

MINNESOTA DEPARTMENT OF TRANSPORTATION

HENNEPIN COUNTY TRANSPORTATION DEPARTMENT

CONSTRUCTION PLAN FOR GRADING, BITUMINOUS SURFACING, BOX CULVERT, ADA IMPROVEMENT AND SIGNALS

COUNTY STATE AID HIGHWAY NO. 81

CITY OF BROOKLYN PARK

FROM 200' NORTH OF CSAH 8 TO 200' SOUTH OF 83RD AVENUE

GROSS LENGTH **8733.66 FEET** **1.654 MILES**
 BRIDGE LENGTH **FEET** **MILES**
 EXCEPTION LENGTH **FEET** **MILES**
 NET LENGTH **8733.66 FEET** **1.654 MILES**

LENGTH AND DESCRIPTION BASED UPON N.B. 81



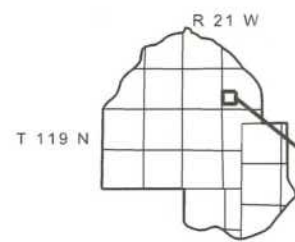
AGREEMENT NO. 1033375
 HENNEPIN COUNTY
 S.P. 2750-101 (TH 169 = 003)
 LOCAL FUNDS
 METRO DISTRICT

REF POINT
 137+00.553 TO 137+00.783



PROJECT LOCATION
 HENNEPIN COUNTY
 MNDOT METRO DISTRICT

END HENNEPIN COUNTY
 PROJECT NO. 0922
 S.P. 027-681-035
 S.P. 110-020-040
 NB81 STA. 1389+90.90



PROJECT IS LOCATED WITHIN
 THE FOLLOWING LAND
 SECTIONS:
 T 119 N, R 21 W SECTIONS:
 19, 20, 29, 30



BEGIN HENNEPIN COUNTY
 PROJECT NO. 0922
 S.P. 027-681-035
 S.P. 110-020-040
 NB81 STA. 1302+57.24

SCALES

PLAN	100'
GENERAL LAYOUT	400'
INDEX MAP	2000'
PROFILE	100' HORIZ. 10' VERT.
DRAINAGE PROFILES	100' HORIZ. 10' VERT.

THE SUBSURFACE UTILITY INFORMATION
 IN THIS PLAN IS UTILITY QUALITY LEVEL D.
 THIS QUALITY LEVEL WAS DETERMINED
 ACCORDING TO GUIDELINES OF CI/ASCE
 38-02 ENTITLED "STANDARD GUIDELINES
 FOR THE COLLECTION AND DEPICTION OF
 EXISTING SUBSURFACE UTILITY DATA."

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: _____

DESIGN DESIGNATION	C.S.A.H 81	C.S.A.H 130 & C.S.A.H. 152	MULTI-USE PATH
R-VALUE	50	50	
ADT (CURRENT YEAR) 2019	25,300	20,500	Design speed not achieved at:
ADT (DESIGN YEAR) 2039	37,600	30,500	Trail: 459+58.90 to 459+80.37 - Intersection
T (HEAVY COMMERCIAL)	8.0%	5.5%	Trail: 556+69.54 to 557+24.66 - Stop Condition
PAVEMENT DESIGN	10 TON	10 TON	Trail: 560+00.00 to 560+54.33 - Stop Condition
FUNCTIONAL CLASS	A MINOR EXPANDER	A MINOR RELIEVER	Trail: 571+50.57 to 571+91.88 - Stop Condition
NO. OF TRAFFIC LANES	6	4	EB CSAH 130: 196+41 TO 197+86 - Stop Condition
NO. OF PARKING LANES	0	0	
SHOULDER WIDTH	N/A	N/A	
ESALS $\sum N^{18}$ (20)	4,100,000	3,500,000	
DESIGN SPEED	45 MPH	40 MPH	20 MPH
BASED ON SIGHT DISTANCE	STOPPING	STOPPING	
HEIGHT OF EYE / HEIGHT OF OBJECT	3.5' / 2.0'	3.5' / 2.0'	4.5' / 0'

MINN. PROJ. NO. _____ STPF 2719(168)
 GOVERNING SPECIFICATIONS

THE 2018 EDITION OF THE MINNESOTA DEPARTMENT OF TRANSPORTATION
 "STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION", SHALL
 GOVERN. ALL TRAFFIC CONTROL DEVICES SHALL CONFORM TO THE MOST
 RECENT EDITION OF THE "MINNESOTA MANUAL ON UNIFORM TRAFFIC
 CONTROL DEVICES INCLUDING "FIELD MANUAL FOR TEMPORARY TRAFFIC
 CONTROL ZONE LAYOUTS".

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THIS PLAN CONTAINS 657 SHEETS

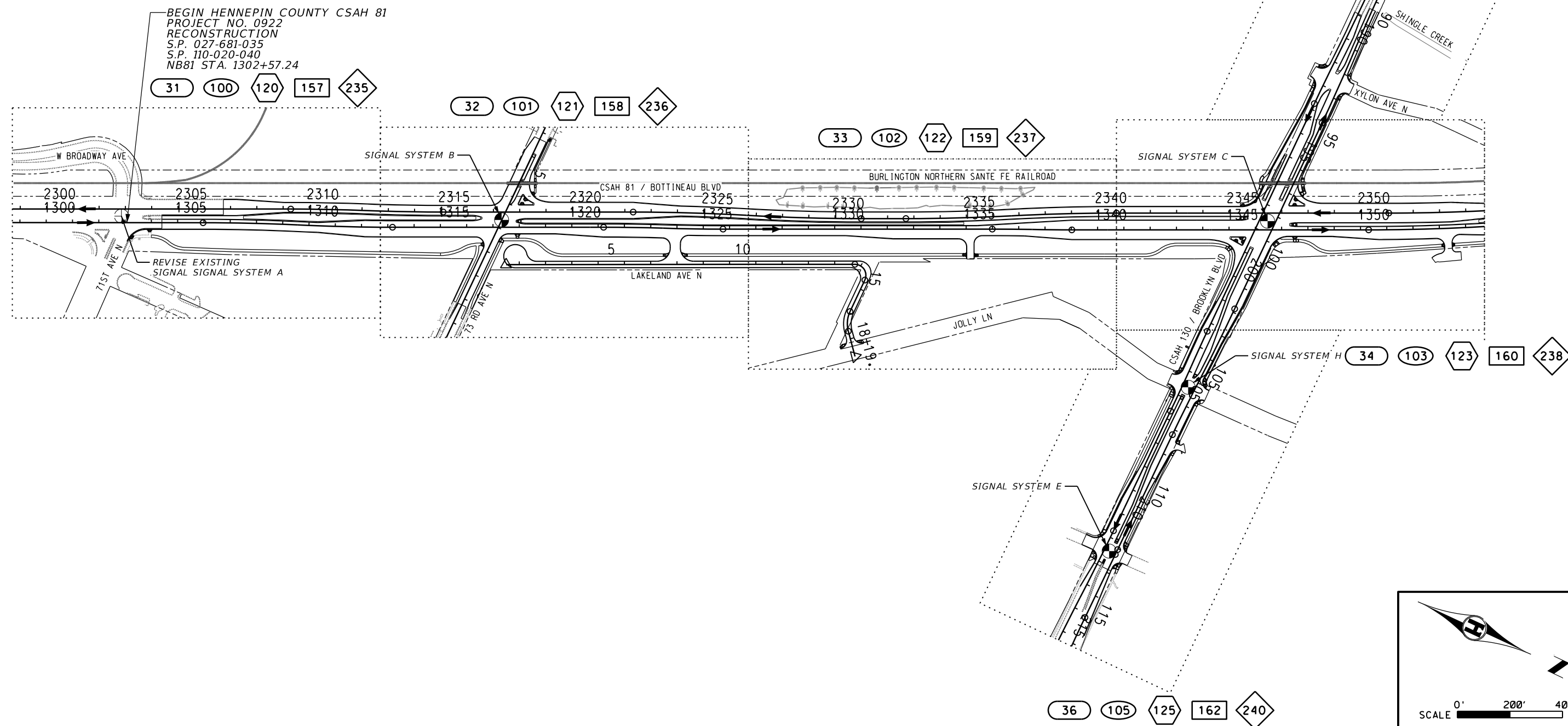
APPROVED	<i>Carla Jensen</i>	3/15/19
	HENNEPIN COUNTY: COUNTY HIGHWAY ENGINEER	DATE
RECOMMENDED FOR APPROVAL	<i>John J. Frank</i>	3/15/19
	HENNEPIN COUNTY: DESIGN DIVISION ENGINEER	DATE
APPROVED	<i>John J. Frank</i>	3/19/19
	CITY OF BROOKLYN PARK: CITY ENGINEER	DATE
RECOMMENDED FOR APPROVAL	<i>Steve Muegg</i>	3/20/19
	DISTRICT TRAFFIC ENGINEER	DATE
RECOMMENDED FOR APPROVAL	N/A	-
	DISTRICT WATER RESOURCES/HYDRAULICS ENGINEER	DATE
APPROVED	<i>Anna Sahr</i>	3/21/19
	DISTRICT TRANSPORTATION ENGINEER	DATE
APPROVED	<i>D. J. E. L...</i>	3/19/19
	DISTRICT STATE AID ENGINEER: REVIEWED FOR COMPLIANCE WITH STATE AND FEDERAL AID RULES/POLICY	DATE
APPROVED	<i>D. J. E. L...</i>	3/19/19
	APPROVED FOR STATE AND FEDERAL AID FUNDING: STATE AID ENGINEER	DATE

	I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA. <i>Kelly Agosto</i> KELLY AGOSTO, LICENSED PROFESSIONAL ENGINEER	49075 LICENSE NO.	3/15/19 DATE	DESIGN SQUAD S. PARK R. DECOTEAU K. ALBRECHT E. GUIR L. LANGNER	TITLE SHEET	SHEET 1 / 244
	C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922 SP 2750-101 (TH 169=003), S.P. 027-681-035, S.P. 110-020-040					

PLAN SHEET LAYOUT

- XX INPLACE TOPOGRAPHY AND UTILITY PLAN
- XX REMOVAL PLAN
- XX CONSTRUCTION PLAN
- XX SUPERELEV. DRAINAGE & TURF ESTABLISHMENT PLAN
- XX RIGHT OF WAY PLAN

CITY OF BROOKLYN PARK



BEGIN HENNEPIN COUNTY CSAH 81
PROJECT NO. 0922
RECONSTRUCTION
S.P. 027-681-035
S.P. 110-020-040
NB81 STA. 1302+57.24



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Kelly Agosto
KELLY AGOSTO, LICENSED PROFESSIONAL ENGINEER

49075 3/15/19
LICENSE NO. DATE

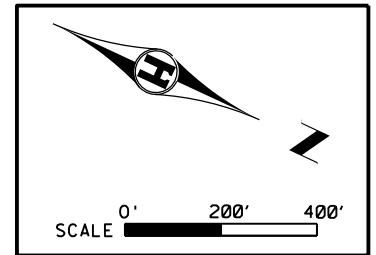
DESIGN BY: L. LANGNER
CAD BY: E. GUIR
CHECKED BY: R. DECOTEAU
LAST REVISION: / /

GENERAL LAYOUT

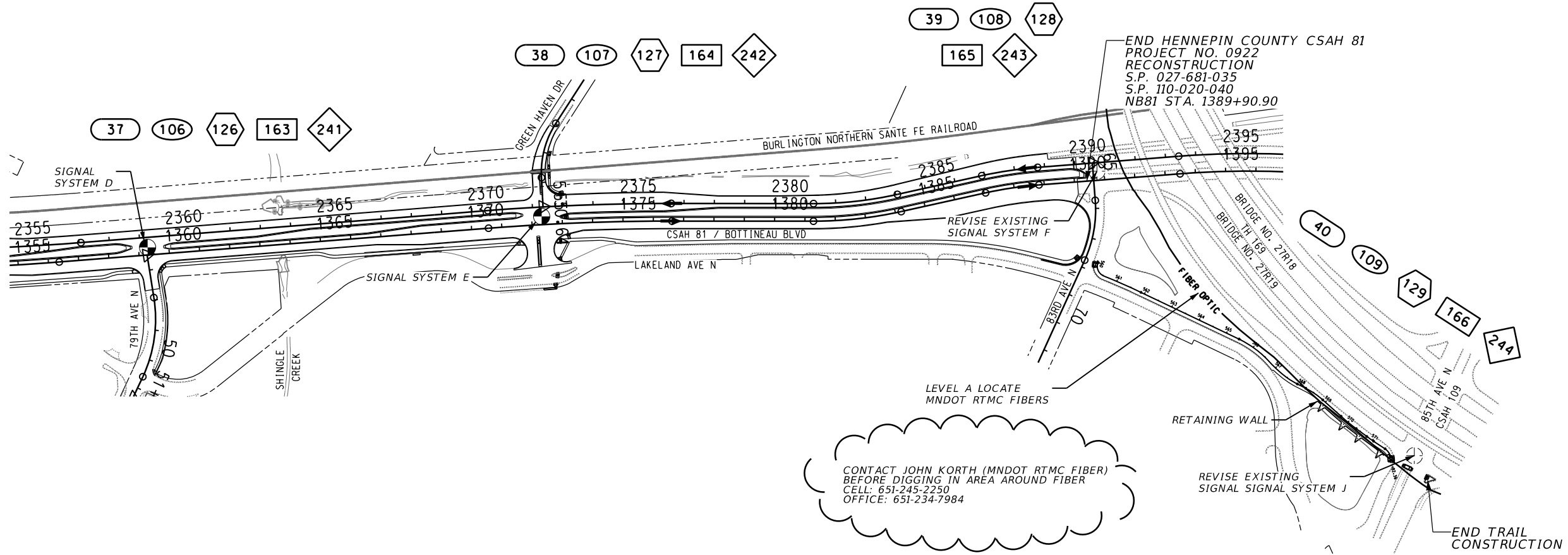
C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
S.P. 027-681-035, S.P. 110-020-040

SHEET
2
244

PLAN SHEET LAYOUT	
XX	INPLACE TOPOGRAPHY AND UTILITY PLAN
XX	REMOVAL PLAN
XX	CONSTRUCTION PLAN
XX	SUPERELEV. DRAINAGE & TURF ESTABLISHMENT PLAN
XX	RIGHT OF WAY PLAN



CITY OF BROOKLYN PARK



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Kelly Agosto
 KELLY AGOSTO, LICENSED PROFESSIONAL ENGINEER
 49075 LICENSE NO. 3/15/19 DATE

DESIGN BY: L. LANGNER
 CAD BY: E. GUIR
 CHECKED BY: R. DECOTEAU
 LAST REVISION: / /

GENERAL LAYOUT
 C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
 S.P. 027-681-035, S.P. 110-020-040

SHEET
 3 / 244

04/22/19 ITEMS ADDED AND REMOVED. QUANTITIES CHANGED. AND NOTES ADDED

NOTES	TAB	SHEET NO.	ITEM NO.	ITEM DESCRIPTION	UNIT	TOTAL PROJECT QUANTITY	FEDERAL/STATE AID PARTICIPATING				NON PARTICIPATING	
							HENNEPIN CO SP 027-681-035	BROOKLYN PARK SP 110-020-040	STORM SEWER SP 027-681-035 SP 110-020-040	THREE RIVERS PARK DISTRICT TRAIL	BROOKLYN PARK LOCAL	MET COUNCIL
							QUANTITY	QUANTITY	QUANTITY	QUANTITY	QUANTITY	QUANTITY
(11)			2021.501	MOBILIZATION	LS	1	0.71	0.06	0.16	0.02	0.05	
(11)			2031.502	FIELD OFFICE TYPE D	EACH	1	0.71	0.06	0.16	0.02	0.05	
(11)			2031.502	FIELD LABORATORY TYPE D	EACH	1	0.7	0.06	0.16	0.0	0.05	
(10)			2041.610	TRAINEES	HOURL	2300	2300					
(12)(13)(17)	D	17	2101.524	CLEARING	TREE	67	61.5			5.5		
(13)(17)	D	17	2101.524	GRUBBING	TREE	67	61.5			5.5		
			2102.503	PAVEMENT MARKING REMOVAL	LF	1000	1000					
			2102.518	PAVEMENT MARKING REMOVAL	SF	300	300					
(10)	D	17	2103.501	BUILDING REMOVAL	LS	1	1					
(1)			2104.502	REMOVE BOX CULVERT	EACH	1	1					
	K	30	2104.502	REMOVE PIPE APRON	EACH	48	48					
			2104.502	REMOVE MANHOLE	EACH	6					2	4
	EXT. WM	SW3	2104.502	REMOVE GATE VALVE & BOX	EACH	13					13	
	EXT. WM	SW3	2104.502	REMOVE CURB STOP & BOX	EACH	4					4	
	EXT. WM	SW3	2104.502	REMOVE HYDRANT	EACH	6					6	
	K	30	2104.502	REMOVE DRAINAGE STRUCTURE	EACH	53	53					
(17)	SIGN & STRIPE	ST1	2104.502	REMOVE SIGN TYPE C	EACH	153	148			5		
	SIGN & STRIPE	ST1	2104.502	REMOVE SIGN TYPE D	EACH	8	8					
	SIGN & STRIPE	ST1	2104.502	REMOVE SIGN TYPE SPECIAL	EACH	1	1					
(10)	SIGNAL	SS2	2104.502	REMOVE SIGNAL SYSTEM B	EACH	1	1					
(10)	SIGNAL	SS2	2104.502	REMOVE SIGNAL SYSTEM C	EACH	1	1					
	E	17	2104.502	REMOVE ENERGY ABSORBING TERMINAL	EACH	3	3					
	SAN SEWER	SW2	2104.502	SALVAGE CASTING	EACH	1					1	
	SIGN & STRIPE	ST1	2104.502	SALVAGE SIGN TYPE D	EACH	14	14					
	SIGN & STRIPE	ST1	2104.502	SALVAGE SIGN TYPE SPECIAL	EACH	1	1					
(17)	D	17	2104.503	SAWING CONCRETE PAVEMENT (FULL DEPTH)	LF	63	31.5			31.5		
(17)	D	17	2104.503	SAWING BIT PAVEMENT (FULL DEPTH)	LF	3310	3300			10		
			2104.503	REMOVE PIPE CULVERTS	LF	1707	1707					
	EXT. WM	SW3	2104.503	REMOVE WATER MAIN	LF	4171					4171	
	K	30	2104.503	REMOVE SEWER PIPE (STORM)	LF	3618	3618					
			2104.503	REMOVE SEWER PIPE (SANITARY)	LF	2170						2170
(17)	D	17	2104.503	REMOVE CURB & GUTTER	P	12485	12445.5			39.5		
(17)	D	17	2104.503	REMOVE CHAIN LINK FENCE	LF	700	350			350		
	E	17	2104.503	REMOVE GUARDRAIL-PLATE BEAM	LF	789	789					
	EXT. WM	SW3	2104.503	REMOVE STEEL CASING	LF	350					350	
	D	17	2104.504	REMOVE PAVEMENT	S Y	34270	34270					
	D	17	2104.504	REMOVE CONCRETE DRIVEWAY PAVEMENT	P	430	430					
(17)	D	17	2104.504	REMOVE BITUMINOUS PAVEMENT	P	81627	81625			2		
	D	17	2104.518	REMOVE BITUMINOUS WALK	S F	641	641					
(17)	D	17	2104.518	REMOVE CONCRETE WALK	P	37808	37611.5			196.5		
(17)	D	17	2104.518	REMOVE CONCRETE PAVEMENT	S F	14	7			7		
	D	17	2104.518	REMOVE BITUMINOUS DRIVEWAY PAVEMENT	P	5823	5823					
(10)	SIGNAL	SS2	2104.602	REMOVE SIGNAL SYSTEM D	EACH	1	1					
(10)	SIGNAL	SS2	2104.602	REMOVE SIGNAL SYSTEM E	EACH	1	1					
(10)	SIGNAL	SS2	2104.602	REMOVE SIGNAL SYSTEM H	EACH	1	1					
(10)	SIGNAL	SS2	2104.602	REMOVE SIGNAL SYSTEM I	EACH	1	1					
	D	17	2104.603	REMOVE LANDSCAPE TIMBER	P	237	237					
(7)			2105.504	GEOTEXTILE FABRIC TYPE 5	S Y	5346	5346					
			2105.601	DEWATERING	LS	1	1					
(9)(10)	EW	9	2105.607	EXCAVATION SPECIAL	C Y	3234	2899			335		
	EW	9	2105.607	COMMON BORROW SPECIAL (CV)	C Y	2531				2531		
(9)(10)	EW	9	2105.609	HAUL & DISPOSE OF CONTAMINATED MATERIAL	TON	6145	5508			637		
(17)	EW	9	2106.507	EXCAVATION - COMMON	P	113256	113205.5			50.5		
	EW	9	2106.507	EXCAVATION - SUBGRADE	P	38920	38920					
	EW	9	2106.507	SELECT GRANULAR EMBANKMENT (CV)	P	45095	45095					
(17)	EW	9	2106.507	COMMON EMBANKMENT (CV)	P	41136	40314			822		
(9)			2123.610	STREET SWEEPER (WITH PICKUP BROOM)	HOURL	280	280					
(16)(17)(24)	B	16	2211.507	AGGREGATE BASE (CV) CLASS 5	P	35142	33621	1374		147		
(9)			2231.509	BITUMINOUS PATCHING MIXTURE	TON	100	100					
	B	16	2360.504	TYPE SP 12.5 WEAR CRS MIX(4:F)2.5" THICK	S Y	34	34					



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Kelly Agosto
KELLY AGOSTO, LICENSED PROFESSIONAL ENGINEER
49075, LICENSE NO.
3/15/19, DATE

DESIGN BY: **O. AFOLABI**
 CAD BY: **E. GUIR**
 CHECKED BY: **L. LANGNER**
 LAST REVISION: **4/22/19**

STATEMENT OF ESTIMATED QUANTITIES

C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
 S.P. 027-681-035, S.P. 110-020-040

SHEET
 R4.1
 244

04/25/19 QUANTITY CHANGED AND NOTE ADDED

NOTES	TAB	SHEET NO.	ITEM NO.	ITEM DESCRIPTION	UNIT	TOTAL PROJECT QUANTITY	FEDERAL/STATE AID PARTICIPATING				NON PARTICIPATING	
							HENNEPIN CO SP 027-681-035	BROOKLYN PARK SP 110-020-040	STORM SEWER SP 027-681-035 SP 110-020-040	THREE RIVERS PARK DISTRICT TRAIL	BROOKLYN PARK LOCAL	MET COUNCIL
							QUANTITY	QUANTITY	QUANTITY	QUANTITY	QUANTITY	QUANTITY
	B	16	2360.509	TYPE SP 9.5 WEARING COURSE MIX (2,C)	TON	2450	1223.5	1102				
(26)	B	16	2360.509	TYPE SP 12.5 NON WEAR COURSE MIX (3,B)	TON	1425	1425					
	B	16	2360.509	TYPE SP 12.5 WEARING COURSE MIX (3,F)	TON	580	590					
(17)	B	16	2360.509	TYPE SP 12.5 NON WEAR COURSE MIX (4,B)	TON	19424	19422.5			1.5		
(17)	B	16	2360.509	TYPE SP 12.5 WEARING COURSE MIX (4,F)	TON	25900	25898.5			1.5		
	B	16	2360.604	TYPE SP 12.5 WEAR CRS MIX(4,F)4.5" THICK	SY	293	293					
(3)		219	2401.508	REINFORCEMENT BARS	P LB	2582	2582					
(2)(17)		217 - 219	2401.508	REINFORCEMENT BARS (EPOXY COATED)	P LB	8110	5516			2594		
(3)		219	2411.507	STRUCTURAL CONCRETE (1G52)	P C Y	24.4	24.4					
(4)(17)		217 - 219	2411.507	STRUCTURAL CONCRETE (3G52)	P C Y	124.9	77.4			47.5		
		219	2411.507	STRUCTURE EXCAVATION CLASS E	P C Y	752	752					
(7)(17)		217	2411.618	ARCH SURFACE FINISH (SPECIAL)	P S F	2998	1499			1499		
(7)(17)		217	2411.618	ARCH CONC TEXTURE (LIMESTONE)	P S F	1564	782.5			781.5		
		219 - 244	2412.502	8X6 PRECAST CONCRETE BOX CULV END SECT	EACH	1	1					
		219 - 244	2412.503	8X6 PRECAST CONCRETE BOX CULVERT	P L F	158	158					
(6)		219	2451.507	COARSE FILTER AGGREGATE (CV)	P C Y	236	236					
	EW	9	2451.607	MEDIUM FILTER AGGREGATE (CV)	C Y	135		135				
		219	2451.607	STRUCTURAL BACKFILL	C Y	210	210					
(17)		217	2452.618	STEEL SHEET PILING	P S F	7709	3854.5			3854.5		
(19)	STORM SEWER	187 - 215	2501.502	12" CS PIPE APRON	EACH	1			1			
(19)	STORM SEWER	187 - 215	2501.502	12" RC PIPE APRON	EACH	28			28			
(19)	STORM SEWER	187 - 215	2501.502	15" RC PIPE APRON	EACH	10			10			
(19)	STORM SEWER	187 - 215	2501.502	18" RC PIPE APRON	EACH	2			2			
(19)	STORM SEWER	187 - 215	2501.502	21" RC PIPE APRON	EACH	2			2			
(19)	STORM SEWER	187 - 215	2501.502	24" RC PIPE APRON	EACH	1			1			
(19)	STORM SEWER	187 - 215	2501.502	30" RC PIPE APRON	EACH	3			3			
(19)	STORM SEWER	187 - 215	2501.502	36" RC PIPE APRON	EACH	3			3			
(19)	STORM SEWER	187 - 215	2501.502	42" RC PIPE APRON	EACH	1			1			
(19)	STORM SEWER	187 - 215	2501.502	28" SPAN RC PIPE-ARCH APRON	EACH	1			1			
(19)	STORM SEWER	187 - 215	2501.502	58" SPAN RC PIPE-ARCH APRON	EACH	1			1			
(19)			2501.602	TRASH GUARD FOR 12" PIPE APRON	EACH	1			1			
(19)			2501.602	TRASH GUARD FOR 15" PIPE APRON	EACH	2			2			
(19)			2501.602	TRASH GUARD FOR 24" PIPE APRON	EACH	1			1			
(19)			2501.602	TRASH GUARD FOR 30" PIPE APRON	EACH	3			3			
(19)			2501.602	TRASH GUARD FOR 36" PIPE APRON	EACH	3			3			
(19)			2501.602	TRASH GUARD FOR 42" PIPE APRON	EACH	1			1			
(19)			2501.602	WEIR PLATE	EACH	6			6			
(19)			2501.602	TRASH GUARD FOR 58" SPAN PIPE APRON	EACH	1			1			
	F	17	2502.503	4" TP PIPE DRAIN	L F	235	235					
	F	17	2502.503	6" TP PIPE DRAIN	L F	681	681					
	F	17	2502.503	4" PERF PE PIPE DRAIN	L F	3620	3620					
	F	17	2502.503	6" PERF PE PIPE DRAIN	L F	3102			3102			
(19)	STORM SEWER	187 - 215	2502.602	CONNECT TO EXISTING PIPE DRAIN	EACH	12			12			
(19)	STORM SEWER	187 - 215	2503.503	12" CS PIPE SEWER	L F	27			27			
(19)			2503.503	6" PVC PIPE SEWER	L F	40			40			
(19)	STORM SEWER	187 - 215	2503.503	10" PVC PIPE SEWER	L F	8			8			
(14)(19)	STORM SEWER	187 - 215	2503.503	28" SPAN RC PIPE-ARCH SEWER CL IIA	L F	59			59			
(14)(19)	STORM SEWER	187 - 215	2503.503	36" SPAN RC PIPE-ARCH SEWER CL IIA	L F	404			404			
(14)(19)	STORM SEWER	187 - 215	2503.503	44" SPAN RC PIPE-ARCH SEWER CL IIA	L F	94			94			
(14)(19)	STORM SEWER	187 - 215	2503.503	58" SPAN RC PIPE-ARCH SEWER CL IIA	L F	602			602			
(19)(25)	STORM SEWER	187 - 215	2503.503	12" RC PIPE SEWER DES 3006 CL V	L F	737			737			
(19)(25)	STORM SEWER	187 - 215	2503.503	15" RC PIPE SEWER DES 3006 CL V	L F	10894			10894			
(19)(25)	STORM SEWER	187 - 215	2503.503	18" RC PIPE SEWER DES 3006 CL III	L F	2313			2313			
(19)	STORM SEWER	187 - 215	2503.503	18" RC PIPE SEWER DES 3006 CL IV	L F	240			240			
(19)(25)	STORM SEWER	187 - 215	2503.503	21" RC PIPE SEWER DES 3006 CL III	L F	1649			1649			
(19)(25)	STORM SEWER	187 - 215	2503.503	24" RC PIPE SEWER DES 3006 CL III	L F	1109			1109			
(19)(25)	STORM SEWER	187 - 215	2503.503	27" RC PIPE SEWER DES 3006 CL III	L F	2044			2044			
(19)(25)	STORM SEWER	187 - 215	2503.503	30" RC PIPE SEWER DES 3006 CL III	L F	379			379			
(19)(25)	STORM SEWER	187 - 215	2503.503	36" RC PIPE SEWER DES 3006 CL III	L F	885			885			
(19)(25)	STORM SEWER	187 - 215	2503.503	42" RC PIPE SEWER DES 3006 CL III	L F	273			273			



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.

Kelly Agosto
 KELLY AGOSTO, LICENSED PROFESSIONAL ENGINEER
 49075 LICENSE NO. 3/15/19 DATE

DESIGN BY: O. AFOLABI
 CAD BY: E. GUIR
 CHECKED BY: L. LANGNER
 LAST REVISION: 4/25/19

STATEMENT OF ESTIMATED QUANTITIES

C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
 S.P. 027-681-035, S.P. 110-020-040

SHEET
 R5.2
 244

⚠ 04/22/19 ITEMS ADDED AND REMOVED. QUANTITIES CHANGED. AND NOTES ADDED

NOTES	TAB	SHEET NO.	ITEM NO.	ITEM DESCRIPTION	UNIT	TOTAL PROJECT QUANTITY	FEDERAL/STATE AID PARTICIPATING				NON PARTICIPATING	
							HENNEPIN CO SP 027-681-035	BROOKLYN PARK SP 110-020-040	STORM SEWER SP 027-681-035 SP 110-020-040	THREE RIVERS PARK DISTRICT TRAIL	BROOKLYN PARK LOCAL	MET COUNCIL
							QUANTITY	QUANTITY	QUANTITY	QUANTITY	QUANTITY	QUANTITY
	DETAILS	81	2503.603	TRENCH DRAIN	LF	10						
			2503.603	PLUG FILL & ABANDON PIPE SEWER	LF	3689						3689
(22)	WM	SW4	2504.602	CONNECT TO EXISTING WATER MAIN	EACH	10						10
(22)	WM	SW4	2504.602	HYDRANT	EACH	7						7
(22)	WM	SW4	2504.602	ADJUST GATE VALVE & BOX	EACH	2						2
⚠ (22)	WM	SW4	2504.602	1" CORPORATION STOP	EACH	4						4
(22)	WM	SW4	2504.602	6" GATE VALVE & BOX	EACH	7						7
(22)	WM	SW4	2504.602	8" GATE VALVE & BOX	EACH	9						9
⚠ (22)	WM	SW4	2504.602	16" GATE VALVE & BOX	EACH	3						3
(22)	WM	SW4	2504.602	1" CURB STOP & BOX	EACH	4						4
⚠ (9) (19)			2504.603	INSPECTION HOLE	LF	100	100					
(22)	WM	SW4	2504.603	1" TYPE K COPPER PIPE	LF	200						200
(22)	WM	SW4	2504.603	6" WATERMAIN DUCTILE IRON CL 52	LF	222						222
(22)	WM	SW4	2504.603	8" WATERMAIN DUCTILE IRON CL 52	LF	1986						1986
(22)	WM	SW4	2504.603	10" WATERMAIN DUCTILE IRON CL 52	LF	45						45
(22)	WM	SW4	2504.603	16" WATERMAIN DUCTILE IRON CL 52	LF	2311						2311
(22)	WM	SW4	2504.603	WATERMAIN LINING	LF	245						245
(22)	WM	SW4	2504.604	4" POLYSTYRENE INSULATION	S.Y.	63						63
⚠ (22)	WM	SW4	2504.608	DUCTILE IRON FITTINGS	LB	4430.5						4430.5
(10) (19)	STORM SEWER	187 - 215	2506.502	CONST DRAINAGE STRUCTURE DESIGN SPEC 1	EACH	1						1
(10) (19)	STORM SEWER	187 - 215	2506.502	CONST DRAINAGE STRUCTURE DESIGN SPEC 2	EACH	1						1
(10) (19)	STORM SEWER	187 - 215	2506.502	CONST DRAINAGE STRUCTURE DESIGN SPEC 3	EACH	1						1
(19)	STORM SEWER	187 - 215	2506.502	CASTING ASSEMBLY	EACH	321						321
⚠ (22)	SAN SEWER	SW2	2506.502	INSTALL CASTING	EACH	1						1
	K	30	2506.502	ADJUST FRAME & RING CASTING	EACH	6	6					
(19)	STORM SEWER	187 - 215	2506.503	CONST DRAINAGE STRUCTURE DESIGN F	LF	363						363
(19)	STORM SEWER	187 - 215	2506.503	CONST DRAINAGE STRUCTURE DESIGN G	LF	689						688.5
(19)	STORM SEWER	187 - 215	2506.503	CONST DRAINAGE STRUCTURE DESIGN H	LF	29						29
(19)	STORM SEWER	187 - 215	2506.503	CONST DRAINAGE STRUCTURE DESIGN SD-48	LF	26.0						26.0
(19)	STORM SEWER	187 - 215	2506.503	CONST DRAINAGE STRUCTURE DES 48-4020	LF	41						40.9
(19)	STORM SEWER	187 - 215	2506.503	CONST DRAINAGE STRUCTURE DES 60-4020	LF	279						279
(19)	STORM SEWER	187 - 215	2506.503	CONST DRAINAGE STRUCTURE DES 66-4020	LF	10.7						10.7
(19)	STORM SEWER	187 - 215	2506.503	CONST DRAINAGE STRUCTURE DES 72-4020	LF	29.6						29.6
(19)	STORM SEWER	187 - 215	2506.503	CONST DRAINAGE STRUCTURE DES 78-4020	LF	5.1						5.1
(19)	STORM SEWER	187 - 215	2506.503	CONST DRAINAGE STRUCTURE DES 84-4020	LF	13.3						13.3
(19)	STORM SEWER	187 - 215	2506.503	CONST DRAINAGE STRUCTURE DES 90-4020	LF	19.0						19.0
(19)	STORM SEWER	187 - 215	2506.503	CONST DRAINAGE STRUCTURE DES 102-4020	LF	8						8.1
(22)	SAN SEWER	SW2	2506.503	RECONSTRUCT DRAINAGE STRUCTURE	LF	5						4.9
(19)	STORM SEWER	187 - 215	2506.602	STRUCTURE BAFFLE	EACH	10.0						10.0
(19)	STORM SEWER	187 - 215	2506.602	CONNECT TO EXISTING STRUCTURE	EACH	2						2
(10) (19)	STORM SEWER	187 - 215	2506.602	CONST DRAINAGE STRUCTURE DESIGN SPEC 4	EACH	1						1
(10) (19)	STORM SEWER	187 - 215	2506.602	CONST DRAINAGE STRUCTURE DESIGN SPEC 5	EACH	1						1
(10) (19)	STORM SEWER	187 - 215	2511.504	GEOTEXTILE FILTER TYPE 4	S.Y.	913	70					843
(19)	STORM SEWER	187 - 215	2511.507	RANDOM RIPRAP CLASS II	C.Y.	76						76
(19)	STORM SEWER	187 - 215	2511.507	RANDOM RIPRAP CLASS III	C.Y.	157	30					127
			2511.507	RANDOM RIPRAP CLASS IV	C.Y.	40	40					
(19)	STORM SEWER	187 - 215	2511.507	GRANULAR FILTER	C.Y.	39						39
(24)	A	16	2521.518	4" CONCRETE WALK	S.F.	81844	78590.245					3253.755
(17) (24)	A	16	2521.518	6" CONCRETE WALK	S.F.	15474	14145.6					932.4
(17) (20)	A	16	2531.503	CONCRETE CURB & GUTTER DESIGN B424	LF	33424	24971					30
(20)	A	16	2531.503	CONCRETE CURB & GUTTER DESIGN B612	LF	216	108					108
(17) (20) (23)	A	16	2531.503	CONCRETE CURB & GUTTER DESIGN B618	LF	5632	2916					2707
(20)	A	16	2531.503	CONCRETE CURB & GUTTER DESIGN B624	LF	8020	5679					2341
(20)	A	16	2531.503	CONCRETE CURB & GUTTER DESIGN B818	LF	459	459					
(20)	A	16	2531.503	CONCRETE CURB & GUTTER DESIGN B824	LF	596	596					
(16) (20)	A	16	2531.503	CONCRETE CURB & GUTTER DESIGN V1024	LF	295	164					132
(21) (23)	A	16	2531.504	6" CONCRETE DRIVEWAY PAVEMENT	S.Y.	23	11.5					11.5
(21) (23)	A	16	2531.504	8" CONCRETE DRIVEWAY PAVEMENT	S.Y.	529	264.5					264.5
(17)	A	16	2531.603	CONCRETE CURB DESIGN V	LF	304	275.5					28.5
(17) (24)	A	16	2531.618	TRUNCATED DOMES	S.F.	1953	1749.7675					151.7325



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.

Kelly Agosto
 KELLY AGOSTO, LICENSED PROFESSIONAL ENGINEER
 49075 LICENSE NO. 3/15/19 DATE

DESIGN BY: O. AFOLABI
 CAD BY: E. GUIR
 CHECKED BY: L. LANGNER
 LAST REVISION: 4/22/19

STATEMENT OF ESTIMATED QUANTITIES

C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
 S.P. 027-681-035, S.P. 110-020-040

SHEET
 R6.1
 244

04/25/19 ITEMS ADDED AND QUANTITIES CHANGED

NOTES	TAB	SHEET NO.	ITEM NO.	ITEM DESCRIPTION	UNIT	TOTAL PROJECT QUANTITY	FEDERAL/STATE AID PARTICIPATING				NON PARTICIPATING	
							HENNEPIN CO SP 027-681-	BROOKLYN PARK SP 110-020-040	STORM SEWER SP 027-681-035 SP 110-020-040	THREE RIVERS PARK DISTRICT TRAIL	BROOKLYN PARK LOCAL	MET COUNCIL
							QUANTITY	QUANTITY	QUANTITY	QUANTITY	QUANTITY	QUANTITY
(9)		TC18	2533.503	PORTABLE PRECAST CONC BARRIER DES 8337	LF	1200	1200.0					
(9)		TC18	2533.503	RELOCATE PORT PRECAST CONC BAR DES 8337	LF	1200	1200.0					
	EA	17	2540.602	RELOCATE MAIL BOX SUPPORT	EACH	3	3.0					
	E	17	2554.502	END TREATMENT-TANGENT TERMINAL	EACH	1	1					
	E	17	2554.503	TRAFFIC BARRIER DESIGN B8338	LF	204	204					
(9)		TC18	2554.615	IMPACT ATTENUATOR	AMBY	4	4					
(9)		TC18	2554.615	RELOCATE IMPACT ATTENUATOR	AMBY	4	4					
(5)(17)			2557.503	WIRE FENCE DESIGN 48V-9322	LF	277	138.5			138.5		
(17)			2557.503	WIRE FENCE DESIGN 60V-9322	LF	136	106			30		
			2563.601	TRAFFIC CONTROL SUPERVISOR	LS	1	1					
(11)			2563.601	TRAFFIC CONTROL	LS	1	1	0.06	0.16	0	0.05	
			2563.601	ALTERNATE PEDESTRIAN ROUTE	LS	1	1					
			2563.601	DETOUR SIGNING STAGE 1	LS	1	1					
			2563.601	DETOUR SIGNING STAGE 2	LS	1	1					
			2563.601	DETOUR SIGNING REGIONAL	LS	1	1					
(9)		TC18	2563.602	PORTABLE CONCRETE BARRIER DELINEATOR	EACH	100	100					
(9)		TC18	2563.613	PORTABLE CHANGEABLE MESSAGE SIGN	UDAY	600	600					
(9)		TC18	2563.618	CONSTRUCTION SIGN-SPECIAL	S F	500	500					
	SIGN & STRIPE	ST1	2564.502	INSTALL SIGN TYPE D	EACH	14	14					
(17)	SIGN & STRIPE	ST1	2564.502	OBJECT MARKER TYPE X4-2	EACH	27	26			1		
	SIGN & STRIPE	ST1	2564.502	OBJECT MARKER TYPE X4-4	EACH	1	1					
(17)	SIGN & STRIPE	ST1	2564.518	SIGN PANELS TYPE C	S F	1736	1718			18		
	SIGN & STRIPE	ST1	2564.518	SIGN PANELS TYPE D	S F	85	85					
	SIGN & STRIPE	ST1	2564.518	SIGN PANELS TYPE OVERLAY	S F	10	10					
	SIGN & STRIPE	ST1	2564.602	INSTALL SIGN TYPE SPECIAL	EACH	1	1					
	SIGNAL	SS2	2565.501	EMERGENCY VEHICLE PREEMPTION SYSTEM B	LS	1			1			
	SIGNAL	SS2	2565.501	EMERGENCY VEHICLE PREEMPTION SYSTEM C	LS	1			1			
	SIGNAL	SS2	2565.501	EMERGENCY VEHICLE PREEMPTION SYSTEM D	LS	1			1			
	SIGNAL	SS2	2565.501	EMERGENCY VEHICLE PREEMPTION SYSTEM E	LS	1			1			
	SIGNAL	SS2	2565.501	TRAFFIC CONTROL INTERCONNECT	LS	1	1					
	SIGNAL	SS2	2565.516	TRAFFIC CONTROL SIGNAL SYSTEM B	SYS	1	0.5	0.5				
	SIGNAL	SS2	2565.516	TRAFFIC CONTROL SIGNAL SYSTEM C	SYS	1	1					
	SIGNAL	SS2	2565.601	EMERGENCY VEHICLE PREEMPTION SYSTEM H	LS	1			1			
	SIGNAL	SS2	2565.601	EMERGENCY VEHICLE PREEMPTION SYSTEM I	LS	1			1			
	SIGNAL	SS2	2565.616	TRAFFIC CONTROL SIGNAL SYSTEM D	SYS	1	0.5	0.5				
	SIGNAL	SS2	2565.616	TRAFFIC CONTROL SIGNAL SYSTEM E	SYS	1	0.5				0.5	
	SIGNAL	SS2	2565.616	TRAFFIC CONTROL SIGNAL SYSTEM H	SYS	1	0.5	0.5				
	SIGNAL	SS2	2565.616	TRAFFIC CONTROL SIGNAL SYSTEM I	SYS	1	0.5				0.5	
	SIGNAL	SS2	2565.616	REVISE SIGNAL SYSTEM A	SYS	1	1					
	SIGNAL	SS2	2565.616	REVISE SIGNAL SYSTEM F	SYS	1	0.5	0.5				
	SIGNAL	SS2	2565.616	REVISE SIGNAL SYSTEM G	SYS	1	1					
(17)	SIGNAL	SS2	2565.616	REVISE SIGNAL SYSTEM J	SYS	1	0.5			0.5		
	SIGNAL	SS2	2565.616	TEMPORARY SIGNAL SYSTEM A	SYS	1	1					
	SIGNAL	SS2	2565.616	TEMPORARY SIGNAL SYSTEM B	SYS	1	1					
	SIGNAL	SS2	2565.616	TEMPORARY SIGNAL SYSTEM C	SYS	1	1					
	SIGNAL	SS2	2565.616	TEMPORARY SIGNAL SYSTEM D	SYS	1	1					
	SIGNAL	SS2	2565.616	TEMPORARY SIGNAL SYSTEM F	SYS	1	1					
	SIGNAL	SS2	2565.616	TEMPORARY SIGNAL SYSTEM G	SYS	1	1					
	SIGNAL	SS2	2565.616	TEMPORARY SIGNAL SYSTEM K	SYS	1	1					
(8)(9)	C	16	2572.503	TEMPORARY FENCE	LF	768	768					
			2573.501	EROSION CONTROL SUPERVISOR	LS	1	1					
(9)	C	16	2573.502	STORM DRAIN INLET PROTECTION	EACH	318	318					
	C	16	2573.502	CULVERT END CONTROLS	EACH	17	17					
(9)	C	16	2573.503	SILT FENCE, TYPE MS	LF	12924	12924					
(9)	C	16	2573.503	FLOTATION SILT CURTAIN TYPE STILL WATER	LF	287	287					
(9)	C	16	2573.503	SEDIMENT CONTROL LOG TYPE WOOD FIBER	LF	4625	4625					
	G	17	2574.505	SOIL BED PREPARATION	ACRE	17	17					
	EW	9	2574.507	FILTER TOPSOIL BORROW	C Y	4173			4173			
	G	17	2574.508	FERTILIZER TYPE 3	LB	6052	6052					
	C	16	2575.504	EROSION CONTROL BLANKETS CATEGORY 0	S Y	5020.0	5020.0					



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Kelly Agosto
KELLY AGOSTO, LICENSED PROFESSIONAL ENGINEER

49075 3/15/19
LICENSE NO. DATE

DESIGN BY: O. AFOLABI
CAD BY: E. GUIR
CHECKED BY: L. LANGNER
LAST REVISION: 4/25/19

STATEMENT OF ESTIMATED QUANTITIES

C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
S.P. 027-681-035, S.P. 110-020-040

SHEET

R7.2
244

**04/25/19 ITEMS ADDED.
QUANTITIES CHANGED. AND
NOTE ADDED**

NOTES	TAB	SHEET NO.	ITEM NO.	ITEM DESCRIPTION	UNIT	TOTAL PROJECT QUANTITY	FEDERAL/STATE AID PARTICIPATING				NON PARTICIPATING	
							HENNEPIN CO SP 027-681-035	BROOKLYN PARK SP 110-020-040	STORM SEWER SP 027-681-035 SP 110-020-040	THREE RIVERS PARK DISTRICT TRAIL	BROOKLYN PARK LOCAL	MET COUNCIL
							QUANTITY	QUANTITY	QUANTITY	QUANTITY	QUANTITY	QUANTITY
(9)	C	16	2575.504	EROSION CONTROL BLANKETS CATEGORY 3N	SY	234	234					
(9)	C	16	2575.504	RAPID STABILIZATION METHOD 4	SY	14065	14065					
	G	17	2575.505	SEEDING	ACRE	17.3	17.3					
	G	17	2575.508	SEED MIXTURE 25-121	LB	354	354					
	G	17	2575.508	SEED MIXTURE 25-131	LB	2287	2287					
	G	17	2575.508	SEED MIXTURE 33-261	LB	39	39					
	G	17	2575.508	HYDRAULIC REINFORCED FIBER MATRIX	LB	67428	67428					
(9)	C	16	2575.523	RAPID STABILIZATION METHOD 3	MGAL	73	73					
⚠		TC18	2581.503	REMOVABLE PREFORM PAVEMENT MARKING TAPE	LF	500	500					
		TC18	2582.503	4" SOLID LINE PAINT	LF	5000	5000					
		TC18	2582.503	24" SOLID LINE PAINT	LF	200	200					
⚠		TC18	2582.503	4" BROKEN LINE PAINT	LF	5000	5000					
		TC18	2582.503	4" DBLE SOLID LINE PAINT	LF	2000	2000					
	SIGN & STRIPE	ST1	2582.503	4" SOLID LINE MULTI COMP GR IN	LF	20697	20697					
	SIGN & STRIPE	ST1	2582.503	24" SOLID LINE MULTI COMP GR IN	LF	511	511					
	SIGN & STRIPE	ST1	2582.503	4" BROKEN LINE MULTI COMP GR IN	LF	10708	10708					
	SIGN & STRIPE	ST1	2582.503	4" DBLE SOLID LINE MULTI COMP GR IN	LF	1879	1879					
	SIGN & STRIPE	ST1	2582.503	24" SOLID LINE PREF THERMO GR IN	LF	1333	1333					
⚠	SIGN & STRIPE	ST1	2582.503	4" DOTTED LINE PREF THERMO GR IN	LF	301	301					
		TC18	2582.518	PAVT MSSG PAINT	SF	500	500					
	SIGN & STRIPE	ST1	2582.518	PAVT MSSG PREF THERMO GR IN	SF	2857	2857					
⚠		TC18	2582.518	CROSSWALK PAINT	SF	1000	1000					
(17)	SIGN & STRIPE	ST1	2582.518	CROSSWALK PREF THERMO GR IN	SF	7644	7626			18		

- ESTIMATED QUANTITY NOTES
- (P) DENOTES PLAN QUANTITY
 - (1) INCLUDES INPLACE CONCRETE HEADWALL AND APRONS
 - (2) QUANTITY FOR BOTH SHEETING WALL AND BOX CULVERT WALL (SEE INDIVIDUAL TAB SHEETS FOR EACH)
 - (3) BOX CULVERT WALL ONLY
 - (4) INCLUDES 95.1CY FOR SHEET WALL, AND 29.8CY FOR BOX CULVERT WALL
 - (5) FOR INSTALLATION ON CAP OF SHEET PILE WALL ONLY
 - (6) VOLUME INCLUDES CONCRETE HEADWALL AND APRON
 - (7) SEE SPECIAL PROVISIONS
 - (8) FOR USE DURING CONSTRUCTION FOR TREE PROTETION. AS A BARRIER ABOVE WALL EXCAVATIONS. SEE ALSO SPEC. PROVISIONS
 - (9) PROVISIONS OF SPECIFICATION 1402.3 SHALL NOT APPLY.
 - (10) SEE SPECIAL PROVISIONS.
 - (11) PRO RATA FUNDING ITEM.
 - (12) NO TREES CAN BE REMOVED BETWEEN JUNE 1 AND AUGUST 15 OF ANY YEAR TO AVOID POTENTIAL IMPACTS TO ROOSTING LONG-EARED BATS - SEE ALSO SPECIAL PROVISIONS.
 - (13) NO GRUBBING ACTIVITY CAN OCCUR UNTIL EROSION CONTROL DEVICES ARE IN PLACE.
 - (14) CLASS "B" BEDDING IS INCLUDED IN ITEM (SEE SPEC. PROV'S. FOR REQUIREMENTS).
 - (15) DELETED
 - (16) REGIONAL TRAIL RELATED WORK ARE SHARED 50% COUNTY / 50% CITY SOUTH OF 83RD AVE
 - (17) REGIONAL TRAIL RELATED WORK ARE SHARED 50% COUNTY / 50% THREE RIVERS PARK DISTRICT NORTH OF 83RD AVE
 - (18) FOR USE AS DIRECTED BY ENGINEER
 - (19) STATE AID ELIGIBLE STROM SEWER IS 50% COUNTY / 50% CITY
 - (20) CURB AND GUTTER IS 50% COUNTY / 50% CITY, EXCEPT THAT MEDIAN CURB & GUTTER IS 100% COUNTY
 - (21) CONCRETE DRIVEWAY ENTRANCE IS 50% COUNTY / 50% CITY
 - (22) WATERMAIN AND SANITARY SEWER RELATED ITEMS ARE PAID 100% CITY LOCAL FUNDS
 - (23) CONCRETE DRIVEWAY PAVEMENTS & ADJACENT CURB AND GUTTER SHALL BE HIGH EARLY CONCRETE SO AS TO LIMIT DISRUPTION TO BUSINESS
 - (24) NEW SIDEWALK ITEMS ARE 25% COUNTY / 75% CITY
 - (25) PLASTIC PIPE MAY BE USED AS AN OPTION. LOOK AT DRAINAGE PROFILES AND TABULATIONS SHEETS FOR MORE INFORMATION.
 - ⚠ (26) INCLUDES ADDITIONAL 700 TONS FOR TEMPORARY PAVEMENT TRANSITION FOR STAGE 1 CONSTRUCTION DURING WINTER SUSPENSION



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Kelly Agosto
 KELLY AGOSTO, LICENSED PROFESSIONAL ENGINEER
 49075 LICENSE NO. 3/15/19 DATE

DESIGN BY: O. AFOLABI
 CAD BY: E. GUIR
 CHECKED BY: L. LANGNER
 LAST REVISION: 4/25/19

STATEMENT OF ESTIMATED QUANTITIES

C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
 S.P. 027-681-035, S.P. 110-020-040

SHEET
 R8.2
 244

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

STANDARD PLATES	
PLATE NO.	DESCRIPTION
3000L	REINFORCED CONCRETE PIPE (5 SHEETS)
3006G	GASKET JOINT FOR R.C. PIPE (2 SHEETS)
3007E	SHEAR REINFORCEMENT FOR PRECAST DRAINAGE STRUCTURES
3100G	CONCRETE APRON FOR REINFORCED CONCRETE PIPE
3133D	RIPRAP AT RCP OUTLETS
3145G	CONCRETE PIPE OR PRECAST BOX CULVERT TIES
4005M	MANHOLE OR CATCH BASIN TYPE A & B CONE SECTIONS PRECAST - DESIGN F
4006L	MANHOLE OR CATCH BASIN PRECAST - DESIGN G & H
4007C	PRECAST MECHANICAL JOINT SEWER MANHOLE
4010H	CONCRETE SHORT CONE & ADJUSTING RING (SECTIONAL CONCRETE)
4011E	PRECAST CONCRETE BASE
4020J	MANHOLE OR CATCH BASIN FOR USE WITH OR WITHOUT TRAFFIC LOADS (2 SHEETS)
4024A	48" DIA PRECAST SHALLOW DEPTH CATCH BASIN - DESIGN SD
4026A	CONCRETE ENCASED CONCRETE ADJUSTING RINGS
4101D	RING CASTING FOR MANHOLE OR CATCH BASIN
4108F	ADJUSTING RINGS FOR CATCH BASINS & MANHOLES
4110F	COVER CASTING FOR MANHOLE (FOR USE IN ALL TRAFFIC AREAS) - CASTING NO. 715 & 716
4126F	CATCH BASIN FRAME CASTING - CASTING NO. 801
4129G	CATCH BASIN FRAME CASTING (FOR SQUARE GRATE) - CASTING NO. 802A
4132G	CATCH BASIN FRAME CASTING (FOR SQUARE GRATE) CASTING NO. 805
4140D	SPECIAL GRATE CASTINGS FOR CATCH BASIN (CONVEX & CONCAVE) - CASTING NO. 720 & 721
4149C	GRATE CASTING FOR CATCH BASIN - CASTING NO. 810
4154B	CATCH BASIN GRATE CASTING - CASTING NO. 816
4160D	CURB BOX CASTING FOR CATCH BASIN
4161F	CURB BOX CASTING FOR CATCH BASIN
7020K	CONCRETE CURB (DESIGN B, V, S, DR & BR) (2 SHEETS)
7038A	DETECTABLE WARNING SURFACE TRUNCATED DOMES
7100H	CONCRETE CURB AND GUTTER (DESIGN B AND V)
7111J	INSTALLATION OF CATCH BASIN CASTINGS (CONCRETE CURB & GUTTER)
7113A	CONCRETE APPROACH NOSE DETAIL
8000J	CHANNELIZERS (3 SHEETS)
9322K	CHAIN LINK FENCE (2 SHEETS)

BASIS OF ESTIMATED QUANTITIES

WEARING AND NON-WEARING BITUMINOUS MIXTURE	113 LBS. PER SQ. YD. PER 1" THICKNESS
BITUMINOUS MATERIAL FOR TACK COAT	0.05 GAL. PER SQ. YD. (INCIDENTAL)
WATER	50 (M) GALLONS PER DIRECTIONAL MILE
CALCIUM CHLORIDE SOLUTION	0.23 GAL. PER SQ. YD. GRADING
HYDRAULIC REINFORCED FIBER MATRIX	3900 LBS. PER ACRE
SEED MIXTURE 25-131	220 LBS. PER ACRE
SEED MIXTURE 25-121	61 LBS. PER ACRE
SEED MIXTURE 33-261	36 LBS. PER ACRE
FETILIZER TYPE 3 (22-5-10)	350 LBS. PER ACRE

EARTHWORK SUMMARY

EW

LOCATION	EXCAVATION			EMBANKMENT					HAUL & DISPOSE OF CONTAMINATED MATERIAL TON
	COMMON	SUBGRADE	SPECIAL	COMMON	SELECT GRANULAR	COMMON BORROW SPECIAL	FILTER TOP SOIL BORROW	FILTER MEDIUM AGGR.	
	(1) CU YD	(2) CU YD	CU YD	(CV) CU YD	(CV) CU YD	(CV) CU YD	CU YD	(CV) CU YD	
CSAH 81 (BOTTINEAU BLVD)	91007	31556	1954	35529	36634				3713
CSAH 130 (BROOKLYN BLVD)	7596	7083	945	1370	7083				1796
73RD AVE N	1191	853		401	853				
LAKELAND AVE	7602	130		1276	130				
SIDEWALK ON 79TH AVE	105			43					
GREEN HAVEN DRIVE	341	314		206	317				
TRAIL ON LAKELAND AVE	155			252					
83RD AVE	114	78		147	78				
TRAIL NORTH OF 85TH AVE	615			1912					
RDI FILTRATION BASIN	63		335			46	51	3	637
FILTRATION DITCH 1	2353					903	1450	47	
FILTRATION DITCH 2	1457					518	939	24	
FILTRATION DITCH 3	2339					876	1463	41	
FILTRATION DITCH 4	458					188	270	20	
TOTALS	113256	38920	3234	41136	45095	2531	4173	135	6145

NOTES: 1. EXCAVATION SPECIAL (2,140 CU YD) HAVE BEEN SUBTRACTED FROM THE COMMON EXCAVATION.
2. EXCAVATION SPECIAL (1,094 CU YD) HAS BEEN SUBTRACTED FROM THE SUBGRADE EXCAVATION.

CASTING SCHEDULE

STD. PLATE	4101D	4110F	4140D	4126F	4129G	4132G	4149C	4154B	4161F	4160D
CASTING NO.	700-7	715	721	801	802A	805	810	816	821B	823A
NO. REQUIRED	39	29	10	17	57	208	17	265	17	57

A-7D CASTING CONSISTS OF CASTING NO'S 700-7, 715
B-5 CASTING CONSISTS OF CASTING NO'S 802A, 816, 823A
B-9 CASTING CONSISTS OF CASTING NO'S 805, 816
M-7 CASTING CONSISTS OF CASTING NO'S 700-7, 721
B-1 CASTING CONSISTS OF CASTING NO'S 801, 821B, 810

Install Bent Bolt per Standard Plate 4154



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.

Kelly Agosto
KELLY AGOSTO, LICENSED PROFESSIONAL ENGINEER

49075 3/15/19
LICENSE NO. DATE

DESIGN BY: L. LANGNER
CAD BY: E. GUIR
CHECKED BY: R. DECOTEAU
LAST REVISION: / /

STANDARD PLATES & EARTHWORK SUMMARY

C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
S.P. 027-681-035, S.P. 110-020-040

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EARTHWORK QUANTITIES				
STATION	CSAH 81			
	EXCAVATION TOTALS		EMBANKMENT TOTALS (CV)	
	COMMON	SUBGRADE	COMMON	GRANULAR
	CU YD	CU YD	CU YD	CU YD
1302+62.50				
1303+30.00	27	20	16	20
1303+50.00	14	5	5	5
1303+90.00	51	9	38	9
1304+00.00	24	11	19	11
1304+50.00	192	94	87	94
1305+00.00	271	94	94	94
1305+50.00	367	94	101	94
1306+00.00	431	94	98	94
1306+23.90	231	72	44	72
1306+50.00	278	109	51	109
1307+00.00	606	206	112	206
1307+50.00	670	196	134	196
1308+00.00	683	184	151	184
1308+50.00	699	172	152	172
1309+00.00	694	165	147	165
1309+50.00	655	165	155	165
1310+00.00	603	167	172	167
1310+50.00	582	175	179	175
1311+00.00	584	187	175	187
1311+50.00	652	193	147	200
1312+00.00	743	200	124	208
1312+50.00	842	200	121	210
1313+00.00	918	197	124	210
1313+50.00	917	193	147	210
1314+00.00	898	193	160	210
1314+50.00	848	192	165	210
1315+00.00	760	190	182	210
1315+50.00	595	191	163	209
1316+00.00	468	238	139	249
1316+50.00	448	323	97	323
1317+00.00	365	331	35	331
1317+50.00	257	296	28	296
1318+00.00	204	206	110	276
1318+50.00	303	123	240	240
1319+00.00	487	112	291	212
1319+50.00	541	115	277	214
1320+00.00	533	121	276	220
SUBTOTALS	18441	5833	4756	6457

EARTHWORK QUANTITIES				
STATION	CSAH 81			
	EXCAVATION TOTALS		EMBANKMENT TOTALS (CV)	
	COMMON	SUBGRADE	COMMON	GRANULAR
	CU YD	CU YD	CU YD	CU YD
1320+50.00	524	130	274	226
1321+00.00	523	138	261	230
1321+50.00	537	140	233	231
1322+00.00	555	140	208	229
1322+50.00	571	137	199	221
1322+95.60	533	125	176	191
1323+50.00	561	183	165	246
1324+00.00	584	163	141	207
1324+50.00	738	132	157	165
1325+00.00	763	139	142	165
1325+50.00	788	145	154	165
1326+00.00	816	150	155	165
1326+50.00	850	156	139	165
1327+00.00	896	161	142	165
1327+50.00	936	165	136	165
1328+00.00	968	165	134	165
1328+50.00	991	165	138	165
1329+00.00	1005	165	148	165
1329+50.00	1008	165	159	165
1330+00.00	1002	165	139	165
1330+50.00	983	169	94	169
1331+00.00	959	175	113	175
1331+50.00	970	181	144	181
1332+00.00	937	186	163	186
1332+50.00	853	169	211	187
1333+00.00	764	160	243	187
1333+50.00	663	152	349	187
1334+00.00	554	147	358	187
1334+20.17	201	58	118	75
1334+65.92	356	190	248	234
1335+11.50	318	171	294	224
1335+50.00	307	78	329	130
1336+00.00	369	94	439	174
1336+50.00	337	83	421	180
1337+00.00	307	75	419	188
1337+50.00	271	75	684	199
1338+00.00	232	76	710	212
1338+50.00	200	76	498	225
SUBTOTALS	24730	5344	9235	7061

EARTHWORK QUANTITIES				
STATION	CSAH 81			
	EXCAVATION TOTALS		EMBANKMENT TOTALS (CV)	
	COMMON	SUBGRADE	COMMON	GRANULAR
	CU YD	CU YD	CU YD	CU YD
1339+00.00	183	68	477	231
1339+50.00	178	53	490	231
1340+00.00	172	39	529	231
1340+50.00	165	28	530	231
1341+00.00	161	19	546	231
1341+50.00	155	12	586	231
1342+00.00	131	9	659	231
1342+50.00	114	11	669	231
1343+00.00	114	26	609	231
1343+50.00	117	56	517	231
1344+00.00	108	101	339	234
1344+50.00	148	164	194	253
1345+00.00	239	271	148	317
1345+50.00	363	395	100	413
1346+00.00	527	438	48	438
1346+50.00	547	350	22	350
1347+00.00	515	262	21	262
1347+50.00	617	238	27	245
1348+00.00	849	220	52	242
1348+50.00	1087	210	71	232
1349+00.00	1185	223	69	235
1349+50.00	1247	235	66	242
1350+00.00	1280	245	66	248
1350+50.00	1259	252	66	252
1351+00.00	1249	254	64	254
1351+50.00	1232	254	60	254
1352+00.00	1193	254	57	254
1352+32.50	781	183	40	183
1352+81.70	1243	354	37	354
1353+50.00	1539	431	39	431
1354+00.00	911	218	45	218
1354+50.00	911	212	57	212
1355+00.00	905	208	69	208
1355+50.00	809	203	70	203
1356+00.00	746	196	71	196
1356+50.00	720	190	81	190
1357+00.00	678	187	87	187
1357+50.00	613	187	92	187
SUBTOTALS	24991	7256	7770	9604



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49075 3/15/19
 LICENSE NO. DATE

DESIGN BY: S. PARK
 CAD BY: E. GUIR
 CHECKED BY: R. DECOTEAU
 LAST REVISION: / /

EARTHWORK TABULATIONS
 C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
 S.P. 027-681-035, S.P. 110-020-040

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EARTHWORK QUANTITIES				
STATION	CSAH 81			
	EXCAVATION TOTALS		EMBANKMENT TOTALS (CV)	
	COMMON	SUBGRADE	COMMON	GRANULAR
	CU YD	CU YD	CU YD	CU YD
1358+00.00	543	195	109	195
1358+50.00	519	243	94	243
1359+00.00	497	326	51	326
1359+50.00	402	264	75	276
1360+00.00	274	163	158	184
1360+50.00	194	168	212	187
1361+00.00	193	165	240	187
1361+50.00	202	163	261	187
1362+00.00	205	166	285	187
1362+50.00	213	168	319	186
1363+00.00	209	168	430	183
1363+50.00	218	167	463	176
1364+00.00	244	167	345	170
1364+50.00	254	166	271	166
1365+00.00	267	165	250	165
1365+50.00	281	165	212	165
1366+00.00	319	165	158	165
1366+50.00	368	169	124	169
1367+00.00	407	179	95	179
1367+50.00	453	193	58	193
1368+00.00	473	204	76	204
1368+50.00	491	209	78	209
1369+00.00	514	209	87	209
1369+50.00	527	209	103	209
1370+00.00	550	209	130	209
1370+50.00	563	209	178	209
1371+00.00	610	212	128	212
1371+50.00	800	324	104	324
1372+00.00	953	466	61	466
1372+50.00	853	388	159	388
1373+00.00	658	246	246	246
1373+50.00	550	213	183	213
1374+00.00	527	209	197	209
1374+50.00	557	209	199	209
1375+00.00	568	209	219	209
1375+50.00	502	209	259	209
1376+00.00	427	207	263	207
1376+50.00	371	199	237	199
SUBTOTALS	16756	8065	7117	8229

EARTHWORK QUANTITIES				
STATION	CSAH 81			
	EXCAVATION TOTALS		EMBANKMENT TOTALS (CV)	
	COMMON	SUBGRADE	COMMON	GRANULAR
	CU YD	CU YD	CU YD	CU YD
1377+00.00	320	187	228	187
1377+50.00	299	174	236	174
1378+00.00	260	167	238	167
1378+50.00	268	155	243	165
1379+00.00	214	153	273	165
1379+50.00	152	148	321	165
1380+00.00	181	144	379	165
1380+50.00	168	143	437	167
1381+00.00	176	146	450	169
1381+50.00	212	152	445	171
1382+00.00	239	157	446	173
1382+50.00	209	160	377	174
1383+00.00	216	163	282	176
1383+50.00	260	170	245	182
1384+00.00	247	183	238	194
1384+50.00	239	199	241	209
1385+00.00	245	216	245	225
1385+50.00	242	228	224	235
1386+00.00	226	234	214	239
1386+50.00	209	239	198	241
1387+00.00	216	243	158	243
1387+50.00	247	245	128	245
1388+00.00	277	246	108	246
1388+50.00	275	248	102	248
1389+00.00	221	231	93	231
1389+50.00	185	222	77	222
1389+59.99	33	42	12	42
1389+88.93	53	63	13	63
SUBTOTALS	6089	5058	6651	5283
TOTALS	91007	31556	35529	36634



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49075 3/15/19
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 CAD BY: E. GUIR
 CHECKED BY: R. DECOTEAU
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EARTHWORK TABULATIONS

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 S.P. 027-681-035, S.P. 110-020-040

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EARTHWORK QUANTITIES				
STATION	LAKELAND AVE			
	EXCAVATION TOTALS		EMBANKMENT TOTALS (CV)	
	COMMON	SUBGRADE	COMMON	GRANULAR
	CU YD	CU YD	CU YD	CU YD
1+00.00				
1+50.00	88		43	
2+13.33	135		37	
2+50.00	75		32	
2+70.53	52		34	
3+00.00	127		41	
3+50.00	305		51	
4+00.00	338		54	
4+50.00	329		61	
5+00.00	325		63	
5+50.00	326		56	
5+85.74	233		34	
6+50.00	431		59	
6+92.50	254	6	34	6
7+44.00	194	58	22	58
8+00.00	211	61	28	61
8+50.00	295	5	43	5
9+00.00	321		41	
9+50.00	296		40	
10+00.00	296		40	
10+50.00	325		37	
11+00.00	347		39	
11+50.00	361		39	
12+00.00	347		37	
12+50.00	294		39	
13+00.00	250		43	
13+50.00	251		43	
14+00.00	268		43	
14+50.00	203		58	
15+10.90	129		50	
15+34.29	25		3	
15+50.00	9		2	
16+00.00	26		8	
16+43.37	25		4	
17+00.00	36		4	
17+20.78	18		3	
17+50.00	29		7	
17+79.14	28		4	
TOTALS	7602	130	1276	130

EARTHWORK QUANTITIES				
STATION	SIDEWALK ON 79TH AVE			
	EXCAVATION TOTALS		EMBANKMENT TOTALS (CV)	
	COMMON	SUBGRADE	COMMON	GRANULAR
	CU YD	CU YD	CU YD	CU YD
0+08.64				
0+50.00	16		5	
1+00.00	21		10	
1+50.00	20		10	
2+00.00	21		8	
2+50.00	21		8	
2+67.02	6		2	
TOTALS	105		43	

EARTHWORK QUANTITIES				
STATION	TRAIL ON LAKELAND AVE			
	EXCAVATION TOTALS		EMBANKMENT TOTALS (CV)	
	COMMON	SUBGRADE	COMMON	GRANULAR
	CU YD	CU YD	CU YD	CU YD
552+82.00				
553+00.00	9		12	
553+50.00	23		31	
554+00.00	22		37	
554+50.00	24		44	
555+00.00	23		40	
555+50.00	26		41	
556+00.00	28		47	
TOTALS	155		252	

EARTHWORK QUANTITIES				
STATION	GREEN HAVEN DRIVE			
	EXCAVATION TOTALS		EMBANKMENT TOTALS (CV)	
	COMMON	SUBGRADE	COMMON	GRANULAR
	CU YD	CU YD	CU YD	CU YD
2+45.70				
2+60.70	15	13	2	13
3+00.00	47	49	8	49
3+28.00	43	40	6	40
3+57.50	52	46	6	46
4+00.00	81	71	27	71
4+21.68	38	39	23	39
4+54.20	65	56	134	59
TOTALS	341	314	206	317

EARTHWORK QUANTITIES				
STATION	83RD AVE			
	EXCAVATION TOTALS		EMBANKMENT TOTALS (CV)	
	COMMON	SUBGRADE	COMMON	GRANULAR
	CU YD	CU YD	CU YD	CU YD
256+36.48				
256+50.00	5	3	5	3
257+00.00	15	12	16	12
257+50.00	11	12	14	12
258+00.00	10	12	15	12
258+50.00	15	12	21	12
259+00.00	20	12	26	12
259+50.00	27	12	35	12
259+64.57	11	3	15	3
TOTALS	114	78	147	78



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EARTHWORK QUANTITIES				
STATION	TRAIL SOUTH OF 85TH AVE			
	EXCAVATION TOTALS		EMBANKMENT TOTALS (CV)	
	COMMON	SUBGRADE	COMMON	GRANULAR
	CU YD	CU YD	CU YD	CU YD
560+00.00				
560+50.00	25		47	
561+00.00	29		64	
561+50.00	28		65	
562+00.00	25		47	
562+50.00	25		40	
563+00.00	25		42	
563+50.00	24		46	
564+00.00	22		48	
564+50.00	23		54	
565+00.00	24		61	
565+50.00	23		55	
566+00.00	19		37	
566+50.00	18		32	
567+00.00	21		45	
567+50.00	26		104	
568+00.00	31		176	
568+50.00	35		178	
568+80.00	22		98	
568+85.00	4		17	
569+00.00	10		39	
569+50.00	23		95	
570+00.00	25		109	
570+50.00	26		117	
571+00.00	26		116	
571+50.00	28		106	
571+65.50	10		33	
571+68.27	2		5	
571+91.87	16		36	
TOTALS	615		1912	



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 S.P. 027-681-035, S.P. 110-020-040

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SOIL / CONSTRUCTION NOTES

- 1.) GRADING GRADE IS DEFINED AS THE BOTTOM OF THE AGGREGATE BASE (CLASS 5).
- 2.) SUITABLE GRADING MATERIAL ON THIS PROJECT, WHETHER OBTAINED LOCALLY OR FROM BORROW, SHALL CONSIST OF ALL SOILS EXCEPT TOPSOIL, DEBRIS, PEAT, MUCK AND ORGANIC OR OTHER UNSUITABLE MATERIAL. ALL SUITABLE GRADING MATERIAL SHOULD BE EITHER A UNIFORM SOIL TYPE OR SUFFICIENTLY MIXED AND BLENDED TO BE UNIFORM. ALL MATERIAL IS SUBJECT TO THE DISCRETION OF THE ENGINEER.
- 3.) SELECT GRANULAR MATERIAL SHALL MEET THE REQUIREMENTS OF MNDOT SPEC. 3149.2.B.2
- 4.) GRANULAR BASELINE IS DEFINED AS THE BOTTOM OF THE SELECT GRANULAR MATERIAL.
- 5.) SUBGRADE EXCAVATION IS MEASURED FROM THE GRANULAR BASELINE TO THE GRADING GRADE.
- 6.) STRIPPED TOPSOIL, FROM AREAS TO BE DISTURBED BY CONSTRUCTION, MAY BE REUSED AS SLOPE DRESSING. FOR ESTIMATING PURPOSES, THE DEPTH OF THE TOPSOIL IS CONSIDERED TO BE SIX INCHES. ALL TOPSOIL STRIPPING SHALL BE CONSIDERED EXCAVATION - COMMON. SEE TYPICAL SECTIONS AND SPECIAL PROVISIONS FOR MORE INFORMATION.
- 7.) DISPOSITION OF EXCAVATED MATERIAL SHALL BE IN ACCORDANCE WITH MNDOT SPEC. 2106.3.I EXCAVATED MATERIAL (EXCEPT BITUMINOUS PAVEMENT, TOPSOIL, DEBRIS, PEAT, MUCK AND ORGANIC OR OTHER UNSTABLE MATERIAL) SHALL BE REUSED, TO THE EXTENT REQUIRED, AS SUITABLE GRADING MATERIAL, GRANULAR MATERIAL, OR SELECT GRANULAR MATERIAL AS DETERMINED BY THE ENGINEER. EXCAVATED MATERIAL NOT REQUIRED FOR REUSE ON THE PROJECT AND BITUMINOUS AND OR CONCRETE ITEMS REMOVED BY CONSTRUCTION SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND SHALL BE DISPOSED OF OFF THE PROJECT LIMITS. EXCESS TOPSOIL AND MUCK MATERIAL SHALL BE USED THROUGHOUT THE PROJECT WHEN DIRECTED BY THE ENGINEER. ALL CONTAMINATED MATERIALS SHALL BE DISPOSED OF IN ACCORDANCE TO RULES AND REGULATIONS OFF THE PROJECT SITE. CONTAMINATED MATERIALS SHALL NOT BE BROUGHT INTO THE PROJECT SITE.
- 8.) OBTAIN COMPACTION ON THE GRADING PORTION OF PERMANENT CONSTRUCTION IN ACCORDANCE WITH THE QUALITY COMPACTION METHOD OF MNDOT SPEC. 2106.3.F.2.
- 9.) COMPACTION OF THE AGGREGATE BASE LAYER SHALL BE OBTAINED IN ACCORDANCE WITH THE PENETRATION INDEX METHOD. THE TEST SHALL BE PERFORMED IN ACCORDANCE WITH SECTION 2211.3.D.2.C AGGREGATE BASE MNDOT SPECIFICATION. THIS WOULD INCLUDE ANY AREAS WHERE CRUSHED CONCRETE OR SALVAGED ASPHALT MAY BE USED FOR AGGREGATE BASE.
- 10.) COMPACTION OF THE GRADING AND AGGREGATE ITEMS ON DRIVEWAYS AND BITUMINOUS TRAILS SHALL BE DONE BY THE QUALITY COMPACTION METHOD OF MNDOT SPEC. 2106.3.F.2.
- 11.) PROVIDE 1V:20H LONGITUDINAL TAPERS WHEN CHANGING EXCAVATION DEPTHS.
- 12.) WHERE PROPOSED ROADWAYS MATCH INPLACE ROADWAYS, CUT VERTICALLY THROUGH THE INPLACE SURFACING TO THE BOTTOM OF THE PROPOSED BASE AND THEN A 1:20 TAPER INTO THE BOTTOM OF THE SUBGRADE EXCAVATION. THE EXCAVATION SHALL BE BACKFILLED PROMPTLY TO AVOID UNDERMINING OF THE INPLACE PAVEMENT.
- 13.) ALL EMBANKMENT GRADING MATERIALS SHOULD BE EITHER UNIFORM SOIL TYPES OR SUFFICIENTLY MIXED AND BLENDED TO BE UNIFORM.
- 14.) BITUMINOUS ROADWAY PAVEMENTS SHALL BE COMPACTED AS PER THE MAXIMUM DENSITY REQUIREMENTS IN MNDOT SPEC. 2360.3.D.1. BITUMINOUS WALKWAYS, BIKEWAYS, DRIVEWAYS, OR PARKING LOTS SHALL BE COMPACTED AS PER THE REQUIREMENTS DETAILED IN MNDOT SPEC. 2360.3.D.2 ORDINARY COMPACTION.
- 15.) DITCH BOTTOMS, TOE OF FILL, CUT RUNOUTS AND THE TOP EDGE OF THE BACKSLOPES SHALL BE ROUNDED REGARDLESS OF THE SECTION USED ON THE CROSS SECTION OR TYPICAL SHEETS.



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Kelly Agosto

 KELLY AGOSTO, LICENSED PROFESSIONAL ENGINEER

49075 3/15/19
 _____ _____
 LICENSE NO. DATE

DESIGN BY: L. LANGNER
 CAD BY: E. GUIR
 CHECKED BY: R. DECOTEAU
 LAST REVISION: / /

SOILS AND CONSTRUCTION NOTES

C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
 S.P. 027-681-035, S.P. 110-020-040

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A														CONCRETE TABULATIONS													
STATION TO STATION		4" CONCRETE WALK	6" CONCRETE WALK	8" CONCRETE DRIVEWAY PAVEMENT	6" CONCRETE DRIVEWAY PAVEMENT	CONCRETE CURB & GUTTER DESIGN B424	CONCRETE CURB & GUTTER DESIGN B624	CONCRETE CURB & GUTTER DESIGN B824	CONCRETE CURB & GUTTER DESIGN B618	CONCRETE CURB & GUTTER DESIGN B818	CONCRETE CURB & GUTTER DESIGN B612	TRUNCATED DOMES	CONCRETE CURB DESIGN V	CONCRETE CURB & GUTTER DESIGN V1024													
		SF	SF	SY	SY	LF	LF	LF	LF	LF	LF	SF	LF	LF													
CL ^{NB81} 1302+57	CL ^{NB81} 1312+21	5541	191			3240						38															
	1312+21	8849	1845	260		5399				3031	348	298	42														
	1326+21	10361	608	269		5607				1648		75	28														
	1340+21	22716	3776			5428	2131	596			133	403	39														
CL ^{EB130} 189+08	CL ^{EB130} 193+94	6403	1235				1662					142															
	202+78	9708	4145				3994		68		83	549	60														
CL ^{NB81} 1354+22	CL ^{NB81} 1368+26	7913	596			5402			112			79		231													
	1368+26	7162	1541		23	5315			754	111		219	78	64													
	1382+27	3191	473			2973	233		19			37															
CL ^{TRL83} 564+66	CL ^{TRL83} 571+92		1064			60						113	57														
PROJECT TOTAL		81844	15474	529	23	33424	8020	596	5632	459	216	1953	304	295													

B											SURFACING MATERIAL TABULATION										
STATION TO STATION		TYPE SP 12.5 WEARING COURSE MIX (4:F)	TYPE SP 12.5 WEARING COURSE MIX (3:F)	TYPE SP 9.5 WEARING COURSE MIX (2:C)	TYPE SP 12.5 NON WEAR COURSE MIX (4:B)	TYPE SP 12.5 NON WEAR COURSE MIX (3:B)	AGGREGATE BASE (CV) CLASS 5	TYPE SP 12.5 WEARING COURSE MX (4:F) 2.5" THICK	TYPE SP 12.5 WEARING COURSE MX (4:F) 4.5" THICK												
		TON	TON	TON	TON	TON	CY	SY	SY												
CL ^{NB81} 1302+57	CL ^{NB81} 1312+21	1484		166	1113		2057														
	1312+21	4164	326	330	3123	408	5958		176												
	1326+21	3000	254	253	2250	317	4476		117												
	1340+21	5722		463	4291		7280														
CL ^{EB130} 189+08	CL ^{EB130} 193+94	828		42	621		1120														
	202+78	1963		275	1472		2803														
CL ^{NB81} 1354+22	CL ^{NB81} 1368+26	3156		244	2367		4073														
	1368+26	3661		267	2746		4639	34													
	1382+27	1919		265	1439		2552														
CL ^{TRL83} 564+66	CL ^{TRL83} 571+92	3		145	2		184														
PROJECT TOTAL		25900	580	2450	19424	725	35142	34	293												

C											EROSION CONTROL										
STATION TO STATION		RAPID STABILIZATION METHOD 3	RAPID STABILIZATION METHOD 4	EROSION CONTROL BLANKET CATEGORY 0	EROSION CONTROL BLANKET CATEGORY 3N	STORM DRAIN INLET PROTECTION	CULVERT END CONTROLS	SILT FENCE; TYPE MS	SEDIMENT CONTROL LOG TYPE WOOD FIBER	TEMPORARY FENCE	FLOTATION SILT CURTAIN TYPE STILL WATER										
		MGAL	SY	SY	SY	EACH	EACH	LF	LF	LF	LF										
CL ^{NB81} 1302+57	CL ^{NB81} 1312+21	6.5	1283	1806		25	2	469	1118												
	1312+21	15.9	4046			45	4	1625													
	1326+21	15.0	835	2787		46	5	1826	2624	32											
	1340+21	7.2	9	376		48	2	1704	483	320											
CL ^{EB130} 189+08	CL ^{EB130} 193+94	1.3		51	234	21	1	711	81												
	202+78	2.3				33		138		288											
CL ^{NB81} 1354+22	CL ^{NB81} 1368+26	7.1	3388			40	1	1071	319												
	1368+26	9.5	2480			31	1	1792													
	1382+27	6.0	2024			22	1	3032		128											
CL ^{TRL83} 564+66	CL ^{TRL83} 571+92	2.2				7		556			287										
PROJECT TOTAL		73.0	14065	5020	234	318	17	12924	4625	768	287										



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QUANTITY TABULATIONS

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 S.P. 027-681-035, S.P. 110-020-040

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D MISCELLANEOUS REMOVAL TABULATION																
STATION TO STATION		REMOVE PAVEMENT	REMOVE BITUMINOUS PAVEMENT	REMOVE BITUMINOUS DRIVEWAY PAVEMENT	REMOVE CURB & GUTTER	REMOVE CONCRETE WALK	REMOVE CONCRETE DRIVEWAY PAVEMENT	SAWING BIT PAVEMENT (FULL DEPTH)	SAWING CONCRETE PAVEMENT (FULL DEPTH)	REMOVE CHAIN LINK FENCE	REMOVE CONCRETE PAVEMENT	CLEARING	GRUBBING	REMOVE BITUMINOUS WALK	REMOVE LANDSCAPE TIMBER	BUILDING REMOVAL
		SY	SY	SF	LF	SF	SY	LF	LF	LF	SF	TREE	TREE	SF	LF	LS
CL ^{NB81} 1302+57	CL ^{NB81} 1312+21	97	6434		366	693		481								
	1312+21	7554	12554	3200	1157	3840	86	522				19	19	641	237	1
	1326+21	7433	6872	2023	592	158	227	333				6	6			
	1340+21	7342	15774		3621	12791	69	154				18	18			
CL ^{EB130} 189+08	CL ^{EB130} 193+94		3617		1669	5397	48	136				6	6			
	202+78		10073		4165	12918		647				6	6			
CL ^{NB81} 1354+22	CL ^{NB81} 1368+26	6861	6930		159	547		113								
	1368+26	4983	10586	600	677	1071		274				1	1			
	1382+27		8787		23			650		387		7	7			
CL ^{TR83} 564+66	CL ^{TR83} 571+92				56	393			63	313	14	4	4			
PROJECT TOTAL		34270	81627	5823	12485	37808	430	3310	63	700	14	67	67	641	237	1

E GUARDRAIL						
STATION TO STATION		LOCATION	REMOVE ENERGY ABSORBING TERMINAL	REMOVE GUARDRAIL PLATE BEAM	END TREATMENT TANGENT TERMINAL	TRAFFIC BARRIER DESIGN B8338
			EACH	LF	EACH	LF
CL ^{NB81} 1354+22	CL ^{NB81} 1368+26	RT	1	151		
CL ^{NB81} 1354+22	CL ^{NB81} 1368+26	LT	1	149		
	1382+27	LT	1	489	1	204
PROJECT TOTAL			3	789	1	204

Ea MAILBOX SUPPORT			
STATION TO STATION		LOCATION	RELOCATE MAILBOX SUPPORT
			EACH
CL ^{NB81} 1368+26	CL ^{NB81} 1382+27	Green Haven DR	3
PROJECT TOTAL			3

F SUBSURFACE DRAINAGE						
STATION TO STATION		SUBGRADE				
		4" PERF PE PIPE DRAIN	4" TP PIPE DRAIN	6" PERF PE PIPE DRAIN	6" TP PIPE DRAIN	GEOTEXTILE FABRIC TYPE 5
		LF	LF	LF	LF	SY
CL ^{NB81} 1302+57	CL ^{NB81} 1312+21	600	25	1053	155	1806
	1312+21					
	1326+21	600	50	1608	459	2789
	1340+21			441	67	376
CL ^{EB130} 189+08	CL ^{EB130} 193+94	400	40			
	202+78	1020	45			
CL ^{NB81} 1354+22	CL ^{NB81} 1368+26	600	50			
	1368+26					
	1382+27	400	25			
CL ^{TR83} 564+66	CL ^{TR83} 571+92					
PROJECT TOTAL		3620	235	3102	681	4971

G TURF ESTABLISHMENT TABULATIONS								
STATION TO STATION		SEEDING (1)	SOIL BED PREPARATION	SEED MIXTURE			FERTILIZER TYPE 3 (22-5-10)	HYDRAULIC REINFORCED FIBER MATRIX
				25-121	25-131	33-261		
				ACRE	ACRE	POUND		
CL ^{NB81} 1302+57	CL ^{NB81} 1312+21	1.8	1.8	24	237	13	645	7186
	1312+21	3.5	3.5	62	539		1215	13538
	1326+21	3.5	3.5	71	386	21	1221	13609
	1340+21	1.9	1.9	29	291	3	660	7350
CL ^{EB130} 189+08	CL ^{EB130} 193+94	0.3	0.3		49	2	98	1089
	202+78	0.5	0.5		111		177	1975
CL ^{NB81} 1354+22	CL ^{NB81} 1368+26	1.9	1.9	68	182		677	7546
	1368+26	2.1	2.1	65	223		729	8125
	1382+27	1.4	1.4	35	188		500	5567
CL ^{TR83} 564+66	CL ^{TR83} 571+92	0.4	0.4		81		130	1443
PROJECT TOTAL		17.3	17.3	354	2287	39	6052	67428

(1) INCLUDES MAINTENANCE



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QUANTITY TABULATIONS

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GENERAL NOTES

- ALL UTILITY WORK SHOWN ON THESE SHEETS SHALL BE DONE BY OTHERS UNLESS NOTED.
- ALL RELOCATES AND ADJUSTMENTS SUBJECT TO HC RIGHT OF WAY.
- IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO UTILIZE THE GOPHER STATE ONE CALL EXCAVATION NOTICE SYSTEM REQUIRED BY MINNESOTA STATUTE , CHAPTER 216D FOR ALL UNDERGROUND UTILITY LOCATIONS.
- THE SUBSURFACE UTILITY INFORMATION IN THIS PLAN IS UTILITY QUALITY LEVEL D. THIS UTILITY QUALITY LEVEL WAS DETERMINED ACCORDING TO THE GUIDELINES OF CI/ASCE 38-02, ENTITLED "STANDARD GUIDELINES FOR THE COLLECTION AND DEPICTION OF EXISTING SUBSURFACE UTILITY DATA".
- THE "LEAVE AS IS", "ADJUST", AND "RELOCATE" COLUMNS ARE BASED UPON THE BEST INFORMATION AVAILABLE AND MAY NOT REFLECT THE ACTUAL EFFECTS ON THE UTILITIES BY CONSTRUCTION. ACTUAL DETERMINATIONS WILL BE MADE IN THE FIELD DURING CONSTRUCTION.
- THE CONTRACTOR SHALL COORDINATE CONSTRUCTION OPERATIONS TO ALLOW FOR THE ADJUSTMENT OF THE UTILITIES AS INDICATED.

GOPHER STATE ONE CALL
 651-454-0002
 800-252-1166
 www.gopherstateonecall.org

UTILITY

ANC = ANCHOR	MH = MANHOLE	OHTEL = OVERHEAD COMMUNICATIONS
CATV = CABLE TV	IPMH = INPLACE POWER MANHOLE	PBUR = UNDERGROUND POWER
CHL = CHILLER LINE	ITMH = INPLACE TELEPHONE MANHOLE	PTEL = UNDERGROUND COMMUNICATIONS
ELEC = ELECTRIC MAINLINE	INRG = INPLACE STEAM \ CHILLER MANHOLE	TBUR = UNDERGROUND COMMUNICATIONS
FO = FIBER OPTIC	IGMH = INPLACE GAS MANHOLE	SIG = TRAFFIC SIGNAL
IGSV = GAS VALVE	P = POLE	OHCOM = OVERHEAD COMMUNICATIONS
HH = HAND HOLE	PED = PEDESTAL	TEL = TELEPHONE
HYD = HYDRANT	PRISER = POWER RISER	TV = TELEVISION
L = LIGHT	TELR = TELEPHONE RISER	WATn = WATERMAIN & SIZE
LP = LIGHT POLE	IP = INPLACE POLE	VLVn = VALVE / MH & SIZE
ICB = INPLACE CATCH BASIN	OHP = OVERHEAD POWER	VAULT = STRUCTURAL VAULT
TR, PE & AA = PLASTIC	ST = STEEL	ICB = INPLACE CATCH BASIN

OWNERSHIP

CENTURY = CENTURYLINK
COMCAST = COMCAST CABLE COMMUNICATIONS
CPE = CENTERPOINT ENERGY
XCEL = XCEL ENERGY
LEVEL3 = LEVEL 3 COMMUNICATIONS



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INPLACE UTILITY TABULATIONS

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 S.P. 027-681-035, S.P. 110-020-040

SHEET

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EXISTING UTILITIES - CENTURYLINK							H
STATION - STATION	OFFSET - OFFSET FT	REMARKS			NOTES		
		LEAVE AS IS	RELOCATE	ADJUST			
SB81 (BOTTINEAU BLVD)							
2306+22.82 TO 2312+47.73	-23.33 TO -25.53			X	SEWER CONFLICT		
2312+47.73 TO 2314+55.00	-25.53 TO -27.71			X	SEWER CONFLICT		
2314+55.00 TO 2316+26.73	-27.71 TO -43.12	X					
2316+26.73 TO 2316+41.27	-43.12 TO -44.95	X					
SB81 (BOTTINEAU BLVD)							
2306+22.82 TO 2312+47.73	-28.09 TO -25.53			X	SEWER CONFLICT		
SB81 (BOTTINEAU BLVD)							
2316+41.09 TO 2316+67.53	-46.45 TO -50.08	X					
2316+67.53 TO 2316+77.42	-50.08 TO -51.43	X					
2316+77.42 TO 2317+71.49	-51.43 TO -49.09			X	SEWER CONFLICT		
2317+71.49 TO 2318+19.66	-49.09 TO -30.40	X					
SB81 (BOTTINEAU BLVD)							
2316+41.49 TO 2316+63.58	-43.52 TO -46.54	X					
2316+63.58 TO 2316+77.59	-46.54 TO -48.46	X					
2316+77.59 TO 2317+70.89	-48.46 TO -46.14			X	SEWER CONFLICT		
2317+70.89 TO 2318+20.18	-46.14 TO -27.01	X					
SB81 (BOTTINEAU BLVD)							
2316+41.88 TO 2316+58.89	-40.58 TO -42.91	X					
2316+58.89 TO 2316+77.84	-42.91 TO -46.14	X					
2316+77.84 TO 2317+70.28	-46.14 TO -43.19			X	SEWER CONFLICT		
2317+70.28 TO 2318+18.39	-43.19 TO -24.53	X					
73RD AVE							
4+62.47 TO 4+80.55	29.86 TO 28.20	X					
4+80.55 TO 4+82.68	28.20 TO -34.52	X					
4+82.68 TO 4+91.09	-34.52 TO -35.08	X					
4+91.09 TO 4+97.06	-35.08 TO -42.85	X					
4+97.06 TO 5+58.05	-42.85 TO -68.38	X					
5+58.05 TO 7+14.37	-68.38 TO -129.18	X					
7+14.37 TO 7+99.01	-129.18 TO -163.27			X	SEWER CONFLICT		
73RD AVE							
4+91.09 TO 4+96.65	-35.08 TO -49.55	X					
4+96.65 TO 6+03.96	-49.55 TO -99.05	X					
73RD AVE							
8+50.78 TO 10+36.91	-49.91 TO -43.95	X					
SB81 (BOTTINEAU BLVD)							
2318+24.05 TO 2318+96.41	-27.21 TO -24.75	X					
2318+96.41 TO 2328+30.73	-24.75 TO -33.57			X	SEWER CONFLICT		
2328+30.73 TO 2330+48.49	-33.57 TO -31.76	X					
2330+48.49 TO 2331+21.97	-31.76 TO -31.09			X	SEWER CONFLICT		
2331+21.97 TO 2332+86.99	-31.09 TO -31.17	X					
2332+86.99 TO 2333+32.55	-31.17 TO -30.57			X	SEWER CONFLICT		
2333+32.55 TO 2339+99.51	-30.57 TO -23.56			X	SEWER CONFLICT		
2339+99.51 TO 2343+99.64	-23.56 TO -35.14	X					
2343+99.64 TO 2345+29.19	-35.14 TO -53.37			X	SEWER CONFLICT		

EXISTING UTILITIES - CENTURYLINK							H
STATION - STATION	OFFSET - OFFSET FT	REMARKS			NOTES		
		LEAVE AS IS	RELOCATE	ADJUST			
SB81 (BOTTINEAU BLVD)							
2318+24.05 TO 2318+95.80	-27.21 TO -36.02	X					
2318+95.80 TO 2323+78.83	-36.02 TO -37.22			X	SEWER CONFLICT		
2323+78.83 TO 2327+33.47	-37.22 TO -39.19	X					
2327+33.47 TO 2330+67.44	-39.19 TO -34.95	X					
2330+67.44 TO 2331+00.99	-34.95 TO -34.79			X	SEWER CONFLICT		
2331+00.99 TO 2332+87.93	-34.79 TO -38.13	X					
2332+87.93 TO 2333+19.00	-38.13 TO -37.80			X	SEWER CONFLICT		
2333+19.00 TO 2335+79.04	-37.80 TO -31.32	X					
2335+79.04 TO 2336+48.98	-31.32 TO -35.49	X					
2336+48.98 TO 2339+92.02	-35.49 TO -29.02			X	SEWER CONFLICT		
2339+92.02 TO 2344+00.22	-29.02 TO -40.96	X					
2344+00.22 TO 2345+29.19	-40.96 TO -53.37			X	SEWER CONFLICT		
2345+29.19 TO 2345+33.52	-53.56			X	SEWER CONFLICT		
SB81 (BOTTINEAU BLVD)							
2345+26.52 TO 2345+35.29	-45.35 TO -23.30	X					
2345+35.29 TO 2345+82.96	-23.30 TO -40.18	X					
2345+82.96 TO 2347+17.76	-40.18 TO -34.49			X	SEWER CONFLICT		
SB81 (BOTTINEAU BLVD)							
2345+48.22 TO 2347+16.40	-52.48 TO -40.60			X	SEWER CONFLICT		
SB81 (BOTTINEAU BLVD)							
2347+07.13 TO 2347+54.90	-69.24 TO -70.31	X					
2347+54.90 TO 2371+20.55	-70.31 TO -61.15	X					
2371+20.55 TO 2372+10.14	-61.15 TO -67.12			X	XCEL POLE SHEETING		
GREEN HAVEN DR							
58+79.04 TO 59+59.01	29.58 TO 29.39			X	SEWER CONFLICT		
59+59.01 TO 59+81.03	29.39 TO 57.40	X					
59+81.03 TO 59+84.19	57.40 TO 86.91	X					
SB81 (BOTTINEAU BLVD)							
2382+45.10 TO 2386+26.62	-44.09 TO 33.59			X	SEWER CONFLICT		
2386+26.62 TO 2386+38.04	33.59 TO 41.60	X					



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EXISTING UTILITIES - CENTURYLINK						H
STATION - STATION	OFFSET - OFFSET FT	REMARKS			NOTES	
		LEAVE AS IS	RELOCATE	ADJUST		
NB81 (BOTTINEAU BLVD)						
1316+71.80 TO 1317+96.41	114.08 TO 115.45	X				
1317+96.41 TO 1320+58.18	115.45 TO 116.11	X				
1320+58.18 TO 1324+01.50	116.11 TO 111.65	X				
1324+01.50 TO 1327+90.74	111.65 TO 110.32	X				
1327+90.74 TO 1329+77.10	110.32 TO 111.07	X				
1329+77.10 TO 1330+70.99	111.07 TO 111.46			X	SEWER CONFLICT	
1330+70.99 TO 1331+34.01	111.46 TO 111.23			X	SEWER CONFLICT	
1331+34.01 TO 1332+54.70	111.23 TO 110.80	X				
1332+54.70 TO 1333+17.24	110.80 TO 110.58			X	SEWER CONFLICT	
1333+17.24 TO 1334+38.11	110.58 TO 110.16	X				
1334+38.11 TO 1334+86.11	110.16 TO 109.62	X				
1334+86.11 TO 1336+36.76	109.62 TO 107.09	X				
1336+36.76 TO 1341+68.73	107.09 TO 105.70	X				
1341+68.73 TO 1344+24.06	105.70 TO 107.35	X				
1344+24.06 TO 1346+37.22	107.35 TO 98.04			X	SEWER CONFLICT	
1346+37.22 TO 1346+77.65	98.04 TO 96.18	X				
1354+75.24	56.70	X				
LAKELAND AVE						
4+21.56 TO 4+24.44	17.74 TO -25.58			X	SEWER CONFLICT	
LAKELAND AVE						
7+60.13 TO 7+65.92	24.28 TO -23.92			X	SEWER CONFLICT	
LAKELAND AVE						
11+39.69 TO 11+56.97	26.93 TO -23.89			X	SEWER CONFLICT	
LAKELAND AVE						
14+18.13 TO 14+26.80	-36.31 TO -23.28			X	SEWER CONFLICT	
14+26.80 TO 14+71.55	-23.28 TO 15.46			X	SEWER CONFLICT	
14+71.55 TO 15+26.79	15.46 TO 17.24			X	SEWER CONFLICT	
NB81 (BOTTINEAU BLVD)						
1370+08.55 TO 1371+25.49	69.50 TO 75.68	X				
1371+25.49 TO 1371+20.97	75.68 TO 202.00	X				

EXISTING UTILITIES - CENTURYLINK						H
STATION - STATION	OFFSET - OFFSET FT	REMARKS			NOTES	
		LEAVE AS IS	RELOCATE	ADJUST		
EB130 (BROOKLYN BLVD)						
200+24.18 TO 200+56.14	73.64 TO 36.31	X				
200+56.14 TO 202+15.00	36.31 TO 35.27	X				
202+15.00 TO 202+53.72	35.27 TO 85.61	X				
202+53.72 TO 203+12.15	85.61 TO 38.36	X				
203+12.15 TO 204+20.34	38.36 TO 38.30	X				
EB130 (BROOKLYN BLVD)						
205+41.22 TO 211+19.72	39.12 TO 39.89	X				
211+19.72 TO 213+76.26	39.89 TO 36.75			X	SEWER CONFLICT	
WB130 (BROOKLYN BLVD)						
99+62.61 TO 100+32.76	-99.73 TO -29.88	X				
100+32.76 TO 103+19.90	-29.88 TO -24.16			X	SEWER CONFLICT	
103+19.90 TO 103+50.97	-24.16 TO -42.57	X				
103+50.97 TO 103+93.29	-42.57 TO -40.40	X				
WB130 (BROOKLYN BLVD)						
108+17.57 TO 111+83.27	-37.27 TO -35.03	X				
111+83.27 TO 113+38.30	-35.03 TO -35.84			X	SEWER CONFLICT	
113+38.30 TO 115+06.45	-35.84 TO -36.96	X				
EB130 (BROOKLYN BLVD)						
187+32.47 TO 189+45.53	19.39 TO 15.67	X				
189+45.53 TO 196+45.49	15.67 TO 22.54			X	SEWER CONFLICT	
196+45.49 TO 197+56.52	22.54 TO 62.87			X	SEWER CONFLICT	
WB130 (BROOKLYN BLVD)						
90+34.05 TO 94+26.76	-26.93 TO -21.88			X	SEWER CONFLICT	
NB81 (BOTTINEAU BLVD)						
1347+78.16 TO 1352+35.58	88.13 TO 59.40	X				
1352+35.58 TO 1356+68.14	59.40 TO 58.53	X				
1356+68.14 TO 1367+87.72	58.53 TO 56.99			X	SEWER CONFLICT	
1367+87.72 TO 1370+08.55	56.99 TO 69.50	X				
SB81 (BOTTINEAU BLVD)						
2372+10.14 TO 2372+56.66	-67.12 TO -48.19			X	SEWER CONFLICT	
2372+56.66 TO 2376+16.78	-48.19 TO -48.37			X	SEWER CONFLICT	
2376+16.78 TO 2382+35.51	-48.37 TO -52.98	X				
2382+35.51 TO 2385+54.51	-52.98 TO -44.66	X				
2385+54.51 TO 2388+62.03	-44.66 TO -49.22	X				
2388+62.03 TO 2390+55.99	-49.22 TO -67.88	X				
83RD AVE						
65+00.00 TO 66+10.04	-45.27 TO -41.15	X				
66+10.04 TO 67+95.92	-41.15 TO -43.80	X				
67+95.92 TO 68+91.74	-43.80 TO -40.21	X				



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Kelly Agosto
 KELLY AGOSTO, LICENSED PROFESSIONAL ENGINEER

49075 3/15/19
 LICENSE NO. DATE

DESIGN BY: O. AFOLABI
 CAD BY: E. GUIR
 CHECKED BY: L. LANGNER
 LAST REVISION: / /

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EXISTING UTILITIES - CENTURYLINK PEDESTAL					
STATION	OFFSET FT	ACTIONS			REMARKS
		LEAVE AS IS	RELOCATE	ADJUST	
NB81 (BOTTINEAU BLVD.)					
1317+96.62	116.02			X	GRADING AREA
1320+58.35	115.66			X	GRADING AREA
1324+02.30	111.33			X	GRADING AREA
1327+91.21	110.03			X	GRADING AREA
1330+70.79	109.99			X	GRADING AREA
1337+47.59	108.96	X			OUTSIDE CONST. LIMITS
1338+22.66	108.97	X			OUTSIDE CONST. LIMITS
1340+89.18	108.35	X			OUTSIDE CONST. LIMITS
1344+10.41	120.82	X			OUTSIDE CONST. LIMITS
1347+78.16	88.13	X			OUTSIDE CONST. LIMITS
1352+35.58	59.40		X		TRAIL CONFLICT
1356+68.14	58.53		X		TRAIL CONFLICT
1359+61.92	62.18	X			OUTSIDE CONST. LIMITS
1359+78.83	61.95	X			OUTSIDE CONST. LIMITS
1367+87.72	56.99		X		TRAIL CONFLICT
1371+25.31	75.08		X		C&G CONFLICT
SB81 (BOTTINEAU BLVD.)					
2345+32.34	-55.87		X		SEWER CONFLICT
2347+88.79	-43.69		X		CB, C&G CONFLICT
2359+54.32	-51.47		X		DITCH CONFLICT
2361+71.13	-64.22	X			OUTSIDE CONST. LIMITS
2371+17.47	-52.31	X			OUTSIDE CONST. LIMITS
2371+38.08	-54.00	X			OUTSIDE CONST. LIMITS
2372+56.66	-48.19		X		PED RAMP CONFLICT
73RD AVEN					
4+87.27	-40.75		X		SIDEWALK CONFLICT
WB130 (BROOKLYN BLVD.)					
90+34.05	-26.93		X		SIDEWALK CONFLICT
92+56.22	-23.35		X		PED RAMP CONFLICT
94+26.76	-21.88		X		SIDEWALK CONFLICT
103+50.97	-42.57	X			
103+93.29	-40.40	X			
109+92.89	-34.28		X		SIDEWALK CONFLICT
115+06.45	-36.96	X			
EB130 (BROOKLYN BLVD.)					
193+69.01	18.95		X		INSIDE NEW ROADWAY
200+25.00	73.63	X			OUTSIDE CONST. LIMITS
205+88.39	33.50		X		SIDEWALK CONFLICT
207+09.87	39.28	X			
210+27.85	39.50		X		SIDEWALK CONFLICT

EXISTING UTILITIES - CENTURYLINK POLE					
STATION	OFFSET FT	ACTIONS			REMARKS
		LEAVE AS IS	RELOCATE	ADJUST	
WB130 (BROOKLYN BLVD.)					
89+60.93	-27.13	X			
90+32.70	-26.00		X		SIDEWALK CONFLICT

EXISTING UTILITIES - XCEL OVERHEAD							
STRUCTURE NUMBER	STATION - STATION	OFFSET - OFFSET FT		ACTION			REMARKS
				LEAVE AS IS	ADJUST	RELOCATE	
SB81 (BOTTINEAU BLVD.)							
	2316+75.12 TO 2319+62.69	-55.69	TO -54.53	X			POLE TO POLE
	2319+62.69 TO 2322+32.97	-54.53	TO -55.07	X			POLE TO POLE
	2322+32.97 TO 2324+99.41	-55.07	TO -61.20	X			POLE TO POLE
	2324+99.41 TO 2327+68.16	-61.20	TO -73.32	X			POLE TO POLE
	2327+68.16 TO 2330+95.23	-73.32	TO -75.09	X			POLE TO POLE
	2330+95.23 TO 2333+88.45	-75.09	TO -77.35	X			POLE TO POLE
	2333+88.45 TO 2336+88.89	-77.35	TO -64.29	X			POLE TO POLE
	2336+88.89 TO 2340+18.78	-64.29	TO -58.03	X			POLE TO POLE
	2340+18.78 TO 2343+50.08	-58.03	TO -58.48	X			POLE TO POLE
	2343+50.08 TO 2345+36.56	-58.48	TO -59.71			X	POLE TO POLE
	2345+36.56 TO 2347+61.67	-59.71	TO -60.41			X	POLE TO POLE
	2347+61.67 TO 2349+25.79	-60.41	TO -60.14	X			POLE TO POLE
	2349+25.79 TO 2352+04.32	-60.14	TO -59.23	X			POLE TO POLE
	2352+04.32 TO 2353+29.47	-59.23	TO -61.15	X			POLE TO POLE
	2353+29.47 TO 2354+49.39	-61.15	TO -63.16	X			POLE TO POLE
	2354+49.39 TO 2356+96.92	-63.16	TO -63.95	X			POLE TO POLE
	2356+96.92 TO 2359+38.63	-63.95	TO -62.33	X			POLE TO POLE
	2359+38.63 TO 2361+84.48	-62.33	TO -62.04	X			POLE TO POLE
	2361+84.48 TO 2364+35.53	-62.04	TO -60.57	X			POLE TO POLE
	2364+35.53 TO 2366+80.56	-60.57	TO -62.00	X			POLE TO POLE
	2366+80.56 TO 2369+28.09	-62.00	TO -60.48	X			POLE TO POLE
	2369+28.09 TO 2371+44.05	-60.48	TO -62.45	X			POLE TO POLE
	2371+44.05 TO 2375+01.23	-62.45	TO -57.22	X			POLE TO POLE
	2375+01.23 TO 2378+21.17	-57.22	TO -60.25	X			POLE TO POLE
	2378+21.17 TO 2381+37.94	-60.25	TO -70.71	X			POLE TO POLE
	2381+37.94 TO 2381+44.94	-70.71	TO -120.40	X			POLE TO POLE
73RD AVEN							
	3+24.53 TO 4+79.16	36.83	TO 34.99			X	POLE TO POLE
EB130 (BROOKLYN BLVD.)							
	189+02.74 TO 190+28.02	23.76	TO 22.30	X			POLE TO POLE
	190+28.02 TO 191+75.67	22.30	TO 19.18			X	POLE TO POLE
	191+75.67 TO 192+91.69	19.18	TO 17.74			X	POLE TO POLE
	192+91.69 TO 193+71.62	17.74	TO 17.67			X	POLE TO POLE
	193+71.62 TO 194+58.60	17.67	TO 17.60			X	POLE TO POLE
	194+58.60 TO 195+28.24	17.60	TO 18.01			X	POLE TO POLE
	195+28.24 TO 196+15.51	18.01	TO 18.21			X	POLE TO POLE
	196+15.51 TO 197+49.67	18.21	TO 62.74			X	POLE TO POLE
	197+49.67 TO 200+00.87	62.74	TO 44.35			X	POLE TO POLE
	200+00.87 TO 201+38.24	44.35	TO 34.55			X	POLE TO POLE
	201+38.24 TO 202+48.87	34.55	TO 35.82			X	POLE TO POLE
	202+48.87 TO 203+36.91	35.82	TO 34.36			X	POLE TO POLE
	203+36.91 TO 204+66.25	34.36	TO 37.39			X	POLE TO POLE
	204+66.25 TO 205+39.76	37.39	TO 38.05			X	POLE TO POLE
	205+39.76 TO 207+10.43	38.05	TO 39.83	X			POLE TO POLE
	207+10.43 TO 208+81.73	39.83	TO 38.99	X			POLE TO POLE
	208+81.73 TO 210+50.49	38.99	TO 38.20			X	POLE TO POLE
	210+50.49 TO 212+31.37	38.20	TO 38.79			X	POLE TO POLE
	212+31.37 TO 213+78.22	38.79	TO 35.38	X			POLE TO POLE



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EXISTING UTILITIES - XCEL OVERHEAD							J
STRUCTURE NUMBER	STATION - STATION	OFFSET - OFFSET FT	ACTION			REMARKS	
			LEAVE AS IS	ADJUST	RELOCATE		
WB130 (BROOKLYN BLVD)							
	93+64.33 TO 94+29.14	75.15 TO -20.48			X	POLE TO POLE	
	94+29.14 TO 96+56.42	-20.48 TO -25.30			X	POLE TO POLE	
	101+83.13 TO 102+11.84	-18.85 TO 92.55			X	POLE TO POLE	
NB81 (BOTTINEAU BLVD)							
	1352+07.62 TO 1352+35.58	-121.37 TO 60.49			X	POLE TO POLE	
	1361+90.12 TO 1362+14.45	-120.04 TO 86.26	X			POLE TO POLE	
	1371+21.43 TO 1371+48.60	78.47 TO -120.48	X			POLE TO POLE	
GREEN HAVEN DR							
	57+19.86 TO 57+39.34	-33.68 TO 28.25	X			POLE TO POLE	
	57+39.34 TO 58+68.72	28.25 TO 22.18			X	POLE TO POLE	
	58+68.72 TO 59+68.31	22.18 TO 41.23	X			POLE TO POLE	

EXISTING UTILITIES - HENNEPIN COUNTY							M
STATION - STATION	OFFSET - OFFSET FT	ACTION			REMARKS		
		LEAVE AS IS	ADJUST	RELOCATE			
EB130 (BROOKLYN BLVD)							
189+45.55 TO 191+75.38	17.48 TO 18.01	X					
191+75.38 TO 192+93.74	18.01 TO 4.52	X					
192+93.74 TO 197+65.18	4.52 TO 9.92	X					
197+65.18 TO 200+24.24	9.92 TO 44.18	X					
200+24.24	44.18	X				Hand Hole	
200+24.24 TO 200+65.75	44.18 TO 28.66	X					
200+65.75 TO 205+92.13	28.66 TO 27.97	X					
205+92.13	27.97	X				Hand Hole	
205+92.13 TO 209+67.18	27.97 TO 32.74	X					
209+67.18 TO 211+32.69	32.74 TO 39.19	X					
211+32.69	39.19	X				Hand Hole	
211+32.69 TO 213+68.40	39.19 TO 23.37	X					

EXISTING UTILITIES - XCEL							K
STATION - STATION	OFFSET - OFFSET FT	REMARKS			NOTES		
		LEAVE AS IS	RELOCATE	ADJUST			
XYLON							
40+86.85 TO 42+11.61	-49.02 TO -42.02			X		SEWER CONFLICT	
WB130 (BROOKLYN BLVD)							
95+32.42 TO 95+37.92	76.27 TO 73.51	X				CROSSING BROOKLYN BLVD.	
95+37.92 TO 95+36.93	73.51 TO 32.5	X				CROSSING BROOKLYN BLVD.	
95+36.93 TO 95+39.55	32.5 TO -21.36	X				CROSSING BROOKLYN BLVD.	
95+39.55 TO 96+64.95	-21.36 TO -19.45	X					
96+64.95 TO 97+08.46	-19.45 TO -22.19	X					
97+08.46 TO 97+31.58	-22.19 TO -29.12	X					
97+31.58 TO 97+37.36	-29.12 TO -35.19	X					
SB81 (BOTTINEAU BLVD)							
2347+14.22 TO 2347+60.98	-71.12 TO -49.76	X					
2347+60.98 TO 2347+80.07	-49.76 TO -48.39	X					
2347+80.07 TO 2347+97.37	-48.39 TO -50.67	X					
SB81 (BOTTINEAU BLVD)							
2370+98.10 TO 2371+58.61	-56.66 TO -59.94	X					
2371+58.61 TO 2372+11.76	-59.94 TO -58.85	X					
2372+11.76 TO 2372+74.55	-58.85 TO -59.91	X					

EXISTING UTILITIES - ZAYO							N
STATION - STATION	OFFSET - OFFSET FT	ACTION			REMARKS		
		LEAVE AS IS	ADJUST	RELOCATE			
WB130 (BROOKLYN BLVD)							
91+83.41 TO 93+14.48	-28.76 TO -25.62		X			SEWER/POND CONFLICT	
93+14.48 TO 96+05.30	-25.62 TO -26.64	X					
96+05.30	-26.64		X			UNDERGROUND VAULT	
96+05.30 TO 96+64.18	-26.64 TO -45.29	X					
96+64.18 TO 97+49.04	-45.29 TO -56.95	X					
97+49.04 TO 98+63.56	-56.95 TO -82.45		X			SEWER CONFLICT	
98+63.56 TO 99+55.19	-82.45 TO -101.79		X			SEWER CONFLICT	
99+55.19	-101.79					UNDERGROUND VAULT	
99+55.19 TO 99+94.18	-101.79 TO -59.25	X					
99+94.18 TO 100+38.43	-59.25 TO -36.83	X					
100+38.43 TO 100+73.21	-36.83 TO -32.17	X					
100+73.21 TO 101+82.55	-32.17 TO -37.36	X					
101+82.55 TO 102+94.50	-37.36 TO -34.64	X					
102+94.50 TO 103+29.34	-34.64 TO -30.58	X					
103+29.34 TO 104+81.98	-30.58 TO -33.00	X					
104+81.98 TO 106+29.89	-33.00 TO -38.37		X			SEWER CONFLICT	
106+29.89 TO 107+66.14	-38.37 TO -38.67	X					
107+66.14 TO 108+76.02	-38.67 TO -38.67		X			SEWER CONFLICT	
108+76.02 TO 111+62.05	-38.67 TO -38.67	X					
111+62.05 TO 113+46.63	-38.67 TO -38.89		X			SEWER CONFLICT	
113+46.63 TO 116+10.60	-38.89 TO -39.27	X					

EXISTING UTILITIES - MnDOT							L
STATION - STATION	OFFSET - OFFSET FT	ACTION			REMARKS		
		LEAVE AS IS	ADJUST	RELOCATE			
NB81 (BOTTINEAU BLVD)							
1395+58.02 TO 1396+46.64	567.64 TO 621.87	X					
1396+46.64 TO 1398+21.29	621.87 TO 731.30	X					
1398+21.29 TO 1400+36.26	731.30 TO 827.25	X					
1400+36.26 TO 1401+89.64	827.25 TO 897.57	X					



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EXISTING UTILITIES - CENTERPOINT, GAS						0
STATION - STATION	OFFSET - OFFSET FT	ACTION			REMARKS	
		LEAVE AS IS	RELOCATE	ADJUST		
73RD						
3+62.72 TO 4+70.46	-35.46 TO -34.59	X				
4+70.46 TO 4+72.72	-34.59 TO 33.69	X				
4+72.72 TO 5+09.92	33.69 TO 31.75	X				
5+09.92 TO 5+92.31	31.75 TO 39.03	X				
5+92.31 TO 7+05.17	39.03 TO 34.14			X	CROSSING 81. TOO CLOSE TO CB	
7+05.17 TO 8+51.00	34.14 TO 28.21			X	CROSSING 81. CONFLICT WITH SEWER	
8+51.00 TO 8+89.61	28.21 TO 27.00	X				
8+89.61 TO 10+25.82	27.00 TO 26.65	X				
10+25.82 TO 10+25.84	26.65 TO -34.00	X				
10+25.84 TO 10+71.47	-34.00 TO -34.00	X				
10+71.47 TO 14+93.72	-34.00 TO -34.00	X				
73RD						
4+17.54 TO 6+43.18	-15.74 TO -19.71			X	CONFLICT SEWER	
6+43.18 TO 7+83.42	-19.71 TO -85.07			X	CROSSING 81. CONFLICT WITH SEWER	
7+83.42 TO 8+02.67	-85.07 TO -89.66			X	CONFLICT WITH SEWER	
8+02.67 TO 8+30.43	-89.66 TO -19.75			X	CONFLICT WITH SEWER	
8+30.43 TO 8+66.76	-19.75 TO -17.36			X	GAS TOO CLOSE TO CB	
8+66.76	-17.36			X	VALVE	
8+66.76 TO 10+74.81	-17.36 TO -17.17			X	CONFLICT WITH SEWER	
10+74.81 TO 14+94.54	-17.17 TO -16.73	X				
LAKELAND AVE						
7+95.59 TO 8+29.69	15.85 TO 16.74	X				
8+29.69 TO 11+51.73	16.74 TO 16.49			X	CONFLICT WITH SEWER	
11+51.73 TO 11+96.71	16.49 TO 17.05	X				
11+96.71 TO 13+85.12	17.05 TO 19.41	X				
13+85.12 TO 14+22.19	19.41 TO 12.90			X	CONFLICT WITH SEWER	
14+22.19 TO 14+34.74	12.90 TO 9.94			X	CONFLICT WITH SEWER	
14+34.74 TO 14+49.07	9.94 TO 17.75			X	CONFLICT WITH SEWER	
14+49.07 TO 14+95.93	17.75 TO 23.70			X	CONFLICT WITH SEWER	
14+95.93 TO 15+15.10	23.70 TO 23.81	X			OUTSIDE CONST. LIMITS	
15+15.10 TO 15+92.23	23.81 TO 24.45	X				
15+92.23 TO 16+21.36	24.45 TO 25.09	X				
16+21.36 TO 16+75.08	25.09 TO 19.93	X			OUTSIDE CONST. LIMITS	
16+75.08 TO 16+99.47	19.93 TO 21.14	X				
16+99.47 TO 17+28.51	21.14 TO 23.21	X				
NE81 (BOTTINEAU BLVD)						
1337+62.76 TO 1337+92.02	114.12 TO 113.85	X			OUTSIDE CONST. LIMITS	
1337+92.02 TO 1338+19.39	113.85 TO 113.70	X				
1338+19.39 TO 1344+37.74	113.70 TO 114.13	X			GAS BEND. OUTSIDE CONST. LIMITS	
1344+37.74 TO 1344+27.75	114.13 TO 153.63	X			GAS BEND. OUTSIDE CONST. LIMITS	
1344+27.75 TO 1345+00.15	153.63 TO 196.53			X	CONFLICT WITH SEWER	

EXISTING UTILITIES - CENTERPOINT, GAS						0
STATION - STATION	OFFSET - OFFSET FT	ACTION			REMARKS	
		LEAVE AS IS	RELOCATE	ADJUST		
WB130 (BROOKLYN BLVD)						
88+92.93 TO 89+20.45	6.50 TO 7.19	X			OUTSIDE CONST. LIMITS.	
89+20.45 TO 93+10.68	7.19 TO 16.76			X	CONFLICT WITH SEWER	
93+10.68 TO 96+42.81	16.76 TO 17.88			X		
96+42.81	17.88			X	VALVE	
96+42.81 TO 99+74.90	17.88 TO 14.19			X	CONFLICT WITH SEWER	
99+74.90 TO 101+28.94	14.19 TO 18.21			X	CONFLICT WITH SEWER	
101+28.94 TO 105+32.04	18.21 TO -17.00			X	CONFLICT WITH SEWER	
105+32.04 TO 105+62.37	-17.00 TO -18.11	X				
105+62.37 TO 106+10.19	-18.11 TO -19.61	X				
106+10.19 TO 107+00.77	-19.61 TO -20.61	X				
107+00.77 TO 108+53.26	-20.61 TO -20.33			X	CONFLICT WITH SEWER	
108+53.26 TO 110+53.96	-20.33 TO -19.56	X				
110+53.96 TO 111+11.56	-19.56 TO -19.34	X				
111+11.56 TO 111+93.47	-19.34 TO -19.02	X				
111+93.47 TO 112+53.35	-19.02 TO -18.79			X	CONFLICT WITH SEWER	
112+53.35 TO 113+13.53	-18.79 TO -18.69	X				
WB130 (BROOKLYN BLVD)						
88+47.68 TO 89+20.12	-18.67 TO -17.15	X			OUTSIDE OF CONST. LIMITS	
89+20.12 TO 89+63.22	-17.15 TO -16.52	X				
89+63.22 TO 93+11.14	-16.52 TO -10.08			X	CONFLICT WITH SEWER	
93+11.14 TO 94+40.90	-10.08 TO -9.83			X	TOO CLOSE TO STORM STRUCTURES	
94+40.90	-9.83			X	VALVE	
94+40.90 TO 96+43.42	-9.83 TO -2.97	X				
96+43.42 TO 97+04.04	-2.97 TO -5.36	X				
97+04.04 TO 97+45.01	-5.36 TO -8.41	X			GAS BEND	
97+45.01 TO 97+53.49	-8.41 TO -19.18	X				
97+53.49 TO 97+51.54	-19.18 TO -30.80	X				
97+51.54 TO 97+39.12	-30.80 TO -55.94	X				
97+39.12 TO 97+41.95	-55.94 TO -64.52	X			GAS BEND	
97+41.95 TO 97+74.99	-64.52 TO -82.49			X	CONFLICT WITH SEWER	
97+74.99 TO 98+91.66	-82.49 TO -139.97			X	CONFLICT WITH SEWER	
98+91.66	-139.97			X	VALVE	
98+91.66 TO 98+94.45	-139.97 TO -141.34			X		
XYLON						
41+50.60 TO 41+64.35	20.92 TO 20.90			X	CONFLICT WITH SEWER	
41+64.35 TO 41+81.47	20.90 TO 20.87			X	CONFLICT WITH SEWER	
SB81 (BOTTINEAU BLVD)						
2347+06.43	-179.26			X	VALVE	
2347+06.43 TO 2347+25.03	-179.26 TO -169.84	X				
2347+25.03 TO 2347+38.88	-169.84 TO -163.49	X				
2347+38.88	-163.49			X	VALVE	
EB130 (BROOKLYN BLVD)						
195+54.10 TO 195+85.99	-34.77 TO 12.82	X				
JOLLY LANE						
43+03.44 TO 44+89.22	-28.99 TO -16.79			X	CONFLICT WITH SEWER	
SHOP ACCESS						
1+79.42 TO 2+15.19	41.62 TO 41.12	X				



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Kelly Agosto
 KELLY AGOSTO, LICENSED PROFESSIONAL ENGINEER
 49075 LICENSE NO. 3/15/19 DATE

DESIGN BY: O. AFOLABI
 CAD BY: E. GUIR
 CHECKED BY: L. LANGNER
 LAST REVISION: / /

INPLACE UTILITY TABULATIONS

C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
 S.P. 027-681-035, S.P. 110-020-040

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EXISTING UTILITIES - CENTERPOINT, GAS							O
STATION - STATION	OFFSET - OFFSET FT	ACTION			REMARKS		
		LEAVE AS IS	RELOCATE	ADJUST			
NB81 (BOTTINEAU BLVD)							
1345+69.32 TO 1346+38.16	58.84 TO 55.41			X			
1346+38.16 TO 1347+44.31	55.41 TO 52.20			X			
1346+40.89	49.09			X	VALVE		
1346+44.51	52.60			X	MANHOLE		
1347+44.31 TO 1348+46.74	52.20 TO 47.86			X			
1347+85.62	51.25			X	VALVE		
1348+46.74 TO 1351+23.18	47.86 TO 34.70			X			
1351+23.18 TO 1352+78.70	34.70 TO 27.33			X			
1352+78.70 TO 1353+50.38	27.33 TO 24.99			X			
1353+50.38 TO 1354+15.01	24.99 TO 20.34			X			
1354+15.01 TO 1356+90.29	20.34 TO 22.70			X			
1356+90.29 TO 1357+37.37	22.70 TO 23.48			X			
1357+37.37 TO 1358+84.60	23.48 TO 25.92			X			
1358+84.60 TO 1363+26.76	25.92 TO 28.10			X			
1363+26.76 TO 1365+62.91	28.10 TO 33.12			X			
1365+62.91 TO 1370+45.80	33.12 TO 43.21			X			
1368+09.51	35.40			X			
1370+45.80 TO 1371+69.37	43.21 TO 42.97			X			
1371+69.37 TO 1373+25.68	42.97 TO 51.76			X			
1373+25.68 TO 1378+88.37	51.76 TO 62.06			X			
1378+88.37 TO 1378+91.16	62.06 TO 109.13	X			GAS BEND. OUTSIDE CONST. LIMITS		
1378+91.16 TO 1383+91.24	109.13 TO 154.59	X			GAS BEND. OUTSIDE CONST. LIMITS		
1383+91.24 TO 1386+31.54	154.59 TO 222.56	X			OUTSIDE CONST. LIMITS		
1386+31.54 TO 1388+80.15	222.56 TO 307.41	X			OUTSIDE CONST. LIMITS		
1388+80.15 TO 1390+47.35	307.41 TO 382.05	X			OUTSIDE CONST. LIMITS		
1390+47.35 TO 1394+69.94	382.05 TO 601.89	X			OUTSIDE CONST. LIMITS		
1394+69.94 TO 1396+55.47	601.89 TO 783.88	X			OUTSIDE CONST. LIMITS		
1396+55.47 TO 1397+53.41	783.88 TO 1071.24	X			OUTSIDE CONST. LIMITS		
NB81 (BOTTINEAU BLVD)							
1346+38.16 TO 1346+37.94	55.41 TO 62.38			X	CONFLICT WITH SEWER		
1346+37.94 TO 1346+42.39	62.38 TO 66.08			X	CONFLICT WITH SEWER		
1346+42.39 TO 1346+97.42	66.08 TO 61.35			X	CONFLICT WITH SEWER		
1346+97.42	61.35			X	MANHOLE		
1346+97.42 TO 1347+71.55	61.35 TO 56.52			X	CONFLICT WITH SEWER		
1347+71.55 TO 1351+23.18	56.52 TO 34.70			X	CONFLICT WITH SEWER		
1351+23.18 TO 1352+78.76	34.70 TO 29.20			X	CONFLICT WITH SEWER		
1352+78.76 TO 1353+50.66	29.20 TO 27.63			X	CONFLICT WITH SEWER		
1353+50.66 TO 1354+14.29	27.63 TO 26.81			X	CONFLICT WITH SEWER		
1354+14.29 TO 1356+90.01	26.81 TO 28.62	X					
1356+90.01 TO 1357+37.06	28.62 TO 29.26			X	CONFLICT WITH SEWER		
1357+37.06 TO 1358+14.63	29.26 TO 30.30			X	CONFLICT WITH SEWER		
1358+14.63 TO 1359+80.52	30.30 TO 32.54			X	CONFLICT WITH SEWER		
1359+80.52 TO 1362+30.90	32.54 TO 35.91	X					
1362+30.90 TO 1365+01.63	35.91 TO 39.56			X	CONFLICT WITH SEWER		
1365+01.63 TO 1371+64.71	39.56 TO 47.01	X					
1371+64.71 TO 1372+83.09	47.01 TO 52.18			X	CONFLICT WITH SEWER		
1372+83.09 TO 1378+84.64	52.18 TO 66.56	X					
1378+84.64 TO 1378+89.70	66.56 TO 110.29				GAS BEND. OUTSIDE CONST. LIMITS		
1378+89.70 TO 1383+88.99	110.29 TO 158.51				GAS BEND. OUTSIDE CONST. LIMITS		
1383+88.99 TO 1386+30.33	158.51 TO 225.85				OUTSIDE CONST. LIMITS		
1386+30.33 TO 1388+80.52	225.85 TO 311.42				OUTSIDE CONST. LIMITS		
1388+80.52 TO 1388+91.53	311.42 TO 326.36				OUTSIDE CONST. LIMITS		

EXISTING UTILITIES - CENTERPOINT, GAS							O
STATION - STATION	OFFSET - OFFSET FT	ACTION			REMARK		
		LEAVE AS IS	RELOCATE	ADJUST			
79TH AVEN							
47+34.97 TO 48+43.88	-39.67 TO -39.68	X					
48+43.88 TO 49+65.15	-39.68 TO -39.75	X					
49+65.15 TO 50+78.87	-39.75 TO -24.59	X					
GREEN HAVEN							
55+00.00 TO 57+63.59	20.00 TO 20.00	X					
57+63.59 TO 57+97.14	20.00 TO 20.00	X					
NB81 (BOTTINEAU BLVD)							
1313+80.27 TO 1317+04.80	697.02 TO 841.18						Begin Gas Out of Service
1317+04.80 TO 1317+47.07	841.18 TO 774.44						Gas Out of Service
1317+47.07 TO 1329+71.55	774.44 TO 453.31						Gas Out of Service
1329+71.55 TO 1330+28.10	453.31 TO 438.80						Gas Out of Service
1330+28.10 TO 1330+59.58	438.80 TO 430.83						Gas Out of Service
1330+59.58 TO 1337+97.42	430.83 TO 241.56						End Gas Out of Service
LAKELAND AVE							
16+21.21 TO 17+41.74	10.95 TO -12.63						Gas Out of Service
NB81 (BOTTINEAU BLVD)							
1378+88.37 TO 1392+43.09	62.06 TO 203.88						Gas Out of Service
NB81 (BOTTINEAU BLVD)							
1378+88.63 TO 1389+59.35	66.54 TO 191.94						Gas Out of Service
83RD AVE							
67+63.82 TO 69+19.43	32.00 TO 30.61						Gas Out of Service

EXISTING UTILITIES - COMCAST							P
STATION - STATION CL 81	OFFSET - OFFSET FT	REMARKS			NOTES		
		LEAVE AS IS	RELOCATE	ADJUST			
XYLON							
41+75.00 TO 42+18.69	-38.68 TO -32.41	X					
EB 130 (BROOKLYN BLVD)							
196+13.49 TO 196+32.62	19.7 TO 30.3	X					
196+32.62 TO 197+47.75	30.33 TO 63.18	X					
EB 130 (BROOKLYN BLVD)							
196+13.49 TO 196+28.58	19.69 TO 37.06	X					
196+28.58 TO 197+47.75	37.06 TO 63.18	X					
SB81 (BOTTINEAU BLVD)							
2378+13.09 TO 2378+21.73	90.08 TO -58.48				X		CROSSES 81
SB81 (BOTTINEAU BLVD)							
2381+53.76 TO 2382+04.75	-63.68 TO -51.12	X					
2382+04.75 TO 2384+93.35	-51.12 TO -43.85	X					
2384+93.35 TO 2386+29.61	-43.85 TO -46.37	X					
2386+29.61 TO 2388+13.11	-46.37 TO -47.51	X					
2388+13.11 TO 2388+70.88	-47.51 TO -42.54	X					



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49075 3/15/19
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EXISTING UTILITIES - NORTH MEMORIAL FIBER							Q
STATION - STATION	OFFSET - OFFSET FT	REMARKS			NOTES		
		LEAVE AS IS	RELOCATE	ADJUST			
SB81 (BOTTINEAU BLVD.)							
2306+22.82 TO 2306+83.43	-43.8 TO -43.8	X					
2306+83.43 TO 2316+39.43	-43.8 TO -55.3	X			OUTSIDE CONST. LIMITS		
2316+39.43 TO 2319+31.02	-55.3 TO -51.9			X	STORM SEWER CONFLICT		
2319+31.02 TO 2322+99.18	-51.9 TO -48.0	X					
2322+99.18 TO 2344+56.76	-48.0 TO -61.3	X			OUTSIDE CONST. LIMITS		
2344+56.76 TO 2347+95.66	-61.3 TO -59.0			X	STORM SEWER CONFLICT		
2347+95.66 TO 2353+50.00	-59.0 TO -58.2	X			OUTSIDE CONST. LIMITS		
2353+50.00 TO 2353+89.06	-58.2 TO -58.3	X					
2353+89.06 TO 2359+08.14	-58.3 TO -61.1	X			OUTSIDE CONST. LIMITS		
2359+08.14 TO 2359+78.17	-61.1 TO -61.2	X					
2359+78.17 TO 2371+00.97	-61.2 TO -61.8	X			OUTSIDE CONST. LIMITS		
2371+00.97 TO 2372+56.00	-61.83 TO -65.44	X					
2372+56.00 TO 2383+93.09	-65.44 TO -111.38	X			OUTSIDE CONST. LIMITS		

EXISTING UTILITIES - LEVEL 3							R
STATION - STATION	OFFSET - OFFSET FT	ACTION			REMARKS		
		LEAVE AS IS	RELOCATE	ADJUST			
EB130 (BROOKLYN BLVD.)							
188+69.21 TO 190+10.15	25.56 TO 24.38	X			OUTSIDE CONST. LIMITS		
190+10.15 TO 191+62.28	24.38 TO 21.47	X					
191+62.28	21.47			X	VAULT		
191+62.28 TO 193+77.82	21.47 TO 19.24			X	CONFLICT WITH SEWER		
193+77.82 TO 195+99.50	19.24 TO 20.87			X	CONFLICT WITH SEWER		
195+99.50 TO 198+00.67	20.87 TO 116.25	X					
198+00.67 TO 199+81.97	116.25 TO 68.19			X	CROSSING 81		
199+81.97	68.19			X	VAULT		
199+81.97 TO 200+01.79	68.19 TO 48.92	X					
200+01.79 TO 200+33.87	48.92 TO 37.40	X					
200+33.87 TO 201+46.60	37.40 TO 32.96	X					
201+46.60 TO 203+58.52	32.96 TO 33.56	X					
203+58.52 TO 205+29.20	33.56 TO 33.45	X					
205+29.20 TO 205+49.51	33.45 TO 29.44			X	CONFLICT WITH SEWER		
205+49.51	29.44			X	VAULT		
205+49.51 TO 205+49.61	29.44 TO 18.64			X	FIBER BEND		
205+49.61 TO 208+43.24	18.64 TO 19.37			X	CONFLICT WITH SEWER		
208+43.24 TO 209+62.20	19.37 TO 30.31	X					
209+62.20 TO 211+32.65	30.31 TO 32.13	X					

EXISTING UTILITIES - TDS							S
STATION - STATION	OFFSET - OFFSET FT	ACTION			REMARKS		
		LEAVE AS IS	RELOCATE	ADJUST			
SB81 (BOTTINEAU BLVD.)							
2306+22.78 TO 2316+16.04	-55.78 TO -61.92	X			OUTSIDE CONST. LIMITS		
2316+16.04 TO 2319+21.35	-61.92 TO -58.62			X	SEWER CONFLICT		
2319+21.35 TO 2320+74.36	-58.62 TO -59.16	X					
2320+74.36 TO 2344+57.85	-59.16 TO -70.60	X			OUTSIDE CONST. LIMITS		
2344+57.85 TO 2347+87.88	-70.60 TO -71.33			X	SEWER CONFLICT		
2347+87.88 TO 2370+34.37	-71.33 TO -81.26	X			OUTSIDE CONST. LIMITS		
2370+34.37 TO 2373+56.58	-81.26 TO -89.50			X	SEWER CONFLICT		
2373+56.58 TO 2383+95.62	-89.50 TO -131.22	X			OUTSIDE CONST. LIMITS		



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49075 3/15/19
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CHECKED BY: L. LANGNER
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INPLACE CULVERTS												
I.D.	INLET STATION	OFFSET	FLOWLINE ELEVATION	I.D.	OUTLET STATION	OFFSET	FLOWLINE ELEVATION	SIZE	LENGTH	REMOVE PIPE CULVERTS	REMOVE APRON	REMARKS
		FT				FT			LF	LF	EACH	
IN200	L LAKELAND 2+02.6	37 RT	881.35	OUT201	L LAKELAND 2+03.0	44 LT	880.95	15	81	81	2	
IN202	L LAKELAND 2+05.0	37 RT	881.34	OUT203	L LAKELAND 2+07.0	37 LT	880.97	15	81	81	2	
IN204	L LAKELAND 7+85.8	33 RT	879.17	OUT205	L LAKELAND 7+89.7	33 LT	878.65	15	72	72	2	
IN206	L LAKELAND 7+90.9	33 RT	879.12	OUT207	L LAKELAND 7+95.4	33 LT	878.74	15	72	72	2	
IN208	L LAKELAND 9+78.6	32 RT	878.63	OUT209	L LAKELAND 9+80.8	32 LT	878.33	15	65	65	2	
IN211	L NB81 1332+96.8	90 RT	870.91	OUT212	L NB81 1332+97.8	90 LT	870.16	36	184	184	2	
IN213	L NB81 1334+89.3	79 RT	874.48	OUT214	L NB81 1334+16.8	79 RT	873.61	18	72	72	2	
IN215	L NB81 1336+69.7	12 LT	875.34	OUT216	L NB81 1336+69.4	12 LT	872.76	18	71	71	2	
IN217	L NB81 1338+01.6	122 RT	876.33	OUT218	L NB81 1338+02.2	122 RT	875.82	12	30	30	2	
IN222	L SB81 2352+54.1	30 RT	876.68	OUT223	L SB81 2352+50.4	30 LT	875.66	18	77	77	2	
IN220	L NB81 1348+10.9	63 RT	879.25	OUT221	L NB81 1348+52.4	63 RT	879.01	15	42	42	2	
IN224	L NB81 1352+41.3	39 RT	876.58	OUT225	L NB81 1353+48.2	39 RT	875.82	18	107	107	2	
IN226	L NB81 1358+21.0	42 RT	872.17	OUT227	L NB81 1359+51.7	42 RT	871.61	28	131	131	2	
IN228	L NB81 1358+30.1	35 LT	873.05	OUT229	L NB81 1359+27.4	35 LT	872.57	28	97	97	2	
IN232	L SB81 2359+71.3	54 LT	871.18	OUT233	L SB81 2360+33.5	54 LT	870.73	18	62			LEAVE AS IS
IN230	L NB81 1359+60.2	30 LT	872.64	OUT231	L NB81 1359+60.0	30 RT	871.18	18	76	76	2	
IN234	L NB81 1360+48.9	29 LT	872.81	OUT235	L NB81 1360+48.5	29 RT	871.14	15	82	82	2	
IN238	L GREENHAVEN 59+50.6	42 LT	870.69	OUT239	L GREENHAVEN 59+53.2	42 RT	869.83	36	87	87	2	
IN240	L NB81 1372+35.3	63 RT	877.96	OUT241	L NB81 1371+10.3	63 RT	877.16	18	124	124	2	
IN242	L NB81 1372+40.9	23 LT	880.16	OUT243	L NB81 1372+43.0	23 RT	878.80	15	78	78	2	
IN245	L NB81 1380+23.2	33 LT	881.29	OUT246	L NB81 1380+24.2	33 RT	880.34	15	78	78	2	
SHEET TOTALS										1707	40	



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INPLACE SANITARY SEWER															
STATION TO STATION	OFFSET	STRUCTURE NUMBER	INPLACE TOP RING ELEV.	FLOWLINE ELEV.	FLows TO STRUCTURE	PIPE SIZE	PIPE LENGTH	PROPOSED TOP RING ELEV.	REMOVE CASTING	CASTING ASSEMBLY	ADJUST FRAME AND RING CASTING	INSTALL CASTING	RECON. SANITARY MANHOLES	SALVAGE CASTING	REMARKS
	LF					INCH	LF		EACH	EACH	EACH	EACH	LF	EACH	
NB81															
1303+24.1 TO 1308+64.6	92.1 TO 86.8														FORCEMAN OUT OF SERVICE
1308+64.6 TO 1309+93.4	86.8 TO 88.6														FORCEMAN OUT OF SERVICE
1309+93.4 TO 1312+21.9	88.6 TO 84.3														FORCEMAN OUT OF SERVICE
1312+21.9 TO 1315+02.6	84.3 TO 84.9														FORCEMAN OUT OF SERVICE
1315+02.6 TO 1316+45.7	84.9 TO 99.3														FORCEMAN OUT OF SERVICE
1316+45.7 TO 1317+46.4	99.3 TO 92.1														FORCEMAN OUT OF SERVICE
1317+46.4 TO 1317+81.5	92.1 TO 82.5														FORCEMAN OUT OF SERVICE
1317+81.5 TO 1323+45.2	82.5 TO 77.7														FORCEMAN OUT OF SERVICE
1317+81.5 TO 1326+21.5	82.5 TO 75.6														FORCEMAN OUT OF SERVICE
1326+21.5 TO 1334+65.7	75.6 TO 75.6														FORCEMAN OUT OF SERVICE
1334+65.7 TO 1340+21.5	75.6 TO 75.3														FORCEMAN OUT OF SERVICE
1340+21.5 TO 1343+98.0	75.3 TO 80.9														FORCEMAN OUT OF SERVICE
1354+18.7 TO 1352+84.5	53.7 TO 56.4	ON PIPE			ISMH611										
1352+84.5 TO 1348+84.1	56.4 TO 87.3	ISMH611	879.05	857.5	ISMH610	10.0	404.4				1				
1348+84.1 TO 1345+85.8	87.3 TO 120.8	ISMH610	881.32	857.1	ISMH603	10.0	300.2				1				
WB130															
88+97.5 TO 92+87.7	18.9 TO 36.4	ISMH600	875.82		ISMH601	24.0	395.3								
92+87.7 TO 94+58.0	36.4 TO 37.6	ISMH601	876.41		ON PIPE				1	1		1			
94+58.0 TO 94+93.9	37.6 TO 37.7	ON PIPE			ON PIPE										
94+93.9 TO 95+80.6	37.7 TO -30.2	ON PIPE			ISMH602										
95+80.6 TO 100+24.0	-30.2 TO -27.0	ISMH602	877.11		ISMH603		443.5				1				
100+24.0 TO 103+11.7	-27.0 TO -26.6	ISMH603	880.56		ON PIPE						1				
103+11.7 TO 105+65.4	-26.6 TO -27.0	ON PIPE			ISMH606										
105+65.4 TO 114+35.5	-27.0 TO -35.4	ISMH606	875.44	860.5	ISMH609	10.0	868.7								
103+41.8 TO 105+60.0	5.8 TO -2.6	ISMH604	877.16	869.7	ISMH605	10.0	218.3		1	1		1			
105+62.8 TO 105+60.0	80.1 TO -2.6	ISMH607	875.33	861.4	ISMH605	10.0	82.7		1	1		1			
106+15.5 TO 105+60.0	-43.7 TO -2.6	ISMH608	876.64	861.5	ISMH605	8.0	68.9		1	1		1			
NB81															
1358+92.6 TO 1358+94.8	114.5 TO 56.0	ON PIPE			ISMH613										
1358+94.8 TO 1356+77.6	56.0 TO 54.8	ISMH613	874.90	859.7	ISMH612	10.0	217.2								
1356+77.6 TO 1391+97.4	54.8 TO 93.1	ISMH612	875.88	859.3	ON PIPE	10.0	395.2				1				
1363+10.1 TO	45.5 TO	ISMH614	870.90								1				
1382+16.6 TO 1379+88.6	103.9 TO 90.2	ON PIPE			ON PIPE										
1379+88.6 TO 1375+96.2	90.2 TO 95.9	ON PIPE			ISMH618										
1375+96.2 TO 1371+93.4	95.9 TO 98.0	ISMH618	882.01								1				
1371+93.4 TO	98.0 TO	ISMH617	878.18	869.8	ISMH 618	8.0									
1371+97.3 TO 1387+54.2	41.9 TO 57.7	ISMH616	882.69	873.4	ISMH615	10.0					1				
1387+54.2 TO	57.7 TO	ISMH615	879.82	871.4		10.0			1	1		1			
GREEN HAVEN															
58+25.1	-8.8	ISMH6xx	881.80								1				
57.72.3	-6.3	ISMH6xx	881.54								1				



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.

Kelly Agosto
 KELLY AGOSTO, LICENSED PROFESSIONAL ENGINEER

49075 3/15/19
 LICENSE NO. DATE

DESIGN BY: L. LANGNER
 CAD BY: E. GUIR
 CHECKED BY: O. AFOLABI
 LAST REVISION: / /

INPLACE UTILITY TABULATIONS
 C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
 S.P. 027-681-035, S.P. 110-020-040

SHEET

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INPLACE DRAINAGE STRUCTURES													K	
STRUCTURE NUMBER	STATION	OFFSET	INPLACE T/R ELEV	FLOWLINE ELEV.	FLOWS TO STRUCTURE	PIPE SIZE	PIPE LENGTH		PROPOSED T/R ELEV	REMOVE DRAINAGE STRUCTURE	REMOVE SEWER PIPE (STORM)	ADJUST FRAME AND RING CASTING	REMOVE APRON	REMARKS
							INCH	LIN FT						
IN 91	L ^{NB81} 1302+86.5	84.3 RT		876.06	ICB092	21	29							LEAVE ASIS
ICB 92	L ^{NB81} 1302+59.1	74.5 RT	881.04	875.70	INPLACE	21								LEAVE ASIS
ICB 93	L ^{SB81} 2307+99.8	50.9 LT	877.88	873.78	IDMH094	18	56			56				
IDMH 94	L ^{SB81} 2307+46.2	35.6 LT	879.97	872.47	ICB096	30	126		1	126				
ICB 95	L ^{SB81} 2307+50.7	32.6 RT	877.84	873.84	IDMH094	24	68		1	68				
ICB 96	L ^{SB81} 2306+20.2	36.9 LT	880.80	872.80	ICB 90	30	76							LEAVE ASIS
ICB 97	L ^{SB81} 2306+19.9	25.3 RT	879.92	875.92	ICB 096	15	62	879.92			1			
ICB 98	L ^{SB81} 2305+24.9	25.2 RT	880.39	876.49	INPLACE	15	62	880.39			1			
IDMH 105	L ^{LAKELAND} 17+96.5	3.3 LT	878.10	870.40	IDMH107	42	145							LEAVE ASIS
ICB 106	L ^{LAKELAND} 17+76.9	47.0 RT	877.81	874.86	IDMH105	12	54							LEAVE ASIS
IDMH 107	L ^{LAKELAND} 16+52.9	9.8 RT	876.51	870.06	ICB108	42	203	876.50			1			
ICB 108	L ^{LAKELAND} 14+68.9	29.4 LT	874.25	869.70	OUT210	48	227		1	227				
ICB 109	L ^{LAKELAND} 14+74.6	10.7 RT	874.02	872.12	ICB108	12	41		1	41				
ICB 116	L ^{EB130} 188+38.1	13.9 RT	874.58	870.35	CREEK	18								LEAVE ASIS
ICB 118	L ^{WB130} 90+44.3	58.4 RT	874.22	870.00	ICB119	12	31		1	31				
ICB 119	L ^{WB130} 90+44.8	27.2 RT	874.48	869.64	ICB120	12	14		1	14				
ICB 120	L ^{WB130} 90+45.1	13.5 RT	874.65	868.05	ICB121	12	25		1	25				
ICB 121	L ^{WB130} 90+46.0	11.8 LT	874.29	867.79	ICB122	21	59		1	59				
ICB 122	L ^{WB130} 89+86.6	12.6 LT	874.29	867.49		21			1					
ICB 123	L ^{WB130} 92+66.4	104.6 RT	877.28	873.08	ICB124	12	43		1	43				
ICB 124	L ^{WB130} 93+09.6	105.8 RT	877.38	872.83	ICB125	12	56		1	56				
ICB 125	L ^{WB130} 93+50.8	66.9 RT	876.18	872.18	ICB126	18	26		1	26				
ICB 126	L ^{WB130} 93+51.2	40.9 RT	876.87	872.02	ICB127	18	8		1	8				
ICB 127	L ^{WB130} 93+51.2	33.4 RT	876.54	871.94	ICB128	18	37		1	37				
ICB 128	L ^{WB130} 93+51.5	3.8 LT	876.15	869.34	IDMH129	21	88		1	88				
IDMH 129	L ^{WB130} 92+63.1	2.4 LT	875.88	868.93	ICB121	21	217		1	217				
ICB 130	L ^{WB130} 93+12.5	44.3 LT	875.89	871.79	ICB131	12	43		1	43				
ICB 131	L ^{WB130} 92+69.5	45.6 LT	875.91	871.31	IDMH129	12	44		1	44				
ICB 132	L ^{WB130} 97+37.4	12.6 LT	878.66	876.76	IDMH133	12	48		1	48				
IDMH 133	L ^{WB130} 97+66.0	51.3 LT	880.25	876.75	OUT219	12	29		1	29				
ICB 135	L ^{WB130} 101+56.1	29.7 LT	878.79	873.69	ICB136	12	84		1	84				
ICB 136	L ^{WB130} 102+38.6	14.8 LT	877.59	873.59	ICB137	12	49		1	49				
ICB 137	L ^{WB130} 102+41.8	34.0 RT	877.71	873.41	ICB138	12	8		1	8				
ICB 138	L ^{WB130} 102+42.3	41.4 RT	877.95	873.30	ICB139	12	38		1	38				
ICB 139	L ^{WB130} 102+41.8	78.9 RT	877.59	872.09	IDMH141	15	150		1	150				
ICB 140	L ^{WB130} 102+04.5	104.8 RT	875.78	873.28	ICB139	12	45			9				
IDMH 141	L ^{EB130} 203+18.3	18.7 RT	876.45	868.90	ICB147	24	137		1	137				
ICB 142	L ^{WB130} 106+00.0	38.8 LT	875.04	871.85	ICB143	12	43		1	43				
ICB 143	L ^{WB130} 105+56.5	37.9 LT	875.25	871.25	ICB144	12	39		1	39				
ICB 144	L ^{WB130} 105+29.5	9.1 LT	875.70	871.25	ICB145	12	26		1	26				
ICB 145	L ^{WB130} 105+30.5	16.4 RT	875.82	870.97	ICB146	12	8		1	8				
ICB 146	L ^{WB130} 105+30.9	23.9 RT	875.58	870.75	ICB147	12	50		1	50				
ICB 147	L ^{EB130} 204+55.0	23.2 RT	875.48	868.38	IDMH155	24	298		1	298				
ICB 148	L ^{WB130} 106+04.1	99.0 RT	874.81	870.21	ICB149	12	42		1	42				
ICB 149	L ^{WB130} 105+62.3	100.0 RT	874.81	870.11	ICB147	12	41		1	41				
ICB 150	L ^{WB130} 108+00.1	54.3 LT	874.13	871.63	ICB151	12	30		1	30				
SHEET TOTALS										35	2338	3		



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Kelly Agosto
 KELLY AGOSTO, LICENSED PROFESSIONAL ENGINEER

49075 3/15/19
 LICENSE NO. DATE

DESIGN BY: L. LANGNER
 CAD BY: E. GUIR
 CHECKED BY: O. AFOLABI
 LAST REVISION: / /

INPLACE UTILITY TABULATIONS
 C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
 S.P. 027-681-035, S.P. 110-020-040

SHEET
 28
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INPLACE DRAINAGE STRUCTURES

K

STRUCTURE NUMBER	STATION	OFFSET	INPLACE T/R ELEV	FLOWLINE ELEV.	FLOWS TO STRUCTURE	PIPE SIZE	PIPE LENGTH	PROPOSED T/R ELEV	REMOVE DRAINAGE STRUCTURE	REMOVE SEWER PIPE (STORM)	ADJUST FRAME AND RING CASTING	REMOVE APRON	REMARKS
ICB 151	L ^{WB130} 108+03.1	24.8 LT	873.77	871.42	ICB152	12	49		1	49			
ICB 152	L ^{WB130} 108+03.9	24.5 RT	874.10	870.85	ICB153	12	7		1	7			
ICB 153	L ^{WB130} 108+03.8	31.9 RT	874.29	870.81	ICB154	12	35		1	35			
ICB 154	L ^{WB130} 108+27.2	57.7 RT	874.23	870.42	IDMH155	12	10		1	10			
IDMH 155	L ^{EB130} 207+53.6	23.0 RT	875.17	867.35	IDMH159	27	184		1	184			
ICB 156	L ^{WB130} 108+76.5	102.5 RT	876.19	869.74	IDMH155	15	59						LEAVE AS IS
ICB 157	L ^{WB130} 109+34.1	101.1 RT	875.55	872.13	ICB156	12	58						LEAVE AS IS
ICB 158	L ^{WB130} 110+13.4	129.0 RT	874.87	867.34	IDMH159	27	62						LEAVE AS IS
IDMH 159	L ^{EB130} 209+37.9	22.1 RT	874.56	866.86	ICB160	27	175		1	175			
ICB 160	L ^{EB130} 211+13.1	25.2 RT	873.38	866.60	IDMH161	36	28		1	28			
IDMH 161	L ^{EB130} 211+41.4	23.7 RT	873.42	866.59	ICB178	36	292		1	87			
ICB 162	L ^{WB130} 112+32.4	62.8 LT	872.05	869.05	ICB163	12	27			3			
ICB 163	L ^{WB130} 112+45.7	39.6 LT	872.89	868.39	ICB164	27	35		1	35			
ICB 164	L ^{WB130} 112+14.7	24.4 LT	873.23	867.53	ICB165	27	37		1	37			
ICB 165	L ^{WB130} 112+14.3	12.9 RT	873.61	867.10	ICB166	27	7		1	7			
ICB 166	L ^{WB130} 112+14.2	20.3 RT	873.26	867.09	ICB161	27	49		1	49			
ICB 167	L ^{WB130} 112+27.2	85.2 RT	872.77	867.47	ICB161	12	20		1	20			
ICB 168	L ^{WB130} 112+08.5	104.8 RT	874.09	868.54	ICB167	12	27			3			
ICB 169	L ^{WB130} 113+26.4	63.7 LT	872.25	869.95	ICB170	12	38			5			
ICB 170	L ^{WB130} 112+97.2	40.2 LT	872.75	869.50	ICB163	27	52		1	52			
ICB 171	L ^{WB130} 112+96.1	86.1 RT	872.28	868.18	ICB167	12	69		1	69			
ICB 172	L ^{WB130} 113+16.5	112.7 RT	871.47	868.47	ICB171	12	34			21			
ICB 173	L ^{WB130} 115+09.5	68.6 LT	871.64	869.84	ICB174	12	46						LEAVE AS IS
ICB 174	L ^{WB130} 114+92.9	25.4 LT	871.38	868.53	ICB175	12	39						LEAVE AS IS
ICB 175	L ^{WB130} 114+93.3	13.6 RT	871.94	868.29	ICB176	12	8						LEAVE AS IS
ICB 176	L ^{WB130} 114+93.3	21.2 RT	871.63	868.28	IDMH177	12	38						LEAVE AS IS
IDMH 177	L ^{WB130} 115+05.0	57.2 RT	872.00	876.75	ICB178	15	12						LEAVE AS IS
ICB 178	L ^{WB130} 115+07.7	68.4 RT	871.72	865.87	OUT	42							LEAVE AS IS
IDMH 179	L ^{NB81} 1368+01.8	53.3 RT	878.43	873.13	ICB180	21	48		1	48			
ICB 180	L ^{NB81} 1367+55.4	64.8 RT	875.89	871.65	ICB182	24	204	875.89			1		
ICB 181	L ^{NB81} 1367+60.0	115.1 RT	876.30	872.55	ICB180	15	51						LEAVE AS IS
ICB 182	L ^{NB81} 1365+51.4	73.1 RT	873.95	868.45	ICB	24	143						LEAVE AS IS
ICB 183	L ^{NB81} 1362+97.2	104.2 RT	873.67	871.07	ICB184	12	233						LEAVE AS IS
ICB 184	L ^{NB81} 1360+64.3	88.7 RT	875.49	870.41									LEAVE AS IS
ICB 185	L ^{NB81} 1372+88.4	172.2 RT	881.33	878.73	ICB186	12	51						LEAVE AS IS
ICB 186	L ^{NB81} 1372+68.3	125.3 RT	881.34	878.34	OUT244	12	28	881.34		6	1		
ICB 187	L ^{NB81} 1383+48.3	135.4 RT	880.34	878.24	ICB188	12	30						LEAVE AS IS
ICB 188	L ^{NB81} 1383+54.1	106.4 RT	880.57	877.17	OUT247	12	15			15		1	
ICB 189	L ^{NB81} 1385+56.8	206.6 RT	881.80	879.30	ICB190	15	47						LEAVE AS IS
ICB 190	L ^{NB81} 1385+70.5	162.3 RT	882.31	878.31	OUT248	18	32						LEAVE AS IS
ICB 191	L ^{NB81} 1386+98.4	34.6 LT	880.74	877.19	ICB192	15	27		1	27			
ICB 192	L ^{NB81} 1388+24.3	33.7 LT	880.67	876.87	ICB193	15	105		1	105			
ICB 193	L ^{NB81} 1388+27.2	29.4 LT	881.33	875.88	OUT249	24	117	883.10			1		
ICB 194	L ^{NB81} 1388+99.5	83.2 LT	883.42	876.22	ICB193	15	90						LEAVE AS IS
ICB 195	L ^{SB81} 2389+68.3	47.9 LT	883.23	879.58	ICB196	12	14						LEAVE AS IS
ICB 196	L ^{SB81} 2389+68.7	33.7 LT	882.94	878.49	ICB197	12	9						LEAVE AS IS
ICB 197	L ^{SB81} 2389+68.9	25.0 LT	883.50	877.20	ICB194	12	75						LEAVE AS IS
SHEET TOTALS									18	1077	3	1	



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Kelly Agosto
 KELLY AGOSTO, LICENSED PROFESSIONAL ENGINEER

49075 3/15/19
 LICENSE NO. DATE

DESIGN BY: L. LANGNER
 CAD BY: E. GUIR
 CHECKED BY: O. AFOLABI
 LAST REVISION: / /

INPLACE UTILITY TABULATIONS
 C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
 S.P. 027-681-035, S.P. 110-020-040

SHEET

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INPLACE DRAINAGE STRUCTURES

K

STRUCTURE NUMBER	STATION	OFFSET	INPLACE T/R ELEV	FLOWLINE ELEV.	FLOWS TO STRUCTURE	PIPE SIZE	PIPE LENGTH		PROPOSED T/R ELEV	REMOVE DRAINAGE STRUCTURE	REMOVE SEWER PIPE (STORM)	ADJUST FRAME AND RING CASTING	REMOVE APRON	REMARKS
							INCH	LIN FT						
ICB 198	L ^{SB81} 2390+57.4	50.5 LT	883.47	879.82	ICB199	12	15							LEAVE AS IS
ICB 199	L ^{SB81} 2390+58.0	35.9 LT	883.19	878.64	ICB200	12	11							LEAVE AS IS
ICB 200	L ^{SB81} 2390+59.2	25.2 LT	883.95	878.45	ICB197	12	90							LEAVE AS IS
ICB 201	L ^{SB81} 2391+57.4	25.2 RT	884.47	881.02	ICB202	12	97							LEAVE AS IS
ICB 202	L ^{SB81} 2390+60.4	28.4 RT	883.89	880.19	ICB203	12	11							LEAVE AS IS
ICB 203	L ^{SB81} 2390+59.1	39.3 RT	883.93	879.33	ICB204	12	69							LEAVE AS IS
ICB 204	L ^{83RD} 66+06.3	34.5 LT	883.07	878.82	ICB205	12	95							LEAVE AS IS
ICB 205	L ^{83RD} 66+95.9	28.3 LT	882.34	877.89	ICB206	12	30							LEAVE AS IS
ICB 206	L ^{83RD} 67+24.4	28.1 LT	882.30	877.40	ICB207	12	32							LEAVE AS IS
IDMH 208	L ^{SB81} 2391+05.3	62.6 LT	884.23	871.88										LEAVE AS IS
OUT 210	L ^{SB81} 2330+86.5	49.9 LT		869.40								1		
OUT 219	L ^{WB130} 97+53.6	77.7 LT		876.74								1		
IN 236	L ^{NB81} 1368+00.7	23.5 LT		877.83	IDMH179	18	77			77		1		
IN 237	L ^{NB81} 1368+96.6	52.6 RT		876.02	IDMH179	18	95			95		1		
OUT 244	L ^{NB81} 1372+57.4	99.6 RT		878.24		1						1		
OUT 247	L ^{NB81} 1383+57.9	92.3 RT		877.17								1		
OUT 248	L ^{NB81} 1385+80.3	132.1 RT		877.55										LEAVE AS IS
OUT 249	L ^{NB81} 1388+07.5	86.2 RT		875.60										LEAVE AS IS
IN 250	L ^{NB81} 1388+11.6	140.1 RT		875.14	ICB207	27	215			31		1		LEAVE AS IS
OUT 252	L ^{TRAIL} 562+93.1	47.5 LT		872.20		21								LEAVE AS IS
ICB 253	L ^{TRAIL} 566+99.0	11.3 LT	879.65	872.20	OUT 252	21								LEAVE AS IS
ICB 254	L ^{TRAIL} 568+45.9	43.5 RT	876.79	872.20	ICB 253	21								LEAVE AS IS
SHEET TOTALS											203		7	
PROJECT TOTALS										53	3618	6	48	



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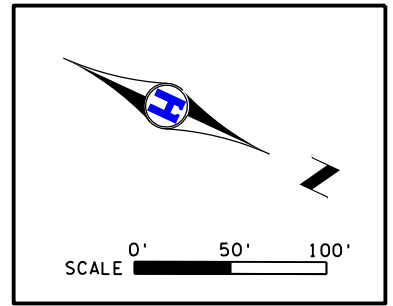
Kelly Agosto
 KELLY AGOSTO, LICENSED PROFESSIONAL ENGINEER

49075 3/15/19
 LICENSE NO. DATE

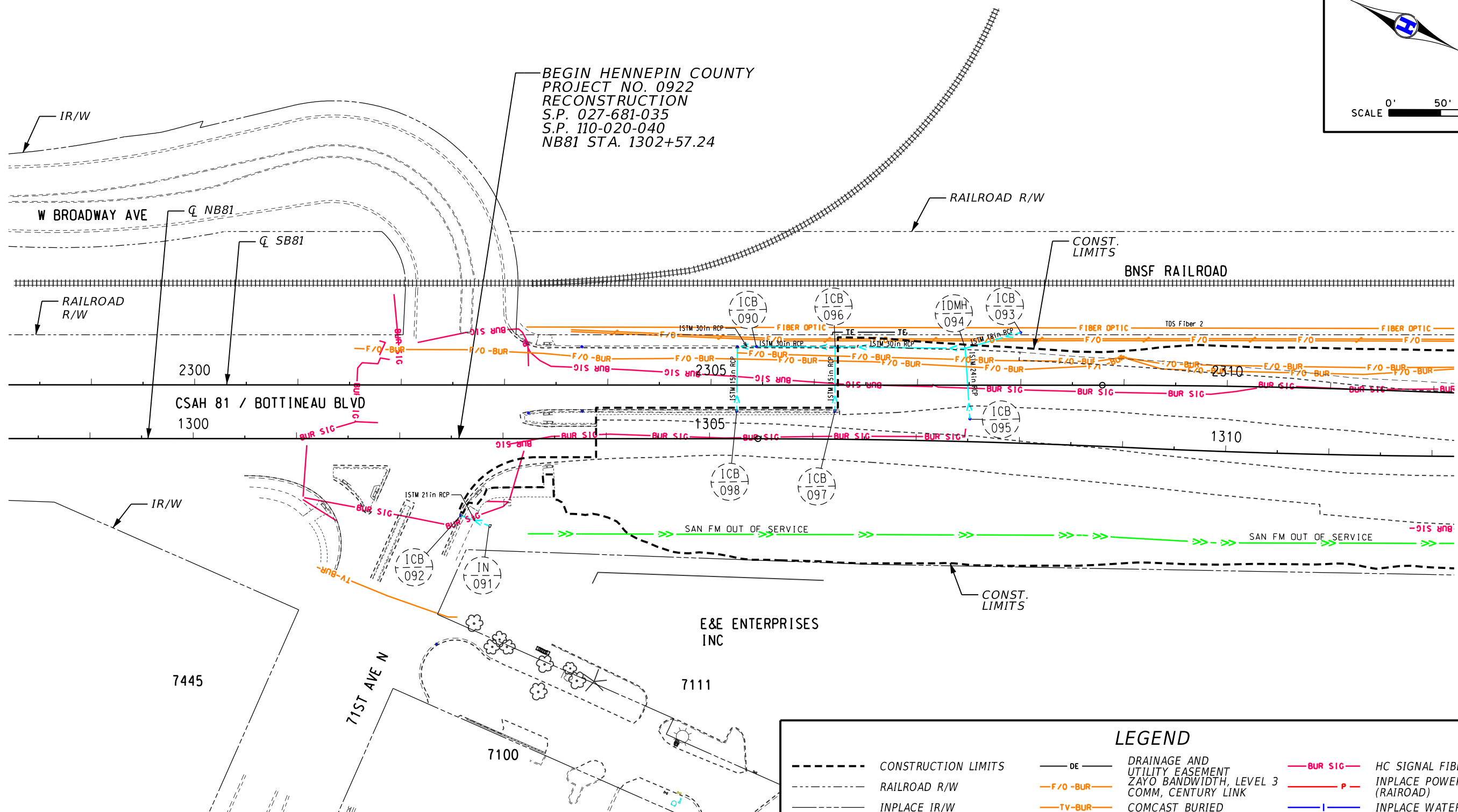
DESIGN BY: L. LANGNER
 CAD BY: E. GUIR
 CHECKED BY: O. AFOLABI
 LAST REVISION: / /

INPLACE UTILITY TABULATIONS
 C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
 S.P. 027-681-035, S.P. 110-020-040

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BEGIN HENNEPIN COUNTY
 PROJECT NO. 0922
 RECONSTRUCTION
 S.P. 027-681-035
 S.P. 110-020-040
 NB81 STA. 1302+57.24



LEGEND			
--- (dashed)	CONSTRUCTION LIMITS	--- DE ---	DRAINAGE AND UTILITY EASEMENT
--- (dashed)	RAILROAD R/W	--- F/O - BUR ---	ZAYO BANDWIDTH, LEVEL 3 COMM, CENTURY LINK
--- (dashed)	INPLACE IR/W	--- TV-BUR ---	COMCAST BURIED
--- (dashed)	WETLANDS	--- FIBER OPTIC ---	MNDOT RTMC FIBER, HC ATMS, TDS FIBER
--- (dashed)	NEW R/W	--- F/O ---	NORTH MEMORIAL FIBER
--- (dashed)	TEMPORARY EASEMENT	--- P-BUR ---	XCEL UNDERGROUND
--- (dashed)	TRAIL, SIDEWALK, DRAIN, AND UTILITY EASEMENT	--- OHP ---	POWER LINE OVERHEAD, OVERHEAD COMCAST/XCEL
--- (dashed)		--- BUR SIG ---	HC SIGNAL FIBER
--- (dashed)		--- P ---	INPLACE POWER LINE (RAILROAD)
--- (dashed)		--- I ---	INPLACE WATERMAIN
--- (dashed)		--- > ---	INPLACE DRAIN PIPE, WATERMAIN
--- (dashed)		--- >> ---	INPLACE SANITARY SEWER
--- (dashed)		--- G ---	OUT OF SERVICE CENTERPOINT ENERGY
--- (dashed)		--- G ---	CENTERPOINT ENERGY

STA. NB81 1302+57.24 TO 1312+21.39



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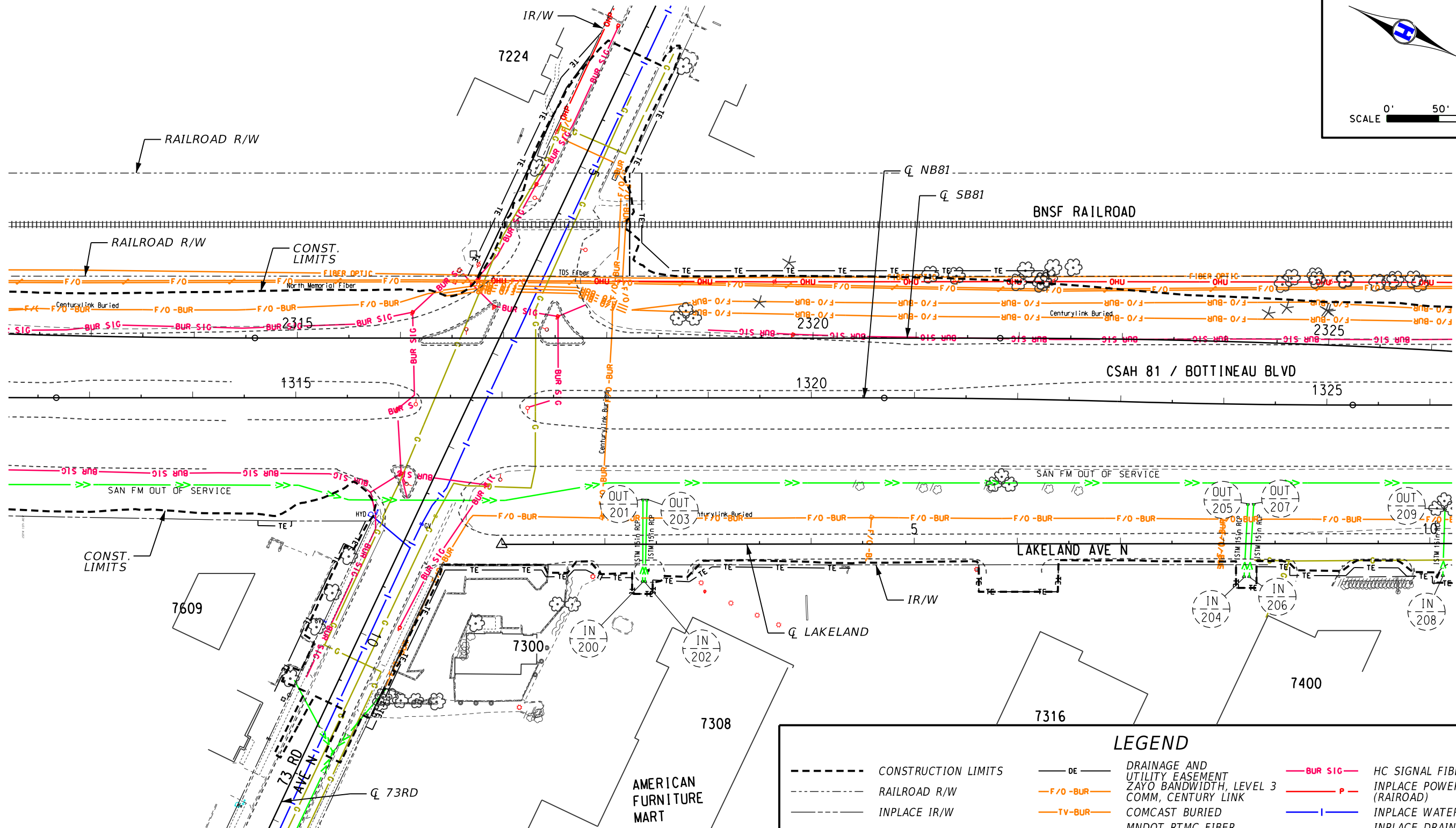
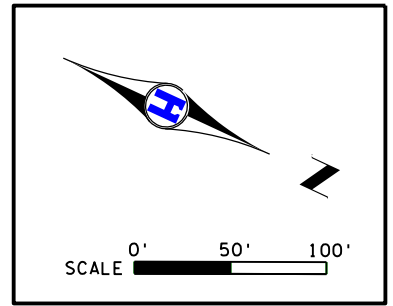
Kelly Agosto
 KELLY AGOSTO, LICENSED PROFESSIONAL ENGINEER
 49075 LICENSE NO. 3/15/19 DATE

DESIGN BY: **O. AFOLABI**
 CAD BY: **E. GUIR**
 CHECKED BY: **L. LANGNER**
 LAST REVISION: / /

INPLACE TOPOGRAPHY AND UTILITY PLAN

C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
 S.P. 027-681-035, S.P. 110-020-040

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LEGEND			
--- (dashed line)	CONSTRUCTION LIMITS	--- DE ---	DRAINAGE AND UTILITY EASEMENT
--- (dotted line)	RAILROAD R/W	--- F/O - BUR ---	ZAYO BANDWIDTH, LEVEL 3 COMM, CENTURY LINK
--- (long dashed line)	INPLACE IR/W	--- TV - BUR ---	COMCAST BURIED
--- (wavy line)	WETLANDS	--- FIBER OPTIC ---	MNDOT RTMC FIBER, HC ATMS, TDS FIBER
--- (solid line)	NEW R/W	--- F/O ---	NORTH MEMORIAL FIBER
--- (dashed line with dots)	TEMPORARY EASEMENT	--- P - BUR ---	XCEL UNDERGROUND
--- (solid line with dots)	TRAIL, SIDEWALK, DRAIN, AND UTILITY EASEMENT	--- OHP ---	POWER LINE OVERHEAD, OVERHEAD COMCAST/XCEL
--- (red line)	HC SIGNAL FIBER	--- BUR SIG ---	INPLACE POWER LINE (RAILROAD)
--- (blue line)	INPLACE WATERMAIN	--- P ---	INPLACE DRAIN PIPE, WATERMAIN
--- (green line)	INPLACE SANITARY SEWER	--- (blue line with dots) ---	OUT OF SERVICE CENTERPOINT ENERGY
--- (yellow line)	OUT OF SERVICE CENTERPOINT ENERGY	--- (green line with dots) ---	OUT OF SERVICE CENTERPOINT ENERGY

STA. NB81 1312+21.39 TO 1326+21.46



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.

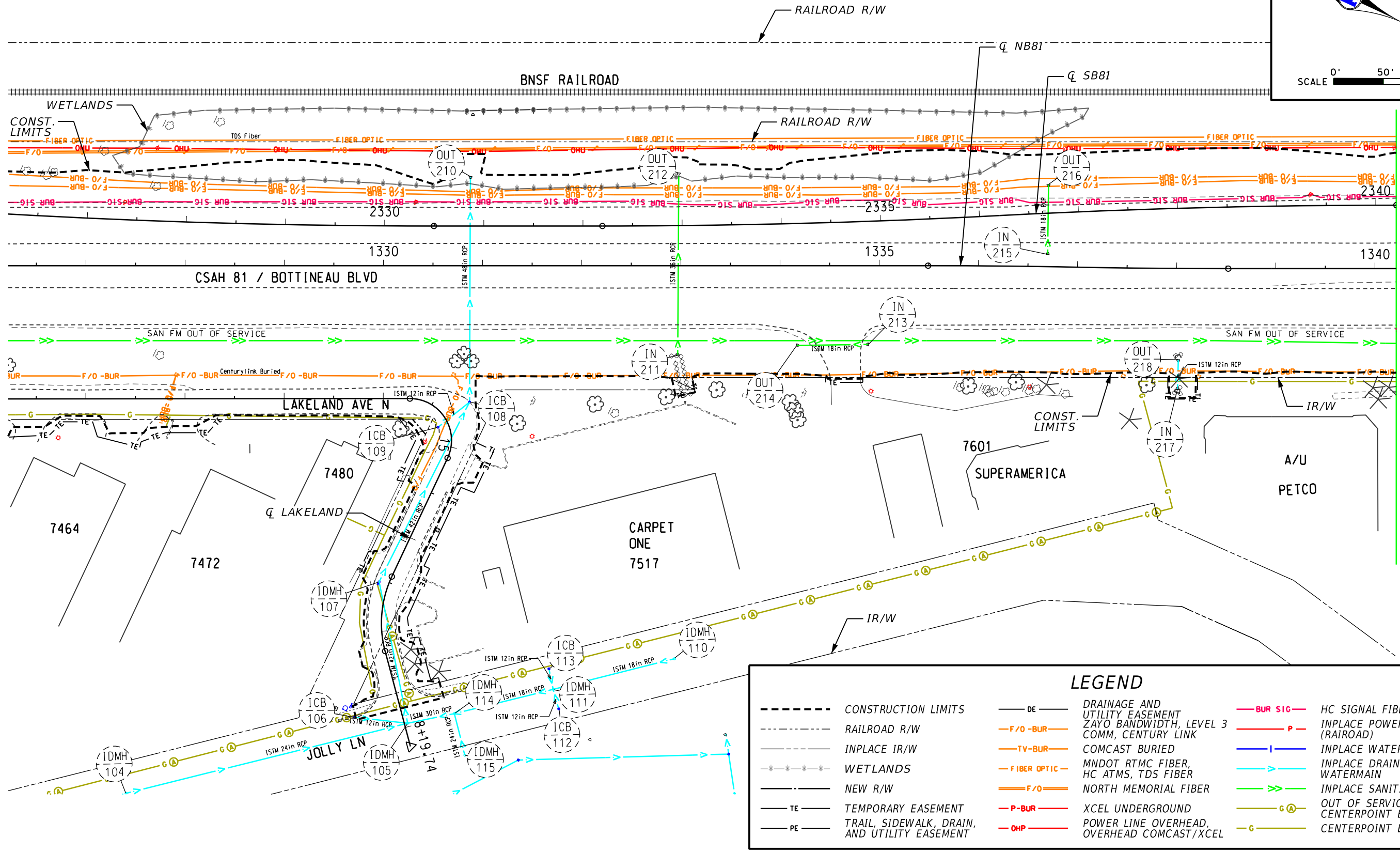
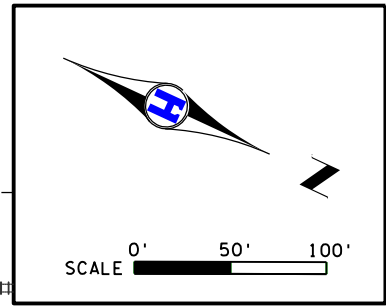
Kelly Agosto
KELLY AGOSTO, LICENSED PROFESSIONAL ENGINEER
 49075 LICENSE NO. 3/15/19 DATE

DESIGN BY: **O. AFOLABI**
 CAD BY: **E. GUIR**
 CHECKED BY: **L. LANGNER**
 LAST REVISION: / /

INPLACE TOPOGRAPHY AND UTILITY PLAN

C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
 S.P. 027-681-035, S.P. 110-020-040

SHEET
 32
 244



LEGEND		
--- CONSTRUCTION LIMITS	--- DE --- DRAINAGE AND UTILITY EASEMENT	--- BUR SIG --- HC SIGNAL FIBER
--- RAILROAD R/W	--- F/O - BUR --- ZAYO BANDWIDTH, LEVEL 3 COMM, CENTURY LINK	--- P --- INPLACE POWER LINE (RAILROAD)
--- INPLACE IR/W	--- TV - BUR --- COMCAST BURIED	--- I --- INPLACE WATERMAIN
--- WETLANDS	--- FIBER OPTIC --- MNDOT RTMC FIBER, HC ATMS, TDS FIBER	--- > --- INPLACE DRAIN PIPE, WATERMAIN
--- NEW R/W	--- F/O --- NORTH MEMORIAL FIBER	--- >> --- INPLACE SANITARY SEWER
--- TE --- TEMPORARY EASEMENT	--- P - BUR --- XCEL UNDERGROUND	--- G @ --- OUT OF SERVICE CENTERPOINT ENERGY
--- PE --- TRAIL, SIDEWALK, DRAIN, AND UTILITY EASEMENT	--- OHP --- POWER LINE OVERHEAD, OVERHEAD COMCAST/XCEL	--- G --- CENTERPOINT ENERGY

STA. NB81 1326+21.46 TO 1340+21.48



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.

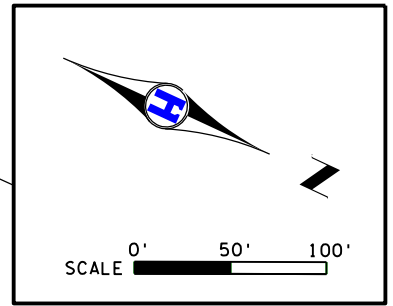
Kelly Agosto
KELLY AGOSTO, LICENSED PROFESSIONAL ENGINEER
 49075 LICENSE NO. 3/15/19 DATE

DESIGN BY: **O. AFOLABI**
 CAD BY: **E. GUIR**
 CHECKED BY: **L. LANGNER**
 LAST REVISION: / /

INPLACE TOPOGRAPHY AND UTILITY PLAN
 C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
 S.P. 027-681-035, S.P. 110-020-040

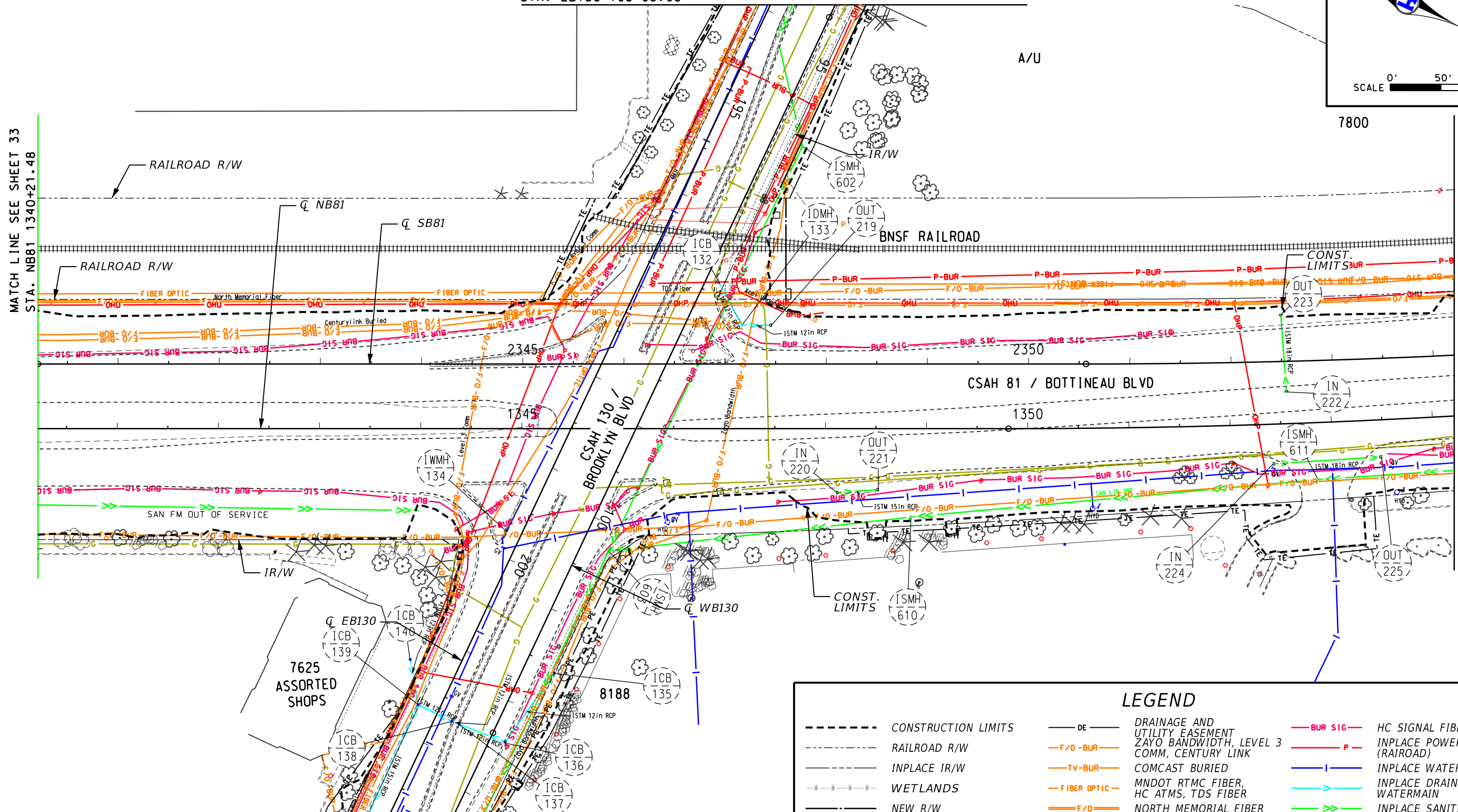
SHEET
 33 / 244

MATCH LINE SEE SHEET 35
STA. EB130 193+93.93



MATCH LINE SEE SHEET 33
STA. NB81 1340+21.48

MATCH LINE SEE SHEET 37
STA. NB81 1354+21.72



MATCH LINE SEE SHEET 36
STA. EB130 202+77.93

LEGEND			
--- (dashed)	CONSTRUCTION LIMITS	— DE —	DRAINAGE AND UTILITY EASEMENT
--- (dotted)	RAILROAD R/W	— F/O - BUR —	ZAYO BANDWIDTH, LEVEL 3 COMM, CENTURY LINK
--- (dash-dot)	INPLACE IR/W	— TV - BUR —	COMCAST BURIED
--- (wavy)	WETLANDS	— FIBER OPTIC —	MNDOT RTMC FIBER, HC ATMS, TDS FIBER
--- (solid)	NEW R/W	— F/O —	NORTH MEMORIAL FIBER
--- (dashed)	TEMPORARY EASEMENT	— P - BUR —	XCEL UNDERGROUND
--- (solid)	TRAIL, SIDEWALK, DRAIN, AND UTILITY EASEMENT	— OHP —	POWER LINE OVERHEAD, OVERHEAD COMCAST/XCEL
— BUR SIG —	HC SIGNAL FIBER	— P —	INPLACE POWER LINE (RAILROAD)
— IN —	INPLACE WATERMAIN	—>—	INPLACE DRAIN PIPE, WATERMAIN
—>—	INPLACE SANITARY SEWER	— G —	OUT OF SERVICE CENTERPOINT ENERGY
— G —	OUT OF SERVICE CENTERPOINT ENERGY	— G —	CENTERPOINT ENERGY



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.

Kelly Agosto
KELLY AGOSTO, LICENSED PROFESSIONAL ENGINEER

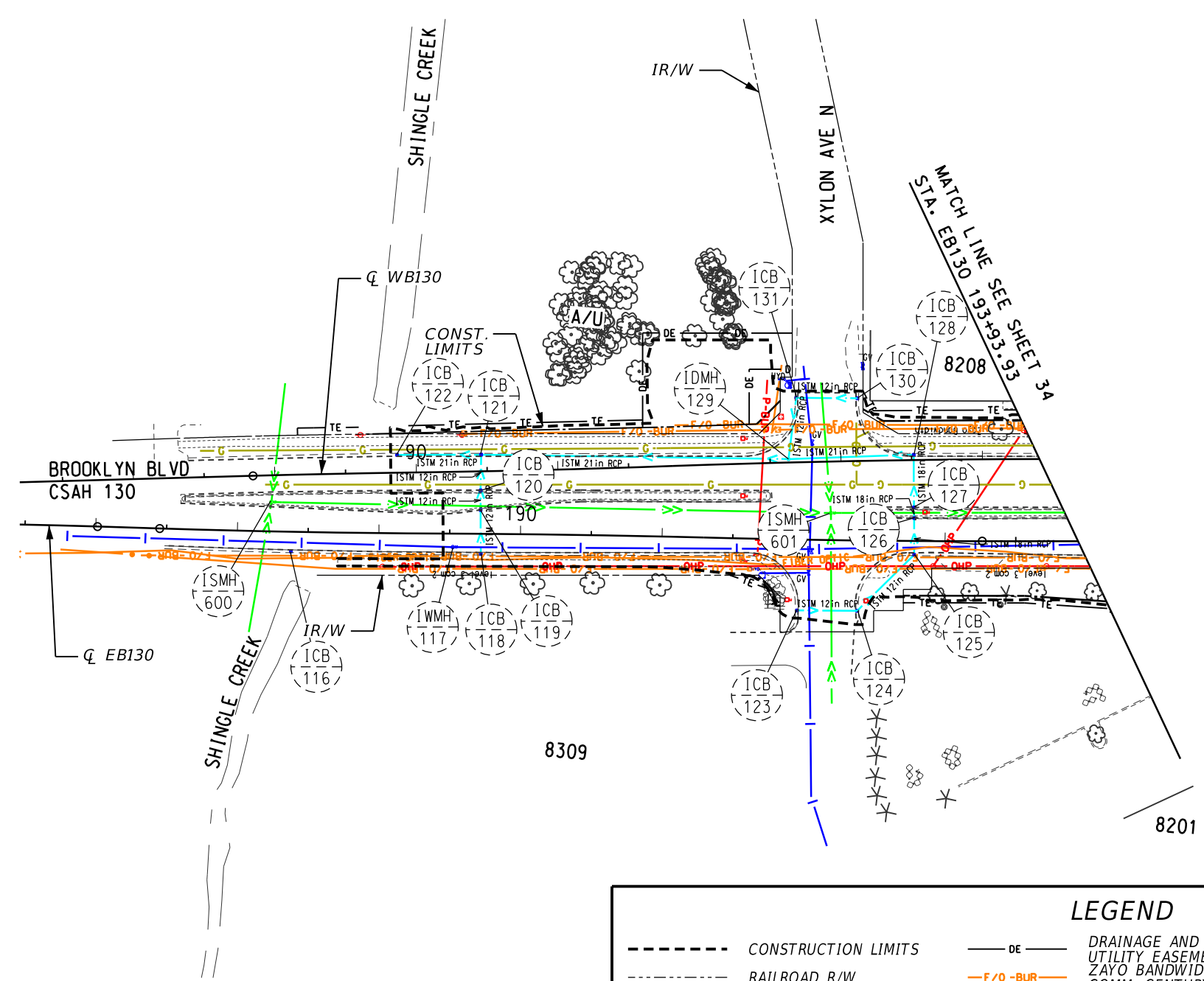
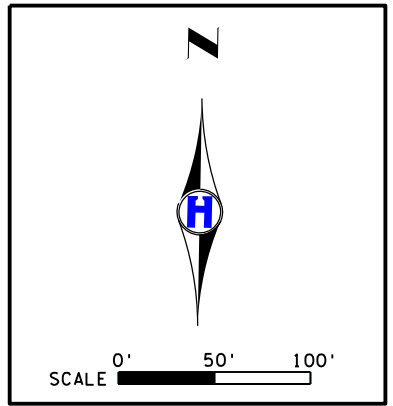
49075 3/15/19
LICENSE NO. DATE

DESIGN BY: **O. AFOLABI**
CAD BY: **E. GUIR**
CHECKED BY: **L. LANGNER**
LAST REVISION: / /

INPLACE TOPOGRAPHY AND UTILITY PLAN

C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
S.P. 027-681-035, S.P. 110-020-040

SHEET
34
244



LEGEND			
--- (dashed)	CONSTRUCTION LIMITS	--- DE ---	DRAINAGE AND UTILITY EASEMENT
--- (dotted)	RAILROAD R/W	--- F/O - BUR ---	ZAYO BANDWIDTH, LEVEL 3 COMM, CENTURY LINK
--- (long dashed)	INPLACE IR/W	--- TV - BUR ---	COMCAST BURIED
--- (cross-hatched)	WETLANDS	--- FIBER OPTIC ---	MNDOT RTMC FIBER, HC ATMS, TDS FIBER
--- (solid)	NEW R/W	--- F/O ---	NORTH MEMORIAL FIBER
--- (dashed)	TEMPORARY EASEMENT	--- P - BUR ---	XCEL UNDERGROUND
--- (solid)	TRAIL, SIDEWALK, DRAIN, AND UTILITY EASEMENT	--- OHP ---	POWER LINE OVERHEAD, OVERHEAD COMCAST/XCEL
--- (dashed)		--- BUR SIG ---	HC SIGNAL FIBER
--- (dashed)		--- P ---	INPLACE POWER LINE (RAILROAD)
--- (dashed)		--- I ---	INPLACE WATERMAIN
--- (dashed)		--- > ---	INPLACE DRAIN PIPE, WATERMAIN
--- (dashed)		--- >> ---	INPLACE SANITARY SEWER
--- (dashed)		--- G ---	OUT OF SERVICE CENTERPOINT ENERGY
--- (dashed)		--- G ---	CENTERPOINT ENERGY

STA. EB130 189+07.80 TO 193+93.93



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.

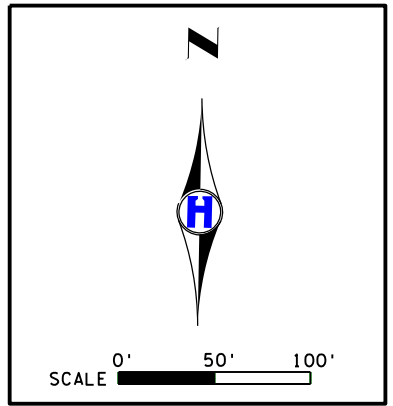
Kelly Agosto
 KELLY AGOSTO, LICENSED PROFESSIONAL ENGINEER
 49075 LICENSE NO. 3/15/19 DATE

DESIGN BY: O. AFOLABI
 CAD BY: E. GUIR
 CHECKED BY: L. LANGNER
 LAST REVISION: / /

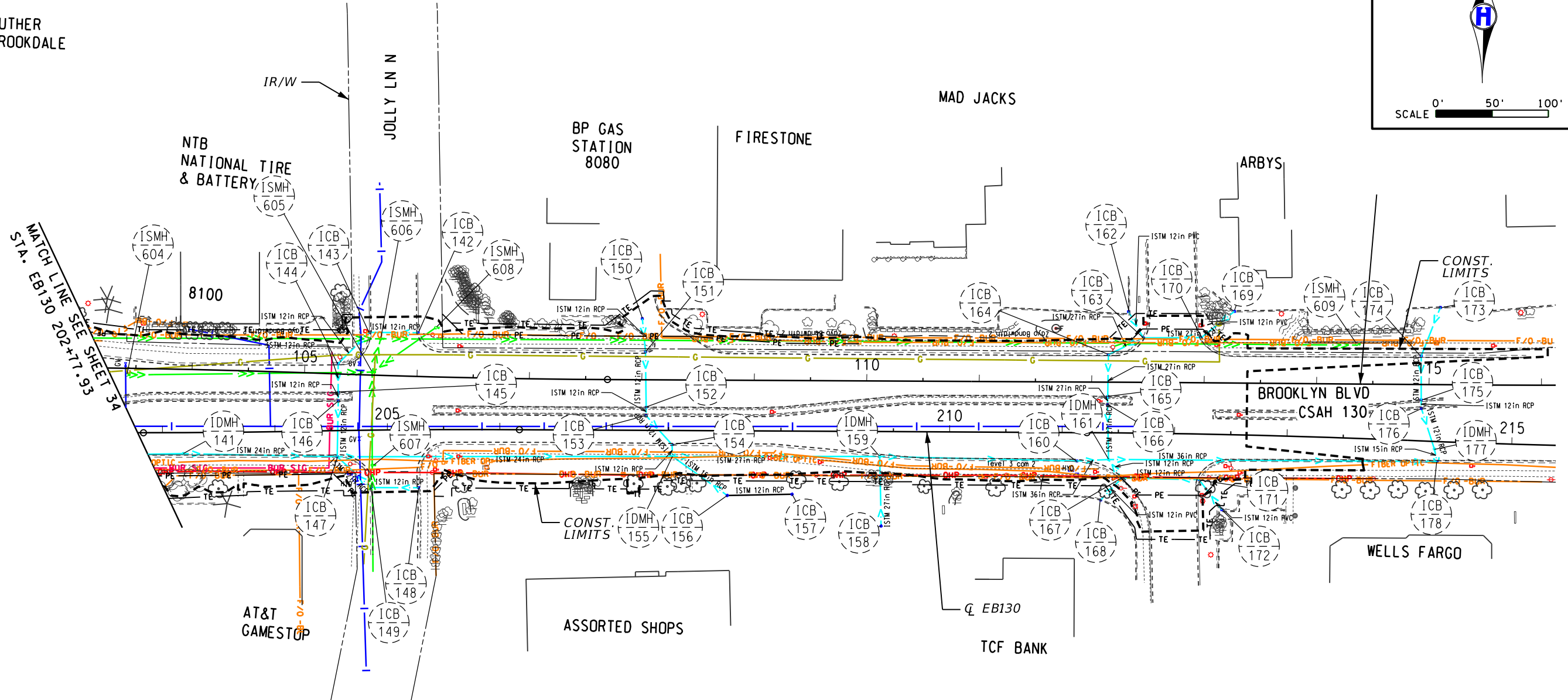
INPLACE TOPOGRAPHY AND UTILITY PLAN

C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
 S.P. 027-681-035, S.P. 110-020-040

SHEET
 35
 244



LUTHER
BROOKDALE



LEGEND			
--- (dashed line)	CONSTRUCTION LIMITS	— DE — (solid line)	DRAINAGE AND UTILITY EASEMENT
- - - - - (dashed line)	RAILROAD R/W	- F/O - BUR (orange line)	ZAYO BANDWIDTH, LEVEL 3 COMM, CENTURY LINK
— (solid line)	INPLACE IR/W	— TV - BUR (orange line)	COMCAST BURIED
— (dotted line)	WETLANDS	— FIBER OPTIC — (orange line)	MNDOT RTMC FIBER, HC ATMS, TDS FIBER
— (solid line)	NEW R/W	— F/O — (orange line)	NORTH MEMORIAL FIBER
— TE — (solid line)	TEMPORARY EASEMENT	— P - BUR (red line)	XCEL UNDERGROUND
— PE — (solid line)	TRAIL, SIDEWALK, DRAIN, AND UTILITY EASEMENT	— OHP — (red line)	POWER LINE OVERHEAD, OVERHEAD COMCAST/XCEL
— BUR SIG — (red line)	HC SIGNAL FIBER	— P — (red line)	INPLACE POWER LINE (RAILROAD)
— (blue line)	INPLACE WATERMAIN	— (blue line)	INPLACE DRAIN PIPE, WATERMAIN
— (green line)	INPLACE SANITARY SEWER	— (green line)	OUT OF SERVICE CENTERPOINT ENERGY
— (yellow line)	OUT OF SERVICE CENTERPOINT ENERGY	— (yellow line)	CENTERPOINT ENERGY

STA. EB130 202+77.93 TO 215+29.68



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.

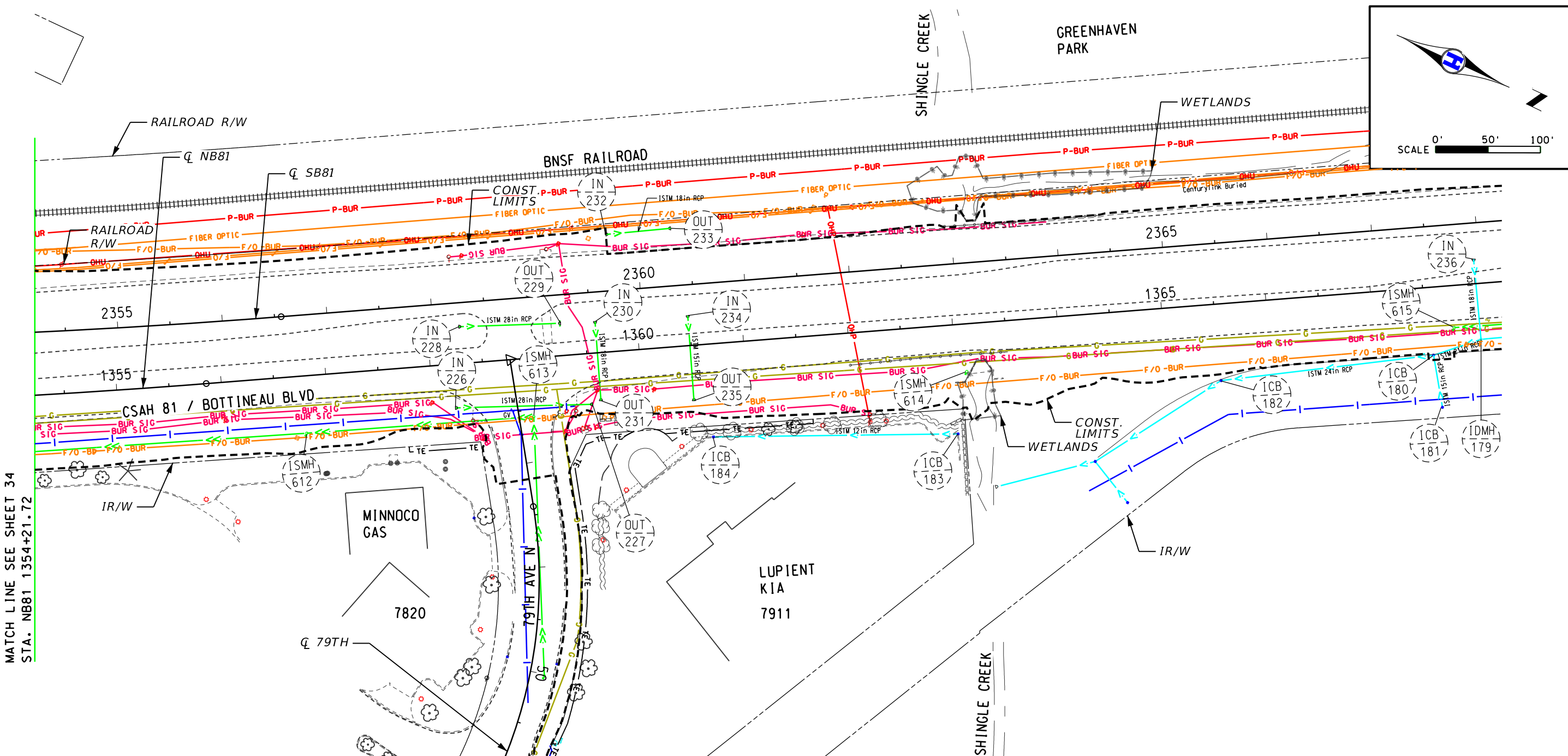
Kelly Agosto
 KELLY AGOSTO, LICENSED PROFESSIONAL ENGINEER
 49075 LICENSE NO. 3/15/19 DATE

DESIGN BY: **O. AFOLABI**
 CAD BY: **E. GUIR**
 CHECKED BY: **L. LANGNER**
 LAST REVISION: / /

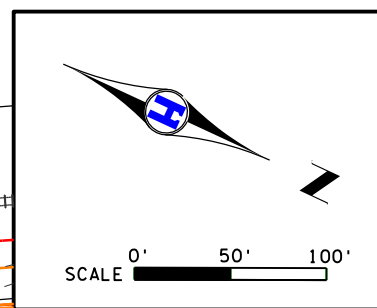
INPLACE TOPOGRAPHY AND UTILITY PLAN

C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
 S.P. 027-681-035, S.P. 110-020-040

SHEET
 36
 244



MATCH LINE SEE SHEET 34
STA. NB81 1354+21.72



LEGEND			
--- (dashed)	CONSTRUCTION LIMITS	--- DE ---	DRAINAGE AND UTILITY EASEMENT
--- (dotted)	RAILROAD R/W	--- F/O - BUR ---	ZAYO BANDWIDTH, LEVEL 3 COMM, CENTURY LINK
--- (dash-dot)	INPLACE IR/W	--- TV - BUR ---	COMCAST BURIED
--- (dashed with wavy lines)	WETLANDS	--- FIBER OPTIC ---	MNDOT RTMC FIBER, HC ATMS, TDS FIBER
--- (solid)	NEW R/W	--- F/O ---	NORTH MEMORIAL FIBER
--- (solid with dots)	TEMPORARY EASEMENT	--- P - BUR ---	XCEL UNDERGROUND
--- (solid with wavy lines)	TRAIL, SIDEWALK, DRAIN, AND UTILITY EASEMENT	--- OHP ---	POWER LINE OVERHEAD, OVERHEAD COMCAST/XCEL
--- (solid with wavy lines)		--- BUR SIG ---	HC SIGNAL FIBER
--- (solid with wavy lines)		--- P ---	INPLACE POWER LINE (RAILROAD)
--- (solid with wavy lines)		--- (blue line) ---	INPLACE WATERMAIN
--- (solid with wavy lines)		--- (cyan line) ---	INPLACE DRAIN PIPE, WATERMAIN
--- (solid with wavy lines)		--- (green line) ---	INPLACE SANITARY SEWER
--- (solid with wavy lines)		--- (yellow line) ---	OUT OF SERVICE CENTERPOINT ENERGY
--- (solid with wavy lines)		--- (green line) ---	CENTERPOINT ENERGY

STA. NB81 1354+21.72 TO 1368+25.92



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.

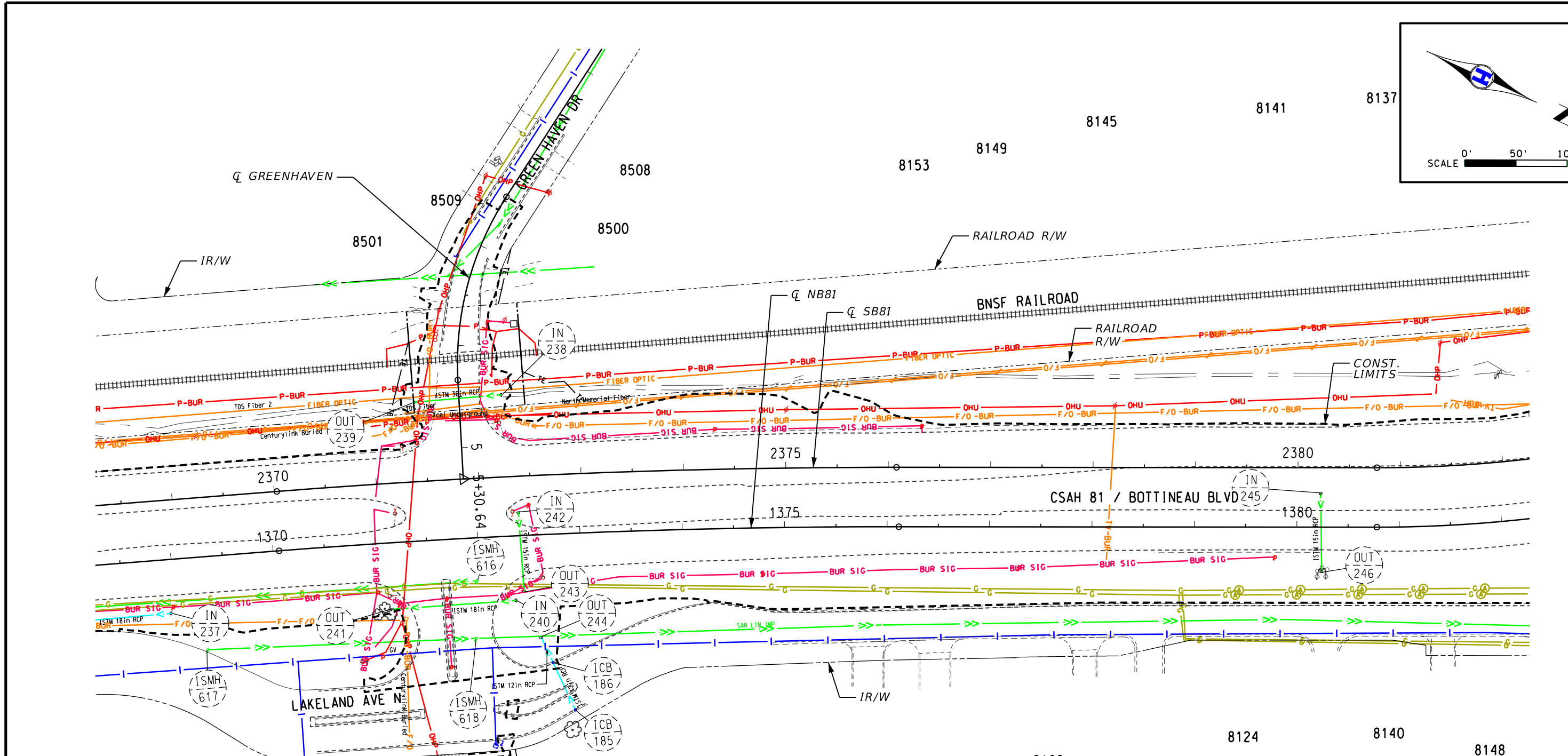
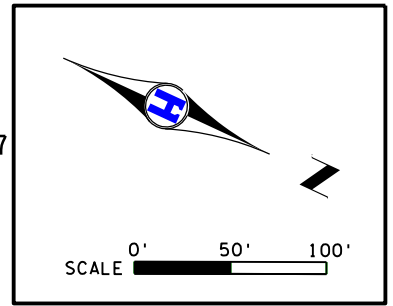
Kelly Agosto
KELLY AGOSTO, LICENSED PROFESSIONAL ENGINEER
 49075 LICENSE NO. 3/15/19 DATE

DESIGN BY: **O. AFOLABI**
 CAD BY: **E. GUIR**
 CHECKED BY: **L. LANGNER**
 LAST REVISION: / /

INPLACE TOPOGRAPHY AND UTILITY PLAN

C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
 S.P. 027-681-035, S.P. 110-020-040

SHEET
 37
 244



LEGEND			
--- (dashed)	CONSTRUCTION LIMITS	DE	DRAINAGE AND UTILITY EASEMENT
--- (dotted)	RAILROAD R/W	-F/O-BUR	ZAYO BANDWIDTH, LEVEL 3 COMM, CENTURY LINK
--- (long dashed)	INPLACE IR/W	-TV-BUR	COMCAST BURIED
--- (short dashed)	WETLANDS	-FIBER OPTIC	MNDOT RTMC FIBER, HC ATMS, TDS FIBER
--- (dash-dot)	NEW R/W	-F/O	NORTH MEMORIAL FIBER
--- (solid)	TEMPORARY EASEMENT	-P-BUR	XCEL UNDERGROUND
--- (solid)	TRAIL, SIDEWALK, DRAIN, AND UTILITY EASEMENT	-OHP	POWER LINE OVERHEAD, OVERHEAD COMCAST/XCEL
--- (solid)		-BUR SIG	HC SIGNAL FIBER
--- (solid)		-P	INPLACE POWER LINE (RAILROAD)
--- (solid)		-	INPLACE WATERMAIN
--- (solid)		->	INPLACE DRAIN PIPE, WATERMAIN
--- (solid)		->>	INPLACE SANITARY SEWER
--- (solid)		-G	OUT OF SERVICE CENTERPOINT ENERGY
--- (solid)		-G	CENTERPOINT ENERGY

STA. NB81 1368+25.92 TO 1382+27.40

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.

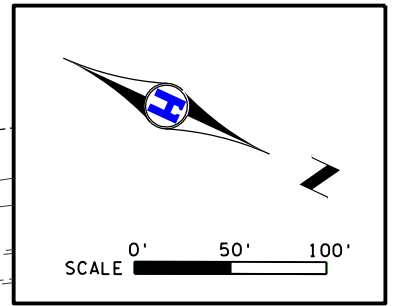
Kelly Agosto
 KELLY AGOSTO, LICENSED PROFESSIONAL ENGINEER
 49075 LICENSE NO. 3/15/19 DATE

DESIGN BY: **O. AFOLABI**
 CAD BY: **E. GUIR**
 CHECKED BY: **L. LANGNER**
 LAST REVISION: / /

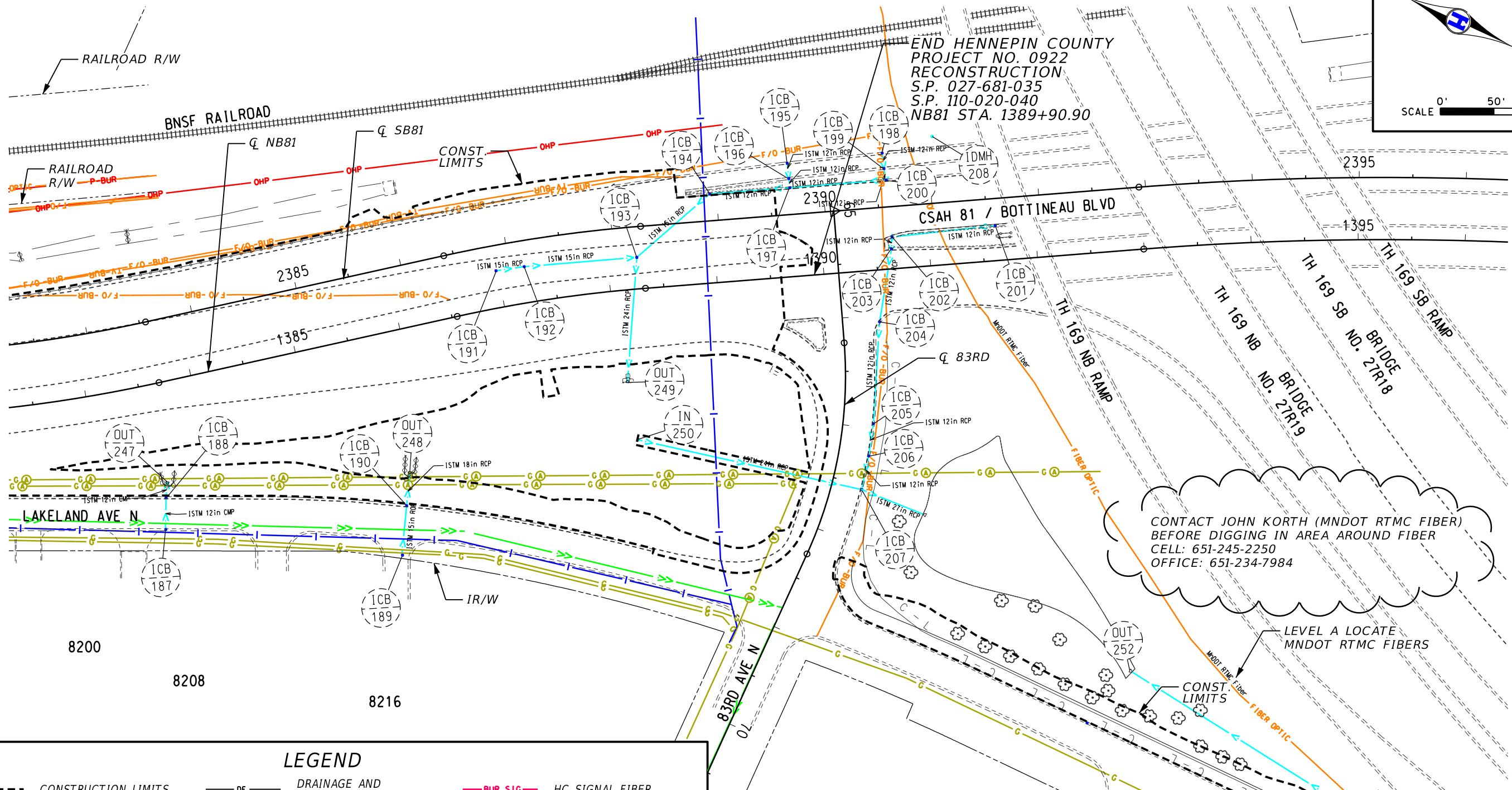
INPLACE TOPOGRAPHY AND UTILITY PLAN

C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
 S.P. 027-681-035, S.P. 110-020-040

SHEET
 38
 244



END HENNEPIN COUNTY
PROJECT NO. 0922
RECONSTRUCTION
S.P. 027-681-035
S.P. 110-020-040
NB81 STA. 1389+90.90



CONTACT JOHN KORTH (MNDOT RTMC FIBER)
BEFORE DIGGING IN AREA AROUND FIBER
CELL: 651-245-2250
OFFICE: 651-234-7984

LEVEL A LOCATE
MNDOT RTMC FIBERS

LEGEND			
--- (dashed)	CONSTRUCTION LIMITS	DE (solid)	DRAINAGE AND UTILITY EASEMENT
--- (dashed)	RAILROAD R/W	F/O-BUR (orange)	ZAYO BANDWIDTH, LEVEL 3 COMM, CENTURY LINK
--- (dashed)	INPLACE IR/W	TV-BUR (orange)	COMCAST BURIED
--- (dashed)	WETLANDS	FIBER OPTIC (orange)	MNDOT RTMC FIBER, HC ATMS, TDS FIBER
--- (dashed)	NEW R/W	F/O (orange)	NORTH MEMORIAL FIBER
--- (dashed)	TEMPORARY EASEMENT	P-BUR (red)	XCEL UNDERGROUND
--- (dashed)	TRAIL, SIDEWALK, DRAIN, AND UTILITY EASEMENT	OHP (red)	POWER LINE OVERHEAD, OVERHEAD COMCAST/XCEL
--- (dashed)		BUR SIG (red)	HC SIGNAL FIBER
--- (dashed)		P (red)	INPLACE POWER LINE (RAILROAD)
--- (dashed)		--- (blue)	INPLACE WATERMAIN
--- (dashed)		--- (cyan)	INPLACE DRAIN PIPE, WATERMAIN
--- (dashed)		--- (green)	INPLACE SANITARY SEWER
--- (dashed)		G-A (yellow)	OUT OF SERVICE CENTERPOINT ENERGY
--- (dashed)		G (yellow)	CENTERPOINT ENERGY

STA. NB81 1382+27.40 TO 1389+90.90, STA. TR83 560+00.00 TO 564+66.29



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Kelly Agosto
KELLY AGOSTO, LICENSED PROFESSIONAL ENGINEER

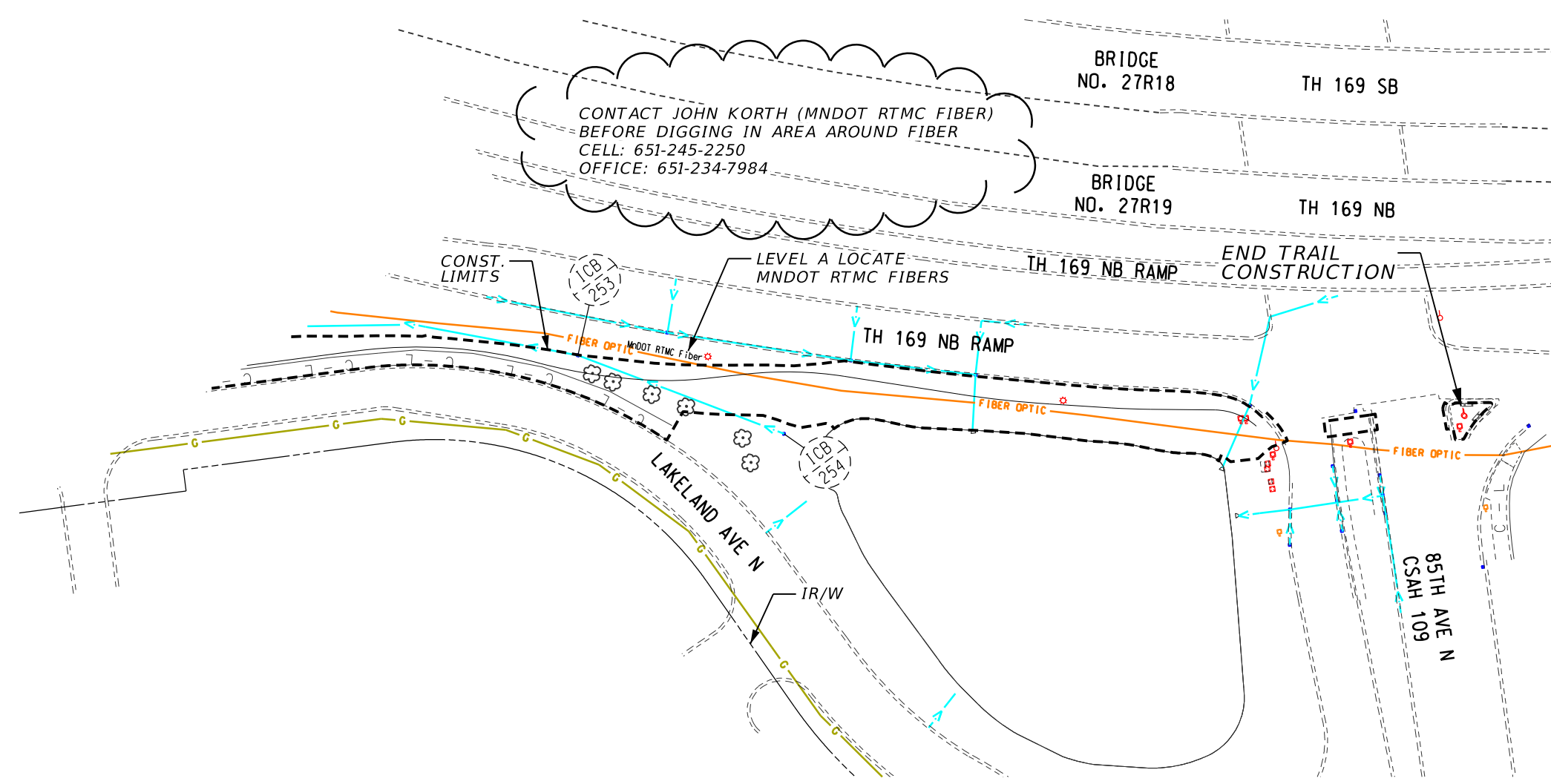
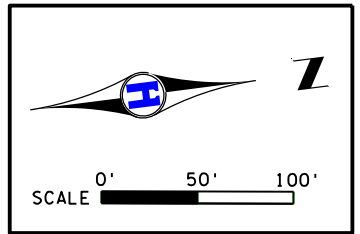
49075 3/15/19
LICENSE NO. DATE

DESIGN BY: **O. AFOLABI**
CAD BY: **E. GUIR**
CHECKED BY: **L. LANGNER**
LAST REVISION: / /

INPLACE TOPOGRAPHY AND UTILITY PLAN

C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
S.P. 027-681-035, S.P. 110-020-040

SHEET
39
244



LEGEND			
--- (dashed line)	CONSTRUCTION LIMITS	— DE —	DRAINAGE AND UTILITY EASEMENT
--- (dotted line)	RAILROAD R/W	— F/O - BUR —	ZAYO BANDWIDTH, LEVEL 3 COMM, CENTURY LINK
--- (long dashed line)	INPLACE IR/W	— TV - BUR —	COMCAST BURIED
--- (line with cross-hatches)	WETLANDS	— FIBER OPTIC —	MNDOT RTMC FIBER, HC ATMS, TDS FIBER
--- (solid line)	NEW R/W	— F/O —	NORTH MEMORIAL FIBER
--- (line with dashes)	TEMPORARY EASEMENT	— P - BUR —	XCEL UNDERGROUND
--- (line with dots)	TRAIL, SIDEWALK, DRAIN, AND UTILITY EASEMENT	— OHP —	POWER LINE OVERHEAD, OVERHEAD COMCAST/XCEL
— BUR SIG —	HC SIGNAL FIBER	— P —	INPLACE POWER LINE (RAILROAD)
— I —	INPLACE WATERMAIN	— > —	INPLACE DRAIN PIPE, WATERMAIN
— >> —	INPLACE SANITARY SEWER	— G —	OUT OF SERVICE CENTERPOINT ENERGY
— G —	CENTERPOINT ENERGY		

STA. TR83 564+66.29 TO 571+91.88



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.

KELLY AGOSTO, LICENSED PROFESSIONAL ENGINEER
 49075 LICENSE NO. 3/15/19 DATE

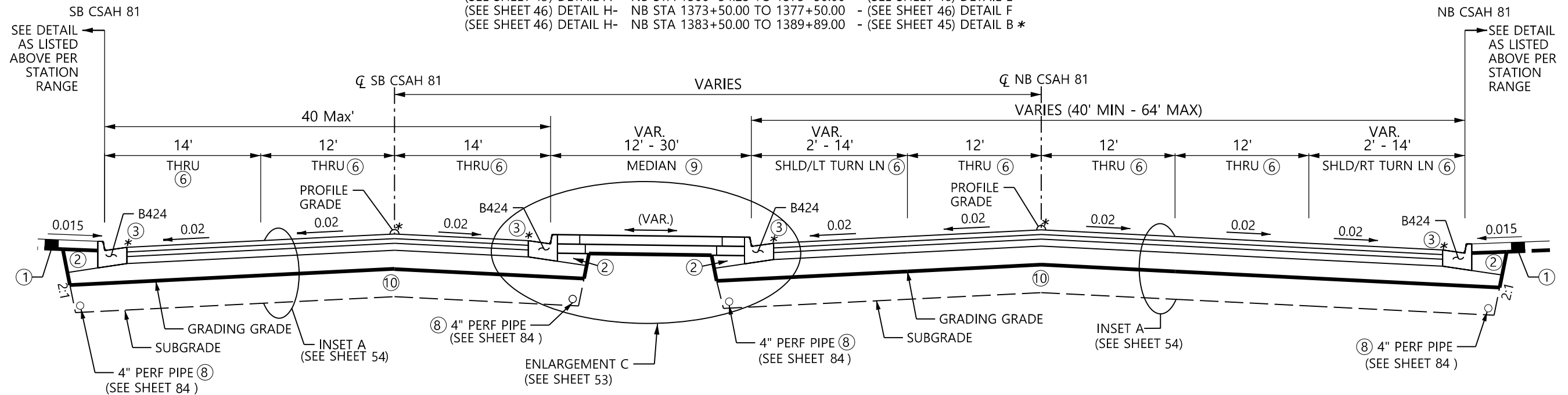
DESIGN BY: O. AFOLABI
 CAD BY: E. GUIR
 CHECKED BY: L. LANGNER
 LAST REVISION: / /

INPLACE TOPOGRAPHY AND UTILITY PLAN
 C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
 S.P. 027-681-035, S.P. 110-020-040

SHEET
 40
 244

(DITCH DETAIL LT) - TYPICAL SECTION 1 - CSAH 81 - (DITCH DETAIL RT)

(SEE SHEET 45) DETAIL A - NB STA 1302+57.24 TO 1306+24.28 - (SEE SHEET 45) DETAIL B
 (SEE SHEET 45) DETAIL A - NB STA 1306+24.28 TO 1308+52.98 - (SEE SHEET 45) DETAIL C
 (SEE SHEET 45) DETAIL A - NB STA 1309+83.49 TO 1316+89.64 - (SEE SHEET 46) DETAIL G
 (SEE SHEET 45) DETAIL A - NB STA 1330+89.67 TO 1335+10.72 - (SEE SHEET 45) DETAIL C
 (SEE SHEET 45) DETAIL A - NB STA 1351+00.00 TO 1354+20.00 - (SEE SHEET 45) DETAIL C
 (SEE SHEET 46) DETAIL M - NB STA 1354+20.00 TO 1359+77.00 - (SEE SHEET 46) DETAIL E
 (SEE SHEET 45) DETAIL A - NB STA 1359+77.00 TO 1360+00.00 - (SEE SHEET 45) DETAIL C
 (SEE SHEET 45) DETAIL A - NB STA 1366+34.23 TO 1373+50.00 - (SEE SHEET 46) DETAIL E
 (SEE SHEET 46) DETAIL H - NB STA 1373+50.00 TO 1377+50.00 - (SEE SHEET 46) DETAIL F
 (SEE SHEET 46) DETAIL H - NB STA 1383+50.00 TO 1389+89.00 - (SEE SHEET 45) DETAIL B *



GENERAL NOTES	
A.)	ALL SLOPES ARE FT. PER FT.
B.)	MAXIMUM SUPERELEVATION ROLLOVER SHALL BE 0.07 FT/FT.
C.)	R/W = RIGHT OF WAY
D.)	1.5' OBSTACLE FREE CLEAR ZONE FROM FACE OF CURB
E.)	SEE PROFILE PLAN FOR SPECIAL DITCH GRADES.
F.)	TRANSITIONS FROM MAINLINE TO SIDESTREET CURBS SHALL BE PAID FOR AS MAINLINE CURB TYPE B424.

TYPICAL NOTES	
①	PLACE 6" TOPSOIL & SEED
②	BACKFILL WITH SUITABLE GRADING MATERIAL
③	MAX ROLLOVER 0.07
④	SEE ALIGNMENT PLAN FOR TRAIL & ROAD ALIGNMENTS.
⑤	R/W TYPICAL - SEE RIGHT-OF-WAY PLANS FOR VARIABLE R/W AND TEMPORARY EASEMENTS.
⑥	SEE DRAINAGE/SUPERELEVATION PLANS FOR VARIABLE SLOPES & TRANSITIONS.
⑦	2' OBSTACLE FREE CLEAR ZONE ON BOTH SIDES OF TRAIL
⑧	4" PERF PE PIPE DRAIN - SEE SUPERELEVATION AND DRAINAGE PLANS FOR LOCATIONS
⑨	GRADE MEDIAN/BLVD AS SHOWN IN CROSS SECTIONS AND AS INDICATED BY ENGINEER TO DRAIN
⑩	IN CONJUNCTION WITH FINAL SHAPING, THE CONTRACTOR SHALL, AT NO EXPENSE TO THE DEPARTMENT, SCARIFY THE ROADBED TO A DEPTH OF 1' AND RECOMPACT IT AS PER SPEC 2106, AS DIRECTED BY THE ENGINEER



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.

Kelly Agosto
 KELLY AGOSTO, LICENSED PROFESSIONAL ENGINEER

49075 3/15/19
 LICENSE NO. DATE

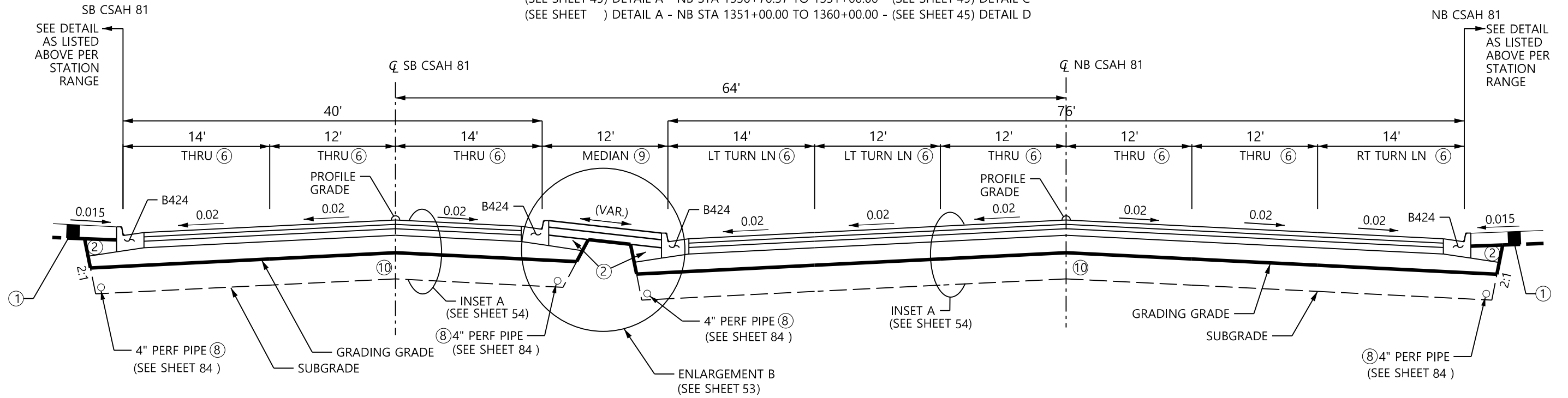
DESIGN BY: R. DECOTEAU
 CAD BY: R. DECOTEAU
 CHECKED BY: L. LANGNER
 LAST REVISION: / /

TYPICAL SECTIONS
 C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
 S.P. 027-681-035, S.P. 110-020-040

SHEET
 41
 244

(DITCH DETAIL LT) - TYPICAL SECTION 2 - CSAH 81 - (DITCH DETAIL RT)

(SEE SHEET 45) DETAIL A - NB STA 1336+70.37 TO 1351+00.00 - (SEE SHEET 45) DETAIL C
 (SEE SHEET) DETAIL A - NB STA 1351+00.00 TO 1360+00.00 - (SEE SHEET 45) DETAIL D



GENERAL NOTES	
A.)	ALL SLOPES ARE FT. PER FT.
B.)	MAXIMUM SUPERELEVATION ROLLOVER SHALL BE 0.07 FT/FT.
C.)	R/W = RIGHT OF WAY
D.)	1.5' OBSTACLE FREE CLEAR ZONE FROM FACE OF CURB
E.)	SEE PROFILE PLAN FOR SPECIAL DITCH GRADES.
F.)	TRANSITIONS FROM MAINLINE TO SIDESTREET CURBS SHALL BE PAID FOR AS MAINLINE CURB TYPE B424.

TYPICAL NOTES	
①	PLACE 6" TOPSOIL & SEED
②	BACKFILL WITH SUITABLE GRADING MATERIAL
③	MAX ROLLOVER 0.07
④	SEE ALIGNMENT PLAN FOR TRAIL & ROAD ALIGNMENTS.
⑤	R/W TYPICAL - SEE RIGHT-OF-WAY PLANS FOR VARIABLE R/W AND TEMPORARY EASEMENTS.
⑥	SEE DRAINAGE/SUPERELEVATION PLANS FOR VARIABLE SLOPES & TRANSITIONS.
⑦	2' OBSTACLE FREE CLEAR ZONE ON BOTH SIDES OF TRAIL
⑧	4" PERF PE PIPE DRAIN - SEE SUPERELEVATION AND DRAINAGE PLANS FOR LOCATIONS
⑨	GRADE MEDIAN/BLVD AS SHOWN IN CROSS SECTIONS AND AS INDICATED BY ENGINEER TO DRAIN
⑩	IN CONJUNCTION WITH FINAL SHAPING, THE CONTRACTOR SHALL, AT NO EXPENSE TO THE DEPARTMENT, SCARIFY THE ROADBED TO A DEPTH OF 1' AND RECOMPACT IT AS PER SPEC 2106, AS DIRECTED BY THE ENGINEER



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Kelly Agosto
 KELLY AGOSTO, LICENSED PROFESSIONAL ENGINEER

49075 3/15/19
 LICENSE NO. DATE

DESIGN BY: R. DECOTEAU
 CAD BY: R. DECOTEAU
 CHECKED BY: L. LANGNER
 LAST REVISION: / /

TYPICAL SECTIONS

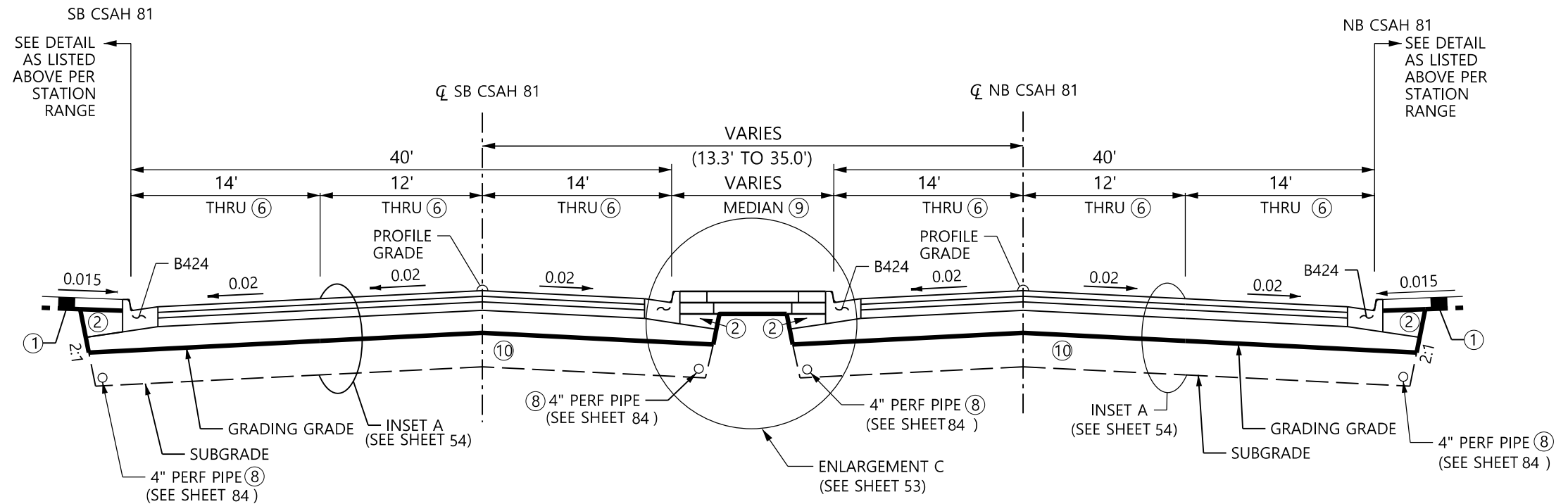
C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
 S.P. 027-681-035, S.P. 110-020-040

SHEET

42
 244

(DITCH DETAIL LT) - TYPICAL SECTION 3 - CSAH 81 - (DITCH DETAIL RT)

(SEE SHEET 45) DETAIL E - NB STA 1308+52.98 TO 1309+83.49 - (SEE SHEET 45) DETAIL B
 (SEE SHEET 45) DETAIL A - NB STA 1335+10.72 TO 1336+70.37 - (SEE SHEET 45) DETAIL C
 (SEE SHEET 45) DETAIL A - NB STA 1360+00.00 TO 1366+34.23 - (SEE SHEET 46) DETAIL E
 (SEE SHEET 46) DETAIL H - NB STA 1377+50.00 TO 1383+50.00 - (SEE SHEET 46) DETAIL E



GENERAL NOTES	
A.)	ALL SLOPES ARE FT. PER FT.
B.)	MAXIMUM SUPERELEVATION ROLLOVER SHALL BE 0.07 FT/FT.
C.)	R/W = RIGHT OF WAY
D.)	1.5' OBSTACLE FREE CLEAR ZONE FROM FACE OF CURB
E.)	SEE PROFILE PLAN FOR SPECIAL DITCH GRADES.
F.)	TRANSITIONS FROM MAINLINE TO SIDESTREET CURBS SHALL BE PAID FOR AS MAINLINE CURB TYPE B424.

TYPICAL NOTES	
①	PLACE 6" TOPSOIL & SEED
②	BACKFILL WITH SUITABLE GRADING MATERIAL
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④	SEE ALIGNMENT PLAN FOR TRAIL & ROAD ALIGNMENTS.
⑤	R/W TYPICAL - SEE RIGHT-OF-WAY PLANS FOR VARIABLE R/W AND TEMPORARY EASEMENTS.
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⑧	4" PERF PE PIPE DRAIN - SEE SUPERELEVATION AND DRAINAGE PLANS FOR LOCATIONS
⑨	GRADE MEDIAN/BLVD AS SHOWN IN CROSS SECTIONS AND AS INDICATED BY ENGINEER TO DRAIN
⑩	IN CONJUNCTION WITH FINAL SHAPING, THE CONTRACTOR SHALL, AT NO EXPENSE TO THE DEPARTMENT, SCARIFY THE ROADBED TO A DEPTH OF 1' AND RECOMPACT IT AS PER SPEC 2106, AS DIRECTED BY THE ENGINEER



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Kelly Agosto
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DESIGN BY: R. DECOTEAU
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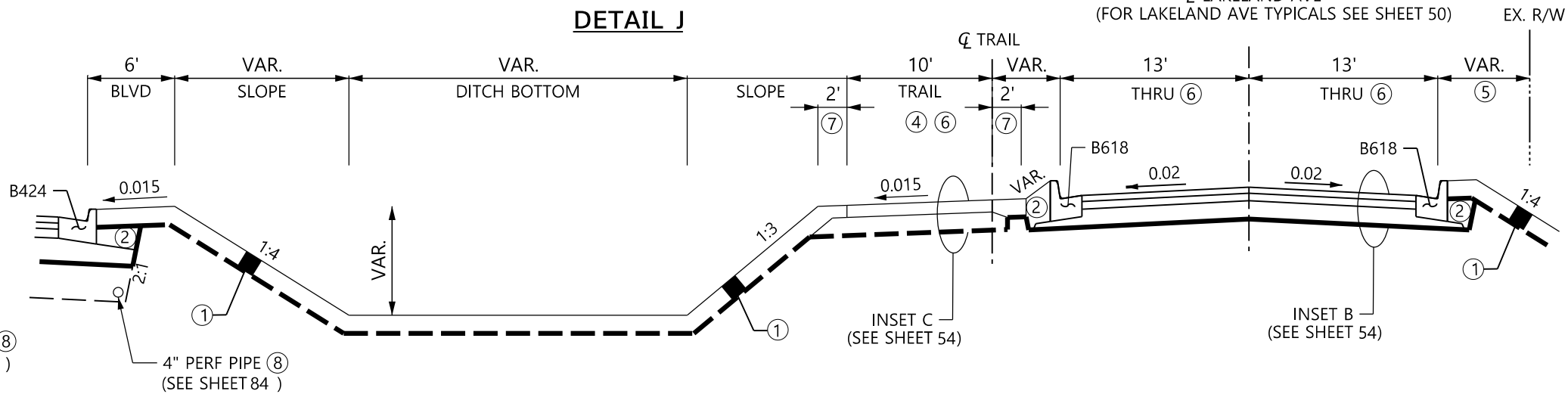
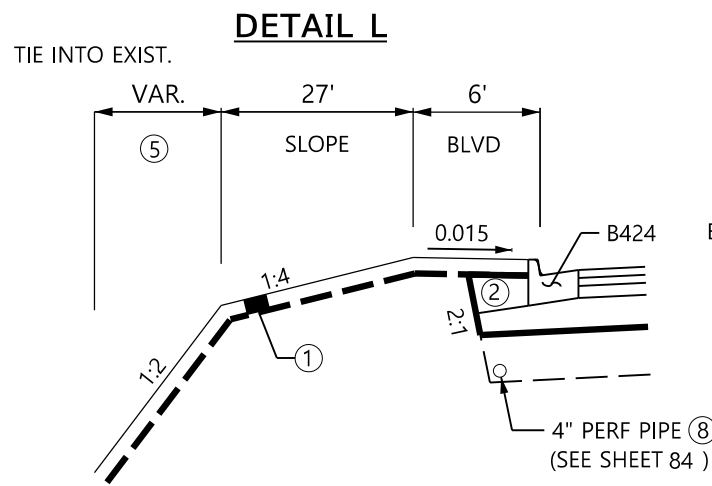
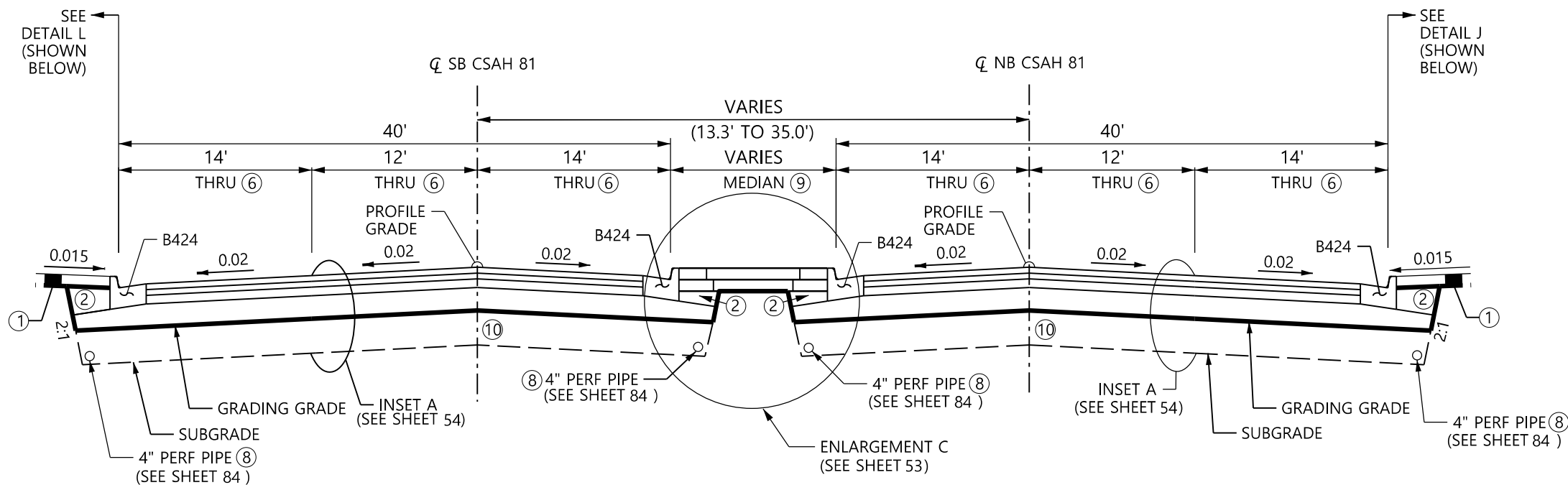
TYPICAL SECTIONS

C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
 S.P. 027-681-035, S.P. 110-020-040

SHEET

43
 244

TYPICAL SECTION 4 - CSAH 81
 (CSAH 81 WITH LAKELAND AVE, DITCH AND TRAIL AREA)
 NB STA 1316+89.64 TO 1330+89.67



GENERAL NOTES	
A.)	ALL SLOPES ARE FT. PER FT.
B.)	MAXIMUM SUPERELEVATION ROLLOVER SHALL BE 0.07 FT/FT.
C.)	R/W = RIGHT OF WAY
D.)	1.5' OBSTACLE FREE CLEAR ZONE FROM FACE OF CURB
E.)	SEE PROFILE PLAN FOR SPECIAL DITCH GRADES.
F.)	TRANSITIONS FROM MAINLINE TO SIDESTREET CURBS SHALL BE PAID FOR AS MAINLINE CURB TYPE B424.

TYPICAL NOTES	
①	PLACE 6" TOPSOIL & SEED
②	BACKFILL WITH SUITABLE GRADING MATERIAL
③	MAX ROLLOVER 0.07
④	SEE ALIGNMENT PLAN FOR TRAIL & ROAD ALIGNMENTS.
⑤	R/W TYPICAL - SEE RIGHT-OF-WAY PLANS FOR VARIABLE R/W AND TEMPORARY EASEMENTS.
⑥	SEE DRAINAGE/SUPERELEVATION PLANS FOR VARIABLE SLOPES & TRANSITIONS.
⑦	2' OBSTACLE FREE CLEAR ZONE ON BOTH SIDES OF TRAIL
⑧	4" PERF PE PIPE DRAIN - SEE SUPERELEVATION AND DRAINAGE PLANS FOR LOCATIONS
⑨	GRADE MEDIAN/BLVD AS SHOWN IN CROSS SECTIONS AND AS INDICATED BY ENGINEER TO DRAIN
⑩	IN CONJUNCTION WITH FINAL SHAPING, THE CONTRACTOR SHALL, AT NO EXPENSE TO THE DEPARTMENT, SCARIFY THE ROADBED TO A DEPTH OF 1' AND RECOMPACT IT AS PER SPEC 2106, AS DIRECTED BY THE ENGINEER



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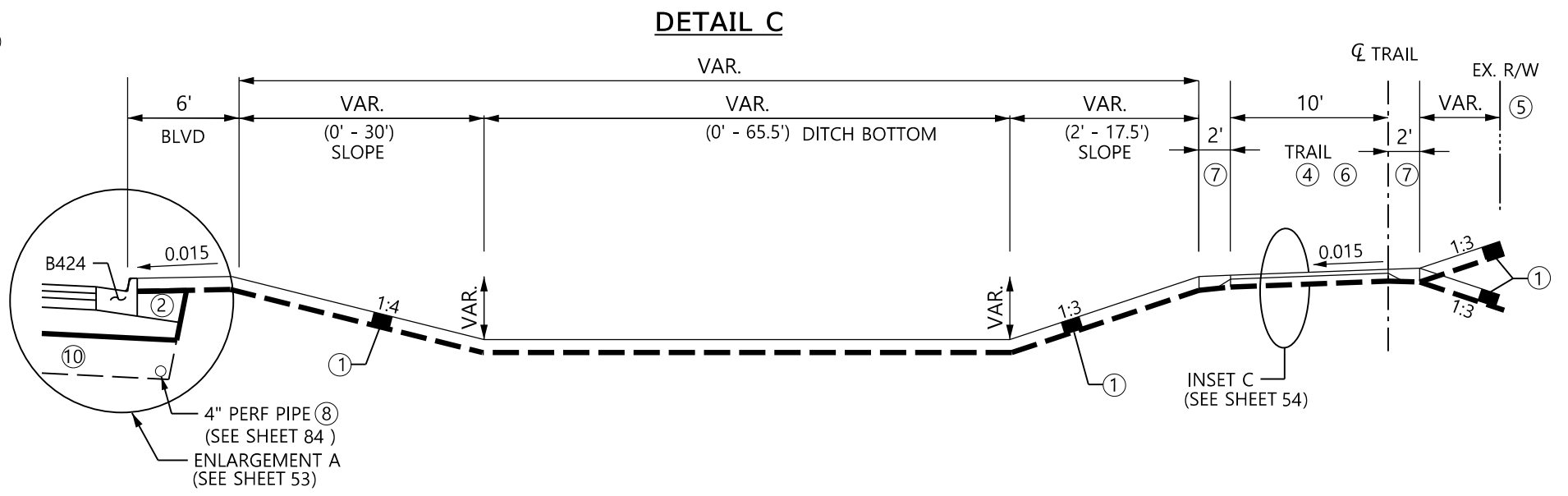
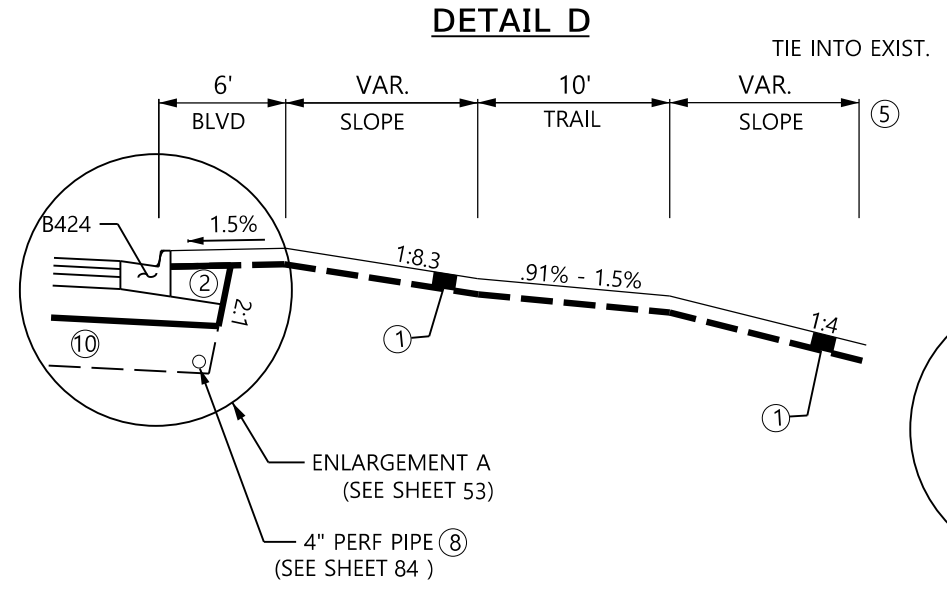
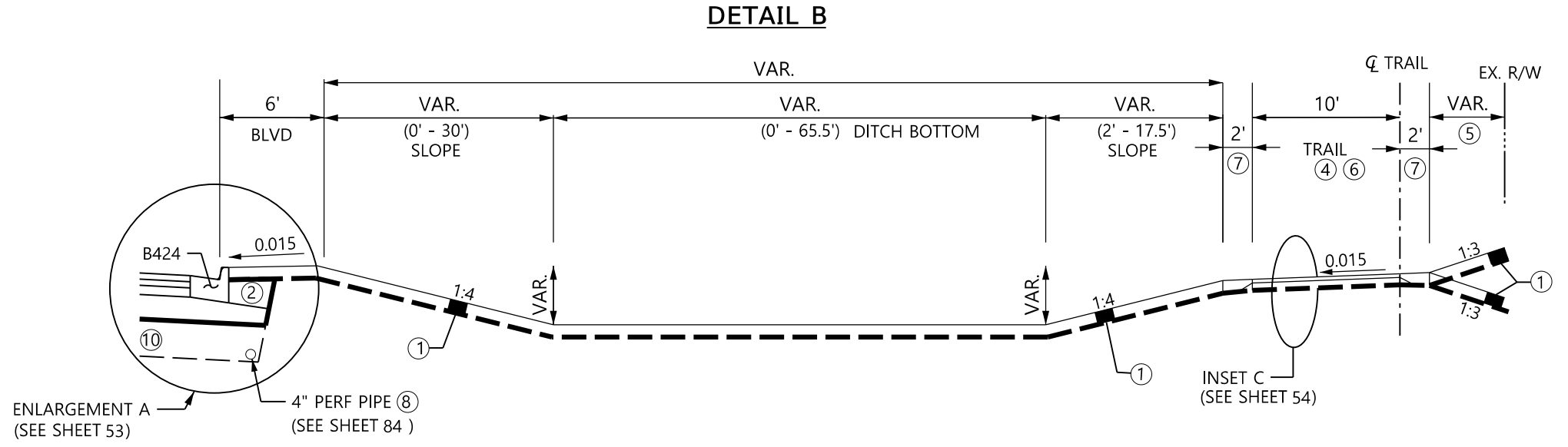
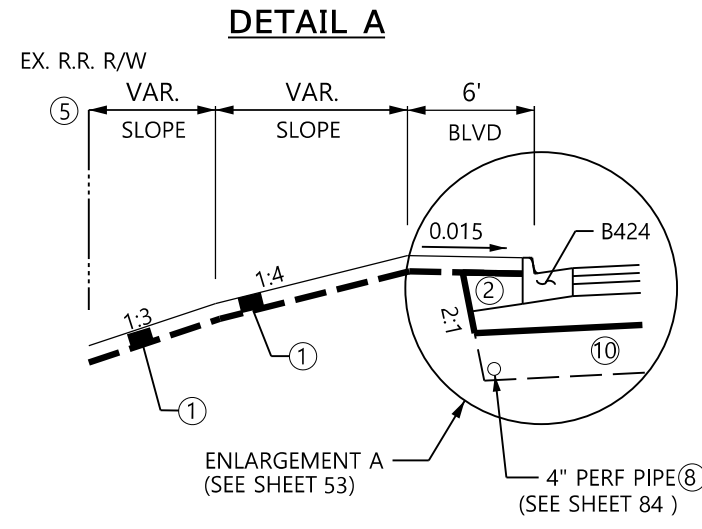
Kelly Agosto
 KELLY AGOSTO, LICENSED PROFESSIONAL ENGINEER

49075 3/15/19
 LICENSE NO. DATE

DESIGN BY: **R. DECOTEAU**
 CAD BY: **R. DECOTEAU**
 CHECKED BY: **L. LANGNER**
 LAST REVISION: / /

TYPICAL SECTIONS
 C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
 S.P. 027-681-035, S.P. 110-020-040

SHEET
 44
 244



GENERAL NOTES	
A.)	ALL SLOPES ARE FT. PER FT.
B.)	MAXIMUM SUPERELEVATION ROLLOVER SHALL BE 0.07 FT/FT.
C.)	R/W = RIGHT OF WAY
D.)	1.5' OBSTACLE FREE CLEAR ZONE FROM FACE OF CURB
E.)	SEE PROFILE PLAN FOR SPECIAL DITCH GRADES.
F.)	TRANSITIONS FROM MAINLINE TO SIDESTREET CURBS SHALL BE PAID FOR AS MAINLINE CURB TYPE B424.

TYPICAL NOTES	
①	PLACE 6" TOPSOIL & SEED
②	BACKFILL WITH SUITABLE GRADING MATERIAL
③	MAX ROLLOVER 0.07
④	SEE ALIGNMENT PLAN FOR TRAIL & ROAD ALIGNMENTS.
⑤	R/W TYPICAL - SEE RIGHT-OF-WAY PLANS FOR VARIABLE R/W AND TEMPORARY EASEMENTS.
⑥	SEE DRAINAGE/SUPERELEVATION PLANS FOR VARIABLE SLOPES & TRANSITIONS.
⑦	2' OBSTACLE FREE CLEAR ZONE ON BOTH SIDES OF TRAIL
⑧	4" PERF PE PIPE DRAIN - SEE SUPERELEVATION AND DRAINAGE PLANS FOR LOCATIONS
⑨	GRADE MEDIAN/BLVD AS SHOWN IN CROSS SECTIONS AND AS INDICATED BY ENGINEER TO DRAIN
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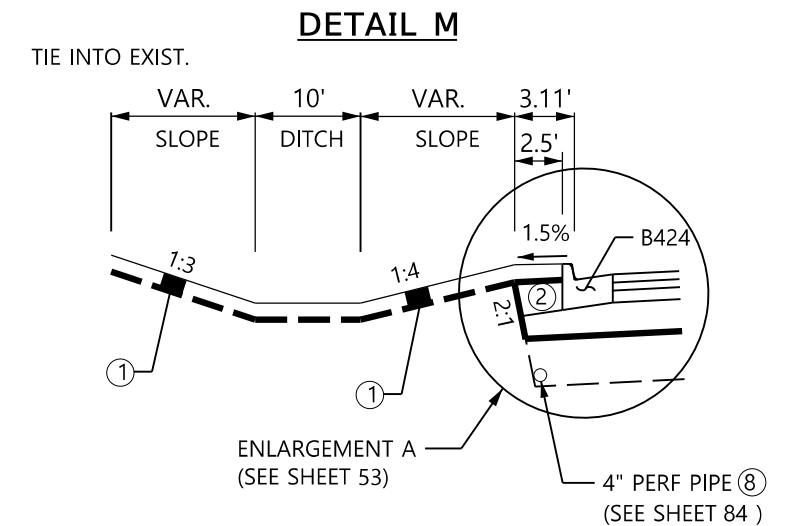
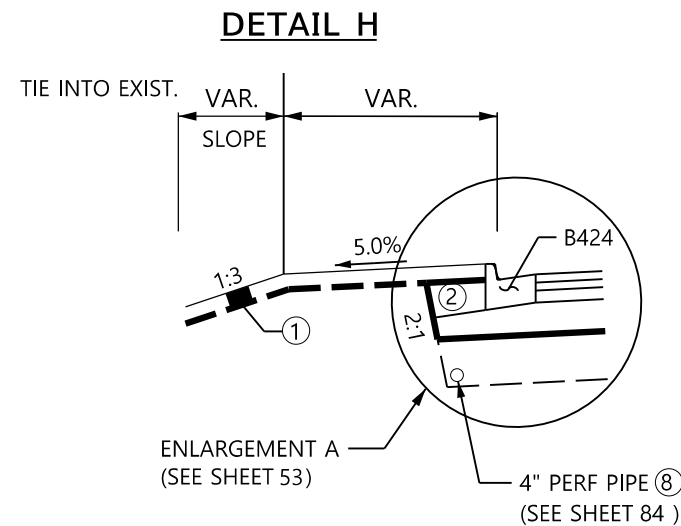
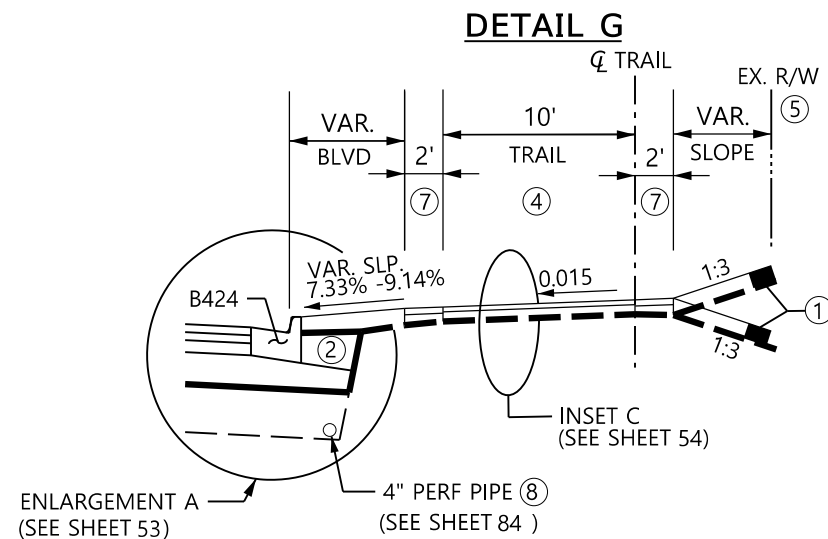
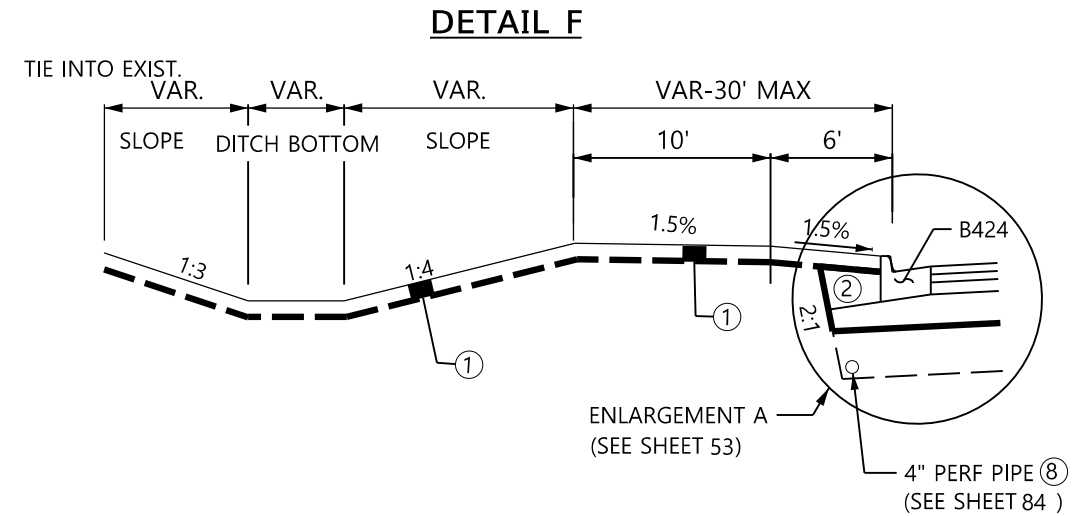
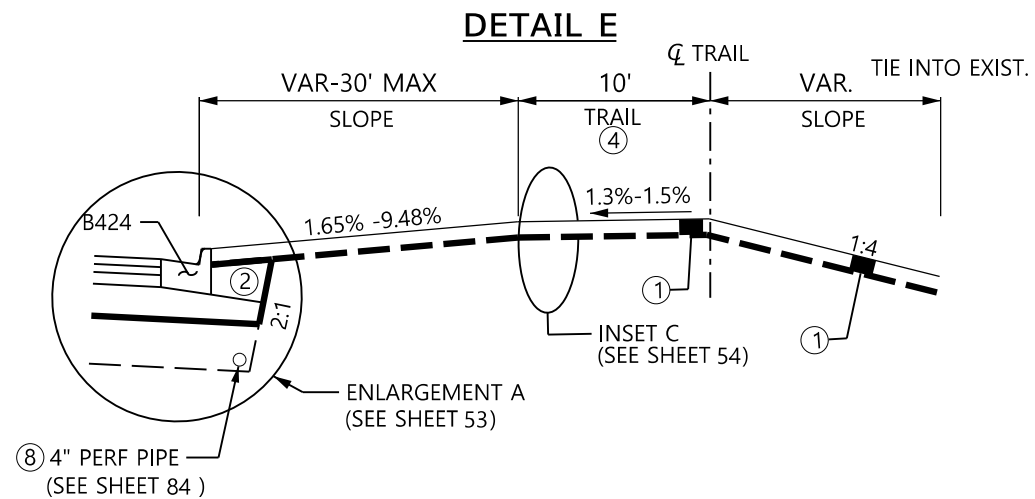
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Kelly Agosto
KELLY AGOSTO, LICENSED PROFESSIONAL ENGINEER
 49075 LICENSE NO. 3/15/19 DATE

DESIGN BY: **L. LANGNER**
 CAD BY: **E. GUIR**
 CHECKED BY: **R. DECOTEAU**
 LAST REVISION: / /

TYPICAL SECTIONS
 C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
 S.P. 027-681-035, S.P. 110-020-040

SHEET
 45
 244



GENERAL NOTES	
A.)	ALL SLOPES ARE FT. PER FT.
B.)	MAXIMUM SUPERELEVATION ROLLOVER SHALL BE 0.07 FT/FT.
C.)	R/W = RIGHT OF WAY
D.)	1.5' OBSTACLE FREE CLEAR ZONE FROM FACE OF CURB
E.)	SEE PROFILE PLAN FOR SPECIAL DITCH GRADES.
F.)	TRANSITIONS FROM MAINLINE TO SIDESTREET CURBS SHALL BE PAID FOR AS MAINLINE CURB TYPE B424.

TYPICAL NOTES			
①	PLACE 6" TOPSOIL & SEED	⑧	4" PERF PE PIPE DRAIN - SEE SUPERELEVATION AND DRAINAGE PLANS FOR LOCATIONS
②	BACKFILL WITH SUITABLE GRADING MATERIAL	⑨	GRADE MEDIAN/BLVD AS SHOWN IN CROSS SECTIONS AND AS INDICATED BY ENGINEER TO DRAIN
③	MAX ROLLOVER 0.07	⑩	IN CONJUNCTION WITH FINAL SHAPING, THE CONTRACTOR SHALL, AT NO EXPENSE TO THE DEPARTMENT, SCARIFY THE ROADBED TO A DEPTH OF 1' AND RECOMPACT IT AS PER SPEC 2106, AS DIRECTED BY THE ENGINEER
④	SEE ALIGNMENT PLAN FOR TRAIL & ROAD ALIGNMENTS.		
⑤	R/W TYPICAL - SEE RIGHT-OF-WAY PLANS FOR VARIABLE R/W AND TEMPORARY EASEMENTS.		
⑥	SEE DRAINAGE/SUPERELEVATION PLANS FOR VARIABLE SLOPES & TRANSITIONS.		
⑦	2' OBSTACLE FREE CLEAR ZONE ON BOTH SIDES OF TRAIL		



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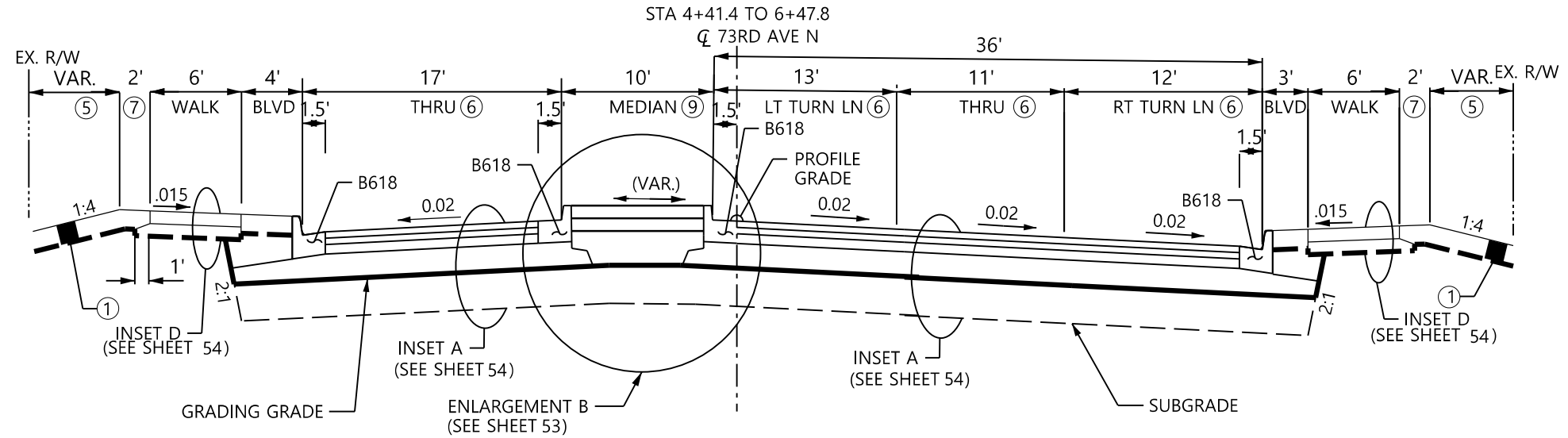
49075 3/15/19
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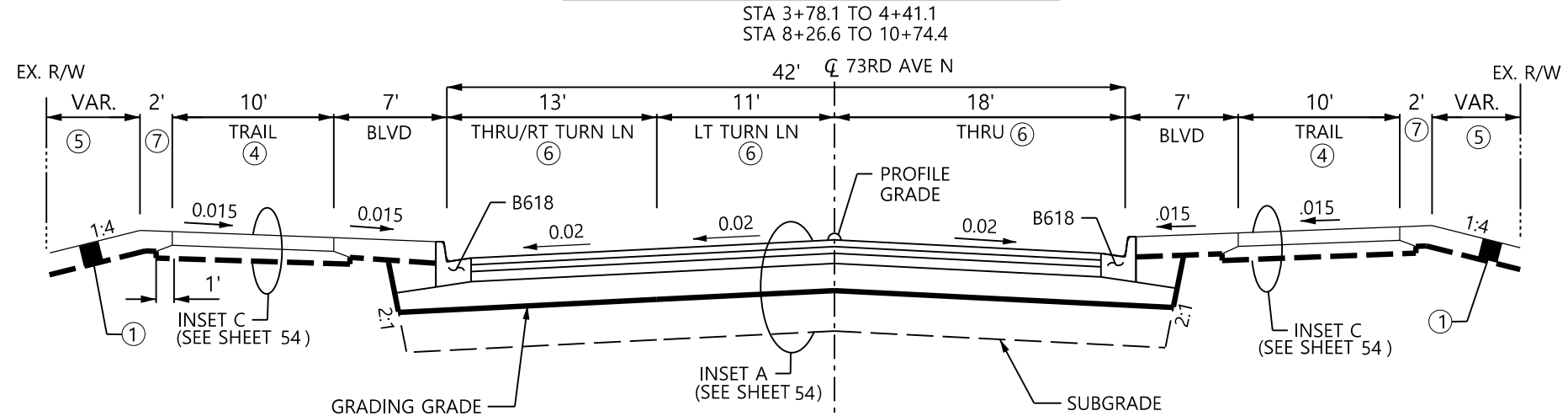
TYPICAL SECTIONS
 C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
 S.P. 027-681-035, S.P. 110-020-040

SHEET
 46
 244

TYPICAL SECTION 1 - 73RD AVE N



TYPICAL SECTION 2 - 73RD AVE N



GENERAL NOTES	
A.)	ALL SLOPES ARE FT. PER FT.
B.)	MAXIMUM SUPERELEVATION ROLLOVER SHALL BE 0.07 FT/FT.
C.)	R/W = RIGHT OF WAY
D.)	1.5' OBSTACLE FREE CLEAR ZONE FROM FACE OF CURB
E.)	SEE PROFILE PLAN FOR SPECIAL DITCH GRADES.
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TYPICAL NOTES	
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⑤	R/W TYPICAL - SEE RIGHT-OF-WAY PLANS FOR VARIABLE R/W AND TEMPORARY EASEMENTS.
⑥	SEE DRAINAGE/SUPERELEVATION PLANS FOR VARIABLE SLOPES & TRANSITIONS.
⑦	2' OBSTACLE FREE CLEAR ZONE ON BOTH SIDES OF TRAIL
⑧	4" PERF PE PIPE DRAIN - SEE SUPERELEVATION AND DRAINAGE PLANS FOR LOCATIONS
⑨	GRADE MEDIAN/BLVD AS SHOWN IN CROSS SECTIONS AND AS INDICATED BY ENGINEER TO DRAIN
⑩	IN CONJUNCTION WITH FINAL SHAPING, THE CONTRACTOR SHALL, AT NO EXPENSE TO THE DEPARTMENT, SCARIFY THE ROADBED TO A DEPTH OF 1' AND RECOMPACT IT AS PER SPEC 2106, AS DIRECTED BY THE ENGINEER



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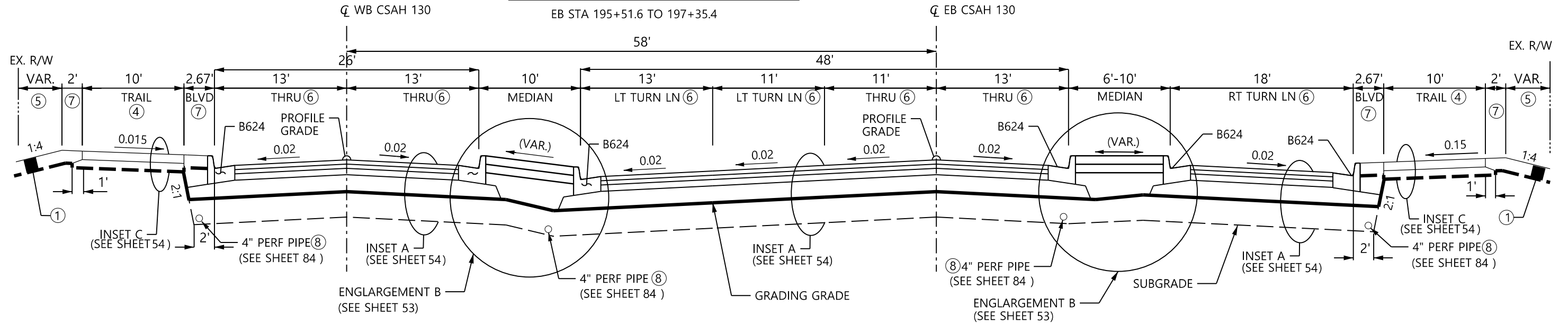
TYPICAL SECTIONS

C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
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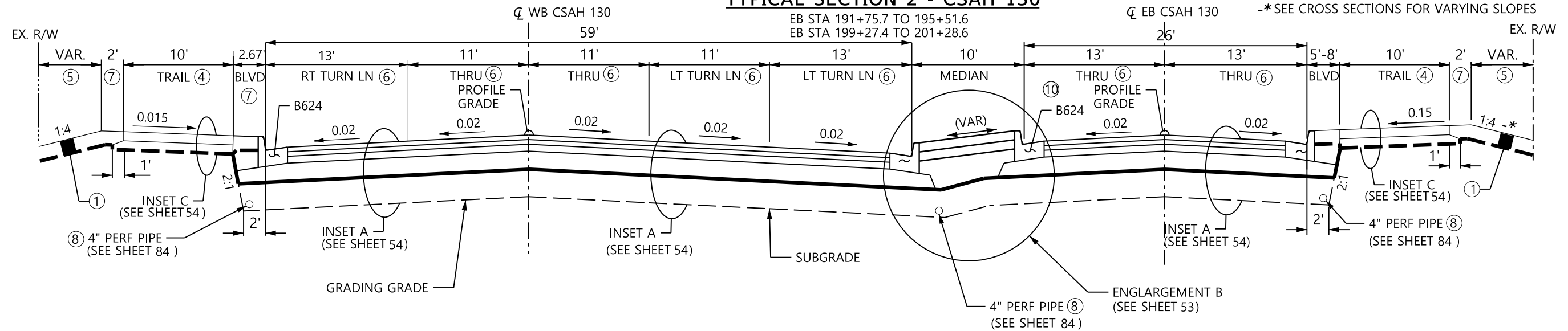
SHEET

47
 244

TYPICAL SECTION 1 - CSAH 130



TYPICAL SECTION 2 - CSAH 130



GENERAL NOTES	
A.)	ALL SLOPES ARE FT. PER FT.
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TYPICAL SECTIONS

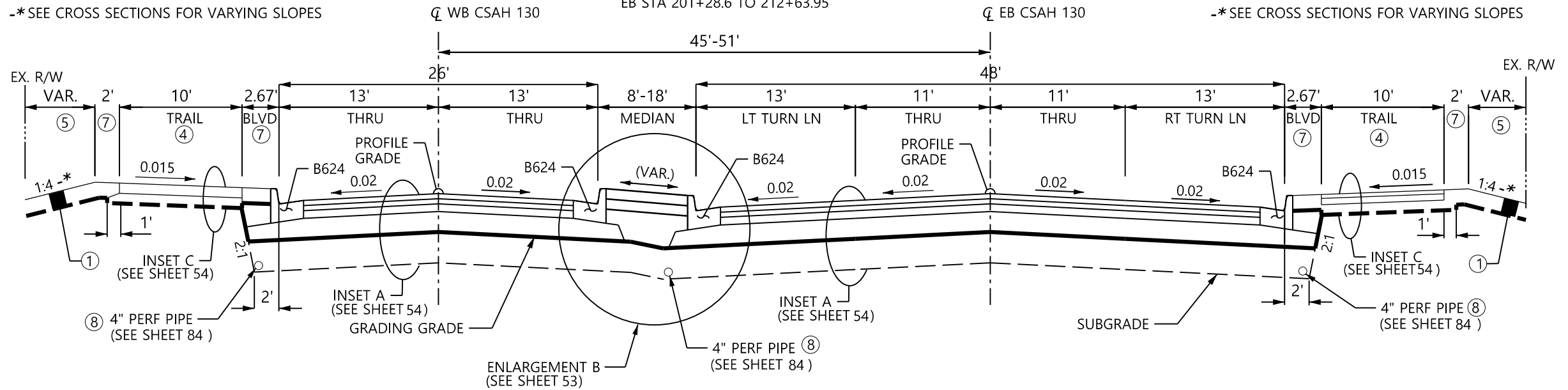
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SHEET

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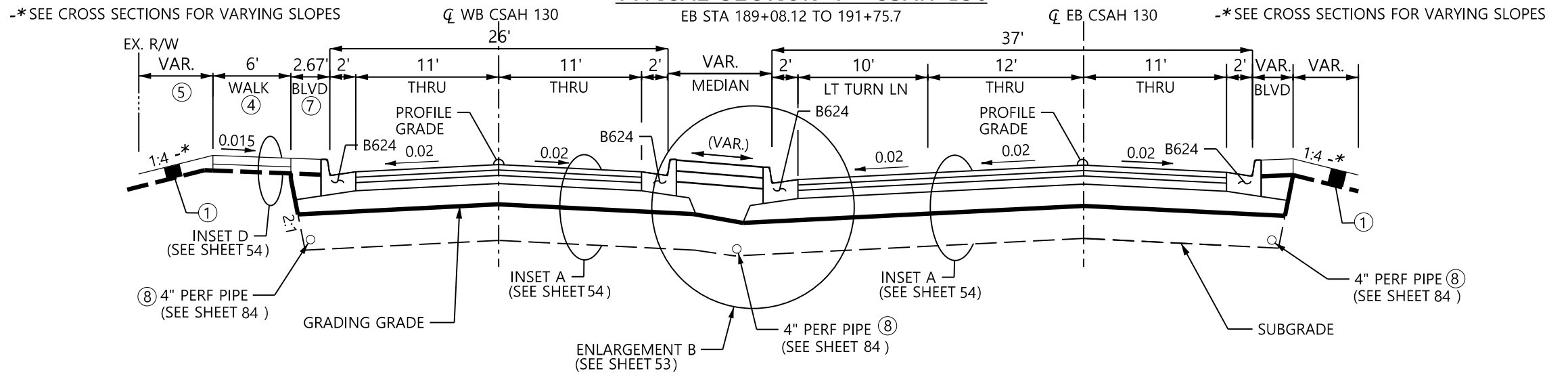
TYPICAL SECTION 3 - CSAH 130

EB STA 201+28.6 TO 212+63.95



TYPICAL SECTION 4 - CSAH 130

EB STA 189+08.12 TO 191+75.7



GENERAL NOTES	
A.)	ALL SLOPES ARE FT. PER FT.
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TYPICAL SECTIONS

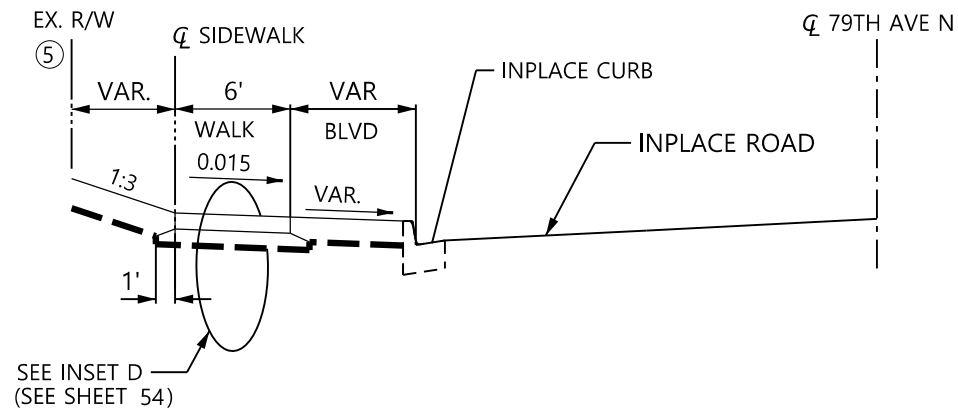
C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
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SHEET

49
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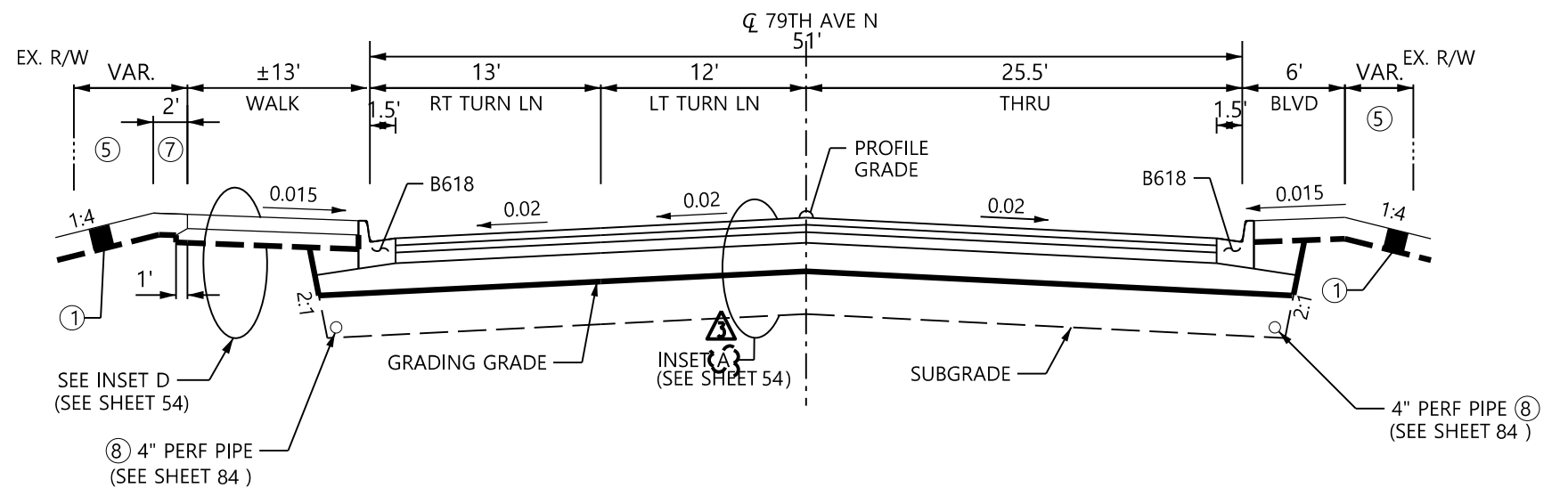
TYPICAL SECTION 2 - 79TH AVE N

STA. 48+15.4 TO STA 51+81.9



TYPICAL SECTION 1 - 79TH AVE N

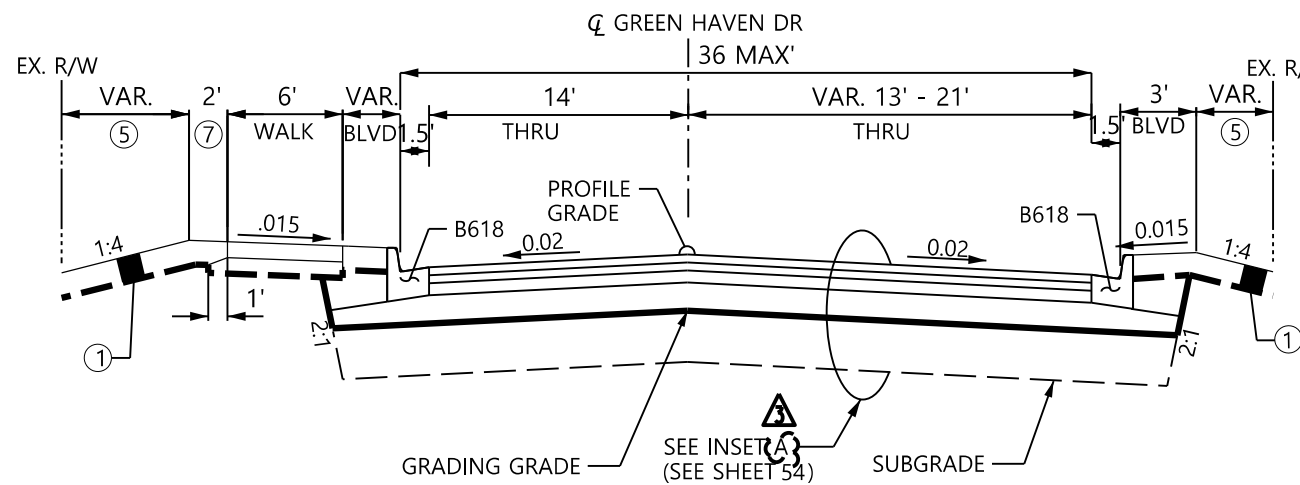
STA. 47+82.2 TO 48+15.4



04/25/19 INSET LETTER CHANGED

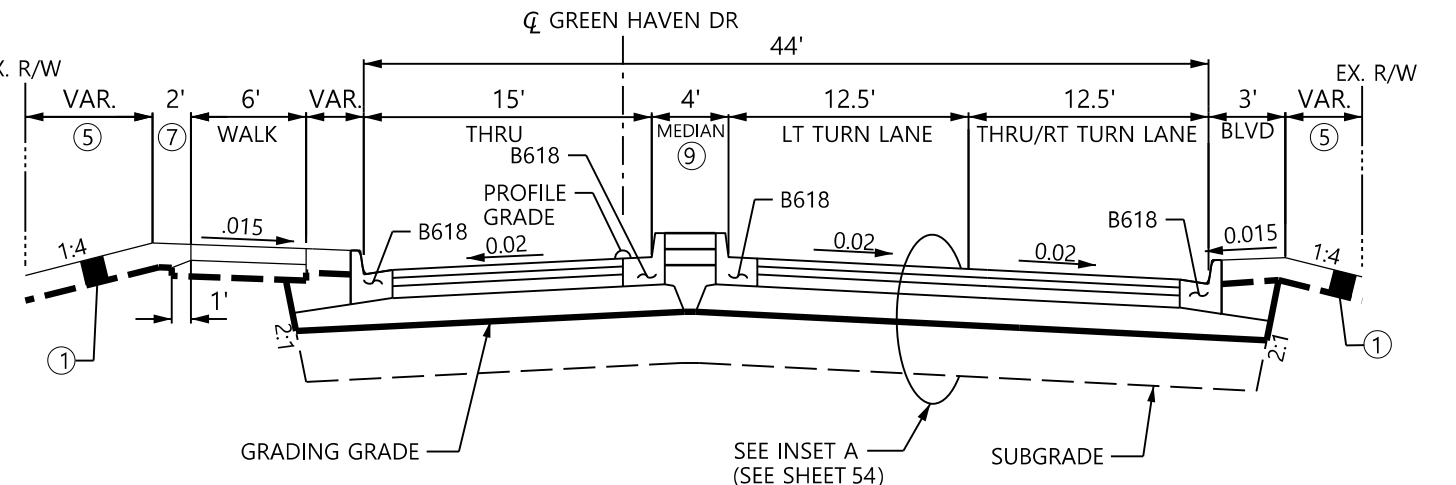
TYPICAL SECTION 1- GREEN HAVEN DR

STA. 2+45.7 TO 4+23.2



TYPICAL SECTION 2 - GREEN HAVEN DR

STA. 4+23.2 TO 4+83.9



GENERAL NOTES	
A.)	ALL SLOPES ARE FT. PER FT.
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TYPICAL NOTES	
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③	MAX ROLLOVER 0.07
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⑤	R/W TYPICAL - SEE RIGHT-OF-WAY PLANS FOR VARIABLE R/W AND TEMPORARY EASEMENTS.
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Kelly Agosto
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49075 3/15/19
 LICENSE NO. DATE

DESIGN BY: **R. DECOTEAU**
 CAD BY: **R. DECOTEAU**
 CHECKED BY: **L. LANGNER**
 LAST REVISION: **4/25/19**

TYPICAL SECTIONS

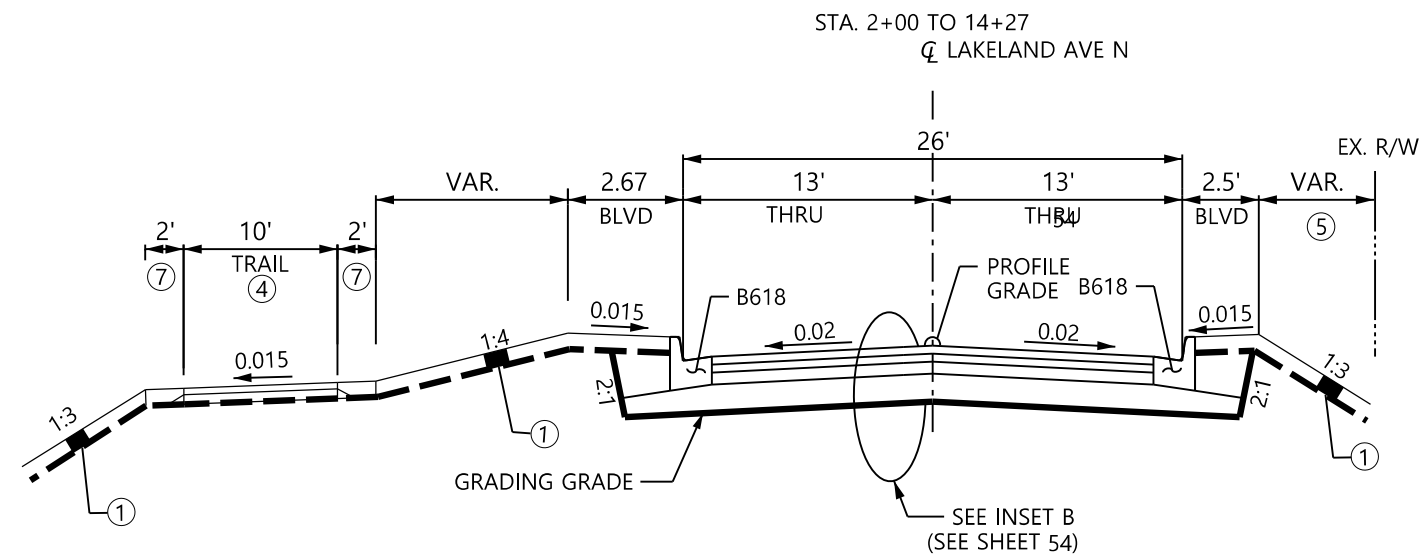
C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
 S.P. 027-681-035, S.P. 110-020-040

SHEET

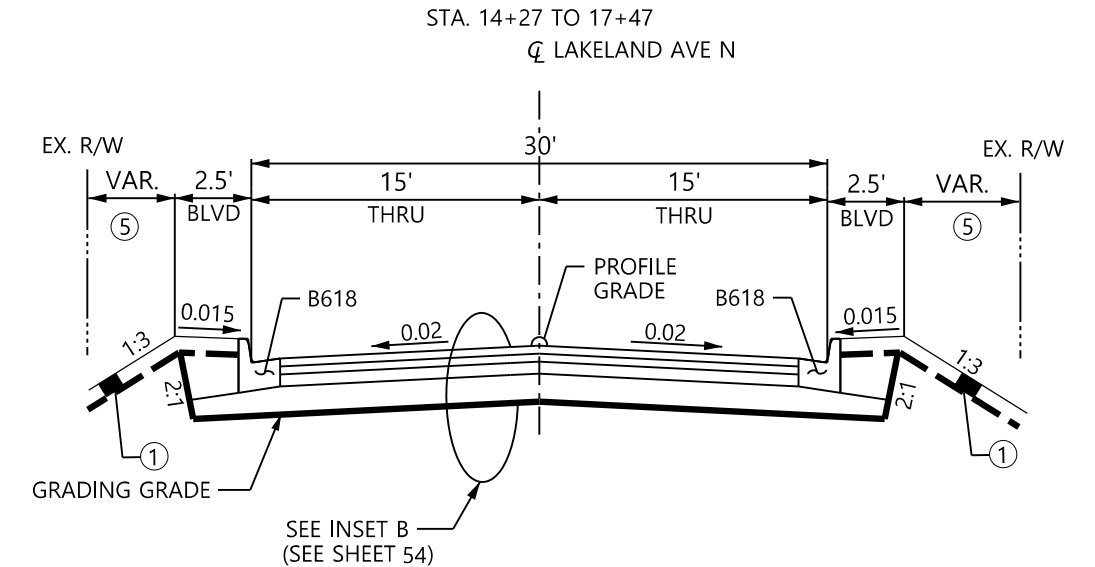
R50.1

244

TYPICAL SECTION 1- LAKELAND AVE N



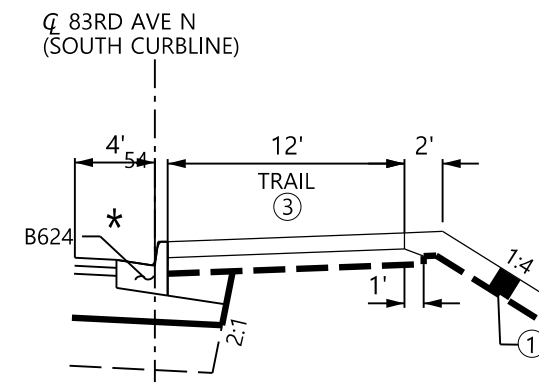
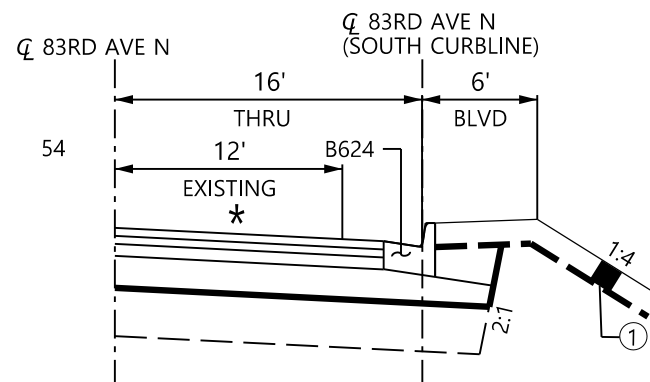
TYPICAL SECTION 2- LAKELAND AVE N



TYPICAL SECTION - 83RD AVE N-(SOUTH CURBLINE)

STA CL 83RD AVE N (SOUTH CURBLINE) 256+24.42 TO 258+27.22

STA CL 83RD AVE N (SOUTH CURBLINE) 258+27.22 TO 259+64.69



* REPLACE 2 FT OF BITUMINOUS FROM EDGE OF GUTTER

NOTE: TRAIL CONTINUES ALONG INPLACE LAKELAND AVE
SEE TYPICAL SECTION 1 CSAH 81-DITCH DETAIL RT

* REPLACE 2 FT OF BITUMINOUS FROM EDGE OF GUTTER

GENERAL NOTES	
A.)	ALL SLOPES ARE FT. PER FT.
B.)	MAXIMUM SUPERELEVATION ROLLOVER SHALL BE 0.07 FT/FT.
C.)	R/W = RIGHT OF WAY
D.)	1.5' OBSTACLE FREE CLEAR ZONE FROM FACE OF CURB
E.)	SEE PROFILE PLAN FOR SPECIAL DITCH GRADES.
F.)	TRANSITIONS FROM MAINLINE TO SIDESTREET CURBS SHALL BE PAID FOR AS MAINLINE CURB TYPE B424.

TYPICAL NOTES	
①	PLACE 6" TOPSOIL & SEED
②	BACKFILL WITH SUITABLE GRADING MATERIAL
③	MAX ROLLOVER 0.07
④	SEE ALIGNMENT PLAN FOR TRAIL & ROAD ALIGNMENTS.
⑤	R/W TYPICAL - SEE RIGHT-OF-WAY PLANS FOR VARIABLE R/W AND TEMPORARY EASEMENTS.
⑥	SEE DRAINAGE/SUPERELEVATION PLANS FOR VARIABLE SLOPES & TRANSITIONS.
⑦	2' OBSTACLE FREE CLEAR ZONE ON BOTH SIDES OF TRAIL
⑧	4" PERF PE PIPE DRAIN - SEE SUPERELEVATION AND DRAINAGE PLANS FOR LOCATIONS
⑨	GRADE MEDIAN/BLVD AS SHOWN IN CROSS SECTIONS AND AS INDICATED BY ENGINEER TO DRAIN
⑩	IN CONJUNCTION WITH FINAL SHAPING, THE CONTRACTOR SHALL, AT NO EXPENSE TO THE DEPARTMENT, SCARIFY THE ROADBED TO A DEPTH OF 1' AND RECOMPACT IT AS PER SPEC 2106, AS DIRECTED BY THE ENGINEER



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.

Kelly Agosto
KELLY AGOSTO, LICENSED PROFESSIONAL ENGINEER

49075 3/15/19
LICENSE NO. DATE

DESIGN BY: **R. DECOTEAU**
CAD BY: **R. DECOTEAU**
CHECKED BY: **L. LANGNER**
LAST REVISION: / /

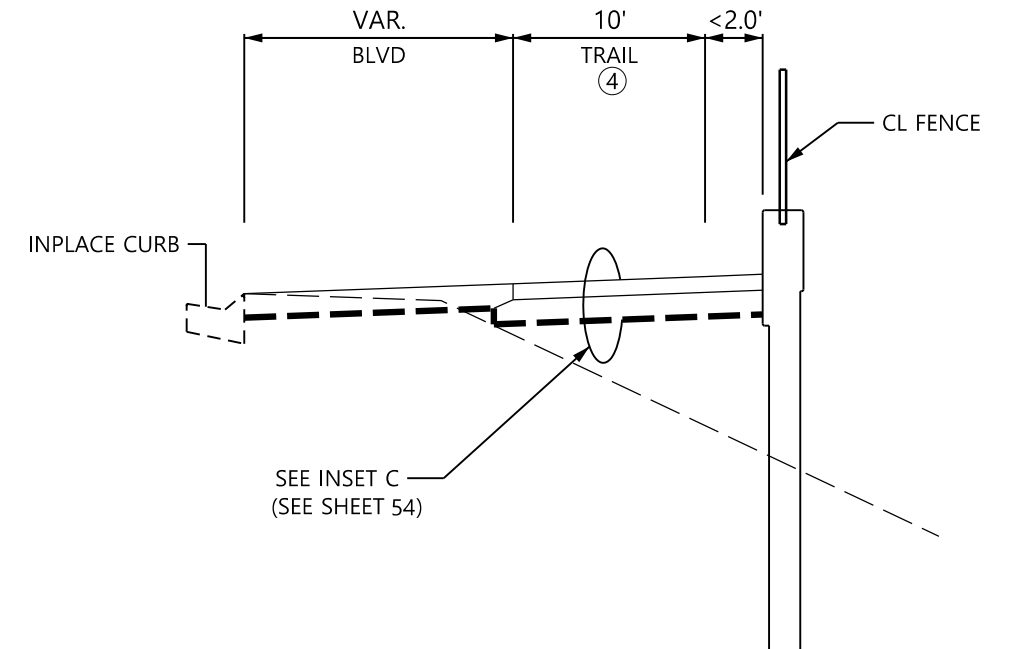
TYPICAL SECTIONS

C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
S.P. 027-681-035, S.P. 110-020-040

SHEET

51
244

TYPICAL SECTION 1 - NB 169 RAMP



GENERAL NOTES	
A.)	ALL SLOPES ARE FT. PER FT.
B.)	MAXIMUM SUPERELEVATION ROLLOVER SHALL BE 0.07 FT/FT.
C.)	R/W = RIGHT OF WAY
D.)	1.5' OBSTACLE FREE CLEAR ZONE FROM FACE OF CURB
E.)	SEE PROFILE PLAN FOR SPECIAL DITCH GRADES.
F.)	TRANSITIONS FROM MAINLINE TO SIDESTREET CURBS SHALL BE PAID FOR AS MAINLINE CURB TYPE B424.

TYPICAL NOTES			
①	PLACE 6" TOPSOIL & SEED	⑧	4" PERF PE PIPE DRAIN - SEE SUPERELEVATION AND DRAINAGE PLANS FOR LOCATIONS
②	BACKFILL WITH SUITABLE GRADING MATERIAL	⑨	GRADE MEDIAN/BLVD AS SHOWN IN CROSS SECTIONS AND AS INDICATED BY ENGINEER TO DRAIN
③	MAX ROLLOVER 0.07	⑩	IN CONJUNCTION WITH FINAL SHAPING, THE CONTRACTOR SHALL, AT NO EXPENSE TO THE DEPARTMENT, SCARIFY THE ROADBED TO A DEPTH OF 1' AND RECOMPACT IT AS PER SPEC 2106, AS DIRECTED BY THE ENGINEER
④	SEE ALIGNMENT PLAN FOR TRAIL & ROAD ALIGNMENTS.		
⑤	R/W TYPICAL - SEE RIGHT-OF-WAY PLANS FOR VARIABLE R/W AND TEMPORARY EASEMENTS.		
⑥	SEE DRAINAGE/SUPERELEVATION PLANS FOR VARIABLE SLOPES & TRANSITIONS.		
⑦	2' OBSTACLE FREE CLEAR ZONE ON BOTH SIDES OF TRAIL		



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Kelly Agosto
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49075 3/15/19
 LICENSE NO. DATE

DESIGN BY: R. DECOTEAU
 CAD BY: R. DECOTEAU
 CHECKED BY: L. LANGNER
 LAST REVISION: / /

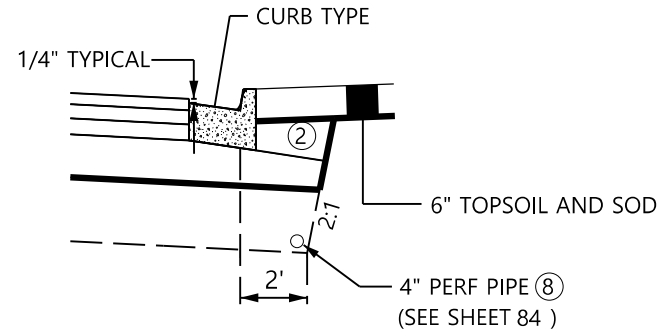
TYPICAL SECTIONS

C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
 S.P. 027-681-035, S.P. 110-020-040

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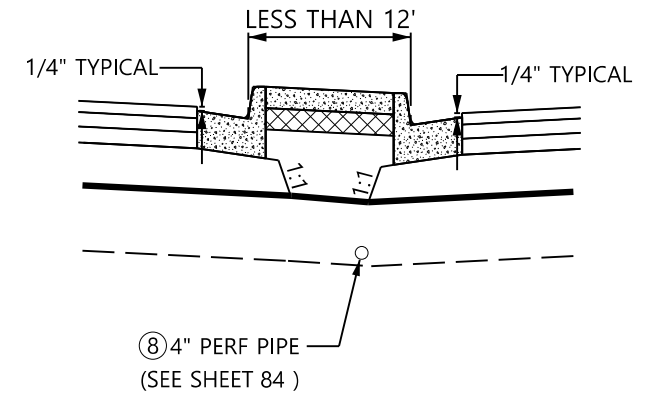
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ENLARGEMENT A



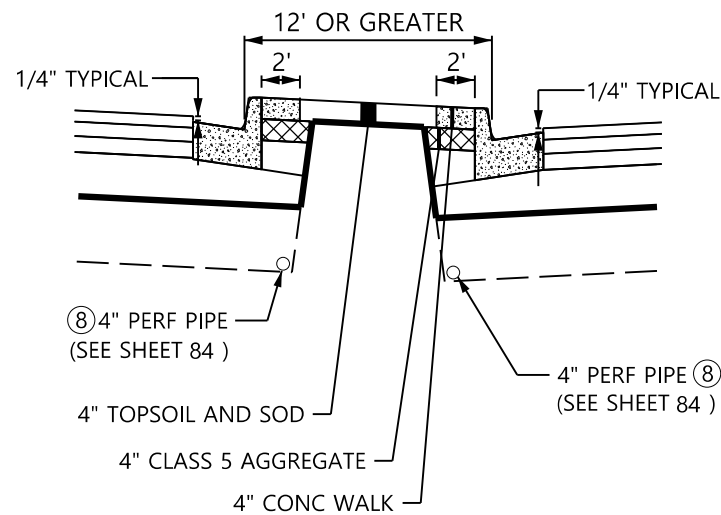
ENLARGEMENT B

(MEDIANS 12' OR LESS FACE OF CURB TO FACE OF CURB)



ENLARGEMENT C

CONCRETE MAINTENANCE STRIP
(MEDIANS 12' OR GREATER FACE OF CURB TO FACE OF CURB)



GENERAL NOTES	
A.)	ALL SLOPES ARE FT. PER FT.
B.)	MAXIMUM SUPERELEVATION ROLLOVER SHALL BE 0.07 FT/FT.
C.)	R/W = RIGHT OF WAY
D.)	1.5' OBSTACLE FREE CLEAR ZONE FROM FACE OF CURB
E.)	SEE PROFILE PLAN FOR SPECIAL DITCH GRADES.
F.)	TRANSITIONS FROM MAINLINE TO SIDESTREET CURBS SHALL BE PAID FOR AS MAINLINE CURB TYPE B424.

TYPICAL NOTES			
①	PLACE 6" TOPSOIL & SEED	⑧	4" PERF PE PIPE DRAIN - SEE SUPERELEVATION AND DRAINAGE PLANS FOR LOCATIONS
②	BACKFILL WITH SUITABLE GRADING MATERIAL	⑨	GRADE MEDIAN/BLVD AS SHOWN IN CROSS SECTIONS AND AS INDICATED BY ENGINEER TO DRAIN
③	MAX ROLLOVER 0.07	⑩	IN CONJUNCTION WITH FINAL SHAPING, THE CONTRACTOR SHALL, AT NO EXPENSE TO THE DEPARTMENT, SCARIFY THE ROADBED TO A DEPTH OF 1' AND RECOMPACT IT AS PER SPEC 2106, AS DIRECTED BY THE ENGINEER
④	SEE ALIGNMENT PLAN FOR TRAIL & ROAD ALIGNMENTS.		
⑤	R/W TYPICAL - SEE RIGHT-OF-WAY PLANS FOR VARIABLE R/W AND TEMPORARY EASEMENTS.		
⑥	SEE DRAINAGE/SUPERELEVATION PLANS FOR VARIABLE SLOPES & TRANSITIONS.		
⑦	2' OBSTACLE FREE CLEAR ZONE ON BOTH SIDES OF TRAIL		



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Kelly Agosto
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49075 3/15/19
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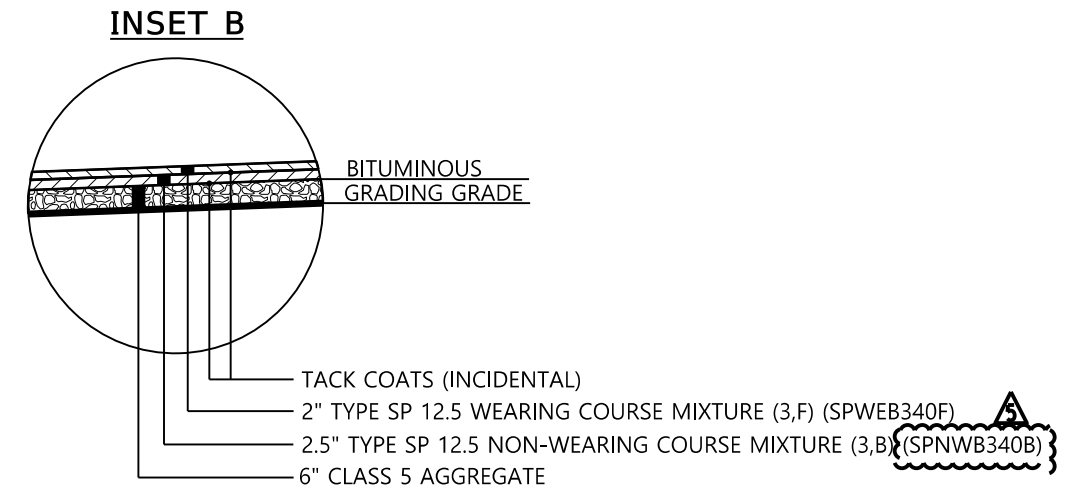
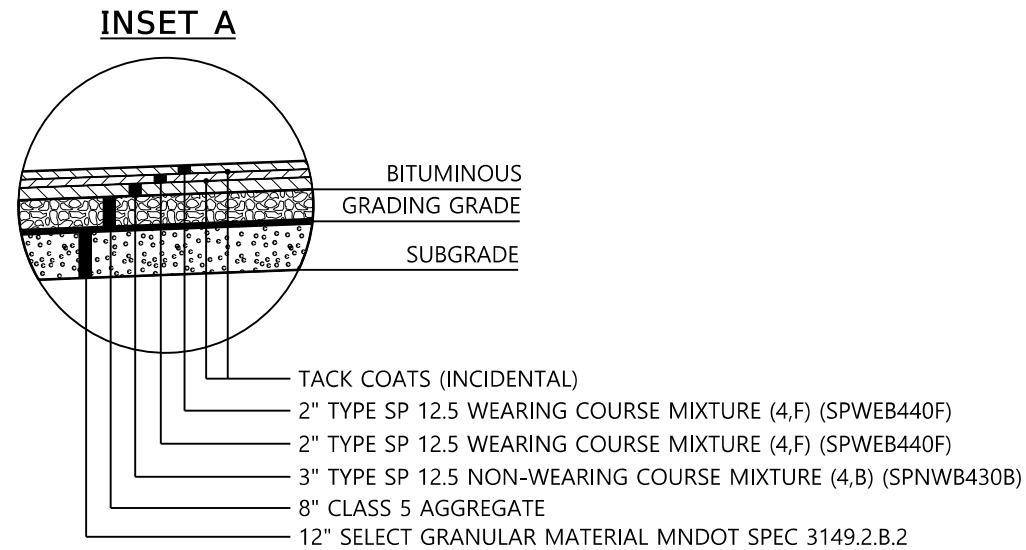
DESIGN BY: **R. DECOTEAU**
CAD BY: **R. DECOTEAU**
CHECKED BY: **L. LANGNER**
LAST REVISION: / /

TYPICAL SECTIONS

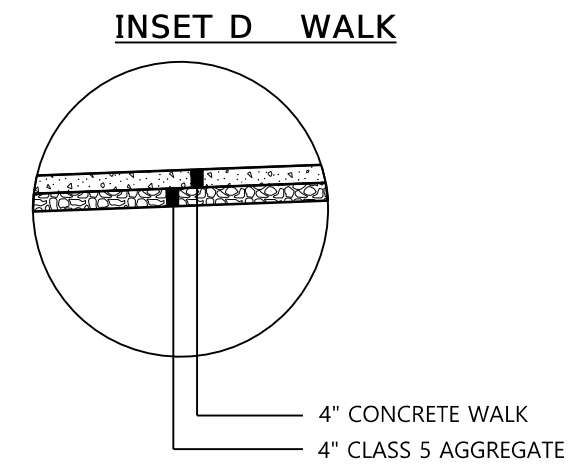
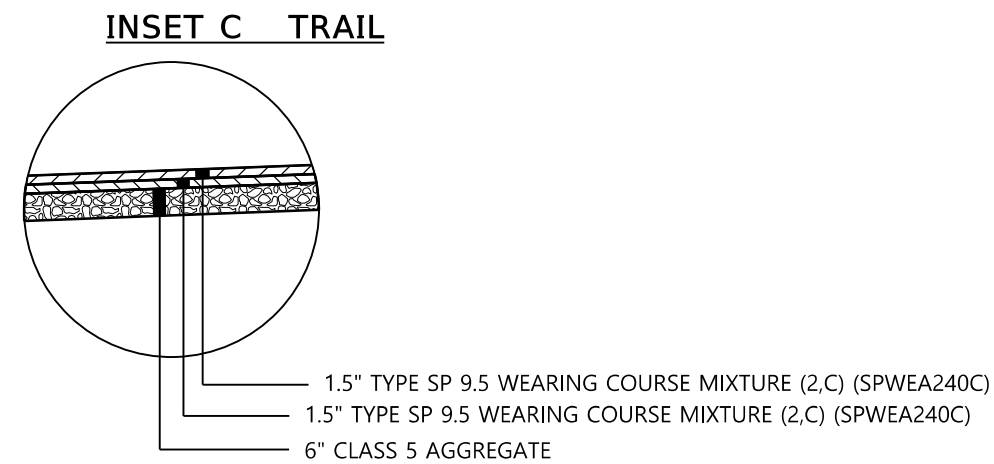
C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
S.P. 027-681-035, S.P. 110-020-040

SHEET

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244



04/30/19 MIX NUMBER CORRECTED



GENERAL NOTES	
A.)	ALL SLOPES ARE FT. PER FT.
B.)	MAXIMUM SUPERELEVATION ROLLOVER SHALL BE 0.07 FT/FT.
C.)	R/W = RIGHT OF WAY
D.)	1.5' OBSTACLE FREE CLEAR ZONE FROM FACE OF CURB
E.)	SEE PROFILE PLAN FOR SPECIAL DITCH GRADES.
F.)	TRANSITIONS FROM MAINLINE TO SIDESTREET CURBS SHALL BE PAID FOR AS MAINLINE CURB TYPE B424.

TYPICAL NOTES			
①	PLACE 6" TOPSOIL & SEED	⑧	4" PERF PE PIPE DRAIN - SEE SUPERELEVATION AND DRAINAGE PLANS FOR LOCATIONS
②	BACKFILL WITH SUITABLE GRADING MATERIAL	⑨	GRADE MEDIAN/BLVD AS SHOWN IN CROSS SECTIONS AND AS INDICATED BY ENGINEER TO DRAIN
③	MAX ROLLOVER 0.07	⑩	IN CONJUNCTION WITH FINAL SHAPING, THE CONTRACTOR SHALL, AT NO EXPENSE TO THE DEPARTMENT, SCARIFY THE ROADBED TO A DEPTH OF 1' AND RECOMPACT IT AS PER SPEC 2106, AS DIRECTED BY THE ENGINEER
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⑥	SEE DRAINAGE/SUPERELEVATION PLANS FOR VARIABLE SLOPES & TRANSITIONS.		
⑦	2' OBSTACLE FREE CLEAR ZONE ON BOTH SIDES OF TRAIL		



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Kelly Agosto
KELLY AGOSTO, LICENSED PROFESSIONAL ENGINEER

49075 3/15/19
LICENSE NO. DATE

DESIGN BY: R. DECOTEAU
CAD BY: R. DECOTEAU
CHECKED BY: L. LANGNER
LAST REVISION: 4/30/19

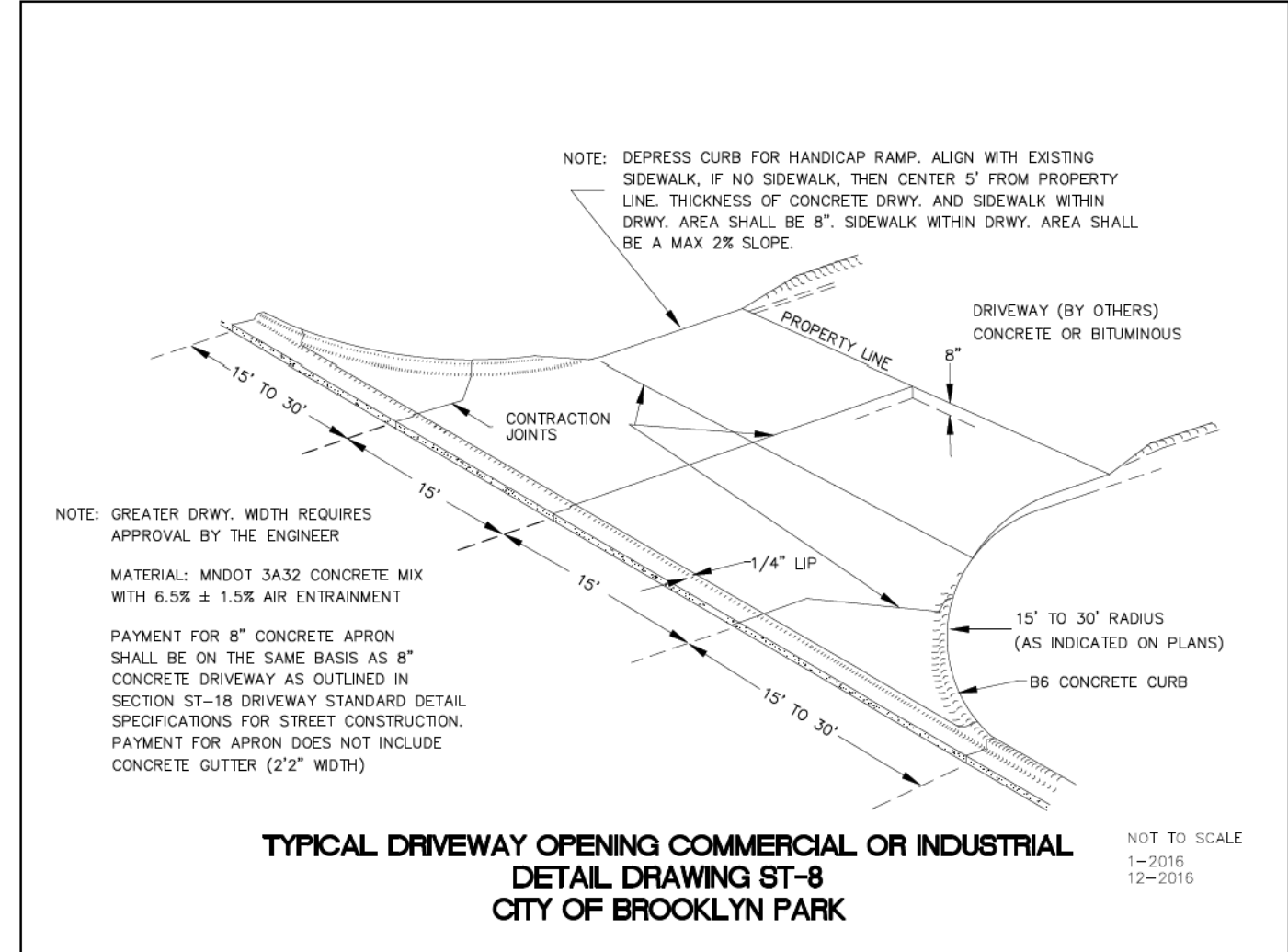
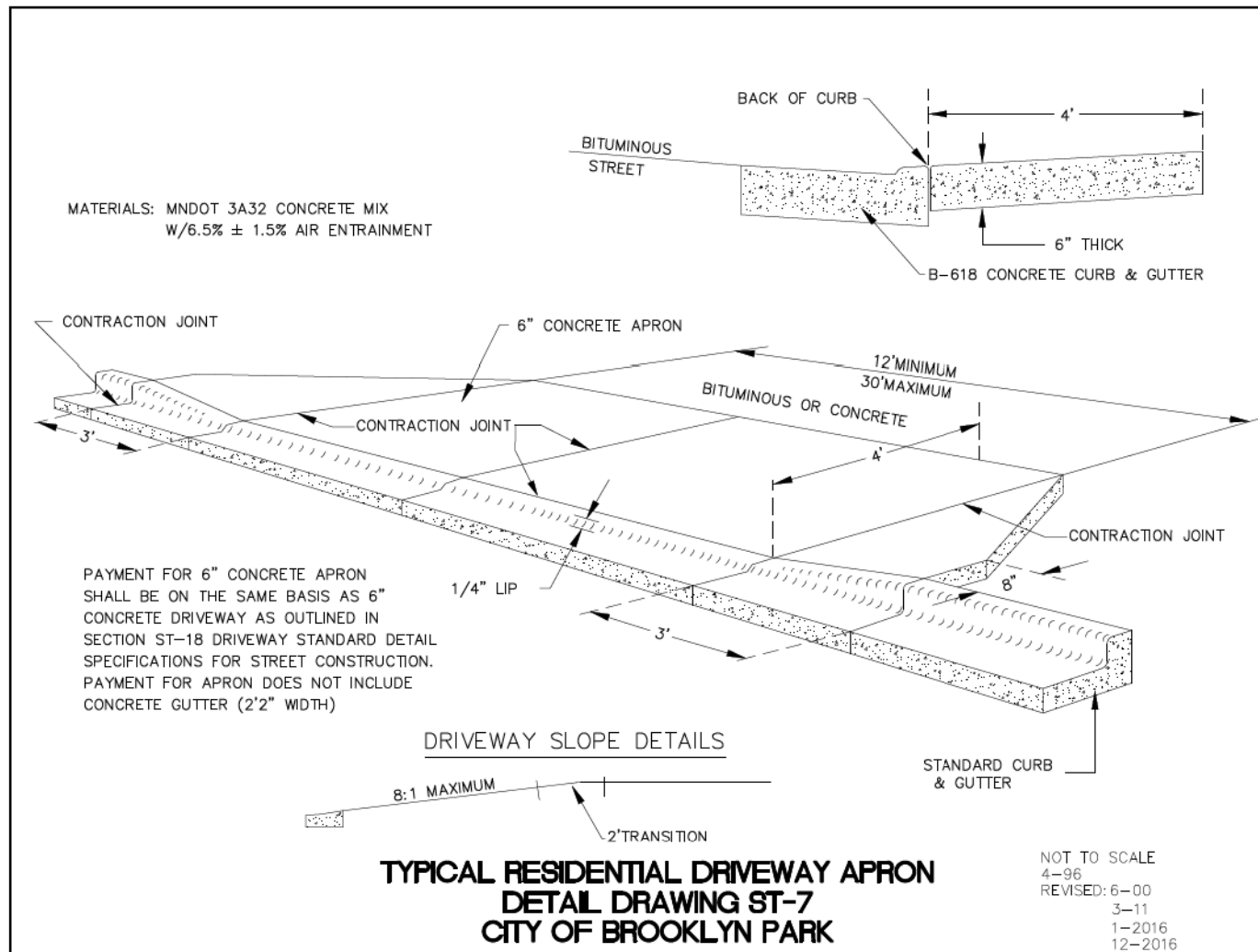
TYPICAL SECTIONS

C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
S.P. 027-681-035, S.P. 110-020-040

SHEET

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Kelly Agosto
KELLY AGOSTO, LICENSED PROFESSIONAL ENGINEER

49075
LICENSE NO. DATE
3/15/19

DESIGN BY: L. LANGNER
CAD BY: E. GUIR
CHECKED BY: R. DECOTEAU
LAST REVISION: / /

DETAILS AND STANDARD PLANS

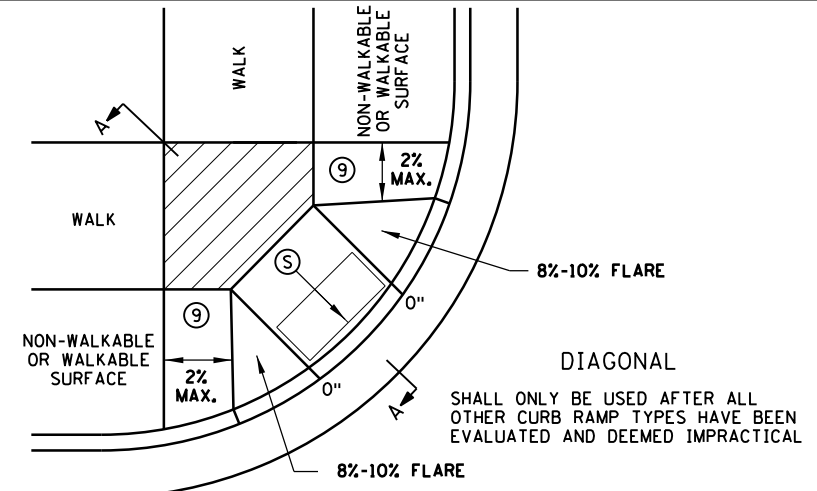
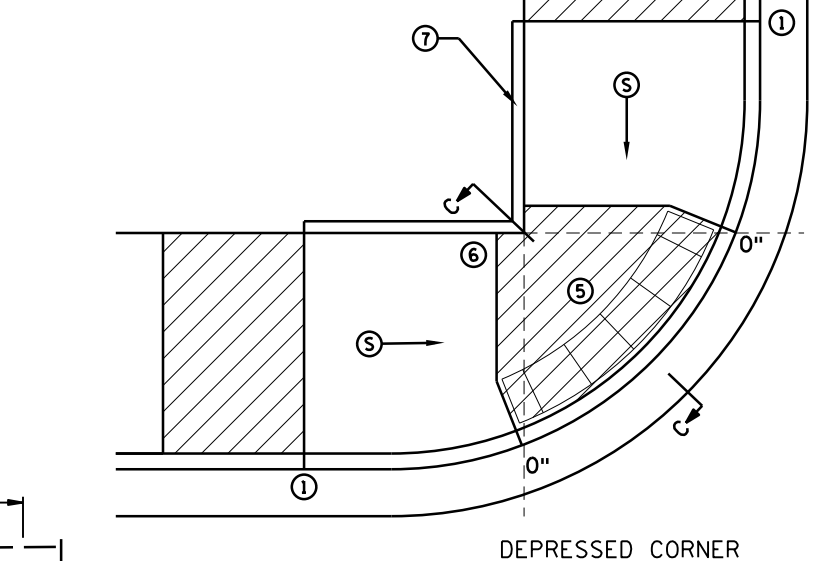
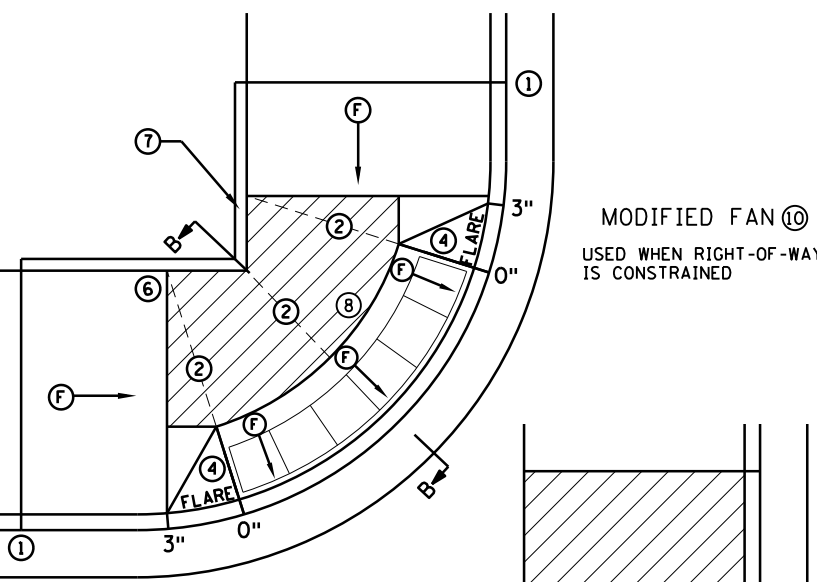
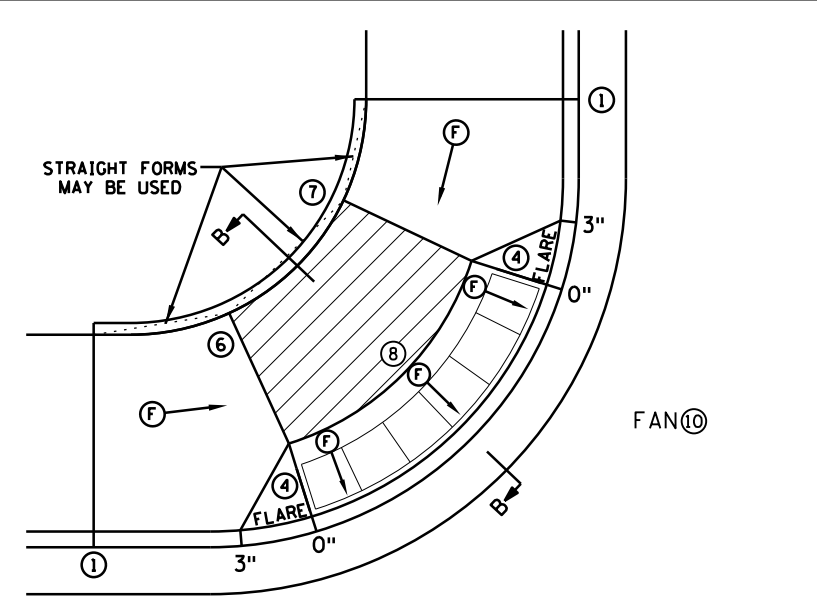
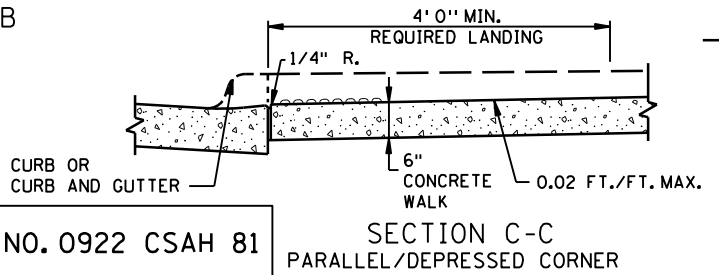
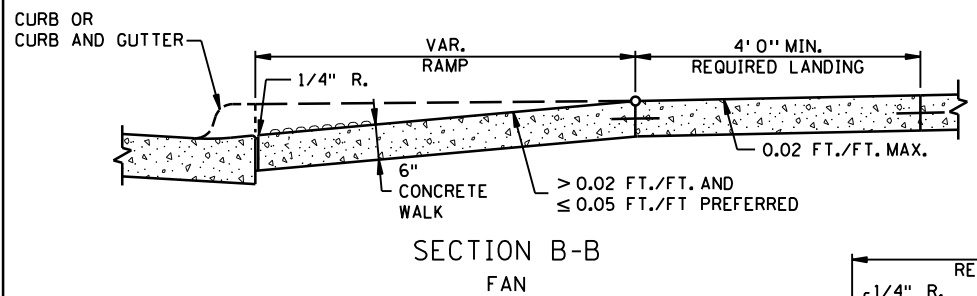
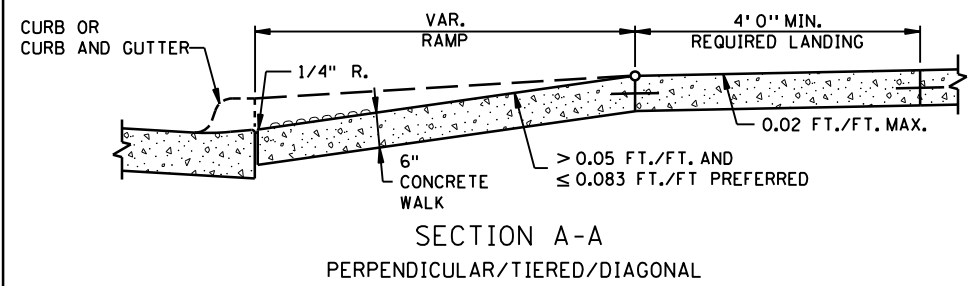
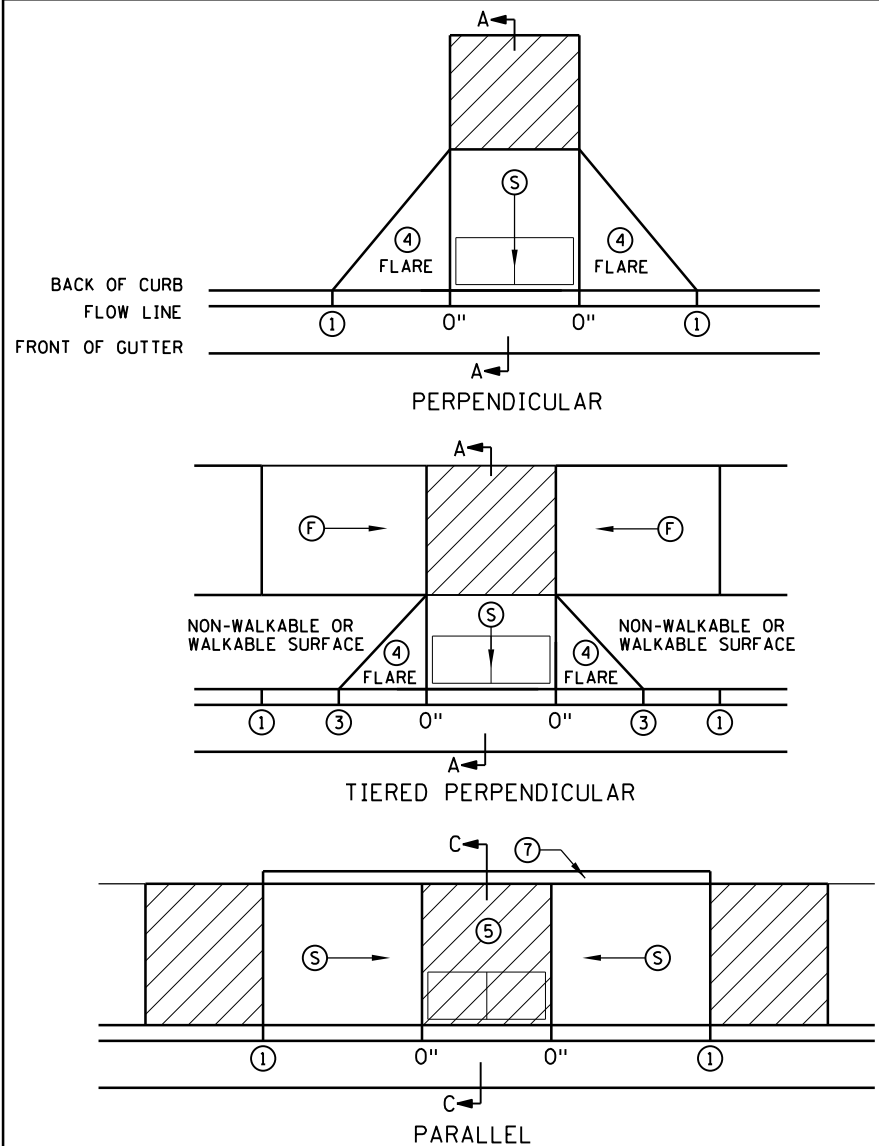
C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
S.P. 027-681-035, S.P. 110-020-040

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Date: 3/14/2019
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User Name: edqu001



- NOTES:**
- LANDINGS SHALL BE LOCATED ANYWHERE THE PEDESTRIAN ACCESS ROUTE (PAR) CHANGES DIRECTION, AT THE TOP OF RAMPS THAT HAVE RUNNING SLOPES GREATER THAN 5.0%, AND IF THE APPROACHING WALK IS INVERSE GRADE GREATER THAN 2%.
 - INITIAL CURB RAMP LANDINGS SHALL BE CONSTRUCTED WITHIN 15' FROM THE BACK OF CURB, WITH 6' FROM THE BACK OF CURB BEING THE PREFERRED DISTANCE, ONLY APPLICABLE WHEN THE INITIAL RAMP RUNNING SLOPE IS OVER 5.0%.
 - SECONDARY CURB RAMP LANDINGS ARE REQUIRED FOR EVERY 30' OF VERTICAL RISE WHEN THE LONGITUDINAL RUNNING SLOPE IS GREATER THAN 5.0%.
 - CONTRACTION JOINTS SHALL BE CONSTRUCTED ALONG ALL GRADE BREAKS WITHIN THE PAR. 1/4" DEEP VISUAL JOINTS SHALL BE USED AT THE TOPS OF CONCRETE FLARES ADJACENT TO WALKABLE SURFACES.
 - ALL GRADE BREAKS WITHIN THE PAR SHALL BE PERPENDICULAR TO THE PATH OF TRAVEL, THUS BOTH SIDES OF A SLOPED WALKING SURFACE MUST BE EQUAL LENGTH, (EXCEPT AS STATED IN 6) BELOW.
 - TO ENSURE INITIAL RAMPS AND INITIAL LANDINGS ARE PROPERLY CONSTRUCTED, LANDINGS SHALL BE CAST SEPARATELY, FOLLOW SIDEWALK REINFORCEMENT DETAILS ON SHEET 6 AND THE ADA SPECIAL PROVISIONS - PROSECUTION OF WORK (ADA).
 - TOP OF CURB SHALL MATCH PROPOSED ADJACENT WALK GRADE.
 - WHEN THE BOULEVARD IS 4' WIDE OR LESS, THE TOP OF CURB TAPER SHALL MATCH THE RAMP SLOPES TO REDUCE NEGATIVE BOULEVARD SLOPES FROM THE TOP BACK OF CURB TO THE PAR.
 - ALL RAMP TYPES SHOULD HAVE A MINIMUM 3' LONG RAMP LENGTH.
 - 4' MINIMUM WIDTH OF DETECTABLE WARNING IS REQUIRED FOR ALL RAMPS. DETECTABLE WARNINGS SHALL CONTINUOUSLY EXTEND FOR A MIN. OF 24" IN THE PATH OF TRAVEL. DETECTABLE WARNING TO COVER ENTIRE WIDTH OF SHARED-USE PATHS AND THE ENTIRE PAR WIDTH OF THE WALK. DETECTABLE WARNING SHOULD BE 6" LESS THAN THE PAR/TRAIL WIDTH, ARC LENGTH OF RADIAL DETECTABLE WARNINGS SHOULD NOT BE GREATER THAN 20 FEET.
 - RECTANGULAR DETECTABLE WARNINGS SHALL BE SETBACK 3" FROM THE BACK OF CURB. RADIAL DETECTABLE WARNINGS SHALL BE SETBACK 3" MINIMUM TO 6" MAXIMUM FROM THE BACK OF CURB.
- 1 MATCH FULL HEIGHT CURB.
 - 2 4' MINIMUM DEPTH LANDING REQUIRED ACROSS TOP OF RAMP.
 - 3 3" HIGH CURB WHEN USING A 3' LONG RAMP, 4" HIGH CURB WHEN USING A 4' LONG RAMP.
 - 4 SEE SHEET 4 OF 6, TYPICAL SIDE TREATMENT OPTIONS, FOR DETAILS ON FLARES AND RETURNED CURBS, WHEN INITIAL LANDING IS AT FULL CURB HEIGHT.
 - 5 DETECTABLE WARNINGS MAY BE PART OF THE 4' X 4' MIN. LANDING AREA IF IT IS NOT FEASIBLE TO CONSTRUCT THE LANDING OUTSIDE OF THE DETECTABLE WARNING AREA.
 - 6 THE GRADE BREAK SHALL BE PERPENDICULAR TO THE BACK OF WALK. THIS WILL ENSURE THAT THE GRADE BREAK IS PERPENDICULAR TO THE DIRECTION OF TRAVEL. (TYPICAL FOR ALL)
 - 7 WHEN ADJACENT TO GRASS, GRADING SHALL ALWAYS BE USED WHEN FEASIBLE. V CURB, IF USED, SHALL BE PLACED OUTSIDE THE SIDEWALK LIMITS WHEN RIGHT OF WAY ALLOWS. WHEN ADJACENT TO PARKING LOTS, CONCRETE OR BITUMINOUS TAPERS SHOULD BE USED OVER V CURB TO REDUCE TRIPPING HAZARDS AND FACILITATE SNOW & ICE REMOVAL.
 - 8 A 7' MIN TOP RADIUS GRADE BREAK REQUIRED TO BE CONSTRUCTIBLE.
 - 9 PAVE FULL WALK WIDTH.
 - 10 "S" SLOPES ON FANS SHALL ONLY BE USED WHEN ALL OTHER FEASIBLE OPTIONS HAVE BEEN EVALUATED AND DEEMED IMPRACTICAL.

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

REVISION:
APPROVED: JANUARY 23, 2017
OPERATIONS ENGINEER

HENN. CO. PROJ. NO. 0922 CSAH 81

m MINNESOTA
DEPARTMENT OF TRANSPORTATION

STANDARD PLAN 5-297.250 1 OF 6

APPROVED: 1-23-2017
REVISOR: [Signature]
STATE DESIGN ENGINEER

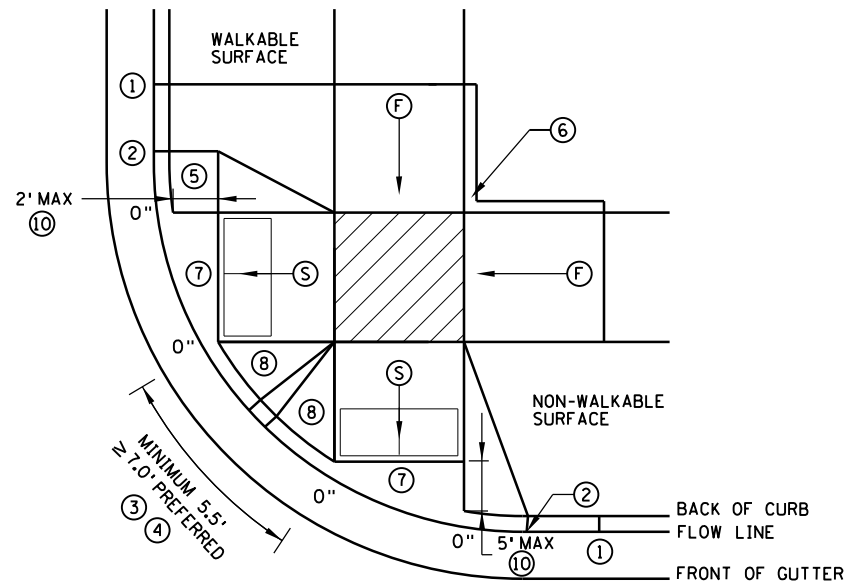
STATE PROJ. NO. S.P. 027-681-035, S.P. 110-020-040

PEDESTRIAN CURB RAMP DETAILS

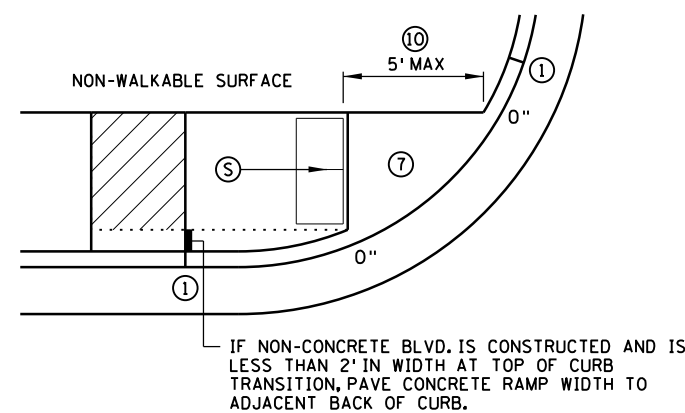
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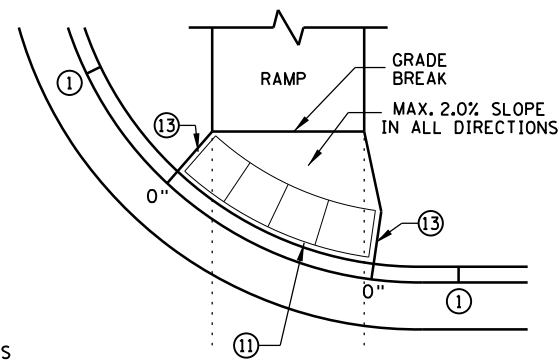


COMBINED DIRECTIONAL ⑨



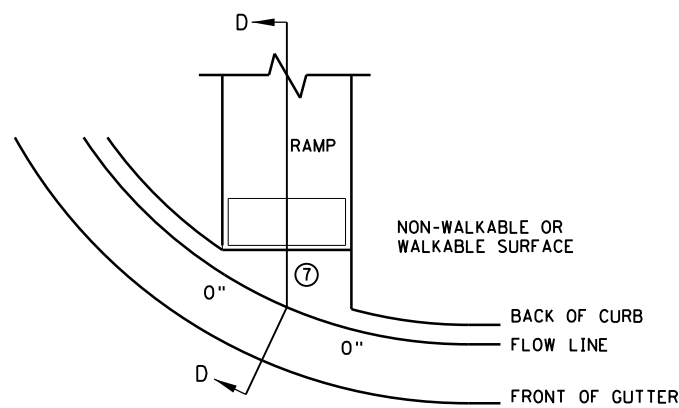
STANDARD ONE-WAY DIRECTIONAL ⑨

IF NON-CONCRETE BLVD. IS CONSTRUCTED AND IS LESS THAN 2' IN WIDTH AT TOP OF CURB TRANSITION, PAVE CONCRETE RAMP WIDTH TO ADJACENT BACK OF CURB.

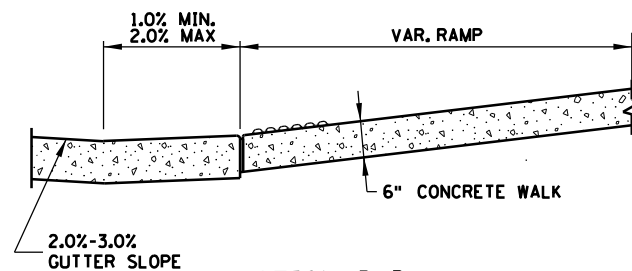


DETECTABLE WARNING PLACEMENT WHEN SETBACK CRITERIA IS EXCEEDED ⑫

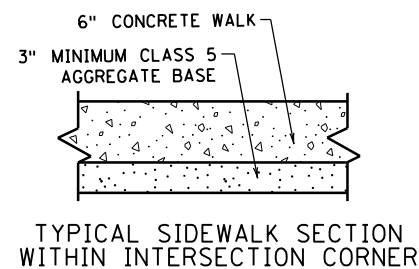
ONE-WAY DIRECTIONAL WITH DETECTABLE WARNING AT BACK OF CURB



CURB FOR DIRECTIONAL RAMPS ⑭



SECTION D-D



TYPICAL SIDEWALK SECTION WITHIN INTERSECTION CORNER

NOTES:

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

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

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

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

ALL GRADE BREAKS WITHIN THE PAR SHALL BE PERPENDICULAR TO THE PATH OF TRAVEL. THUS BOTH SIDES OF A SLOPED WALKING SURFACE MUST BE EQUAL LENGTH.

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

TOP OF CURB SHALL MATCH PROPOSED ADJACENT WALK GRADE.

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

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

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

RADIAL DETECTABLE WARNINGS SHALL BE SETBACK 3" MINIMUM TO 6" MAXIMUM FROM THE BACK OF CURB. SEE NOTES ⑩ & ⑪ FOR INFORMATION REGARDING RECTANGULAR DETECTABLE WARNING PLACEMENT.

- ① MATCH FULL CURB HEIGHT.
- ② 3" HIGH CURB WHEN USING A 3' LONG RAMP
4" HIGH CURB WHEN USING A 4' LONG RAMP.
- ③ 3" MINIMUM CURB HEIGHT (5.5' MIN. DISTANCE REQUIRED BETWEEN DOMES)
4" PREFERRED (7' MIN. DISTANCE REQUIRED BETWEEN DOMES).
- ④ THE "BUMP" IN BETWEEN THE RAMPS SHOULD NOT BE IN THE PATH OF TRAVEL FOR COMBINED DIRECTIONAL RAMPS. IF THIS OCCURS MODIFY THE RAMP LOCATION OR SWITCH RAMP TO A FAN/DEPRESSED CORNER.
- ⑤ WHEN USING CONCRETE PAVED FLARES ON THE OUTSIDE OF DIRECTIONAL RAMPS, AND ADJACENT TO A WALKABLE SURFACE, DIRECTIONAL RAMP FLARES SHOULD BE USED. SEE THE DETAIL ON THIS SHEET.
- ⑥ GRADING SHALL ALWAYS BE USED WHEN FEASIBLE. V CURB, IF USED, SHALL BE PLACED OUTSIDE THE SIDEWALK LIMITS WHEN RIGHT OF WAY ALLOWS. WHEN ADJACENT TO PARKING LOTS, CONCRETE OR BITUMINOUS TAPERS SHOULD BE USED OVER V CURB TO REDUCE TRIPPING HAZARDS AND FACILITATE SNOW & ICE REMOVAL.
- ⑦ MAX. 2.0% SLOPE IN ALL DIRECTIONS IN FRONT OF GRADE BREAK AND DRAIN TO FLOW LINE. SHALL BE CONSTRUCTED INTEGRAL WITH CURB AND GUTTER.
- ⑧ 8% TO 10% WALKABLE FLARE.
- ⑨ PLACE DOMES AT THE BACK OF CURB WHEN ALLOWABLE SETBACK CRITERIA IS EXCEEDED.
- ⑩ FRONT EDGE OF DETECTABLE WARNING SHALL BE SET BACK 2' MAXIMUM WHEN ADJACENT TO WALKABLE SURFACE, AND 5' MAXIMUM WHEN ADJACENT TO NON-WALKABLE SURFACE WITH ONE CORNER SET 3" FROM BACK OF CURB. A WALKABLE SURFACE IS DEFINED AS A PAVED SURFACE ADJACENT TO A CURB RAMP WITHOUT RAISED OBSTACLES THAT COULD MISTAKENLY BE TRAVERSED BY A USER WHO IS VISUALLY IMPAIRED.
- ⑪ RECTANGULAR DETECTABLE WARNINGS MAY BE SETBACK UP TO 9" FROM THE BACK OF CURB WITH CORNERS SET 3" FROM BACK OF CURB. IF 9" SETBACK IS EXCEEDED USE RADIAL DETECTABLE WARNINGS.
- ⑫ FOR DIRECTIONAL RAMPS WITH THE DETECTABLE WARNINGS PLACED AT THE BACK OF CURB, THE DETECTABLE WARNINGS SHALL COVER THE ENTIRE WIDTH OF THE WALK/PATH. THIS ENSURES A DETECTABLE EDGE AND HELPS ELIMINATE THE CURB TAPER OBSTRUCTING THE PATH OF PEDESTRIAN TRAVEL.
- ⑬ THE CONCRETE WALK SHALL BE FORMED AND CONSTRUCTED PERPENDICULAR TO THE BACK OF CURB. MAINTAIN 3" BETWEEN EDGE OF DOMES AND EDGE OF CONCRETE.
- ⑭ TO BE USED FOR ALL DIRECTIONAL RAMPS, EXCEPT WHERE DOMES ARE PLACED ALONG THE BACK OF CURB.

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

	STANDARD PLAN 5-297.250	2 OF 6	PEDESTRIAN CURB RAMP DETAILS
		APPROVED: 1-23-2017	
DEPARTMENT OF TRANSPORTATION STATE DESIGN ENGINEER	STATE PROJ. NO.	57 OF 244	

REVISION:

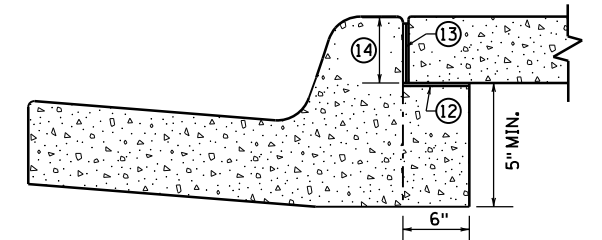
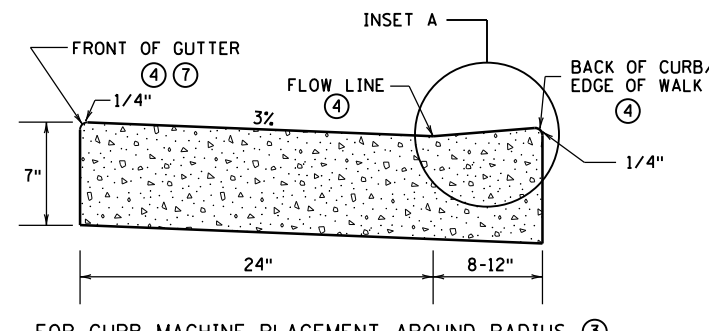
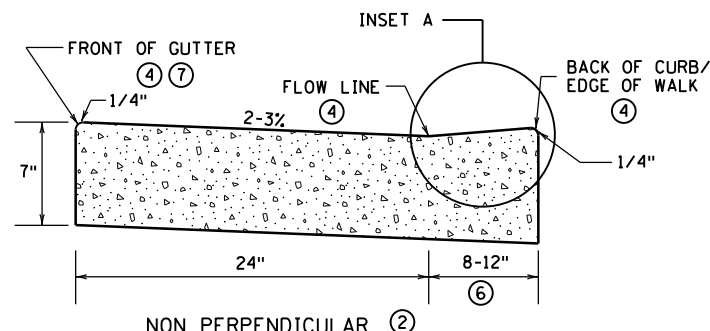
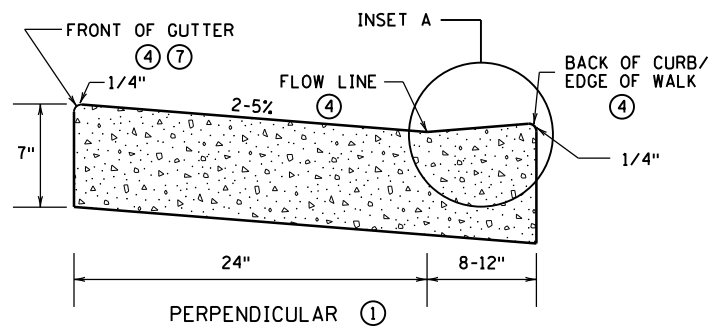
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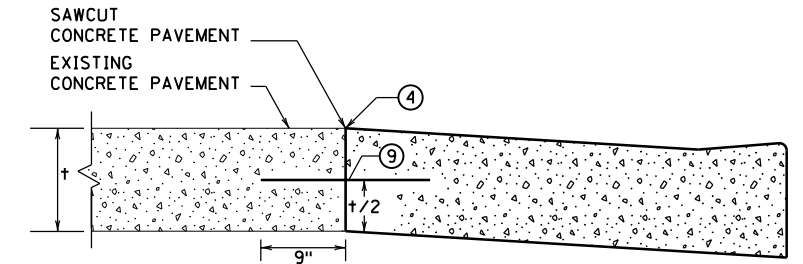
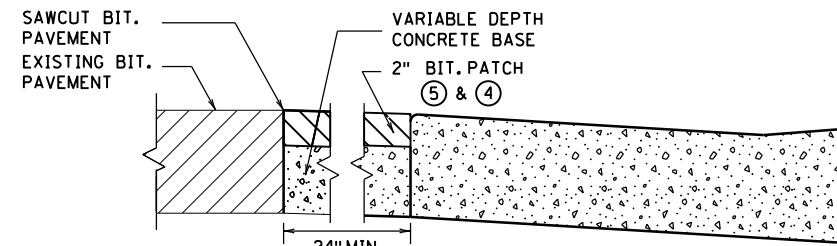
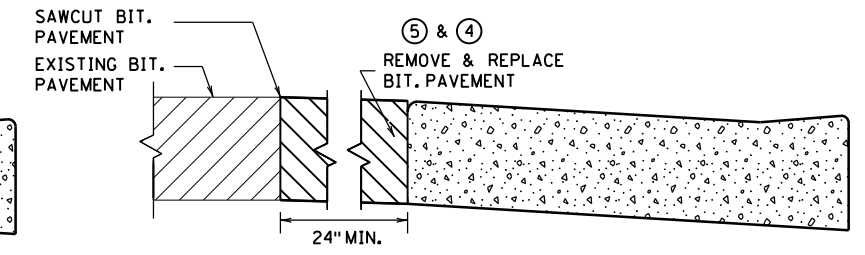
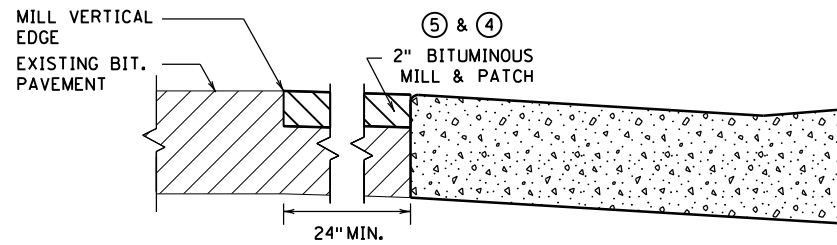
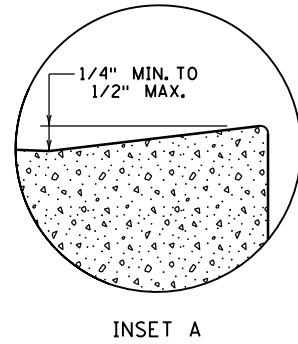
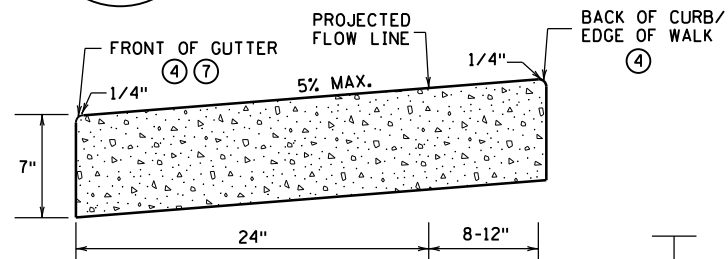
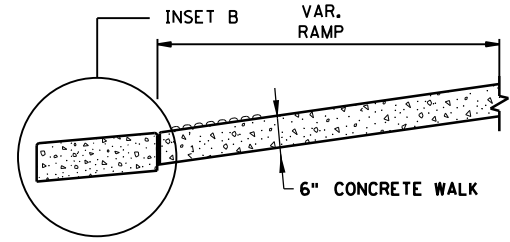
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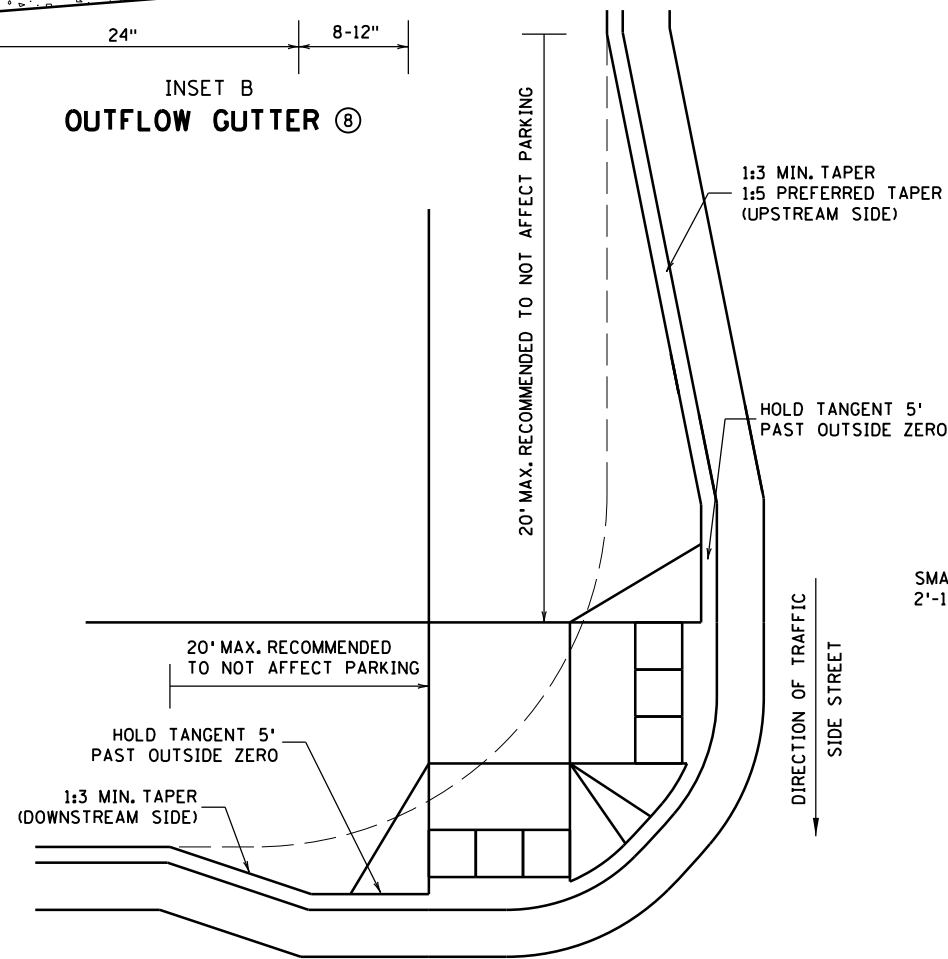


PEDESTRIAN ACCESS ROUTE CURB & GUTTER DETAIL

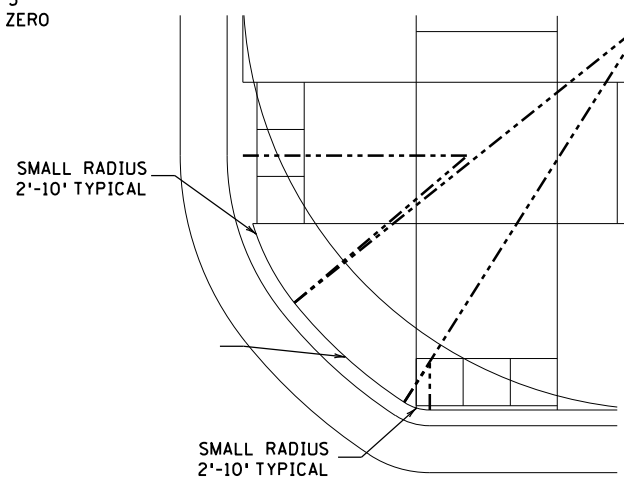


ONLY ALLOWED PER ENGINEER'S APPROVAL

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



ADA CURB EXTENSION WITH COMPOUND RADIUS (BUMP OUT) 11



COMBINED DIRECTIONAL (COMPOUND RADIUS) 12

NOTES:

- POSITIVE FLOW LINE DRAINAGE SHALL BE MAINTAINED THROUGH THE PEDESTRIAN ACCESS ROUTE (PAR) AT A 2% MAXIMUM. NO PONDING SHALL BE PRESENT IN THE PAR.
- ANY VERTICAL LIP THAT OCCURS AT THE FLOW LINE SHALL NOT BE GREATER THAN 1/4 INCH.
- 1 FOR USE AT CURB CUTS WHERE THE PEDESTRIAN'S PATH OF TRAVEL IS ASSUMED PERPENDICULAR TO THE GUTTER FLOW LINE. RAMP TYPES INCLUDE: PERPENDICULAR, TIERED PERPENDICULAR, PARALLEL, AND DIAGONAL RAMPS.
- 2 FOR USE AT CURB RAMPS WHERE THE PEDESTRIAN'S PATH OF TRAVEL IS ASSUMED NON PERPENDICULAR TO THE GUTTER FLOW LINE. RAMP TYPES INCLUDE: FANS & DEPRESSED CORNERS.
- 3 BEGIN GUTTER SLOPE TRANSITION 10' OUTSIDE OF ALL CURB RAMPS.
- 4 THERE SHALL BE NO VERTICAL DISCONTINUITIES GREATER THAN 1/4".
- 5 ELEVATION CHANGE TAKES PLACE FROM THE EXISTING TO NEW FRONT OF GUTTER. PATCH IS USED TO MATCH THE NEW GUTTER FACE INTO THE EXISTING ROADWAY.
- 6 VARIABLE WIDTH FOR DIRECTIONAL CURB APPLICATIONS. SEE SHEET 2 FOR DIRECTIONAL CURB SLOPE REQUIREMENTS.
- 7 TOP FRONT OF GUTTER SHALL BE CONSTRUCTED FLUSH WITH PROPOSED ADJACENT PAVEMENT ELEVATION. TOP 1.5" OF THE GUTTER FACE MUST BE A FORMED EDGE. PAR GUTTER SHALL NOT BE OVERLAID.
- 8 SHOULD BE USED AT VERTICALLY CONSTRAINED AREAS WHEN AT A DRAINAGE HIGH POINT OR SUPER ELEVATED ROADWAY SEGMENTS.
- 9 DRILL AND GROUT NO. 4 EPOXY-COATED 18" LONG TIE BARS AT 30" CENTER TO CENTER INTO EXISTING CONCRETE PAVEMENT 1' MINIMUM FROM ALL JOINTS.
- 10 HELPS PROVIDE TWO SEPARATE RAMPS, REDUCES THE DOME SETBACK LENGTH AND MINIMIZES DIRECTIONAL CURB. THIS RADIUS DESIGN CLOSELY FOLLOWS THE TURNING VEHICLE PATH WHILE OPTIMIZING CURB RAMP LENGTH.
- 11 CURB EXTENSIONS SHOULD BE USED IN VERTICALLY CONSTRAINED AREAS, USUALLY IN DOWNTOWN ROADWAY SEGMENTS WHERE ON-STREET PARKING IS AVAILABLE. CURB EXTENSIONS SHOULD BE CONSIDERED FOR APS INTERSECTIONS WHERE SPACE IS LIMITED. PUSH BUTTONS MUST MEET APS CRITERIA AS DESCRIBED IN THE PUSH BUTTON LOCATION DETAIL SHEET.
- 12 PLACE BOND BREAKER BETWEEN WALK AND TOP OF SILL.
- 13 1/2" PREFORMED JOINT FILLER PER MNDOT SPEC. 3702.
- 14 DIMENSION TO BE SAME AS SIDEWALK THICKNESS, 4" MIN.

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 REVISOR:

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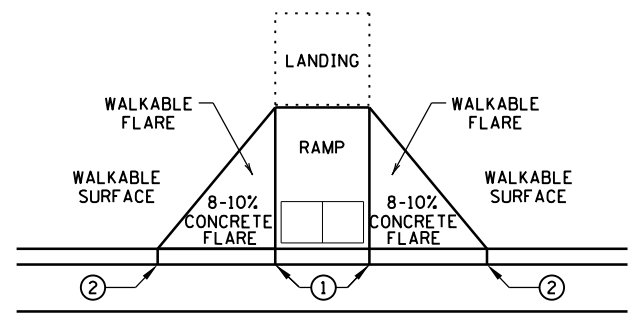
PEDESTRIAN CURB RAMP DETAILS

S.P. 027-681-035, S.P. 110-020-040

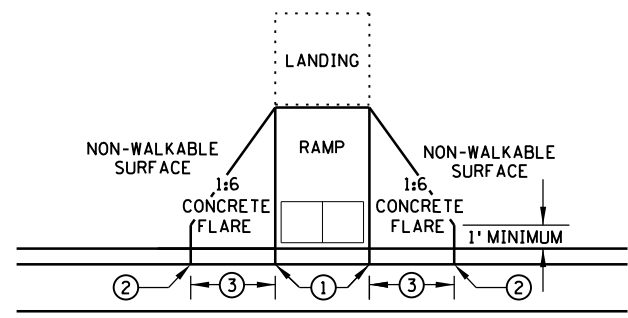
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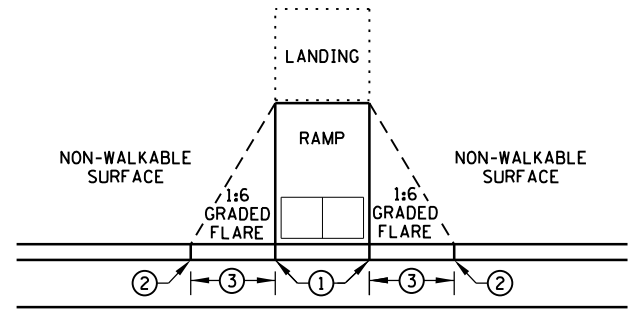
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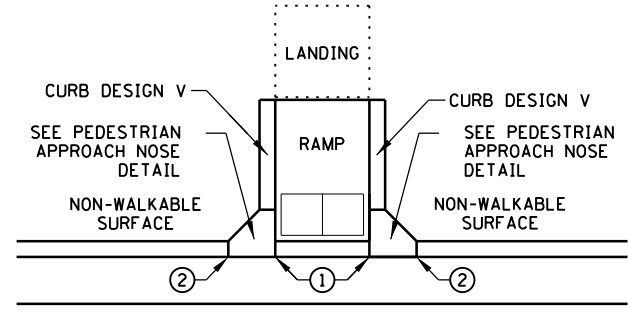
PAVED FLARES
ADJACENT TO WALKABLE SURFACE



PAVED FLARES
ADJACENT TO NON-WALKABLE SURFACE

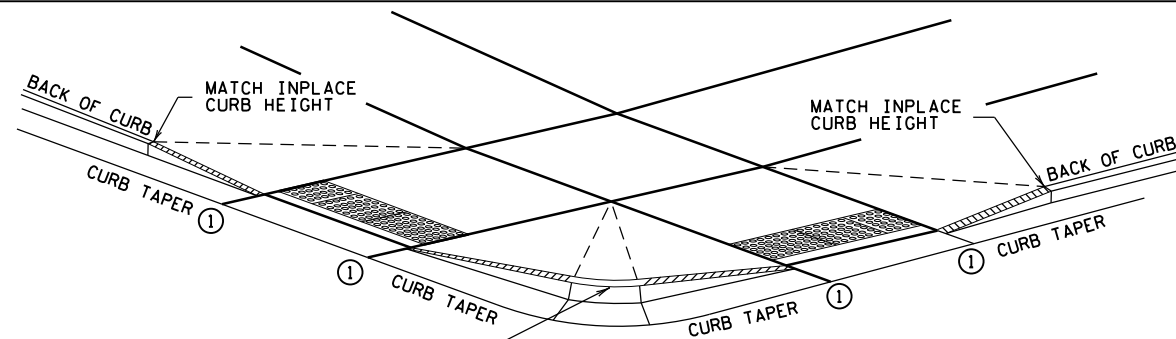


GRADED FLARES



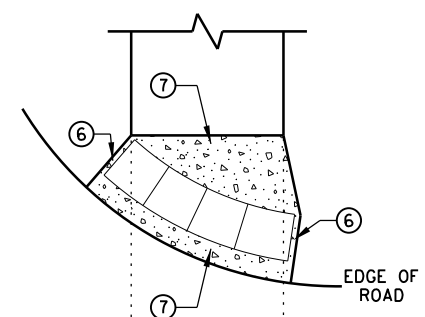
RETURNED CURB ⑤

TYPICAL SIDE TREATMENT OPTIONS ④ ⑪

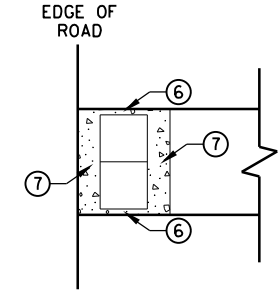


3" MINIMUM CURB HEIGHT, 4" PREFERRED
(MEASURED AT FRONT FACE OF CURB)
FOR A MIN. 6" LENGTH (MEASURED ALONG FLOW LINE)

DETECTABLE EDGE WITH ⑧
CURB AND GUTTER

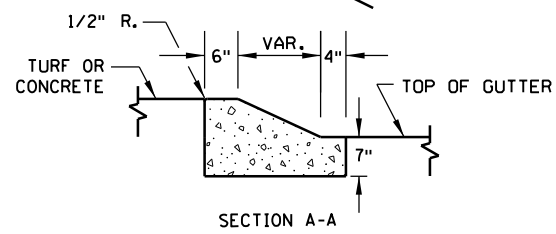
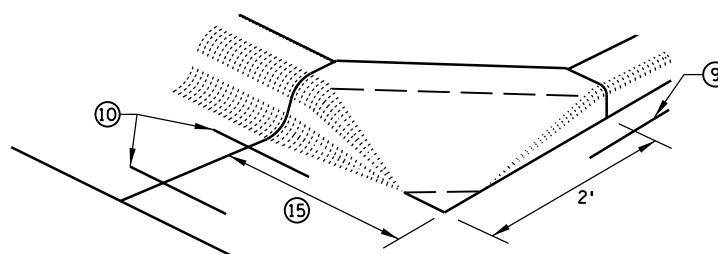


RADIAL DETECTABLE WARNING

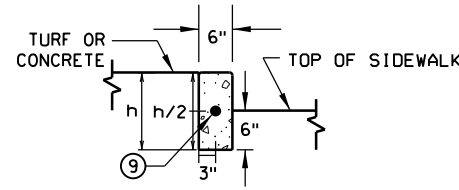


RECTANGULAR DETECTABLE WARNING

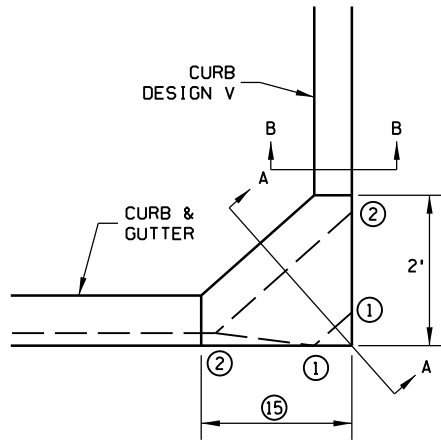
DETECTABLE EDGE WITHOUT CURB AND GUTTER



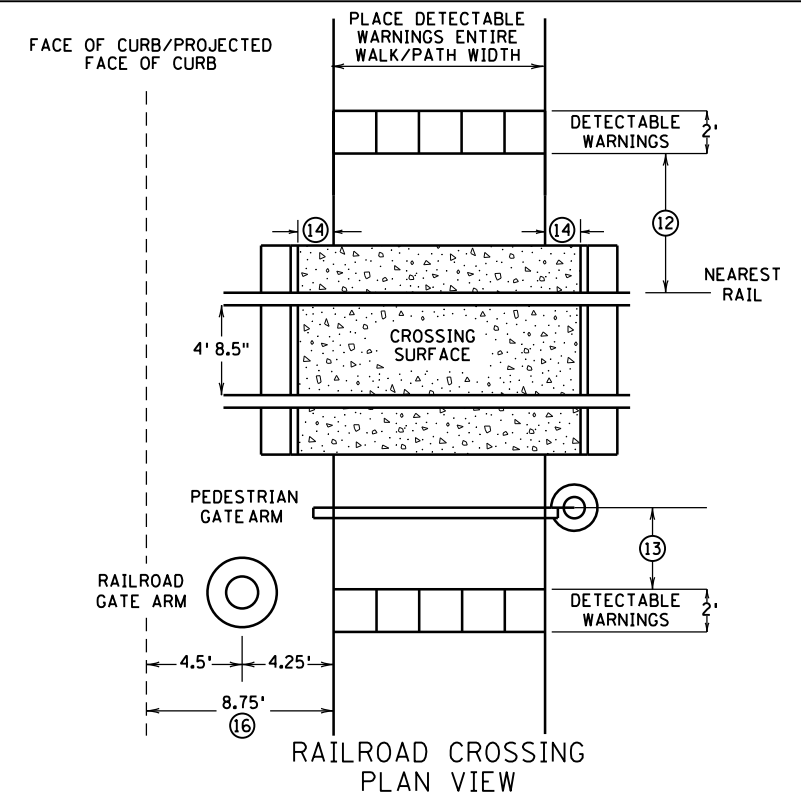
SECTION A-A



SECTION B-B



PEDESTRIAN APPROACH
NOSE DETAIL
(FOR RETURNED CURB
SIDE TREATMENT)



RAILROAD CROSSING
PLAN VIEW

NOTES:

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

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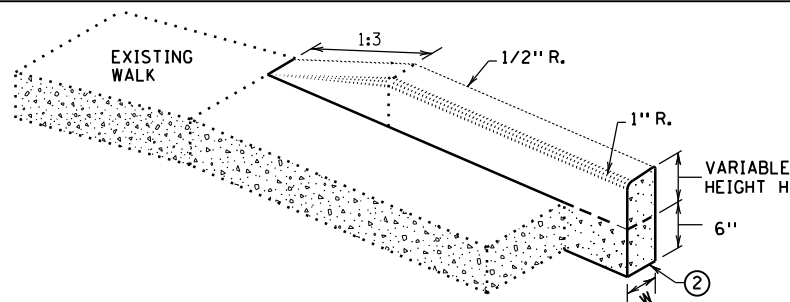
PEDESTRIAN CURB RAMP DETAILS

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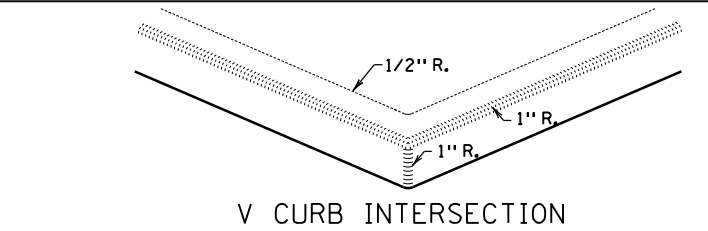
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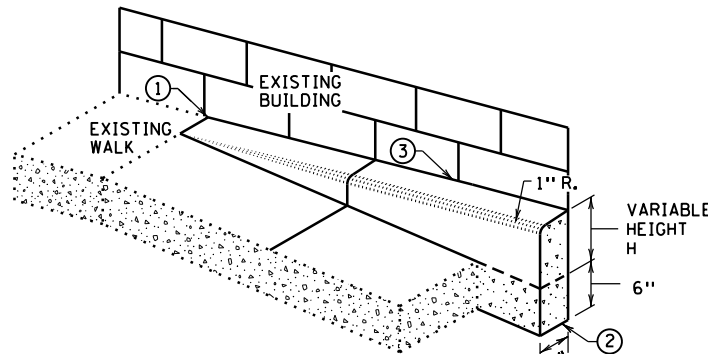
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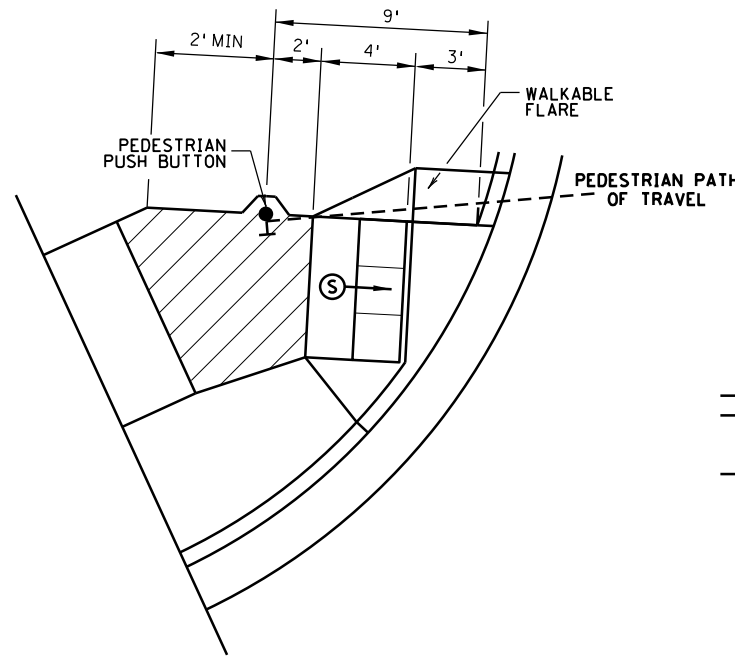
V CURB ADJACENT TO LANDSCAPE
CURB WITHIN SIDEWALK LIMITS



V CURB INTERSECTION



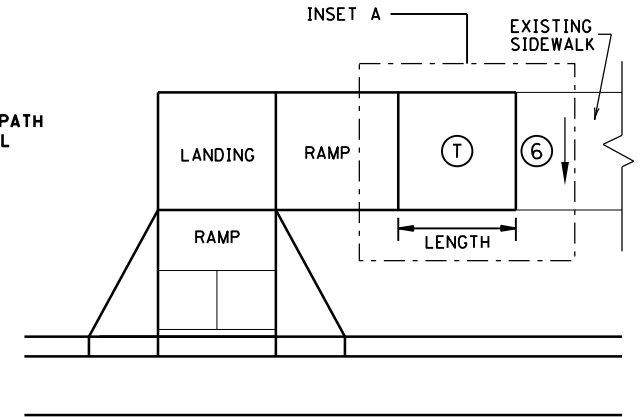
V CURB ADJACENT TO BUILDING
OR BARRIER



SEMI-DIRECTIONAL RAMP (3,4,9)

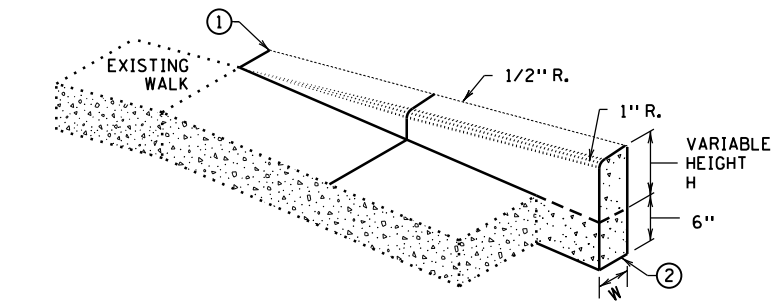
3' DOME SETBACK, 4' LONG RAMP AND
PUSH BUTTON 9' FROM THE BACK OF CURB

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

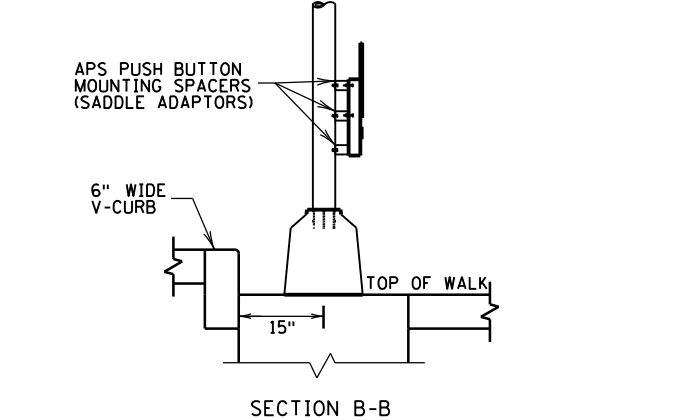
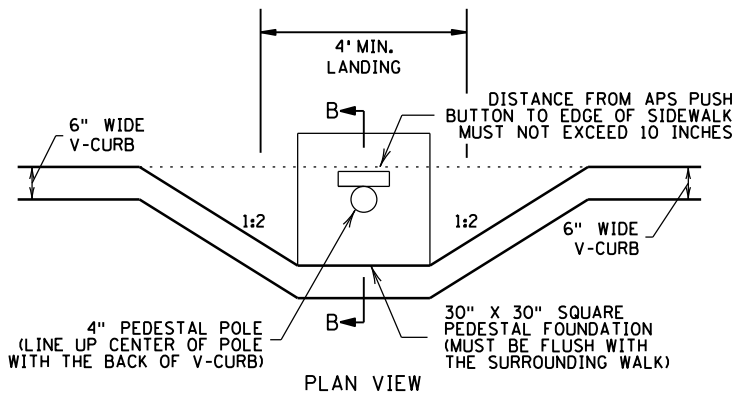


TRANSITION PANEL (4,5)

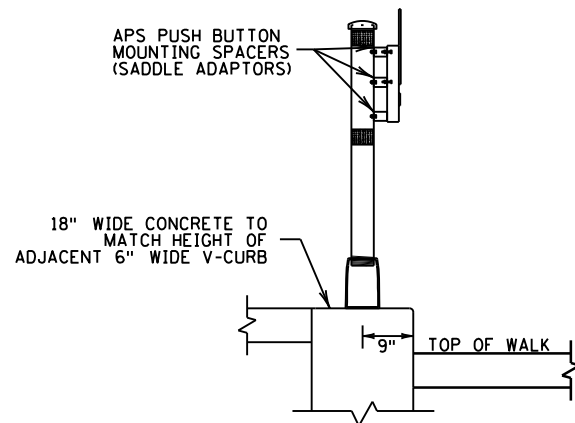
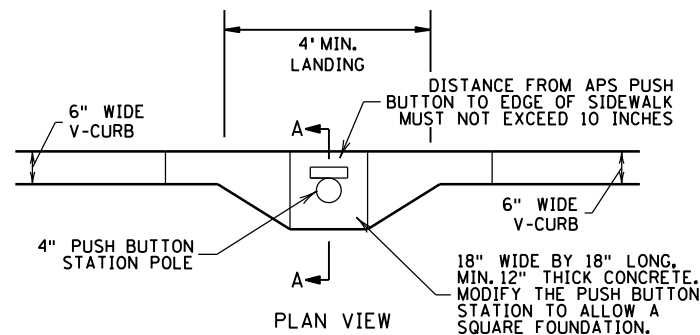
CONCRETE CURB DESIGN V	
CURB HEIGHT H	CURB WIDTH W
< 6"	4"
≥ 6"	6"



V CURB ADJACENT TO LANDSCAPE
CURB OUTSIDE SIDEWALK LIMITS



SIGNAL PEDESTAL & PUSH BUTTON (V-CURB)



PUSH BUTTON STATION (V-CURB)

NOTES:

- A WALKABLE FLARE IS AN 8-10% CONCRETE FLARE THAT IS REQUIRED WHEN THE FLARE IS ADJACENT TO A WALKABLE SURFACE, OR WHEN THE PEDESTRIAN PATH OF TRAVEL OF A PUSH BUTTON TRAVERSES THE FLARE.
- ALL V CURB CONTRACTION JOINTS SHALL MATCH CONCRETE WALK JOINTS.
- WHERE RIGHT-OF-WAY ALLOWS, USE OF V CURB SHOULD BE MINIMIZED. GRADING ADJACENT TURF OR SLOPING ADJACENT PAVEMENT IS PREFERRED.
- V CURB SHALL BE PLACED OUTSIDE THE SIDEWALK LIMITS WHEN RIGHT OF WAY ALLOWS.
- V CURB NEXT TO BUILDING SHALL BE A 4" WIDTH AND SHALL MATCH PREVIOUS TOP OF SIDEWALK ELEVATIONS.
- ① END TAPERS AT TRANSITION SECTION SHALL MATCH INPLACE SIDEWALK GRADES.
- ② ALL V CURB SHALL MATCH BOTTOM OF ADJACENT WALK.
- ③ EDGE BETWEEN NEW V CURB AND INPLACE STRUCTURE SHALL BE SEALED AND BOND BREAKER SHALL BE USED BETWEEN EXISTING STRUCTURE AND PLACED V-CURB.
- ④ THE MAX. RATE OF CROSS SLOPE TRANSITIONING IS 1' LINEAR FOOT OF SIDEWALK PER HALF PERCENT CROSS SLOPE. WHEN PAR WIDTH IS GREATER THAN 6' OR THE RUNNING SLOPE IS GREATER THAN 5%, DOUBLE THE CALCULATED TRANSITION LENGTH.
- ⑤ TRANSITION PANELS ARE TO ONLY BE USED AFTER THE RAMP, OR IF NEEDED, LANDING ARE AT THE FULL CURB HEIGHT (TYPICAL SECTION).
- ⑥ EXISTING CROSS SLOPE GREATER THAN 2.0%.

LEGEND

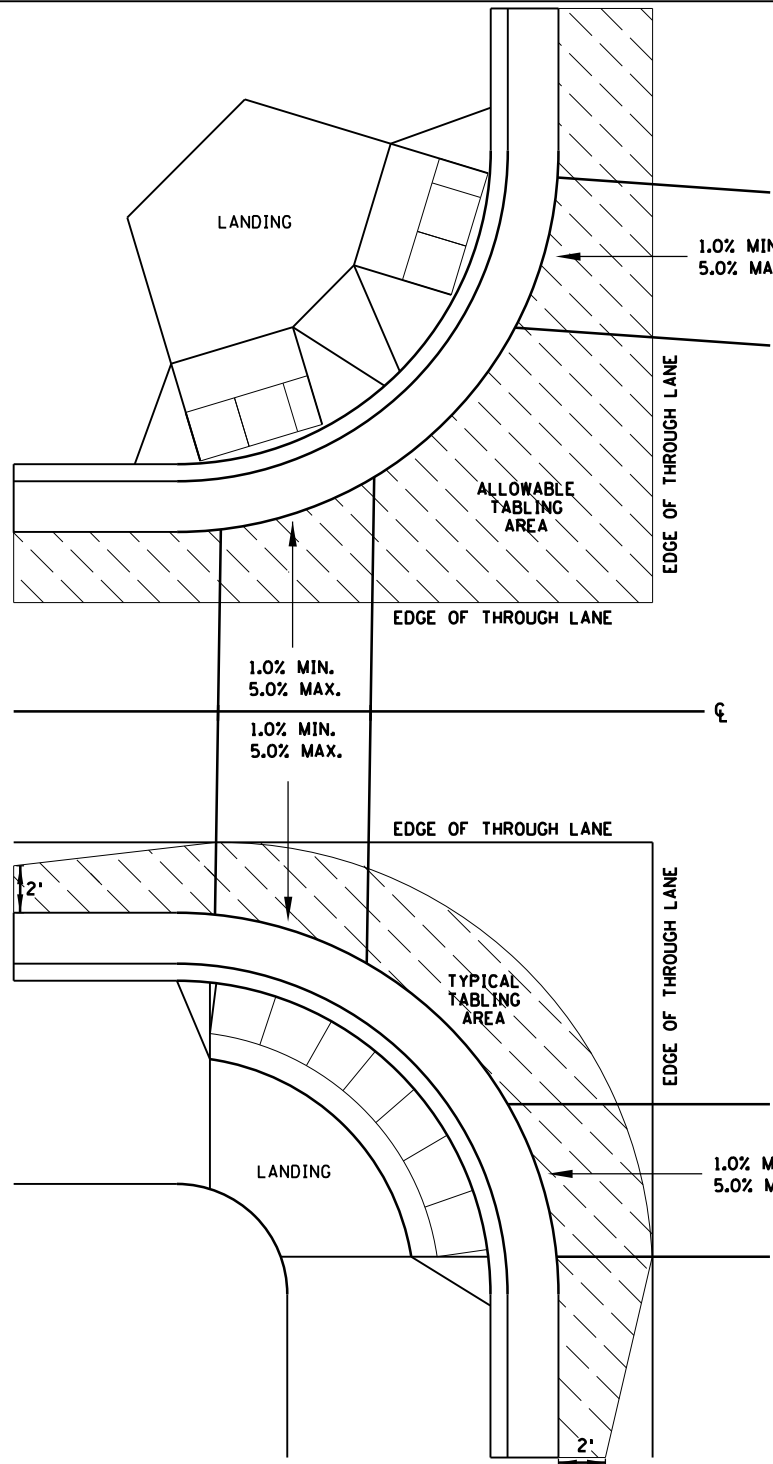
THESE LONGITUDINAL SLOPE RANGES SHALL BE THE STARTING POINT. IF SITE CONDITIONS WARRANT, LONGITUDINAL SLOPES UP TO 8.3% OR FLATTER ARE ALLOWED.

- ⑤ INDICATES PEDESTRIAN RAMP - SLOPE SHALL BE BETWEEN 5.0% MINIMUM AND 8.3% MAXIMUM IN THE DIRECTION SHOWN AND THE CROSS SLOPE SHALL NOT EXCEED 2.0%.
- ④ LANDING AREA - 4' X 4' MIN. (5' X 5' MIN. PREFERRED) DIMENSIONS AND MAX 2.0% SLOPE IN ALL DIRECTIONS. LANDING SHALL BE FULL WIDTH OF INCOMING PAR.
- ① TRANSITION PANEL(S) - TO BE USED FOR TRANSITIONING THE CROSS-SLOPE OF A RAMP TO THE EXISTING WALK CROSS-SLOPE. RATE OF TRANSITION SHOULD BE 0.5% PER 1 LINEAR FOOT OF WALK. SEE THIS SHEET FOR ADDITIONAL INFORMATION.

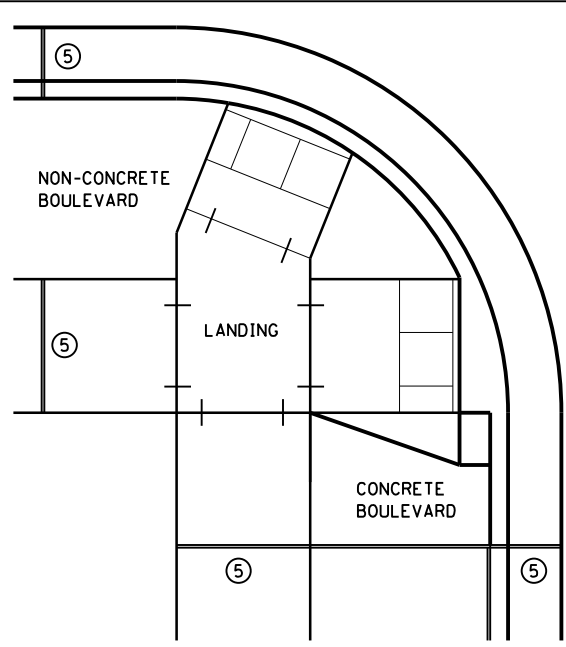
	STANDARD PLAN 5-297.250	5 OF 6	<p align="center">PEDESTRIAN CURB RAMP DETAILS</p>
		APPROVED: 1-23-2017 REVISED:	
<p>APPROVED: JANUARY 23, 2017</p> <p>OPERATIONS ENGINEER</p>			<p>HENN. CO. PROJ. NO. 0922 CSAH 81</p> <p align="right">60 OF 244</p>

Date: 3/14/2019
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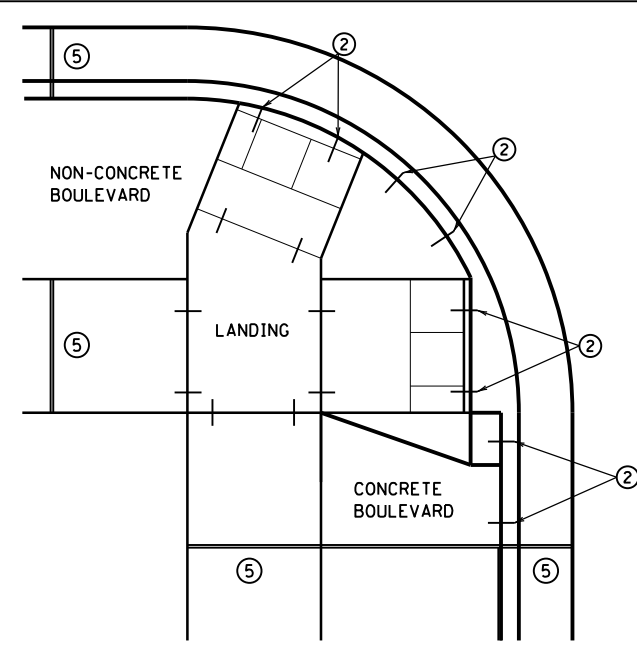
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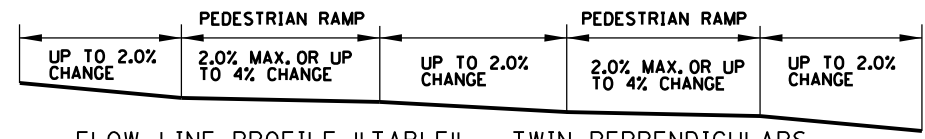
CURB LINE AND ROAD CROSSING ADJUSTMENTS



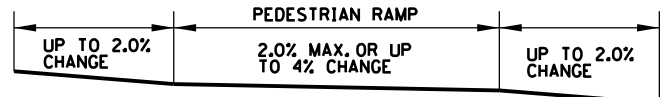
EXPANSION MATERIAL PLACEMENT FOR CONCRETE AND BITUMINOUS ROADWAYS



OPTIONAL CURB LINE REINFORCEMENT PLACEMENT ON BITUMINOUS ROADWAYS



FLOW LINE PROFILE "TABLE" - TWIN PERPENDICULARS



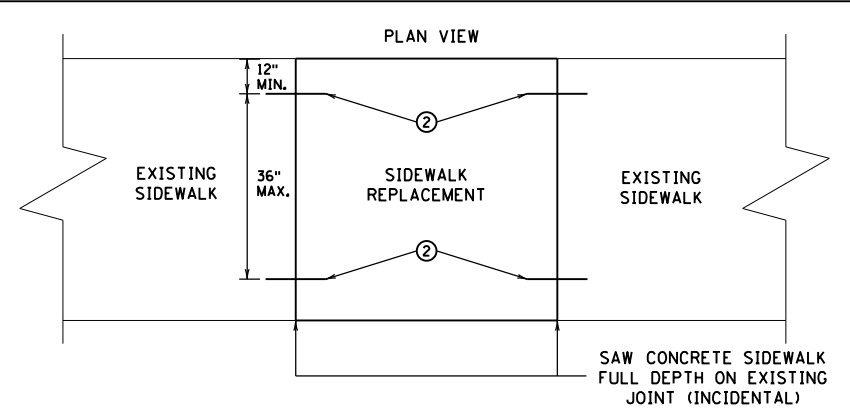
FLOW LINE PROFILE "TABLE" - FAN



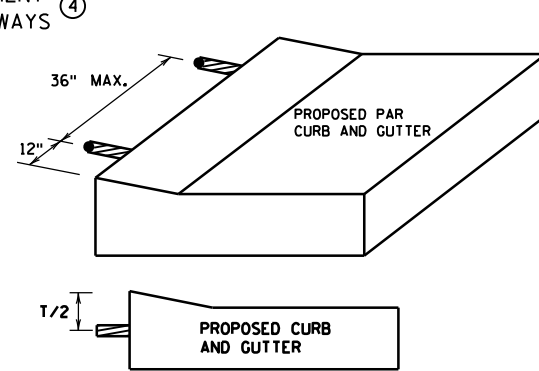
FLOW LINE PROFILE RAISE - TWIN PERPENDICULARS



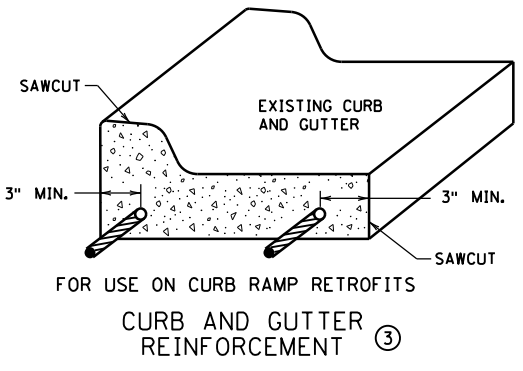
FLOW LINE PROFILE RAISE - FAN



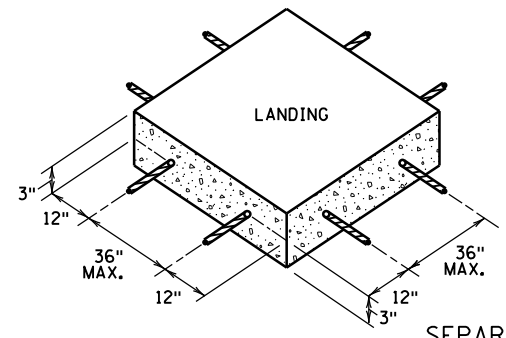
OPTIONAL SIDEWALK REINFORCEMENT
SIDEWALK REINFORCEMENT TO BE USED ONLY WHEN SPECIFIED IN THE PLAN.



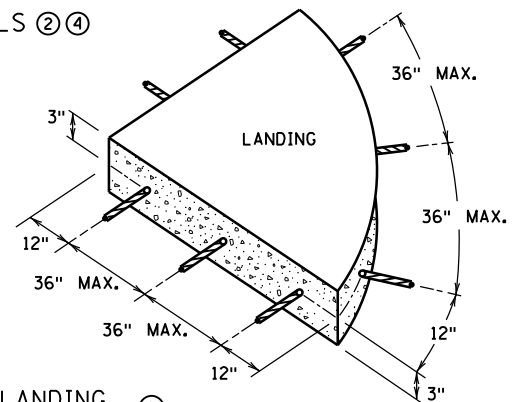
OPTIONAL CURB LINE REINFORCEMENT DETAILS



CURB AND GUTTER REINFORCEMENT



SEPARATE LANDING POUR REINFORCEMENT



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

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

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

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

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

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

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

NOTES:

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

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

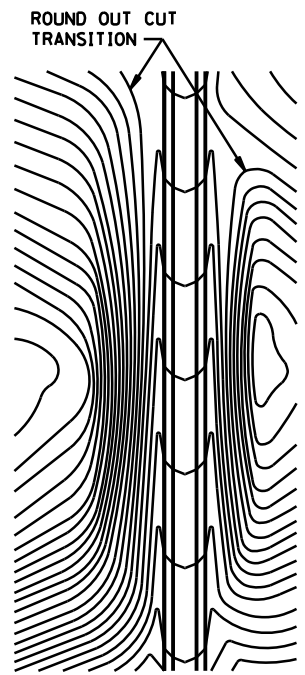


STANDARD PLAN 5-297.250 6 OF 6
APPROVED: 1-23-2017
[Signature]
STATE DESIGN ENGINEER

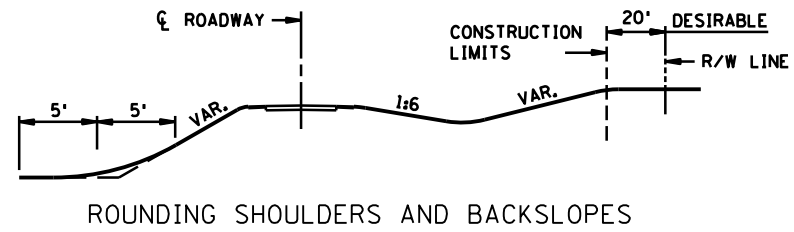
PEDESTRIAN CURB RAMP DETAILS

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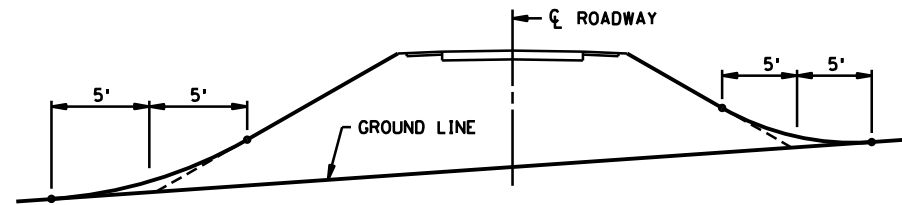
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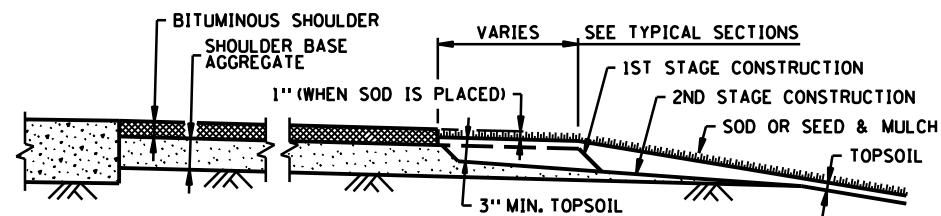
CONTOURING ROAD CUTS



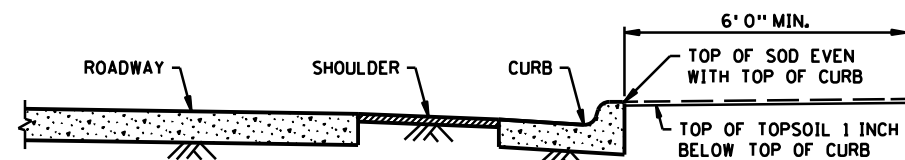
ROUNDING SHOULDERS AND BACKSLOPES



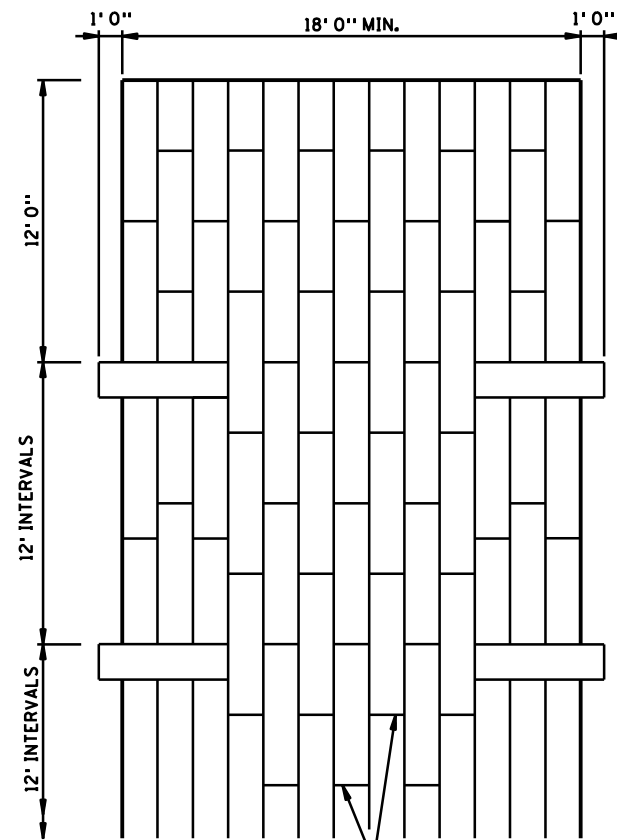
SHAPING FOR DRAINAGE ALONG THE TOE OF FILL SLOPES



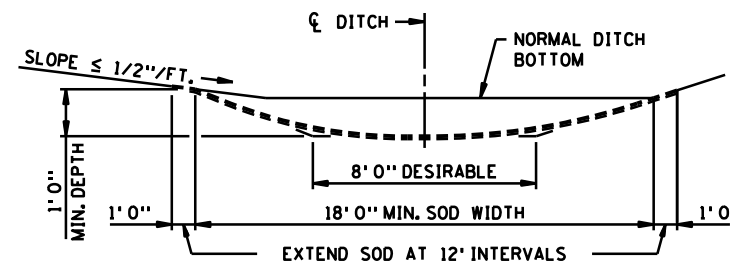
SHAPING AND TOPSOILING INSLOPES



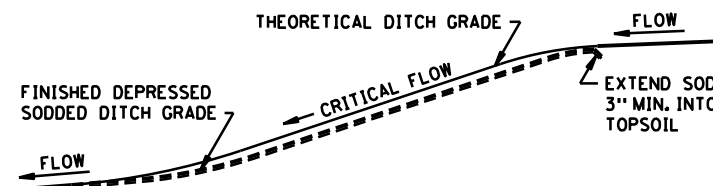
SHAPING ADJACENT TO CURBS WHEN SOD IS PLACED



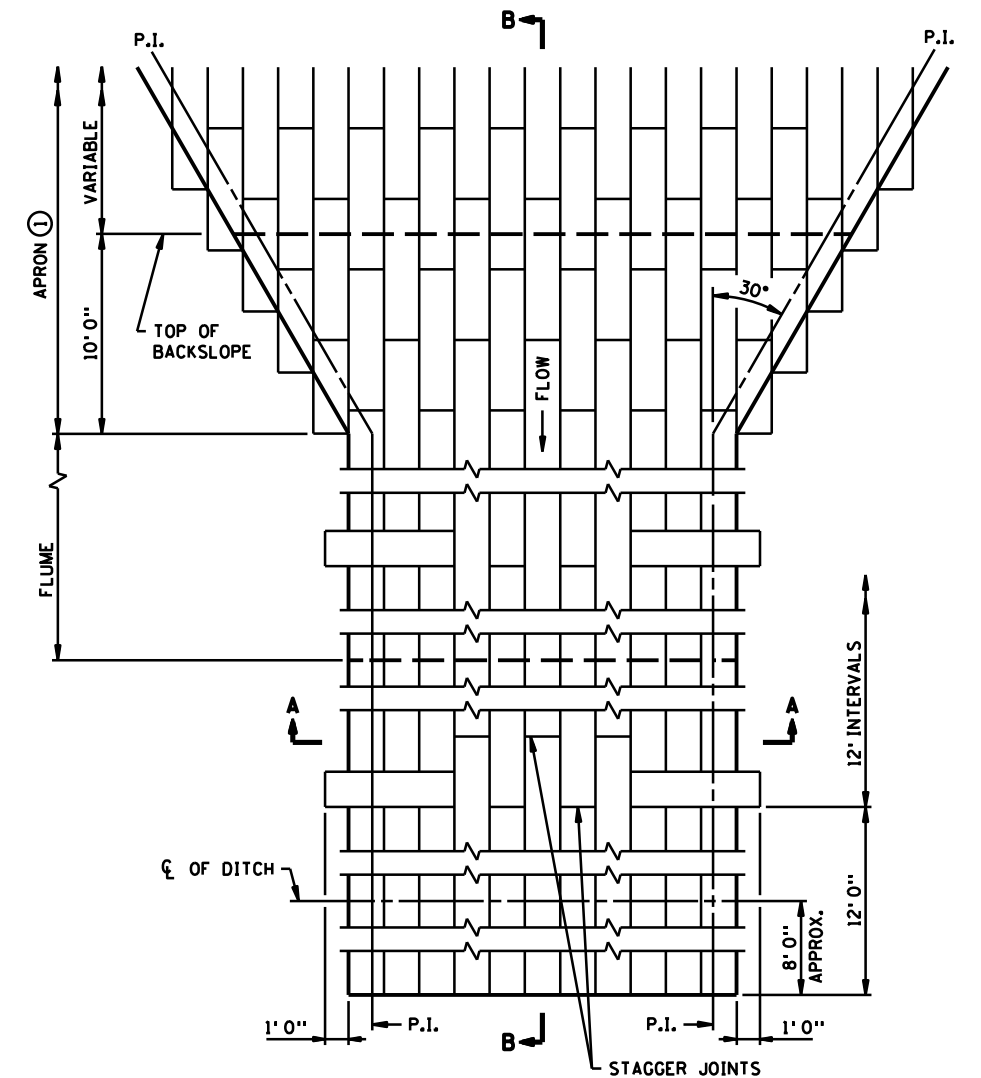
STAGGER JOINTS
PLAN VIEW



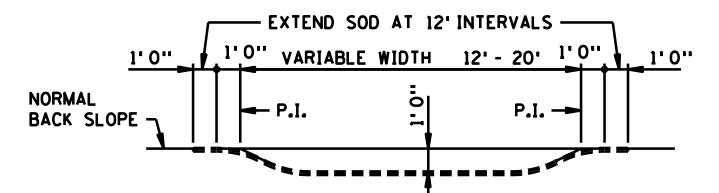
SODDED DITCH CROSS SECTION
WHERE FRONT OR BACK SLOPE IS FLAT (LESS THAN 1/2"/FT.), FIRST NOTCH DITCH AND THEN PROVIDE ROUNDING.



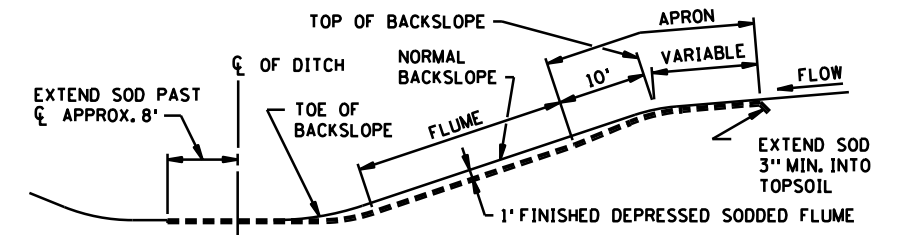
DITCH PROFILE
SODDED DITCH DETAILS



PLAN VIEW



SECTION A-A



SECTION B-B
SODDED FLUME DETAILS

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

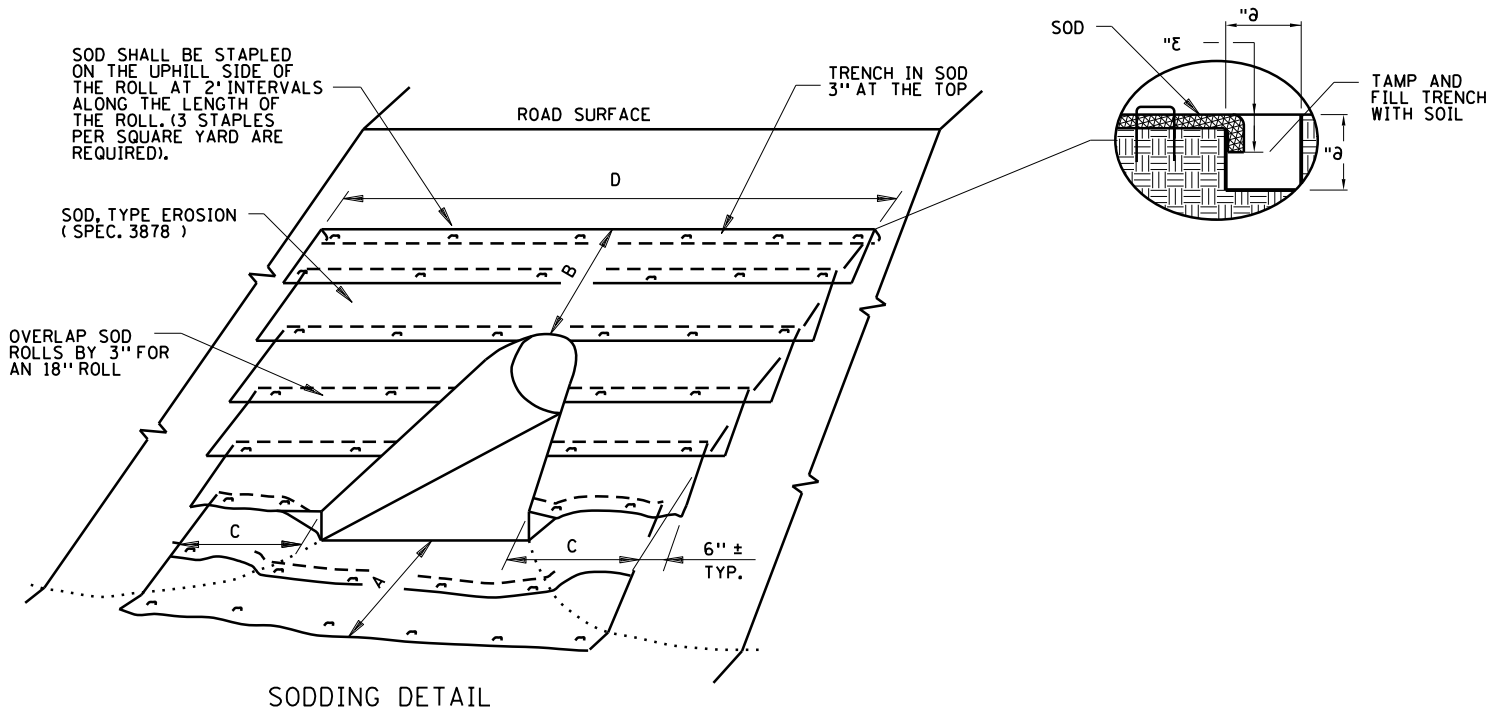
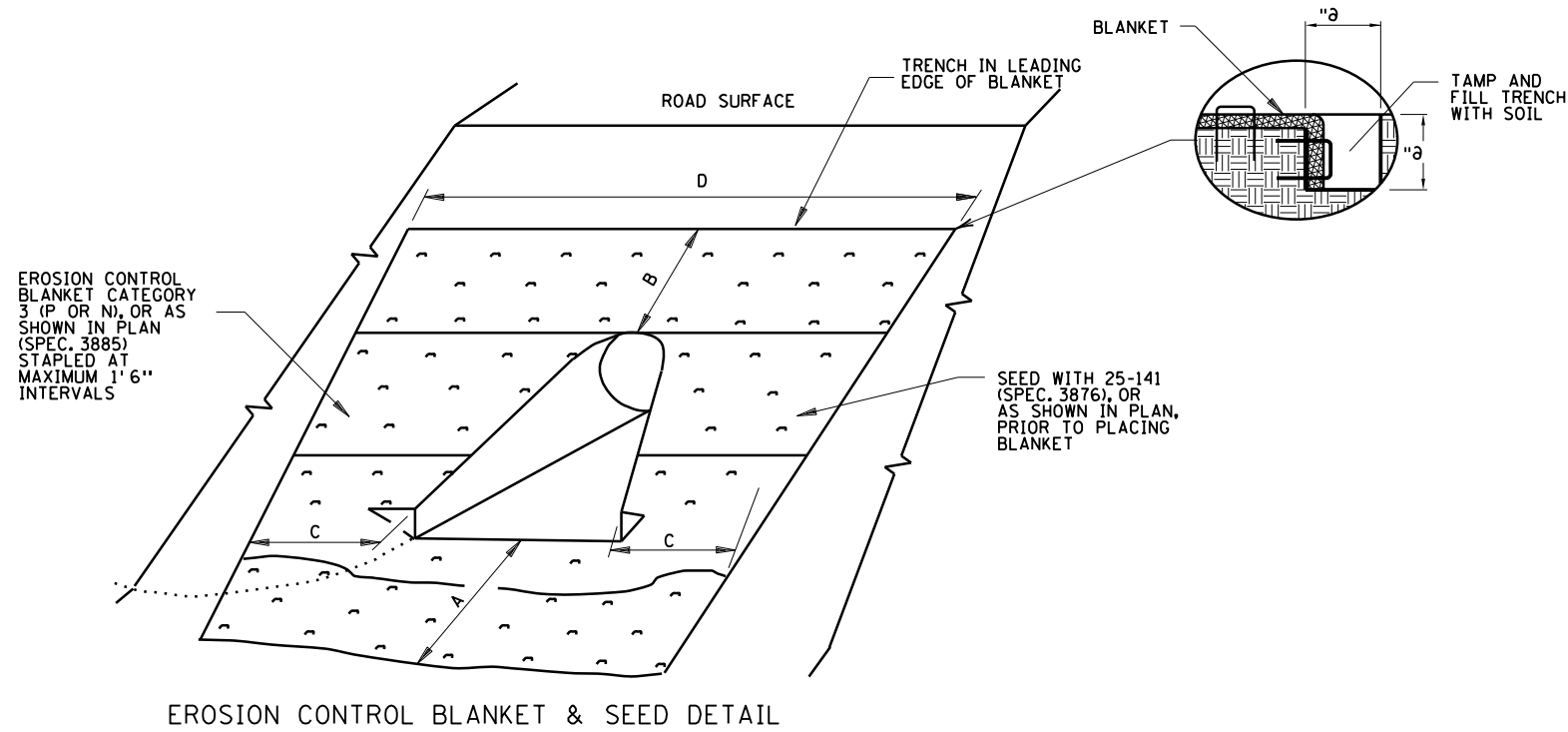
REVISION:
APPROVED: 2-28-2017
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m MINNESOTA DEPARTMENT OF TRANSPORTATION
STANDARD PLAN 5-297.404 1 OF 3
[Signature] APPROVED: 2-28-2017
STATE DESIGN ENGINEER

PERMANENT EROSION CONTROL
ALONG ROADWAYS, DITCHES AND FLUMES
STATE PROJ. NO. S.P. 027-681-035, S.P. 110-020-040 62 OF 244

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

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

NOTES:

- AREA SHOWN IN SQUARE YARDS IS FOR ONE CULVERT END.
- QUANTITIES ARE CALCULATED TO INCLUDE SOD REQUIRED TO PROVIDE A 3" OVERLAP ON ALL 18" WIDE ROLLS. THIS ALLOWS FOR SHRINKAGE OF THE SOD.
- FOR PIPE ARCHES USE EQUIVALENT PIPE DIAMETER TO APPROXIMATE AREA.
- FOR CORRUGATED POLYETHYLENE PIPE METAL APRON (PLATE 3129), USE THE METAL APRON COLUMN (PLATE 3123).
- AREAS AND DIMENSIONS ARE APPROXIMATE AND ARE BASED ON APRON SIDE SLOPES OF NO STEEPER THAN 1:2, UNLESS INDICATED AS FOR SAFETY APRONS.
- CARE SHOULD BE TAKEN IN SELECTING SOD TO STABILIZE THE APRON. RIP-RAP SHOULD BE USED FOR FLOW VELOCITIES GREATER THAN 6 FPS.
- ① ADDITIONAL QUANTITIES MAY BE SHOWN IN THE PLAN OR REQUIRED BY THE ENGINEER.
- ② FOR ARCH PIPE USE CLOSEST CIRCULAR PIPE DIAMETER AND APRON SLOPE. (DIAMETERS LARGER THAN 72" REQUIRE SPECIAL DESIGNS.)

File Name: Sheet 09
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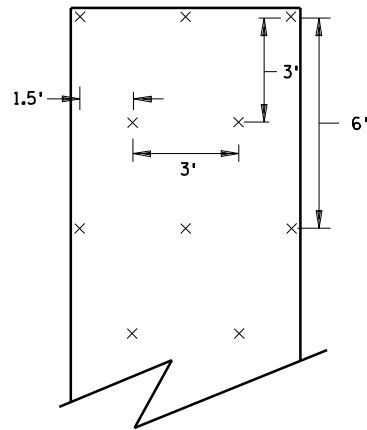
m MINNESOTA DEPARTMENT OF TRANSPORTATION
 STANDARD PLAN 5-297.404 2 OF 3

 STATE DESIGN ENGINEER
 APPROVED: 2-28-2017
 REVISED:
 STATE PROJ. NO.

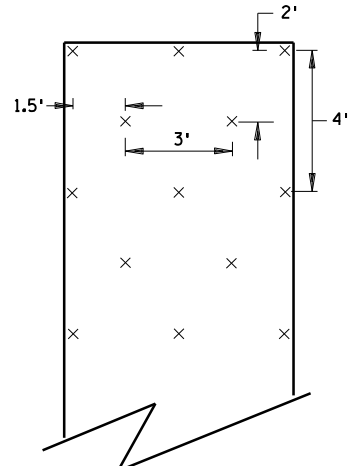
PERMANENT EROSION CONTROL
TURF ESTABLISHMENT DETAIL AT CULVERT ENDS
 S.P. 027-681-035, S.P. 110-020-040 63 OF 244

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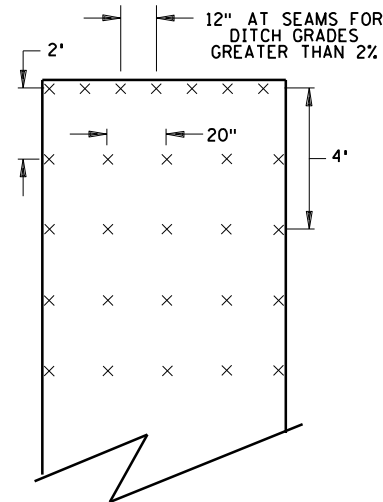
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SLOPES FLATTER THAN 1:2
 (120 STAPLES PER 100 SQ YD)

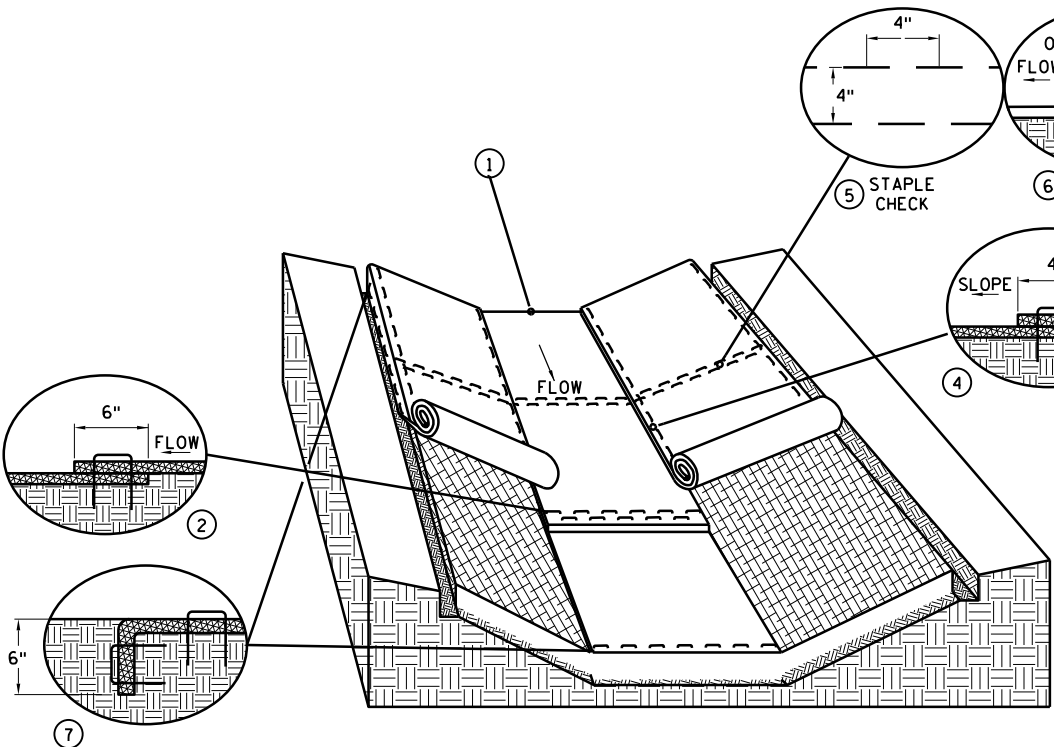


SLOPES 1:2 TO 1:1
 (170 STAPLES PER 100 SQ YD)

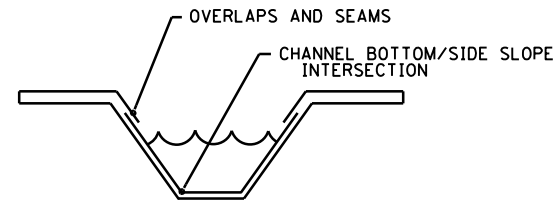
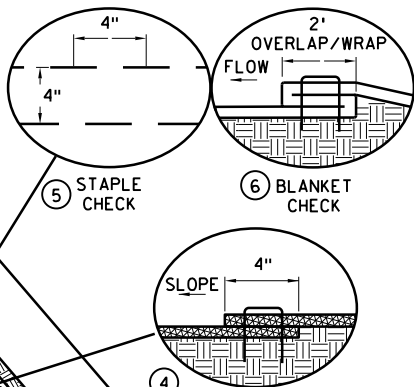


CHANNEL AND DITCH APPLICATIONS
 (350 STAPLES PER 100 SQ YD)

BLANKET STAPLE PATTERN



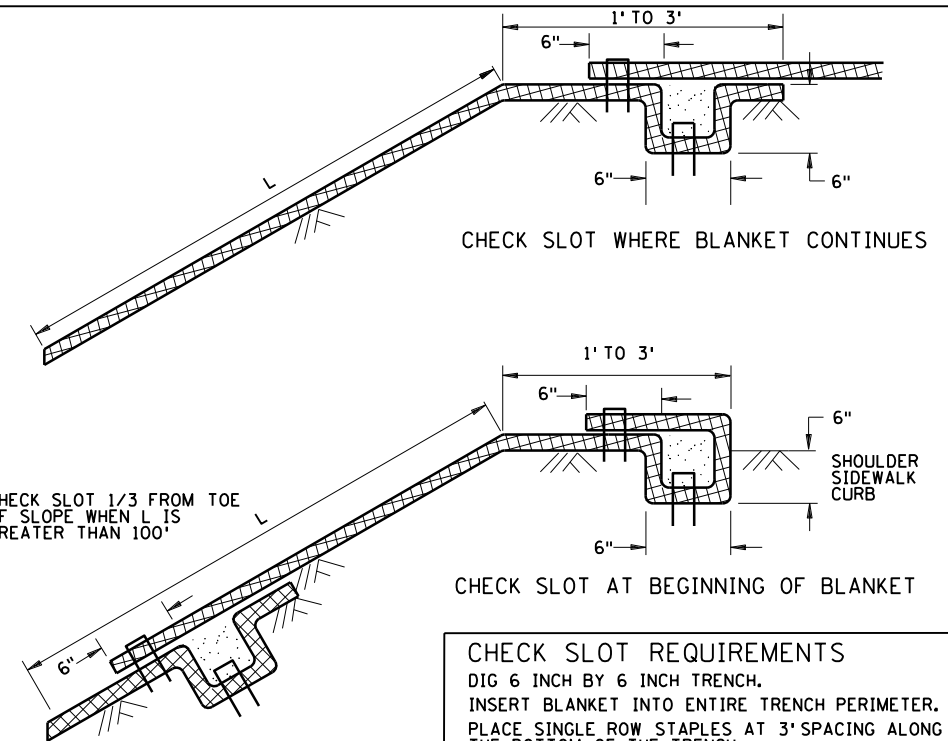
DITCH BLANKET STAPLE DETAIL



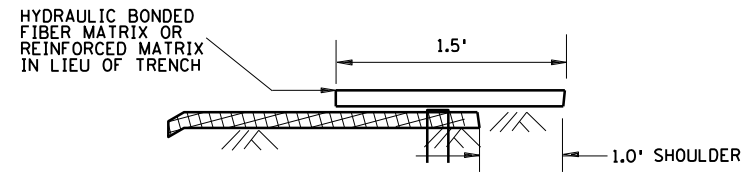
DITCH BLANKET CRITICAL POINTS ⑦

DITCH BLANKET STAPLE DETAIL NOTES

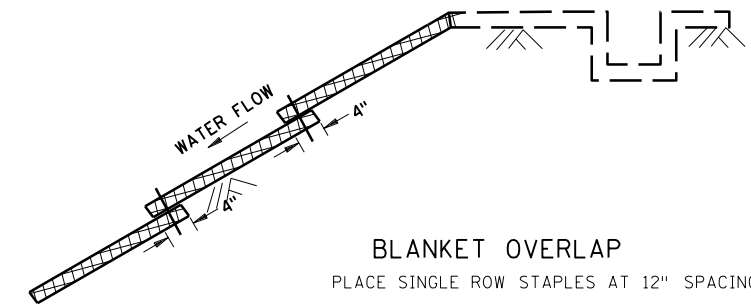
- ① USE CHECK SLOT DETAIL (NO ALTERNATES).
- ② PLACE DOUBLE ROW OF STAPLES STAGGERED 4" APART AND 4" ON CENTER.
- ③ USE 6" X 6" TRENCH TO PLACE BLANKET. PLACE SINGLE ROW OF STAPLES ON TOP AND TRENCH SIDES AT 12" SPACING. BACKFILL TRENCH WITH SOIL AND TAMP.
- ④ PLACE SINGLE ROW OF STAPLES AT 12" SPACING.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



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



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



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

	STANDARD PLAN 5-297.404	3 OF 3	PERMANENT EROSION CONTROL BLANKET STAPLE PATTERN FOR SLOPES
		APPROVED: 2-28-2017 REVISED:	
DEPARTMENT OF TRANSPORTATION	STATE DESIGN ENGINEER	STATE PROJ. NO.	64 OF 244

REVISION:

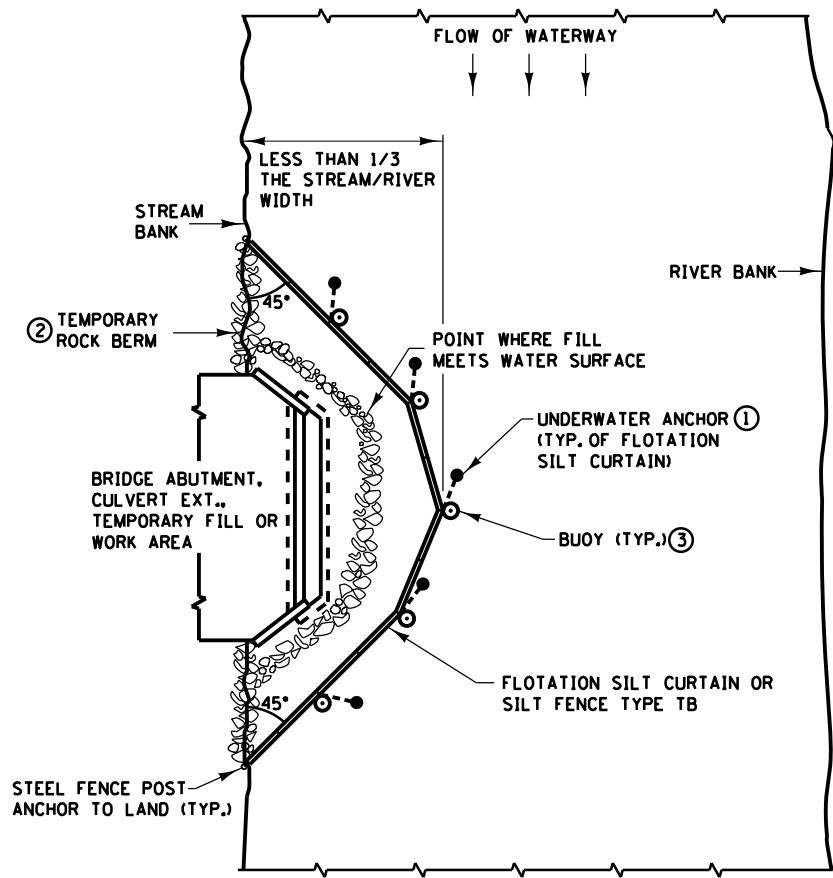
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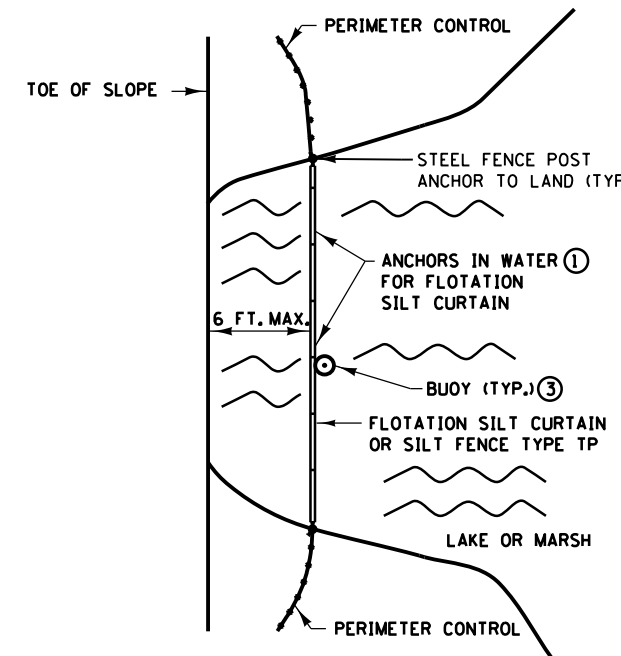
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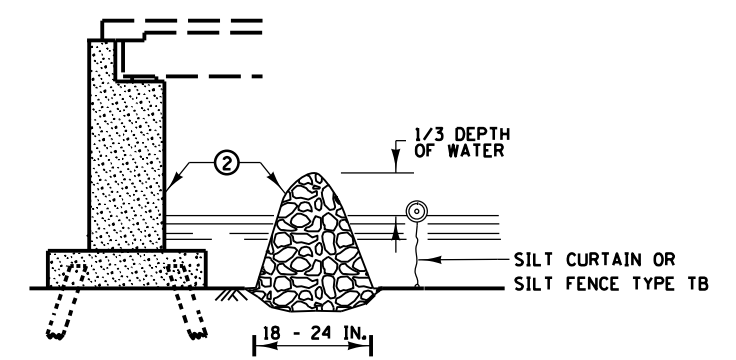
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PLAN VIEW FOR STREAM ⑤



PLAN VIEW FOR LAKE OR MARSH ⑤

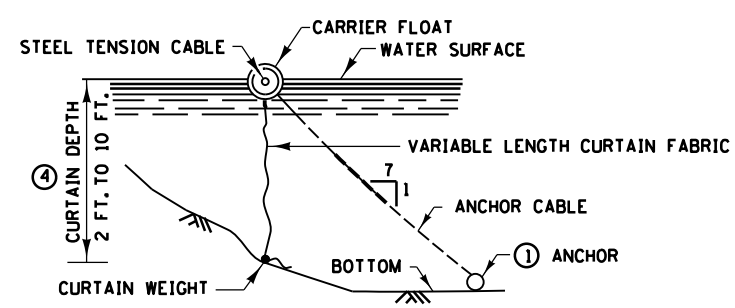


TEMPORARY ROCK BERM FOR SEDIMENT CONTROL

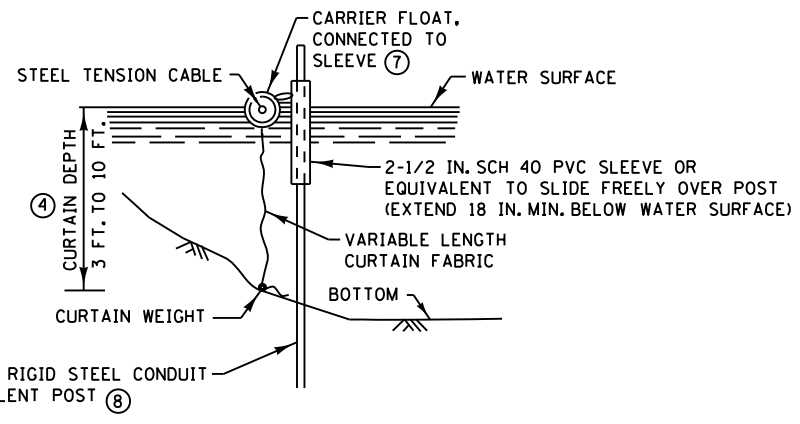
INSTALLATION GUIDELINES
 SILT FENCE TYPE TB
 MINIMUM WATER DEPTH: 1 FT.
 MAXIMUM WATER DEPTH: 3 FT.
 MAXIMUM WATER VELOCITY: 5 FT./SEC.

INSTALLATION GUIDELINES ④
 FLOTATION SILT CURTAIN
 TYPE: STILL WATER
 MINIMUM WATER DEPTH: 3 FT.
 MAXIMUM WATER DEPTH: 10 FT.
 MAXIMUM WATER VELOCITY: 2 FT./SEC.
 MAXIMUM WAVE HEIGHT: 1 FT

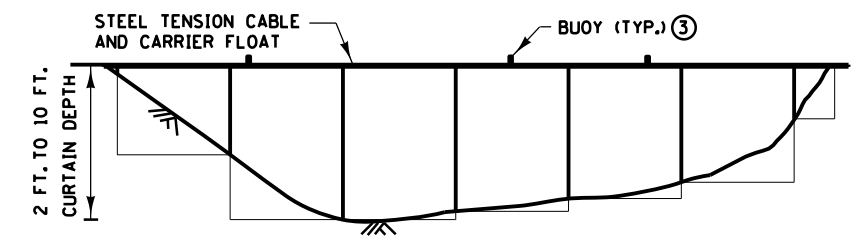
INSTALLATION GUIDELINES ④
 FLOTATION SILT CURTAIN
 TYPE: MOVING WATER
 MINIMUM WATER DEPTH: 3 FT.
 MAXIMUM WATER DEPTH: 10 FT.
 MAXIMUM WATER VELOCITY: 5 FT./SEC.
 MAXIMUM WAVE HEIGHT: 2 FT.



FLOTATION SILT CURTAIN



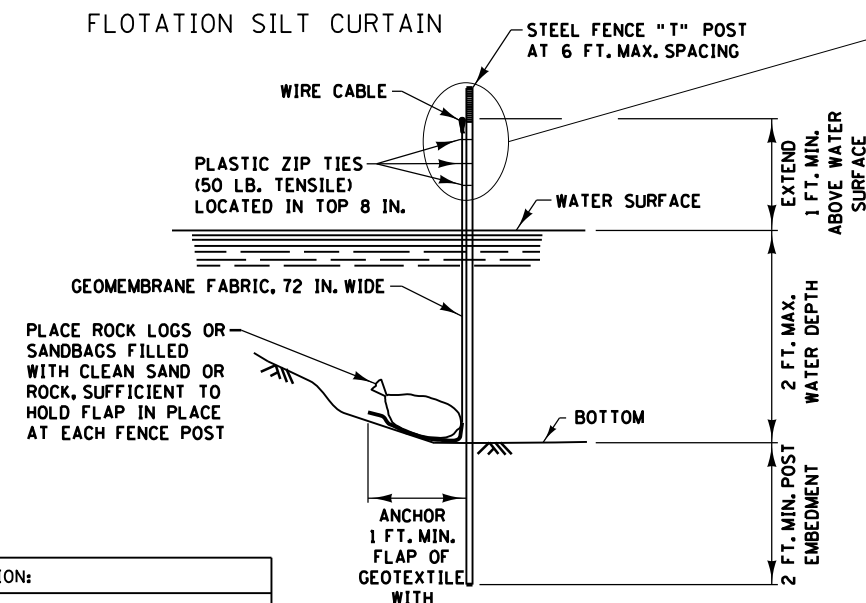
ALTERNATE FLOTATION SILT CURTAIN



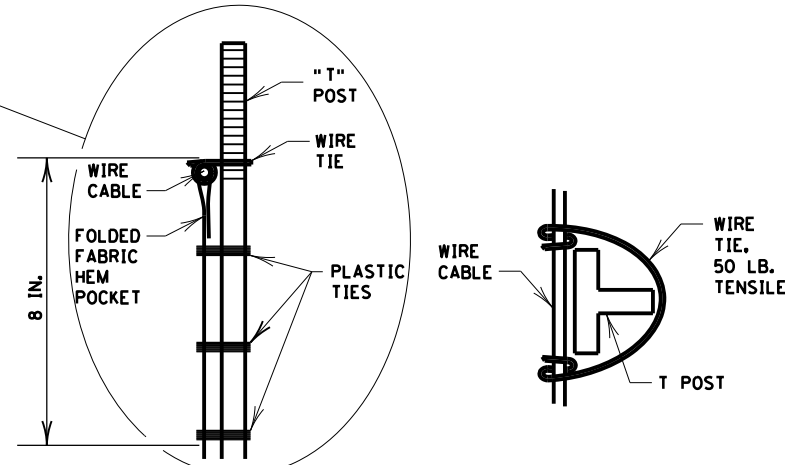
FRONT VIEW FOR FLOTATION SILT CURTAIN

NOTES:

- SEE SPECS. 2573, 3886, 3887 & 3893.
- ① FOR ANCHOR SPACING AND WEIGHT REQUIREMENTS, SEE SPEC. 2573.
- ② IN AREAS WHERE THE PLAN CALLS FOR RIPRAP AT A BRIDGE, CULVERT, OR SLOPE, A TEMPORARY ROCK BERM CONSTRUCTED FROM THE RIPRAP CAN BE USED TO PROVIDE ADDITIONAL PROTECTION. WHEN THE WORK IS COMPLETE THE RIPRAP CAN THEN BE MOVED TO THE PERMANENT LOCATION INDICATED IN THE PLANS. THE TEMPORARY ROCK BERM IS INCIDENTAL.
- ③ ON U.S. COAST GUARD OR OTHER MOTORIZED WATERWAYS, BUOYS ARE REQUIRED TO MARK THE ENDS AND SPECIAL AREAS FOR VISIBILITY. PLACE BUOYS AS REQUIRED FOR NAVIGATIONAL PURPOSES.
- ④ MINIMUM WATER DEPTH APPLIES TO THE DEEPEST POINT ALONG THE FLOTATION SILT CURTAIN OR SILT FENCE TYPE TB FOR DETERMINING APPLICABILITY OF FLOTATION SILT CURTAIN OR SILT FENCE TYPE TB.
- ⑤ SILT CURTAIN SHOULD BE REMOVED WHEN THE AREA CONTRIBUTING DIRECT RUNOFF HAS BEEN TEMPORARILY OR PERMANENTLY STABILIZED. SILT CURTAIN SHOULD ALSO BE REMOVED BEFORE WINTER IF ICE UP OR ICE FLOW IS ANTICIPATED.
- ⑥ EMBED POST INTO BOTTOM A MINIMUM OF 40% OF THE WATER DEPTH (INCLUDING WAVE HEIGHT), BUT IN NO CASE SHALL EMBEDMENT BE LESS THAN 2 FEET.
- ⑦ ANCHOR FLOAT MUST BE CONNECTED SECURELY TO SLEEVE WITH A MINIMUM TENSILE STRENGTH OF 100 LBS. CONNECTION METHOD MUST ALLOW FOR SLEEVE TO MOVE FREELY ON POST.
- ⑧ PROVIDE SUFFICIENT NUMBER OF POST ANCHORS TO MAINTAIN SILT CURTAIN POSITION.



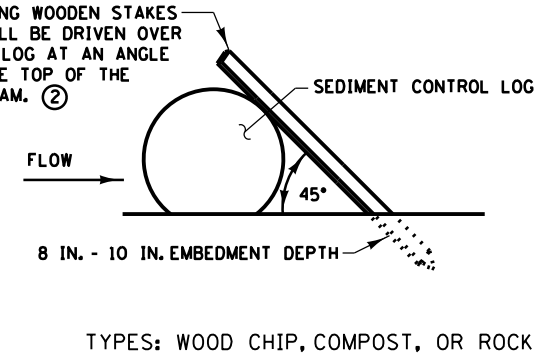
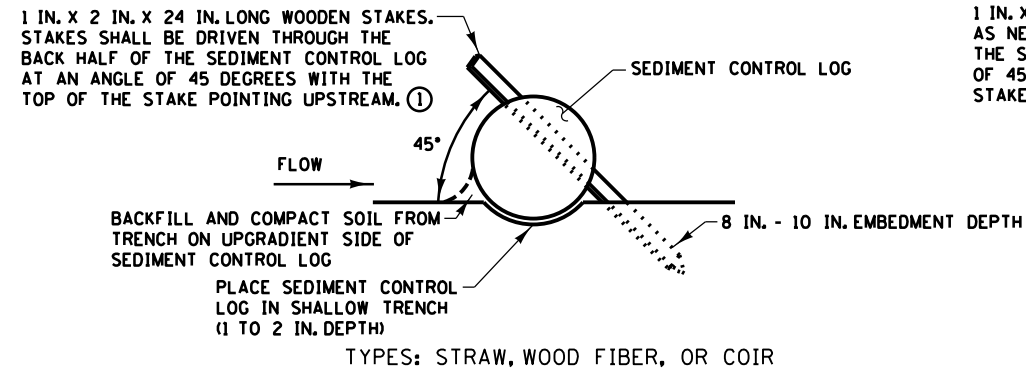
SILT FENCE TYPE TB ⑥



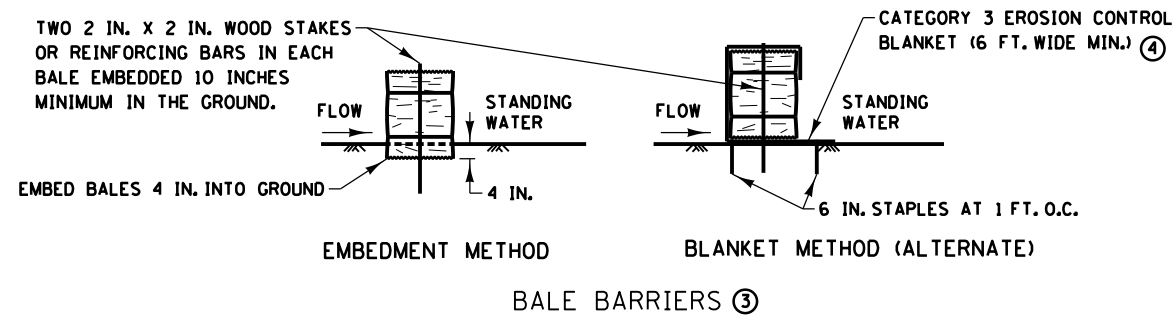
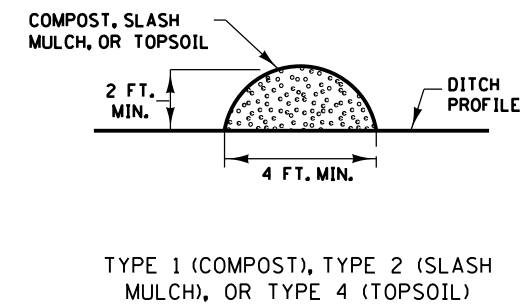
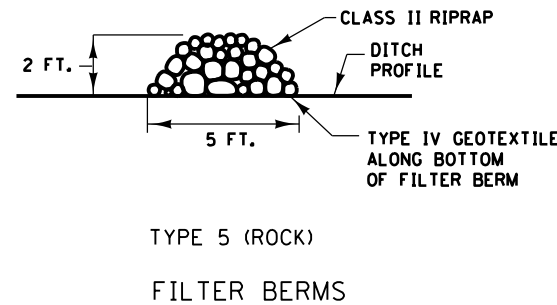
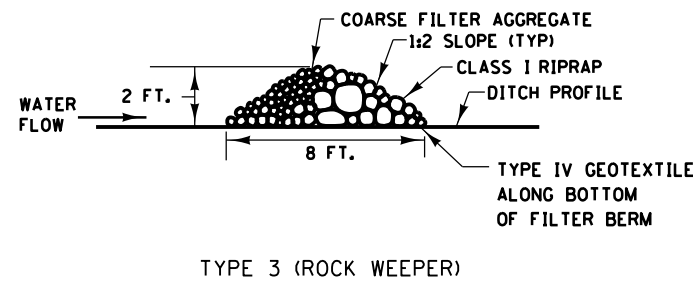
FABRIC/CABLE/POST CONNECTION

	STANDARD PLAN 5-297.405	1 OF 8	TEMPORARY SEDIMENT CONTROL SILT CURTAIN OR SILT FENCE TYPE TB
		APPROVED: 2-28-2017	
HENN. CO. PROJ. NO. 0922 CSAH 81	STATE DESIGN ENGINEER	STATE PROJ. NO.	S.P. 027-681-035, S.P. 110-020-040
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SEDIMENT CONTROL LOGS



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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User Name: edgu001

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STANDARD PLAN 5-297.405

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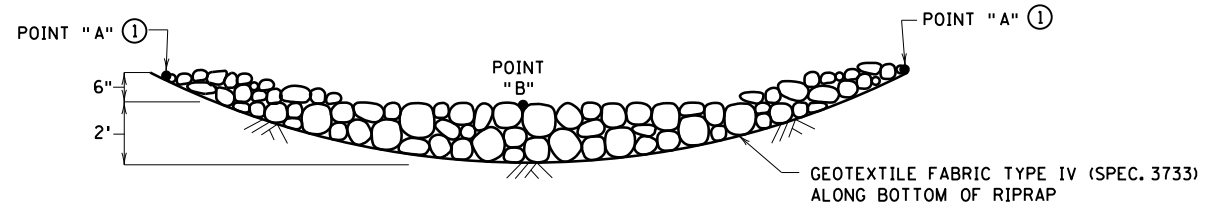
TEMPORARY SEDIMENT CONTROL

FILTER BERMS, SEDIMENT CONTROL LOGS, AND BALE BARRIERS

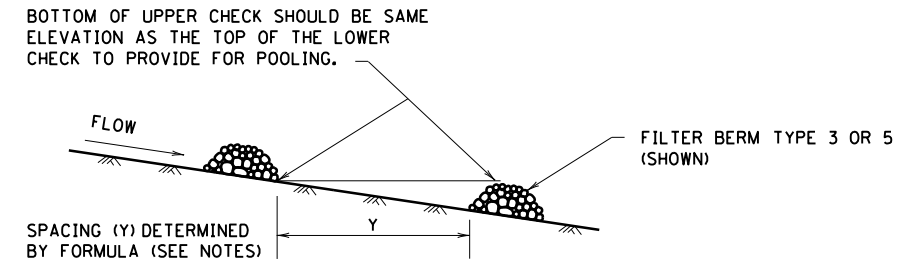
S.P. 027-681-035, S.P. 110-020-040

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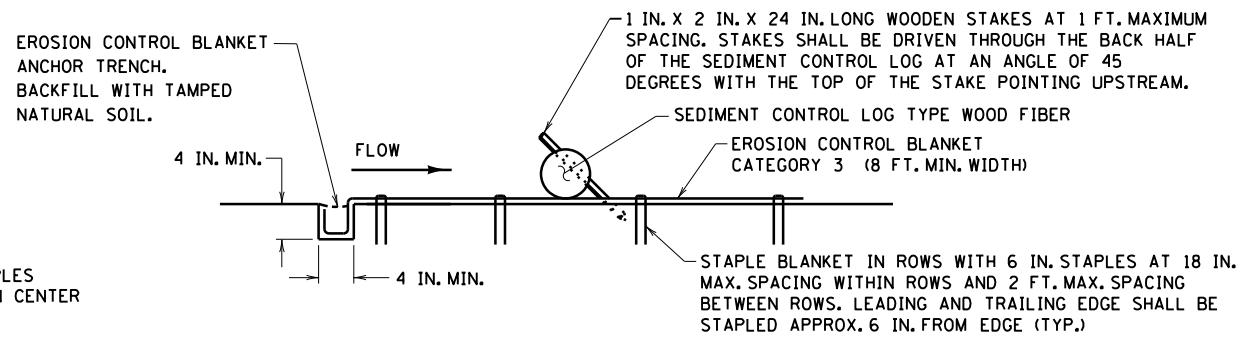
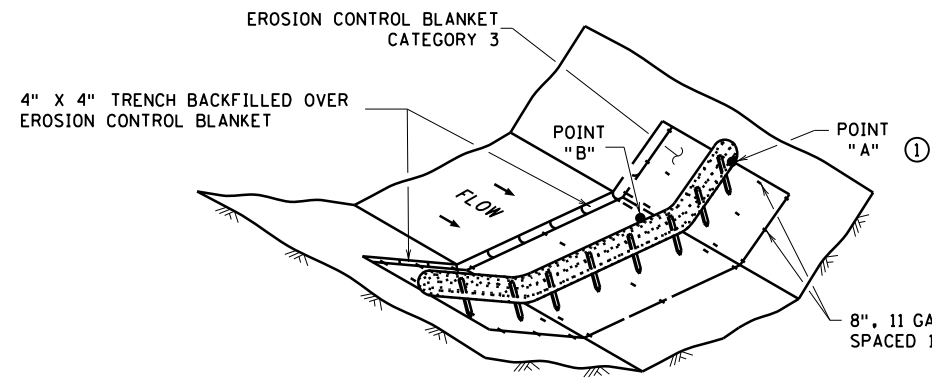
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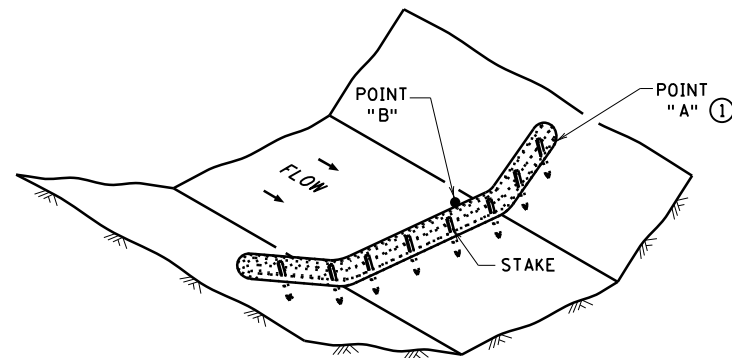
ROCK DITCH CHECKS
FILTER BERMS TYPE 3 (ROCK WEEPER) OR FILTER TYPE 5 (ROCK) ②③
 (FOR USE ON ROUGH GRADED AREAS)



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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TEMPORARY SEDIMENT CONTROL

DITCH CHECK

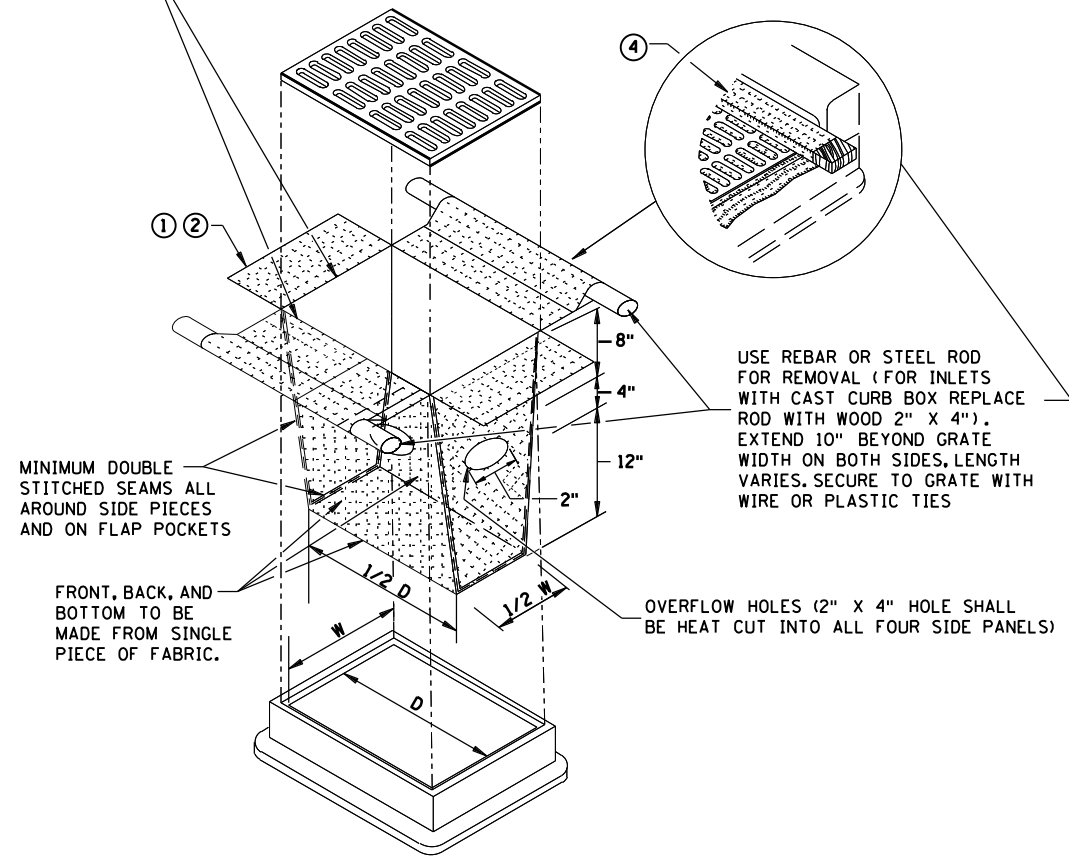
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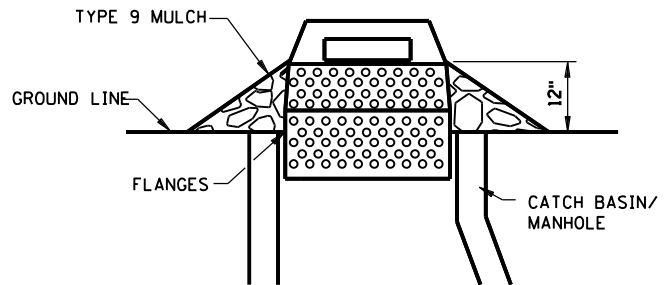
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INLET SPECIFICATIONS AS PER THE PLAN
DIMENSION LENGTH AND WIDTH TO MATCH
FLAP POCKET



FILTER BAG INSERT ③

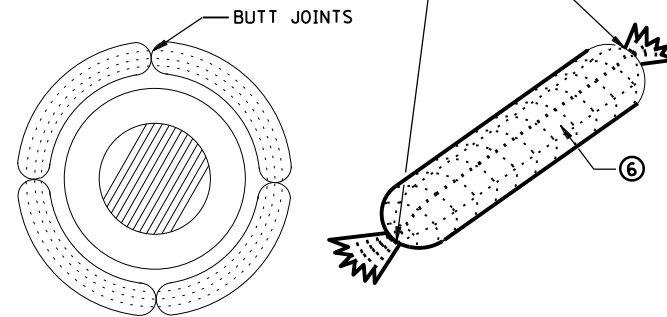
(CAN BE INSTALLED IN ANY INLET TYPE
WITH OR WITHOUT A CURB BOX)



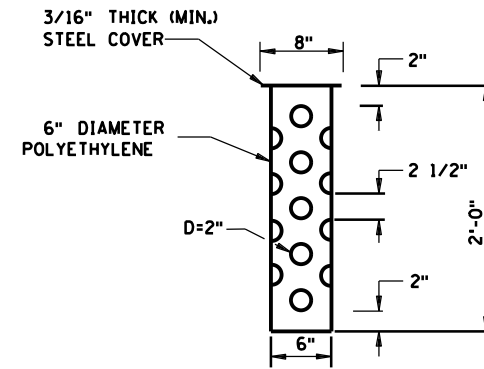
SEDIMENT CONTROL INLET HAT

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.

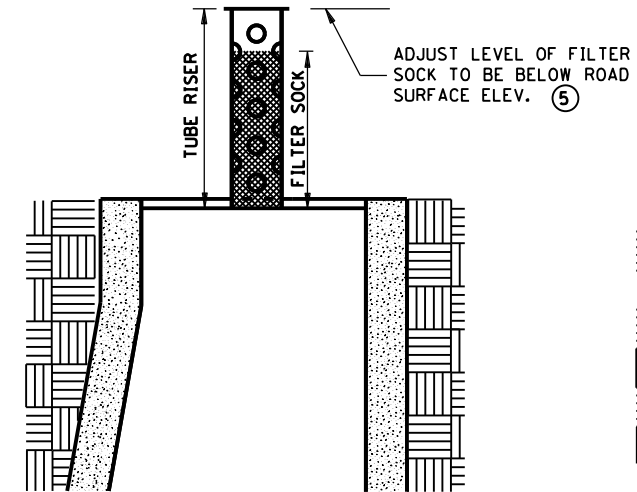
ENDS SECURELY CLOSED TO
PREVENT LOSS OF OPEN GRADED
AGGREGATE FILL. SECURED WITH
50 PSI. ZIP TIE.



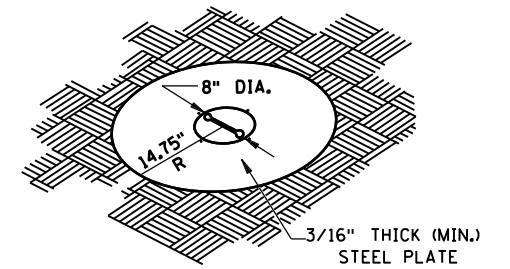
ROCK LOG/COMPOST LOG



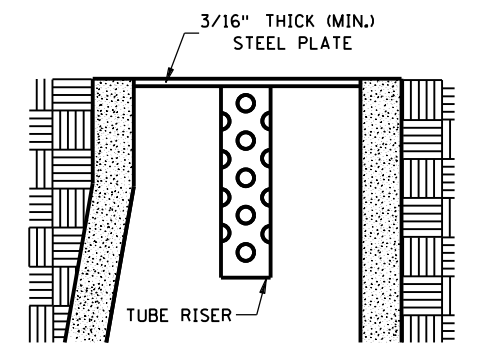
TUBE RISER



**SECTION
(UP POSITION)**

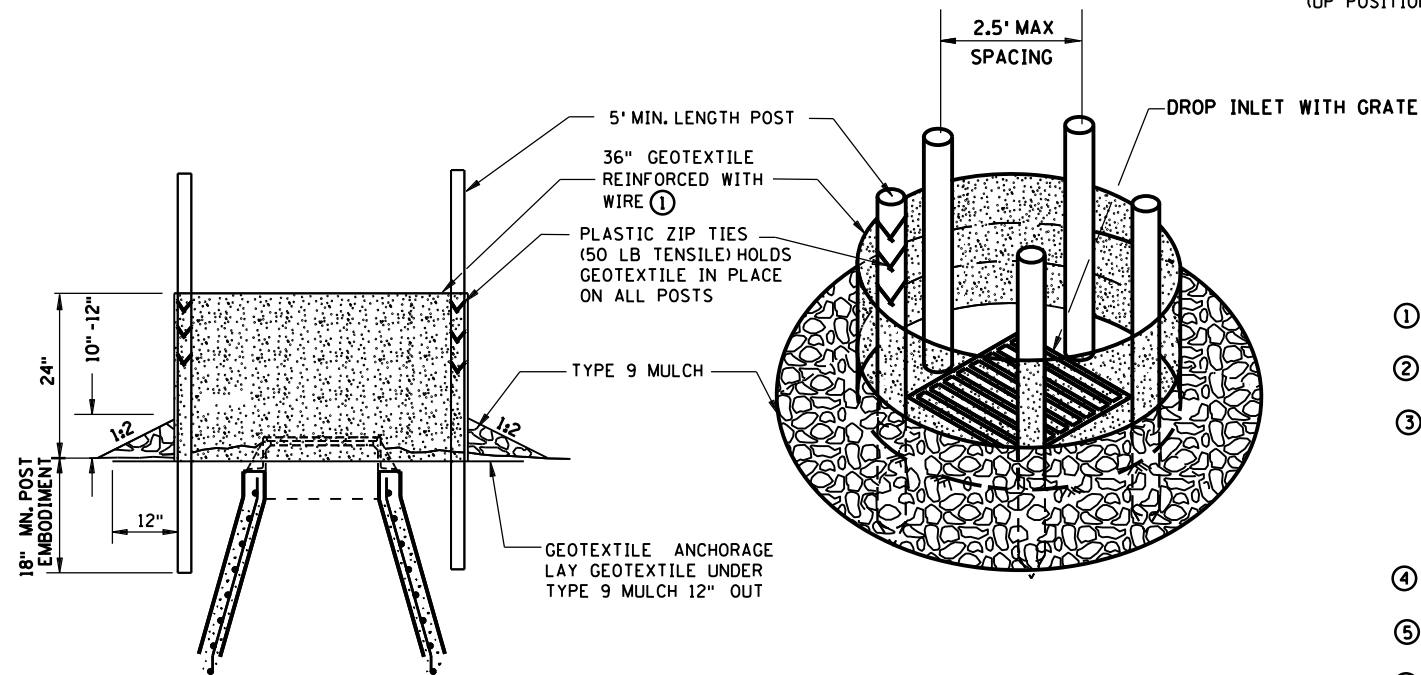


PERSPECTIVE VIEW



**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.

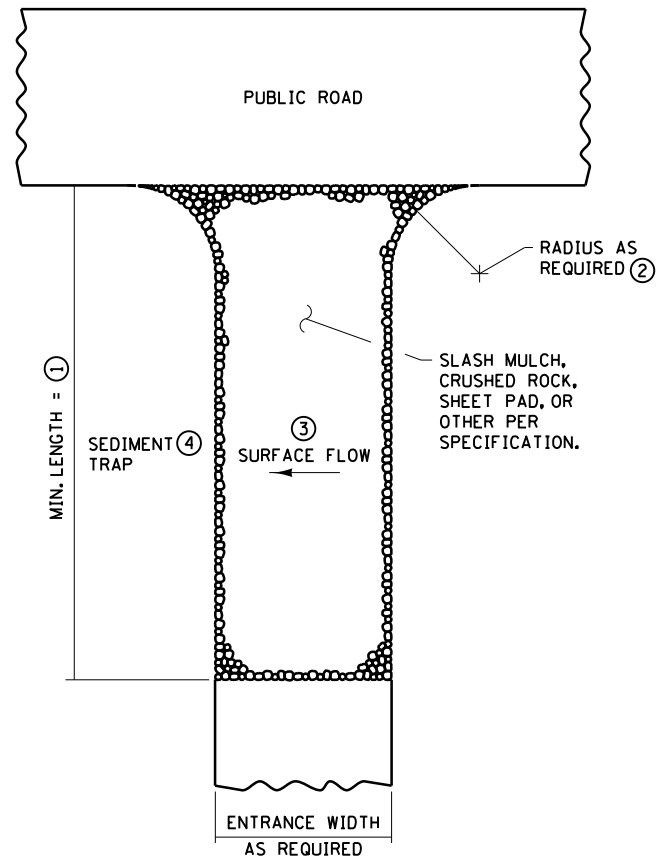
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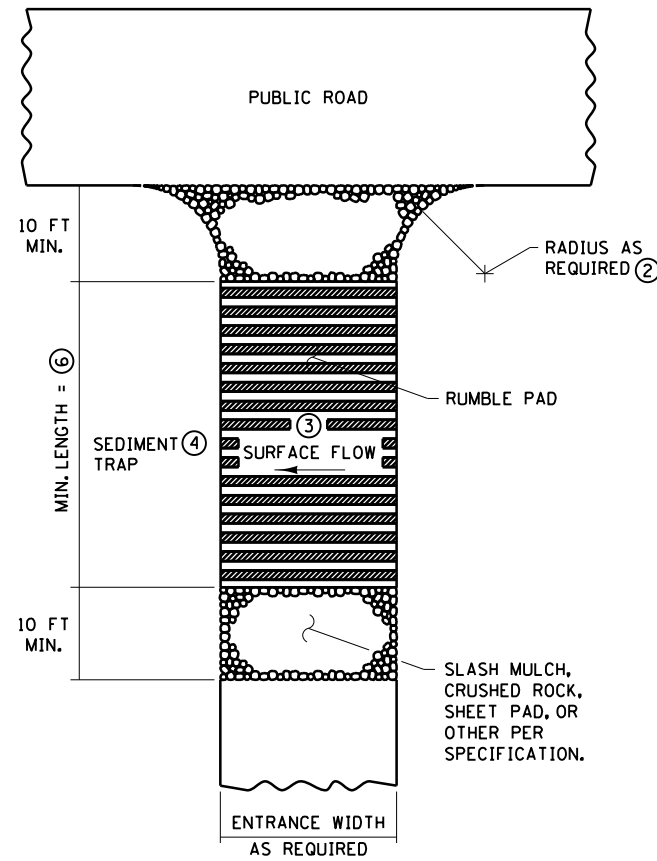
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DEPARTMENT OF TRANSPORTATION	STATE PROJ. NO.	

TEMPORARY SEDIMENT CONTROL
STORM DRAIN INLET PROTECTION

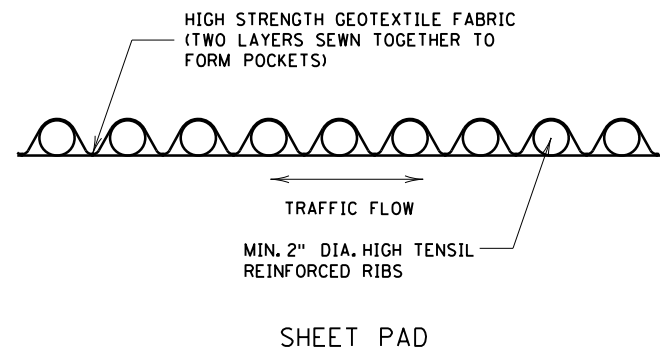
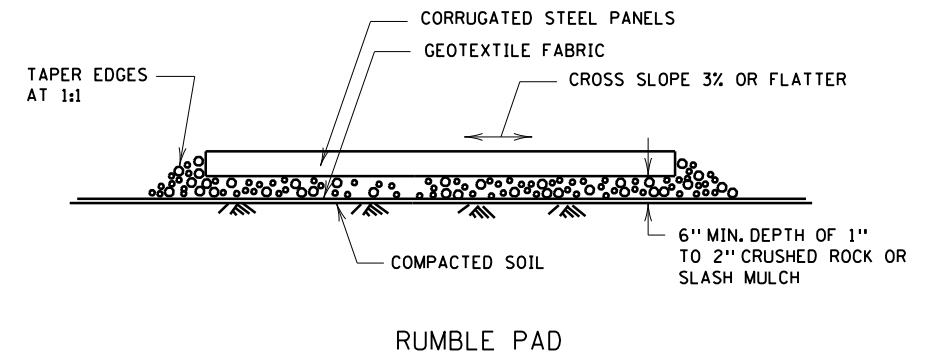
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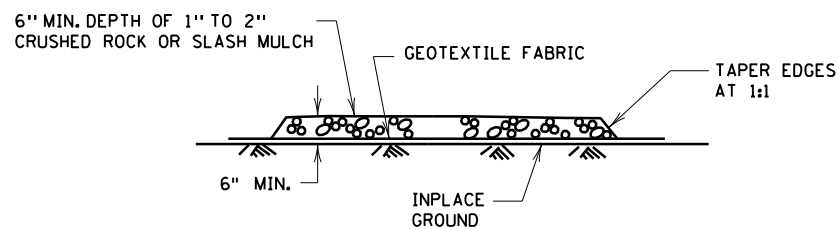
SLASH MULCH, CRUSHED ROCK, OR SHEET PAD CONSTRUCTION EXIT (5)(7)



RUMBLE PAD CONSTRUCTION EXIT (5)(7)



SHEET PAD



SLASH MULCH OR CRUSHED ROCK

NOTES:

SEE SPECS. 2573 & 3882.

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

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TEMPORARY SEDIMENT CONTROL

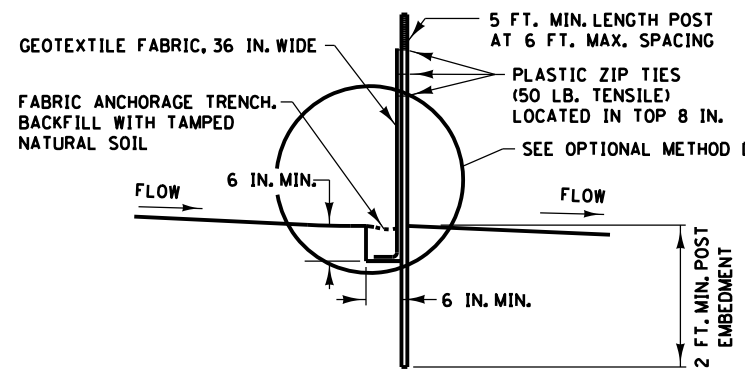
STABILIZED CONSTRUCTION EXIT

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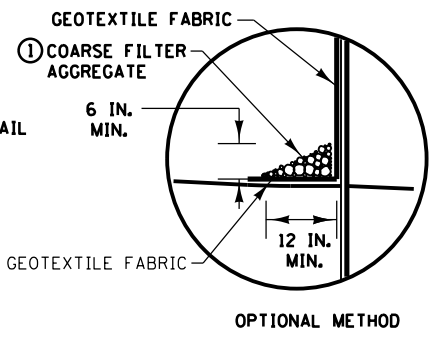
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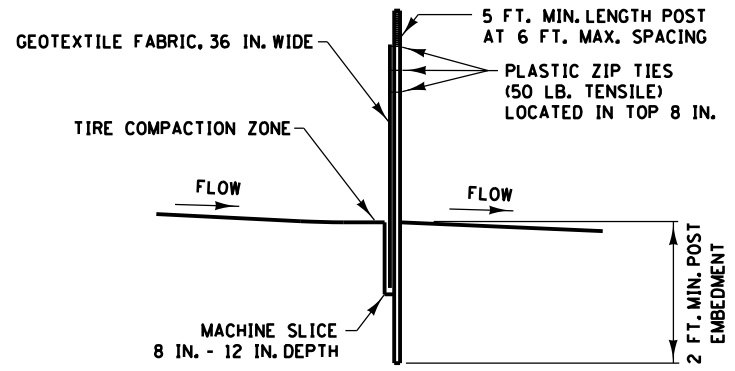
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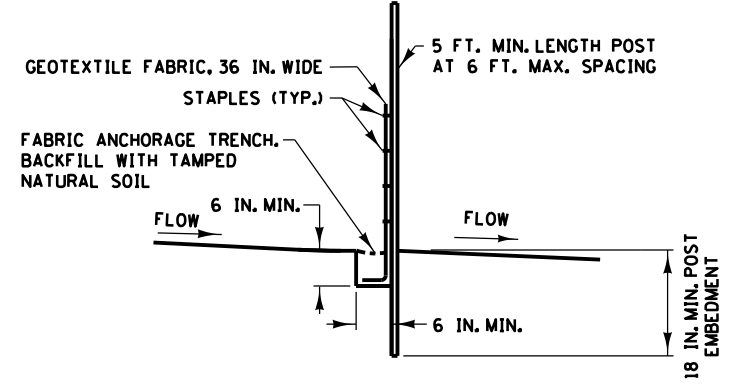
SILT FENCE TYPE HI ②
(HAND INSTALLED)



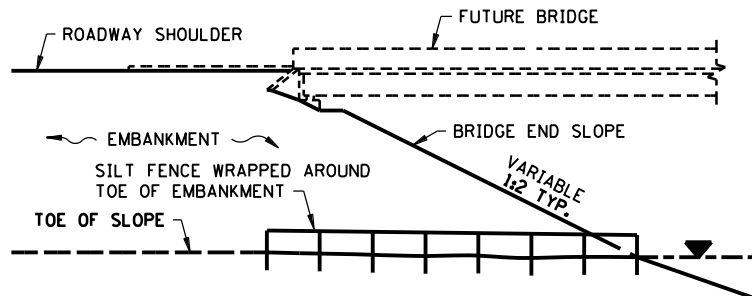
OPTIONAL METHOD



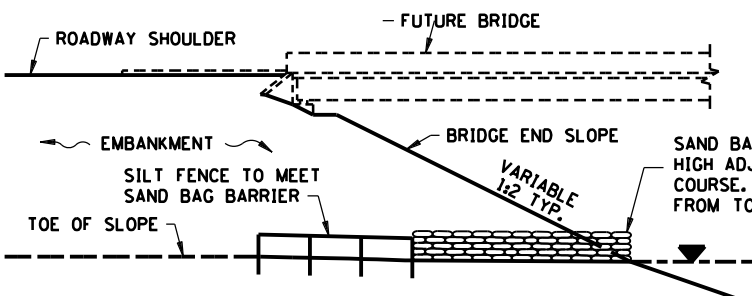
SILT FENCE TYPE MS ②
(MACHINE SLICED)



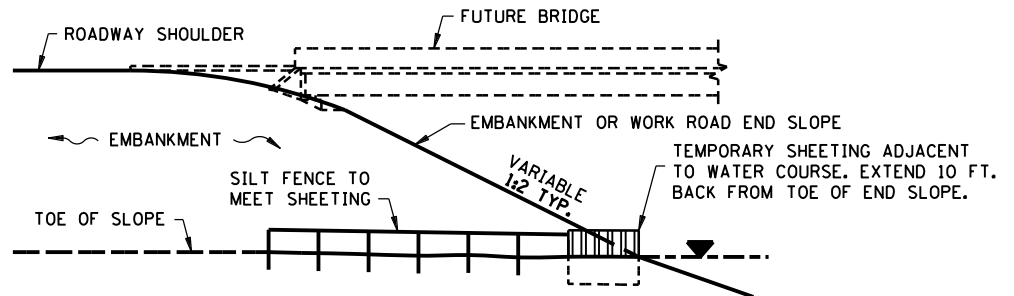
SILT FENCE TYPE PA ③
(PREASSEMBLED)



SILT FENCE ONLY ④

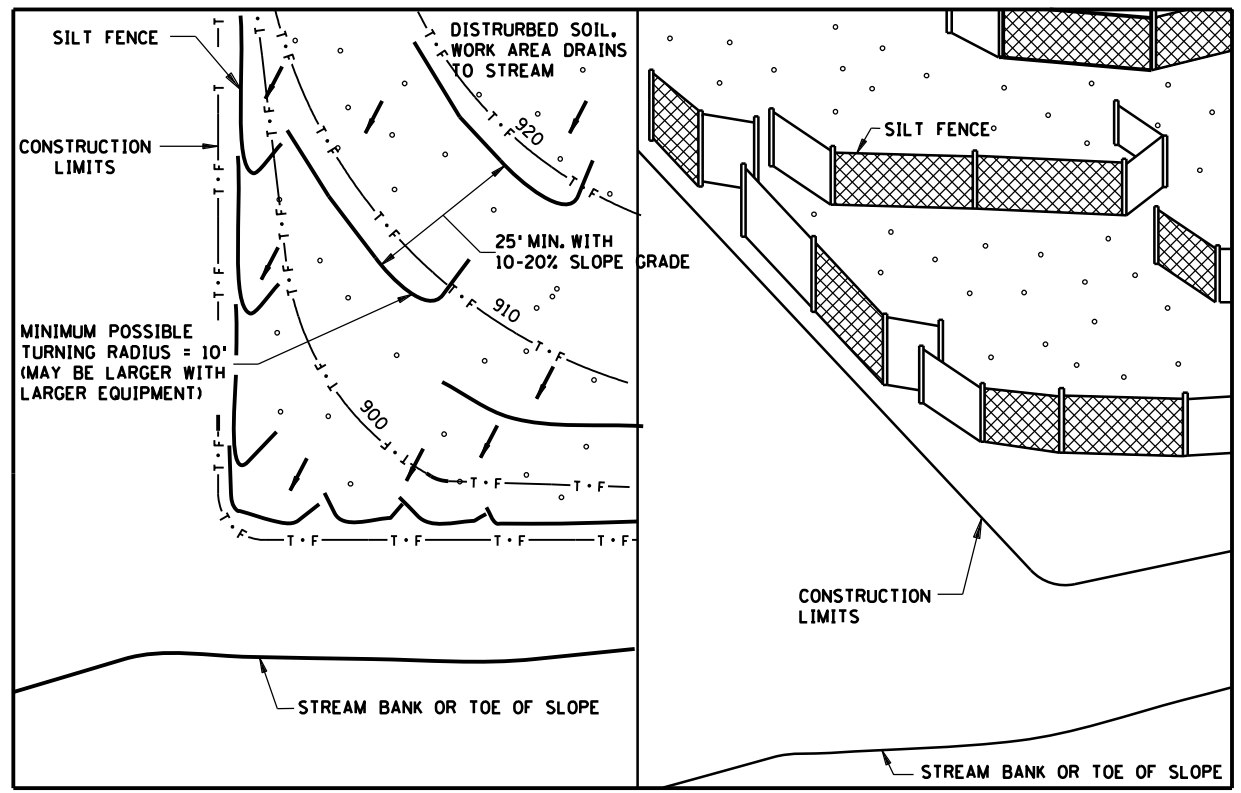


SILT FENCE WITH SAND BAGS ⑤



SILT FENCE WITH SHEETING ⑥

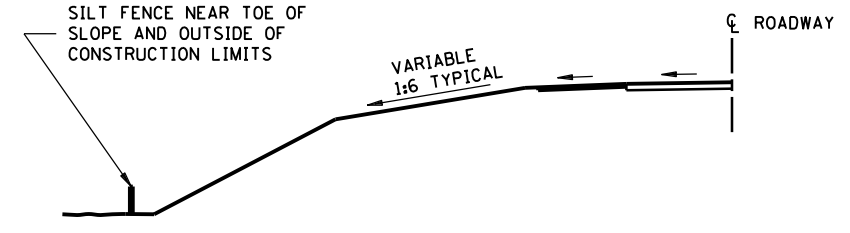
INSTALLATION AT BRIDGE EMBANKMENT ADJACENT TO WATER



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.

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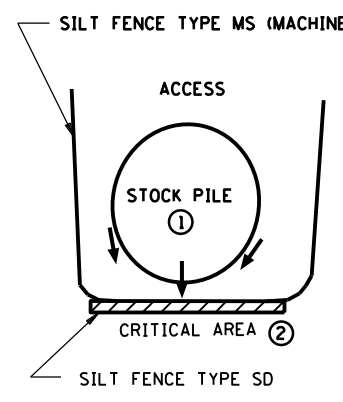
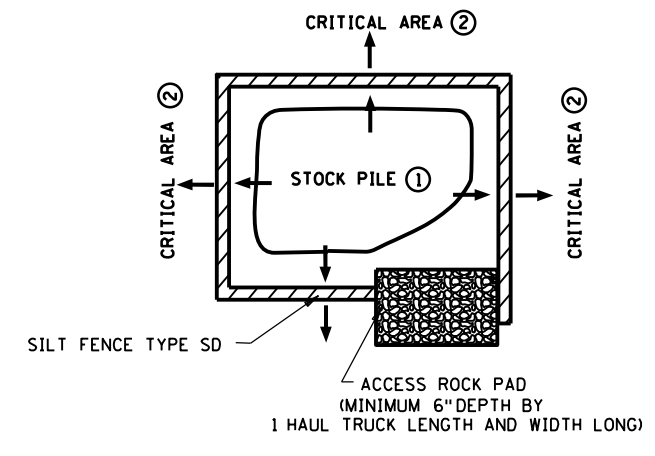
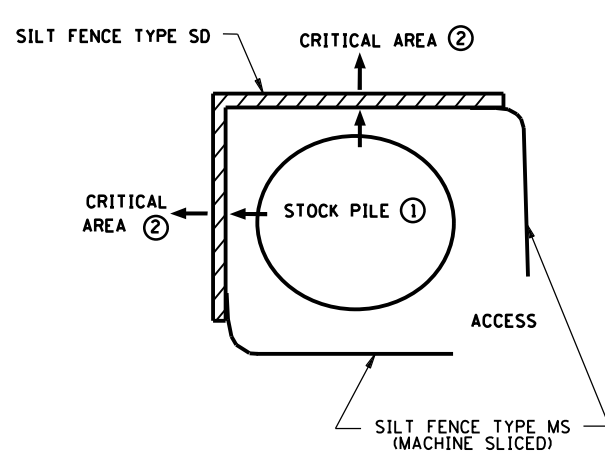


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TEMPORARY SEDIMENT CONTROL
SILT FENCE
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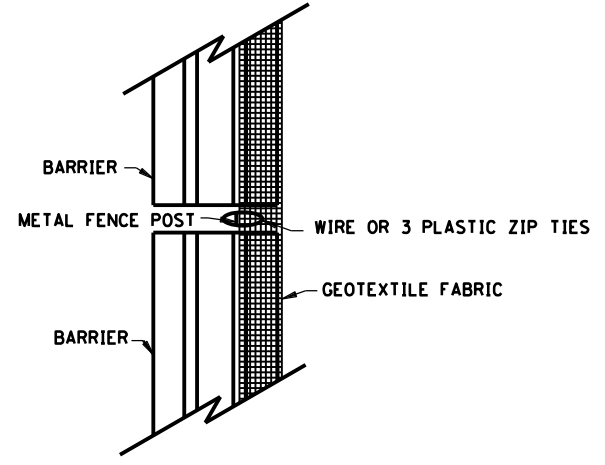
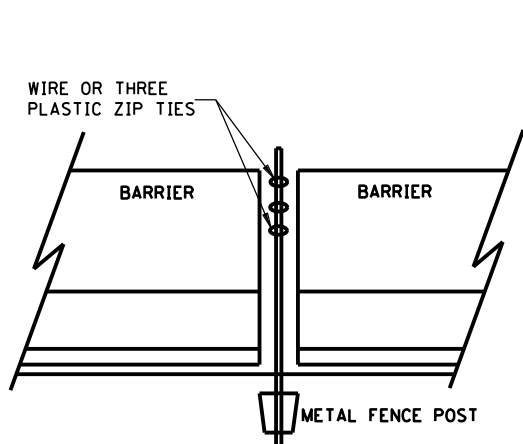
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STOCK PILE CONTAINMENT

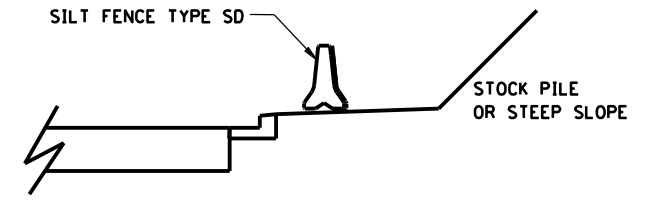
STOCKPILE SEDIMENT CONTROL



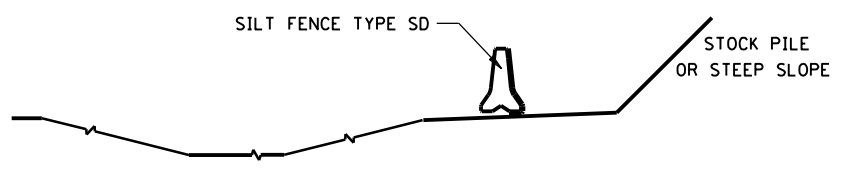
PROFILE VIEW

TOP VIEW

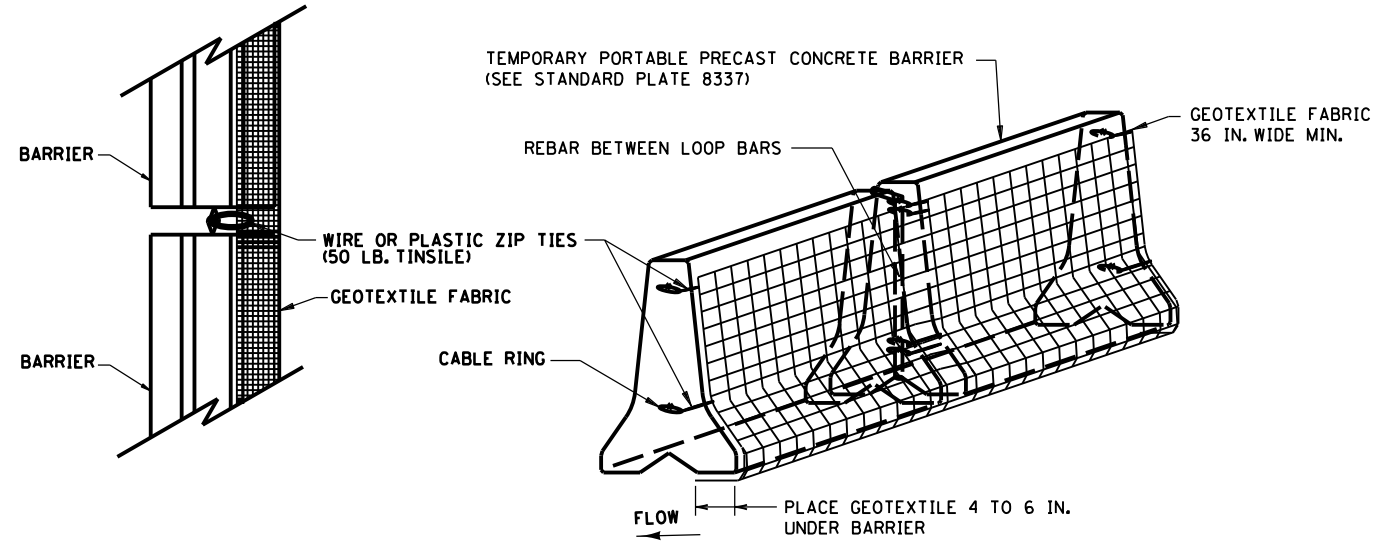
SILT FENCE TYPE SD (SUPER DUTY) BARRIER WITHOUT LOOP BARS



CURB AND GUTTER PROTECTION SYSTEM



DITCH PROTECTION SYSTEM



TOP VIEW

PERSPECTIVE VIEW

SILT FENCE TYPE SD (SUPER DUTY) BARRIER WITH LOOP BARS

NOTES:

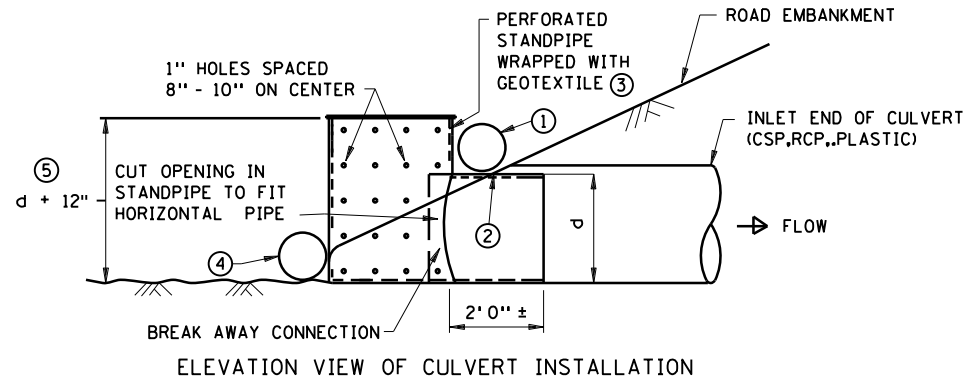
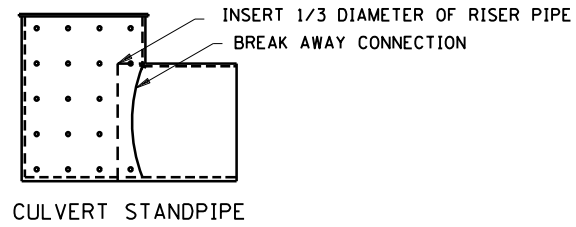
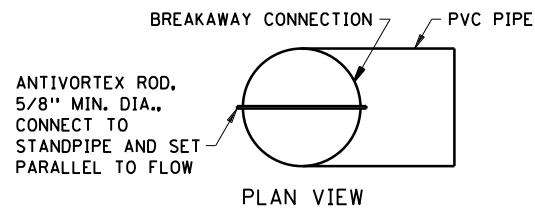
- SEE SPECS. 2533, 2573 & 3886.
- SILT FENCE TYPE SD USED TO PROTECT CRITICAL AREAS FROM SHEET FLOW, AND AREAS WHERE OTHER SILT FENCES CANNOT BE PLACED. MAXIMUM CONTRIBUTING AREA: 1 ACRE.
- PLACE SILT FENCE TYPE SD ALONG A CONSTANT ELEVATION.
- SILT FENCE TYPE SD CAN UTILIZE EITHER A CONCRETE, OR WATER FILLED, TEMPORARY MEDIAN BARRIER.
- ① PLACING STOCK PILES NEXT TO AN ENVIRONMENTALLY SENSITIVE AREA IS NOT RECOMMENDED. WHEN THERE ARE NO FEASIBLE ALTERNATIVES, PLACE SILT FENCE SD AS SHOWN OR AS DIRECTED BY THE ENGINEER.
- ② CRITICAL AREAS INCLUDE WETLANDS, JUDICIAL DITCHES, STREAMS, WATER BODIES, AND OTHER AREAS REQUIRING PROTECTION.

REVISION:	
APPROVED: 2-28-2017	
<i>[Signature]</i>	
CHIEF ENVIRONMENTAL OFFICER	
HENN. CO. PROJ. NO. 0922 CSAH 81	

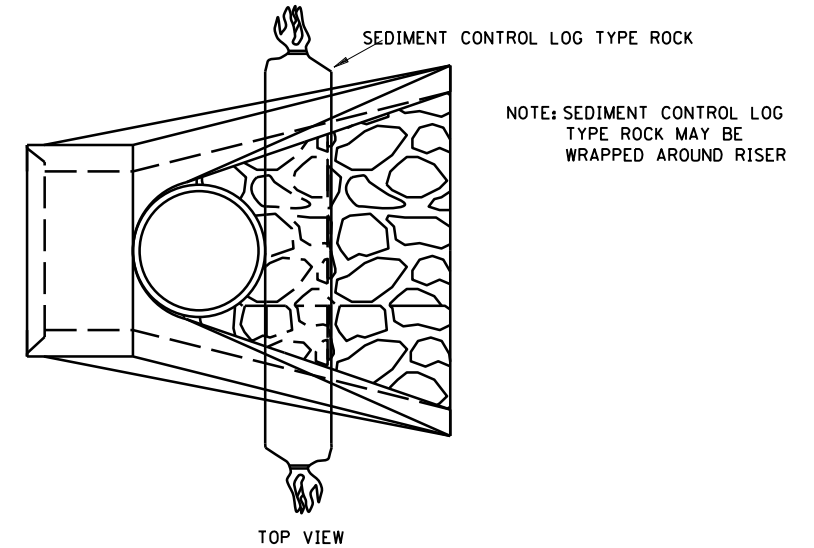
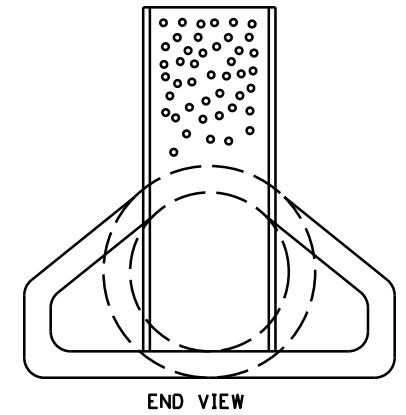
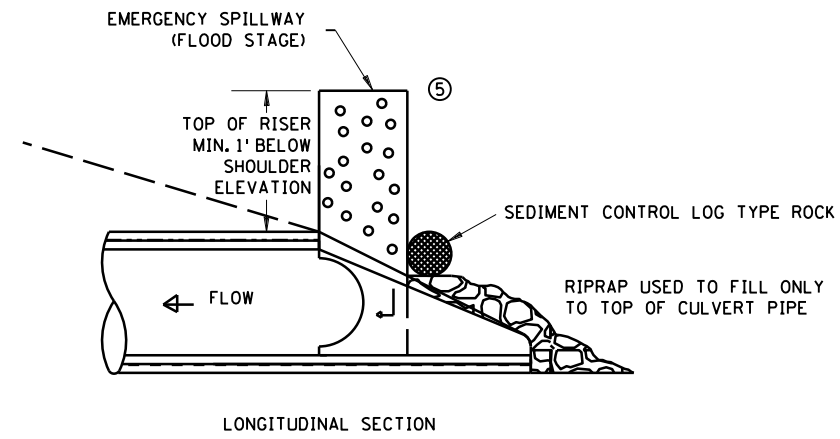
	STANDARD PLAN 5-297.405	7 OF 8	TEMPORARY SEDIMENT CONTROL SUPER DUTY SILT FENCE
		APPROVED: 2-28-2017	
DEPARTMENT OF TRANSPORTATION	STATE DESIGN ENGINEER	STATE PROJ. NO.	S.P. 027-681-035, S.P. 110-020-040
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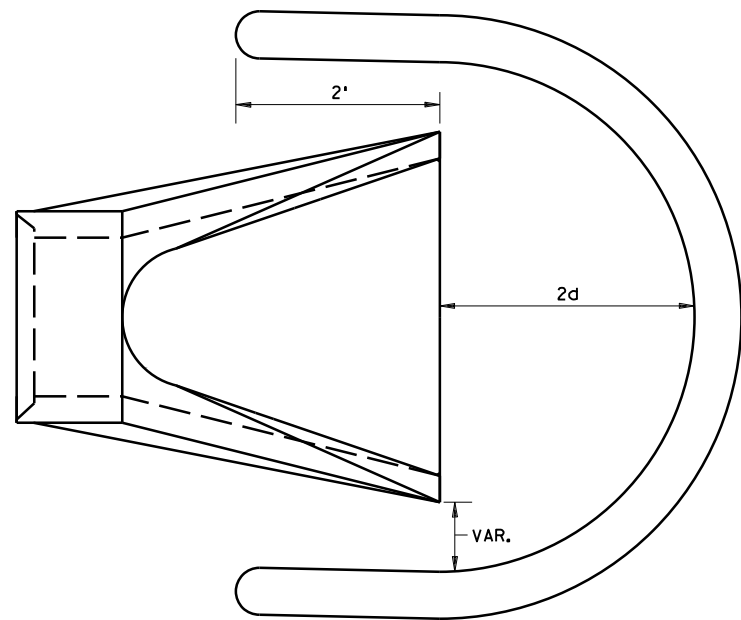
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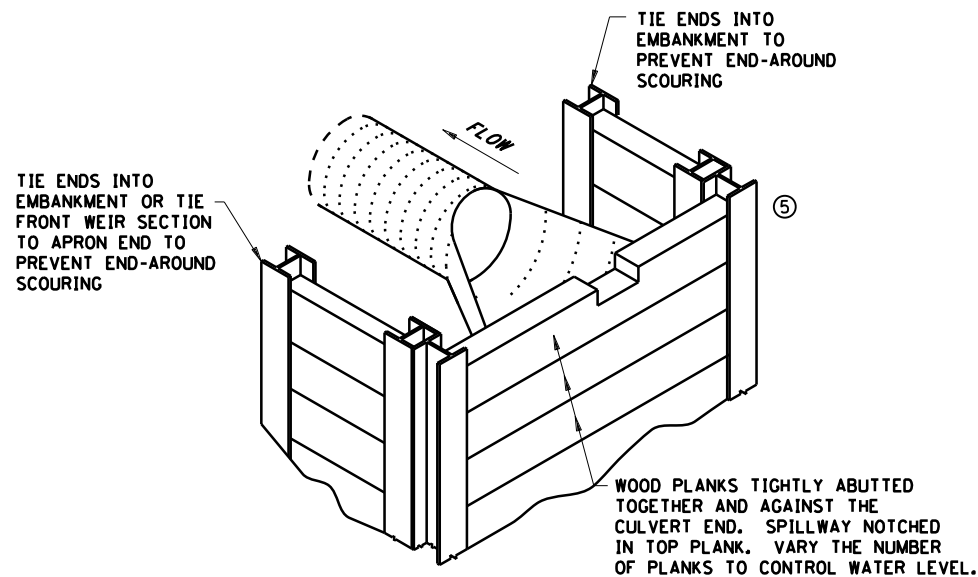
CULVERT STANDPIPE INSERT (D-RISER)
d= CULVERT SIZE: 12" - 36"



CULVERT STANDPIPE INSERT (D-RISER)



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



WOOD PLANK WEIR

NOTES:

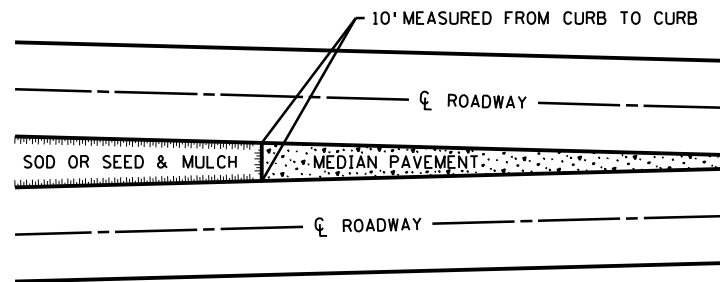
- SEE SPECS. 2573, 3891 & 3893.
- FOR USE WHEN TEMPORARY PONDING IS NEEDED IN DITCH SECTIONS FOR SEDIMENT CONTROL.
- MANUFACTURED ALTERNATIVES LISTED ON MNDOT'S APPROVED PRODUCTS LIST MAY BE SUBSTITUTED AT NO ADDITIONAL COST.
- ① ROCK LOG OR SANDBAG TO HOLD STANDPIPE AND ACT AS A SEAL BETWEEN RISER PIPE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

	STANDARD PLAN 5-297.405	8 OF 8	TEMPORARY SEDIMENT CONTROL CULVERT END CONTROLS
		APPROVED: 2-28-2017 REVISED:	
DEPARTMENT OF TRANSPORTATION	STATE DESIGN ENGINEER		72 OF 244

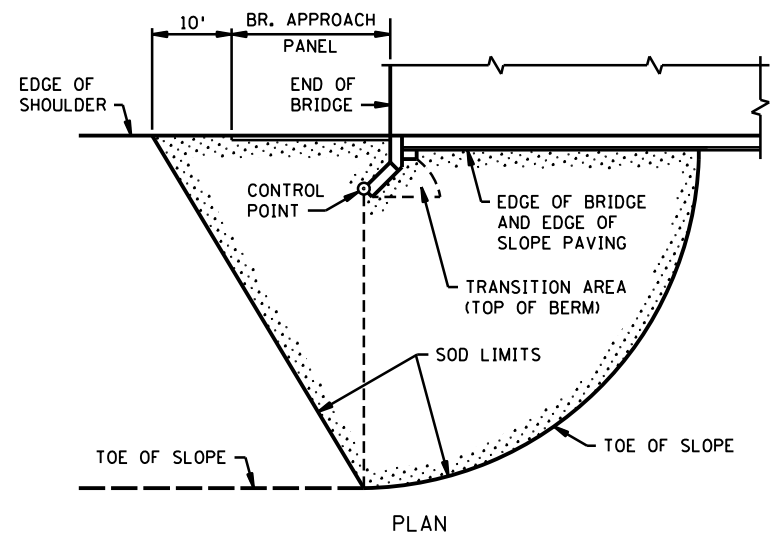
REVISION:	
APPROVED: 2-28-2017	
CHIEF ENVIRONMENTAL OFFICER	HENN. CO. PROJ. NO. 0922 CSAH 81

Date: 3/14/2019
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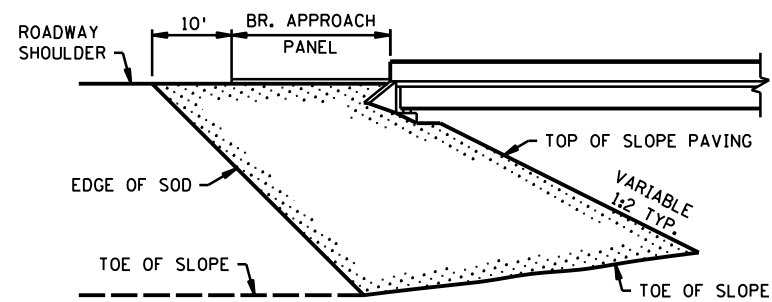
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SODDING LIMITS AT GORE AREA

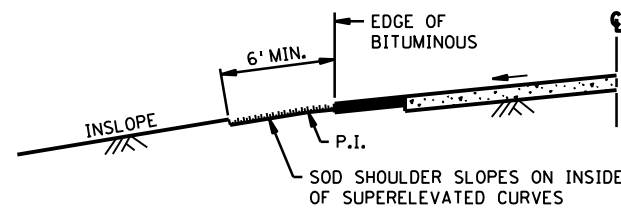


PLAN

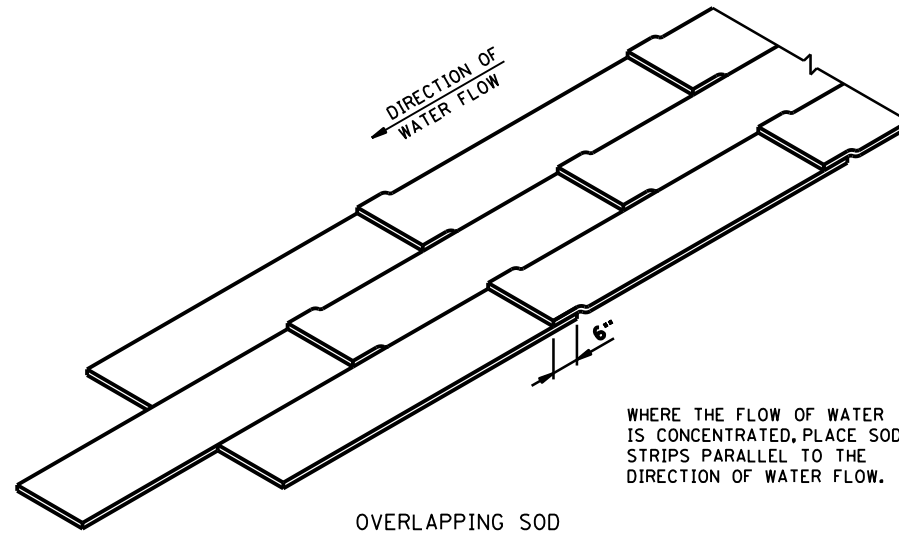


ELEVATION

SODDING LIMITS AT BRIDGE APPROACH FILLS

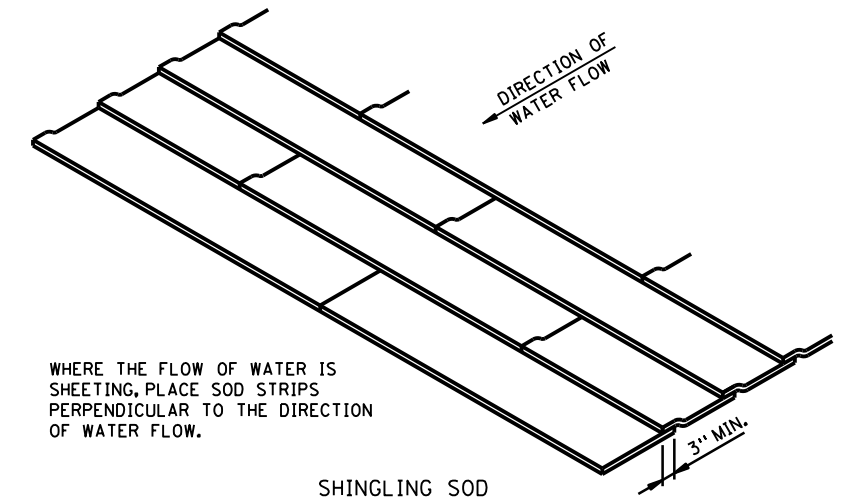


SODDING INSLOPES OF SUPERELEVATED CURVES



OVERLAPPING SOD

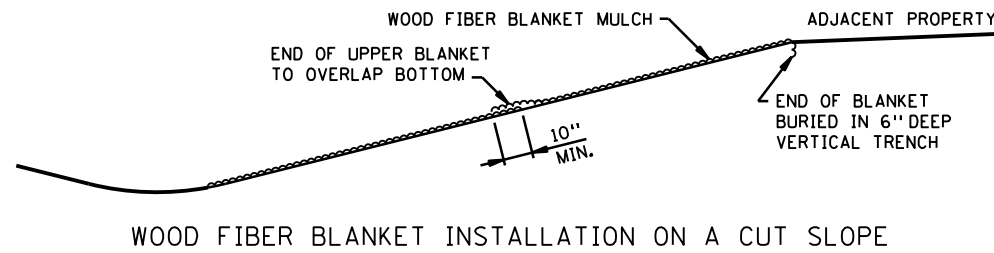
WHERE THE FLOW OF WATER IS CONCENTRATED, PLACE SOD STRIPS PARALLEL TO THE DIRECTION OF WATER FLOW.



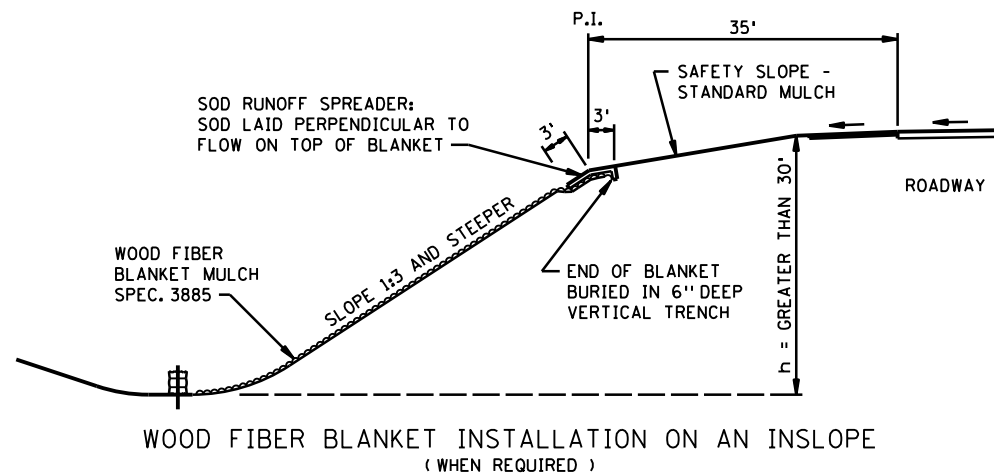
SHINGLING SOD

WHERE THE FLOW OF WATER IS SHEETING, PLACE SOD STRIPS PERPENDICULAR TO THE DIRECTION OF WATER FLOW.

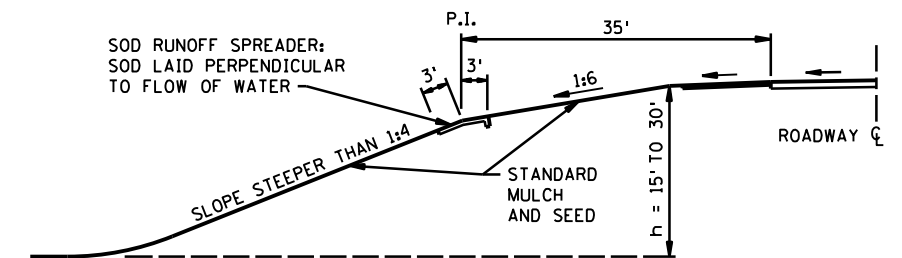
SPECIAL SOD PLACEMENT TECHNIQUES



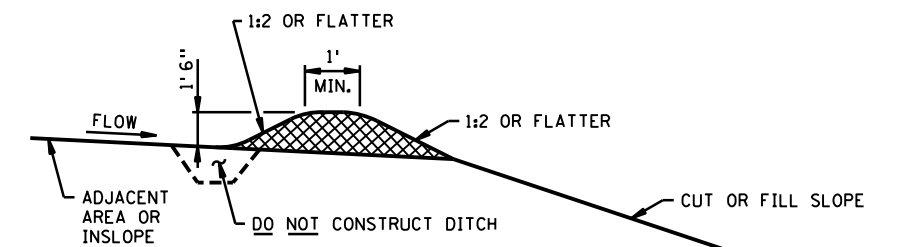
WOOD FIBER BLANKET INSTALLATION ON A CUT SLOPE



WOOD FIBER BLANKET INSTALLATION ON AN INSLOPE (WHEN REQUIRED)



BROKEN-BACK SAFETY FILL SLOPE



PERMANENT SLOPE PROTECTION DIKE

HENN. CO. PROJ. NO. 0922 CSAH 81

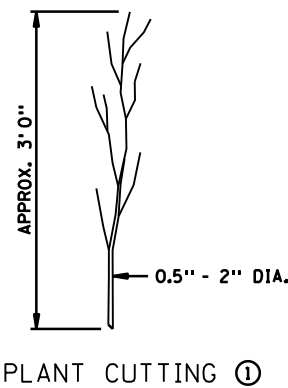
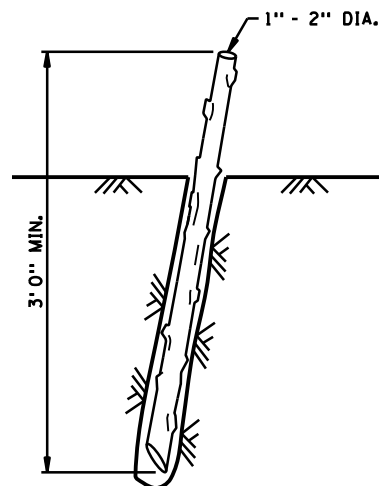
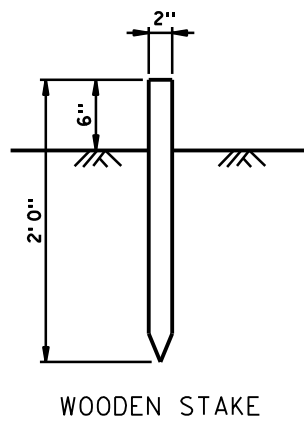
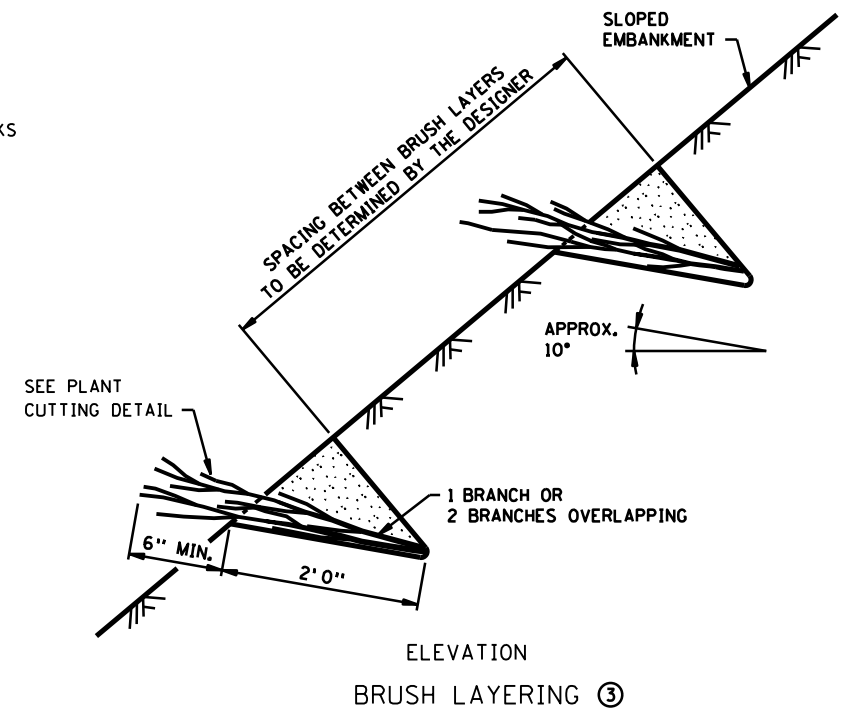
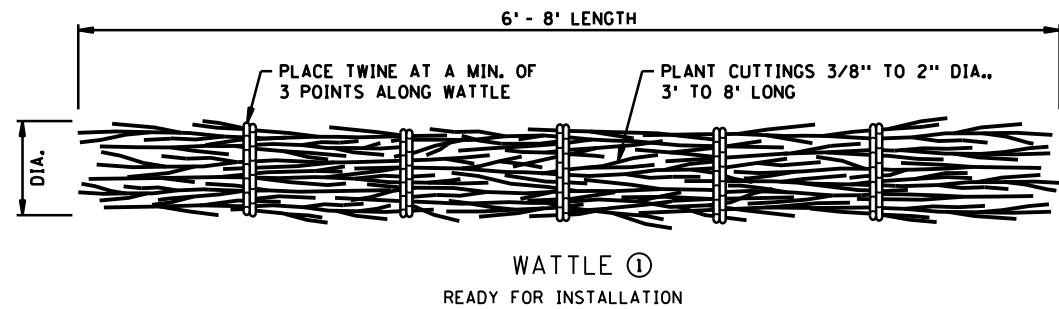
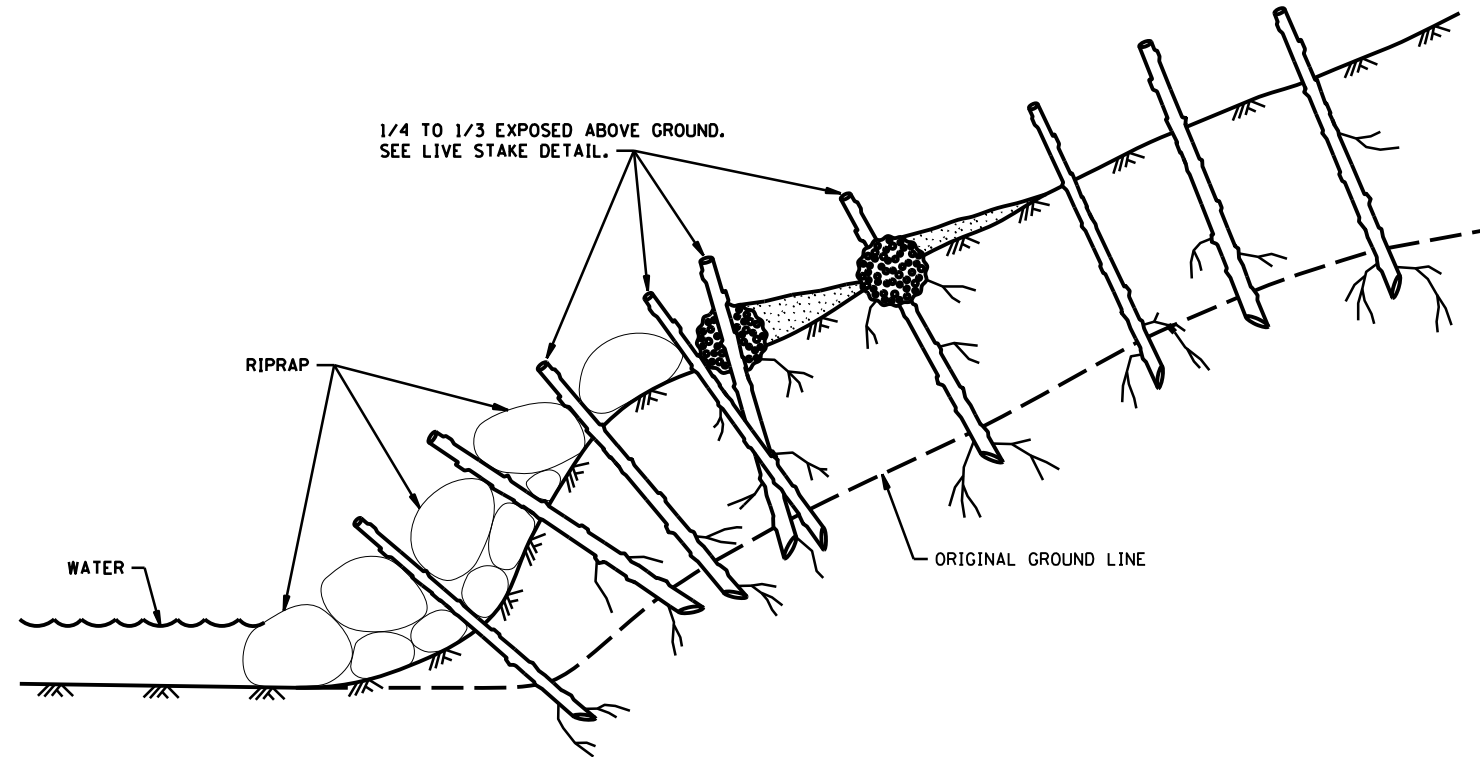
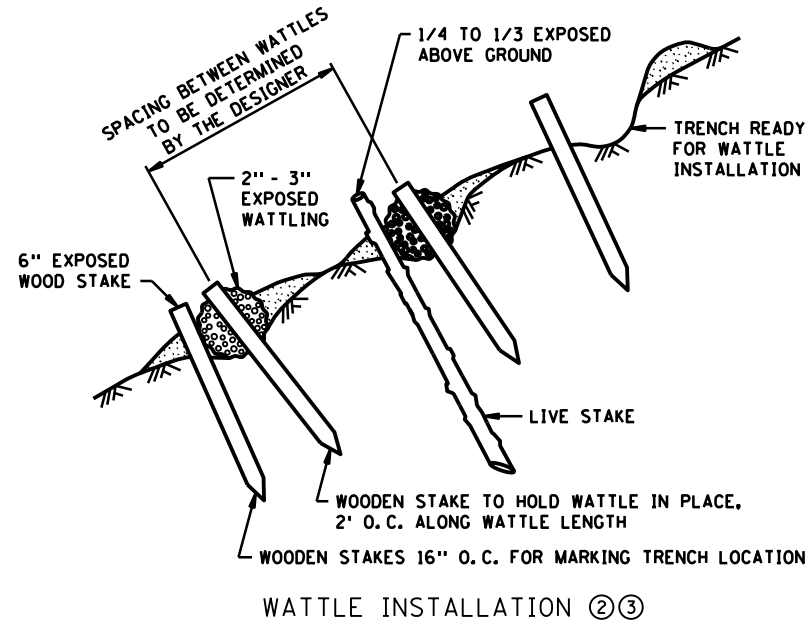
REVISION:
APPROVED: 8-6-2014 <i>[Signature]</i> CHIEF ENVIRONMENTAL OFFICER

	STANDARD PLAN 5-297.406	1 OF 1
	APPROVED: 8-6-2014 REVISOR: <i>[Signature]</i> STATE DESIGN ENGINEER	
STATE PROJ. NO.	S.P. 027-681-035, S.P. 110-020-040	

PERMANENT SEDIMENT CONTROL		
ALONG ROADWAYS AND AT GORE AREAS & BRIDGE APPROACH FILLS		
S.P. 027-681-035, S.P. 110-020-040		73 OF 244

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File Path: \\TEMP\proj\081_0922\Design\Plan\0922_Details and Standard Plans.dgn

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User Name: edqu001



NOTE:
SEE BRUSH LAYERING DETAIL FOR PLACEMENT.

NOTES:
SEE SPECS. 2577 & 3897.

- ① PLANT CUTTINGS SHOULD BE DORMENT, BEFORE LEAF-OUT OR AFTER LEAF DROP. TRANSPORT AND STORE LIVE STAKES & CUTTINGS IN WATER.
- ② TO PLACE LIVE STAKES IN RIPRAP, USE PRY BAR TO MAKE PILOT HOLE. NOT ALWAYS NECESSARY TO HAVE PILOT HOLE WHEN RIPRAP NOT PRESENT.
- ③ IN PLAN VIEW, THE BRUSH LAYERING AND WATTLE INSTALLATION WILL BE IN CONTINUOUS TRENCHES FOLLOWING A CONTOUR.

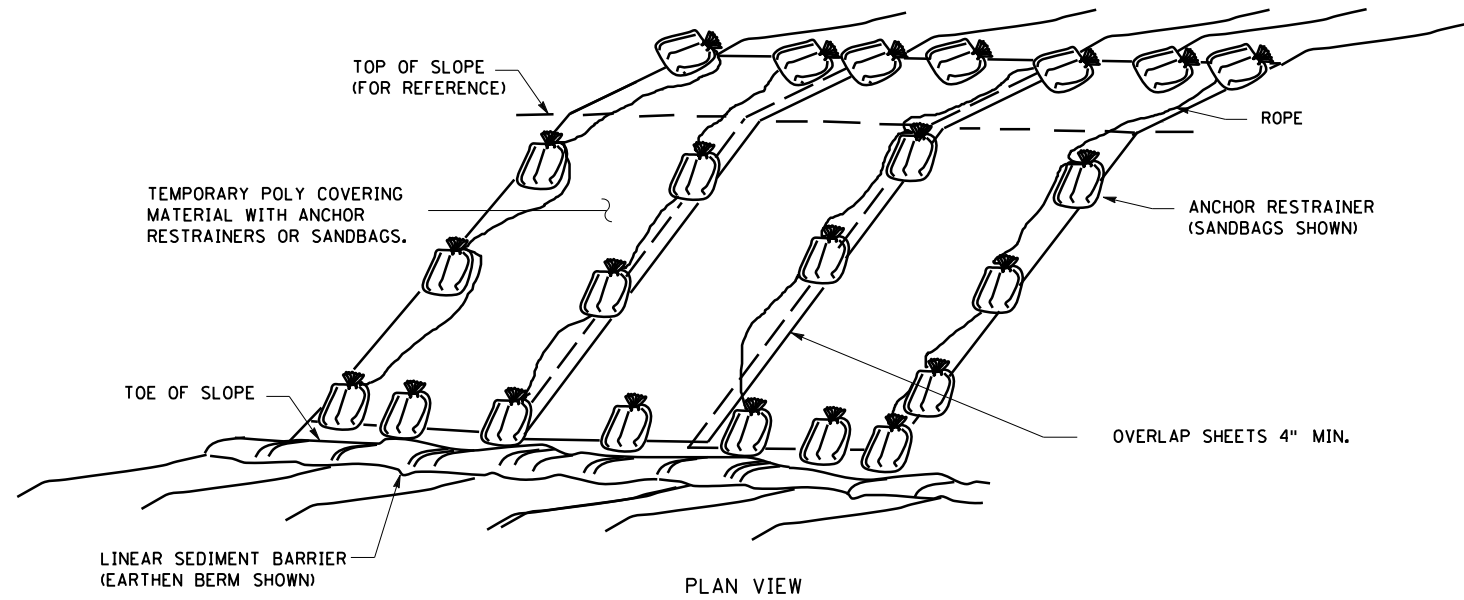
REVISION:
APPROVED: 8-6-2014
[Signature]
CHIEF ENVIRONMENTAL OFFICER

HENN. CO. PROJ. NO. 0922 CSAH 81

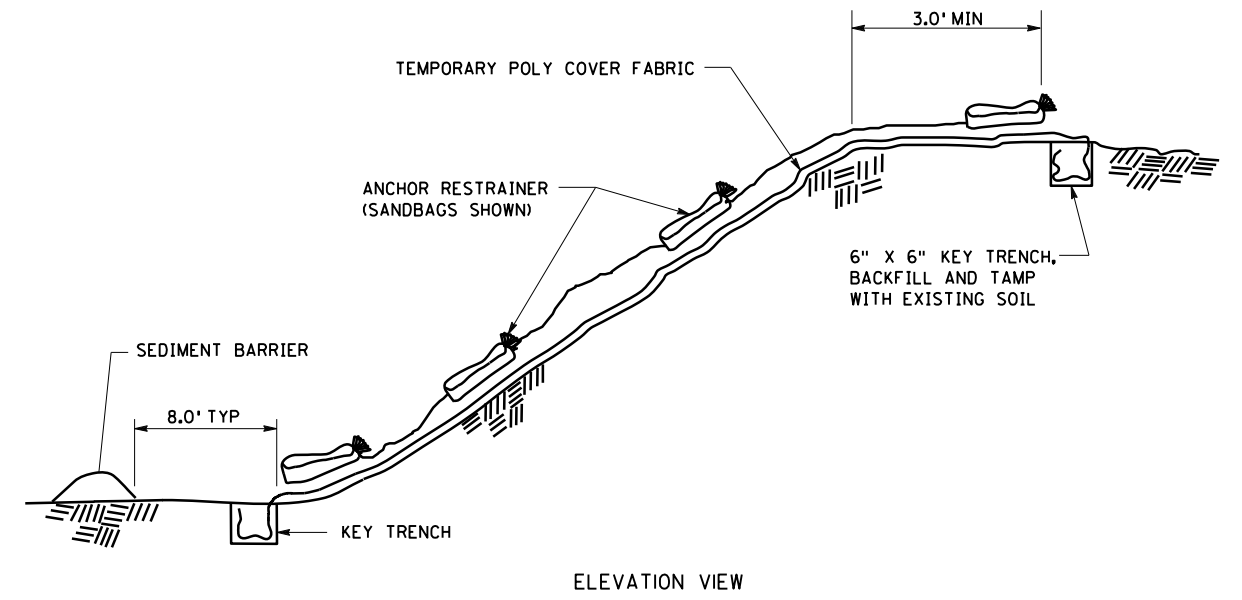
m MINNESOTA DEPARTMENT OF TRANSPORTATION	STANDARD PLAN 5-297.407	1 OF 1
	<i>[Signature]</i> STATE DESIGN ENGINEER	APPROVED: 8-6-2014 REVISED:
STATE PROJ. NO.		S.P. 027-681-035, S.P. 110-020-040

PERMANENT SEDIMENT CONTROL
BIOENGINEERING SOIL STABILIZATION

Date: 3/14/2019
File Path: \\TEMP\proj\081_0922\Design\Plan\0922_Details and Standard Plans.dgn

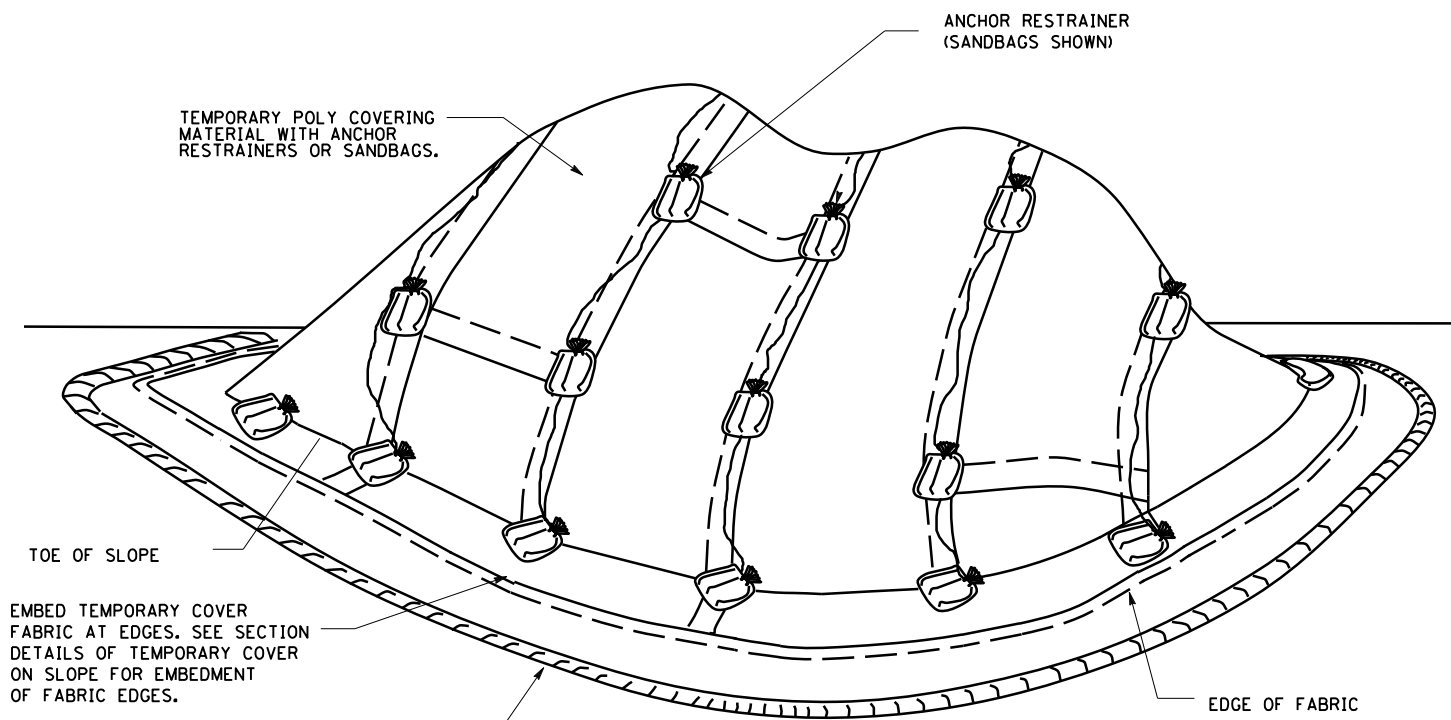


PLAN VIEW

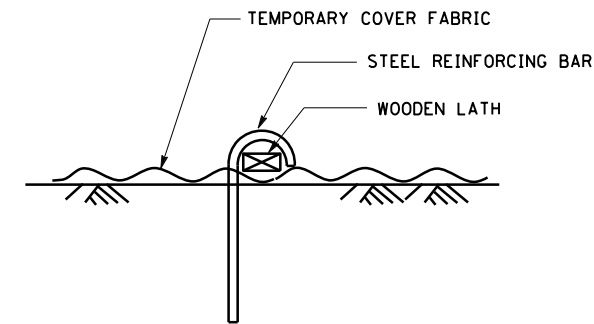


ELEVATION VIEW

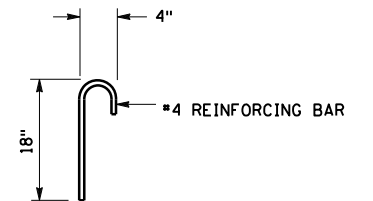
TEMPORARY POLY COVER ON SLOPE



TEMPORARY POLY COVER ON STOCKPILE



ANCHOR RESTRAINER
(STEEL BAR AND WOODEN LATH OPTION)



STEEL REINFORCING BAR DETAIL

NOTES:

ANCHOR RESTRAINERS: TYPE, QUANTITY, AND SPACING ARE INCIDENTAL TO POLY COVER. PROVIDE ON CORNERS AND SEAMS OF POLY COVER MATERIAL TO KEEP FROM BLOWING OFF. NO MINIMUM SPACING REQUIRED.

PERIMETER CONTROL: USE SEDIMENT CONTROL LOGS TYPE WOOD CHIP OR COMPOST, INCIDENTAL.

File Name: Sheet 21
User Name: edqu001

REVISION:
APPROVED: 2-28-2017
[Signature]
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HENN. CO. PROJ. NO. 0922 CSAH 81



STANDARD PLAN 5-297.409

1 OF 1

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STATE DESIGN ENGINEER

APPROVED: 2-28-2017
REVISED:

STATE PROJ. NO.

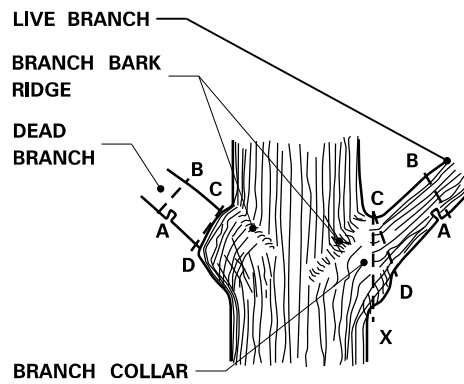
TEMPORARY EROSION CONTROL

TEMPORARY POLY COVERINGS

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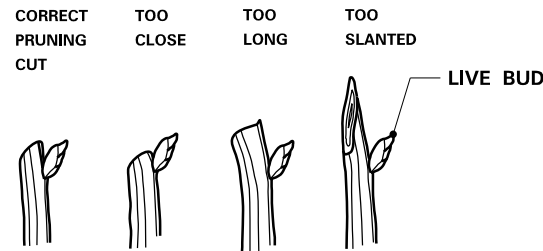
STEPS TO PRUNING WITH PRUNING SAW:

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.

BRANCHES PRUNED AT TRUNK (SHIGO METHOD)



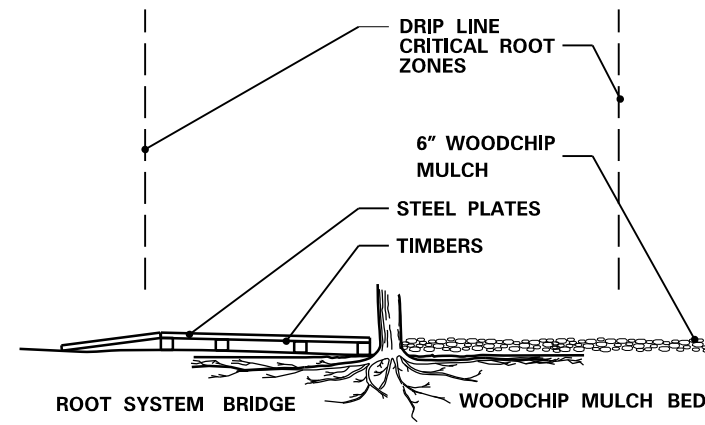
PRUNING NOTES:

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.

BRANCHES PRUNED TO LIVE BUD

PRUNING

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



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

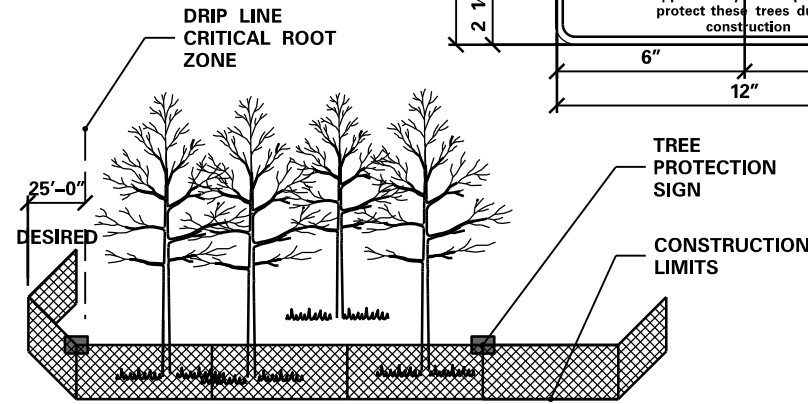
1. CONSTRUCT ROOT SYSTEM BRIDGES WITH STEEL PLATE SUPPORTED ON WOOD TIMBERS PLACED RADIALLY TO THE TREE TRUNK.
- OR
2. PLACE A 6 INCH LAYER OF WOODCHIP MULCH OVER A TYPE III GEOTEXTILE (MnDOT 3733).

OTHER VEGETATION PROTECTION MEASURES

(MnDOT 2572.3A.12)

TEMPORARY FENCE

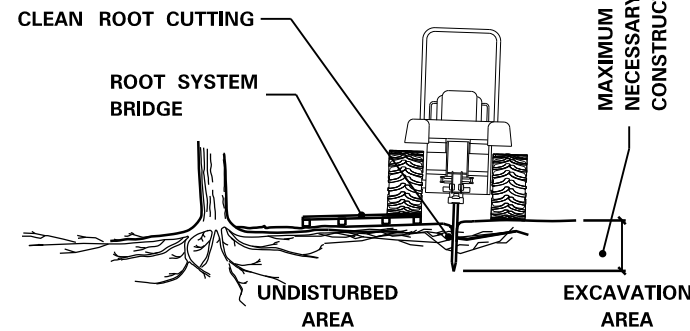
(MnDOT 2572.3A.1)



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.

CLEAN ROOT CUTTING

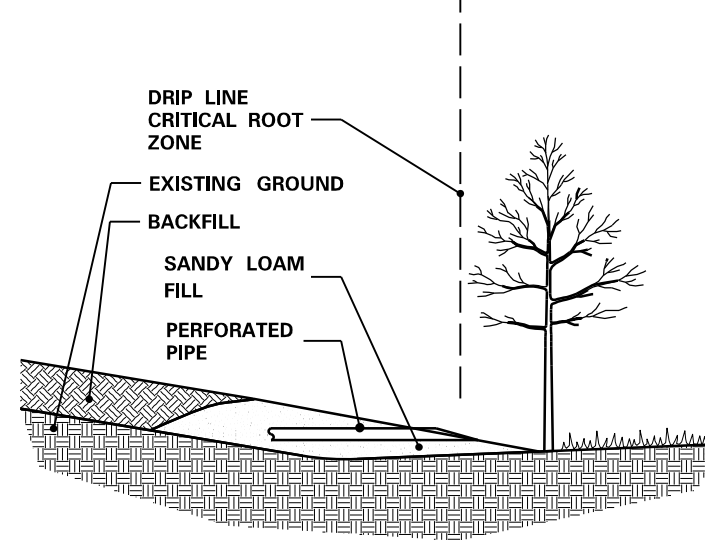
(MnDOT 2572.3A.2)



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.

ROOTING TOPSOIL BORROW

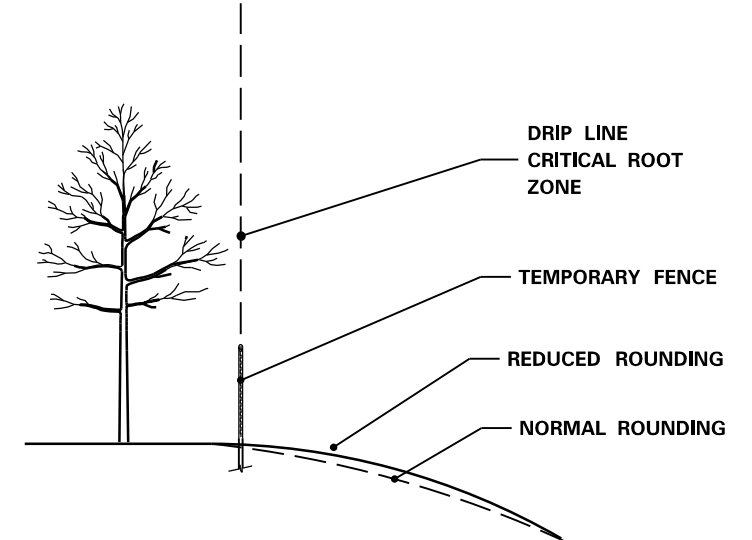
(MnDOT 2572.3A.4)



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.

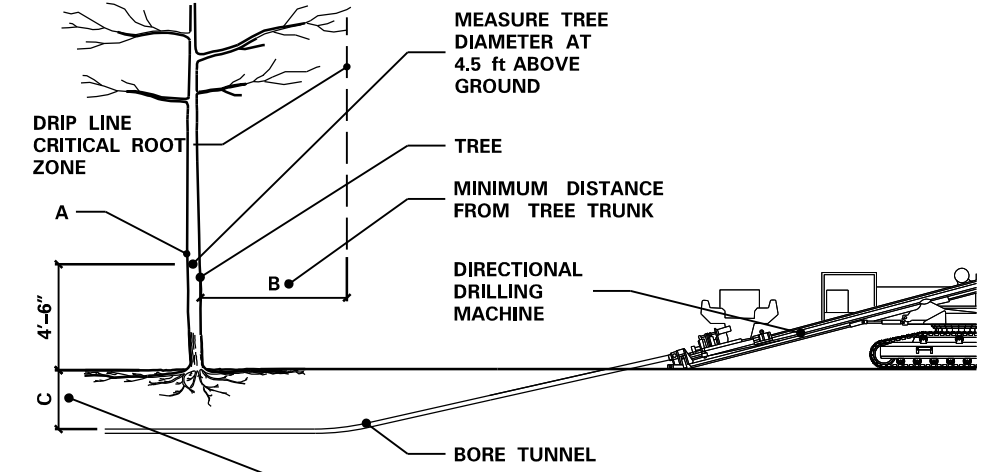
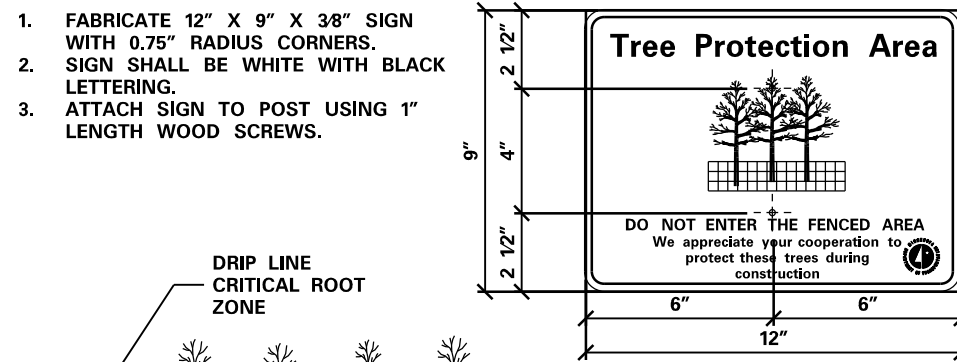
SLOPE ROUNDING

(MnDOT 2572.3A.5)



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.



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'

File Name: Sheet 22
User Name: edqu001

REVISION:
APPROVED: DECEMBER 11, 2015
[Signature]
CHIEF ENVIRONMENTAL OFFICER

HENN. CO. PROJ. NO. 0922 CSAH 81



STANDARD PLAN 5-297.302

1 OF 1

[Signature]
STATE DESIGN ENGINEER

APPROVED: 12-11-2015
REVISED:

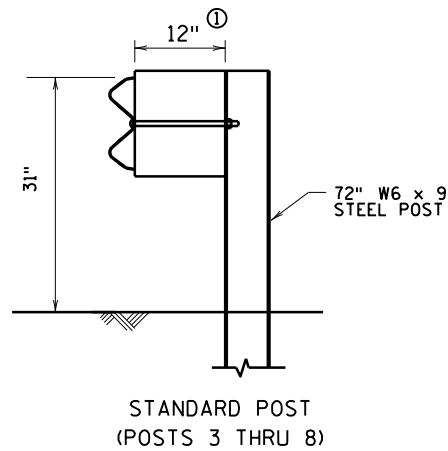
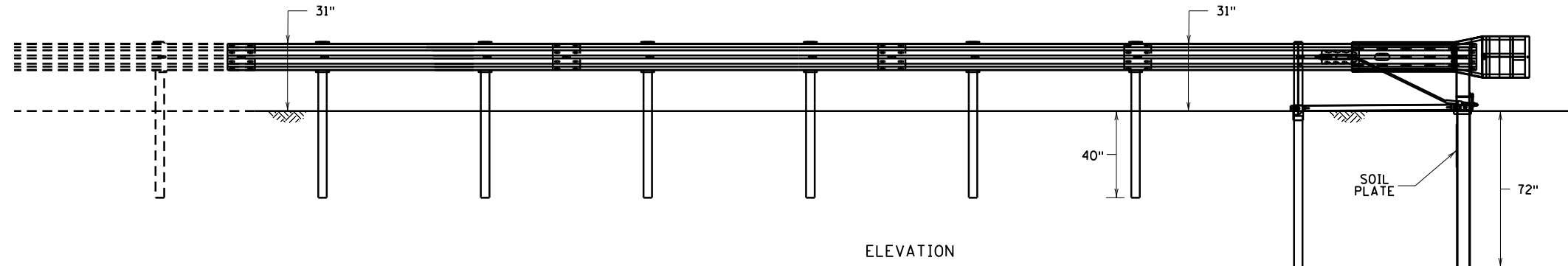
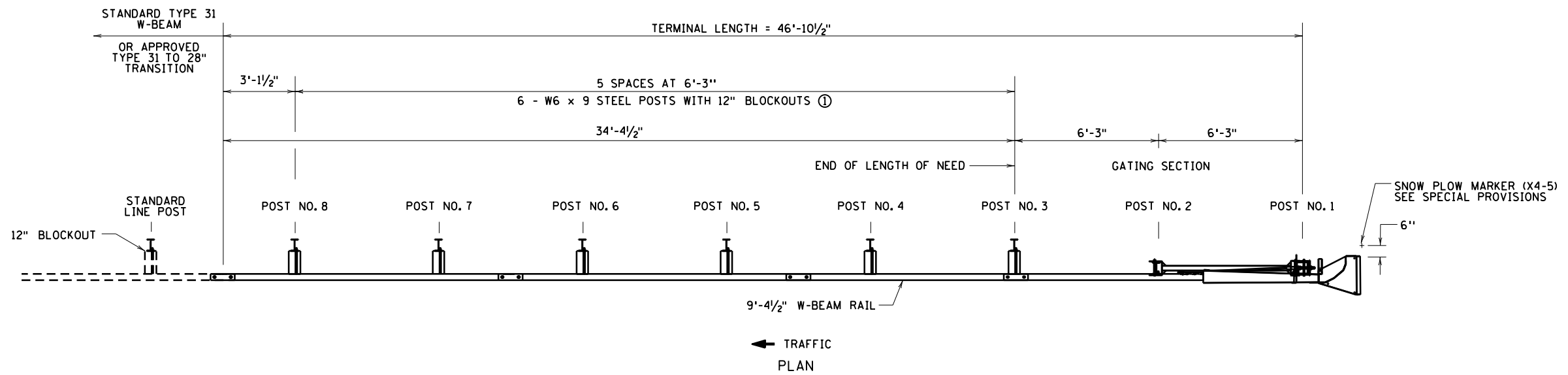
STATE PROJ. NO.

PROTECTION AND RESTORATION OF VEGETATION

S.P. 027-681-035, S.P. 110-020-040

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Date: 3/14/2019
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NOTES:

THIS IS A PROPRIETARY ITEM AS PER SPEC. 1703.

THESE DETAILS ARE FOR DESIGN GUIDANCE INFORMATION ONLY. CHECK WITH MANUFACTURER FOR CURRENT DETAILS AND INSTALLATION INSTRUCTIONS.

ALL TERMINAL RAIL MUST BE STRAIGHT, CURVED TERMINAL RAIL IS NOT ALLOWED.

ALL BOLTS, NUTS, CABLE ASSEMBLIES, CABLE ANCHORS AND BEARING PLATES SHALL BE GALVANIZED PER MNDOT SPEC. 3392.

SEE SPECIAL PROVISIONS FOR POST DELINEATORS AND OBJECT MARKERS.

CHECK WITH MANUFACTURER FOR SPECIFIC OFFSET REQUIREMENTS.

POSTS 1 AND 2 ARE PROPRIETARY HINGED POSTS.

THE RAIL IS DESIGNED TO EXIT THE IMPACT HEAD ON THE BACK SIDE OF THE TERMINAL.

① 8" BLOCKOUTS ACCEPTABLE.

HENN. CO. PROJ. NO. 0922 CSAH 81

REFERENCE DATE
 9-11-2018

W-BEAM GUARDRAIL END TERMINAL
 MSKT - STANDARD POST MGS
 (ROAD SYSTEMS INC.)

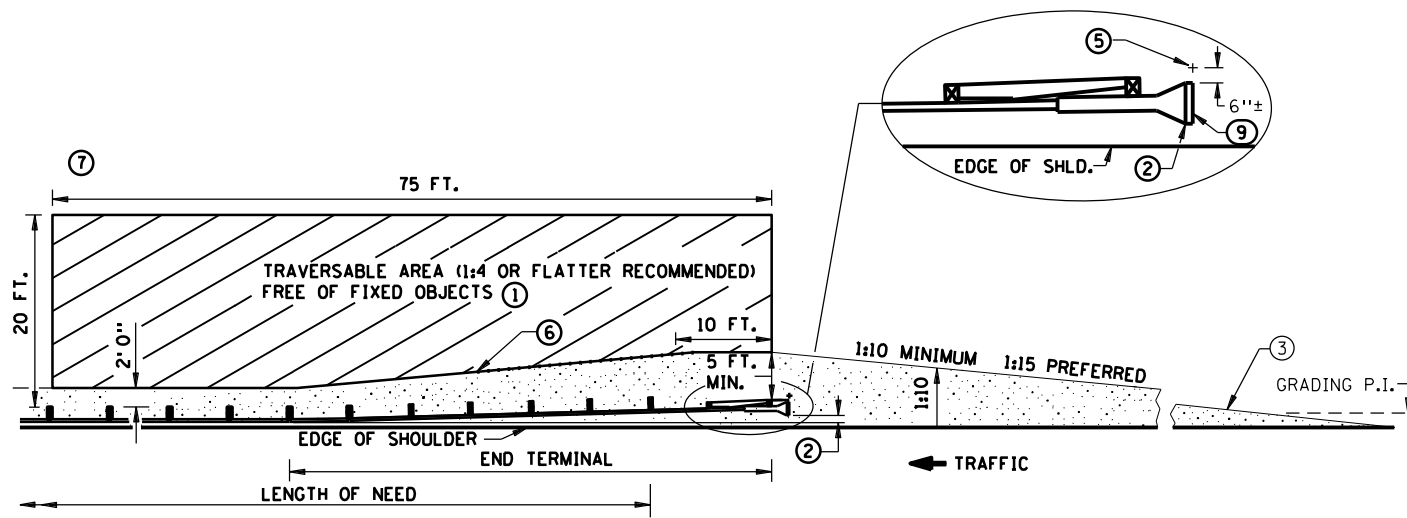
STATE PROJ. NO. S.P. 027-681-035, S.P. 110-020-040

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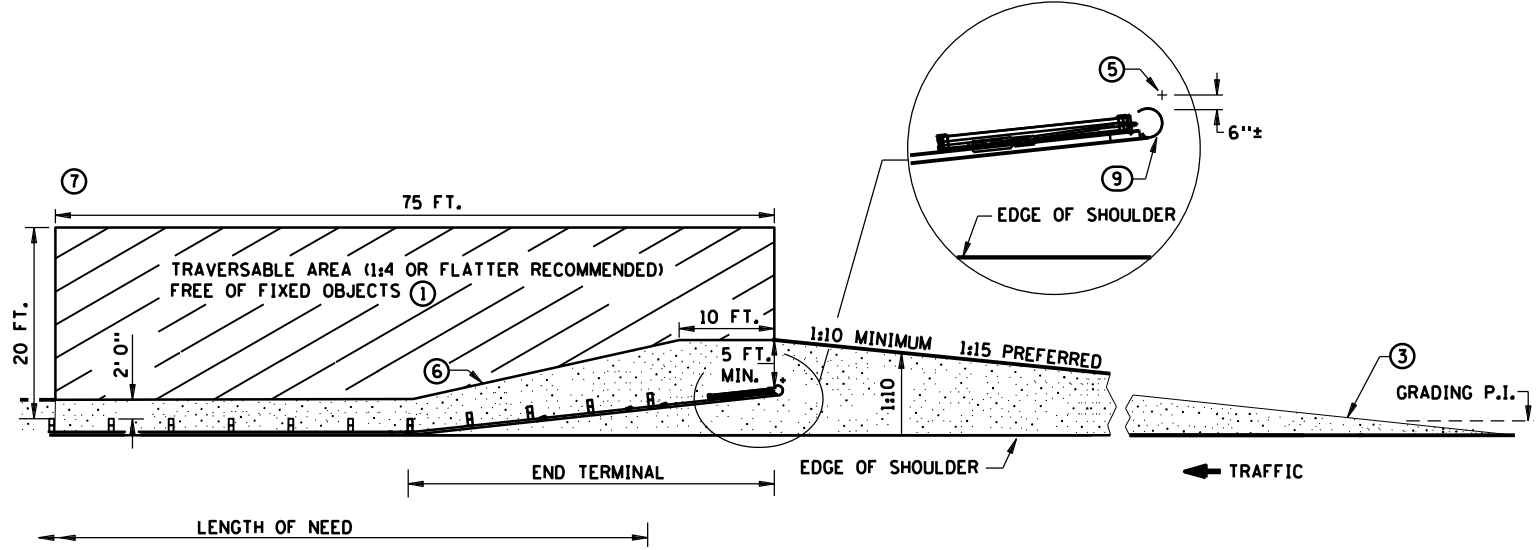
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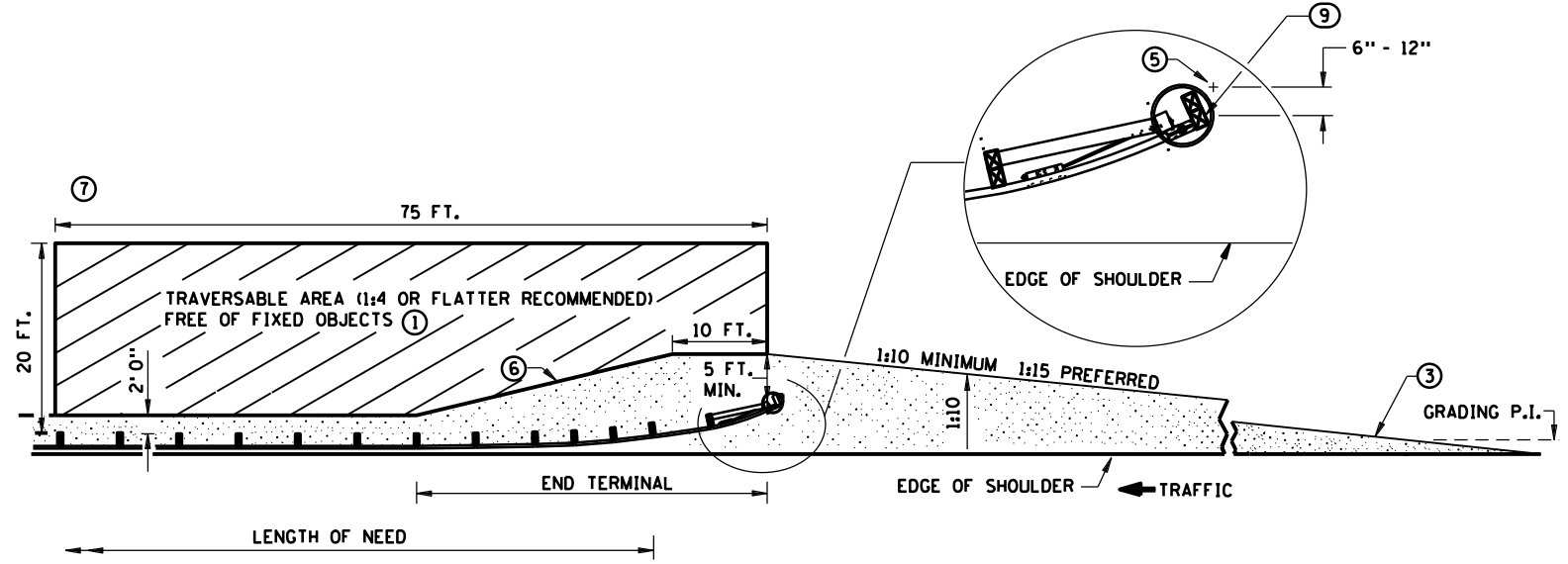
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PLAN VIEW
 (PROPRIETARY TANGENT TERMINAL SHOWN AS EXAMPLE)



PLAN VIEW ⑧
 (PROPRIETARY FLARED TERMINAL SHOWN AS EXAMPLE)



PLAN VIEW ④ ⑧
 (ELT)

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

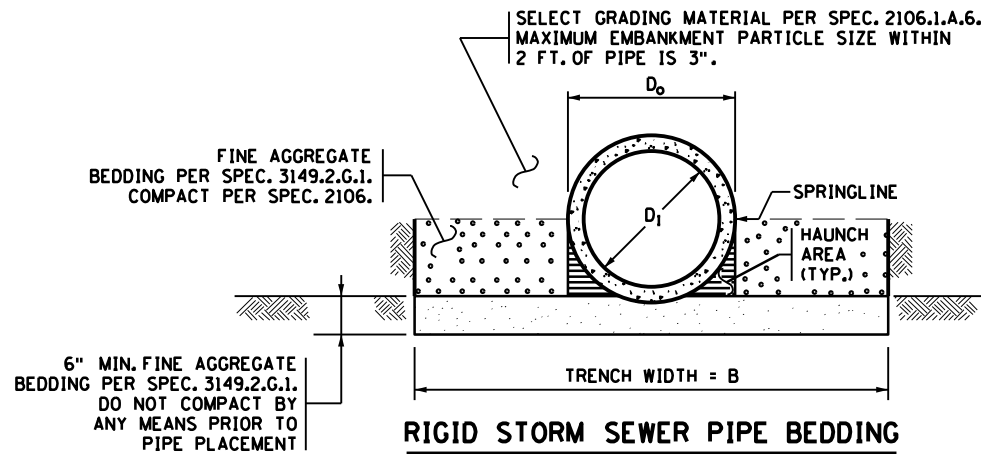
- ④ SEE STANDARD PLATE 8329.
- ⑤ SNOWPLOW MARKER (X4-5) WITH A 2 LB./FT. DELINEATOR POST 8 FT. LONG (SPEC. 340) DRIVEN INTO THE GROUND, EXTEND 3 FT. ABOVE TERMINAL. THE MARKER IS INCIDENTAL FOR WHICH NO DIRECT PAYMENT WILL BE MADE. MARK BOTH THE BEGINNING AND END OF PLATE BEAM GUARDRAIL INSTALLATION.
- ⑥ 1:10 OR FLATTER SLOPE P.I.
- ⑦ GRADUALLY BLEND SLOPE FROM TRAVERSABLE AREA TO STEEP EXISTING SLOPE (WHEN SLOPE IS STEEPER THAN 1:6).
- ⑧ IF THE TERRAIN BEYOND THE TERMINAL END AND IMMEDIATELY BEHIND THE BARRIER IS NOT SAFELY TRAVERSABLE, A TANGENT (ENERGY- ABSORBING) TERMINAL SHALL BE USED.
- ⑨ MARK THE APPROACH END OF PLATE BEAM GUARDRAIL INSTALLATIONS WITH A STRIPED OBJECT MARKER SIZED TO FIT THE END TERMINAL, HAVING ALTERNATING BLACK AND REFLECTIVE YELLOW (WIDE ANGLE PRISMATIC RETROREFLECTIVE SHEETING). STRIPES SHALL SLOPE DOWNWARD AT A 45 DEGREE ANGLE TOWARD THE SIDE ON WHICH TRAFFIC PASSES. FOR FLAT END TREATMENTS THE OBJECT MARKER SHALL FIT INSIDE THE RECESSED AREA. FOR ROUNDED END TREATMENTS THE OBJECT MARKER SHALL WRAP AROUND THE CIRCULAR END AND BE MOUNTED SO THE TOP OF THE OBJECT MARKER LINES UP WITH THE TOP OF THE END TREATMENT.

04/22/19 GUARDRAIL SHEET ADDED

HENN. CO. PROJ. NO. 0922 CSAH 81

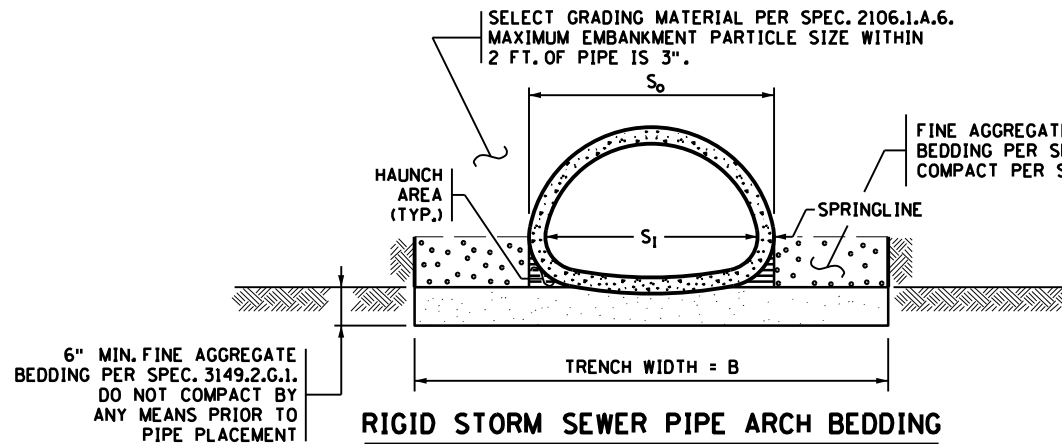
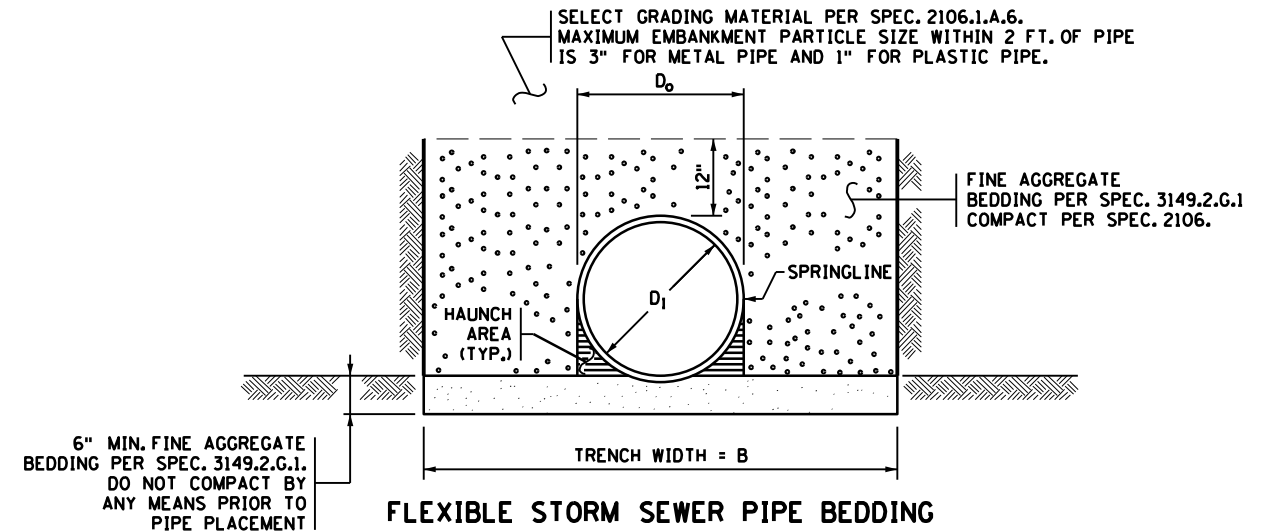
	STANDARD PLAN 5-297.601	3 OF 3	GUARDRAIL INSTALLATIONS AT MEDIANS AND END TREATMENTS (FOR NEW CONSTRUCTION AND RETROFITS WITHOUT SITE RESTRICTIONS)
	APPROVED: 5-27-2014 REVISED:	STATE PROJ. NO.	

Date: 4/25/2019
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TRENCH BASE WIDTH ①②	
PIPE DIA. D_1 OR S_1	TRENCH WIDTH B
< 42"	$D_0 + 24"$
42" TO 54"	$1.5 \times D_0$
> 54"	$D_0 + 36"$

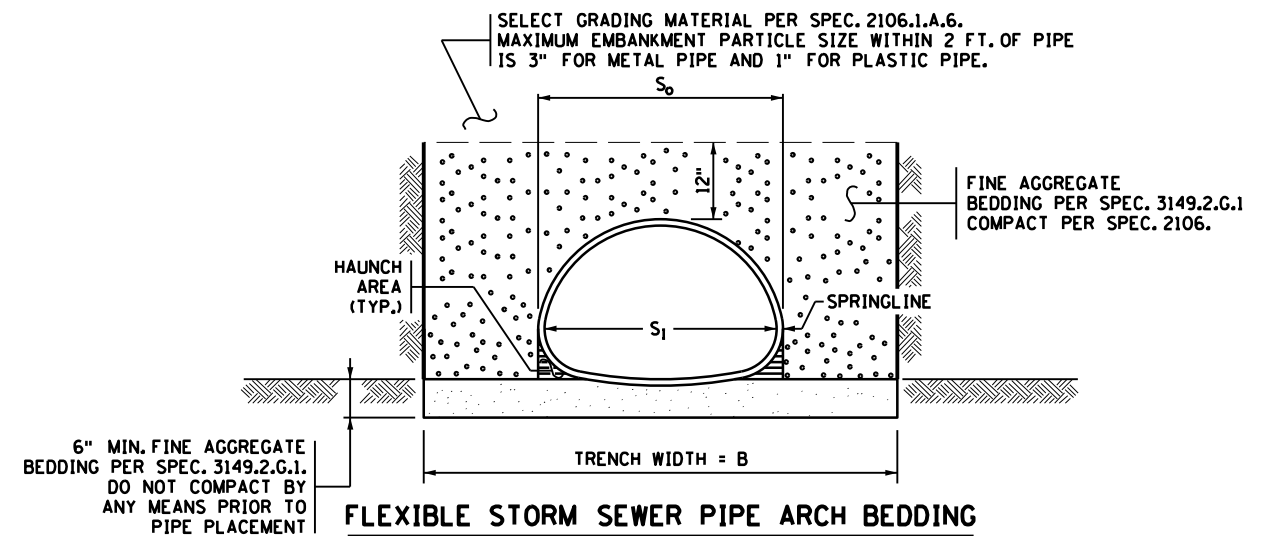
PLASTIC PIPE WITH H > 10 FT. ①②	
PIPE DIA.	TRENCH WIDTH (FEET)
12"	5'-2"
15"	5'-6"
18"	5'-9"
24"	6'-6"
30"	8'-0"
36"	9'-6"
42"	11'-0"
48"	12'-6"



△ 04/25/19 SHEET ADDED

-LEGEND-

- D_1 = INSIDE DIAMETER OF ROUND PIPE (INCHES).
- D_0 = OUTSIDE DIAMETER OF ROUND PIPE (INCHES).
- S_1 = INSIDE SPAN OF PIPE-ARCH (INCHES).
- S_0 = OUTSIDE SPAN OF PIPE-ARCH (INCHES).
- H = FILL COVER HEIGHT OVER PIPE (FEET).
- = UNDISTURBED SOIL
- = COMPACTED BEDDING
- = LOOSE BEDDING, COMPACTED AFTER PIPE PLACEMENT



CONSTRUCTION SEQUENCE

1. LOOSELY PLACE 6" OF FINE AGGREGATE BEDDING MATERIAL TO GRADE. DO NOT COMPACT PRIOR TO PIPE PLACEMENT.
2. FOR PIPES WITH BELL, REMOVE MATERIAL IN BELL AREA PRIOR TO PLACEMENT.
3. FURNISH AND INSTALL PIPE TO GRADE.
4. AFTER PLACEMENT OF THE PIPE, PLACE ADDITIONAL FINE AGGREGATE BEDDING AND COMPACT THE FULL LENGTH ON BOTH SIDES OF THE PIPE UNDERNEATH THE HAUNCH AREA BY FIRST SHOVEL SLICING (MANUALLY SHOVE THE BLADE END OF SHOVEL AT AN ANGLE DOWN THE ENTIRE LENGTH OF HAUNCH UNDER THE PIPE), THEN COMPACT THE HAUNCH AT AN ANGLE USING A POWERED MECHANICAL OR PNEUMATIC DEVICE (I.E. POLE TAMPER, JUMPING JACK, OR SIMILAR).
5. COMPACT THE REMAINING MATERIAL OUTSIDE THE HAUNCH AREA TO THE REQUIREMENTS OF SPEC. 2106 ENSURING THAT THE ENTIRE LENGTH OF PIPE IS SUPPORTED UNIFORMLY BY BEDDING.
6. PLACE AND COMPACT BACKFILL EVENLY AND SIMULTANEOUSLY IN 6" LIFTS ON EACH SIDE OF THE PIPE UP TO THE SPRINGLINE FOR RIGID PIPE AND 12" ABOVE THE TOP OF THE PIPE FOR FLEXIBLE PIPE WHEN COMPACTED.
7. COMPLETE REMAINING BACKFILL.

NOTES

- EXCAVATE & CONSTRUCT ALL TRENCHES AND SLOPES PER OSHA REQUIREMENTS.
- PIPE SIZE IS BASED ON THE NOMINAL INSIDE DIAMETER OR SPAN.
- PROTECT ALL PIPE DURING CONSTRUCTION PER SPEC. 2503.
- WHEN RIPRAP IS REQUIRED AT THE APRON END, SEE STANDARD PLATE OR PLAN FOR RIPRAP INSTALLATION AND QUANTITIES. FOR APRONS WITHOUT RIPRAP PLACE 6" MIN. FINE AGGREGATE BEDDING UNDER APRONS. USE A TRENCH WIDTH EQUAL TO THE PIPE TRENCH WIDTH.
- FINE AGGREGATE BEDDING INCLUDING THE COST OF EXCAVATION, PLACEMENT AND COMPACTION IS INCLUDED IN THE CONTRACT UNIT PRICE OF THE RELEVANT STORM SEWER PAY ITEM.
- EXCAVATION AND BACKFILL WITH SELECT GRADING MATERIAL ARE NOT TABULATED SEPARATELY BUT ARE INCLUDED IN THE CONTRACT UNIT PRICE OF THE RELEVANT STORM SEWER PAY ITEM.
- RIGID PIPE INCLUDES CONCRETE. FLEXIBLE PIPE INCLUDES METAL, AND PLASTIC MATERIALS SUCH AS CORRUGATED POLYPROPYLENE (PP), CORRUGATED POLYETHYLENE (CP) AND POLYVINYL CHLORIDE (PVC).
- ① MODIFY TRENCH WIDTH & SLOPE AS NECESSARY TO COMPLY WITH OSHA REQUIREMENTS.
- ② USE PLASTIC PIPE TABLE FOR TRENCH WIDTHS WHEN FILL HEIGHT IS GREATER THAN 10 FT.

File Name: Sheet_31
User Name: pwx005

REVISION:
APPROVED JANUARY 18, 2019
Kevin Weston
STATE BRIDGE ENGINEER

HENN. CO. PROJ. NO. 0922 CSAH 81



STANDARD PLAN 5-297.442

1 OF 1

Rom Sika
STATE DESIGN ENGINEER

APPROVED: 01-18-2019
REVISED:

STATE PROJ. NO.

**STANDARD STORM SEWER BEDDING
FOR RIGID AND FLEXIBLE PIPE**

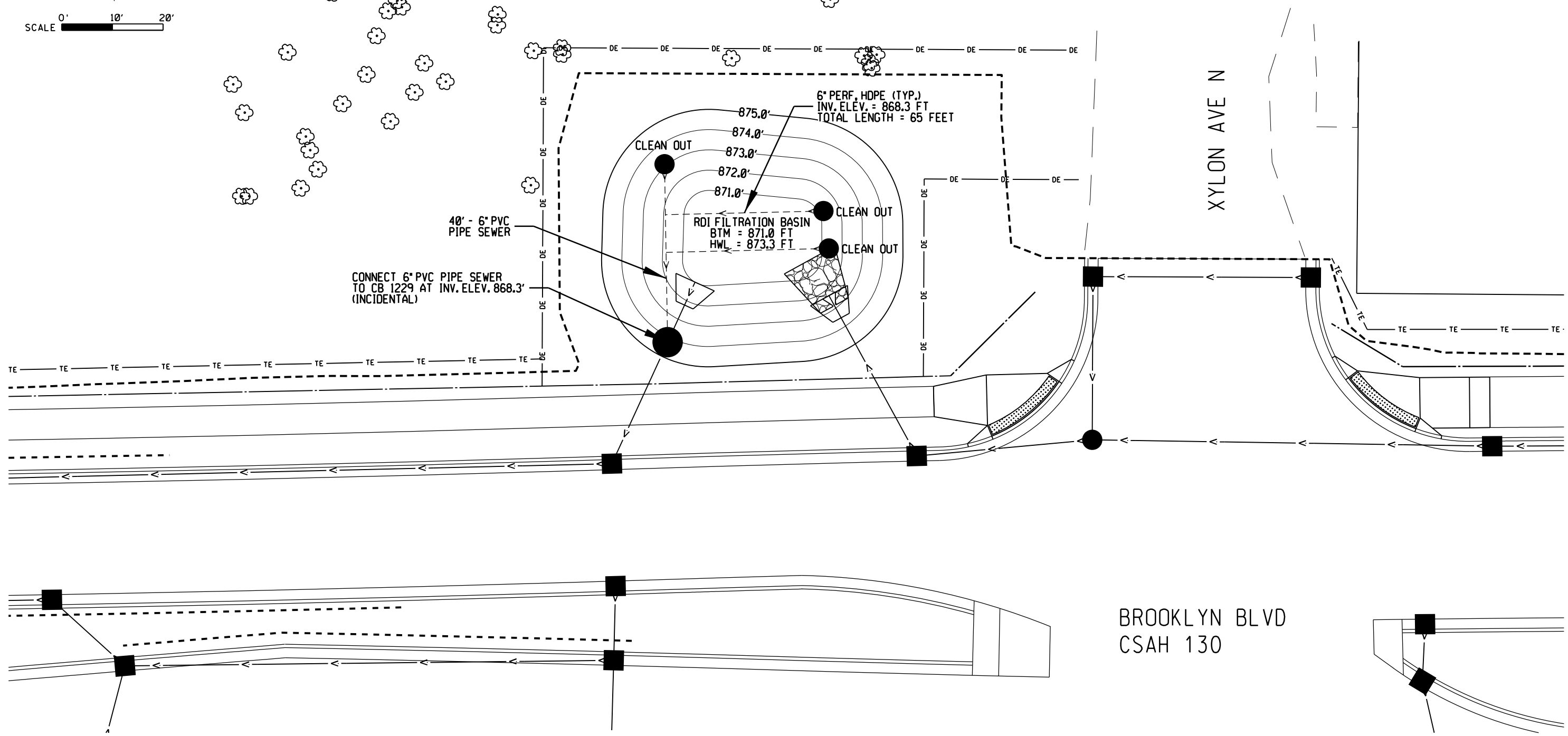
S.P. 027-681-035, S.P. 110-020-040

77A OF 244

RAIN DROP POND



SCALE 0' 10' 20'



XYLON AVE N

BROOKLYN BLVD
CSAH 130



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.

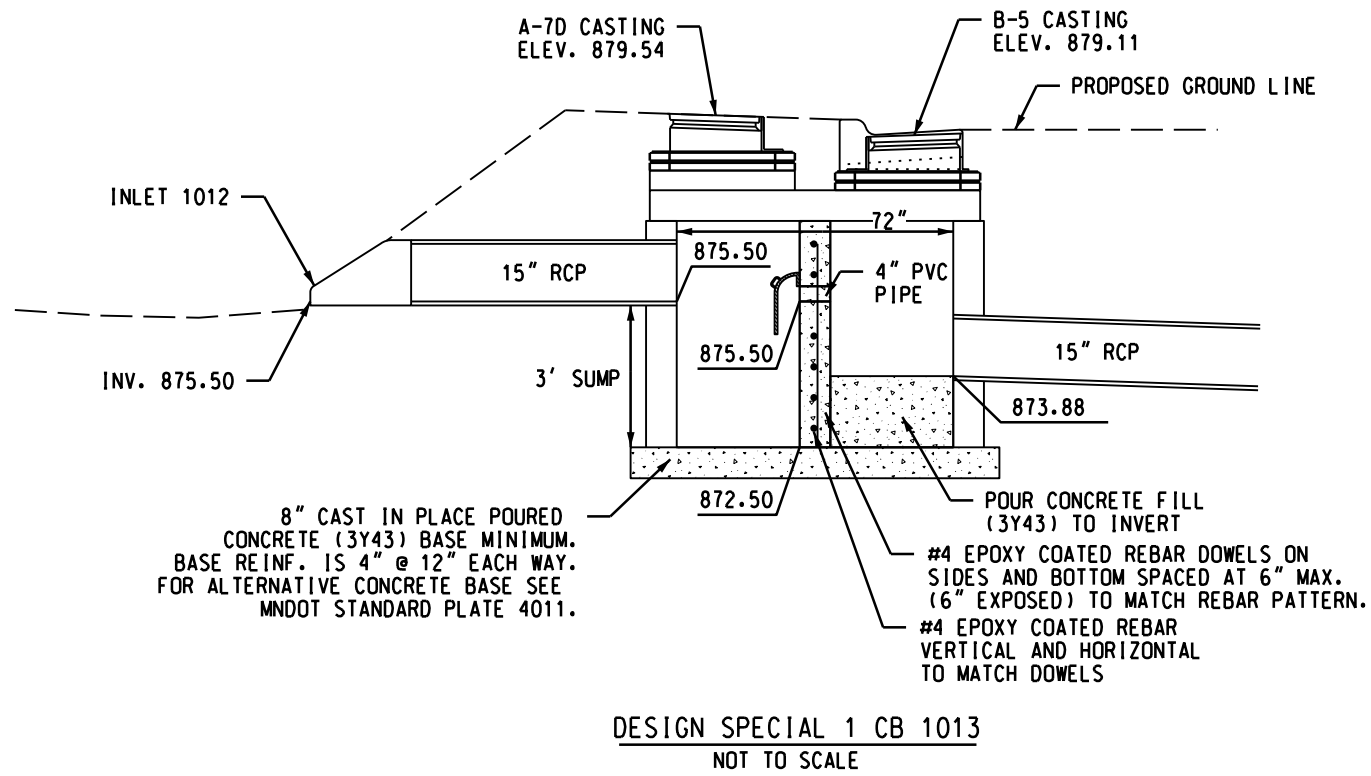
Kelly Agosto
 KELLY AGOSTO, LICENSED PROFESSIONAL ENGINEER
 49075 LICENSE NO. 3/15/19 DATE

DESIGN BY: L. LANGNER
 CAD BY: E. GUIR
 CHECKED BY: R. DECOTEAU
 LAST REVISION: / /

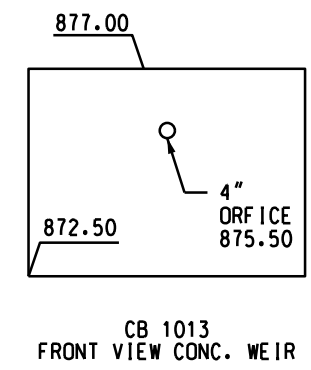
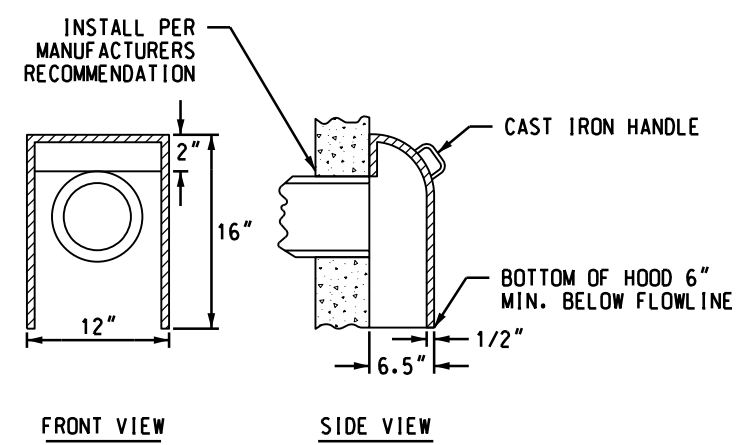
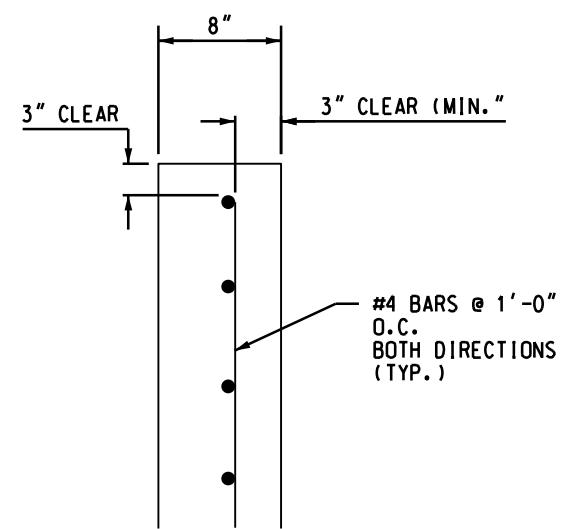
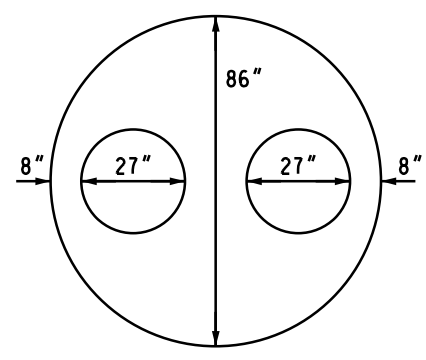
DETAILS AND STANDARD PLANS

C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
 S.P. 027-681-035, S.P. 110-020-040

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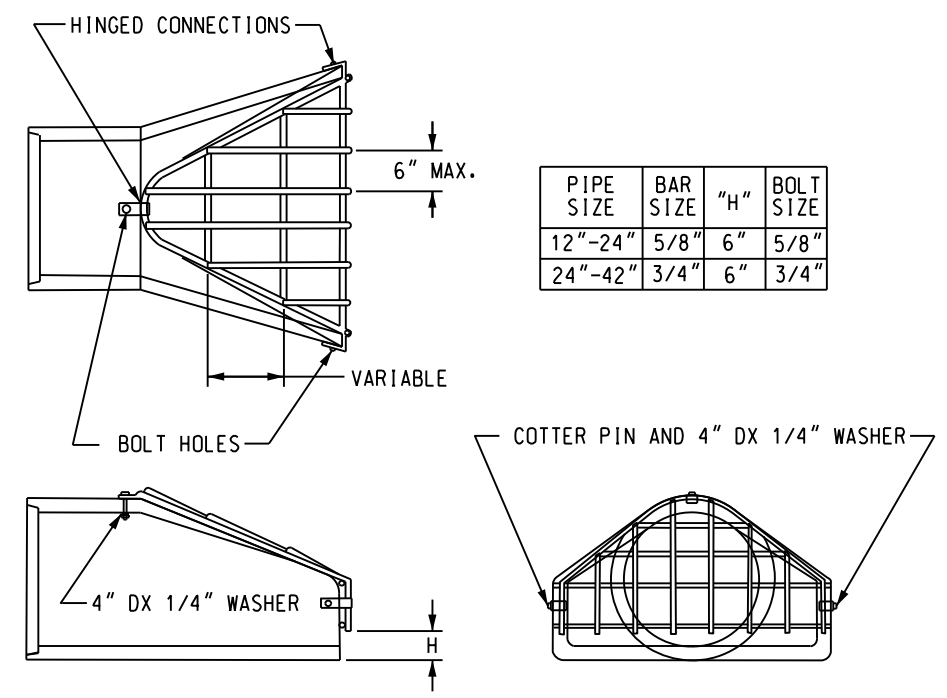


CB 1013 NOTES
PAY FOR AS CONSTRUCT DRAINAGE STRUCTURE DESIGN SPECIAL 1



STANDARD TRASH GUARD

INLET & OUTLET



SPECIFIC NOTES

- CONSTRUCT WEIR FROM 3Y-43 CONCRETE AND IN ACCORDANCE WITH MNDOT 2411. PROVIDE EPOXY COATED METAL REINFORCEMENT AND DOWEL BARS IN ACCORDANCE WITH MNDOT 2472, 3301, AND 3302.
 - CONSTRUCT DRAINAGE STRUCTURE AS SHOWN ON THE PLANS. PAYMENT SHALL BE MADE AT THE UNIT BID PRICE FOR EACH DRAINAGE STRUCTURE DESIGN SPECIAL 1 CONSTRUCTED, REGARDLESS OF STRUCTURE SIZE OR DEPTH. PAYMENT SHALL BE CONSIDERED COMPENSATION IN FULL FOR ALL COST RELATING TO THE INSTALLATION OF EACH DRAINAGE STRUCTURE DESIGN SPECIAL 1, INCLUDING THE PRECAST STRUCTURE, WEIR, GRATE & FRAME CASTINGS, CATCH BASIN HOOD TRAP, STRUCTURE COVER, EQUIPMENT, AND LABOR. DESIGN SPECIAL 1 APPROXIMATE PAY HEIGHT IS 6.5 LIN FT.
 - STRUCTURE LOCATION (1 NB 1308+05.0, 25.0' RT) IS TO CENTER OF THE B-5 CASTING. B-5 CASTING MUST BE LOCATED ON THE OUTLET SIDE OF THE WEIR.
- PAY FOR AS CONSTRUCT DRAINAGE STRUCTURE DESIGN SPECIAL 1



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.

Kelly Agosto
KELLY AGOSTO, LICENSED PROFESSIONAL ENGINEER

49075 3/15/19
LICENSE NO. DATE

DESIGN BY: L. LANGNER
CAD BY: E. GUIR
CHECKED BY: R. DECOTEAU
LAST REVISION: / /

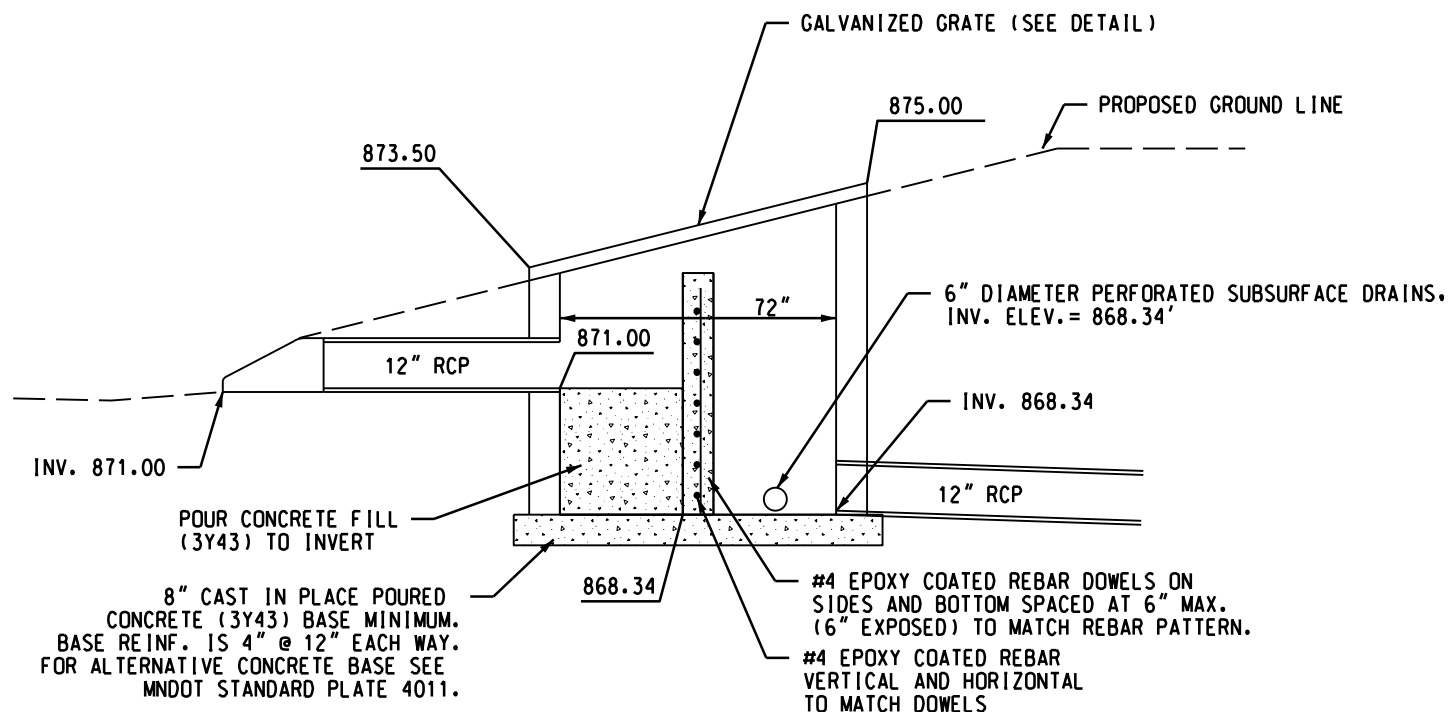
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S.P. 027-681-035, S.P. 110-020-040

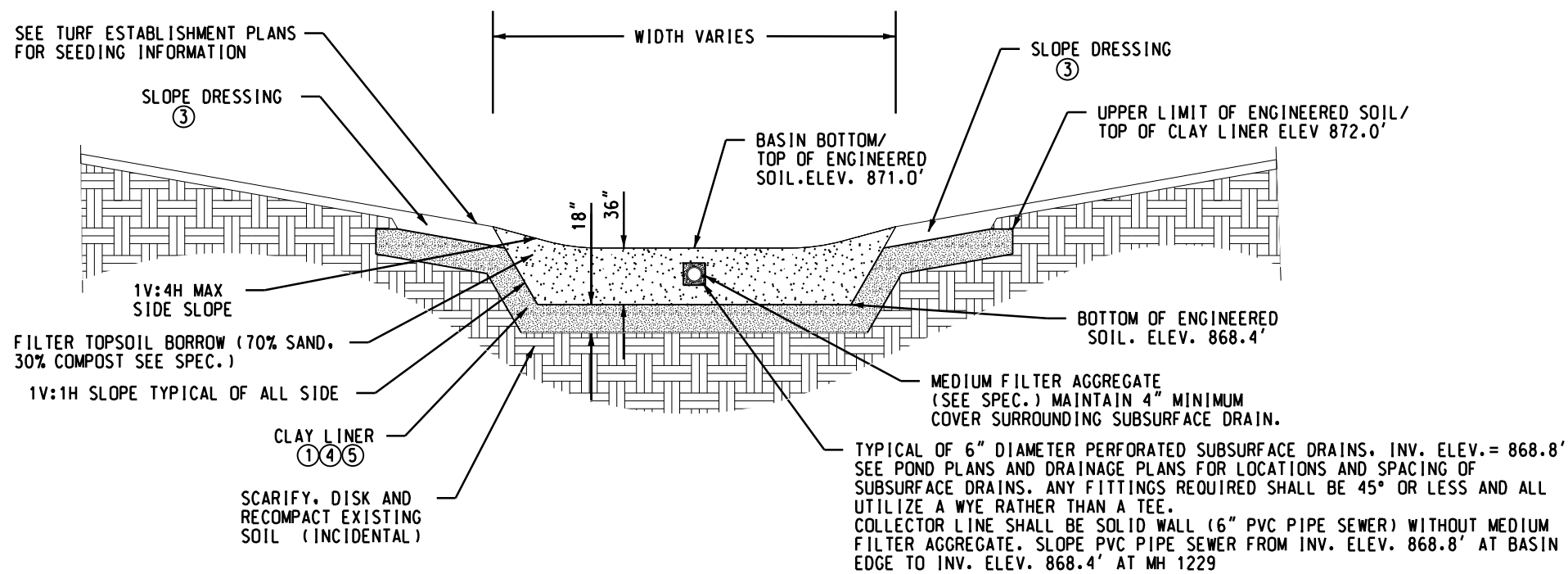
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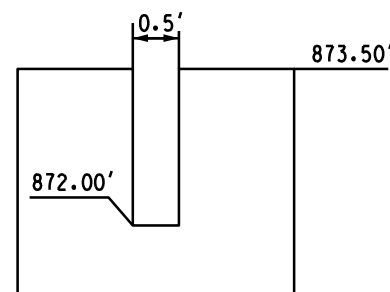
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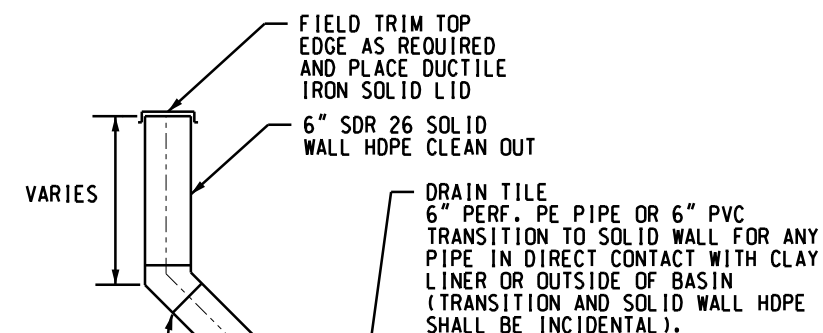
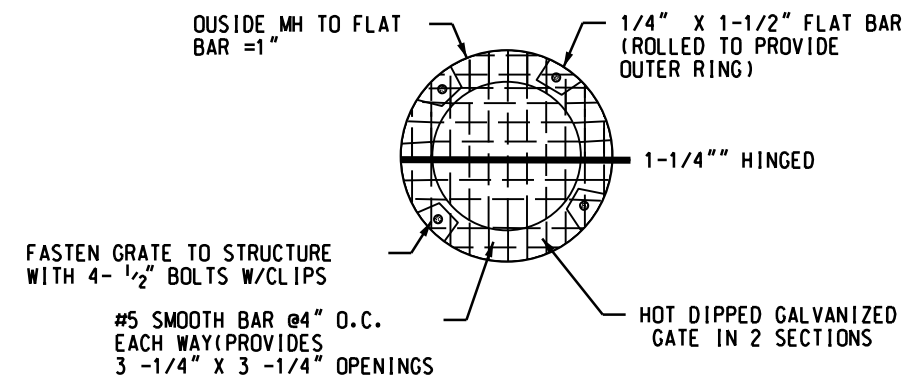
RAINDROP FILTRATION BASIN TYPICAL SECTION ⑥
NOT TO SCALE



MH 1229
FRONT VIEW CONC. WEIR
NOT TO SCALE



GALVANIZED GRATE (SPLIT)
NOT TO SCALE



DRAIN TILE CLEAN OUT ⑦
NOT TO SCALE

NOTES

- ① MAINTAIN MINIMUM 18 INCH THICKNESS OF CLAY FOR POND /BASIN LINER. PAID FOR AS 2015 COMMON BORROW SPECIAL SPECIAL (CV). SEE SPECIAL PROVISIONS.
- ③ SLOPE DRESSING THICKNESS SHALL BE 12 INCHES WHEN PLACED OVER CLAY LINER AND 6" WHEN PLACED IN ADJACENT AREAS UNLESS NOTED OTHERWISE.
- ④ LINER SHALL BE CONSTRUCTED IN A CONTINUOUS OPERATION WITH NO JOINTS, INCLUDING THE AREA UNDER A PIPE APRONS.
- ⑤ AT APRON ENDS WHERE RIPRAP IS REQUIRED WITHIN A LINER AREA. GRANULAR FILTER/RIPRAP UNDER APRON MAY BE OMITTED. 18 INCH MINIMUM THICKNESS OF CLAY MUST BE MAINTAINED UNDER/ AROUND APRONS UP TO THE ELEVATION INDICATED.
- ⑥ AFTER FILTRATION AREA IS GRADED, PREVENT SEDIMENT LADEN RUNOFF FROM ENTERING (SEE SPECIFICATIONS).
- ⑦ CLEAN OUT (INCLUDING ALL ITEMS IN DETAIL OTHER THAN HORIZONTAL PIPE) SHALL BE INCIDENTAL.



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.

Kelly Agosto
KELLY AGOSTO, LICENSED PROFESSIONAL ENGINEER

49075 3/15/19
LICENSE NO. DATE

DESIGN BY: L. LANGNER
CAD BY: E. GUIR
CHECKED BY: R. DECOTEAU
LAST REVISION: / /

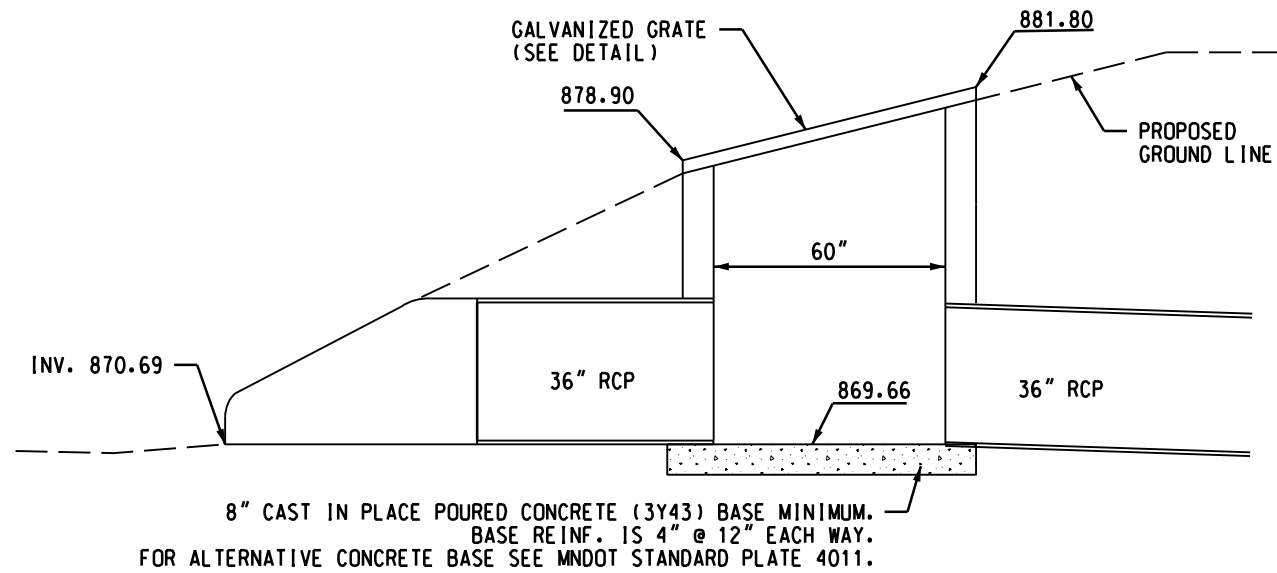
DETAILS AND STANDARD PLANS

C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
S.P. 027-681-035, S.P. 110-020-040

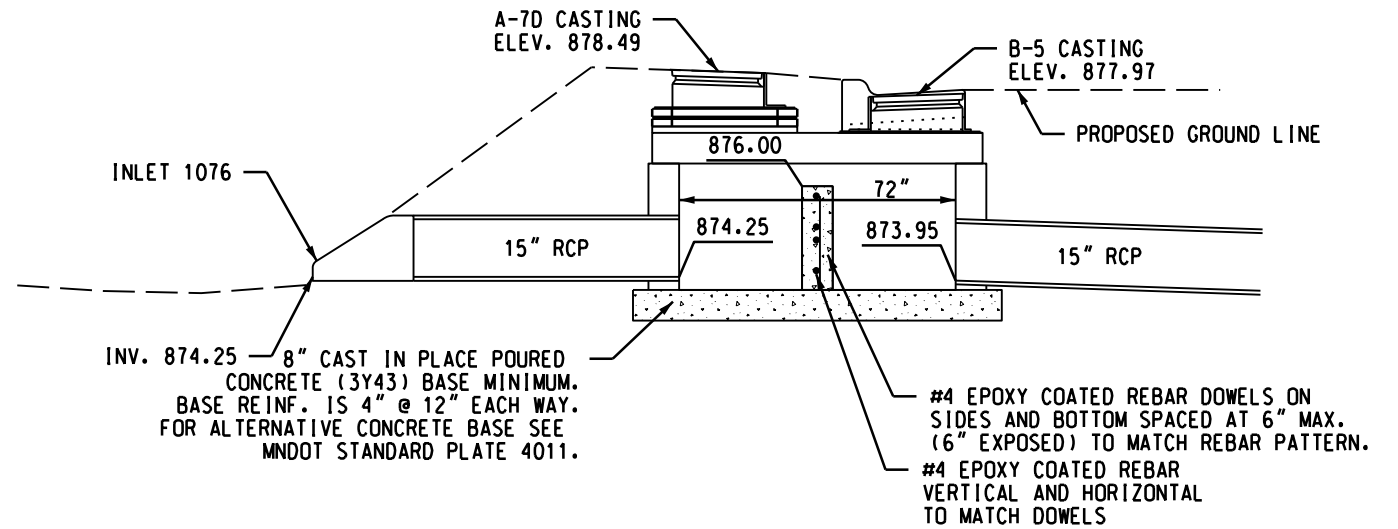
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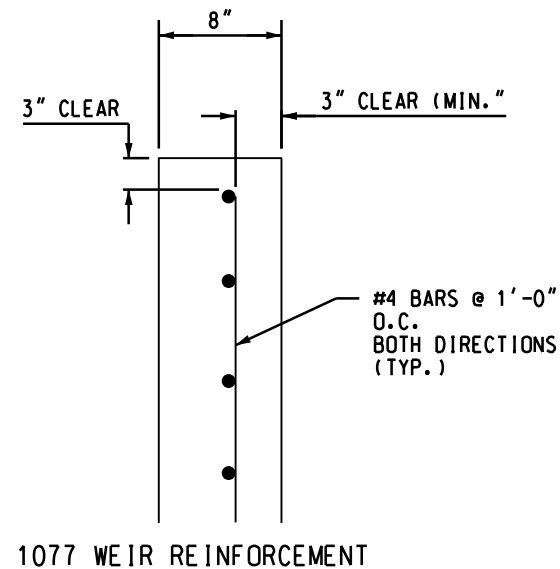
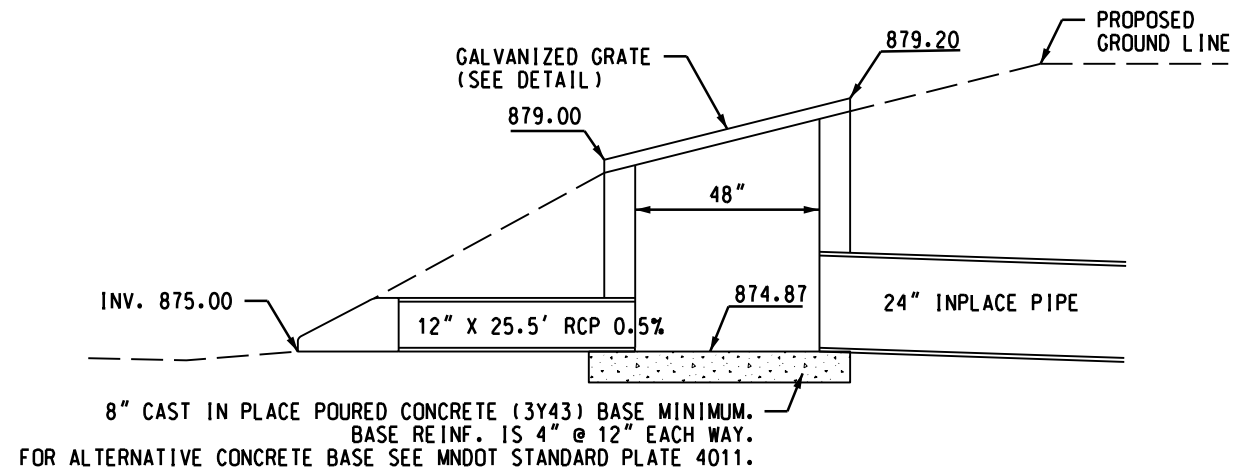
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DESIGN SPECIAL 5 CB 1077
NOT TO SCALE

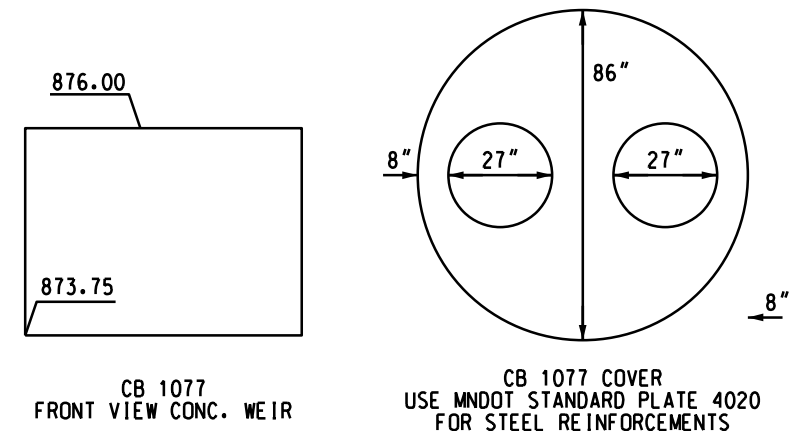


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CB 1077 NOTES

PAY FOR AS CONSTRUCT DRAINAGE STRUCTURE DESIGN SPECIAL 1



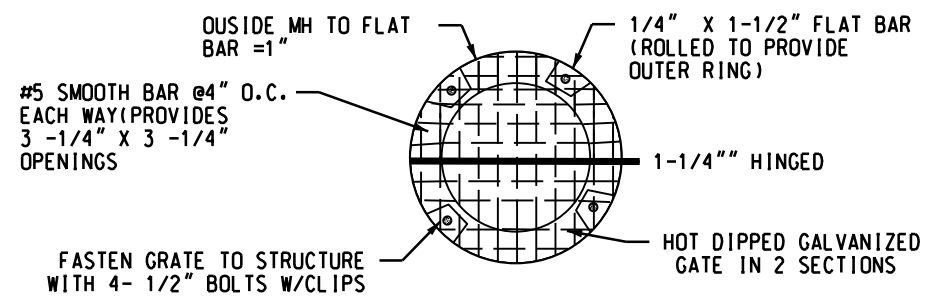
SPECIFIC NOTES

- CONSTRUCT WEIR FROM 3Y-43 CONCRETE AND IN ACCORDANCE WITH MNDOT 2411. PROVIDE EPOXY COATED METAL REINFORCEMENT AND DOWEL BARS IN ACCORDANCE WITH MNDOT 2472, 3301, AND 3302.
- CONSTRUCT DRAINAGE STRUCTURE AS SHOWN ON THE PLANS. PAYMENT SHALL BE MADE AT THE UNIT BID PRICE FOR EACH DRAINAGE STRUCTURE DESIGN SPECIAL 5 CONSTRUCTED, REGARDLESS OF STRUCTURE SIZE OR DEPTH. PAYMENT SHALL BE CONSIDERED COMPENSATION IN FULL FOR ALL COST RELATING TO THE INSTALLATION OF EACH DRAINAGE STRUCTURE DESIGN SPECIAL 2, INCLUDING THE PRECAST STRUCTURE, WEIR, GRATE & FRAME CASTINGS, STRUCTURE COVER, EQUIPMENT, AND LABOR. DESIGN SPECIAL 2 APPROXIMATE PAY HEIGHT IS 4.7 LIN. FT.
- STRUCTURE LOCATION (1 NB 1334+79.7, 63.6' RT) IS TO CENTER OF THE B-5 CASTING. B-5 CASTING MUST BE LOCATED ON THE OUTLET SIDE OF THE WEIR.
PAY FOR AS CONSTRUCT DRAINAGE STRUCTURE DESIGN SPECIAL 2

NOTES:

CONSTRUCT DRAINAGE STRUCTURE AS SHOWN ON THE PLANS. PAYMENT SHALL BE MADE AT THE UNIT BID PRICE FOR EACH DRAINAGE STRUCTURE DESIGN SPECIAL 3 AND 4 CONSTRUCTED. REGARDLESS OF STRUCTURE SIZE OR DEPTH. PAYMENT SHALL BE CONSIDERED COMPENSATION IN FULL FOR ALL COSTS RELATING TO THE INSTALLATION OF EACH DRAINAGE STRUCTURE DESIGN 3 AND 4, INCLUDING THE PRECAST STRUCTURE AND GRATE EQUIPMENT AND LABOR. DESIGN SPECIAL 3 IS APPROXIMATE PAY HEIGHT 11.39 LIN. FT. DESIGN SPECIAL 4 IS APPROXIMATE PAY HEIGHT 4.93 LIN. FT.

GALVANIZED GRATE (SPLIT)
NOT TO SCALE



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Kelly Agosto
KELLY AGOSTO, LICENSED PROFESSIONAL ENGINEER

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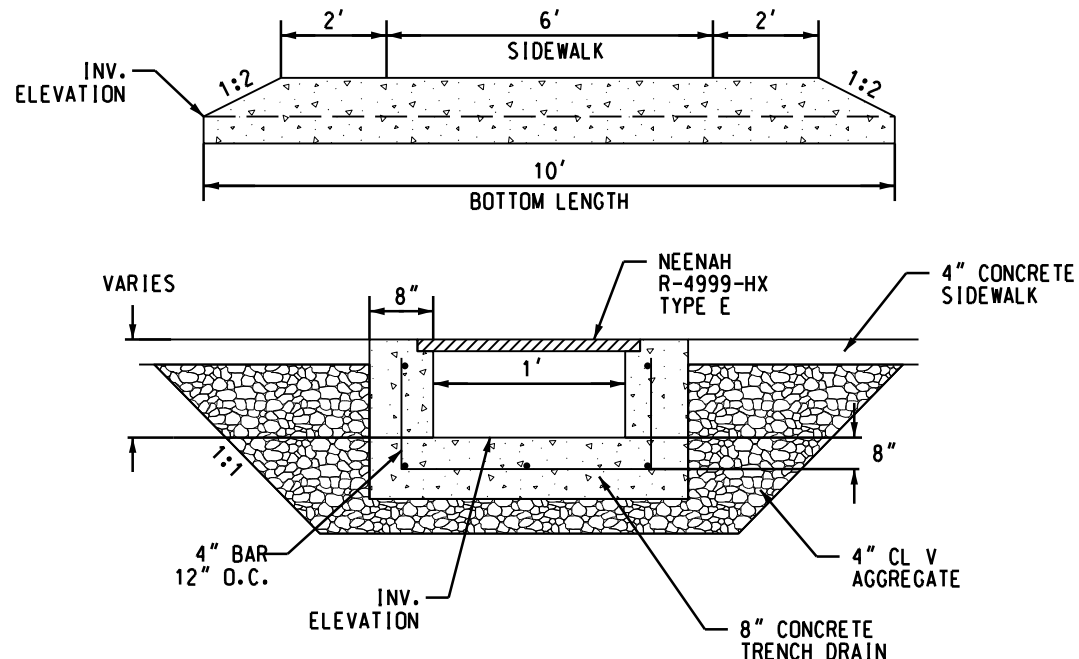
DESIGN BY: L. LANGNER
CAD BY: E. GUIR
CHECKED BY: R. DECOTEAU
LAST REVISION: / /

DETAILS AND STANDARD PLANS

C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
S.P. 027-681-035, S.P. 110-020-040

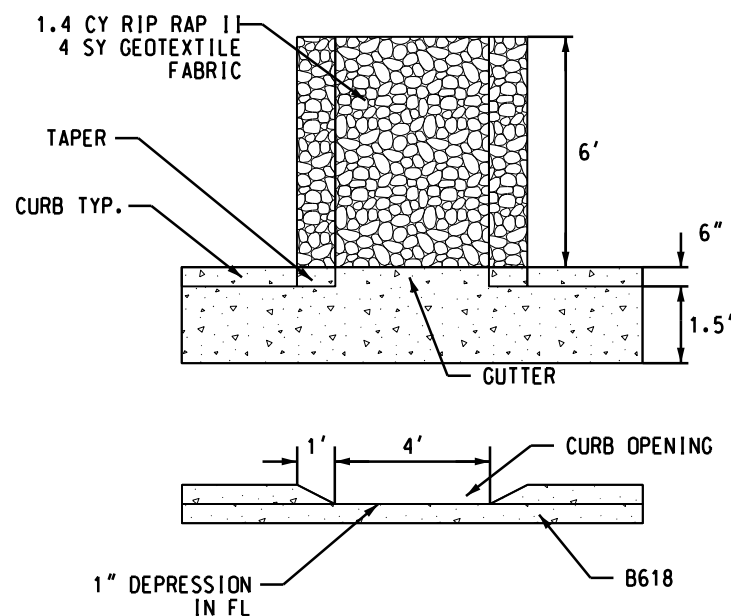
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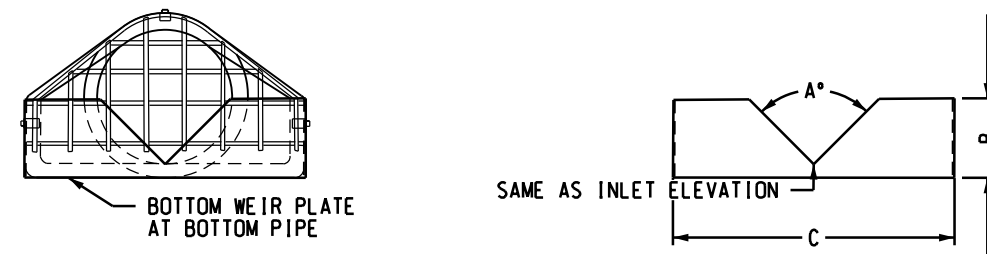
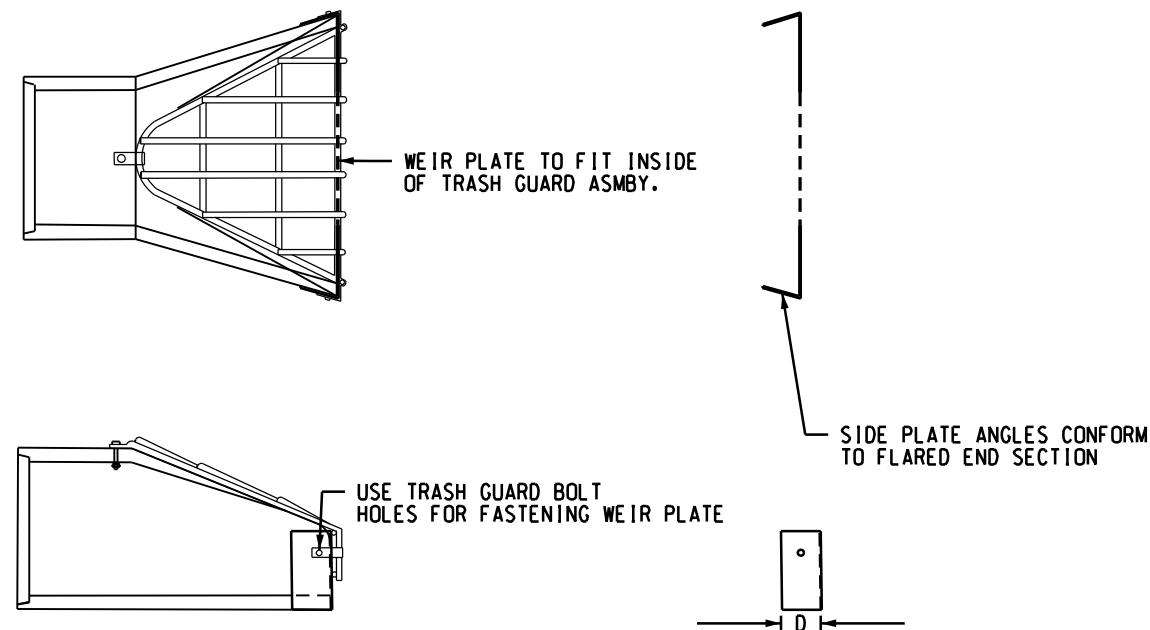


TRENCH DRAIN (UNDER SIDEWALK) ON 73RD AVE

PAYMENT SHALL BE CONSIDERED COMPENSATION IN FULL FOR ALL COSTS RELATING TO THE INSTALLATION OF THE TRENCH DRAIN, INCLUDING THE PRECAST STRUCTURE, GRATE, CL V BELOW SIDEWALK GRADING GRADE, EQUIPMENT AND LABOR.



4' CURB CUT ON 73RD AVE



APRON WEIR PLATE DETAIL

NOTES:

- 1 WEIR PLATES TO BE STAINLESS STEEL (TYPE 304)
- 2 PLATE THICKNESS SHALL BE 3/16" (MIN.)
- 3 MINIMUM YIELD STRENGTH OF 31,000 PSI
- 4 ORIFICE OPENING AND STEEL ANGLES TO BE SHOP FABRICATED.
- 5 ANCHORAGE HOLES FOR FASTENING CAN BE FIELD DRILLED

WEIR PLATE MEASUREMENT TABLE

STRUCT. NO.	PIPE DIA. (INCHES)	"A" (DEGREES)	"B" (DIM FT.)	"C" (DIM FT.)	"D" (DIM FT.)
1047	15	90	0.70	2.90	0.85
1074	30	90	1.30	5.60	1.25
1076	15	90	0.70	2.90	0.85
1148	15	90	0.70	2.90	0.85
1262	15	90	0.70	2.90	0.85
1365	12	45	0.50	2.35	0.70



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.

Kelly Agosto
 KELLY AGOSTO, LICENSED PROFESSIONAL ENGINEER

49075 3/15/19
 LICENSE NO. DATE

DESIGN BY: L. LANGNER
 CAD BY: E. GUIR
 CHECKED BY: R. DECOTEAU
 LAST REVISION: / /

DETAILS AND STANDARD PLANS

C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
 S.P. 027-681-035, S.P. 110-020-040

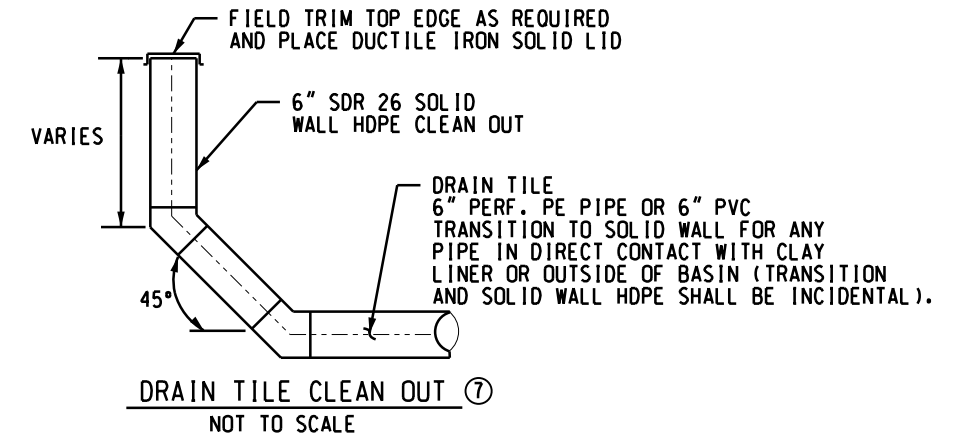
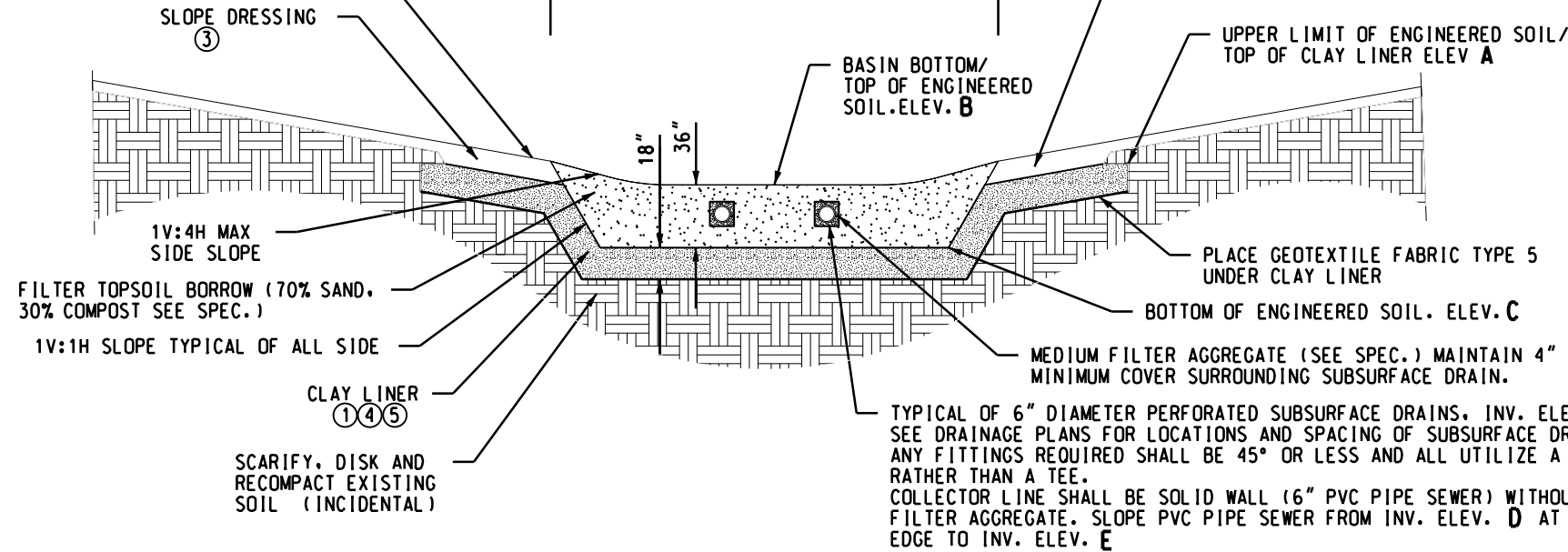
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FILTRATION DITCH TYPICAL SECTION ⑥

SECTION A-A

SEE TURF ESTABLISHMENT PLANS FOR SEEDING INFORMATION



FILTRATION DITCH ELEVATIONS

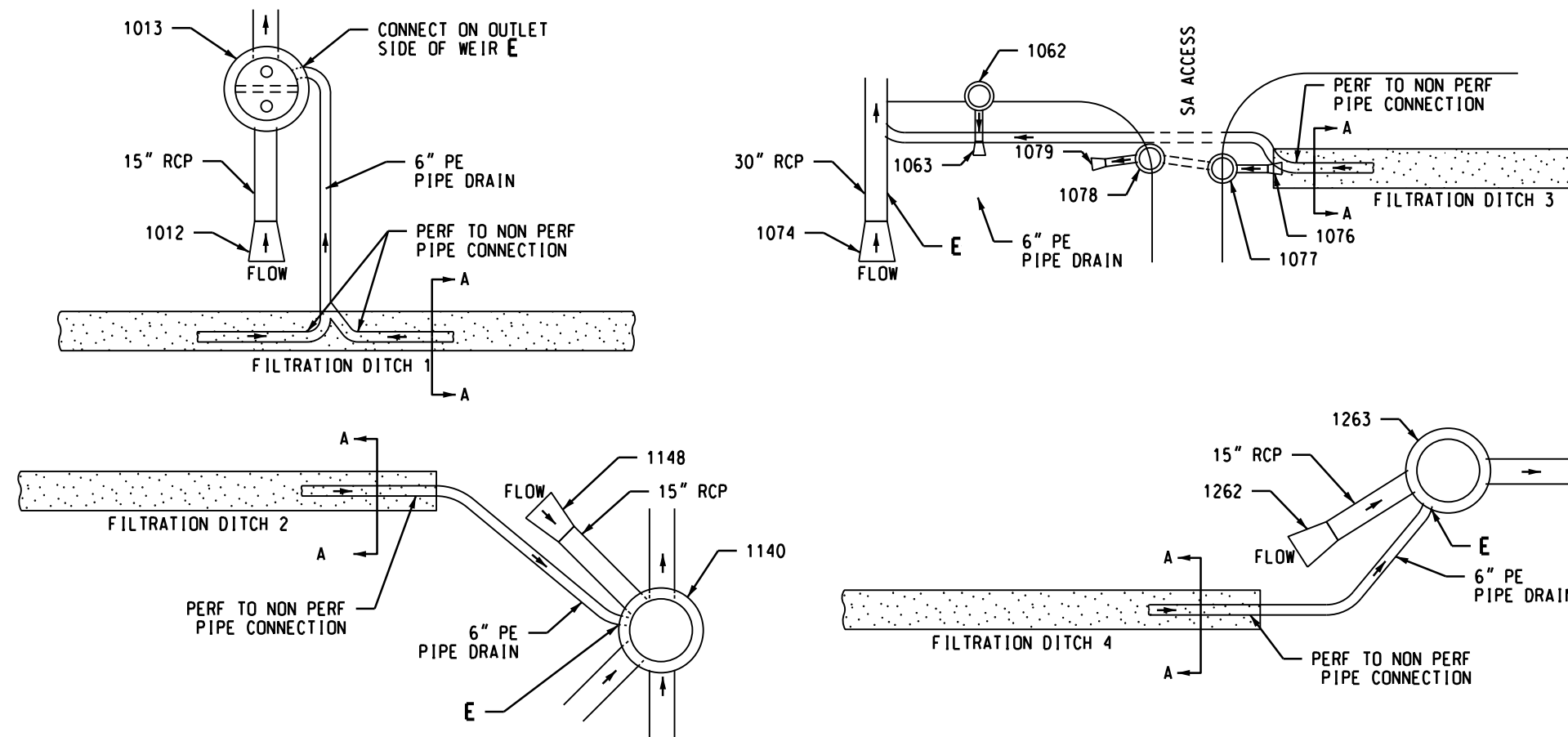
CONNECT TO STRUCTURE	ELEVATIONS				
	A	B	C	D	E
1013	877.0'	876.0'	873.0'	874.5'	874.0'
1140	873.0'	872.0'	869.0'	870.5'	870.2'
1074 - PIPE	876.0'	874.25'	871.25'	871.75'	871.0'
1263	876.4'	875.4'	872.4'	873.9'	873.5'

FILTRATION DITCH QUANTITIES

FILTRATION DITCH	QUANTITIES			
	1	2	3	4
6" PERF PIPE (LF)	1053	530	1078	441
6" NON PERF PIPE (LF)	155	120	339	67
GTXT FAB TYP 5 (SY)	1806	1037	1752	376

NOTES

- ① MAINTAIN MINIMUM 18 INCH THICKNESS OF CLAY FOR POND /BASIN LINER. PAID FOR AS 2015 COMMON BORROW SPECIAL SPECIAL (CV). SEE SPECIAL PROVISIONS.
- ③ SLOPE DRESSING THICKNESS SHALL BE 12 INCHES WHEN PLACED OVER CLAY LINER AND 6" WHEN PLACED IN ADJACENT AREAS UNLESS NOTED OTHERWISE.
- ④ LINER SHALL BE CONSTRUCTED IN A CONTINUOUS OPERATION WITH NO JOINTS, INCLUDING THE AREA UNDER A PIPE APRONS.
- ⑤ AT APRON ENDS WHERE RIPRAP IS REQUIRED WITHIN A LINER AREA, GRANULAR FILTER/RIPRAP UNDER APRON MAY BE OMITTED. 18 INCH MINIMUM THICKNESS OF CLAY MUST BE MAINTAINED UNDER/ AROUND APRONS UP TO THE ELEVATION INDICATED.
- ⑥ AFTER FILTRATION AREA IS GRADED, PREVENT SEDIMENT LADEN RUNOFF FROM ENTERING (SEE SPECIFICATIONS).
- ⑦ CLEAN OUT (INCLUDING ALL ITEMS IN DETAIL OTHER THAN HORIZONTAL PIPE) SHALL BE INCIDENTAL.
- ⑧ PIPE BENDS FOR PVC PIPE SHALL NOT EXCEED 45 DEGREES
- ⑨ PVC PIPE CONNECTION TO STRUCTURE OR PIPE ARE INCIDENTAL



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Kelly Agosto
KELLY AGOSTO, LICENSED PROFESSIONAL ENGINEER

49075 3/15/19
LICENSE NO. DATE

DESIGN BY: L. LANGNER
CAD BY: E. GUIR
CHECKED BY: R. DECOTEAU
LAST REVISION: / /

DETAILS AND STANDARD PLANS

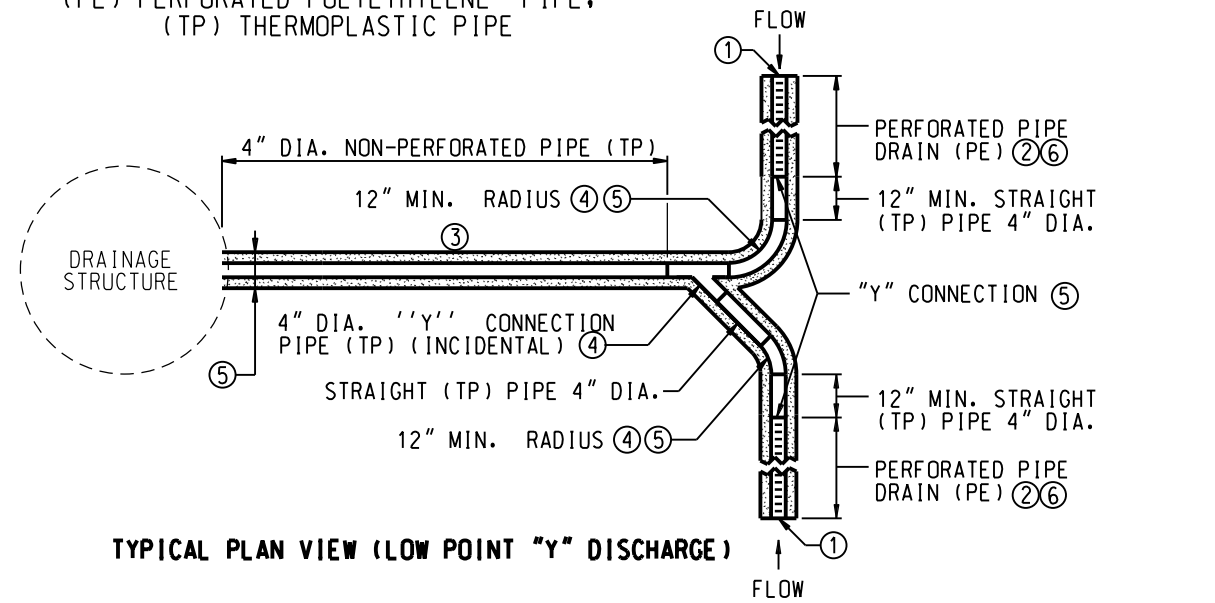
C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
S.P. 027-681-035, S.P. 110-020-040

SHEET

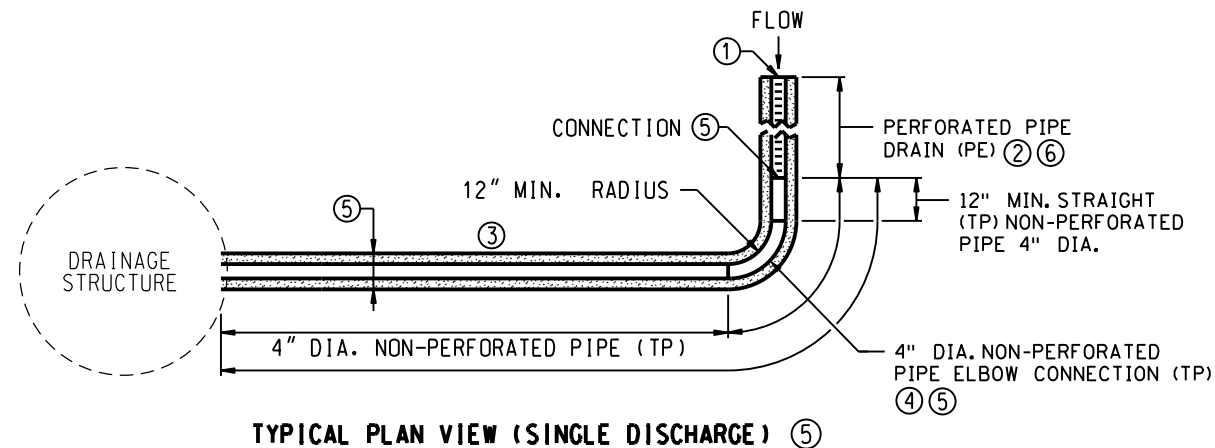
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PERFORATED PIPE DETAIL

(PE) PERFORATED POLYETHYLENE PIPE;
(TP) THERMOPLASTIC PIPE

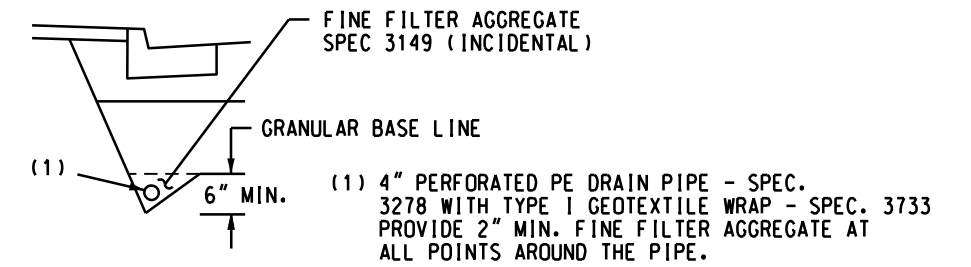


TYPICAL PLAN VIEW (LOW POINT "Y" DISCHARGE)



TYPICAL PLAN VIEW (SINGLE DISCHARGE) ⑤

SUBSURFACE DRAIN DETAIL



(1) 4" PERFORATED PE DRAIN PIPE - SPEC. 3278 WITH TYPE I GEOTEXTILE WRAP - SPEC. 3733 PROVIDE 2" MIN. FINE FILTER AGGREGATE AT ALL POINTS AROUND THE PIPE.

NOTE: SEE DRAINAGE PLANS FOR APPROXIMATE LOCATIONS (FINAL LOCATIONS AS DIRECTED BY THE ENGINEER)

NOTES FOR SUBSURFACE DRAINS:

- ① THE UPSTREAM ENDS OF THE PERFORATED PIPE SHALL BE CAPPED AS APPROVED BY THE PROJECT ENGINEER, AND CAPS SHALL BE INCIDENTAL.
- ② MAXIMUM LENGTH 500', EXCEPT 300' MAXIMUM FOR GRADES LESS THAN 0.2%. LENGTH INCLUDED AND PAID FOR AS ITEM 2502.503, 4" PERF PE PIPE DRAIN.
- ③ LENGTH INCLUDED AND PAID FOR AS ITEM 2502.503, 4" TP PIPE DRAIN. (NON-PERFORATED)
- ④ DETAILS OF CONNECTION AND COUPLING TO PE PIPE TO BE APPROVED BY THE ENGINEER. PAYMENT FOR "Y" AND EXTRA CONNECTION, 12" RADIUS TP PIPE AND COUPLING TO BE INCIDENTAL.
- ⑤ SEE SPECIAL PROVISIONS FOR MATERIAL AND CONSTRUCTION DETAILS.
- ⑥ 4" DIAMETER.

CONNECTIONS INTO STORM SEWER STRUCTURES OR PIPE SHALL BE PROPERLY GROUTED AROUND TP PIPE.



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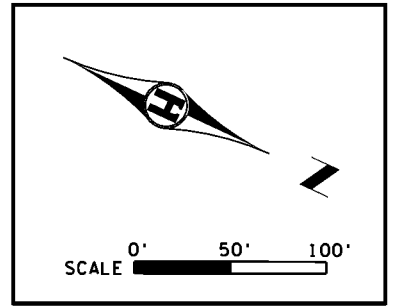
DETAILS AND STANDARD PLANS

C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
S.P. 027-681-035, S.P. 110-020-040

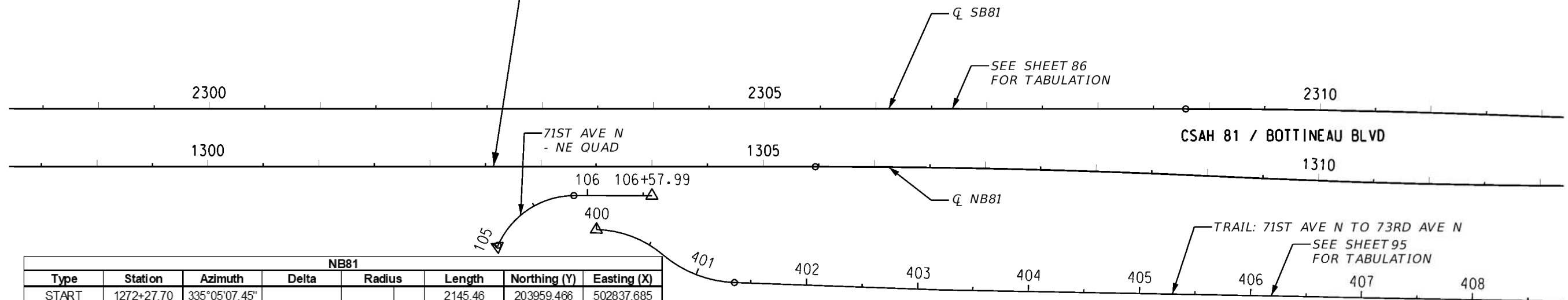
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HORIZONTAL CONTROL
 COORDINATES ARE HENNEPIN COUNTY GROUND FEET, BASED
 ON THE MINNESOTA COORDINATE SYSTEM, SOUTHERN
 ZONE, NAD83 1986 (NON-HARN VALUES).



BEGIN HENNEPIN COUNTY
 PROJECT NO. 0922
 RECONSTRUCTION
 S.P. 027-681-035
 S.P. 110-020-040
 NB81 STA. 1302+57.24



NB81							
Type	Station	Azimuth	Delta	Radius	Length	Northing (Y)	Easting (X)
START	1272+27.70	335°05'07.45"			2145.46	203959.466	502837.685
PC	1293+73.16			-7639.00	LT	87.40	205905.266
CC	1293+73.16		00°39'19.98"			202687.209	495005.782
PRC	1294+60.57			7639.00	RT	87.40	205984.322
CC	1294+60.57		00°39'19.98"			209281.435	508787.417
PT	1295+47.97	335°05'07.45"			998.98	206063.377	501859.327
PC	1305+46.95			7639.00	RT	360.40	206969.389
CC	1305+46.95		02°42'11.32"			210187.447	508366.580
PRC	1309+07.35			-7639.00	LT	360.40	207299.708
CC	1309+07.35		02°42'11.32"			204411.968	494222.283
PT	1312+67.75	335°05'07.45"			802.97	207630.026	501150.373
PC	1320+70.72			7639.00	RT	225.99	208358.270
CC	1320+70.72		01°41'42.18"			211576.328	507740.197
PRC	1322+96.71			-7639.00	LT	228.39	208564.610
CC	1322+96.71		01°42'46.84"			205552.893	493699.701
PT	1325+25.10	335°04'02.79"			1024.15	208773.122	500626.782
PC	1335+49.25			7639.00	RT	151.39	209701.826
CC	1335+49.25		01°08'07.66"			212922.055	507122.131
PRC	1337+00.63			-7639.00	LT	151.39	209839.727
CC	1337+00.63		01°08'07.66"			206757.398	493143.065
PT	1338+52.02	335°04'02.79"			1128.98	209977.628	500070.145
PC	1349+81.00			-7703.00	LT	604.70	211001.392
CC	1349+81.00		04°29'52.31"			207754.183	492609.106
PT	1355+85.71	330°34'10.48"			1420.15	211539.178	499318.058

NB81							
Type	Station	Azimuth	Delta	Radius	Length	Northing (Y)	Easting (X)
PC	1370+05.85			7639	RT	605.56	212776.057
CC	1370+05.85		04°32'31.17"			216529.604	505273.456
PT	1376+11.41	335°06'41.65"			466.69	213314.711	498343.898
PC	1380+78.11			-1331	LT	291.53	213738.062
CC	1380+78.11		12°32'58.5"			213177.907	496940.100
PT	1383+69.64	322°33'43.15"			285.25	213987.026	497996.929
PC	1386+54.89			1273	RT	177.91	214213.520
CC	1386+54.89		08°00'27.33"			214987.380	498834.300
PT	1388+32.81	330°34'10.48"			466.76	214361.871	497725.576
PC	1392+99.57			2865	RT	806.77	214768.400
CC	1392+99.57		16°08'03.06"			216176.164	499991.505
PT	1401+06.34	346°42'13.54"			422.19	215517.255	497203.304
END	1405+28.53					215928.128	497106.207

71ST AVE N - NE Quad							
Type	Station	Azimuth	Delta	Radius	Length	Northing (Y)	Easting (X)
START	105+00.00	268°57'15.66"			1.26	206740.209	501624.110
PC	105+01.26			75.00	RT	86.57	206740.186
CC	105+01.26		66°07'51.8"			206815.174	501621.486
PT	105+87.82	335°05'07.45"			70.17	206783.579	501553.466
END	106+57.99					206847.216	501523.907

STA. NB81 1302+57.24 TO 1312+21.39



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Kelly Agosto
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49075 3/15/19
 LICENSE NO. DATE

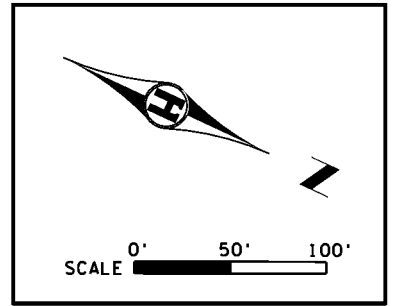
DESIGN BY: S. PARK
 CAD BY: E. GUIR
 CHECKED BY: R. DECOTEAU
 LAST REVISION: / /

ALIGNMENT PLAN AND TABULATIONS

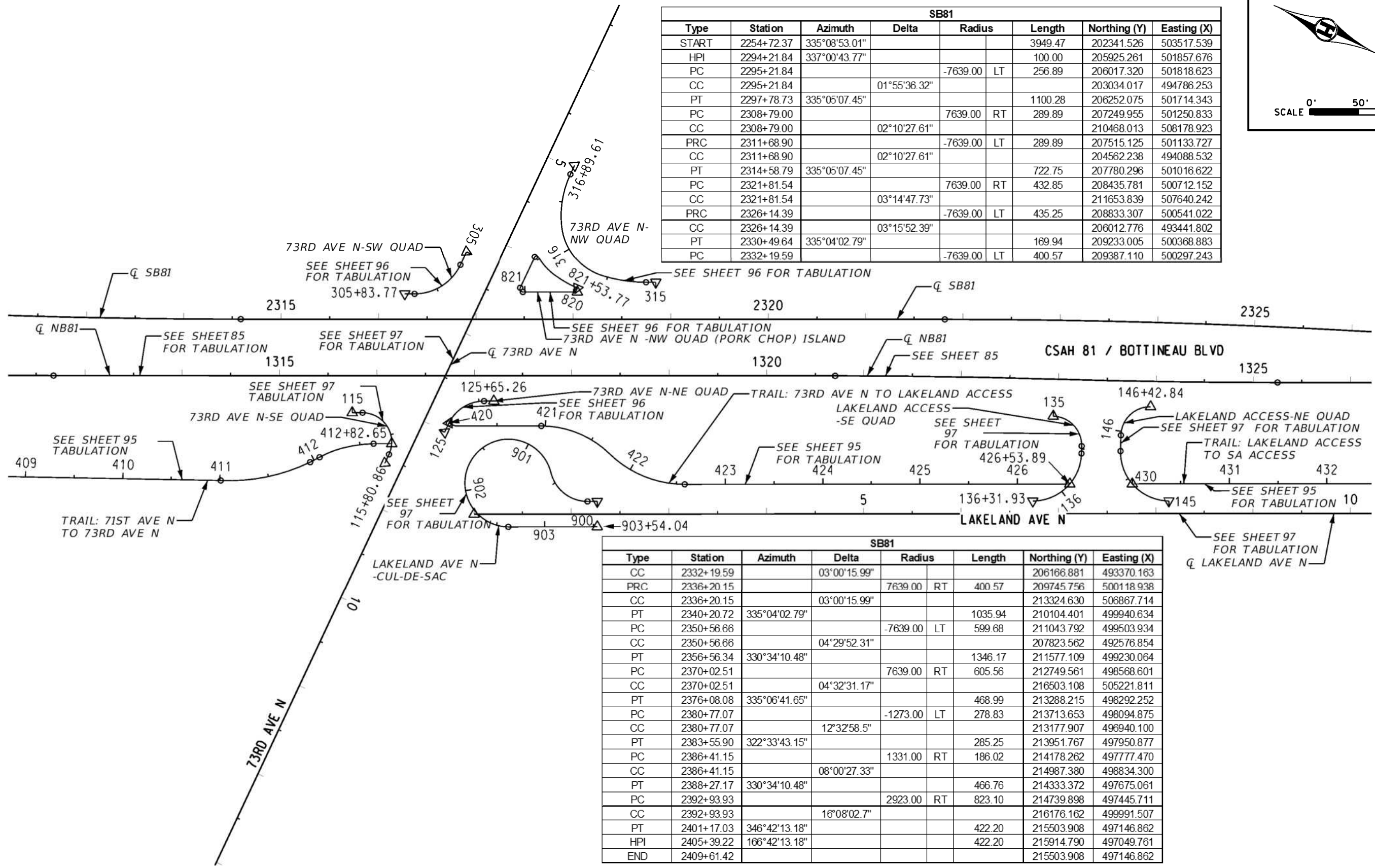
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 S.P. 027-681-035, S.P. 110-020-040

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SB81							
Type	Station	Azimuth	Delta	Radius	Length	Northing (Y)	Easting (X)
START	2254+72.37	335°08'53.01"			3949.47	202341.526	503517.539
HPI	2294+21.84	337°00'43.77"			100.00	205925.261	501857.676
PC	2295+21.84			-7639.00	256.89	206017.320	501818.623
CC	2295+21.84		01°55'36.32"			203034.017	494786.253
PT	2297+78.73	335°05'07.45"			1100.28	206252.075	501714.343
PC	2308+79.00			7639.00	289.89	207249.955	501250.833
CC	2308+79.00		02°10'27.61"			210468.013	508178.923
PRC	2311+68.90			-7639.00	289.89	207515.125	501133.727
CC	2311+68.90		02°10'27.61"			204562.238	494088.532
PT	2314+58.79	335°05'07.45"			722.75	207780.296	501016.622
PC	2321+81.54			7639.00	432.85	208435.781	500712.152
CC	2321+81.54		03°14'47.73"			211653.839	507640.242
PRC	2326+14.39			-7639.00	435.25	208833.307	500541.022
CC	2326+14.39		03°15'52.39"			206012.776	493441.802
PT	2330+49.64	335°04'02.79"			169.94	209233.005	500368.883
PC	2332+19.59			-7639.00	400.57	209387.110	500297.243



SB81							
Type	Station	Azimuth	Delta	Radius	Length	Northing (Y)	Easting (X)
CC	2332+19.59		03°00'15.99"			206166.881	493370.163
PRC	2336+20.15			7639.00	400.57	209745.756	500118.938
CC	2336+20.15		03°00'15.99"			213324.630	506867.714
PT	2340+20.72	335°04'02.79"			1035.94	210104.401	499940.634
PC	2350+56.66			-7639.00	599.68	211043.792	499503.934
CC	2350+56.66		04°29'52.31"			207823.562	492576.854
PT	2356+56.34	330°34'10.48"			1346.17	211577.109	499230.064
PC	2370+02.51			7639.00	605.56	212749.561	498568.601
CC	2370+02.51		04°32'31.17"			216503.108	505221.811
PT	2376+08.08	335°06'41.65"			468.99	213288.215	498292.252
PC	2380+77.07			-1273.00	278.83	213713.653	498094.875
CC	2380+77.07		12°32'58.5"			213177.907	496940.100
PT	2383+55.90	322°33'43.15"			285.25	213951.767	497950.877
PC	2386+41.15			1331.00	186.02	214178.262	497777.470
CC	2386+41.15		08°00'27.33"			214987.380	498834.300
PT	2388+27.17	330°34'10.48"			466.76	214333.372	497675.061
PC	2392+93.93			2923.00	823.10	214739.898	497445.711
CC	2392+93.93		16°08'02.7"			216176.162	499991.507
PT	2401+17.03	346°42'13.18"			422.20	215503.908	497146.862
HPI	2405+39.22	166°42'13.18"			422.20	215914.790	497049.761
END	2409+61.42					215503.908	497146.862

STA. NB81 1312+21.39 TO 1326+21.46



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.

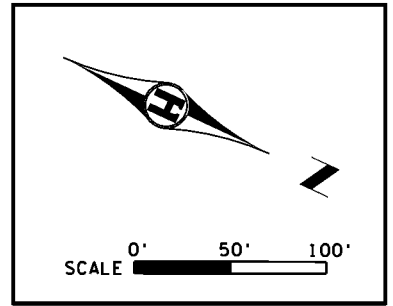
Kelly Agosto
 KELLY AGOSTO, LICENSED PROFESSIONAL ENGINEER
 49075 LICENSE NO. 3/15/19 DATE

DESIGN BY: S. PARK
 CAD BY: E. GUIR
 CHECKED BY: R. DECOTEAU
 LAST REVISION: / /

ALIGNMENT PLAN AND TABULATIONS

C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
 S.P. 027-681-035, S.P. 110-020-040

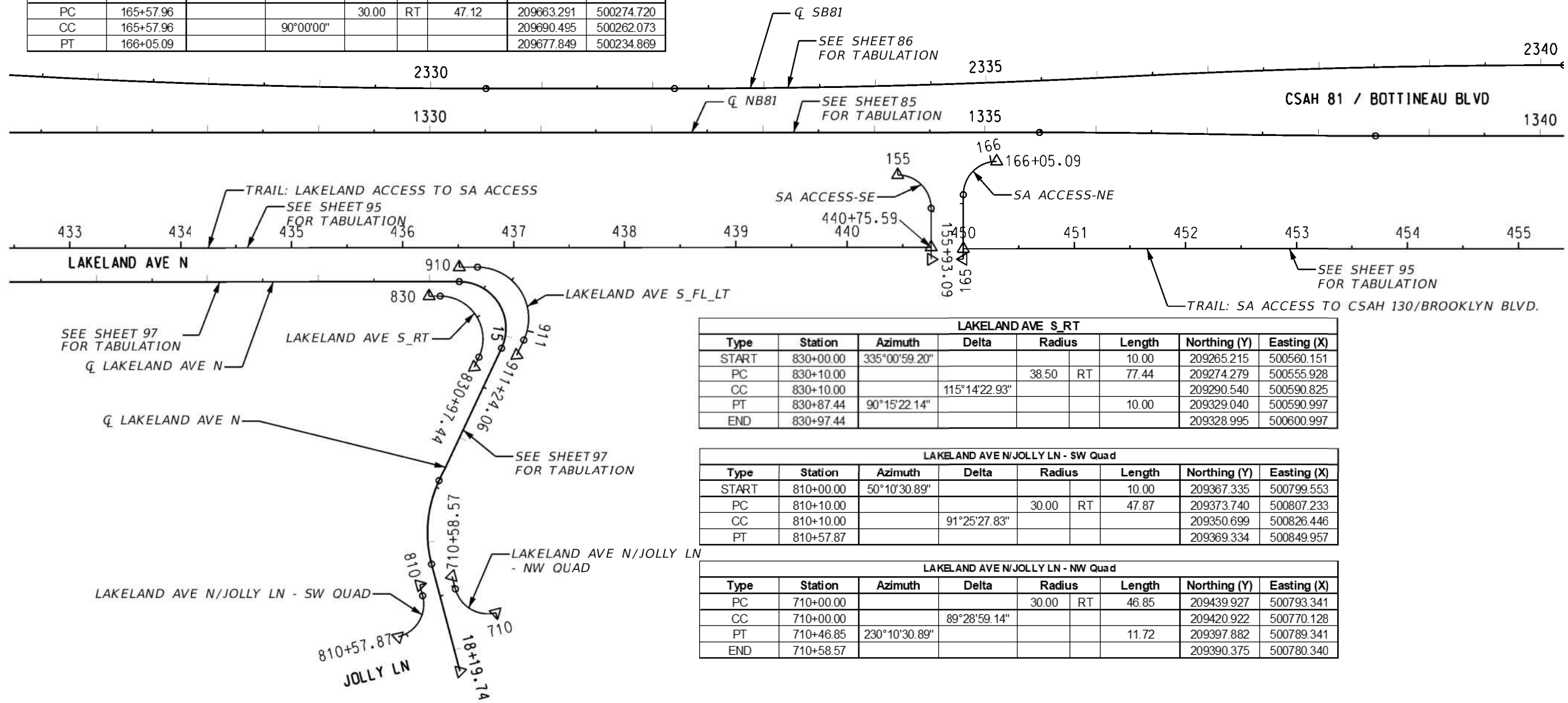
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SA ACCESS - SE								
Type	Station	Azimuth	Delta	Radius	Length	Northing (Y)	Easting (X)	
PC	155+00.00			30.00	RT	47.12	209601.650	500283.525
CC	155+00.00		90°00'00"			209614.297	500310.729	
PT	155+47.12	65°04'02.79"			45.96	209641.501	500298.082	
END	155+93.09					209660.876	500339.761	

LAKELAND AVE S_FL_LT								
Type	Station	Azimuth	Delta	Radius	Length	Northing (Y)	Easting (X)	
START	910+00.00	335°00'59.20"			16.40	209278.881	500525.099	
PC	910+16.40			46.00	RT	92.52	209293.750	500518.171
CC	910+16.40		115°14'22.93"			209313.179	500559.867	
PT	911+08.92	90°15'22.14"			15.14	209359.178	500560.073	
END	911+24.06					209359.111	500575.208	

SA ACCESS - NE								
Type	Station	Azimuth	Delta	Radius	Length	Northing (Y)	Easting (X)	
START	165+00.00	245°04'02.79"			57.96	209687.725	500327.279	
PC	165+57.96			30.00	RT	47.12	209663.291	500274.720
CC	165+57.96		90°00'00"			209690.495	500262.073	
PT	166+05.09					209677.849	500234.869	



LAKELAND AVE S_RT								
Type	Station	Azimuth	Delta	Radius	Length	Northing (Y)	Easting (X)	
START	830+00.00	335°00'59.20"			10.00	209265.215	500560.151	
PC	830+10.00			38.50	RT	77.44	209274.279	500555.928
CC	830+10.00		115°14'22.93"			209290.540	500590.825	
PT	830+87.44	90°15'22.14"			10.00	209329.040	500590.997	
END	830+97.44					209328.995	500600.997	

LAKELAND AVE N/JOLLY LN - SW Quad								
Type	Station	Azimuth	Delta	Radius	Length	Northing (Y)	Easting (X)	
START	810+00.00	50°10'30.89"			10.00	209367.335	500799.553	
PC	810+10.00			30.00	RT	47.87	209373.740	500807.233
CC	810+10.00		91°25'27.83"			209350.699	500826.446	
PT	810+57.87					209369.334	500849.957	

LAKELAND AVE N/JOLLY LN - NW Quad								
Type	Station	Azimuth	Delta	Radius	Length	Northing (Y)	Easting (X)	
PC	710+00.00			30.00	RT	46.85	209439.927	500793.341
CC	710+00.00		89°28'59.14"			209420.922	500770.128	
PT	710+46.85	230°10'30.89"			11.72	209397.882	500789.341	
END	710+58.57					209390.375	500780.340	

STA. NB81 1326+21.46 TO 1340+21.48



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Kelly Agosto
 KELLY AGOSTO, LICENSED PROFESSIONAL ENGINEER

49075 3/15/19
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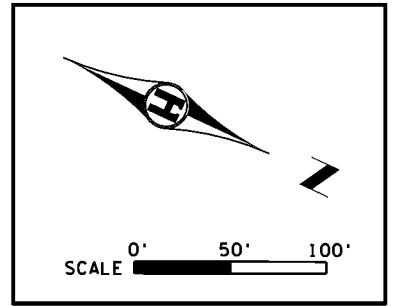
ALIGNMENT PLAN AND TABULATIONS

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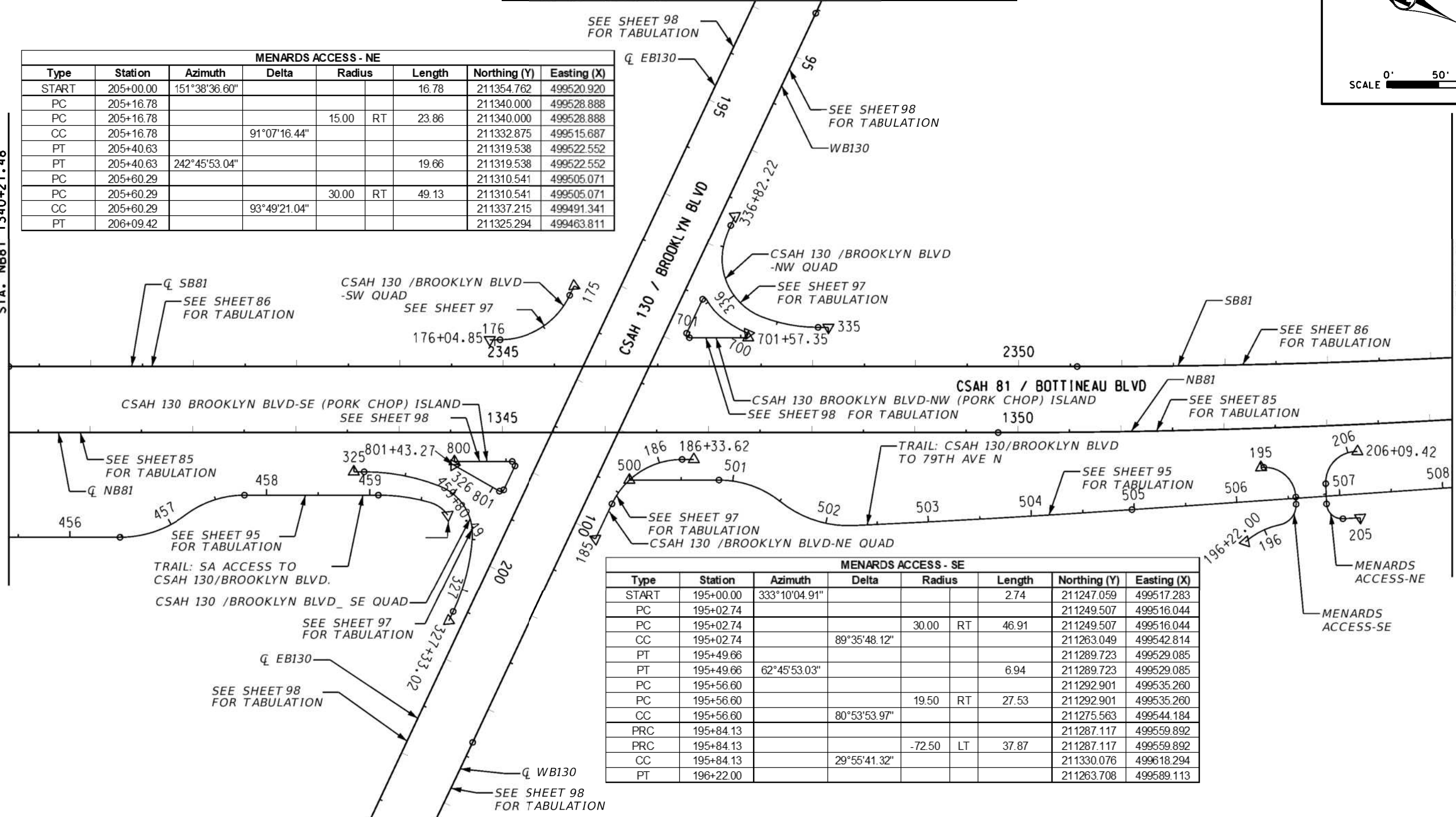
MATCH LINE SEE SHEET 89
STA. EB130 193+93.93



MENARDS ACCESS - NE							
Type	Station	Azimuth	Delta	Radius	Length	Northing (Y)	Easting (X)
START	205+00.00	151°38'36.60"			16.78	211354.762	499520.920
PC	205+16.78					211340.000	499528.888
PC	205+16.78			15.00	23.86	211340.000	499528.888
CC	205+16.78		91°07'16.44"			211332.875	499515.687
PT	205+40.63					211319.538	499522.552
PT	205+40.63	242°45'53.04"			19.66	211319.538	499522.552
PC	205+60.29					211310.541	499505.071
PC	205+60.29			30.00	49.13	211310.541	499505.071
CC	205+60.29		93°49'21.04"			211337.215	499491.341
PT	206+09.42					211325.294	499463.811

MATCH LINE SEE SHEET 87
STA. NB81 1340+21.48

MATCH LINE SEE SHEET 91
STA. NB81 1354+21.72



MENARDS ACCESS - SE							
Type	Station	Azimuth	Delta	Radius	Length	Northing (Y)	Easting (X)
START	195+00.00	333°10'04.91"			2.74	211247.059	499517.283
PC	195+02.74					211249.507	499516.044
PC	195+02.74			30.00	46.91	211249.507	499516.044
CC	195+02.74		89°35'48.12"			211263.049	499542.814
PT	195+49.66					211289.723	499529.085
PT	195+49.66	62°45'53.03"			6.94	211289.723	499529.085
PC	195+56.60					211292.901	499535.260
PC	195+56.60			19.50	27.53	211292.901	499535.260
CC	195+56.60		80°53'53.97"			211275.563	499544.184
PRC	195+84.13					211287.117	499559.892
PRC	195+84.13			-72.50	37.87	211287.117	499559.892
CC	195+84.13		29°55'41.32"			211330.076	499618.294
PT	196+22.00					211263.708	499589.113

MATCH LINE SEE SHEET 90
STA. EB130 202+77.93



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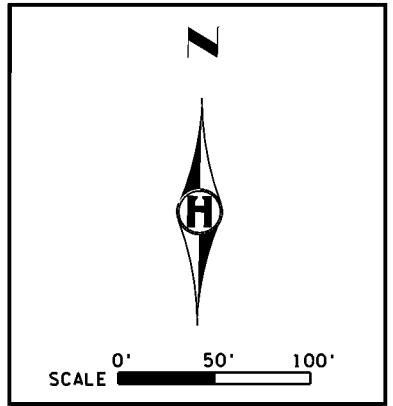
DESIGN BY: S. PARK
CAD BY: E. GUIR
CHECKED BY: R. DECOTEAU
LAST REVISION: / /

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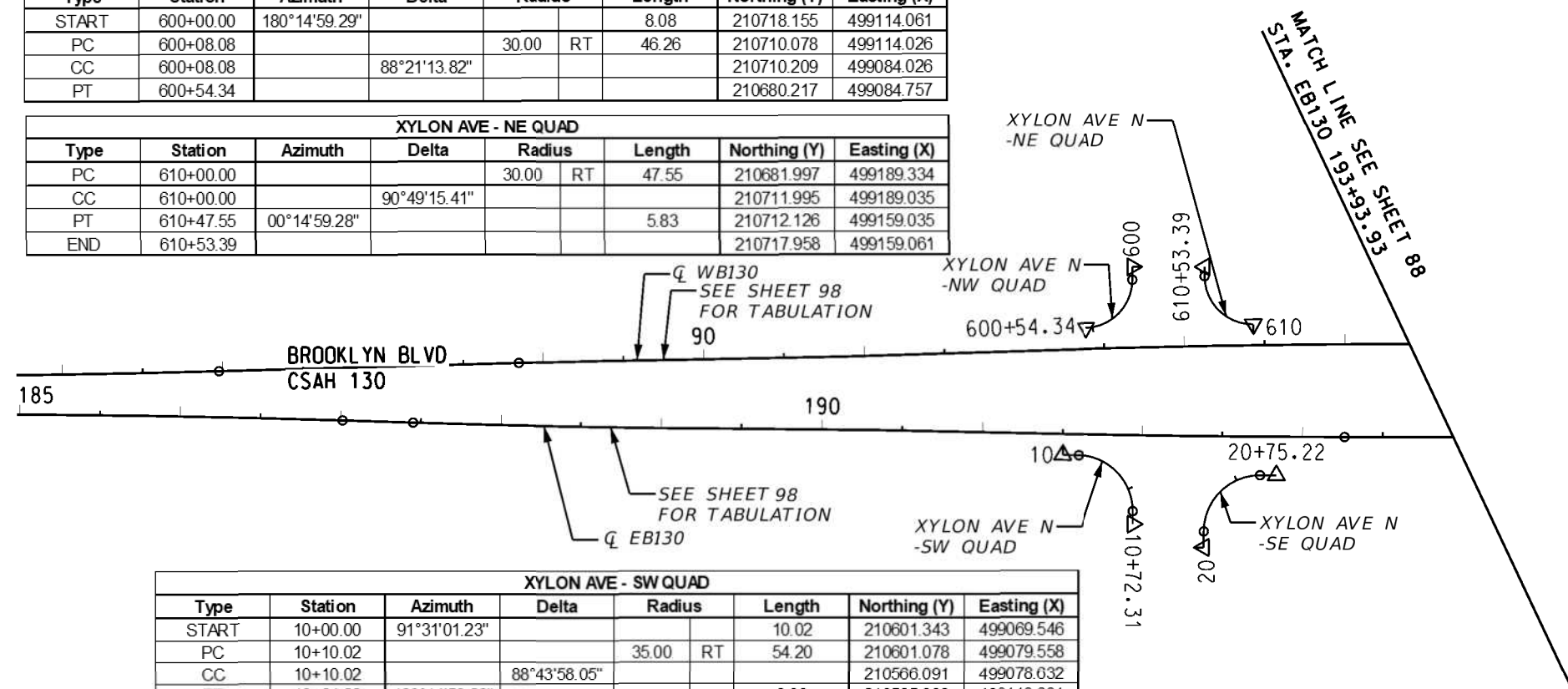
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SHINGLE CREEK

XYLON AVE - NW QUAD							
Type	Station	Azimuth	Delta	Radius	Length	Northing (Y)	Easting (X)
START	600+00.00	180°14'59.29"			8.08	210718.155	499114.061
PC	600+08.08			30.00	RT	210710.078	499114.026
CC	600+08.08		88°21'13.82"			210710.209	499084.026
PT	600+54.34					210680.217	499084.757

XYLON AVE - NE QUAD							
Type	Station	Azimuth	Delta	Radius	Length	Northing (Y)	Easting (X)
PC	610+00.00			30.00	RT	210681.997	499189.334
CC	610+00.00		90°49'15.41"			210711.995	499189.035
PT	610+47.55	00°14'59.28"			5.83	210712.126	499159.035
END	610+53.39					210717.958	499159.061



XYLON AVE - SW QUAD							
Type	Station	Azimuth	Delta	Radius	Length	Northing (Y)	Easting (X)
START	10+00.00	91°31'01.23"			10.02	210601.343	499069.546
PC	10+10.02			35.00	RT	210601.078	499079.558
CC	10+10.02		88°43'58.05"			210566.091	499078.032
PT	10+64.22	180°14'59.28"			8.09	210565.938	499113.631
END	10+72.31					210557.845	499113.596

XYLON AVE - SE QUAD							
Type	Station	Azimuth	Delta	Radius	Length	Northing (Y)	Easting (X)
START	20+00.00	00°14'59.27"			10.00	210543.117	499157.798
PC	20+10.00			35.00	RT	210553.117	499157.842
CC	20+10.00		90°11'36.1"			210552.964	499192.842
PT	20+65.10	90°26'35.37"			10.12	210587.963	499193.112
END	20+75.22					210587.885	499203.232

STA. EB130 189+07.80 TO 193+93.93



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Kelly Agosto
 KELLY AGOSTO, LICENSED PROFESSIONAL ENGINEER
 49075
 LICENSE NO.

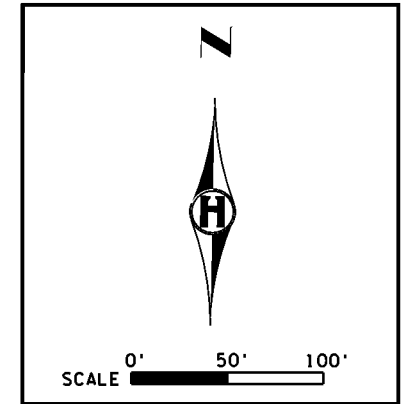
3/15/19
 DATE

DESIGN BY: S. PARK
 CAD BY: E. GUIR
 CHECKED BY: R. DECOTEAU
 LAST REVISION: / /

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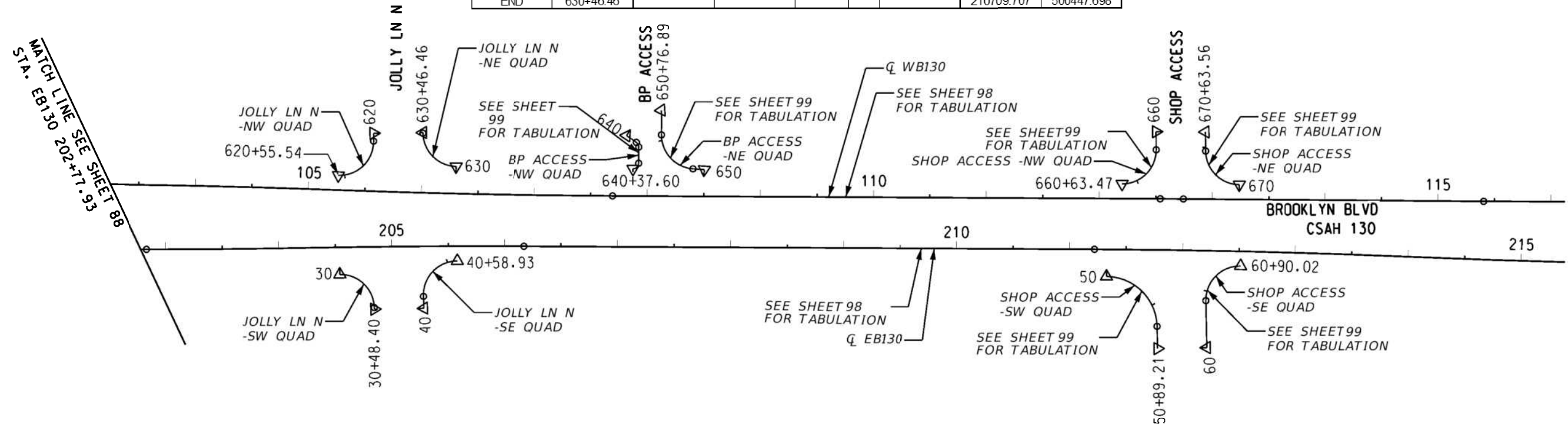
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 S.P. 027-681-035, S.P. 110-020-040

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JOLLY LANE N - NW QUAD							
Type	Station	Azimuth	Delta	Radius	Length	Northing (Y)	Easting (X)
START	620+00.00	179°32'33.91"			6.92	210709.300	500403.940
PC	620+06.92					210702.378	500403.995
PC	620+06.92			30.00	RT	210702.378	500403.995
CC	620+06.92		92°50'43.63"			210702.139	500373.996
PT	620+55.54					210672.165	500372.746

JOLLY LANE N - NE QUAD							
Type	Station	Azimuth	Delta	Radius	Length	Northing (Y)	Easting (X)
PC	630+00.00			30.00	RT	210679.562	500476.885
CC	630+00.00		87°41'00.92"			210709.551	500477.702
PT	630+45.91					210709.156	500447.705
PT	630+45.91	359°14'42.79"			0.55	210709.156	500447.705
END	630+46.46					210709.707	500447.698



JOLLY LANE N - SW QUAD							
Type	Station	Azimuth	Delta	Radius	Length	Northing (Y)	Easting (X)
PC	30+00.00			30.00	RT	210584.534	500373.618
CC	30+00.00		89°46'09.86"			210554.536	500373.986
PT	30+47.00					210555.024	500403.982
PT	30+47.00	179°04'02.49"			1.40	210555.024	500403.982
END	30+48.40					210553.626	500404.004

JOLLY LANE N - SE QUAD							
Type	Station	Azimuth	Delta	Radius	Length	Northing (Y)	Easting (X)
START	40+00.00	357°35'52.70"			10.46	210554.342	500447.949
PC	40+10.46					210564.797	500447.510
PC	40+10.46			30.00	RT	210564.797	500447.510
CC	40+10.46		92°34'02.9"			210566.055	500477.484
PT	40+58.93					210596.054	500477.570

STA. EB130 202+77.93 TO 215+29.68



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Kelly Agosto
 KELLY AGOSTO, LICENSED PROFESSIONAL ENGINEER

49075 3/15/19
 LICENSE NO. DATE

DESIGN BY: S. PARK
 CAD BY: E. GUIR
 CHECKED BY: R. DECOTEAU
 LAST REVISION: / /

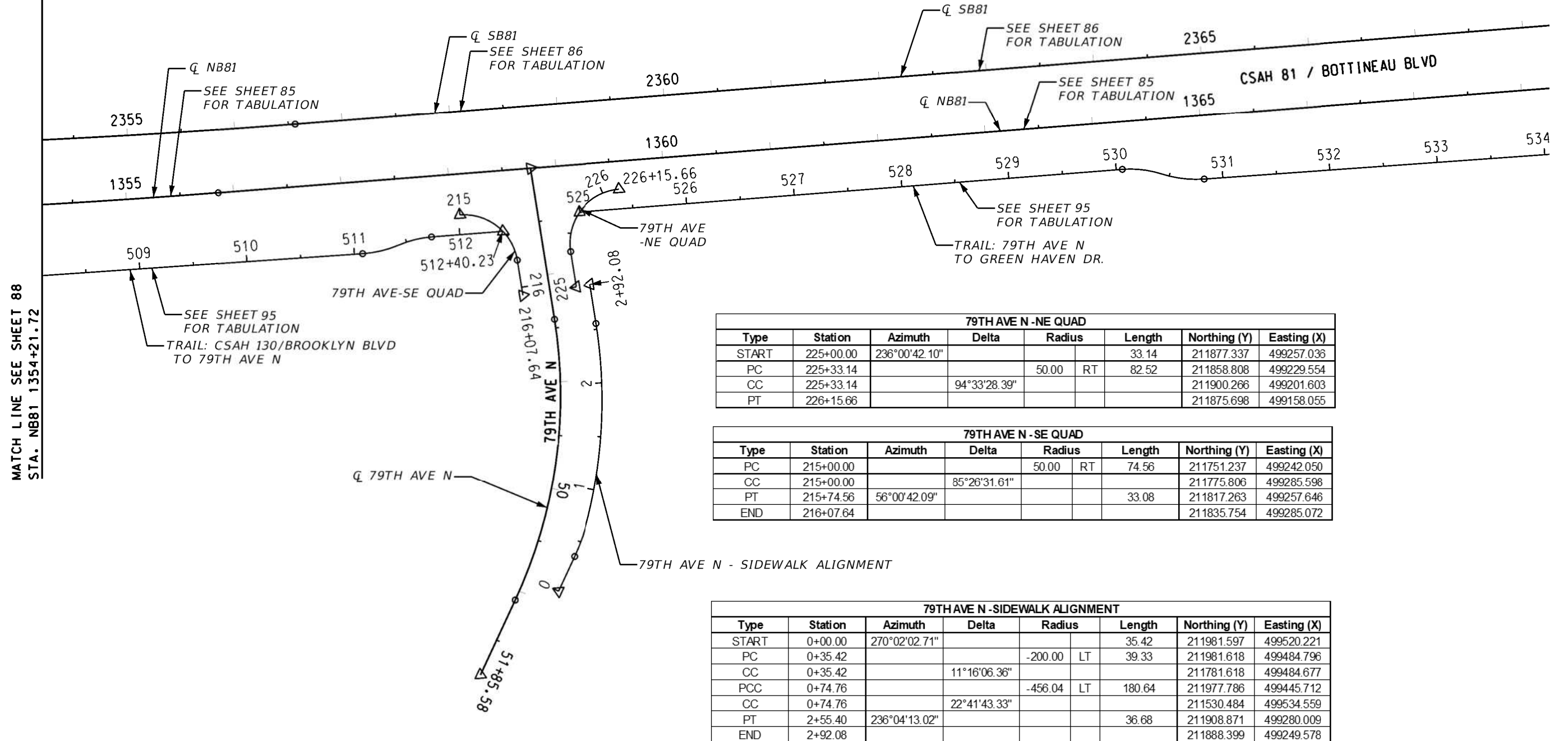
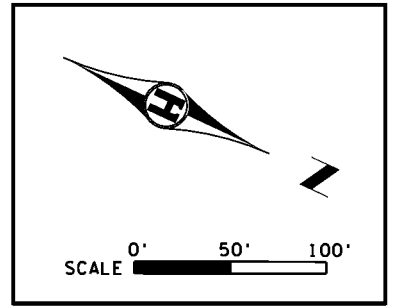
ALIGNMENT PLAN AND TABULATIONS

C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
 S.P. 027-681-035, S.P. 110-020-040

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79TH AVE N - CENTERLINE							
Type	Station	Azimuth	Delta	Radius	Length	Northing (Y)	Easting (X)
START	47+00.00	56°00'42.09"			141.87	211792.39	499175.203
PC	48+41.87					211871.7	499292.837
PC	48+41.87			450.00	267.21	211871.7	499292.837
CC	48+41.87		34°01'20.48"			211498.582	499544.398
PT	51+09.08					211948.582	499544.665
PT	51+09.08	90°02'02.57"			76.5	211948.582	499544.665
END	51+85.58					211948.536	499621.163



79TH AVE N - NE QUAD							
Type	Station	Azimuth	Delta	Radius	Length	Northing (Y)	Easting (X)
START	225+00.00	236°00'42.10"			33.14	211877.337	499257.036
PC	225+33.14			50.00	RT	211858.808	499229.554
CC	225+33.14		94°33'28.39"			211900.266	499201.603
PT	226+15.66					211875.698	499158.055

79TH AVE N - SE QUAD							
Type	Station	Azimuth	Delta	Radius	Length	Northing (Y)	Easting (X)
PC	215+00.00			50.00	RT	211751.237	499242.050
CC	215+00.00		85°26'31.61"			211775.806	499285.598
PT	215+74.56	56°00'42.09"			33.08	211817.263	499257.646
END	216+07.64					211835.754	499285.072

79TH AVE N - SIDEWALK ALIGNMENT							
Type	Station	Azimuth	Delta	Radius	Length	Northing (Y)	Easting (X)
START	0+00.00	270°02'02.71"			35.42	211981.597	499520.221
PC	0+35.42			-200.00	LT	211981.618	499484.796
CC	0+35.42		11°16'06.36"			211781.618	499484.677
PCC	0+74.76			-456.04	LT	211977.786	499445.712
CC	0+74.76		22°41'43.33"			211530.484	499534.559
PT	2+55.40	236°04'13.02"			36.68	211908.871	499280.009
END	2+92.08					211888.399	499249.578

STA. NB81 1354+21.72 TO 1368+25.92



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Kelly Agosto
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49075 3/15/19
 LICENSE NO. DATE

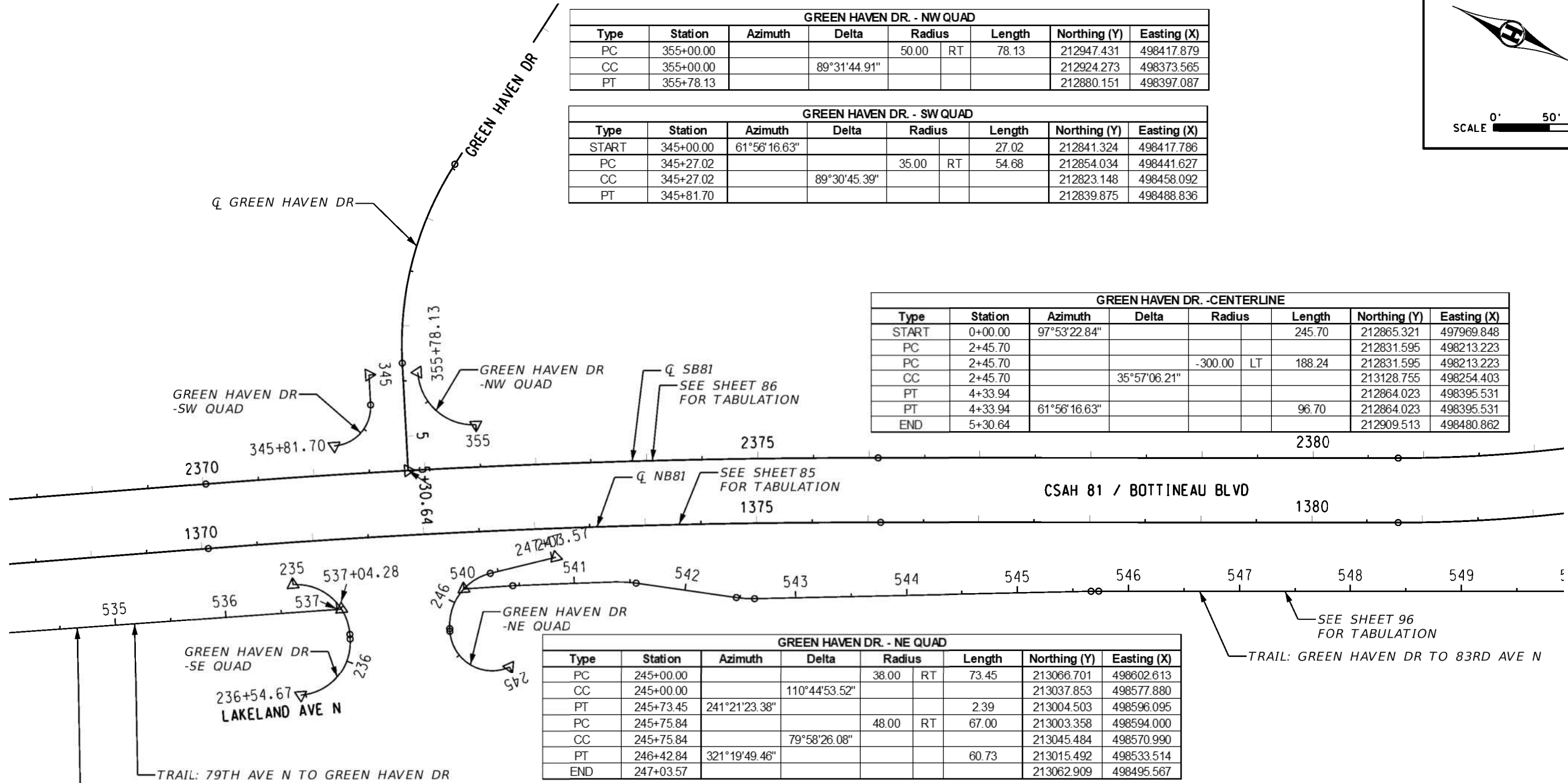
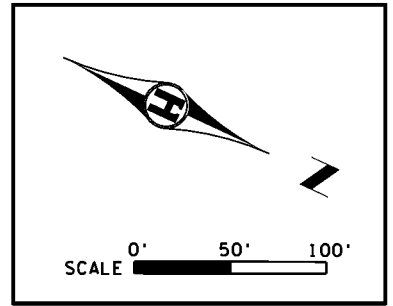
DESIGN BY: S. PARK
 CAD BY: E. GUIR
 CHECKED BY: R. DECOTEAU
 LAST REVISION: / /

ALIGNMENT PLAN AND TABULATIONS

C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
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GREEN HAVEN DR. - NW QUAD								
Type	Station	Azimuth	Delta	Radius	Length	Northing (Y)	Easting (X)	
PC	355+00.00			50.00	RT	78.13	212947.431	498417.879
CC	355+00.00		89°31'44.91"				212924.273	498373.565
PT	355+78.13						212880.151	498397.087

GREEN HAVEN DR. - SW QUAD								
Type	Station	Azimuth	Delta	Radius	Length	Northing (Y)	Easting (X)	
START	345+00.00	61°56'16.63"				27.02	212841.324	498417.786
PC	345+27.02			35.00	RT	54.68	212854.034	498441.627
CC	345+27.02		89°30'45.39"				212823.148	498458.092
PT	345+81.70						212839.875	498488.836

GREEN HAVEN DR. - CENTERLINE								
Type	Station	Azimuth	Delta	Radius	Length	Northing (Y)	Easting (X)	
START	0+00.00	97°53'22.84"				245.70	212865.321	497969.848
PC	2+45.70						212831.595	498213.223
PC	2+45.70			-300.00	LT	188.24	212831.595	498213.223
CC	2+45.70		35°57'06.21"				213128.755	498254.403
PT	4+33.94						212864.023	498395.531
PT	4+33.94	61°56'16.63"				96.70	212864.023	498395.531
END	5+30.64						212909.513	498480.862

GREEN HAVEN DR. - NE QUAD								
Type	Station	Azimuth	Delta	Radius	Length	Northing (Y)	Easting (X)	
PC	245+00.00			38.00	RT	73.45	213066.701	498602.613
CC	245+00.00		110°44'53.52"				213037.853	498577.880
PT	245+73.45	241°21'23.38"			2.39		213004.503	498596.095
PC	245+75.84			48.00	RT	67.00	213003.358	498594.000
CC	245+75.84		79°58'26.08"				213045.484	498570.990
PT	246+42.84	321°19'49.46"			60.73		213015.492	498533.514
END	247+03.57						213062.909	498495.567

GREEN HAVEN DR. - SE QUAD								
Type	Station	Azimuth	Delta	Radius	Length	Northing (Y)	Easting (X)	
PC	235+00.00			48.00	RT	75.59	212858.787	498617.609
CC	235+00.00		90°14'02.42"				212881.968	498659.641
PT	235+75.59	61°21'23.38"			4.04		212924.094	498636.631
PC	235+79.63			48.00	RT	75.03	212926.031	498640.177
CC	235+79.63		89°33'44.17"				212883.905	498663.186
PT	236+54.67						212907.235	498705.135

STA. NB81 1368+25.92 TO 1382+27.40



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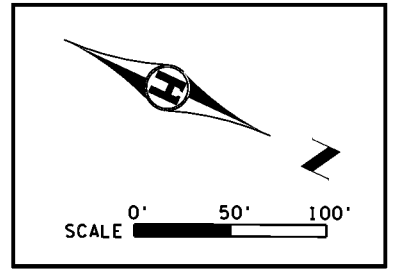
Kelly Agosto
 KELLY AGOSTO, LICENSED PROFESSIONAL ENGINEER
 49075 LICENSE NO. 3/15/19 DATE

DESIGN BY: S. PARK
 CAD BY: E. GUIR
 CHECKED BY: R. DECOTEAU
 LAST REVISION: / /

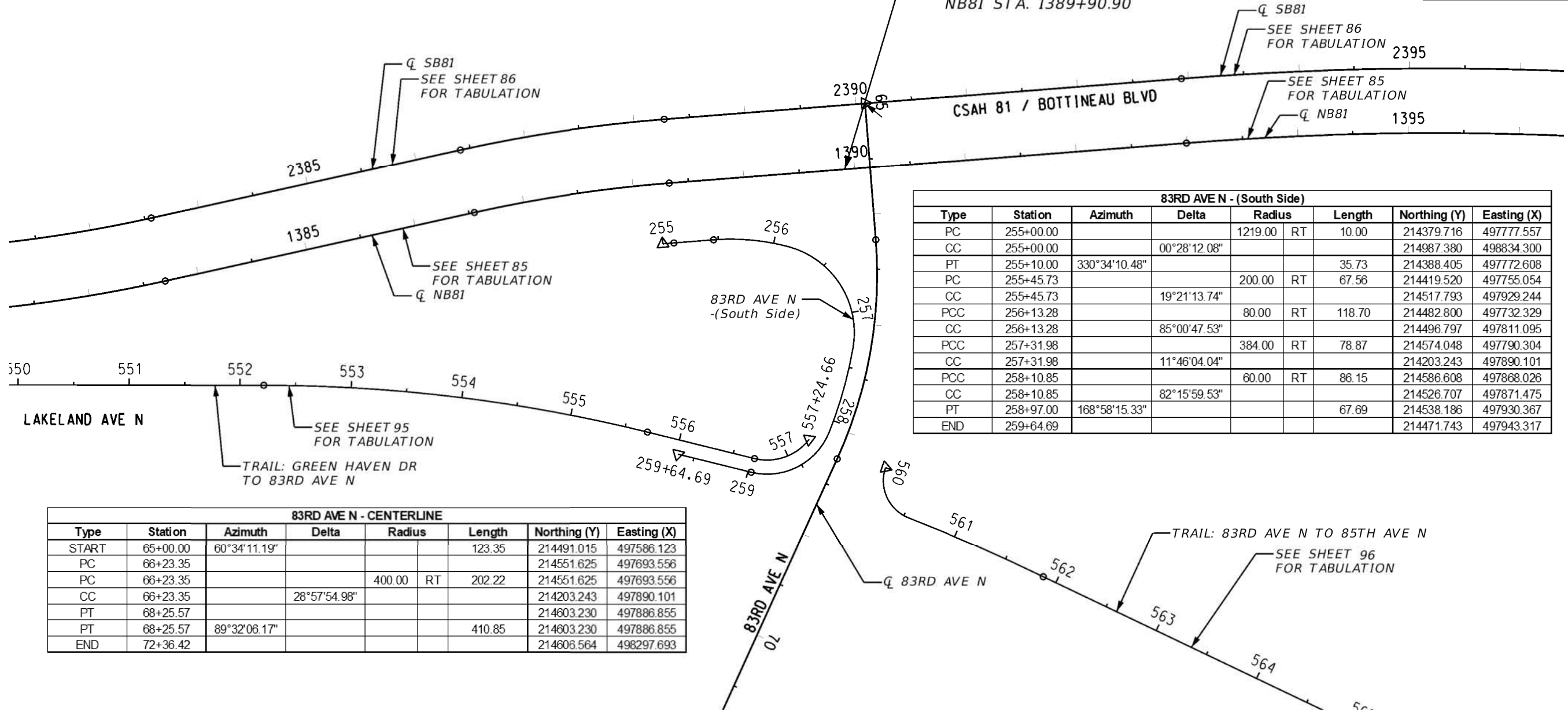
ALIGNMENT PLAN AND TABULATIONS

C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
 S.P. 027-681-035, S.P. 110-020-040

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END HENNEPIN COUNTY
PROJECT NO. 0922
RECONSTRUCTION
S.P. 027-681-035
S.P. 110-020-040
NB81 STA. 1389+90.90



83RD AVE N - (South Side)							
Type	Station	Azimuth	Delta	Radius	Length	Northing (Y)	Easting (X)
PC	255+00.00			1219.00	RT	214379.716	497777.557
CC	255+00.00		00°28'12.08"			214987.380	498834.300
PT	255+10.00	330°34'10.48"			35.73	214388.405	497772.608
PC	255+45.73			200.00	RT	214419.520	497755.054
CC	255+45.73		19°21'13.74"			214517.793	497929.244
PCC	256+13.28			80.00	RT	214482.800	497732.329
CC	256+13.28		85°00'47.53"			214496.797	497811.095
PCC	257+31.98			384.00	RT	214574.048	497790.304
CC	257+31.98		11°46'04.04"			214203.243	497890.101
PCC	258+10.85			60.00	RT	214586.608	497868.026
CC	258+10.85		82°15'59.53"			214526.707	497871.475
PT	258+97.00	168°58'15.33"			67.69	214538.186	497930.367
END	259+64.69					214471.743	497943.317

83RD AVE N - CENTERLINE							
Type	Station	Azimuth	Delta	Radius	Length	Northing (Y)	Easting (X)
START	65+00.00	60°34'11.19"			123.35	214491.015	497586.123
PC	66+23.35			400.00	RT	214551.625	497693.556
CC	66+23.35		28°57'54.98"		202.22	214203.243	497693.556
PT	68+25.57					214603.230	497886.855
PT	68+25.57	89°32'06.17"			410.85	214603.230	497886.855
END	72+36.42					214606.564	498297.693

STA. NB81 1382+27.40 TO 1389+90.90, STA. TR83 560+00.00 TO 564+66.29



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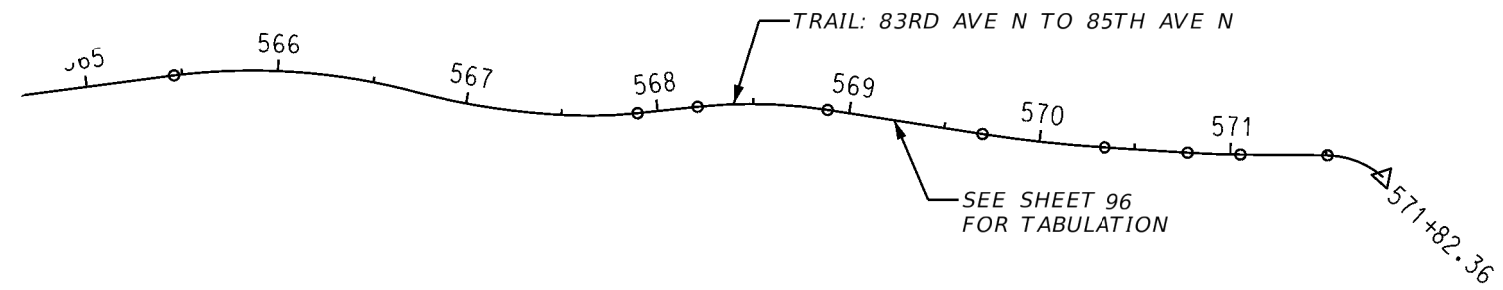
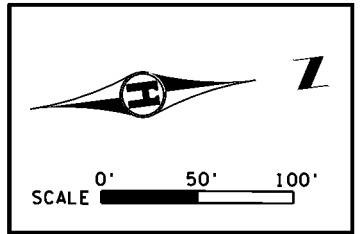
Kelly Agosto
KELLY AGOSTO, LICENSED PROFESSIONAL ENGINEER
49075 LICENSE NO. 3/15/19 DATE

DESIGN BY: S. PARK
CAD BY: E. GUIR
CHECKED BY: R. DECOTEAU
LAST REVISION: / /

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C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
S.P. 027-681-035, S.P. 110-020-040

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STA. TR83 564+66.29 TO 571+91.88



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Kelly Agosto

 KELLY AGOSTO, LICENSED PROFESSIONAL ENGINEER

49075 3/15/19
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 CHECKED BY: R. DECOTEAU
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 S.P. 027-681-035, S.P. 110-020-040

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Trail: 71ST AVE N TO 73RD AVE N							
Type	Station	Azimuth	Delta	Radius	Length	Northing (Y)	Easting (X)
PC	400+00.00			100.00	67.668	206814.880	501572.577
CC	400+00.00		38°46'15.96"			206855.223	501664.077
PRC	400+67.67					206881.068	501567.475
PRC	400+67.67			-105.00	69.398	206881.068	501567.475
CC	400+67.67		37°52'08.16"			206908.205	501466.042
PT	401+37.07					206949.048	501562.773
PT	401+37.07	337°06'32.99"			183.398	206949.048	501562.773
HPI	403+20.46					207118.003	501491.436
HPI	403+20.46	336°06'38.97"			780.255	207118.003	501491.436
PC	411+00.72					207831.414	501175.457
PC	411+00.72			-190.00	94.634	207831.414	501175.457
CC	411+00.72		28°32'14.94"			207759.458	500999.609
PT	411+95.35					207906.680	501119.716
PT	411+95.35	307°33'50.20"			10.905	207906.680	501119.716
PC	412+06.26					207913.328	501111.072
PC	412+06.26			100.00	25.185	207913.328	501111.072
CC	412+06.26		14°25'46.83"			207994.312	501169.737
PCC	412+31.44					207930.501	501092.742
PCC	412+31.44			140.00	32.442	207930.501	501092.742
CC	412+31.44		13°16'38.16"			208019.836	501200.535
PT	412+63.89					207957.645	501075.107
PT	412+63.89	335°05'07.45"			18.637	207957.645	501075.107
END	412+82.52					207974.548	501067.256

Trail: 73RD AVE N TO LAKELAND ACCESS							
Type	Station	Azimuth	Delta	Radius	Length	Northing (Y)	Easting (X)
START	420+00.00	01°05'16.59"			7.00	208018.899	501023.180
HPI	420+07.00					208025.894	501023.313
HPI	420+07.00	335°05'07.45"			88.83	208025.894	501023.313
PC	420+95.83					208106.457	500985.892
PC	420+95.83			100.00	77.40	208106.457	500985.892
CC	420+95.83		44°20'57.29"			208148.584	501076.585
PRC	421+73.23					208181.857	500982.283
PRC	421+73.23			-110.00	85.28	208181.857	500982.283
CC	421+73.23		44°25'05.54"			208218.457	500878.551
PT	422+58.51					208264.917	500978.258
PT	422+58.51	335°00'59.20"			395.38	208264.917	500978.258
END	426+53.89					208623.301	500811.266

Trail: LAKELAND ACCESS TO SA ACCESS							
Type	Station	Azimuth	Delta	Radius	Length	Northing (Y)	Easting (X)
START	430+00.00	335°00'59.20"			1075.59	208,681.36	500784.214
END	440+75.59					209,656.31	500329.929

Trail: SA ACCESS TO CSAH 130/BROOKLYN BLVD.							
Type	Station	Azimuth	Delta	Radius	Length	Northing (Y)	Easting (X)
START	450+00.00	335°03'12.57"			648.454	209683.791	500318.817
PC	456+48.45					210271.745	500045.317
PC	456+48.45			-105.00	67.423	210271.745	500045.317
CC	456+48.45		36°47'26.6"			210227.459	499950.113
PRC	457+15.88					210319.942	499999.832
PRC	457+15.88			100.00	64.236	210319.942	499999.832
CC	457+15.88		36°48'16.83"			210408.020	500047.184
PT	457+80.11					210365.865	499956.503
PT	457+80.11	335°04'02.79"			128.039	210365.865	499956.503
PC	459+08.15					210481.972	499902.528
PC	459+08.15			180.00	50.747	210481.972	499902.528
CC	459+08.15		16°09'12.1"			210557.851	500065.753
PCC	459+58.90					210530.378	499887.862
PCC	459+58.90			32.00	21.471	210530.378	499887.862
CC	459+58.90		38°26'34.64"			210535.262	499919.487
PT	459+80.37					210551.099	499891.681

Trail: CSAH 130/BROOKLYN BLVD. TO 79TH AVE N							
Type	Station	Azimuth	Delta	Radius	Length	Northing (Y)	Easting (X)
START	500+00.00	335°04'02.79"			86.647	210696.683	499786.602
PC	500+86.65					210775.255	499750.076
PC	500+86.65			100.00	66.874	210775.255	499750.076
CC	500+86.65		38°18'56.76"			210817.410	499840.756
PRC	501+53.52					210840.556	499743.472
PRC	501+53.52			-105.00	75.002	210840.556	499743.472
CC	501+53.52		40°55'36.4"			210864.860	499641.323
PCC	502+28.52					210913.414	499734.422
PCC	502+28.52			-11563.70	268.906	210913.414	499734.422
CC	502+28.52		01°19'56.55"			205566.094	489481.358
PT	504+97.43					211150.375	499607.313
PT	504+97.43	331°07'26.60"			610.076	211150.375	499607.313
PC	511+07.51					211684.599	499312.698
PC	511+07.51			-105.00	34.755	211684.599	499312.698
CC	511+07.51		18°57'53.61"			211633.893	499220.753
PRC	511+42.26					211711.727	499291.229
PRC	511+42.26			100.00	32.132	211711.727	499291.229
CC	511+42.26		18°24'37.49"			211785.856	499358.348
PT	511+74.39					211736.719	499271.252
PT	511+74.39	330°34'10.48"			65.661	211736.719	499271.252
END	512+40.05					211793.906	499238.989

Trail: 79TH AVE N TO GREEN HAVEN DR.							
Type	Station	Azimuth	Delta	Radius	Length	Northing (Y)	Easting (X)
START	525+00.00	330°34'10.48"			505.73	211851.013	499192.993
PC	530+05.73					212291.480	498944.494
PC	530+05.73			100.00	38.398	212291.480	498944.494
CC	530+05.73		22°00'00.82"			212340.617	499031.590
PRC	530+44.13					212327.685	498932.429
PRC	530+44.13			-105.00	39.556	212327.685	498932.429
CC	530+44.13		21°35'04.16"			212314.106	498828.311
PT	530+83.68					212365.035	498920.133
PT	530+83.68	330°59'07.14"			620.572	212365.035	498920.133
END	537+04.26					212907.722	498619.135



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Kelly Agosto
 KELLY AGOSTO, LICENSED PROFESSIONAL ENGINEER
 49075 LICENSE NO. 3/15/19 DATE

DESIGN BY: **S. PARK**
 CAD BY: **E. GUIR**
 CHECKED BY: **R. DECOTEAU**
 LAST REVISION: / /

ALIGNMENT PLAN AND TABULATIONS

C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
 S.P. 027-681-035, S.P. 110-020-040

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Trail: GREEN HAVEN DR. TO 83RD AVE N							
Type	Station	Azimuth	Delta	Radius	Length	Northing (Y)	Easting (X)
START	540+00.00	331°19'28.08"			44.10	212999.788	498556.298
PC	540+44.10			7589.00 RT	92.44	213038.483	498535.135
CC	540+44.10		00°41'52.43"			216529.604	505273.456
PCC	541+36.54			110.00 RT	19.10	213120.817	498493.112
CC	541+36.54		09°57'03.91"			213170.226	498591.390
PT	541+55.65	343°15'37.19"			90.94	213138.543	498486.052
PC	542+46.58			-100.00 LT	16.44	213225.627	498459.860
CC	542+46.58		09°25'09.4"			213196.825	498364.097
PT	542+63.02	333°50'27.78"			303.21	213240.911	498453.855
PC	545+66.23			312.00 RT	6.86	213513.063	498320.182
CC	545+66.23		01°15'33.47"			213650.612	498600.225
PT	545+73.09	335°06'01.26"			648.25	213519.250	498317.227
PC	552+21.34			1442.00 RT	349.09	214107.247	498044.292
CC	552+21.34		13°52'14.07"			214714.372	499352.253
PT	555+70.43	348°58'15.33"			99.11	214438.507	497936.887
PC	556+69.54			-47.39 LT	55.11	214535.787	497917.926
CC	556+69.54		66°37'56.55"			214526.721	497871.411
PT	557+24.66					214573.017	497881.538

Trail: 83RD AVE N TO 85TH AVE N							
Type	Station	Azimuth	Delta	Radius	Length	Northing (Y)	Easting (X)
PC	560+00.00			-35.80 LT	54.33	214645.972	497875.743
CC	560+00.00		86°56'42.34"			214681.596	497872.182
PRC	560+54.33					214683.253	497907.945
PRC	560+54.33			1707.02 RT	133.19	214683.253	497907.945
CC	560+54.33		04°28'13.31"			214787.496	499611.774
PT	561+87.51					214816.373	497905.004
PT	561+87.51	00°31'51.33"			358.30	214816.373	497905.004
PC	565+45.81					215174.658	497908.324
PC	565+45.81			329.87 RT	128.26	215174.658	497908.324
CC	565+45.81		22°16'39.25"			215169.245	498238.154
PRC	566+74.07					215299.290	497934.995
PRC	566+74.07			-386.10 LT	79.58	215299.290	497934.995
CC	566+74.07		11°48'31.27"			215446.538	497578.075
PCC	567+53.65					215375.448	497957.575
PCC	567+53.65			-237.08 LT	35.89	215375.448	497957.575
CC	567+53.65		08°40'26.27"			215419.099	497724.550
PT	567+89.54					215411.090	497961.493
PT	567+89.54	01°56'09.63"			30.00	215411.090	497961.493
PC	568+19.54					215441.073	497962.506
PC	568+19.54			257.08 RT	64.17	215441.073	497962.506
CC	568+19.54		14°18'08.94"			215432.388	498219.437
PT	568+83.71					215504.276	497972.615
PT	568+83.71	16°14'18.57"			123.40	215504.276	497972.615
PC	570+07.12					215622.758	498007.123
PC	570+07.12			-558.49 LT	75.43	215622.758	498007.123
CC	570+07.12		07°44'17.97"			215778.933	497470.909
PT	570+82.55					215696.380	498023.269
PT	570+82.55	08°30'00.60"			68.04	215696.380	498023.269
PC	571+50.59					215763.674	498033.326
PC	571+50.59			45.31 RT	31.79	215763.674	498033.326
CC	571+50.59		40°12'24.39"			215756.280	498078.024
PT	571+82.38					215790.782	498048.661

73RD AVE N - SW QUAD							
Type	Station	Azimuth	Delta	Radius	Length	Northing (Y)	Easting (X)
START	305+00.00	90°15'21.81"			14.93	207961.150	500856.102
PC	305+14.93					207961.084	500871.029
PC	305+14.93			52.00 RT	58.84	207961.084	500871.029
CC	305+14.93		64°49'45.64"			207909.084	500870.796
PT	305+73.76					207930.990	500917.957
PT	305+73.76	155°05'07.45"			10.01	207930.990	500917.957
END	305+83.77					207921.912	500922.174

73RD AVE N - NW QUAD (PORK CHOP) ISLAND							
Type	Station	Azimuth	Delta	Radius	Length	Northing (Y)	Easting (X)
PC	820+00.00			120.00 RT	26.91	208080.267	500841.994
CC	820+00.00		12°51'02.6"			208077.442	500722.028
PCC	820+26.91			60.00 RT	25.39	208053.514	500839.618
CC	820+26.91		24°14'59.21"			208065.478	500780.823
PRC	820+52.31			-2.00 LT	4.38	208030.421	500829.516
CC	820+52.31		125°29'45.36"			208029.253	500831.139
PT	820+56.69	90°15'21.81"			35.27	208027.253	500831.130
PC	820+91.96			-3.00 LT	6.03	208027.095	500866.397
CC	820+91.96		115°10'14.36"			208030.095	500866.410
PT	820+97.99	335°05'07.45"			55.79	208031.359	500869.131
END	821+53.77					208081.955	500845.629

73RD AVE N - NW QUAD							
Type	Station	Azimuth	Delta	Radius	Length	Northing (Y)	Easting (X)
START	315+00.00	155°05'07.45"			10.00	208150.631	500802.704
PC	315+10.00			150.00 RT	45.00	208141.561	500806.917
CC	315+10.00		17°11'19.44"			208078.371	500670.876
PCC	315+55.00			60.00 RT	69.61	208098.536	500819.514
CC	315+55.00		66°28'09.28"			208090.470	500760.059
PCC	316+24.61			100.00 RT	55.00	208039.179	500791.191
CC	316+24.61		31°30'45.65"			208124.664	500739.304
PT	316+79.61	270°15'21.81"			10.00	208024.665	500738.857
END	316+89.61					208024.710	500728.857

73RD AVE N - NE QUAD							
Type	Station	Azimuth	Delta	Radius	Length	Northing (Y)	Easting (X)
START	125+00.00	270°15'21.81"			10.00	208018.847	501033.761
PC	125+10.00			40.00 RT	45.26	208018.892	501023.761
CC	125+10.00		64°49'45.64"			208058.892	501023.939
PT	125+55.26	335°05'07.45"			10.00	208042.041	500987.662
END	125+65.26					208051.110	500983.449



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73RD AVE N - SE QUAD							
Type	Station	Azimuth	Delta	Radius	Length	Northing (Y)	Easting (X)
START	115+00.00	335°05'07.45"			10.56	207924.432	501055.522
PC	115+10.56					207934.010	501051.073
PC	115+10.56			30.00 RT	60.30	207934.010	501051.073
CC	115+10.56		115°10'14.36"			207946.648	501078.281
PT	115+70.86					207976.647	501078.415
PT	115+70.86	90°15'21.81"			10.00	207976.647	501078.415
END	115+80.86					207976.603	501088.415

73RD AVE N-CENTERLINE							
Type	Station	Azimuth	Delta	Radius	Length	Northing (Y)	Easting (X)
START	2+00.00	90°15'21.81"			1300	207997.534	500432.629
END	15+00.00					207991.724	501732.616

LAKELAND ACCESS - SE QUAD							
Type	Station	Azimuth	Delta	Radius	Length	Northing (Y)	Easting (X)
PC	135+00.00			30.00 RT	46.99	208578.535	500755.325
CC	135+00.00		89°44'46.55"			208590.415	500782.872
PT	135+46.99	66°25'00.71"			7.62	208617.910	500770.870
PC	135+54.61			50.00 RT	77.32	208620.957	500777.851
CC	135+54.61		88°35'58.49"			208575.133	500797.855
PT	136+31.93					208596.251	500843.177

LAKELAND ACCESS - NE QUAD							
Type	Station	Azimuth	Delta	Radius	Length	Northing (Y)	Easting (X)
PC	145+00.00			50.00 RT	79.76	208723.189	500784.029
CC	145+00.00		91°24'01.5"			208702.071	500738.707
PT	145+79.76	246°25'00.71"			16.20	208656.247	500758.711
PC	145+95.96			30.00 RT	46.88	208649.768	500743.869
CC	145+95.96		89°32'15.34"			208677.262	500731.866
PT	146+42.84					208665.038	500704.469

LAKELAND AVE N - CENTERLINE							
Type	Station	Azimuth	Delta	Radius	Length	Northing (Y)	Easting (X)
START	1+00.00	335°00'59.20"			1326.80	208081.719	501097.269
PC	14+26.80			42.00 RT	84.48	209284.372	500536.883
CC	14+26.80		115°14'22.93"			209302.111	500574.953
PT	15+11.28	90°15'22.14"			132.09	209344.111	500575.141
PC	16+43.37			-110.00 LT	76.95	209343.520	500707.233
CC	16+43.37		40°04'51.24"			209453.519	500707.725
PT	17+20.32	50°10'30.89"			99.42	209369.038	500778.174
END	18+19.74					209432.709	500854.527

LAKELAND AVE N - CUL-DE-SAC							
Type	Station	Azimuth	Delta	Radius	Length	Northing (Y)	Easting (X)
START	900+00.00	155°00'59.20"			10.00	208191.128	501031.947
PC	900+10.00			38.50 RT	51.40	208182.064	501036.171
CC	900+10.00		76°29'41.42"			208165.803	501001.273
PRC	900+61.40			-45.00 LT	201.45	208135.668	501025.234
CC	900+61.40		256°29'41.42"			208100.445	501053.240
PT	902+62.85	335°00'59.20"			91.19	208119.451	501094.029
END	903+54.04					208202.110	501055.514

CSAH 130/BROOKLYN BLVD - NW_Quad							
Type	Station	Azimuth	Delta	Radius	Length	Northing (Y)	Easting (X)
START	335+00.00	155°04'02.79"			10.00	210808.874	499571.236
PC	335+10.00			150.00 RT	56.00	210799.806	499575.452
CC	335+10.00		21°23'25.53"			210736.573	499439.431
PCC	335+66.00			60.00 RT	86.22	210745.841	499589.145
CC	335+66.00		82°19'47.07"			210742.134	499529.259
PCC	336+52.22			100.00 RT	20.00	210683.279	499540.926
CC	336+52.22		11°27'32.96"			210781.370	499521.481
PT	336+72.22	270°14'48.35"			10.00	210681.371	499521.051
END	336+82.22					210681.414	499511.051

CSAH 130/BROOKLYN BLVD - NE_Quad							
Type	Station	Azimuth	Delta	Radius	Length	Northing (Y)	Easting (X)
START	185+00.00	270°14'48.35"			37.44	210690.945	499852.097
PC	185+37.44			75.00 RT	84.86	210691.107	499814.658
CC	185+37.44		64°49'32.65"			210766.106	499814.981
PT	186+22.30	335°04'21.00"			11.32	210734.496	499746.968
END	186+33.62					210744.761	499742.197

CSAH 130/BROOKLYN BLVD - SW_Quad							
Type	Station	Azimuth	Delta	Radius	Length	Northing (Y)	Easting (X)
START	175+00.00	90°14'48.34"			10.00	210568.864	499638.545
PC	175+10.00			75.00 RT	84.85	210568.821	499648.545
CC	175+10.00		64°49'14.44"			210493.822	499648.222
PT	175+94.85	155°04'02.78"			10.00	210525.438	499716.232
END	176+04.85					210516.370	499720.448

CSAH 130/BROOKLYN BLVD - SE_Quad							
Type	Station	Azimuth	Delta	Radius	Length	Northing (Y)	Easting (X)
START	325+00.00	335°04'02.78"			10.00	210450.868	499892.053
PC	325+10.00			200.00 RT	75.00	210459.938	499887.837
CC	325+10.00		21°29'09.3"			210544.248	500069.197
PCC	325+85.00			50.00 RT	63.01	210532.224	499869.559
CC	325+85.00		72°12'30.72"			210535.230	499919.469
PCC	326+48.01			200.00 RT	75.00	210581.834	499901.357
CC	326+48.01		21°29'05.55"			210395.418	499973.805
PT	327+23.01	90°14'48.36"			10.01	210595.416	499974.667
END	327+33.02					210595.373	499984.676



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EB CSAH 130 /BROOKLYN BLVD.							
Type	Station	Azimuth	Delta	Radius	Length	Northing (Y)	Easting (X)
START	178+45.50	90°14'48.35"			618.62	210631.932	497765.357
PC	184+64.12			7639.00	RT	237.04	210629.268
CC	184+64.12		01°46'40.34"			202990.339	498351.074
PT	187+01.16	92°01'28.69"			43.97	210624.570	498620.954
PC	187+45.13			-7639.00	LT	199.32	210623.017
CC	187+45.13		01°29'41.86"			218257.248	498934.774
PRC	189+44.44			8882.00	RT	184.98	210618.574
CC	189+44.44		01°11'35.66"			201736.954	498782.047
PRC	191+29.42			-7639.00	LT	196.81	210614.938
CC	191+29.42		01°28'34.14"			218250.485	499278.767
PT	193+26.23	90°14'48.35"			956.84	210611.556	499245.867
PC	202+83.07			-7639.00	LT	146.97	210607.435
CC	202+83.07		01°06'08.32"			218246.364	500235.599
PRC	204+30.04			7639.00	RT	187.37	210608.215
CC	204+30.04		01°24'19.32"			202970.067	500463.724
PT	206+17.41	90°32'59.35"			504.59	210608.715	500537.028
PC	211+22.00			7639.00	RT	285.27	210603.873
CC	211+22.00		02°08'22.64"			202965.225	500968.291
PRC	214+07.26			-7639.00	LT	275.45	210595.811
CC	214+07.26		02°03'57.62"			218226.397	501685.172
PT	216+82.72	90°37'24.37"			194.20	210587.849	501602.053
PC	218+76.92			-7639.00	LT	302.79	210585.736
CC	218+76.92		02°16'15.72"			218224.284	501879.361
PRC	221+79.70			7639.00	RT	302.79	210588.442
CC	221+79.70		02°16'15.72"			202952.600	502318.634
PT	224+82.49	90°37'24.37"			198.66	210591.148	502401.753
END	226+81.15					210588.986	502600.399

WB CSAH 130 /BROOKLYN BLVD.							
Type	Station	Azimuth	Delta	Radius	Length	Northing (Y)	Easting (X)
START	79+19.00	90°14'48.35"			565.89	210655.932	497765.461
PC	84+84.89			-7639.00	LT	212.80	210653.495
CC	84+84.89		01°35'45.96"			218292.424	498364.242
PT	86+97.69	88°39'02.39"			186.87	210655.542	498544.126
PC	88+84.56			7639.00	RT	105.17	210659.943
CC	88+84.56		00°47'19.88"			203023.061	498910.828
PRC	89+89.73			-8882.00	LT	191.65	210661.695
CC	89+89.73		01°14'10.66"			219543.270	498749.218
PRC	91+81.38			7639.00	RT	272.46	210665.637
CC	91+81.38		02°02'36.74"			203030.393	499267.226
PT	94+53.84	90°14'48.35"			781.48	210669.322	499300.126
PC	102+35.32			7639.00	RT	287.24	210665.957
CC	102+35.32		02°09'16.02"			203027.028	500048.699
PRC	105+22.56			-7639.00	LT	246.84	210659.320
CC	105+22.56		01°51'05.01"			218291.613	500688.799
PT	107+69.40	90°32'59.35"			484.45	210652.964	500615.495
PC	112+53.85			7639.00	RT	20.50	210648.316
CC	112+53.85		00°09'13.59"			203009.667	501026.622
PT	112+74.36	90°42'12.94"			266.11	210648.091	501120.427
PC	115+40.46			-7639.00	LT	113.42	210644.824
CC	115+40.46		00°51'02.49"			218283.248	501480.320
PRC	116+53.88			7639.00	RT	102.73	210644.273
CC	116+53.88		00°46'13.93"			203005.298	501519.544
PT	117+56.62	90°37'24.37"			203.63	210643.846	501602.663
HPI	119+60.24	90°37'24.37"			794.65	210641.630	501806.277
END	127+54.89					210632.984	502600.878

CSAH 130/BROOKLYN BLVD-NW (Pork Chop) Island							
Type	Station	Azimuth	Delta	Radius	Length	Northing (Y)	Easting (X)
PC	700+00.00			120.00	RT	26.91	210741.062
CC	700+00.00		12°51'02.6"			210738.201	499489.402
PCC	700+26.91			60.00	RT	26.60	210714.309
CC	700+26.91		25°24'06.22"			210726.255	499548.201
PRC	700+53.52			-2.00	LT	4.42	210690.241
CC	700+53.52		126°38'21.17"			210689.041	499597.791
PT	700+57.94	90°14'48.35"			36.48	210687.041	499597.782
PC	700+94.41			-3.00	LT	6.03	210686.884
CC	700+94.41		115°10'45.56"			210689.884	499634.271
PT	701+00.44	335°04'02.79"			56.91	210691.148	499636.992
END	701+57.35					210742.752	499613.003

CSAH 130/BROOKLYN BLVD-SE (Pork Chop) Island							
Type	Station	Azimuth	Delta	Radius	Length	Northing (Y)	Easting (X)
START	800+00.00	335°04'02.79"			55.95	210535.076	499841.879
PC	800+55.95			3.00	RT	6.03	210585.814
CC	800+55.95		115°10'45.56"			210587.078	499821.013
PT	800+61.98	90°14'48.35"			25.61	210590.078	499821.025
PC	800+87.59			3.00	RT	4.95	210589.968
CC	800+87.59		94°35'58.11"			210586.968	499846.624
PT	800+92.55	184°50'46.46"			50.72	210586.715	499849.613
END	801+43.27					210536.171	499845.328



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DESIGN BY: S. PARK
 CAD BY: E. GUIR
 CHECKED BY: R. DECOTEAU
 LAST REVISION: / /

ALIGNMENT PLAN AND TABULATIONS

C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
 S.P. 027-681-035, S.P. 110-020-040

SHEET

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BP ACCESS -NW QUAD							
Type	Station	Azimuth	Delta	Radius	Length	Northing (Y)	Easting (X)
START	640+00.00	123°47'43.67"			6.08	210706.250	500628.034
HPI	640+06.08	125°56'40.28"			4.52	210702.869	500633.085
PC	640+10.60			5.00 RT	4.77	210700.214	500636.746
CC	640+10.60		54°36'18.64"			210696.166	500633.811
PT	640+15.37	180°32'58.92"			14.38	210696.118	500638.811
PC	640+29.74			5.00 RT	7.85	210681.743	500638.673
CC	640+29.74		90°00'00.42"			210681.791	500633.674
PT	640+37.60					210676.792	500633.626

BP ACCESS -NE QUAD							
Type	Station	Azimuth	Delta	Radius	Length	Northing (Y)	Easting (X)
START	650+00.00	274°21'50.02"			10.00	210675.835	500696.602
PC	650+10.00			30.00 RT	45.13	210676.596	500686.631
CC	650+10.00		86°11'08.9"			210706.509	500688.913
PT	650+55.13	00°32'58.92"			17.91	210706.797	500658.915
HPI	650+73.04	356°27'48.95"			3.85	210724.706	500659.086
END	650+76.89					210728.548	500658.849

SHOP ACCESS -NW QUAD							
Type	Station	Azimuth	Delta	Radius	Length	Northing (Y)	Easting (X)
START	660+00.00	179°19'55.06"			7.29	210707.694	501096.467
HPI	660+07.29	179°52'47.63"			8.71	210700.408	501096.552
PC	660+15.99			30.00 RT	47.47	210691.701	501096.571
CC	660+15.99		90°40'11.72"			210691.638	501066.571
PT	660+63.47					210661.639	501066.283

SHOP ACCESS -NE QUAD							
Type	Station	Azimuth	Delta	Radius	Length	Northing (Y)	Easting (X)
PC	670+00.00			30.00 RT	46.69	210660.485	501169.917
CC	670+00.00		89°10'34.67"			210690.482	501170.285
PT	670+46.69	359°52'47.62"			10.23	210690.419	501140.285
HPI	670+56.92	359°19'55.09"			6.64	210700.647	501140.264
END	670+63.56					210707.286	501140.186

SHOP ACCESS -SW QUAD							
Type	Station	Azimuth	Delta	Radius	Length	Northing (Y)	Easting (X)
PC	50+00.00			45.00 RT	69.5	210579.763	501052.143
CC	50+00.00		88°29'22.57"			210534.766	501051.679
PT	50+89.50	179°04'48.33"			19.71	210535.488	501096.673
END	50+89.21					210515.778	501096.99

SHOP ACCESS -SE QUAD							
Type	Station	Azimuth	Delta	Radius	Length	Northing (Y)	Easting (X)
START	60+00.00	359°04'48.33"			41.59	210516.478	501140.595
PC	60+41.59			30.00 RT	48.43	210558.067	501139.927
CC	60+41.59		92°29'18.71"			210558.548	501169.923
PT	60+90.02					210588.537	501170.744



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.

Kelly Agosto
 KELLY AGOSTO, LICENSED PROFESSIONAL ENGINEER

49075 3/15/19
 LICENSE NO. DATE

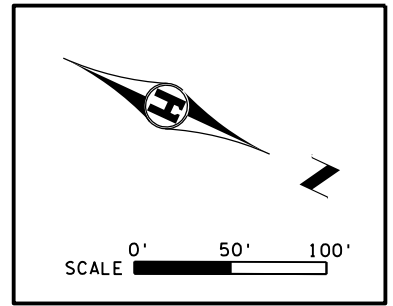
DESIGN BY: S. PARK
 CAD BY: E. GUIR
 CHECKED BY: R. DECOTEAU
 LAST REVISION: / /

ALIGNMENT PLAN AND TABULATIONS

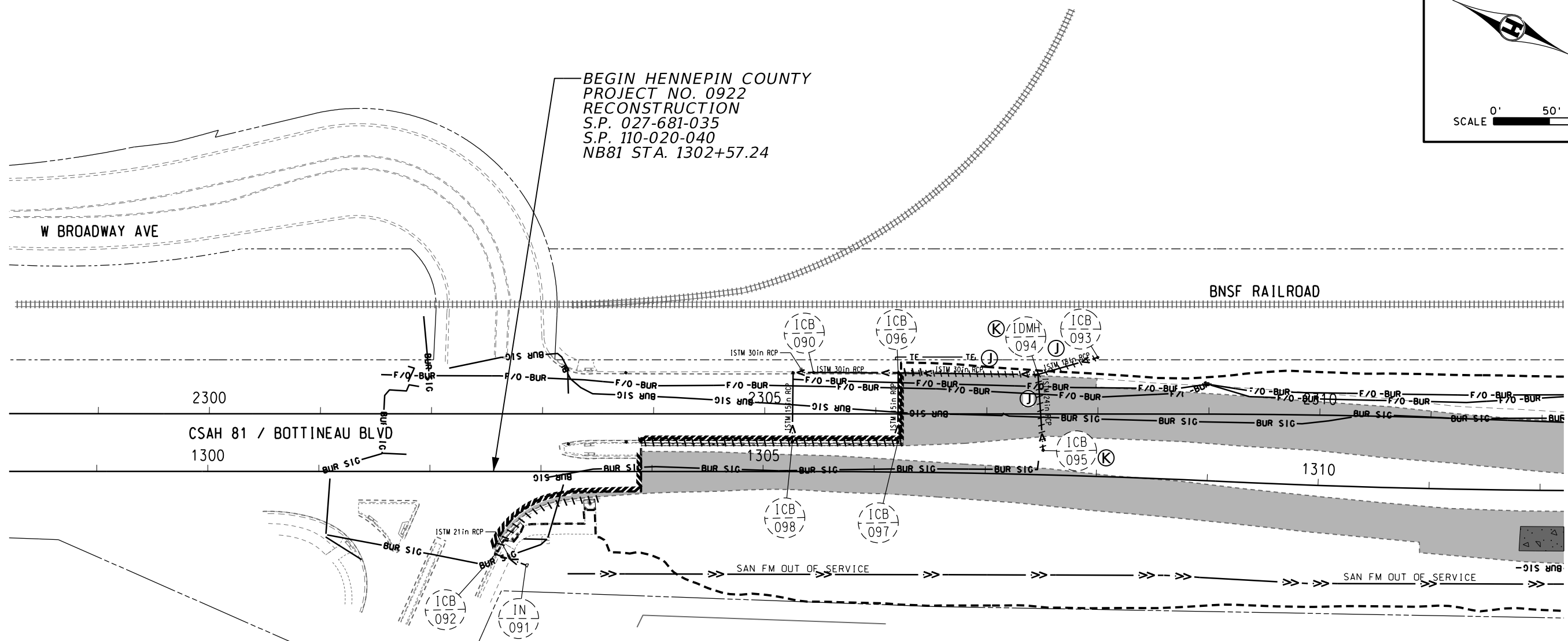
C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
 S.P. 027-681-035, S.P. 110-020-040

SHEET

99
 244



BEGIN HENNEPIN COUNTY
 PROJECT NO. 0922
 RECONSTRUCTION
 S.P. 027-681-035
 S.P. 110-020-040
 NB81 STA. 1302+57.24



- NOTES :
- (A) REMOVE SIGNAL SYSTEM
 - (D) REMOVE CONCRETE PAVEMENT
 - (E) REMOVE GUARDRAIL, ANCHORAGE ASSEMBLY - PLATE BEAM AND ENERGY ABSORBING TERMINAL
 - (F) SALVAGE CHAIN LINK FENCE
 - (H) REMOVE PIPE APRON
 - (J) REMOVE PIPE SEWER (STM)
 - (K) REMOVE DRAINAGE STRUCTURE
 - (N) ADJUST CASTING - MANHOLE (STM)

GENERAL NOTES:
 IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO UTILIZE THE GOPHER STATE ONE CALL EXCAVATION NOTICE SYSTEM
 ALL TREES NOT SPECIFICALLY SHOWN TO BE REMOVED ARE TO BE PROTECTED AS PER THE DETAILS ON SHEET 81 AND THE SPECIAL PROVISIONS

GENERAL NOTES:
 SAWCUT CONCRETE WALK IS INCIDENTAL SEE SHEET 18 FOR UTILITY CONTACT INFORMATION
 SEE INPLACE UTILITY TABULATIONS FOR ADDITIONAL INFORMATION

REMOVAL LEGEND			
	REMOVE BITUMINOUS PAVEMENT		REMOVE PIPE CULVERT
	REMOVE PAVEMENT		REMOVE SEWER PIPE (STORM)
	REMOVE BITUMINOUS WALK		CONSTRUCTION LIMITS
	REMOVE BITUMINOUS DRIVEWAY		RAILROAD R/W
	REMOVE CONCRETE WALK		INPLACE IR/W
	REMOVE CONCRETE DRIVEWAY		NEW R/W
	REMOVE CURB AND GUTTER		TEMPORARY EASEMENT
	REMOVE LANDSCAPE TIMBER		TRAIL, SIDEWALK, DRAIN, AND UTILITY EASEMENT
	SAWING BITUMINOUS PAVEMENT		DRAINAGE AND UTILITY EASEMENT
	CLEAR AND GRUB TREE		

STA. NB81 1302+57.24 TO 1312+21.39



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.

Kelly Agosto
 KELLY AGOSTO, LICENSED PROFESSIONAL ENGINEER

49075 3/15/19
 LICENSE NO. DATE

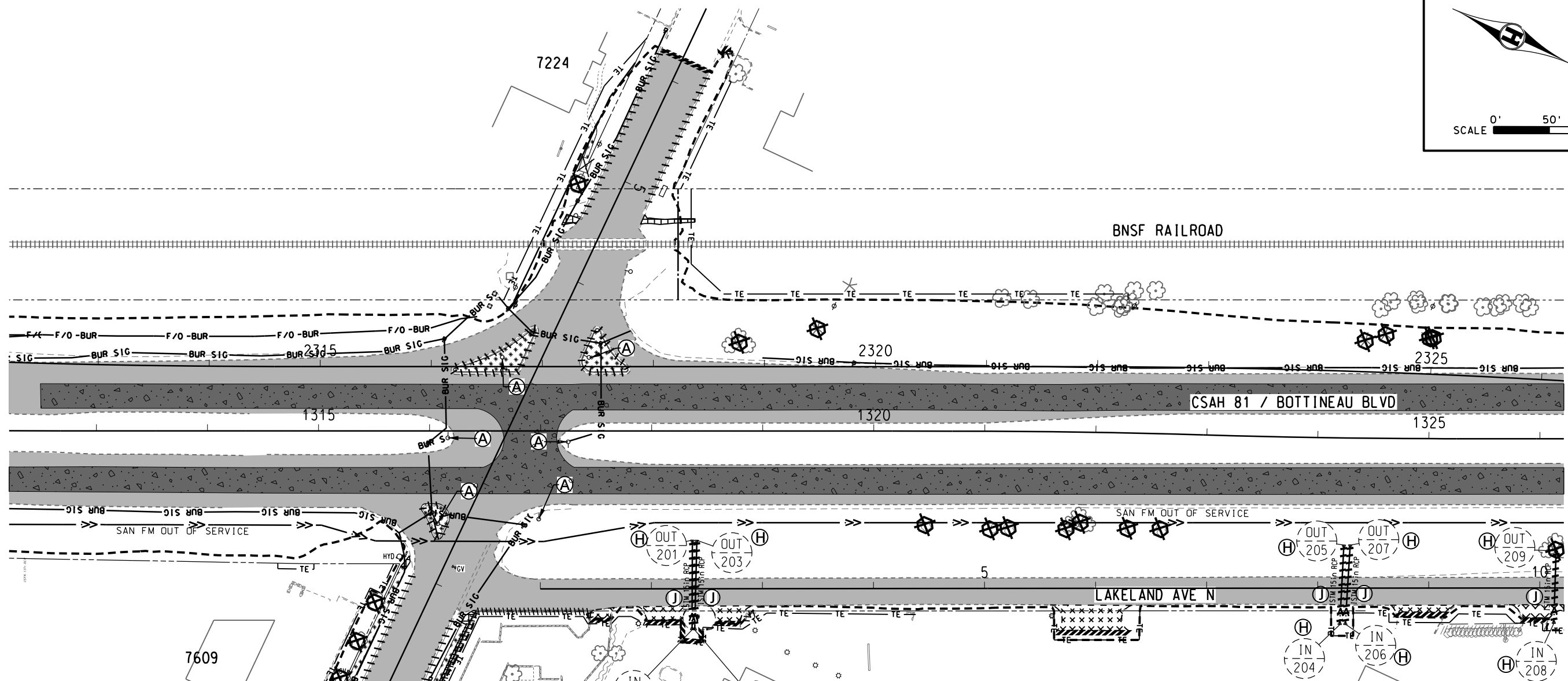
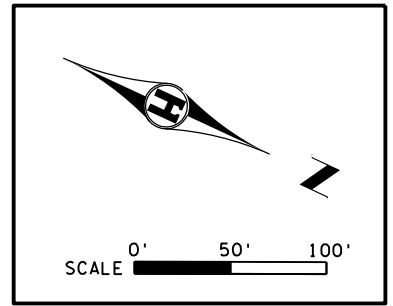
DESIGN BY: L. LANGNER
 CAD BY: E. GUIR
 CHECKED BY: R. DECOTEAU
 LAST REVISION: / /

REMOVAL PLAN

C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
 S.P. 027-681-035, S.P. 110-020-040

SHEET

100
 244



REMOVAL LEGEND	
	REMOVE BITUMINOUS PAVEMENT
	REMOVE PAVEMENT
	REMOVE BITUMINOUS WALK
	REMOVE BITUMINOUS DRIVEWAY
	REMOVE CONCRETE WALK
	REMOVE CONCRETE DRIVEWAY
	REMOVE CURB AND GUTTER
	REMOVE LANDSCAPE TIMBER
	SAWING BITUMINOUS PAVEMENT
	REMOVE PIPE CULVERT
	REMOVE SEWER PIPE (STORM)
	CONSTRUCTION LIMITS
	RAILROAD R/W
	INPLACE IR/W
	NEW R/W
	TEMPORARY EASEMENT
	TRAIL, SIDEWALK, DRAIN, AND UTILITY EASEMENT
	DRAINAGE AND UTILITY EASEMENT
	CLEAR AND GRUB TREE

- NOTES :**
- (A) REMOVE SIGNAL SYSTEM
 - (D) REMOVE CONCRETE PAVEMENT
 - (E) REMOVE GUARDRAIL, ANCHORAGE ASSEMBLY - PLATE BEAM AND ENERGY ABSORBING TERMINAL
 - (F) SALVAGE CHAIN LINK FENCE
 - (H) REMOVE PIPE APRON
 - (J) REMOVE PIPE SEWER (STM)
 - (K) REMOVE DRAINAGE STRUCTURE
 - (N) ADJUST CASTING - MANHOLE (STM)

GENERAL NOTES:
 IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO UTILIZE THE GOPHER STATE ONE CALL EXCAVATION NOTICE SYSTEM
 ALL TREES NOT SPECIFICALLY SHOWN TO BE REMOVED ARE TO BE PROTECTED AS PER THE DETAILS ON SHEET 81 AND THE SPECIAL PROVISIONS

GENERAL NOTES:
 SAWCUT CONCRETE WALK IS INCIDENTAL SEE SHEET 18 FOR UTILITY CONTACT INFORMATION
 SEE INPLACE UTILITY TABULATIONS FOR ADDITIONAL INFORMATION

STA. NB81 1312+21.39 TO 1326+21.46



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.

Kelly Agosto
 KELLY AGOSTO, LICENSED PROFESSIONAL ENGINEER
 49075 LICENSE NO. 3/15/19 DATE

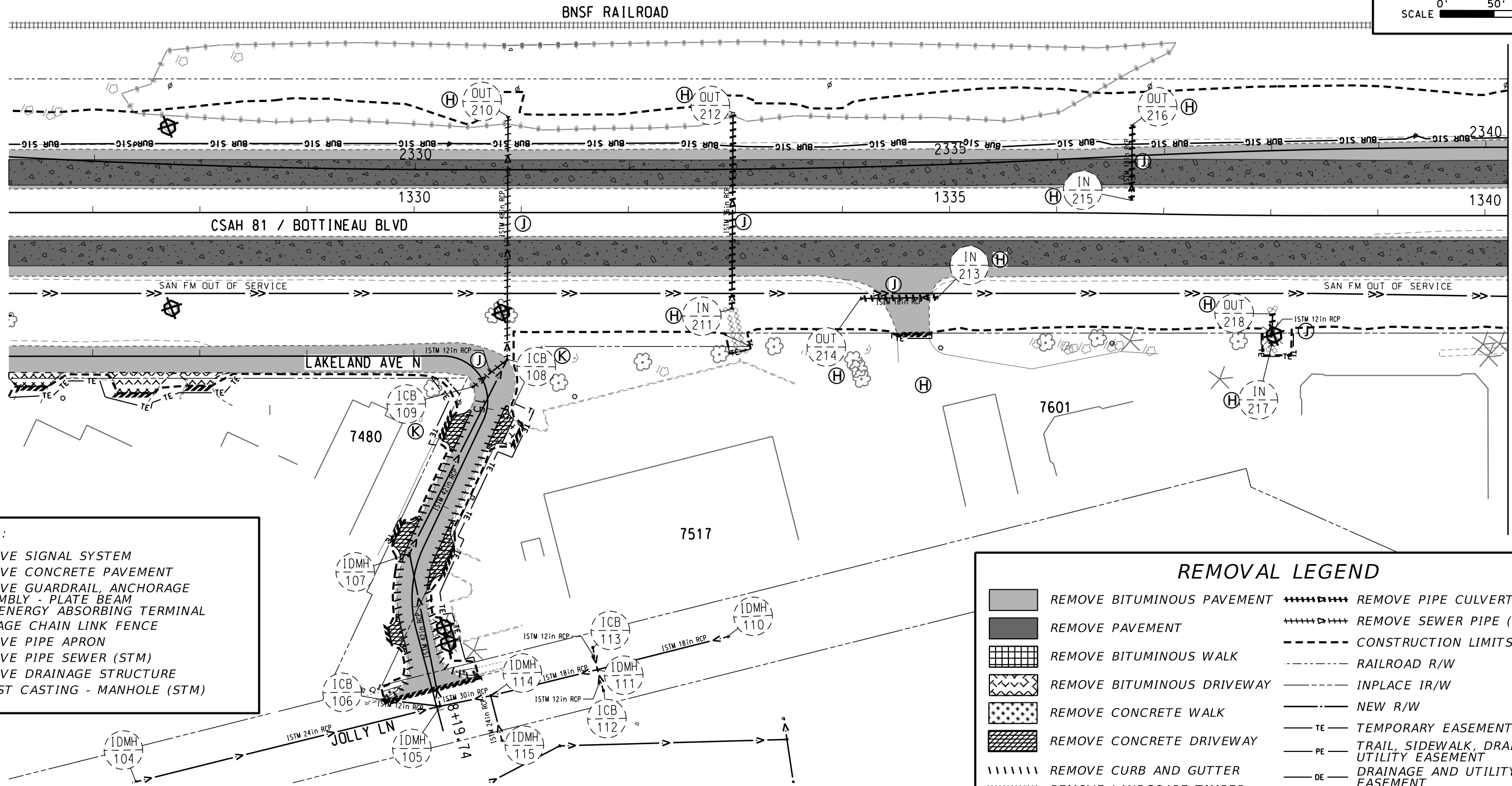
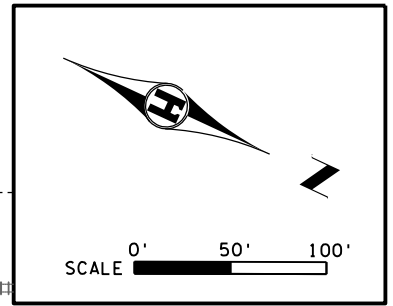
DESIGN BY: L. LANGNER
CAD BY: E. GUIR
CHECKED BY: R. DECOTEAU
LAST REVISION: / /

REMOVAL PLAN
 C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
 S.P. 027-681-035, S.P. 110-020-040

SHEET
 101 / 244

GENERAL NOTES:
 IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO UTILIZE THE GOPHER STATE ONE CALL EXCAVATION NOTICE SYSTEM
 ALL TREES NOT SPECIFICALLY SHOWN TO BE REMOVED ARE TO BE PROTECTED AS PER THE DETAILS ON SHEE 81 AND THE SPECIAL PROVISIONS

GENERAL NOTES:
 SAWCUT CONCRETE WALK IS INCIDENTAL SEE SHEET 18 FOR UTILITY CONTACT INFORMATION
 SEE INPLACE UTILITY TABULATIONS FOR ADDITIONAL INFORMATION



- NOTES :
- (A) REMOVE SIGNAL SYSTEM
 - (D) REMOVE CONCRETE PAVEMENT
 - (E) REMOVE GUARDRAIL, ANCHORAGE ASSEMBLY - PLATE BEAM AND ENERGY ABSORBING TERMINAL
 - (F) SALVAGE CHAIN LINK FENCE
 - (H) REMOVE PIPE APRON
 - (J) REMOVE PIPE SEWER (STM)
 - (K) REMOVE DRAINAGE STRUCTURE
 - (N) ADJUST CASTING - MANHOLE (STM)

REMOVAL LEGEND

	REMOVE BITUMINOUS PAVEMENT		REMOVE PIPE CULVERT
	REMOVE PAVEMENT		REMOVE SEWER PIPE (STORM)
	REMOVE BITUMINOUS WALK		CONSTRUCTION LIMITS
	REMOVE BITUMINOUS DRIVEWAY		RAILROAD R/W
	REMOVE CONCRETE WALK		INPLACE IR/W
	REMOVE CONCRETE DRIVEWAY		NEW R/W
	REMOVE CURB AND GUTTER		TEMPORARY EASEMENT
	REMOVE LANDSCAPE TIMBER		TRAIL, SIDEWALK, DRAIN, AND UTILITY EASEMENT
	SAWING BITUMINOUS PAVEMENT		DRAINAGE AND UTILITY EASEMENT
			CLEAR AND GRUB TREE

STA. NB81 1326+21.46 TO 1340+21.48



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Kelly Agosto
 KELLY AGOSTO, LICENSED PROFESSIONAL ENGINEER

49075 3/15/19
 LICENSE NO. DATE

DESIGN BY: L. LANGNER
 CAD BY: E. GUIR
 CHECKED BY: R. DECOTEAU
 LAST REVISION: / /

REMOVAL PLAN

C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
 S.P. 027-681-035, S.P. 110-020-040

SHEET

102
 244

GENERAL NOTES:

IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO UTILIZE THE GOPHER STATE ONE CALL EXCAVATION NOTICE SYSTEM

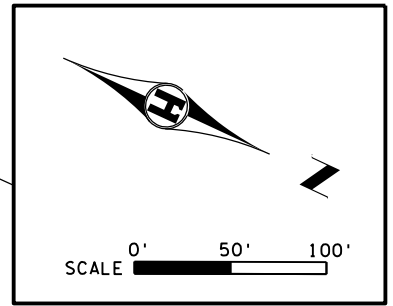
ALL TREES NOT SPECIFICALLY SHOWN TO BE REMOVED ARE TO BE PROTECTED AS PER THE DETAILS ON SHEET 81 AND THE SPECIAL PROVISIONS

GENERAL NOTES:

SAWCUT CONCRETE WALK IS INCIDENTAL SEE SHEET 18 FOR UTILITY CONTACT INFORMATION

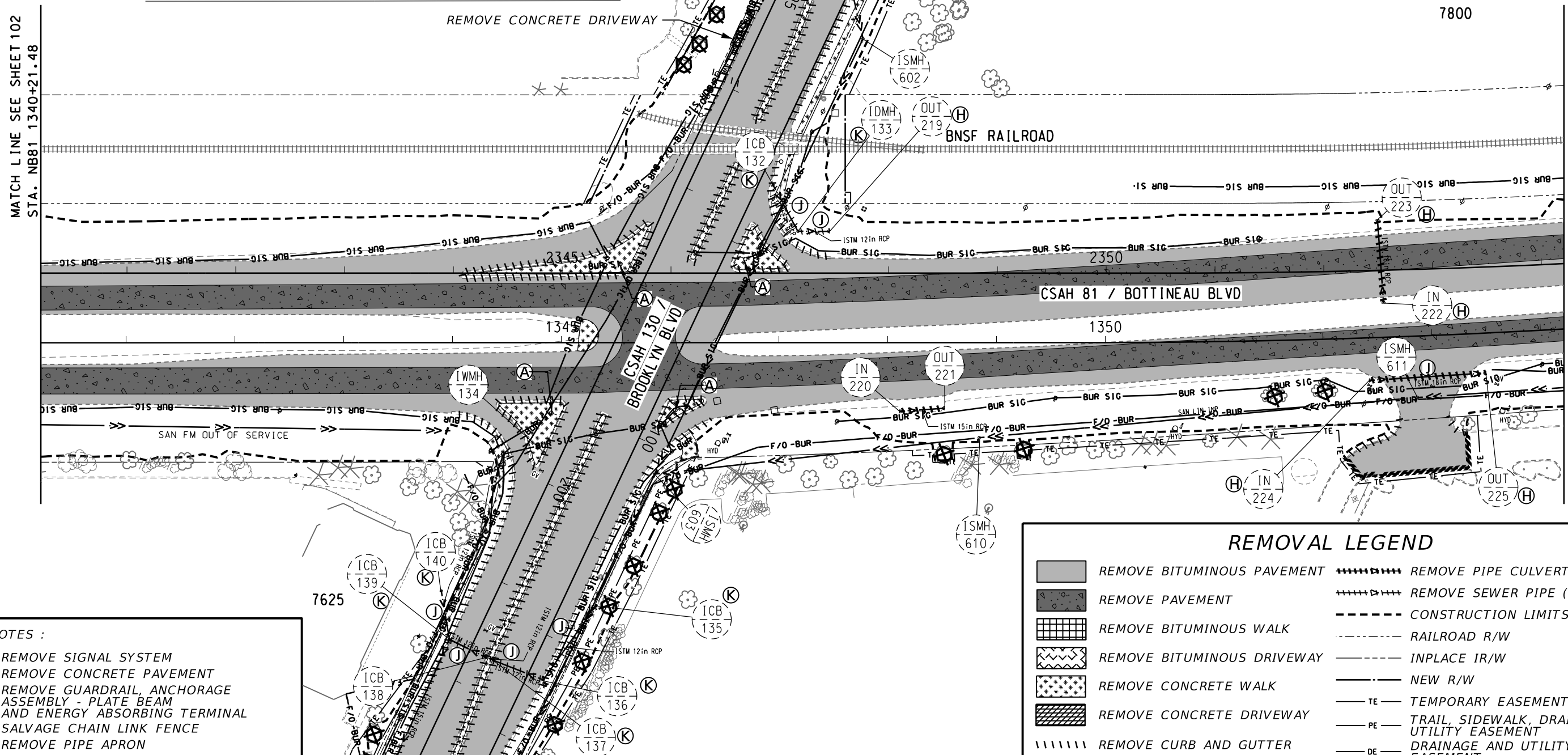
SEE INPLACE UTILITY TABULATIONS FOR ADDITIONAL INFORMATION

MATCH LINE SEE SHEET 104
STA. EB130 193+93.93



MATCH LINE SEE SHEET 102
STA. NB81 1340+21.48

MATCH LINE SEE SHEET 106
STA. NB81 1354+21.72



- NOTES :**
- (A) REMOVE SIGNAL SYSTEM
 - (D) REMOVE CONCRETE PAVEMENT
 - (E) REMOVE GUARDRAIL, ANCHORAGE ASSEMBLY - PLATE BEAM AND ENERGY ABSORBING TERMINAL
 - (F) SALVAGE CHAIN LINK FENCE
 - (H) REMOVE PIPE APRON
 - (J) REMOVE PIPE SEWER (STM)
 - (K) REMOVE DRAINAGE STRUCTURE
 - (N) ADJUST CASTING - MANHOLE (STM)

MATCH LINE SEE SHEET 105
STA. EB130 202+77.93

REMOVAL LEGEND	
	REMOVE BITUMINOUS PAVEMENT
	REMOVE PAVEMENT
	REMOVE BITUMINOUS WALK
	REMOVE BITUMINOUS DRIVEWAY
	REMOVE CONCRETE WALK
	REMOVE CONCRETE DRIVEWAY
	REMOVE CURB AND GUTTER
	REMOVE LANDSCAPE TIMBER
	SAWING BITUMINOUS PAVEMENT
	REMOVE PIPE CULVERT
	REMOVE SEWER PIPE (STORM)
	CONSTRUCTION LIMITS
	RAILROAD R/W
	INPLACE IR/W
	NEW R/W
	TEMPORARY EASEMENT
	TRAIL, SIDEWALK, DRAIN, AND UTILITY EASEMENT
	DRAINAGE AND UTILITY EASEMENT
	CLEAR AND GRUB TREE



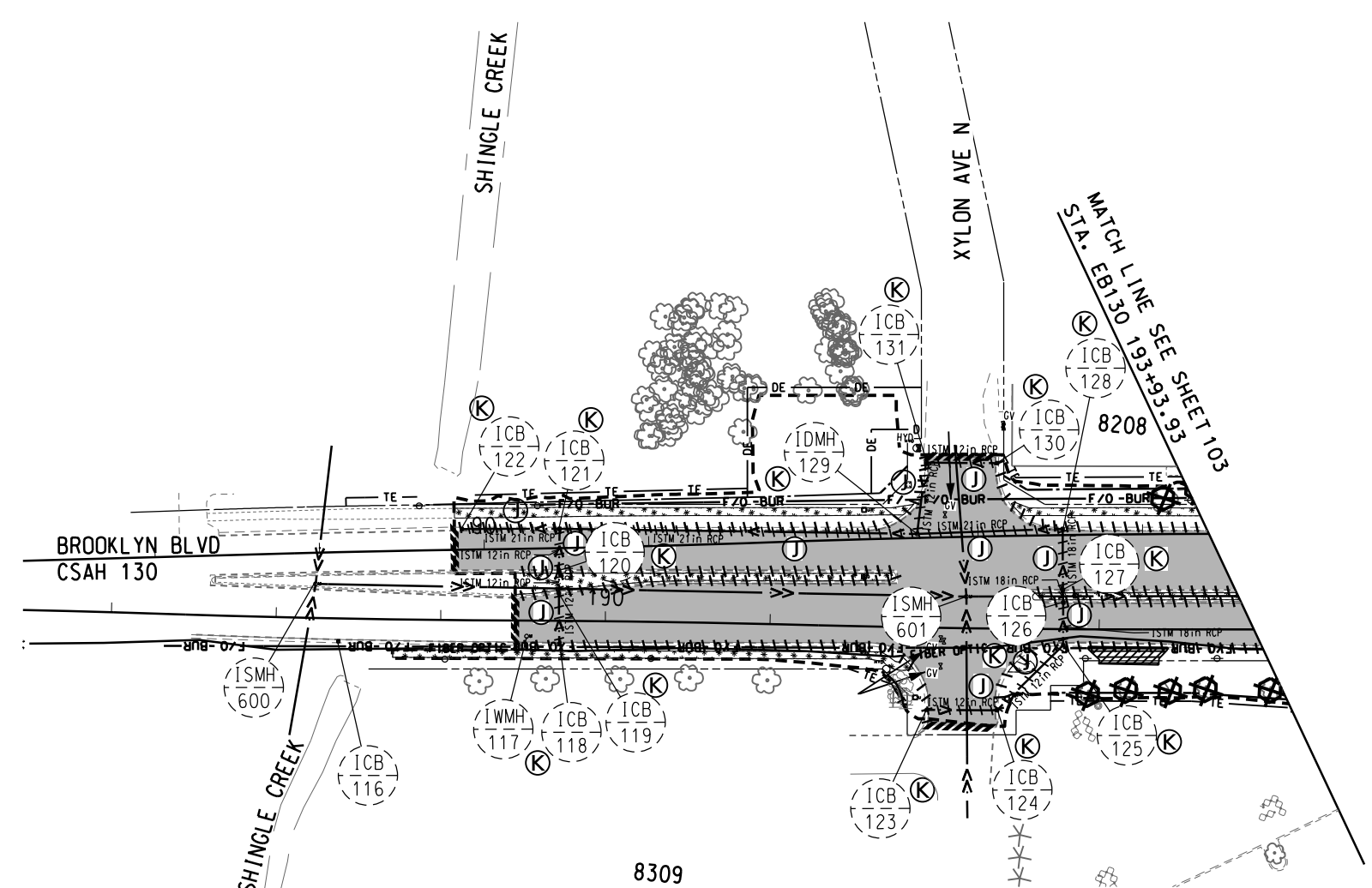
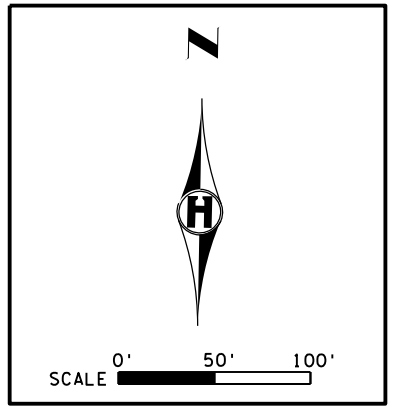
I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

Kelly Agosto
 KELLY AGOSTO, LICENSED PROFESSIONAL ENGINEER
 49075 LICENSE NO. 3/15/19 DATE

DESIGN BY: L. LANGNER
 CAD BY: E. GUIR
 CHECKED BY: R. DECOTEAU
 LAST REVISION: / /

REMOVAL PLAN
 C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
 S.P. 027-681-035, S.P. 110-020-040

SHEET
 103
 244



REMOVAL LEGEND	
	REMOVE BITUMINOUS PAVEMENT
	REMOVE PAVEMENT
	REMOVE BITUMINOUS WALK
	REMOVE BITUMINOUS DRIVEWAY
	REMOVE CONCRETE WALK
	REMOVE CONCRETE DRIVEWAY
	REMOVE CURB AND GUTTER
	REMOVE LANDSCAPE TIMBER
	SAWING BITUMINOUS PAVEMENT
	REMOVE PIPE CULVERT
	REMOVE SEWER PIPE (STORM)
	CONSTRUCTION LIMITS
	RAILROAD R/W
	INPLACE IR/W
	NEW R/W
	TEMPORARY EASEMENT
	TRAIL, SIDEWALK, DRAIN, AND UTILITY EASEMENT
	DRAINAGE AND UTILITY EASEMENT
	CLEAR AND GRUB TREE

- NOTES :**
- (A) REMOVE SIGNAL SYSTEM
 - (B) REMOVE CONCRETE PAVEMENT
 - (C) REMOVE GUARDRAIL, ANCHORAGE ASSEMBLY - PLATE BEAM AND ENERGY ABSORBING TERMINAL
 - (F) SALVAGE CHAIN LINK FENCE
 - (H) REMOVE PIPE APRON
 - (J) REMOVE PIPE SEWER (STM)
 - (K) REMOVE DRAINAGE STRUCTURE
 - (N) ADJUST CASTING - MANHOLE (STM)

GENERAL NOTES:
 IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO UTILIZE THE GOPHER STATE ONE CALL EXCAVATION NOTICE SYSTEM
 ALL TREES NOT SPECIFICALLY SHOWN TO BE REMOVED ARE TO BE PROTECTED AS PER THE DETAILS ON SHEET 81 AND THE SPECIAL PROVISIONS

GENERAL NOTES:
 SAWCUT CONCRETE WALK IS INCIDENTAL SEE SHEET 18 FOR UTILITY CONTACT INFORMATION
 SEE INPLACE UTILITY TABULATIONS FOR ADDITIONAL INFORMATION

STA. EB130 189+07.80 TO 193+93.93



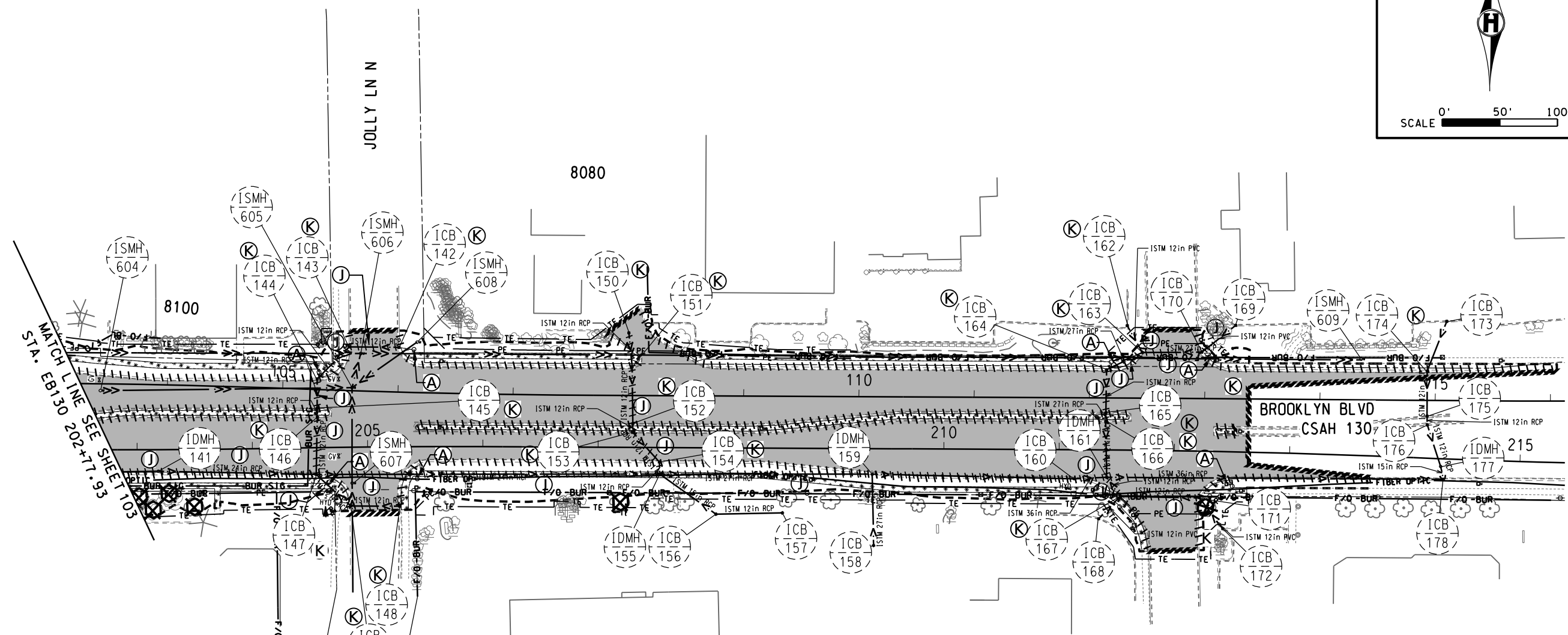
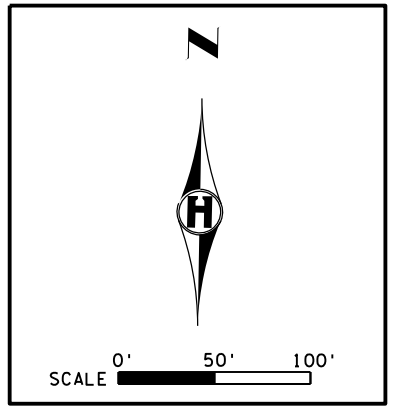
I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

Kelly Agosto
 KELLY AGOSTO, LICENSED PROFESSIONAL ENGINEER
 49075 LICENSE NO. 3/15/19 DATE

DESIGN BY: L. LANGNER
CAD BY: E. GUIR
CHECKED BY: R. DECOTEAU
LAST REVISION: / /

REMOVAL PLAN
 C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
 S.P. 027-681-035, S.P. 110-020-040

SHEET
 104 / 244



- NOTES :**
- (A) REMOVE SIGNAL SYSTEM
 - (D) REMOVE CONCRETE PAVEMENT
 - (E) REMOVE GUARDRAIL, ANCHORAGE ASSEMBLY - PLATE BEAM AND ENERGY ABSORBING TERMINAL
 - (F) SALVAGE CHAIN LINK FENCE
 - (H) REMOVE PIPE APRON
 - (J) REMOVE PIPE SEWER (STM)
 - (K) REMOVE DRAINAGE STRUCTURE
 - (N) ADJUST CASTING - MANHOLE (STM)

GENERAL NOTES:
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GENERAL NOTES:
 SAWCUT CONCRETE WALK IS INCIDENTAL SEE SHEET 18 FOR UTILITY CONTACT INFORMATION
 SEE INPLACE UTILITY TABULATIONS FOR ADDITIONAL INFORMATION

REMOVAL LEGEND			
	REMOVE BITUMINOUS PAVEMENT		REMOVE PIPE CULVERT
	REMOVE PAVEMENT		REMOVE SEWER PIPE (STORM)
	REMOVE BITUMINOUS WALK		CONSTRUCTION LIMITS
	REMOVE BITUMINOUS DRIVEWAY		RAILROAD R/W
	REMOVE CONCRETE WALK		INPLACE IR/W
	REMOVE CONCRETE DRIVEWAY		NEW R/W
	REMOVE CURB AND GUTTER		TE TEMPORARY EASEMENT
	REMOVE LANDSCAPE TIMBER		PE TRAIL, SIDEWALK, DRAIN, AND UTILITY EASEMENT
	SAWING BITUMINOUS PAVEMENT		DE DRAINAGE AND UTILITY EASEMENT
	CLEAR AND GRUB TREE		

STA. EB130 202+77.93 TO 215+29.68



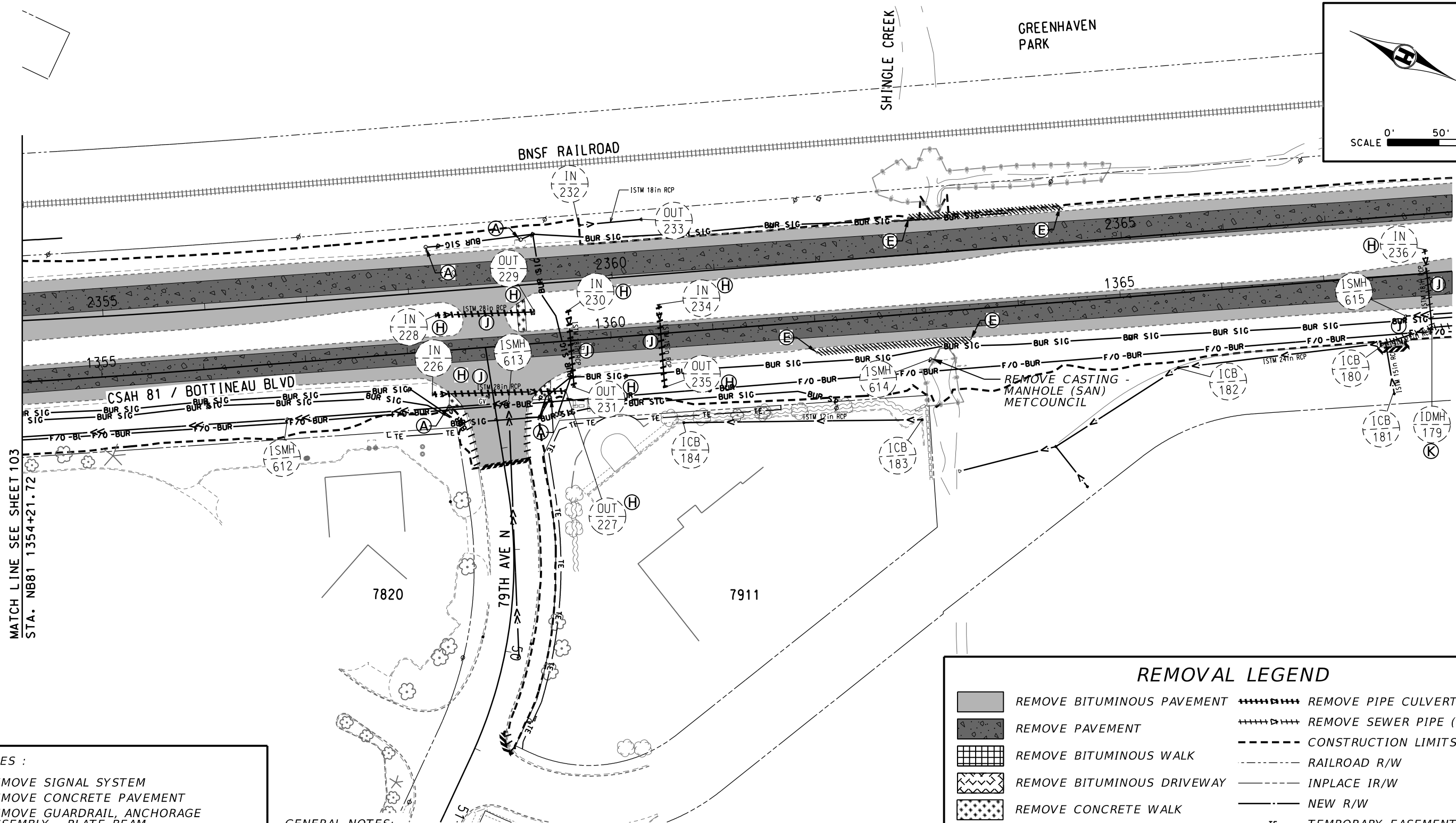
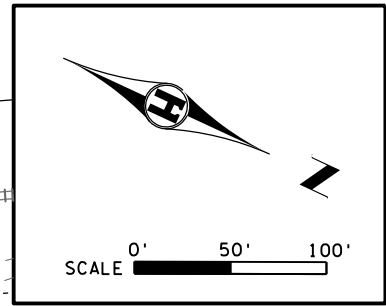
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Kelly Agosto
 KELLY AGOSTO, LICENSED PROFESSIONAL ENGINEER
 49075 LICENSE NO. 3/15/19 DATE

DESIGN BY: L. LANGNER
CAD BY: E. GUIR
CHECKED BY: R. DECOTEAU
LAST REVISION: / /

REMOVAL PLAN
 C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
 S.P. 027-681-035, S.P. 110-020-040

SHEET
 105 / 244



MATCH LINE SEE SHEET 103
STA. NB81 1354+21.72

REMOVAL LEGEND			
	REMOVE BITUMINOUS PAVEMENT		REMOVE PIPE CULVERT
	REMOVE PAVEMENT		REMOVE SEWER PIPE (STORM)
	REMOVE BITUMINOUS WALK		CONSTRUCTION LIMITS
	REMOVE BITUMINOUS DRIVEWAY		RAILROAD R/W
	REMOVE CONCRETE WALK		INPLACE IR/W
	REMOVE CONCRETE DRIVEWAY		NEW R/W
	REMOVE CURB AND GUTTER		TEMPORARY EASEMENT
	REMOVE LANDSCAPE TIMBER		TRAIL, SIDEWALK, DRAIN, AND UTILITY EASEMENT
	SAWING BITUMINOUS PAVEMENT		DRAINAGE AND UTILITY EASEMENT
	CLEAR AND GRUB TREE		

NOTES :

- (A) REMOVE SIGNAL SYSTEM
- (D) REMOVE CONCRETE PAVEMENT
- (E) REMOVE GUARDRAIL, ANCHORAGE ASSEMBLY - PLATE BEAM AND ENERGY ABSORBING TERMINAL
- (F) SALVAGE CHAIN LINK FENCE
- (H) REMOVE PIPE APRON
- (J) REMOVE PIPE SEWER (STM)
- (K) REMOVE DRAINAGE STRUCTURE
- (N) ADJUST CASTING - MANHOLE (STM)

GENERAL NOTES:
IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO UTILIZE THE GOPHER STATE ONE CALL EXCAVATION NOTICE SYSTEM

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GENERAL NOTES:
SAWCUT CONCRETE WALK IS INCIDENTAL SEE SHEET 18 FOR UTILITY CONTACT INFORMATION

SEE INPLACE UTILITY TABULATIONS FOR ADDITIONAL INFORMATION

STA. NB81 1354+21.72 TO 1368+25.92



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.

Kelly Agosto
KELLY AGOSTO, LICENSED PROFESSIONAL ENGINEER

49075 3/15/19
LICENSE NO. DATE

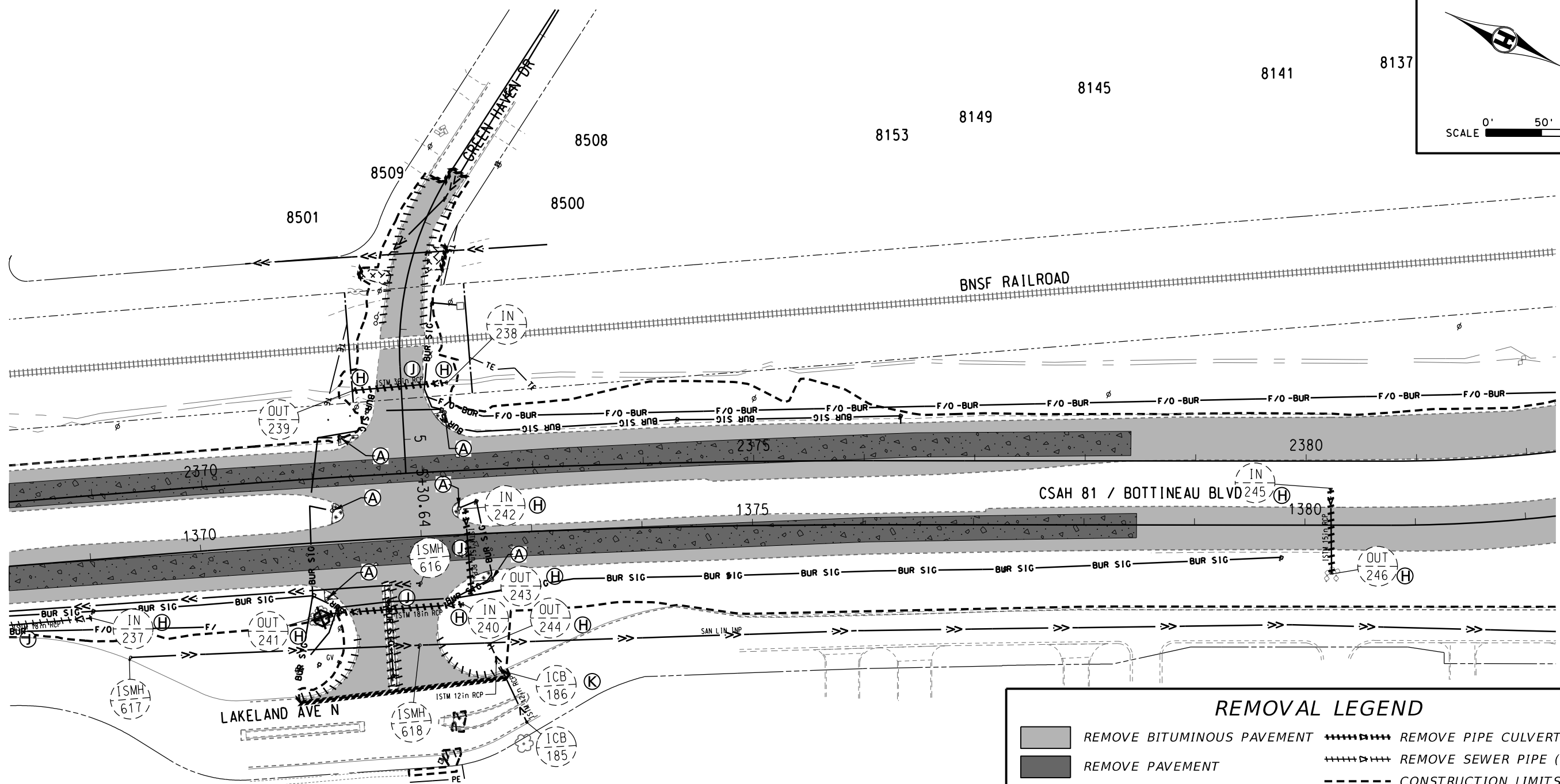
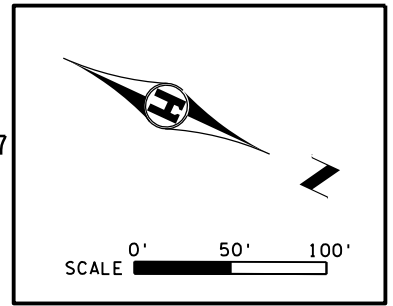
DESIGN BY: L. LANGNER
CAD BY: E. GUIR
CHECKED BY: R. DECOTEAU
LAST REVISION: / /

REMOVAL PLAN

C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
S.P. 027-681-035, S.P. 110-020-040

SHEET

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244



REMOVAL LEGEND			
	REMOVE BITUMINOUS PAVEMENT		REMOVE PIPE CULVERT
	REMOVE PAVEMENT		REMOVE SEWER PIPE (STORM)
	REMOVE BITUMINOUS WALK		CONSTRUCTION LIMITS
	REMOVE BITUMINOUS DRIVEWAY		RAILROAD R/W
	REMOVE CONCRETE WALK		INPLACE IR/W
	REMOVE CONCRETE DRIVEWAY		NEW R/W
	REMOVE CURB AND GUTTER		TE TEMPORARY EASEMENT
	REMOVE LANDSCAPE TIMBER		PE TRAIL, SIDEWALK, DRAIN, AND UTILITY EASEMENT
	SAWING BITUMINOUS PAVEMENT		DE DRAINAGE AND UTILITY EASEMENT
	CLEAR AND GRUB TREE		

GENERAL NOTES:
 SAWCUT CONCRETE WALK IS INCIDENTAL
 SEE SHEE 18 FOR UTILITY CONTACT INFORMATION
 SEE INPLACE UTILITY TABULATIONS FOR
 ADDITIONAL INFORMATION
 IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY
 TO UTILIZE THE GOPHER STATE ONE CALL
 EXCAVATION NOTICE SYSTEM
 ALL TREES NOT SPECIFICALLY SHOWN TO BE REMOVED
 ARE TO BE PROTECTED AS PER THE DETAILS ON
 SHEET81 AND THE SPECIAL PROVISIONS

NOTES :

(A) REMOVE SIGNAL SYSTEM	(H) REMOVE PIPE APRON
(D) REMOVE CONCRETE PAVEMENT	(J) REMOVE PIPE SEWER (STM)
(E) REMOVE GUARDRAIL, ANCHORAGE ASSEMBLY - PLATE BEAM AND ENERGY ABSORBING TERMINAL	(K) REMOVE DRAINAGE STRUCTURE
(F) SALVAGE CHAIN LINK FENCE	(N) ADJUST CASTING - MANHOLE (STM)

STA. NB81 1368+25.92 TO 1382+27.40



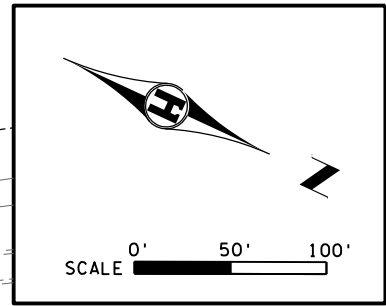
I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

Kelly Agosto
 KELLY AGOSTO, LICENSED PROFESSIONAL ENGINEER
 49075 LICENSE NO. 3/15/19 DATE

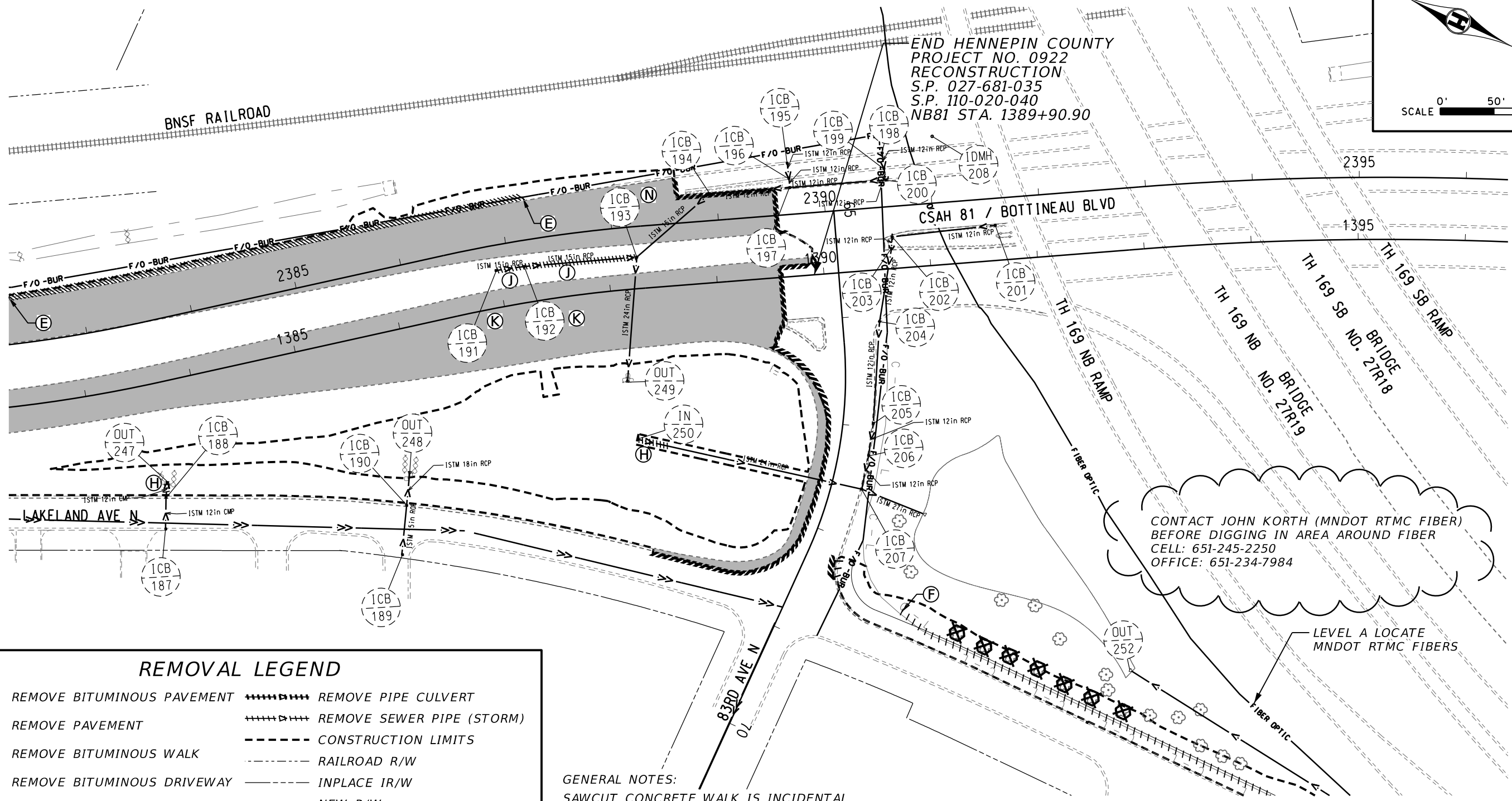
DESIGN BY: L. LANGNER
CAD BY: E. GUIR
CHECKED BY: R. DECOTEAU
LAST REVISION: / /

REMOVAL PLAN
 C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
 S.P. 027-681-035, S.P. 110-020-040

SHEET
 107 / 244



END HENNEPIN COUNTY
PROJECT NO. 0922
RECONSTRUCTION
S.P. 027-681-035
S.P. 110-020-040
NB81 STA. 1389+90.90



CONTACT JOHN KORTH (MNDOT RTMC FIBER)
BEFORE DIGGING IN AREA AROUND FIBER
CELL: 651-245-2250
OFFICE: 651-234-7984

LEVEL A LOCATE
MNDOT RTMC FIBERS

REMOVAL LEGEND

	REMOVE BITUMINOUS PAVEMENT		REMOVE PIPE CULVERT
	REMOVE PAVEMENT		REMOVE SEWER PIPE (STORM)
	REMOVE BITUMINOUS WALK		CONSTRUCTION LIMITS
	REMOVE BITUMINOUS DRIVEWAY		RAILROAD R/W
	REMOVE CONCRETE WALK		INPLACE IR/W
	REMOVE CONCRETE DRIVEWAY		NEW R/W
	REMOVE CURB AND GUTTER		TEMPORARY EASEMENT
	REMOVE LANDSCAPE TIMBER		TRAIL, SIDEWALK, DRAIN, AND UTILITY EASEMENT
	SAWING BITUMINOUS PAVEMENT		DRAINAGE AND UTILITY EASEMENT
	CLEAR AND GRUB TREE		

GENERAL NOTES:
SAWCUT CONCRETE WALK IS INCIDENTAL
SEE SHEE 18 FOR UTILITY CONTACT INFORMATION
SEE INPLACE UTILITY TABULATIONS FOR ADDITIONAL INFORMATION
IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO UTILIZE THE GOPHER STATE ONE CALL EXCAVATION NOTICE SYSTEM
ALL TREES NOT SPECIFICALLY SHOWN TO BE REMOVED ARE TO BE PROTECTED AS PER THE DETAILS ON SHEET81 AND THE SPECIAL PROVISIONS

- NOTES :**
- (A) REMOVE SIGNAL SYSTEM
 - (D) REMOVE CONCRETE PAVEMENT
 - (E) REMOVE GUARDRAIL, ANCHORAGE ASSEMBLY - PLATE BEAM AND ENERGY ABSORBING TERMINAL
 - (F) SALVAGE CHAIN LINK FENCE
 - (H) REMOVE PIPE APRON
 - (J) REMOVE PIPE SEWER (STM)
 - (K) REMOVE DRAINAGE STRUCTURE
 - (N) ADJUST CASTING - MANHOLE (STM)

STA. NB81 1382+27.40 TO 1389+90.90, STA. TR83 560+00.00 TO 564+66.29



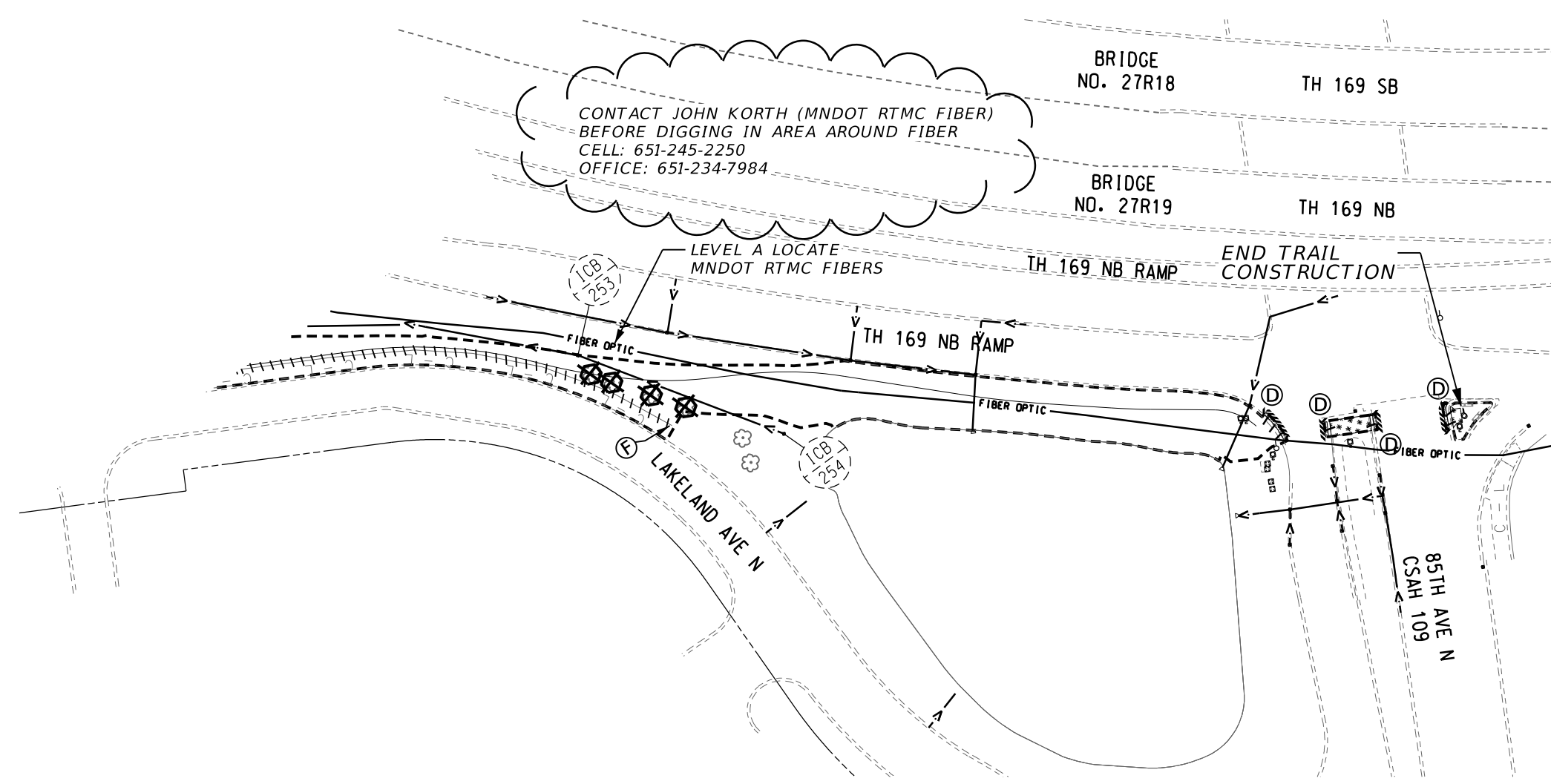
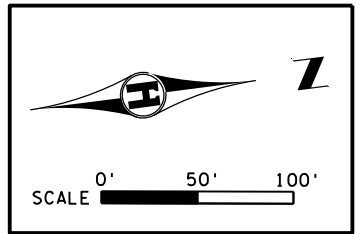
I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

Kelly Agosto
KELLY AGOSTO, LICENSED PROFESSIONAL ENGINEER
49075 LICENSE NO. 3/15/19 DATE

DESIGN BY: L. LANGNER
CAD BY: E. GUIR
CHECKED BY: R. DECOTEAU
LAST REVISION: / /

REMOVAL PLAN
C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
S.P. 027-681-035, S.P. 110-020-040

SHEET
108 / 244



CONTACT JOHN KORTH (MNDOT RTMC FIBER)
BEFORE DIGGING IN AREA AROUND FIBER
CELL: 651-245-2250
OFFICE: 651-234-7984

- NOTES :**
- (A) REMOVE SIGNAL SYSTEM
 - (D) REMOVE CONCRETE PAVEMENT
 - (E) REMOVE GUARDRAIL, ANCHORAGE ASSEMBLY - PLATE BEAM AND ENERGY ABSORBING TERMINAL
 - (F) SALVAGE CHAIN LINK FENCE
 - (H) REMOVE PIPE APRON
 - (J) REMOVE PIPE SEWER (STM)
 - (K) REMOVE DRAINAGE STRUCTURE
 - (N) ADJUST CASTING - MANHOLE (STM)

GENERAL NOTES:
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ALL TREES NOT SPECIFICALLY SHOWN TO BE REMOVED ARE TO BE PROTECTED AS PER THE DETAILS ON SHEET 81 AND THE SPECIAL PROVISIONS

GENERAL NOTES:
SAWCUT CONCRETE WALK IS INCIDENTAL SEE SHEET 18 FOR UTILITY CONTACT INFORMATION

SEE INPLACE UTILITY TABULATIONS FOR ADDITIONAL INFORMATION

REMOVAL LEGEND	
	REMOVE BITUMINOUS PAVEMENT
	REMOVE PAVEMENT
	REMOVE BITUMINOUS WALK
	REMOVE BITUMINOUS DRIVEWAY
	REMOVE CONCRETE WALK
	REMOVE CONCRETE DRIVEWAY
	REMOVE CURB AND GUTTER
	REMOVE LANDSCAPE TIMBER
	SAWING BITUMINOUS PAVEMENT
	SAWING CONCRETE PAVEMENT
	REMOVE PIPE CULVERT
	REMOVE SEWER PIPE (STORM)
	CONSTRUCTION LIMITS
	RAILROAD R/W
	INPLACE IR/W
	NEW R/W
	TEMPORARY EASEMENT
	TRAIL, SIDEWALK, DRAIN, AND UTILITY EASEMENT
	DRAINAGE AND UTILITY EASEMENT
	CLEAR AND GRUB TREE

STA. TR83 564+66.29 TO 571+91.88



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.

Kelly Agosto
KELLY AGOSTO, LICENSED PROFESSIONAL ENGINEER

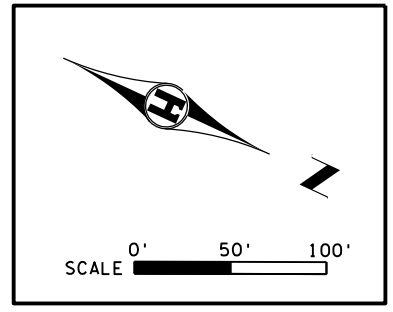
49075 3/15/19
LICENSE NO. DATE

DESIGN BY: L. LANGNER
CAD BY: E. GUIR
CHECKED BY: R. DECOTEAU
LAST REVISION: / /

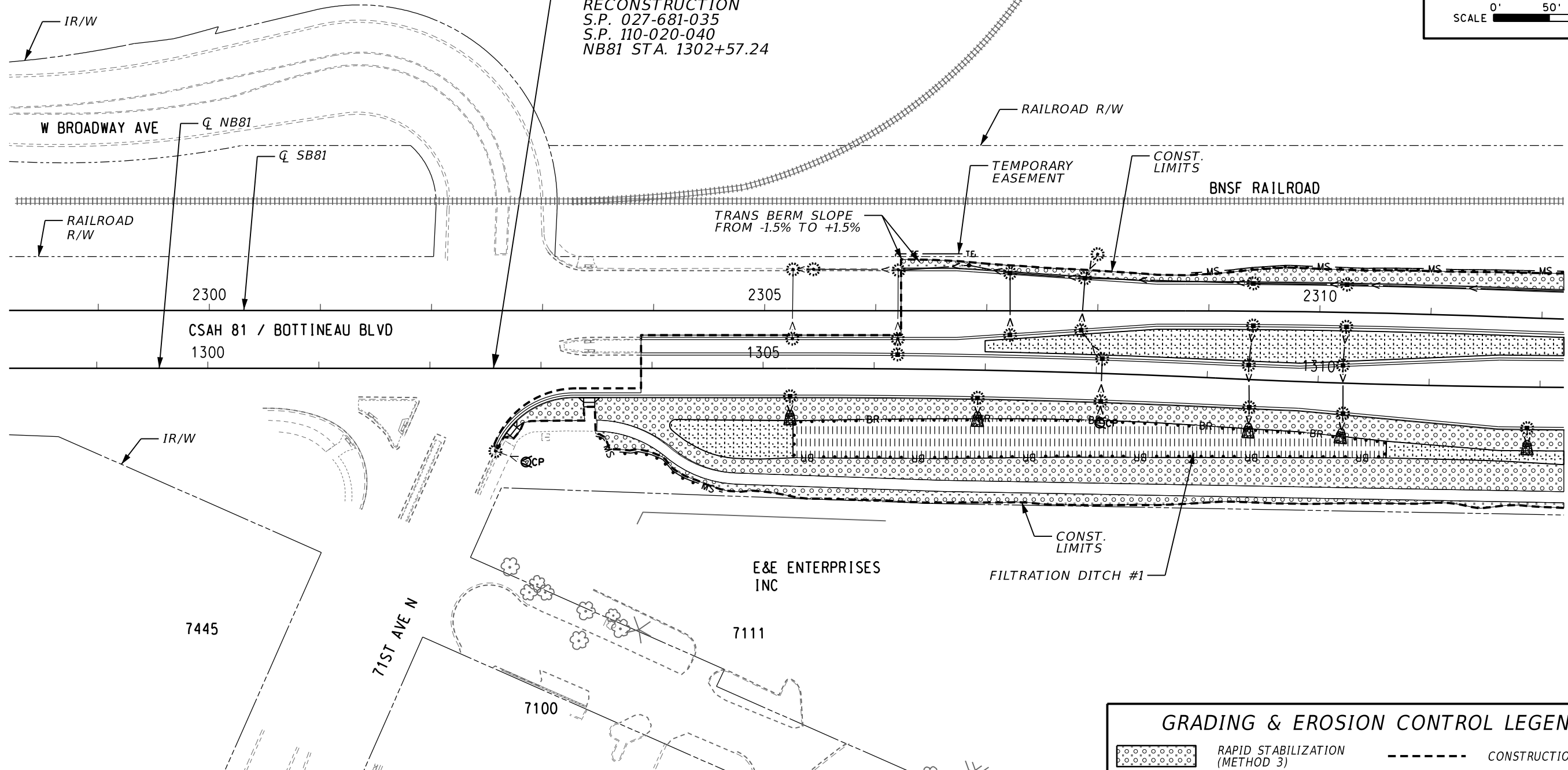
REMOVAL PLAN

C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
S.P. 027-681-035, S.P. 110-020-040

SHEET
109
244



BEGIN HENNEPIN COUNTY
 PROJECT NO. 0922
 RECONSTRUCTION
 S.P. 027-681-035
 S.P. 110-020-040
 NB81 STA. 1302+57.24



GENERAL NOTES:
 FURNISH AND INSTALL EROSION CONTROL MEASURES AS STAGING
 DICTATES IN ACCORDANCE WITH THE TURF ESTABLISHMENT AND
 EROSION CONTROL PLANS.
 SEE SHEET 64 FOR EROSION CONTROL BLANKET STAPLING PATTERN
 DETAILS.

GRADING & EROSION CONTROL LEGEND	
	RAPID STABILIZATION (METHOD 3)
	RAPID STABILIZATION (METHOD 4)
	EROSION CONTROL BLANKET CATEGORY 3N
	EROSION CONTROL BLANKET CATEGORY 0
	CONSTRUCTION LIMITS
	INLET PROTECTION
	CULVERT END CONTROL
	SILT FENCE (MACHINE SLICED)
	BIOROLL

STA. NB81 1302+57.24 TO 1312+21.39



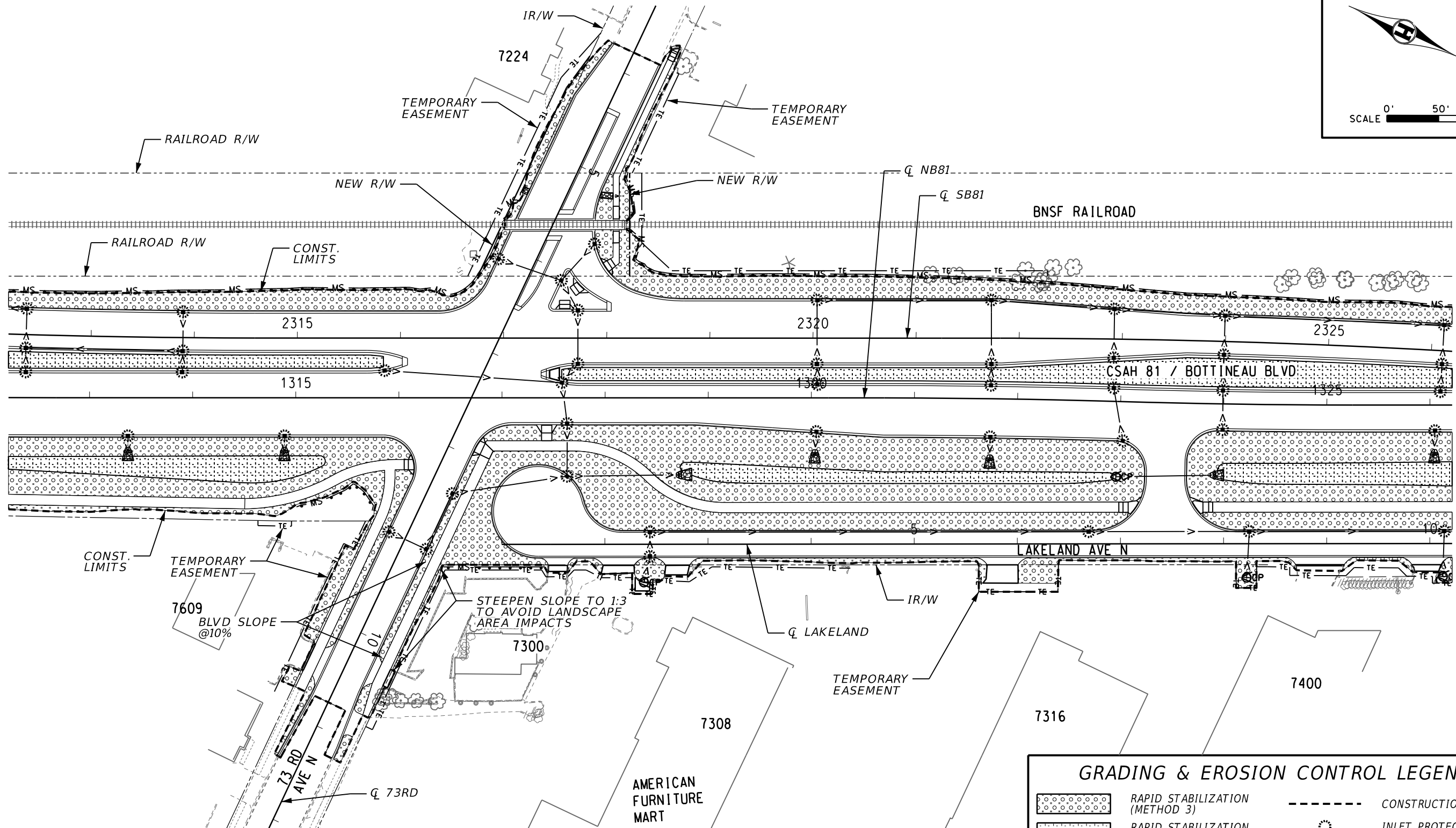
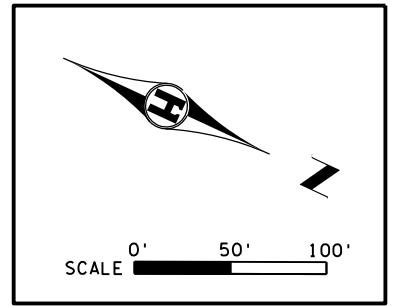
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Kelly Agosto
 KELLY AGOSTO, LICENSED PROFESSIONAL ENGINEER
 49075 LICENSE NO. 3/15/19 DATE

DESIGN BY: L. LANGNER
 CAD BY: E. GUIR
 CHECKED BY: R. DECOTEAU
 LAST REVISION: / /

GRADING AND EROSION CONTROL PLAN
 C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
 S.P. 027-681-035, S.P. 110-020-040

SHEET
 110 / 244



CONST. LIMITS
TEMPORARY EASEMENT
7609
BLVD SLOPE @10%

STEEPEN SLOPE TO 1:3 TO AVOID LANDSCAPE AREA IMPACTS

AMERICAN FURNITURE MART

GENERAL NOTES:
FURNISH AND INSTALL EROSION CONTROL MEASURES AS STAGING DICTATES IN ACCORDANCE WITH THE TURF ESTABLISHMENT AND EROSION CONTROL PLANS.
SEE SHEET 64 FOR EROSION CONTROL BLANKET STAPLING PATTERN DETAILS.

GRADING & EROSION CONTROL LEGEND	
	RAPID STABILIZATION (METHOD 3)
	RAPID STABILIZATION (METHOD 4)
	EROSION CONTROL BLANKET CATEGORY 3N
	EROSION CONTROL BLANKET CATEGORY 0
	CONSTRUCTION LIMITS
	INLET PROTECTION
	CULVERT END CONTROL
	SILT FENCE (MACHINE SLICED)
	BIOROLL

STA. NB81 1312+21.39 TO 1326+21.46



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Kelly Agosto
KELLY AGOSTO, LICENSED PROFESSIONAL ENGINEER

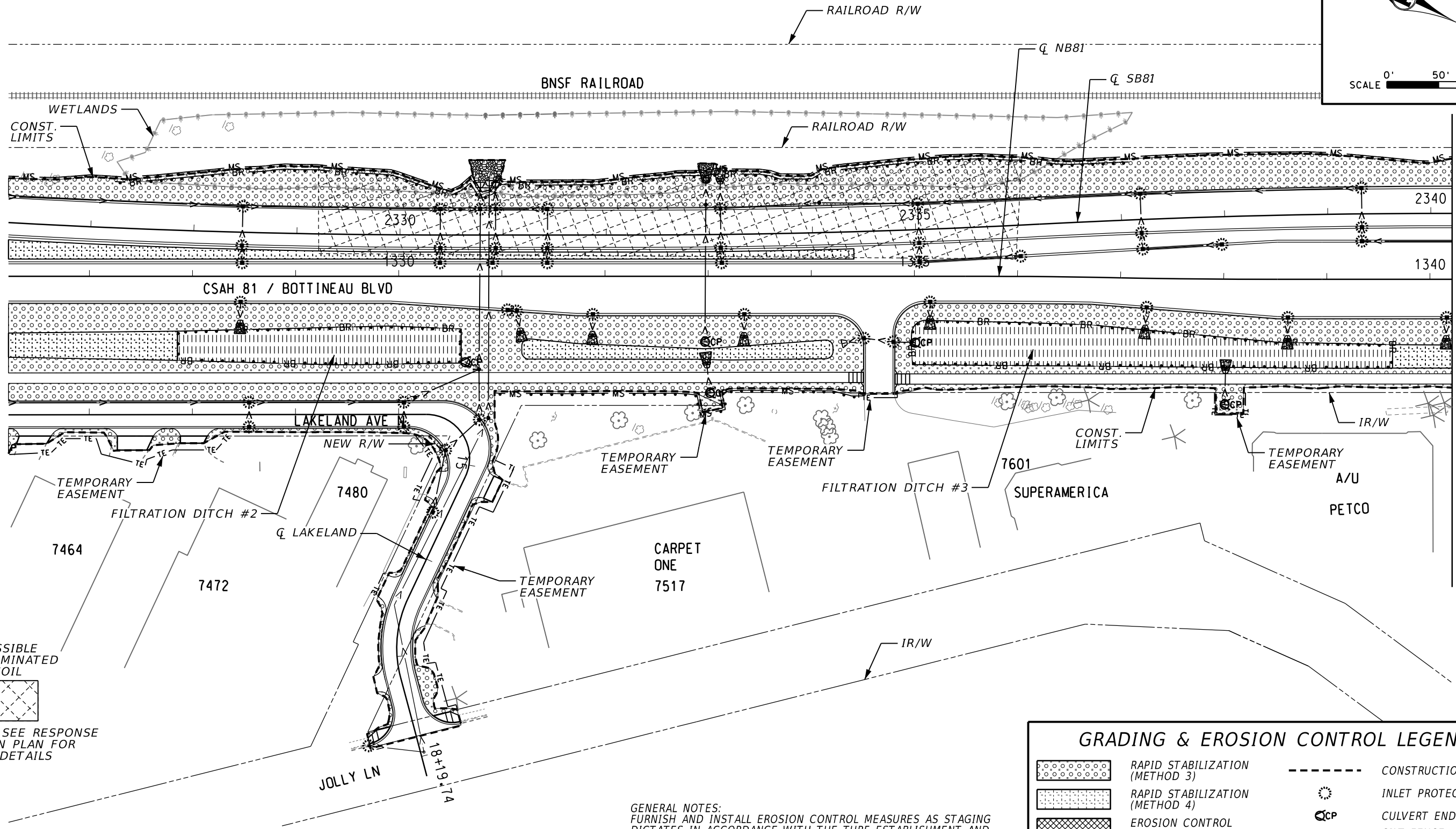
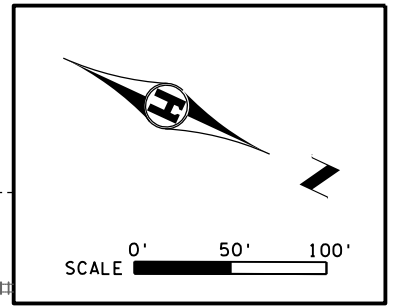
49075 3/15/19
LICENSE NO. DATE

DESIGN BY: L. LANGNER
CAD BY: E. GUIR
CHECKED BY: R. DECOTEAU
LAST REVISION: / /

GRADING AND EROSION CONTROL PLAN


C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
S.P. 027-681-035, S.P. 110-020-040

SHEET
111
244



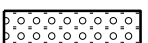
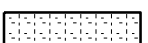





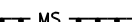

MATCH LINE SEE SHEET 113
STA. NB81 1340+21.48

POSSIBLE
CONTAMINATED
SOIL



NOTE: SEE RESPONSE
ACTION PLAN FOR
MORE DETAILS

GENERAL NOTES:
FURNISH AND INSTALL EROSION CONTROL MEASURES AS STAGING
DICTATES IN ACCORDANCE WITH THE TURF ESTABLISHMENT AND
EROSION CONTROL PLANS.
SEE SHEET 64 FOR EROSION CONTROL BLANKET STAPLING PATTERN
DETAILS.

GRADING & EROSION CONTROL LEGEND	
	RAPID STABILIZATION (METHOD 3)
	RAPID STABILIZATION (METHOD 4)
	EROSION CONTROL BLANKET CATEGORY 3N
	EROSION CONTROL BLANKET CATEGORY 0
	CONSTRUCTION LIMITS
	INLET PROTECTION
	CULVERT END CONTROL
	SILT FENCE (MACHINE SLICED)
	BIOROLL

STA. NB81 1326+21.46 TO 1340+21.48



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Kelly Agosto
KELLY AGOSTO, LICENSED PROFESSIONAL ENGINEER

49075 3/15/19
LICENSE NO. DATE

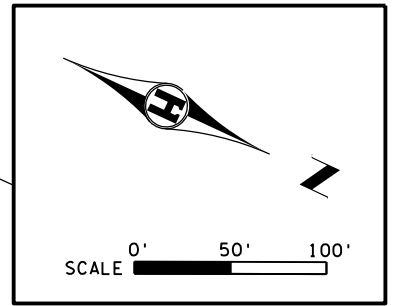
DESIGN BY: L. LANGNER
CAD BY: E. GUIR
CHECKED BY: R. DECOTEAU
LAST REVISION: / /

GRADING AND EROSION CONTROL PLAN

C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
S.P. 027-681-035, S.P. 110-020-040

SHEET

112 / 244

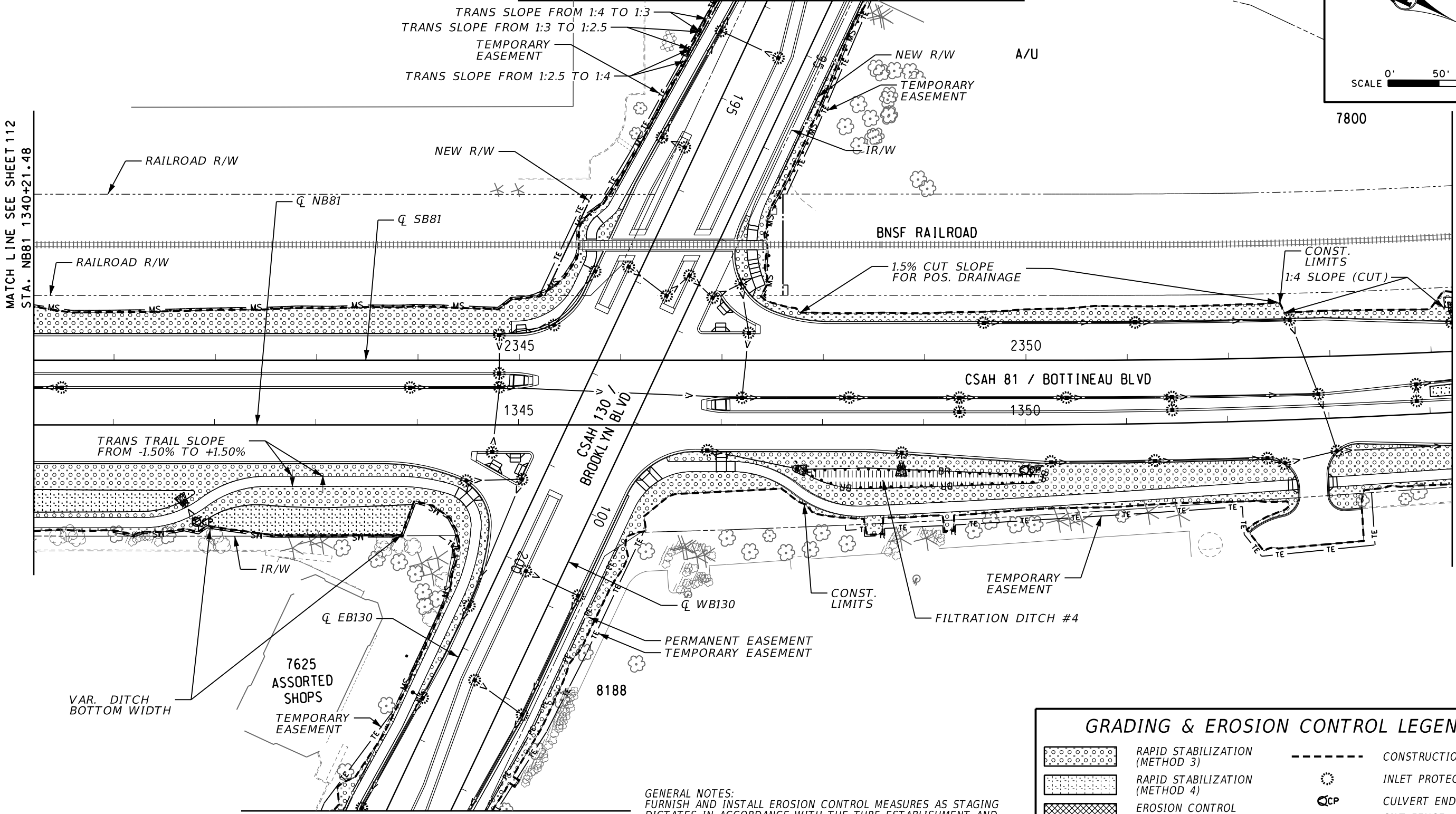


MATCH LINE SEE SHEET 114
STA. EB130 193+93.93

TRANS SLOPE FROM 1:4 TO 1:3
TRANS SLOPE FROM 1:3 TO 1:2.5
TEMPORARY EASEMENT
TRANS SLOPE FROM 1:2.5 TO 1:4

MATCH LINE SEE SHEET 112
STA. NB81 1340+21.48

MATCH LINE SEE SHEET 116
STA. NB81 1354+21.72



TRANS TRAIL SLOPE
FROM -1.50% TO +1.50%

VAR. DITCH
BOTTOM WIDTH

MATCH LINE SEE SHEET 115
STA. EB130 202+77.93

GENERAL NOTES:
FURNISH AND INSTALL EROSION CONTROL MEASURES AS STAGING
DICTATES IN ACCORDANCE WITH THE TURF ESTABLISHMENT AND
EROSION CONTROL PLANS.
SEE SHEET 64 FOR EROSION CONTROL BLANKET STAPLING PATTERN
DETAILS.

GRADING & EROSION CONTROL LEGEND	
	RAPID STABILIZATION (METHOD 3)
	RAPID STABILIZATION (METHOD 4)
	EROSION CONTROL BLANKET CATEGORY 3N
	EROSION CONTROL BLANKET CATEGORY 0
	CONSTRUCTION LIMITS
	INLET PROTECTION
	CULVERT END CONTROL
	SILT FENCE (MACHINE SLICED)
	BIOROLL



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Kelly Agosto
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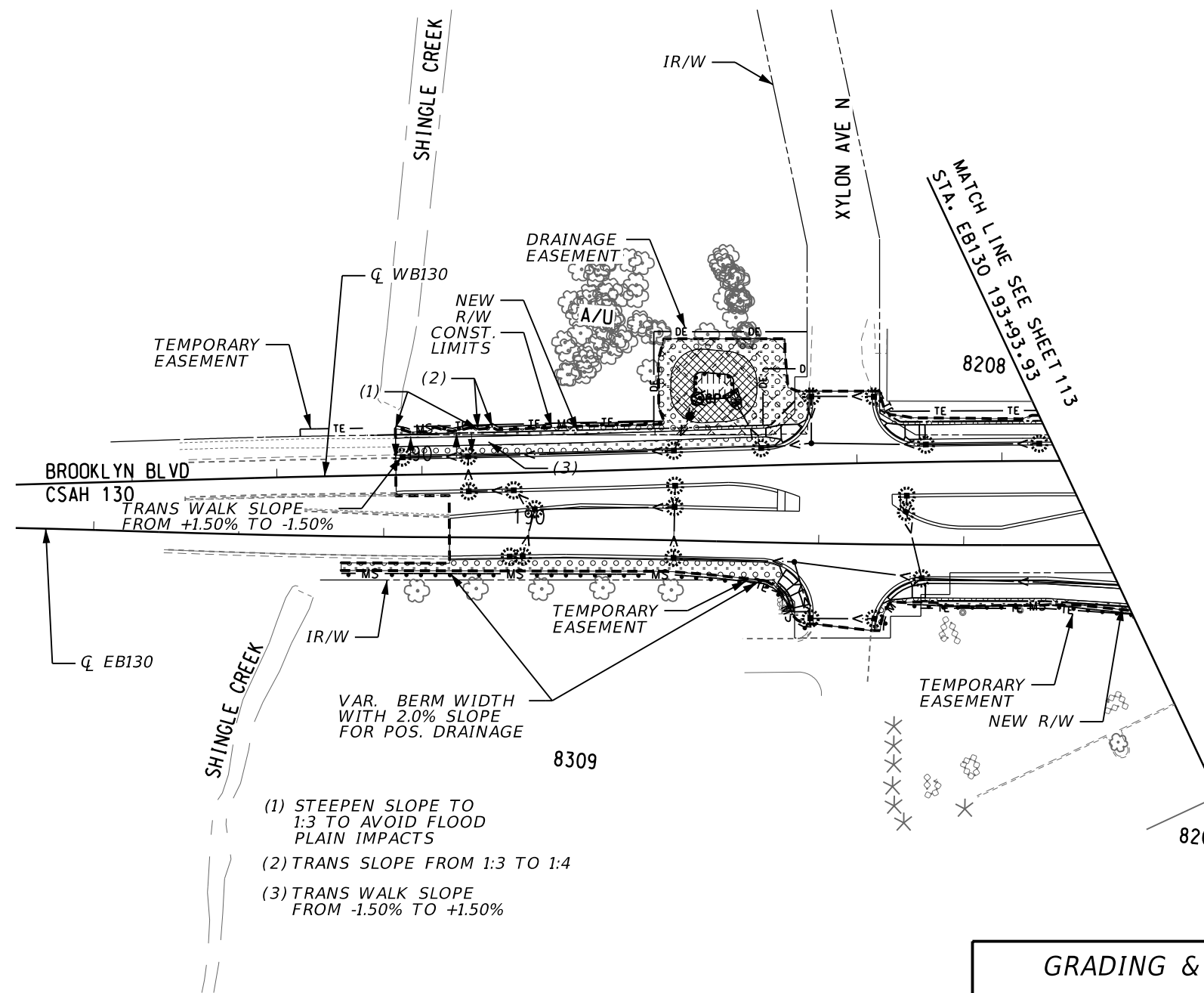
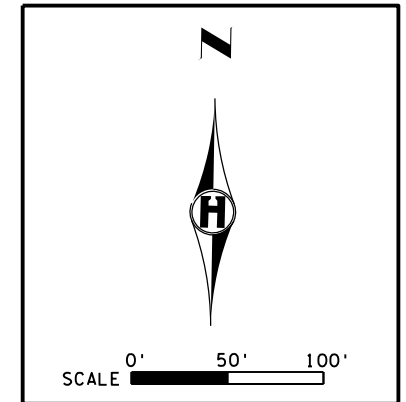
49075 3/15/19
LICENSE NO. DATE

DESIGN BY: L. LANGNER
CAD BY: E. GUIR
CHECKED BY: R. DECOTEAU
LAST REVISION: / /

GRADING AND EROSION CONTROL PLAN

C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
S.P. 027-681-035, S.P. 110-020-040

SHEET
113
244



POSSIBLE
CONTAMINATED
SOIL



NOTE: SEE RESPONSE
ACTION PLAN FOR
MORE DETAILS

- (1) STEEPEN SLOPE TO 1:3 TO AVOID FLOOD PLAIN IMPACTS
- (2) TRANS SLOPE FROM 1:3 TO 1:4
- (3) TRANS WALK SLOPE FROM -1.50% TO +1.50%

GENERAL NOTES:
FURNISH AND INSTALL EROSION CONTROL MEASURES AS STAGING DICTATES IN ACCORDANCE WITH THE TURF ESTABLISHMENT AND EROSION CONTROL PLANS.

SEE SHEET 64 FOR EROSION CONTROL BLANKET STAPLING PATTERN DETAILS.

GRADING & EROSION CONTROL LEGEND	
	RAPID STABILIZATION (METHOD 3)
	RAPID STABILIZATION (METHOD 4)
	EROSION CONTROL BLANKET CATEGORY 3N
	EROSION CONTROL BLANKET CATEGORY 0
	CONSTRUCTION LIMITS
	INLET PROTECTION
	CULVERT END CONTROL
	SILT FENCE (MACHINE SLICED)
	BIOROLL

STA. EB130 189+07.80 TO 193+93.93



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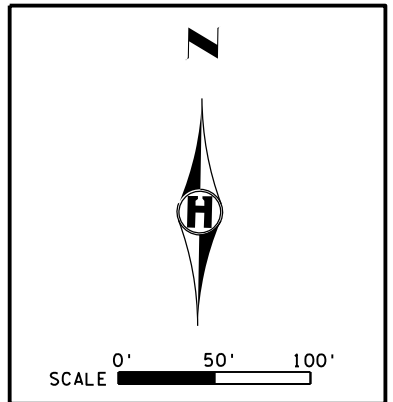
Kelly Agosto
 KELLY AGOSTO, LICENSED PROFESSIONAL ENGINEER
 49075 LICENSE NO. 3/15/19 DATE

DESIGN BY: L. LANGNER
 CAD BY: E. GUIR
 CHECKED BY: R. DECOTEAU
 LAST REVISION: / /

GRADING AND EROSION CONTROL PLAN

C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
 S.P. 027-681-035, S.P. 110-020-040

SHEET
 114
 244



LUTHER
BROOKDALE

IR/W

JOLLY LN N

MAD JACKS

NTB
NATIONAL TIRE
& BATTERY

BP GAS
STATION
8080

FIRESTONE

ARBYS

MATCH LINE SEE SHEET 113
STA. EB130 202+77.93

TEMPORARY
EASEMENT

8100

PERMANENT
EASEMENT

TRANS SLOPE FROM 1:4
TO 1.5%

1.5% CUT SLOPE FOR
POS. DRAINAGE
ALONG TRAIL

TEMPORARY
EASEMENT

PERMANENT
EASEMENT

CONST.
LIMITS

BROOKLYN BLVD
CSAH 130

215

CONST.
LIMITS

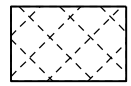
TEMPORARY
EASEMENT

1.5% CUT
SLOPE
FOR POS.
DRAINAGE

WELLS FARGO

PERMANENT EASEMENT

POSSIBLE
CONTAMINATED
SOIL



NOTE: SEE RESPONSE
ACTION PLAN FOR
MORE DETAILS

PERMANENT
EASEMENT
AT&T
GAMESTOP

ASSORTED SHOPS

EB130

TCF BANK

GRADING & EROSION CONTROL LEGEND

	RAPID STABILIZATION (METHOD 3)		CONSTRUCTION LIMITS
	RAPID STABILIZATION (METHOD 4)		INLET PROTECTION
	EROSION CONTROL BLANKET CATEGORY 3N		CULVERT END CONTROL
	EROSION CONTROL BLANKET CATEGORY 0		SILT FENCE (MACHINE SLICED)
			BIOROLL

GENERAL NOTES:
FURNISH AND INSTALL EROSION CONTROL MEASURES AS STAGING
DICTATES IN ACCORDANCE WITH THE TURF ESTABLISHMENT AND
EROSION CONTROL PLANS.
SEE SHEET 64 FOR EROSION CONTROL BLANKET STAPLING PATTERN
DETAILS.

STA. EB130 202+77.93 TO 215+29.68



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Kelly Agosto
KELLY AGOSTO, LICENSED PROFESSIONAL ENGINEER

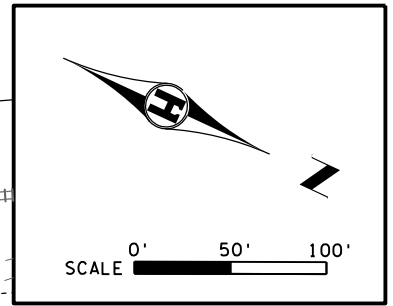
49075 3/15/19
LICENSE NO. DATE

DESIGN BY: L. LANGNER
CAD BY: E. GUIR
CHECKED BY: R. DECOTEAU
LAST REVISION: / /

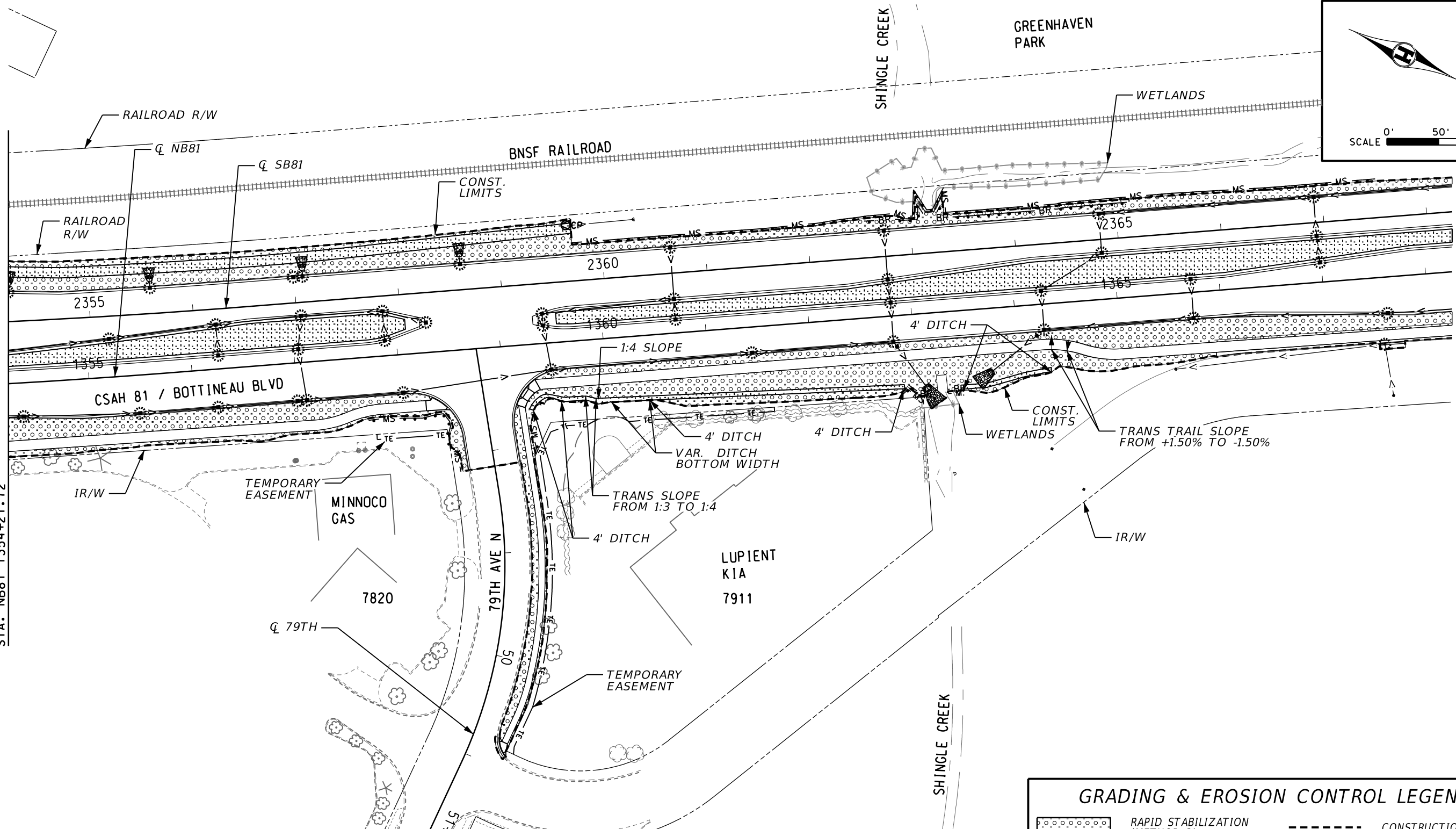
GRADING AND EROSION CONTROL PLAN

C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
S.P. 027-681-035, S.P. 110-020-040

SHEET
115
244



MATCH LINE SEE SHEET 113
STA. NB81 1354+21.72



GENERAL NOTES:
FURNISH AND INSTALL EROSION CONTROL MEASURES AS STAGING
DICTATES IN ACCORDANCE WITH THE TURF ESTABLISHMENT AND
EROSION CONTROL PLANS.
SEE SHEET 64 FOR EROSION CONTROL BLANKET STAPLING PATTERN
DETAILS.

GRADING & EROSION CONTROL LEGEND			
	RAPID STABILIZATION (METHOD 3)		CONSTRUCTION LIMITS
	RAPID STABILIZATION (METHOD 4)		INLET PROTECTION
	EROSION CONTROL BLANKET CATEGORY 3N		CULVERT END CONTROL
	EROSION CONTROL BLANKET CATEGORY 0		SILT FENCE (MACHINE SLICED)
			BIOROLL

STA. NB81 1354+21.72 TO 1368+25.92



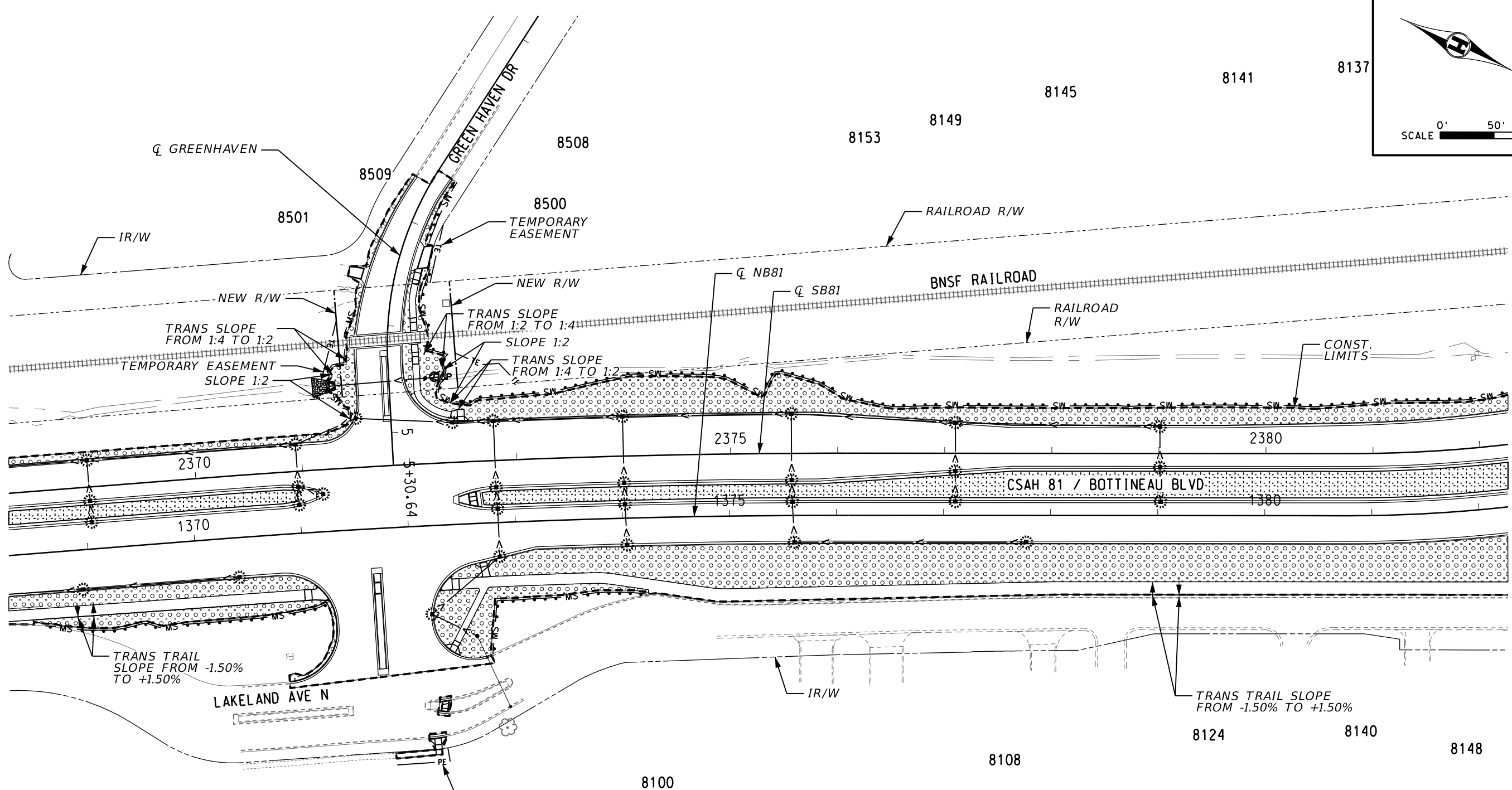
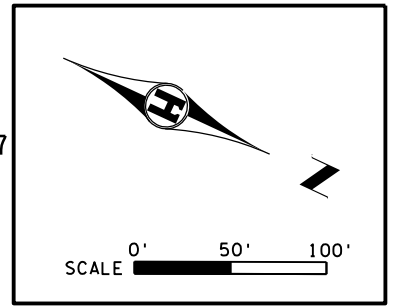
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Kelly Agosto
KELLY AGOSTO, LICENSED PROFESSIONAL ENGINEER
49075 LICENSE NO. 3/15/19 DATE

DESIGN BY: L. LANGNER
CAD BY: E. GUIR
CHECKED BY: R. DECOTEAU
LAST REVISION: / /

GRADING AND EROSION CONTROL PLAN
C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
S.P. 027-681-035, S.P. 110-020-040

SHEET
116
244



8100

WALSER
HYUNDAI

GENERAL NOTES:
FURNISH AND INSTALL EROSION CONTROL MEASURES AS STAGING
DICTATES IN ACCORDANCE WITH THE TURF ESTABLISHMENT AND
EROSION CONTROL PLANS.
SEE SHEET 64 FOR EROSION CONTROL BLANKET STAPLING PATTERN
DETAILS.

GRADING & EROSION CONTROL LEGEND	
	RAPID STABILIZATION (METHOD 3)
	RAPID STABILIZATION (METHOD 4)
	EROSION CONTROL BLANKET CATEGORY 3N
	EROSION CONTROL BLANKET CATEGORY 0
	CONSTRUCTION LIMITS
	INLET PROTECTION
	CULVERT END CONTROL
	SILT FENCE (MACHINE SLICED)
	BIOROLL

STA. NB81 1368+25.92 TO 1382+27.40



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.

Kelly Agosto
KELLY AGOSTO, LICENSED PROFESSIONAL ENGINEER

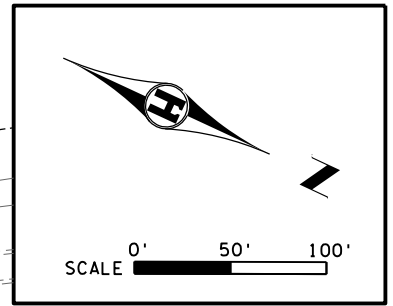
49075 3/15/19
LICENSE NO. DATE

DESIGN BY: L. LANGNER
CAD BY: E. GUIR
CHECKED BY: R. DECOTEAU
LAST REVISION: / /

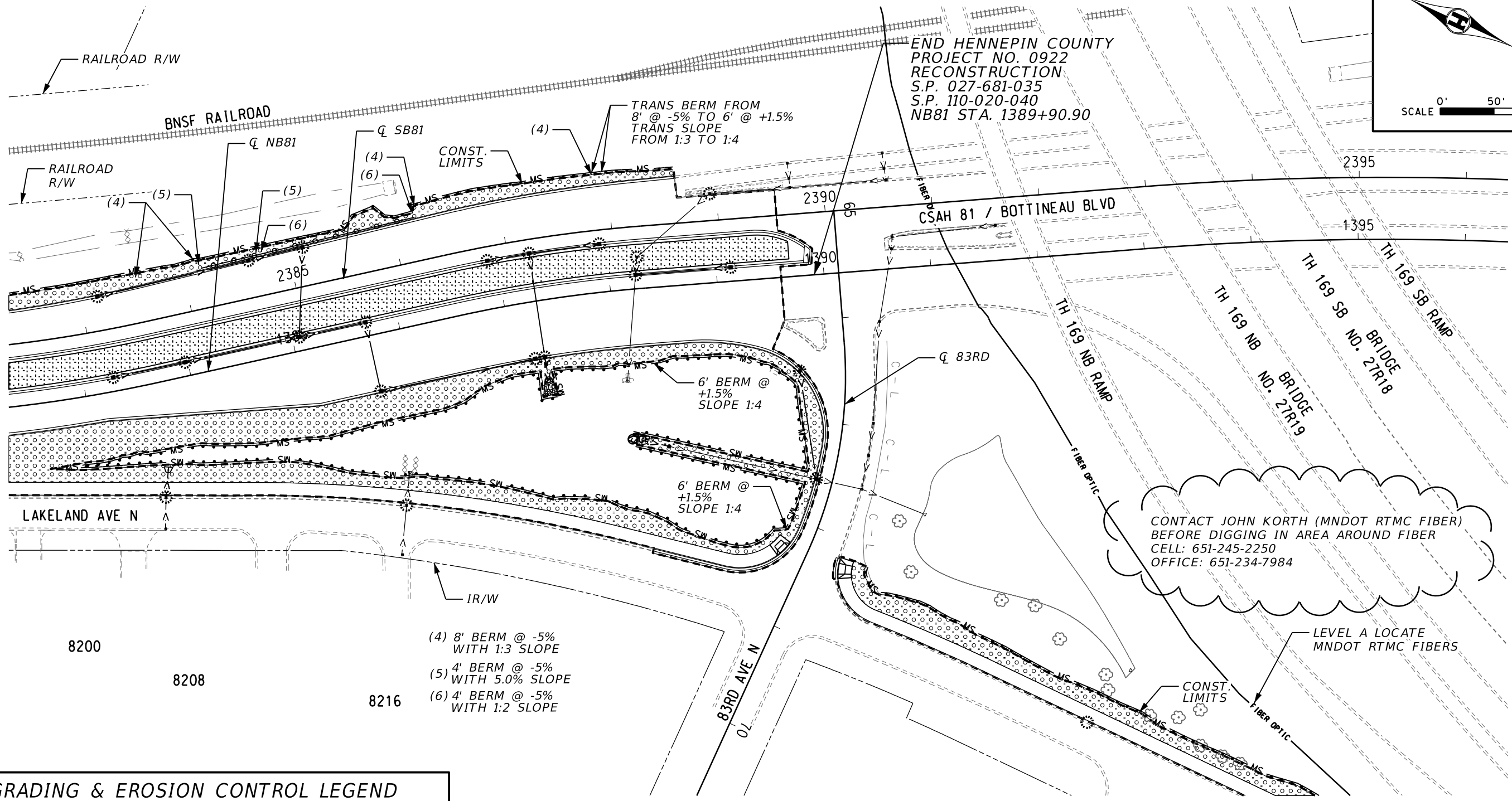
GRADING AND EROSION CONTROL PLAN

C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
S.P. 027-681-035, S.P. 110-020-040

SHEET
117
244



END HENNEPIN COUNTY
PROJECT NO. 0922
RECONSTRUCTION
S.P. 027-681-035
S.P. 110-020-040
NB81 STA. 1389+90.90



CONTACT JOHN KORTH (MNDOT RTMC FIBER)
BEFORE DIGGING IN AREA AROUND FIBER
CELL: 651-245-2250
OFFICE: 651-234-7984

- (4) 8' BERM @ -5% WITH 1:3 SLOPE
- (5) 4' BERM @ -5% WITH 5.0% SLOPE
- (6) 4' BERM @ -5% WITH 1:2 SLOPE

GRADING & EROSION CONTROL LEGEND	
	RAPID STABILIZATION (METHOD 3)
	RAPID STABILIZATION (METHOD 4)
	EROSION CONTROL BLANKET CATEGORY 3N
	EROSION CONTROL BLANKET CATEGORY 0
	CONSTRUCTION LIMITS
	INLET PROTECTION
	CULVERT END CONTROL
	SILT FENCE (MACHINE SLICED)
	BIOROLL

GENERAL NOTES:
FURNISH AND INSTALL EROSION CONTROL MEASURES AS STAGING DICTATES IN ACCORDANCE WITH THE TURF ESTABLISHMENT AND EROSION CONTROL PLANS.
SEE SHEET 64 FOR EROSION CONTROL BLANKET STAPLING PATTERN DETAILS.

STA. NB81 1382+27.40 TO 1389+90.90, STA. TR83 560+00.00 TO 564+66.29



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.

Kelly Agosto
KELLY AGOSTO, LICENSED PROFESSIONAL ENGINEER

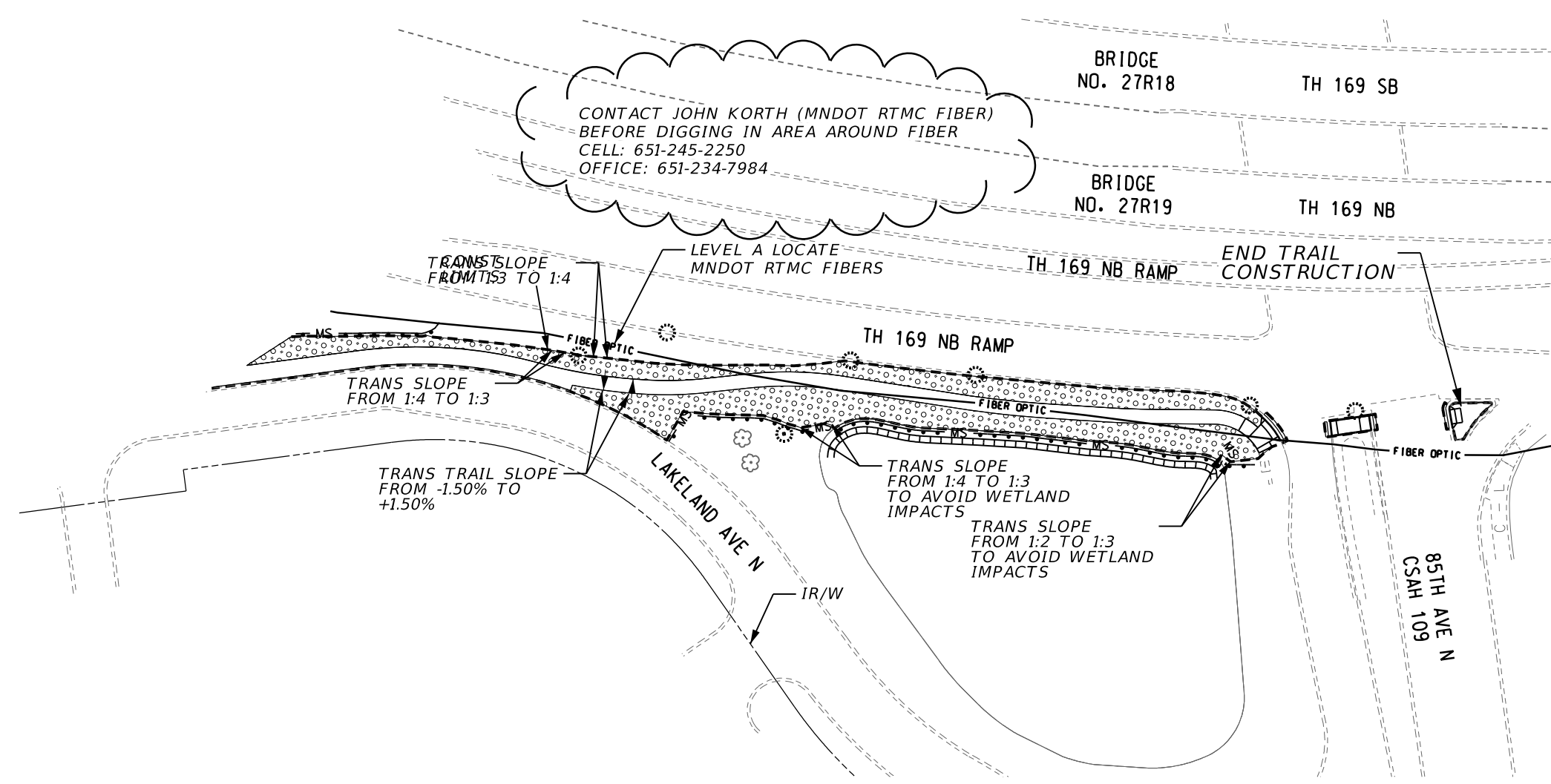
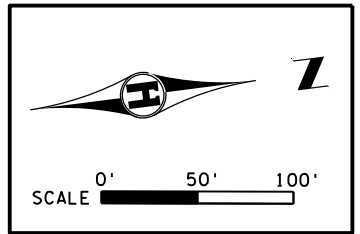
49075 3/15/19
LICENSE NO. DATE

DESIGN BY: L. LANGNER
CAD BY: E. GUIR
CHECKED BY: R. DECOTEAU
LAST REVISION: / /

GRADING AND EROSION CONTROL PLAN

C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
S.P. 027-681-035, S.P. 110-020-040

SHEET
118
244



CONTACT JOHN KORTH (MNDOT RTMC FIBER)
 BEFORE DIGGING IN AREA AROUND FIBER
 CELL: 651-245-2250
 OFFICE: 651-234-7984

GRADING & EROSION CONTROL LEGEND

	RAPID STABILIZATION (METHOD 3)		CONSTRUCTION LIMITS
	RAPID STABILIZATION (METHOD 4)		INLET PROTECTION
	EROSION CONTROL BLANKET CATEGORY 3N		CULVERT END CONTROL
	EROSION CONTROL BLANKET CATEGORY 0		SILT FENCE (MACHINE SLICED)
			BIOROLL

GENERAL NOTES:
 FURNISH AND INSTALL EROSION CONTROL MEASURES AS STAGING DICTATES IN ACCORDANCE WITH THE TURF ESTABLISHMENT AND EROSION CONTROL PLANS.
 SEE SHEET 64 FOR EROSION CONTROL BLANKET STAPLING PATTERN DETAILS.

STA. TR83 564+66.29 TO 571+91.88



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.

Kelly Agosto
 KELLY AGOSTO, LICENSED PROFESSIONAL ENGINEER

49075 3/15/19
 LICENSE NO. DATE

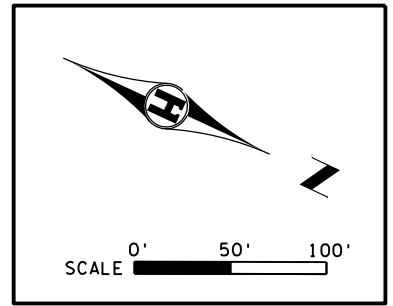
DESIGN BY: L. LANGNER
 CAD BY: E. GUIR
 CHECKED BY: R. DECOTEAU
 LAST REVISION: / /

GRADING AND EROSION CONTROL PLAN

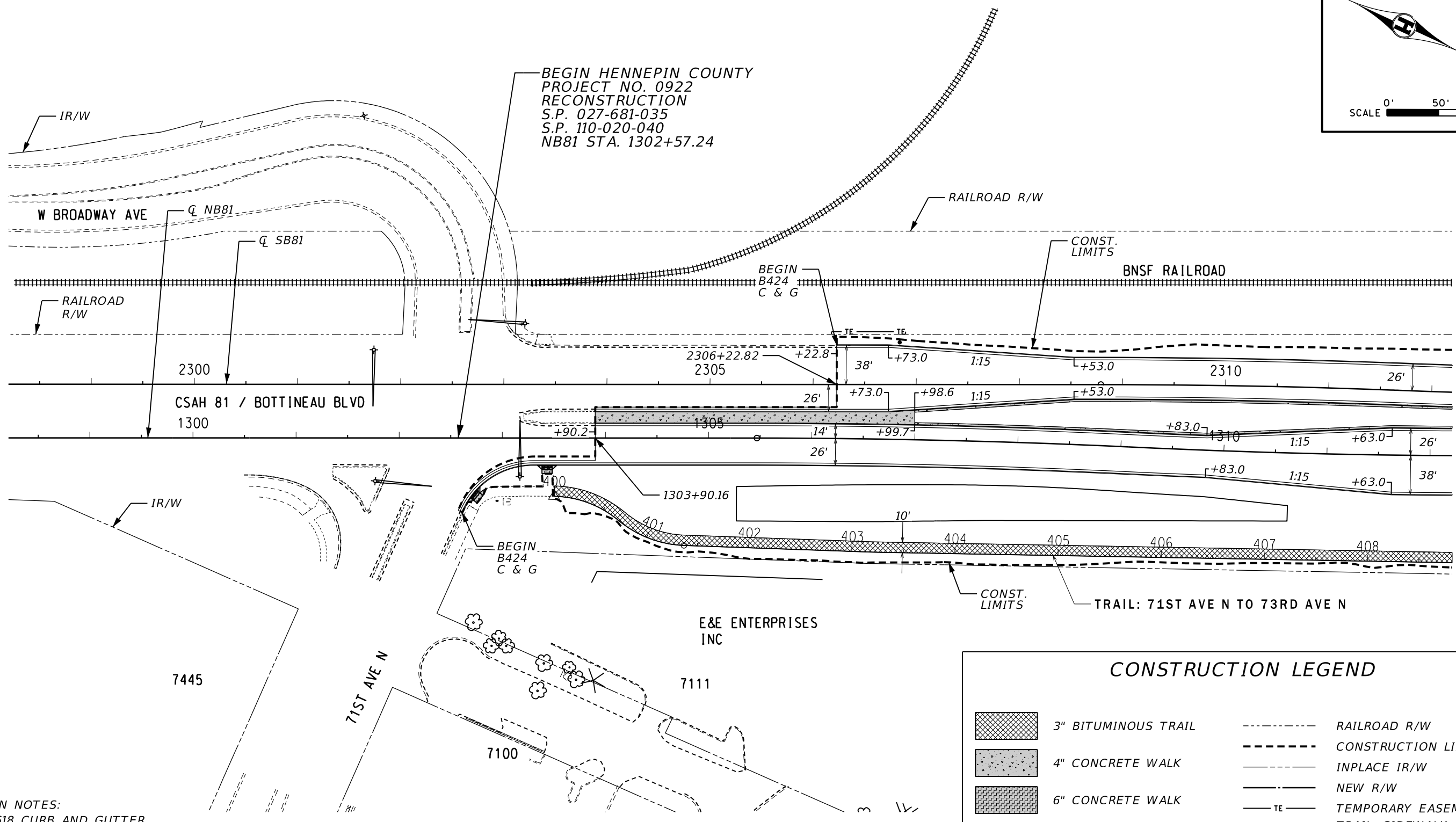
C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
 S.P. 027-681-035, S.P. 110-020-040

SHEET

119
 244



BEGIN HENNEPIN COUNTY
 PROJECT NO. 0922
 RECONSTRUCTION
 S.P. 027-681-035
 S.P. 110-020-040
 NB81 STA. 1302+57.24



MEDIAN NOTES:
 (1) B618 CURB AND GUTTER
 (2) B624 CURB AND GUTTER

NOTES:
 - DIMENSIONS ARE TO FACE OF CURB
 - CURB AND GUTTER IS B424 UNLESS NOTED OTHERWISE
 - CONSTRUCT NOSES PER MNDOT STANDARD PLATE 7113A.
 PAID FOR AS 6" CONCRETE WALK

CONSTRUCTION LEGEND			
	3" BITUMINOUS TRAIL		RAILROAD R/W
	4" CONCRETE WALK		CONSTRUCTION LIMITS
	6" CONCRETE WALK		INPLACE IR/W
	WETLANDS		NEW R/W
	RETAINING WALL		TEMPORARY EASEMENT
			TRAIL, SIDEWALK, DRAIN, AND UTILITY EASEMENT
			DRAINAGE AND UTILITY EASEMENT

STA. NB81 1302+57.24 TO 1312+21.39



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.

Kelly Agosto
 KELLY AGOSTO, LICENSED PROFESSIONAL ENGINEER

49075 3/15/19
 LICENSE NO. DATE

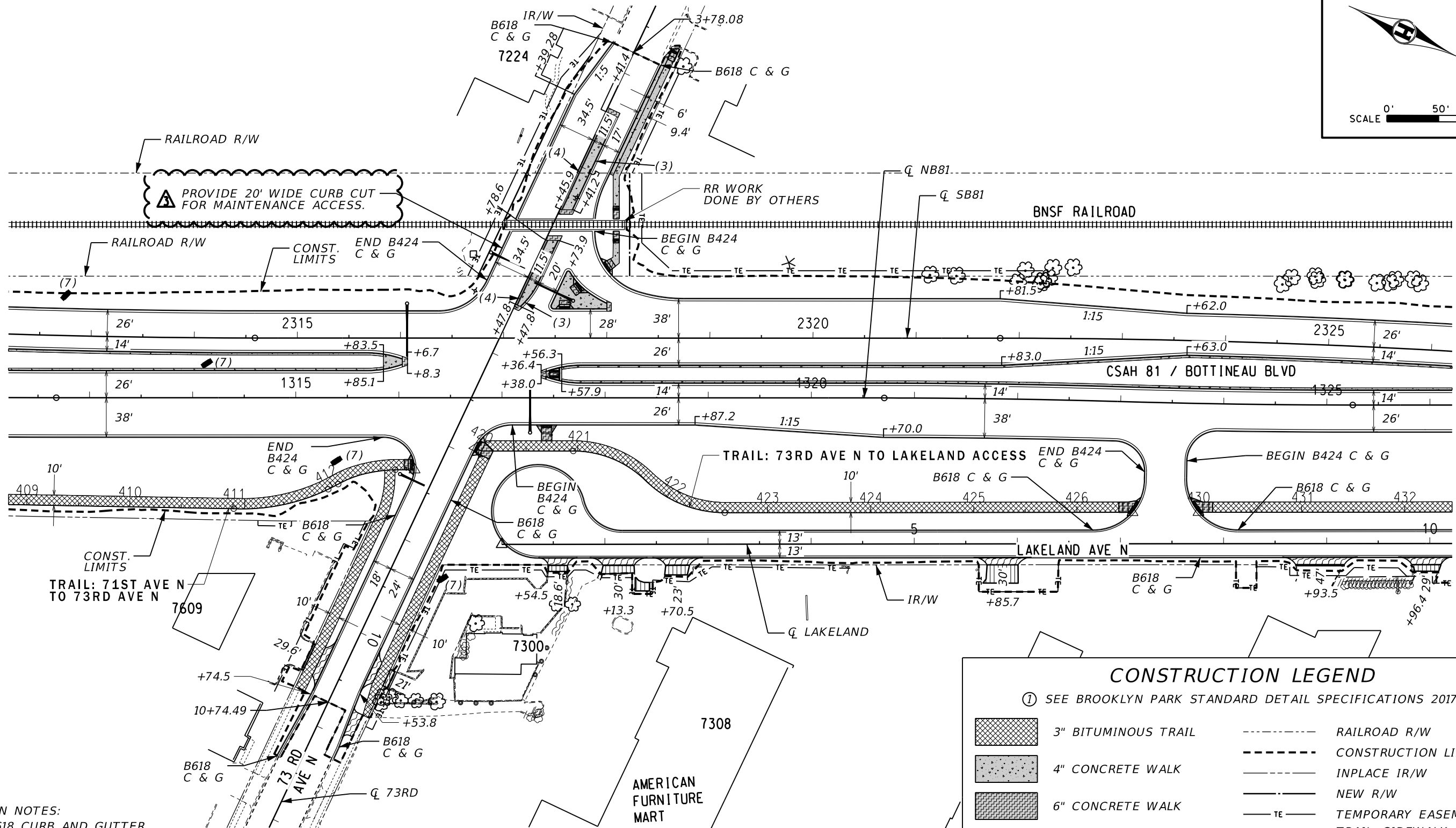
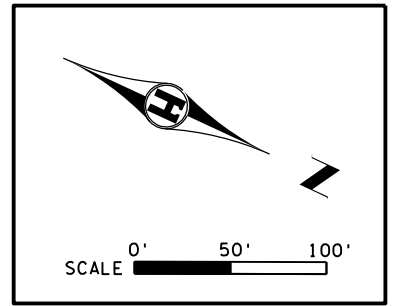
DESIGN BY: L. LANGNER
 CAD BY: E. GUIR
 CHECKED BY: R. DECOTEAU
 LAST REVISION: / /

CONSTRUCTION PLAN

C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
 S.P. 027-681-035, S.P. 110-020-040

SHEET

120
 244



RAILROAD R/W

PROVIDE 20' WIDE CURB CUT FOR MAINTENANCE ACCESS.

CONST. LIMITS

TRAIL: 71ST AVE N TO 73RD AVE N

7609

TRAIL: 73RD AVE N TO LAKELAND ACCESS

BEGIN B424 C & G

END B424 C & G

B618 C & G

- MEDIAN NOTES:**
- (1) B618 CURB AND GUTTER
 - (2) B624 CURB AND GUTTER
 - (3) B818 CURB AND GUTTER
 - (4) B818 CURB AND GUTTER - GUTTER OUT
 - (5) B824 CURB AND GUTTER
 - (6) B824 CURB AND GUTTER - GUTTER OUT
 - (7) FUTURE BLRT PIER

NOTES:

- DIMENSIONS ARE TO FACE OF CURB
- CURB AND GUTTER IS B424 UNLESS NOTED OTHERWISE
- CONSTRUCT NOSSES PER MNDOT STANDARD PLATE 7113A. PAID FOR AS 6" CONCRETE WALK

CONSTRUCTION LEGEND	
① SEE BROOKLYN PARK STANDARD DETAIL SPECIFICATIONS 2017	
3" BITUMINOUS TRAIL	RAILROAD R/W
4" CONCRETE WALK	CONSTRUCTION LIMITS
6" CONCRETE WALK	INPLACE IR/W
WETLANDS	NEW R/W
RETAINING WALL	TEMPORARY EASEMENT
CONCRETE DRIVEWAY ①	TRAIL, SIDEWALK, DRAIN, AND UTILITY EASEMENT
4.5" BITUMINOUS DRIVEWAY: ①	DRAINAGE AND UTILITY EASEMENT

STA. NB81 1312+21.39 TO 1326+21.46



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.

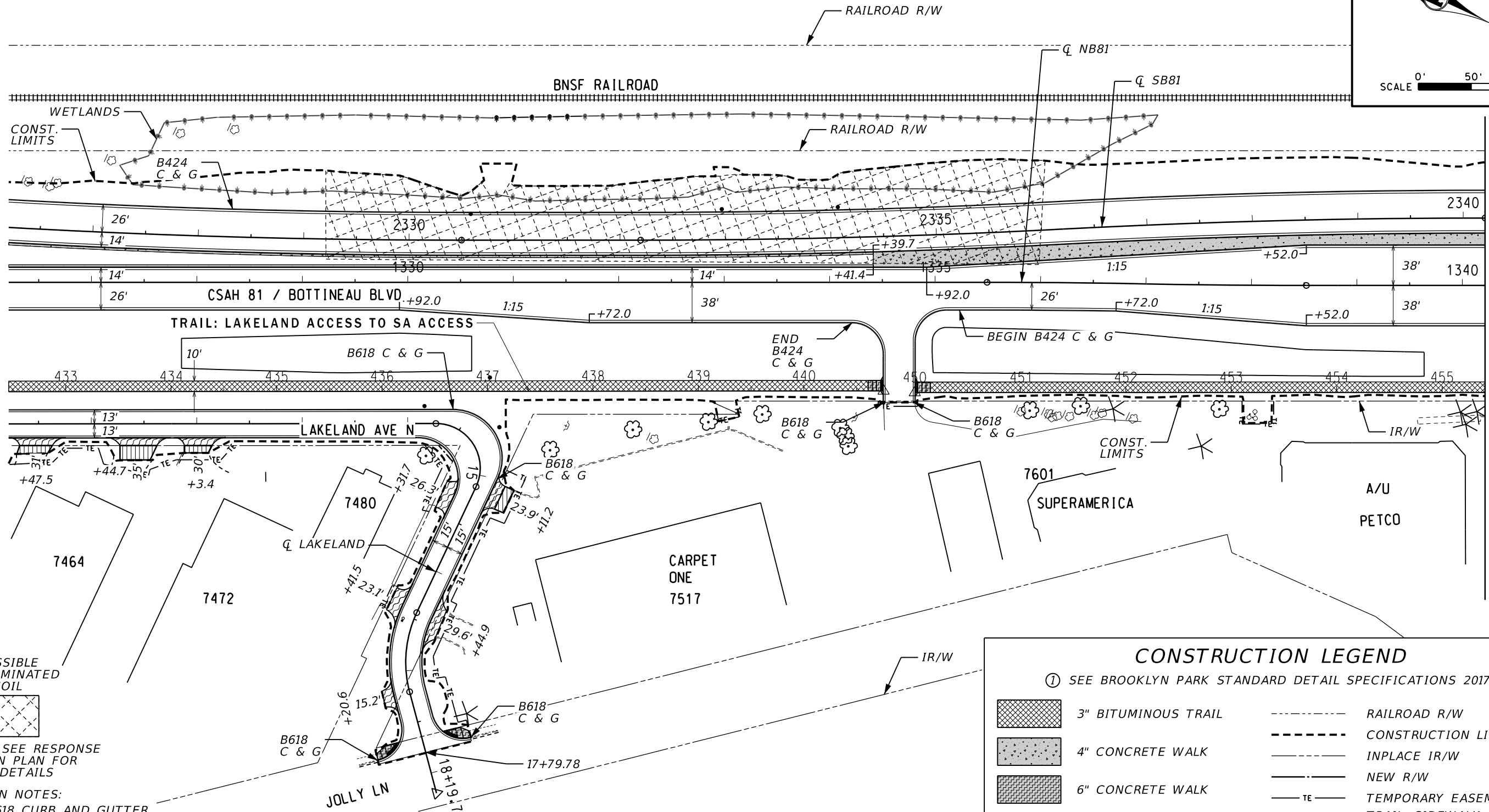
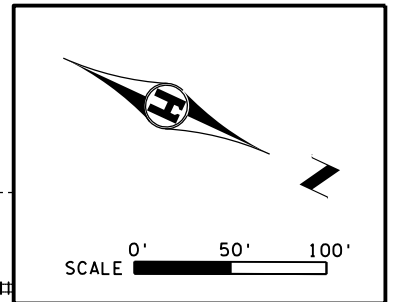
Kelly Agosto
 KELLY AGOSTO, LICENSED PROFESSIONAL ENGINEER
 49075 LICENSE NO. 3/15/19 DATE

DESIGN BY: L. LANGNER
CAD BY: E. GUIR
CHECKED BY: R. DECOTEAU
LAST REVISION: 4/25/19

CONSTRUCTION PLAN

C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
 S.P. 027-681-035, S.P. 110-020-040

SHEET
 R121.1
 244



MATCH LINE SEE SHEET 123
STA. NB81 1340+21.48

POSSIBLE
CONTAMINATED
SOIL

NOTE: SEE RESPONSE
ACTION PLAN FOR
MORE DETAILS

MEDIAN NOTES:
(1) B618 CURB AND GUTTER
(2) B624 CURB AND GUTTER

NOTES:
- DIMENSIONS ARE TO FACE OF CURB
- CURB AND GUTTER IS B424 UNLESS NOTED OTHERWISE
- CONSTRUCT NOSES PER MNDOT STANDARD PLATE 7113A.
PAID FOR AS 6" CONCRETE WALK

CONSTRUCTION LEGEND	
① SEE BROOKLYN PARK STANDARD DETAIL SPECIFICATIONS 2017	
3" BITUMINOUS TRAIL	RAILROAD R/W
4" CONCRETE WALK	CONSTRUCTION LIMITS
6" CONCRETE WALK	INPLACE IR/W
WETLANDS	NEW R/W
RETAINING WALL	TEMPORARY EASEMENT
CONCRETE DRIVEWAY ①	TRAIL, SIDEWALK, DRAIN, AND UTILITY EASEMENT
4.5" BITUMINOUS DRIVEWAY: ①	DRAINAGE AND UTILITY EASEMENT

STA. NB81 1326+21.46 TO 1340+21.48



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Kelly Agosto
KELLY AGOSTO, LICENSED PROFESSIONAL ENGINEER

49075 3/15/19
LICENSE NO. DATE

DESIGN BY: L. LANGNER
CAD BY: E. GUIR
CHECKED BY: R. DECOTEAU
LAST REVISION: / /

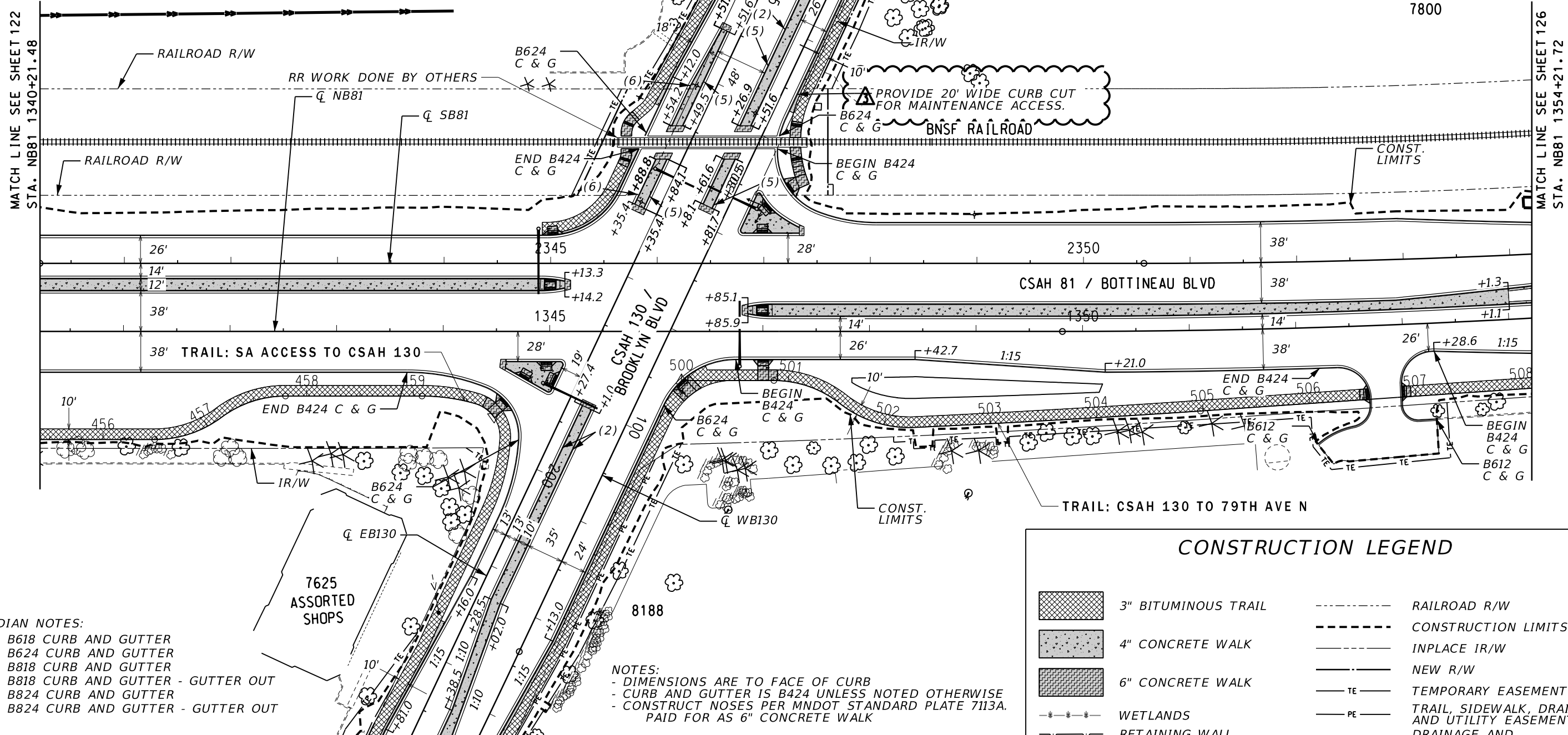
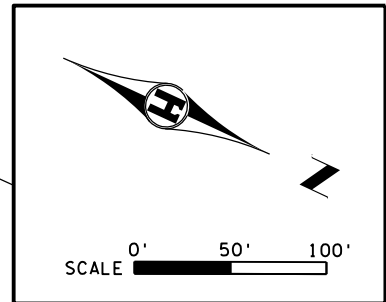
CONSTRUCTION PLAN

C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
S.P. 027-681-035, S.P. 110-020-040

SHEET

122 / 244

MATCH LINE SEE SHEET 124
STA. EB130 193+93.93



- MEDIAN NOTES:**
- (1) B618 CURB AND GUTTER
 - (2) B624 CURB AND GUTTER
 - (3) B818 CURB AND GUTTER
 - (4) B818 CURB AND GUTTER - GUTTER OUT
 - (5) B824 CURB AND GUTTER
 - (6) B824 CURB AND GUTTER - GUTTER OUT

- NOTES:**
- DIMENSIONS ARE TO FACE OF CURB
 - CURB AND GUTTER IS B424 UNLESS NOTED OTHERWISE
 - CONSTRUCT NOSSES PER MNDOT STANDARD PLATE 7113A. PAID FOR AS 6" CONCRETE WALK

CONSTRUCTION LEGEND			
	3" BITUMINOUS TRAIL		RAILROAD R/W
	4" CONCRETE WALK		CONSTRUCTION LIMITS
	6" CONCRETE WALK		INPLACE IR/W
	WETLANDS		NEW R/W
	RETAINING WALL		TEMPORARY EASEMENT
			TRAIL, SIDEWALK, DRAIN, AND UTILITY EASEMENT
			DRAINAGE AND UTILITY EASEMENT

MATCH LINE SEE SHEET 125
STA. EB130 202+77.93



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Kelly Agosto
KELLY AGOSTO, LICENSED PROFESSIONAL ENGINEER

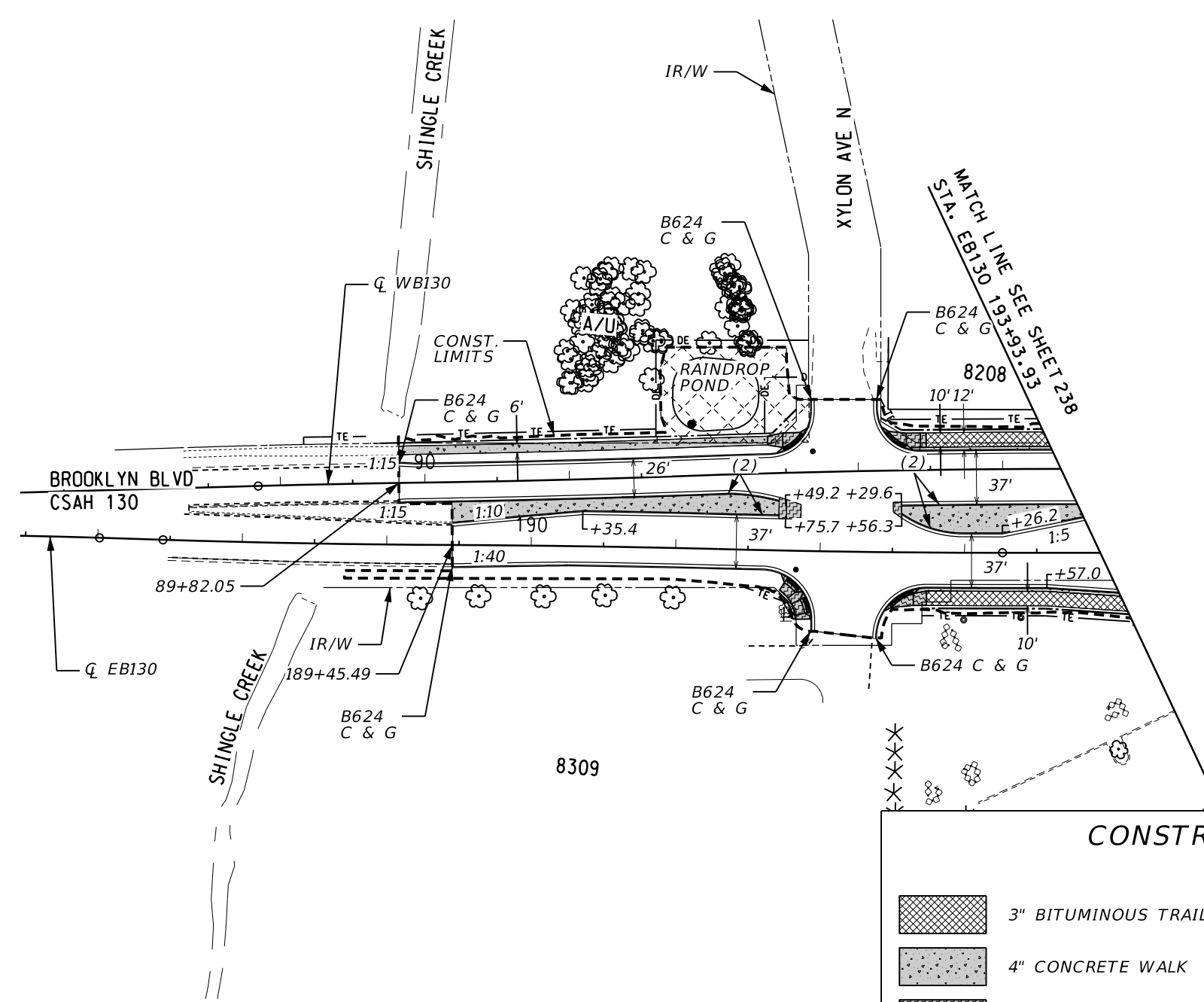
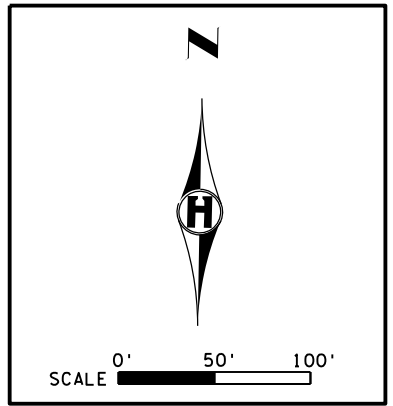
49075 3/15/19
LICENSE NO. DATE

DESIGN BY: L. LANGNER
CAD BY: E. GUIR
CHECKED BY: R. DECOTEAU
LAST REVISION: 4/25/19

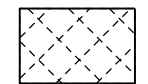
CONSTRUCTION PLAN

C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
S.P. 027-681-035, S.P. 110-020-040

SHEET
R123.1
244



POSSIBLE
CONTAMINATED
SOIL



NOTE: SEE RESPONSE
ACTION PLAN FOR
MORE DETAILS

MEDIAN NOTES:

- (1) B618 CURB AND GUTTER
- (2) B624 CURB AND GUTTER

NOTES:
 - DIMENSIONS ARE TO FACE OF CURB
 - CURB AND GUTTER IS B624 UNLESS NOTED OTHERWISE
 - CONSTRUCT NOSES PER MNDOT STANDARD PLATE 7113A.
 - PAID FOR AS 6" CONCRETE WALK

CONSTRUCTION LEGEND			
	3" BITUMINOUS TRAIL		RAILROAD R/W
	4" CONCRETE WALK		CONSTRUCTION LIMITS
	6" CONCRETE WALK		INPLACE IR/W
	WETLANDS		NEW R/W
	RETAINING WALL		TEMPORARY EASEMENT
			TRAIL, SIDEWALK, DRAIN, AND UTILITY EASEMENT
			DRAINAGE AND UTILITY EASEMENT

STA. EB130 189+07.80 TO 193+93.93



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Kelly Agosto
 KELLY AGOSTO, LICENSED PROFESSIONAL ENGINEER

49075 3/15/19
 LICENSE NO. DATE

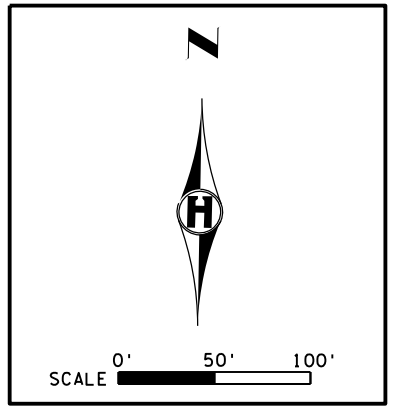
DESIGN BY: L. LANGNER
CAD BY: E. GUIR
CHECKED BY: R. DECOTEAU
LAST REVISION: / /

CONSTRUCTION PLAN

C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
 S.P. 027-681-035, S.P. 110-020-040

SHEET

124
 244



LUTHER
BROOKDALE

NTB
NATIONAL TIRE
& BATTERY

JOLLY LN N

BP GAS
STATION
8080

FIRESTONE

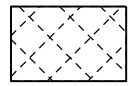
MAD JACKS

ARBYS

CONST.
LIMITS

MATCH LINE SEE SHEET 123
STA. EB130 202+77.93

POSSIBLE
CONTAMINATED
SOIL



NOTE: SEE RESPONSE
ACTION PLAN FOR
MORE DETAILS

MEDIAN NOTES:

- (1) B618 CURB AND GUTTER
- (2) B624 CURB AND GUTTER

NOTES:
- DIMENSIONS ARE TO FACE OF CURB
- CURB AND GUTTER IS B424 UNLESS NOTED OTHERWISE
- CONSTRUCT NOSES PER MNDOT STANDARD PLATE 7113A.
PAID FOR AS 6" CONCRETE WALK

CONSTRUCTION LEGEND

	3" BITUMINOUS TRAIL		RAILROAD R/W
	4" CONCRETE WALK		CONSTRUCTION LIMITS
	6" CONCRETE WALK		INPLACE IR/W
	WETLANDS		NEW R/W
	RETAINING WALL		TEMPORARY EASEMENT
			TRAIL, SIDEWALK, DRAIN, AND UTILITY EASEMENT
			DRAINAGE AND UTILITY EASEMENT

STA. EB130 202+77.93 TO 215+29.68



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.

Kelly Agosto
KELLY AGOSTO, LICENSED PROFESSIONAL ENGINEER

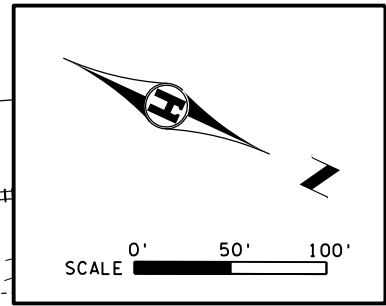
49075 3/15/19
LICENSE NO. DATE

DESIGN BY: L. LANGNER
CAD BY: E. GUIR
CHECKED BY: R. DECOTEAU
LAST REVISION: / /

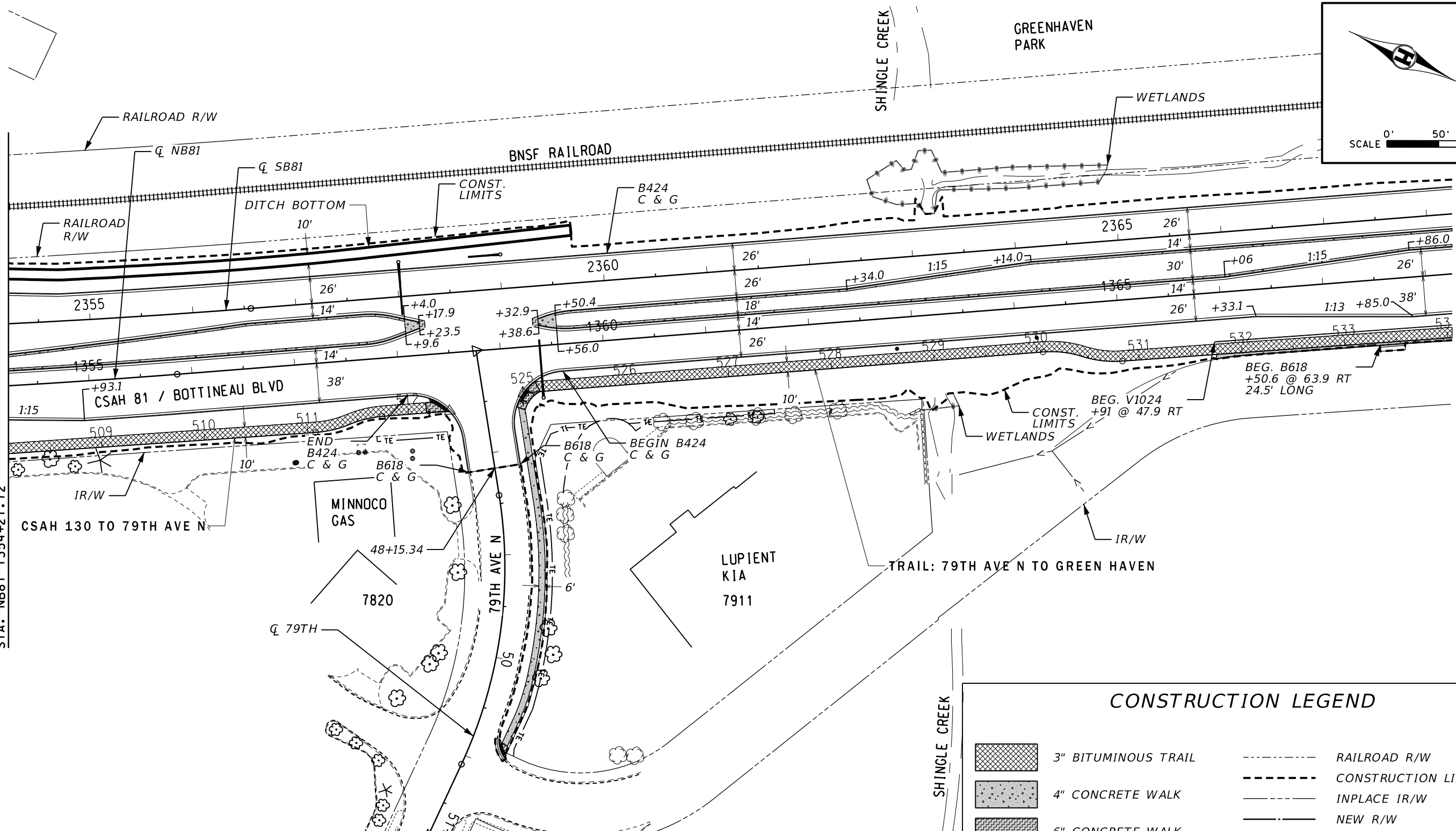
CONSTRUCTION PLAN

C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
S.P. 027-681-035, S.P. 110-020-040

SHEET
125
244



MATCH LINE SEE SHEET 238
STA. NB81 1354+21.72



MEDIAN NOTES:
 (1) B618 CURB AND GUTTER
 (2) B624 CURB AND GUTTER

NOTES:
 - DIMENSIONS ARE TO FACE OF CURB
 - CURB AND GUTTER IS B424 UNLESS NOTED OTHERWISE
 - CONSTRUCT NOSSES PER MNDOT STANDARD PLATE 7113A.
 - PAID FOR AS 6" CONCRETE WALK

CONSTRUCTION LEGEND			
	3" BITUMINOUS TRAIL		RAILROAD R/W
	4" CONCRETE WALK		CONSTRUCTION LIMITS
	6" CONCRETE WALK		INPLACE IR/W
	WETLANDS		NEW R/W
	RETAINING WALL		TEMPORARY EASEMENT
			TRAIL, SIDEWALK, DRAIN, AND UTILITY EASEMENT
			DRAINAGE AND UTILITY EASEMENT

STA. NB81 1354+21.72 TO 1368+25.92



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.

Kelly Agosto
 KELLY AGOSTO, LICENSED PROFESSIONAL ENGINEER

49075 3/15/19
 LICENSE NO. DATE

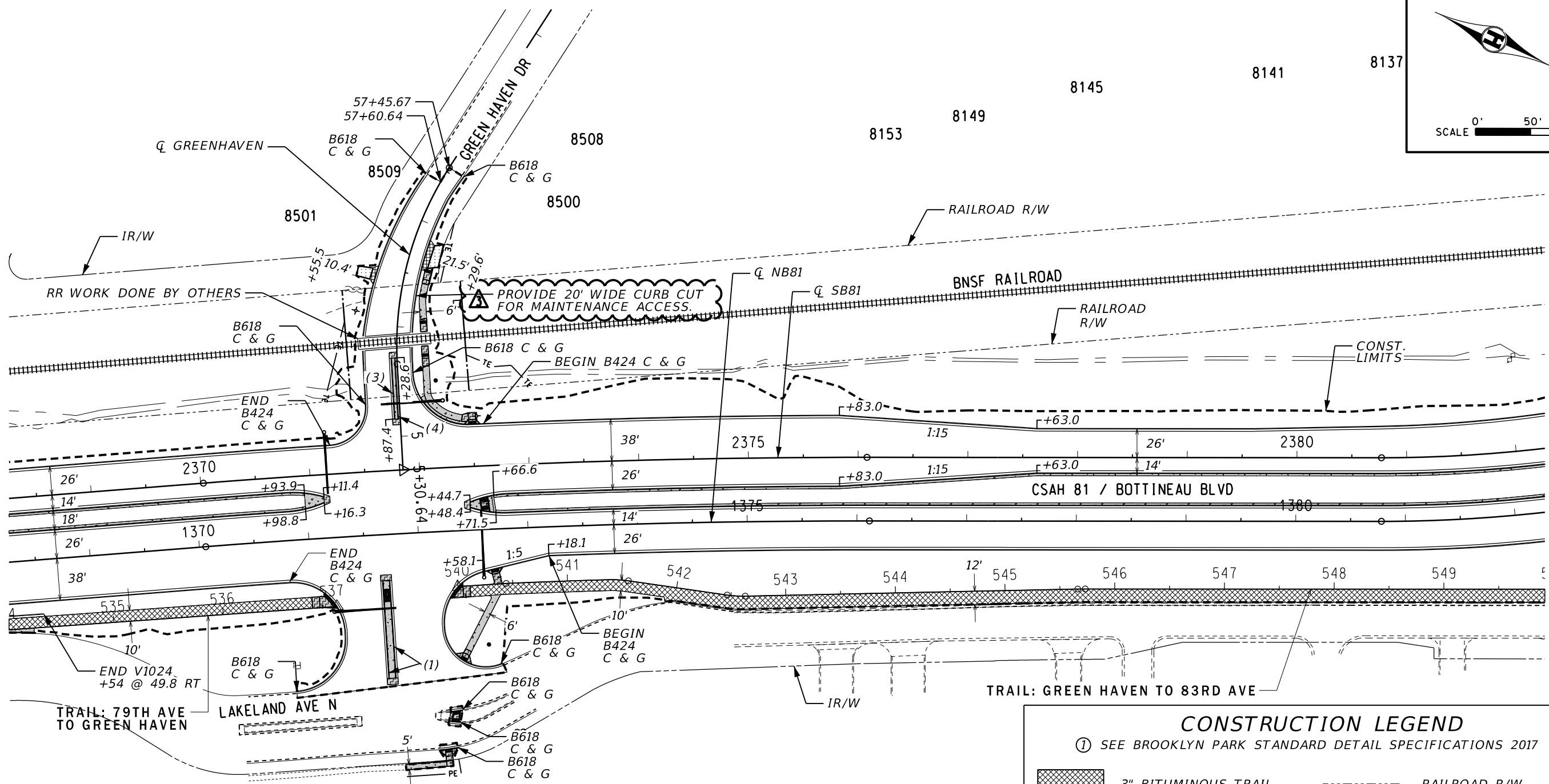
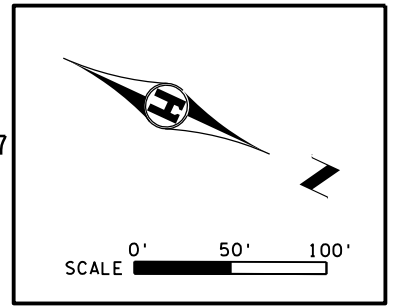
DESIGN BY: L. LANGNER
CAD BY: E. GUIR
CHECKED BY: R. DECOTEAU
LAST REVISION: / /

CONSTRUCTION PLAN

C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
 S.P. 027-681-035, S.P. 110-020-040

SHEET

126
 244



PROVIDE 20' WIDE CURB CUT FOR MAINTENANCE ACCESS.

CONSTRUCTION LEGEND	
① SEE BROOKLYN PARK STANDARD DETAIL SPECIFICATIONS 2017	
	3" BITUMINOUS TRAIL
	4" CONCRETE WALK
	6" CONCRETE WALK
	RAILROAD R/W
	CONSTRUCTION LIMITS
	INPLACE IR/W
	NEW R/W
	TEMPORARY EASEMENT
	TRAIL, SIDEWALK, DRAIN, AND UTILITY EASEMENT
	DRAINAGE AND UTILITY EASEMENT
	WETLANDS
	RETAINING WALL
	CONCRETE DRIVEWAY ①
	4.5" BITUMINOUS DRIVEWAY: ①

- MEDIAN NOTES:**
- (1) B618 CURB AND GUTTER
 - (2) B624 CURB AND GUTTER
 - (3) B818 CURB AND GUTTER
 - (4) B818 CURB AND GUTTER - GUTTER OUT
 - (5) B824 CURB AND GUTTER
 - (6) B824 CURB AND GUTTER - GUTTER OUT

- NOTES:**
- DIMENSIONS ARE TO FACE OF CURB
 - CURB AND GUTTER IS B424 UNLESS NOTED OTHERWISE
 - CONSTRUCT NOSSES PER MNDOT STANDARD PLATE 7113A. PAID FOR AS 6" CONCRETE WALK

STA. NB81 1368+25.92 TO 1382+27.40



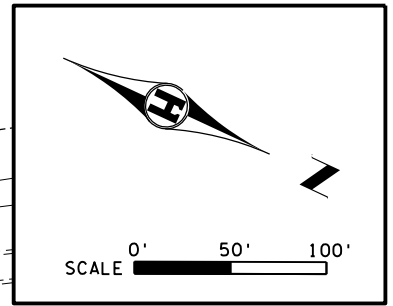
I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

Kelly Agosto
 KELLY AGOSTO, LICENSED PROFESSIONAL ENGINEER
 49075 LICENSE NO. 3/15/19 DATE

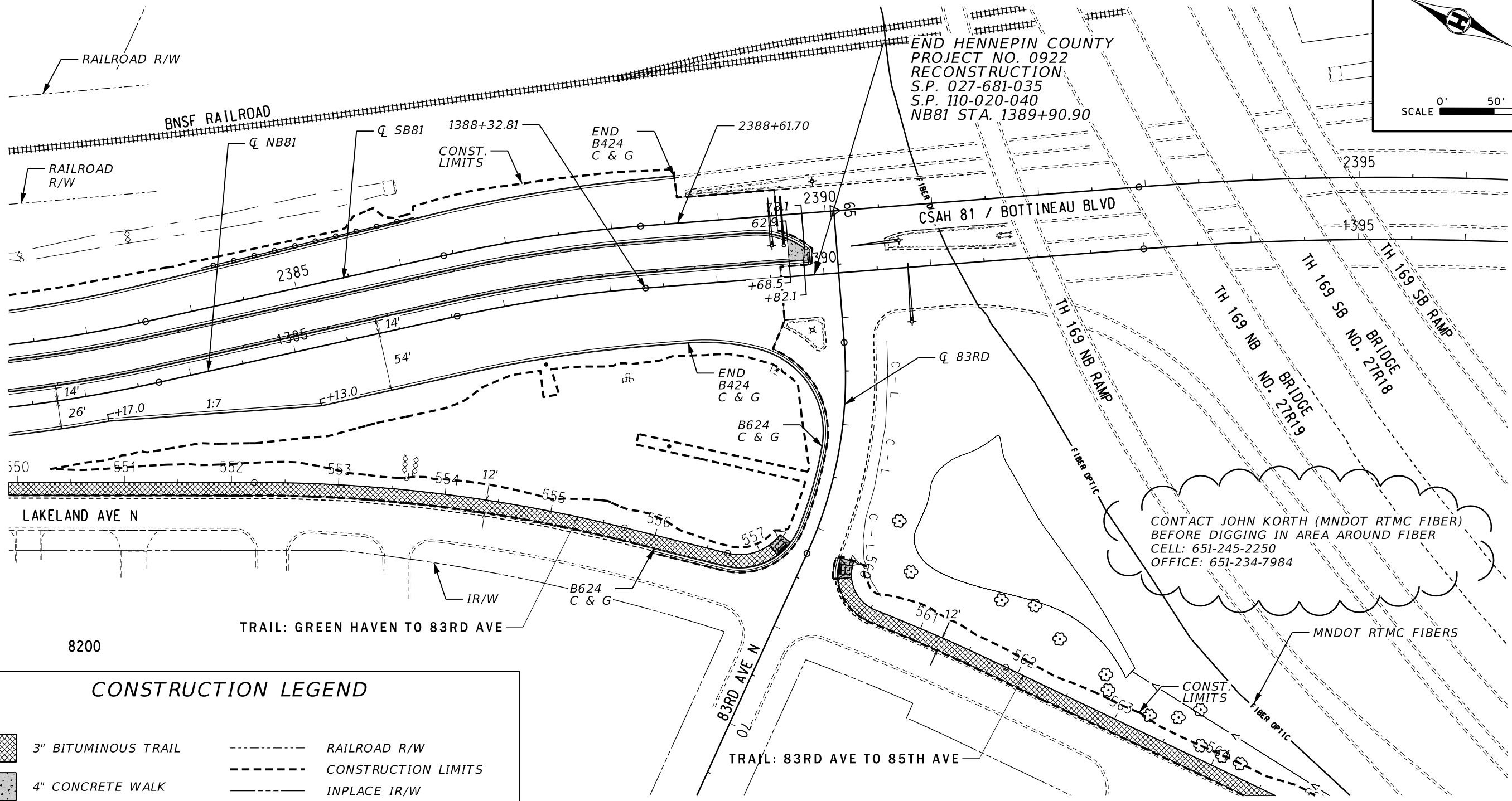
DESIGN BY: L. LANGNER
 CAD BY: E. GUIR
 CHECKED BY: R. DECOTEAU
 LAST REVISION: 4/25/19

CONSTRUCTION PLAN
 C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
 S.P. 027-681-035, S.P. 110-020-040

SHEET
 R127.1
 244



END HENNEPIN COUNTY
PROJECT NO. 0922
RECONSTRUCTION
S.P. 027-681-035
S.P. 110-020-040
NB81 STA. 1389+90.90



CONTACT JOHN KORTH (MNDOT RTMC FIBER)
BEFORE DIGGING IN AREA AROUND FIBER
CELL: 651-245-2250
OFFICE: 651-234-7984

CONSTRUCTION LEGEND

	3" BITUMINOUS TRAIL		RAILROAD R/W
	4" CONCRETE WALK		CONSTRUCTION LIMITS
	6" CONCRETE WALK		INPLACE IR/W
	WETLANDS		NEW R/W
	RETAINING WALL		TEMPORARY EASEMENT
			TRAIL, SIDEWALK, DRAIN, AND UTILITY EASEMENT
			DRAINAGE AND UTILITY EASEMENT

MEDIAN NOTES:
(1) B618 CURB AND GUTTER
(2) B624 CURB AND GUTTER

NOTES:
- DIMENSIONS ARE TO FACE OF CURB
- CURB AND GUTTER IS B424 UNLESS NOTED OTHERWISE
- CONSTRUCT NOSES PER MNDOT STANDARD PLATE 7113A. PAID FOR AS 6" CONCRETE WALK

STA. NB81 1382+27.40 TO 1389+90.90, STA. TR83 560+00.00 TO 564+66.29



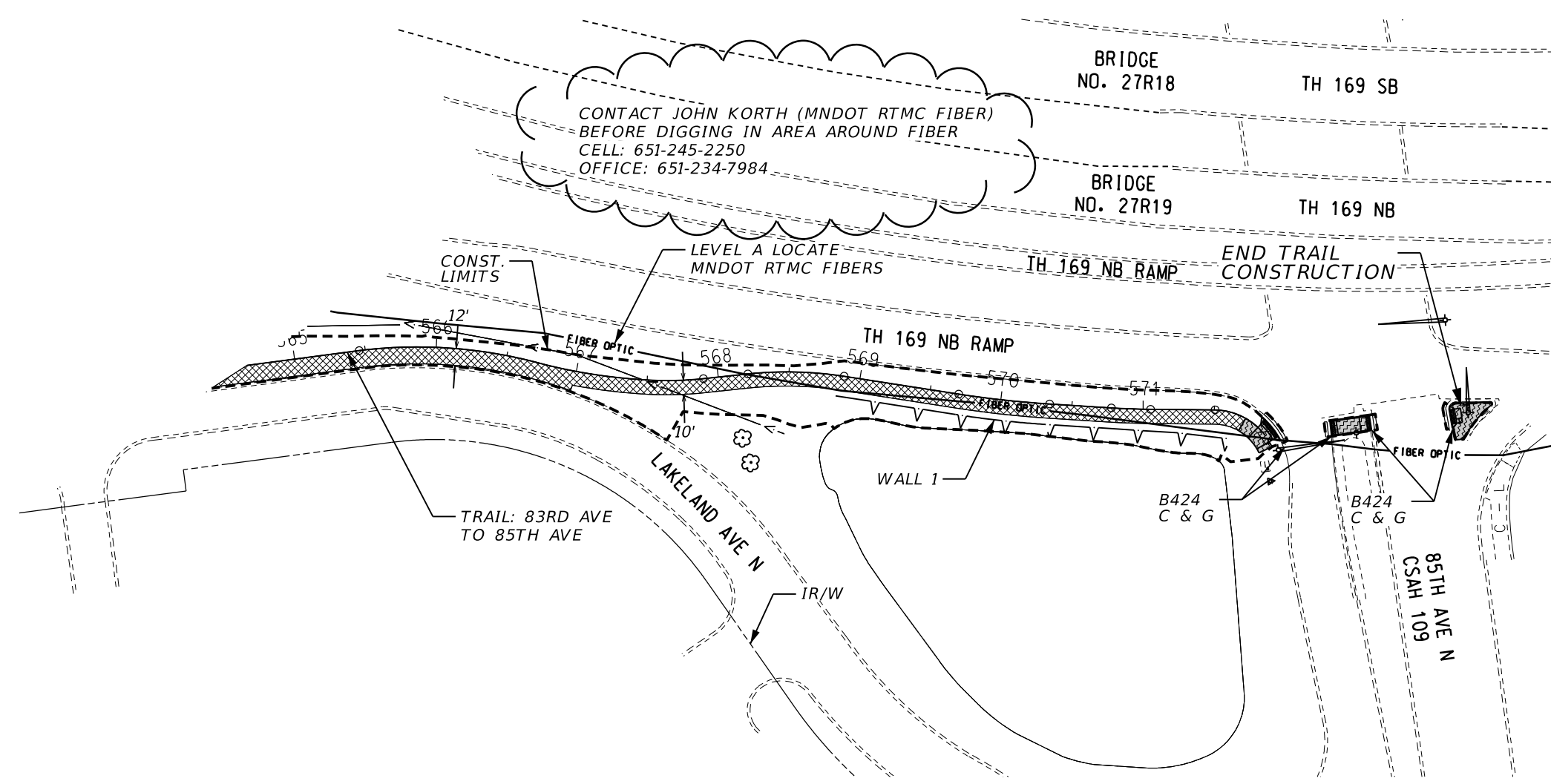
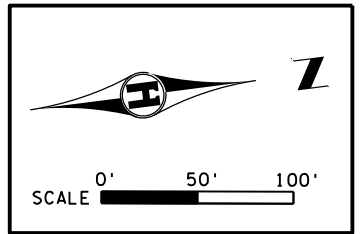
I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

Kelly Agosto
KELLY AGOSTO, LICENSED PROFESSIONAL ENGINEER
49075 LICENSE NO. 3/15/19 DATE

DESIGN BY: L. LANGNER
CAD BY: E. GUIR
CHECKED BY: R. DECOTEAU
LAST REVISION: / /

CONSTRUCTION PLAN
C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
S.P. 027-681-035, S.P. 110-020-040

SHEET
128 / 244



CONTACT JOHN KORTH (MNDOT RTMC FIBER)
 BEFORE DIGGING IN AREA AROUND FIBER
 CELL: 651-245-2250
 OFFICE: 651-234-7984

MEDIAN NOTES:
 (1) B618 CURB AND GUTTER
 (2) B624 CURB AND GUTTER

NOTES:
 - DIMENSIONS ARE TO FACE OF CURB
 - CURB AND GUTTER IS B424 UNLESS NOTED OTHERWISE
 - CONSTRUCT NOSES PER MNDOT STANDARD PLATE 7113A.
 PAID FOR AS 6" CONCRETE WALK

CONSTRUCTION LEGEND			
	3" BITUMINOUS TRAIL		RAILROAD R/W
	4" CONCRETE WALK		CONSTRUCTION LIMITS
	6" CONCRETE WALK		INPLACE IR/W
	WETLANDS		NEW R/W
	RETAINING WALL		TEMPORARY EASEMENT
			TRAIL, SIDEWALK, DRAIN, AND UTILITY EASEMENT
			DRAINAGE AND UTILITY EASEMENT

STA. TR83 564+66.29 TO 571+91.88



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Kelly Agosto
 KELLY AGOSTO, LICENSED PROFESSIONAL ENGINEER

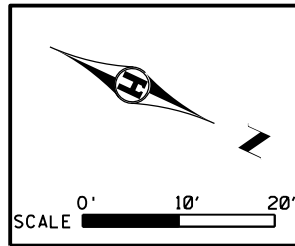
49075 3/15/19
 LICENSE NO. DATE

DESIGN BY: L. LANGNER
CAD BY: E. GUIR
CHECKED BY: R. DECOTEAU
LAST REVISION: / /

CONSTRUCTION PLAN

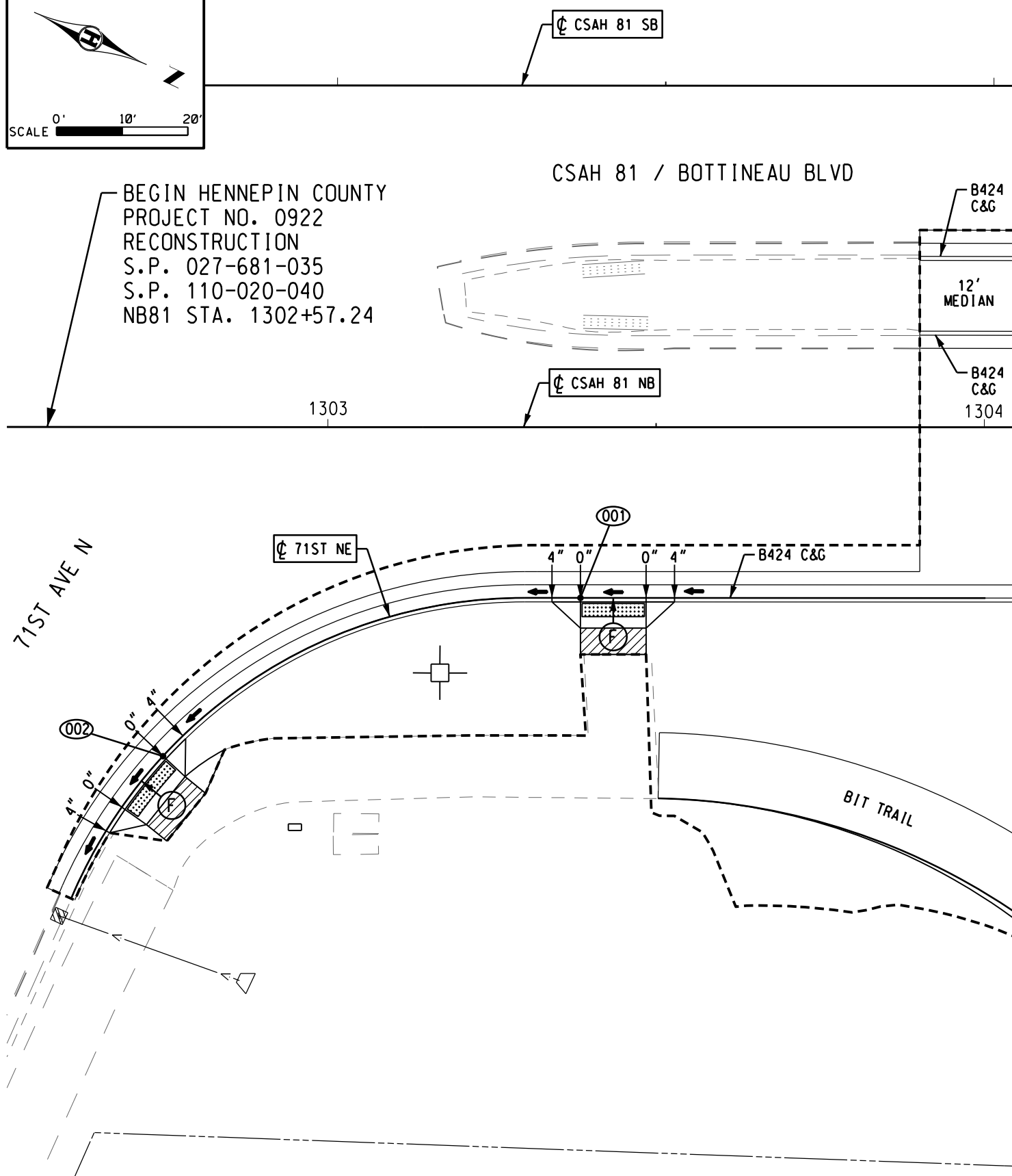
C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
 S.P. 027-681-035, S.P. 110-020-040

SHEET
 129
 244



BEGIN HENNEPIN COUNTY
PROJECT NO. 0922
RECONSTRUCTION
S.P. 027-681-035
S.P. 110-020-040
NB81 STA. 1302+57.24

CSAH 81 / BOTTINEAU BLVD



GENERAL NOTES:

- THIS PROJECT SHALL BE CONSTRUCTED AS PER AMERICANS WITH DISABILITIES ACT (ADA) AND PUBLIC RIGHTS-OF-WAY ACCESSIBILITY GUIDELINES (PROWAG).
- SEE ALIGNMENT PLANS AND PROFILE PLANSHEETS (IF NOT SHOWN HERE) FOR CURBLINE VERTICAL AND HORIZONTAL ALIGNMENT INFORMATION.
- SAWCUTS ON SIDEWALK ARE INCIDENTAL.
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- CONTRACTOR SHALL VERIFY RADIUS AND ARC LENGTHS NEEDED AT RADIAL DOME CORNERS (FAN CURB RAMPS)
- SEE PEDESTRIAN CURB RAMP DETAILS IN THE STANDARD PLANS FOR MORE INFORMATION.

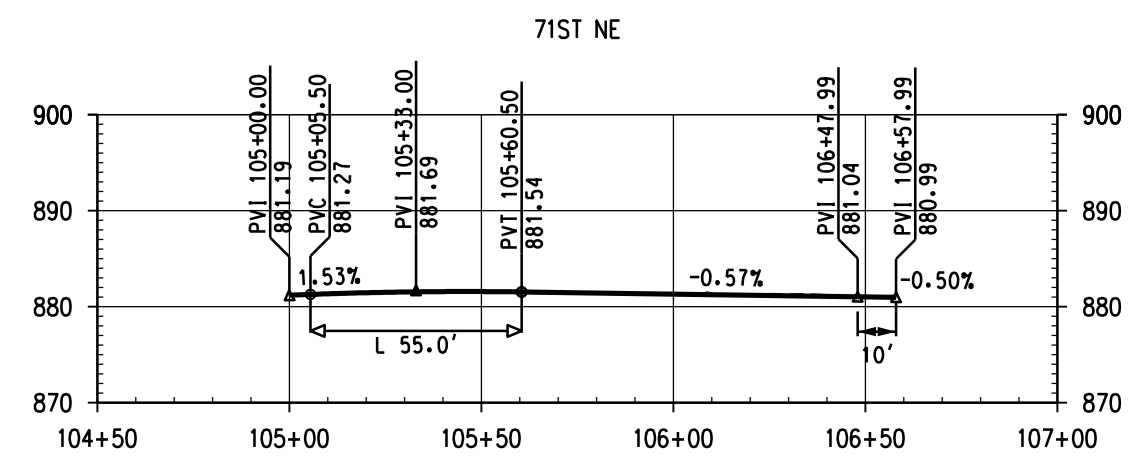
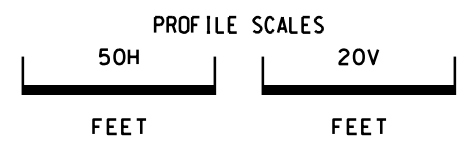
SIGNAL LEGEND

- INPLACE SIGNAL MAST ARM
- PROPOSED PUSH BUTTON STATION
- PROPOSED SIGNAL MAST ARM

INTERSECTION LEGEND

- CONTROL POINT(S) ON GUTTER FLOW LINE AT 0" CURB HEIGHT POINT
- CURB HEIGHT. SEE STANDARD PLAN SHEETS FOR PEDESTRIAN CURB RAMP DETAILS
- TRUNCATED DOMES (SEE MNDOT STD. PLATE 7038)
- LANDING AREA - 4' X 4' MIN. DIMENSIONS AND MAX. 2.0% SLOPE IN ALL DIRECTIONS
- INDICATES PEDESTRIAN RAMP-SLOPE SHALL BE BETWEEN 5.0% MIN. AND 8.3% MAX. IN THE DIRECTION SHOWN AND THE CROSS SLOPE SHALL NOT EXCEED 2.0%
- INDICATES PEDESTRIAN RAMP. SLOPE SHALL BE GREATER THAN 2% AND LESS THAN 5% IN THE DIRECTION SHOWN AND CROSS SLOPE SHALL NOT EXCEED 2.0%
- INDICATES CONTROL PROFILE KEY POINT(S) (SEE GUTTER PROFILE)
- DRAINAGE FLOW DIRECTION
- PROPOSED CB
- PROPOSED STORM MH

- 001 71ST NE \bar{C} 105+96.30
0.0' RT. GUTTER EL 881.34
- 002 71ST NE \bar{C} 105+25.93
0.0' RT. GUTTER EL 881.51



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.

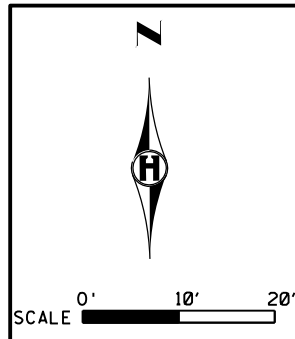
Kelly Agosto
KELLY AGOSTO, LICENSED PROFESSIONAL ENGINEER
49075
3/15/19
LICENSE NO. DATE

DESIGN BY: R. DECOTEAU
CAD BY: E. GUIR
CHECKED BY: L. LANGNER
LAST REVISION: / /

INTERSECTION DETAILS

C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
S.P. 027-681-035, S.P. 110-020-040

SHEET
130
244



7800
PUBLIC STORAGE

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- SEE PEDESTRIAN CURB RAMP DETAILS IN THE STANDARD PLANS FOR MORE INFORMATION.

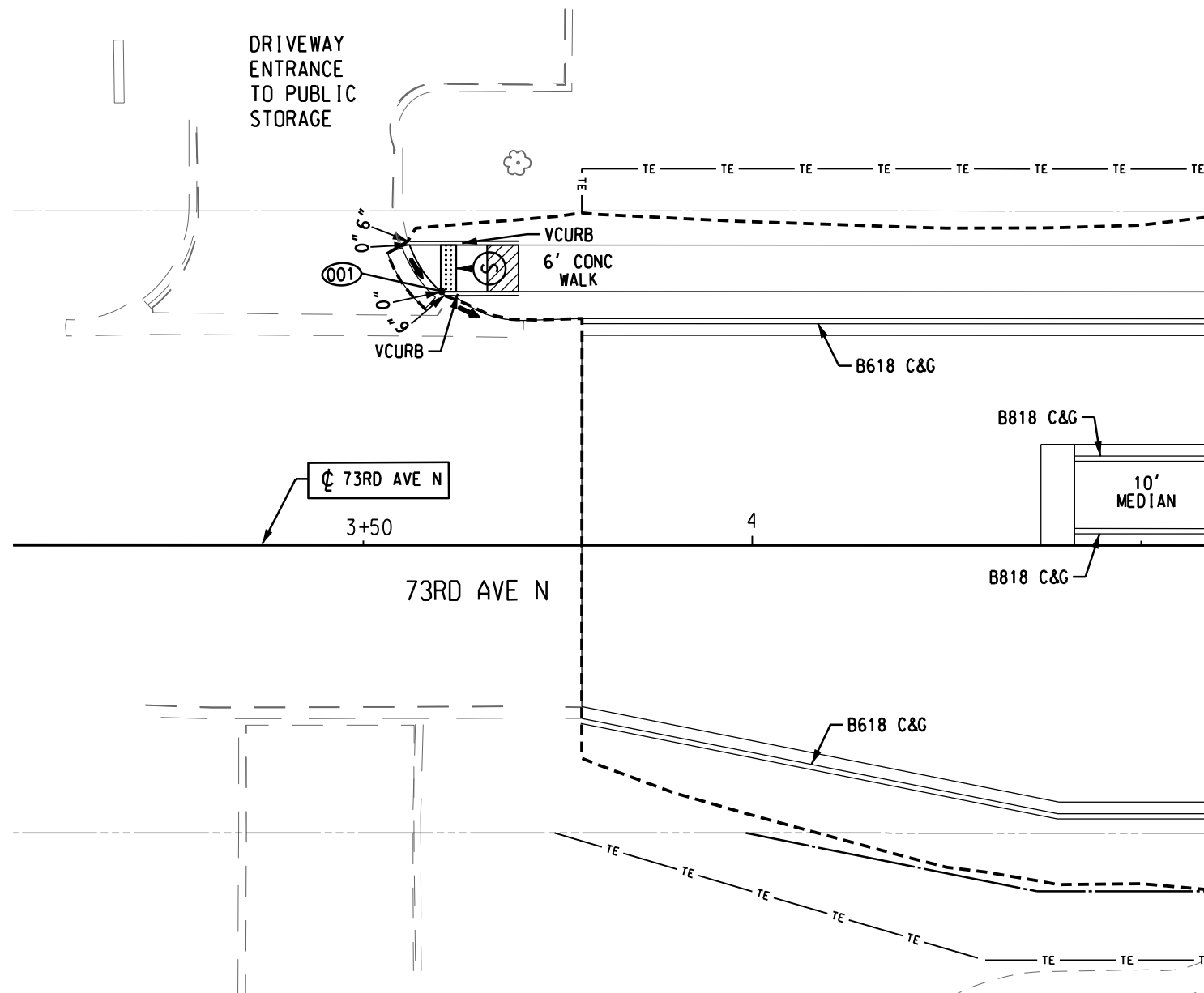
INTERSECTION LEGEND

- (XXX) CONTROL POINT(S) ON GUTTER FLOW LINE AT 0" CURB HEIGHT POINT
- X" CURB HEIGHT. SEE STANDARD PLAN SHEETS FOR PEDESTRIAN CURB RAMP DETAILS
- [Grid Pattern] TRUNCATED DOMES (SEE MNDOT STD. PLATE 7038)
- [Diagonal Lines] LANDING AREA - 4' X 4' MIN. DIMENSIONS AND MAX. 2.0% SLOPE IN ALL DIRECTIONS
- (S) INDICATES PEDESTRIAN RAMP-SLOPE SHALL BE BETWEEN 5.0% MIN. AND 8.3% MAX. IN THE DIRECTION SHOWN AND THE CROSS SLOPE SHALL NOT EXCEED 2.0%
- (F) INDICATES PEDESTRIAN RAMP. SLOPE SHALL BE GREATER THAN 2% AND LESS THAN 5% IN THE DIRECTION SHOWN AND CROSS SLOPE SHALL NOT EXCEED 2.0%
- (*) INDICATES CONTROL PROFILE KEY POINT(S) (SEE GUTTER PROFILE)
- DRAINAGE FLOW DIRECTION
- PROPOSED CB ● PROPOSED STORM MH

SIGNAL LEGEND

- [Square with X] INPLACE SIGNAL MAST ARM
- PROPOSED PUSH BUTTON STATION
- PROPOSED SIGNAL MAST ARM

(001) N 208029.482
E 500592.819
FLOWLINE EL 883.50



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.

Kelly Agosto
KELLY AGOSTO, LICENSED PROFESSIONAL ENGINEER 49075 3/15/19
LICENSE NO. DATE

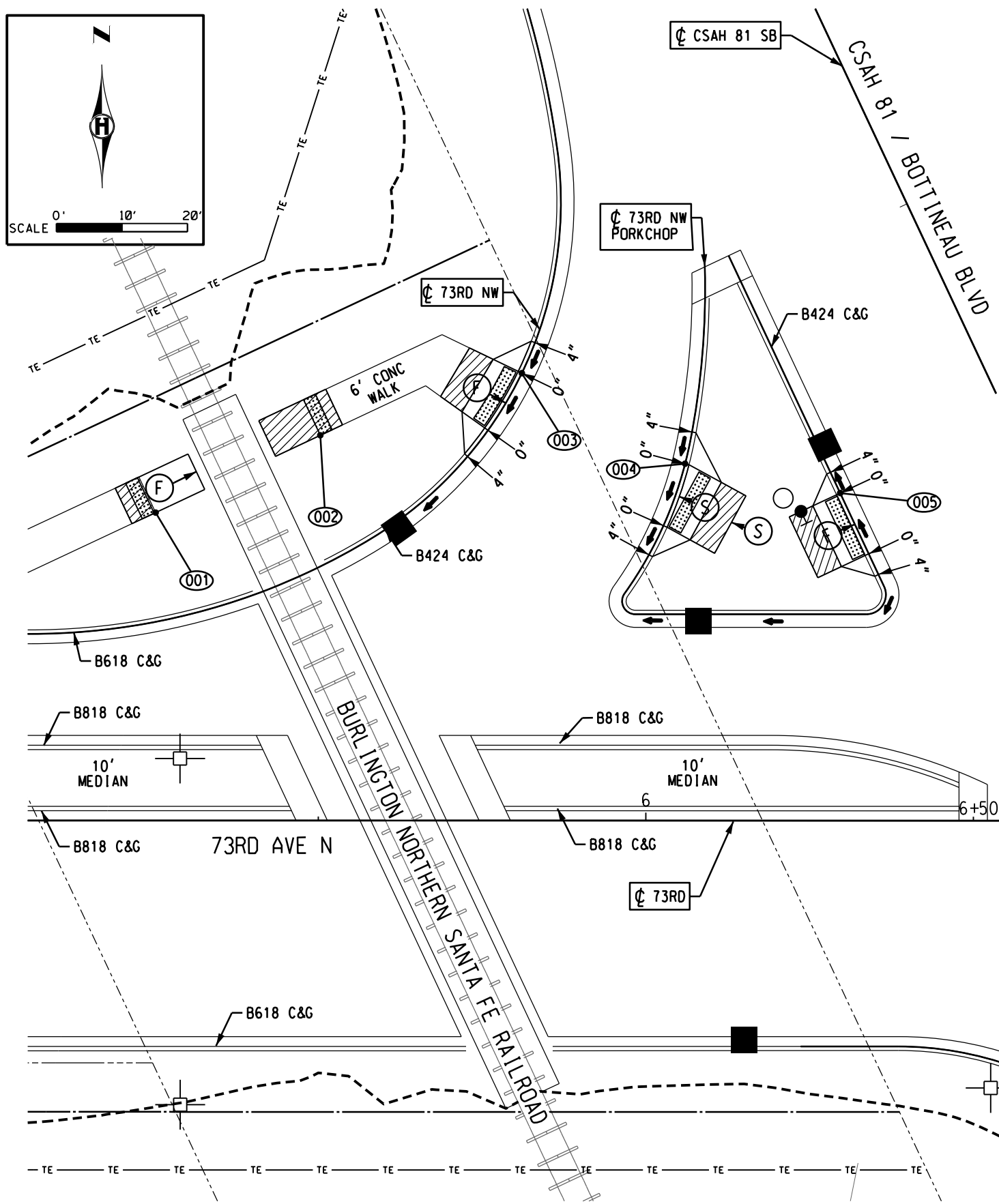
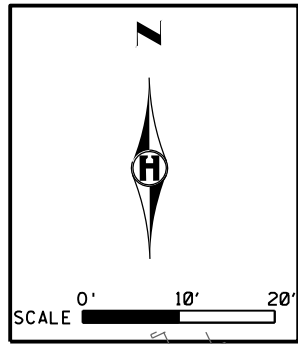
DESIGN BY: R. DECOTEAU
CAD BY: E. GUIR
CHECKED BY: L. LANGNER
LAST REVISION: / /

INTERSECTION DETAILS

C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
S.P. 027-681-035, S.P. 110-020-040

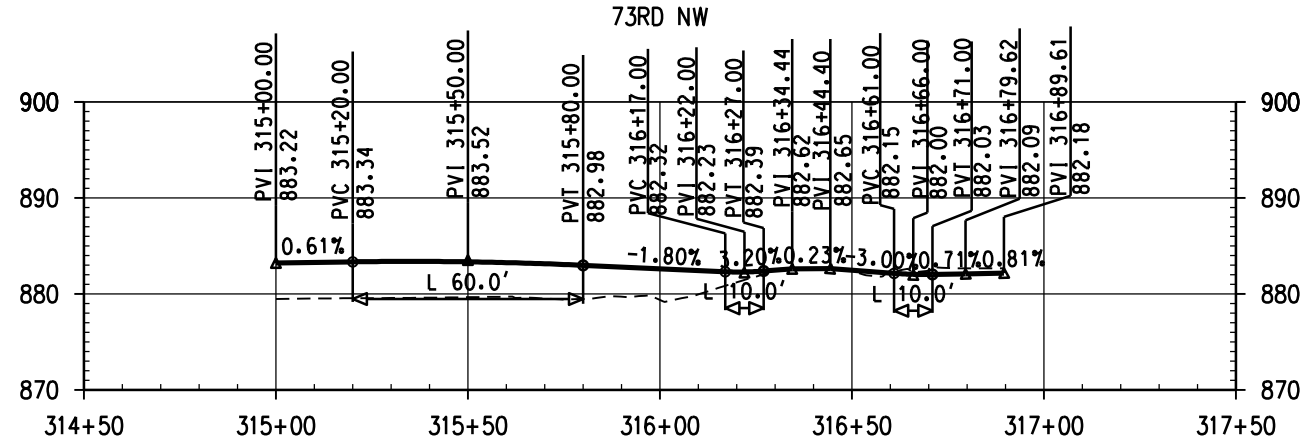
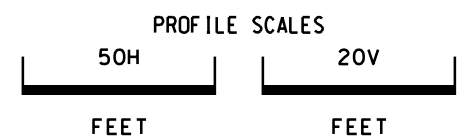
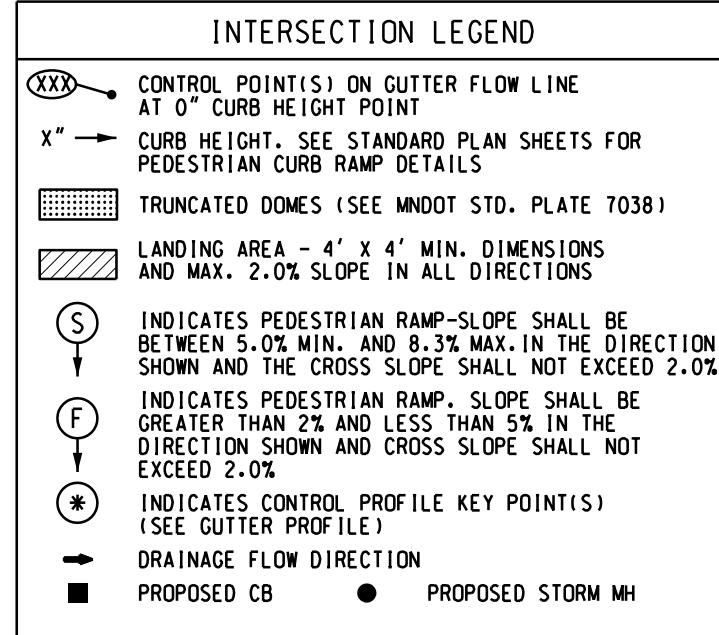
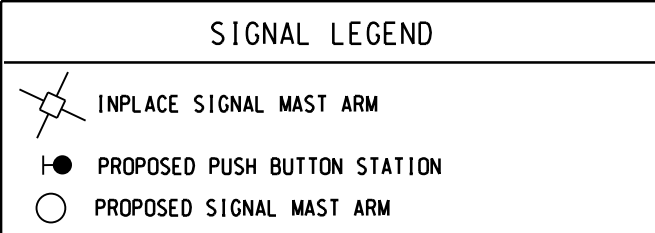
SHEET

131 / 244

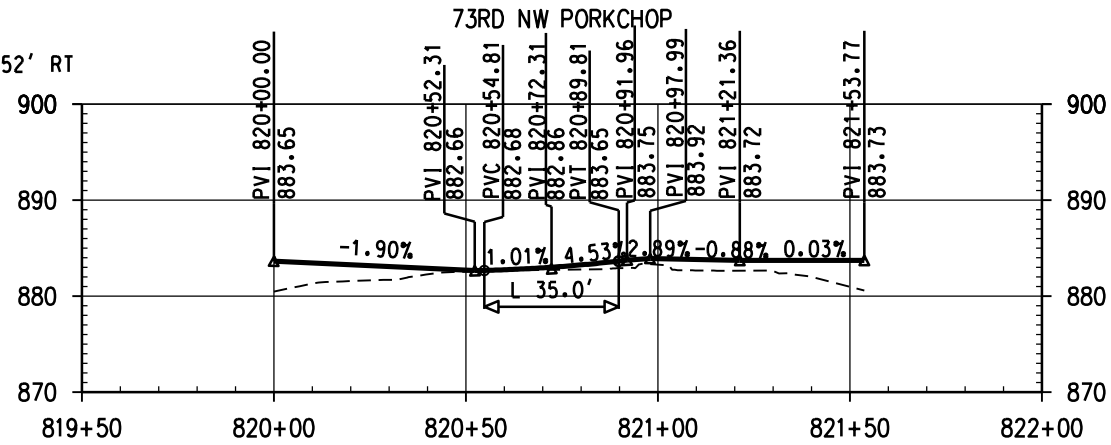


GENERAL NOTES:

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- SEE PEDESTRIAN CURB RAMP DETAILS IN THE STANDARD PLANS FOR MORE INFORMATION.



- 001 73RD NW
C 316+56.63, 16.32' RT
EL 882.76
- 002 73RD NW
C 316+23.19, 17.52' RT
GUTTER EL 882.69
- 003 73RD NW
C 315+90.34,
0.0' RT
EL 882.80
- 004 73RD NW PORKCHOP
C 820+30.30,
0.0' RT
GUTTER EL 883.08
- 005 73RD NW PORKCHOP
C 821+13.73,
0.0' RT
GUTTER EL 883.78



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Kelly Agosto
KELLY AGOSTO, LICENSED PROFESSIONAL ENGINEER

49075 3/15/19
LICENSE NO. DATE

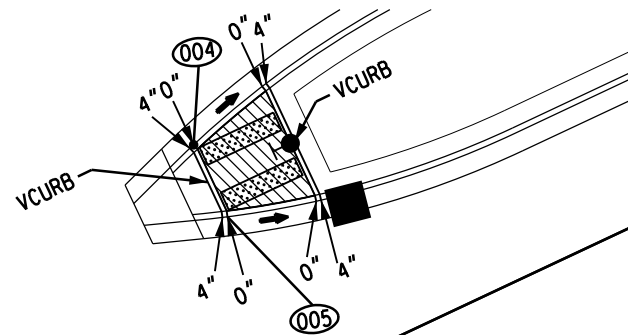
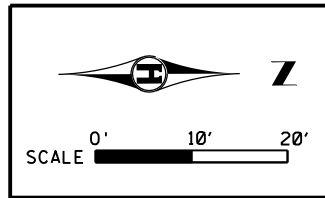
DESIGN BY: R. DECOTEAU
CAD BY: E. GUIR
CHECKED BY: L. LANGNER
LAST REVISION: / /

INTERSECTION DETAILS

C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
 S.P. 027-681-035, S.P. 110-020-040

SHEET

132 / 244



GENERAL NOTES:

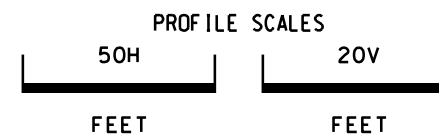
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SIGNAL LEGEND

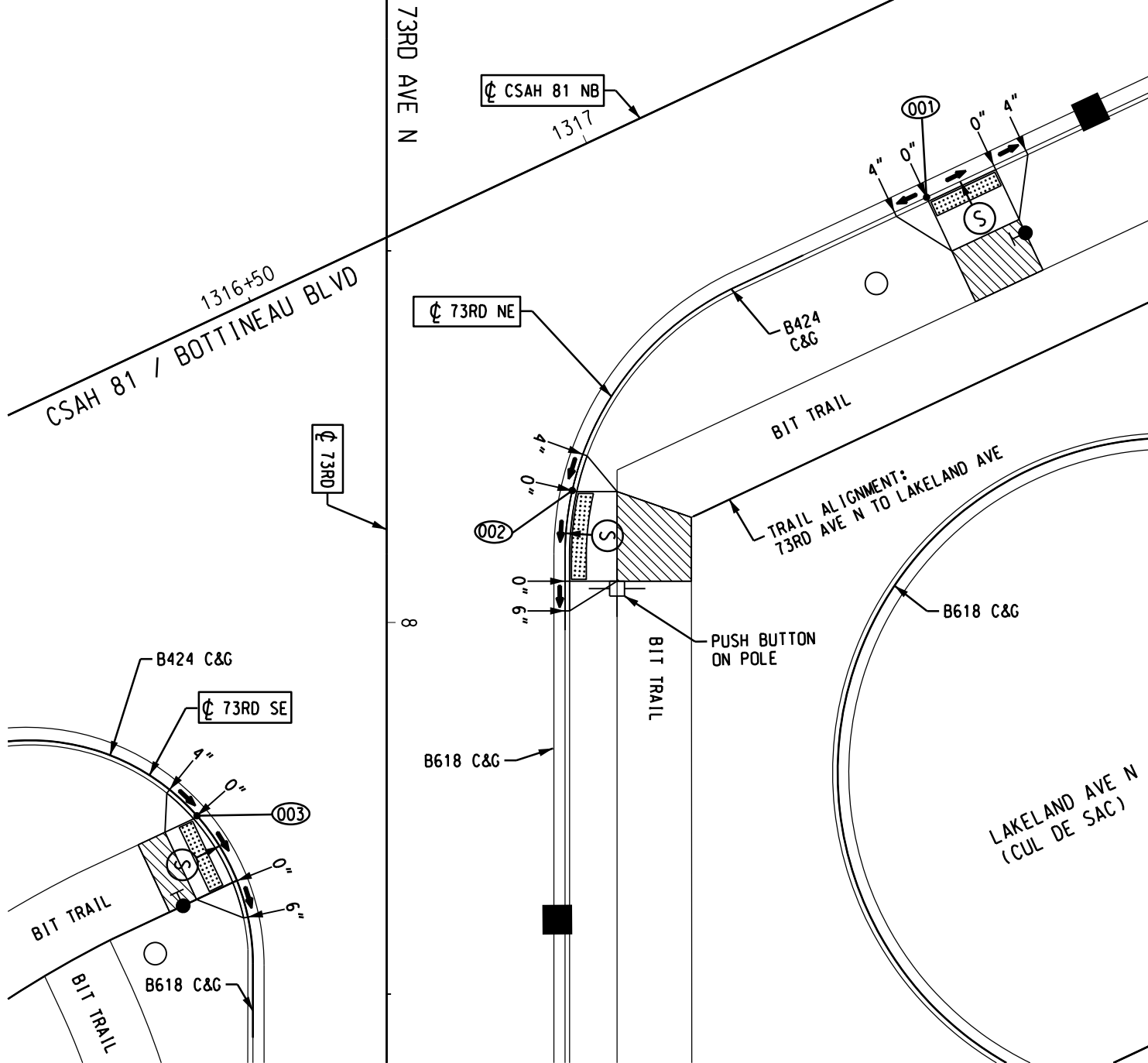
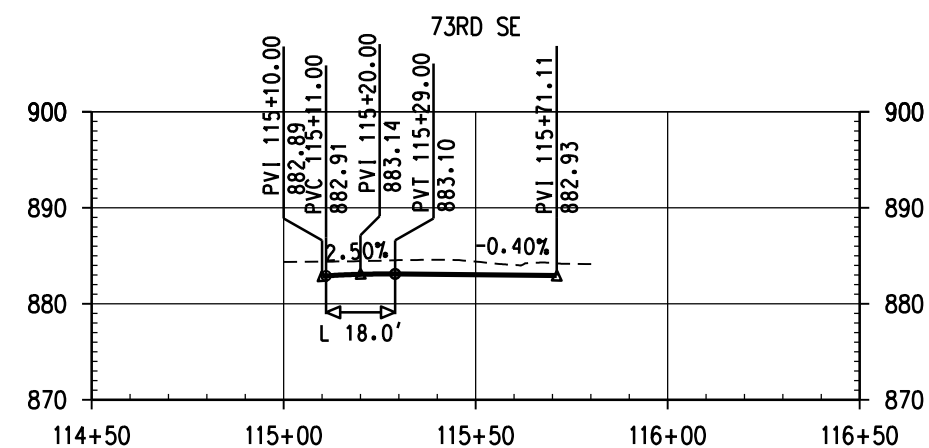
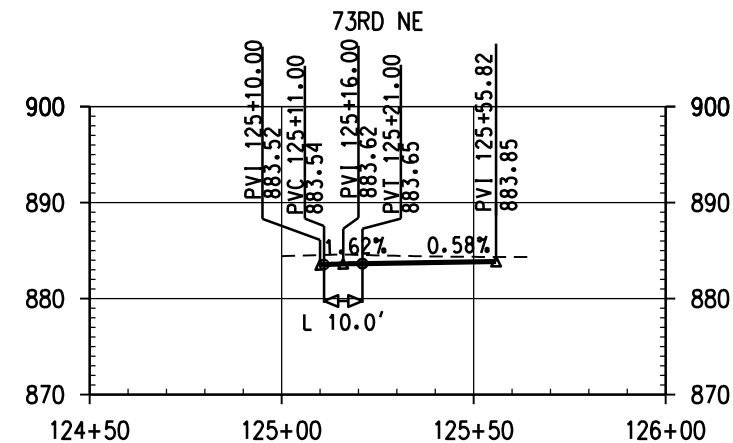
- INPLACE SIGNAL MAST ARM
- PROPOSED PUSH BUTTON STATION
- PROPOSED SIGNAL MAST ARM

INTERSECTION LEGEND

- CONTROL POINT(S) ON GUTTER FLOW LINE AT 0" CURB HEIGHT POINT
- CURB HEIGHT. SEE STANDARD PLAN SHEETS FOR PEDESTRIAN CURB RAMP DETAILS
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- INDICATES CONTROL PROFILE KEY POINT(S) (SEE GUTTER PROFILE)
- DRAINAGE FLOW DIRECTION
- PROPOSED CB
- PROPOSED STORM MH



- 001 CSAH 81 NB ϕ 1317+38.31, 26.0' RT GUTTER EL 883.98
- 002 73RD NE ϕ 125+18.86, 0.0' RT GUTTER EL 883.64
- 003 73RD SE ϕ 115+49.16, 0.0' RT GUTTER EL 883.02
- 004 CSAH 81 SB ϕ 2317+44.80, 31.4' RT GUTTER EL 883.93
- 005 CSAH 81 NB ϕ 1317+46.20, 18.9' LT GUTTER EL 883.95



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.

Kelly Agosto
 KELLY AGOSTO, LICENSED PROFESSIONAL ENGINEER

49075 3/15/19
 LICENSE NO. DATE

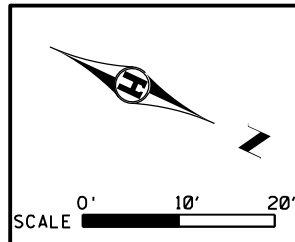
DESIGN BY: R. DECOTEAU
 CAD BY: E. GUIR
 CHECKED BY: L. LANGNER
 LAST REVISION: / /

INTERSECTION DETAILS

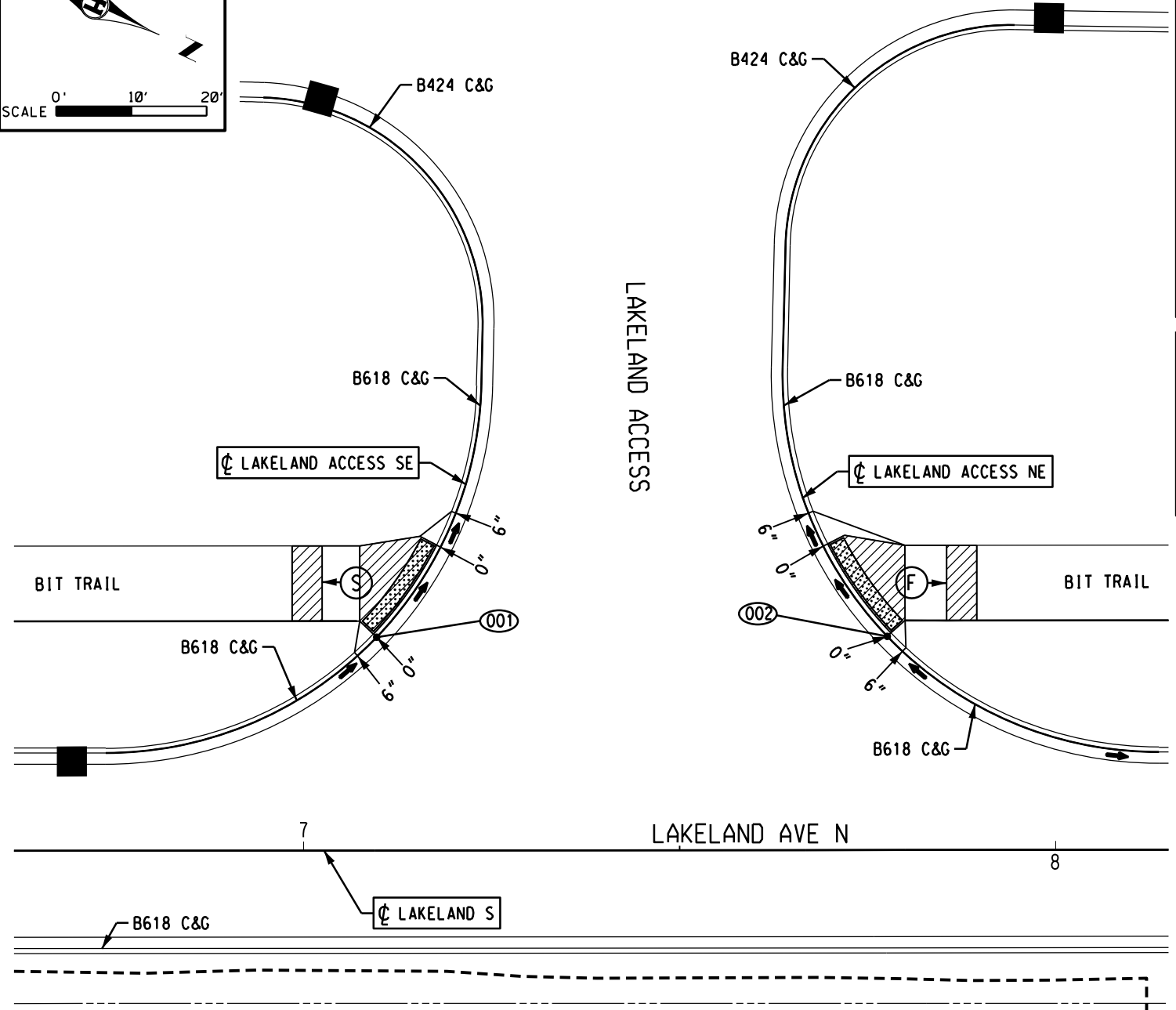
C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
 S.P. 027-681-035, S.P. 110-020-040

SHEET

133
 244



CSAH 81 / BOTTINEAU BLVD



- 001 LAKELAND ACCESS SE C 135+88.77
0.0' RT. GUTTER EL 882.09
- 002 LAKELAND ACCESS NE C 145+40.35
0.0' RT. GUTTER EL 881.72

GENERAL NOTES:

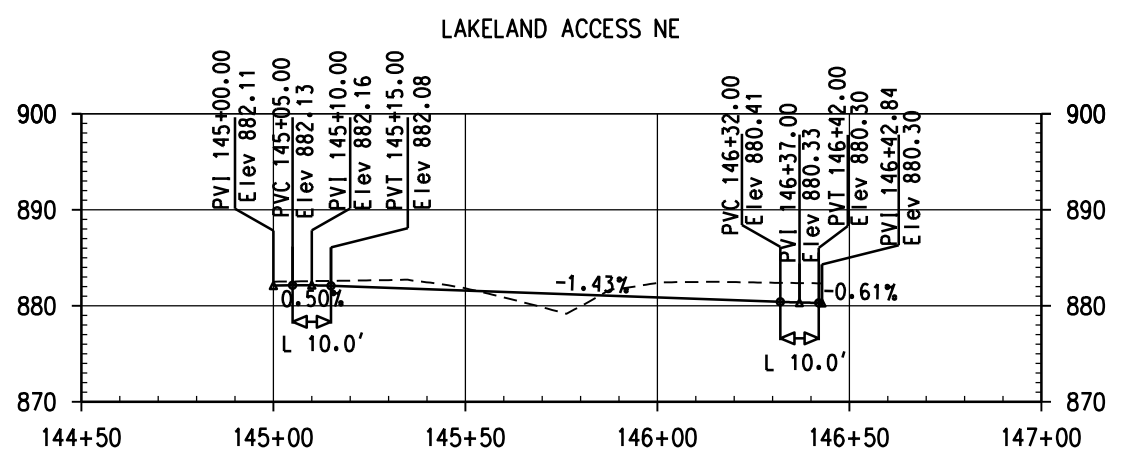
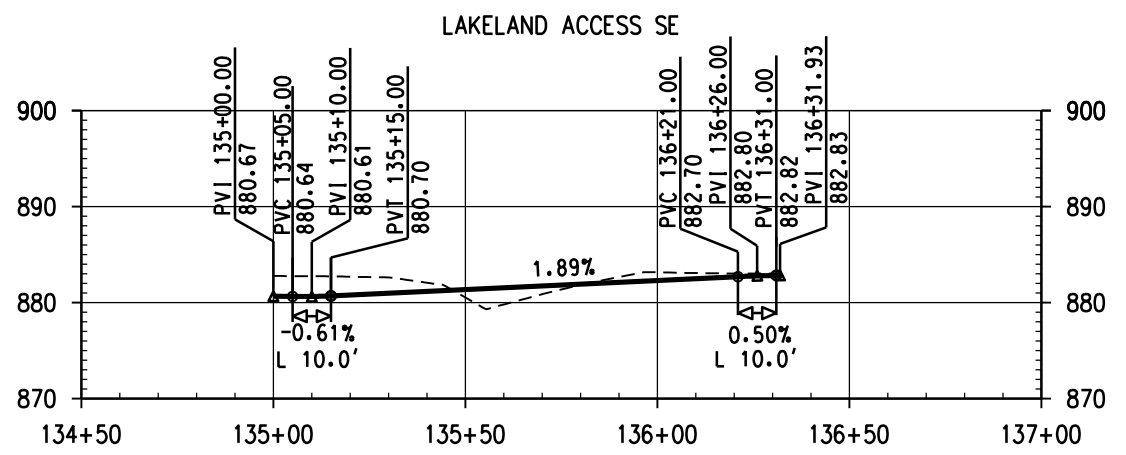
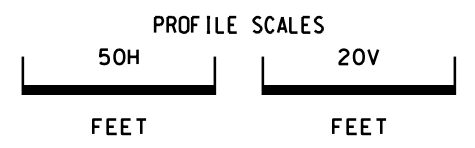
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- SEE PEDESTRIAN CURB RAMP DETAILS IN THE STANDARD PLANS FOR MORE INFORMATION.

SIGNAL LEGEND

- INPLACE SIGNAL MAST ARM
- PROPOSED PUSH BUTTON STATION
- PROPOSED SIGNAL MAST ARM

INTERSECTION LEGEND

- CONTROL POINT(S) ON GUTTER FLOW LINE AT 0" CURB HEIGHT POINT
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- DRAINAGE FLOW DIRECTION
- PROPOSED CB
- PROPOSED STORM MH



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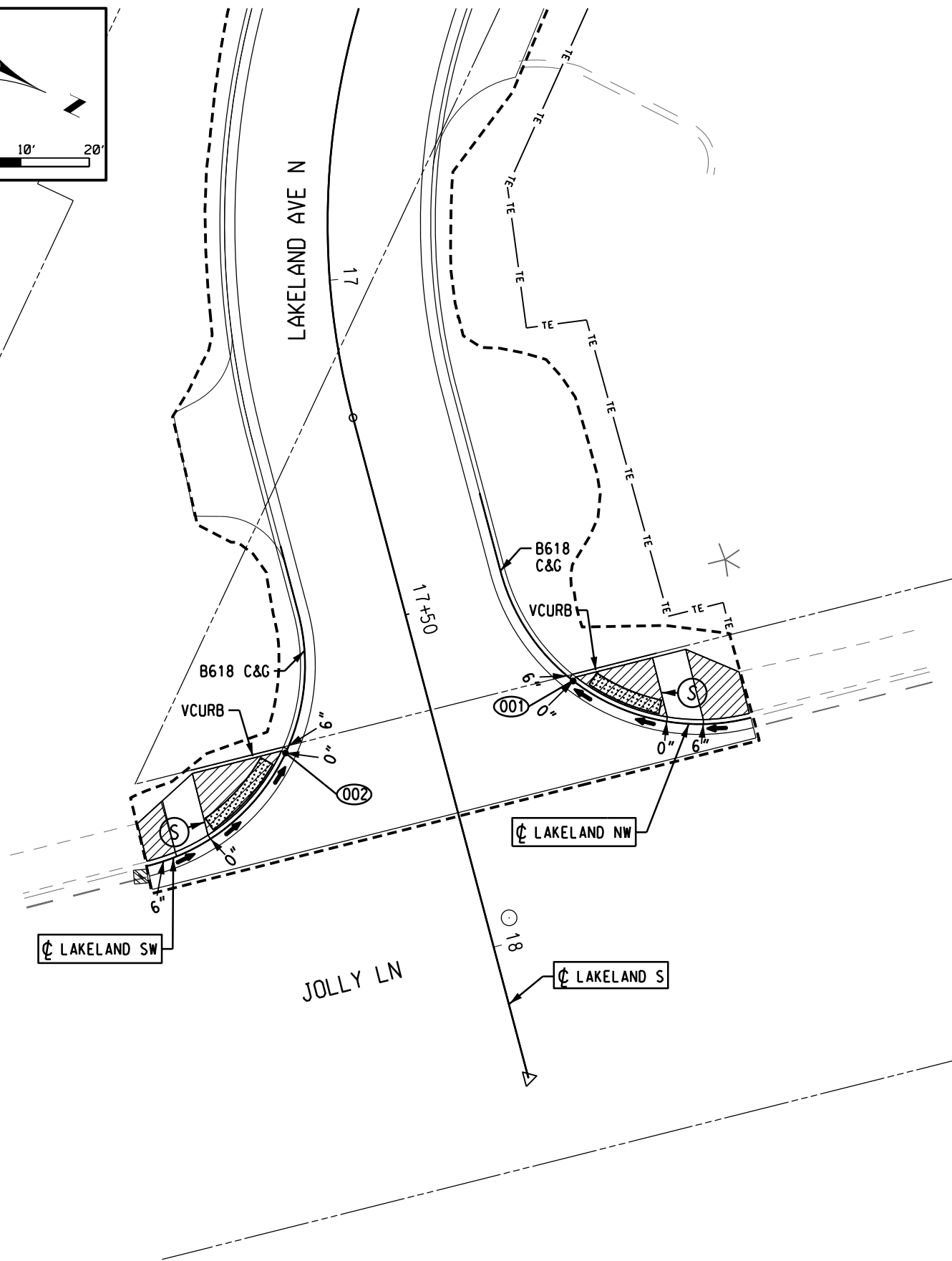
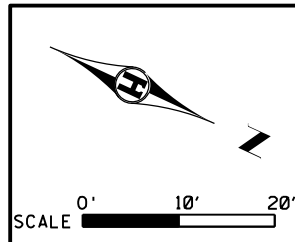
Kelly Agosto
 KELLY AGOSTO, LICENSED PROFESSIONAL ENGINEER
 49075 LICENSE NO. 3/15/19 DATE

DESIGN BY: R. DECOTEAU
 CAD BY: E. GUIR
 CHECKED BY: L. LANGNER
 LAST REVISION: / /

INTERSECTION DETAILS

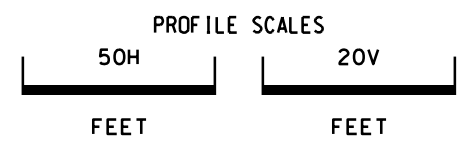
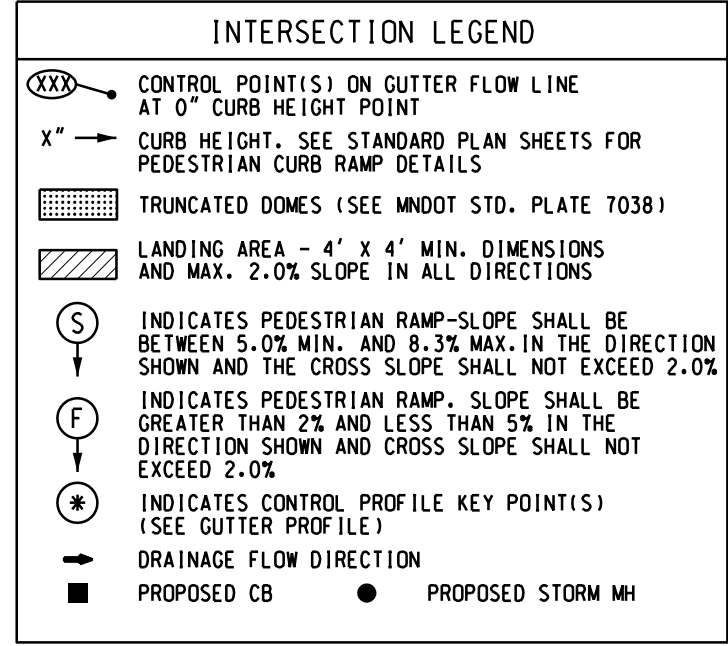
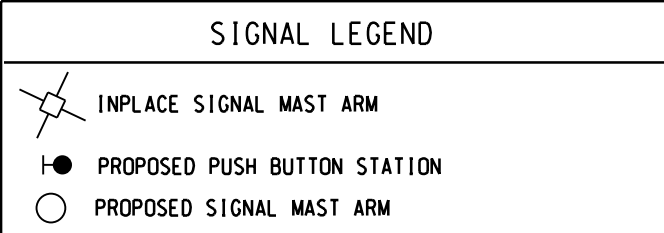
C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
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SHEET
 134 / 244



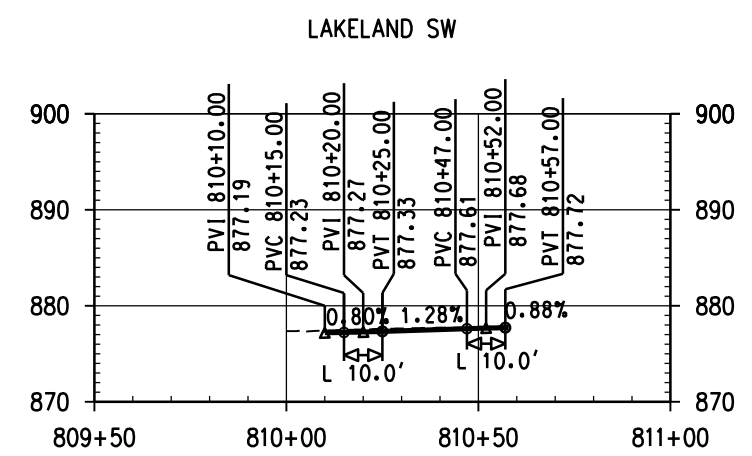
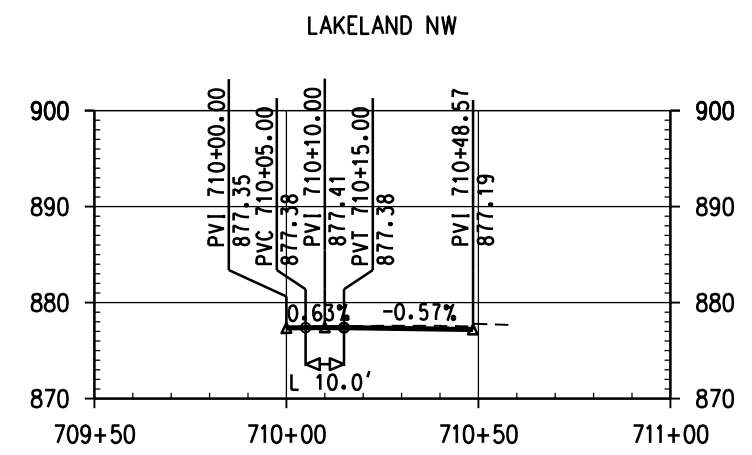
GENERAL NOTES:

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- SEE PEDESTRIAN CURB RAMP DETAILS IN THE STANDARD PLANS FOR MORE INFORMATION.



001 LAKELAND NW ϕ 710+27.36
0.0' RT. GUTTER EL 877.30

002 LAKELAND SW ϕ 810+30.94
0.0' RT. GUTTER EL 877.41



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.

Kelly Agosto
KELLY AGOSTO, LICENSED PROFESSIONAL ENGINEER

49075 3/15/19
LICENSE NO. DATE

DESIGN BY: R. DECOTEAU

CAD BY: E. GUIR

CHECKED BY: L. LANGNER

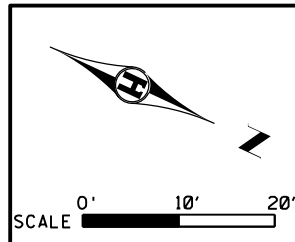
LAST REVISION: / /

INTERSECTION DETAILS

C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
S.P. 027-681-035, S.P. 110-020-040

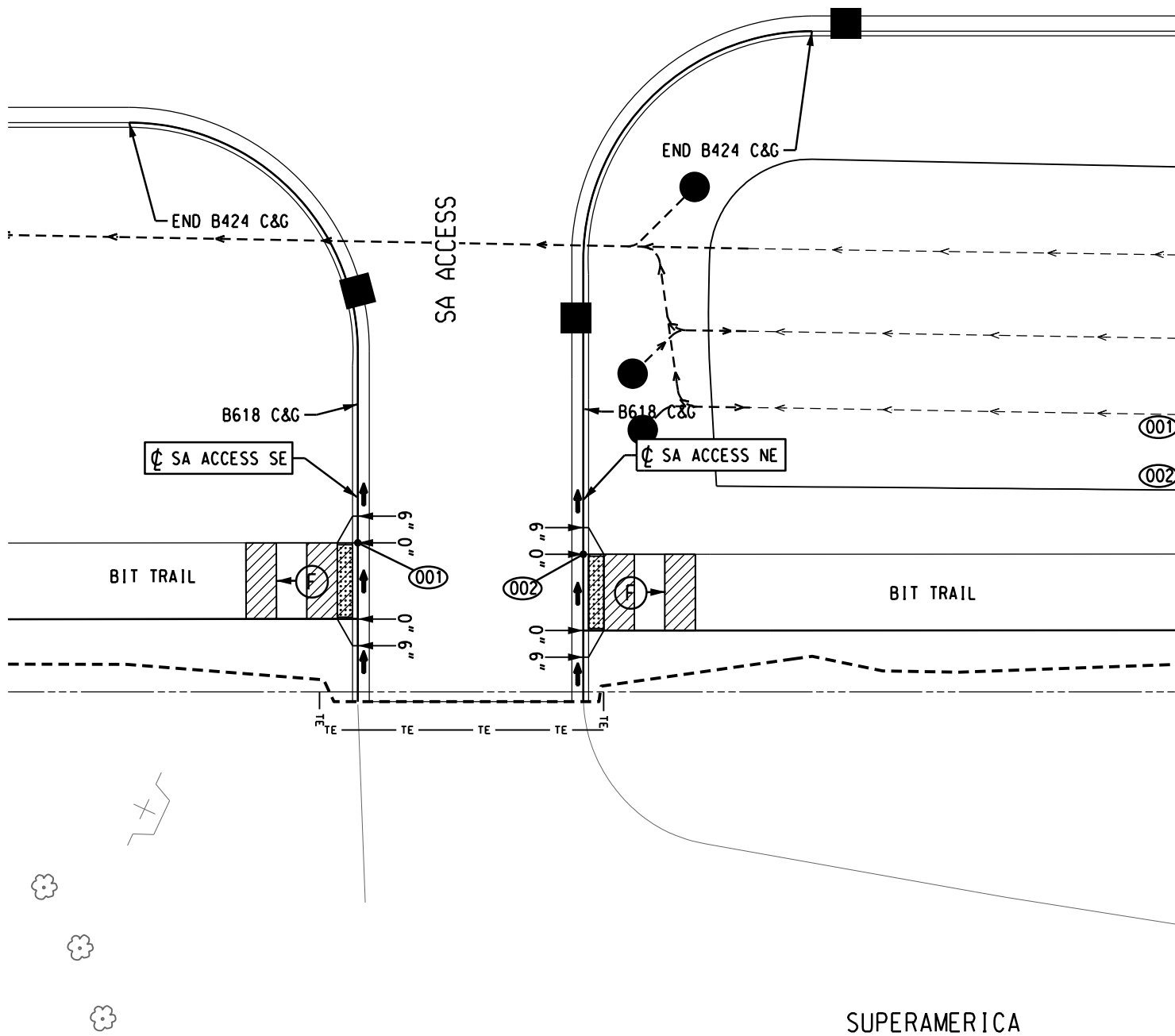
SHEET

135
244



CSAH 81 / BOTTINEAU BLVD

CSAH 81 NB



GENERAL NOTES:

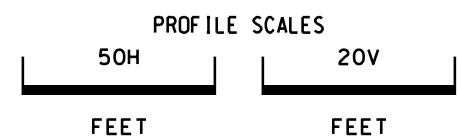
- THIS PROJECT SHALL BE CONSTRUCTED AS PER AMERICANS WITH DISABILITIES ACT (ADA) AND PUBLIC RIGHTS-OF-WAY ACCESSIBILITY GUIDELINES (PROWAG).
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SIGNAL LEGEND

- INPLACE SIGNAL MAST ARM
- PROPOSED PUSH BUTTON STATION
- PROPOSED SIGNAL MAST ARM

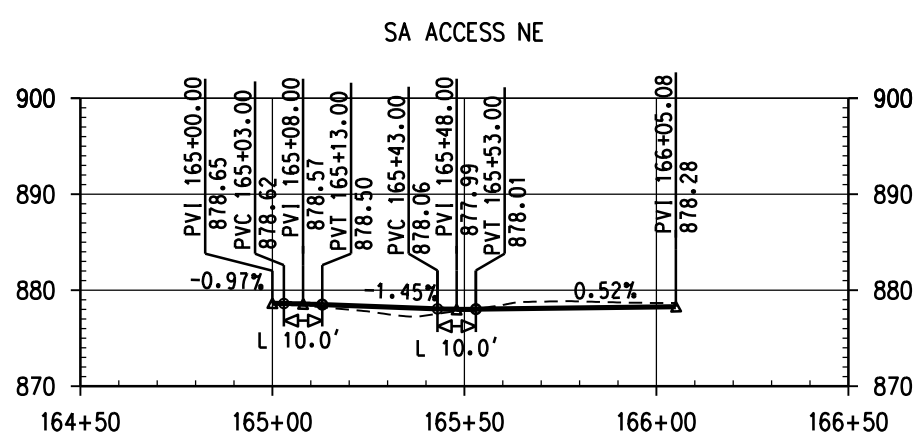
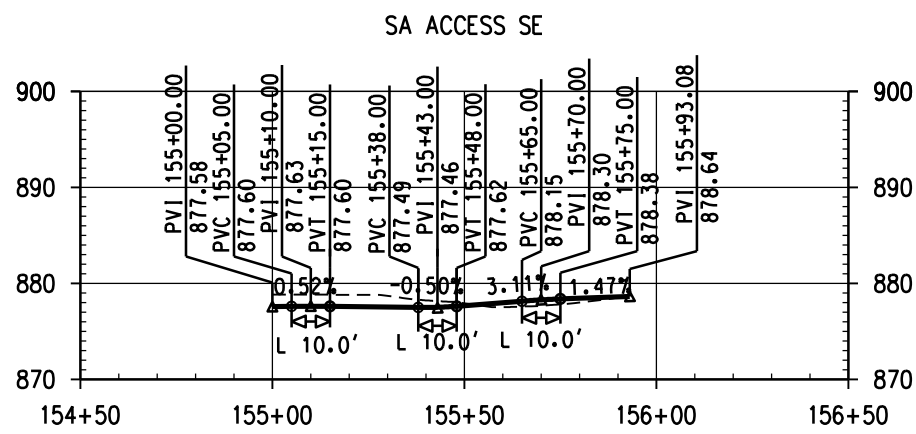
INTERSECTION LEGEND

- XXX - CONTROL POINT(S) ON GUTTER FLOW LINE AT 0" CURB HEIGHT POINT
- X" - CURB HEIGHT. SEE STANDARD PLAN SHEETS FOR PEDESTRIAN CURB RAMP DETAILS
- TRUNCATED DOMES (SEE MNDOT STD. PLATE 7038)
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- (S) INDICATES PEDESTRIAN RAMP-SLOPE SHALL BE BETWEEN 5.0% MIN. AND 8.3% MAX. IN THE DIRECTION SHOWN AND THE CROSS SLOPE SHALL NOT EXCEED 2.0%
- (F) INDICATES PEDESTRIAN RAMP. SLOPE SHALL BE GREATER THAN 2% AND LESS THAN 5% IN THE DIRECTION SHOWN AND CROSS SLOPE SHALL NOT EXCEED 2.0%
- (*) INDICATES CONTROL PROFILE KEY POINT(S) (SEE GUTTER PROFILE)
- DRAINAGE FLOW DIRECTION
- PROPOSED CB
- PROPOSED STORM MH



001 SA ACCESS SE ϕ 155+72.25
0.0' RT. GUTTER EL 878.33

002 SA ACCESS NE ϕ 165+19.33
0.0' RT. GUTTER EL 878.40



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Kelly Agosto
KELLY AGOSTO, LICENSED PROFESSIONAL ENGINEER

49075 3/15/19
LICENSE NO. DATE

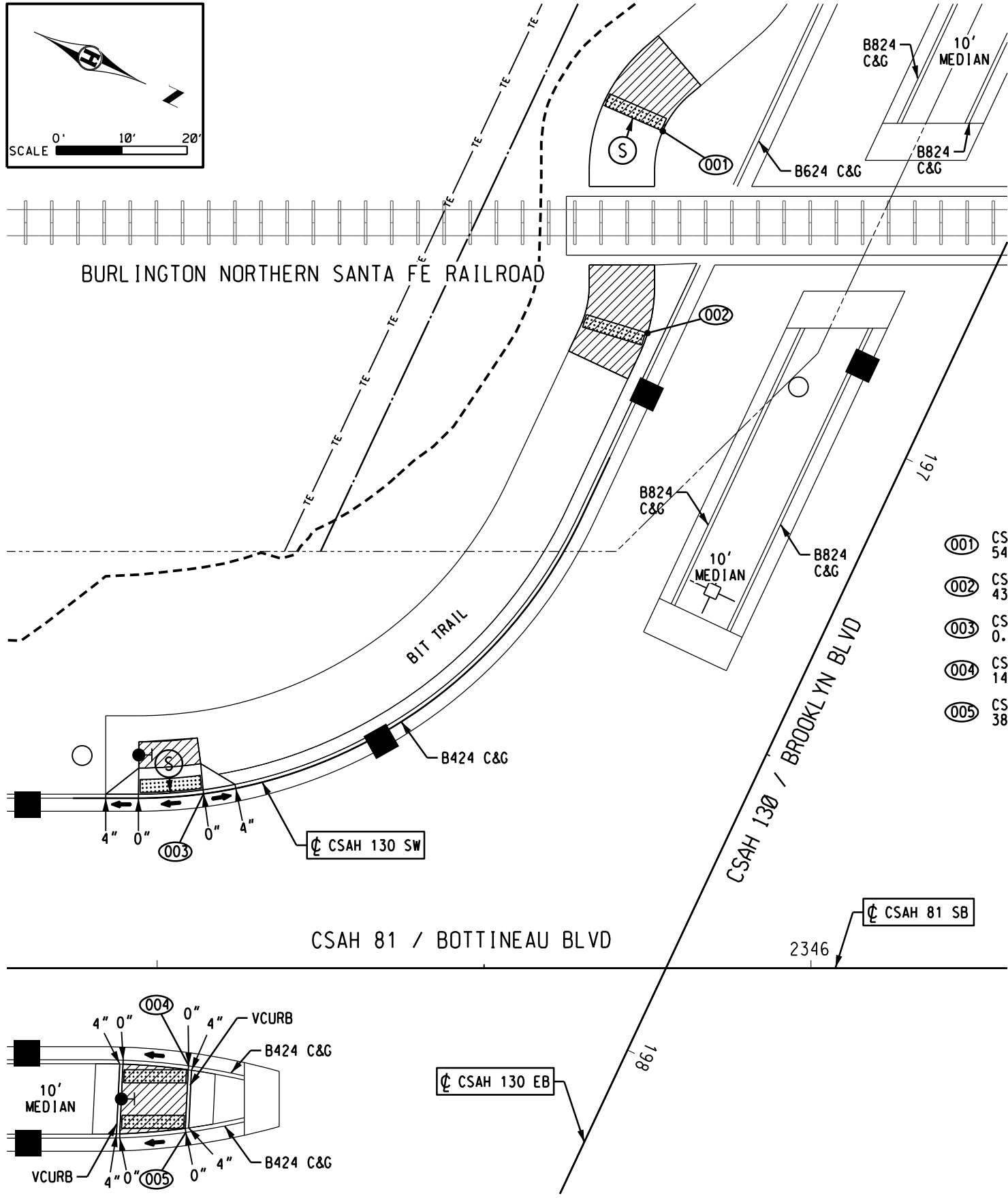
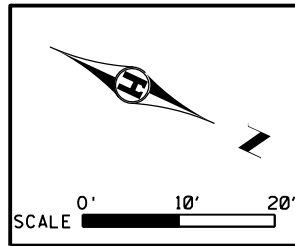
DESIGN BY: R. DECOTEAU
CAD BY: E. GUIR
CHECKED BY: L. LANGNER
LAST REVISION: / /

INTERSECTION DETAILS

C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
S.P. 027-681-035, S.P. 110-020-040

SHEET

136
244



GENERAL NOTES:

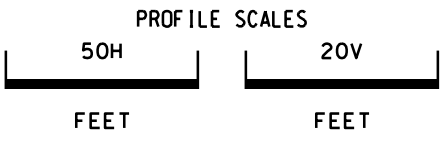
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SIGNAL LEGEND

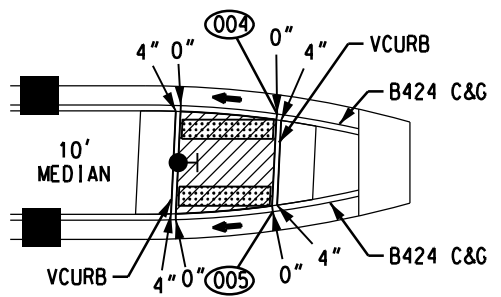
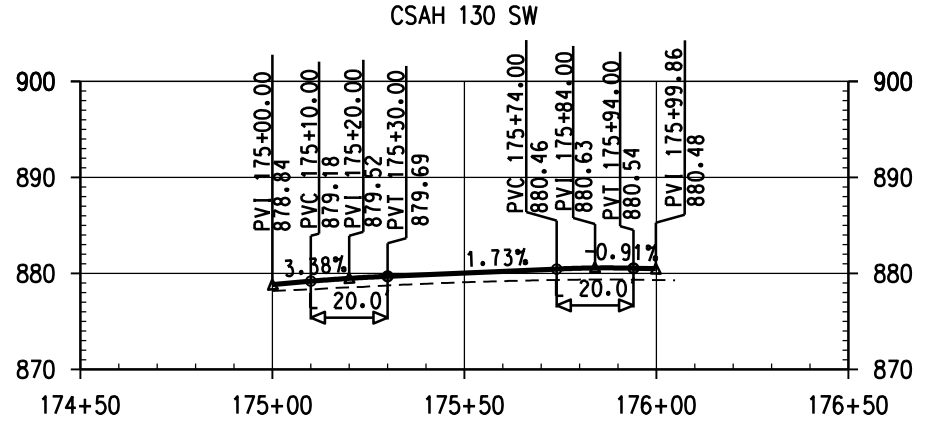
- INPLACE SIGNAL MAST ARM
- PROPOSED PUSH BUTTON STATION
- PROPOSED SIGNAL MAST ARM

INTERSECTION LEGEND

- CONTROL POINT(S) ON GUTTER FLOW LINE AT 0" CURB HEIGHT POINT
- CURB HEIGHT. SEE STANDARD PLAN SHEETS FOR PEDESTRIAN CURB RAMP DETAILS
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- INDICATES CONTROL PROFILE KEY POINT(S) (SEE GUTTER PROFILE)
- DRAINAGE FLOW DIRECTION
- PROPOSED CB
- PROPOSED STORM MH



- 001 CSAH 130 EB @ 196+70.76
54.90' RT. EL 879.18
- 002 CSAH 130 EB @ 169+99.01
43.94' RT. EL 878.81
- 003 CSAH 130 SW @ 175+84.82
0.0' RT. GUTTER EL 880.58
- 004 CSAH 81 SB @ 2345+04.82
14.94' RT. GUTTER EL 880.69
- 005 CSAH 81 NB @ 1345+05.24
38.88' LT. GUTTER EL 880.68



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.

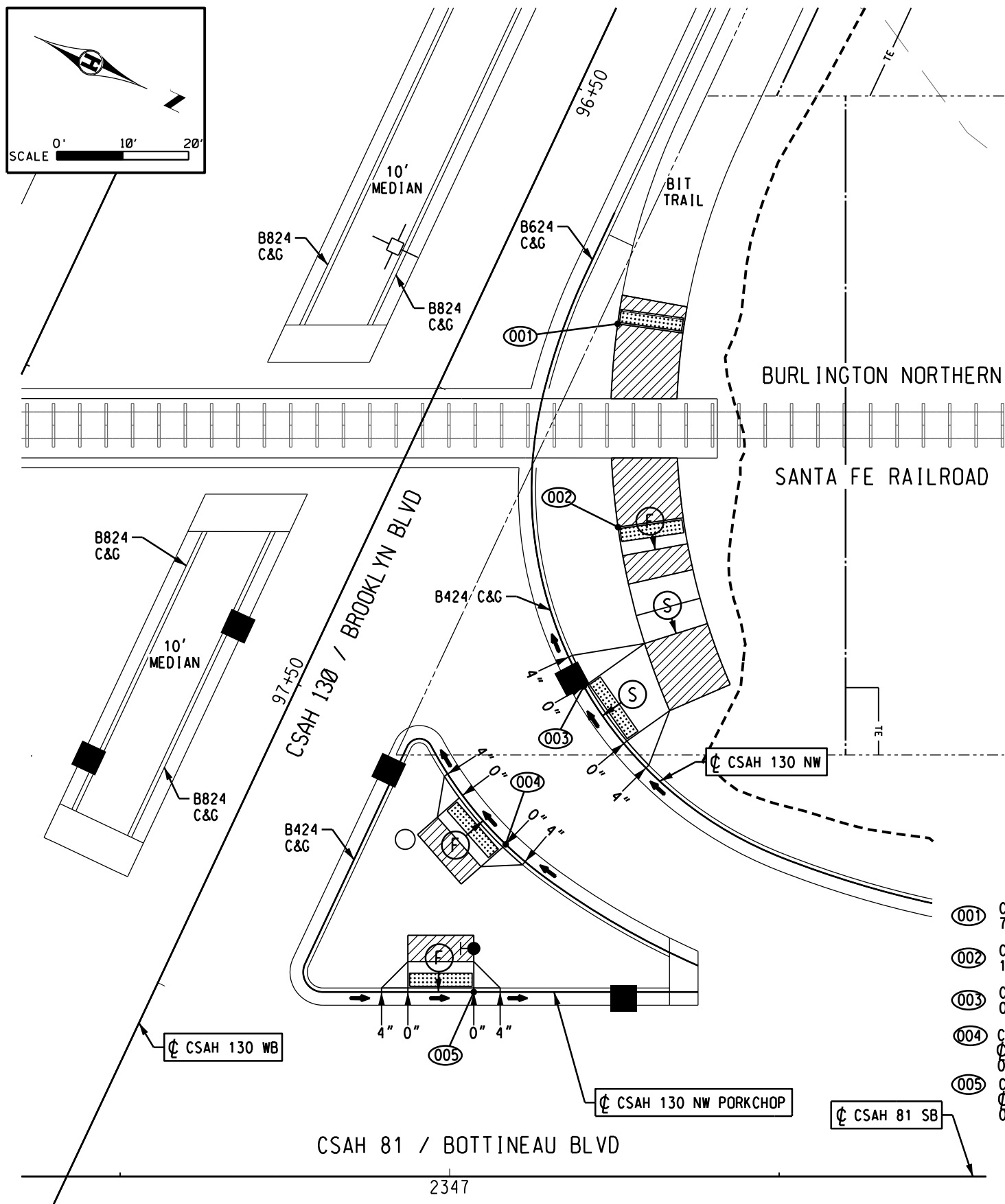
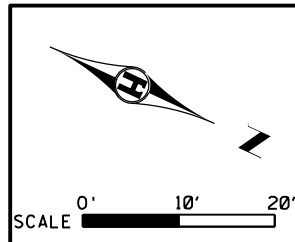
Kelly Agosto
 KELLY AGOSTO, LICENSED PROFESSIONAL ENGINEER
 49075 LICENSE NO. 3/15/19 DATE

DESIGN BY: R. DECOTEAU
CAD BY: E. GUIR
CHECKED BY: L. LANGNER
LAST REVISION: / /

INTERSECTION DETAILS

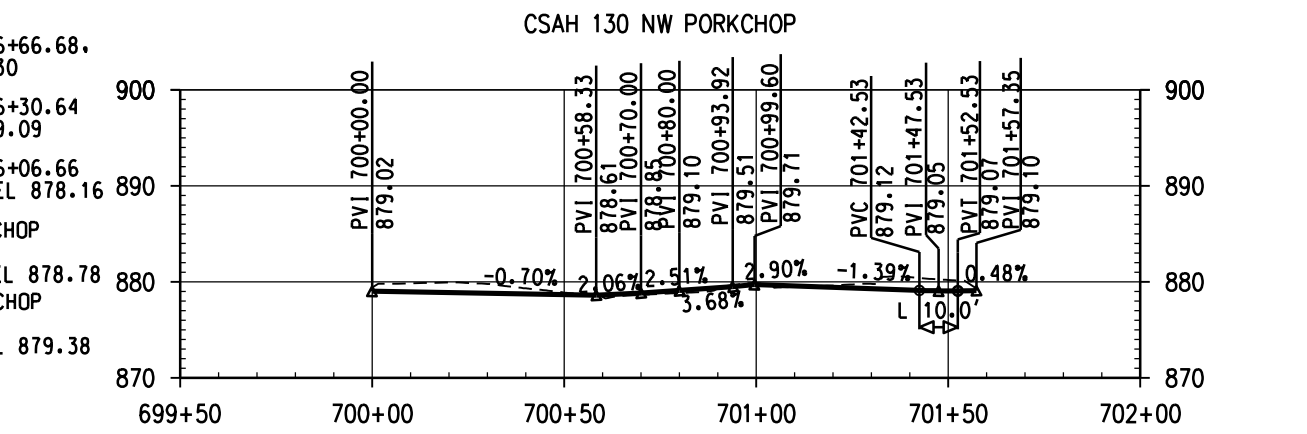
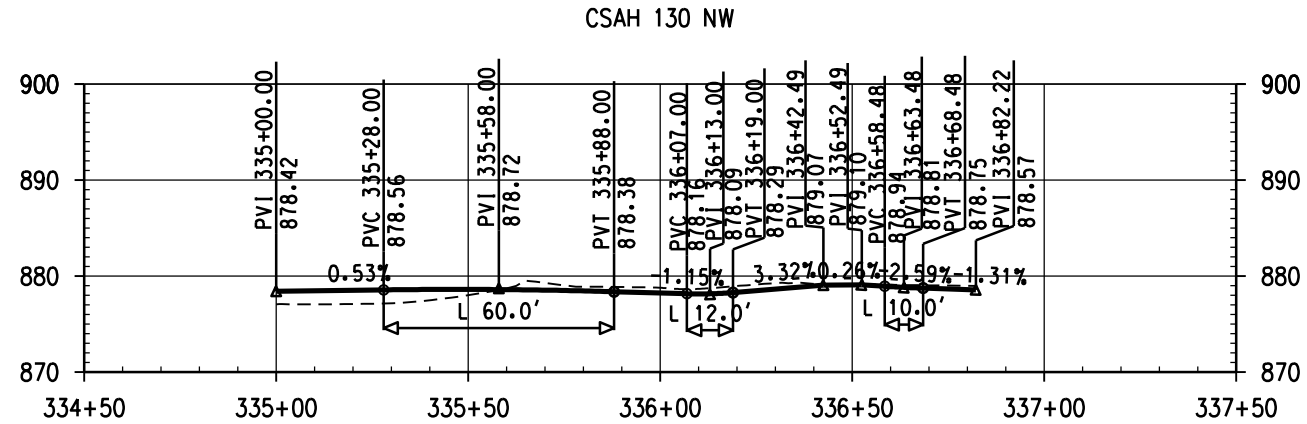
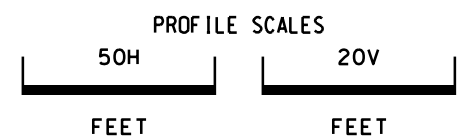
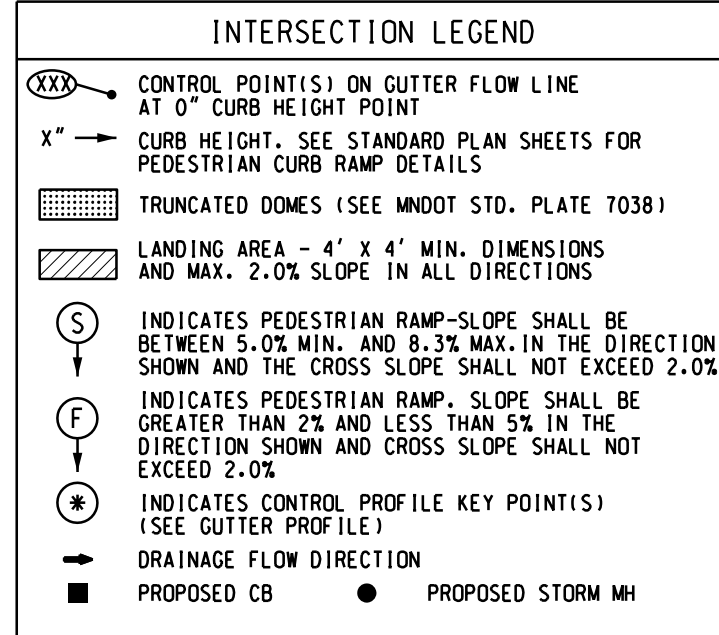
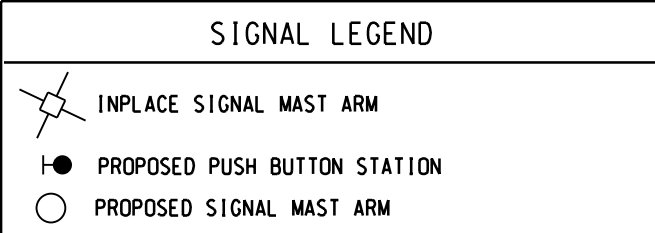
C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
 S.P. 027-681-035, S.P. 110-020-040

SHEET
 137 / 244



GENERAL NOTES:

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- SEE ALIGNMENT PLANS AND PROFILE PLANSHEETS (IF NOT SHOWN HERE) FOR CURBLINE VERTICAL AND HORIZONTAL ALIGNMENT INFORMATION.
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- SEE PEDESTRIAN CURB RAMP DETAILS IN THE STANDARD PLANS FOR MORE INFORMATION.



- 001 CSAH 130 NW C 336+66.68, 7.46' RT EL 879.30
- 002 CSAH 130 NW C 336+30.64 12.78' RT, EL 879.09
- 003 CSAH 130 NW C 336+06.66 0.0' RT, GUTTER EL 878.16
- 004 CSAH 130 NW PORKCHOP C 700+34.66 0.0' RT, GUTTER EL 878.78
- 005 CSAH 130 NW PORKCHOP C 701+23.33 0.0' RT GUTTER EL 879.38



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Kelly Agosto
 KELLY AGOSTO, LICENSED PROFESSIONAL ENGINEER
 49075 LICENSE NO. 3/15/19 DATE

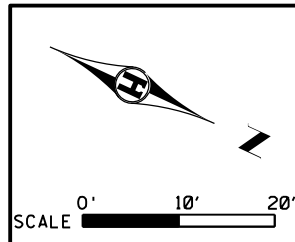
DESIGN BY: R. DECOTEAU
CAD BY: E. GUIR
CHECKED BY: L. LANGNER
LAST REVISION: / /

INTERSECTION DETAILS

C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
 S.P. 027-681-035, S.P. 110-020-040

SHEET

138 / 244



CSAH 81 / BOTTINEAU BLVD

GENERAL NOTES:

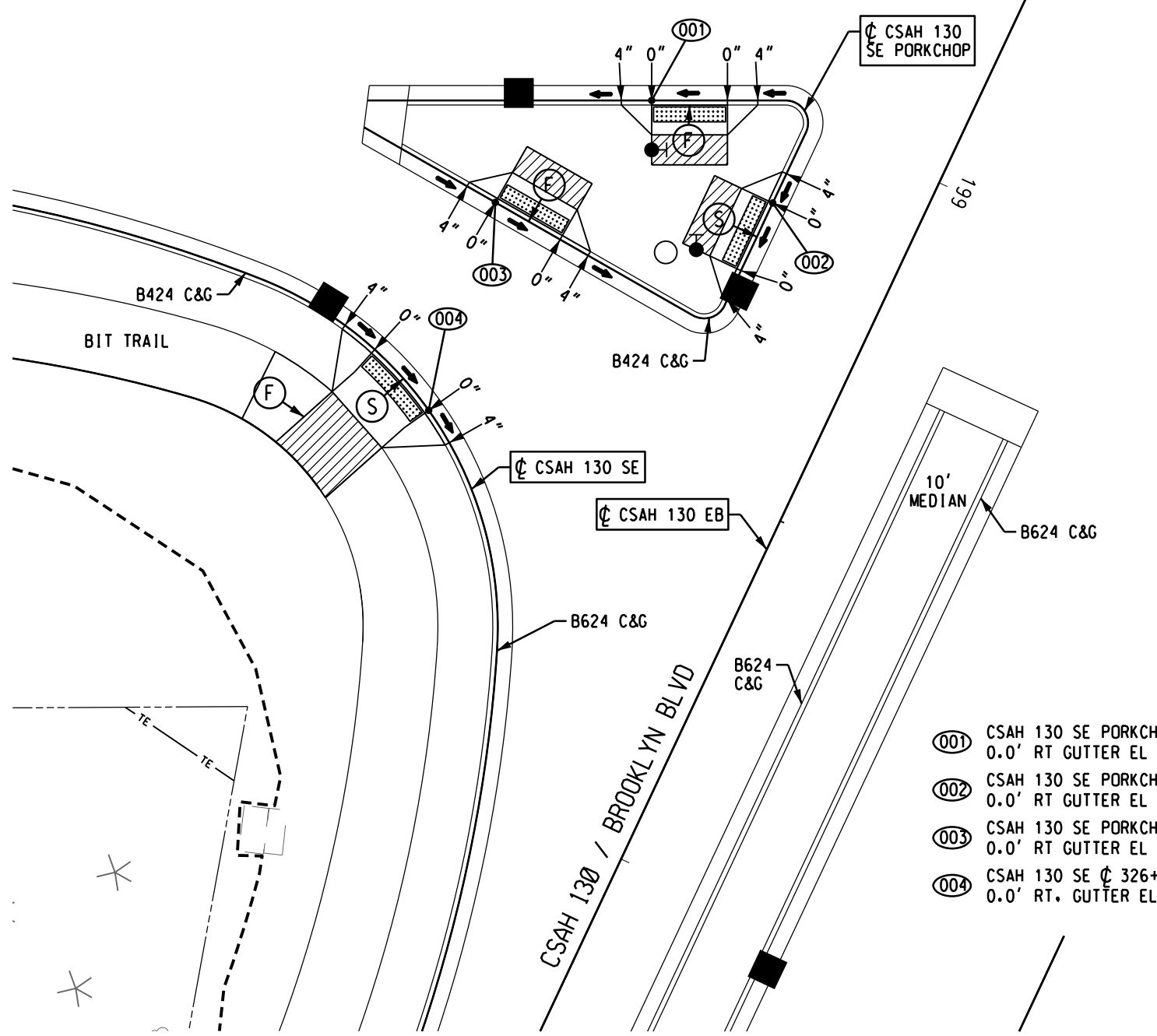
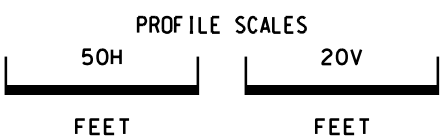
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INTERSECTION LEGEND

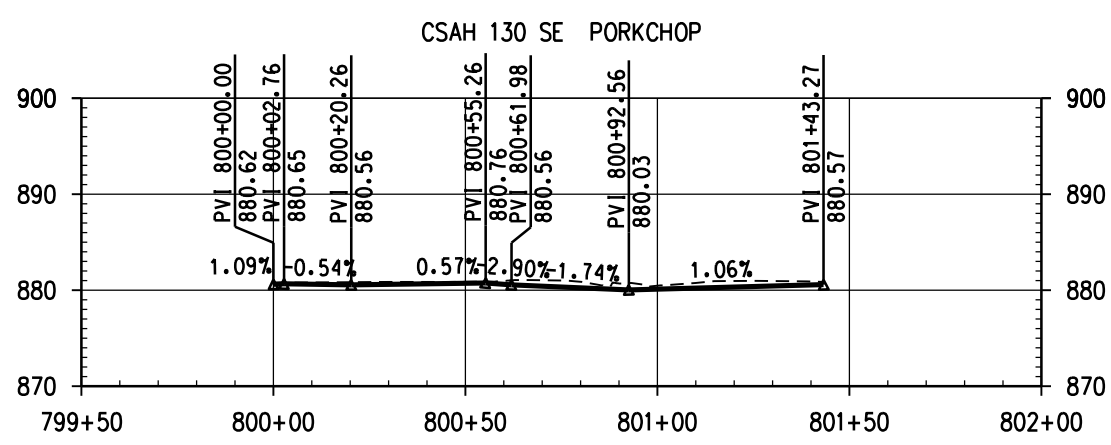
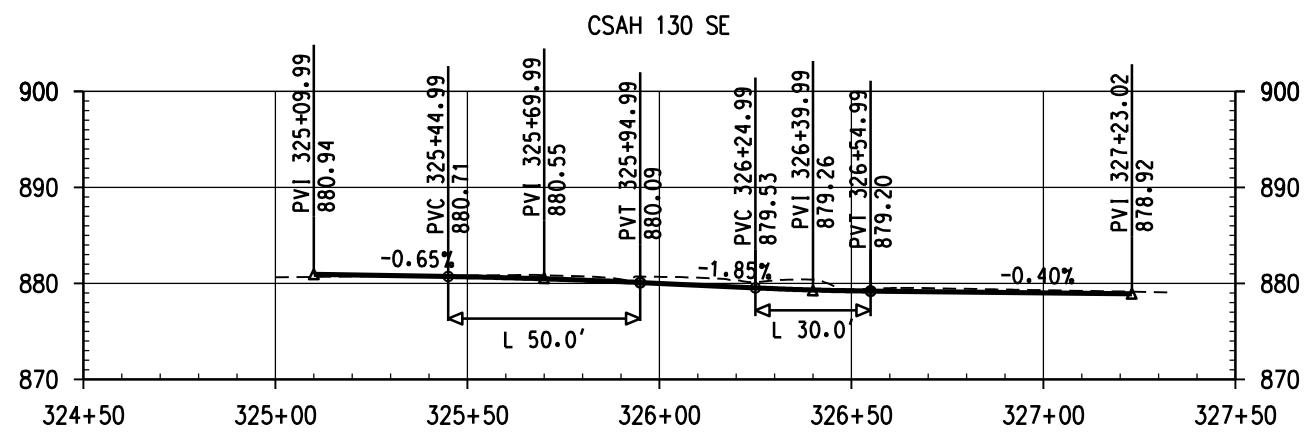
- (XXX) CONTROL POINT(S) ON GUTTER FLOW LINE AT 0" CURB HEIGHT POINT
- X" CURB HEIGHT. SEE STANDARD PLAN SHEETS FOR PEDESTRIAN CURB RAMP DETAILS
- [Dotted Box] TRUNCATED DOMES (SEE MNDOT STD. PLATE 7038)
- [Hatched Box] LANDING AREA - 4' X 4' MIN. DIMENSIONS AND MAX. 2.0% SLOPE IN ALL DIRECTIONS
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- (*) INDICATES CONTROL PROFILE KEY POINT(S) (SEE GUTTER PROFILE)
- ➔ DRAINAGE FLOW DIRECTION
- PROPOSED CB ● PROPOSED STORM MH

SIGNAL LEGEND

- [Square with X] INPLACE SIGNAL MAST ARM
- PROPOSED PUSH BUTTON STATION
- PROPOSED SIGNAL MAST ARM



- ① CSAH 130 SE PORKCHOP ϕ 800+38.03
0.0' RT GUTTER EL 880.66
- ② CSAH 130 SE PORKCHOP ϕ 800+72.43
0.0' RT GUTTER EL 880.38
- ③ CSAH 130 SE PORKCHOP ϕ 801+23.04
0.0' RT GUTTER EL 880.36
- ④ CSAH 130 SE ϕ 326+13.92
0.0' RT. GUTTER EL 879.74



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.

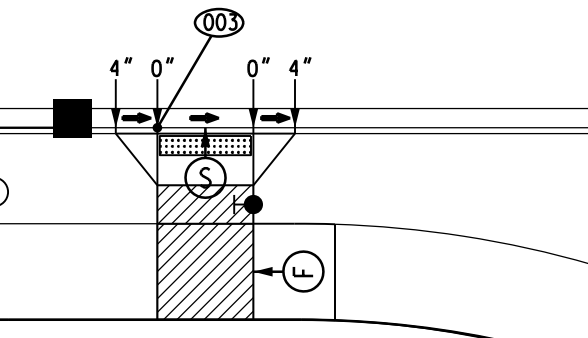
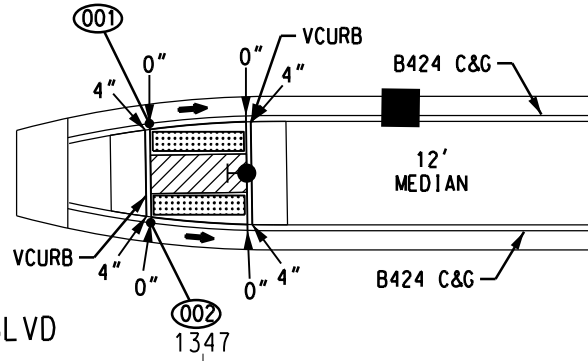
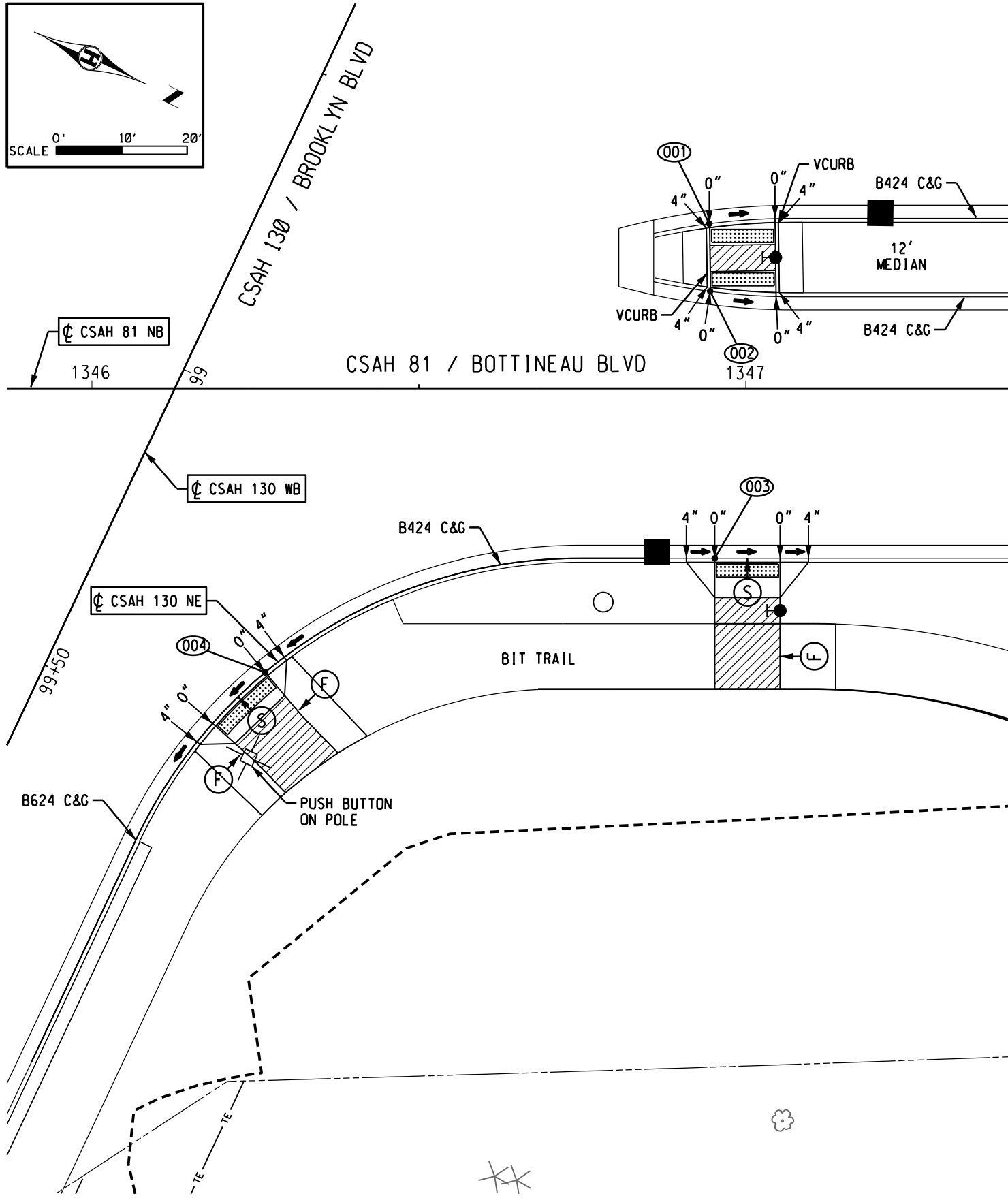
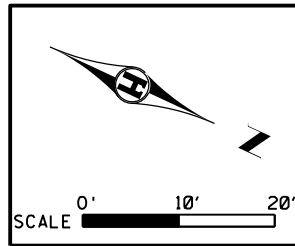
Kelly Agosto
KELLY AGOSTO, LICENSED PROFESSIONAL ENGINEER
 49075 3/15/19
 LICENSE NO. DATE

DESIGN BY: R. DECOTEAU
CAD BY: E. GUIR
CHECKED BY: L. LANGNER
LAST REVISION: / /

INTERSECTION DETAILS

C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
 S.P. 027-681-035, S.P. 110-020-040

SHEET
 139
 244



GENERAL NOTES:

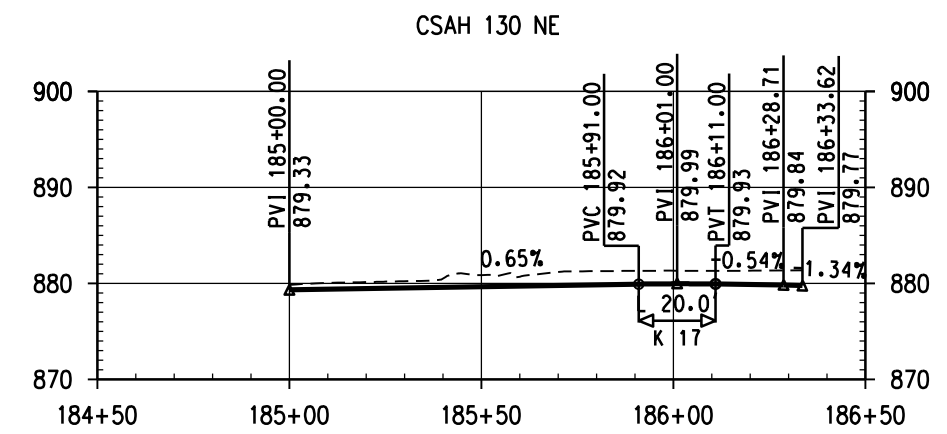
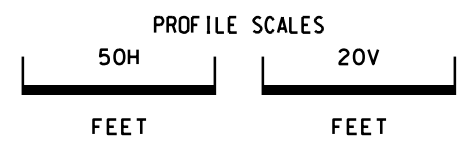
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SIGNAL LEGEND

- INPLACE SIGNAL MAST ARM
- PROPOSED PUSH BUTTON STATION
- PROPOSED SIGNAL MAST ARM

INTERSECTION LEGEND

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- DRAINAGE FLOW DIRECTION
- PROPOSED CB
- PROPOSED STORM MH



- 001 CSAH 81 SB ϕ 2346+93.55
38.84' RT. GUTTER EL 879.43
- 002 CSAH 81 NB ϕ 1346+94.54
14.82' LT. GUTTER EL 879.76
- 003 CSAH 81 NB ϕ 1346+95.24
26.0' RT. GUTTER EL 879.65
- 004 CSAH 130 NE ϕ 185+70.10
0.0' RT. GUTTER EL 879.79



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49075 3/15/19
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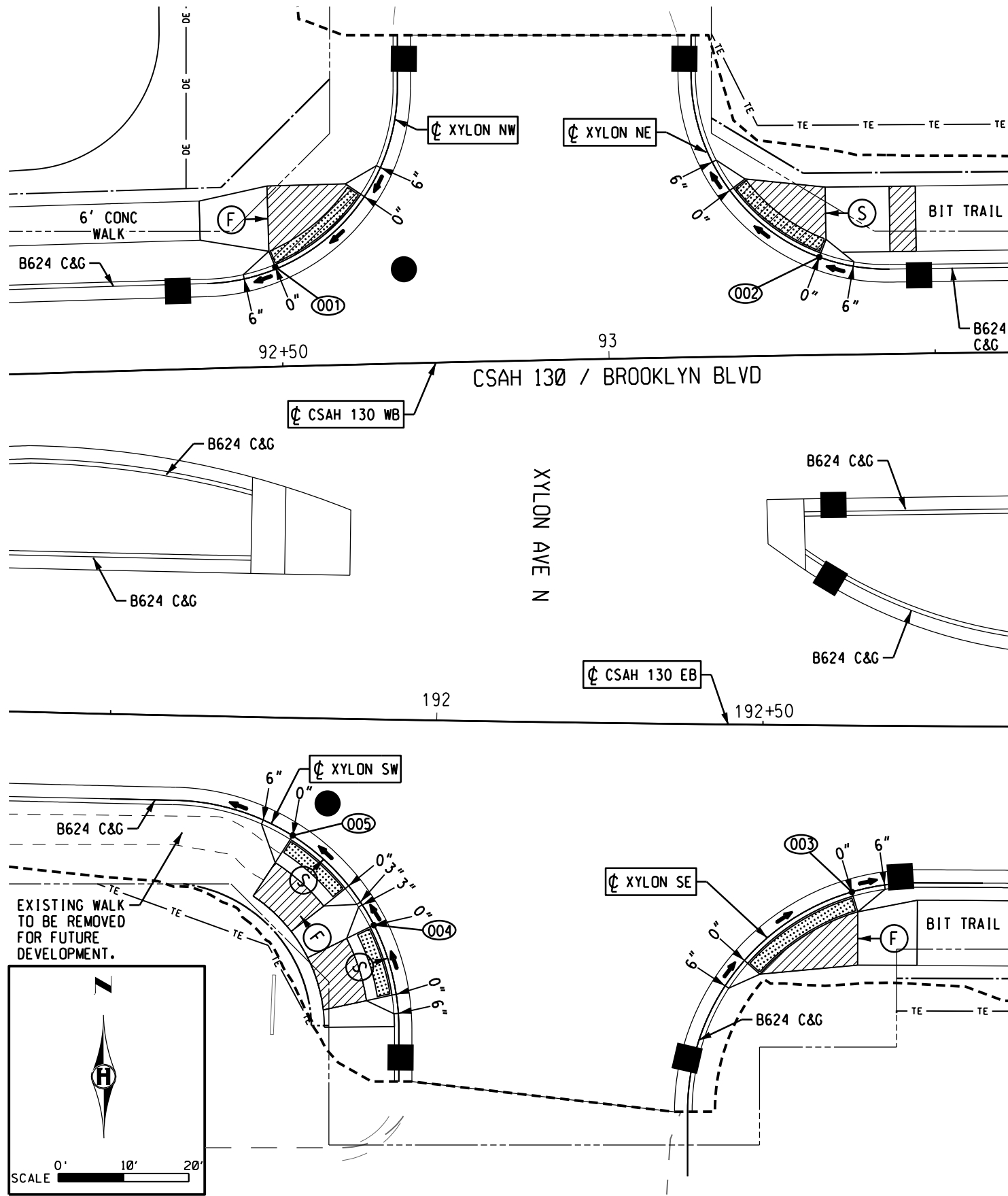
DESIGN BY: R. DECOTEAU
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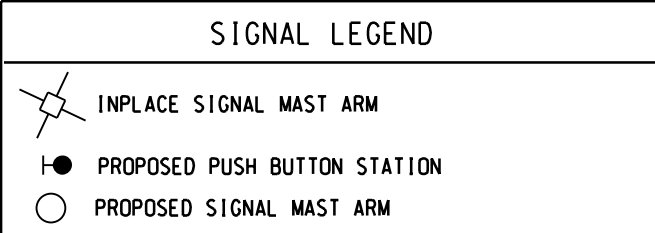
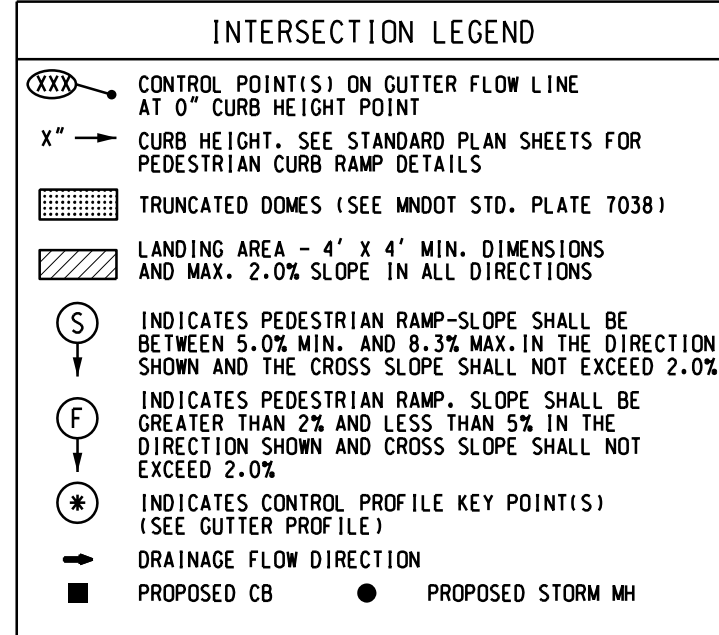
SHEET

140 / 244



GENERAL NOTES:

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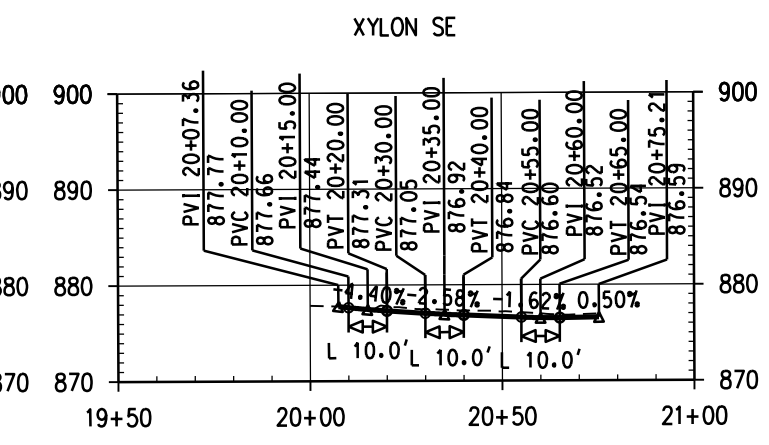
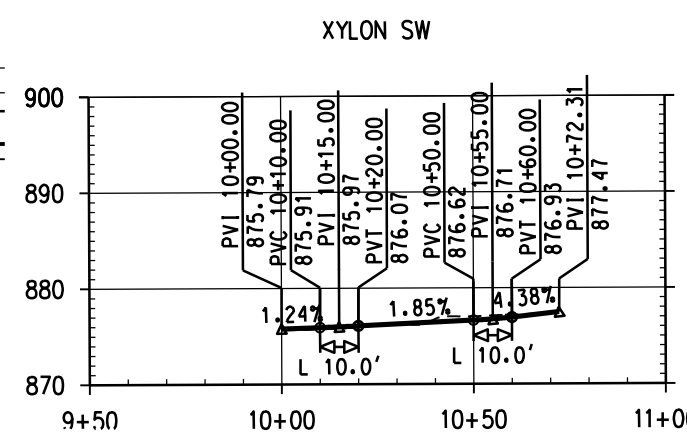
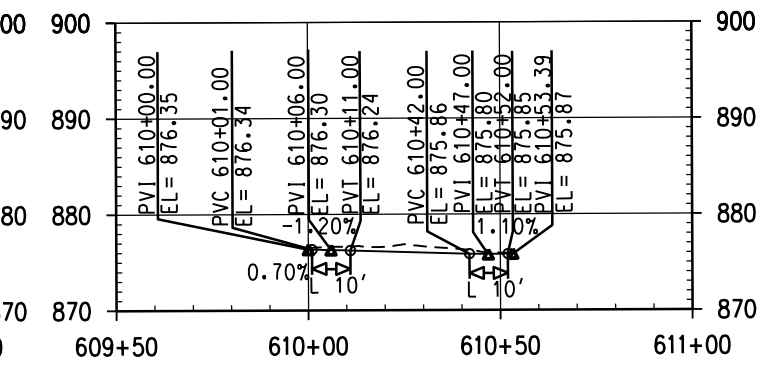
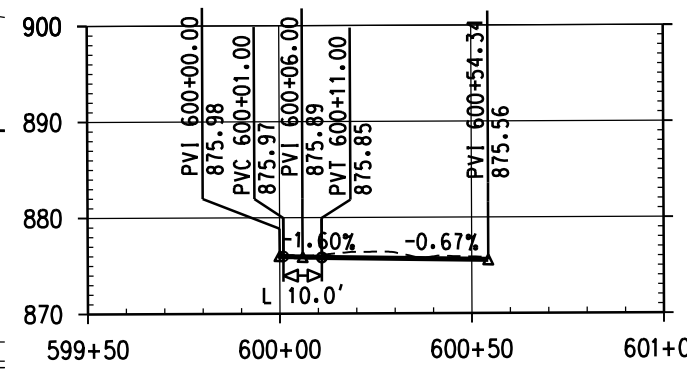


PROFILE SCALES

50H 20V

FEET FEET

(001) XYLON NW ϕ 600+43.49, 0.0' RT GUTTER EL 875.64	(003) XYLON SE ϕ 20+55.00, 0.0' RT GUTTER EL 876.60	(005) XYLON SW ϕ 10+28.99, 0.0' RT GUTTER EL 876.23
(002) XYLON NE ϕ 610+10.98, 0.0' RT GUTTER EL 876.24	(004) XYLON SW ϕ 10+47.71, 0.0' RT GUTTER EL 876.58	



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.

Kelly Agosto
KELLY AGOSTO, LICENSED PROFESSIONAL ENGINEER
 49075 3/15/19
 LICENSE NO. DATE

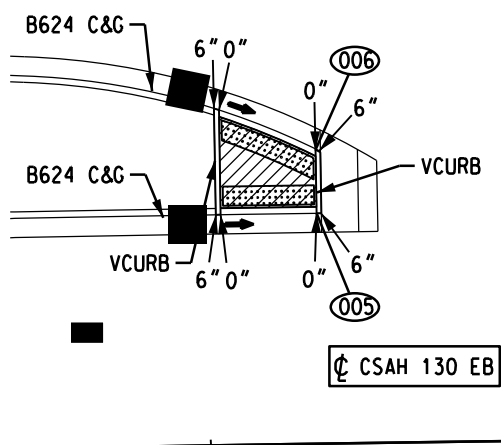
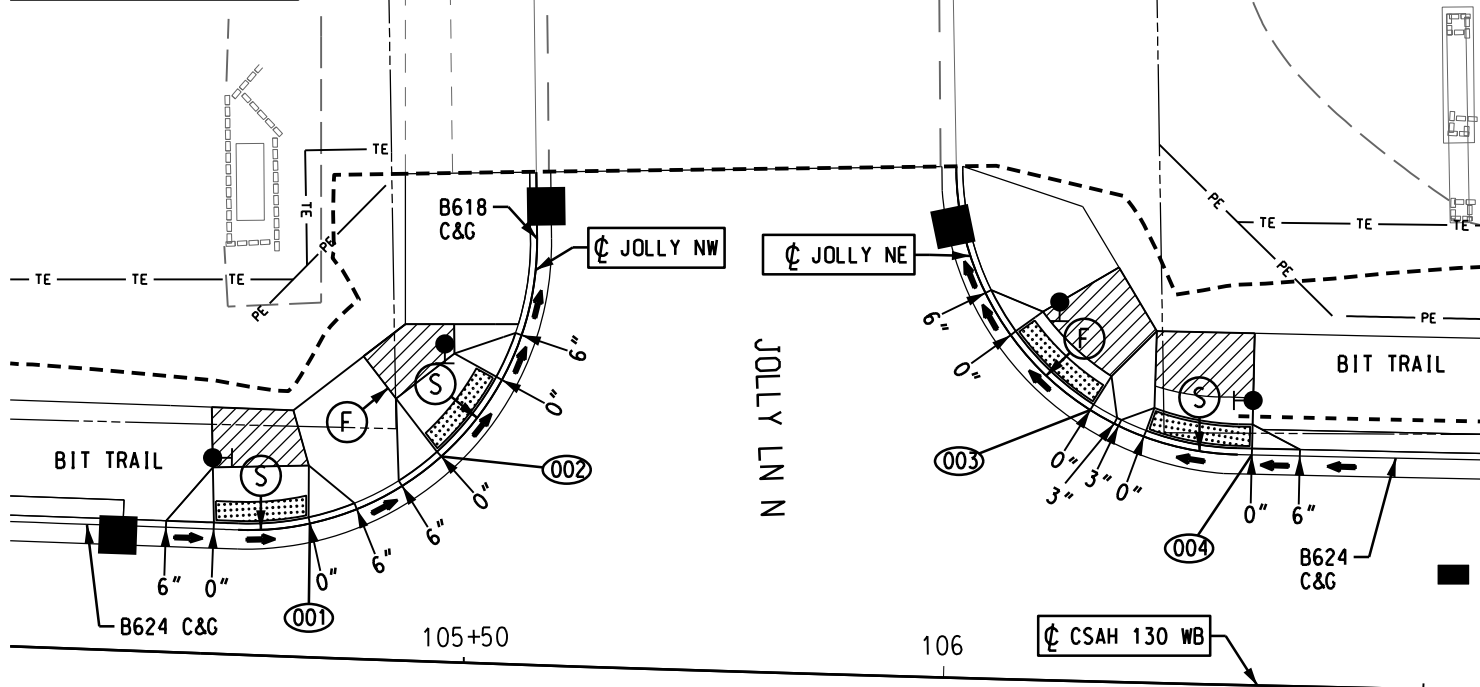
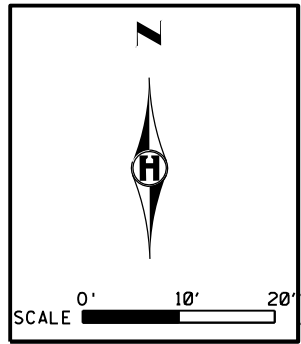
DESIGN BY: R. DECOTEAU
CAD BY: E. GUIR
CHECKED BY: L. LANGNER
LAST REVISION: / /

INTERSECTION DETAILS

C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
 S.P. 027-681-035, S.P. 110-020-040

SHEET

141 / 244



GENERAL NOTES:

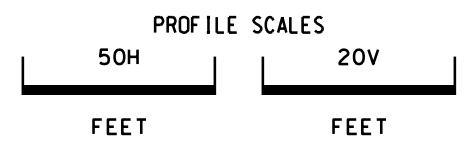
- THIS PROJECT SHALL BE CONSTRUCTED AS PER AMERICANS WITH DISABILITIES ACT (ADA) AND PUBLIC RIGHTS-OF-WAY ACCESSIBILITY GUIDELINES (PROWAG).
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- SAWCUTS ON SIDEWALK ARE INCIDENTAL.
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- SEE PEDESTRIAN CURB RAMP DETAILS IN THE STANDARD PLANS FOR MORE INFORMATION.

SIGNAL LEGEND

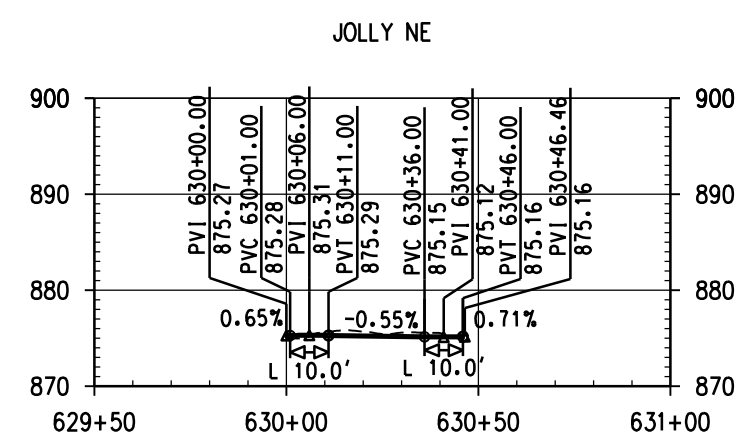
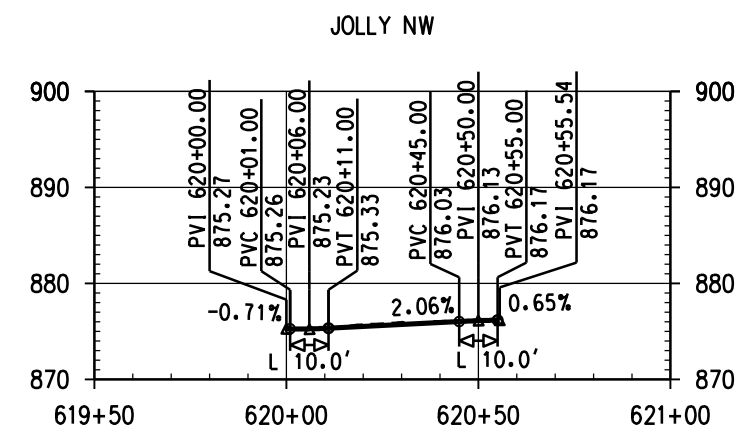
- INPLACE SIGNAL MAST ARM
- PROPOSED PUSH BUTTON STATION
- PROPOSED SIGNAL MAST ARM

INTERSECTION LEGEND

- CONTROL POINT(S) ON GUTTER FLOW LINE AT 0" CURB HEIGHT POINT
- CURB HEIGHT. SEE STANDARD PLAN SHEETS FOR PEDESTRIAN CURB RAMP DETAILS
- TRUNCATED DOMES (SEE MNDOT STD. PLATE 7038)
- LANDING AREA - 4' X 4' MIN. DIMENSIONS AND MAX. 2.0% SLOPE IN ALL DIRECTIONS
- INDICATES PEDESTRIAN RAMP-SLOPE SHALL BE BETWEEN 5.0% MIN. AND 8.3% MAX. IN THE DIRECTION SHOWN AND THE CROSS SLOPE SHALL NOT EXCEED 2.0%
- INDICATES PEDESTRIAN RAMP. SLOPE SHALL BE GREATER THAN 2% AND LESS THAN 5% IN THE DIRECTION SHOWN AND CROSS SLOPE SHALL NOT EXCEED 2.0%
- INDICATES CONTROL PROFILE KEY POINT(S) (SEE GUTTER PROFILE)
- DRAINAGE FLOW DIRECTION
- PROPOSED CB
- PROPOSED STORM MH



- 001 JOLLY NW ϕ 620+48.03. 0.0' RT GUTTER EL 876.09
- 002 JOLLY NW ϕ 620+32.49. 0.0' RT GUTTER EL 875.77
- 003 JOLLY NE ϕ 630+16.25. 0.0' RT GUTTER EL 875.26
- 004 JOLLY NE ϕ 106+31.57. 24.0' LT GUTTER EL 875.26
- 005 CSAH 130 EB ϕ 204+61.38. 24.0' LT GUTTER EL 875.32
- 006 CSAH 130 WB ϕ 105+35.27. 19.59' RT GUTTER EL 875.45



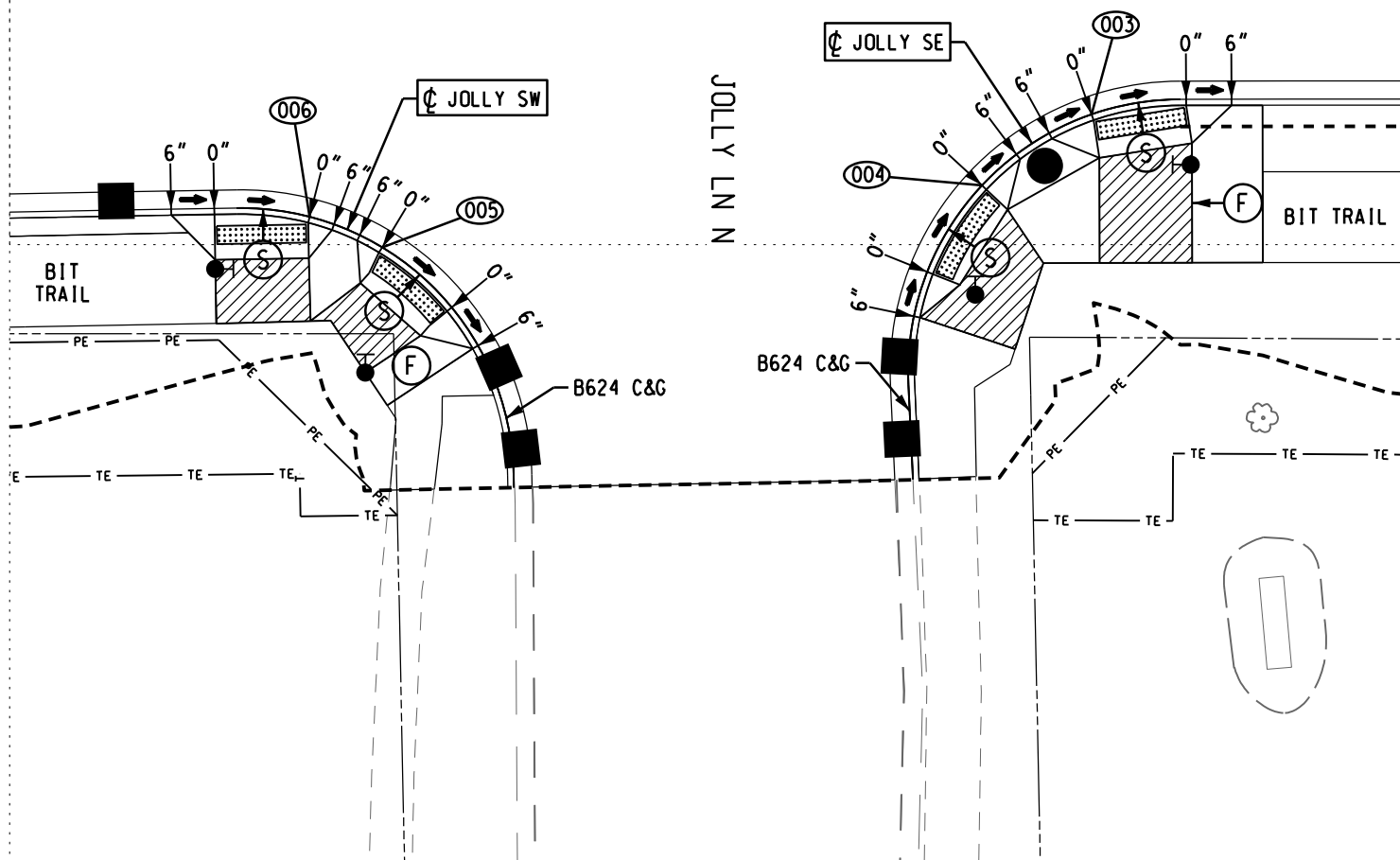
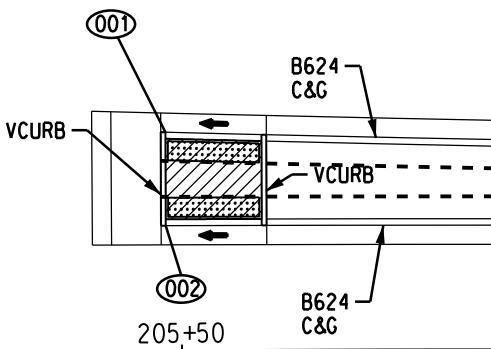
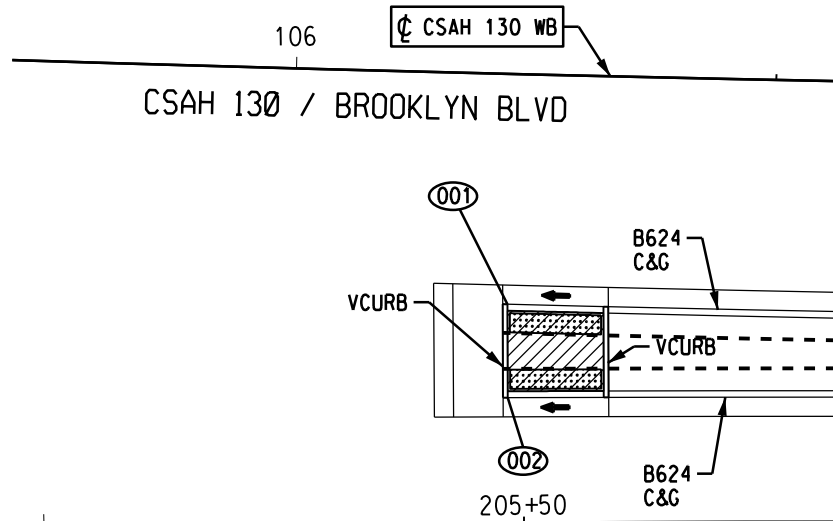
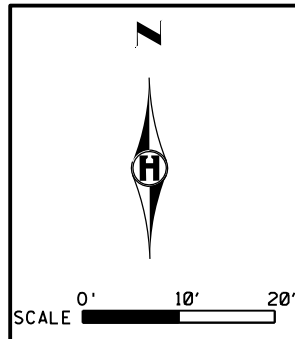
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Kelly Agosto
 KELLY AGOSTO, LICENSED PROFESSIONAL ENGINEER
 49075 LICENSE NO. 3/15/19 DATE

DESIGN BY: R. DECOTEAU
 CAD BY: E. GUIR
 CHECKED BY: L. LANGNER
 LAST REVISION: / /

INTERSECTION DETAILS
 C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
 S.P. 027-681-035, S.P. 110-020-040

SHEET
 142 / 244



GENERAL NOTES:

- THIS PROJECT SHALL BE CONSTRUCTED AS PER AMERICANS WITH DISABILITIES ACT (ADA) AND PUBLIC RIGHTS-OF-WAY ACCESSIBILITY GUIDELINES (PROWAG).
- SEE ALIGNMENT PLANS AND PROFILE PLANSHEETS (IF NOT SHOWN HERE) FOR CURBLINE VERTICAL AND HORIZONTAL ALIGNMENT INFORMATION.
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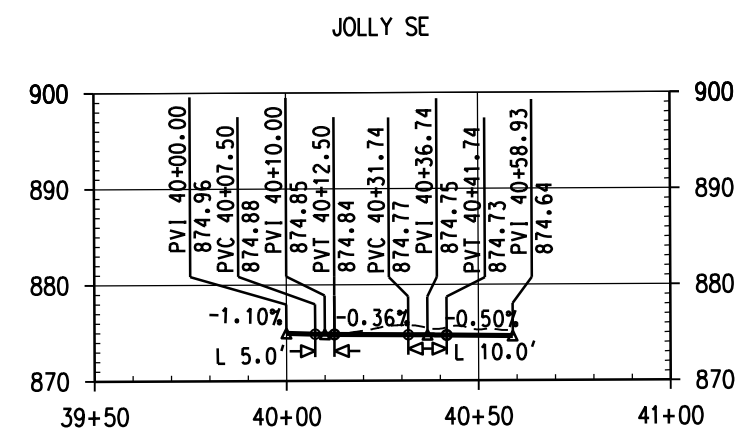
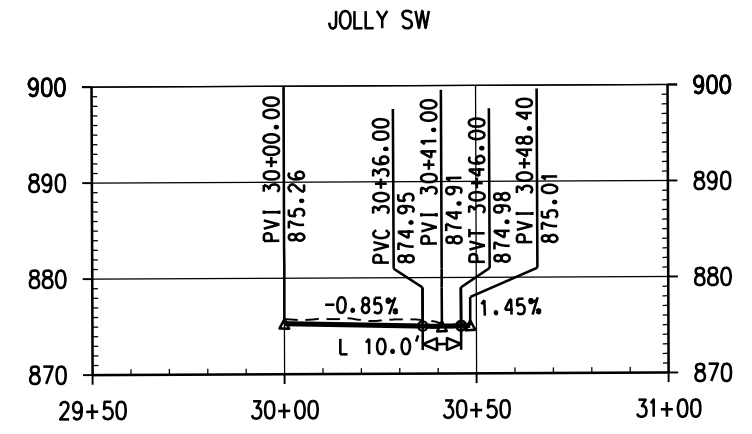
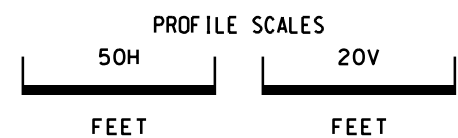
SIGNAL LEGEND

- INPLACE SIGNAL MAST ARM
- PROPOSED PUSH BUTTON STATION
- PROPOSED SIGNAL MAST ARM

INTERSECTION LEGEND

- CONTROL POINT(S) ON GUTTER FLOW LINE AT 0" CURB HEIGHT POINT
- CURB HEIGHT. SEE STANDARD PLAN SHEETS FOR PEDESTRIAN CURB RAMP DETAILS
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- INDICATES CONTROL PROFILE KEY POINT(S) (SEE GUTTER PROFILE)
- DRAINAGE FLOW DIRECTION
- PROPOSED CB
- PROPOSED STORM MH

- 001 CSAH 130 WB ϕ 106+22.57, 24.0' RT GUTTER EL 874.92
- 002 CSAH 130 EB ϕ 205+48.37, 13.0' LT GUTTER EL 874.73
- 003 JOLLY SE ϕ 40+48.97, 0.0' RT GUTTER EL 874.69
- 004 JOLLY SE ϕ 40+34.45, 0.0' RT GUTTER EL 874.76
- 005 JOLLY SW ϕ 30+16.81, 0.0' RT GUTTER EL 875.12
- 006 JOLLY SW ϕ 30+08.11, 0.0' RT GUTTER EL 875.19



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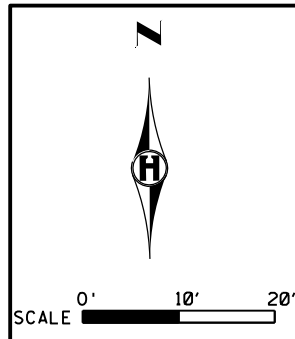
Kelly Agosto
 KELLY AGOSTO, LICENSED PROFESSIONAL ENGINEER
 49075 LICENSE NO. 3/15/19 DATE

DESIGN BY: R. DECOTEAU
 CAD BY: E. GUIR
 CHECKED BY: L. LANGNER
 LAST REVISION: / /

INTERSECTION DETAILS

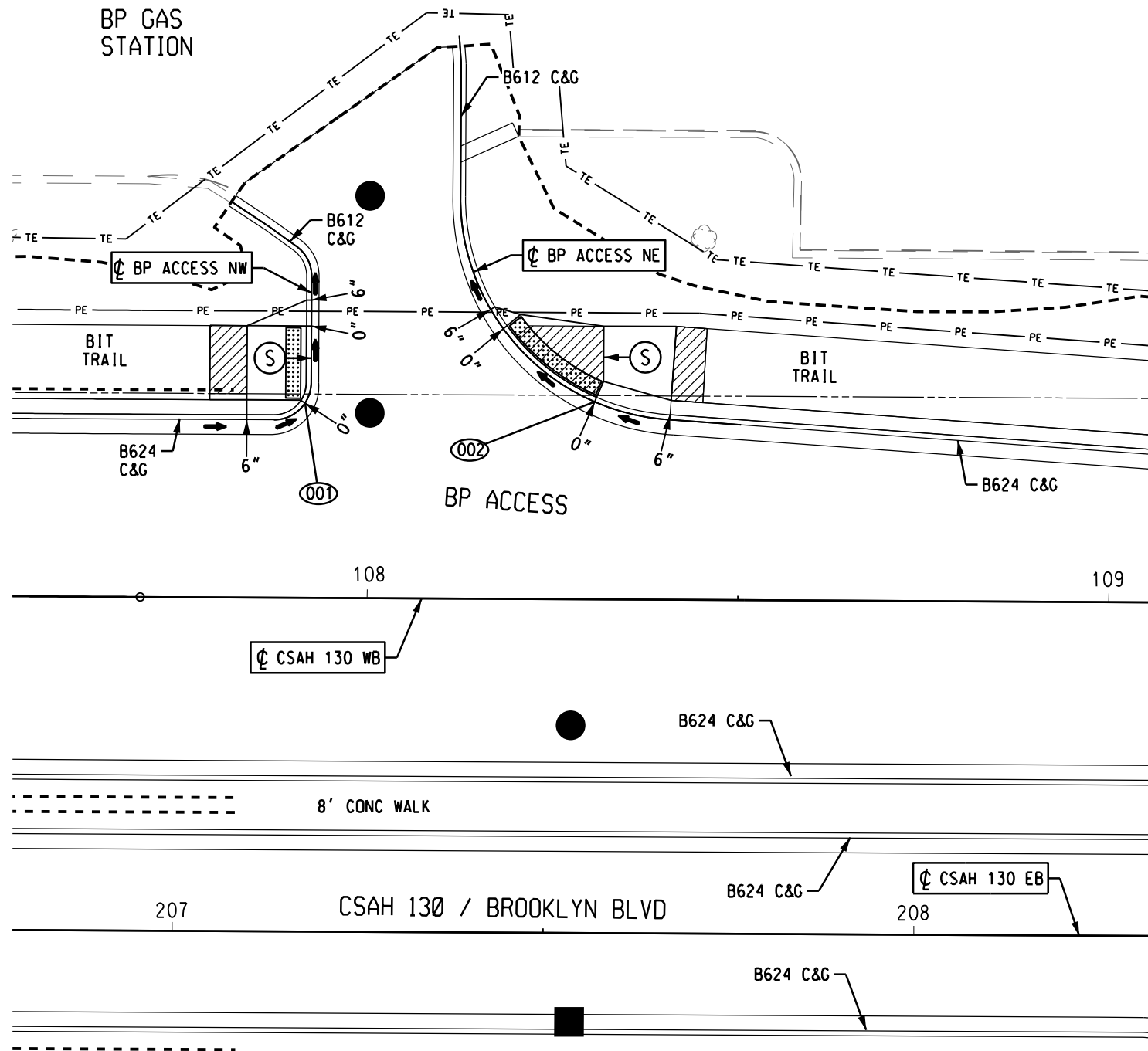
C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
 S.P. 027-681-035, S.P. 110-020-040

SHEET 143 / 244



BP GAS STATION

FIRESTONE



GENERAL NOTES:

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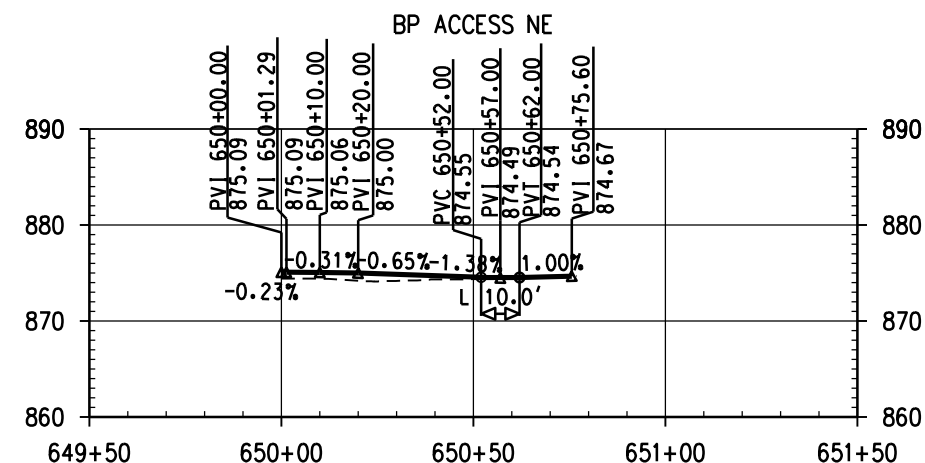
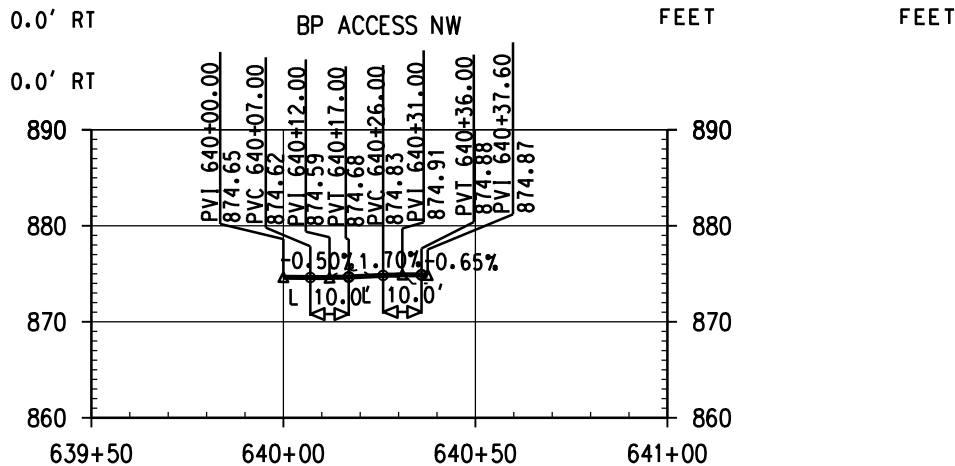
SIGNAL LEGEND

- INPLACE SIGNAL MAST ARM
- PROPOSED PUSH BUTTON STATION
- PROPOSED SIGNAL MAST ARM

INTERSECTION LEGEND

- CONTROL POINT(S) ON GUTTER FLOW LINE AT 0" CURB HEIGHT POINT
- CURB HEIGHT. SEE STANDARD PLAN SHEETS FOR PEDESTRIAN CURB RAMP DETAILS
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- INDICATES CONTROL PROFILE KEY POINT(S) (SEE GUTTER PROFILE)
- DRAINAGE FLOW DIRECTION
- PROPOSED CB
- PROPOSED STORM MH

- BP ACCESS NW ϕ 640+32.58, 0.0' RT
GUTTER EL 874.89
- BP ACCESS NE ϕ 650+20.09, 0.0' RT
GUTTER EL 874.99



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.

Kelly Agosto
KELLY AGOSTO, LICENSED PROFESSIONAL ENGINEER

49075 3/15/19
LICENSE NO. DATE

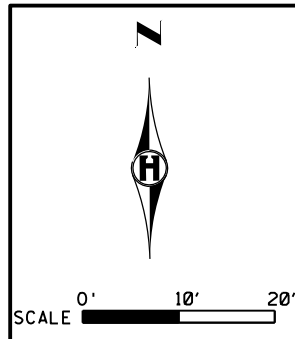
DESIGN BY: R. DECOTEAU
CAD BY: E. GUIR
CHECKED BY: L. LANGNER
LAST REVISION: / /

INTERSECTION DETAILS

C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
S.P. 027-681-035, S.P. 110-020-040

SHEET

144
244



GENERAL NOTES:

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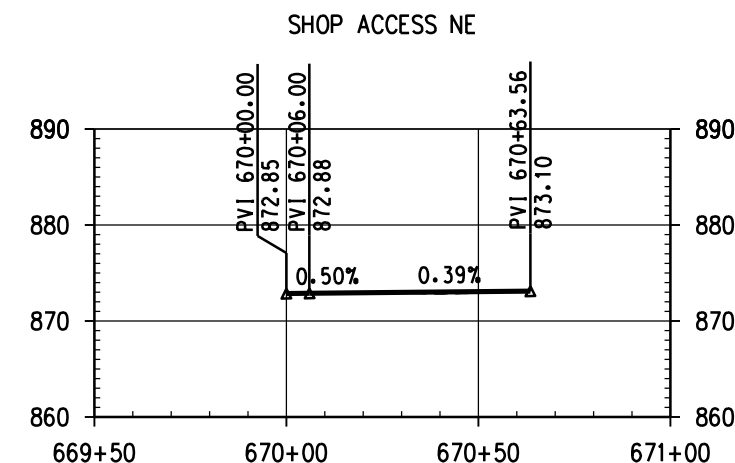
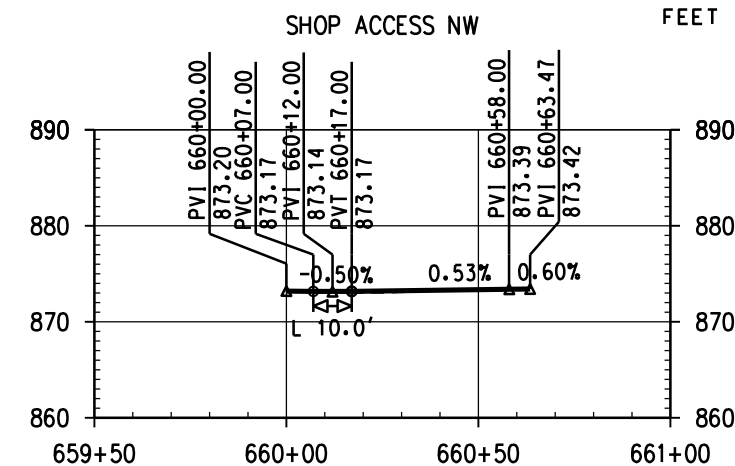
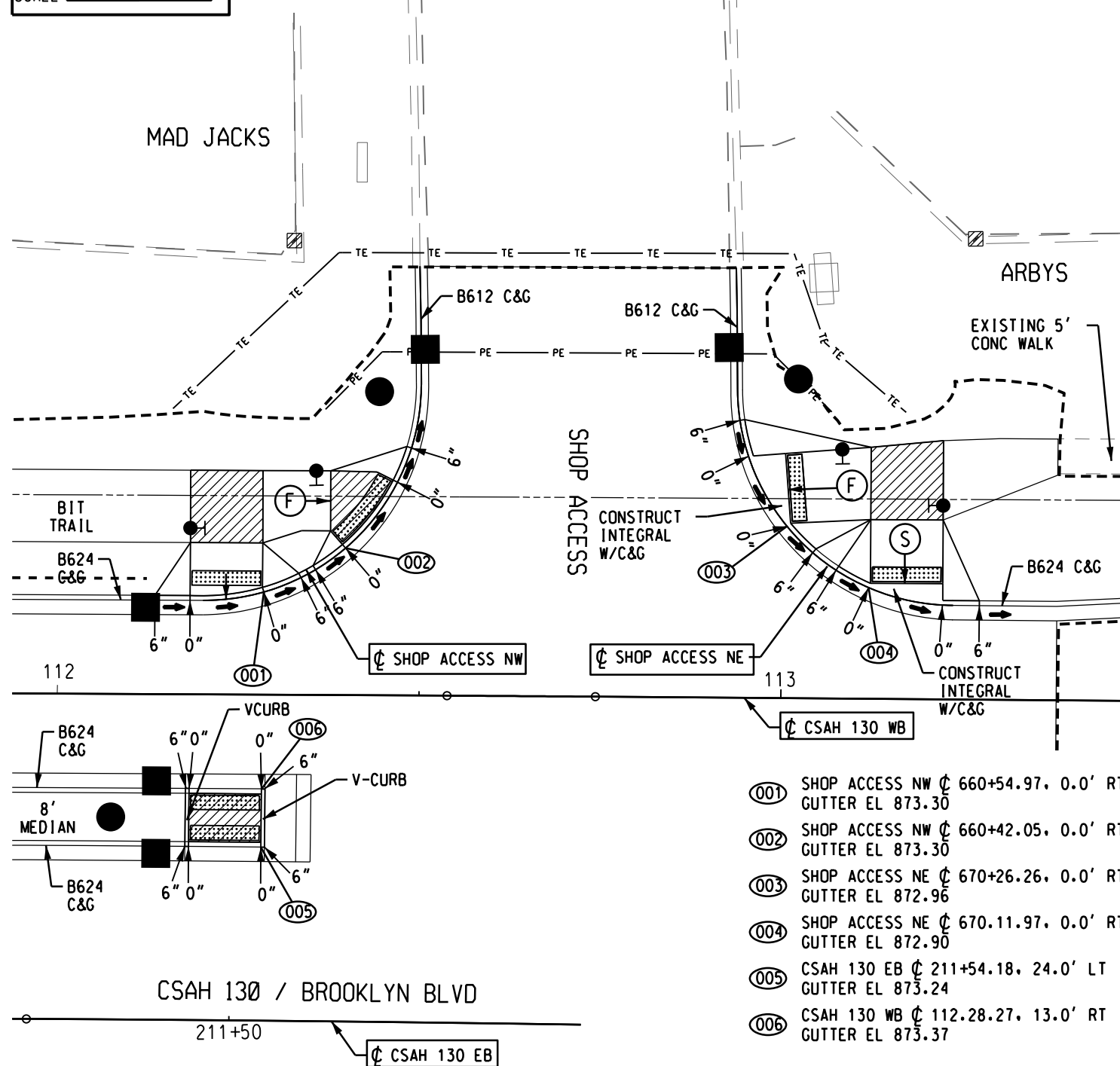
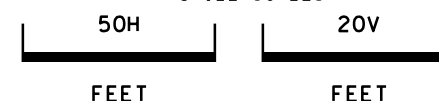
SIGNAL LEGEND

- INPLACE SIGNAL MAST ARM
- PROPOSED PUSH BUTTON STATION
- PROPOSED SIGNAL MAST ARM

INTERSECTION LEGEND

- CONTROL POINT(S) ON GUTTER FLOW LINE AT 0" CURB HEIGHT POINT
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- INDICATES CONTROL PROFILE KEY POINT(S) (SEE GUTTER PROFILE)
- DRAINAGE FLOW DIRECTION
- PROPOSED CB
- PROPOSED STORM MH

PROFILE SCALES



- 001 SHOP ACCESS NW ϕ 660+54.97, 0.0' RT GUTTER EL 873.30
- 002 SHOP ACCESS NW ϕ 660+42.05, 0.0' RT GUTTER EL 873.30
- 003 SHOP ACCESS NE ϕ 670+26.26, 0.0' RT GUTTER EL 872.96
- 004 SHOP ACCESS NE ϕ 670.11.97, 0.0' RT GUTTER EL 872.90
- 005 CSAH 130 EB ϕ 211+54.18, 24.0' LT GUTTER EL 873.24
- 006 CSAH 130 WB ϕ 112.28.27, 13.0' RT GUTTER EL 873.37



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.

Kelly Agosto
 KELLY AGOSTO, LICENSED PROFESSIONAL ENGINEER

49075 3/15/19
 LICENSE NO. DATE

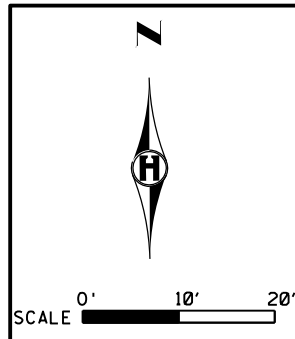
DESIGN BY: R. DECOTEAU
 CAD BY: E. GUIR
 CHECKED BY: L. LANGNER
 LAST REVISION: / /

INTERSECTION DETAILS

C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
 S.P. 027-681-035, S.P. 110-020-040

SHEET

145 / 244



GENERAL NOTES:

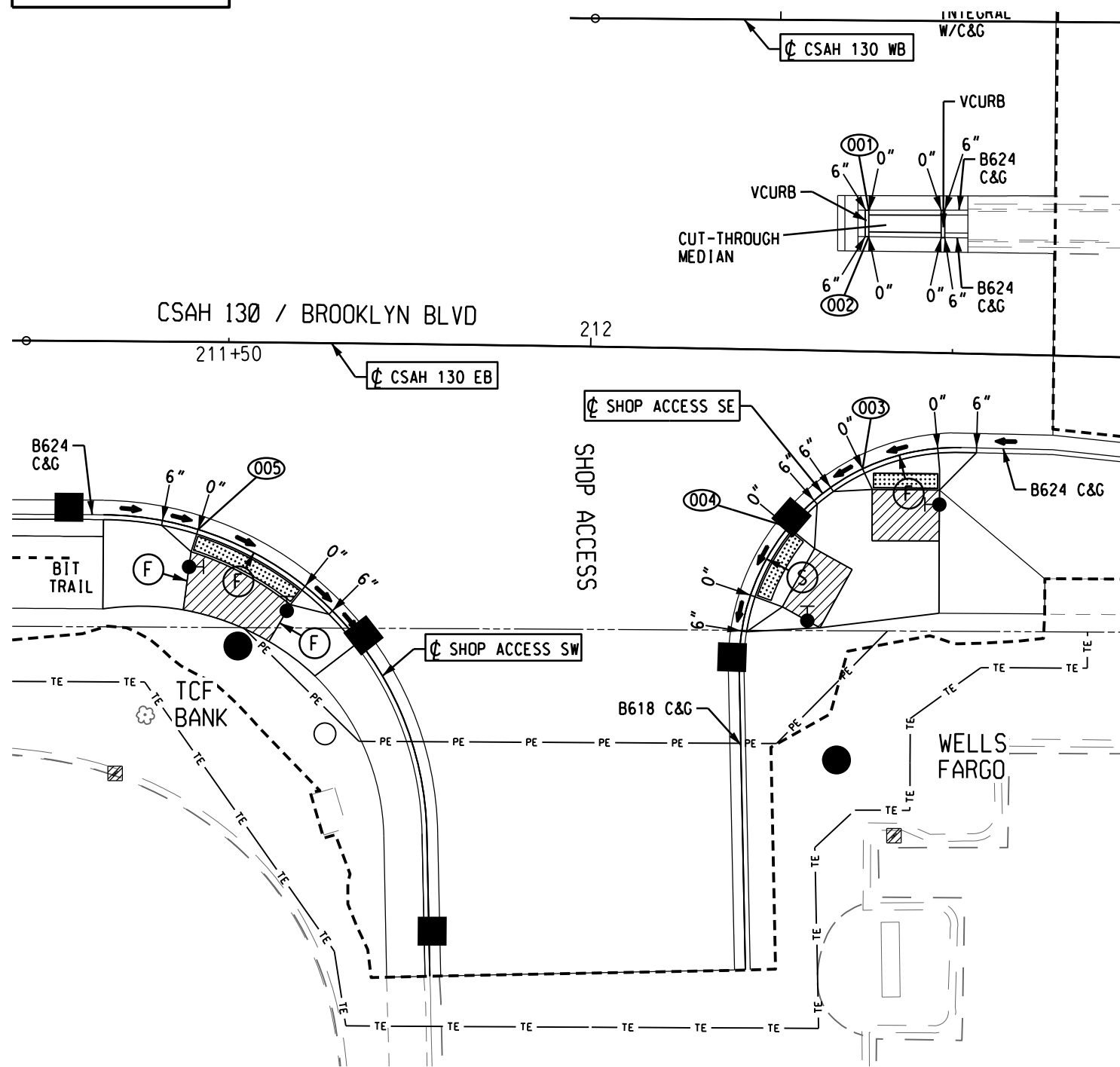
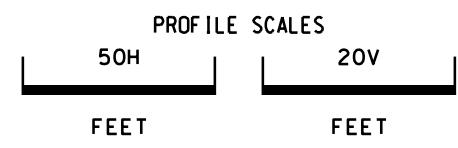
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INTERSECTION LEGEND

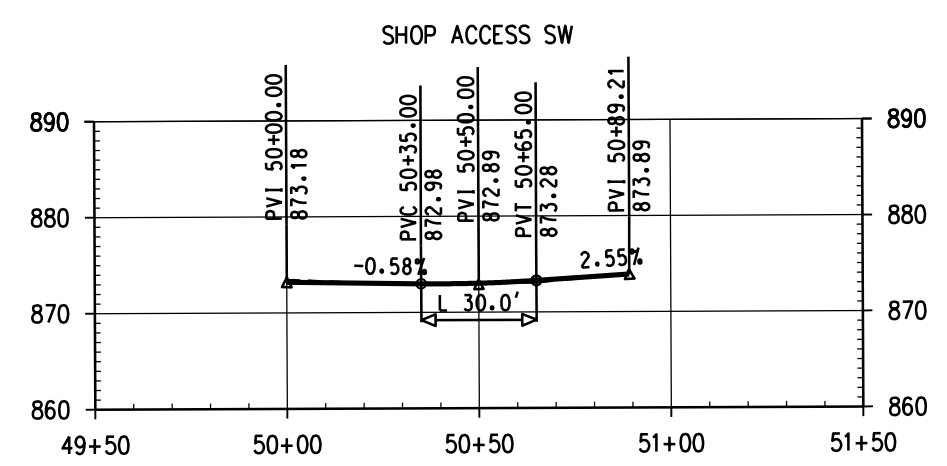
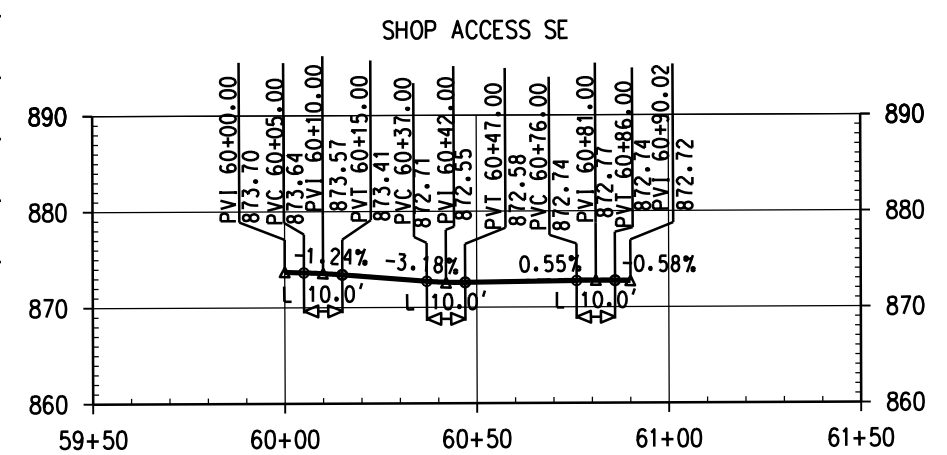
- (XXX) CONTROL POINT(S) ON GUTTER FLOW LINE AT 0" CURB HEIGHT POINT
- X" CURB HEIGHT. SEE STANDARD PLAN SHEETS FOR PEDESTRIAN CURB RAMP DETAILS
- [Hatched Box] TRUNCATED DOMES (SEE MNDOT STD. PLATE 7038)
- [Diagonal Lines Box] LANDING AREA - 4' X 4' MIN. DIMENSIONS AND MAX. 2.0% SLOPE IN ALL DIRECTIONS
- (S) INDICATES PEDESTRIAN RAMP-SLOPE SHALL BE BETWEEN 5.0% MIN. AND 8.3% MAX. IN THE DIRECTION SHOWN AND THE CROSS SLOPE SHALL NOT EXCEED 2.0%
- (F) INDICATES PEDESTRIAN RAMP. SLOPE SHALL BE GREATER THAN 2% AND LESS THAN 5% IN THE DIRECTION SHOWN AND CROSS SLOPE SHALL NOT EXCEED 2.0%
- (*) INDICATES CONTROL PROFILE KEY POINT(S) (SEE GUTTER PROFILE)
- ➔ DRAINAGE FLOW DIRECTION
- PROPOSED CB ● PROPOSED STORM MH

SIGNAL LEGEND

- [Square with X] INPLACE SIGNAL MAST ARM
- PROPOSED PUSH BUTTON STATION
- PROPOSED SIGNAL MAST ARM



- 001 CSah 130 WB @ 113.12.37, 25.37' RT GUTTER EL 872.77
- 002 CSah 130 EB @ 212+38.16, 14.48' LT GUTTER EL 872.81
- 003 SHOP ACCESS SE @ 60+75.94, 0.0' RT GUTTER EL 872.74
- 004 SHOP ACCESS SE @ 60+62.79, 0.0' RT GUTTER EL 872.67
- 005 SHOP ACCESS SW @ 50+13.29, 0.0' RT GUTTER EL 873.11



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.

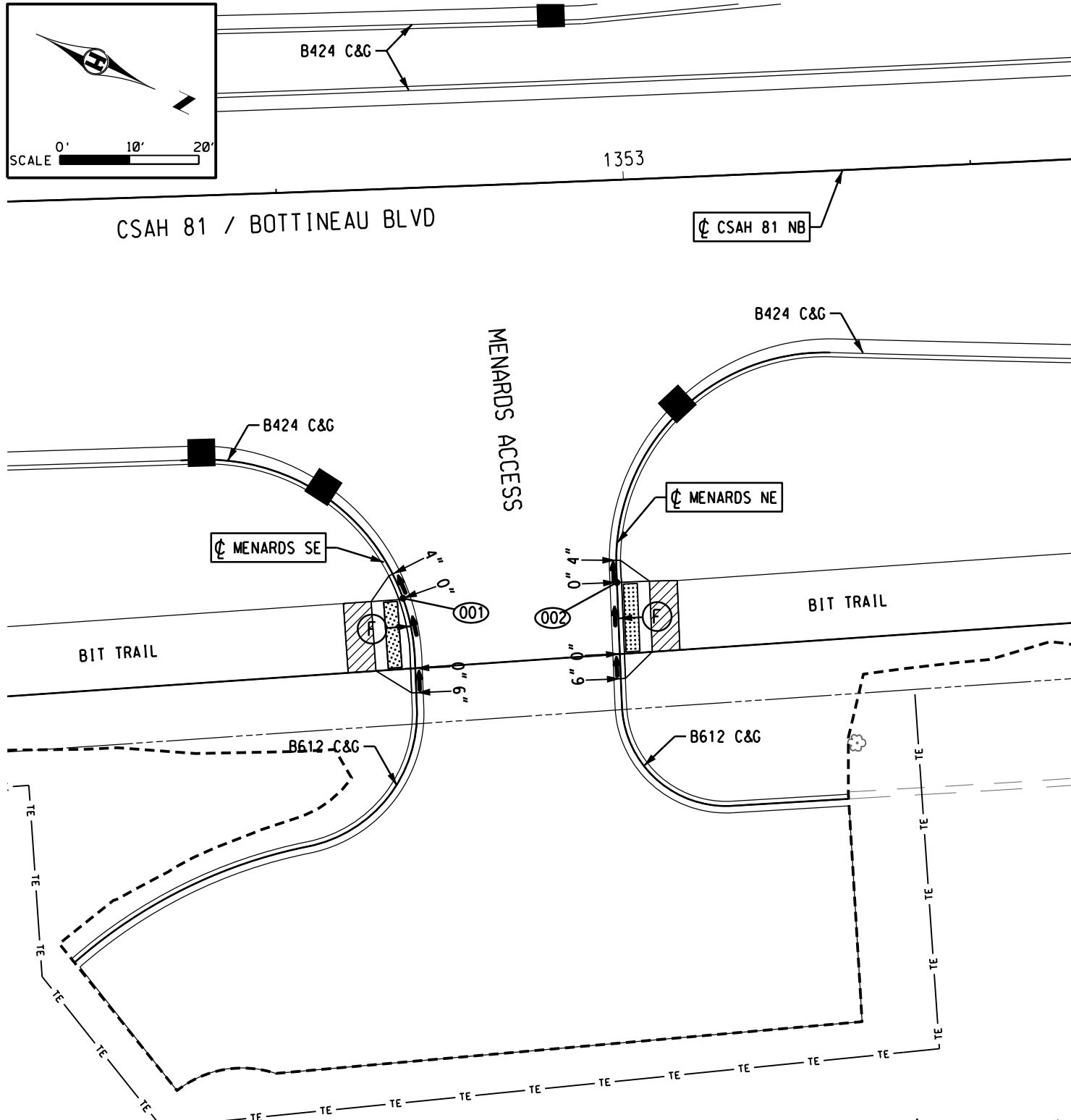
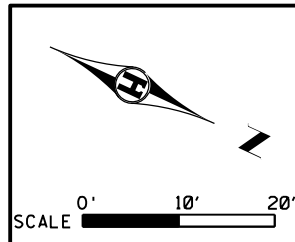
Kelly Agosto
KELLY AGOSTO, LICENSED PROFESSIONAL ENGINEER
 49075 LICENSE NO. 3/15/19 DATE

DESIGN BY: R. DECOTEAU
CAD BY: E. GUIR
CHECKED BY: L. LANGNER
LAST REVISION: / /

INTERSECTION DETAILS

C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
 S.P. 027-681-035, S.P. 110-020-040

SHEET
 146 / 244



(001) MENARDS SE \bar{C} 195+40.60, 0.0' RT
 GUTTER EL 877.35
 (002) MENARDS NE \bar{C} 205+58.41, 0.0' RT
 GUTTER EL 877.53

GENERAL NOTES:

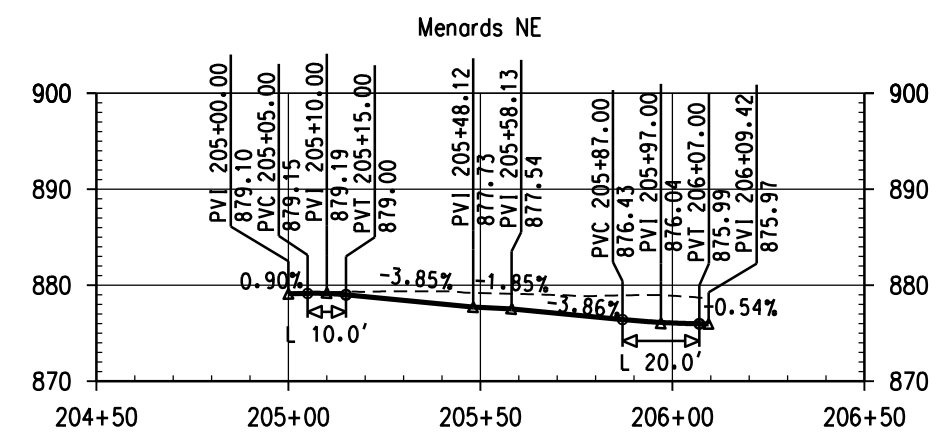
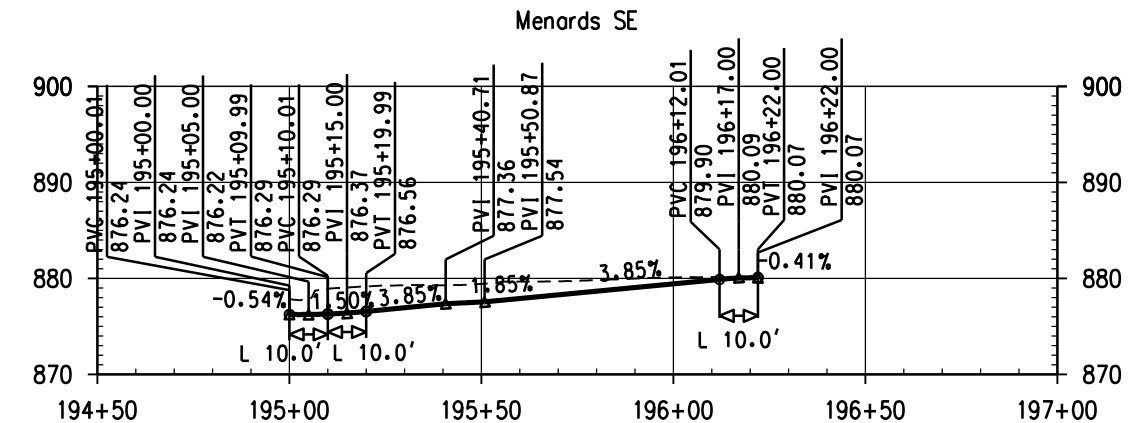
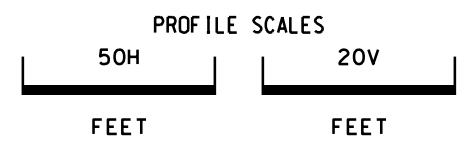
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- CONTRACTOR SHALL VERIFY RADIUS AND ARC LENGTHS NEEDED AT RADIAL DOME CORNERS (FAN CURB RAMPS) PRIOR TO ORDERING AND INSTALLING DOMES.
- SEE PEDESTRIAN CURB RAMP DETAILS IN THE STANDARD PLANS FOR MORE INFORMATION.

SIGNAL LEGEND

- INPLACE SIGNAL MAST ARM
- PROPOSED PUSH BUTTON STATION
- PROPOSED SIGNAL MAST ARM

INTERSECTION LEGEND

- CONTROL POINT(S) ON GUTTER FLOW LINE AT 0" CURB HEIGHT POINT
- CURB HEIGHT. SEE STANDARD PLAN SHEETS FOR PEDESTRIAN CURB RAMP DETAILS
- TRUNCATED DOMES (SEE MNDOT STD. PLATE 7038)
- LANDING AREA - 4' X 4' MIN. DIMENSIONS AND MAX. 2.0% SLOPE IN ALL DIRECTIONS
- INDICATES PEDESTRIAN RAMP-SLOPE SHALL BE BETWEEN 5.0% MIN. AND 8.3% MAX. IN THE DIRECTION SHOWN AND THE CROSS SLOPE SHALL NOT EXCEED 2.0%
- INDICATES PEDESTRIAN RAMP. SLOPE SHALL BE GREATER THAN 2% AND LESS THAN 5% IN THE DIRECTION SHOWN AND CROSS SLOPE SHALL NOT EXCEED 2.0%
- INDICATES CONTROL PROFILE KEY POINT(S) (SEE GUTTER PROFILE)
- DRAINAGE FLOW DIRECTION
- PROPOSED CB
- PROPOSED STORM MH



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.

KELLY AGOSTO, LICENSED PROFESSIONAL ENGINEER
 49075 LICENSE NO. 3/15/19 DATE

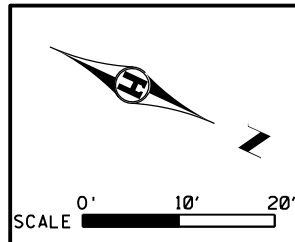
DESIGN BY: R. DECOTEAU
CAD BY: E. GUIR
CHECKED BY: L. LANGNER
LAST REVISION: / /

INTERSECTION DETAILS

C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
 S.P. 027-681-035, S.P. 110-020-040

SHEET

147 / 244



GENERAL NOTES:

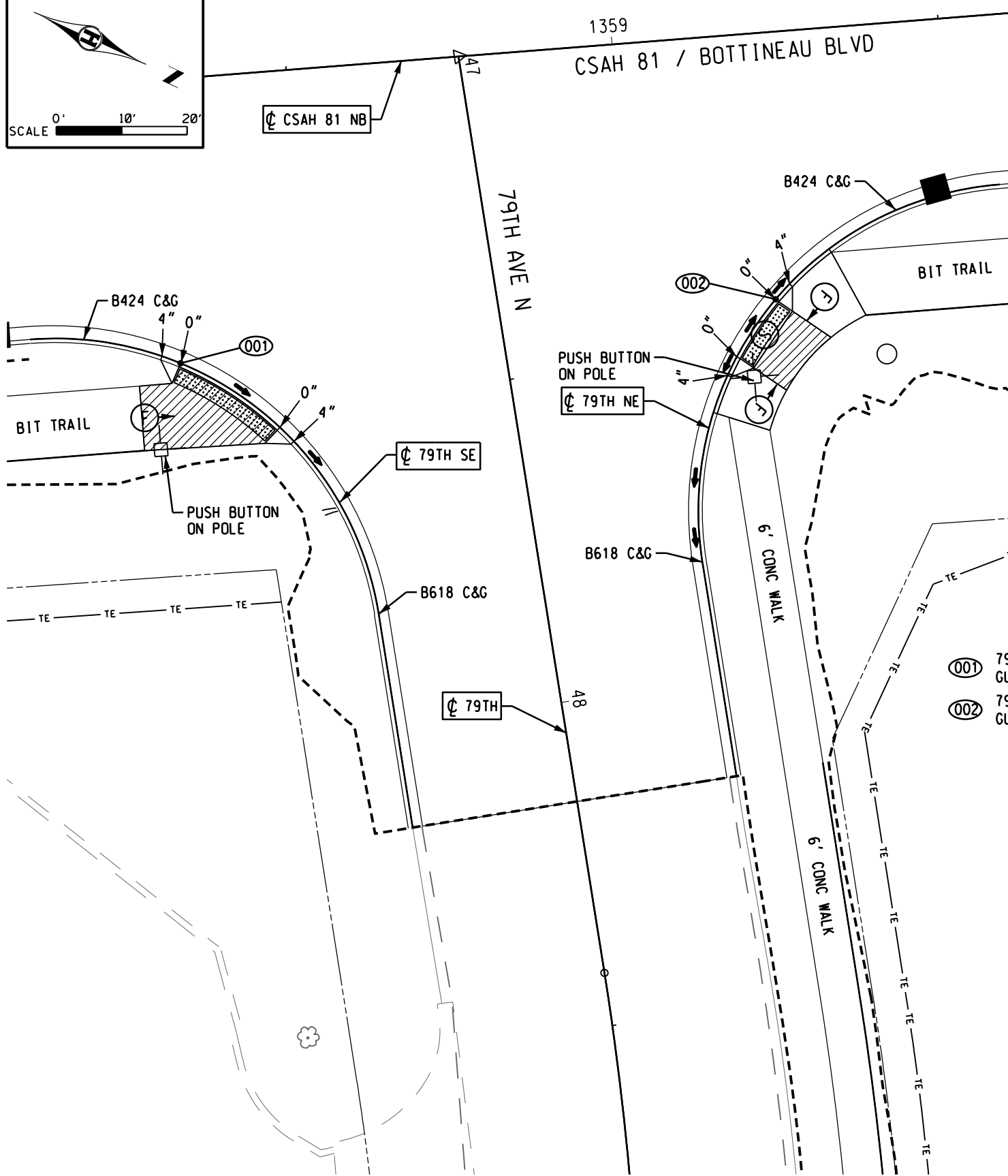
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- SEE PEDESTRIAN CURB RAMP DETAILS IN THE STANDARD PLANS FOR MORE INFORMATION.

INTERSECTION LEGEND

- (XXX) CONTROL POINT(S) ON GUTTER FLOW LINE AT 0" CURB HEIGHT POINT
- X" CURB HEIGHT. SEE STANDARD PLAN SHEETS FOR PEDESTRIAN CURB RAMP DETAILS
- [Hatched Box] TRUNCATED DOMES (SEE MNDOT STD. PLATE 7038)
- [Diagonal Lines Box] LANDING AREA - 4' X 4' MIN. DIMENSIONS AND MAX. 2.0% SLOPE IN ALL DIRECTIONS
- (S) INDICATES PEDESTRIAN RAMP-SLOPE SHALL BE BETWEEN 5.0% MIN. AND 8.3% MAX. IN THE DIRECTION SHOWN AND THE CROSS SLOPE SHALL NOT EXCEED 2.0%
- (F) INDICATES PEDESTRIAN RAMP. SLOPE SHALL BE GREATER THAN 2% AND LESS THAN 5% IN THE DIRECTION SHOWN AND CROSS SLOPE SHALL NOT EXCEED 2.0%
- (*) INDICATES CONTROL PROFILE KEY POINT(S) (SEE GUTTER PROFILE)
- [Arrow] DRAINAGE FLOW DIRECTION
- [Square] PROPOSED CB
- [Circle] PROPOSED STORM MH

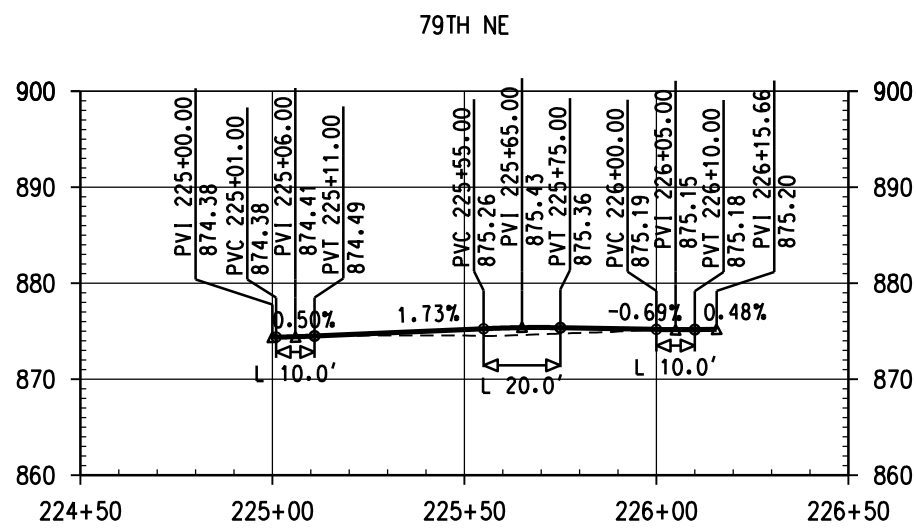
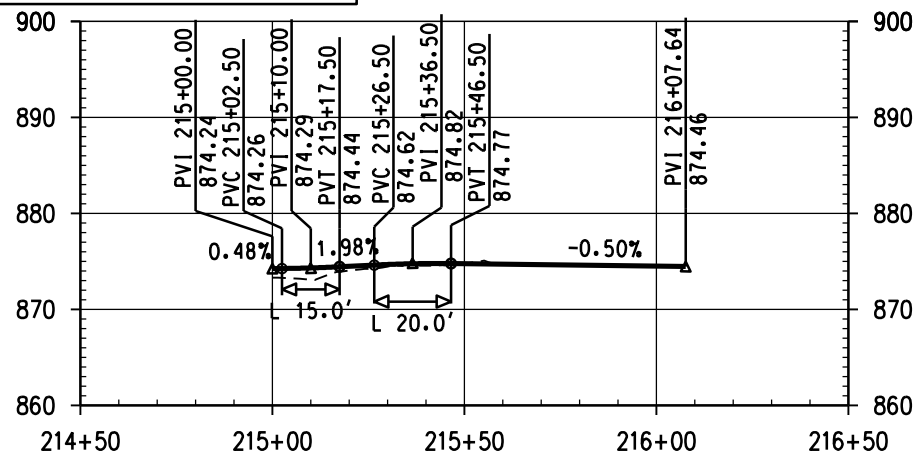
SIGNAL LEGEND

- [Square with X] INPLACE SIGNAL MAST ARM
- [Circle with dot] PROPOSED PUSH BUTTON STATION
- [Circle] PROPOSED SIGNAL MAST ARM



(001) 79TH SE @ 215+23.49. 0.0' RT
GUTTER EL 874.56

(002) 79TH NE @ 225+76.16. 0.0' RT
GUTTER EL 875.35



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.

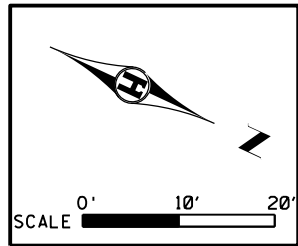
Kelly Agosto
 KELLY AGOSTO, LICENSED PROFESSIONAL ENGINEER
 49075 LICENSE NO. 3/15/19 DATE

DESIGN BY: R. DECOTEAU
 CAD BY: E. GUIR
 CHECKED BY: L. LANGNER
 LAST REVISION: / /

INTERSECTION DETAILS

C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
 S.P. 027-681-035, S.P. 110-020-040

SHEET 148 / 244



MINNOCO

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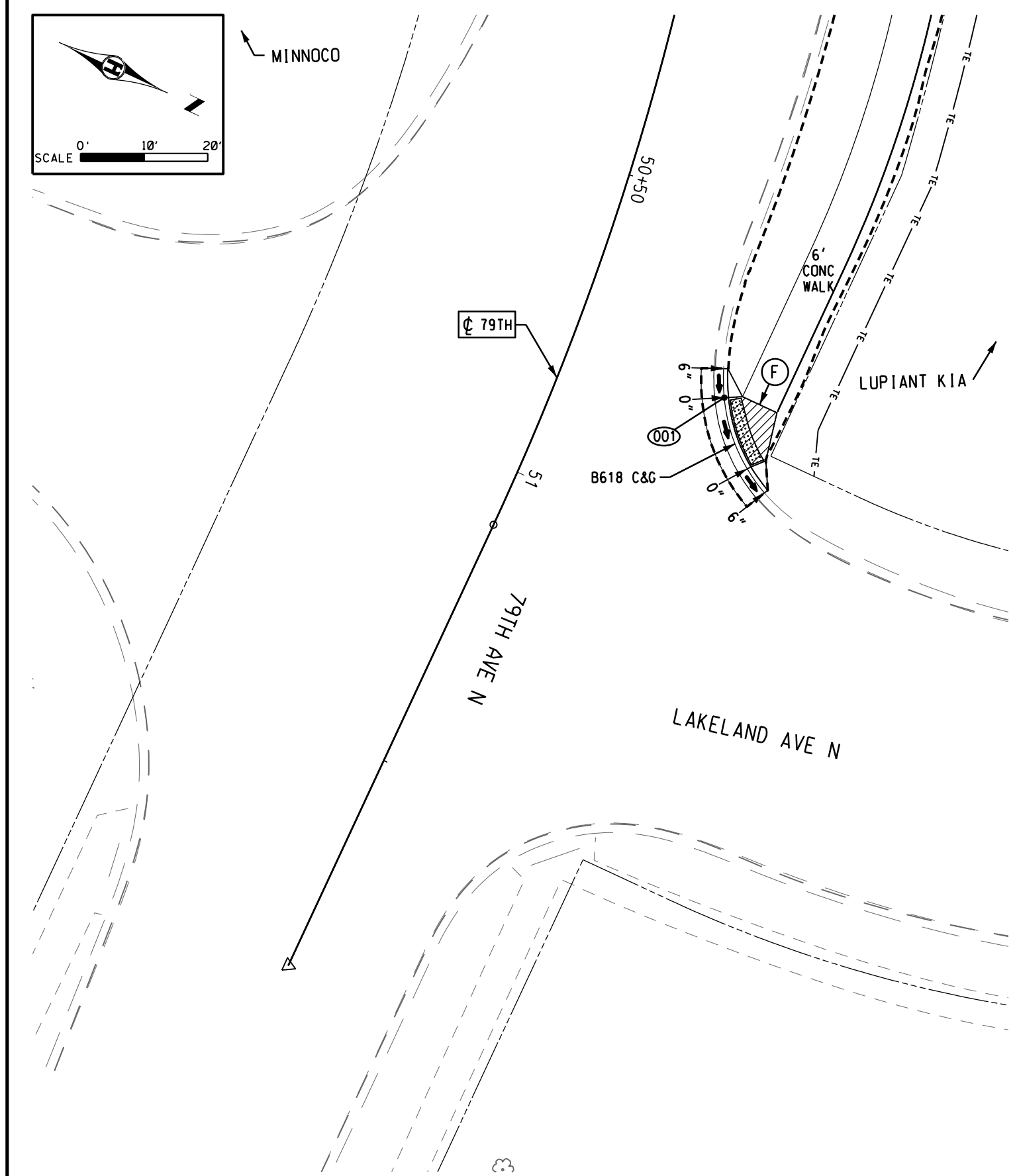
SIGNAL LEGEND

- INPLACE SIGNAL MAST ARM
- PROPOSED PUSH BUTTON STATION
- PROPOSED SIGNAL MAST ARM

INTERSECTION LEGEND

- CONTROL POINT(S) ON GUTTER FLOW LINE AT 0" CURB HEIGHT POINT
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- INDICATES CONTROL PROFILE KEY POINT(S) (SEE GUTTER PROFILE)
- DRAINAGE FLOW DIRECTION
- PROPOSED CB PROPOSED STORM MH

001 79TH ϕ 50+77.42, 25.63' RT
GUTTER EL 874.13



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.

Kelly Agosto
 KELLY AGOSTO, LICENSED PROFESSIONAL ENGINEER 49075 3/15/19
 LICENSE NO. DATE

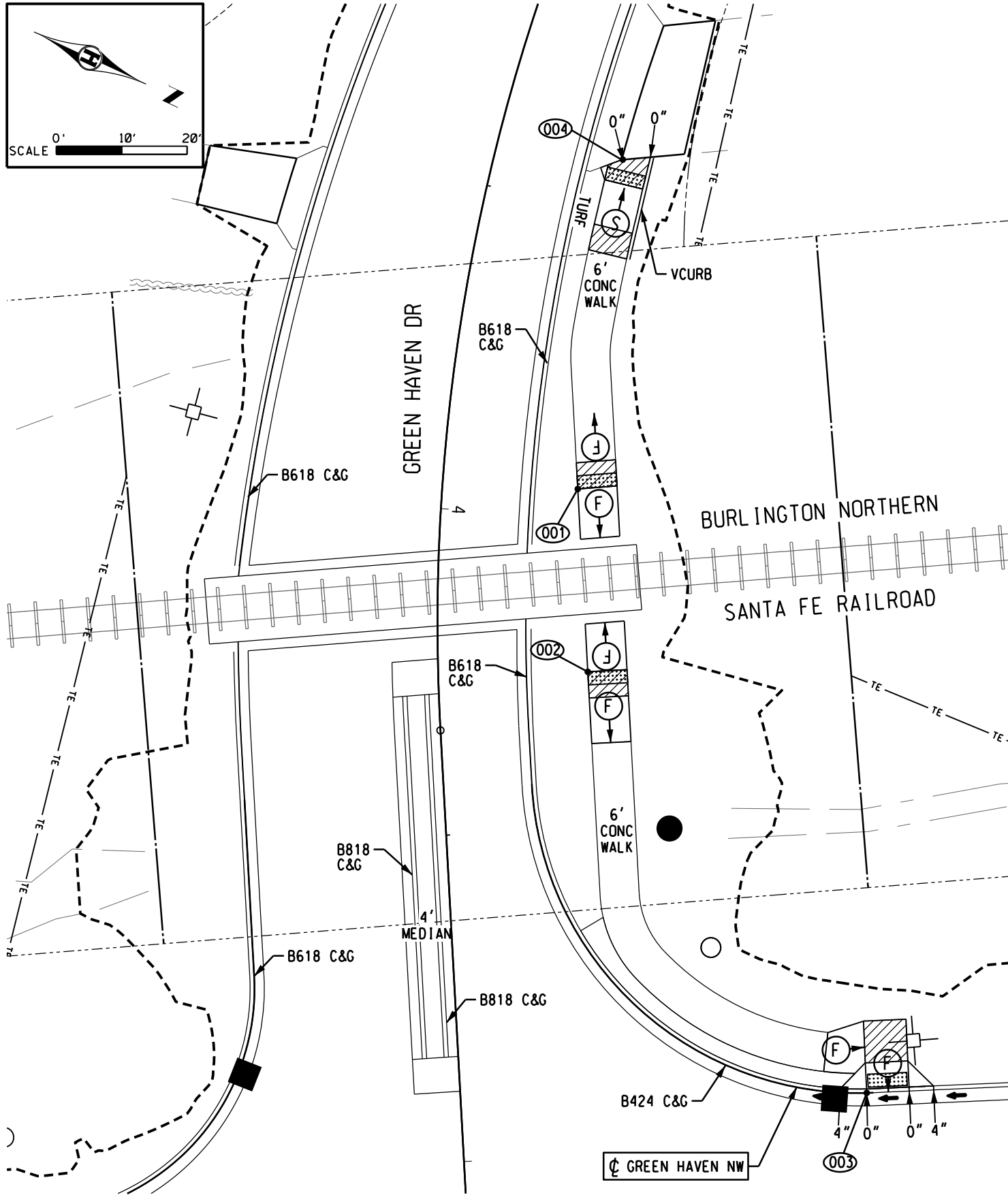
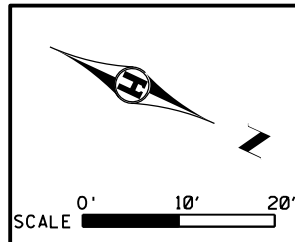
DESIGN BY: R. DECOTEAU
 CAD BY: E. GUIR
 CHECKED BY: L. LANGNER
 LAST REVISION: / /

INTERSECTION DETAILS

C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
 S.P. 027-681-035, S.P. 110-020-040

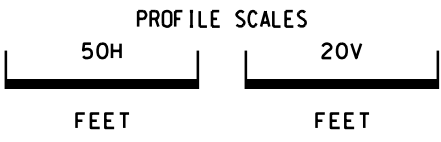
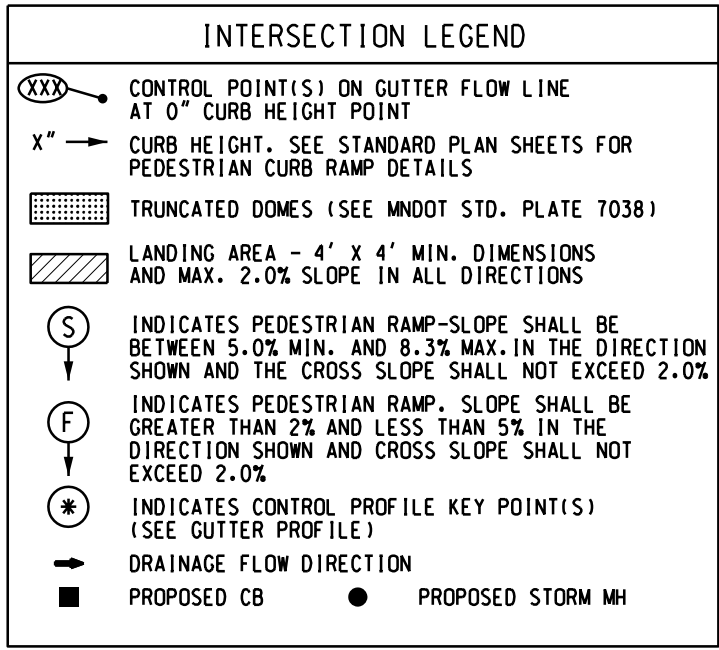
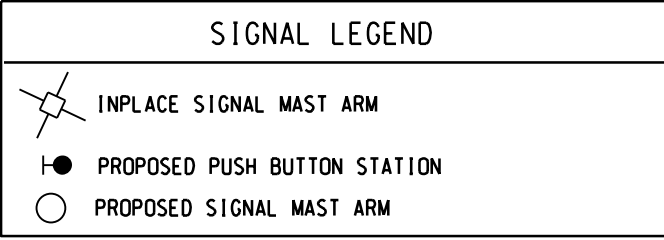
SHEET

149
 244

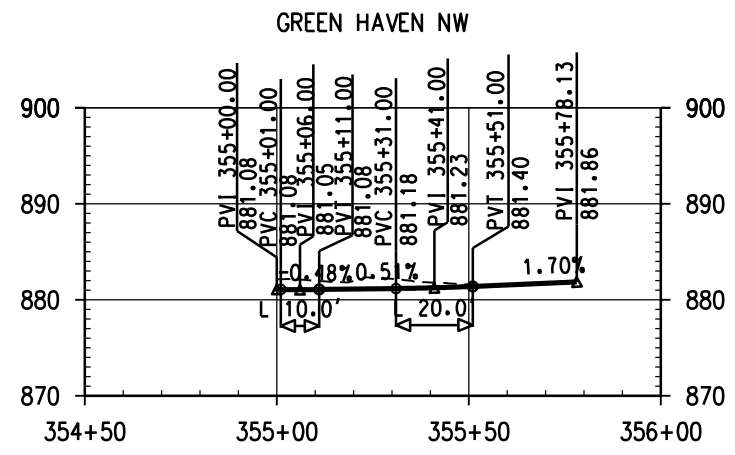


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- 001 GREEN HAVEN C 3+95.47, 20.7' LT EL 883.20
- 002 GREEN HAVEN C 4+25.59, 22.89' LT EL 882.94
- 003 GREEN HAVEN NW C 355+01.02, 0.00 RT GUTTER EL 881.08
- 004 GREEN HAVEN C 3+41.00, 19.1' LT EL 881.85



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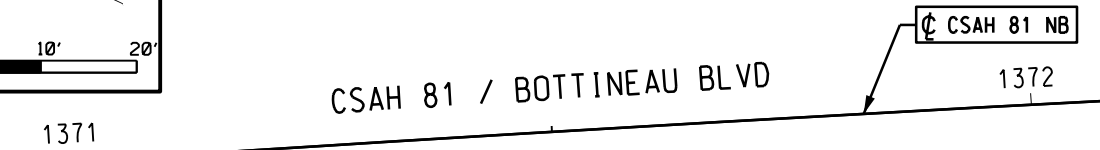
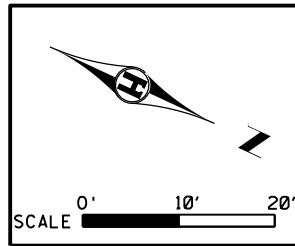
Kelly Agosto
KELLY AGOSTO, LICENSED PROFESSIONAL ENGINEER
 49075 3/15/19
 LICENSE NO. DATE

DESIGN BY: R. DECOTEAU
CAD BY: E. GUIR
CHECKED BY: L. LANGNER
LAST REVISION: / /

INTERSECTION DETAILS

C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
 S.P. 027-681-035, S.P. 110-020-040

SHEET
 150 / 244



GENERAL NOTES:

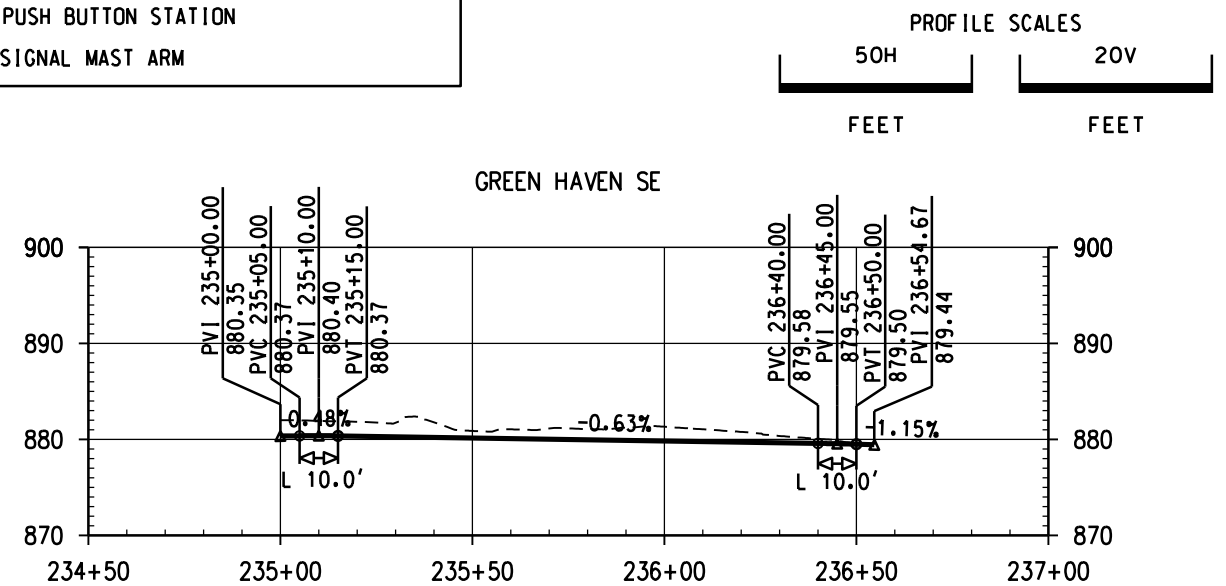
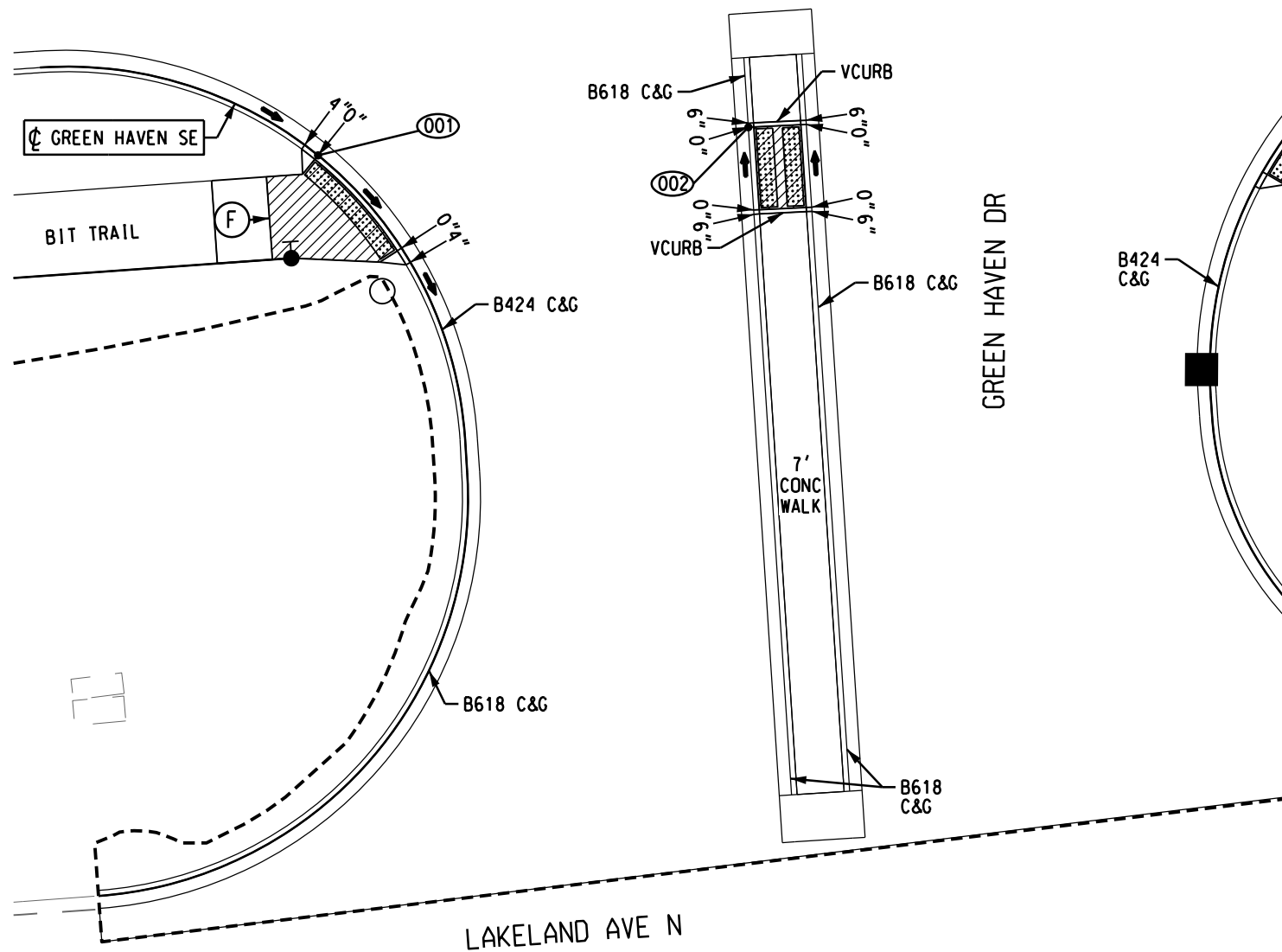
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SIGNAL LEGEND

- INPLACE SIGNAL MAST ARM
- PROPOSED PUSH BUTTON STATION
- PROPOSED SIGNAL MAST ARM

INTERSECTION LEGEND

- CONTROL POINT(S) ON GUTTER FLOW LINE AT 0" CURB HEIGHT POINT
- CURB HEIGHT. SEE STANDARD PLAN SHEETS FOR PEDESTRIAN CURB RAMP DETAILS
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- DRAINAGE FLOW DIRECTION
- PROPOSED CB
- PROPOSED STORM MH



- 001 GREEN HAVEN SE @ 235+35.95, 0.0' RT
GUTTER EL 880.23
- 002 CSAH 81 NB @ 1371+64.78, 50.6 RT
GUTTER EL 881.09



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.

Kelly Agosto
KELLY AGOSTO, LICENSED PROFESSIONAL ENGINEER

49075 3/15/19
LICENSE NO. DATE

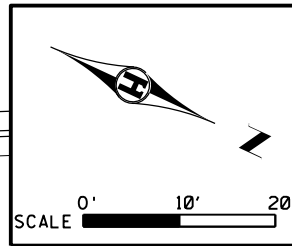
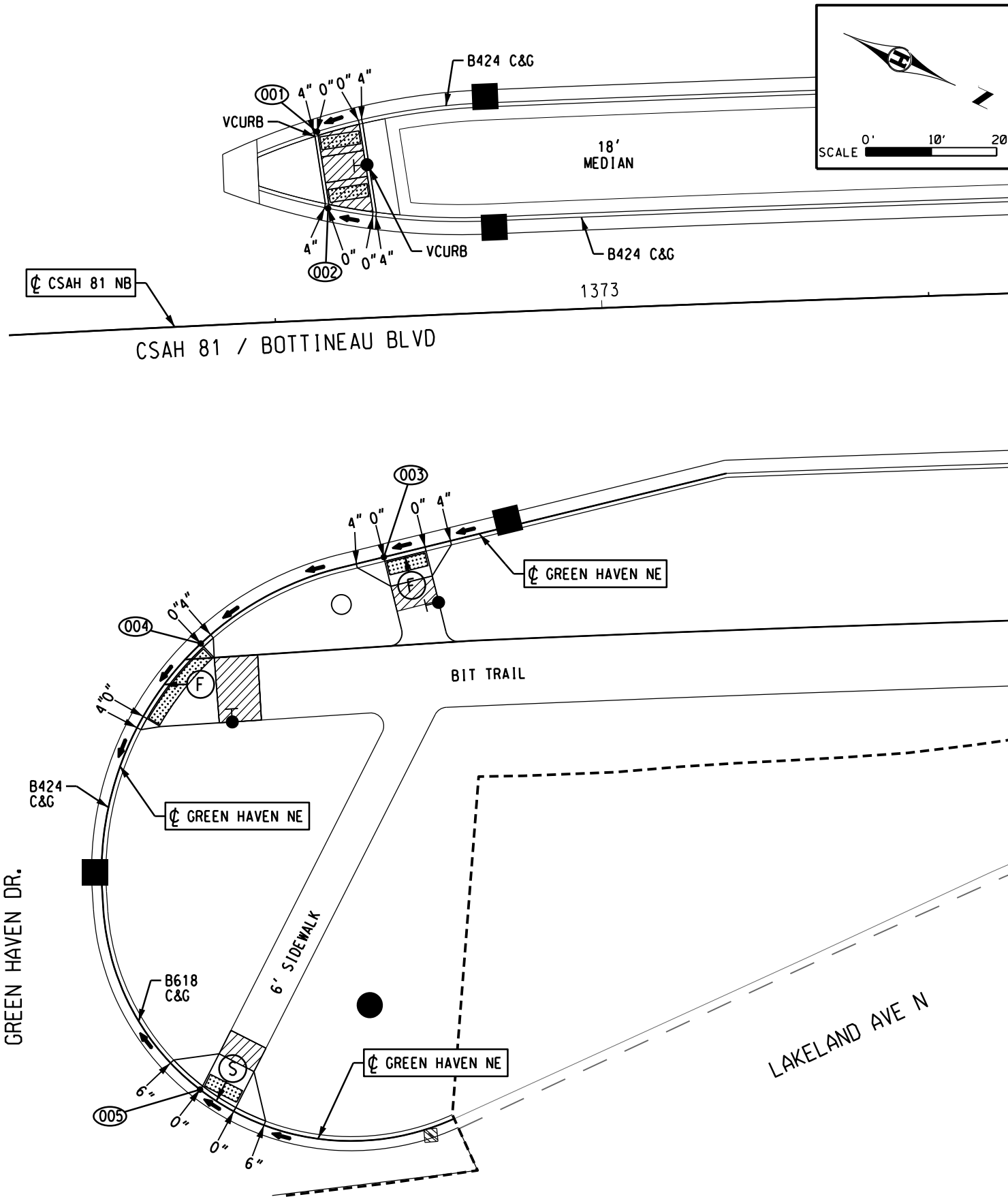
DESIGN BY: R. DECOTEAU
CAD BY: E. GUIR
CHECKED BY: L. LANGNER
LAST REVISION: / /

INTERSECTION DETAILS

C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
S.P. 027-681-035, S.P. 110-020-040

SHEET

151
244



GENERAL NOTES:

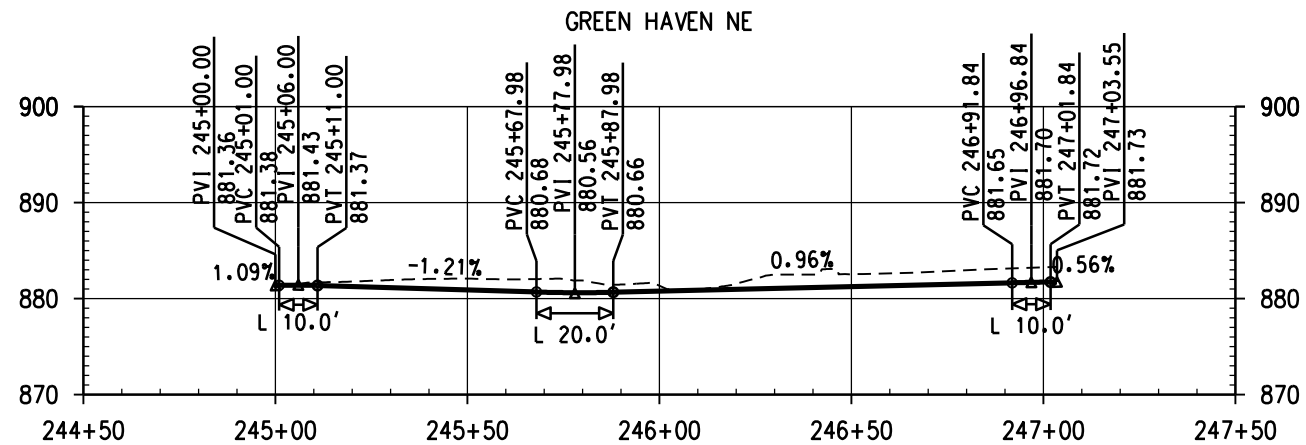
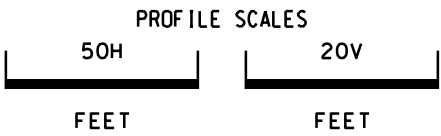
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- INPLACE SIGNAL MAST ARM
- PROPOSED PUSH BUTTON STATION
- PROPOSED SIGNAL MAST ARM

INTERSECTION LEGEND

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- INDICATES CONTROL PROFILE KEY POINT(S) (SEE GUTTER PROFILE)
- DRAINAGE FLOW DIRECTION
- PROPOSED CB
- PROPOSED STORM MH



- 001 CSAH 81 SB ϕ 2372+53.95, 29.24' LT GUTTER EL 881.28
- 002 CSAH 81 NB ϕ 1372.58.83, 17.02' LT GUTTER EL 881.63
- 003 GREEN HAVEN NE ϕ 246+49.59, 0.0 RT GUTTER EL 881.25
- 004 GREEN HAVEN NE ϕ 246+18.18, 0.0 RT GUTTER EL 880.94
- 005 GREEN HAVEN NE ϕ 245+41.09, 0.0 RT GUTTER EL 881.01



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Kelly Agosto
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49075 3/15/19
LICENSE NO. DATE

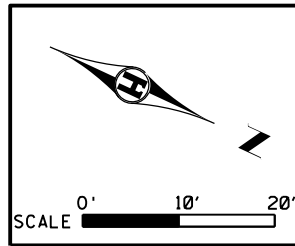
DESIGN BY: R. DECOTEAU
CAD BY: E. GUIR
CHECKED BY: L. LANGNER
LAST REVISION: / /

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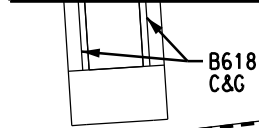
C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
S.P. 027-681-035, S.P. 110-020-040

SHEET

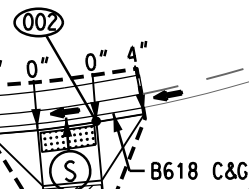
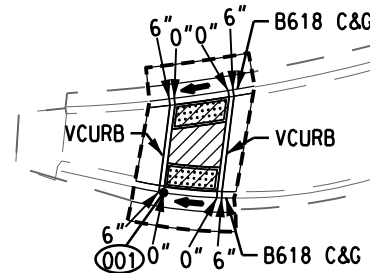
152 / 244



GREEN HAVEN DR



LAKELAND AVE N



B618 C&G

5' CONC WALK

PE PE PE PE PE

WALMART

WALSER
HYUNDAI

GENERAL NOTES:

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SIGNAL LEGEND

- INPLACE SIGNAL MAST ARM
- PROPOSED PUSH BUTTON STATION
- PROPOSED SIGNAL MAST ARM

- 001 N 213047.237
E 498670.326
GUTTER EL 881.26
- 002 N 213057.697
E 498692.767
GUTTER EL 880.64

INTERSECTION LEGEND

- CONTROL POINT(S) ON GUTTER FLOW LINE AT 0" CURB HEIGHT POINT
- CURB HEIGHT. SEE STANDARD PLAN SHEETS FOR PEDESTRIAN CURB RAMP DETAILS
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- PROPOSED STORM MH



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49075 3/15/19
LICENSE NO. DATE

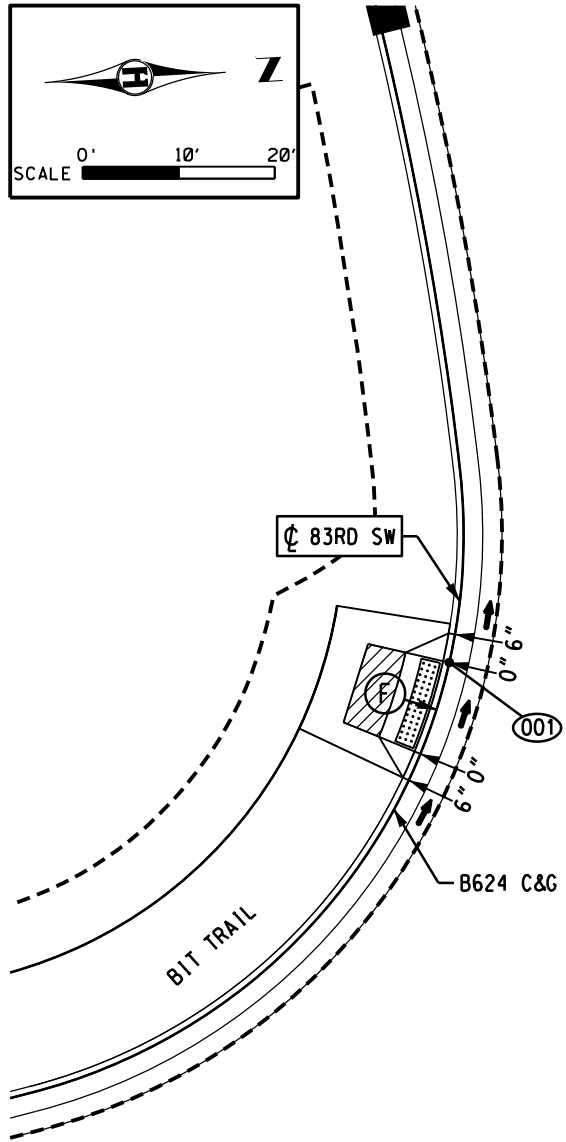
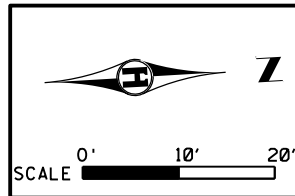
DESIGN BY: R. DECOTEAU
CAD BY: E. GUIR
CHECKED BY: L. LANGNER
LAST REVISION: / /

INTERSECTION DETAILS

C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
S.P. 027-681-035, S.P. 110-020-040

SHEET

153
244



GENERAL NOTES:

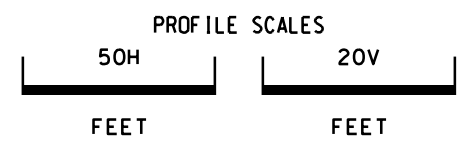
- THIS PROJECT SHALL BE CONSTRUCTED AS PER AMERICANS WITH DISABILITIES ACT (ADA) AND PUBLIC RIGHTS-OF-WAY ACCESSIBILITY GUIDELINES (PROWAG).
- SEE ALIGNMENT PLANS AND PROFILE PLANSHEETS (IF NOT SHOWN HERE) FOR CURBLINE VERTICAL AND HORIZONTAL ALIGNMENT INFORMATION.
- SAWCUTS ON SIDEWALK ARE INCIDENTAL.
- WALKWAYS WITHIN THE PAR THAT ARE NOT LANDINGS OR RAMP SHALL MAINTAIN A MIN. WIDTH OF 4' AND SHALL NOT EXCEED A RUNNING SLOPE OF 5.0% OR A CROSS SLOPE OF 2.0%. PANELS WARPED TO MATCH EXISTING CROSS-SLOPES SHALL ALSO MAINTAIN A MIN. 4' WIDTH PAR AND SHALL NOT EXCEED A 5.0% RUNNING SLOPE.
- CONTRACTOR SHALL VERIFY RADIUS AND ARC LENGTHS NEEDED AT RADIAL DOME CORNERS (FAN CURB RAMP) PRIOR TO ORDERING AND INSTALLING DOMES.
- SEE PEDESTRIAN CURB RAMP DETAILS IN THE STANDARD PLANS FOR MORE INFORMATION.

SIGNAL LEGEND

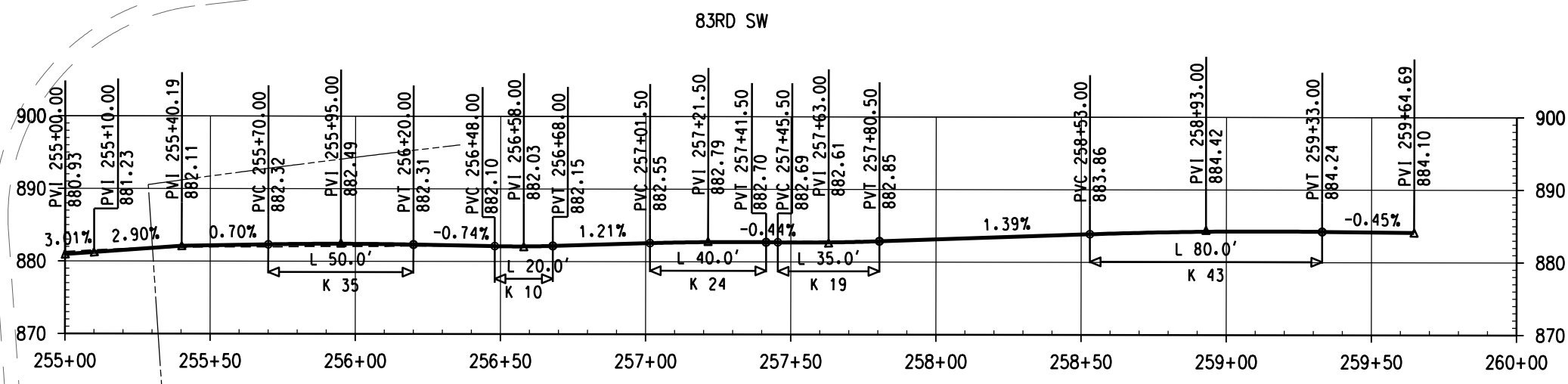
- INPLACE SIGNAL MAST ARM
- PROPOSED PUSH BUTTON STATION
- PROPOSED SIGNAL MAST ARM

INTERSECTION LEGEND

- CONTROL POINT(S) ON GUTTER FLOW LINE AT 0" CURB HEIGHT POINT
- CURB HEIGHT. SEE STANDARD PLAN SHEETS FOR PEDESTRIAN CURB RAMP DETAILS
- TRUNCATED DOMES (SEE MNDOT STD. PLATE 7038)
- LANDING AREA - 4' X 4' MIN. DIMENSIONS AND MAX. 2.0% SLOPE IN ALL DIRECTIONS
- INDICATES PEDESTRIAN RAMP-SLOPE SHALL BE BETWEEN 5.0% MIN. AND 8.3% MAX. IN THE DIRECTION SHOWN AND THE CROSS SLOPE SHALL NOT EXCEED 2.0%
- INDICATES PEDESTRIAN RAMP. SLOPE SHALL BE GREATER THAN 2% AND LESS THAN 5% IN THE DIRECTION SHOWN AND CROSS SLOPE SHALL NOT EXCEED 2.0%
- INDICATES CONTROL PROFILE KEY POINT(S) (SEE GUTTER PROFILE)
- DRAINAGE FLOW DIRECTION
- PROPOSED CB
- PROPOSED STORM MH



- 001 83RD SW @ 258+31.22, 0.0' RT
GUTTER EL 883.56
- 002 N214633.562
E497878.516
EL 883.36
- 003 @-TRAIL 83RD AVE N-85TH AVE N
560+11.64, 0.0 RT
EL 884.06



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.

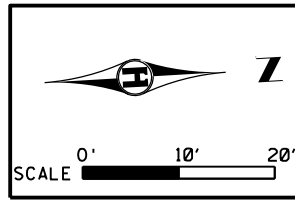
Kelly Agosto
 KELLY AGOSTO, LICENSED PROFESSIONAL ENGINEER
 49075 LICENSE NO. 3/15/19 DATE

DESIGN BY: R. DECOTEAU
 CAD BY: E. GUIR
 CHECKED BY: L. LANGNER
 LAST REVISION: / /

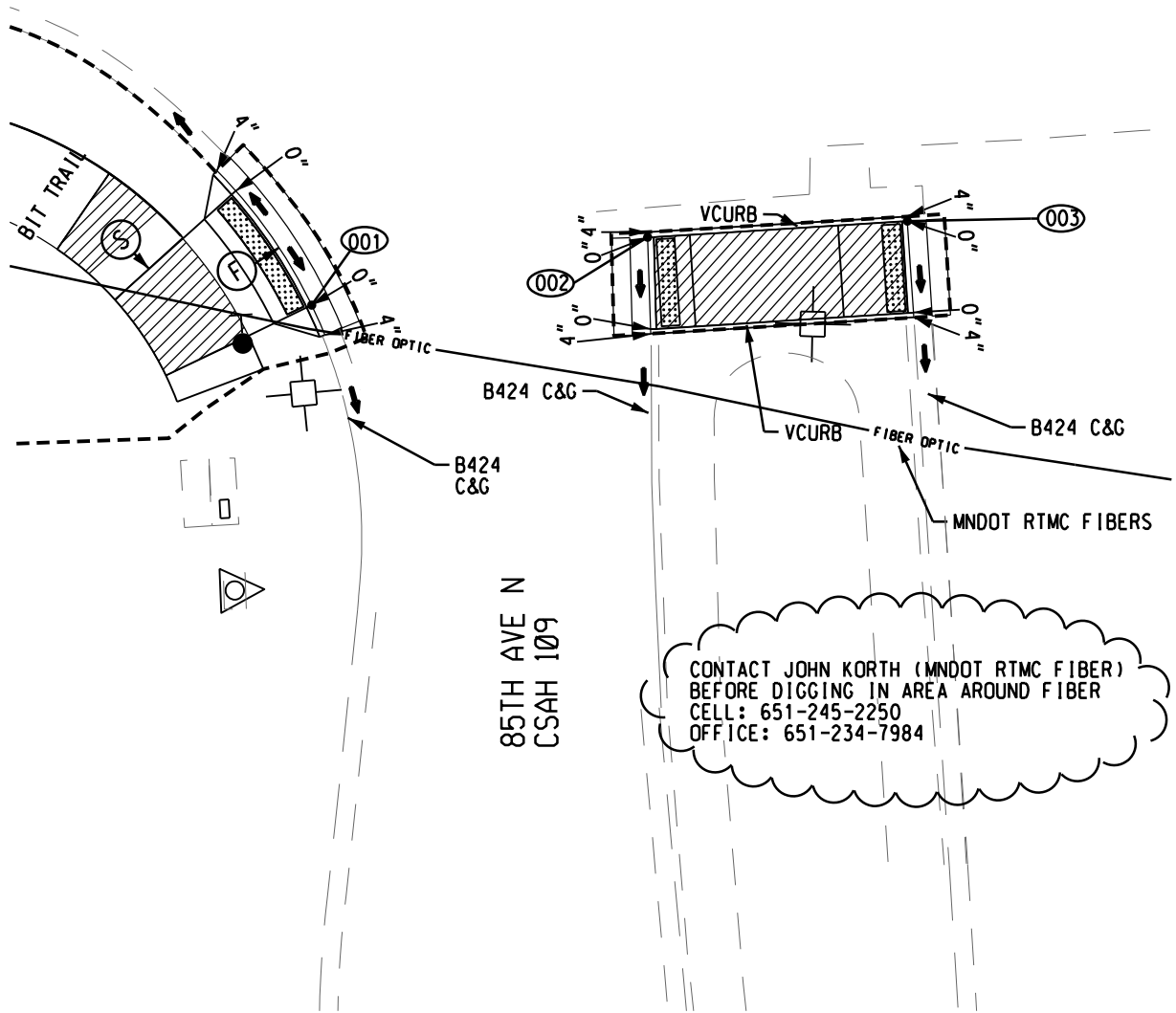
INTERSECTION DETAILS

C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
 S.P. 027-681-035, S.P. 110-020-040

SHEET
 154 / 244



T.H. 169
N. RAMP



GENERAL NOTES:

- THIS PROJECT SHALL BE CONSTRUCTED AS PER AMERICANS WITH DISABILITIES ACT (ADA) AND PUBLIC RIGHTS-OF-WAY ACCESSIBILITY GUIDELINES (PROWAG).
- SEE ALIGNMENT PLANS AND PROFILE PLANSHEETS (IF NOT SHOWN HERE) FOR CURBLINE VERTICAL AND HORIZONTAL ALIGNMENT INFORMATION.
- SAWCUTS ON SIDEWALK ARE INCIDENTAL.
- WALKWAYS WITHIN THE PAR THAT ARE NOT LANDINGS OR RAMPS SHALL MAINTAIN A MIN. WIDTH OF 4' AND SHALL NOT EXCEED A RUNNING SLOPE OF 5.0% OR A CROSS SLOPE OF 2.0%. PANELS WARPED TO MATCH EXISTING CROSS-SLOPES SHALL ALSO MAINTAIN A MIN. 4' WIDTH PAR AND SHALL NOT EXCEED A 5.0% RUNNING SLOPE.
- CONTRACTOR SHALL VERIFY RADIUS AND ARC LENGTHS NEEDED AT RADIAL DOME CORNERS (FAN CURB RAMPS) PRIOR TO ORDERING AND INSTALLING DOMES.
- SEE PEDESTRIAN CURB RAMP DETAILS IN THE STANDARD PLANS FOR MORE INFORMATION.

SIGNAL LEGEND

- INPLACE SIGNAL MAST ARM
- PROPOSED PUSH BUTTON STATION
- PROPOSED SIGNAL MAST ARM

INTERSECTION LEGEND

- CONTROL POINT(S) ON GUTTER FLOW LINE AT 0" CURB HEIGHT POINT
- CURB HEIGHT. SEE STANDARD PLAN SHEETS FOR PEDESTRIAN CURB RAMP DETAILS
- TRUNCATED DOMES (SEE MNDOT STD. PLATE 7038)
- LANDING AREA - 4' X 4' MIN. DIMENSIONS AND MAX. 2.0% SLOPE IN ALL DIRECTIONS
- INDICATES PEDESTRIAN RAMP-SLOPE SHALL BE BETWEEN 5.0% MIN. AND 8.3% MAX. IN THE DIRECTION SHOWN AND THE CROSS SLOPE SHALL NOT EXCEED 2.0%
- INDICATES PEDESTRIAN RAMP. SLOPE SHALL BE GREATER THAN 2% AND LESS THAN 5% IN THE DIRECTION SHOWN AND CROSS SLOPE SHALL NOT EXCEED 2.0%
- INDICATES CONTROL PROFILE KEY POINT(S) (SEE GUTTER PROFILE)
- DRAINAGE FLOW DIRECTION
- PROPOSED CB
- PROPOSED STORM MH



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.

Kelly Agosto
KELLY AGOSTO, LICENSED PROFESSIONAL ENGINEER

49075 3/15/19
LICENSE NO. DATE

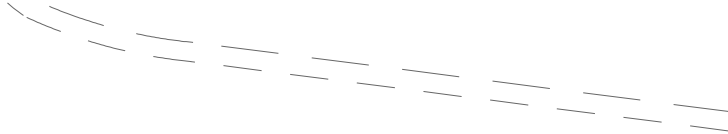
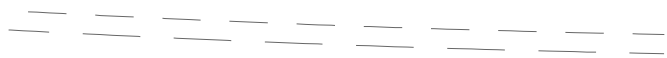
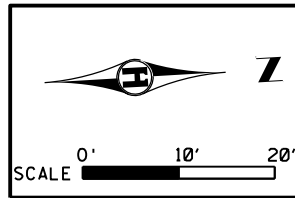
DESIGN BY: R. DECOTEAU
CAD BY: E. GUIR
CHECKED BY: L. LANGNER
LAST REVISION: / /

INTERSECTION DETAILS

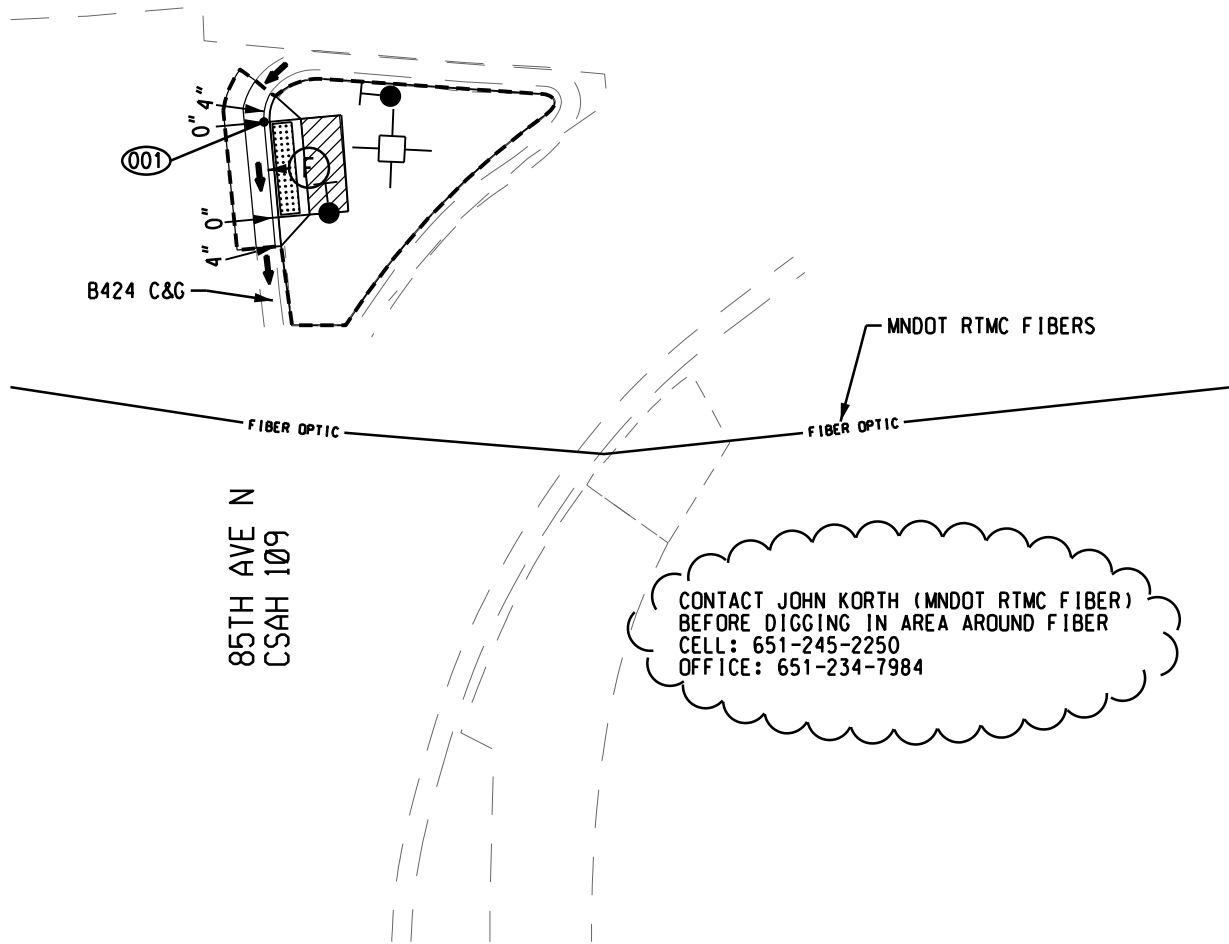
C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
SP 2750-101 (TH 169), S.P. 027-681-035, S.P. 110-020-040

SHEET

155
244



T.H. 169
N. RAMP



CONTACT JOHN KORTH (MNDOT RTMC FIBER)
BEFORE DIGGING IN AREA AROUND FIBER
CELL: 651-245-2250
OFFICE: 651-234-7984

GENERAL NOTES:

- THIS PROJECT SHALL BE CONSTRUCTED AS PER AMERICANS WITH DISABILITIES ACT (ADA) AND PUBLIC RIGHTS-OF-WAY ACCESSIBILITY GUIDELINES (PROWAG).
- SEE ALIGNMENT PLANS AND PROFILE PLANSHEETS (IF NOT SHOWN HERE) FOR CURBLINE VERTICAL AND HORIZONTAL ALIGNMENT INFORMATION.
- SAWCUTS ON SIDEWALK ARE INCIDENTAL.
- WALKWAYS WITHIN THE PAR THAT ARE NOT LANDINGS OR RAMPS SHALL MAINTAIN A MIN. WIDTH OF 4' AND SHALL NOT EXCEED A RUNNING SLOPE OF 5.0% OR A CROSS SLOPE OF 2.0%. PANELS WARPED TO MATCH EXISTING CROSS-SLOPES SHALL ALSO MAINTAIN A MIN. 4' WIDTH PAR AND SHALL NOT EXCEED A 5.0% RUNNING SLOPE.
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- SEE PEDESTRIAN CURB RAMP DETAILS IN THE STANDARD PLANS FOR MORE INFORMATION.

SIGNAL LEGEND

- INPLACE SIGNAL MAST ARM
- PROPOSED PUSH BUTTON STATION
- PROPOSED SIGNAL MAST ARM

INTERSECTION LEGEND

- CONTROL POINT(S) ON GUTTER FLOW LINE AT 0" CURB HEIGHT POINT
- CURB HEIGHT. SEE STANDARD PLAN SHEETS FOR PEDESTRIAN CURB RAMP DETAILS
- TRUNCATED DOMES (SEE MNDOT STD. PLATE 7038)
- LANDING AREA - 4' X 4' MIN. DIMENSIONS AND MAX. 2.0% SLOPE IN ALL DIRECTIONS
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- INDICATES PEDESTRIAN RAMP. SLOPE SHALL BE GREATER THAN 2% AND LESS THAN 5% IN THE DIRECTION SHOWN AND CROSS SLOPE SHALL NOT EXCEED 2.0%
- INDICATES CONTROL PROFILE KEY POINT(S) (SEE GUTTER PROFILE)
- DRAINAGE FLOW DIRECTION
- PROPOSED CB
- PROPOSED STORM MH

001 N 215926.161
E 498056.410
GUTTER EL 880.00



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.

Kelly Agosto
KELLY AGOSTO, LICENSED PROFESSIONAL ENGINEER

49075 3/15/19
LICENSE NO. DATE

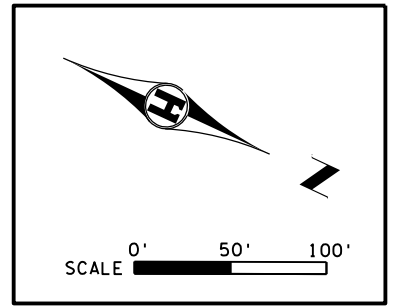
DESIGN BY: R. DECOTEAU
CAD BY: E. GUIR
CHECKED BY: L. LANGNER
LAST REVISION: / /

INTERSECTION DETAILS

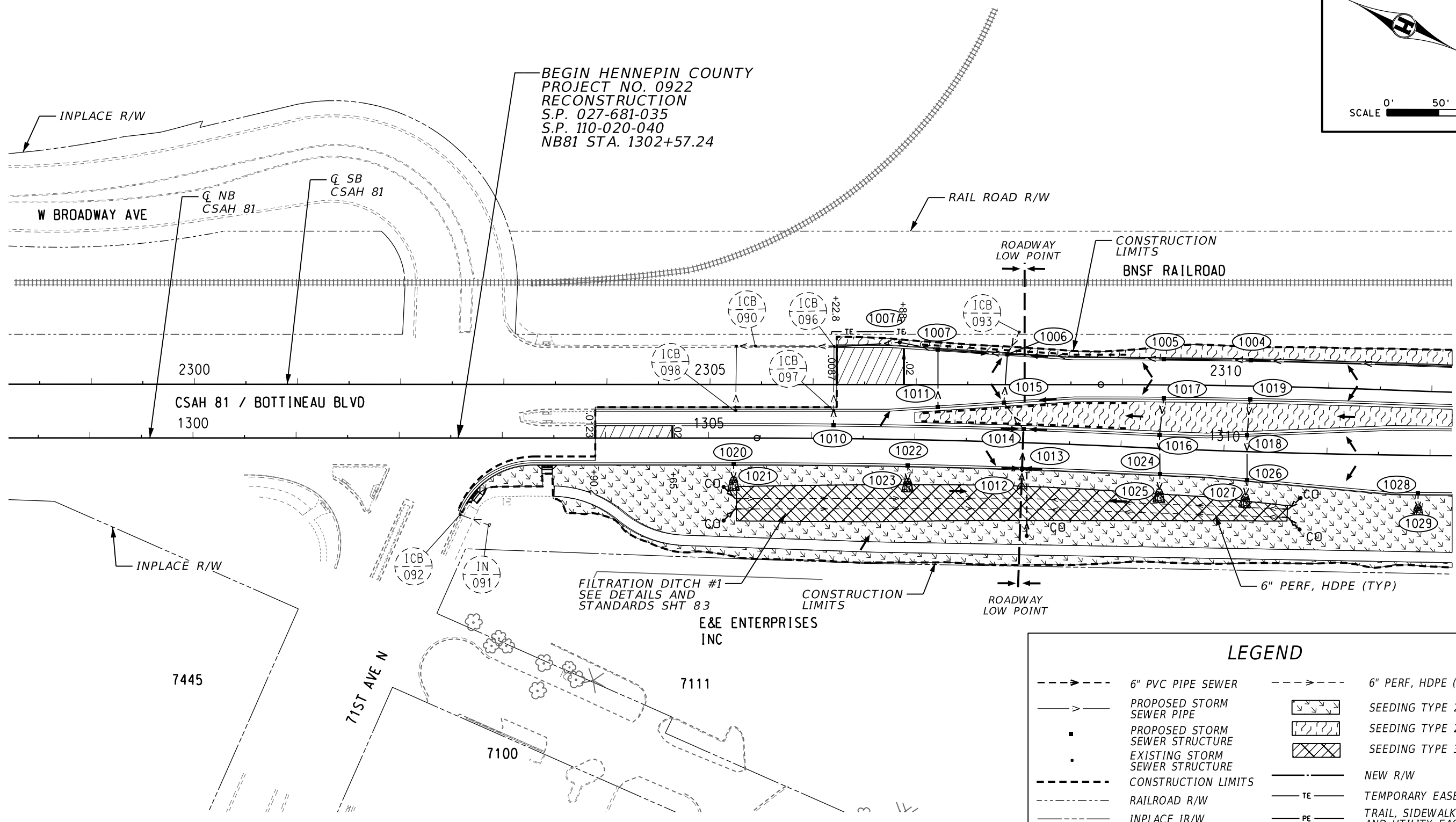
C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
SP 2750-101 (TH 169), S.P. 027-681-035, S.P. 110-020-040

SHEET

156
244



BEGIN HENNEPIN COUNTY
 PROJECT NO. 0922
 RECONSTRUCTION
 S.P. 027-681-035
 S.P. 110-020-040
 NB81 STA. 1302+57.24



LEGEND			
--->---	6" PVC PIPE SEWER	--->---	6" PERF, HDPE (TYP.)
--->---	PROPOSED STORM SEWER PIPE	[Hatched Box]	SEEDING TYPE 25-131
■	PROPOSED STORM SEWER STRUCTURE	[Diagonal Hatched Box]	SEEDING TYPE 25-121
●	EXISTING STORM SEWER STRUCTURE	[Cross-hatched Box]	SEEDING TYPE 33-261
---	CONSTRUCTION LIMITS	---	NEW R/W
---	RAILROAD R/W	TE	TEMPORARY EASEMENT
---	INPLACE R/W	PE	TRAIL, SIDEWALK, DRAIN, AND UTILITY EASEMENT
---	4" PERF. PIPE	DE	DRAINAGE AND UTILITY EASEMENT
[Hatched Box]	SUPERELEVATION TRANSITION	---	BLUE LINE LIGHT RAIL TRANSIT (BLRT)
→	SURFACE FLOW ARROWS	---	WETLANDS

STA. NB81 1302+57.24 TO 1312+21.39



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.

Kelly Agosto
 KELLY AGOSTO, LICENSED PROFESSIONAL ENGINEER

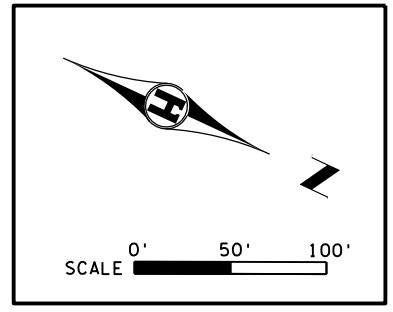
49075 3/15/19
 LICENSE NO. DATE

DESIGN BY: L. LANGNER
 CAD BY: K. ALBRECHT
 CHECKED BY: L. LANGNER
 LAST REVISION: / /

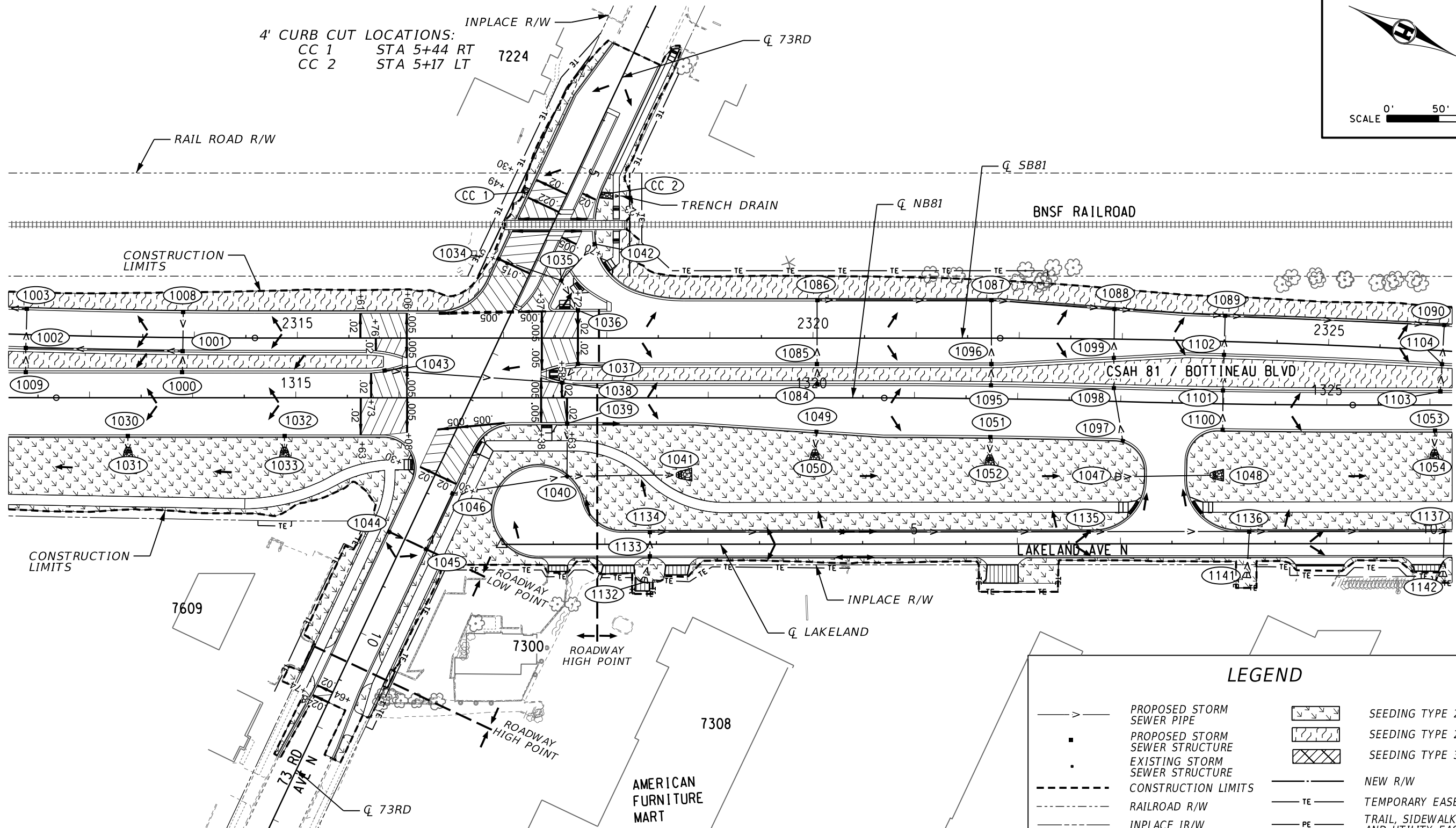
SUPERELEVATION, DRAINAGE AND TURF ESTABLISHMENT PLAN

C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
 S.P. 027-681-035, S.P. 110-020-040

SHEET
 157
 244



4' CURB CUT LOCATIONS:
 CC 1 STA 5+44 RT 7224
 CC 2 STA 5+17 LT



LEGEND	
	PROPOSED STORM SEWER PIPE
	PROPOSED STORM SEWER STRUCTURE
	EXISTING STORM SEWER STRUCTURE
	CONSTRUCTION LIMITS
	RAILROAD R/W
	INPLACE R/W
	4" PERF. PIPE
	SUPERELEVATION TRANSITION
	SURFACE FLOW ARROWS
	SEEDING TYPE 25-131
	SEEDING TYPE 25-121
	SEEDING TYPE 33-261
	NEW R/W
	TEMPORARY EASEMENT
	TRAIL, SIDEWALK, DRAIN, AND UTILITY EASEMENT
	DRAINAGE AND UTILITY EASEMENT
	BLUE LINE LIGHT RAIL TRANSIT (BLRT)
	WETLANDS

STA. NB81 1312+21.39 TO 1326+21.46



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.

Kelly Agosto
 KELLY AGOSTO, LICENSED PROFESSIONAL ENGINEER

49075 3/15/19
 LICENSE NO. DATE

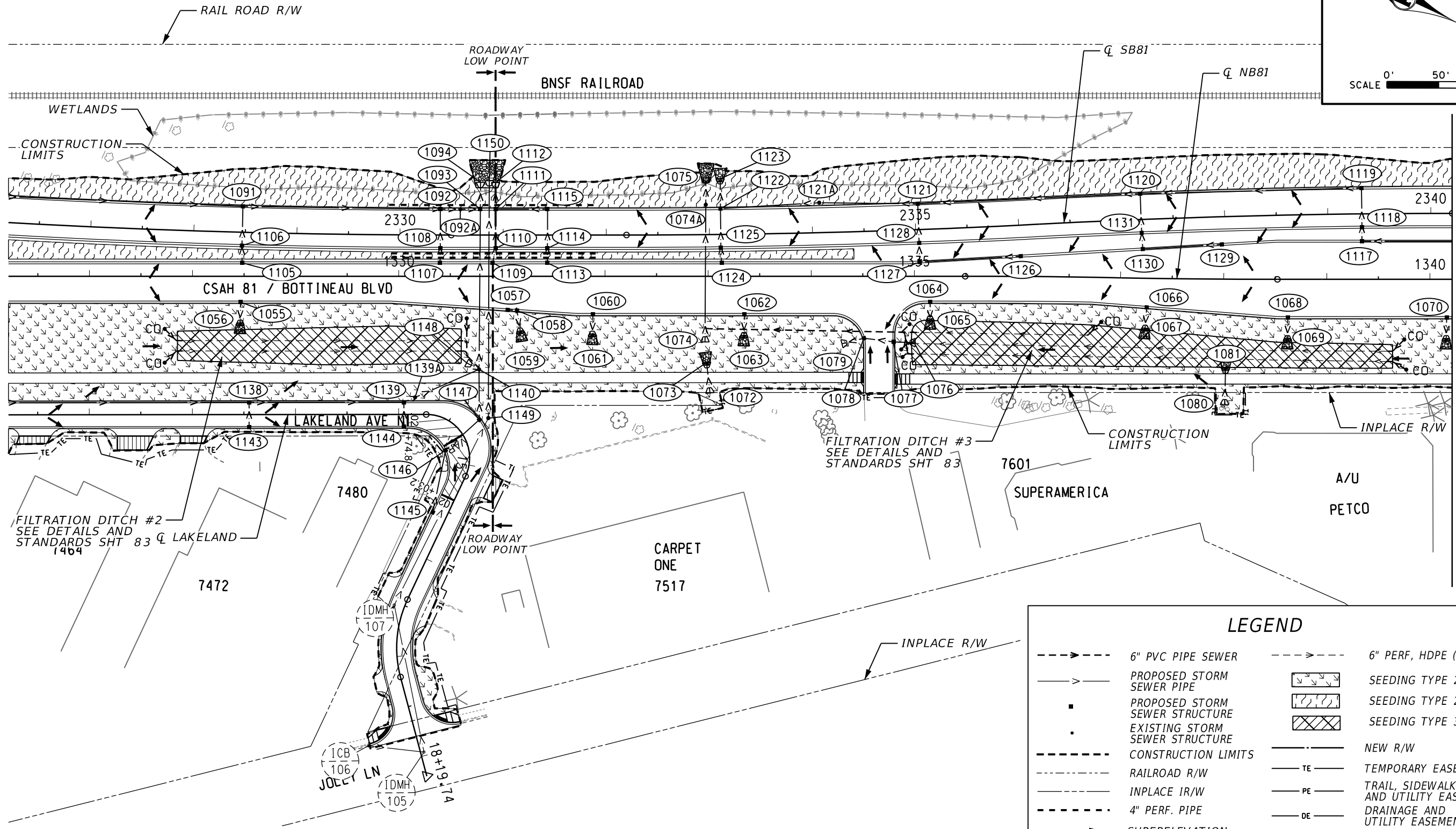
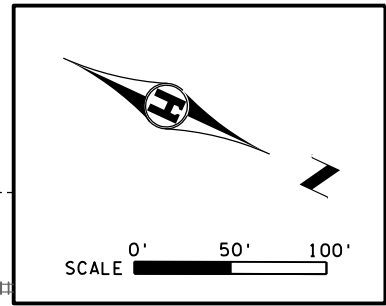
DESIGN BY: L. LANGNER
 CAD BY: K. ALBRECHT
 CHECKED BY: L. LANGNER
 LAST REVISION: / /

SUPERELEVATION, DRAINAGE AND TURF ESTABLISHMENT PLAN

C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
 S.P. 027-681-035, S.P. 110-020-040

SHEET

158
 244



MATCH LINE SEE SHEET 160
STA. NB81 1340+21.48

LEGEND			
	6" PVC PIPE SEWER		6" PERF, HDPE (TYP.)
	PROPOSED STORM SEWER PIPE		SEEDING TYPE 25-131
	PROPOSED STORM SEWER STRUCTURE		SEEDING TYPE 25-121
	EXISTING STORM SEWER STRUCTURE		SEEDING TYPE 33-261
	CONSTRUCTION LIMITS		NEW R/W
	RAILROAD R/W		TEMPORARY EASEMENT
	INPLACE R/W		TRAIL, SIDEWALK, DRAIN, AND UTILITY EASEMENT
	4" PERF. PIPE		DRAINAGE AND UTILITY EASEMENT
	SUPERELEVATION TRANSITION		BLUE LINE LIGHT RAIL TRANSIT (BLRT)
	SURFACE FLOW ARROWS		WETLANDS

STA. NB81 1326+21.46 TO 1340+21.48



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Kelly Agosto
 KELLY AGOSTO, LICENSED PROFESSIONAL ENGINEER
 49075 LICENSE NO. 3/15/19 DATE

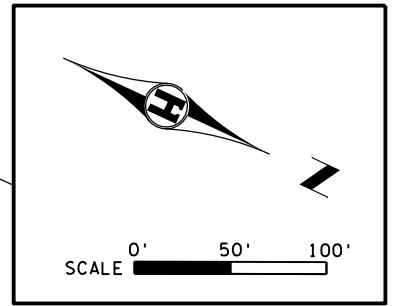
DESIGN BY: **L. LANGNER**
 CAD BY: **K. ALBRECHT**
 CHECKED BY: **L. LANGNER**
 LAST REVISION: / /

SUPERELEVATION, DRAINAGE AND TURF ESTABLISHMENT PLAN

C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
 S.P. 027-681-035, S.P. 110-020-040

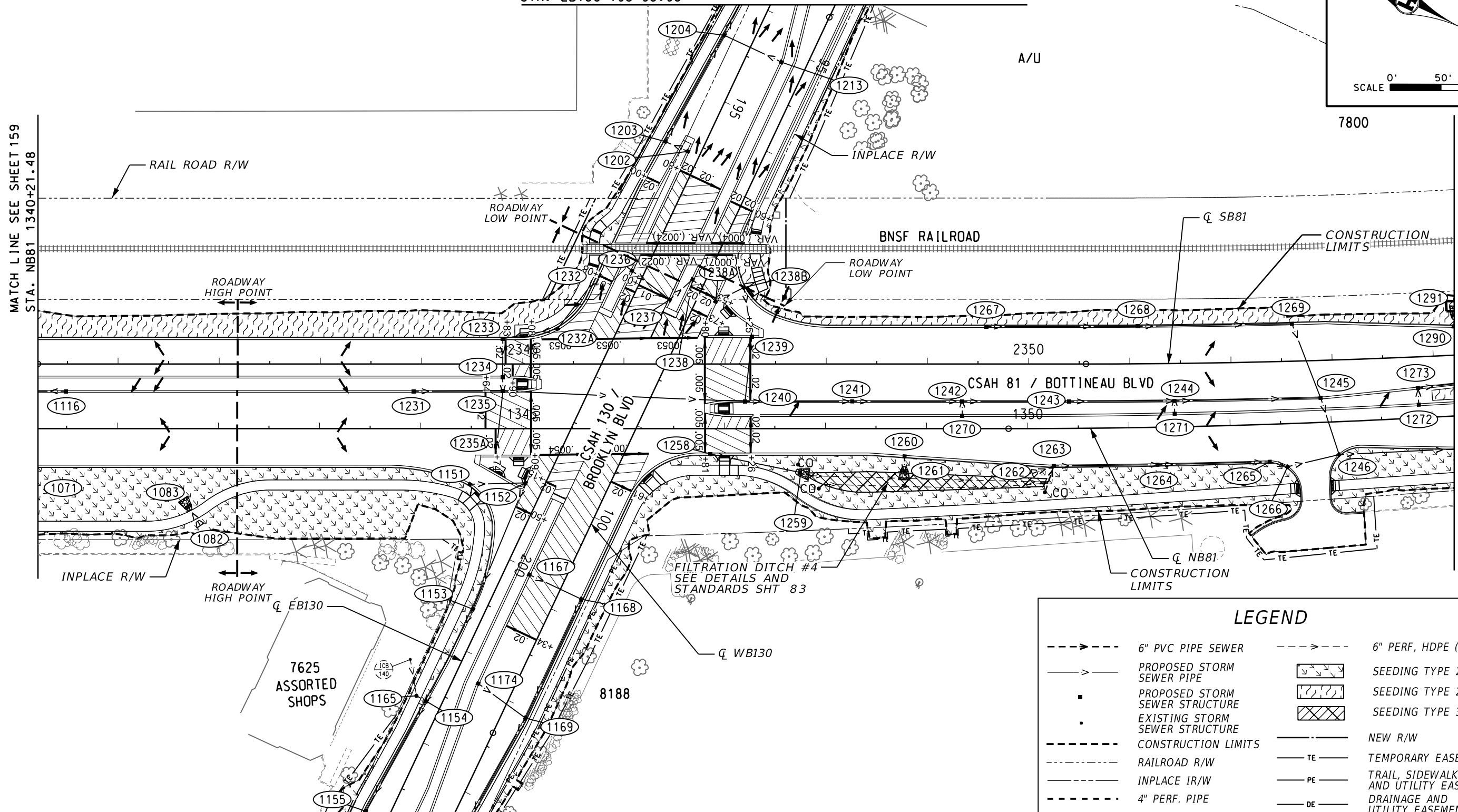
SHEET
 159 / 244

MATCH LINE SEE SHEET 161
STA. EB130 193+93.93



MATCH LINE SEE SHEET 159
STA. NB81 1340+21.48

MATCH LINE SEE SHEET 163
STA. NB81 1354+21.72



MATCH LINE SEE SHEET 162
STA. EB130 202+77.93

LEGEND			
--->---	6" PVC PIPE SEWER	--->---	6" PERF, HDPE (TYP.)
--->---	PROPOSED STORM SEWER PIPE	[Hatched Box]	SEEDING TYPE 25-131
■	PROPOSED STORM SEWER STRUCTURE	[Hatched Box]	SEEDING TYPE 25-121
•	EXISTING STORM SEWER STRUCTURE	[Hatched Box]	SEEDING TYPE 33-261
---	CONSTRUCTION LIMITS	---	NEW R/W
---	RAILROAD R/W	TE	TEMPORARY EASEMENT
---	INPLACE R/W	PE	TRAIL, SIDEWALK, DRAIN, AND UTILITY EASEMENT
---	4" PERF. PIPE	DE	DRAINAGE AND UTILITY EASEMENT
[Hatched Box]	SUPERELEVATION TRANSITION	---	BLUE LINE LIGHT RAIL TRANSIT (BLRT)
→	SURFACE FLOW ARROWS	---	WETLANDS



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.

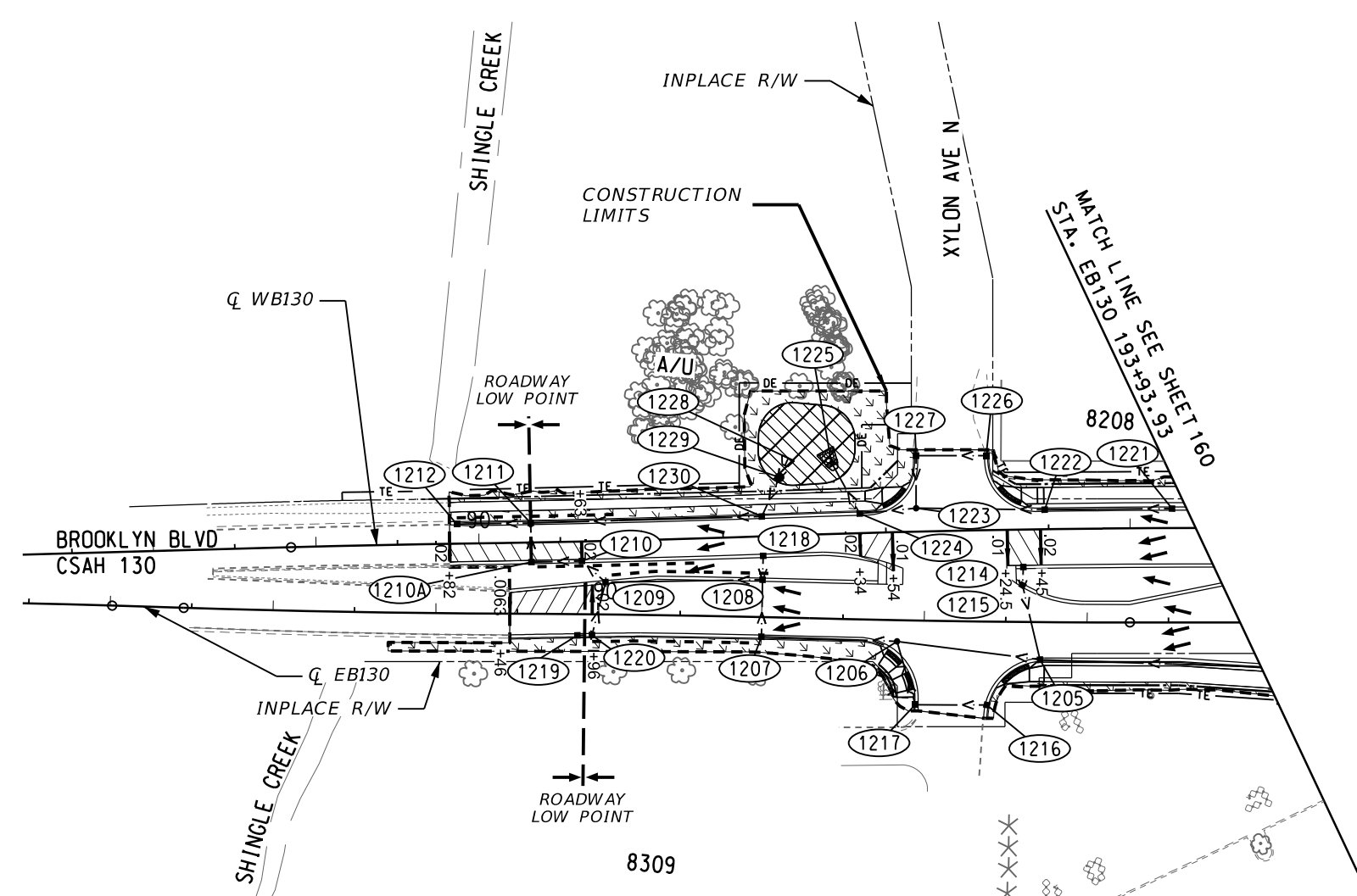
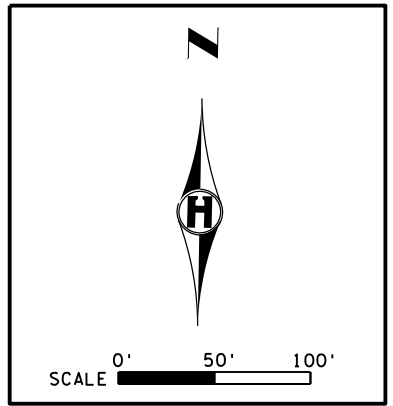
Kelly Agosto
KELLY AGOSTO, LICENSED PROFESSIONAL ENGINEER
 49075 LICENSE NO. 3/15/19 DATE

DESIGN BY: **L. LANGNER**
 CAD BY: **K. ALBRECHT**
 CHECKED BY: **L. LANGNER**
 LAST REVISION: / /

SUPERELEVATION, DRAINAGE AND TURF ESTABLISHMENT PLAN

C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
 S.P. 027-681-035, S.P. 110-020-040

SHEET
 160 / 244



LEGEND			
	PROPOSED STORM SEWER PIPE		SEEDING TYPE 25-131
	PROPOSED STORM SEWER STRUCTURE		SEEDING TYPE 25-121
	EXISTING STORM SEWER STRUCTURE		SEEDING TYPE 33-261
	CONSTRUCTION LIMITS		NEW R/W
	RAILROAD R/W		TEMPORARY EASEMENT
	INPLACE R/W		TRAIL, SIDEWALK, DRAIN, AND UTILITY EASEMENT
	4" PERF. PIPE		DRAINAGE AND UTILITY EASEMENT
	SUPERELEVATION TRANSITION		BLUE LINE LIGHT RAIL TRANSIT (BLRT)
	SURFACE FLOW ARROWS		WETLANDS

STA. EB130 189+07.80 TO 193+93.93



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.

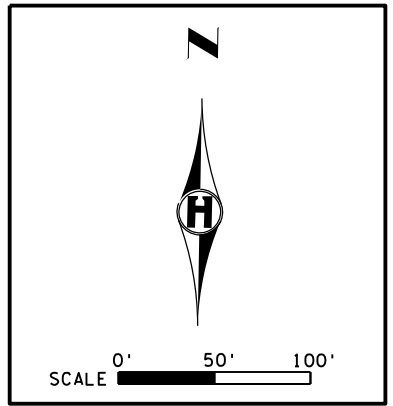
Kelly Agosto
 KELLY AGOSTO, LICENSED PROFESSIONAL ENGINEER
 49075 LICENSE NO. 3/15/19 DATE

DESIGN BY: L. LANGNER
 CAD BY: K. ALBRECHT
 CHECKED BY: L. LANGNER
 LAST REVISION: / /

SUPERELEVATION, DRAINAGE AND TURF ESTABLISHMENT PLAN

C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
 S.P. 027-681-035, S.P. 110-020-040

SHEET
 161 / 244



LUTHER
BROOKDALE

INPLACE R/W
NTB
NATIONAL TIRE
& BATTERY

JOLLY LN N

BP GAS
STATION
8080

FIRESTONE

MAD JACKS

ARBYS

MATCH LINE SEE SHEET 160
STA. EB130 202+77.93

8100

ROADWAY
LOW POINT

ROADWAY
HIGH POINT

Q WB130

CONSTRUCTION
LIMITS

1192

1191

1190

BROOKLYN BLVD
CSAH 130

215

WELLS FARGO

AT&T
GAMESTOP

ASSORTED SHOPS

Q EB130

TCF BANK

LEGEND			
	PROPOSED STORM SEWER PIPE		SEEDING TYPE 25-131
	PROPOSED STORM SEWER STRUCTURE		SEEDING TYPE 25-121
	EXISTING STORM SEWER STRUCTURE		SEEDING TYPE 33-261
	CONSTRUCTION LIMITS		NEW R/W
	RAILROAD R/W		TEMPORARY EASEMENT
	INPLACE R/W		TRAIL, SIDEWALK, DRAIN, AND UTILITY EASEMENT
	4" PERF. PIPE		DRAINAGE AND UTILITY EASEMENT
	SUPERELEVATION TRANSITION		BLUE LINE LIGHT RAIL TRANSIT (BLRT)
	SURFACE FLOW ARROWS		WETLANDS

STA. EB130 202+77.93 TO 215+29.68



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.

Kelly Agosto
KELLY AGOSTO, LICENSED PROFESSIONAL ENGINEER

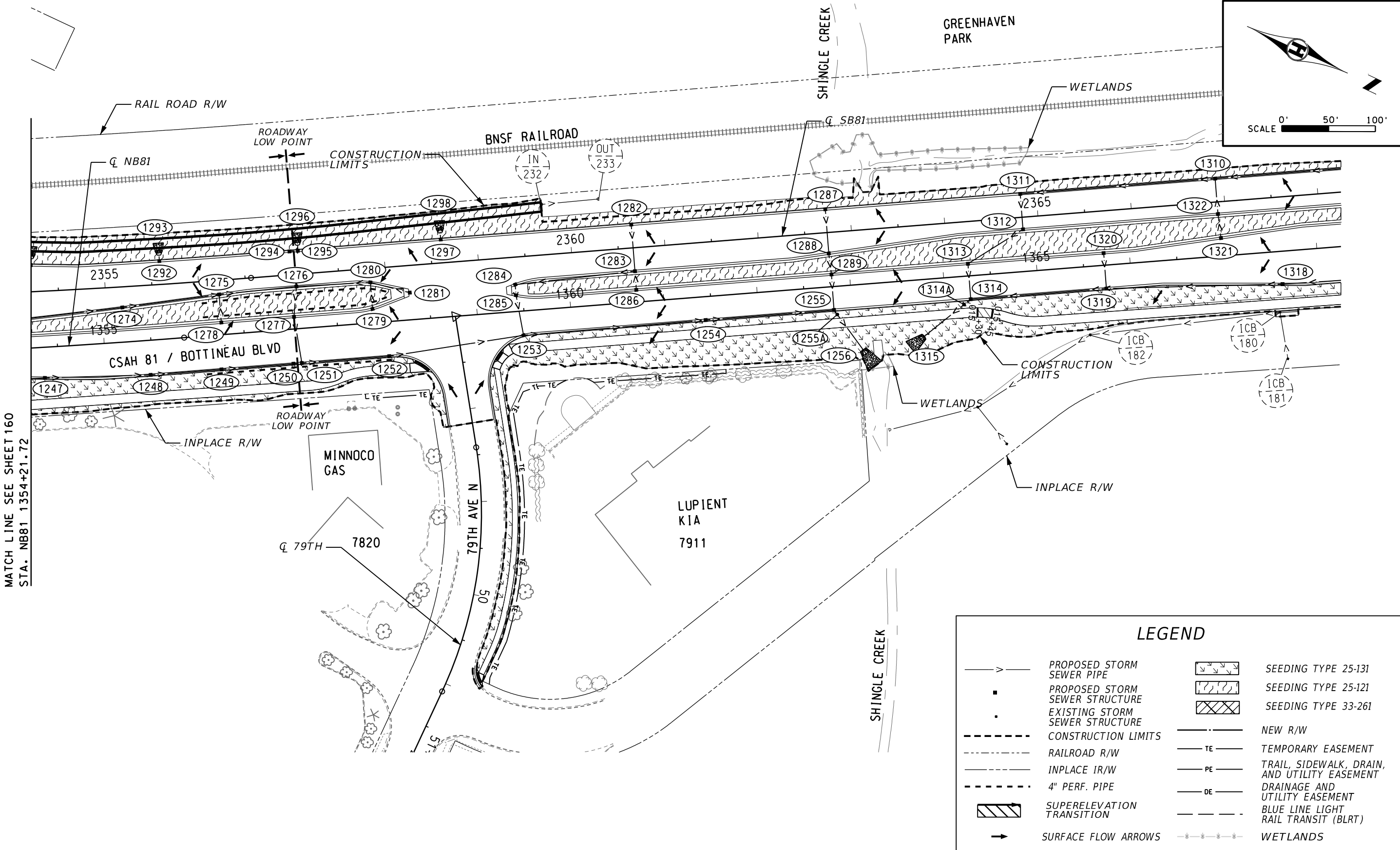
49075 3/15/19
LICENSE NO. DATE

DESIGN BY: L. LANGNER
CAD BY: K. ALBRECHT
CHECKED BY: L. LANGNER
LAST REVISION: / /

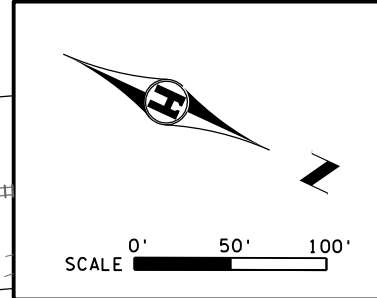
SUPERELEVATION, DRAINAGE AND TURF ESTABLISHMENT PLAN

C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
S.P. 027-681-035, S.P. 110-020-040

SHEET
162
244



MATCH LINE SEE SHEET 160
STA. NB81 1354+21.72



LEGEND			
	PROPOSED STORM SEWER PIPE		SEEDING TYPE 25-131
	PROPOSED STORM SEWER STRUCTURE		SEEDING TYPE 25-121
	EXISTING STORM SEWER STRUCTURE		SEEDING TYPE 33-261
	CONSTRUCTION LIMITS		NEW R/W
	RAILROAD R/W		TEMPORARY EASEMENT
	INPLACE R/W		TRAIL, SIDEWALK, DRAIN, AND UTILITY EASEMENT
	4" PERF. PIPE		DRAINAGE AND UTILITY EASEMENT
	SUPERELEVATION TRANSITION		BLUE LINE LIGHT RAIL TRANSIT (BLRT)
	SURFACE FLOW ARROWS		WETLANDS

STA. NB81 1354+21.72 TO 1368+25.92



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.

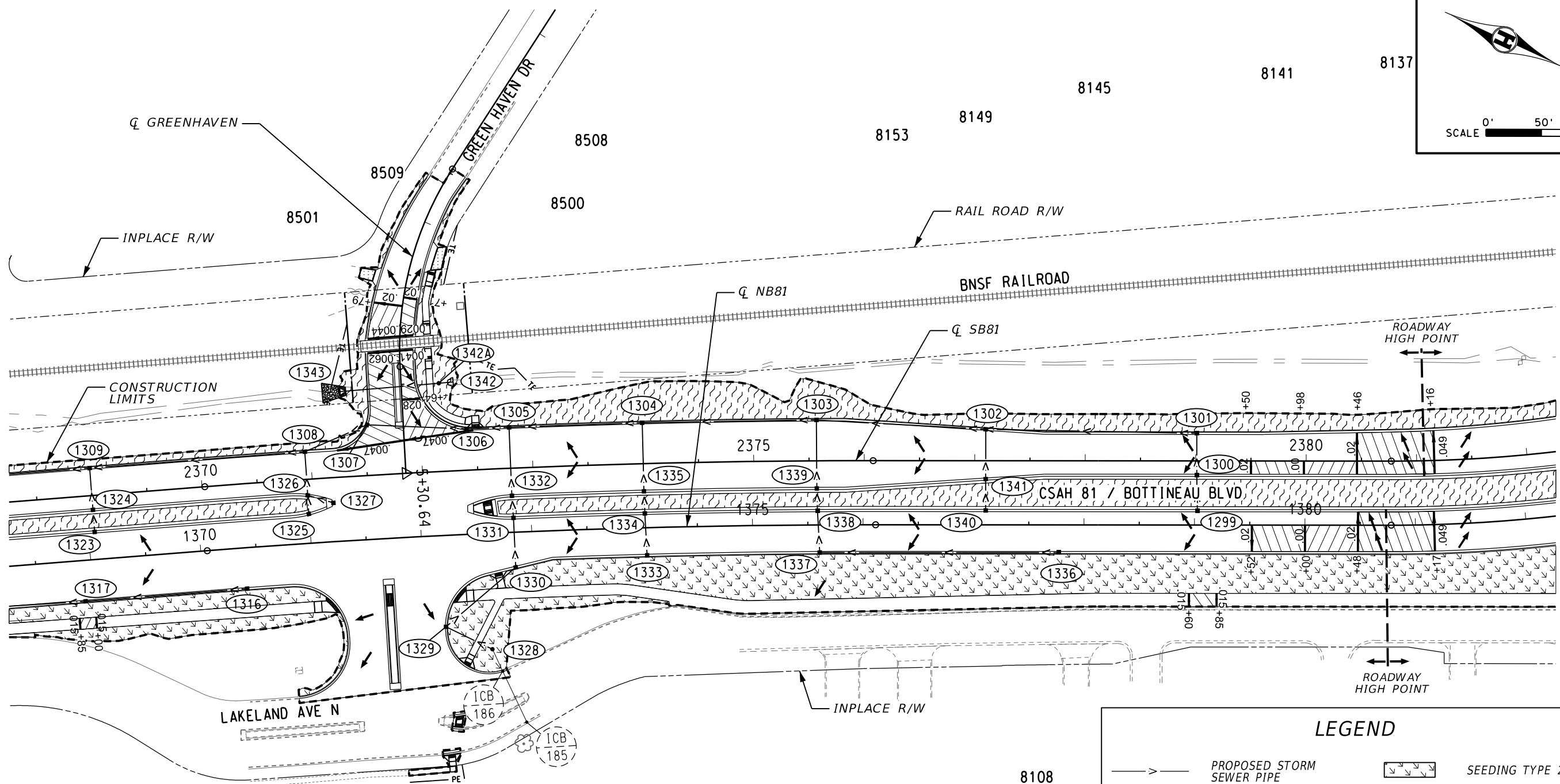
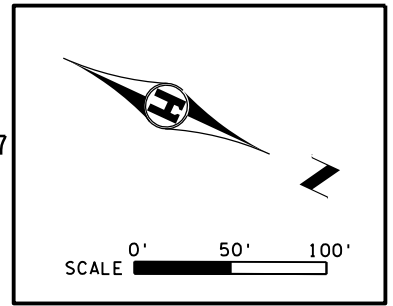
Kelly Agosto
 KELLY AGOSTO, LICENSED PROFESSIONAL ENGINEER
 49075 LICENSE NO. 3/15/19 DATE

DESIGN BY: L. LANGNER
 CAD BY: K. ALBRECHT
 CHECKED BY: L. LANGNER
 LAST REVISION: / /

SUPERELEVATION, DRAINAGE AND TURF ESTABLISHMENT PLAN

C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
 S.P. 027-681-035, S.P. 110-020-040

SHEET
 163
 244



LEGEND	
	PROPOSED STORM SEWER PIPE
	PROPOSED STORM SEWER STRUCTURE
	EXISTING STORM SEWER STRUCTURE
	CONSTRUCTION LIMITS
	RAILROAD R/W
	INPLACE R/W
	4" PERF. PIPE
	SUPERELEVATION TRANSITION
	SURFACE FLOW ARROWS
	SEEDING TYPE 25-131
	SEEDING TYPE 25-121
	SEEDING TYPE 33-261
	NEW R/W
	TEMPORARY EASEMENT
	TRAIL, SIDEWALK, DRAIN, AND UTILITY EASEMENT
	DRAINAGE AND UTILITY EASEMENT
	BLUE LINE LIGHT RAIL TRANSIT (BLRT)
	WETLANDS

STA. NB81 1368+25.92 TO 1382+27.40



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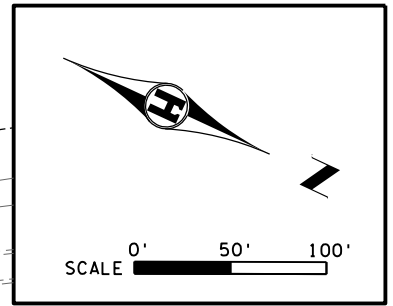
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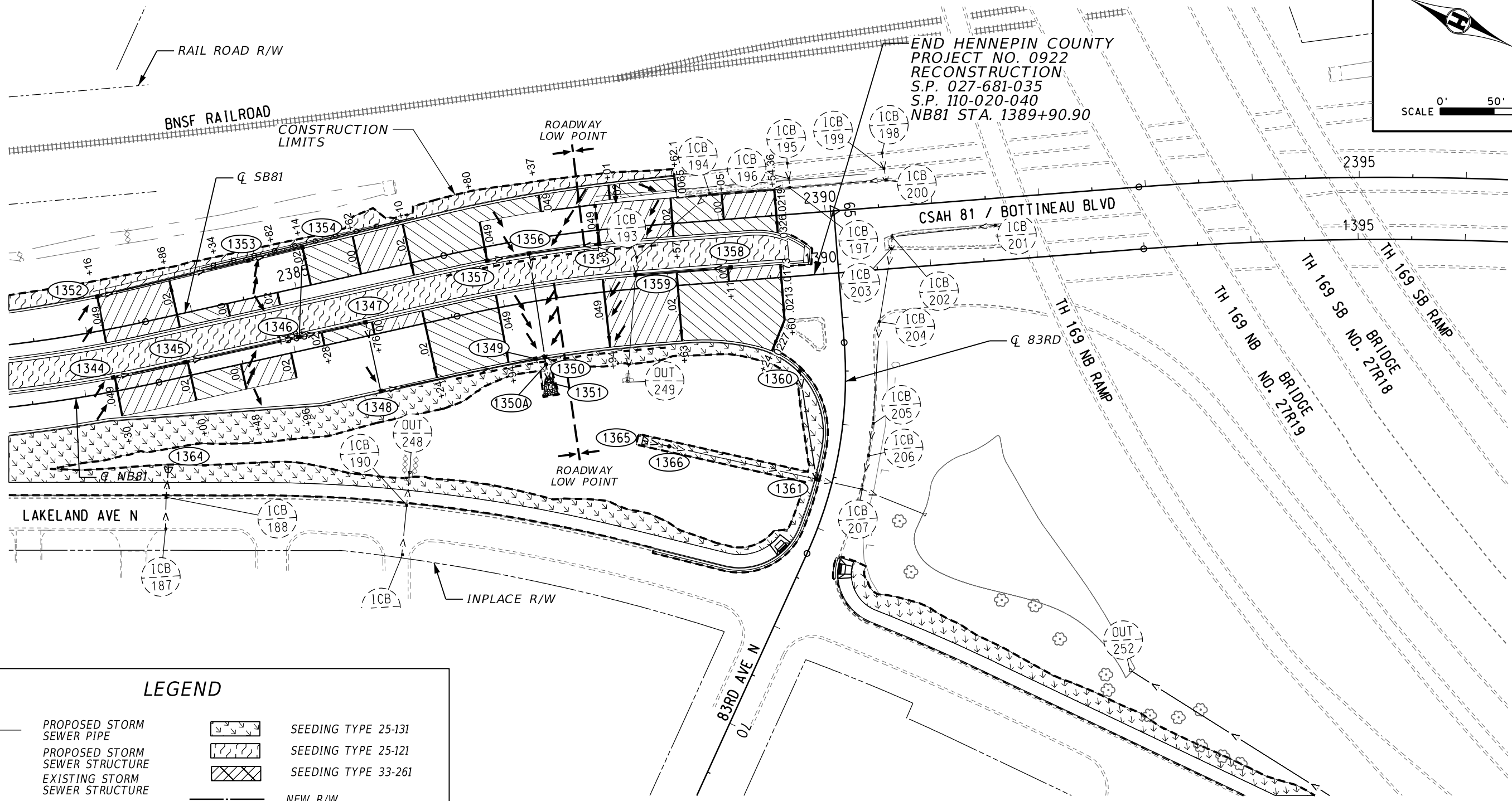
SUPERELEVATION, DRAINAGE AND TURF ESTABLISHMENT PLAN

C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
 S.P. 027-681-035, S.P. 110-020-040

SHEET
 164 / 244



END HENNEPIN COUNTY
PROJECT NO. 0922
RECONSTRUCTION
S.P. 027-681-035
S.P. 110-020-040
NB81 STA. 1389+90.90



LEGEND			
	PROPOSED STORM SEWER PIPE		SEEDING TYPE 25-131
	PROPOSED STORM SEWER STRUCTURE		SEEDING TYPE 25-121
	EXISTING STORM SEWER STRUCTURE		SEEDING TYPE 33-261
	CONSTRUCTION LIMITS		NEW R/W
	RAILROAD R/W		TEMPORARY EASEMENT
	INPLACE IR/W		TRAIL, SIDEWALK, DRAIN, AND UTILITY EASEMENT
	4" PERF. PIPE		DRAINAGE AND UTILITY EASEMENT
	SUPERELEVATION TRANSITION		BLUE LINE LIGHT RAIL TRANSIT (BLRT)
	SURFACE FLOW ARROWS		WETLANDS

STA. NB81 1382+27.40 TO 1389+90.90, STA. TR83 560+00.00 TO 564+66.29



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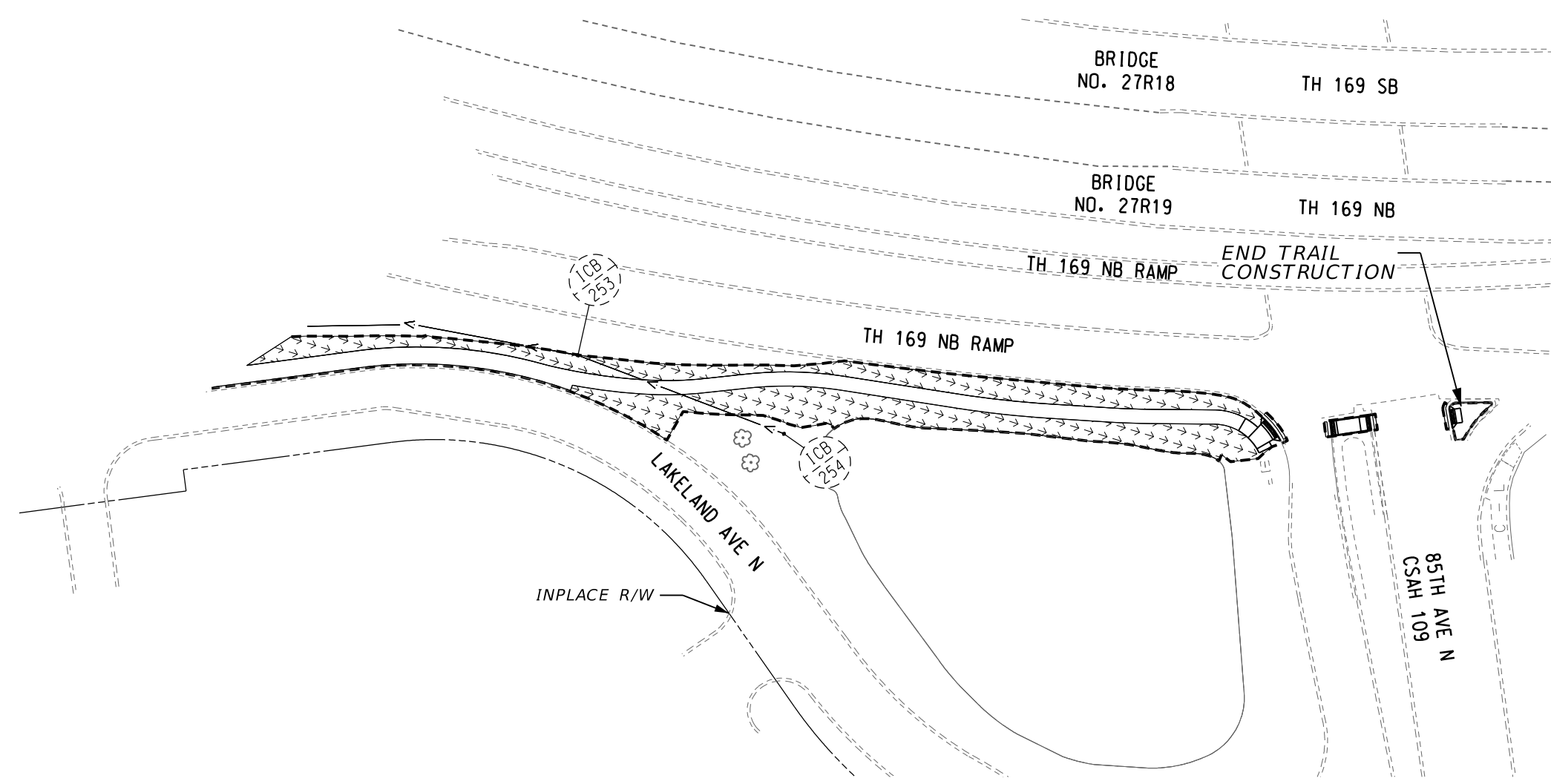
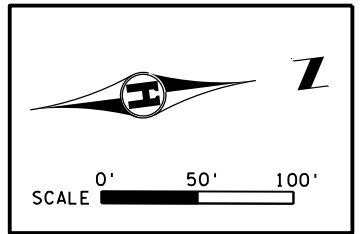
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SUPERELEVATION, DRAINAGE AND TURF ESTABLISHMENT PLAN

C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
SP 2750-101 (TH 169), S.P. 027-681-035, S.P. 110-020-040

SHEET
165
244



LEGEND			
	PROPOSED STORM SEWER PIPE		SEEDING TYPE 25-131
	PROPOSED STORM SEWER STRUCTURE		SEEDING TYPE 25-121
	EXISTING STORM SEWER STRUCTURE		SEEDING TYPE 33-261
	CONSTRUCTION LIMITS		NEW R/W
	RAILROAD R/W		TEMPORARY EASEMENT
	INPLACE R/W		TRAIL, SIDEWALK, DRAIN, AND UTILITY EASEMENT
	4" PERF. PIPE		DRAINAGE AND UTILITY EASEMENT
	SUPERELEVATION TRANSITION		BLUE LINE LIGHT RAIL TRANSIT (BLRT)
	SURFACE FLOW ARROWS		WETLANDS

STA. TR83 564+66.29 TO 571+91.88



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SUPERELEVATION, DRAINAGE AND TURF ESTABLISHMENT PLAN

C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
 SP 2750-101 (TH 169), S.P. 027-681-035, S.P. 110-020-040

SHEET

166
 244

STORM WATER POLLUTION PREVENTION PLAN (SWPPP) NARRATIVE

PROJECT DESCRIPTION/LOCATION

CP 0922 IS LOCATED ON CSAH 81 FROM 71ST AVENUE N (CSAH 8) TO 83RD AVENUE N IN THE CITY OF BROOKLYN PARK IN HENNEPIN COUNTY. THE PLANNED SCOPE OF THE PROJECT INCLUDES: GRADING, BITUMINOUS SURFACING, BOX CULVERT, ADA IMPROVEMENT AND SIGNALS.

THE SWPPP MUST BE AMENDED TO DOCUMENT ANY CHANGES TO EROSION AND SEDIMENT CONTROLS, METHODS OR PRACTICES. THESE AMENDMENTS MUST BE TIMELY TO KEEP THE SWPPP UPDATED AND NEED TO BE KEPT ON SITE. AMENDMENTS MUST BE COMPLETED BY A QUALIFIED INDIVIDUAL PER ITEM 6.2 OF THE GENERAL PERMIT.

RESPONSIBILITIES

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

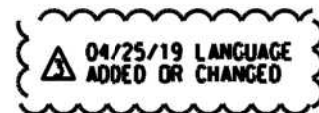
PROVIDE AT LEAST ONE CERTIFIED INSTALLER PER MNDOT SPECIFICATION 2573.3.A.2. FOR EACH CONTRACTOR OR SUBCONTRACTOR THAT PLACES THE PRODUCTS LISTED IN MNDOT SPECIFICATION SECTION 2573.3.A.2.

CHAIN OF RESPONSIBILITY

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

LAND FEATURE CHANGES

TOTAL DISTURBED AREA	50.2 ACRES
WITHIN THE DISTURBED AREA: TOTAL EXISTING IMPERVIOUS SURFACE AREA	27.0 ACRES
WITHIN THE DISTURBED AREA: TOTAL PROPOSED IMPERVIOUS SURFACE AREA	32.7 ACRES
TOTAL PROPOSED NET CHANGE IN IMPERVIOUS SURFACE AREA	5.7 ACRES



SWPPP SHEET DESCRIPTIONS	LOCATION
TEMPORARY EROSION CONTROL MEASURES	SHEETS NO. 110-119
PERMANENT EROSION CONTROL MEASURES	SHEETS NO. 157-166
DIRECTION OF FLOW	SHEETS NO. 157-166
FINAL STABILIZATION	SHEETS NO. 157-166
SOILS AND CONSTRUCTION NOTES	SHEET NO. 15
DRAINAGE STRUCTURES	SHEETS NO. 157-166
DRAINAGE TABULATION	SHEETS NO. 185-213
STORM SEWER PROFILE SHEETS	SHEETS NO. 185-213
STORM SEWER TABULATION	SHEETS NO. 185-213
EROSION AND SEDIMENT CONTROL DETAILS	SHEETS NO. 110-119
EROSION CONTROL TABULATION	SHEET NO. 16
TURF ESTABLISHMENT TABULATION	SHEET NO. 17

SOIL TYPES

SOIL TYPES TYPICALLY FOUND ON THIS PROJECT ARE -- FILL, SILTY SAND, POORLY GRADED SAND WITH SILT AND POORLY GRADED SAND, ISOLATED AREAS OF CLAYEY FILL

ENVIRONMENTAL REVIEW

THERE ARE STORMWATER MITIGATION MEASURES REQUIRED AS A RESULT OF AN ENVIRONMENTAL, ARCHEOLOGICAL OR AGENCY REVIEW. ALL MITIGATION MEASURES HAVE BEEN ADDRESSED IN THIS PLAN SET OR THE SPECIAL PROVISIONS.

THIS PROJECT IS LOCATED IN A WELL HEAD PROTECTION AREA.

THIS PROJECT IS LOCATED IN A DRINKING WATER SUPPLY MANAGEMENT AREA (DWSMA). THE DWSMA VULNERABILITY IS CLASSIFIED AS VERY HIGH AND HIGH.

THIS PROJECT IS NOT LOCATED IN A KARST AREA.

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

WATER RELATED PERMITS

AGENCY	TYPE OF PERMIT
MINNESOTA POLLUTION CONTROL AGENCY (MPCA)	NPDES CONSTRUCTION PERMIT
DEPARTMENT OF NATURAL RESOURCES (DNR)	PUBLIC WATERS WORK PERMIT
ARMY CORPS OF ENGINEERS	TRGP
SHINGLE CREEK WATERSHED MANAGEMENT COMMISSION	WATERSHED

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

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

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

WATER BODY	NO WORK DURING
LAKES	APRIL 1 - JUNE 30
NON-TROUT STREAMS	MARCH 15 - JUNE 15
TROUT STREAMS	SEPTEMBER 1 - APRIL 1

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

WATERBODY NAME	IMPAIRMENT(S) OR SPECIAL STATUS
SHINGLE CREEK	CL, DO, E. COLI, INVERTBIO

SOME OF THESE IMPAIRMENTS ARE CONSIDERED TO BE CONSTRUCTION RELATED PARAMETERS AND IF THE PROJECT HAS A DISCHARGE POINT ON THE PROJECT WITHIN ONE MILE (AERIAL RADIUS) OF, AND FLOWS TO THE IMPAIRED WATERBODY, ADDITIONAL BMPs ARE REQUIRED. PERMITTEES MUST IMMEDIATELY INITIATE STABILIZATION OF EXPOSED SOIL AREAS, AS DESCRIBED IN ITEM 8.4, AND COMPLETE THE STABILIZATION WITHIN SEVEN (7) CALENDAR DAYS AFTER THE CONSTRUCTION ACTIVITY IN THAT PORTION OF THE SITE TEMPORARILY OR PERMANENTLY CEASES. PERMITTEES MUST PROVIDE A TEMPORARY SEDIMENT BASIN AS DESCRIBED IN SECTION 14 FOR COMMON DRAINAGE LOCATIONS THAT SERVE AN AREA WITH FIVE (5) OR MORE ACRES DISTURBED AT ONE TIME. ITEM OR SECTION REFERENCES ARE TO THE GENERAL PERMIT.

AREAS OF ENVIRONMENTAL SENSITIVITY (AES)

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

PROJECT ORGANIZATION CONTACTS	NAME	PHONE
CONTRACTOR'S EROSION AND SEDIMENT CONTROL SUPERVISOR	TBD	XXX-XXX-XXXX
CONTRACTOR'S EROSION AND SEDIMENT CONTROL INSTALLER	TBD	XXX-XXX-XXXX
HENNEPIN COUNTY DESIGN PROJECT MANAGER	KELLY AGOSTO	612-596-0365
HENNEPIN COUNTY WATER RESOURCES ENGINEER	DREW MCGOVERN	612-596-0208
HENNEPIN COUNTY TRANSPORTATION/DESIGN	LEE LANGNER	612-596-0388
HENNEPIN COUNTY CONSTRUCTION PROJECT MANAGER	STANLEY LIM	612-596-0292
EROSION CONTROL SUPERVISOR	TBD	XXX-XXX-XXXX
MINNESOTA POLLUTION CONTROL AGENCY (MPCA)	BRANDON DAHL	651-757-2279
MINNESOTA DEPARTMENT OF NATURAL RESOURCES	PETER LEETE	651-366-3634
WATERSHED DISTRICT	ED MATTHIESEN	763-252-6851
ARMY CORPS OF ENGINEERS	RYAN MALTERUD	651-290-5286
MPCA DUTY OFFICER 24 HR EMERGENCY NOTIFICATION	651-649-5451 OR 1 (800)-422-0798	

INSPECTION TIMEFRAMES

INSPECT THE ENTIRE CONSTRUCTION SITE A MINIMUM OF ONCE EVERY SEVEN DAYS DURING ACTIVE CONSTRUCTION AND WITHIN 24 HOURS AFTER A RAINFALL EVENT GREATER THAN 0.5 INCHES IN 24 HOURS. INSPECT ALL TEMPORARY AND PERMANENT WATER QUALITY MANAGEMENT, EROSION PREVENTION AND SEDIMENT CONTROL BMPs, SURFACE WATERS AND CONSTRUCTION SITE EXITS UNTIL ALL CONSTRUCTION IS COMPLETE AND THE SITE HAS UNDERGONE FINAL STABILIZATION. RECORD ALL INSPECTIONS AND MAINTENANCE ACTIVITIES IN WRITING WITHIN 24 HOURS. SUBMIT INSPECTION REPORTS IN A FORMAT THAT IS ACCEPTABLE TO THE PROJECT ENGINEER.



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Kelly Agosto
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49075 3/15/19
LICENSE NO. DATE

DESIGN BY: K. AGOSTO
CAD BY: E. GUIR
CHECKED BY: L. LANGNER
LAST REVISION: 4/25/19

STORM WATER POLLUTION PREVENTION PLAN
C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
S.P. 027-681-035, S.P. 110-020-040

SHEET
R167.1
244

04/25/19 LANGUAGE ADDED OR CHANGED

EROSION AND SEDIMENT CONTROL MEASURES

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

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

STABILIZATION

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

- TEMPORARY SOIL STOCKPILES WITHOUT SIGNIFICANT CLAY OR SILT AND STOCKPILED AND CONSTRUCTED ROAD BASE ARE EXEMPT FROM THE STABILIZATION REQUIREMENTS. EXPOSED SOILS THAT ARE WITHIN 200 FEET OF, AND DRAINING TO, A DNR PUBLIC WATER WITH "WORK IN WATER RESTRICTIONS" MUST BE STABILIZED WITHIN 24 HOURS DURING FISH SPAWNING AND MIGRATION PERIODS PER ITEM 8.5 OF GENERAL PERMIT.

- STABILIZE WETTED PERIMETER OF DITCH (I.E. WHERE THE DITCH GETS WET).
- APPLICATION OF MULCH, HYDROMULCH (SLOPE>2%), DISC-ANCHORED MULCH (SLOPE>2%), TACKIFIER AND POLYACRYLAMIDE ARE NOT ACCEPTABLE STABILIZATION METHODS IN DITCHES AND SWALES.

MATERIAL STORAGE, WASTE MANAGEMENT, FUELING AND DUST CONTROL

- PROVIDE A SPILL KIT AT EACH WORK LOCATION ON THE SITE. ENSURE ALL SPILLS ARE CLEANED UP IMMEDIATELY.
- STORE ALL LIQUID CHEMICALS UNDER COVER WITH SECONDARY CONTAINMENT. CREATE AND FOLLOW A WRITTEN DISPOSAL PLAN FOR ALL WASTE MATERIALS, STORE, COLLECT AND DISPOSE OF ALL SOLID WASTE.
- FUEL AND MAINTAIN VEHICLES IN A DESIGNATED CONTAINED AREA WHENEVER FEASIBLE. USE DRIP PANS OR ABSORBENT MATERIALS TO PREVENT SPILLS OR LEAKED CHEMICALS FROM DISCHARGING TO SURFACE WATER OR STORMWATER CONVEYANCES.
- PROVIDE EFFECTIVE CONTAINMENT FOR ALL LIQUID AND SOLID WASTES GENERATED BY WASHOUT OF CONCRETE, STUCCO, PAINT, FORM RELEASE OILS, CURING COMPOUNDS AND OTHER CONSTRUCTION MATERIALS. LIQUID AND SOLID WASHOUT WASTES MUST NOT CONTACT THE GROUND. DESIGN THE CONTAINMENT SO THAT IT DOES NOT RESULT IN RUNOFF FROM THE WASHOUT OPERATIONS OR CONTAINMENT AREA. REFER TO MPCA GUIDANCE DOCUMENT ON WASHOUT BMPS AVAILABLE AT: <https://www.pca.state.mn.us/sites/default/files/wq-strm2-24.pdf>
- USE METHODS AND OPERATIONAL PROCEDURES THAT PREVENT DISCHARGE OR PLACEMENT OF BITUMINOUS GRINDINGS, CUTTINGS, MILLINGS, AND OTHER BITUMINOUS WASTES FROM AREAS OF EXISTING OR FUTURE VEGETATED SOILS AND FROM ALL WATER CONVEYANCE SYSTEMS, INCLUDING INLETS, DITCHES AND CURB FLOW LINES.
- USE METHODS AND OPERATIONAL PROCEDURES THAT PREVENT CONCRETE DUST, STREET SWEEPING DUST, SAWCUT SLURRY, PLANING WASTE, CONCRETE WASH OUT, AND OTHER CONCRETE WASTES FROM LEAVING HENNEPIN COUNTY RIGHT OF WAY, DEPOSITING IN EXISTING OR FUTURE VEGETATED AREAS, AND FROM ENTERING STORMWATER CONVEYANCE SYSTEMS INCLUDING INLETS, DITCHES AND CURB FLOW LINES.
- PORTABLE TOILETS MUST BE POSITIONED SO THAT THEY ARE SECURE PER ITEM 12.6 OF GENERAL PERMIT.
- EXTERIOR VEHICLE AND EQUIPMENT WASHING MUST BE LIMITED TO A DEFINED AREA OF THE SITE PER ITEM 12.8 OF GENERAL PERMIT.

IMPORTANT SWPPP NOTES FOR CONSTRUCTION ACTIVITY

- PREPARE AND SUBMIT A SITE MANAGEMENT PLAN FOR THE ENGINEER'S ACCEPTANCE FOR CONCRETE MANAGEMENT, CONCRETE SLURRY APPLICATION AREAS, WORK IN AND NEAR AREAS OF ENVIRONMENTAL SENSITIVITY, AREAS IDENTIFIED IN THE PLANS AS "SITE MANAGEMENT PLAN AREA", ANY WORK THAT WILL REQUIRE DEWATERING, AND AS REQUESTED BY THE ENGINEER. SUBMIT ALL SITE MANAGEMENT PLANS TO THE ENGINEER IN WRITING. ALLOW A MINIMUM OF 7 DAYS FOR HENNEPIN COUNTY TO REVIEW AND ACCEPT SITE MANAGEMENT PLAN SUBMITTALS. WORK WILL NOT BE ALLOWED TO COMMENCE IF A SITE MANAGEMENT PLAN IS REQUIRED UNTIL ACCEPTANCE HAS BEEN GRANTED BY THE ENGINEER. THERE WILL BE NO EXTRA TIME ADDED TO THE CONTRACT DUE TO THE UNTIMELY SUBMITTAL.
- DO NOT BUILD INFILTRATION AREAS OR PLACE FINAL FILTRATION MEDIA UNTIL THE PROJECT IS NEARLY COMPLETE. PROTECT THESE AREAS FROM COMPACTION AND FROM CONSTRUCTION STORMWATER RUNOFF.
- ROUTE STORMWATER AROUND UNSTABILIZED AREAS OF THE SITE WHENEVER FEASIBLE.
- CONSTRUCTION PROJECT SHOULD BE PHASED TO MINIMIZE THE DURATION OF EXPOSED SOILS.
- MINIMIZE COMPACTION OF SOILS AND PRESERVE TOPSOIL IN AREAS WHERE VEGETATION WILL BE ESTABLISHED.
- DIRECT DISCHARGES FROM BMPS TO VEGETATED AREAS WHENEVER FEASIBLE. PROVIDE VELOCITY DISSIPATION DEVICES AS NEEDED TO PREVENT EROSION.
- FLOATING SILT CURTAIN IS ALLOWED AS PERIMETER CONTROL FOR IN WATER WORK ONLY. PLACE THE FLOATING SILT CURTAIN AS CLOSE TO SHORE AS POSSIBLE. PLACE PERIMETER CONTROL BMP ON LAND IMMEDIATELY AFTER THE IN-WATER WORK IS COMPLETED.

- DISCHARGE TURBID OR SEDIMENT LADEN WATER TO TEMPORARY SEDIMENT BASINS WHENEVER FEASIBLE. (REQUIRED IF DRAINAGE AREA IS 10 ACRES OR LARGER OR 5 ACRES OR LARGER AND WITHIN 1 MILE OF IMPAIRED WATER) THE EVENT THAT IT IS NOT FEASIBLE TO DISCHARGE THE SEDIMENT LADEN WATER TO A TEMPORARY SEDIMENT BASIN, THE WATER MUST BE TREATED SO THAT IT DOES NOT CAUSE A NUISANCE CONDITION IN THE RECEIVING WATERS OR TO DOWNSTREAM LANDOWNERS. MUST DOCUMENT WHY SEDIMENT BASIN IS NOT FEASIBLE.
- PROVIDE STABILIZATION IN ANY TRENCHES CUT FOR DEWATERING OR SITE DRAINING PURPOSES,
- REMOVE SEDIMENT FROM STORMWATER SYSTEM AND BMPS AT THE END OF PROJECT.
- PROVIDE A 50 FOOT NATURAL BUFFER OR, IF BUFFER IS INFEASIBLE, PROVIDE A DOUBLE ROW OF SEDIMENT CONTROLS SPACED AT LEAST 5' APART WHEN A SURFACE WATER IS LOCATED WITHIN 50 FEET OF LAND DISTURBANCE AND STORMWATER FLOWS TO THE SURFACE WATER.
- PROVIDE A 100 FOOT NATURAL BUFFER OR, IF BUFFER IS INFEASIBLE, PROVIDE A DOUBLE ROW OF SEDIMENT CONTROLS SPACED AT LEAST 5' APART WHEN A SPECIAL WATER IS LOCATED WITHIN 100 FEET OF THE LAND DISTURBANCE AND STORMWATER FLOWS TO THE SPECIAL WATER.
- SUBSOIL ALL DISTURBED GREEN SPACES EXCEPT AS LISTED IN 2574.3A.5.

PIPE AND STRUCTURE NOTES

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

TREATMENT BMPS INCLUDED WITH THIS PROJECT ARE:

DRY POND, FILTRATION BASINS, SUMP STRUCTURE WITH BAFFLE, SILT FENCE, INLET PROTECTION, CULVERT END CONTROL.

POND CONSTRUCTION NOTES

- DO NOT STOCKPILE MATERIALS OR PARK EQUIPMENT OR VEHICLES IN A DRY POND.
- WET PONDS MAY BE USED AS TEMPORARY SEDIMENT TRAPS OR TEMPORARY SEDIMENT BASINS AS LONG AS SEDIMENT IS REMOVED AT THE END OF CONSTRUCTION.
- THE CONTRACTOR MAY NOT DRIVE ANY EQUIPMENT ON FINISHED POND BOTTOMS OR POND CORNERS. IF DISTURBED, POND BOTTOM AND POND CORNERS MUST BE RESTORED TO PRE-EXISTING CONDITIONS WITHIN 24 HOURS, ANY RUTS OR DAMAGED TURF THAT COULD CREATE SEDIMENT DISCHARGE TO POND BOTTOMS MUST BE REPAIRED WITHIN 24 HOURS.

INFILTRATION AND FILTRATION BASIN CONSTRUCTION NOTES

- DURING CONSTRUCTION, REPORT ANY SIGNS OF HIGH-WATER TABLE OR COMPACTION OF THE IN-PLACE SOILS TO THE ENGINEER.
- DO NOT STOCKPILE MATERIALS, DRIVE OR PARK EQUIPMENT OR VEHICLES IN A CONSTRUCTED FILTRATION OR INFILTRATION AREA.
- DO NOT BUILD INFILTRATION AREAS OR PLACE FINAL FILTRATION MEDIA UNTIL THE PROJECT IS NEARLY COMPLETE. PROTECT THESE AREAS FROM COMPACTION AND FROM CONSTRUCTION STORMWATER RUNOFF.



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.

Kelly Agosto
 KELLY AGOSTO, LICENSED PROFESSIONAL ENGINEER

49075 3/15/19
 LICENSE NO. DATE

DESIGN BY: K. AGOSTO
 CAD BY: E. GUIR
 CHECKED BY: L. LANGNER
 LAST REVISION: 4/25/19

STORM WATER POLLUTION PREVENTION PLAN

C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
 S.P. 027-681-035, S.P. 110-020-040

SHEET

R168.1

244

**04/25/19 LANGUAGE
ADDED OR CHANGED**

4. PLACE SEDIMENT CONTROL BMPS AT THE TOE OF THE ADJACENT SLOPE IMMEDIATELY AFTER PLACEMENT OF AMENDED TOPSOIL. STABILIZE SIDE SLOPES PRIOR TO PLACING ANY AMENDED TOPSOIL IN THE BOTTOM OF THE (IN) FILTRATION AREA.
5. SUBMIT A SITE MANAGEMENT PLAN TO THE ENGINEER FOR THE CONSTRUCTION OF (IN) FILTRATION AREAS.
6. DO NOT DRAIN TURBID OR SEDIMENT LADEN WATER TO THE FILTRATION AREA UNLESS FILTER MEDIA HAS NOT BEEN PLACED. DO NOT DRAIN SEDIMENT LADEN WATER TO AN INFILTRATION AREA.
7. WHEN BUILDING, USE ONLY LOW IMPACT VEHICLES WITHIN (IN) FILTRATION AREAS TO LIMIT COMPACTION.
8. EXCAVATE ANY SEDIMENT THAT WASHES INTO (IN) FILTRATION AREAS, IF DISTURBED REPAIR WITH 24 HOURS.

LANDSCAPING NOTES

1. FILTER LOGS SHALL BE PLACED, AS NEEDED, TO TRAP SEDIMENT ON THE LOWER EDGE OF BEDS OR TREE HOLES. FILTER LOGS WILL BE CUT AND MATERIALS LEFT TO ACT AS SEDIMENT TRAPS.
2. TILLING FOR BEDS OR TREE HOLES MUST BE PLANTED AND MULCHED WITH WOOD CHIP WITHIN 7 DAYS OR STABILIZED UNTIL PLANTING OPERATIONS CAN BE COMPLETED.
3. ANY POND CORNERS OPENED DUE TO TILLING FOR SHRUB BEDS OR TREE HOLES MUST BE PLANTED AND MULCHED WITH WOOD CHIP WITHIN 24 HOURS OR STRAW MULCHED UNTIL PLANTING OPERATIONS CAN BE COMPLETED.

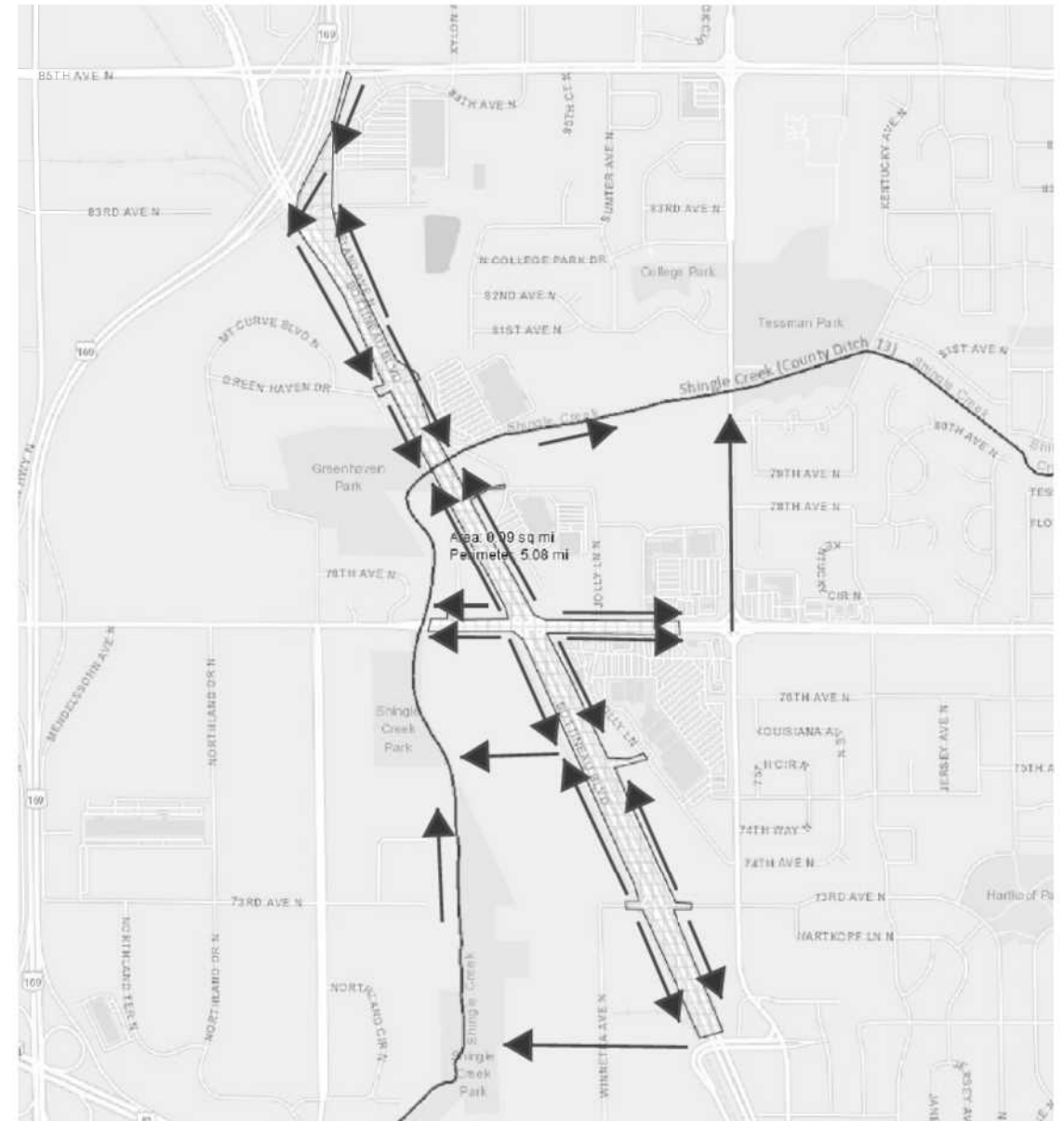
DEWATERING NOTES

1. REFER TO THE MPCA CONSTRUCTION STORMWATER TREATMENT FOR DEWATERING BMPS AT THIS WEBSITE: https://stormwater.pca.state.mn.us/index.php?title=Construction_stormwater_treatment_-_dewatering.
2. IF DEWATERING RATES DURING CONSTRUCTION EXCEED 10,000 GALLONS PER DAY OR A MILLION GALLONS PER YEAR, A DNR WATER APPROPRIATION PERMIT WILL BE REQUIRED AND WILL BE ACQUIRED BY THE CONTRACTOR.
3. IF DEWATERING WILL OCCUR IN CONTAMINATED AREAS REFER TO SPECIAL PROVISIONS FOR CONTAMINATED WATER MANAGEMENT.

LONG TERM MAINTENANCE AND OPERATION

HENNEPIN COUNTY HAS ENTERED INTO A COOPERATIVE AGREEMENT WITH THE CITY OF BROOKLYN PARK THAT IDENTIFIES THE AGENCY THAT IS RESPONSIBLE FOR ONGOING MAINTENANCE. SEE AGREEMENT NUMBER PW 52-04-18, ON FILE WITH HENNEPIN COUNTY, FOR MORE INFORMATION

OFF SITE FLOW INFORMATION DRAWING



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Kelly Agosto
KELLY AGOSTO, LICENSED PROFESSIONAL ENGINEER

49075 3/15/19
LICENSE NO. DATE

DESIGN BY: K. AGOSTO
CAD BY: E. GUIR
CHECKED BY: L. LANGNER
LAST REVISION: 4/25/19

STORM WATER POLLUTION PREVENTION PLAN

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S.P. 027-681-035, S.P. 110-020-040

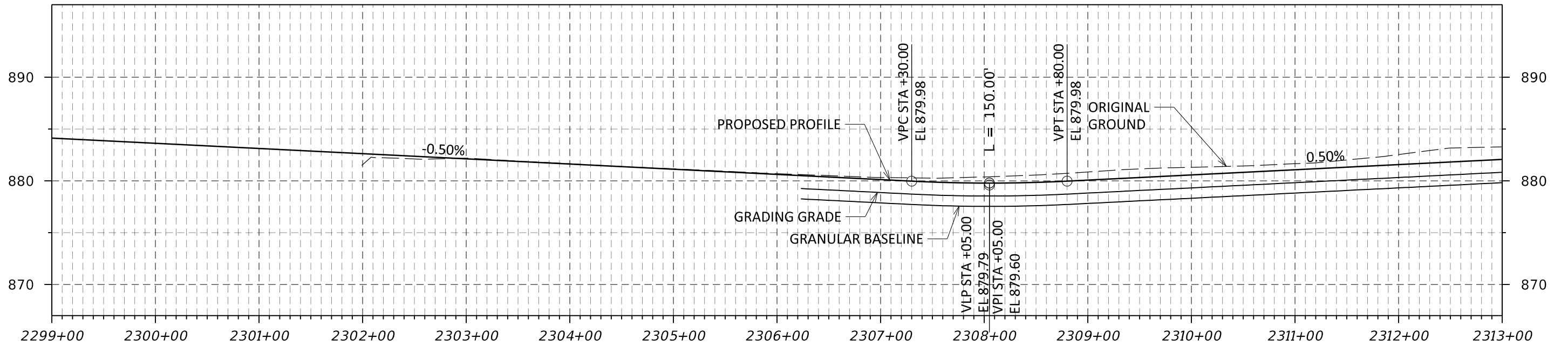
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R169.1

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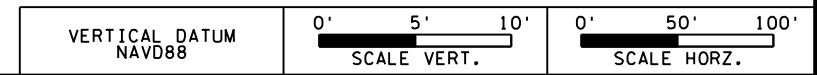
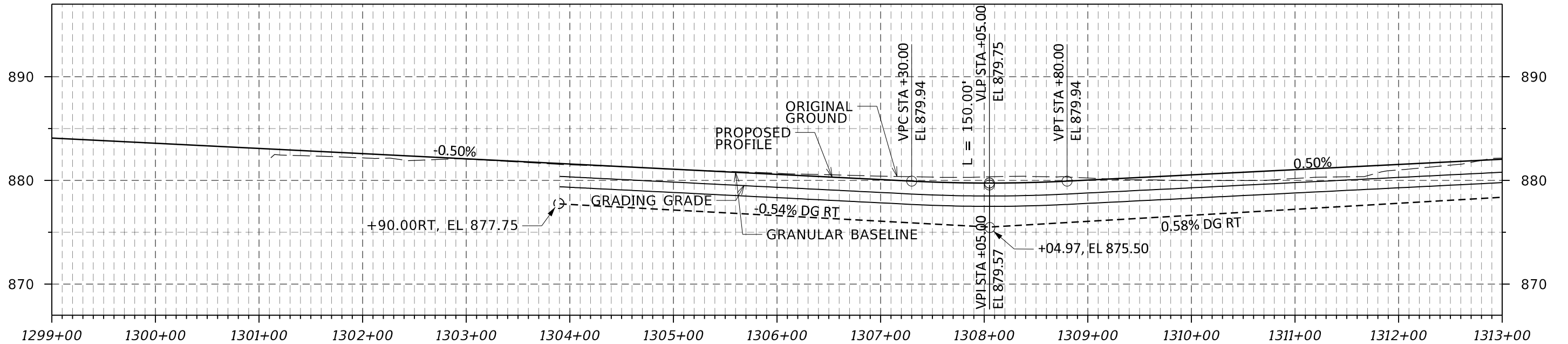
SB C.S.A.H. 81

TRAFFIC ←



NB C.S.A.H. 81

TRAFFIC →



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 CAD BY: **R. DECOTEAU**
 CHECKED BY: **L. LANGNER**
 LAST REVISION: / /

PROFILES

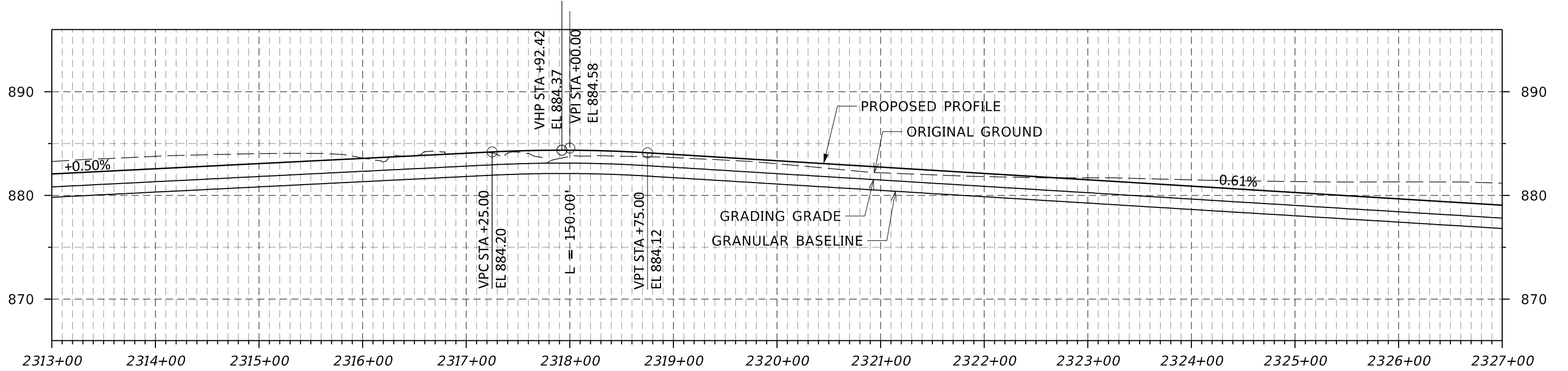
C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
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SHEET

170 / 244

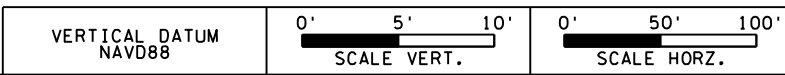
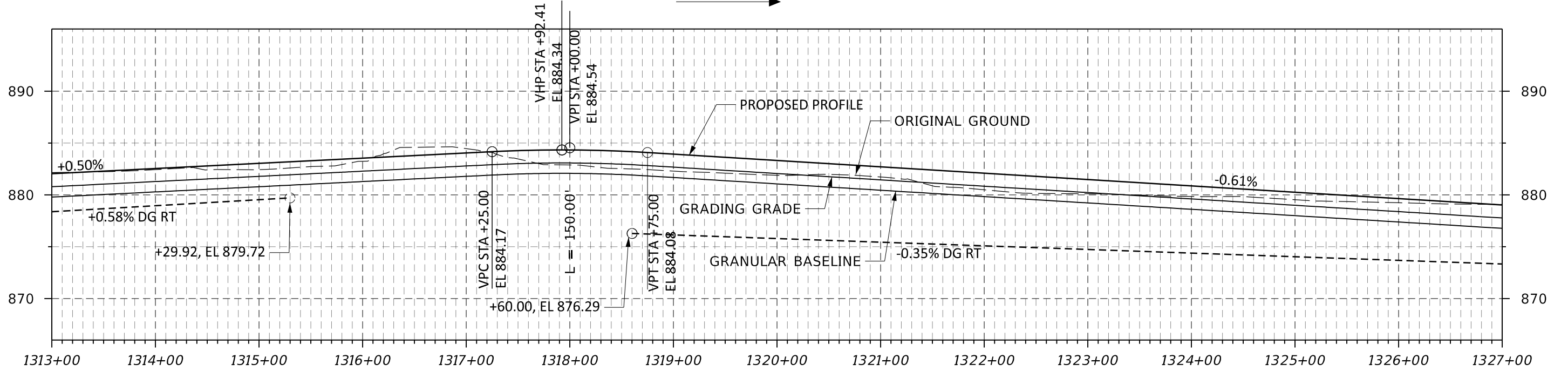
SB C.S.A.H. 81

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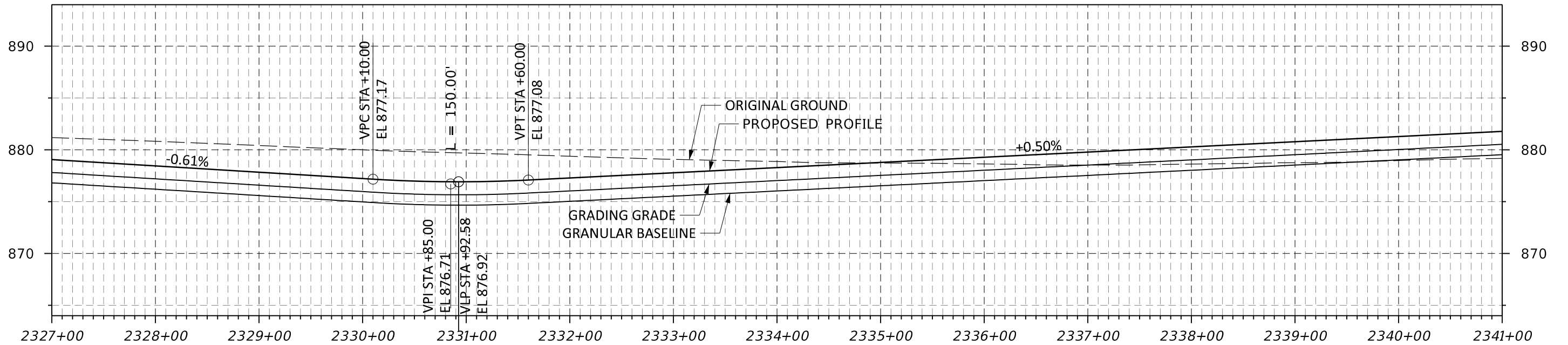
C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
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SHEET

171 / 244

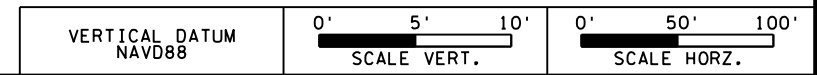
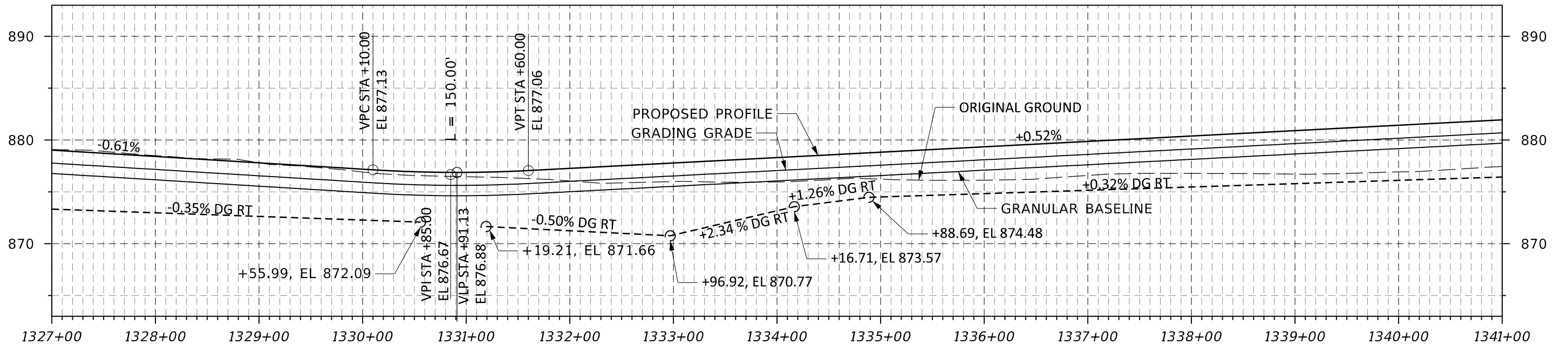
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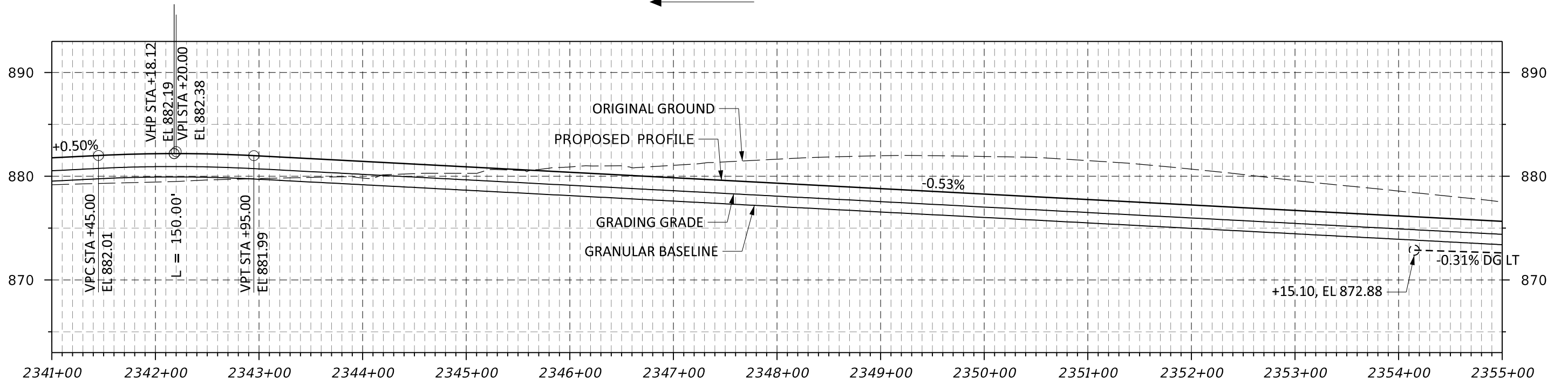
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SHEET

172 / 244

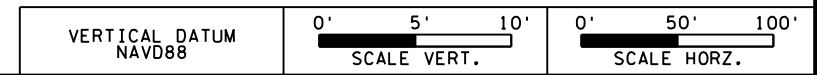
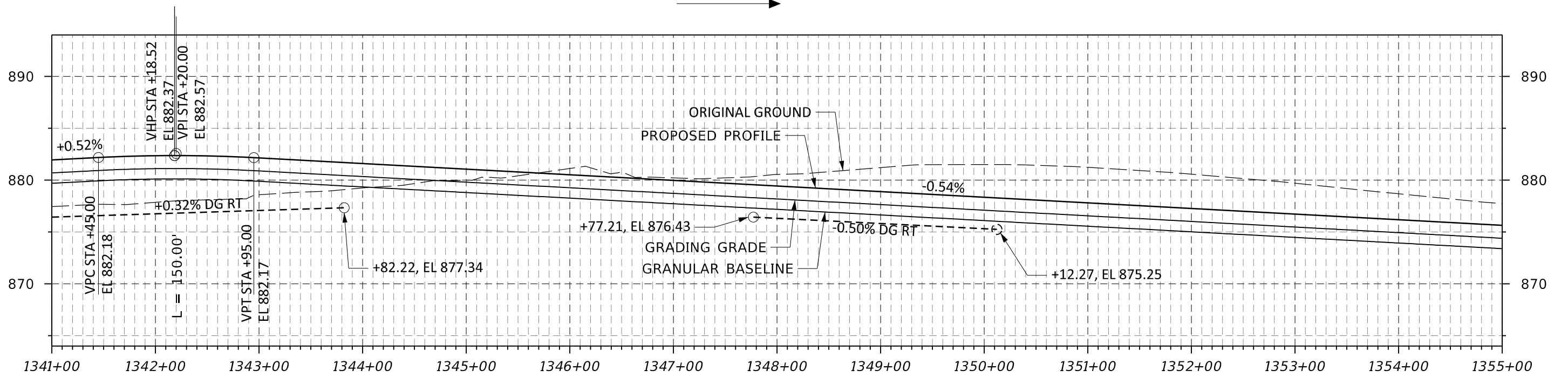
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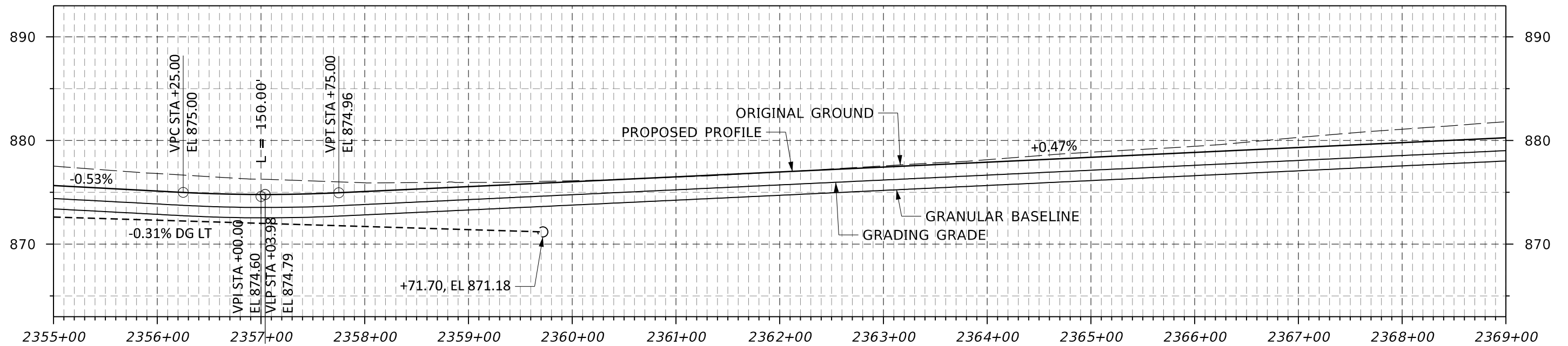
C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
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SHEET

173 / 244

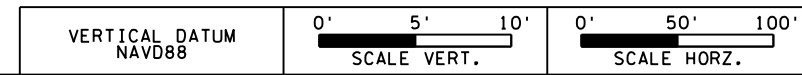
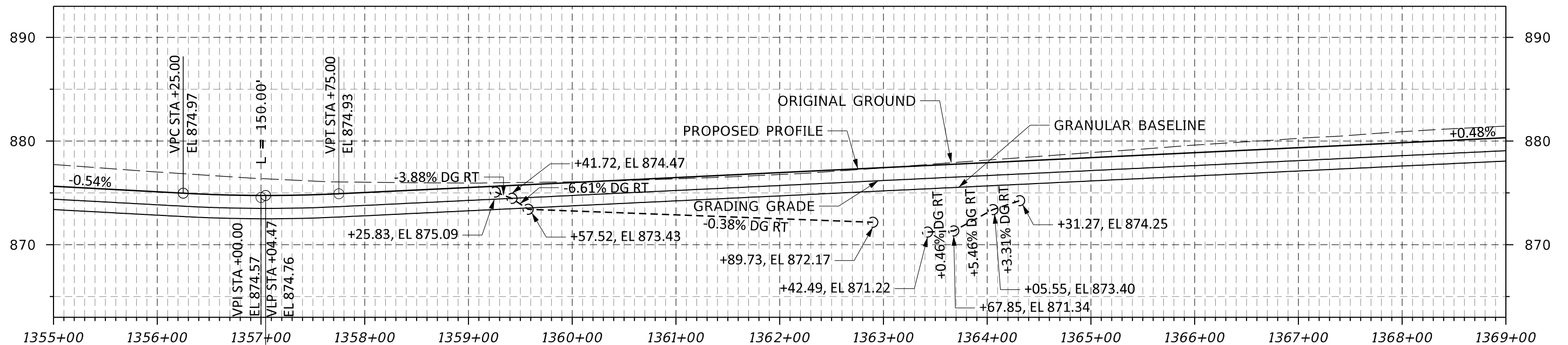
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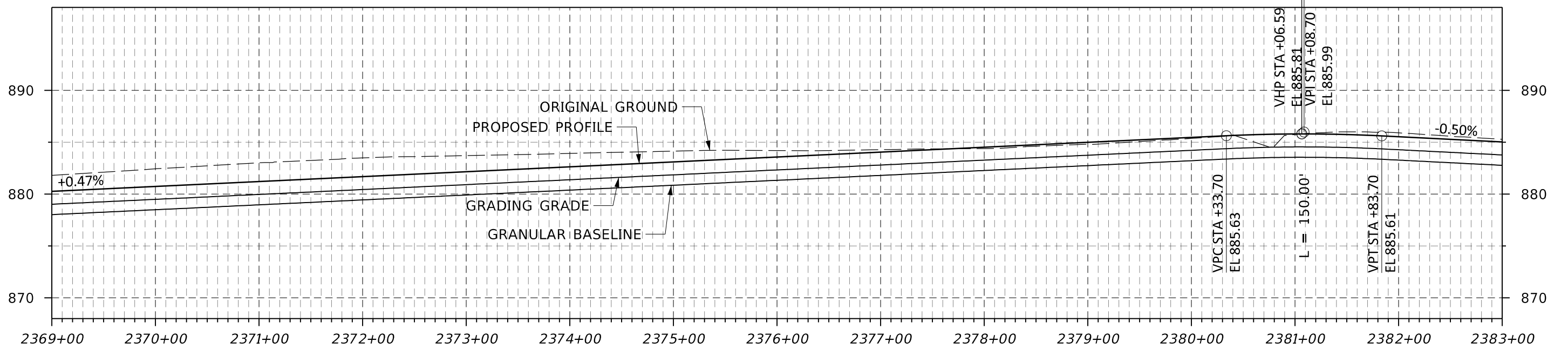
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SHEET
 174 / 244

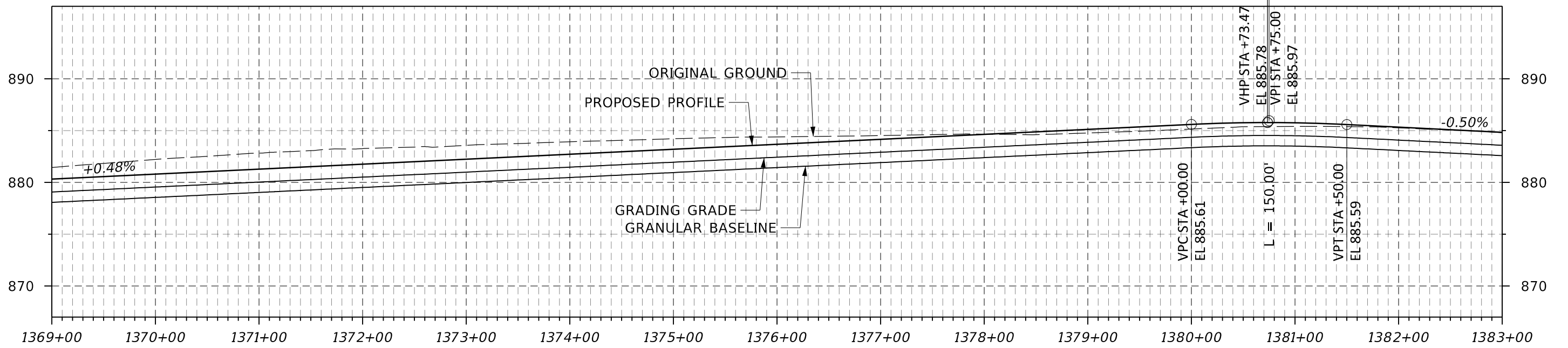
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VERTICAL DATUM NAVD88
 0' 5' 10' SCALE VERT.
 0' 50' 100' SCALE HORZ.



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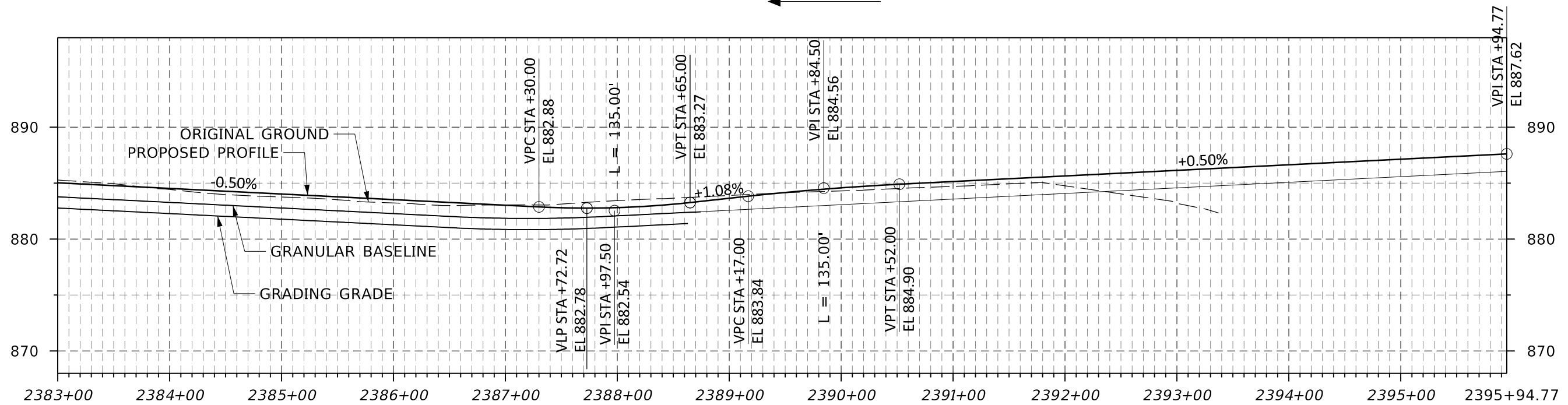
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SHEET
 175 / 244

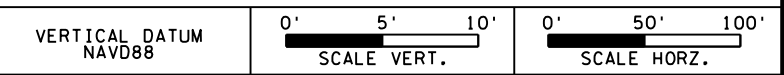
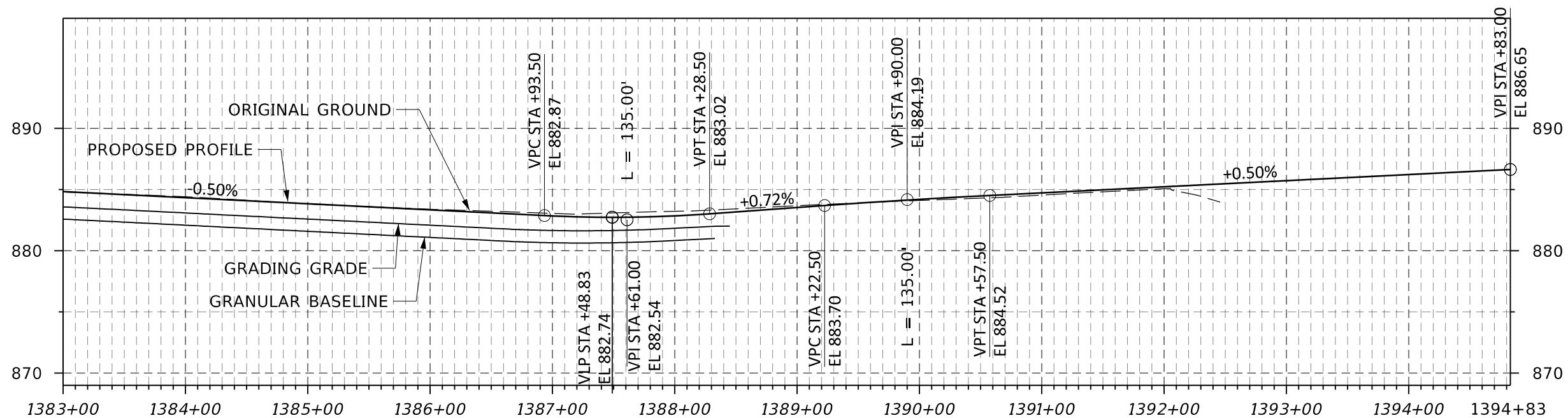
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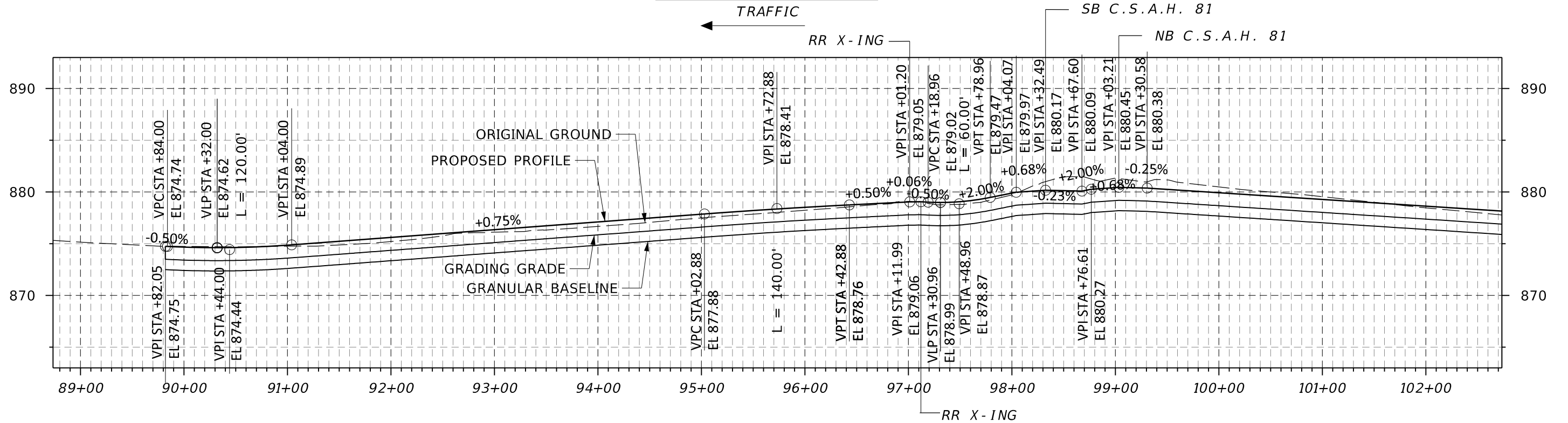
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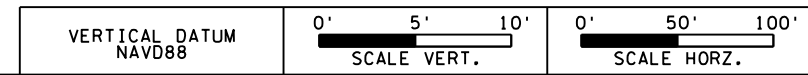
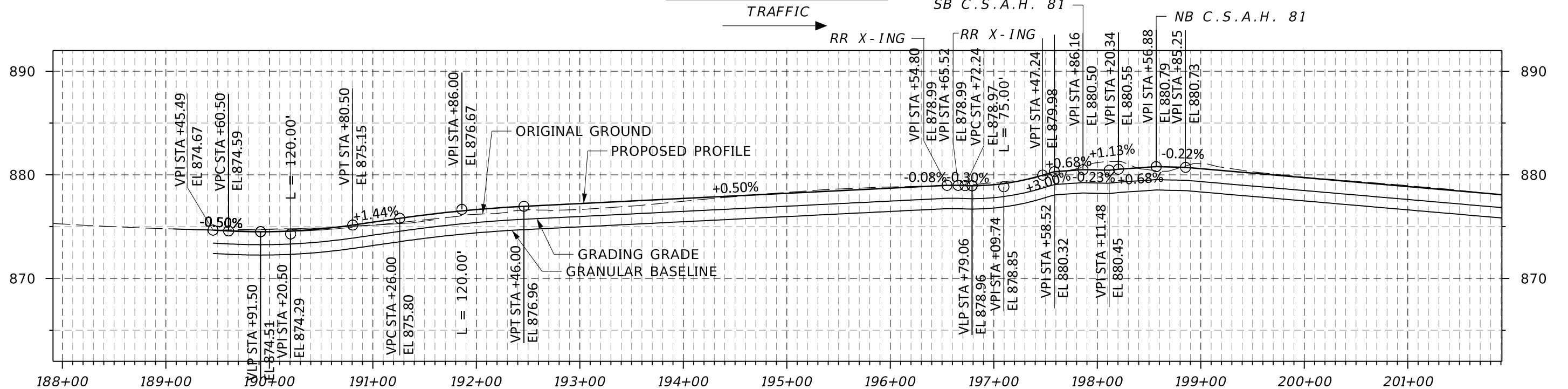
SHEET

176 / 244

WB C.S.A.H. 130



EB C.S.A.H. 130



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49075
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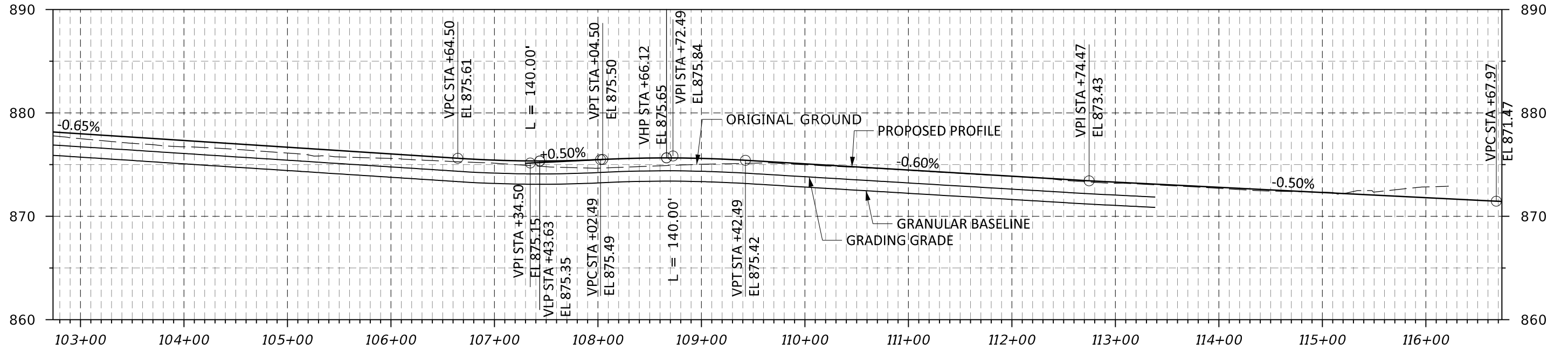
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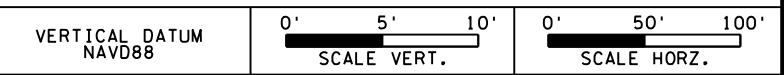
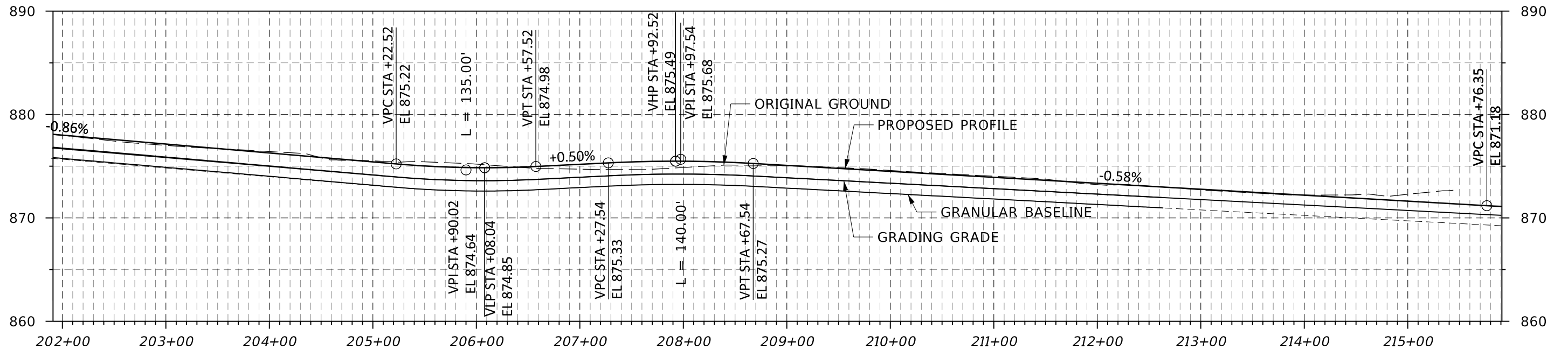
WB C.S.A.H. 130

TRAFFIC ←



EB C.S.A.H. 130

TRAFFIC →



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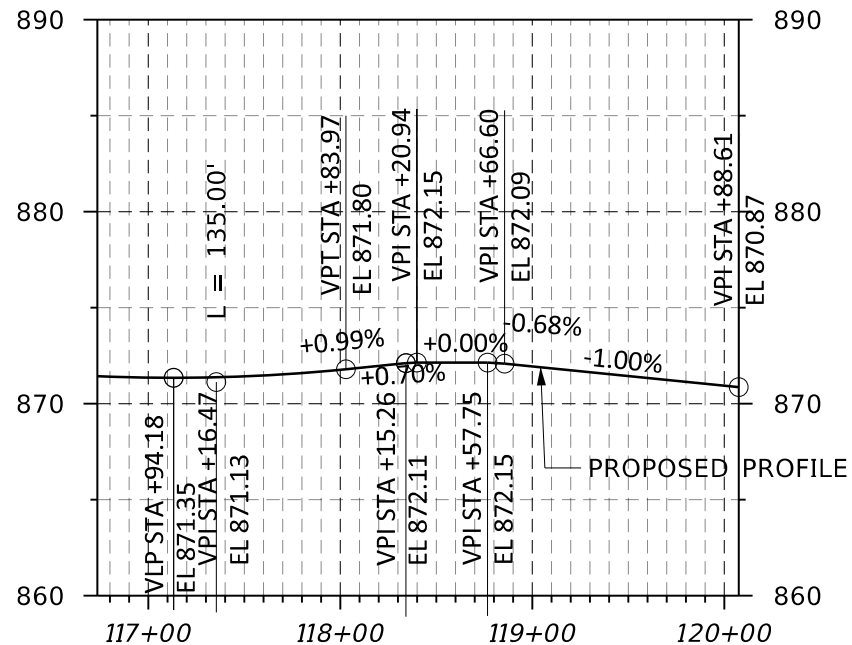
DESIGN BY: S. PARK
 CAD BY: R. DECOTEAU
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PROFILES
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SHEET
 178 / 244

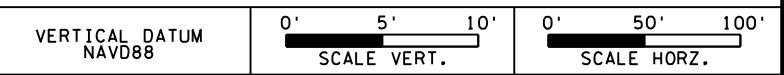
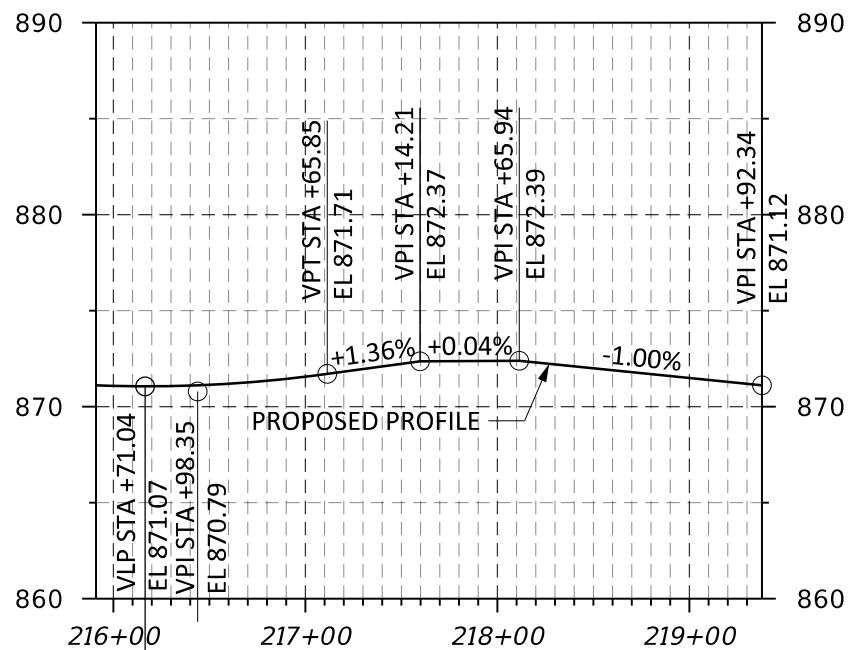
WB C.S.A.H. 130

TRAFFIC ←



EB C.S.A.H. 130

TRAFFIC →



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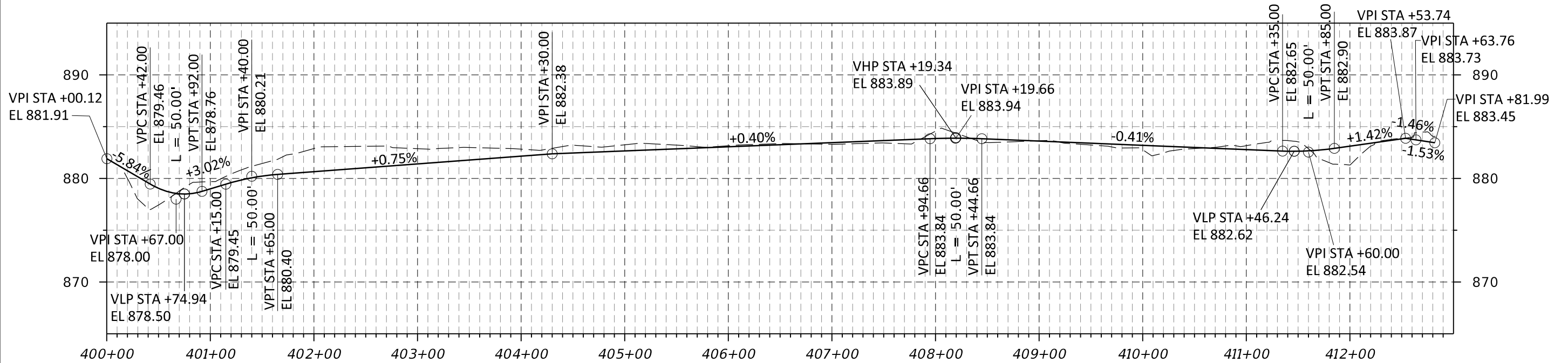
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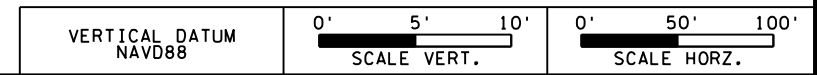
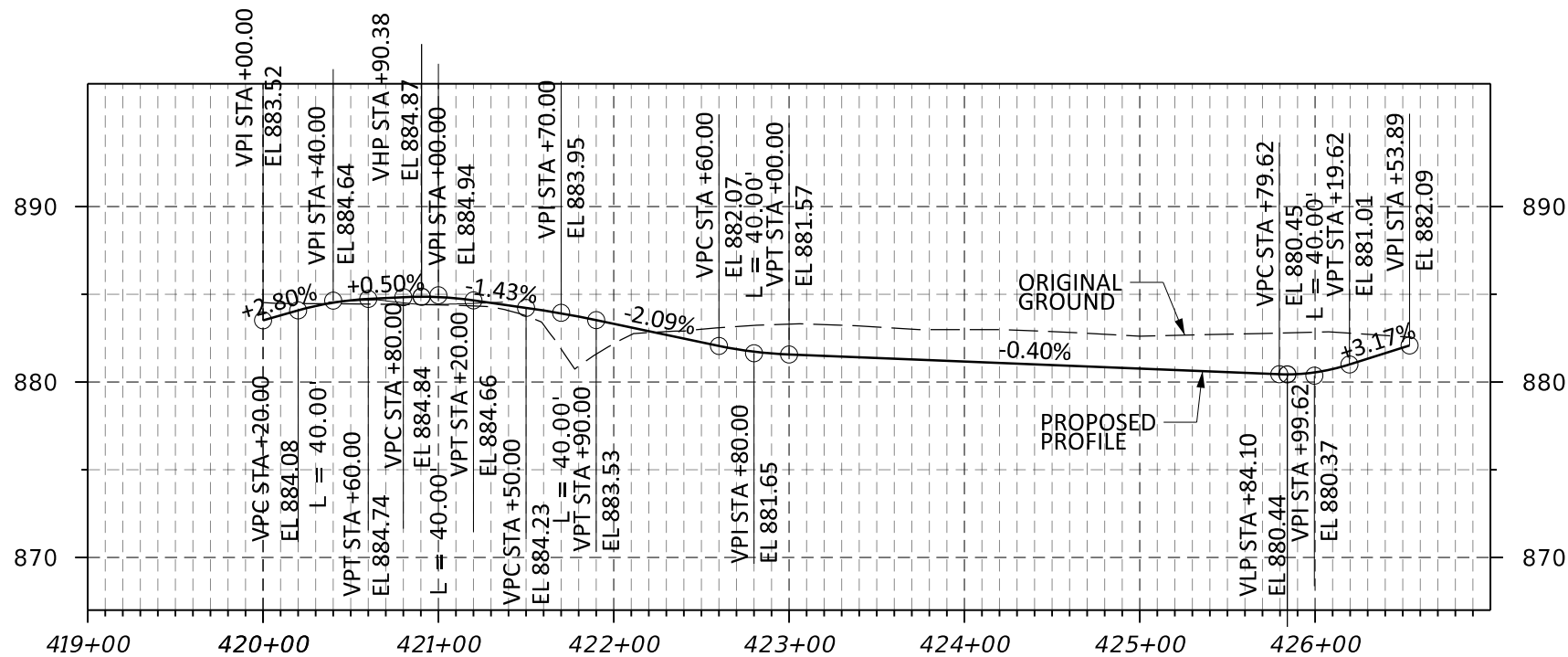
PROFILES
 C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
 S.P. 027-681-035, S.P. 110-020-040

SHEET
 179
 244

TRAIL: 71ST AVE - 73RD AVE N.



TRAIL: 73RD AVE N. - LAKELAND AVE ACCESS



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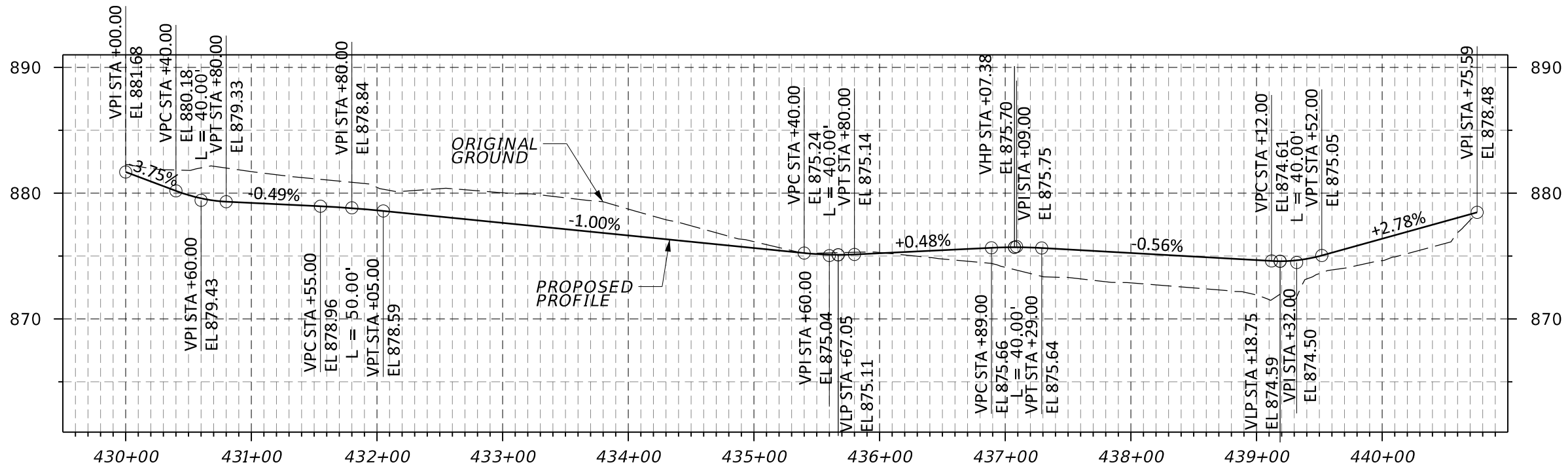
Kelly Agosto
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DESIGN BY: S. PARK
 CAD BY: R. DECOTEAU
 CHECKED BY: L. LANGNER
 LAST REVISION: / /

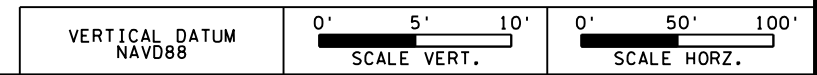
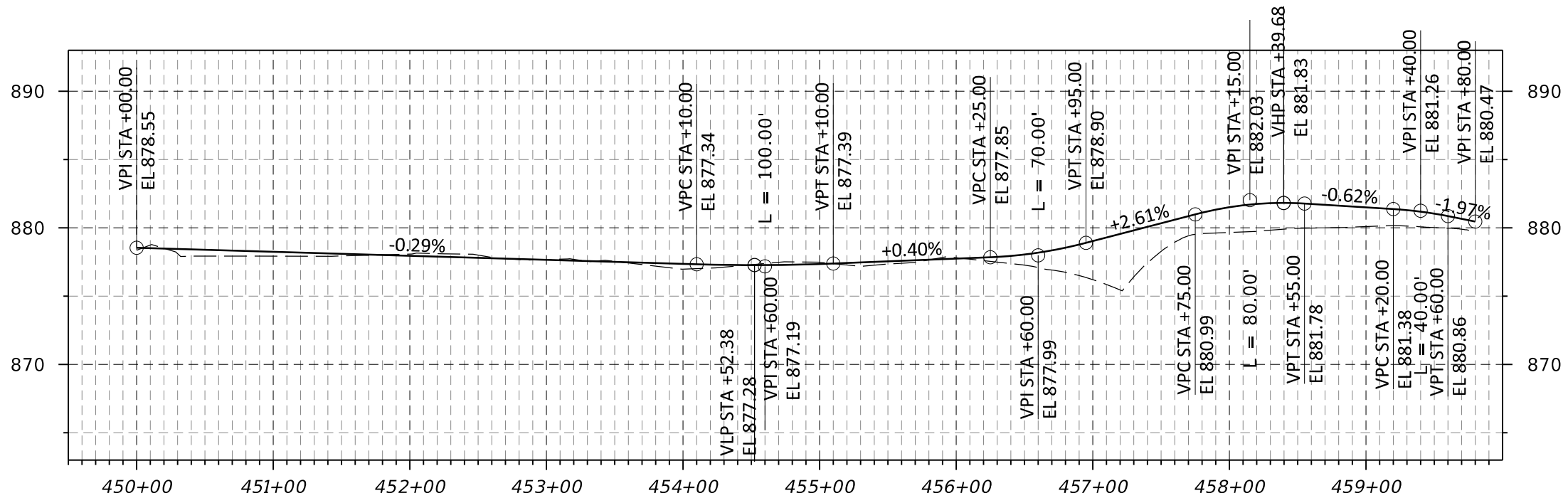
PROFILES
 C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
 S.P. 027-681-035, S.P. 110-020-040

SHEET
 180 / 244

TRAIL: LAKELAND AVE - SA ACCESS



TRAIL: SA ACCESS - CSAH 130 (BROOKLYN BLVD)



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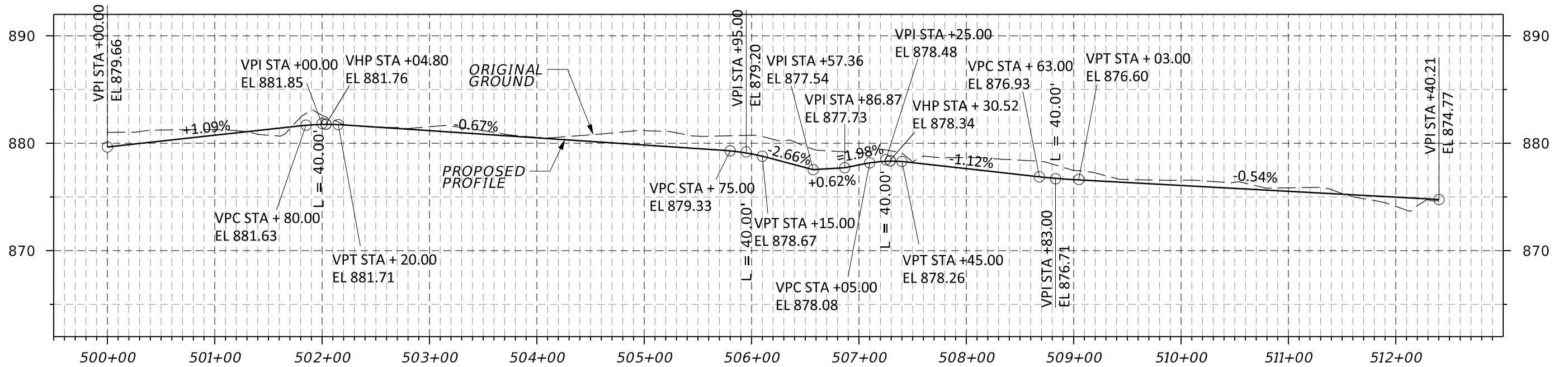
Kelly Agosto
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DESIGN BY: S. PARK
 CAD BY: R. DECOTEAU
 CHECKED BY: L. LANGNER
 LAST REVISION: / /

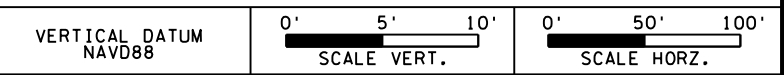
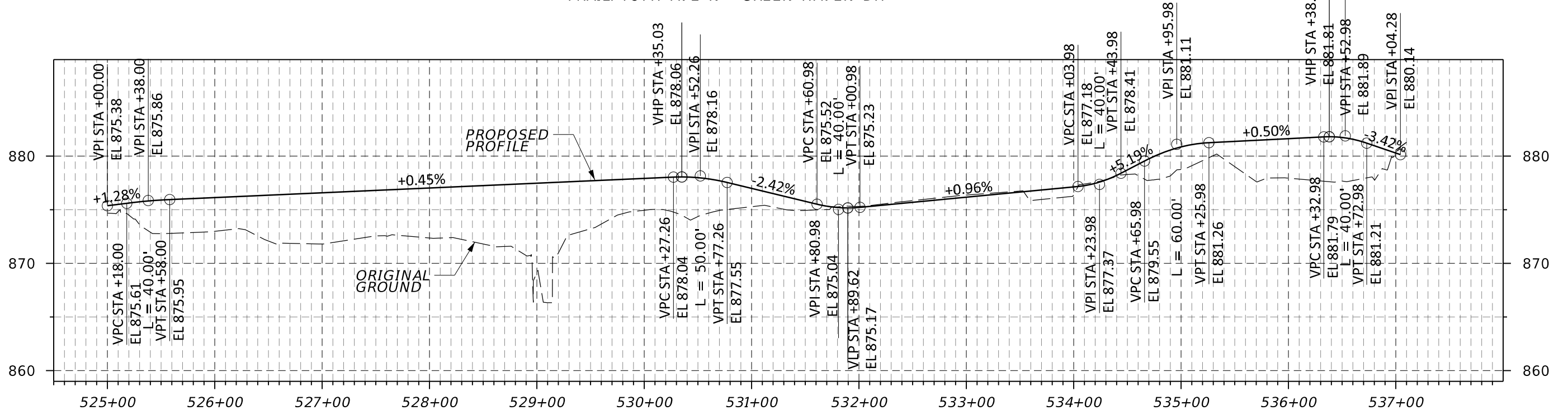
PROFILES
 C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
 S.P. 027-681-035, S.P. 110-020-040

SHEET
 181 / 244

TRAIL: CSAH 130 (BROOKLYN BLVD) - 79TH AVE N



TRAIL: 79TH AVE N - GREEN HAVEN DR



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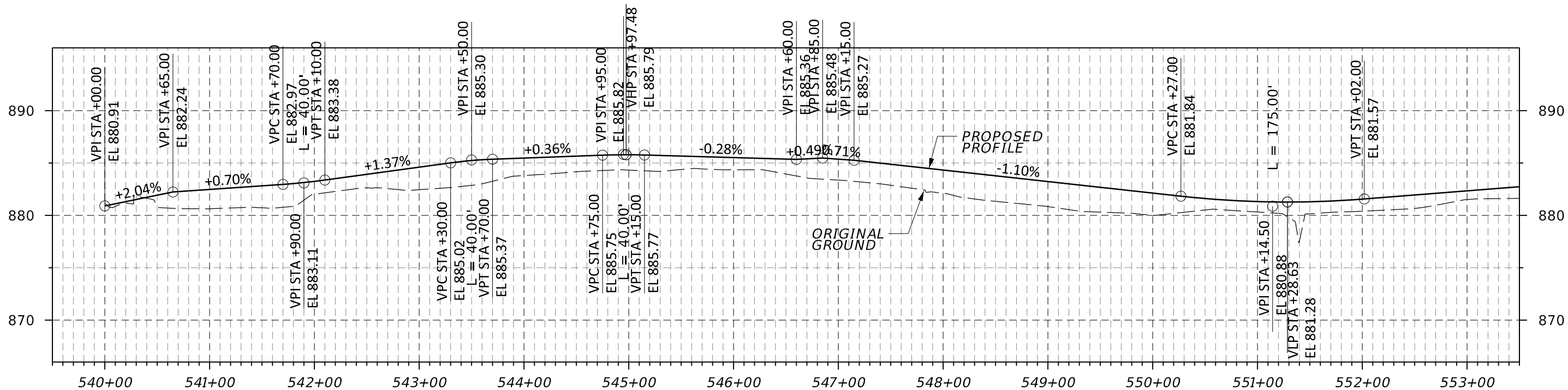
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DESIGN BY: S. PARK
 CAD BY: R. DECOTEAU
 CHECKED BY: L. LANGNER
 LAST REVISION: / /

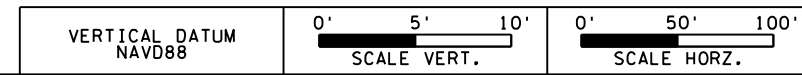
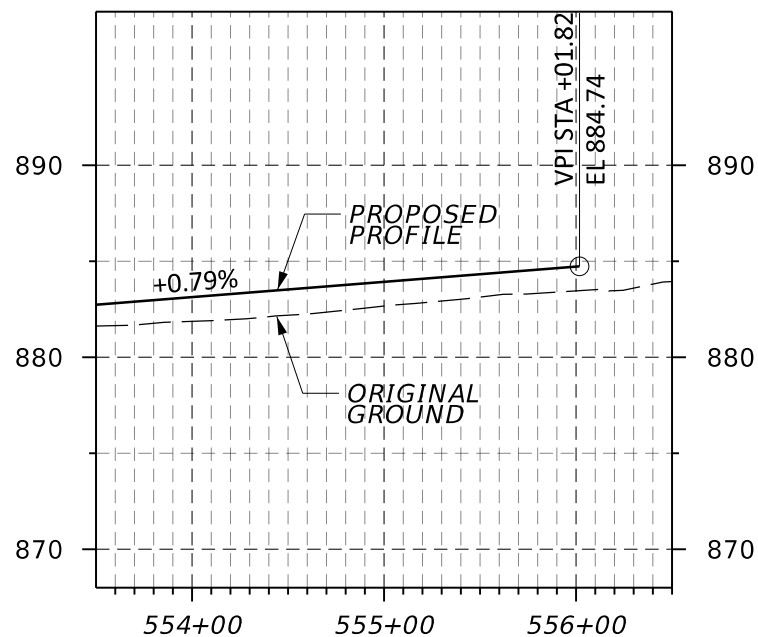
PROFILES
 C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
 S.P. 027-681-035, S.P. 110-020-040

SHEET
 182 / 244

TRAIL: GREEN HAVEN DR - 83RD AVE N



TRAIL: GREEN HAVEN DR - 83RD AVE N



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.

Kelly Agosto
 KELLY AGOSTO, LICENSED PROFESSIONAL ENGINEER
 49075 LICENSE NO.
 3/15/19 DATE

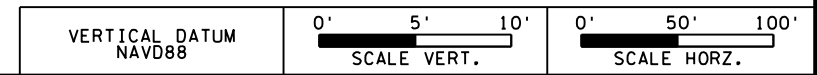
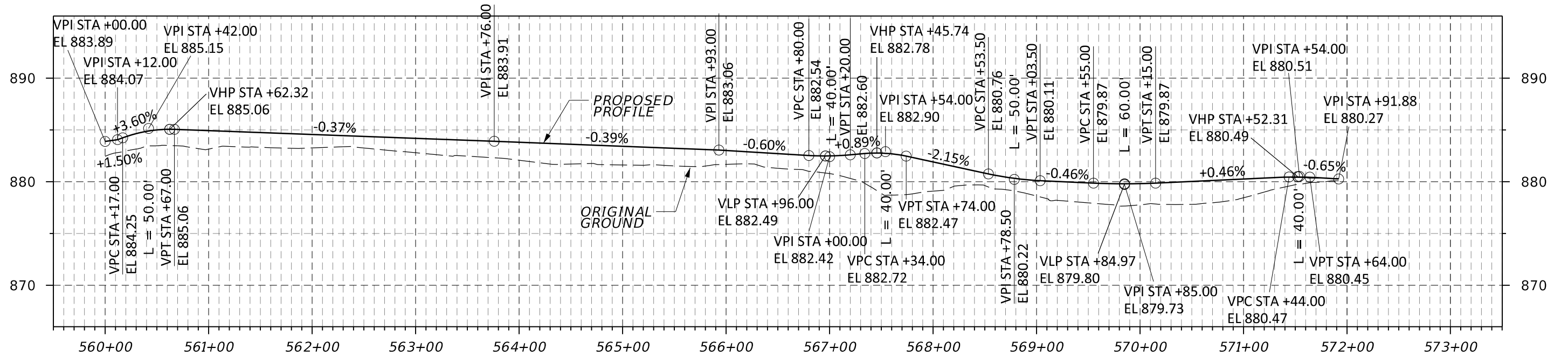
DESIGN BY: S. PARK
 CAD BY: R. DECOTEAU
 CHECKED BY: L. LANGNER
 LAST REVISION: / /

PROFILES

C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
 S.P. 027-681-035, S.P. 110-020-040

SHEET
 183
 244

TRAIL: 83RD AVE N - 85TH AVE N



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.

Kelly Agosto
 KELLY AGOSTO, LICENSED PROFESSIONAL ENGINEER
 LICENSE NO. 49075
 DATE 3/15/19

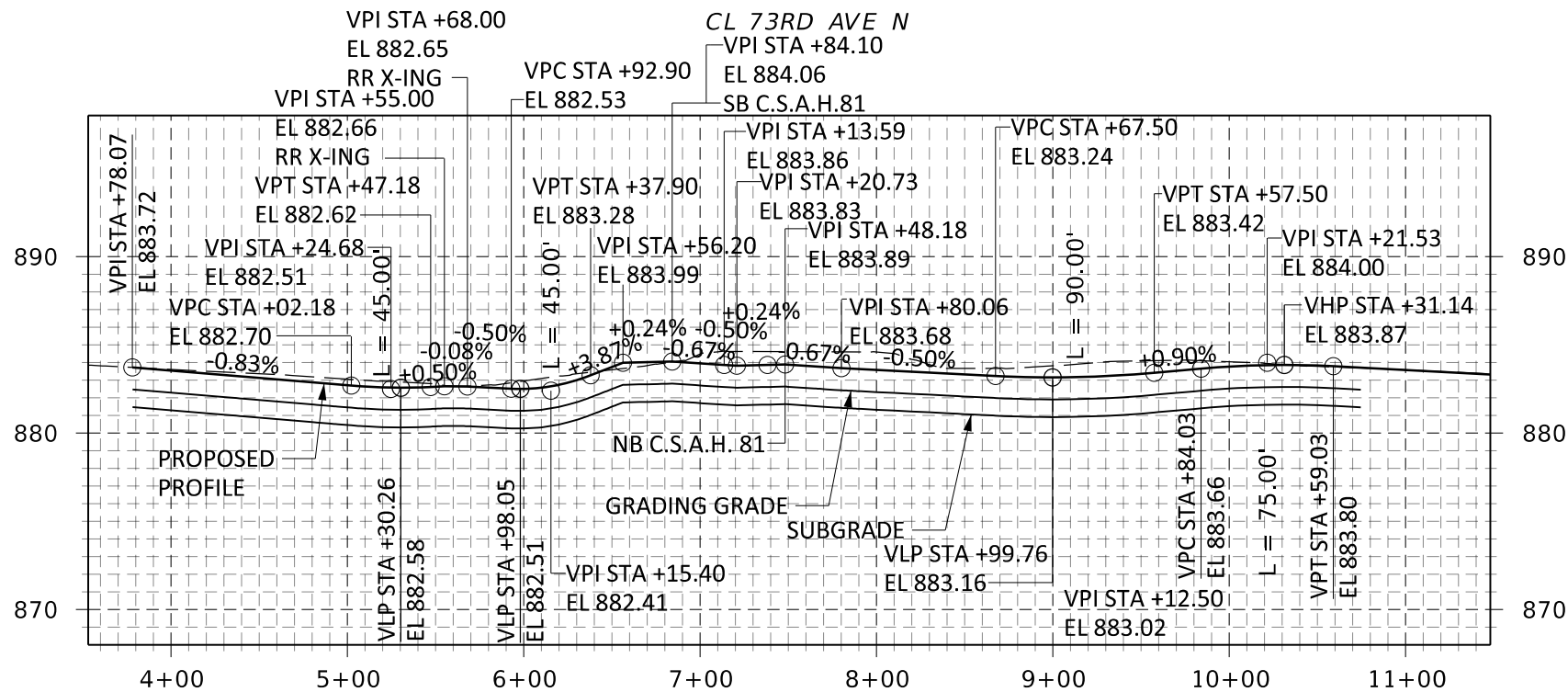
DESIGN BY: S. PARK
 CAD BY: R. DECOTEAU
 CHECKED BY: L. LANGNER
 LAST REVISION: / /

PROFILES

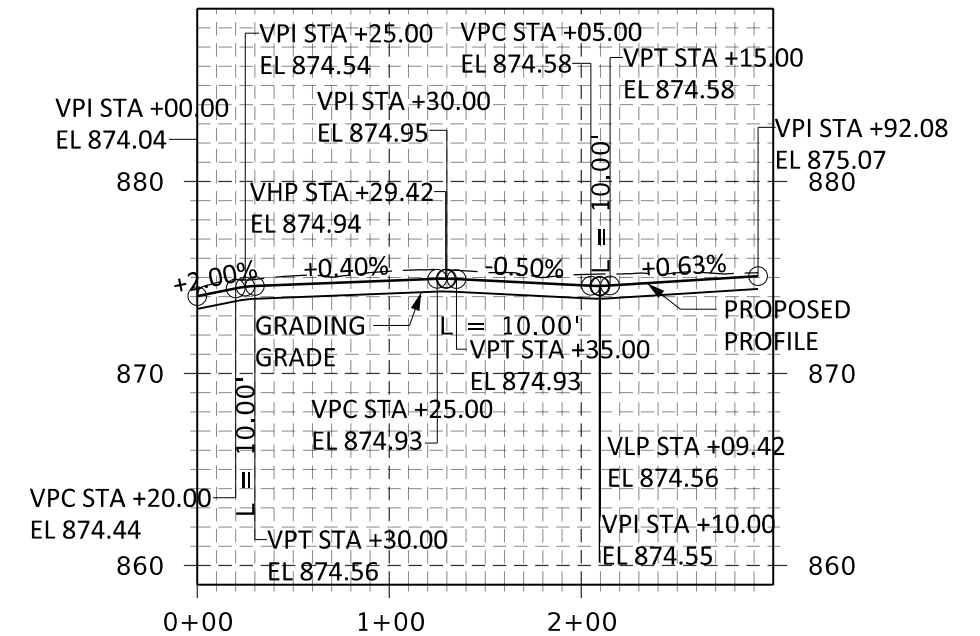
C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
 S.P. 027-681-035, S.P. 110-020-040

SHEET

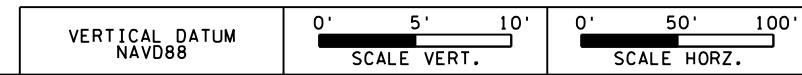
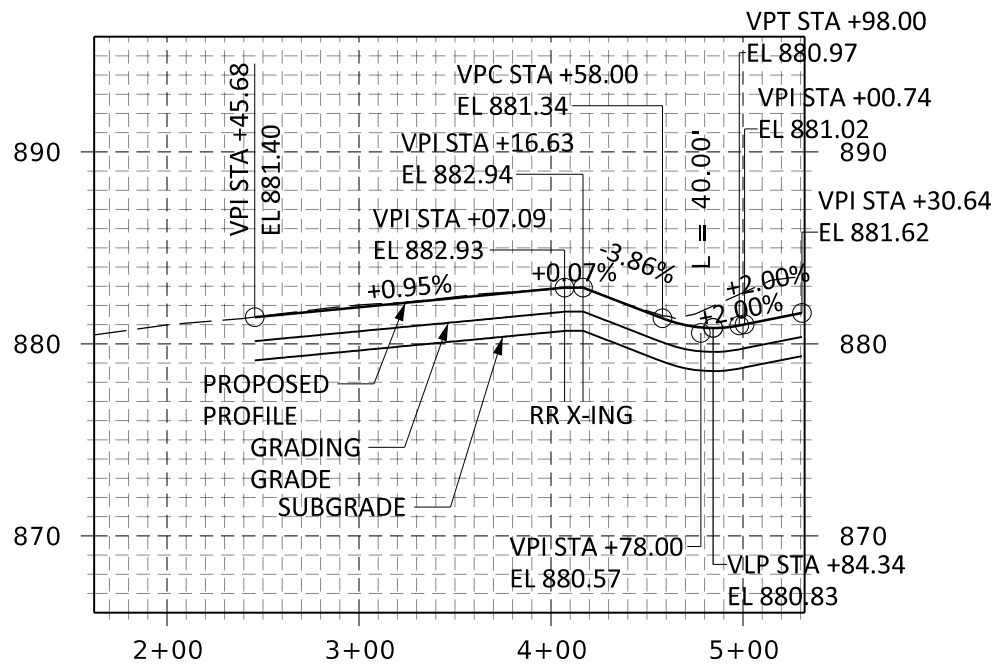
184 / 244



CL 79TH AVE N -SIDEWALK



CL GREEN HAVEN DR.



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.

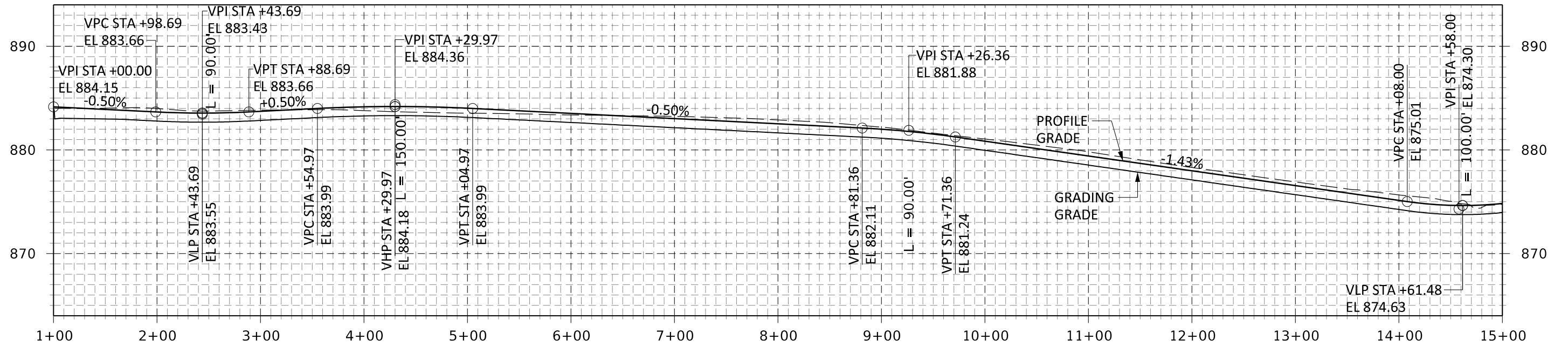
Kelly Agosto
 KELLY AGOSTO, LICENSED PROFESSIONAL ENGINEER
 49075 LICENSE NO. 3/15/19 DATE

DESIGN BY: S. PARK
 CAD BY: R. DECOTEAU
 CHECKED BY: L. LANGNER
 LAST REVISION: / /

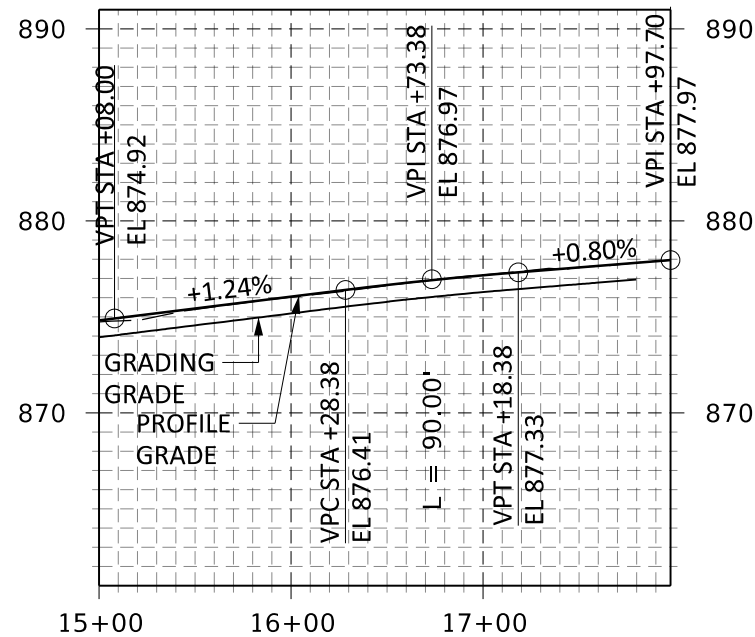
PROFILES
 C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
 S.P. 027-681-035, S.P. 110-020-040

SHEET
 185 / 244

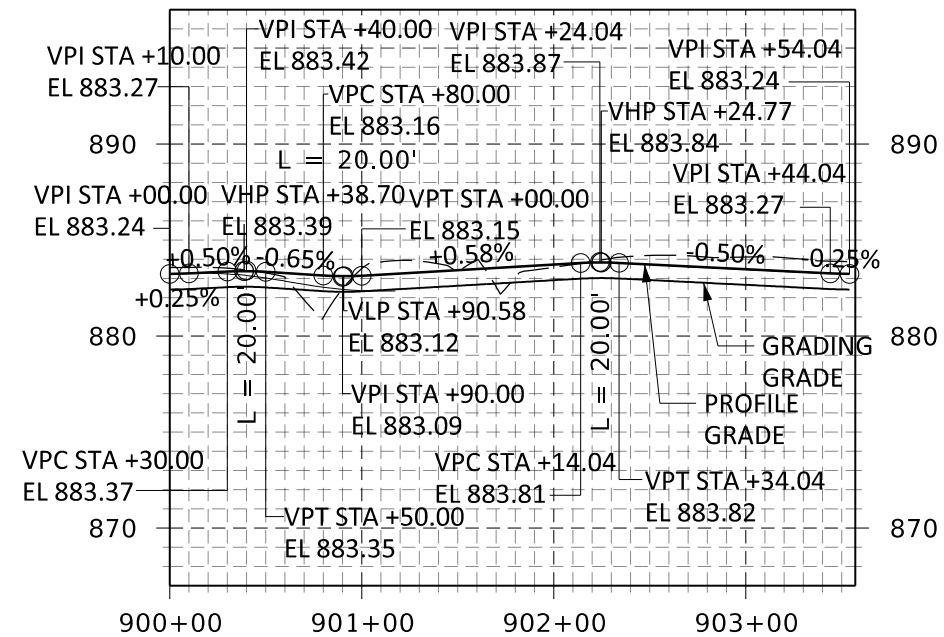
CL LAKELAND AVE



CL LAKELAND AVE



CL LAKELAND AVE CUL DE SAC



VERTICAL DATUM
NAVD88

0' 5' 10'
SCALE VERT.

0' 50' 100'
SCALE HORZ.



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Kelly Agosto
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49075
LICENSE NO.

3/15/19
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DESIGN BY: S. PARK
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LAST REVISION: / /

PROFILES

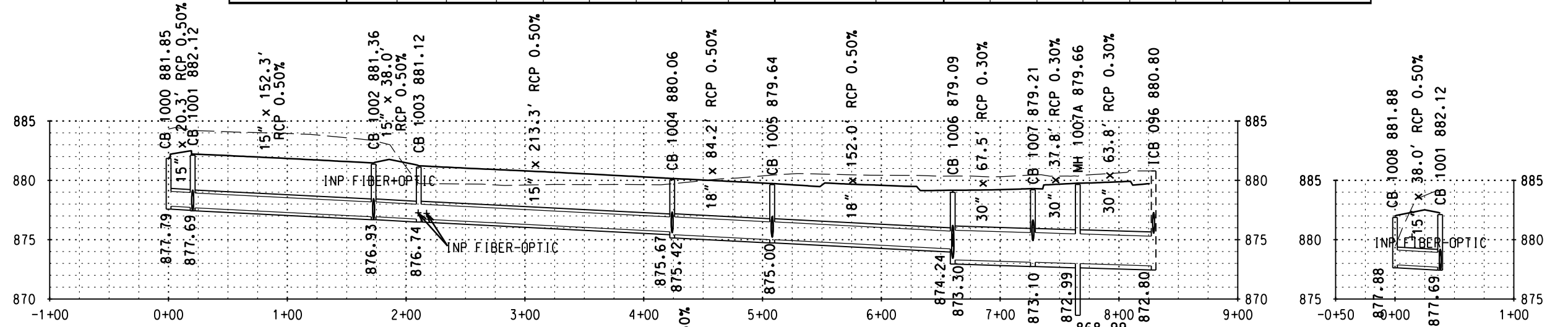
C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
S.P. 027-681-035, S.P. 110-020-040

SHEET

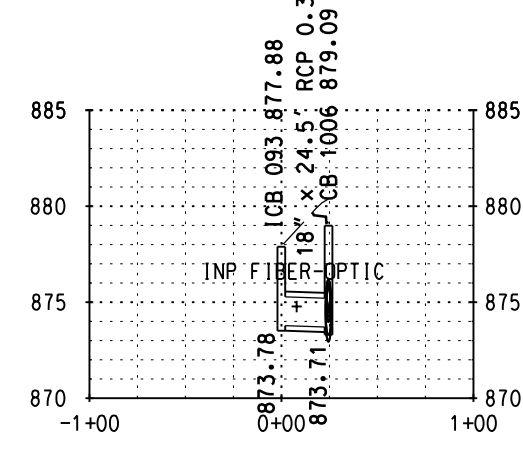
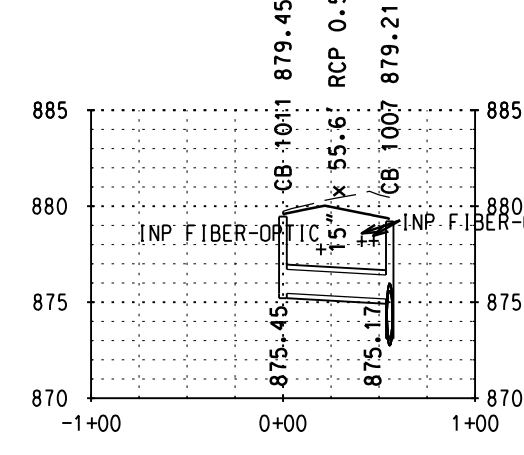
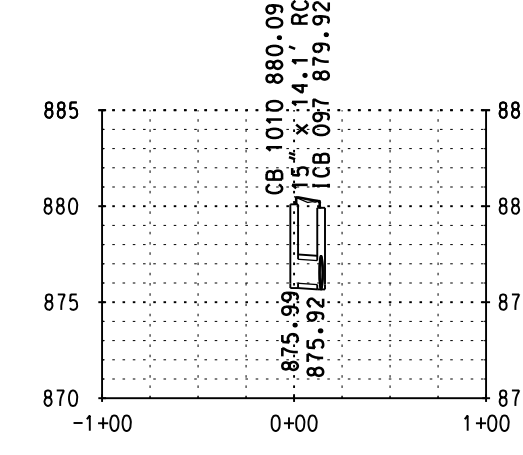
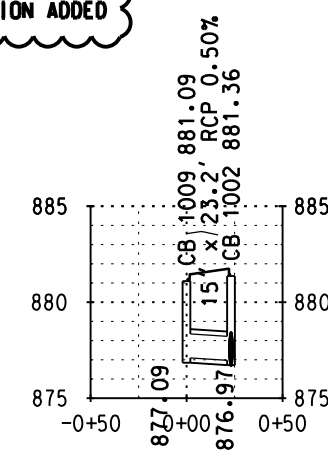
186
244

UNDERGROUND CONSTRUCTION DATA (PIPE SEWERS)

STRUCT. NO.	STATION	LOCATION	TOP OF CASTING ELEV.	FLOW LINE ELEV.	DRAINS TO	GRADE %	CONSTRUCT STRUCTURE										CASTING ASSEMB. EACH	REINFORCED CONCRETE PIPE						CONNECT TO EXISTING		REMARKS											
							DESIGN 4020		DESIGN 4020						STRUCTURE BAFFLE EACH	15 IN CL V		18 IN CL III	21 IN CL III	24 IN CL III	27 IN CL III	30 IN CL III	PIPE EACH	STRUCTURE EACH													
							DESIGN F	DESIGN G	48 IN	60 IN	66 IN	72 IN	78 IN	84 IN											90 IN		FEET										
																									FEET												
CB 1000	L ^{NB} 1313+90.0	25 LT	881.85	877.79	CB 1001	0.50		4.0										B-9	20																		
CB 1001	L ^{SB} 2313+89.0	13 RT	882.12	877.69	CB 1002	0.50		4.3											B-9	152 *																	
CB 1002	L ^{SB} 2312+37.0	13 RT	881.36	876.93	CB 1003	0.50		4.4											B-9	38 *																	
CB 1003	L ^{SB} 2312+37.0	25 LT	881.12	876.74	CB 1004	0.50		4.3											B-9	213 *																	
CB 1004	L ^{SB} 2310+24.0	25 LT	880.06	875.42	CB 1005	0.50		4.6											B-9	84 *																	
CB 1005	L ^{SB} 2309+40.0	25 LT	879.64	875.00	CB 1006	0.50		4.6											B-9	152 *																	
CB 1006	L ^{SB} 2307+88.3	29.3 LT	879.09	873.30	CB 1007	0.30				5.7									B-5																		68 *
CB 1007	L ^{SB} 2307+21.0	33.8 LT	879.21	873.10	MH 1007A	0.30						6.0							B-9																	38 *	
MH 1007A	L ^{SB} 2306+83.9	40.9 LT	879.66	868.99	ICB 96	0.30						10.8					1	A-7D																		64 *	
CB 1008	L ^{SB} 2313+89.0	25 LT	881.88	877.88	CB 1001	0.50		3.9											B-9	38																	
CB 1009	L ^{NB} 1312+38.0	25 LT	881.09	877.09	CB 1002	0.50		3.9											B-9	23																	
CB 1010	L ^{NB} 1306+21.0	13 LT	880.09	875.99	ICB 097	0.50		4.0											B-9	14																	
CB 1011	L ^{SB} 2307+21.0	21.8 RT	879.45	875.45	CB 1007	0.50		3.9											B-9	56																	
ICB 093	L ^{SB} 2307+99.8	50.9 LT	877.88	873.78	CB 1006	0.36																															25 *
SHEET TOTAL							0.0	41.9	0.0	16.8	5.7	0.0	0.0	0.0	0.0	0.0	1	13	554	261	0	0	0	170	0	1											* PLASTIC PIPE OPTION



▲ 04/22/19 PLASTIC PIPE OPTION ADDED



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.

Kelly Agosto
 KELLY AGOSTO, LICENSED PROFESSIONAL ENGINEER
 49075 LICENSE NO. 3/15/19 DATE

DESIGN BY: L. LANGNER
 CAD BY: E. GUIR
 CHECKED BY: R. DECOTEAU
 LAST REVISION: 4/22/19

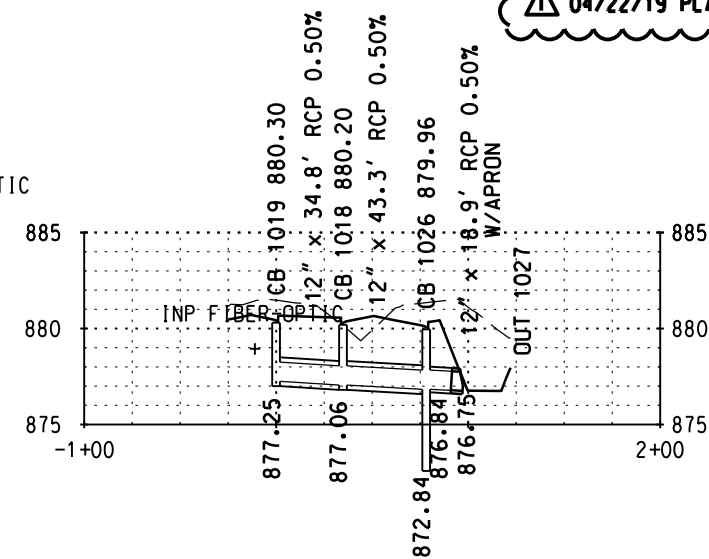
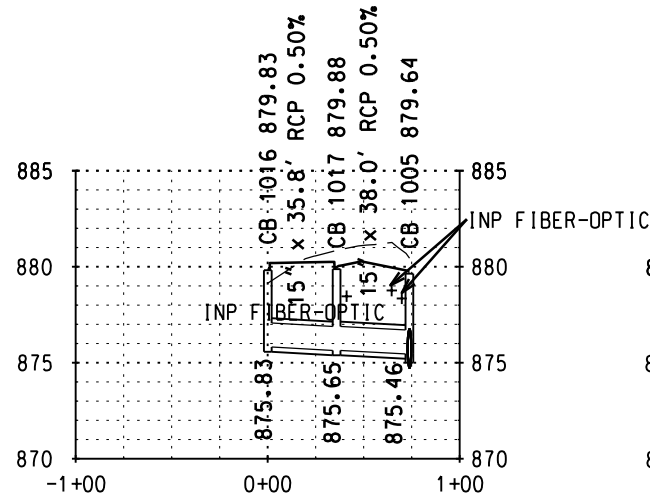
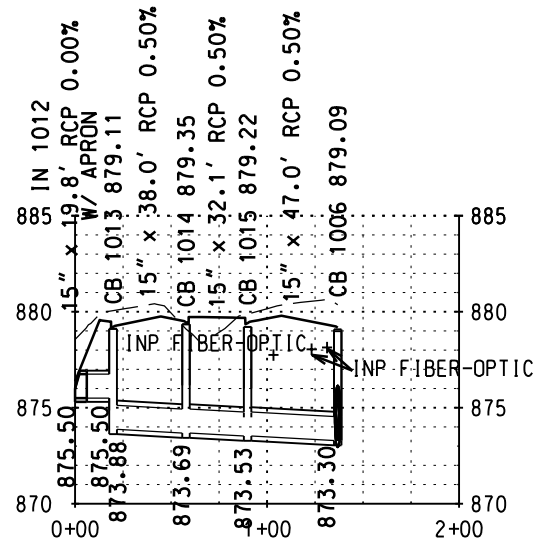
DRAINAGE PROFILES AND TABULATIONS

C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
 S.P. 027-681-035, S.P. 110-020-040

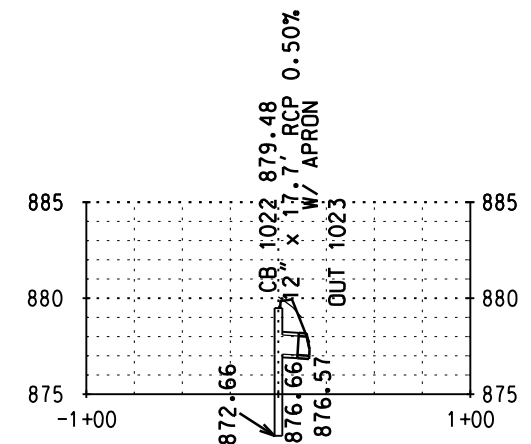
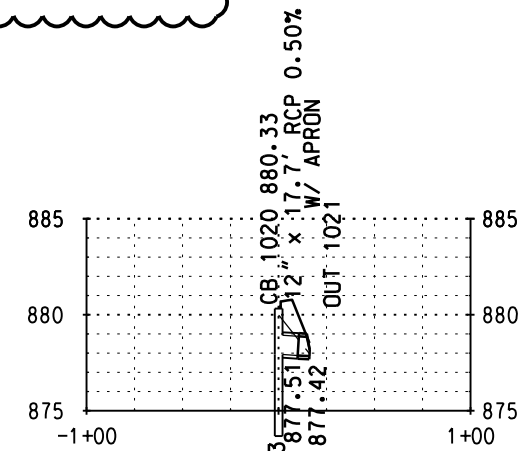
SHEET
 R187.1
 244

UNDERGROUND CONSTRUCTION DATA (PIPE SEWERS)

STRUCT. NO.	STATION	LOCATION	TOP OF CASTING ELEV	FLOW LINE ELEV	DRAINS TO	GRADE %	CONSTRUCT STRUCTURE					REINFORCED CONCRETE PIPE				RIPRAP CL II CU. YD	GEOTEXTILE FILTER TYPE 4 SQ. YD	GRANULAR FILTER CU. YD	RCP APRON EACH	REMARKS		
							DESIGN F	DESIGN SD	DESIGN 4020			DESIGN SPECIAL EACH	CASTING ASSEMB. EACH	12 IN	15 IN						18 IN	21 IN
									48 IN	66 IN	72 IN			CL V	CL V						CL III	CL III
IN 1012	L ^{NB} 1308+04.8	44.8 RT		875.50	CB 1013	0.00												1-15"	F&I TRASH GUARD			
CB 1013	L ^{NB} 1308+05.0	25 RT	879.11	873.88	CB 1014	0.50					1								DESIGN SPECIAL 1			
CB 1014	L ^{NB} 1308+05.0	13 LT	879.35	873.69	CB 1015	0.50	5.6															
CB 1015	L ^{SB} 2307+85.0	17.5 RT	879.22	873.53	CB 1006	0.50	5.6															
CB 1018	L ^{NB} 1310+21.9	16 LT	880.20	877.06	CB 1026	0.50		3.1														
CB 1019	L ^{SB} 2310+24.0	13 RT	880.30	877.25	CB 1018	0.50		3.0														
CB 1020	L ^{NB} 1305+24.3	25 RT	880.33	873.93	OUT 1021	0.50			6.3													
OUT 1021	L ^{NB} 1305+24.3	42.7 RT		877.85																		
CB 1022	L ^{NB} 1306+93.8	25 RT	879.48	872.66	OUT 1023	0.50			6.7													
OUT 1023	L ^{NB} 1306+94.0	42.7 RT		877.00																		
CB 1026	L ^{NB} 1310+23.3	27.3 RT	879.96	872.84	OUT 1027	0.50			7.0													
OUT 1027	L ^{NB} 1310+22.2	46.2 RT		876.75																		
SHEET TOTAL							11.2	6.0	20.1	0.0	0.0	1	7	37	215	0	0	9	51	3	* PLASTIC PIPE OPTION	



⚠ 04/22/19 PLASTIC PIPE OPTION ADDED



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Kelly Agosto
 KELLY AGOSTO, LICENSED PROFESSIONAL ENGINEER

49075 3/15/19
 LICENSE NO. DATE

DESIGN BY: L. LANGNER
 CAD BY: E. GUIR
 CHECKED BY: R. DECOTEAU
 LAST REVISION: 4/22/19

DRAINAGE PROFILES AND TABULATIONS

C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
 S.P. 027-681-035, S.P. 110-020-040

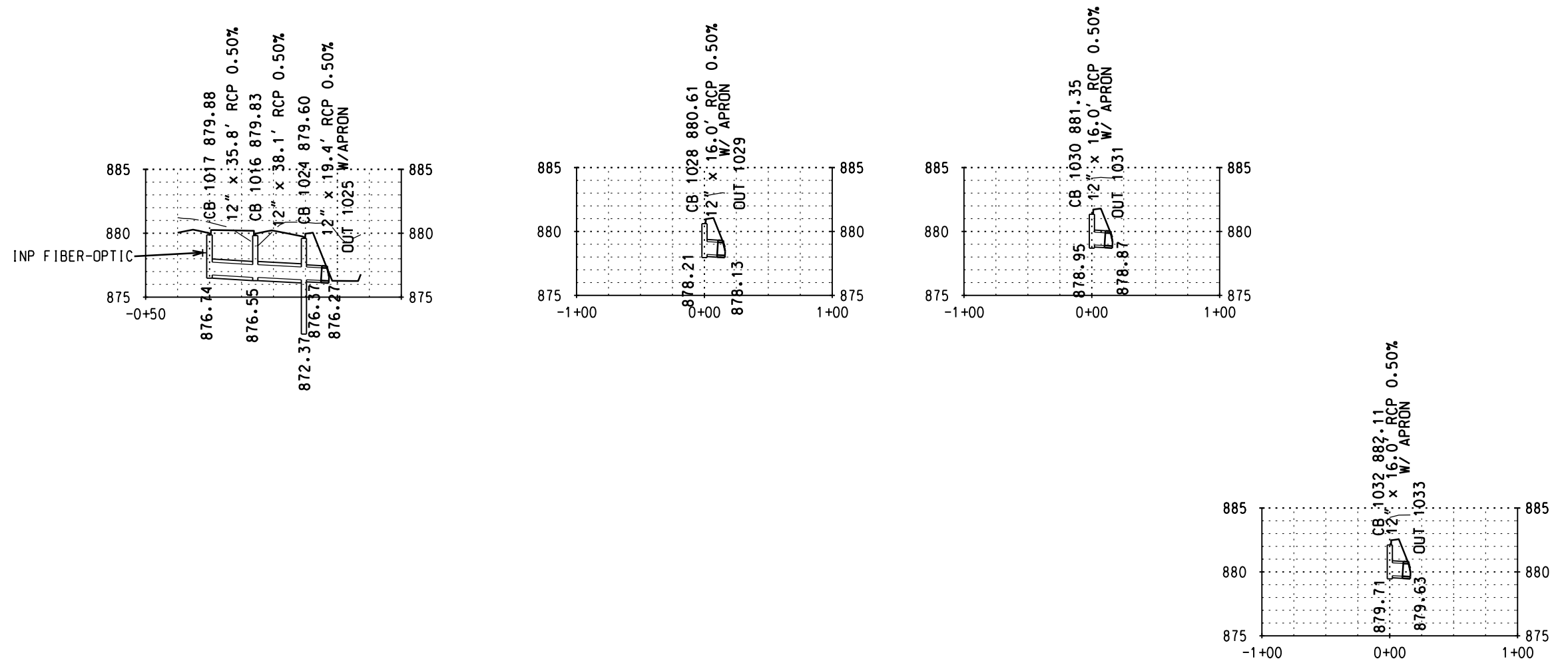
SHEET

R188.1

244

STRUCT. NO.	STATION	LOCATION	TOP OF CASTING ELEV	FLOW LINE ELEV	DRAINS TO	GRADE %	CONSTRUCT STRUCTURE					REINFORCED CONCRETE PIPE				RIPRAP CL II CU. YD	GEOTEXTILE FILTER TYPE 4 SQ. YD	GRANULAR FILTER CU. YD	RCP APRON EACH	REMARKS			
							DESIGN F	DESIGN SD	DESIGN H	DESIGN 4020		CASTING ASSEMB. EACH	12 IN CL V	15 IN	18 IN						21 IN		
							FEET															48 IN	60 IN
CB 1017	L ^{NB} 2309+40.0	13.0 RT	879.88	876.74	CB 1016	0.50		3.1				B-9	36										
CB 1016	L ^{NB} 1309+37.0	13.0 LT	879.83	876.55	CB 1024	0.50		3.2				B-9	38										
CB 1024	L ^{NB} 1309+39.1	25 RT	879.60	872.37	OUT 1025	0.50				7.2		B-9	13										
OUT 1025	L ^{NB} 1309+39.1	41 RT		876.27													3	17	1	1-12"			
CB 1028	L ^{NB} 1311+88.8	37 RT	880.61	878.21	OUT 1029	0.50			2.3			B-9	10										
OUT 1029	L ^{NB} 1311+88.8	53 RT		878.13													3	17	1	1-12"			
CB 1030	L ^{NB} 1313+37.2	37 RT	881.35	878.95	OUT 1031	0.50			2.3			B-9	10										
OUT 1031	L ^{NB} 1313+37.2	53 RT		878.87													3	17	1	1-12"			
CB 1032	L ^{NB} 1314+89.0	37 RT	882.11	879.71	OUT 1033	0.50			2.3			B-9	10										
OUT 1033	L ^{NB} 1314+89.0	53 RT		879.63													3	17	1	1-12"			
SHEET TOTAL							0.0	6.3	7.0	7.2	0.0	6	117	0	0	0	12	68	4				

CB 1026 AND OUT 1027 ARE FOUND ON SHEET 188



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.

Kelly Agosto
 KELLY AGOSTO, LICENSED PROFESSIONAL ENGINEER

49075 3/15/19
 LICENSE NO. DATE

DESIGN BY: L. LANGNER
 CAD BY: E. GUIR
 CHECKED BY: R. DECOTEAU
 LAST REVISION: / /

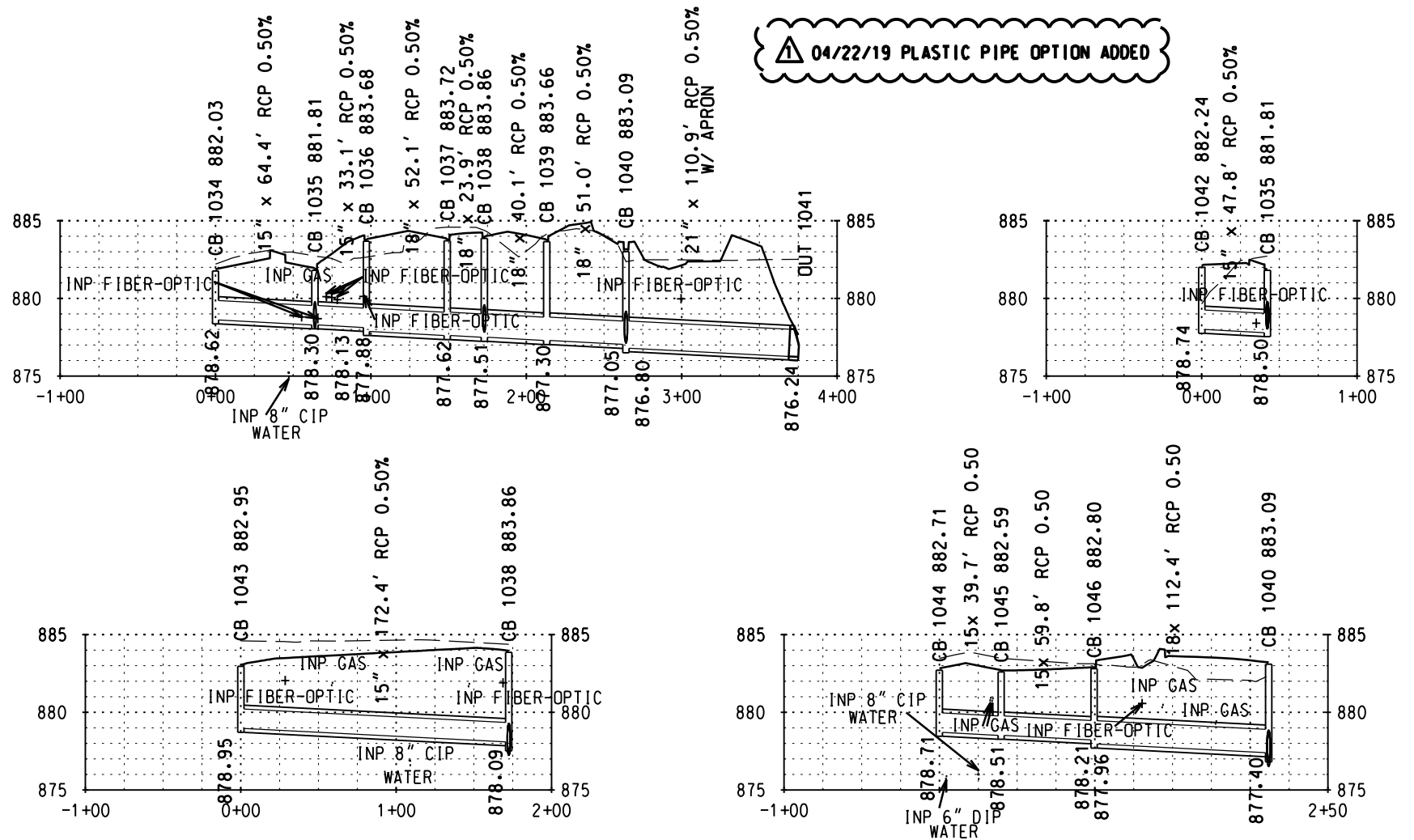
DRAINAGE PROFILES AND TABULATIONS

C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
 S.P. 027-681-035, S.P. 110-020-040

SHEET

189
 244

STRUCT. NO.	STATION	LOCATION	TOP OF CASTING ELEV	FLOW LINE ELEV	DRAINS TO	GRADE %	CONSTRUCT STRUCTURE			CASTING ASSEMB. EACH	REINFORCED CONCRETE PIPE					RIPRAP CL III CU. YD	GEOTEXTILE FILTER TYPE 4 SQ. YD	GRANULAR FILTER CU. YD	RCP APRON EACH	REMARKS	
							DESIGN F	DESIGN G	DESIGN SD		15 IN CL V	18 IN CL III	21 IN CL III	24 IN CL III	27 IN CL III						30 IN CL III
							FEET				FEET										
CB 1034	L ^{73RD} 6+08.0	33.5 RT	882.03	878.62	CB 1035	0.50			3.3	B-5	64										
CB 1035	L ^{73RD} 6+08.0	30.5 LT	881.81	878.30	CB 1036	0.50		3.4		B-5	33										
CB 1036	L ^{SB} 2317+72.0	27 LT	883.68	877.88	CB 1037	0.50	5.7			B-5		52 *									
CB 1037	L ^{SB} 2317+72.0	25.1 RT	883.72	877.62	CB 1038	0.50	6.0			B-9		24 *									
CB 1038	L ^{NB} 1317+58.1	14.7 LT	883.86	877.51	CB 1039	0.50	6.3			B-9		40 *									
CB 1039	L ^{NB} 1317+63.2	25 RT	883.66	877.30	CB 1040	0.50	6.3			B-9		51 *									
CB 1040	L ^{LAKE} 1+63.4	66 LT	883.09	876.80	OUT 1041	0.50	6.2			B-1			105								
OUT 1041	L ^{NB} 1318+74.0	74.6 RT		876.24										7	27	1	1-21"				
CB 1042	L ^{73RD} 5+62.3	44.6 LT	882.24	878.74	CB 1035	0.50		3.4		B-9	48										
CB 1043	L ^{NB} 1315+86.1	26.5 LT	882.95	878.95	CB 1038	0.50		3.9		B-9	172										
CB 1044	L ^{73RD} 8+99.8	16.9 RT	882.71	878.71	CB 1045	0.50			3.9	B-1	40										
CB 1045	L ^{73RD} 8+99.8	22.9 LT	882.59	878.51	CB 1046	0.50		4.0		B-1	60 *										
CB 1046	L ^{73RD} 8+40.0	23 LT	882.80	877.96	CB 1040	0.50		4.8		B-1		112 *									
SHEET TOTAL							30.5	19.5	7.2	12	417	279	105	0	0	0.0	7	27	1	* PLASTIC PIPE OPTION	



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49075 3/15/19
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 LAST REVISION: 4/22/19

DRAINAGE PROFILES AND TABULATIONS

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 S.P. 027-681-035, S.P. 110-020-040

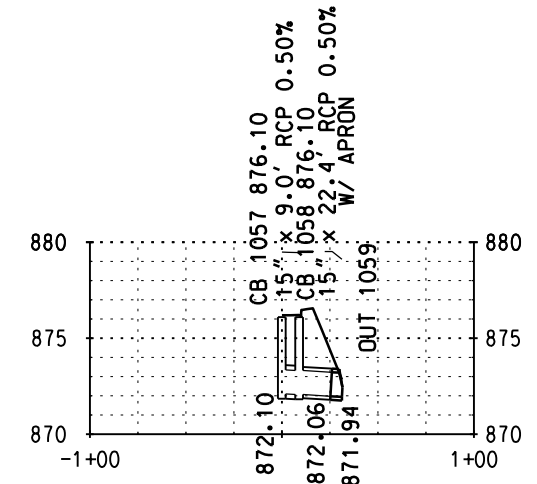
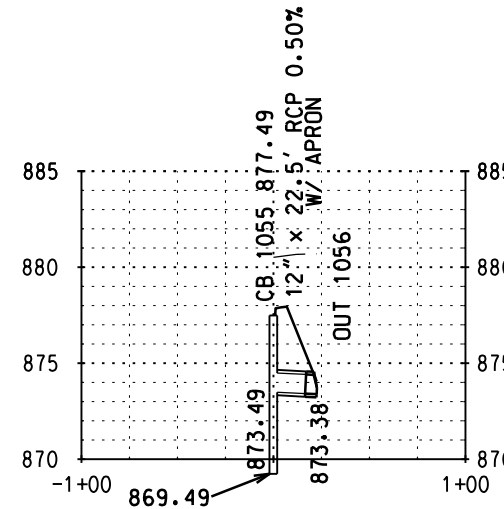
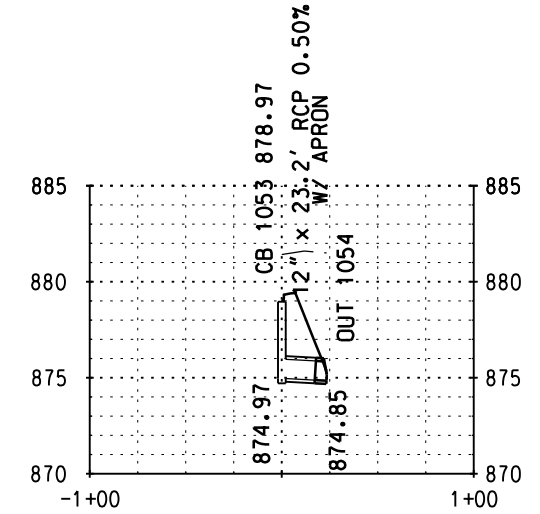
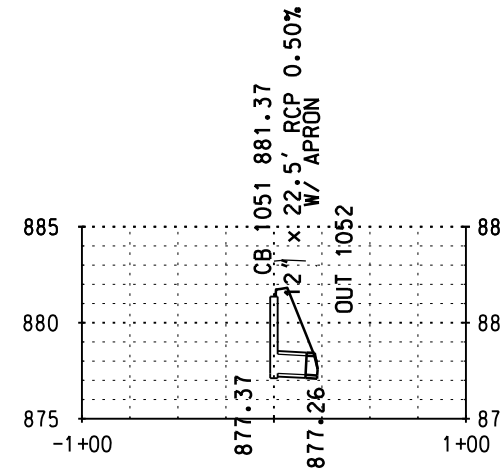
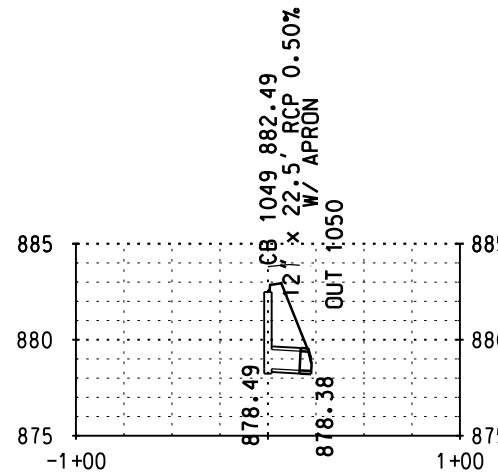
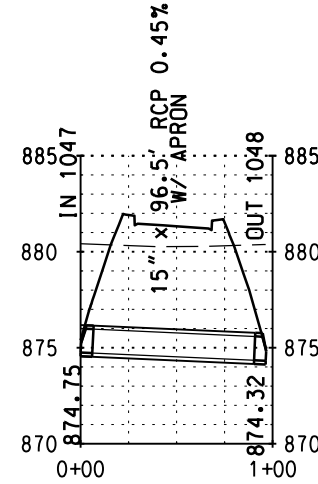
SHEET

R190.1

244

UNDERGROUND CONSTRUCTION DATA (PIPE SEWERS)

STRUCT. NO.	STATION	LOCATION	TOP OF CASTING ELEV	FLOW LINE ELEV	DRAINS TO	GRADE %	CONSTRUCT STRUCTURE			CASTING ASSEMB. EACH	REINFORCED CONCRETE PIPE					RIPRAP CL II CU. YD	RIPRAP CL III CU. YD	GEOTEXTILE FILTER TYPE 4 SQ. YD	GRANULAR FILTER CU. YD	RCP APRON EACH	REMARKS	
							DESIGN F	DESIGN G	DESIGN H		12 IN CL V	15 IN CL V	21 IN CL III	24 IN CL III	27 IN CL III							30 IN CL III
							FEET				FEET											
IN 1047	L ^{NB} 1322+97.4	73 RT		874.75	OUT 1048	0.45													1-15"			
OUT 1048	L ^{NB} 1323+92.9	69.2 RT		874.32											5	21	1		1-15"			
CB 1049	L ^{NB} 1320+04.9	32.7 RT	882.49	878.49	OUT 1050	0.50		3.9	B-9	16												
OUT 1050	L ^{NB} 1320+03.4	55.2 RT		878.38										3		17	1		1-12"			
CB 1051	L ^{NB} 1321+73.8	37 RT	881.37	877.37	OUT 1052	0.50		3.9	B-9	16												
OUT 1052	L ^{NB} 1321+73.7	59.6 RT		877.26										3		17	1		1-12"			
CB 1053	L ^{NB} 1326+04.7	25 RT	878.97	874.97	OUT 1054	0.50		3.9	B-9	17												
OUT 1054	L ^{NB} 1326+04.3	48.3 RT		874.85										3		17	1		1-12"			
CB 1055	L ^{NB} 1328+46.5	25 RT	877.49	869.49	OUT 1056	0.50	7.9		B-9	16												
OUT 1056	L ^{NB} 1328+46.1	47.6 RT		873.38										3		17	1		1-12"			
CB 1057	L ^{NB} 1331+05.6	32.6 RT	876.10	872.10	CB 1058	0.50		3.9	B-5		9											
CB 1058	L ^{NB} 1331+14.6	33.2 RT	876.10	872.06	OUT 1059	0.50		4.0	B-5		16											
OUT 1059	L ^{NB} 1331+18.1	55.2 RT		871.94										3		18	1		1-15"			
SHEET TOTAL							7.9	19.6	0.0	6	66	110	0	0	0	0.0	15	5	107	6		



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.

Kelly Agosto
 KELLY AGOSTO, LICENSED PROFESSIONAL ENGINEER

49075 3/15/19
 LICENSE NO. DATE

DESIGN BY: L. LANGNER
 CAD BY: E. GUIR
 CHECKED BY: R. DECOTEAU
 LAST REVISION: / /

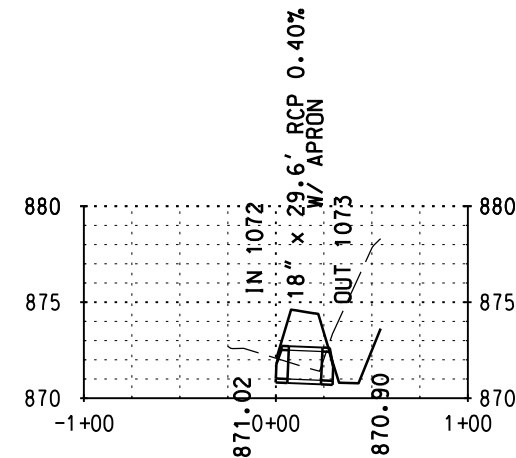
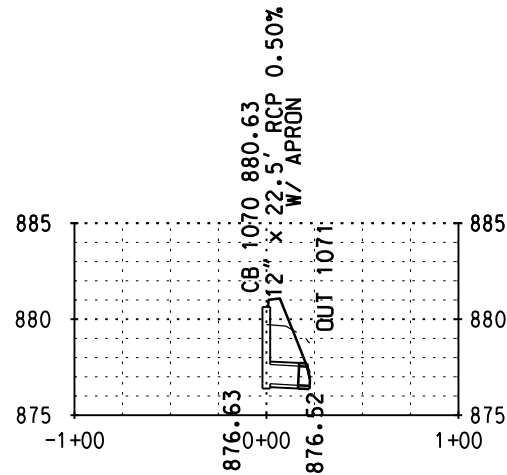
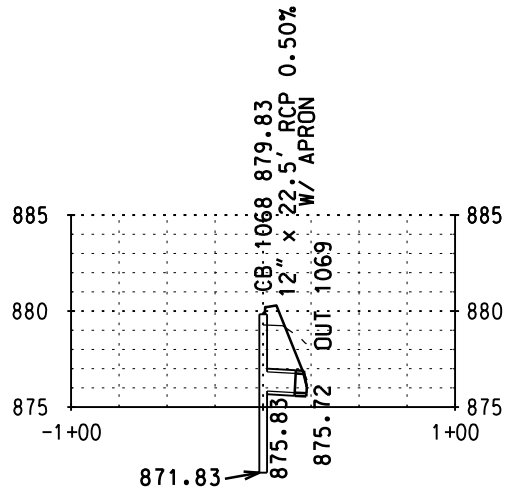
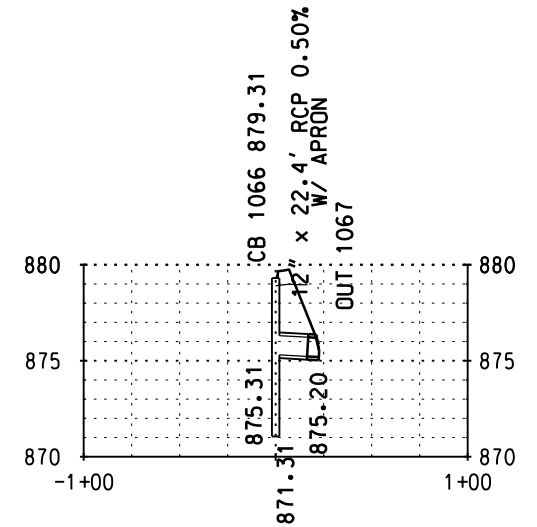
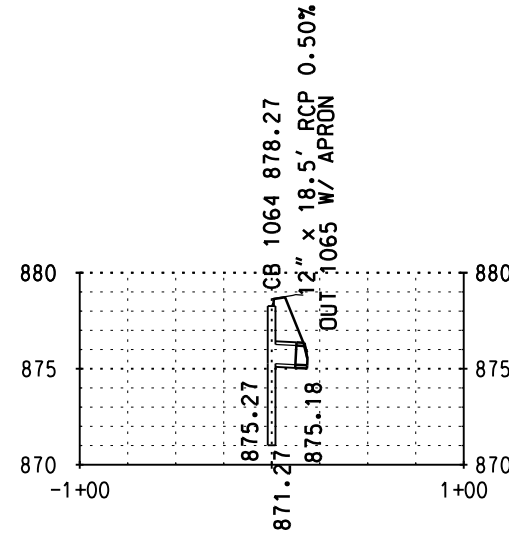
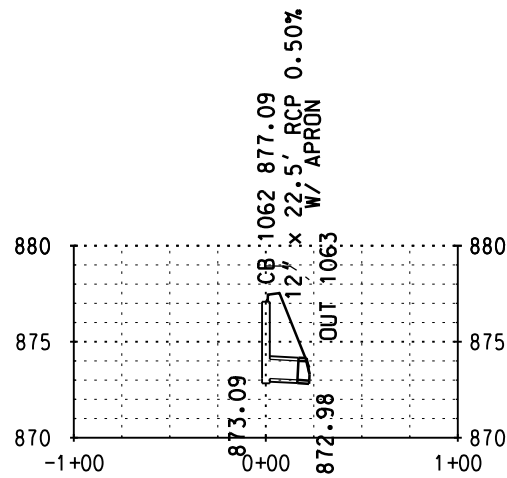
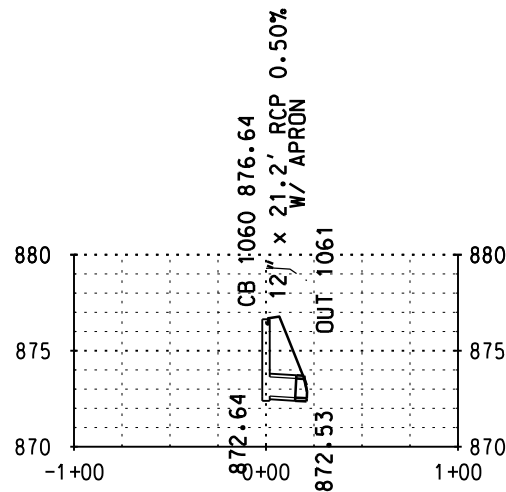
DRAINAGE PROFILES AND TABULATIONS

C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
 S.P. 027-681-035, S.P. 110-020-040

SHEET

191
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STRUCT. NO.	STATION	LOCATION	TOP OF CASTING ELEV	FLOW LINE ELEV	DRAINS TO	GRADE %	CONSTRUCT STRUCTURE					CASTING ASSEMB. EACH	REINFORCED CONCRETE PIPE				RIPRAP CL II CU. YD	RIPRAP CL III CU. YD	GEOTEXTILE FILTER TYPE 4 SQ. YD	GRANULAR FILTER CU. YD	RCP APRON EACH	REMARKS
							DESIGN F	DESIGN G	DESIGN 4020				12 IN CL V	15 IN CL V	18 IN CL III	24 IN CL III						
									48 IN	60 IN	66 IN											
									FEET													
CB 1060	L ^{NB} 1331+88.2	37 RT	876.64	872.64	OUT 1061	0.50		3.9				B-9	15									
OUT 1061	L ^{NB} 1331+87.8	58.3 RT		872.53												3		17	1	1-12"		
CB 1062	L ^{NB} 1333+35.1	37 RT	877.09	873.09	OUT 1063	0.50		3.9				B-9	16									
OUT 1063	L ^{NB} 1333+34.7	59.6 RT		872.98												3		17	1	1-12"		
CB 1064	L ^{NB} 1335+15.2	25 RT	878.27	871.27	OUT 1065	0.50			6.9			B-9	12									
OUT 1065	L ^{NB} 1335+15.2	43.5 RT		875.18												3		17	1	1-12"		
CB 1066	L ^{NB} 1337+25.8	28.2 RT	879.31	871.31	OUT 1067	0.50	7.9					B-9	16									
OUT 1067	L ^{NB} 1337+24.4	50.6 RT		875.20												3		17	1	1-12"		
CB 1068	L ^{NB} 1338+62.2	37 RT	879.83	871.83	OUT 1069	0.50	7.9					B-9	16									
OUT 1069	L ^{NB} 1338+61.8	59.6 RT		875.72												3		17	1	1-12"		
CB 1070	L ^{NB} 1340+16.1	37 RT	880.63	876.63	OUT 1071	0.50		3.9				B-9	16									
OUT 1071	L ^{NB} 1340+15.7	59.6 RT		876.52												3						1-12"
IN 1072	L ^{NB} 1333+01.8	113.2 RT		871.02	OUT 1073	0.40																1-18"
OUT 1073	L ^{NB} 1332+98.4	83.7 RT		870.90												6		26	1	1-18"		
SHEET TOTAL							15.8	11.8	6.9	0.0	0.0	6	93	0	17	0	18	6	111	6		



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Kelly Agosto
 KELLY AGOSTO, LICENSED PROFESSIONAL ENGINEER

49075 3/15/19
 LICENSE NO. DATE

DESIGN BY: L. LANGNER
 CAD BY: E. GUIR
 CHECKED BY: R. DECOTEAU
 LAST REVISION: / /

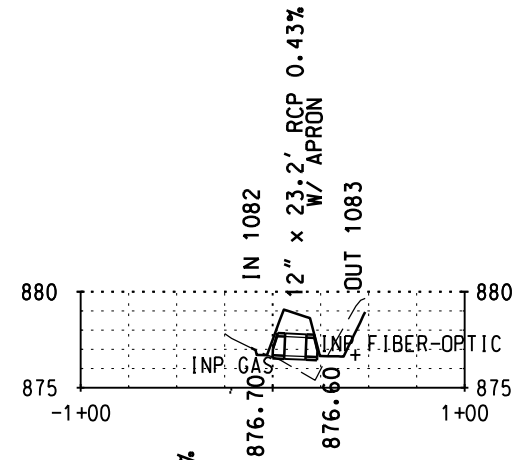
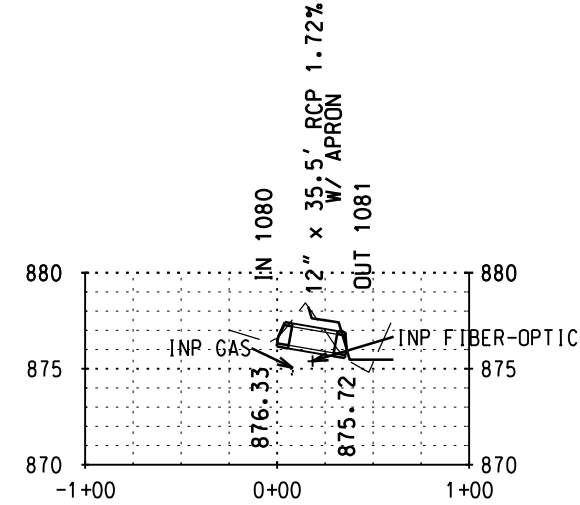
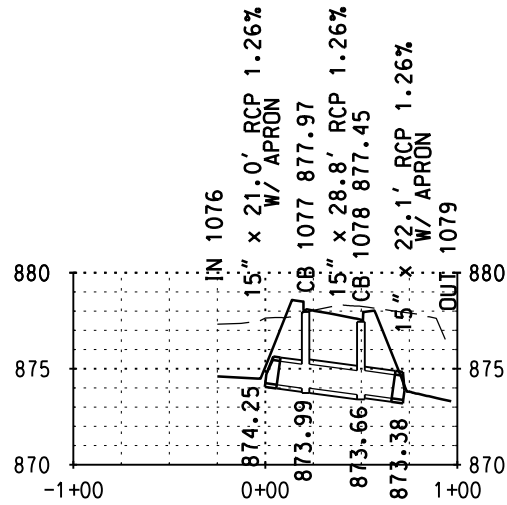
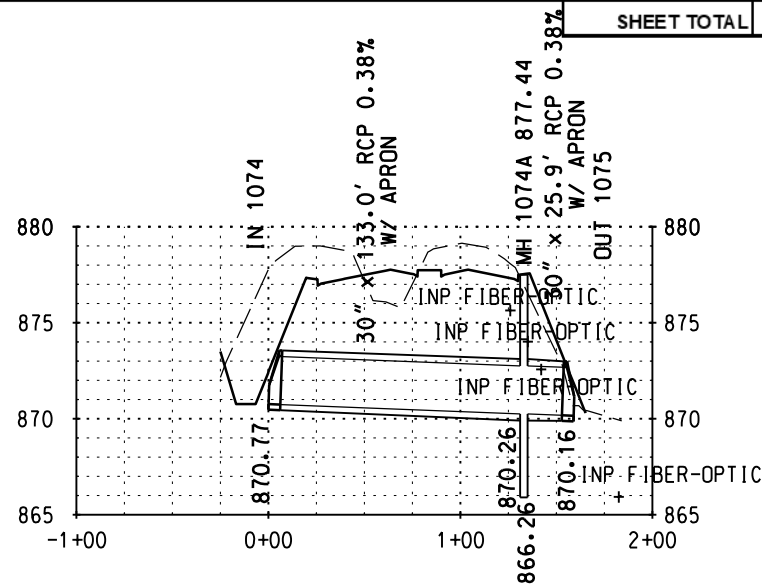
DRAINAGE PROFILES AND TABULATIONS

C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
 S.P. 027-681-035, S.P. 110-020-040

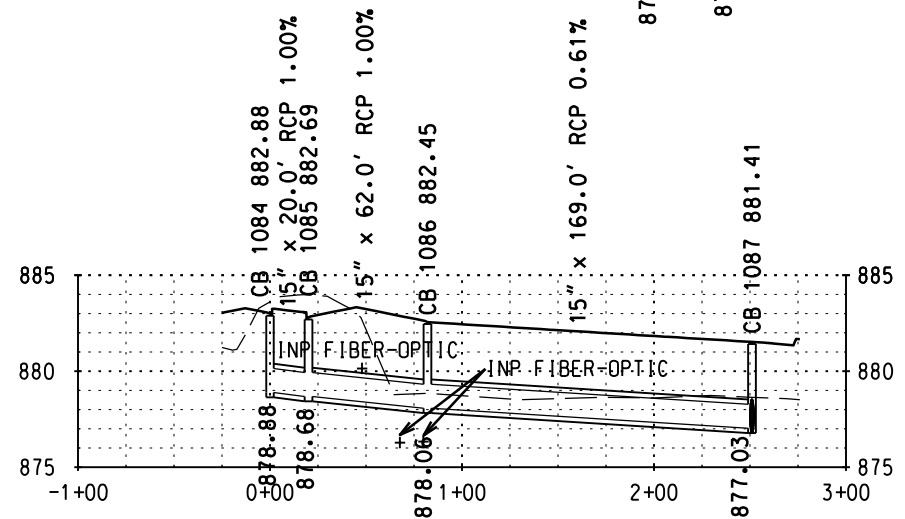
SHEET

192
 244

UNDERGROUND CONSTRUCTION DATA (PIPE SEWERS)																											
STRUCT. NO.	STATION	LOCATION	TOP OF CASTING ELEV	FLOW LINE ELEV	DRAINS TO	GRADE %	CONSTRUCT STRUCTURE					CASTING ASSEMB. EACH	REINFORCED CONCRETE PIPE					RIPRAP CL III CU. YD	GEOTEXTILE FILTER TYPE 4 SQ. YD	GRANULAR FILTER CU. YD	RCP APRON EACH	REMARKS					
							DESIGN F	DESIGN G	DESIGN SD	DESIGN 4020			DESIGN SPECIAL	STRUCTURE BAFFLE	12 IN CL V	15 IN CL V	21 IN CL III						24 IN CL III	27 IN CL III	30 IN CL III		
							FEET	FEET	FEET	60 IN	66 IN		EACH	EACH	FEET	FEET	FEET						FEET	FEET	FEET		
IN 1074	L ^{NB} 1332+96.9	63.6 RT		870.77	MH 1074A	0.38														127			1-30"	F&I TRASH GUARD			
MH 1074A	L ^{SB} 2332+96.8	29.0 LT	877.44	866.26	OUT 1075	0.38				11.3			1	A-7D							20				4' SUMP		
OUT 1075	L ^{SB} 2332+97.2	54.9 LT		870.16																		12	42	1	1-30"	F&I TRASH GUARD	
IN 1076	L ^{NB} 1335+00.7	64.3 RT		874.25	CB 1077	1.26																			1-15"		
CB 1077	L ^{NB} 1334+79.7	63.6 RT	877.97	873.99	CB 1078	1.26		3.9					1													DESIGN SPECIAL 5	
CB 1078	L ^{NB} 1334+51.1	60.1 RT	877.45	873.66	OUT 1079	1.26		3.7						B-5													
OUT 1079	L ^{NB} 1334+29.7	65.5 RT		873.38																			5	21	1	1-15"	
IN 1080	L ^{NB} 1338+01.6	121.7 RT		876.33	OUT 1081	1.72																				1-12"	
OUT 1081	L ^{NB} 1338+02.3	86.2 RT		875.72																						1-12"	
IN 1082	L ^{NB} 1341+82.2	95.7 RT		876.70	OUT 1083	0.43																				1-12"	
OUT 1083	L ^{NB} 1341+69.5	76.3 RT		876.60																						1-12"	
CB 1084	L ^{NB} 1320+06.0	13 LT	882.88	878.88	CB 1085	1.00		3.9						B-9		20											
CB 1085	L ^{SB} 2320+04.0	25 RT	882.69	878.68	CB 1086	1.00		3.9						B-9		62											
CB 1086	L ^{SB} 2320+04.0	37 LT	882.45	878.06	CB 1087	0.61		4.3						B-9		169 *											
SHEET TOTAL							0.0	19.8	0.0	11.3	0.0	1	1	5	34	311	0	0	0	147	17	63	2	* PLASTIC PIPE OPTION			



▲ 04/22/19 PLASTIC PIPE OPTION ADDED



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Kelly Agosto
 KELLY AGOSTO, LICENSED PROFESSIONAL ENGINEER

49075 3/15/19
 LICENSE NO. DATE

DESIGN BY: L. LANGNER
 CAD BY: E. GUIR
 CHECKED BY: R. DECOTEAU
 LAST REVISION: 4/22/19

DRAINAGE PROFILES AND TABULATIONS

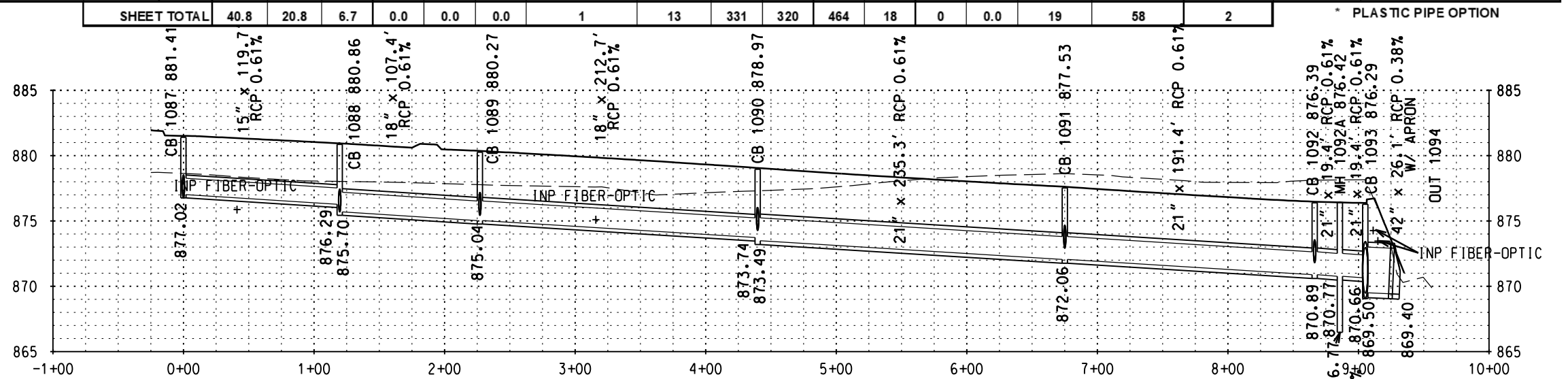
C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
 S.P. 027-681-035, S.P. 110-020-040

SHEET

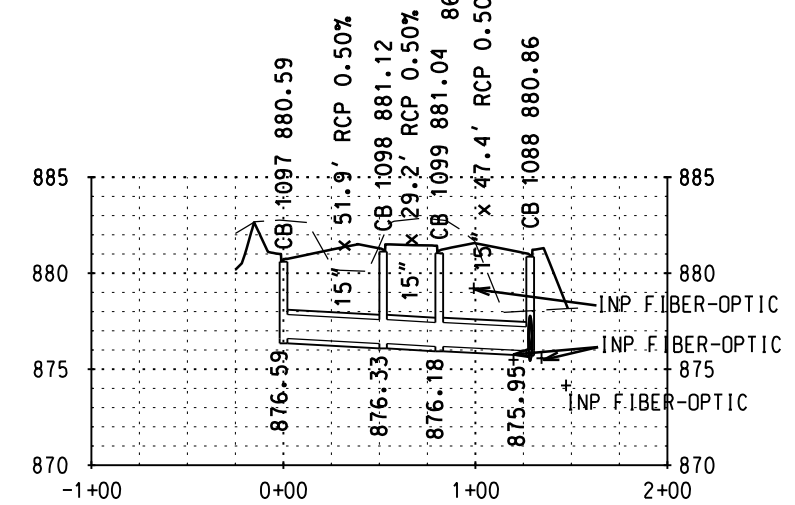
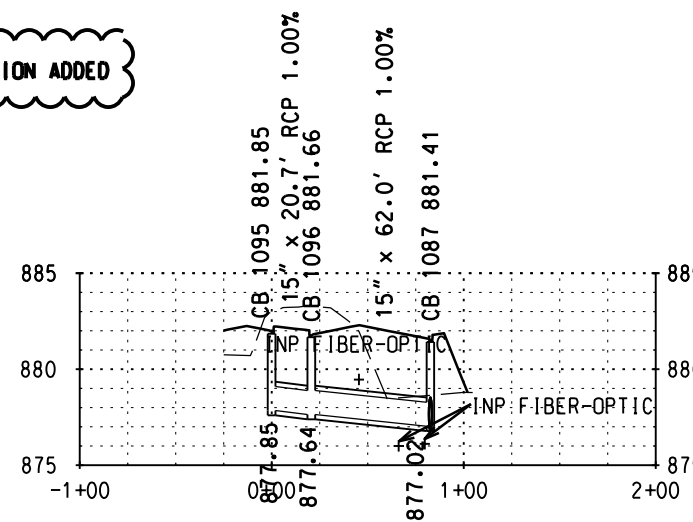
R193.1

244

UNDERGROUND CONSTRUCTION DATA (PIPE SEWERS)																									
STRUCT. NO.	STATION	LOCATION	TOP OF CASTING ELEV	FLOW LINE ELEV	DRAINS TO	GRADE %	CONSTRUCT STRUCTURE				CASTING ASSEMB. EACH	REINFORCED CONCRETE PIPE					RIPRAP CL III CU. YD	GEOTEXTILE FILTER TYPE 4 SQ. YD	GRANULAR FILTER CU. YD	RCP APRON EACH	REMARKS				
							DESIGN F	DESIGN G	DESIGN 4020				STRUCTURE BAFFLE EACH	15 IN CL V	18 IN CL III	21 IN CL III						27 IN CL III	30 IN CL III		
									72 IN	78 IN		84 IN												90 IN	
				FEET				FEET																	
CB 1087	L ^{SB} 2321+73.0	37 LT	881.41	877.02	CB 1088	0.61		4.3					B-9	120 *											
CB 1088	L ^{SB} 2322+92.0	29.1 LT	880.86	875.70	CB 1089	0.61	5.1						B-9	107 *											
CB 1089	L ^{SB} 2323+99.0	25 LT	880.27	875.04	CB 1090	0.61	5.2						B-9	213 *											
CB 1090	L ^{SB} 2326+11.0	25 LT	878.97	873.49	CB 1091	0.61	5.4						B-9		235 *										
CB 1091	L ^{SB} 2328+47.0	25 LT	877.53	872.06	CB 1092	0.61	5.4						B-9		191 *										
CB 1092	L ^{SB} 2330+39.0	25 LT	876.39	870.89	MH 1092A	0.61	5.4						B-9		19 *										
MH 1092A	L ^{SB} 2330+58.4	24.8 LT	876.42	866.77	CB 1093	0.61	9.6					1	A-7D		19 *										
CB 1093	L ^{SB} 2330+77.8	25 LT	876.29	869.50	OUT 1094	0.38			6.7				B-9			18									
OUT 1094	L ^{SB} 2330+78.1	51.1 LT		869.40													19	58	2	1-42"	F&I TRASH GUARD				
CB 1095	L ^{NB} 1321+74.0	13 LT	881.85	877.85	CB 1096	1.00		3.9					B-9	21											
CB 1096	L ^{SB} 2321+73.0	25 RT	881.66	877.64	CB 1087	1.00		3.9					B-9	62											
CB 1097	L ^{NB} 1323+03.1	37.9 RT	880.59	876.59	CB 1098	0.50		3.9					B-9	52											
CB 1098	L ^{NB} 1322+93.0	13 LT	881.12	876.33	CB 1099	0.50		4.7					B-9	29 *											
CB 1099	L ^{SB} 2322+92.0	18.2 RT	881.04	876.18	CB 1088	0.50	4.8						B-9	47 *											
SHEET TOTAL							40.8	20.8	6.7	0.0	0.0	0.0	1	13	331	320	464	18	0	0.0	19	58	2		* PLASTIC PIPE OPTION



04/22/19 PLASTIC PIPE OPTION ADDED



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Kelly Agosto
 KELLY AGOSTO, LICENSED PROFESSIONAL ENGINEER

49075 3/15/19
 LICENSE NO. DATE

DESIGN BY: L. LANGNER
 CAD BY: E. GUIR
 CHECKED BY: R. DECOTEAU
 LAST REVISION: 4/22/19

DRAINAGE PROFILES AND TABULATIONS

C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
 S.P. 027-681-035, S.P. 110-020-040

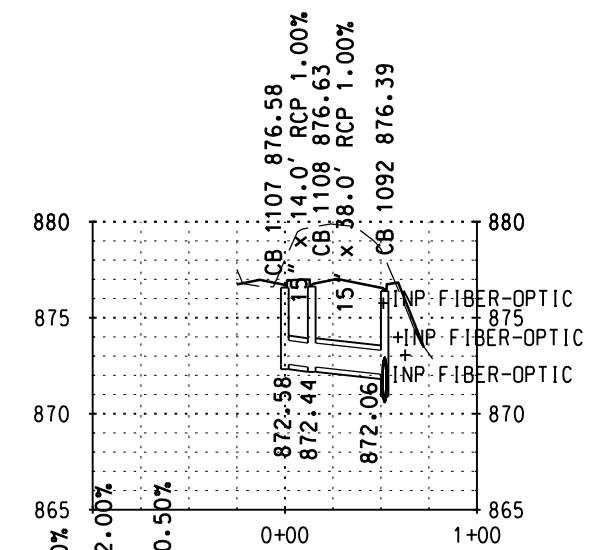
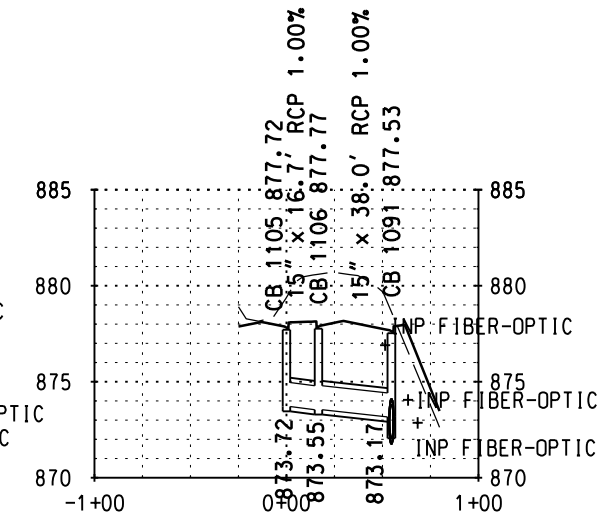
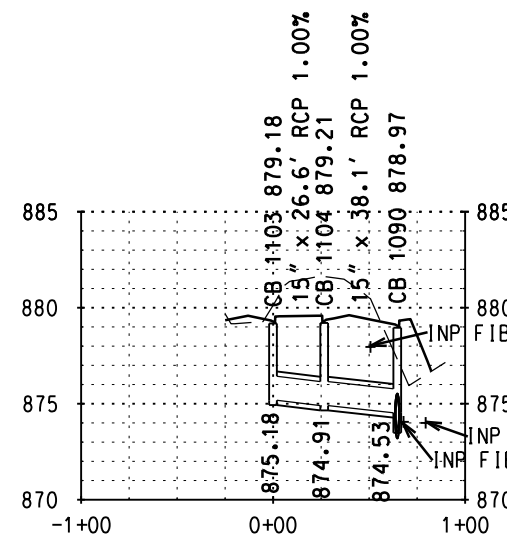
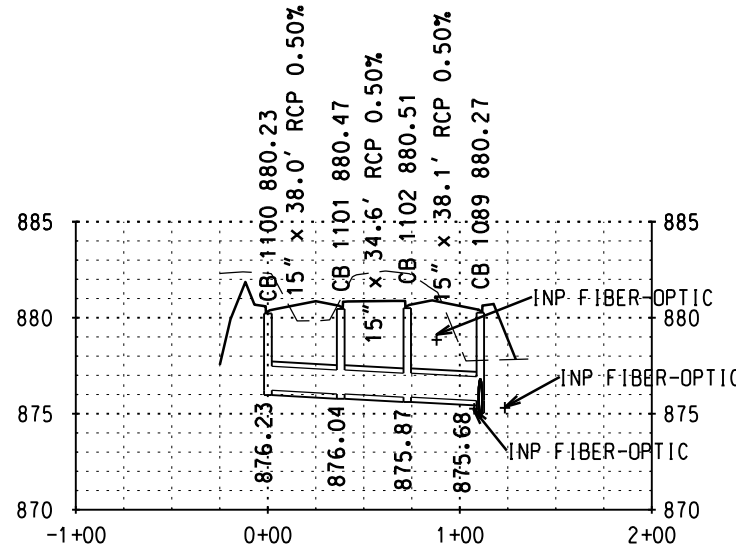
SHEET

R194.1

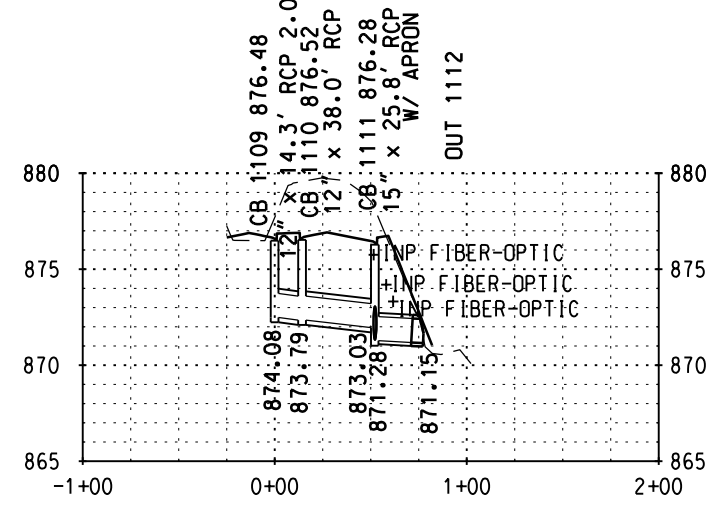
244

UNDERGROUND CONSTRUCTION DATA (PIPE SEWERS)

STRUCT. NO.	STATION	LOCATION	TOP OF CASTING ELEV	FLOW LINE ELEV	DRAINS TO	GRADE %	CONSTRUCT STRUCTURE								REINFORCED CONCRETE PIPE				RIPRAP CL III CU. YD	GEOTEXTILE FILTER TYPE 4 SQ. YD	GRANULAR FILTER CU. YD	RCP APRON EACH	REMARKS													
							DESIGN 4020								CASTING ASSEMB. EACH	12 IN CL V	15 IN CL V	18 IN CL III						21 IN CL III												
							DESIGN F	DESIGN G	DESIGN H	60 IN	72 IN	78 IN	84 IN	90 IN											SPECIAL EACH											
CB 1100	L ^{NB} 1323+99.3	25 RT	880.23	876.23	CB 1101	0.50		3.9								B-9		38																		
CB 1101	L ^{NB} 1323+99.0	13 LT	880.47	876.04	CB 1102	0.50		4.4								B-9		35 *																		
CB 1102	L ^{SB} 2323+99.0	13 RT	880.51	875.87	CB 1089	0.50		4.6								B-9		38 *																		
CB 1103	L ^{NB} 1326+10.0	13 LT	879.18	875.18	CB 1104	1.00		3.9								B-9		27																		
CB 1104	L ^{SB} 2326+11.0	13 RT	879.21	874.91	CB 1090	1.00		4.2								B-9		38																		
CB 1105	L ^{NB} 1328+48.0	13 LT	877.72	873.72	CB 1106	1.00		3.9								B-9		17																		
CB 1106	L ^{SB} 2328+47.0	13 RT	877.77	873.55	CB 1091	1.00		4.1								B-9		38																		
CB 1107	L ^{NB} 1330+40.0	13 LT	876.58	872.58	CB 1108	1.00		3.9								B-9		14																		
CB 1108	L ^{SB} 2330+39.0	13 RT	876.63	872.44	CB 1092	1.00		4.1								B-9		38																		
CB 1109	L ^{NB} 1330+91.0	13 LT	876.48	874.08	CB 1110	2.00										B-5	14	14																		
CB 1110	L ^{SB} 2330+92.6	13 RT	876.52	873.79	CB 1111	2.00										B-5	38																			
CB 1111	L ^{SB} 2330+92.6	25 LT	876.28	871.28	OUT 1112	0.50	4.9									B-5		20																		
OUT 1112	L ^{SB} 2330+92.6	50.8 LT		871.15																																
SHEET TOTAL							4.9	37.1	5.0	0.0	0.0	0.0	0.0	0.0	0.0	12	52	317	0	0	5	21	1	1-15"												* PLASTIC PIPE OPTION



⚠ 04/22/19 PLASTIC PIPE OPTION ADDED



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Kelly Agosto
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 49075 LICENSE NO. 3/15/19 DATE

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 CHECKED BY: R. DECOTEAU
 LAST REVISION: 4/22/19

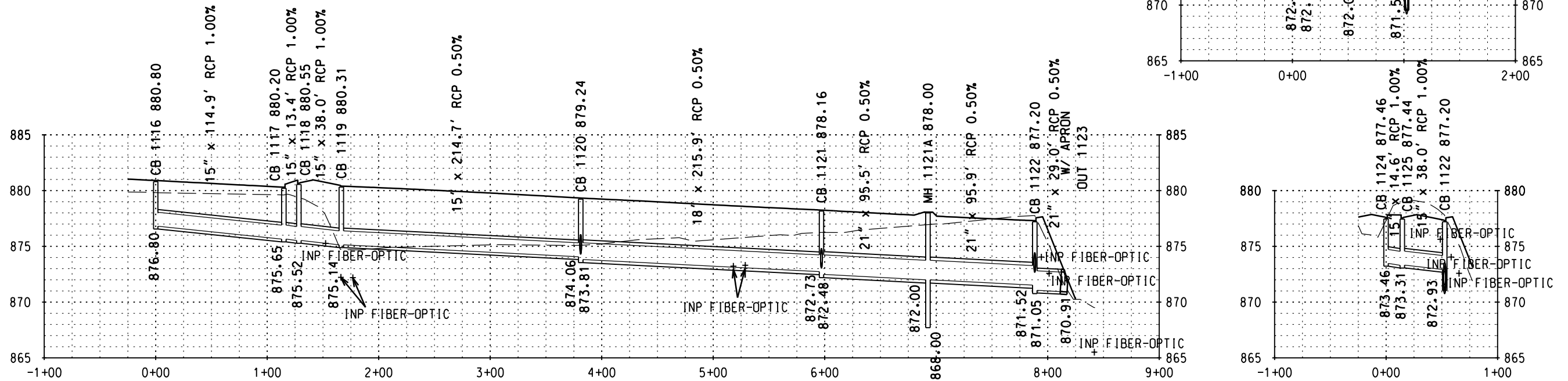
DRAINAGE PROFILES AND TABULATIONS

C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
 S.P. 027-681-035, S.P. 110-020-040

SHEET
 R195.1
 244

STRUCT. NO.	STATION	LOCATION	TOP OF CASTING ELEV	FLOW LINE ELEV	DRAINS TO	GRADE %	CONSTRUCT STRUCTURE				CASTING ASSEMB. EACH	REINFORCED CONCRETE PIPE				RIPRAP CL III CU. YD	GEOTEXTILE FILTER TYPE 4 SQ. YD	GRANULAR FILTER CU. YD	RCP APRON EACH	REMARKS	
							DESIGN F	DESIGN G	DESIGN 4020			STRUCTURE BAFFLE EACH	15 IN CL V	18 IN CL III	21 IN CL III						24 IN CL III
									48 IN	60 IN											
														FEET							
CB 1113	L ^{NB} 1331+44.0	13 LT	876.59	872.59	CB 1114	1.00		3.9			B-9	14									
CB 1114	L ^{SB} 2331+43.0	13 RT	876.61	872.45	CB 1115	1.00		4.1			B-9	38									
CB 1115	L ^{SB} 2331+43.0	25 LT	876.37	872.07	CB 1111	1.00		4.2			B-9	50									
CB 1116	L ^{NB} 1340+49.0	37 LT	880.80	876.80	CB 1117	1.00		3.9			B-9	115									
CB 1117	L ^{NB} 1339+34.0	37 LT	880.20	875.65	CB 1118	1.00		4.5			B-9	13 *									
CB 1118	L ^{SB} 2339+33.0	13 RT	880.55	875.52	CB 1119	1.00	4.9				B-9	38 *									
CB 1119	L ^{SB} 2339+33.0	25 LT	880.31	875.14	CB 1120	0.50	5.1				B-9	215 *									
CB 1120	L ^{SB} 2337+19.0	25 LT	879.24	873.81	CB 1121	0.50	5.4				B-9		216 *								
CB 1121	L ^{SB} 2335+03.0	25 LT	878.16	872.48	MH 1121A	0.50	5.6				B-9			96 *							
MH 1121A	L ^{SB} 2334+07.2	29 LT	878.00	868.00	CB 1122	0.50	10.1			1	A-7D			96 *							
CB 1122	L ^{SB} 2333+11.0	25 LT	877.20	871.05	OUT 1123	0.50					B-9			23							
OUT 1123	L ^{SB} 2333+11.0	54 LT		870.91							B-9				7	27	1	1-21"			
CB 1124	L ^{NB} 1333+13.0	13 LT	877.46	873.46	CB 1125	1.00		3.9			B-9	15									
CB 1125	L ^{SB} 2333+11.0	13 RT	877.44	873.31	CB 1122	1.00		4.1			B-9	38									
SHEET TOTAL							31.1	28.6	0.0	6.1	1	14	536	216	215	0	7	27	1	* PLASTIC PIPE OPTION	

⚠ 04/22/19 PLASTIC PIPE OPTION ADDED



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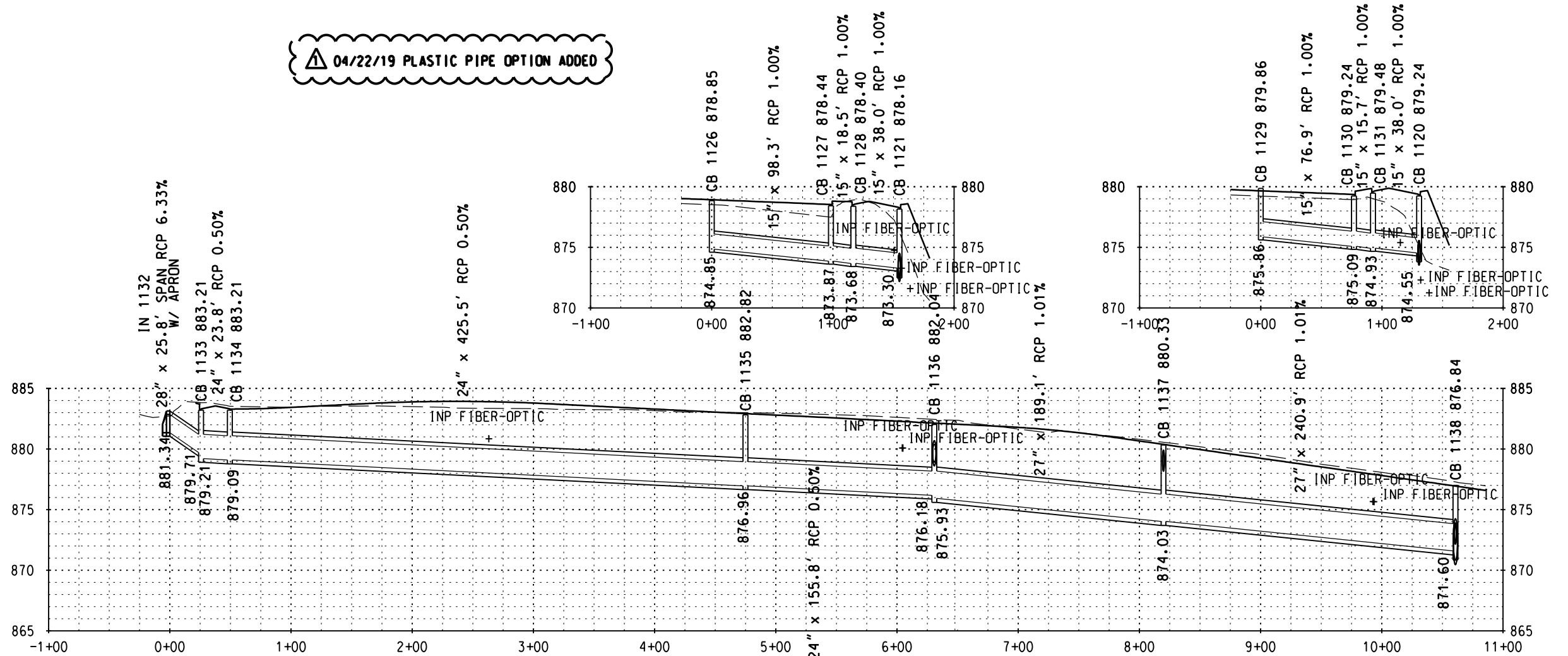
SHEET

R196.1

244

UNDERGROUND CONSTRUCTION DATA (PIPE SEWERS)																					
STRUCT. NO.	STATION	LOCATION	TOP OF CASTING ELEV	FLOW LINE ELEV	DRAINS TO	GRADE %	CONSTRUCT STRUCTURE					CASTING ASSEMB. EACH	REINFORCED CONCRETE PIPE					RCP APRON EACH	REMARKS		
							DESIGN F	DESIGN G	DESIGN 4020				DESIGN SPECIAL EACH	15 IN CL V	18 IN CL III	21 IN CL III	24 IN CL III			27 IN CL III	28 IN SPAN
									48 IN FEET	60 IN	66 IN										
CB 1126	L ^{NB} 1336+03.0	19.7 LT	878.85	874.85	CB 1127	1.00		3.9				B-9	98								
CB 1127	L ^{NB} 1335+05.0	13.8 LT	878.44	873.87	CB 1128	1.00		4.5				B-9	19 *								
CB 1128	L ^{SB} 2335+03.0	13 RT	878.40	873.68	CB 1121	1.00		4.6				B-9	38 *								
CB 1129	L ^{NB} 1337+98.0	33.7 LT	879.86	875.86	CB 1130	1.00		3.9				B-9	77								
CB 1130	L ^{NB} 1337+21.0	28.3 LT	879.24	875.09	CB 1131	1.00		4.1				B-9	16								
CB 1131	L ^{SB} 2337+19.0	13 RT	879.48	874.93	CB 1120	1.00		4.5				B-9	38 *								
IN 1132	L ^{LAKE} 2+37.8	37 RT		881.34	CB 1133	6.33											20	1-28"			
CB 1133	L ^{LAKE} 2+43.7	11.9 RT	883.21	879.21	CB 1134	0.50			3.9			B-1									
CB 1134	L ^{LAKE} 2+43.7	11.9 LT	883.21	879.09	CB 1135	0.50			4.0			B-1						426			
CB 1135	L ^{LAKE} 6+69.2	11.9 LT	882.82	876.96	CB 1136	0.50	5.8					B-1						156 *			
CB 1136	L ^{LAKE} 8+25.0	11.9 LT	882.04	875.93	CB 1137	1.01			6.0			B-1						189 *			
CB 1137	L ^{LAKE} 10+14.1	11.9 LT	880.33	874.03	CB 1138	1.01			6.2			B-1						241 *			
SHEET TOTAL							5.8	25.5	0.0	20.2	0.0	0.0	11	286	0	0	606	430	20	* PLASTIC PIPE OPTION	

⚠ 04/22/19 PLASTIC PIPE OPTION ADDED



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.

Kelly Agosto
 KELLY AGOSTO, LICENSED PROFESSIONAL ENGINEER

49075 3/15/19
 LICENSE NO. DATE

DESIGN BY: L. LANGNER
 CAD BY: E. GUIR
 CHECKED BY: R. DECOTEAU
 LAST REVISION: 4/22/19

DRAINAGE PROFILES AND TABULATIONS

C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
 S.P. 027-681-035, S.P. 110-020-040

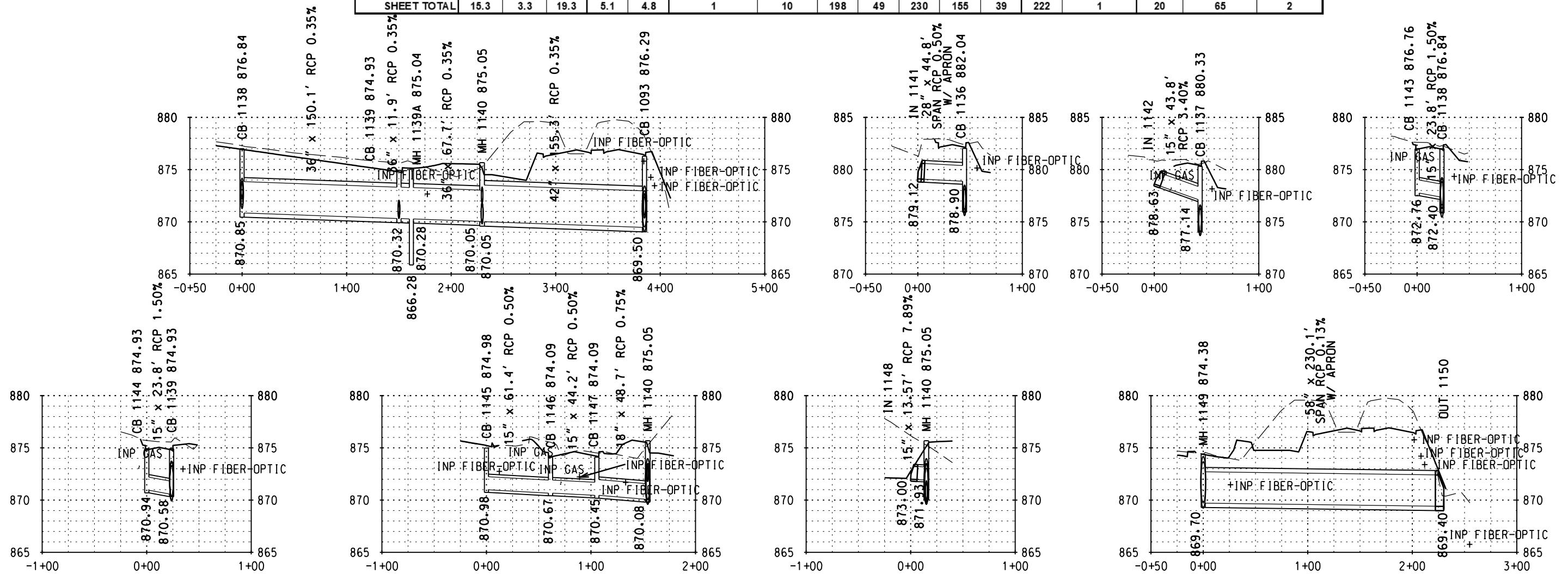
SHEET

R197.1

244

UNDERGROUND CONSTRUCTION DATA (PIPE SEWERS)

STRUCT. NO.	STATION	LOCATION	TOP OF CASTING ELEV	FLOW LINE ELEV	DRAINS TO	GRADE %	CONSTRUCT STRUCTURE				CASTING ASSEMB. EACH	REINFORCED CONCRETE PIPE					CONNECT TO EXISTING PIPE EACH	RIPRAP CL III CU. YD	GEOTEXTILE FILTER TYPE 4 SQ. YD	GRANULAR FILTER CU. YD	RCP APRON EACH	REMARKS			
							DESIGN G	DESIGN SD	DESIGN 4020			STRUCTURE BAFFLE EACH	15 IN CL V	18 IN CL III	36 IN CL III	42 IN CL III							28 IN SPAN	58 IN SPAN	
									60 IN FEET	78 IN															90 IN
CB 1138	L ^{LAKE} 12+55.0	11.9 LT	876.84	870.85	CB 1139	0.35			5.9																
CB 1139	L ^{LAKE} 14+05.1	11.9 LT	874.93	870.32	MH 1139A	0.35			4.5																
MH 1139A	L ^{LAKE} 14+16.0	16.6 LT	875.04	866.28	MH 1140	0.35			8.9																
MH 1140	L ^{NB} 1330+77.8	90.3 RT	875.05	870.05	CB 1093	0.35				5.1															
IN 1141	L ^{LAKE} 8+22.3	32.8 RT		879.12	CB 1136	0.50																			
IN 1142	L ^{LAKE} 10+12.6	31.9 RT		878.63	CB 1137	3.40																			
CB 1143	L ^{LAKE} 12+55.0	11.9 RT	876.76	872.76	CB 1138	1.50	3.9																		
CB 1144	L ^{LAKE} 14+05.1	11.9 RT	874.93	870.94	CB 1139	1.50	3.9																		
CB 1145	L ^{LAKE} 15+56.4	13.9 RT	874.98	870.98	CB 1146	0.50	3.9																		
CB 1146	L ^{LAKE} 14+77.1	21.9 RT	874.09	870.67	CB 1147	0.50		3.3																	
CB 1147	L ^{LAKE} 14+66.7	21.4 LT	874.09	870.45	MH 1140	0.75	3.6																		
IN 1148	L ^{NB} 1330+65.8	84.0 RT		873.00	MH 1140	7.89																		1-15"	
MH 1149	L ^{NB} 1330+86.8	137.5 RT	874.38	869.70	OUT 1150	0.13																			
OUT 1150	L ^{SB} 2330+86.5	52.6 LT		869.40																					
SHEET TOTAL							15.3	3.3	19.3	5.1	4.8	1	10	198	49	230	155	39	222	1	20	65	2	1-58"	F&I TRASH APRON



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Kelly Agosto
 KELLY AGOSTO, LICENSED PROFESSIONAL ENGINEER

49075 3/15/19
 LICENSE NO. DATE

DESIGN BY: L. LANGNER
 CAD BY: E. GUIR
 CHECKED BY: R. DECOTEAU
 LAST REVISION: / /

DRAINAGE PROFILES AND TABULATIONS

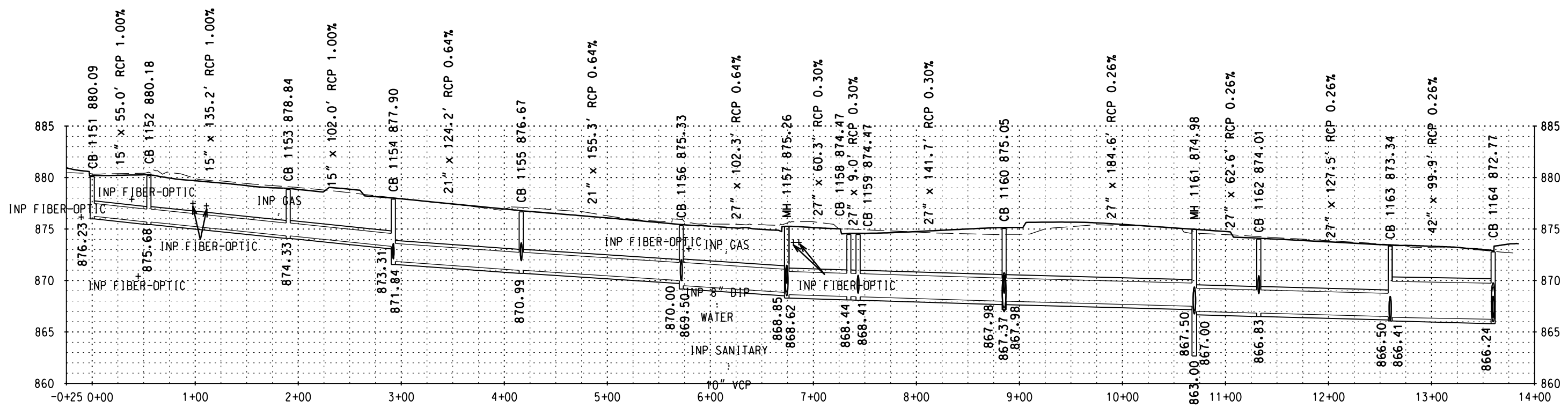
C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
 S.P. 027-681-035, S.P. 110-020-040

SHEET

198
 244

UNDERGROUND CONSTRUCTION DATA (PIPE SEWERS)																																						
STRUCT. NO.	STATION	LOCATION	TOP OF CASTING ELEV	FLOW LINE ELEV	DRAINS TO	GRADE %	CONSTRUCT STRUCTURE										CASTING ASSEMB. EACH	REINFORCED CONCRETE PIPE					CONNECT TO EXISTING		REMARKS													
							DESIGN F	DESIGN G	DESIGN 4020					STRUCTURE BAFFLE EACH	15 IN CL V	18 IN CL III		21 IN CL III	27 IN CL III	36 IN CL III	42 IN CL III	PIPE	STRUCTURE															
							48 IN	60 IN	66 IN	72 IN	78 IN	84 IN	90 IN											FEET					EACH									
CB 1151	L ^{NB} 1344+48.5	55 RT	880.09	876.23	CB 1152	1.00		3.8										B-9	55																			
CB 1152	L ^{EB} 199+24.5	18 RT	880.18	875.68	CB 1153	1.00				4.4								B-9	135 *																			
CB 1153	L ^{EB} 200+59.6	12 RT	878.84	874.33	CB 1154	1.00		4.4										B-9	102 *																			
CB 1154	L ^{EB} 201+61.6	15 RT	877.90	871.84	CB 1155	0.64	6.0											B-9				124 *																
CB 1155	L ^{EB} 202+85.5	23 RT	876.67	870.99	CB 1156	0.64	5.6											B-9				155 *																
CB 1156	L ^{EB} 204+40.4	23 RT	875.33	869.50	MH 1157	0.64					5.8							B-9						102 *														
MH 1157	L ^{EB} 205+43.0	20.3 RT	875.26	868.62	CB 1158	0.30									6.8			B-9						60 *														
CB 1158	L ^{EB} 206+02.9	12 RT	874.47	868.44	CB 1159	0.30	5.9											B-5						9 *														
CB 1159	L ^{EB} 206+11.9	12 RT	874.47	868.41	CB 1160	0.30				6.0								B-5						142 *														
CB 1160	L ^{EB} 207+53.6	12 RT	875.05	867.37	MH 1161	0.26					7.6							B-9						185 *														
MH 1161	L ^{EB} 209+37.9	22.1 RT	874.98	863.00	CB 1162	0.26				12.1						1		A-7D						63 *														
CB 1162	L ^{EB} 210+00.5	23 RT	874.01	866.83	CB 1163	0.26				7.1								B-9						128 *														
CB 1163	L ^{EB} 211+28.0	23 RT	873.34	866.41	CB 1164	0.26									6.9			B-9																				
CB 1164	L ^{EB} 212+28.2	23.1 RT	872.77	866.24	ICB 178										6.4			B-9																				
SHEET TOTAL							17.5	8.2	0.0	29.6	0.0	13.4	0.0	13.3	6.8	1	14	292	0	279	689	0	100.0	1														* PLASTIC PIPE OPTION

▲ 04/22/19 PLASTIC PIPE OPTION ADDED



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Kelly Agosto
 KELLY AGOSTO, LICENSED PROFESSIONAL ENGINEER
 49075 LICENSE NO. 3/15/19 DATE

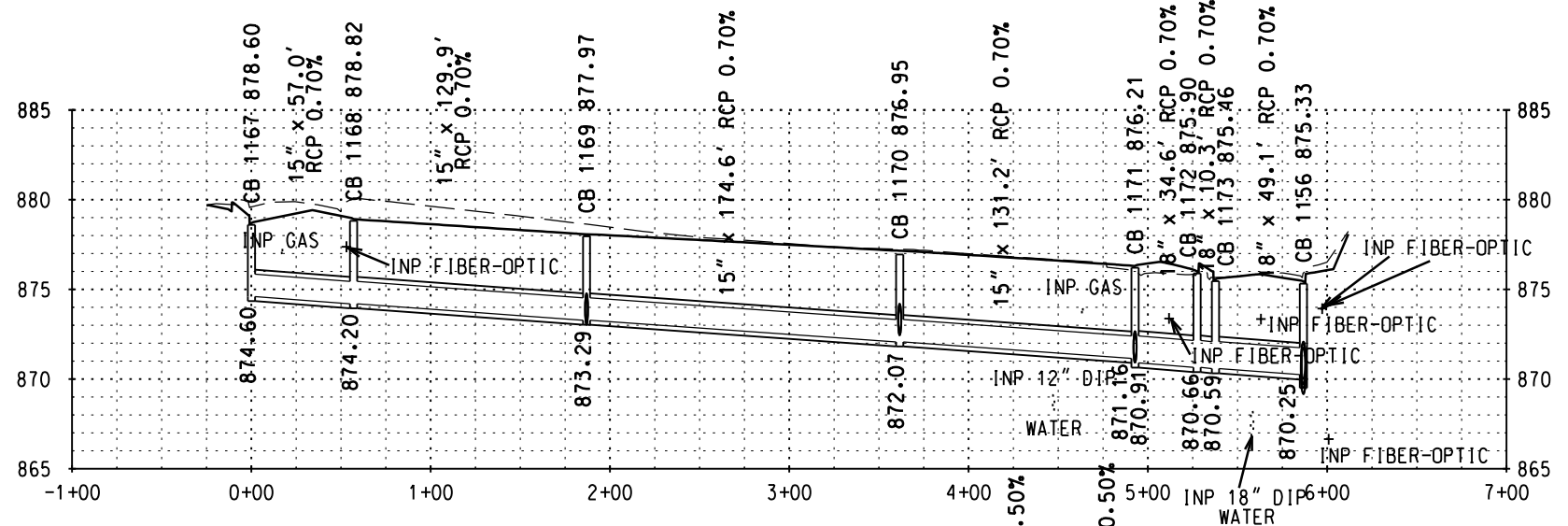
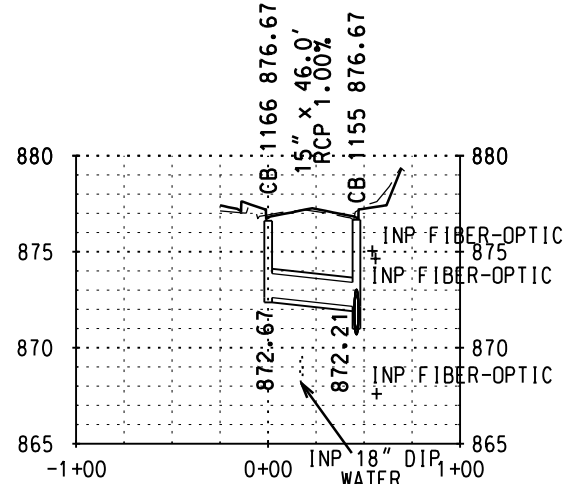
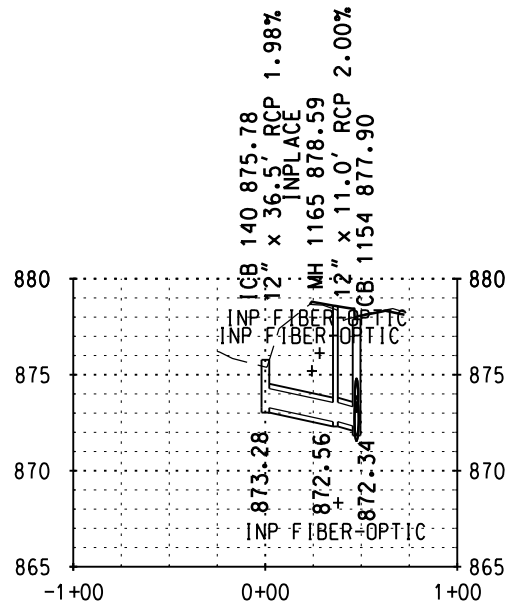
DESIGN BY: L. LANGNER
 CAD BY: E. GUIR
 CHECKED BY: R. DECOTEAU
 LAST REVISION: 4/22/19

DRAINAGE PROFILES AND TABULATIONS
 C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
 S.P. 027-681-035, S.P. 110-020-040

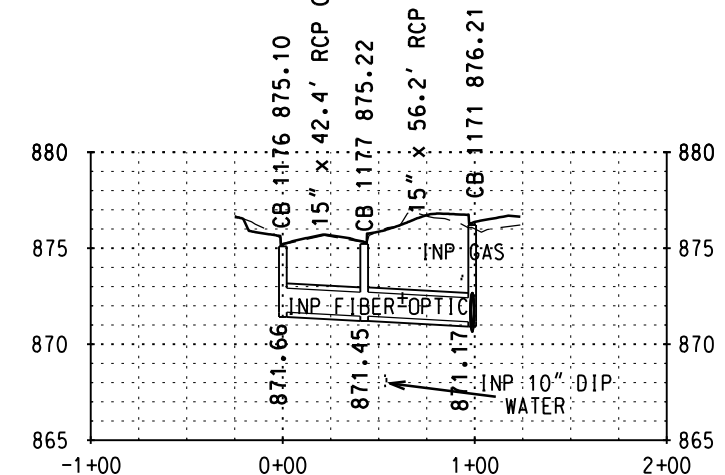
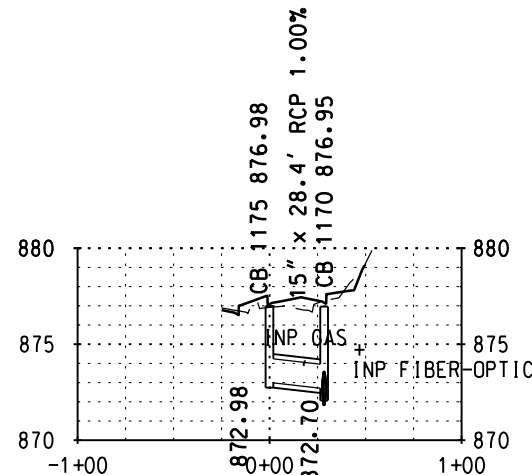
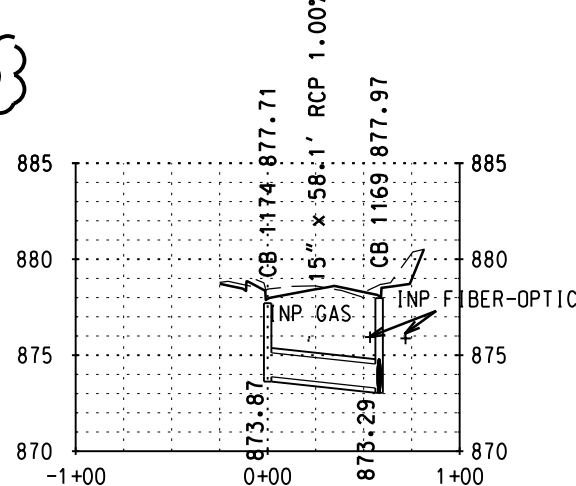
SHEET
 R199.1
 244

UNDERGROUND CONSTRUCTION DATA (PIPE SEWERS)

STRUCT. NO.	STATION	LOCATION	TOP OF CASTING ELEV	FLOW LINE ELEV	DRAINS TO	GRADE %	STRUCTURE		CASTING ASSEMB. EACH	REINFORCED CONCRETE PIPE					CONNECT TO EXISTING		REMARKS		
							DESIGN F FEET	DESIGN G FEET		12 IN CL V	15 IN CL V	18 IN CL III	21 IN CL III	24 IN CL III	30 IN CL III	PIPE EACH		STRUCTURE EACH	
																			FEET
MH 1165	LEB 201+60.8	26 RT	878.59	872.56	CB 1154	2.00	6.2		A-7D	11*						1			
CB 1166	LEB 202+85.5	23 LT	876.67	872.67	CB 1155	1.00		3.9	B-9		46								
CB 1167	LWB 100+78.6	34 RT	878.60	874.60	CB 1168	0.70		3.9	B-9		57								
CB 1168	LWB 100+78.6	23 LT	878.82	874.20	CB 1169	0.70		4.5	B-9		130*								
CB 1169	LWB 102+08.5	23 LT	877.97	873.29	CB 1170	0.70		4.6	B-9		175*								
CB 1170	LWB 103+82.5	12 RT	876.95	872.07	CB 1171	0.70	4.8		B-9		131*								
CB 1171	LWB 105+13.5	12 LT	876.21	870.91	CB 1172	0.70	5.2		B-9			35*							
CB 1172	LWB 105+21.7	13.9 RT	875.90	870.66	CB 1173	0.70	5.2		B-9			10*							
CB 1173	LEB 204+47.9	23 LT	875.46	870.59	CB 1156	0.70	4.8		B-9			49*							
CB 1174	LWB 101+97.5	34 RT	877.71	873.87	CB 1169	1.00		3.8	B-9		58								
CB 1175	LWB 103+82.5	16.4 RT	876.98	872.98	CB 1170	1.00		3.9	B-9		28								
CB 1176	LWB 105+99.7	47 LT	875.10	871.66	CB 1177	0.50		3.4	B-5		42								
CB 1177	LWB 105+57.0	47.8 LT	875.22	871.45	CB 1171	0.50		3.7	B-5		56								
SHEET TOTAL							26.1	31.7	13	11	723	94	0	0	0.0	1			* PLASTIC PIPE OPTION



⚠ 04/22/19 PLASTIC PIPE OPTION ADDED



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Kelly Agosto
 KELLY AGOSTO, LICENSED PROFESSIONAL ENGINEER

49075 3/15/19
 LICENSE NO. DATE

DESIGN BY: L. LANGNER
 CAD BY: E. GUIR
 CHECKED BY: R. DECOTEAU
 LAST REVISION: 4/22/19

DRAINAGE PROFILES AND TABULATIONS

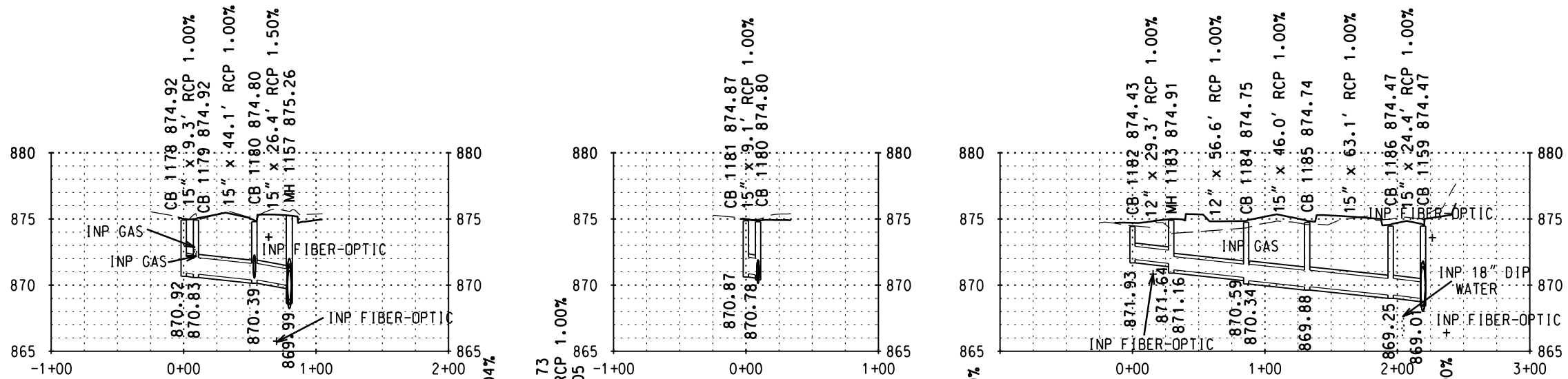
C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
 S.P. 027-681-035, S.P. 110-020-040

SHEET

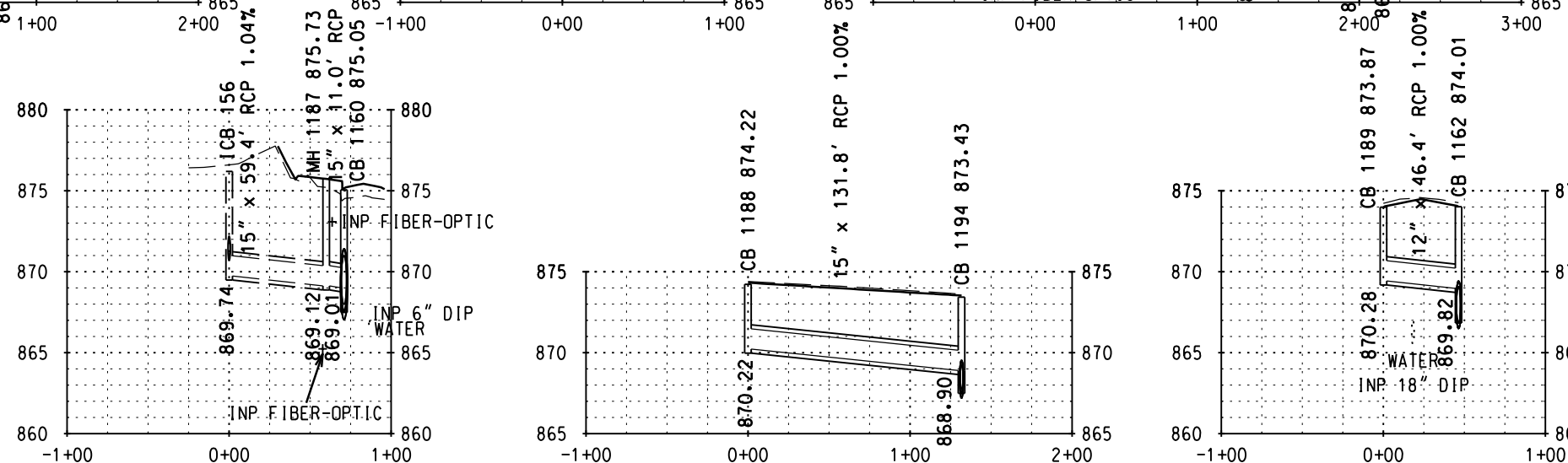
R200.1

244

UNDERGROUND CONSTRUCTION DATA (PIPE SEWERS)																			
STRUCT. NO.	STATION	LOCATION	TOP OF CASTING ELEV	FLOW LINE ELEV	DRAINS TO	GRADE %	CONSTRUCT STRUCTURE			CASTING ASSEMB. EACH	REINFORCED CONCRETE PIPE					CONNECT TO EXISTING		REMARKS	
							DESIGN F	DESIGN G	DESIGN H		12 IN CL V	15 IN CL V	21 IN CL III	24 IN CL III	27 IN CL III	30 IN CL III	PIPE		STRUCTURE
							FEET				FEET					EACH			
CB 1178	L ^{EB} 204+84.8	50.9 RT	874.92	870.92	CB 1179	1.00		3.9		B-5									
CB 1179	L ^{EB} 204+82.5	41.9 RT	874.92	870.83	CB 1180	1.00		4.0		B-5									
CB 1180	L ^{EB} 205+26.8	41.2 RT	874.80	870.39	MH 1157	1.50		4.3		B-5									
CB 1181	L ^{EB} 205+27.0	50.3 RT	874.87	870.87	CB 1180	1.00		3.9		B-5									
CB 1182	L ^{WB} 108+00.1	54.3 LT	874.43	871.93	MH 1183	1.00			2.4	M-7	29								
MH 1183	L ^{WB} 108+00.2	25 LT	874.91	871.16	CB 1184	1.00		3.9		A-7D	57								
CB 1184	L ^{WB} 107+43.6	23 LT	874.75	870.34	CB 1185	1.00		4.3		B-5									
CB 1185	L ^{WB} 107+43.6	23 RT	874.74	869.88	CB 1186	1.00	4.8			B-5									
CB 1186	L ^{EB} 206+07.4	12 LT	874.47	869.25	CB 1159	1.00	5.1			B-5									
MH 1187	L ^{EB} 207+53.6	23 RT	875.73	869.12	CB 1160	1.00	6.7			A-7D							1		
CB 1188	L ^{WB} 110+80.3	12 LT	874.22	870.22	CB 1194	1.00		3.9		B-9									
CB 1189	L ^{EB} 210+06.4	23 LT	873.87	870.28	CB 1162	1.00			3.5	B-9									
SHEET TOTAL							16.7	28.3	5.9	12	132	364	0	0	0	0.0	1		* PLASTIC PIPE OPTION



04/22/19 PLASTIC PIPE OPTION ADDED



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Kelly Agosto
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 49075 LICENSE NO. 3/15/19 DATE

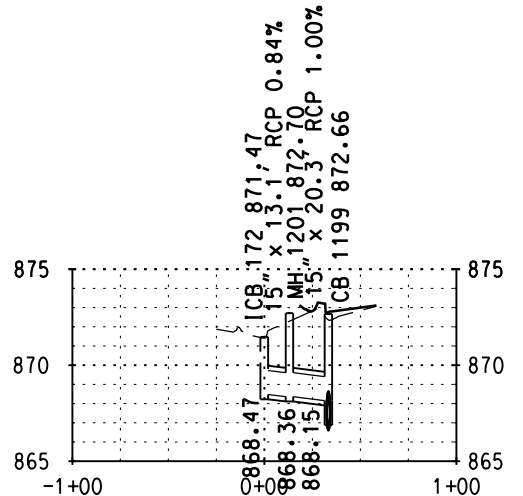
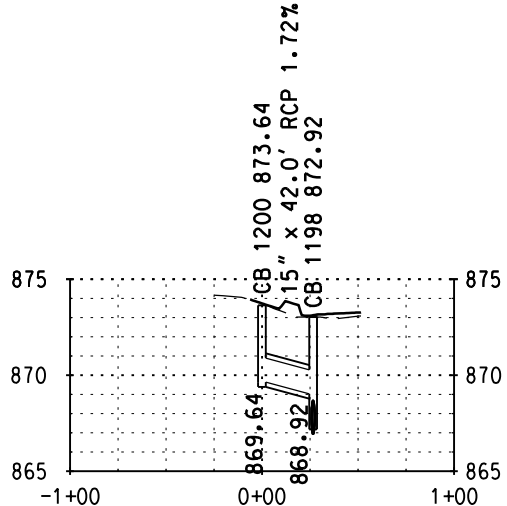
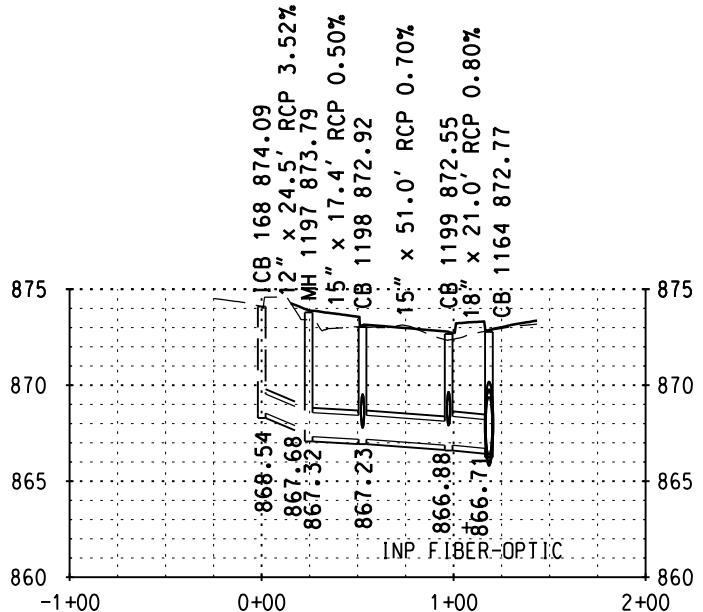
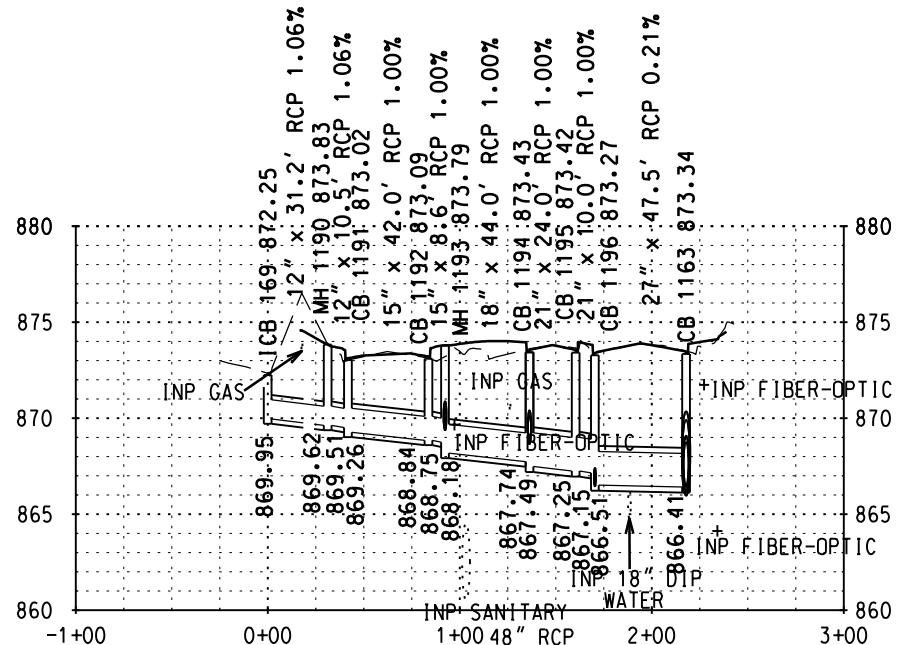
DESIGN BY: L. LANGNER
 CAD BY: E. GUIR
 CHECKED BY: R. DECOTEAU
 LAST REVISION: 4/22/19

DRAINAGE PROFILES AND TABULATIONS
 C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
 S.P. 027-681-035, S.P. 110-020-040

SHEET
 R201.1
 244

UNDERGROUND CONSTRUCTION DATA (PIPE SEWERS)																				
STRUCT. NO.	STATION	LOCATION	TOP OF CASTING ELEV	FLOW LINE ELEV	DRAINS TO	GRADE %	CONSTRUCT STRUCTURE			CASTING ASSEMB. EACH	REINFORCED CONCRETE PIPE					CONNECT TO EXISTING		RCP APRON EACH	REMARKS	
							DESIGN F	DESIGN G	DESIGN SPECIAL		12 IN CL V	15 IN CL V	18 IN CL III	21 IN CL III	27 IN CL III	30 IN CL III	PIPE EACH			STRUCTURE EACH
							FEET				FEET									
MH 1190	LWB 113+02.1	44.1 LT	873.83	869.62	CB 1191	1.06		4.3		A-7D	11					1				
CB 1191	LWB 112+92.5	48.4 LT	873.02	869.26	CB 1192	1.00		3.7		B-5		42								
CB 1192	LWB 112+50.6	48 LT	873.09	868.84	MH 1193	1.00		4.2		B-5		9								
MH 1193	LWB 112+44.3	42 LT	873.79	868.18	CB 1194	1.00	5.7			A-7D			44 *			1				
CB 1194	LWB 112+12.1	12 LT	873.43	867.49	CB 1195	1.00	5.9			B-9				24 *						
CB 1195	LWB 112+13.8	12 RT	873.42	867.25	CB 1196	1.00	6.1			B-9				10 *						
CB 1196	LEB 211+39.7	23 LT	873.27	866.51	CB 1163	0.21	6.7			B-9				48 *						
MH 1197	LEB 211+51.6	42 RT	873.79	867.32	CB 1198	0.50	6.6			A-7D		17 *				1				
CB 1198	LEB 211+69.1	40.3 RT	872.92	867.23	CB 1199	0.70	5.6			B-5		51 *								
CB 1199	LEB 212+20.3	42.6 RT	872.66	866.88	CB 1164	0.80	5.7			B-9			21 *							
CB 1200	LEB 211+79.1	81.1 RT	873.64	868.92	CB 1198	1.72		4.6		B-9		42								
MH 1201	LEB 212+35.1	56.5 RT	872.70	868.36	CB 1199	1.00		4.5		A-7D		20 *				1				
SHEET TOTAL							42.3	21.3	0.0	12	11	181	65	34	48	0.0	4		* PLASTIC PIPE OPTION	

▲ 04/22/19 PLASTIC PIPE OPTION ADDED



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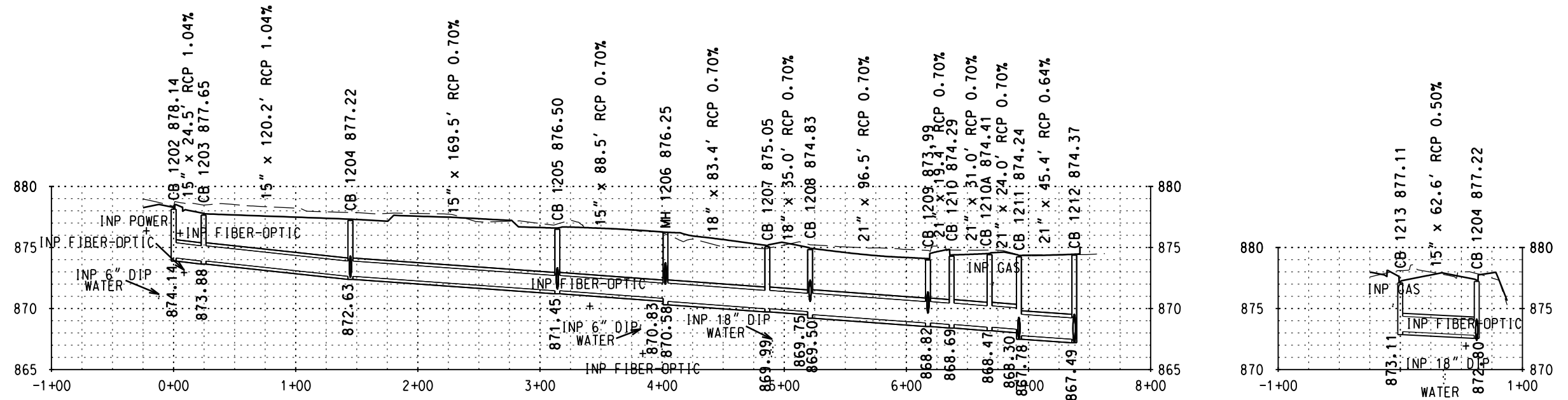
DESIGN BY: L. LANGNER
 CAD BY: E. GUIR
 CHECKED BY: R. DECOTEAU
 LAST REVISION: 4/22/19

DRAINAGE PROFILES AND TABULATIONS
 C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
 S.P. 027-681-035, S.P. 110-020-040

SHEET R202.1 244

UNDERGROUND CONSTRUCTION DATA (PIPE SEWERS)																						
S STRUCT. NO.	STATION	LOCATION	TOP OF CASTING ELEV	FLOW LINE ELEV	DRAINS TO	GRADE %	CONSTRUCT STRUCTURE					CASTING ASSEMB. EACH	REINFORCED CONCRETE PIPE					CONNECT TO EXISTING		RCP APRON EACH	REMARKS	
							DESIGN F	DESIGN G	DESIGN 4020				15 IN CL V	18 IN CL III	21 IN CL III	24 IN CL III	27 IN CL III	30 IN CL III	PIPE EACH			STRUCTURE EACH
									48 IN	60 IN	66 IN											
CB 1202	L ^{EB} 195+59.7	12 RT	878.14	874.14	CB 1203	1.04		3.9				B-9	25									
CB 1203	L ^{EB} 195+60.4	36.6 RT	877.65	873.88	CB 1204	1.04		3.7				B-9	120									
CB 1204	L ^{EB} 194+40.5	28.6 RT	877.22	872.63	CB 1205	0.70		4.5				B-9	170 *									
CB 1205	L ^{EB} 192+71.2	23.1 RT	876.50	871.45	MH 1206	0.70				5.0		B-9	89 *									
MH 1206	L ^{EB} 191+83.5	13 RT	876.25	870.58	CB 1207	0.70				5.8		A-7D	83 *									
CB 1207	L ^{EB} 191+00.1	12 RT	875.05	869.99	CB 1208	0.70	5.0					B-9	35 *									
CB 1208	L ^{EB} 191+00.1	23 LT	874.83	869.50	CB 1209	0.70	5.3					B-9										
CB 1209	L ^{EB} 190+03.9	19.8 LT	873.99	868.82	CB 1210	0.70	5.1					B-5										
CB 1210	L ^{WB} 90+63.0	12 RT	874.29	868.69	CB 1210A	0.70	5.5					B-5										
CB 1210A	L ^{WB} 90+32.0	12 RT	874.41	868.47	CB 1211	0.70				5.9		B-9										
CB 1211	L ^{WB} 90+32.0	12 LT	874.24	867.78	CB 1212	0.64				6.4		B-5										
CB 1212	L ^{WB} 89+86.6	12 LT	874.37	867.49	CREEK		6.8					B-9								1		
CB 1213	L ^{EB} 194+40.5	34 LT	877.11	873.11	CB 1204	0.50		3.9				B-9	63									
SHEET TOTAL							27.6	16.0	0.0	23.0	0.0	13	467	118	216	0	0	0.0	1			* PLASTIC PIPE OPTION

△ 04/22/19 PLASTIC PIPE OPTION ADDED



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.

Kelly Agosto
 KELLY AGOSTO, LICENSED PROFESSIONAL ENGINEER

49075 3/15/19
 LICENSE NO. DATE

DESIGN BY: L. LANGNER
 CAD BY: E. GUIR
 CHECKED BY: R. DECOTEAU
 LAST REVISION: 4/22/19

DRAINAGE PROFILES AND TABULATIONS

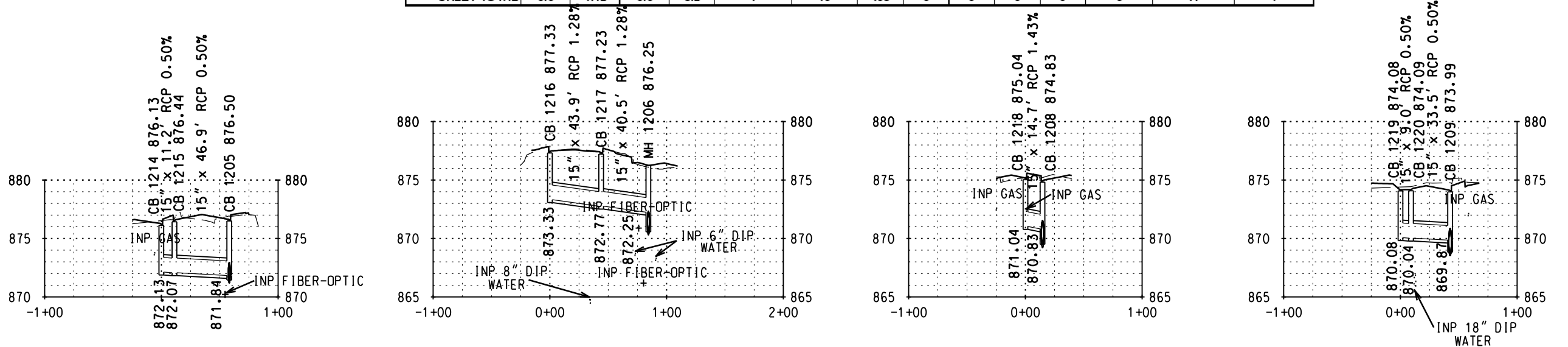
C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
 S.P. 027-681-035, S.P. 110-020-040

SHEET

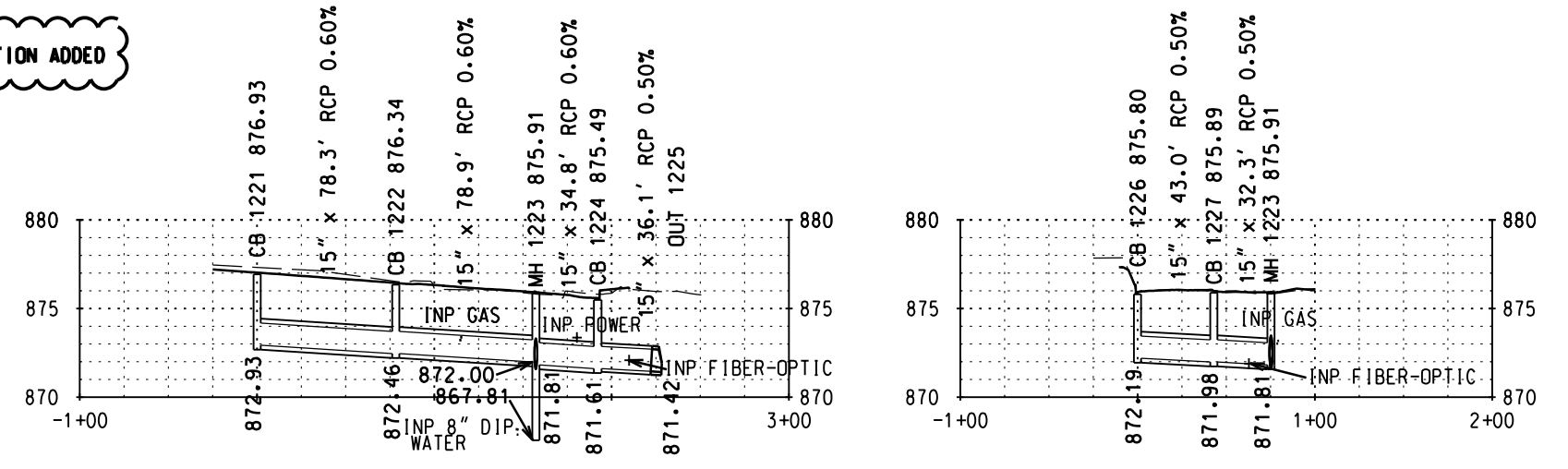
R203.1

244

UNDERGROUND CONSTRUCTION DATA (PIPE SEWERS)																						
STRUCT. NO.	STATION	LOCATION	TOP OF CASTING ELEV	FLOW LINE ELEV	DRAINS TO	GRADE %	CONSTRUCT STRUCTURE					REINFORCED CONCRETE PIPE					RIPRAP CL II CU. YD	GEOTEXTILE FILTER TYPE 4 SQ. YD	GRANULAR FILTER CU. YD	RCP APRON EACH	REMARKS	
							DESIGN F	DESIGN G	DESIGN 4020		STRUCTURE	CASTING ASSEMB. EACH	15 IN CL V	18 IN CL III	21 IN CL III	24 IN CL III						27 IN CL III
							FEET	FEET	48 IN	60 IN	BAFFLE EACH		FEET	FEET	FEET	FEET						FEET
CB 1214	L ^{WB} 93+34.0	23 RT	876.13	872.13	CB 1215	0.50		3.9					B-9	11 *								
CB 1215	L ^{EB} 192+60.1	22.5 LT	876.44	872.07	CB 1205	0.50		4.3					B-9	47 *								
CB 1216	L ^{EB} 192+39.0	51.2 RT	877.33	873.33	CB 1217	1.28		3.9					B-9	44								
CB 1217	L ^{EB} 191+95.3	51.7 RT	877.23	872.77	MH 1206	1.28		4.4					B-9	41								
CB 1218	L ^{WB} 91+74.1	12 RT	875.04	871.04	CB 1208	1.43		3.9					B-9	15								
CB 1219	L ^{EB} 189+87.0	13 RT	874.08	870.08	CB 1220	0.50		3.9					B-5	9								
CB 1220	L ^{EB} 189+96.0	12.7 RT	874.09	870.04	CB 1209	0.50		4.0					B-5	34								
CB 1221	L ^{WB} 94+25.8	12 LT	876.93	872.93	CB 1222	0.60		3.9					B-9	78								
CB 1222	L ^{WB} 93+47.7	12 LT	876.34	872.46	MH 1223	0.60		3.8					B-9	79								
MH 1223	L ^{WB} 92+68.9	14.4 LT	875.91	867.81	CB 1224	0.60			8.2	1	A-7D	35										
CB 1224	L ^{WB} 92+34.3	12 LT	875.49	871.61	OUT 1225	0.50		3.8					B-9	30								
OUT 1225	L ^{WB} 92+17.8	44.1 LT		871.42											3	17	1	1-15"	F&I TRASH GUARD			
CB 1226	L ^{WB} 93+12.4	45.7 LT	875.80	872.19	CB 1227	0.50		3.5					B-5	43								
CB 1227	L ^{WB} 92+69.7	46.6 LT	875.89	871.98	MH 1223	0.50		3.8					B-5	32								
SHEET TOTAL							0.0	47.2	0.0	8.2	1	13	498	0	0	0	0	3	17	1	* PLASTIC PIPE OPTION	



⚠ 04/22/19 PLASTIC PIPE OPTION ADDED



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Kelly Agosto
 KELLY AGOSTO, LICENSED PROFESSIONAL ENGINEER
 49075 LICENSE NO. 3/15/19 DATE

DESIGN BY: L. LANGNER
 CAD BY: E. GUIR
 CHECKED BY: R. DECOTEAU
 LAST REVISION: 4/22/19

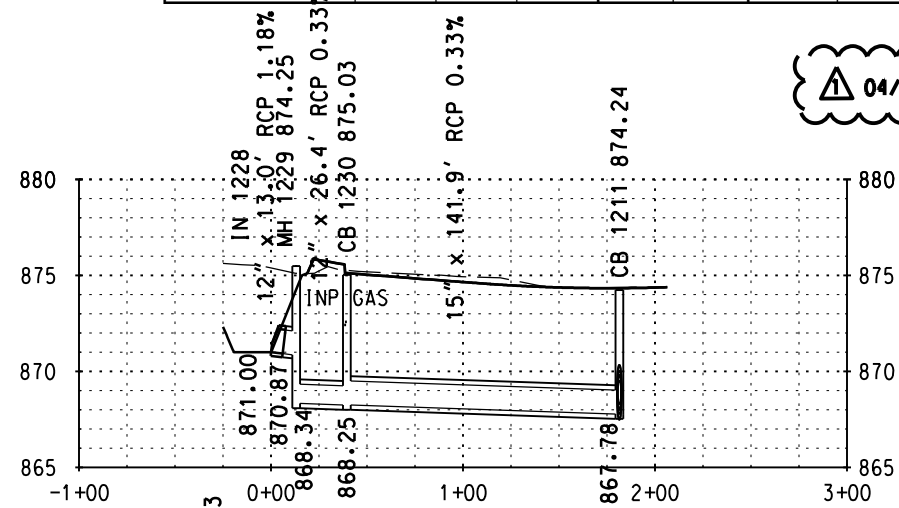
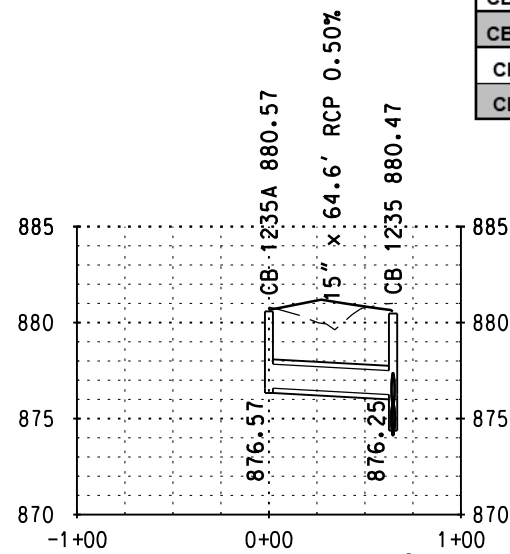
DRAINAGE PROFILES AND TABULATIONS
 C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
 S.P. 027-681-035, S.P. 110-020-040

SHEET
 R204.1
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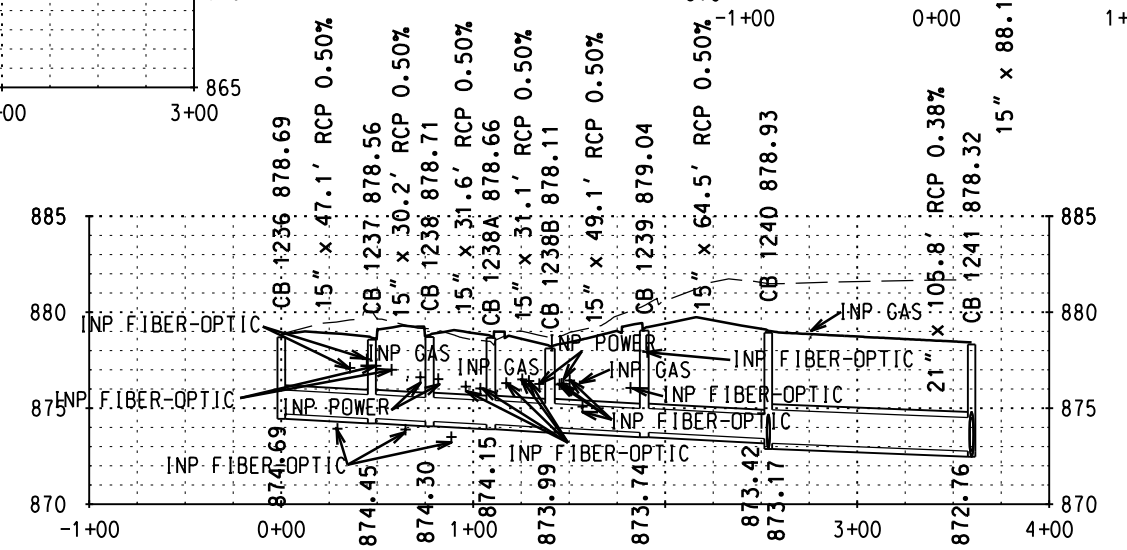
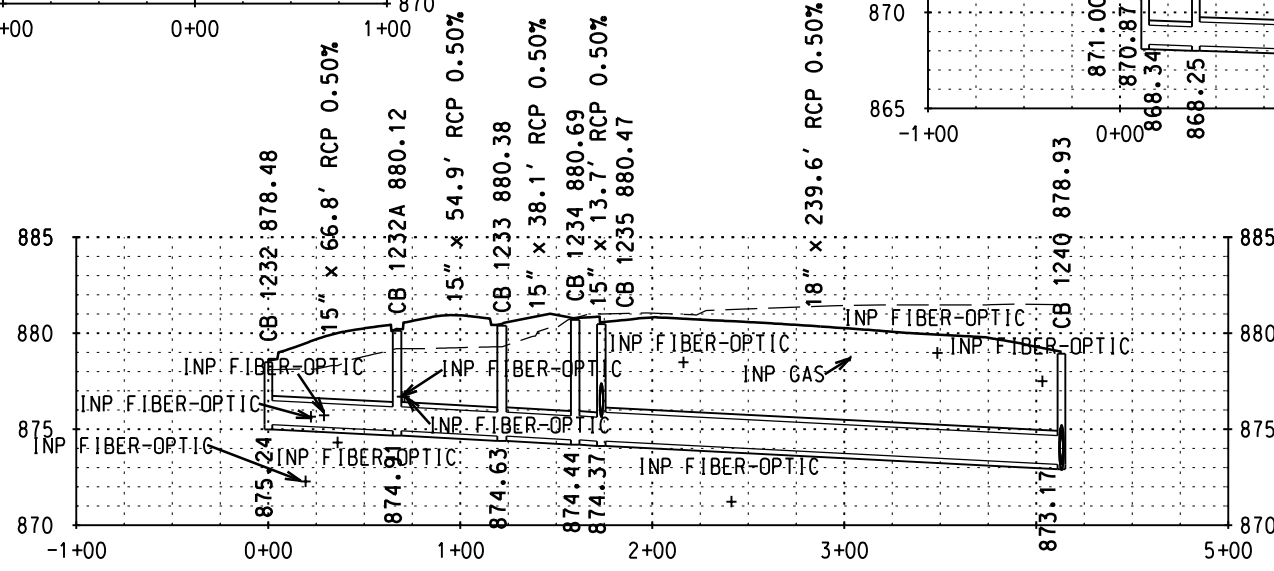
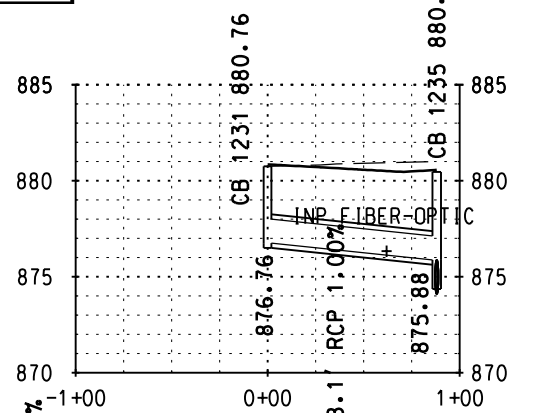
UNDERGROUND CONSTRUCTION DATA (PIPE SEWERS)

STRUCT. NO.	STATION	LOCATION	TOP OF CASTING ELEV	FLOW LINE ELEV	DRAINS TO	GRADE %	CONSTRUCT STRUCTURE					REINFORCED CONCRETE PIPE					RCP APRON EACH	REMARKS											
							DESIGN F	DESIGN G	DESIGN 4020			DESIGN SPECIAL EACH	CASTING ASSEMB. EACH	12 IN CL V	15 IN CL V	18 IN CL III			21 IN CL III	27 IN CL III	30 IN CL III								
									SD	60 IN	66 IN																		
IN 1228	L ^{WB} 91+91.6	47.5 LT		871.00	MH 1229	1.18												13						1-12"	F&I TRASH GUARD				
MH 1229	L ^{WB} 91+85.9	35.8 LT	874.25	868.34	CB 1230	0.33												26 *									DESIGN SPECIAL 2		
CB 1230	L ^{WB} 91+74.1	12.2 LT	875.03	868.25	CB 1211	0.33	6.7																						
CB 1231	L ^{NB} 1343+93.1	37 LT	880.76	876.76	CB 1235	1.00		3.9																					
CB 1232	L ^{EB} 197+08.0	40.0 RT	878.48	875.24	CB 1232A	0.50			3.2																				
CB 1232A	L ^{EB} 197+73.3	54.2 RT	880.12	874.91	CB 1323	0.50	5.1																						
CB 1233	L ^{SB} 2344+80.2	25.0 LT	880.38	874.63	CB 1234	0.50	5.7																						
CB 1234	L ^{SB} 2344+80.2	13.0 RT	880.69	874.44	CB 1235	0.50	6.2																						
CB 1235	L ^{NB} 1344+81.2	37.0 LT	880.47	874.37	CB 1240	0.50	6.0																						
CB 1235A	L ^{NB} 1344+74.0	27.0 RT	880.57	876.57	CB 1235	0.50		3.9																					
CB 1236	L ^{EB} 196+90.0	12.0 RT	878.69	874.69	CB 1237	0.50		3.9																					
CB 1237	L ^{EB} 197+00.0	34.0 LT	878.56	874.45	CB 1238	0.50		4.0																					
CB 1238	L ^{WB} 94+45.9	12.0 RT	878.71	874.30	CB 1238A	0.50		4.3																					
CB 1238A	L ^{WB} 97+55.9	18.0 LT	878.66	874.15	CB 1238B	0.50		4.4																					
CB 1238B	L ^{WB} 97+31.5	37.3 LT	878.11	873.99	CB 1239	0.50				4.0																			
CB 1239	L ^{SB} 2347+26.4	27.0 LT	879.04	873.74	CB 1240	0.50	5.2																						
CB 1240	L ^{SB} 2347+19.7	37.2 RT	878.93	873.17	CB 1241	0.38	5.7																						
SHEET TOTAL							40.6	24.6	3.2	4.0	0.0	1	15	39	722	240	106	0	0										

* PLASTIC PIPE OPTION



04/22/19 PLASTIC PIPE OPTION ADDED



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Kelly Agosto
KELLY AGOSTO, LICENSED PROFESSIONAL ENGINEER
 49075 LICENSE NO. 3/15/19 DATE

DESIGN BY: L. LANGNER
CAD BY: E. GUIR
CHECKED BY: R. DECOTEAU
LAST REVISION: 4/22/19

DRAINAGE PROFILES AND TABULATIONS

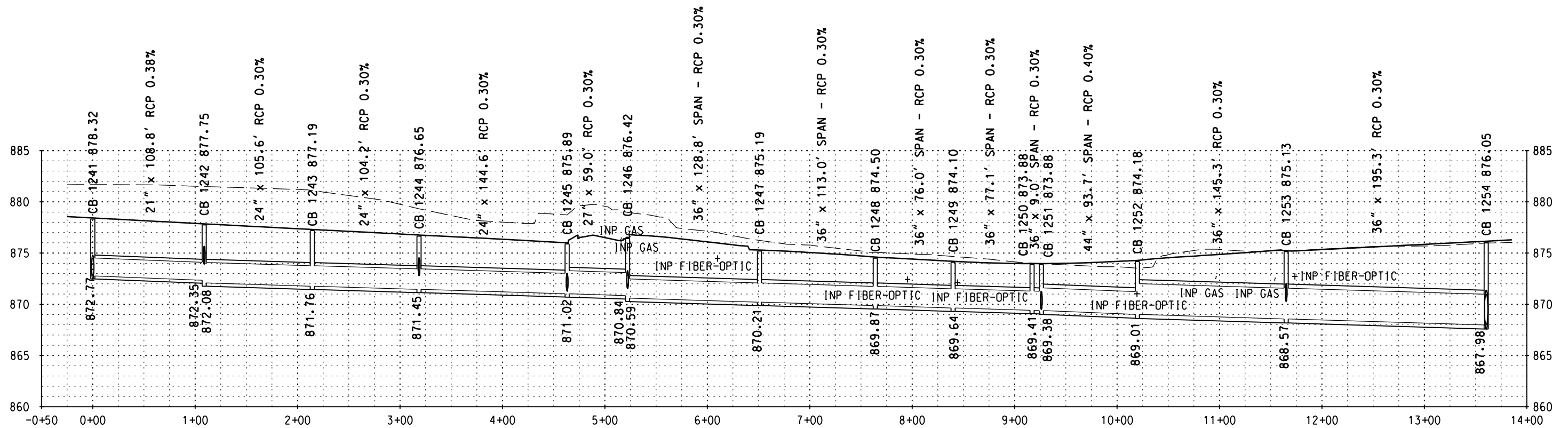
C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
 S.P. 027-681-035, S.P. 110-020-040

SHEET
 R205.1
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UNDERGROUND CONSTRUCTION DATA (PIPE SEWERS)

STRUCT. NO.	STATION	LOCATION	TOP OF CASTING ELEV	FLOW LINE ELEV	DRAINS TO	GRADE %	CONSTRUCT STRUCTURE				CASTING ASSEMB. EACH	REINFORCED CONCRETE PIPE					REMARKS		
							DESIGN F	DESIGN 4020				21 IN CL III	24 IN CL III	27 IN CL III	36 IN SPAN	44 IN SPAN		36 IN CL III	
								48 IN FEET	60 IN FEET	66 IN FEET									72 IN FEET
CB 1241	L ^{SB} 2348+25.6	37 RT	878.32	872.77	CB 1242	0.38	5.5					B-9	109 *						
CB 1242	L ^{SB} 2349+34.3	37 RT	877.75	872.08	CB 1243	0.30	5.6					B-9	106 *						
CB 1243	L ^{SB} 2350+39.9	37 RT	877.19	871.76	CB 1244	0.30	5.4					B-9	104 *						
CB 1244	L ^{SB} 2351+43.7	37 RT	876.65	871.45	CB 1245	0.30	5.1					B-9	145 *						
CB 1245	L ^{SB} 2352+87.5	37 RT	875.89	871.02	CB 1246	0.30			4.8			B-9		59 *					
CB 1246	L ^{NB} 1353+06.4	32.6 RT	876.42	870.59	CB 1247	0.30			5.7			B-9			129				
CB 1247	L ^{NB} 1354+34.6	32.8 RT	875.19	870.21	CB 1248	0.30			4.9			B-9			113				
CB 1248	L ^{NB} 1355+47.1	37 RT	874.50	869.87	CB 1249	0.30			4.6			B-9			76				
CB 1249	L ^{NB} 1356+22.9	37 RT	874.10	869.64	CB 1250	0.30			4.4			B-9			77				
CB 1250	L ^{NB} 1357+00.0	37 RT	873.88	869.41	CB 1251	0.30			4.4			B-5			9				
CB 1251	L ^{NB} 1357+09.0	37 RT	873.88	869.38	CB 1252	0.40				4.4		B-5				94			
CB 1252	L ^{NB} 1358+02.7	37 RT	874.18	869.01	CB 1253	0.30				5.1		B-9					145		
CB 1253	L ^{NB} 1359+47.6	25.9 RT	875.13	868.57	CB 1254	0.30			6.5			B-9					195 *		
SHEET TOTAL							21.5	0.0	35.2	0.0	9.5	13	109	355	59	404	94	340	* PLASTIC PIPE OPTION

⚠ 04/22/19 PLASTIC PIPE OPTION ADDED



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Kelly Agosto
 KELLY AGOSTO, LICENSED PROFESSIONAL ENGINEER

49075 3/15/19
 LICENSE NO. DATE

DESIGN BY: L. LANGNER
 CAD BY: E. GUIR
 CHECKED BY: R. DECOTEAU
 LAST REVISION: 4/22/19

DRAINAGE PROFILES AND TABULATIONS

C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
 S.P. 027-681-035, S.P. 110-020-040

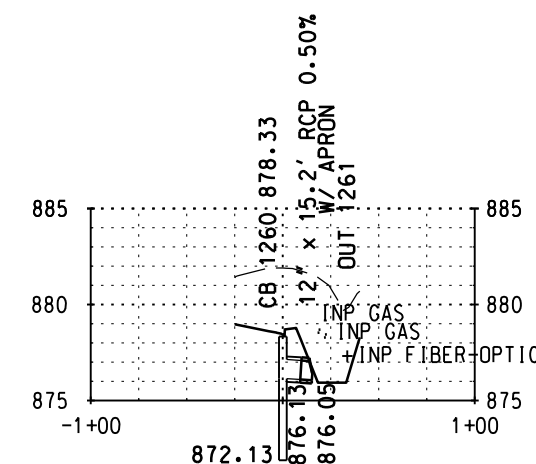
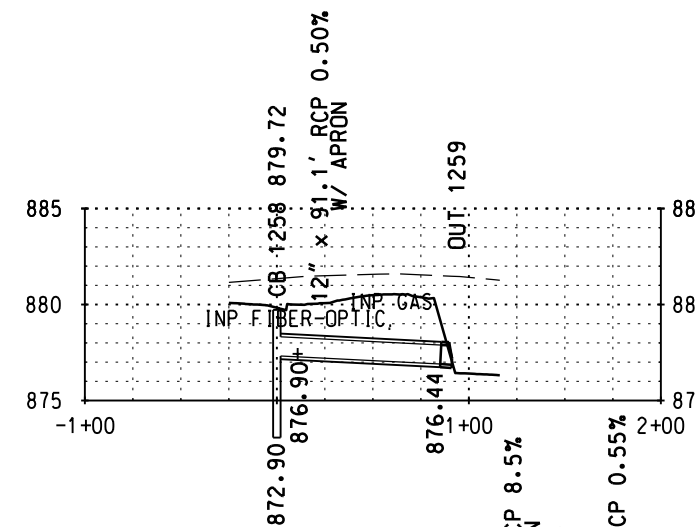
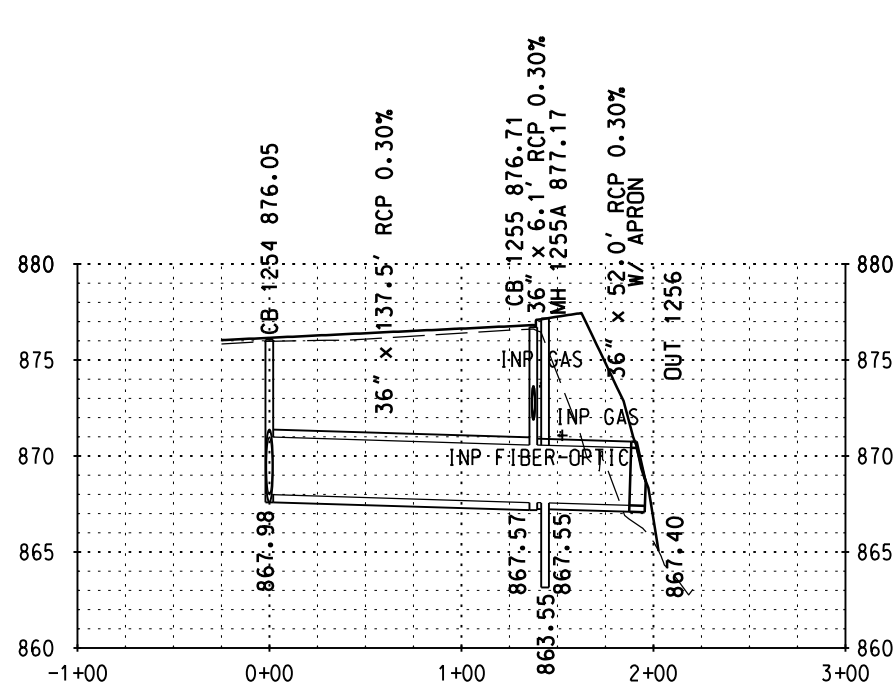
SHEET

R206.1

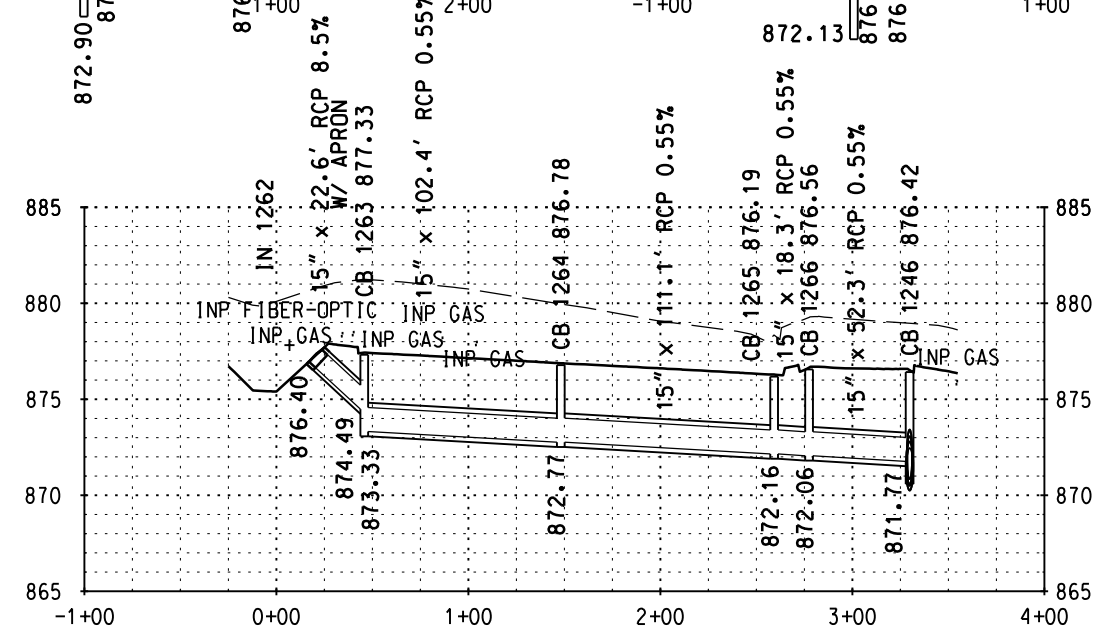
244

UNDERGROUND CONSTRUCTION DATA (PIPE SEWERS)

STRUCT. NO.	STATION	LOCATION	TOP OF CASTING ELEV	FLOW LINE ELEV	DRAINS TO	GRADE %	CONSTRUCT STRUCTURE				CASTING ASSEMB. EACH	REINFORCED CONCRETE PIPE				RIPRAP CL II CU. YD	RIPRAP CL III CU. YD	GEOTEXTILE FILTER TYPE 4 SQ. YD	GRANULAR FILTER CU. YD	RCP APRON EACH	REMARKS		
							DESIGN F	DESIGN G	DESIGN 4020			STRUCTURE BAFFLE EACH	12 IN CL V	15 IN CL V	21 IN CL III							36 IN CL III	
									48 IN	60 IN													66 IN
CB 1254	L ^{NB} 1361+42.9	25 RT	876.05	867.98	CB 1255	0.30				8.0				138 *									
CB 1255	L ^{NB} 1362+80.4	25 RT	876.11	867.57	MH 1255A	0.30				8.5				6 *									
MH 1255A	L ^{NB} 1362+83.6	30.1 RT	877.17	863.55	OUT 1256	0.30				13.7				44						4' SUMP			
OUT 1256	L ^{NB} 1363+11.0	74.4 RT		867.40											16					F&I TRASH GUARD			
CB 1258	L ^{NB} 1346+86.4	25 RT	879.72	872.90	OUT 1259	0.50				6.7				B-9	85								
OUT 1259	L ^{NB} 1347+75.7	43.4 RT		876.44											3								
CB 1260	L ^{NB} 1348+78.2	27.4 RT	878.33	872.13	OUT 1261	0.50	6.1							B-9	9								
OUT 1261	L ^{NB} 1348+77.9	42.5 RT		876.05											3								
IN 1262	L ^{NB} 1350+04.3	44.4 RT		876.40	CB 1263	8.50														1-15"			
CB 1263	L ^{NB} 1350+25.5	37 RT	877.33	873.33	CB 1264	0.55		3.9						B-9		102							
CB 1264	L ^{NB} 1351+27.4	37 RT	876.78	872.77	CB 1265	0.55		3.9						B-9		111							
CB 1265	L ^{NB} 1352+38.0	37 RT	876.19	872.16	CB 1266	0.55		4.0						B-9		18							
CB 1266	L ^{NB} 1352+55.3	42.5 RT	876.56	872.06		0.55		4.4						B-5		52							
SHEET TOTAL							6.1	16.2	6.7	30.2	0.0	1	9	94	300	0	188	6	16	85	4	* PLASTIC PIPE OPTION	



⚠ 04/22/19 PLASTIC PIPE OPTION ADDED



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Kelly Agosto
 KELLY AGOSTO, LICENSED PROFESSIONAL ENGINEER

49075 3/15/19
 LICENSE NO. DATE

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 CAD BY: E. GUIR
 CHECKED BY: R. DECOTEAU
 LAST REVISION: 4/22/19

DRAINAGE PROFILES AND TABULATIONS

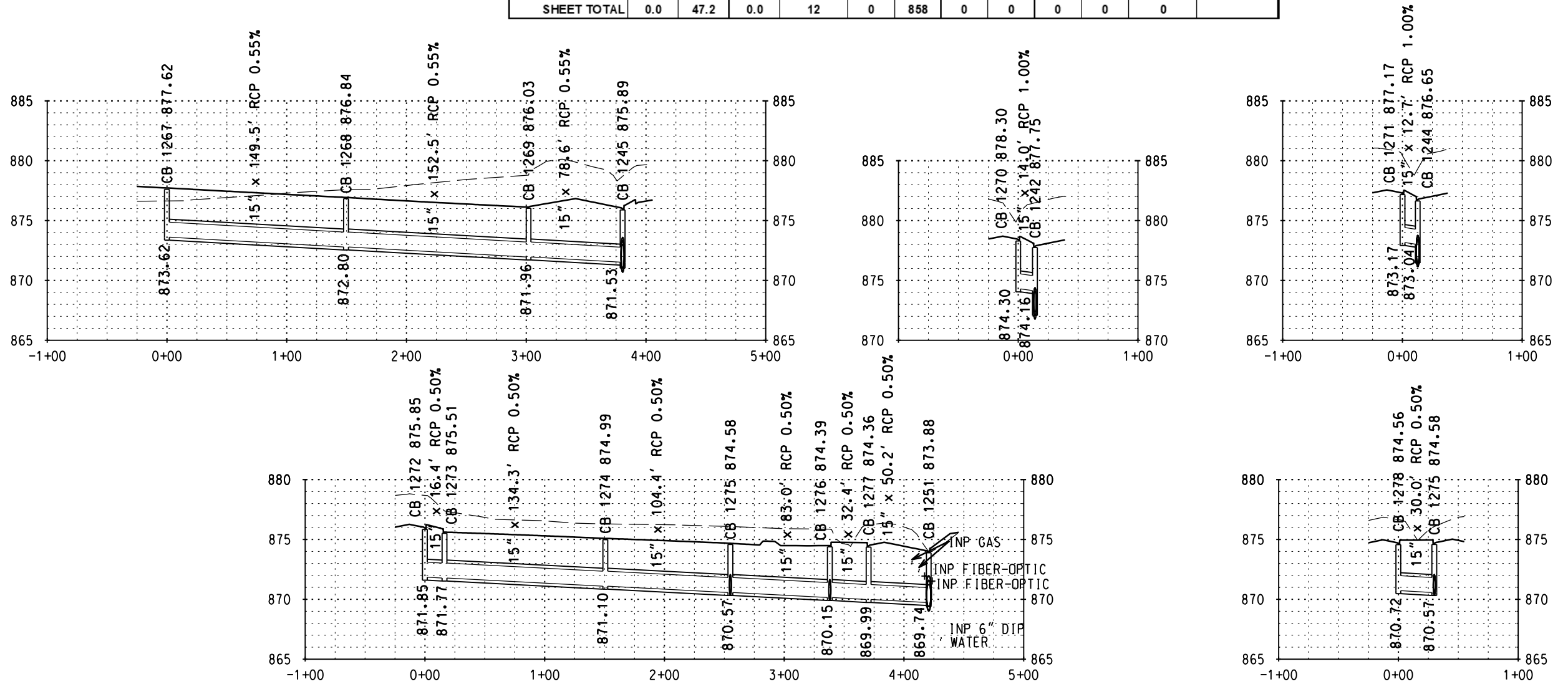
C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
 S.P. 027-681-035, S.P. 110-020-040

SHEET

R207.1

244

STRUCT. NO.	STATION	LOCATION	TOP OF CASTING ELEV	FLOW LINE ELEV	DRAINS TO	GRADE %	CONSTRUCT STRUCTURE			CASTING ASSEMB. EACH	REINFORCED CONCRETE PIPE					CONNECT TO EXISTING		RCP APRON EACH	REMARKS		
							DESIGN F	DESIGN G	DESIGN H		12 IN CL V	15 IN CL V	21 IN CL III	24 IN CL III	27 IN CL III	36 IN CL III	PIPE EACH			STRUCTURE EACH	
							FEET				FEET					EACH				EACH	
							F	G	H		12 IN CL V	15 IN CL V	21 IN CL III	24 IN CL III	27 IN CL III	36 IN CL III	PIPE			STRUCTURE	
CB 1267	L ^{SB} 2349+58.3	37 LT	877.62	873.62	CB 1268	0.55		3.9		B-9		150									
CB 1268	L ^{SB} 2351+08.0	37 LT	876.84	872.80	CB 1269	0.55		4.0		B-9		153									
CB 1269	L ^{SB} 2352+61.3	37 LT	876.03	871.96	CB 1245	0.55		4.0		B-9		79									
CB 1270	L ^{NB} 1349+35.2	13 LT	878.30	874.30	CB 1242	1.00		3.9		B-9		14									
CB 1271	L ^{NB} 1351+45.5	13 LT	877.17	873.17	CB 1244	1.00		3.9		B-9		13									
CB 1272	L ^{NB} 1353+87.4	13 LT	875.85	871.85	CB 1273	0.50		3.9		B-9		16									
CB 1273	L ^{SB} 2353+83.6	30.9 RT	875.51	871.77	CB 1274	0.50		3.7		B-9		134									
CB 1274	L ^{SB} 2355+17.1	22 RT	874.99	871.10	CB 1275	0.50		3.8		B-9		104									
CB 1275	L ^{SB} 2356+21.0	15.1 RT	874.58	870.57	CB 1276	0.50		3.9		B-9		83									
CB 1276	L ^{SB} 2357+04.0	13 RT	874.39	870.15	CB 1277	0.50		4.2		B-5		32									
CB 1277	L ^{NB} 1357+04.5	13 LT	874.36	869.99	CB 1251	0.50		4.3		B-5		50									
CB 1278	L ^{NB} 1356+26.6	13 LT	874.56	870.72	CB 1275	0.50		3.8		B-9		30									
SHEET TOTAL							0.0	47.2	0.0	12	0	858	0	0	0	0	0				



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49075 3/15/19
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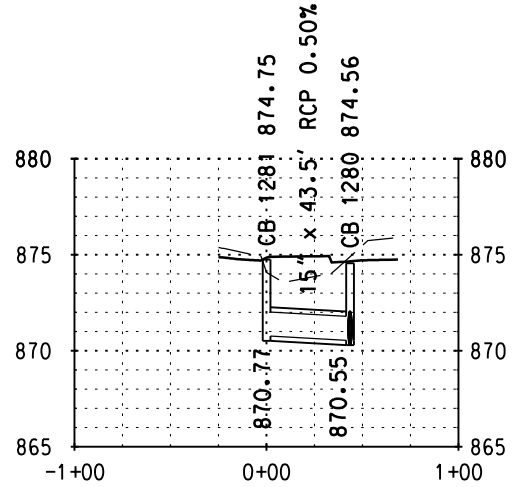
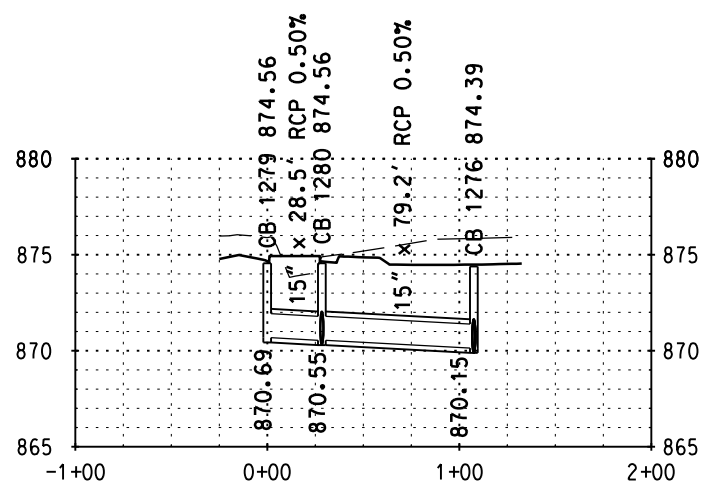
DRAINAGE PROFILES AND TABULATIONS

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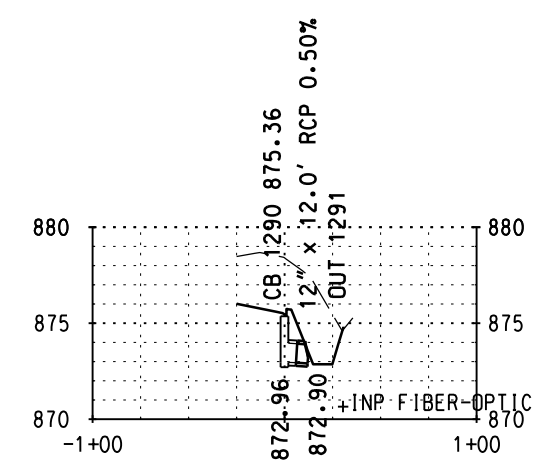
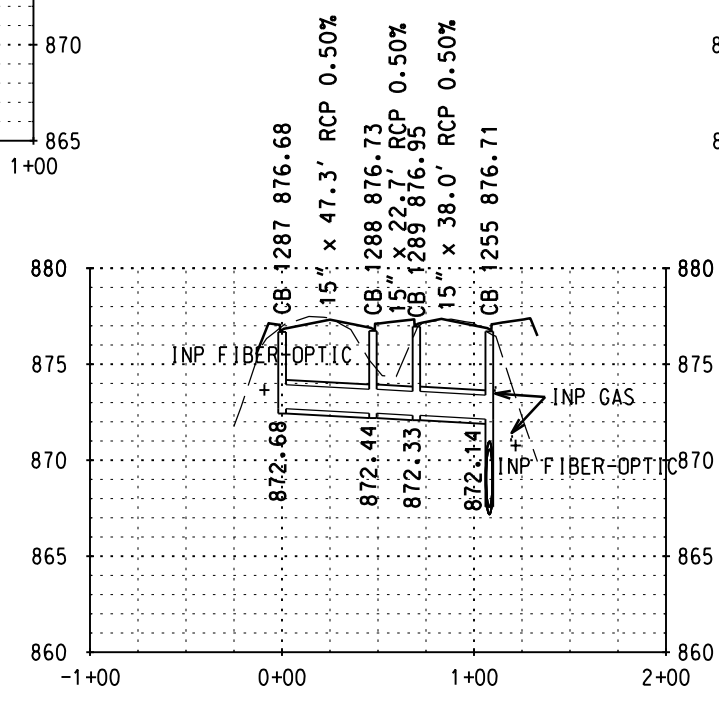
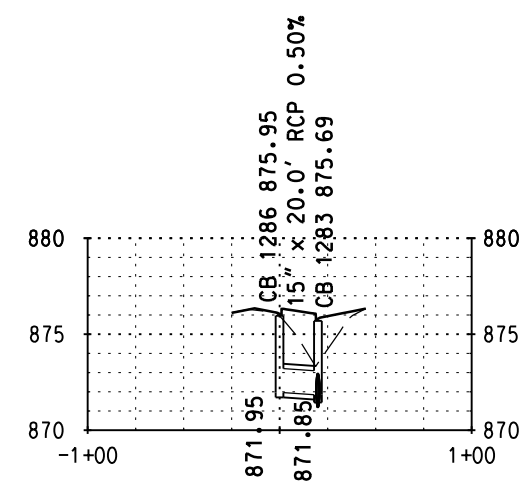
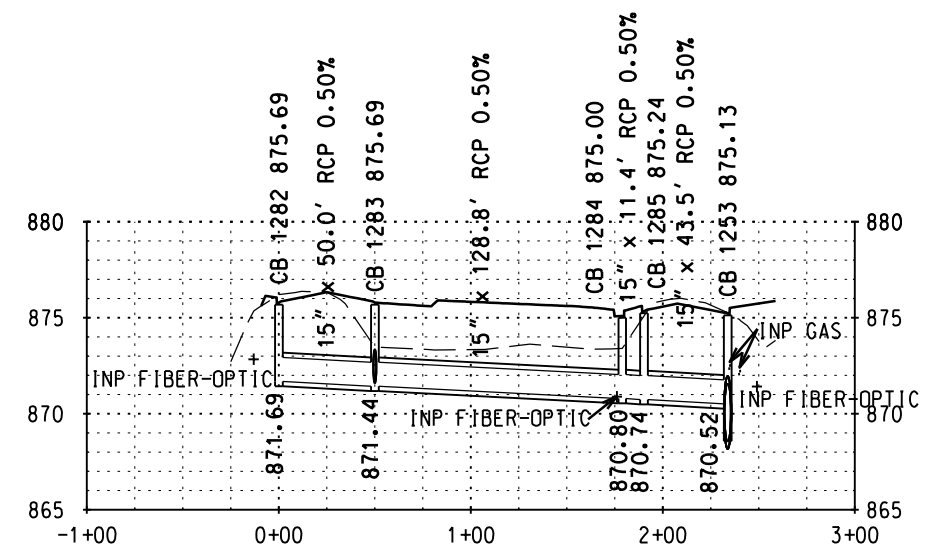
SHEET

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 244

STRUCT. NO.	STATION	LOCATION	TOP OF CASTING ELEV	FLOW LINE ELEV	DRAINS TO	GRADE %	CONSTRUCT STRUCTURE					CASTING ASSEMB. EACH	REINFORCED CONCRETE PIPE					RIPRAP CL II CU. YD	GEOTEXTILE FILTER TYPE 4 SQ. YD	GRANULAR FILTER CU. YD	RCP APRON EACH	REMARKS	
							DESIGN F	DESIGN G	DESIGN H	DESIGN 4020			12 IN CL V	15 IN CL V	21 IN CL III	24 IN CL III	27 IN CL III						36 IN CL III
										60 IN	66 IN												
							FEET										FEET						
CB 1279	L ^{NB} 1357+88.8	14.8 LT	874.56	870.69	CB 1280	0.50		3.8				B-9		29									
CB 1280	L ^{SB} 2357+83.1	14.8 RT	874.56	870.55	CB 1276	0.50				3.9		B-9		79									
CB 1281	L ^{NB} 1358+29.9	29 LT	874.75	870.77	CB 1280	0.50		3.9				B-9		44									
CB 1282	L ^{SB} 2360+65.9	25 LT	875.69	871.69	CB 1283	0.50		3.9				B-9		50									
CB 1283	L ^{SB} 2360+66.0	25 RT	875.69	871.44	CB 1284	0.50		4.2				B-9		129									
CB 1284	L ^{SB} 2359+37.3	29.3 RT	875.00	870.80	CB 1285	0.50		4.1				B-9		11									
CB 1285	L ^{NB} 1359+42.9	17.3 LT	875.24	870.74	CB 1253	0.50		4.4				B-9		44									
CB 1286	L ^{NB} 1360+71.5	13 LT	875.95	871.95	CB 1283	0.50		3.9				B-9		20									
CB 1287	L ^{SB} 2362+74.0	25 LT	876.68	872.68	CB 1288	0.50		3.9				B-9		47									
CB 1288	L ^{SB} 2362+74.0	22.3 RT	876.73	872.44	CB 1289	0.50		4.2				B-9		23 *									
CB 1289	L ^{NB} 1362+80.7	13 LT	876.95	872.33	CB 1255	0.50		4.5				B-9		38 *									
CB 1290	L ^{SB} 2354+21.7	28.4 LT	875.36	872.96	OUT 1291	0.50			2.3			B-9	6										
OUT 1291	L ^{SB} 2354+23.1	40.4 LT		872.90																			
SHEET TOTAL							0.0	40.9	2.3	3.9	0.0	12	6	514	0	0	0	0	3	17	1	1-12"	* PLASTIC PIPE OPTION



04/22/19 PLASTIC PIPE OPTION ADDED



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.

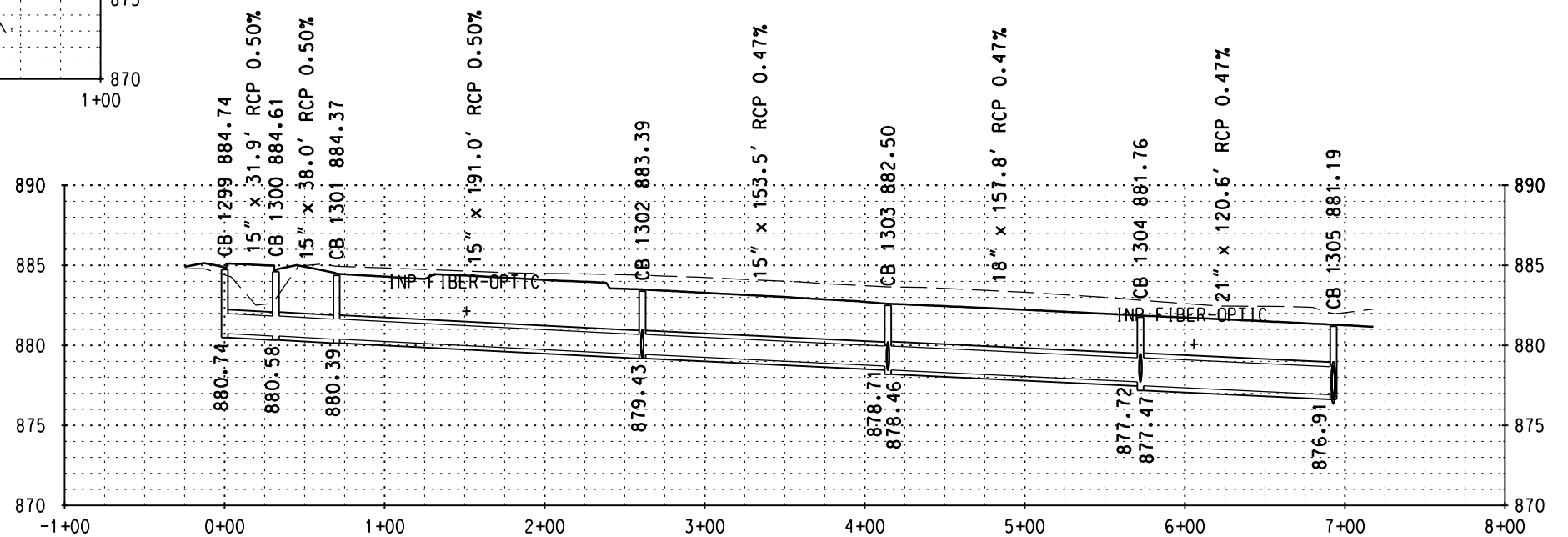
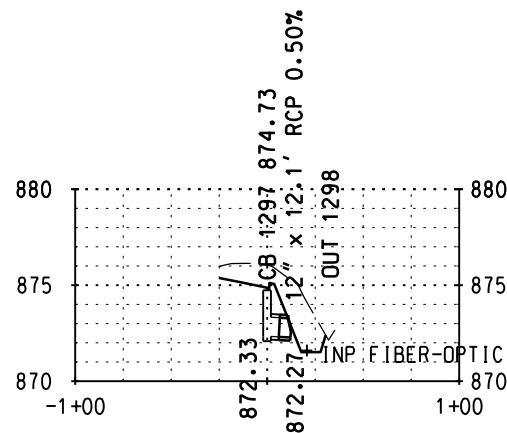
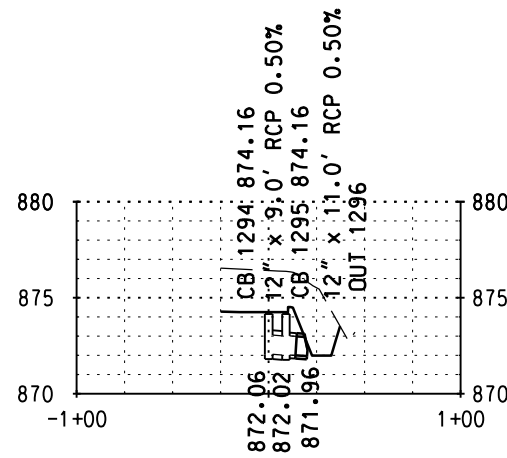
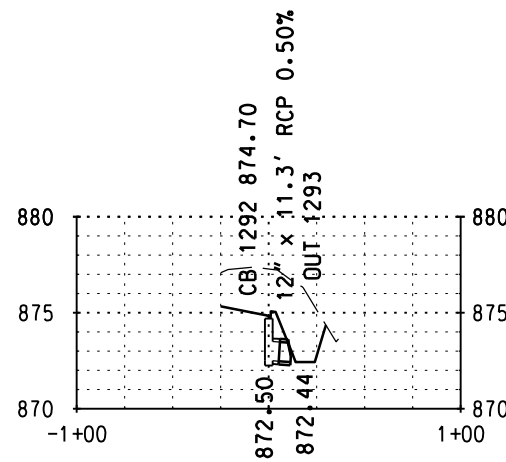
Kelly Agosto
 KELLY AGOSTO, LICENSED PROFESSIONAL ENGINEER
 49075 LICENSE NO. 3/15/19 DATE

DESIGN BY: L. LANGNER
 CAD BY: E. GUIR
 CHECKED BY: R. DECOTEAU
 LAST REVISION: 4/22/19

DRAINAGE PROFILES AND TABULATIONS
 C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
 S.P. 027-681-035, S.P. 110-020-040

SHEET R209.1
 244

STRUCT. NO.	STATION	LOCATION	TOP OF CASTING ELEV	FLOW LINE ELEV	DRAINS TO	GRADE %	CONSTRUCT STRUCTURE				CASTING ASSEMB. EACH	REINFORCED CONCRETE PIPE					RIPRAP CL II CU. YD	GEOTEXTILE FILTER TYPE 4 SQ. YD	GRANULAR FILTER CU. YD	RCP APRON EACH	REMARKS	
							DESIGN F	DESIGN G	DESIGN H	DESIGN SPECIAL		12 IN CL V	15 IN CL V	18 IN CL III	21 IN CL III	27 IN CL III						36 IN CL III
							FEET					FEET										
CB 1292	L ^{SB} 2355+59.7	25 LT	874.70	872.50	OUT 1293	0.50			2.1		B-9	5										
OUT 1293	L ^{SB} 2355+59.7	36.3 LT		872.44												3	17	1	1-12"			
CB 1294	L ^{SB} 2356+99.5	25 LT	874.16	872.06	CB 1295	0.50			2.0		B-5	9										
CB 1295	L ^{SB} 2357+08.5	25 LT	874.16	872.02	OUT 1296	0.50			2.1		B-5	5										
OUT 1296	L ^{SB} 2357+08.7	36 LT		871.96												3	17	1	1-12"			
CB 1297	L ^{SB} 2358+61.6	25 LT	874.73	872.33	OUT 1298	0.50			2.3		B-9	6										
OUT 1298	L ^{SB} 2358+61.6	37.1 LT		872.27												3	17	1	1-12"			
CB 1299	L ^{NB} 1379+02.6	13 LT	884.74	880.74	CB 1300	0.50	3.9				B-9		32									
CB 1300	L ^{SB} 2379+01.0	13 RT	884.61	880.58	CB 1301	0.50	3.9				B-9		38									
CB 1301	L ^{SB} 2379+01.0	25 LT	884.37	880.39	CB 1302	0.50	3.9				B-9		191									
CB 1302	L ^{SB} 2377+10.0	28.5 LT	883.39	879.43	CB 1303	0.47	3.9				B-9		154									
CB 1303	L ^{SB} 2375+57.0	37 LT	882.50	878.46	CB 1304	0.47	4.0				B-9			158								
CB 1304	L ^{SB} 2374+00.0	37 LT	881.76	877.47	CB 1305	0.47	4.2				B-9											
SHEET TOTAL							0.0	23.8	8.5	0.0	10	25	415	158	121	0	0	9	51	3		



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Kelly Agosto
 KELLY AGOSTO, LICENSED PROFESSIONAL ENGINEER

49075 3/15/19
 LICENSE NO. DATE

DESIGN BY: L. LANGNER
 CAD BY: E. GUIR
 CHECKED BY: R. DECOTEAU
 LAST REVISION: / /

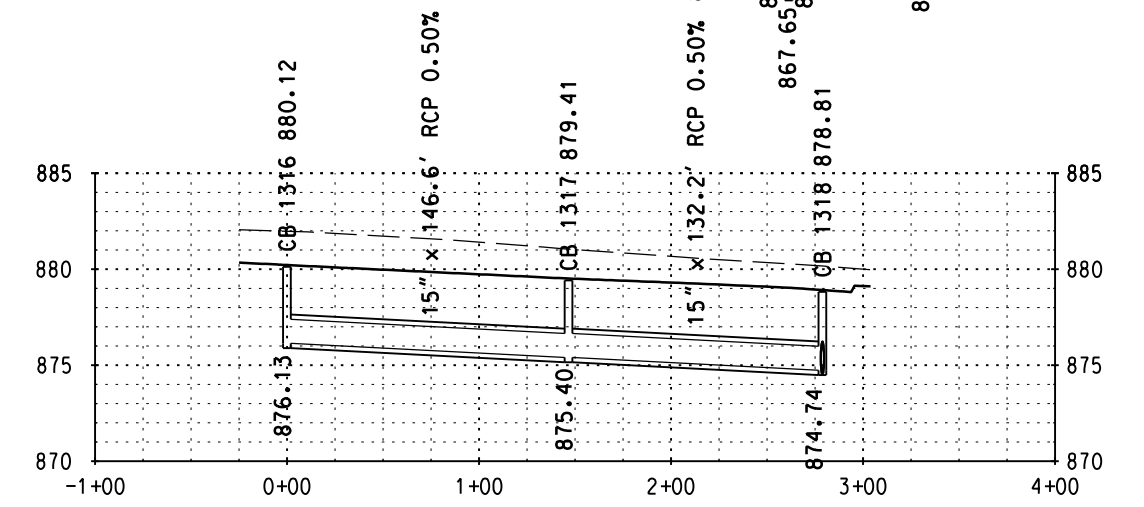
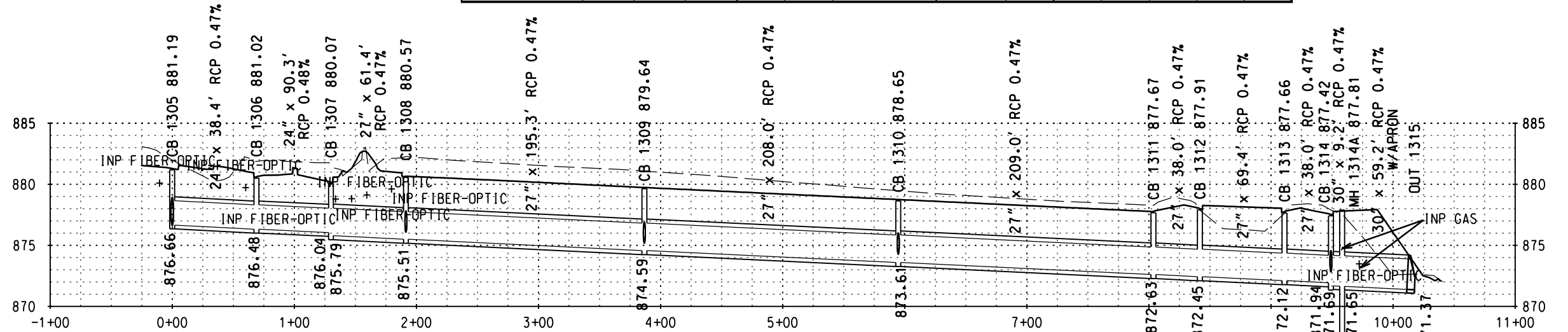
DRAINAGE PROFILES AND TABULATIONS

C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
 S.P. 027-681-035, S.P. 110-020-040

SHEET

210
 244

UNDERGROUND CONSTRUCTION DATA (PIPE SEWERS)																					
STRUCT. NO.	STATION	LOCATION	TOP OF CASTING ELEV	FLOW LINE ELEV	DRAINS TO	GRADE %	CONSTRUCT STRUCTURE				STRUCTURE BAFFLE EACH	CASTING ASSEMB. EACH	REINFORCED CONCRETE PIPE					RCP APRON EACH	REMARKS		
							DESIGN F	DESIGN G	DESIGN H	DESIGN 4020			12 IN CL V	15 IN CL V	21 IN CL III	24 IN CL III	27 IN CL III			30 IN CL III	
							FEET						FEET								
CB 1305	L ^{SB} 2372+80.0	37 LT	881.19	876.66	CB 1306	0.47		4.5				B-9				38					
CB 1306	L ^{SB} 2372+41.8	37.4 LT	881.02	876.48	CB 1307	0.48		4.5				B-5				90					
CB 1307	L ^{SB} 2371+52.4	45.8 LT	880.07	875.79	CB 1308	0.47		4.2				B-9						61			
CB 1308	L ^{SB} 2370+95.0	25 LT	880.57	875.51	CB 1309	0.47				5.0		B-9						195			
CB 1309	L ^{SB} 2369+00.0	25 LT	879.64	874.59	CB 1310	0.47				5.0		B-9						208			
CB 1310	L ^{SB} 2366+92.0	25 LT	878.65	873.61	CB 1311	0.47				5.0		B-9						209			
CB 1311	L ^{SB} 2364+83.0	25 LT	877.67	872.63	CB 1312	0.47					5.0	B-9						38			
CB 1312	L ^{SB} 2364+83.0	13 RT	877.91	872.45	CB 1313	0.47				5.4		B-9						69			
CB 1313	L ^{NB} 1364+27.1	13 LT	877.66	872.12	CB 1314	0.47				5.5		B-9						38			
CB 1314	L ^{NB} 1364+27.1	25 RT	877.42	871.69	MH 1314A	0.47				5.6		B-9						9			
MH 1314A	L ^{NB} 1364+19.5	30.2 RT	877.81	867.65	OUT 1315	0.47				10.3	1	A-7D						53			
OUT 1315	L ^{NB} 1363+70.5	63.4 RT		871.37															1-30"	F&I TRASH APRON	
CB 1316	L ^{NB} 1370+39.3	37 RT	880.12	876.13	CB 1317	0.50		3.9				B-9		147							
CB 1317	L ^{NB} 1368+92.5	37 RT	879.41	875.40	CB 1318	0.50		3.9				B-9		132							
SHEET TOTAL							0.0	21.0	0.0	41.7	5.0	1	13	0	279	0	128	818	62		



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 CHECKED BY: R. DECOTEAU
 LAST REVISION: / /

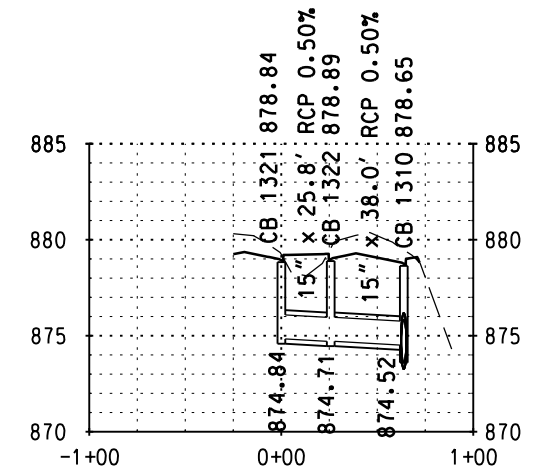
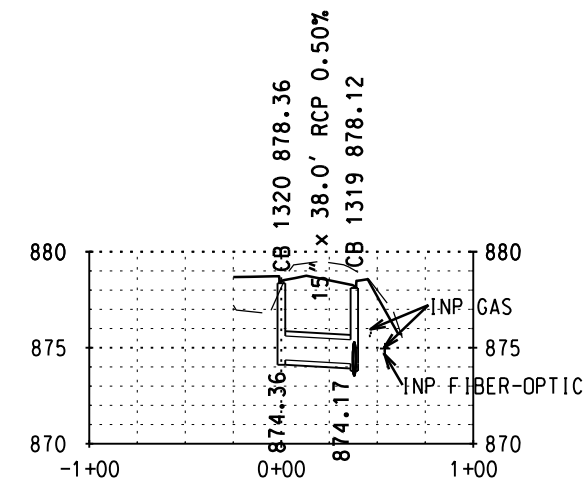
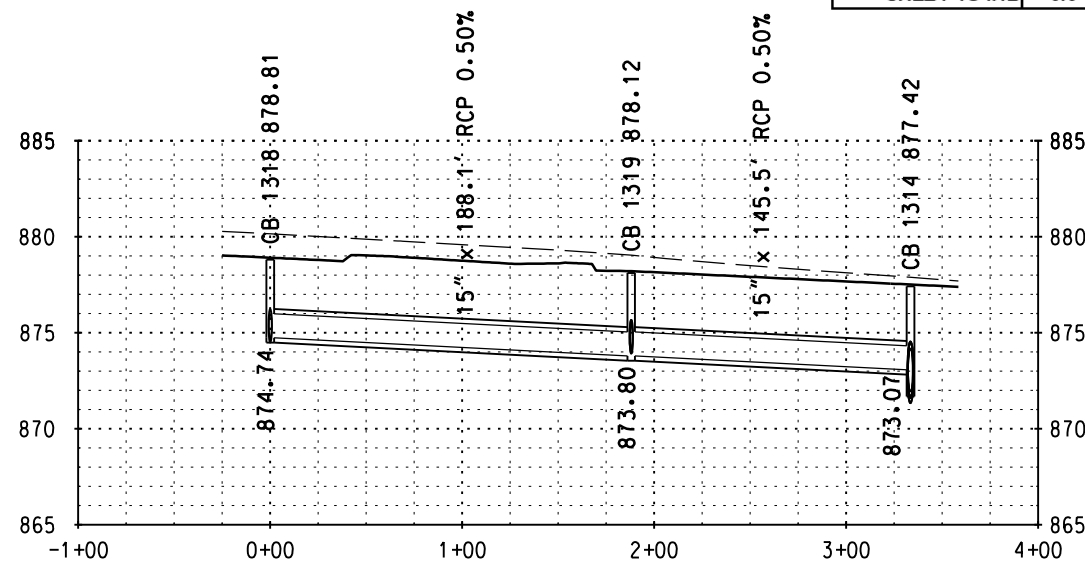
DRAINAGE PROFILES AND TABULATIONS

C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
 S.P. 027-681-035, S.P. 110-020-040

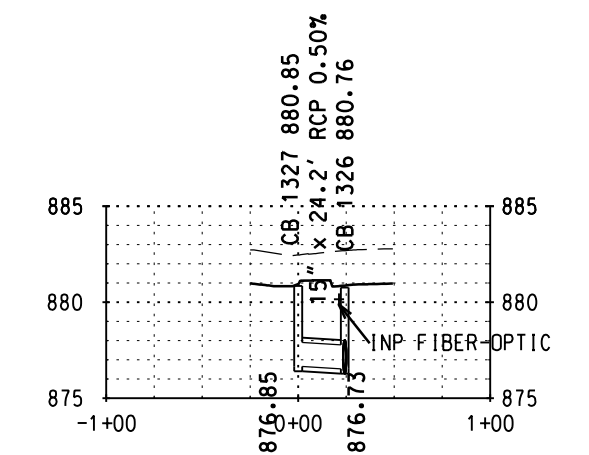
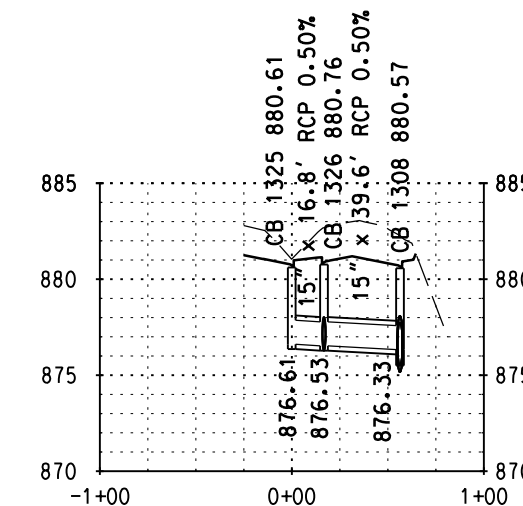
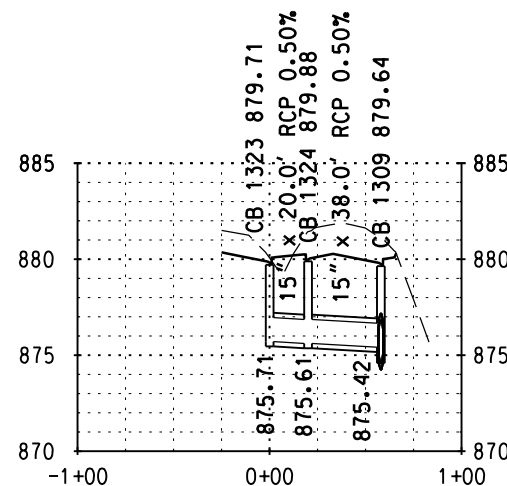
SHEET 211 / 244

UNDERGROUND CONSTRUCTION DATA (PIPE SEWERS)

STRUCT. NO.	STATION	LOCATION	TOP OF CASTING ELEV	FLOW LINE ELEV	DRAINS TO	GRADE %	CONSTRUCT STRUCTURE					CASTING ASSEMB. EACH	REINFORCED CONCRETE PIPE					REMARKS		
							DESIGN F	DESIGN G	DESIGN H	DESIGN 4020			12 IN CL V	15 IN CL V	21 IN CL III	24 IN CL III	27 IN CL III		36 IN CL III	
							FEET						FEET							
CB 1318	L ^{NB} 1367+60.3	35 RT	878.81	874.74	CB 1319	0.50		4.0				B-9		188 *						
CB 1319	L ^{NB} 1365+72.5	25 RT	878.12	873.80	CB 1314	0.50		4.2				B-9		146 *						
CB 1320	L ^{NB} 1365+72.5	13 LT	878.36	874.36	CB 1319	0.50		3.9				B-9		38						
CB 1321	L ^{NB} 1366+98.8	19.2 LT	878.84	874.84	CB 1322	0.50		3.9				B-9		26						
CB 1322	L ^{SB} 2366+92.0	13 RT	878.89	874.71	CB 1310	0.50		4.1				B-9		38						
CB 1323	L ^{NB} 1369+05.6	25 LT	879.71	875.71	CB 1324	0.50		3.9				B-9		20						
CB 1324	L ^{SB} 2369+00.0	13 RT	879.88	875.61	CB 1309	0.50		4.2				B-9		38						
CB 1325	L ^{NB} 1370+99.8	26.6 LT	880.61	876.61	CB 1326	0.50		3.9				B-9		17						
CB 1326	L ^{SB} 2370+95.0	14.6 RT	880.76	876.53	CB 1308	0.50				4.2		B-9		40						
CB 1327	L ^{NB} 1371+22.5	35.1 LT	880.85	876.85	CB 1326	0.50		3.9				B-9		24						
SHEET TOTAL							0.0	36.1	0.0	4.2	0.0	10	0	575	0	0	0	0	0	* PLASTIC PIPE OPTION



⚠ 04/22/19 PLASTIC PIPE OPTION ADDED



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Kelly Agosto
 KELLY AGOSTO, LICENSED PROFESSIONAL ENGINEER
 49075 LICENSE NO. 3/15/19 DATE

DESIGN BY: L. LANGNER
 CAD BY: E. GUIR
 CHECKED BY: R. DECOTEAU
 LAST REVISION: 4/22/19

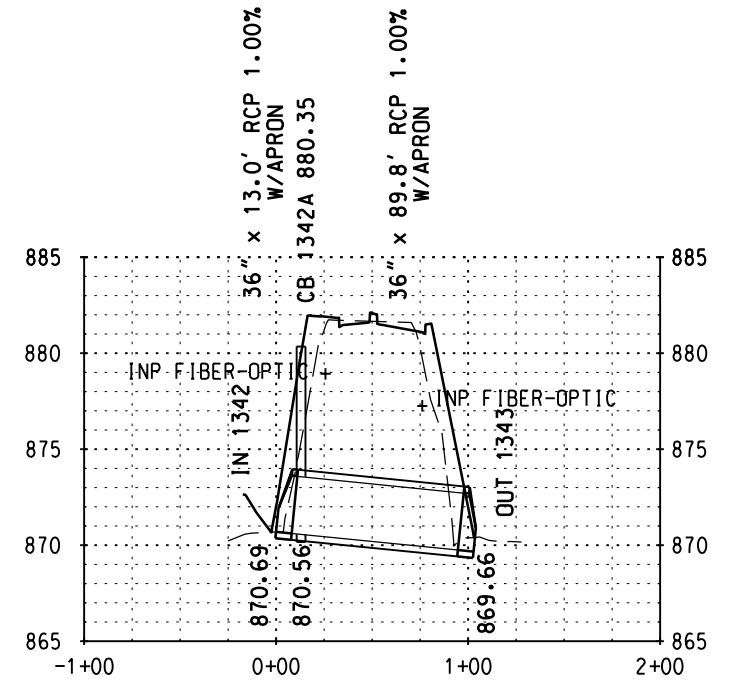
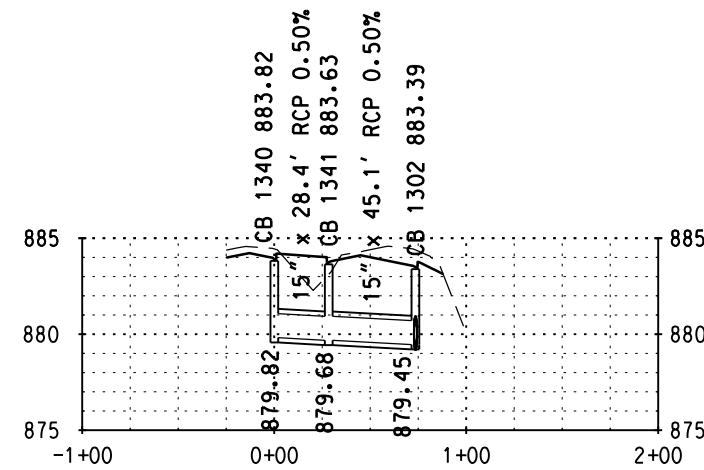
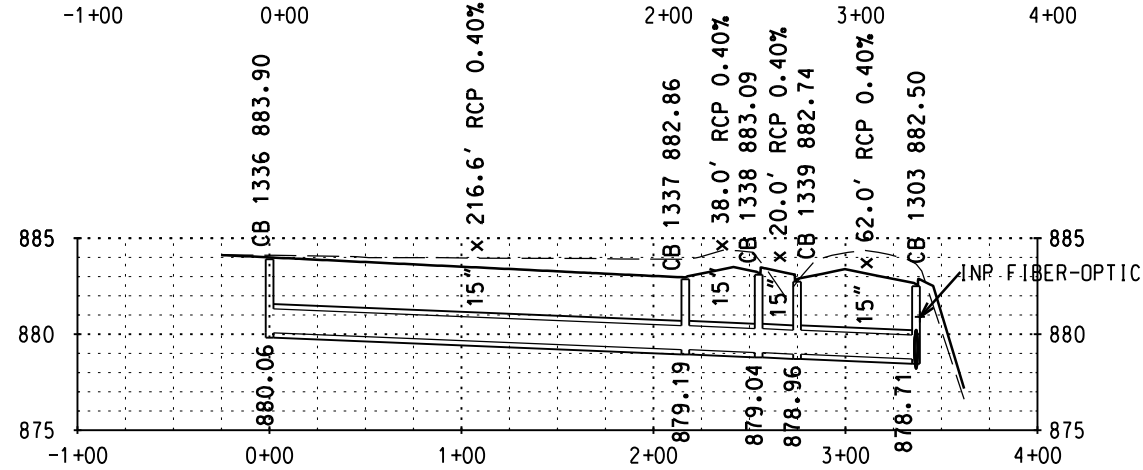
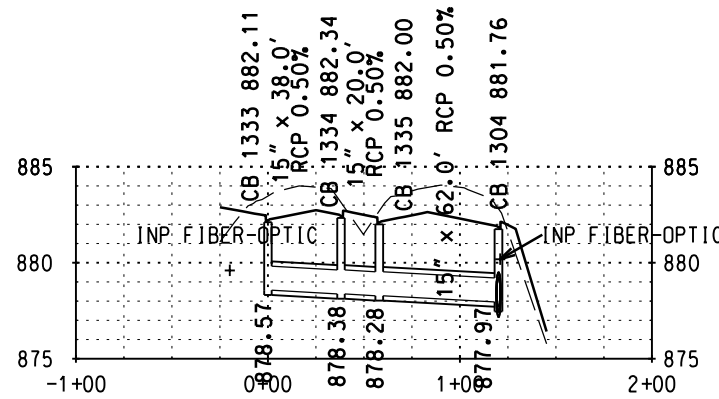
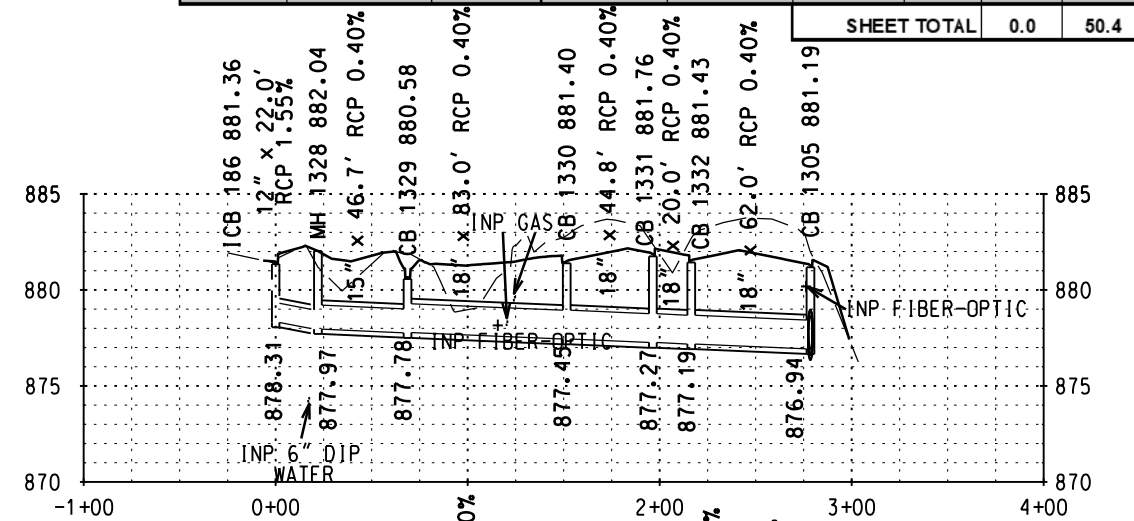
DRAINAGE PROFILES AND TABULATIONS

C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
 S.P. 027-681-035, S.P. 110-020-040

SHEET
 R212.1
 244

UNDERGROUND CONSTRUCTION DATA (PIPE SEWERS)

STRUCT. NO.	STATION	LOCATION	TOP OF CASTING ELEV	FLOW LINE ELEV	DRAINS TO	GRADE %	CONSTRUCT STRUCTURE							REINFORCED CONCRETE PIPE				CONNECT TO EXISTING PIPE EACH	RIPRAP CL III CU. YD	GEOTEX TILE FILTER TYPE 4 SQ. YD	GRANULAR FILTER CU. YD	RCP APRON EACH	REMARKS							
							DESIGN F	DESIGN G	DESIGN SD	DESIGN 4020			DESIGN SPECIAL EACH	CASTING ASSEMB. EACH	12 IN	15 IN	18 IN							36 IN						
										60 IN	66 IN	FEET			CL V	CL V	CL III							CL III						
MH 1328	L ^{NB} 1372+59.7	105 RT	882.04	877.97	CB 1329	0.40		4.2							A-7D		47			1										
CB 1329	L ^{NB} 1372+18.2	82.7 RT	880.58	877.78	CB 1330	0.40				2.7					B-5			83												
CB 1330	L ^{NB} 1372+84.2	31.8 RT	881.40	877.45	CB 1331	0.40		3.9							B-9			45												
CB 1331	L ^{NB} 1372+84.0	13 LT	881.76	877.27	CB 1332	0.40		4.4							B-9			20												
CB 1332	L ^{SB} 2372+80.0	25 RT	881.43	877.19	CB 1305	0.40		4.2							B-9			62												
CB 1333	L ^{NB} 1374+04.0	25 RT	882.11	878.57	CB 1334	0.50		3.5							B-9		38													
CB 1334	L ^{NB} 1374+02.9	13 LT	882.34	878.38	CB 1335	0.50		3.9							B-9		20													
CB 1335	L ^{SB} 2374+00.0	25 RT	882.00	878.28	CB 1304	0.50		3.6							B-9		62													
CB 1336	L ^{NB} 1377+77.3	25 RT	883.90	880.06	CB 1337	0.40		3.8							B-9		217													
CB 1337	L ^{NB} 1375+60.6	25 RT	882.86	879.19	CB 1338	0.40		3.6							B-9		38													
CB 1338	L ^{NB} 1375+58.9	13 LT	883.09	879.04	CB 1339	0.40		4.0							B-9		20													
CB 1339	L ^{SB} 2375+57.0	25 RT	882.74	878.96	CB 1303	0.40		3.7							B-9		62													
CB 1340	L ^{NB} 1377+11.0	13 LT	883.82	879.82	CB 1341	0.50		3.9							B-9		28													
CB 1341	L ^{SB} 2377+10.0	16.5 RT	883.63	879.68	CB 1302	0.50		3.9							B-9		45													
IN 1342	L ^{GREEN} 4+50.4	47.2 LT		870.69	CB 1342A	1.00																			5		1-36"	F&I TRASH APRON		
CB 1342A	L ^{GREEN} 4+50.8	34.2 LT	880.35	870.56	OUT 1343	1.00									1											82		DESIGN SPECIAL 3		
OUT 1343	L ^{GREEN} 4+53.6	55.6 RT		869.66																						16	51	2	1-36"	F&I TRASH APRON
SHEET TOTAL							0.0	50.4	0.0	2.7	0.0				1	14	0	577	210	87	1	16	51	2						



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Kelly Agosto
 KELLY AGOSTO, LICENSED PROFESSIONAL ENGINEER

49075 3/15/19
 LICENSE NO. DATE

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 LAST REVISION: / /

DRAINAGE PROFILES AND TABULATIONS

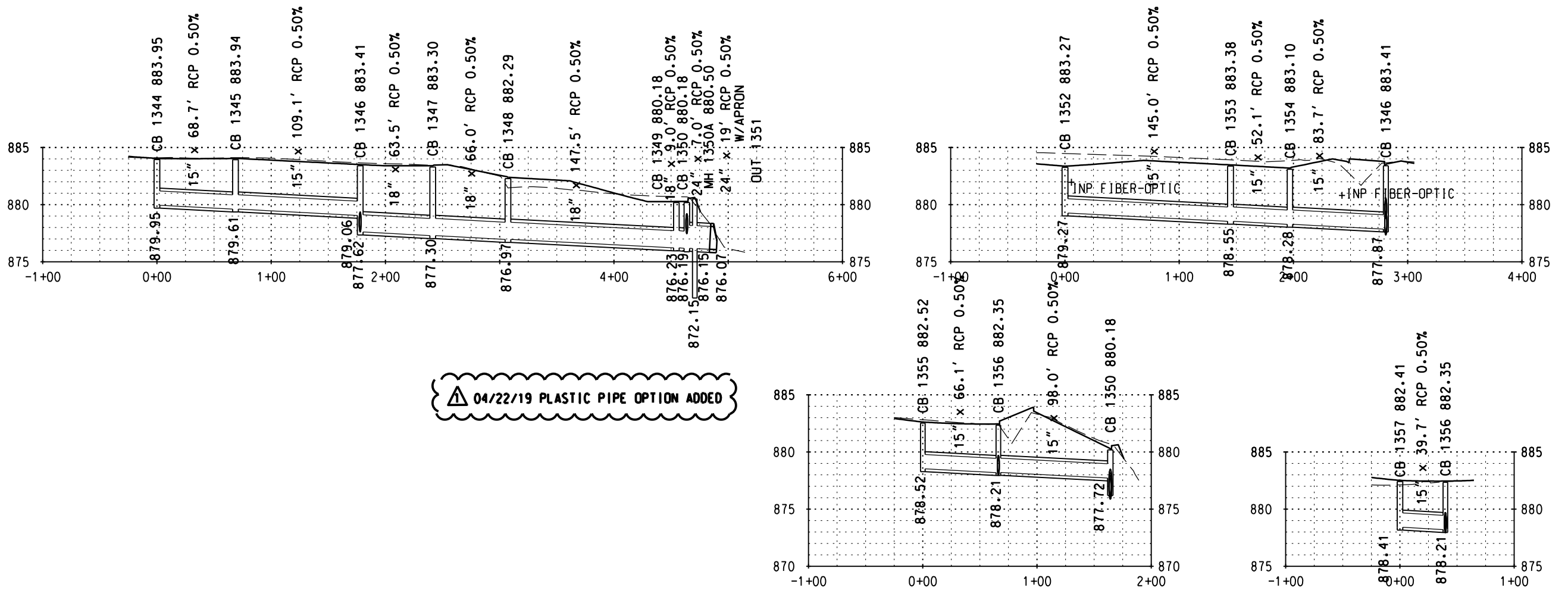
C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
 S.P. 027-681-035, S.P. 110-020-040

SHEET

213
 244

UNDERGROUND CONSTRUCTION DATA (PIPE SEWERS)

STRUCT. NO.	STATION	LOCATION	TOP OF CASTING ELEV	FLOW LINE ELEV	DRAINS TO	GRADE %	CONSTRUCT STRUCTURE					CASTING ASSEMB. EACH	REINFORCED CONCRETE PIPE				RIPRAP CL III CU. YD	GEOTEX TILE FILTER TYPE 4 SQ. YD	GRANULAR FILTER CU. YD	RCP APRON EACH	REMARKS	
							DESIGN F	DESIGN G	DESIGN H	DESIGN 4020	STRUCTURE BAFFLE EACH		12 IN CL V	15 IN CL V	18 IN CL III	24 IN CL III						
							FEET						60 IN	66 IN	FEET							
CB 1344	L ^{NB} 1383+28.4	13 LT	883.95	879.95	CB 1345	0.50		3.9				B-9		69 *								
CB 1345	L ^{NB} 1383+97.6	13 LT	883.94	879.61	CB 1346	0.50		4.3				B-9		109 *								
CB 1346	L ^{NB} 1385+06.6	13 LT	883.41	877.62	CB 1347	0.50					5.7	B-9		64 *								
CB 1347	L ^{NB} 1385+70.1	13 LT	883.30	877.30	CB 1348	0.50	5.9					B-9		66 *								
CB 1348	L ^{NB} 1385+70.1	53 RT	882.29	876.97	CB 1349	0.50	5.2					B-9		147								
CB 1349	L ^{NB} 1387+20.3	53 RT	880.18	876.23	CB 1350	0.50		3.9				B-5		9								
CB 1350	L ^{NB} 1387+29.7	53 RT	880.18	876.19	MH 1350A	0.50				3.9		B-5				7						
MH 1350A	L ^{NB} 1387+29.7	60 RT	880.50	872.15	OUT 1351	0.50	8.5					1	A-7D			13						
OUT 1351	L ^{NB} 1387+29.8	76.9 RT		876.07													9	33	1	1-24"	F&I TRASH APRON	
CB 1352	L ^{SB} 2383+15.9	32.1 LT	883.27	879.27	CB 1353	0.50		3.9				B-9		145 *								
CB 1353	L ^{SB} 2384+61.9	35 LT	883.38	878.55	CB 1354	0.50	4.8					B-9		52 *								
CB 1354	L ^{SB} 2385+14.0	36 LT	883.10	878.28	CB 1346	0.50				4.7		B-9		84 *								
CB 1355	L ^{SB} 2387+87.0	13 RT	882.52	878.52	CB 1356	0.50		3.9				B-9		66								
CB 1356	L ^{SB} 2387+20.1	13 RT	882.35	878.21	CB 1350	0.50		4.1				B-5		98								
CB 1357	L ^{SB} 2386+80.0	13 RT	882.41	878.41	CB 1356	0.50		3.9				B-9		40								
SHEET TOTAL							24.4	27.9	0.0	14.4	0.0	1	14	0	663	286	20	9	33	1		* PLASTIC PIPE OPTION



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DRAINAGE PROFILES AND TABULATIONS

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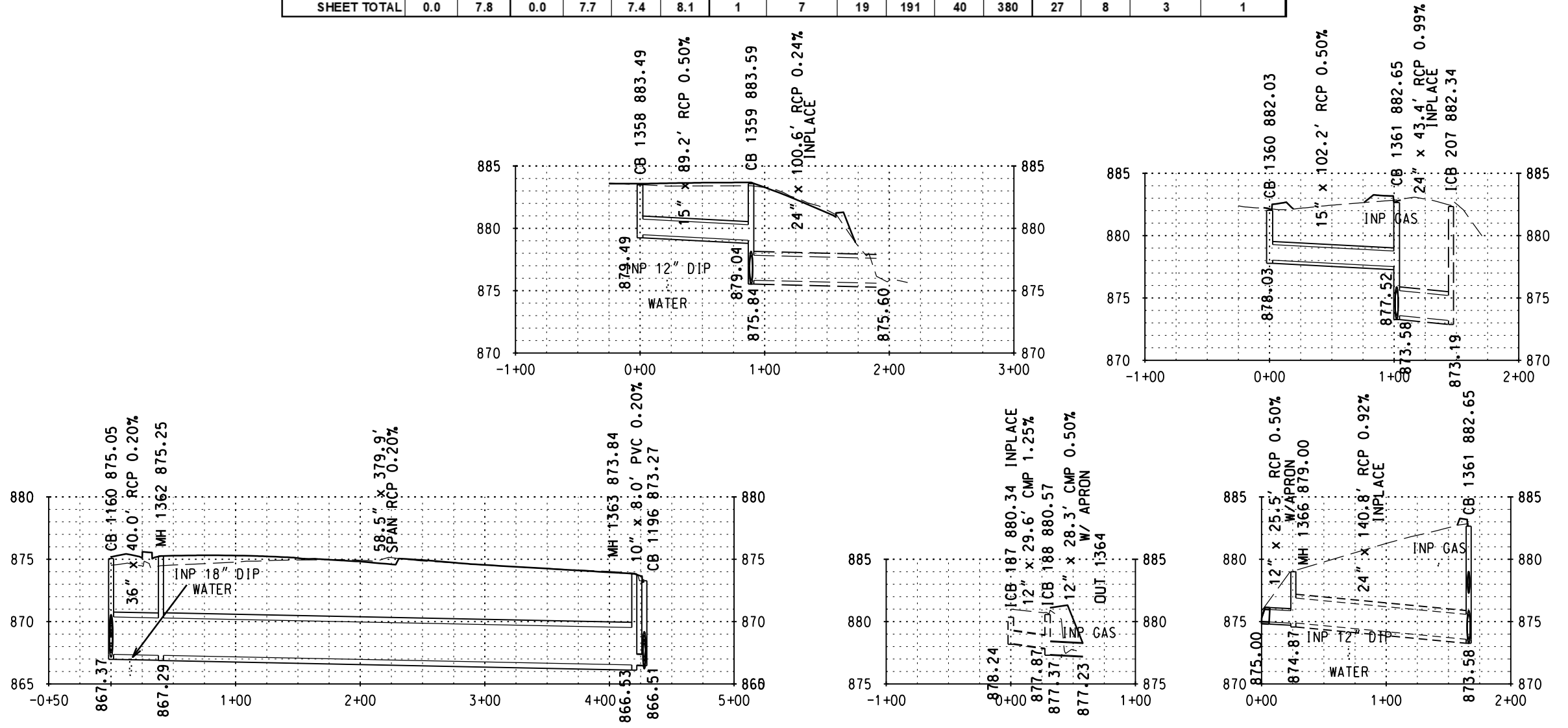
SHEET

R214.1

244

UNDERGROUND CONSTRUCTION DATA (PIPE SEWERS)

STRUCT. NO.	STATION	LOCATION	TOP OF CASTING ELEV	FLOW LINE ELEV	DRAINS TO	GRADE %	CONSTRUCT STRUCTURE					CASTING ASSEMB. EACH	REINFORCED CONCRETE PIPE				CMP 12 IN	PVC 10 IN	CONNECT TO EXISTING		APRON EACH	REMARKS		
							DESIGN F	DESIGN G	DESIGN H	DESIGN 4020			SPECIAL EACH	12 IN CL V	15 IN CL V	36 IN CL III			58 IN SPAN	PIPE EACH			STRUCTURE EACH	
										60 IN	90 IN													102 IN
CB 1358	L ^{NB} 1389+13.6	13 LT	883.49	879.49	CB 1359	0.50		3.9				B-9			89									
CB 1359	L ^{NB} 1388+24.6	13 LT	883.59	875.84	EXISTING				7.7			B-9						1						
CB 1360	L ^{83RD} 66+49.5	42.7 RT	882.03	878.03	CB 1361	0.50		3.9				B-5			102									
CB 1361	L ^{83RD} 67+55.8	15 RT	882.65	873.58	ICB 207							B-9						1						
CB 1160	L ^{NB} 1389+70.3	88.7 RT	875.05	867.37	MH 1362	0.20						B-9			40									
MH 1362	L ^{WB} 108+27.5	17.0 RT	875.25	867.29	MH 1363	0.20				8.1		A-7D												
MH 1363	L ^{WB} 112+07.5	17.0 RT	873.84	866.53	CB 1196	0.20			7.4			A-7D					8							
OUT 1364	L ^{NB} 1383+61.6	79.3 RT		877.23		0.50											27		1	1-12" CMP				
IN 1365	L ^{NB} 1388+17.2	141.7 RT		875.00	MH 1365	0.50								19						1	1-12" RCP			
MH 1366	L ^{NB} 1388+43.3	149.3 RT	879.00	874.87	CB 1361	0.92					1								1		DESIGN SPECIAL 4			
SHEET TOTAL							0.0	7.8	0.0	7.7	7.4	8.1	1	7	19	191	40	380	27	8	3	1		



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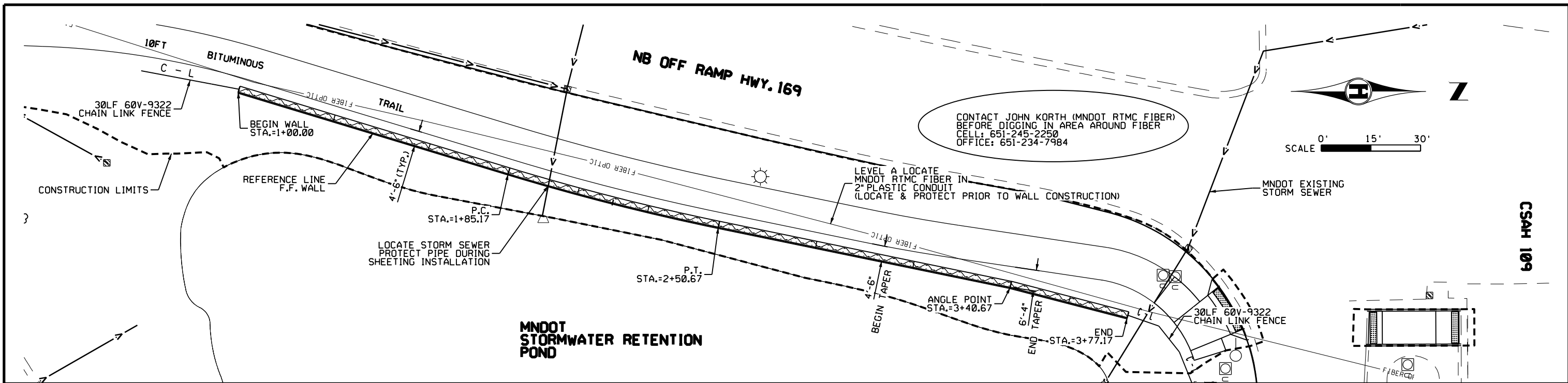
Kelly Agosto
 KELLY AGOSTO, LICENSED PROFESSIONAL ENGINEER
 49075 LICENSE NO. 3/15/19 DATE

DESIGN BY: L. LANGNER
 CAD BY: E. GUIR
 CHECKED BY: R. DECOTEAU
 LAST REVISION: / /

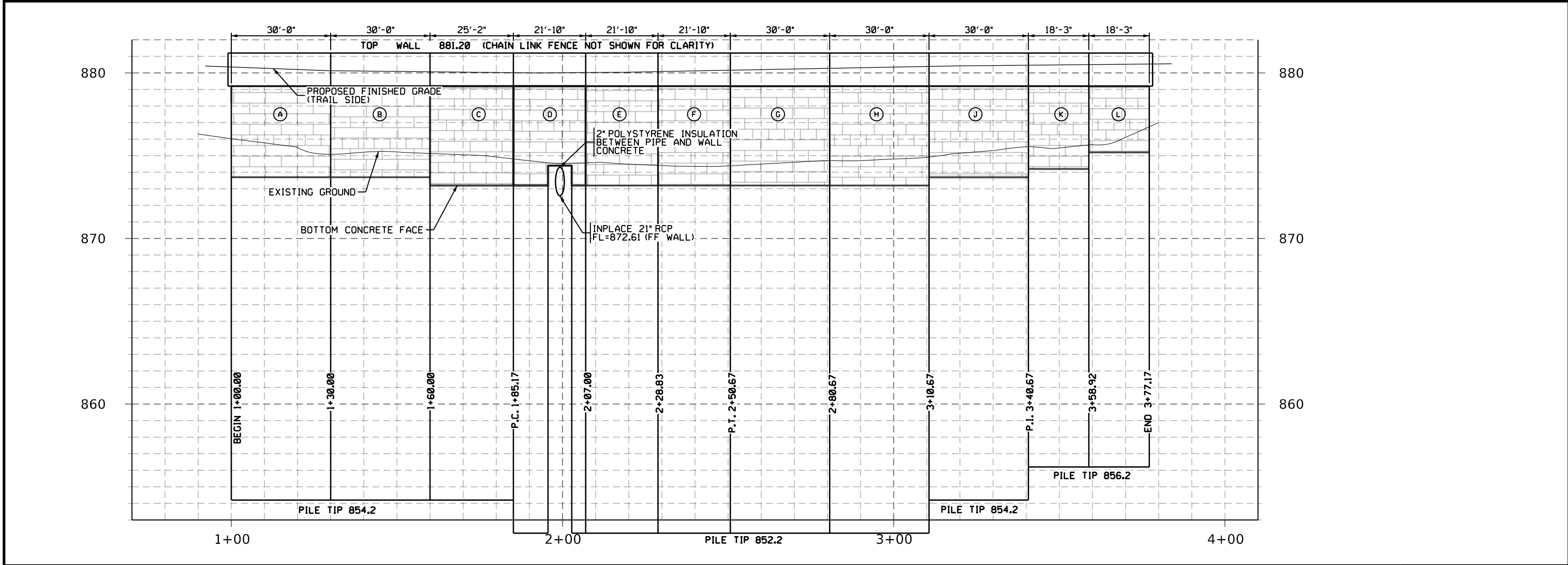
DRAINAGE PROFILES AND TABULATIONS

C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
 S.P. 027-681-035, S.P. 110-020-040

SHEET
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CSAH 109

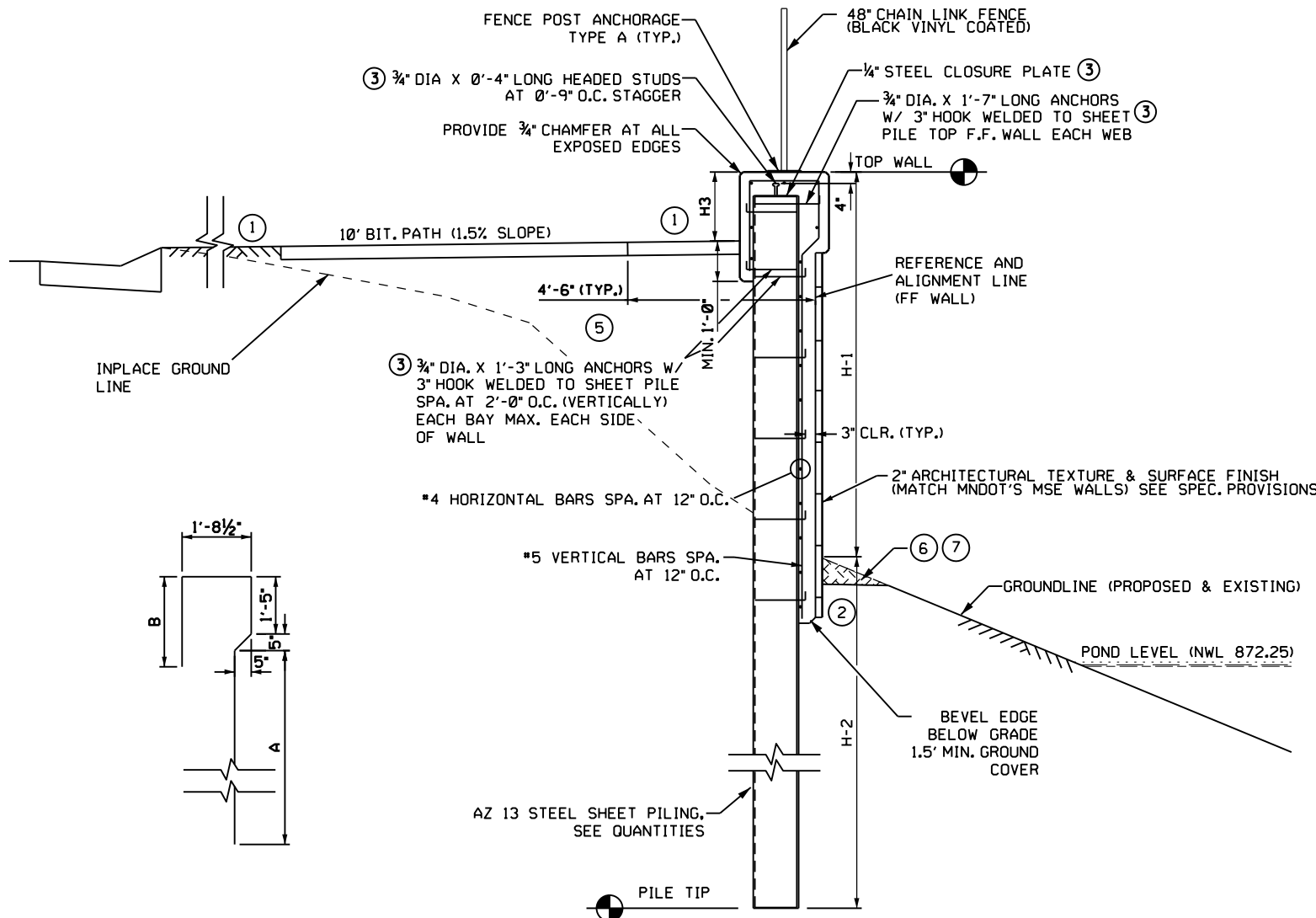


	I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA. JOHN D. EKOLA, PROFESSIONAL ENGINEER	53076 LICENSE NO.	3/14/19 DATE	DESIGN BY: J. EKOLA	WALL PLAN AND PROFILE	SHEET
				CAD BY: J. SCHERER		

Element	Point Type	Point Number	Station	Northing	Easting	Radius	Length	Delta / Theta	Rotation Direction
Alignment Name:			Wall FleetFarm						
Tangent	START		1+00.00	215501.325	497986.388				
Arc	PC		1+85.17	215582.826	498011.112				
Arc	HPI (PI FOR HORZ. CURVE)		2+17.94	215614.188	498020.626	718.00	65.50	5.227°	Left
Arc	CC			215791.263	497324.033				
Arc	PT		2+50.67	215646.286	498027.244				
Tangent			HPI (ANGLE POINT)						
Tangent	END		3+40.67	215734.432	498045.416				
Tangent			3+77.17	215769.758	498054.6				

NOTES:

- 1.5% SLOPE BIT. PAVEMENT UP TO BACK FACE WALL. SEE TURF ESTABLISHMENT PLAN FOR TRAIL TO CURB AREA. MAINTAIN 2' CLEAR ZONE EACH SIDE OF BIT. TRAIL.
- EXCAVATION TO BE LIMITED TO THE AMOUNT NEEDED TO PROVIDE FORMING AND FINISHING OF CONCRETE PARTS OF WALL.
- TO BE INCLUDED WITH THE BID PRICE OF SHEET PILING
- WRAP FORMLINER AROUND VISIBLE EDGES OF WALLS (ENDS OF WALL)
- INPLACE TOPSOIL (ORGANIC MATERIAL) TO BE REMOVED AND SUITABLE BACKFILL PLACED AND COMPACTED ON BACK FACE WALL TO SUBGRADE OF TRAIL
- 3' WORK AND MAINTENANCE SHELF AT 1:10 SLOPE AWAY FROM WALL.
- NET EXCAVATION OF A MINIMUM 6 CU. YDS. FOR POND STORAGE MITIGATION RESULTING FROM WALL CONSTRUCTION



VERTICAL BAR DETAIL

CONCRETE COVERED STEEL SHEET PILE WALL

TYPICAL SECTION

SUMMARY OF QUANTITIES FOR RETAINING WALL A									
PANEL NAME	TYPE	STEEL SHEET PILING (SQ. FT.)	STRUC. CONCRETE 3G52 (CU. YD.) SEE NOTE (A)	REINFORCEMENT BARS EPOXY COATED (POUNDS)	ARCHITECTURAL CONCRETE TEXTURE (SQ. FT.)	ARCHITECTURAL SURFACE FINISH (SQ. FT.)	WIRE FENCE DESIGN 60V-9322 WALL ENDS (LF)	WIRE FENCE 48V-9322 SEE NOTE (B) (LF)	PANEL NAME
A	AZ-13-770	810.0	10.1	535	165.0	315.3			A
B	AZ-13-770	810.0	10.2	564	165.0	324.3			B
C	AZ-13-770	729.9	8.9	499	151.0	284.7			C
D	AZ-13-770	633.1	7.8	441	131.0	249.1			D
E	AZ-13-770	633.1	7.8	441	131.0	249.1			E
F	AZ-13-770	633.1	7.8	439	131.0	246.9			F
G	AZ-13-770	870.0	10.6	596	180.0	336.3			G
H	AZ-13-770	870.0	10.6	574	180.0	333.3			H
J	AZ-13-770	810.0	10.1	535	165.0	315.3			J
K	AZ-13-770	456.3	5.9	297	91.3	180.9			K
L	AZ-13-770	453.3	5.3	267	73.0	162.6			L
TOTAL		7708.8	95.1	5188	1563.2	2997.7	60.0	277	TOTAL

(A) INCLUDES THE 2" ARCHITECTURAL CONCRETE

(B) CHAIN LINK TRANSITIONAL SPLICES BETWEEN 48" AND 60" FENCE ARE INCIDENTAL TO FENCE BID ITEMS

RETAINING WALL SCHEDULE																		
PANEL NAME	WIDTH FT. & IN.	H1 FT.	H2 FT.	H3 FT.	TOTAL HT. FT.	TOP CAP ELEVATION	PILE TIP ELEVATION	VERTICAL BARS				HORIZONTAL BARS				PANEL NAME		
								BAR	NO.	A	B	SHAPE	LENGTH	BAR	NO.		SHAPE	LENGTH
A	30'-0"	6.0	21.0	0.8	27.0	881.20	854.2	A501E	30	5'-2"	1'-4"	U	10'-2"	A401E	11	U	29'-6"	A
B	30'-0"	6.0	21.0	1.1	27.0	881.20	854.2	A502E	30	5'-2"	1'-7"	U	10'-6"	A402E	12	U	29'-6"	B
C	25'-2"	6.5	20.5	1.1	27.0	881.20	854.2	A503E	25	5'-8"	1'-7"	U	11'-0"	A403E	13	U	24'-8"	C
D	21'-10"	6.5	22.5	1.2	29.0	881.20	852.2	A504E	22	5'-8"	1'-8"	U	11'-1"	A404E	13	U	21'-4"	D
E	21'-10"	6.5	22.5	1.2	29.0	881.20	852.2	A505E	22	5'-8"	1'-8"	U	11'-1"	A405E	13	U	21'-4"	E
F	21'-10"	6.5	22.5	1.1	29.0	881.20	852.2	A506E	22	5'-8"	1'-7"	U	11'-0"	A406E	13	U	21'-4"	F
G	30'-0"	6.5	22.5	1.0	29.0	881.20	852.2	A507E	30	5'-8"	1'-6"	U	10'-11"	A407E	13	U	29'-6"	G
H	30'-0"	6.5	22.5	0.9	29.0	881.20	852.2	A508E	30	5'-8"	1'-5"	U	10'-9"	A408E	12	U	29'-6"	H
J	30'-0"	6.0	21.0	0.8	27.0	881.20	854.2	A509E	30	5'-2"	1'-4"	U	10'-2"	A409E	11	U	29'-6"	J
K	18'-3"	5.5	19.5	0.7	25.0	881.20	856.2	A510E	18	4'-8"	1'-2"	U	9'-7"	A410E	10	U	17'-9"	K
L	18'-3"	4.5	20.5	0.7	25.0	881.20	856.2	A511E	18	3'-8"	1'-2"	U	8'-7"	A411E	9	U	17'-9"	L



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John D. Ekola
 JOHN D. EKOLA, PROFESSIONAL ENGINEER

53076 3/14/19
 LICENSE NO. DATE

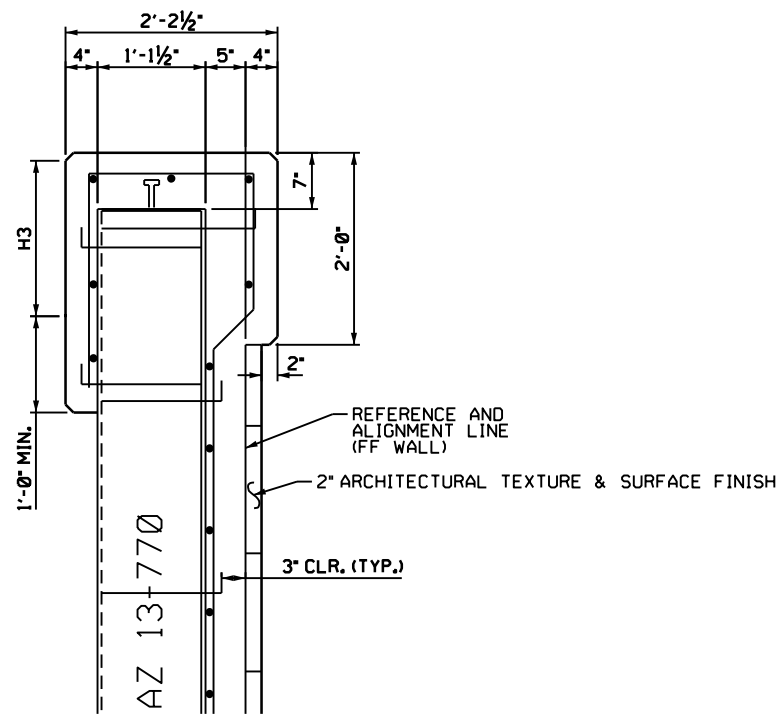
DESIGN BY: J. EKOLA
 CAD BY: J. SCHERER
 CHECKED BY: J. EKOLA
 LAST REVISION: / /

WALL ALIGNMENT AND TABULATIONS

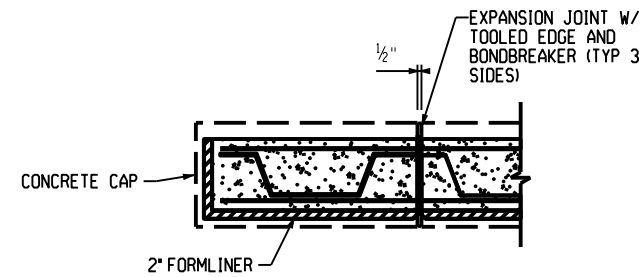
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 SP 2750-101 (TH 169), S.P. 027-681-035, S.P. 110-020-040

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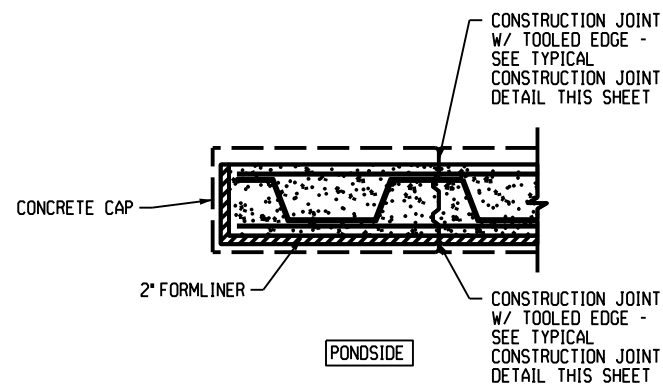
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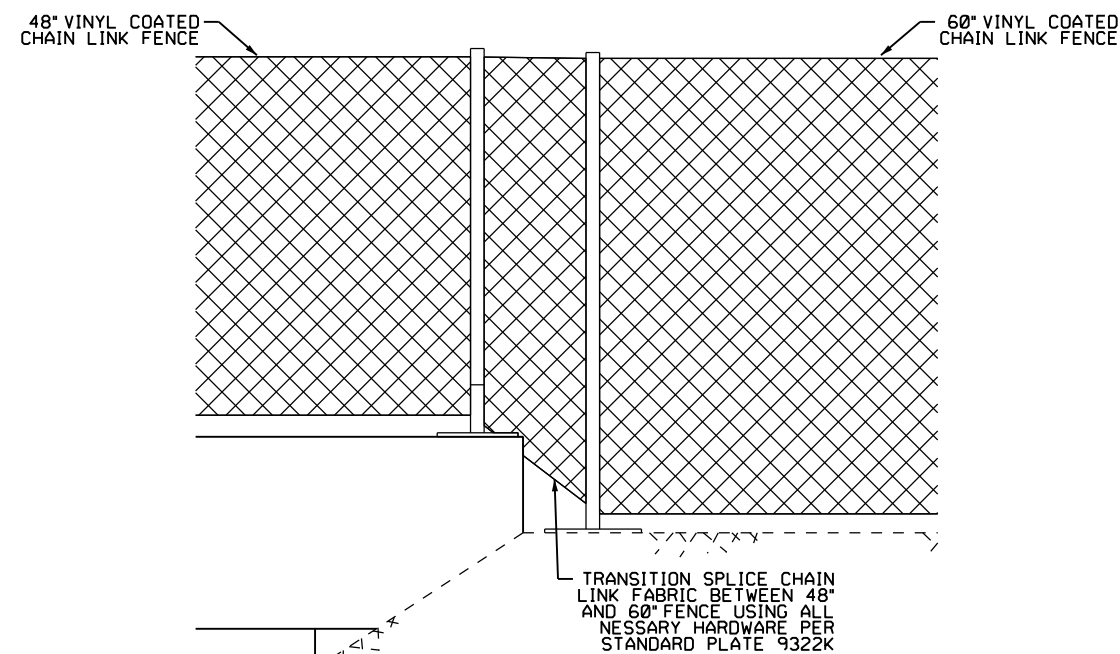
WALL CAP DETAIL



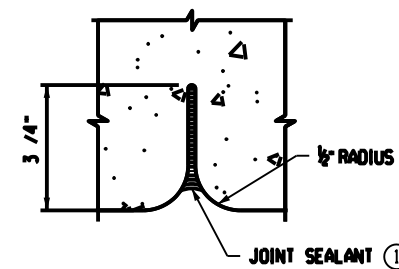
TYP. EXPANSION JOINT DETAIL



TYP. CONSTRUCTION JOINT DETAIL



CHAIN LINK FENCE DETAIL AT WALL ENDS



JOINT DETAIL

GENERAL NOTES

- 1 LOCATE CONSTRUCTION JOINTS AT ENDS OF PANELS, MAX. SPACING 30'-0" O.C.
- 2 LOCATE EXPANSION JOINTS AT ENDS OF PANELS, MAX. SPACING 67'-0" O.C.
- 3 SEE SPECIAL PROVISIONS FOR 2" ARCHITECTURAL TEXTURE & SURFACE FINISH DETAILS.

KEYED NOTES:

- ① JOINT SEALANT PER MnDOT APPROVED/QUALIFIED PRODUCTS LIST - CRACK AND JOINT MATERIALS - SILICONE JOINT SEALERS, COLOR TO MATCH FINISH FACING (UNLESS NOTED OTHERWISE)



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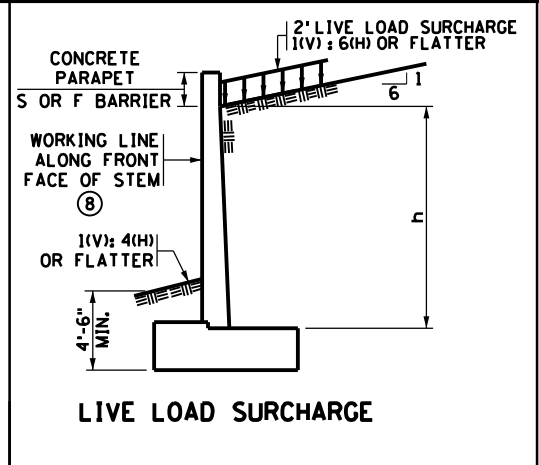
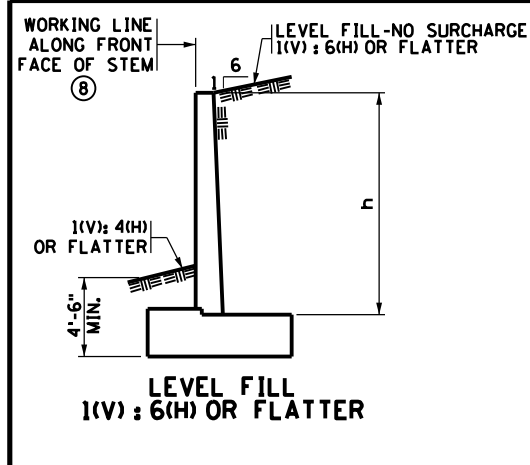
MISC. WALL DETAILS

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SHEET

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 Sheet 01



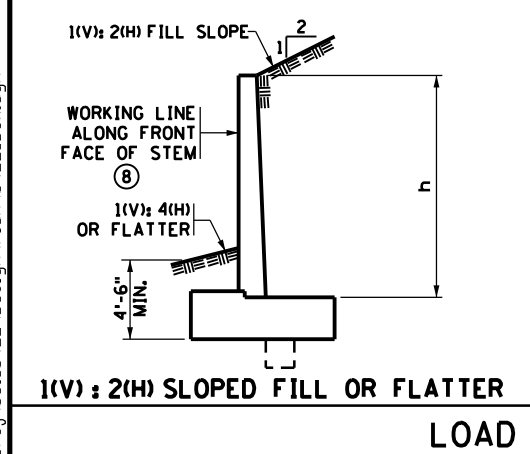
DESIGN CRITERIA

THESE LRFD CIP RETAINING WALL STANDARDS HAVE BEEN DEVELOPED BASED ON THE FIFTH EDITION WITH 2010 INTERIMS OF THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, AND MDOT DESIGN POLICIES AS STATED IN THE MDOT LRFD BRIDGE DESIGN MANUAL.
 $f'_c = 4 \text{ ksi}$
 $f_y = 60 \text{ ksi}$
 $n = 8$

REFER TO STANDARD FIGURE 5-297.639 FOR ADDITIONAL DESIGN CRITERIA.

BAR LAP

BAR SIZE	PLAIN	EPOXY
5	2'-5"	2'-1"
6	2'-11"	3'-1"
7	3'-7"	3'-10"
8	4'-9"	5'-1"
9	6'-0"	6'-5"
10	7'-7"	8'-2"
11	9'-4"	10'-0"



$h = \text{STEM HEIGHT, DEFINED AS DISTANCE BETWEEN TOP OF FOOTING TO TOP OF WALL, NOT INCLUDING PARAPET OR BARRIER.}$

SUMMARY OF QUANTITIES FOR RETAINING WALLS

PANEL	STRUCTURAL CONCRETE		REINFORCEMENT BARS		STRUCTURE EXCAVATION		STRUCTURAL BACKFILL (CV) ①	CRS. FLTR. AGGREGATE (CV) ② ⑥	RANDOM RIP RAP CLASS 3	RANDOM RIP RAP CLASS 4	GEOTXTLE FABRIC TYPE 4	GEOTXTLE FABRIC TYPE 5	CHAIN LINK FENCE	BACKFILL MATERIAL APPROX.
	FOOTING 1G52 ⑦	STEM 3G52	PLAIN ⑦	EPOXY ⑤ ⑨	CLASS E	CLASS...								
	CU YD	CU YD	POUND	POUND	CU YD	CU YD	CU YD	CU YD	CU YD	CU YD	SO YD	SO YD	LIN FT	CU YD
A	9.6	12.6	937	1232	40		70	18				19	18	
B	5.2	4.6	708	458	40		70	18				12	8	
C	9.6	12.6	937	1232	40		70	18				19	18	
TOTAL	24.4	29.8	2582	2922										
8 x 6 PRECAST BOX CULVERT					632			182	30	40	70	325	32	2130
					TOTAL	752	210	236	30	40	70	375	76	2130

- NOTES:**
- STRUCTURAL BACKFILL SPEC. 3149.2.D.2. (SEE SHEET 232 FOR DETAILS)
 - COMPACT TO 100% DENSITY IN ACCORDANCE WITH SPEC. 2105.3.F.1 UNLESS RECOMMENDED OTHERWISE BY THE SOILS ENGINEER.
 - LIMITING CRITERIA.
 - CURVED FORMS MAY BE USED FOR ANY WALL WITH A RADIUS, BUT MUST BE USED ON WALLS WITH RADIUS LESS THAN 23 FEET.
 - DOES NOT INCLUDE DOWELED JOINT/CONSTRUCTION JOINT QUANTITIES, WHICH ARE INCIDENTAL. DOWELED JOINT/CONSTRUCTION JOINT DETAILS ARE SHOWN ON STANDARD PLAN 5-297.624 (3 OF 6).
 - QUANTITIES FOR THE FOUNDATION WITH AGGREGATE BACKFILL OPTION ONLY.
 - DOES NOT INCLUDE ADDITIONAL REINFORCING BARS AND STRUCTURAL CONCRETE (1G52) REQUIRED FOR STEPPED FOOTINGS, WHICH IS INCIDENTAL.
 - FOR RETAINING WALLS THAT ABUT A BRIDGE OR BRIDGE WING WALL, NOTE THAT THE DESIGNATION OF "FRONT FACE" MAY VARY FROM THE BRIDGE PLANS TO THE RETAINING WALL PLANS.
 - INCLUDES BARS FOR THE HEADWALL OVER THE TOP OF BOX CULVERT.

CURVED RETAINING WALLS ALLOWABLE CHORD LENGTH ④

MAXIMUM DEGREE OF CURVE	RADIUS	ALLOWABLE CHORD LENGTH	DEVIATION FROM TRUE RADIUS	MAXIMUM DEFLECTION ANGLE Δ
4°-00'	1432'	30'-6"	$\pm 1/2"$ (3)	1°-15'
8°-00'	716'	21'-10"	$\pm 1/2"$ (3)	1°-45'
16°-30'	347'	15'-3"	$\pm 1/2"$ (3)	2°-30'
23°-00'	249'	12'-11"	$\pm 1/2"$ (3)	2°-57'
65°-30'	87'	7'-7 1/2"	$\pm 1/2"$ (3)	5°-00' (3)
114°-30'	50'	4'-4 1/8"	$\pm 1/4"$	5°-00' (3)
250°-00'	23'	2'-0"	$\pm 1/8"$	5°-00' (3)

GENERAL NOTES:

UTILITIES:
EXISTING AND PROPOSED UTILITIES ARE SHOWN IN THE GRADING PLANS. PRIOR TO EXCAVATION VERIFY THE LOCATION OF EXISTING FACILITIES AND EXERCISE CARE IN ADJACENT CONSTRUCTION.

EXCAVATION AND EARTHWORK:
ALL EXCAVATION AND EMBANKMENT WORK SHALL CONFORM TO SPEC. 2451.

CONCRETE:
ALL CONCRETE SHALL CONFORM TO SPEC. 2461.

TRANSVERSE CONSTRUCTION JOINTS IN FOOTING ARE PERMISSIBLE. KEYWAYS AND CONTINUOUS REINFORCEMENT ARE REQUIRED THROUGH THESE JOINTS.

THE THICKNESS OF THE ARCHITECTURAL CONCRETE TEXTURE VARIES WITH THE TEXTURE RELIEF PATTERN. THE STRUCTURAL CONCRETE 3Y43 QUANTITIES DO NOT INCLUDE THE MATERIAL WITHIN THE ARCHITECTURAL CONCRETE TEXTURE. CONCRETE NEEDED FOR THE TEXTURING IS INCIDENTAL.

POURING SEQUENCE:
THE POURING SEQUENCE SHALL BE AT THE CONTRACTOR'S OPTION. SUBMIT SEQUENCE (WITHIN 7 CALENDAR DAYS) TO THE ENGINEER FOR APPROVAL PRIOR TO BEGINNING THE FIRST POUR.

CONSTRUCTION:
CONSTRUCT IN ACCORDANCE WITH SPEC. 2411, EXCEPT AS NOTED. REFER TO STANDARD PLAN 5-297.624 (2 OF 6) FOR WALL CORNER DETAILS AND STEPPED FOOTING DETAILS.

REFER TO STANDARD PLAN 5-297.625 FOR WALL SHEAR LUG DETAILS.

APPLY MEMBRANE WATERPROOFING SYSTEM PER SPEC. 2481 TO BACK SIDE OF WALL TO COVER ALL THRU-BOLT FORM HOLES.

FOR WALLS WITH CONDUIT INSIDE THE STEM, PLACE CONDUIT EXPANSION FITTINGS AT 200' MAX. SPACING, AT CORK AND DOWEL JOINT LOCATION.

REINFORCING STEEL:
USE REINFORCEMENT BARS CONFORMING TO SPEC. 3301, GRADE 60.

BAR MARKED WITH THE SUFFIX "E" TO BE EPOXY COATED. ALL BARS WHICH EXTEND OUT OF THE FOOTING AND ALL BARS WHICH ARE ABOVE THE FOOTING TO BE EPOXY COATED.

ALL BENT BAR DIMENSIONS ARE GIVEN OUT-TO-OUT.

MAINTAIN CLEAR DISTANCE BETWEEN REINFORCEMENT BARS AND FACE OF CONCRETE OF 3 INCHES IN FOOTINGS, 5 INCHES IN BOTTOM OF SPREAD FOOTINGS, AND 2 INCHES ELSEWHERE UNLESS OTHERWISE NOTED. REFER TO STANDARD PLAN 5-297.624 (1 OF 6) DETAIL "C" FOR COVER REQUIREMENTS ON WALLS WITH ARCHITECTURAL CONCRETE TEXTURE OR RUSTICATION.

THE CONTRACTOR HAS THE OPTION OF SUBSTITUTING 60'-0" LONG BARS FOR THE LONGITUDINAL FOOTING STEEL SHOWN. CHANGES IN THE BILL OF REINFORCEMENT ARE THE RESPONSIBILITY OF THE CONTRACTOR. PAYMENT WILL BE BASED ON QUANTITIES SHOWN.

THE CONSTRUCTION JOINT FOR CONCRETE PARAPET OR BARRIER MAY BE LOCATED AT TOP OR BOTTOM OF COPING, AT THE CONTRACTOR'S OPTION. PAYMENT WILL BE BASED ON QUANTITIES SHOWN, WHICH IS BASED ON CONSTRUCTION JOINT ABOVE COPING.

FOR VARIABLE STEM HEIGHTS, VARY THE LAP LENGTH OF THE VERTICAL REINFORCEMENT. MINIMUM LAP LENGTHS ARE GIVEN IN THE TABLE ON THIS SHEET. SMALLER BAR GOVERNS LAP LENGTH.

DOWEL BAR ASSEMBLIES:
DOWELED JOINTS/CONSTRUCTION JOINTS ARE SHOWN ON STANDARD PLAN 5-297.624 (3 OF 6). THESE JOINTS ARE INCIDENTAL.

AT THE CONTRACTOR'S OPTION, CONSTRUCTION JOINTS MAY BE SUBSTITUTED IN LIEU OF CORK AND DOWEL JOINTS. REINFORCEMENT QUANTITIES WERE COMPUTED ASSUMING A CORK AND DOWEL JOINT BETWEEN EVERY PANEL. CHANGES IN THE BILL OF REINFORCEMENT ARE THE RESPONSIBILITY OF THE CONTRACTOR, AND NO ADDITIONAL PAYMENT WILL BE MADE. AT A MINIMUM, PLACE CORK AND DOWEL JOINTS EVERY 91'-6". PLACE A CORK AND DOWEL JOINT AT ALL VERTICAL FOOTING STEPS.

GEOMETRICS AND GRADES:
DATA FOR BASELINE GEOMETRY IS TABULATED FOR WALL ALIGNMENT, SEE LAYOUT SHEETS. WALL ALIGNMENT REFERENCE IS ALONG FRONT FACE OF WALL.

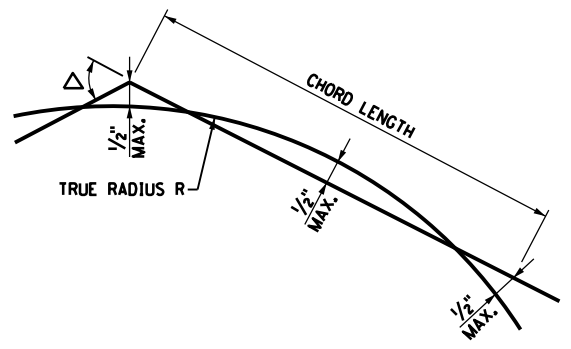
ON UP TO 10% SLOPES, THE CONTRACTOR HAS THE OPTION OF POURING FOOTINGS SLOPED OR STEPPED. ADDITIONAL CONCRETE VOLUMES AND CHANGES TO THE BILL OF REINFORCEMENT WHICH MAY RESULT FROM CONTRACTOR REQUESTED OPTIONS ARE THE RESPONSIBILITY OF THE CONTRACTOR. NO ADDITIONAL PAYMENT WILL BE MADE.

QUANTITIES ARE BASED ON ASSUMED TOP OF ROCK ELEVATION. ACTUAL TOP OF ROCK TO BE DETERMINED BY ENGINEER. SEE SHEET 5-297.624 (4 OF 6) FOR PAY LIMITS.

PILE LOADS:
THE PILE LOADS SHOWN IN THE PLANS AND THE CORRESPONDING NOMINAL PILE BEARING RESISTANCES (R_n) WERE COMPUTED USING LRFD METHODOLOGY.

SHEET INDEX

NO.	TITLE
219	GENERAL NOTES & SUMMARY OF QUANTITIES
220	GENERAL BOX CULVERT PLAN & ELEVATION
221	WINGWALL GENERAL PLAN & ELEVATION
222	BOX CULVERT DETAIL SHEETS
223	BOX CULVERT DETAIL SHEETS
224	BOX CULVERT DETAIL SHEETS
225	FENCE DETAIL
226	MEDIUM WALL REBAR DETAIL
227	MISC. WALL DETAILS
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229	MISC. WALL DETAILS
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231	MISC. WALL DETAILS
232	MISC. WALL DETAILS
233	SLOPE FILL WALL TABULATION SHEET
234	SLOPE FILL WALL GEOMETRY SHEET



REVISION: SEPTEMBER 1, 2016
 APPROVED: AUGUST 27, 2014
 Nancy Subenberger
 STATE BRIDGE ENGINEER

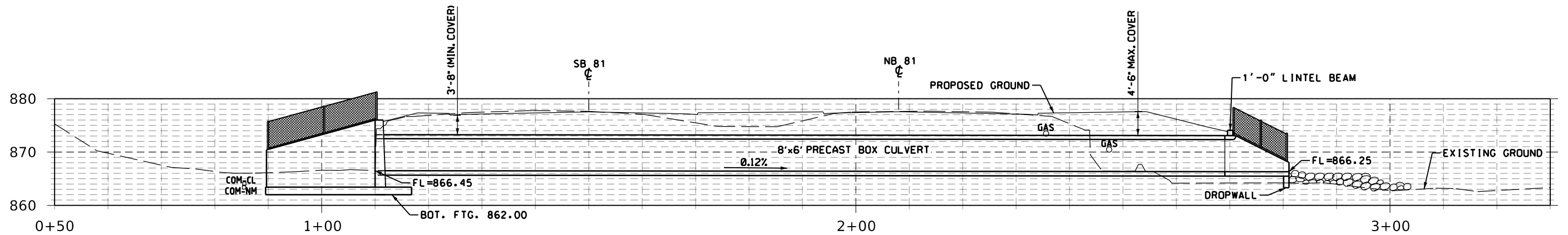
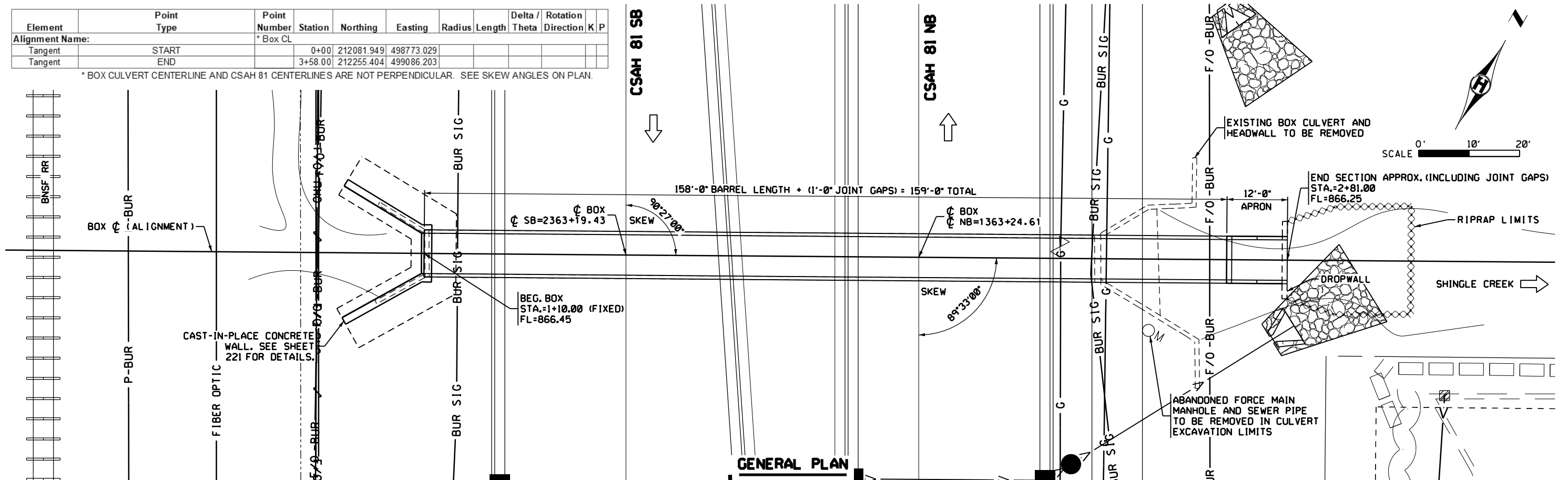
CERTIFIED BY: *John D. Ekola*
 LICENSED PROFESSIONAL ENGINEER
 NAME: JOHN D. EKOLA
 DATE: 2/28/19
 LIC. NO. 53076

STANDARD SHEET NO.
5-297.620
 STANDARD APPROVED:
 AUGUST 27, 2014

TITLE:
RETAINING WALL GENERAL NOTES AND SUMMARY OF QUANTITIES
HENN. CO. PROJ. NO. 0922 CSAH 81 S.P. 027-681-035 SHEET NO. 219 OF 244 SHEETS

Element	Point Type	Point Number	Station	Northing	Easting	Radius	Length	Delta / Theta	Rotation Direction	K	P
Alignment Name:											
Tangent	START	* Box CL	0+00	212081.949	498773.029						
Tangent	END		3+58.00	212255.404	499086.203						

* BOX CULVERT CENTERLINE AND CSAH 81 CENTERLINES ARE NOT PERPENDICULAR. SEE SKEW ANGLES ON PLAN.



GENERAL ELEVATION



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

JOHN D. EKOLA, PROFESSIONAL ENGINEER

53076
LICENSE NO. 3/14/19
DATE

DESIGN BY: J. EKOLA
CAD BY: J. SCHERER
CHECKED BY: J. EKOLA
LAST REVISION: / /

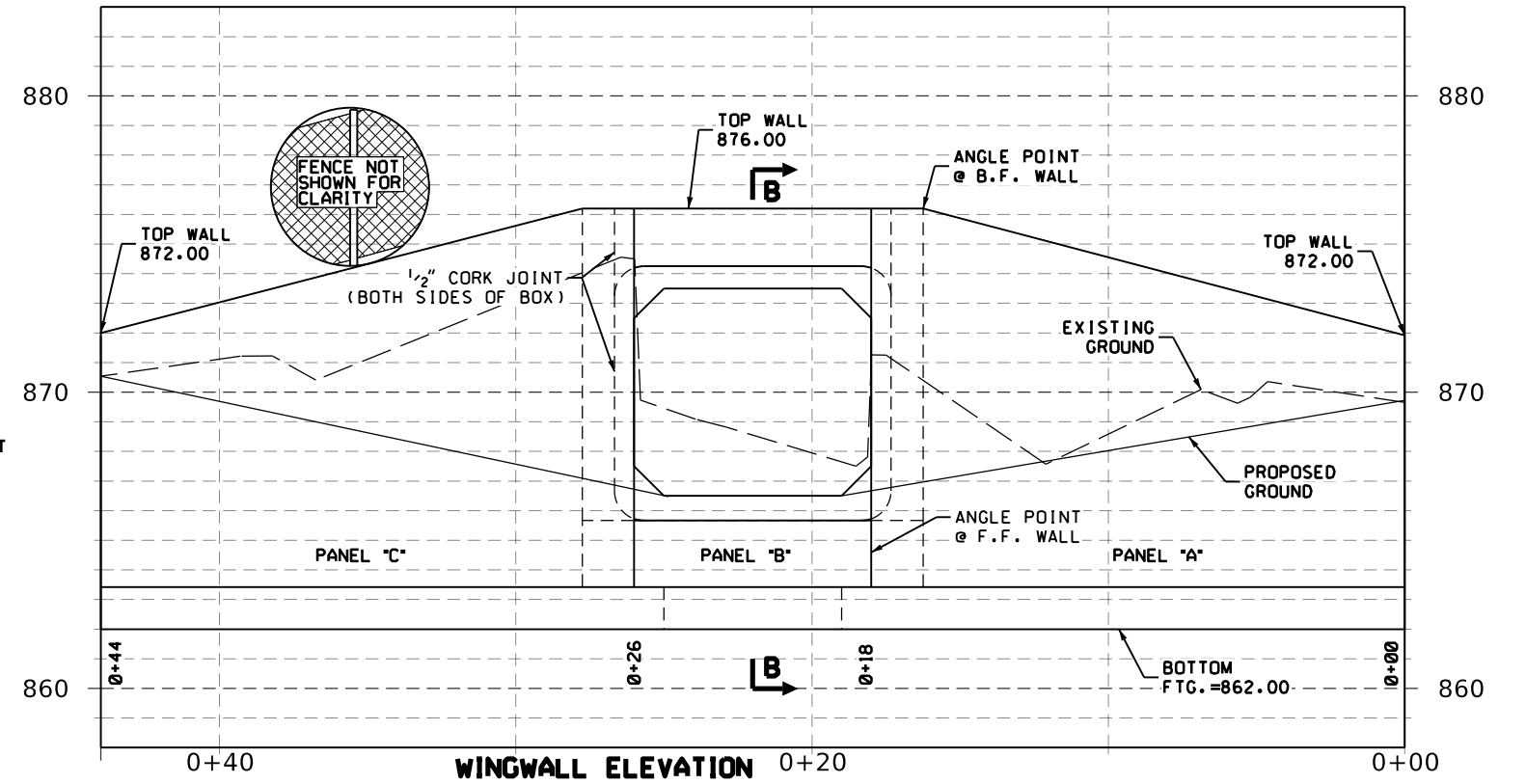
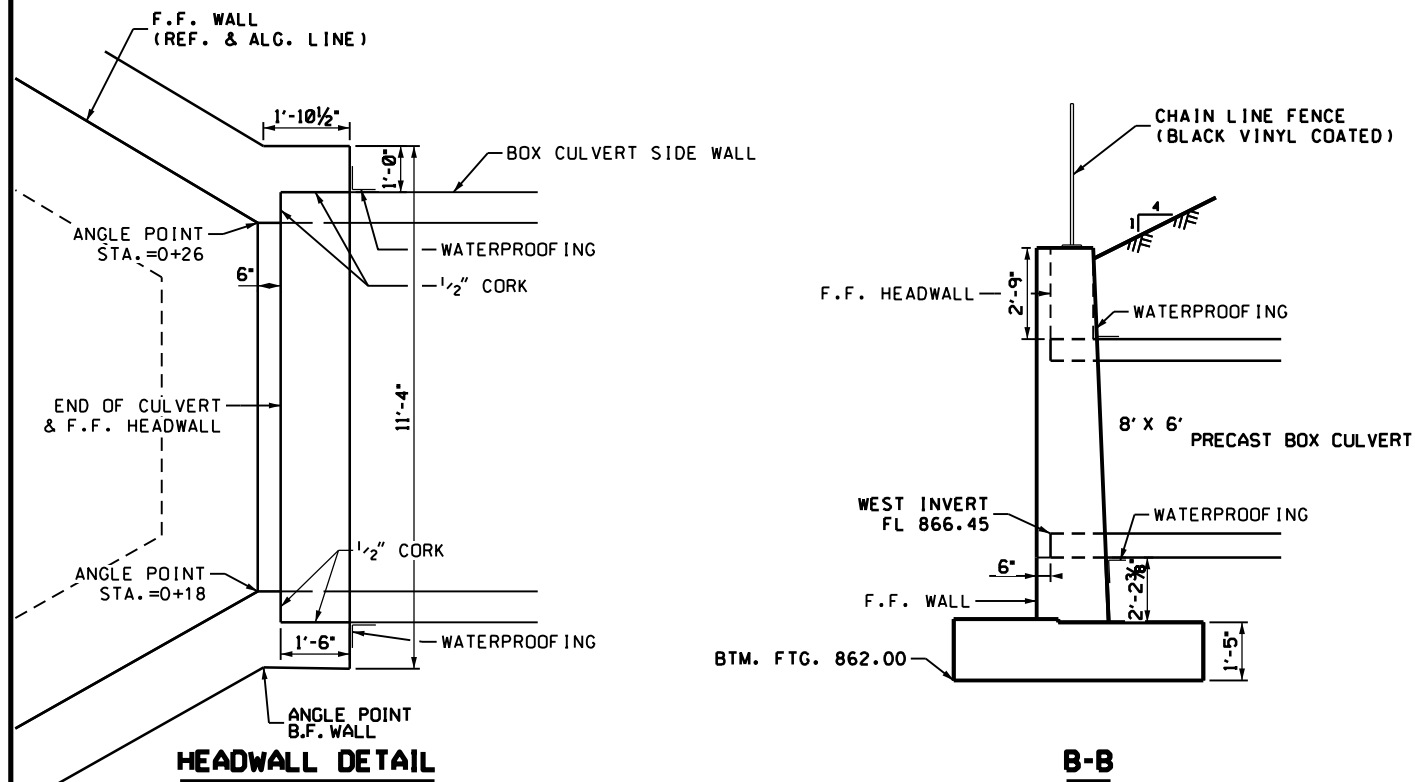
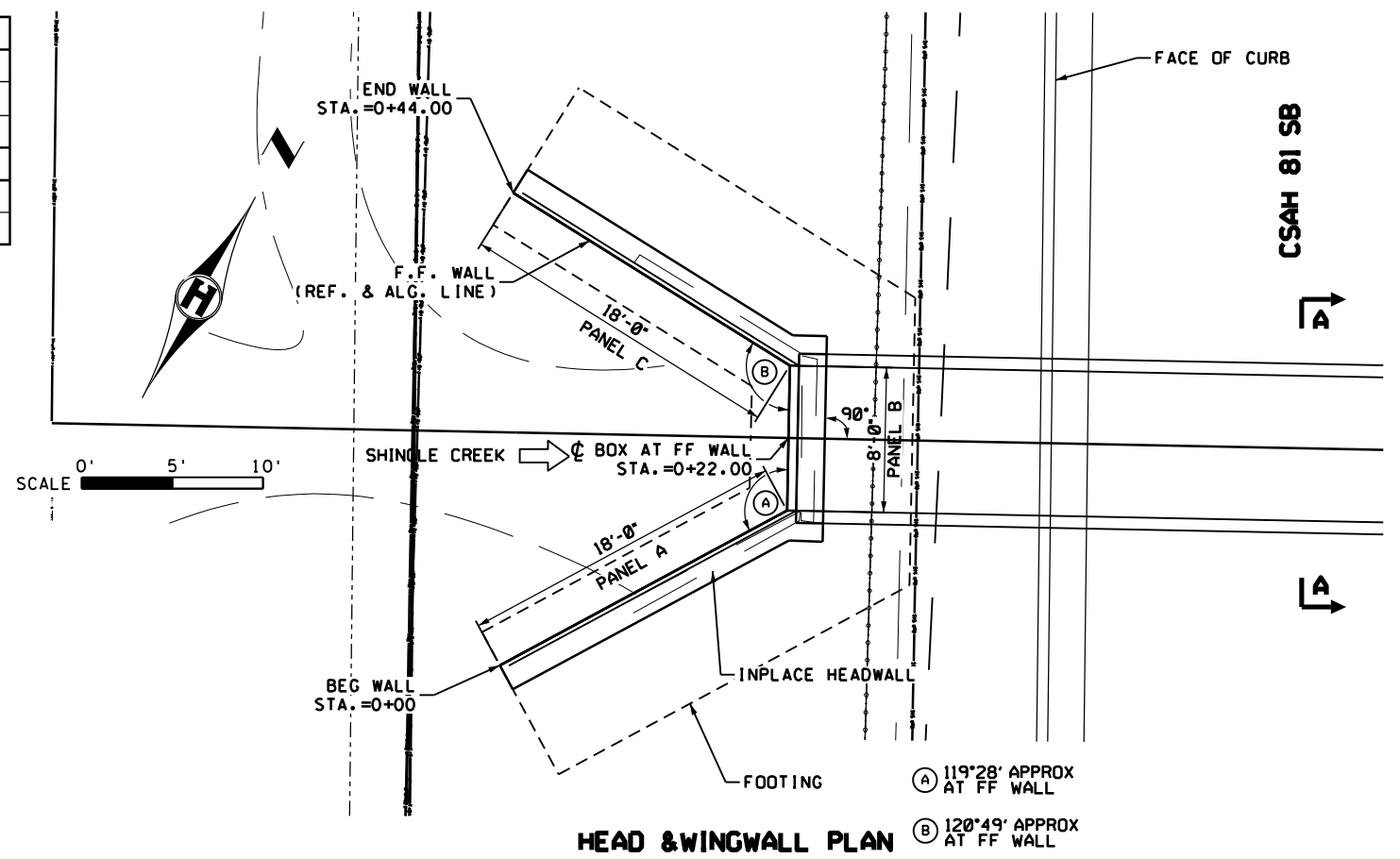
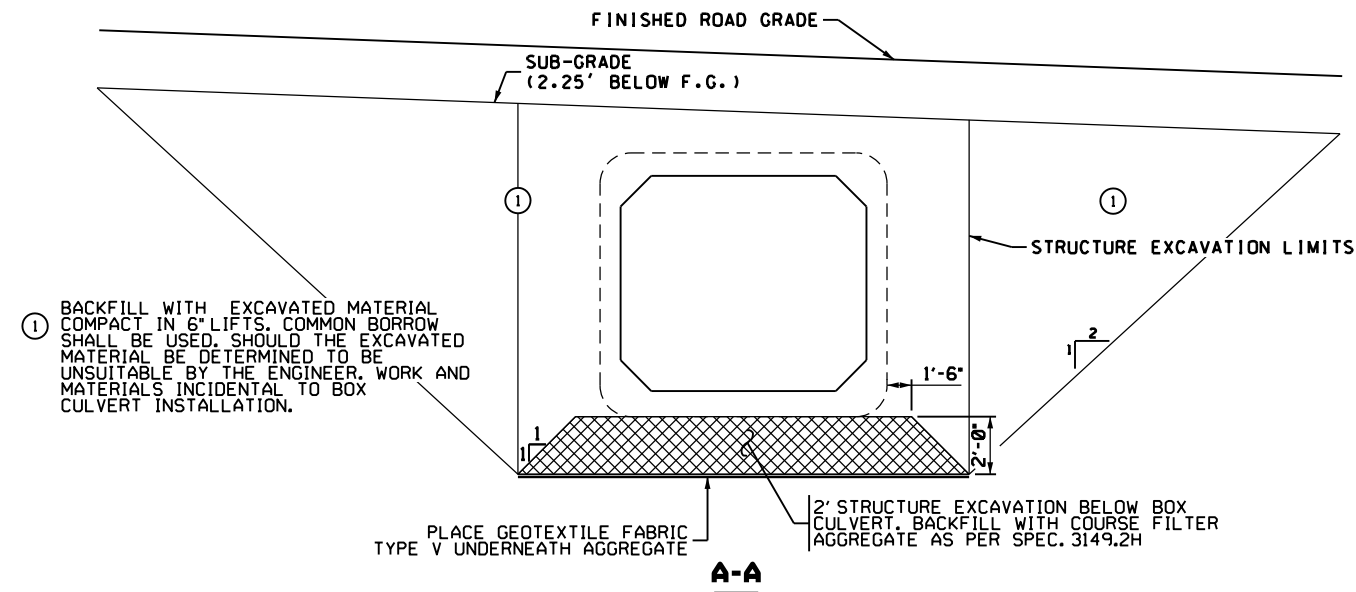
GENERAL BOX CULVERT PLAN AND ELEVATION

C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
S.P. 027-681-035, S.P. 110-020-040

SHEET

220
244

Point Type	Station	Northing	Easting	Radius	Length	Tangent
Alignment Name:		FF_West Wall Box				
Description:		Alignment at base and FF wall				
START	0+00.00	212116.162	498861.338			
HPI	0+18.00	212131.502	498870.754			
HPI	0+26.00	212138.501	498866.878			
END	0+44.00	212139.083	498848.887			



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

John D. Ekola
JOHN D. EKOLA, PROFESSIONAL ENGINEER

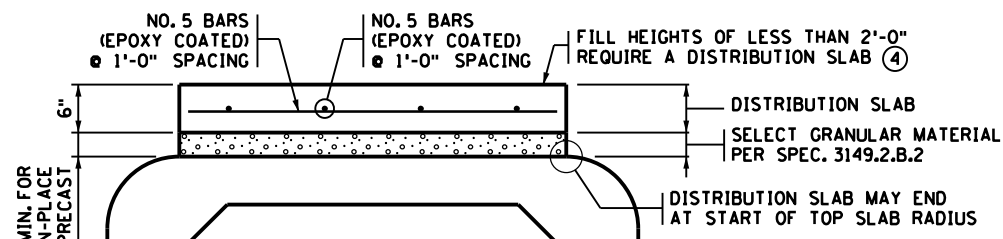
53076 3/14/19
LICENSE NO. DATE

DESIGN BY: J. EKOLA
CAD BY: J. SCHERER
CHECKED BY: J. EKOLA
LAST REVISION: / /

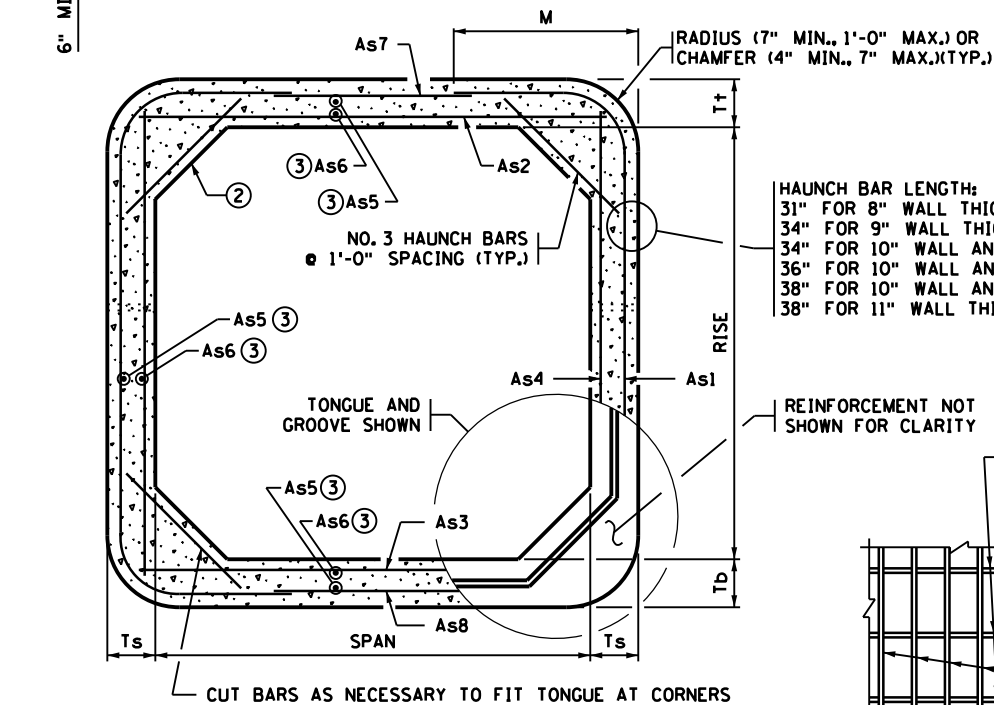
WINGWALL PLAN AND ELEVATION

C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
S.P. 027-681-035, S.P. 110-020-040

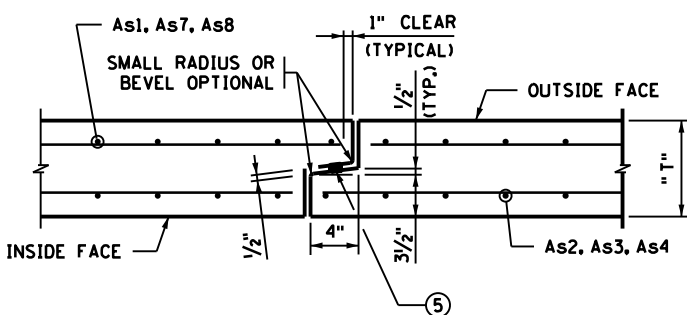
SHEET
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244



DISTRIBUTION SLAB SECTION



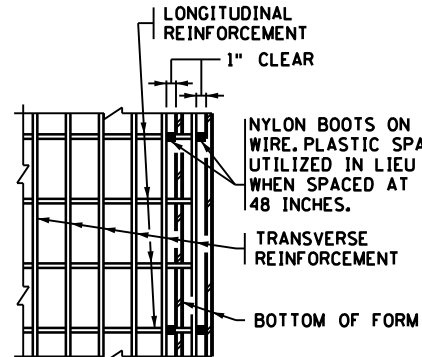
TRANSVERSE BARREL SECTION
BAR REINFORCEMENT OPTION SHOWN



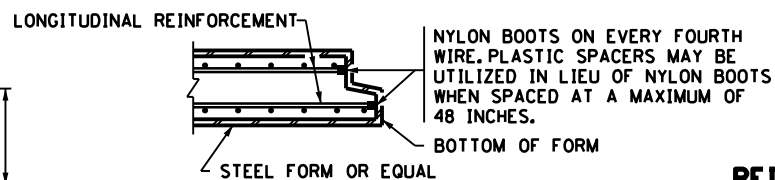
TONGUE AND GROOVE JOINT DETAIL

HAUNCH BAR LENGTH:
31" FOR 8" WALL THICKNESS
34" FOR 9" WALL THICKNESS
34" FOR 10" WALL AND 10" SLAB
36" FOR 10" WALL AND 11" SLAB
38" FOR 10" WALL AND 12" SLAB
38" FOR 11" WALL THICKNESS

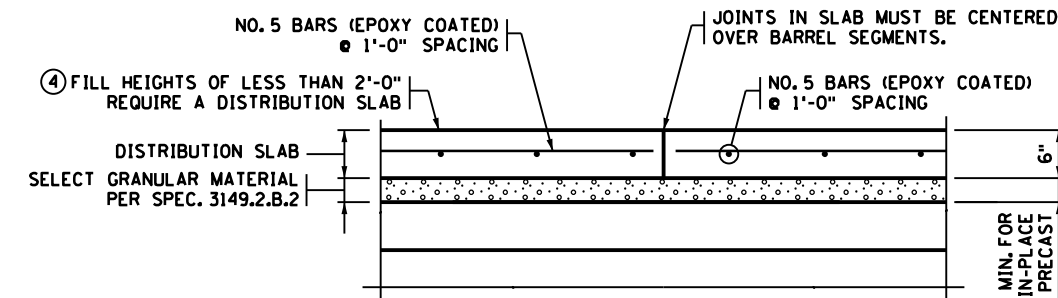
REINFORCEMENT NOT SHOWN FOR CLARITY



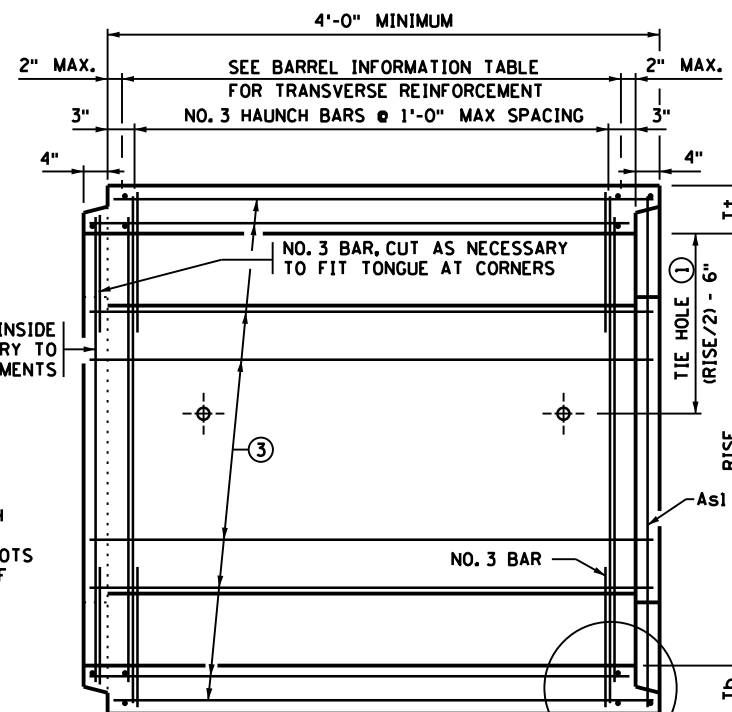
PLAN



SECTION FORMING DETAIL

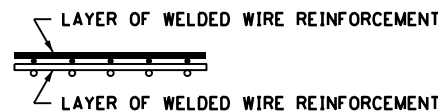


DISTRIBUTION SLAB - LONGITUDINAL SECTION



LONGITUDINAL BARREL SECTION

BAR REINFORCEMENT OPTION SHOWN



REINFORCEMENT LAYER DETAIL

WHEN MORE THAN ONE LAYER OF WELDED WIRE REINFORCEMENT IS USED TO OBTAIN THE REQUIRED REINFORCEMENT AREAS, PLACE THE WIRES OF THE WELDED WIRE REINFORCEMENT AS SHOWN

CONSTRUCTION NOTES

CONSTRUCT CULVERTS PER SPEC. 2412 EXCEPT AS NOTED.

REFER TO THE GENERAL PLAN AND ELEVATION SHEET FOR THE DISTANCE BETWEEN BARRELS OF ADJACENT BOXES AND TO STANDARD FIGURE 5-395.115 FOR MATERIAL REQUIREMENTS FOR FILL BETWEEN ADJACENT BOXES.

PROVIDE WELDED WIRE REINFORCEMENT, SHEAR REINFORCEMENT AND REINFORCEMENT BARS PER THE APPLICABLE REQUIREMENTS OF AASHTO M259.

1/2" MIN. AND 2" MAX. CONCRETE COVER ON ALL REINFORCEMENT, INCLUDING SHEAR REINFORCEMENT, EXCEPT FOR TONGUE AND GROOVE DETAIL.

ANY OF THE FOLLOWING COMBINATIONS OF STEEL REINFORCEMENT MAY BE USED:
(a) 1 OR 2 LAYERS OF WELDED WIRE REINFORCEMENT OR
(b) 1 LAYER OF WELDED WIRE REINFORCEMENT AND 1 LAYER OF REINFORCEMENT BARS OR
(c) 1 LAYER OF REINFORCEMENT BARS.

DEVELOP REINFORCEMENT IN ACCORDANCE WITH AASHTO "LRFD BRIDGE DESIGN SPECIFICATIONS". IF BAR REINFORCEMENT IS SUBSTITUTED FOR WELDED WIRE REINFORCEMENT, INCREASE THE AREA OF REINFORCEMENT BY 8%, AND SUBMIT DESIGN CALCULATIONS VERIFYING COMPLIANCE WITH AASHTO 5.7.3.4. "CONTROL OF CRACKING BY DISTRIBUTION OF REINFORCEMENT".

MAXIMUM SIZE OF REINFORCEMENT BARS IS NO. 6. THE MAXIMUM WELDED WIRE REINFORCEMENT SIZE IS W23 PER LAYER (MAXIMUM OF 2 LAYERS).

SPACE CENTER TO CENTER OF TRANSVERSE WIRES NOT LESS THAN 2" NOR MORE THAN 4". SPACE CENTER TO CENTER OF LONGITUDINAL WIRES NOT MORE THAN 8".

WHEN USING As1, As7, AND As8 REINFORCEMENT AS ONE CONTINUOUS CAGE WITH SPLICES OCCURRING IN THE CENTER OF THE TOP AND BOTTOM OF THE BOX SECTION, THE MIN. LAP LENGTH FOR THE As7 AND As8 IS 15".

WELDING IS NOT PERMITTED ON REINFORCEMENT BARS OR WELDED WIRE REINFORCEMENT, EXCEPT THAT THE ORIGINAL WELDING REQUIRED TO MANUFACTURE WIRE REINFORCEMENT IS ACCEPTABLE.

WHEN REINFORCEMENT IS CUT, PLACE ADDITIONAL REINFORCEMENT ON BOTH SIDES OF THE CUT MEMBER TO REPLACE OR EXCEED THE CUT STEEL.

USE CONCRETE MIX NO. 3W82 WITH NO CALCIUM CHLORIDE ALLOWED.

SHOP DRAWING APPROVAL PER SPEC. 3238.2.A IS NOT REQUIRED UNLESS OPENINGS OR ATTACHMENTS ARE PLACED ON A BARREL SEGMENT.

COMPACT THE FIRST 1.5' (LOOSE) OF FILL ABOVE THE BOX WITH LIGHT COMPACTION EQUIPMENT SUCH AS PLATE COMPACTORS OR WALK BEHIND ROLLERS.

TRANSVERSE REINFORCEMENT IS PARALLEL TO THE CULVERT SPAN. LONGITUDINAL REINFORCEMENT IS PERPENDICULAR TO THE CULVERT SPAN.

① USE 1" DIAMETER CULVERT TIES. SEE STANDARD PLATE NO. 3145 FOR DETAILS.

② USE 12" VERTICAL, 12" HORIZONTAL HAUNCHES ON ALL BOX SIZES.

③ PLACE LONGITUDINAL REINFORCEMENT DENOTED AS As5 AND As6 IN ALL SLABS AND WALLS WITH A MINIMUM OF 0.06 SQ. IN./FT.

④ ROADWAY OR SHOULDER FILL HEIGHTS OF LESS THAN 2'-0" REQUIRE A 6" THICK DISTRIBUTION SLAB WITH CONCRETE MIX 3S52.

PLACE CAST-IN-PLACE DISTRIBUTION SLABS WITH 3" MIN. SELECT GRANULAR MATERIAL PER SPEC. 3149.2.B.2 BETWEEN BARREL AND DISTRIBUTION SLAB.

PRECAST DISTRIBUTION SLABS MAY BE USED FOR FILL HEIGHTS OVER 1'-0". PROVIDE 6" MINIMUM SELECT GRANULAR MATERIAL PER SPEC. 3149.2.B.2 BETWEEN BARREL AND SLAB.

EXTEND THE WIDTH OF THE DISTRIBUTION SLAB TO THE OUTSIDE EDGES OF THE ROADWAY SHOULDERS UNLESS DIRECTED BY THE ENGINEER.

REDESIGN THE DISTRIBUTION SLAB PER THE MDOT PAVEMENT DESIGN MANUAL IF IT IS USED AS PAVEMENT SURFACE.

PAYMENT FOR THE DISTRIBUTION SLAB AND SELECT GRANULAR MATERIAL BENEATH THE SLAB IS CONSIDERED INCIDENTAL.

⑤ REFER TO SPEC. 2412 FOR SEALANT REQUIREMENTS.

BARREL INFORMATION TABLE ***

LOCATION	SIZE	CLASS	f'c (P.S.I.)	FILL HEIGHT RANGE (FT.)	DISTRIBUTION SLAB REQUIRED *	RECESSED TIE RODS REQUIRED **	DIMENSIONS					WEIGHT (LBS./FT.)	WELDED WIRE REINFORCEMENT												
							SPAN (FT.)	RISE (FT.)	Tt (IN.)	Tb (IN.)	Ts (IN.)		As1		As2		As3		As4		As7		As8		
													AREA (IN. ² /FT.)	LENGTH (FT.)	AREA (IN. ² /FT.)	LENGTH (FT.)	AREA (IN. ² /FT.)	LENGTH (FT.)	AREA (IN. ² /FT.)	LENGTH (FT.)	AREA (IN. ² /FT.)	LENGTH (FT.)	AREA (IN. ² /FT.)	LENGTH (FT.)	AREA (IN. ² /FT.)
81NB01=1363+24.61	8x6	2	5000	3-8	NO	NO	8	6	9	10	8	3725	0.28	12.67	2.83	0.41	8.50	0.44	8.50	0.20	6.50	0.24	6.25	0.24	6.25

* ALL CLASS 1 CULVERTS WITH FILL HEIGHTS OF LESS THAN 2'-0" REQUIRE A DISTRIBUTION SLAB. IF A DISTRIBUTION SLAB IS NOT REQUIRED, INDICATE "NO" IN THIS BOX.

** FOR PEDESTRIAN CULVERT APPLICATIONS HIDE-AWAY OR RECESSED TIE CONNECTIONS ARE REQUIRED, SEE STANDARD PLATE 3145. IF REQUIRED, INDICATE "YES" IN THIS BOX.

*** BOX CULVERTS WITH SPANS FROM 6 TO 14 FT. ARE DESIGNED FOR HL-93 LIVE LOADS (AASHTO LRFD 3.6.2.1) NOT INCLUDING THE DESIGN LANE LOAD. BOXES WITH SPANS OF 16 FT. ARE DESIGNED FOR HL-93 LIVE LOADS INCLUDING THE DESIGN LANE LOAD.

REVISION: FEBRUARY 22, 2018

APPROVED: MARCH 24, 2011

Nancy D. Benbenberger
STATE BRIDGE ENGINEER

HENN. CO. PROJ. NO. 0922 CSAH 81 S.P. 027-681-035, S.P. 110-020-040

FIG. 5-395.101(A)

CERTIFIED BY *John D. Ekola* 2/28/19
LICENSED PROFESSIONAL ENGINEER DATE
NAME: JOHN D. EKOLA LIC. NO. 53076

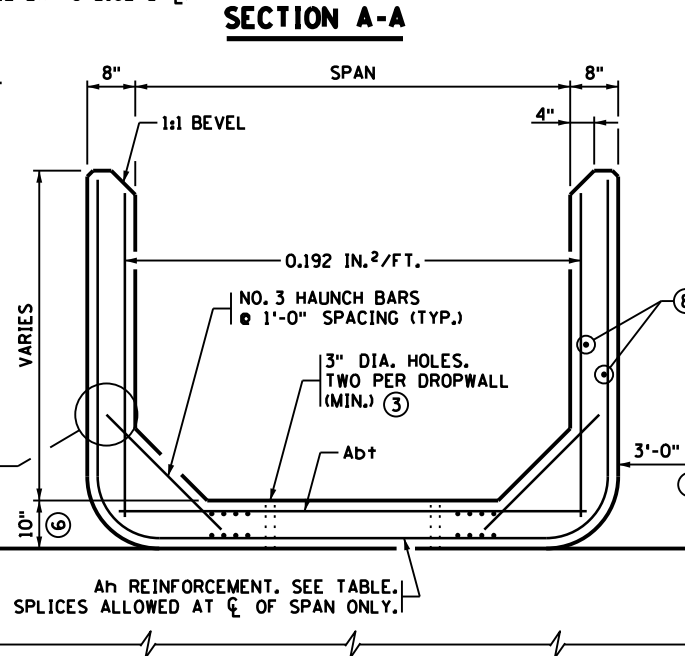
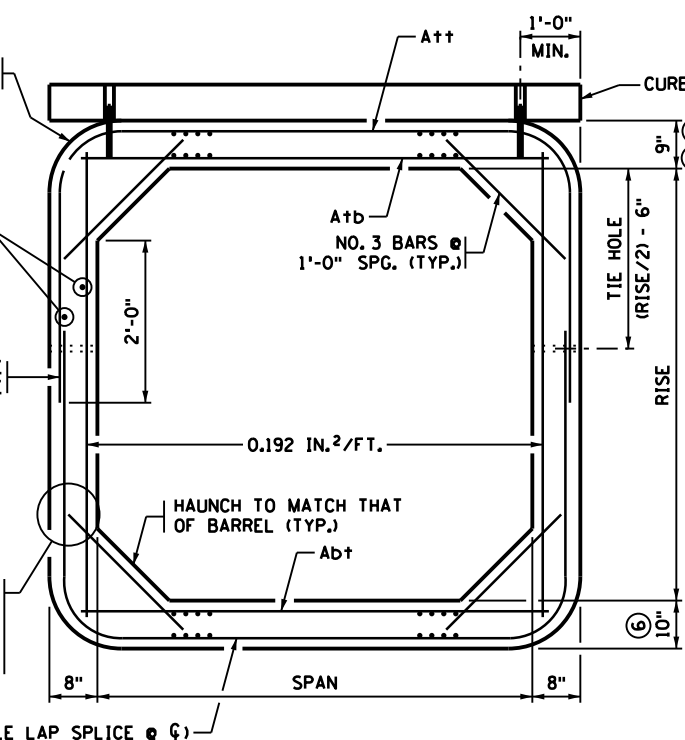
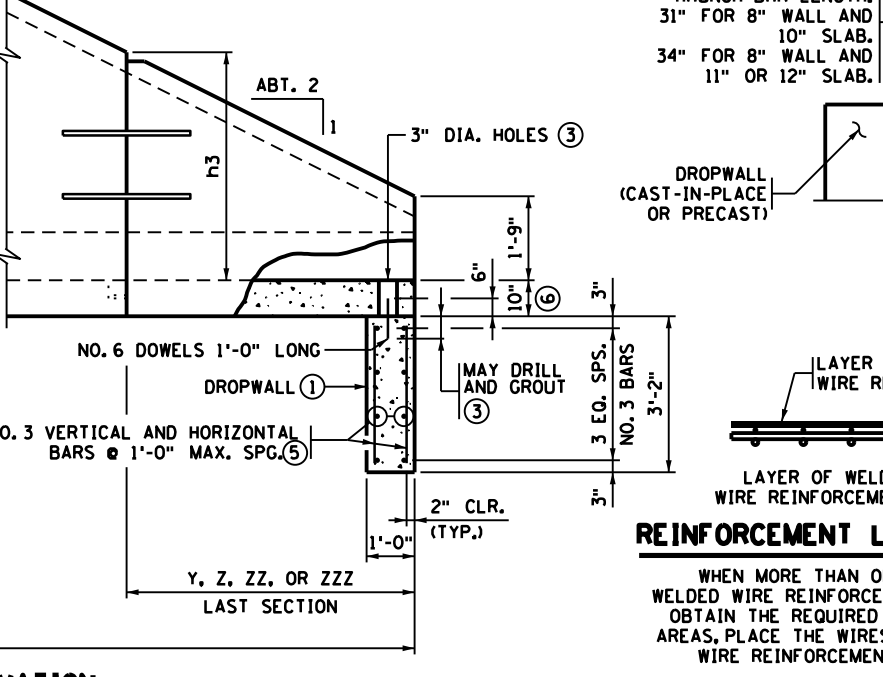
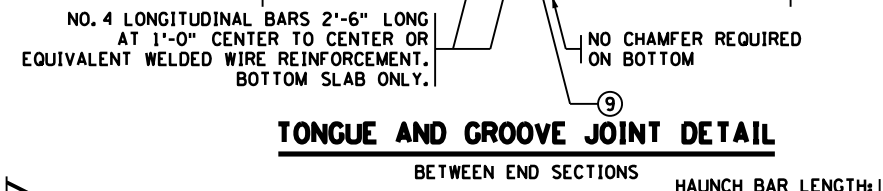
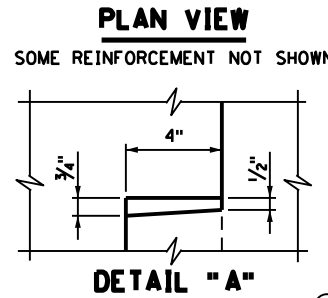
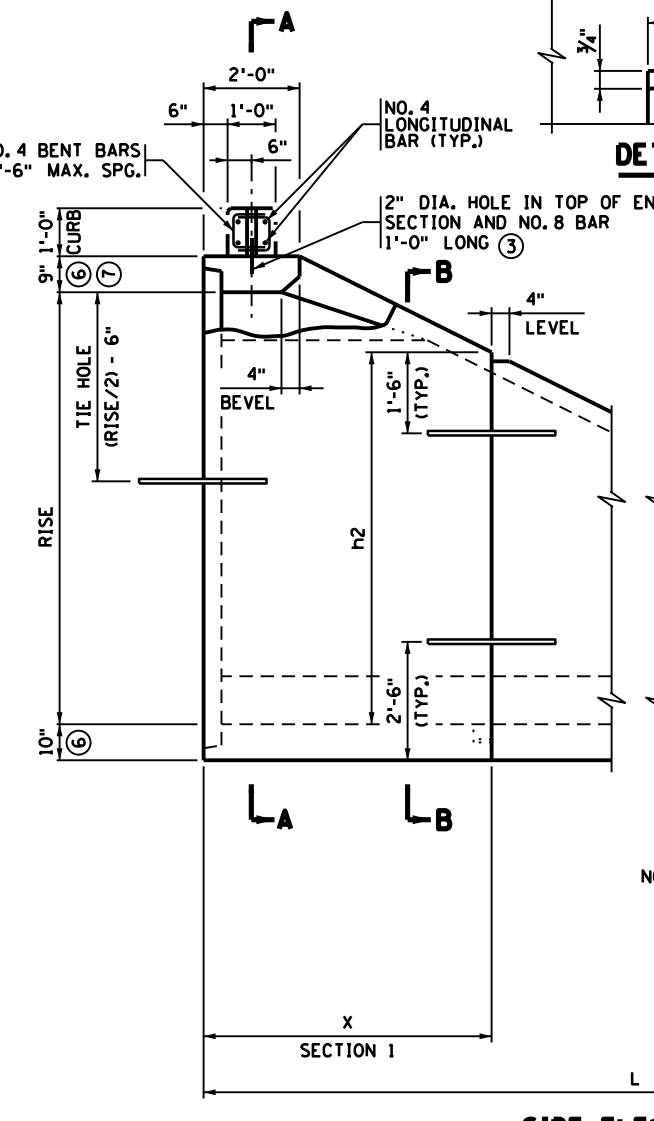
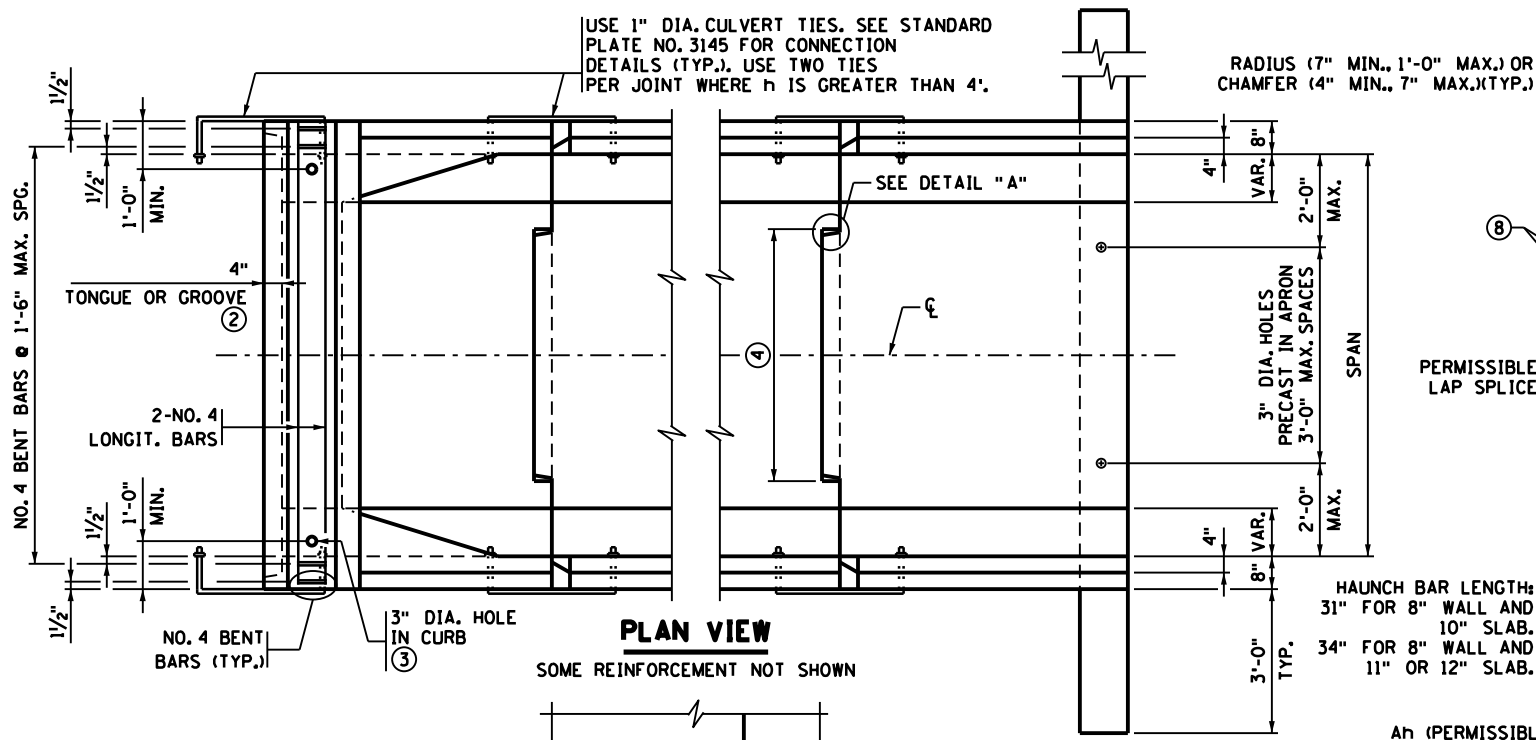
PRECAST CONCRETE
BARREL DETAILS

DES: J. BRONDER OR: J. SCHERER APPROVED:
CHK: J. EKOLA CHK: J. EKOLA
SHEET NO 222 OF 244 SHEETS

BRIDGE NO.

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Sheet 05



- CONSTRUCTION NOTES**
- SEE STANDARD FIG. 5-395.101(A) AND FIG. 5-395.101(B) FOR ADDITIONAL DIMENSIONS AND CONSTRUCTION NOTES.
- USE CONCRETE MIX NO. 3W82 WITH NO CALCIUM CHLORIDE ALLOWED.
 - ALL END SECTIONS REQUIRE CURB ON LINTEL BEAM.
 - ON ALL END SECTIONS FOR WATERWAYS, USE DROPPALLS ON INLET AND OUTLET ENDS.
 - SEE STANDARD FIG. 5-395.115 FOR EMBANKMENT PROTECTION.
 - FINISH ALL EXPOSED EDGES OF CONCRETE WITH 1/2" OR 3/4" CHAMFER OR RADIUS UNLESS OTHERWISE NOTED.
 - MAXIMUM SIZE OF REINFORCEMENT BARS IS NO. 6, EXCEPT NO. 7 OR 8 BARS MAY BE USED FOR A+t ON SPANS GREATER THAN 14'. THE MAXIMUM WELDED WIRE REINFORCEMENT SIZE IS W23 PER LAYER (MAXIMUM OF 2 LAYERS).
 - WITH DOUBLE BOXES LOCATE DROPPALL JOINTS BETWEEN END SECTIONS. SEE STANDARD FIG. 5-395.111 FOR ALTERNATE DROPPALLS, LIMITS OF EXCAVATION FOR DROPPALL ARE APPROXIMATELY THE SAME AS DROPPALL DIMENSIONS. DROPPALL CONCRETE MIX IS 3S52, OR 3Y82 IF PRECAST. FURNISHING AND INSTALLATION OF DROPPALL TO BE INCLUDED IN PRICE BID FOR END SECTIONS. DROPPALL NOT REQUIRED FOR NONWATERWAY USE.
 - CHECK LOCATION TO DETERMINE WHETHER A TONGUE OR A GROOVE IS USED.
 - FILL HOLE WITH GROUT. GROUT CONSISTS OF 1 PART CEMENT AND 2 PARTS SAND. USE TYPE 1A AIR ENTRAINED PORTLAND CEMENT. GROUT MIX MAXIMUM SLUMP IS 4".
 - 3'-6" MIN. TONGUE AND 3'-7" MIN. GROOVE FOR CULVERTS WITH 6'-0" SPANS, 5'-0" MIN. TONGUE AND 5'-1" MIN. GROOVE FOR CULVERTS WITH SPANS GREATER THAN 6'-0". CENTER TONGUE AND GROOVE ON < OF EACH APRON JOINT. TONGUE AND GROOVE JOINT ON ALL THREE SIDES OF APRON IS PERMISSIBLE.
 - WELDED WIRE REINFORCEMENT OF EQUAL AREA MAY BE SUBSTITUTED FOR REBAR.
 - APRON TOP AND BOTTOM SLAB THICKNESS MAY BE 8" FOR CULVERTS WITH 6' SPANS ONLY. BOTTOM SLAB THICKNESS MAY BE INCREASED UP TO 2" MAX. PROVIDED CONCRETE COVER IS 1 1/2" MIN., 2" MAX.
 - 10" MINIMUM TOP SLAB FOR 14' AND 16' SPANS.
 - PLACE LONGITUDINAL REINFORCEMENT PERPENDICULAR TO THE CULVERT SPAN WITH A MINIMUM OF 0.06 SQUARE INCHES PER PERIPHERAL FOOT ON ALL FACES OF THE BARREL.
 - REFER TO SPEC. 2412 FOR SEALANT REQUIREMENTS.

A+t, A+d REINFORCEMENT		
SPAN (FT.)	A+t (IN ² /FT.)	A+d (IN ² /FT.)
6	0.27	0.44
8	0.47	0.60
10	0.62	0.74
12	0.88	1.06
14	1.20	1.58
16	1.52	2.09

Abt REINFORCEMENT	
SPAN (FT.)	Abt (IN ² /FT.)
6-10	0.20
12	0.30
14	0.39
16	0.39

APRON DIMENSIONS & Ah REINFORCEMENT																	
RISE FT.	L FT.	SECTION 1		SECTION 2		SECTION 3		SECTION 4		SECTION 5		SECTION 6					
		X	Ah	h2	Y	Ah	h3	Z	Ah	h4	ZZ	Ah	h5	ZZZ	Ah	h6	
4	8	8' (4')	0.192	1'-9" (3'-9")	(4')	0.192	(1'-9")										
5	10	6'	0.192	3'-9"	4'	0.192	1'-9"										
6	12	6'	0.192	4'-9"	6'	0.192	1'-9"										
7	14	6'	0.192	5'-9"	8' (4')	0.192	1'-9" (3'-9")	(4')	(0.192)	(1'-9")							
8	16	6'	0.20	6'-9"	6'	0.192	3'-9"	4'	0.192	1'-9"							
9	18	6'	0.29	7'-9"	6'	0.20	4'-9"	6'	0.192	1'-9"							
10	20	6'	0.42	8'-9"	6'	0.29	5'-9"	8' (4')	0.192	1'-9" (3'-9")	(4')	(0.192)	(1'-9")				
11	22	6'	0.60	9'-9"	6'	0.42	6'-9"	6'	0.192	3'-9"	4'	0.192	1'-9"				
12	24	6'	0.78	10'-9"	6'	0.60	7'-9"	6'	0.20	4'-9"	6'	0.192	1'-9"				
13	26	6'	1.03	11'-9"	6'	0.78	8'-9"	6'	0.28	5'-9"	8' (4')	0.192	1'-9" (3'-9")	(4')	(0.192)	(1'-9")	
14	28	6'	1.38	12'-9"	6'	1.03	9'-9"	6'	0.40	6'-9"	6'	0.192	3'-9"	4'	0.192	1'-9"	

NOTE: Ah IS AREA OF REINFORCEMENT PER FOOT OF LENGTH (IN²/FT.)
VALUES IN () MAY BE USED FOR END SECTIONS WITH SPANS OF 14' AND 16' ONLY.

REVISION: FEBRUARY 22, 2018
APPROVED: MARCH 24, 2011
Nancy J. Subenberger
STATE BRIDGE ENGINEER

HENN. CO. PROJ. NO. 0922 CSAH 81 S.P. 027-681-035, S.P. 110-020-040 **FIG. 5-395.102**

CERTIFIED BY: *John D. Ekola* 2/28/19 DATE: 2/28/19
LICENSED PROFESSIONAL ENGINEER DATE

NAME: JOHN D. EKOLA LIC. NO. 53076

TITLE: **PRECAST CONCRETE END SECTION TYPE I - SINGLE OR DOUBLE BARREL FOR SKEWS UP TO 7 1/2'**

DES: J. BRONDER DR: J. SCHERER APPROVED:
CHK: J. EKOLA CHK: J. EKOLA

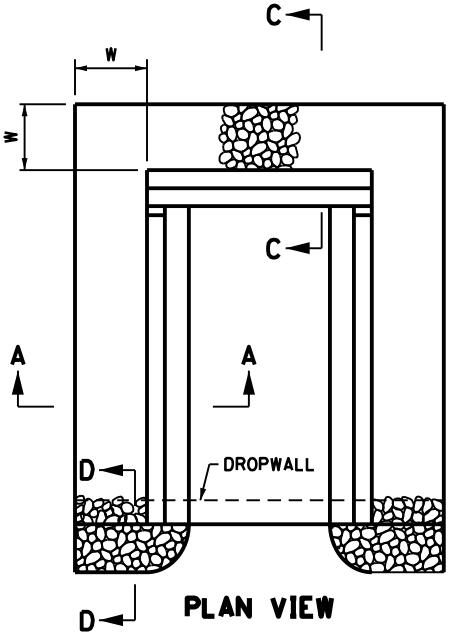
SHEET NO. 223 OF 244 SHEETS **BRIDGE NO.**

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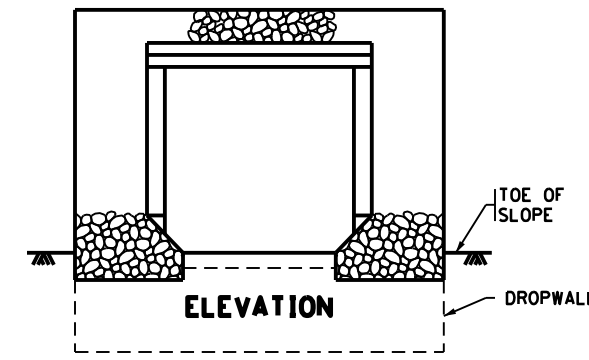
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Sheet 06

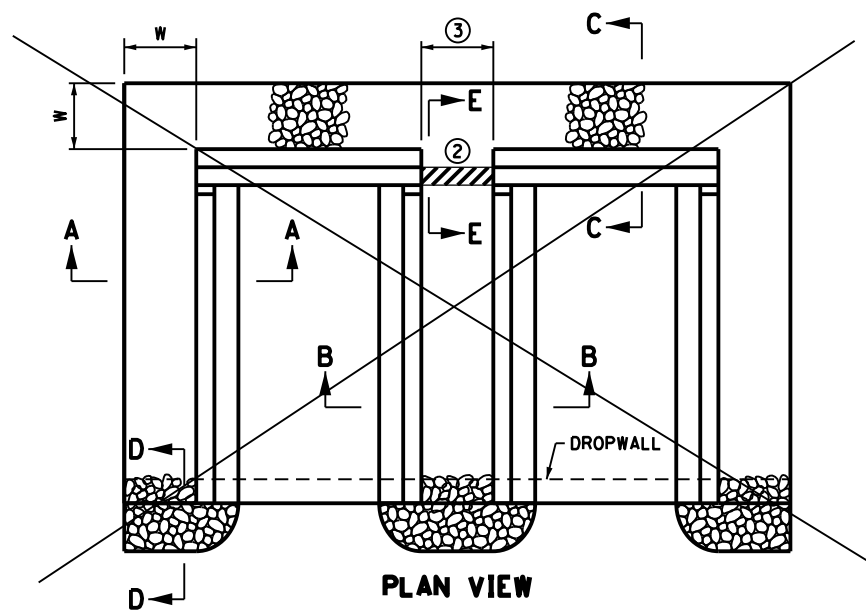


PLAN VIEW

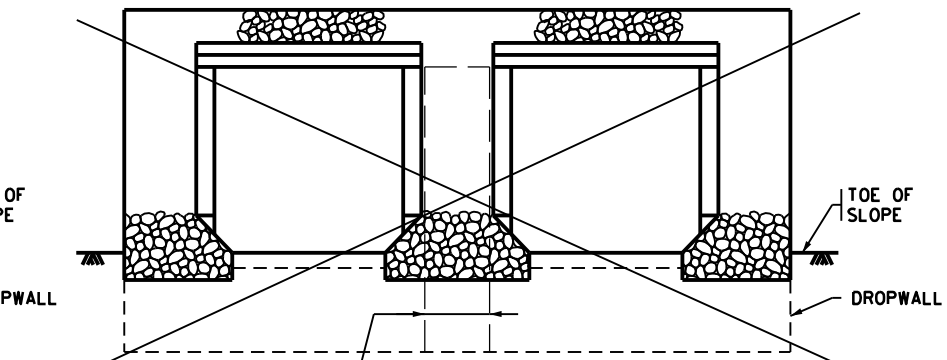


ELEVATION

SINGLE BARREL
CLASS III OR IV SHOWN
FOR SKEWS UP TO 7 1/2°

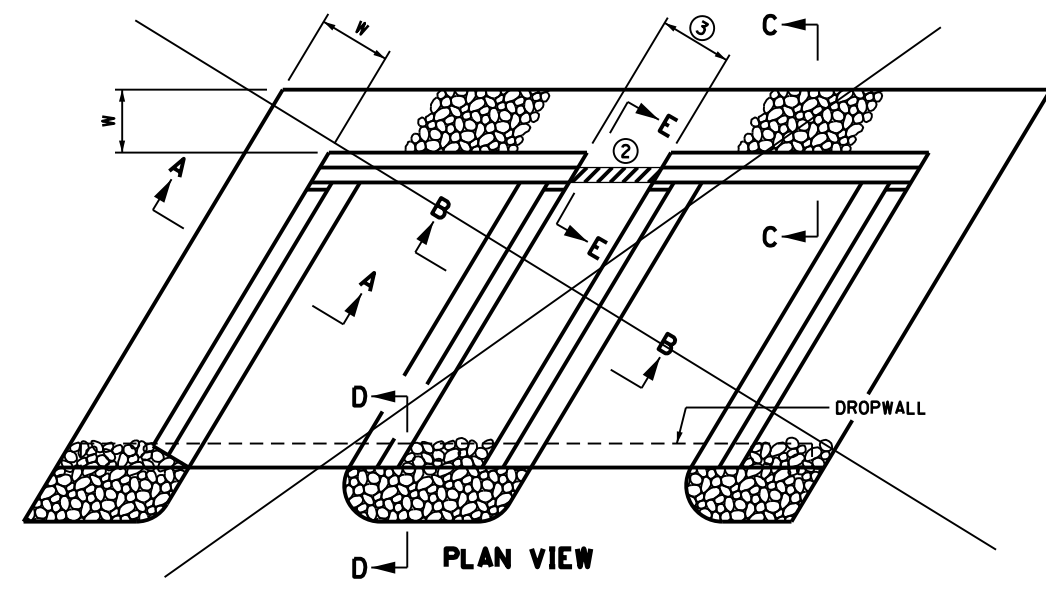


PLAN VIEW

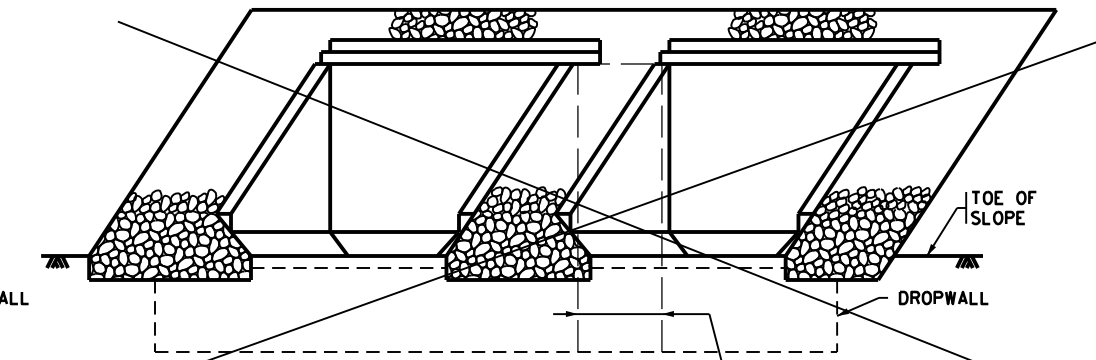


ELEVATION

MULTIPLE BARREL
FOR SKEWS UP TO 7 1/2°
CLASS III OR IV SHOWN
DOUBLE BARREL SHOWN



PLAN VIEW



ELEVATION

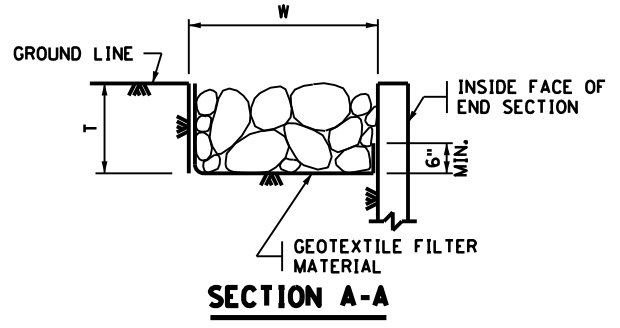
MULTIPLE BARREL
FOR SKEWS OVER 7 1/2°
CLASS III OR IV SHOWN
DOUBLE BARREL SHOWN,
OTHER BARREL CONFIGURATIONS SIMILAR.

CONSTRUCTION NOTES

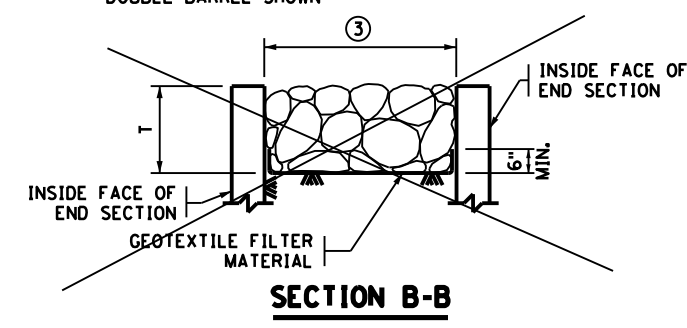
THIS PLAN SHEET IS FOR CULVERT EMBANKMENT PROTECTION ONLY. REFER TO THE GRADING PLANS FOR ADDITIONAL RIPRAP OR OTHER SCOUR PROTECTION MEASURES.

PROVIDE RIPRAP PER SPECS. 2511 AND 3601.

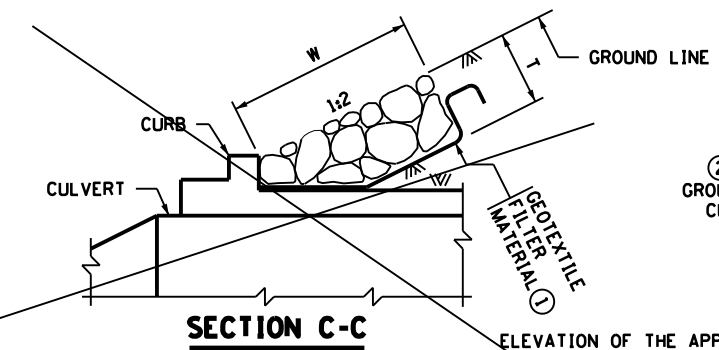
- ① FOR TYPE OF GEOTEXTILE FILTER MATERIAL REQUIRED, SEE SPEC. 3733. PROVIDE GEOTEXTILE STRIPS CONTINUOUS WITHOUT OVERLAPS, EXCEPT FOR THE TOP STRIP, WHICH SHOULD SHINGLE VERTICAL STRIPS. BURY THE TOP EDGE TO PREVENT UNDERMINING.
- ② IF THE DISTANCE BETWEEN DOUBLE BARRELS IS LESS THAN 2'-0" USE EITHER PEA ROCK OR LEAN MIX BACKFILL (SPEC. 2520) BETWEEN THE CULVERTS AS APPROVED BY THE ENGINEER. IF PEA ROCK IS USED PROVIDE APPROVED GROUT SEEPAGE CUTOFF CORE, MINIMUM 12" THICK BETWEEN THE CULVERT'S TWO ENDS AND PROVIDE CLASS I GROUTED RIPRAP IN LIEU OF CLASS III RIPRAP.
- ③ REFER TO THE GENERAL PLAN AND ELEVATION SHEET FOR THE DISTANCE BETWEEN BARRELS OF ADJACENT BOXES.



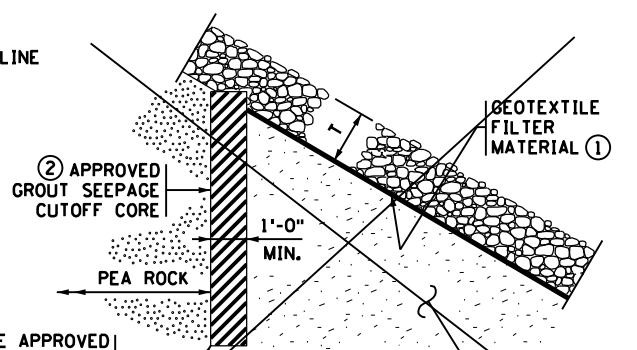
SECTION A-A



SECTION B-B

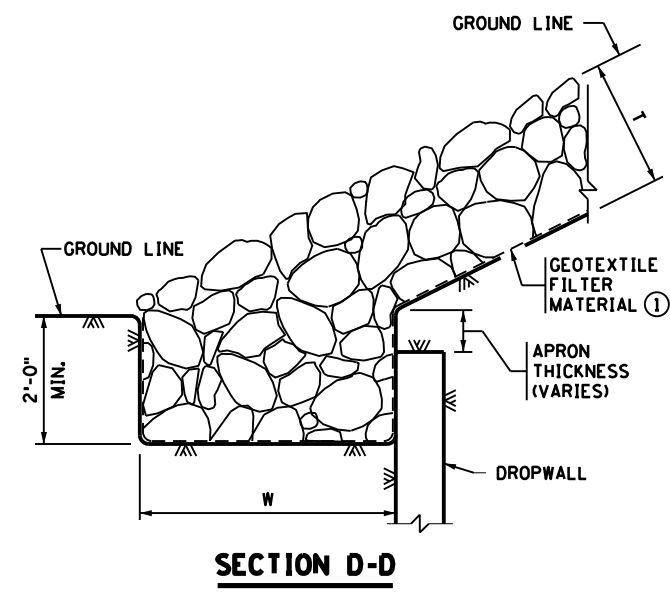


SECTION C-C



SECTION E-E

ELEVATION OF THE APPROVED GROUT SEEPAGE CUTOFF CORE IS TO BE THE SAME ELEVATION AS THE BOTTOM OF THE DROP WALL



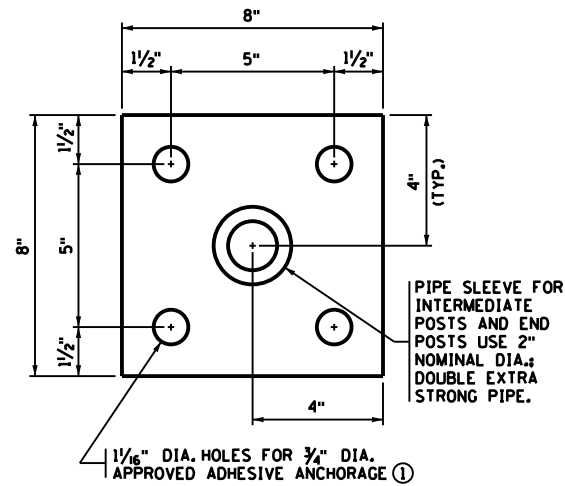
SECTION D-D

RIPRAP CLASS

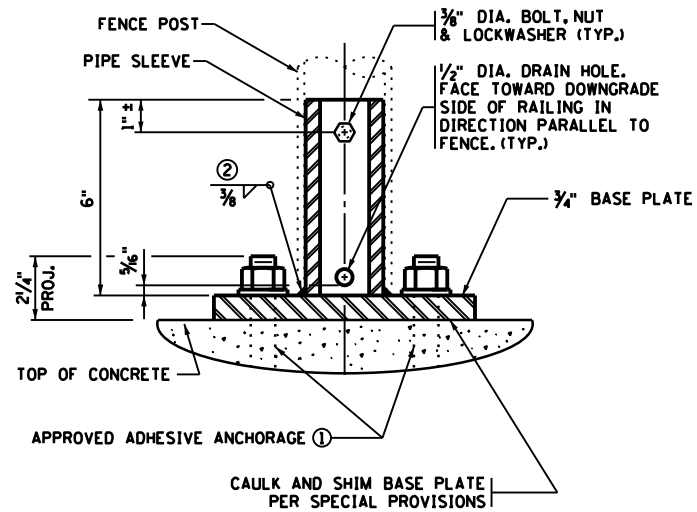
RIPRAP CLASS	RIPRAP CLASS	T	W
<input checked="" type="checkbox"/>	III	1'-6"	3'-0"
<input checked="" type="checkbox"/>	IV	2'-0"	4'-0"

REVISION: 10-09-2015
APPROVED: SEPTEMBER 11, 2014
Nancy Damberger
STATE BRIDGE ENGINEER

HENN. CO. PROJ. NO. 0922 CSAH 81 S.P. 027-681-035 S.P. 110-020-040		FIG. 5-395.115	
CERTIFIED BY <i>John D. Ekola</i> LICENSED PROFESSIONAL ENGINEER	DATE 2/28/19	DES: J. BRONDER CHK: J. EKOLA	DR: J. SCHERER CHK: J. EKOLA
NAME: JOHN D. EKOLA LIC. NO. 53076	TITLE: EMBANKMENT PROTECTION FOR BOX CULVERTS	APPROVED:	
		SHEET NO. 224 OF 244 SHEETS	
		BRIDGE NO.	



PLAN VIEW - TYPE A
ESTIMATED WEIGHT = 18 LBS.



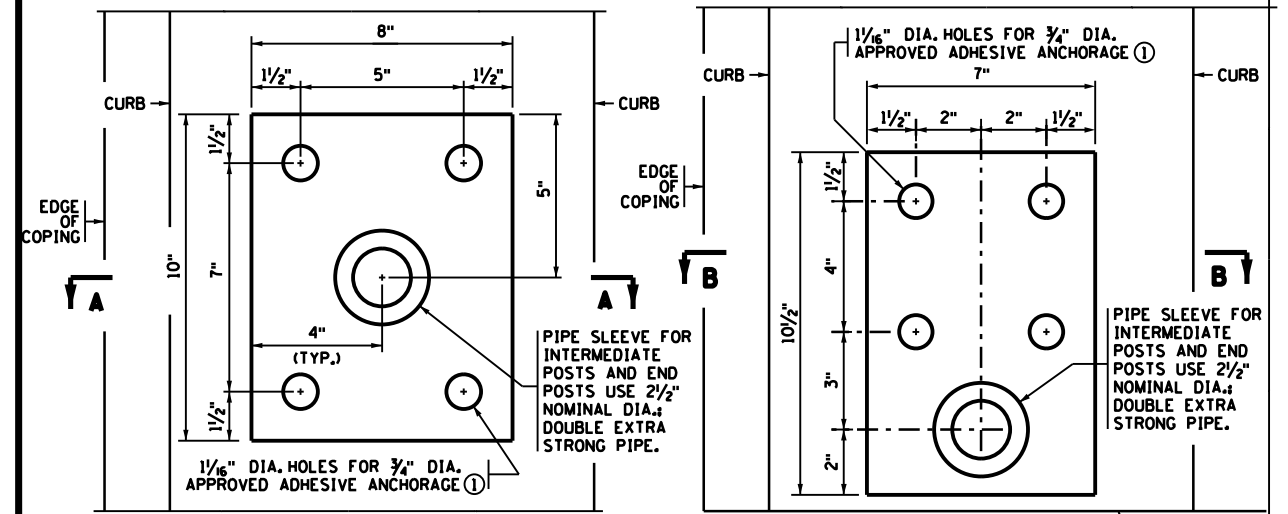
TYPICAL SECTION

NOTES:

- ALL PIPE DIAMETERS ARE NOMINAL.
- SEE SPECIAL PROVISIONS FOR REQUIREMENTS NOT INCLUDED ON THIS SHEET.
- STRUCTURAL STEEL PER SPEC. 3306
- STRUCTURAL PIPE PER SPEC. 3362
- GALVANIZE THE FENCE POST ANCHORAGE AFTER FABRICATION PER SPEC. 3394.
- GALVANIZE THE FASTENERS PER SPEC. 3392.
- FURNISHING AND INSTALLING FENCE POST ANCHORAGES IS INCIDENTAL TO THE WIRE FENCE.

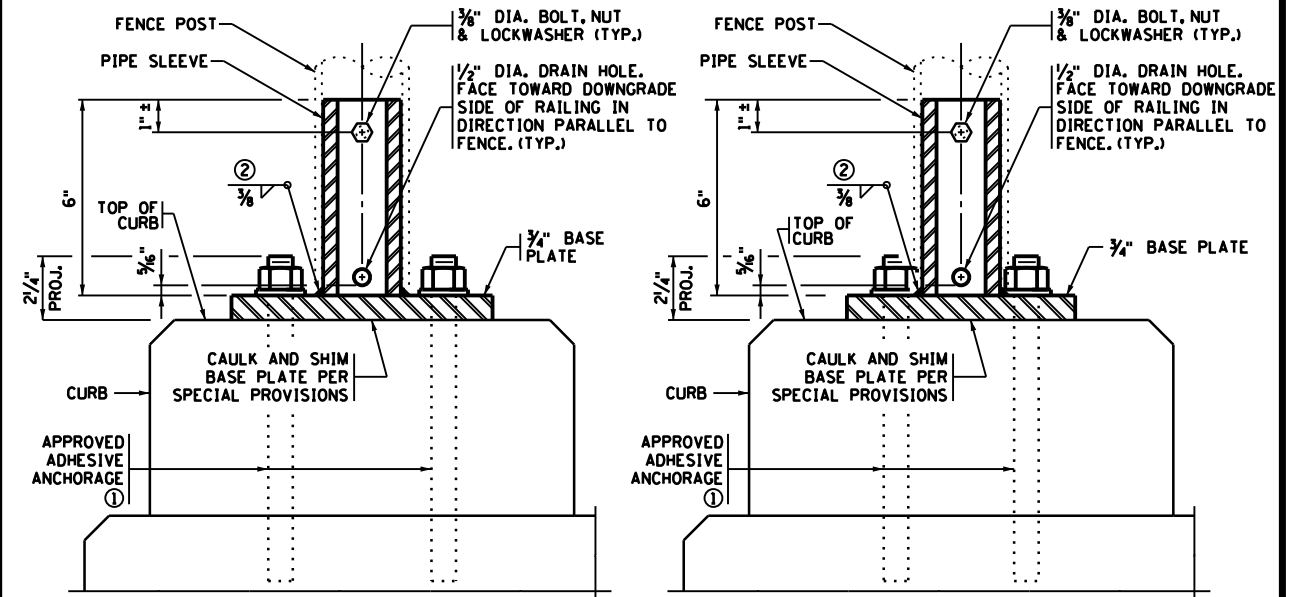
- ① ADHESIVE ANCHORAGE WITH 3/4" DIA. ANCHOR ROD PER SPEC. 3385, TYPE A WITH HEX NUT AND WASHER, PROVIDE AN ADHESIVE WITH A MINIMUM CHARACTERISTIC BOND STRENGTH IN UNCRACKED CONCRETE OF 1.5 KSI. EMBED THE ANCHORAGE NO LESS THAN 5" REGARDLESS OF CHARACTERISTIC BOND STRENGTH. DRILL THROUGH REINFORCEMENT (IF ENCOUNTERED) TO ACHIEVE MINIMUM EMBEDMENT. ENSURE HEX NUT IS IN CONTACT WITH THE ADJACENT SURFACE AND TORQUE TO 60 FT-LBS UNLESS A HIGHER TORQUE IS RECOMMENDED BY THE MANUFACTURER. PROOF LOAD TO 7.8 KIPS. SEE SPECIAL PROVISIONS FOR ADDITIONAL REQUIREMENTS.
 - ② E70X ELECTRODES FOR 3/8" POST TO BASE PLATE WELD.
- DOUBLE EXTRA STRONG PIPE WEIGHTS:
2" NOMINAL DIA. = 9.03 LBS./FT.

APPROVED: JANUARY 05, 2017	STATE OF MINNESOTA DEPARTMENT OF TRANSPORTATION	REVISION	DETAIL NO.
<i>Kevin Westrom</i> STATE BRIDGE ENGINEER	FENCE POST ANCHORAGE (TYPE A)		B905



PLAN VIEW - TYPE B
ESTIMATED WEIGHT = 24 LBS.

PLAN VIEW - TYPE C
ESTIMATED WEIGHT = 23 LBS.



SECTION A-A

SECTION B-B

NOTES:

- ALL PIPE DIAMETERS ARE NOMINAL.
- SEE SPECIAL PROVISIONS FOR REQUIREMENTS NOT INCLUDED ON THIS SHEET.
- STRUCTURAL STEEL PER SPEC. 3306
- STRUCTURAL PIPE PER SPEC. 3362
- GALVANIZE THE FENCE POST ANCHORAGE AFTER FABRICATION PER SPEC. 3394.
- GALVANIZE THE FASTENERS PER SPEC. 3392.
- FURNISHING AND INSTALLING FENCE POST ANCHORAGES IS INCIDENTAL TO THE WIRE FENCE.

- ① ADHESIVE ANCHORAGE WITH 3/4" DIA. ANCHOR ROD PER SPEC. 3385, TYPE A WITH HEX NUT AND WASHER, PROVIDE AN ADHESIVE WITH A MINIMUM CHARACTERISTIC BOND STRENGTH IN UNCRACKED CONCRETE OF 1.5 KSI. EMBED THE ANCHORAGE NO LESS THAN 8" REGARDLESS OF CHARACTERISTIC BOND STRENGTH. DRILL THROUGH REINFORCEMENT (IF ENCOUNTERED) TO ACHIEVE MINIMUM EMBEDMENT. ENSURE HEX NUT IS IN CONTACT WITH THE ADJACENT SURFACE AND TORQUE TO 60 FT-LBS UNLESS A HIGHER TORQUE IS RECOMMENDED BY THE MANUFACTURER. PROOF LOAD TO 5.8 KIPS. SEE SPECIAL PROVISIONS FOR ADDITIONAL REQUIREMENTS.
 - ② E70X ELECTRODES FOR 3/8" POST TO BASE PLATE WELD.
- DOUBLE EXTRA STRONG PIPE WEIGHTS:
2 1/2" NOMINAL DIA. = 13.69 LBS./FT.

APPROVED: JANUARY 05, 2017	STATE OF MINNESOTA DEPARTMENT OF TRANSPORTATION	REVISION 05-10-2017	DETAIL NO.
<i>Kevin Westrom</i> STATE BRIDGE ENGINEER	FENCE POST ANCHORAGE (TYPE B AND C)		B906



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

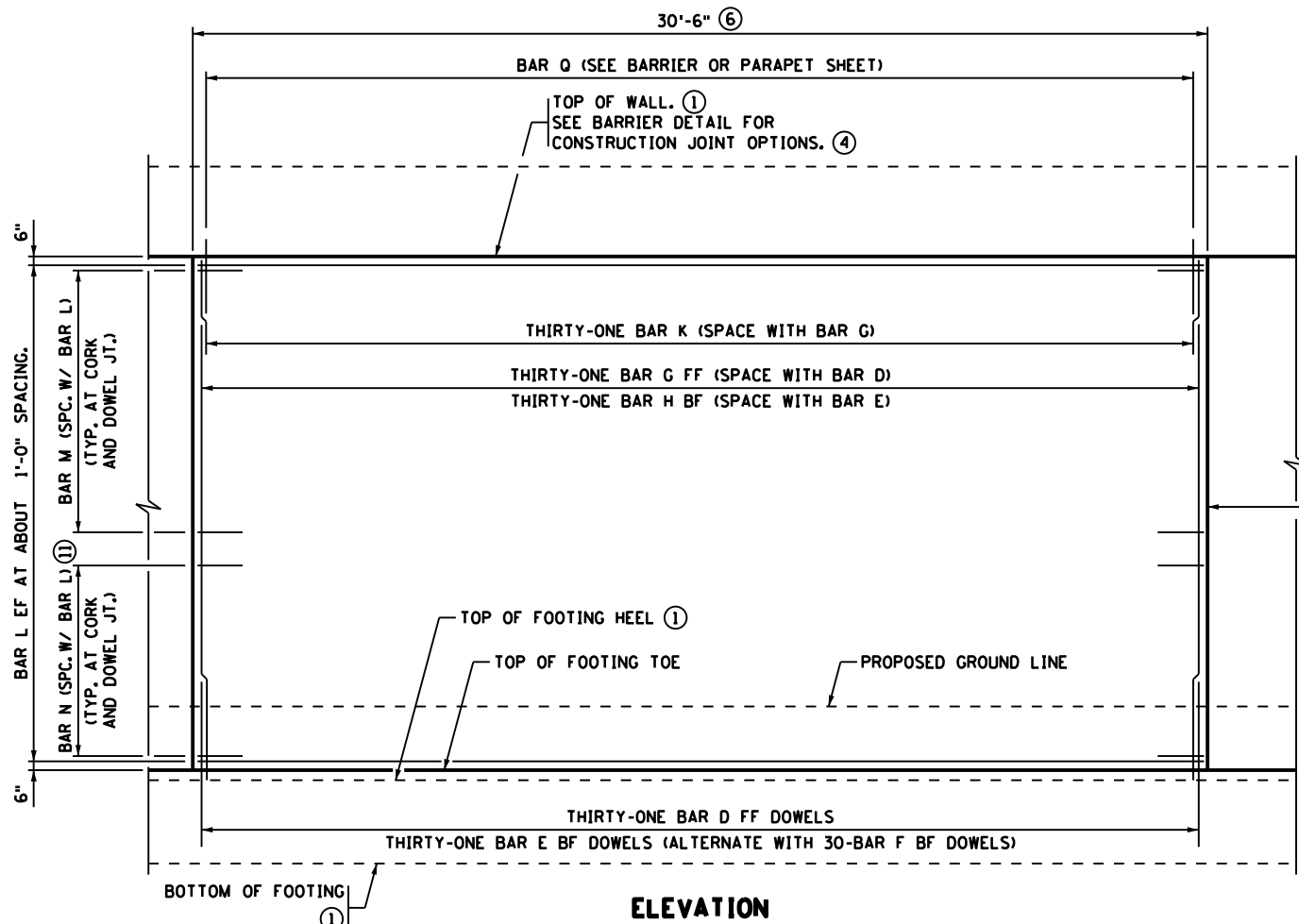
John D. Ekola
JOHN D. EKOLA, PROFESSIONAL ENGINEER

53076 3/14/19
LICENSE NO. DATE

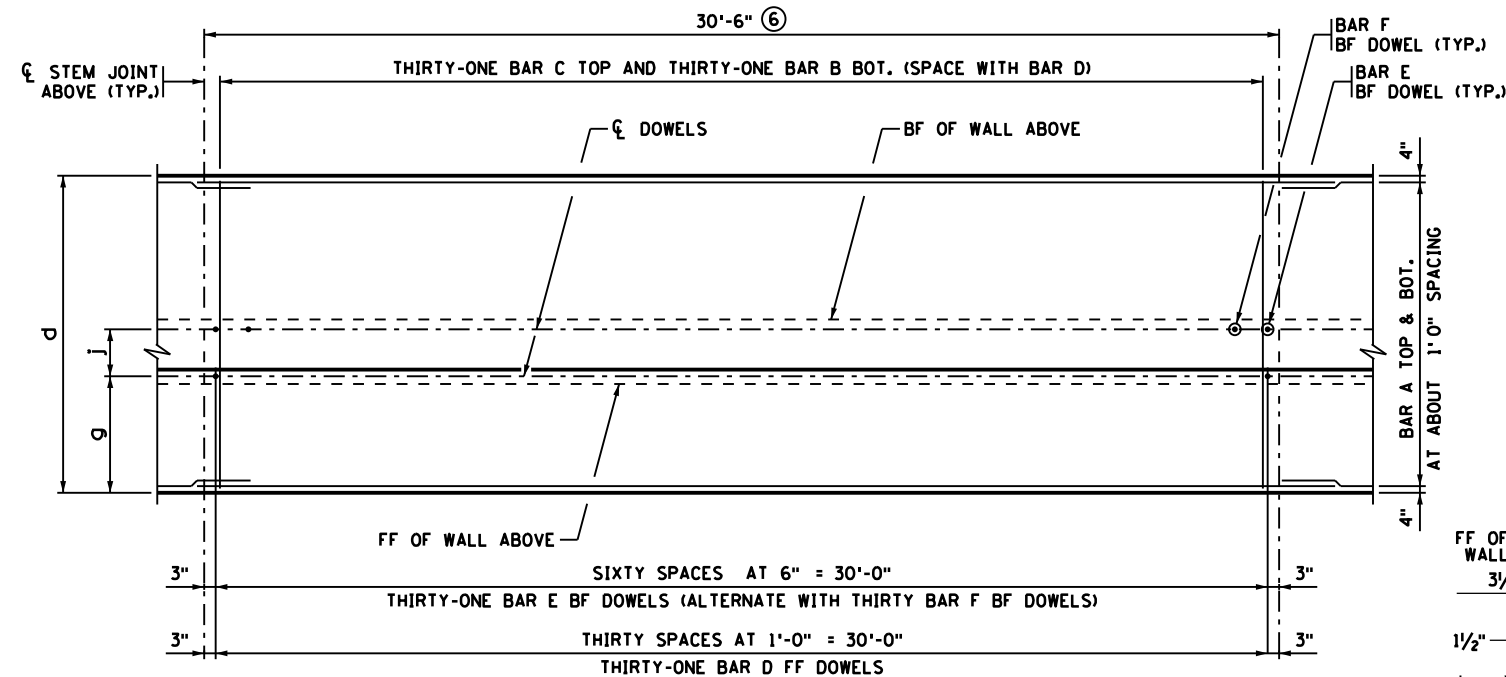
DESIGN BY: J. EKOLA
CAD BY: J. SCHERER
CHECKED BY: J. EKOLA
LAST REVISION: / /

FENCE POST DETAILS
C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
S.P. 027-681-035, S.P. 110-020-040

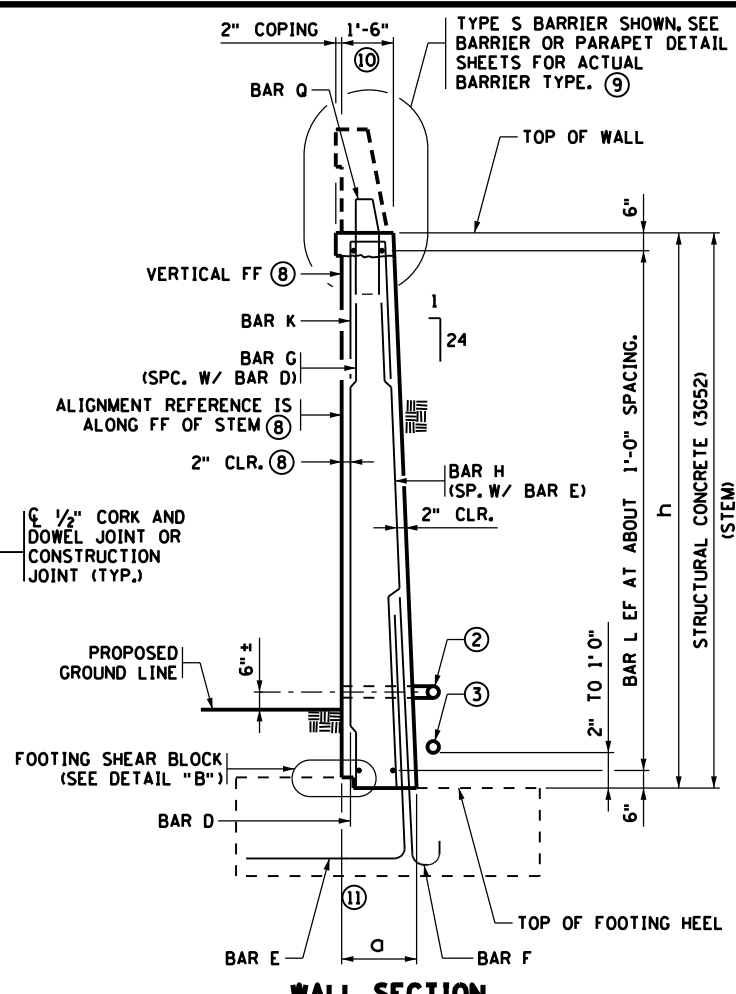
SHEET
225
244



ELEVATION

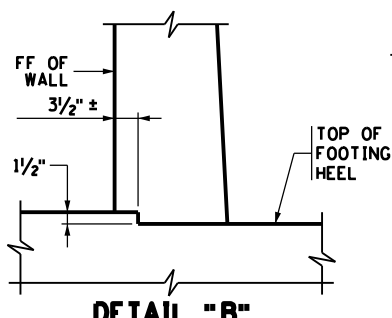


FOOTING PLAN ~ REINFORCEMENT

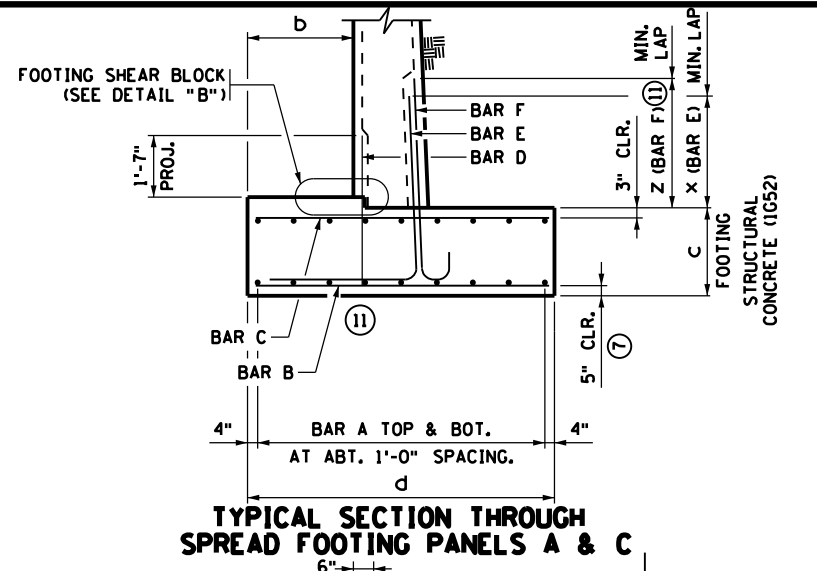


WALL SECTION

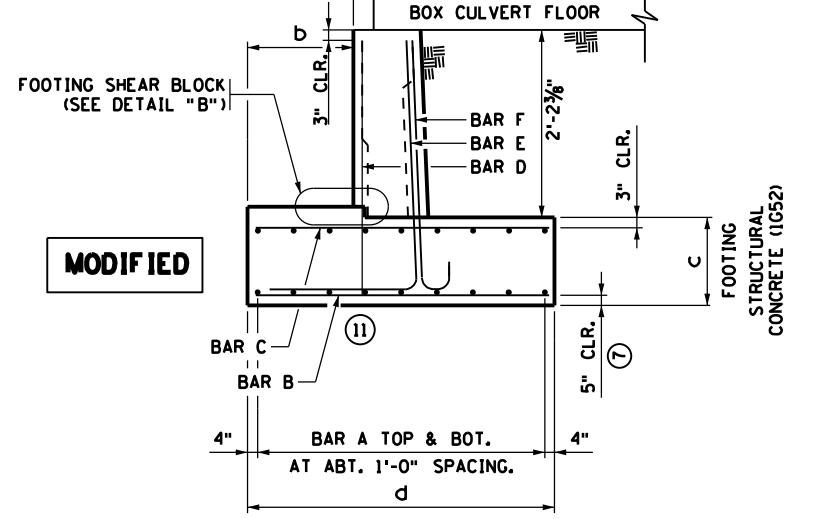
(IF BARRIER AND 2" COPING OPTION SHOWN)



DETAIL "B"



TYPICAL SECTION THROUGH SPREAD FOOTING PANELS A & C



TYPICAL SECTION THROUGH SPREAD FOOTING PANEL B (MODIFIED)

ADJUST FOOTING DOWELS AND STEM BARS FOR PRECAST BOX CULVERT

NOTES:

- REFER TO RETAINING WALL PANEL TABULATIONS FOR DIMENSIONS "a" THROUGH "x".
- STEM REINFORCEMENT IS TO BE SYMMETRICALLY/EQUALLY SPACED BETWEEN STEM JOINTS.
- FOOTING REINFORCEMENT SYMMETRICAL ABOUT STEM JOINT ABOVE UNLESS OTHERWISE NOTED. SEE RETAINING WALL TABLES FOR PILE SPACING AND LAYOUT.
- BF DENOTES BACK FACE, FF DENOTES FRONT FACE, EF DENOTES EACH FACE.
- ① STRAIGHT LINE BETWEEN ELEVATIONS SHOWN ON WALL ELEVATION (EXCEPT FOR STEPPED CONDITIONS). IF A BARRIER OR PARAPET IS NOT USED, TOPS OF RETAINING WALL COULD BE USED.
- ② TYPE I DRAINAGE. SEE SECTION A-A ON STANDARD PLAN 5-297.624 (5 OF 6).
- ③ TYPE II DRAINAGE. SEE SECTION B-B ON STANDARD PLAN 5-297.624 (5 OF 6).
- ④ SEE STANDARD PLAN 5-297.624 (1 OF 6).
- ⑤ SEE GENERAL PLAN FOR PILE SPACING.
- ⑥ AT THE CONTRACTOR'S OPTION, PANEL LENGTH MAY VARY UP TO ± 1'-0". BAR CUTTING LISTS SHALL BE REVISED ACCORDINGLY BY THE CONTRACTOR.
- ⑦ 5" BOTTOM OF FOOTING CLEARANCE FOR ALL BARS EXCEPT BAR D. BAR D BOTTOM OF FOOTING CLEARANCE VARIES.
- ⑧ REFER TO DETAIL "C" AND NOTES ON STANDARD PLAN 5-297.624 (1 OF 6).
- ⑨ REBAR AND CONCRETE ARE INCLUDED IN THE PAY ITEM BY LINEAR FEET FOR THE BARRIER OR PARAPET.
- ⑩ WALL THICKNESS AT TOP OF STEM, NOT INCLUDING COPING. REFER TO STANDARD FIGURE 5-297.624 (1 OF 6) FOR MODIFIED TOP OF WALL THICKNESS WHEN USING TYPE S BARRIER.
- ⑪ NO KEYWAY.

HENN. CO. PROJ. NO. 0922 CSAH 81 S.P. 027-681-035, S.P. 110-020-040

REVISION: SEPTEMBER 1, 2016
 APPROVED: AUGUST 27, 2014
Nancy D. Benbenberger
 STATE BRIDGE ENGINEER

CERTIFIED BY *John D. Ekola* 2/28/19
 LICENSED PROFESSIONAL ENGINEER DATE
 NAME: JOHN D. EKOLA LIC. NO. 53076



STANDARD PLAN 5-297.622
Christine Ry
 STATE DESIGN ENGINEER

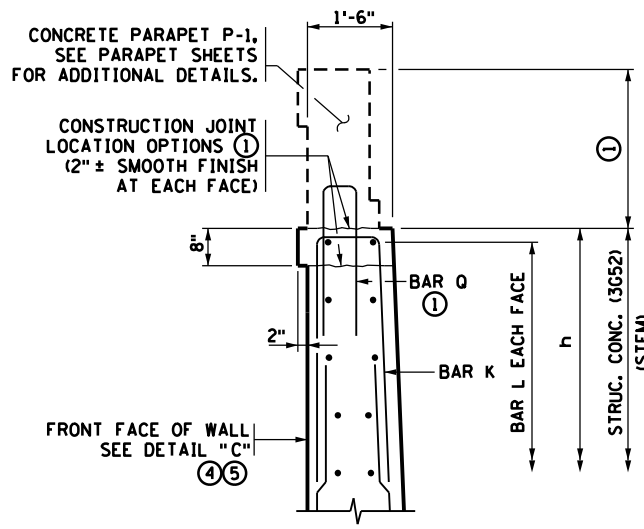
1 OF 1

APPROVED: 8-27-2014
 REVISED: 9-1-2016

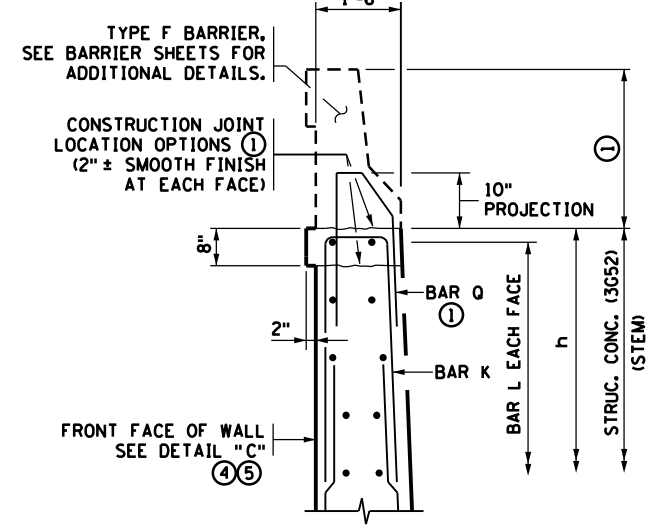
**RETAINING WALL REINFORCEMENT DETAILS
 (MEDIUM WALLS)**

SHEET NO. 226 OF 244 SHEETS

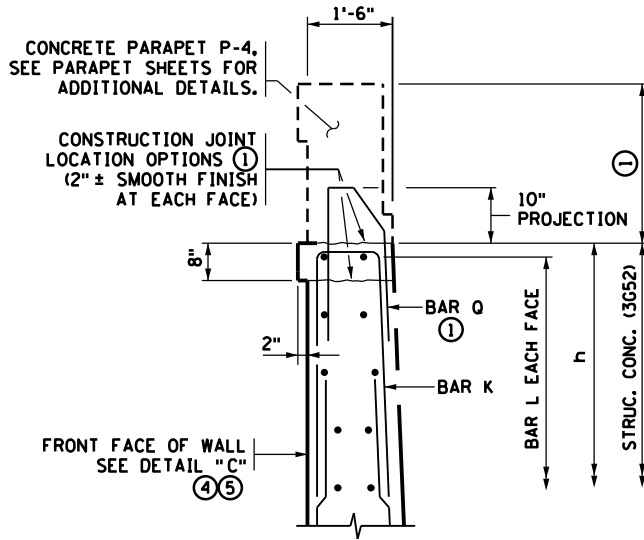
3/14/2019 11:08:11 AM \\TEMP01\proj\081.0922\Design\Plan\0922_Box.dgn edju001 Sheet 09



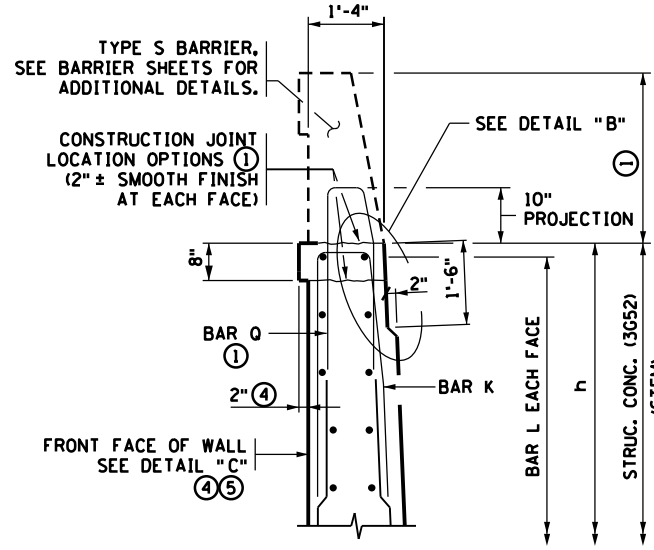
CONCRETE PARAPET P-1 DETAIL
2" COPING OPTION SHOWN



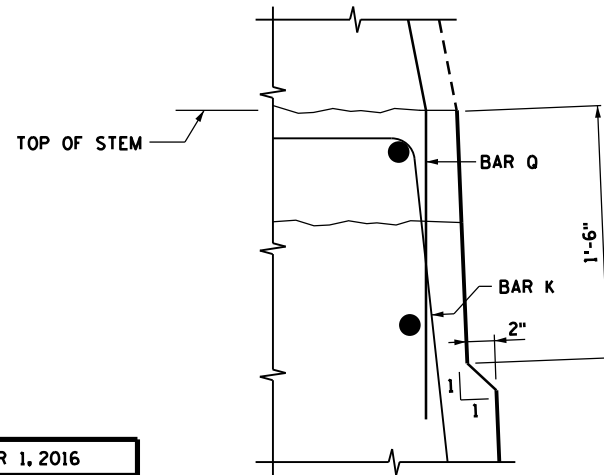
TYPE F BARRIER DETAIL
2" COPING OPTION SHOWN



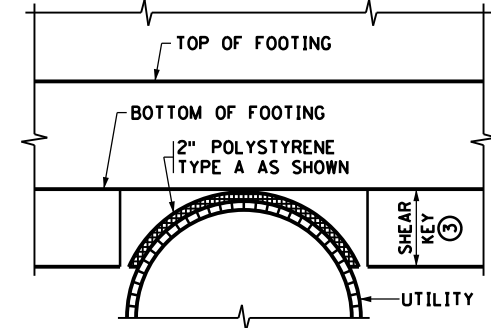
CONCRETE PARAPET P-4 DETAIL
2" COPING OPTION SHOWN



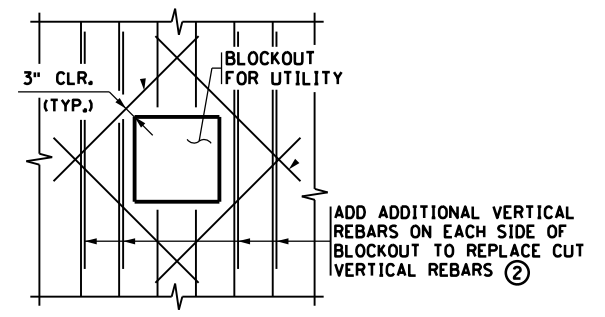
TYPE S BARRIER DETAIL
2" COPING OPTION SHOWN



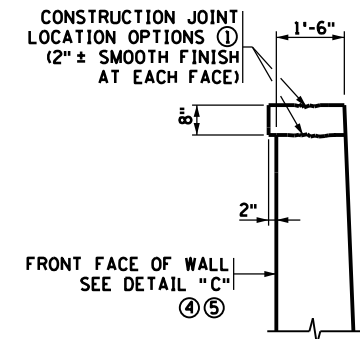
DETAIL "B"



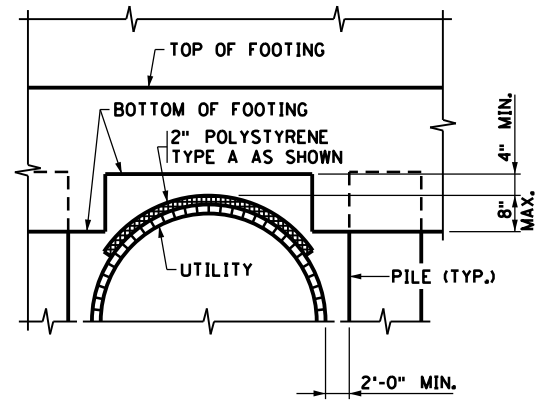
PIPE UNDER SPREAD FOOTING (THROUGH SHEAR KEY)



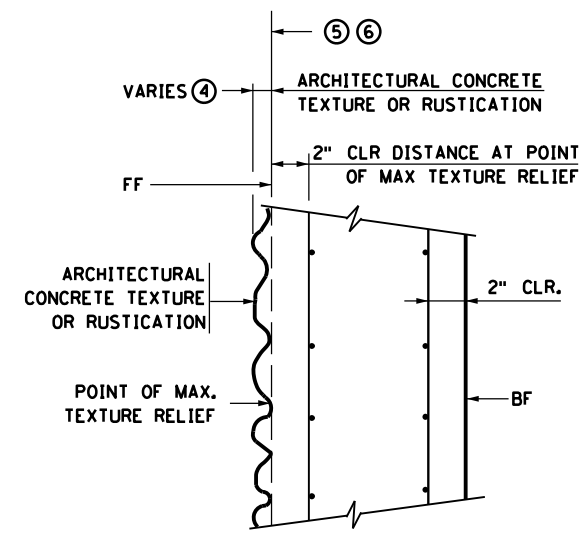
UTILITY BLOCKOUT DETAIL



COPING DETAIL



PIPE THROUGH PILE FOOTING



DETAIL "C"

NOTES:

- ARCHITECTURAL TREATMENT OPTION ON FRONT FACE OF RETAINING WALL, INCLUDING COPING OR HORIZONTAL REVEL OPTION TO BE DETERMINED BY MNDOT.
- ① REFER TO PARAPET OR BARRIER SHEETS FOR ADDITIONAL INFORMATION INCLUDING O BAR PLACEMENT DETAILS, AND PAYMENT.
- ② FIELD CUT/ADJUST VERTICAL AND HORIZONTAL REINFORCEMENT AS NECESSARY TO CLEAR BLOCKOUT. PLACE REINFORCEMENT AS SHOWN.
- ③ MODIFY AS NEEDED FOR INTERRUPTION.
- ④ THE THICKNESS OF THE ARCHITECTURAL CONCRETE TEXTURE VARIES WITH THE TEXTURE RELIEF. THE STRUCTURAL CONCRETE QUANTITIES DO NOT INCLUDE THE MATERIAL WITHIN THE ARCHITECTURAL CONCRETE TEXTURE. MATERIAL NEEDED FOR THE TEXTURING SHALL BE INCIDENTAL. SEE SPECIAL PROVISIONS 2411. TEXTURE RELIEF TO ADHERE TO NCHRP REPORT 554 CRASH BARRIER GUIDANCE WHENEVER THE WALL FACE IS INSIDE OR NEAR THE CLEAR ZONE.
- ⑤ FOR RETAINING WALLS THAT ABUT A BRIDGE OR BRIDGE WING WALL, NOTE THAT THE DESIGNATION OF "FRONT FACE" MAY VARY FROM THE BRIDGE PLANS TO THE RETAINING WALL PLANS.
- ⑥ DATA FOR BASELINE GEOMETRY IS TABULATED FOR WALL ALIGNMENT, SEE LAYOUT SHEETS. WALL ALIGNMENT REFERENCE IS ALONG FRONT FACE OF WALL.

REVISION: SEPTEMBER 1, 2016
APPROVED: FEBRUARY 16, 2016
Kevin Westcott
STATE BRIDGE ENGINEER

STANDARD SHEET NO. 5-297.624 (1 OF 6)
REVISION DATE 9-1-16
STANDARD APPROVED: FEBRUARY 16, 2016

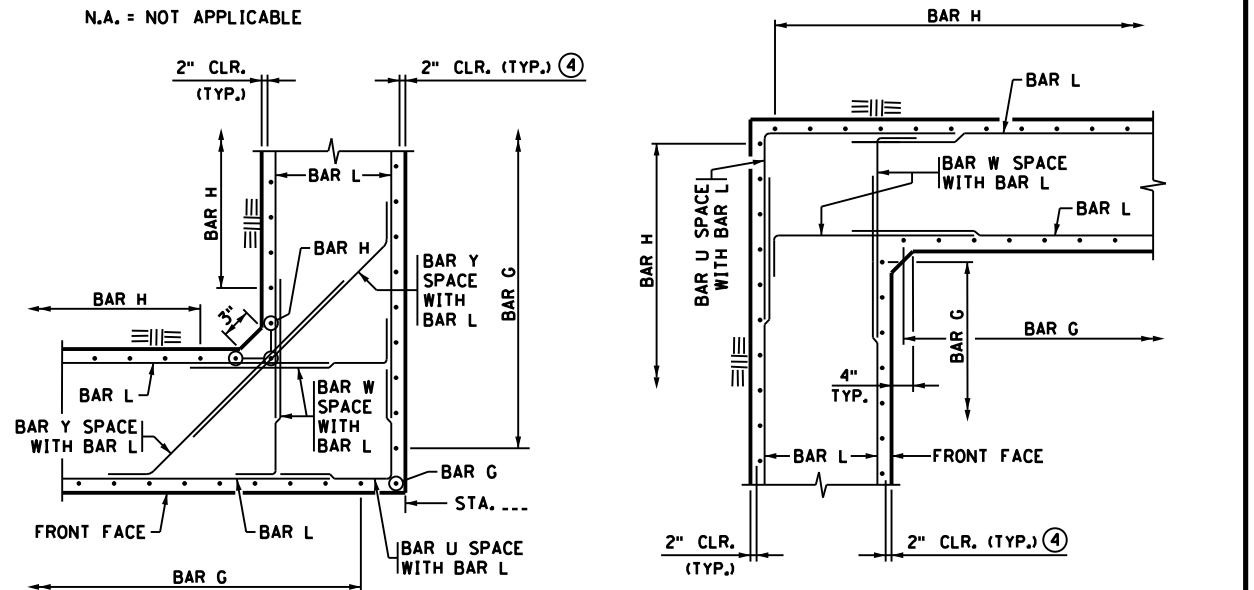
TITLE: **RETAINING WALL MISCELLANEOUS DETAILS**

BILL OF REINFORCEMENT FOR STEPPED FOOTING DETAILS ①②									
STATION	STEP TYPE (VAR. OR MIN.)	JOINT	BOT. OF FOOTING EL. LOW END	BOT. OF FOOTING EL. HIGH END	BAR (B, C, V)	MARK	NO.	LENGTH	A- DIMENSION
					B (8)				N.A.
					C (8)		4		N.A.
					V (7)				N.A.
					B (8)				N.A.
					C (8)		4		N.A.
					V (7)				N.A.
					B (8)				N.A.
					C (8)		4		N.A.
					V (7)				N.A.
					B (8)				N.A.
					C (8)		4		N.A.
					V (7)				N.A.
					B (8)				N.A.
					C (8)		4		N.A.
					V (7)				N.A.
					B (8)				N.A.
					C (8)		4		N.A.
					V (7)				N.A.
					B (8)				N.A.
					C (8)		4		N.A.
					V (7)				N.A.
					B (8)				N.A.
					C (8)		4		N.A.
					V (7)				N.A.
					B (8)				N.A.
					C (8)		4		N.A.
					V (7)				N.A.
					B (8)				N.A.
					C (8)		4		N.A.
					V (7)				N.A.
					B (8)				N.A.
					C (8)		4		N.A.
					V (7)				N.A.
					B (8)				N.A.
					C (8)		4		N.A.
					V (7)				N.A.

N.A. = NOT APPLICABLE

BILL OF REINFORCEMENT FOR CORNER DETAILS ①									
STATION (FF. WEST WALL BOX)	JOINT	INSIDE OR OUTSIDE CORNER	BAR	MARK	NO.	LENGTH	SHAPE	A- DIMENSION	
0+18.0	A	INSIDE	U	C4 E		8'-8"	┌	N.A.	
			W	C4 E		6'-4"	┌	N.A.	
			Y	C4 E		4'-11"	┌	2'-11"	
			Y	C4 E		5'-9"	┌	3'-9"	
0+26.0	B	INSIDE	U	C4 E		8'-8"	┌	N.A.	
			W	C4 E		6'-4"	┌	N.A.	
			Y	C4 E		4'-11"	┌	2'-11"	
			Y	C4 E		5'-9"	┌	3'-9"	
			U	C4 E		7'-5"	┌	5'-5"	
			U	C4 E		8'-8"	┌	N.A.	
			W	C4 E		6'-4"	┌	N.A.	
			Y	C4 E		4'-11"	┌	2'-11"	
			Y	C4 E		5'-9"	┌	3'-9"	
			Y	C4 E		7'-5"	┌	5'-5"	
			U	C4 E		8'-8"	┌	N.A.	
			W	C4 E		6'-4"	┌	N.A.	
			Y	C4 E		4'-11"	┌	2'-11"	
			Y	C4 E		5'-9"	┌	3'-9"	
			Y	C4 E		7'-5"	┌	5'-5"	
			Y	C4 E		8'-8"	┌	N.A.	

N.A. = NOT APPLICABLE



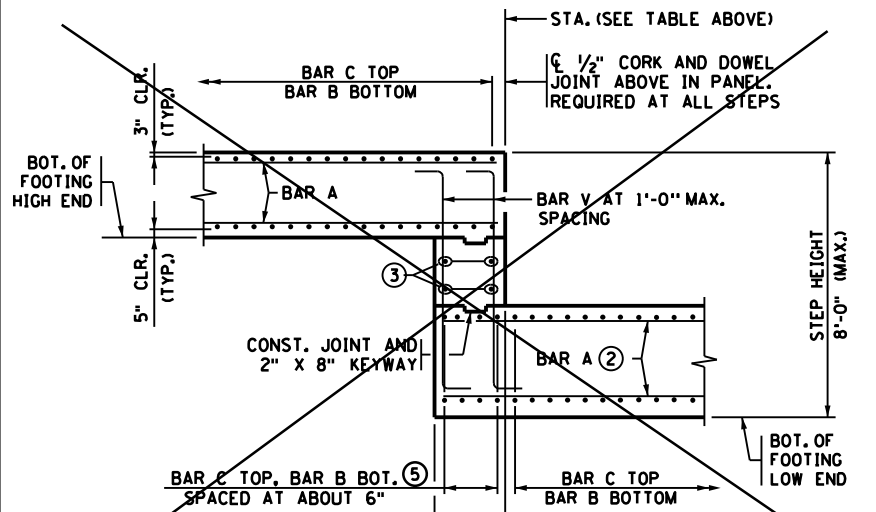
OUTSIDE 90° CORNER DETAIL - PLAN VIEW ①

INSIDE 90° CORNER DETAIL - PLAN VIEW ①⑨

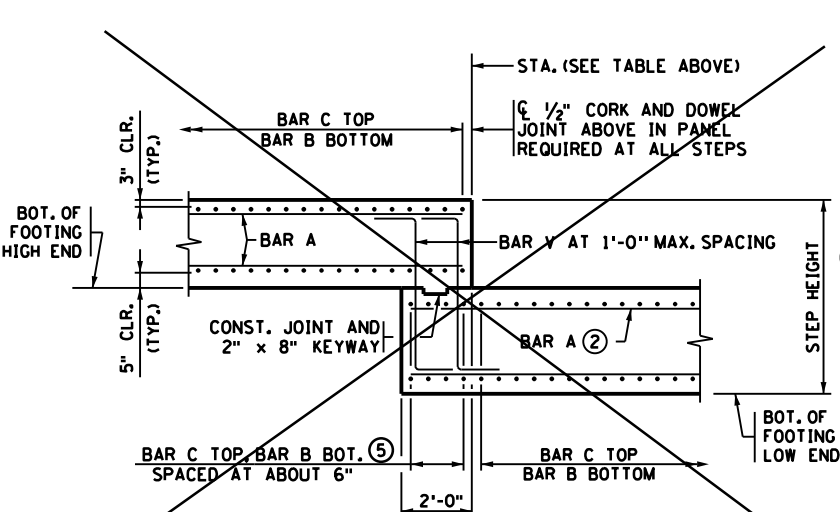
MODIFIED

NOTES:

- ADDITIONAL REINFORCING BARS, STRUCTURAL CONCRETE, AND OTHER COMPONENTS REQUIRED TO CONSTRUCT CORNERS AND STEPPED FOOTINGS ARE INCIDENTAL.
- ① CONTRACTOR IS REQUIRED TO COMPLETE THE BILL OF REINFORCEMENT TABLE AND SUBMIT TO PROJECT ENGINEER AT LEAST 3 WEEKS PRIOR TO REBAR FABRICATION.
- ② FOR THE LOWER OF THE TWO FOOTINGS AT A STEP, THE CONTRACTOR IS RESPONSIBLE FOR MODIFYING THE LENGTH OF FOOTING BAR A TO EXTEND BENEATH THE STEP OR USE SPLICED BARS.
- ③ 6 INCH MAX. SPACING. BARS TO BE SAME SIZE AND LENGTH AS BAR B OF THE LOWER FOOTING.
- ④ REFER TO DETAIL "C" AND NOTES ON STANDARD PLAN 5-297.624 (1 OF 6).
- ⑤ REFER TO TABLE LABELED "BILL OF REINFORCEMENT FOR STEPPED FOOTING DETAILS" FOR ADDITIONAL B AND C BARS IN LOWER FOOTING.
- ⑥ USE THE BAR Y LEG DIMENSION FOR THE PORTION OF STEM LOCATION INDICATED IN THE BAR BEND IN DETAIL. 0'-0" REPRESENTS TOP OF THE STEM.
- ⑦ BAR V SIZE TO MATCH BAR B. SEE PANEL TABULATIONS FOR SIZE.
- ⑧ SEE PANEL TABULATIONS FOR BAR SIZE AND LENGTH.
- ⑨ MODIFY REINFORCEMENT TO ACCOMMODATE WALL ANGLES FOR BOTTOM 2'-2 3/4" OF STEM. SEE SHEET 229 FOR REINFORCEMENT ABOVE THE BOTTOM OF CULVERT TO TOP WALL.



STEPPED FOOTING DETAIL - LONGIT. SECTION ①②

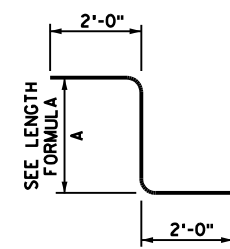


STEPPED FOOTING DETAIL - LONGIT. SECTION ①②

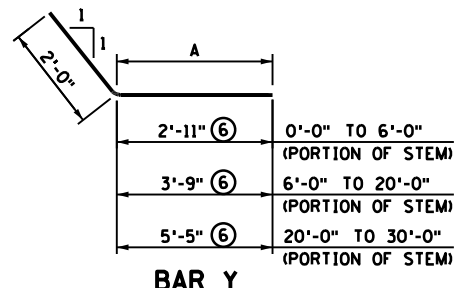
BAR V LENGTH FORMULA =
STEP HEIGHT MINUS 10"
(A-DIMENSION)

VARIABLE STEP TYPE
(SPREAD FOOTING SHOWN)

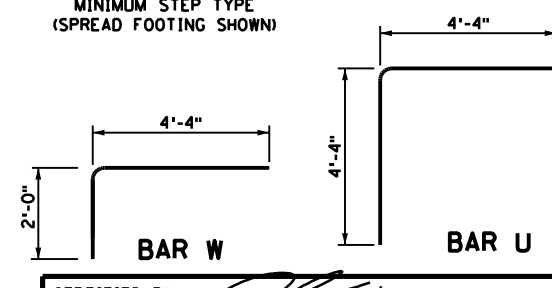
MINIMUM STEP TYPE
(SPREAD FOOTING SHOWN)



BAR V ⑦



BAR Y



BAR W

BAR U

BAR BEND DETAILS

REVISION: SEPTEMBER 1, 2016

APPROVED: AUGUST 27, 2014

Nancy Dubenberger
STATE BRIDGE ENGINEER

REVISION DATE
9-1-16

CERTIFIED BY *John D. Ekola*
LICENSED PROFESSIONAL ENGINEER
NAME: JOHN D. EKOLA
DATE: 2/28/19
LIC. NO. 53076

STANDARD SHEET NO.
5-297.624 (2 OF 6)

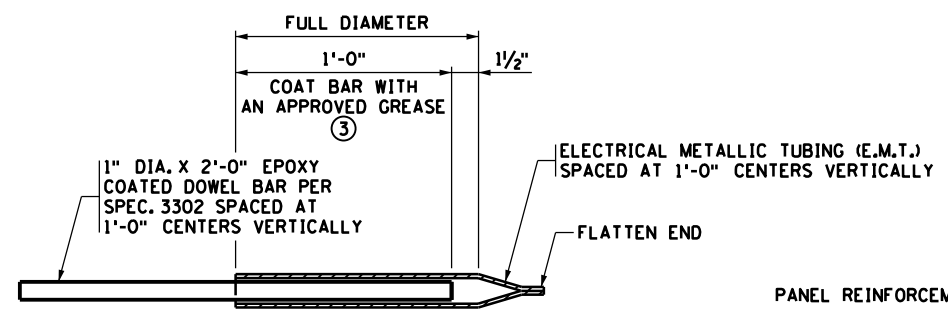
STANDARD APPROVED:
AUGUST 27, 2014

HENN. CO. PROJ. NO.0922 CSAH 81 S.P. 027-681-035, S.P. 110-020-040

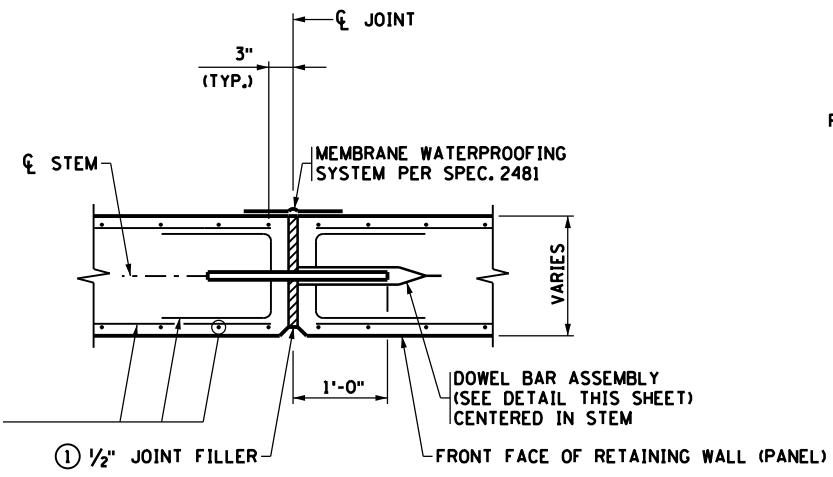
RETAINING WALL MISCELLANEOUS DETAILS

SHEET NO. 228 OF 244 SHEETS

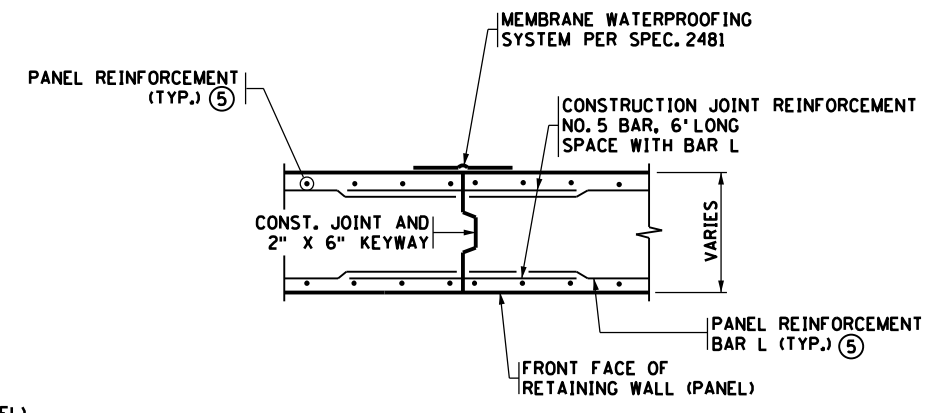
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 3/14/2019
 edg001
 Sheet 11



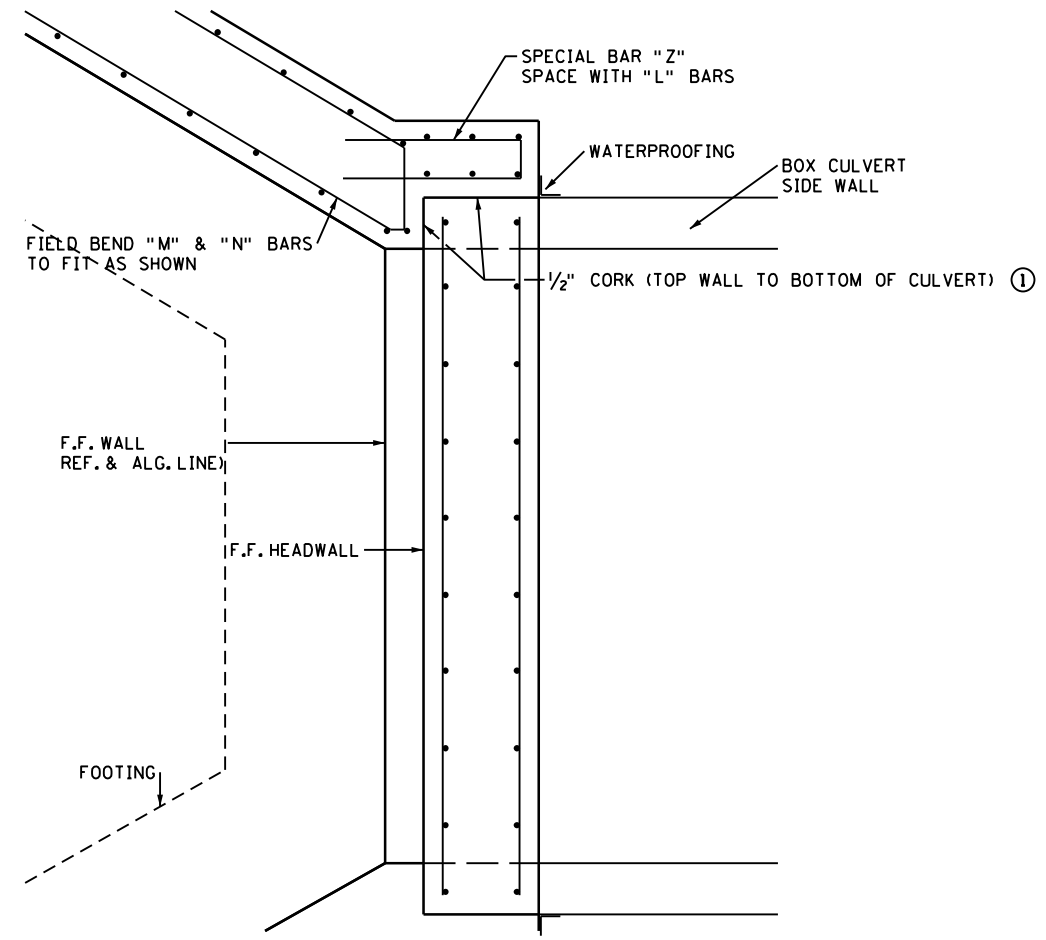
DOWEL BAR ASSEMBLY



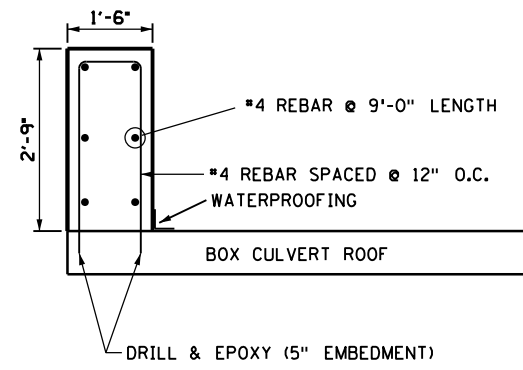
CORK AND DOWELED JOINT DETAIL
(TYPICAL SECTION THROUGH JOINT)
② ④



CONSTRUCTION JOINT DETAIL
(TYPICAL SECTION THROUGH JOINT)
② ④



REINFORCEMENT AT WALL ANGLES
(TOP WALL TO BOTTOM OF CULVERT)



REINFORCEMENT AT HEAD WALL

NOTES:

- THE MATERIALS AND PLACEMENT OF THE CORK AND DOWEL JOINT/ CONSTRUCTION JOINT (DOWEL BAR ASSEMBLIES, NO. 5 REINFORCING BARS, JOINT FILLER, AND JOINT WATERPROOFING) ARE INCIDENTAL.
- THE CONTRACTOR SHALL ASSIGN TO THE REINFORCING BAR SUPPLIER THE RESPONSIBILITY OF SUPPLYING THE NECESSARY MATERIALS ASSOCIATED WITH THE DETAILS SHOWN ON THIS SHEET.
- ① JOINT FILLER SHALL BE CORK SPEC. 2401.3.E.3.
 - ② AT THE CONTRACTOR'S OPTION, CONSTRUCTION JOINTS MAY BE SUBSTITUTED IN LIEU OF CORK AND DOWEL JOINTS. REINFORCEMENT QUANTITIES WERE COMPUTED ASSUMING A CORK AND DOWEL JOINT BETWEEN EVERY PANEL. CHANGES IN THE BILL OF REINFORCEMENT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR, AND NO ADDITIONAL PAYMENT WILL BE MADE. AT A MINIMUM, PLACE CORK AND DOWEL JOINTS EVERY 9'-6". A CORK AND DOWEL JOINT IS REQUIRED AT ALL VERTICAL FOOTING STEPS.
 - ③ GREASE SHALL BE AN APPROVED HIGH PRESSURE TYPE THAT IS EFFECTIVE OVER THE FULL RANGE OF EXPECTED TEMPERATURES AND RESISTANT TO CHEMICAL ACTION.
 - ④ DOWEL BAR ASSEMBLY MUST BE PLACED PERPENDICULAR TO JOINT AND PARALLEL TO THE WALL FACE, AND TO EACH OTHER.
 - ⑤ SEE PANEL SHEETS FOR REINFORCING DETAILS.

HENN. CO. PROJ. 0922 CSAH 81 S.P. 027-681-035, S.P. 110-020-040

REVISION: SEPTEMBER 1, 2016
 APPROVED: AUGUST 27, 2014
 Nancy D. Benbenberger
 STATE BRIDGE ENGINEER

REVISION DATE 9-1-16
 STANDARD SHEET NO. 5-297.624 (3 OF 6)
 STANDARD APPROVED: AUGUST 27, 2014
 CERTIFIED BY [Signature]
 LICENSED PROFESSIONAL ENGINEER
 NAME: JOHN D. EKOLA LIC. NO. 53076
 DATE: 2/28/19

TITLE:
 RETAINING WALL MISCELLANEOUS DETAILS

RETAINING WALL MISCELLANEOUS DETAILS

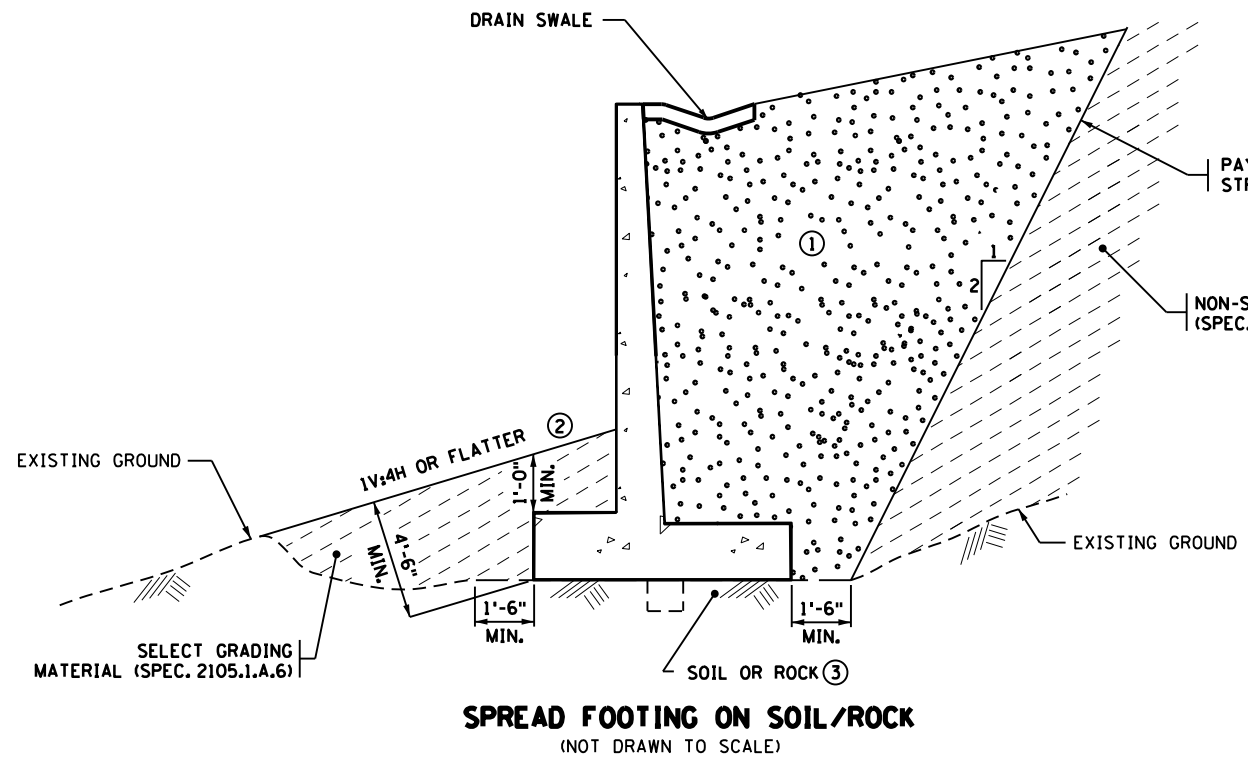
SHEET NO. 229 OF 244 SHEETS

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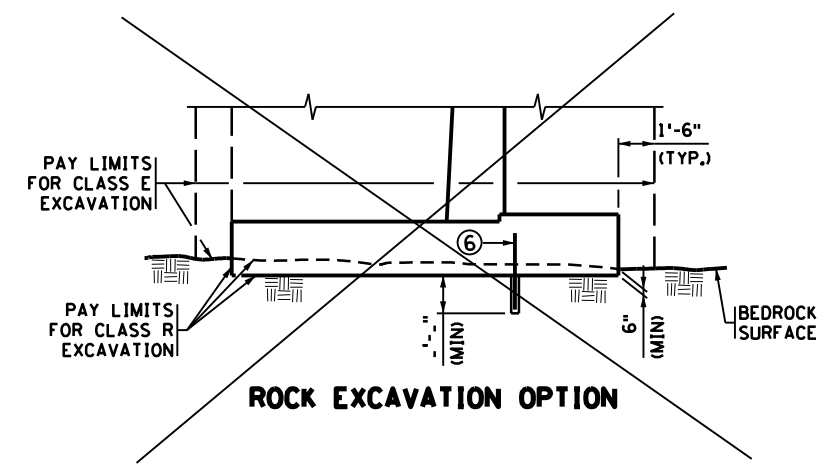
3/14/2019

edg001

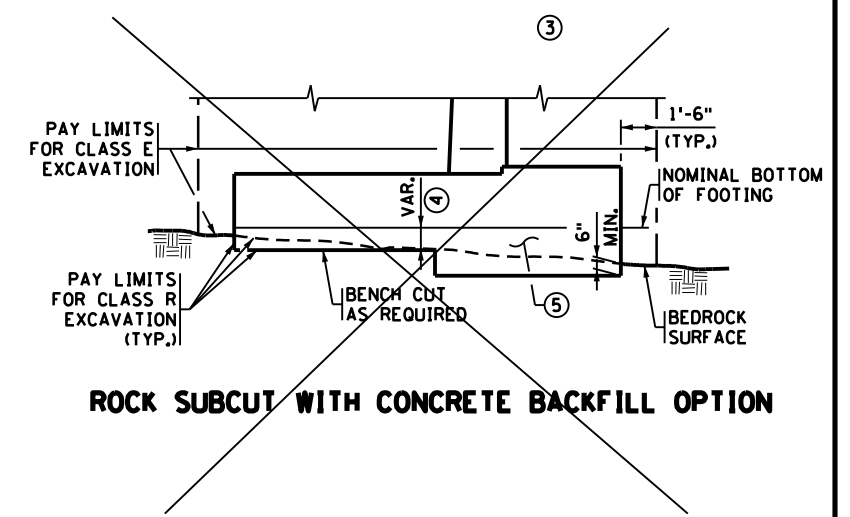
Sheet 12



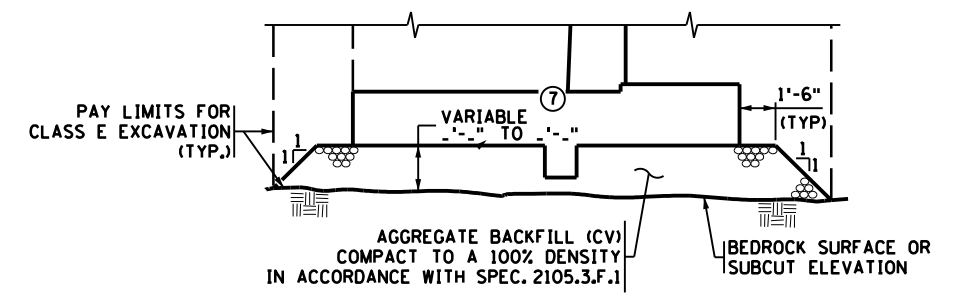
SPREAD FOOTING ON SOIL/ROCK
(NOT DRAWN TO SCALE)



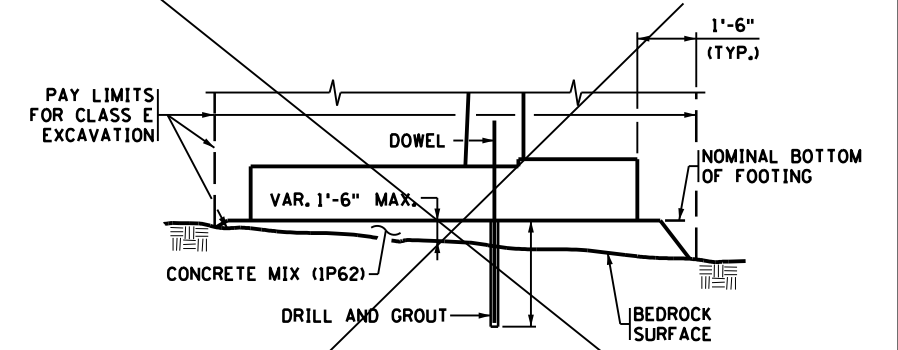
ROCK EXCAVATION OPTION



ROCK SUBCUT WITH CONCRETE BACKFILL OPTION



AGGREGATE BACKFILL OPTION



DOWEL AND LEAN CONCRETE BACKFILL OPTION

ROCK FOUNDATION OPTIONS

- ① STRUCTURAL BACKFILL (SPEC. 3149.2.D.2) COMPACT BACKFILL TO SPECIFIED DENSITY METHOD SPEC. 2105.3.F.1
- ② PROVIDE SLOPE OF 1 1/2:4H TO 1:1.5 FOR PROPER DRAINAGE.
- ③ LEVEL FOUNDATION SURFACE AND CLEAR SURFACE OF LOOSE DEBRIS BEFORE PLACING FOUNDATION DIRECTLY ON SOIL OR ROCK.
- ④ SEE SPECIAL PROVISIONS FOR PAYMENT OF ADDITIONAL CONCRETE.
- ⑤ STRUCTURAL CONCRETE (1G52) OR LEAN CONCRETE BACKFILL (1P62), AS APPROVED BY ENGINEER.
- ⑥ DRILL HOLES FOR ANCHORS TO KEY FOOTING IN ROCK.
- ⑦ MINIMUM DEPTH 1 FT. 6 INCH OR SHEAR KEY DEPTH.

HENN. CO. PROJ. NO.0922 CSAH 81 S.P.027-681-035 S.P. 110-020-040

REVISIONS:
APPROVED: FEBRUARY 16, 2016
Kevin Weston
STATE BRIDGE ENGINEER

CERTIFIED BY: *John D. Ekola* 2/28/19
LICENSED PROFESSIONAL ENGINEER DATE
NAME: JOHN D. EKOLA LIC. NO. 53076

STANDARD SHEET NO.
5-297.624 (4 OF 6)
STANDARD APPROVED:
FEBRUARY 16, 2016

TITLE:
**RETAINING WALL MISCELLANEOUS DETAILS
(GEOTECHNICAL DETAILS)**

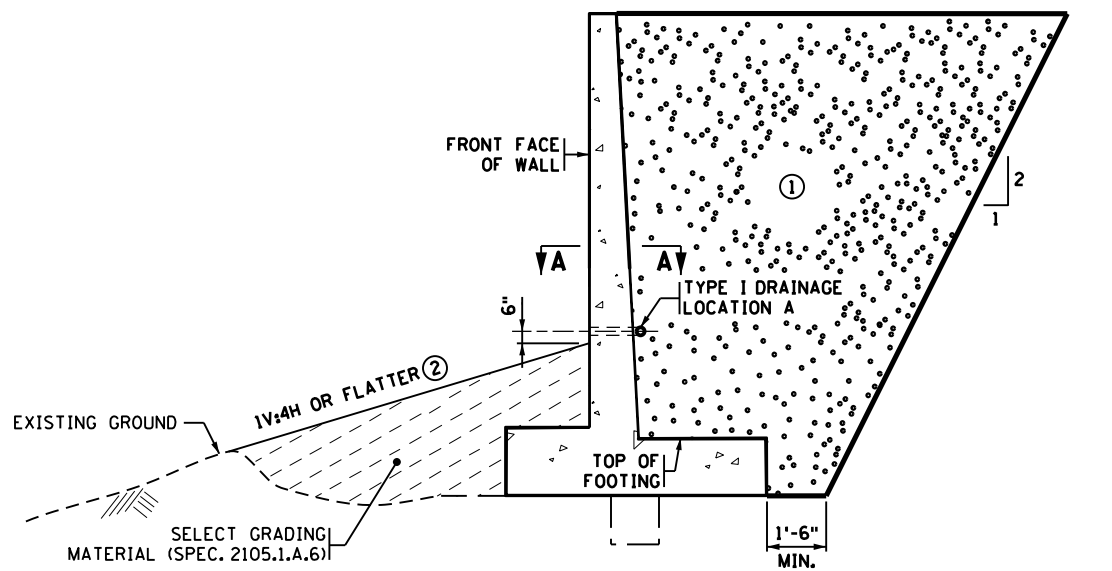
SHEET NO 230 OF 244 SHEETS

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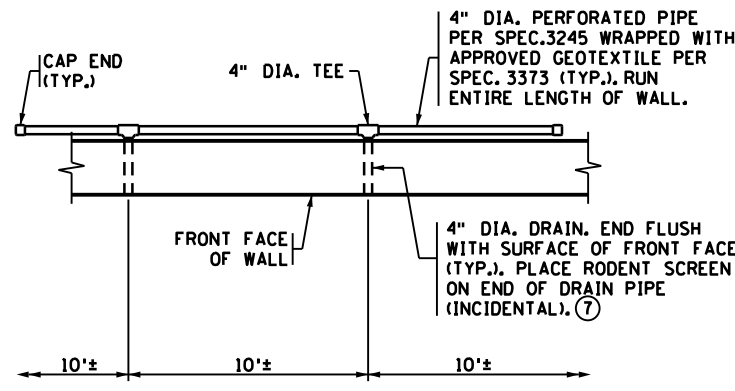
3/14/2019

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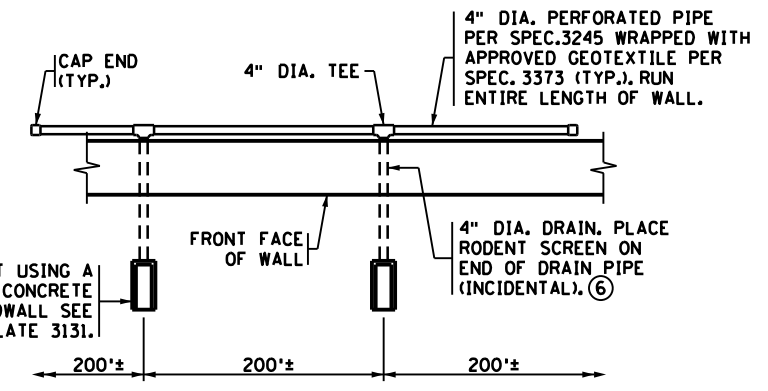
Sheet 13



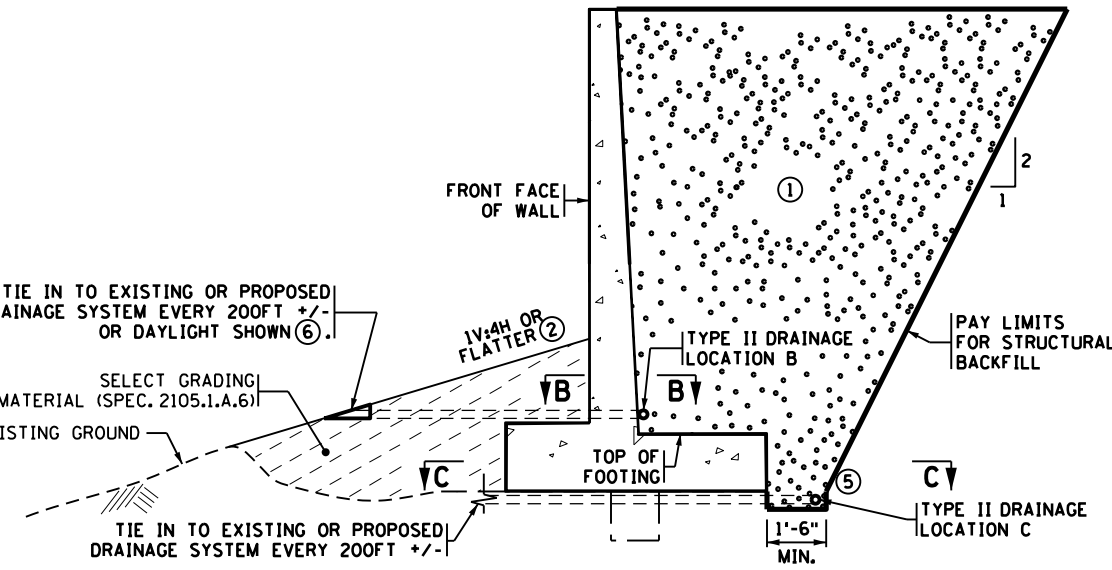
TYPICAL DRAINAGE SYSTEM DETAILS (TYPE I DRAINAGE)
(REFER TO SECTION A-A)



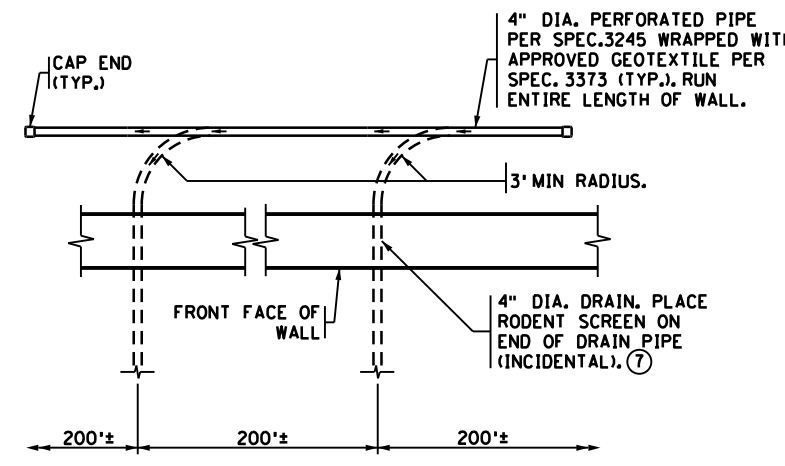
SECTION A-A
TYPE I DRAINAGE DETAIL, LOCATION A



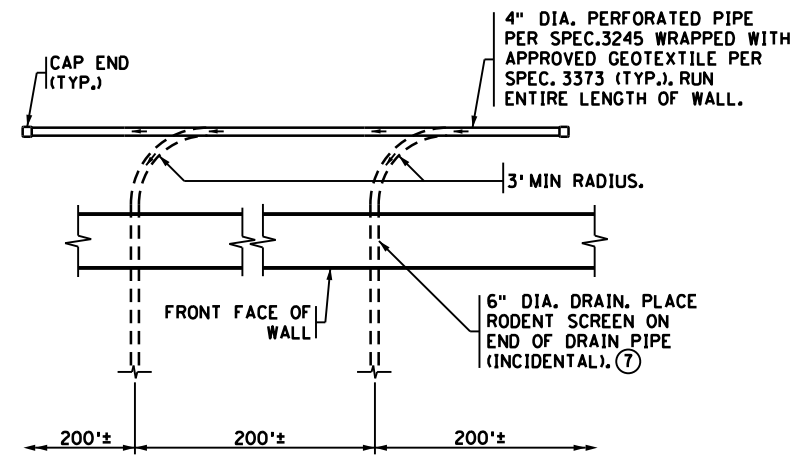
SECTION B-B
TYPE II DRAINAGE DETAIL, LOCATION B



TYPICAL DRAINAGE SYSTEM DETAILS (TYPE II DRAINAGE)
(REFER TO SECTION B-B AND C-C)



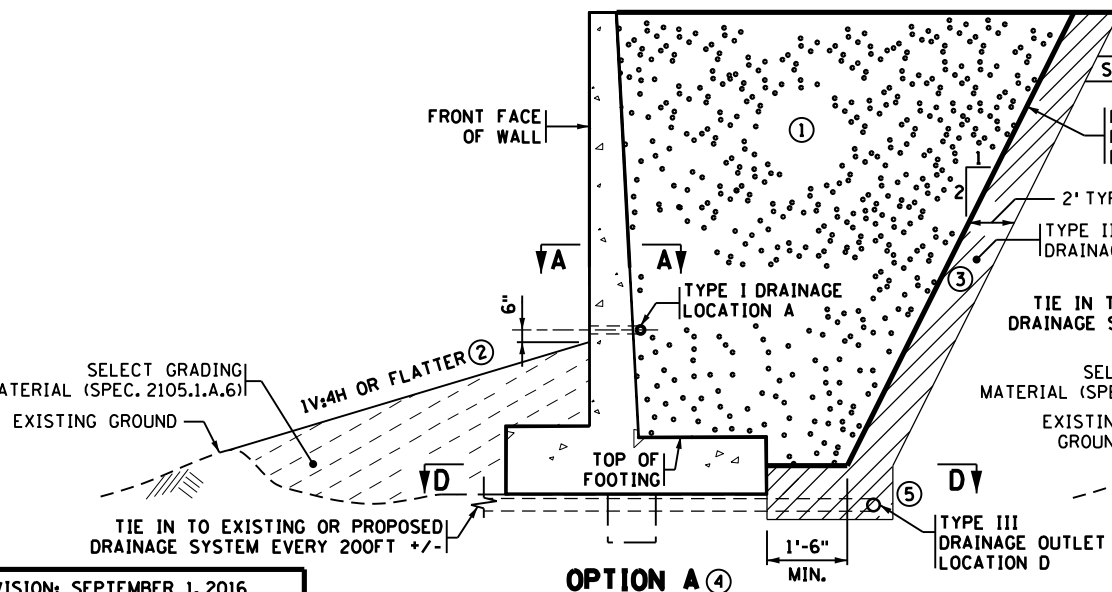
SECTION C-C
TYPE II DRAINAGE DETAIL, LOCATION C



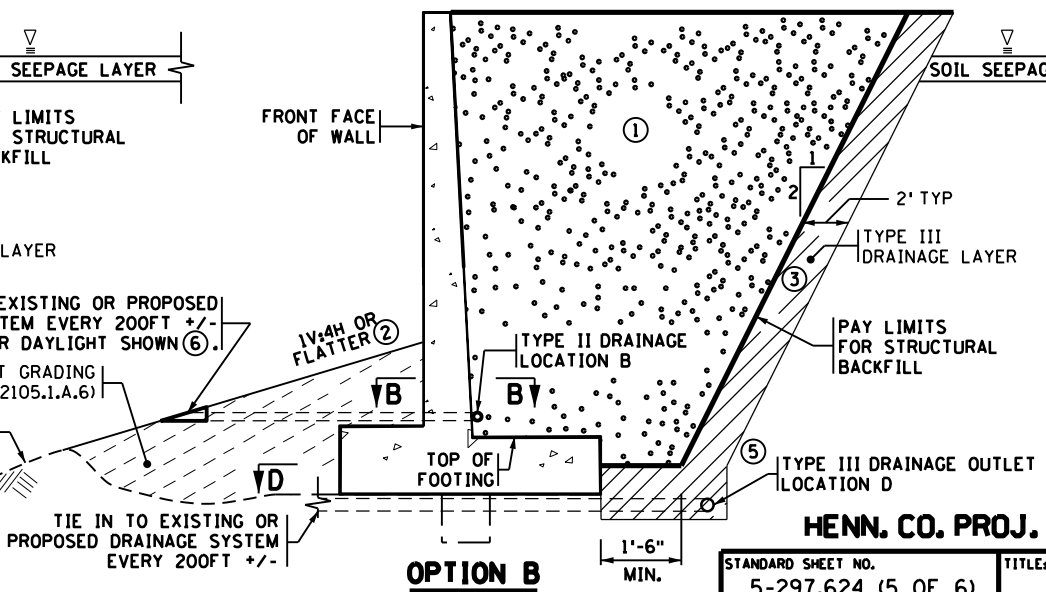
SECTION D-D
TYPE III DRAINAGE DETAIL, LOCATION D

NOTES:

- BACKFILL MATERIAL SHALL COMPLETELY SURROUND PIPE AT ALL TIMES.
- SLOPE PIPE TO ENSURE PROPER DRAINAGE AT ALL TIMES.
- DRAINAGE SYSTEM PAID BY LUMP SUM PER SPEC. 2502.
- ① STRUCTURAL BACKFILL. SEE SHEET 5-297.620. COMPACT BACKFILL TO SPECIFIED DENSITY METHOD SPEC. 2105.3.F.1.
- ② PROVIDE SLOPE OF 1V:24H TO 1V:4H FOR PROPER DRAINAGE.
- ③ TYPE III DRAINAGE LAYER TO BE FINE FILTER AGGREGATE PER SPEC. 3149.2.J.2. FINE FILTER AGGREGATE MAY BE REPLACED WITH TYPE VI DRAINAGE GEOCOMPOSITE MATERIAL.
- ④ DRAINAGE SYSTEMS INSTALLED AT LOCATION A SHALL NOT BE USED WHEN A SIDEWALK, TRAIL, OR ROADWAY IS LOCATED ADJACENT TO THE FRONT FACE OF THE WALL TO PREVENT PONDING OR ICE ACCUMULATION.
- ⑤ EXTEND STRUCTURAL BACKFILL OR FINE FILTER AGGREGATE 8" BELOW BOTTOM OF FOOTING.
- ⑥ TYPE II LOCATION B DRAINAGE MAY DAYLIGHT DIRECTLY USING PRECAST CONCRETE HEADWALLS OR BE TIED INTO DRAINAGE SYSTEM.
- ⑦ THE RODENT SCREEN SHALL BE FABRICATED FROM CARBON STEEL FLATTENED EXPANDED METAL, STYLE 1/2" NO. 4F. IT SHALL BE HOT DIPPED GALVANIZED AFTER FABRICATION.



OPTION A
(REFER TO SECTION A-A AND D-D)



OPTION B
(REFER TO SECTION B-B AND D-D)

TYPICAL DRAINAGE SYSTEM DETAILS (TYPE III DRAINAGE)

HENN. CO. PROJ. NO. 0922 CSAH 81 S.P. 027-681-035 S.P. 110-020-040

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Nancy D. Ambberger
STATE BRIDGE ENGINEER

STANDARD SHEET NO.
5-297.624 (5 OF 6)
STANDARD APPROVED:
AUGUST 27, 2014

**RETAINING WALL MISCELLANEOUS DETAILS
(GEOTECHNICAL DETAILS)**

REVISION DATE
9-1-16

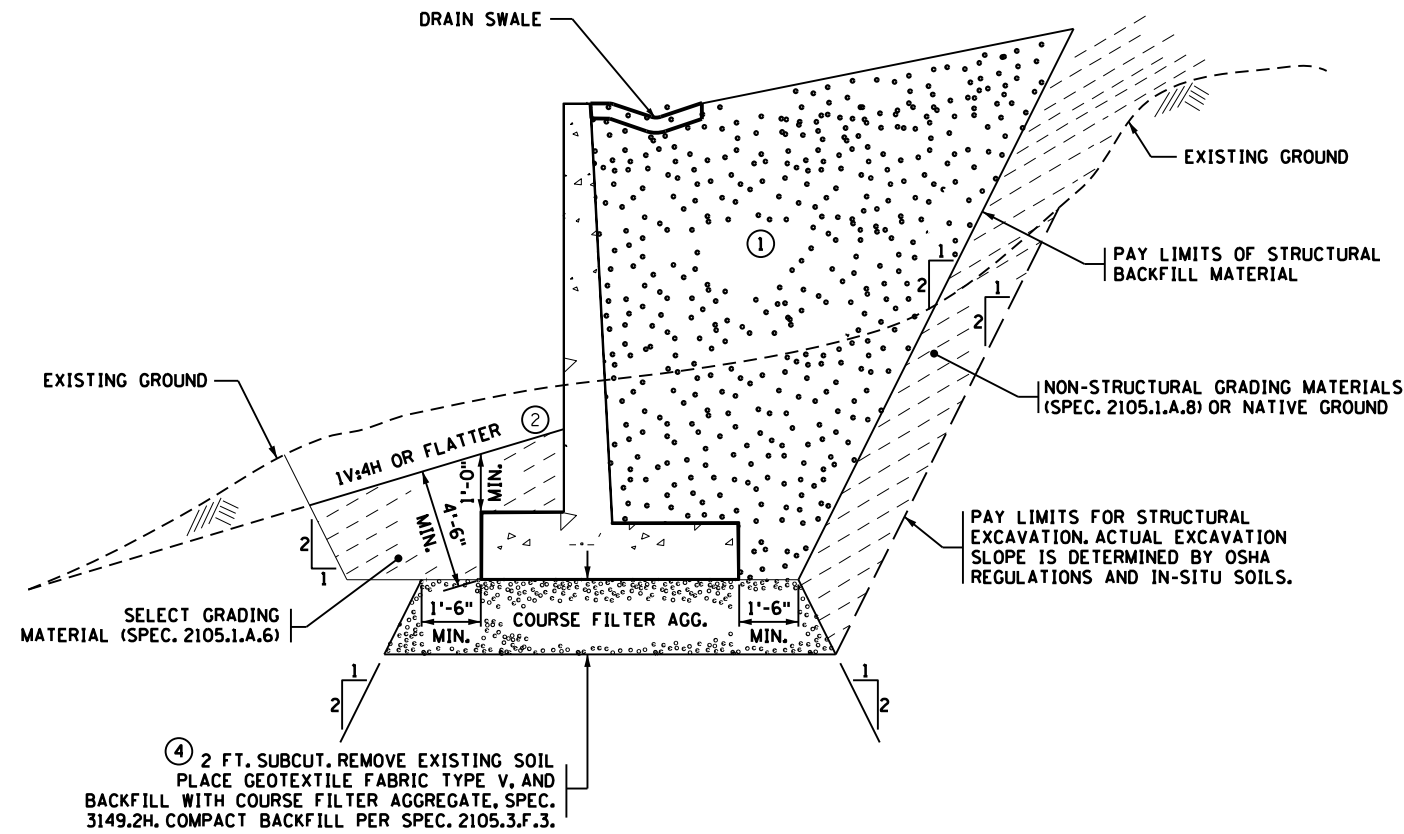
SHEET NO. 231 OF 244 SHEETS

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3/14/2019

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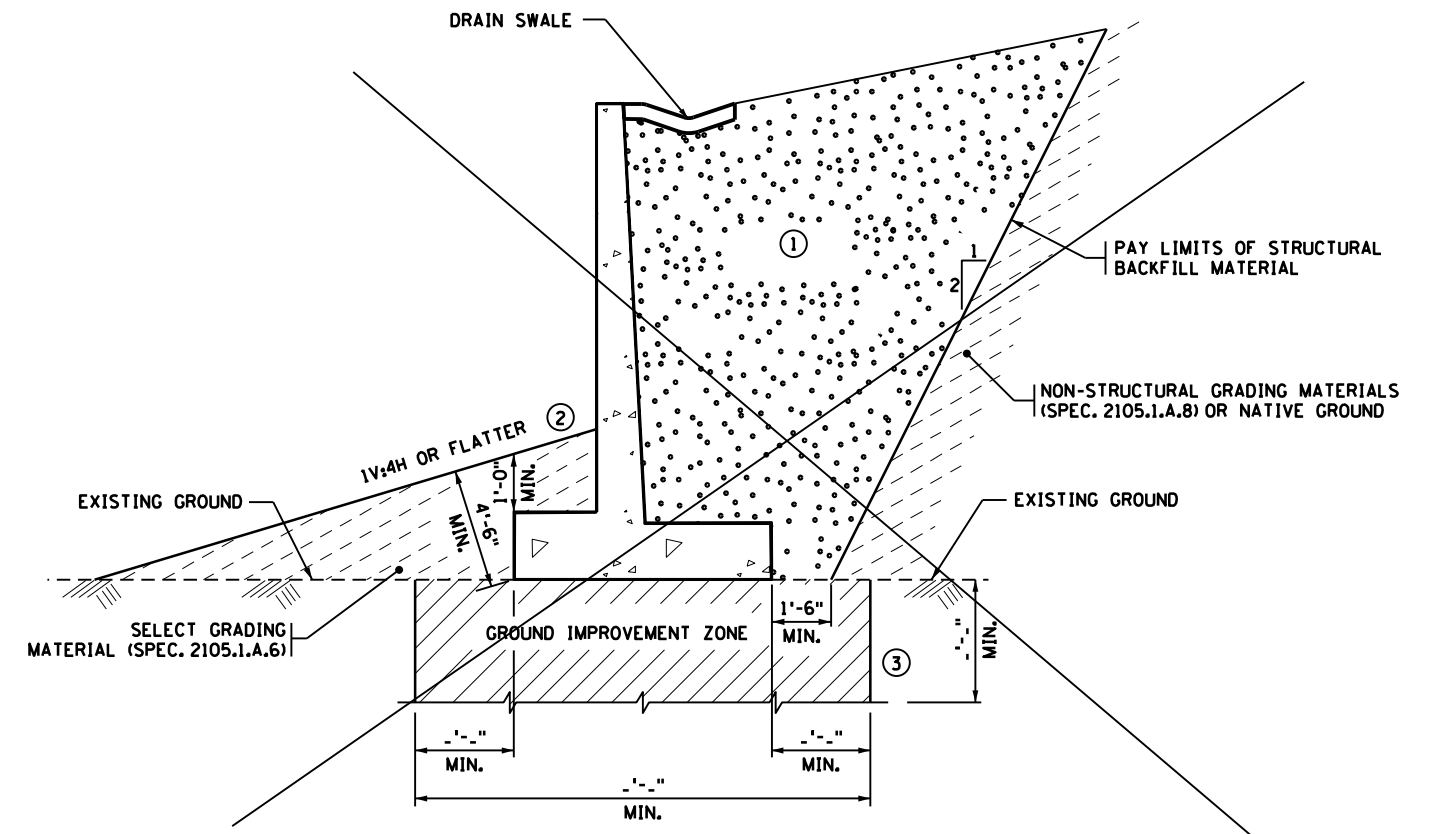
Sheet 14



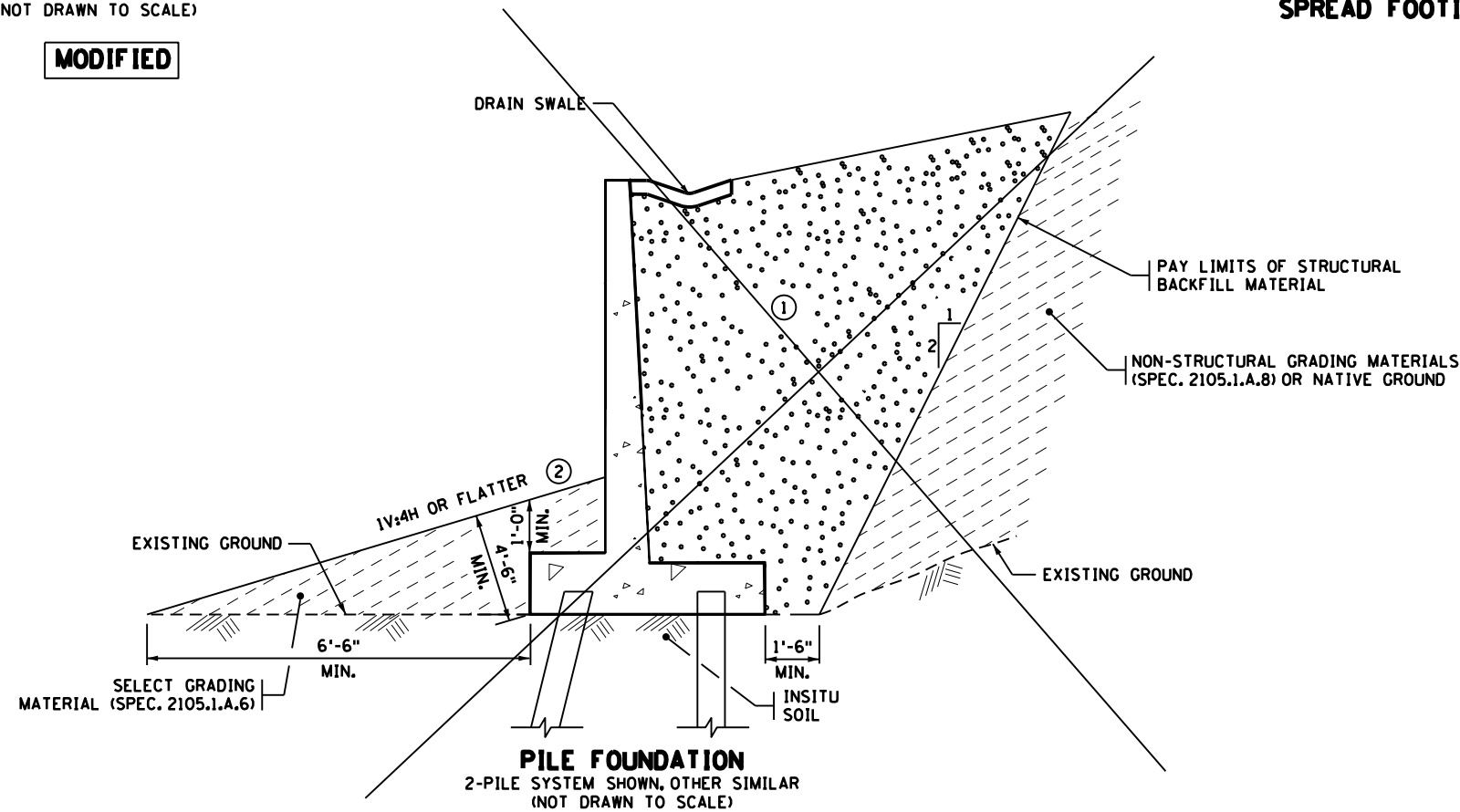
SPREAD FOOTING WITH SOIL SUBCUT
(NOT DRAWN TO SCALE)

MODIFIED

④ 2 FT. SUBCUT. REMOVE EXISTING SOIL
PLACE GEOTEXTILE FABRIC TYPE V, AND
BACKFILL WITH COURSE FILTER AGGREGATE, SPEC.
3149.2H. COMPACT BACKFILL PER SPEC. 2105.3.F.3.



SPREAD FOOTING PLACED OVER GROUND IMPROVEMENT
(NOT DRAWN TO SCALE)



PILE FOUNDATION
2-PILE SYSTEM SHOWN, OTHER SIMILAR
(NOT DRAWN TO SCALE)

- ① BACKFILL WITH STRUCTURAL BACKFILL SPEC. 3149.2.D.2 COMPACT BACKFILL PER SPEC. 2105.3.F.3.
- ② PROVIDE SLOPE OF 1V:24H TO 1V:4H FOR PROPER DRAINAGE.
- ③ PROVIDE SUFFICIENT COVERAGE AREA AND TREATMENT VOLUME TO GIVE GENERALLY UNIFORM SUPPORT TO THE FOUNDATION. IMPROVED GROUND OR SURFACE PREPARATIONS PLACED TO IMPROVE GROUND SUPPORT ARE TO BE IN IMMEDIATE CONTACT WITH THE FOOTING AND FOUNDATION MATERIAL.
- ④ USE SAME COURSE FILTER AGGREGATE AS UNDERNEATH BOX CULVERT

HENN. CO. PROJ. NO. 0922 CSAH 81 S.P. 027-681-035, S.P. 110-020-040

REVISION: SEPTEMBER 1, 2016

APPROVED: AUGUST 27, 2014

Nancy Dubenberger
STATE BRIDGE ENGINEER

REVISION DATE
9-1-16

CERTIFIED BY *[Signature]* 2/28/19
DATE

NAME: JOHN D. EKOLA LIC. NO. 53076

STANDARD SHEET NO.
5-297.624 (6 OF 6)

STANDARD APPROVED:
AUGUST 27, 2014

TITLE:

**RETAINING WALL MISCELLANEOUS DETAILS
(GEOTECHNICAL DETAILS)**

SHEET NO. 232 OF 244 SHEETS

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 3/14/2019
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 Sheet 15

BAR	MARK	NO.	LENGTH	A	LOCATION	WT-LBS	DIMENSIONS AND QUANTITIES			
h = 13' PANELS:							PANEL LENGTH = 30'-6"			
SPREAD FOOTING REINFORCEMENT							DIMENSIONS			
A	F501	20	32'-11"	STR.	LONG T & B	687	SPREAD FOOTING			
B	F502	31	8'-5"	STR.	TRANS BOT	272	b	2'-1"	e	----
C	F803	31	8'-5"	STR.	TRANS TOP	697	c	1'-5"	f	----
							d	8'-11"	g	2'-3 ³ / ₄ "
PILE FOUNDATION REINFORCEMENT							PILE FOUNDATION			
A	F801	18	35'-4"	STR.	LONG T & B	1698	b	3'-0"	d	8'-6"
B	F602	31	9'-4"	8'-0"	TRANS BOT	435	c	2'-3"	g	3'-2 ¹ / ₄ "
C	F503	31	9'-2"	8'-0"	TRANS TOP	296				
STEM							STEM			
			a	2'-0 ¹ / ₂ "	x	2'-1"				
			j	1'-7 ¹ / ₂ "	z	2'-9"				
FOOTING DOWELS & STEM REINFORCEMENT							QUANTITIES			
D	F504E	31	3'-0"	STR.	DOWEL FF	97	STRUCTURAL CONCRETE (IG52)			
E	F505E	31	8'-4"	3'-8"	DOWEL BF	269	(FOOTING)			
F	F506E	30	4'-9"	3'-8"	DOWEL BF	149	SPREAD	14.6	CU YD	
G	S401E	31	10'-2"	STR.	VERT FF	211	PILE	22.1	CU YD	
H	S502E	31	10'-2"	STR.	VERT BF	329	STRUCTURAL CONCRETE (3G52)			
J	S503E	----	----	STR.	VERT BF	----	(STEM)			
K	S504E	31	10'-8"	4'-9"	TIE	345	26.0	CU YD		
L	S405E	26	30'-0"	STR.	HORIZ EF	521	REINFORCEMENT (PLAIN)			
M	S506E	20	7'-4"	1'-4"	EXP JT TIE	153	SPREAD	1655	LB	
N	S507E	6	7'-9"	1'-9"	EXP JT TIE	48	PILE	2429	LB	
P	S508E	----	8'-2"	2'-2"	EXP JT TIE	----	REINFORCEMENT (EPOXY)			
Z	S409E	13	5'11"	0'-7"	SPECIAL TIE	52	2122	LB		

BAR	MARK	NO.	LENGTH	A	LOCATION	WT-LBS	DIMENSIONS AND QUANTITIES			
h = 14' PANELS:							PANEL LENGTH = 30'-6"			
SPREAD FOOTING REINFORCEMENT							DIMENSIONS			
A	F501	20	32'-11"	STR.	LONG T & B	687	SPREAD FOOTING			
B	F502	31	8'-5"	STR.	TRANS BOT	272	b	2'-3"	e	1'-4"
C	F803	31	8'-5"	STR.	TRANS TOP	697	c	1'-5"	f	3'-7 ¹ / ₂ "
							d	8'-11"	g	2'-5 ¹ / ₄ "
PILE FOUNDATION REINFORCEMENT							PILE FOUNDATION			
A	F801	18	35'-4"	STR.	LONG T & B	1698	b	3'-0"	d	8'-6"
B	F602	31	9'-4"	8'-0"	TRANS BOT	435	c	2'-3"	g	3'-2 ¹ / ₄ "
C	F503	31	9'-2"	8'-0"	TRANS TOP	296				
STEM							STEM			
			a	2'-1"	x	2'-1"				
			j	1'-8 ³ / ₈ "	z	3'-9"				
FOOTING DOWELS & STEM REINFORCEMENT							QUANTITIES			
D	F504E	31	3'-0"	STR.	DOWEL FF	97	STRUCTURAL CONCRETE (IG52)			
E	F505E	31	8'-5"	3'-11"	DOWEL BF	272	(FOOTING)			
F	F506E	30	7'-3"	6'-1"	DOWEL BF	227	SPREAD	16.6	CU YD	
G	S401E	31	11'-2"	STR.	VERT FF	231	PILE	22.1	CU YD	
H	S502E	31	11'-2"	STR.	VERT BF	361	STRUCTURAL CONCRETE (3G52)			
J	S503E	----	----	STR.	VERT BF	----	(STEM)			
K	S504E	31	10'-8"	4'-9"	TIE	345	28.3	CU YD		
L	S405E	28	30'-0"	STR.	HORIZ EF	561	REINFORCEMENT (PLAIN)			
M	S506E	20	7'-4"	1'-4"	EXP JT TIE	153	SPREAD	1655	LB	
N	S507E	8	7'-9"	1'-9"	EXP JT TIE	65	PILE	2429	LB	
P	S508E	----	8'-2"	2'-2"	EXP JT TIE	----	REINFORCEMENT (EPOXY)			
							2312	LB		

BAR	MARK	NO.	LENGTH	A	LOCATION	WT-LBS	DIMENSIONS AND QUANTITIES			
h = 15' PANELS:							PANEL LENGTH = 30'-6"			
SPREAD FOOTING REINFORCEMENT							DIMENSIONS			
A	F501	20	32'-11"	STR.	LONG T & B	687	SPREAD FOOTING			
B	F502	31	8'-5"	STR.	TRANS BOT	272	b	2'-6"	e	1'-4"
C	F803	31	8'-5"	STR.	TRANS TOP	697	c	1'-5"	f	3'-11"
							d	8'-11"	g	2'-8 ¹ / ₄ "
PILE FOUNDATION REINFORCEMENT							PILE FOUNDATION			
A	F801	26	35'-4"	STR.	LONG T & B	2453	b	4'-9"	d	12'-0"
B	F802	31	13'-4"	11'-6"	TRANS BOT	1104	c	2'-6"	g	4'-11 ³ / ₈ "
C	F703	31	13'-2"	11'-6"	TRANS TOP	834				
STEM							STEM			
			a	2'-1 ¹ / ₂ "	x	2'-1"				
			j	1'-8 ³ / ₈ "	z	4'-4"				
FOOTING DOWELS & STEM REINFORCEMENT							QUANTITIES			
D	F504E	31	3'-0"	STR.	DOWEL FF	97	STRUCTURAL CONCRETE (IG52)			
E	F505E	31	10'-5"	4'-2"	DOWEL BF	337	(FOOTING)			
F	F606E	30	7'-11"	6'-8"	DOWEL BF	357	SPREAD	16.7	CU YD	
G	S401E	31	12'-2"	STR.	VERT FF	252	PILE	34.6	CU YD	
H	S502E	31	12'-2"	STR.	VERT BF	393	STRUCTURAL CONCRETE (3G52)			
J	S503E	----	----	STR.	VERT BF	----	(STEM)			
K	S504E	31	10'-8"	4'-9"	TIE	345	30.7	CU YD		
L	S405E	30	30'-0"	STR.	HORIZ EF	601	REINFORCEMENT (PLAIN)			
M	S506E	20	7'-4"	1'-4"	EXP JT TIE	153	SPREAD	1655	LB	
N	S507E	10	7'-9"	1'-9"	EXP JT TIE	81	PILE	4391	LB	
P	S508E	----	8'-2"	2'-2"	EXP JT TIE	----	REINFORCEMENT (EPOXY)			
							2616	LB		

BAR	MARK	NO.	LENGTH	A	LOCATION	WT-LBS	DIMENSIONS AND QUANTITIES			
h = 16' PANELS:							PANEL LENGTH = 30'-6"			
SPREAD FOOTING REINFORCEMENT							DIMENSIONS			
A	F501	20	32'-11"	STR.	LONG T & B	687	SPREAD FOOTING			
B	F502	31	8'-5"	STR.	TRANS BOT	272	b	2'-9"	e	1'-4"
C	F803	31	8'-5"	STR.	TRANS TOP	697	c	1'-5"	f	4'-2 ¹ / ₄ "
							d	8'-11"	g	2'-11 ¹ / ₄ "
PILE FOUNDATION REINFORCEMENT							PILE FOUNDATION			
A	F801	26	35'-4"	STR.	LONG T & B	2453	b	4'-9"	d	12'-0"
B	F802	31	13'-4"	11'-6"	TRANS BOT	1104	c	2'-6"	g	4'-11 ³ / ₈ "
C	F703	31	13'-2"	11'-6"	TRANS TOP	834				
STEM							STEM			
			a	2'-2"	x	2'-1"				
			j	1'-9 ³ / ₈ "	z	5'-3"				
FOOTING DOWELS & STEM REINFORCEMENT							QUANTITIES			
D	F504E	31	3'-0"	STR.	DOWEL FF	97	STRUCTURAL CONCRETE (IG52)			
E	F505E	31	10'-6"	4'-6"	DOWEL BF	339	(FOOTING)			
F	F706E	30	9'-0"	7'-7"	DOWEL BF	552	SPREAD	16.7	CU YD	
G	S401E	31	13'-2"	STR.	VERT FF	273	PILE	34.6	CU YD	
H	S502E	31	13'-2"	STR.	VERT BF	426	STRUCTURAL CONCRETE (3G52)			
J	S503E	----	----	STR.	VERT BF	----	(STEM)			
K	S504E	31	10'-8"	4'-9"	TIE	345	33.1	CU YD		
L	S405E	32	30'-6"	STR.	HORIZ EF	641	REINFORCEMENT (PLAIN)			
M	S506E	20	7'-4"	1'-4"	EXP JT TIE	153	SPREAD	1655	LB	
N	S507E	12	7'-9"	1'-9"	EXP JT TIE	97	PILE	4391	LB	
P	S508E	----	8'-2"	2'-2"	EXP JT TIE	----	REINFORCEMENT (EPOXY)			
							2923	LB		

BAR	MARK	NO.	LENGTH	A	LOCATION	WT-LBS	DIMENSIONS AND QUANTITIES			
h = 17' PANELS:							PANEL LENGTH = 30'-6"			
SPREAD FOOTING REINFORCEMENT							DIMENSIONS			
A	F501	20	32'-11"	STR.	LONG T & B	687	SPREAD FOOTING			
B	F502	31	8'-8"	STR.	TRANS BOT	280	b	3'-0"	e	1'-6"
C	F903	31	8'-8"	STR.	TRANS TOP	913	c	1'-7"	f	4'-6"
							d	9'-2"	g	3'-2 ¹ / ₄ "
PILE FOUNDATION REINFORCEMENT							PILE FOUNDATION			
A	F801	26	35'-4"	STR.	LONG T & B	2453	b	4'-9"	d	12'-0"
B	F802	31	13'-4"	11'-6"	TRANS BOT	1104	c	2'-6"	g	4'-11 ³ / ₈ "
C	F703	31	13'-2"	11'-6"	TRANS TOP	834				
STEM							STEM			
			a	2'-2 ¹ / ₂ "	x	2'-10"				
			j	1'-9 ³ / ₈ "	z	6'-3"				
FOOTING DOWELS & STEM REINFORCEMENT							QUANTITIES			
D	F504E	31	3'-0"	STR.	DOWEL FF	97	STRUCTURAL CONCRETE (IG52)			
E	F605E	31	11'-3"	4'-10"	DOWEL BF	524	(FOOTING)			
F	F706E	30	10'-4"	8'-11"	DOWEL BF	634	SPREAD	19.4	CU YD	
G	S401E	31	14'-2"	STR.	VERT FF	293	PILE	34.6	CU YD	
H	S502E	31	14'-2"	STR.	VERT BF	458	STRUCTURAL CONCRETE (3G52)			
J	S503E	----	----	STR.	VERT BF	----	(STEM)			
K	S504E	31	10'-8"	4'-9"	TIE	345	35.6	CU YD		
L	S405E	34	30'-0"	STR.	HORIZ EF	681	REINFORCEMENT (PLAIN)			
M	S506E	20	7'-4"	1'-4"	EXP JT TIE	153	SPREAD	1880	LB	
N	S507E	14	7'-9"	1'-9"	EXP JT TIE	113	PILE	4391	LB	
P	S508E	----	8'-2"	2'-2"	EXP JT TIE	----	REINFORCEMENT (EPOXY)			
							3298	LB		

BAR	MARK	NO.	LENGTH	A	LOCATION	WT-LBS	DIMENSIONS AND QUANTITIES			
h = 18' PANELS:							PANEL LENGTH = 30'-6"			
SPREAD FOOTING REINFORCEMENT							DIMENSIONS			
A	F501	20	32'-11"	STR.	LONG T & B	687	SPREAD FOOTING			
B	F602	31	9'-0"	STR.	TRANS BOT	419	b	3'-6"	e	2'-0"
C	F903	31	9'-0"	STR.	TRANS TOP	949	c	1'-7"	f	5'-0 ¹ / ₂ "
							d	9'-6"	g	3'-8 ¹ / ₄ "
PILE FOUNDATION REINFORCEMENT							PILE FOUNDATION			
A	F801	26	35'-4"	STR.	LONG T & B	2453	b	4'-9"	d	12'-0"
B	F802	31	13'-4"	11'-6"	TRANS BOT	1104	c	2'-6"	g	4'-11 ³ / ₈ "
C	F703	31	13'-2"	11'-6"	TRANS TOP	834				
STEM							STEM			
			a	2'-3"	x	3'-4"				
			j	1'-10 ³ / ₈ "	z	8'-9"				
FOOTING DOWELS & STEM REINFORCEMENT							QUANTITIES			
D	F504E	31	3'-0"	STR.	DOWEL FF	97	STRUCTURAL CONCRETE (IG52)			
E	F605E	31	11'-10"	5'-4"	DOWEL BF	551	(FOOTING)			
F	F706E	30	13'-4"	11'-11"	DOWEL BF	818	SPREAD	22.0	CU YD	
G	S401E	31	15'-2"	STR.	VERT FF	314	PILE	34.6	CU YD	
H	S502E	31	15'-2"	STR.	VERT BF	490	STRUCTURAL CONCRETE (3G52)			
J	S503E	----	----	STR.	VERT BF	----	(STEM)			
K	S504E	31	10'-8"	4'-9"	TIE	345	38.1	CU YD		
L	S405E	36	30'-0"	STR.	HORIZ EF	721	REINFORCEMENT (PLAIN)			
M	S506E	20	7'-4"	1'-4"	EXP JT TIE	153	SPREAD	2054	LB	
N	S507E	16	7'-9"	1'-9"	EXP JT TIE	129	PILE	4391	LB	
P	S508E	----	8'-2"	2'-2"	EXP JT TIE	----	REINFORCEMENT (EPOXY)			
							3619	LB		

BAR	MARK	NO.	LENGTH	A	LOCATION	WT-LBS	DIMENSIONS AND QUANTITIES			
h = 19' PANELS:							PANEL LENGTH = 30'-6"			
SPREAD FOOTING REINFORCEMENT							DIMENSIONS			
A	F501	22	32'-11"	STR.	LONG T & B	755	SPREAD FOOTING			
B	F502	31	9'-7"	STR.	TRANS BOT	310	b	3'-9"	e	2'-2"
C	F903	31	9'-7"	STR.	TRANS TOP	1010	c	1'-9"	f	5'-4"
							d	10'-1"	g	3'-11 ¹ /

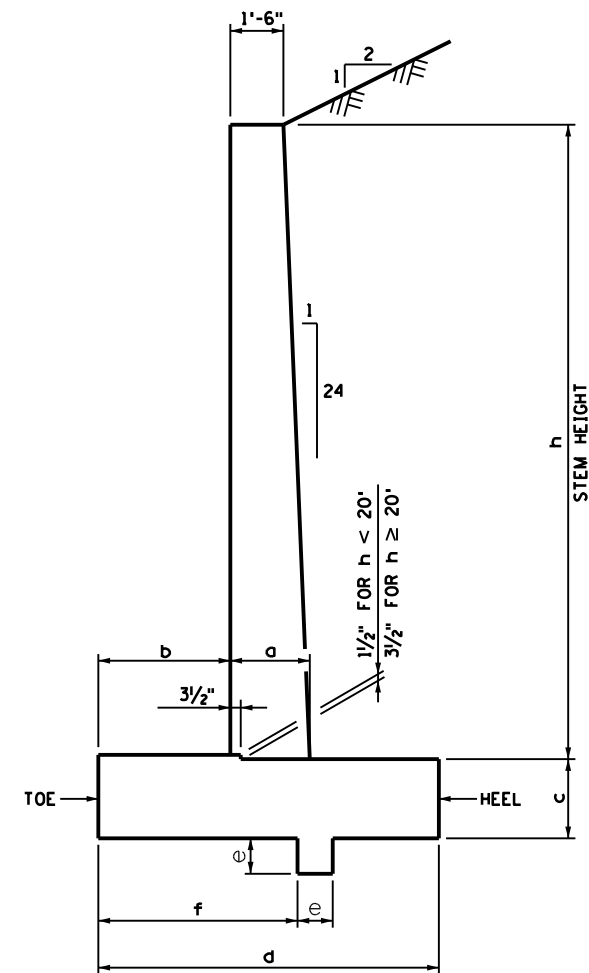
SPREAD FOOTING DIMENSIONS AND SOIL STRESSES
1(V) : 2(H) SLOPED FILL

SHORT WALL (5'-10')
 MEDIUM WALL (11'-18')
 TALL WALL (19'-27')

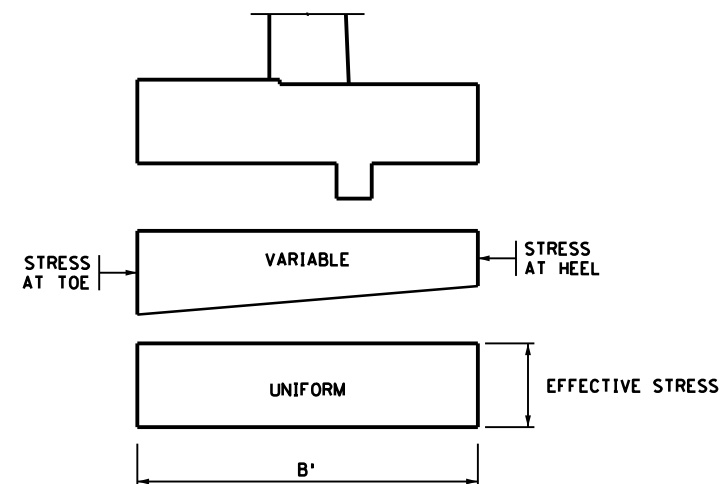
WALL GEOMETRICS AND DATA - SPREAD FOOTING							QUANTITIES PER FOOT - SPREAD FOOTING				WALL DETAILING SCHEME	EQUIVALENT UNIFORM BEARING STRESS				EQUIVALENT VARIABLE (TRAPEZOIDAL) BEARING STRESS	
STEM HEIGHT DIM. h	STEM WIDTH DIM. a	TOE WIDTH DIM. b	FOOTING THICKNESS DIM. c	FOOTING WIDTH DIM. d	SHEAR KEY SIZE DIM. e	SHEAR KEY LOCATION DIM. f	STRUCTURAL CONCRETE		REINFORCEMENT			SERVICE STRENGTH		STRENGTH		STRESS AT TOE KSF	STRESS AT HEEL KSF
							1G52 FOOTING (CU. YD.)	3G52 STEM (CU. YD.)	PLAIN (POUND)	EPOXY (POUND)		EFFECTIVE WIDTH B'	EFFECTIVE STRESS KSF	EFFECTIVE WIDTH B'	EFFECTIVE STRESS KSF		
5	1'-8 1/2"	9"	1'-5"	3'-3"	N.A.	N.A.	0.18	0.30	14.9	31.1	SHORT	2'-4 5/8"	1.33	1'-10 3/4"	1.85	2.46	0.10
6	1'-9"	11"	1'-5"	3'-8"	N.A.	N.A.	0.20	0.36	15.7	34.7	SHORT	2'-7 5/8"	1.53	2'-0 1/2"	2.14	2.86	0.03
7	1'-9 1/2"	1'-1"	1'-5"	4'-5"	N.A.	N.A.	0.24	0.43	19.6	39.0	SHORT	3'-3 1/2"	1.63	2'-7 1/2"	2.28	3.03	0.19
8	1'-10"	1'-3"	1'-5"	5'-2"	N.A.	N.A.	0.28	0.49	23.4	42.5	SHORT	3'-11 1/2"	1.75	3'-2 3/8"	2.43	3.21	0.34
9	1'-10 1/2"	1'-5"	1'-5"	5'-11"	N.A.	N.A.	0.32	0.56	27.2	46.1	SHORT	4'-7 3/4"	1.86	3'-9 7/8"	2.59	3.40	0.49
10	1'-11"	1'-7"	1'-5"	6'-8"	N.A.	N.A.	0.36	0.63	28.8	52.2	SHORT	5'-3 3/8"	1.99	4'-5 1/8"	2.76	3.59	0.64
11	1'-11 1/2"	1'-9"	1'-5"	7'-5"	N.A.	N.A.	0.40	0.70	35.9	61.5	MEDIUM	6'-0 1/8"	2.11	5'-0 1/2"	2.93	3.79	0.78
12	2'-0"	1'-11"	1'-5"	8'-2"	N.A.	N.A.	0.44	0.78	44.3	65.2	MEDIUM	6'-8 1/2"	2.24	5'-7 7/8"	3.11	4.00	0.92
13	2'-0 1/2"	2'-1"	1'-5"	8'-11"	N.A.	N.A.	0.48	0.85	54.3	69.5	MEDIUM	7'-4 1/8"	2.36	6'-3 1/4"	3.29	4.20	1.07
14	2'-1"	2'-3"	1'-5"	8'-11"	1'-4"	3'-7 1/2"	0.55	0.93	54.3	75.7	MEDIUM	7'-1 7/8"	2.61	5'-10 1/2"	3.65	4.76	0.86
15	2'-1 1/2"	2'-6"	1'-5"	8'-11"	1'-4"	3'-11"	0.55	1.01	54.3	85.7	MEDIUM	6'-10 5/8"	2.81	5'-5 1/4"	3.98	5.26	0.58
16	2'-2"	2'-9"	1'-5"	8'-11"	1'-4"	4'-2 1/2"	0.55	1.09	54.3	95.7	MEDIUM	6'-7 1/8"	3.05	4'-11 3/8"	4.36	5.81	0.24
17	2'-2 1/2"	3'-0"	1'-7"	9'-2"	1'-6"	4'-6"	0.64	1.17	61.6	108.0	MEDIUM	6'-6 3/4"	3.30	4'-8 7/8"	4.83	6.44	0.00
18	2'-3"	3'-6"	1'-7"	9'-6"	2'-0"	5'-0 1/2"	0.72	1.25	67.4	118.5	MEDIUM	6'-10 3/8"	3.35	4'-10 1/2"	4.98	6.65	0.00
19	2'-3 1/2"	3'-9"	1'-9"	10'-1"	2'-2"	5'-4"	0.85	1.33	68.0	136.3	TALL	7'-3 3/8"	3.51	5'-2 1/4"	5.24	6.99	0.00
20	2'-4"	4'-0"	1'-9"	10'-7"	2'-6"	5'-7 1/2"	0.96	1.42	75.0	151.7	TALL	7'-8 3/4"	3.63	5'-6"	5.42	7.23	0.00
21	2'-4 1/2"	4'-4"	1'-9"	11'-1"	2'-6"	6'-0"	1.00	1.50	79.7	160.8	TALL	8'-1 1/2"	3.71	5'-9"	5.57	7.43	0.00
22	2'-5"	4'-8"	1'-11"	11'-8"	2'-6"	6'-4 1/2"	1.11	1.59	82.7	180.0	TALL	8'-6 3/4"	3.84	6'-0 1/2"	5.78	7.71	0.00
23	2'-5 1/2"	5'-0"	2'-0"	12'-4"	2'-6"	6'-9"	1.20	1.68	99.1	210.3	TALL	9'-2"	3.91	6'-6 1/4"	5.85	7.80	0.00
24	2'-6"	5'-4"	2'-2"	12'-10"	2'-6"	7'-1 1/2"	1.32	1.77	111.0	233.9	TALL	9'-5 5/8"	4.06	6'-8"	6.14	8.19	0.00
25	2'-6 1/2"	5'-8"	2'-3"	13'-4"	2'-6"	7'-6"	1.41	1.87	114.3	266.3	TALL	9'-9 3/4"	4.17	6'-10 3/8"	6.37	8.50	0.00
26	2'-7"	6'-0"	2'-5"	13'-11"	2'-6"	7'-10 1/2"	1.55	1.96	120.3	302.3	TALL	10'-3"	4.30	7'-1 3/4"	6.59	8.79	0.00
27	2'-7 1/2"	6'-4"	2'-6"	14'-6"	2'-6"	8'-3"	1.65	2.06	109.9	371.1	TALL	10'-8 3/4"	4.39	7'-5 7/8"	6.74	8.98	0.00

N.A. = NOT APPLICABLE

NOTE:
 EPOXY REINFORCEMENT QUANTITY ASSUMES A CORK AND DOWEL JOINT IS USED ON BOTH PANEL ENDS.
 THE QUANTITY MUST BE ADJUSTED WHEN CONSTRUCTION JOINTS ARE USED.



TYPICAL SECTION



BEARING STRESS
 (SEE TABLE ABOVE)

STEM HEIGHT h	REINFORCEMENT - SPREAD FOOTING			
	STEM DOWEL SIZE AND SPACING	FOOTING		
		TOE (BOTTOM TRANSVERSE)	HEEL (TOP TRANSVERSE)	LONGITUDINAL (TOP AND BOT.)
	BAR SIZE & SPA.	BAR SIZE & SPA.	BAR SIZE & SPA.	
5	5 @ 12"	5 @ 12"	5 @ 12"	5 @ 12"
6	5 @ 12"	5 @ 12"	5 @ 12"	5 @ 12"
7	5 @ 12"	5 @ 12"	5 @ 12"	5 @ 12"
8	5 @ 12"	5 @ 12"	5 @ 12"	5 @ 12"
9	5 @ 12"	5 @ 12"	5 @ 12"	5 @ 12"
10	5 @ 12"	5 @ 12"	5 @ 12"	5 @ 12"
11	5 @ 12"	5 @ 12"	6 @ 12"	5 @ 12"
12	5 @ 12"	5 @ 12"	7 @ 12"	5 @ 12"
13	5 @ 12"	5 @ 12"	8 @ 12"	5 @ 12"
14	5 @ 12"	5 @ 12"	8 @ 12"	5 @ 12"
15	5 @ 12"	5 @ 12"	8 @ 12"	5 @ 12"
16	5 @ 12"	5 @ 12"	8 @ 12"	5 @ 12"
17	6 @ 12"	5 @ 12"	9 @ 12"	5 @ 12"
18	6 @ 12"	6 @ 12"	9 @ 12"	5 @ 12"
19	7 @ 12"	6 @ 12"	9 @ 12"	5 @ 12"
20	7 @ 12"	6 @ 12"	9 @ 12"	5 @ 12"
21	7 @ 12"	6 @ 12"	9 @ 12"	5 @ 12"
22	8 @ 12"	6 @ 12"	9 @ 12"	5 @ 12"
23	8 @ 12"	6 @ 12"	10 @ 12"	5 @ 12"
24	8 @ 12"	7 @ 12"	10 @ 12"	5 @ 12"
25	9 @ 12"	7 @ 12"	10 @ 12"	5 @ 12"
26	10 @ 12"	7 @ 12"	10 @ 12"	5 @ 12"
27	11 @ 12"	5 @ 12"	10 @ 12"	5 @ 12"

HENN. CO. PROJ. NO. 0922 CSAH 81 S.P.027-681-035, S.P. 110-020-040

REVISION: SEPTEMBER 1, 2016

APPROVED: AUGUST 27, 2014

Nancy Dubenberger
 STATE BRIDGE ENGINEER



STANDARD PLAN 5-297.631

1 OF 2

Christopher Ky
 STATE DESIGN ENGINEER

APPROVED: 8-27-2014
 REVISED: 9-1-2016

RETAINING WALL 1(V) : 2(H) SLOPED FILL
 SPREAD FOOTING GEOMETRY AND DATA

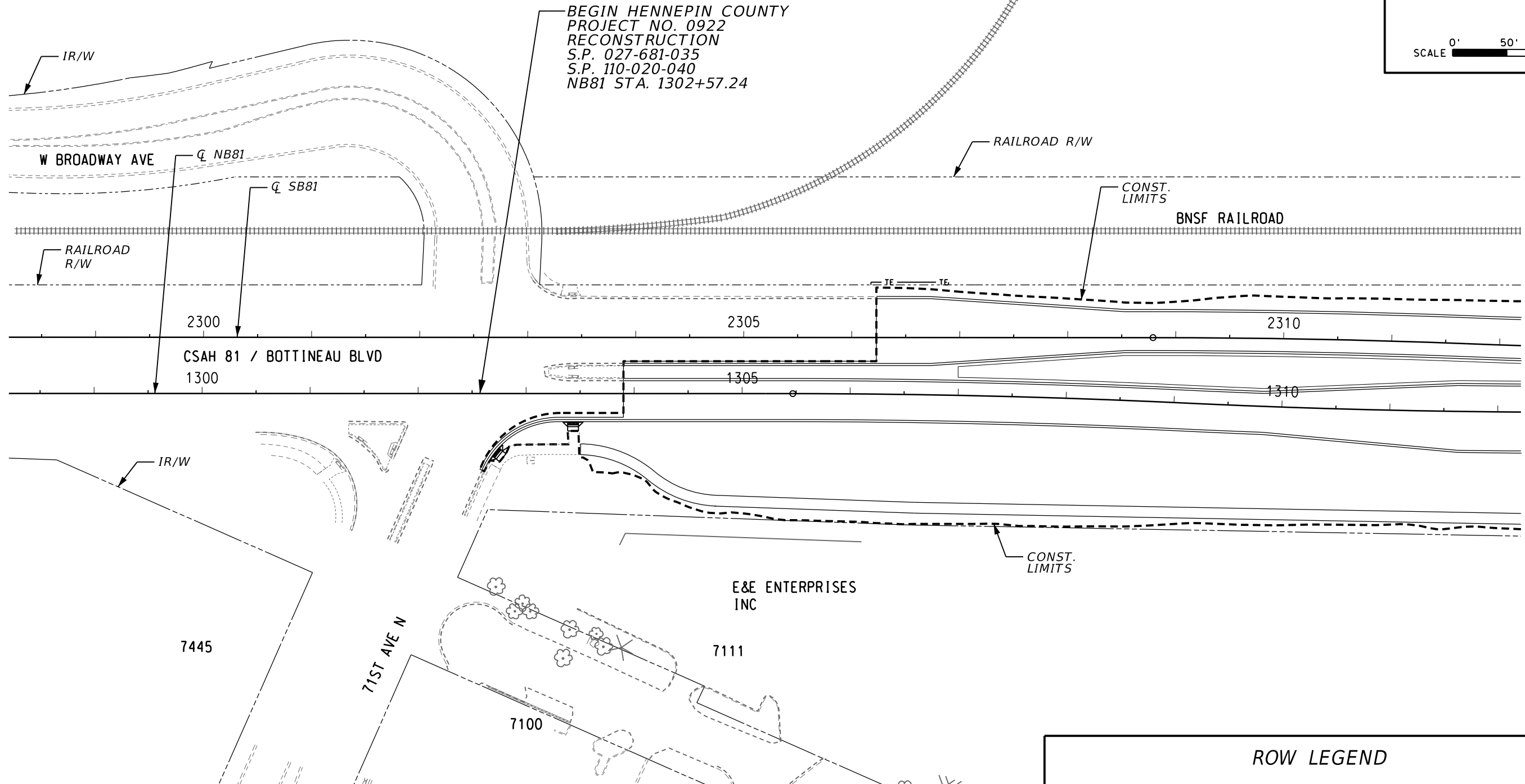
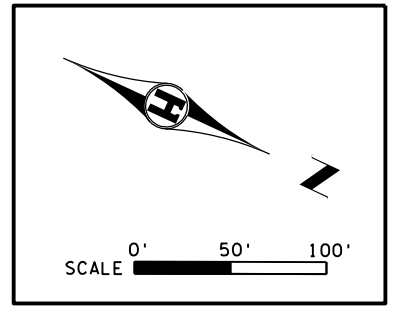
SHEET NO. 234 OF 244 SHEETS

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3/14/2019

edg001

Sheet 16



BEGIN HENNEPIN COUNTY
 PROJECT NO. 0922
 RECONSTRUCTION
 S.P. 027-681-035
 S.P. 110-020-040
 NB81 STA. 1302+57.24

ROW LEGEND			
--- (dashed line)	CONSTRUCTION LIMITS	— (solid line)	NEW R/W
--- (dotted line)	RAILROAD R/W	— (line with TE)	TEMPORARY EASEMENT
--- (long-dashed line)	INPLACE IR/W	— (line with PE)	TRAIL, SIDEWALK, DRAIN, AND UTILITY EASEMENT
--- (line with wavy symbols)	WETLANDS	— (line with DE)	DRAINAGE AND UTILITY EASEMENT

STA. NB81 1302+57.24 TO 1312+21.39



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.

Kelly Agosto
 KELLY AGOSTO, LICENSED PROFESSIONAL ENGINEER

49075 3/15/19
 LICENSE NO. DATE

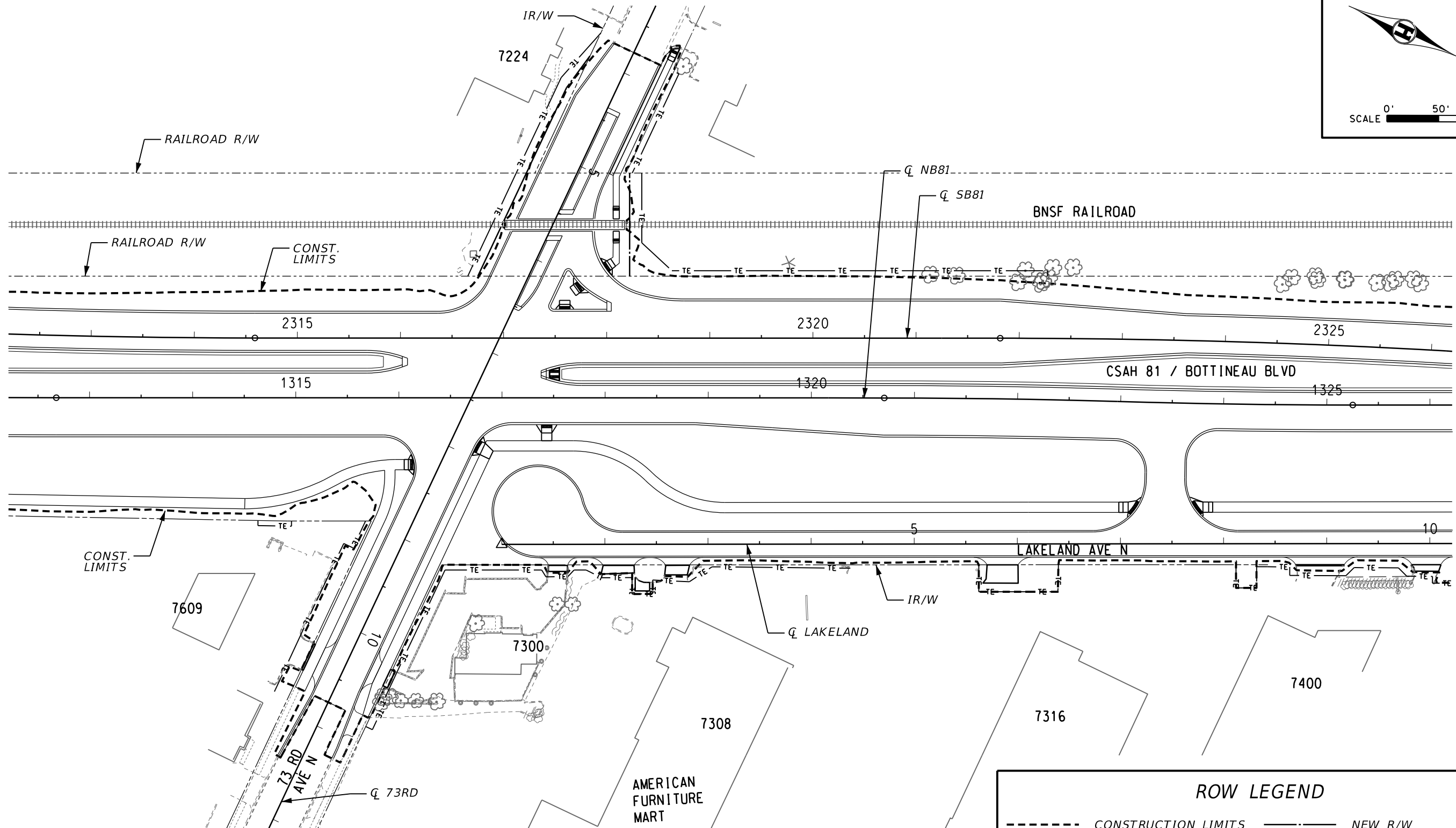
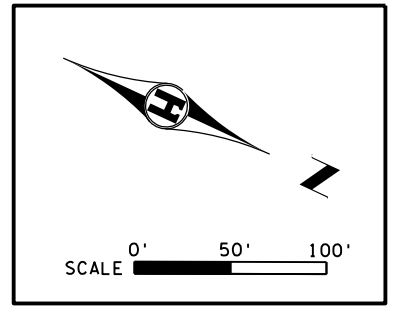
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 CAD BY: E. GUIR
 CHECKED BY: R. DECOTEAU
 LAST REVISION: / /

RIGHT OF WAY PLAN

C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
 S.P. 027-681-035, S.P. 110-020-040

SHEET

235
 244



ROW LEGEND			
--- (dashed line)	CONSTRUCTION LIMITS	— (solid line)	NEW R/W
--- (dotted line)	RAILROAD R/W	— TE —	TEMPORARY EASEMENT
--- (long-dashed line)	INPLACE IR/W	— PE —	TRAIL, SIDEWALK, DRAIN, AND UTILITY EASEMENT
--- (line with cross-ticks)	WETLANDS	— DE —	DRAINAGE AND UTILITY EASEMENT

STA. NB81 1312+21.39 TO 1326+21.46



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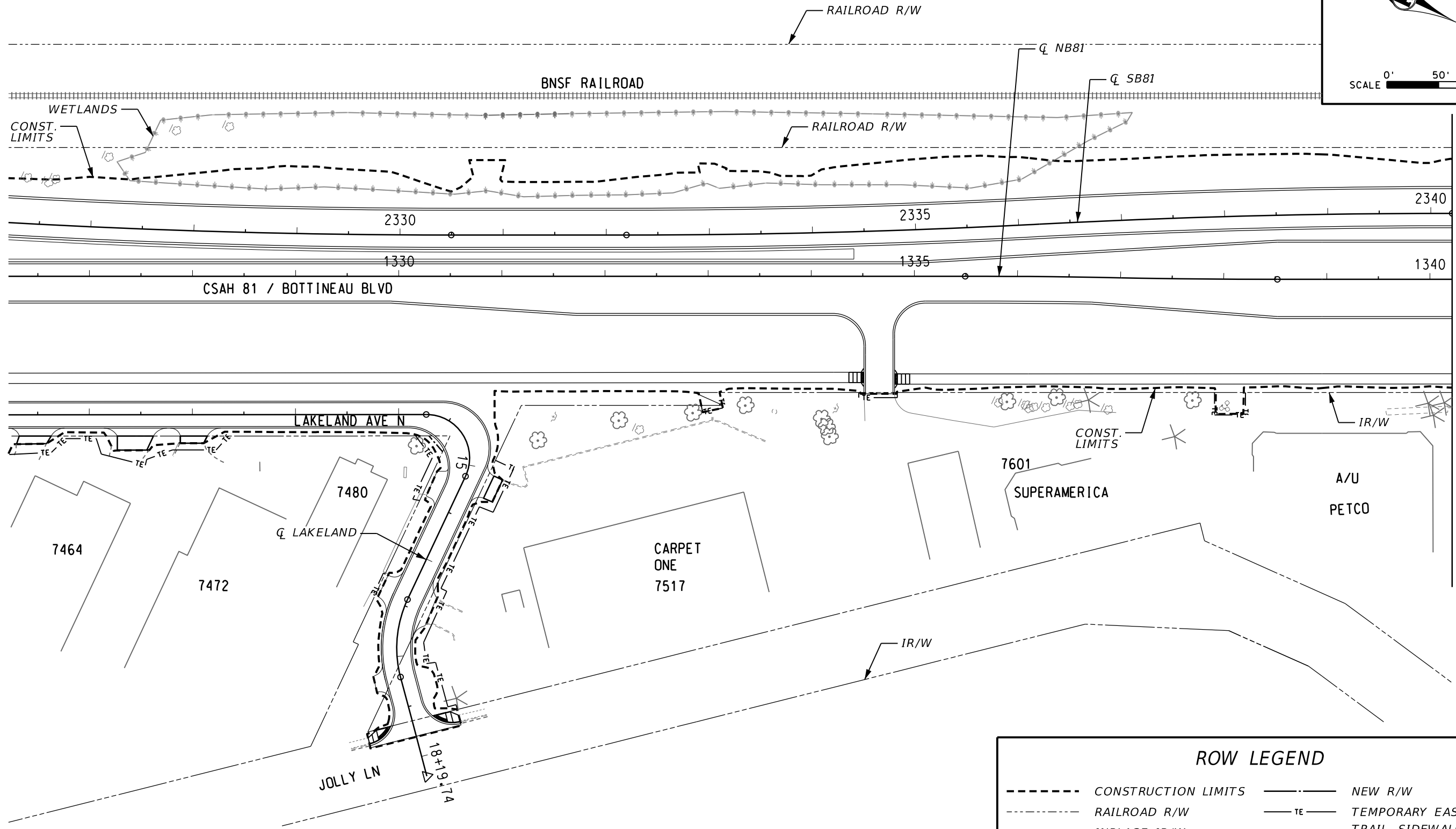
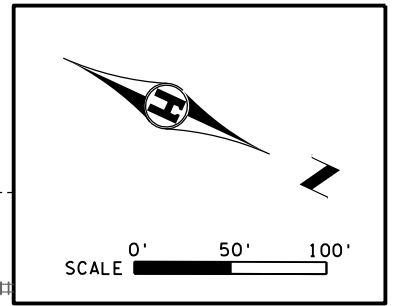
Kelly Agosto
 KELLY AGOSTO, LICENSED PROFESSIONAL ENGINEER
 49075 LICENSE NO. 3/15/19 DATE

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 CAD BY: E. GUIR
 CHECKED BY: R. DECOTEAU
 LAST REVISION: / /

RIGHT OF WAY PLAN

C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
 S.P. 027-681-035, S.P. 110-020-040

SHEET
 236 / 244



ROW LEGEND			
--- (dashed line)	CONSTRUCTION LIMITS	— (solid line)	NEW R/W
- - - (dotted line)	RAILROAD R/W	- TE -	TEMPORARY EASEMENT
- - - (long dashed line)	INPLACE IR/W	- PE -	TRAIL, SIDEWALK, DRAIN, AND UTILITY EASEMENT
- * - * - (line with asterisks)	WETLANDS	- DE -	DRAINAGE AND UTILITY EASEMENT

STA. NB81 1326+21.46 TO 1340+21.48



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Kelly Agosto
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 49075 LICENSE NO. 3/15/19 DATE

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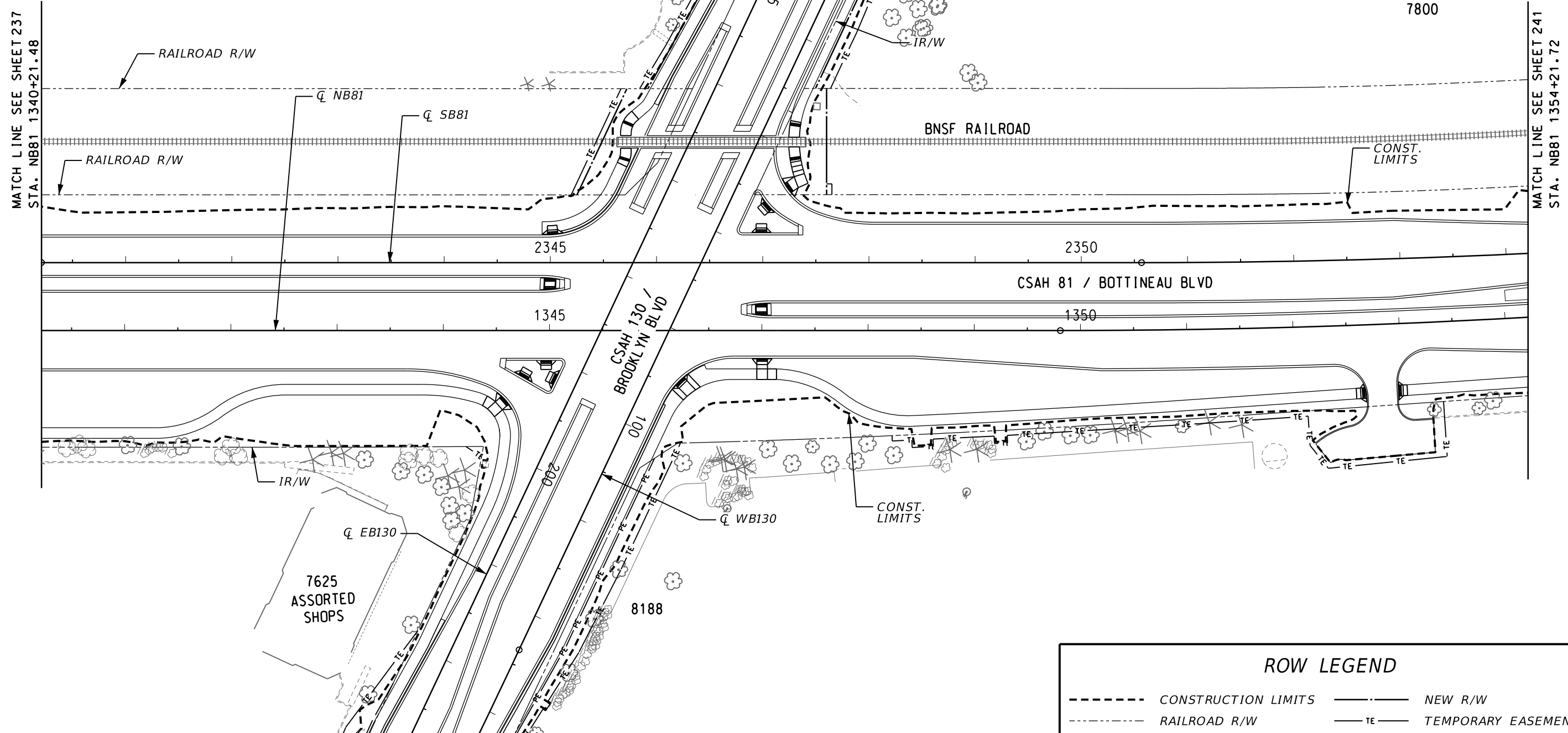
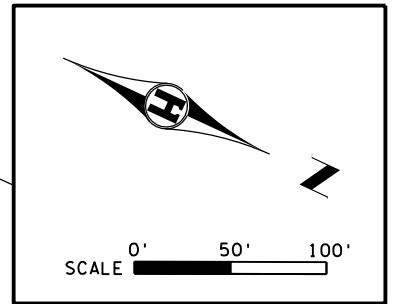
RIGHT OF WAY PLAN

C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
 S.P. 027-681-035, S.P. 110-020-040

SHEET

237 / 244

MATCH LINE SEE SHEET 239
STA. EB130 193+93.93



MATCH LINE SEE SHEET 237
STA. NB81 1340+21.48

MATCH LINE SEE SHEET 241
STA. NB81 1354+21.72

MATCH LINE SEE SHEET 240
STA. EB130 202+77.93

ROW LEGEND			
--- (dashed line)	CONSTRUCTION LIMITS	— (solid line)	NEW R/W
- - - (dotted line)	RAILROAD R/W	- TE -	TEMPORARY EASEMENT
- - - (long dashed line)	INPLACE IR/W	- PE -	TRAIL, SIDEWALK, DRAIN, AND UTILITY EASEMENT
- * - * - (line with asterisks)	WETLANDS	- DE -	DRAINAGE AND UTILITY EASEMENT



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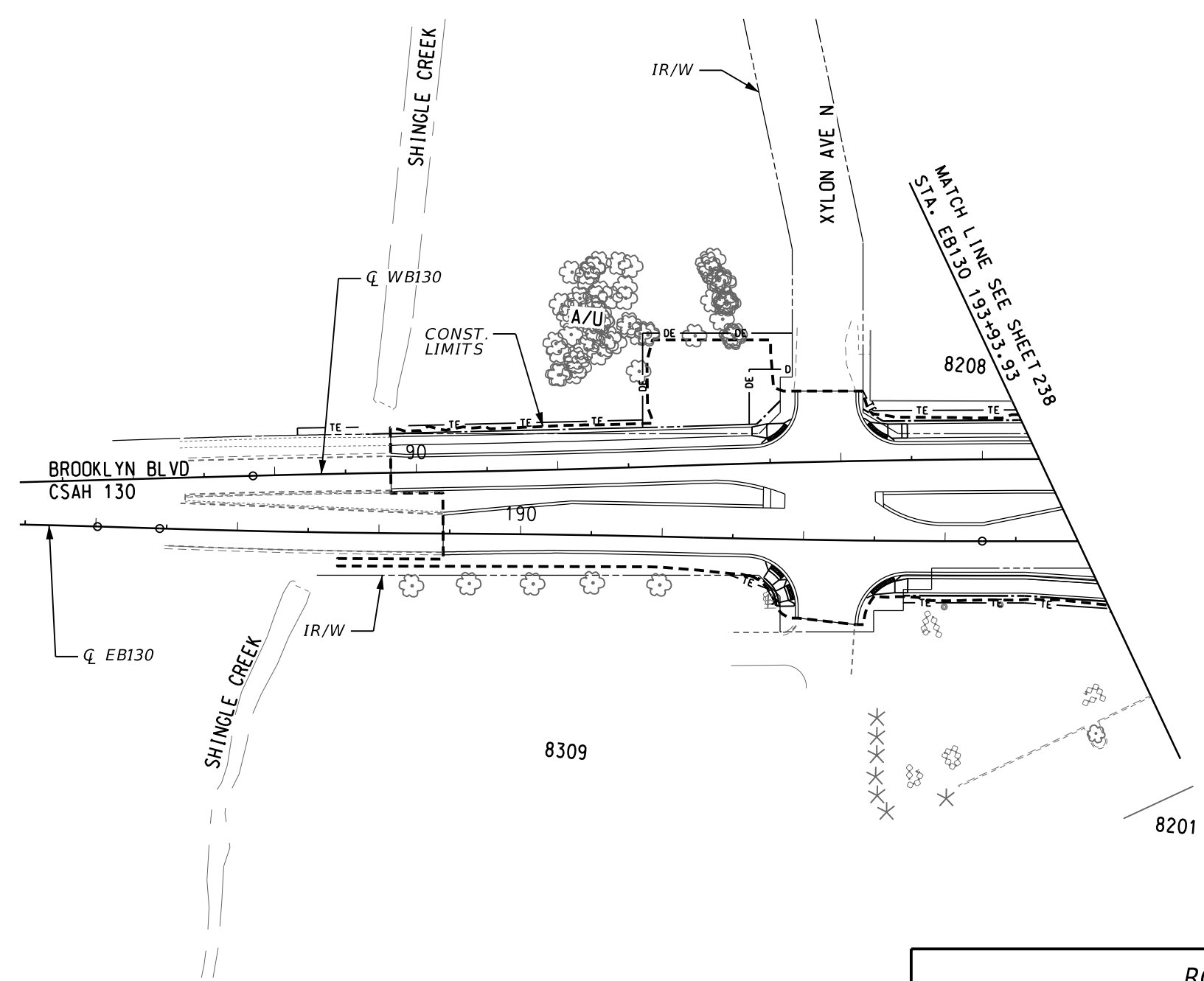
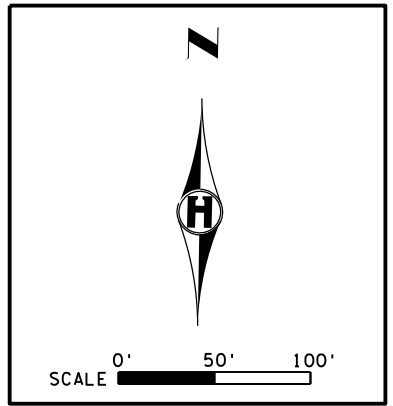
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CHECKED BY: R. DECOTEAU
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RIGHT OF WAY PLAN

C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
S.P. 027-681-035, S.P. 110-020-040

SHEET

238
244



ROW LEGEND			
-----	CONSTRUCTION LIMITS	-----	NEW R/W
-----	RAILROAD R/W	---TE---	TEMPORARY EASEMENT
-----	INPLACE IR/W	---PE---	TRAIL, SIDEWALK, DRAIN, AND UTILITY EASEMENT
-----	WETLANDS	---DE---	DRAINAGE AND UTILITY EASEMENT

STA. EB130 189+07.80 TO 193+93.93



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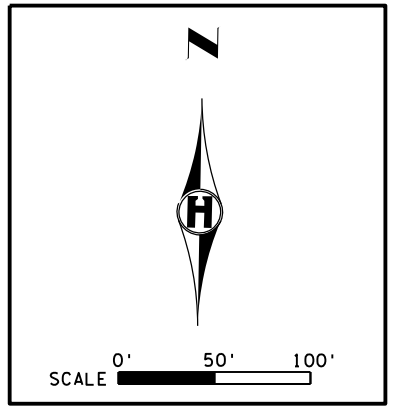
Kelly Agosto
 KELLY AGOSTO, LICENSED PROFESSIONAL ENGINEER
 49075 LICENSE NO. 3/15/19 DATE

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RIGHT OF WAY PLAN

C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
 S.P. 027-681-035, S.P. 110-020-040

SHEET
 239
 244



LUTHER
BROOKDALE

NTB
NATIONAL TIRE
& BATTERY

JOLLY LN N

BP GAS
STATION
8080

FIRESTONE

MAD JACKS

ARBYS

CONST.
LIMITS

MATCH LINE SEE SHEET 238
STA. EB130 202+77.93

8100

105

205

110

210

BROOKLYN BLVD
CSAH 130

215

CONST.
LIMITS

AT&T
GAMESTOP

ASSORTED SHOPS

Q EB130

TCF BANK

WELLS FARGO

ROW LEGEND			
-----	CONSTRUCTION LIMITS	-----	NEW R/W
-----	RAILROAD R/W	---TE---	TEMPORARY EASEMENT
-----	INPLACE IR/W	---PE---	TRAIL, SIDEWALK, DRAIN, AND UTILITY EASEMENT
-----	WETLANDS	---DE---	DRAINAGE AND UTILITY EASEMENT

STA. EB130 202+77.93 TO 215+29.68



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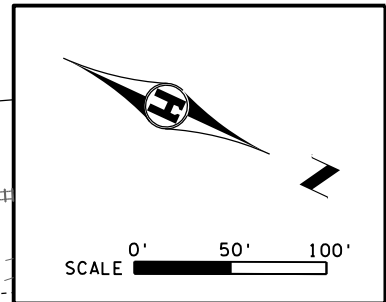
Kelly Agosto
KELLY AGOSTO, LICENSED PROFESSIONAL ENGINEER

49075 3/15/19
LICENSE NO. DATE

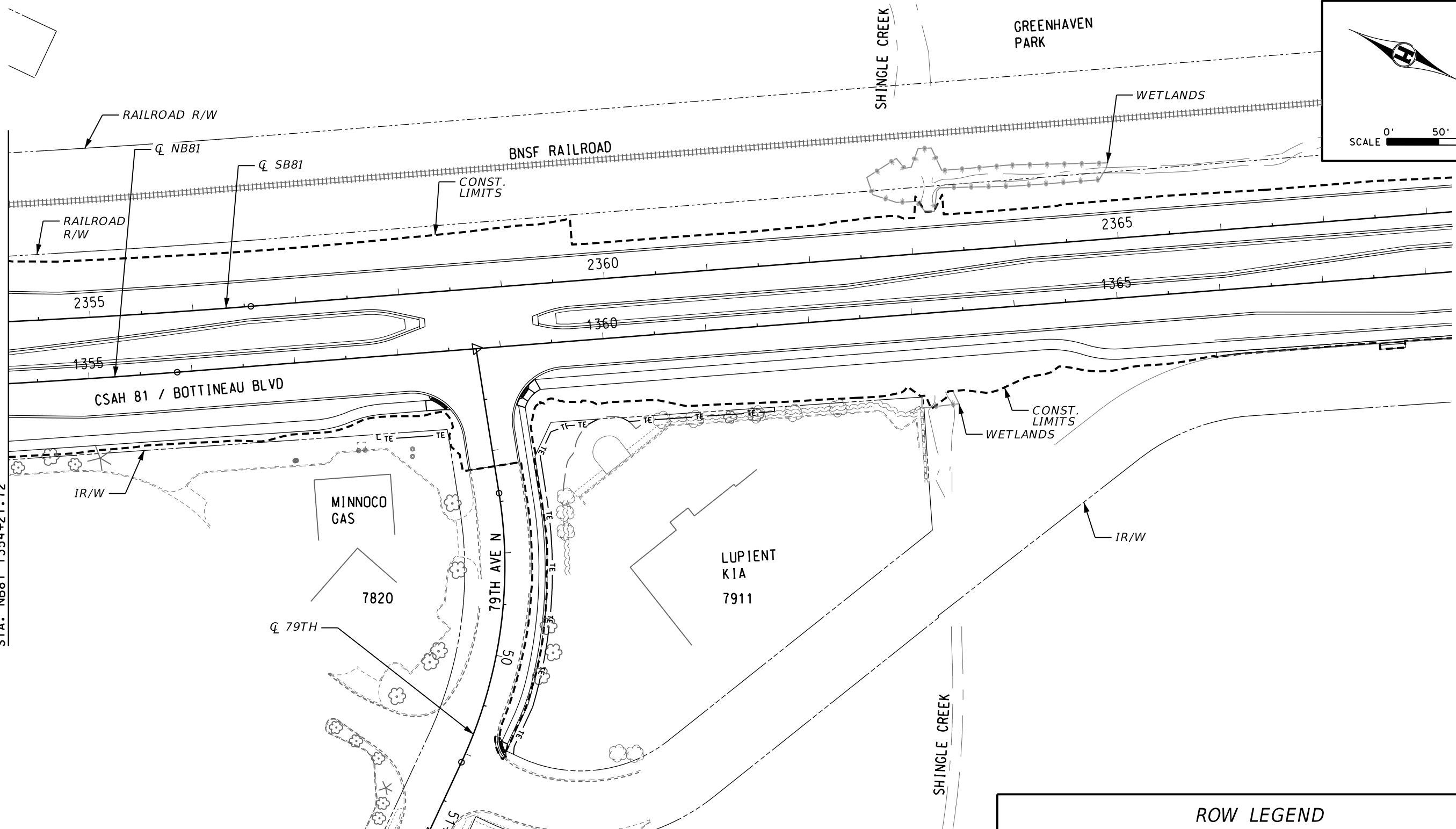
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CHECKED BY: R. DECOTEAU
LAST REVISION: / /

RIGHT OF WAY PLAN
C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
S.P. 027-681-035, S.P. 110-020-040

SHEET
240
244



MATCH LINE SEE SHEET 238
STA. NB81 1354+21.72



ROW LEGEND			
--- (dashed line)	CONSTRUCTION LIMITS	— (solid line)	NEW R/W
- - - (dotted line)	RAILROAD R/W	- TE -	TEMPORARY EASEMENT
- - - (long dashed line)	INPLACE IR/W	- PE -	TRAIL, SIDEWALK, DRAIN, AND UTILITY EASEMENT
- - - (wavy line)	WETLANDS	- DE -	DRAINAGE AND UTILITY EASEMENT

STA. NB81 1354+21.72 TO 1368+25.92



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Kelly Agosto
KELLY AGOSTO, LICENSED PROFESSIONAL ENGINEER

49075 3/15/19
LICENSE NO. DATE

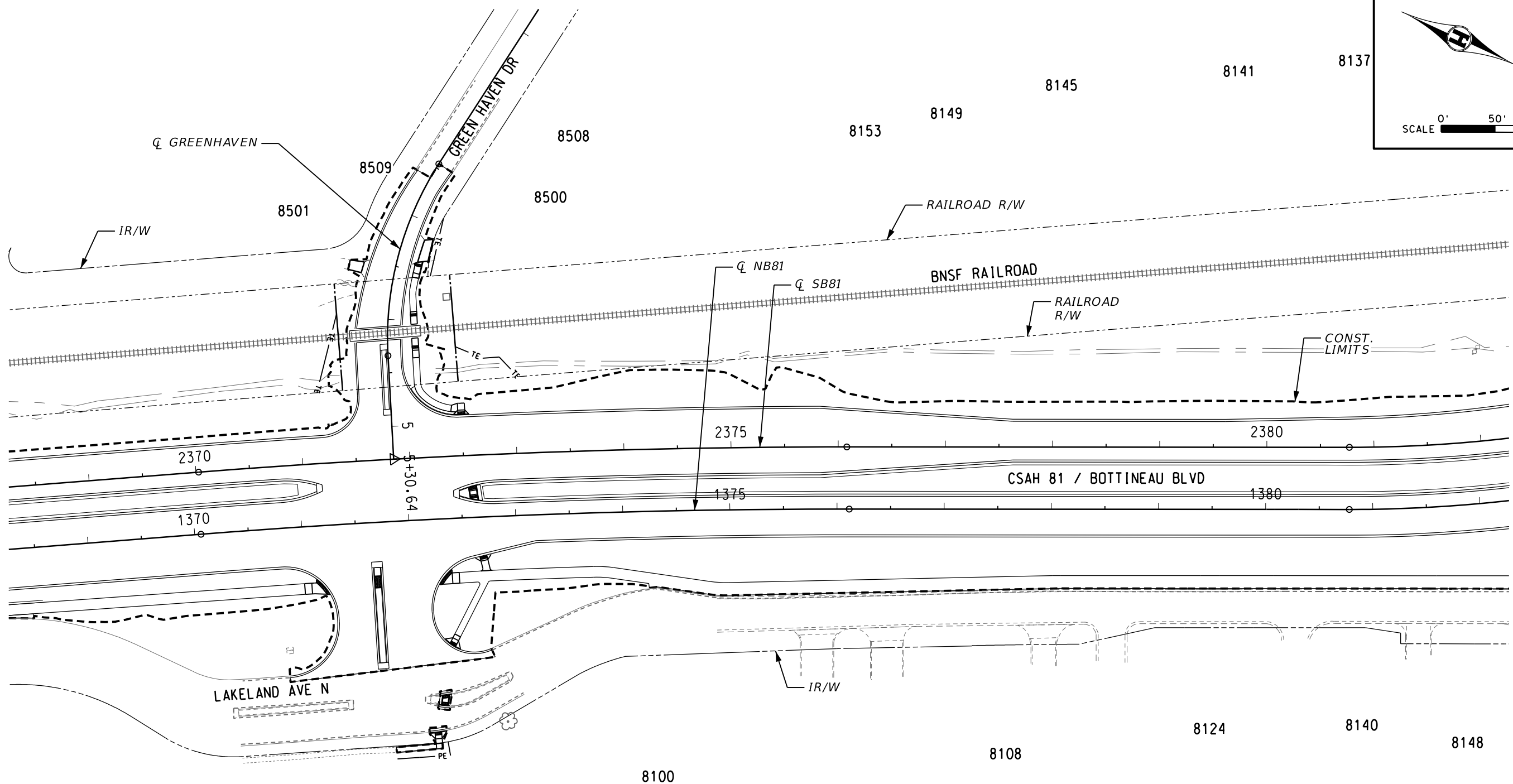
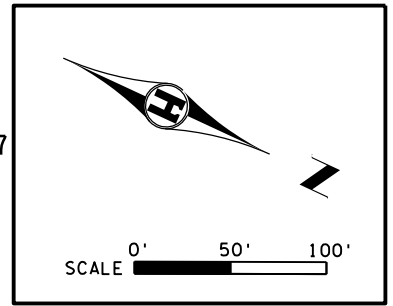
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CAD BY: E. GUIR
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RIGHT OF WAY PLAN

C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
S.P. 027-681-035, S.P. 110-020-040

SHEET

241
244



ROW LEGEND	
--- (dashed line)	CONSTRUCTION LIMITS
- - - - - (dotted line)	RAILROAD R/W
- - - - - (dash-dot line)	INPLACE IR/W
- * - * - * (line with asterisks)	WETLANDS
— (solid line)	NEW R/W
— TE — (line with TE)	TEMPORARY EASEMENT
— PE — (line with PE)	TRAIL, SIDEWALK, DRAIN, AND UTILITY EASEMENT
— DE — (line with DE)	DRAINAGE AND UTILITY EASEMENT

STA. NB81 1368+25.92 TO 1382+27.40



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.

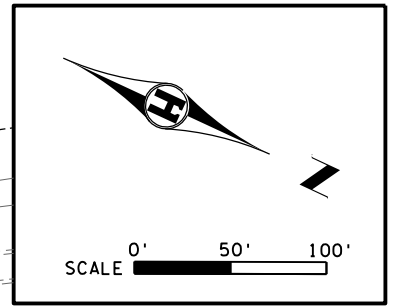
Kelly Agosto
 KELLY AGOSTO, LICENSED PROFESSIONAL ENGINEER
 49075 LICENSE NO. 3/15/19 DATE

DESIGN BY: L. LANGNER
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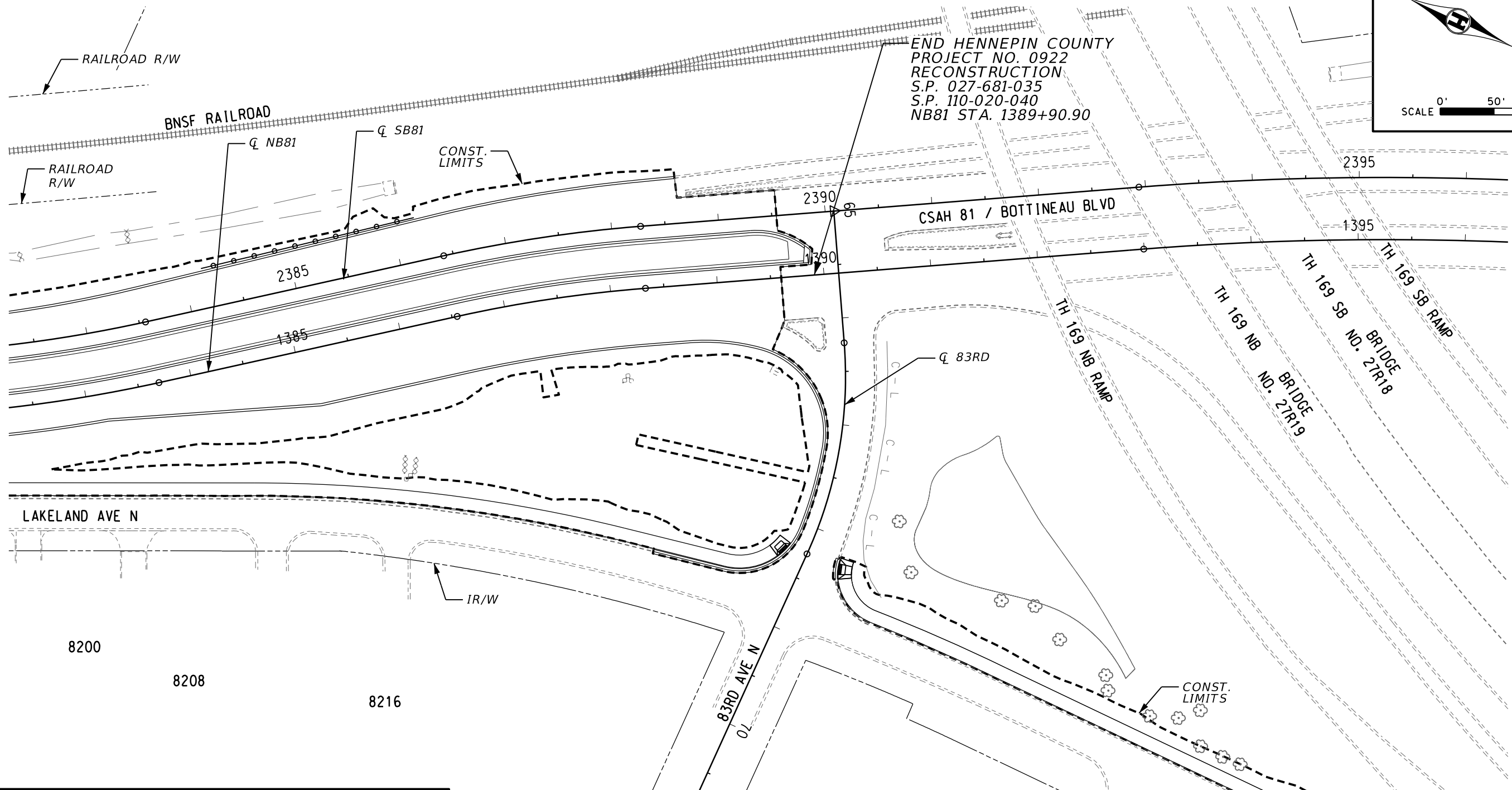
RIGHT OF WAY PLAN

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 242 / 244



END HENNEPIN COUNTY
 PROJECT NO. 0922
 RECONSTRUCTION
 S.P. 027-681-035
 S.P. 110-020-040
 NB81 STA. 1389+90.90



ROW LEGEND

---	CONSTRUCTION LIMITS	---	NEW R/W
- - - - -	RAILROAD R/W	- TE -	TEMPORARY EASEMENT
- - - - -	INPLACE IR/W	- PE -	TRAIL, SIDEWALK, DRAIN, AND UTILITY EASEMENT
+	WETLANDS	- DE -	DRAINAGE AND UTILITY EASEMENT

STA. NB81 1382+27.40 TO 1389+90.90, STA. TR83 560+00.00 TO 564+66.29



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Kelly Agosto
 KELLY AGOSTO, LICENSED PROFESSIONAL ENGINEER

49075 3/15/19
 LICENSE NO. DATE

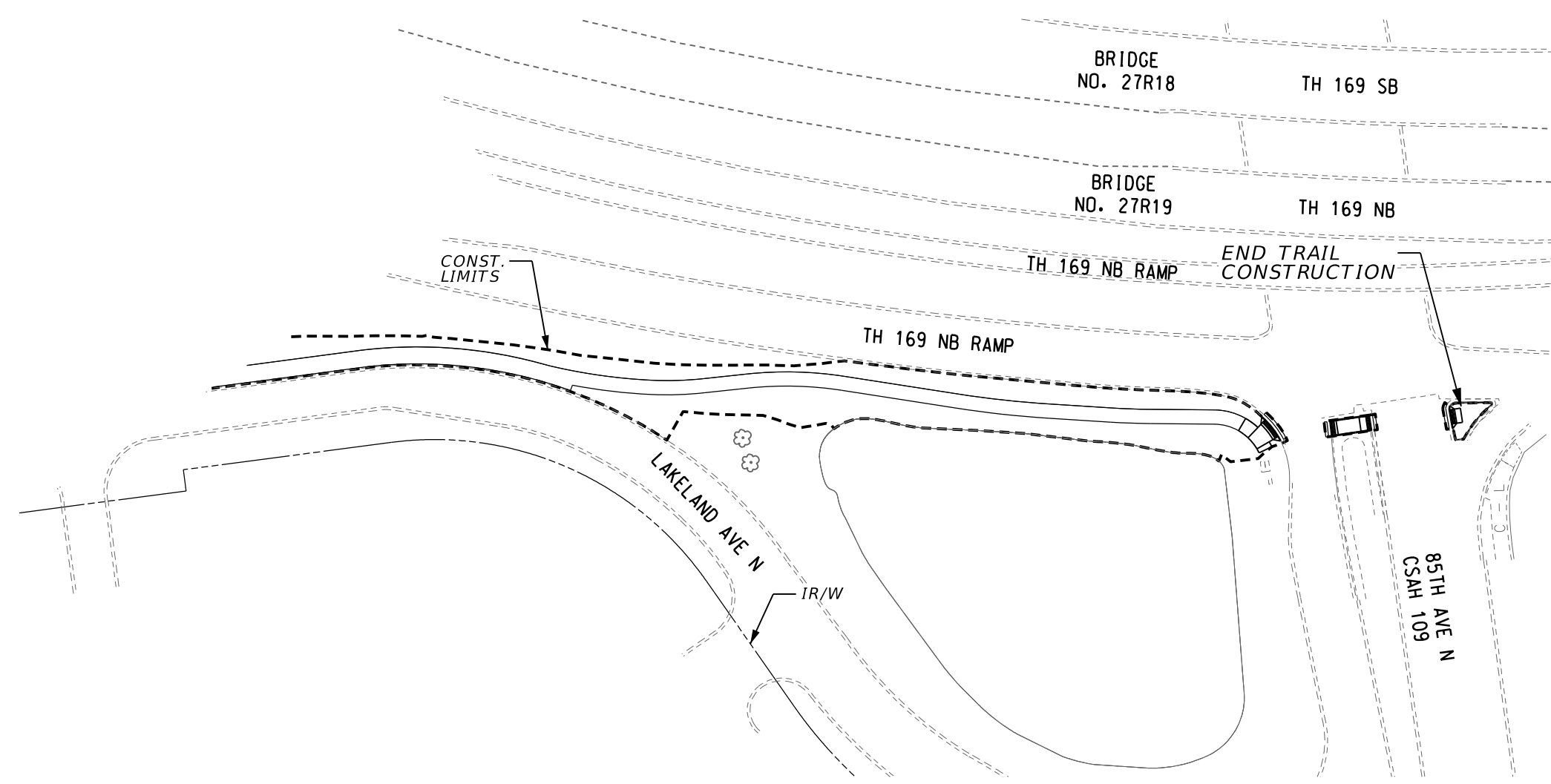
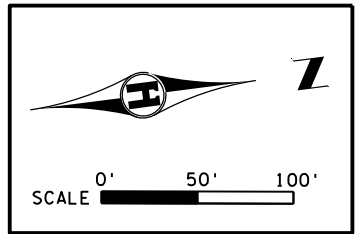
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RIGHT OF WAY PLAN

C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
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243
 244



ROW LEGEND			
--- (dashed line)	CONSTRUCTION LIMITS	— (solid line)	NEW R/W
- - - - - (dotted line)	RAILROAD R/W	— TE — (line with TE)	TEMPORARY EASEMENT
- - - - - (long-dashed line)	INPLACE IR/W	— PE — (line with PE)	TRAIL, SIDEWALK, DRAIN, AND UTILITY EASEMENT
- * - * - * - (line with asterisks)	WETLANDS	— DE — (line with DE)	DRAINAGE AND UTILITY EASEMENT

STA. TR83 564+66.29 TO 571+91.88



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Kelly Agosto
 KELLY AGOSTO, LICENSED PROFESSIONAL ENGINEER

49075 3/15/19
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RIGHT OF WAY PLAN

C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
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STAGE 1 CONSTRUCTION

- 1 PROVIDE DETOUR FOR CSAH 81 AND 73RD AVE. AS PER DETOUR PLAN. REVISE TRAFFIC SIGNALS & PLACE TRAFFIC CONTROL DEVICES ASSOCIATED WITH STAGE 1 CLOSURE AS SHOWN IN THE CONSTRUCTION STAGING & TRAFFIC CONTROL PLANS. CLOSE CSAH 81 BETWEEN CSAH 8 AND CSAH 152 AND 73RD AVE. MAINTAIN LOCAL ACCESS TO PROPERTIES ON 73RD AVE. FROM THE EAST AND THE WEST. CLOSE EXISTING ACCESS TO 73RD FROM LAKELAND AVE. CLOSE LAKELAND AVE. ACCESS TO CSAH 81 (MAINTAIN ACCESS FROM JOLLY LN.) CLOSE LAKELAND AVE. SOUTH OF THE ACCESS TO CSAH 81. LAKELAND AVE. WILL BE CONSTRUCTED UNDER TRAFFIC BETWEEN THE ACCESS TO CSAH 81 & JOLLY LN. - MAINTAIN TRAFFIC ON MIN. 22' WIDE SURFACE CONSISTING OF MIN. 6" CLASS 5 AGG BASE OR BIT. MILLINGS.
- 2 PLACE EROSION CONTROL DEVICES.
- 3 COMMENCE PAVEMENT REMOVAL AND REMOVALS WITHIN CLOSURE AREA.
- 4 COORDINATE/FACILITATE RELOCATION OF EXISTING UTILITIES IN CLOSURE AREA AS PER SPECIAL PROVISIONS.
- 5 CONSTRUCT STORM WATER TREATMENT FACILITIES AND STORM SEWER & RECONSTRUCT WATERMAIN.
- 6 PERFORM ROADWAY AND TRAIL GRADING.
- 7 CONSTRUCT PERMANENT TRAFFIC SIGNALS AT 73RD AVE
- 8 CONSTRUCT CURB & GUTTER AND ROADWAY PAVEMENT TO BOTTOM OF UPPER WEAR COURSE. PAVE TEMPORARY CONNECTIONS TO RAILROAD CROSSING ON 73RD AVE.
- 9 CONSTRUCT TRAILS AND WALKS (& TEMP. WALK CONNECTIONS TO RAILROAD CROSSING) ADJACENT TO 73RD AVE. & ALONG CSAH 81.
- 10 CONSTRUCT TEMPORARY CONNECTIONS FOR NB & SB CSAH 81 NORTH OF STORM PIPE CROSSING NEAR NB81 STA 1334+00. PROVIDE TEMPORARY DITCHING BETWEEN EXISTING CULVERT BELOW ENTRANCE TO SPEEDWAY GAS AND NEW STORM PIPE CROSSING BELOW CSAH 81 NEAR NB81 STA 1334+00.
- 11 PLACE PERMANENT TURF ESTABLISHMENT WITHIN CLOSURE AREAS.
- 12 PLACE PERMANENT SIGNING AS APPROPRIATE AND TEMPORARY SIGNING, TRAFFIC CONTROL DEVICES, CONCRETE MEDIAN BARRIER, AND PAVEMENT MESSAGES AS PER CONSTRUCTION STAGING & TRAFFIC CONTROL PLANS ON CSAH 81 SOUTH OF THE NB & SB TEMPORARY CONNECTIONS AND ON THE TEMPORARY CONNECTIONS, ON NEW ACCESS TO LAKELAND AVE. FROM CSAH 81, LAKELAND AVE., AND ON 73RD AVE. ACTIVATE TRAFFIC SIGNALS WITH REVISIONS PER CONSTRUCTION STAGING & TRAFFIC CONTROL PLANS. REMOVE DETOUR AND ASSOCIATED TRAFFIC CONTROL DEVICES FOR STAGE 1 AND OPEN AFOREMENTIONED ROADWAY SURFACES TO TRAFFIC. SEE ALSO SPECIAL PROVISIONS REGARDING REQUIREMENTS FOR COMPLETION OF THIS PORTION OF WORK.

STAGE 2A CONSTRUCTION

- 1 CLEAR ALL TREES WITHIN STAGE 2A & 2B AREAS.
- 2 PROVIDE STAGE 2A DETOURS FOR CSAH 81 AND CSAH 152/130 AS PER DETOUR PLANS. PLACE TRAFFIC CONTROL FOR STAGE 2A CLOSURE AS PER CONSTRUCTION STAGING & TRAFFIC CONTROL PLANS. CLOSE CSAH 81 BETWEEN 73RD AVE. AND 79TH AVE., EXCEPT ONE-WAY NORTH-BOUND ACCESS SHALL BE MAINTAINED NORTH OF 73RD TO LAKELAND AVE. CLOSE CSAH 152/130 TO TRAFFIC EXCEPT FOR MAINTAINENCE OF LOCAL TRAFFIC TO XYLON AVE. & THE BUSINESS PARK OPPOSITE XYLON AVE. FROM THE WEST. ALSO MAINTAIN WEST-BOUND ONE-WAY TRAFFIC TO JOLLY LANE AND BP GAS STATION FROM THE EAST ON CSAH 152/130. MAINTAIN TWO-WAY TRAFFIC ON JOLLY LANE AND ACCROSS STARLITE CENTER AND PARK SQUARE CENTER AT ALL TIMES.
- 3 PLACE EROSION CONTROL DEVICES.
- 4 COMMENCE PAVEMENT REMOVAL AND REMOVALS WITHIN CLOSURE AREA, REMOVE TEMPORARY NB & SB CSAH 81 CONNECTIONS.
- 5 COORDINATE/FACILITATE RELOCATION OF EXISTING UTILITIES IN CLOSURE AREA AS PER SPECIAL PROVISIONS.
- 6 CONSTRUCT STORM WATER TREATMENT FACILITIES AND STORM SEWER & RECONSTRUCT WATERMAIN.
- 7 PERFORM ROADWAY & TRAIL GRADING.
- 8 CONSTRUCT PERMANENT TRAFFIC SIGNALS AT CSAH 152/130 INTERSECTIONS WITH CSAH 81, JOLLY LANE, & STARLITE CENTER/PARK SQUARE CENTER INTERSECTION NEAR EAST CONSTRUCTION LIMITS.
- 9 CONSTRUCT CURB & GUTTER AND ROADWAY PAVEMENT TO BOTTOM OF UPPER WEAR COURSE, PAVE TEMPORARY CONNECTIONS TO EXISTING RAILROAD GRADE CROSSINGS ON CSAH 130.
- 10 CONSTRUCT TRAILS AND WALKS (& TEMPORARY CONNECTIONS TO RAILROAD CROSSING) ADJACENT TO BROOKLYN BLVD. AND ALONG CSAH 81.
- 11 PLACE PERMANENT SIGNING AS APPROPRIATE AND TEMPORARY SIGNING & PAVEMENT MARKINGS ON CSAH 152, THE NORTH-BOUND AND SOUTH-BOUND CSAH 81 STUBS SOUTH OF CSAH 152, THE NORTH-BOUND STUB ON CSAH 81 NORTH OF CSAH 152/130, & WITHIN THE CSAH 81 INTERSECTION WITH CSAH 152/130. PLACE TEMPORARY CONCRETE MEDIAN BARRIER, TEMPORARY SIGNING, AND TEMPORARY PAVEMENT MARKINGS ON CSAH 130 WEST OF CSAH 81 AS PER CONSTRUCTION STAGING & TRAFFIC CONTROL PLANS.
- 12 ACTIVATE NEW SIGNALS AT CSAH 152/130 INTERSECTIONS WITH CSAH 81, JOLLY LANE, & STARLITE CENTER/PARK SQUARE INTERSECTION NEAR EAST CONSTRUCTION LIMITS. REMOVE DETOUR & ASSOCIATED TRAFFIC CONTROL DEVICES FOR CLOSURES AND OPEN ROADWAYS TO TRAFFIC. SEE ALSO SPECIAL PROVISIONS REGARDING REQUIREMENTS FOR COMPLETION OF THIS PORTION OF WORK.

STAGE 2B CONSTRUCTION

- 1 PROVIDE DETOUR FOR CSAH 81 AS PER DETOUR PLAN. REVISE TRAFFIC SIGNALS & PLACE TRAFFIC CONTROL DEVICES ASSOCIATED WITH STAGE 2B CLOSURE AS SHOWN IN THE CONSTRUCTION STAGING & TRAFFIC CONTROL PLANS. CLOSE CSAH 81 BETWEEN ACCESS TO MENARD'S AND 83RD AVE. CLOSE ACCESS TO CSAH 81 FROM 79TH AVE. & GREEN HAVEN DR. MAINTAIN LOCAL ACCESS TO PROPERTIES ON THE WEST LEG OF GREEN HAVEN DR. FROM THE WEST.
- 2 PLACE EROSION CONTROL DEVICES.
- 3 COMMENCE PAVEMENT REMOVAL AND REMOVALS WITHIN CLOSURE AREA.
- 4 COORDINATE/FACILITATE RELOCATION OF EXISTING UTILITIES IN CLOSURE AREA AS PER SPECIAL PROVISIONS.
- 5 CONSTRUCT STORM WATER TREATMENT FACILITIES AND STORM SEWER.
- 6 CONSTRUCT 6' X 8' CONCRETE BOX CULVERT AT SHINGLE CREEK.
- 7 PERFORM ROADWAY & TRAIL GRADING.
- 8 COMMENCE COORDINATION WITH BNSF RAILROAD FOR RECONSTRUCTION OF RAILROAD GRADE CROSSINGS AFTER LOCAL SCHOOLS ARE DISMISSED FOR SUMMER BREAK (SEE SPECIAL PROVISIONS FOR ADDITIONAL INFORMATION). PROVIDE DETOURS FOR THE WEST LEG OF CSAH 130 AND 73RD AVE FOR THE RAILROAD GRADE CROSSING REPLACEMENT WORK AS PER DETOUR PLANS. COVER SIGNAL HEADS AND CLOSE THE WEST LEGS OF CSAH 130 AND 73RD AVE. AS PER CONSTRUCTION STAGING & TRAFFIC CONTROL PLANS. COMPLETE ROADWAY CONNECTION WORK AFTER RAILROAD GRADE CROSSING WORK IS COMPLETE. PAVE UPPER WEAR COURSE AND PLACE PERMANENT REMAINING SIGNAGE AND PAVEMENT MARKINGS ON CSAH 130 AND 73RD AVE., REMOVE SIGNAL HEAD COVERS, AND OPEN THOSE ROADWAYS TO TRAFFIC.
- 9 CONSTRUCT PERMANENT TRAFFIC SIGNALS AT 79TH AVE. AND AT GREEN HAVEN DR.
- 10 CONSTRUCT CURB & GUTTER AND ROADWAY PAVEMENT TO BOTTOM OF UPPER WEAR COURSE.
- 11 PROVIDE TRAFFIC CONTROL FOR REMOTE TRAIL AND WALK CONSTRUCTION AREAS AS PER CONSTRUCTION STAGING & TRAFFIC CONTROL PLANS. CONSTRUCT RETAINING WALL FOR TRAIL ALONG SE TH 169 RAMP. CONSTRUCT REMAINING TRAILS AND WALKS.
- 12 PLACE UPPER WEAR COURSE PAVEMENT ON REMAINING ROADWAY SURFACES AFTER THE RAILROAD GRADE CROSSING WORK AND ASSOCIATED ROADWAY CONNECTION WORK IS COMPLETE.
- 13 PLACE PERMANENT TURF ESTABLISHMENT WITHIN CLOSURE AREAS.
- 14 PLACE PERMANENT SIGNING AND PERMANENT PAVEMENT MARKINGS IN REMAINING AREAS
- 15 OPEN ALL REMAINING CLOSED ROADWAYS TO TRAFFIC. SEE ALSO SPECIAL PROVISIONS REGARDING REQUIREMENTS FOR COMPLETION OF THIS PORTION OF WORK.

CONST STAGING & TRAFFIC CONTROL INDEX

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STAGE 2B DETOUR PLAN OVERVIEW	TC3
STAGING OVERVIEW - STAGE 1 & 2A CONSTRUCTION	TC4
STAGING OVERVIEW - STAGE 2B CONSTRUCTION	TC5
DETOUR PLAN (DETAILS, TABULATIONS, STAGE 1, STAGE 2A, STAGE 2B, STAGE 2B SHORT-TERM, REGIONAL)	TC6 - TC16
TRAFFIC CONTROL PLAN (DETAILS, TABULATIONS, STAGE 1, STAGE WINTER, STAGE 2A, STAGE 2B)	TC17 - TC48

CONSTRUCTION STAGING SUMMARY



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.

Kate Miner
 KATE E. MINER, LICENSED PROFESSIONAL ENGINEER 43801 4/25/2019
 LICENSE NO. DATE

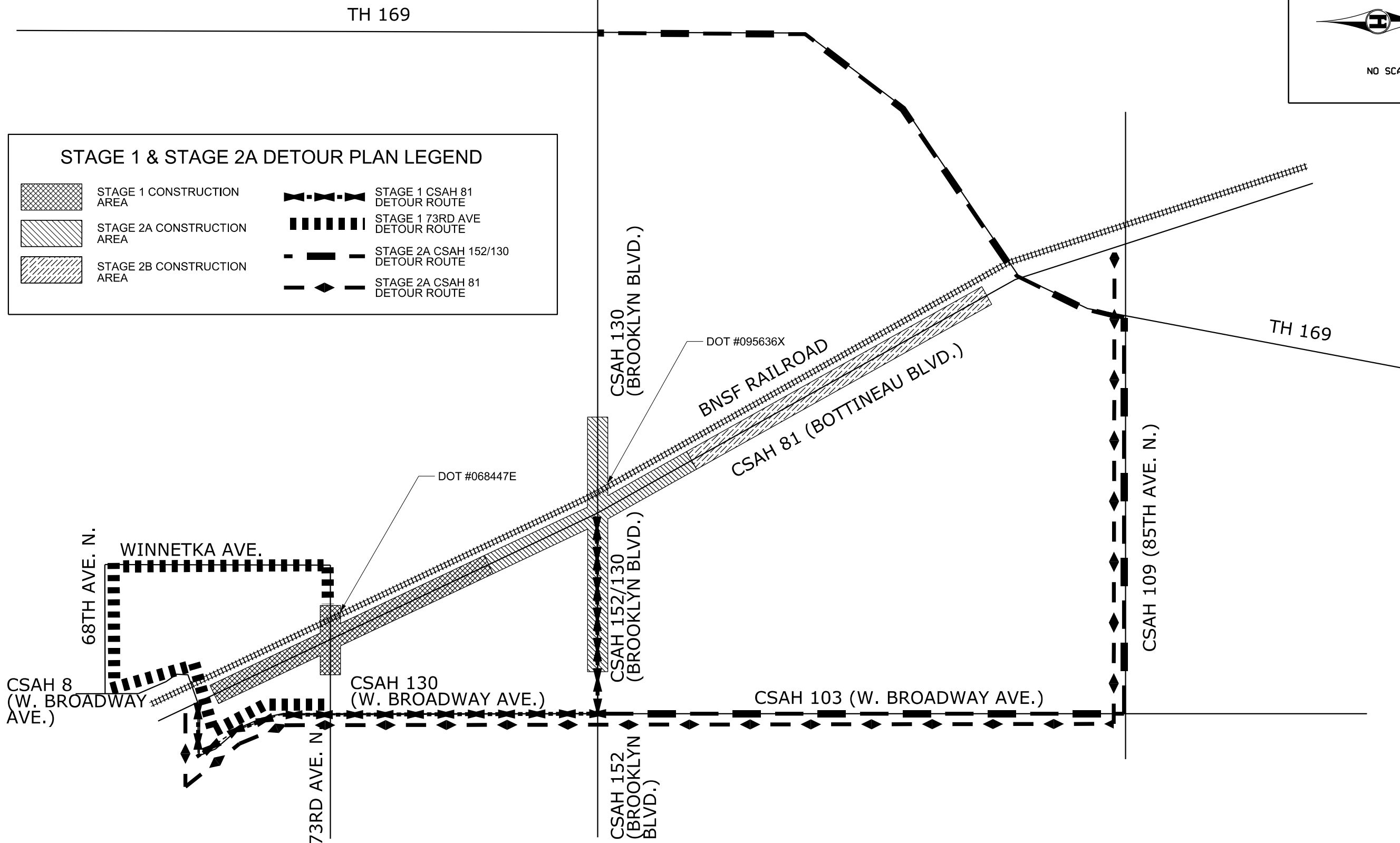
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CONSTRUCTION STAGING & TRAFFIC CONTROL PLANS

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TC1
 TC49



STAGE 1 & 2A DETOUR PLAN OVERVIEW



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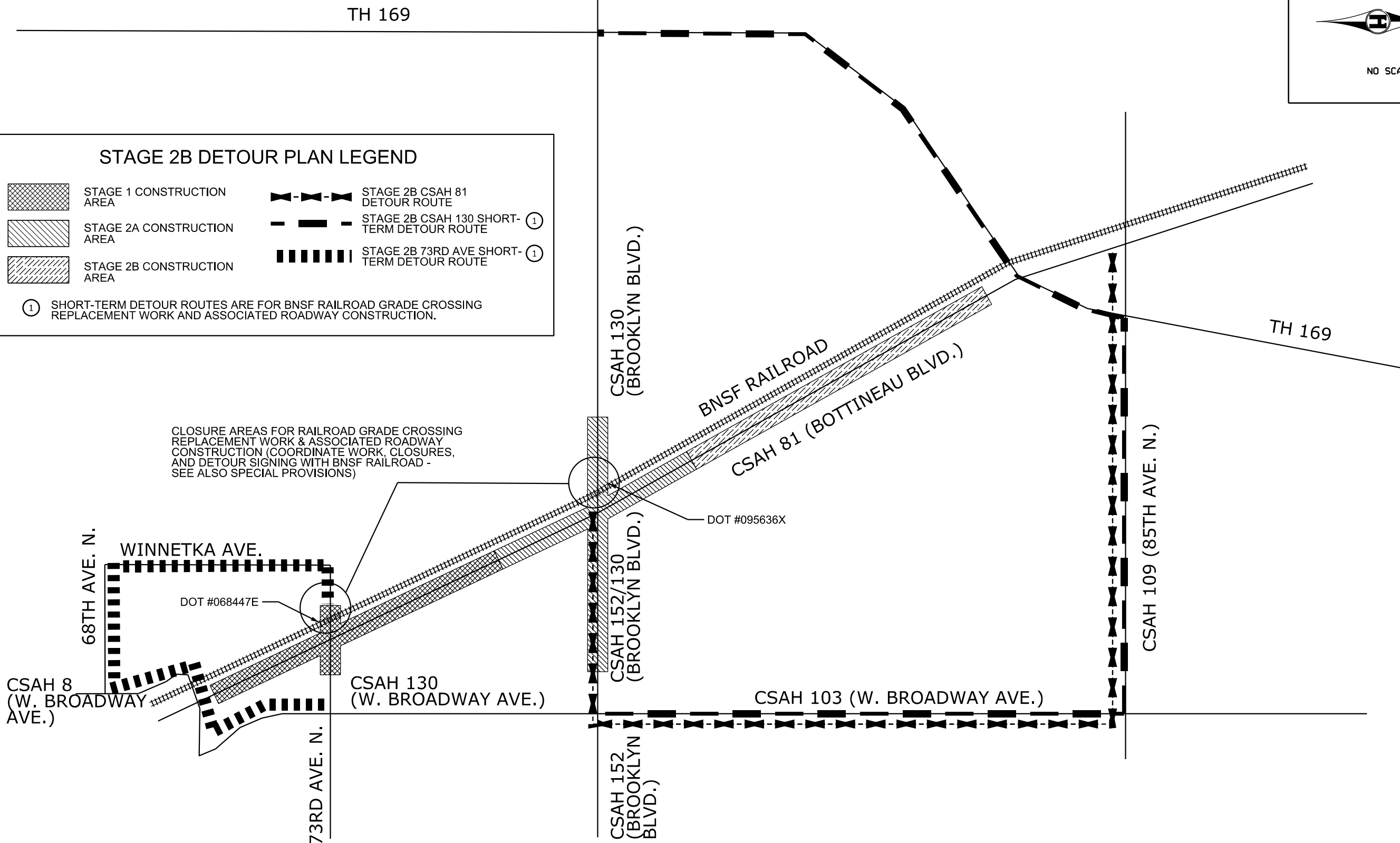
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 KATE E. MINER, LICENSED PROFESSIONAL ENGINEER
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CONSTRUCTION STAGING & TRAFFIC CONTROL PLANS

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 TC2
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STAGE 2B DETOUR PLAN OVERVIEW



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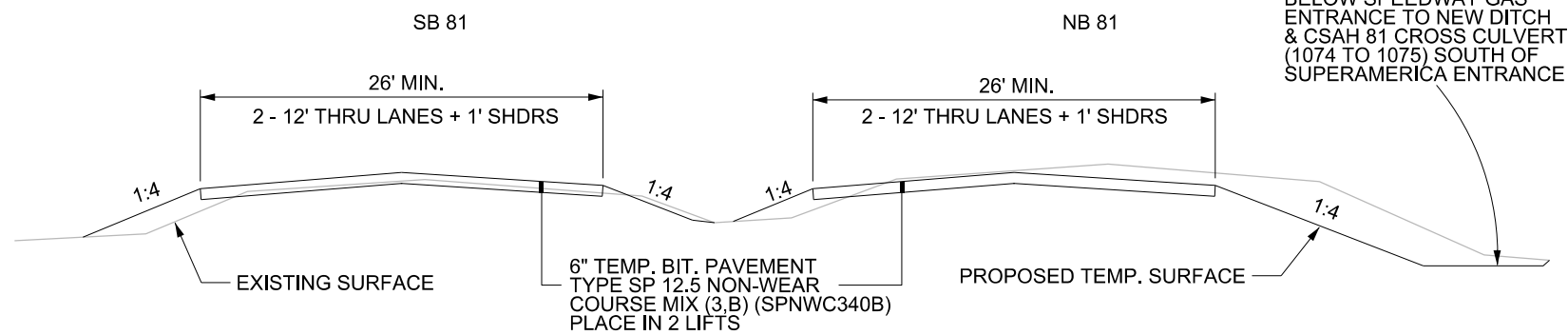
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CONSTRUCTION STAGING & TRAFFIC CONTROL PLANS

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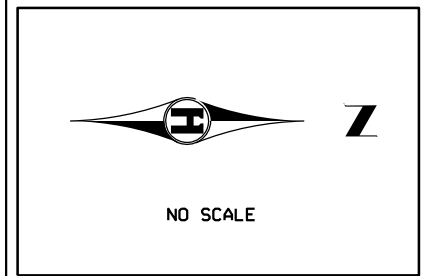
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TEMPORARY CONNECTION TYPICAL SECTION
 CONSTRUCT IN CONJUNCTION WITH STAGE 1 PERMANENT CONSTRUCTION
 FOR WINTER SUSPENSION



STAGES 1 & 2A CONST LEGEND

- STAGE 1 CONSTRUCTION AREA
- STAGE 2A CONSTRUCTION AREA
- TEMPORARY CONSTRUCTION TO CONNECT TO INPLACE
- CONSTRUCT TRAFFIC SIGNAL SYSTEM



TEMPORARY CONNECTION NOTES:

1. CONNECTION CONSTRUCTION AS PER DETAILS & NOTES IN TYPICAL SECTION, & AS DIRECTED BY ENGINEER.
2. SB CONNECTION APPROX. SB81 STA 2333+50 TO 2335+00.
3. NB CONNECTION APPROX. NB81 STA 1334+00 TO 1339+00.
4. GRADE & CONNECT EXISTING SUPERAMERICA ENTRANCE TO TEMP. CONNECTION (USE SAME PAVEMENT SECTION FOR ENTRANCE CONNECTION).
5. NORTHERLY PORTIONS OF CONNECTIONS MAY CONSIST OF OVERLAY OF EXISTING ROADWAY AS DIRECTED BY ENGINEER.
6. STABILIZE SLOPES AS PER EROSION CONTROL REQUIREMENTS IN PLANS.
7. PROVIDE SIGNAGE & PAVEMENT MARKINGS AS PER TRAFFIC CONTROL PLANS.
8. MAINTAIN DRAINAGE IN MEDIAN AREA.
9. SEPARATE PAYMENT WILL BE MADE FOR BITUMINOUS PAVEMENT FOR TYPE SP 12.5 NON-WEAR COURSE MIXTURE (3,B) AND FOR APPROPRIATE EROSION CONTROL MEASURES. SIGNING & STRIPING IS INCLUDED IN THE LUMP SUM TRAFFIC CONTROL PAY ITEM. ALL GRADING WORK AND MATERIALS TO PROVIDE ROADWAY AND ENTRANCE CONNECTIONS OR TO MAINTAIN DRAINAGE IS INCIDENTAL.
10. REMOVAL AND DISPOSAL OF TEMP. CONNECTION MATERIALS IS INCIDENTAL.

STAGE 2A

CSAH 81 CLOSED BETWEEN 73RD AVE. N. & 79TH AVE. N. DURING STAGE 2A CONST. (EXCEPT FOR ACCESS TO LAKELAND AVE). PROVIDE TRAFFIC CONTROL & COVER SIGNAL HEADS FOR CLOSURE AS APPROPRIATE.

STAGE 1

CSAH 81 CLOSED BETWEEN CSAH 8 & CSAH 152/130 DURING STAGE 1. COVER SIGNAL HEADS ON CSAH 8 & 152/130 SIGNALS AND PROVIDE TRAFFIC CONTROL FOR CLOSURE AS APPROPRIATE.

CSAH 8 (W. BROADWAY AVE.)

CSAH 81 (BOTTINEAU BLVD.)

73RD AVE. N.

STAGE 1
 73RD AVE. N. CLOSED DURING STAGE 1. MAINTAIN ACCESS TO PROPERTIES WITHIN CLOSURE AREA FROM THE WEST AND FROM THE EAST.

STAGE 1
 CLOSE ACCESS TO 73RD AVE. N. FOR LAKELAND AVE. N.

STAGE 1
 MAINTAIN ACCESS TO PROPERTIES ALONG LAKELAND AVE. BETWEEN ACCESS TO CSAH 81 & JOLLY LN. DURING CONSTRUCTION (MAINTAIN TRAFFIC ON MIN. 22' WIDTH ON MIN. 6" CLASS 5 AGG. BASE OR BIT. MILLINGS.)

STAGE 2A
 MAINTAIN ONE-WAY NB CSAH 81 ACCESS DURING STAGE 2A TO LAKELAND AVE. N. ACCESS

STAGE 1
 CONSTRUCT TEMPORARY CONNECTIONS TO EXISTING NB & SB CSAH 81 PRIOR TO WINTER SUSPENSION (SEE TYPICAL SECTION ON THIS PAGE)

ACCESS TO SPEEDWAY GAS

STARLITE CENTER

CSAH 152/130 (BROOKLYN BLVD.)

BUSINESS PARK OPPOSITE XYLON AVE. N.

DOT #095636X

BNSF RAILROAD

1075

1074

JOLLY LN

STAGE 2A

MAINTAIN TWO-WAY ACCESS ACCESS ON JOLLY LANE AT ALL TIMES DURING STAGE 2A.

JOLLY LN

ACCESS TO BP GAS STATION

STAGE 2A
 MAINTAIN TWO-WAY ACCESS ACROSS STARLITE CENTER AND PARK SQUARE CENTER AT ALL TIMES DURING STAGE 2A.

PARK SQUARE CENTER

STAGE 2A

CSAH 152/130 CLOSED BETWEEN CSAH 103 & XYLON AVE. N. DURING STAGE 2A, EXCEPT THAT ONE-WAY WB TRAFFIC SHALL BE PROVIDED TO JOLLY LANE & BP GAS STATION FROM THE EAST. PROVIDE LOCAL ACCESS TO XYLON AVE. N. & THE BUSINESS PARK OPPOSITE XYLON FROM THE WEST. PROVIDE TRAFFIC CONTROL FOR CLOSURE AS APPROPRIATE.

CSAH 103 (W. BROADWAY AVE.)

STAGING OVERVIEW - STAGE 1 & 2A CONSTRUCTION



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CONSTRUCTION STAGING & TRAFFIC CONTROL PLANS

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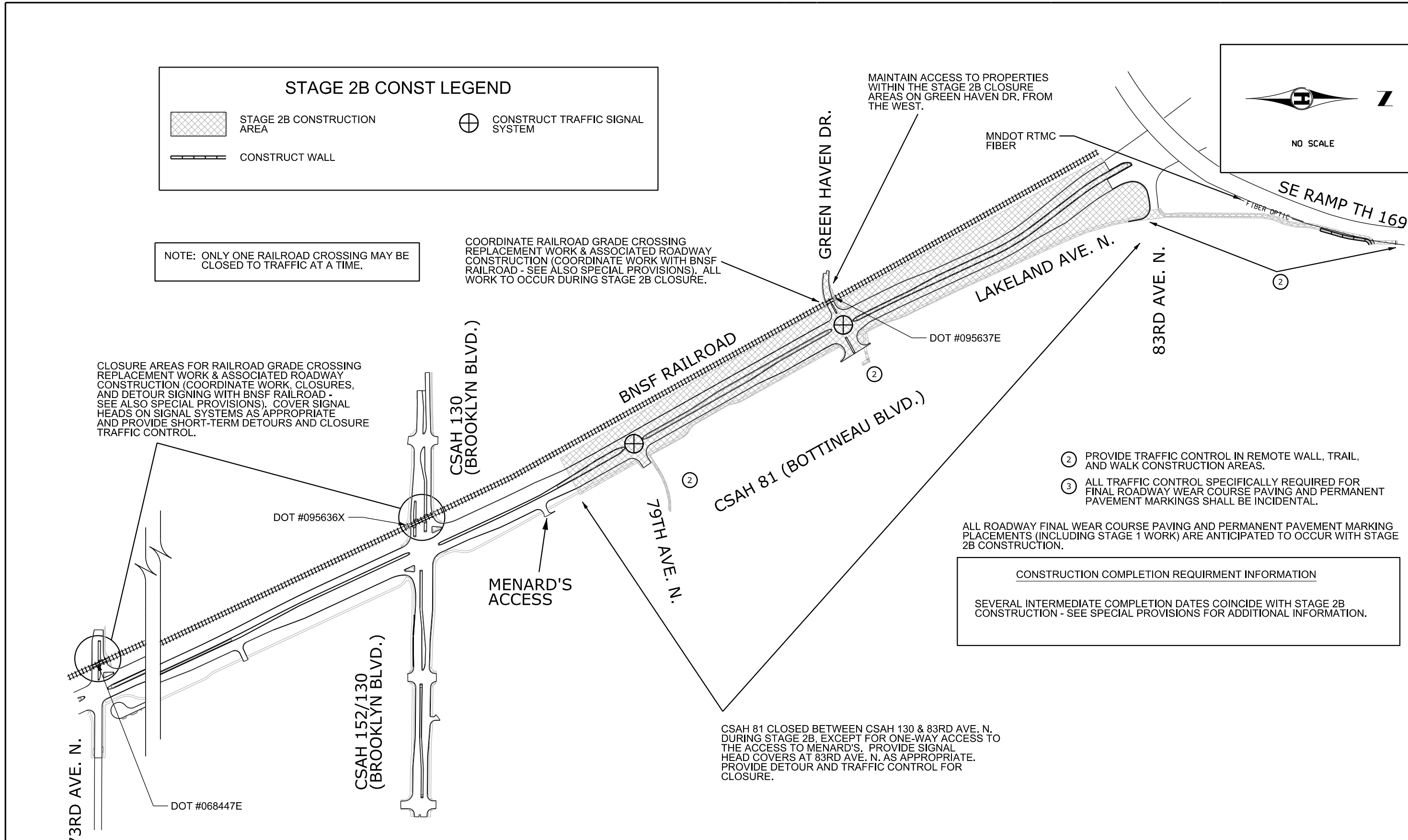
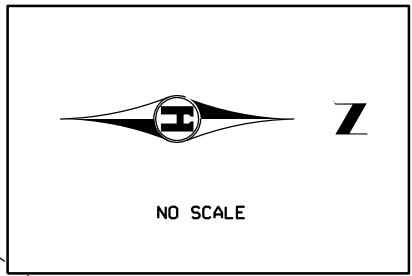
STAGE 2B CONST LEGEND

 STAGE 2B CONSTRUCTION AREA  CONSTRUCT WALL	 CONSTRUCT TRAFFIC SIGNAL SYSTEM
--	---

NOTE: ONLY ONE RAILROAD CROSSING MAY BE CLOSED TO TRAFFIC AT A TIME.

COORDINATE RAILROAD GRADE CROSSING REPLACEMENT WORK & ASSOCIATED ROADWAY CONSTRUCTION (COORDINATE WORK WITH BNSF RAILROAD - SEE ALSO SPECIAL PROVISIONS). ALL WORK TO OCCUR DURING STAGE 2B CLOSURE.

CLOSURE AREAS FOR RAILROAD GRADE CROSSING REPLACEMENT WORK & ASSOCIATED ROADWAY CONSTRUCTION (COORDINATE WORK, CLOSURES, AND DETOUR SIGNING WITH BNSF RAILROAD - SEE ALSO SPECIAL PROVISIONS). COVER SIGNAL HEADS ON SIGNAL SYSTEMS AS APPROPRIATE AND PROVIDE SHORT-TERM DETOURS AND CLOSURE TRAFFIC CONTROL.



- ② PROVIDE TRAFFIC CONTROL IN REMOTE WALL, TRAIL, AND WALK CONSTRUCTION AREAS.
- ③ ALL TRAFFIC CONTROL SPECIFICALLY REQUIRED FOR FINAL ROADWAY WEAR COURSE PAVING AND PERMANENT PAVEMENT MARKINGS SHALL BE INCIDENTAL.

ALL ROADWAY FINAL WEAR COURSE PAVING AND PERMANENT PAVEMENT MARKING PLACEMENTS (INCLUDING STAGE 1 WORK) ARE ANTICIPATED TO OCCUR WITH STAGE 2B CONSTRUCTION.

CONSTRUCTION COMPLETION REQUIREMENT INFORMATION

SEVERAL INTERMEDIATE COMPLETION DATES COINCIDE WITH STAGE 2B CONSTRUCTION - SEE SPECIAL PROVISIONS FOR ADDITIONAL INFORMATION.

CSAH 81 CLOSED BETWEEN CSAH 130 & 83RD AVE. N. DURING STAGE 2B. EXCEPT FOR ONE-WAY ACCESS TO THE ACCESS TO MENARD'S. PROVIDE SIGNAL HEAD COVERS AT 83RD AVE. N. AS APPROPRIATE. PROVIDE DETOUR AND TRAFFIC CONTROL FOR CLOSURE.

STAGING OVERVIEW - STAGE 2B CONSTRUCTION



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Kate Miner

KATE E. MINER, LICENSED PROFESSIONAL ENGINEER 43801 4/25/2019

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CONSTRUCTION STAGING & TRAFFIC CONTROL PLANS

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S.P. 027-681-035, S.P. 110-020-040

SHEET

TC5

TC49

GENERAL NOTES

1. ALL TRAFFIC CONTROL DEVICES SHALL CONFORM AND BE INSTALLED IN ACCORDANCE WITH THE LATEST EDITION OF THE MNDOT "TRAFFIC ENGINEERING MANUAL" AND THE "MINNESOTA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" (MN MUTCD) AND PART VI, "FIELD MANUAL FOR TEMPORARY TRAFFIC CONTROL ZONE LAYOUTS".
2. ALL INPLACE TRAFFIC CONTROL DEVICES, INCLUDING OVERHEAD SIGNS ON ROADS AND ENTRANCES THAT ARE OPEN TO TRAFFIC AND THAT ARE NOT CONSISTENT WITH TRAFFIC CONTROL OPERATIONS SHALL BE COVERED, REMOVED OR REVISED AS DIRECTED BY THE ENGINEER.
3. ALL TRAFFIC CONTROL DEVICES ARE SHOWN IN THEIR APPROXIMATE LOCATIONS, ANY NECESSARY REARRANGEMENT SHALL BE AS DIRECTED BY THE ENGINEER.
4. THE CONTRACTOR SHALL FURNISH, INSTALL, MAINTAIN AND REMOVE THE TRAFFIC CONTROL DEVICES IN THIS DETOUR SIGNING PLAN UNLESS OTHERWISE NOTED.
5. FIELD CONDITIONS MAY REQUIRE MODIFICATIONS OF THESE DETOUR SIGNING PLANS AS DEEMED NECESSARY BY THE ENGINEER.
6. THE CONTRACTOR IS RESPONSIBLE FOR PROTECTING ANY WORK AREAS NEAR TRAFFIC, AS DIRECTED BY THE ENGINEER.
7. TEMPORARY SIGNING SHALL BE MOUNTED ON POSTS DRIVEN INTO THE GROUND OR ON PORTABLE SUPPORTS, AND APPROVED BY THE ENGINEER. WHEN THE TEMPORARY SIGNS ARE REMOVED, THE SIGN POSTS SHALL ALSO BE REMOVED.
8. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY EXTRA SIGNING NEEDED TO FACILITATE TRAFFIC AS DIRECTED BY THE ENGINEER.

STANDARD PLATES	
PLATE NO.	PLATE DESCRIPTION
80001	STANDARD BARRICADES

TABULATION OF QUANTITIES		
ITEM DESCRIPTION	UNIT	TOTAL
REGIONAL DETOUR SIGNING	L S	1
DETOUR SIGNING STAGE 1	L S	1
DETOUR SIGNING STAGE 2	L S	1

TRAFFIC CONTROL LEGEND

- ⊥ APPROPRIATE SIGN AS INDICATED MOUNTED ON POSTS OR PORTABLE TUBULAR METAL FRAME
- Ⓢ FLASHING LIGHT

DETOUR SIGNING INDEX

TC6	DETOUR SIGNING DETAIL SHEET
TC7 - TC11	DETOUR SIGNING TABULATION SHEET
TC12	DETOUR SIGNING STAGE 1 PLAN SHEET
TC13	DETOUR SIGNING STAGE 2A PLAN SHEET
TC14	DETOUR SIGNING STAGE 2B PLANS SHEET
TC15	DETOUR SIGNING STAGE 2B SHORT TERM PLAN SHEET
TC16	REGIONAL DETOUR SIGNING PLAN SHEET



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.

Kate Miner
 KATE E. MINER, LICENSED PROFESSIONAL ENGINEER

43801 4/25/2019
 LICENSE NO. DATE

DESIGN BY: BRS
 CAD BY: BRS
 CHECKED BY: KEM
 LAST REVISION: / /

DETOUR SIGNING DETAIL SHEET

C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
 S.P. 027-681-035, S.P. 110-020-040

SHEET

TC6
 TC49

DETOUR SIGNING STAGE 1 TRAFFIC CONTROL DEVICES									
SIGN NO.	SIGN QTY.	MOUNTING	PANELS		PANEL CODE NUMBER	LEGEND	REMARKS		
			SIZE						
			INCH	INCH					
A1	4	(1)	132	108	G20-X2	WORK ZONE ADVANCE NOTICE BROOKLYN BLVD TO 71ST AVE N	(2)		
A1	1	(1)	96	84	G20-X2	WORK ZONE ADVANCE NOTICE BROOKLYN BLVD TO 71ST AVE N			
A2	2	(1)	132	108	G20-X2	WORK ZONE ADVANCE NOTICE 71ST AVE N TO BROOKLYN BLVD	(2)		
A2	1	(1)	96	84	G20-X2	WORK ZONE ADVANCE NOTICE 71ST AVE N TO BROOKLYN BLVD			
B	5	(1)	36	36	W20-2	DETOUR AHEAD			
RN81	14	(1)	24	12		LOCAL			
			24	12	M4-8	DETOUR			
			24	12	M3-1	NORTH			
			24	24	M1-6	HENNEPIN COUNTY 81			
			-	2	21	15	M5-1L	ADVANCE TURN ARROW 90° LEFT	
			-	2	21	15	M6-1L	HORIZONTAL SINGLE HEAD ARROW 90° LEFT	
			-	2	21	15	M5-1R	ADVANCE TURN ARROW 90° RIGHT	
			-	2	21	15	M6-1R	HORIZONTAL SINGLE HEAD ARROW 90° RIGHT	
			-	6	21	15	M6-3	VERTICAL SINGLE HEAD ARROW UP	
DN81E	1	(1)	24	18	M4-8A	END DETOUR			
			24	12	M3-1	NORTH			
			24	24	M1-6	HENNEPIN COUNTY 81			
RS81	15	(1)	24	12		LOCAL			
			24	12	M4-8	DETOUR			
			24	12	M3-3	SOUTH			
			24	24	M1-6	HENNEPIN COUNTY 81			
			-	3	21	15	M5-1L	ADVANCE TURN ARROW 90° LEFT	
			-	3	21	15	M6-1L	HORIZONTAL SINGLE HEAD ARROW 90° LEFT	
			-	2	21	15	M5-1R	ADVANCE TURN ARROW 90° RIGHT	
			-	2	21	15	M6-1R	HORIZONTAL SINGLE HEAD ARROW 90° RIGHT	
			-	5	21	15	M6-3	VERTICAL SINGLE HEAD ARROW UP	
DS81E	1	(1)	24	18	M4-8A	END DETOUR			
			24	12	M3-3	SOUTH			
			24	24	M1-6	HENNEPIN COUNTY 81			
DW73	10	(1)	24	12	M4-8	DETOUR			
			24	12	M3-4	WEST			
						73RD AVE N			
			-	2	21	15	M5-1L	ADVANCE TURN ARROW 90° LEFT	
			-	2	21	15	M6-1L	HORIZONTAL SINGLE HEAD ARROW 90° LEFT	
			-	2	21	15	M5-1R	ADVANCE TURN ARROW 90° RIGHT	
			-	2	21	15	M6-1R	HORIZONTAL SINGLE HEAD ARROW 90° RIGHT	
			-	2	21	15	M6-3	VERTICAL SINGLE HEAD ARROW UP	

DETOUR SIGNING STAGE 1 TRAFFIC CONTROL DEVICES									
SIGN NO.	SIGN QTY.	MOUNTING	PANELS		PANEL CODE NUMBER	LEGEND	REMARKS		
			SIZE						
			INCH	INCH					
DW73E	1	(1)	24	18	M4-8A	END DETOUR			
			24	12	M3-4	WEST			
						73RD AVE N			
DE73	8	(1)	24	12	M4-8	DETOUR			
			24	12	M3-2	EAST			
						73RD AVE N			
			-	2	21	15	M5-1L	ADVANCE TURN ARROW 90° LEFT	
			-	2	21	15	M6-1L	HORIZONTAL SINGLE HEAD ARROW 90° LEFT	
			-	1	21	15	M5-1R	ADVANCE TURN ARROW 90° RIGHT	
			-	1	21	15	M6-1R	HORIZONTAL SINGLE HEAD ARROW 90° RIGHT	
			-	2	21	15	M6-3	VERTICAL SINGLE HEAD ARROW UP	
DE73E	1	(1)	24	18	M4-8A	END DETOUR			
			24	12	M3-2	EAST			
						73RD AVE N			
E	1	(1)	54	48	G20-X1	73RD AVE N CLOSED FOR LOCAL ACCESS ONLY			
F	1	(4)	60	30	R11-4	ROAD CLOSED TO THRU TRAFFIC			
QTY.		DESCRIPTION							
1	8' TYPE III BARRICADE								
2	FLASHING LIGHT								

SPECIFIC NOTES:

- (1) SIGNS SHALL BE MOUNTED ON POSTS DRIVEN INTO THE GROUND OR PORTABLE SUPPORTS.
- (2) SIGNS ARE LARGER AND TO BE USED ON MULTI-LANE ROAD (BOTTINEAU BLVD, 68TH AVE N, BROOKLYN BLVD, W BROADWAY AVE).
- (3) SIGNS TO BE USED ONLY ALONG TH 169.
- (4) 8' TYPE III BARRICADE.

GENERAL NOTES:

- THE QUANTITIES SHOWN WITHIN THIS TABULATION ARE FOR INFORMATION ONLY AND SHALL BE PAID FOR UNDER THE PAY ITEM DETOUR SIGNING STAGE 1 UNLESS NOTED.



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.

Kate Miner
KATE E. MINER, LICENSED PROFESSIONAL ENGINEER

43801 4/25/2019
LICENSE NO. DATE

DESIGN BY: BRS
CAD BY: BRS
CHECKED BY: KEM
LAST REVISION: / /

DETOUR SIGNING STAGE 1 TABULATION

C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
S.P. 027-681-035, S.P. 110-020-040

SHEET

TC7

TC49

DETOUR SIGNING STAGE 2A TRAFFIC CONTROL DEVICES							
SIGN NO.	SIGN QTY.	MOUNTING	PANELS		PANEL CODE NUMBER	LEGEND	REMARKS
			SIZE				
			INCH	INCH			
A1	2	(1)	132	108	G20-X2	WORK ZONE ADVANCE NOTICE 79TH AVE N TO 73RD AVE N	(2)
A2	3	(1)	132	108	G20-X2	WORK ZONE ADVANCE NOTICE 73RD AVE N TO 79TH AVE N	(2)
A2	2	(1)	96	84	G20-X2	WORK ZONE ADVANCE NOTICE 73RD AVE N TO 79TH AVE N	
A3	1	(1)	168	132	G20-X2	WORK ZONE ADVANCE NOTICE XYLON AVE N TO W BROADWAY AVE	(3)
A3	2	(1)	132	108	G20-X2	WORK ZONE ADVANCE NOTICE XYLON AVE N TO W BROADWAY AVE	(2)
A4	3	(1)	132	108	G20-X2	WORK ZONE ADVANCE NOTICE W BROADWAY AVE TO XYLON AVE N	(2)
B	4	(1)	36	36	W20-2	DETOUR AHEAD	
DN81	17	(1)	24	12		LOCAL	
			24	12	M4-8	DETOUR	
			24	12	M3-1	NORTH	
			24	24	M1-6	HENNEPIN COUNTY 81	
			21	15	M5-1L	ADVANCE TURN ARROW 90° LEFT	
			21	15	M6-1L	HORIZONTAL SINGLE HEAD ARROW 90° LEFT	
			21	15	M5-1R	ADVANCE TURN ARROW 90° RIGHT	
			21	15	M6-1R	HORIZONTAL SINGLE HEAD ARROW 90° RIGHT	
-	2		21	15	M6-3	VERTICAL SINGLE HEAD ARROW UP	
DN81E	1	(1)	24	18	M4-8A	END DETOUR	
			24	12	M3-1	NORTH	
			24	24	M1-6	HENNEPIN COUNTY 81	
DS81	19	(1)	24	12		LOCAL	
			24	12	M4-8	DETOUR	
			24	12	M3-3	SOUTH	
			24	24	M1-6	HENNEPIN COUNTY 81	
			21	15	M5-1L	ADVANCE TURN ARROW 90° LEFT	
			21	15	M6-1L	HORIZONTAL SINGLE HEAD ARROW 90° LEFT	
			21	15	M5-1R	ADVANCE TURN ARROW 90° RIGHT	
			21	15	M6-1R	HORIZONTAL SINGLE HEAD ARROW 90° RIGHT	
-	4		21	15	M6-3	VERTICAL SINGLE HEAD ARROW UP	
DS81E	1	(1)	24	18	M4-8A	END DETOUR	
			24	12	M3-3	SOUTH	
			24	24	M1-6	HENNEPIN COUNTY 81	

DETOUR SIGNING STAGE 2A TRAFFIC CONTROL DEVICES									
SIGN NO.	SIGN QTY.	MOUNTING	PANELS		PANEL CODE NUMBER	LEGEND	REMARKS		
			SIZE						
			INCH	INCH					
DW52	21	(1)	24	12	M4-8	DETOUR			
			24	12	M3-4	WEST			
								BROOKLYN BLVD	
			21	15	M5-1L	ADVANCE TURN ARROW 90° LEFT			
			21	15	M6-1L	HORIZONTAL SINGLE HEAD ARROW 90° LEFT			
			21	15	M5-1R	ADVANCE TURN ARROW 90° RIGHT			
			21	15	M6-1R	HORIZONTAL SINGLE HEAD ARROW 90° RIGHT			
-	7		21	15	M6-3	VERTICAL SINGLE HEAD ARROW UP			
DW52E	1	(1)	24	18	M4-8A	END DETOUR			
			24	12	M3-4	WEST			
						BROOKLYN BLVD			
DE52	14	(1)	24	12	M4-8	DETOUR			
			24	12	M3-2	EAST			
								BROOKLYN BLVD	
			21	15	M5-1L	ADVANCE TURN ARROW 90° LEFT			
			21	15	M6-1L	HORIZONTAL SINGLE HEAD ARROW 90° LEFT			
			21	15	M5-1R	ADVANCE TURN ARROW 90° RIGHT			
			21	15	M6-1R	HORIZONTAL SINGLE HEAD ARROW 90° RIGHT			
-	4		21	15	M6-3	VERTICAL SINGLE HEAD ARROW UP			
DE52 (3)	1	(1)	36	18	M4-8	DETOUR			
			36	18	M3-2	EAST			
								BROOKLYN BLVD	(3)
			30	24	M5-2R	ADVANCE TURN ARROW 45° RIGHT			
DE52E	1	(1)	24	18	M4-8A	END DETOUR			
			24	12	M3-2	EAST			
						BROOKLYN BLVD			
E1	3	(1)	48	36	G20-X6L	BUSINESS DETOUR (LEFT)			
E2	1	(1)	48	36	G20-X6R	BUSINESS DETOUR (RIGHT)			
E3	2	(1)	48	36	G20-X6T	BUSINESS DETOUR (THRU)			
E4	2	(1)	48	36	G20-X6	END BUSINESS DETOUR			

SPECIFIC NOTES:

- (1) SIGNS SHALL BE MOUNTED ON POSTS DRIVEN INTO THE GROUND OR PORTABLE SUPPORTS.
- (2) SIGNS ARE LARGER AND TO BE USED ON MULTI-LANE ROAD (BOTTINEAU BLVD, 68TH AVE N, BROOKLYN BLVD, 85TH AVE N, BOONE AVE).
- (3) SIGNS TO BE USED ONLY ALONG TH 169.
- (4) 8' TYPE III BARRICADE.

GENERAL NOTES:

- THE QUANTITIES SHOWN WITHIN THIS TABULATION ARE FOR INFORMATION ONLY AND SHALL BE PAID FOR UNDER THE PAY ITEM DETOUR SIGNING STAGE 2 UNLESS NOTED.



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Kate Miner
 KATE E. MINER, LICENSED PROFESSIONAL ENGINEER
 43801 LICENSE NO. 4/25/2019 DATE

DESIGN BY: BRS
 CAD BY: BRS
 CHECKED BY: KEM
 LAST REVISION: / /

DETOUR SIGNING STAGE 2A TABULATION

C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
 S.P. 027-681-035, S.P. 110-020-040

SHEET

TC8

TC49

DETOUR SIGNING STAGE 2B TRAFFIC CONTROL DEVICES							
SIGN NO.	SIGN QTY.	MOUNTING	PANELS		PANEL CODE NUMBER	LEGEND	REMARKS
			SIZE				
			INCH	INCH			
A1	4	(1)	132	108	G20-X2	WORK ZONE ADVANCE NOTICE 79TH AVE N TO 83RD AVE N	(2)
A2	1	(1)	168	132	G20-X2	WORK ZONE ADVANCE NOTICE 83RD AVE N TO 79TH AVE N	(3)
A2	4	(1)	132	108	G20-X2	WORK ZONE ADVANCE NOTICE 83RD AVE AVE N TO 79TH AVE N	(2)
B	1	(1)	36	36	W20-2	DETOUR AHEAD	
C	1	(1)	48	48	W20-X16	RAMP CLOSED AHEAD	
DN81	12	(1)	24	12	M4-2	LOCAL	
			24	12	M4-8	DETOUR	
			24	12	M3-1	NORTH	
			24	24	M1-6	HENNEPIN COUNTY 81	
			-	2	M5-1L	ADVANCE TURN ARROW 90° LEFT	
			-	2	M6-1L	HORIZONTAL SINGLE HEAD ARROW 90° LEFT	
			-	2	M5-1R	ADVANCE TURN ARROW 90° RIGHT	
			-	2	M6-1R	HORIZONTAL SINGLE HEAD ARROW 90° RIGHT	
-	4	M6-3	VERTICAL SINGLE HEAD ARROW UP				
DN81E	1	(1)	24	18	M4-8A	END DETOUR	
			24	12	M3-1	NORTH	
			24	24	M1-6	HENNEPIN COUNTY 81	
DS81	14	(1)	24	12		LOCAL	
			24	12	M4-8	DETOUR	
			24	12	M3-3	SOUTH	
			24	24	M1-6	HENNEPIN COUNTY 81	
			-	3	M5-1L	ADVANCE TURN ARROW 90° LEFT	
			-	3	M6-1L	HORIZONTAL SINGLE HEAD ARROW 90° LEFT	
			-	2	M5-1R	ADVANCE TURN ARROW 90° RIGHT	
			-	2	M6-1R	HORIZONTAL SINGLE HEAD ARROW 90° RIGHT	
-	4	M6-3	VERTICAL SINGLE HEAD ARROW UP				

DETOUR SIGNING STAGE 2B TRAFFIC CONTROL DEVICES							
SIGN NO.	SIGN QTY.	MOUNTING	PANELS		PANEL CODE NUMBER	LEGEND	REMARKS
			SIZE				
			INCH	INCH			
DS81E	1	(1)	24	18	M4-8A	END DETOUR	
			24	12	M3-3	SOUTH	
			24	24	M1-6	HENNEPIN COUNTY 81	
E1	2	(1)	48	36	G20-X6L	BUSINESS DETOUR (LEFT)	
E2	1	(1)	48	36	G20-X6R	BUSINESS DETOUR (RIGHT)	
E3	1	(1)	48	36	G20-X6T	BUSINESS DETOUR (THRU)	
E4	1	(1)	48	36	G20-X6	END BUSINESS DETOUR	

SPECIFIC NOTES:

- (1) SIGNS SHALL BE MOUNTED ON POSTS DRIVEN INTO THE GROUND OR PORTABLE SUPPORTS.
- (2) SIGNS ARE LARGER AND TO BE USED ON MULTI-LANE ROAD (BOTTINEAU BLVD, 68TH AVE N, BROOKLYN BLVD, 85TH AVE N, BOONE AVE).
- (3) SIGNS TO BE USED ONLY ALONG TH 169.
- (4) 8' TYPE III BARRICADE.

GENERAL NOTES:

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Kate Miner
 KATE E. MINER, LICENSED PROFESSIONAL ENGINEER 43801 4/25/2019
 LICENSE NO. DATE

DESIGN BY: BRS
 CAD BY: BRS
 CHECKED BY: KEM
 LAST REVISION: / /

DETOUR SIGNING STAGE 2B TABULATION

C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
 S.P. 027-681-035, S.P. 110-020-040

SHEET

TC9
 TC49

DETOUR SIGNING STAGE 2B SHORT TERM TRAFFIC CONTROL DEVICES							
SIGN NO.	SIGN QTY.	MOUNTING	PANELS		PANEL CODE NUMBER	LEGEND	REMARKS
			SIZE				
			INCH	INCH			
A1	3	(1)	132	108	G20-X2	WORK ZONE ADVANCE NOTICE AT RAILROAD CROSSING	(2)
A1	2	(1)	96	84	G20-X2	WORK ZONE ADVANCE NOTICE AT RAILROAD CROSSING	
A2	8	(1)	132	108	G20-X2	WORK ZONE ADVANCE NOTICE AT RAILROAD CROSSING	(2)
A2	2	(1)	168	132	G20-X2	WORK ZONE ADVANCE NOTICE AT RAILROAD CROSSING	(3)
B	4	(1)	36	36	W20-2	DETOUR AHEAD	
DW52	20	(1)	24	12	M4-8	DETOUR	
			24	12	M3-4	WEST	
						BROOKLYN BLVD	
			21	15	M5-1L	ADVANCE TURN ARROW 90° LEFT	
			21	15	M6-1L	HORIZONTAL SINGLE HEAD ARROW 90° LEFT	
			21	15	M5-1R	ADVANCE TURN ARROW 90° RIGHT	
			21	15	M6-1R	HORIZONTAL SINGLE HEAD ARROW 90° RIGHT	
			21	15	M6-3	VERTICAL SINGLE HEAD ARROW UP	
DW52E	1	(1)	24	18	M4-8A	END DETOUR	
			24	12	M3-4	WEST	
						BROOKLYN BLVD	
DE52	14	(1)	24	12	M4-8	DETOUR	
			24	12	M3-2	EAST	
						BROOKLYN BLVD	
			21	15	M5-1L	ADVANCE TURN ARROW 90° LEFT	
			21	15	M6-1L	HORIZONTAL SINGLE HEAD ARROW 90° LEFT	
			21	15	M5-1R	ADVANCE TURN ARROW 90° RIGHT	
			21	15	M6-1R	HORIZONTAL SINGLE HEAD ARROW 90° RIGHT	
			21	15	M6-3	VERTICAL SINGLE HEAD ARROW UP	
DE52	1	(1)	36	18	M4-8	DETOUR	(3)
			36	18	M3-2	EAST	
						BROOKLYN BLVD	
			30	24	M5-2R	ADVANCE TURN ARROW 45° RIGHT	
DE52E	1	(1)	24	12	M4-8	END DETOUR	
			24	12	M3-2	EAST	
						73RD AVE N	

DETOUR SIGNING STAGE 2B SHORT TERM TRAFFIC CONTROL DEVICES							
SIGN NO.	SIGN QTY.	MOUNTING	PANELS		PANEL CODE NUMBER	LEGEND	REMARKS
			SIZE				
			INCH	INCH			
DW73	11	(1)	24	12	M4-8	DETOUR	
			24	12	M3-4	WEST	
						73RD AVE N	
			21	15	M5-1L	ADVANCE TURN ARROW 90° LEFT	
			21	15	M6-1L	HORIZONTAL SINGLE HEAD ARROW 90° LEFT	
			21	15	M5-1R	ADVANCE TURN ARROW 90° RIGHT	
			21	15	M6-1R	HORIZONTAL SINGLE HEAD ARROW 90° RIGHT	
			21	15	M6-3	VERTICAL SINGLE HEAD ARROW UP	
DW73E	1	(1)	24	18	M4-8A	END DETOUR	
			24	12	M3-4	WEST	
						73RD AVE N	
DE73	6	(1)	24	12	M4-8	DETOUR	
			24	12	M3-2	EAST	
						73RD AVE N	
			21	15	M5-1L	ADVANCE TURN ARROW 90° LEFT	
			21	15	M6-1L	HORIZONTAL SINGLE HEAD ARROW 90° LEFT	
DE73E	1	(1)	24	18	M4-8A	END DETOUR	
			24	12	M3-2	EAST	
						73RD AVE N	
E1	1	(1)	54	48	G20-X1	73RD AVE N CLOSED FOR LOCAL ACCESS ONLY	
E2	1	(1)	72	60	G20-X1	BROOKLYN BLVD CLOSED AT RAILROAD CROSSING	
E3	1	(1)	54	48	G20-X1	73RD AVE N CLOSED AT RAILROAD CROSSING	
F	1	(4)	60	30	R11-4	ROAD CLOSED TO THRU TRAFFIC	
QTY.	DESCRIPTION						
1	8' TYPE III BARRICADE						
2	FLASHING LIGHT						

SPECIFIC NOTES:

- (1) SIGNS SHALL BE MOUNTED ON POSTS DRIVEN INTO THE GROUND OR PORTABLE SUPPORTS.
- (2) SIGNS ARE LARGER AND TO BE USED ON MULTI-LANE ROAD (BOTTINEAU BLVD, 68TH AVE N, BROOKLYN BLVD, 85TH AVE N, BOONE AVE).
- (3) SIGNS TO BE USED ONLY ALONG TH 169.
- (4) 8' TYPE III BARRICADE.

GENERAL NOTES:

- THE QUANTITIES SHOWN WITHIN THIS TABULATION ARE FOR INFORMATION ONLY AND SHALL BE PAID FOR UNDER THE PAY ITEM DETOUR SIGNING STAGE 2 UNLESS NOTED.



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.

Kate Miner
 KATE E. MINER, LICENSED PROFESSIONAL ENGINEER
 43801 LICENSE NO. 4/25/2019 DATE

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 CHECKED BY: KEM
 LAST REVISION: / /

DETOUR SIGNING STAGE 2B SHORT TERM TABULATION

C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
 S.P. 027-681-035, S.P. 110-020-040

SHEET

TC10
 TC49

REGIONAL DETOUR SIGNING TRAFFIC CONTROL DEVICES									
SIGN NO.	SIGN QTY.	MOUNTING	PANELS		PANEL CODE NUMBER	LEGEND	REMARKS		
			SIZE						
			INCH	INCH					
A1	1	(1)	168	132	G20-X2	WORK ZONE ADVANCE NOTICE 83RD AVE N TO 71ST AVE N	(2)		
A1	3	(1)	132	108	G20-X2	WORK ZONE ADVANCE NOTICE 83RD AVE N TO 71ST AVE N	(3)		
A2	1	(1)	168	132	G20-X2	WORK ZONE ADVANCE NOTICE 71ST AVE N TO 83RD AVE N	(2)		
A2	1	(1)	132	108	G20-X2	WORK ZONE ADVANCE NOTICE 71ST AVE N TO 83RD AVE N	(3)		
B	1	(1)	48	48	W20-2	DETOUR AHEAD	(2)		
B	4	(1)	36	36	W20-2	DETOUR AHEAD	(3)		
C1	2	(1)	96	60	G20-X8T	LOCAL ACCESS TO USE LOCAL DETOUR (THROUGH)			
C2	2	(1)	96	72	G20-X8AR	LOCAL ACCESS TO USE LOCAL DETOUR (ADVANCE RIGHT)			
RN81	9	(1)	36	18	M4-2	BYPASS	(2)		
			36	18	M4-8	DETOUR			
			36	18	M3-1	NORTH			
			36	36	M1-6	HENNEPIN COUNTY 81			
			-	1	30	24		M5-1L	ADVANCE TURN ARROW 90° LEFT
			-	1	30	24		M6-1L	HORIZONTAL SINGLE HEAD ARROW 90° LEFT
			-	2	30	24		M5-2R	ADVANCE TURN ARROW 45° RIGHT
			-	2	30	24		M6-2R	ARROW 45° RIGHT
-	3	30	24	M6-3	VERTICAL SINGLE HEAD ARROW UP				
RN81	2	(1)	24	12	M4-2	BYPASS	(3)		
			24	12	M4-8	DETOUR			
			24	12	M3-1	NORTH			
			24	24	M1-6	HENNEPIN COUNTY 81			
			-	1	21	15		M5-2R	ADVANCE TURN ARROW 45° RIGHT
-	1	21	15	M6-2R	ARROW 45° RIGHT				
DN81E	1	(1)	24	18	M4-8A	END DETOUR			
			24	12	M3-1	NORTH			
			24	24	M1-6	HENNEPIN COUNTY 81			

REGIONAL DETOUR SIGNING TRAFFIC CONTROL DEVICES									
SIGN NO.	SIGN QTY.	MOUNTING	PANELS		PANEL CODE NUMBER	LEGEND	REMARKS		
			SIZE						
			INCH	INCH					
RS81	8	(1)	36	18	M4-2	BYPASS	(2)		
			36	18	M4-8	DETOUR			
			36	18	M3-3	SOUTH			
			36	36	M1-6	HENNEPIN COUNTY 81			
			-	2	30	24		M5-2R	ADVANCE TURN ARROW 45° RIGHT
			-	2	30	24		M6-2R	ARROW 45° RIGHT
			-	4	30	24		M6-3	VERTICAL SINGLE HEAD ARROW UP
RS81	7	(1)	24	12	M4-2	BYPASS	(3)		
			24	12	M4-8	DETOUR			
			24	12	M3-3	SOUTH			
			24	24	M1-6	HENNEPIN COUNTY 81			
			-	2	21	15		M5-1L	ADVANCE TURN ARROW 90° LEFT
			-	2	21	15		M6-1L	HORIZONTAL SINGLE HEAD ARROW 90° LEFT
			-	1	21	15		M5-1R	ADVANCE TURN ARROW 90° RIGHT
			-	1	21	15		M6-1R	HORIZONTAL SINGLE HEAD ARROW 90° RIGHT
DS81E	1	(1)	24	18	M4-8A	END DETOUR			
			24	12	M3-3	SOUTH			
			24	24	M1-6	HENNEPIN COUNTY 81			

SPECIFIC NOTES:

- (1) SIGNS SHALL BE MOUNTED ON POSTS DRIVEN INTO THE GROUND OR PORTABLE SUPPORTS.
- (2) LARGE SIGNS TO BE USED ON FREEWAY (I-94/I-694 AND TH 169)
- (3) SIGNS TO BE USED ON MULTI-LANE ROAD (BOTTINEAU BLVD, 68TH AVE N, BROOKLYN BLVD, 85TH AVE N, BOONE AVE).

GENERAL NOTES:

- THE QUANTITIES SHOWN WITHIN THIS TABULATION ARE FOR INFORMATION ONLY AND SHALL BE PAID FOR UNDER THE PAY ITEM REGIONAL DETOUR SIGNING UNLESS NOTED.

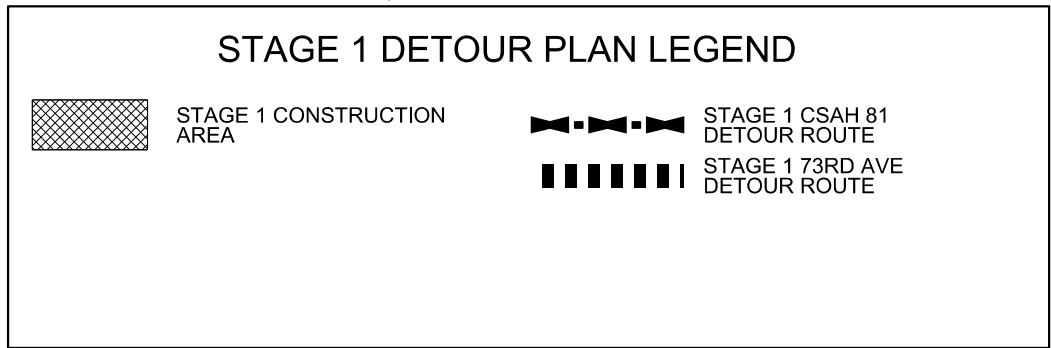
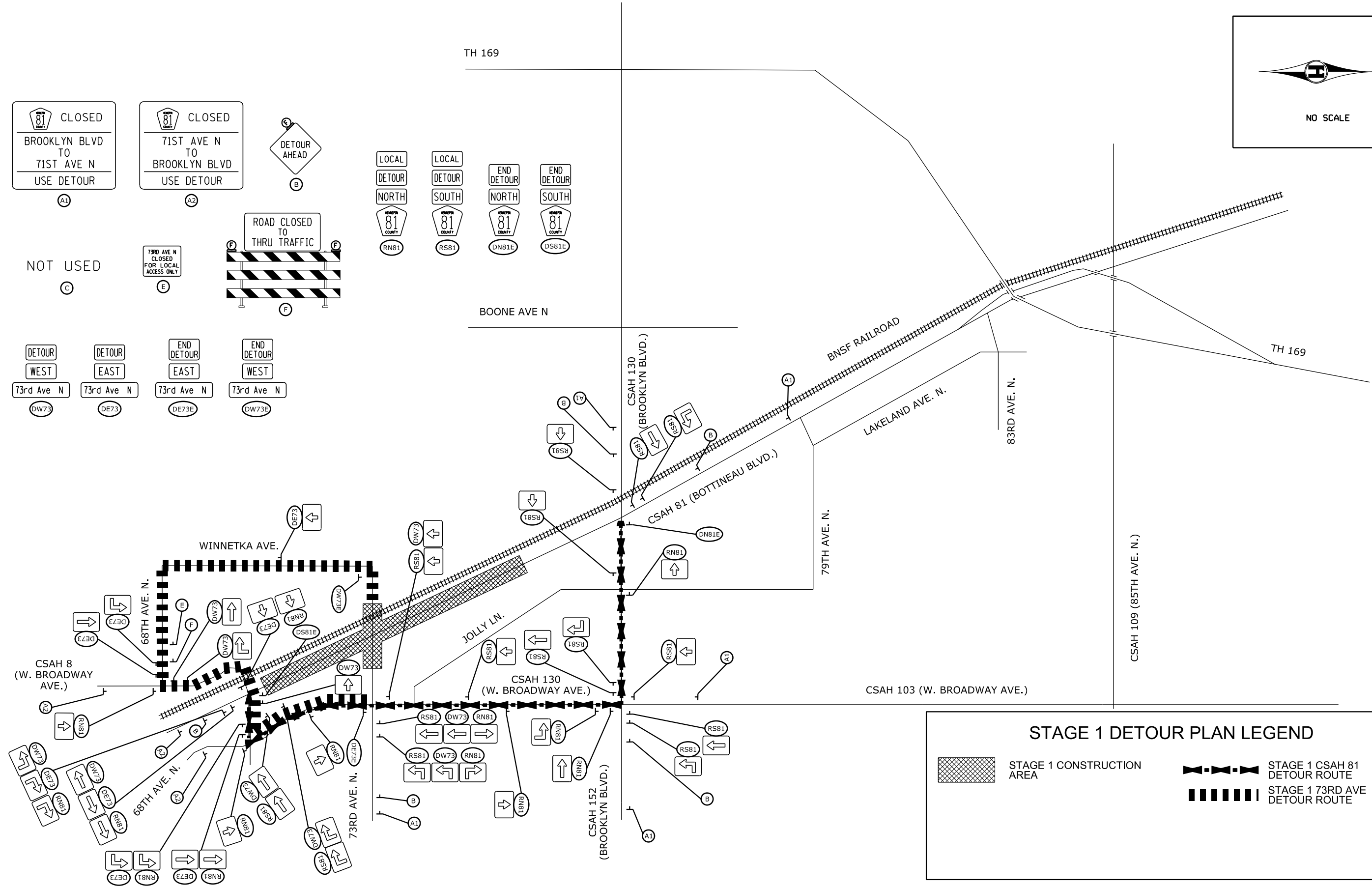
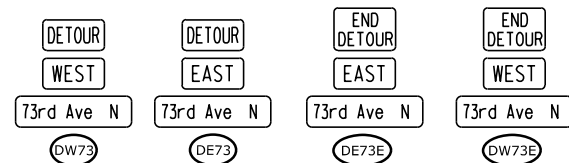
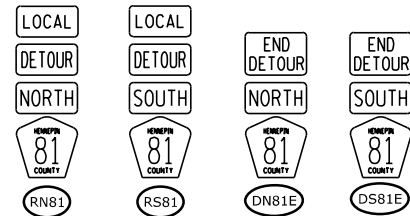
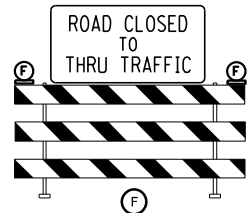
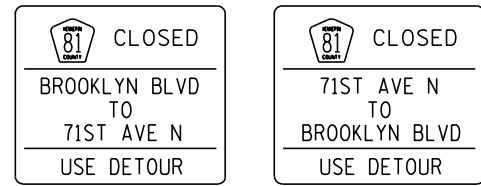
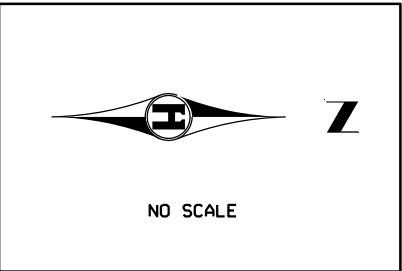


I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

Kate Miner
 KATE E. MINER, LICENSED PROFESSIONAL ENGINEER 43801 4/25/2019
 LICENSE NO. DATE

DESIGN BY: BRS
 CAD BY: BRS
 CHECKED BY: KEM
 LAST REVISION: / /

REGIONAL DETOUR SIGNING TABULATION SHEET
 C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922 TC11
 S.P. 027-681-035, S.P. 110-020-040 TC49



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.

Kate Miner
 KATE E. MINER, LICENSED PROFESSIONAL ENGINEER

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DETOUR SIGNING STAGE 1 PLAN SHEET

C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
 S.P. 027-681-035, S.P. 110-020-040

SHEET

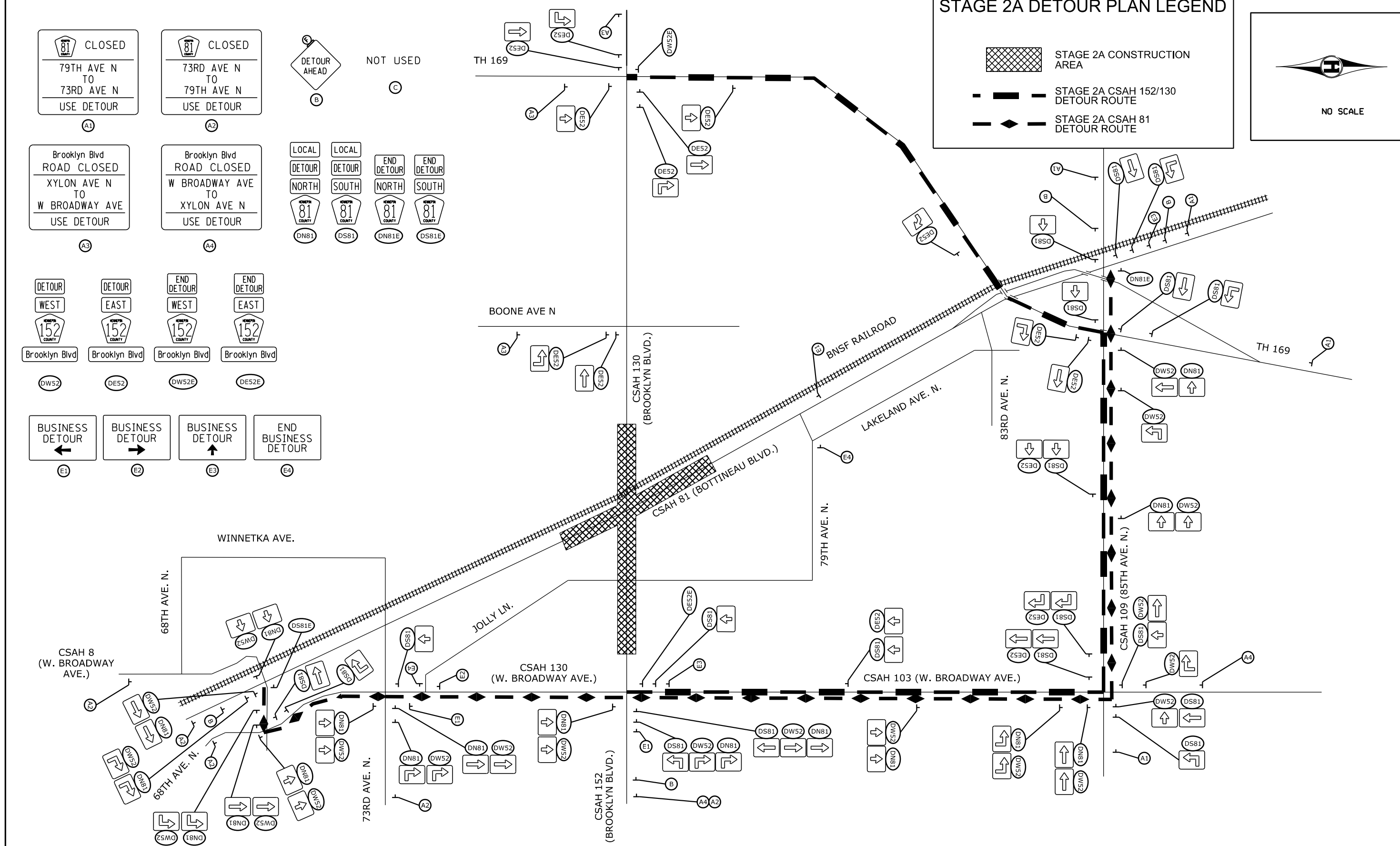
TC12
 TC49

STAGE 2A DETOUR PLAN LEGEND

- STAGE 2A CONSTRUCTION AREA
- STAGE 2A CSAH 152/130 DETOUR ROUTE
- STAGE 2A CSAH 81 DETOUR ROUTE

NO SCALE

CLOSED 79TH AVE N TO 73RD AVE N USE DETOUR A1	CLOSED 73RD AVE N TO 79TH AVE N USE DETOUR A2	DETOUR AHEAD NOT USED B	END DETOUR C
Brooklyn Blvd ROAD CLOSED XYLON AVE N TO W BROADWAY AVE USE DETOUR A3	Brooklyn Blvd ROAD CLOSED W BROADWAY AVE TO XYLON AVE N USE DETOUR A4	LOCAL DETOUR NORTH 81 COUNTY DN81	LOCAL DETOUR SOUTH 81 COUNTY DS81
END DETOUR WEST 152 COUNTY DN81E	END DETOUR EAST 152 COUNTY DS81E	BUSINESS DETOUR WEST E1	BUSINESS DETOUR EAST E2
BUSINESS DETOUR NORTH E3	END BUSINESS DETOUR E4		



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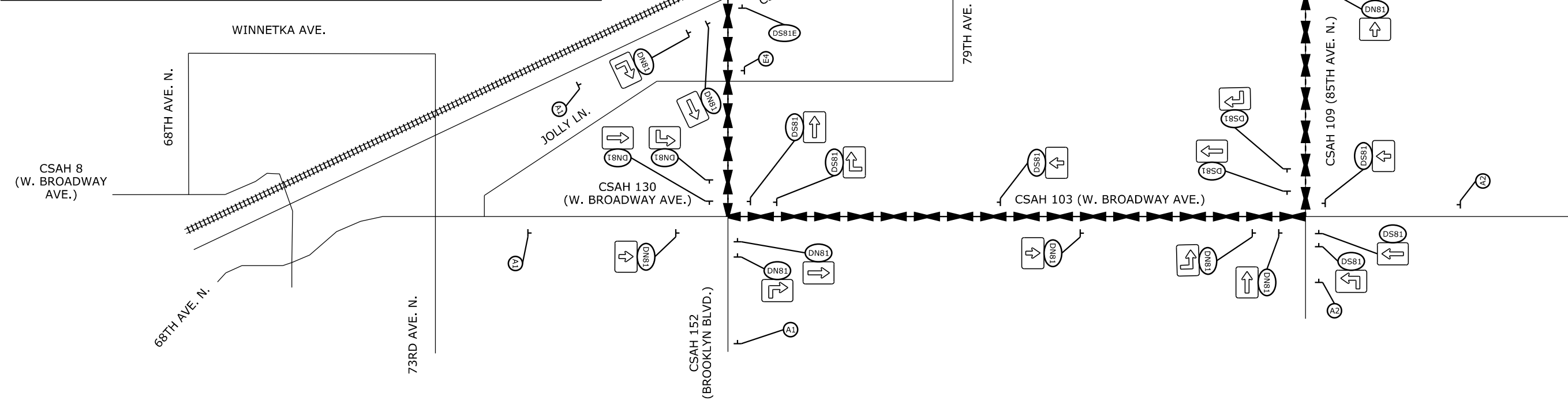
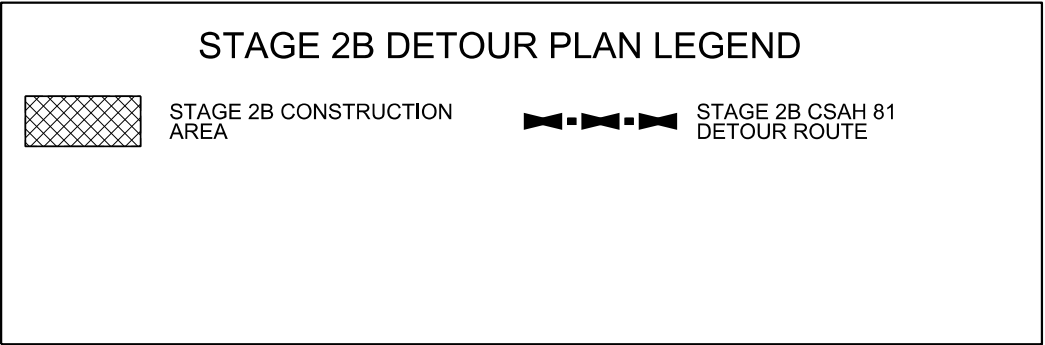
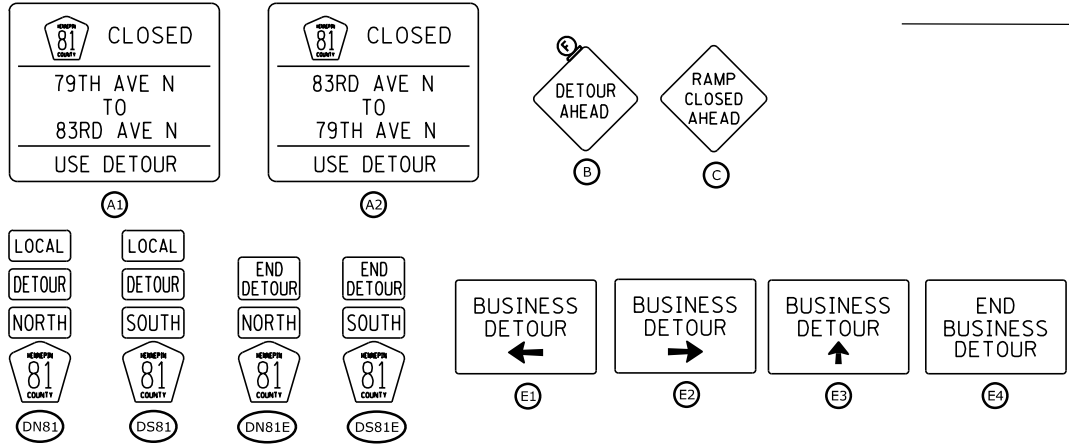
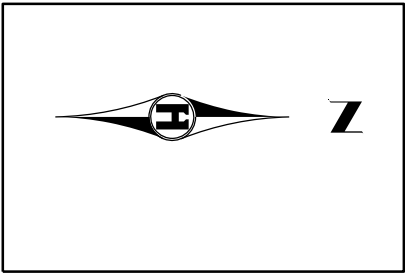
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DETOUR SIGNING STAGE 2A PLAN SHEET

C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
S.P. 027-681-035, S.P. 110-020-040

SHEET

TC13
TC49



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.

Kate Miner
 KATE E. MINER, LICENSED PROFESSIONAL ENGINEER
 43801 LICENSE NO. 4/25/2019 DATE



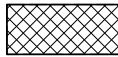
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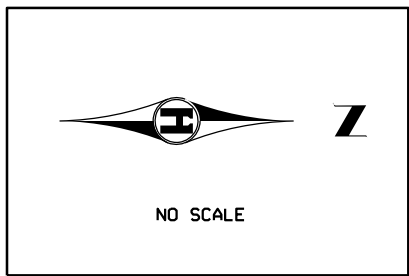
DETOUR SIGNING STAGE 2B PLAN SHEET

C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
 S.P. 027-681-035, S.P. 110-020-040

SHEET
 TC14
 TC49

STAGE 2B DETOUR PLAN LEGEND

-  STAGE 2B CSAH 130 SHORT-TERM DETOUR ROUTE ①
-  STAGE 2B 73RD AVE SHORT-TERM DETOUR ROUTE ①
-  STAGE 2B CONSTRUCTION AREA ①
- ① SHORT-TERM DETOUR ROUTES ARE FOR BNSF RAILROAD GRADE CROSSING REPLACEMENT WORK AND ASSOCIATED ROADWAY CONSTRUCTION.



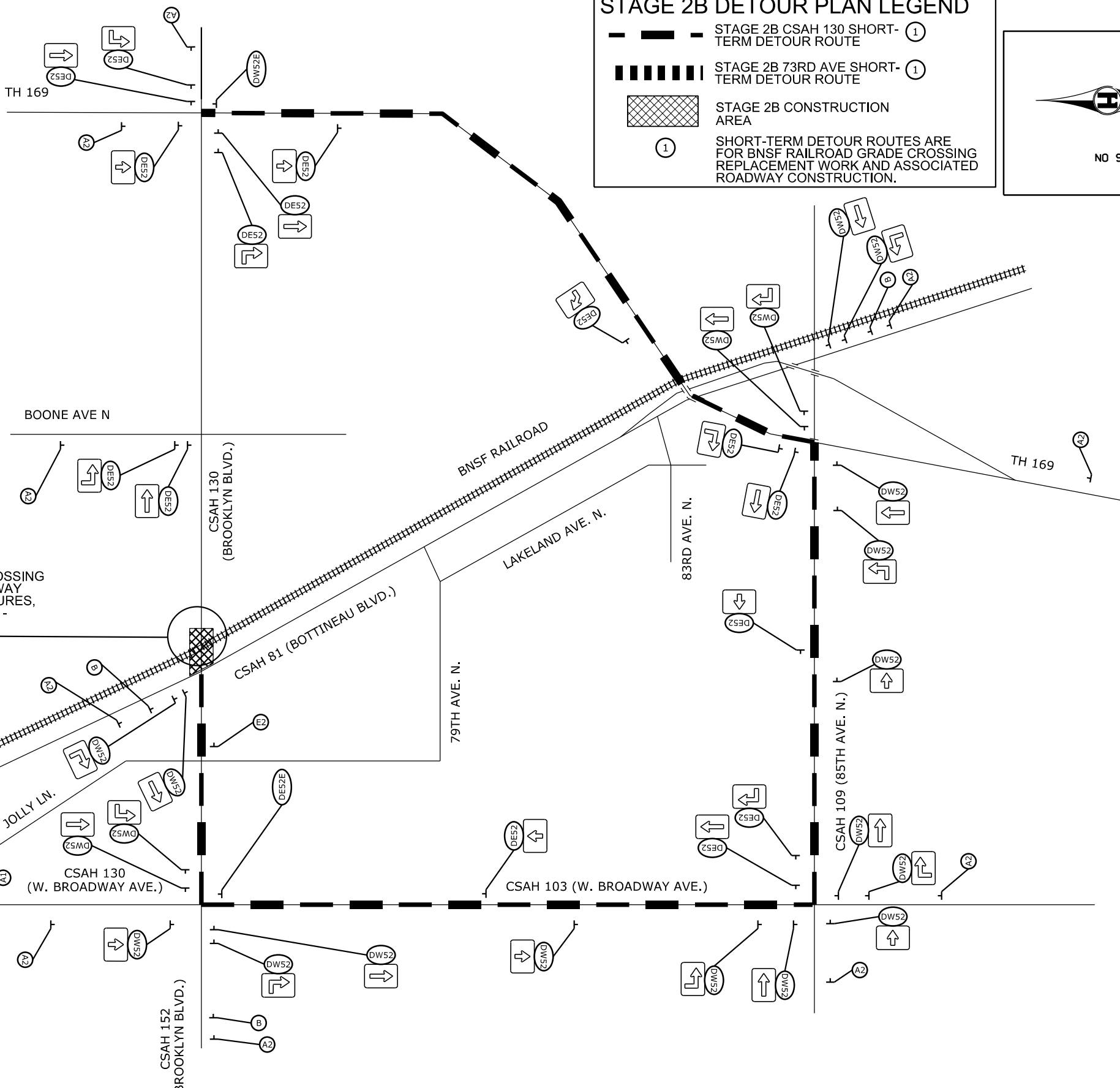
73rd Ave N
ACCESS CLOSED
AT RAILROAD
CROSSING
USE DETOUR

Brooklyn Blvd
ROAD CLOSED
AT RAILROAD
CROSSING
USE DETOUR

DETOUR AHEAD NOT USED

ROAD CLOSED TO THRU TRAFFIC

Brooklyn Blvd	Brooklyn Blvd	Brooklyn Blvd	Brooklyn Blvd
73rd Ave N	73rd Ave N	73rd Ave N	73rd Ave N



CLOSURE AREAS FOR RAILROAD GRADE CROSSING REPLACEMENT WORK & ASSOCIATED ROADWAY CONSTRUCTION (COORDINATE WORK, CLOSURES, AND DETOUR SIGNING WITH BNSF RAILROAD - SEE ALSO SPECIAL PROVISIONS)



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43801 4/25/2019
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DETOUR SIGNING STAGE 2B SHORT TERM PLAN SHEET

C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
S.P. 027-681-035, S.P. 110-020-040

SHEET
TC15
TC49

ROAD WORK
83RD AVE N
TO
71ST AVE N
USE BYPASS

ROAD WORK
71ST AVE N
TO
83RD AVE N
USE BYPASS

A1

A2



BYPASS
DETOUR
NORTH
SOUTH

81 COUNTY
RN81
RS81
DN81E
DS81E

LOCAL ACCESS
TO USE
LOCAL DETOUR

LOCAL ACCESS
TO USE
LOCAL DETOUR

C1

C2

REGIONAL DETOUR PLAN LEGEND



LOCAL ACCESS - ROAD WORK AREA

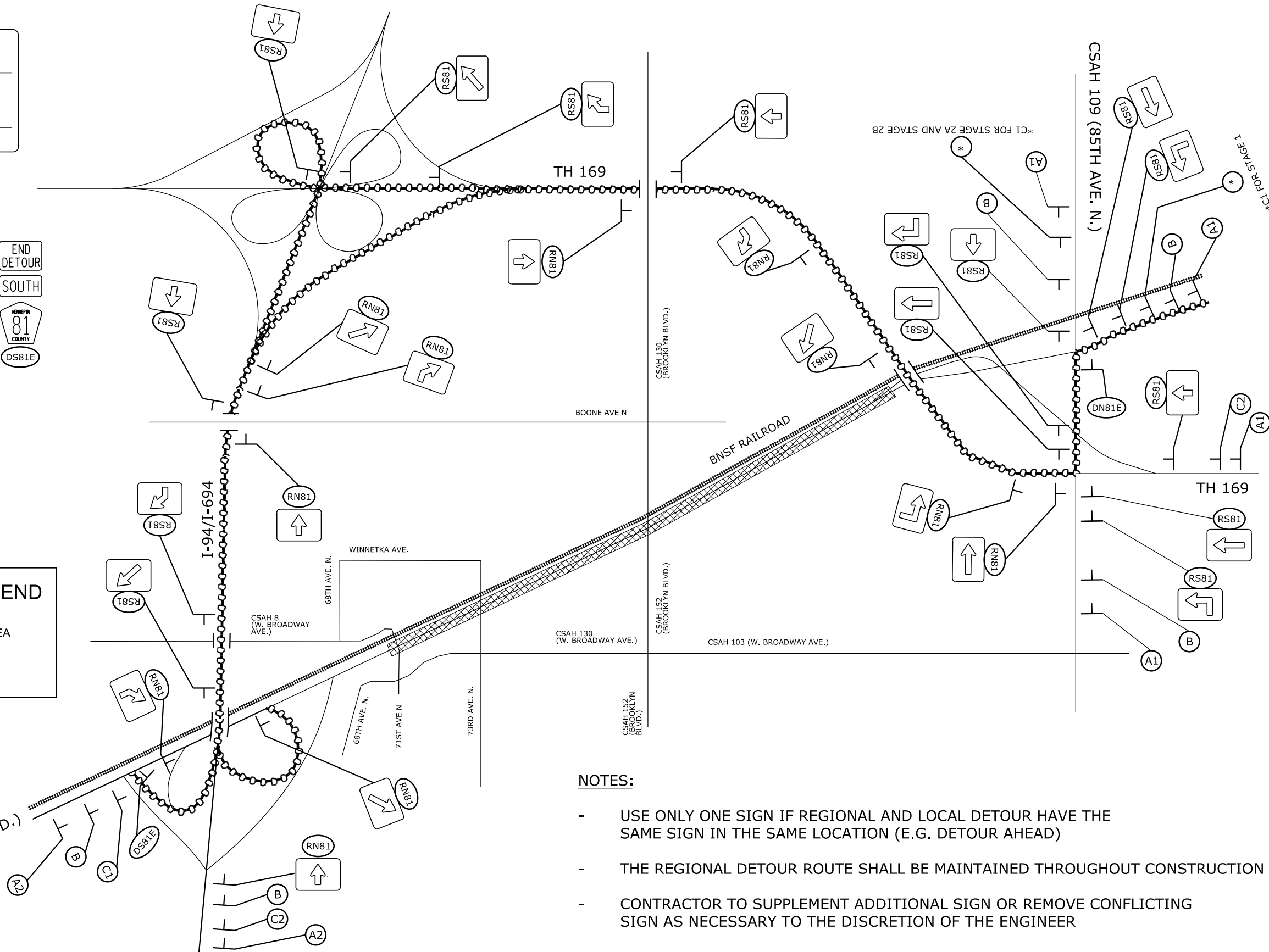


REGIONAL DETOUR ROUTE



NO SCALE

CSAH 81 (BOTTINEAU BLVD.)



NOTES:

- USE ONLY ONE SIGN IF REGIONAL AND LOCAL DETOUR HAVE THE SAME SIGN IN THE SAME LOCATION (E.G. DETOUR AHEAD)
- THE REGIONAL DETOUR ROUTE SHALL BE MAINTAINED THROUGHOUT CONSTRUCTION
- CONTRACTOR TO SUPPLEMENT ADDITIONAL SIGN OR REMOVE CONFLICTING SIGN AS NECESSARY TO THE DISCRETION OF THE ENGINEER



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43801
LICENSE NO.

4/25/2019
DATE

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LAST REVISION: _____

REGIONAL DETOUR SIGNING PLAN SHEET

C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
S.P. 027-681-035, S.P. 110-020-040

SHEET

TC16
TC49















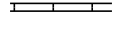

GENERAL NOTES

1. ALL TRAFFIC CONTROL DEVICES SHALL CONFORM AND BE INSTALLED IN ACCORDANCE WITH THE LATEST EDITION OF THE MNDOT "TRAFFIC ENGINEERING MANUAL" AND THE "MINNESOTA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" (MN MUTCD) AND PART VI, "FIELD MANUAL FOR TEMPORARY TRAFFIC CONTROL ZONE LAYOUTS".
2. ALL INPLACE TRAFFIC CONTROL DEVICES, INCLUDING OVERHEAD SIGNS ON ROADS AND ENTRANCES THAT ARE OPEN TO TRAFFIC AND THAT ARE NOT CONSISTENT WITH TRAFFIC CONTROL OPERATIONS SHALL BE COVERED, REMOVED OR REVISED AS DIRECTED BY THE ENGINEER.
3. ALL TRAFFIC CONTROL DEVICES ARE SHOWN IN THEIR APPROXIMATE LOCATIONS, ANY NECESSARY REARRANGEMENT SHALL BE AS DIRECTED BY THE ENGINEER.
4. THE CONTRACTOR SHALL FURNISH, INSTALL, MAINTAIN AND REMOVE THE TRAFFIC CONTROL DEVICES IN THIS PLAN UNLESS OTHERWISE NOTED.
5. THE CONTRACTOR IS RESPONSIBLE FOR PROTECTING ANY WORK AREAS NEAR TRAFFIC, AS DIRECTED BY THE ENGINEER.
6. TEMPORARY SIGNING SHALL BE MOUNTED ON POSTS DRIVEN INTO THE GROUND OR ON PORTABLE SUPPORTS, AND APPROVED BY THE ENGINEER. WHEN THE TEMPORARY SIGNS ARE REMOVED, THE SIGN POSTS SHALL ALSO BE REMOVED.
7. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY EXTRA SIGNING NEEDED TO FACILITATE TRAFFIC AS DIRECTED BY THE ENGINEER.
8. TEMPORARY PEDESTRIAN ACCESS CONTROL SHALL BE CAREFULLY COORDINATED TO PROVIDE HARD SURFACE TRAVERSABLE ACCESSIBLE WALK AREA FOR PEDESTRIANS (4' WIDE MIN) AT ALL TIMES. THE TEMPORARY PEDESTRIAN ACCESS ROUTE (TPAR) SHALL INCLUDE EXISTING, TEMPORARY, OR NEW PEDESTRIAN RAMPS AND OTHER DEVICES AS NEEDED TO SAFELY GUIDE PEDESTRIANS AND OTHER USERS THRU THE CORRIDOR. EXAMPLES OF ACCESSIBLE TPAR DEVICES ARE DEPICTED IN THE MMUTCD PART VI, "FIELD MANUAL FOR TEMPORARY TRAFFIC CONTROL LAYOUTS" IN FIGURE 6K-5. ALL WORK, MATERIALS, AND COORDINATION NEEDED TO SAFELY GUIDE PEDESTRIANS AND OTHER WALKWAY USERS SHALL BE INCLUDED IN THE LUMP SUM PAY ITEM FOR ALTERNATE PEDESTRIAN ROUTE.
9. TWO PORTABLE CHANGEABLE MESSAGE SIGNS ARE PROVIDED FOR EACH STAGE (NOT WINTER SUSPENSION) TO BE USED AT THE ENGINEER'S DISCRETION. THE SIGNS MAY BE RELOCATED VARIOUS TIMES DURING THE DURATION OF EACH STAGE.
10. PAYMENT FOR THE TRAFFIC CONTROL LUMP SUM ITEM INCLUDES ALL ITEMS DEPICTED IN THE TRAFFIC CONTROL PLAN VIEWS AND STAGE TRAFFIC CONTROL DEVICES AND TEMPORARY PAVEMENT MARKING TABULATIONS. SEPARATE TRAFFIC CONTROL ITEMS NEEDED FOR TEMPORARY LANE CLOSURES OR WORK UNDER TRAFFIC SUCH AS PAVING AND PAVEMENT MARKING PLACEMENT IS INCIDENTAL. ANY TRAFFIC CONTROL DEVICES NEEDED TO MAINTAIN TRAFFIC IN AREAS UNDER CONSTRUCTION AS DIRECTED IN THE PLANS THAT IS NOT DEPICTED IS ALSO INCIDENTAL. BITUMINOUS PAVEMENT FOR TEMPORARY CONNECTION WORK SHALL BE PAID FOR AS TYPE SP 12.5 NON-WEAR COURSE MIXTURE (3,B). SIGNING & STRIPING ASSOCIATED WITH TEMP. CONNECTIONS IS INCLUDED IN THE LUMP SUM ITEM FOR TRAFFIC CONTROL. PLACEMENT AND MAINTENANCE OF CLASS 5 AGG. BASE OR BIT. MILLINGS AS A TEMPORARY SURFACE ON LAKELAND AVE. IS INCIDENTAL. REMOVAL & DISPOSAL OF ALL TEMPORARY CONNECTION AND TEMPORARY SURFACING MATERIALS IS ALSO INCIDENTAL. SEPARATE PAY ITEMS FOR ADDITIONAL TRAFFIC CONTROL DEVICES ARE INCLUDED IN THE PROJECT EXCLUSIVE OF THE LUMP SUM PAY ITEM FOR 'TRAFFIC CONTROL'. THEIR USE IS ONLY AS NOTED WITHIN THE ADDITIONAL TRAFFIC CONTROL DEVICES TABULATION WITHIN THE TRAFFIC CONTROL PLANS.

WINTER TRAFFIC CONTROL

1. ALL TEMPORARY TRAFFIC CONTROL DEVICES DEEMED UNNECESSARY BY THE ENGINEER SHALL BE REMOVED FROM THE PROJECT LIMITS OR STORED IN THE CONTRACTOR'S STAGING AREA.
2. ALL ROAD SEGMENTS SHALL BE STRIPED PRIOR TO THE END OF EACH CONSTRUCTION SEASON. IF THE FINAL POLY PREFORMED PAVEMENT MARKINGS CANNOT BE PLACED BEFORE WINTER, TEMPORARY PAINT PAVEMENT MARKINGS SHALL BE INSTALLED AND MAINTAINED THROUGHOUT THE WINTER.
3. AN ANNUAL FALL REVIEW OF ALL TRAFFIC CONTROL ITEMS BY THE CONTRACTOR AND COUNT 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 DURING WINTER AND IN THE SPRING (INCIDENTAL).

TRAFFIC CONTROL LEGEND

	APPROPRIATE SIGN AS INDICATED MOUNTED ON POSTS OR PORTABLE TUBULAR METAL FRAME		4" SOLID YELLOW PAINT
	TYPE III BARRICADE		4" SOLID WHITE PAINT
	FLASHING LIGHT		4" BROKEN WHITE PAINT
	TRAFFIC CHANNELIZING DEVICE		24" SOLID WHITE PAINT
	CONSTRUCTION WORK ZONE		4" DOUBLE SOLID YELLOW PAINT
	PAVEMENT MESSAGE - PAINT		24" WHITE STOP LINE PAINT
	CROSSWALK - PAINT		
	IMPACT ATTENUATOR ASSEMBLY		
	PORTABLE PRECAST CONCRETE MEDIAN BARRIER DESIGN 8337		
	PORTABLE CHANGEABLE MESSAGE SIGN		

TRAFFIC CONTROL INDEX

TC17	TRAFFIC CONTROL DETAIL SHEET
TC18 - TC20	TRAFFIC CONTROL TABULATION SHEETS
TC21 - TC28	TRAFFIC CONTROL STAGE 1 PLAN SHEETS
TC29 - TC32	TRAFFIC CONTROL WINTER PLAN SHEETS
TC33 - TC40	TRAFFIC CONTROL STAGE 2A PLAN SHEETS
TC41 - TC48	TRAFFIC CONTROL STAGE 2B PLANS SHEETS



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Kate Miner
 KATE E. MINER, LICENSED PROFESSIONAL ENGINEER
 43801 LICENSE NO. 4/25/2019 DATE

DESIGN BY: BRS
 CAD BY: BRS
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 LAST REVISION: / /

TRAFFIC CONTROL DETAILS

C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
 S.P. 027-681-035, S.P. 110-020-040

SHEET

TC17
 TC49

TEMPORARY PAVEMENT MARKINGS - ALL STAGES													
TRAFFIC CONTROL STAGE	PAINT											REMOVABLE PREFORMED PAVT MARKING TAPE LIN FT	
	SOLID				BROKEN	DOTTED			MESSAGES				CROSSWALK SQ FT
	4" WHITE LIN FT	4" YELLOW LIN FT	24" WHITE LIN FT	24" STOP WHITE LIN FT	4" WHITE LIN FT	4" WHITE LIN FT	4" YELLOW LIN FT	RT TURN ARROW EACH	LT TURN ARROW EACH	RR XING MESSAGE EACH			
STAGE 1	1083											691	
STAGE WINTER	7751	1552	1087	348	2477		798	11	8	6	960		
STAGE 2A	2853												
STAGE 2B	8914		450	327	1749	82	928	10	18	7	4472	409	

ADDITIONAL TRAFFIC CONTROL DEVICES															
PAVEMENT MARKING REMOVAL	PAVEMENT MARKING REMOVAL	PORTABLE PRECAST CONC BARRIER DES 8337	RELOCATE PORTABLE PRECAST CONC BARRIER DES 8337	IMPACT ATTENUATOR	RELOCATE IMPACT ATTENUATOR	PORTABLE CONCRETE BARRIER DELINEATOR	PORTABLE CHANGEABLE MESSAGE SIGN	CONSTRUCTION SIGN-SPECIAL	REMOVABLE PREFORMED PAVEMENT MARKING TAPE	4" SOLID LINE PAINT	4" BROKEN LINE PAINT	4" DOUBLE SOLID LINE PAINT	24" SOLID LINE PAINT	PAVEMENT MESSAGE PAINT	CROSSWALK PAINT
2102		2533		2554		2563		2581		2582					
LIN FT	SQ FT	LIN FT	LIN FT	AMBY	AMBY	EACH	UNIT DAY	SQ FT	SQ FT	LIN FT	LIN FT	LIN FT	LIN FT	SQ FT	SQ FT
1000	300	1200	1200	4	4	100	600	500	500	5000	5000	2000	200	500	1000

GENERAL NOTES:

- THE PORTABLE PRECAST CONCRETE BARRIER DES 8337, IMPACT ATTENUATOR, AND PORTABLE CONCRETE BARRIER DELINEATOR ITEMS ARE SEPARATE PAY ITEMS FROM THE APPROXIMATE QUANTITIES SHOWN IN THE VARIOUS STAGE TRAFFIC CONTROL DEVICES TABULATIONS THAT ARE INCLUDED IN THE LUMP SUM TRAFFIC CONTROL PAY ITEM. THESE ITEMS ARE FOR USE WHEN LONGITUDINAL DROPOFFS EXCEED VALUES INDICATED IN TABLE 6F-5A OF PART 6 OF THE MNMUTCD WHEN WORKING NEXT TO VEHICULAR TRAFFIC OR WHEN OTHERWISE DIRECTED FOR USE BY THE ENGINEER.
- THE ITEMS FOR PAVEMENT MARKING REMOVAL, REMOVABLE PREFORMED PAVEMENT MARKING TAPE, PORTABLE CHANGEABLE MESSAGE SIGN, CONSTRUCTION SIGN-SPECIAL, AND THE VARIOUS PAINT PLACEMENT ITEMS ARE ALSO SEPARATE PAY ITEMS FROM THE QUANTITIES SHOWN IN THE VARIOUS STAGE TRAFFIC CONTROL DEVICES TABULATIONS THAT ARE INCLUDED IN THE LUMP SUM PAY ITEM FOR TRAFFIC CONTROL. THESE ITEMS ARE FOR USE WHEN DIRECTED BY THE ENGINEER.



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.

Kate Miner
 KATE E. MINER, LICENSED PROFESSIONAL ENGINEER
 43801 LICENSE NO. 4/25/2019 DATE

DESIGN BY: BRS
 CAD BY: BRS
 CHECKED BY: KEM
 LAST REVISION: / /

TRAFFIC CONTROL TABULATION

C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
 S.P. 027-681-035, S.P. 110-020-040

SHEET
 TC18
 TC49

TRAFFIC CONTROL DEVICES STAGE 1					
SIGN QTY.	PANELS		PANEL CODE NUMBER	LEGEND	SIGN COLOR
	SIZE				
	INCH	INCH			
2	30	30	W12-1	DOUBLE ARROW 45 DEGREE DOWN	BLACK ON YELLOW
12	36	36	W20-1	ROAD WORK AHEAD	BLACK ON ORANGE
7	36	36	W20-3	ROAD CLOSED AHEAD	BLACK ON ORANGE
4	36	36	W20-X18	TURN LANE CLOSED	BLACK ON ORANGE
11	48	30	R11-2R	ROAD CLOSED	BLACK ON WHITE
2	60	30	R11-4	ROAD CLOSED TO THRU TRAFFIC	BLACK ON WHITE
2	48	24	G20-2a	END ROAD WORK	BLACK ON ORANGE
1	24	24	M1-6 (152)	HENNEPIN COUNTY 152	WHITE AND YELLOW ON BLUE
2	24	24	M1-6 (130)	HENNEPIN COUNTY 130	WHITE AND YELLOW ON BLUE
1	24	12	M3-2a	EAST	WHITE ON BLUE
1	24	12	M3-3a	SOUTH	WHITE ON BLUE
1	24	12	M3-4a	WEST	WHITE ON BLUE
1	24	12	M4-5a	TO	WHITE ON BLUE
2	24	18	M5-4a	LEFT LANE	WHITE ON BLUE
1	24	18	M5-6a	RIGHT LANE	WHITE ON BLUE
52	-	-	-	TYPE 3 BARRICADE	-
130				APPROXIMATE REFLECTORIZED DRUMS	
90	-	-	-	FLASHER	-
2	-	-	-	PORTABLE CHANGEABLE MESSAGE SIGN	-

GENERAL NOTES:
 - QUANTITIES ARE APPROXIMATE AND ARE SUBJECT TO CHANGE. THEY ARE PROVIDED TO APPROXIMATE SCALE OF NECESSARY TRAFFIC CONTROL ITEMS
 - TWO PORTABLE CHANGEABLE MESSAGE SIGNS FOR USE BY ENGINEER FOR DURATION OF STAGE

TRAFFIC CONTROL DEVICES STAGE WINTER						
SIGN QTY.	PANELS		PANEL CODE NUMBER	LEGEND	SIGN COLOR	
	SIZE					
	INCH	INCH				
2	36	36	W1-4b (L OR R)	ROAD WINDING RIGHT DOUBLE	BLACK ON ORANGE	
1	36 DIA		W10-1	RAILROAD TRACK	BLACK ON YELLOW	
1	30	30	R1-1	STOP	WHITE ON RED	
2	18	18	W13-1P	SPEED ADVISORY PLAQUE	BLACK ON ORANGE	
3	30	30	R3-7R	RIGHT LANE MUST TURN RIGHT	BLACK ON WHITE	
1	54	30	R3-8ACA	THREE LANE L-T-R	BLACK ON WHITE	
1	24	30	R8-8	DO NOT STOP ON TRACKS	BLACK ON WHITE	
1	48	30	R11-2T	TRAIL CLOSED	BLACK ON WHITE	
1	-	-	-	TYPE 3 BARRICADE	-	
			LIN FT	183	PORT. PRECAST CONC. BAR. DES. 8337	
			EACH	15	PORTABLE CONC. BARRIER DELINEATOR	
			AMBY	5	IMPACT ATTENUATOR	

GENERAL NOTES:
 - QUANTITIES ARE APPROXIMATE AND ARE SUBJECT TO CHANGE. THEY ARE PROVIDED TO APPROXIMATE SCALE OF NECESSARY TRAFFIC CONTROL ITEMS
 - ADVISORY PLAQUE SPEED TO BE DETERMINED BY ENGINEER



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.

Kate Miner
 KATE E. MINER, LICENSED PROFESSIONAL ENGINEER
 43801 LICENSE NO. 4/25/2019 DATE

DESIGN BY: BRS
 CAD BY: BRS
 CHECKED BY: KEM
 LAST REVISION: / /

TRAFFIC CONTROL TABULATION
 C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
 S.P. 027-681-035, S.P. 110-020-040

SHEET
 TC19
 TC49

TRAFFIC CONTROL DEVICES STAGE 2A							
SIGN QTY.	PANELS		UNIT	QTY.	PANEL CODE NUMBER	LEGEND	SIGN COLOR
	SIZE						
	INCH	INCH					
2	36	36			W4-2R	RIGHT LANE MERGE	BLACK ON YELLOW
1	36 DIA				W10-1	RAILROAD TRACK	BLACK ON YELLOW
1	30	30			W12-1	DOUBLE ARROW 45 DEGREE DOWN	BLACK ON YELLOW
13	36	36			W20-1	ROAD WORK AHEAD	BLACK ON ORANGE
6	36	36			W20-3	ROAD CLOSED AHEAD	BLACK ON ORANGE
1	36	36			W20-X18	TURN LANE CLOSED	BLACK ON ORANGE
2	36	36			W21-X5R	RIGHT LANE CLOSED	BLACK ON ORANGE
2	24	24			R3-2	NO LEFT TURN	BLACK AND RED ON WHITE
1	30	30			R3-7L	LEFT LANE MUST TURN LEFT	BLACK ON WHITE
2	30	30			R3-7R	RIGHT LANE MUST TURN RIGHT	BLACK ON WHITE
1	54	30			R3-8ACA	THREE LANE L-T-R	BLACK ON WHITE
1	24	30			R8-8	DO NOT STOP ON TRACKS	BLACK ON WHITE
9	48	30			R11-2R	ROAD CLOSED	BLACK ON WHITE
1	48	30			R11-2L	LANE CLOSED	BLACK ON WHITE
1	48	24			R1-6R	PUSH ARROW	BLACK ON ORANGE
3	60	30			R11-4	ROAD CLOSED TO THRU TRAFFIC	BLACK ON WHITE
1	48	30			R11-2T	TRAIL CLOSED	BLACK ON WHITE
4	48	24			G20-2a	END ROAD WORK	BLACK ON ORANGE
1	VAR	VAR			G20-X8??	BUSINESS ACCESS ONLY	BLACK ON ORANGE
47	-	-			-	TYPE 3 BARRICADE	-
90						APPROXIMATE REFLECTORIZED DRUMS	
48	-	-			-	FLASHER	-
2	-	-			-	PORTABLE CHANGEABLE MESSAGE SIGN	-
			LIN FT	183		PORT. PRECAST CONC. BAR. DES 8337	
			EACH	15		PORTABLE CONC. BARRIER DELINEATOR	
			AMBY	5		IMPACT ATTENUATOR	

GENERAL NOTES:
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- TWO PORTABLE CHANGEABLE MESSAGE SIGNS FOR USE BY ENGINEER FOR DURATION OF STAGE

TRAFFIC CONTROL DEVICES STAGE 2B							
SIGN QTY.	PANELS		UNIT	QTY.	PANEL CODE NUMBER	LEGEND	SIGN COLOR
	SIZE						
	INCH	INCH					
2	36	36			W4-2R	RIGHT LANE MERGE	BLACK ON YELLOW
1	30	30			W4-2L	LEFT LANE MERGE	BLACK ON YELLOW
1	30	30			W12-1	DOUBLE ARROW 45 DEGREE DOWN	BLACK ON YELLOW
17	36	36			W20-1	ROAD WORK AHEAD	BLACK ON ORANGE
5	36	36			W20-3	ROAD CLOSED AHEAD	BLACK ON ORANGE
3	36	36			W20-X18	TURN LANE CLOSED	BLACK ON ORANGE
1	36	36			W21-X5L	LEFT LANE CLOSED	BLACK ON ORANGE
3	36	36			W21-X5R	RIGHT LANE CLOSED	BLACK ON ORANGE
2	24	24			R3-1	NO RIGHT TURN	BLACK AND RED ON WHITE
3	24	24			R3-2	NO LEFT TURN	BLACK AND RED ON WHITE
1	30	30			R3-7L	LEFT LANE MUST TURN LEFT	BLACK ON WHITE
8	48	30			R11-2R	ROAD CLOSED	BLACK ON WHITE
1	48	30			R11-2T	TRAIL CLOSED	BLACK ON WHITE
1	48	24			R1-6R	PUSH ARROW	BLACK ON ORANGE
3	48	30			R11-2L	LANE CLOSED	BLACK ON WHITE
4	60	30			R11-4	ROAD CLOSED TO THRU TRAFFIC	BLACK ON WHITE
5	48	24			G20-2a	END ROAD WORK	BLACK ON ORANGE
1	VAR	VAR			G20-X8	BUSINESS ACCESS ONLY	BLACK ON ORANGE
48	-	-			-	TYPE 3 BARRICADE	-
188						APPROXIMATE REFLECTORIZED DRUMS	
57	-	-			-	FLASHER	-
2	-	-			-	PORTABLE CHANGEABLE MESSAGE SIGN	-
			LIN FT	789		PORT. PRECAST CONC. BAR. DES. 8337	
			EACH	66		PORTABLE CONC. BARRIER DELINEATOR	
			AMBY	10		IMPACT ATTENUATOR	

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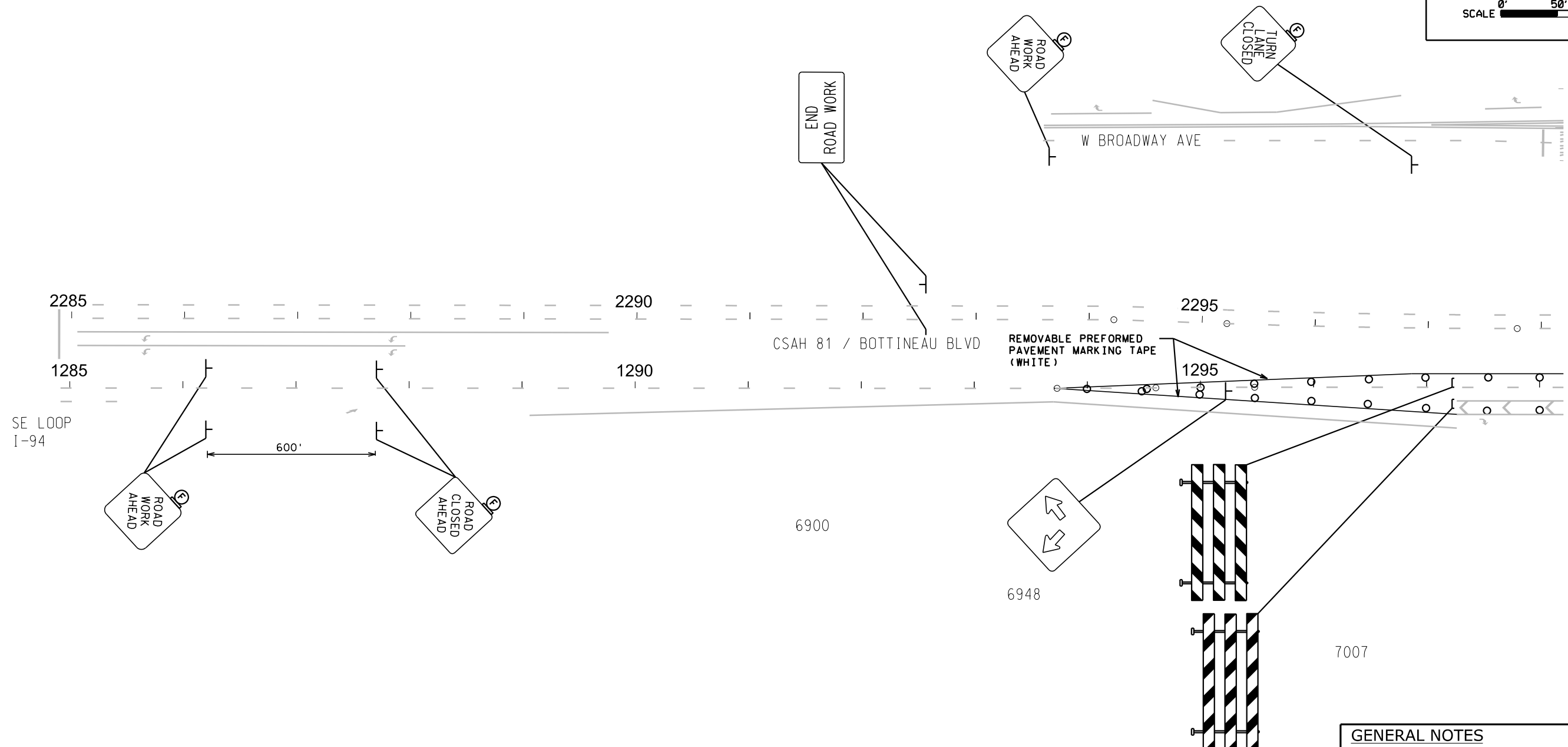
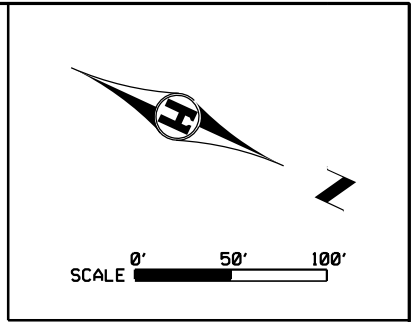
I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

Kate Miner
KATE E. MINER, LICENSED PROFESSIONAL ENGINEER
43801 LICENSE NO. 5/1/2019 DATE

DESIGN BY: BRS
CAD BY: BRS
CHECKED BY: KEM
LAST REVISION: / /

TRAFFIC CONTROL TABULATION
C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
S.P. 027-681-035, S.P. 110-020-040

SHEET
TC20
TC49



GENERAL NOTES
 ACCESS SHALL BE MAINTAINED AT ALL TIMES AS DIRECTED BY THE ENGINEER.
 SEE SHEET TC12 FOR DETOUR SIGNING.

ALL TRAFFIC CONTROL DEVICES AND LAYOUTS SHALL CONFORM AND BE INSTALLED IN ACCORDANCE WITH THE LATEST EDITION OF THE "MINNESOTA MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES" (MN MUTCD) INCLUDING THE LATEST "FIELD MANUAL FOR TEMPORARY TRAFFIC CONTROL LAYOUTS".



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Kate Miner
 KATE E. MINER, LICENSED PROFESSIONAL ENGINEER 43801 4/25/2019
 LICENSE NO. DATE

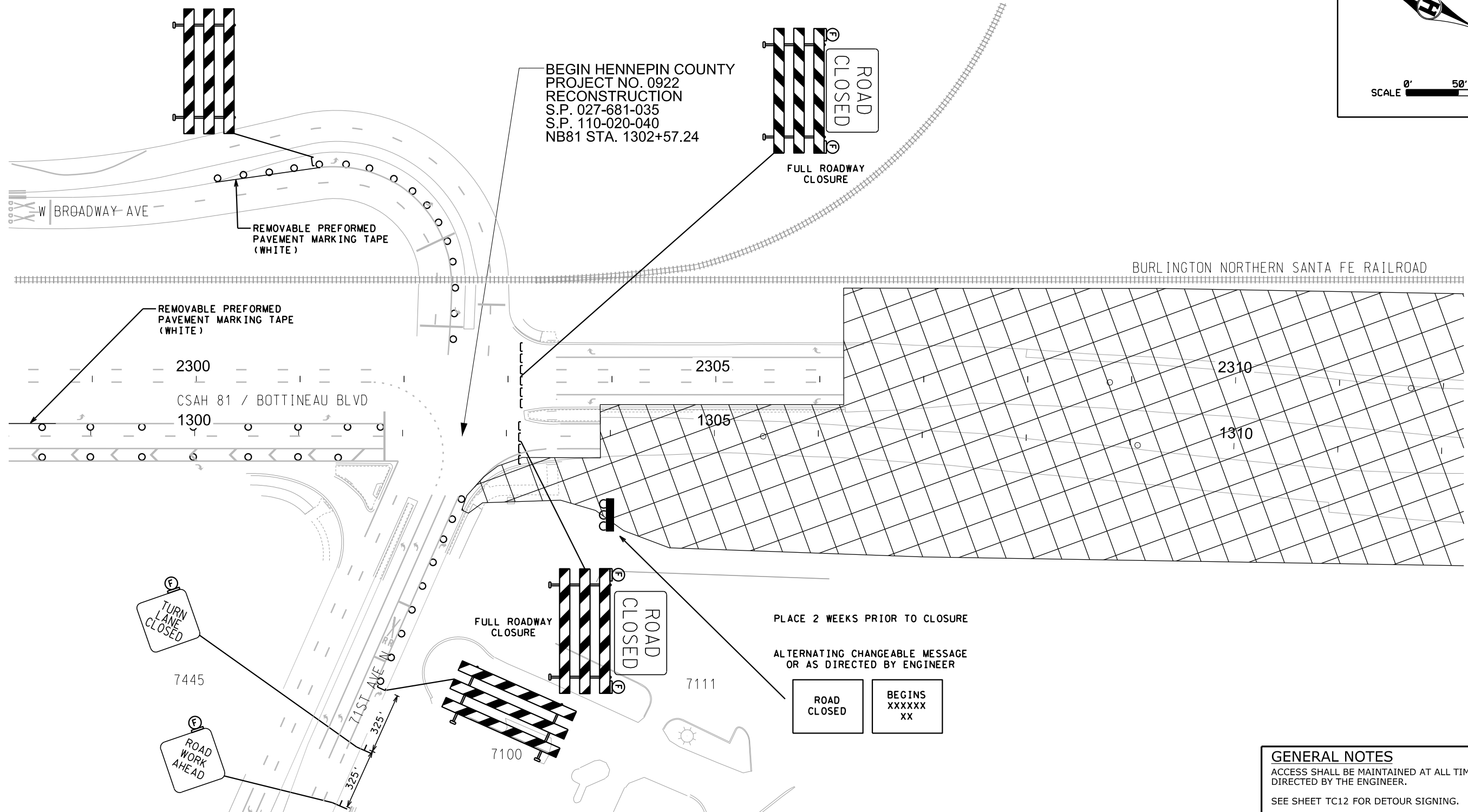
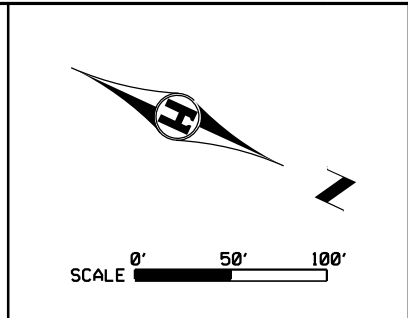
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 CHECKED BY: KEM
 LAST REVISION: / /

TRAFFIC CONTROL PLAN STAGE 1

C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
 S.P. 027-681-035, S.P. 110-020-040

SHEET

TC21
 TC49



BEGIN HENNEPIN COUNTY
PROJECT NO. 0922
RECONSTRUCTION
S.P. 027-681-035
S.P. 110-020-040
NB81 STA. 1302+57.24

ROAD
CLOSED

FULL ROADWAY
CLOSURE

TURN
LANE
CLOSED

ROAD
WORK
AHEAD

FULL ROADWAY
CLOSURE

ROAD
CLOSED

PLACE 2 WEEKS PRIOR TO CLOSURE

ALTERNATING CHANGEABLE MESSAGE
OR AS DIRECTED BY ENGINEER

ROAD
CLOSED

BEGINS
XXXXXX
XX

GENERAL NOTES
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DIRECTED BY THE ENGINEER.
SEE SHEET TC12 FOR DETOUR SIGNING.

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CONFORM AND BE INSTALLED IN ACCORDANCE WITH
THE LATEST EDITION OF THE "MINNESOTA MANUAL OF
UNIFORM TRAFFIC CONTROL DEVICES" (MN MUTCD)
INCLUDING THE LATEST "FIELD MANUAL FOR TEMPORARY
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Kate Miner
KATE E. MINER, LICENSED PROFESSIONAL ENGINEER

43801 4/25/2019
LICENSE NO. DATE

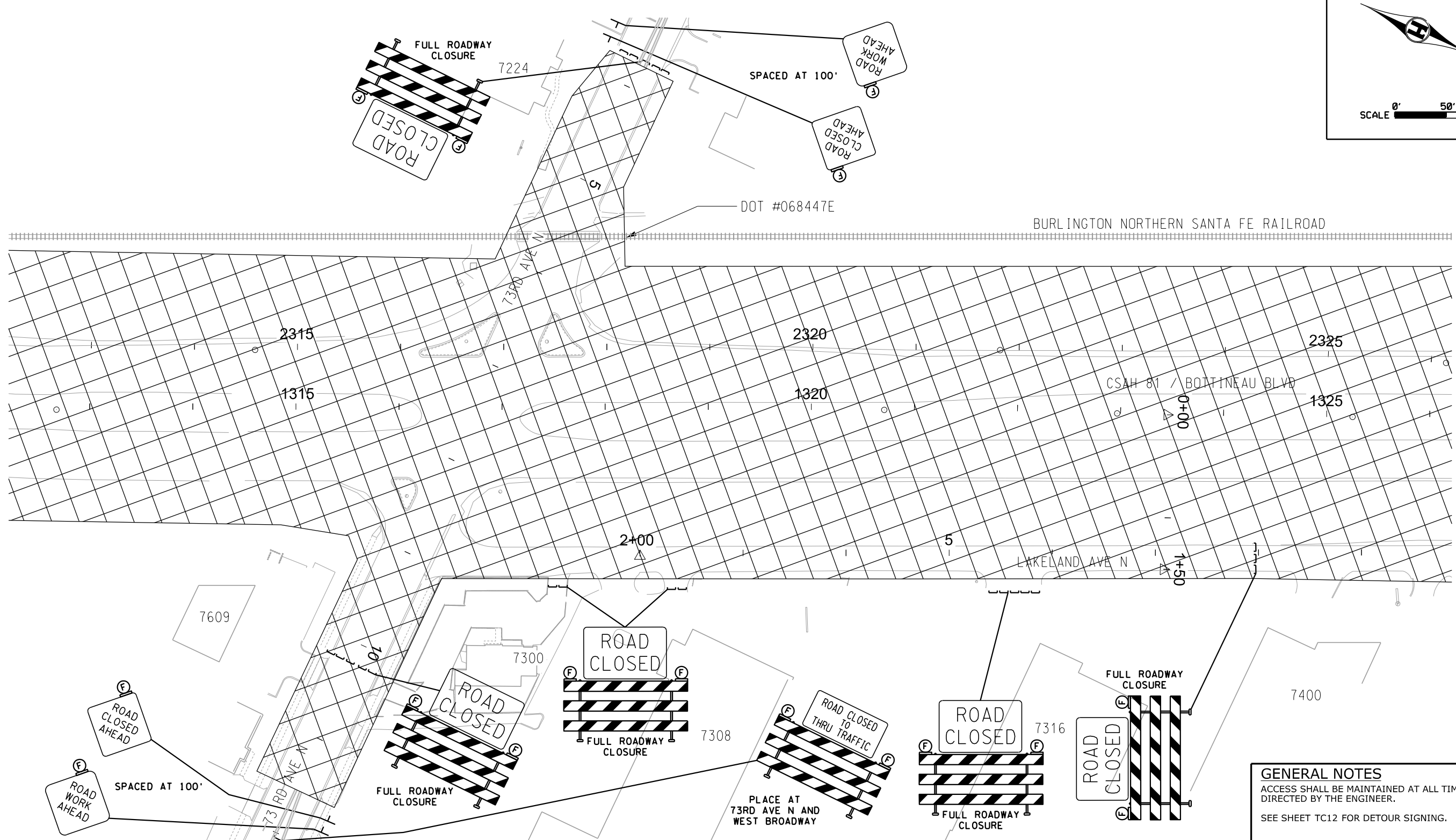
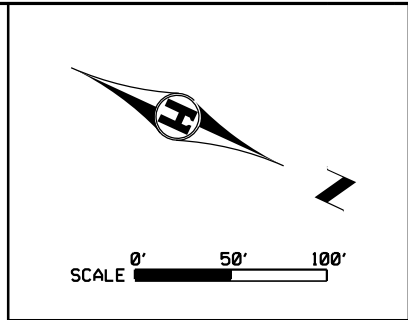
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CHECKED BY: KEM
LAST REVISION: / /

TRAFFIC CONTROL PLAN STAGE 1

C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
S.P. 027-681-035, S.P. 110-020-040

SHEET

TC22
TC49



GENERAL NOTES
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43801 4/25/2019
 LICENSE NO. DATE

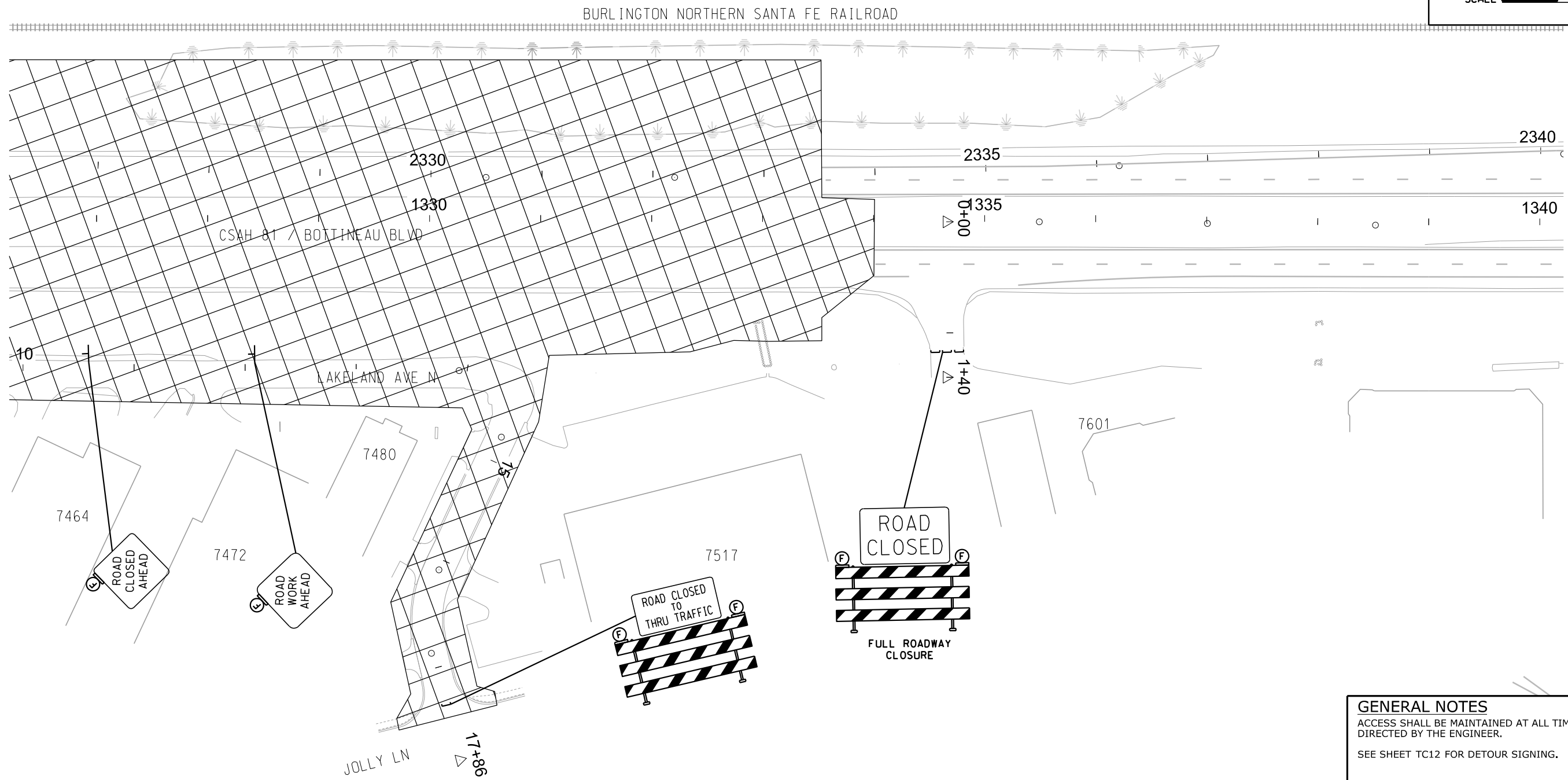
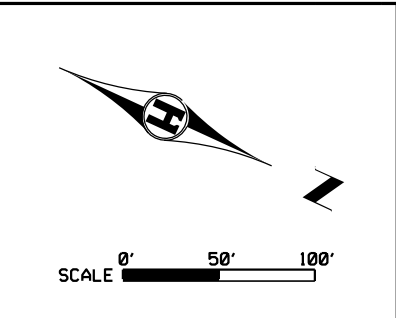
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TRAFFIC CONTROL PLAN STAGE 1

C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
 S.P. 027-681-035, S.P. 110-020-040

SHEET

TC23
 TC49



GENERAL NOTES
 ACCESS SHALL BE MAINTAINED AT ALL TIMES AS DIRECTED BY THE ENGINEER.
 SEE SHEET TC12 FOR DETOUR SIGNING.

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Kate Miner
 KATE E. MINER, LICENSED PROFESSIONAL ENGINEER

43801 4/25/2019
 LICENSE NO. DATE

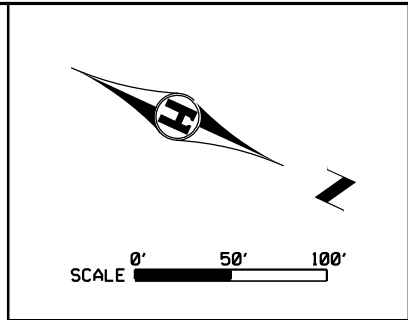
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 CHECKED BY: KEM
 LAST REVISION: / /

TRAFFIC CONTROL PLAN STAGE 1

C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
 S.P. 027-681-035, S.P. 110-020-040

SHEET

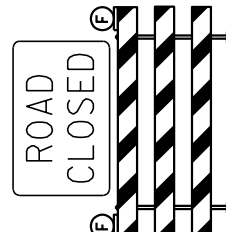
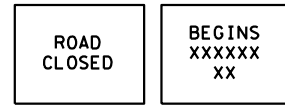
TC24
 TC49



7800

PLACE 2 WEEKS PRIOR TO CLOSURE

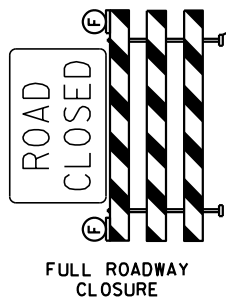
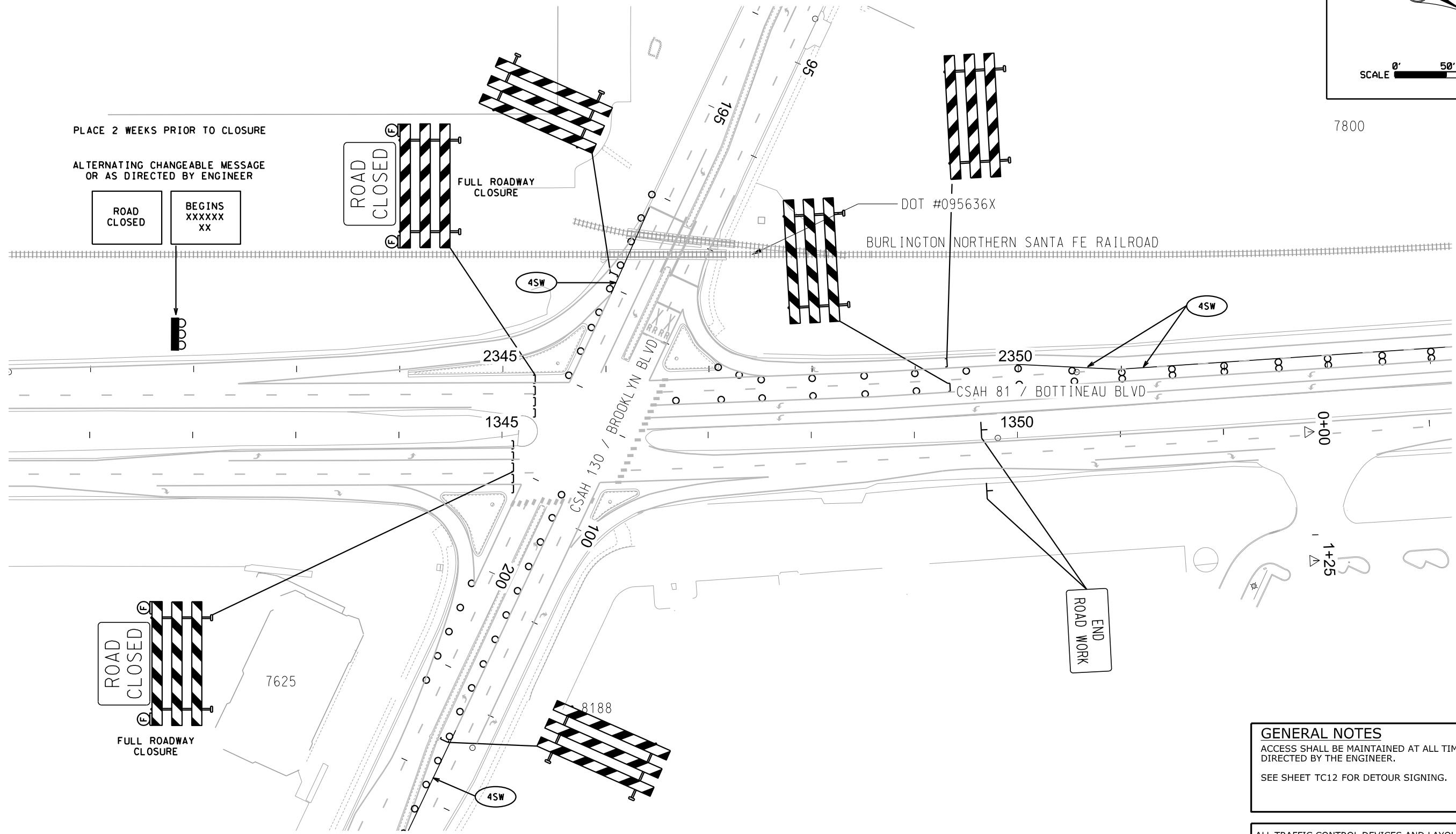
ALTERNATING CHANGEABLE MESSAGE
OR AS DIRECTED BY ENGINEER



FULL ROADWAY CLOSURE

DOT #095636X

BURLINGTON NORTHERN SANTA FE RAILROAD



FULL ROADWAY CLOSURE



GENERAL NOTES
ACCESS SHALL BE MAINTAINED AT ALL TIMES AS DIRECTED BY THE ENGINEER.
SEE SHEET TC12 FOR DETOUR SIGNING.

ALL TRAFFIC CONTROL DEVICES AND LAYOUTS SHALL CONFORM AND BE INSTALLED IN ACCORDANCE WITH THE LATEST EDITION OF THE "MINNESOTA MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES" (MN MUTCD) INCLUDING THE LATEST "FIELD MANUAL FOR TEMPORARY TRAFFIC CONTROL LAYOUTS".



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KATE E. MINER, LICENSED PROFESSIONAL ENGINEER

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LICENSE NO. DATE

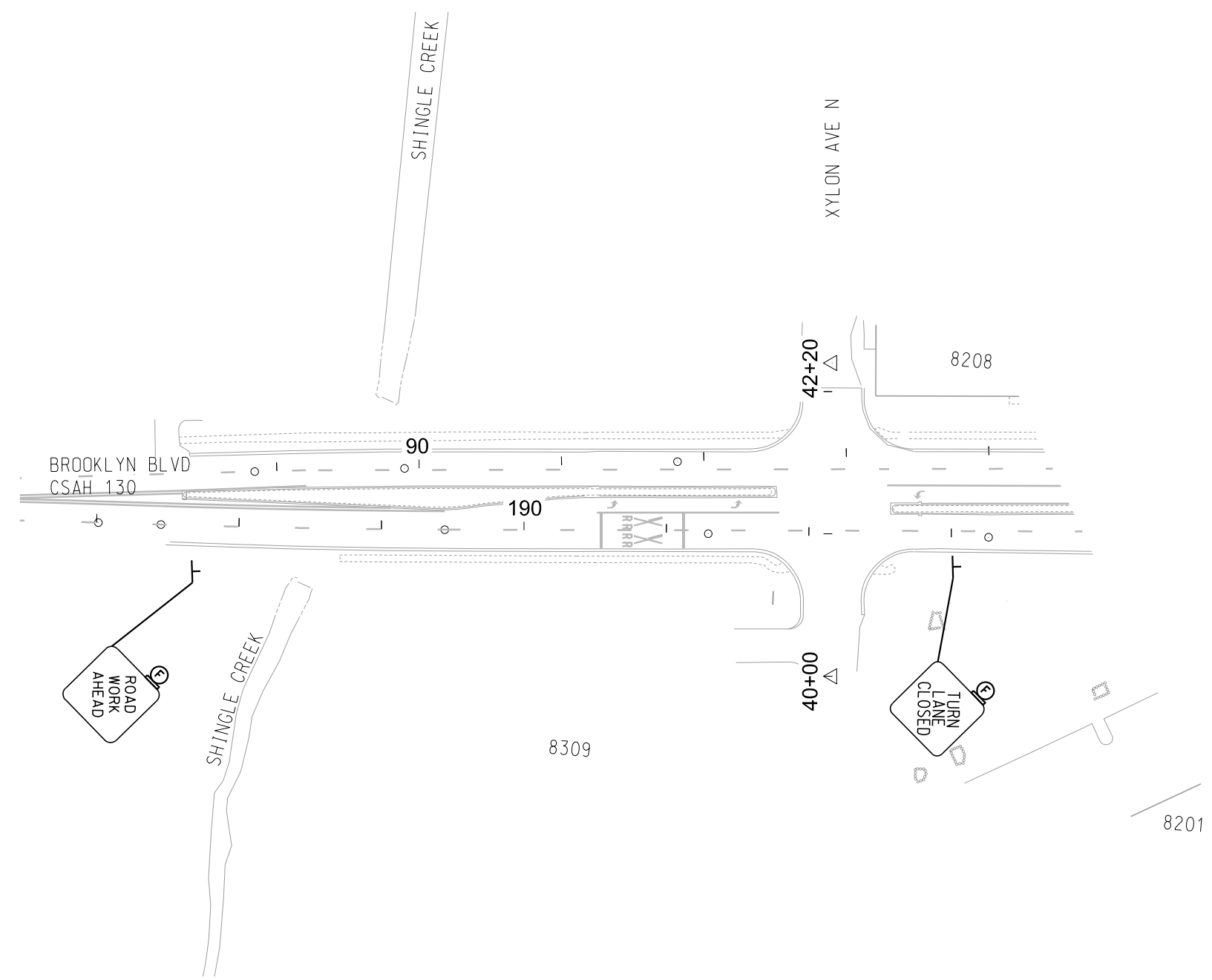
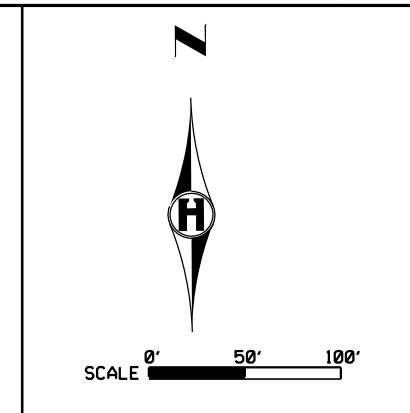
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CHECKED BY: KEM
LAST REVISION: / /

TRAFFIC CONTROL PLAN STAGE 1

C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
S.P. 027-681-035, S.P. 110-020-040

SHEET

TC25
TC49



GENERAL NOTES
 ACCESS SHALL BE MAINTAINED AT ALL TIMES AS DIRECTED BY THE ENGINEER.
 SEE SHEET TC12 FOR DETOUR SIGNING.

ALL TRAFFIC CONTROL DEVICES AND LAYOUTS SHALL CONFORM AND BE INSTALLED IN ACCORDANCE WITH THE LATEST EDITION OF THE "MINNESOTA MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES" (MN MUTCD) INCLUDING THE LATEST "FIELD MANUAL FOR TEMPORARY TRAFFIC CONTROL LAYOUTS".



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Kate Miner
 KATE E. MINER, LICENSED PROFESSIONAL ENGINEER

43801 4/25/2019
 LICENSE NO. DATE

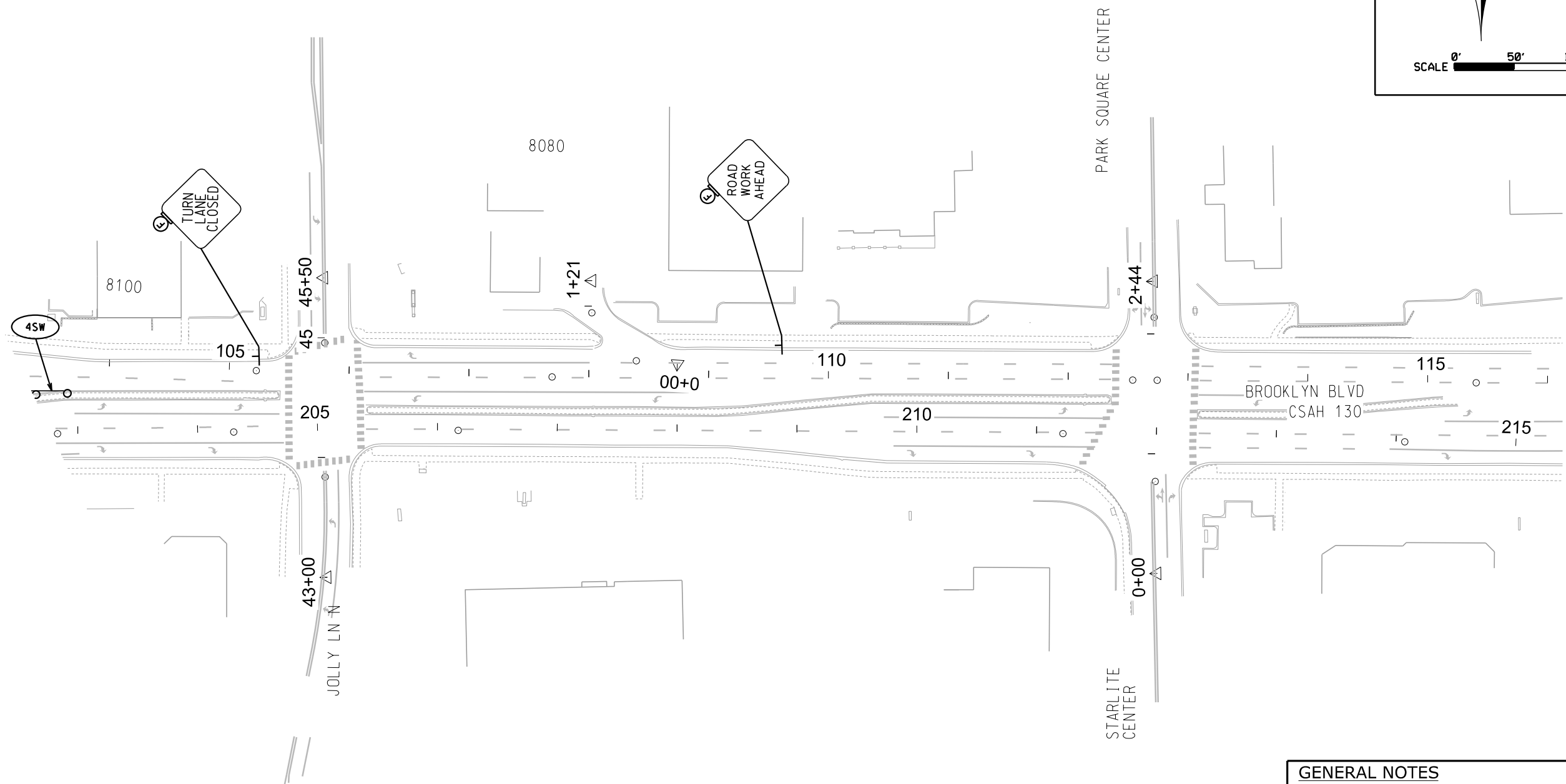
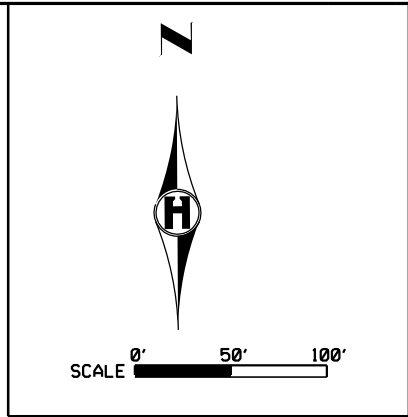
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TRAFFIC CONTROL PLAN STAGE 1

C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
 S.P. 027-681-035, S.P. 110-020-040

SHEET

TC26
 TC49



GENERAL NOTES
 ACCESS SHALL BE MAINTAINED AT ALL TIMES AS DIRECTED BY THE ENGINEER.
 SEE SHEET TC12 FOR DETOUR SIGNING.

ALL TRAFFIC CONTROL DEVICES AND LAYOUTS SHALL CONFORM AND BE INSTALLED IN ACCORDANCE WITH THE LATEST EDITION OF THE "MINNESOTA MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES" (MN MUTCD) INCLUDING THE LATEST "FIELD MANUAL FOR TEMPORARY TRAFFIC CONTROL LAYOUTS".



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Kate Miner

KATE E. MINER, LICENSED PROFESSIONAL ENGINEER

43801

LICENSE NO.

4/25/2019

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WRB

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LAST REVISION:

/ /

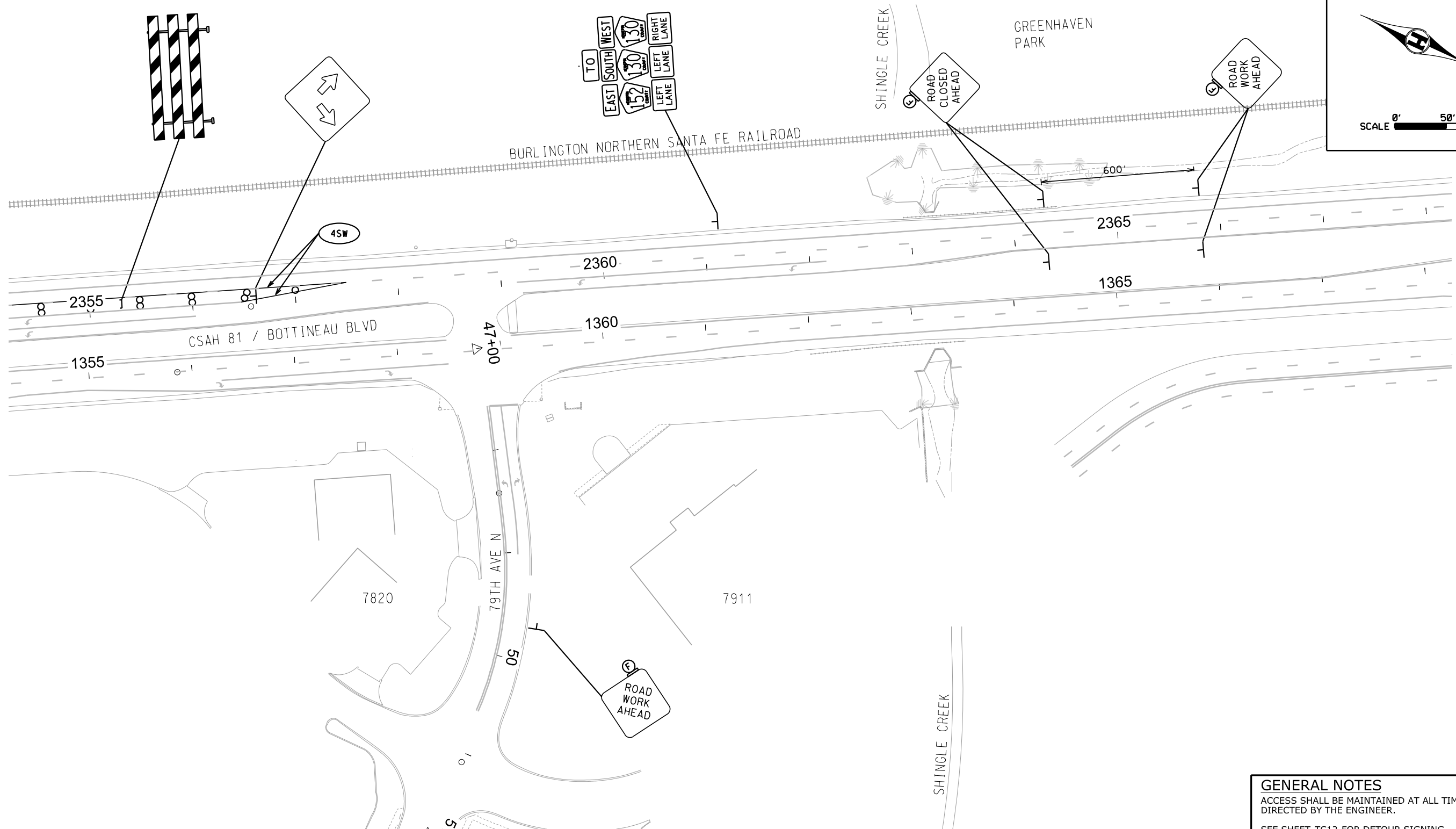
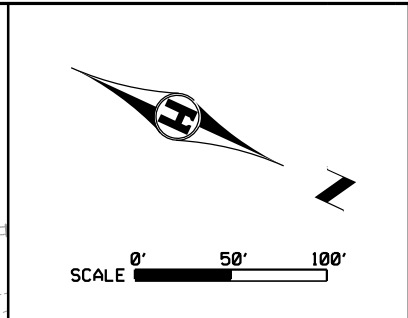
TRAFFIC CONTROL PLAN STAGE 1

C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
 S.P. 027-681-035, S.P. 110-020-040

SHEET

TC27

TC49



ALL TRAFFIC CONTROL DEVICES AND LAYOUTS SHALL CONFORM AND BE INSTALLED IN ACCORDANCE WITH THE LATEST EDITION OF THE "MINNESOTA MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES" (MN MUTCD) INCLUDING THE LATEST "FIELD MANUAL FOR TEMPORARY TRAFFIC CONTROL LAYOUTS".



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Kate Miner

KATE E. MINER, LICENSED PROFESSIONAL ENGINEER

43801

LICENSE NO.

4/25/2019

DATE

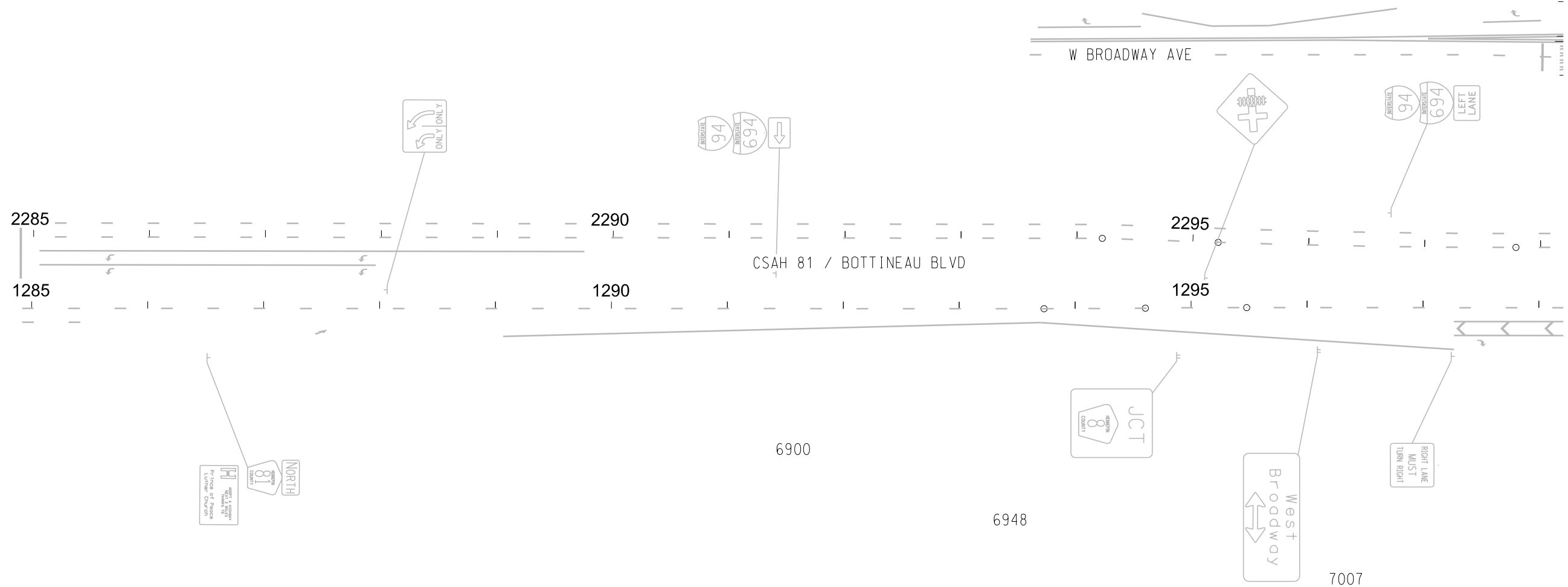
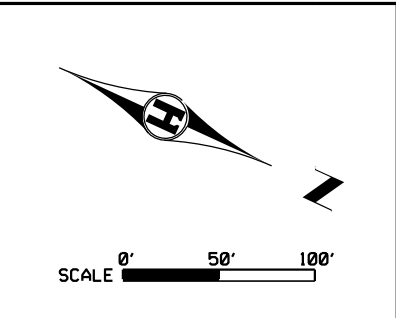
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 CHECKED BY: KEM
 LAST REVISION: / /

TRAFFIC CONTROL PLAN STAGE 1

C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
 S.P. 027-681-035, S.P. 110-020-040

SHEET

TC28
 TC49



GENERAL NOTES
 ALL TEMPORARY TRAFFIC CONTROL DEVICES DEEMED UNNECESSARY BY THE ENGINEER, SHALL BE REMOVED. WINTER STAGE TRAFFIC CONTROL SHALL CONSIST OF EXISTING AND PROPOSED PERMANENT SIGNING AND THE PAVEMENT MARKING AND SIGNING AS SHOWN.

ALL TRAFFIC CONTROL DEVICES AND LAYOUTS SHALL CONFORM AND BE INSTALLED IN ACCORDANCE WITH THE LATEST EDITION OF THE "MINNESOTA MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES" (MN MUTCD) INCLUDING THE LATEST "FIELD MANUAL FOR TEMPORARY TRAFFIC CONTROL LAYOUTS".



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Kate Miner

KATE E. MINER, LICENSED PROFESSIONAL ENGINEER

43801

LICENSE NO.

4/25/2019

DATE

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LAST REVISION: / /

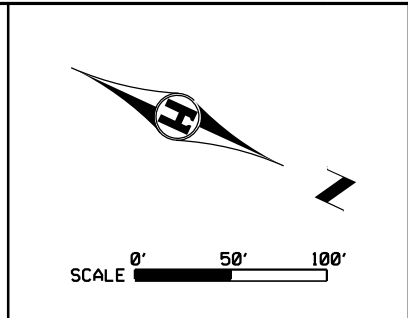
TRAFFIC CONTROL PLAN STAGE WINTER

C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
 S.P. 027-681-035, S.P. 110-020-040

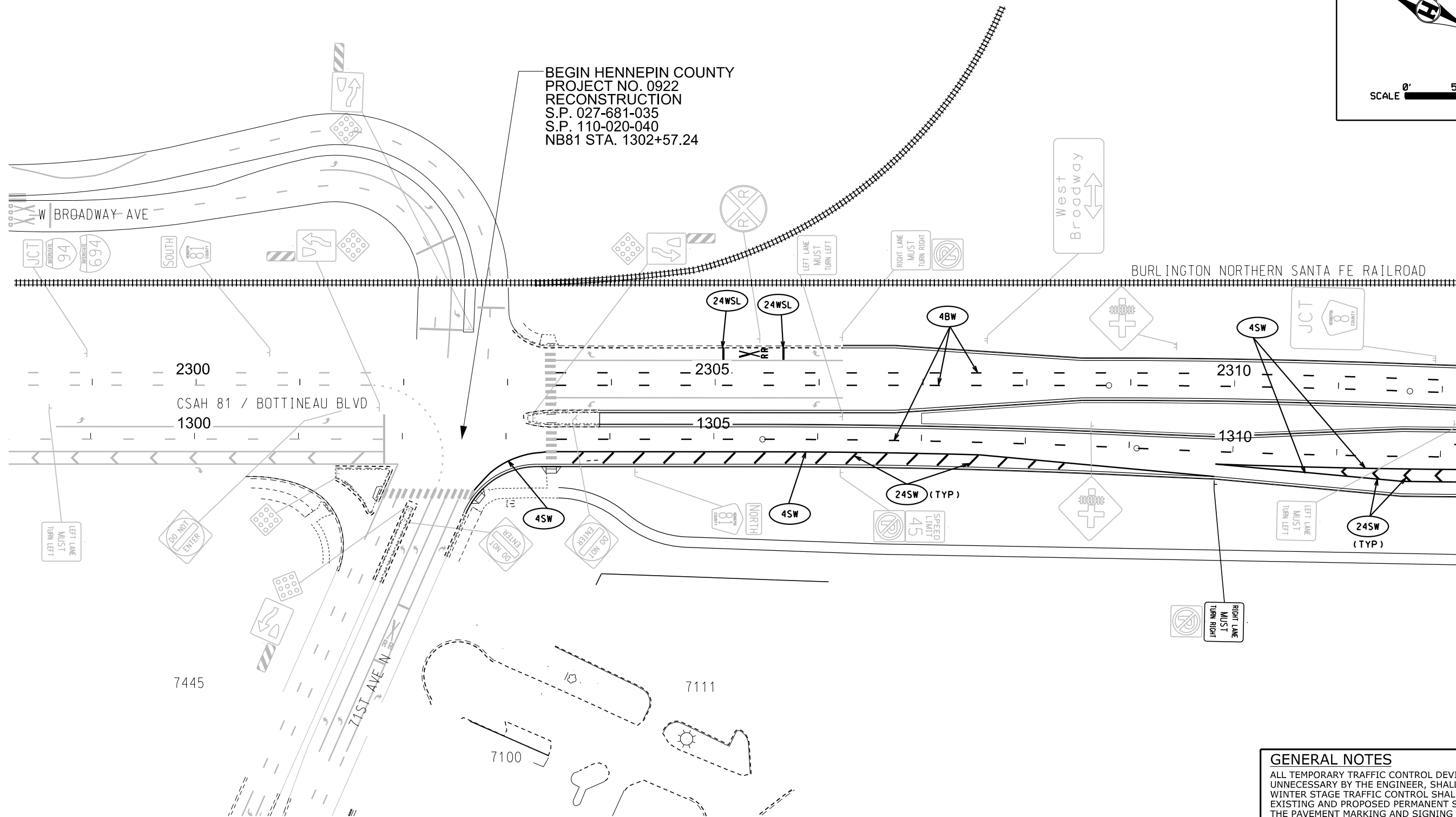
SHEET

TC29

TC49



BEGIN HENNEPIN COUNTY
 PROJECT NO. 0922
 RECONSTRUCTION
 S.P. 027-681-035
 S.P. 110-020-040
 NB81 STA. 1302+57.24



GENERAL NOTES
 ALL TEMPORARY TRAFFIC CONTROL DEVICES DEEMED UNNECESSARY BY THE ENGINEER, SHALL BE REMOVED. WINTER STAGE TRAFFIC CONTROL SHALL CONSIST OF EXISTING AND PROPOSED PERMANENT SIGNING AND THE PAVEMENT MARKING AND SIGNING AS SHOWN.

ALL TRAFFIC CONTROL DEVICES AND LAYOUTS SHALL CONFORM AND BE INSTALLED IN ACCORDANCE WITH THE LATEST EDITION OF THE "MINNESOTA MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES" (MN MUTCD) INCLUDING THE LATEST "FIELD MANUAL FOR TEMPORARY TRAFFIC CONTROL LAYOUTS".



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.

Kate Miner
 KATE E. MINER, LICENSED PROFESSIONAL ENGINEER

43801 4/25/2019
 LICENSE NO. DATE

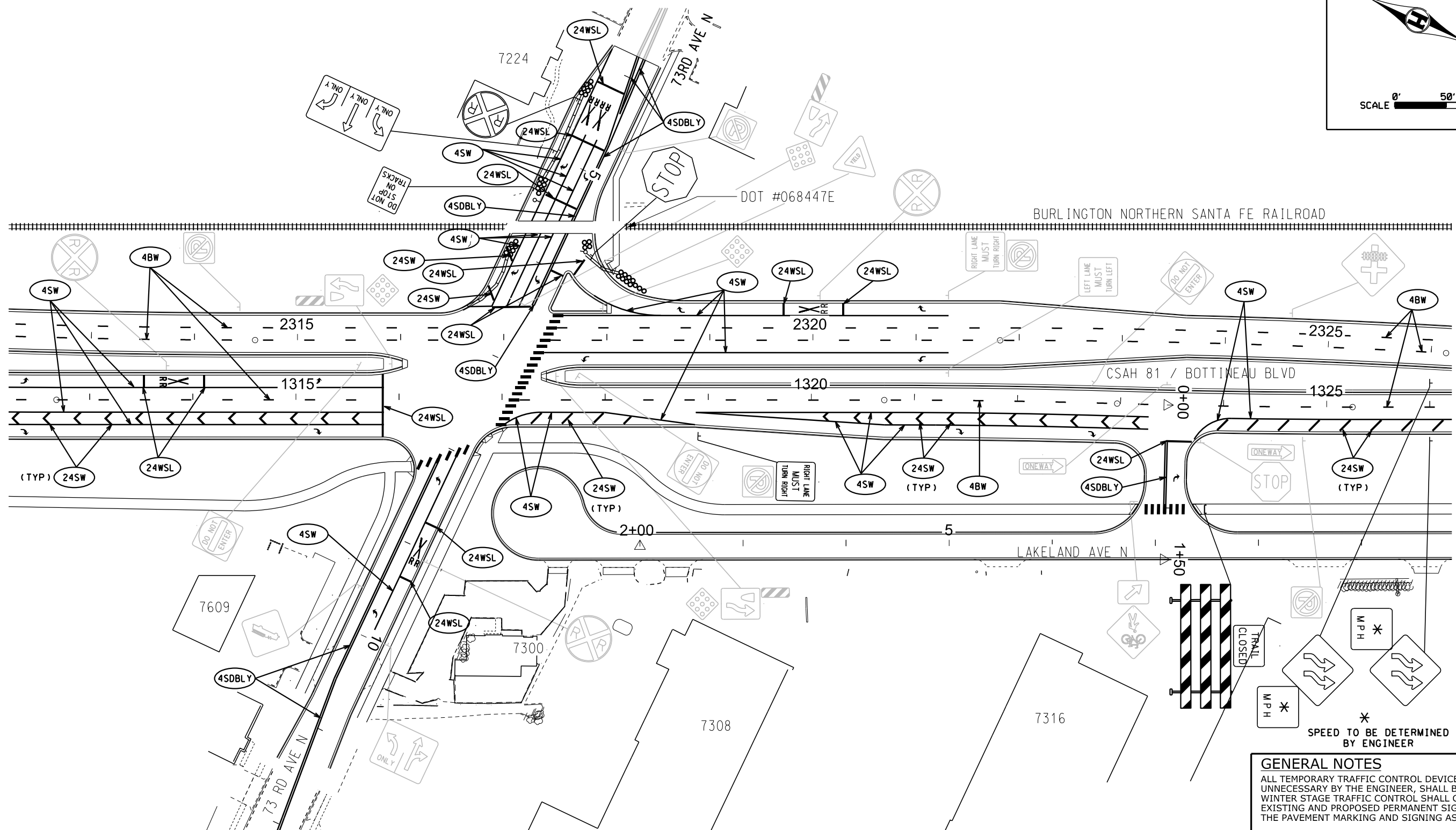
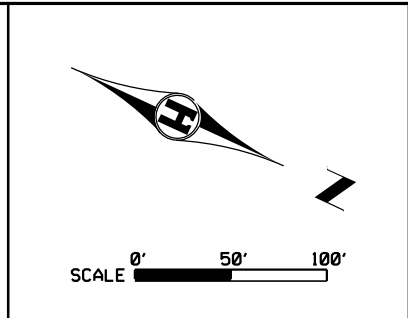
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 CHECKED BY: KEM
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TRAFFIC CONTROL PLAN STAGE WINTER

C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
 S.P. 027-681-035, S.P. 110-020-040

SHEET

TC30
 TC49



GENERAL NOTES
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*
 SPEED TO BE DETERMINED BY ENGINEER



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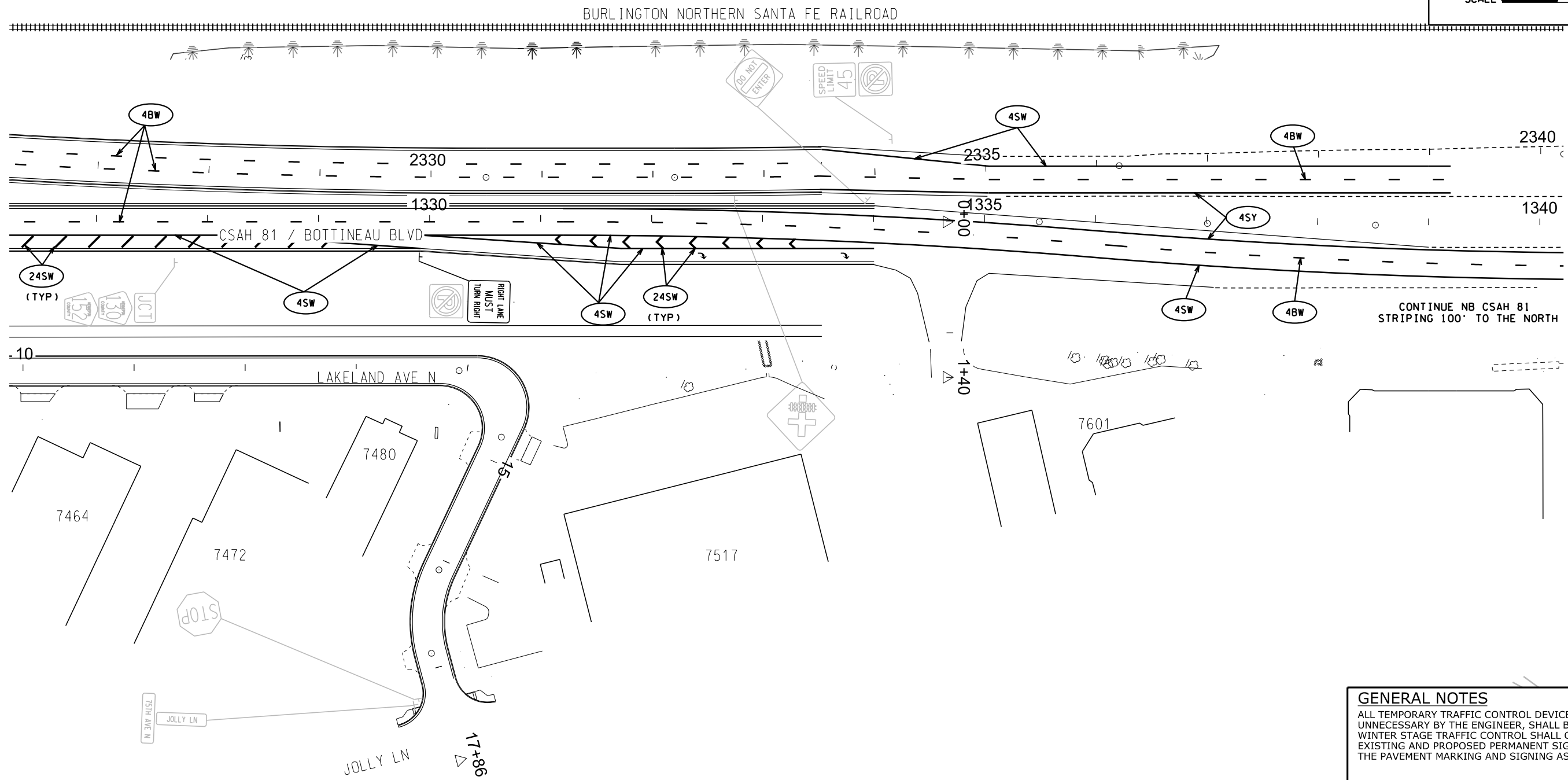
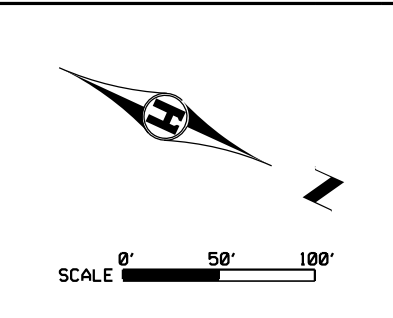
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TRAFFIC CONTROL PLAN STAGE WINTER

C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
 S.P. 027-681-035, S.P. 110-020-040

SHEET

TC31
 TC49



GENERAL NOTES
 ALL TEMPORARY TRAFFIC CONTROL DEVICES DEEMED UNNECESSARY BY THE ENGINEER, SHALL BE REMOVED. WINTER STAGE TRAFFIC CONTROL SHALL CONSIST OF EXISTING AND PROPOSED PERMANENT SIGNING AND THE PAVEMENT MARKING AND SIGNING AS SHOWN.

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43801 4/25/2019
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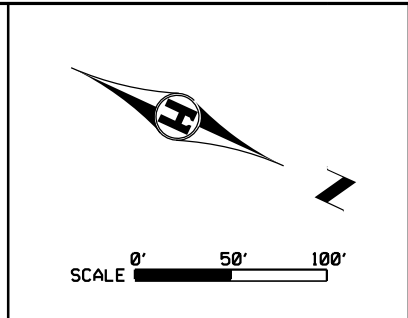
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TRAFFIC CONTROL PLAN STAGE WINTER

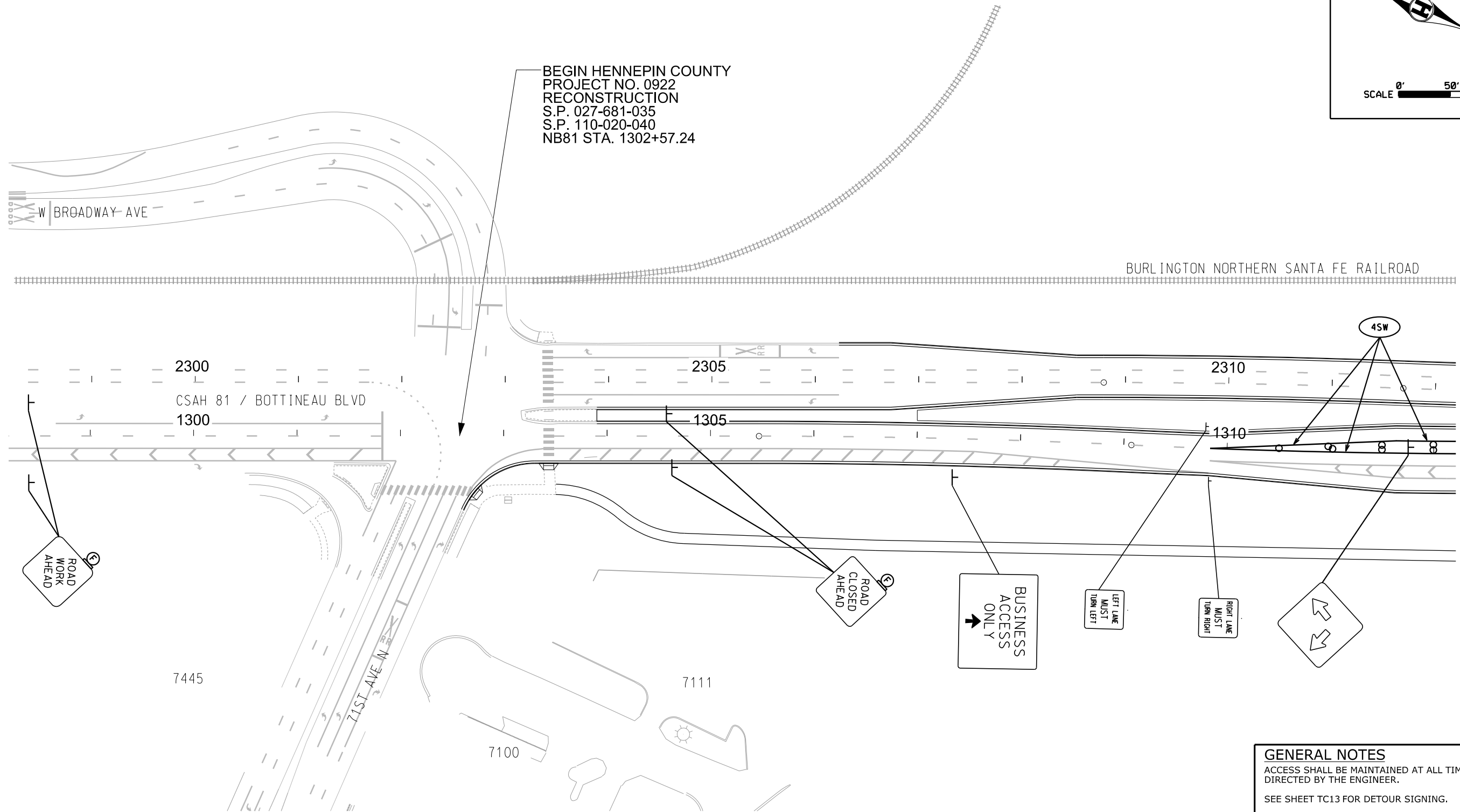
C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
 S.P. 027-681-035, S.P. 110-020-040

SHEET

TC32
 TC49



BEGIN HENNEPIN COUNTY
 PROJECT NO. 0922
 RECONSTRUCTION
 S.P. 027-681-035
 S.P. 110-020-040
 NB81 STA. 1302+57.24



GENERAL NOTES
 ACCESS SHALL BE MAINTAINED AT ALL TIMES AS DIRECTED BY THE ENGINEER.
 SEE SHEET TC13 FOR DETOUR SIGNING.

ALL TRAFFIC CONTROL DEVICES AND LAYOUTS SHALL CONFORM AND BE INSTALLED IN ACCORDANCE WITH THE LATEST EDITION OF THE "MINNESOTA MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES" (MN MUTCD) INCLUDING THE LATEST "FIELD MANUAL FOR TEMPORARY TRAFFIC CONTROL LAYOUTS".



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LICENSE NO.

4/25/2019

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WRB

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LAST REVISION:

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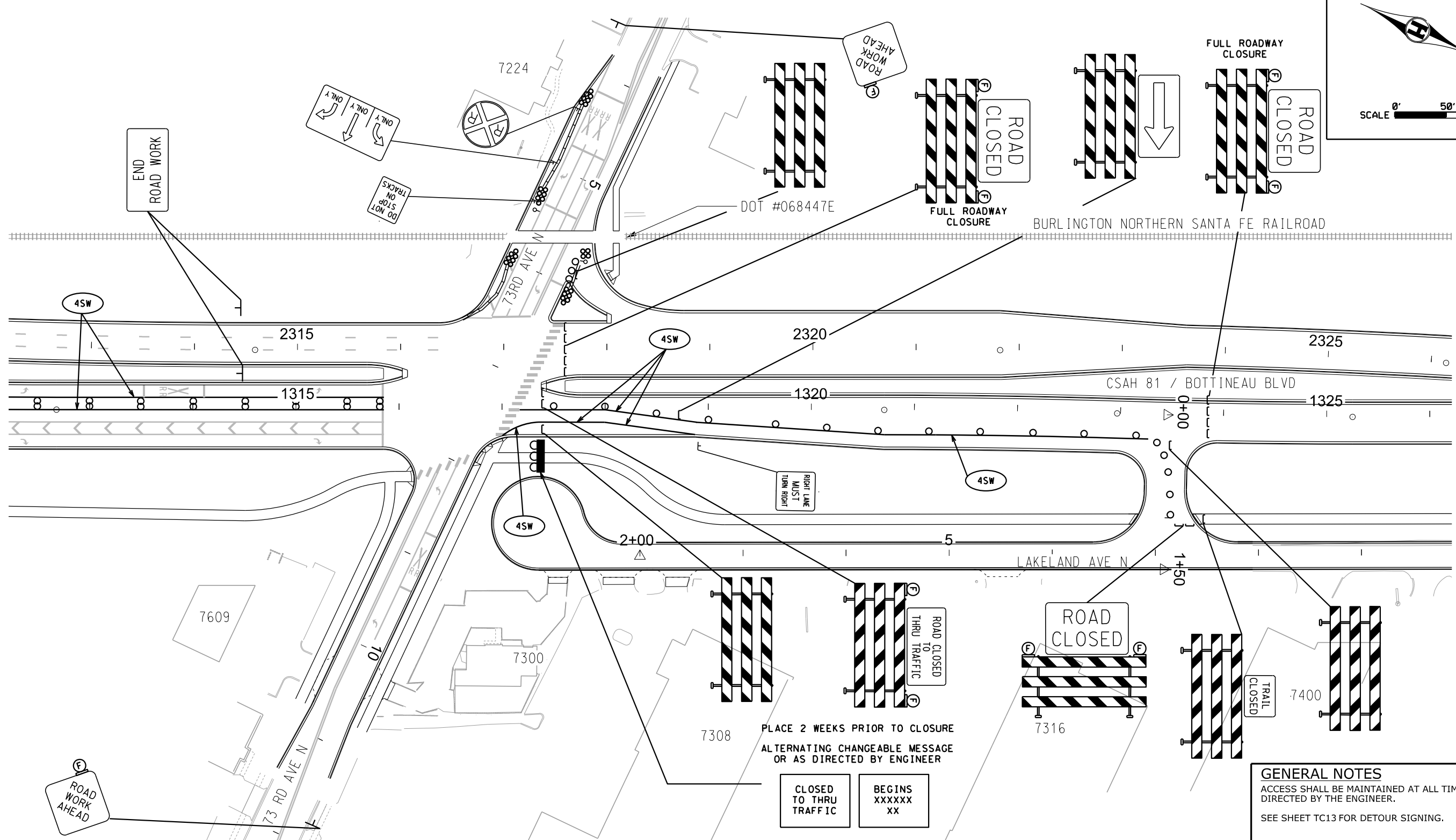
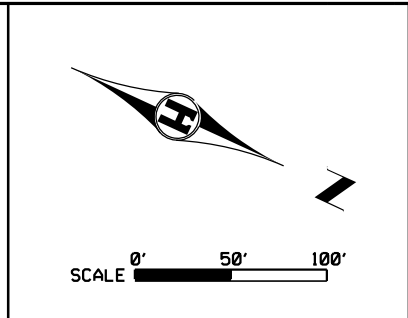
TRAFFIC CONTROL PLAN STAGE 2A

C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
 S.P. 027-681-035, S.P. 110-020-040

SHEET

TC33

TC49



GENERAL NOTES
 ACCESS SHALL BE MAINTAINED AT ALL TIMES AS DIRECTED BY THE ENGINEER.
 SEE SHEET TC13 FOR DETOUR SIGNING.

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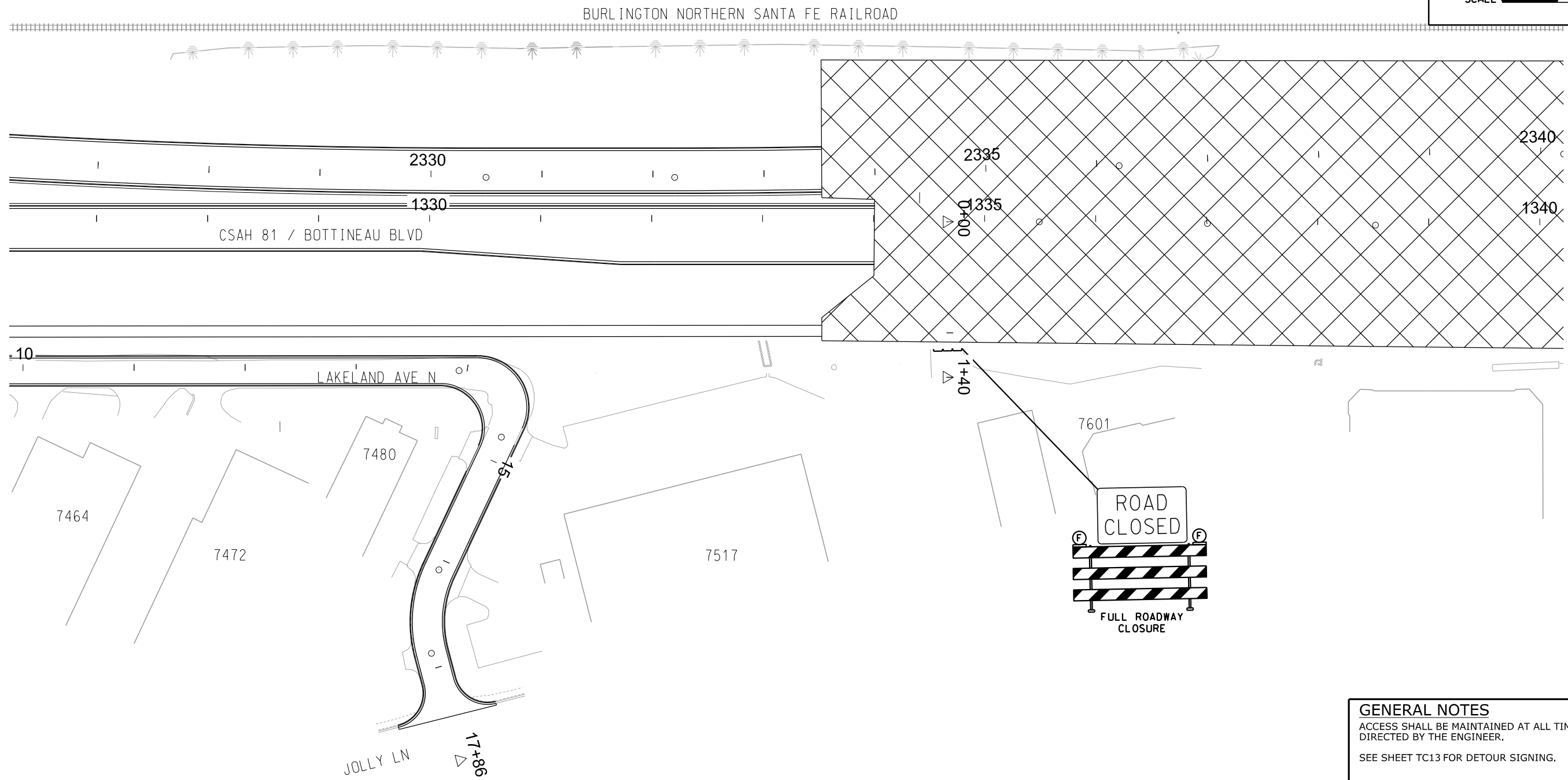
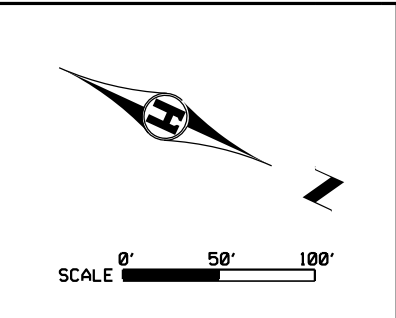
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TRAFFIC CONTROL PLAN STAGE 2A

C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
 S.P. 027-681-035, S.P. 110-020-040

SHEET

TC34
 TC49



GENERAL NOTES
 ACCESS SHALL BE MAINTAINED AT ALL TIMES AS DIRECTED BY THE ENGINEER.
 SEE SHEET TC13 FOR DETOUR SIGNING.

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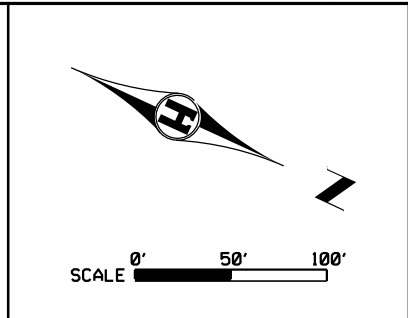
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TRAFFIC CONTROL PLAN STAGE 2A

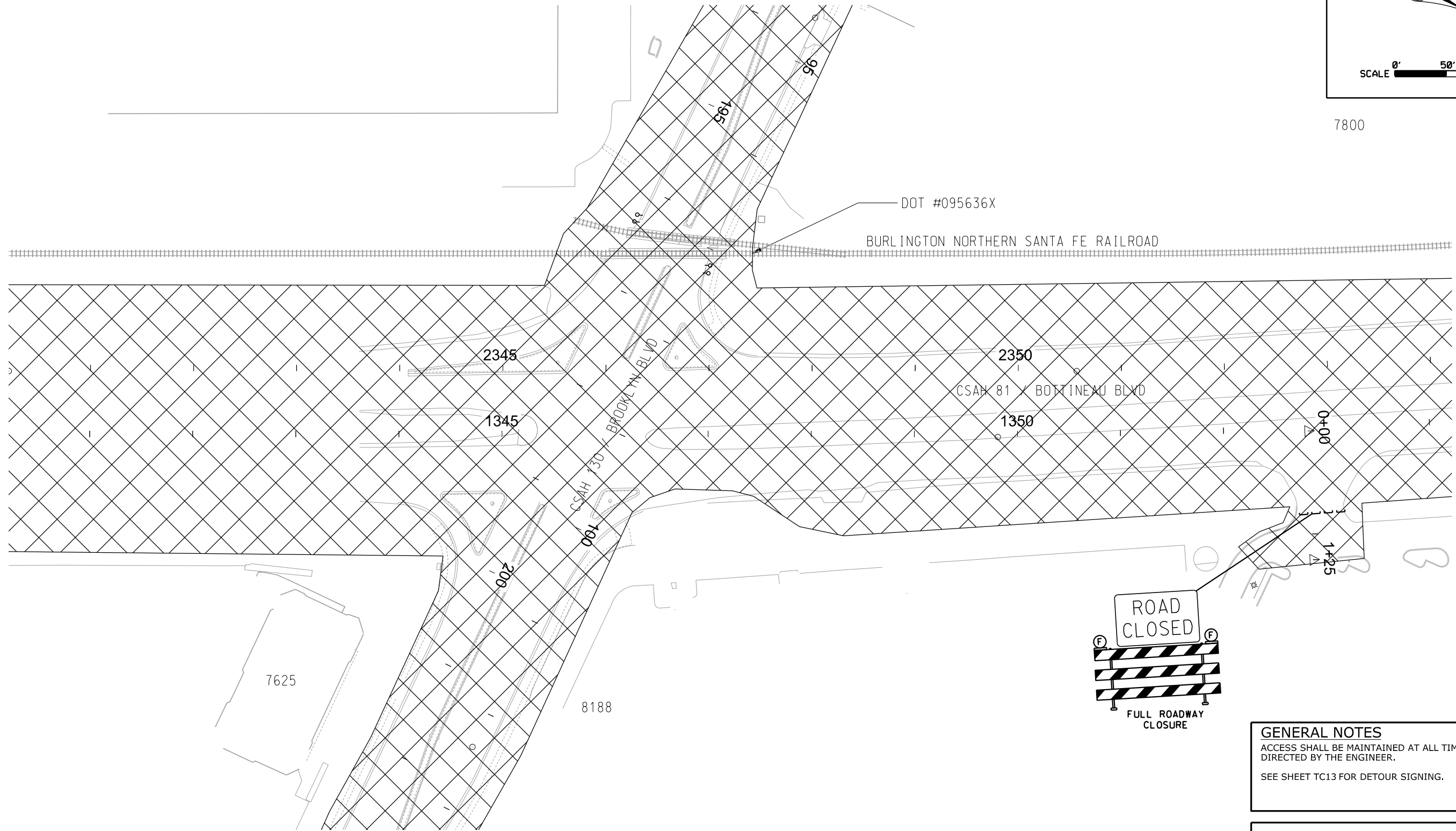
C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
 S.P. 027-681-035, S.P. 110-020-040

SHEET

TC35
 TC49



7800



GENERAL NOTES
 ACCESS SHALL BE MAINTAINED AT ALL TIMES AS DIRECTED BY THE ENGINEER.
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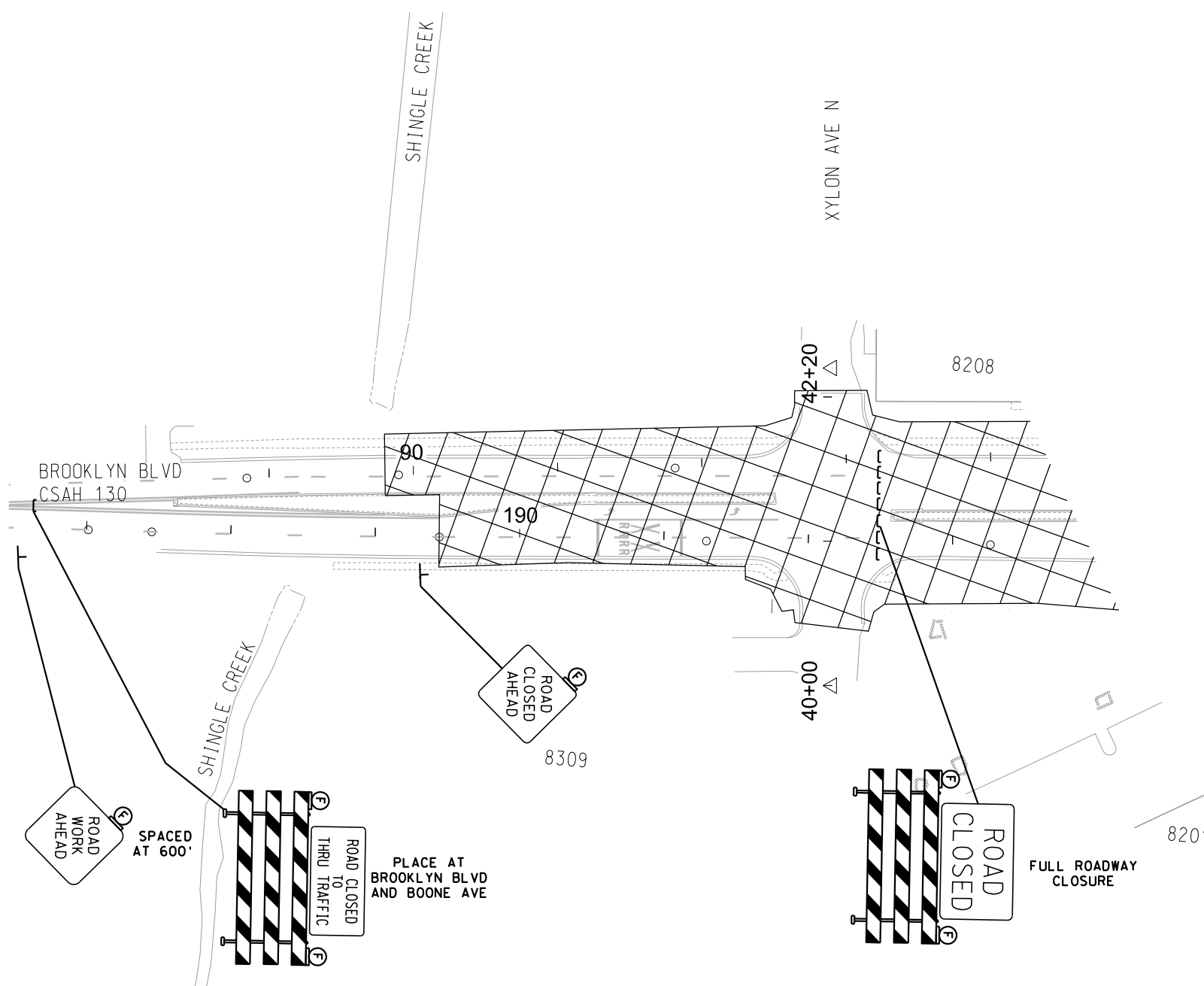
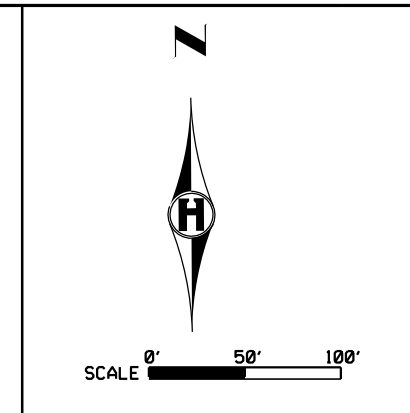
TRAFFIC CONTROL PLAN STAGE 2A

C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
 S.P. 027-681-035, S.P. 110-020-040

SHEET

TC36

TC49



GENERAL NOTES
 ACCESS SHALL BE MAINTAINED AT ALL TIMES AS DIRECTED BY THE ENGINEER.
 SEE SHEET TC13 FOR DETOUR SIGNING.

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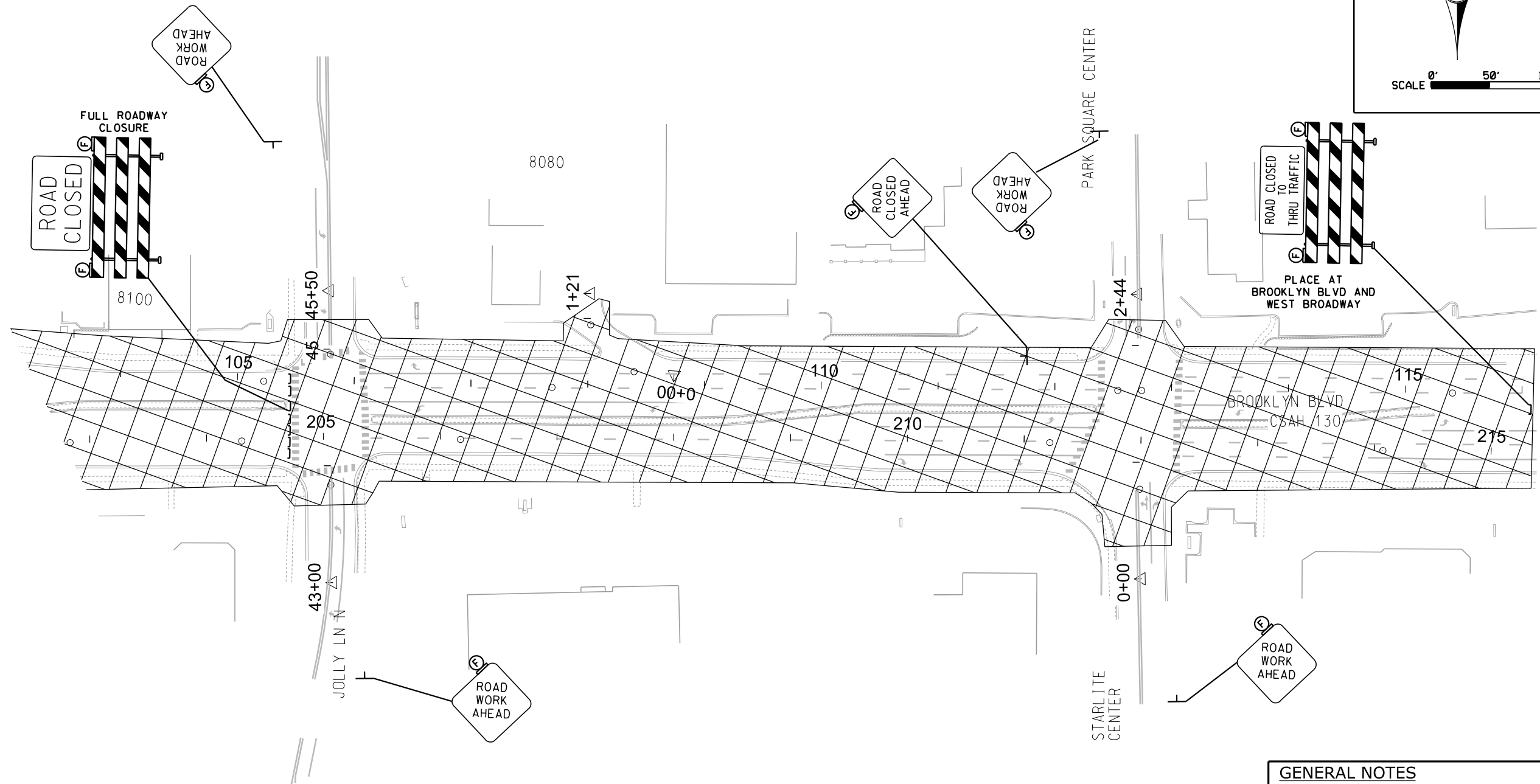
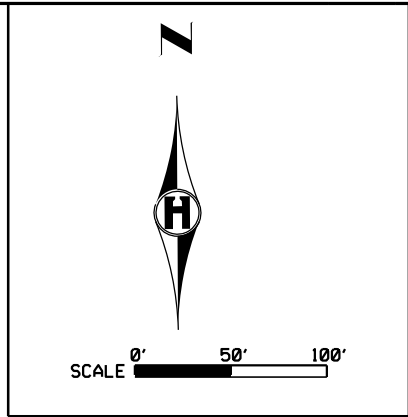


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Kate Miner
 KATE E. MINER, LICENSED PROFESSIONAL ENGINEER
 43801 LICENSE NO. 4/25/2019 DATE

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TRAFFIC CONTROL PLAN STAGE 2A
 C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
 S.P. 027-681-035, S.P. 110-020-040

SHEET
 TC37
 TC49



GENERAL NOTES
 ACCESS SHALL BE MAINTAINED AT ALL TIMES AS DIRECTED BY THE ENGINEER.
 SEE SHEET TC13 FOR DETOUR SIGNING.

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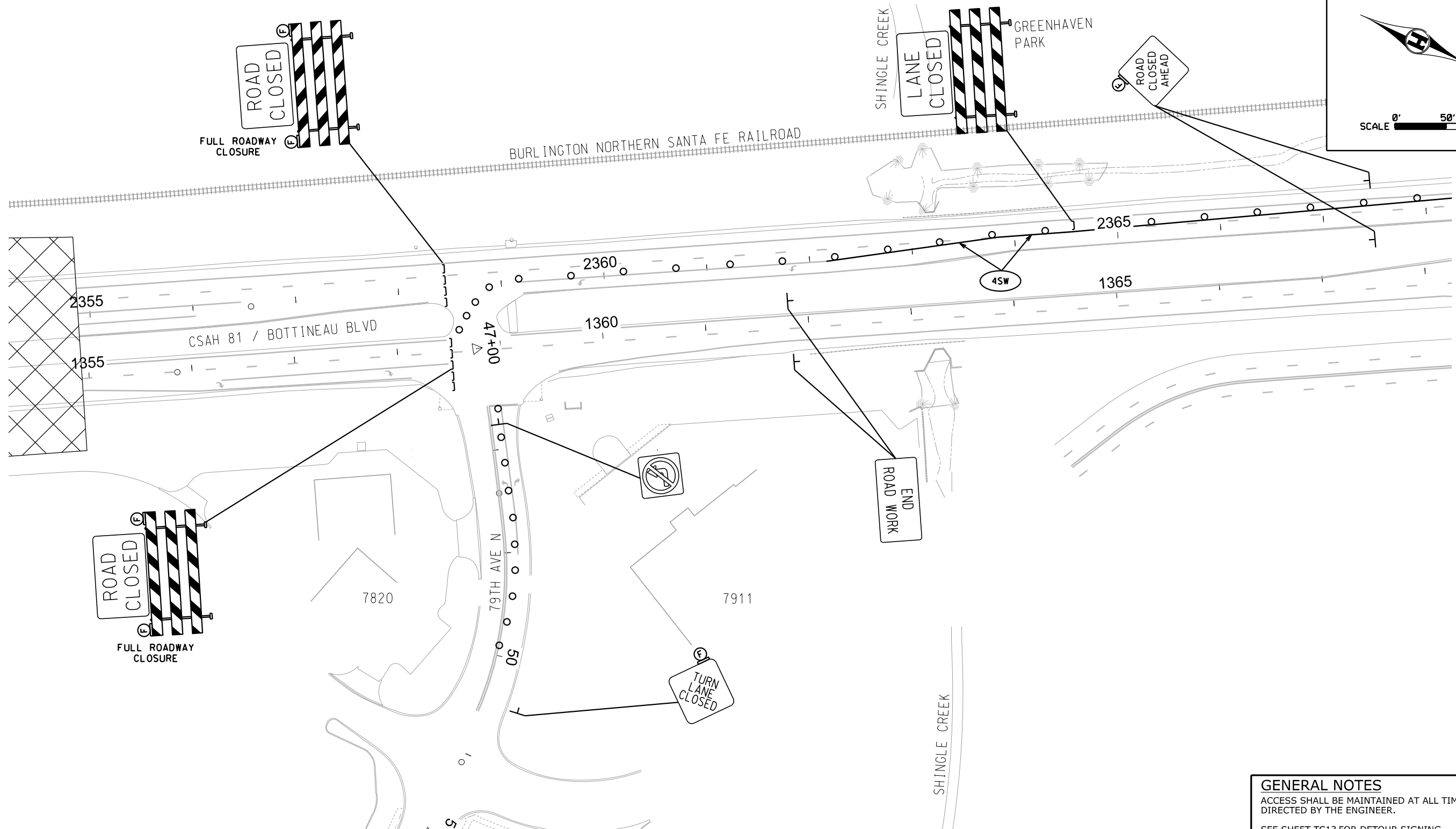
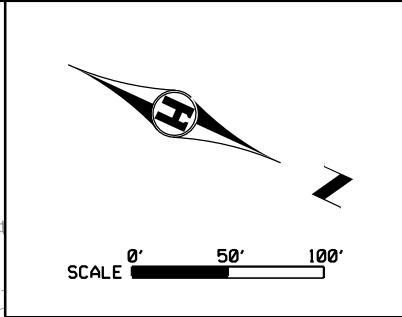
TRAFFIC CONTROL PLAN STAGE 2A

C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
 S.P. 027-681-035, S.P. 110-020-040

SHEET

TC38

TC49



GENERAL NOTES
 ACCESS SHALL BE MAINTAINED AT ALL TIMES AS DIRECTED BY THE ENGINEER.
 SEE SHEET TC13 FOR DETOUR SIGNING.

ALL TRAFFIC CONTROL DEVICES AND LAYOUTS SHALL CONFORM AND BE INSTALLED IN ACCORDANCE WITH THE LATEST EDITION OF THE "MINNESOTA MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES" (MN MUTCD) INCLUDING THE LATEST "FIELD MANUAL FOR TEMPORARY TRAFFIC CONTROL LAYOUTS".



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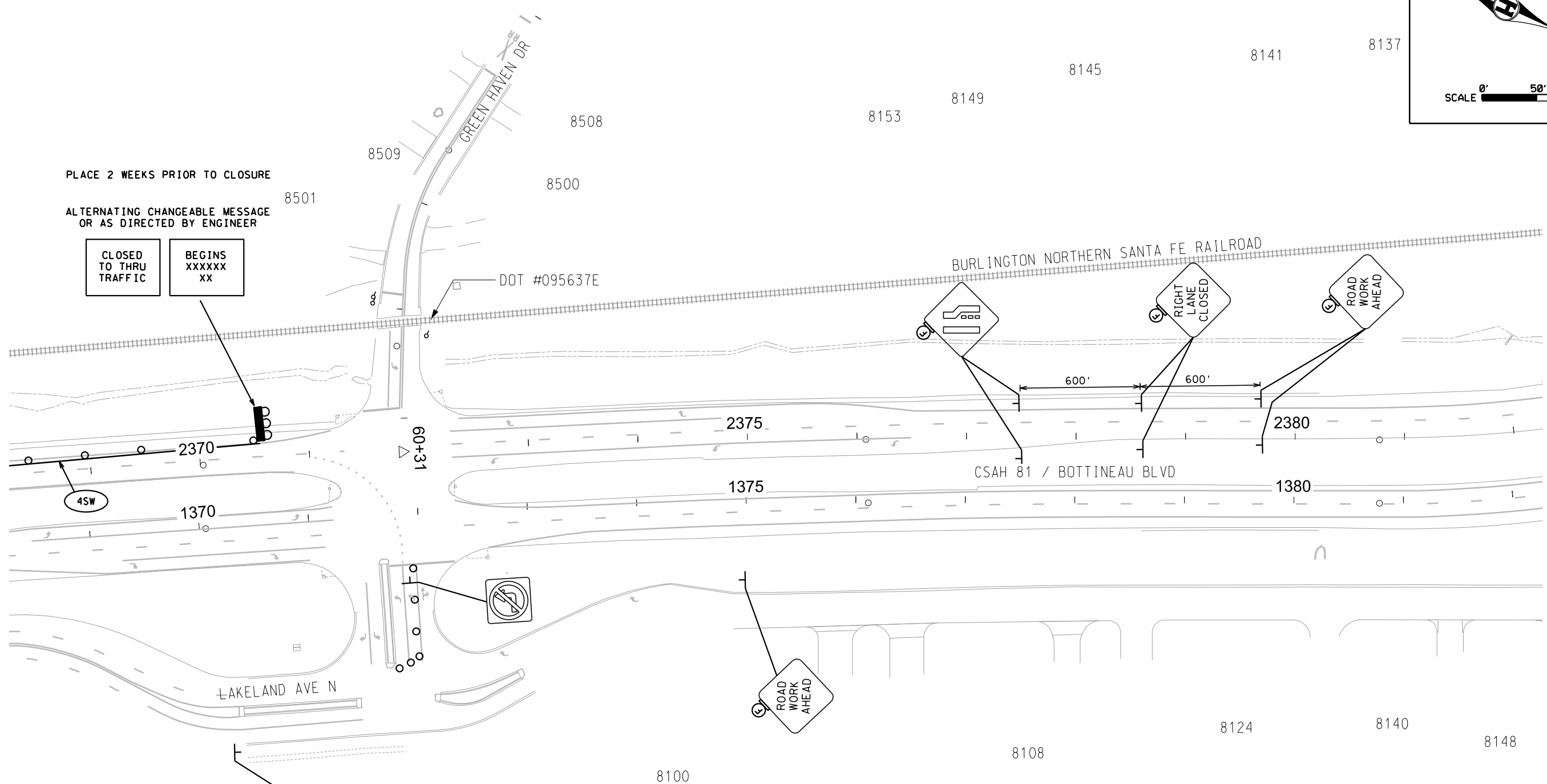
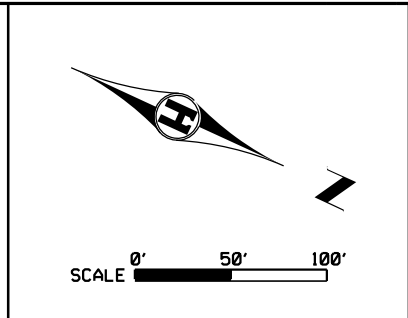
TRAFFIC CONTROL PLAN STAGE 2A

C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
 S.P. 027-681-035, S.P. 110-020-040

SHEET

TC39

TC49



PLACE 2 WEEKS PRIOR TO CLOSURE
ALTERNATING CHANGEABLE MESSAGE
OR AS DIRECTED BY ENGINEER

CLOSED TO THRU TRAFFIC
BEGINS XXXXXX XX

GENERAL NOTES
ACCESS SHALL BE MAINTAINED AT ALL TIMES AS DIRECTED BY THE ENGINEER.
SEE SHEET TC13 FOR DETOUR SIGNING.

ALL TRAFFIC CONTROL DEVICES AND LAYOUTS SHALL CONFORM AND BE INSTALLED IN ACCORDANCE WITH THE LATEST EDITION OF THE "MINNESOTA MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES" (MN MUTCD) INCLUDING THE LATEST "FIELD MANUAL FOR TEMPORARY TRAFFIC CONTROL LAYOUTS".



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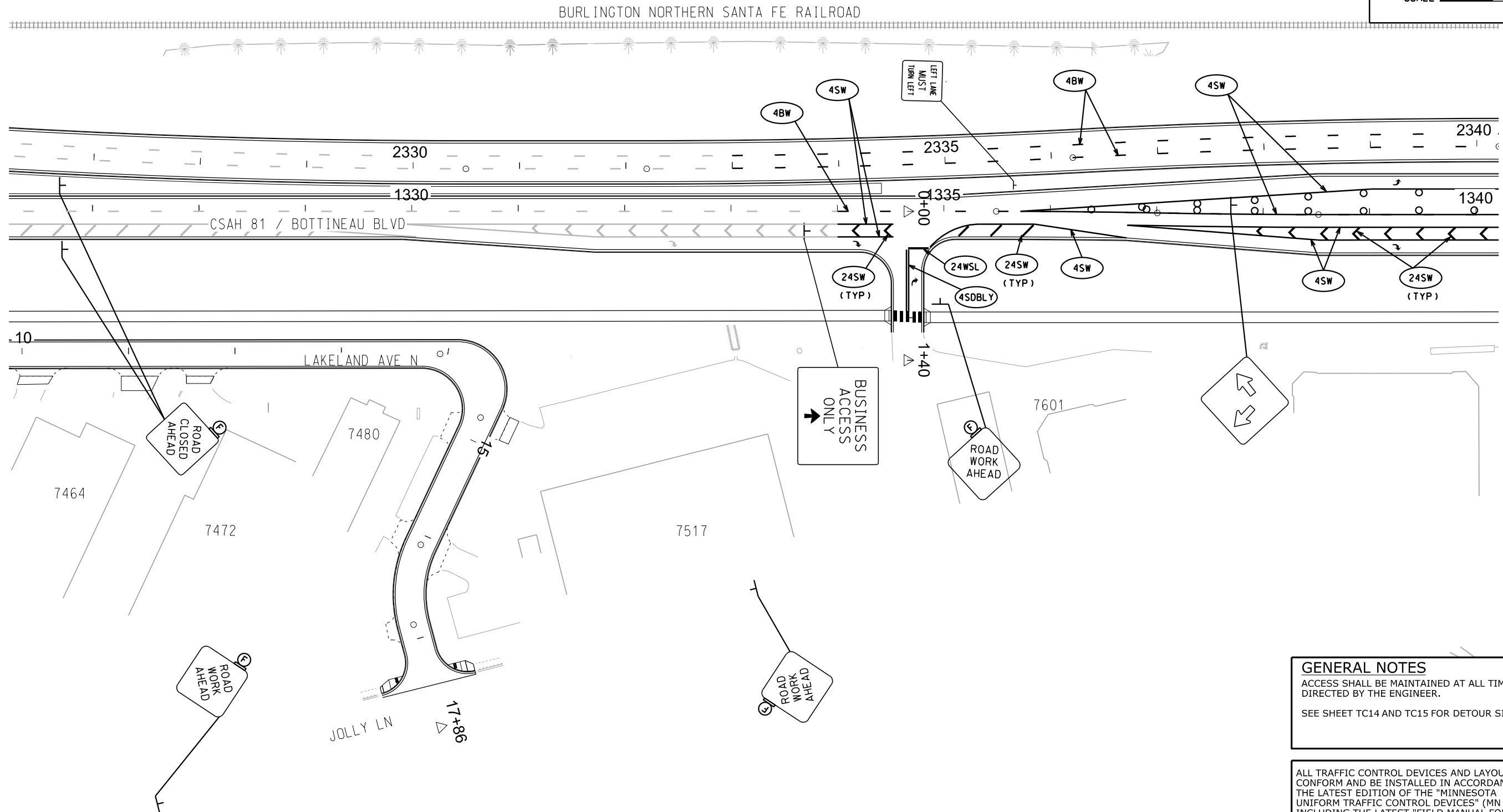
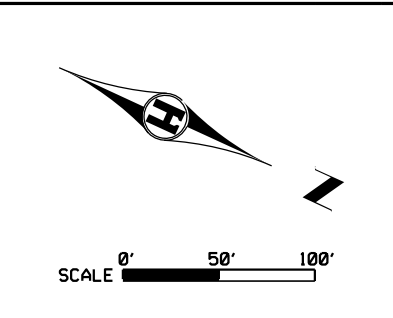
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TRAFFIC CONTROL PLAN STAGE 2A

C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
S.P. 027-681-035, S.P. 110-020-040

SHEET
TC40
TC49



GENERAL NOTES
 ACCESS SHALL BE MAINTAINED AT ALL TIMES AS DIRECTED BY THE ENGINEER.
 SEE SHEET TC14 AND TC15 FOR DETOUR SIGNING.

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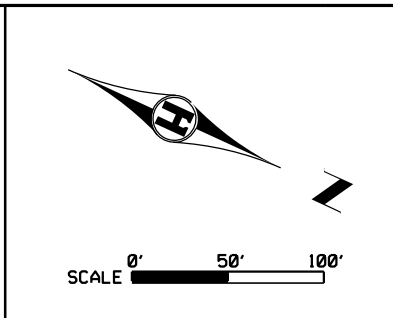
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TRAFFIC CONTROL PLAN STAGE 2B

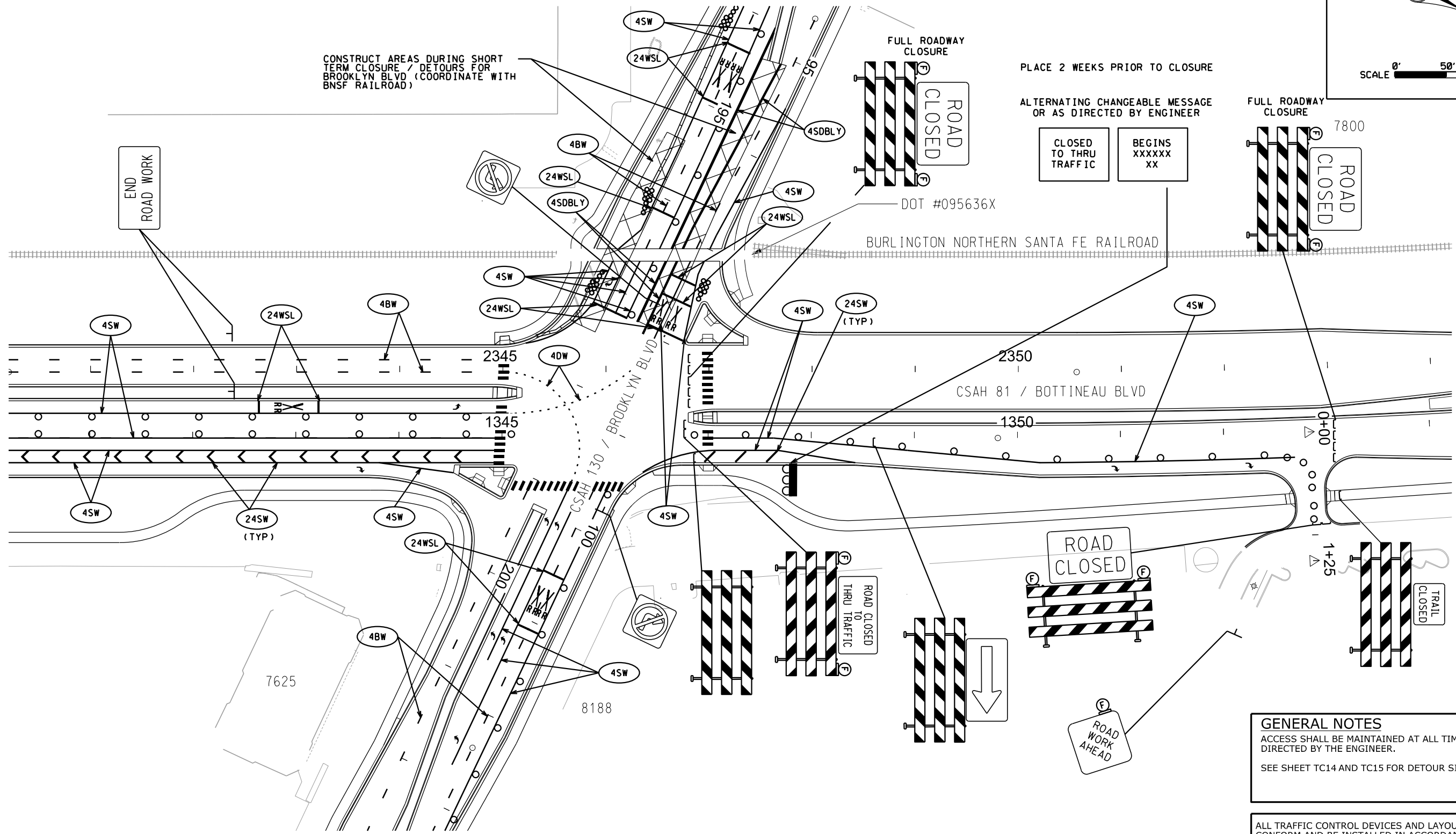
C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
 S.P. 027-681-035, S.P. 110-020-040

SHEET

TC41
 TC49



CONSTRUCT AREAS DURING SHORT TERM CLOSURE / DETOURS FOR BROOKLYN BLVD (COORDINATE WITH BNSF RAILROAD)



PLACE 2 WEEKS PRIOR TO CLOSURE

ALTERNATING CHANGEABLE MESSAGE OR AS DIRECTED BY ENGINEER

CLOSED TO THRU TRAFFIC
BEGINS XXXXXX XX

FULL ROADWAY CLOSURE

ROAD CLOSED

DOT #095636X

BURLINGTON NORTHERN SANTA FE RAILROAD

CSAH 81 / BOTTINEAU BLVD

BROOKLYN BLVD

GENERAL NOTES
ACCESS SHALL BE MAINTAINED AT ALL TIMES AS DIRECTED BY THE ENGINEER.
SEE SHEET TC14 AND TC15 FOR DETOUR SIGNING.

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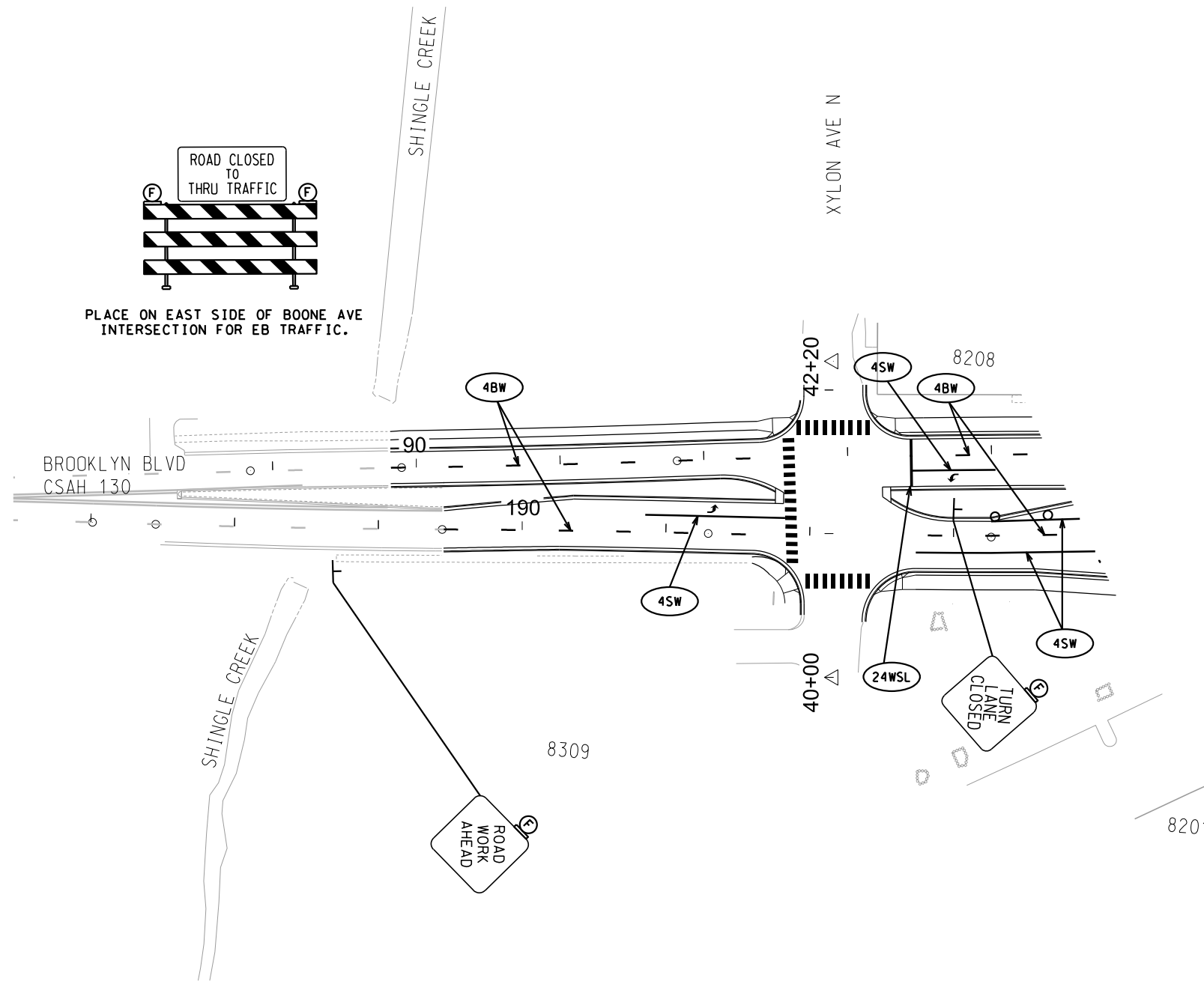
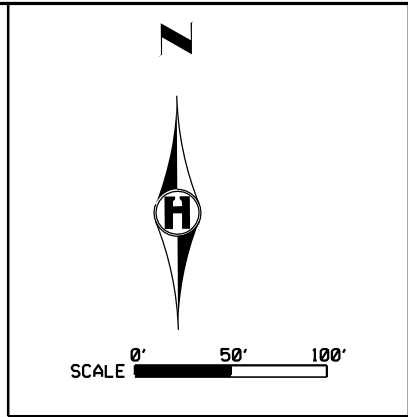
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TRAFFIC CONTROL PLAN STAGE 2B

C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
S.P. 027-681-035, S.P. 110-020-040

SHEET
TC42
TC49



GENERAL NOTES
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 SEE SHEET TC14 AND TC15 FOR DETOUR SIGNING.

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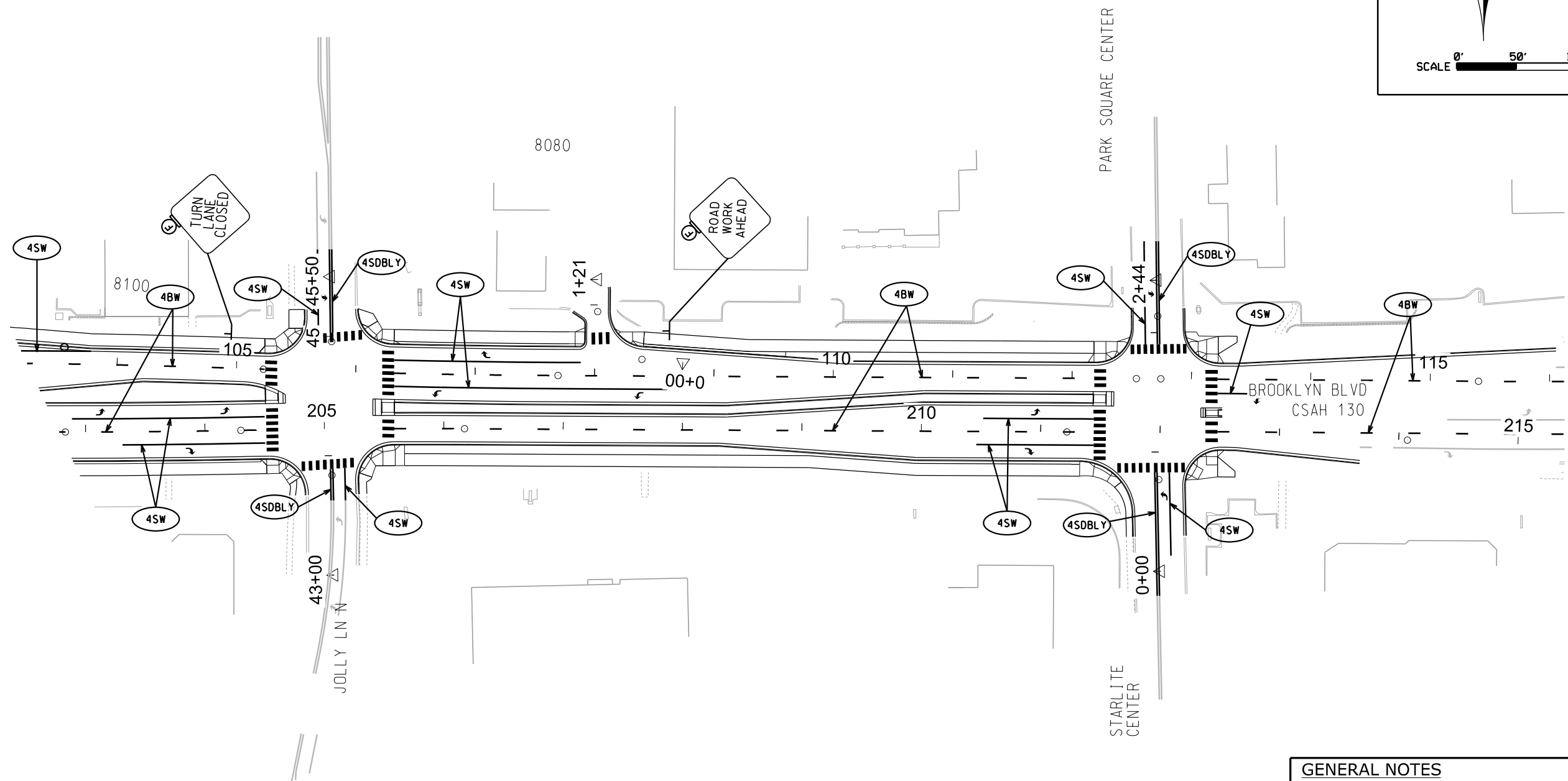
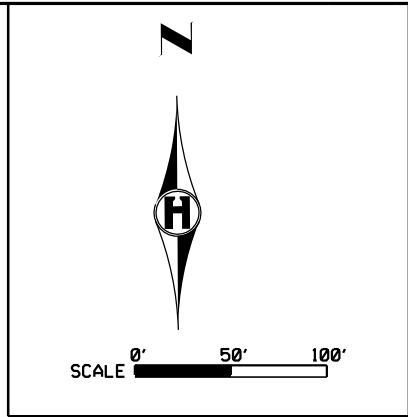
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TRAFFIC CONTROL PLAN STAGE 2B

C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
 S.P. 027-681-035, S.P. 110-020-040

SHEET

TC43
 TC49



GENERAL NOTES
 ACCESS SHALL BE MAINTAINED AT ALL TIMES AS DIRECTED BY THE ENGINEER.
 SEE SHEET TC14 AND TC15 FOR DETOUR SIGNING.

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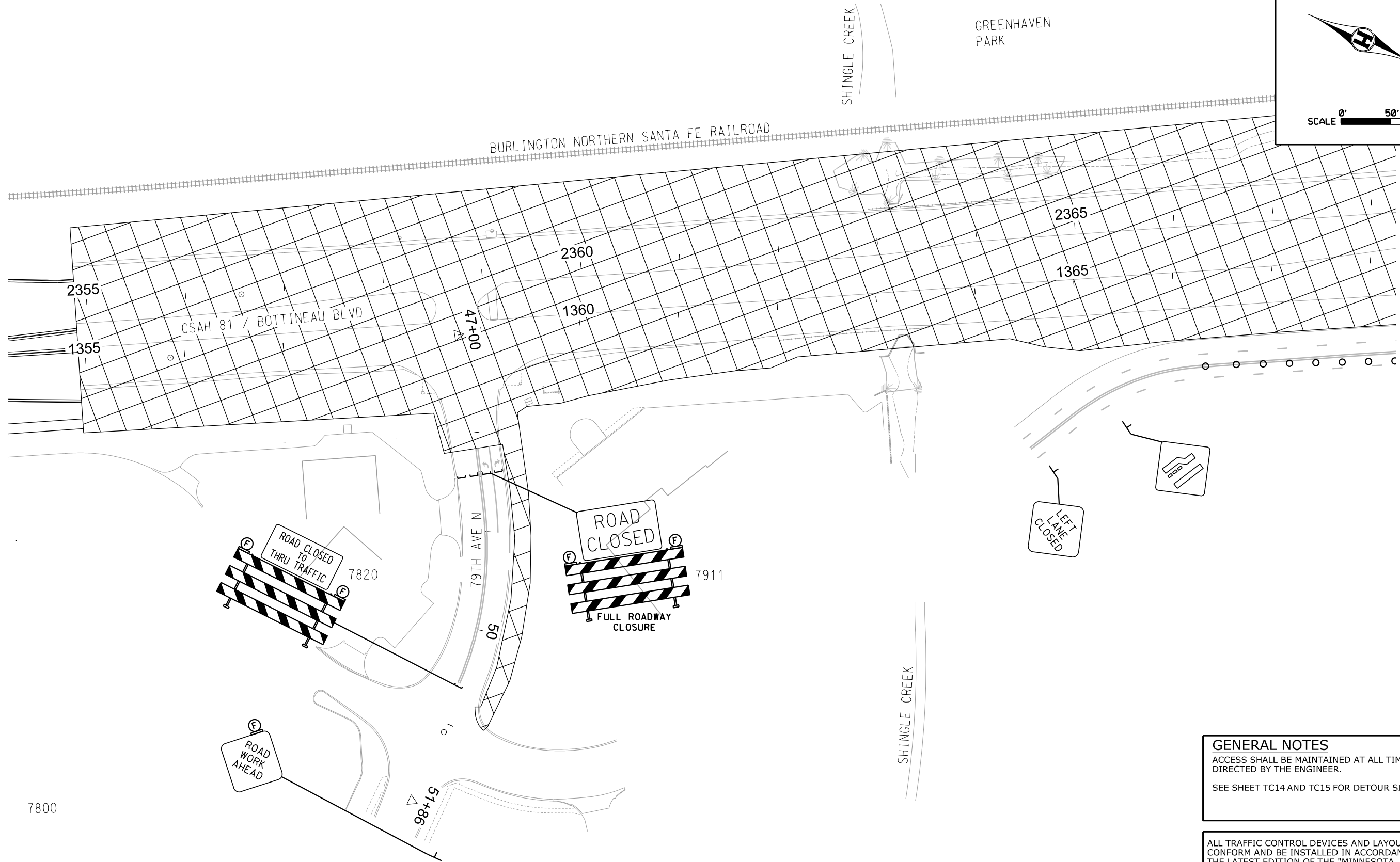
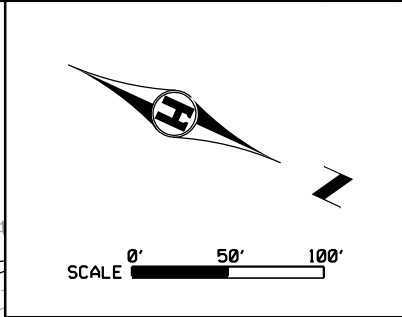
TRAFFIC CONTROL PLAN STAGE 2B

C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
 S.P. 027-681-035, S.P. 110-020-040

SHEET

TC44

TC49



GENERAL NOTES
 ACCESS SHALL BE MAINTAINED AT ALL TIMES AS DIRECTED BY THE ENGINEER.
 SEE SHEET TC14 AND TC15 FOR DETOUR SIGNING.

ALL TRAFFIC CONTROL DEVICES AND LAYOUTS SHALL CONFORM AND BE INSTALLED IN ACCORDANCE WITH THE LATEST EDITION OF THE "MINNESOTA MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES" (MN MUTCD) INCLUDING THE LATEST "FIELD MANUAL FOR TEMPORARY TRAFFIC CONTROL LAYOUTS".

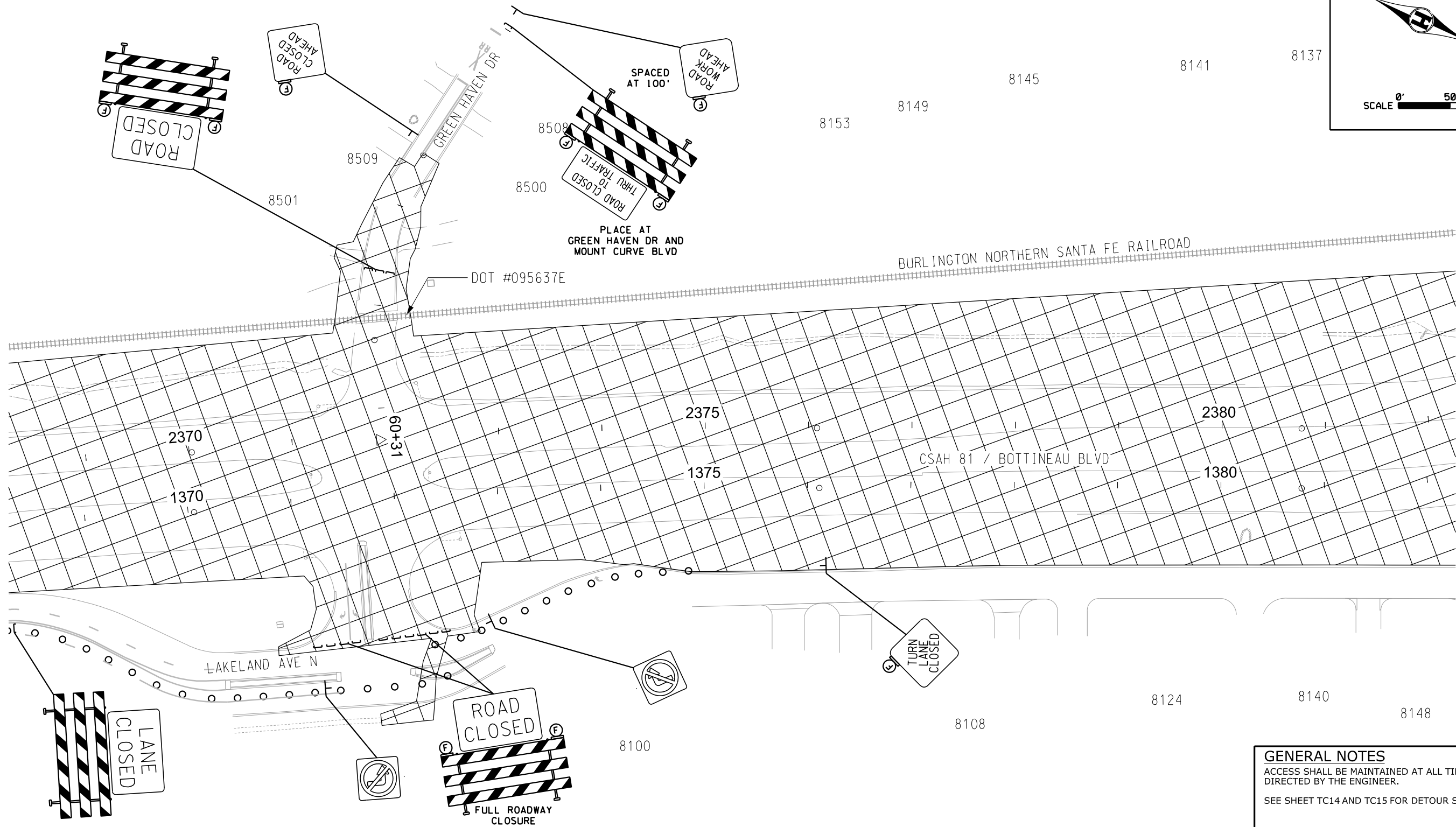
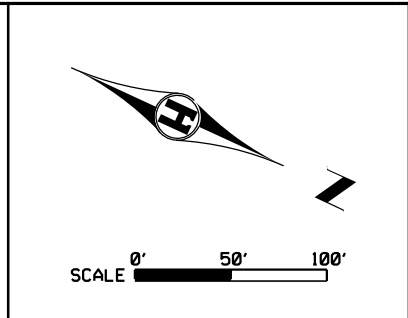


I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
Kate Miner
 KATE E. MINER, LICENSED PROFESSIONAL ENGINEER
 43801 LICENSE NO. 4/25/2019 DATE

DESIGN BY: WRB
 CAD BY: WRB
 CHECKED BY: KEM
 LAST REVISION: / /

TRAFFIC CONTROL PLAN STAGE 2B
 C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
 S.P. 027-681-035, S.P. 110-020-040

SHEET
 TC45
 TC49



GENERAL NOTES
 ACCESS SHALL BE MAINTAINED AT ALL TIMES AS DIRECTED BY THE ENGINEER.
 SEE SHEET TC14 AND TC15 FOR DETOUR SIGNING.

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43801 4/25/2019
 LICENSE NO. DATE

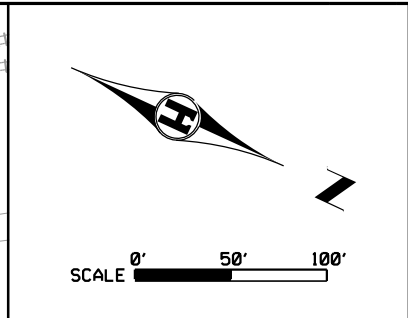
DESIGN BY: WRB
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TRAFFIC CONTROL PLAN STAGE 2B

C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
 S.P. 027-681-035, S.P. 110-020-040

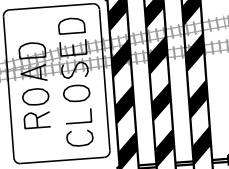
SHEET

TC46
 TC49



BURLINGTON NORTHERN SANTA FE RAILROAD

FULL ROADWAY CLOSURE



END HENNEPIN COUNTY
PROJECT NO. 0922
RECONSTRUCTION
S.P. 027-681-035
S.P. 110-020-040
NB81 STA. 1389+90.90



4SW

CSAH 81 / BOTTINEAU BLVD

2390

2395

1390

1395

2385

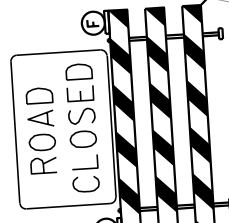
1385

LAKELAND AVE N

8200

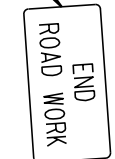
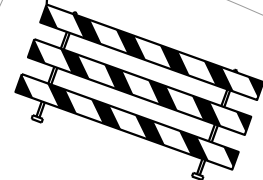
8208

8216



FULL ROADWAY CLOSURE

83RD AVE N



GENERAL NOTES
ACCESS SHALL BE MAINTAINED AT ALL TIMES AS DIRECTED BY THE ENGINEER.
SEE SHEET TC14 AND TC15 FOR DETOUR SIGNING.

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KATE E. MINER, LICENSED PROFESSIONAL ENGINEER

43801
LICENSE NO.

5/1/2019
DATE

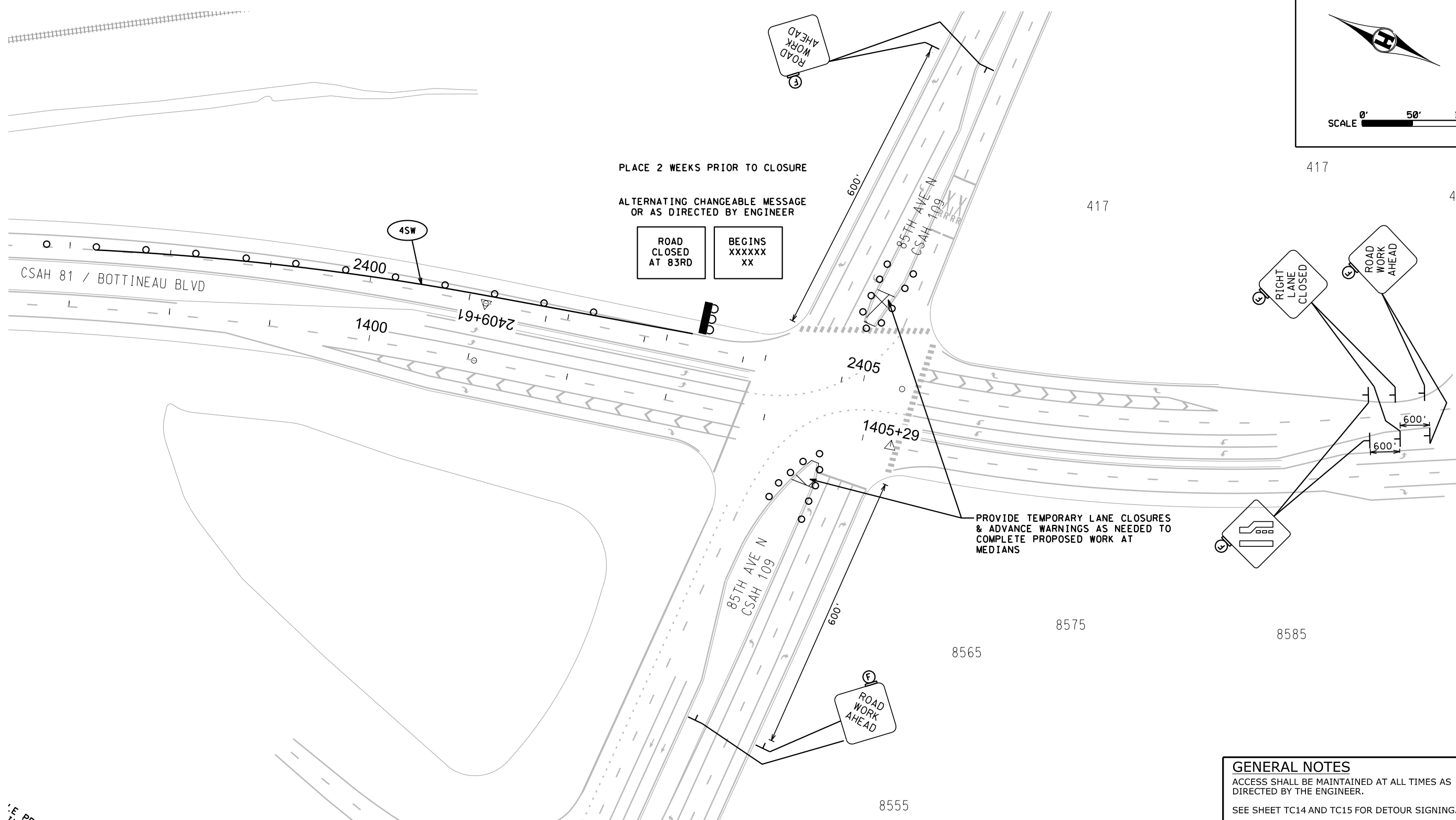
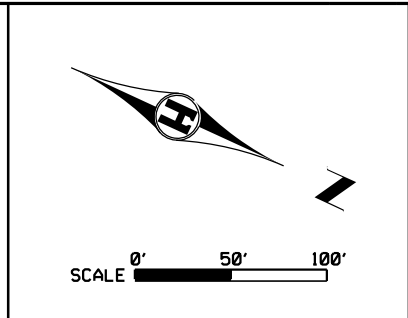
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TRAFFIC CONTROL PLAN STAGE 2B

C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
S.P. 027-681-035, S.P. 110-020-040

SHEET

TC47
TC49



GENERAL NOTES
 ACCESS SHALL BE MAINTAINED AT ALL TIMES AS DIRECTED BY THE ENGINEER.
 SEE SHEET TC14 AND TC15 FOR DETOUR SIGNING.

ALL TRAFFIC CONTROL DEVICES AND LAYOUTS SHALL CONFORM AND BE INSTALLED IN ACCORDANCE WITH THE LATEST EDITION OF THE "MINNESOTA MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES" (MN MUTCD) INCLUDING THE LATEST "FIELD MANUAL FOR TEMPORARY TRAFFIC CONTROL LAYOUTS".



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Kate Miner
 KATE E. MINER, LICENSED PROFESSIONAL ENGINEER

43801 4/25/2019
 LICENSE NO. DATE

DESIGN BY: WRB
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TRAFFIC CONTROL PLAN STAGE 2B

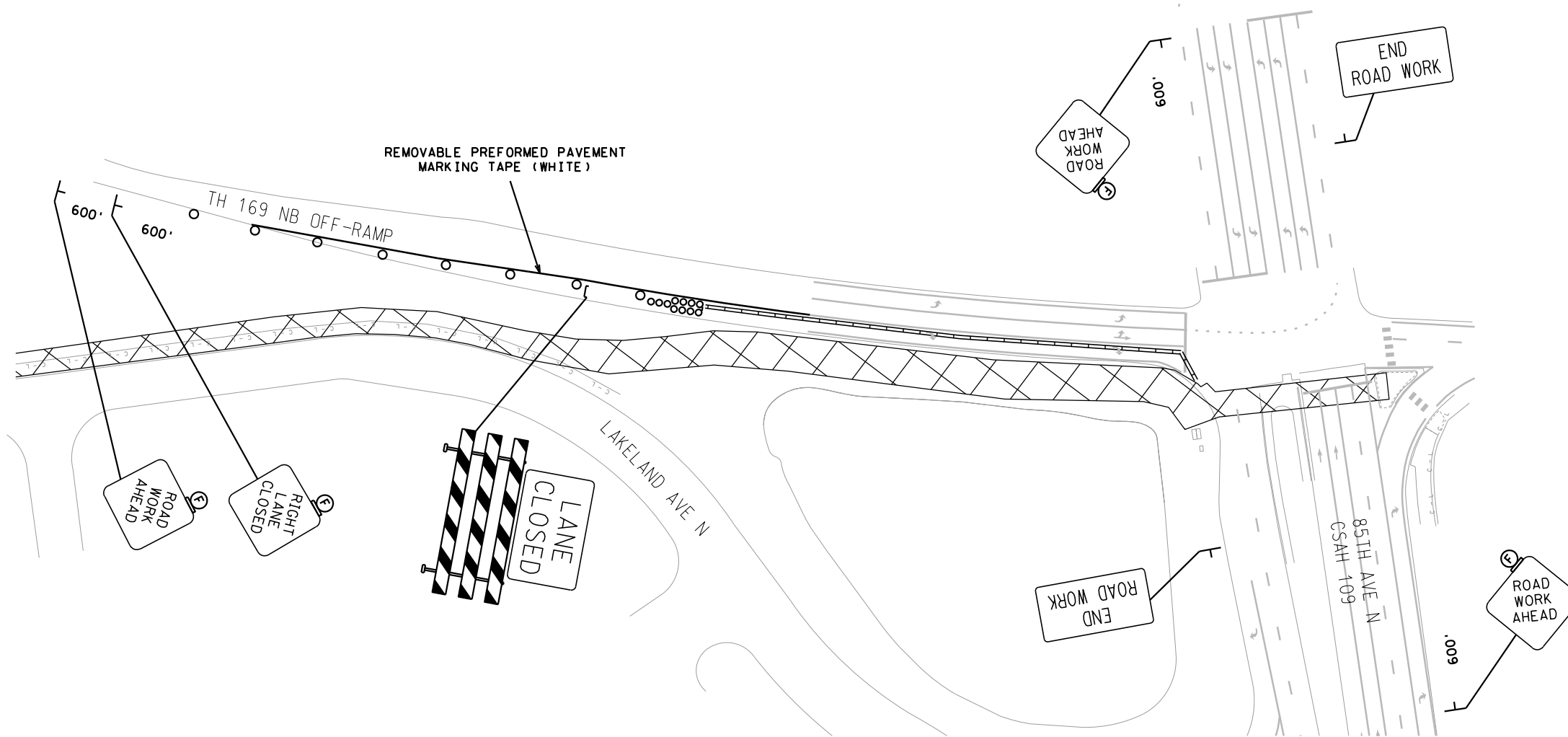
C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
 S.P. 027-681-035, S.P. 110-020-040

SHEET

TC48
 TC49



SCALE 0' 50' 100'



GENERAL NOTES
 ACCESS SHALL BE MAINTAINED AT ALL TIMES AS DIRECTED BY THE ENGINEER.
 SEE SHEET TC12 FOR DETOUR SIGNING.

ALL TRAFFIC CONTROL DEVICES AND LAYOUTS SHALL CONFORM AND BE INSTALLED IN ACCORDANCE WITH THE LATEST EDITION OF THE "MINNESOTA MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES" (MN MUTCD) INCLUDING THE LATEST "FIELD MANUAL FOR TEMPORARY TRAFFIC CONTROL LAYOUTS".



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4/25/2019

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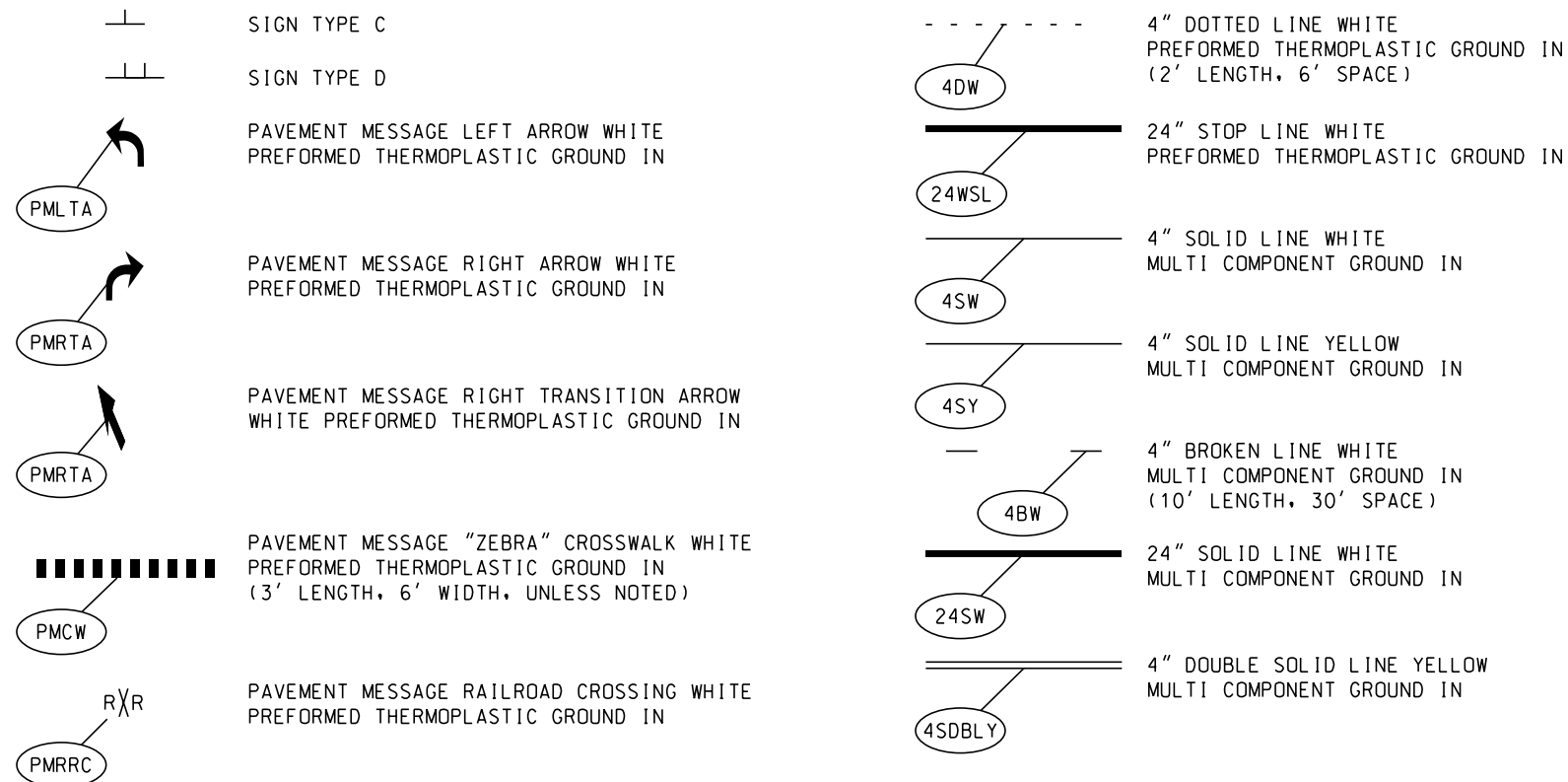
TRAFFIC CONTROL PLAN STAGE 2B

C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
 S.P. 027-681-035, S.P. 110-020-040

SHEET

TC49
 TC49

PERMANENT SIGNING AND STRIPING LEGEND



SIGNING & STRIPING PLAN INDEX

SHEET NO.	DESCRIPTIONS
ST1 - ST4	PERMANENT SIGNING AND STRIPING DETAIL SHEETS
ST5 - ST8	PROPOSED SIGNING TABULATION SHEETS
ST9 - ST20	SIGNING REMOVAL PLAN
ST21 - ST32	PERMANENT SIGNING AND STRIPING PLAN

PAVEMENT MARKING TABULATION					
ITEM	UNIT	WHITE	YELLOW	TOTAL QUANTITY	REMARKS
PVMT MSSG RIGHT ARROW WHITE PREF THERMO GR IN	SQFT	649		649	
PVMT MSSG LEFT ARROW WHITE PREF THERMO GR IN	SQFT	866		866	
PVMT MSSG RAILROAD CROSSING WHITE PREF THERMO GR	SQFT	1300		1300	
PVMT MSSG MERGE ARROW WHITE PREF THERMO GR IN	SQFT	42		42	
4" DBL SOLID LINE MULTI COMP GR IN YELLOW	LIN FT		1879	1879	
4" SOLID LINE MULTI COMP GR IN WHITE	LIN FT	19629	1068	20697	
24" SOLID LINE MULTI COMP GR IN WHITE	LIN FT	511		511	
4" BROKEN LINE MULTI COMP GR IN WHITE	LIN FT	10708		10708	
4" DOTTED LINE PREF THERMO GR IN WHITE	LIN FT	301		301	
24" STOP LINE PREF THERMO GR IN	LIN FT	1333		1333	
CROSSWALK PREF THERMO GR IN	SQFT	7644		7644	

SIGNING TABULATION			
ITEM	UNIT	TOTAL QUANTITY	REMARKS
REMOVE SIGN TYPE C	EACH	153	
REMOVE SIGN TYPE D	EACH	8	
REMOVE SIGN TYPE SPECIAL	EACH	1	
SALVAGE SIGN TYPE D	EACH	14	
SALVAGE SIGN TYPE SPECIAL	EACH	1	
INSTALL SIGN TYPE D	EACH	14	SEE SHEET ST 7
INSTALL SIGN TYPE SPECIAL	EACH	1	
OBJECT MARKER TYPE X4-2	EACH	27	
OBJECT MARKER TYPE X4-4	EACH	1	
SIGN PANELS TYPE C	SQ FT	1736	
SIGN PANELS TYPE D	SQ FT	85	
SIGN PANELS TYPE OVERLAY	SQ FT	10	



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 KATE E. MINER, LICENSED PROFESSIONAL ENGINEER 43801 4/19/2019
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PERMANENT SIGNING AND STRIPING DETAIL SHEET

C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
 S.P. 027-681-035, S.P. 110-020-040

SHEET

ST1
 ST32

GENERAL

ALL TRAFFIC CONTROL DEVICES SHALL CONFORM AND BE INSTALLED IN ACCORDANCE WITH THE LATEST EDITION OF THE MNDOT "TRAFFIC ENGINEERING MANUAL" AND THE "MINNESOTA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" (MN MUTCD) INCLUDING PART VI, "FIELD MANUAL FOR TEMPORARY TRAFFIC CONTROL ZONE LAYOUTS" WITH THE FOLLOWING EXCEPTIONS AND AS DIRECTED BY THE ENGINEER. THESE GUIDELINES ARE TYPICAL. MODIFICATION MAY BE REQUIRED FOR UNUSUAL CONDITIONS OR TO CONFORM TO THE REQUIREMENTS OF OTHER AGENCIES. ALL SIGNING, STRIPING AND PAVEMENT MARKINGS WITHIN BY THE CITY OF MINNEAPOLIS SHALL CONFORM TO THE REQUIREMENTS OF THE CITY OF MINNEAPOLIS.

SIGNING TYPE C

ALL SIGNING SHALL BE FHA TYPE XI.

ALL SIGNS SHALL BE CONVENTIONAL ROAD SIZE AS SHOWN IN THE MN MUTCD APPENDIX C EXCEPT AS FOLLOWS:

- ALL STOP SIGNS (R1-1) SHALL BE A MINIMUM OF 36" X 36"
- ALL NO PARKING SIGNS (R8-3) SHALL BE 18" X 18"
- ALL PEDESTRIAN CROSSING SIGNS (W11-2) SHALL BE A MINIMUM OF 36" X 36"
- ALL SCHOOL SIGNS (S1-1) SHALL BE 36" PENTAGON SIZE.

ALL SIGNS SHALL HAVE HOLES PUNCHED ONLY FOR THE NUMBER OF POSTS REQUIRED.

ALL SIGN POSTS SHALL BE 3 POUNDS PER FOOT, GALVANIZED "U" POSTS.

NUMBER OF POSTS:

- SIGN WIDTH 35" OR LESS USE 1 POST
- SIGN WIDTH 36" - 70" USE 2 POSTS WITH BACK BRACE
- SIGN WIDTH OVER 70" PLACE A POST APPROXIMATELY EVERY 2' WITH BACK BRACE

LATERAL BRACES MAY BE USED AS A STIFFENER FOR SIGNS IF REQUIRED BY THE ENGINEER.

KNEE BRACES SHALL NOT BE USED UNLESS REQUIRED BY THE ENGINEER.

MOUNTING HEIGHT TO THE BOTTOM EDGE OF THE LOWEST SIGN SHALL BE 7.0' EXCEPT AS FOLLOWS:

- OBJECT MARKERS (X4-2) AND SNOW PLOW MARKERS (X4-5) 5.0'
- OBJECT MARKER (X4-2) IF MOUNTED BELOW A KEEP RIGHT 4.0'

ALL SIGNS MOUNTED IN CONCRETE OR LANDSCAPE PAVER SURFACING SHALL USE A SIGN COLLAR WHICH SHALL BE PLACED IN CONCRETE. ALL SIGN COLLARS LOCATED ON RAISED ISLANDS SHALL USE DOUBLE SIGN COLLARS. SEE TYPICAL SIGN COLLAR DETAIL.

ALL KEEP RIGHT SIGNS (R4-7) SHALL HAVE REAR DELINEATION AS SHOWN IN THE REAR DELINEATION DETAIL AND AN OBJECT MARKER (X4-2) MOUNTED BELOW THE KEEP RIGHT SIGN.

NO PARKING SIGNS AND TWO-WAY LEFT TURN LANE SIGNS SHALL WHERE POSSIBLE BE GROUPED WITH OTHER SIGNS TO REDUCE THE NUMBER OF SIGN POSTS.

ADOPT A HIGHWAY SIGN (I-X1) SHALL NOT BE USED. IF REQUIRED 36" X 24" ADOPT A HIGHWAY SIGNS SHALL BE FURNISHED BY HENNEPIN COUNTY FOR INSTALLATION BY THE CONTRACTOR.

A SCHOOL CROSSING SIGN (S1-1) WITH AHEAD PLAQUE (W16-9P) MOUNTED BELOW THE SCHOOL CROSSING SIGN SHALL BE IN ADVANCE OF ALL SCHOOL CROSSING SIGNS (S1-1).

ALL SIGNS SHOWN IN THE MN MUTCD WITH OPTIONAL FLUORESCENT YELLOW-GREEN BACKGROUND COLOR SHALL USE THE FLUORESCENT YELLOW-GREEN BACKGROUND COLOR.

NO PASSING ZONE SIGN (W14-3) SHALL BE USED ON THE LEFT WITH A DO NOT PASS SIGN (R4-1) ON THE RIGHT.

OBJECT MARKER (X4-2) SHALL BE YELLOW BUTTONS ON YELLOW SHEETING.

ALL INPLACE SIGNS WITHIN THE CONSTRUCTION LIMITS SHALL BE PROTECTED INPLACE, REMOVED OR SALVAGED AND REINSTALLED AS SHOWN IN THE PLANS AND AS DIRECTED BY THE ENGINEER. ALL REMOVED SIGNS SHALL BECOME THE PROPERTY OF THE CONTRACTOR.

PERMANENT STRIPING AND PAVEMENT MARKINGS

ALL LONGITUDINAL LINES SHALL BE 4" WIDE MULTI COMPONENT GROUND IN (GROOVED) EXCEPT WHITE EDGE LINES WHICH SHALL BE 6", UNLESS NOTED.

A BROKEN LINE SHALL BE A 4" WIDE MULTI COMPONENT GROUND IN (GROOVED) LINE AND SHALL HAVE A 10' LENGTH AND 30' GAP.

A DOTTED LINE (CAT TRACKS) SHALL BE A 4" WIDE THERMOPLASTIC GROUND IN (GROOVED) LINE AND SHALL HAVE A 2' LENGTH AND 6' GAP. WHEN DOTTED LINE SERVES AS A TURN LANE EXTENSION IT SHALL BE 4"

CROSSHATCHING (HASH MARKS) SHALL BE 24" WIDE MULTI COMPONENT GROUND IN (GROOVED) LINE. INSTALLED AT 45° WITH 20' PERPENDICULAR GAP. THEY SHALL ONLY BE PLACED WHEN AT LEAST 2 BARS OF MINIMUM 6' LENGTH CAN BE INSTALLED AT STANDARD SPACING. BIKE LANE BUFFER HATCHING SHALL BE 8" WIDE WITH 30' SPACING.

BIKE BUFFER LANE LINES SHALL BE 4" WIDE NEXT TO PARKING OR BIKE LANES AND 6" WIDE NEXT TO A VEHICLE LANE. HATCHING SHALL ONLY BE INSTALLED FOR BUFFER LANES WIDER THAN 2'.

ON BITUMINOUS PAVEMENTS LONGITUDINAL LINES SHALL NOT BE PLACED IMMEDIATELY ADJACENT (2' OR LESS FROM THE FACE OF CURB) TO CONCRETE CURB AND GUTTER, RAISED CONCRETE OR MONOLITHIC ISLANDS EXCEPT RIGHT TURN ISLANDS.

STOP LINES SHALL ONLY BE PLACED AT RAILROAD CROSSINGS, SIGNALIZED INTERSECTION APPROACHES WITHOUT CROSSWALK MARKINGS AND AT "MINNEAPOLIS" STYLE CROSSWALK MARKINGS. STOP LINES SHALL BE PREFORM TAPE OR THERMOPLASTIC.

PERMANENT PAVEMENT MARKINGS, STRIPING AND MESSAGES SHALL NOT BE PLACED ONTO A CONCRETE GUTTER.

ALL PAVEMENT MESSAGES SHALL BE PREFORM TAPE OR THERMOPLASTIC AND GROUND IN (GROOVED).

THE INSTALLERS OF ALL THERMOPLASTIC MATERIALS MUST CARRY A CARD CERTIFYING THAT THEY HAVE ATTENDED A TRAINING SESSION THAT ADDRESSES SURFACE PREPARATIONS AND ALL APPLICATION REQUIREMENTS AND TECHNIQUES NECESSARY FOR SUCCESSFUL APPLICATIONS.

IF THERMOPLASTIC MATERIAL IS TO BE INSTALLED ON CONCRETE PAVEMENT THE CONCRETE PAVEMENT SHALL HAVE A SEALER APPLIED THAT IS IN ACCORDANCE WITH ALL OF THE MANUFACTURE'S SPECIFICATIONS AFTER THE GROUND IN PROCESS (GROOVED) AND BEFORE ANY THERMOPLASTIC MATERIAL IS APPLIED, AS DIRECTED BY THE ENGINEER.

PAVEMENT MESSAGE SPECIAL SHALL NOT BE PLACED WITHIN ANY MARKED CROSSWALK.

PAVEMENT MESSAGE SPECIAL SHALL HAVE ALL THERMOPLASTIC MATERIAL OMITTED THAT WOULD BE PLACED ONTO A CONCRETE GUTTER, AS DIRECTED BY THE ENGINEER.

FULL WIDTH TURN LANES:

- UNDER 200' USE 1 ARROW PLACED AT THE CENTER OF THE TURN LANE.
 - OVER 200' USE 2 ARROWS PLACED AS SHOWN IN THE MN/DOT "TRAFFIC ENGINEERING MANUAL"
- PAVEMENT MESSAGE "ONLY" SHALL NOT BE USED.

CROSSWALK MARKINGS OUTSIDE THE CITY OF MINNEAPOLIS SHALL BE WHITE PREFORM TAPE OR THERMOPLASTIC "ZEBRA" STYLE. THEY SHALL MATCH IN WIDTH THE FACILITY THAT ENTERS THE CROSSWALK MARKINGS WITH A MINIMUM WIDTH OF 6' OR AS DIRECTED BY THE ENGINEER. CROSSWALK MARKINGS WITHIN THE CITY OF MINNEAPOLIS SHALL BE 10' LONG BY 2' WIDE OR AS DIRECTED BY THE ENGINEER.

CROSSWALK MARKINGS SHALL WHERE POSSIBLE CONNECT PEDESTRIAN CURB RAMPS WITH A STRAIGHT LINE, AT 90° TO THE ROADWAY AND BE PLACED IN FRONT OF MEDIAN NOSES.

CROSSWALK MARKINGS SHALL NOT BE PLACED ACROSS FREE RIGHT TURN LANES, SLIP LANES OR AT SIGNED TRAIL CROSSING LOCATIONS.

BIKE LANE SYMBOLS SHALL BE A BLACK RECTANGLE WITH A WHITE BIKE (NO BIKE RIDER).



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Kate Miner
 KATE E. MINER, LICENSED PROFESSIONAL ENGINEER
 43801 LICENSE NO. 2/28/2019 DATE

DESIGN BY: WRB
 CAD BY: WRB
 CHECKED BY: KEM
 LAST REVISION: / /

SIGNING AND STRIPING GUIDELINES
 C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
 S.P. 027-681-035, S.P. 110-020-040

SHEET
 ST2
 ST32

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 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 CROSSWALK.

INTERSECTION MARKINGS, LEGENDS, AND SYMBOLS MAY REQUIRE USE OF WIDER CUTTING HEADS TO REDUCE THE NUMBER OF RIDGES FORMED BY MULTIPLE PASSES WITH THE CUTTING HEAD. THE HEIGHT OF THE RIDGES SHOULD BE LESS THAN 20% OF THE GROOVE DEPTH. SMALLER EQUIPMENT MAY BE REQUIRED TO ACHIEVE A GROOVE AT THE RECOMMENDED DEPTH WHEN WORKING NEAR OBSTACLES SUCH AS CURBS OR MEDIANS.



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Kate Miner
 KATE E. MINER, LICENSED PROFESSIONAL ENGINEER

43801 2/28/2019
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GENERAL CONSTRUCTION NOTES

C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
 S.P. 027-681-035, S.P. 110-020-040

SHEET

ST3
 ST32

REMOVE SIGN TYPE D						
SIGN NUMBER	QUANTITY EACH	POSTS	PANELS		LEGEND	REMARKS
		NUMBER	SIZE(1) INCH			
D-101	1	2	60	60	JCT, CO 130, CO 152, 1/3 MILE	
D-102	1	2	60	48	CO 130 DBL ARROW, CO 152 RT ARROW	
D-103	1	2	60	48	CO 130 DBL ARROW, CO 152 LT ARROW	
D-104	1	2	60	60	JCT, CO 130, CO 152, 1/4 MILE	
D-105	1	2	48	54	JCT HWY 169	
D-106	1	2	108	66	NORTH HWY 169 SECOND RIGHT	
D-107	1	2	84	36	GREEN HAVEN DR RT ARROW	
D-108	1	1	102	24	83RD AVE N 45 RT ARROW	
TOTALS	8					

NOTES:

(1) SIZES ARE APPROXIMATE

REMOVE SIGN TYPE SPECIAL					
SIGN NUMBER	QUANTITY EACH	POSTS	LEGEND	REMARKS	
		QTY & TYPE			
S-101	1	1	LAKELAND AVE/73RD AVE N		
TOTALS	1				

NOTES:

(1) MOUNTING HEIGHT IS MINIMUM (WITH A +6 INCH TOLERANCE).

SALVAGE AND INSTALL SIGN TYPE D							
SIGN NUMBER	QUANTITY EACH	POSTS	MOUNTING	PANELS		LEGEND	REMARKS
		NUMBER	HEIGHT (2) FT	SIZE(1) INCH			
D-201	1	2	7	96	66	WEST BROADWAY	
D-202	1	2	7	36	48	JCT COUNTY 8	
D-203	1	2	7	66	54	HENNEPIN TECHNICAL COLLEGE	
D-204	1	2	7	66	36	NORTH HENNEPIN COMMUNITY COLLEGE	
D-205	1	2	7.75	30	36	BROOKLYN PARK WELCOMES YOU	
D-206	1	1	7.75	30	36	BROOKLYN PARK WELCOMES YOU	(5)
D-207	1	2	7	66	54	HENNEPIN TECHNICAL COLLEGE	
D-208	1	1	7	30	24	ADOPT A HIGHWAY	
D-209	1	2	7	30	36	BROOKLYN PARK PARKING REGULATIONS	
D-210	1	1	7.75	30	36	BROOKLYN PARK PARKING REGULATIONS	(5)
D-211	1	1	7	24	30	NO ENGINE BRAKING	
D-212	1	1	7	24	30	NO ENGINE BRAKING	(3)
D-213	1	1	7	24	30	NO ENGINE BRAKING	(4)
D-214	1	1	7	24	30	NO ENGINE BRAKING	
TOTALS	14						

NOTES:

(1) SIZES ARE APPROXIMATE

(2) MOUNTING HEIGHT TO BOTTOM EDGE OF LOWEST SIGN.

(3) MOUNT C-8 UNDER SIGN.

(4) MOUNT UNDER C-45 SIGN

(5) MOUNT ON 1 SQUARE TUBE POST.

SALVAGE AND INSTALL SIGN TYPE SPECIAL						
SIGN NUMBER	QUANTITY EACH	POSTS	MOUNTING	LEGEND	REMARKS	
		QTY & TYPE	HEIGHT (1) FEET			
S-201	1	1	7	XYLON AVE/BROOKLYN BLVD		
TOTALS	1					

NOTES:

(1) MOUNTING HEIGHT IS MINIMUM (WITH A +6 INCH TOLERANCE).



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KATE E. MINER, LICENSED PROFESSIONAL ENGINEER

43801 4/19/2019
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SIGNING AND STRIPING TABULATIONS

C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
S.P. 027-681-035, S.P. 110-020-040

SHEET

ST5
ST32

SIGN PANELS TYPE C											
SIGN NO.	SIGN QTY.	POSTS		MOUNTING HEIGHT (3) LIN FT	PANELS				PANEL CODE NUMBER	LEGEND (4)	REMARKS
		NUMBER	SIGN COLLAR (1,2)		SIZE	AREA	TOTAL				
					INCH	INCH	SQ FT	SQ FT			
C-1	1	1	-	7	24	12	2.00	2.00	M3-1A	NORTH	
					24	24	4.00	4.00	M1-6	HENNEPIN COUNTY 81	
C-2	12	1	-	7	36 DIA		7.07	84.84	W10-1	RAIL ROAD ADVANCE WARNING	
C-3	14	1	-	7	36	36	9.00	126.00	R3-7L	LEFT LANE MUST TURN LEFT	
C-4	10	1	-	7	36	36	9.00	90.00	R3-7R	RIGHT LANE MUST TURN RIGHT	
					30	30	6.25	62.50	R8-3	NO PARKING	
C-5	3	1	-	7	30	36	7.50	22.50	R2-1	SPEED LIMIT 45	
					30	30	6.25	18.75	R8-3	NO PARKING	
C-6	3	1	-	7	36	36	9.00	27.00	W10-2L	RAIL ROAD ADVANCE LEFT	
C-7	4	1	-	7	36	36	9.00	36.00	W10-2R	RAIL ROAD ADVANCE RIGHT	
C-8	8	1	-	7	30	30	6.25	50.00	R8-3	NO PARKING	
C-9	23	2	-	7	36	36	9.00	207.00	R5-1	DO NOT ENTER	
					24	30	5.00	110.00	R4-7	KEEP RIGHT	
C-10	22	1	22	4.5	12	30	2.50	55.00	(2)	REAR DELINEATOR (2)	
					18	18	2.25		X4-2	OBJECT MARKER	
C-11	1	1	-	7	36	36	9.00	9.00	W11-8	EMERGENCY VEHICLE	
C-12	1	1	-	7	36	30	7.50	7.50	R3-8AD	LANE USE L-T-R	
C-13	1	1	-	7.75	30	30	6.25	6.25	R8-3	NO PARKING	
C-14	6	2	-	7	36	36	9.00	54.00	R3-7R	RIGHT LANE MUST TURN RIGHT	
C-15	1	2	-	7	54	30	11.25	11.25	R3-8ACA	LANE USE L-T-R	
C-16	4	2	-	7	48 X 48 X 48		6.93	27.72	R1-2	YIELD	
C-17	4	2	-	7	54	18	6.75	27.00	R6-1R	ONE WAY RIGHT	
					36	36	9.00	45.00	W11-15	COMBINED BIKE/PED CROSSING	
C-18	5	2	-	7	30	24	5.00	25.00	W16-7MPL	NO PARKING	
C-19	4	2	-	7	54	18	6.75	27.00	R6-1R	ONE WAY RIGHT	
					36	36	9.00	36.00	R1-1	STOP	
					21	15	2.19	4.38	M2-1A	JCT	
C-20	2	1	-	7	24	24	4.00	8.00	M1-6	HENNEPIN COUNTY 130	
					24	24	4.00	8.00	M1-6	HENNEPIN COUNTY 152	
C-21L	1	1	-	7	24	12	2.00	2.00	M3-4A	WEST	
					24	24	4.00	4.00	M1-6	HENNEPIN COUNTY 130	
					21	15	2.19	2.19	M6-1AL	LT ARROW	
C-21M	1	1	-	7	24	12	2.00	2.00	M4-5A	TO	
					24	12	2.00	2.00	M3-3A	SOUTH	
					24	24	4.00	4.00	M1-6	HENNEPIN COUNTY 130	
					21	15	2.19	2.19	M6-1AR	RT ARROW	
C-21R	1	1	-	7	24	12	2.00	2.00	M3-2A	EAST	
					24	24	4.00	4.00	M1-6	HENNEPIN COUNTY 152	
					21	15	2.19	2.19	M6-1AR	RT ARROW	
C-22	5	1	-	7	36	30	7.50	37.50	R3-8AB	LANE USE L-L	
					24	12	2.00	2.00	M2-3A	SOUTH	
C-23	1	1	-	7	24	24	4.00	4.00	M1-6	HENNEPIN COUNTY 81	
					30	30	6.25	6.25	R8-3	NO PARKING	
C-24	1	1	-	7	36	36	9.00	9.00	W12-1	DOUBLE ARROW	
SUBTOTAL NUMBER 1								1277.00			

SPECIFIC NOTES:

- (1) PROVIDED BY HENNEPIN COUNTY.
- (2) SEE DETAIL ON SHEET ST4.
- (3) MOUNTING HEIGHT TO BOTTOM EDGE OF LOWEST SIGN.
- (4) ALL SIGNING SHALL BE FHA TYPE XI.

SIGN PANELS TYPE C											
SIGN NO.	SIGN QTY.	POSTS		MOUNTING HEIGHT (3) LIN FT	PANELS				PANEL CODE NUMBER	LEGEND (4)	REMARKS
		NUMBER	SIGN COLLAR (1,2)		SIZE	AREA	TOTAL				
					INCH	INCH	SQ FT	SQ FT			
C-25	1	1	-	7.75	24	12	2.00	2.00	M4-6A	END	
					24	24	4.00	4.00	M3-4A	WEST	
					24	12	2.00	2.00	M3-4A	WEST	
C-26	1	1	-	7.75	24	24	4.00	4.00	M1-6	HENNEPIN COUNTY 152	
					30	30	6.25	6.25	R8-3	NO PARKING	
C-27	1	1	-	7	24	12	2.00	2.00	M3-1A	NORTH	
					24	24	4.00	4.00	M1-6	HENNEPIN COUNTY 81	
					30	30	6.25	6.25	R8-3	NO PARKING	
C-28	1	1	-	7.75	24	24	4.00	4.00	M1-6	HENNEPIN COUNTY 81	
					21	15	2.19	2.19	M6-4A	DOUBLE ARROW	
C-29	1	1	-	7	30	36	7.50	7.50	R2-1	SPEED LIMIT 40	
C-30	3	1	-	7	30	30	6.25	18.75	R1-1	STOP	
C-31	1	1	-	7	21	15	2.19	2.19	M2-1A	JCT	
					24	24	4.00	4.00	M1-6	HENNEPIN COUNTY 81	
					24	24	4.00	4.00	M1-6	HENNEPIN COUNTY 152	
C-32L	1	1	-	7.75	24	12	2.00	2.00	M4-14A	BEGIN	
					24	12	2.00	2.00	M3-2A	EAST	
					24	24	4.00	4.00	M1-6	HENNEPIN COUNTY 152	
C-32R	1	1	-	7.75	24	12	2.00	2.00	M4-5A	TO	
					24	12	2.00	2.00	M3-3A	SOUTH	
					24	24	4.00	4.00	M1-6	HENNEPIN COUNTY 130	
C-33	1	1	-	7	21	15	2.19	2.19	M2-1A	JCT	
					24	24	4.00	4.00	M1-6	HENNEPIN COUNTY 103	
					24	24	4.00	4.00	M1-6	HENNEPIN COUNTY 130	
C-34L	1	1	-	7	24	12	2.00	2.00	M4-5A	TO	
					24	12	2.00	2.00	M3-4A	WEST	
					24	24	4.00	4.00	M1-6	HENNEPIN COUNTY 130	
					21	15	2.19	2.19	M6-3A	ARROW UP	
C-34R	1	1	-	7	24	24	4.00	4.00	M1-6	HENNEPIN COUNTY 152	
					30	30	6.25	6.25	R8-3	NO PARKING	
C-35L	1	1	-	7	24	24	4.00	4.00	M1-6	HENNEPIN COUNTY 103	
					21	15	2.19	2.19	M6-1AL	LEFT ARROW	
C-35R	1	1	-	7	24	24	4.00	4.00	M1-6	HENNEPIN COUNTY 130	
					21	15	2.19	2.19	M6-1AR	RIGHT ARROW	
C-36L	1	1	-	7	24	12	2.00	2.00	M3-2A	EAST	
					24	24	4.00	4.00	M1-6	HENNEPIN COUNTY 152	
					21	15	2.19	2.19	M6-1AL	LT ARROW	
C-36M	1	1	-	7	24	12	2.00	2.00	M4-5A	TO	
					24	12	2.00	2.00	M3-3A	SOUTH	
					24	24	4.00	4.00	M1-6	HENNEPIN COUNTY 130	
					21	15	2.19	2.19	M6-1L	LT ARROW	
C-36R	1	1	-	7	24	12	2.00	2.00	M3-4A	WEST	
					24	24	4.00	4.00	M1-6	HENNEPIN COUNTY 130	
					21	15	2.19	2.19	M6-1R	RT ARROW	
SUBTOTAL NUMBER 2								160.69			

SPECIFIC NOTES:

- (1) PROVIDED BY HENNEPIN COUNTY.
- (2) SEE DETAIL ON SHEET ST4.
- (3) MOUNTING HEIGHT TO BOTTOM EDGE OF LOWEST SIGN.
- (4) ALL SIGNING SHALL BE FHA TYPE XI.



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.

Kate Miner
KATE E. MINER, LICENSED PROFESSIONAL ENGINEER

43801 4/19/2019
LICENSE NO. DATE

DESIGN BY: WRB
CAD BY: WRB
CHECKED BY: KEM
LAST REVISION: / /

SIGNING AND STRIPING TABULATIONS

C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
S.P. 027-681-035, S.P. 110-020-040

SHEET

ST6
ST32

SIGN PANELS TYPE C											
SIGN NO.	SIGN QTY.	POSTS		MOUNTING HEIGHT (3) LIN FT	PANELS				PANEL CODE NUMBER	LEGEND (4)	REMARKS
		NUMBER	SIGN COLLAR (1,2)		SIZE	AREA	TOTAL				
					INCH	INCH	SQ FT	SQ FT			
C-37	1	2	-	7	36	36	9.00	9.00	R3-2	NO LEFT TURN	
					36	36	9.00	9.00	R3-4	NO U-TURN	
C-38	1	1	-	7	30	30	6.25	6.25	W1-1L	CURVE LEFT	
					24	24	4.00	4.00	R8-3	NO PARKING	
C-39	1	2	-	7	48	24	8.00	8.00	W1-7	DOUBLE ARROW	
C-40	1	1	-	7	30	36	7.50	7.50	R2-1	SPEED LIMIT 30	
					30	30	6.25	6.25	R8-3	NO PARKING	
C-41	2	1	-	7	30	30	6.25	12.50	R3-2	NO LEFT TURN	
					30	24	5.00	10.00	R8-3MP	4PM TO 6PM - MON THRU FRI	
C-42	1	1	-	7	30	30	6.25	6.25	R3-7	RIGHT LANE MUST TURN RIGHT	(5)
C-42	1	1	-	5	24	30	5.00	5.00	R4-7	KEEP RIGHT	(5)
					18	18	2.25		X4-2	OBJECT MARKER	
C-43	1	1	-	7	30	30	6.25	6.25	R1-1	STOP	(5)
					30	15	3.13	3.13	W4-4APR	TRAFFIC FROM RIGHT DOES NOT STOP	
C-43	1	1	-	5	24	30	5.00	5.00	R4-7	KEEP RIGHT	(5)
					18	18	2.25		X4-2	OBJECT MARKER	
C-44	1	1	-	7	30	30	6.25	6.25	W3-1	STOP AHEAD	
C-45	1	1	-	5	24	12	2.00	2.00	M3-3A	SOUTH	
					24	24	4.00	4.00	M6-1	HENNEPIN COUNTY 81	
					24	30	5.00		D-213	NO ENGINE BRAKING	
C-46	1	1	-	7	30	30	6.25	6.25	R1-1	STOP	
					30	15	3.13	3.13	W4-4P	CROSS TRAFFIC DOES NOT STOP	
C-47	1	2	-	7	42	30	8.75	8.75	R5-1A	WRONG WAY	
C-48	2	1	-	3.5	24	36	6.00	12.00	R10-6L	STOP HERE ON RED (LEFT)	(7)
C-49	3	1	-	3.5	24	36	6.00	18.00	R10-6R	STOP HERE ON RED (RIGHT)	(7)
C-50	3	1	-	7	36	36	9.00	27.00	R1-1	STOP	
					36	18	4.50	13.50	W4-4aPL	TRAFFIC FROM LEFT DOES NOT STOP	
C-51	1	1	-	7	36	36	9.00	9.00	R1-1	STOP	
					36	18	4.50	4.50	W4-4aPR	TRAFFIC FROM RIGHT DOES NOT STOP	
C-52	1	1	-	7	36	36	9.00	9.00	R3-2	NO LEFT TURN	
					30	24	5.00	5.00	R8-3MP	4PM TO 6PM - MON THRU FRI	
C-53	1	1	-	5	24	36	5.00	5.00	R4-7	KEEP RIGHT	
C-54	2	1	-	7.75	36	DIA	7.07	14.14	W10-1	RAIL ROAD ADVANCE WARNING	
C-55	5	1	-	7.75	36	36	9.00	45.00	R3-7R	RIGHT LANE MUST TURN RIGHT	(6)
C-56	1	1	-	7.75	30	36	7.50	7.50	R2-1	SPEED LIMIT 40	
SUBTOTAL NUMBER 3							298.14				

SPECIFIC NOTES:
(1) PROVIDED BY HENNEPIN COUNTY.
(2) SEE DETAIL ON SHEET ST4.
(3) MOUNTING HEIGHT TO BOTTOM EDGE OF LOWEST SIGN.
(4) ALL SIGNING SHALL BE FHA TYPE XI.

(5) MOUNTED BACK TO BACK.
(6) MOUNT ON 1 SQUARE TUBE POST.
(7) LOCATE 2.5' FROM CURB FACE.

SIGN PANEL TYPE C SUMMARY
SUBTOTAL NUMBER 1 1277.00 SQFT
SUBTOTAL NUMBER 2 160.69 SQFT
SUBTOTAL NUMBER 3 298.14 SQFT
TOTAL 1735.83

C-54, C-55, C-56
HAVE BEEN ADDED

5/5/19 Revisions

'DO NOT STOP ON TRACKS' PANEL DELETED FROM C-52

DELINEATORS				
CODE NO	QUANTITY EACH		TOTAL	REMARKS
	WHITE	YELLOW		
X4-2		27	27	(1)
X4-4		1	1	

SPECIFIC NOTES:
(1) 22 MOUNTED WITH R4-7 SIGNS, 5 MOUNTED ON ISLAND.

SIGN PANELS TYPE OVERLAY									
CODE NO.	QUANTITY	SIZE			AREA	TOTAL	TOTAL QUANTITY	LEGEND	REMARKS
		INCH			SQ. FT.	SQ. FT.			
M1-4A	2	30	X	24	5.00	10.00	10.00	US 169	
TOTALS	2					10.00	10.00		



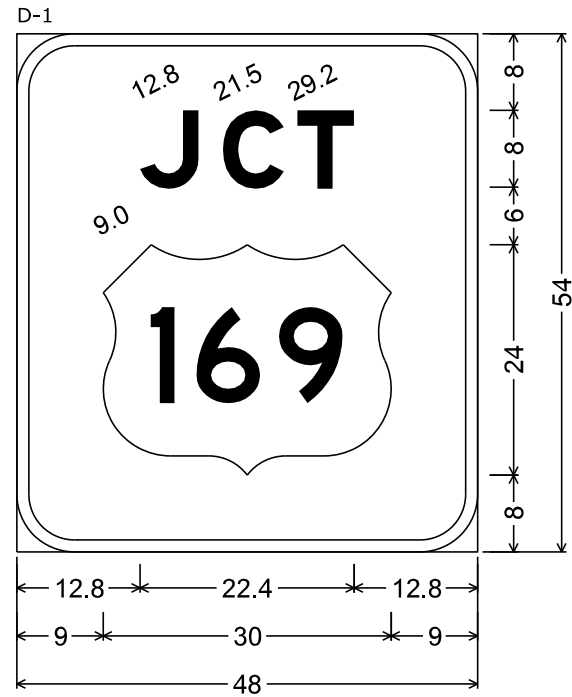
I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

KATE E. MINER, LICENSED PROFESSIONAL ENGINEER
43801 LICENSE NO. 5/6/2019 DATE

DESIGN BY: WRB
CAD BY: WRB
CHECKED BY: KEM
LAST REVISION: / /

SIGNING AND STRIPING TABULATIONS
C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
S.P. 027-681-035, S.P. 110-020-040

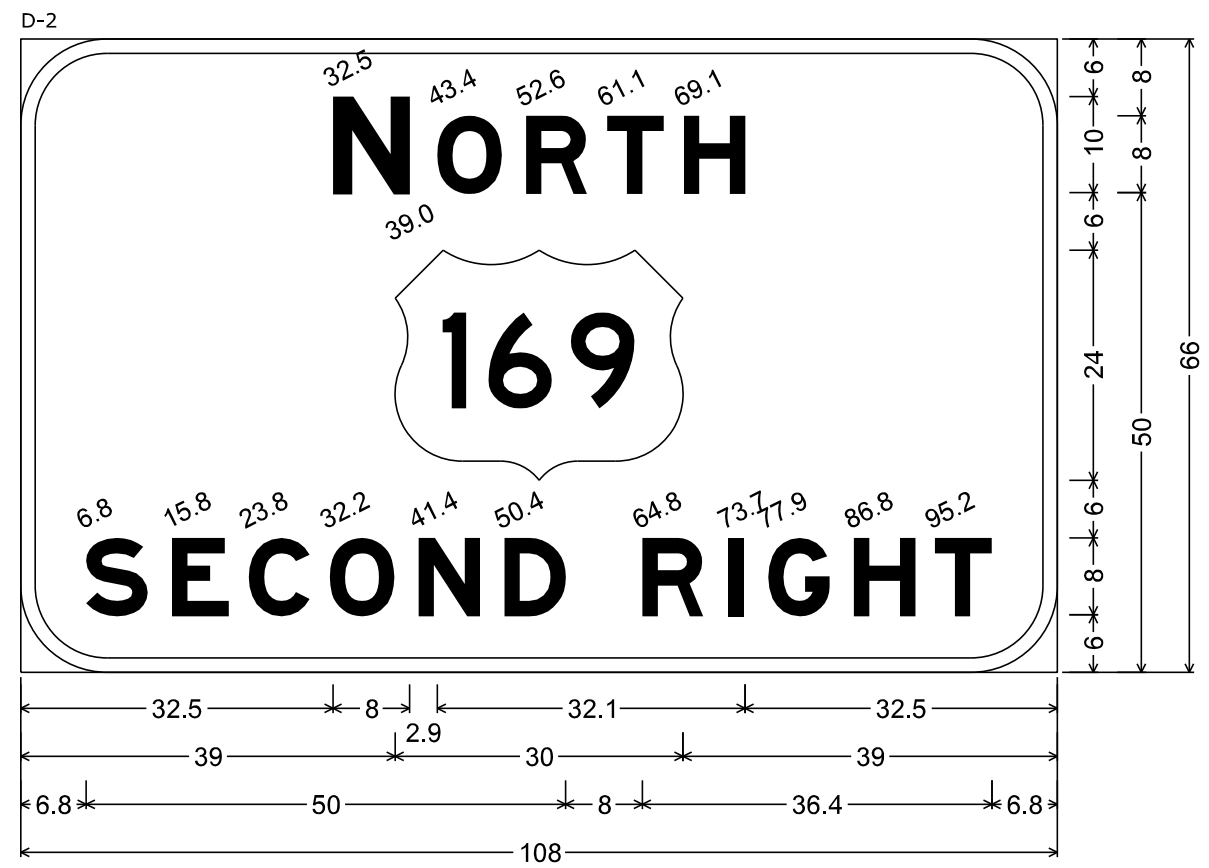
SHEET
ST7
ST32



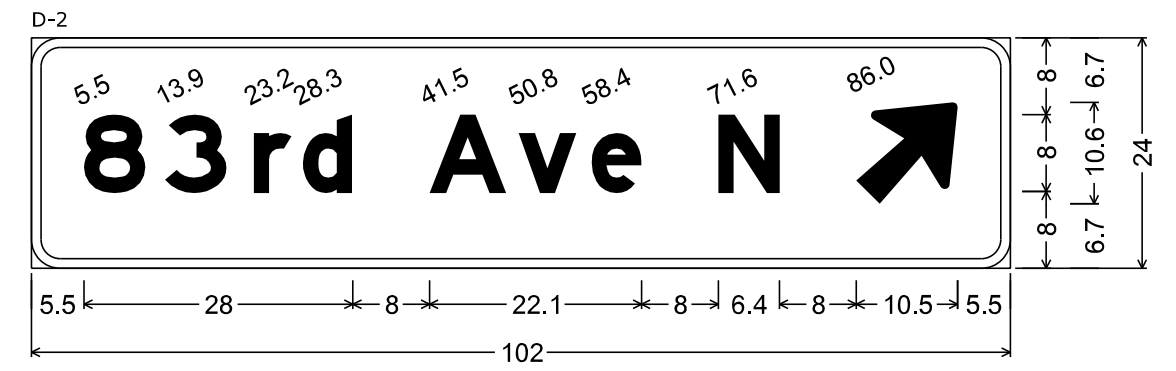
6.0" Radius, 1.3" Border, White on Green;
[JCT] E Mod; US 169 M1-4a;

SIGN PANELS TYPE D (1)									
SIGN NUMBER	QTY	POSTS NUMBER	MOUNTING HEIGHT (2) FT	PANELS			LEGEND	REMARKS	
				SIZE INCH INCH	AREA SQ FT	TOTAL SQ FT			
D-1	1	2	7	48	54	18.00	18.00	JCT 169	
D-2	1	3	7	108	66	49.50	49.50	NORTH 169 SECOND RIGHT	
D-3	1	2	7	102	24	17.00	17.00	83RD AVE N	
TOTALS							84.50		

NOTES:
(1) ALL SIGNING TO BE FHA TYPE X1.
(2) MOUNTING HEIGHT TO BOTTOM EDGE OF LOWEST SIGN.



9.0" Radius, 1.5" Border, White on Green;
[NORTH] E Mod; US 169 M1-4a; [SECOND RIGHT] E Mod;



3.0" Radius, 1.0" Border, White on Green;
[83rd Ave N] E Mod; Arrow 5 - 13.0" 45°;



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Kate Miner
KATE E. MINER, LICENSED PROFESSIONAL ENGINEER

43801 2/28/2019
LICENSE NO. DATE

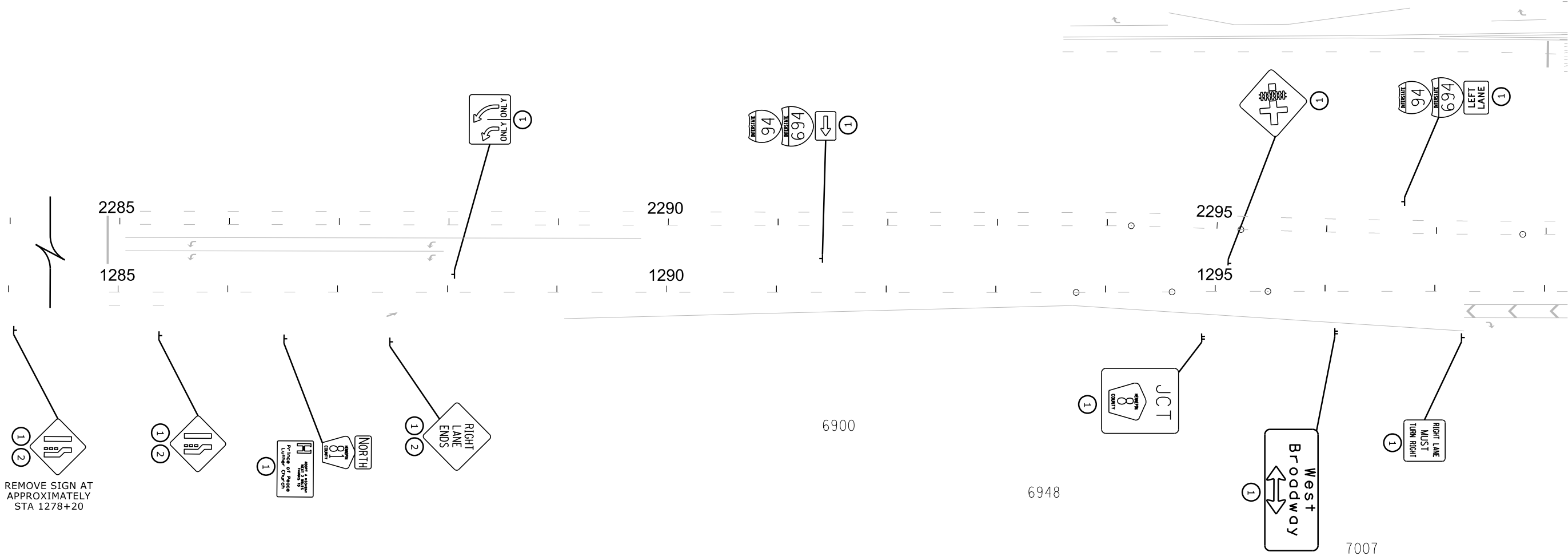
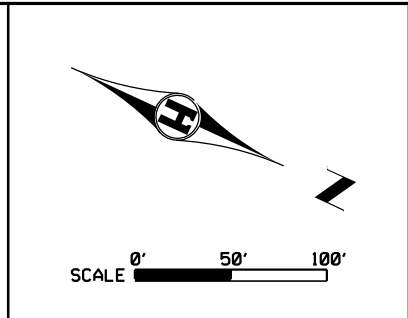
DESIGN BY: WRB
CAD BY: WRB
CHECKED BY: KEM
LAST REVISION: / /

SIGNING AND STRIPING TABULATIONS

C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
S.P. 027-681-035, S.P. 110-020-040

SHEET

ST8
ST32



SPECIFIC NOTES

- ① INPLACE
- ② REMOVE SIGN TYPE C

GENERAL NOTE

SEE TRAFFIC SIGNAL PLANS FOR MAST ARM SIGNING. MAST ARM SIGNING INCIDENTAL TO TRAFFIC CONTROL SIGNAL SYSTEM PAY ITEM.



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.

Kate Miner
 KATE E. MINER, LICENSED PROFESSIONAL ENGINEER

43801 2/28/2019
 LICENSE NO. DATE

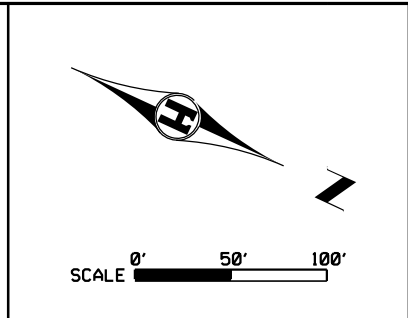
DESIGN BY: WRB
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 LAST REVISION: / /

SIGNING REMOVAL PLAN

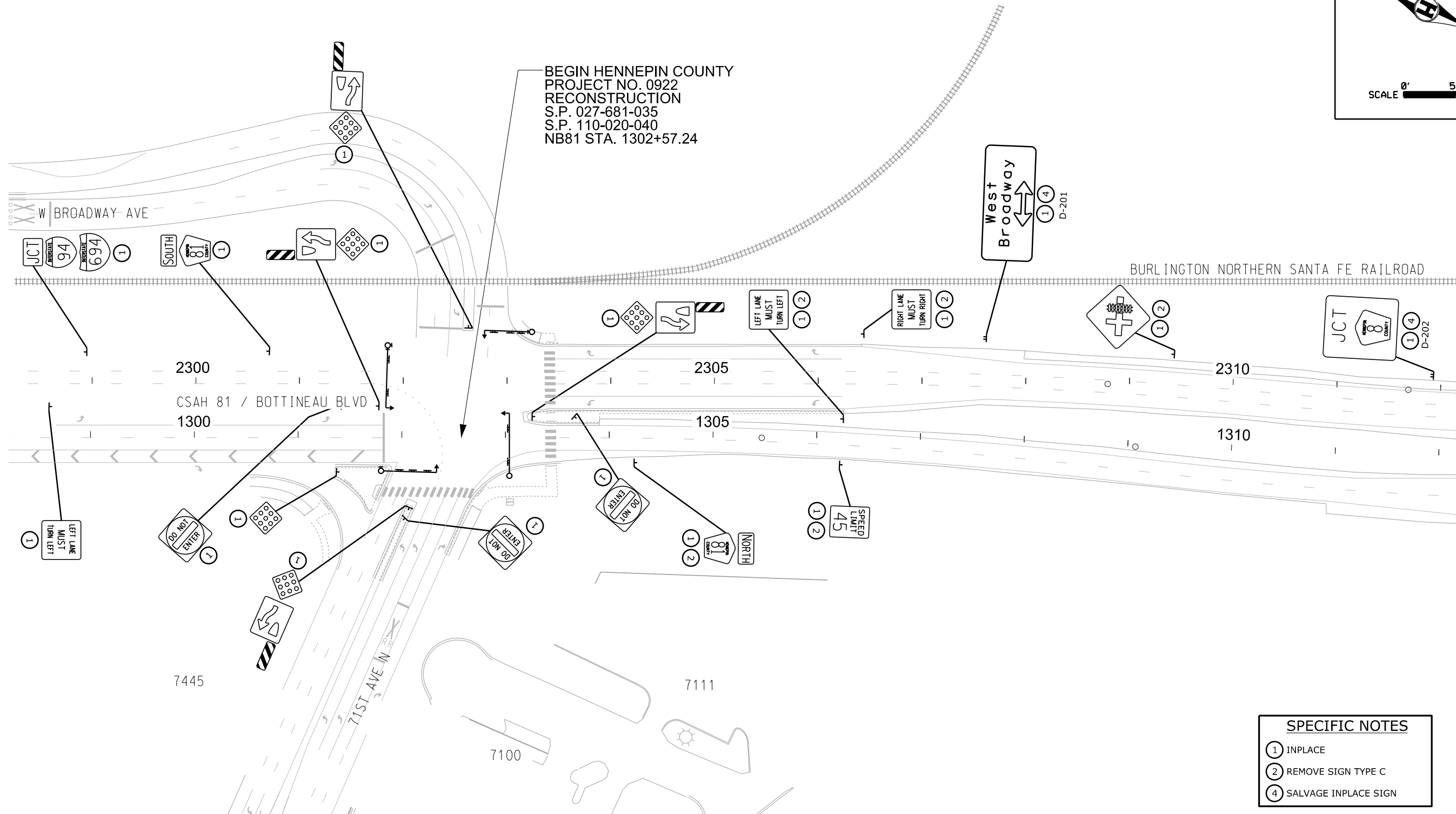
C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
 S.P. 027-681-035, S.P. 110-020-040

SHEET

ST9
 ST32



BEGIN HENNEPIN COUNTY
 PROJECT NO. 0922
 RECONSTRUCTION
 S.P. 027-681-035
 S.P. 110-020-040
 NB81 STA. 1302+57.24



- SPECIFIC NOTES**
- ① INPLACE
 - ② REMOVE SIGN TYPE C
 - ④ SALVAGE INPLACE SIGN

GENERAL NOTE

SEE TRAFFIC SIGNAL PLANS FOR MAST ARM SIGNING.
 MAST ARM SIGNING INCIDENTAL TO TRAFFIC CONTROL
 SIGNAL SYSTEM PAY ITEM.



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Kate Miner
 KATE E. MINER, LICENSED PROFESSIONAL ENGINEER

43801 2/28/2019
 LICENSE NO. DATE

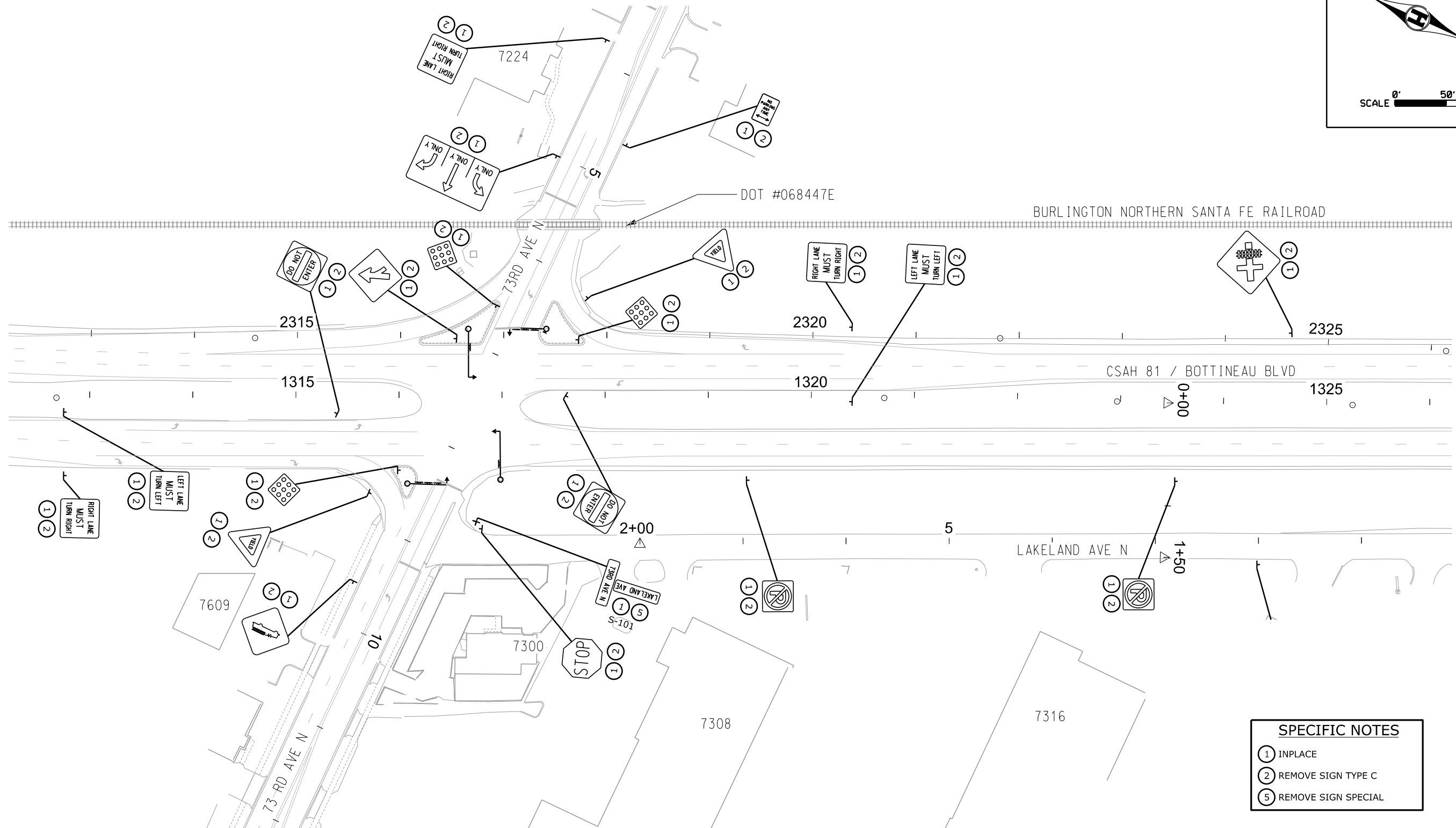
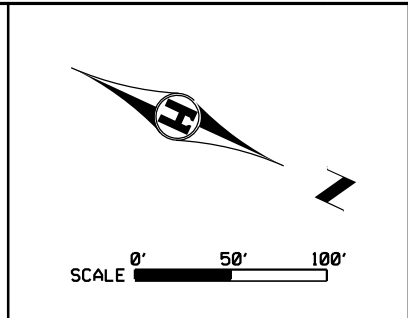
DESIGN BY: WRB
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SIGNING REMOVAL PLAN

C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
 S.P. 027-681-035, S.P. 110-020-040

SHEET

ST10
 ST32



- SPECIFIC NOTES**
- ① INPLACE
 - ② REMOVE SIGN TYPE C
 - ⑤ REMOVE SIGN SPECIAL

GENERAL NOTE

SEE TRAFFIC SIGNAL PLANS FOR MAST ARM SIGNING.
MAST ARM SIGNING INCIDENTAL TO TRAFFIC CONTROL
SIGNAL SYSTEM PAY ITEM.



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.

Kate Miner
KATE E. MINER, LICENSED PROFESSIONAL ENGINEER

43801 2/28/2019
LICENSE NO. DATE

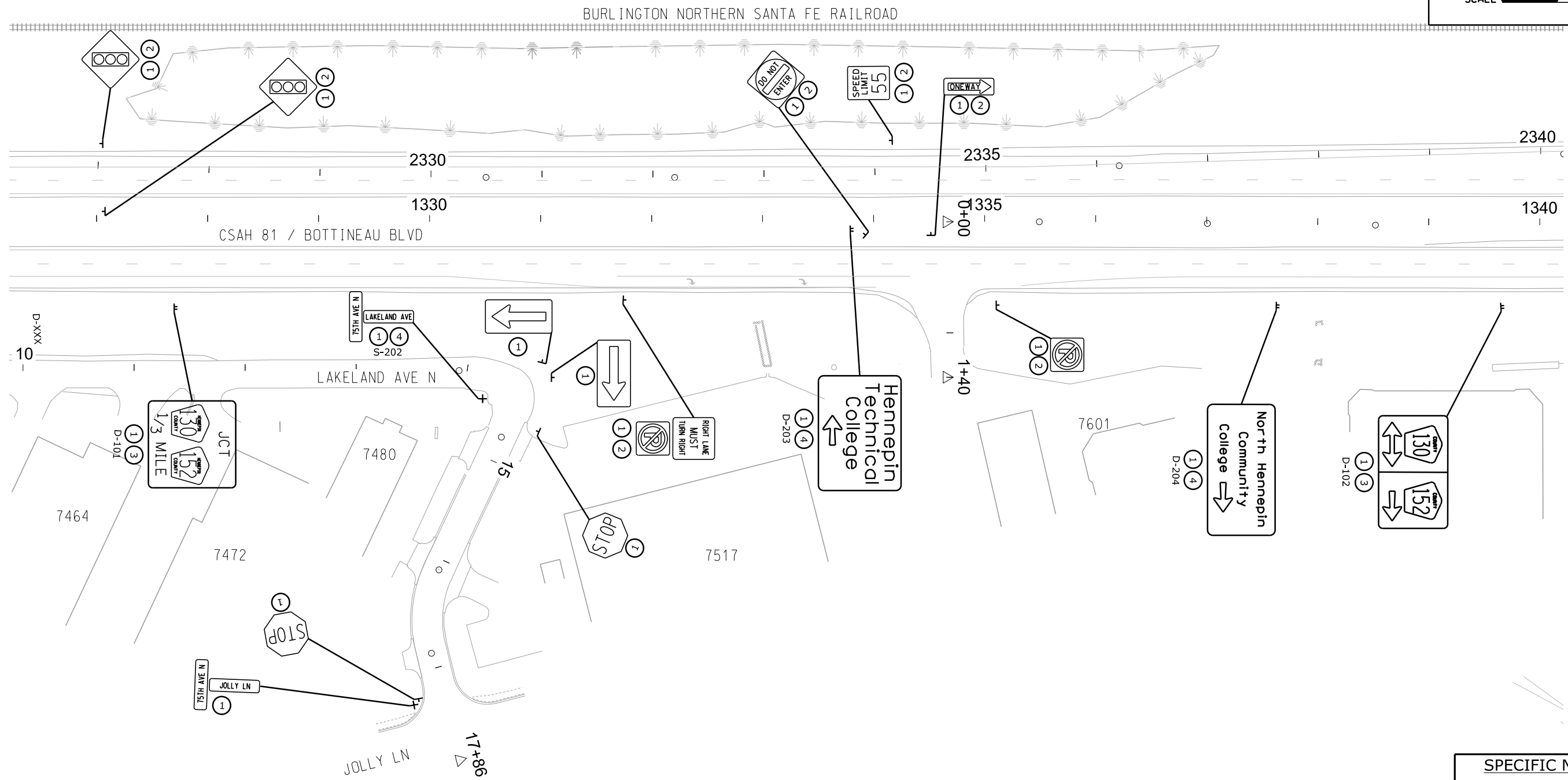
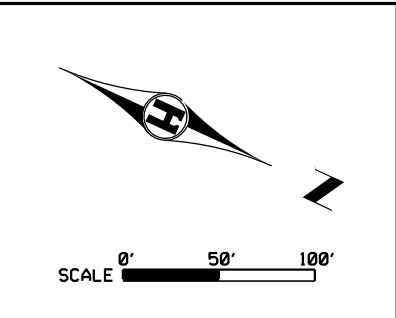
DESIGN BY: WRB
CAD BY: WRB
CHECKED BY: KEM
LAST REVISION: / /

SIGNING REMOVAL PLAN

C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
S.P. 027-681-035, S.P. 110-020-040

SHEET

ST11
ST32



- SPECIFIC NOTES**
- ① INPLACE
 - ② REMOVE SIGN TYPE C
 - ③ REMOVE SIGN TYPE D
 - ④ SALVAGE INPLACE SIGN



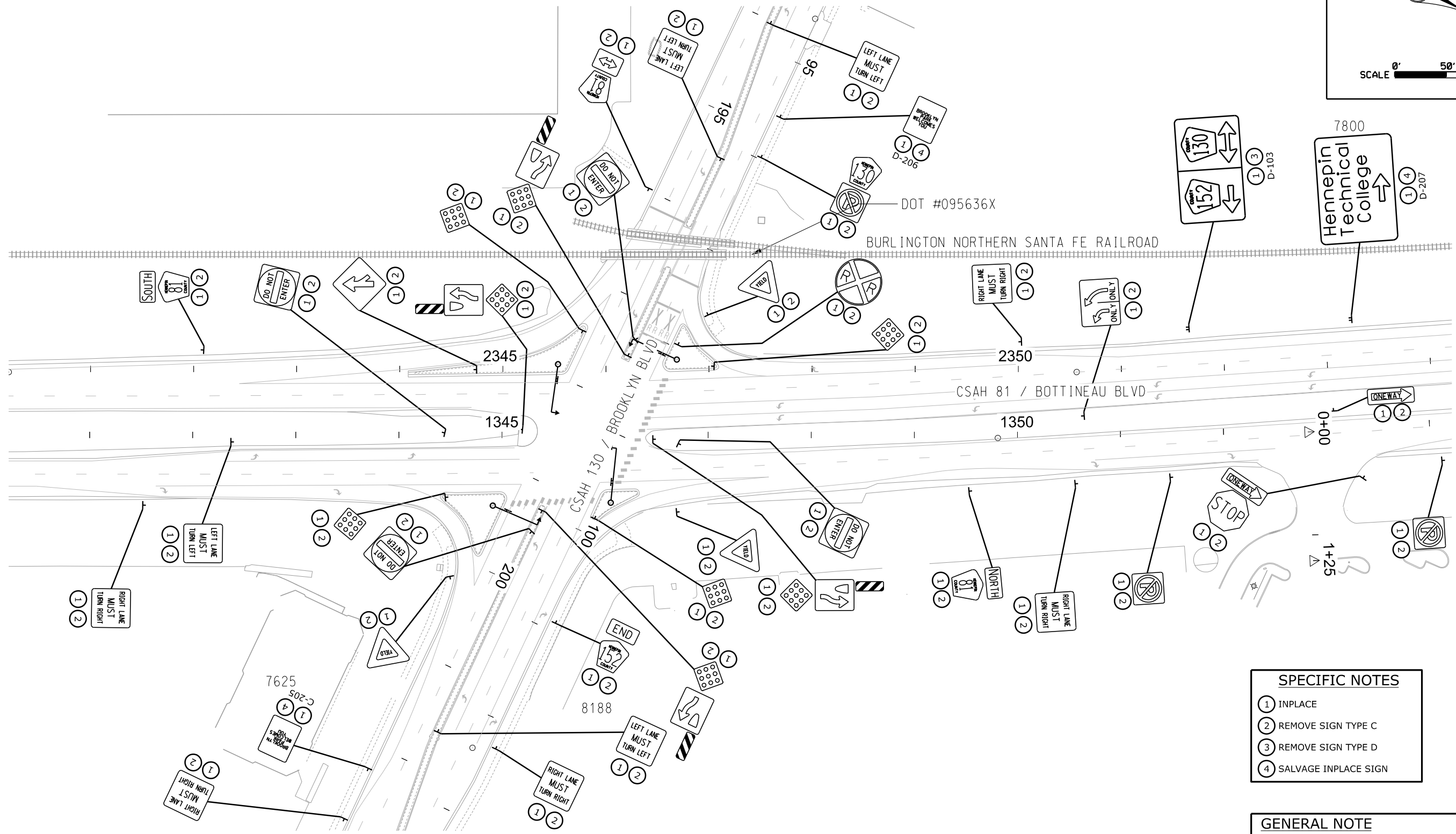
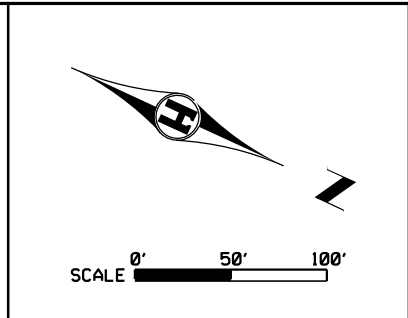
I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

Kate Miner
 KATE E. MINER, LICENSED PROFESSIONAL ENGINEER
 43801 LICENSE NO. 2/28/2019 DATE

DESIGN BY: WRB
 CAD BY: WRB
 CHECKED BY: KEM
 LAST REVISION: / /

SIGNING REMOVAL PLAN
 C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
 S.P. 027-681-035, S.P. 110-020-040

SHEET
 ST12
 ST32



- SPECIFIC NOTES**
- ① INPLACE
 - ② REMOVE SIGN TYPE C
 - ③ REMOVE SIGN TYPE D
 - ④ SALVAGE INPLACE SIGN

GENERAL NOTE

SEE TRAFFIC SIGNAL PLANS FOR MAIST ARM SIGNING. MAIST ARM SIGNING INCIDENTAL TO TRAFFIC CONTROL SIGNAL SYSTEM PAY ITEM.



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.

Kate Miner
 KATE E. MINER, LICENSED PROFESSIONAL ENGINEER

43801 2/28/2019
 LICENSE NO. DATE

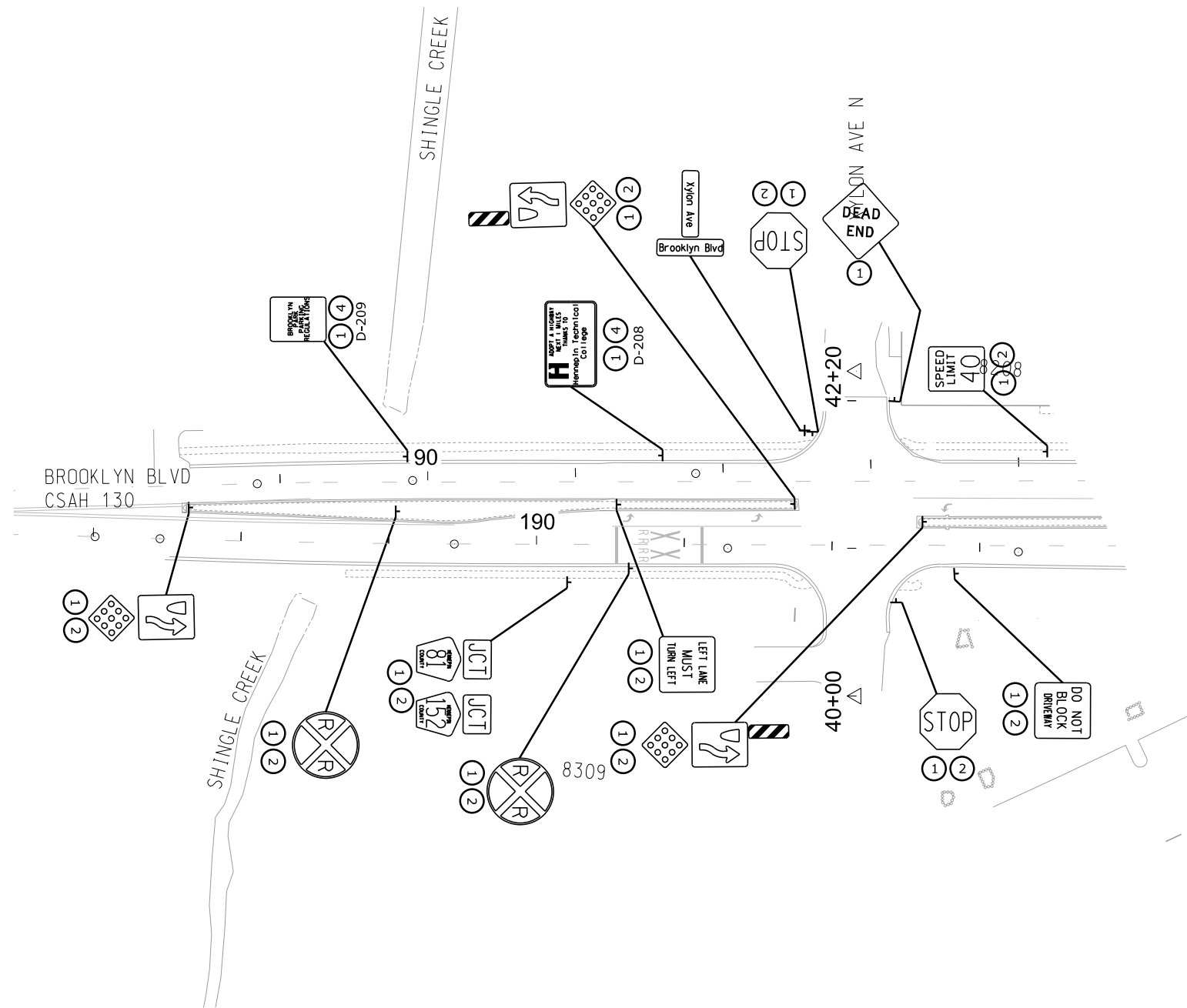
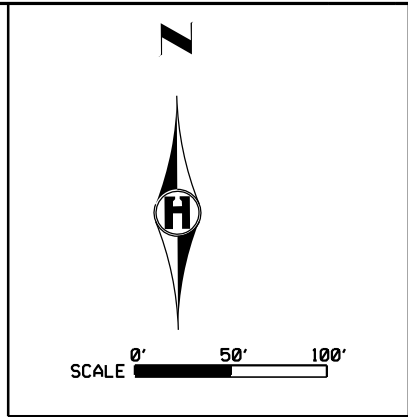
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 CHECKED BY: KEM
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SIGNING REMOVAL PLAN

C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
 S.P. 027-681-035, S.P. 110-020-040

SHEET

ST13
 ST32



- SPECIFIC NOTES**
- ① INPLACE
 - ② REMOVE SIGN TYPE C
 - ④ SALVAGE INPLACE SIGN

GENERAL NOTE

SEE TRAFFIC SIGNAL PLANS FOR MAST ARM SIGNING. MAST ARM SIGNING INCIDENTAL TO TRAFFIC CONTROL SIGNAL SYSTEM PAY ITEM.



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.

Kate Miner

KATE E. MINER, LICENSED PROFESSIONAL ENGINEER

43801

LICENSE NO.

2/28/2019

DATE

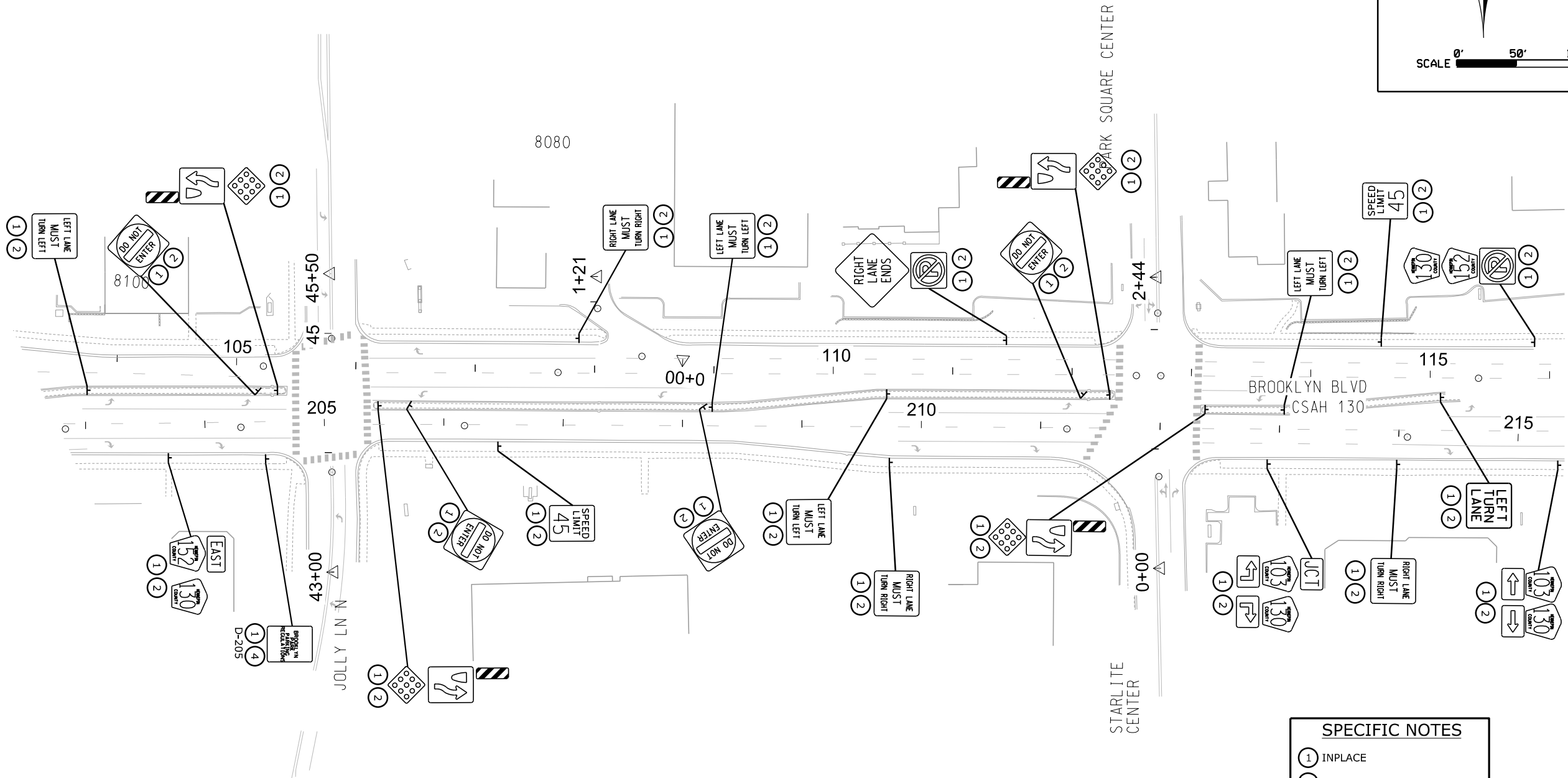
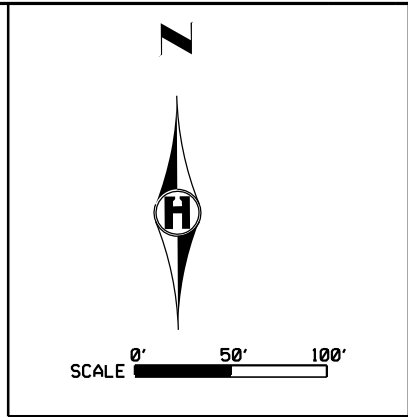
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SIGNING REMOVAL PLAN

C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
 S.P. 027-681-035, S.P. 110-020-040

SHEET

ST14
 ST32



- SPECIFIC NOTES**
- ① INPLACE
 - ② REMOVE SIGN TYPE C
 - ④ SALVAGE INPLACE SIGN

GENERAL NOTE

SEE TRAFFIC SIGNAL PLANS FOR MAST ARM SIGNING. MAST ARM SIGNING INCIDENTAL TO TRAFFIC CONTROL SIGNAL SYSTEM PAY ITEM.



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Kate Miner
 KATE E. MINER, LICENSED PROFESSIONAL ENGINEER

43801 2/28/2019
 LICENSE NO. DATE

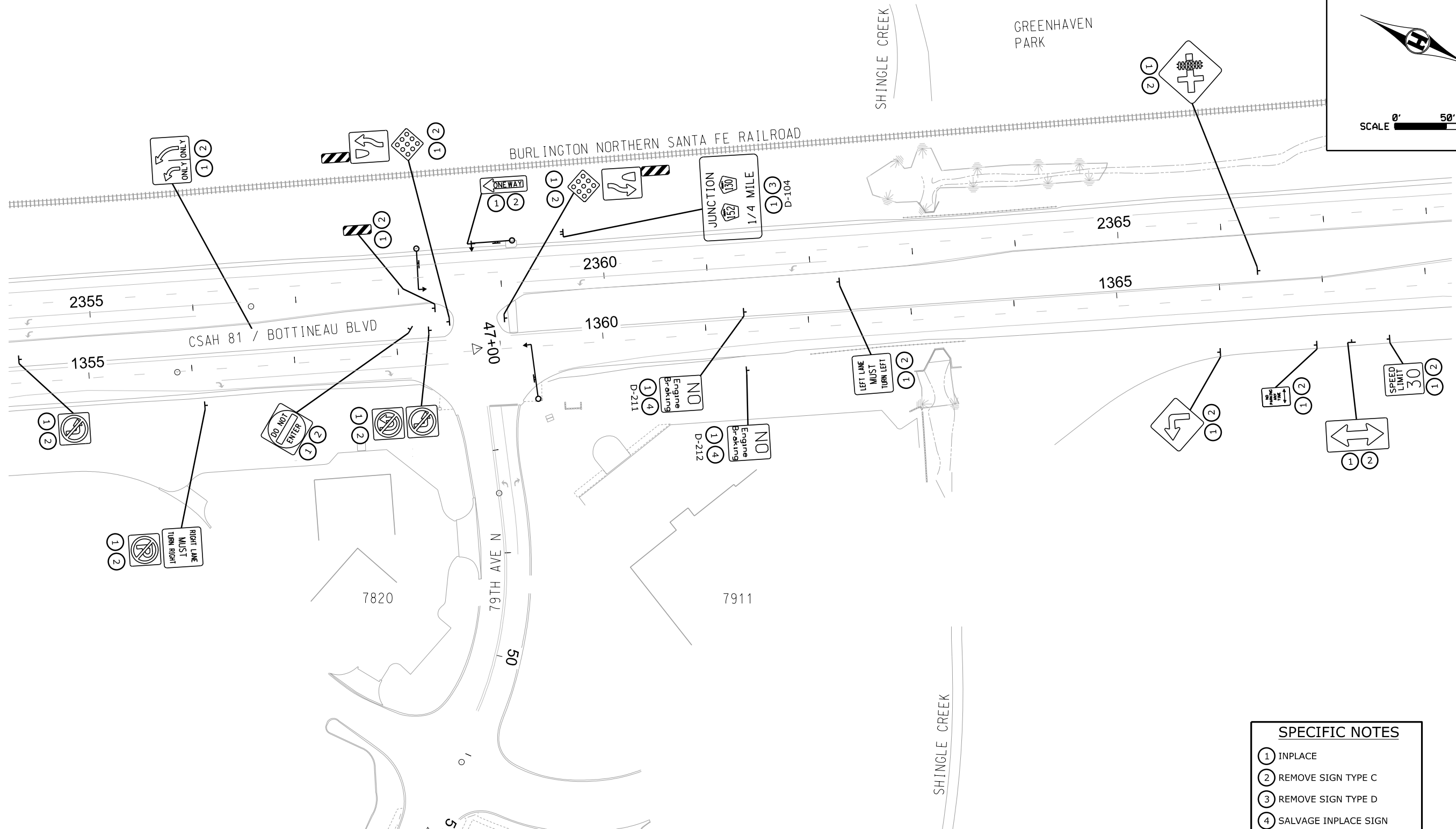
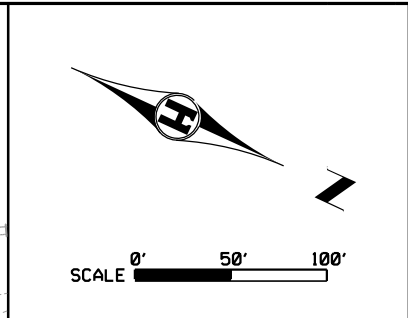
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SIGNING REMOVAL PLAN

C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
 S.P. 027-681-035, S.P. 110-020-040

SHEET

ST15
 ST32



- SPECIFIC NOTES**
- ① INPLACE
 - ② REMOVE SIGN TYPE C
 - ③ REMOVE SIGN TYPE D
 - ④ SALVAGE INPLACE SIGN

GENERAL NOTE

SEE TRAFFIC SIGNAL PLANS FOR MAST ARM SIGNING. MAST ARM SIGNING INCIDENTAL TO TRAFFIC CONTROL SIGNAL SYSTEM PAY ITEM.



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KATE E. MINER, LICENSED PROFESSIONAL ENGINEER

43801 2/28/2019
 LICENSE NO. DATE

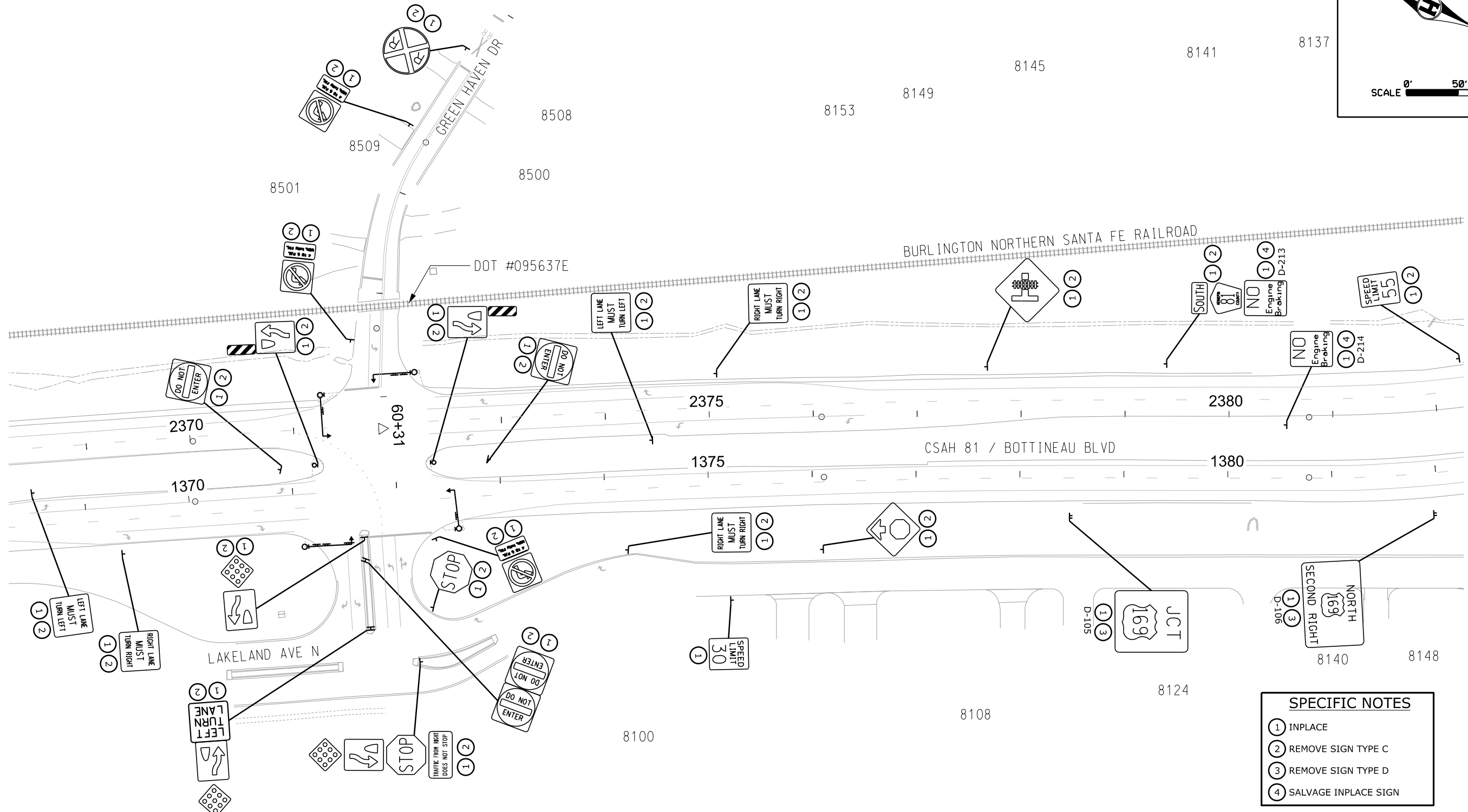
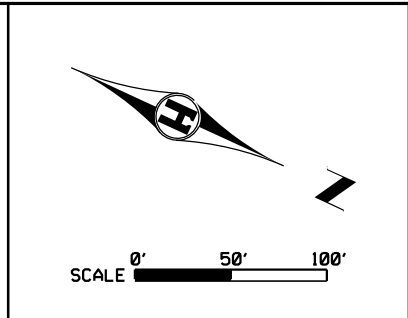
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 CHECKED BY: KEM
 LAST REVISION: / /

SIGNING REMOVAL PLAN

C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
 S.P. 027-681-035, S.P. 110-020-040

SHEET

ST16
 ST32



- SPECIFIC NOTES**
- ① INPLACE
 - ② REMOVE SIGN TYPE C
 - ③ REMOVE SIGN TYPE D
 - ④ SALVAGE INPLACE SIGN

GENERAL NOTE

SEE TRAFFIC SIGNAL PLANS FOR MAST ARM SIGNING. MAST ARM SIGNING INCIDENTAL TO TRAFFIC CONTROL SIGNAL SYSTEM PAY ITEM.



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Kate Miner
 KATE E. MINER, LICENSED PROFESSIONAL ENGINEER

43801 2/28/2019
 LICENSE NO. DATE

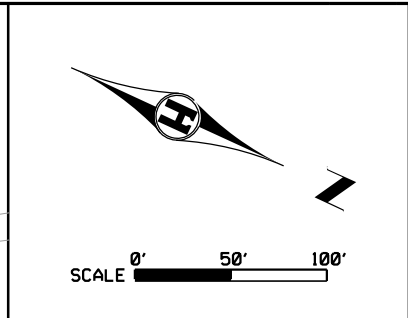
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SIGNING REMOVAL PLAN

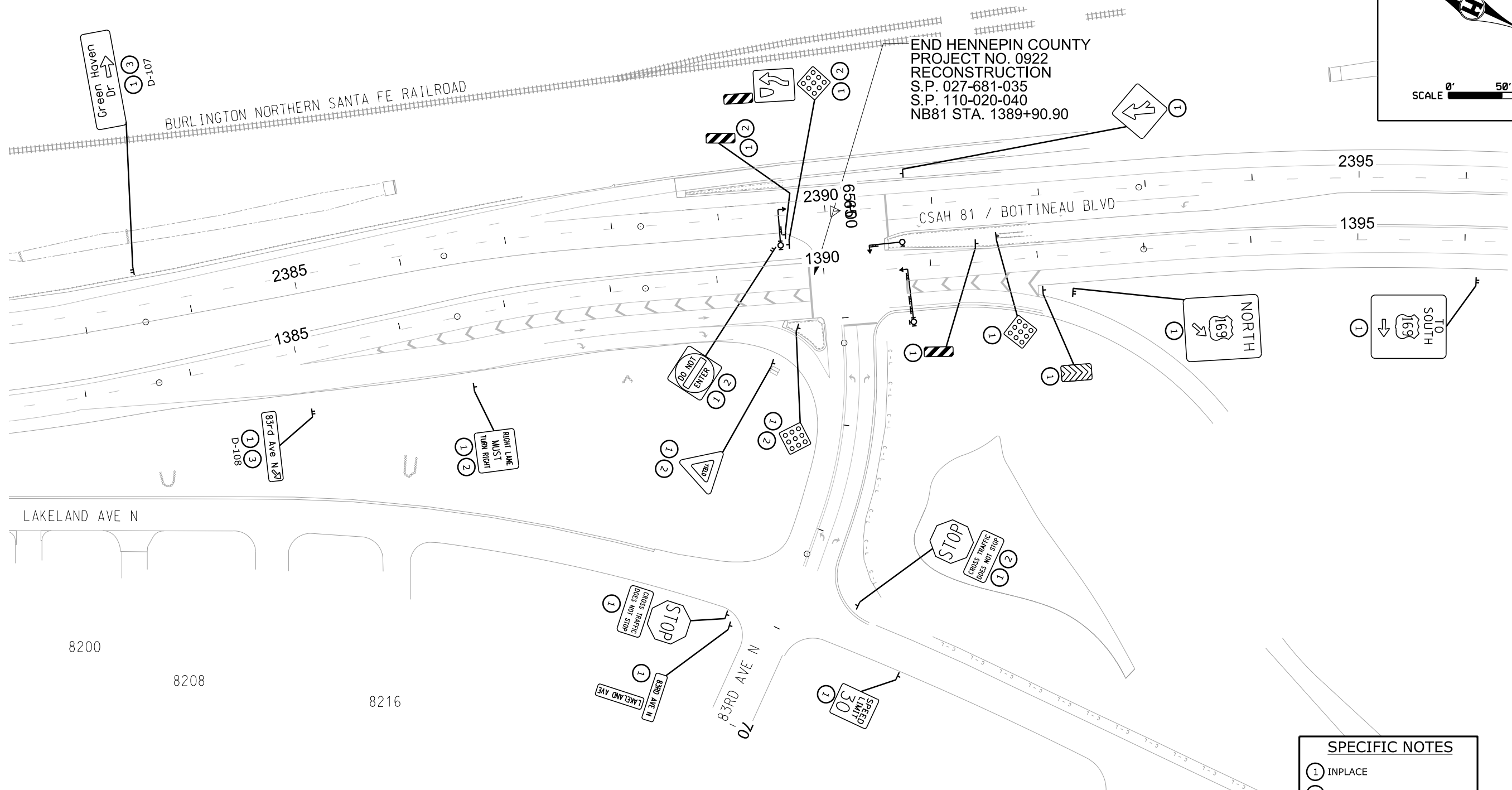
C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
 S.P. 027-681-035, S.P. 110-020-040

SHEET

ST17
 ST32



END HENNEPIN COUNTY
 PROJECT NO. 0922
 RECONSTRUCTION
 S.P. 027-681-035
 S.P. 110-020-040
 NB81 STA. 1389+90.90



- SPECIFIC NOTES**
- ① INPLACE
 - ② REMOVE SIGN TYPE C
 - ③ REMOVE SIGN TYPE D

GENERAL NOTE

SEE TRAFFIC SIGNAL PLANS FOR MAST ARM SIGNING.
 MAST ARM SIGNING INCIDENTAL TO TRAFFIC CONTROL
 SIGNAL SYSTEM PAY ITEM.



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 KATE E. MINER, LICENSED PROFESSIONAL ENGINEER

43801 2/28/2019
 LICENSE NO. DATE

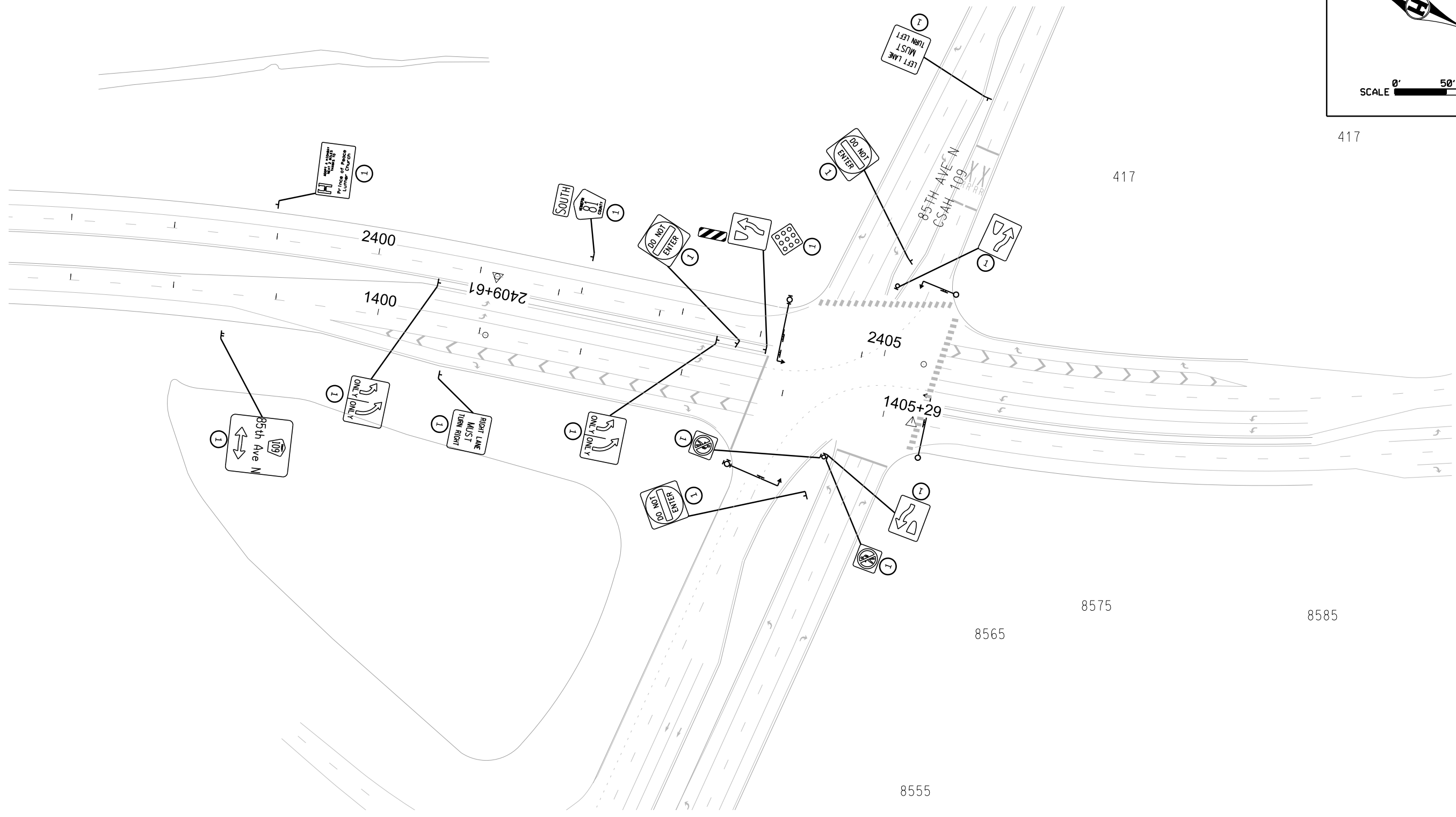
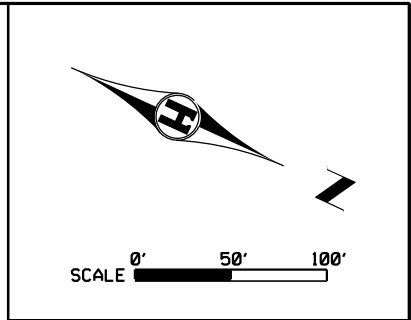
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SIGNING REMOVAL PLAN

C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
 S.P. 027-681-035, S.P. 110-020-040

SHEET

ST18
 ST32



SPECIFIC NOTES
 ① INPLACE



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.

Kate Miner
 KATE E. MINER, LICENSED PROFESSIONAL ENGINEER
 43801 LICENSE NO. 2/28/2019 DATE

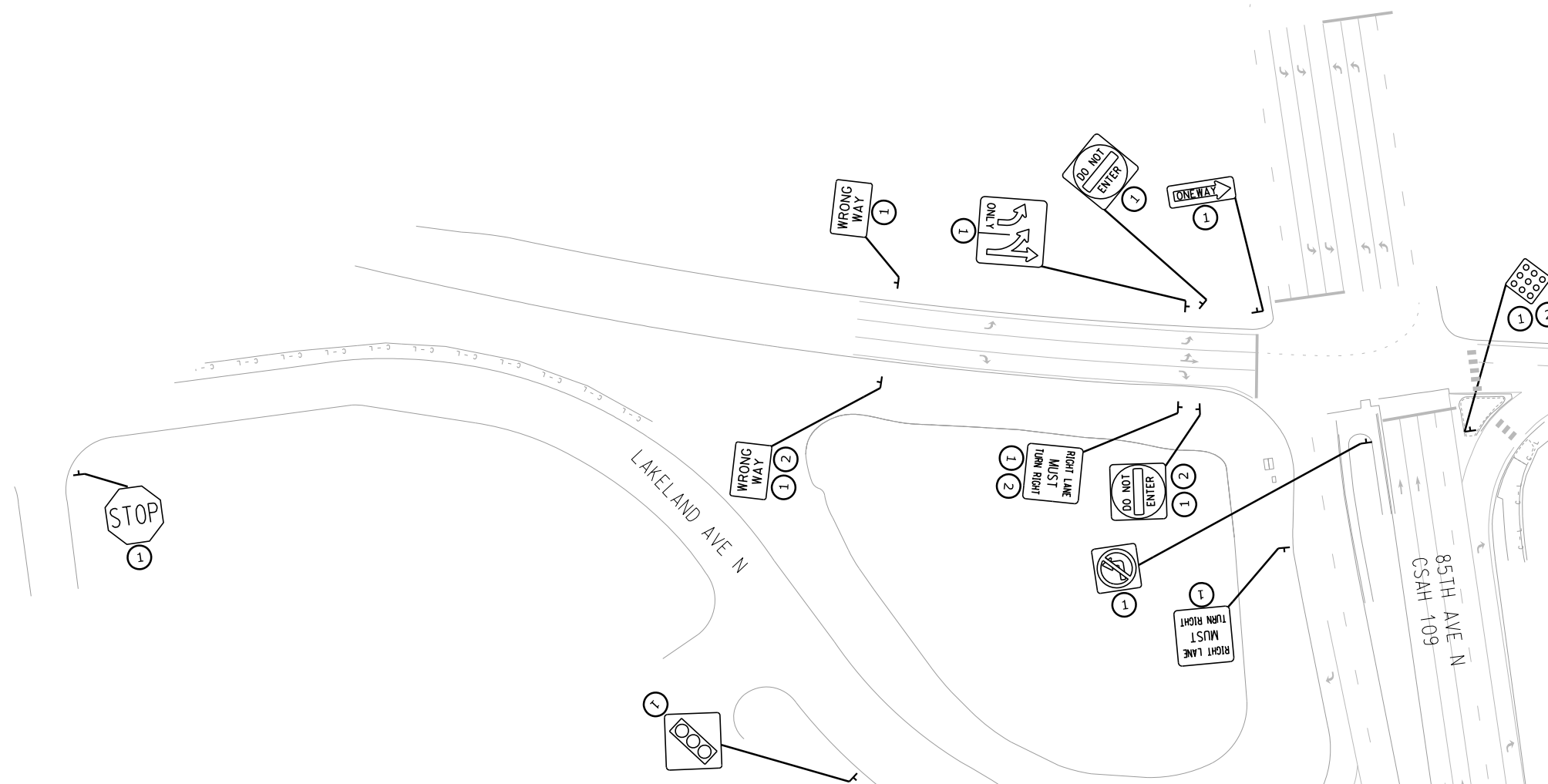
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 LAST REVISION: / /

SIGNING REMOVAL PLAN
 C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
 S.P. 027-681-035, S.P. 110-020-040

SHEET
 ST19
 ST32



SCALE 0' 50' 100'



SPECIFIC NOTES	
①	INPLACE
②	REMOVE SIGN TYPE C



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43801 2/28/2019
LICENSE NO. DATE

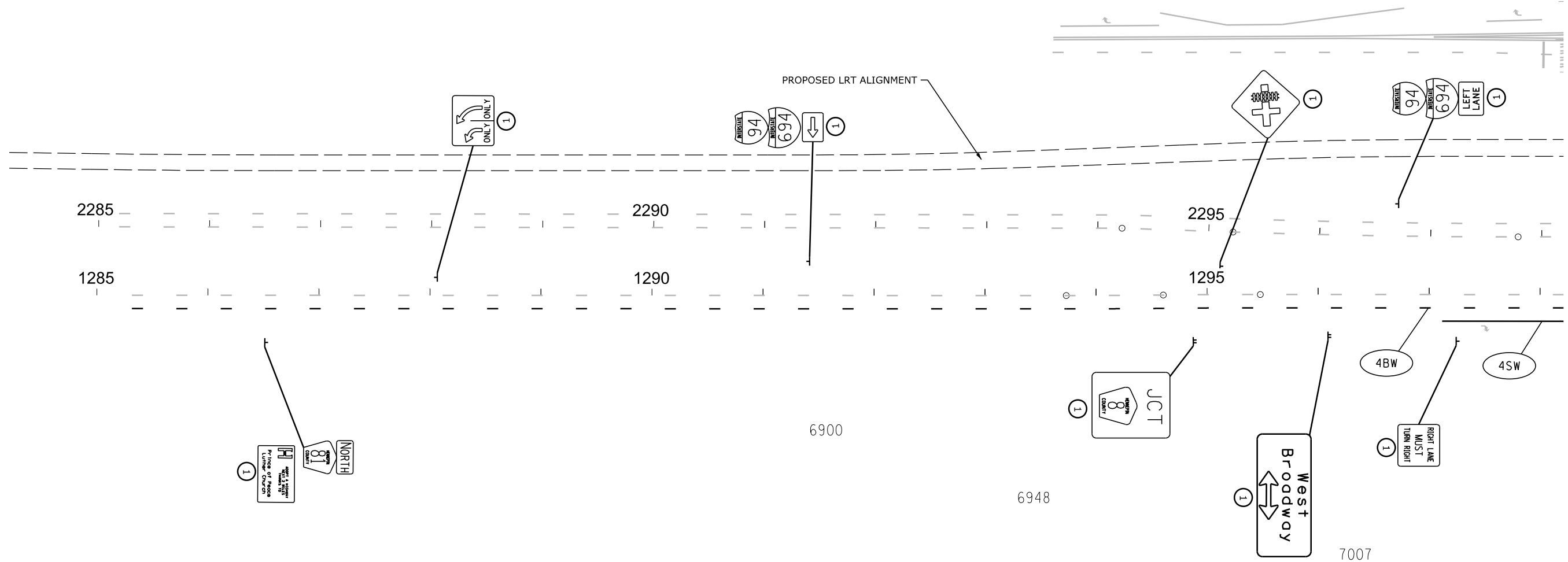
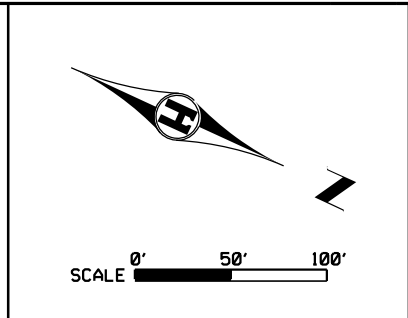
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CHECKED BY:	KEM
LAST REVISION:	/ /

SIGNING REMOVAL PLAN

C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
S.P. 027-681-035, S.P. 110-020-040

SHEET

ST20
ST32



SPECIFIC NOTES
 ① INPLACE



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KATE E. MINER, LICENSED PROFESSIONAL ENGINEER

43801

LICENSE NO.

2/28/2019

DATE

DESIGN BY:

WRB

CAD BY:

WRB

CHECKED BY:

KEM

LAST REVISION:

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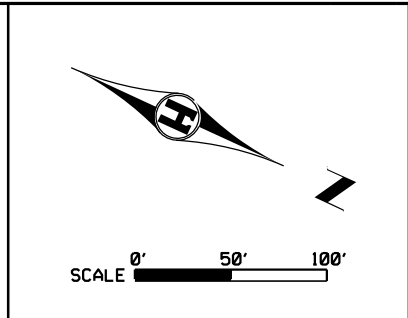
PERMANENT SIGNING AND STRIPING PLAN

C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
 S.P. 027-681-035, S.P. 110-020-040

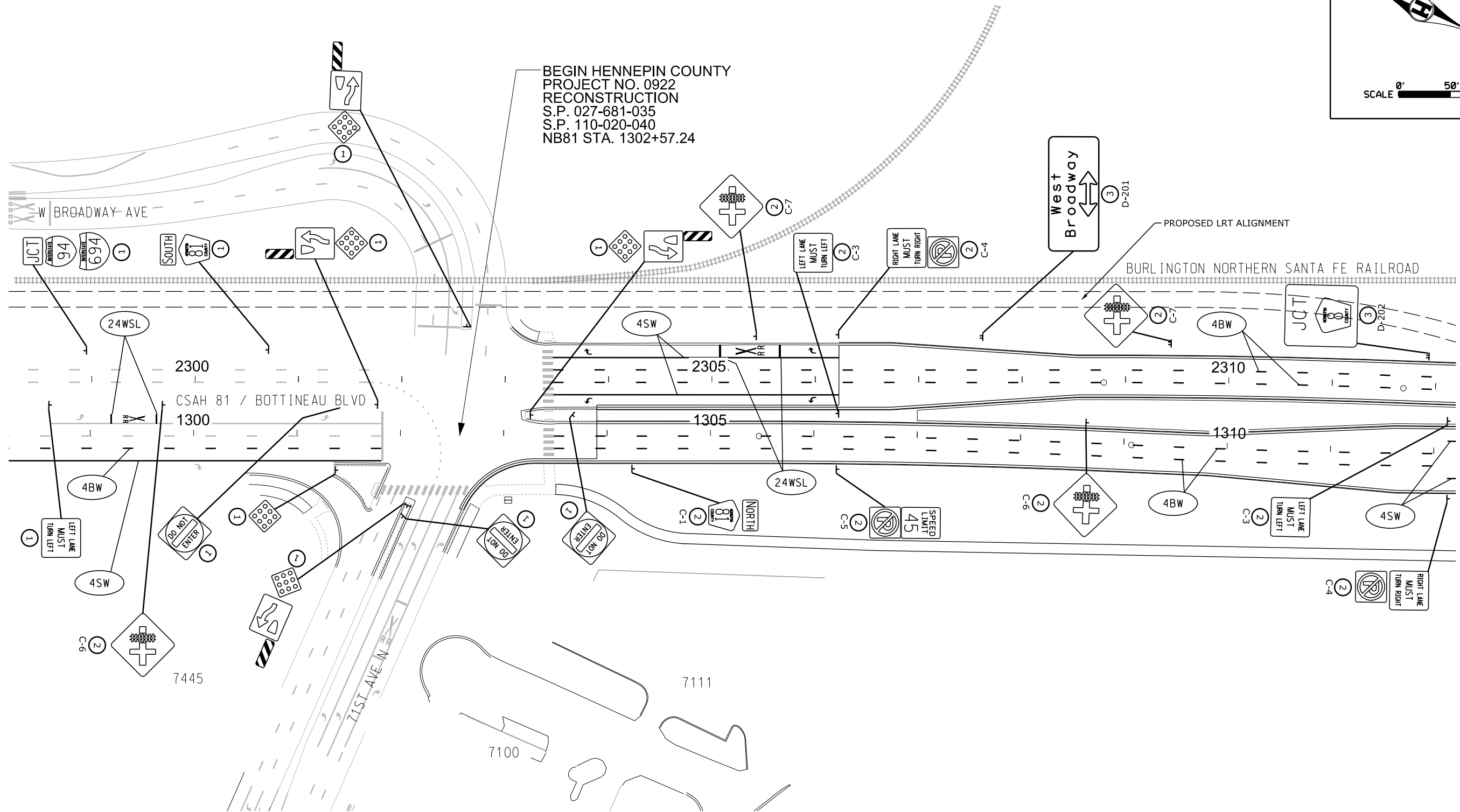
SHEET

ST21

ST32



BEGIN HENNEPIN COUNTY
 PROJECT NO. 0922
 RECONSTRUCTION
 S.P. 027-681-035
 S.P. 110-020-040
 NB81 STA. 1302+57.24



- SPECIFIC NOTES**
- ① INPLACE
 - ② FURNISH AND INSTALL
 - ③ INSTALL SALVAGED SIGN



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

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43801 2/28/2019
 LICENSE NO. DATE

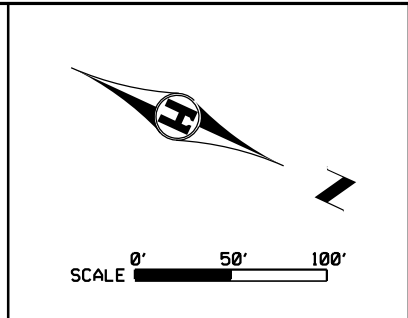
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PERMANENT SIGNING AND STRIPING PLAN

C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
 S.P. 027-681-035, S.P. 110-020-040

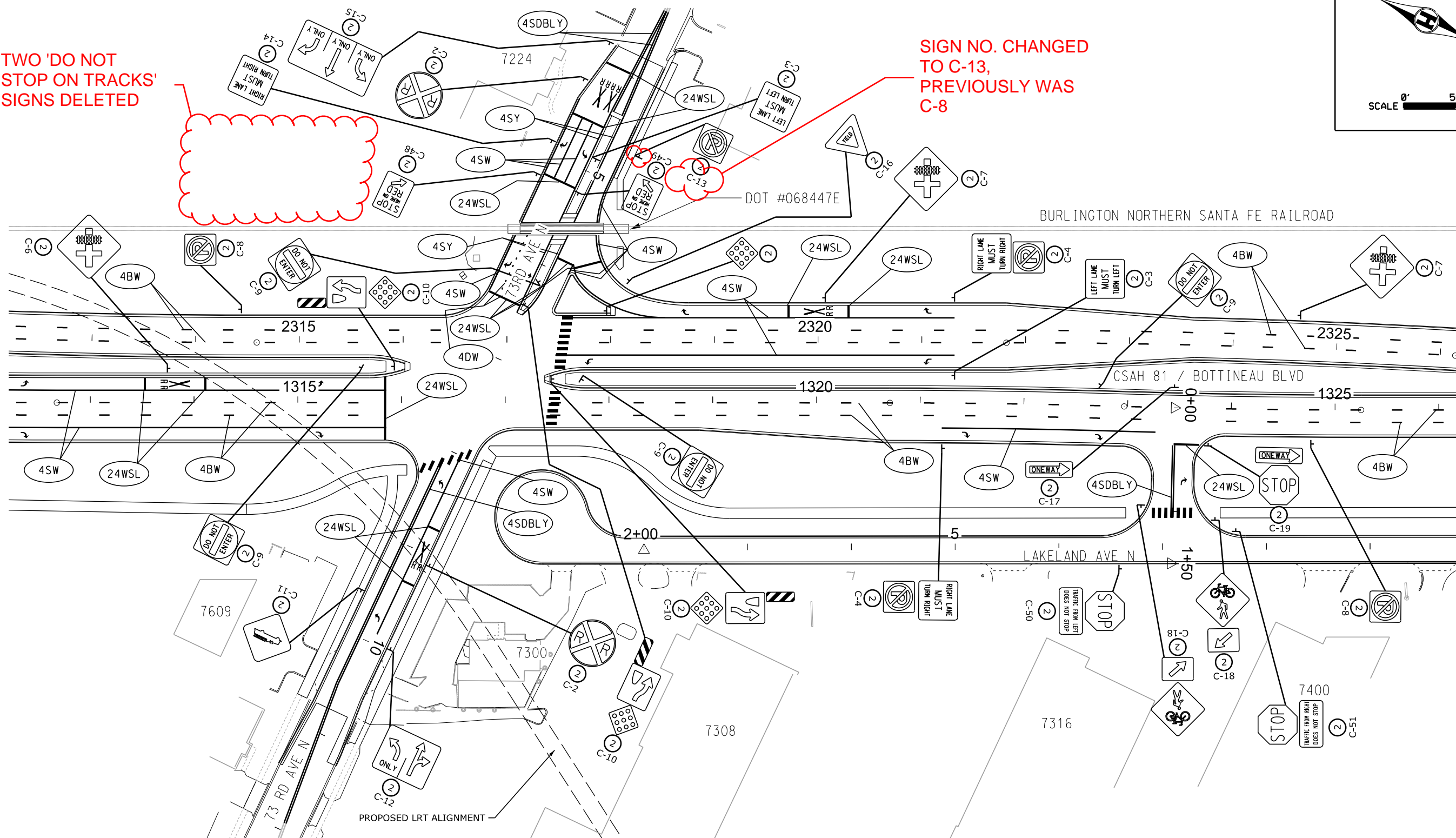
SHEET

ST22
 ST32



TWO 'DO NOT STOP ON TRACKS' SIGNS DELETED

SIGN NO. CHANGED TO C-13, PREVIOUSLY WAS C-8



SPECIFIC NOTES
 (2) FURNISH AND INSTALL



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.

Kate Miner
 KATE E. MINER, LICENSED PROFESSIONAL ENGINEER
 43801 LICENSE NO. 4/19/2019 DATE

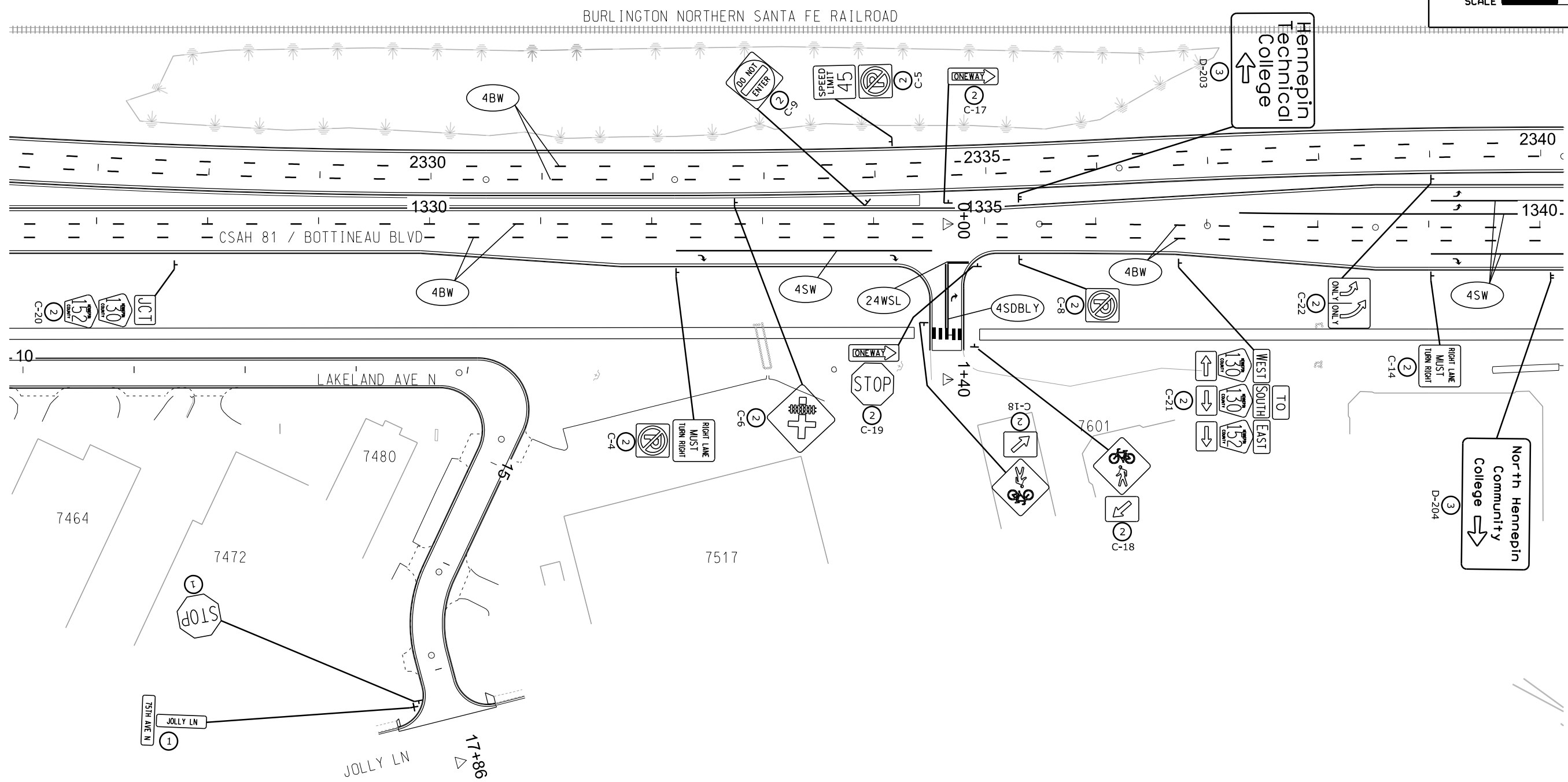
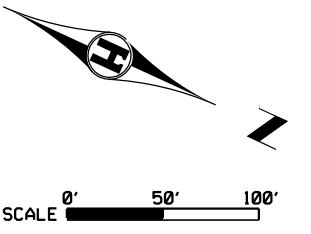
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PERMANENT SIGNING AND STRIPING PLAN

C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
 S.P. 027-681-035, S.P. 110-020-040

SHEET

ST23
 ST32



SPECIFIC NOTES	
②	FURNISH AND INSTALL
③	INSTALL SALVAGED SIGN



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43801 2/28/2019
 LICENSE NO. DATE

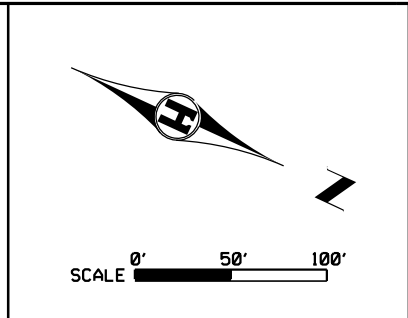
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PERMANENT SIGNING AND STRIPING PLAN

C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
 S.P. 027-681-035, S.P. 110-020-040

SHEET

ST24
 ST32



2 'DO NOT STOP ON TRACKS' SIGNS DELETED

SIGN NO. CHANGED TO C-54, PREVIOUSLY WAS C-2

STOP BAR PLACEMENT REVISED

'DO NOT STOP ON TRACKS' SIGN DELETED

SIGN NO. CHANGED TO C-55, PREVIOUSLY WAS C-14

SIGN NO. CHANGED TO C-55, PREVIOUSLY WAS C-14

SIGN NO. CHANGED TO C-54, PREVIOUSLY WAS C-2

SPECIFIC NOTES

- ② FURNISH AND INSTALL
- ③ INSTALL SALVAGED SIGN

GENERAL NOTE

SEE TRAFFIC SIGNAL PLANS FOR MAIST ARM SIGNING. MAIST ARM SIGNING INCIDENTAL TO TRAFFIC CONTROL SIGNAL SYSTEM PAY ITEM.



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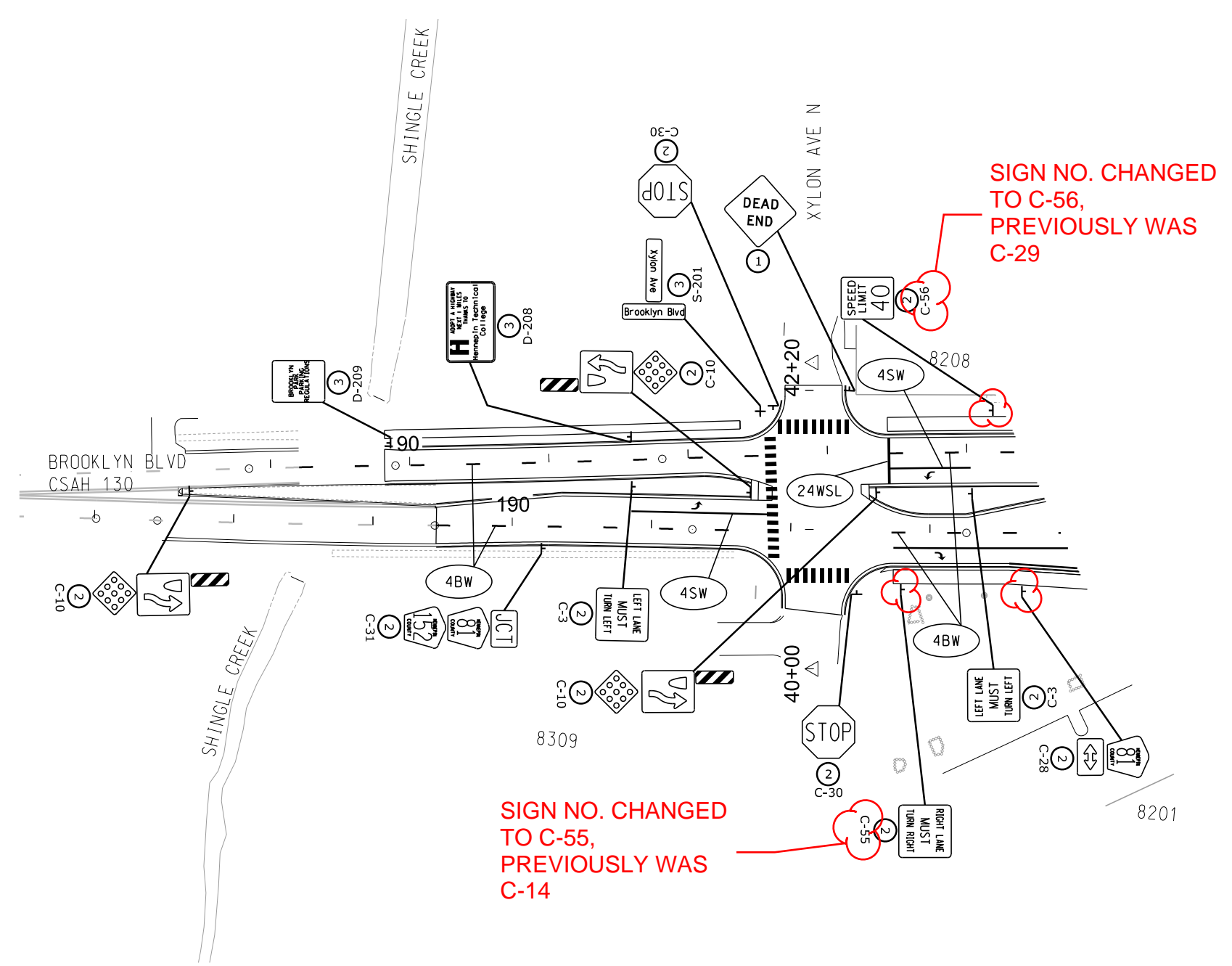
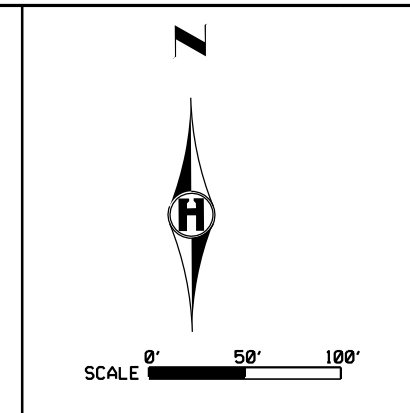
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 LAST REVISION: / /

PERMANENT SIGNING AND STRIPING PLAN

C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
 S.P. 027-681-035, S.P. 110-020-040

SHEET

ST25
 ST32



SPECIFIC NOTES	
②	FURNISH AND INSTALL
③	INSTALL SALVAGED SIGN



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43801 4/19/2019
 LICENSE NO. DATE

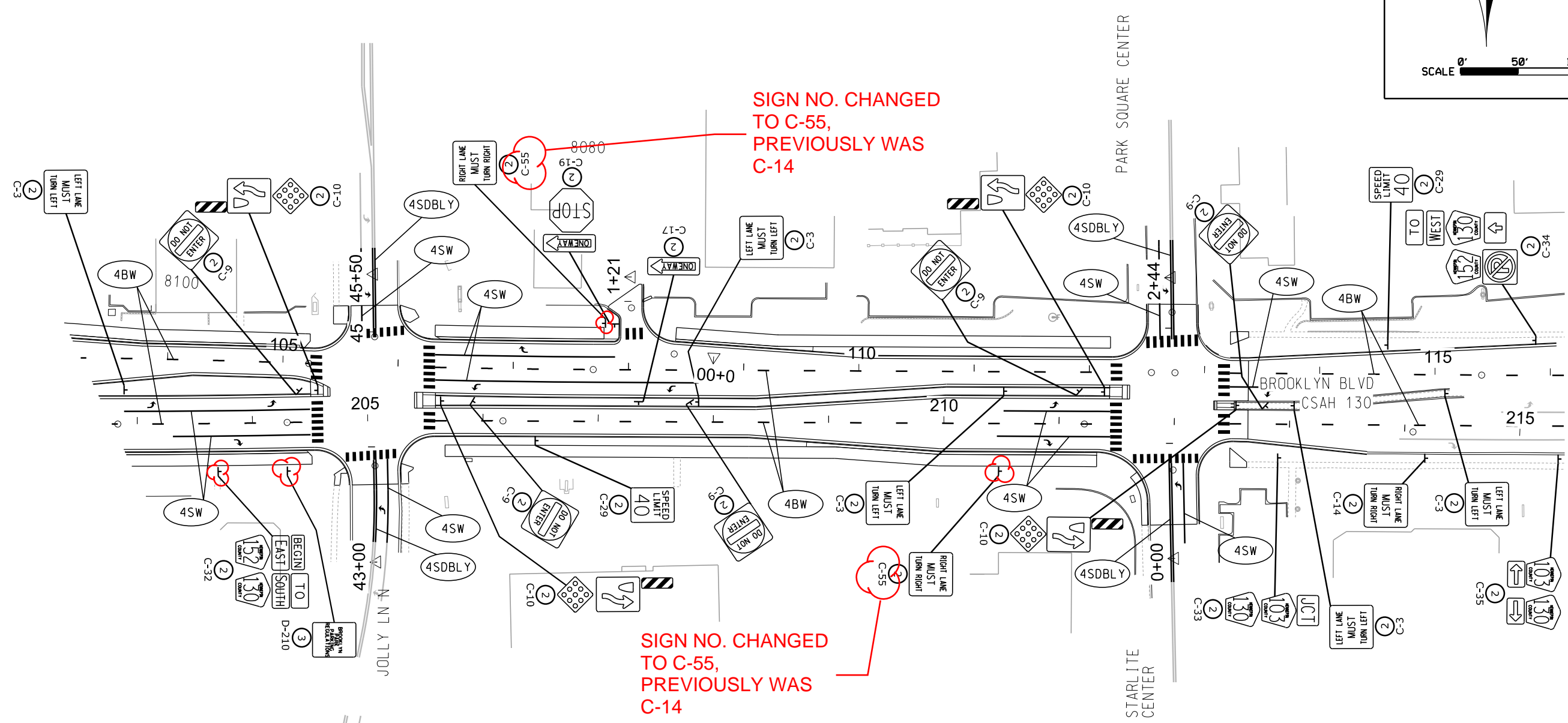
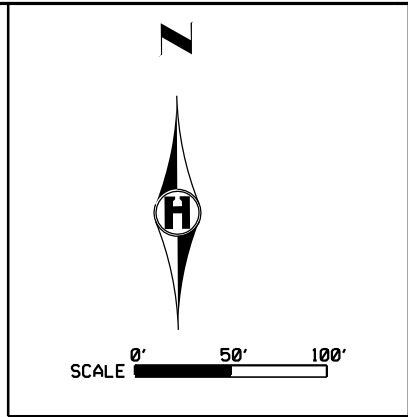
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 CAD BY: WRB
 CHECKED BY: KEM
 LAST REVISION: / /

PERMANENT SIGNING AND STRIPING PLAN

C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
 S.P. 027-681-035, S.P. 110-020-040

SHEET

ST26
 ST32



SPECIFIC NOTES	
②	FURNISH AND INSTALL
③	INSTALL SALVAGED SIGN

GENERAL NOTE
 SEE TRAFFIC SIGNAL PLANS FOR MAST ARM SIGNING.
 MAST ARM SIGNING INCIDENTAL TO TRAFFIC CONTROL
 SIGNAL SYSTEM PAY ITEM.



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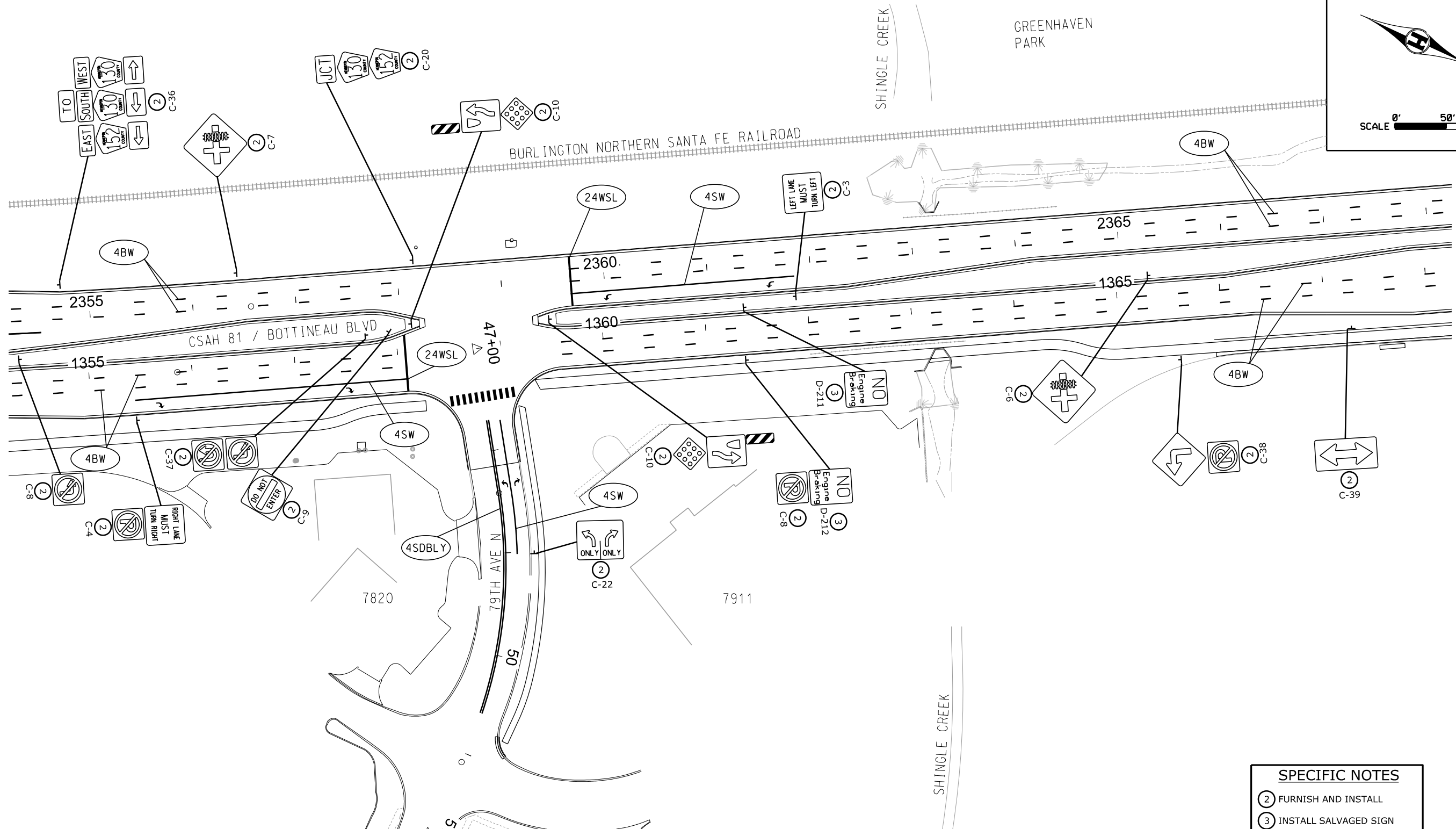
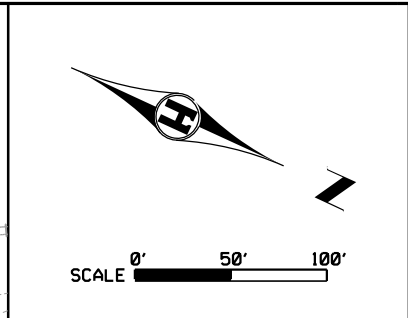
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PERMANENT SIGNING AND STRIPING PLAN

C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
 S.P. 027-681-035, S.P. 110-020-040

SHEET

ST27
 ST32



- SPECIFIC NOTES**
- ② FURNISH AND INSTALL
 - ③ INSTALL SALVAGED SIGN

GENERAL NOTE

SEE TRAFFIC SIGNAL PLANS FOR MAST ARM SIGNING. MAST ARM SIGNING INCIDENTAL TO TRAFFIC CONTROL SIGNAL SYSTEM PAY ITEM.



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43801 2/28/2019
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DESIGN BY: WRB
 CAD BY: WRB
 CHECKED BY: KEM
 LAST REVISION: / /

PERMANENT SIGNING AND STRIPING PLAN

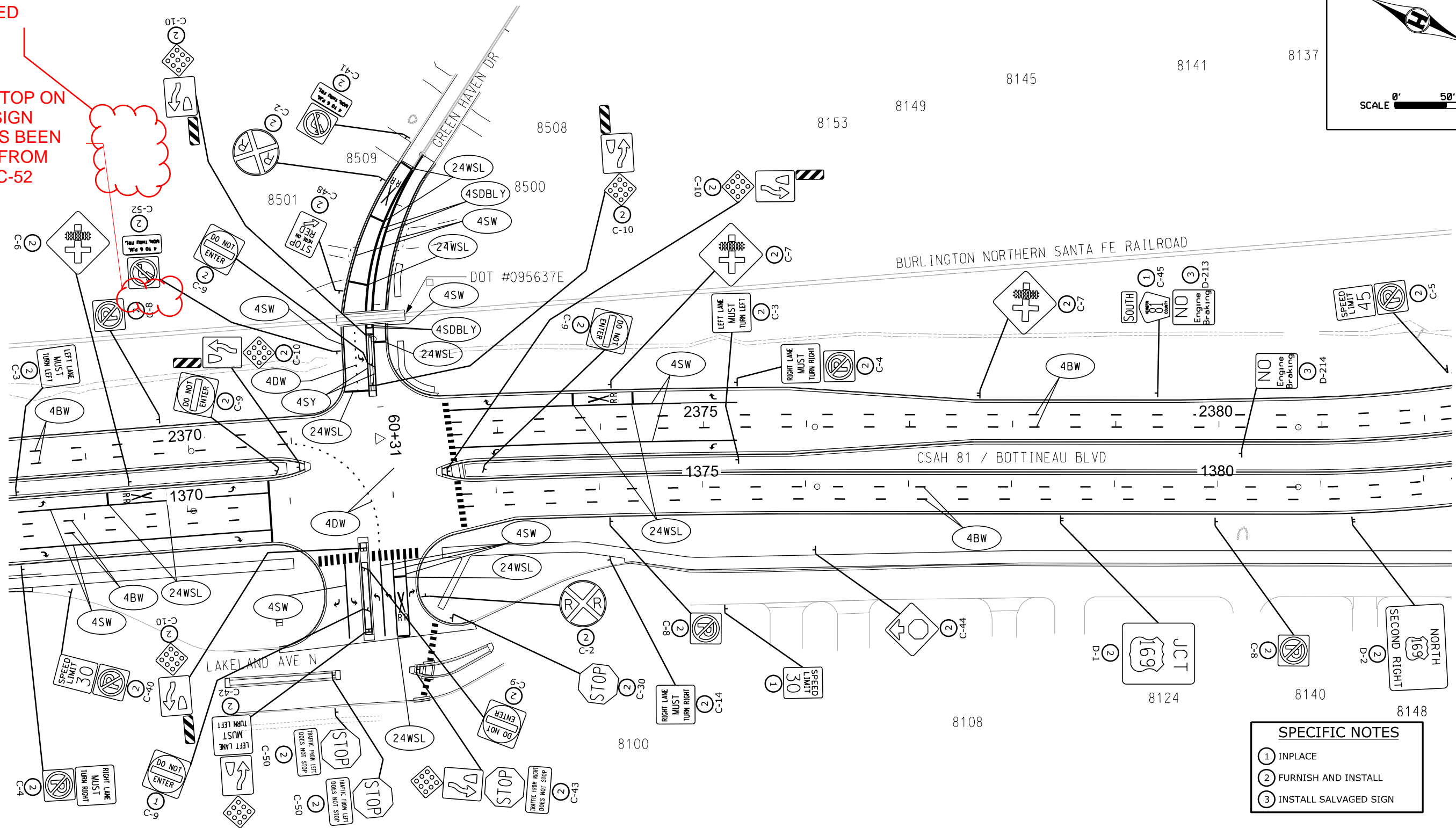
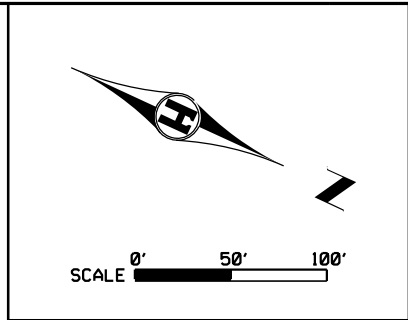
C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
 S.P. 027-681-035, S.P. 110-020-040

SHEET

ST28
 ST32

'DO NOT STOP ON TRACKS' SIGN DELETED

'DO NOT STOP ON TRACKS' SIGN PANEL HAS BEEN DELETED FROM SIGN NO. C-52



- SPECIFIC NOTES**
- ① INPLACE
 - ② FURNISH AND INSTALL
 - ③ INSTALL SALVAGED SIGN

GENERAL NOTE

SEE TRAFFIC SIGNAL PLANS FOR MAST ARM SIGNING. MAST ARM SIGNING INCIDENTAL TO TRAFFIC CONTROL SIGNAL SYSTEM PAY ITEM.



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43801 4/19/2019
 LICENSE NO. DATE

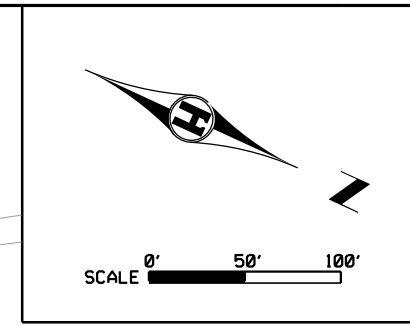
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 CHECKED BY: KEM
 LAST REVISION: / /

PERMANENT SIGNING AND STRIPING PLAN

C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
 S.P. 027-681-035, S.P. 110-020-040

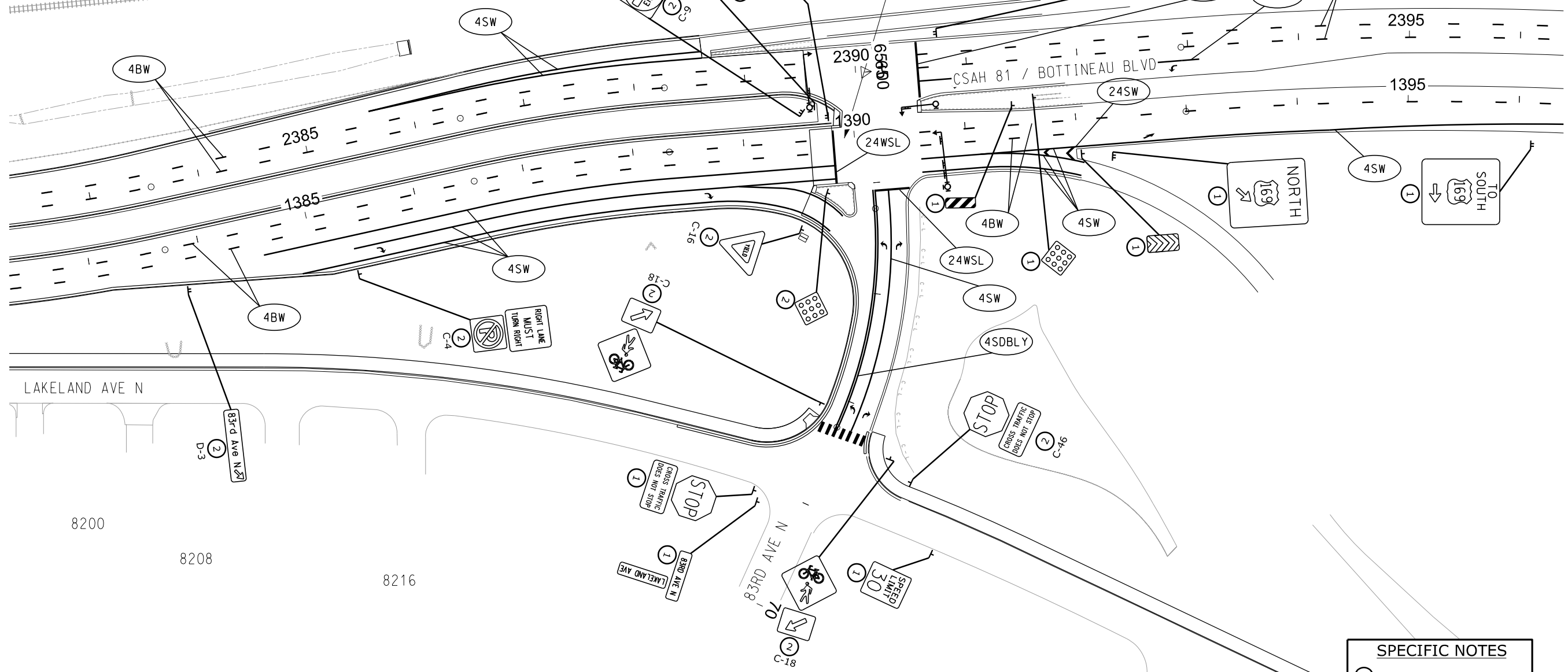
SHEET

ST29
 ST32



END HENNEPIN COUNTY
 PROJECT NO. 0922
 RECONSTRUCTION
 S.P. 027-681-035
 S.P. 110-020-040
 NB81 STA. 1389+90.90

BURLINGTON NORTHERN SANTA FE RAILROAD



SPECIFIC NOTES

- ① INPLACE
- ② FURNISH AND INSTALL

GENERAL NOTE

SEE TRAFFIC SIGNAL PLANS FOR MAST ARM SIGNING.
 MAST ARM SIGNING INCIDENTAL TO TRAFFIC CONTROL
 SIGNAL SYSTEM PAY ITEM.



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43801 2/28/2019
 LICENSE NO. DATE

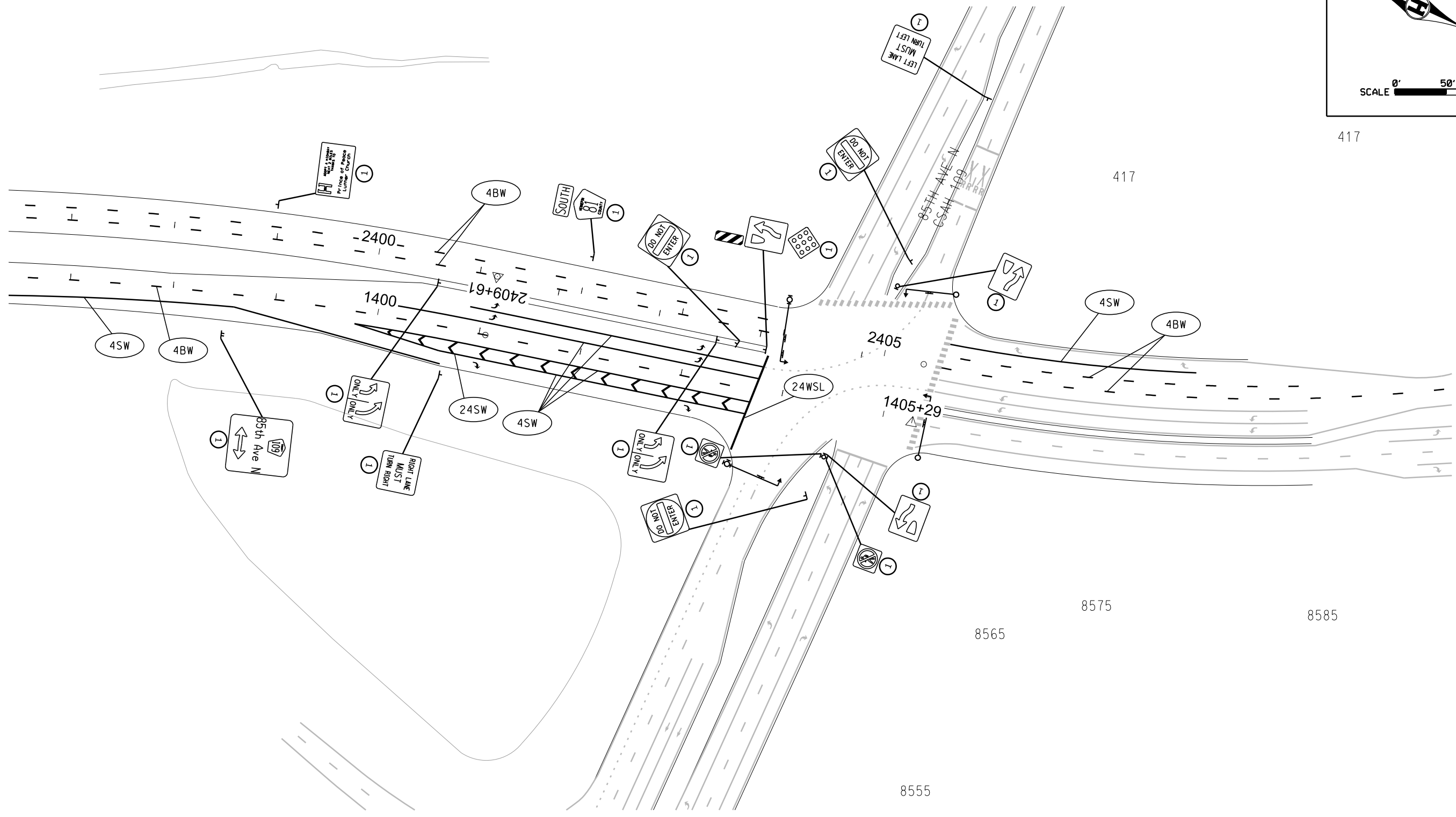
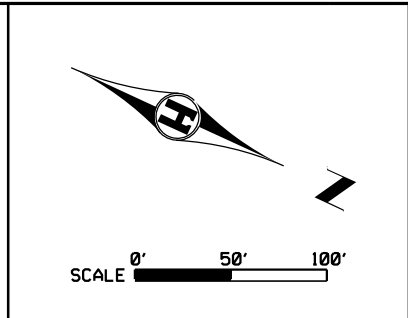
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 LAST REVISION: / /

PERMANENT SIGNING AND STRIPING PLAN

C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
 S.P. 027-681-035, S.P. 110-020-040

SHEET

ST30
 ST32



417

417

4SW

4BW

24WSL

8575

8585

8565

8555

SPECIFIC NOTES
 ① INPLACE



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

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43801 2/28/2019
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DESIGN BY: WRB
 CAD BY: WRB
 CHECKED BY: KEM
 LAST REVISION: / /

PERMANENT SIGNING AND STRIPING PLAN

C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
 S.P. 027-681-035, S.P. 110-020-040

SHEET

ST31
 ST32