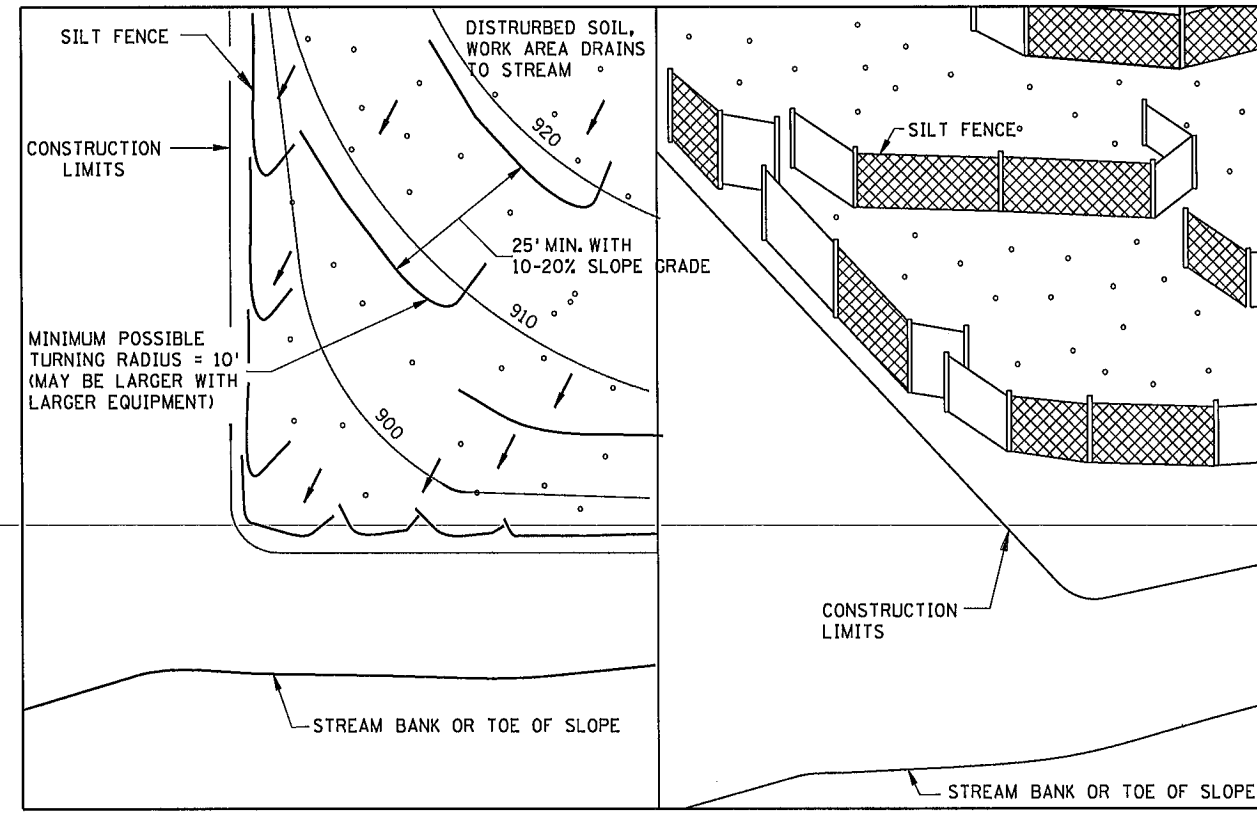


SILT FENCE WITH SAND BAGS ⑤



SILT FENCE WITH SHEETING ⑥

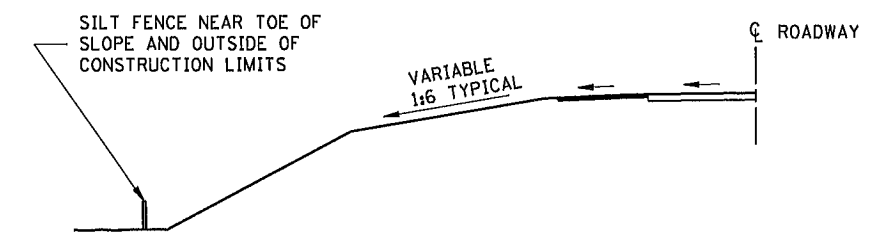
INSTALLATION AT BRIDGE EMBANKMENT ADJACENT TO WATER



PLAN VIEW

PERSPECTIVE VIEW

J-HOOK INSTALLATION



LOCATION AT TOE OF ROADWAY EMBANKMENT

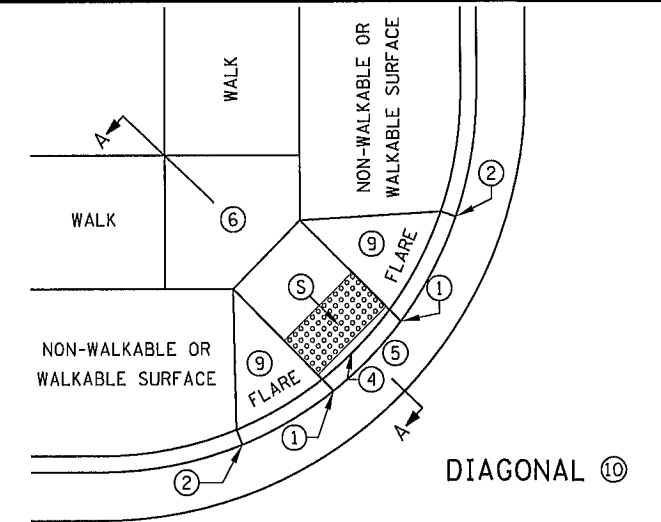
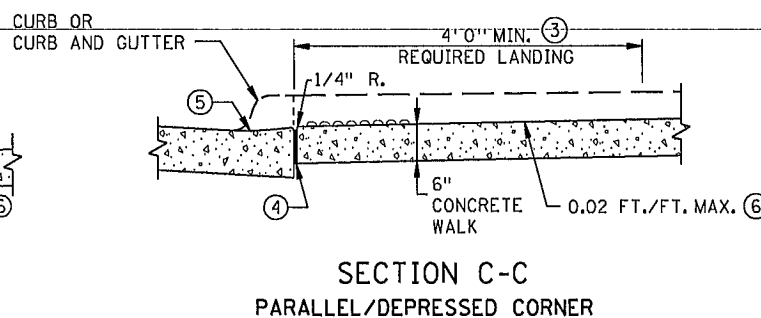
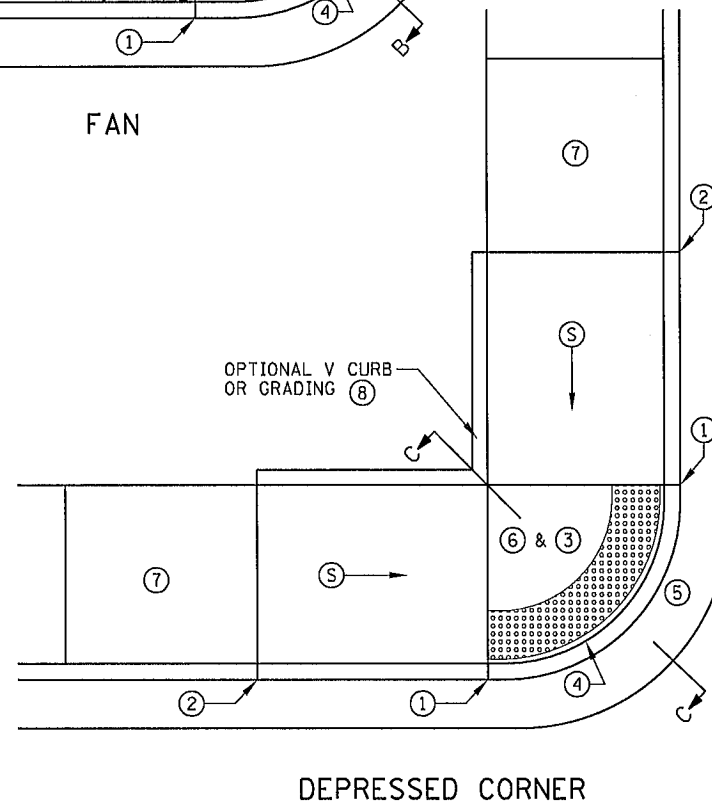
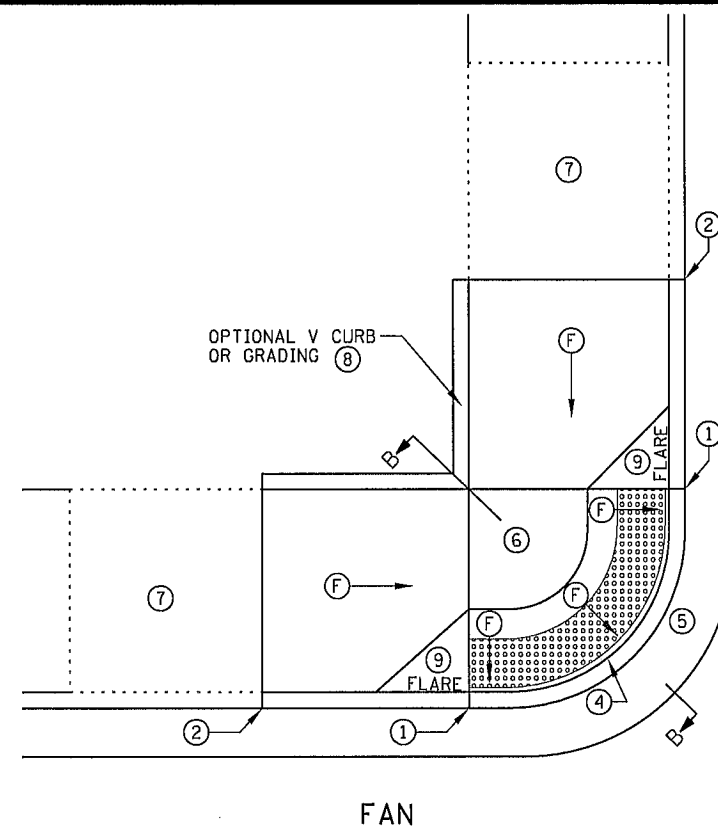
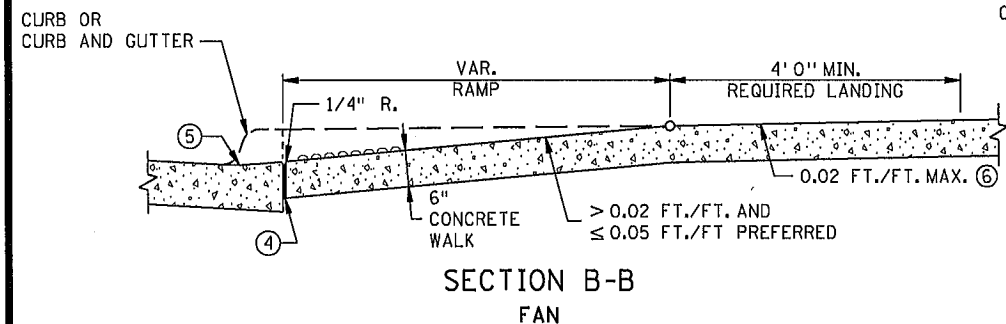
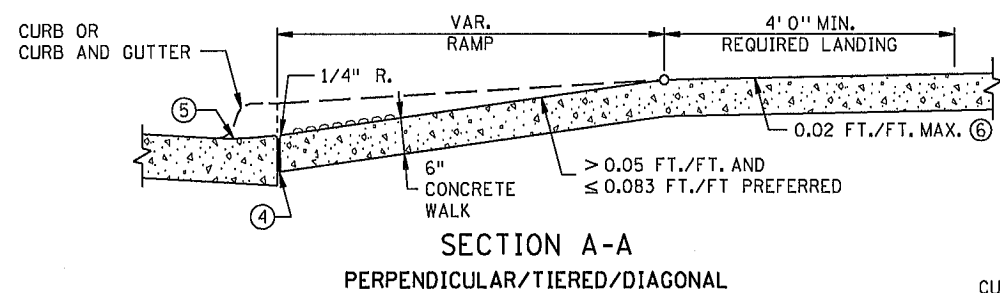
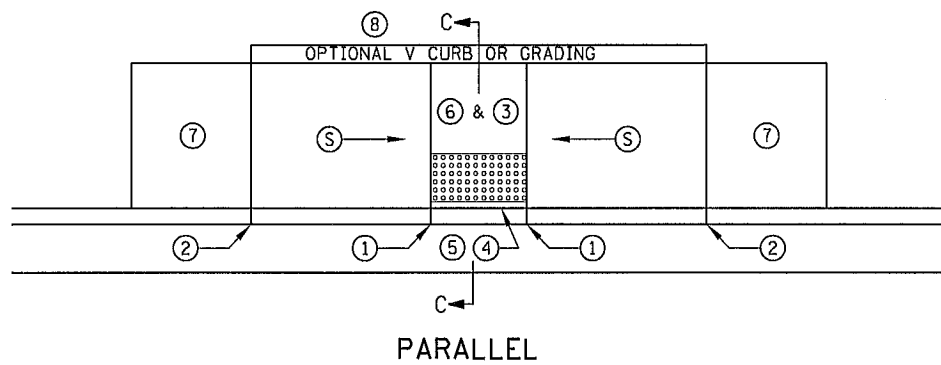
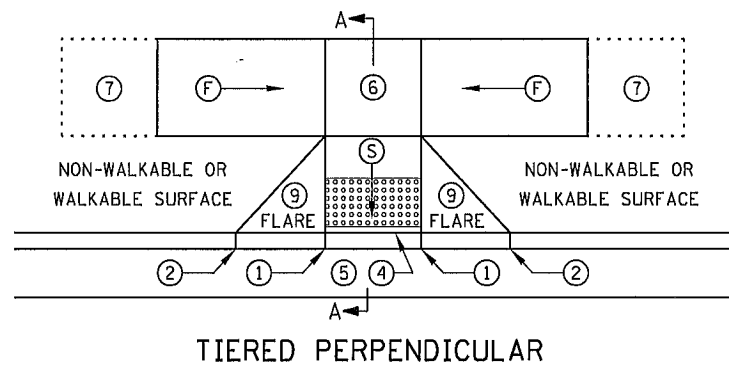
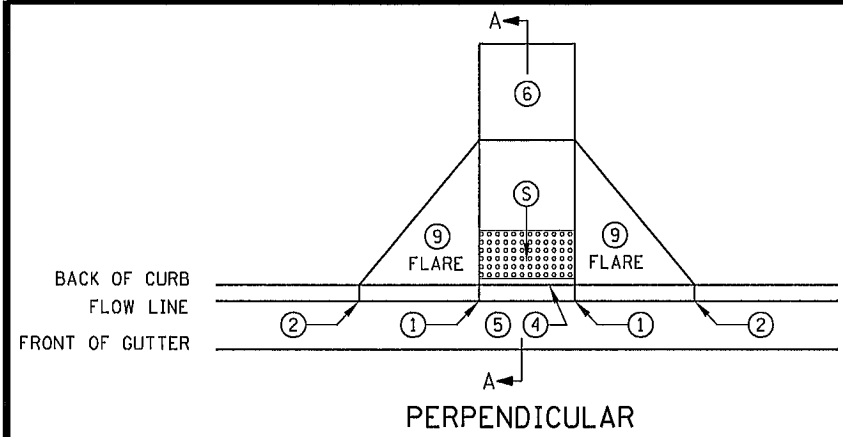
NOTES:

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

REVISION:
APPROVED: 8-6-2014
[Signature]
CHIEF ENVIRONMENTAL OFFICER

REVISED:
[Signature]
STATE DESIGN ENGINEER
APPROVED:
8-6-2014

TEMPORARY SEDIMENT CONTROL
SILT FENCE
STANDARD PLAN 5-297.405
COUNTY PROJECT 16-10-53
6 OF 7
SHEET
28 OF 48



NOTES:

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

INITIAL CURB RAMP LANDINGS SHALL BE CONSTRUCTED WITHIN 15' FROM THE BACK OF CURB, WITH 6' FROM THE BACK OF CURB BEING THE PREFERRED DISTANCE.

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

CONTRACTION JOINTS SHALL BE CONSTRUCTED ALONG ALL GRADE BREAKS.

ALL GRADE BREAKS WITHIN THE PAR SHALL BE PERPENDICULAR TO THE PATH OF TRAVEL.

TO ENSURE RAMPS AND LANDINGS ARE PROPERLY CONSTRUCTED, LANDINGS MAY BE CAST SEPARATELY. FOLLOW SIDEWALK REINFORCEMENT DETAILS ON SHEET 5 WHEN LANDINGS ARE CAST SEPARATELY.

ALL SLOPES ARE ABSOLUTE, RATHER THAN RELATIVE TO SIDEWALK/ROADWAY GRADES.

TOP OF CURB SHALL MATCH PROPOSED ADJACENT WALK GRADE.

4' MINIMUM WIDTH OF DETECTABLE WARNING IS REQUIRED FOR ALL RAMPS. DETECTABLE WARNINGS SHALL CONTINUOUSLY EXTEND FOR A MINIMUM OF 24" IN THE PATH OF TRAVEL. SHARED USE PATHS SHALL HAVE DETECTABLE WARNING ACROSS THE ENTIRE WIDTH OF PATH WHEN THE PATH CROSSES A ROAD.

SEE STANDARD PLATE 7038 AND SHEET 4 OF 5 FOR ADDITIONAL DETAILS ON DETECTABLE WARNING.

- ① 0" CURB HEIGHT.
- ② FULL CURB HEIGHT.
- ③ DETECTABLE WARNINGS MAY BE PART OF 4' X 4' LANDING AREA IF IT IS NOT FEASIBLE TO CONSTRUCT THE LANDING OUTSIDE OF THE DETECTABLE WARNING AREA.
- ④ 1/2" PREFORMED JOINT FILLER MATERIAL AASHTO M 213. JOINT FILLER SHALL BE PLACED FLUSH WITH THE BACK OF CURB AND ADJACENT SIDEWALK. JOINT SHALL BE FREE OF DEBRIS. RECTANGULAR DETECTABLE WARNINGS SHALL BE SETBACK 3" FROM THE BACK OF CURB. RADIAL DETECTABLE WARNINGS SHALL BE SETBACK 3" MINIMUM TO 6" MAXIMUM FROM THE BACK OF CURB.
- ⑤ SEE PEDESTRIAN ACCESS ROUTE CURB AND GUTTER DETAIL FOR INFORMATION ON CONSTRUCTING CURB AND GUTTER AT CURB OPENINGS. SEE SHEET NO. 3 OF 5.
- ⑥ 4' BY 4' MIN. LANDING WITH MAX. 2.0% SLOPE IN ALL DIRECTIONS.
- ⑦ IF LONGITUDINAL SLOPE IS GREATER THAN 5.0%, 4' X 4' MIN. LANDING WITH MAX 2.0% SLOPE IN ALL DIRECTIONS REQUIRED.
- ⑧ V CURB, IF USED, SHALL BE PLACED OUTSIDE THE SIDEWALK LIMITS WHEN RIGHT OF WAY ALLOWS. SEE SHEET 5 OF 5.
- ⑨ SEE SHEET 4 OF 5, TYPICAL SIDE TREATMENT OPTIONS, FOR DETAILS ON FLARES AND RETURNED CURBS.
- ⑩ DIAGONAL RAMPS SHOULD ONLY BE USED AFTER ALL OTHER CURB RAMP TYPES HAVE BEEN EVALUATED AND DEEMED IMPRACTICAL.

LEGEND	
THESE LONGITUDINAL SLOPE RANGES SHALL BE THE STARTING POINT. IF SITE CONDITIONS WARRANT, LONGITUDINAL SLOPES UP TO 8.3% OR FLATTER ARE ALLOWED.	
⑤	INDICATES PEDESTRIAN RAMP - SLOPE SHALL BE BETWEEN 5.0% MINIMUM AND 8.3% MAXIMUM IN THE DIRECTION SHOWN AND THE CROSS SLOPE SHALL NOT EXCEED 2.0%
⑥	INDICATES PEDESTRIAN RAMP - SLOPE SHALL BE GREATER THAN 2.0% AND LESS THAN 5.0% IN THE DIRECTION SHOWN AND CROSS SLOPE SHALL NOT EXCEED 2.0%

REVISIONS:

APPROVED: 8-6-2014

Michael J. Ham
OPERATIONS ENGINEER

MINNESOTA DEPARTMENT OF TRANSPORTATION

REVISOR:

Christopher Ky
STATE DESIGN ENGINEER

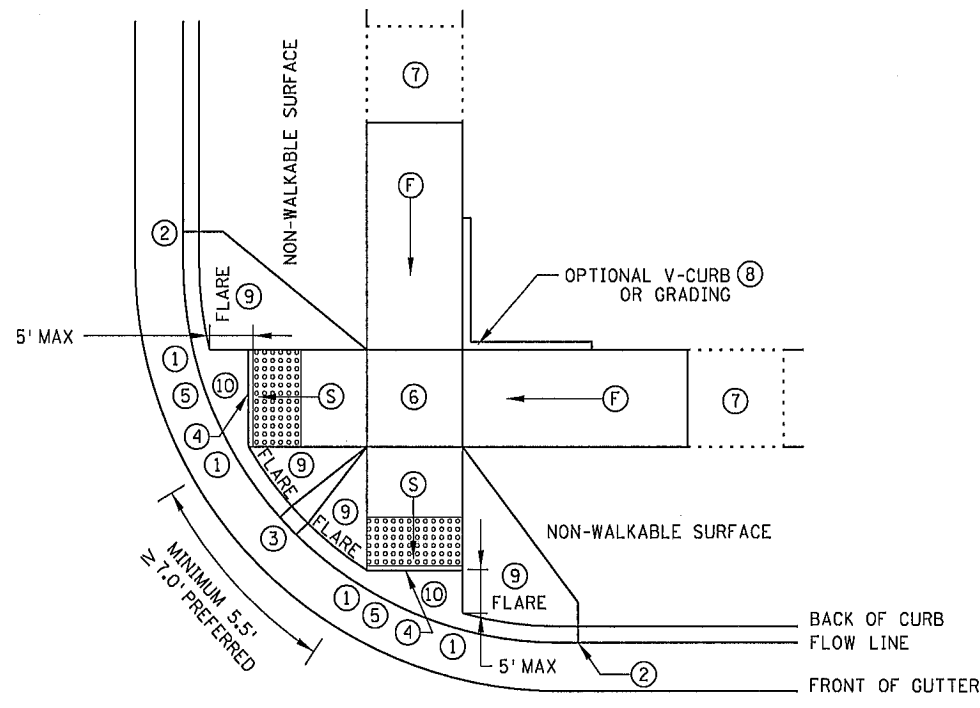
APPROVED: 8-6-2014

PEDESTRIAN CURB RAMP DETAILS 1 OF 5

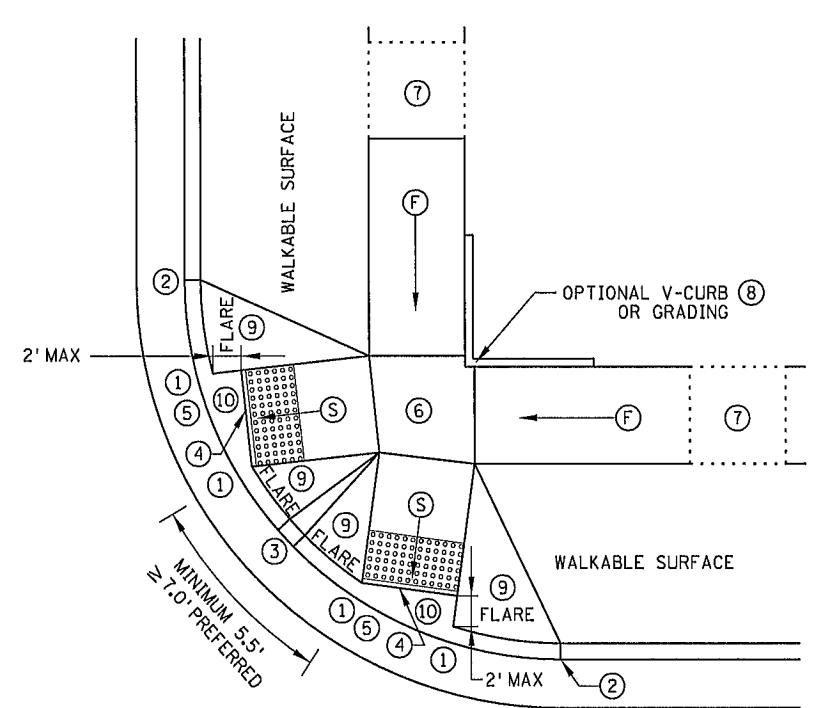
STANDARD PLAN 5-297.250

COUNTY PROJECT 16-10-53

SHEET 29 OF 48

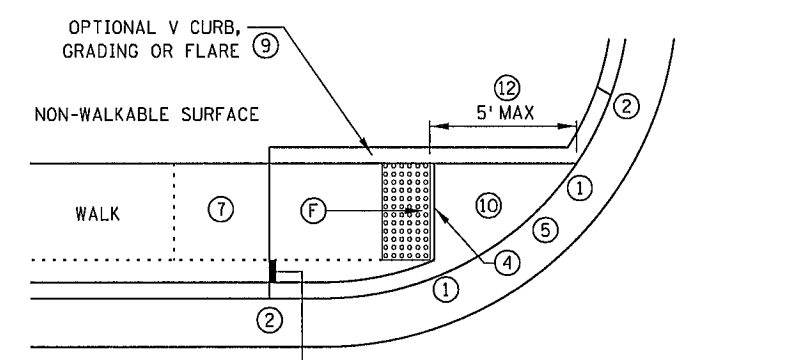


ADJACENT TO NON-WALKABLE SURFACE

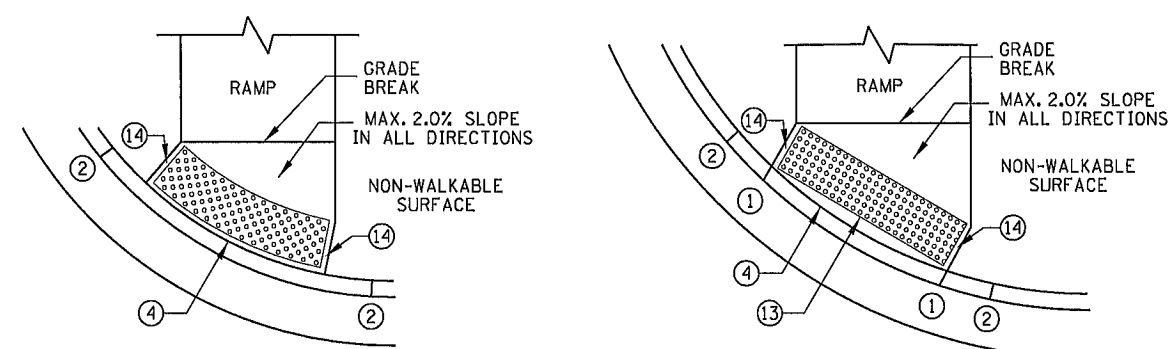


ADJACENT TO WALKABLE SURFACE

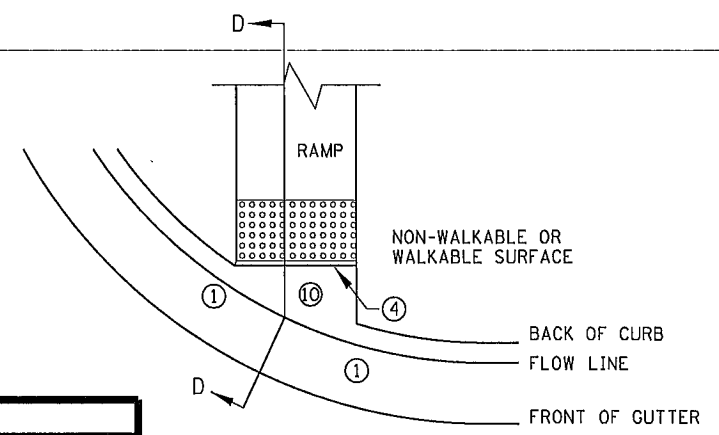
COMBINED DIRECTIONAL 15



ONE-WAY DIRECTIONAL



DETECTABLE WARNING PLACEMENT WHEN SETBACK CRITERIA IS EXCEEDED



SECTION D-D

NOTES:

- LANDINGS SHALL BE LOCATED ANYWHERE THE PEDESTRIAN ACCESS ROUTE CHANGES DIRECTION, AT THE TOP OF RAMPS THAT HAVE RUNNING SLOPES GREATER THAN 5.0%, AND IF THE APPROACHING WALK IS INVERSE GRADE.
- INITIAL CURB RAMP LANDINGS SHALL BE CONSTRUCTED WITHIN 15' FROM THE BACK OF CURB, WITH 6' FROM THE BACK OF CURB BEING THE PREFERRED DISTANCE.
- SECONDARY CURB RAMP LANDINGS ARE REQUIRED FOR EVERY 30" OF VERTICAL RISE WHEN THE LONGITUDINAL SLOPE IS GREATER THAN 5.0%.
- CONTRACTION JOINTS SHALL BE CONSTRUCTED ALONG ALL GRADE BREAKS.
- ALL GRADE BREAKS WITHIN THE PAR SHALL BE PERPENDICULAR TO THE PATH OF TRAVEL.
- TO ENSURE RAMPS AND LANDINGS ARE PROPERLY CONSTRUCTED, LANDINGS MAY BE CAST SEPARATELY. FOLLOW SIDEWALK REINFORCEMENT DETAILS ON SHEET 5 WHEN LANDINGS ARE CAST SEPARATELY.
- ALL SLOPES ARE ABSOLUTE, RATHER THAN RELATIVE TO SIDEWALK/ROADWAY GRADES.
- TOP OF CURB SHALL MATCH PROPOSED ADJACENT WALK GRADE.
- 4' MINIMUM WIDTH OF DETECTABLE WARNING IS REQUIRED FOR ALL RAMPS. DETECTABLE WARNINGS SHALL CONTINUOUSLY EXTEND FOR A MINIMUM OF 24" IN THE PATH OF TRAVEL. SHARED USE PATHS SHALL HAVE DETECTABLE WARNING ACROSS THE ENTIRE WIDTH OF PATH WHEN THE PATH CROSSES A ROAD.
- SEE STANDARD PLATE 7038 AND SHEET 4 OF 5 FOR ADDITIONAL DETAILS ON DETECTABLE WARNING.
- 1 0" CURB HEIGHT.
- 2 FULL CURB HEIGHT.
- 3 3" MINIMUM CURB HEIGHT, 4" PREFERRED.
- 4 1/2" PREFORMED JOINT FILLER MATERIAL AASHTO M 213. JOINT FILLER SHALL BE PLACED FLUSH WITH THE BACK OF CURB AND ADJACENT SIDEWALK. JOINT SHALL BE FREE OF DEBRIS. RECTANGULAR DETECTABLE WARNINGS SHALL BE SETBACK 3" FROM THE BACK OF CURB. RADIAL DETECTABLE WARNINGS SHALL BE SETBACK 3" MIN. TO 6" MAX. FROM THE BACK OF CURB.
- 5 SEE PEDESTRIAN ACCESS ROUTE CURB AND GUTTER DETAIL FOR INFORMATION ON CONSTRUCTING CURB AND GUTTER AT CURB OPENINGS. SEE SHEET NO. 3 OF 5.
- 6 4' BY 4' MIN. LANDING WITH MAX. 2.0% SLOPE IN ALL DIRECTIONS.
- 7 IF LONGITUDINAL SLOPE IS GREATER THAN 5.0%, 4' X 4' MIN. LANDING WITH MAX 2.0% SLOPE IN ALL DIRECTIONS REQUIRED.
- 8 V CURB, IF USED, SHALL BE PLACED OUTSIDE THE SIDEWALK LIMITS WHEN RIGHT OF WAY ALLOWS.
- 9 SEE SHEET 4 OF 5, TYPICAL SIDE TREATMENT OPTIONS, FOR DETAILS ON FLARES AND RETURNED CURBS.
- 10 MAX. 2.0% SLOPE IN ALL DIRECTIONS IN FRONT OF GRADE BREAK AND DRAIN TO FLOW LINE. SHALL BE CONSTRUCTED INTEGRAL WITH CURB AND GUTTER.
- 11 TO BE USED FOR ALL DIRECTIONAL RAMPS.
- 12 PLACE DOMES AT THE BACK OF CURB WHEN ALLOWABLE SETBACK CRITERIA IS EXCEEDED.
- 13 RECTANGULAR DETECTABLE WARNINGS MAY BE SETBACK 9" FROM THE BACK OF CURB WITH CORNERS SET 3" FROM BACK OF CURB. IF 9" SETBACK IS EXCEEDED USE RADIAL DETECTABLE WARNINGS.
- 14 WHEN NO CONCRETE FLARES ARE PROPOSED, THE CONCRETE WALK SHALL BE FORMED AND CONSTRUCTED PERPENDICULAR TO THE BACK OF CURB. MAINTAIN 3" BETWEEN EDGE OF DOMES AND EDGE OF CONCRETE.
- 15 FRONT EDGE OF DETECTABLE WARNING SHALL BE SET BACK 2' MAXIMUM WHEN ADJACENT TO WALKABLE SURFACE, AND 5' MAXIMUM WHEN ADJACENT TO NON-WALKABLE SURFACE WITH ONE CORNER SET 3" FROM BACK OF CURB. WHETHER A SURFACE IS WALKABLE OR NOT SHALL BE DETERMINED BY THE ENGINEER

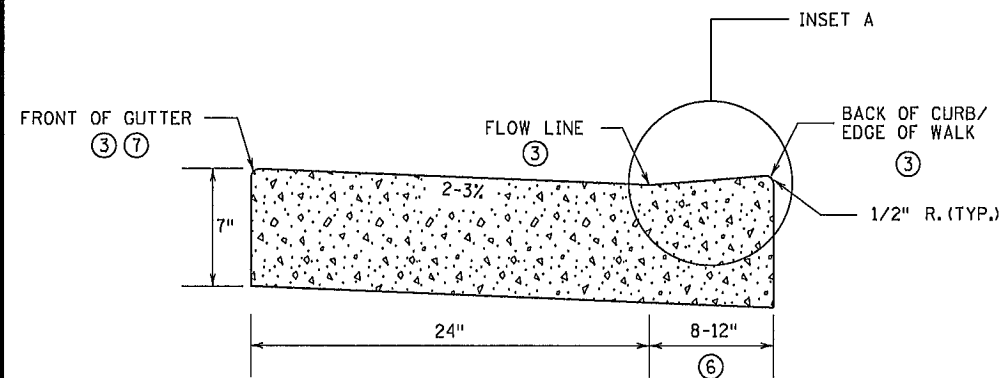
LEGEND	
THESE LONGITUDINAL SLOPE RANGES SHALL BE THE STARTING POINT. IF SITE CONDITIONS WARRANT, LONGITUDINAL SLOPES UP TO 8.3% OR FLATTER ARE ALLOWED.	
(S)	INDICATES PEDESTRIAN RAMP - SLOPE SHALL BE BETWEEN 5.0% MINIMUM AND 8.3% MAXIMUM IN THE DIRECTION SHOWN AND THE CROSS SLOPE SHALL NOT EXCEED 2.0%
(F)	INDICATES PEDESTRIAN RAMP - SLOPE SHALL BE GREATER THAN 2.0% AND LESS THAN 5.0% IN THE DIRECTION SHOWN AND CROSS SLOPE SHALL NOT EXCEED 2.0%

REVISIONS:
 APPROVED: 8-6-2014
 OPERATIONS ENGINEER

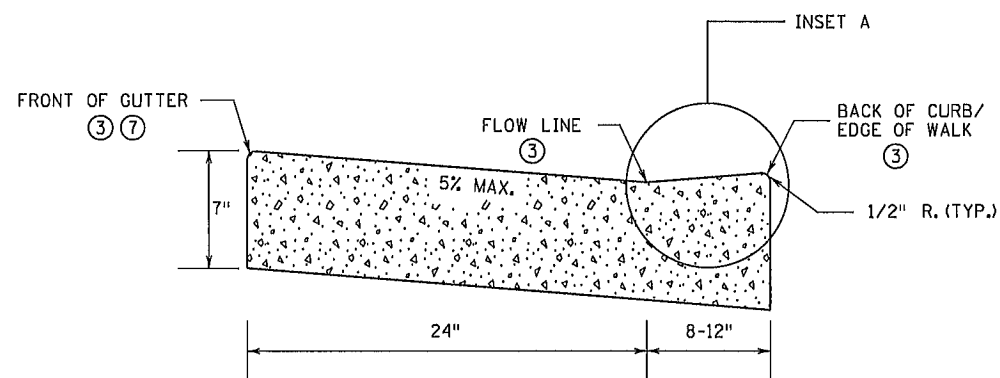
CURB FOR DIRECTIONAL RAMPS 11

MINNESOTA DEPARTMENT OF TRANSPORTATION
 REVISIONS:
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 STATE DESIGN ENGINEER

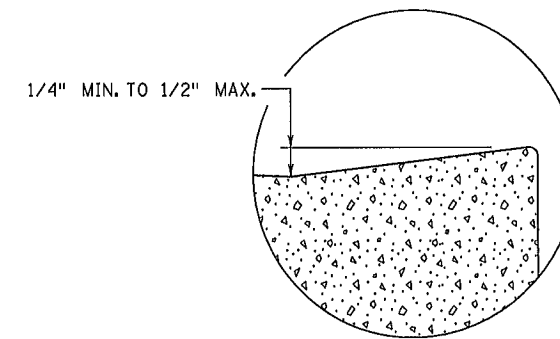
PEDESTRIAN CURB RAMP DETAILS 2 OF 5
 STANDARD PLAN 5-297.250
 COUNTY PROJECT 16-10-53
 SHEET 30 OF 48



NON PERPENDICULAR ①

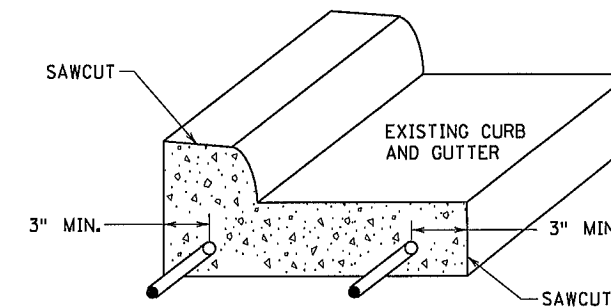
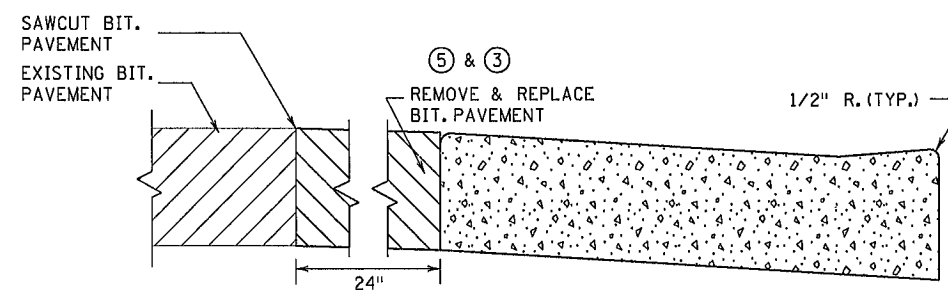
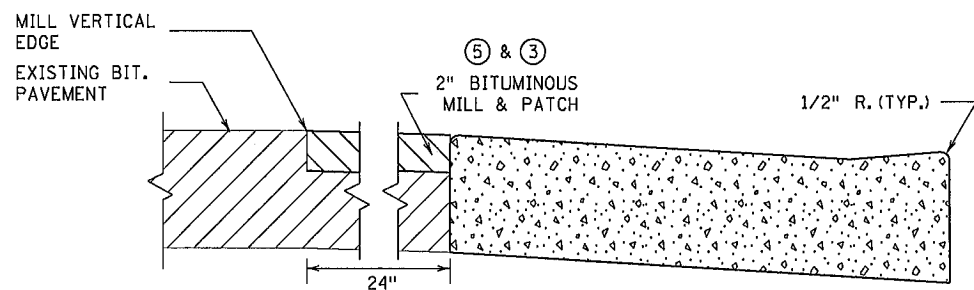


PERPENDICULAR ②

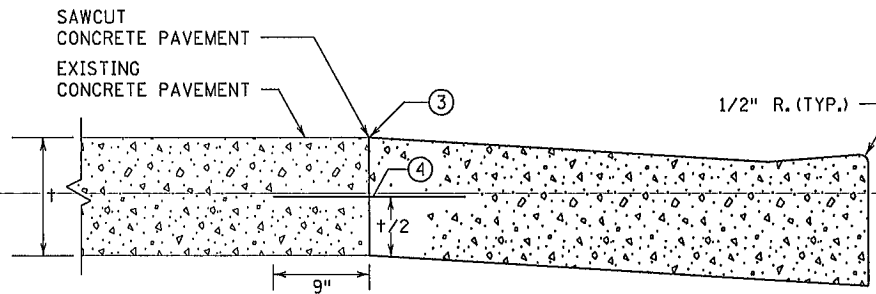
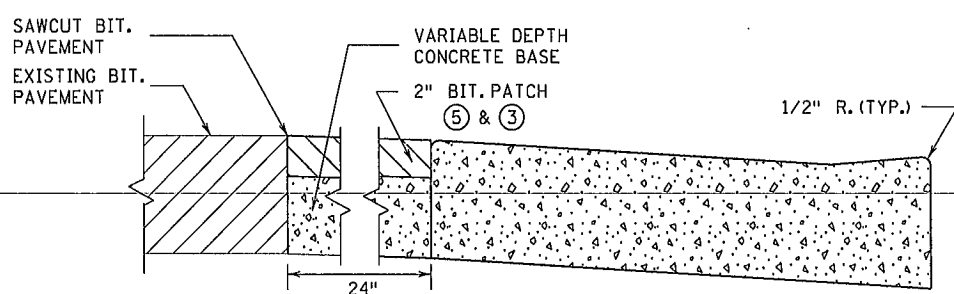


INSET A

PEDESTRIAN ACCESS ROUTE
CURB & GUTTER DETAIL



CURB AND GUTTER
REINFORCEMENT ⑧
FOR USE ON CURB RAMP RETROFITS



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

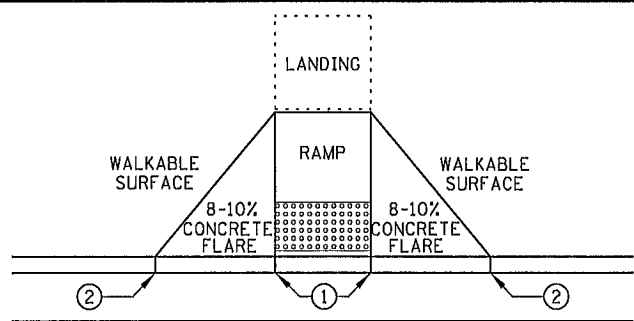
NOTES:

- POSITIVE FLOW LINE DRAINAGE SHALL BE MAINTAINED THROUGH THE PEDESTRIAN ACCESS ROUTE (PAR) AT A 2% MAXIMUM.
- NO PONDING SHALL BE PRESENT IN THE PAR.
- ANY VERTICAL LIP THAT OCCURS AT THE FLOW LINE SHALL NOT BE GREATER THAN 1/4 INCH.
- ① FOR USE AT CURB CUTS WHERE THE PEDESTRIAN'S PATH OF TRAVEL IS ASSUMED NON PERPENDICULAR TO THE GUTTER FLOW LINE. RAMP TYPES INCLUDE: FANS, DEPRESSED CORNERS, & ONE WAY AND COMBINED DIRECTIONALS.
- ② FOR USE AT CURB CUTS WHERE THE PEDESTRIAN'S PATH OF TRAVEL IS ASSUMED PERPENDICULAR TO THE GUTTER FLOW LINE. RAMP TYPES INCLUDE: PERPENDICULAR, TIERED PERPENDICULAR, PARALLEL, AND DIAGONAL RAMPS.
- ③ THERE SHALL BE NO VERTICAL DISCONTINUITIES GREATER THAN 1/4".
- ④ DRILL AND GROUT NO. 4 EPOXY-COATED 18" LONG TIE BARS AT 30" CENTER TO CENTER INTO EXISTING CONCRETE PAVEMENT.
- ⑤ ELEVATION CHANGE TAKES PLACE FROM THE EXISTING TO NEW FRONT OF GUTTER. PATCH IS USED TO MATCH THE NEW GUTTER FACE INTO THE EXISTING ROADWAY.
- ⑥ VARIABLE WIDTH FOR DIRECTIONAL CURB APPLICATIONS.
- ⑦ TOP FRONT OF GUTTER SHALL BE CONSTRUCTED FLUSH WITH PROPOSED ADJACENT PAVEMENT ELEVATION. PAR GUTTER SHALL NOT BE OVERLAID.
- ⑧ WHERE PLAN SPECIFIES, DRILL AND GROUT 2 - NO. 4 X 12" LONG REINFORCEMENT BARS (EPOXY COATED).

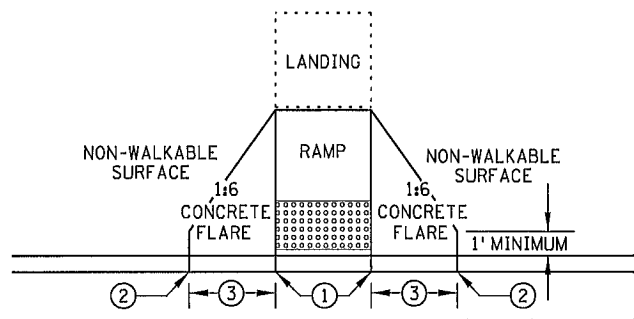
REVISION:
APPROVED: 8-6-2014
M. J. [Signature]
OPERATIONS ENGINEER

REVISOR:
APPROVED: 8-6-2014
Christine [Signature]
STATE DESIGN ENGINEER

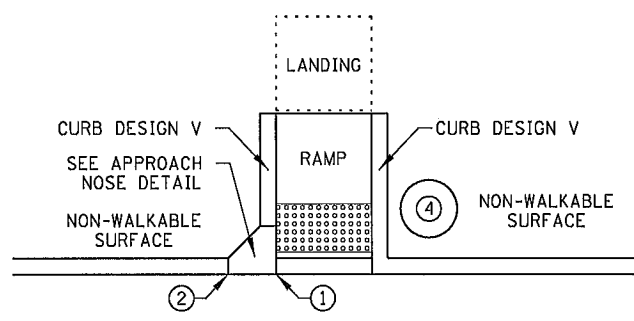
PEDESTRIAN CURB RAMP DETAILS 3 OF 5
STANDARD PLAN 5-297.250
COUNTY PROJECT 16-10-53
SHEET 31 OF 48



PAVED FLARES
ADJACENT TO WALKABLE SURFACE

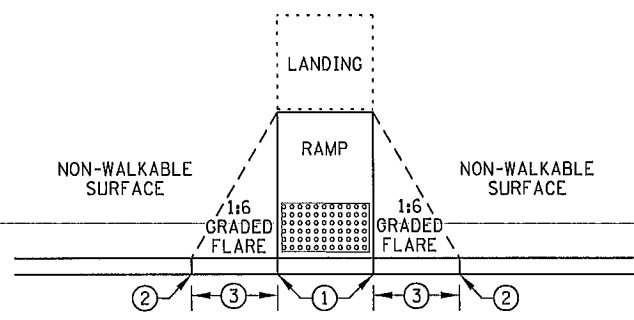


PAVED FLARES
ADJACENT TO NON-WALKABLE SURFACE



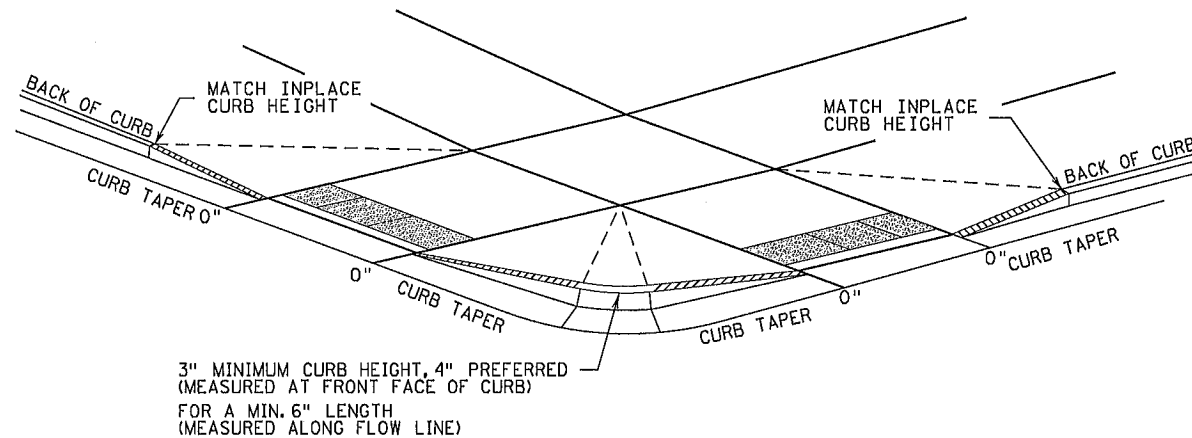
DIRECTION OF TRAFFIC

RETURNED CURB



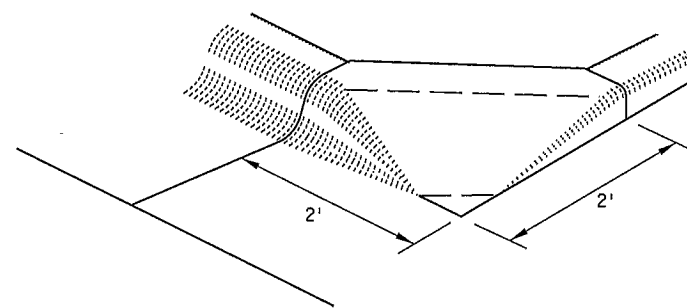
GRADED FLARES

TYPICAL SIDE TREATMENT OPTIONS ⑤



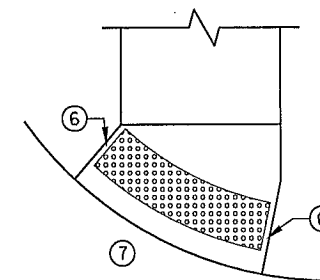
3" MINIMUM CURB HEIGHT, 4" PREFERRED
(MEASURED AT FRONT FACE OF CURB)
FOR A MIN. 6" LENGTH
(MEASURED ALONG FLOW LINE)

DETECTABLE EDGE WITH
CURB AND GUTTER ⑧

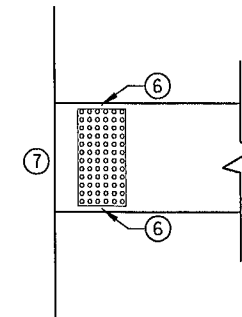


SECTION A-A

APPROACH NOSE DETAIL
FOR DOWNSTREAM SIDE OF TRAFFIC



RADIAL DETECTABLE WARNING



RECTANGULAR DETECTABLE WARNING

DETECTABLE EDGE WITHOUT CURB AND GUTTER

NOTES:

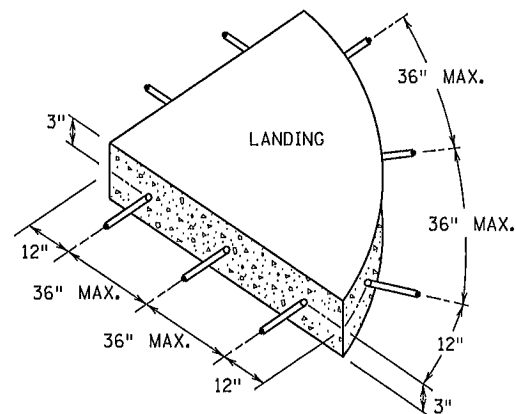
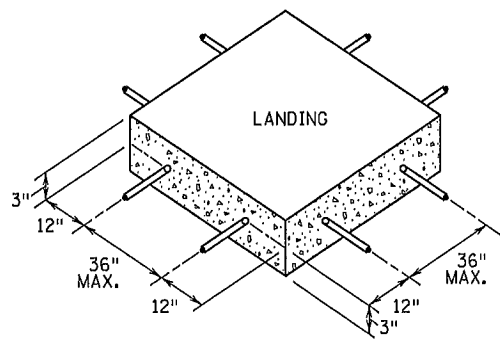
SEE STANDARD PLATE 7038 AND THIS SHEET FOR ADDITIONAL DETAILS ON DETECTABLE WARNING. WHETHER A SURFACE IS WALKABLE OR NOT SHALL BE DETERMINED BY THE ENGINEER. CONCRETE FLARE LENGTHS ADJACENT TO NON-WALKABLE SURFACES SHOULD BE LESS THAN 8' LONG MEASURED ALONG THE RAMPS FROM THE BACK OF CURB.

- ① 0" CURB HEIGHT.
- ② FULL CURB HEIGHT.
- ③ 2' - 3' FLARE.
- ④ IMMOVABLE OBJECT OR OBSTRUCTION.
- ⑤ SIDE TREATMENTS ARE APPLICABLE TO ALL RAMP TYPES AND SHOULD BE IMPLEMENTED AS NEEDED ON ALL RAMPS AS FIELD CONDITIONS DICTATE. THE ENGINEER SHALL DETERMINE THE RAMP SIDE TREATMENTS BASED ON MAINTENANCE OF BOTH ROADWAY AND SIDEWALK, ADJACENT PROPERTY CONSIDERATIONS, AND MITIGATING CONSTRUCTION IMPACTS.
- ⑥ WHEN NO CONCRETE FLARES ARE PROPOSED, THE CONCRETE WALK SHALL BE FORMED AND CONSTRUCTED PERPENDICULAR TO THE EDGE OF ROADWAY. MAINTAIN 3" BETWEEN EDGE OF DOMES AND EDGE OF CONCRETE.
- ⑦ IF NO CURB AND GUTTER IS PLACED IN RURAL SECTIONS, DETECTABLE WARNINGS SHALL BE PLACED 1' FROM THE EDGE OF ROADWAY TO PROVIDE VISUAL CONTRAST.
- ⑧ ALL CONSTRUCTED CURBS MUST HAVE A CONTINUOUS DETECTABLE EDGE FOR THE VISUALLY IMPAIRED. THIS DETECTABLE EDGE REQUIRES DETECTABLE WARNINGS WHEREVER THERE IS ZERO-INCH HIGH CURB. CURB TAPERS ARE CONSIDERED A DETECTABLE EDGE WHEN THE TAPER STARTS WITHIN 3" OF THE EDGE OF THE DETECTABLE WARNINGS AND UNIFORMLY RISES TO A 3-INCH MINIMUM CURB HEIGHT. ANY CURB NOT PART OF A CURB TAPER AND LESS THAN 3 INCHES IN HEIGHT IS NOT CONSIDERED A DETECTABLE EDGE AND THEREFORE IS NOT COMPLIANT WITH ACCESSIBILITY STANDARDS.

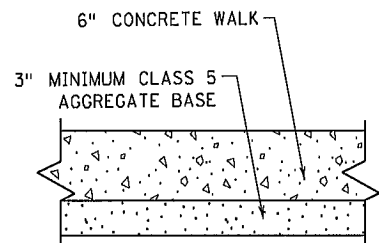
REVISIONS:
APPROVED: 8-6-2014
Michael J. ...
OPERATIONS ENGINEER

MINNESOTA DEPARTMENT OF TRANSPORTATION
REVISOR:
Christopher Ky
STATE DESIGN ENGINEER
APPROVED:
8-6-2014

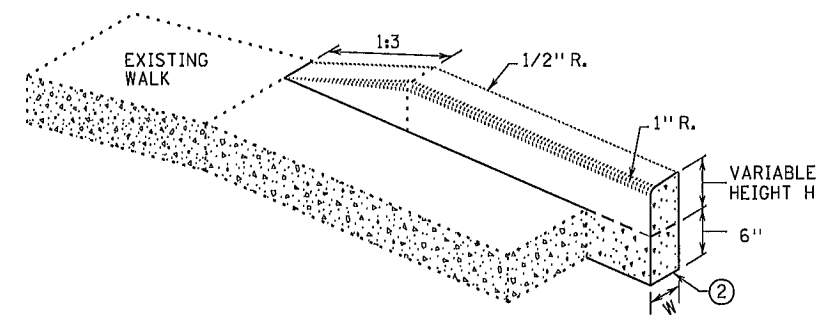
PEDESTRIAN CURB RAMP DETAILS 4 OF 5
STANDARD PLAN 5-297.250
COUNTY PROJECT 16-10-53
SHEET 32 OF 48



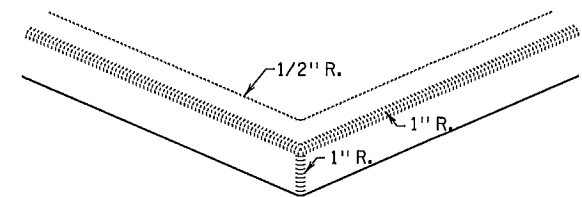
SIDEWALK REINFORCEMENT ⑥ ⑦



TYPICAL SIDEWALK SECTION WITHIN INTERSECTION CORNER

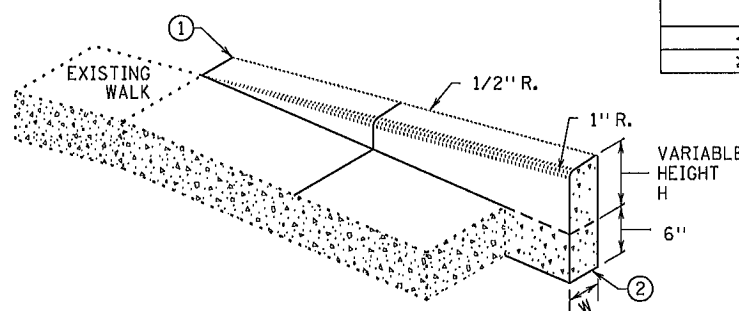


V CURB ADJACENT TO LANDSCAPE CURB WITHIN SIDEWALK LIMITS

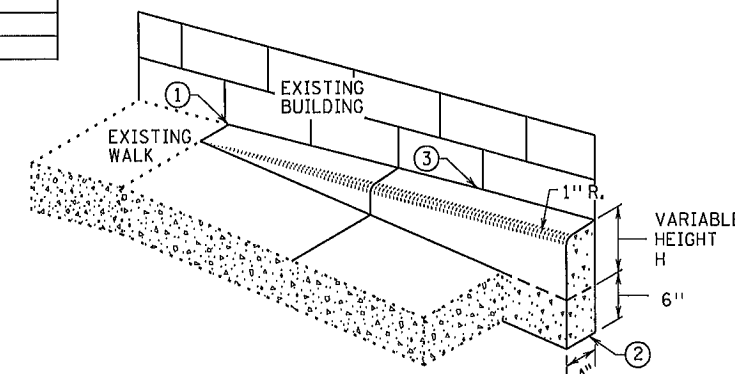


V CURB INTERSECTION

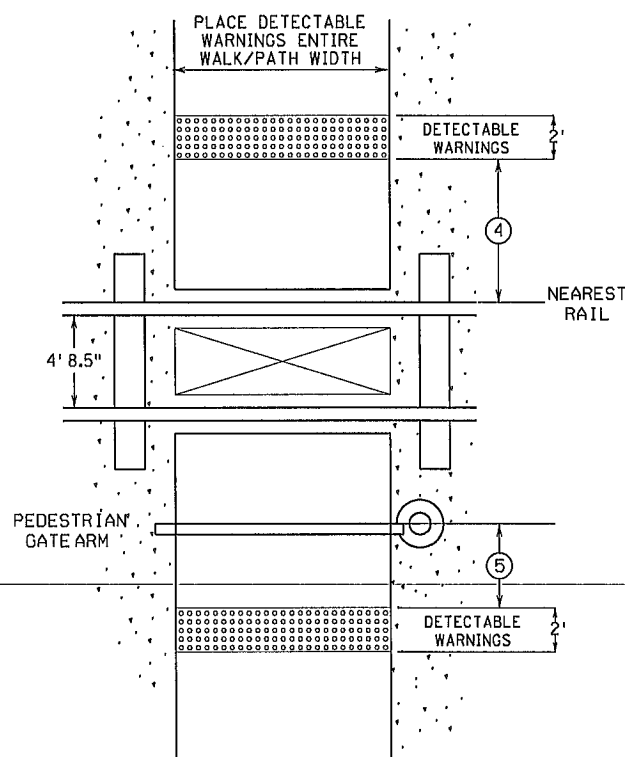
CONCRETE CURB DESIGN V	
CURB HEIGHT H	CURB WIDTH W
< 6"	4"
≥ 6"	6"



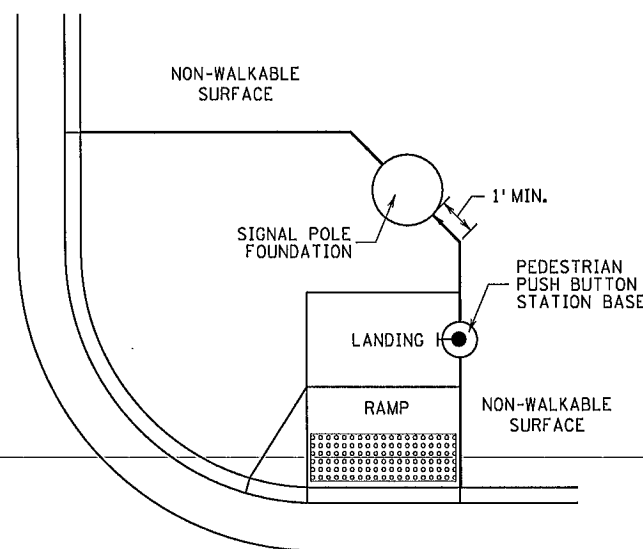
V CURB ADJACENT TO LANDSCAPE CURB OUTSIDE SIDEWALK LIMITS



V CURB ADJACENT TO BUILDING OR BARRIER



RAILROAD CROSSING PLAN VIEW



CONCRETE WALK EDGES ADJACENT TO CONCRETE STRUCTURES

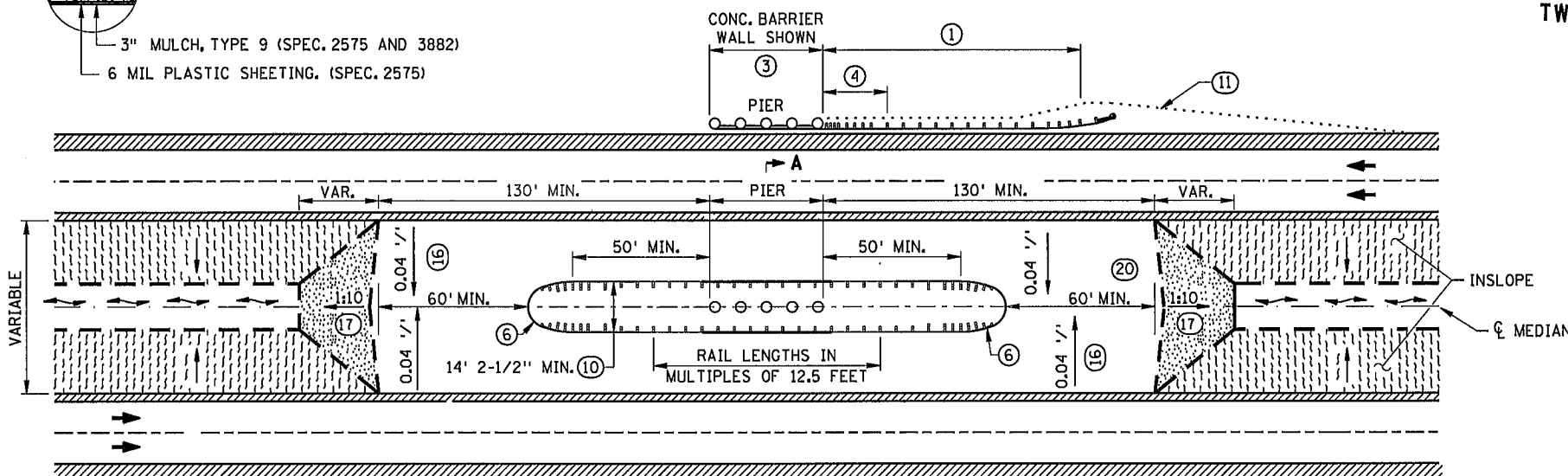
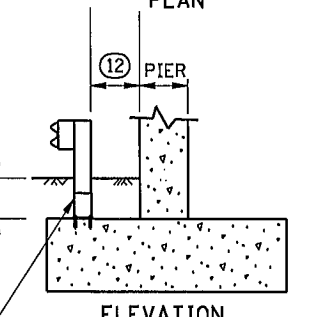
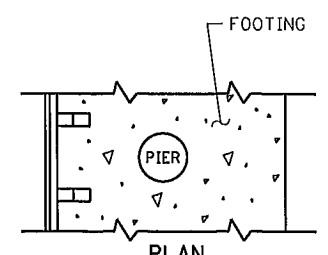
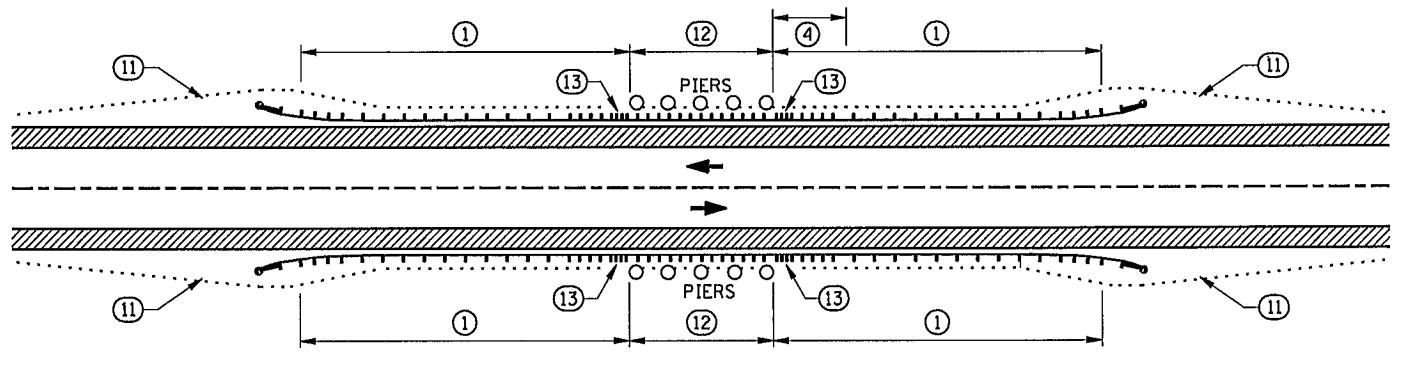
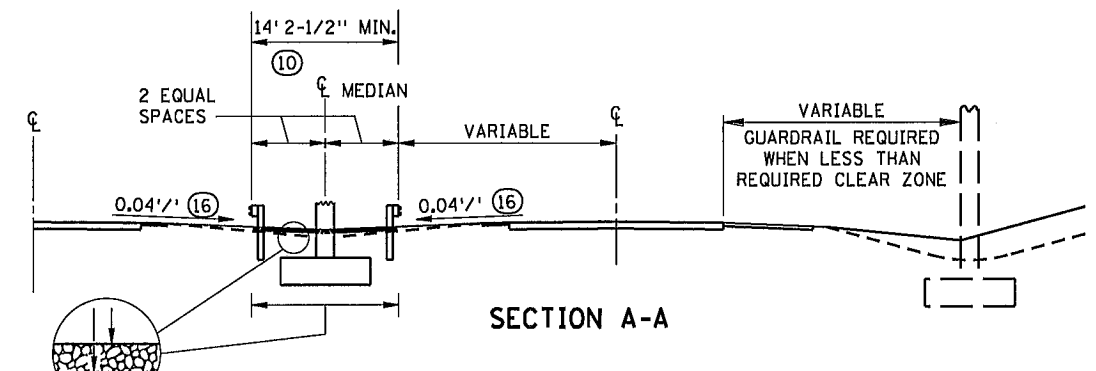
NOTES:

- ALL V CURB CONTRACTION JOINTS SHALL MATCH CONCRETE WALK JOINTS.
- WHERE RIGHT-OF-WAY ALLOWS, USE OF V CURB SHOULD BE MINIMIZED. GRADING ADJACENT TURF OR SLOPING ADJACENT PAVEMENT IS PREFERRED.
- V CURB SHALL BE PLACED OUTSIDE THE SIDEWALK LIMITS WHEN RIGHT OF WAY ALLOWS.
- V CURB NEXT TO BUILDING SHALL BE A 4" WIDTH AND SHALL MATCH PREVIOUS TOP OF SIDEWALK ELEVATIONS.
- ① END TAPERS AT TRANSITION SECTION SHALL MATCH INPLACE SIDEWALK GRADES.
- ② ALL V CURB SHALL MATCH BOTTOM OF ADJACENT WALK.
- ③ EDGE BETWEEN NEW V CURB AND INPLACE STRUCTURE SHALL BE SEALED AND BOND BREAKER SHALL BE USED BETWEEN EXISTING STRUCTURE AND PLACED V-CURB.
- ④ NEAREST EDGE OF DETECTABLE WARNING SURFACES SHALL BE PLACED 12' MINIMUM TO 15' MAXIMUM FROM THE NEAREST RAIL. FOR SKEWED RAILWAYS IN NO INSTANCE SHALL THE DETECTABLE WARNING BE CLOSER THAN 12' MEASURED PERPENDICULAR TO THE NEAREST RAIL.
- ⑤ WHEN PEDESTRIAN GATES ARE PROVIDED, DETECTABLE WARNING SURFACES SHALL BE PLACED ON THE SIDE OF THE GATES OPPOSITE THE RAIL, 2' FROM THE APPROACHING SIDE OF THE GATE ARM.
- ⑥ WHEN PLAN SPECIFIES, DRILL AND GROUT NO. 4 12" LONG REINFORCEMENT BARS AT 36" MAX. CENTER TO CENTER (EPOXY COATED).
- ⑦ TO ENSURE RAMPS AND LANDINGS ARE PROPERLY CONSTRUCTED, LANDINGS MAY BE CAST SEPARATELY. FOLLOW SIDEWALK REINFORCEMENT DETAILS ON THIS SHEET WHEN LANDINGS ARE CAST SEPARATELY.

REVISIONS:
 APPROVED: 2-9-2015
 OPERATIONS ENGINEER

MINNESOTA DEPARTMENT OF TRANSPORTATION
 STATE DESIGN ENGINEER
 Christopher Ky
 APPROVED: 2-9-2015

REVISOR:
 PEDESTRIAN CURB RAMP DETAILS 5 OF 5
 STANDARD PLAN 5-297.250
 COUNTY PROJECT 16-10-53
 SHEET 33 OF 48

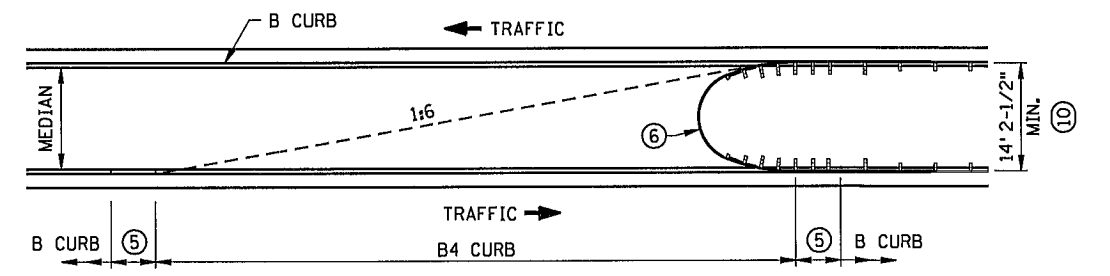


ESTIMATED DESIGN DEFLECTION TABLE FOR DESIGN B W-BEAM GUARDRAIL

6' 3" POST SPACING	3' 0"
6' 3" POST SPACING WITH DOUBLE NESTED RAIL	2' 8"
MODIFIED 3' 1-1/2" POST SPACING	2' 3"
MODIFIED POST SPACING WITH DOUBLE NESTED RAIL	2' 0"

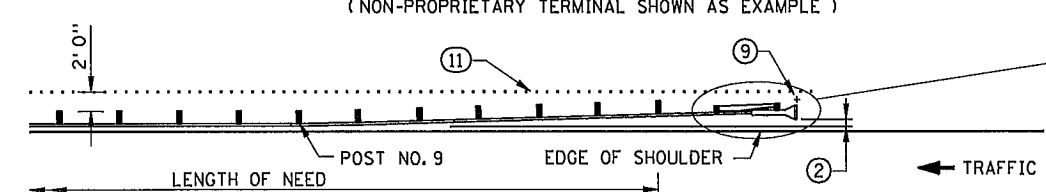
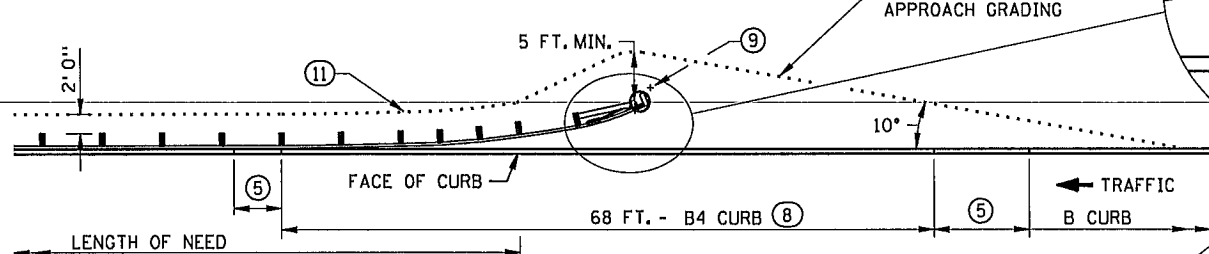
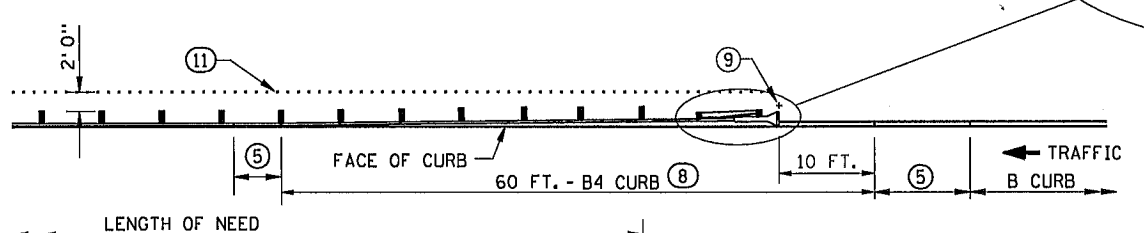
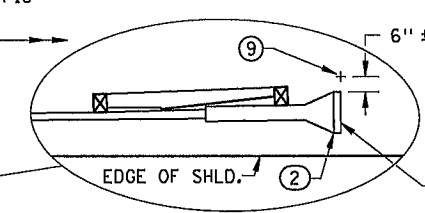
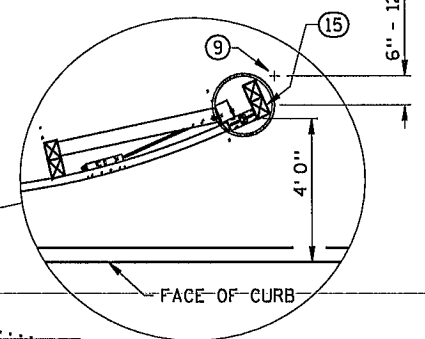
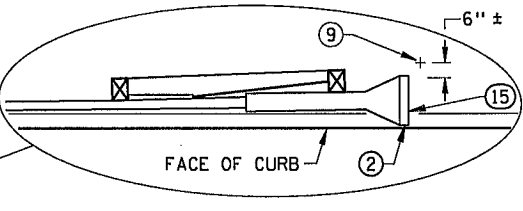
POST SEAT SEE STANDARD PLATE 8316 IF REQUIRED

POST REQUIREMENTS AT PIERS



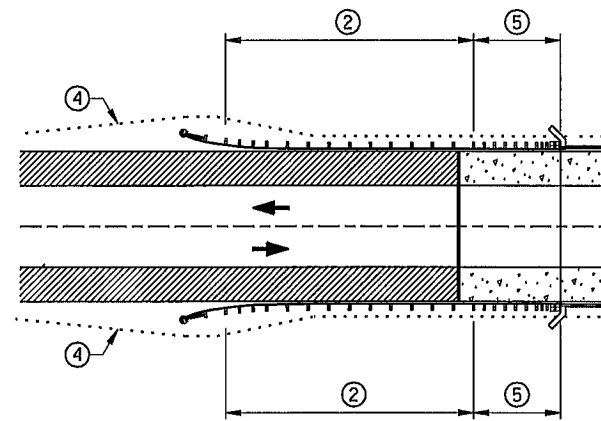
NOTES:

- ALL GUARDRAIL POSTS SHALL BE 6 FT. 3 IN. CENTER TO CENTER (DESIGN B), EXCEPT WHERE NOTED.
- THE LATEST APPROVED VERSION OF STANDARD PLATES SHOWN OR AS INDICATED IN THE PLANS SHALL APPLY.
- ① FOR REQUIRED LENGTH OF INSTALLATION SEE ROAD DESIGN MANUAL CHAPTER 10.
- ② THE LAST 50 FT. OF TANGENT TERMINALS MAY BE FLARED AT 1:50 TAPER.
- ③ CONC. BARRIER WALL BETWEEN PIER COLUMNS MAY BE USED. IF USED, SEE BARRIER WALL DETAILS.
- ④ AN APPROVED TRANSITION MUST BE USED.
- ⑤ 10 FT. CURB TRANSITION, USE IF ADJACENT CURB IS GREATER THAN 4 INCHES.
- ⑥ THRIE BEAM BULLNOSE. SEE STANDARD PLAN 5-297.611 FOR DETAILS.
- ⑦ IF EMBEDMENT IS GREATER THAN 3 FT. 0 IN., OR IF EMBEDMENT IS 2 FT. 6 IN. TO 3 FT. 0 IN. AND ADJACENT POSTS ARE EMBEDDED 3 FT. 0 IN. OR MORE, POST SEAT IS NOT REQUIRED.
- ⑧ FOR CURB 6 IN. OR HIGHER, MILL TO 3 IN. HEIGHT.
- ⑨ SNOWPLOW MARKER (X4-5) WITH A 2 LB./FT. DELINEATOR POST 8 FT. LONG (SPEC. 3401) DRIVEN INTO THE GROUND, EXTEND 3 FT. ABOVE TERMINAL. THE MARKER IS INCIDENTAL FOR WHICH NO DIRECT PAYMENT WILL BE MADE.
- ⑩ MEASUREMENT IS FROM BACK OF RAIL TO BACK OF RAIL.
- ⑪ 1:10 OR FLATTER SLOPE P.I.
- ⑫ SEE ESTIMATED DESIGN DEFLECTION TABLE FOR DESIGN B W-BEAM GUARDRAIL.
- ⑬ WHEN CLOSE POST SPACING OR DOUBLE NESTED RAIL IS USED, THIS POST SPACING SHOULD EXTEND A MINIMUM OF 12 FT. IN THE DIRECTION OF APPROACHING TRAFFIC.
- ⑭ THE ANCHOR-ASSEMBLY MUST BE LOCATED DOWNSTREAM OF THE HAZARD.
- ⑮ MARK THE APPROACH END OF PLATE BEAM GUARDRAIL INSTALLATIONS WITH A STRIPED OBJECT MARKER SIZED TO FIT THE END TERMINAL, HAVING ALTERNATING BLACK AND REFLECTIVE YELLOW (WIDE ANGLE PRISMATIC RETROREFLECTIVE SHEETING) STRIPES SLOPED DOWNWARD AT A 45 DEGREE ANGLE TOWARD THE SIDE ON WHICH TRAFFIC PASSES. FOR FLAT END TREATMENTS THE OBJECT MARKER SHALL FIT INSIDE THE RECESSED AREA. FOR ROUNDED END TREATMENTS THE OBJECT MARKER SHALL WRAP AROUND THE CIRCULAR END AND BE MOUNTED SO THE TOP OF THE OBJECT MARKER LINES UP WITH THE TOP OF THE END TREATMENT.
- ⑯ 0.04 FT./FT. CROSS SLOPE TYPICAL. 0.10 FT./FT. CROSS SLOPE MAXIMUM.
- ⑰ 1:10 SLOPE OR FLATTER.
- ⑱ USE ONLY FOR RETROFITS WITH SITE RESTRICTIONS. FOR RETROFITS WITHOUT SITE RESTRICTIONS AND NEW CONSTRUCTION, SEE SHEET 3.
- ⑲ MEDIAN GRADING DETAIL SHOWN APPLIES TO THRIE-BEAM BULLNOSE ONLY.
- ⑳ DRAINAGE DETAILS SHOWN ON GRADING PLAN.

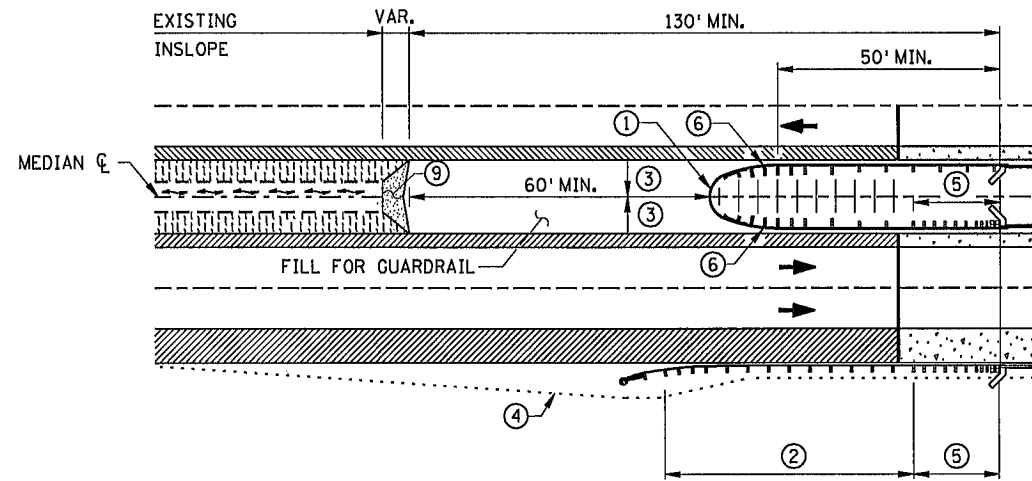


MINNESOTA DEPARTMENT OF TRANSPORTATION
 REVISIONS: 5-27-2014
 APPROVED: Christopher Ry
 STATE DESIGN ENGINEER

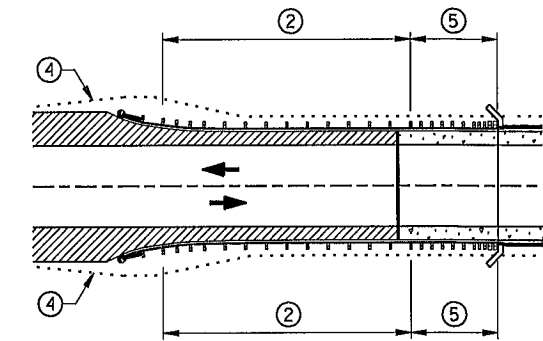
GUARDRAIL INSTALLATIONS AT MEDIANS AND END TREATMENTS
 STANDARD PLAN 5-297.601
 COUNTY PROJECT 16-10-53
 34 OF 48



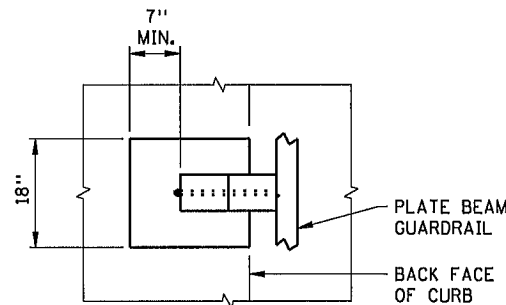
**TWO - WAY BRIDGE
WITH FULL SHOULDERS**



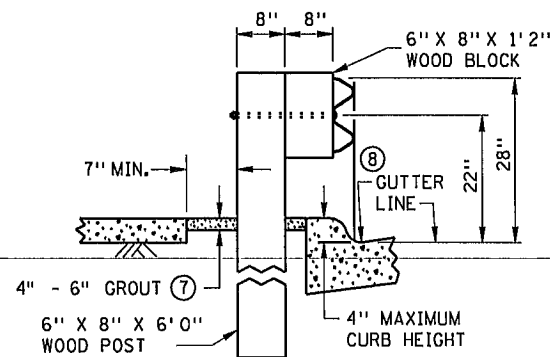
**ONE - WAY BRIDGE
WITH FULL RIGHT SHOULDER
(FOR 14' 2-1/2" THRIE BEAM BULLNOSE)**



**TWO - WAY BRIDGE
WITHOUT FULL SHOULDERS**

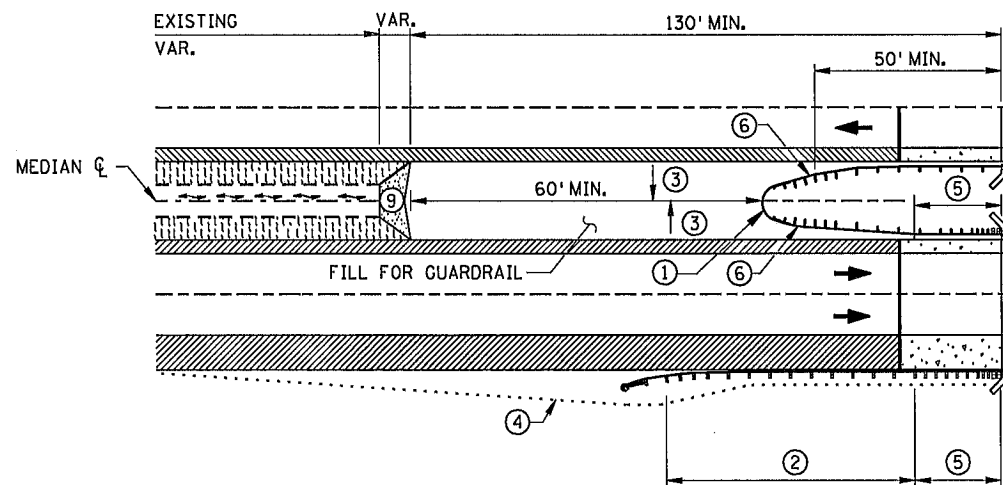


PLAN VIEW



ELEVATION

**TYPICAL W-BEAM GUARDRAIL SECTION
AT POST SET IN CONCRETE**



**ONE - WAY BRIDGE
WITH FULL RIGHT SHOULDER
(FOR MEDIANS WIDER THAN 14' 2-1/2" THRIE BEAM BULLNOSE)**

NOTES:

- ALL GUARDRAIL POSTS SHALL BE 6 FT. 3 IN. CENTER TO CENTER (DESIGN B), EXCEPT WHERE NOTED.
- THE LATEST APPROVED VERSION OF STANDARD PLATES SHOWN OR AS INDICATED IN THE PLANS SHALL APPLY.
- ① THRIE BEAM BULLNOSE, SEE STANDARD PLAN 5-297.611 FOR DETAILS.
- ② FOR THE REQUIRED LENGTH SEE ROAD DESIGN MANUAL CHAPTER 10.
- ③ 0.04 FT./FT. CROSS SLOPE TYPICAL, 0.10 FT./FT. CROSS SLOPE MAXIMUM.
- ④ 1:10 OR FLATTER SLOPE P.I.. APPROACH GRADING VARIES WITH TERMINAL TYPE.
- ⑤ PLATE BEAM GUARDRAIL ATTACHMENTS TO FIXED OBJECTS REQUIRE AN APPROVED TRANSITION SECTION.
- ⑥ FOR MEDIANS WIDER THAN THE 14 FT. 2-1/2 IN., BEFORE TAPERING THE APPROACH SIDE, TAPER THE OPPOSING SIDE AS SHOWN ON THE BULLNOSE DESIGN DETAIL. APPROACH TAPER SHOULD NOT EXCEED 1:25 IF THE BARRIER IS WITHIN THE SHY LINE OR 1:15 IF IT IS OUTSIDE.
- ⑦ GROUT MIX (BY VOLUME): 1 PART CEMENT (TYPE 1A), 14 PARTS SAND, 5 PARTS WATER.
- ⑧ PLACE FRONT FACE OF W-BEAM DIRECTLY ABOVE FRONT FACE OF CURB.
- ⑨ 1:10 SLOPE OR FLATTER.

REVISIONS:

APPROVED: *Christopher Ry* 5-27-2014

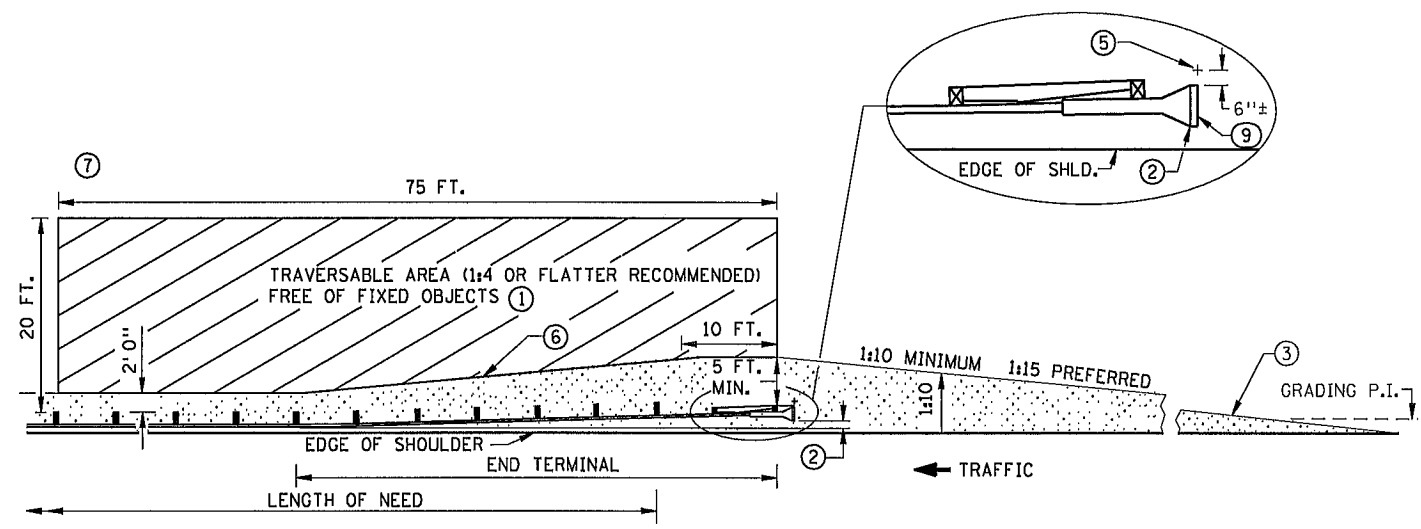
STATE DESIGN ENGINEER

**GUARDRAIL INSTALLATIONS AT MEDIANS
AND END TREATMENTS**

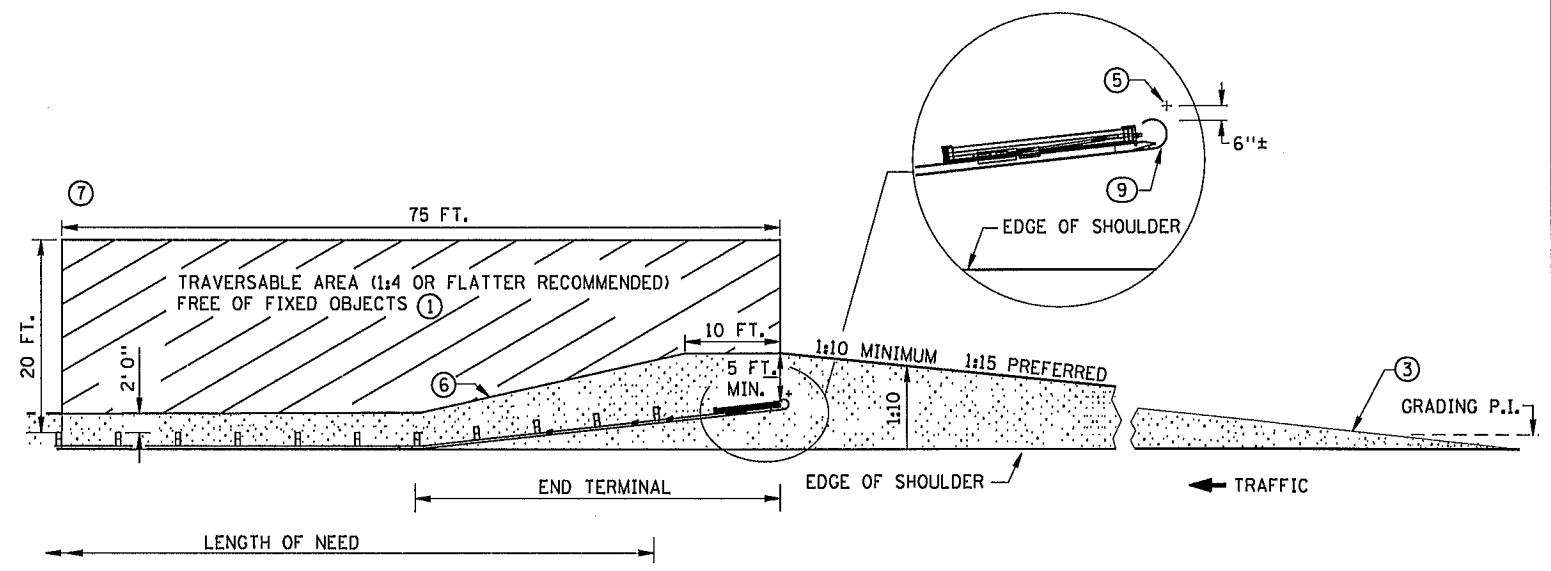
STANDARD PLAN 5-297.601

COUNTY PROJECT 16-10-53

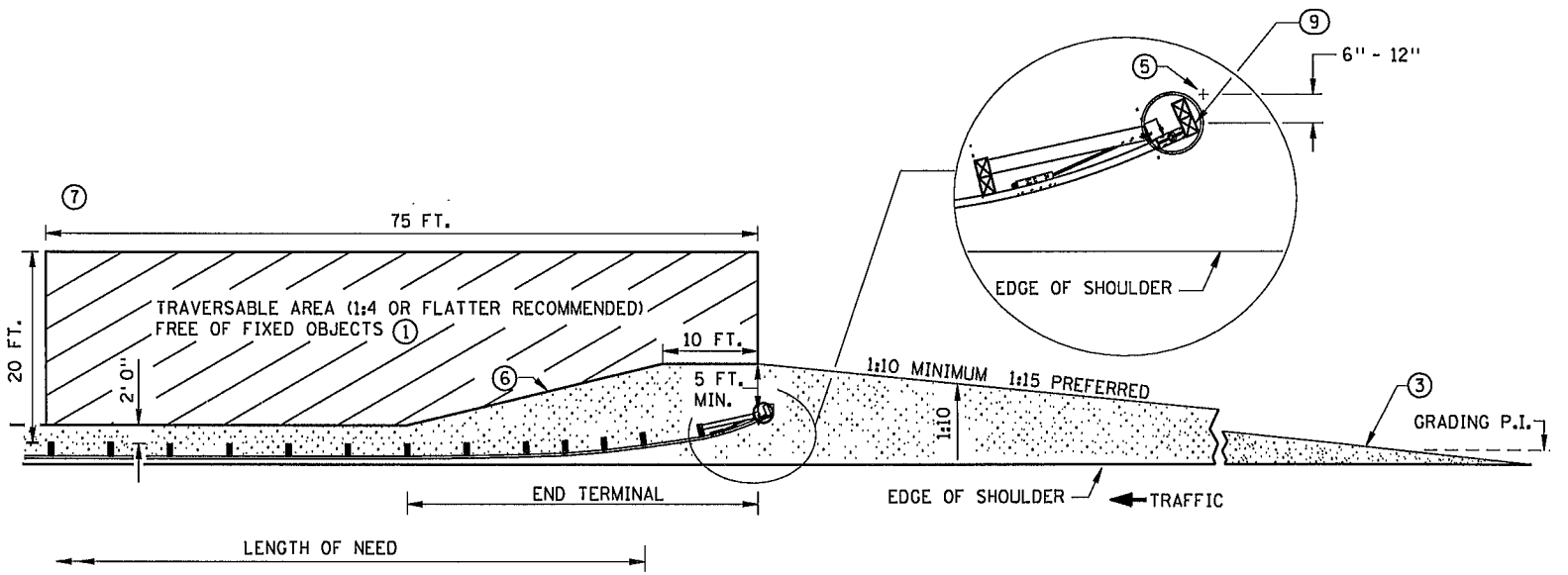
35 OF 48



PLAN VIEW
(PROPRIETARY TANGENT TERMINAL SHOWN AS EXAMPLE)



PLAN VIEW ⑧
(PROPRIETARY FLARED TERMINAL SHOWN AS EXAMPLE)




PLAN VIEW ④ ⑧
(ELT)

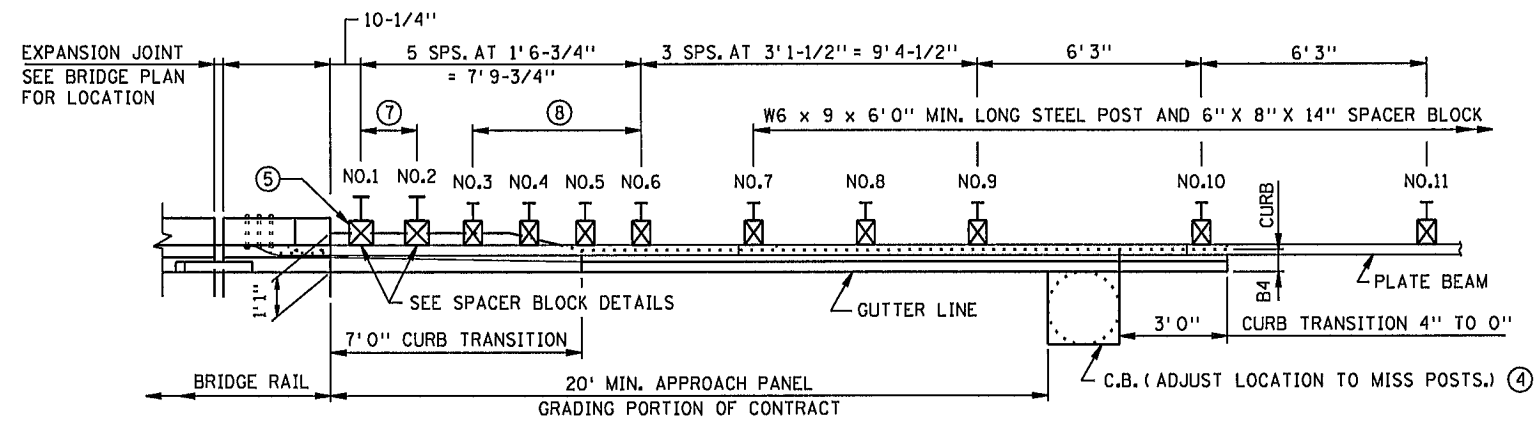
NOTES:

- ALL CROSS SLOPES ARE IN FOOT/FOOT UNLESS OTHERWISE NOTED.
- ALL GUARDRAIL POSTS SHALL BE 6 FT. 3 IN. CENTER TO CENTER (DESIGN B), EXCEPT WHERE NOTED.
- CHANGES (TO SUBJECTS COVERED BY THIS SHEET) INDICATED IN THE PLANS OR ON PLATES WITH MORE RECENT APPROVAL DATES SHALL APPLY.
- GRADING AND DRAINAGE HARDWARE ARE NOT INCIDENTAL TO GUARDRAIL INSTALLATION.
- ① SLOPES BETWEEN 1:3 AND 1:4 PERMITTED WHEN 1:4 OR FLATTER IS NOT POSSIBLE. FOR SLOPES STEEPER THAN 1:3 THE AREA IMMEDIATELY BEHIND AND BEYOND THE END TERMINAL SHOULD, AT LEAST, BE SIMILAR IN CROSS SECTION TO THE UNSHIELDED ROADSIDE AREA UPSTREAM OF THE END TERMINAL.
- ② THE LAST 50 FT. OF TANGENT TERMINALS CAN BE FLARED AT 1:50 TAPER.
- ③ WHEN GRADING PLATFORMS ARE BUILT, THEY MUST BE SMOOTHLY TRANSITIONED TO EXISTING SIDE SLOPE SO THE ENTIRE ROADSIDE APPROACH TO THE BARRIER REMAINS TRAVERSABLE, AS WELL AS THE AREA IMMEDIATELY BEHIND IT.

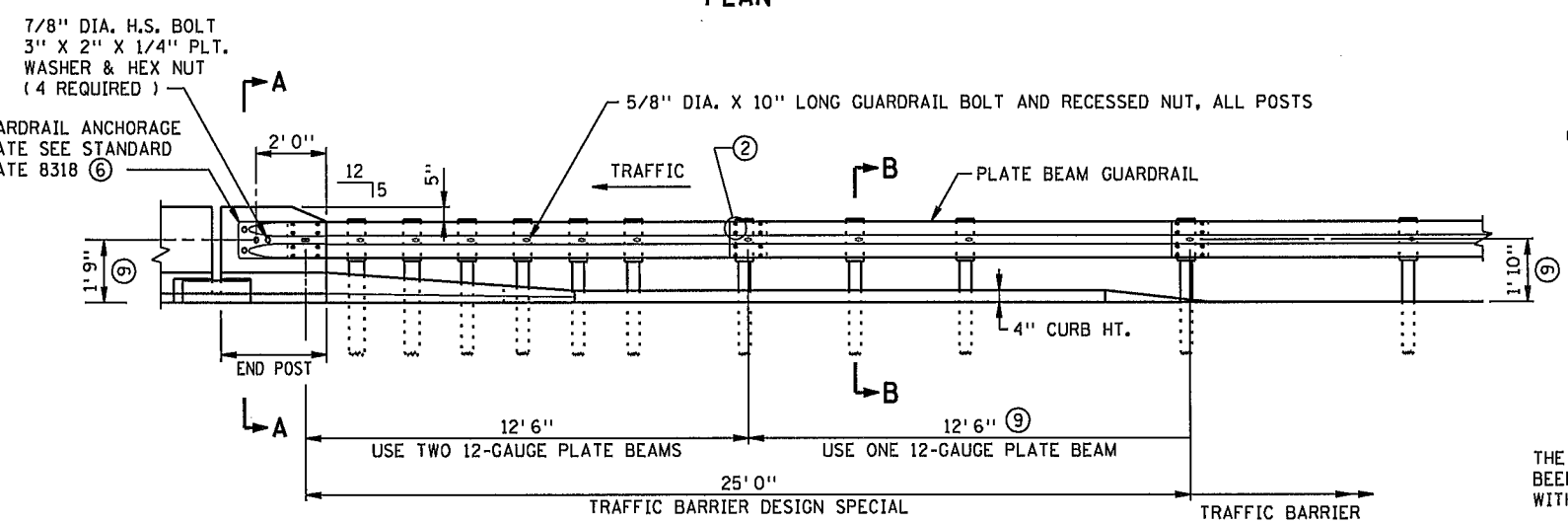
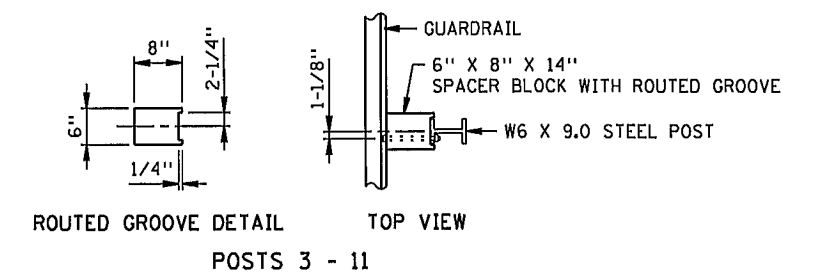
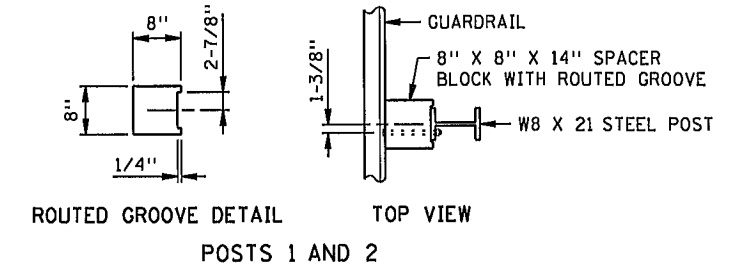
- ④ SEE STANDARD PLATE 8329.
- ⑤ SNOWPLOW MARKER (X4-5) WITH A 2 LB./FT. DELINEATOR POST 8 FT. LONG (SPEC. 3401) DRIVEN INTO THE GROUND. EXTEND 3 FT. ABOVE TERMINAL. THE MARKER IS INCIDENTAL FOR WHICH NO DIRECT PAYMENT WILL BE MADE. MARK BOTH THE BEGINNING AND END OF PLATE BEAM GUARDRAIL INSTALLATION.
- ⑥ 1:10 OR FLATTER SLOPE P.I.
- ⑦ GRADUALLY BLEND SLOPE FROM TRAVERSABLE AREA TO STEEP EXISTING SLOPE (WHEN SLOPE IS STEEPER THAN 1:6).
- ⑧ IF THE TERRAIN BEYOND THE TERMINAL END AND IMMEDIATELY BEHIND THE BARRIER IS NOT SAFELY TRAVERSABLE, A TANGENT (ENERGY- ABSORBING) TERMINAL SHALL BE USED.
- ⑨ MARK THE APPROACH END OF PLATE BEAM GUARDRAIL INSTALLATIONS WITH A STRIPED OBJECT MARKER SIZED TO FIT THE END TERMINAL, HAVING ALTERNATING BLACK AND REFLECTIVE YELLOW (WIDE ANGLE PRISMATIC RETROREFLECTIVE SHEETING). STRIPES SHALL SLOPE DOWNWARD AT A 45 DEGREE ANGLE TOWARD THE SIDE ON WHICH TRAFFIC PASSES. FOR FLAT END TREATMENTS THE OBJECT MARKER SHALL FIT INSIDE THE RECESSED AREA. FOR ROUNDED END TREATMENTS THE OBJECT MARKER SHALL WRAP AROUND THE CIRCULAR END AND BE MOUNTED SO THE TOP OF THE OBJECT MARKER LINES UP WITH THE TOP OF THE END TREATMENT.


 REVISED:
 APPROVED:
 STATE DESIGN ENGINEER
 5-27-2014

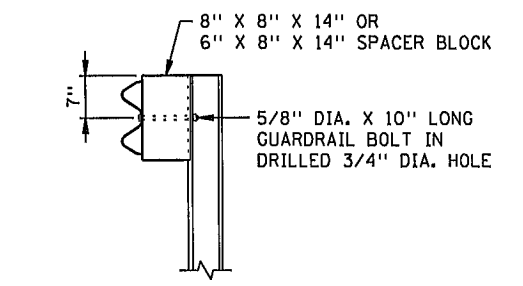
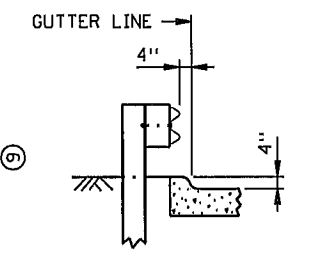
GUARDRAIL INSTALLATIONS AT MEDIANS AND END TREATMENTS
 (FOR NEW CONSTRUCTION AND RETROFITS WITHOUT SITE RESTRICTIONS)
 STANDARD PLAN 5-297.601
 COUNTY PROJECT 16-10-53



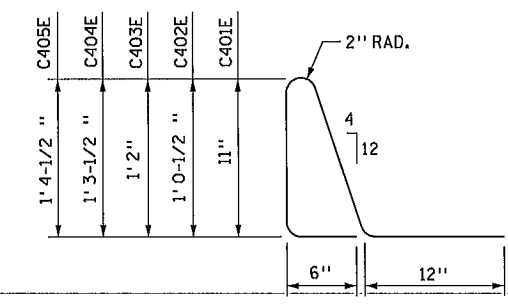
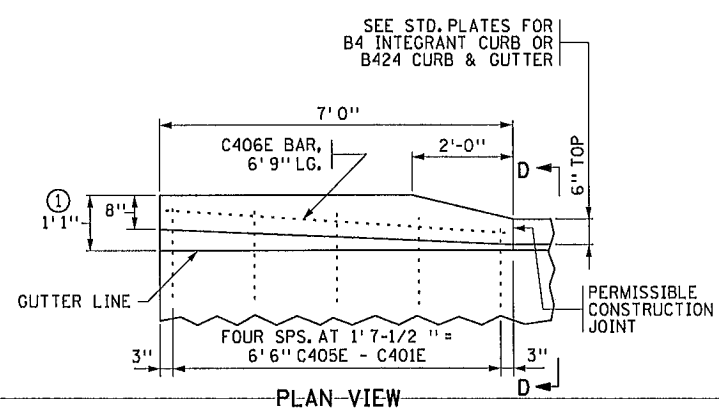
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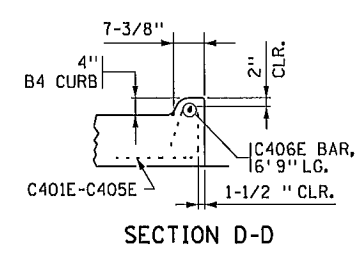
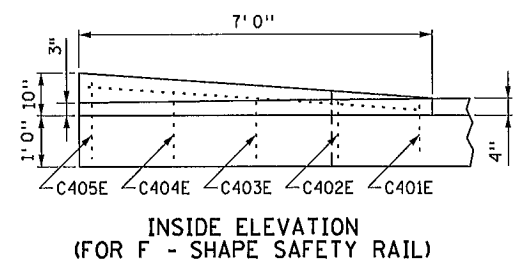
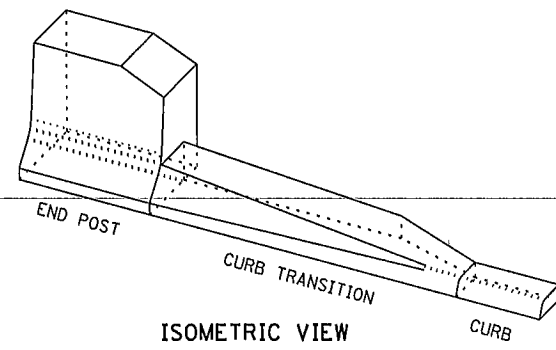
ELEVATION



SECTION A - A
F SHAPE RAIL (F BARRIER)
(PARALLEL WINGWALL SHOWN)



C401E - C405E ③



CURB TRANSITION DETAILS
F-SHAPE SAFETY BARRIER TO B4 CURB
WITH W-BEAM GUARDRAIL BARRIER

NOTES:

- ① FROM BACK SIDE OF CURB TRANSITION TO GUTTERLINE.
- ② 5/8" DIA. X 1-1/4" LONG GUARDRAIL BOLTS AND NUTS TYPICAL AT SPLICES.
- ③ AS PER MNDOT 3301, USE EPOXY COATED GRADE 60 REINFORCEMENT BARS.
- ④ SEE ROAD PLANS TO VERIFY ACTUAL DIMENSION AND LOCATION.
- ⑤ ADDITIONAL BLOCKING MAY BE REQUIRED TO CLEAR BRIDGE STRUCTURE. VERIFY IN FIELD.
- ⑥ SANDWICH ANCHOR PLATE BETWEEN RAIL BEAMS.
- ⑦ POSTS 1 AND 2 TO BE W8 x 21 x 8'0" MINIMUM LONG STEEL POST AND 8" x 8" x 14" SPACER BLOCK.
- ⑧ POSTS 3, 4, 5, AND 6 TO BE W6 x 9 x 6'0" MIN. LONG STEEL POST AND 6" x 8" x 14" SPACER BLOCK.
- ⑨ GUARDRAIL CENTERLINE HEIGHT IS 1'-9" FROM 0' TO 12'-6" FROM BRIDGE. HEIGHT TRANSITIONS FROM 1'-9" TO 1'-10" BETWEEN 12'-6" AND 25' FROM BRIDGE.

MINNESOTA DEPARTMENT OF TRANSPORTATION

REVISIONS

APPROVED: 5-27-2014

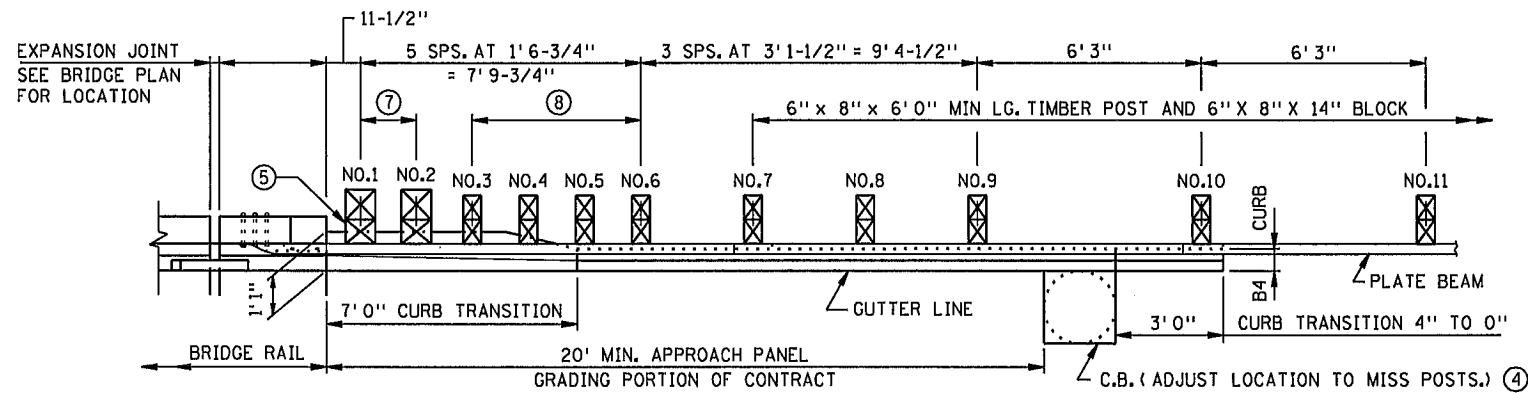
STATE DESIGN ENGINEER

W-BEAM TRANSITION TO CONCRETE F-SHAPE SAFETY RAIL WITH APPROACH CURB (STEEL POST)

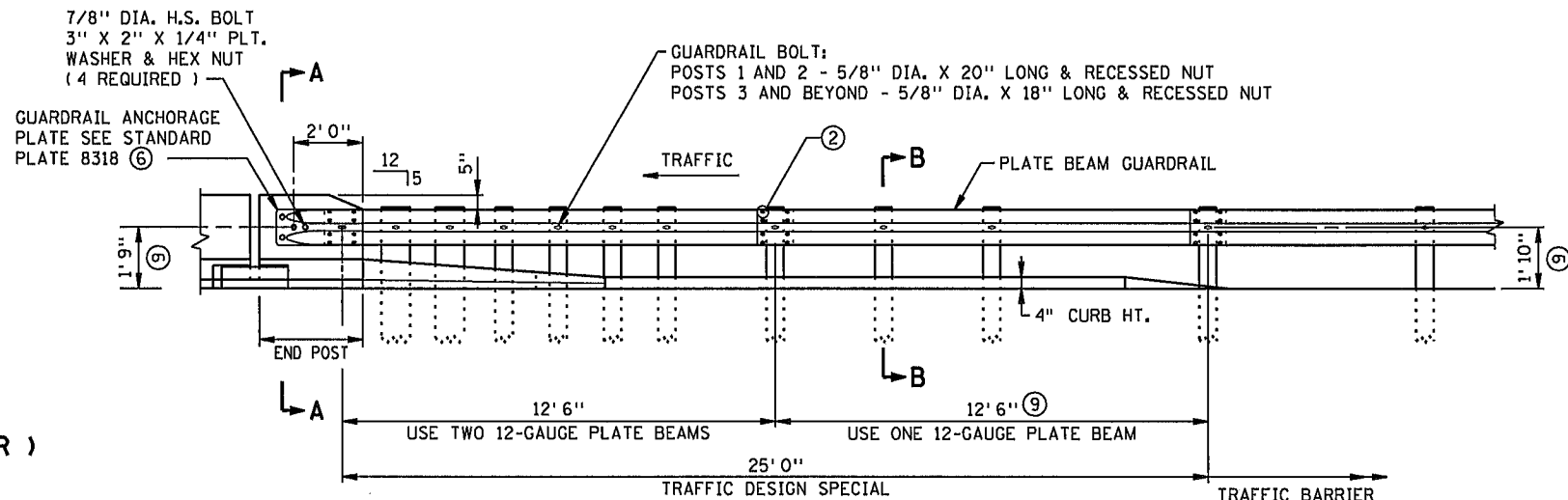
STANDARD PLAN 5-297.603

COUNTY PROJECT 16-10-53

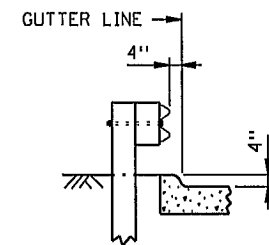
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PLAN



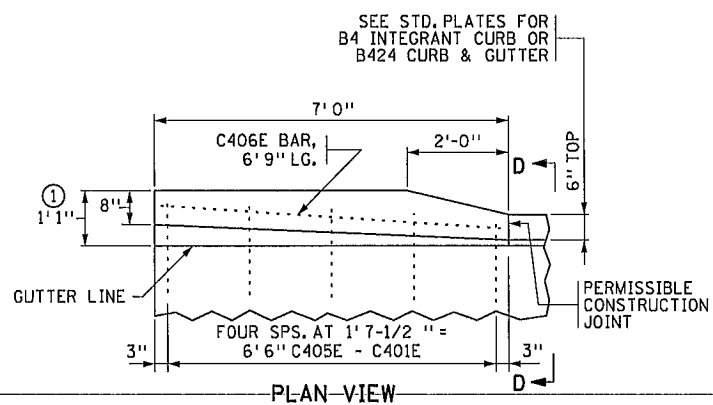
ELEVATION



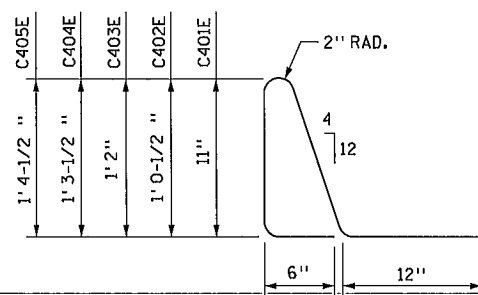
SECTION B-B

THE TRANSITION SECTION HAS BEEN TESTED AND APPROVED WITH THE CURB PLACED AS SHOWN

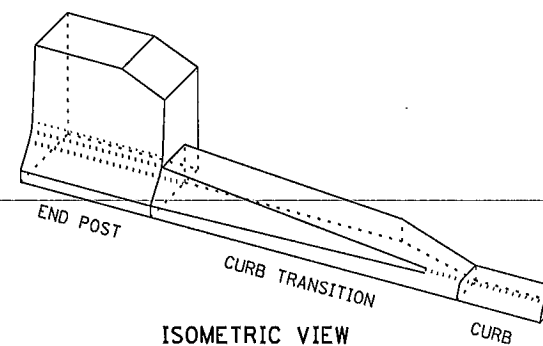
SECTION A - A
F SHAPE RAIL (F BARRIER)
(PARALLEL WINGWALL SHOWN)



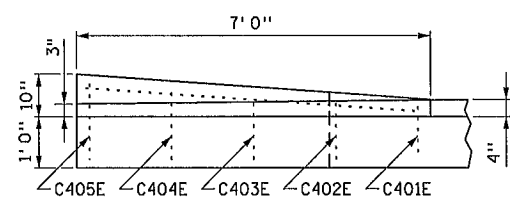
PLAN-VIEW



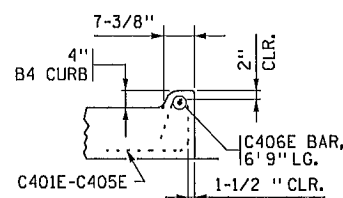
C401E - C405E ③



ISOMETRIC VIEW



INSIDE ELEVATION
(FOR F - SHAPE SAFETY RAIL)



SECTION D-D

NOTES:

- ① FROM BACK SIDE OF CURB TRANSITION TO GUTTERLINE.
- ② 5/8" DIA. X 1-1/4" LONG GUARDRAIL BOLTS AND NUTS TYPICAL AT SPLICES.
- ③ AS PER MNDOT 3301, USE EPOXY COATED GRADE 60 REINFORCEMENT BARS.
- ④ SEE ROAD PLANS TO VERIFY ACTUAL DIMENSION AND LOCATION.
- ⑤ ADDITIONAL BLOCKING MAY BE REQUIRED TO CLEAR BRIDGE STRUCTURE. VERIFY IN FIELD.
- ⑥ SANDWICH ANCHOR PLATE BETWEEN RAIL BEAMS.
- ⑦ POSTS 1 AND 2 TO BE 10" X 10" X 8' 0" MINIMUM LONG TIMBER POST AND 10" X 8" X 14" BLOCK.
- ⑧ POSTS 3, 4, 5, AND 6 TO BE 6" X 8" X 7' 0" MINIMUM LONG TIMBER POST AND 6" X 8" X 14" BLOCK.
- ⑨ GUARDRAIL CENTERLINE HEIGHT IS 1'-9" FROM 0' TO 12'-6" FROM BRIDGE. HEIGHT TRANSITIONS FROM 1'-9" TO 1'-10" BETWEEN 12'-6" AND 25' FROM BRIDGE.

TRAFFIC BARRIER DESIGN SPECIAL 1 OF 1

CURB TRANSITION DETAILS

F-SHAPE SAFETY BARRIER TO B4 CURB
WITH W-BEAM GUARDRAIL BARRIER



Christopher Ry
STATE DESIGN ENGINEER

REVISED:

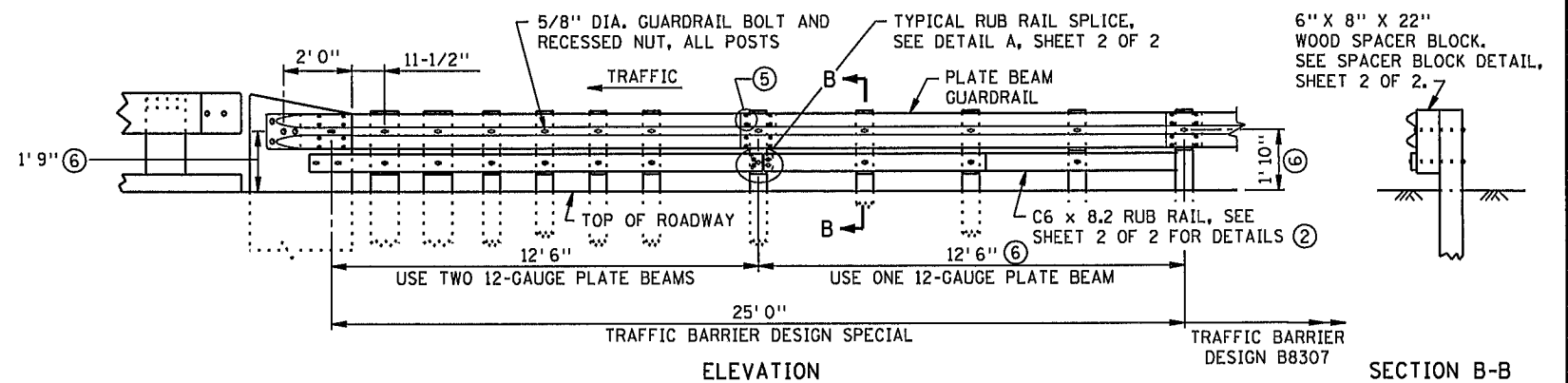
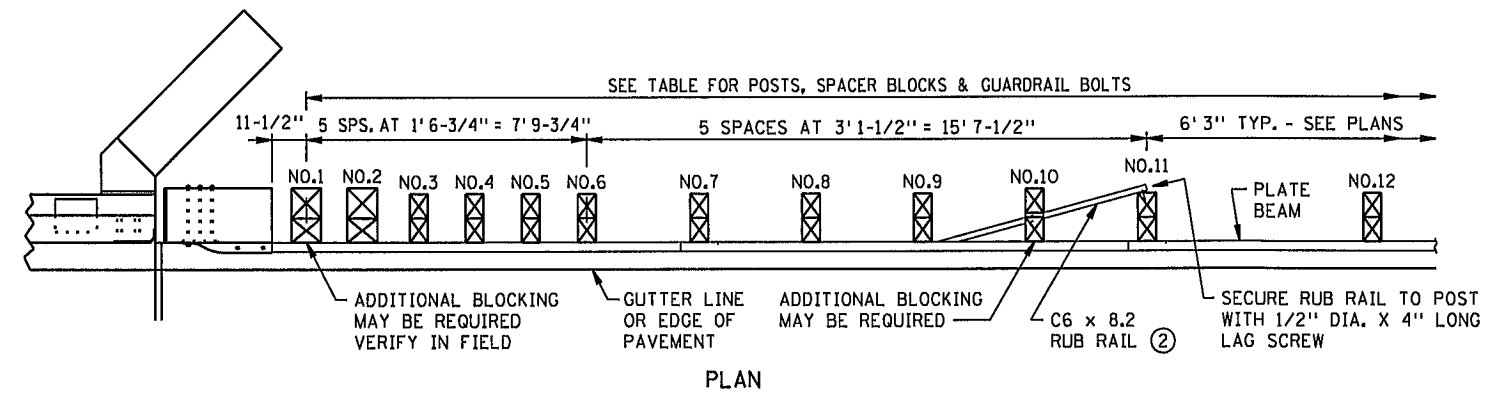
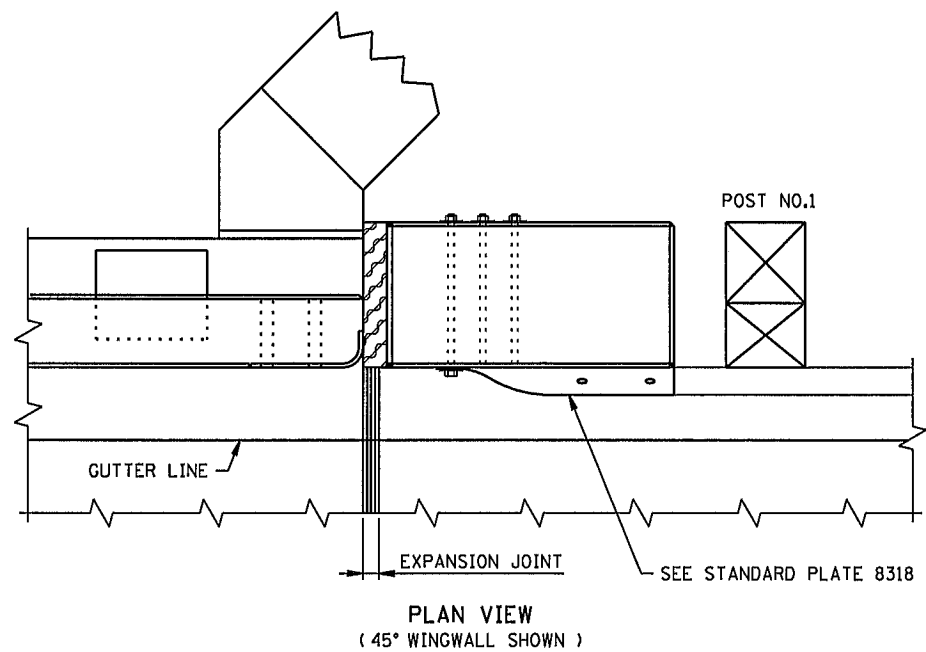
APPROVED:

5-27-2014

W-BEAM TRANSITION TO CONCRETE F-SHAPE
SAFETY RAIL WITH APPROACH CURB
(WOOD POST)

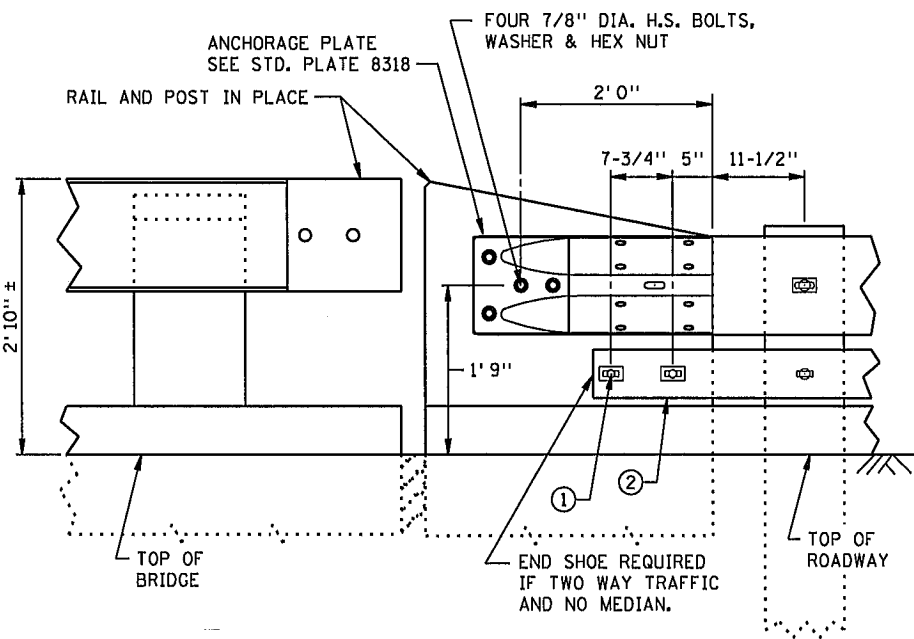
STANDARD PLAN 5-297.605

COUNTY PROJECT 16-10-53

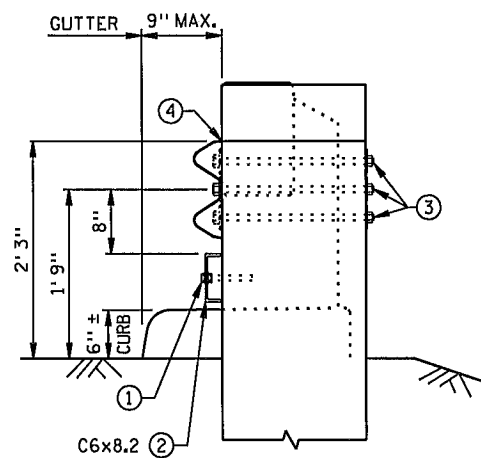


SECTION B-B

GENERAL ASSEMBLY DETAILS



CONNECTION DETAILS



POST, SPACER BLOCK & BOLT TABLE

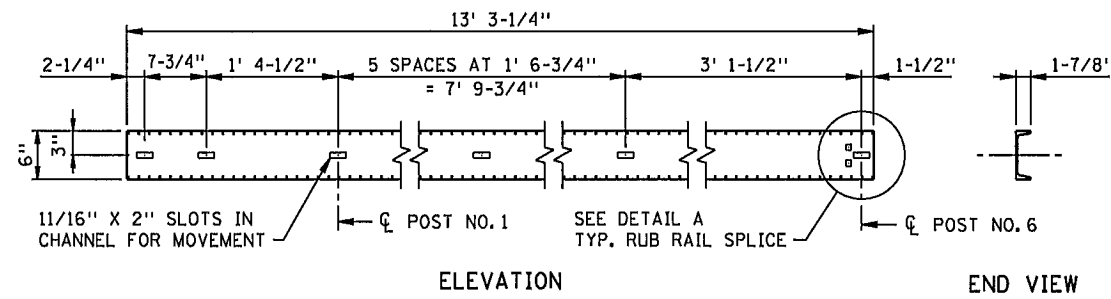
DESCRIPTION	POST NO.	SIZE
POST	1 & 2	10" X 10" X 8' 0" MIN. LONG
	3 - 6	6" X 8" X 7' 0" MIN. LONG
	7 - 12	6" X 8" X 6' 0" MIN. LONG
SPACER BLOCK	1 - 2	10" X 8" X 21"
	3 - 9	6" X 8" X 21"
	10 - 12	6" X 8" X 14"
GUARDRAIL BOLT & RECESSED NUT	1 - 2	5/8" DIA. X 20" - GUARDRAIL
	3 - 12	5/8" DIA. X 18" - GUARDRAIL
	1 - 2	5/8" DIA. X 22" - RUB RAIL
	3 - 9	5/8" DIA. X 20" - RUB RAIL

NOTES:

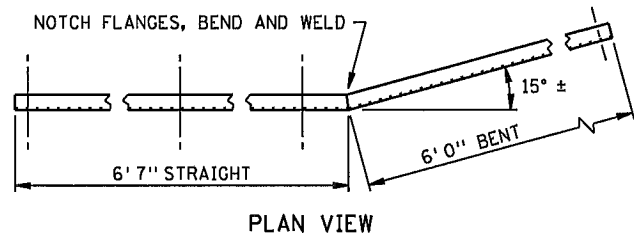
- 1 SOIL COMPACTION AT END POST AS PER SPEC. 2451.
- 2 GUARDRAIL CONNECTION SHALL BE THE SAME AS REQUIRED ON BRIDGE RAILINGS, SEE BRIDGE DETAILS MANUAL FOR ADDITIONAL INFORMATION.
- 3 5/8" DIA. BOLTS WITH APPROVED CONCRETE ANCHORS EMBEDDED 5" IN END POST. LOCATE CONCRETE ANCHORS TO MISS BRIDGE REINFORCEMENT.
- 4 RUB RAIL SHALL BE USED WHEN THERE IS NO CURBING ON APPROACH PANEL.
- 5 7/8" DIA. H.S. BOLT OR EQUAL THREADED ROD, 3" X 2" X 1/4" PLATE WASHER AND HEX NUT (4 REQUIRED).
- 6 TIMBER BLOCKING MAY BE REQUIRED BEHIND GUARDRAIL CONNECTION AND RUB RAIL DEPENDING ON CURB WIDTH.
- 7 5/8" DIA. X 1-1/4" LONG GUARDRAIL BOLTS AND NUTS TYPICAL AT SPLICES.
- 8 GUARDRAIL CENTERLINE HEIGHT IS 1'-9" FROM 0' TO 12'-6" FROM BRIDGE. HEIGHT TRANSITIONS FROM 1'-9" TO 1'-10" BETWEEN 12'-6" AND 25' FROM BRIDGE.

REVISIONS:

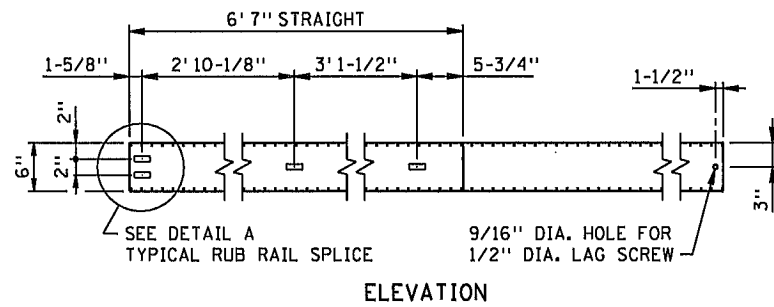
APPROVED: *Christina Ry* 5-27-2014
STATE DESIGN ENGINEER



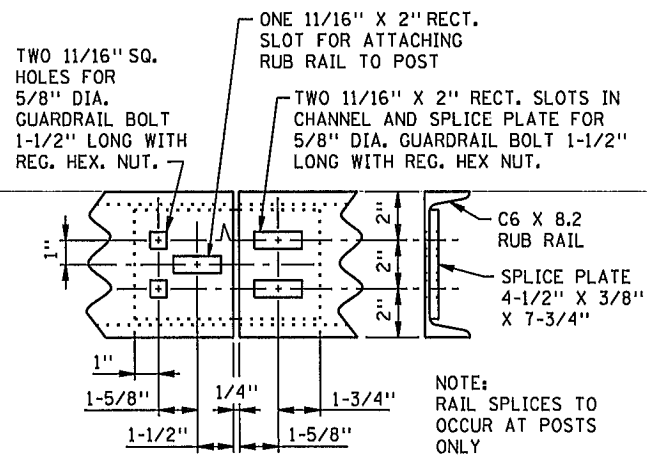
RUB RAIL STRAIGHT SECTION
NON-STANDARD RUB RAIL LENGTH



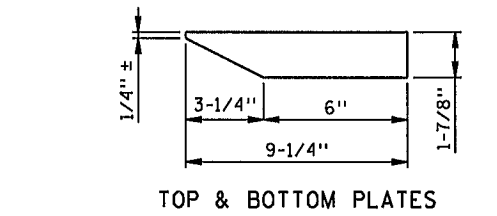
PLAN VIEW



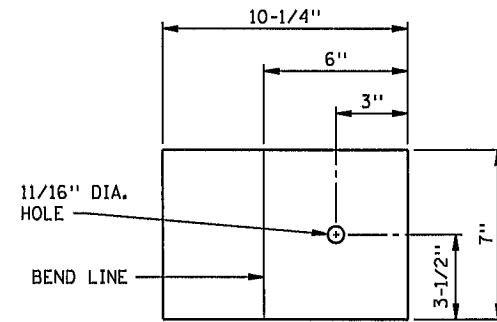
RUB RAIL BENT SECTION
NON-STANDARD RUB RAIL LENGTH



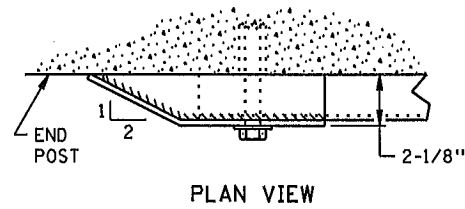
DETAIL A
TYPICAL RUB RAIL SPLICE



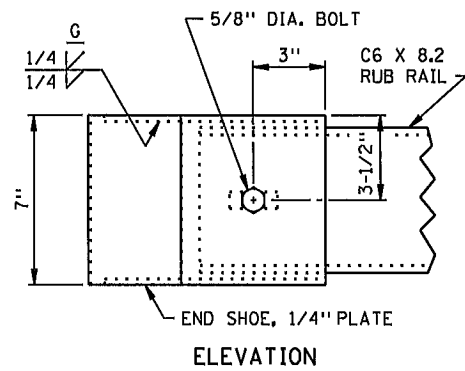
TOP & BOTTOM PLATES



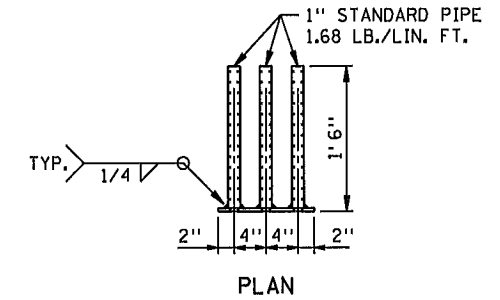
FRONT PLATE
END SHOE PLATE DETAILS
(1/4" PLATE)



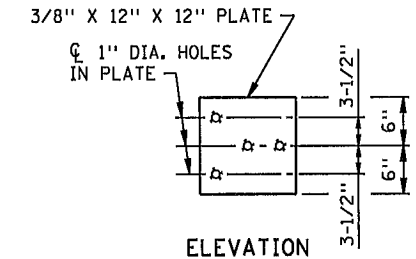
PLAN VIEW



RUB RAIL END SHOE ASSEMBLY
(USE IF TWO WAY TRAFFIC WITH NO MEDIAN)

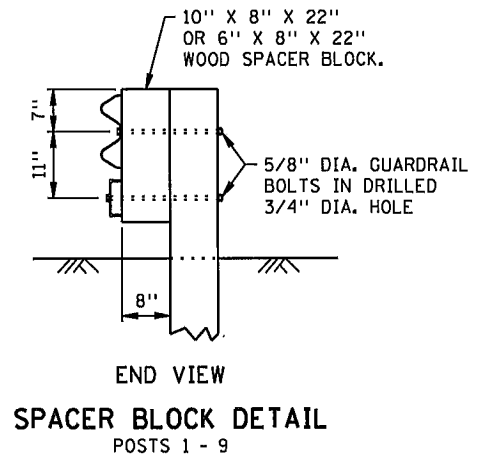


PLAN



ELEVATION

GUARDRAIL CONNECTION DETAIL



END VIEW

SPACER BLOCK DETAIL
POSTS 1 - 9

- NOTES:**
- GALVANIZE ALL HARDWARE PER SPEC. 3392.
 - USE END SHOE ON RUB RAIL IF TWO WAY TRAFFIC WITH NO MEDIAN.
 - RUB RAIL IS C6 x 8.2
 - STRUCTURAL STEEL PER SPEC. 3306 UNLESS OTHERWISE NOTED.
 - ALL SLOTTED HOLES ARE 11/16" x 2".
 - ALL SQUARE HOLES ARE 11/16".
 - GALVANIZE STRUCTURAL SHAPES PER SPEC. 3394 AFTER FABRICATION UNLESS OTHERWISE NOTED.

REVISIONS:

APPROVED: *Christopher Ky* 5-27-2014
STATE DESIGN ENGINEER

PERMANENT PAVEMENT MARKING PLAN
NOTES AND GUIDELINES

GENERAL INFORMATION:

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

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

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

EPOXY:

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

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

AN EPOXY RESIN LINE 4" WIDE AND 15 MILL THICKNESS (WET), REQUIRES AN APPLICATION RATE OF ONE (1) GALLON OF COMPONENTS FOR 320 FEET OF LINE. GLASS BEADS SHALL BE APPLIED AT A POUND PER GALLON RATE SUFFICIENT TO ACHIEVE AN ACCEPTABLE NO-TRACK SYSTEM.

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

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

PREFORMED THERMOPLASTIC:

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

PAINT:

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

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

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

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

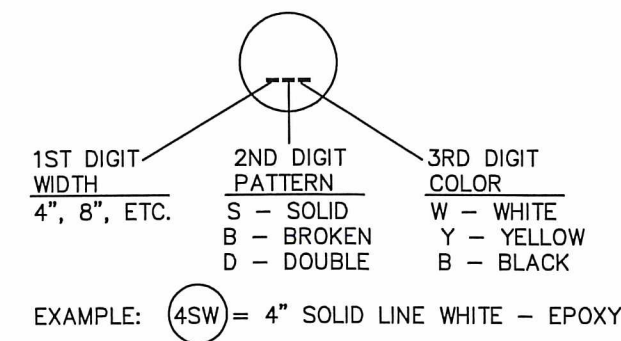
PERMANENT MARKING QUANTITIES		
ITEM	UNIT	TOTAL QUANTITY
4" SOLID LINE WHITE - EPOXY PAINT	LIN FT	10630
4" BROKEN LINE WHITE - EPOXY PAINT	LIN FT	0
4" SOLID LINE YELLOW - EPOXY PAINT	LIN FT	725
4" BROKEN LINE YELLOW - EPOXY PAINT	LIN FT	860
4" DOUBLE SOLID LINE YELLOW - EPOXY PAINT	LIN FT	1100
24" SOLID LINE YELLOW - PREFORMED THERMOPLASTIC	SQ FT	0
24" SOLID LINE WHITE - PREFORMED THERMOPLASTIC	SQ FT	96
3'x6' ZEBRA CROSSWALK - PREFORMED THERMOPLASTIC	SQ FT	252

SYMBOLS & MATERIALS LEGEND

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

STRIPING KEY

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



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: MATTHEW J. JOHN
SIGNATURE: *[Signature]*
DATE: 4/6/2016 LICENSE NO. 51639

DRAWN BY: SRT DATE: 3/14/16
DESIGN BY: SRT DATE: 3/14/16
CHECKED BY: RB DATE: 3/14/16

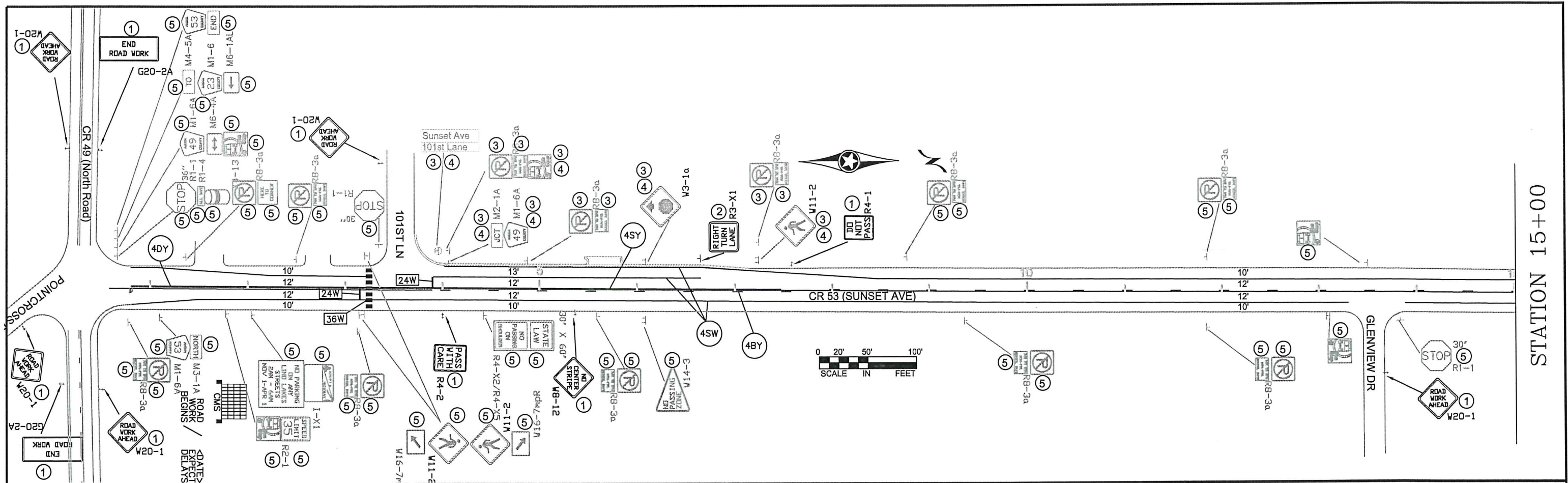


ANOKA COUNTY
HIGHWAY DEPT.

STATE PROJECT NO. _____
STATE AID PROJECT NO. _____
STATE AID PROJECT NO. _____
COUNTY PROJECT NO. 16-10-53

PERMANENT MARKING
TABULATION
Sheet 41 of 48 Sheets

NO	DATE	BY	CKD	APPR	REVISION

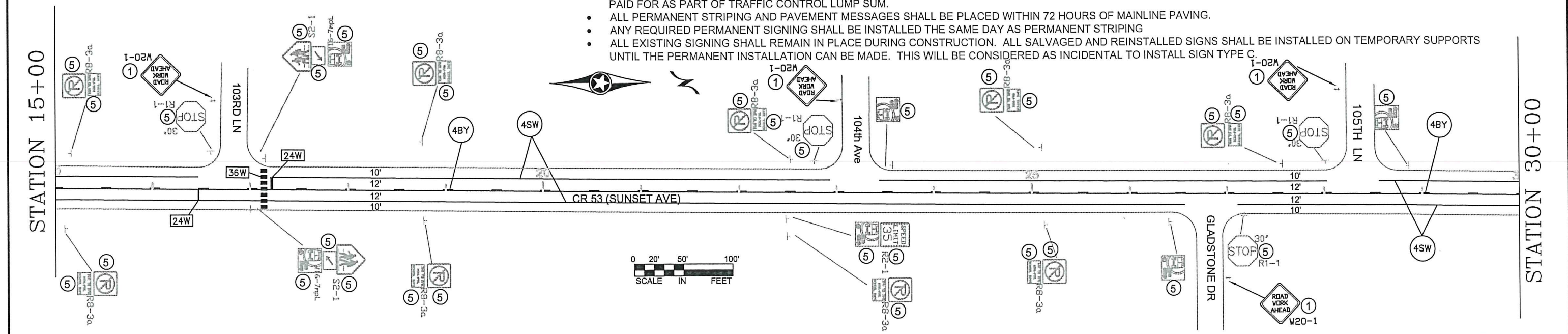


NOTES:

- ALL TRAFFIC CONTROL DEVICES SHALL CONFORM AND BE PLACED IN ACCORDANCE TO THE "MINNESOTA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" (MN MUTCD), INCLUDING PART VI, "FIELD MANUAL FOR TEMPORARY TRAFFIC CONTROL ZONE LAYOUTS".
- CONTRACTOR SHALL REFERENCE THE MN MUTCD, INCLUDING THE FIELD MANUAL, FOR ANY ADDITIONAL TRAFFIC CONTROL.
- CONTRACTOR SHALL COMPLY WITH THE LONGITUDINAL DROP-OFF GUIDELINES AS PER THE FIELD MANUAL.
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- CONTRACTOR SHALL SUPPLY AND ERECT THE TEMPORARY TRAFFIC CONTROL SIGNS AS SHOWN ON THIS DRAWING AND DETAILED IN THE SPECIAL PROVISIONS FROM THE TIME WORK COMMENCES ON THIS ROADWAY UNTIL THIS ROADWAY IS PERMANENTLY STRIPED. ALL NECESSARY TEMPORARY TRAFFIC CONTROL SIGNS SHALL BE PAID FOR AS PART OF TRAFFIC CONTROL LUMP SUM.
- ALL PERMANENT STRIPING AND PAVEMENT MESSAGES SHALL BE PLACED WITHIN 72 HOURS OF MAINLINE PAVING.
- ANY REQUIRED PERMANENT SIGNING SHALL BE INSTALLED THE SAME DAY AS PERMANENT STRIPING
- ALL EXISTING SIGNING SHALL REMAIN IN PLACE DURING CONSTRUCTION. ALL SALVAGED AND REINSTALLED SIGNS SHALL BE INSTALLED ON TEMPORARY SUPPORTS UNTIL THE PERMANENT INSTALLATION CAN BE MADE. THIS WILL BE CONSIDERED AS INCIDENTAL TO INSTALL SIGN TYPE C.

SIGN NOTES:

- ① TEMPORARY TRAFFIC CONTROL SIGN
- ② F & I PERMANENT SIGN
- ③ SALVAGE PERMANENT SIGN
- ④ RE-INSTALL PERMANENT SIGN
- ⑤ RETAIN INPLACE SIGN

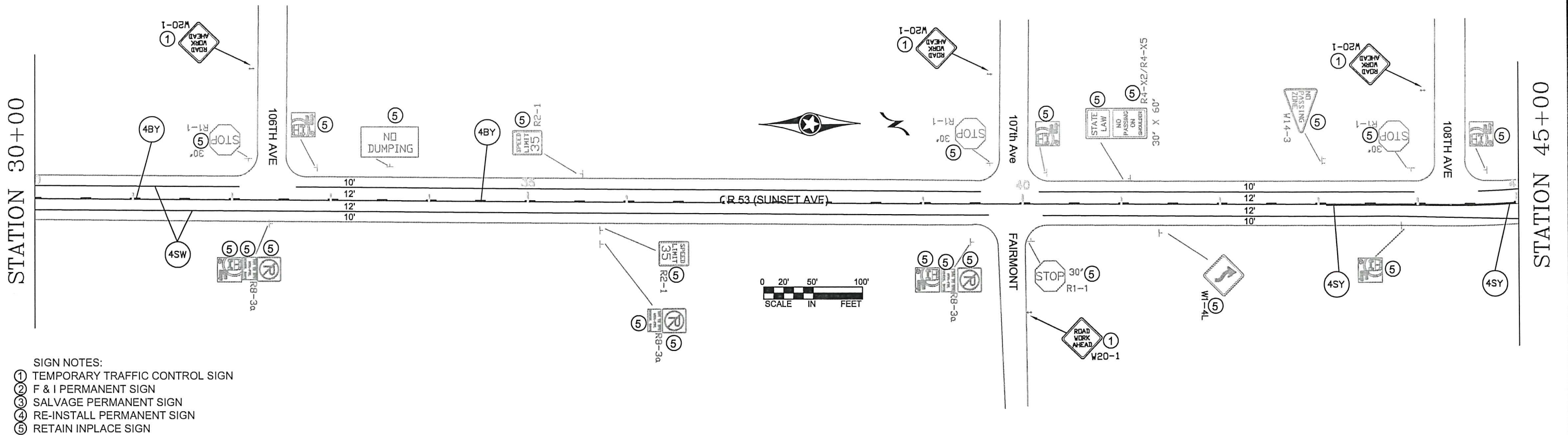


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NO	DATE	BY	CKD	APPR	REVISION												

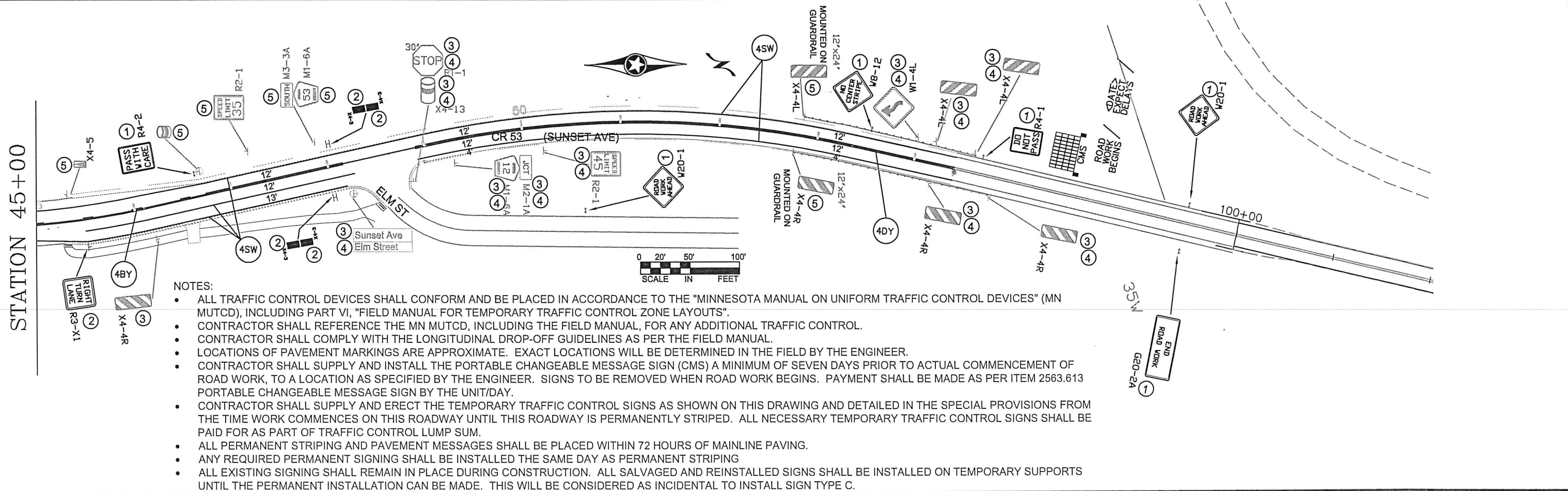
STATION 30+00

STATION 45+00

STATION 45+00



- SIGN NOTES:
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 - ② F & I PERMANENT SIGN
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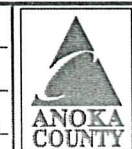
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DRAWN BY: SRT DATE: 3/11/16
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 CHECKED BY: RB DATE: 3/11/16



ANOKA COUNTY
 HIGHWAY DEPT.

STATE PROJECT NO. _____
 STATE AID PROJECT NO. _____
 STATE AID PROJECT NO. _____
 COUNTY PROJECT NO. 16-10-53

TEMPORARY SIGNING,
 PERMANENT SIGNING
 AND STRIPING

Sheet 43 of 48 Sheets

TEMPORARY TRAFFIC CONTROL SIGNS						
M.U.T.C.D. CODE	SIZE	PANEL AREA FT. ²	INSERT	QUANTITY		MOUNTING HEIGHT TO PAVEMENT (SEE E-66)
					No. POST	
W8-12	48" x 48"	16.00		2	2	7.0'
R4-1	24" x 30"	5.00		2	1	7.0'
R4-2	24" x 30"	5.00		2	1	7.0'
G20-2A	48" x 24"	8.00		3	2	7.0'
W8-1A	48" x 48"	16.00		AS NEEDED		
W8-1A	48" x 48"	16.00		AS NEEDED		
W8-8	48" x 48"	16.00		AS NEEDED		
W8-9	48" x 48"	16.00		AS NEEDED		
	48" x 48"	16.00		AS NEEDED		
W8-11	48" x 48"	16.00		AS NEEDED		
W20-1	48" x 48"	16.00		AS NEEDED (ESTIMATED 15)		
CMS sign to be installed a minimum of seven days prior to actual commencement of road work. Signs to be removed when road work begins.				2		

NOTES:

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SIGN PANELS TYPE C							F
M.U.T.C.D. CODE	SIZE	INSERT	QUANTITY	SQ FT PANEL AREA	SQ FT TOTAL AREA	MOUNTING POST PER INSTALLATION	MOUNTING HEIGHT
R3-X1	30" x 30"		2	6.25	12.50	1	7.0'
X4-3	6" x 12"		4	0.50	2.00	* 1	4.0'
TOTAL			6		14.50		

* X4-3 SIGNS MOUNTED BACK TO BACK - 4 SIGNS REQUIRE 2 POSTS

CHANGEABLE MESSAGE BOARD - MESSAGE SEQUENCE LAYOUT

		R	O	A	D		
		W	O	R	K		
		B	E	G	I	N	S

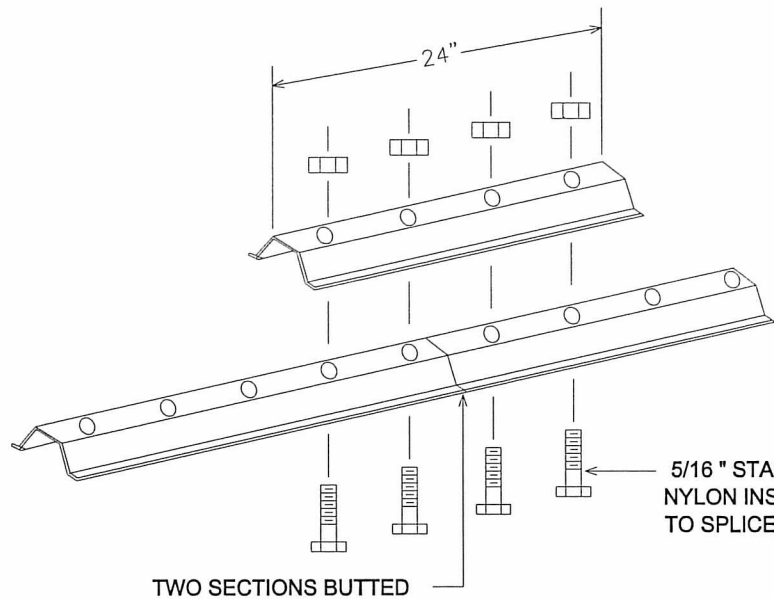
	<	D	A	T	E	>	
	E	X	P	E	C	T	
	D	E	L	A	Y	S	

CMS sign to be installed a minimum of seven days prior to actual commencement of road work. Signs to be removed when road work begins.

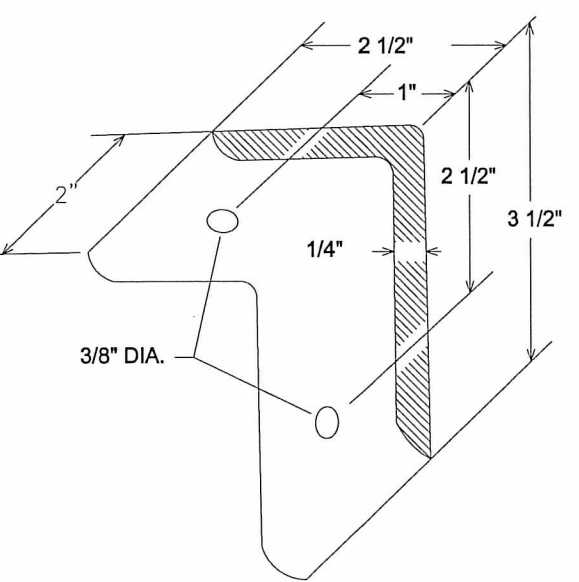
H EXISTING SIGN TAB

STATION	ADDRESS/ DESCRIPTION (NOTES)	SALVAGE SIGN TYPE C	SALVAGE SIGN TYPE D	SALVAGE SIGN TYPE SPECIAL (1)	INSTALL SIGN TYPE C	INSTALL SIGN TYPE D	INSTALL SIGN TYPE SPECIAL (1)	SIGN NUMBER	SIGN LEGEND
		EACH	EACH	EACH	EACH	EACH	EACH		
CR 53 (Sunset Ave)									
3+95	Lt			1			1	101st Lane/Sunset Ave	
4+05	Lt	1			1			M2-1A JCT M1-6 49	
4+05	Lt	1						R8-3 NO PARK R8-3mP 7 AM TO 3 PM	
					1			BUS STOP	
4+90	Lt	1						R8-3 NO PARK R8-3mP 7 AM TO 3 PM	
6+10	Lt	1			1			W3-1 STOP AHEAD	
7+25	Lt	1			1			W11-2 PED SIGN R8-3 NO PARK	
7+25	Lt	1						R8-3mP 7 AM TO 3 PM	
46+15	Rt	1						X4-4R OBJECT MARKER	
48+20	Rt			1			1	Elm Street/Sunset Ave	
48+80	Rt	1			1			R1-1 STOP X4-13 DELINEATOR	
49+30	Rt	1			1			M2-1A JCT M1-6 12	
50+20	Rt	1			1			R2-1 SPEED LIMIT (45)	
54+00	Lt	1			1			W1-4L REVERSE CURVE	
54+20	Lt	1			1			X4-4L OBJECT MARKER	
54+20	Rt	1			1			X4-4R OBJECT MARKER	
54+60	Lt	1			1			X4-4L OBJECT MARKER	
54+80	Rt	1			1			X4-4R OBJECT MARKER	
TOTAL		15	0	2	12	0	2		

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

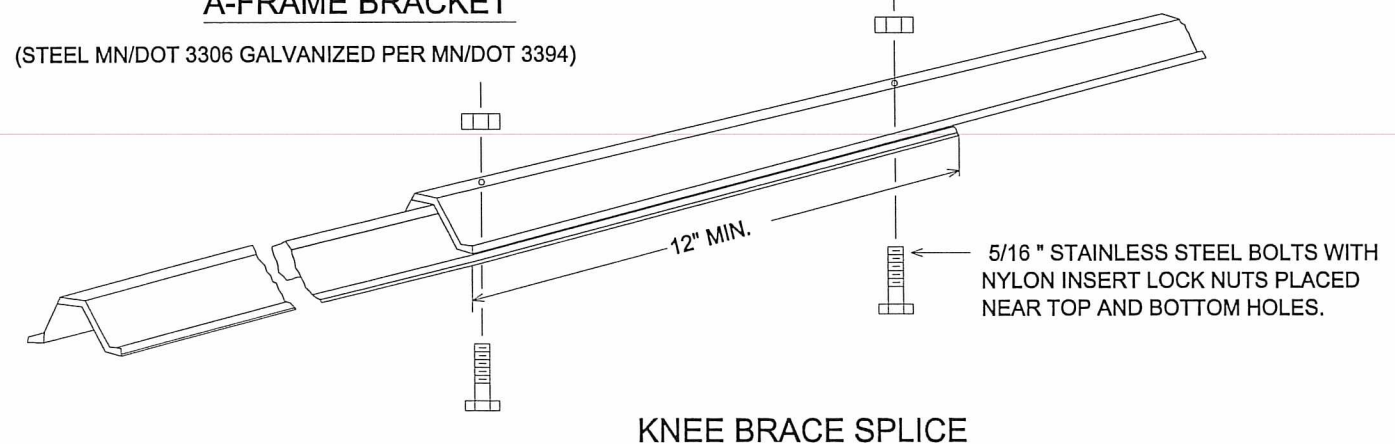


**LATERAL BRACE OR STRINGER
SPLICE DETAIL (EXPLODED VIEW)**

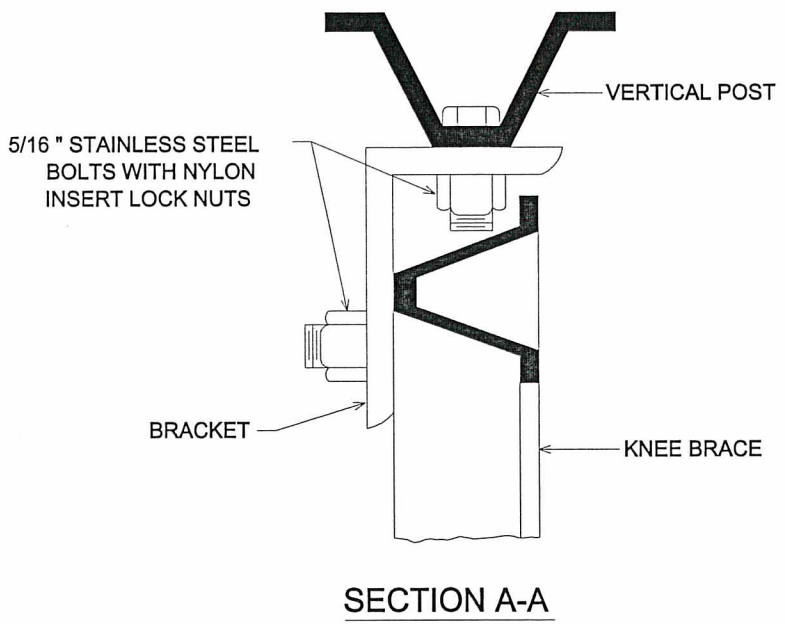


A-FRAME BRACKET

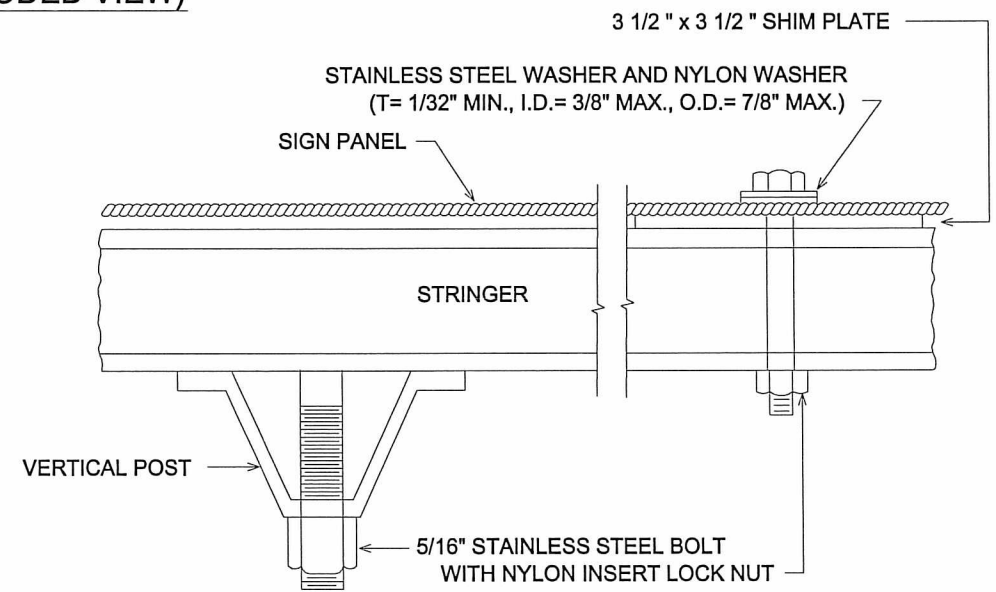
(STEEL MN/DOT 3306 GALVANIZED PER MN/DOT 3394)



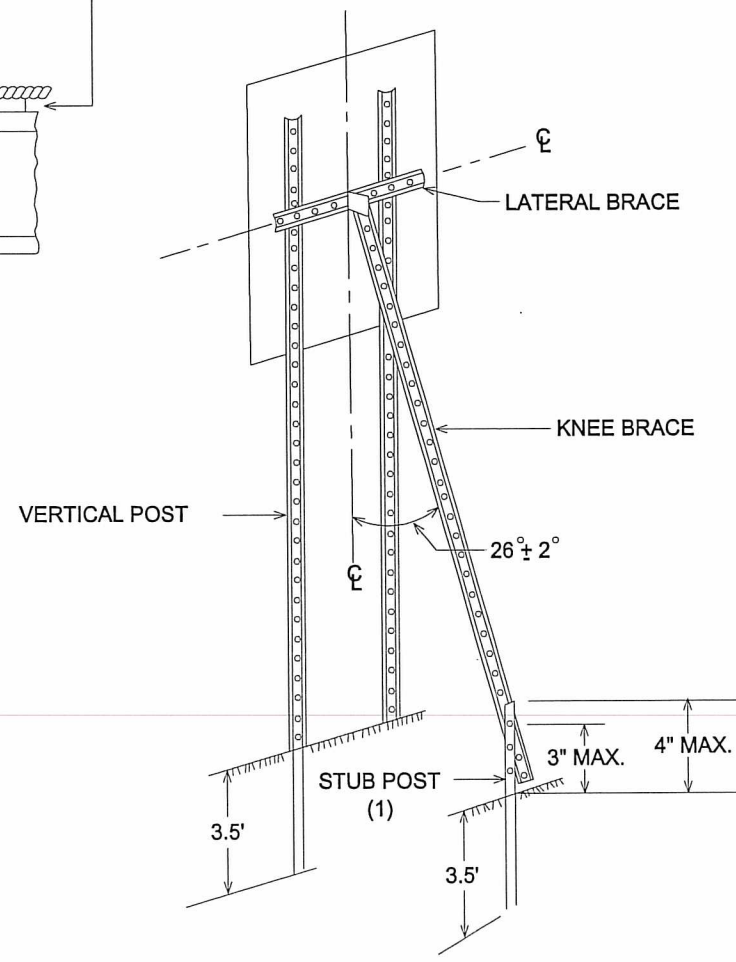
KNEE BRACE SPLICE



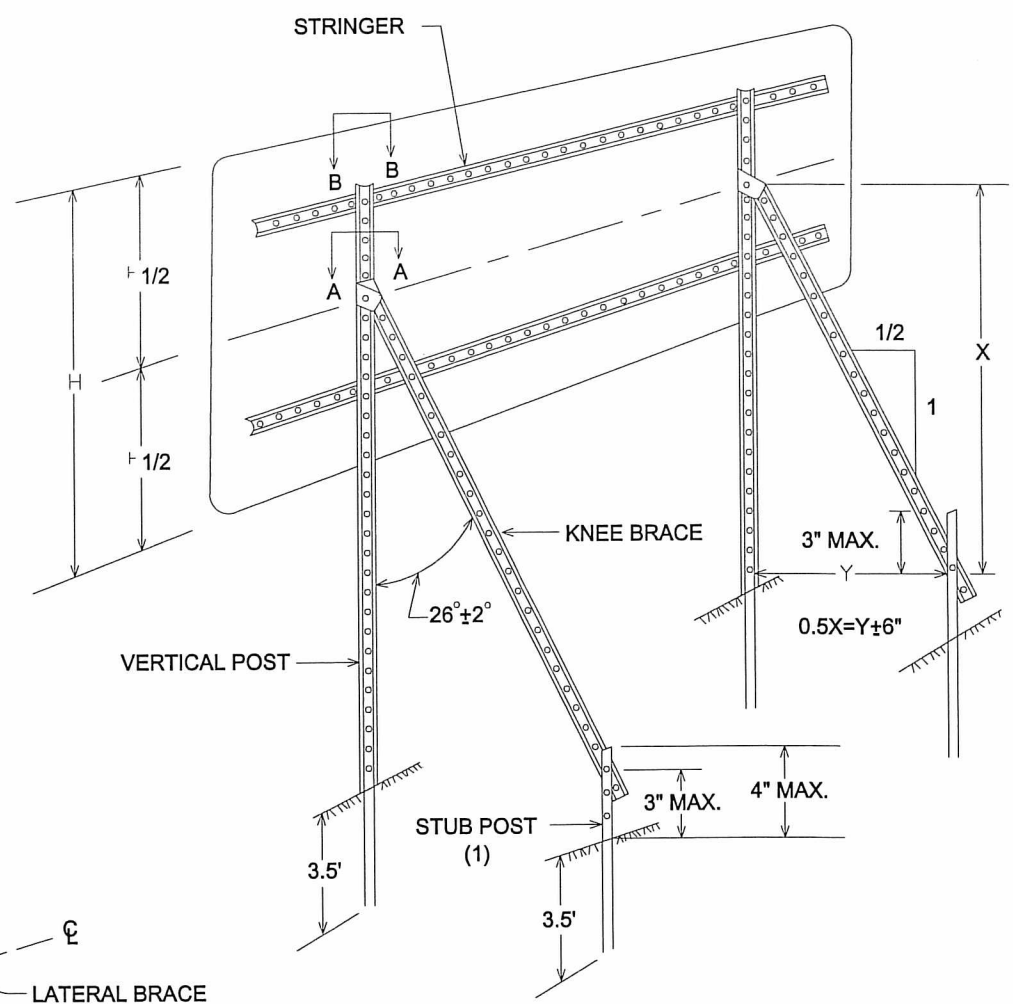
SECTION A-A



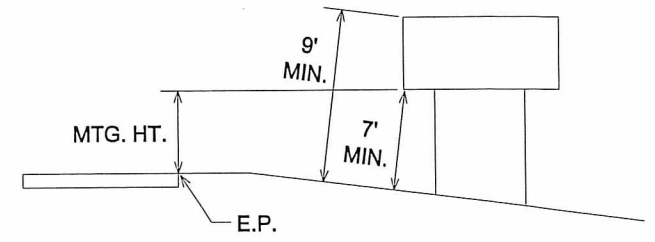
SECTION B-B



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



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



TYPICAL MOUNTING

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

**TYPE C & D SIGN
STRUCTURAL DETAILS**

NO	DATE	BY	CKD	APPR	REVISION

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY REGISTERED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
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 SIGNATURE: *Matthew J. John*
 DATE: 4/6/2016 REG. NO. 51639

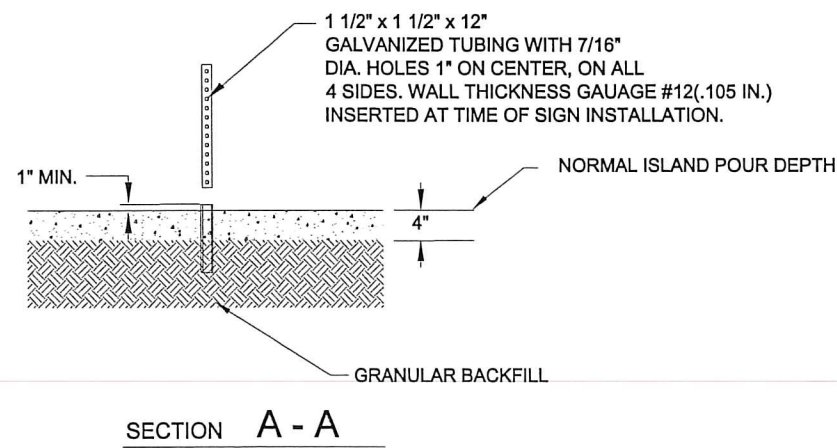
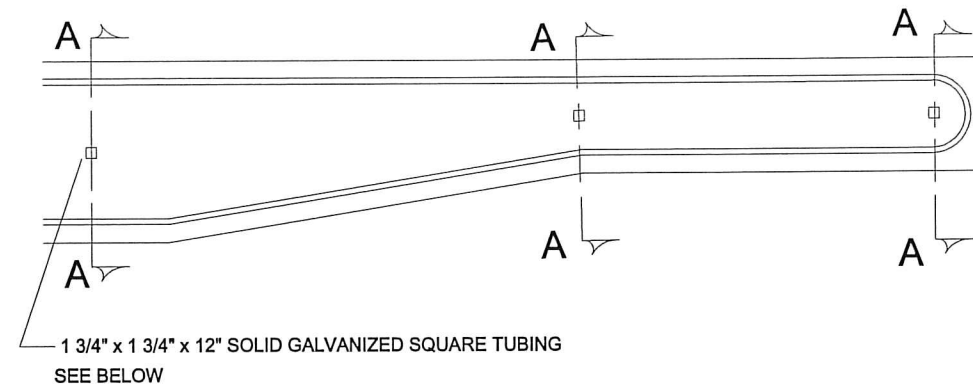
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 DESIGN BY: SRT DATE: 3/11/16
 CHECKED BY: RB DATE: 3/11/16



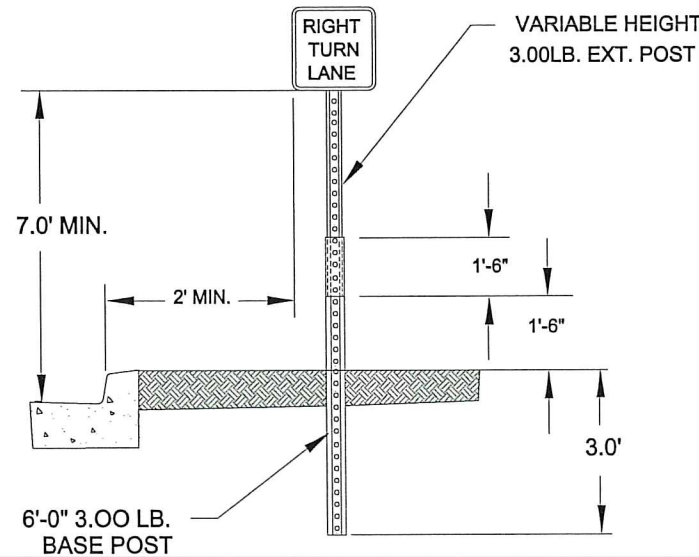
**ANOKA COUNTY
HIGHWAY DEPT.**

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 COUNTY PROJECT NO. 16-10-53

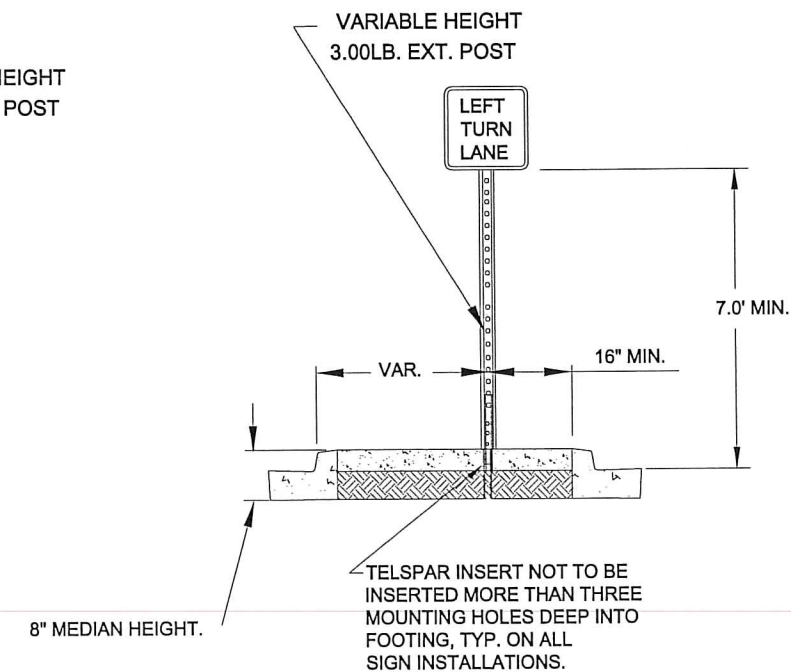
**SIGNING & STRIPING
DETAILS**
 Sheet 45 of 48 Sheets



GROUND POST MOUNT SIGN
INSTALLATION TYPICAL



ISLAND MOUNT BREAK-AWAY SIGN
INSTALLATION TYPICAL



I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY REGISTERED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
 PRINT NAME: MATTHEW J. JOHN
 SIGNATURE: *Matthew J. John*
 DATE: 4/6/2016 REG. NO. 51639

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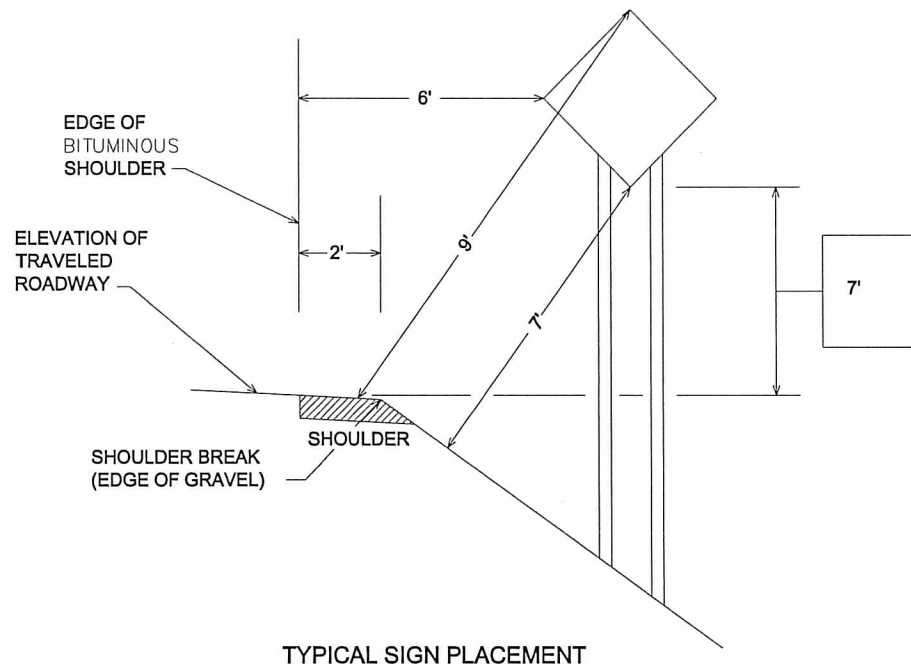
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SIGNING & STRIPING
DETAILS

Sheet 46 of 48 Sheets

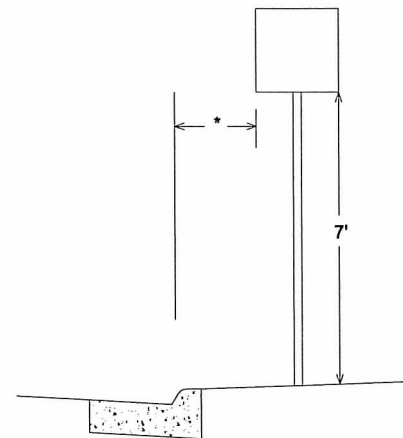
RURAL



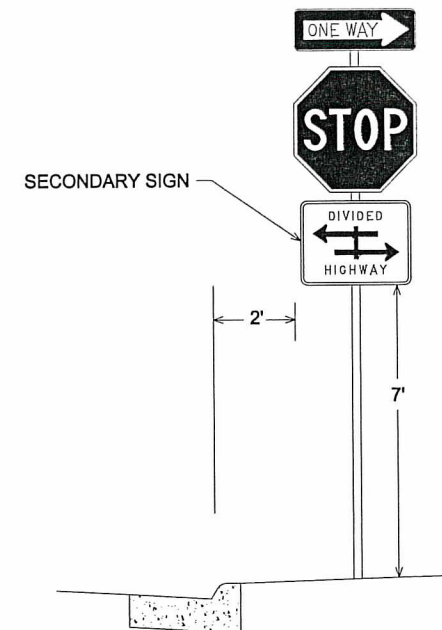
TYPICAL SIGN PLACEMENT

URBAN

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



TYPICAL SIGN PLACEMENT



NOTE:

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

NO	DATE	BY	CKD	APPR	REVISION

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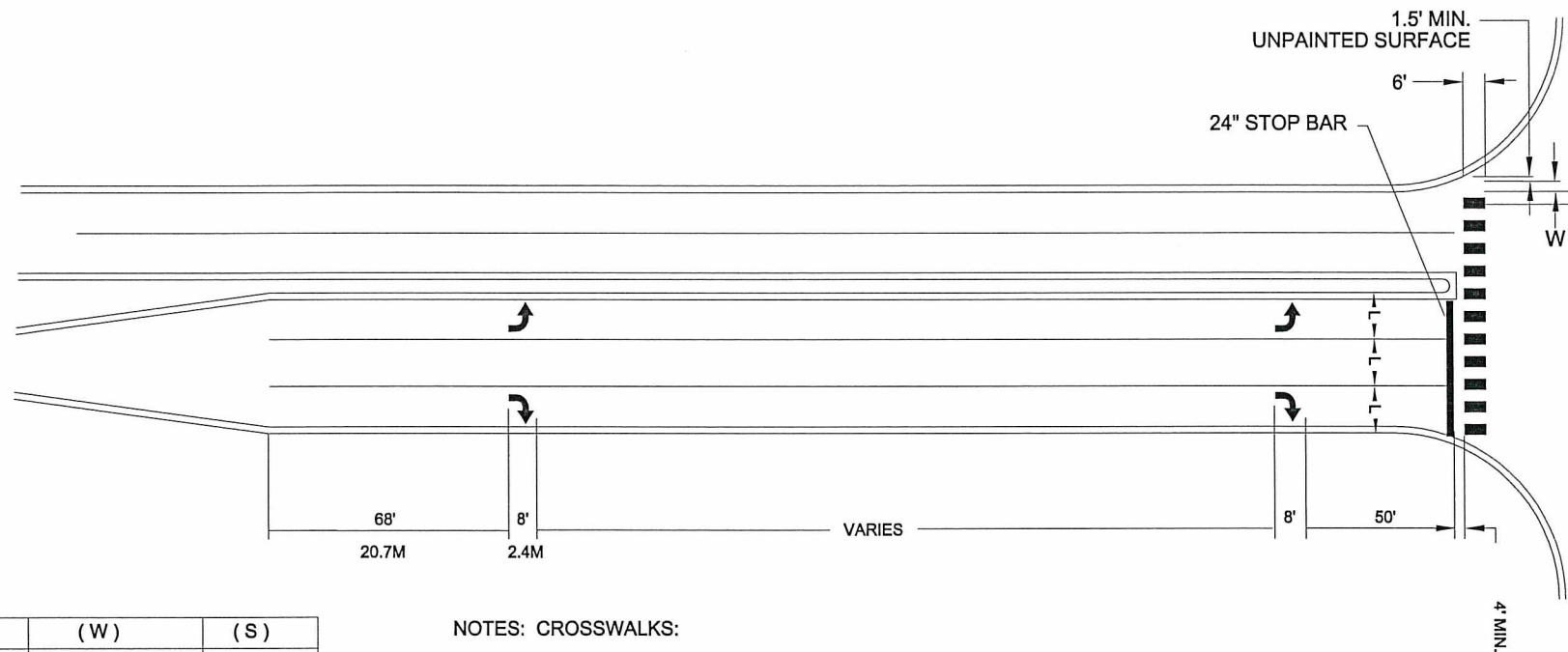


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SIGNING & STRIPING
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MARKINGS FOR PEDESTRIAN CROSSWALKS

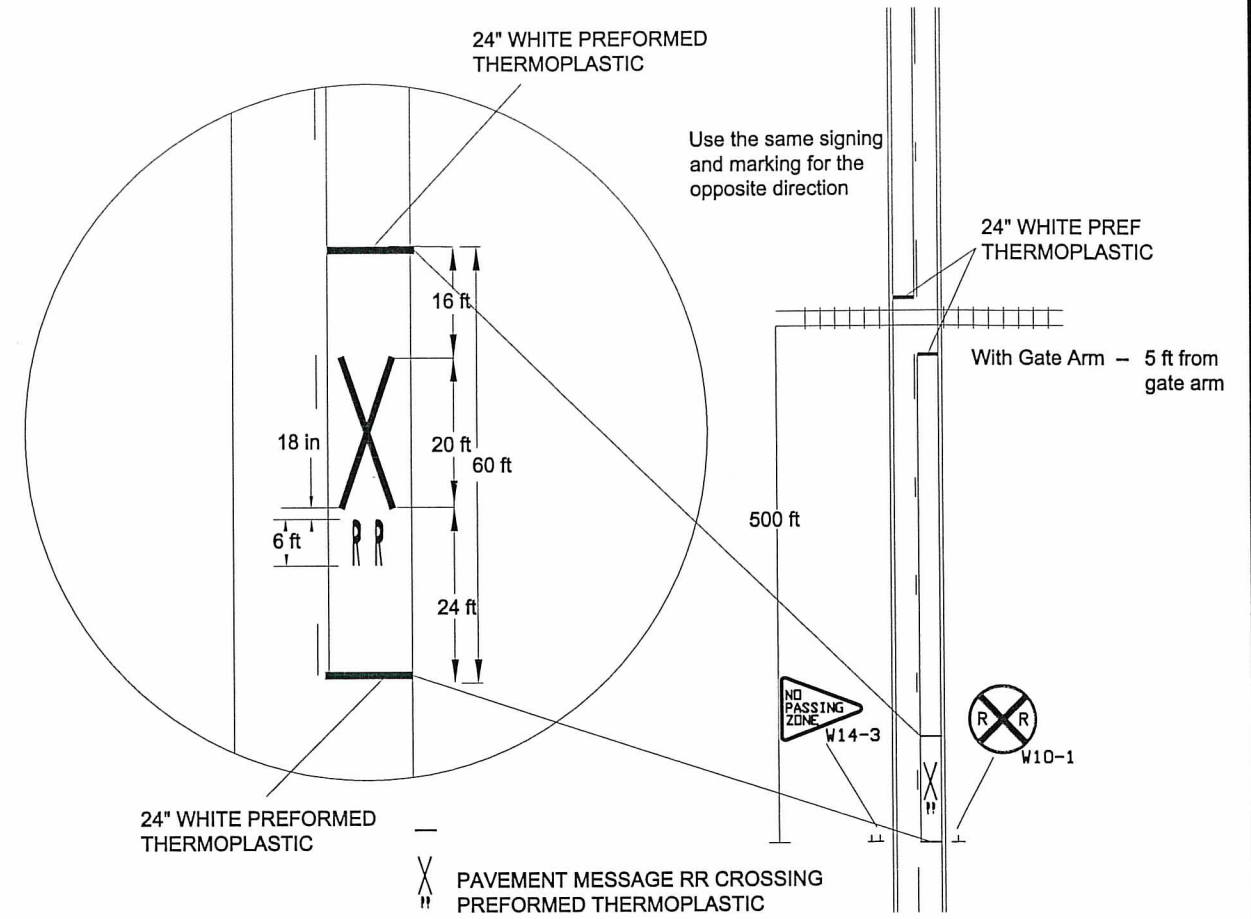


(L)	(W)	(S)
WIDTH OF INSIDE LANE	WIDTH OF PAINTED AREAS	WIDTH OF SPACE
9'	2.0'	2.5'
10'	2.5'	2.5'
11'	2.5'	3.0'
12'	3.0'	3.0'
13'	3.0'	3.5'

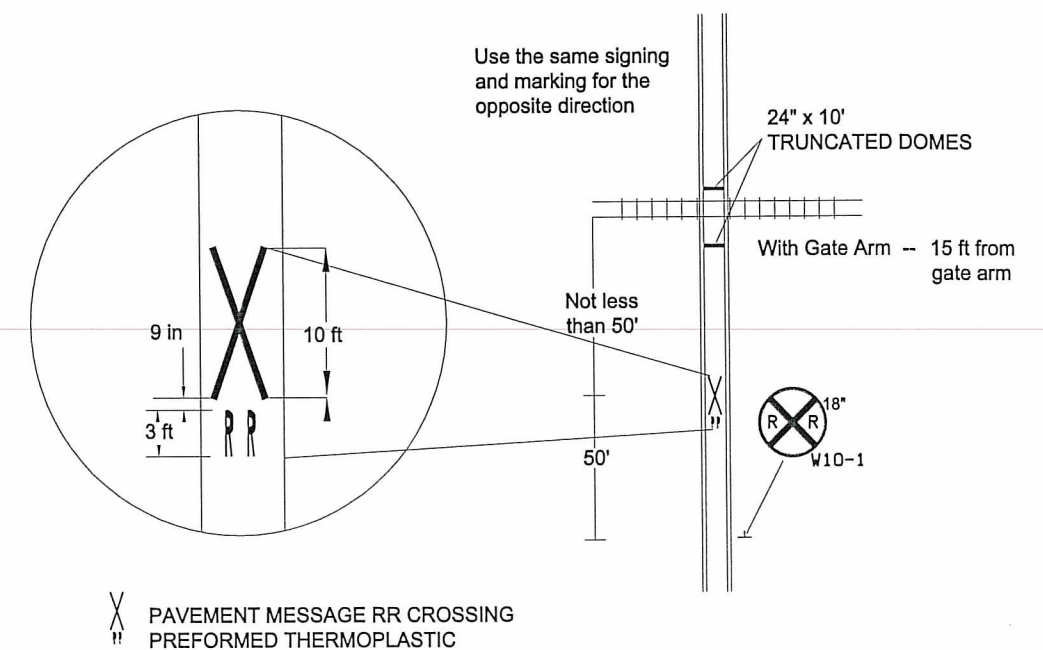
NOTES: CROSSWALKS:

- 1.) PAINTED AREAS ARE TO BE CENTERED ON CENTER AND LANE LINES, EVEN IF INTERSECTION IS NOT ALIGNED.
- 2.) LOCATION OF ZEBRA CROSSWALKS AND STOP BARS, SIGNAL LOOPS AND PED RAMPS ARE APPROXIMATE. FINAL LOCATIONS ARE TO BE DETERMINED AND FIELD VERIFIED DURING CONSTRUCTION BY THE FIELD ENGR.
- 3.) ZEBRA CROSSWALKS ARE TO BE PARALLEL TO THE DRIVING LANE OR LANES, EVEN IF THE STREET IS ON AN ANGLE TO THE INTERSECTION.
- 4.) A MIN. OF 1.5' (450mm) CLEAR DISTANCE MUST BE LEFT ADJACENT TO THE CURB. IF LAST PAINTED AREA FALLS INTO THIS AREA, IT MUST BE OMITTED.
- 5.) ON TWO LANE STREETS, USE SPACING SHOWN FOR AN 11' (3.3mm) INSIDE LANE.

RAILROAD CROSSING ROADWAY PAVEMENT MARKINGS



RAILROAD CROSSING TRAIL PAVEMENT MARKINGS



NO	DATE	BY	CKD	APPR	REVISION

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