MINNESOTA DEPARTMENT OF TRANSPORTATION

CONSTRUCTION PLAN FOR **GRADING, BITUMINOUS AND CONCRETE SURFACING, LIGHTING AND LANDSCAPING.**

LOCATED ON T.H. 4 FROM 1092' SOUTH OF C.S.A.H. 29 TO 2719' NORTH OF C.S.A.H. 29

90% PLANS - FOR REVIEW ONLY

STATE PROJ. NO. 0802-45 (T.H. 4)

GROSS LENGTH	3837.00	FEET	0.727 MILES
BRIDGES-LENGTH		FEET	MILES
EXCEPTIONS-LENGTH		FEET	MILES
NET LENGTH	3837.00	FEET	0.727 MILES

REF. POINT 67+00.849 TO REF. POINT 68+00.494

STATE AID PROJ. NO. 008-070-005 (C.S.A.H. 29)

GROSS LENGTH	1940.69	FEET	0.368 MILES
BRIDGES-LENGTH		FEET	MILES
EXCEPTIONS-LENGTH		FEET	MILES
NET LENGTH	1940.69	FEET	0.368 MILES

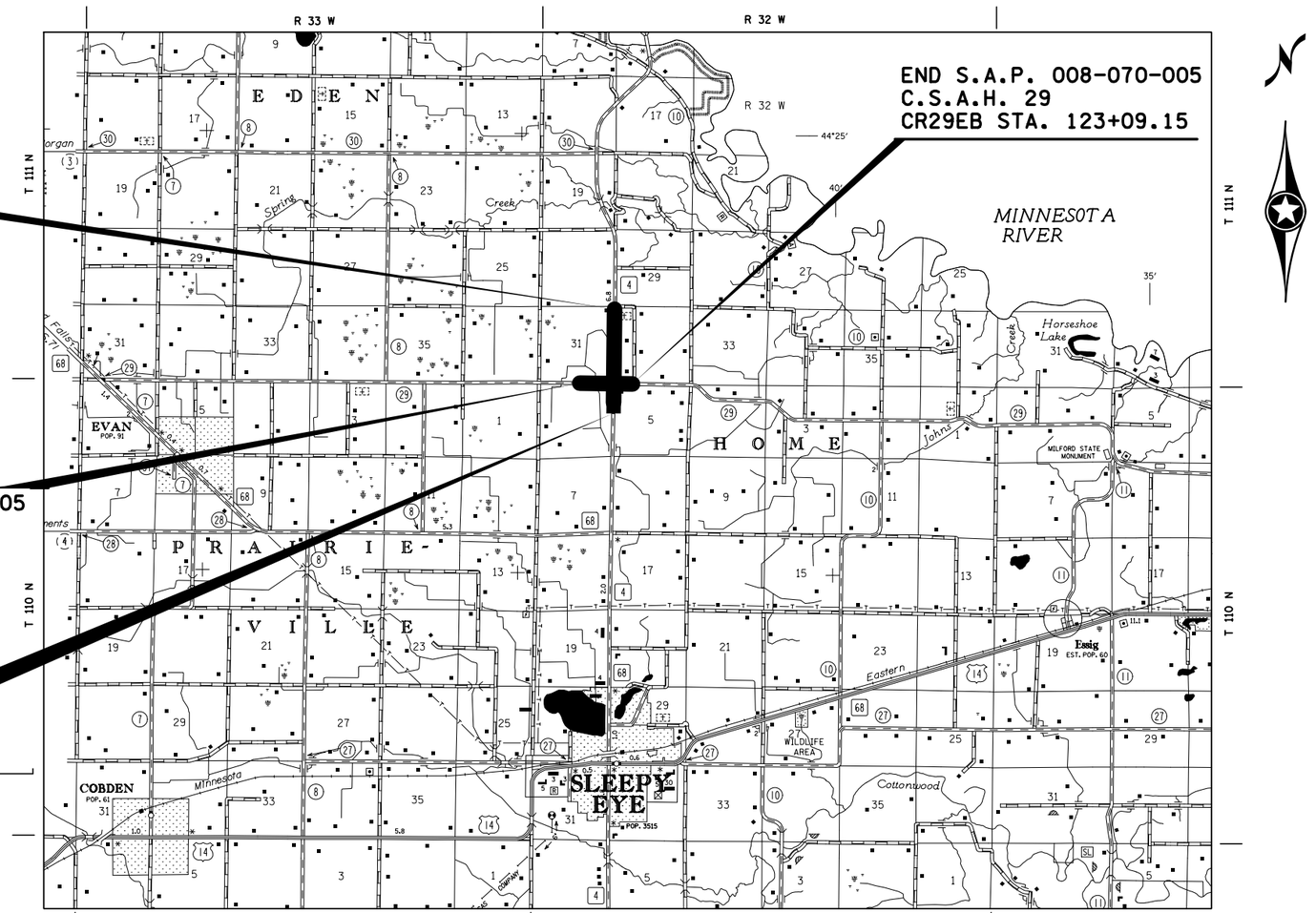
NOTE: LENGTH AND DESCRIPTION BASED ON TH4NB AND CR29EB ALIGNMENTS

END S.P. 0802-45
T.H. 4
TH4NB STA. 243+50.00

END S.A.P. 008-070-005
C.S.A.H. 29
CR29EB STA. 123+09.15

BEGIN S.A.P. 008-070-005
C.S.A.H. 29
CR29EB STA. 103+68.46

BEGIN S.P. 0802-45
T.H. 4
TH4NB STA. 205+13.00



SCALES

PLAN	50'	
PROFILE	50' HORIZ.	5' VERT.
INDEX MAP	1 MI	
GENERAL LAYOUT	500'	

PLAN REVISIONS		
DATE	SHEET NO.	APPROVER

T.H. 4 DESIGN DESIGNATION

Design ESALS	=	Design Speed	60 MPH
ADT (Current Year) 2018	= 1479	Based on STOPPING Sight Distance	
ADT (Future Year) 2038	= 1805	Height of eye 3.5' Height of object	2.0'
DHV (Design Hr. Vol.)	= 165	Design Speed not achieved at:	
D (Directional Distr.)	= 58 %	STA. TO STA.	MPH
T (Heavy Commercial)	= 14 %		

DESIGN SPEED NOT ACHIEVED AT ROUNDABOUT APPROACHES.

C.S.A.H. 29 DESIGN DESIGNATION

Design ESALS	=	Design Speed	60 MPH
ADT (Current Year) 2018	= 1683	Based on STOPPING Sight Distance	
ADT (Future Year) 2038	= 2054	Height of eye 3.5' Height of object	2.0'
DHV (Design Hr. Vol.)	= 226	Design Speed not achieved at:	
D (Directional Distr.)	= 52 %	STA. TO STA.	MPH
T (Heavy Commercial)	= 16 %		

DESIGN SPEED NOT ACHIEVED AT ROUNDABOUT APPROACHES.

FOR PLANS AND UTILITIES SYMBOLS SEE TECHNICAL MANUAL

STATE PROJ. NO. 0802-45 CHARGE IDENTIFIER

PROJECT LOCATION
COUNTY : BROWN
DISTRICT : 7 - MANKATO

FED. PROJ. NO. HSIP NUMBER TBD

GOVERNING SPECIFICATIONS

THE 2018 EDITION OF THE MINNESOTA DEPARTMENT OF TRANSPORTATION "STANDARD SPECIFICATIONS FOR CONSTRUCTION" SHALL GOVERN.

INDEX

THIS PLAN CONTAINS 162 SHEETS

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

PRINT NAME: MICHAEL MARTINEZ LICENSE # 42807

DATE: SIGNATURE:

RECOMMENDED FOR APPROVAL 20
DISTRICT TRANSPORTATION ENGINEER

RECOMMENDED FOR APPROVAL 20
DISTRICT MATERIALS ENGINEER

RECOMMENDED FOR APPROVAL 20
DISTRICT WATER RESOURCES/HYDRAULICS ENGINEER

RECOMMENDED FOR APPROVAL 20
DISTRICT TRAFFIC ENGINEER

RECOMMENDED FOR APPROVAL 20
STATE PRE-LETTING ENGINEER

RECOMMENDED FOR APPROVAL 20
BROWN COUNTY ENGINEER

OFFICE OF LAND MANAGEMENT APPROVAL 20
DIRECTOR, LAND MANAGEMENT

APPROVED 20
STATE DESIGN ENGINEER

20
DISTRICT STATE AID ENGINEER: REVIEWED FOR COMPLIANCE WITH STATE AID RULES/POLICY

20
APPROVED FOR STATE AID FUNDING: STATE AID ENGINEER

I HEREBY CERTIFY THAT THE FINAL FIELD REVISIONS, IF ANY, WERE 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: LICENSE #

DATE: SIGNATURE:

S.A.P. 008-070-005 (C.S.A.H. 29)
STATE PROJ. NO. 0802-45 (TH 4 = 070)

SHEET NO. **1** OF **128** SHEETS

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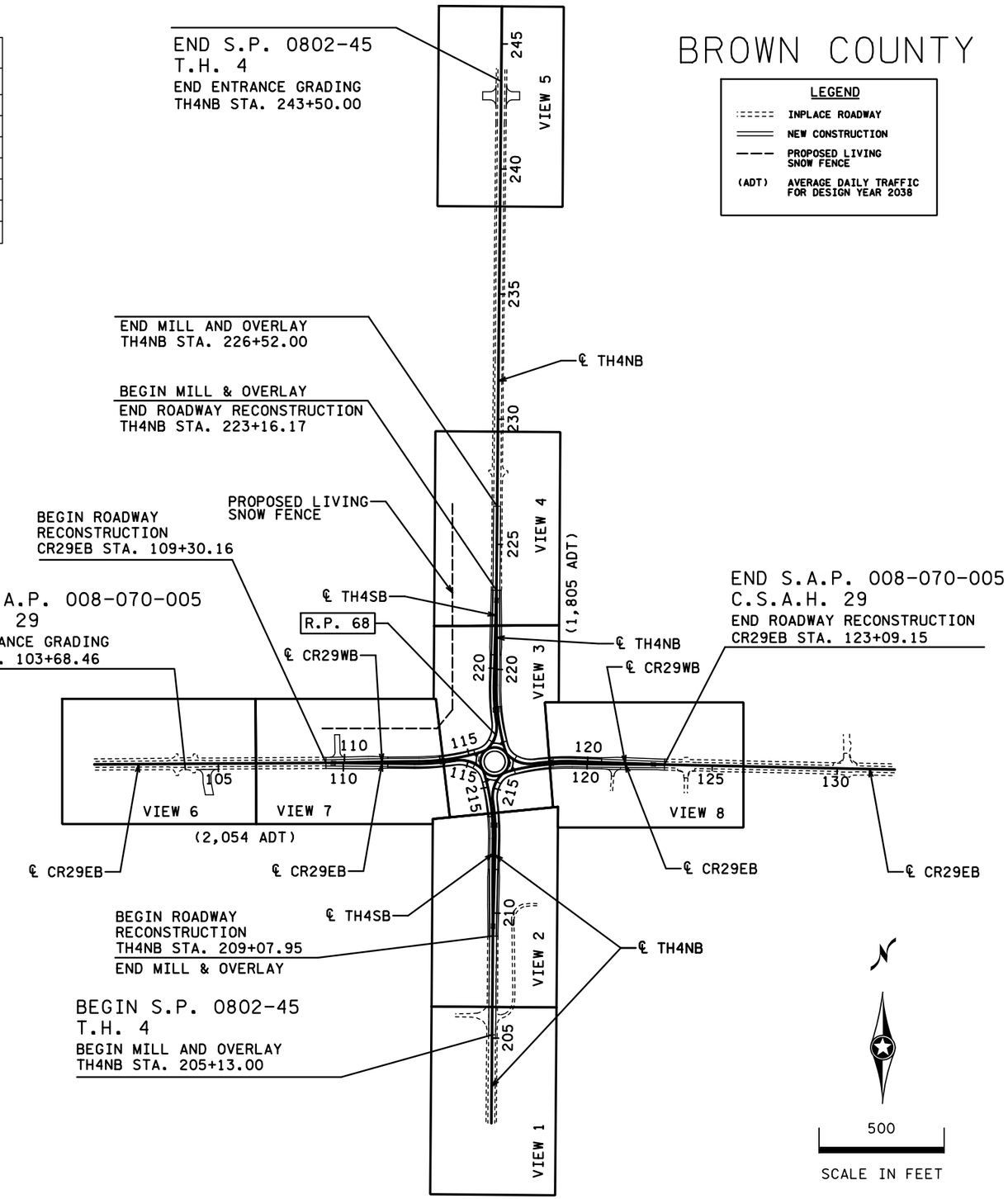
SHEET ORIENTATION								
	PLAN SHEET NUMBER							
GENERAL LAYOUT VIEW NUMBER	1	2	3	4	5	6	7	8
INPLACE TOPOGRAPHY AND UTILITY PLAN	45	46	47	48	49	50	51	52
REMOVAL PLAN	53	54	55	56	57	58	59	60
ALIGNMENT PLAN	35	36	37	38	39	40	41	42
CONSTRUCTION PLAN	61	62	63	64	65	66	67	68
CONCRETE JOINTING DETAIL	NA	77	78	NA	NA	NA	79	80
EROSION CONTROL & TURF ESTABLISHMENT PLANS	NA	90	91	92	93	94	95	96

REFERENCE POINT TAB		
R.P.	TH4SB STA.	TH4NB STA.
67+00.774	N/A	205+13.00
68+00.000	217+36.51	217+40.42
68+00.494	N/A	243+50.00

BROWN COUNTY



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DRAWN BY: NTT	I hereby certify that this plan, specification, or report 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.	CERTIFIED BY: LICENSED PROFESSIONAL ENGINEER	10/27/2017 DATE	90% PLANS - FOR REVIEW ONLY — GENERAL LAYOUT
DESIGNED BY: NTT		NAME: DAX W. KUHFUSS LIC. NO. 46620		STATE PROJ. NO. 0802-45 (T.H. 4) — SHEET NO. 2 OF 128 SHEETS
CHECKED BY: DWK				

HDR — DEPARTMENT OF TRANSPORTATION

STATEMENT OF ESTIMATED QUANTITIES

TAB	SHEET NO.	ITEM NO.	ITEM DESCRIPTION	NOTE NO.	UNIT	TOTAL ESTIMATED QUANTITY	S.P. 0802-45 QUANTITY	S.P. 008-070-005 QUANTITY
AK	124	2011.601	AS BUILT		LUMP SUM	1	0.70	0.30
		2016.601	QUALITY MANAGEMENT		LUMP SUM	1	0.70	0.30
		2016.601	QUALITY MANAGEMENT SPECIAL		LUMP SUM	1	0.70	0.30
		2021.501	MOBILIZATION		LUMP SUM	1	0.70	0.30
		2031.502	FIELD OFFICE TYPE D-MODIFIED		EACH	1	0.70	0.30
		2031.502	FIELD LABORATORY TYPE DX		EACH	1	0.70	0.30
		2051.501	MAINT & RESTORATION OF HAUL ROADS		LUMP SUM	1	0.70	0.30
AI	102	2102.503	PAVEMENT MARKING REMOVAL		LIN FT	1269	269	1000
AH	101	2104.501	REMOVE FLASHER SYSTEM		LUMP SUM	1	1	
J	9	2104.502	REMOVE PIPE APRON		EACH	13	8	5
AG	101	2104.502	REMOVE MARKER		EACH	2	2	
		2104.502	REMOVE SIGN TYPE C		EACH	17	8	9
AD	101	2104.502	REMOVE SIGN TYPE D		EACH	1		1
		2104.502	REMOVE SIGN TYPE SPECIAL		EACH	1	1	
AC, AE	101	2104.502	SALVAGE SIGN TYPE C		EACH	5	4	1
G	9	2104.503	SAWING BIT PAVEMENT (FULL DEPTH)		LIN FT	162	114	48
H	9	2104.503	REMOVE PIPE DRAIN		LIN FT	273	128	145
J	9	2104.503	REMOVE PIPE CULVERTS		LIN FT	349	231	118
H	9	2104.504	REMOVE BITUMINOUS DRIVEWAY PAVEMENT		SQ YD	78		78
H	9	2104.504	REMOVE BITUMINOUS PAVEMENT		SQ YD	10000	6572	3428
		2104.601	HAUL SALVAGED MATERIAL	(1)	LUMP SUM	1	1	
L	9	2105.504	GEOTEXTILE FABRIC TYPE 4		SQ YD	1285	984	301
A	6	2106.507	EXCAVATION - COMMON (P)		CU YD	19588	12493	7095
A	6	2106.507	SELECT GRANULAR EMBANKMENT (CV) (P)		CU YD	8147	5168	2979
A	6	2106.507	COMMON EMBANKMENT (CV) (P)		CU YD	10661	7297	3364
S	9	2112.519	SUBGRADE PREPARATION		ROAD STA	26	14	12
M	10	2118.509	AGGREGATE SURFACING CLASS 1		TON	337	145	192
		2123.510	COMMON LABORERS	(2)(3	HOUR	8	6	2
		2123.510	MOTOR GRADER	(2)(3	HOUR	8	6	2
		2123.510	DOZER	(2)(3	HOUR	8	6	2
		2123.510	10 CU YD TRUCK	(2)(3	HOUR	8	6	2
		2123.510	0.75 CU YD FRONT END LOADER	(2)	HOUR	8	6	2
		2123.610	TRACTOR MOUNTED BACKHOE-LOADER	(2)	HOUR	8	6	2
		2123.610	CRAWLER MOUNTED BACKHOE	(2)(3	HOUR	8	6	2
		2131.606	MAGNESIUM CHLORIDE SOLUTION	(4)	GALLON	5373	5373	
M	10	2211.507	AGGREGATE BASE (CV) CLASS 5Q (P)		CU YD	3484	2187	1297
H	9	2232.504	MILL BITUMINOUS SURFACE (2.0")		SQ YD	2188	2188	
N	10	2301.504	CONCRETE PAVEMENT 7.0"		SQ YD	3533	1766	1767
N	10	2301.508	SUPPLEMENTAL PAVEMENT REINFORCEMENT		POUND	1020	850	170
N	10	2301.604	CONCRETE PAVEMENT (SPECIAL)		SQ YD	1110	1110	
N	10	2301.604	CONCRETE PAVEMENT SPECIAL 1		SQ YD	411	411	
N	10	2301.602	1.0" DOWEL BAR		EACH	1792	896	896
M	10	2360.509	TYPE SP 12.5 WEARING COURSE MIX (4,E)		TON	2340	1350	990

STATEMENT OF ESTIMATED QUANTITIES

TAB	SHEET NO.	ITEM NO.	ITEM DESCRIPTION	NOTE NO.	UNIT	TOTAL ESTIMATED QUANTITY	S.P. 0802-45 QUANTITY	S.P. 008-070-005 QUANTITY
D	87	2451.507	FINE AGGREGATE BEDDING (CV)		CU YD	164	78	86
D	87	2501.502	18" CS PIPE APRON		EACH	2		2
D	87	2501.502	24" CS PIPE APRON		EACH	2		2
D	87	2501.502	30" CS PIPE APRON		EACH	2		2
D	87	2501.502	12" RC PIPE APRON		EACH	5	3	2
D	87	2501.502	24" RC PIPE APRON		EACH	2	2	
D	87	2501.502	27" RC PIPE APRON		EACH	2	2	
D	87	2501.502	30" RC PIPE APRON		EACH	2		2
D	87	2501.503	24" RC PIPE CULVERT CLASS III		LIN FT	99	99	
D	87	2501.503	30" RC PIPE CULVERT CLASS III		LIN FT	100		100
D	87	2501.503	18" CP PIPE CULVERT		LIN FT	32		32
D	87	2501.503	24" CP PIPE CULVERT		LIN FT	91		91
D	87	2501.503	30" CP PIPE CULVERT		LIN FT	75		75
K	9	2502.502	4" PRECAST CONCRETE HEADWALL		EACH	8	4	4
K	9	2502.503	4" TP PIPE DRAIN		LIN FT	320	160	160
N	87	2502.503	12" RC PIPE DRAIN		LIN FT	575	325	250
N	87	2502.503	8" PERF TP PIPE DRAIN		LIN FT	1746	1746	
K	9	2502.503	4" PERF PE PIPE DRAIN		LIN FT	5003	2586	2417
N	87	2502.602	12" PE INSPECTION TEES		EACH	7	3	4
D	87	2503.503	12" RC PIPE SEWER DES 3006 CL III		LIN FT	361	279	82
D	87	2503.503	27" RC PIPE SEWER DES 3006 CL III		LIN FT	130	130	
D	87	2506.502	CASTING ASSEMBLY		EACH	19	15	4
D	87	2506.503	CONST DRAINAGE STRUCTURE DESIGN F		LIN FT	7		7
D	87	2506.503	CONST DRAINAGE STRUCTURE DESIGN G		LIN FT	21	15	6
D	87	2506.503	CONST DRAINAGE STRUCTURE DESIGN H		LIN FT	19	10	9
D	87	2506.503	CONST DRAINAGE STRUCTURE DES 48-4020		LIN FT	41	41	
D	87	2506.503	CONST DRAINAGE STRUCTURE DES 72-4020		LIN FT	6	6	
D	87	2506.503	CONST DRAINAGE STRUCTURE DES 78-4020		LIN FT	7	7	
N	87	2506.502	CONST DRAIN STRUCTURE DES DI CONC 8"		EACH	1	1	
N	87	2506.502	CONST DRAIN STRUCTURE DES DI CONC 12"		EACH	3	2	1
D	87	2511.504	GEOTEXTILE FILTER TYPE 4		SQ YD	99	61	38
D	87	2511.507	RANDOM RIPRAP CLASS II		CU YD	21	13	8
R	10	2521.518	6" CONCRETE WALK		SQ FT	11187	5553	5634
P	10	2531.503	CONCRETE CURB & GUTTER DESIGN SPECIAL	(5)	LIN FT	203	102	101
P	10	2531.503	CONCRETE CURB & GUTTER DESIGN B424		LIN FT	1071	538	533
P	10	2531.503	CONCRETE CURB & GUTTER DESIGN B424 (MOD)	(6)	LIN FT	331	165	166
P	10	2531.503	CONCRETE CURB & GUTTER DESIGN B624		LIN FT	271	271	
P	10	2531.503	CONCRETE CURB & GUTTER DESIGN R424		LIN FT	359	359	
P	10	2531.503	CONCRETE CURB & GUTTER DESIGN S524		LIN FT	3568	1932	1636
	68	2540.602	MAIL BOX SUPPORT	(7)	EACH	1		1
AK	124	2545.501	LIGHTING SYSTEM		LUMP SUM	1	1	
D	87	2554.502	GUIDE POST TYPE B		EACH	11	7	4
		2563.601	TRAFFIC CONTROL		LUMP SUM	1	0.7	0.3
AC	101	2564.502	INSTALL SIGN TYPE C		EACH	1		1
AF	101	2564.502	REFERENCE LOCATION SIGN		EACH	2	2	

NOTES:

(P) PLAN QUANTITY.
(1) HAUL THE LED STOP SIGNS.
(2) ITEM USED FOR PIPE DRAIN EXPLORATION AS DIRECTED BY THE ENGINEER.
(3) ITEM USED FOR CLEAN UP AND MAINTENANCE OF ACCESS ROADS AS DIRECTED BY THE ENGINEER.
(4) APPLIED AT 0.3 GALLONS PER SQUARE YARD
(5) S524 C&G WITH WIDENED GUTTER. SEE DETAIL ON SHEET **70**.
(6) MODIFIED WITH WIDENED GUTTER. SEE DETAIL ON SHEET **70**.
(7) LOCATED AT C.S.A.H. 29 STA. 123+76 RT. SEE STANDARD PLATE 9350 FOR DETAIL.

DRAWN BY: NTT
DESIGNED BY: NTT
CHECKED BY: DWK

I hereby certify that this plan, specification, or report 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.

CERTIFIED BY: _____ LICENSED PROFESSIONAL ENGINEER — 10/27/2017 DATE

NAME: DAX W. KUHFUSS LIC. NO. 46620

HDR

DEPARTMENT OF TRANSPORTATION

90% PLANS - FOR REVIEW ONLY — ESTIMATED QUANTITIES

STATE PROJ. NO. 0802-45 (T.H. 4) — SHEET NO. 3 OF 128 SHEETS

STATEMENT OF ESTIMATED QUANTITIES

TAB	SHEET NO.	ITEM NO.	ITEM DESCRIPTION	NOTE NO.	UNIT	TOTAL ESTIMATED QUANTITY	S.P. 0802-45 QUANTITY	S.P. 008-070-005 QUANTITY
AM	101	2564.502	RIGHT OF WAY MARKER TYPE X3-1		EACH	20	20	
AA	100	2564.518	SIGN PANELS TYPE C		SQ FT	255	154	101
AB	101	2564.518	SIGN PANELS TYPE D		SQ FT	465	205	260
AL	101	2564.518	SIGN PANELS TYPE OVERLAY		SQ FT	64	32	32
W	97	2571.525	DECIDUOUS SHRUB NO 2 CONT		SHRUB	693	693	
X	97	2571.604	GEOTEXTILE WEED BARRIER FABRIC		SQ YD	1540	1540	
Y	9	2572.503	TEMPORARY FENCE		LIN FT	294		294
T	11	2573.502	STORM DRAIN INLET PROTECTION		EACH	27	18	9
T	11	2573.502	CULVERT END CONTROLS		EACH	6	2	4
T	11	2573.503	SILT FENCE, TYPE MS		LIN FT	1800	705	1095
T	11	2573.503	SEDIMENT CONTROL LOG TYPE STRAW		LIN FT	3882	2234	1648
U, X	11, 97	2574.505	SUBSOILING		ACRE	2	1	1
U, X	11, 97	2574.505	SOIL BED PREPARATION		ACRE	8.4	6.5	1.9
U, X	11, 97	2574.508	FERTILIZER TYPE 3		POUND	2367	1683	684
U, X	11, 97	2575.504	EROSION CONTROL BLANKETS CATEGORY 3		SQ YD	5194	3364	1830
U, X	11, 97	2575.505	SEEDING		ACRE	11	7.9	3.1
U, X	11, 97	2575.505	DISK ANCHORING		ACRE	9	6	3
U, X	11, 97	2575.505	MOWING		ACRE	9.8	6.6	3.2
U, X	11, 97	2575.505	WEED SPRAYING		ACRE	9.8	6.6	3.2
U, X	11, 97	2575.506	WEED SPRAY MIXTURE		GALLON	2	1.4	0.6
U	11	2575.508	SEED MIXTURE 35-241		POUND	131	77	54
U, X	11, 97	2575.509	MULCH MATERIAL TYPE 3		TON	24	15	9
T	11	2575.523	RAPID STABILIZATION METHOD 3		M GALLON	62	41	21
X	97	2575.608	SEED MIXTURE SPECIAL		POUND	199	152	47
AI	102	2582.503	4" SOLID LINE MULTI COMP		LIN FT	940	643	297
AI	102	2582.503	4" SOLID LINE MULTI COMP GR IN (WR)		LIN FT	10141	5252	4889
AI	102	2582.503	24" SOLID LINE MULTI COMP GR IN (WR)		LIN FT	154	79	75
AI	102	2582.503	4" BROKEN LINE MULTI COMP GR IN (WR)		LIN FT	384	184	200
AI	102	2582.503	4" DBLE SOLID LINE MULTI COMP GR IN (WR)		LIN FT	2127	1128	999
AI	102	2582.503	12" DOTTED LINE PREF THERMO GR IN CONT		LIN FT	101	101	
AI	102	2582.603	MOBILE RETROREFLECTOMETER MEASUREMENTS		LIN FT	9575	4840	4735
AI	102	2582.618	PAVEMENT MARKING SPECIAL		SQ FT	234	117	117

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DRAWN BY: NTT
DESIGNED BY: NTT
CHECKED BY: DWK

I hereby certify that this plan, specification, or report 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.

CERTIFIED BY: _____ LICENSED PROFESSIONAL ENGINEER

NAME: DAX W. KUHFUSS LIC. NO. 46620

10/27/2017 DATE

HDR

DEPARTMENT OF TRANSPORTATION

90% PLANS - FOR REVIEW ONLY — ESTIMATED QUANTITIES

STATE PROJ. NO. 0802-45 (T.H. 4) — SHEET NO. 4 OF 128 SHEETS

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

MNDOT STANDARD PLATES

PLATE NO.	DESCRIPTION
1070 M	SUPPLEMENTAL PAVEMENT REINFORCEMENT
1103 K	TYPICAL DOWEL BAR ASSEMBLY (2 SHEETS)
1150 R	CONCRETE HEADER JOINTS (2 SHEETS)
3000 L	REINFORCED CONCRETE PIPE (5 SHEETS)
3006 G	GASKET JOINT FOR R.C. PIPE (2 SHEETS)
3022 C	PRECAST CONCRETE SAFETY APRON (3 SHEETS)
3040 F	CORRUGATED METAL PIPE CULVERT (STANDARD 2-2/3" x 1/2" CORRUGATION)
3100 G	CONCRETE APRON FOR REINFORCED CONCRETE PIPE
3123 J	METAL APRON FOR C.S. PIPE
3124 B	METAL APRON CONNECTION
3128 H	METAL SAFETY APRON & GRATE (2 SHEETS)
3129 A	METAL ARPON FOR CORRUGATED POLYETHYLENE PIPE (USE AT ENTRANCES AND DRIVEWAYS)
3131 C	PRECAST CONCRETE HEADWALL FOR SUBSURFACE DRAINS
3133 D	RIPRAP AT RCP OUTLETS
3134 D	RIPRAP AT CSP OUTLETS
3143 C	INSPECTION TEES (METAL AND CONCRETE)
3145 G	CONCRETE PIPE TIES
3221 C	CORRUGATED STEEL PIPE COUPLING BAND (3 SHEETS)
4005 M	MANHOLE OR CATCH BASIN TYPE A & B CONE SECTIONS PRECAST - DESIGN F
4006 L	MANHOLE OR CATCH BASIN PRECAST - DESIGNS G AND H
4011 E	PRECAST CONCRETE BASE
4020 J	MANHOLE OR CATCH BASIN (FOR USE WITH OR WITHOUT TRAFFIC LOADS) (2 SHEETS)
4026 A	CONCRETE ENCASED CONCRETE ADJUSTING RINGS
4101 D	RING CASTING FOR MANHOLE OR CATCH BASIN
4108 F	ADJUSTING RINGS FOR CATCH BASINS AND MANHOLES
4125 D	CATCH BASIN FRAME CASTING (FOR SQUARE GRATE) * CASTING NO. 806
4132 F	CATCH BASIN FRAME CASTING (FOR SQUARE GRATE) - CASTING NO. 805
4134 A	CURB BOX CASTING FOR CATCH BASIN (FOR DESIGN B CURBS)- CASTING NO. 825
4154 B	CATCH BASIN GRATE CASTING - CASTING NO. 816
4180 J	MANHOLE OR CATCH BASIN STEP
7100 H	CONCRETE CURB & GUTTER (DESIGN B AND DESIGN V)
7102 K	CONCRETE CURB & GUTTER (DESIGN D, S & R)
7111 J	INSTALLATION OF CATCH BASIN CASTINGS (CONCRETE CURB AND GUTTER)
7113 A	CONCRETE APPROACH NOSE DETAIL
8000 J	CHANNELIZERS (3 SHEETS)
8106 D	EQUIPMENT PAD B (CAST-IN-PLACE OR PRECAST) (3 SHEETS)
8127 E	LIGHT FOUNDATION - DESIGN E (2 SHEETS)
8150 C	INSTALLATION OF CULVERT MARKERS
8332 D	ANCHOR BOLT CLUSTER FOR LIGHT POLES
9000 E	APPROACHES & ENTRANCES - RECOMMENDED STANDARDS
9350 A	MAILBOX SUPPORT (SWING-AWAY TYPE)

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DRAWN BY: NTT
DESIGNED BY: NTT
CHECKED BY: DWK

I hereby certify that this plan, specification, or report 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.

CERTIFIED BY: _____ LICENSED PROFESSIONAL ENGINEER

NAME: NATHAN TRUEX LIC. NO. 53715

10/27/2017 DATE

HDR

DEPARTMENT OF TRANSPORTATION

90% PLANS - FOR REVIEW ONLY

INDEX OF STANDARD PLATES

STATE PROJ. NO. 0802-45 (T.H. 4)

EARTHWORK SUMMARY (A)

SHEET NO.	ROADWAY	ALIGNMENT	STATION TO STATION	NOTES	EXCAVATION COMMON	EMBANKMENT COMMON (CV)	EMBANKMENT SELECT GRANULAR (CV)
					CU YD	CU YD	CU YD
S.P. 0802-45							
7	T.H. 4	TH4NB	209+07.95 TO 223+16.17		12346	7193	5168
7	FIELD ENTRANCE 1	N_FE_LT	5+20.57 TO 5+73.94		72	74	
7	FIELD ENTRANCE 2	N_FE_RT	5+21.47 TO 5+74.01		75	30	
S.P. 0802-45 TOTAL					**12493**	**7297**	**5168**
S.A.P. 008-070-005							
7	C.S.A.H. 29	CR29EB	109+30.16 TO 123+09.15		6975	2939	2979
7	FIELD ENTRANCE 3	FE_RT	10+00.00 TO 11+02.44		120	425	
S.A.P. 008-070-005 TOTAL					**7095**	**3364**	**2979**
TOTAL					**19588**	**10661**	**8147**

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DRAWN BY:	NTT
DESIGNED BY:	NTT
CHECKED BY:	DWK

I hereby certify that this plan, specification, or report 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.

CERTIFIED BY: _____ LICENSED PROFESSIONAL ENGINEER

NAME: NATHAN TRUEX LIC. NO. 53715

10/27/2017 DATE

HDR

DEPARTMENT OF TRANSPORTATION

90% PLANS - FOR REVIEW ONLY — EARTHWORK SUMMARY

STATE PROJ. NO. 0802-45 (T.H. 4) — SHEET NO. 6 OF 128 SHEETS

EARTHWORK TABULATIONS (B)

STATION	EXCAVATION COMMON	EMBANKMENT (CV) COMMON	EMBANKMENT (CV) SELECT GRANULAR
	CU YD	CU YD	CU YD
T.H. 4 (TH4NB) S.P. 0802-45			
209+07.95			
209+25.00	87	36	36
209+50.00	143	63	62
209+75.00	141	66	63
210+00.00	140	71	64
210+25.00	142	73	65
210+50.00	142	74	66
210+75.00	137	76	67
211+00.00	129	78	68
211+25.00	126	74	68
211+50.00	124	67	68
211+75.00	125	69	68
212+00.00	123	71	68
212+25.00	124	83	68
212+50.00	123	83	69
212+75.00	122	83	69
213+00.00	119	81	69
213+25.00	120	80	70
213+50.00	121	78	70
213+75.00	120	75	70
214+00.00	121	83	70
214+25.00	133	95	71
214+50.00	145	110	71
214+75.00	156	132	82
215+00.00	173	146	94
215+25.00	176	167	117
215+50.00	186	274	143
215+75.00	172	323	207
216+00.00	147	243	250
216+25.00	155	236	274
216+50.00	147	276	310
216+75.00	107	541	272
217+00.00	158	568	182
217+25.00	263	259	123
217+50.00	312	168	101
217+75.00	337	134	83
218+00.00	332	128	77
218+25.00	292	114	74
218+50.00	322	123	71
218+75.00	312	112	71
219+00.00	340	107	70
219+25.00	371	106	70
219+50.00	403	100	70
219+75.00	424	95	69
220+00.00	426	96	69
220+25.00	420	96	68
220+50.00	406	94	68
220+75.00	389	93	67
221+00.00	370	93	67
221+25.00	353	94	68
221+50.00	338	95	68
221+75.00	317	95	67
222+00.00	296	94	66
222+25.00	276	89	65
222+50.00	219	78	64
222+75.00	198	68	63
223+00.00	162	58	62
223+16.17	84	29	36
T.H. 4 TOTAL	12346	7193	5168

EARTHWORK TABULATIONS (B)

STATION	EXCAVATION COMMON	EMBANKMENT (CV) COMMON	EMBANKMENT (CV) SELECT GRANULAR
	CU YD	CU YD	CU YD
C.S.A.H. 29 (CR29EB) S.A.P. 008-070-005			
109+30.16			
109+50.00	107	22	65
109+75.00	213	106	67
110+00.00	222	110	68
110+25.00	264	62	69
110+50.00	254	64	70
110+75.00	242	67	71
111+00.00	229	70	72
111+25.00	212	73	73
111+50.00	201	72	71
111+75.00	201	70	68
112+00.00	199	76	67
112+25.00	195	81	68
112+50.00	189	80	69
112+75.00	183	83	70
113+00.00	176	87	70
113+25.00	169	103	70
113+50.00	165	119	70
113+75.00	163	120	70
114+00.00	164	129	71
114+25.00	181	145	71
117+50.00			
117+75.00	119	96	84
118+00.00	114	81	74
118+25.00	105	71	71
118+50.00	103	66	71
118+75.00	105	62	71
119+00.00	106	58	70
119+25.00	105	58	70
119+50.00	106	58	70
119+75.00	109	58	70
120+00.00	111	59	69
120+25.00	112	60	68
120+50.00	115	61	68
120+75.00	122	56	67
121+00.00	152	42	87
121+25.00	161	36	89
121+50.00	153	46	71
121+75.00	173	47	69
122+00.00	186	42	68
122+25.00	190	40	67
122+50.00	189	36	66
122+75.00	180	32	65
123+00.00	161	26	64
123+09.15	69	9	20
C.S.A.H. 29 TOTAL	6975	2939	2979

EARTHWORK TABULATIONS (B)

STATION	EXCAVATION COMMON	EMBANKMENT (CV) COMMON	EMBANKMENT (CV) SELECT GRANULAR
	CU YD	CU YD	CU YD
FIELD ENTRANCE 1 (N_FE_LT) S.P. 0802-45			
5+20.57			
5+25.00	9	1	
5+50.00	42	37	
5+73.94	21	36	
FIELD ENTRANCE 1 TOTAL	72	74	
FIELD ENTRANCE 2 (N_FE_RT) S.P. 0802-45			
5+21.47			
5+25.00	7	1	
5+50.00	43	18	
5+74.01	25	11	
FIELD ENTRANCE 2 TOTAL	75	30	
FIELD ENTRANCE 3 (FE_RT) S.A.P. 008-070-005			
10+00.00			
10+25.00	53	97	
10+50.00	30	185	
10+75.00	26	116	
11+02.44	11	27	
FIELD ENTRANCE 3 TOTAL	120	425	

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DRAWN BY: NTT
DESIGNED BY: NTT
CHECKED BY: DWK

I hereby certify that this plan, specification, or report 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.

CERTIFIED BY: _____ LICENSED PROFESSIONAL ENGINEER

NAME: NATHAN TRUEX LIC. NO. 53715

10/27/2017 DATE

HDR

DEPARTMENT OF TRANSPORTATION

90% PLANS - FOR REVIEW ONLY

EARTHWORK TABULATIONS

STATE PROJ. NO. 0802-45 (T.H. 4)

SOILS AND CONSTRUCTION NOTES

GENERAL GRADING REQUIREMENTS

1. ALL MATERIAL NOT UTILIZED ON THIS PROJECT SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND DISPOSED OF OFF THE R/W IN ACCORDANCE WITH SPEC 2104.

2. ALL EXCAVATION SHALL BE PAID FOR AS EXCAVATION-COMMON. NO EXTRA COMPENSATION WILL BE MADE FOR TEMPORARY STOCKPILING OF EXCAVATED OR EMBANKMENT MATERIAL.

3. PRIOR TO EMBANKMENT CONSTRUCTION, STRIP ALL INPLACE SLOPE DRESSING WITHIN THE ROADWAY CORE. EXCAVATED SLOPE DRESSING WHICH CAN MEET THE REQUIREMENTS FOR PROPOSED SLOPE DRESSING OR PROPOSED NON-STRUCTURAL GRADING MATERIAL SHALL BE REUSED ON THE PROJECT. ANY EXCESS EXCAVATED SLOPE DRESSING THAT CANNONT BE UTILIZED ON THE PROJECT SHALL FOLLOW NOTE 1 ABOVE.

4. ANY DRAIN TILE DAMAGED BY STOCKPILING IN TEMPORARY EASEMENT AREAS SHALL BE REPAIRED AT NO COST TO THE DEPARTMENT.

5. MINING OF MATERIAL WITHIN MNDOT RIGHT OF WAY (R/W) IS NOT ALLOWED WITHOUT THE APPROVAL OF THE ENGINEER.

6. ROAD CORE EMBANKMENT MUST MEET THE REQUIREMENTS OF SELECT GRADING MATERIAL 2106.1A.6.

7. NON-STRUCTURAL GRADING MATERIALS PER 2106.1A.8 MAY BE USED OUTSIDE THE ROAD CORE.

8. AT THE TERMINI OF PROPOSED CONSTRUCTION CUT VERTICALLY TO THE BOTTOM OF THE INPLACE PAVEMENT OR TO THE BOTTOM OF THE PROPOSED PAVEMENT, WHICHEVER IS DEEPER, THEN TAPER AT 1:20 (V:H) TO THE BOTTOM OF THE PROPOSED SELECT GRANULAR.

9. IN ANY CASE WHERE GRANULAR EMBANKMENTS OR BACKFILL JOIN PLASTIC SOIL EMBANKMENTS OR BACKFILL, PROVIDE A 1:20 (V:H) TRANSITION TAPER BETWEEN THE CHANGE IN MATERIAL TO PREVENT AN ABRUPT SOILS DIFFERENTIAL. THE 1:20 (V:H) TAPER SHALL BE CONSTRUCTED SO THAT THE GRANULAR BACKFILL MATERIAL OVERLAYS THE ADJACENT PLASTIC SOIL BACKFILL.

10. WHERE MATCHING INPLACE ENTRANCES, CUT VERTICALLY TO THE BOTTOM OF THE INPLACE PAVEMENT OR TO THE BOTTOM OF THE PROPOSED PAVEMENT, WHICHEVER IS DEEPER, THEN TAPER AT 1:4 (V:H) TO THE BOTTOM OF THE PROPOSED SELECT GRANULAR.

11. ALL ENTRANCES ADJACENT TO T.H. 4 AND C.S.A.H. 29 SHALL HAVE 1:6 (V:H) MAXIMUM INSLOPES WITHIN THE CLEAR ZONE.

12. SPECIAL DITCH GRADE ELEVATIONS ARE GIVEN AT THE BOTTOM OF THE SLOPE DRESSING.

13. WASH WATER SHALL BE TREATED IN A MANNER TO PREVENT CEMENT RESIDUE FROM BEING ABSORBED IN THE GROUND OR REACHING A WATERWAY. WASH WATER SHALL BE DISPOSED OF OUTSIDE THE PROJECT LIMITS IN AN APPROVED MANNER. THIS WORK SHALL BE INCIDENTAL, AND PERFORMED AS DIRECTED BY THE ENGINEER.

14. THE GRADING SHALL BE SHAPED AND COMPACTED TO SEAL THE SURFACE AND PROVIDE DRAINAGE AT THE END OF EACH WORKING DAY. ALL EROSION AND SEDIMENT CONTROL BMP'S ARE TO BE IN GOOD CONDITION AT THE END OF EACH WORKING DAY.

15. THE PROPOSED ROAD SURFACE AND ROADBED SHALL SHALL NOT BE USED TO STOCKPILE ANY MATERIAL UNLESS AUTHORIZED BY THE ENGINEER.

GENERAL COMPACTION REQUIREMENTS

16. THE FOLLOWING COMPACTION TESTING SHALL BE USED:
    1) BOTTOM OF ALL EXCAVATIONS: QUALITY COMPACTION METHOD (MNDOT SPEC. 2106.3.F.2) AT A MINIMUM. COMPACTION SHALL BE TO THE SATISFACTION OF THE ENGINEER. A MINIMUM OF FOUR PASSES OF AN APPROVED ROLLER IS REQUIRED.
    2) SELECT GRADING MATERIAL: SPECIFIED DENSITY METHOD (MNDOT SPEC. 2106.3.F.1)
    3) SELECT GRANULAR MATERIAL AND AGGREGATE BASE MATERIALS: PENETRATION INDEX METHOD (MNDOT SPEC. 2106.3F3)
    4) AGGREGATE SURFACING: QUALITY COMPACTION METHOD (MNDOT SPEC. 2118)

17. TEST ROLLING WITH TR10 EQUIPMENT SHALL BE PERFORMED PRIOR TO PLACEMENT OF SELECT GRANULAR MATERIAL AND AGAIN PRIOR TO PLACEMENT OF PAVEMENT. TEST ROLLING OF ENTRANCES IS NOT REQUIRED. TEST ROLLING SHALL BE IN ACCORDANCE TO MNDOT STANDARD SPECIFICATION 2111. TEST ROLLING SHALL BE INCIDENTAL.

18. DURING COMPACTION OF SELECT GRANULAR MATERIAL AND AGGREGATE BASE MATERIALS WATER SHALL BE APPLIED DURING THE MIXING AND SPREADING OPERATIONS SO THAT, AT THE TIME OF COMPACTION, THE MOISTURE CONTENT IS NO LESS THAN 5 PERCENT OF DRY WEIGHT.

GENERAL PAVING REQUIREMENTS

19. THE CONTRACTOR SHALL PLACE A BITUMINOUS TACK COAT (INCIDENTAL) BETWEEN ALL BITUMINOUS LIFTS, ON EXISTING PAVEMENT AND MILLED PAVEMENT SURFACES PRIOR TO OVERLAY, AND AT THE EDGES WHERE CONCRETE AND BITUMINOUS MEET. ALL SURFACES SHALL BE CLEANED PRIOR TO THE PLACEMENT. THIS WORK IS INCIDENTAL AND SHALL BE IN ACCORDANCE WITH SPECIFICATION 2357.

20. BITUMINOUS MATERIAL LIFT THICKNESSES SHALL CONFORM TO THE NOTES ON TYPICAL SECTIONS.

21. A SAW CUT SHALL BE PROVIDED WHERE PLACING NEW PAVEMENT ADJACENT TO INPLACE PAVEMENT IN ORDER TO CREATE A UNIFORM JOINT.

GENERAL DRAINAGE REQUIREMENTS

22. THE CONTRACTOR SHALL PROVIDE OUTLET TRENCHES AND TAKE MEASURES NECESSARY, AS DIRECTED BY THE ENGINEER, TO ALLOW SURFACE DRAINAGE OF THE REMOVAL AREA. PAYMENT FOR THE REMOVAL AREA OUTLET TRENCHES SHALL BE CONSIDERED INCIDENTAL.

23. EXISTING EDGE DRAIN SYSTEMS WHICH MAY CROSS THROUGH THE PROJECT LIMITS SHALL BE CONNECTED TO THE PROPOSED EDGE DRAIN SYSTEM AND PERPETUATED. ANY DAMAGE TO EXISTING EDGE DRAIN SYSTEMS WHICH ARE OUTSIDE THE PROJECT LIMITS SHALL BE REPAIRED IMMEDIATELY, NO COMPENSATION WILL BE PROVIDED. EDGE DRAIN SYSTEMS WITHIN THE PROJECT LIMITS SHALL BE COMPENSATED PER THE ASSOCIATED PAY ITEMS.

24. THE 4" CONCRETE HEADWALL AND CUT-OFF DRAIN OUTLETS FOR THE EDGE DRAIN SYSTEM SHALL BE MARKED BY THE FOLLOWING METHOD. THIS WORK SHALL BE INCIDENTAL.
    1) THE LOCATION OF THE HEADWALL MARKING SHOULD BE A POINT ADJACENT TO THE OUTSIDE EDGE OF THE PAVED SHOULDER.
    2) A DEPRESSION, 5" X 24" X 1/8" MINIMUM, SHOULD BE MADE AT EACH HEADWALL LOCATION AND THE DEPRESSION SHALL PROMOTE DRAINAGE OF THE SURFACE WATER TO THE INSLOPE.
    3) WHEN AN IRON PLATE IS USED TO CONSTRUCT THE 1/8"DEPRESSION, THE THICKNESS OF THE PLATE SHALL BE 1/4" MINIMUM.
    4) WHITE LATEX PAINT SHALL BE PLACED IN THE BITUMINOUS DEPRESSION.
    5) THE PLACEMENT AND DEPRESSION METHOD SHALL BE PRE-APPROVED BY THE ENGINEER.

25. THE CONTRACTOR SHALL FULLY VIDEO INSPECT ALL NEW EDGE DRAINS PRIOR TO ACCEPTANCE. THIS VIDEO INSPECTION IS INCIDENTAL.

26. DRAIN TILE LOCATED WITHIN THE TEMPORARY EASEMENT SHALL NOT BE DAMAGED DURING CONSTRUCTION. THE CONTRACTOR SHALL REPAIR OR REPLACE ANY DAMAGE TO THE SATISFACTION OF THE ENGINEER. NO COMPENSATION WILL BE PROVIDED.

27. INVERTS OF PIPE DRAIN OUTLETS SHALL BE 6" TO 12" ABOVE THE FINISHED DITCH GRADE.

28. DITCHES SHALL BE EXCAVATED AND STABILIZED BEFORE ANY SUBCUTS ARE EXCAVATED AND KEPT DEEPER THAN THE BOTTOM OF THE SUBCUT. POSITIVE DRAINAGE SHALL BE PROVIDED FOR SUBCUTS AT ALL TIMES.

GENERAL TRAFFIC REQUIREMENTS

29. THE CONTRACTOR SHALL PROVIDE AND MAINTAIN TEMPORARY ACCESS DURING CONSTRUCTION FOR ALL PROPERTY OWNERS ADJACENT TO THE PROJECT. ALL COSTS ASSOCIATED WITH THIS ARE INCIDENTAL.

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DRAWN BY: NTT	I hereby certify that this plan, specification, or report 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.	CERTIFIED BY: _____ LICENSED PROFESSIONAL ENGINEER	10/27/2017 DATE	HDR / DEPARTMENT OF TRANSPORTATION	90% PLANS - FOR REVIEW ONLY / SOILS AND CONSTRUCTION NOTES
DESIGNED BY: NTT		NAME: DAX W. KUHFUSS LIC. NO. 46620			STATE PROJ. NO. 0802-45 (T.H. 4) / SHEET NO. 8 OF 128 SHEETS
CHECKED BY: DWK					

SAWING (G)

ROADWAY	ALIGNMENT	STATION	OFFSET	NOTES	BITUMINOUS PAVEMENT (FULL DEPTH)
					LIN FT
S.P. 0802-45					
T.H. 4	TH4NB	209+07.95	14 LT - 14 RT		28
T.H. 4	TH4NB	223+16.17	14 LT - 14 RT		28
T.H. 4	TH4NB	224+45.54	14 LT - 14 RT		29
T.H. 4	TH4NB	224+69.39	14 LT - 14 RT		29
S.P. 0802-45 TOTAL					**114**
S.A.P. 008-070-005					
C.S.A.H. 29	CR29EB	109+30.16	12 LT - 12 RT		24
C.S.A.H. 29	CR29EB	123+09.15	12 LT - 12 RT		24
S.A.P. 008-070-005 TOTAL					**48**
TOTAL					**162**

CULVERT REMOVALS (J)

ROADWAY	ALIGNMENT	STATION	OFFSET	SIZE	MATERIAL	NOTES	REMOVE PIPE CULVERTS	REMOVE PIPE APRON
				INCHES			LIN FT	EACH
S.P. 0802-45								
T.H. 4	TH4NB	214+55.00	0 CL	24	CMP		76	2
T.H. 4	TH4NB	216+84.00	0 CL	24	RCP		101	2
T.H. 4	TH4NB	227+89.00	42 RT	18	CMP		27	2
T.H. 4	TH4NB	227+89.00	41 LT	18	CMP		27	2
S.P. 0802-45 TOTAL							**231**	**8**
S.A.P. 008-070-005								
C.S.A.H. 29	CR29EB	104+38.00	63 RT					1
C.S.A.H. 29	CR29EB	113+17.00	0 CL	30	RCP		84	2
C.S.A.H. 29	CR29EB	114+88.00	43 LT					1
C.S.A.H. 29	CR29EB	115+03.00	47 LT	24	RCP		34	
C.S.A.H. 29	CR29EB	115+16.00	53 LT					1
S.A.P. 008-070-005 TOTAL							**118**	**5**
TOTAL							**349**	**13**

TEMPORARY FENCE (Y)

ROADWAY	ALIGNMENT	OFFSET	STATION	TO	STATION	TEMPORARY FENCE
						LIN FT
S.A.P. 008-070-005						
C.S.A.H. 29	CR29EB	RT	120+04.00	TO	120+97.00	93
C.S.A.H. 29	CR29EB	RT	121+08.00	TO	123+09.15	201
S.A.P. 008-070-005 TOTAL						294
TOTAL						**294**

REMOVALS (H)

ROADWAY	ALIGNMENT	STATION	TO	STATION	NOTES	REMOVE PIPE DRAIN	REMOVE BITUMINOUS PAVEMENT (1)	REMOVE BITUMINOUS DRIVEWAY PAVEMENT	MILL BITUMINOUS SURFACE (2.0")
						LIN FT	SQ YD	SQ YD	SQ YD
S.P. 0802-45									
T.H. 4	TH4NB	205+13.00	TO	209+07.95					1222
T.H. 4	TH4NB	209+07.95	TO	223+16.17			6498		
T.H. 4	TH4NB	214+60.78	TO	214+71.35		128			
T.H. 4	TH4NB	223+16.17	TO	226+52.00			74		966
S.P. 0802-45 TOTAL						128	6572		2188
S.A.P. 008-070-005									
C.S.A.H. 29	CR29EB	109+30.16	TO	115+37.34			1666		
C.S.A.H. 29	CR29EB	116+90.65	TO	123+09.15			1762		
C.S.A.H. 29	CR29EB	117+85.22	TO	117+98.63		145			
C.S.A.H. 29	CR29EB	120+76.94	TO	121+22.38				78	
S.A.P. 008-070-005 TOTAL						145	3428	78	
TOTAL						273	10000	78	2188

EDGE DRAIN (K)

ROADWAY	ALIGNMENT	STATION	TO	STATION	NOTES	LOCATION	4" PRECAST CONCRETE HEADWALL (2)	4" PERF PE PIPE DRAIN	4" TP PIPE DRAIN (2)
							EACH	LIN FT	LIN FT
S.P. 0802-45									
T.H. 4	TH4NB	209+07.95	TO	211+74.03		RT	1	267	40
T.H. 4	TH4NB	209+07.95	TO	211+73.94		LT	1	268	40
T.H. 4	TH4NB	211+74.03	TO	215+36.08	(3)	RT		350	
T.H. 4	TH4NB	211+73.94	TO	215+12.90	(3)	LT		362	
T.H. 4	TH4NB	216+44.90	TO	218+39.85	(3)	RT		193	
T.H. 4	TH4NB	217+10.28	TO	220+25.14	(3)	LT		377	
T.H. 4	TH4NB	218+39.96	TO	223+16.17		RT	1	476	40
T.H. 4	TH4NB	220+25.14	TO	223+16.17		LT	1	293	40
S.P. 0802-45 TOTAL							**4**	**2586**	**160**
S.A.P. 008-070-005									
C.S.A.H. 29	CR29EB	109+33.05	TO	111+87.93		RT	1	259	40
C.S.A.H. 29	CR29EB	110+09.17	TO	113+97.23		LT	1	388	40
C.S.A.H. 29	CR29EB	111+87.93	TO	115+85.44	(3)	RT		384	
C.S.A.H. 29	CR29EB	113+97.23	TO	115+05.54	(3)	LT		130	
C.S.A.H. 29	CR29EB	116+44.18	TO	120+57.38	(3)	RT	1	408	40
C.S.A.H. 29	CR29EB	117+27.46	TO	120+57.84	(3)	LT	1	346	40
C.S.A.H. 29	CR29EB	120+57.38	TO	123+09.15		RT		249	
C.S.A.H. 29	CR29EB	120+57.84	TO	123+09.15		LT		253	
S.A.P. 008-070-005 TOTAL							**4**	**2417**	**160**
TOTAL							**8**	**5003**	**320**

GEOTEXTILE FABRIC (L)

ROADWAY	ALIGNMENT	STATION	TO	STATION		GEOTEXTILE FABRIC TYPE 4 (4)
S.P. 0802-45						SQ YD
T.H. 4	TH4NB	213+23.13	TO	215+39.57	LT	348
T.H. 4	TH4NB	215+36.76	TO	216+05.70	RT	135
T.H. 4	TH4NB	216+39.88	TO	218+92.59	RT	343
T.H. 4	TH4NB	216+87.41	TO	217+26.94	LT	158
S.P. 0802-45 TOTAL						984
S.A.P. 008-070-005						
C.S.A.H. 29	CR29EB	113+88.46	TO	114+99.37	LT	127
C.S.A.H. 29	CR29EB	117+07.03	TO	118+67.64	RT	175
S.A.P. 008-070-005 TOTAL						301
TOTAL						**1285**

SUBGRADE PREP (S)

ROADWAY	ALIGNMENT	STATION	TO	STATION	SUBGRADE PREP
S.P. 0802-45					ROADWAY STATIONS
T.H. 4	TH4NB	209+07.95	TO	223+16.17	14
S.A.P. 008-070-005					
C.S.A.H. 29	CR29EB	109+30.16	TO	115+23.00	6
C.S.A.H. 29	CR29EB	116+97.00	TO	123+09.15	6
S.A.P. 008-070-005 TOTAL					12
TOTAL					**26**

SPECIFIC NOTES

(1) SEE SHEET **13** FOR INPLACE PAVEMENT THICKNESSES.

(2) FOR USE AT HEADWALL LOCATIONS, SPACED EVERY 500' MAXIMUM.

(3) EDGE DRAIN OUTLETS INTO DRAINAGE STRUCTURE USING 4" TP PIPE DRAIN IN 4 FT SEGMENTS. EDGE DRAIN CONNECTION POINT IN STRUCTURE SHALL BE CORED AT PRODUCTION PLANT (NOT ON SITE). CORING IS INCIDENTAL.

(4) USE IN AREAS WHERE PROPOSED ROADWAY IS WIDENED OUTSIDE EXISTING ROAD BED.

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DRAWN BY: NTT
DESIGNED BY: NTT
CHECKED BY: DWK

I hereby certify that this plan, specification, or report 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.

CERTIFIED BY: _____ LICENSED PROFESSIONAL ENGINEER
NAME: NATHAN TRUEX LIC. NO. 53715
DATE: 10/27/2017

HDR

DEPARTMENT OF TRANSPORTATION

90% PLANS - FOR REVIEW ONLY

TABULATIONS

STATE PROJ. NO. 0802-45 (T.H. 4)

AGGREGATE AND BITUMINOUS PAVEMENT (M)

ROADWAY	ALIGNMENT	STATION TO STATION	NOTE	OFFSET	LOCATION	AGGREGATE SURFACING CLASS 1	AGGREGATE BASE (CV) CLASS 5Q	BITUMINOUS TYPE SP 12.5 MIX (4,E) (SPWEB440E)
						TON	CU YD	TON
S.P. 0802-45								
T.H. 4	TH4NB	205+13.00 TO 209+07.95			MAINLINE			138
T.H. 4	TH4NB	209+07.95 TO 211+74.03			MAINLINE	70	272	378
T.H. 4	TH4NB	211+74.03 TO 213+87.00		LT	MAINLINE			112
T.H. 4	TH4NB	211+74.03 TO 213+87.00		LT	SHLD			55
T.H. 4	TH4NB	211+74.03 TO 220+58.41			MAINLINE		1483	
T.H. 4	TH4NB	218+50.07 TO 220+58.41		RT	MAINLINE			110
T.H. 4	TH4NB	218+50.07 TO 220+58.41		RT	SHLDR			54
T.H. 4	TH4NB	220+58.41 TO 223+16.17			MAINLINE	68	268	365
T.H. 4	TH4NB	223+16.17 TO 226+52.00			MAINLINE	7	20	138
F.E. 1	N_FE_LT	5+20.57 TO 5+73.94		LT			70	
F.E. 2	N_FE_RT	5+21.47 TO 5+74.01		RT			74	
S.P. 0802-45 TOTAL						**145**	**2187**	**1350**
S.A.P. 008-050-007								
C.S.A.H. 29	CR29EB	109+30.16 TO 111+77.87			MAINLINE	105	249	306
C.S.A.H. 29	CR29EB	109+46.78 TO 110+06.75		LT	FE		25	
C.S.A.H. 29	CR29EB	111+77.87 TO 113+87.00		LT	MAINLINE			110
C.S.A.H. 29	CR29EB	111+77.87 TO 113+87.00		LT	SHLD			54
C.S.A.H. 29	CR29EB	111+77.87 TO 120+57.26			MAINLINE		613	
C.S.A.H. 29	CR29EB	118+53.88 TO 120+57.26		RT	MAINLINE			108
C.S.A.H. 29	CR29EB	118+53.88 TO 120+57.26		RT	SHLD			53
C.S.A.H. 29	CR29EB	120+57.26 TO 121+33.53		RT	SHLD			25
C.S.A.H. 29	CR29EB	120+78.08 TO 121+33.53		RT	DRIVEWAY		7	23
C.S.A.H. 29	CR29EB	120+57.26 TO 123+09.18			MAINLINE		276	311
C.S.A.H. 29	CR29EB	120+57.26 TO 123+09.18		LT	SHLD	54		
C.S.A.H. 29	CR29EB	121+33.53 TO 123+09.18		RT	SHLD	33		
F.E. 3	FE_LT	10+00.00 TO 11+02.44		LT			127	
S.A.P. 008-050-007 TOTAL						**192**	**1297**	**990**
TOTAL						**337**	**3484**	**2340**

CONCRETE PAVEMENT, REINFORCEMENT, AND JOINTS (N)

ROADWAY	ALIGNMENT	STATION TO STATION	OFFSET	LOCATION	NOTE	CONCRETE PAVEMENT (SPECIAL) (1)	CONCRETE PAVEMENT 7.0"	SUPPLEMENTAL PAVEMENT REINFORCEMENT (5)	CONCRETE PAVEMENT SPECIAL 1 (2)	1.0" DOWEL BAR
						SQ YD	SQ YD	POUND	SQ YD	EACH
S.P. 0802-45										
T.H. 4	TH4NB	211+74.03 TO 215+29.42	RT	MAINLINE			635			322
T.H. 4	TH4SB	213+81.51 TO 215+24.02	LT	MAINLINE			251			126
T.H. 4	TH4NB	215+29.42 TO 217+07.48		ROUNDABOUT		1110				
T.H. 4	TH4NB	215+40.00 TO 216+80.00		TRUCK APRON					411	
T.H. 4	TH4NB	217+07.48 TO 218+50.07	RT	MAINLINE			251	340		126
T.H. 4	TH4SB	217+02.22 TO 220+53.92	LT	MAINLINE			628	510		322
S.P. 0802-45 TOTAL						**1110**	**1765**	**850**	**411**	**896**
S.A.P. 008-050-007										
C.S.A.H. 29	CR29EB	111+77.87 TO 115+29.46	RT	MAINLINE			629	170		322
C.S.A.H. 29	CR29WB	113+81.72 TO 115+24.01	LT	MAINLINE			251			126
C.S.A.H. 29	CR29EB	117+07.03 TO 118+53.88	RT	MAINLINE			259			126
C.S.A.H. 29	CR29WB	117+03.69 TO 120+55.45	LT	MAINLINE			629			322
S.A.P. 008-050-007 TOTAL							**1768**	**170**		**896**
TOTAL						**1110**	**3533**	**1020**	**411**	**1792**

CURB (P)

ROADWAY	ALIGNMENT	STATION TO STATION	NOTE	CONCRETE CURB & GUTTER DESIGN B424	DESIGN B624	DESIGN B424 (MOD)	DESIGN SPECIAL 4	DESIGN R424	DESIGN S524
				LIN FT	LIN FT	LIN FT	LIN FT	LIN FT	LIN FT
S.P. 0802-45									
T.H. 4	CURBSE	300+00.00 TO 304+20.55							421
T.H. 4	CURBSW	333+43.64 TO 335+55.27							211
T.H. 4	CURBNE	313+43.19 TO 315+57.35							214
T.H. 4	CURBNW	320+00.00 TO 324+18.19							418
T.H. 4	CURB1	40+03.33 TO 42+73.44		271					
T.H. 4	CURB1	42+73.44 TO 43+55.40				82			
T.H. 4	CURB1	43+55.40 TO 43+89.79							35
T.H. 4	CURB1	44+11.69 TO 44+62.00					51		
T.H. 4	CURB1	44+62.00 TO 47+62.78							301
T.H. 4	CURB3	60+03.38 TO 62+69.58		267					
T.H. 4	CURB3	62+69.58 TO 63+51.70				83			
T.H. 4	CURB3	63+51.70 TO 63+86.37							35
T.H. 4	CURB3	64+07.91 TO 64+58.30					51		
T.H. 4	CURB3	64+58.30 TO 67+55.51							297
T.H. 4	RDB	10+00.00 TO 13+58.14						359	
T.H. 4	RDB_IN	10+00.00 TO 12+70.17			271				
S.P. 0802-45 TOTAL				**538**	**271**	**165**	**102**	**359**	**1932**
S.A.P. 008-070-005									
C.S.A.H. 29	CURBSW	330+00.00 TO 333+43.64							344
C.S.A.H. 29	CURBNW	324+18.19 TO 325+57.99							140
C.S.A.H. 29	CURBSE	304+20.55 TO 305+64.90							144
C.S.A.H. 29	CURBNE	310+00.00 TO 313+43.19							343
C.S.A.H. 29	CURB2	50+03.33 TO 52+69.19		266					
C.S.A.H. 29	CURB2	52+69.19 TO 53+51.59				83			
C.S.A.H. 29	CURB2	53+51.59 TO 53+86.51							35
C.S.A.H. 29	CURB2	54+08.18 TO 54+58.19					51		
C.S.A.H. 29	CURB2	54+58.19 TO 57+55.12							297
C.S.A.H. 29	CURB4	70+03.39 TO 72+69.55		267					
C.S.A.H. 29	CURB4	72+69.55 TO 73+51.77				83			
C.S.A.H. 29	CURB4	73+51.77 TO 73+86.55							35
C.S.A.H. 29	CURB4	74+08.65 TO 74+58.36					50		
C.S.A.H. 29	CURB4	74+58.36 TO 77+55.55							298
S.A.P. 008-070-005 TOTAL				**533**		**166**	**101**		**1636**
TOTAL				**1071**	**271**	**331**	**203**	**359**	**3568**

WALK (R)

ROADWAY	ALIGNMENT	STATION TO STATION	OFFSET	NOTE	6" CONCRETE WALK 3
					SQ FT
S.P. 0802-45					
T.H. 4	TH4NB	211+74.03 TO 215+29.42			2772
T.H. 4	TH4NB	217+07.48 TO 220+58.41			2781
S.P. 0802-45 TOTAL					**5553**
S.A.P. 008-070-005					
C.S.A.H. 29	CR29EB	111+77.87 TO 115+29.46			2835
C.S.A.H. 29	CR29EB	117+07.03 TO 120+57.26			2799
S.A.P. 008-070-005 TOTAL					**5634**
TOTAL					**11187**

SPECIFIC NOTES

(1) FIBER REINFORCED CONCRETE FOR THE LANE OF THE
(2) COLORED CONCRETE FOR TRUCK APRON OF THE ROUNDABOUT.
(3) FLAT WORK AT SPLITTER ISLANDS. SEE STANDARD PLATE 7113 FOR CONCRETE APPROACH NOSE DETAIL.
(4) DESIGN S524 MODIFIED C&G. SEE DETAIL ON SHEET **70**.
(5) SEE SHEETS **61** TO **68** FOR SUPPLEMENTAL PAVEMENT REINFORCEMENT LOCATIONS.

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DRAWN BY: NTT
DESIGNED BY: NTT
CHECKED BY: DWK

I hereby certify that this plan, specification, or report 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.

CERTIFIED BY: _____ LICENSED PROFESSIONAL ENGINEER
NAME: NATHAN TRUEX LIC. NO. 53715
10/27/2017 DATE

HDR

DEPARTMENT OF TRANSPORTATION

90% PLANS - FOR REVIEW ONLY — TABULATIONS

STATE PROJ. NO. 0802-45 (T.H. 4) — SHEET NO. 10 OF 128 SHEETS

EROSION CONTROL (T)

ROADWAY	ALIGNMENT	STATION TO STATION	NOTES	OFFSET	SILT FENCE TYPE MS	STORM DRAIN INLET PROECTION	SEDIMENT CONTROL LOG TYPE STRAW	CULVERT END CONTROLS	RAPID STABILIZATION METHOD 3 (4)	DESCRIPTION
				LT / RT	LIN FT	EACH	LIN FT	EACH	MGAL	
S.P. 0802-45										
T.H. 4	TH4NB	209+07.95 TO 227+12.18		LT & RT	705	18	2074	2	39	
T.H. 4	TH4NB	227+50.00 TO 228+30.00		LT & RT			80		1	FIELD ENTRANCE REMOVALS
T.H. 4	TH4NB	242+40.00 TO 243+50.00		LT & RT			80		1	NEW FIELD ENTRANCES
S.P. 0802-45 TOTAL					**705**	**18**	**2234**	**2**	**41**	
S.A.P. 008-070-005										
C.S.A.H. 29	CR29EB	103+68.46 TO 115+23.87		LT & RT	586	9	1173	3	15	
C.S.A.H. 29	CR29EB	116+97.45 TO 123+09.15		LT & RT	509		475	1	6	
S.A.P. 008-070-005 TOTAL					**1095**	**9**	**1648**	**4**	**21**	
TOTAL					**1800**	**27**	**3882**	**6**	**62**	

PIPE DRAIN REMOVAL (Z)

ROADWAY	ALIGNMENT	STATION TO STATION	OFFSET TO OFFSET	REMOVE PIPE DRAIN	REMOVE INLET
				LIN FT	EACH
S.P. 0802-45					
T.H. 4	TH4NB	214+61.00 - 214+75.00	63 LT - 79 RT	143	
T.H. 4	TH4NB	214+61.00	43 LT		1
T.H. 4	TH4NB	214+68.00	52 RT		1
T.H. 4	TH4NB	218+00.00 - 224+39.00	81 LT - 65 LT	650	
T.H. 4	TH4NB	218+64.00 - 224+12.00	166 LT - 164 LT	560	
T.H. 4	TH4NB	224+22.00 - 224+71.00	128 LT - 48 RT	176	
T.H. 4	TH4NB	224+22.00	128 LT		1
T.H. 4	TH4NB	224+71.00	48 RT		1
S.P. 0802-45 TOTAL				1529	4
S.A.P. 008-050-006					
C.S.A.H. 29	CR29EB	113+46.00 - 113+53.00	39 RT - 73 LT	112	
C.S.A.H. 29	CR29EB	117+85.00 - 117+97.00	65 RT - 73 LT	138	
S.A.P. 008-050-006 TOTAL				250	
TOTAL				1779	**4**

TURF BASIS & APPLICATION RATES (MM)

SEED MIX		FERTILIZER TYPE 1 APP. RATE	FERTILIZER TYPE 3 APP. RATE	MULCH MATERIAL TYPE 3 APP. RATE	MULCH MATERIAL TYPE 1 APP. RATE
TYPE	LB/ACRE	LB/ACRE	LB/ACRE	TON/ACRE	TON/ACRE
22-111	30	200			2
35-241	36.5		200	2	

TURF ESTABLISHMENT (1) (U)

ROADWAY	ALIGNMENT	STATION TO STATION	NOTES	OFFSET	SEEDING	SEED MIX. 35-241	MULCH MATERIAL TYPE 3	FERTILIZER TYPE 3	DISK ANCHORING (3)	EROSION CONTROL BLANKETS CAT. 3 (2)	SOIL BED PREPARATION	SUBSOILING	MOWING	WEED SPRAYING	WEED SPRAYING MIXTURE
				LT / RT	ACRE	POUND	TON	POUND	ACRE	SQ YD	ACRE	ACRE	ACRE	ACRE	GAL
S.P. 0802-45															
T.H. 4	TH4NB	209+07.95 TO 214+00.00		RT	0.5	17	1	94	0.4	565	0.5		0.5	0.5	0.1
T.H. 4	TH4NB	209+07.95 TO 214+00.00		LT	0.5	17	1	95	0.4	454	0.5		0.5	0.5	0.1
T.H. 4	TH4NB	214+00.00 TO 221+75.00		RT	0.6	23	1	128	0.5	898	0.6	0.1	0.6	0.6	0.2
T.H. 4	TH4NB	214+00.00 TO 221+75.00		RDB	0.1	4	1	25	0.1		0.1		0.1	0.1	
T.H. 4	TH4NB	214+00.00 TO 221+75.00		LT	0.2	6		32	0.1	142	0.2	0.1	0.2	0.2	0.1
T.H. 4	TH4NB	221+75.00 TO 229+00.00		RT	0.2	6	1	36	0.1	546	0.2		0.2	0.2	0.1
T.H. 4	TH4NB	221+75.00 TO 229+00.00		LT	0.1	2		9		200	0.1		0.1	0.1	
T.H. 4	TH4NB	239+00.00 TO 243+50.00		RT	0.1	1	1	5	0.1		0.1		0.1	0.1	
T.H. 4	TH4NB	239+00.00 TO 243+50.00		LT	0.1	1	1	7	0.1		0.1		0.1	0.1	
S.P. 0802-45 SUBTOTAL					**2.4**	**77**	**7**	**431**	**1.8**	**2805**	**2.4**	**0.2**	**2.4**	**2.4**	**0.6**
S.A.P. 008-070-005															
C.S.A.H. 29	CR29EB	103+68.46 TO 109+30.16		RT	0.1	2	1	9			0.1		0.1	0.1	
C.S.A.H. 29	CR29EB	109+30.16 TO 114+00.00		RT	0.4	14	1	78	0.3	345	0.4	0.3	0.4	0.4	0.1
C.S.A.H. 29	CR29EB	109+30.16 TO 114+00.00		LT											
C.S.A.H. 29	CR29EB	114+00.00 TO 115+32.69		RT	0.2	4	1	21	0.1	85	0.2	0.1	0.2	0.2	
C.S.A.H. 29	CR29EB	114+00.00 TO 115+08.52		LT											
C.S.A.H. 29	CR29EB	116+97.45 TO 118+50.00		RT	0.2	5	1	28	0.1	188	0.2	0.1	0.2	0.2	
C.S.A.H. 29	CR29WB	117+26.95 TO 118+50.00		LT	0.2	4	1	21	0.1	103	0.2	0.1	0.2	0.2	
C.S.A.H. 29	CR29EB	118+50.00 TO 123+09.15		RT	0.3	10	1	57	0.2	259	0.3	0.1	0.3	0.3	0.1
C.S.A.H. 29	CR29EB	118+50.00 TO 123+09.15		LT	0.5	15	1	84	0.3	413	0.5	0.2	0.5	0.5	0.2
S.A.P. 008-070-005 SUBTOTAL					**1.9**	**54**	**7**	**298**	**1.1**	**1393**	**0.6**	**0.9**	**1.9**	**1.9**	**0.4**
TOTAL					**4.3**	**131**	**14**	**729**	**2.9**	**4198**	**3.0**	**1.1**	**4.3**	**4.3**	**1.0**

SPECIFIC NOTES

(1) QUANTITIES BASED ON PLAN AREAS. SEE TABULATION MM FOR APPLICATION

(2) NATURAL NETTING ONLY. MAINTENANCE REQUIRED PER SPECIAL PROVISION.

(3) CONTRACTOR TO DISK ANCHOR TEMPORARY SEEDING AREAS IN addition TO PERMANENT SEEDING AREAS.

(4) QUANTITES TO STABILIZE PROJECT AS NEEDED.

GENERAL NOTES

1. UTILITY WORK WILL BE PERFORMED BY OTHERS UNLESS NOTED OTHERWISE.
2. THE SUBSURFACE UTILITY INFORMATION IN THIS PLAN IS UTILITY QUALITY LEVEL D. THIS UTILITY QUALITY WAS DETERMINED ACCORDING TO THE GUIDELINES OF CI/ASCE 38-02, ENTITLED "STANDARD GUIDELINES FOR THE COLLECTION AND DEPICTION OF EXISTING SUBSURFACE UTILITY DATA".
3. IT SHALL BE THE CONTRACTOR'S RESPONSIBILTY TO UTILIZE THE GOPHER STATE ONE CALL EXCAVATION NOTICE SYSTEM REQUIRED BY MINNESOTA STATUTE, CHAPTER 216D FOR ALL UNDERGROUND UTILITY LOCATIONS.
4. ALL RELOCATES AND ADJUSTMENTS SUBJECT TO MNDOT RIGHT OF WAY.
5. ALL POWERLINES ARE DISTRIBUTION UNLESS NOTED OTHERWISE.

UTILITIES

THE FOLLOWING LIST SHOWS THE UTILITY COMPANIES INVOLVED IN THIS PROJECT.

-BROWN COUNTY RURAL ELECTRIC

-NEW ULM TELECOM

-MEDIACOM

OWNERSHIP	
BC REA	BROWN COUNTY RURAL ELECTRIC
NU TELECOM	NEW ULM TELECOM
MEDIACOM	MEDIACOM

UTILITY TABULATION (C)

STATION TO STATION	ROADWAY NAME	OFFSET TO OFFSET (FT)	ITEM INPLACE	OWNER	REMARKS			OTHER UTIL./NOTES
					LEAVE AS IS	ADJUST	RELOCATE	
ELECTRIC- S.P. 0802-45								
206+05.00 - 214+35.00	TH4NB	85 LT - 80 LT	P-BUR	BC REA	X			
214+35.00 - 215+03.78	TH4NB	80 LT - 86 LT	P-BUR	BC REA			X	
215+03.78 - 215+92.21	TH4NB	86 LT - 55 RT	P-BUR	BC REA			X	
215+92.21 - 216+63.57	TH4NB	55 RT - 54 RT	P-BUR	BC REA			X	
243+18.90 - 243+78.41	TH4NB	109 LT - 75 LT	P-BUR	BC REA	X			
243+78.41	TH4NB	75 LT	P-BUR	BC REA	X			UTILITY POLE
ELECTRIC- S.A.P. 008-070-005								
117+41.28	CR29EB	85 LT	EP	BC REA			X	UTILITY POLE
117+41.28 - 119+79.13	CR29EB	85 LT - 62 LT	OHU	BC REA			X	
119+79.13	CR29EB	62 LT	EP	BC REA			X	UTILITY POLE
119+79.13 - 122+40.20	CR29EB	62 LT - 57 LT	OHU	BC REA	X			
122+40.20	CR29EB	59 LT	EP	BC REA	X			UTILITY POLE
122+40.20 - 124+90.65	CR29EB	59 LT - 58 LT	OHU	BC REA	X			
124+90.65	CR29EB	58 LT	EP	BC REA	X			UTILITY POLE
TELEPHONE- S.P. 0802-45								
206+25.00 - 214+61.38	TH4NB	69 LT - 60 LT	T-BUR	NU TELECOM	X			
214+61.38	TH4NB	60 LT	TPED	NU TELECOM			X	
214+61.38 - 215+10.29	TH4NB	60 LT - 81 LT	T-BUR	NU TELECOM	X			
242+52.07 - 243+33.87	TH4NB	69 RT - 69 RT	T-BUR	NU TELECOM	X			
TELEPHONE- S.A.P. 008-070-005								
115+76.30 - 119+95.37	CR29EB	45 RT - 49 RT	T-BUR	NU TELECOM	X			
119+95.37	CR29EB	49 RT	TPED	NU TELECOM			X	
119+95.37 - 123+51.26	CR29EB	49 RT - 47 RT	T-BUR	NU TELECOM	X			
123+51.26	CR29EB	47 RT	TPED	NU TELECOM	X			
FIBER OPTIC- S.P. 0802-45								
206+25.00 - 216+71.21	TH4NB	72 RT - 38 RT	F/O-BUR	NU TELECOM	X			
216+71.21	TH4NB	41 RT	HANDHOLE	NU TELECOM	X			
216+76.54 - 223+16.17	TH4NB	32 RT - 69 RT	F/O-BUR	NU TELECOM	X			
223+16.17 - 243+50.00	TH4NB	69 RT - 74 RT	F/O-BUR	NU TELECOM	X			
TELEVISION- S.A.P. 0802-45								
211+74.03 - 216+73.41	TH4NB	65 RT - 32 RT	TV-BUR	MEDIACOM	X			
216+73.41	TH4NB	37 RT	HANDHOLE	MEDIACOM	X			
216+73.41 - 243+50.00	TH4NB	33 RT - 72 RT	TV-BUR	MEDIACOM	X			

UTILITY

ANC = ANC	EVLT = P VAULT	SFM = SAN FORCE MAIN	TV-BUR = TV BURIED
CHH = COM HH	F/O-BUR = FIBER OPTIC BURIED	SLIN = SAN	TVOH = OVERHEAD TV CABLE
CPED = COM PED	FOCD = FIBER OPTIC IN CONDUIT	SMH = SAN MH	TVP = TV POLE
CVLT = COM VAULT	FOOH = FIBER OPTIC OVERHEAD	TCON = T-BUR IN COND	TGRP = TELEGRAPH POLE
EHH = P HH	GLIN = GAS	TMH = TEL MH	USI = SIG-INT
ELIN = P-BUR	GMTR = GAS METER	T-BUR = TELE BURIED	USL = U ST LIGHT
EMTR = P METER	GVLV = GAS VALVE	TOH = OVERHEAD TEL LINE	UTSW = SIG WIRE
OHU = OVERHEAD ELECT LINE	HYD = FIRE HYD	TPED = TEL PED	WLIN = WATER
EP = P POLE	LP = L POLE	THH = TEL HH	WMH = WATER MH
EPED = P PED	PTNK = PETRO TANK	TP = TEL POLE	W/S = WATER/STREAM
ETOW = P TOWER	PWEL = PIEZOMETER WELL	TPMH = TEL MH	WVLV = WATER VLV

DRAWN BY: NTT
DESIGNED BY: NTT
CHECKED BY: DWK

I hereby certify that this plan, specification, or report 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.

CERTIFIED BY: _____ LICENSED PROFESSIONAL ENGINEER — 10/27/2017 DATE

NAME: NATHAN TRUEX LIC. NO. 53715

HDR

DEPARTMENT OF TRANSPORTATION

90% PLANS - FOR REVIEW ONLY

INPLACE UTILITY TABULATION

STATE PROJ. NO. 0802-45 (T.H. 4)

SHEET NO. 12 OF 128 SHEETS

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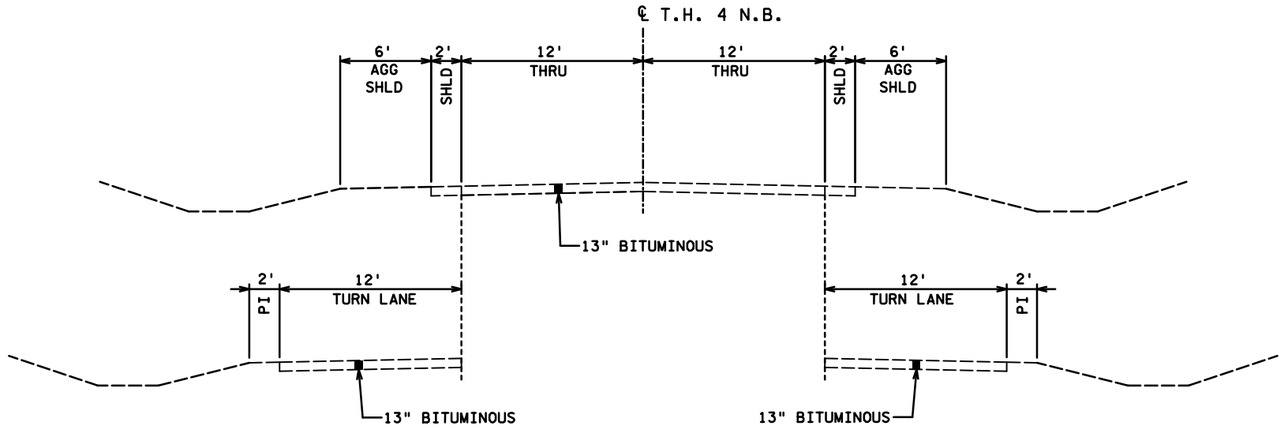
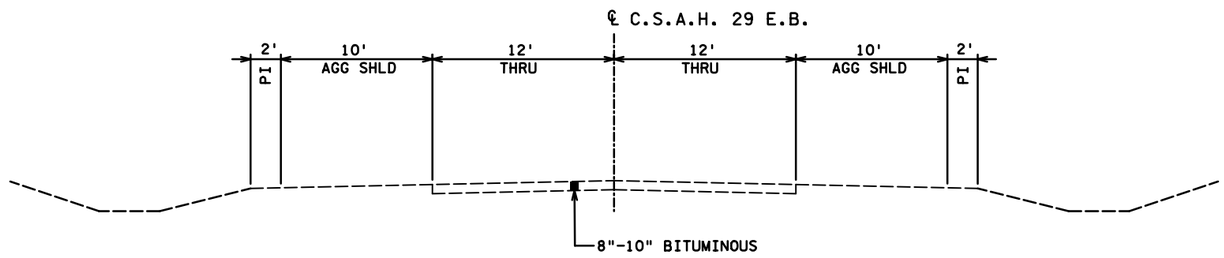
INPLACE T.H. 4 TYPICAL
STA. 208+00.00 TO STA. 245+00.00



STA. 214+35.00 TO STA. 221+38.00

STA. 211+07.00 TO STA. 217+66.00

INPLACE C.S.A.H. 29 TYPICAL
STA. 103+00.00 TO STA. 123+50.00



SPECIFIC NOTES

EXISTING PAVEMENT THICKNESSES ARE TYPICAL BASED UPON PAVEMENT CORES. VARIATIONS IN THICKNESS MAY BE ENCOUNTERED.

GENERAL NOTES

TYPICAL SECTIONS ARE NOT TO SCALE.

ALL CROSS SLOPES ARE IN FT./FT. UNLESS OTHERWISE SPECIFIED.

STATIONING FOR T.H. 4 BASED ON TH4NB ALIGNMENT, STATIONING FOR C.S.A.H. 29 BASED ON CR29EB ALIGNMENT.

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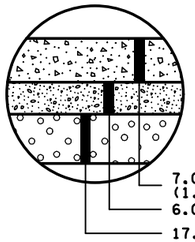
CP080245_pentable_plans.tbl

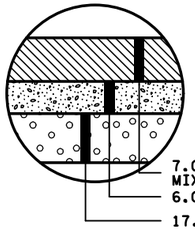
DRAWN BY: NTT	I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly licensed Professional Engineer under the laws of the State of Minnesota.	CERTIFIED BY: _____ LICENSED PROFESSIONAL ENGINEER	10/27/2017 DATE	HDR / DEPARTMENT OF TRANSPORTATION	90% PLANS - FOR REVIEW ONLY — EXISTING TYPICAL SECTIONS
DESIGNED BY: NTT		NAME: NATHAN TRUEX LIC. NO. 53715			STATE PROJ. NO. 0802-45 (T.H. 4) — SHEET NO. 13 OF 128 SHEETS
CHECKED BY: DWK					



INSET A

URBAN ROUNDABOUT LEGS

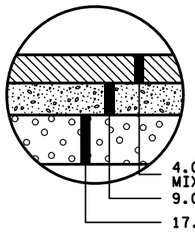
7.0" NON-REINFORCED DOWELED CONCRETE (1.0" DOWELS)
6.0" AGGREGATE BASE CLASS 5Q
17.0" SELECT GRANULAR



INSET B

RURAL MAINLINE AND RURAL ROUNDABOUT LEGS

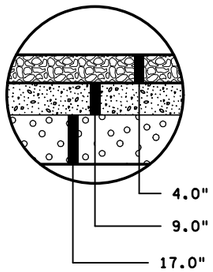
7.0" TYPE SP 12.5 WEARING COURSE MIXTURE (4:E) (SPWEB440E) (4)
6.0" AGGREGATE BASE CLASS 5Q
17.0" SELECT GRANULAR



INSET C

PAVED SHOULDERS AND RESIDENTAL ENTRANCE

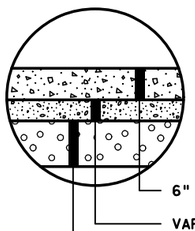
4.0" TYPE SP 12.5 WEARING COURSE MIXTURE (4:E) (SPWEB440E)
9.0" AGGREGATE BASE CLASS 5Q
17.0" SELECT GRANULAR



INSET D

AGGREGATE SHOULDERS

4.0" AGGREGATE SURFACING CLASS 1
9.0" AGGREGATE BASE CLASS 5Q
17.0" SELECT GRANULAR



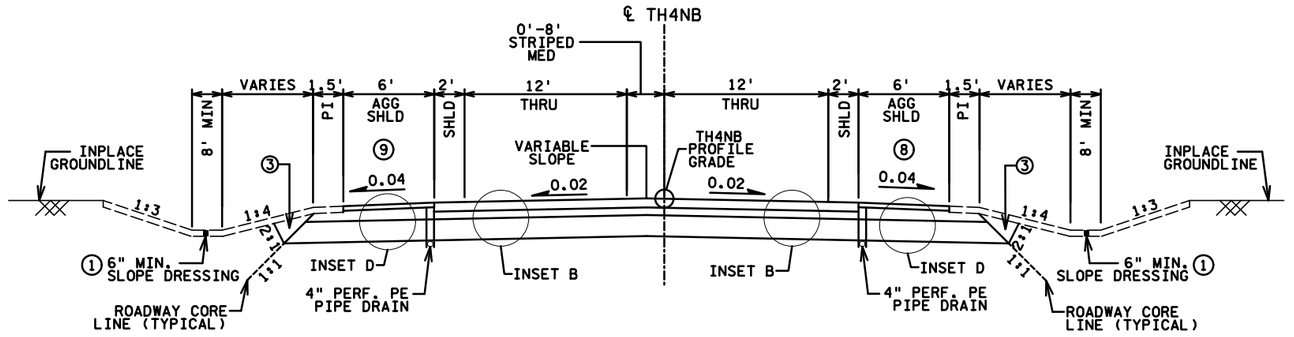
INSET E

SPLITTER ISLAND MEDIANS

6" CONCRETE WALK
VAR. DEPTH AGGREGATE BASE CLASS 5Q (2)
17.0" SELECT GRANULAR

PROPOSED T.H. 4 TYPICAL

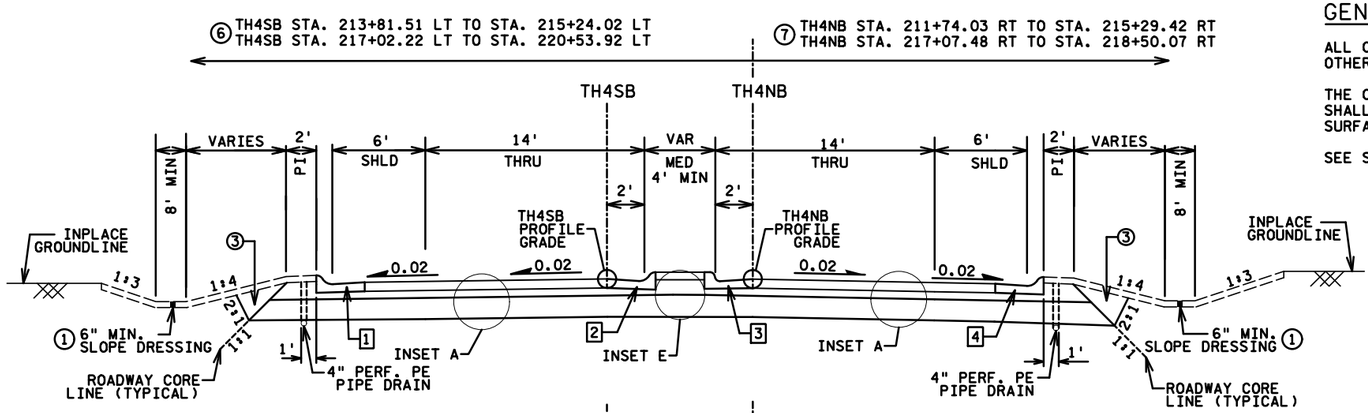
TH4NB STA. 209+07.95 TO STA. 211+74.03
TH4NB STA. 220+58.41 TO STA. 223+16.17



PROPOSED T.H. 4 TYPICAL

⑥ TH4SB STA. 213+81.51 LT TO STA. 215+24.02 LT
TH4SB STA. 217+02.22 LT TO STA. 220+53.92 LT

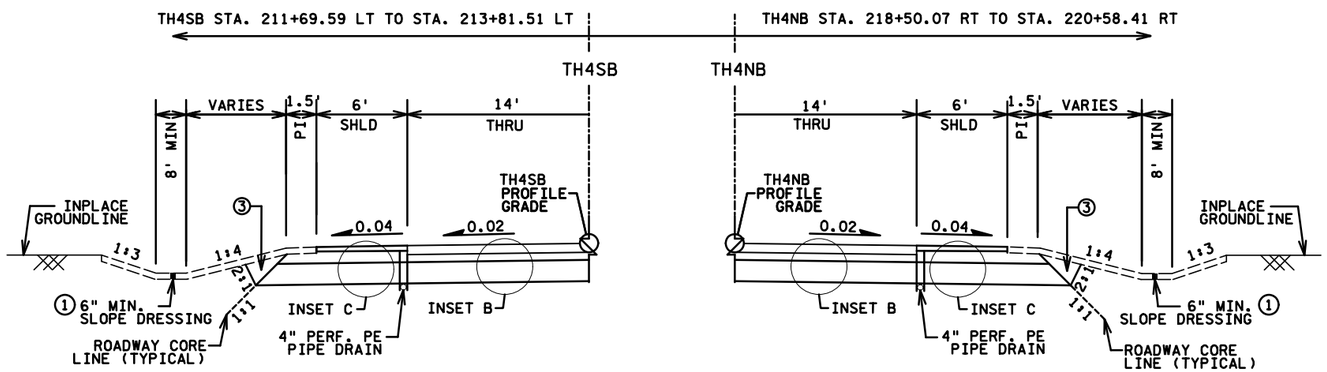
⑦ TH4NB STA. 211+74.03 RT TO STA. 215+29.42 RT
TH4NB STA. 217+07.48 RT TO STA. 218+50.07 RT



PROPOSED T.H. 4 TYPICAL

TH4SB STA. 211+69.59 LT TO STA. 213+81.51 LT

TH4NB STA. 218+50.07 RT TO STA. 220+58.41 RT



	CURB TYPE	STATION	TO	STATION
TH4SB [1]	S524	213+81.51	-	215+24.02
	S524	217+02.22	-	220+53.92
TH4SB [2]	S524	211+69.59	-	214+73.71
	DESIGN SPECIAL	214+73.71	-	215+24.02
	B424 MOD	217+02.22	-	217+84.34
	B424	217+84.34	-	220+53.92
TH4NB [3]	B424	211+74.03	-	214+47.47
	B424 MOD	214+47.47	-	215+29.42
	DESIGN SPECIAL	217+07.48	-	217+57.87
	S524	217+57.87	-	220+58.41
TH4NB [4]	S524	211+74.00	-	215+29.42
	S524	217+07.48	-	218+50.07

GENERAL NOTES

ALL CROSS SLOPES ARE IN FT./FT. UNLESS OTHERWISE SPECIFIED.

THE CROSS SLOPES OF THE GRADING GRADE SHALL MATCH THOSE OF THE PROPOSE FINISHED SURFACE ABOVE.

SEE SHEET 69 FOR ROUNDABOUT CONSTRUCTION DETAILS.

SPECIFIC NOTES

① INCLUDED IN COMMON EMBANKMENT (CV) QUANTITY

② DEPTH VARIES FROM 9.0" TO 11.0"

③ BACKFILL WITH NON-STRUCTURAL GRADING MATERIAL. INCLUDED IN COMMON EMBANKMENT (CV) QUANTITY.

④ PLACE 3 INCH BOTTOM LIFT, THEN TWO LIFTS OF 2 INCHES.

⑥ TH4SB STA. 215+24.02 TO STA. 217+02.22 OMITTED FOR ROUNDABOUT.

⑦ TH4NB STA. 215+29.42 TO STA. 217+07.48 OMITTED FOR ROUNDABOUT.

⑧ AGGREGATE SHLD TAPERS FROM 6' TO 4' FROM TH4NB STA 211+44 TO 211+74 AND TH4NB STA 220+58 TO 220+88.

⑨ AGGREGATE SHLD TAPERS FROM 6' TO 4' FROM TH4SB STA 211+40 TO 211+70 AND TH4SB STA 220+53 TO 220+83.

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DRAWN BY:	NTT
DESIGNED BY:	NTT
CHECKED BY:	DWK

I hereby certify that this plan, specification, or report 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.

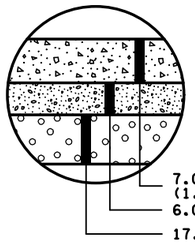
CERTIFIED BY: _____ LICENSED PROFESSIONAL ENGINEER

NAME: NATHAN TRUEX LIC. NO. 53715

10/27/2017 DATE

HDR

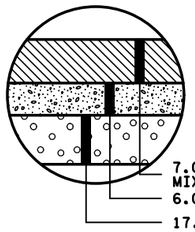
DEPARTMENT OF TRANSPORTATION



INSET A

URBAN ROUNDABOUT LEGS

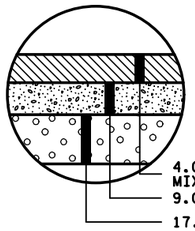
7.0" NON-REINFORCED DOWELED CONCRETE (1.0" DOWELS)
6.0" AGGREGATE BASE CLASS 5Q
17.0" SELECT GRANULAR



INSET B

RURAL MAINLINE AND RURAL ROUNDABOUT LEGS

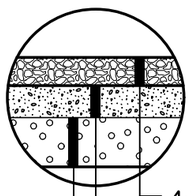
7.0" TYPE SP 12.5 WEARING COURSE MIXTURE (4:E) (SPWEB440E) (4)
6.0" AGGREGATE BASE CLASS 5Q
17.0" SELECT GRANULAR



INSET C

PAVED SHOULDERS AND RESIDENTAL ENTRANCE

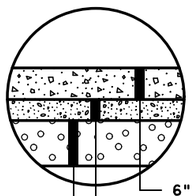
4.0" TYPE SP 12.5 WEARING COURSE MIXTURE (4:E) (SPWEB440E)
9.0" AGGREGATE BASE CLASS 5Q
17.0" SELECT GRANULAR



INSET D

AGGREGATE SHOULDERS

4.0" AGGREGATE SURFACING CLASS 1
9.0" AGGREGATE BASE CLASS 5Q
17.0" SELECT GRANULAR



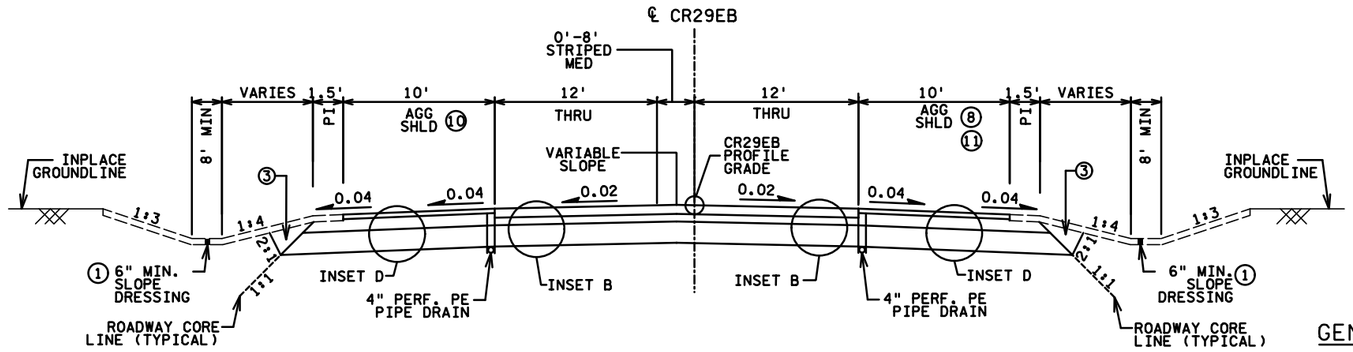
INSET E

SPLITTER ISLAND MEDIANS

6" CONCRETE WALK
VAR. DEPTH AGGREGATE BASE CLASS 5Q (2)
17.0" SELECT GRANULAR

PROPOSED C.S.A.H. 29 TYPICAL

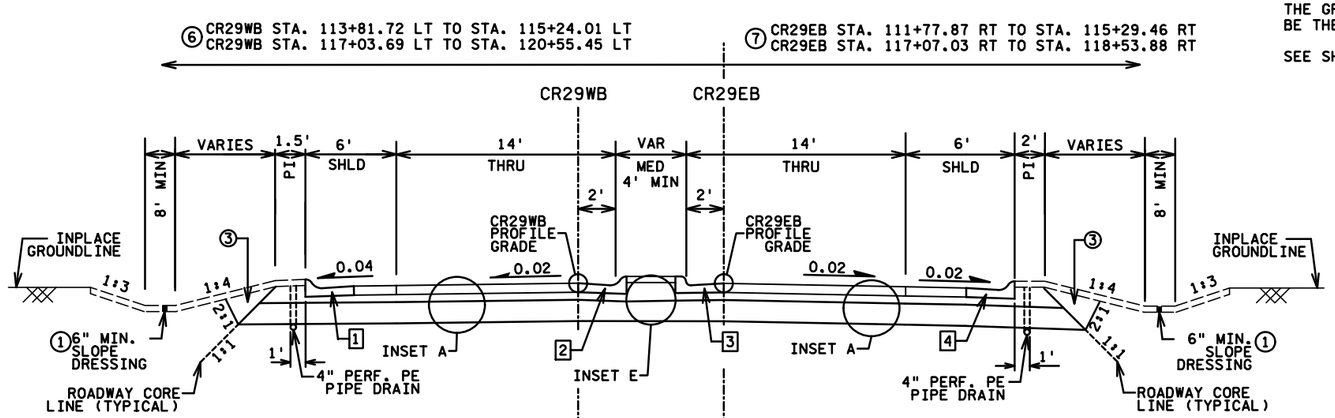
CR29EB STA. 109+30.16 TO STA. 111+77.87
CR29EB STA. 120+57.26 TO STA. 123+09.15



PROPOSED C.S.A.H. 29 TYPICAL

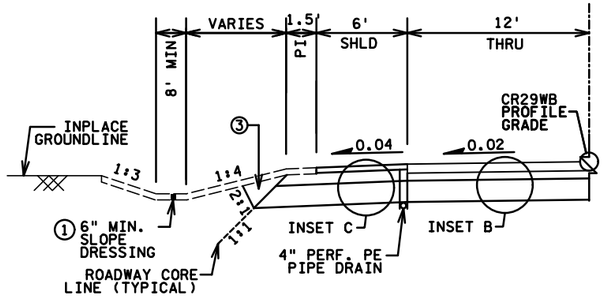
(6) CR29WB STA. 113+81.72 LT TO STA. 115+24.01 LT
CR29WB STA. 117+03.69 LT TO STA. 120+55.45 LT

(7) CR29EB STA. 111+77.87 RT TO STA. 115+29.46 RT
CR29EB STA. 117+07.03 RT TO STA. 118+53.88 RT

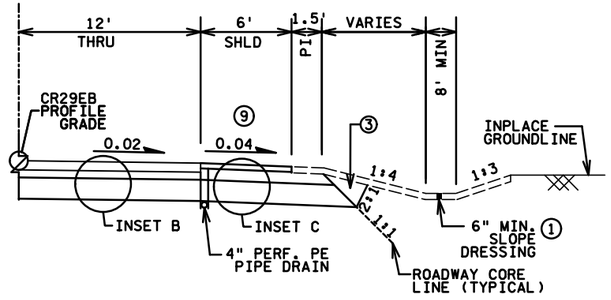


PROPOSED C.S.A.H. 29 TYPICAL

CR29WB STA. 111+73.74 LT TO STA. 113+81.72 LT



CR29EB STA. 118+53.88 RT TO STA. 120+57.26 RT



	CURB TYPE	STATION	TO	STATION
CR29WB [1]	S524	113+81.72	-	115+24.01
	S524	117+03.69	-	120+55.45
CR29WB [2]	S524	111+73.74	-	111+74.00
	DESIGN SPECIAL	111+74.00	-	115+24.01
	B424 MOD	117+03.69	-	117+85.91
	B424	117+85.91	-	120+55.45
CR29EB [3]	B424	111+77.87	-	114+47.06
	B424 MOD	114+47.06	-	115+29.46
	DESIGN SPECIAL	117+07.03	-	117+56.74
	S524	117+56.74	-	120+57.26
CR29EB [4]	S524	111+77.87	-	115+29.46
	S524	117+07.03	-	118+53.88

GENERAL NOTES

ALL CROSS SLOPES ARE IN FT./FT. UNLESS OTHERWISE SPECIFIED.

THE GRADING GRADE CROSS SLOPES WILL BE THE SAME AS THE PROPOSED DRIVING SURFACE.

SEE SHEET 69 FOR ROUNDABOUT CONSTRUCTION DETAILS.

SPECIFIC NOTES

(1) INCLUDED IN COMMON EMBANKMENT (CV) QUANTITY

(2) DEPTH VARIES FROM 9.0" TO 11.0"

(3) BACKFILL WITH NON-STRUCTURAL GRADING MATERIAL. INCLUDED IN COMMON EMBANKMENT (CV) QUANTITY.

(4) PLACE 3 INCH BOTTOM LIFT, THEN TWO LIFTS OF 2 INCHES.

(6) CR29WB STA. 115+24.01 TO STA. 117+03.69 OMITTED FOR ROUNDABOUT.

(7) CR29EB STA. 115+29.46 TO STA. 117+07.03 OMITTED FOR ROUNDABOUT.

(8) AGGREGATE SHOULDER TAPERS 10' TO 6' FROM CR29EB STA 111+18 TO STA 111+78 RT AND 6' TO 8' FROM STA 120+58 TO STA 120+98 RT.

(9) BIT SHOULDER CONTINUES TO STATION 121+33.53 AND VARIES FROM 6' TO 8', SEE SHEET 68 FOR DETAILS.

(10) AGGREGATE SHOULDER TAPERS 10' TO 6' FROM CR29WB STA 111+74 TO STA 111+74 LT AND STA 120+55 TO STA 121+15 LT.

(11) 8' AGGREGATE SHOULDER FROM CR29EB STA 121+34 TO 122+79 RT. SHOULDER TAPERS FROM 8' TO 10' CR29EB STA 122+79 TO STA 123+09 RT.

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DRAWN BY:	NTT
DESIGNED BY:	NTT
CHECKED BY:	DWK

I hereby certify that this plan, specification, or report 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.

CERTIFIED BY: _____ LICENSED PROFESSIONAL ENGINEER — 10/27/2017 DATE

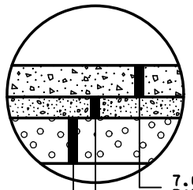
NAME: NATHAN TRUEX LIC. NO. 53715

HDR

DEPARTMENT OF TRANSPORTATION

90% PLANS - FOR REVIEW ONLY — TYPICAL SECTIONS

STATE PROJ. NO. 0802-45 (T.H. 4) — SHEET NO. 15 OF 128 SHEETS



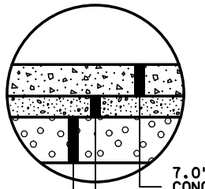
INSET F

ROUNDABOUT

7.0" FIBER-REINFORCED CONCRETE PAVEMENT (SPECIAL)

6.0" AGGREGATE BASE CLASS 5Q

17.0" SELECT GRANULAR



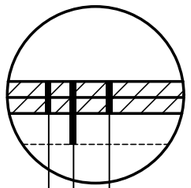
INSET G

ROUNDABOUT
TRAUCK APRON

7.0" NON-REINFORCED DOWELED CONCRETE PAVEMENT SPECIAL 1 (1.0" DOWELS) (1)

6.0" AGGREGATE BASE CLASS 5Q

17.0" SELECT GRANULAR



INSET H

MILL AND OVERLAY

2.0" TYPE SP 12.5 WEARING COURSE MIXTURE (4:E) (SPWEB440E)

INPLACE BITUMINOUS - VARIABLE DEPTH

MILL BITUMINIOUS SURFACE (2.0")

GENERAL NOTES

ALL CROSS SLOPES ARE IN FT./FT. UNLESS OTHERWISE SPECIFIED.

THE GRADING GRADE CROSS SLOPES WILL BE THE SAME AS THE PROPOSED DRIVING SURFACE.

SEE SHEET 69 FOR ROUNDABOUT CONSTRUCTION DETAILS.

SPECIFIC NOTES

(1) COLORED CONCRETE

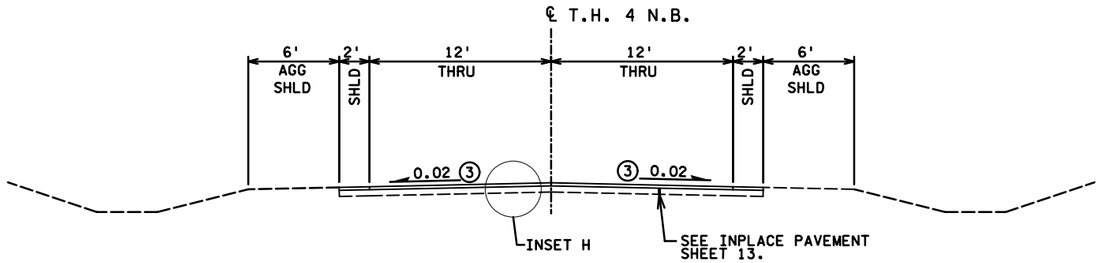
(2) INCLUDED IN COMMON EMBANKMENT (CV) QUANTITY

(3) EXISTING CROSS SLOPES ARE APPROXIMATE. A CONSTANT MILL AND OVERLAY (2") WITH NO SLOPE CORRECTION IS REQUIRED.

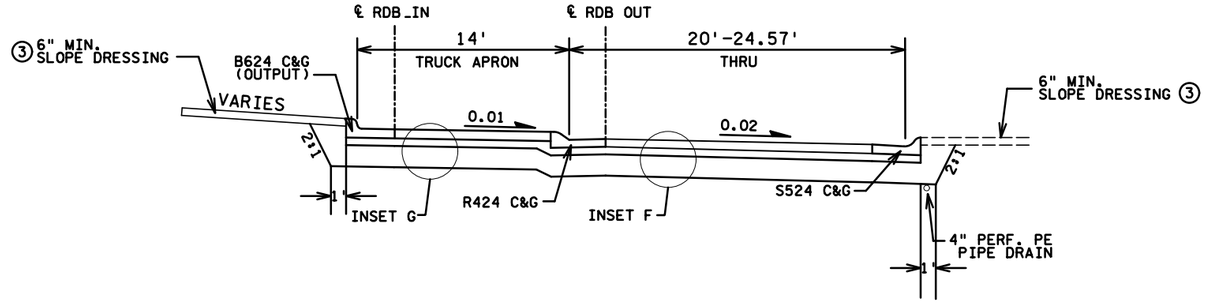
(4)(5) SEE WIDTHS AND STATIONS FROM CR29EB SOUTHWEST DITCH TABLE.

T.H. 4 MILL AND OVERLAY TYPICAL

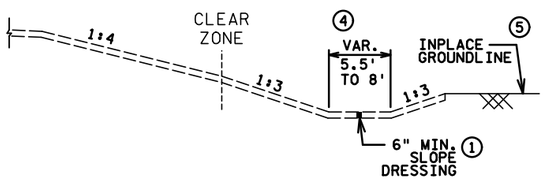
TH4NB STA. 205+13.00 TO STA. 209+07.95
TH4NB STA. 223+16.17 TO STA. 226+52.00



PROPOSED ROUNDABOUT TYPICAL



CR29EB SOUTHWEST DITCH TYPICAL

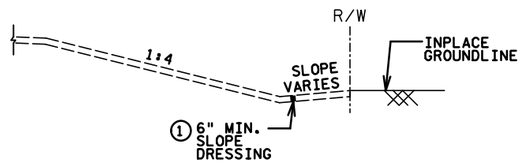


CR29EB SOUTHWEST DITCH

STATION	CLEAR ZONE WIDTH (4)	DITCH WIDTH (5)
109+30.16 TO 111+77.87	30'	
111+77.87 TO 112+27.87	30' TO 16'	
112+27.87 TO 115+30.00	16'	
110+15.00 TO 110+45.00		8' TO 5.5'
110+45.00 TO 112+30.00		5.5'
112+30.00 TO 113+70.00		5.5' TO 8'

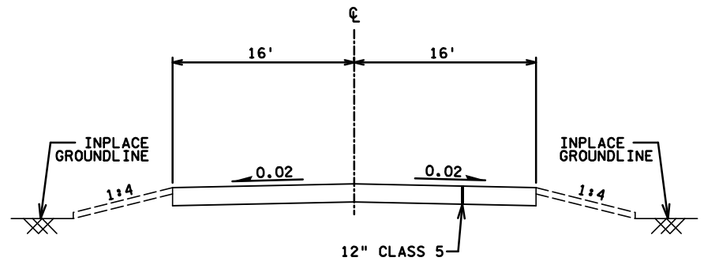
CR29EB SOUTHEAST DITCH TYPICAL

CR29EB STA. 118+94.46 RT TO STA. 120+57.50 RT



PROPOSED FIELD ENTRANCES

FE_RT STA. 10+00 TO STA. 11+02.03
N_FE_LT STA. 5+20.57 TO STA. 5+73.94
N_FE_RT STA. 5+21.47 TO STA. 5+74.01



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DRAWN BY:	NTT
DESIGNED BY:	NTT
CHECKED BY:	DWK

I hereby certify that this plan, specification, or report 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.

CERTIFIED BY: _____ LICENSED PROFESSIONAL ENGINEER

NAME: NATHAN TRUEX LIC. NO. 53715

10/27/2017 DATE

HDR

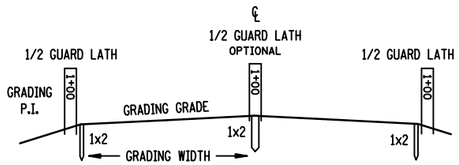
DEPARTMENT OF TRANSPORTATION

90% PLANS - FOR REVIEW ONLY — TYPICAL SECTIONS

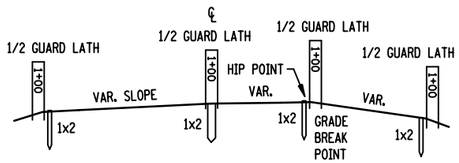
STATE PROJ. NO. 0802-45 (T.H. 4) — SHEET NO. 16 OF 128 SHEETS

BLUE TOPS

NORMAL SECTION

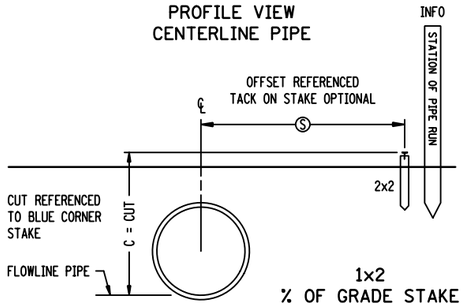


TRANSITION SECTION

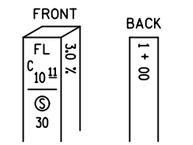


PIPE STAKING

PROFILE VIEW CENTERLINE PIPE

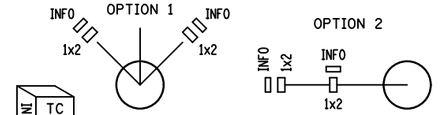


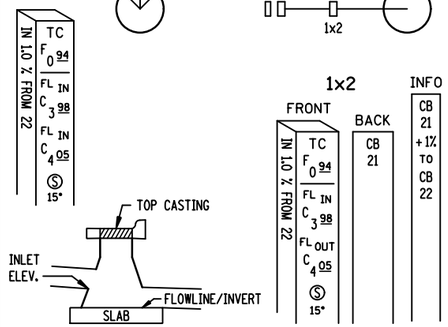
1x2 % OF GRADE STAKE



CATCH BASIN OR MANHOLE (CB/MH)

TOP VIEWS

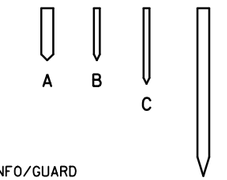




FLOWLINE/INVERT + 0.7'

STANDARD STAKES

TYPES:
REFERENCE (REF)
INFORMATIONAL (INFO)
VISIBILITY (VIS)
GUARD (GUARD)



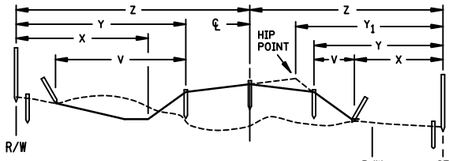
SIZES:
A = 2" X 2" X VAR. REF/INFO/GUARD
B = 1" X 2" X VAR. REF/INFO/GUARD
C = 1" X 2" X VAR. REF
D = LATH INFO/VIS/GUARD
1x2 OR LATH = INFO STAKES

ABBREVIATIONS

BBL = BARREL (PIPE)
B.C. = BACK CURB
C & G = CURB & GUTTER
C = CUT
CAP = CORR. ALUM. PIPE
CB = CATCH BASIN
℄ = CENTERLINE
CL & GR = CLEAR & GRUB
CMP = CORR. METAL PIPE
COR = CORNER
CR = CROWN
CSP = CORR. STEEL PIPE
℄ = DITCH CUT
D.E. = DRAINAGE EASEMENT
DI = DROP INLET
EB = EASTBOUND
E.M. = EDGE BITUMINOUS MAT
E.S. = EDGE CONCRETE SLAB
F = FILL
FF = FRONT FACE
FL = FLOW LINE
FL IN = FLOWLINE INLET
FL OUT = FLOWLINE OUTLET
GR = GRADE
GW = GRADING WIDTH
HH = HANDHOLE
HP = HIP POINT
LT = LEFT
MH = MANHOLE
NB = NORTHBOUND
Ⓢ = OFFSET
PAR = PARCEL
% = PERCENT GRADE
P.E. = PERM. EASEMENT
RAD = RADIUS POINT
RCP = REINF. CONC. PIPE
RP = REFERENCE POINT
RSC = REINF. SECT. CONC.
RT = RIGHT
R/W = RIGHT OF WAY
SB = SOUTHBOUND
SCP = SECT. CONC. PIPE
SH = SHOULDER
TC = TOP CASTING
OR TOP CURB
T.E. = TEMP. EASEMENT
3 :1 = SLOPE (EXAMPLE)
WB = WESTBOUND
WP = WORKING POINTS

SLOPE STAKES

SINGLE ROADWAY - EXAMPLE 'A'



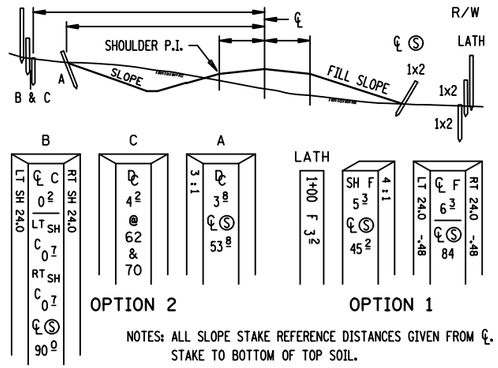
STAKE 'A'
FULL LATH AND HUB-STATION
DIST. TO ℄ WITH CUT/FILL TO ℄ (Z)
DIST. TO SHLD. WITH CUT/FILL TO SHLD. (Y) (Y1)
DIST. TO TOE OF SLOPE, CUT/FILL FROM HUB (X)
OFFSET TO SAFTY SLOPE
OFFSET TO HIP POINT

STAKE 'B'
FULL LATH
DITCH CUT/SHLD. FILL
SLOPE RATED
DISTANCE TO INSLOPE TOE (V1) OR SHOULDER (AS APPLIES) (V)

NOTE:
BLUE TOPS REQUIRED ON ℄ AND BOTH SHOULDERS AT MINIMUM
ALL CULVERTS TO BE STAKED
MINIMUM DATA TO BE PROVIDED
STAKE TO BOTTOM OF TOPSOIL

SLOPE STAKES

SINGLE ROADWAY - EXAMPLE 'B'

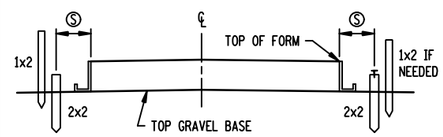


OPTION 2 OPTION 1

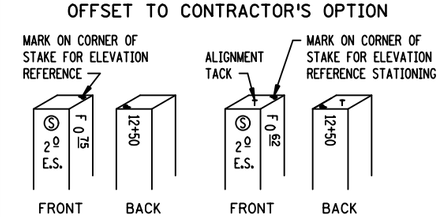
NOTES: ALL SLOPE STAKE REFERENCE DISTANCES GIVEN FROM ℄. STAKE TO BOTTOM OF TOP SOIL.

KEY STAKES: BLUE TOP SET AT R/W BOUNDARY LT. & RT. MAY BE EXCEPTIONS TO SETTING STAKE ON R/W.

CONCRETE PAVING STATIONARY FORM



OFFSET TO CONTRACTOR'S OPTION



NOTE INFORMATION ON STAKE IF NECESSARY

RECOMMENDED STAKING INTERVALS

FIGURE A

	SLOPE STAKES	SUB GRADE B.T.	CLASS MATERIAL B.T.	CONC PAVT	C & G	CL & GR LIMITS	MUCK EXC.	R/W	TEMP. EASE.
TANGENT	100	100	100	50	50	ALL CORNERS	100	ALL CORNERS	ALL CORNERS
HORIZ. CURVE									
0 - 3°	100	100	100	50	50	ALL CORNERS	100	ALL CORNERS	ALL CORNERS
OVER 3° -	100	50	50	25	25	ALL CORNERS	100	ALL CORNERS	ALL CORNERS
VERT. CURVE									
'M' 100' CHORD 0 - .25	100	100	100	50	50				
'M' OVER .25	100	50	50	25	25				
TRAN.		50	50						

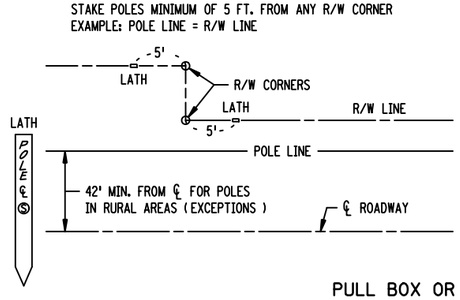
STAKING TOLERANCES (FEET)

	HORIZONTAL	VERTICAL
CONSTRUCTION LIMITS	± 1.5	
CLEARING & GRUBBING	2.0	
SLOPES STAKES	2.0	± 0.2
KEY STAKES	0.2	0.03
DRAINAGE STAKES	0.05	0.05
CURB & GUTTER	0.07	0.03
PAVING	0.05	0.03
ALIGNMENT	0.07	
UTILITY	0.10	0.05
STRUCTURAL	0.02	0.02
GUARD RAIL	0.5	
BUILDINGS	0.04	
O.H. SIGNS	0.05	0.05
MUCK EXCAVATION LIMITS	2.0	
R/W B-POINTS	0.10	
NOISE WALLS	1.0	0.5

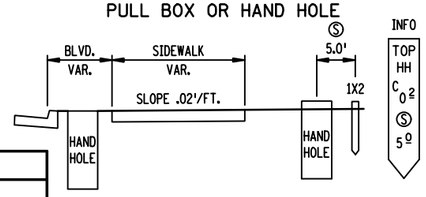
THE TOLERANCES ARE RELATIVE TO PROJECT DATUM

UTILITY (UTIL)

STAKE POLES MINIMUM OF 5 FT. FROM ANY R/W CORNER
EXAMPLE: POLE LINE = R/W LINE



PULL BOX OR HAND HOLE

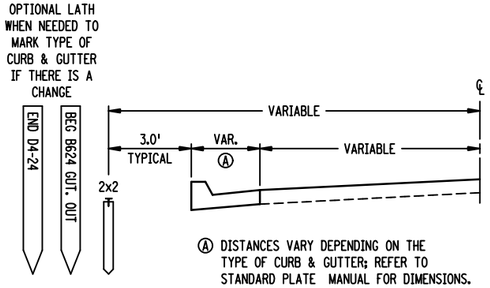


REVISION:

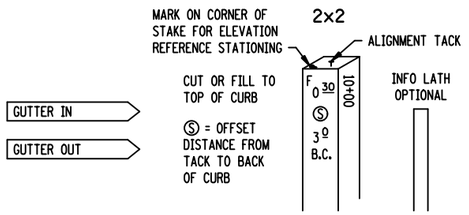
APPROVED: 8-6-2014
DIRECTOR, OFFICE OF LAND MANAGEMENT

CURB & GUTTER (CURB)

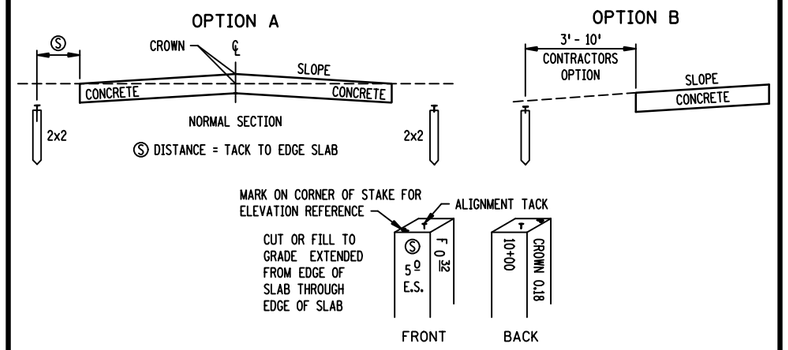
OPTIONAL LATH WHEN NEEDED TO MARK TYPE OF CURB & GUTTER IF THERE IS A CHANGE



Ⓐ DISTANCES VARY DEPENDING ON THE TYPE OF CURB & GUTTER; REFER TO STANDARD PLATE MANUAL FOR DIMENSIONS.



CONCRETE PAVING - SLIP FORM



DISCLAIMER

THESE STAKING INFORMATION SHEETS ARE FOR INFORMATION PURPOSES ONLY. STAKING PROCEDURES VARY AND MAY BE SUBJECT TO CHANGE DURING CONSTRUCTION BY CIRCUMSTANCES AND/OR AGREEMENTS BETWEEN SURVEY CREW AND CONTRACTOR.

REVISED:

APPROVED: 8-6-2014
STATE DESIGN ENGINEER

STAKING INFORMATION SHEET

STANDARD PLAN 5-297.115

STATE PROJ. NO. 0802-45 (T.H. 4)

SHEET NO. 17 OF 128 SHEETS

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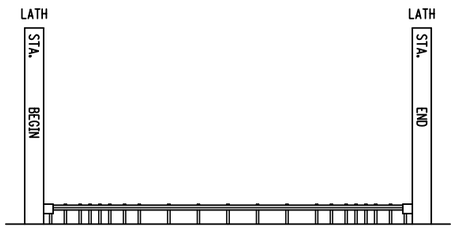
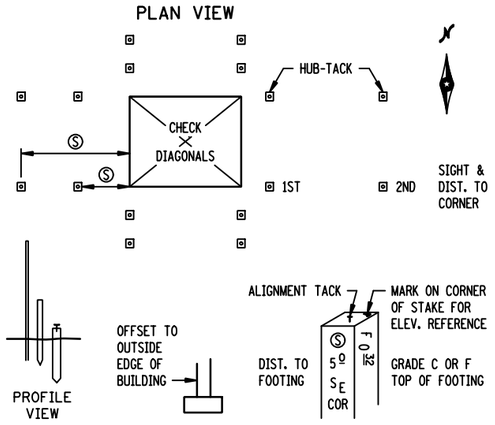
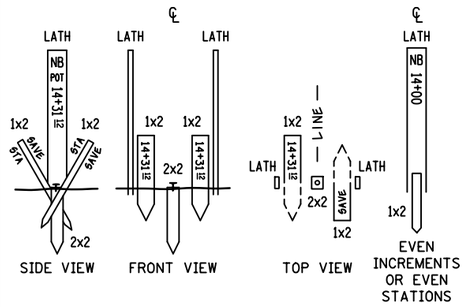
GUARDRAIL (GUARD)



BUILDING (BUILD) FOUNDATION / FOOTING



ALIGNMENT POINTS (ALIGN)



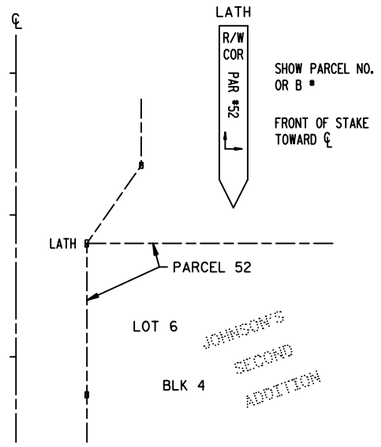
STAKE C = 2" X 2" HUB (LENGTH MAY VARY) SET AS TEMPORARY STAKE. MAY BE REPLACED BY MnDOT MARKER AFTER CONSTRUCTION IS COMPLETED.

SET AT GROUND LEVEL (TEMPORARY CONSTRUCTION STAKE).

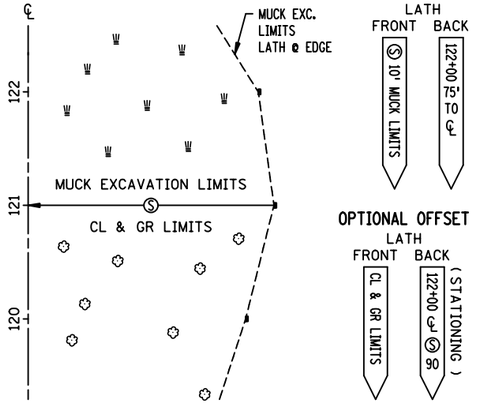
TACK SET AT ALIGNMENT POINTS.

STAKE A = GUARD STAKES SET AT ANGLE IN GROUND 6" EACH SIDE OF STAKE D, WITH STATIONING READ WHEN LOOKING UP STATION.

R/W & TEMP. EASEMENT (R/W)

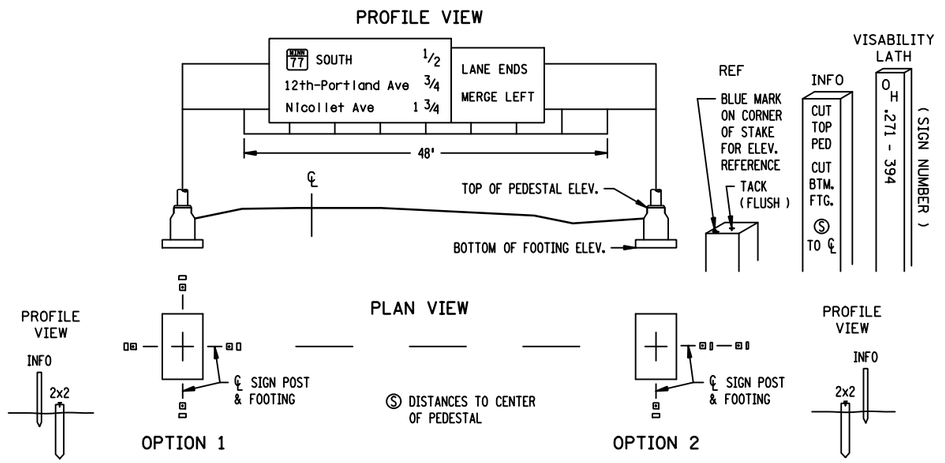


CLEAR & GRUBBING LIMITS (CLEAR) OR MUCK EXCAVATION LIMITS (MUCK)



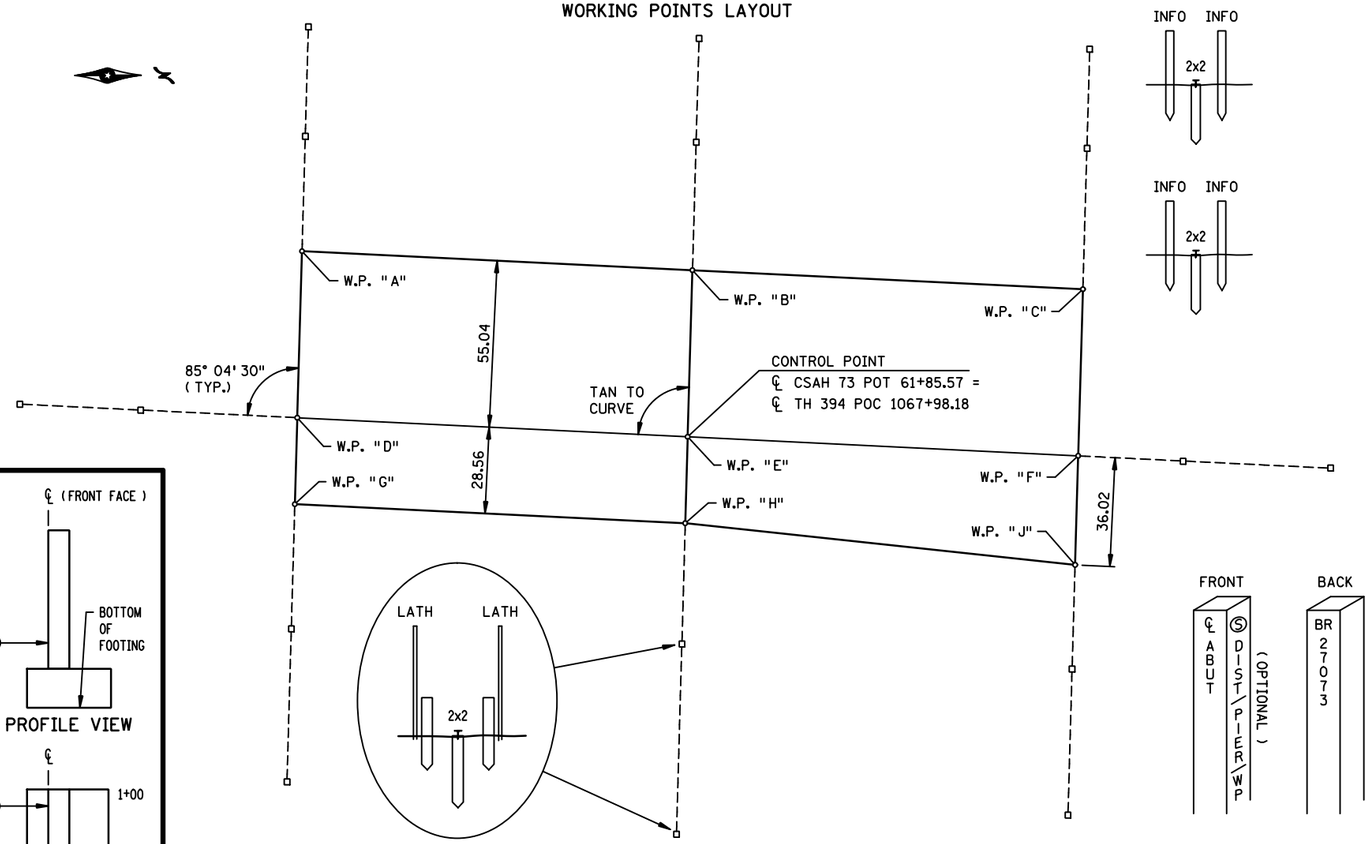
NOTE: FRONT OF LATH GOES TOWARD ℄

OVERHEAD SIGNS (SIGN)

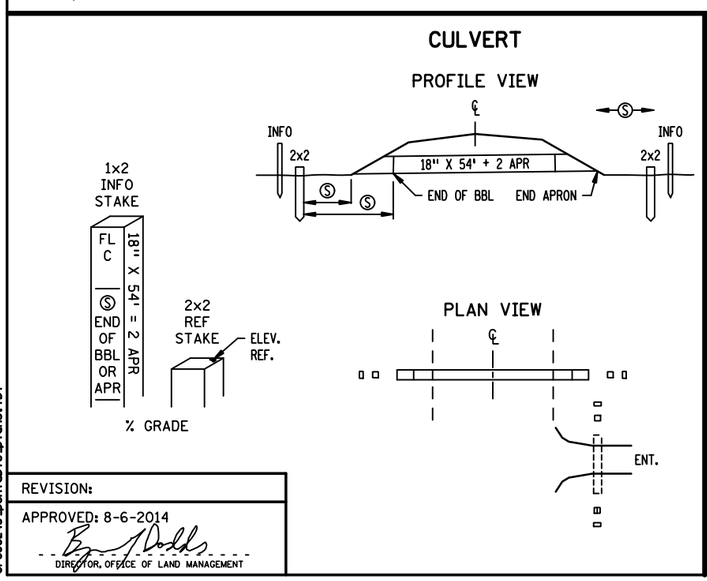


BRIDGESTAKING (BRIDGE)

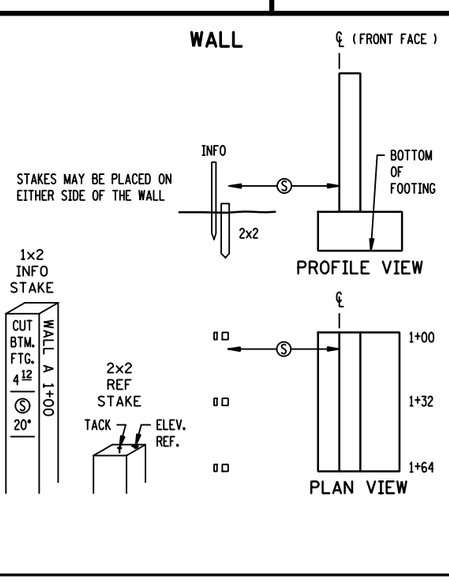
WORKING POINTS LAYOUT



CULVERT



WALL



REVISION:

APPROVED: 8-6-2014

DIRECTOR, OFFICE OF LAND MANAGEMENT

REVISED:

STATE DESIGN ENGINEER

APPROVED: 8-6-2014

STAKING INFORMATION SHEET

STANDARD PLAN 5-297.115 2 OF 2

STATE PROJ. NO. 0802-45 (T.H. 4)

SHEET NO. 18 OF 128 SHEETS

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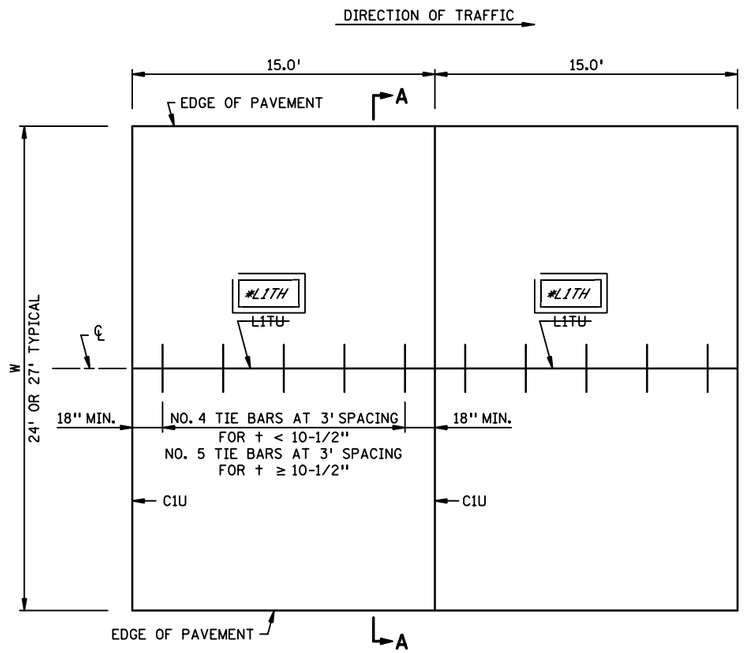
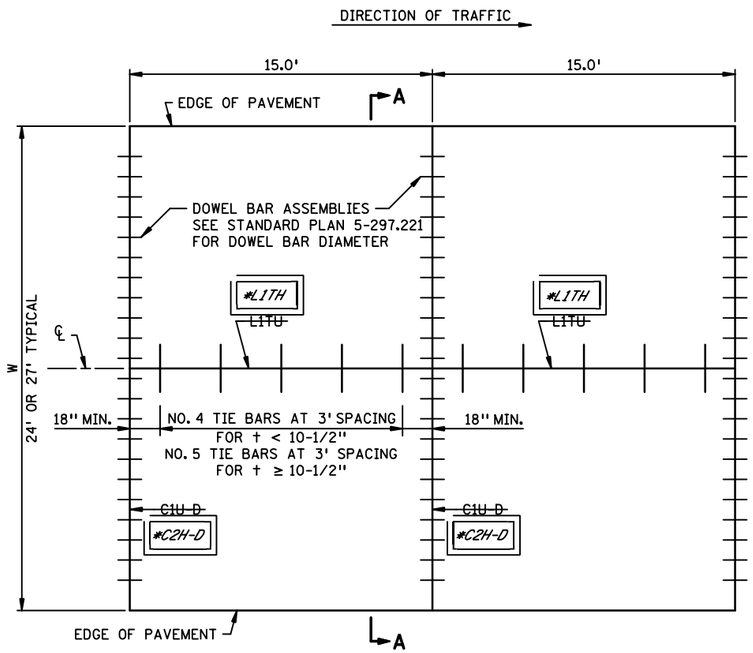
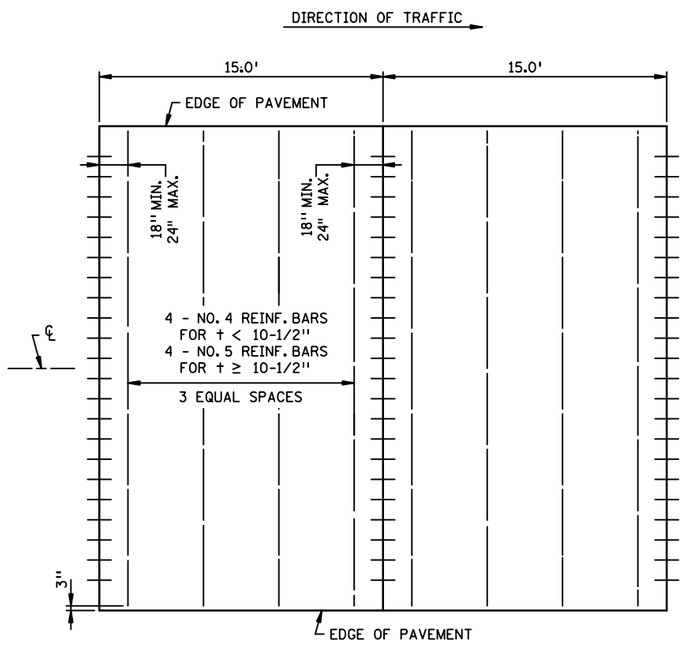


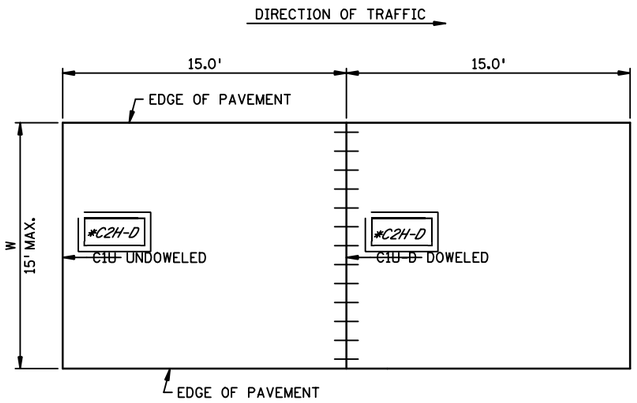
MAINLINE PAVEMENT
UNDOWELED



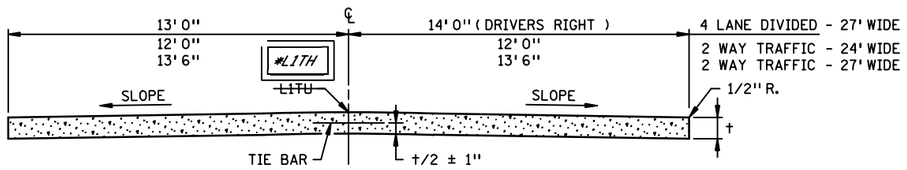
MAINLINE PAVEMENT
DOWELED



PANEL REINFORCEMENT



PAVEMENT 2 FT. THRU 15 FT. WIDTH
UNDOWELED OR DOWELED



SECTION A-A

GENERAL NOTES:

SEE TYPICAL SECTIONS AND PLAN SHEETS FOR CROSS SLOPES AND PAVEMENT THICKNESS, †.

DOWEL BAR ASSEMBLIES, WHEN REQUIRED, SHALL BE SIMILAR TO THOSE SHOWN ON STANDARD PLATE 1103.

ALL REINFORCING BARS SHALL BE EPOXY COATED AND COMPLY WITH SPEC 3301.

FOR SUPPLEMENTAL PAVEMENT REINFORCEMENT, SEE STANDARD PLATE 1070.

PANEL REINFORCEMENT:
PLACE IN PANELS WHERE PAVEMENT WIDTH EXCEEDS 15.0' WITHOUT A LONGITUDINAL JOINT, PLACEMENT DEPTH SHALL BE PLANNED †/2 ± 1". IT IS PREFERRED TO ADD A LONGITUDIDNAL JOINT RATHER THAN PAVE GREATER THAN 15' IN WIDTH.

MODIFIED

REVISION:
APPROVED: 8-6-2014
DIRECTOR, OFFICE OF MATERIALS AND ROAD RESEARCH

REVISED:
APPROVED: 2-16-2016

*DENOTES MODIFICATION FROM STANDARD PLAN

I hereby certify that this plan, specification, or report 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.

CERTIFIED BY: _____ LICENSED PROFESSIONAL ENGINEER _____ DATE
NAME: _____ LIC. NO. _____

CONCRETE MAINLINE PAVEMENT
15.0 FT. PANEL LENGTH
RURAL

~~STANDARD PLAN 5-297.217~~ | 1 OF 2

STATE PROJ. NO. 0802-45 (T.H. 4) SHEET NO. 19 OF 128 SHEETS

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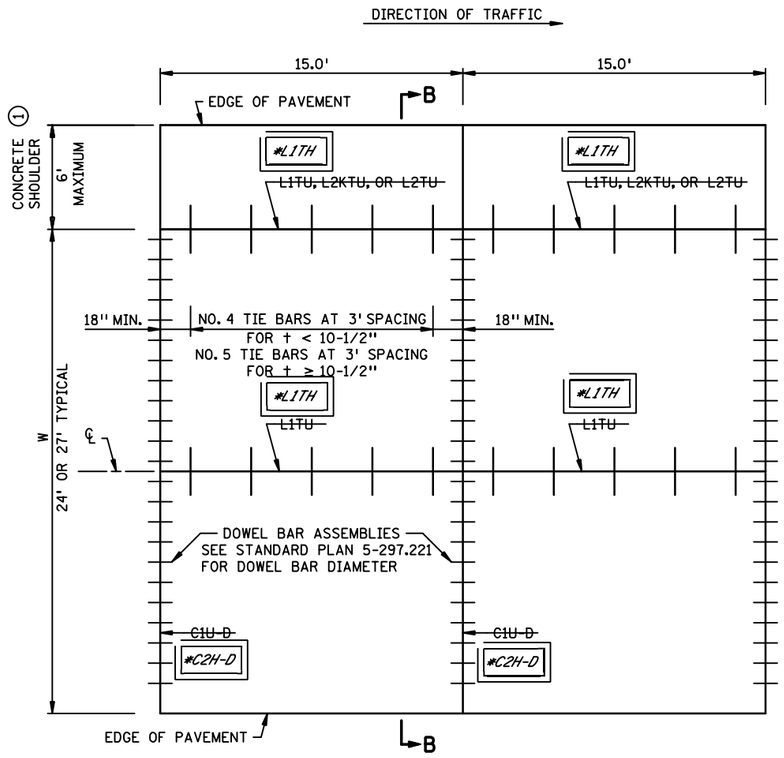
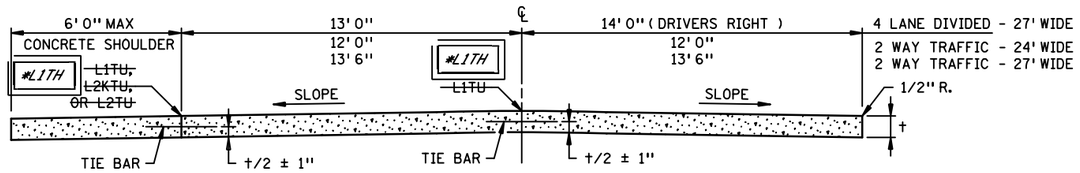
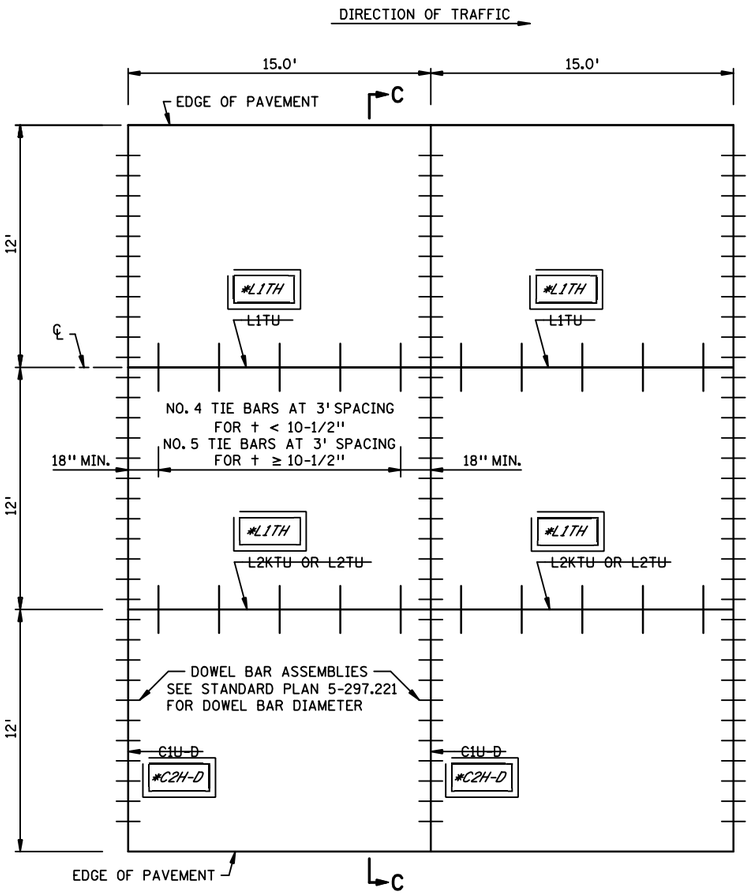


MAINLINE PAVEMENT WITH INSIDE CONCRETE SHOULDER

DOWELED

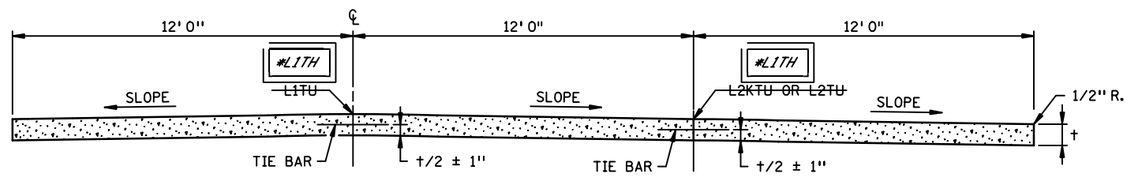


SECTION B-B



MAINLINE PAVEMENT URBAN

DOWELED



SECTION C-C

GENERAL NOTES:

SEE TYPICAL SECTIONS AND PLAN SHEETS FOR CROSS SLOPES AND PAVEMENT THICKNESS, t.

DOWEL BAR ASSEMBLIES, WHEN REQUIRED, SHALL BE SIMILAR TO THOSE SHOWN ON STANDARD PLATE 1103.

ALL REINFORCING BARS SHALL BE EPOXY COATED AND COMPLY WITH SPEC. 3301.

FOR SUPPLEMENTAL PAVEMENT REINFORCEMENT, SEE STANDARD PLATE 1070.

① CONTACT THE CONCRETE ENGINEER TO DISCUSS WHETHER TIE BARS AND SAWED JOINTS ARE NEEDED BASED ON CONCRETE SHOULDER WIDTH AND DEPTH.

REVISION:

APPROVED: FEBRUARY 16, 2016

DIRECTOR, OFFICE OF MATERIALS AND ROAD RESEARCH

REVISED:

APPROVED: 2-16-2016

*DENOTES MODIFICATION FROM STANDARD PLAN

I hereby certify that this plan, specification, or report 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.

CERTIFIED BY: _____ _____
LICENSED PROFESSIONAL ENGINEER DATE

NAME: _____ LIC. NO. _____

MODIFIED

CONCRETE MAINLINE PAVEMENT

15.0 FT. PANEL LENGTH

URBAN OR CONCRETE SHOULDERS

~~STANDARD PLAN 5-297.217~~ | 2 OF 2

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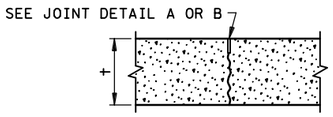
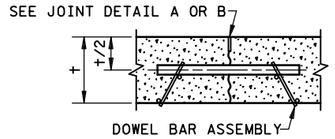
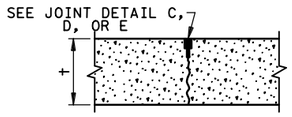


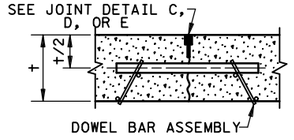
C1U & C2H



C1U-D & C2H-D



C3P, C4S, C5H



C3P-D, C4S-D, C5H-D

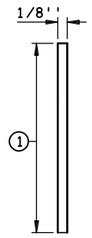
CONTRACTION JOINT REFERENCE, DETAIL & SEALER SPEC. TABLE

JOINT REFERENCE		JOINT DETAIL	JOINT SEALER SPEC.	JOINT WIDTH
WITHOUT DOWELS	WITH DOWELS			
C1U	C1U-D	A	UNSEALED	1/8"
C2H	C2H-D	B	3725	1/8"
C3P	C3P-D	C	3721	3/8"
C4S	C4S-D	D	3722	3/8"
C5H	C5H-D	E	3725	3/8"

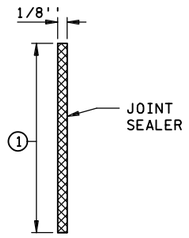
LEGEND — EXAMPLE
C = CONTRACTION JOINT — C2H-D
NO. = JOINT REFERENCE
U = UNSEALED
H = HOT POURED
P = PREFORMED
S = SILICONE
-D = DOWEL BARS

DOWEL BAR DIAMETER TABLE *

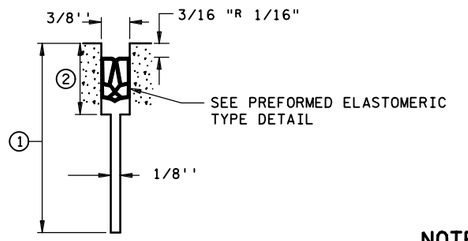
PAVEMENT THICKNESS t	DOWEL BAR DIAMETER
LESS THAN 6"	NONE
6" - 8"	1"
8" - 10"	1 1/4"
GREATER THAN 10"	1 1/2"



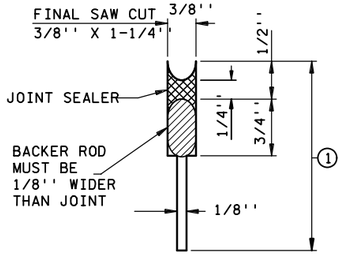
JOINT DETAIL A
SAWED & UNSEALED



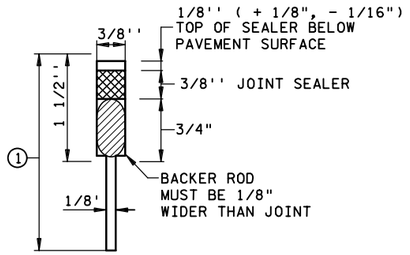
JOINT DETAIL B ③
SAWED & SEALED



JOINT DETAIL C ③
SAWED AND SEALED



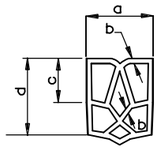
JOINT DETAIL D ③④
SAWED AND SEALED



JOINT DETAIL E ③⑤
SAWED AND SEALED

REQUIRED DIMENSIONS

JOINT TYPE	TRANSVERSE
NOMINAL SEALER SIZE	11/16'' USE IN ALL 3/8'' JOINTS
a	0.69'' + 0.13'' - 0.05''
b	0.08'' ± 0.02''
c	0.25'' MIN.
d	0.63'' MIN.



SPEC. REFERENCE 3721

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

PREFORMED ELASTOMERIC TYPE DETAIL

NOTES:

SEE STANDARD PLATE 1103 FOR DOWEL BAR ASSEMBLY.

SEE STANDARD PLATE 1150 FOR CONSTRUCTION OF HEADER JOINTS.

JOINT WIDTH TOLERANCE IS + 1/16" TO - 1/32"

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

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

SEE PAVING LAYOUTS IN THE PLANS FOR JOINT CLASS DESIGNATION TO BE USED AND SPECIAL REINFORCEMENT REQUIRED.

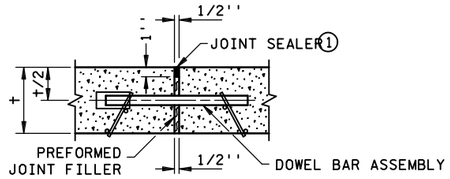
① JOINT DEPTH SHALL BE:
FOR CONCRETE OVERLAYS - 1/3 THE PAVEMENT THICKNESS
FOR CONCRETE PAVEMENT - 1/4 THE PAVEMENT THICKNESS

② SEE CONTRACTION JOINT SEALER DETAIL.
WHEN USING PREFORMED JOINT SEALER, THE DEPTH SHALL BE 1/4'' MORE THAN THE PREFORMED SEALER, WHEN COMPRESSED, TO FIT THE JOINT DESIGN WIDTH. "a" DIMENSION SHALL APPLY AT ANY POINT THROUGHOUT "c" DEPTH. SHARP INTERNAL CORNERS WILL NOT BE PERMITTED. ALL CORNERS SHALL BE PROVIDED WITH SUITABLE FILLET.

③ WHEN SEALING, THE JOINT FACES SHALL BE CLEANED AND DRIED BY SANDBLASTING AND AIR BLASTING.

④ PRIOR TO SEALING THE JOINT, A 1/2" DIA. CLOSED CELL BACKER ROD SHALL BE PLACED SUCH THAT THE TOP OF THE BACKER ROD IS 1/2"BELOW THE SURFACE OF THE PAVEMENT. NON SELF-LEVELING SILICONE SHALL BE TOOLED INTO THE JOINT MAINTAINING A SEAL AND BEAD THICKNESS OF 1/4".

⑤ PRIOR TO SEALING THE JOINT, A 1/2" DIA. CLOSED CELL BACKER ROD CAPABLE OF WITHSTANDING SEALANT TEMPERATURES OF 400 DEGREES F. SHALL BE PLACED 1/2" BELOW THE TOP OF PAVEMENT.



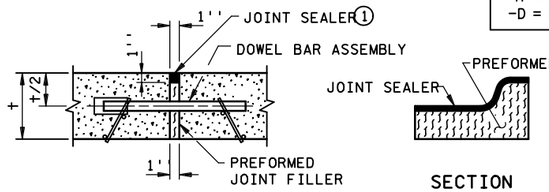
E1H-D (W/DOWELS) E1H (W/O DOWELS)

JOINT DETAIL A

EXPANSION JOINT REFERENCE, DETAIL & SEALER SPEC. TABLE

JOINT REFERENCE		JOINT DETAIL	JOINT SEALER SPEC.	JOINT WIDTH
WITHOUT DOWELS	WITH DOWELS			
E1H	E1H-D	A	3725	1/2"
E2H	E2H-D	B	3725	1"
E4H		C	3725	2"
	E4H-D	D	3725	2"
E8H		STANDARD PLAN 5-297.229	3725	4"

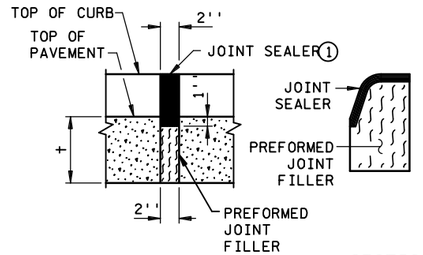
LEGEND — EXAMPLE
E = EXPANSION JOINT — E4H-D
NO.= JOINT REFERENCE
H = HOT POURED
-D = DOWEL BARS



E2H-D (W/DOWELS) E2H (W/O DOWELS)

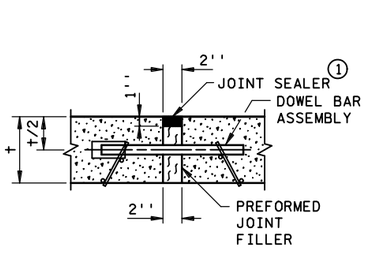
SECTION THRU CURB

JOINT DETAIL B



E4H (W/O DOWELS)

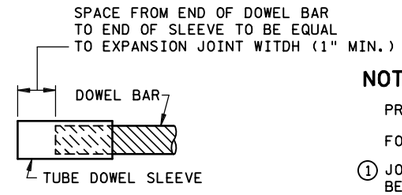
SECTION THRU CURB



E4H-D (W/DOWELS)

JOINT DETAIL C

JOINT DETAIL D



DOWEL BAR SLEEVE DETAIL

NOTES:

PREFORMED JOINT FILLER MATERIAL, SPEC. 3702.

FOR DOWEL BAR ASSEMBLY, SEE STANDARD PLATE 1103.

① JOINT SEALER SPEC. 3725. THE JOINT FACES SHALL BE CLEANED AND DRIED BY SANDBLASTING AND AIR BLASTING. TOP OF SEALER, FLUSH TO 1/8" BELOW TOP OF PAVEMENT SURFACE. MAKE TOP OF SEALER FOR CURB SECTION D JOINTS FLUSH WITH SURFACE R1/8".

MODIFIED

* DENOTES MODIFICATION FROM STANDARD PLAN

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REVISION:
APPROVED: 8-6-2014
DIRECTOR, OFFICE OF MATERIALS AND ROAD RESEARCH

I hereby certify that this plan, specification, or report 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.
CERTIFIED BY: _____ LICENSED PROFESSIONAL ENGINEER — 10/27/2017 DATE
NAME: DAX W. KUHFUSS LIC. NO. 46620

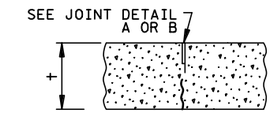
REVISED:
APPROVED: 8-6-2014
STATE DESIGN ENGINEER

CONTRACTION JOINTS
DESIGN C

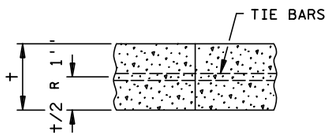
PAVEMENT JOINTS
CONTRACTION (DESIGN C) AND EXPANSION (DESIGN E)

STANDARD PLAN 5-297.221 | 1 OF 2

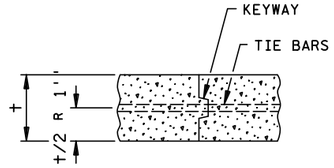
STATE PROJ. NO. 0802-45 (T.H. 4) | SHEET NO. 21 OF 128 SHEETS



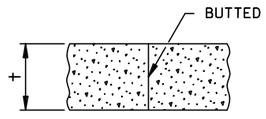
L1U & L1H①



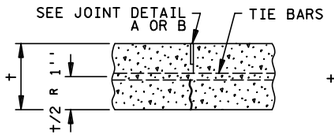
L2TU②



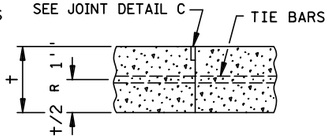
L2KTU③



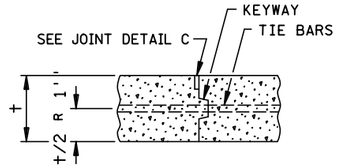
L3U



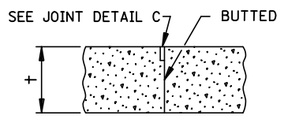
L1TU & L1TH①



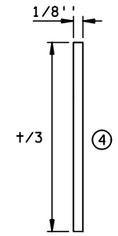
L2TH②



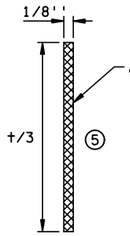
L2KTH③



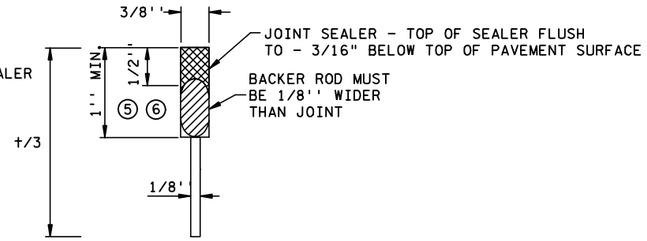
L3H



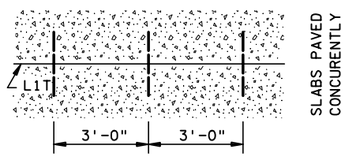
JOINT DETAIL A
SAWED & UNSEALED



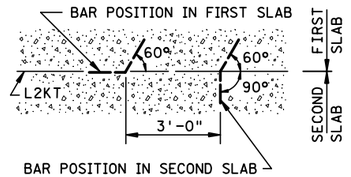
JOINT DETAIL B
SAWED & SEALED



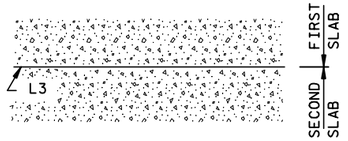
JOINT DETAIL C
SAWED & SEALED



L1T PAVING DETAIL



L2T & L2KT TIE BAR BENDING
AND PAVING DETAIL



L3 PAVING DETAIL

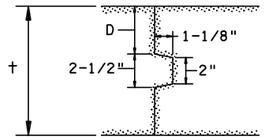
TIEBAR TABLE

PAVEMENT THICKNESS	TIEBAR SIZE	LENGTH
< 10-1/2"	NO. 4	30"
≥ 10-1/2"	NO. 5	36"
ALL THICKNESS WHEN TYING TO CURB AND GUTTER	NO. 4	30"

THE TIE BAR SPACING FOR ALL L2T AND L2KT JOINTS SHALL BE 3'-0" CENTER TO CENTER AND BENT 60° AS SHOWN, EXCEPT WHEN NOTED OTHERWISE IN THE PLANS.

TIE BARS IN THE L2T AND L2KT JOINTS SHALL BE THE SAME SIZE AND LENGTH AS USED FOR THE L1T JOINTS, WHEN TYING PAVEMENT TO PAVEMENT. TIE BARS IN THE L2KT JOINTS SHALL BE NO. 4 X 2' - 6", WHEN TYING CURB & GUTTER TO PAVEMENT.

ALL TIE BARS SHALL BE EPOXY COATED AND COMPLY WITH SPEC. 3301.



PAVEMENT KEYWAY DETAIL

KEYWAY DIMENSION TABLE

† PAVEMENT THICKNESS	D (TOLERANCE ± 1/4")
< 7"	NO KEYWAY
7"TO 7-1/2"	3"
8"TO 10"	4"
≥ 10-1/2"	5"

KEYWAY (1-1/8" x 2" x 2-1/2") MAY BE FORMED WITH MOLD OR METAL FORM. OTHER APPROVED KEYWAY SHAPES GIVING EQUIVALENT CONSTRUCTION FEATURES MAY BE USED WITH APPROVAL OF THE ENGINEER.

LONGITUDINAL JOINT REFERENCE, DETAIL & SEALER SPECIFICATION TABLE

JOINT REFERENCE			JOINT DETAIL	JOINT SEALER SPEC	JOINT WIDTH
WITHOUT TIE BARS	WITH TIE BARS	WITH KEYWAY & TIE BARS			
L1U	L1TU		A	UNSEALED	1/8"
L1H	L1TH		B	3725	1/8"
	L2TU	L2KTU	NONE	UNSEALED	
	L2TH	L2KTH	C	3725	3/8"
L3U			NONE	UNSEALED	
L3H			C	3725	3/8"

LEGEND — EXAMPLE: L2KTH

- L = LONGITUDINAL JOINT
- NO. = JOINT REFERENCE
- 1 = PAVED CONSTRUCTION JOINT
- 2 = TIED/KEYED CONSTRUCTION JOINT
- 3 = BUTTED CONSTRUCTION JOINT
- K = KEYWAY
- T = TIE BARS
- U = UNSEALED
- H = HOT POURED

NOTES:

NORMALLY, TIED PAVEMENT WIDTHS SHALL NOT EXCEED FOUR LANES, EXCEPT BRIDGE APPROACH PANELS AND PAVEMENT TAPERS.

JOINT WIDTH TOLERANCE IS + 1/16 IN. TO - 1/32 IN.

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

TIED/KEYED AND BUTTED CONSTRUCTION JOINTS SHALL BE UNSEALED EXCEPT AS OTHERWISE NOTED IN THE PLAN OR REQUIRED BY THE ENGINEER.

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

SEE PAVING LAYOUTS IN THE PLANS FOR JOINT CLASS DESIGNATIONS TO BE USED AND SPECIAL REINFORCEMENT REQUIRED.

WHEN CURB AND GUTTER IS PLACED ADJACENT TO CONCRETE MAINLINE, THE TIEBARS SHALL BE PLACED A MINIMUM OF 2" ABOVE THE CURB AND GUTTER GRADE.

① SEE THE LONGITUDINAL JOINT REFERENCE, DETAIL & SEALER SPECIFICATION TABLE TO DETERMINE JOINT DETAIL.

② CONCRETE PAVEMENTS LESS THAN 7" SHALL USE L2TU AND L2TH JOINTS UNLESS OTHERWISE ALLOWED BY THE ENGINEER.

③ CONCRETE PAVEMENTS GREATER THAN OR EQUAL TO 7" SHALL USE L2KTU AND L2KTH JOINTS UNLESS OTHERWISE ALLOWED BY THE ENGINEER.

④ THE JOINT FACES SHALL BE CLEANED WITH WATER DURING THE SAW CUTTING OPERATION OR BY WATER BLASTING AFTER SAWING.

⑤ THE JOINT FACES SHALL BE CLEANED AND DRIED BY SANDBLASTING AND AIR BLASTING.

⑥ PRIOR TO SEALING THE JOINT, A 1/2" DIAMETER CLOSED CELL BACKER ROD CAPABLE OF WITHSTANDING SEALANT TEMPERATURES OF 400 DEGREES F. SHALL BE PLACED 1/2" BELOW THE TOP OF THE PAVEMENT.

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REVISION:

APPROVED: 8-6-2014

DIRECTOR, OFFICE OF MATERIALS AND ROAD RESEARCH

REVISED:

APPROVED: 8-6-2014

STATE DESIGN ENGINEER

PAVEMENT JOINTS
LONGITUDINAL (DESIGN L)

STANDARD PLAN 5-297.221 | 2 OF 2

STATE PROJ. NO. 0802-45 (T.H. 4)

SHEET NO. 22 OF 128 SHEETS

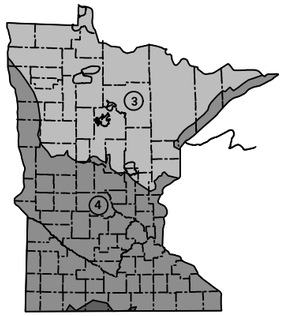
GENERAL NOTES

SEE SPECIAL PROVISIONS FOR SPECIFIC PROJECT REQUIREMENTS.	
REFER TO MnDOT SPECIFICATIONS 2571, 2572, 3861, FOR GENERAL REQUIREMENTS.	
COMPLETE PREPARATORY WORK BEFORE STARTING INITIAL PLANTING OPERATIONS.	
ACCEPT ALL PLANT STOCK IN ACCORDANCE WITH (MnDOT 3861) PRIOR TO PLANTING.	
THE CONTRACTOR WILL DEMONSTRATE COMPETENCY FOR SOIL CULTIVATION OPERATIONS IN ACCORDANCE WITH (MnDOT 2571.3D.2)	
THE CONTRACTOR WILL DEMONSTRATE COMPETENCY FOR ALL PLANT INSTALLATION OPERATIONS IN ACCORDANCE WITH (MnDOT 2571.3F1)	
RODENT PROTECTION	SEE SPECIAL PROVISIONS AND STANDARD PLANTING DETAILS (3 OF 3)
FERTILIZER	SEE SPECIAL PROVISIONS
COMPOST	MnDOT 3890 COMPOST GRADE 2 UNLESS OTHERWISE SPECIFIED.
MULCH MATERIAL	MnDOT 3882 MULCH MATERIAL TYPE 6 UNLESS OTHERWISE SPECIFIED.
MASS PLANTING BEDS	PREPARE MASS PLANTING BEDS FOR PLANTS PLACED AT 15′ OR LESS, UNLESS OTHERWISE SPECIFIED ON SHEETS. PLANT BEDS IN STAGGERED ROWS ON THE PERIMETER FIRST, THEN UNIFORMLY FILL IN WITH REMAINING PLANTS. USE TRIANGULAR SPACING, UNLESS SPECIFIED OTHERWISE. PROVIDE 5′ RADIUS CLEAR OF SHRUBS AROUND EACH DECIDUOUS TREE AND 8′ CLEAR RADIUS AROUND EACH CONIFER TREE. RADIUS WILL BE MEASURED FROM THE CENTER OF THE TREE TO THE CENTER OF THE SHRUB. NOTIFY ENGINEER OF GROSS PLANT QUANTITY SURPLUS OR DEFICIENCY IMMEDIATELY. MULCH ENTIRE MASS PLANTING BED. SEE STANDARD PLANTING DETAILS (3 OF 3)
TREE PAINTING (FROST CRACK PREVENTION)	PAINT OAK, LINDEN, LOCUST, MAPLE, CRABAPPLE AND MOUNTAIN ASH. ONLY UNDILUTED EXTERIOR WHITE LATEX PAINT IS ACCEPTABLE. PAINT TREE CIRCUMFERENCE FROM GROUND LINE TO FIRST MAJOR BRANCH.
PLANTING PLAN DIMENSIONS	STATED DIMENSIONS SUPERCEDE SCALING FROM PLAN.

WATERING GUIDELINES (MnDOT 2571.3G)

PLANT TYPE	AVERAGE GALLONS OF WATER PER APPLICATION
MACHINE TRANSPLANTED TREES	50–100
BALLED AND BURLAPPED TREES	20
BARE ROOT AND CONTAINER TREES	15
BALLED AND BURLAPPED SHRUBS	10
BARE ROOT AND CONTAINER SHRUBS	7
WOODY SEEDLINGS	4
PERENNIALS AND VINES	3

IT IS THE CONTRACTOR'S RESPONSIBILITY TO MONITOR AND MAINTAIN SOIL MOISTURE AT ADEQUATE BUT NOT EXCESSIVE LEVELS. THE AMOUNTS LISTED ABOVE ARE GUIDELINES, NOT REQUIREMENTS.

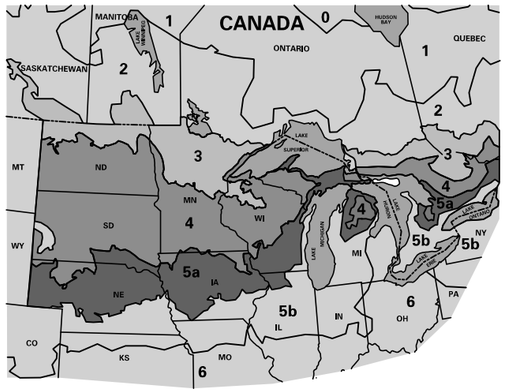


1. BARE ROOT PERENNIALS MUST BE PLACED IN THE SPRING NO LATER THAN JUNE 1ST OR FOLLOW THE FALL DECIDUOUS PLANTING DATES.
2. ACTUAL DATES MAY CHANGE DEPENDING UPON SEASONAL CONDITIONS, AS DETERMINED BY THE ENGINEER.
3. FALL PLANTING IS NOT ALLOWED FOR BARE ROOT FORM OF THE FOLLOWING SPECIES: HAWTHORN, DOGWOOD, POPLAR, HACKBERRY, LINDEN, IRONWOOD, HONEYLOCUST, BIRCH, MOUNTAIN ASH, MAPLE, WILLOW, CRABAPPLE, PLUM/CHERRY, OAKS, AND SUMAC.
4. ALL REPLACEMENT PLANTS MUST BE PLACED DURING THE MONTH OF MAY (SPRING PLANTING) AND SEPTEMBER (FALL PLANTING) DURING THE FIRST YEAR OF THE PLANT ESTABLISHMENT PERIOD.
5. MACHINE MOVED PLANTING DATES WILL BE SPECIFIED IN THE SPECIAL PROVISIONS.

PLANTING DATES BY ZONE

			③	④
SPRING	DECIDUOUS	BARE ROOT	APRIL 21 TO JUNE 1	APRIL 7 TO JUNE 1
		CONTAINER B&B	APRIL 21 TO JUNE 30	APRIL 7 TO JUNE 30
	CONIFEROUS		APRIL 21 TO JUNE 1	APRIL 7 TO MAY 17
	PERENNIALS		MAY 1 TO JUNE 30	MAY 1 TO JUNE 30
	SEEDLINGS		APRIL 21 TO JUNE 1	APRIL 7 TO JUNE 1
FALL	DECIDUOUS	BARE ROOT	OCT. 1 TO NOV. 1	OCT. 10 TO NOV. 15
		CONTAINER B&B	AUG. 25 TO OCT. 15	AUG. 25 TO NOV. 1
	CONIFEROUS		AUG. 25 TO SEPT. 15	AUG. 25 TO SEPT. 15
	PERENNIALS		AUG. 25 TO SEPT. 15	AUG. 25 TO SEPT. 15

PLANT INSTALLATION PERIOD



ACCEPTABLE ZONES		
ZONES	LEGEND	MIN. TEMP.
3		–34.4° TO –40 F
4		–28.9° TO –34.4 F
5a		–26.1° TO –28.9 F

UNACCEPTABLE ZONES	
ZONES	LEGEND
0, 1, 2, 5b and 6	

FOR ALL PLANT STOCK, DOCUMENT ACCEPTABILITY FOR HARDINESS IN THE MINNESOTA ZONE WHERE THE PROJECT SITE IS LOCATED, AS FOLLOWS:

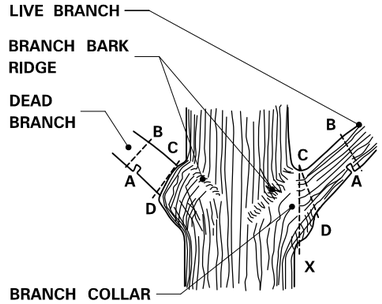
A. PLANT STOCK CONTINUOUSLY GROWN FOR AT LEAST THE LAST TWO YEARS WITHIN THE ACCEPTABLE LIMITS SHOWN.

OR

B. PLANT STOCK, GROWN OUTSIDE THE ACCEPTABLE GROWING RANGE LIMITS, HAVING SEED SOURCE OR ROOT AND GRAFT STOCK ORIGINATING FROM THE ACCEPTABLE LIMITS SHOWN.

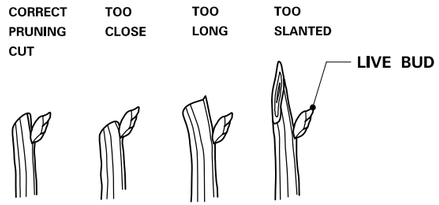
ACCEPTABLE PLANT STOCK GROWING RANGE LIMITS

SOURCE: USDA PLANT HARDINESS ZONE MAP (MnDOT 3861.2C)



BRANCHES PRUNED AT TRUNK

(SHIGO METHOD)



BRANCHES PRUNED TO LIVE BUD

STEPS TO PRUNING WITH PRUNING SAW:

1. CUT PART WAY THROUGH THE BRANCH AT POINT A.
2. CUT COMPLETELY THROUGH BRANCH FROM POINT B TO A.
3. AT BRANCH COLLAR CUT FROM POINT C TO D.

INCORRECT CUT FROM POINT C TO X (TOO CLOSE) WILL RESULT IN DISCONTINUOUS CALLUS FORMATION AFTER ONE SEASON OF GROWTH.

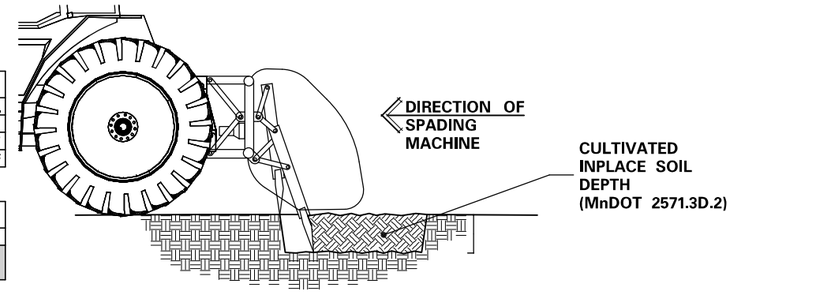
CORRECT CUT FROM POINT C TO D (LEAVING BRANCH COLLAR BUT NOT THE STUB FROM POINT B TO A) WILL RESULT IN CONTINUOUS DOUGHNUT SHAPED CALLUS FORMATION AFTER ONE SEASON OF GROWTH.

PRUNING NOTES:

1. PRUNE USING CLEAN AND SHARP SCISSOR–TYPE PRUNER OR PRUNING SAW.
2. THE BEST TIME TO PRUNE IS LATE DORMANT SEASON OR EARLY SPRING.
3. AVOID PRUNING OAKS IN APRIL, MAY, JUNE OR JULY.
4. IF PRUNING IS NECESSARY OR IF WOUNDS OCCUR TO OAK TREES IN APRIL, MAY, JUNE OR JULY, IMMEDIATELY PAINT CUT SURFACE OR WOUND WITH LATEX PAINT OR SHELLAC.

PRUNING

(MnDOT 2571.3E.1 and 2571.3K.2.a(9))



PRIMARY TILLAGE – PASS 1

INCORPORATION TILLAGE – PASS 2

PLANTING SOIL

(MnDOT 2571.3D)

REVISION:

APPROVED: DECEMBER 11, 2015

CHIEF ENVIRONMENTAL OFFICER

REVISED:

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STATE DESIGN ENGINEER

STANDARD PLANTING DETAILS

STANDARD PLAN 5-297.301 1 OF 3

SHEET NO. 23 OF 128 SHEETS

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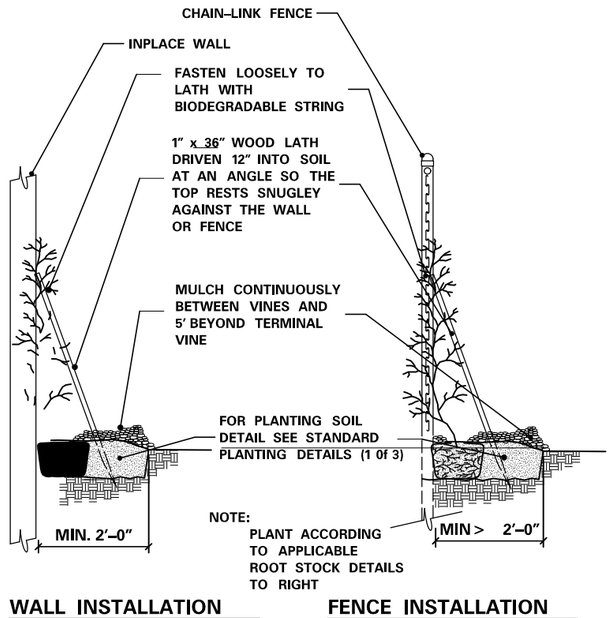
PLANTING HOLE DIMENSIONS

HOLE DEPTH FOR B&B AND CONTAINER PLANTS SHALL NOT EXCEED MEASUREMENT FROM ROOT FLAIR TO BOTTOM OF SOIL BALL.

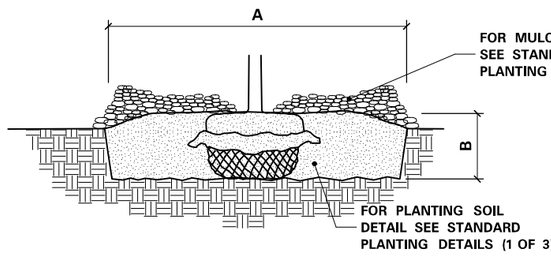
PLANT TYPE	PLANT SIZE UP TO AND INCLUDING	(A) MINIMUM HOLE WIDTH	(B) APPROXIMATE HOLE DEPTH
DECIDUOUS & ORNAMENTAL TREES	3′ B.R.	46″	13″
	4′ B.R	46″	14″
	5′ B.R.	48″	14″
	6′ B.R.	54″	15″
	7′ B.R	60″	16″
	8′ B.R.	66″	19″
	0.75″ B.R.	48′	12″
	1″ B.R.	54″	14″
	1.25″ B.R.	60″	14″
	1.5 B.R.	66″	15″
	1.75″ B.R	72″	16″
	2″ B.R.	84″	19″
	4′ B.B.	42″	11″
	5′ B.B.	48″	12″
	6′ B.B.	52″	14″
	8′ B.B.	66″	16″
	10′ B.B.	66″	16″
	12′ B.B.	48″	16″
	1″ B.B.	54″	14″
	1.25″ B.B.	56″	15″
	1.5″ B.B.	61″	15″
	1.75″ B.B.	66″	16″
	2″ B.B.	72″	16″
	2.5″ B.B.	84″	19″
	3″ B.B.	96″	20″
	3.5″ B.B.	114″	23″
	4″ B.B.	126″	25″
DECIDUOUS SHRUBS, ROSES AND PERENNIALS PERENNIAL HOLE DEPTH AND WIDTH SHALL BE BASED UPON ON–CENTER SPACING IN A CONTINUOUS TRENCH.	12″ B.R.	24″	7″
	15″ B.R.	28″	8″
	18″ B.R.	30″	8″
	2′ B.R.	33″	9″
	3′ B.R.	42″	11″
	4′ B.B.	48″	12″
	5′ B.R.	54″	14″
	6′ B.R.	60″	14″
	18″ B.B.	27″	7″
	2′ B.B.	30″	8″
	3′ B.B.	36″	9″
	4′ B.B.	42″	11″
	5′ B.B.	48″	12″
	6′ B.B.	54″	14″



WALL INSTALLATION

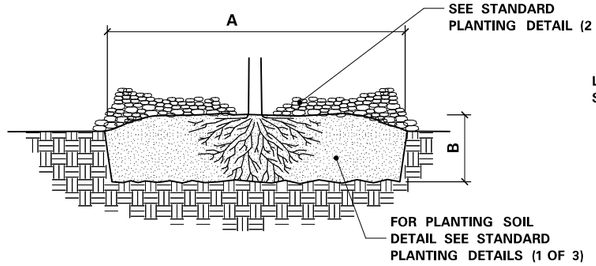
FENCE INSTALLATION

INSTALLATION OF VINES



1. SCARIFY SIDES AND BOTTOM OF HOLE.
2. PROCEED WITH CORRECTIVE PRUNING.
3. SET PLANT ON UNDISTURBED NATIVE SOIL OR THOROUGHLY COMPACTED PLANTING SOIL. PLACE PLANT SO THE ROOT FLARE IS AT OR UP TO 2″ ABOVE THE FINISHED GRADE WITH BURLAP AND WIRE BASKET, (IF USED), INTACT.
4. SLIT REMAINING TREATED BURLAP AT 6″ INTERVALS.
5. BACKFILL TO WITHIN APPROXIMATELY 12″ OF THE TOP OF THE ROOTBALL, THEN WATER PLANT.
6. REMOVE THE TOP 1/3 OF THE BASKET OR THE TOP TWO HORIZONTAL RINGS WHICHEVER IS GREATER. REMOVE ALL BURLAP AND NAILS FROM THE TOP 1/3 OF THE BALL. REMOVE ALL TWINE. REMOVE OR CORRECT STEM GIRDLING ROOTS.
7. PLUMB AND BACKFILL WITH PLANTING SOIL.
8. WATER THOROUGHLY WITHIN 2 HOURS TO SETTLE PLANTS AND FILL VOIDS.
9. BACK FILL VOIDS AND WATER A SECOND TIME.
10. PLACE MULCH WITHIN 48 HOURS OF THE SECOND WATERING UNLESS SOIL MOISTURE IS EXCESSIVE.

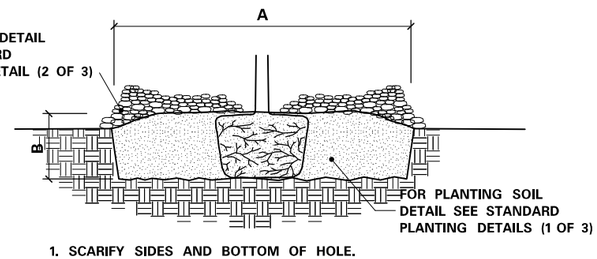
BALLED & BURLAPPED STOCK



1. SOAK ROOTS IN WATER FOR AT LEAST ONE HOUR BUT NOT MORE THAN 24 HOURS PRIOR TO PLANTING.
2. SCARIFY SIDES AND BOTTOM OF HOLE.
3. PROCEED WITH CORRECTIVE PRUNING OF THE TOP AND ROOTS.
4. TRANSFER PLANT DIRECTLY FROM WATER TO HOLE. SET PLANT SO THE ROOT FLARE IS AT THE FINISHED SOIL ELEVATION. SPREAD ROOTS OUT EVENLY. PLUMB AND IMMEDIATELY BACKFILL WITH PLANTING SOIL.
5. WATER THOROUGHLY WITHIN 2 HOURS TO SETTLE PLANTS AND FILL VOIDS.
6. BACK FILL VOIDS AND WATER A SECOND TIME.
7. PLACE MULCH WITHIN 48 HOURS OF THE SECOND WATERING UNLESS SOIL MOISTURE IS EXCESSIVE.

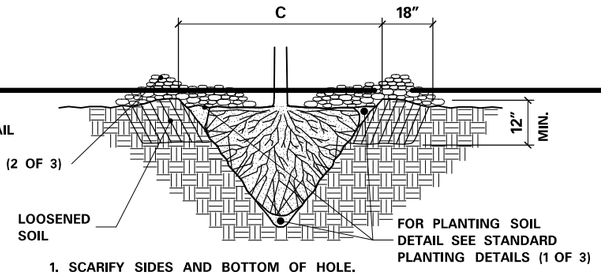
BARE ROOT STOCK

INSTALLATION OF PLANTS



1. SCARIFY SIDES AND BOTTOM OF HOLE.
2. PROCEED WITH CORRECTIVE PRUNING OF TOP AND ROOT.
3. REMOVE CONTAINER AND SCORE OUTSIDE OF SOIL MASS TO REDIRECT AND PREVENT CIRCLING FIBROUS ROOTS. REMOVE OR CORRECT STEM GIRDLING ROOTS.
4. SET PLANT ON UNDISTURBED NATIVE SOIL OR THOROUGHLY COMPACTED PLANTING SOIL. INSTALL PLANT SO THE TOP OF THE ROOT FLARE IS AT OR UP TO 2″ ABOVE THE FINISHED GRADE.
5. PLUMB AND BACKFILL WITH PLANTING SOIL.
6. WATER THOROUGHLY WITHIN 2 HOURS TO SETTLE PLANT AND FILL VOIDS.
7. BACK FILL VOIDS AND WATER A SECOND TIME.
8. PLACE MULCH WITHIN 48 HOURS OF THE SECOND WATERING UNLESS SOIL MOISTURE IS EXCESSIVE.

CONTAINER STOCK



1. SCARIFY SIDES AND BOTTOM OF HOLE.
2. PROCEED WITH CORRECTIVE PRUNING.
3. SET PLANT ON NATIVE SOIL AT SAME DEPTH AS IT WAS PREVIOUSLY GROWN.
4. PLUMB AND BACKFILL WITH PLANTING SOIL.
5. AFTER PLANTING, LOOSEN THE SOIL IMMEDIATELY ADJACENT TO THE ROOT BALL TO A MINIMUM DISTANCE OF 18″ AND A MINIMUM DEPTH OF 12″.
6. WATER THOROUGHLY WITHIN 2 HOURS TO SETTLE PLANT AND FILL VOIDS.
7. BACK FILL VOIDS AND WATER A SECOND TIME.
8. PLACE MULCH WITHIN 48 HOURS OF THE SECOND WATERING UNLESS SOIL MOISTURE IS EXCESSIVE.

MINIMUM TREE SPADE SIZE REQUIREMENTS

(C) SPADE DIAMETER SIZE	OAK TREE, CALIPER	DECIDUOUS / ORNAMENTAL TREE,CALIPER	CONIFEROUS TREE, HEIGHT
42″	1″ to 1.5″	2″ to 3″	5′ to 7′
60″	1.5″ to 2.5″	3″ to 4″	7′ to 9′
78″	2.5″ to 3.5″	4″ to 6″	9′ to 14′
85″	3.5″ to 5″	6″ to 8″	14′ to 18′

MACHINE MOVED STOCK

PLANTING HOLE DIMENSIONS

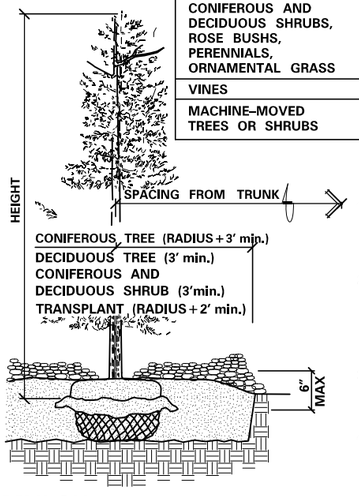
HOLE DEPTH FOR B&B AND CONTAINER PLANTS SHALL NOT EXCEED MEASUREMENT FROM ROOT FLAIR TO BOTTOM OF SOIL BALL.

PLANT TYPE	PLANT SIZE UP TO AND INCLUDING	(A) MINIMUM HOLE WIDTH	(B) APPROXIMATE HOLE DEPTH
CONIFEROUS TREES AT LEAST 2/3 OF ALL CONIFER BRANCHES WILL CONTAIN TERMINAL BUDS	2′ B.B	36″	10″
	3′ B.B	42″	11″
	4′ B.B	51″	13″
	5′ B.B	60″	13″
	6′ B.B	66″	15″
	7′ B.B	72″	16″
	8′ B.B	81″	18″
	9′ B.B	90″	20″
	10′ B.B	102″	21″
	12′ B.B	114″	24″
CONIFEROUS SHRUBS (UPRIGHT)	18″ B.B.	24″	7″
	3′ B.B.	48″	12″
CONIFEROUS SHRUBS (SPREADING)	18″ SPR B.B.	30″	8″
	2′ SPR B.B.	36″	9″
CONTAINER GROWN PLANTS	CELLPACKS / PLUGS	6″	2.5″
	2.25″ CONT.	7″	3″
	3.5″ CONT.	10″	3″
	4″ CONT.	11″	4″
	4.5″ CONT.	13″	4″
	6″/1 QT CONT.	15″	5.5″
	1# CONT.	18″	6″
	2# CONT.	23″	7.5″
	3# CONT.	29″	8.5″
	5# CONT.	30″	11″
	7# CONT.	37″	11″
	15# CONT.	44″	14″
	10# CONT.	45″	15″
	20# CONT.	60″	16″
	25# CONT.	72″	17″
SEEDLINGS	6″ SEEDLING	15″	14″
	9″ SEEDLING	18″	14″
	12″ SEEDLING	23″	16″
	18″ SEEDLING	30″	16″
	2′ SEEDLING	36″	18″
VINES	1 YR. MED B.R.	15″	11″
	1 YR. NO. 1 B.R.	17″	14′
	2 YR. MED. B.R.	33″	12″
	2 YR. NO. 1 B.R.	42″	15″

MULCH AREA CALCULATOR

TYPE OF PLANT	SQ. FT. PER PLANT
CONIFEROUS TREES	$\left[\left(\frac{3/5 \times \text{HEIGHT}}{2}\right)+3\right]^2 \times \pi$
DECIDUOUS AND ORNAMENTAL TREES	$3^2 \times \pi$
CONIFEROUS AND DECIDUOUS SHRUBS, ROSE BUSHS, PERENNIALS, ORNAMENTAL GRASS	SPACING x SPACING
VINES	SPACING x 2
MACHINE–MOVED TREES OR SHRUBS	$\left[\left(\frac{\text{SPADE DIAMETER}}{2}\right)+1\right]^2 \times \pi$

π = 3.1416



1. PULL MULCH BACK NO LESS THAN 3″ AND NO MORE THAN 6″ FROM TREES AND SHRUBS AT THE TRUNK OR MAIN STEM.
2. SUBSIDING OR DETERIORATING MULCH IS ACCEPTABLE THROUGHOUT THE ESTABLISHED PERIOD IF THE MULCH DEPTH IS MAINTAINED AT A MINIMUM 3″ DEPTH.
3. ADD MULCH WHEN BELOW THE 3″ MINIMUM DEPTH; DO NOT EXCEED THE 6″ MAXIMUM DEPTH.
4. MULCH CONTAMINATED WITH SOIL MUST BE REMOVED AND REPLACED.

MULCH

(MnDOT 2571.3H)

(MnDOT 2571.3F)

REVISION:

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CHIEF ENVIRONMENTAL OFFICER

STATE DESIGN ENGINEER

REVISED:

APPROVED: 12-11-2015

STANDARD PLANTING DETAILS

STANDARD PLAN 5-297.301 2 OF 3

SHEET NO. 24 OF 128 SHEETS

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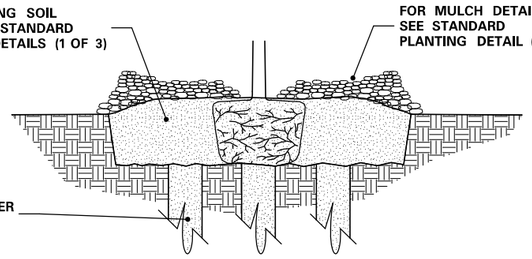
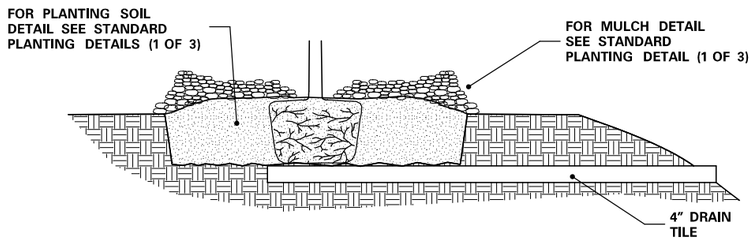


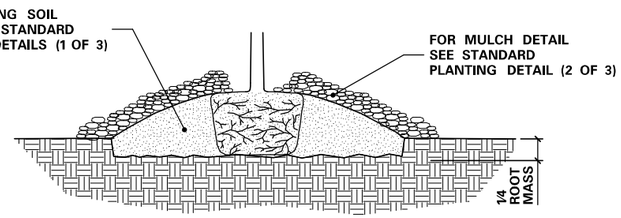
1. EXCAVATE HOLE OR BED TO ALLOW PLACING THE TOP OF ROOT MASS 1"–3" HIGHER THAN FINISHED GRADE.
2. AUGER 8" DIAMETER HOLES ENTIRELY THROUGH IMPERVIOUS OR POORLY DRAINED HARD PAN SOIL LAYER TO ADEQUATELY DRAIN SUBSOIL.
3. TEST FOR POSITIVE DRAINAGE. RE–AUGER AN ADDITIONAL 8" IF NECESSARY FOR POSITIVE DRAINAGE.
4. THOROUGHLY BACKFILL AUGER HOLES WITH A UNIFORM INCORPORATED MIXTURE OF 50% SAND AND 50% INPLACE SOIL.
5. COMPLETE PLANTING ACCORDING TO ROOT TYPE. SEE STANDARD PLANTING DETAILS (2 OF 3).

GRANULAR FILTER



1. EXCAVATE HOLE OR BED TO ALLOW PLACING THE TOP OF THE ROOT MASS 1"–3" HIGHER THAN FINISHED GRADE.
2. INSTALL 4" MINIMUM DIAMETER DRAIN TILE DAYLIGHTING AT A LOWER GRADE.
3. COMPLETE PLANTING ACCORDING TO ROOT TYPE. SEE STANDARD PLANTING DETAILS (2 OF 3).

TILE DRAINAGE



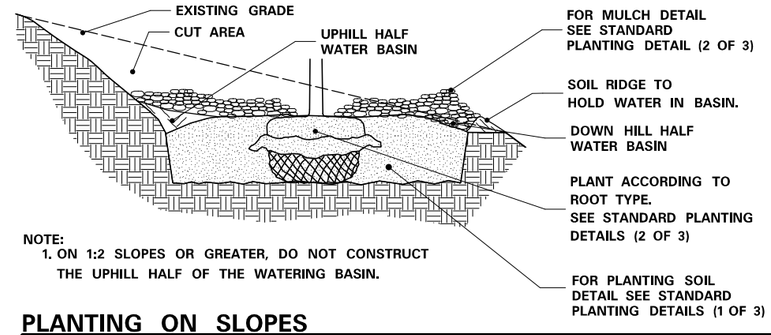
1. EXCAVATE HOLE OR BED 1/4 THE DEPTH OF THE ROOT MASS.
2. SET ROOT MASS IN HOLE.
3. CONSTRUCT BERM WITH PLANTING SOIL. EXTEND THE BERM BASE TO A WIDTH OF 3 TIMES THE BERM HEIGHT.
4. COMPLETE PLANTING ACCORDING ROOT TYPE. SEE STANDARD PLANTING DETAILS (2 OF 3).

MINI–BERM

NOTE:
1. THE NEED FOR USING PLANTING DETAILS FOR POORLY DRAINED SOILS AND WHICH TYPE TO USE ARE DETERMINED BY THE CONTRACTOR, SUBJECT TO ENGINEER APPROVAL.

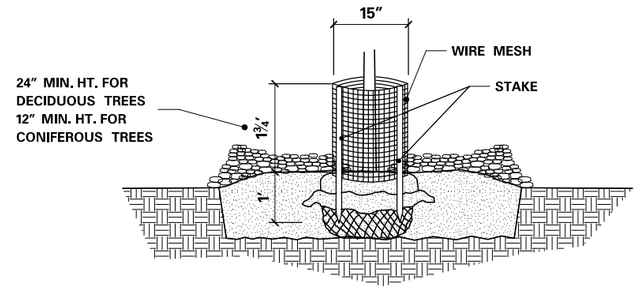
PLANTING DETAIL FOR POORLY DRAINED SOILS

(MnDOT 2571.3D.2(8))



NOTE:
1. ON 1:2 SLOPES OR GREATER, DO NOT CONSTRUCT THE UPHILL HALF OF THE WATERING BASIN.

PLANTING ON SLOPES

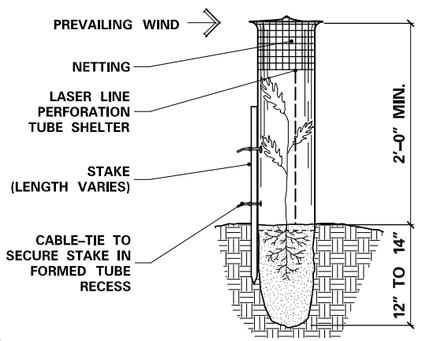


1. FORM A DOUBLE–LAYERED CYLINDER USING 0.25" GRID GALVANIZED WELDED WIRE MESH (HARDWARE CLOTH). OVERLAP THE CUT END 3".
2. DRIVE TWO 1" x 1" OPPOSING HEARTWOOD WHITE OAK STAKES INTO THE GROUND, 7" FROM THE CENTER OF THE TREE STEM.
3. SECURE THE MESH CYLINDER TO THE OUTSIDE OF THE STAKES USING EITHER, SCREWS AND WASHERS OR CABLE–TIES ALONG THE OVERLAP. SPACE APPROXIMATELY 4" ON CENTER ALONG THE OVERLAP.
   a. SCREWS SHALL BE ROUND HEAD GALVANIZED 1/8" DIA. x 3/4" LONG WITH WASHERS.
   OR
   b. CABLE–TIES SHALL BE NYLON, AT LEAST 8" LONG AND BETWEEN 75LB TO 120LB TENSILE STRENGTH.
4. EMBED THE LOWER EDGE OF THE MESH CYLINDER 1" BELOW THE SOIL SURFACE WITHOUT DISTURBING THE TREE ROOTS.
5. CUT EDGES WILL NOT BE PERMITTED AT THE TOP OF THE CYLINDER. STAKE WILL BE FLUSH WITH THE TOP OF THE CYLINDER.
6. MULCH WITHIN THE CYLINDER SHALL NOT EXCEED 3" DEPTH AND SHALL BE PULLED BACK FROM THE TRUNK AS SPECIFIED IN MULCH PLACEMENT DETAIL.
7. THE BOTTOM WHORL OF PINE AND LARCH BRANCHES MAY HAVE TO BE REMOVED TO PERMIT INSTALLATION OF 12" MIN. HEIGHT RODENT GUARDS.
8. INSTALL ON ALL DECIDUOUS, PINE AND LARCH TREES, DO NOT PLACE ON SPRUCE TREES.

RODENT PROTECTION

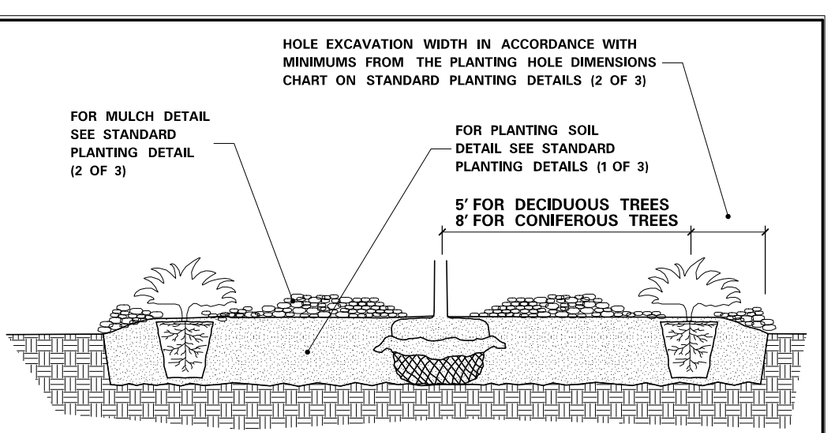
(MnDOT 2571.3I.2)

1. USE SEAMLESS, EXTRUDED, TWIN–WALL, RIGID AND SEMI TRANSLUCENT POLYPROPYLENE TUBES WITH A LASER LINE PERFORATION AND AN OUTWARD–FLARED TOP RIM.
2. SECURE SHELTER WITH NYLON CABLE–TIES ATTACHED TO A 1" x 1" WHITE OAK STAKE TO PREVENT DISLODGING OR TWISTING.
3. EMBED THE BOTTOM OF THE TUBE A MINIMUM OF 1" BELOW THE SOIL SURFACE WITHOUT DISTURBING THE TREE ROOTS.
4. PLACE A PLASTIC PHOTODEGRADABLE NETTING COVER AND SLEEVE OVER THE TOP OF THE TUBE. PULL NETTING DOWN AS SHOWN.

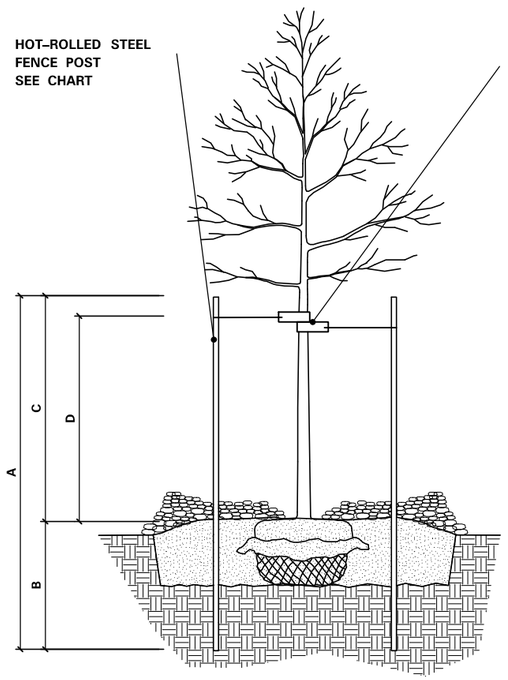


SEEDLING TREE SHELTER

(MnDOT 2571.3I.4)



PLANT SPACING IN MASS BEDS



1. STEEL POSTS TO BE NOTCHED OR DRILLED TO RETAIN GUY WIRES. PLACE OUTSIDE OF ROOT BALL. DRIVE PLUMB REGARDLESS OF GROUND SLOPE.
2. REQUESTS TO SUBSTITUTE RUBBER HOSE AND WIRE GUYING SYSTEMS WILL NOT BE APPROVED.
3. TREE STAKING IS NOT REQUIRED UNLESS SPECIFIED OR NECESSARY TO MAINTAIN TREES IN A PLUMB CONDITION WHERE VANDALISM, SOIL, OR WIND CONDITIONS ARE A PROBLEM, OR AS DIRECTED BY THE ENGINEER.
4. REMOVE WITHIN ONE YEAR.

STEEL POST SIZING

CALIPER	STEEL POST TYPE	A	B	C	D
LESS THAN 4 INCHES	HOT–ROLLED STEEL FENCE POST (MnDOT 3403) OR APPROVED EQUAL.	7'–0"	3'–0" MIN.	4'–0"	3'–0"
GREATER THAN 4 INCHES	10', 2.2 LB. FLANGED CHANNEL SIGN POST (MnDOT 3401) OR APPROVED EQUAL.	10'–0"	4'–0" MIN.	6'–0"	5'–0"

STAKING AND GUYING

(MnDOT 2571.3I.1)

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MINNESOTA DEPARTMENT OF TRANSPORTATION

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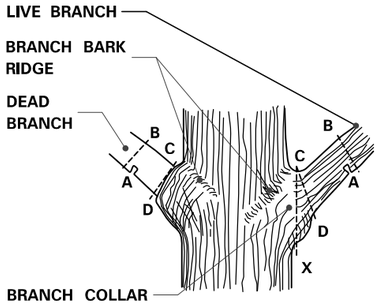
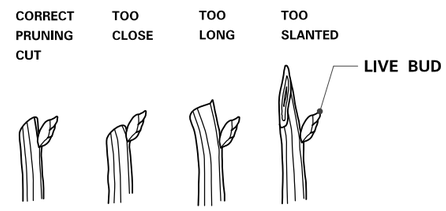
STANDARD PLANTING DETAILS

STANDARD PLAN 5-297.301 3 OF 3

SHEET NO. 25 OF 128 SHEETS



BRANCHES PRUNED AT TRUNK
(SHIGO METHOD)



BRANCHES PRUNED TO LIVE BUD

STEPS TO PRUNING WITH PRUNING SAW:

1. CUT PART WAY THROUGH THE BRANCH AT POINT A.
2. CUT COMPLETELY THROUGH BRANCH FROM POINT B TO A.
3. AT BRANCH COLLAR CUT FROM POINT C TO D.

INCORRECT CUT FROM POINT C TO X (TOO CLOSE) WILL RESULT IN DISCONTINUOUS CALLUS FORMATION AFTER ONE SEASON OF GROWTH.

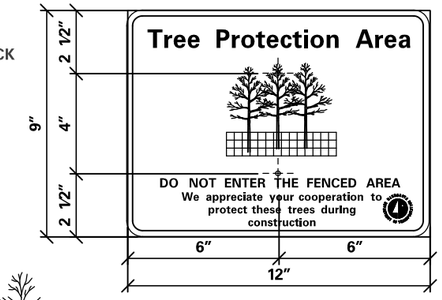
CORRECT CUT FROM POINT C TO D (LEAVING BRANCH COLLAR BUT NOT THE STUB FROM POINT B TO A) WILL RESULT IN CONTINUOUS DOUGHNUT SHAPED CALLUS FORMATION AFTER ONE SEASON OF GROWTH.

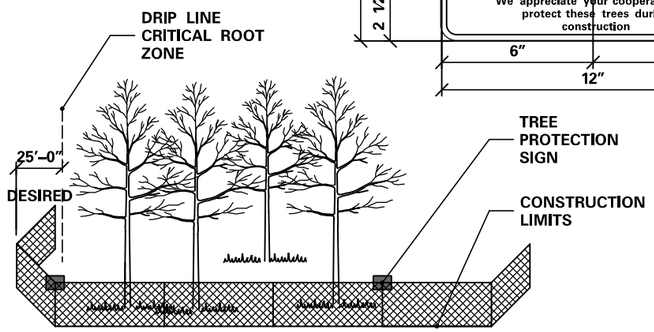
PRUNING NOTES:

1. PRUNE USING CLEAN AND SHARP SCISSOR–TYPE PRUNER OR PRUNING SAW.
2. THE BEST TIME TO PRUNE IS LATE DORMANT SEASON OR EARLY SPRING.
3. AVOID PRUNING OAKS IN APRIL, MAY, JUNE OR JULY.
4. IF PRUNING IS NECESSARY OR IF WOUNDS OCCUR TO OAK TREES IN APRIL, MAY, JUNE OR JULY, IMMEDIATELY PAINT CUT SURFACE OR WOUND WITH LATEX PAINT OR SHELLAC.

PRUNING
(MnDOT 2571.3E.1 and 2571.3K.2.a(9))

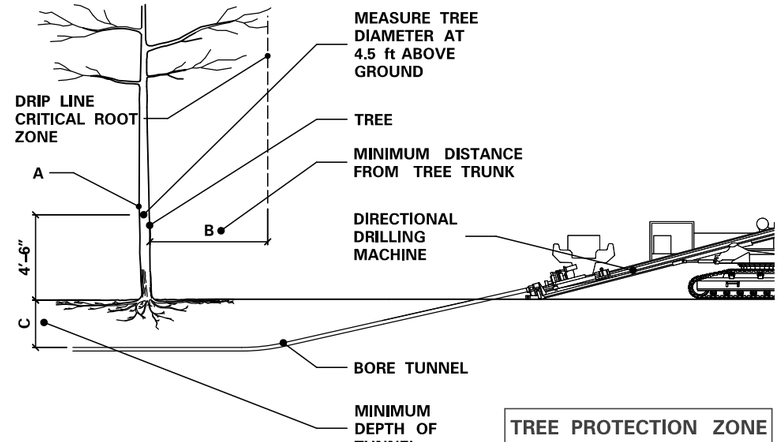
1. FABRICATE 12″ X 9″ X 3⁄8″ SIGN WITH 0.75″ RADIUS CORNERS.
2. SIGN SHALL BE WHITE WITH BLACK LETTERING.
3. ATTACH SIGN TO POST USING 1″ LENGTH WOOD SCREWS.





1. FURNISH AND INSTALL TEMPORARY FENCE AT THE TREE'S DRIPLINE OR CONSTRUCTION LIMITS AS SPECIFIED, PRIOR TO ANY CONSTRUCTION.
2. WHEN POSSIBLE PLACE FENCE 25 FEET BEYOND THE DRIP LINE.
3. PLACE TREE PROTECTION SIGNS ALONG FENCE AT 50′ INTERVALS.

TEMPORARY FENCE
(MnDOT 2572.3A.1)

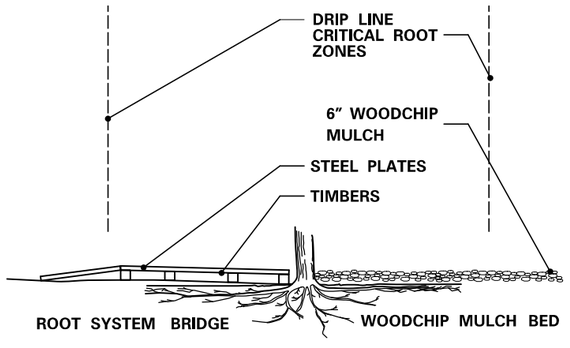


NOTE:

1. (A) IS THE DIAMETER OF TREES MEASURED 4′–6″ FEET ABOVE THE GROUND AND IS TERMED THE "DIAMETER AT BREAST HEIGHT," (DBH).
2. USING A TREE DIAMETER TAPE, WRAP THE TAPE AROUND THE GIRTH OF THE TREE, AT THE DBH, BEING CAREFUL NOT TO TWIST THE TAPE.

TREE PROTECTION ZONE		
A	B	C
< 2″	2′	2′
2–4″	4′	2.5′
> 4–9″	6′	2.5′
> 9–14″	10′	3′
> 14–19″	12′	3.25′
> 19″	15′	4′

UTILITY CONSTRUCTION
(MnDOT 2572.3A.5)



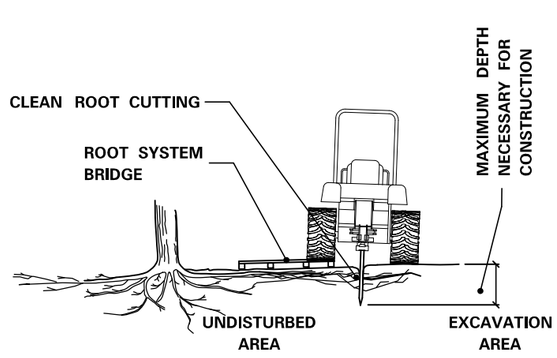
IF CONSTRUCTION VEHICLES MUST PASS OVER ROOT ZONES, THE CONTRACTOR MUST EITHER:

1. CONSTRUCT ROOT SYSTEM BRIDGES WITH STEEL PLATE SUPPORTED ON WOOD TIMBERS PLACED RADIALLY TO THE TREE TRUNK.

OR

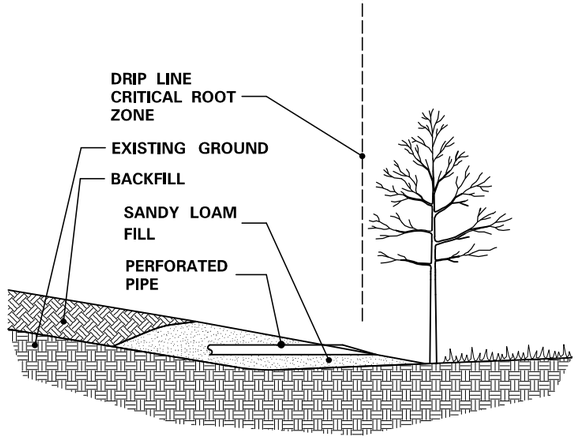
2. PLACE A 6 INCH LAYER OF WOODCHIP MULCH OVER A TYPE III GEOTEXTILE (MnDOT 3733).

OTHER VEGETATION PROTECTION MEASURES
(MnDOT 2572.3A.12)



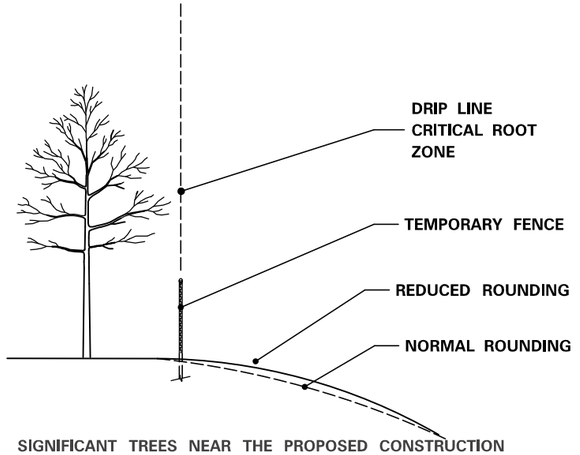
1. WHEN DESIGNATED IN THE PLAN OR DIRECTED BY THE ENGINEER, PRIOR TO EXCAVATION, ALL TREE ROOTS WILL BE CLEANLY CUT BY A VIBRATORY PLOW OR OTHER APPROVED ROOT CUTTER.
2. THE TREE ROOTS WILL BE CUT CLEANLY TO THE MINIMUM DEPTH NECESSARY FOR CONSTRUCTION.
3. IMMEDIATELY, AND CLEANLY CUT DAMAGED AND EXPOSED ROOTS.
4. ROOT ENDS EXPOSED BY EXCAVATION ACTIVITIES SHALL BE IMMEDIATELY COVERED WITH A 6″ LAYER OF ADJACENT SOIL.
5. EXPOSED CUT OAK ROOTS SHALL BE IMMEDIATELY (WITHIN 5 MINUTES) TREATED WITH A WOUND DRESSING MATERIAL CONSISTING OF LATEX PAINT OR SHELLAC.

CLEAN ROOT CUTTING
(MnDOT 2572.3A.2)



1. ANY FILL REQUIRED WITHIN THE DRIP LINE OF TREES, IS UNCOMPACTED ROOTING TOPSOIL BORROW.
2. EXCESSIVE FILL MAY REQUIRE PLACING PERFORATED PIPE WITH AT LEAST ONE DAYLIGHTED END OPENING AS AN AERATION SYSTEM.

ROOTING TOPSOIL BORROW
(MnDOT 2572.3A.4)



SIGNIFICANT TREES NEAR THE PROPOSED CONSTRUCTION LIMITS WILL BE IDENTIFIED IN THE PLAN OR BY THE ENGINEER AND WILL BE PRESERVED BY THE CONTRACTOR.

1. PLACE THE TEMPORARY FENCE.
2. REDUCE SLOPE ROUNDING WHERE ROOT ZONES ARE DISTURBED BY NORMAL SLOPE ROUNDING.
3. VARY BACKSLOPE STEEPNESS TO AVOID TREE LOSS OR UNNECESSARY ROOT DAMAGE.

SLOPE ROUNDING

REVISION:

APPROVED: DECEMBER 11, 2015

CHIEF ENVIRONMENTAL OFFICER

REVISED:

APPROVED:

STATE DESIGN ENGINEER

12-11-2015

PROTECTION AND RESTORATION OF VEGETATION

STANDARD PLAN 5-297.302 1 OF 1

STATE PROJ. NO. 0302-145 (TH 14)

SHEET NO. 26 OF 128 SHEETS

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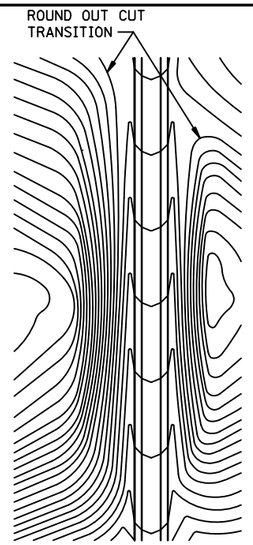
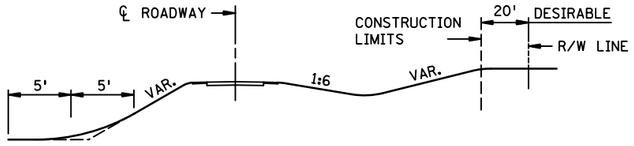
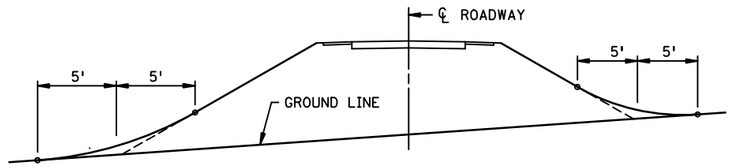


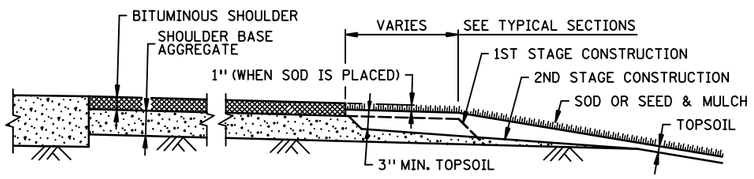
CONTOURING ROAD CUTS



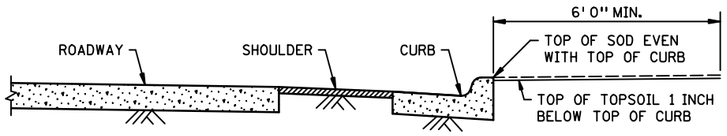
ROUNDING SHOULDERS AND BACKSLOPES



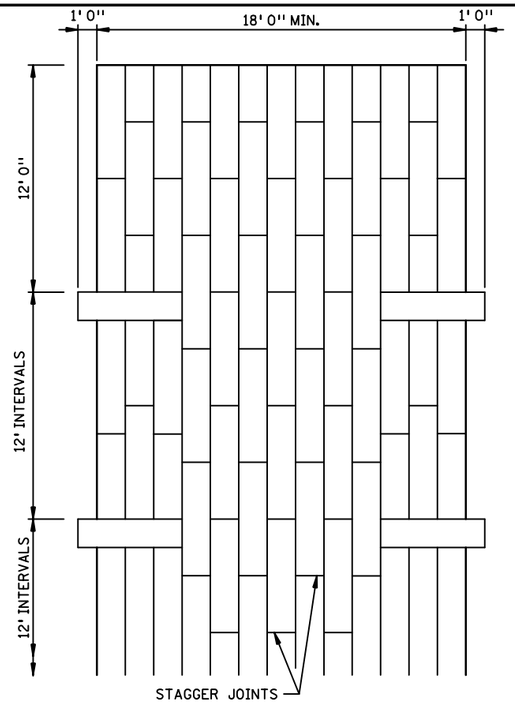
SHAPING FOR DRAINAGE ALONG THE TOE OF FILL SLOPES



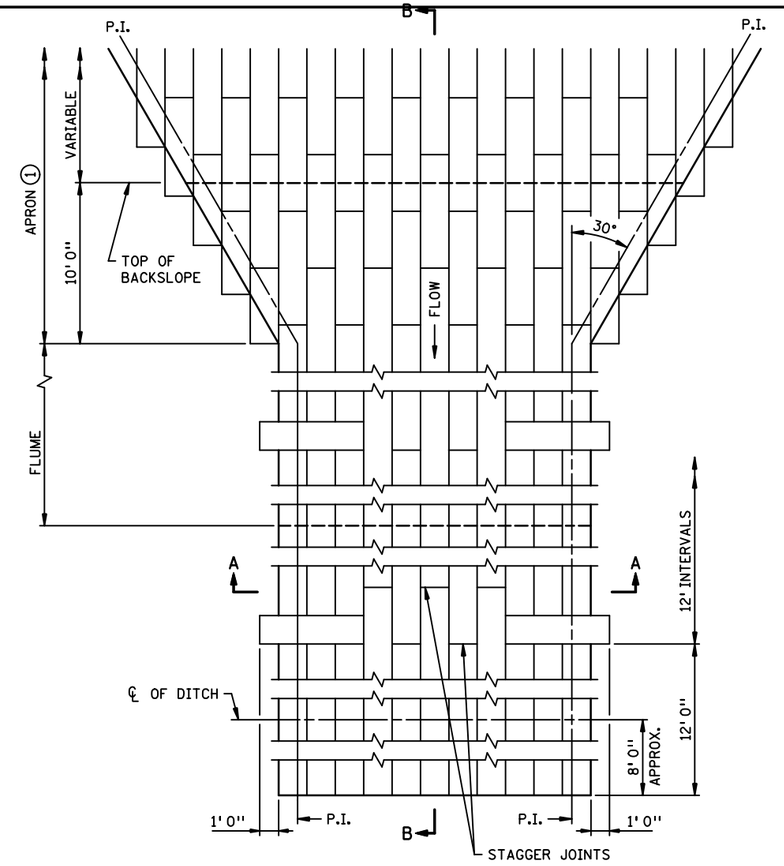
SHAPING AND TOPSOILING INSLOPES



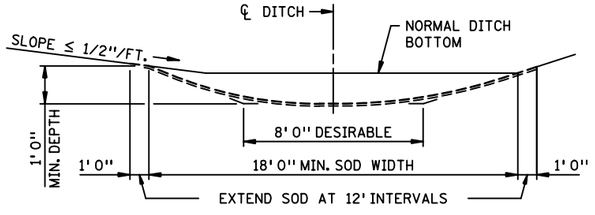
SHAPING ADJACENT TO CURBS WHEN SOD IS PLACED



PLAN VIEW

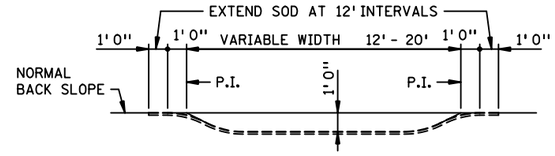


PLAN VIEW

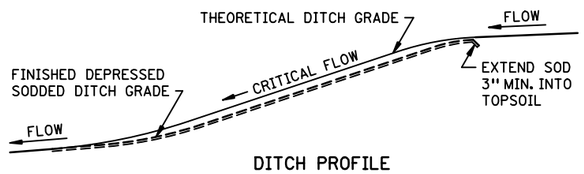


SODDED DITCH CROSS SECTION

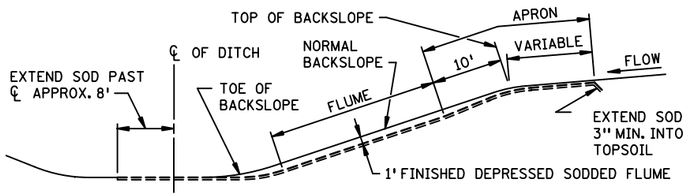
WHERE FRONT OR BACK SLOPE IS FLAT (LESS THAN 1/2"/FT.), FIRST NOTCH DITCH AND THEN PROVIDE ROUNDING.



SECTION A-A



DITCH PROFILE



SECTION B-B

SODDED DITCH DETAILS

SODDED FLUME DETAILS

NOTES:

SEE SPEC. 2575.3 FOR ADDITIONAL INFORMATION.

(1) CONSTRUCT TAPER AS DIRECTED BY THE ENGINEER.

REVISION:

APPROVED: 2-28-2017

CHIEF ENVIRONMENTAL OFFICER

MINNESOTA DEPARTMENT OF TRANSPORTATION

STATE DESIGN ENGINEER

REVISED:

APPROVED: 2-28-2017

PERMANENT EROSION CONTROL

ALONG ROADWAYS, DITCHES AND FLUMES

STANDARD PLAN 5-297.404 | 1 OF 3

STATE PROJ. NO. 0802-45 (T.H. 4)

SHEET NO. 27 OF 128 SHEETS

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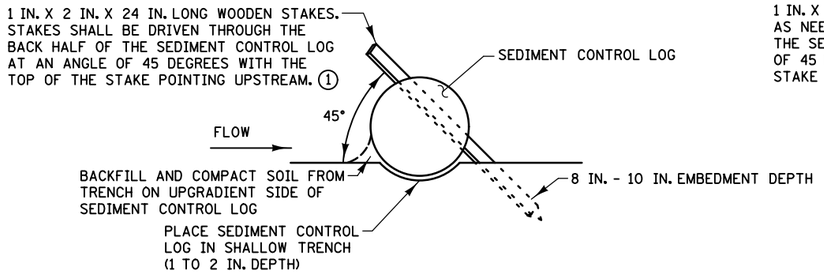
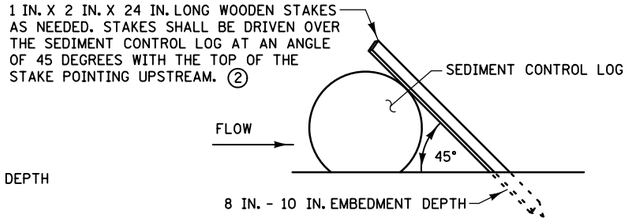
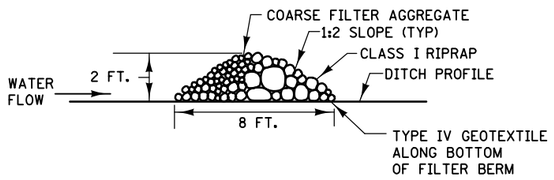


TYPES: STRAW, WOOD FIBER, OR COIR

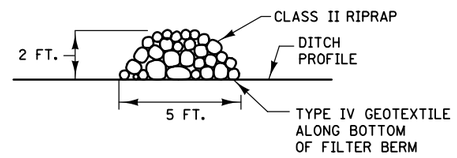


TYPES: WOOD CHIP, COMPOST, OR ROCK

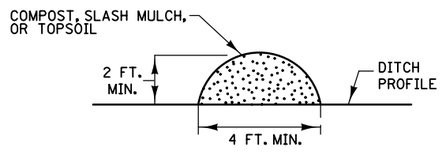
SEDIMENT CONTROL LOGS



TYPE 3 (ROCK WEEPER)

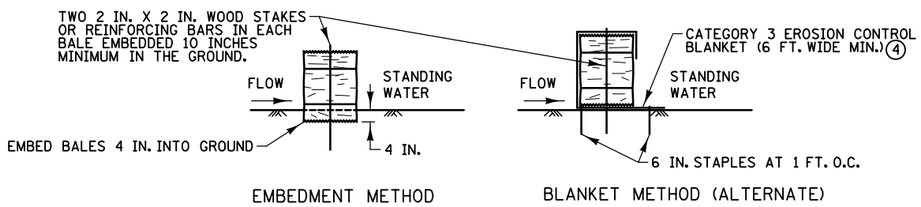


TYPE 5 (ROCK)



TYPE 1 (COMPOST), TYPE 2 (SLASH MULCH), OR TYPE 4 (TOPSOIL)

FILTER BERMS



EMBEDMENT METHOD

BLANKET METHOD (ALTERNATE)

BALE BARRIERS (3)

NOTES:

SEE SPECS. 2573, 3149, 3874, 3882, 3886, & 3897.

(1) SPACE BETWEEN STAKES SHALL BE A MAXIMUM OF 1 FOOT FOR DITCH CHECKS OR 2 FEET FOR OTHER APPLICATIONS.

(2) PLACE STAKES AS NEEDED TO PREVENT MOVEMENT OF SEDIMENT CONTROL LOGS PLACED ON SLOPES OR AS NEEDED DUE TO OTHER FACTORS. STAKES SHALL BE INCIDENTAL.

(3) TO BE USED FOR CRITICAL PERIMETER CONTROL AREAS WHERE STANDING WATER OCCURS (6 INCH MAX. DEPTH). BALES SHALL CONSIST OF TYPE 1 MULCH OF APPROXIMATELY 14 IN. X 18 IN. X 36 IN. LONG. BALES SHALL BE PLACED ON EDGE AND BUTTED TIGHT TO ADJACENT BALES.

(4) INSTEAD OF TRENCHING, PLACE BALE ON THE BLANKET AND WRAP BLANKET AROUND THE BALE. PLACE STAKE THROUGH BALE AND BLANKET.

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REVISION:

APPROVED: 2-28-2017
CHIEF ENVIRONMENTAL OFFICER

MINNESOTA DEPARTMENT OF TRANSPORTATION

REVISED:

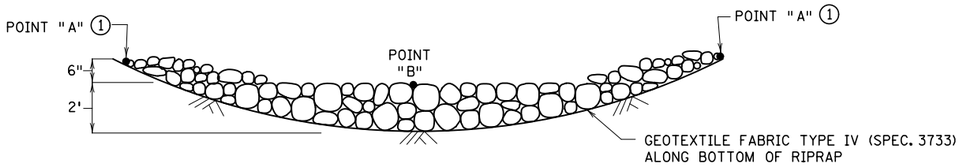
APPROVED: 2-28-2017

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

STANDARD PLAN 5-297.405 | 2 OF 8

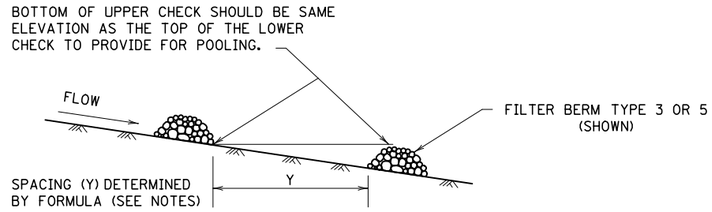
STATE PROJ. NO. 0802-45 (T.H. 4)

SHEET NO. 28 OF 128 SHEETS



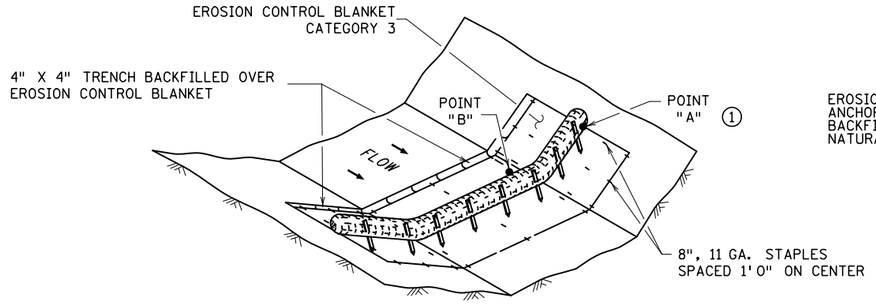
ROCK DITCH CHECKS
FILTER BERMS TYPE 3 (ROCK WEEPER) OR FILTER TYPE 5 (ROCK) ②③

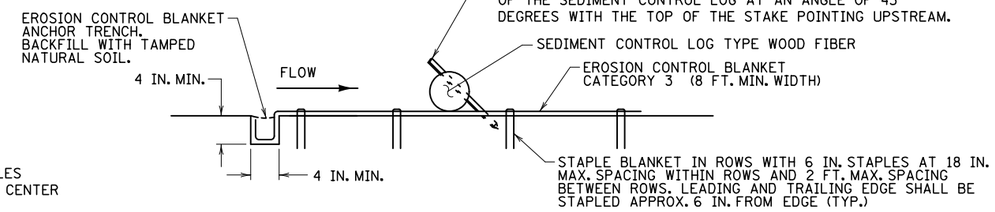
(FOR USE ON ROUGH GRADED AREAS)



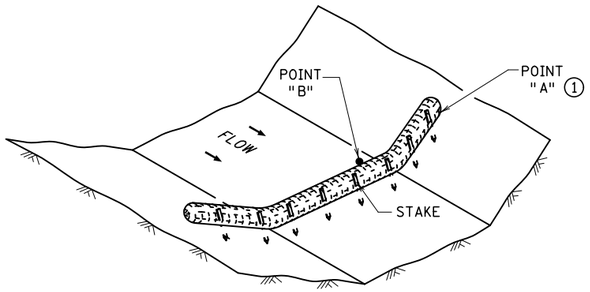
DITCH CHECK SPACING

(FOR ALL FILTER BERM TYPES)





SEDIMENT CONTROL LOG TYPE BLANKET SYSTEM ④



SEDIMENT CONTROL LOG TYPE WOOD FIBER, OR TYPE COMPOST ⑤

(FOR USE ON ROUGH GRADED AREAS)

NOTES:

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

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

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

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

① POINT "A" MUST BE A MINIMUM OF 6 INCHES HIGHER THAN POINT "B" TO ENSURE THAT WATER FLOWS OVER THE DIKE AND NOT AROUND THE ENDS.

② PERMANENT ROCK DITCH CHECKS PLACED WITHIN THE CLEAR ZONE ARE TO BE 18" OR LESS IN HEIGHT. A 1:6 APPROACH AND DEPARTURE SLOPE SHALL BE PROVIDED.

③ DITCH GRADE 3% - 5%, MAX. FLOW VELOCITY 12 FT./SEC..

④ DITCH GRADE 1.5% - 3%, MAX. FLOW VELOCITY 4.5 FT./SEC..

⑤ DITCH GRADE 1.5% - 3%, MAX. FLOW VELOCITY 1.5 FT./SEC..

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REVISION:

APPROVED: 2-28-2017

CHIEF ENVIRONMENTAL OFFICER

MINNESOTA DEPARTMENT OF TRANSPORTATION

REVISED:

STATE DESIGN ENGINEER

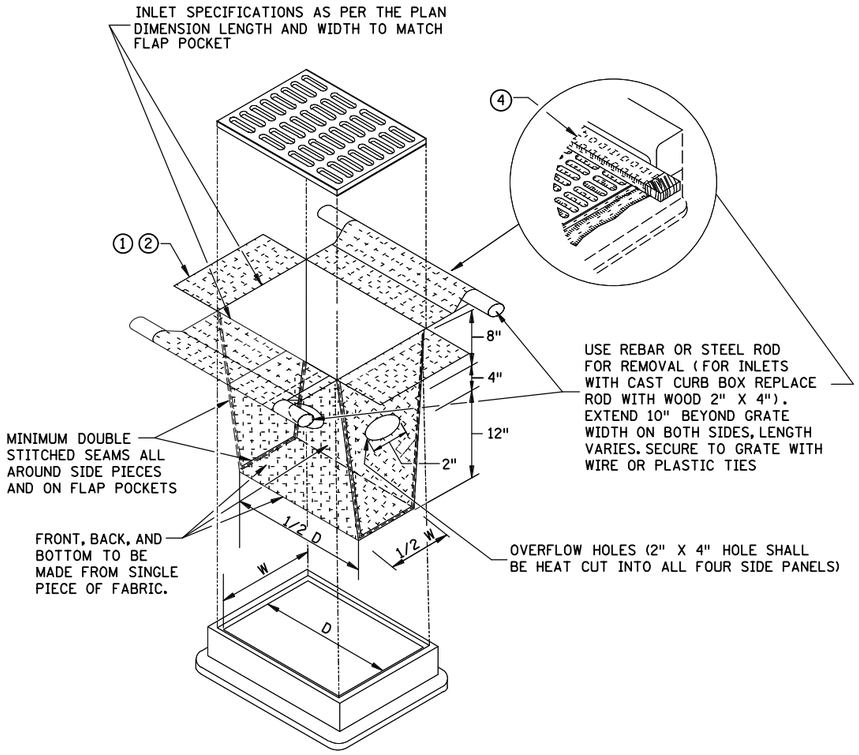
APPROVED: 2-28-2017

TEMPORARY SEDIMENT CONTROL
DITCH CHECK

STANDARD PLAN 5-297.405 | 3 OF 8

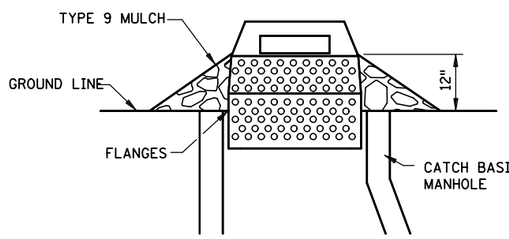
STATE PROJ. NO. 0802-45 (T.H. 4)

SHEET NO. 29 OF 128 SHEETS



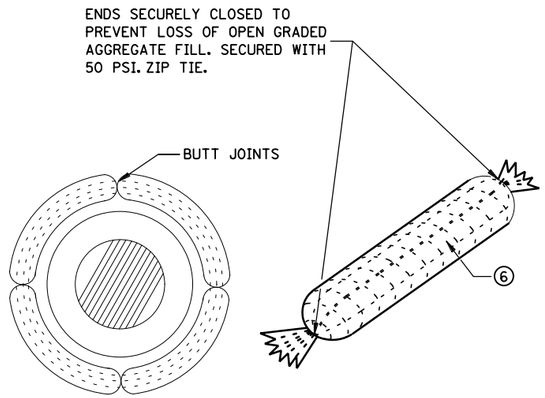
FILTER BAG INSERT ③

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

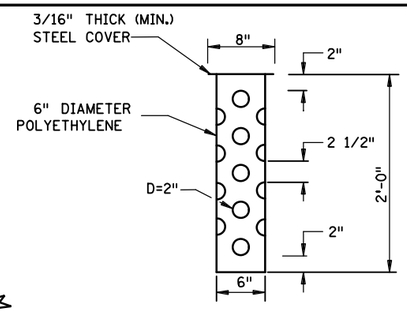


SEDIMENT CONTROL INLET HAT

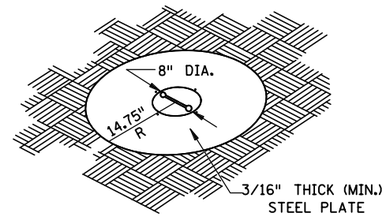
NOTE:
THE SEDIMENT CONTROL BARRIER SHALL BE A METAL OR PLASTIC/POLYETHYLENE RISER SIZED TO FIT INSIDE THE CATCH BASIN/MANHOLE; HAVE PERFORATIONS TO ALLOW FOR WATER INFILTRATION; HAVE AN OVERFLOW OPENING, FLANGES AND A LID/COVER.



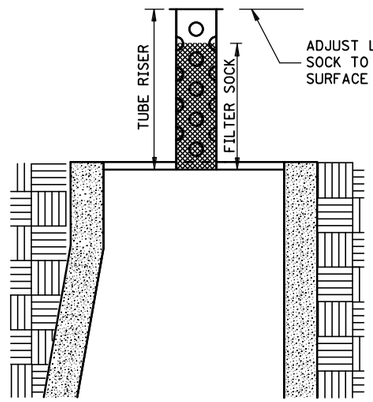
ROCK LOG/COMPOST LOG



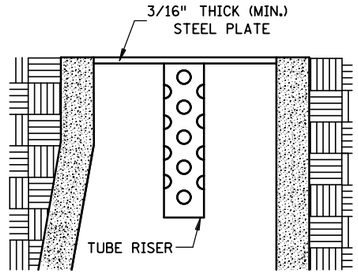
TUBE RISER



PERSPECTIVE VIEW

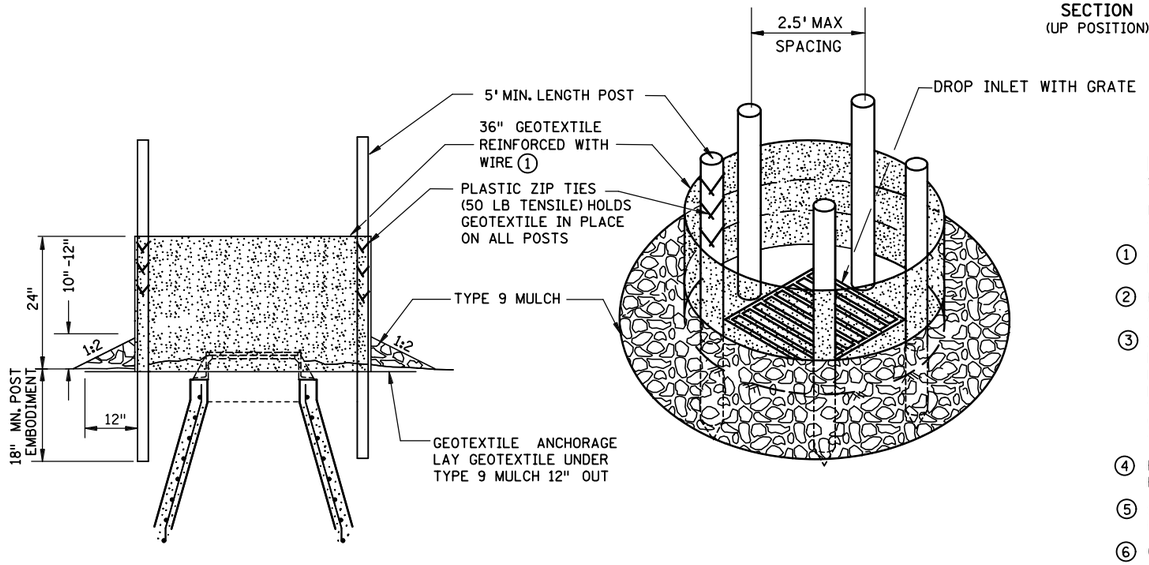


SECTION
(UP POSITION)



SECTION
(DOWN POSITION)

POP-UP HEAD



SILT FENCE RING AND ROCK FILTER BERM

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

NOTES:

SEE SPECS. 2573, 3137, & 3886.

DEVICES MUST BE ADJUSTED ACCORDINGLY AS TO NOT CAUSE FLOODING ON ROADWAY THAT WOULD IMPEED TRAFFIC FLOW.

① ALL GEOTEXTILE USED FOR INLET PROTECTION SHALL BE MONOFILAMENT IN BOTH DIRECTIONS, MEETING SPEC. 3886.

② FINISHED SIZE, INCLUDING POCKETS WHERE REQUIRED SHALL EXTEND A MINIMUM OF 10 INCHES AROUND THE PERIMETER TO FACILITATE MAINTENANCE OR REMOVAL.

③ INSTALLATION NOTES:
DO NOT PLACE FILTER BAG INSERT IN INLETS SHALLOWER THAN 30 INCHES, MEASURED FROM THE BOTTOM OF THE INLET TO THE TOP OF THE GRATE. THE PLACED BAG SHALL HAVE A MINIMUM SIDE CLEARANCE OF 3 INCHES BETWEEN THE INLET WALLS AND THE BAG, MEASURED AT THE BOTTOM OF THE OVERFLOW HOLES. WHERE NECESSARY THE CONTRACTOR SHALL CLINCH THE BAG, USING PLASTIC ZIP TIES, TO ACHIEVE THE 3 INCH SIDE CLEARANCE.

④ FLAP POCKETS SHALL BE LARGE ENOUGH TO ACCEPT WOOD 2 INCH X 4 INCH OR USE A ROCK SOCK OR SAND BAGS IN PLACE OF THE FLAP POCKETS.

⑤ SOCK HEIGHT MUST NOT BE SO HIGH AS TO SLOW DOWN WATER FILTRATION TO CAUSE FLOODING OF THE ROADWAY.

⑥ GEOTEXTILE SOCK BETWEEN 4-10 FEET LONG AND 4-6 INCH DIAMETER. SEAM TO BE JOINED BY TWO ROWS OF STITCHING WITH A PLASTIC MESH BACKING OR PROVIDE A HEAT BONDED SEAM (OR APPROVED EQUIVALENT). FILL ROCK LOG WITH OPEN GRADED AGGREGATE CONSISTING OF SOUND DURABLE PARTICLES OF COARSE AGGREGATE CONFORMING TO SPEC. 3137 TABLE 3137-1; CA-3 GRADATION.

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REVISION:

APPROVED: 2-28-2017

CHIEF ENVIRONMENTAL OFFICER

MINNESOTA DEPARTMENT OF TRANSPORTATION

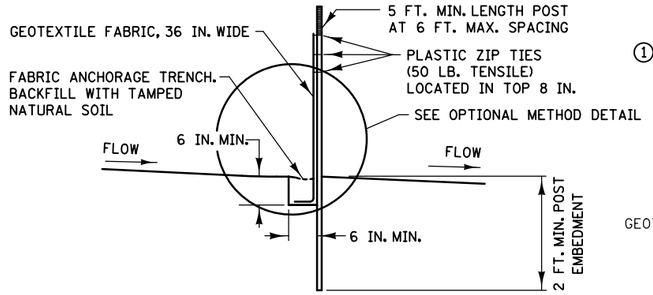
REVISED:

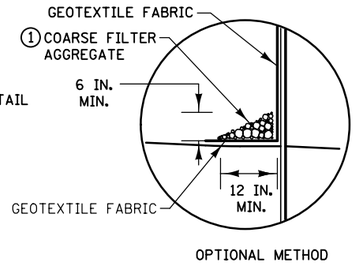
APPROVED: 2-28-2017

TEMPORARY SEDIMENT CONTROL
STORM DRAIN INLET PROTECTION

STANDARD PLAN 5-297.405 | 4 OF 8

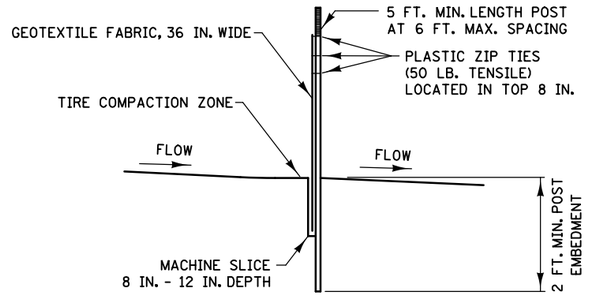
STATE PROJ. NO. 0802-45 (T.H. 4) | SHEET NO. 30 OF 128 SHEETS



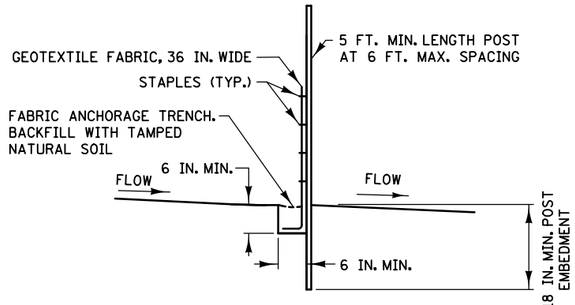


OPTIONAL METHOD

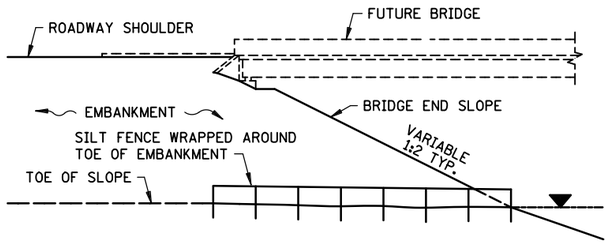
SILT FENCE TYPE HI ② (HAND INSTALLED)



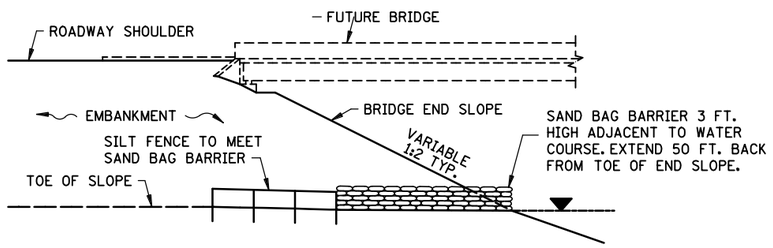
SILT FENCE TYPE MS ② (MACHINE SLICED)



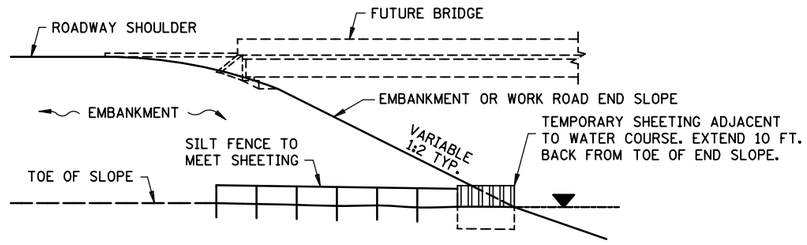
SILT FENCE TYPE PA ③ (PREASSEMBLED)



SILT FENCE ONLY ④



SILT FENCE WITH SAND BAGS ⑤



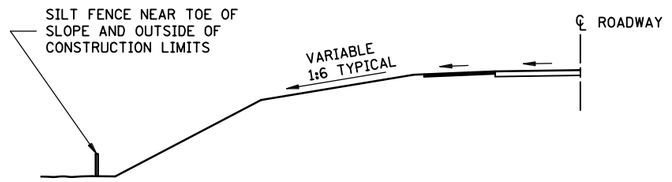
SILT FENCE WITH SHEETING ⑥

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: 2-28-2017

CHIEF ENVIRONMENTAL OFFICER

MINNESOTA DEPARTMENT OF TRANSPORTATION

STATE DESIGN ENGINEER

REVISED:

APPROVED: 2-28-2017

TEMPORARY SEDIMENT CONTROL
SILT FENCE

STANDARD PLAN 5-297.405 | 6 OF 8

STATE PROJ. NO. 0802-45 (T.H. 4)

SHEET NO. 31 OF 128 SHEETS

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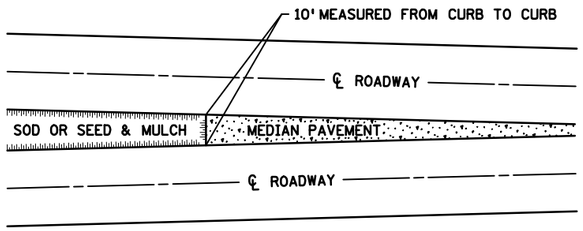
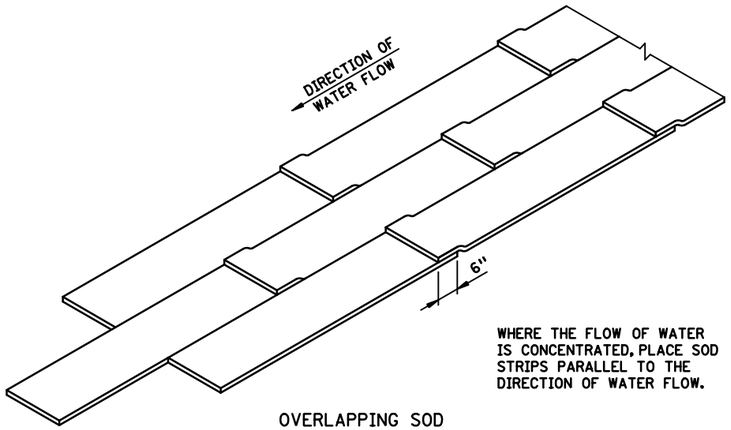
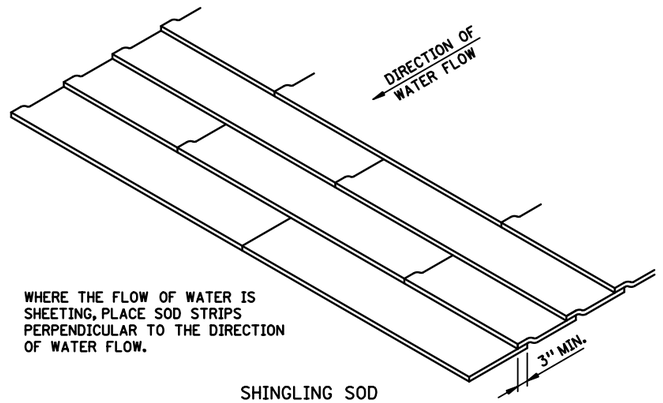


SODDING LIMITS AT GORE AREA

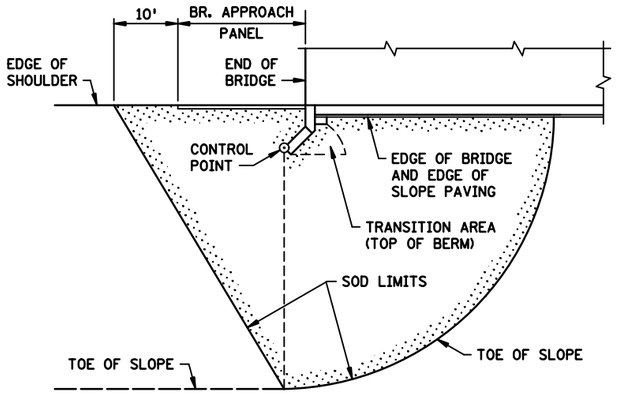


OVERLAPPING SOD

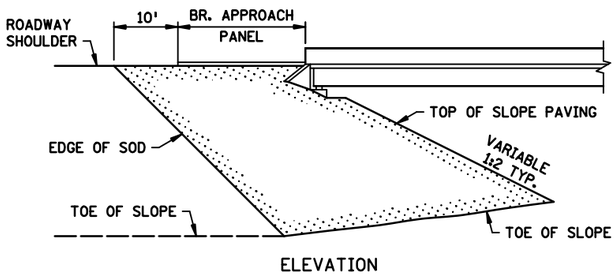


SHINGLING SOD

SPECIAL SOD PLACEMENT TECHNIQUES

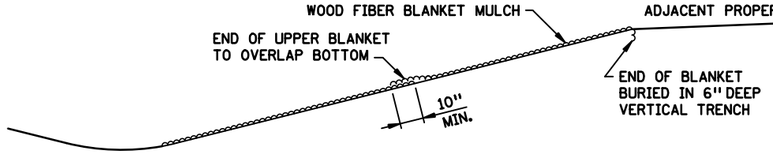


PLAN

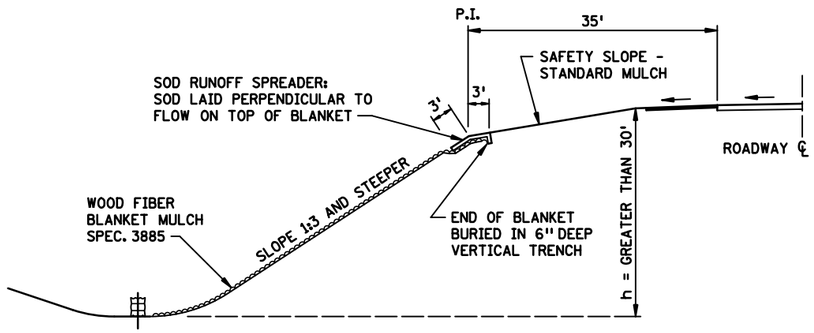


ELEVATION

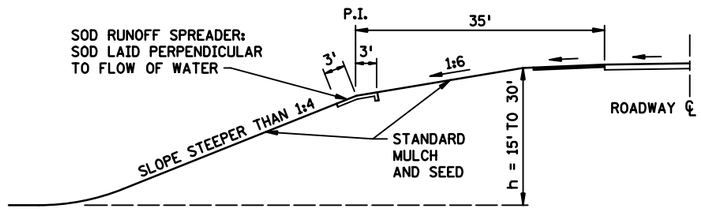
SODDING LIMITS AT BRIDGE APPROACH FILLS



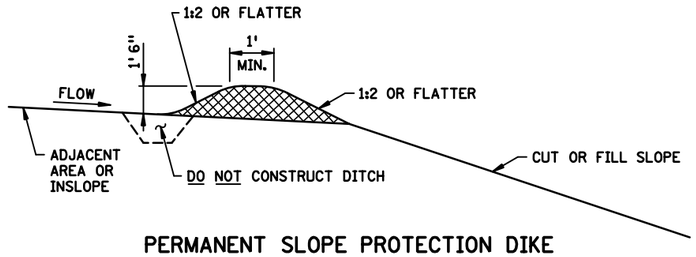
WOOD FIBER BLANKET INSTALLATION ON A CUT SLOPE



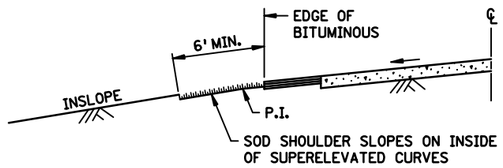
WOOD FIBER BLANKET INSTALLATION ON AN INSLOPE
(WHEN REQUIRED)



BROKEN-BACK SAFETY FILL SLOPE



PERMANENT SLOPE PROTECTION DIKE



SODDING INSLOPES OF SUPERELEVATED CURVES

REVISION:

APPROVED: 8-6-2014

CHIEF ENVIRONMENTAL OFFICER

REVISED:

APPROVED: 8-6-2014

STATE DESIGN ENGINEER

PERMANENT SEDIMENT CONTROL

ALONG ROADWAYS AND AT GORE AREAS & BRIDGE APPROACH FILLS

STANDARD PLAN 5-297.406 | 1 OF 1

STATE PROJ. NO. 0802-45 (T.H. 4) | SHEET NO. 32 OF 128 SHEETS

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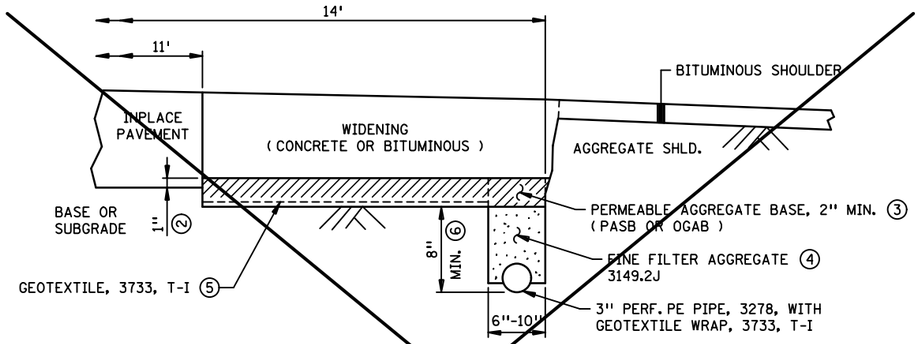


SUBSURFACE DRAIN, WIDENED PAVEMENT DESIGN WITH PAVEMENT EDGE DRAIN ①

NOTES:

① SEE SPECIAL PROVISIONS FOR MATERIAL AND CONSTRUCTION DETAILS.

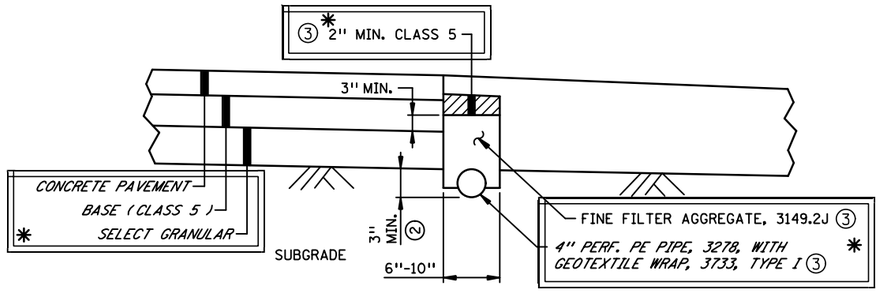
② PERMEABLE BASE SHOULD OVERLAP PAVEMENT MAXIMUM AMOUNT PERMITTED BY STRUCTURAL DESIGN, BUT BOTTOM SHOULD NOT BE ABOVE THE BOTTOM OF INPLACE PAVEMENT.

③ AS REQUIRED BY DESIGN STANDARDS.
PASB - PERMEABLE ASPHALT STABILIZED BASE.
OGAB - OPEN GRADED AGGREGATE BASE.
PAB - OPTION

④ DRAIN SHALL BE PAVEMENT EDGE DRAIN TYPE. AFTER COMPACTION, FINE FILTER AGGREGATE IN DRAIN SHALL EXTEND AT LEAST 4" ABOVE THE BOTTOM OF THE FUTURE PERMEABLE AGGREGATE BASE.

⑤ GEOTEXTILE MAY BE DELETED IF CLASS 5 OR 6 BASE EXISTS INPLACE UNDER PERMEABLE BASE.

⑥ IF CLASS 5 OR 6 BASE IS INPLACE BELOW THE PAB, BOTTOM OF PIPE SHOULD BE A MINIMUM OF 3" BELOW BASE/SUBGRADE INTERFACE OR A MINIMUM OF 8", WHICHEVER IS DEEPER.



SUBSURFACE DRAIN, PAVEMENT EDGE DRAIN TYPE ①

NOTES:

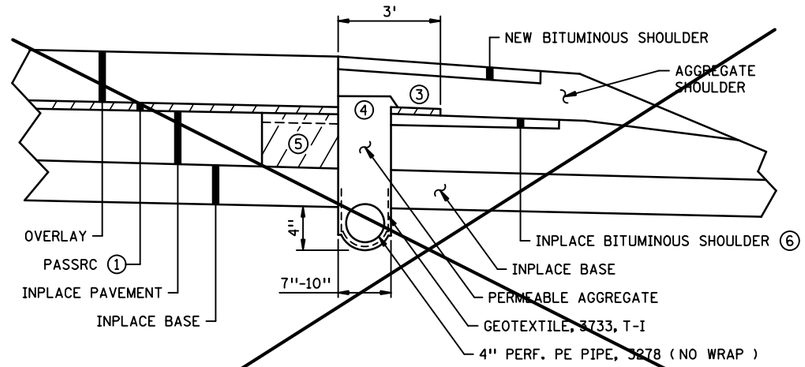
* DENOTES MODIFICATION FROM STANDARD PLAN

* - SEE STANDARD PLAN 5-297.433 (MOD) FOR ADDITIONAL DETAILS REGARDING THE SUBSURFACE DRAINS.

① SEE SPECIAL PROVISIONS FOR MATERIAL AND CONSTRUCTION DETAILS.

* ② TOP OF PIPE SHOULD BE NO HIGHER THAN THE BOTTOM OF THE CLASS 3 OR SELECT GRANULAR.

* ③ THE PERFORATED PIPE ITEM INCLUDES THE CLASS 5 AGGREGATE, FINE FILTER AGGREGATE AND THE TYPE I GEOTEXTILE WRAP.



SUBSURFACE DRAIN, PERMEABLE BASE & DRAIN USED WITH PASSRC ①②

NOTES:

① PASSRC - PERMEABLE ASPHALT STABILIZED STRESS RELIEF COURSE.

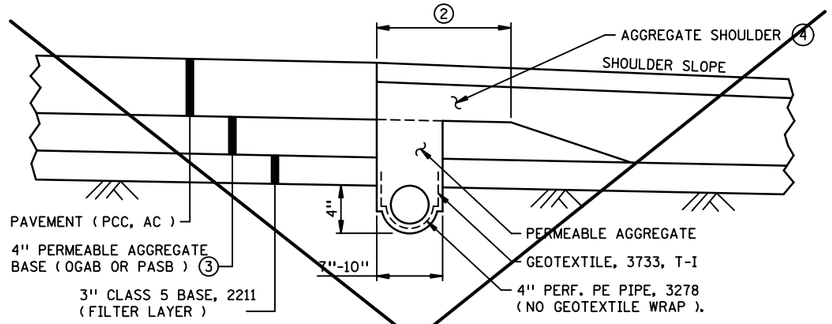
② SEE SPECIAL PROVISIONS FOR MATERIAL AND CONSTRUCTION DETAILS.

③ WIDTH AS NEEDED TO SUPPORT PAVER TRACK.

④ PERMEABLE AGGREGATE TO BE HEAPED 2" ABOVE TOP OF PASSRC AFTER COMPACTION.

⑤ INTERCEPTOR DRAINS TYPICALLY USED AT THIS LOCATION. SEE DETAIL & SPECIAL PROVISIONS IF APPLICABLE.

⑥ IF THE BITUMINOUS SHOULDER REMAINS INPLACE, THE PASSRC AND SHOULDER CAN BE REMOVED BY MILLING, TRENCHING, OR OTHER METHOD, PROVIDED THE REMAINING BITUMINOUS SHOULDER IS NOT DISTURBED/DISPLACED.



SUBSURFACE DRAIN, PERMEABLE AGGREGATE BASE TYPE ①

(RIGHT SIDE OF ROADWAY SHOWN)

NOTES:

① SEE SPECIAL PROVISIONS FOR MATERIAL AND CONSTRUCTION DETAILS. TYPICAL SECTION SHOWN IS FOR PERMEABLE ASPHALT STABILIZED BASE (PASB). DRAIN TRENCH FOR OPEN GRADED AGGREGATE BASE (OGAB) IS MOVED 6" AWAY FROM THE PAVEMENT EDGE.

② USE 36" FOR EITHER PASB OR OGAB UNDER PCC PAVEMENT. USE 12" FOR PASB UNDER AC PAVEMENT.

③ OGAB - OPEN GRADED AGGREGATE BASE.
PASB - PERMEABLE ASPHALT STABILIZED BASE.
USE PASB WITH AC PAVEMENTS.
USE PASB OR OGAB WITH PCC PAVEMENTS.

④ CLASS 3, 5 OR 6, AS SPECIFIED

MODIFIED

REVISION:

APPROVED: 8-6-2014

DIRECTOR, OFFICE OF MATERIALS AND ROAD RESEARCH

I hereby certify that this plan, specification, or report 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.

CERTIFIED BY: _____ LICENSED PROFESSIONAL ENGINEER — 10/27/2017 DATE

NAME: DAX W. KUHFUSS LIC. NO. 46620

REVISED:

APPROVED: 8-6-2014

STATE DESIGN ENGINEER

SUBSURFACE DRAINS

STANDARD PLAN 5-297.432 | 1 OF 1

STATE PROJ. NO. 0802-45 (T.H. 4) | SHEET NO. 33 OF 128 SHEETS

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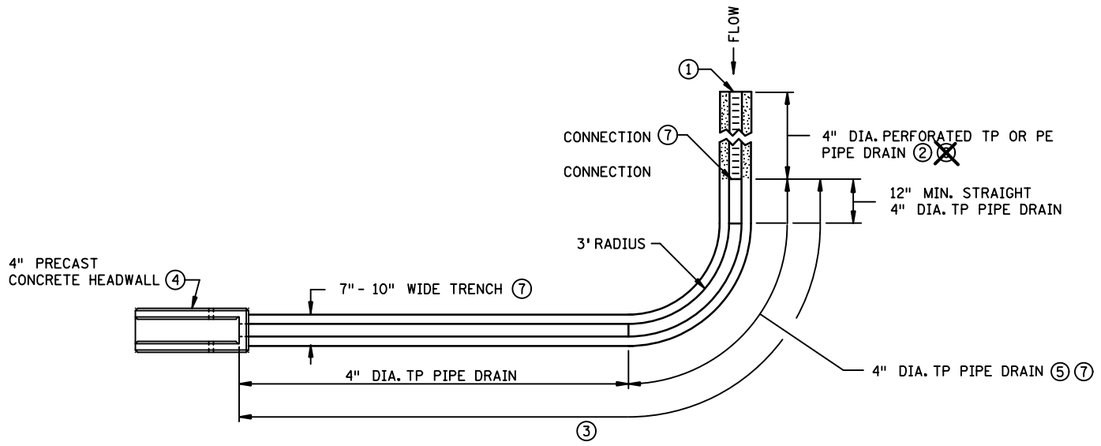
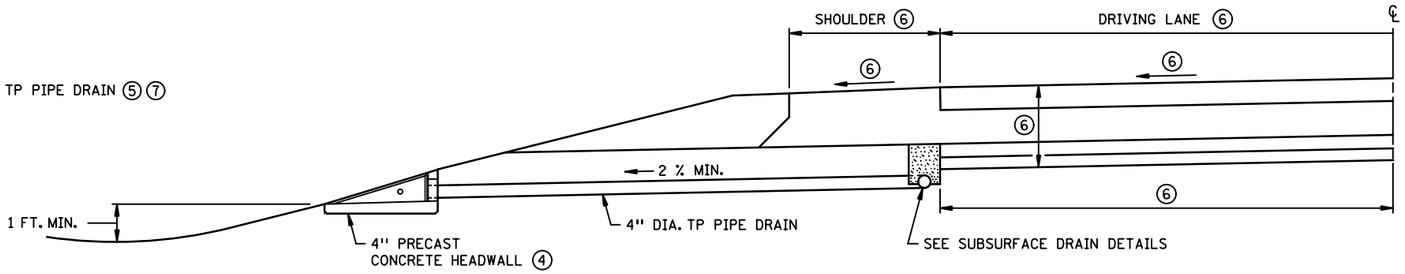


TYPICAL PLAN VIEW (SINGLE DISCHARGE) 7

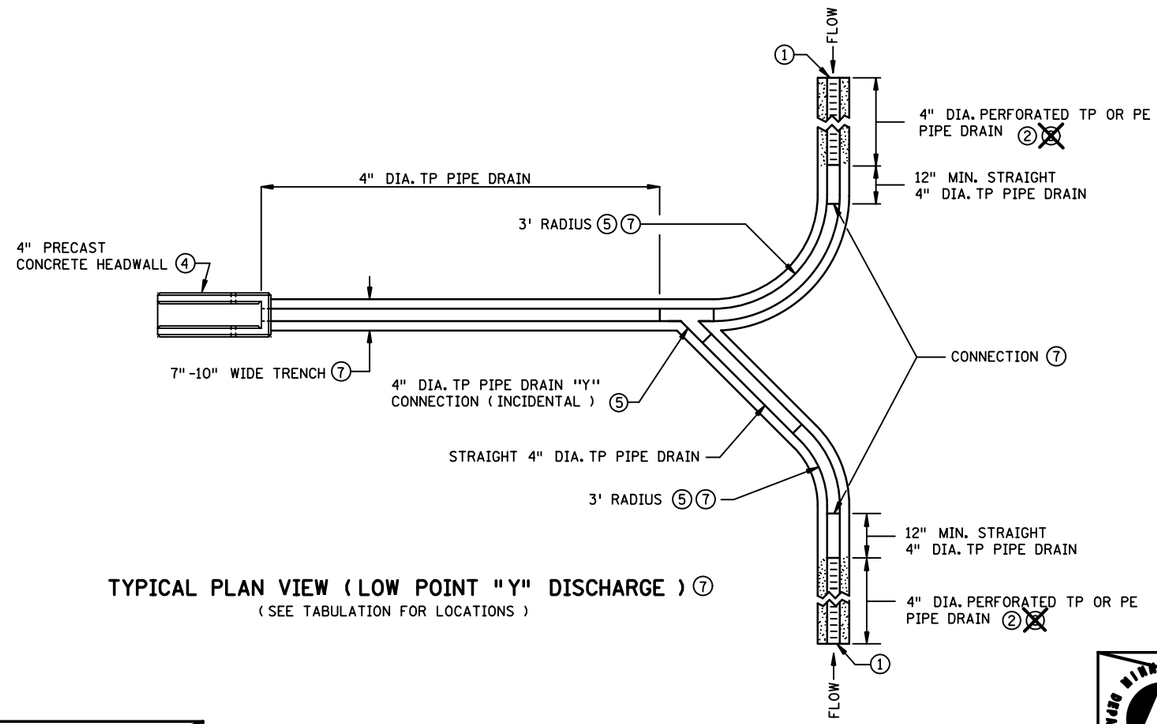
(SEE TABULATION FOR LOCATIONS)



SECTION VIEW

TYPICAL EDGE DRAIN AND DISCHARGE CROSS SECTION 7

(SEE TABULATION FOR LOCATIONS)



TYPICAL PLAN VIEW (LOW POINT "Y" DISCHARGE) 7

(SEE TABULATION FOR LOCATIONS)

NOTES:

1. THE UPSTREAM ENDS OF THE PERFORATED PIPE SHALL BE CAPPED AS APPROVED BY THE PROJECT ENGINEER, THE CAPS ARE INCIDENTAL. PLACE PERFORATED PIPE WITH THE PERFORATIONS DOWN.
2. MAXIMUM LENGTH 500 FT., EXCEPT 300 FT. MAXIMUM FOR GRADES LESS THAN 0.2% . LENGTH INCLUDED AND PAID FOR AS SPEC. 2502, 4 INCH PERFORATED TP OR PE PIPE DRAIN.
3. LENGTH INCLUDED AND PAID FOR AS SPEC. 2502, 4 INCH DIA. TP PIPE DRAIN.
4. PRECAST CONCRETE HEADWALL STANDARD PLATE 3131 PAID FOR AS SPEC. 2502, 4 INCH PRECAST CONCRETE HEADWALL.
5. DETAILS OF CONNECTION AND COUPLING TO PIPE SHALL BE APPROVED BY THE ENGINEER. PAYMENT FOR "Y " AND EXTRA CONNECTION, 11 INCH TP PIPE AND COUPLING TO BE INCIDENTAL.
6. SEE ROADWAY TYPICAL SECTIONS FOR ADDITIONAL INFORMATION.
7. SEE SPECIAL PROVISIONS FOR MATERIAL AND CONSTRUCTION DETAILS.
8. ~~3 INCH OR 4 INCH DIAMETER.~~

MODIFIED

REVISION:

APPROVED: 8-6-2014

DIRECTOR, OFFICE OF MATERIALS AND ROAD RESEARCH

I hereby certify that this plan, specification, or report 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.

CERTIFIED BY: _____ LICENSED PROFESSIONAL ENGINEER — 10/27/2017 DATE

NAME: DAX W. KUHFUSS LIC. NO. 46620

REVISED:

APPROVED: 8-6-2014

STATE DESIGN ENGINEER

SUBSURFACE DRAINS

OUTLET PIPES FOR EDGE AND SUBCUT DRAINS

~~STANDARD PLAN 5-297.433~~ | 1 OF 1

STATE PROJ. NO. 0802-45 (T.H. 4)

SHEET NO. 34 OF 128 SHEETS

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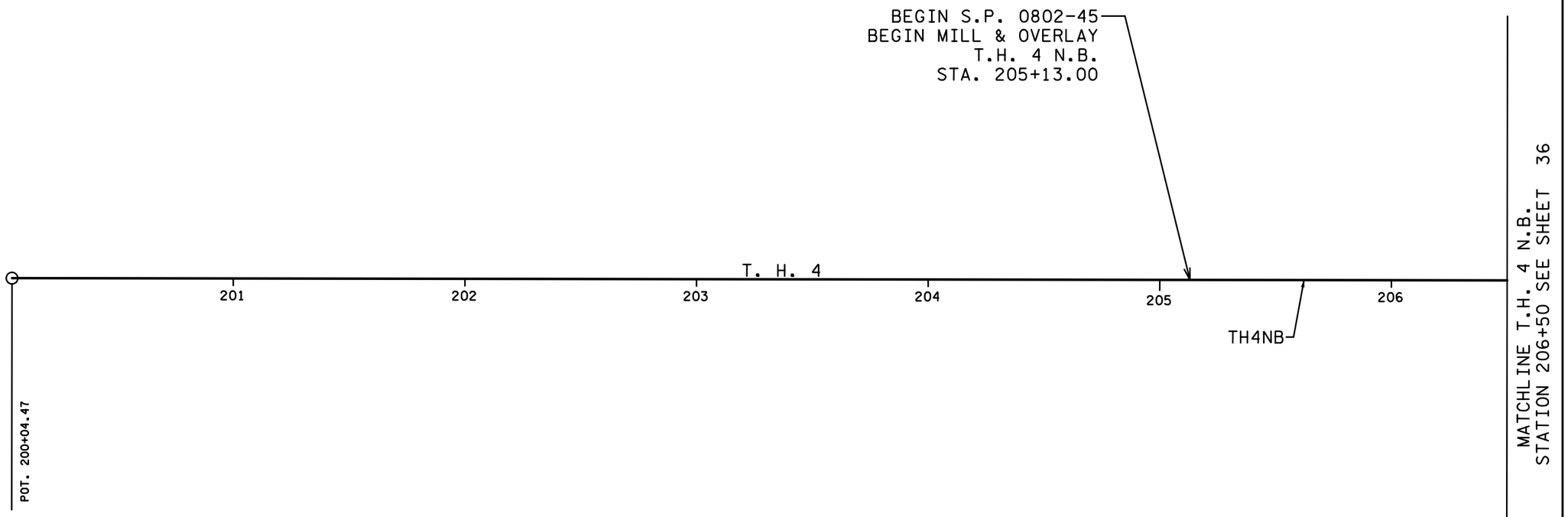

HORIZONTAL CONTROL

MINNESOTA COUNTY COORDINATE SYSTEM
DATUM NAD 83 (2011) BROWN COUNTY

50

SCALE IN FEET

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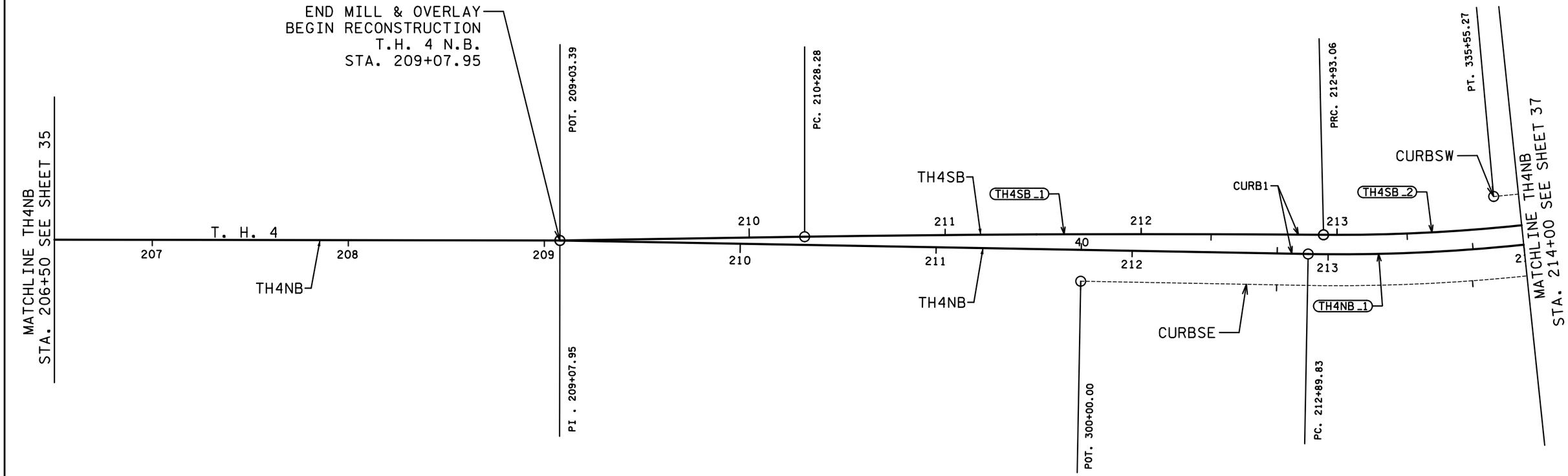
DRAWN BY: NTT	I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.	CERTIFIED BY: _____ LICENSED PROFESSIONAL ENGINEER	10/27/2017 DATE	HDR	DEPARTMENT OF TRANSPORTATION	90% PLANS - FOR REVIEW ONLY	ALIGNMENT PLAN
DESIGNED BY: NTT		NAME: NATHAN TRUEX LIC. NO. 53715				STATE PROJ. NO. 0802-45 (T.H. 4)	SHEET NO. 35 OF 128 SHEETS
CHECKED BY: DWK							



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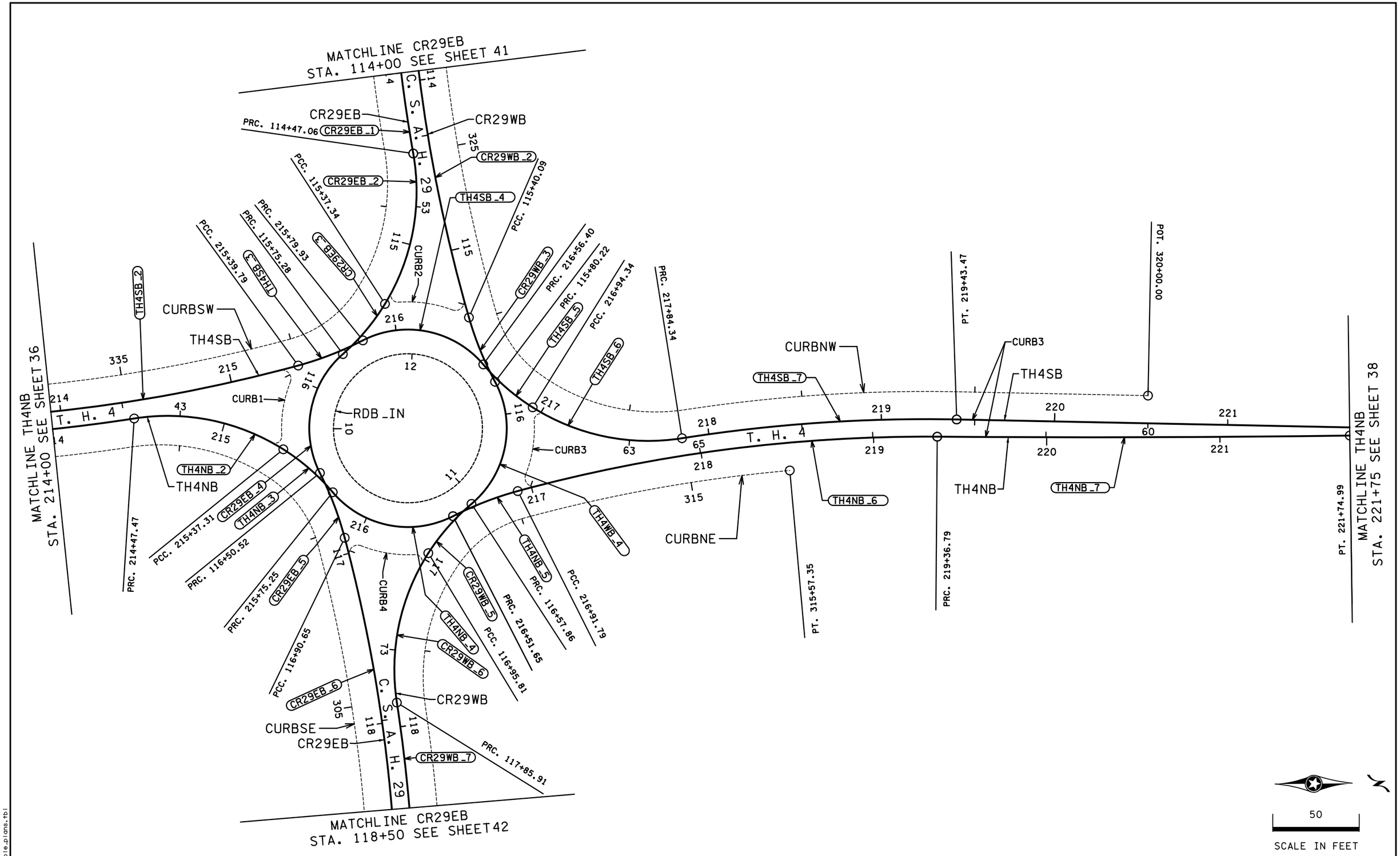
DRAWN BY: NTT	I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly licensed Professional Engineer under the laws of the State of Minnesota.	CERTIFIED BY: _____ LICENSED PROFESSIONAL ENGINEER	10/27/2017 DATE	HDR	DEPARTMENT OF TRANSPORTATION
DESIGNED BY: NTT		NAME: NATHAN TRUEX LIC. NO. 53715			
CHECKED BY: DWK					

90% PLANS - FOR REVIEW ONLY — ALIGNMENT PLAN

STATE PROJ. NO. 0802-45 (T.H. 4) — SHEET NO. 36 OF 128 SHEETS



DRAWN BY:	NTT
DESIGNED BY:	NTT
CHECKED BY:	DWK

I hereby certify that this plan, specification, or report 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.

CERTIFIED BY: _____ LICENSED PROFESSIONAL ENGINEER

NAME: NATHAN TRUEX LIC. NO. 53715

DATE: 10/27/2017

DEPARTMENT OF TRANSPORTATION

90% PLANS - FOR REVIEW ONLY — ALIGNMENT PLAN

STATE PROJ. NO. 0802-45 (T.H. 4) — SHEET NO. 37 OF 128 SHEETS

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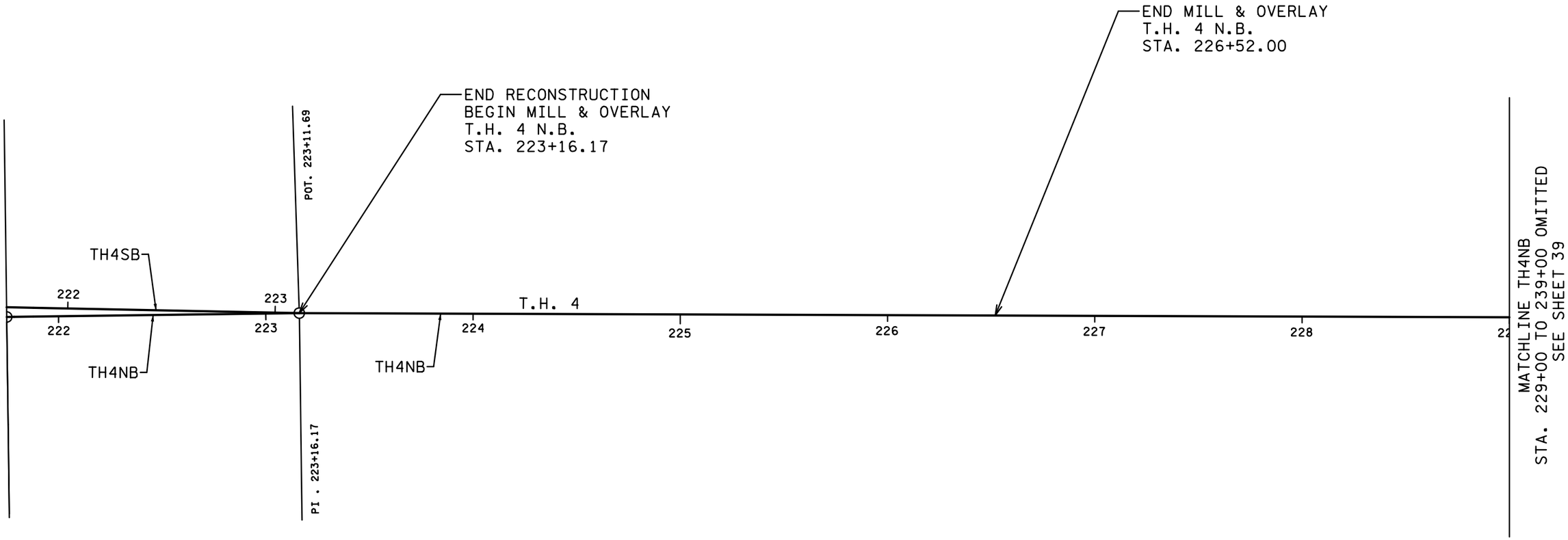

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DRAWN BY:	NTT
DESIGNED BY:	NTT
CHECKED BY:	DWK

I hereby certify that this plan, specification, or report 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.

CERTIFIED BY: _____ LICENSED PROFESSIONAL ENGINEER

NAME: NATHAN TRUEX LIC. NO. 53715

10/27/2017 DATE

HDR

DEPARTMENT OF TRANSPORTATION

90% PLANS - FOR REVIEW ONLY — ALIGNMENT PLAN

STATE PROJ. NO. 0802-45 (T.H. 4) — SHEET NO. 38 OF 128 SHEETS

MATCHLINE TH4NB
STA. 229+00 TO 239+00 OMITTED
SEE SHEET 38

239

240

241

242

243

244

245

246

TH4NB

END S.P. 0802-45
T.H. 4 N.B.
STA. 243+50.00

T.H. 4

50

SCALE IN FEET

DRAWN BY: NTT	I hereby certify that this plan, specification, or report 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.	CERTIFIED BY: _____ LICENSED PROFESSIONAL ENGINEER	10/27/2017 DATE	90% PLANS - FOR REVIEW ONLY — ALIGNMENT PLAN
DESIGNED BY: NTT		NAME: NATHAN TRUEX LIC. NO. 53715		STATE PROJ. NO. 0802-45 (T.H. 4) — SHEET NO. 39 OF 128 SHEETS
CHECKED BY: DWK				

HDR

DEPARTMENT OF TRANSPORTATION

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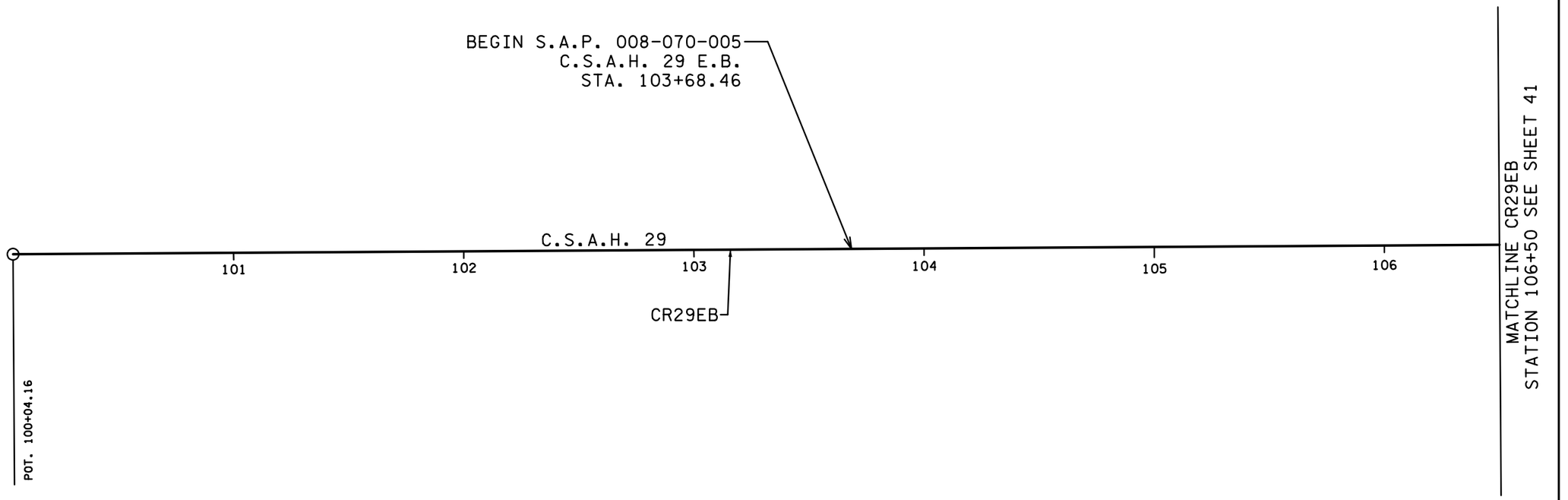

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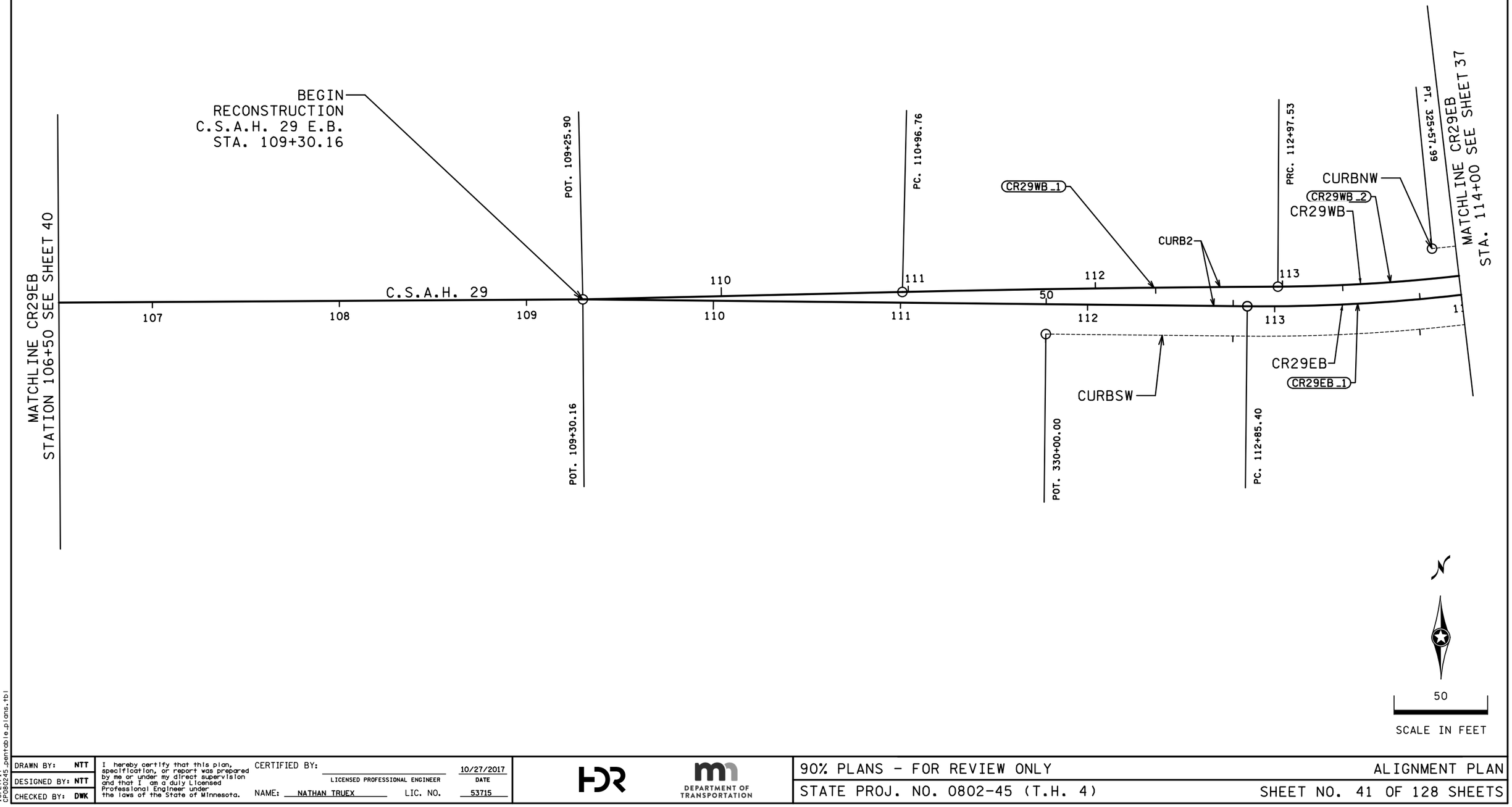
DRAWN BY: NTT	I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.	CERTIFIED BY: _____ LICENSED PROFESSIONAL ENGINEER	10/27/2017 DATE	HDR / DEPARTMENT OF TRANSPORTATION	90% PLANS - FOR REVIEW ONLY — ALIGNMENT PLAN
DESIGNED BY: NTT		NAME: NATHAN TRUEX LIC. NO. 53715			STATE PROJ. NO. 0802-45 (T.H. 4) — SHEET NO. 40 OF 128 SHEETS
CHECKED BY: DWK					



DRAWN BY: NTT	I hereby certify that this plan, specification, or report 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.	CERTIFIED BY: _____ LICENSED PROFESSIONAL ENGINEER	10/27/2017 DATE	HDR	DEPARTMENT OF TRANSPORTATION
DESIGNED BY: NTT		NAME: NATHAN TRUEX LIC. NO. 53715			
CHECKED BY: DWK					

90% PLANS - FOR REVIEW ONLY	ALIGNMENT PLAN
STATE PROJ. NO. 0802-45 (T.H. 4)	SHEET NO. 41 OF 128 SHEETS

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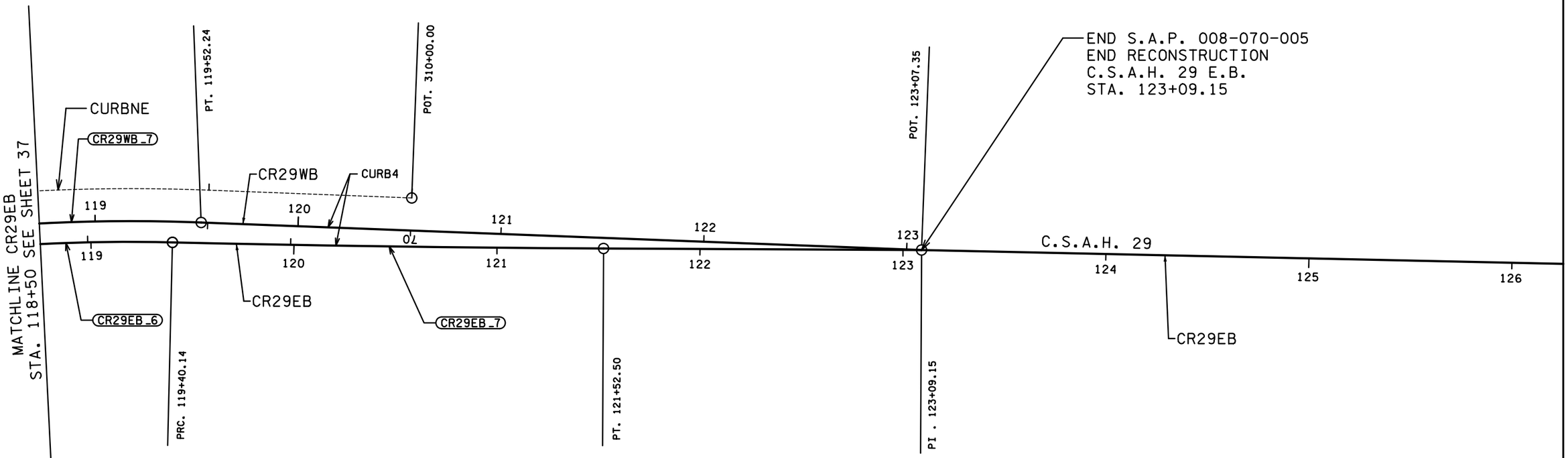

DRAWN BY: NTT	I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly licensed Professional Engineer under the laws of the State of Minnesota.	CERTIFIED BY: _____ LICENSED PROFESSIONAL ENGINEER	10/27/2017 DATE	HDR / DEPARTMENT OF TRANSPORTATION	90% PLANS - FOR REVIEW ONLY — ALIGNMENT PLAN
DESIGNED BY: NTT		NAME: NATHAN TRUEX LIC. NO. 53715			STATE PROJ. NO. 0802-45 (T.H. 4) — SHEET NO. 42 OF 128 SHEETS
CHECKED BY: DWK					

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ALIGNMENT TABULATION

POINT/ CURVE NUMBER	POINT	STATION	CURVE DATA					COORDINATES		AZIMUTH
			DELTA	DEGREE	RADIUS	TANGENT	LENGTH	X	Y	
TH4NB (T.H. 4 N. B.)										
	POT	200+04.470						502,094.7590	193,670.5990	
	POT	209+07.950						502,102.7414	194,574.0438	
	PC	212+89.828						502,112.4784	194,955.7971	N 1° 27' 39.84" E
TH4NB_1	PI	213+68.848	10° 00' 47.82" LT	6° 21' 07.50"	902.000'	79.020'	157.638'	502,114.4932	195,034.7916	PI
	CC							501,210.7717	194,978.7960	
	PRC	214+47.465						502,102.7421	195,112.9331	N 8° 33' 07.98" W
TH4NB_2	PI	214+94.425	41° 10' 48.80" RT	45° 50' 11.84"	125.000'	46.960'	89.841'	502,095.7587	195,159.3707	PI
	CC							502,226.3522	195,131.5219	
	PCC	215+37.307						502,121.0786	195,198.9197	N 32° 37' 40.82" E
TH4NB_3	PI	215+56.425	17° 23' 28.69" RT	45° 50' 11.85"	125.000'	19.118'	37.942'	502,131.3867	195,215.0207	PI
	CC							502,226.3522	195,131.5219	
	PRC	215+75.249						502,146.0360	195,227.3045	N 50° 01' 09.51" E
TH4NB_4	PI	216+20.428	76° 48' 06.97" LT	100° 31' 08.08"	57.000'	45.179'	76.405'	502,180.6551	195,256.3335	PI
	CC							502,109.4118	195,270.9814	
	PRC	216+51.654						502,160.2970	195,296.6660	N 26° 46' 57.46" W
TH4NB_5	PI	216+71.793	11° 56' 46.14" RT	29° 46' 01.06"	192.481'	20.139'	40.132'	502,151.2222	195,314.6447	PI
	CC							502,332.1292	195,383.3993	
	PCC	216+91.786						502,146.0653	195,334.1124	N 14° 50' 11.32" W
TH4NB_6	PI	218+15.054	15° 37' 55.91" RT	6° 22' 49.35"	898.000'	123.268'	245.004'	502,114.5012	195,453.2705	PI
	CC							503,014.1268	195,564.0554	
	PRC	219+36.791						502,116.2131	195,576.5264	N 0° 47' 44.59" E
TH4NB_7	PI	220+55.896	1° 11' 27.71" LT	0° 30' 00.03"	11,458.993'	119.106'	238.203'	502,117.8672	195,695.6205	PI
	CC							490,658.3249	195,735.6632	
	PT	221+74.993						502,117.0454	195,814.7232	N 0° 23' 43.11" W
	POT	223+16.174						502,116.0714	195,955.9005	
	POT	251+93.06						502,144.1657	198,832.6467	
TH4SB (T.H. 4 S. B.)										
	POT	209+03.390						502,102.7414	194,574.0438	
	PC	210+28.284						502,101.7635	194,698.9345	N 0° 26' 55.01" W
TH4SB_1	PI	211+60.679	1° 19' 26.08" RT	0° 30' 00.02"	11,459.000'	132.395'	264.778'	502,100.7269	194,831.3255	PI
	CC							513,560.4123	194,788.6553	
	PRC	212+93.063						502,102.7494	194,963.7051	N 0° 52' 31.06" E
TH4SB_2	PI	214+17.211	15° 44' 32.81" LT	6° 22' 49.35"	898.000'	124.148'	246.732'	502,104.6459	195,087.8388	PI
	CC							501,204.8542	194,977.4231	
	PCC	215+39.795						502,072.7921	195,207.8308	N 14° 52' 01.74" W
TH4SB_3	PI	215+59.934	11° 56' 46.11" LT	29° 46' 00.87"	192.481'	20.139'	40.132'	502,067.6249	195,227.2958	PI
	CC							501,886.7543	195,158.4442	
	PRC	215+79.927						502,058.5404	195,245.2696	N 26° 48' 47.86" W
TH4SB_4	PI	216+25.159	76° 52' 00.00" RT	100° 31' 08.08"	57.000'	45.232'	76.470'	502,038.1371	195,285.6380	PI
	CC							502,109.4118	195,270.9814	
	PRC	216+56.397						502,072.8136	195,314.6801	N 50° 03' 12.15" E
TH4SB_5	PI	216+75.515	17° 23' 28.69" LT	45° 50' 11.84"	125.000'	19.118'	37.942'	502,087.4703	195,326.9552	PI
	CC							501,992.5544	195,410.5104	
	PCC	216+94.339						502,097.7879	195,343.0500	N 32° 39' 43.46" E
TH4SB_6	PI	217+41.392	41° 15' 19.63" LT	45° 50' 11.85"	125.000'	47.053'	90.005'	502,123.1819	195,382.6628	PI
	CC							501,992.5544	195,410.5104	
	PRC	217+84.344						502,116.1511	195,429.1881	N 8° 35' 36.16" W
TH4SB_7	PI	218+64.114	10° 06' 27.91" RT	6° 21' 07.50"	902.000'	79.770'	159.125'	502,104.2319	195,508.0620	PI
	CC							503,008.0250	195,563.9659	

ALIGNMENT TABULATION

POINT/ CURVE NUMBER	POINT	STATION	CURVE DATA					COORDINATES		AZIMUTH
			DELTA	DEGREE	RADIUS	TANGENT	LENGTH	X	Y	
TH4SB (T.H. 4 S. B.) CONT.										
	PT	219+43.469						502,106.3400	195,587.8037	N 1° 30' 51.75" E
	POT	223+11.695						502,116.0714	195,955.9005	
CR29EB (C.S.A.H. 29 E. B.)										
	POT	100+04.160						500,508.7020	195,260.0640	
	POT	109+30.160						501,434.6834	195,265.9254	
	PC	112+85.405						501,789.9094	195,262.2538	S 89° 24' 28.15" E
CR29EB_1	PI	113+66.448	10° 16' 05.89" LT	6° 21' 07.50"	902.000'	81.043'	161.653'	501,870.9484	195,261.4162	PI
	CC							501,799.2319	196,164.2057	
	PRC	114+47.058						501,950.8388	195,275.0379	N 80° 19' 25.95" E
CR29EB_2	PI	114+94.271	41° 23' 01.76" RT	45° 50' 11.84"	125.000'	47.213'	90.285'	501,997.3805	195,282.9734	PI
	CC							501,971.8486	195,151.8162	
	PCC	115+37.343						502,037.5468	195,258.1587	S 58° 17' 32.29" E
CR29EB_3	PI	115+56.461	17° 23' 28.69" RT	45° 50' 11.84"	125.000'	19.118'	37.942'	502,053.8113	195,248.1106	PI
	CC							501,971.8486	195,151.8162	
	PRC	115+75.285						502,066.3288	195,233.6604	S 40° 54' 03.60" E
CR29EB_4	PI	116+19.518	75° 37' 26.15" LT	100° 31' 08.08"	57.000'	44.233'	75.234'	502,095.2904	195,200.2274	PI
	CC							502,109.4118	195,270.9814	
	PRC	116+50.518						502,134.8673	195,219.9812	N 63° 28' 30.25" E
CR29EB_5	PI	116+70.658	11° 56' 46.15" RT	29° 46' 01.11"	192.481'	20.139'	40.132'	502,152.8866	195,228.9751	PI
	CC							502,220.8269	195,047.7607	
	PCC	116+90.651						502,172.3773	195,234.0443	N 75° 25' 16.39" E
CR29EB_6	PI	118+16.204	15° 55' 05.94" RT	6° 22' 49.35"	898.000'	125.553'	249.489'	502,293.8878	195,265.6474	PI
	CC							502,398.4138	194,364.9574	
	PRC	119+40.139						502,419.4065	195,262.7123	S 88° 39' 37.67" E
CR29EB_7	PI	120+46.321	1° 03' 42.46" LT	0° 30' 00.03"	11,458.991'	106.181'	212.356'	502,525.5585	195,260.2301	PI
	CC							502,687.2856	206,718.5721	
	PT	121+52.495						502,631.7382	195,259.7154	S 89° 43' 20.13" E
	POT	123+09.146						502,788.3871	195,258.9560	
	POT	132+30.44						503,709.4720	195,239.1380	

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DRAWN BY: NTT
DESIGNED BY: NTT
CHECKED BY: DWK

I hereby certify that this plan, specification, or report 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.

CERTIFIED BY: _____ LICENSED PROFESSIONAL ENGINEER

NAME: NATHAN TRUEX LIC. NO. 53715

10/27/2017 DATE

HDR

DEPARTMENT OF TRANSPORTATION

90% PLANS - FOR REVIEW ONLY

ALIGNMENT TABULATION

STATE PROJ. NO. 0802-45 (T.H. 4)

SHEET NO. 43 OF 128 SHEETS

ALIGNMENT TABULATION

POINT/ CURVE NUMBER	POINT	STATION	CURVE DATA					COORDINATES		AZIMUTH
			DELTA	DEGREE	RADIUS	TANGENT	LENGTH	X	Y	
CR29WB (C.S.A.H. 29 W. B.)										
	POT	109+25.900						501,434.6834	195,265.9254	
	PC	110+96.765						501,605.5032	195,269.8537	N 88° 40' 57.49" E
CR29WB_1	PI	111+97.151	1° 00' 13.86" RT	0° 30' 00.02"	11,459.000'	100.386'	200.767'	501,705.8629	195,272.1616	PI
	CC							501,868.9494	183,813.8824	
	PRC	112+97.532						501,806.2476	195,272.7109	N 89° 41' 11.35" E
CR29WB_2	PI	114+19.552	15° 28' 32.83" LT	6° 22' 49.35"	898.000'	122.019'	242.553'	501,928.2648	195,273.3785	PI
	CC							501,801.3337	196,170.6974	
	PCC	115+40.085						502,045.6801	195,306.5800	N 74° 12' 38.52" E
CR29WB_3	PI	115+60.224	11° 56' 46.11" LT	29° 46' 00.89"	192.481'	20.139'	40.132'	502,065.0593	195,312.0599	PI
	CC							501,993.3058	195,491.7989	
	PRC	115+80.217						502,082.8846	195,321.4324	N 62° 15' 52.41" E
CR29WB_4	PI	116+26.415	78° 02' 53.00" RT	100° 31' 08.06"	57.000'	46.197'	77.645'	502,123.7741	195,342.9322	PI
	CC							502,109.4118	195,270.9814	
	PRC	116+57.863						502,153.2756	195,307.3815	S 39° 41' 14.60" E
CR29WB_5	PI	116+76.981	17° 23' 28.69" LT	45° 50' 11.87"	125.000'	19.118'	37.942'	502,165.4843	195,292.6695	PI
	CC							502,249.4681	195,387.2063	
	PCC	116+95.805						502,181.5323	195,282.2791	S 57° 04' 43.29" E
CR29WB_6	PI	117+42.913	41° 17' 58.95" LT	45° 50' 11.84"	125.000'	47.109'	90.102'	502,221.0761	195,256.6762	PI
	CC							502,249.4681	195,387.2063	
	PRC	117+85.907						502,267.6819	195,263.5404	N 81° 37' 17.76" E
CR29WB_7	PI	118+69.311	10° 33' 56.97" RT	6° 21' 07.50"	902.000'	83.405'	166.336'	502,350.1965	195,275.6933	PI
	CC							502,399.1124	194,371.1672	
	PT	119+52.243						502,433.5404	195,272.5099	S 87° 48' 45.27" E
	POT	123+07.348						502,788.3871	195,258.9560	
RDB_IN										
	POT	10+00.00						502,109.4118	195,227.9814	
	PC	10+00.00						502,109.4118	195,227.9814	N 89° 59' 11.99" E
CR29WB_1	PI	10+00.01	359° 59' 11.99" LT	133° 14' 45.60"	43.000'	0.005'	270.167'	502,109.4068	195,227.9814	PI
	PT							502,109.4018	195,227.9814	

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DESIGNED BY: NTT		NAME: NATHAN TRUEX LIC. NO. 53715			
CHECKED BY: DWK					

BEGIN S.P. 0802-45
BEGIN MILL & OVERLAY
T.H. 4 N.B.
STA. 205+13.00

E 502000
N 194200

T. H. 4

201 202 203 204 205 206

TH4NB

MATCHLINE TH4NB
STA. 206+50 SEE SHEET 46

E 502200
N 194200

T-BUR
P-BU
T-BUR
F/O -BUR

LEGEND

INPLACE R/W	CULVERT
TEMPORARY EASEMENT	F/O -BUR — BURIED FIBER OPTIC
R/W	P-BUR — BURIED POWER
CONSTRUCTION LIMITS	OHU — OVERHEAD POWER
POWER POLES	T-BUR — BURIED TELEPHONE
ANCHOR	TV-BUR — BURIED TV
PEDESTAL	OVERHEAD POWER

50
SCALE IN FEET

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DESIGNED BY:	NTT
CHECKED BY:	DWK

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CERTIFIED BY: _____ LICENSED PROFESSIONAL ENGINEER

NAME: NATHAN TRUEX LIC. NO. 53715

10/27/2017 DATE

HDR

DEPARTMENT OF TRANSPORTATION

90% PLANS - FOR REVIEW ONLY

INPLACE TOPOGRAPHIC AND UTILITY PLAN

STATE PROJ. NO. 0802-45 (T.H. 4)

SHEET NO. 45 OF 128 SHEETS

END MILL & OVERLAY
BEGIN RECONSTRUCTION
T.H. 4 N.B.
STA. 209+07.95

CONSTRUCTION LIMITS

MATCHLINE TH4NB
STA. 206+50 SEE SHEET 45

MATCHLINE TH4NB
STA. 214+00 SEE SHEET 47

T. H. 4

TH4SB

TH4NB

TH4NB

CONSTRUCTION LIMITS

E 502000 N 194400
E 502000 N 194600
E 502000 N 194800
E 502000 N 195000
E 502200 N 194400
E 502200 N 194600
E 502200 N 194800
E 502200 N 195000

207 208 209 210 211 212 213

P-BUR T-BUR F/O-BUR TV-BUR

LEGEND

- INPLACE R/W
- TEMPORARY EASEMENT
- R/W
- CONSTRUCTION LIMITS
- POWER POLES
- ANCHOR
- PEDESTAL
- CULVERT
- F/O-BUR — BURIED FIBER OPTIC
- P-BUR — BURIED POWER
- OHU — OVERHEAD POWER
- T-BUR — BURIED TELEPHONE
- TV-BUR — BURIED TV
- OVERHEAD POWER

50
SCALE IN FEET

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DESIGNED BY:	NTT
CHECKED BY:	DWK

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10/27/2017 DATE

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DEPARTMENT OF TRANSPORTATION

90% PLANS - FOR REVIEW ONLY

INPLACE TOPOGRAPHIC AND UTILITY PLAN

STATE PROJ. NO. 0802-45 (T.H. 4)

SHEET NO. 46 OF 128 SHEETS

MATCHLINE CR29EB
STA. 114+00 SEE SHEET 51

MATCHLINE TH4NB
STA. 214+00 SEE SHEET 46

MATCHLINE TH4NB
STA. 221+75 SEE SHEET 48

MATCHLINE CR29EB
STA. 118+50 SEE SHEET52

CR29EB

CR29WB

TH4SB

TH4NB

CONSTRUCTION LIMITS

E 502000 N 195100

E 502000 N 195400

E 502000 N 195600

E 502200 N 195100

E 502200 N 195400

E 502200 N 195600

LEGEND

INPLACE R/W	CULVERT
TEMPORARY EASEMENT	F/O-BUR — BURIED FIBER OPTIC
R/W	P-BUR — BURIED POWER
CONSTRUCTION LIMITS	OHU — OVERHEAD POWER
POWER POLES	T-BUR — BURIED TELEPHONE
ANCHOR	TV-BUR — BURIED TV
PEDESTAL	OVERHEAD POWER

50

SCALE IN FEET

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DRAWN BY:	NTT
DESIGNED BY:	NTT
CHECKED BY:	DWK

I hereby certify that this plan, specification, or report 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.

CERTIFIED BY: _____ LICENSED PROFESSIONAL ENGINEER

NAME: NATHAN TRUEX LIC. NO. 53715

DATE 10/27/2017

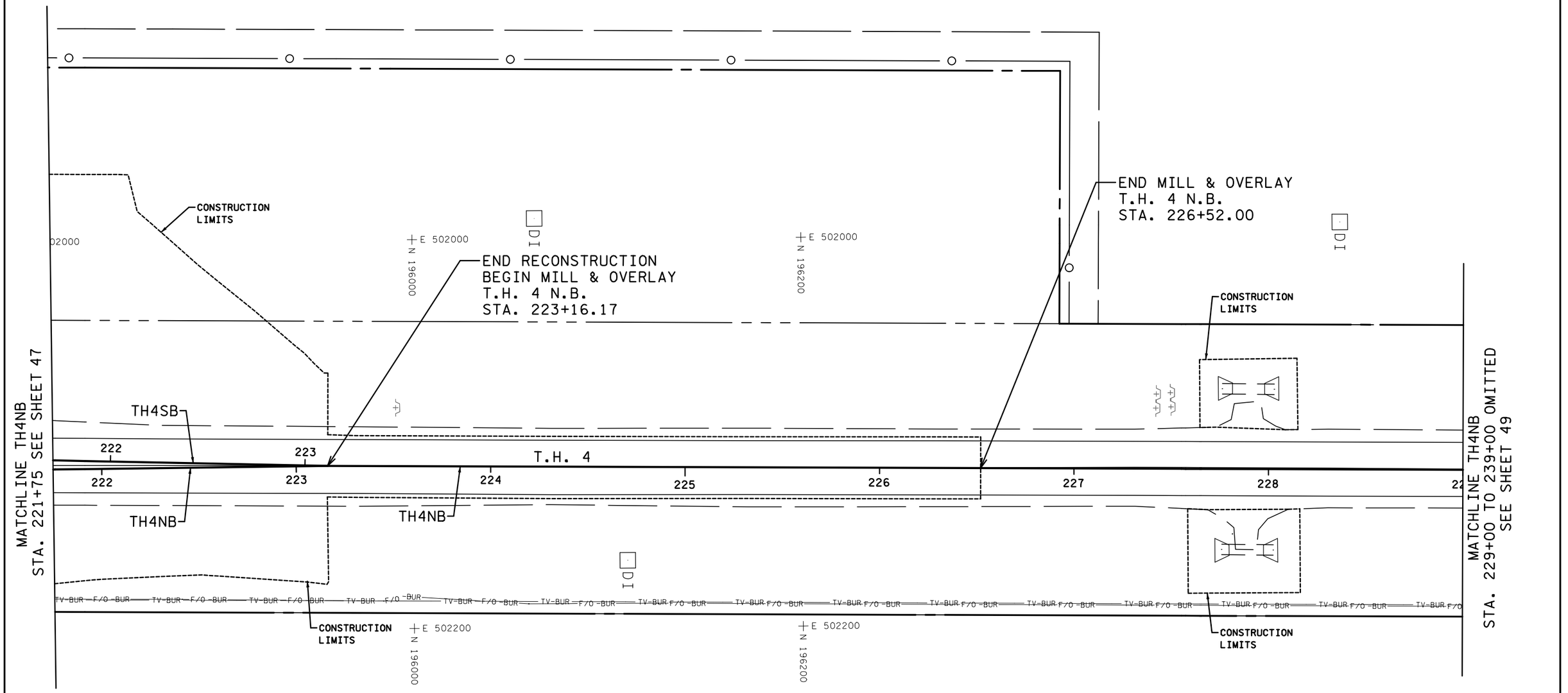
DEPARTMENT OF TRANSPORTATION

90% PLANS - FOR REVIEW ONLY

INPLACE TOPOGRAPHIC AND UTILITY PLAN

STATE PROJ. NO. 0802-45 (T.H. 4)

SHEET NO. 47 OF 128 SHEETS



LEGEND

INPLACE R/W	CULVERT
TEMPORARY EASEMENT	F/O -BUR — BURIED FIBER OPTIC
R/W	P-BUR — BURIED POWER
CONSTRUCTION LIMITS	OHU — OVERHEAD POWER
POWER POLES	T-BUR — BURIED TELEPHONE
ANCHOR	TV-BUR — BURIED TV
PEDESTAL	OVERHEAD POWER

50

SCALE IN FEET

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CP080245_pentable_plans.tbl

DRAWN BY:	NTT
DESIGNED BY:	NTT
CHECKED BY:	DWK

I hereby certify that this plan, specification, or report 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.

CERTIFIED BY: _____ LICENSED PROFESSIONAL ENGINEER — 10/27/2017 DATE

NAME: NATHAN TRUEX LIC. NO. 53715

HDR

DEPARTMENT OF TRANSPORTATION

90% PLANS - FOR REVIEW ONLY

INPLACE TOPOGRAPHIC AND UTILITY PLAN

STATE PROJ. NO. 0802-45 (T.H. 4)

SHEET NO. 48 OF 128 SHEETS

E 502000
N 197600

P-BUR

END S.P. 0802-45
T.H. 4 N.B.
STA. 243+50.00

CONSTRUCTION LIMITS

CONSTRUCTION LIMITS

T.H. 4

239 240 241 242 243 244 245 246

TH4NB

MATCHLINE TH4NB
STA. 229+00 TO 239+00 OMITTED
SEE SHEET 48

E 502200
N 197600

CONSTRUCTION LIMITS

CONSTRUCTION LIMITS

TV-BUR F/O -BUR

LEGEND

INPLACE R/W	CULVERT
TEMPORARY EASEMENT	F/O -BUR — BURIED FIBER OPTIC
R/W	P-BUR — BURIED POWER
CONSTRUCTION LIMITS	OHU — OVERHEAD POWER
POWER POLES	T-BUR — BURIED TELEPHONE
ANCHOR	TV-BUR — BURIED TV
PEDESTAL	OVERHEAD POWER

50
SCALE IN FEET

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CP080245_pentable_plans.tbl

DRAWN BY:	NTT
DESIGNED BY:	NTT
CHECKED BY:	DWK

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CERTIFIED BY: _____ LICENSED PROFESSIONAL ENGINEER

NAME: NATHAN TRUEX LIC. NO. 53715

10/27/2017 DATE

HDR

DEPARTMENT OF TRANSPORTATION

90% PLANS - FOR REVIEW ONLY

INPLACE TOPOGRAPHIC AND UTILITY PLAN

STATE PROJ. NO. 0802-45 (T.H. 4)

SHEET NO. 49 OF 128 SHEETS

E 500400
N 195400

E 500600
N 195400

E 500800
N 195400

E 501000
N 195400

BEGIN S.A.P. 008-070-005
C.S.A.H. 29 E.B.
STA. 103+68.46

C.S.A.H. 29

101 102 103 104 105 106

GRAVEL

CR29EB

MATCHLINE CR29EB
STATION 106+50 SEE SHEET 51

E 500400
N 195200

E 500600
N 195200

E 500800
N 195200

CONSTRUCTION LIMITS

CONSTRUCTION LIMITS

E 501000
N 195100

LEGEND

INPLACE R/W	CULVERT
TEMPORARY EASEMENT	F/O -BUR — BURIED FIBER OPTIC
R/W	P-BUR — BURIED POWER
CONSTRUCTION LIMITS	OHU — OVERHEAD POWER
POWER POLES	T-BUR — BURIED TELEPHONE
ANCHOR	TV-BUR — BURIED TV
PEDESTAL	OVERHEAD POWER

N

50

SCALE IN FEET

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CP080245_pentable_plans.tbl

DRAWN BY: NTT
DESIGNED BY: NTT
CHECKED BY: DWK

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CERTIFIED BY: _____ LICENSED PROFESSIONAL ENGINEER — 10/27/2017 DATE

NAME: NATHAN TRUEX LIC. NO. 53715

HDR

DEPARTMENT OF TRANSPORTATION

90% PLANS - FOR REVIEW ONLY

INPLACE TOPOGRAPHIC AND UTILITY PLAN

STATE PROJ. NO. 0802-45 (T.H. 4)

SHEET NO. 50 OF 128 SHEETS

E 501200
N 195400
E 501400
N 195400
E 501600
N 195400
E 501800
N 195400

BEGIN
RECONSTRUCTION
C.S.A.H. 29 E.B.
STA. 109+30.16

CONSTRUCTION
LIMITS

MATCHLINE CR29EB
STA. 114+00 SEE SHEET 47

CR29WB

GRAVEL

C.S.A.H. 29

BIT

107 108 109 110 111 112 113

50

CR29EB

DI

MATCHLINE CR29EB
STATION 106+50 SEE SHEET 50

CONSTRUCTION
LIMITS

E 501200
N 195100
E 501600
N 195100
E 501800
N 195100

LEGEND

INPLACE R/W	CULVERT
TEMPORARY EASEMENT	F/O -BUR- BURIED FIBER OPTIC
R/W	P-BUR BURIED POWER
CONSTRUCTION LIMITS	OHU OVERHEAD POWER
POWER POLES	T-BUR BURIED TELEPHONE
ANCHOR	TV-BUR BURIED TV
PEDESTAL	OVERHEAD POWER

N

50

SCALE IN FEET

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CP080245_pentable_plans.tbl

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DESIGNED BY:	NTT
CHECKED BY:	DWK

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CERTIFIED BY: _____ LICENSED PROFESSIONAL ENGINEER

NAME: NATHAN TRUEX LIC. NO. 53715

10/27/2017 DATE

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DEPARTMENT OF TRANSPORTATION

90% PLANS - FOR REVIEW ONLY

INPLACE TOPOGRAPHIC AND UTLITY PLAN

STATE PROJ. NO. 0802-45 (T.H. 4)

SHEET NO. 51 OF 128 SHEETS

E 502400
N 195400

E 502600
N 195400

E 502800
N 195400

E 503000
N 195400

CONSTRUCTION LIMITS

END S.A.P. 008-070-005
END RECONSTRUCTION
C.S.A.H. 29 E.B.
STA. 123+09.15

CR29WB

CR29EB

C.S.A.H. 29

MATCHLINE CR29EB
STA. 118+50 SEE SHEET 47

CONSTRUCTION LIMITS

119 120 121 122 123 124 125 126

OHU

T-BUR

E 502400
N 195100

E 502800
N 195100

E 503000
N 195100

LEGEND

INPLACE R/W	CULVERT
TEMPORARY EASEMENT	F/O -BUR- BURIED FIBER OPTIC
R/W	P-BUR BURIED POWER
CONSTRUCTION LIMITS	OHU OVERHEAD POWER
POWER POLES	T-BUR BURIED TELEPHONE
ANCHOR	TV-BUR BURIED TV
PEDESTAL	OVERHEAD POWER

N

50

SCALE IN FEET

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DRAWN BY:	NTT
DESIGNED BY:	NTT
CHECKED BY:	DWK

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CERTIFIED BY: _____ LICENSED PROFESSIONAL ENGINEER

NAME: NATHAN TRUEX LIC. NO. 53715

DATE 10/27/2017

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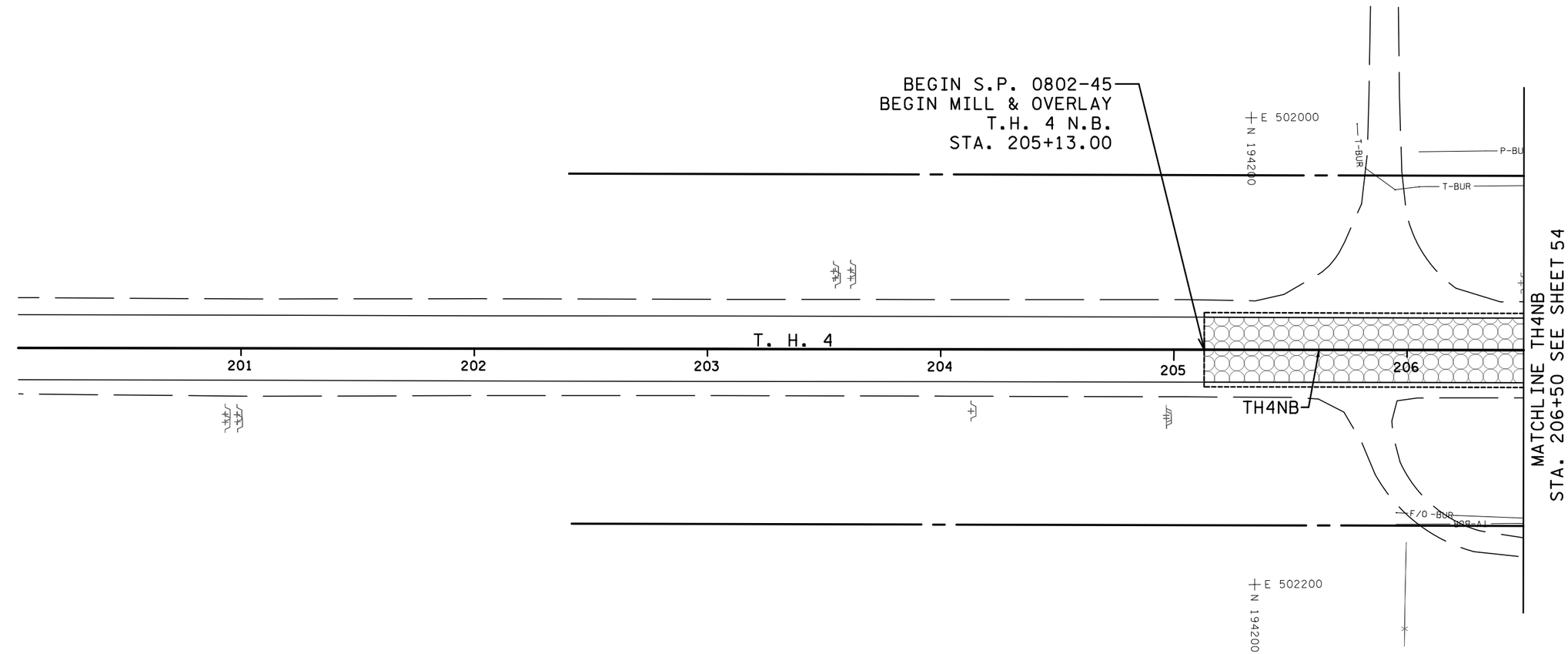
DEPARTMENT OF TRANSPORTATION

90% PLANS - FOR REVIEW ONLY

INPLACE TOPOGRAPHIC AND UTILITY PLAN

STATE PROJ. NO. 0802-45 (T.H. 4)

SHEET NO. 52 OF 128 SHEETS



LEGEND

REMOVE BITUMINOUS PAVEMENT	R/W
MILL BITUMINOUS PAVEMENT (2.0")	TEMPORARY EASEMENT TEMPORARY ORDERS
(1) SAWING BITUMINOUS PAVEMENT (FULL DEPTH)	ACCESS CONTROL
(2) RELOCATE MAILBOX	EXISTING DRAIN TILE
TREE PROTECTION	CONSTRUCTION LIMITS
	TEMPORARY FENCE
	REMOVE PIPE DRAIN

50

SCALE IN FEET

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DRAWN BY: NTT
DESIGNED BY: NTT
CHECKED BY: DWK

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CERTIFIED BY: _____ LICENSED PROFESSIONAL ENGINEER

NAME: NATHAN TRUEX LIC. NO. 53715

10/27/2017 DATE

HDR

DEPARTMENT OF TRANSPORTATION

90% PLANS - FOR REVIEW ONLY

REMOVAL PLAN

STATE PROJ. NO. 0802-45 (T.H. 4)

SHEET NO. 53 OF 128 SHEETS

END MILL & OVERLAY
BEGIN RECONSTRUCTION
T.H. 4 N.B.
STA. 209+07.95

MATCHLINE TH4NB
STA. 206+50 SEE SHEET 53

MATCHLINE TH4NB
STA. 214+00 SEE SHEET 55

E 502000 N 194400
E 502000 N 194600
E 502000 N 194800
E 502000 N 195000
E 502200 N 194400
E 502200 N 194600
E 502200 N 194800
E 502200 N 195000

P-BUR
T-BUR
F/O -BUR
TV-BUR

T. H. 4

TH4NB
TH4SB
TH4NB

207 208 209 210 211 212 213

LEGEND

- REMOVE BITUMINOUS PAVEMENT
- MILL BITUMINOUS PAVEMENT (2.0")
- (1) SAWING BITUMINOUS PAVEMENT (FULL DEPTH)
- (2) RELOCATE MAILBOX
- TREE PROTECTION
- R/W
- TEMPORARY EASEMENT TEMPORARY ORDERS
- ACCESS CONTROL
- EXISTING DRAIN TILE
- CONSTRUCTION LIMITS
- T • F TEMPORARY FENCE
- REMOVE PIPE DRAIN

50
SCALE IN FEET

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CP080245_pentable_plans.tbl

DRAWN BY:	NTT
DESIGNED BY:	NTT
CHECKED BY:	DWK

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CERTIFIED BY: _____ LICENSED PROFESSIONAL ENGINEER

NAME: NATHAN TRUEX LIC. NO. 53715

10/27/2017 DATE

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DEPARTMENT OF TRANSPORTATION

90% PLANS - FOR REVIEW ONLY — REMOVAL PLAN

STATE PROJ. NO. 0802-45 (T.H. 4) — SHEET NO. 54 OF 128 SHEETS

MATCHLINE CR29EB
STA. 114+00 SEE SHEET 59

CR29EB

CR29WB

REMOVE CONCRETE APRON

REMOVE CONCRETE PIPE

REMOVE CONCRETE APRON

REMOVE INLET

REMOVE METAL APRON

TH4SB

TH4NB

REMOVE METAL PIPE

REMOVE INLET

REMOVE METAL APRON

REMOVE CONCRETE PIPE

REMOVE CONCRETE APRON

TH4SB

TH4NB

CR29WB

CR29EB

MATCHLINE TH4NB
STA. 214+00 SEE SHEET 54

MATCHLINE TH4NB
STA. 221+75 SEE SHEET 56

MATCHLINE CR29EB
STA. 118+50 SEE SHEET 60

E 502000
N 195100

E 502000
N 195400

E 502000
N 195600

E 502000
N 195800

E 502200
N 195100

E 502200
N 195400

E 502200
N 195600

E 502200
N 195800

LEGEND

- REMOVE BITUMINOUS PAVEMENT
- MILL BITUMINOUS PAVEMENT (2.0")
- (1) SAWING BITUMINOUS PAVEMENT (FULL DEPTH)
- (2) RELOCATE MAILBOX
- TREE PROTECTION
- R/W
- TEMPORARY EASEMENT
  TEMPORARY ORDERS
- ACCESS CONTROL
- EXISTING DRAIN TILE
- CONSTRUCTION LIMITS
- T • F TEMPORARY FENCE
- REMOVE PIPE DRAIN

50
SCALE IN FEET

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CHECKED BY:	DWK

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CERTIFIED BY: _____ LICENSED PROFESSIONAL ENGINEER

NAME: NATHAN TRUEX LIC. NO. 53715

10/27/2017 DATE

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DEPARTMENT OF TRANSPORTATION

90% PLANS - FOR REVIEW ONLY

REMOVAL PLAN

STATE PROJ. NO. 0802-45 (T.H. 4)

SHEET NO. 55 OF 128 SHEETS

REMOVE INLET

END RECONSTRUCTION
BEGIN MILL & OVERLAY
T.H. 4 N.B.
STA. 223+16.17

END MILL & OVERLAY
T.H. 4 N.B.
STA. 226+52.00

E 502000 N 196000

E 502000 N 196200

REMOVE METAL PIPE
REMOVE METAL APRON
REMOVE METAL APRON
REMOVE ③ FIELD ENTRANCE

REMOVE ③ FIELD ENTRANCE
REMOVE METAL APRON
REMOVE METAL PIPE
REMOVE METAL APRON

TH4SB
TH4NB
TH4NB
TH4NB

T.H. 4

222 223 224 225 226 227 228

TV-BUR F/O -BUR

MATCHLINE TH4NB
STA. 221+75 SEE SHEET 55

MATCHLINE TH4NB
STA. 229+00 TO 239+00 OMITTED
SEE SHEET 57

LEGEND

- REMOVE BITUMINOUS PAVEMENT
- MILL BITUMINOUS PAVEMENT (2.0")
- ① SAWING BITUMINOUS PAVEMENT (FULL DEPTH)
- ② RELOCATE MAILBOX
- TREE PROTECTION
- R/W
- TEMPORARY EASEMENT TEMPORARY ORDERS
- ACCESS CONTROL
- EXISTING DRAIN TILE
- CONSTRUCTION LIMITS
- T • F TEMPORARY FENCE
- REMOVE PIPE DRAIN

SPECIFIC NOTES

③ INCLUDED IN COMMON EMBANKMENT (CV) QUANTITY

50
SCALE IN FEET

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CP080245_pentable_plans.tbl

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DESIGNED BY:	NTT
CHECKED BY:	DWK

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CERTIFIED BY: _____ LICENSED PROFESSIONAL ENGINEER — 10/27/2017 DATE

NAME: NATHAN TRUEX LIC. NO. 53715

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DEPARTMENT OF TRANSPORTATION

90% PLANS - FOR REVIEW ONLY

REMOVAL PLAN

STATE PROJ. NO. 0802-45 (T.H. 4)

SHEET NO. 56 OF 128 SHEETS

E 502000
N 197600

END S.P. 0802-45
T.H. 4 N.B.
STA. 243+50.00

T.H. 4

239 240 241 242 243 244 245 246

TH4NB

MATCHLINE TH4NB
STA. 229+00 TO 239+00 OMITTED
SEE SHEET 56

E 502200
N 197600

TV-BUR F70-BUR

LEGEND

- REMOVE BITUMINOUS PAVEMENT
- MILL BITUMINOUS PAVEMENT (2.0")
- (1) SAWING BITUMINOUS PAVEMENT (FULL DEPTH)
- (2) RELOCATE MAILBOX
- TREE PROTECTION
- R/W
- TEMPORARY EASEMENT TEMPORARY ORDERS
- ACCESS CONTROL
- EXISTING DRAIN TILE
- CONSTRUCTION LIMITS
- T • F TEMPORARY FENCE
- REMOVE PIPE DRAIN

50
SCALE IN FEET

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CP0802-45_pentable_plans.tbl

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DESIGNED BY:	NTT
CHECKED BY:	DWK

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CERTIFIED BY: _____ LICENSED PROFESSIONAL ENGINEER
NAME: NATHAN TRUEX LIC. NO. 53715
10/27/2017 DATE

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DEPARTMENT OF TRANSPORTATION

90% PLANS - FOR REVIEW ONLY — REMOVAL PLAN

STATE PROJ. NO. 0802-45 (T.H. 4) — SHEET NO. 57 OF 128 SHEETS

E 500600
N 195400

E 500800
N 195400

E 501000
N 195400

BEGIN S.A.P. 008-070-005
C.S.A.H. 29 E.B.
STA. 103+68.46

C.S.A.H. 29

101 102 103 104 105 106

MATCHLINE CR29EB
STATION 106+50 SEE SHEET 59

CR29EB

REMOVE METAL APRON

E 500600
N 195200

E 500800
N 195200

E 501000
N 195100

LEGEND

REMOVE BITUMINOUS PAVEMENT	R/W
MILL BITUMINOUS PAVEMENT (2.0")	TEMPORARY EASEMENT TEMPORARY ORDERS
(1) SAWING BITUMINOUS PAVEMENT (FULL DEPTH)	ACCESS CONTROL
(2) RELOCATE MAILBOX	EXISTING DRAIN TILE
TREE PROTECTION	CONSTRUCTION LIMITS
	TEMPORARY FENCE
	REMOVE PIPE DRAIN

N

50

SCALE IN FEET

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DESIGNED BY:	NTT
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CERTIFIED BY: _____ LICENSED PROFESSIONAL ENGINEER — 10/27/2017 DATE

NAME: NATHAN TRUEX LIC. NO. 53715

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DEPARTMENT OF TRANSPORTATION

90% PLANS - FOR REVIEW ONLY

REMOVAL PLAN

STATE PROJ. NO. 0802-45 (T.H. 4)

SHEET NO. 58 OF 128 SHEETS

BEGIN
RECONSTRUCTION
C.S.A.H. 29 E.B.
STA. 109+30.16

MATCHLINE CR29EB
STATION 106+50 SEE SHEET 58

MATCHLINE CR29EB
STA. 114+00 SEE SHEET 55

C.S.A.H. 29

107 108 109 110 111 112 113

REMOVE CONCRETE APRON

REMOVE CONCRETE PIPE

REMOVE CONCRETE APRON

E 501200 N 195400
E 501400 N 195400
E 501800 N 195400
E 501200 N 195100
E 501400 N 195100
E 501800 N 195100

LEGEND

- REMOVE BITUMINOUS PAVEMENT
- MILL BITUMINOUS PAVEMENT (2.0")
- (1) SAWING BITUMINOUS PAVEMENT (FULL DEPTH)
- (2) RELOCATE MAILBOX
- TREE PROTECTION
- R/W
- TEMPORARY EASEMENT TEMPORARY ORDERS
- ACCESS CONTROL
- EXISTING DRAIN TILE
- CONSTRUCTION LIMITS
- T • F TEMPORARY FENCE
- REMOVE PIPE DRAIN

N

50

SCALE IN FEET

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DESIGNED BY:	NTT
CHECKED BY:	DWK

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CERTIFIED BY: _____ LICENSED PROFESSIONAL ENGINEER

NAME: NATHAN TRUEX LIC. NO. 53715

10/27/2017 DATE

HDR

DEPARTMENT OF TRANSPORTATION

90% PLANS - FOR REVIEW ONLY

REMOVAL PLAN

STATE PROJ. NO. 0802-45 (T.H. 4)

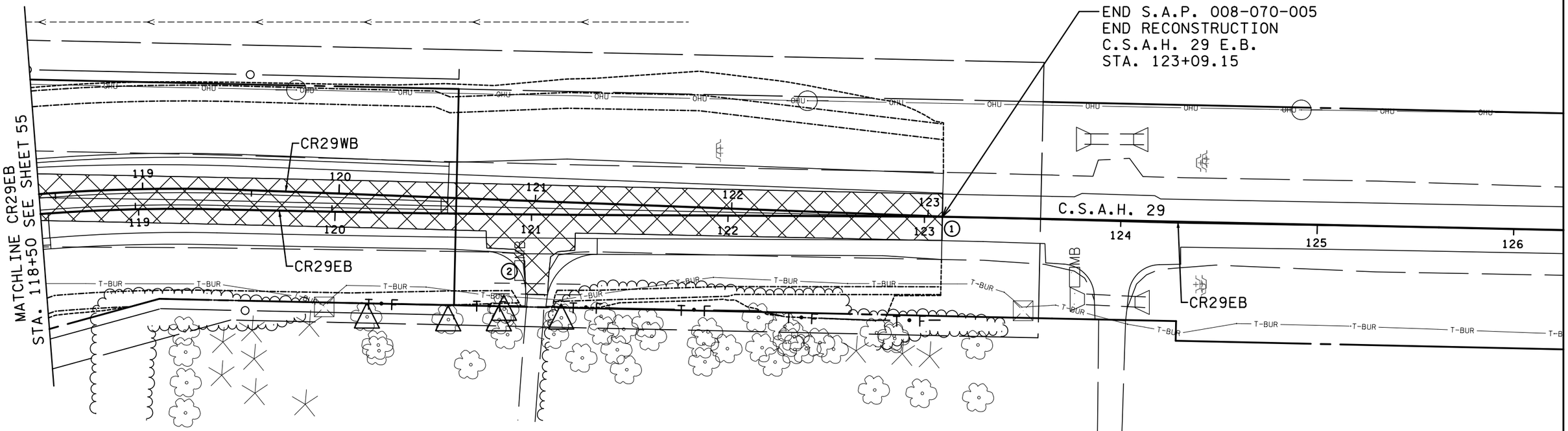
SHEET NO. 59 OF 128 SHEETS

E 502400
N 195400

E 502600
N 195400

E 502800
N 195400

E 503000
N 195400



E 502400
N 195100

E 502600
N 195100

E 503000
N 195100

LEGEND

- REMOVE BITUMINOUS PAVEMENT
- MILL BITUMINOUS PAVEMENT (2.0")
- (1) SAWING BITUMINOUS PAVEMENT (FULL DEPTH)
- (2) RELOCATE MAILBOX
- TREE PROTECTION
- R/W
- TEMPORARY EASEMENT
  TEMPORARY ORDERS
- ACCESS CONTROL
- EXISTING DRAIN TILE
- CONSTRUCTION LIMITS
- T • F TEMPORARY FENCE
- REMOVE PIPE DRAIN

N

50
SCALE IN FEET

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CP080245_pentable_plans.tbl

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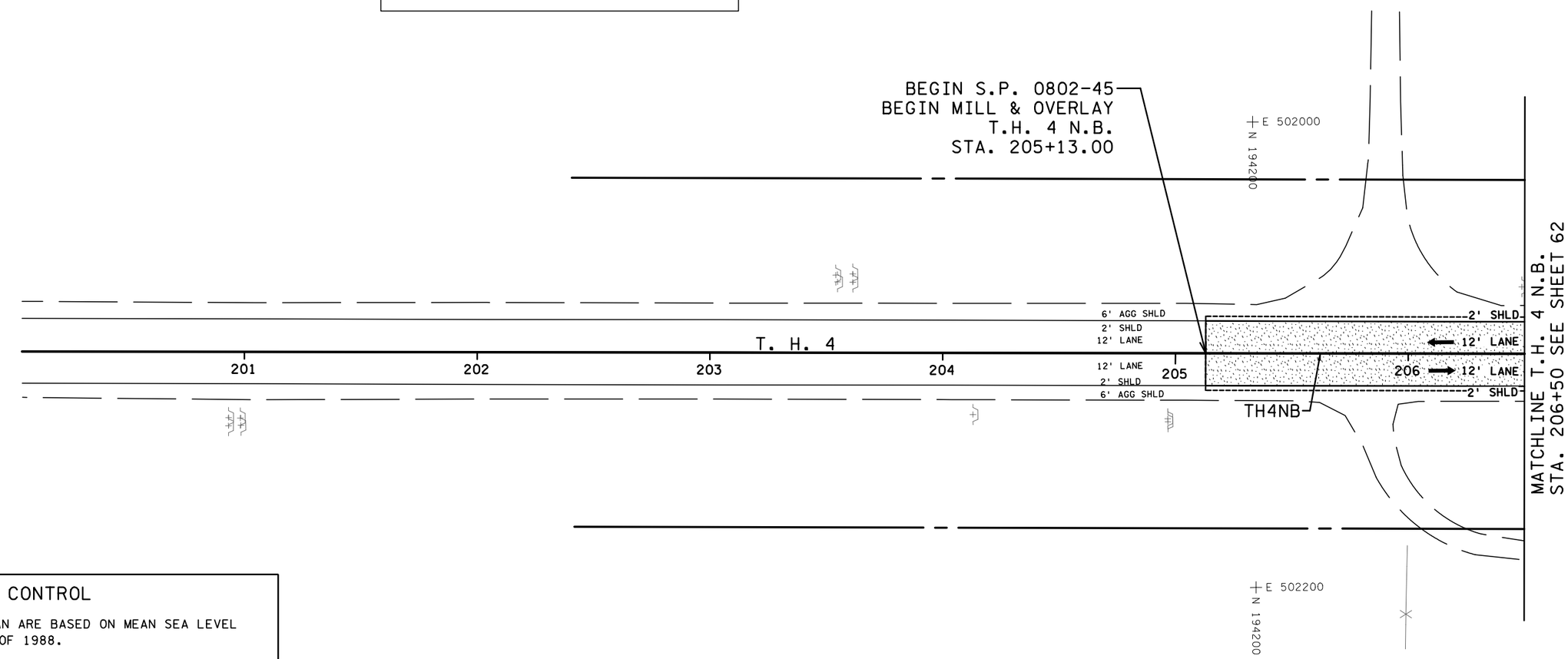
DESIGNED BY: NTT		NAME: NATHAN TRUEX LIC. NO. 53715			STATE PROJ. NO. 0802-45 (T.H. 4) — SHEET NO. 60 OF 128 SHEETS
CHECKED BY: DWK					

LEGEND

- R/W
- TEMPORARY EASEMENT
  TEMPORARY ORDERS
- ACCESS CONTROL
- CONSTRUCTION LIMITS
- DITCH BOTTOM
- LIVING SNOW FENCE



VERTICAL CONTROL

ELEVATIONS SHOWN IN THIS PLAN ARE BASED ON MEAN SEA LEVEL DATUM OF 1988.

SIGNED: _____, PROJECT SURVEYOR

DATE: _____ REGISTRATION NO.: _____

HORIZONTAL CONTROL

COORDINATE VALUES SHOWN IN THIS PLAN ARE BROWN COUNTY COORDINATES, REFERRED TO THE NORTH AMERICAN DATUM OF 1983 (2011 ADJ.)

SIGNED: _____, PROJECT SURVEYOR

DATE: _____ REGISTRATION NO.: _____

LEGEND

- INSET A
- INSET B
- INSET C
- INSET D
- INSET E
- INSET F
- INSET G
- INSET H
- 12" CLASS 5
- SUPPLEMENTAL PAVEMENT REINFORCEMENT

FOR INSET DETAILS, SEE TYPICAL SECTION SHEETS.

50

SCALE IN FEET

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DESIGNED BY: NTT		NAME: NATHAN TRUEX LIC. NO. 53715		STATE PROJ. NO. 0802-45 (T.H. 4) — SHEET NO. 61 OF 128 SHEETS
CHECKED BY: DWK				

HDR

DEPARTMENT OF TRANSPORTATION

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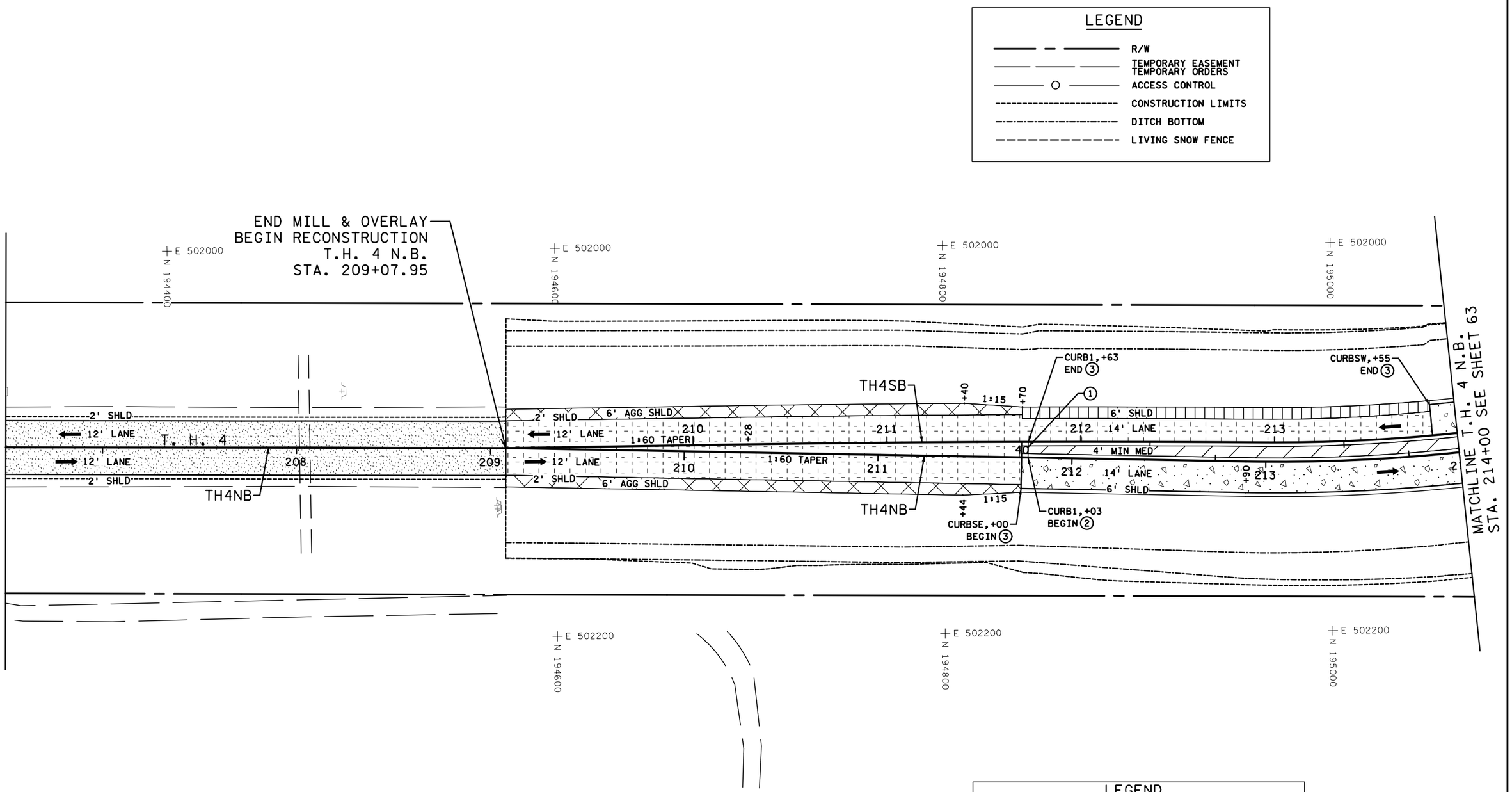

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CP080245_pentable_plans.tbl

DRAWN BY:	NTT
DESIGNED BY:	NTT
CHECKED BY:	DWK

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CERTIFIED BY: _____ LICENSED PROFESSIONAL ENGINEER

NAME: NATHAN TRUEX LIC. NO. 53715

10/27/2017 DATE

HDR

DEPARTMENT OF TRANSPORTATION

90% PLANS - FOR REVIEW ONLY — CONSTRUCTION PLAN

STATE PROJ. NO. 0802-45 (T.H. 4) — SHEET NO. 62 OF 128 SHEETS

MATCHLINE C.S.A.H. 29 E.B.
STA. 114+00 SEE SHEET 67

MATCHLINE T.H. 4 N.B.
STA. 214+00 SEE SHEET 62

MATCHLINE T.H. 4 N.B.
STA. 221+75 SEE SHEET 64

MATCHLINE C.S.A.H. 29 E.B.
STA. 118+50 SEE SHEET 68

CR29EB
CR29WB
TH4SB
TH4NB
RDB_IN
B624 C&G
R424 C&G
CURB2,+69 END (2) BEGIN (4)
CURB2,+52 END (4) BEGIN (3)
CURB2,+58 END (5) BEGIN (3)
CURB2,+08 BEGIN (5)
CURB2,+87 END (3)
CURB1,+12 BEGIN (5)
CURB1,+90 END (3)
CURB1,+62 END (5) BEGIN (3)
CURB3,+52 END (4) BEGIN (3)
CURB3,+70 END (2) BEGIN (4)
CURBNW,+00 BEGIN (3)
CURB3,+03 BEGIN (2)
CURB3,+56 END (3)
CURBNE,+57 END (3)
CURB3,+08 BEGIN (5)
CURB3,+86 END (3)
CURB3,+58 END (5) BEGIN (3)
CURB1,+73 END (2) BEGIN (4)
CURB4,+87 END (3)
CURB1,+55 END (4) BEGIN (3)
CURB4,+09 BEGIN (5)
CURB4,+58 END (5) BEGIN (3)
CURB4,+52 END (4) BEGIN (3)
CURB4,+70 END (2) BEGIN (4)
R111'
R65'
R70'
6' SHLD
14' LANE
4' MIN MED
1:60 TAPER
1:15
E 502000
N 195100
N 195400
N 195600
E 502200

50
SCALE IN FEET

LEGEND

- R/W
- TEMPORARY EASEMENT TEMPORARY ORDERS
- ACCESS CONTROL
- CONSTRUCTION LIMITS
- DITCH BOTTOM
- LIVING SNOW FENCE

LEGEND

- INSET A
- INSET B
- INSET C
- INSET D
- INSET E
- INSET F
- INSET G
- INSET H
- 12" CLASS 5 SUPPLEMENTAL PAVEMENT REINFORCEMENT

FOR INSET DETAILS, SEE TYPICAL SECTION SHEETS.

SPECIFIC NOTES

1. CONCRETE MEDIAN NOSE STANDARD PLATE 7113.
2. B424 C&G
3. S524 C&G
4. B424 MOD C&G
5. PAID FOR AS CONCRETE CURB AND GUTTER DESIGN SPECIAL. SEE SHEET 70 FOR DETAILS.

GENERAL NOTES

SEE INTERSECTION DETAIL SHEETS FOR ROUNDABOUT DETAILS.

C0080245_cp02.dgn
11/1/16 AM
11/1/17
CP080245_pentable_plans.tbl

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DESIGNED BY:	NTT
CHECKED BY:	DWK

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CERTIFIED BY: _____ LICENSED PROFESSIONAL ENGINEER

NAME: NATHAN TRUEX LIC. NO. 53715

10/27/2017 DATE

HDR

DEPARTMENT OF TRANSPORTATION

90% PLANS - FOR REVIEW ONLY

CONSTRUCTION PLAN

STATE PROJ. NO. 0802-45 (T.H. 4)

SHEET NO. 63 OF 128 SHEETS

END MILL & OVERLAY
T.H. 4 N.B.
STA. 226+52.00

END RECONSTRUCTION
BEGIN MILL & OVERLAY
T.H. 4 N.B.
STA. 223+16.17

E 502000
N 196000

E 502000
N 196200

MATCHLINE T.H. 4 N.B.
STA. 221+75 SEE SHEET 63

MATCHLINE T.H. 4 N.B.
STA. 229+00 TO 239+00 OMITTED
SEE SHEET 65

TH4SB

TH4NB

TH4NB

6' AGG SHLD
2' SHLD
12' LANE
222
223
1:60 TAPER
+71
T.H. 4
224
225
226
227
228
12' LANE
2' SHLD
6' AGG SHLD

E 502200
N 196000

E 502200
N 196200

LEGEND

- R/W
- TEMPORARY EASEMENT
  TEMPORARY ORDERS
- ACCESS CONTROL
- CONSTRUCTION LIMITS
- DITCH BOTTOM
- LIVING SNOW FENCE

LEGEND

- INSET A
- INSET B
- INSET C
- INSET D
- INSET E
- INSET F
- INSET G
- INSET H
- 12" CLASS 5
- SUPPLEMENTAL PAVEMENT REINFORCEMENT

FOR INSET DETAILS, SEE TYPICAL SECTION SHEETS.

50
SCALE IN FEET

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10/27/2017 7:33 AM
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NAME: NATHAN TRUEX LIC. NO. 53715

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DEPARTMENT OF TRANSPORTATION

90% PLANS - FOR REVIEW ONLY — CONSTRUCTION PLAN

STATE PROJ. NO. 0802-45 (T.H. 4) — SHEET NO. 64 OF 128 SHEETS

E 502000
N 197600

FIELD ENTRANCE 1, +92

END S.P. 0802-45
T.H. 4 N.B.
STA. 243+50.00

32'
R 25'
R 25'

T.H. 4

239 240 241 242 243 244 245 246

TH4NB

R 25'
R 25'
32'

E 502200
N 197600

FIELD ENTRANCE 2, +93

MATCHLINE T.H. 4 N.B.
STA. 229+00 TO 239+00 OMITTED
SEE SHEET 64

LEGEND

- R/W
- TEMPORARY EASEMENT
  TEMPORARY ORDERS
- ACCESS CONTROL
- CONSTRUCTION LIMITS
- DITCH BOTTOM
- LIVING SNOW FENCE

LEGEND

- INSET A
- INSET B
- INSET C
- INSET D
- INSET E
- INSET F
- INSET G
- INSET H
- 12" CLASS 5
- SUPPLEMENTAL PAVEMENT REINFORCEMENT

FOR INSET DETAILS, SEE TYPICAL SECTION SHEETS.

50
SCALE IN FEET

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10/27/2017 10:44:59 AM
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10/27/2017 DATE

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90% PLANS - FOR REVIEW ONLY

CONSTRUCTION PLAN

STATE PROJ. NO. 0802-45 (T.H. 4)

SHEET NO. 65 OF 128 SHEETS

E 500400
N 195400

E 500600
N 195400

E 500800
N 195400

E 501000
N 195400

BEGIN S.A.P. 008-070-005
C.S.A.H. 29 E.B.
STA. 103+68.46

C.S.A.H. 29

10' AGG SHLD
12'LANE
12'LANE
10' AGG SHLD

101 102 103 104 105 106

CR29EB

+93
R 25'
+75
R 25'
32'

MATCHLINE C.R. 29 E.B.
STATION 106+50 SEE SHEET 67

FIELD ENTRANCE 3, +43

E 500400
N 195200

E 500600
N 195200

E 500800
N 195200

LEGEND

- R/W
- TEMPORARY EASEMENT
  TEMPORARY ORDERS
- ACCESS CONTROL
- CONSTRUCTION LIMITS
- DITCH BOTTOM
- LIVING SNOW FENCE

LEGEND

- INSET A
- INSET B
- INSET C
- INSET D
- INSET E
- INSET F
- INSET G
- INSET H
- 12" CLASS 5
- SUPPLEMENTAL PAVEMENT REINFORCEMENT

FOR INSET DETAILS, SEE TYPICAL SECTION SHEETS.

N

50

SCALE IN FEET

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11/1/17
CP080245_pentable_plans.tbl

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NAME: NATHAN TRUEX LIC. NO. 53715

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90% PLANS - FOR REVIEW ONLY — CONSTRUCTION PLAN

STATE PROJ. NO. 0802-45 (T.H. 4) — SHEET NO. 66 OF 128 SHEETS

E 501200
N 195400
E 501400
N 195400
E 501800
N 195400

BEGIN
RECONSTRUCTION
C.S.A.H. 29 E.B.
STA. 109+30.16

MATCHLINE C.S.A.H. 29 E.B.
STATION 106+50 SEE SHEET 66

MATCHLINE C.S.A.H. 29 E.B.
STA. 114+00 SEE SHEET 63

C.S.A.H. 29

107 108 109

20'
R20'
R20'
10' AGG SHLD
12'LANE 110
12'LANE 110
1:60 TAPER
111
1:60 TAPER
111
1:60 TAPER
+14
1:15 TAPER
+18
1:15 TAPER
CURBSW,+00
BEGIN (3)
+74
CURB2,+55
END (3)
CURB2,+03
BEGIN (2)
6' SHLD
112 14' LANE 113
4' MIN MED
112 14' LANE 113
6' SHLD
+13
+28
CR29WB
CURBNW,+58
END (3)
CR29EB
(1)

SPECIFIC NOTES

(1) CONCRETE MEDIAN NOSE STANDARD PLATE 7113.

(2) B424 C&G

(3) S524 C&G

LEGEND

- R/W
- TEMPORARY EASEMENT TEMPORARY ORDERS
- ACCESS CONTROL
- CONSTRUCTION LIMITS
- DITCH BOTTOM
- LIVING SNOW FENCE

LEGEND

- INSET A
- INSET B
- INSET C
- INSET D
- INSET E
- INSET F
- INSET G
- INSET H
- 12" CLASS 5
- SUPPLEMENTAL PAVEMENT REINFORCEMENT

FOR INSET DETAILS, SEE TYPICAL SECTION SHEETS.

N

50

SCALE IN FEET

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NAME: NATHAN TRUEX LIC. NO. 53715

10/27/2017 DATE

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DEPARTMENT OF TRANSPORTATION

90% PLANS - FOR REVIEW ONLY — CONSTRUCTION PLAN

STATE PROJ. NO. 0802-45 (T.H. 4) — SHEET NO. 67 OF 128 SHEETS

E 502400
N 195400

E 502600
N 195400

E 502800
N 195400

E 503000
N 195400

END S.A.P. 008-070-005
END RECONSTRUCTION
C.S.A.H. 29 E.B.
STA. 123+09.15

MATCHLINE C.S.A.H. 29 E.B.
STA. 118+50 SEE SHEET 63

CURB4,+03
BEGIN (2)

CURBNE,+00
BEGIN (3)

CR29WB

6' SHLD
14' LANE
4' MIN MED
14' LANE
6' SHLD

1:15 TAPER
1:60 TAPER
1:60 TAPER
1:20 TAPER

10' AGG SHLD
12' LANE
12' LANE
8' AGG SHLD
10' AGG SHLD
1:15 TAPER

119
120
121
122
123
124
125
126

+52
+15
+53
+58
+98
+79

R 25'
R 25'

11'

CURBSE,+65
END (3)

CR29EB

CURB4,+56
END (3)

C.S.A.H. 29

10' AGG SHLD
12'LANE
12'LANE
10' AGG SHLD

CMB

CR29EB

SPECIFIC NOTES

(1) CONCRETE MEDIAN NOSE STANDARD PLATE 7113.

(2) B424 C&G

(3) S524 C&G

LEGEND

- R/W
- TEMPORARY EASEMENT TEMPORARY ORDERS
- ACCESS CONTROL
- CONSTRUCTION LIMITS
- DITCH BOTTOM
- LIVING SNOW FENCE

LEGEND

- INSET A
- INSET B
- INSET C
- INSET D
- INSET E
- INSET F
- INSET G
- INSET H
- 12" CLASS 5
- SUPPLEMENTAL PAVEMENT REINFORCEMENT

FOR INSET DETAILS, SEE TYPICAL SECTION SHEETS.

E 503000
N 195100

N

50
SCALE IN FEET

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11/1/2017 8:30 AM
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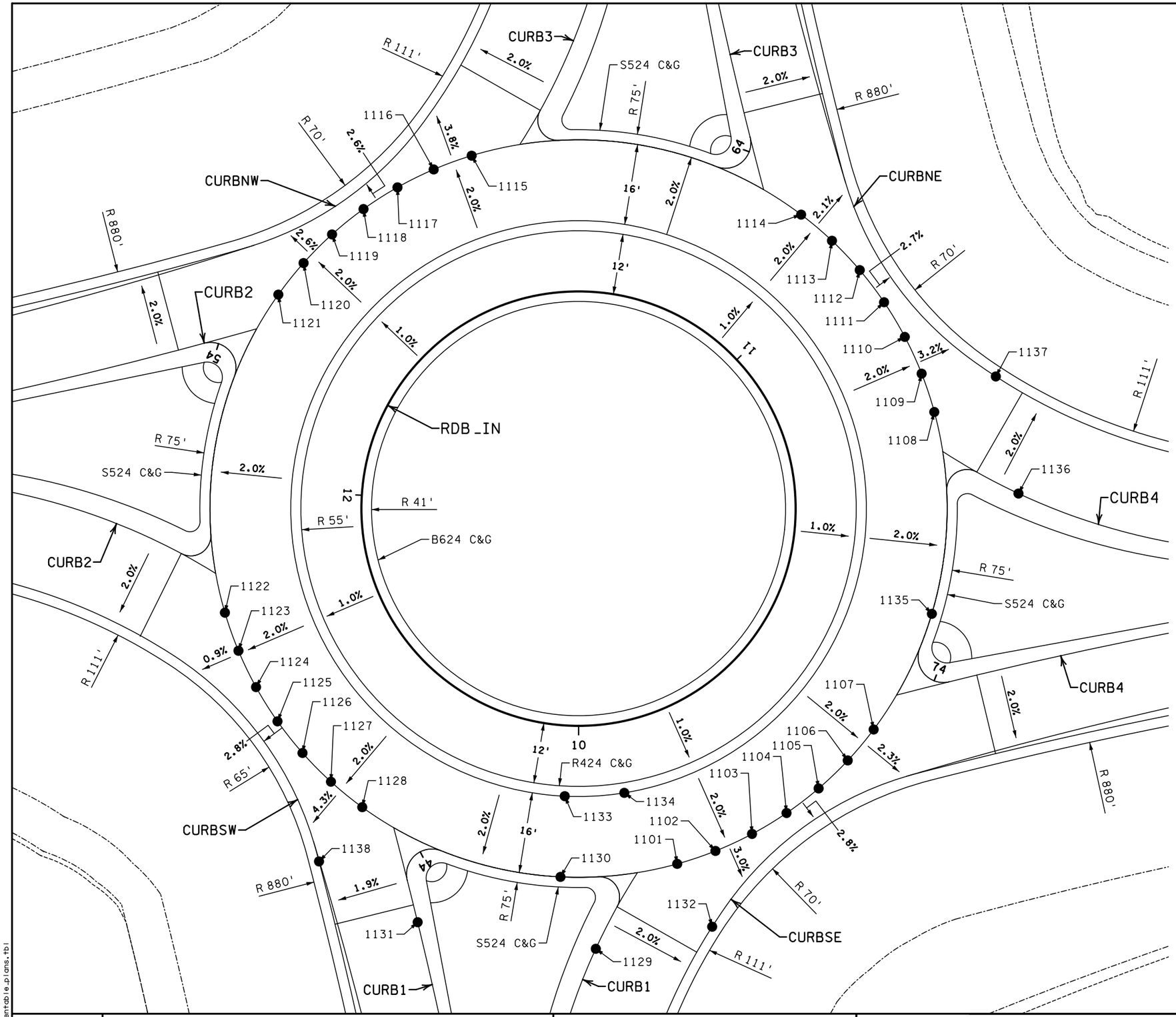
DESIGNED BY: NTT		NAME: NATHAN TRUEX LIC. NO. 53715			STATE PROJ. NO. 0802-45 (T.H. 4) — SHEET NO. 68 OF 128 SHEETS
CHECKED BY: DWK					



INTERSECTION POINTS					
POINT	ALIGN.	STA.	OFF.	EL.	NOTES
1101	RDB_IN	10+11.65	30' RT	1005.96	
1102	RDB_IN	10+16.36	30' RT	1006.00	
1103	RDB_IN	10+21.07	30' RT	1006.04	
1104	RDB_IN	10+25.78	30' RT	1006.08	
1105	RDB_IN	10+30.50	30' RT	1006.12	
1106	RDB_IN	10+35.21	30' RT	1006.16	
1107	RDB_IN	10+39.92	30' RT	1006.20	
1108	RDB_IN	10+78.94	30' RT	1006.51	
1109	RDB_IN	10+83.65	30' RT	1006.58	
1110	RDB_IN	10+88.36	30' RT	1006.66	
1111	RDB_IN	10+93.08	30' RT	1006.73	
1112	RDB_IN	10+97.79	30' RT	1006.80	
1113	RDB_IN	11+02.50	30' RT	1006.88	
1114	RDB_IN	11+07.21	30' RT	1006.95	
1115	RDB_IN	11+47.74	30' RT	1007.42	
1116	RDB_IN	11+52.45	30' RT	1007.50	
1117	RDB_IN	11+57.17	30' RT	1007.59	
1118	RDB_IN	11+61.88	30' RT	1007.67	
1119	RDB_IN	11+66.59	30' RT	1007.75	
1120	RDB_IN	11+71.30	30' RT	1007.83	
1121	RDB_IN	11+76.02	30' RT	1007.92	
1122	RDB_IN	12+14.94	30' RT	1007.58	
1123	RDB_IN	12+19.65	30' RT	1007.37	
1124	RDB_IN	12+24.36	30' RT	1007.16	
1125	RDB_IN	12+29.07	30' RT	1006.95	
1126	RDB_IN	12+33.79	30' RT	1006.74	
1127	RDB_IN	12+38.50	30' RT	1006.53	
1128	RDB_IN	12+43.21	30' RT	1006.31	
1129	CURB1	43+46.07	0'	1006.02	GUTTER AT INLET
1130	CURB1	43+71.42	0'	1005.98	GUTTER AT INLET
1131	CURB1	44+15.23	0'	1006.19	GUTTER AT INLET
1132	CURBSE	303+52.57	0'	1005.57	GUTTER AT INLET
1133	RDB_IN	12+68.11	14' RT	1006.30	GUTTER AT INLET
1134	RDB_IN	10+06.86	14' RT	1006.24	GUTTER AT INLET
1135	CURB4	73+84.96	0'	1006.31	GUTTER AT INLET
1136	CURB4	73+42.48	0'	1006.53	GUTTER AT INLET
1137	CURBNE	313+49.37	0'	1006.08	GUTTER AT INLET
1138	CURBSW	334+02.42	0'	1005.81	GUTTER AT INLET

GENERAL NOTES

SEE ALIGNMENTS FOR CURB ON SHEETS 35 TO 42

N

20

SCALE IN FEET

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5:27:14 PM
10/27/17
CP080245_pentable_plans.tbl

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CERTIFIED BY: _____ LICENSED PROFESSIONAL ENGINEER

NAME: NATHAN TRUEX LIC. NO. 53715

10/27/2017 DATE

HDR

DEPARTMENT OF TRANSPORTATION

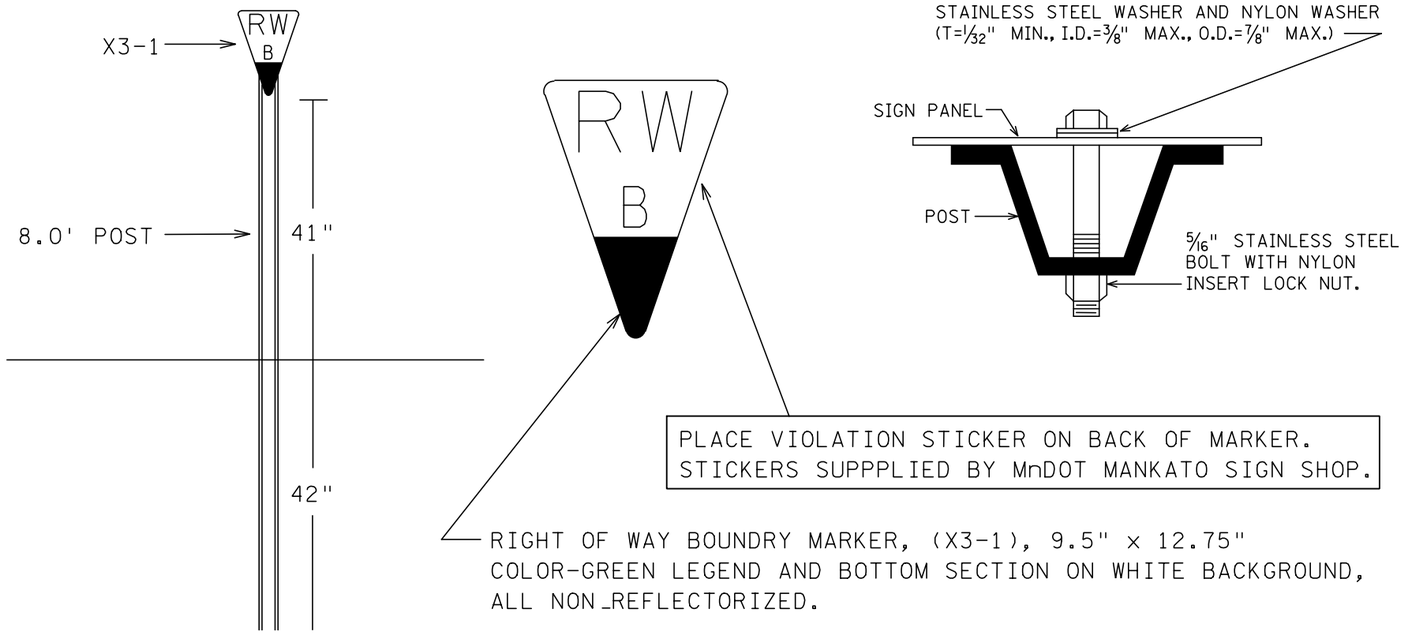
90% PLANS - FOR REVIEW ONLY

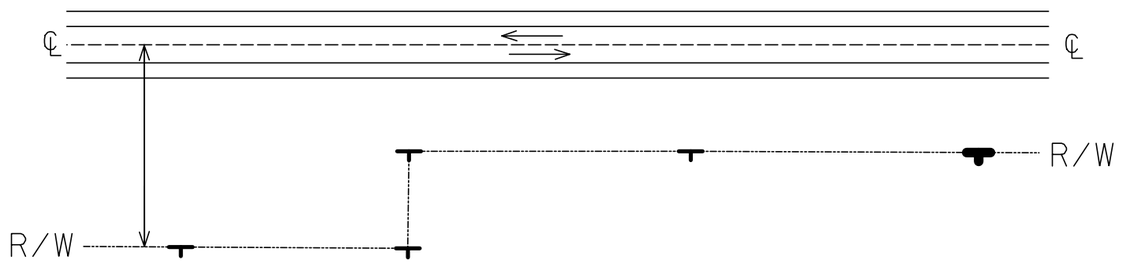
CONSTRUCTION PLAN DETAILS

STATE PROJ. NO. 0802-45 (T.H. 4)

SHEET NO. 69 OF 128 SHEETS

RW BOUNDARY MARKER (X3-1 SIGN) DETAIL





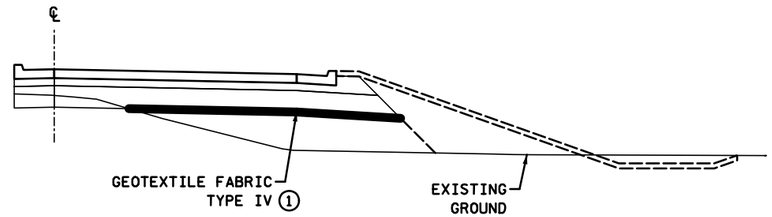
NOTES:

PLACE GREEN ON WHITE RIGHT OF WAY BOUNDRY MARKER (X3-1)
ON 2.5 LB/FOOT U-CHANNEL POST AT STAKED LOCATION.

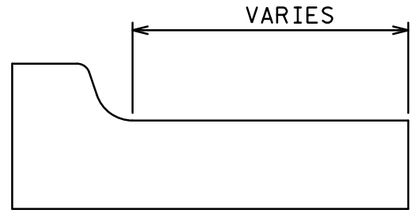
PLACE MARKERS AT ALL B-POINT LOCATIONS, EXCEPT AROUND SNOW FENCE EASEMENTS.
AVOID PLACEMENT IN ENTRANCES AND RESIDENTAL YARDS.

SHIFT PLACEMENT 0.5' TO 1.0' INSIDE OF RIGHT OF WAY WHEN B-POINT
MONUMENTS ARE TO BE SET ALONG RW FOR PROJECT.
CONFIRM PLACEMENT WITH DISTRICT OFFICE OF LAND MANAGEMENT.

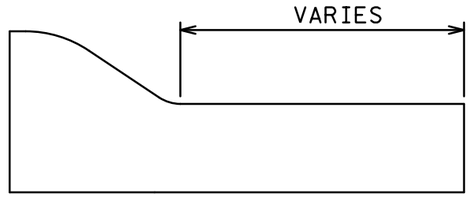
GOPHER ONE CALL REQUIRED BEFORE PLACEMENT OF MARKER.



GEOTEXTILE FABRIC TYPE IV PLACEMENT



B424 MODIFIED CURB



CONCRETE CURB AND GUTTER DESIGN SPECIAL (2)

SPECIFIC NOTES

(1) GEOTEXTILE FABRIC TO BE PLACED IN ROADWAY WIDENING AREAS.

(2) S524 CURB MODIFIED WITH A VARIABLE WIDTH GUTTER.

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10/27/2017 9:59 AM
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DESIGNED BY: NTT		NAME: NATHAN TRUEX LIC. NO. 53715		STATE PROJ. NO. 0802-45 (T.H. 4)	SHEET NO. 70 OF 128 SHEETS
CHECKED BY: DWK					

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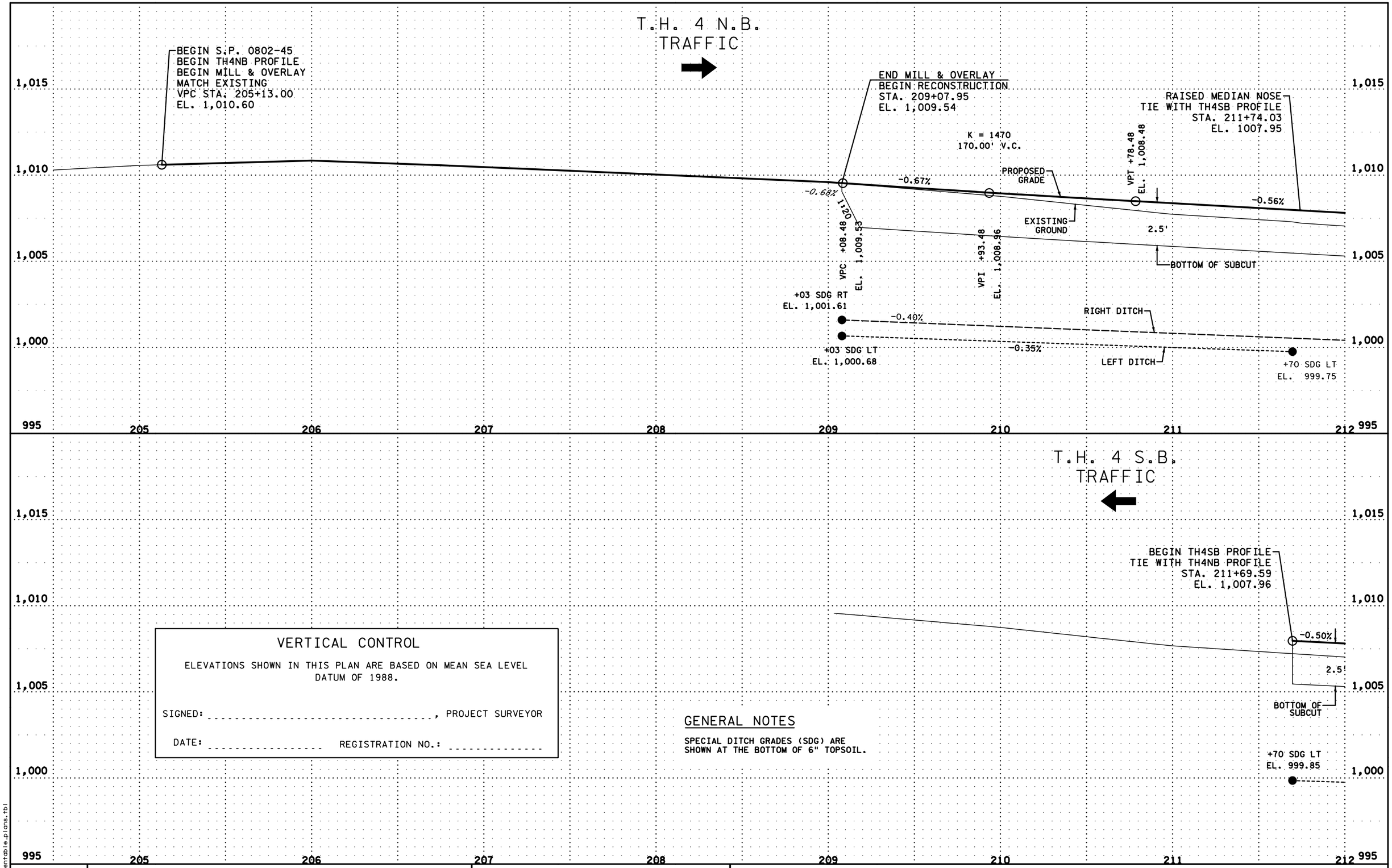

VERTICAL CONTROL

ELEVATIONS SHOWN IN THIS PLAN ARE BASED ON MEAN SEA LEVEL DATUM OF 1988.

SIGNED: _____, PROJECT SURVEYOR

DATE: _____ REGISTRATION NO.: _____

GENERAL NOTES

SPECIAL DITCH GRADES (SDG) ARE SHOWN AT THE BOTTOM OF 6" TOPSOIL.

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10/27/2017 DATE

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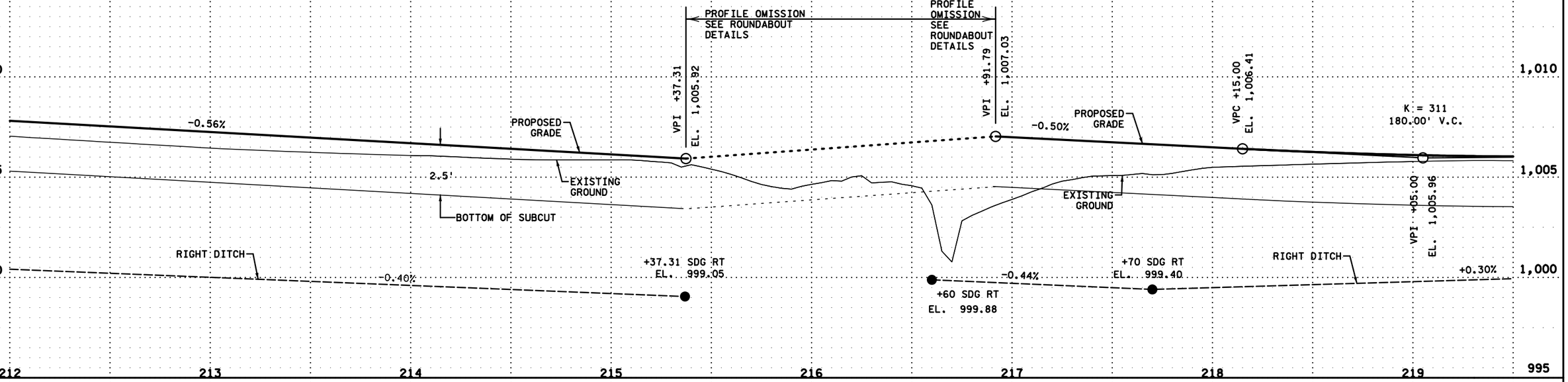
90% PLANS - FOR REVIEW ONLY

PROFILE SHEET - T.H. 4

STATE PROJ. NO. 0802-45 (T.H. 4)

SHEET NO. 71 OF 128 SHEETS

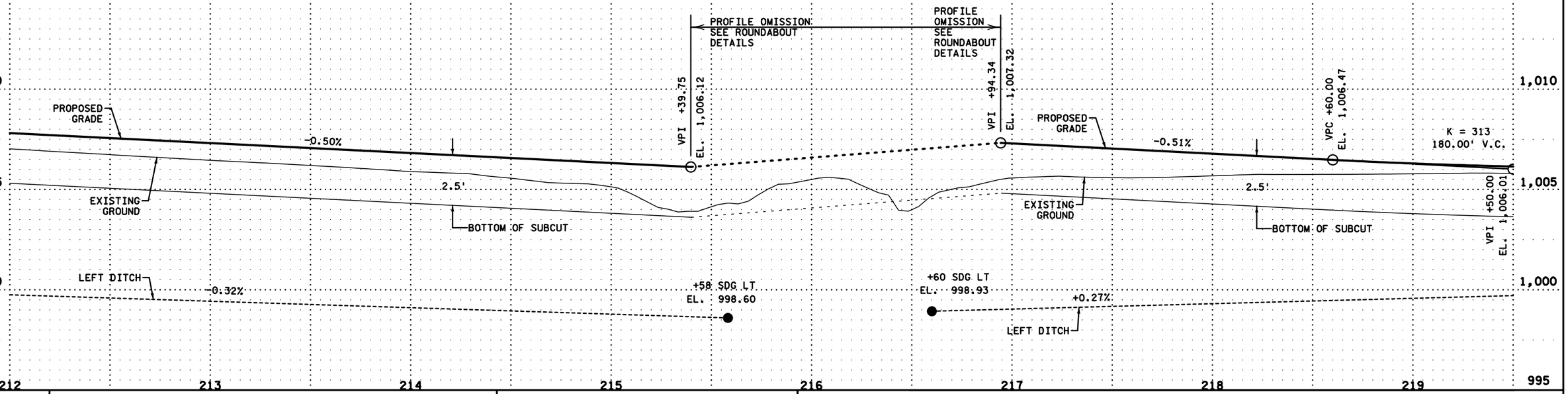
T.H. 4 N.B.
TRAFFIC



T.H. 4 S.B.
TRAFFIC

GENERAL NOTES

SPECIAL DITCH GRADES (SDG) ARE SHOWN AT THE BOTTOM OF 6" TOPSOIL.



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NAME: NATHAN TRUEX LIC. NO. 53715

10/27/2017 DATE

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DEPARTMENT OF TRANSPORTATION

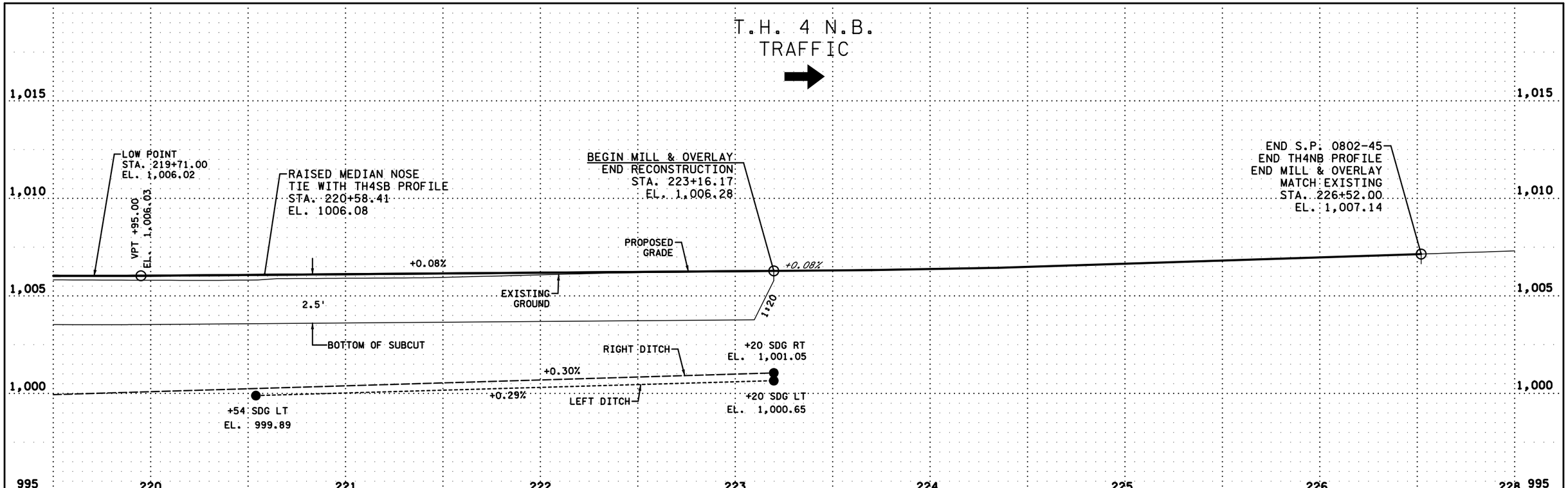
90% PLANS - FOR REVIEW ONLY

PROFILE SHEET - T.H. 4

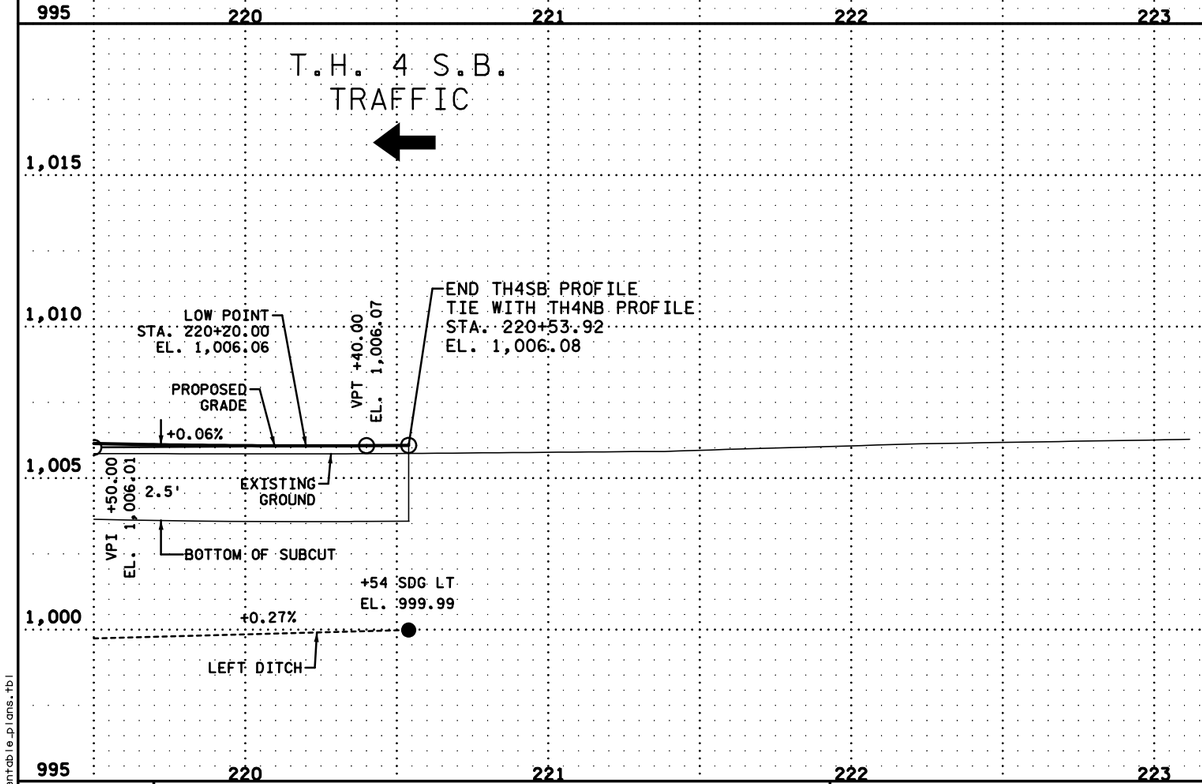
STATE PROJ. NO. 0802-45 (T.H. 4)

SHEET NO. 72 OF 128 SHEETS

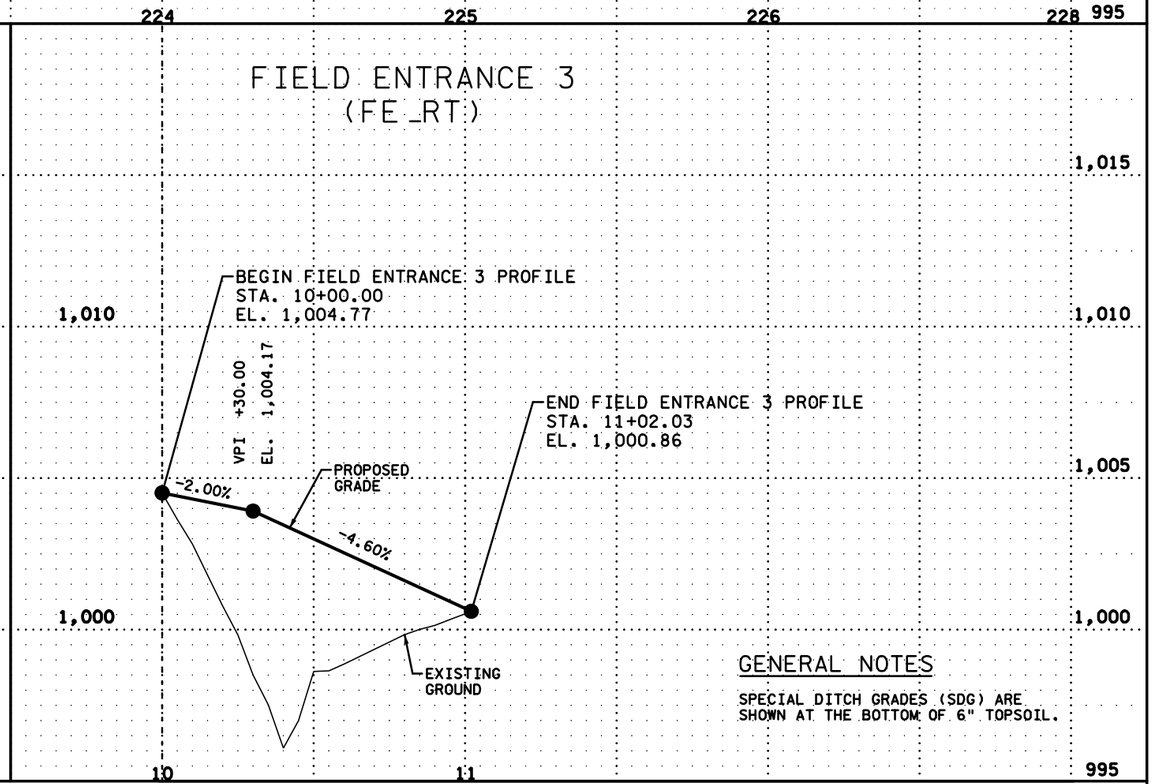
T.H. 4 N.B. TRAFFIC



T.H. 4 S.B. TRAFFIC



FIELD ENTRANCE 3 (FE_RT)



GENERAL NOTES

SPECIAL DITCH GRADES (SDG) ARE SHOWN AT THE BOTTOM OF 6" TOPSOIL.

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CP080245_pentable_plans.tbl

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CERTIFIED BY: _____ LICENSED PROFESSIONAL ENGINEER

NAME: NATHAN TRUEX LIC. NO. 53715

10/27/2017 DATE

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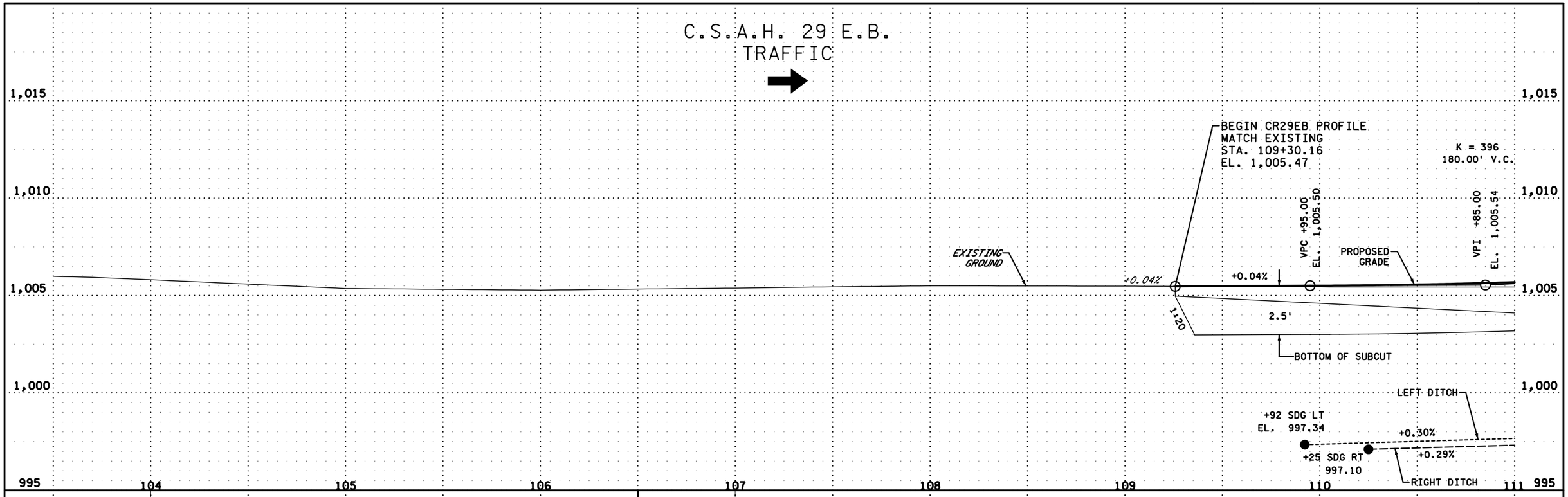
DEPARTMENT OF TRANSPORTATION

90% PLANS - FOR REVIEW ONLY

PROFILE SHEET - T.H. 4

STATE PROJ. NO. 0802-45 (T.H. 4)

C.S.A.H. 29 E.B.
TRAFFIC



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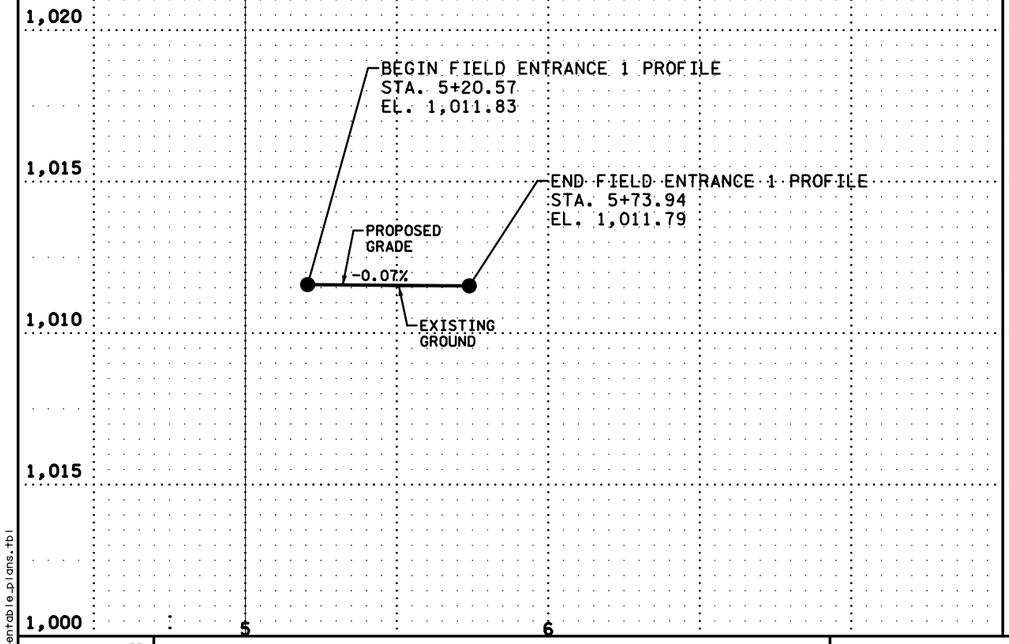
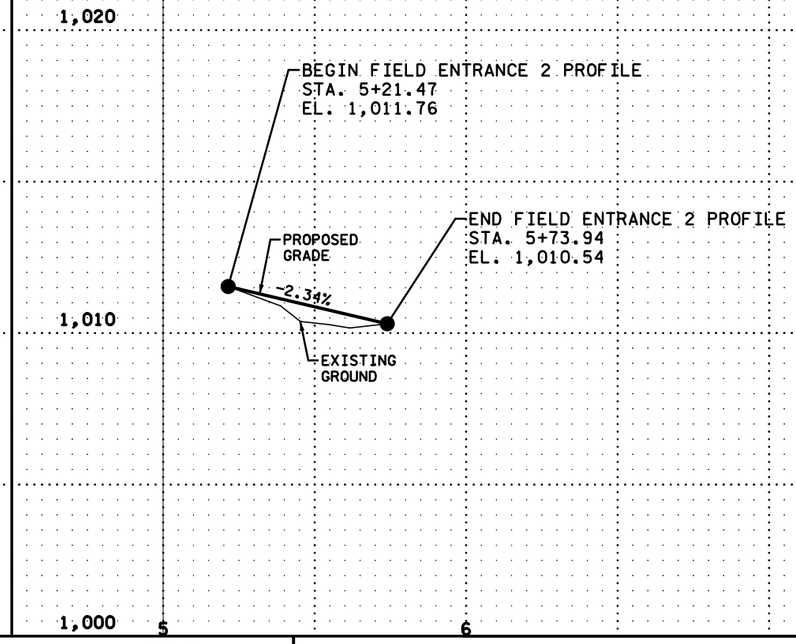


FIELD ENTRANCE 2
(N_FE_RT)



GENERAL NOTES

SPECIAL DITCH GRADES (SDG) ARE SHOWN AT THE BOTTOM OF 6" TOPSOIL.

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11/1/17 PM
CP080245_pentable_plans.tbl

DRAWN BY:	NTT
DESIGNED BY:	NTT
CHECKED BY:	DWK

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CERTIFIED BY: _____ LICENSED PROFESSIONAL ENGINEER

NAME: NATHAN TRUEX LIC. NO. 53715

10/27/2017 DATE

HDR

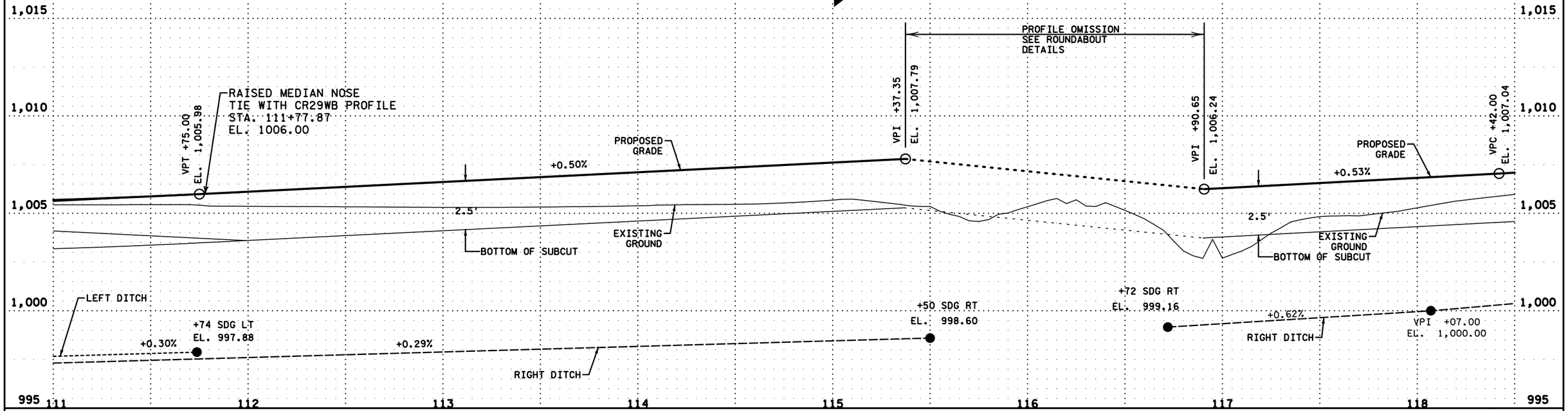
DEPARTMENT OF TRANSPORTATION

90% PLANS - FOR REVIEW ONLY

PROFILE SHEET - C.S.A.H. 29

STATE PROJ. NO. 0802-45 (T.H. 4)

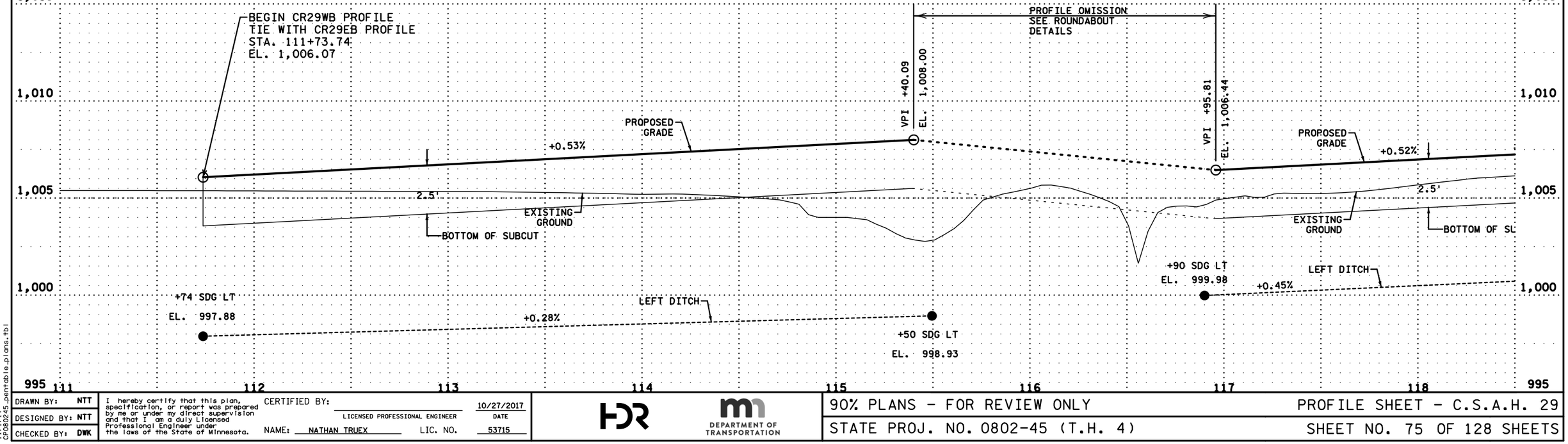
C.S.A.H. 29 E.B.
TRAFFIC



C.S.A.H. 29 W.B.
TRAFFIC

GENERAL NOTES

SPECIAL DITCH GRADES (SDG) ARE SHOWN AT THE BOTTOM OF 6" TOPSOIL.



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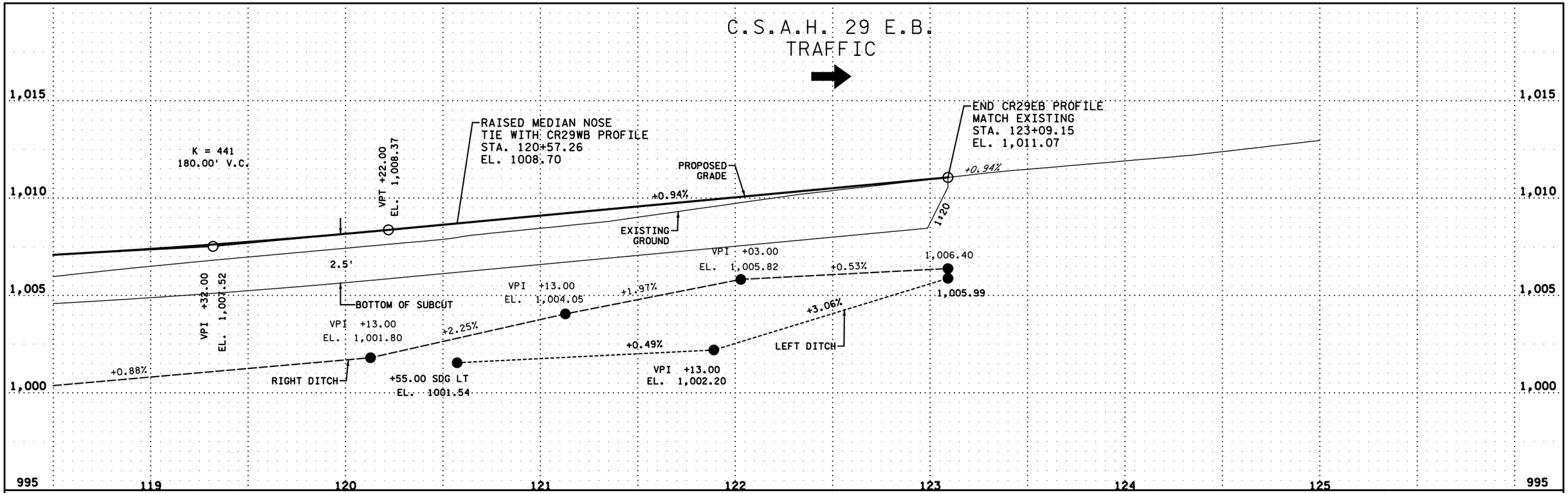
90% PLANS - FOR REVIEW ONLY

PROFILE SHEET - C.S.A.H. 29

STATE PROJ. NO. 0802-45 (T.H. 4)

C.S.A.H. 29 E.B.
TRAFFIC



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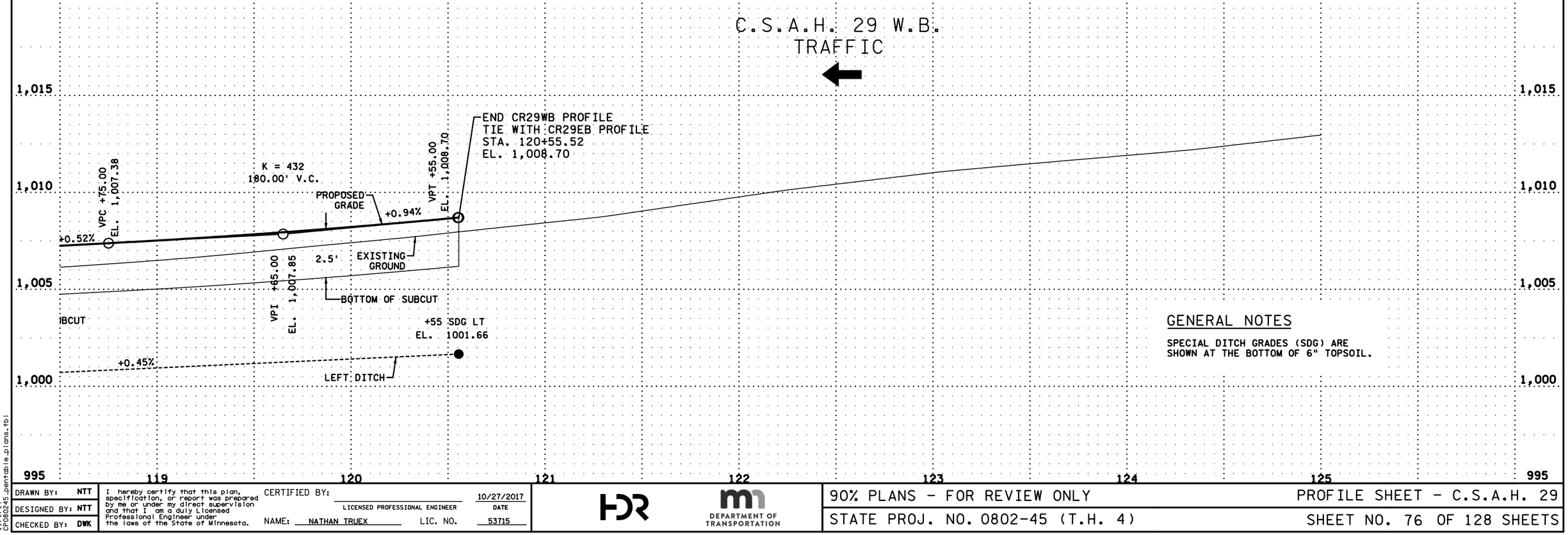
TRAFFIC



GENERAL NOTES

SPECIAL DITCH GRADES (SDG) ARE SHOWN AT THE BOTTOM OF 6" TOPSOIL.

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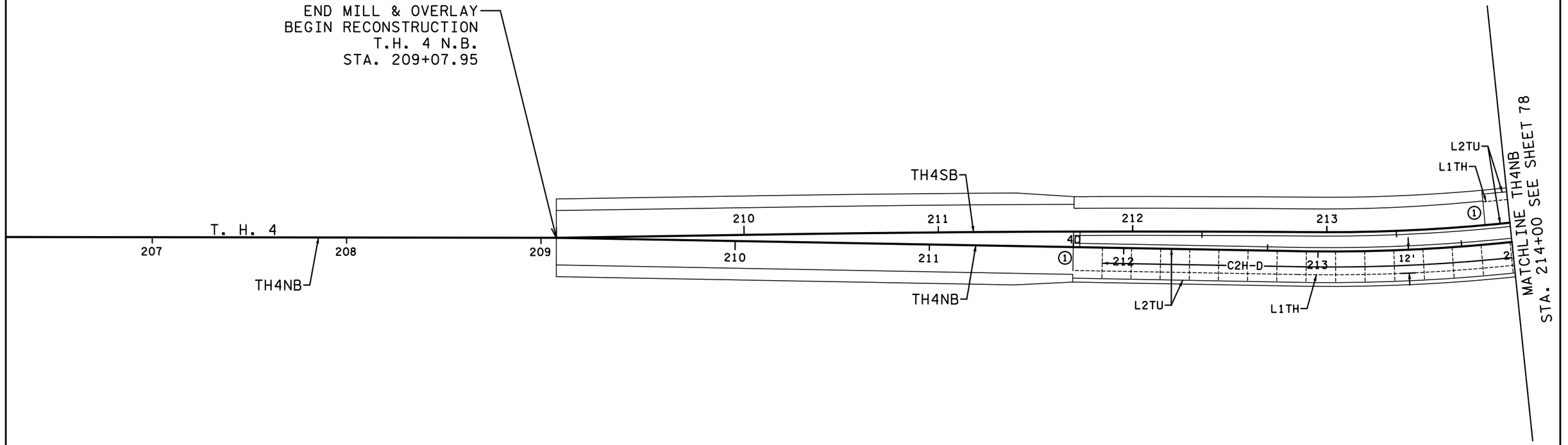
DESIGNED BY: NTT		NAME: NATHAN TRUEX LIC. NO. 53715		STATE PROJ. NO. 0802-45 (T.H. 4)	SHEET NO. 76 OF 128 SHEETS
CHECKED BY: DWK					

DEPARTMENT OF TRANSPORTATION



SPECIFIC NOTES

(1) SEE STANDARD PLATE 1150 FOR CONCRETE HEADER DETAIL

GENERAL NOTES

SEE STANDARD PLAN 5-297.217 FOR JOINT AND PANEL SPACING

50

SCALE IN FEET

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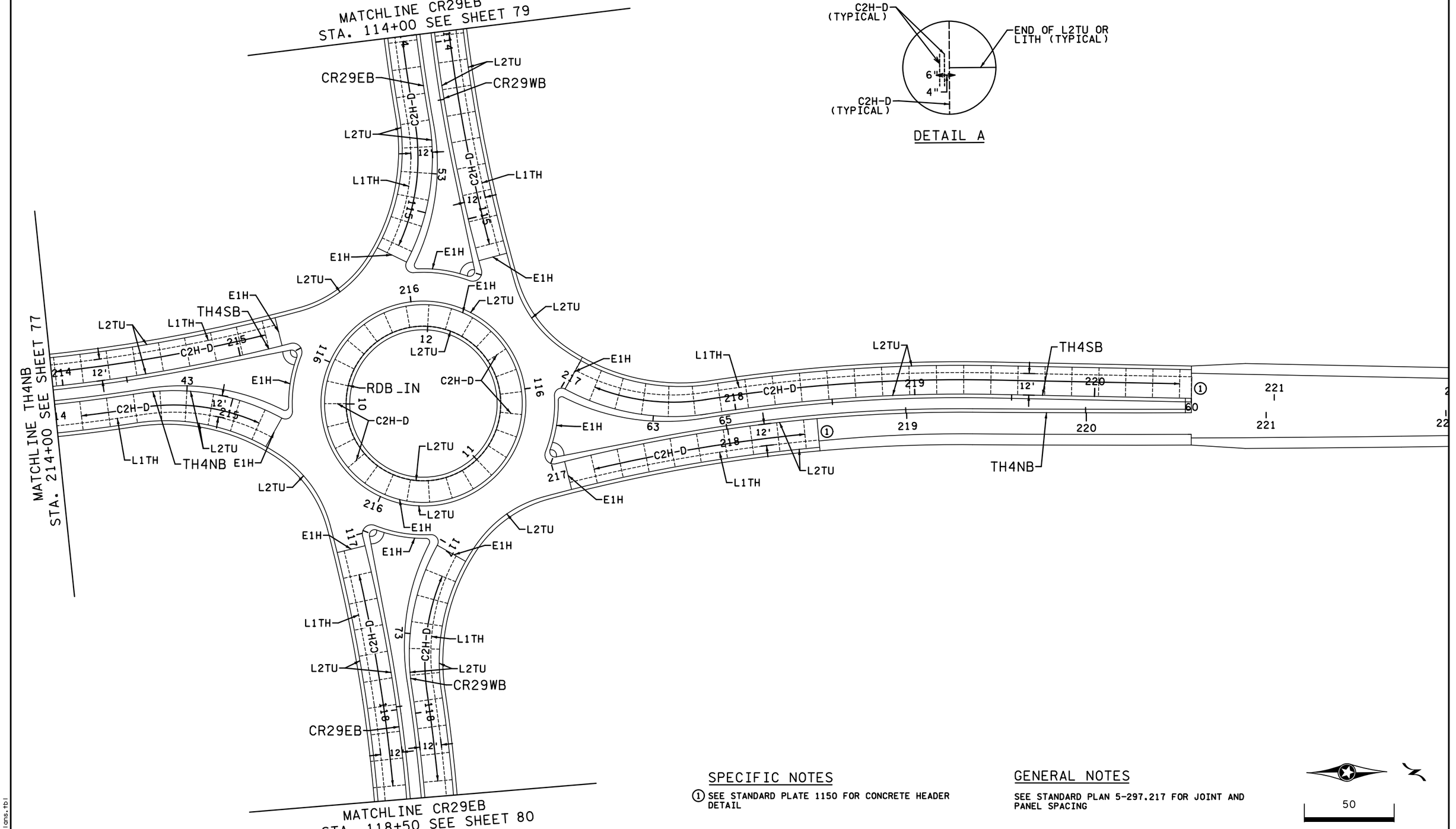
DESIGNED BY: NTT		NAME: NATHAN TRUEX LIC. NO. 53715		STATE PROJ. NO. 0802-45 (T.H. 4)	SHEET NO. 77 OF 128 SHEETS
CHECKED BY: DWK					



SPECIFIC NOTES

① SEE STANDARD PLATE 1150 FOR CONCRETE HEADER DETAIL

GENERAL NOTES

SEE STANDARD PLAN 5-297.217 FOR JOINT AND PANEL SPACING

50

SCALE IN FEET

DRAWN BY: NTT	I hereby certify that this plan, specification, or report 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.	CERTIFIED BY: LICENSED PROFESSIONAL ENGINEER	10/27/2017 DATE
DESIGNED BY: NTT		NAME: NATHAN TRUEX LIC. NO. 53715	
CHECKED BY: DWK			

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DEPARTMENT OF TRANSPORTATION

90% PLANS - FOR REVIEW ONLY

JOINTING LAYOUT DETAIL

STATE PROJ. NO. 0802-45 (T.H. 4)

SHEET NO. 78 OF 128 SHEETS

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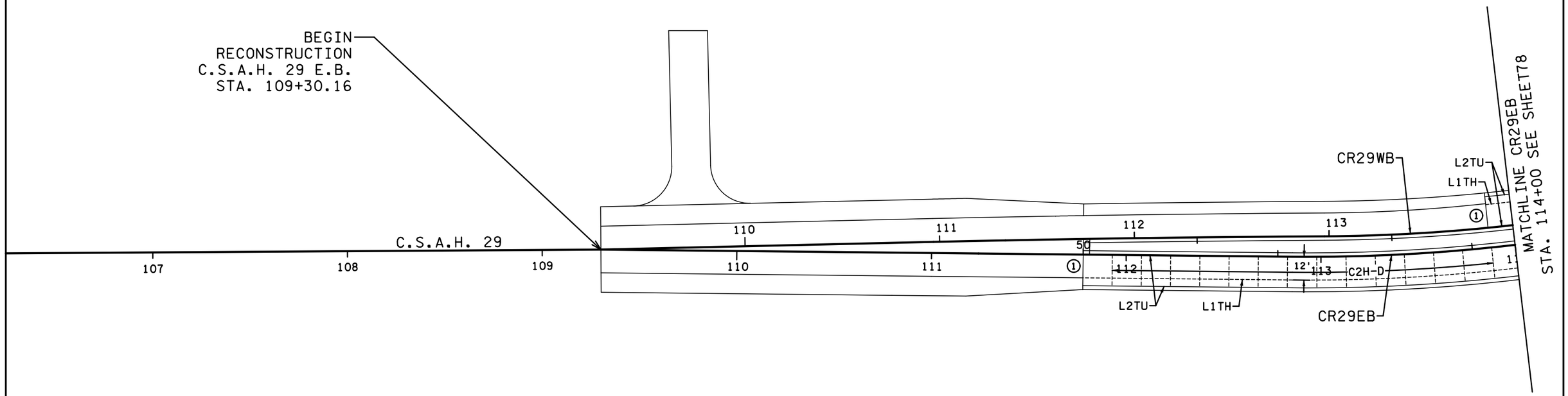

SPECIFIC NOTES

① SEE STANDARD PLATE 1150 FOR CONCRETE HEADER DETAIL

GENERAL NOTES

SEE STANDARD PLAN 5-297.217 FOR JOINT AND PANEL SPACING

N

50

SCALE IN FEET

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DESIGNED BY:	NTT
CHECKED BY:	DWK

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NAME: NATHAN TRUEX LIC. NO. 53715

10/27/2017 DATE

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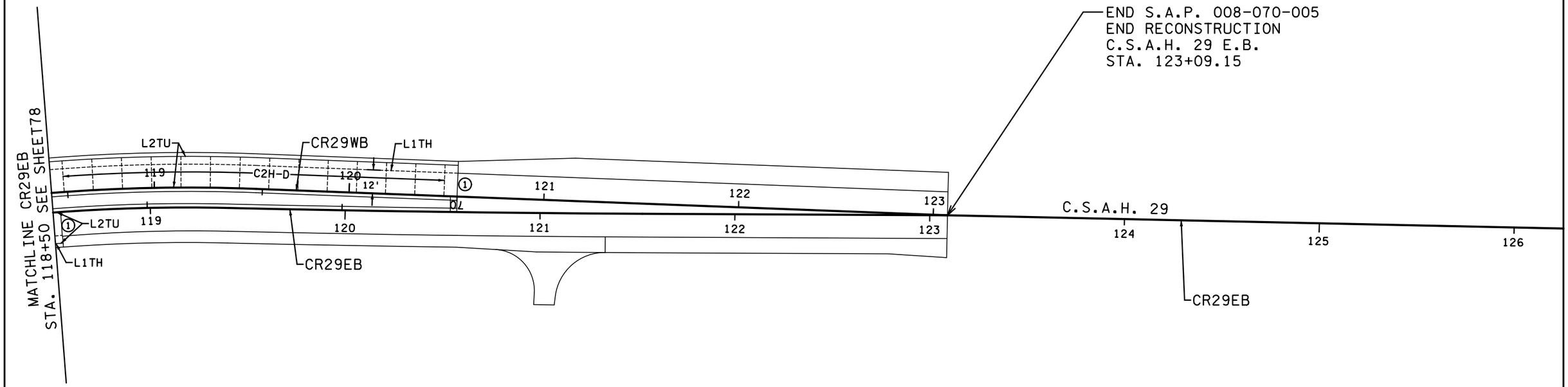
DEPARTMENT OF TRANSPORTATION

90% PLANS - FOR REVIEW ONLY

JOINTING LAYOUT DETAIL

STATE PROJ. NO. 0802-45 (T.H. 4)

SHEET NO. 79 OF 128 SHEETS



SPECIFIC NOTES

① SEE STANDARD PLATE 1150 FOR CONCRETE HEADER DETAIL

GENERAL NOTES

SEE STANDARD PLAN 5-297.217 FOR JOINT AND PANEL SPACING

N

50

SCALE IN FEET

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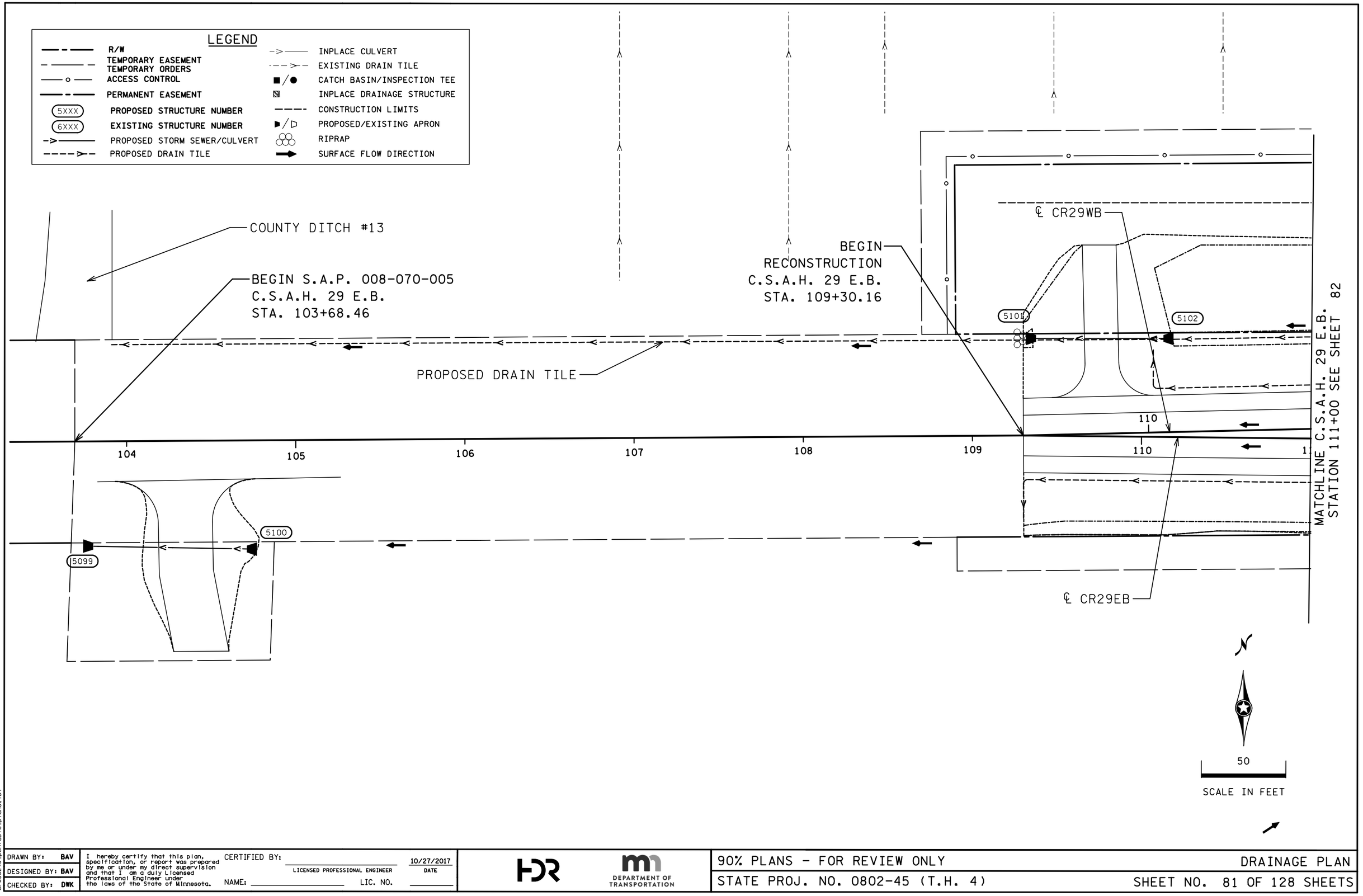
DESIGNED BY: NTT		NAME: NATHAN TRUEX LIC. NO. 53715			
CHECKED BY: DWK					

90% PLANS - FOR REVIEW ONLY — JOINTING LAYOUT DETAIL

STATE PROJ. NO. 0802-45 (T.H. 4) — SHEET NO. 80 OF 128 SHEETS

LEGEND

- R/W
- TEMPORARY EASEMENT
- TEMPORARY ORDERS
- ACCESS CONTROL
- PERMANENT EASEMENT
- 5XXX — PROPOSED STRUCTURE NUMBER
- 6XXX — EXISTING STRUCTURE NUMBER
- PROPOSED STORM SEWER/CULVERT
- PROPOSED DRAIN TILE
- INPLACE CULVERT
- EXISTING DRAIN TILE
- CATCH BASIN/INSPECTION TEE
- INPLACE DRAINAGE STRUCTURE
- CONSTRUCTION LIMITS
- PROPOSED/EXISTING APRON
- RIPRAP
- SURFACE FLOW DIRECTION



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CP080245_pentable_plans.tbl

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DESIGNED BY:	BAV
CHECKED BY:	DWK

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CERTIFIED BY: _____ LICENSED PROFESSIONAL ENGINEER — 10/27/2017 DATE

NAME: _____ LIC. NO. _____

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DEPARTMENT OF TRANSPORTATION

90% PLANS - FOR REVIEW ONLY — DRAINAGE PLAN

STATE PROJ. NO. 0802-45 (T.H. 4) — SHEET NO. 81 OF 128 SHEETS

MATCHLINE C.S.A.H. 29 E.B.
STA. 111+00 SEE SHEET 81

MATCHLINE T.H. 4 N.B.
STA. 218+00 SEE SHEET 85

MATCHLINE C.S.A.H. 29 E.B.
STA. 118+75 SEE SHEET 83

MATCHLINE T.H. 4 N.B.
STA. 214+00 SEE SHEET 84

℄ TH4SB

℄ TH4NB

℄ CR29WB

℄ CR29EB

REPLACE TILE CROSSING
PROPOSED DRAIN TILE

REPLACE TILE CROSSING

REPLACE TILE CROSSING

5101 5102 5103 5104 5105 5106 5107 5108 5109 5110 5111 5112 5113 5114 5115 5116 5117 5118 5119 5120 5121 5122 5123 5124 5125 5202 5203 5204 5205 5212 5213 5214 5215

LEGEND

R/W	INPLACE CULVERT
TEMPORARY EASEMENT TEMPORARY ORDERS	EXISTING DRAIN TILE
ACCESS CONTROL	CATCH BASIN/INSPECTION TEE
PERMANENT EASEMENT	INPLACE DRAINAGE STRUCTURE
5XXX PROPOSED STRUCTURE NUMBER	CONSTRUCTION LIMITS
6XXX EXISTING STRUCTURE NUMBER	PROPOSED/EXISTING APRON
PROPOSED STORM SEWER/CULVERT	RIPRAP
PROPOSED DRAIN TILE	SURFACE FLOW DIRECTION

N

50
SCALE IN FEET

CD080245_dr02.dgn
11/1/17 AM
11/1/17
CP080245_pentable_plans.tbl

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DESIGNED BY: BAV
CHECKED BY: DWK

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CERTIFIED BY: _____ LICENSED PROFESSIONAL ENGINEER

NAME: _____ LIC. NO. _____

10/27/2017 DATE

HDR

DEPARTMENT OF TRANSPORTATION

90% PLANS - FOR REVIEW ONLY — DRAINAGE PLAN

STATE PROJ. NO. 0802-45 (T.H. 4) — SHEET NO. 82 OF 128 SHEETS

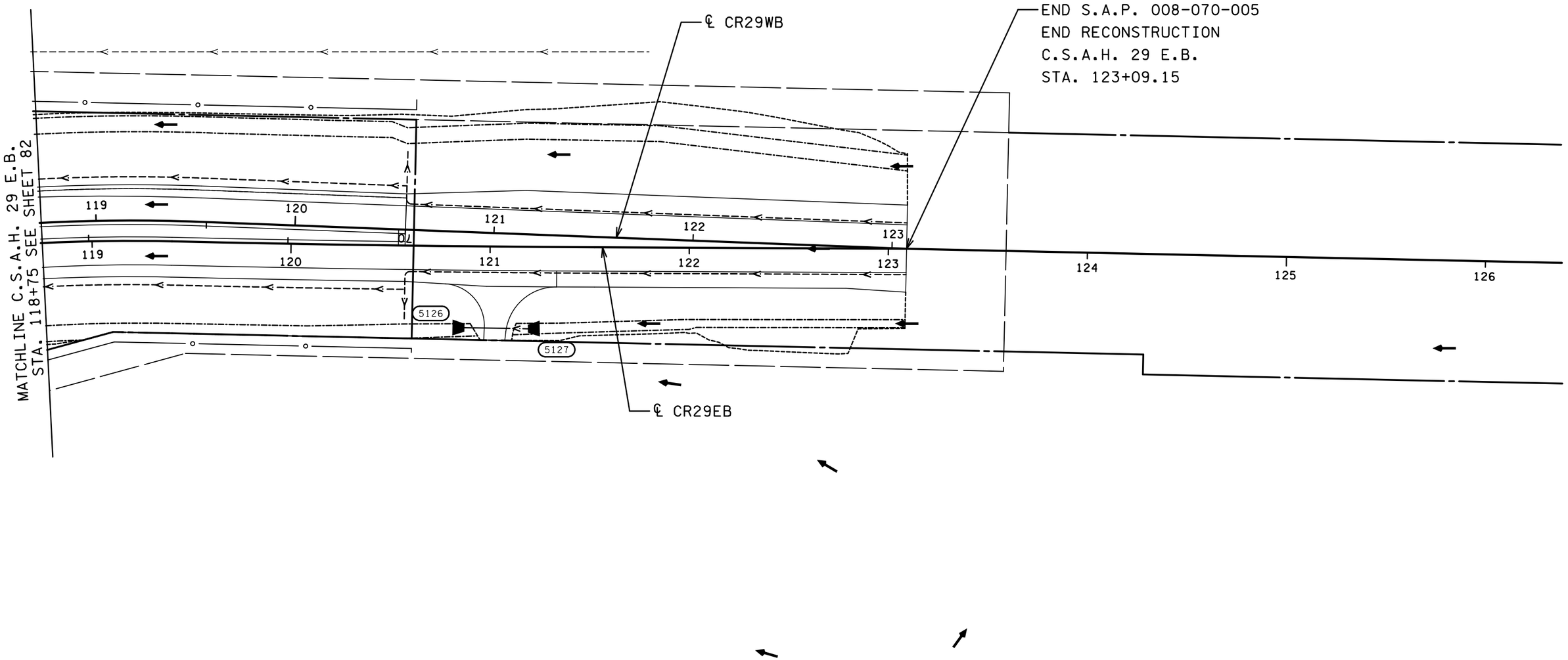
LEGEND

- R/W
- TEMPORARY EASEMENT
- TEMPORARY ORDERS
- ACCESS CONTROL
- PERMANENT EASEMENT
- 5XXX — PROPOSED STRUCTURE NUMBER
- 6XXX — EXISTING STRUCTURE NUMBER
- PROPOSED STORM SEWER/CULVERT
- PROPOSED DRAIN TILE
- INPLACE CULVERT
- EXISTING DRAIN TILE
- CATCH BASIN/INSPECTION TEE
- INPLACE DRAINAGE STRUCTURE
- CONSTRUCTION LIMITS
- PROPOSED/EXISTING APRON
- RIPRAP
- SURFACE FLOW DIRECTION

N

50

SCALE IN FEET



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DRAWN BY: BAV	I hereby certify that this plan, specification, or report 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.	CERTIFIED BY: _____ LICENSED PROFESSIONAL ENGINEER	10/27/2017 DATE	90% PLANS - FOR REVIEW ONLY — DRAINAGE PLAN
DESIGNED BY: BAV		NAME: _____ LIC. NO. _____		STATE PROJ. NO. 0802-45 (T.H. 4) — SHEET NO. 83 OF 128 SHEETS
CHECKED BY: DWK				

HDR

DEPARTMENT OF TRANSPORTATION

BEGIN
RECONSTRUCTION
S.P. 0802-45
T.H. 4 N.B.
STA. 209+07.95

℄ TH4SB

MATCHLINE T.H. 4 N.B.
STA. 214+00 SEE SHEET 82

207 208 209 210 211 212 213

210 211 212 213

5006

℄ TH4NB

LEGEND

R/W	INPLACE CULVERT
TEMPORARY EASEMENT	
TEMPORARY ORDERS	EXISTING DRAIN TILE
ACCESS CONTROL	CATCH BASIN/INSPECTION TEE
PERMANENT EASEMENT	INPLACE DRAINAGE STRUCTURE
5XXX PROPOSED STRUCTURE NUMBER	CONSTRUCTION LIMITS
6XXX EXISTING STRUCTURE NUMBER	PROPOSED/EXISTING APRON
PROPOSED STORM SEWER/CULVERT	RIPRAP
PROPOSED DRAIN TILE	SURFACE FLOW DIRECTION

50
SCALE IN FEET

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11/1/2017 8:43 AM
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CP080245_pentable_plans.tbl

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CERTIFIED BY: _____ 10/27/2017
LICENSED PROFESSIONAL ENGINEER — DATE

NAME: _____ LIC. NO. _____

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90% PLANS - FOR REVIEW ONLY — DRAINAGE PLAN

STATE PROJ. NO. 0802-45 (T.H. 4) — SHEET NO. 84 OF 128 SHEETS

PROPOSED DRAIN TILE

℄ TH4SB

MATCHLINE T.H. 4 N.B.
STA. 218+00 SEE SHEET 82

END
RECONSTRUCTION
T.H. 4 N.B.
STA. 223+16.17

REPLACE TILE CROSSING

℄ TH4NB

5201 5200 5206 5207 5208 5209 5210 5211 5216

218 219 220 221 222 223 224 225

LEGEND

R/W	INPLACE CULVERT
TEMPORARY EASEMENT TEMPORARY ORDERS	EXISTING DRAIN TILE
ACCESS CONTROL	CATCH BASIN/INSPECTION TEE
PERMANENT EASEMENT	INPLACE DRAINAGE STRUCTURE
5XXX PROPOSED STRUCTURE NUMBER	CONSTRUCTION LIMITS
6XXX EXISTING STRUCTURE NUMBER	PROPOSED/EXISTING APRON
PROPOSED STORM SEWER/CULVERT	RIPRAP
PROPOSED DRAIN TILE	SURFACE FLOW DIRECTION

50
SCALE IN FEET

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DESIGNED BY: BAV
CHECKED BY: DWK

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CERTIFIED BY: _____ 10/27/2017
LICENSED PROFESSIONAL ENGINEER — DATE

NAME: _____ LIC. NO. _____

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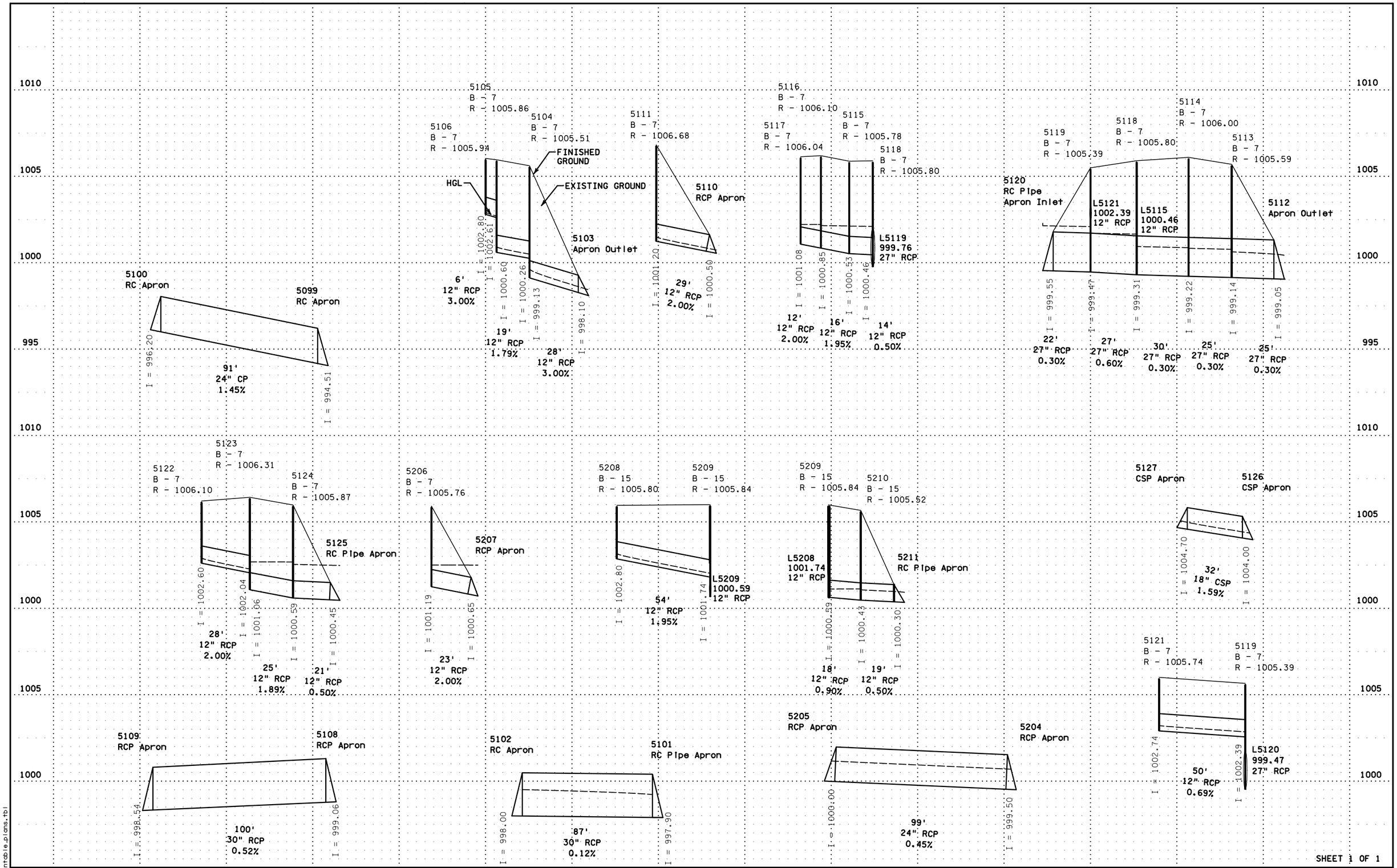
DEPARTMENT OF TRANSPORTATION

90% PLANS - FOR REVIEW ONLY — DRAINAGE PLAN

STATE PROJ. NO. 0802-45 (T.H. 4) — SHEET NO. 85 OF 128 SHEETS



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DESIGNED BY:	BAV
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CERTIFIED BY: _____ 10/27/2017
LICENSED PROFESSIONAL ENGINEER — DATE

NAME: _____ LIC. NO. _____

HDR

DEPARTMENT OF TRANSPORTATION

90% PLANS - FOR REVIEW ONLY — DRAINAGE PROFILES

STATE PROJ. NO. 0802-45 (T.H. 4) — SHEET NO. 86 OF 128 SHEETS

DRAINAGE TABULATION (D)

STRUCTURE NO.		STRUCTURE LOCATION					DRAINAGE STRUCTURES																																	
			CENTER OF CASTING		CENTER OF STRUCTURE			PAY HEIGHT																																	
FLOWS FROM	FLOWS TO	ALIGN	STATION (3)	OFFSET (3)	STATION	OFFSET	TYPE	H	G	F	48-4020	72-4020	78-4020	CASTING ASSEMBLY	STEPS REQ.	TOP OF CASTING ELEV.	OUTLET ELEV.	INLET ELEV. (2)	SLOPE %	RC PIPE SEWER DESIGN 3006 (5) 12" CL III	RC PIPE SEWER DESIGN 3006 (5) 27" CL III	RC PIPE CULVERT 24" CL III	RC PIPE CULVERT 30" CL III	RC PIPE APRON 12"	RC PIPE APRON 24"	RC PIPE APRON 27"	RC PIPE APRON 30"	CP PIPE CULVERT 18"	CP PIPE CULVERT 24"	CP PIPE CULVERT 30"	CS PIPE APRON 18"	CS PIPE APRON 24"	CS PIPE APRON 30"	RANDOM RIPRAP CL II	GEOTEX -TILE FILTER TYPE IV	FINE AGG. BEDDING	GUIDE POST TYPE B	NOTES
								LIN FT	LIN FT	LIN FT	LIN FT	LIN FT	LIN FT	TYPE (1)						LIN FT	LIN FT	LIN FT	LIN FT	EACH	EACH	EACH	EACH	LIN FT	LIN FT	LIN FT	EACH	EACH	EACH	CU YD	SQ YD	CU YD	EACH	
S.P. 0802-45																																								
5099		CR29EB					APR										994.51															1							
5100	5099	CR29EB	104+76.70	64.72' RT			APR										996.20	994.51	1.45											91			1				20		(4)
5101		CR29WB	109+31.00	57.34' LT			APR										997.90																1	8.2	37.4				
5102	5101	CR29WB	110+15.96	55.24' LT			APR										998.00	997.90	0.12												75			1			23		(4)
5103		CR29EB	111+88.24	51.20' RT			APR										998.10							1														1	
5104	5103	CR29EB	111+88.00	17.00' RT	111+88.00	17.00' RT	CB			6.5				B - 7	YES	1005.51	999.13	998.10	3.00	28																3		
5105	5104	CR29EB	111+94.00	1.00' LT	111+94.00	1.00' LT	CB		5.4					B - 7	YES	1005.86	1000.60	1000.26	1.79	19																2		
5106	5105	CR29WB	111+90.00	1.00' RT	111+90.00	1.00' RT	CB	3.3						B - 7		1005.94	1002.80	1002.61	3.00	6																1		
5108	5109	CR29WB	113+13.57	49.36' LT			APR										999.06	998.34					100				1									30	1	
5109		CR29EB	113+17.92	52.16' RT			APR										998.34										1										1	
5110		CR29WB	113+91.01	51.82' LT			APR										999.00							1													1	
5111	5110	CR29WB	113+92.00	17.00' LT	113+92.00	17.00' LT	CB	5.6						B - 7	YES	1006.68	1001.20	1000.50	2.00	29																3		
5126		CR29EB	120+81.55	40.88' RT			APR										1004.00															1						(4)
5127	5126	CR29EB	121+19.29	41.18' RT			APR										1004.70	1004.00	1.59										32			1				4		(4)
S.A.P. 008-070-005 TOTAL								8.9	5.4	6.5				4						82			100	2			2	32	91	75	2	2	2	8	38	86	4	
5112		TH4SB	215+39.15	47.77' LT			APR										999.05										1							6.6	31.4		1	
5113	5112	TH4SB	215+37.06	17.00' LT	215+36.86	16.24' LT	CB				6.6			B - 7	YES	1005.59	999.14	999.05	0.30		25															6		
5114	5113	TH4SB	215+20.20	1.46' RT	215+20.00	0.69' RT	CB				6.8			B - 7	YES	1006.00	999.30	999.14	0.62		25															6		
5115	5118	TH4NB	215+28.37	12.24' LT	215+29.00	12.62' LT	CB				5.4			B - 7	YES	1005.78	1000.53	1000.46	0.50	13																1		
5116	5115	TH4NB	215+42.29	20.95' LT	215+41.73	20.50' LT	CB				5.4			B - 7	YES	1006.10	1000.85	1000.53	1.95	16																2		
5117	5116	TH4NB	215+48.83	11.98' LT	215+48.83	11.98' LT	CB		5.1					B - 7	YES	1006.04	1001.08	1000.85	2.00	12																1		
5118	5114	TH4NB	215+19.93	2.11' LT	215+19.09	4.01' LT	CB						6.5	B - 7	YES	1005.80	999.39	999.30	0.30		32															8		
5119	5118	TH4NB	215+35.91	19.23' RT	215+35.91	17.44' RT	CB					6.0		B - 7	YES	1005.39	999.47	999.39	0.30		26															7		
5120	5119	TH4NB	215+36.86	45.10' RT			APR										999.55	999.47	0.30		22					1										1	
5121	5119	TH4NB	215+86.69	28.78' RT	215+86.69	28.78' RT	CB	3.1						B - 7		1005.74	1002.74	1002.39	0.69	50																5		
5122	5123	TH4NB	216+08.25	17.00' RT	216+08.25	17.00' RT	CB	3.6						B - 7	YES	1006.10	1002.60	1002.04	2.00	28																3		
5123	5124	CR29WB	117+13.00	2.30' RT	117+13.07	1.51' RT	CB				5.4			B - 7	YES	1006.31	1001.06	1000.59	1.89	25																3		
5124	5125	CR29WB	116+96.72	19.18' LT	116+96.68	18.39' LT	CB				5.4			B - 7	YES	1005.87	1000.59	1000.45	0.50	21																2		
5125		CR29WB	116+96.39	45.46' LT			APR										1000.45							1													1	
5204		CR29WB	115+89.13	78.30' LT			APR										999.50								1										6.2	29.7		1	
5205	5204	CR29WB	116+31.76	104.32' LT			APR										1000.00	999.50	0.45			99			1												22	1	
5206	5207	TH4NB	218+39.95	17.00' RT	218+39.95	17.00' RT	CB		4.7					B - 7	YES	1005.76	1001.19	1000.65	2.00	23																2		
5207		TH4NB	218+40.60	39.50' RT			APR											1000.65						1													1	
5208	5209	TH4NB	219+71.00	1.00' LT	219+71.00	1.00' LT	CB	3.1						B - 15		1005.80	1002.80	1001.74	1.95	54																6		
5209	5210	TH4SB	220+20.00	1.00' RT	220+19.98	0.21' RT	CB				5.4			B - 15	YES	1005.84	1000.59	1000.43	0.90	18																2		
5210	5211	TH4SB	220+20.00	17.00' LT	220+20.00	17.00' LT	CB		5.2					B - 15	YES	1005.52	1000.43	1000.30	0.50	19																2		
5211		TH4SB	220+20.00	36.25' LT			APR										1000.30							1													1	
S.P. 0802-45 TOTAL								9.8	15.0		40.4	6.0	6.5	15						279	130	99		3	2	2									13	61	78	7	
PROJECT TOTAL								18.7	20.4	6.5	40.4	6.0	6.5	19						361	130	99	100	5	2	2	2	32	91	75	2	2	2	21	99	164	11	

GENERAL NOTES:
- INVERT ELEVATIONS ARE GIVEN AT CENTER OF STRUCTURE AND END OF APRON.
- IF STEPS REQUIRED, STRUCTURE TO INCLUDE MANHOLE STEPS 16" ON CENTER. SEE MNDOT STANDARD PLATE 4180.
- ALL PIPE JOINTS SHALL BE TIED FROM APRON TO THE FIRST STRUCTURE. PIPE TIES SHALL BE INCIDENTAL.
- ALL CONCRETE PIPE SEWER IS DESIGN 3006 GASKET JOINT PIPE.
- PIPE LENGTHS DO NOT INCLUDE APRONS.

SPECIFIC NOTES:
(1) FOR CASTING ASSEMBLY KEY AND SUMMARY, SEE TAB P.
(2) INLET ELEVATION AT DOWNSTREAM STRUCTURE.
(3) CENTER OF CASTING (GRATE OR COVER) OR END OF APRON.
(4) PLASTIC PIPE CONFORMING TO MNDOT TECHNICAL MEMORANDUM 17-05-B-02 MAY BE USED AS AN ALTERNATIVE.
(5) CP (SMOOTH WALL) PIPE MAY BE USED AS A STORM SEWER ALTERNATIVE.

CASTING ASSEMBLIES SUMMARY (P)

ASSEMBLY	RING OR FRAME CASTING	CURB BOX	COVER OR GRATE CASTING	STANDARD PLATE NO.	QUANTITY
B - 7	805			4132	16
			814A	4152	
B - 15	806			4125	3
		825		4134	
			814A	4152	

DRAIN TILE (N)

ROADWAY	FROM	TO	STATION FROM	STATION TO	LT/RT	8" PERF TP PIPE DRAIN	12" RC PIPE DRAIN	12" PE INSEPCTION TEE	CONST DRAIN STRUCTURE DES DI CONC 8"	CONST DRAIN STRUCTURE DES DI CONC 12"	NOTES
						LIN FT	LIN FT	LIN FT	EACH	EACH	
S.P. 0802-45											
CSAH 29/T.H. 4	5216		103+91	223+12	LT	1746		1	1		
T.H. 4	5203	5202	214+75	214+61	LT/RT		143	2			
T.H. 4	5200	5201	224+71	224+22	LT/RT		182			2	
S.P. 0802-45 TOTAL						**1746**	**325**	**3**	**1**	**2**	
CSAH 29	5107		112+95		RT					1	
CSAH 29	5215	5214	113+53	113+46	RT		112	2			
CSAH 29	5213	5212	117+98	117+85	LT/RT		138	2			
S.A.P. 008-070-005 TOTAL							**250**	**4**		**1**	
PROJECT TOTAL						**1746**	**575**	**7**	**1**	**3**	

SHEET 1 OF 1

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DRAWN BY: NTT
DESIGNED BY: NTT
CHECKED BY: DWK

I hereby certify that this plan, specification, or report 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.

CERTIFIED BY: _____ LICENSED PROFESSIONAL ENGINEER
NAME: _____ LIC. NO. _____
10/27/2017 DATE

HDR

DEPARTMENT OF TRANSPORTATION

90% PLANS - FOR REVIEW ONLY

DRAINAGE TABULATION

STATE PROJ. NO. 0802-45 (T.H. 4)

SHEET NO. 87 OF 128 SHEETS

STORMWATER POLLUTION PREVENTION PLAN (SWPPP) NARRATIVE

(NPDES PERMIT IS REQUIRED ON THIS PROJECT)

STORMWATER POLLUTION PREVENTION PLAN (SWPPP) NARRATIVE

PROJECT NAME/LOCATION

SP 0802-45 is located on T.H. 4 at the intersection with County State Aid Highway 29 from RP 67+00.849 to RP 68+00.494 in the County of Brown, Home/North Home Townships, Zip Code: 56085, approximately 5 miles north of Sleepy Eye, MN.

ENVIRONMENTAL REVIEW

There are no stormwater mitigation measures required as a result of an environmental, archeological or agency review. All mitigation measures have been addressed in this plan set or the special provisions.

PROJECT DESCRIPTION/NARRATIVE

SP 0802-45 is located at the intersection of T.H. 4 and Brown County State Aid Highway 29. The project involves full roadway reconstruction and will replace the existing two-way stop controlled intersection with a single lane roundabout at the intersection. Project work includes grading, bituminous and concrete paving, storm sewer, lighting and landscaping.

LONG TERM OPERATION AND MAINTENANCE

MnDOT District 7 maintenance staff are reponsible for the long term maintenance and operation of the permanent stormwater system.

PROJECT CONTACTS

The project engineer and contractor are responsible for implementation of the SWPPP and installation, inspection and maintenance of the erosion prevention and sediment control BMP's before, during and after construction until the notice of termination (NOT) has been filed. MnDOT District 2 staff and members of MnDOT's Office of Environmental Stewardship are also available for technical assistance.

MnDOT District 7
Construction Engineer
Greg Ous
507-304-6101
2151 Bassett Drive
Mankato, MN 56001
greg.ous@state.mn.us

MnDOT District 7
Maintenance Supervisor (owner)
Jed Falgren
507-304-6104
2151 Bassett Drive
Mankato, MN 56001
jed.falgren@state.mn.us

Contractor is:

Co-Permitee

ORGANIZATION	CONTACT	PHONE
MnDOT District 7 Design	Zachary Tess	503-604-6199
HDR, Inc. (SWPPP Designer)	Brett Voth	763-591-5400
MnDOT Office of Environmental Stewardship	Peter Leete	651-366-3302
Minnesota Pollution Control Agency	Amy Delbecq	651-757-2446
Watershed District	John Kisley	507-233-6641
County Ag Inspector	Laine Sletta	507-233-6644

MPCA 24-hour emergency notification: 651-649-5451 Toll free: 800-422-0798

EROSION CONTROL SUPERVISOR

In accordance with spec. 2573.3 A1 the contractor shall provide an Erosion Control Supervisor with a valid certification to direct the contractor and subcontractors operations and insure compliance with federal, state, and local ordinances and regulations. The Erosion Control Supervisor will work with the project engineer to oversee the implementation of the SWPPP and the installation, inspection, and maintenance and repair of the erosion prevention and sediment control BMP's before, during and after construction until the NOT has been filed with the MPCA.

The Erosion Control Supervisor is responsible for complying with all the inspection and maintenance requirements stated in the NPDES permit. Inspections of the entire construction site will occur a minimum of once every seven days during active contruction and within 24 hours after a rainfall event greater than 0.5 inches in 24 hours. The Erosion Control Supervisor will oversee inspection of all erosion prevention and sediment control BMPs to ensure integrity and effectiveness of each BMP. All inspections and maintenance conducted during construction must be recorded in writing (within 24 hours) and these records must become part of the SWPPP. Inspection reports must be submitted to the project engineer in a format that meets the project engineer's expectations. Records of each inspection and maintenance activity shall include:

A. Date and time of inspections;
B. Name of persons conducting inspections;
C. Findings of inspections, including specific locations where corrective actions are needed;
D. Corrective action taken including dates, times, and party completing maintenance activities;
E. Date and amount of all rainfall events greater than 0.5 inch in 24 hours;
F. Photograph and description of discharge (i.e. color, odor, floating, settled or suspended solids, foam, oil sheen, etc.); and
G. Documents and changes made to the SWPPP.

Rainfall amounts must be obtained by a properly maintained rain gauge on site, a weather station within 1 mile of site, or a weather reporting system that provides site specific rainfall data from radar summaries.

LOCATION ON SWPPP REQUIREMENTS

The required SWPPP elements are located in several places within the plan set as well as in the special provisions, mndot spec book (2018 edition). Soil maps are on file at the MnDOT Mankato office. The notes and table below are a quick reference for the contractor and project engineer to use in the field. There may be additional required SWPPP elements included on the project that are not listed on this sheet.

SWPPP TRAINING

This SWPPP was prepared by HDR, Inc. personnel, certified, or under the supervision of someone certified in the design of construction SWPPPs. Copies of the certifications are on file with MnDOT and are available upon request. The contractor is responsible for providing an erosion control supervisor that is responsible for overseeing the implementation of the SWPPP. The contractor must provide proof of certification at the preconstruction meeting and will not be allowed to commence work until proof of certification has been provided to the project engineer.

LOCATION OF SWPPP REQUIREMENTS IN PROJECT PLAN

DESCRIPTION	LOCATION
SITE MAP & EROSION CONTROL SHEETS	SHEETS NO. 90 - 96
DIRECTION OF FLOW	SHEETS NO. 81 - 85
FINAL STABILIZATION	SHEETS NO. 90 - 96
SOILS AND CONSTRUCTION NOTES	SHEETS NO. 8
DRAINAGE STRUCTURES	SHEETS NO. 81 - 85
DRAINAGE TABULATION	SHEETS NO. 87
STORM SEWER PLAN/PROFILE SHEETS	SHEETS NO. 81 - 86
STORM SEWER TABULATION	SHEETS NO. 87
EROSION AND SEDIMENT CONTROL DETAILS	SHEETS NO. 27 - 32
EROSION CONTROL TABULATION	SHEET NO. 11
TURF ESTABLISHMENT TABULATION	SHEET NO. 11

PROJECT WATERBODIES

The following waterbodies are located within one mile of the project limits and recieve runoff from the project site. If any of the waterbodies are special or impaired waters, the BMP's described in Appendix A of the NPDES permit will apply to all areas of the site. Approved TMDL plans are also listed.

NAME	TYPE	SPECIAL ?	IMPAIRED?	APPROVED TMDL?
County Ditch #13	Ditch	NO	NO	NO

No work shall occur within the banks of DNR designated Public Waters between March 1 and June 15. Stabilization of soils within 200 feet of the waters edge must be completed within 24 hours during this period.

STORMWATER CONTROLS AND PRECIPITATION

The contractor must plan and implement BMP's to protect receiving waters. The average annual rainfall amount for the project area is 29 inches. Average 2-year and 10-year rainfall intensities for a 24-hour storm are 2.73 in/hr and 4.00 in/hr respectively. Stormwater management is not required on this project.

LAND FEATURE CHANGES

TOTAL DISTURBED AREA = 9.33 ACRES
EXISTING IMPERVIOUS SURFACE AREA = 3.01 ACRES
PROPOSED IMPERVIOUS SURFACE AREA = 3.17 ACRES
NEW IMPERVIOUS SURFACE AREA = 0.16 ACRE

NEW IMPERVIOUS AREA LESS THAN 1 ACRE, NO PERMANENT STORMWATER TREATMENT VOLUME REQUIRED

ADDITIONAL SWPPP REQUIREMENTS

- Timing for installation is described in General SWPPP notes and are specified relative to contractor schedule.
- BMP Design Factors are incorporated in the design of BMP Standard Detail Sheets.
- Soil Management
  Soil types typically found on this project are silty clay loams.
  Preservation Projects: all work is done within road core so there will be no disturbance or compaction outsite of road core.
  Grading Projects: subsoiling and seeding practices will be done to mitigate for compaction and disturbance beyond road core.
- All MPCA Construction Activity Requirements are incorporated into this SWPPP and associated plan documents.

STORM WATER POLLUTION PREVENTION PLAN (SWPPP) (CONTINUED)

GENERAL SWPPP NOTES FOR CONSTRUCTION ACTIVITY

1. Construction shall be governed by the 2013 NPDES Construction Stormwater Permit, MnDOT Spec Book (2018 Edition), project plans, and special provisions. Reference special provision 1717 for additional MPCA NPDES requirements. The contractor will develop a chain of command with all operators on the site to ensure that the SWPPP will be implemented and stay in effect until the construction project is complete, the entire site has undergone final stabilization, and the NOT has been submitted.

2. The contractor will prepare a written, weekly schedule of proposed erosion control activities for the Project Engineer's approval as per MnDOT Spec 1717.2B.

3. The contractor will prepare and submit a site plan for the Engineer's approval as per MnDOT Spec 1717.2C for concrete management, work in environmentally sensitive areas, areas identified in the plans as "site plan requirement area", any work that will require dewatering, the staging of inlet protection devices over the life of the contract, and as requested by the engineer. All site plans must be submitted to the engineer in writing. The contractor shall allow a minimum of 7 days for MnDOT to review and approve site plan submittals. The contractor will not be allowed to commence work for which a site plan is required until approval has been granted by the engineer. The contractor will not be given any extra time in the contract due to the untimely submittal of a site plan.

4. The contractor will comply with the requirements regarding pollution prevention management during construction, which will include, but not be limited to:
   - A. Concrete washout areas for use by all subcontractors and MnDOT personnel must be identified by signage. These areas must be at least 200' from site plan requirement areas or environmentally sensitive areas, and utilize a leak-proof containment facility or impermeable liner that prevents runoff onto adjacent soils. An engineered collection system can also be used if it is approved by the project engineer. Liquid and solid waste must be disposed of properly and in compliance with all MPCA regulations.
   - B. Solid waste including, but not limited to, collected sediment, asphalt and concrete millings, floating debris, paper, plastic, fabric, construction and demolition debris, and other wastes, must be disposed of properly and in compliance with MPCA disposal requirements.
   - C. Hazardous waste, such as, oil, gasoline, paint, and other hazardous substances, must be properly stored, including secondary containment, to prevent spills, leaks, or other discharge. Restricted access to storage areas must be provided to prevent vandalism. Storage and disposal of hazardous waste must be in compliance with MPCA regulations.
   - D. External washing of trucks and other construction vehicles must be limited to a defined area of the site and runoff must be contained and properly disposed of. Engine degreasing is not allowed on site.
   - E. Chemical spill kits must be available on site at all times.
   - F. Portable restroom facilities must be anchored to prevent tipping.

5. Chemicals must be kept in a secure storage area when not in use. Chemical storage containers must have secondary containment when being used or stored on the project site. Chemical spills of any kind (oil, fuel, fertilizer, etc.) must be cleaned up and removed from the site immediately.

6. The contractor is responsible for creating and following a written disposal plan for all waste materials, and submitting the plan to the engineer. The plan will include how the material will be disposed of and the location of the disposal site.

7. Burning of any material is not allowed within project boundary.

8. The erosion prevention and sediment control BMPs shall be placed as necessary to minimize erosion from disturbed surfaces and to capture sediment onsite. All erosion control measures shall be in place prior to starting any removal work and/or ground disturbing activities and shall be maintained until temporarily or permanently stabilized.

9. Sediment control devices must be established on all down gradient perimeters before any up gradient land disturbing activities begin.

10. Storm sewer inlets will be protected at all times with the appropriate inlet protection for each specific phase of construction. Inlet protection devices may need to be placed multiple times in the same location over the life of the contract. Inlet protection devices will be paid for once per inlet regardless of the number of times the BMPis placed. All storm sewer inlet protection devices will be kept in good functional condition at all times. If the project engineer deems an inlet protection device to be nonfunctional, in poor condition, ineffective, or not appropriate for the current construction activities it will be replaced with a suitable alternative at no cost to MnDOT.

11. The contractor will place construction exits, as necessary, to prevent tracking of sediment onto paved surfaces and in compliance with part IV of the NPDES permit. Construction exits will be sufficiently sized and maintained to prevent track out. Type 5 mulch (slash mulch) or an approved engineered product will be allowed for construction exits in lieu of crushed rock.

12. All stormwater, including dewatering, must be discharged in a manner that does not cause nuisance conditions or erosion in receiving channels, downslope properties or inundation in wetlands causing an adverse impact to the wetland as determined by the engineer.

13. Backfill placed in streams shall consist of rock or granular material free of fines, silts, and mud. Machinery shall be cleaned of all such material and free of grease, oil, etc. before entering the stream.

14. Slopes steeper than 1:3 (V:H) and greater than 75' in length shall be temporarily or permanently stabilized in increments not to exceed 75' in length prior to constructing or disturbing a new increment. If temporary or permanent stabilization is not feasible at a particular site, a sediment basin or other approved sediment control measure will be allowed as approved by the engineer.

15. Land disturbance and removal of riparian (streamside) vegetation shall be minimized.

16. All exposed soil areas must be temporarily or permanently stabilized no more than 14 days (7 days if within 1 mile of an draining to a special or impaired water) after construction activity on that portion of the site has temporarily or permanently ceased. Stabilization must be initiated immediately. In many instances, this will require stabilization to occur more than once during rough grading. Rapid stabilization methods 1, 2, 3 or 4 will be used to provide temporary cover, as appropriate, in these areas.

17. All temporary or permanent drainage ditches or swales that drain water from the construction site or divert water around the construction site must be stabilized to top of bank within 200 lineal feet from the property edge or point of discharge to any surface water. Stabilization must occur within 24 hours of connection to surface water, existing gutter, storm sewer inlet, drainage ditch, or other stormwater conveyance system according to MnDOT Spec 1717.2. Rapid stabilization Method 4 will be used to stabilize these areas. The remainder of the ditch must be stabilized within 14 (7 days if within 1 mile of and draining to a special or impaired water) days of connecting to the surface water. Permanent erosion control blanket or rapid stabilization Method 4 will be used to stabilize these areas. Disc anchored mulch and hydraulic soil stabilizers are not allowed to be used for permanent ditch stabilization.

18. Outlets shall be permanently or temporarily stabilized with energy dissipation within 24 hours of being constructed.

19. All exposed soil areas will be stabilized prior to the onset of winter. Any work still being performed will be snow mulched, seeded, or blanketed within the time frames indicated in the NPDES permit.

20. The contractor shall comply with the following inspection and maintenance requirements:
   - A. Perimeter control devices must be repaired, replaced, or supplemented when it becomes non-functional or sediment reaches 1/2 the height of the device. Repairs must be made within 24 hours of discovery.
   - B. Inlet protection devices should be repaired when they become non-functional or sediment reaches 1/3 the height and/or depth of the device.
   - C. Temporary and permanent sediment basins must be drained and have the sediment removed once the sediment has reached 1/2 the storage volume within 72 hours of discovery.
   - D. Tracked sediment must be removed within 24 hours of discovery of tracking onto paved surfaces.
   - E. All other non-functional BMPs must be repaired, replaced, or supplemented within 24 hours of discovery.
   - F. Contractor is responsible for maintaining all BMPs until all soil disturbing work has been completed, site has gone under final stabilization, and the NOT has been submitted.

21. If sediment deposits in a surface water (including drainage ditches and conveyance systems), the material must be removed within 7 days.

22. Pavement surfaces shall be swept within 24 hours of discovery of sediment or tracking onto pavement that drains to curbs, inlets, ditches, or ponds. Pavement shall be lightly wetted prior to sweeping.

23. Temporary dewatering activities may be required for roadway construction and utility work. Therefore it is possible that a permit for the temporary appropriation of waters of the state, non-irrigation from MnDNR will be required for this project. The contractor will be responsible for obtaining this permit. All temporary dewatering shall be discharged to an approved location for treatment prior to discharge to the receiving water. The contractor is required to submit site plans to MnDOT engineer for approval prior to commencing work according to MnDOT Spec 1717.2C.

24. Final stabilization requires that:
   - A. All soil disturbing activities at the site have been completed.
   - B. All soils have been stabilized by a uniform perennial cover with a density of 70% or other equivalent means to prevent soil failure under erosive conditions.
   - C. All accumulated sediment has been removed from permanent water quality basins.
   - D. The permanent stormwater management system has been constructed and is operating as designed.
   - E. All temporary synthetic and structural erosion prevention and sediment control BMPs have been removed.

25. The size and elevation of storm sewer pipes, inlets and overflow devices have been specifically designed to conform to MnDOT design standards, MPCA and watershed district permit requirements. The design computations are on file with MnDOT District 7 Hydraulics. Changing flow directions, quantities, or patterns is not permitted. Any changes to the size, elevation or direction of flow of the drainage system must be approved by the hydraulics engineer.

26. The Notice Of Termination (NOT) form can be found on the MPCA Stormwater Program for Construction Activity webpage. Submit the completed NOT form to the MnDOT District 7 Construction Office for final submittal to MPCA.

27. Temporary soil stockpiles must have silt fence or other effective perimeter control. Soil stock piles must be covered with mulch, plastic or other BMP if left in place for more than 7 days (incidental).

Note: information on this sheet is available in the permit and is not intended to be all inclusive. Modifications from the permit will be underlined for quick identification.

DRAWN BY: BAV	I hereby certify that this plan, specification, or report 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.	CERTIFIED BY: ____ LICENSED PROFESSIONAL ENGINEER	10/27/2017 DATE
DESIGNED BY: BAV		NAME: ____	LIC. NO. ____
CHECKED BY: DWK			

HDR

DEPARTMENT OF TRANSPORTATION

90% PLANS - FOR REVIEW ONLY

SWPPP & WATER RESOURCES NOTES

STATE PROJ. NO. 0802-45 (T.H. 4)

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END MILL & OVERLAY
BEGIN RECONSTRUCTION
T.H. 4 N.B.
STA. 209+07.95

E 502000 N 194400
E 502000 N 194600
E 502000 N 194800
E 502000 N 195000

T. H. 4

207 208 209 210 211 212 213

TH4SB
TH4NB
TH4NB
MS
MS

MATCHLINE TH4NB
STA. 214+00 SEE SHEET 91

E 502200 N 194400
E 502200 N 194600
E 502200 N 194800
E 502200 N 195000

LEGEND

- INPLACE R/W
- PROPOSED R/W
- TEMPORARY EASEMENT
- ACCESS CONTROL
- CONSTRUCTION LIMITS
- DITCH BOTTOM
- LIVING SNOW FENCE

LEGEND

- MS – SILT FENCE - MS
- STORM DRAIN INLET PROTECTION
- SEED MIX 35-241 AND MULCH TYPE 3 WITH DISK ANCHORING
- SEED MIX 35-241 AND EROSION CONTROL BLANKET CATEGORY 3
- SUBSOILING
- SEDIMENT CONTROL LOG TYPE STRAW
- SURFACE FLOW DIRECTION
- CP – CULVERT END CONTROLS
- PROPOSED STORM SEWER

FOR DRAINAGE LEGEND, SEE SHEET 81

GENERAL NOTES

STRAW LOG (6") SHALL BE PLACED IN ALL DITCH BOTTOMS AS A DITCH CHECK AT THE SPACINGS SPECIFIED IN THE TABLE DC ON THIS SHEET FOR THE LISTED DITCH SLOPE.

TABLE DC	
DITCH SLOPE	SPACING (FT)
0 - 0.5%	100
0.5 - 1%	50
1 - 2%	25
2 - 4%	12

50

SCALE IN FEET

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DRAWN BY: NTT
DESIGNED BY: NTT
CHECKED BY: DWK

I hereby certify that this plan, specification, or report 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.

CERTIFIED BY: _____ LICENSED PROFESSIONAL ENGINEER
NAME: NATHAN TRUEX LIC. NO. 53715
DATE 10/27/2017

HDR

DEPARTMENT OF TRANSPORTATION

90% PLANS - FOR REVIEW ONLY

EROSION CONTROL & TURF ESTABLISHMENT PLAN

STATE PROJ. NO. 0802-45 (T.H. 4)

MATCHLINE CR29EB
STA. 114+00 SEE SHEET 95

MATCHLINE TH4NB
STA. 214+00 SEE SHEET 90

MATCHLINE TH4NB
STA. 221+75 SEE SHEET 92

MATCHLINE CR29EB
STA. 118+50 SEE SHEET 96

CR29EB
CR29WB
TH4SB
TH4NB
RDB_IN
MS
CP
E 502000
N 195400
N 195600
N 195800
E 502200
N 195100
N 195400
N 195600

LEGEND

- INPLACE R/W
- PROPOSED R/W
- TEMPORARY EASEMENT
- ACCESS CONTROL
- CONSTRUCTION LIMITS
- DITCH BOTTOM
- LIVING SNOW FENCE

LEGEND

- MS – SILT FENCE - MS
- STORM DRAIN INLET PROTECTION
- SEED MIX 35-241 AND MULCH TYPE 3 WITH DISK ANCHORING
- SEED MIX 35-241 AND EROSION CONTROL BLANKET CATEGORY 3
- SUBSOILING
- SEDIMENT CONTROL LOG TYPE STRAW
- SURFACE FLOW DIRECTION
- CP – CULVERT END CONTROLS
- PROPOSED STORM SEWER

FOR DRAINAGE LEGEND, SEE SHEET 81

GENERAL NOTES

STRAW LOG (6") SHALL BE PLACED IN ALL DITCH BOTTOMS AS A DITCH CHECK AT THE SPACINGS SPECIFIED IN THE TABLE DC ON THIS SHEET FOR THE LISTED DITCH SLOPE.

SEE SHEET 98 FOR TURF ESTABLISHMENT WITHIN THE SNOWFENCE AREA.

TABLE DC

DITCH SLOPE	SPACING (FT)
0 - 0.5%	100
0.5 - 1%	50
1 - 2%	25
2 - 4%	12

50
SCALE IN FEET

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DRAWN BY: NTT
DESIGNED BY: NTT
CHECKED BY: DWK

I hereby certify that this plan, specification, or report 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.

CERTIFIED BY: _____ LICENSED PROFESSIONAL ENGINEER
NAME: NATHAN TRUEX LIC. NO. 53715
DATE 10/27/2017

HDR
DEPARTMENT OF TRANSPORTATION

90% PLANS - FOR REVIEW ONLY
EROSION CONTROL & TURF ESTABLISHMENT PLAN
STATE PROJ. NO. 0802-45 (T.H. 4)
SHEET NO. 91 OF 128 SHEETS

MATCHLINE TH4NB
STA. 221+75 SEE SHEET 91

END RECONSTRUCTION
BEGIN MILL & OVERLAY
T.H. 4 N.B.
STA. 223+16.17

END MILL & OVERLAY
T.H. 4 N.B.
STA. 226+52.00

MATCHLINE TH4NB
STA. 229+00 TO 239+00 OMITTED
SEE SHEET 93

E 502000 N 196000
E 502200 N 196200

TH4SB
TH4NB
MS
DI
T.H. 4
222 223 224 225 226 227 228

LEGEND

- INPLACE R/W
- PROPOSED R/W
- TEMPORARY EASEMENT
- ACCESS CONTROL
- CONSTRUCTION LIMITS
- DITCH BOTTOM
- LIVING SNOW FENCE

LEGEND

- MS – SILT FENCE - MS
- STORM DRAIN INLET PROTECTION
- SEED MIX 35-241 AND MULCH TYPE 3 WITH DISK ANCHORING
- SEED MIX 35-241 AND EROSION CONTROL BLANKET CATEGORY 3
- SUBSOILING
- SEDIMENT CONTROL LOG TYPE STRAW
- SURFACE FLOW DIRECTION
- CP – CULVERT END CONTROLS
- PROPOSED STORM SEWER

FOR DRAINAGE LEGEND, SEE SHEET 81

GENERAL NOTES

STRAW LOG (6") SHALL BE PLACED IN ALL DITCH BOTTOMS AS A DITCH CHECK AT THE SPACINGS SPECIFIED IN TABLE DC ON THIS SHEET FOR THE LISTED DITCH SLOPE.

SEE SHEET 98 FOR TURF ESTABLISHMENT WITHIN THE SNOWFENCE AREA.

TABLE DC	
DITCH SLOPE	SPACING (FT)
0 - 0.5%	100
0.5 - 1%	50
1 - 2%	25
2 - 4%	12

50
SCALE IN FEET

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DESIGNED BY: NTT
CHECKED BY: DWK

I hereby certify that this plan, specification, or report 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.

CERTIFIED BY: _____ LICENSED PROFESSIONAL ENGINEER — 10/27/2017 DATE
NAME: NATHAN TRUEX LIC. NO. 53715

HDR
DEPARTMENT OF TRANSPORTATION

90% PLANS - FOR REVIEW ONLY
EROSION CONTROL & TURF ESTABLISHMENT PLAN
STATE PROJ. NO. 0802-45 (T.H. 4)
SHEET NO. 92 OF 128 SHEETS

E 502000
N 197600

MATCHLINE TH4NB
STA. 229+00 TO 239+00 OMITTED
SEE SHEET 92

239
240
241
242
243
244
245
246

T.H. 4

END S.P. 0802-45
T.H. 4 N.B.
STA. 243+50.00

TH4NB

E 502200
N 197600

LEGEND

- MS – SILT FENCE - MS
- STORM DRAIN INLET PROTECTION
- SEED MIX 35-241 AND MULCH TYPE 3 WITH DISK ANCHORING
- SEED MIX 35-241 AND EROSION CONTROL BLANKET CATEGORY 3
- SUBSOILING
- SEDIMENT CONTROL LOG TYPE STRAW
- SURFACE FLOW DIRECTION
- CP – CULVERT END CONTROLS
- PROPOSED STORM SEWER

FOR DRAINAGE LEGEND, SEE SHEET 81

GENERAL NOTES

STRAW LOG (6") SHALL BE PLACED IN ALL DITCH BOTTOMS AS A DITCH CHECK AT THE SPACINGS SPECIFIED IN TABLE DC ON THIS SHEET FOR THE LISTED DITCH SLOPE.

TABLE DC	
DITCH SLOPE	SPACING (FT)
0 - 0.5%	100
0.5 - 1%	50
1 - 2%	25
2 - 4%	12

50
SCALE IN FEET

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DESIGNED BY: NTT
CHECKED BY: DWK

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CERTIFIED BY: _____ LICENSED PROFESSIONAL ENGINEER
NAME: NATHAN TRUEX LIC. NO. 53715
10/27/2017 DATE

HDR

DEPARTMENT OF TRANSPORTATION

90% PLANS - FOR REVIEW ONLY

EROSION CONTROL & TURF ESTABLISHMENT PLAN

STATE PROJ. NO. 0802-45 (T.H. 4)

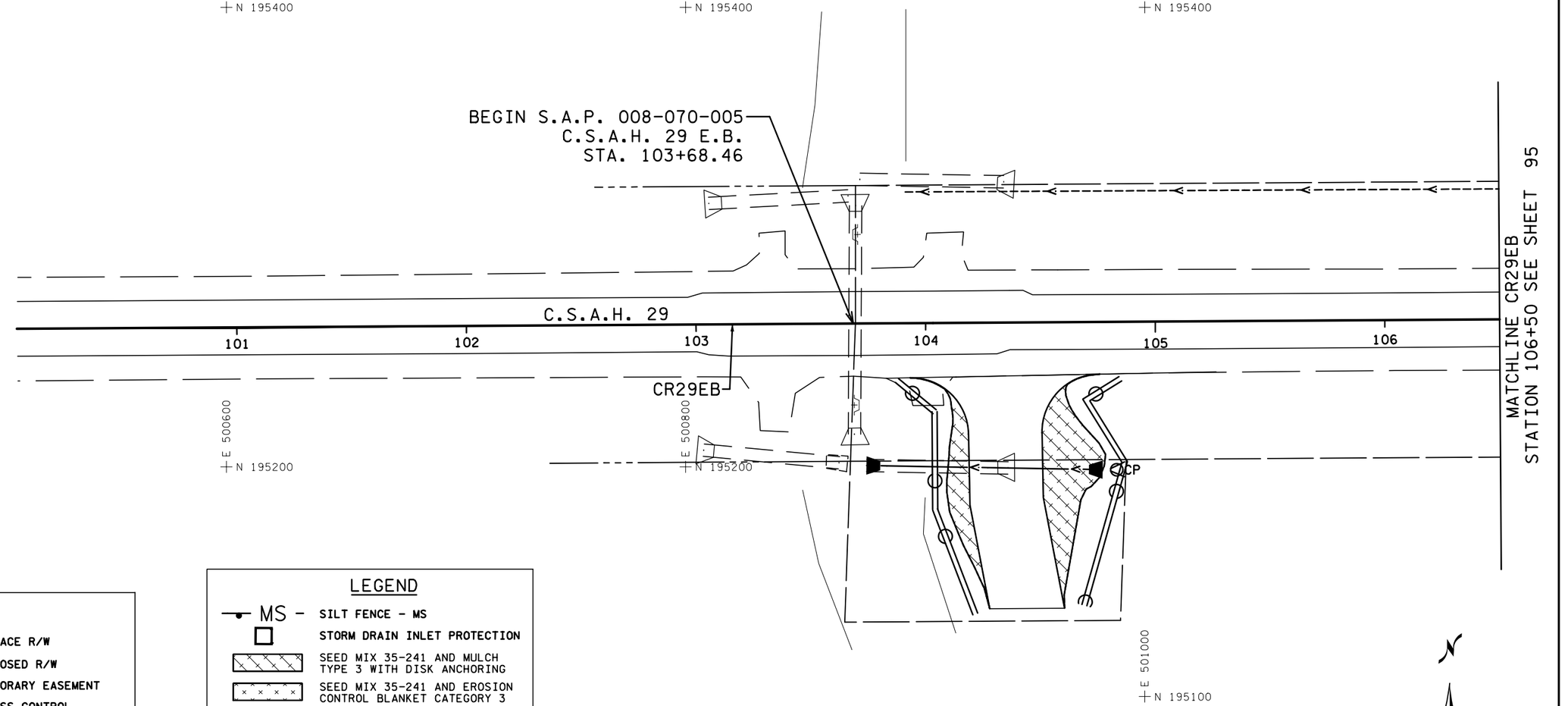
SHEET NO. 93 OF 128 SHEETS

E 500400
N 195400

E 500600
N 195400

E 500800
N 195400

E 501000
N 195400



LEGEND

- INPLACE R/W
- PROPOSED R/W
- TEMPORARY EASEMENT
- ACCESS CONTROL
- CONSTRUCTION LIMITS
- DITCH BOTTOM
- LIVING SNOW FENCE

LEGEND

- MS – SILT FENCE – MS
- STORM DRAIN INLET PROTECTION
- SEED MIX 35-241 AND MULCH TYPE 3 WITH DISK ANCHORING
- SEED MIX 35-241 AND EROSION CONTROL BLANKET CATEGORY 3
- SUBSOILING
- SEDIMENT CONTROL LOG TYPE STRAW
- SURFACE FLOW DIRECTION
- CP CULVERT END CONTROLS
- PROPOSED STORM SEWER

FOR DRAINAGE LEGEND, SEE SHEET 81

TABLE DC	
DITCH SLOPE	SPACING (FT)
0 – 0.5%	100
0.5 – 1%	50
1 – 2%	25
2 – 4%	12

GENERAL NOTES

STRAW LOG (6") SHALL BE PLACED IN ALL DITCH BOTTOMS AS A DITCH CHECK AT THE SPACINGS SPECIFIED IN TABLE DC ON THIS SHEET FOR THE LISTED DITCH SLOPE.

N

50

SCALE IN FEET

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DESIGNED BY: NTT
CHECKED BY: DWK

I hereby certify that this plan, specification, or report 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.

CERTIFIED BY: _____ LICENSED PROFESSIONAL ENGINEER — 10/27/2017 DATE

NAME: NATHAN TRUEX LIC. NO. 53715

HDR

DEPARTMENT OF TRANSPORTATION

90% PLANS – FOR REVIEW ONLY — EROSION CONTROL & TURF ESTABLISHMENT PLAN

STATE PROJ. NO. 0802-45 (T.H. 4) — SHEET NO. 94 OF 128 SHEETS

E 501200
N 195400
E 501400
N 195400
E 501800
N 195400

BEGIN
RECONSTRUCTION
C.S.A.H. 29 E.B.
STA. 109+30.16

MATCHLINE CR29EB
STATION 106+50 SEE SHEET 94

MATCHLINE CR29EB
STA. 114+00 SEE SHEET 91

CP
CP
CR29WB
CR29EB

C.S.A.H. 29

107 108 109 110 111 112 113

50

MS MS MS MS MS

E 501200
N 195100
E 501400
N 195100
E 501800
N 195100

LEGEND

- INPLACE R/W
- PROPOSED R/W
- TEMPORARY EASEMENT
- ACCESS CONTROL
- CONSTRUCTION LIMITS
- DITCH BOTTOM
- LIVING SNOW FENCE

LEGEND

- MS – SILT FENCE - MS
- STORM DRAIN INLET PROTECTION
- SEED MIX 35-241 AND MULCH TYPE 3 WITH DISK ANCHORING
- SEED MIX 35-241 AND EROSION CONTROL BLANKET CATEGORY 3
- SUBSOILING
- SEDIMENT CONTROL LOG TYPE STRAW
- SURFACE FLOW DIRECTION
- CP – CULVERT END CONTROLS
- PROPOSED STORM SEWER

FOR DRAINAGE LEGEND, SEE SHEET 81

TABLE DC	
DITCH SLOPE	SPACING (FT)
0 - 0.5%	100
0.5 - 1%	50
1 - 2%	25
2 - 4%	12

GENERAL NOTES

STRAW LOG (6") SHALL BE PLACED IN ALL DITCH BOTTOMS AS A DITCH CHECK AT THE SPACINGS SPECIFIED IN TABLE DC ON THIS SHEET FOR THE LISTED DITCH SLOPE.

SEE SHEET 98 FOR TURF ESTABLISHMENT WITHIN THE SNOWFENCE AREA.

N

50

SCALE IN FEET

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DESIGNED BY: NTT
CHECKED BY: DWK

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CERTIFIED BY: _____ LICENSED PROFESSIONAL ENGINEER
NAME: NATHAN TRUEX LIC. NO. 53715
10/27/2017 DATE

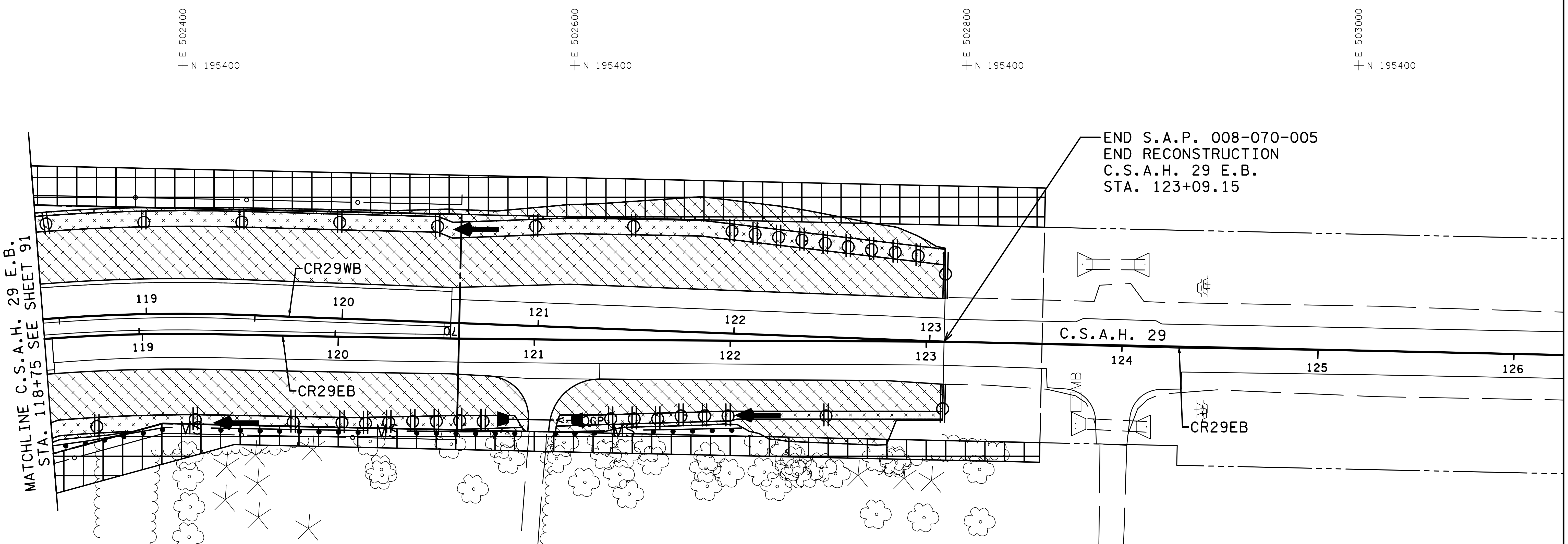
HDR

DEPARTMENT OF TRANSPORTATION

90% PLANS - FOR REVIEW ONLY

EROSION CONTROL & TURF ESTABLISHMENT PLAN

STATE PROJ. NO. 0802-45 (T.H. 4)



LEGEND

- INPLACE R/W
- PROPOSED R/W
- TEMPORARY EASEMENT
- ACCESS CONTROL
- CONSTRUCTION LIMITS
- DITCH BOTTOM
- LIVING SNOW FENCE

LEGEND

- MS — SILT FENCE - MS
- STORM DRAIN INLET PROTECTION
- SEED MIX 35-241 AND MULCH TYPE 3 WITH DISK ANCHORING
- SEED MIX 35-241 AND EROSION CONTROL BLANKET CATEGORY 3
- SUBSOILING
- SEDIMENT CONTROL LOG TYPE STRAW
- SURFACE FLOW DIRECTION
- CP — CULVERT END CONTROLS
- PROPOSED STORM SEWER

FOR DRAINAGE LEGEND, SEE SHEET 81

TABLE DC

DITCH SLOPE	SPACING (FT)
0 - 0.5%	100
0.5 - 1%	50
1 - 2%	25
2 - 4%	12

GENERAL NOTES

STRAW LOG (6") SHALL BE PLACED IN ALL DITCH BOTTOMS AS A DITCH CHECK AT THE SPACINGS SPECIFIED IN TABLE DC ON THIS SHEET FOR THE LISTED DITCH SLOPE.

50
SCALE IN FEET

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DESIGNED BY: NTT
CHECKED BY: DWK

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CERTIFIED BY: LICENSED PROFESSIONAL ENGINEER — DATE 10/27/2017
NAME: NATHAN TRUEX — LIC. NO. 53715

HDR — DEPARTMENT OF TRANSPORTATION

90% PLANS - FOR REVIEW ONLY — EROSION CONTROL & TURF ESTABLISHMENT PLANS

STATE PROJ. NO. 0802-45 (T.H. 4) — SHEET NO. 96 OF 128 SHEETS

PLANT STOCK SUMMARY (W)

SPECIES	NOTE	UNIT	PLANT SIZE	QUANTITY	SPACING
S.P. 0802-45					
DECIDUOUS SHRUB NO 2 CONT					
VIBURNUM DENTATUM	ALONG C.S.A.H. 29	SHRUB	#2 CONT	261	4' OC
CORNUS SERICEA	ALONG T.H. 4	SHRUB	#2 CONT	432	4' OC
DECIDUOUS SHRUB NO 2 CONT				**693**	

③LANDSCAPING NEAR LIVING SNOW FENCE (X)

ROADWAY	ALIGNMENT	STATION	TO	STATION	NOTES	OFFSET	SEEDING ⑤	SEED MIX. SPECIAL ⑦	MULCH MATERIAL TYPE 3 ⑧	EROSION CONTROL BLANKETS CATEGORY 3 ②	SUBSOILING	FERTILIZER TYPE 3 ⑥	DISK ANCHORING	MOWING	WEED SPRAYING	WEED SPRAY MIXTURE	GEOTEXTILE WEED BARRIER FABRIC ①	SOIL BED PREP ④
						LT/RT	ACRE	POUND	TON	SQ YD	ACRE	POUND	ACRE	ACRE	ACRE	GAL	SQ YD	ACRE
S.P. 0802-45																		
T.H. 4	TH4SB	216+62.30	TO	226+66.93		LT	3.7	135	7	559	0.5	1107	3.6	3.7	3.7	0.7	961	3.7
C.S.A.H. 29	CR29WB	109+16.41	TO	115+73.93		105'-176' LT	0.5	17	1		0.3	145	0.5	0.5	0.5	0.1	579	0.5
S.P 0802-45, SUBTOTAL							4.2	152	8	559	0.8	1252	4.1	4.2	4.2	0.8	1540	4.2
S.A.P. 008-070-005																		
C.S.A.H. 29	CR29WB	109+16.41	TO	115+73.93		18'-105' LT	1.3	47	2	437		385	1.2	1.3	1.3	0.2		1.3
S.A.P. 008-070-005, SUBTOTAL							1.3	47	2	437		385	1.2	1.3	1.3	0.2		1.3
TOTAL							5.5	199	10	996	0.8	1637	5.3	5.5	5.5	1.0	1540	5.5

GENERAL NOTES

RESTORE ALL DAMAGED TURF AT THE CONTRACTOR'S EXPENSE TO PRE-LANDSCAPE INSTALLATION CONDITIONS.

LANDSCAPE DESIGNER WILL REVIEW STAKING AFTER UTILITIES HAVE BEEN MARKED BUT BEFORE ANY TILLING OR HERBICIDE APPLICATION OPERATIONS HAS BEGUN.

SEE EROSION CONTROL PLANS FOR RAPID STABILIZATION IN THE NORTHWEST CORNER OF THIS INTERSECTION.

SPECIFIC NOTES

① INCLUDES PEA GRAVEL MULCH.

② NATURAL NETTING ONLY. MAINTENANCE REQUIRED PER SPECIAL PROVISION.

③ QUANTITIES BASED ON PLAN AREAS.

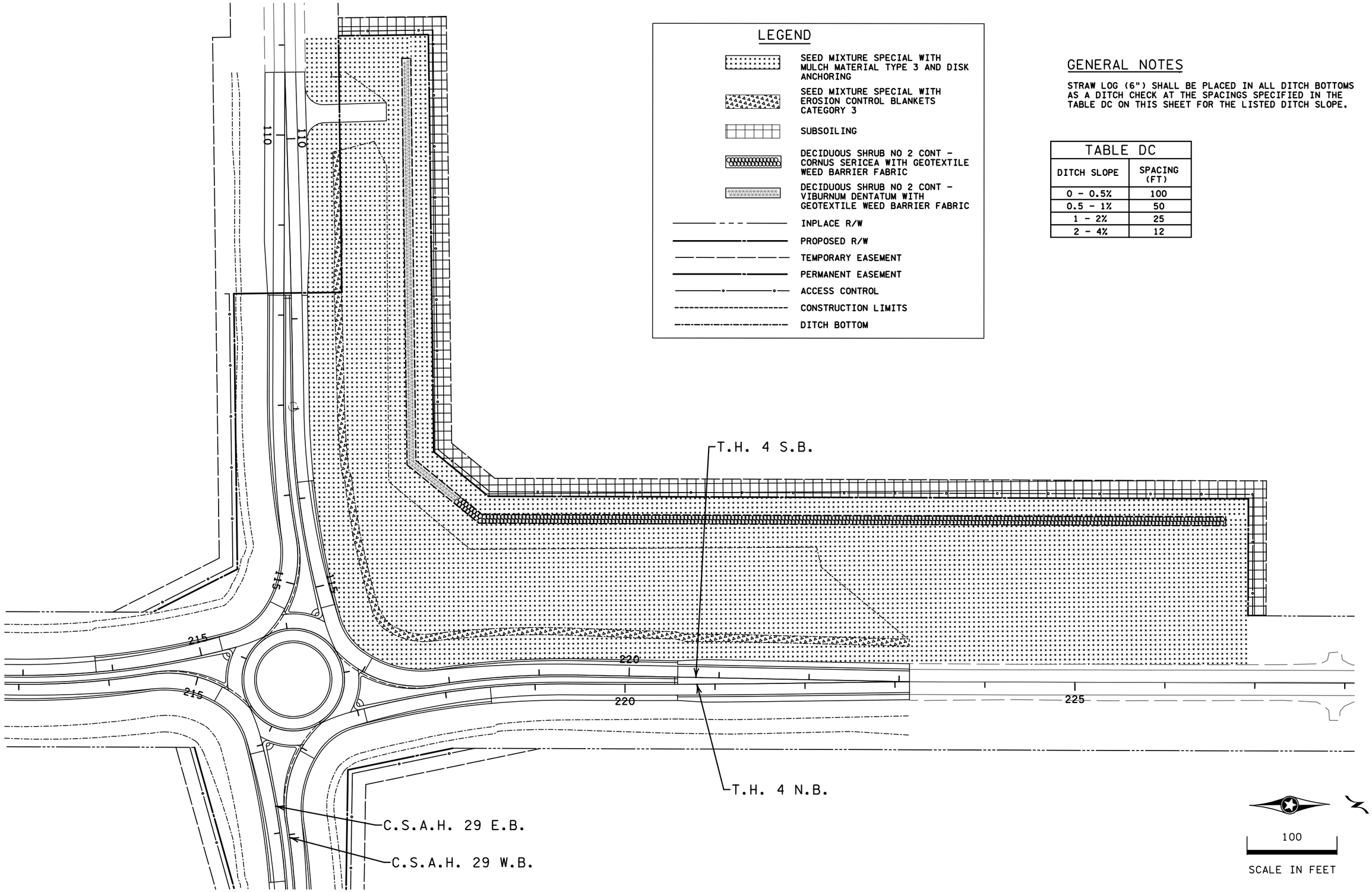
④ COMPLETE ALL TILLING USING A SPADE TYPE TILLER.

⑤ ONLY INCLUDES PERMANENT SEEDING, NOT TEMPORARY SEEDING.

⑥ FERTILIZER TYPE 3 SHALL BE APPLIED AT A RATE OF 300 LBS/ACRE.

⑦ SEED MIX. SPECIAL SHALL BE APPLIED AT A RATE OF 36.5 LBS/ACRE.

⑧ MULCH MATERIAL TYPE 3 SHALL BE APPLIED AT A RATE OF 2 TONS/ACRE.



LEGEND

- SEED MIXTURE SPECIAL WITH MULCH MATERIAL TYPE 3 AND DISK ANCHORING
- SEED MIXTURE SPECIAL WITH EROSION CONTROL BLANKETS CATEGORY 3
- SUBSOILING
- DECIDUOUS SHRUB NO 2 CONT - CORNUS SERICEA WITH GEOTEXTILE WEED BARRIER FABRIC
- DECIDUOUS SHRUB NO 2 CONT - VIBURNUM DENTATUM WITH GEOTEXTILE WEED BARRIER FABRIC
- INPLACE R/W
- PROPOSED R/W
- TEMPORARY EASEMENT
- PERMANENT EASEMENT
- ACCESS CONTROL
- CONSTRUCTION LIMITS
- DITCH BOTTOM

GENERAL NOTES

STRAW LOG (6") SHALL BE PLACED IN ALL DITCH BOTTOMS AS A DITCH CHECK AT THE SPACINGS SPECIFIED IN THE TABLE DC ON THIS SHEET FOR THE LISTED DITCH SLOPE.

TABLE DC

DITCH SLOPE	SPACING (FT)
0 - 0.5%	100
0.5 - 1%	50
1 - 2%	25
2 - 4%	12

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CP080245_pentable_plans.tbl

DRAWN BY: NJL
DESIGNED BY: DS
CHECKED BY: DS

I hereby certify that this plan, specification, or report 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.

CERTIFIED BY: _____ LICENSED PROFESSIONAL ENGINEER
NAME: NATHAN TRUEX LIC. NO. 53715
10/27/2017 DATE

HDR

DEPARTMENT OF TRANSPORTATION

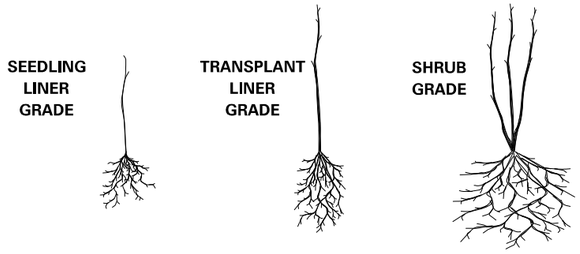
90% PLANS - FOR REVIEW ONLY

LANDSCAPING PLAN

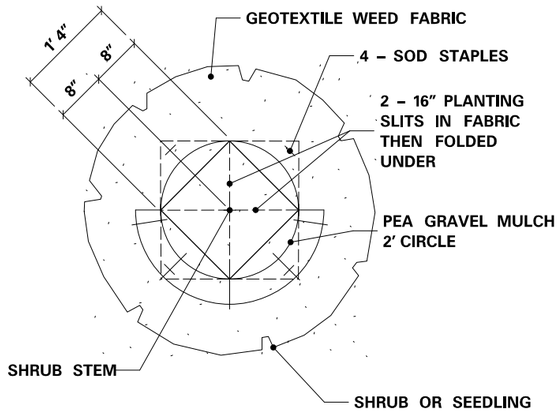
STATE PROJ. NO. 0802-45 (T.H. 4)

SHEET NO. 98 OF 128 SHEETS

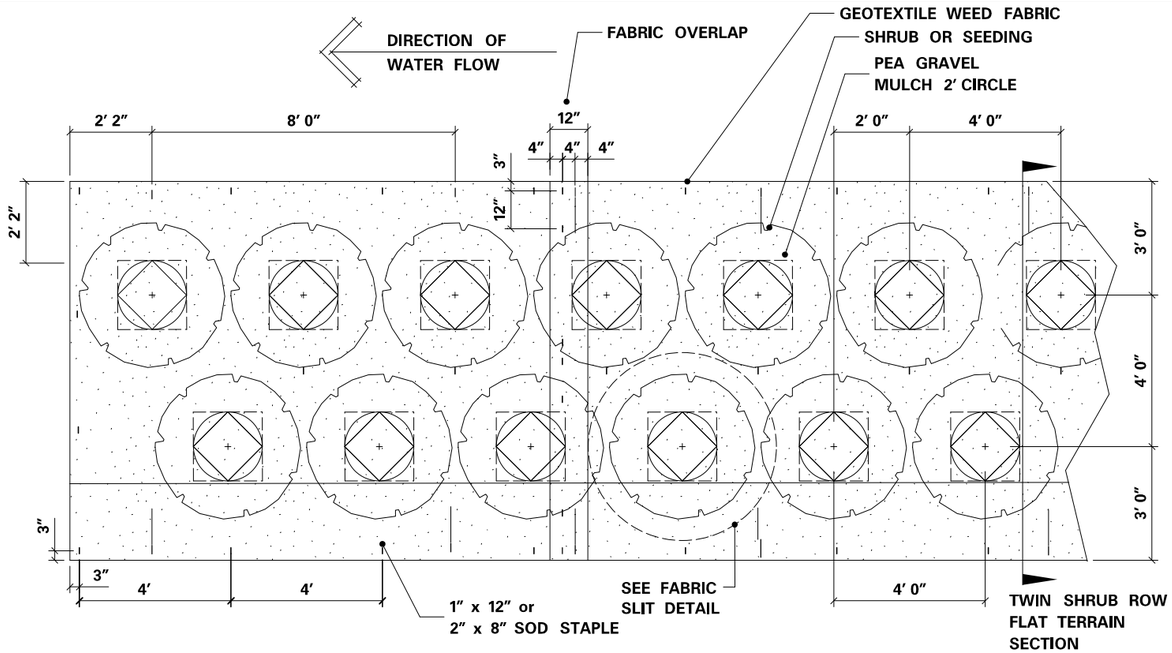
NOTE:
1. MACHINE PLANTING ALLOWED WITH SEEDLING AND LINER GRADE UP TO 18" HEIGHT.
2. MACHINE PLANTING FOR SHRUB GRADE MATERIALS MUST BE PRE-APPROVED.
3. FURROWS CREATED BY MACHINE PLANTING MUST BE LEVELED OUT PRIOR TO PLACING GEOTEXTILE FABRIC.
4. APPLY MULCH MATERIAL TYPE 6 ABOVE GEOTEXTILE WEED FABRIC TO PREVENT WEEDS FROM GROWING THROUGH THE FABRIC SLITS.
5. MULCH MATERIAL TYPE 6 MUST BE REPLENISHED IF DISPLACED BY WIND OR WATER.



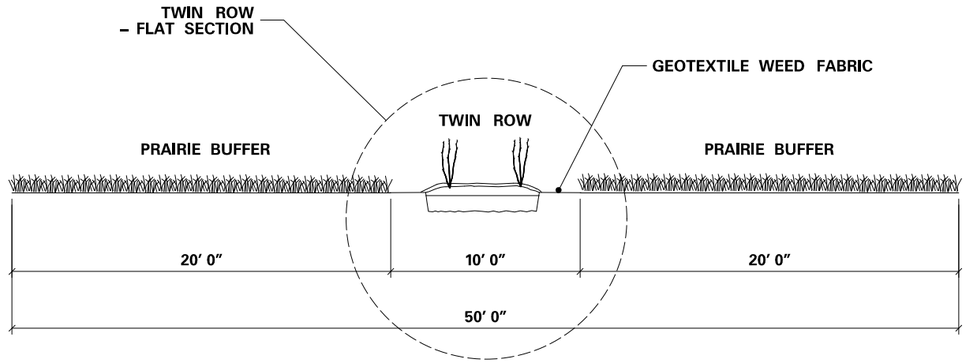
MACHINE PLANTED



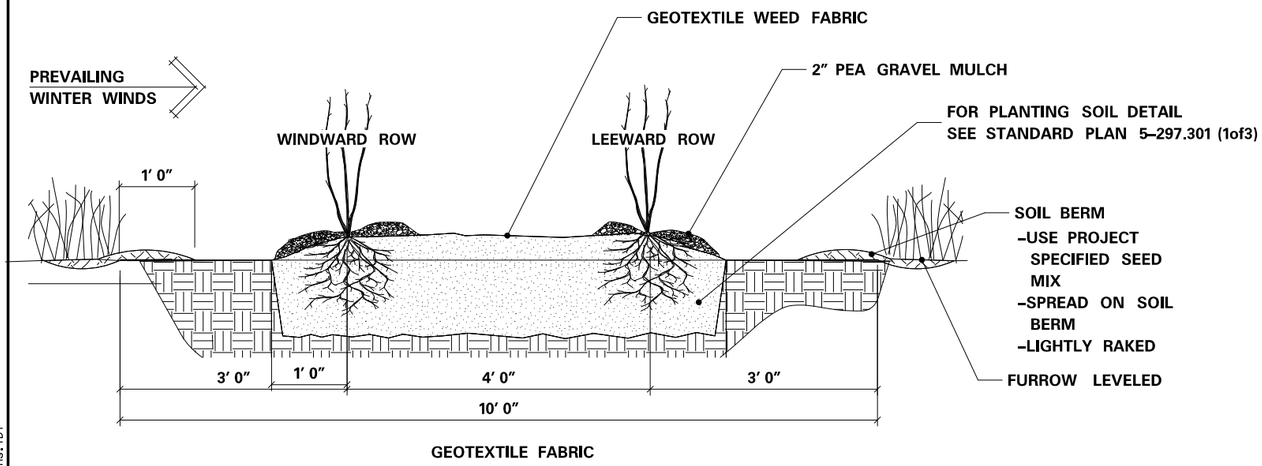
FABRIC SLIT DETAIL



TWIN ROW – PLAN VIEW



LIVING SNOW FENCE – TYPICAL SECTION



TWIN ROW – FLAT TERRAIN DETAIL

DRAWN BY: NJL	I hereby certify that this plan, specification, or report 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.	CERTIFIED BY: _____ LICENSED PROFESSIONAL ENGINEER	10/27/2017 DATE	FDR / DEPARTMENT OF TRANSPORTATION	90% PLANS - FOR REVIEW ONLY — LANDSCAPING DETAIL
DESIGNED BY: DS		NAME: NATHAN TRUEX LIC. NO. 53715			STATE PROJ. NO. 0802-45 (T.H. 4) — SHEET NO. 99 OF 128 SHEETS
CHECKED BY: DS					

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SIGN PANELS TYPE C (AA)

	SIGN NO.	QUANT.	POSTS NO. & TYPE	POSTS KNEE BRACES	POSTS LENGTH (FT)	MTG. HT. (FT) (1)	PANEL SIZE (IN.)	PANEL AREA (SQ FT)	TOTAL AREA (SQ FT)	MMUTCD CODE NO.	PANEL LEGEND
	S.P. 0802-45										
	C-1	2	2-U	1	15	7	64x64x48	9.88	19.76	W14-3	NO PASSING ZONE
	C-2	1	2-U	1	15	7	24 x 12	2.00	2.00	M3-1a	NORTH
							24 x 24	4.00	4.00	M1-5a	T.H. 4
							21 x 15	2.19	2.19	M6-2aR	DIRECTIONAL ARROW (UP/RIGHT)
	C-3	1	2-U	1	15	7	24 x 12	2.00	2.00	M3-3a	SOUTH
							24 x 24	4.00	4.00	M1-5a	T.H. 4
							21 x 15	2.19	2.19	M6-2aR	DIRECTIONAL ARROW (UP/RIGHT)
	C-4	2	2-U		13	7	30 x 30	6.25	12.50	W3-2	YIELD AHEAD
(2)	C-5	2	2-U		11	7	24 x 30	5.00	10.00	R4-7	KEEP RIGHT
	C-6	2	2-U	1	16	7	36 x 12	3.00	6.00	W16-17P	ROUNDABOUT PLAQUE
							30 x 30	6.25	12.50	W2-6a	ROUNDABOUT
(2)							18 x 18	2.25	4.50	W13-1P	15 MPH
	C-7	2	2-U	1	14	7	36x36x36	3.90	7.80	R1-2	YIELD
							24 x 30	5.00	10.00	R6-2R	ONE WAY RIGHT ARROW
	C-8	2	2-U	1	14	7	36x36x36	3.90	7.80	R1-2	YIELD
	C-9	4	2-U	1	14	7	36 x 12	3.00	12.00	R6-1R	ONE WAY
							60 x 24	10.00	40.00	R6-4b	CHEVRON
	S.P. 0802-45 SUBTOTAL								**159.23**		

SIGN PANELS TYPE C (AA)

	SIGN NO.	QUANT.	POSTS NO. & TYPE	POSTS KNEE BRACES	POSTS LENGTH (FT)	MTG. HT. (FT) (1)	PANEL SIZE (IN.)	PANEL AREA (SQ FT)	TOTAL AREA (SQ FT)	MMUTCD CODE NO.	PANEL LEGEND
	S.A.P. 008-070-005										
	C-20	1	2-U	1	15	7	24 x 12	2.00	2.00	M3-4a	WEST
							24 x 24	4.00	4.00	M1-6	CR 29
							21 x 15	2.19	2.19	M6-2aR	DIRECTIONAL ARROW (UP/RIGHT)
	C-21	2	2-U	1	15	7	64x64x48	9.88	19.76	W14-3	NO PASSING ZONE
	C-22	1	2-U	1	15	7	24 x 12	2.00	2.00	M3-2a	EAST
							24 x 24	4.00	4.00	M1-6a	CR 29
							21 x 15	2.19	2.19	M6-2AR	DIRECTIONAL ARROW (UP/RIGHT)
	C-23	2	2-U		13	7	30 x 30	6.25	12.50	W3-2	YIELD AHEAD
(2)	C-24	2	2-U		11	7	24 x 30	5.00	10.00	R4-7	KEEP RIGHT
	C-25	2	2-U	1	16	7	36 x 12	3.00	6.00	W16-17P	ROUNDABOUT PLAQUE
							30 x 30	6.25	12.50	W2-6a	ROUNDABOUT
(2)							18 x 18	2.25	4.50	W13-1P	15 MPH
	C-26	2	2-U	1	14	7	36x36x36	3.90	7.80	R1-2	YIELD
							24 x 30	5.00	10.00	R6-2R	ONE WAY RIGHT ARROW
	C-27	2	2-U	1	14	7	36x36x36	3.90	7.80	R1-2	YIELD
	S.A.P. 008-070-005 SUBTOTAL								**107.23**		
	TOTAL, SIGN PANELS TYPE C								**266.45**		

SPECIFIC NOTES

(1) MOUNTING HEIGHT IS MINIMUM (WITH A +6 INCH TOLERANCE). SEE SHEET 115 FOR TYPICAL MOUNTING.

(2) MOUNT IN CONCRETE. SEE SHEET 116.

GENERAL NOTES

1. POST LENGTHS ARE APPROXIMATE AND INCLUDE EMBEDMENT, BUT DO NOT INCLUDE ADDITIONAL LENGTH REQUIRED FOR SPLICE.
2. SEE SHEET 113 FOR SIGN PLACEMENT DETAILS.
3. SEE SHEETS 114 TO 115 FOR STRUCTURAL DETAILS.
4. SEE MNDOT STANDARD SIGNS AND MARKINGS MANUAL FOR PUNCHING CODE AND DETAILED DRAWINGS OF TYPE C SIGN PANELS.

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DRAWN BY: SY
DESIGNED BY: MJM
CHECKED BY: MJM

I hereby certify that this plan, specification, or report 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.

CERTIFIED BY: _____ LICENSED PROFESSIONAL ENGINEER

NAME: MICHAEL J. MARTINEZ LIC. NO. 42807

10/27/2017 DATE

HDR

DEPARTMENT OF TRANSPORTATION

90% PLANS - FOR REVIEW ONLY

TYPE C AND D SIGN DATA SHEET

STATE PROJ. NO. 0802-45 (T.H. 4)

SIGN PANELS TYPE D (2) (AB)

SIGN NO.	QUANT.	POSTS NO. & TYPE	POSTS KNEE BRACES	POSTS LENGTH (FT)	POSTS SPACING (IN.)	MTG. HT. (FT) (1)	PANEL SIZE (IN.)	PANEL AREA (SQ FT)	PANEL TOTAL AREA (SQ FT)	PANEL LEGEND
S.P. 0802-45										
D-1	2	2-U	2	17	42	7	72 x 72	36.00	72.00	JCT 29 / ½ MILE
D-2	1	3-U	3	18	45	7	114x 84	66.50	66.50	NORTH 4 / WEST 29 / EAST 29
D-3	1	3-U	3	18	45	7	114x 84	66.50	66.50	SOUTH 4 / EAST 29 / WEST 29
S.P. 0802-45 SUBTOTAL									**205.00**	
S.A.P. 008-070-005										
D-4	2	2-U	2	17	42	7	72 x 72	36.00	72.00	JCT 4 / ½ MILE
D-5	1	3-U	3	18	45	7	114x 84	66.50	66.50	EAST 29 / NORTH 4 / SOUTH 4
D-6	1	3-U	3	18	45	7	114x 84	66.50	66.50	WEST 29 / SOUTH 4 / NORTH 4
D-7	1	3-U	3	16	45	7	120x 66	55.00	55.00	Morgan 10 / Sleepy Eye 4 / Fairfax 10
S.A.P. 008-070-005 SUBTOTAL									**260.00**	
TOTAL, SIGN PANELS TYPE D									**465.00**	

SALVAGE AND INSTALL SIGN TYPE C (AC)

SIGN NO.	QUANT.	POSTS NO. & TYPE	POSTS KNEE BRACES	PANEL SIZE (IN.) (3)	PANEL LEGEND	
S.A.P. 008-070-005						
C-201	1			24 x 18	NO ENGINE BRAKE	(5)
TOTAL	**1**					

REMOVE SIGN TYPE D (AD)

SIGN NO.	QUANT.	POSTS NO. & TYPE	POSTS KNEE BRACES	PANEL SIZE (IN.) (3)	PANEL LEGEND
S.A.P. 008-070-005					
D-101	1	2-U		90 x 48	⇦ SLEEPY EYE 4 / FAIRFAX 10 ⇨ / ⇧ MORGAN 10
TOTAL	**1**				

SALVAGE SIGN TYPE C (4) (AE)

SIGN NO.	QUANT.	POSTS NO. & TYPE	POSTS KNEE BRACES	PANEL SIZE (IN.) (3)	PANEL LEGEND
S.A.P. 008-070-005					
C-202	2	2-U	1	36 x 36	STOP (LED)
C-203	2	2-U	1	36 x 36	STOP AHEAD (LED)
TOTAL	**4**				

SIGN PANELS TYPE OVERLAY (AL)

CODE NO.	QUANT.	SIZE INCH	AREA SQ FT	TOTAL AREA SQ FT	PANEL LEGEND
S.P. 0802-45					
M1-5b	2	24 x 24	4.00	8.00	MINNESOTA 4
M1-6a	6	24 x 24	4.00	24.00	COUNTY 29
S.P. 0802-45, SUBTOTAL				**32.00**	
S.A.P. 008-070-005					
M1-5b	6	24 x 24	4.00	24.00	MINNESOTA 4
M1-6a	2	24 x 24	4.00	8.00	COUNTY 29
S.A.P. 008-070-005, SUBTOTAL				**32.00**	
TOTAL				**64.00**	

MARKERS (AM)

SIGN NO.	SIZE	DESCRIPTION	QTY EACH
S.P. 0802-45			
X3-1	9.5 X 12.75	R/W BOUNDARY MARKER	20
TOTAL			**20**

REFERENCE LOCATION SIGN (AF)

CODE NO.	QTY EACH	PANEL SIZE (IN.)	PANEL LEGEND	
S.P. 0802-45				
D10-2	2	10 X 27	MILE 68	(6)(7)(8)
TOTAL	**2**			

REMOVE MARKER (AG)

CODE NO.	QTY EACH	LOCATION
S.P. 0802-45		
D10-2	1	T.H. 4 (MILE 68)
TOTAL	**1**	

REMOVE FLASHER SYSTEM (AH)

S.P. 0802-45		
REMOVE FLASHER SYSTEM	**LUMP SUM**	**1**

SPECIFIC NOTES

(1) MOUNTING HEIGHT IS MINIMUM. SEE SHEET 115 FOR TYPICAL MOUNTING.

(2) SEE SHEET 111 - 112 FOR TYPE D SIGN PANEL DETAILS.

(3) SIZES ARE APPROXIMATE.

(4) SALVAGE TO BROWN COUNTY. SEE SPECIAL PROVISIONS.

(5) MOUNT BELOW C-23.

(6) SEE STANDARD SIGNS AND MARKINGS MANUAL FOR REFERENCE LOCATION SIGN DETAIL.

(7) MOUNT ON 3 LB/FT POST (MNDOT 3401).

(8) MOUNT BACK TO BACK.

GENERAL NOTES

1. POST LENGTHS ARE APPROXIMATE AND INCLUDE EMBEDMENT, BUT DO NOT INCLUDE ADDITIONAL LENGTH REQUIRED FOR SPLICE.
2. SEE SHEET 113 FOR SIGN PLACEMENT DETAILS.
3. SEE SHEETS 114 TO 115 FOR STRUCTURAL DETAILS.
4. SEE MNDOT STANDARD SIGNS AND MARKINGS MANUAL FOR PUNCHING CODE, DETAILED DRAWINGS OF TYPE D SIGN PANELS AND STRINGER AND PANEL JOINT DETAILS.

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DRAWN BY: SY
DESIGNED BY: MJM
CHECKED BY: MJM

I hereby certify that this plan, specification, or report 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.

CERTIFIED BY: _____ LICENSED PROFESSIONAL ENGINEER
NAME: MICHAEL J. MARTINEZ LIC. NO. 42807
DATE 10/27/2017

HDR

DEPARTMENT OF TRANSPORTATION

90% PLANS - FOR REVIEW ONLY

TYPE C AND D SIGN DATA SHEET

STATE PROJ. NO. 0802-45 (T.H. 4)

PERMANENT PAVEMENT MARKING PLAN

NOTES & GUIDELINES

GENERAL INFORMATION:

THE ENGINEER'S INVOLVEMENT IN THE APPLICATION OF THE MATERIAL SHALL BE LIMITED TO FIELD CONSULTATION AND INSPECTION. THE CONTRACTOR 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 AGENCY PLACED 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 3 INCHES 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.

JUST PRIOR TO THE PLACEMENT OF PAVEMENT MARKINGS THE ROAD SURFACE SHALL BE CLEANED AND FREE OF CONTAMINATION AS RECOMMENDED BY THE MATERIAL MANUFACTURER AND ACCEPTABLE TO THE ENGINEER. PORTLAND CEMENT CONCRETE SURFACES SHALL BE SANDBLAST CLEANED TO REMOVE ANY SURFACE TREATMENTS AND/OR LAITANCE.

APPLY ALL PAVEMENT MARKINGS AS RECOMMENDED BY THE MATERIAL MANUFACTURER.

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

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.

REFER TO SPECIAL PROVISIONS OR SPEC BOOK FOR GROUND IN/RECESSED PAVEMENT MARKING APPLICATION REQUIREMENTS.

CONTRAST MARKINGS:

STANDARD LINEAR PAVEMENT MARKINGS, CROSSWALK MARKINGS AND PAVEMENT MESSAGES WITH 1.5 INCH NON REFLECTIVE BLACK BORDERS.

MULTI-COMPONENT MARKINGS:

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 TREATMENTS AND/OR LAITANCE.

THE MULTI-COMPONENT MARKING APPLICATION SHALL IMMEDIATELY FOLLOW THE PAVEMENT CLEANING. GLASS BEADS SHALL BE APPLIED IMMEDIATELY AFTER APPLICATION OF THE MULTI-COMPONENT RESIN LINE.

APPLY MULTI-COMPONENT MARKINGS WITH A MINIMUM THICKNESS OF 20 MILS, GLASS BEADS SHALL BE APPLIED AT A RATE OF AT LEAST 25 LB/GAL. THE 'NO-TRACKING' CONDITION SHALL BE DETERMINED ON AN APPLICATION OF SPECIFIED THICKNESS TO THE PAVEMENT AND COVERED WITH GLASS BEADS AT THE RATE OF AT LEAST 25 LB/GAL.

PAVEMENT MARKINGS SHALL ONLY BE APPLIED IN SEASONABLE WEATHER WHEN AIR AND PAVEMENT SURFACE TEMPERATURES ARE 40°F OR HIGHER AND SHALL NOT BE APPLIED WHEN THE WIND OR OTHER CONDITIONS CAUSE A FILM OF DUST TO BE DEPOSITED ON THE PAVEMENT SURFACE AFTER CLEANING AND BEFORE THE MARKING MATERIAL CAN BE APPLIED.

PREFORMED MARKINGS:

MANUFACTURER CERTIFICATIONS ARE REQUIRED FOR INSTALLERS, AND WRITTEN CERTIFICATION SHALL BE PRESENTED AT ANYTIME UPON REQUEST OF ENGINEER OR OTHER STATE PERSONAL.

DO NOT USE LINE MATERIAL TO PIECE TOGETHER INDIVIDUAL LETTERS, SYMBOLS, OR CROSSWALKS BLOCKS. UTILIZE PRECUT KITS PROVIDED BY THE MANUFACTURER. TWO STRIPS OF 18" LINE MATERIAL MAY BE USED TO FORM CROSSWALK BLOCKS OF 36" WIDTH.

DO NOT USE NARROWER LINE MATERIAL TO PIECE TOGETHER WIDER LINES.

IF THERE IS A CRACK OR JOINT IN ROAD SURFACE. (FOR TAPE LAY OVER CRACK OR JOINT THEN CUT TAPE 1" ON EACH SIDE OF CRACK OR JOINT). (FOR THERMO MAKE A DEEP SCORE IN THE MATERIAL ONCE IT HAS SET UP BUT NOT ENTIRELY COOLED DOWN).

SYMBOLS & MATERIALS LEGEND

BROKEN LINE-50' CYCLE (10' LINE, 40' GAP

DOTTED LINE-6' CYCLE (3' LINE, 3' GAP, UNLESS SHOWN OTHER WISE IN THE PLAN

CROSSWALK BLOCK

PAVEMENT MESSAGE (LEFT ARROW)

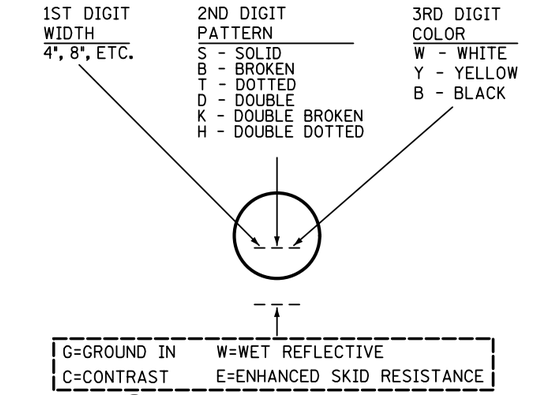
STRIPING KEY

CIRCLE-MULTI COMPONENT

SQUARE-PREF TAPE

TRIANGLE-PAINT

OCTAGON-PREF THERMO



EXAMPLE: 4SW / GW = 4" SOLID LINE WHITE MULTI-COMPONENT GROUND IN, WET REFLECTIVE

PAVEMENT MARKING TABULATION (AI)

	ITEM	UNIT	S.P. 0802-45			S.A.P. 008-070-005			TOTAL QUANTITY	LOCATION
			YELLOW	WHITE	SUBTOTAL	YELLOW	WHITE	SUBTOTAL		
	PAVEMENT MARKING REMOVAL	LIN FT	269		269	1000		1000	1269	REMOVALS FOR T.H. 4 AND C.S.A.H. 29
	4" SOLID LINE MULTI-COMPONENT	LIN FT	646		646	300		300	946	CURB MARKINGS
	4" SOLID LINE MULTI-COMPONENT GROUND IN (WR)	LIN FT	2380	2872	5252	2452	2437	4889	10141	EDGE LINES, CENTER LINES
	24" SOLID LINE MULTI-COMPONENT GROUND IN (WR)	LIN FT	79		79	75		75	154	DIAGONAL GORE LINES
(1)	4" BROKEN LINE MULTI-COMPONENT GROUND IN (WR)	LIN FT	184		184	200		200	384	CENTER LINES
	4" DOUBLE SOLID LINE MULTI-COMPONENT GROUND IN (WR)	LIN FT	1128		1128	999		999	2127	CENTER LINES
(1)	12" DOTTED LINE PREFORM THERMO GROUND IN CONT	LIN FT		51	51		50	50	101	YIELD LINES
	MOBILE RETROREFLECTOMETER MEASUREMENTS	LIN FT			4840				4840	
	PAVEMENT MARKING SPECIAL	SQ FT	117		117	117		117	234	MEDIAN NOSE MARKINGS

SPECIFIC NOTES

(1) STRIPED AREA ONLY (GAPS ARE NOT PAID FOR).

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DRAWN BY: SY
DESIGNED BY: MJM
CHECKED BY: MJM

I hereby certify that this plan, specification, or report 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.

CERTIFIED BY: _____ LICENSED PROFESSIONAL ENGINEER

NAME: MICHAEL J. MARTINEZ LIC. NO. 42807

DATE: 10/27/2017

HDR

DEPARTMENT OF TRANSPORTATION

90% PLANS - FOR REVIEW ONLY

PAVEMENT MARKING NOTES AND TABULATIONS

STATE PROJ. NO. 0802-45 (T.H. 4)

SHEET NO. 102 OF 128 SHEETS

SPECIFIC NOTES

(1) FURNISH AND INSTALL

(5) REMOVE SIGN TYPE C

(8) MARK THE CURBS ALONG THE SPLITTER ISLAND FOR 150' FROM THE OUTER CIRCLE.

50

SCALE IN FEET

BEGIN MILL AND OVERLAY
T.H. 4 N.B. STA.205+13

NO PASSING ZONE
(1) C-1

BEGIN CONSTRUCTION
T.H. 4 N.B. STA.204+08

END PAVEMENT MARKING REMOVAL
T.H. 4 N.B. STA. 205+13

MATCH EXISTING
BEGIN PAVEMENT MARKING REMOVAL
T.H. 4 N.B. STA. 204+08

4BY GW

205

JCT 29 COUNTY 1/2 MILE
(1) D-1

(5) 29 COUNTY JCT

4SY GW

MATCHLINE T.H. 4 N.B.
STA. 207+00 SEE BELOW

T.H. 4 N.B.

BEGIN S.P. 0802-45
END MILL AND OVERLAY
T.H. 4 N.B. STA.209+08

MATCH EXISTING
T.H. 4 N.B. STA. 209+08

STRIPING TRANSITION
T.H. 4 N.B. STA. 208+28

T.H. 4 S.B.

MATCHLINE T.H. 4 N.B.
STA. 207+00 SEE ABOVE

4BY GW

8' SHLD
12' LANE
12' LANE
8' SHLD

210

210

BEGIN CURVE
T.H. 4 S.B STA. 212+93

R=790'

STRIPING TRANSITION
T.H. 4 S.B. STA. 211+70

6' SHLD

6' SHLD

R=1293'

4SY GW

(8)

MATCHLINE T.H. 4 N.B.
STA. 214+00 SEE SHEET104, 105, 106

4SY GW

4DY GW

T.H. 4 N.B.

MATCH EXISTING
T.H. 4 N.B. STA. 209+08

24SY GW (TYP.)

4DY GW

4SW GW

4SY GW

T.H. 4 N.B.

D ENTRANCE

(1) D-2
WEST 29 COUNTY
NORTH 4 MINNESOTA
EAST 29 COUNTY

(5) 29 COUNTY ROUND

(1) C-4

RAISED MEDIAN MARKINGS

STRIPING TRANSITION
T.H. 4 N.B STA. 211+74

BEGIN CURVE
T.H. 4 N.B STA. 212+90

(1) C-5

(5) RIGHT LANE MUST TURN RIGHT

(1) C-6 15 M.P.H.

ROUNDABOUT

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DRAWN BY:	SY
DESIGNED BY:	MJM
CHECKED BY:	MJM

I hereby certify that this plan, specification, or report 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.

CERTIFIED BY: _____ LICENSED PROFESSIONAL ENGINEER

NAME: MICHAEL J. MARTINEZ LIC. NO. 42807

10/27/2017 DATE

HDR

DEPARTMENT OF TRANSPORTATION

90% PLANS - FOR REVIEW ONLY

STATE PROJ. NO. 0802-45 (T.H. 4)

SIGNING AND STRIPING PLAN

SHEET NO. 103 OF 128 SHEETS

MATCHLINE C.S.A.H. 29 E.B.
STA. 114+00 SEE SHEET 109

C.S.A.H. 29 W.B.

C.S.A.H 29 E.B.

MATCHLINE T.H. 4 N.B.
STA. 214+00 SEE SHEET 103

MATCHLINE T.H. 4 N.B.
STA. 221+75 SEE SHEET 107

T.H. 4 S.B.

T.H. 4 N.B.

MATCHLINE C.S.A.H. 29 E.B.
STA. 118+50 SEE SHEET 110

215

215

115

115

220

220

C-26 ① ONE WAY YIELD

C-9 ① ONEWAY

C-21 ① YIELD

SOUTH MINNESOTA 4 C-3 ①

WEST 29 COUNTY C-20 ①

ONE WAY C-9 ①

YIELD C-8 ①

YIELD ONE WAY C-7 ①

ROUNDABOUT 15 M.P.H. C-6 ①

C-5 ①

8 9 MILE 8 9 MILE

C-7 ① YIELD ONE WAY

C-8 ① YIELD

C-9 ① ONE WAY

C-22 ① EAST 29 COUNTY

YIELD C-21 ①

ONE WAY C-9 ①

NORTH MINNESOTA 4 C-2 ①

YIELD ONE WAY C-26 ①

SPECIFIC NOTES

① FURNISH AND INSTALL

50
SCALE IN FEET

DRAWN BY: SY	I hereby certify that this plan, specification, or report 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.	CERTIFIED BY: LICENSED PROFESSIONAL ENGINEER	10/27/2017 DATE	90% PLANS - FOR REVIEW ONLY — SIGNING PLAN
DESIGNED BY: MJM		NAME: MICHAEL J. MARTINEZ LIC. NO. 42807		STATE PROJ. NO. 0802-45 (T.H. 4) — SHEET NO. 104 OF 128 SHEETS
CHECKED BY: MJM				

HDR

DEPARTMENT OF TRANSPORTATION

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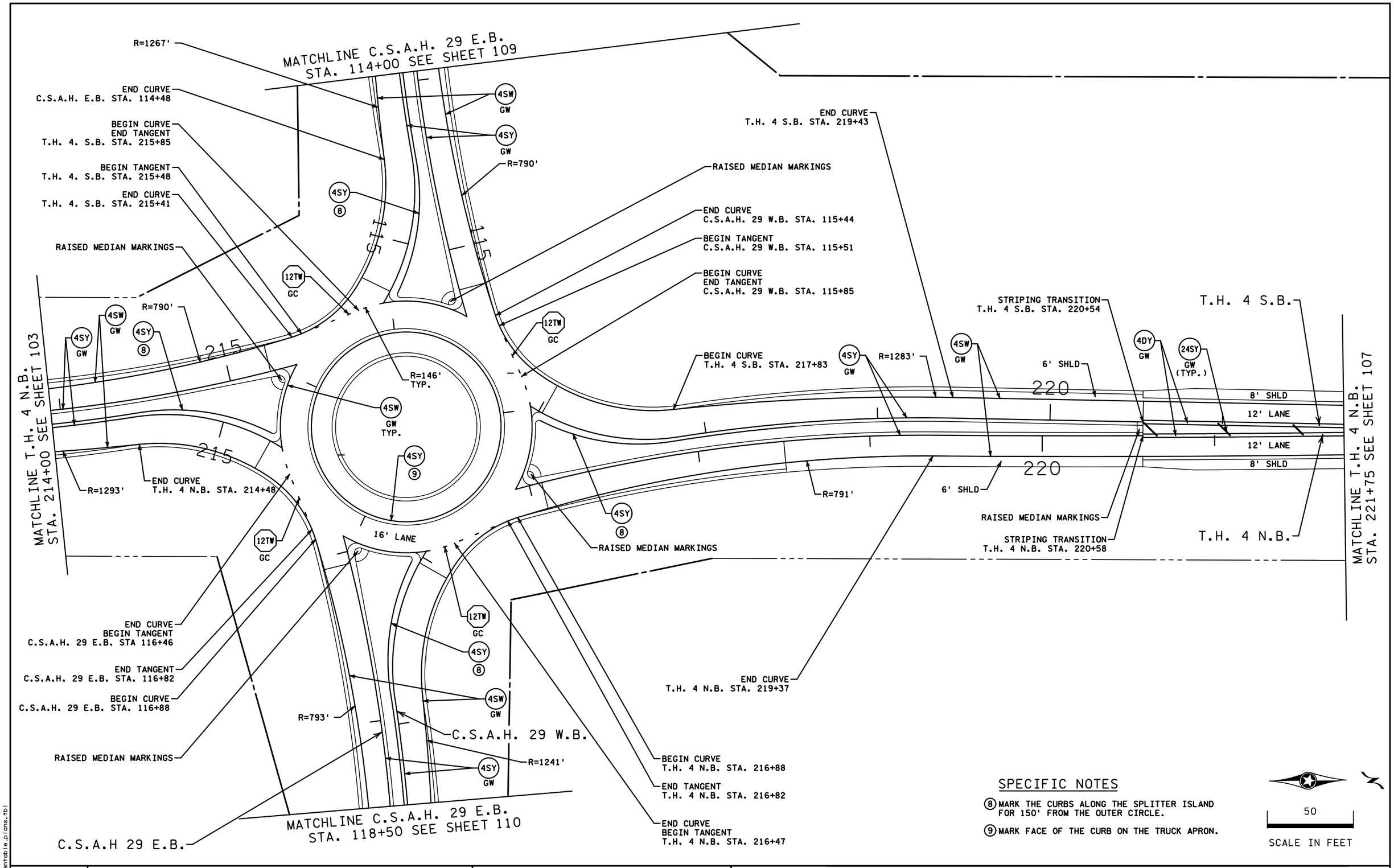

SPECIFIC NOTES

(8) MARK THE CURBS ALONG THE SPLITTER ISLAND FOR 150' FROM THE OUTER CIRCLE.

(9) MARK FACE OF THE CURB ON THE TRUCK APRON.

50

SCALE IN FEET

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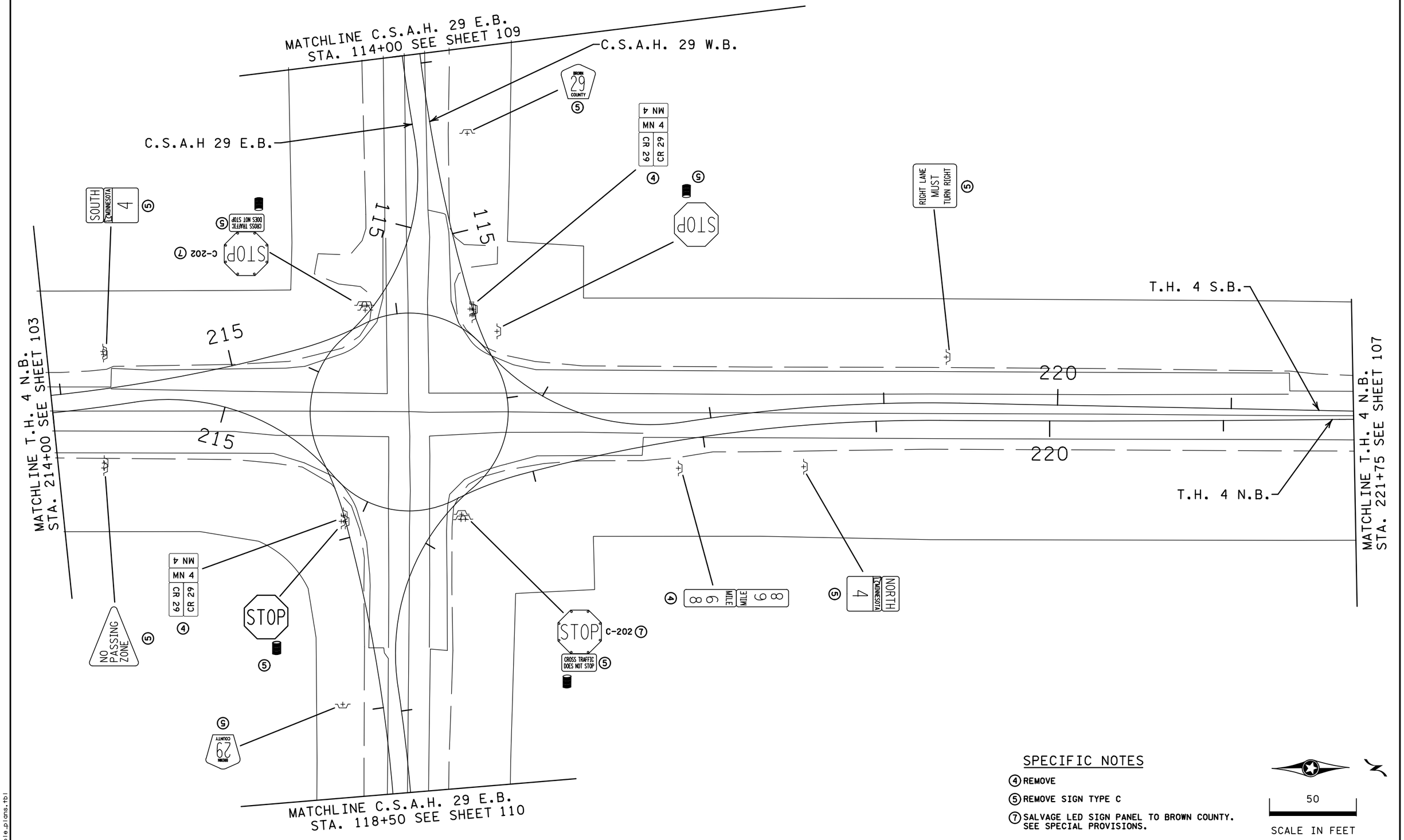
DRAWN BY: SY	I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly licensed Professional Engineer under the laws of the State of Minnesota.	CERTIFIED BY: LICENSED PROFESSIONAL ENGINEER	10/27/2017 DATE	HDR / DEPARTMENT OF TRANSPORTATION	90% PLANS - FOR REVIEW ONLY — STRIPING PLAN
DESIGNED BY: MJM		NAME: MICHAEL J. MARTINEZ LIC. NO. 42807			STATE PROJ. NO. 0802-45 (T.H. 4) — SHEET NO. 105 OF 128 SHEETS
CHECKED BY: MJM					



SPECIFIC NOTES

(4) REMOVE

(5) REMOVE SIGN TYPE C

(7) SALVAGE LED SIGN PANEL TO BROWN COUNTY. SEE SPECIAL PROVISIONS.

50

SCALE IN FEET

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DESIGNED BY: MJM		NAME: MICHAEL J. MARTINEZ LIC. NO. 42807			STATE PROJ. NO. 0802-45 (T.H. 4) — SHEET NO. 106 OF 128 SHEETS
CHECKED BY: MJM					

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MATCHLINE T.H. 4 N.B.
STA. 221+75 SEE SHEET 104, 105, 106

T.H. 4 S.B.

C-4 (1)

MATCH EXISTING
T.H. 4. N.B. STA. 223+16

STRIPING TRANSITION
T.H. 4. N.B. STA. 223+16

END RECONSTRUCTION
BEGIN MILL AND OVERLAY
T.H. 4 N.B.
STA. 223+16.17

SOUTH MINNESOTA 4
WEST COUNTY 29
EAST COUNTY 29
D-3 (1)

MATCH EXISTING
END PAVEMENT MARKING REMOVAL
T.H. 4. N.B. STA. 228+16

JCT COUNTY 29
1/2 MILE
D-1 (1)

BEGIN PAVEMENT MARKING REMOVAL
T.H. 4. N.B. STA. 226+52

ROUTE 29 COUNTY (5)

8' SHLD
12' LANE
12' LANE
8' SHLD

GRAVEL
BIT

225

T.H. 4 N.B.

T.H. 4 N.B.

END MILL AND OVERLAY
T.H. 4 N.B.
STA. 226+52.00

NO PASSING ZONE
C-1 (1)

4DY GW
4SW GW
4BY GW
4SY GW

MATCH EXISTING
T.H. 4. N.B. STA. 223+16

SPECIFIC NOTES

(1) FURNISH AND INSTALL
(5) REMOVE SIGN TYPE C

50
SCALE IN FEET

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DESIGNED BY: MJM		NAME: MICHAEL J. MARTINEZ LIC. NO. 42807			STATE PROJ. NO. 0802-45 (T.H. 4) — SHEET NO. 107 OF 128 SHEETS
CHECKED BY: MJM					

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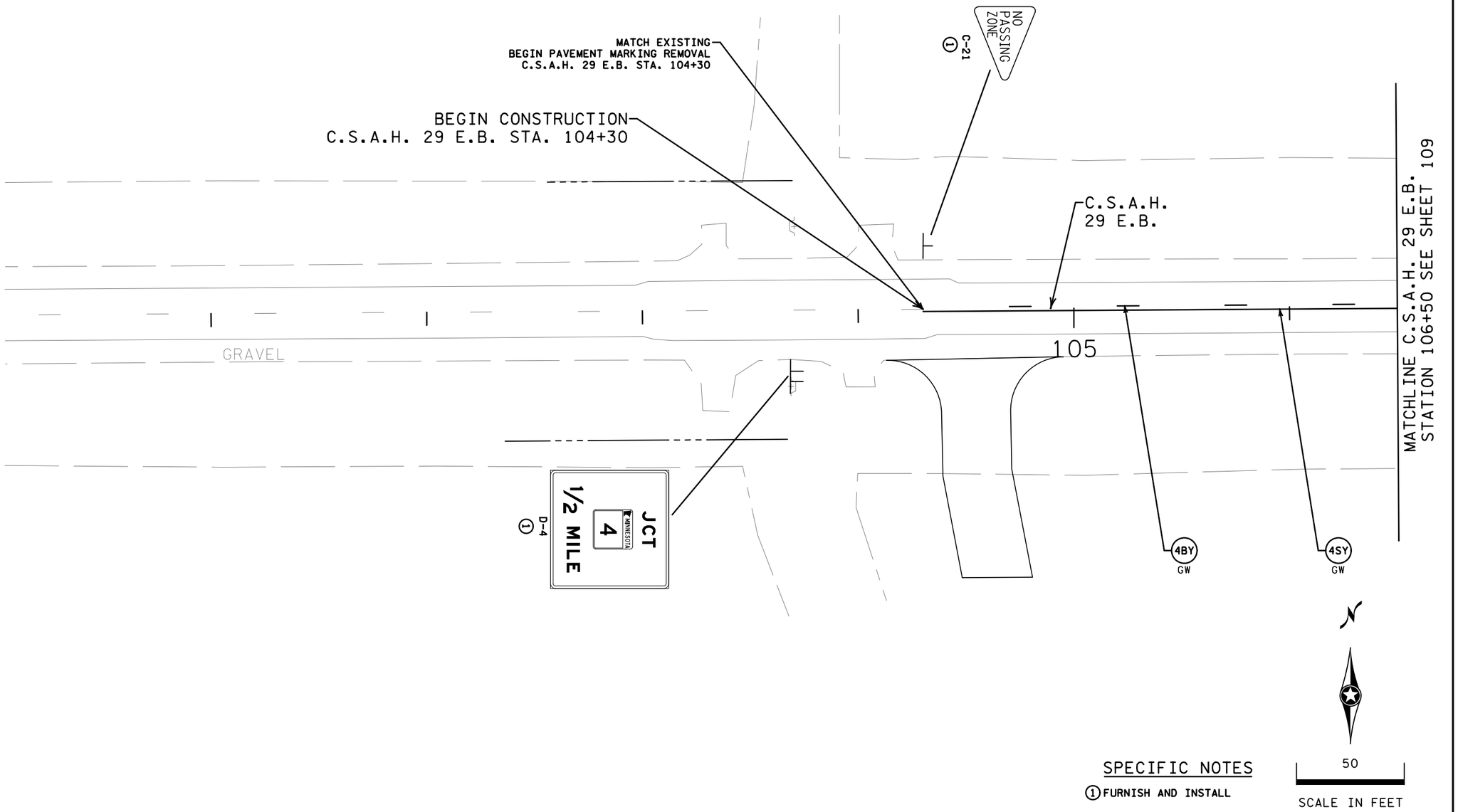

SPECIFIC NOTES

1 FURNISH AND INSTALL

50

SCALE IN FEET

DRAWN BY: SY	I hereby certify that this plan, specification, or report 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.	CERTIFIED BY: _____ LICENSED PROFESSIONAL ENGINEER	10/27/2017 DATE	HDR	DEPARTMENT OF TRANSPORTATION
DESIGNED BY: MJM		NAME: MICHAEL J. MARTINEZ LIC. NO. 42807			
CHECKED BY: MJM					

90% PLANS - FOR REVIEW ONLY — SIGNING AND STRIPING PLAN

STATE PROJ. NO. 0802-45 (T.H. 4) — SHEET NO. 108 OF 128 SHEETS

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MATCHLINE C.S.A.H. 29 E.B.
STATION 106+50 SEE SHEET 108

MATCH EXISTING
C.S.A.H. 29 E.B. STA. 109+30

BEGIN S.A.P. 008-070-005
C.S.A.H. 29 E.B.
STA. 109+30.16

(5)

GRAVEL

BIT

C.S.A.H.
29 E.B.

C-203 (7)

STRIPING TRANSITION
END PAVEMENT MARKING REMOVAL
C.S.A.H. 29 E.B. STA. 109+30

MATCH EXISTING
C.S.A.H. 29 E.B. STA. 109+30

NORTH
4 MINNESOTA
EAST
29 COUNTY
SOUTH
4 MINNESOTA

D-5 (1)

110

10' SHLD

12' LANE

12' LANE

110

10' SHLD

C-23 (1)

4DY
GW

4SW
GW

BEGIN CURVE
C.S.A.H. 29 W.B. STA. 112+98

STRIPING TRANSITION
C.S.A.H. 29 W.B. STA. 111+74

C.S.A.H.
29 W.B.

6' SHLD

R=790'

RAISED MEDIAN MARKINGS

STRIPING TRANSITION
C.S.A.H. 29 E.B. STA. 111+78

C-24 (1)

BEGIN CURVE
C.S.A.H. 29 E.B. STA. 112+85

6' SHLD

R=1267'

4SY
(8)

C.S.A.H.
29 E.B.

C-25 (1)
15 M.P.H.
ROUNDABOUT

4SY
GW

(5)

MATCHLINE C.S.A.H. 29 E.B.
STA. 114+00 SEE SHEET 104, 105, 106

SPECIFIC NOTES

(1) FURNISH AND INSTALL

(5) REMOVE SIGN TYPE C

(7) SALVAGE LED SIGN PANEL TO MNDOT. SEE SPECIAL PROVISIONS.

(8) MARK THE CURBS ALONG THE SPLITTER ISLAND FOR 150' FROM THE OUTER CIRCLE.

50

SCALE IN FEET

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DRAWN BY:	SY
DESIGNED BY:	MJM
CHECKED BY:	MJM

I hereby certify that this plan, specification, or report 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.

CERTIFIED BY: _____ LICENSED PROFESSIONAL ENGINEER — 10/27/2017 DATE

NAME: MICHAEL J. MARTINEZ LIC. NO. 42807

HDR

DEPARTMENT OF TRANSPORTATION

90% PLANS - FOR REVIEW ONLY — SIGNING AND STRIPING PLAN

STATE PROJ. NO. 0802-45 (T.H. 4) — SHEET NO. 109 OF 128 SHEETS

END CURVE
C.S.A.H. 29 W.B. STA. 119+52

C.S.A.H. 29 W.B.

ROUNDABOUT

15 M.P.H. C-25 ①

C-24 ①

SLEEPY EYE 4
FAIRFAX 10
MORGAN 10
④

C-23 ①

NO ENGINE BRAKE ⑥

MATCH EXISTING
C.S.A.H. 29 E.B. STA. 123+09

END S.A.P. 008-070-005
C.S.A.H. 29 E.B. STA. 123+09.15

WEST COUNTY 29 NORTH MINNESOTA 4 SOUTH MINNESOTA 4
D-6 ①

C-203 ⑦

NO ENGINE BRAKE ③

STRIPING TRANSITION
C.S.A.H. 29 W.B. STA. 120+55

MATCHLINE C.S.A.H. 29 E.B.
STA. 118+50 SEE SHEET 104 105, 106

R=1241'
R=793'

6' SHLD
120
10' SHLD
12' LANE
12' LANE
8' SHLD
120
6' SHLD

C.S.A.H. 29 E.B.

CSAH 29
125

MATCHLINE C.S.A.H. 29 E.B.
STA. 126+00 SEE BELOW

4SW GW
4SY GW
4DY GW
4SY GW
4BY GW

END CURVE
C.S.A.H. 29 E.B. STA. 119+40

C.S.A.H. 29 E.B.

GRAVEL
GRAVEL

STRIPING TRANSITION
C.S.A.H. 29 E.B. STA. 120+57

STRIPING TRANSITION
BEGIN PAVEMENT MARKING REMOVAL
C.S.A.H. 29 E.B. STA. 123+09

MATCH EXISTING
C.S.A.H. 29 E.B. STA. 123+09

Morgan 10
Sleepy Eye 4
Fairfax 10
D-7 ①

JCT MINNESOTA 4 1/2 MILE
D-4 ①

SPECIFIC NOTES

① FURNISH AND INSTALL
③ SALVAGE
④ REMOVE
⑤ REMOVE SIGN TYPE C
⑥ INSTALL
⑦ SALVAGE LED SIGN PANEL TO BROWN COUNTY. SEE SPECIAL PROVISIONS.

C.S.A.H. 29 E.B.

MATCHLINE C.S.A.H. 29 E.B.
STA. 126+00 SEE ABOVE

BIT

BRC

130

END CONSTRUCTION
C.S.A.H. 29 E.B. STA. 128+09

MATCH EXISTING
END PAVEMENT MARKING REMOVAL
C.S.A.H. 29 E.B. STA. 128+09

4SY GW
4BY GW

NO PASSING ZONE C-21 ①

N

50

SCALE IN FEET

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DRAWN BY:	SY
DESIGNED BY:	MJM
CHECKED BY:	MJM

I hereby certify that this plan, specification, or report 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.

CERTIFIED BY: _____ LICENSED PROFESSIONAL ENGINEER — 10/27/2017 DATE

NAME: MICHAEL J. MARTINEZ LIC. NO. 42807

HDR

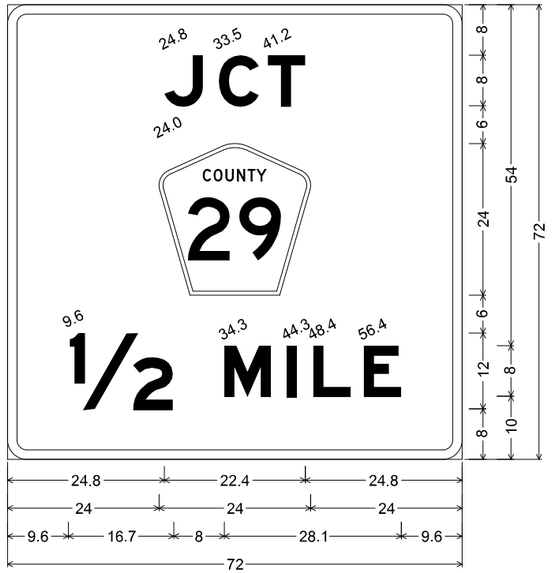
DEPARTMENT OF TRANSPORTATION

90% PLANS - FOR REVIEW ONLY

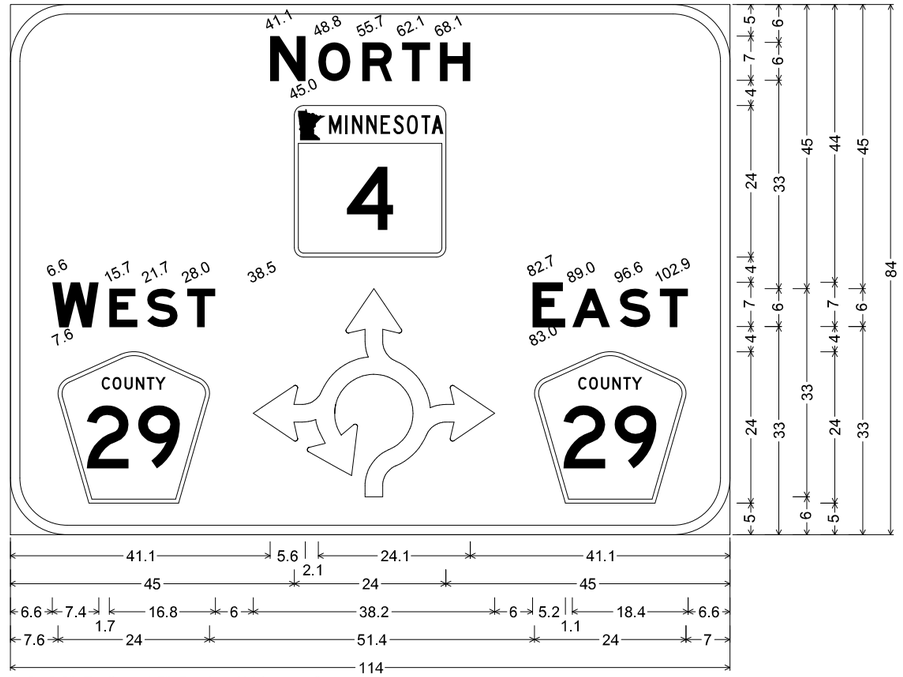
SIGNING AND STRIPING PLAN

STATE PROJ. NO. 0802-45 (T.H. 4)

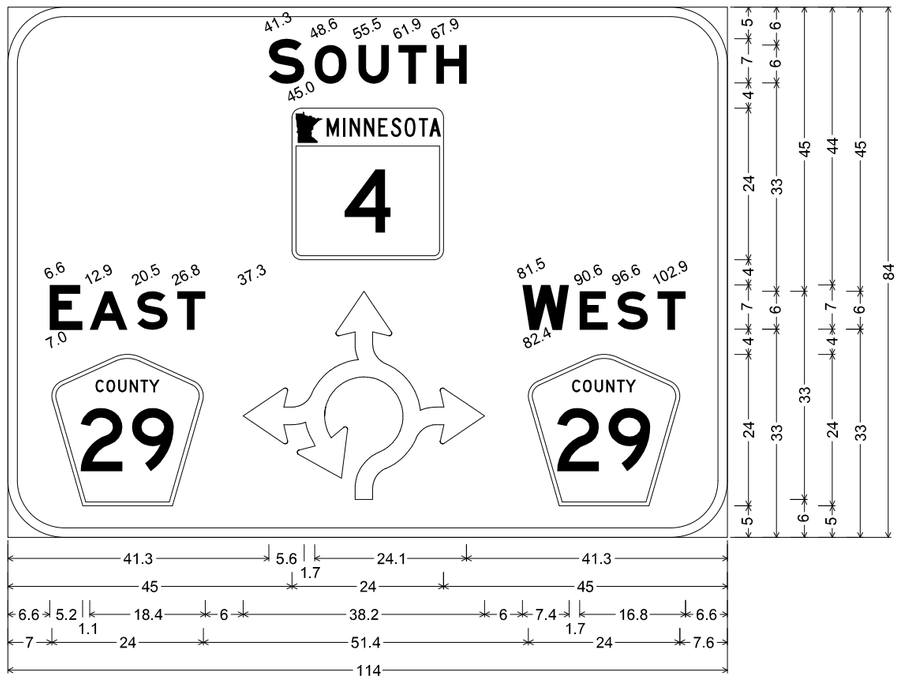
SHEET NO. 110 OF 128 SHEETS



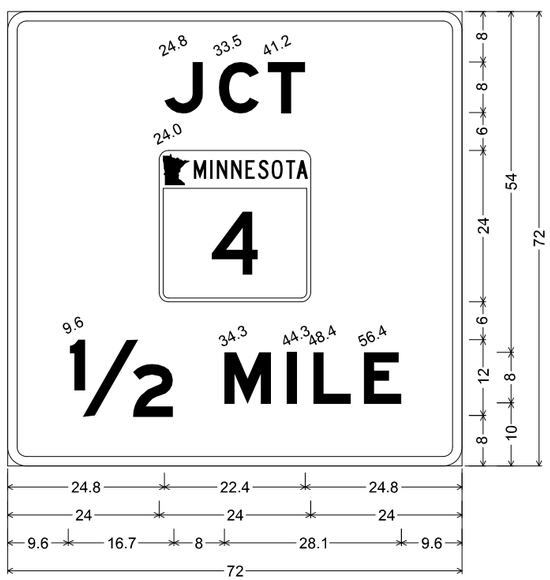
D-1; 3.0" Radius, 1.5" Border, White on Green;
[JCT] E Mod; Pentagonal County 29 M1-6a;
[½ MILE] E Mod;



D-2; 9.0" Radius, 1.5" Border, White on Green;
[NORTH] E Mod; State Highway 4 M1-5b; [WEST] E Mod; Pentagonal County 29 M1-6a;
RA Arrow-4hd; [EAST] E Mod; Pentagonal County 29 M1-6a;



D-3; 9.0" Radius, 1.5" Border, White on Green;
[SOUTH] E Mod; State Highway 4 M1-5b; [EAST] E Mod; Pentagonal County 29 M1-6a;
RA Arrow-4hd; [WEST] E Mod; Pentagonal County 29 M1-6a;



D-4; 3.0" Radius, 1.5" Border, White on Green;
[JCT] E Mod; State Highway 4 M1-5b; [½ MILE] E Mod;

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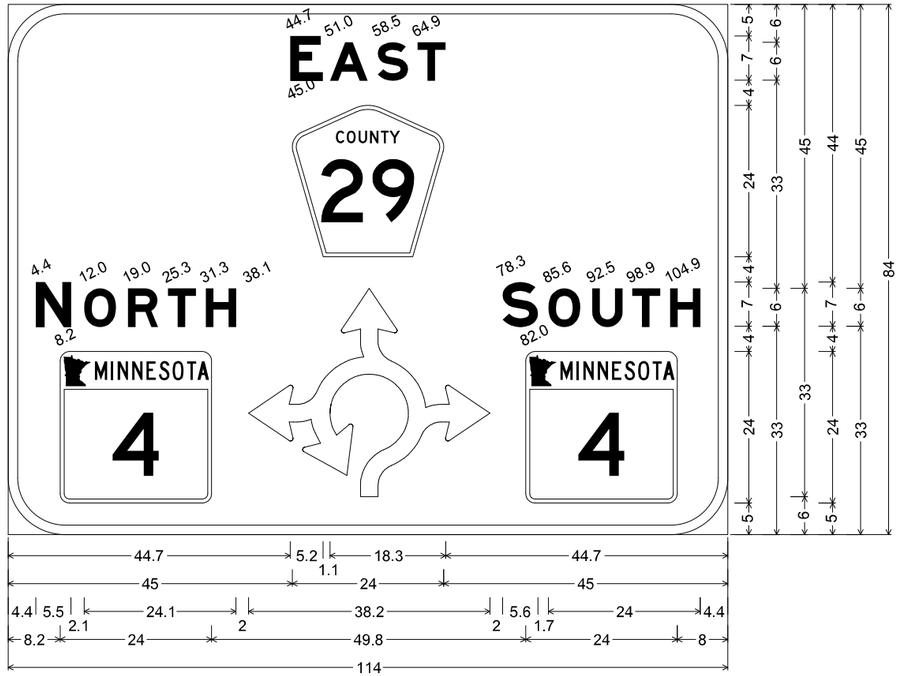
DRAWN BY: SY	I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly licensed Professional Engineer under the laws of the State of Minnesota.	CERTIFIED BY: _____ LICENSED PROFESSIONAL ENGINEER	10/27/2017 DATE	90% PLANS - FOR REVIEW ONLY
DESIGNED BY: MJM		NAME: MICHAEL J. MARTINEZ LIC. NO. 42807		STATE PROJ. NO. 0802-45 (T.H. 4)
CHECKED BY: MJM				

HDR

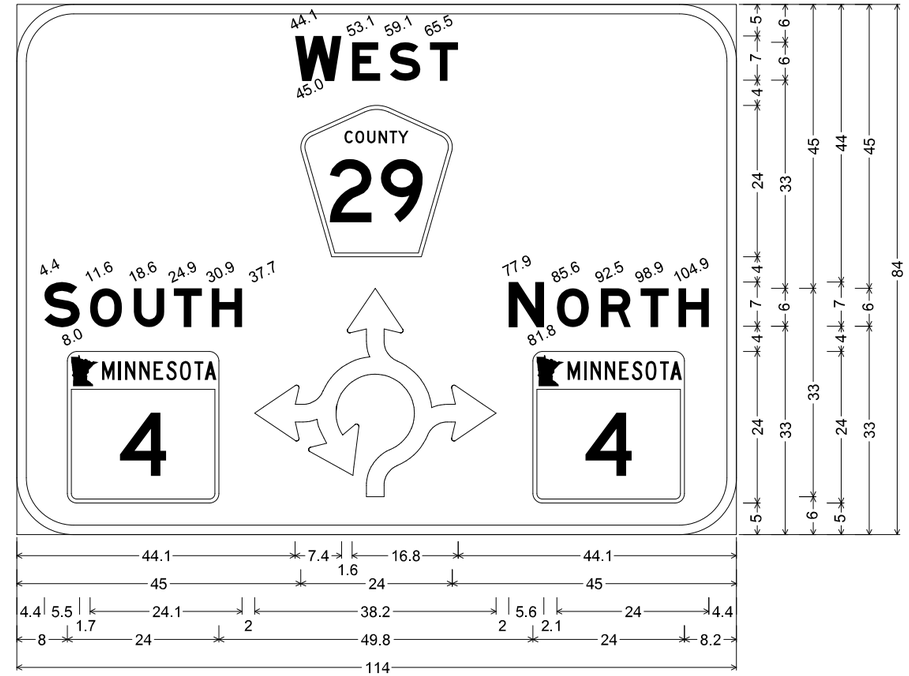
DEPARTMENT OF TRANSPORTATION

TYPE D SIGN PANEL DETAILS

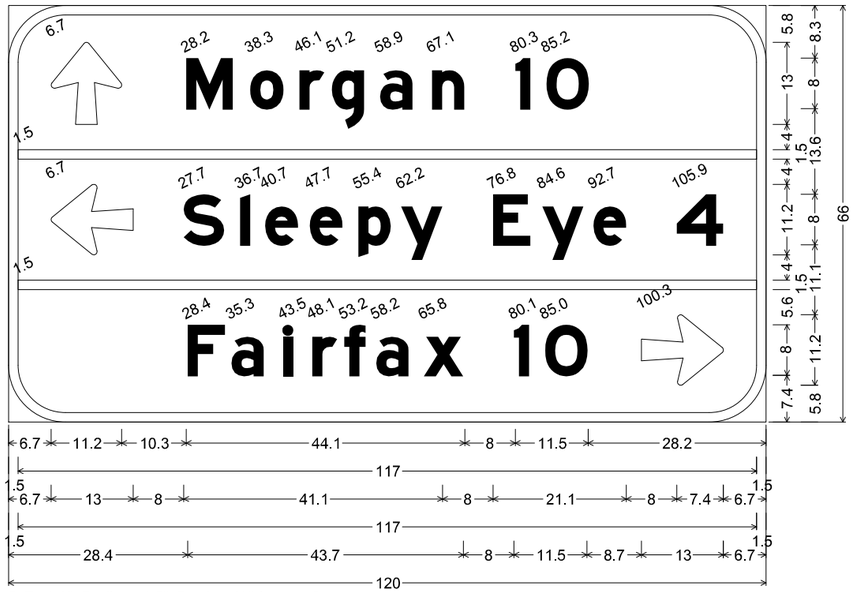
SHEET NO. 111 OF 128 SHEETS



D-5; 9.0" Radius, 1.5" Border, White on Green;
[EAST] E Mod; Pentagonal County 29 M1-6a; [NORTH] E Mod; State Highway 4 M1-5b;
RA Arrow-4hd; [SOUTH] E Mod; State Highway 4 M1-5b;



D-6; 9.0" Radius, 1.5" Border, White on Green;
[WEST] E Mod; Pentagonal County 29 M1-6a; [SOUTH] E Mod; State Highway 4 M1-5b;
RA Arrow-4hd; [NORTH] E Mod; State Highway 4 M1-5b;



D-7; 9.0" Radius, 1.5" Border, White on Green;
Arrow 5 - 13.0" 90°; [Morgan 10] E Mod; Arrow 5 - 13.0" 180°; [Sleepy Eye 4] E Mod;
[Fairfax 10] E Mod; Arrow 5 - 13.0" 0°;

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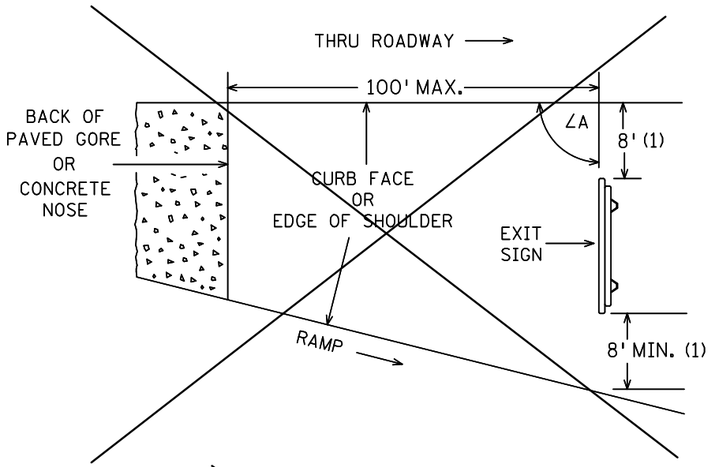
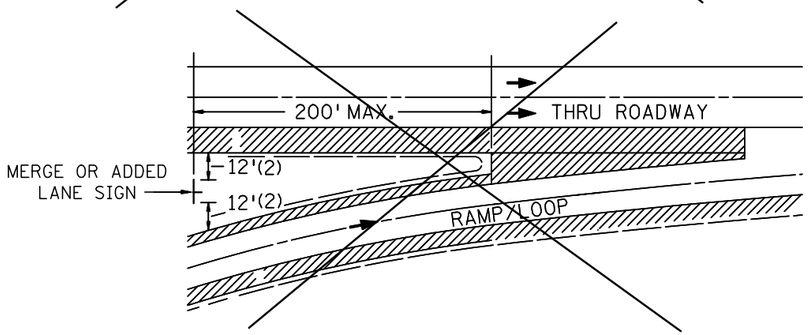
DESIGNED BY: MJM		NAME: MICHAEL J. MARTINEZ LIC. NO. 42807			STATE PROJ. NO. 0802-45 (T.H. 4)
CHECKED BY: MJM					

TYPE D SIGN PANEL DETAILS

GORE PLACEMENT



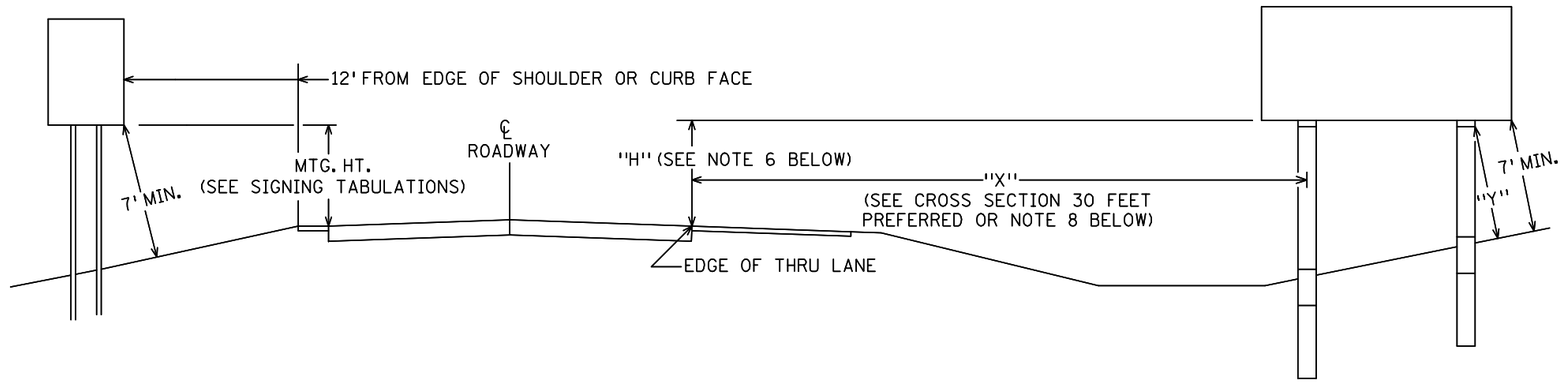


SPECIFIC NOTES:

(1) EXIT SIGN
IF THESE OFFSETS CANNOT BE ATTAINED WITHIN 100 FEET OF THE PAVED GORE, A 4 FOOT OFFSET IS ACCEPTABLE. IF THE 4 FOOT OFFSETS CANNOT BE ATTAINED WITHIN 100 FEET OF THE PAVED GORE, CONTACT THE PROJECT ENGINEER.

(2) MERGE OR ADDED LANE SIGN
IF THESE OFFSETS CANNOT BE ATTAINED WITHIN 200 FEET OF THE PAVED GORE, A 4 FOOT OFFSET IS ACCEPTABLE. IF THE 4 FOOT OFFSETS CANNOT BE ATTAINED WITHIN 200 FEET OF THE PAVED GORE, CONTACT THE PROJECT ENGINEER.

ROADSIDE PLACEMENT



ROUTE MARKER, REGULATORY & WARNING SIGNS - TYPE C
GUIDE SIGNS - TYPE D

GUIDE SIGN - TYPE A

NOTES:

1. ALL TYPE C AND D MOUNTING HEIGHTS ARE MEASURED VERTICALLY FROM THE BOTTOM OF THE SIGN TO THE ELEVATION OF THE NEAR EDGE OF PAVEMENT IN RURAL AREAS OR TO THE TOP OF THE CURB OR IN THE ABSCENCE OF CURB, TO THE NEAR EDGE OF THE TRAVELED WAY.
2. SIGN FACES SHALL BE VERTICAL.
3. OVERHEAD SIGNS SHALL BE POSITIONED AT RIGHT ANGLES TO THE THRU ROADWAY UNLESS OTHERWISE NOTED.
4. TO AVOID SPECULAR GLARE, ∠A SHALL BE APPROXIMATELY 93° FOR SIGNS LOCATED LESS THAN 30' FROM THE EDGE OF THRU LANE AND APPROXIMATELY 92° FOR SIGNS LOCATED 30' OR MORE FROM EDGE OF THRU LANE. THIS APPLIES TO SIGNS TYPE A, C, & D AND INCLUDES SIGNS IN THE GORE.
5. "Y" IS THE PERPENDICULAR DISTANCE FROM THE GROUND LINE TO THE FRICTION FUSE ON THE POST. THIS DISTANCE SHALL BE AT LEAST 7'.
6. WHERE "X" IS LESS THAN 30', "H" SHALL BE 7'. WHERE "X" IS 30' OR GREATER, MINIMUM AND PREFERRED "H" IS 5'.
7. LATERAL CLEARANCES GIVEN APPLY TO RIGHT AND OR LEFT SIDE INSTALLATION.
8. WHEN A TYPE A SIGN IS INSTALLED DIRECTLY BEHIND TRAFFIC BARRIER, THE LEFT EDGE OF THE SIGN PANEL SHALL BE LOCATED A MINIMUM OF 8 FEET BEHIND THE FACE OF THE TRAFFIC BARRIER.

REVISED: 4-28-17

SIGN PLACEMENT

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DESIGNED BY: MJM		NAME: MICHAEL J. MARTINEZ LIC. NO.	42807
CHECKED BY: MJM			

HDR

DEPARTMENT OF TRANSPORTATION

90% PLANS - FOR REVIEW ONLY	PLACEMENT DETAILS
STATE PROJ. NO. 0802-45 (T.H. 4)	SHEET NO. 113 OF 128 SHEETS

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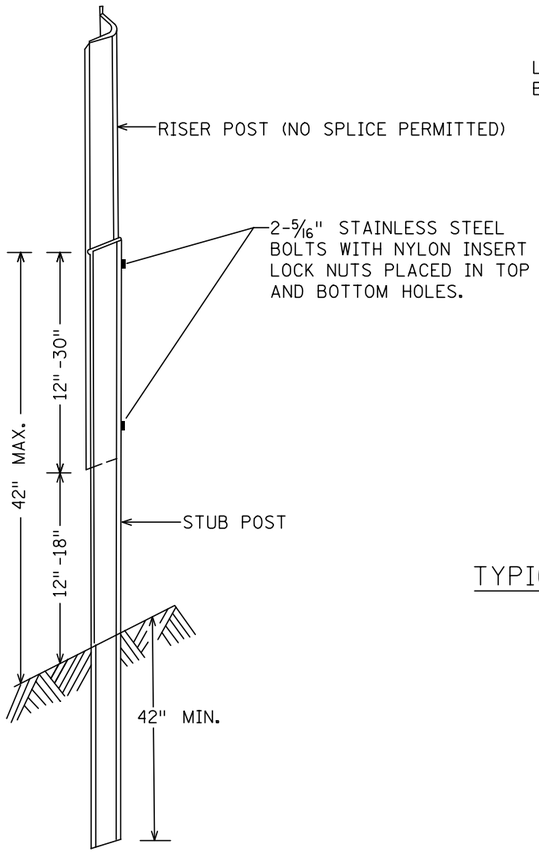
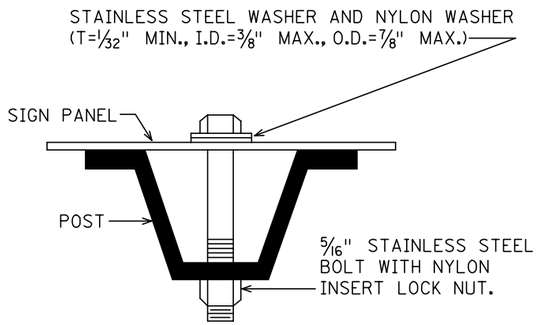
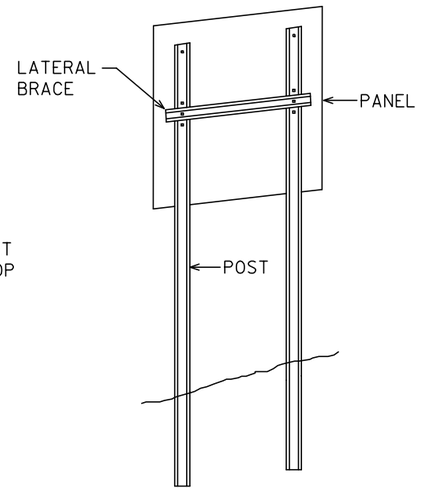
TYPE C & D POST



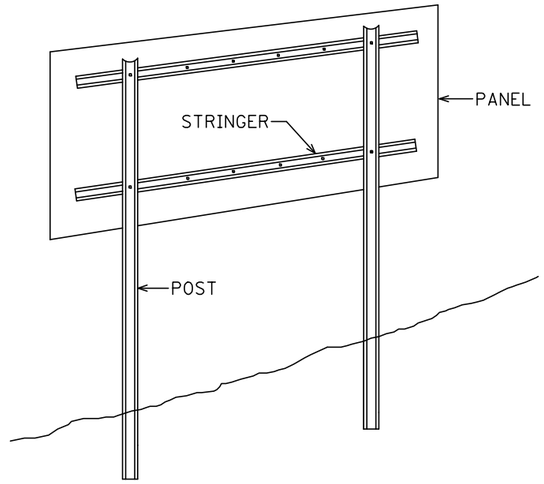
U POST BREAKAWAY SPLICE



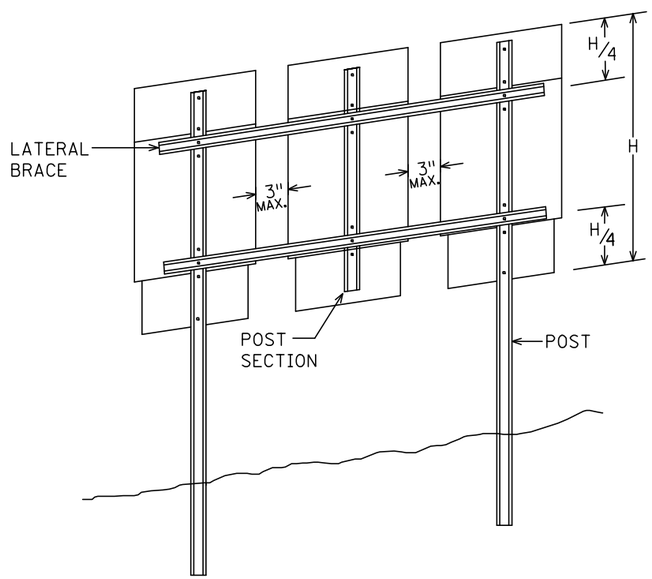
U POST MOUNTING TYPE C SIGNS



TYPICAL TYPE C INSTALLATION



TYPICAL TYPE D INSTALLATION



MODIFIED TYPE C INSTALLATION

NOTES:

1. USE 3 LB/FT STUB POSTS. SHALL CONFORM TO MNDOT 3401.
2. USE 2.5 LB/FT RISER POSTS, STRINGERS, KNEE BRACES AND LATERAL BRACES. ALL SHALL CONFORM TO MNDOT 3401.
3. SEE SIGN DATA SHEETS FOR NUMBER OF POSTS, KNEE BRACES, POST LENGTHS AND SPACINGS, AS DETERMINED FROM TEM CHARTS 6.3 AND 6.4.
4. IF MORE THAN TWO POSTS ARE NEEDED, THE MINIMUM SPACING SHALL BE 45" BETWEEN POSTS.
5. TYPE D SIGN PANELS SHALL BE BOLTED TO STRINGERS AT 24" MAXIMUM INTERVALS IN ACCORDANCE WITH THE TYPE D STRINGER AND PANEL-JOINT DETAIL (SEE MNDOT STANDARD SIGNS AND MARKINGS MANUAL).
6. MOUNTING (PUNCH CODE) FOR TYPE C SIGN PANELS SHALL BE AS INDICATED IN THE MNDOT STANDARD SIGNS AND MARKINGS MANUAL UNLESS OTHERWISE SPECIFIED.
7. ALL RISER (VERTICAL) U POSTS SHALL BE SPLICED. DRIVEN STUB POSTS SHALL BE AT LEAST 7' LONG.
8. USE STAINLESS STEEL 5/16" BOLTS, WASHERS AND NYLON INSERT LOCK NUTS AS SHOWN FOR ALL GROUND MOUNTED AND OVERHEAD MOUNTED SIGNS.
9. STAINLESS STEEL WASHER WITH SAME DIMENSIONS SHALL BE PROVIDED BETWEEN ALL NYLON WASHERS AND BOLT HEADS.
10. BRACING STUBS SHALL BE NO MORE THAN 4" ABOVE GROUND AND EMBEDDED AT LEAST 42".
11. A-FRAME BRACKET SHALL BE STEEL CONFORMING TO MNDOT 3306 AND GALVANIZED IN ACCORDANCE WITH MNDOT 3394.
12. COLLARS SHALL BE USED TO SHIM OVERLAYS AND LEGEND COMPONENTS AWAY FROM PANEL WHERE INTERFERENCE WITH BOLT HEADS IS ENCOUNTERED. MNDOT 3352.2A6.
13. 2 POST TYPE C SIGNS SHALL BE REINFORCED WITH AT LEAST ONE LATERAL BRACE. INSTALLATIONS WHERE THE TOTAL PANEL HEIGHT IS 60" OR MORE SHALL HAVE TWO LATERAL BRACES LOCATED APPROXIMATELY AT THE QUARTER POINTS.
14. WHERE 2 SINGLE POST TYPE C SIGNS ARE INSTALLED SIDE BY SIDE, THEY SHALL BE REINFORCED LATERALLY BY AT LEAST 2 BRACES, BOLTED AT EACH POST AND LOCATED APPROXIMATELY AT THE QUARTER POINTS.
15. WHERE 3 OR MORE TYPE C SIGNS ARE INSTALLED SIDE BY SIDE, THEY SHALL BE REINFORCED LATERALLY BY AT LEAST 2 BRACES, BOLTED AT EACH POST AND POST SECTION AND LOCATED APPROXIMATELY AT THE QUARTER POINTS AS SHOWN IN MODIFIED TYPE C INSTALLATION.

TYPE C & D SIGN STRUCTURAL DETAILS

REVISED: 5-5-2017

DRAWN BY:	SY
DESIGNED BY:	MJM
CHECKED BY:	MJM

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CERTIFIED BY: _____ LICENSED PROFESSIONAL ENGINEER

NAME: MICHAEL J. MARTINEZ LIC. NO. 42807

DATE: 10/27/2017

HDR

DEPARTMENT OF TRANSPORTATION

90% PLANS - FOR REVIEW ONLY

STATE PROJ. NO. 0802-45 (T.H. 4)

STRUCTURAL DETAILS

SHEET NO. 114 OF 128 SHEETS

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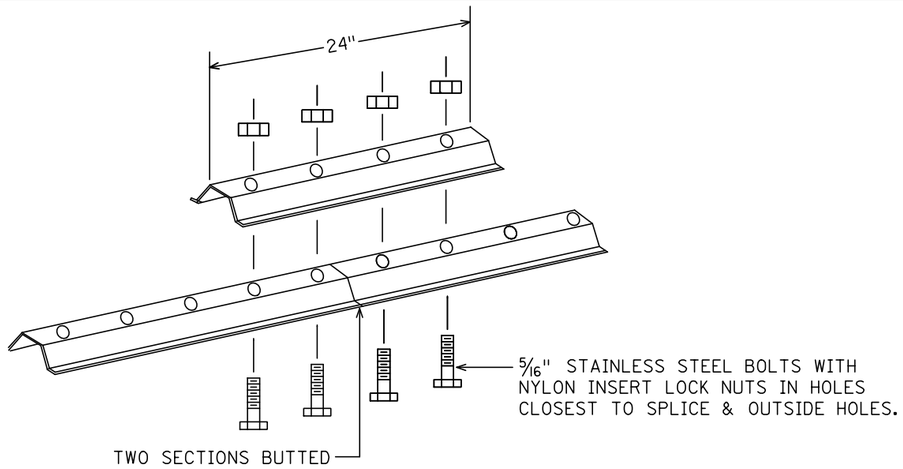
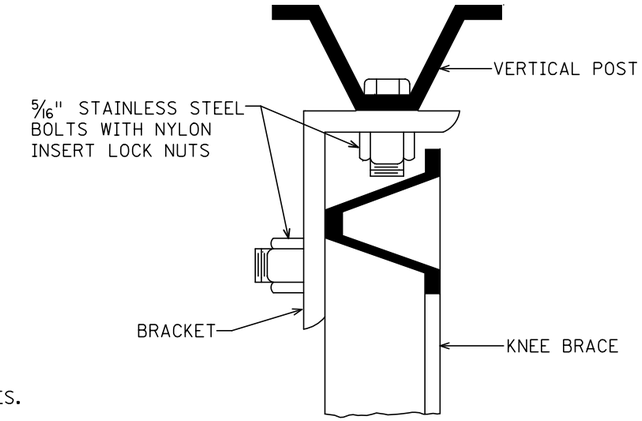
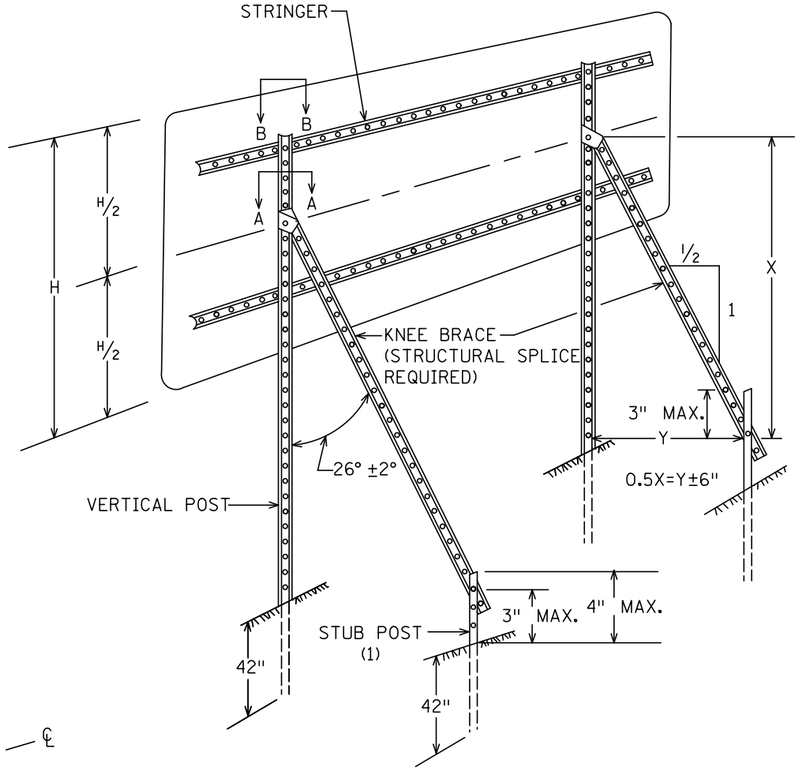


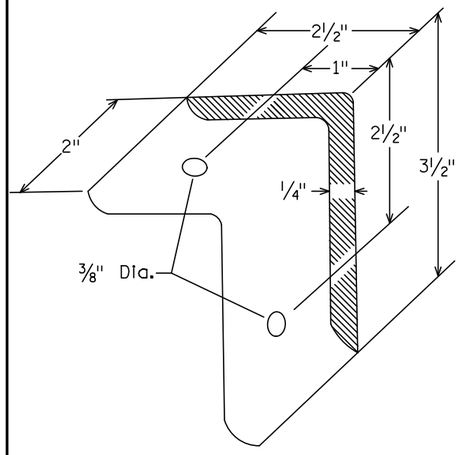
LATERAL BRACE OR STRINGER SPLICE DETAIL (EXPLODED VIEW)



SECTION A-A

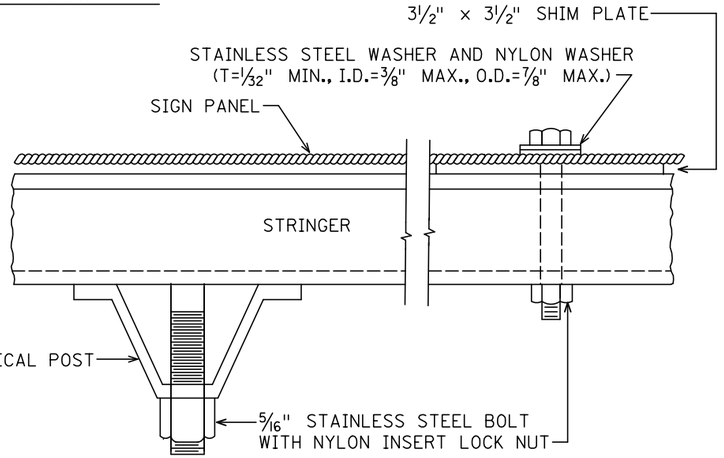


TYPICAL "A-FRAME" INSTALLATION TYPE "D" SIGNS

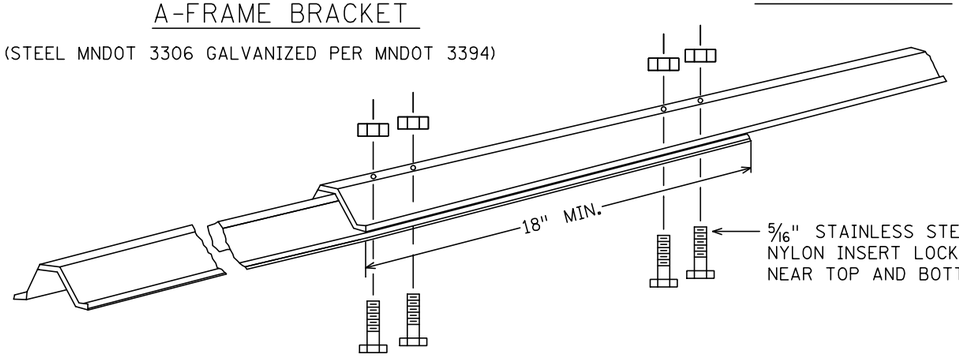


A-FRAME BRACKET

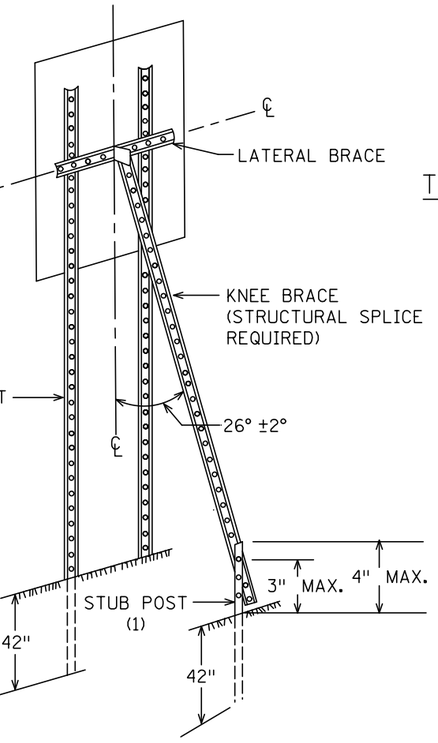
(STEEL MNDOT 3306 GALVANIZED PER MNDOT 3394)



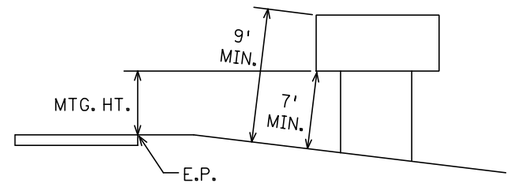
SECTION B-B



STRUCTURAL SPLICE



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



TYPICAL MOUNTING

(1) OFFSET STUB POST 1' TOWARD ROADWAY RELATIVE TO VERTICAL POST. ATTACH STUB POST AND KNEE BRACE BACK TO BACK.

TYPE C & D SIGN STRUCTURAL DETAILS

REVISED: 5-5-2017 (USE WHEN IT IS NECESSARY TO FABRICATE THE CORRECT LENGTH OF POST FROM TWO PIECES)

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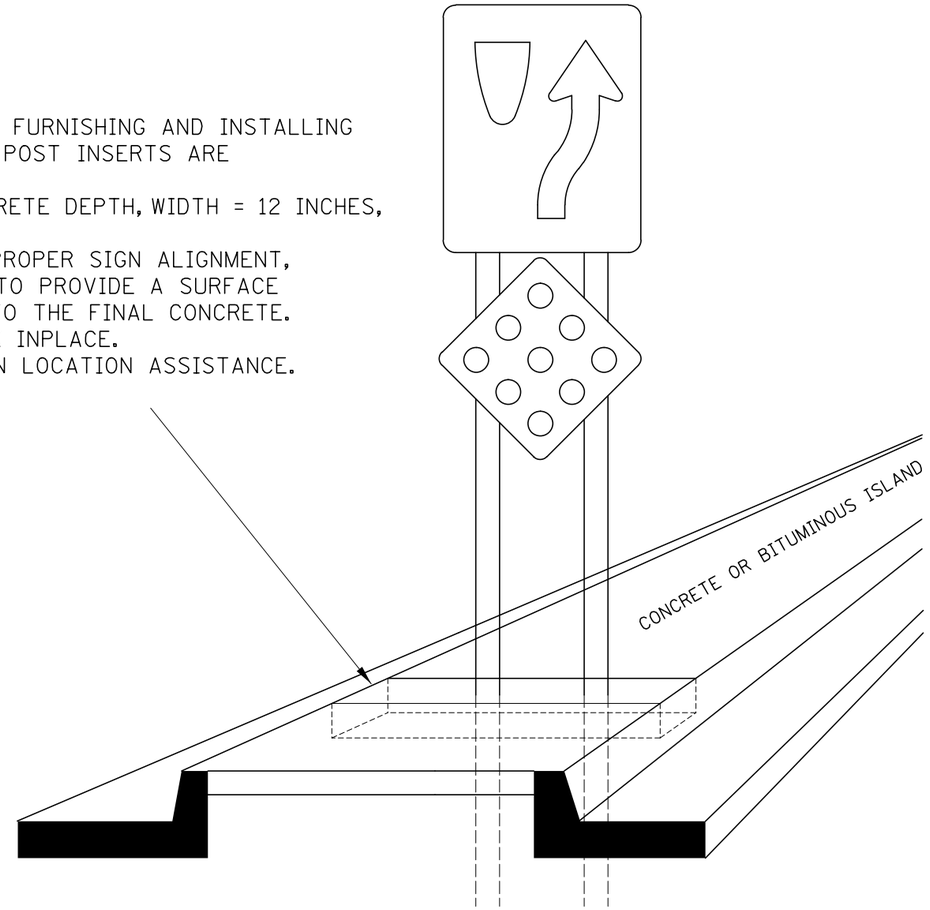
DESIGNED BY: MJM		NAME: MICHAEL J. MARTINEZ LIC. NO. 42807	
CHECKED BY: MJM			

HDR

DEPARTMENT OF TRANSPORTATION

90% PLANS - FOR REVIEW ONLY	STRUCTURAL DETAILS
STATE PROJ. NO. 0802-45 (T.H. 4)	SHEET NO. 115 OF 128 SHEETS

NOTE:
-ALL MATERIALS AND WORK ASSOCIATED WITH FURNISHING AND INSTALLING HIGH DENSITY RIGID FOAM BLOCKS FOR SIGN POST INSERTS ARE CONSIDERED INCIDENTAL.
-FOAM BLOCK DIMENSIONS: THICKNESS = CONCRETE DEPTH, WIDTH = 12 INCHES, LENGTH = SIGN LENGTH PLUS 12 INCHES.
-POSITION AND STAKE THE FOAM BLOCK TO PROPER SIGN ALIGNMENT, FINISH AND JOINT TO CONCRETE AS NEEDED TO PROVIDE A SURFACE PROFILE THAT HAS THE FOAM BLOCK FLUSH TO THE FINAL CONCRETE.
-LEAVE THE HIGH DENSITY RIGID FOAM BLOCK INPLACE.
-CONTACT THE DISTRICT SIGN SHOP FOR SIGN LOCATION ASSISTANCE.



FLANGED CHANNEL POST MOUNTED THROUGH SURFACED MEDIAN OR SIDEWALK

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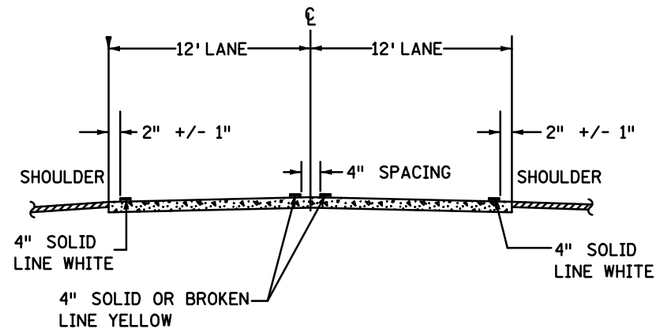
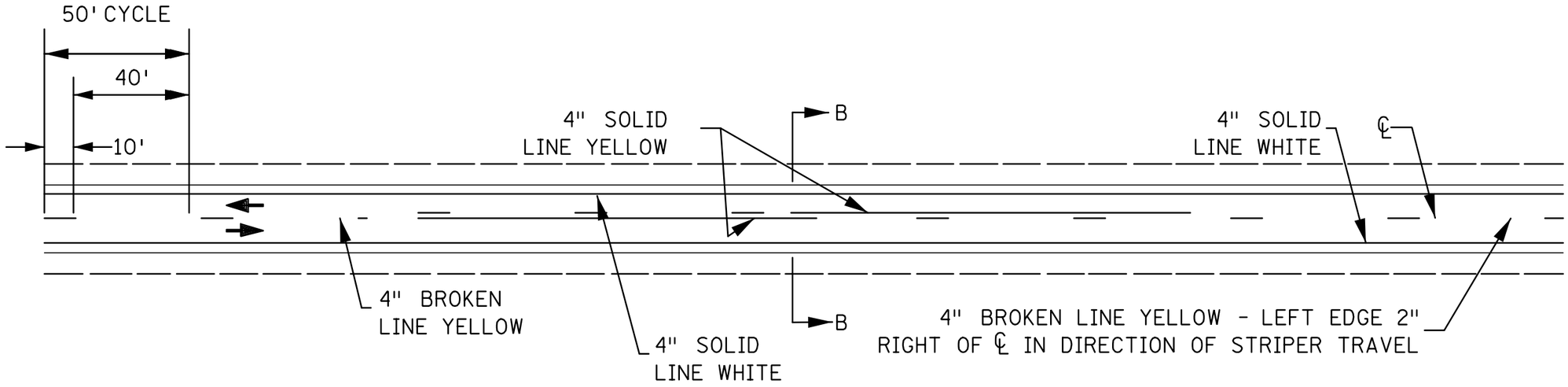
DRAWN BY: SY	I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly licensed Professional Engineer under the laws of the State of Minnesota.	CERTIFIED BY: _____ LICENSED PROFESSIONAL ENGINEER	10/27/2017 DATE	HDR / DEPARTMENT OF TRANSPORTATION	90% PLANS - FOR REVIEW ONLY — STRUCTURAL DETAILS
DESIGNED BY: MJM		NAME: MICHAEL J. MARTINEZ LIC. NO. 42807			STATE PROJ. NO. 0802-45 (T.H. 4) — SHEET NO. 116 OF 128 SHEETS
CHECKED BY: MJM					

TWO-LANE, TWO-WAY



SECTION B-B



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PUBLISHED BY OTST: 14 OCT 2016

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DESIGNED BY: MJM		NAME: MICHAEL J. MARTINEZ LIC. NO. 42807		STATE PROJ. NO. 0802-45 (T.H. 4) — SHEET NO. 117 OF 128 SHEETS
CHECKED BY: MJM				

HDR

DEPARTMENT OF TRANSPORTATION

NOTES & GUIDELINES

GENERAL INFORMATION:

1. THE CONTRACTOR SHALL FURNISH, INSTALL AND MAINTAIN THE DEVICES IN THIS TRAFFIC CONTROL PLAN UNLESS OTHERWISE NOTED.
2. FIELD CONDITIONS MAY REQUIRE MODIFICATIONS OF THIS LAYOUT AS DEEMED NECESSARY BY THE ENGINEER.
3. ALL DISTANCES ARE APPROXIMATE.
4. THE CONTRACTOR IS RESPONSIBLE FOR PROTECTING ANY WORK AREAS NEAR TRAFFIC IN ACCORDANCE WITH THE MN MUTCD.
5. AN ANNUAL FALL REVIEW OF ALL TRAFFIC CONTROLS WILL BE MADE TO PREPARE FOR WINTER MAINTENANCE OF THE PROJECT. THIS MAY INCLUDE ADJUSTMENTS OR EXCHANGE OF ONE TRAFFIC CONTROL DEVICE FOR ANOTHER. READJUSTMENTS MAY AGAIN BE REQUIRED IN THE SPRING.
6. IF THE CONTRACTOR DECIDES TO PERFORM THE CONSTRUCTION WORK IN A SEQUENCE OTHER THAN SHOWN IN THIS TRAFFIC CONTROL PLAN THE CONTRACTOR SHALL PROVIDE COMPLETE REVISED TRAFFIC CONTROL PLANS TO BE APPROVED BY THE ENGINEER.

SIGNING:

1. ALL TRAFFIC CONTROL DEVICES, INCLUDING OVERHEAD SIGNS ON ROADS OPEN TO TRAFFIC THAT ARE NOT CONSISTENT WITH TRAFFIC OPERATION SHALL BE COVERED, REMOVED OR REVISED AS DIRECTED BY THE ENGINEER.
2. WHEN SIGNS ARE PLACED, THEY SHALL BE MOUNTED ON POSTS DRIVEN INTO THE GROUND AT THE PROPER HEIGHT AND LATERAL OFFSET AS SHOWN IN THE TYPICAL TEMP SIGN FRAMING & INSTALLATION DETAILS IN THE PLAN. IF THIS IS NOT POSSIBLE THEY WILL BE MOUNTED ON PORTABLE SUPPORTS AS APPROVED BY THE ENGINEER. WHEN THE SIGNS ARE REMOVED THE SIGN POSTS SHALL ALSO BE REMOVED AS SOON AS POSSIBLE.
3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY EXTRA SIGNING NEEDED TO FACILITATE TRAFFIC SWITCHES OR FOR TRANSITIONING TRAFFIC FROM ONE STAGE TO ANOTHER.
4. ALL ORANGE WARNING AND ORANGE GUIDE SIGNS SHALL BE FABRICATED WITH SIGN SHEETING MATERIAL AS LISTED ON THE MnDOT APPROVED PRODUCT LIST FOR "SHEETING FOR RIGID TEMPORARY WORK ZONE SIGNS".
5. BARRICADES SHALL BE FABRICATED WITH SIGN SHEETING MATERIAL AS LISTED ON THE MnDOT APPROVED PRODUCT LIST FOR BARRICADE SHEETING. NOTE THAT ASTM TYPE VII SHEETING IS NOT ALLOWED ON BARRICADES AFTER JANUARY 1, 2010.
6. THE CONTRACTOR SHALL COORDINATE THE INSTALLATION OF THE FINAL SIGNS TO ASSURE THAT THE FINAL SIGNS ARE PLACED AS NEEDED, OR PROVIDE TEMPORARY SIGNING AT THEIR EXPENSE UNTIL THE FINAL SIGNING IS PLACED.

CONSTRUCTION INFORMATION SIGNING:

1. THE CONTRACTOR SHALL USE CONSTRUCTION INFORMATION SIGNING AS SHOWN IN THE PLAN AND WHICH ARE TO BE USED AS FOLLOWS:

   G20-X1 CLOSURE NOTICE SIGNS PAIRED WITH G20-X3 WORK ENDS SIGNS TO DISPLAY THE CORRECT START DATE AND AN ESTIMATED FINISH DATE AS APPROVED BY THE PROJECT ENGINEER.

   G20-X2 WORK ZONE ADVANCE NOTICE SIGNS WITH THE CORRECT STARTING DATE DISPLAYED BEFORE WORK BEGINS. ONCE WORK BEGINS, THE START DATE LEGEND SHALL BE COVERED BY THE SUGGESTED PLAQUE CONTAINED IN THIS PLAN. IF NO ALTERNATE MESSAGE IS SUGGESTED OR IF DIRECTED BY THE PROJECT ENGINEER, THE CORRECT ESTIMATED FINISH DATE, MONTH, OR SEASON SHALL BE DISPLAYED.

   CONSTRUCTION INFORMATION SIGNING NOT VISIBLE TO THE MOTORING PUBLIC ONCE WORK BEGINS WILL BE MOVED BY THE CONTRACTOR TO A SITE IN ADVANCE OF THE WORK ZONE OR CLOSURE AS DIRECTED BY THE PLAN OR PROJECT ENGINEER.

TRAFFIC CONTROL TABULATION SHEET

"W" SERIES

SIGN	SIGN NO.	COLOR	SIZE (INCHES)
DETOUR AHEAD	W20-2	BLACK ON ORANGE	48 X 48
ROAD CLOSED AHEAD	W20-3	BLACK ON ORANGE	48 X 48
750 FEET	W20-100P	BLACK ON ORANGE	42 X 24

"R" SERIES

SIGN	SIGN NO.	COLOR	SIZE (INCHES)
ROAD CLOSED	R11-2	BLACK ON WHITE	48 X 30
ROAD CLOSED XX MILES AHEAD LOCAL TRAFFIC ONLY	R11-3a	BLACK ON WHITE	60 X 30
ROAD CLOSED TO THRU TRAFFIC	R11-4	BLACK ON WHITE	60 X 30

"M" SERIES

SIGN	SIGN NO.	COLOR	SIZE (INCHES)
MINNESOTA 4	M1-5a	WHITE ON BLUE	24 X 24
29 COUNTY	M1-6	WHITE ON BLUE	24 X 24
NORTH	M3-1a	WHITE ON BLUE	24 X 12
EAST	M3-2a	WHITE ON BLUE	24 X 12
SOUTH	M3-3a	WHITE ON BLUE	24 X 12
WEST	M3-4a	WHITE ON BLUE	24 X 12
DETOUR	M4-8	BLACK ON ORANGE	24 X 12
END DETOUR	M4-8a	BLACK ON ORANGE	24 X 18
DETOUR	M4-10L	BLACK ON ORANGE	48 X 18
DETOUR	M4-10R	BLACK ON ORANGE	48 X 18
	M5-1aL	WHITE ON BLUE	21 X 15
	M5-1aR	WHITE ON BLUE	21 X 15
	M6-1aL	WHITE ON BLUE	21 X 15

"M" SERIES (CONTINUED)

SIGN	SIGN NO.	COLOR	SIZE (INCHES)
	M6-1aR	WHITE ON BLUE	21 X 15
	M6-3a	WHITE ON BLUE	21 X 15

MISCELLANEOUS

SIGN	SIGN NO.	COLOR	SIZE (INCHES)
Fairfax	SPECIAL	BLACK ON ORANGE	72 X 24
New Ulm	SPECIAL	BLACK ON ORANGE	66 X 18

"G" SERIES

SIGN	SIGN NO.	COLOR	SIZE (INCHES)
ROAD CLOSED BEGINNING XXXX XX	G20-X1	BLACK ON ORANGE	90 X 78

DEVICES

SIGN	SIGN NO.	COLOR	SIZE (INCHES)
	TYPE III	BLACK ON ORANGE	96" MIN
F	TYPE A	AMBER	-

TRAFFIC CONTROL TABULATION (AJ)

ITEM	UNIT	TOTAL	
TRAFFIC CONTROL	LUMP SUM	1	(1)

SPECIFIC NOTES

(1) S.P. 0802-45

DRAWN BY:	SY	I hereby certify that this plan, specification, or report 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.	CERTIFIED BY: _____ LICENSED PROFESSIONAL ENGINEER
DESIGNED BY:	MJM		NAME: MICHAEL J. MARTINEZ LIC. NO. 42807
CHECKED BY:	MJM		DATE 10/27/2017

HDR

DEPARTMENT OF TRANSPORTATION

90% PLANS - FOR REVIEW ONLY — TRAFFIC CONTROL TABULATION SHEET

STATE PROJ. NO. 0802-45 (T.H. 4) — SHEET NO. 118 OF 128 SHEETS

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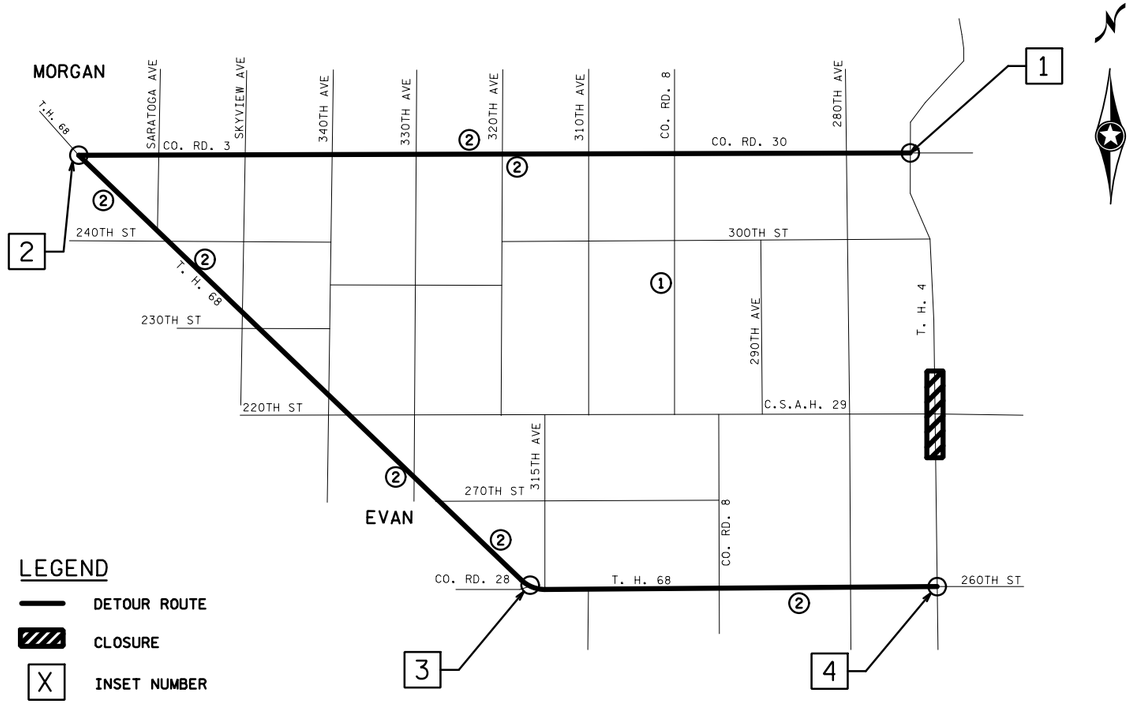


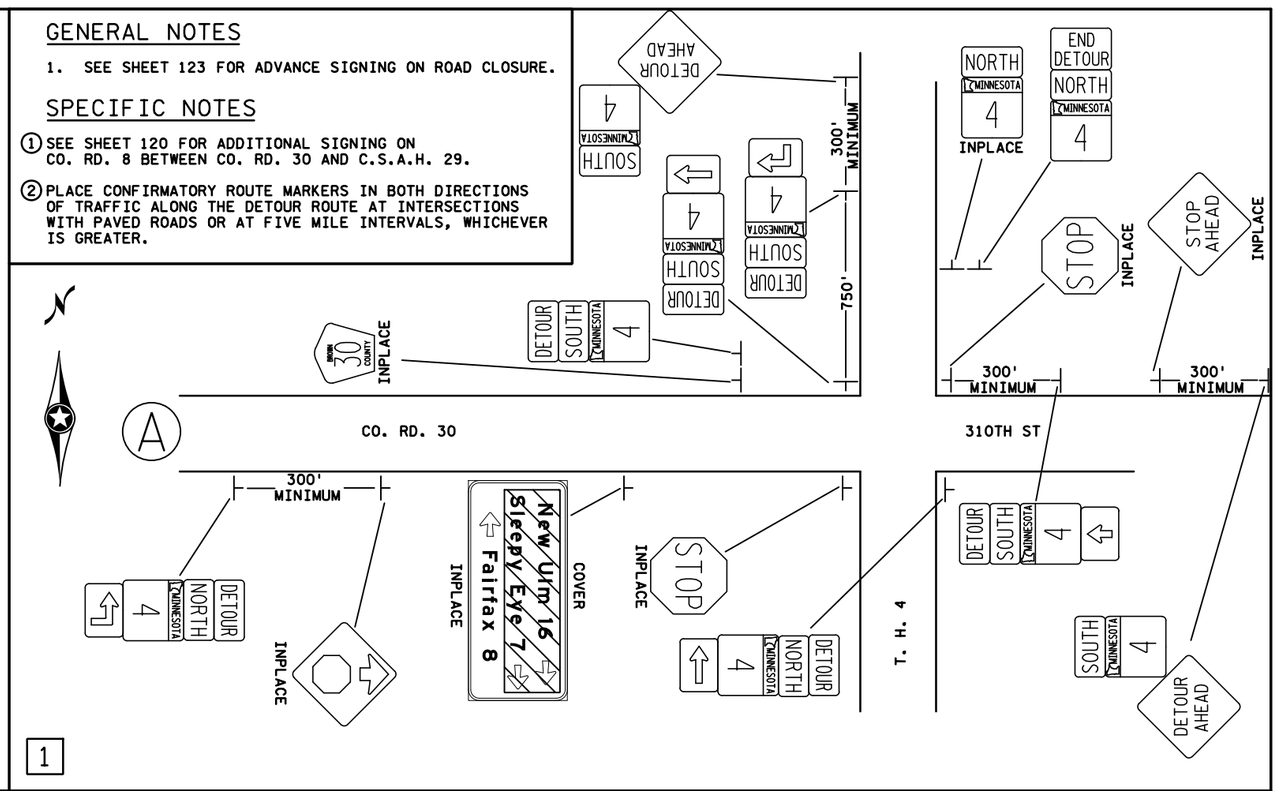
GENERAL NOTES

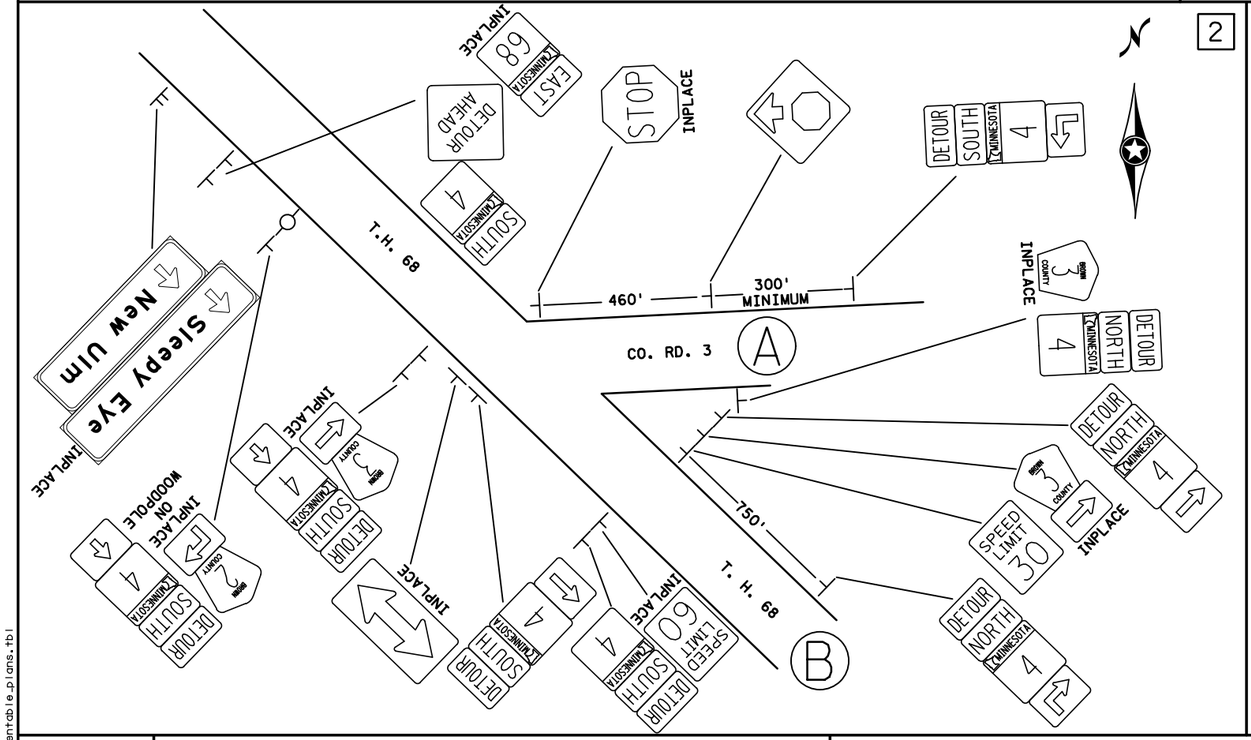
1. SEE SHEET 123 FOR ADVANCE SIGNING ON ROAD CLOSURE.

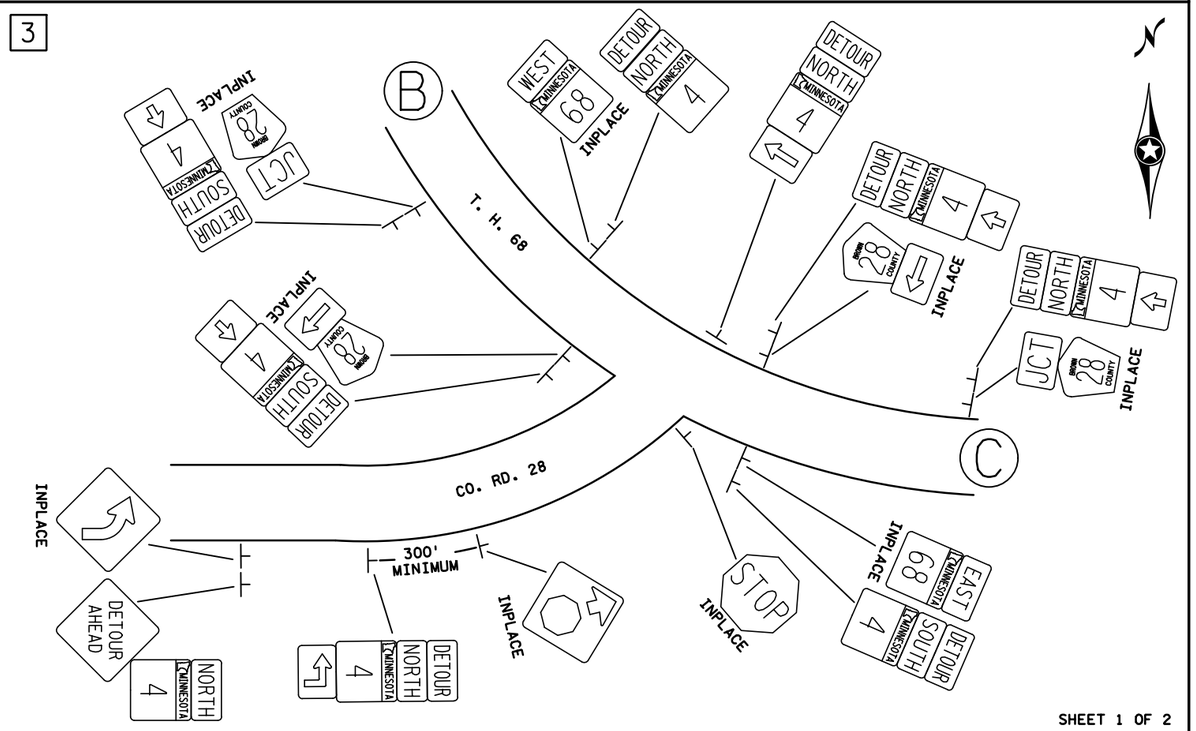
SPECIFIC NOTES

(1) SEE SHEET 120 FOR ADDITIONAL SIGNING ON CO. RD. 8 BETWEEN CO. RD. 30 AND C.S.A.H. 29.

(2) PLACE CONFIRMATORY ROUTE MARKERS IN BOTH DIRECTIONS OF TRAFFIC ALONG THE DETOUR ROUTE AT INTERSECTIONS WITH PAVED ROADS OR AT FIVE MILE INTERVALS, WHICHEVER IS GREATER.







DRAWN BY:	SY
DESIGNED BY:	MJM
CHECKED BY:	MJM

I hereby certify that this plan, specification, or report 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.

CERTIFIED BY: _____ LICENSED PROFESSIONAL ENGINEER — 10/27/2017 DATE

NAME: MICHAEL J. MARTINEZ LIC. NO. 42807

HDR

DEPARTMENT OF TRANSPORTATION

90% PLANS - FOR REVIEW ONLY — DETOUR - T.H. 4

STATE PROJ. NO. 0802-45 (T.H. 4) — SHEET NO. 119 OF 128 SHEETS

SHEET 1 OF 2

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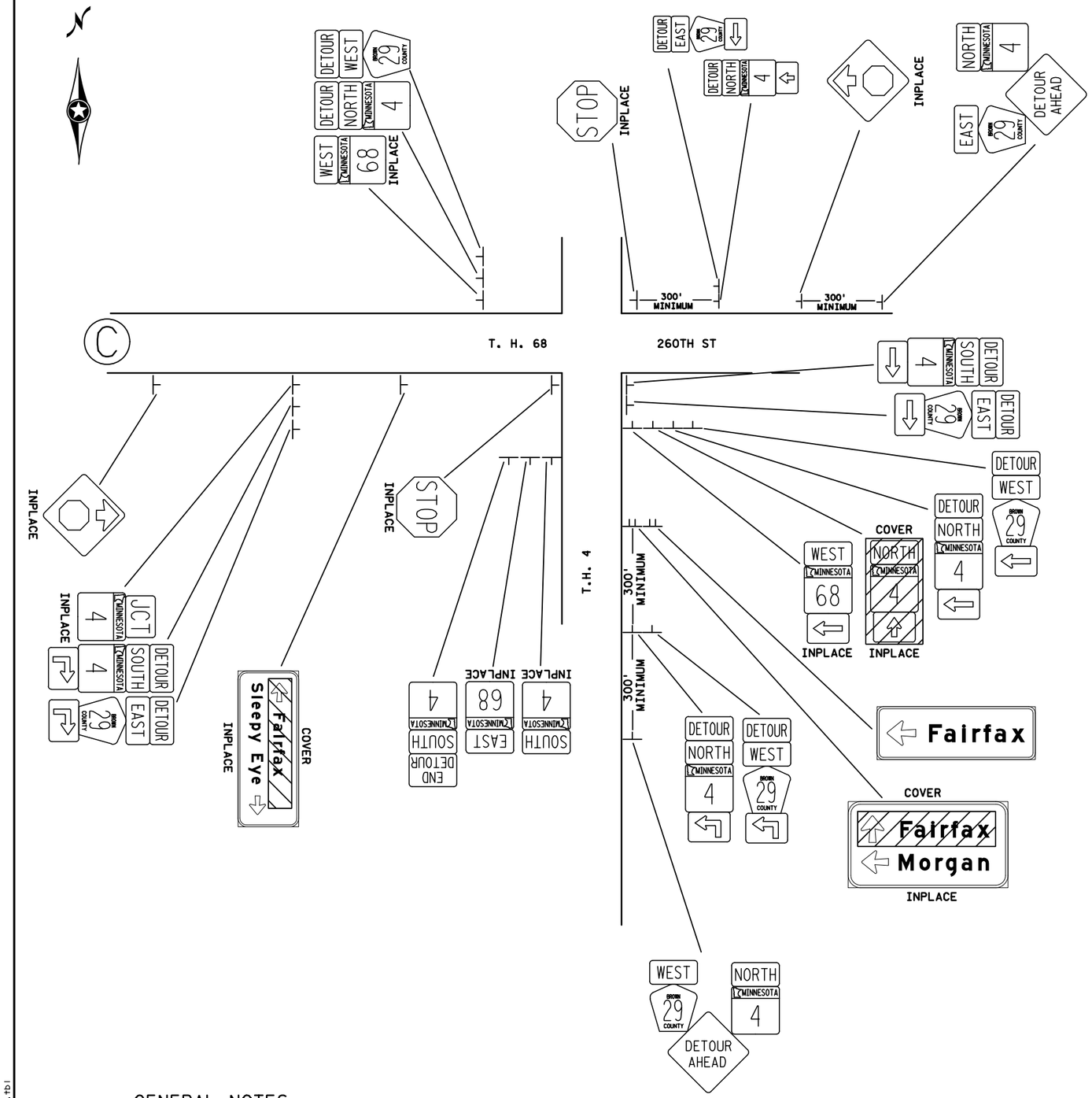

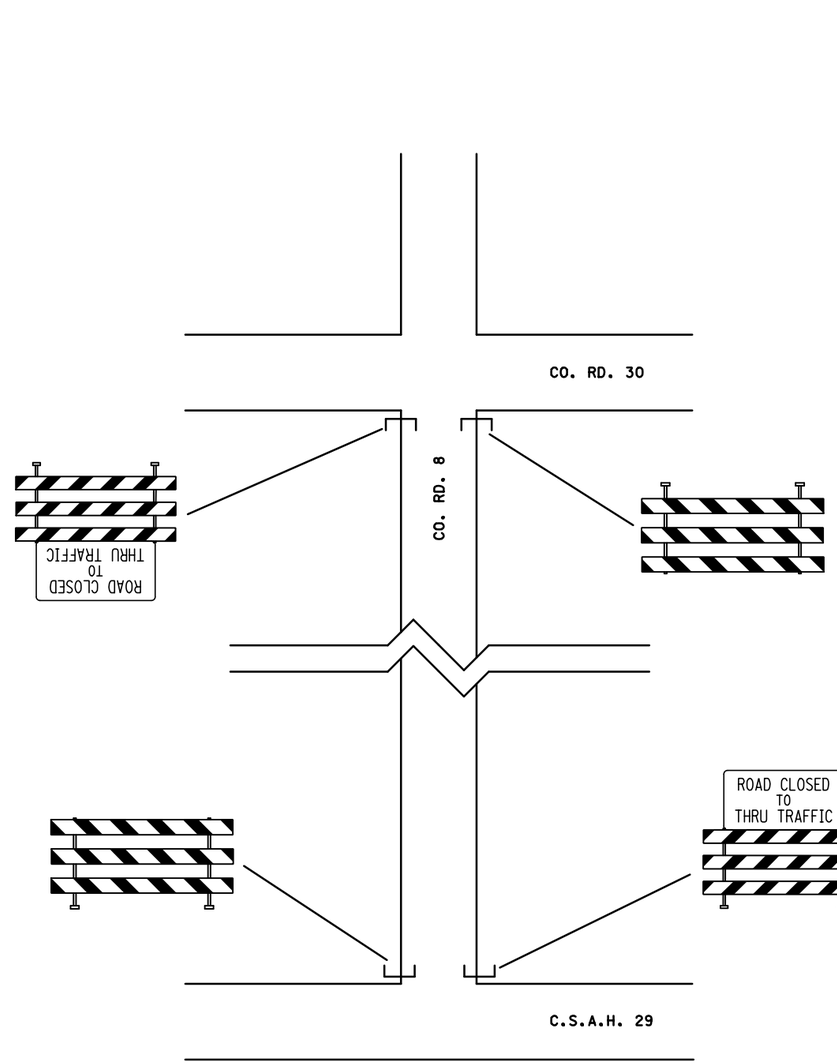

GENERAL NOTES

1. SEE SHEET 123 FOR ADVANCE SIGNING.

4

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DESIGNED BY: MJM		NAME: MICHAEL J. MARTINEZ LIC. NO. 42807	
CHECKED BY: MJM			

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DEPARTMENT OF TRANSPORTATION

90% PLANS - FOR REVIEW ONLY — DETOUR - T.H. 4

STATE PROJ. NO. 0802-45 (T.H. 4) — SHEET NO. 120 OF 128 SHEETS

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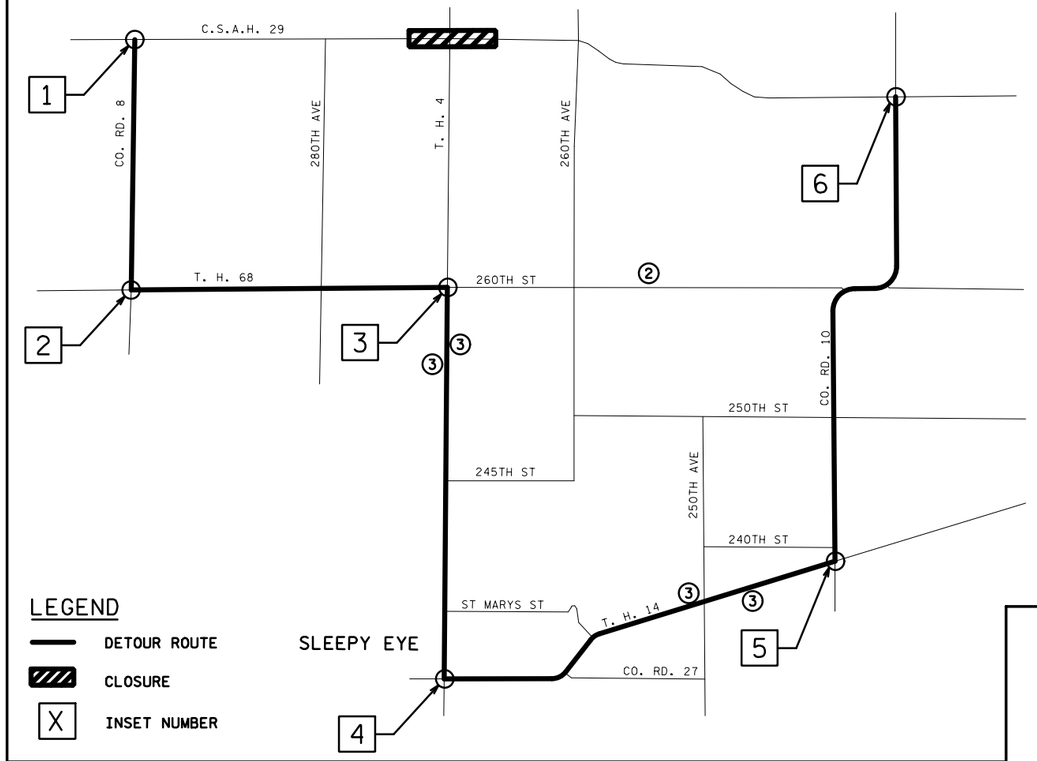
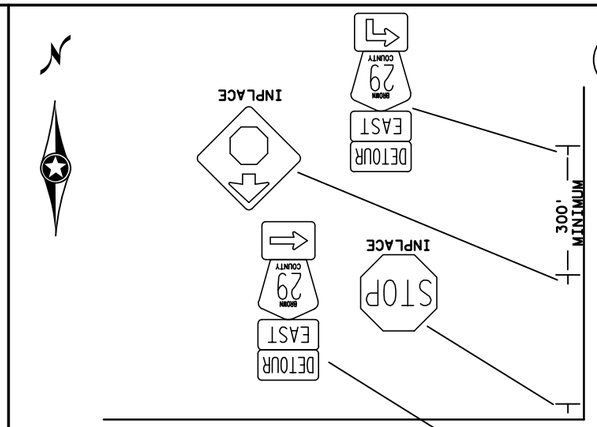
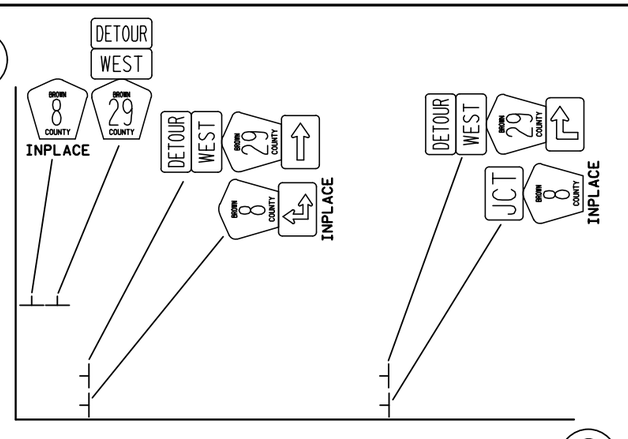
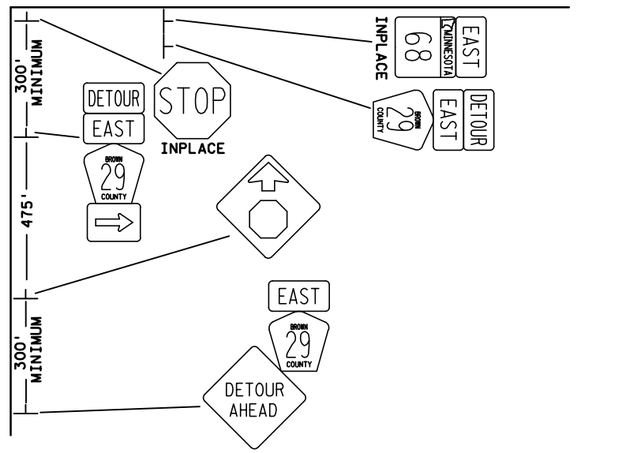








GENERAL NOTES

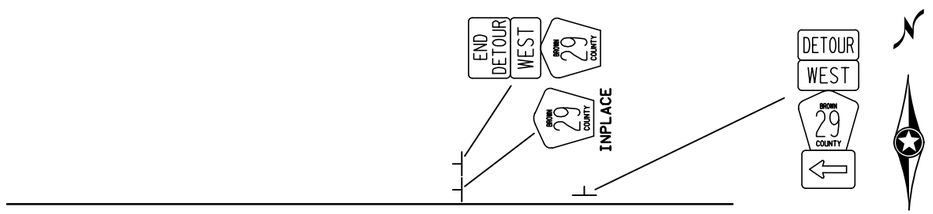
1. SEE SHEET 123 FOR ADVANCE SIGNING.

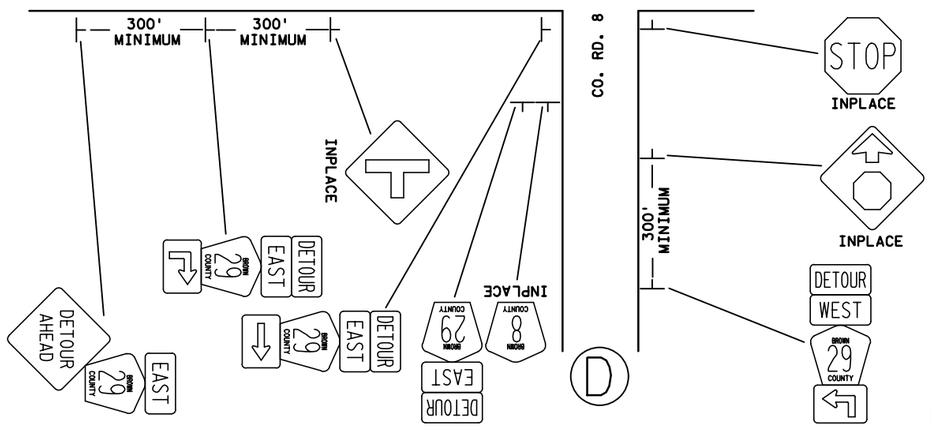
SPECIFIC NOTES

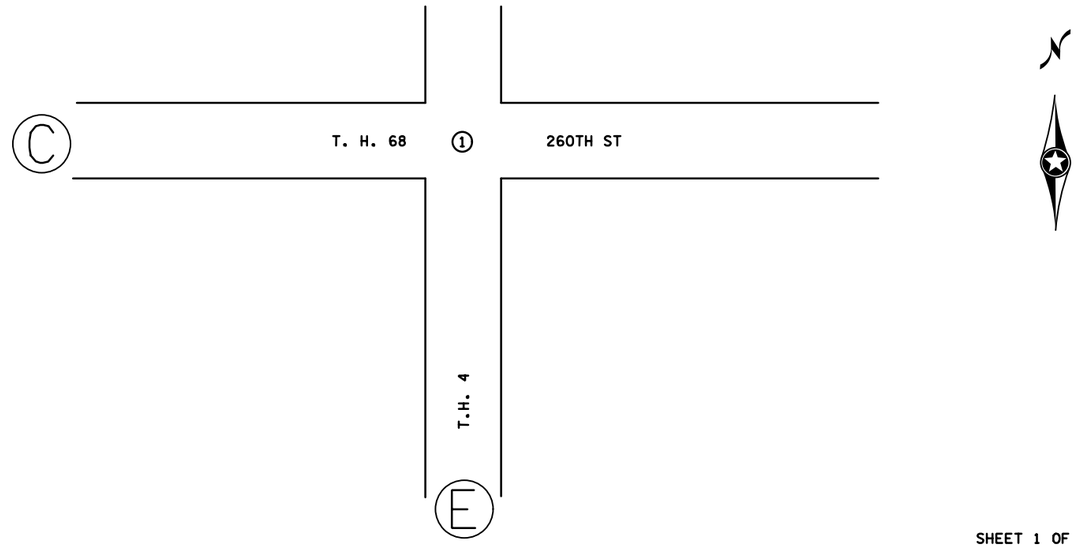
(1) SEE SHEET 120, INSET NUMBER 4 FOR SIGNING AT THIS INTERSECTION.

(2) SEE SHEET 122 FOR ADDITIONAL SIGNING ON 260TH ST BETWEEN T.H. 4 AND CO. RD. 10.

(3) PLACE CONFIRMATORY ROUTE MARKERS IN BOTH DIRECTIONS OF TRAFFIC ALONG THE DETOUR ROUTE AT INTERSECTIONS WITH PAVED ROADS OR AT FIVE MILE INTERVALS, WHICHEVER IS GREATER.







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DESIGNED BY: MJM		NAME: MICHAEL J. MARTINEZ LIC. NO.	42807
CHECKED BY: MJM			

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DEPARTMENT OF TRANSPORTATION

90% PLANS - FOR REVIEW ONLY	DETOUR - C.S.A.H. 29
STATE PROJ. NO. 0802-45 (T.H. 4)	SHEET NO. 121 OF 128 SHEETS

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GENERAL NOTES

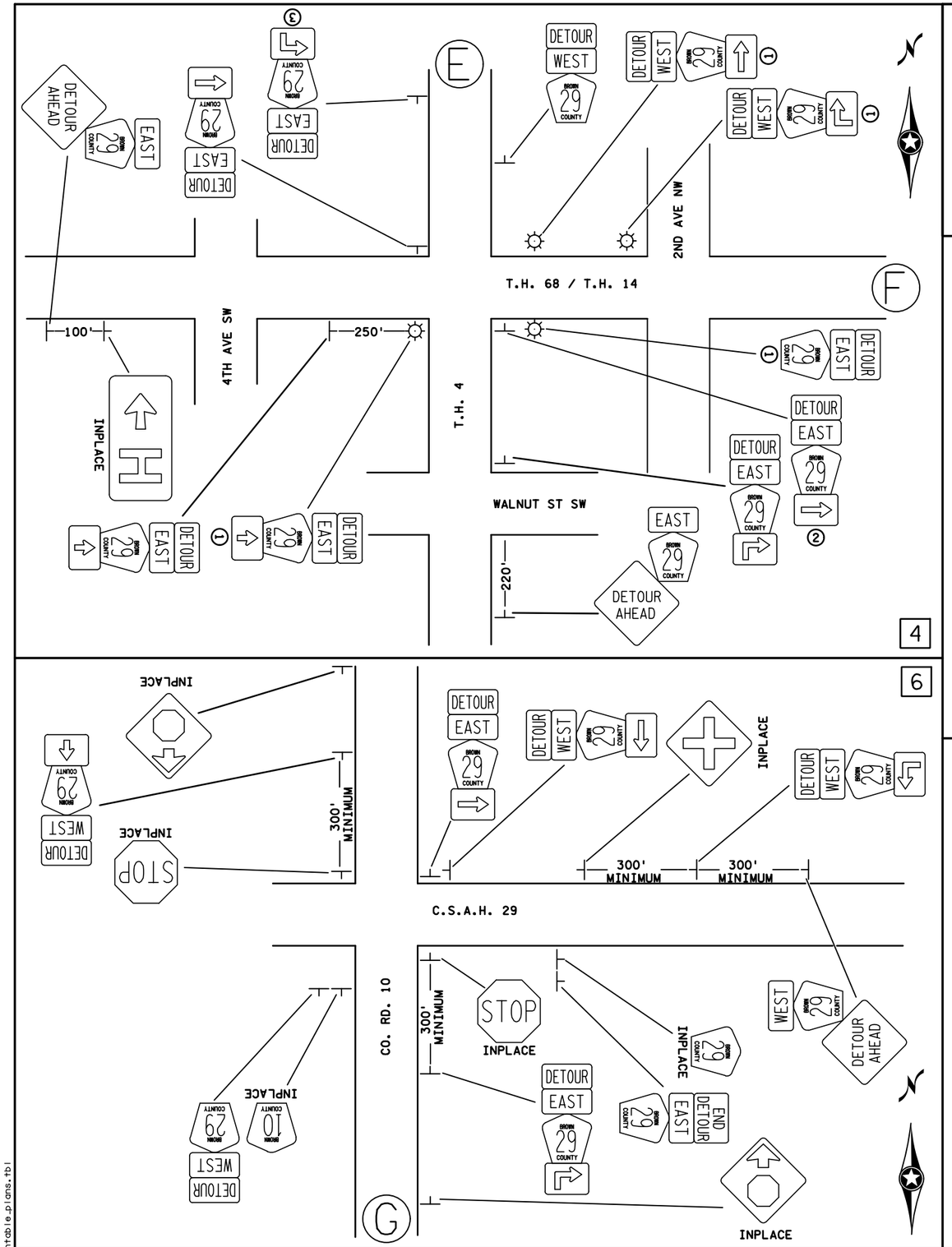
1. SEE SHEET 123 FOR ADVANCE SIGNING ON ROAD CLOSURE.

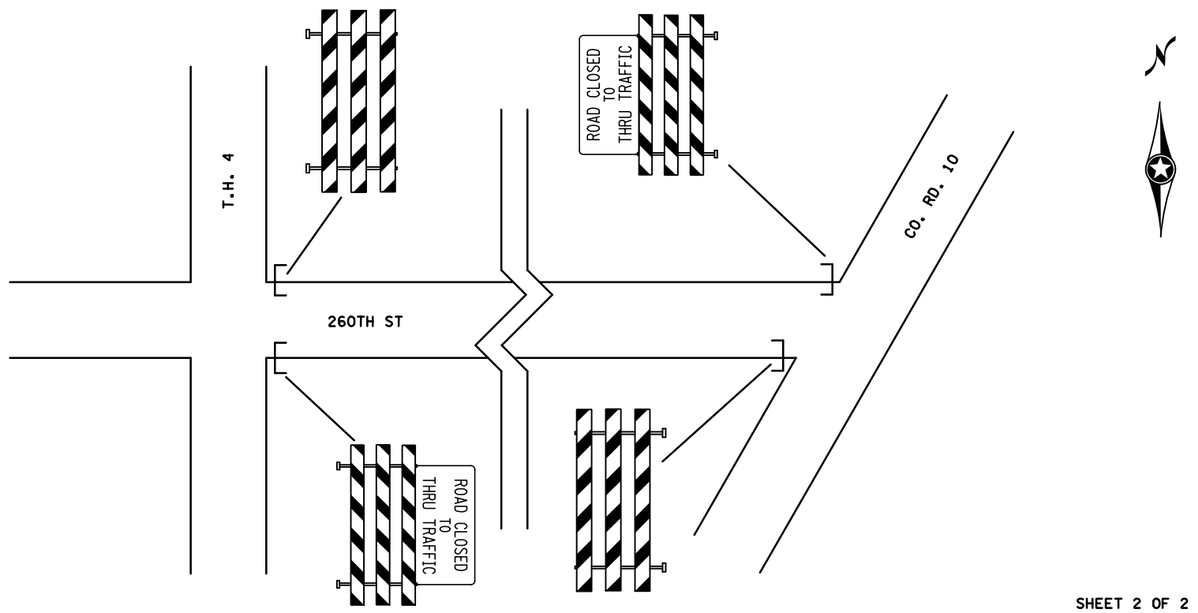
SPECIFIC NOTES

(1) MOUNT ON LUMINAIRE.

(2) PLACE SIGN AT THE BACK OF T.H. 4 SIDEWALK AT SOUTH EAST CORNER OF THE INTERSECTION.

(3) PLACE SIGN ON THE SOUTHBOUND SHOULDER OF T.H. 4, 50' NORTH OF THE RAILROAD BRIDGE.





SHEET 2 OF 2

6

DRAWN BY: SY	I hereby certify that this plan, specification, or report 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.	CERTIFIED BY: _____ LICENSED PROFESSIONAL ENGINEER	10/27/2017 DATE	90% PLANS - FOR REVIEW ONLY	DETOUR - C.S.A.H. 29
DESIGNED BY: MJM		NAME: MICHAEL J. MARTINEZ LIC. NO. 42807		STATE PROJ. NO. 0802-45 (T.H. 4)	SHEET NO. 122 OF 128 SHEETS
CHECKED BY: MJM					

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DEPARTMENT OF TRANSPORTATION

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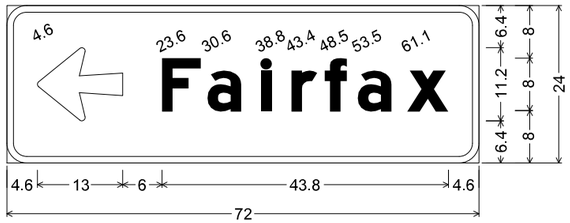
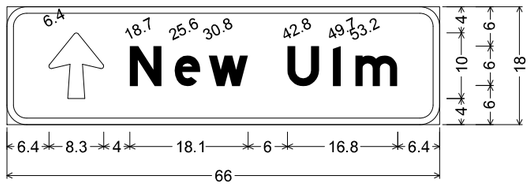
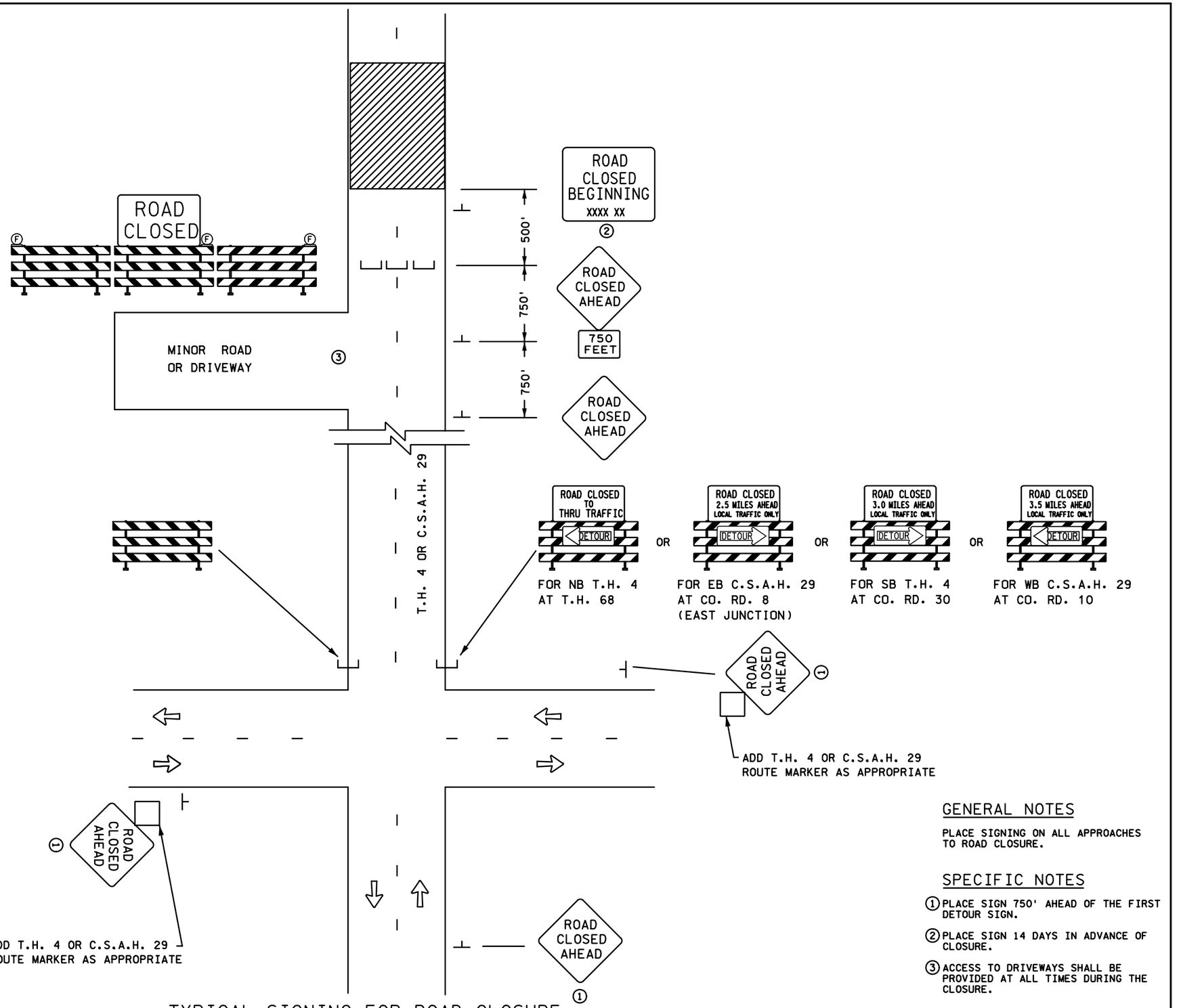


3.0" Radius, 1.0" Border, Black on Orange;
Arrow 5 - 13.0" 180°; [Fairfax] E Mod;



3.0" Radius, 1.0" Border, Black on Orange;
Arrow 3 - 10.0" 90°; [New Ulm] E Mod;



GENERAL NOTES

PLACE SIGNING ON ALL APPROACHES TO ROAD CLOSURE.

SPECIFIC NOTES

1. PLACE SIGN 750' AHEAD OF THE FIRST DETOUR SIGN.
2. PLACE SIGN 14 DAYS IN ADVANCE OF CLOSURE.
3. ACCESS TO DRIVEWAYS SHALL BE PROVIDED AT ALL TIMES DURING THE CLOSURE.

TYPICAL SIGNING FOR ROAD CLOSURE

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DESIGNED BY:	MJM
CHECKED BY:	MJM

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CERTIFIED BY: _____ LICENSED PROFESSIONAL ENGINEER — 10/27/2017 DATE

NAME: MICHAEL J. MARTINEZ LIC. NO. 42807

HDR

DEPARTMENT OF TRANSPORTATION

90% PLANS - FOR REVIEW ONLY — ADVANCE SIGNING

STATE PROJ. NO. 0802-45 (T.H. 4) — SHEET NO. 123 OF 128 SHEETS

PROPOSED LIGHTING TABULATION			(AK)
ITEM NO.	ITEM	UNIT	QUANTITY
2011	AS BUILT	LUMP SUM	1
2545	LIGHTING SYSTEM	LUMP SUM	1

PROJECT NOTES:

1. SEE UTILITY PLAN FOR UTILITY LOCATIONS ON THIS PROJECT.

INDEX

THIS PLAN CONTAINS 3 SHEETS

GENERAL NOTES

1. TABULATED ITEMS ON THIS SHEET ARE 100% FEDERAL FUNDS UNLESS OTHERWISE NOTED.

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DRAWN BY: NJL
DESIGNED BY: KAS
CHECKED BY: MJM

I hereby certify that this plan, specification, or report 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.

CERTIFIED BY: _____ LICENSED PROFESSIONAL ENGINEER
NAME: MICHAEL J. MARTINEZ LIC. NO. 42807
10/27/2017 DATE

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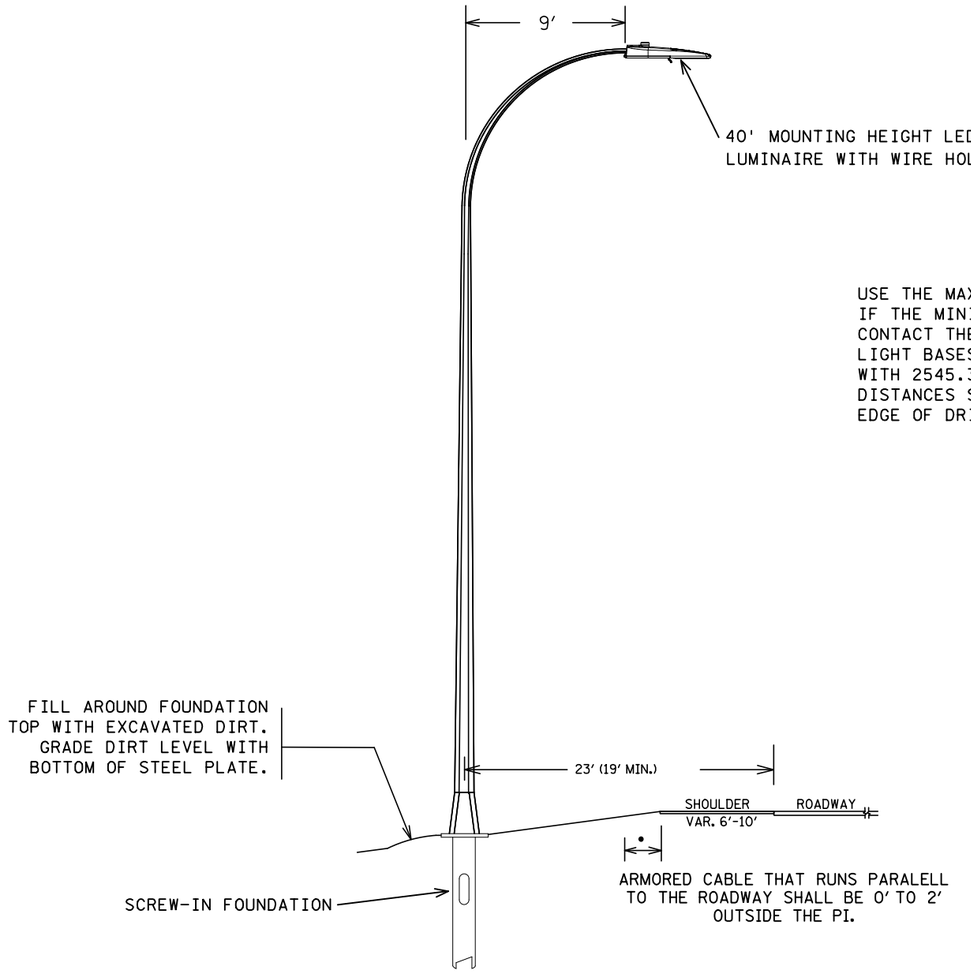
DEPARTMENT OF TRANSPORTATION

90% PLANS - FOR REVIEW ONLY — LIGHTING NOTES AND TABULATIONS

STATE PROJ. NO. 0802-45 (T.H. 4) — SHEET NO. 124 OF 128 SHEETS



USE THE MAXIMUM DISTANCE WHENEVER POSSIBLE,
IF THE MINIMUM DISTANCE CANNOT BE OBTAINED
CONTACT THE DISTRICT/DIVISION TRAFFIC ENGINEER
LIGHT BASES SHALL BE PLACED IN ACCORDANCE
WITH 2545.3F2.
DISTANCES SHALL BE MEASURED FROM THE
EDGE OF DRIVING LANE OR TURN LANE.

RADIUS CHART (ENGLISH)

MAST ARM LENGTH	RADIUS
9	8

LUMINAIRES

240-480 VOLT

TYPICAL PLACEMENT OF LIGHTING UNIT TYPE 9-40

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DRAWN BY:	NJL
DESIGNED BY:	KAS
CHECKED BY:	MJM

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CERTIFIED BY: _____ LICENSED PROFESSIONAL ENGINEER

NAME: MICHAEL J. MARTINEZ LIC. NO. 42807

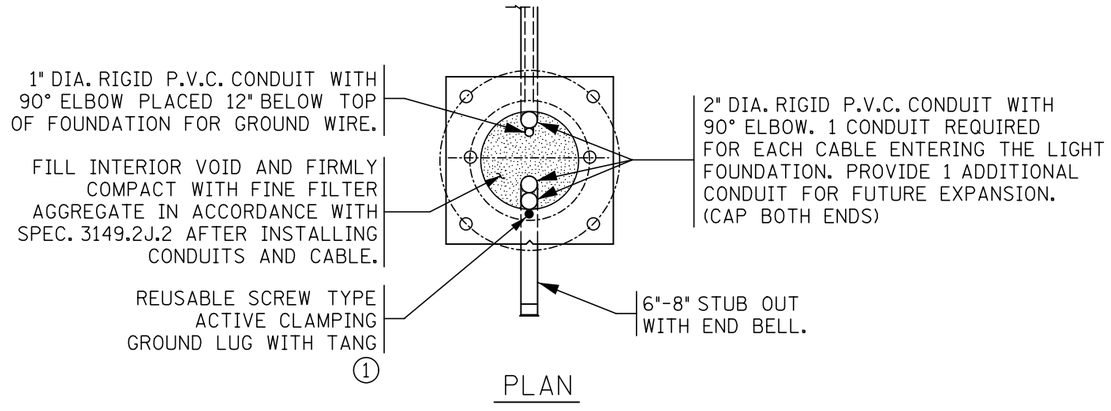
10/27/2017 DATE

HDR

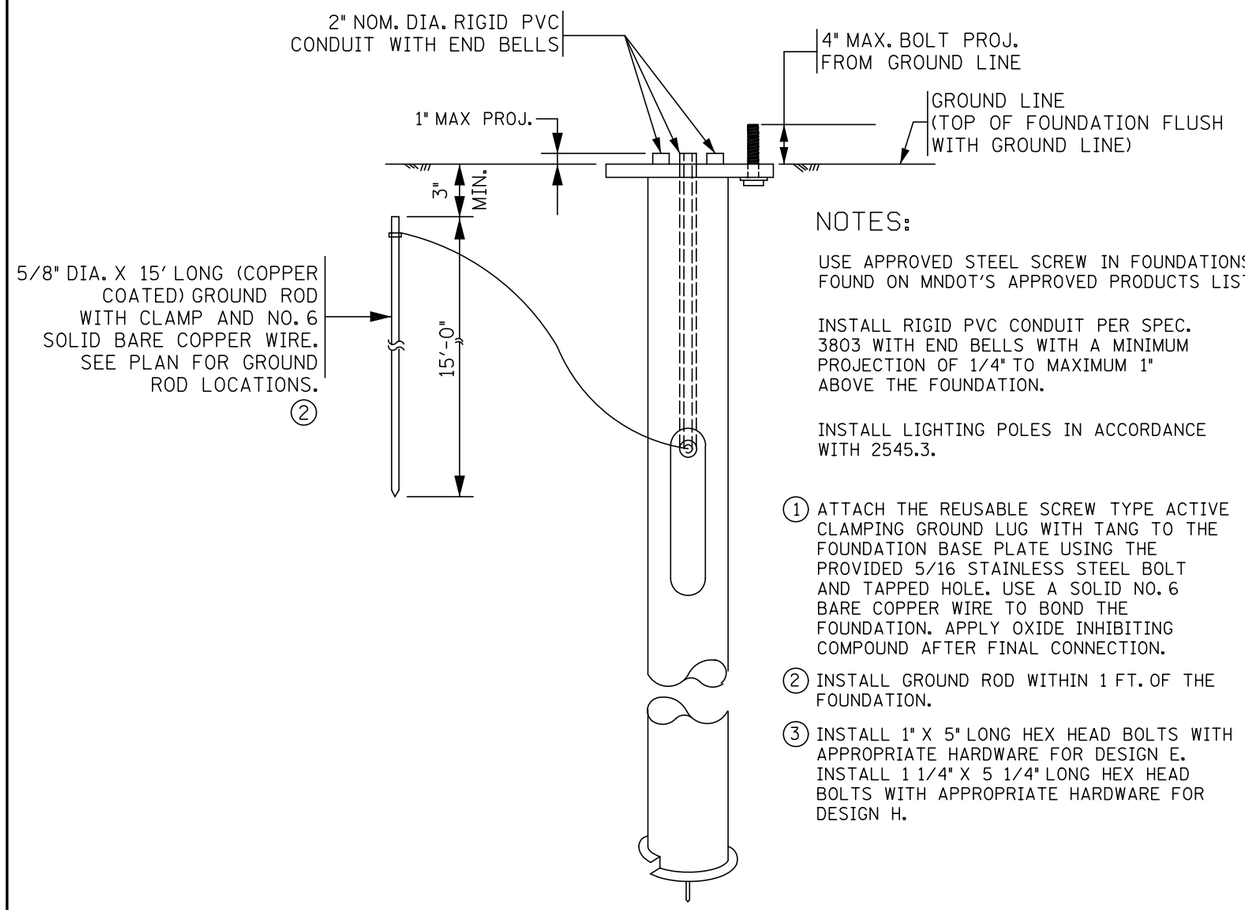
DEPARTMENT OF TRANSPORTATION

90% PLANS - FOR REVIEW ONLY — LIGHTING DETAILS

STATE PROJ. NO. 0802-45 (T.H. 4) — SHEET NO. 125 OF 128 SHEETS



PLAN



NOTES:

USE APPROVED STEEL SCREW IN FOUNDATIONS FOUND ON MNDOT'S APPROVED PRODUCTS LIST.

INSTALL RIGID PVC CONDUIT PER SPEC. 3803 WITH END BELLS WITH A MINIMUM PROJECTION OF 1/4" TO MAXIMUM 1" ABOVE THE FOUNDATION.

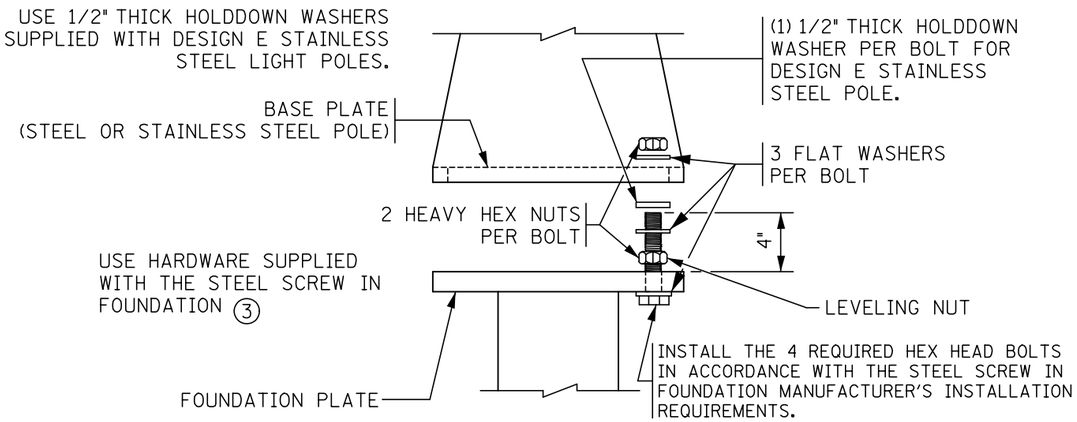
INSTALL LIGHTING POLES IN ACCORDANCE WITH 2545.3.

① ATTACH THE REUSABLE SCREW TYPE ACTIVE CLAMPING GROUND LUG WITH TANG TO THE FOUNDATION BASE PLATE USING THE PROVIDED 5/16 STAINLESS STEEL BOLT AND TAPPED HOLE. USE A SOLID NO. 6 BARE COPPER WIRE TO BOND THE FOUNDATION. APPLY OXIDE INHIBITING COMPOUND AFTER FINAL CONNECTION.

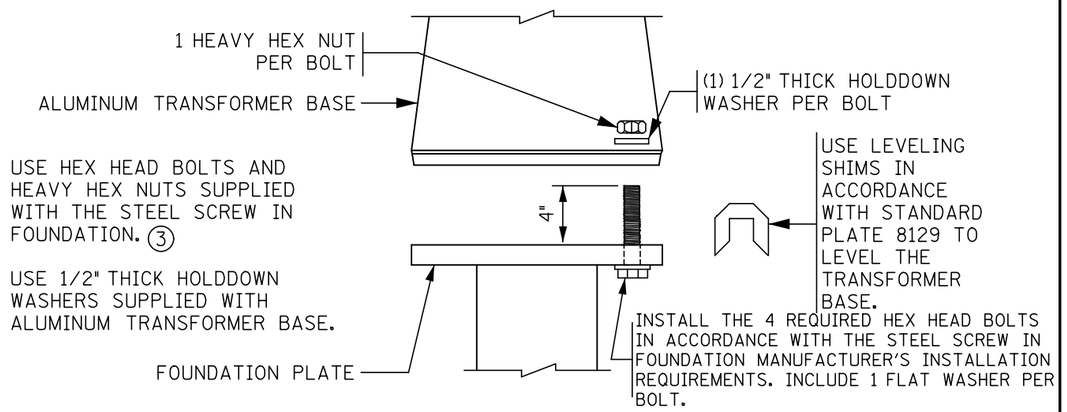
② INSTALL GROUND ROD WITHIN 1 FT. OF THE FOUNDATION.

③ INSTALL 1" X 5" LONG HEX HEAD BOLTS WITH APPROPRIATE HARDWARE FOR DESIGN E. INSTALL 1 1/4" X 5 1/4" LONG HEX HEAD BOLTS WITH APPROPRIATE HARDWARE FOR DESIGN H.

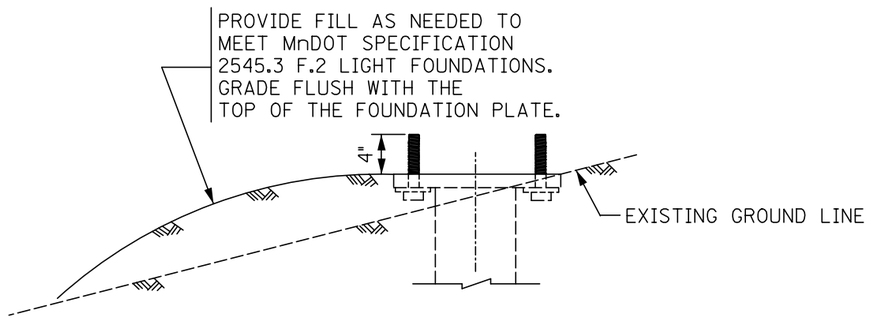
STEEL SCREW IN LIGHT FOUNDATION DESIGN E & H



STEEL OR STAINLESS STEEL POLE BASE ATTACHMENT DETAIL



ALUMINUM TRANSFORMER BASE ATTACHMENT DETAIL



GRADING ON ROADSIDE SLOPE DETAIL

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10/27/17
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DRAWN BY: NJL	I hereby certify that this plan, specification, or report 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.	CERTIFIED BY: LICENSED PROFESSIONAL ENGINEER	10/27/2017 DATE	HDR / DEPARTMENT OF TRANSPORTATION	90% PLANS - FOR REVIEW ONLY — FOUNDATION DETAILS
DESIGNED BY: KAS		NAME: MICHAEL J. MARTINEZ LIC. NO. 42807			STATE PROJ. NO. 0802-45 (T.H. 4) — SHEET NO. 126 OF 128 SHEETS
CHECKED BY: MJM					

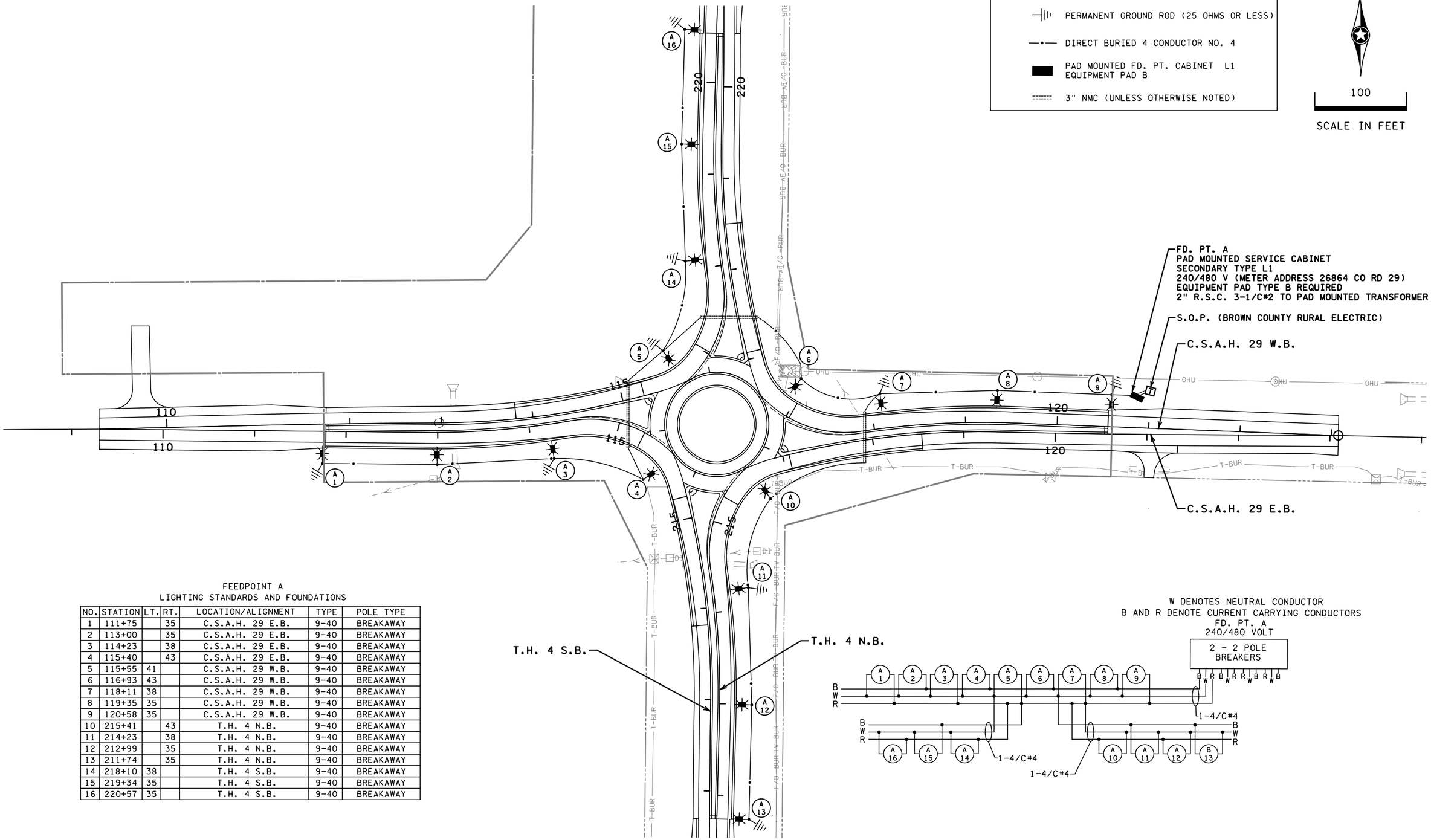
LEGEND

- (XX) LIGHTING UNIT (LED)
- PERMANENT GROUND ROD (25 OHMS OR LESS)
- DIRECT BURIED 4 CONDUCTOR NO. 4
- PAD MOUNTED FD. PT. CABINET L1 EQUIPMENT PAD B
- 3" NMC (UNLESS OTHERWISE NOTED)

N

100

SCALE IN FEET



FEEDPOINT A
LIGHTING STANDARDS AND FOUNDATIONS

NO.	STATION	LT.	RT.	LOCATION/ALIGNMENT	TYPE	POLE TYPE
1	111+75		35	C.S.A.H. 29 E.B.	9-40	BREAKAWAY
2	113+00		35	C.S.A.H. 29 E.B.	9-40	BREAKAWAY
3	114+23		38	C.S.A.H. 29 E.B.	9-40	BREAKAWAY
4	115+40		43	C.S.A.H. 29 E.B.	9-40	BREAKAWAY
5	115+55	41		C.S.A.H. 29 W.B.	9-40	BREAKAWAY
6	116+93	43		C.S.A.H. 29 W.B.	9-40	BREAKAWAY
7	118+11	38		C.S.A.H. 29 W.B.	9-40	BREAKAWAY
8	119+35	35		C.S.A.H. 29 W.B.	9-40	BREAKAWAY
9	120+58	35		C.S.A.H. 29 W.B.	9-40	BREAKAWAY
10	215+41		43	T.H. 4 N.B.	9-40	BREAKAWAY
11	214+23		38	T.H. 4 N.B.	9-40	BREAKAWAY
12	212+99		35	T.H. 4 N.B.	9-40	BREAKAWAY
13	211+74		35	T.H. 4 N.B.	9-40	BREAKAWAY
14	218+10	38		T.H. 4 S.B.	9-40	BREAKAWAY
15	219+34	35		T.H. 4 S.B.	9-40	BREAKAWAY
16	220+57	35		T.H. 4 S.B.	9-40	BREAKAWAY

W DENOTES NEUTRAL CONDUCTOR
B AND R DENOTE CURRENT CARRYING CONDUCTORS
FD. PT. A
240/480 VOLT

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5:22:15 PM
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CP080245_pentable_plans.tbl

DRAWN BY:	KAS
DESIGNED BY:	KAS
CHECKED BY:	MJM

I hereby certify that this plan, specification, or report 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.

CERTIFIED BY: _____ LICENSED PROFESSIONAL ENGINEER

NAME: MICHAEL J. MARTINEZ LIC. NO. 42807

DATE: 10/27/2017

HDR

DEPARTMENT OF TRANSPORTATION

90% PLANS - FOR REVIEW ONLY — LIGHTING LAYOUT

STATE PROJ. NO. 0802-45 (T.H. 4) — SHEET NO. 127 OF 128 SHEETS

END RECONSTRUCTION
TH4NB
STA 223+16.17

BEGIN RECONSTRUCTION
CSAH29EB
STA 109+30.16

END RECONSTRUCTION
CSAH29EB
STA 123+09.15

S.A.P. 0802-45
℄ C.S.A.H. 29 EB

BEGIN RECONSTRUCTION
TH4NB
STA 209+07.95

S.P. 0802-45
℄ T.H. 4 NB

CROSS SECTION INDEX	
ALIGNMENT	SHEET NO.
T.H. 4	X1 - X19
C.S.A.H. 29	X20 - X34

LEGEND

- R/W
- TEMPORARY EASEMENT
- ACCESS CONTROL
- CONSTRUCTION LIMITS
- DITCH BOTTOM
- LIVING SNOW FENCE

N

200

SCALE IN FEET

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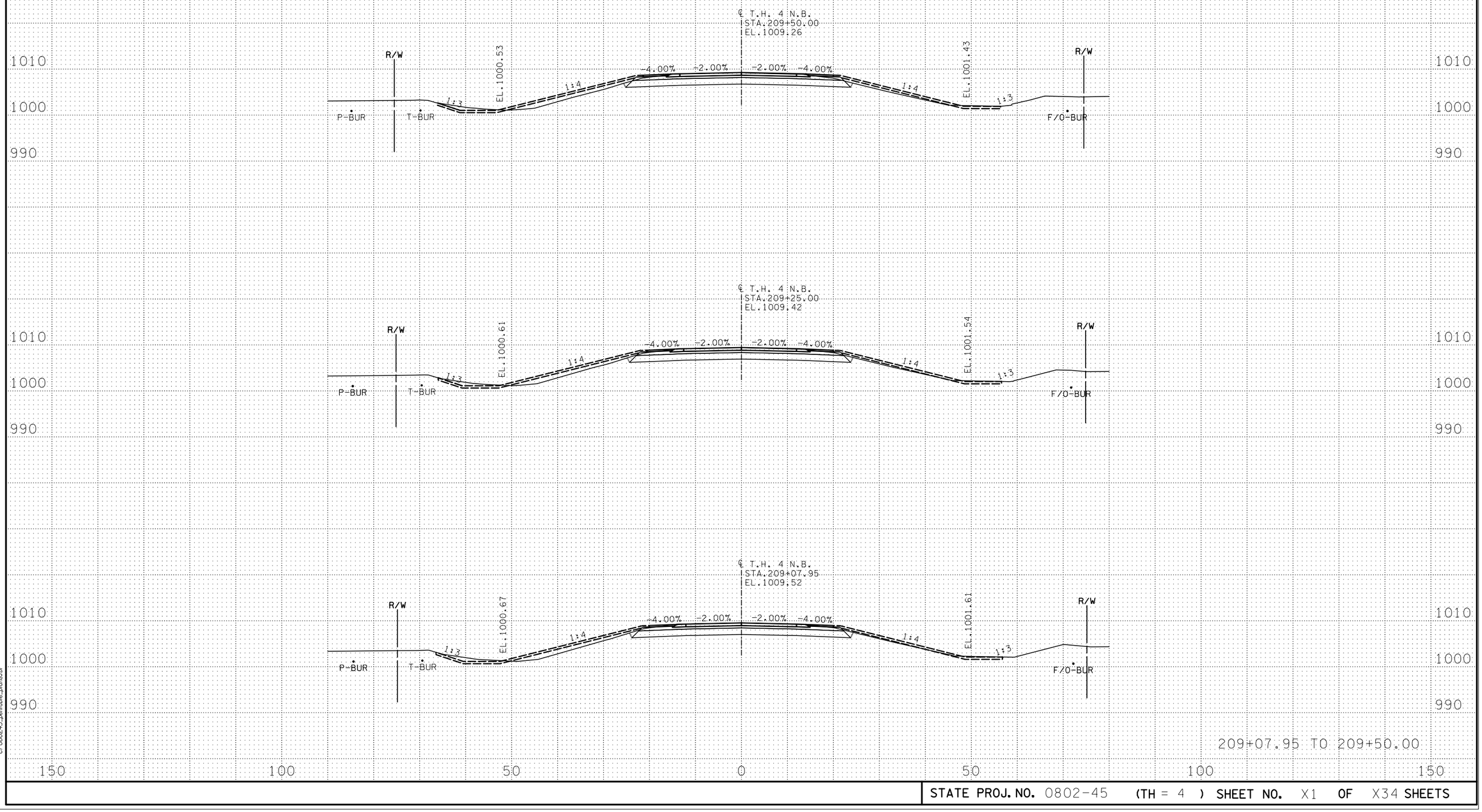
DRAWN BY: NTT	I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.	CERTIFIED BY: LICENSED PROFESSIONAL ENGINEER	10/27/2017 DATE
DESIGNED BY: NTT		NAME: NATHAN TRUEX LIC. NO.	53715
CHECKED BY: DWK			

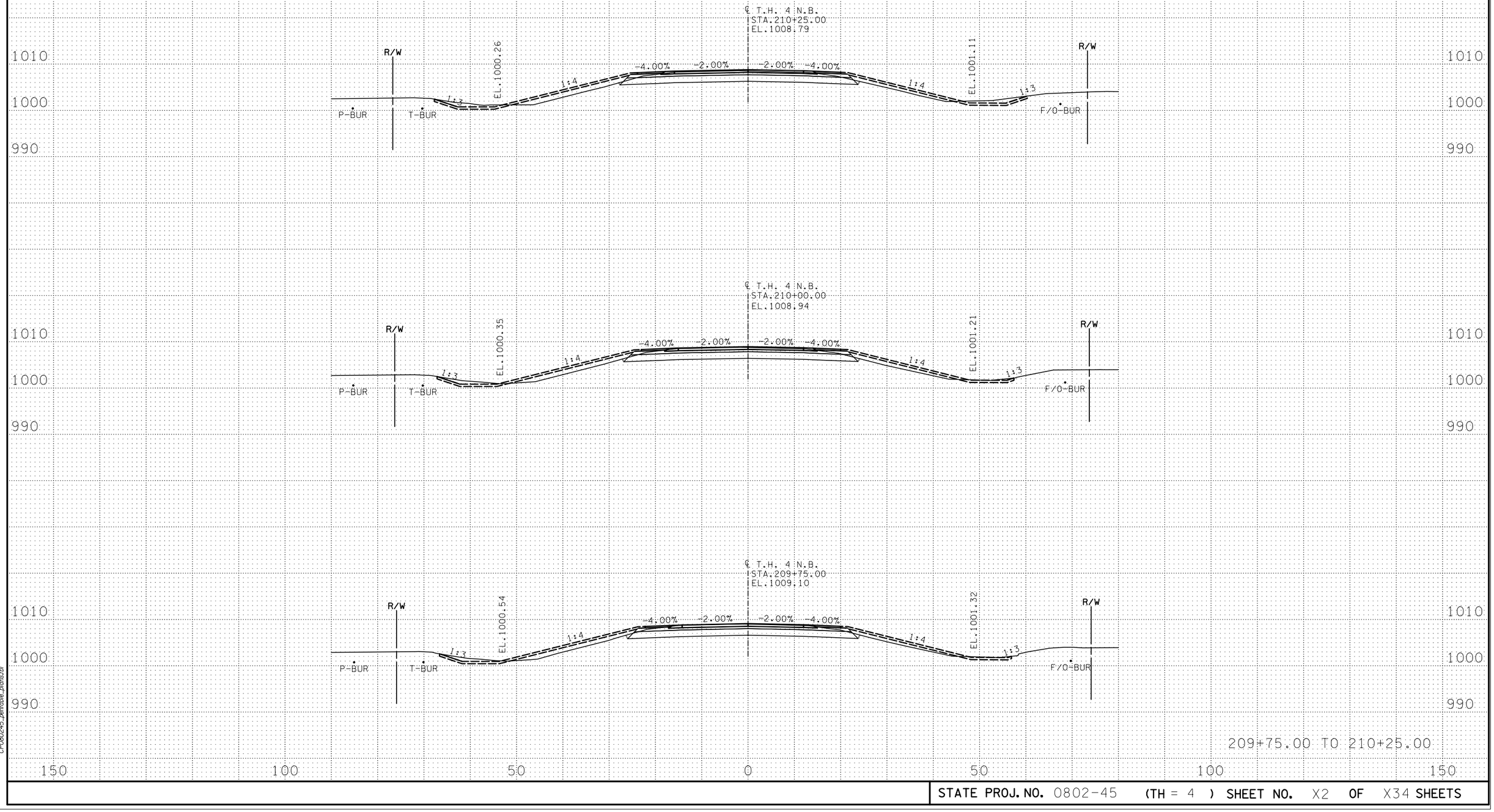
HDR

DEPARTMENT OF TRANSPORTATION

90% PLANS - FOR REVIEW ONLY — MATCHLINE LAYOUT PLAN

STATE PROJ. NO. 0802-45 (T.H. 4) — SHEET NO. 128 OF 128 SHEETS





209+75.00 TO 210+25.00

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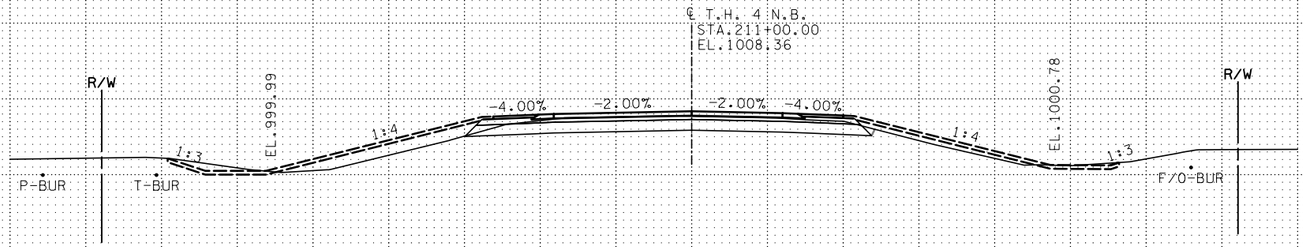

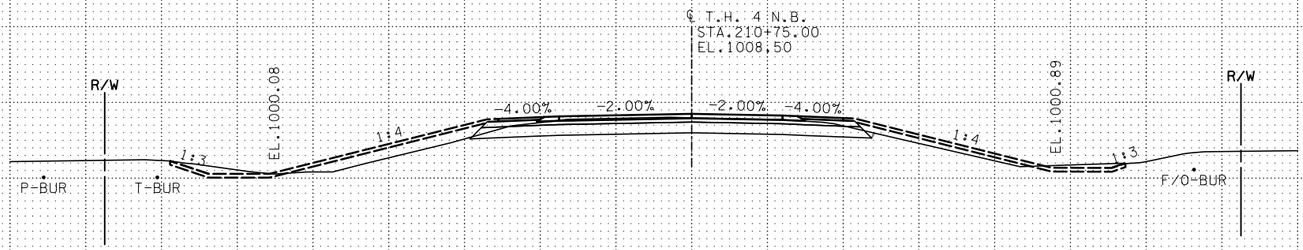

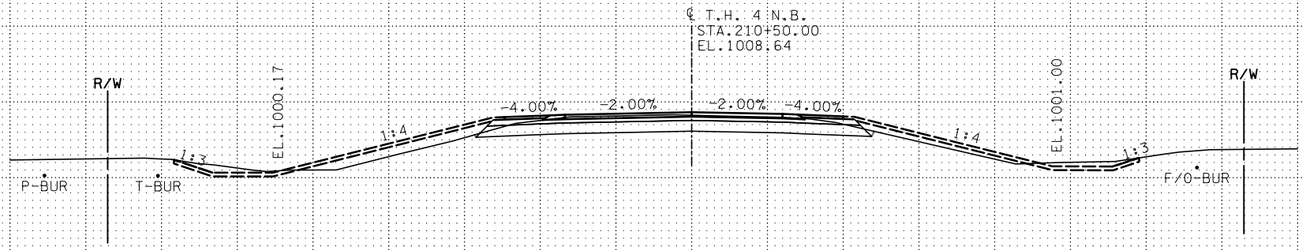

210+50.00 TO 211+00.00

150 100 50 0 50 100 150

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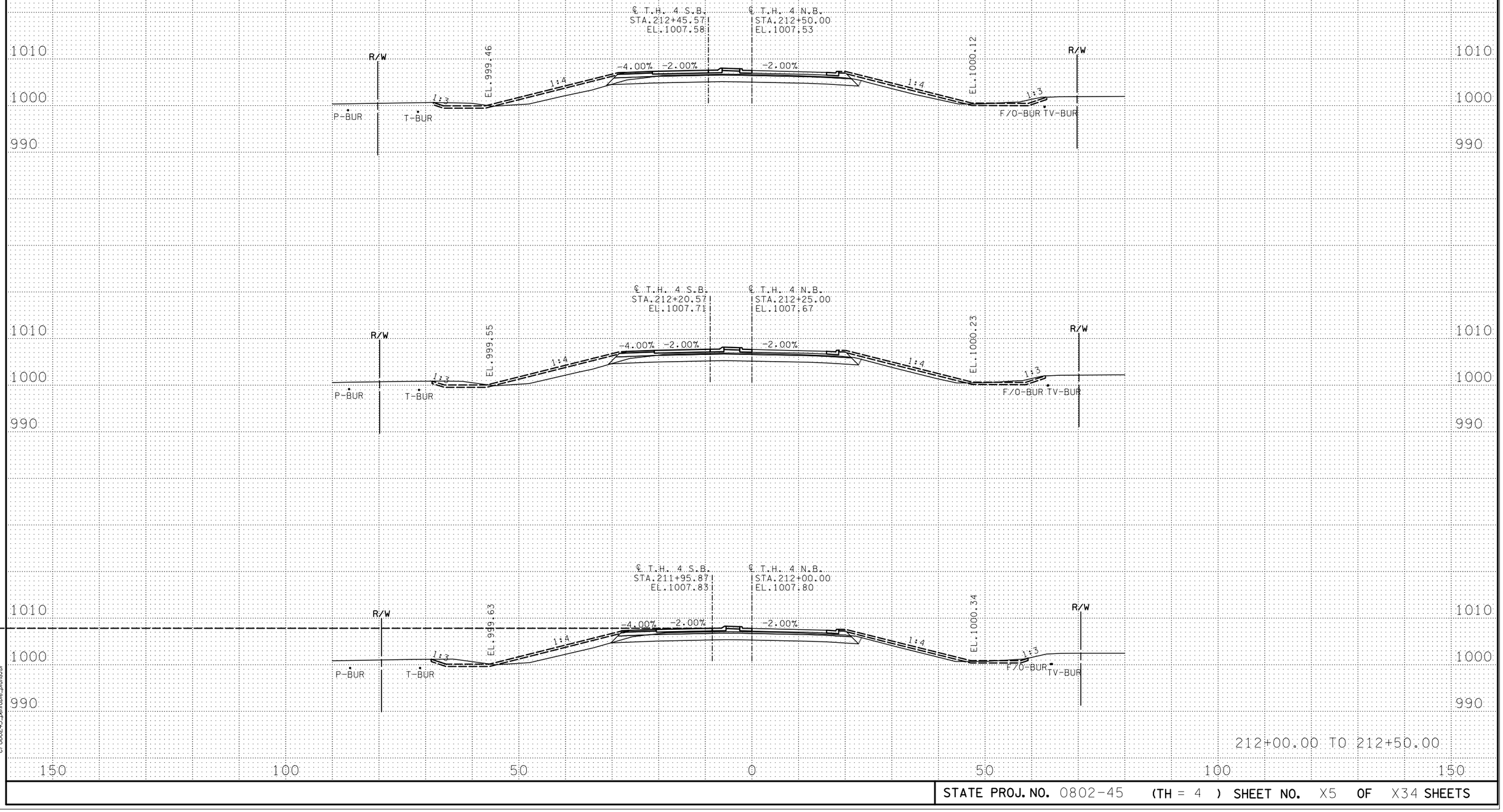

212+00.00 TO 212+50.00

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212+75.00 TO 213+25.00

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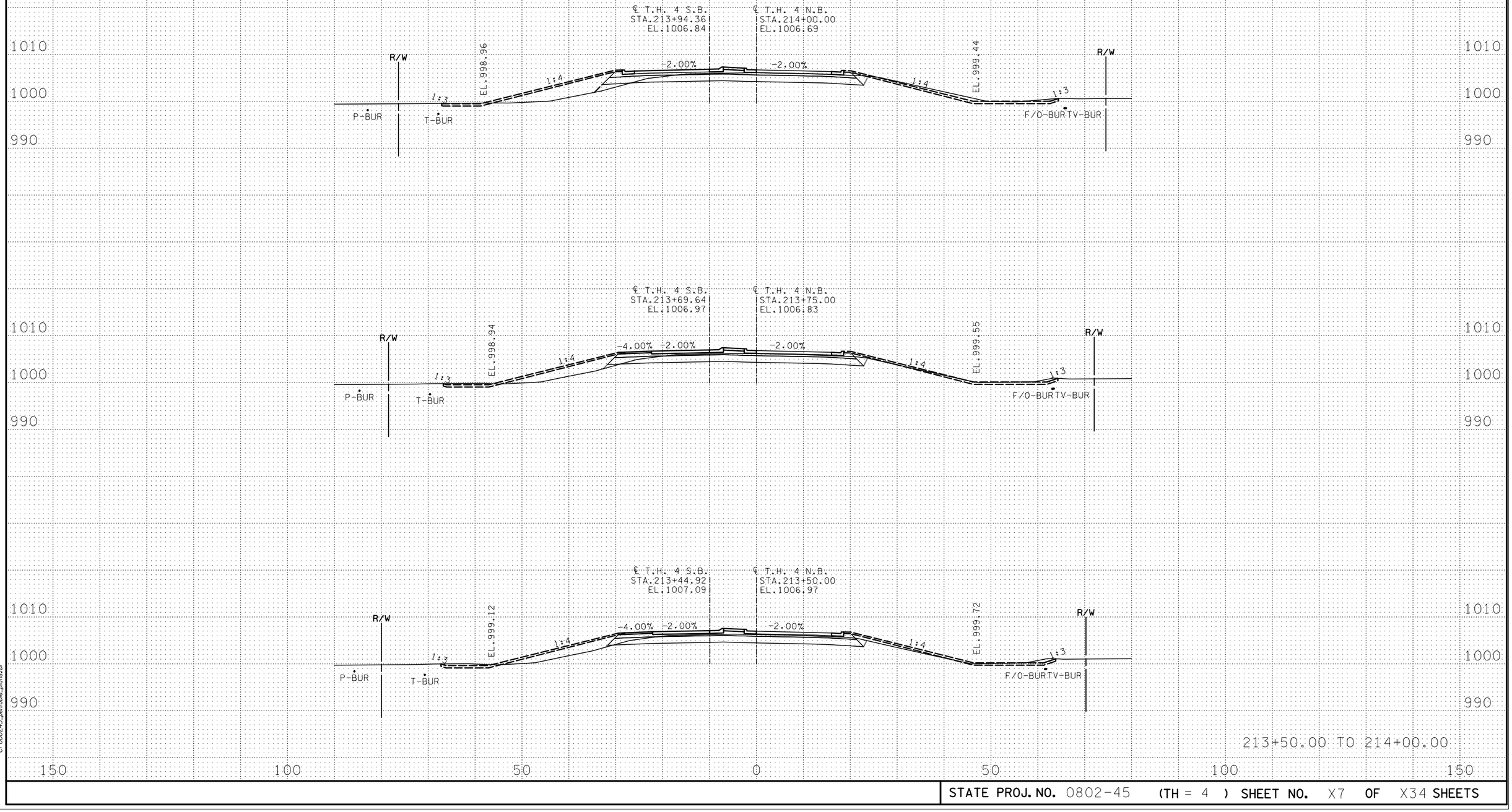

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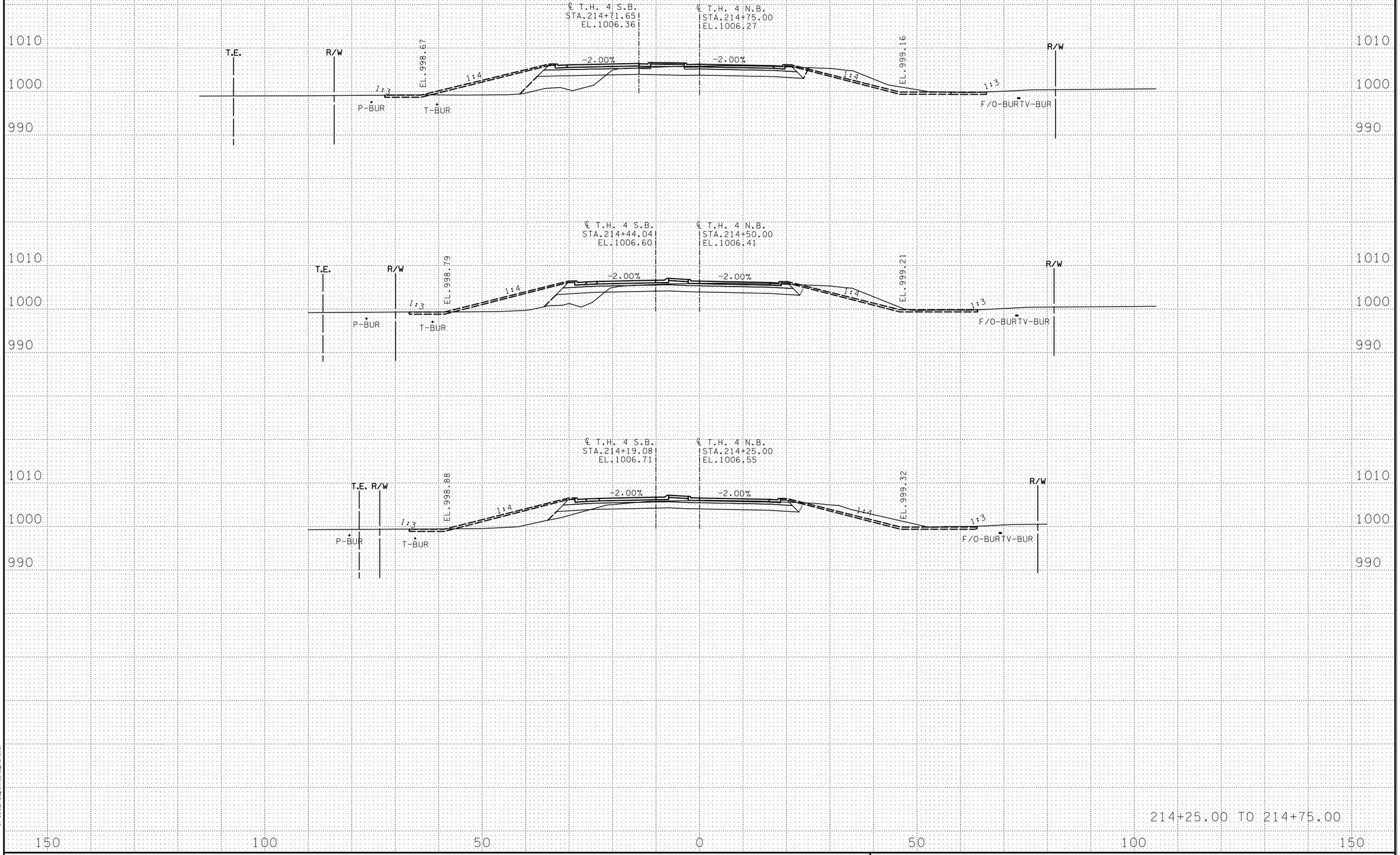

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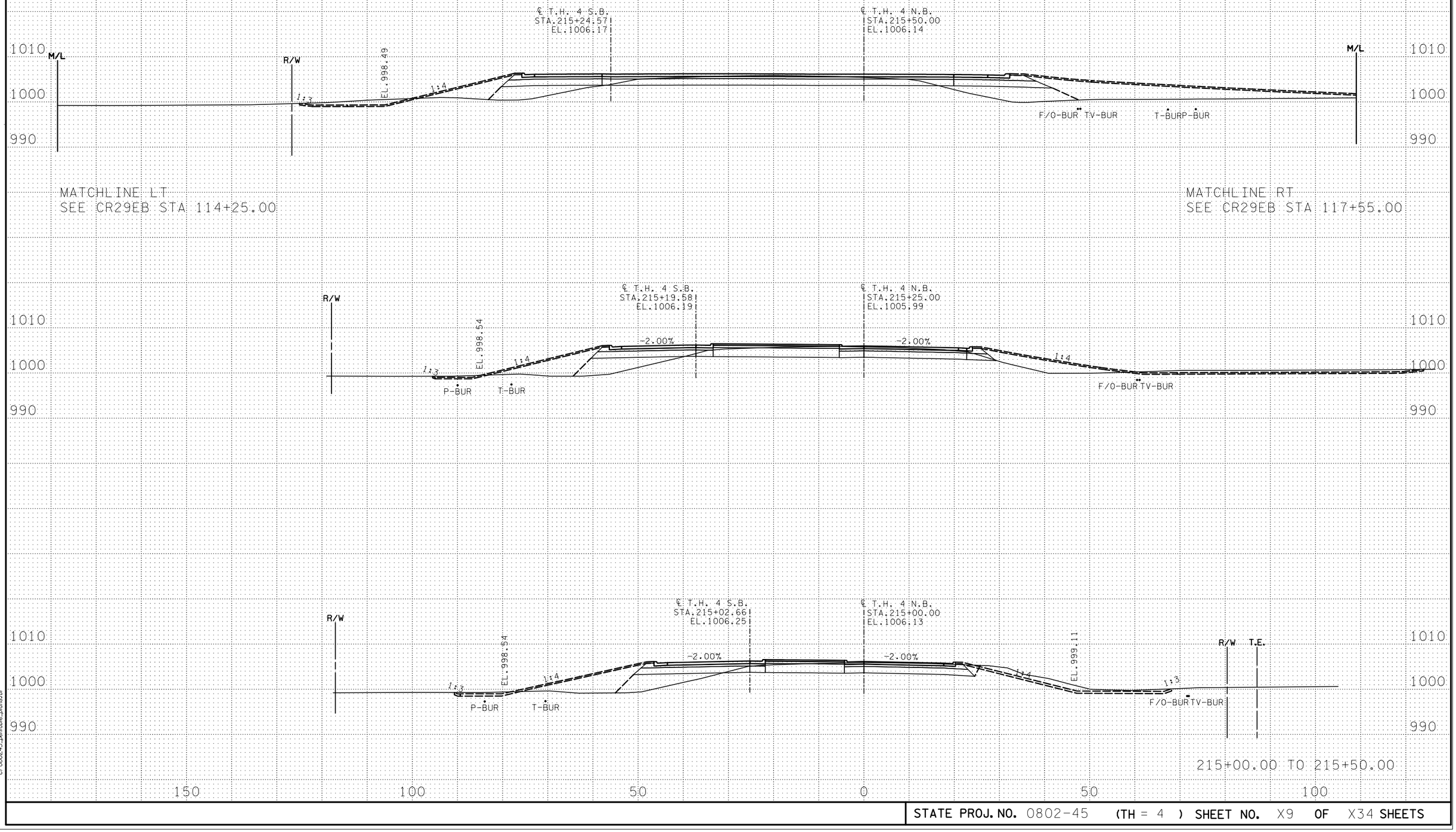

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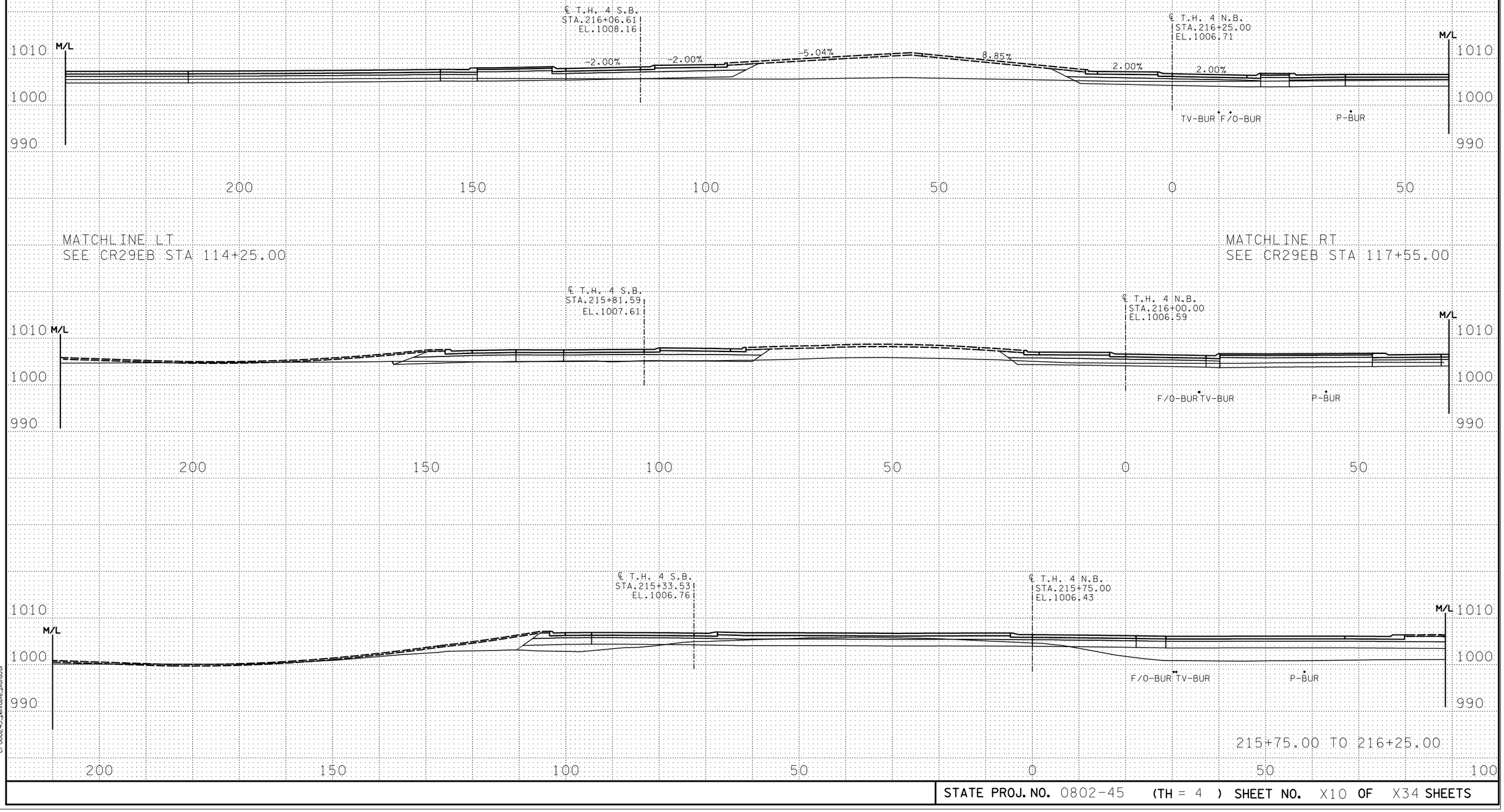

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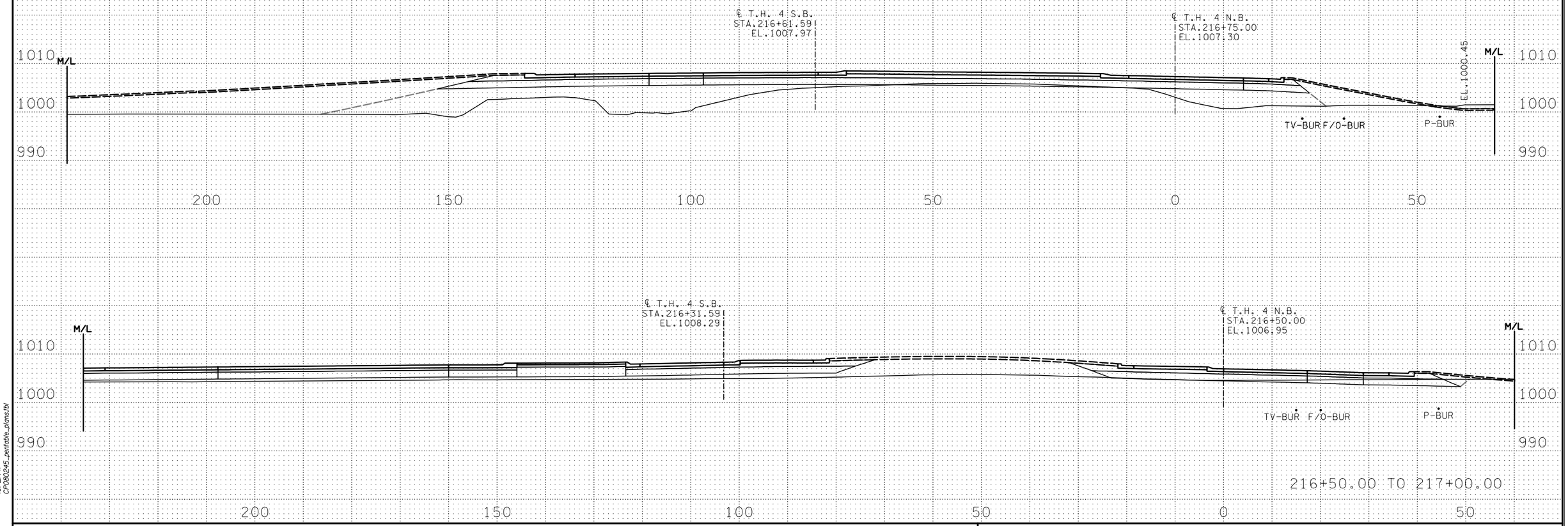
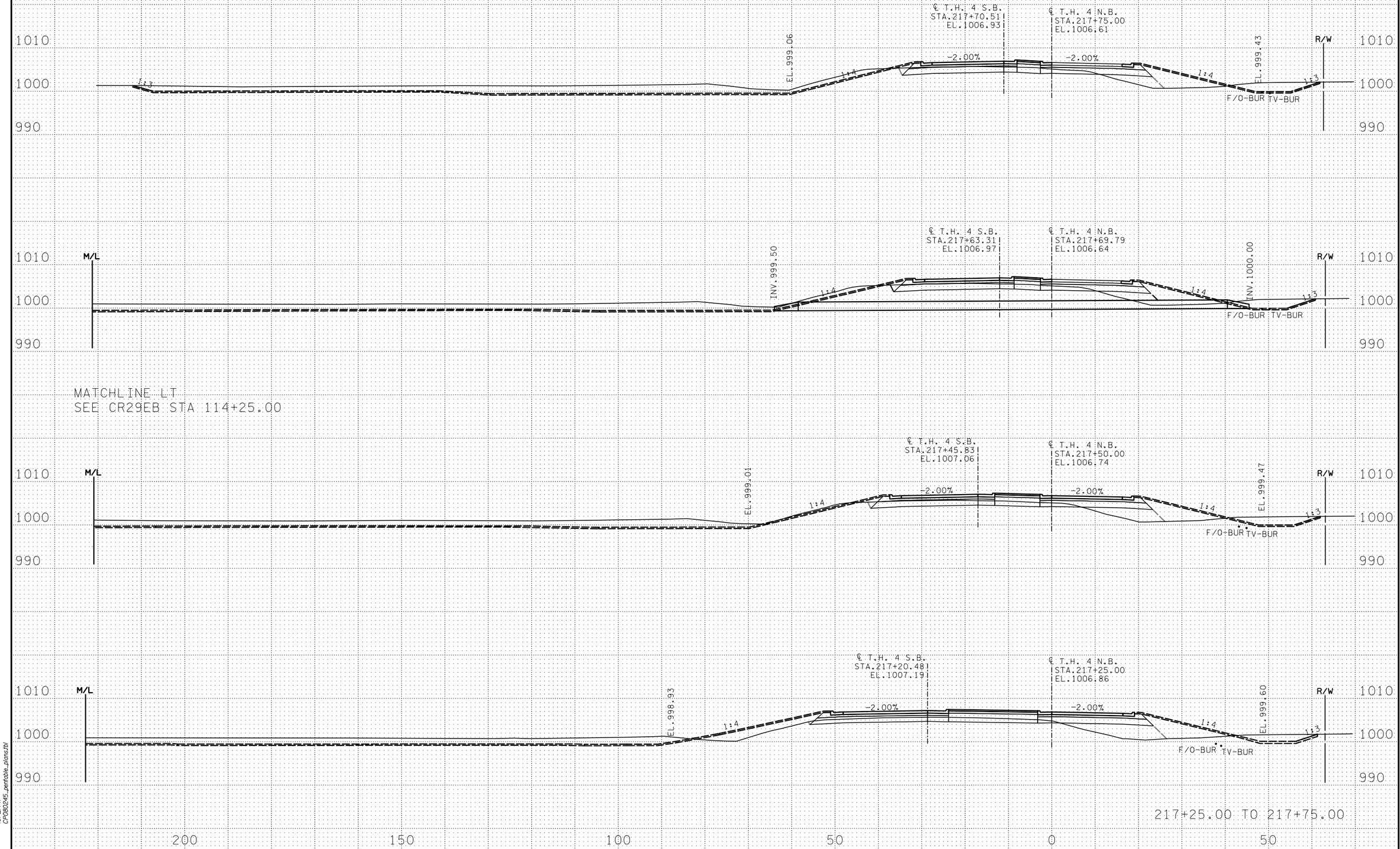
MATCHLINE LT
SEE CR29EB STA 114+25.00

MATCHLINE RT
SEE CR29EB STA 117+55.00



216+50.00 TO 217+00.00



217+25.00 TO 217+75.00

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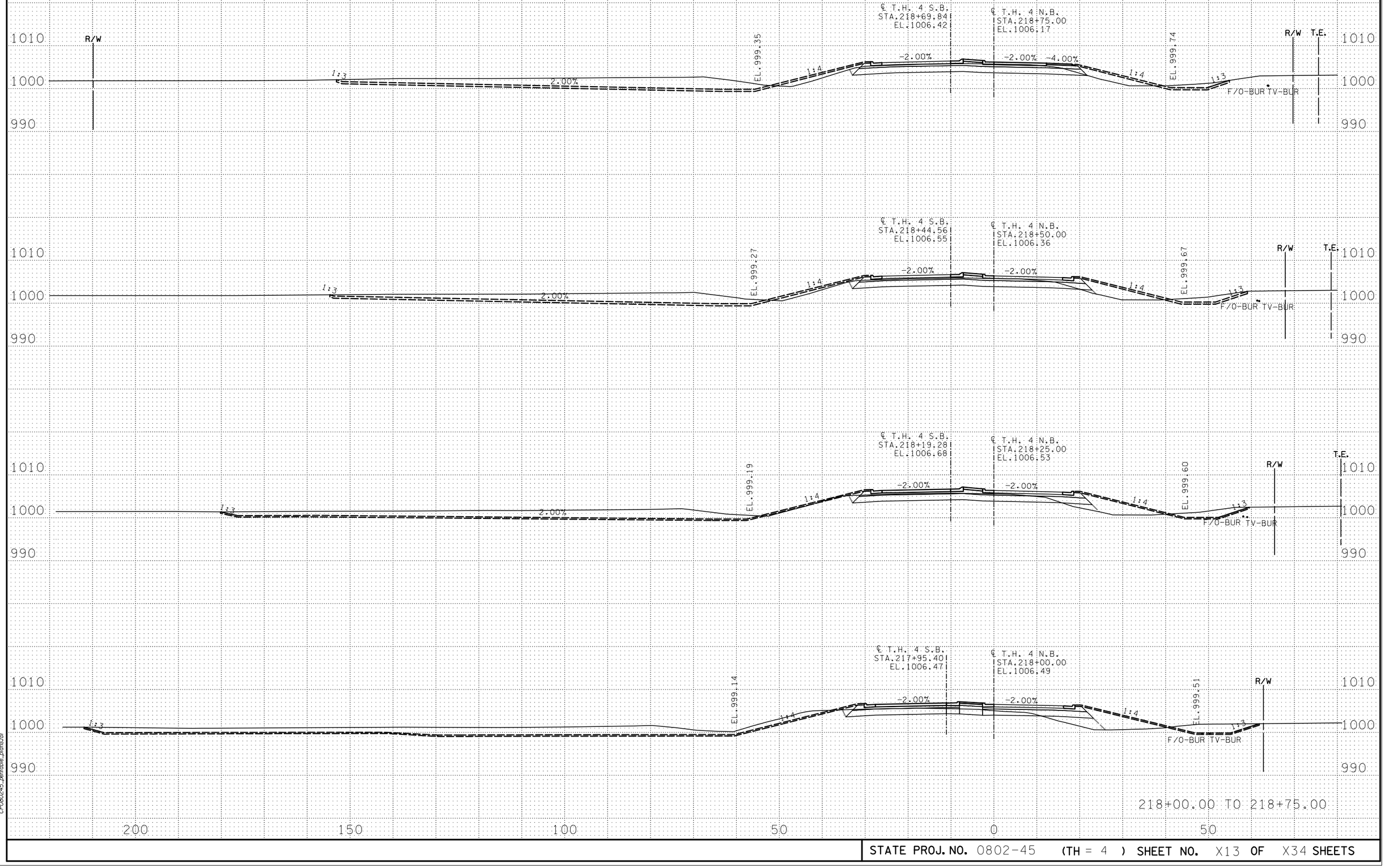

218+00.00 TO 218+75.00

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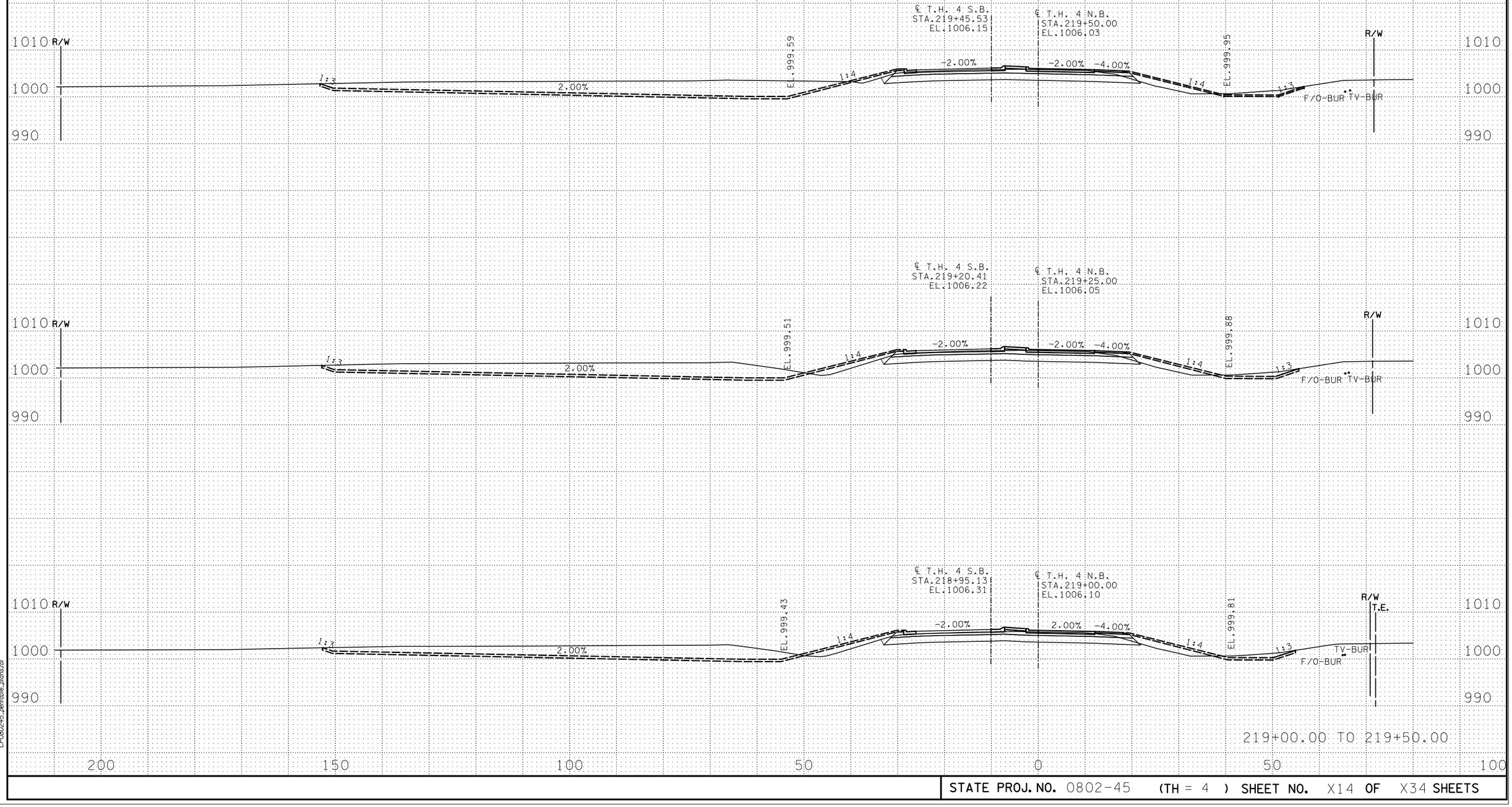

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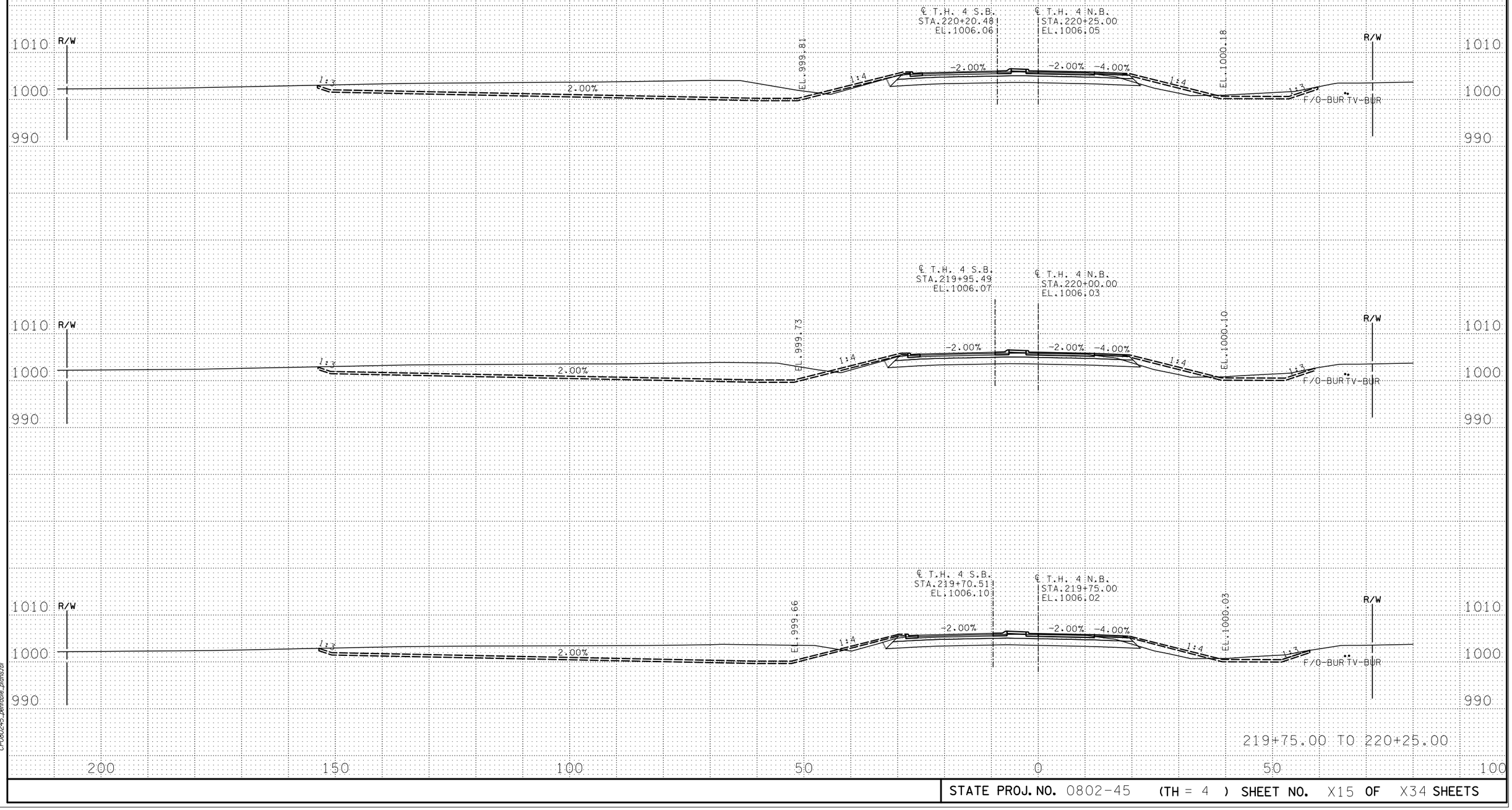

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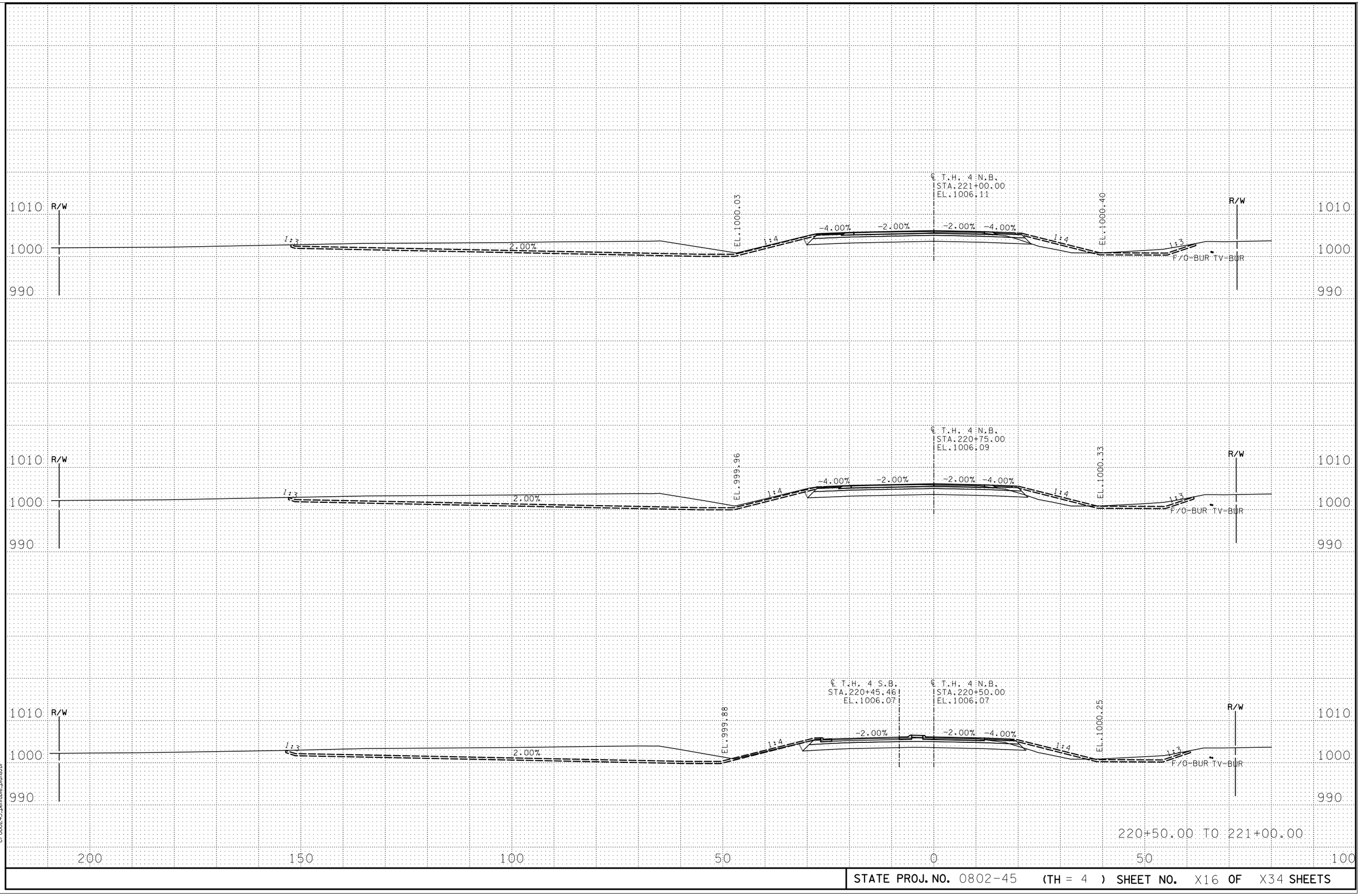

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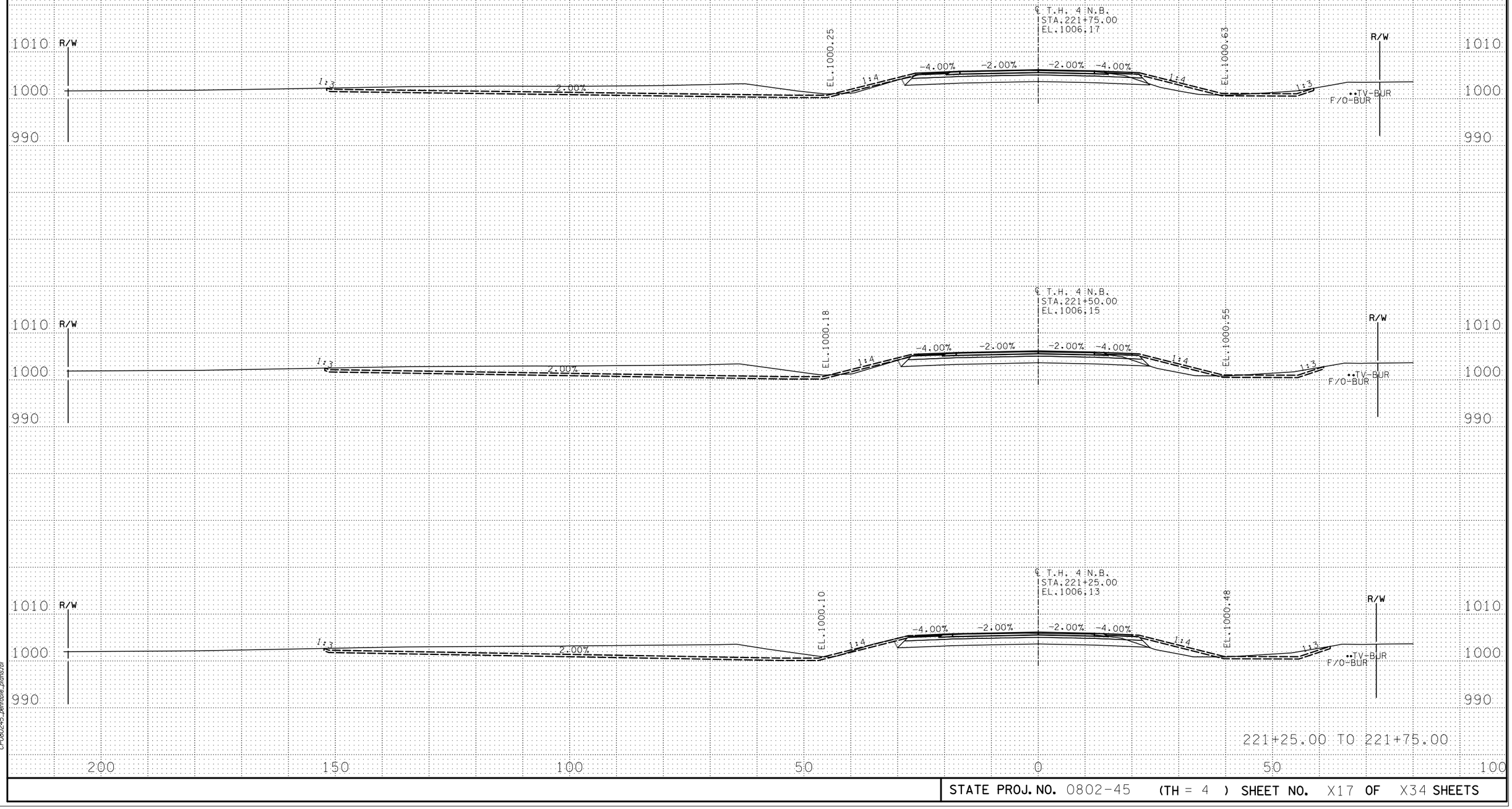

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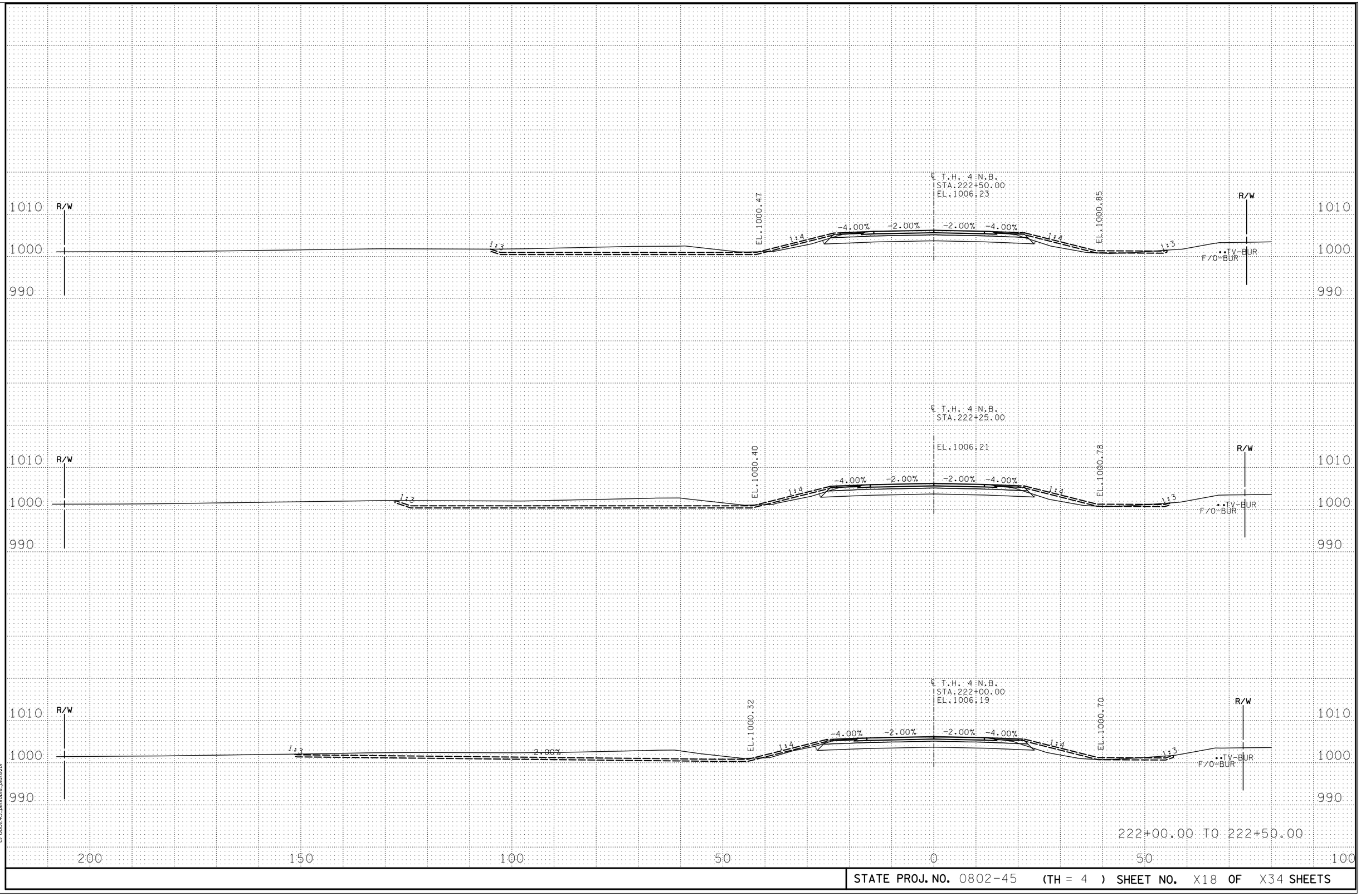

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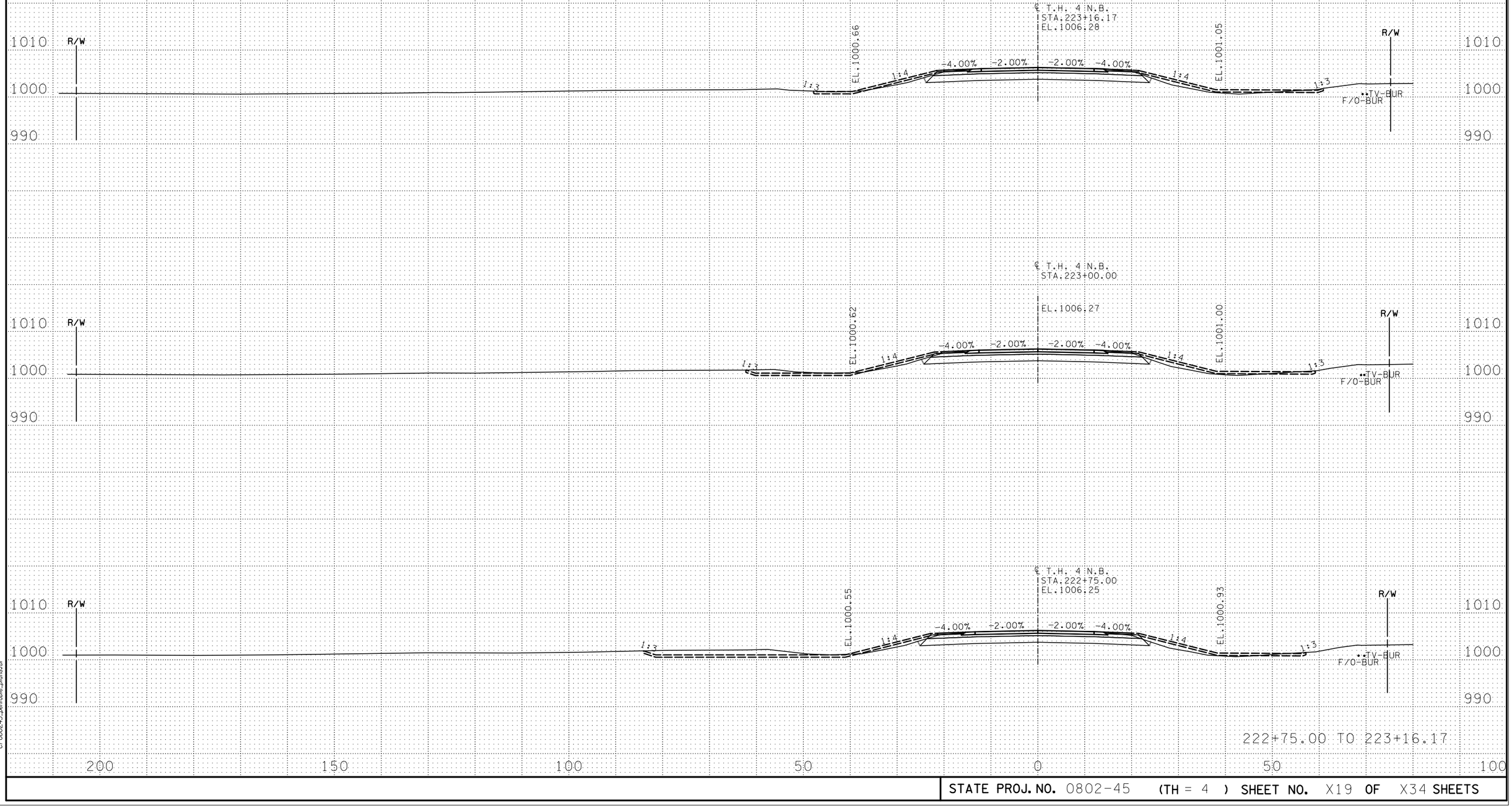

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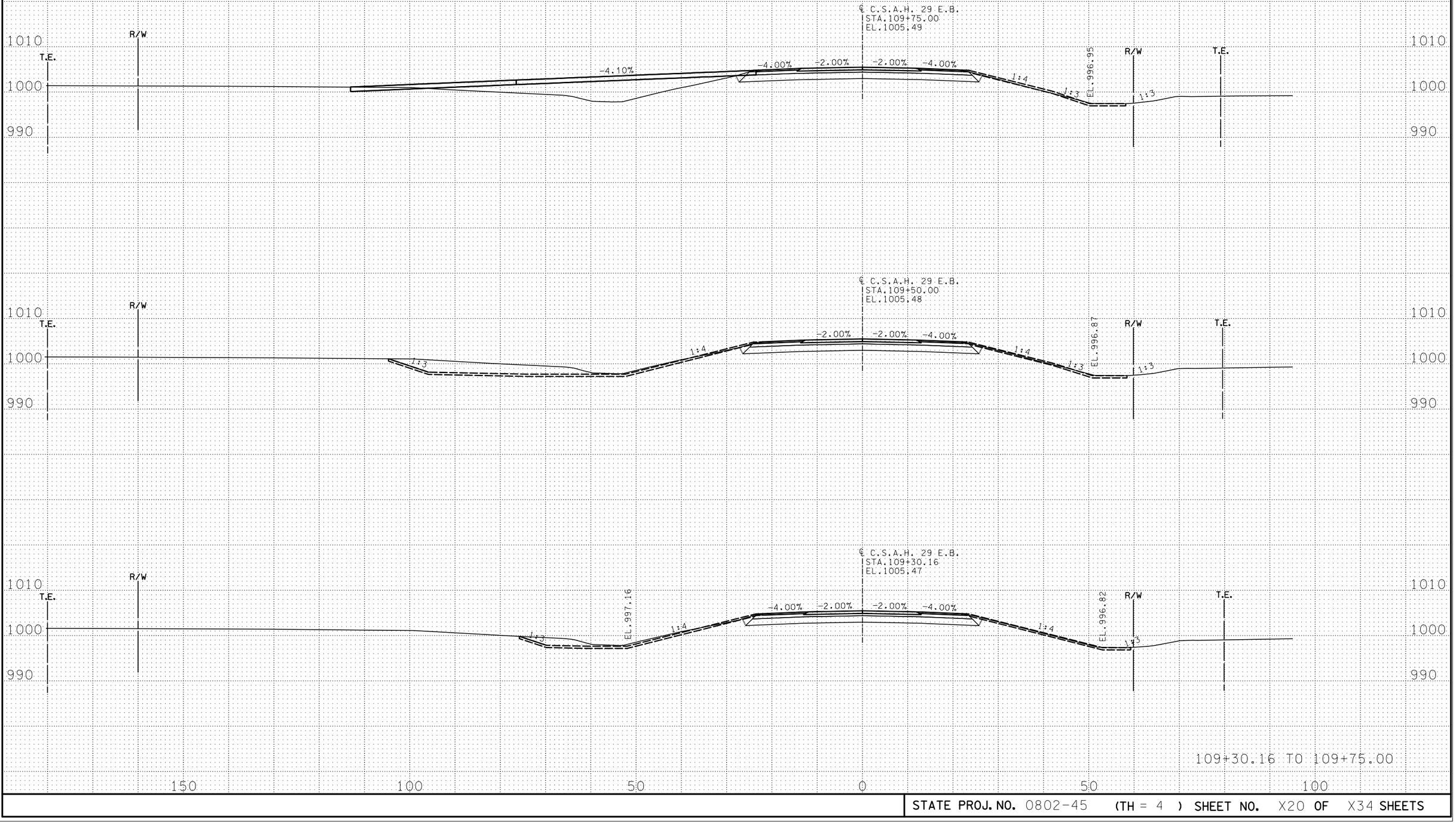

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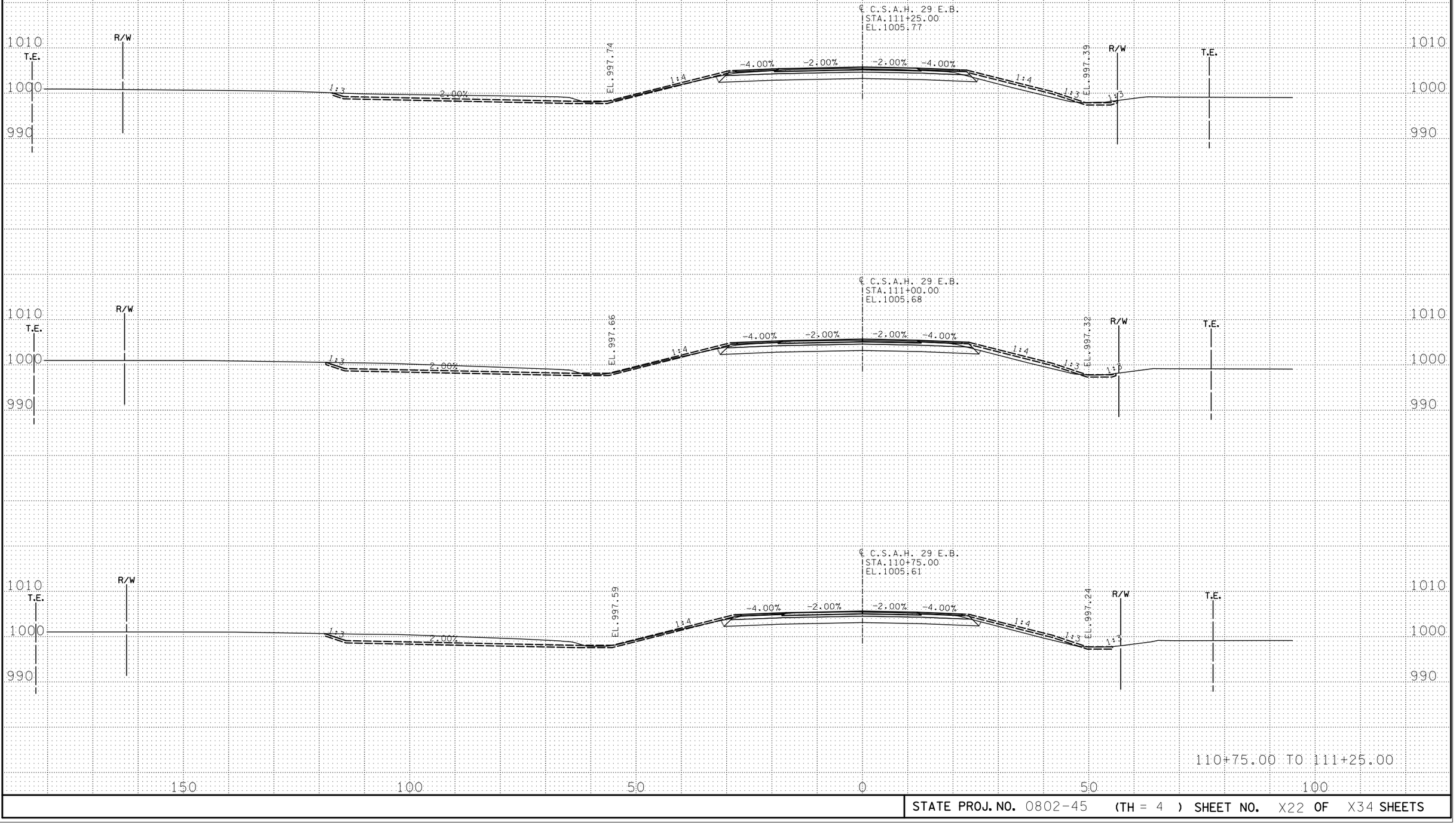

110+75.00 TO 111+25.00

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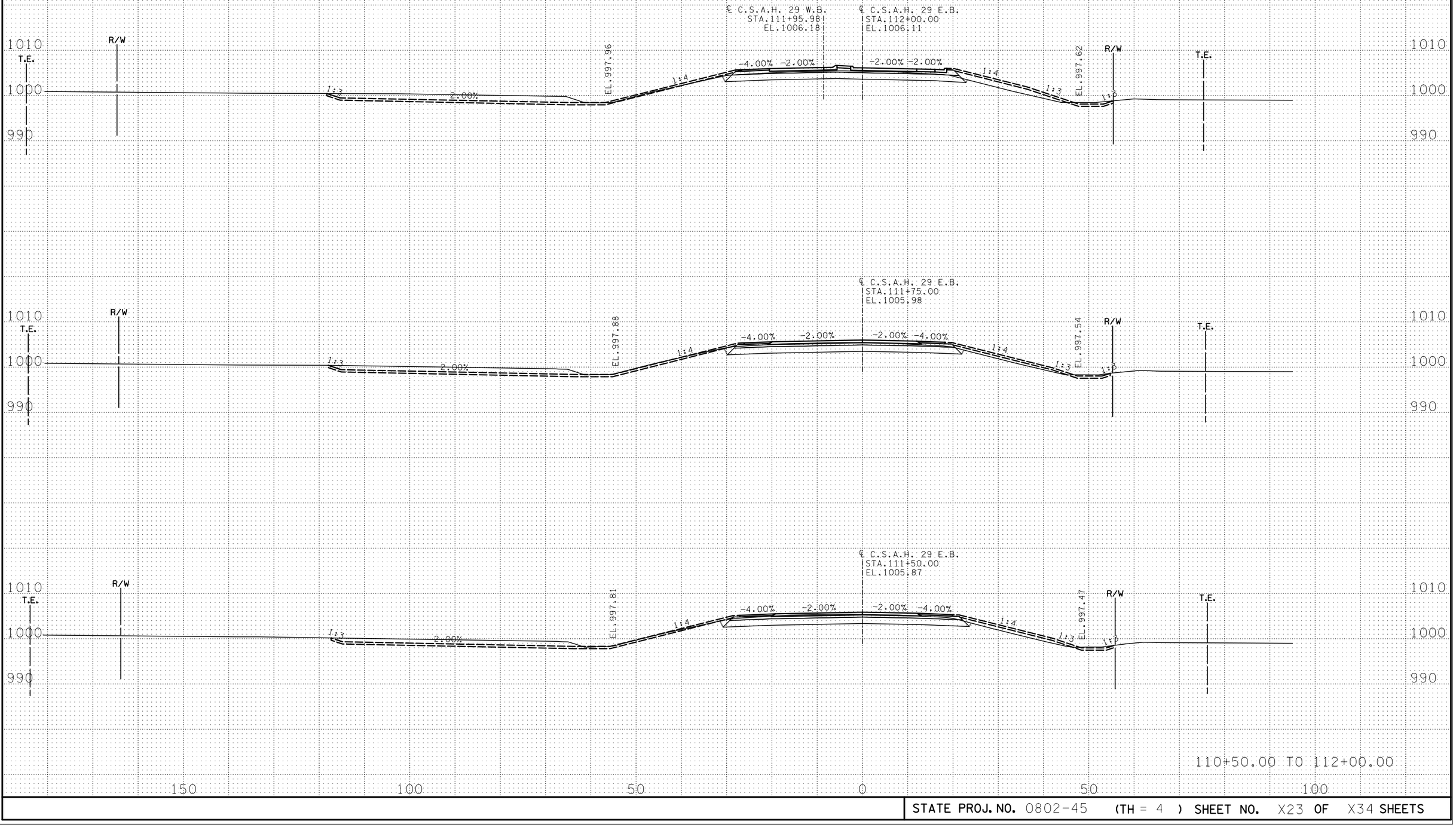

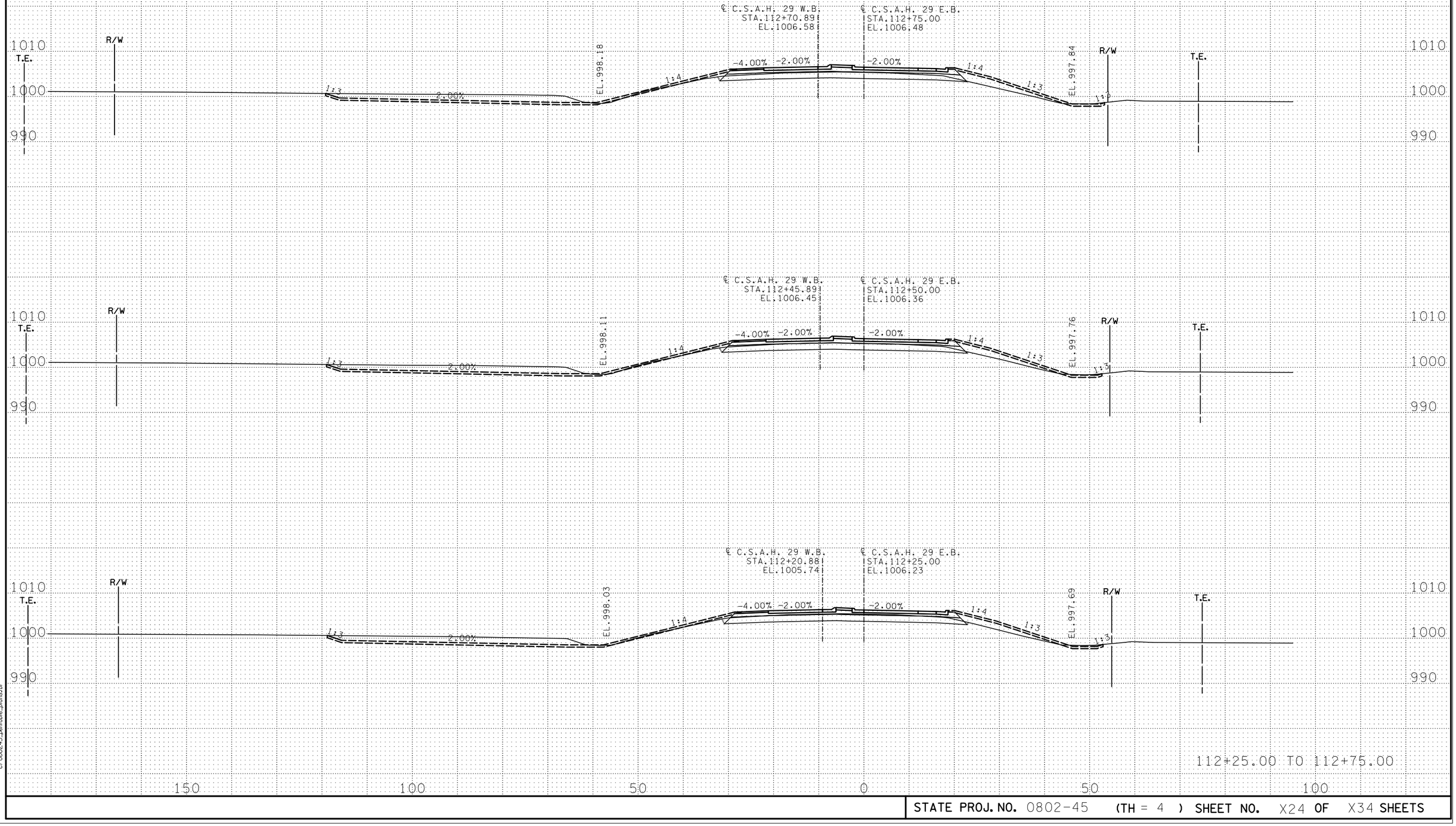

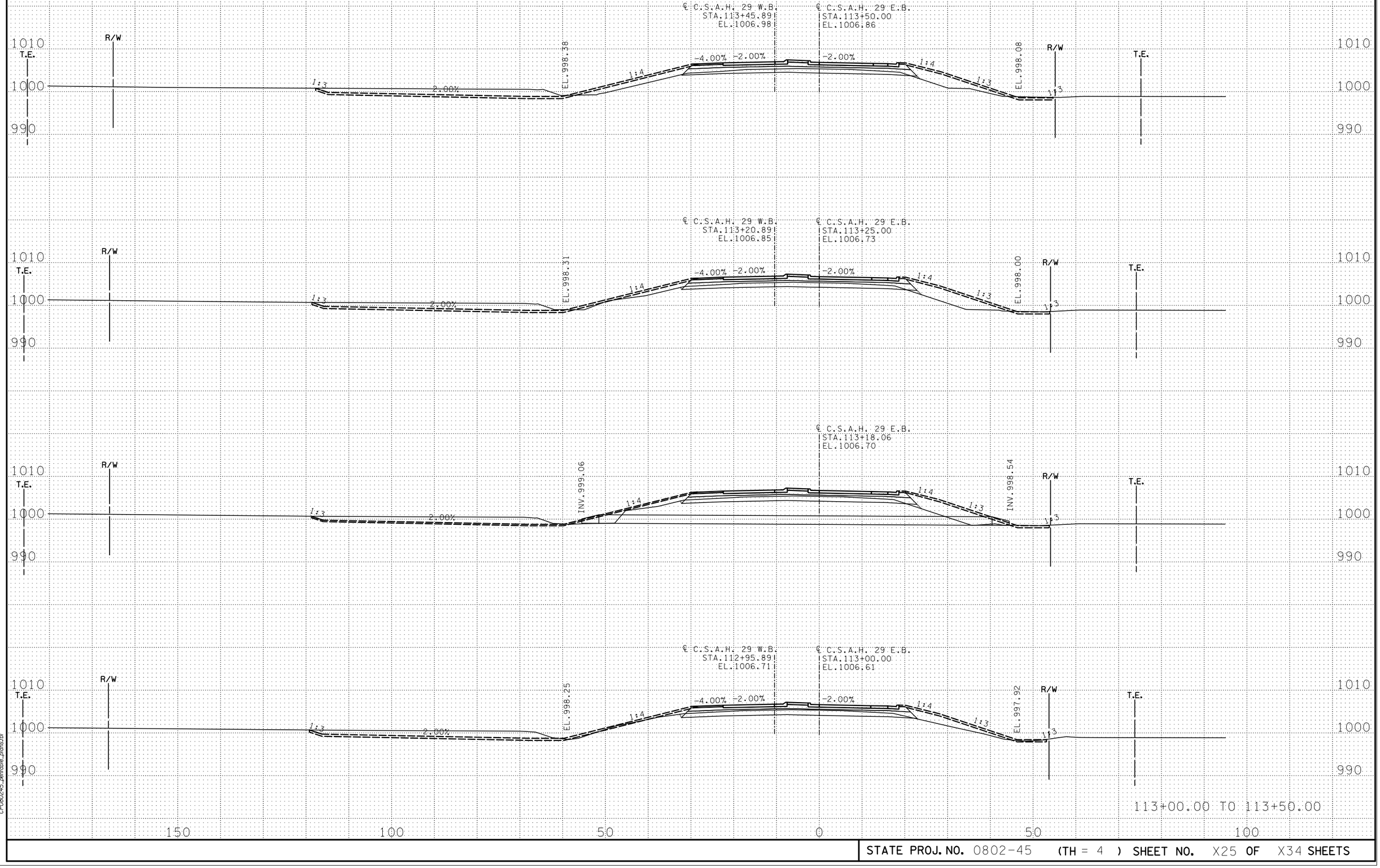

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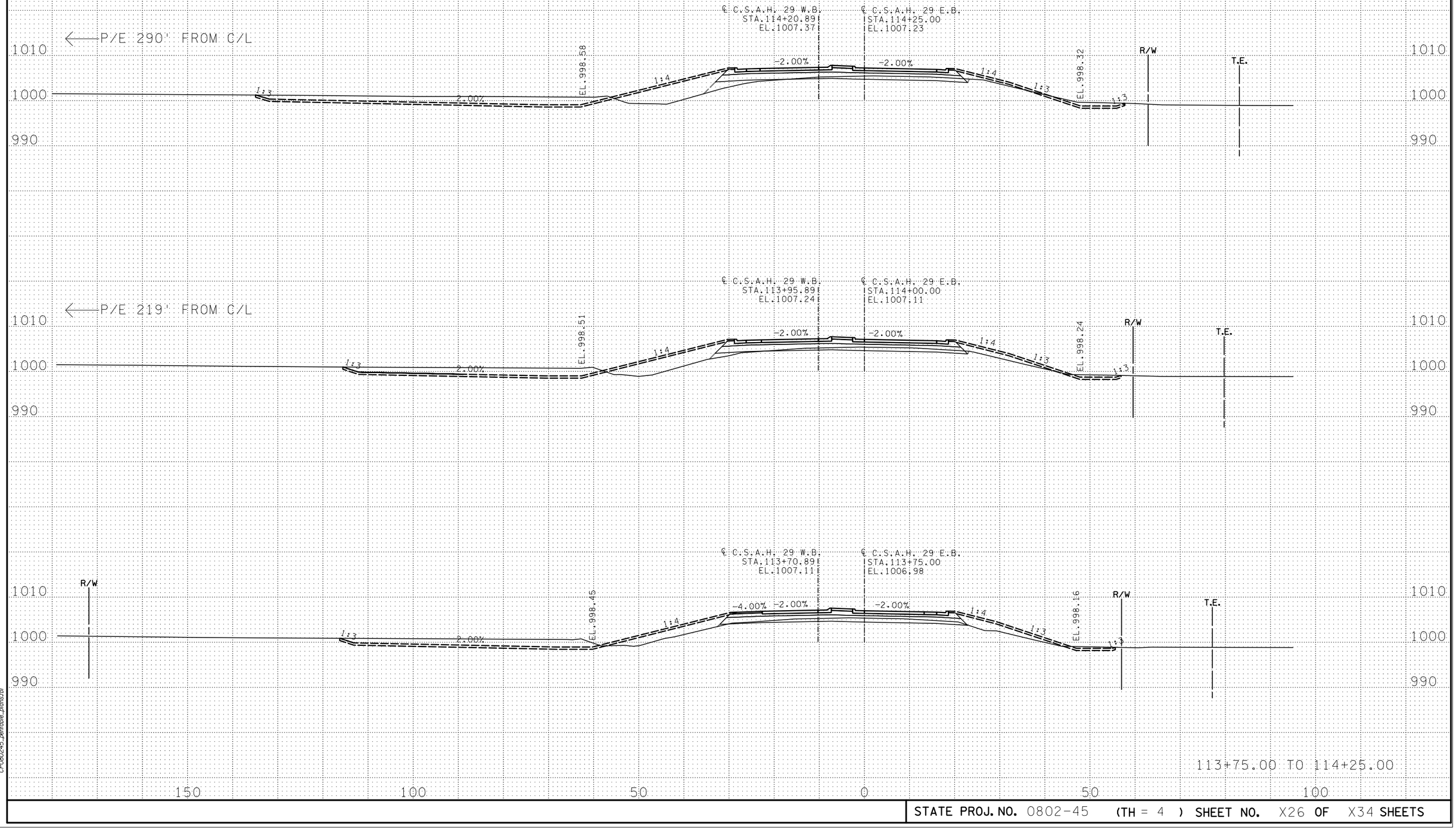

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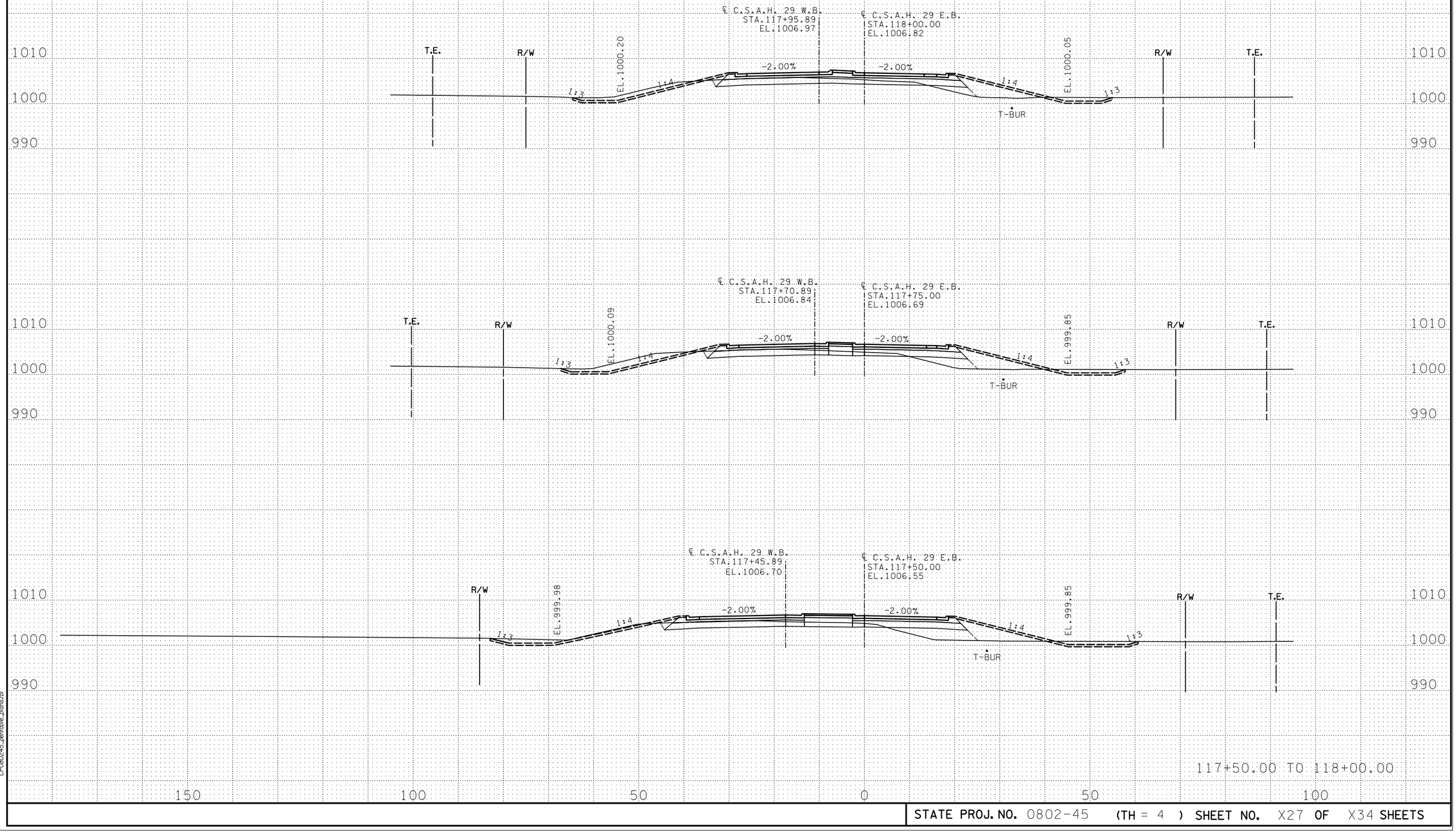
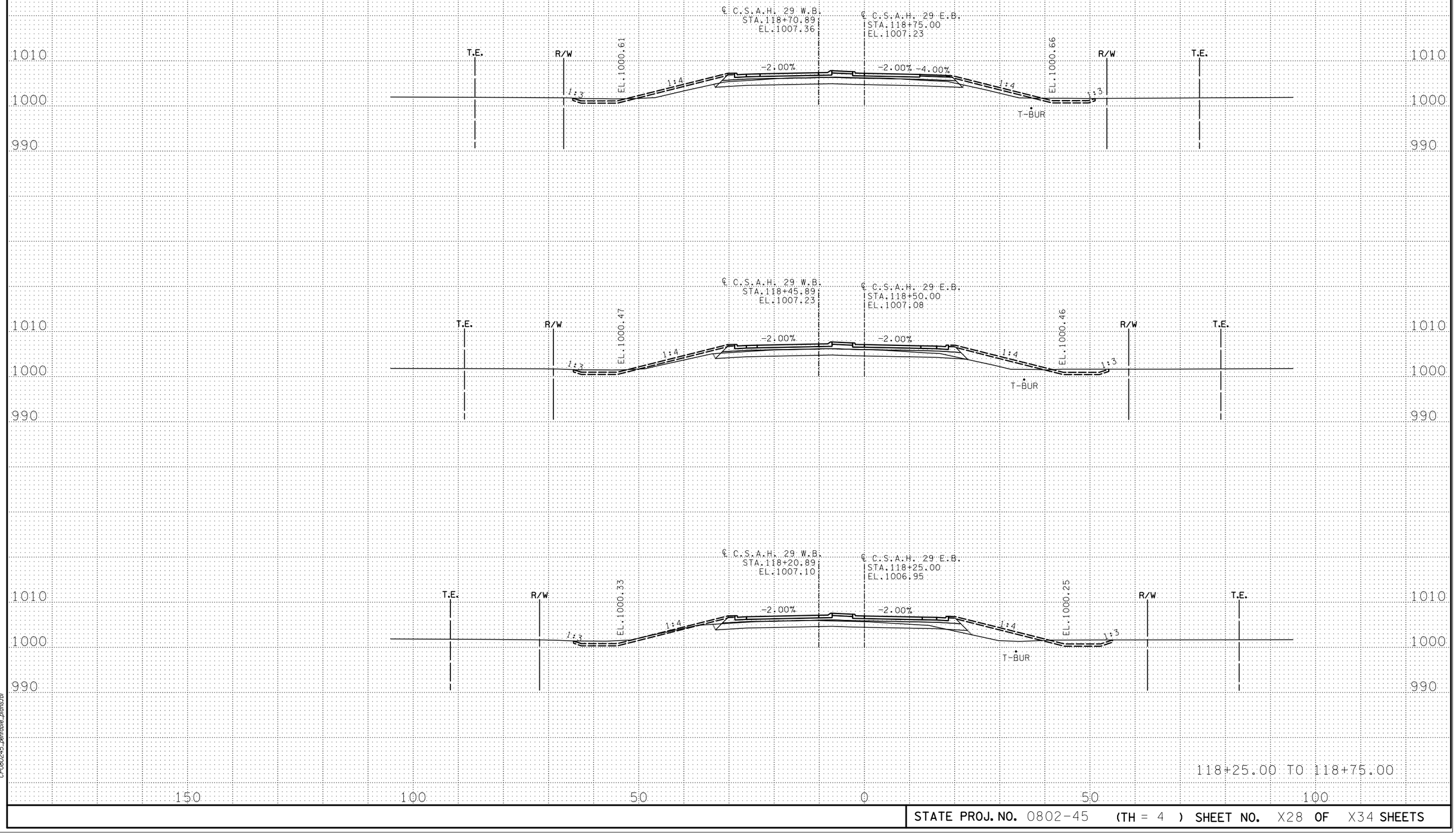
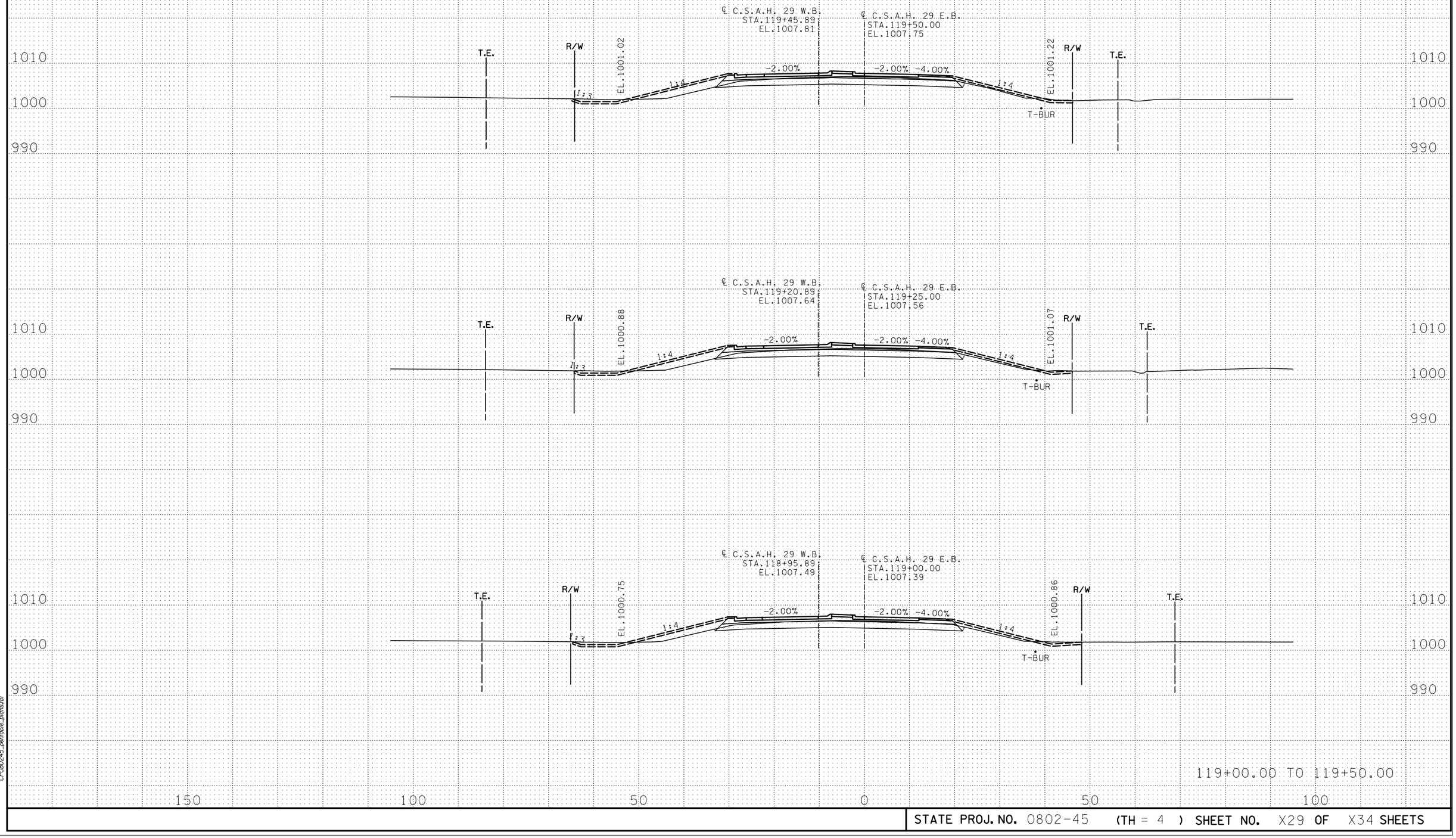
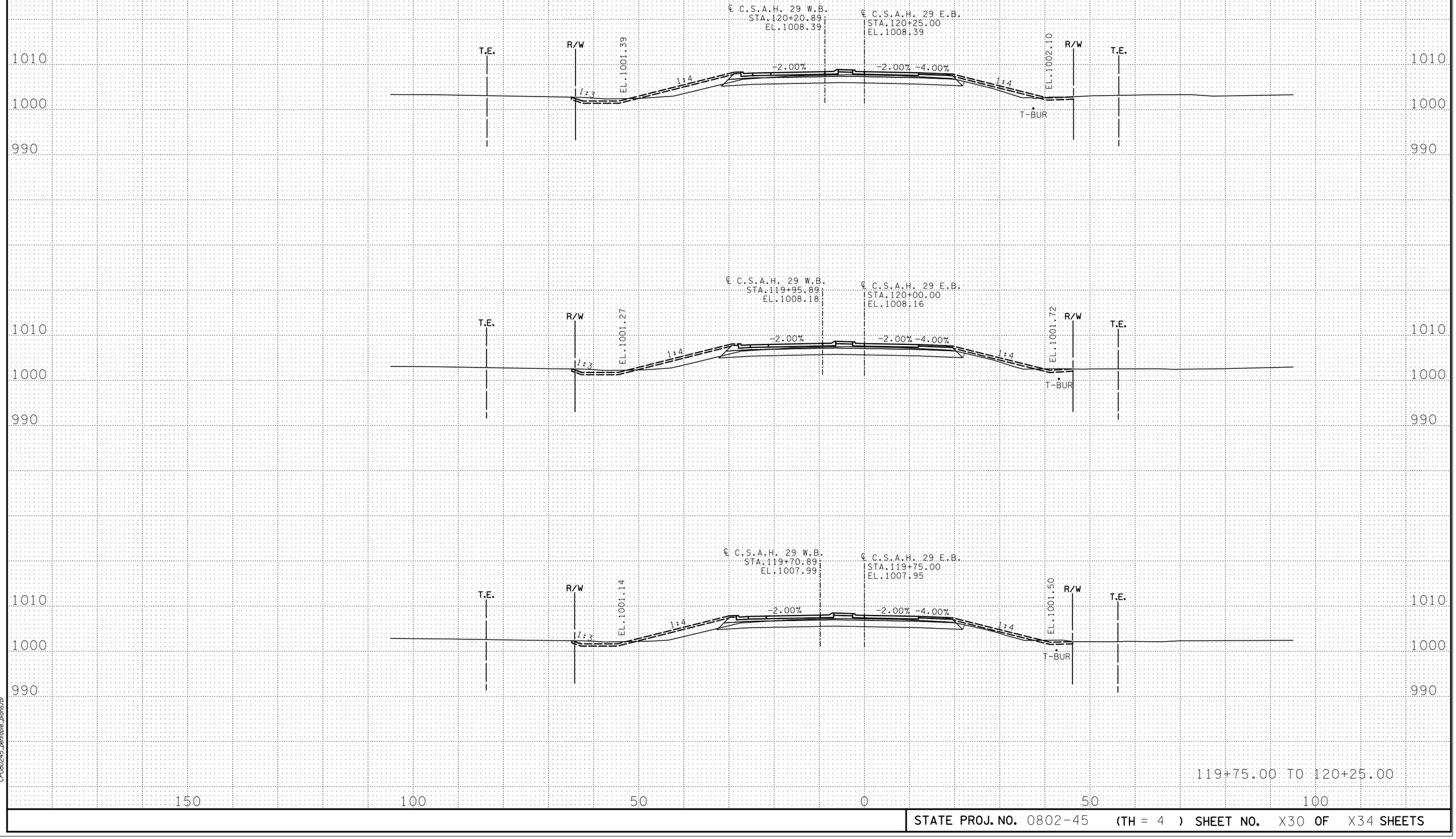




118+25.00 TO 118+75.00





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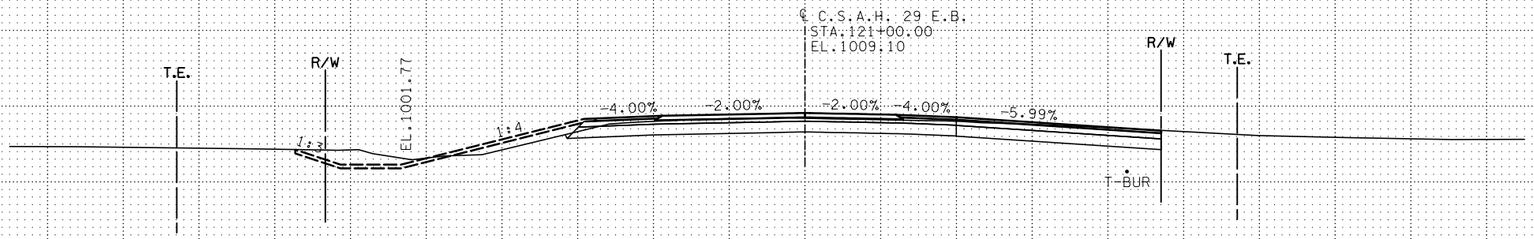
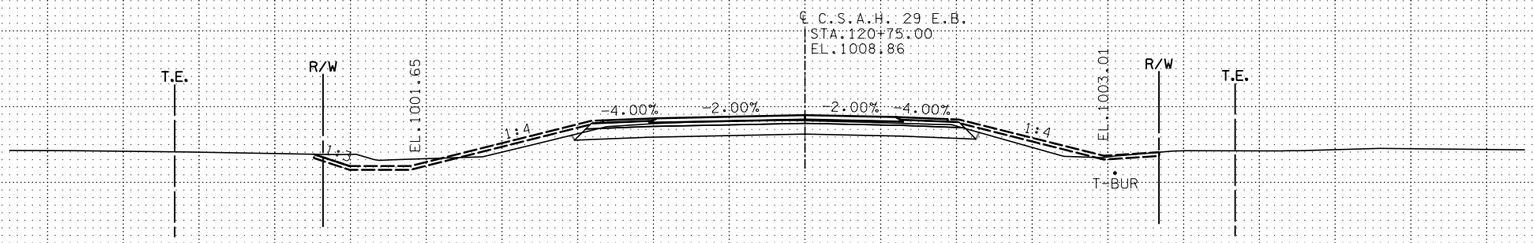
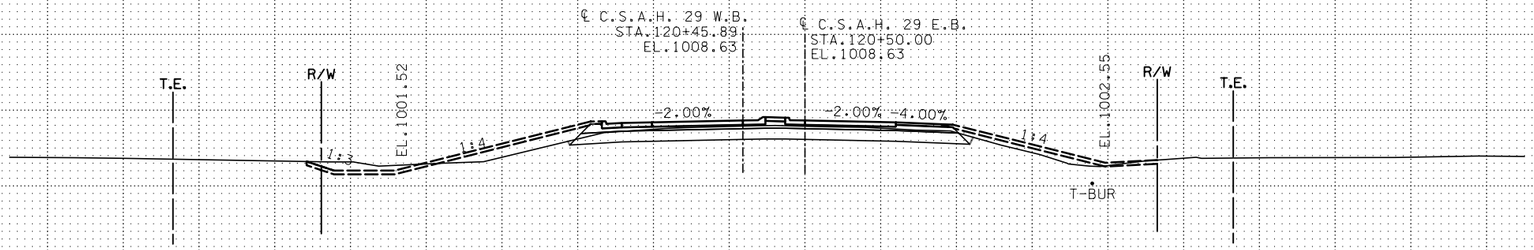


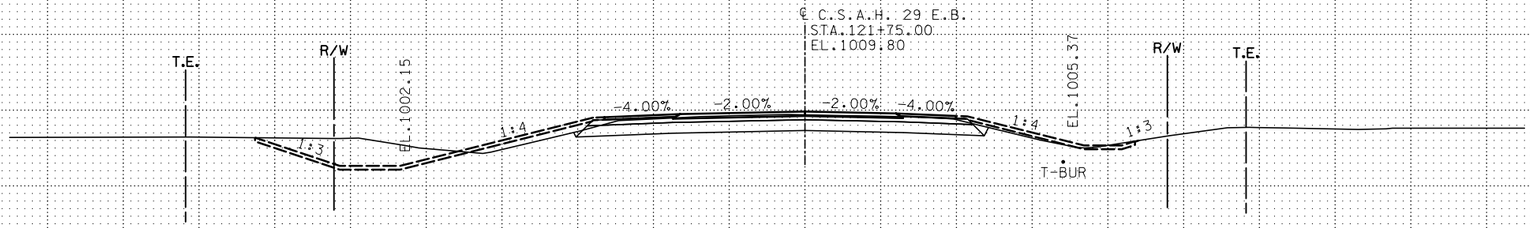


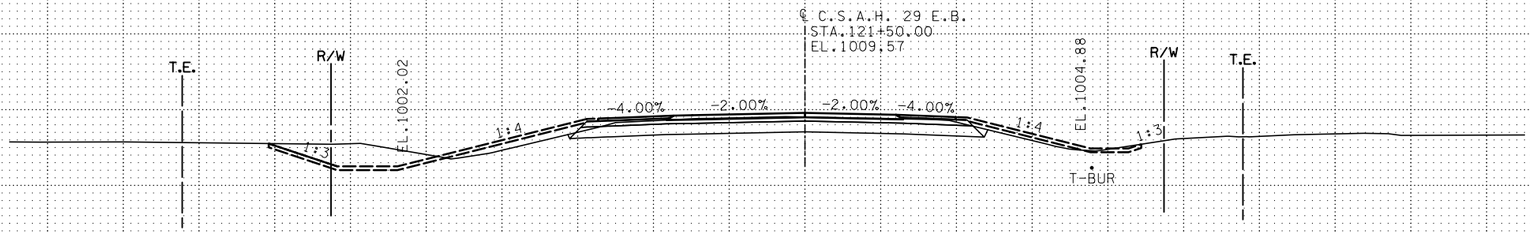


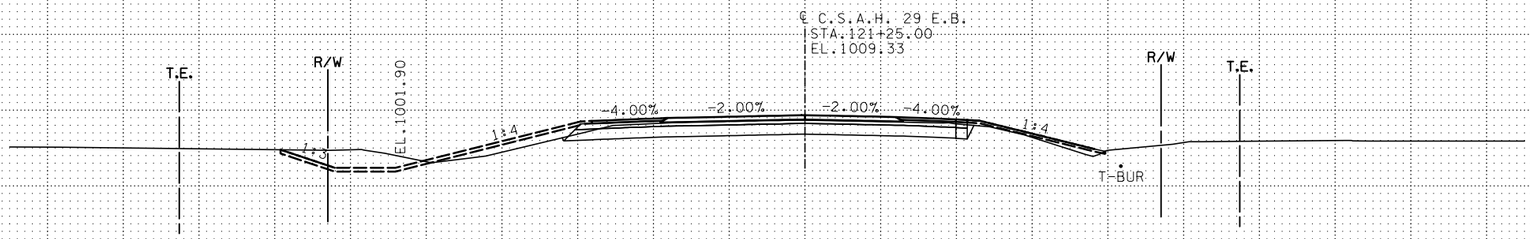
120+50.00 TO 121+00.00

150 100 50 0 50 100

STATE PROJ. NO. 0802-45 (TH = 4) SHEET NO. X31 OF X34 SHEETS







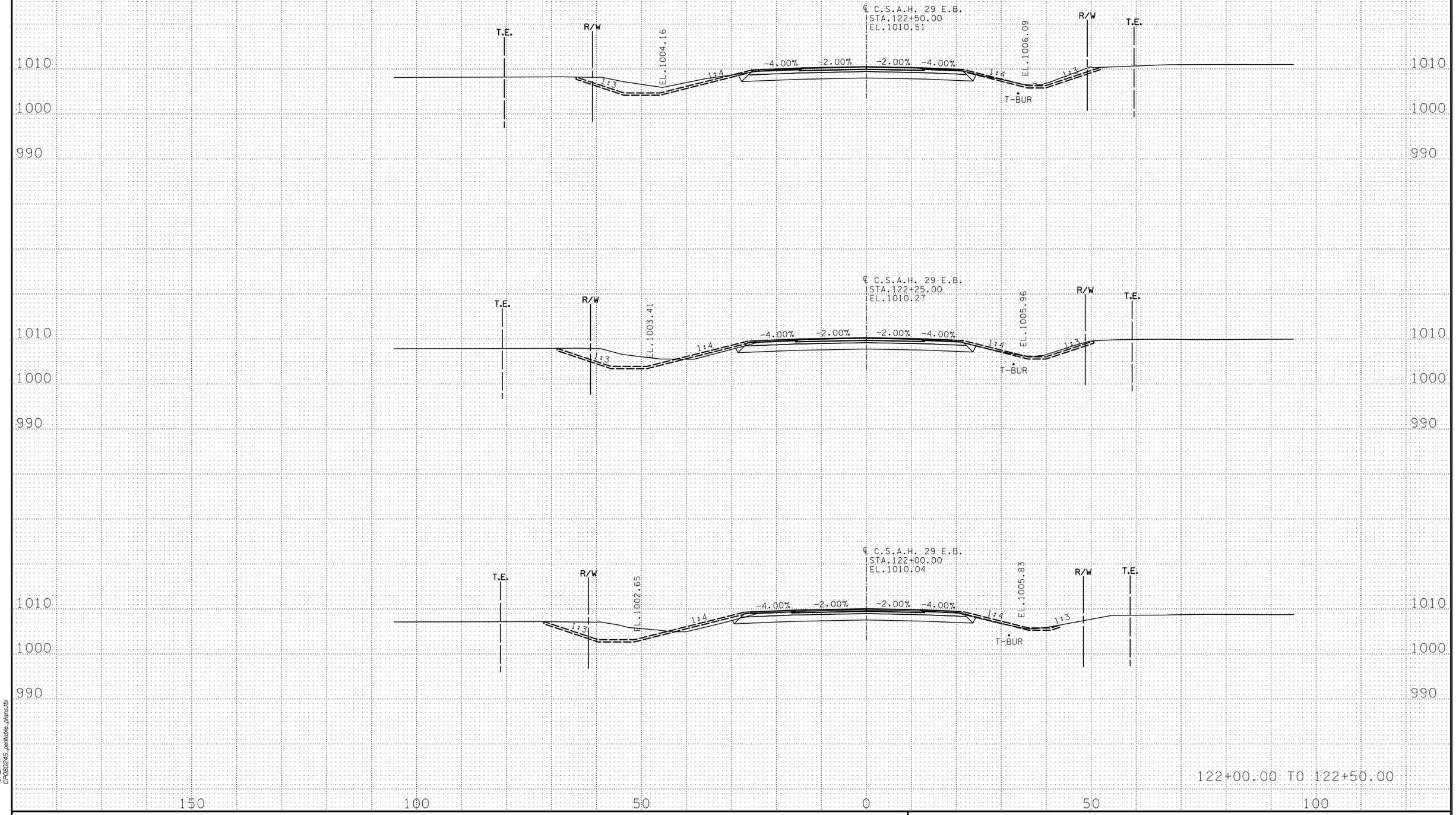
1010
1000
990

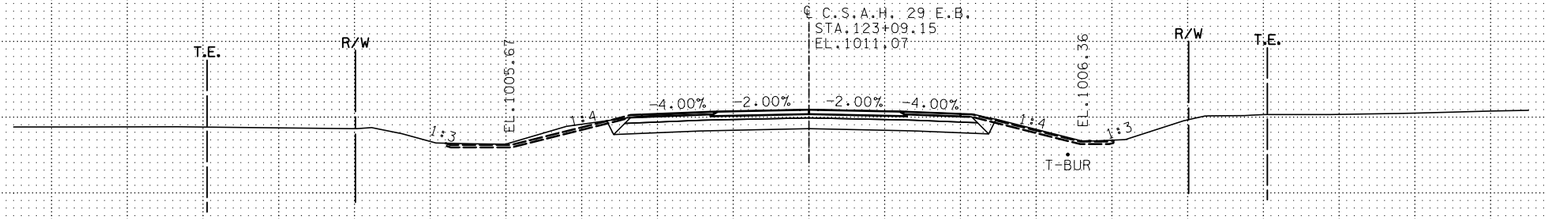
121+25.00 TO 121+75.00

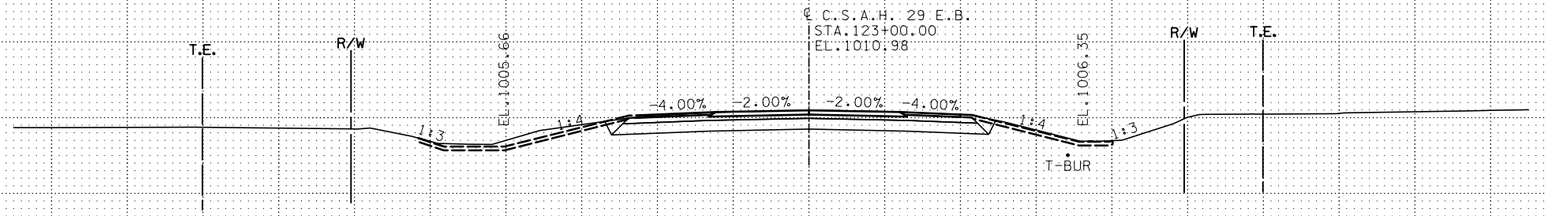
150 100 50 0 50 100

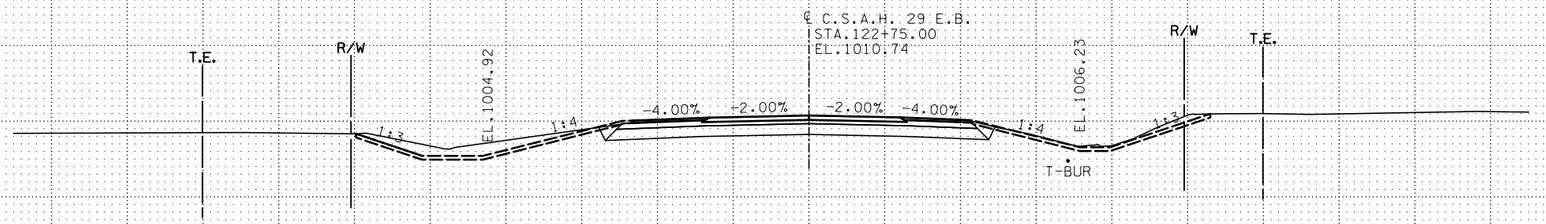
c:\pwworkhighcentral01\d0331450\CD080245_CR29_xs.dgn
5:40:47 PM
10/27/17
CP080245_pentable_plans.tbl

STATE PROJ. NO. 0802-45 (TH = 4) SHEET NO. X32 OF X34 SHEETS









1010
1000
990

150 100 50 0 50 100

122+75.00 TO 123+09.15

c:\pwworkhyl\central\0\d0331450\CD080245_CR29_xs.dgn
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10/27/17
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